siniat

# blueprint

## Lightweight Construction Manual

Version 4, April 2025

etex inspiring ways of living

### Disclaimer

Products manufactured and systems designed by Etex Australia Pty Ltd and branded Siniat, are produced in accordance with the Building Code of Australia and relevant Australian Standards. Information in this document is to be used as a guide only and is subject to project approval as many aspects of construction are not comprehensively covered. It is the responsibility of the project to determine if our products, systems and installation details are suitable for the intended application and they meet the relevant building codes and project requirements. It is also the project's responsibility to ensure third party products have the appropriate certification for use with Siniat products and systems. Etex Australia Pty Ltd will not be held responsible for any claims resulting from the installation of Siniat products or other associated products not in accordance with the requirements of the manufacturer's technical literature or relevant Australian Standards, or for situations not covered by our certification reports.

Siniat technical information is regularly updated. To ensure this document is current with the latest information, visit **siniat.com.au** or contact Siniat Customer Service Centre on **1300 724 505**

### Warranty

Siniat products are guaranteed by a 10 Year Warranty.

Visit **siniat.com.au/warranty**

**Version 4**
April 2025

# About Blueprint

Blueprint is a comprehensive technical manual for lightweight construction offering complete Siniat systems.

Blueprint allows you to confidently design project solutions, safe in the knowledge that all Siniat components are covered by our 10 year warranty and that testing and approvals have been conducted on complete Siniat systems.

With Blueprint, everything you need to know to design the best value solution for your project is all in one place; and designing with Blueprint is easy.

Incorporating new and updated complete Siniat systems, Blueprint's clear structure provides the most comprehensive and easy to use technical reference guide for commercial contractors and architects in the application of Siniat wall and ceiling systems.

Siniat Blueprint is part of the Siniat Knowhow suite of tools and technical support services. These are designed to give you full project support and enable us to be part of the solution.

### Download Siniat Documents

## New Content

This version of Blueprint includes the following updates:

- Update to Section 1 Siniat Product Range
- Update to Section 2 Building with Light-weight Construction
  - Updated information on the use of Siniat steel framing in corrosivity zones
  - Updated information on concrete screw anchor requirements
  - Updated information on seismic actions
  - Updated information on thermal performance requirements
- Update to Section 3.1 Internal Steel Framed Partitions Walls
  - Updated Acoustic Stud framing tables
  - New construction and fire penetration details
- Update to Section 3.2 Openings in Internal Steel Framed Walls
- Update to Section 3.4 Internal Wet Areas using Plasterboard
- Update to Section 3.5 Plasterboard with Masonry Walls
- Update to Section 3.6 Interhome High-Rise Wall
- Update to Section 3.7 Shaft Wall
- Update to Section 3.10 Portal Framing Construction Details
- Update to Section 4.1 External Steel Framed Walls Framing Tables
- Update to Section 4.2 Openings in External Steel Framed Walls
- Update to Section 4.3 External Timber Framed Walls Construction Details
- Update to Section 4.5 Top Hats over Wall Framing
- Added Section 4.6 Weather Defence
- Update to Section 5.1 Ceilings - New seismic ceiling details added
- Update to Section 5.3 Steel Stud Ceilings - Updated seismic ceiling details
- Update to Section 6.2 Laminated Vertical Duct
- Update to Section 6.8 Createx Perforated Plasterboard

# Contents

# About Us

## Etex

Etex is an innovative global leader in lightweight construction, improving quality of living with safe, sustainable, smart, and beautiful building solutions. Founded in 1905 in Belgium, Etex is a family-owned company with more than 13,500 employees across more than 160 sites and 45 countries.

Etex is inspired by a core set of values. A **passion for excellence** drives us, delivering the very best quality to our partners and customers. We **connect and care** about those around us, nurturing teamwork, new ways of working, and placing the highest importance on safety. We combine these and **pioneer to lead** in our ever-changing sector, harnessing the power of sustainable construction.


With our commercial brands we make a positive human impact; motivated by changing people's lives, improving the future of our planet and over-delivering for our customers. In Australia and New Zealand Etex is represented by the commercial brands Equitone, Innova, Promat and Siniat.

## Siniat

Siniat is one of the Etex Group's flagship commercial brands, and one of the leading global manufacturers of interior and exterior materials for drywall construction.

Etex started its own drywall initiative in 1957, but in terms of plasterboard production the true breakthrough came in 2011, when Etex acquired Lafarge plasterboard activities in Europe, Latin America, and Africa and rebranded them Siniat.

The Lafarge acquisition added more than a hundred years of plasterboard technology and know-how, superb innovation capacity and state-of-the art manufacturing power.

## Siniat in Australia

In 2021 Knauf Australia was purchased by Etex. The brand name of all plasterboard and metal framing products and services was changed to Siniat.

In 2024 Etex also acquired the BGC plasterboard and fibre cement businesses.

In Australia, Etex now has Siniat manufacturing facilities located in Sydney (Matraville), Melbourne (Altona), Bundaberg, Perth (Hazelmere) and Brisbane (Beenleigh). Siniat supplies steel framing, plasterboard, compounds, cornice and associated products and systems to the Australian building industry through its national distribution network.

Siniat's comprehensive range of quality wall and ceiling lining products are developed with specific characteristics to enhance performance. Our systems provide fire, water and impact resistance, and acoustic and decorative solutions to commercial and residential projects.

Our innovative systems are designed to provide 'smart' technology solutions for all projects, backed by an engineering service and access to sophisticated design and specification tools. Siniat provides end-to-end project support, working collaboratively with partners throughout the construction process to find the right solution.

The Siniat team is committed to providing excellent technical service and sales support to continually improve the quality of current products and systems, and to identify innovative new solutions for its products and systems.

Siniat products and systems comply with the relevant Australian codes and standards and are independently tested for quality performance.

Siniat offers full wall and ceiling solutions to the Australian market, which means we can offer our customers trusted solutions from one manufacturer. When Siniat systems are installed according to our recommendations, they are covered by the comprehensive Siniat Warranty.

A large range of our products is also GreenTag certified and available under the Opt2Act® Carbon Neutral Opt-in Program.

## Sustainability

The Siniat Opt2Act® Carbon Neutral Opt-in Program is a simple and cost-effective way to reduce the upfront carbon emissions of a build by up to 7%. Customers who choose to opt-in can receive a wide range of plasterboard and metal products carbon neutral, certified by Climate Active.

Siniat has also published EPDs for its plasterboard and metal products, and a wide range of plasterboard products have been certified GreenRate Level A under the GreenTag scheme.

The Siniat sustainability strategy is backed by Etex, who has laid a solid foundation to become a sustainable leader.

The Etex Road to Sustainability 2030 sets clear ambitions across these five priority areas: Health, safety and well-being; Customer engagement; Diversity, equity and inclusion; Decarbonisation and Circularity.

## Certification

Siniat's Altona, Matraville, Beenleigh and Bundaberg manufacturing and distribution facilities have been certified to ISO 9001 for quality management systems, ISO 14001 certification for environmental management systems and ISO 45001 certification for health & safety management systems. The Hazelmere plant is ISO 9001 certified.

Quality ISO 9001 SAI GLOBAL

Environment ISO 14001 SAI GLOBAL

OHS ISO 45001 SAI GLOBAL

## Warranty

For the ultimate peace of mind, we also offer a unique Siniat Warranty on all our products and systems. We not only guarantee our products for a period of ten years, but extend this warranty to the entire system when Siniat products are installed as a complete system in accordance with our recommendations.

## Our Customers

Regardless of the project – Siniat is a true partner for its customers. Whether it's our know-how, our products, our system solutions, our comprehensive consulting services, or our support – everything serves only one purpose: the customer faces a challenge, we find the solutions and we build better, together.

## Our People

Employees are encouraged to bring out the best in each other by always caring for each other's safety and well-being. We foster a pioneering spirit and a passion to always do better for our customers and believe that no matter the role, there are no limits to learning.

At Etex our commitment to safety is our highest priority, and nothing is more important than all teammates and customers going home safe – every day.

# 1 Siniat Product Range

# Product Properties

Fire Resistant

Water Resistant

Sound Resistant

Sound Absorbing

Impact Resistant

Interior Design

Air Purifying

Mould Resistant

Vapour Permeable

Weathertight

Mesh

X-Ray Resistant

Certified by Global GreenTag to GreenRate Level A

## Plasterboard

| Name | Thickness (mm) | Width (mm) | Length (mm) | | | | | | | Weight (kg/m²) | Properties |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2400 | 2700 | 3000 | 3600 | 4200 | 4800 | 6000 | | |
| **masta**shield | 10 | 1200 | • | ◆ | • | • | ◆ | ◆ | • + | 5.9 | |
| | | 1275 | | | | | | | ◆ | | |
| | | 1350 | ◆ | ◆ | ◆ + | • + | ◆ | ◆ | • + | | |
| | 13 | 1200 | ◆ | • | • | • | | ◆ | ◆ | 8.2 | |
| | | 1350 | | | • + | • + | | ◆ | ◆ | | |
| | | 1370 | | | + | + | | | | | |
| | | 1400 | | | + | ◆ + | | | | | |
| **span**shield | 10 | 900 | | | | ◆ | | ◆ | ◆ | 6.2 | |
| | | 1200 | ◆ | ◆ | ◆ | • | • | ◆ | • | | |
| | | 1350 | ◆ | | ◆ | ◆ | ◆ | ◆ | ◆ | | |
| **water**shield | 10 | 1200 | ◆ | ◆ | • | ◆ | ◆ | | ◆ | 7.5 | |
| | | 1350 | | | ◆ | ◆ | | • | ◆ | | |
| | 13 | 1200 | | ◆ | • | ◆ | | | | 9.6 | |
| | | 1350 | | | ◆ | | | | | | |
| **sound**shield | 10 | 1200 | | | | ◆ | | | ◆ | 8.4 | |
| | | 1350 | | | | ◆ | | | ◆ | | |
| | 13 | 1200 | | | ◆ | | | | | 12.3 | |
| **opal** | 10 | 1200 | | | | | | ◆ | ◆ | 8.4 | |
| | | 1350 | | | | | ◆ | ◆ | ◆ | | |
| **curve**shield | 6.5 | 1200 | | | | ◆ | | | | 4.6 | |
| **fire**shield | 13 | 1200 | | • | ◆ | • | | | | 10.5* | |
| | | 1350 | | | ◆ | ◆ | | | | | |
| | 16 | 1200 | ◆ | ◆ | ◆ | • | | | | 13.0* | |
| | | 1350 | | | ◆ | ◆ | | | | | |
| **multi**shield | 13 | 1200 | | | ◆ | ◆ | | | | 10.7* | |
| | | 1350 | | | ◆ | | | | | | |
| | 16 | 1200 | | | ◆ | ◆ | | | | 13.0* | |
| | | 1350 | | | ◆ | ◆ | | | | | |
| **impact**shield | 13 | 1200 | | | ◆ | ◆ | | | | 11.8* | |
| **tru**rock | 13 | 1200 | | | ◆ | ◆ | | | | 12.3* | |
| | | 1350 | | | | | ◆ | | | | |
| | 16 | 1200 | | | ◆ | | | | | 14.8* | |
| **tru**rock hd | 13 | 1200 | | | ◆ | ◆ | | | | 12.3 | |
| **shaft**liner | 25 | 600 | | | ◆ | ◆ | | | | 21.3 | |
| **inter**shield | 25 | 600 | | | ◆ | ◆ | | | | 21.3 | |
| **weather** defence™ | 13 | 1200 | • | | | | | | | 11.7 | |
| GIB **X-Block**® | 13 | 1200 | | | • | | | | | 17.3 | |

• Stock item - except WA ◆ Stock item in some locations only - except WA + Available in SE/RE in some locations only *Except WA
Other sizes and edge types available, minimum order quantity and lead times apply.
Weights indicated are nominal averages across plants. Check website for the most up to date information as table is subject to occasional changes.

## Perforated Plasterboard

| Name | Pattern | Thickness (mm) | Size (mm) | Edge Type | Weight (kg/m²) | Absorption* | | Properties |
|---|---|---|---|---|---|---|---|---|
| | | | | | | αw | NRC | |
| Createx | Round R8/18 | 12.5 | 1200 x 1988 | V-edge | 10.0 | up to 0.7 | up to 0.85 | |
| | Round R12/25 | | 1200 x 2000 | V-edge | 10.0 | up to 0.8 | up to 0.85 | |
| | Cube C12/25 | | 1200 x 2000 | V-edge | 10.0 | up to 0.9 | up to 0.9 | |
| | Dynamic D8-12 | | 1200 x 2000 | V-edge | 10.0 | up to 0.7 | up to 0.8 | |
| | Space S8-15-20 | | 1200 x 1950 | V-edge | 10.0 | up to 0.6 | up to 0.65 | |
| Creason | Round R12/25 No.8 | 12.5 | 1200 x 2400 | 2 x Recessed | 10.0 | up to 0.55 | up to 0.6 | |
| | Cube C12/25 No.8 | | 1200 x 2400 | 2 x Recessed | 10.0 | up to 0.75 | up to 0.8 | |

• Stock item - all states • Non-stock item - minimum order quantity and lead times apply.
Weight indicated are nominal. Check website for the most up to date information.
* Acoustic absorption dependent on cavity depth and insulation.

Fire Resistant | Water Resistant | Sound Resistant | Sound Absorbing | Impact Resistant
Interior Design | Air Purifying | Mould Resistant | Vapour Permeable | Weathertight
Mesh | X-Ray Resistant | Certified by Global GreenTag to greenRate Level A

## Jointing Compounds and Specialty Plasters

| Name | Size | Type | Application | | | Wet Areas Under Tiles | Fire Rated Systems |
|---|---|---|---|---|---|---|---|
| | | | Bedding | Second | Finish | | |
| **Bedding Cements** | | | | | | | |
| masta**base** | 10 kg bag<br>20 kg bag | Powder | ✓ | ✓ | ✗ | ✓ | ✓ |
| masta**longset** | 20 kg bag | Powder | ✓ | ✓ | ✗ | ✓ | ✓ |
| **Finishing Compounds** | | | | | | | |
| masta**glide** | 20 kg bucket | Premixed | ✗ | ✗ | ✓ | ✗ | ✓ |
| **All Purpose Compounds** | | | | | | | |
| masta**lite** | 17 kg bucket | Premixed | ✓ | ✓ | ✓ | ✗ | ✓ |
| masta**line** | 20 kg bucket | Premixed | ✓ | ✓ | ✓ | ✗ | ✓ |
| box ready masta**line** | 20 kg bucket | Premixed | ✓ | ✓ | ✓ | ✗ | ✓ |
| masta**tape-in** | 20 kg bucket | Premixed | ✓ | ✓ | ✗ | ✗ | ✓ |
| masta**coat3** | 4 kg bucket | Premixed | ✓ | ✓ | ✓ | ✗ | ✓ |
| **Specialty Compounds** | | | | | | | |
| masta**fix20** | 10 kg bag | Powder | ✓ | ✓ | ✓ | plus Cornicing and Patching | |
| masta**block** | 20kg bag | Powder | Back-blocking | | | | |
| **X-Ray Protection** | | | | | | | |
| GIB **x-block**® | 25 kg bag | Powder | ✓ | ✓ | ✗ | ✗ | ✓ |

## Adhesives

| Name | Size | Type | Application |
|---|---|---|---|
| masta**bond** | 20 kg bag | Powder | Masonry walls |
| masta**grip** | 600 ml foil tube<br>1.25 kg bucket<br>5.2 kg bucket | Acrylic | Timber, treated timber and steel |

## Sealants

| Name | Size | Type | Application |
|---|---|---|---|
| **bindex** fire and acoustic sealant | 600 ml foil tube | Acrylic | Fire and acoustic |

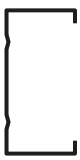
## Cornice

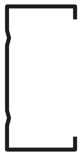
| Name | Width / Height (mm) | Length (mm) | | | Weight (kg/m) | Profile |
|---|---|---|---|---|---|---|
| | | 3600 | 4800 | 5400 | | |
| **classic**look | 55 | | • | | 0.65 |  |
| | 75 | | • | | 1.05 | |
| | 90 | • | • | • | 1.30 | |
| **step**look2 | 55 | | • | | 1.41 |  |
| **step**look3 | 75 | | • | | 1.93 | |
| **ocean**look | 90 | | • | | 1.88 |  |
| **reef**look | 75 | | • | | 1.76 |  |

## Plaster Cornice Cements

| Name | Size | Type | Setting Time | Application | | |
|---|---|---|---|---|---|---|
| | | | Minutes | Cornicing | Patching | Masonry Adhesive |
| **Cornice Cements** | | | | | | |
| masta**cove45** | 20 kg bag | Powder | 45 | ✓ | ✓ | ✓ |
| masta**cove75** | 20 kg bag | Powder | 75 | ✓ | ✓ | ✓ |

## Studs

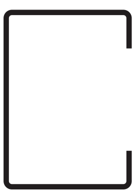
| Profile | Depth | BMT | Length | Code |
|---|---|---|---|---|
|  | 51 | 0.5 | 2400 | WSL51-050-24 |
| | | | 2700 | WSL51-050-27 |
| | | | 3000 | WSL51-050-30 |
| | | | 3600 | WSL51-050-36 |
|  | 64 | 0.5 | 2400 | WSL64-050-24 |
| | | | 2700 | WSL64-050-27 |
| | | | 2800 | WSL64-050-28 |
| | | | 3000 | WSL64-050-30 |
| | | | 3600 | WSL64-050-36 |
| | | | 4200 | WSL64-050-42 |
| | | | 4800 | WSL64-050-48 |
| | | | 6000 | WSL64-050-60 |
| | 64 | 0.75 | 2400 • | WSL64-075-24 |
| | | | 2700 | WSL64-075-27 |
| | | | 3000 | WSL64-075-30 |
| | | | 3600 | WSL64-075-36 |
| | | | 4200 | WSL64-075-42 |
| | | | 4800 | WSL64-075-48 |
| | | | 6000 | WSL64-075-60 |
| | 64 | 1.15 | 2400 • | WSL64-115-24 |
| | | | 2700 | WSL64-115-27 |
| | | | 3000 | WSL64-115-30 |
| | | | 3600 | WSL64-115-36 |
| | | | 4200 | WSL64-115-42 |
| | | | 4800 | WSL64-115-48 |
| | | | 6000 | WSL64-115-60 |
|  | 76 | 0.55 | 2400 | WSL76-055-24 |
| | | | 2700 | WSL76-055-27 |
| | | | 3000 | WSL76-055-30 |
| | | | 3600 | WSL76-055-36 |
| | | | 4200 | WSL76-055-42 |
| | | | 4800 | WSL76-055-48 |
| | | | 6000 • | WSL76-055-60 |
| | 76 | 0.75 | 2400 • | WSL76-075-24 |
| | | | 2700 | WSL76-075-27 |
| | | | 3000 | WSL76-075-30 |
| | | | 3600 | WSL76-075-36 |
| | | | 4200 | WSL76-075-42 |
| | | | 4800 | WSL76-075-48 |
| | | | 6000 | WSL76-075-60 |
| | 76 | 1.15 | 2400 | WSL76-115-24 |
| | | | 2700 | WSL76-115-27 |
| | | | 3000 | WSL76-115-30 |
| | | | 3600 | WSL76-115-36 |
| | | | 4200 | WSL76-115-42 |
| | | | 4800 | WSL76-115-48 |
| | | | 6000 | WSL76-115-60 |

| Profile | Depth | BMT | Length | Code |
|---|---|---|---|---|
|  | 92 | 0.55 | 2400 | WSL92-055-24 |
| | | | 2700 | WSL92-055-27 |
| | | | 3000 | WSL92-055-30 |
| | | | 3600 | WSL92-055-36 |
| | | | 4200 | WSL92-055-42 |
| | | | 4800 | WSL92-055-48 |
| | | | 6000 | WSL92-055-60 |
| | 92 | 0.75 | 2400 • | WSL92-075-24 |
| | | | 2700 | WSL92-075-27 |
| | | | 3000 | WSL92-075-30 |
| | | | 3600 | WSL92-075-36 |
| | | | 4200 | WSL92-075-42 |
| | | | 4800 | WSL92-075-48 |
| | | | 6000 | WSL92-075-60 |
| | | | 7200 • | WSL92-075-72 |
| | 92 | 1.15 | 2400 | WSL92-115-24 |
| | | | 2700 | WSL92-115-27 |
| | | | 3000 | WSL92-115-30 |
| | | | 3600 | WSL92-115-36 |
| | | | 4200 | WSL92-115-42 |
| | | | 4800 | WSL92-115-48 |
| | | | 6000 | WSL92-115-60 |
| | | | 7200 • | WSL92-115-72 |
|  | 150 | 0.75 | 2700 • | WSL150-075-27 |
| | | | 3000 | WSL150-075-30 |
| | | | 3600 | WSL150-075-36 |
| | | | 4200 • | WSL150-075-42 |
| | | | 4800 | WSL150-075-48 |
| | | | 6000 | WSL150-075-60 |
| | | | 7200 • | WSL150-075-72 |
| | 150 | 1.15 | 2700 • | WSL150-115-27 |
| | | | 3000 | WSL150-115-30 |
| | | | 3600 | WSL150-115-36 |
| | | | 4200 • | WSL150-115-42 |
| | | | 4800 | WSL150-115-48 |
| | | | 6000 | WSL150-115-60 |
| | | | 7200 • | WSL150-115-72 |

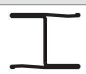
## Acoustic Stud

| Profile | Depth | BMT | Length | Code |
|---|---|---|---|---|
|  | 92 | 0.55 | 2400 • | AS92-055-24 |
| | | | 2700 | AS92-055-27 |
| | | | 3000 | AS92-055-30 |
| | | | 3600 | AS92-055-36 |
| | | | 4200 | AS92-055-42 |
| | | | 4800 • | AS92-055-48 |
| | | | 6000 • | AS92-055-60 |

## Jamb Stud

| Profile | Depth | BMT | Length | Code |
|---|---|---|---|---|
|  | 92 | 1.5 | 2800 | JS92-150-28 |
| | | | 3000 | JS92-150-30 |
| | | | 3600 | JS92-150-36 |

## Interhome H-stud

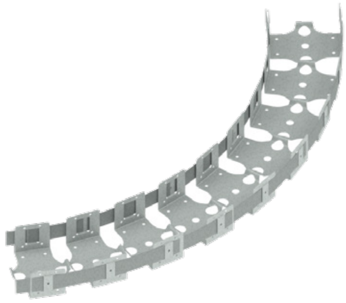
| Profile | Width | BMT | Length | Code |
|---|---|---|---|---|
|  | 28 | 0.55 | 3000 | IHS25-30 |
| | | | 3600 | IHS25-36 |

All dimensions are in mm. • Minimum order quantity and lead times apply

## Tracks

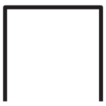
| Profile | Depth | BMT | Length | Code |
|---|---|---|---|---|
|  | 51 | 0.5* | 3000 | T51-050-30 |
|  | 64 | 0.5* | 3000 | T64-050-30 |
| | | 0.5* | 3600 | T64-050-36 |
| | | 0.7 | 3000 | T64-070-30 |
| | | 1.15 | 3000 | T64-115-30 |
|  | 76 | 0.5* | 3000 | T76-050-30 |
| | | 0.5* | 3600 | T76-050-36 |
| | | 0.7 | 3000 | T76-070-30 |
| | | 1.15 | 3000 | T76-115-30 |
|  | 92 | 0.5* | 3000 | T92-050-30 |
| | | 0.5* | 3600 | T92-050-36 |
| | | 0.7 | 3000 | T92-070-30 |
| | | 1.15 | 3000 | T92-115-30 |
|  | 150 | 0.75 | 3000 | T150-075-30 |
| | | 1.15 | 3000 | T150-115-30 |

## Flexible Tracks



| Depth | BMT | Length | Code |
|---|---|---|---|
| 51 | 0.55 | 2400 • | TFLEX51-2400 |
| 64 | 0.55 | 2400 | TFLEX64-2400 |
| 76 | 0.55 | 2400 | TFLEX76-2400 |
| 92 | 0.75 | 2400 | TFLEX92-2400 |
| 150 | 0.75 | 2400 • | TFLEX150-2400 |

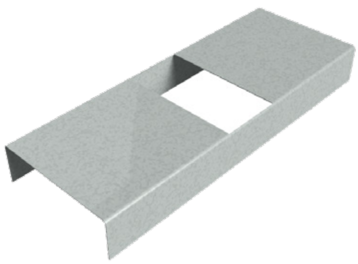
## Deflection Head Tracks

| Profile | Depth | BMT | Length | Code |
|---|---|---|---|---|
|  | 51 | 0.55* | 3000 | DHT51-055-30 |
|  | 64 | 0.55* | 3000 | DHT64-055-30 |
| | | 0.7 | 3000 | DHT64-070-30 |
| | | 1.15 | 3000 | DHT64-115-30 |
|  | 76 | 0.55* | 3000 | DHT76-055-30 |
| | | 0.7 | 3000 | DHT76-070-30 |
| | | 1.15 | 3000 | DHT76-115-30 |
|  | 92 | 0.55* | 3000 | DHT92-055-30 |
| | | 0.7 | 3000 | DHT92-070-30 |
| | | 1.15 | 3000 | DHT92-115-30 |
|  | 150 | 0.75 | 3000 | DHT150-075-30 |
| | | 1.15 | 3000 | DHT150-115-30 |

## Slotted Deflection Head Tracks

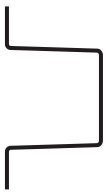
| Depth | BMT | Length | Code |
|---|---|---|---|
| 64 | 0.75 | 3000 | SDHT64-075-30 |
| | 1.15 | 3000 | SDHT64-115-30 |
| 76 | 0.75 | 3000 | SDHT76-075-30 |
| | 1.15 | 3000 | SDHT76-115-30 |
| 92 | 0.75 | 3000 | SDHT92-075-30 |
| | 1.15 | 3000 | SDHT92-115-30 |
| 150 | 1.15 | 3000 | SDHT150-115-30 |

## Nogging Tracks

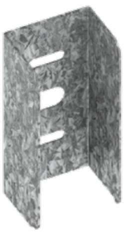
| Profile | Depth | BMT | Length | Hole spacing | Code |
|---|---|---|---|---|---|
|  | 64 | 0.7 | 3670 | 300 • | NT64-300-3670 |
| | | | | 400 • | NT64-400-3670 |
| | | | | 450 | NT64-450-3670 |
| | | | | 600 | NT64-600-3670 |
| | 76 | 0.7 | 3670 | 300 • | NT76-300-3670 |
| | | | | 400 • | NT76-400-3670 |
| | | | | 450 | NT76-450-3670 |
| | | | | 600 | NT76-600-3670 |
| | 92 | 0.7 | 3670 | 300 | NT92-300-3670 |
| | | | | 400 | NT92-400-3670 |
| | | | | 450 | NT92-450-3670 |
| | | | | 600 | NT92-600-3670 |
| | 150 | 0.7 | 3670 | 300 • | NT150-300-3670 |
| | | | | 400 • | NT150-400-3670 |
| | | | | 450 | NT150-450-3670 |
| | | | | 600 | NT150-600-3670 |

All dimensions are in mm. • Minimum order quantity and lead times apply *Safety lip

## Top Hats

| Profile | Width | Depth | BMT | Length | Code |
|---|---|---|---|---|---|
|  | 50 | 15 | 0.75 | 3600 | TH50/15-075-36 |
| | | | 1.15 | 3600 | TH50/15-115-36 |
| | | | | 6000 | TH50/15-115-60 |
|  | 50 | 25 | 0.75 | 3600 | TH50/25-075-36 |
| | | | 1.15 | 3600 | TH50/25-115-36 |
| | | | | 6000 | TH50/25-115-60 |
|  | 50 | 35 | 0.75 | 3600 | TH50/35-075-36 |
| | | | | 6000 | TH50/35-075-60 |
| | | | | 7200 | TH50/35-075-72 |
| | | | 1.15 | 3600 | TH50/35-115-36 |
| | | | | 6000 | TH50/35-115-60 |
| | | | | 7200 | TH50/35-115-72 |
|  | 50 | 50 | 0.75 | 3600 | TH50/50-075-36 |
| | | | 1.15 | 3600 | TH50/50-115-36 |
| | | | | 6000 • | TH50/50-115-60 |
| | | | | 7200 • | TH50/50-115-72 |
|  | 75 | 35 | 1.15 | 3600 • | TH75/35-115-36 |
| | | | | 6000 • | TH75/35-115-60 |
| | | | | 7200 • | TH75/35-115-72 |
|  | 120 | 35 | 1.15 | 6000 | FSTH120/35-115-60 |
| | | | | 7200 | FSTH120/35-115-72 |

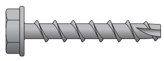
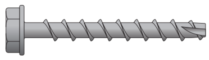
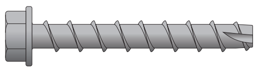
## Top Hat Cleats

| Image | BMT | Length | Width | Depth | Code |
|---|---|---|---|---|---|
|  | 2.0 | 100 | 50 | 27 • | THC50/27 |
| | | | | 37 | THC50/37 |
| | | | | 52 • | THC50/52 |
| | | | 75 | 37 • | THC75/37 |
| | | | | 52 • | THC75/52 |

## Brackets

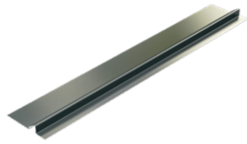
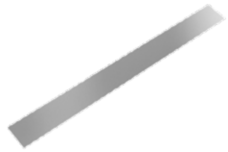
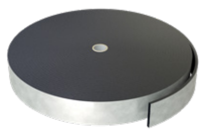
| Image | Item | Width | BMT | Code |
|---|---|---|---|---|
|  | 60mm wide Universal Bracket | 60 | 2.0 | UB60 |
|  | 80mm wide Universal Bracket | 80 | 2.0 | UB80 |
|  | Dropper Bracket | 80 | 3.0 | DB |
|  | Jamb Stud Connector Bracket | 90 | 2.0 | JSCB |
|  | Seismic Ceiling Bracket | 92 | 1.5 | SCB |
|  | 45º Soffit Bracket | 35 | 2.0 | SB45 |

## Screw Anchors

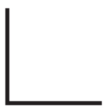
| Image | Diameter | Length | Code |
|---|---|---|---|
|  | 6 | 45 | SA6x45 |
|  | 6 | 60 | SA6x60 |
|  | 8 | 65 | SA8x65 |

All dimensions are in mm. • Minimum order quantity and lead times apply

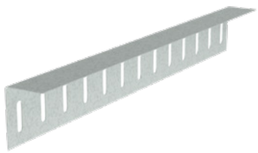
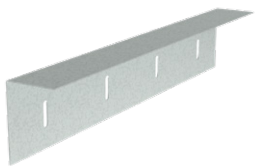
## Facade

| Image | Item | Width | BMT | Length | Code |
|---|---|---|---|---|---|
|  | Horizontal backing strip | 50 | 0.42 | 1190 | FSBS-1190 |
| | | | | 2390 | FSBS-2390 |
| | | | | 2990 | FSBS-2990 |
|  | Flashing | 71 | 0.42 | 25 m | FSFLASHINGBLK |
|  | Foam tape | 48 | 3 | 25 m | FSTAPE |

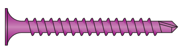
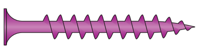
## Steel Backing Angles

| Profile | | Width | BMT | Length | Code |
|---|---|---|---|---|---|
|  | Backing Angles | 35 x 35 | 0.7 | 3000 | BA35-070-30 |
| | | | | 3600 | BA35-070-36 |
| | | 50 x 50 | 0.7 | 3000 | BA50-070-30 |
| | | | | 3600 | BA50-070-36 |
| | | | 1.15 | 3000 | BA50-115-30 |
| | | 75 x 75 | 1.15 | 3000 | BA75-115-30 |
| | | 100 x 100 | 1.15 | 3000 • | BA100-115-30 |
|  | Utility Angles | 28 x 28 | 0.3 | 2400 | BA28-030-24 |
| | | 40 x 40 | 0.3 | 1800 | BA40-030-18 |

## Slotted Steel Angles

| Profile | Width | Height | BMT | Length | Code |
|---|---|---|---|---|---|
|  | 35 | 50 | 0.75 | 3000 | SBA50/35-075-30 |
|  | 50 | 50 | 0.75 | 2400 | SBA50/50-075-24 |
| | 50 | 75 | 1.15 | 2400 | SBA75/50-115-24 |

## Weather Defence Screws

| Profile | Gauge | Length | Code |
|---|---|---|---|
|  | 6 | 38 | 4084645 |
|  | 6 | 42 | 4084646 |

All dimensions are in mm. • Minimum order quantity and lead times apply

## Top Cross Rails

| Profile | Item | Depth | BMT | Length | Code |
|---|---|---|---|---|---|
|  | Top Cross Rail | 25 | 0.75 | 3600 | TCR25-36 |
| | | | | 4800 | TCR25-48 |
| | | | | 6000 | TCR25-60 |
|  | | 38 | 0.75 | 4800 | TCR38-48 |
|  | Curved Top Cross Rail | 25 | 0.75 | 3600 • | |
| | | | | 4800 • | |
| | | | | 6000 • | |

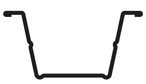
## Furring Channels

| Profile | Item | Depth | BMT | Length | Code |
|---|---|---|---|---|---|
|  | Furring channel | 18 | 0.42 | 2400 | FC18-24 |
| | | | | 2700 | FC18-27 |
| | | | | 3000 | FC18-30 |
| | | | | 3600 | FC18-36 |
| | | | | 4800 | FC18-48 |
| | | | | 6000 | FC18-60 |
|  | Furring channel | 28 | 0.42 | 2400 | FC28-24 |
| | | | | 2700 | FC28-27 |
| | | | | 2800 | FC28-28 |
| | | | | 3000 | FC28-30 |
| | | | | 3600 | FC28-36 |
| | | | | 4800 | FC28-48 |
| | | | | 6000 | FC28-60 |
|  | Wide Furring Channel | 28 | 0.42 | 3600 | FC60/28-36 |
| | | | | 4800 | FC60/28-48 |
| | | | | 6000 | FC60/28-60 |
|  | Recessed Furring Channel | 13 | 0.5 | 6000 • | SP333-6000 |
|  | Curved Furring Channel | 18 | 0.42 | Various • | |

## Furring Channel Tracks

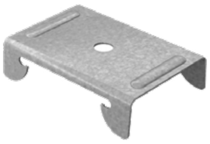
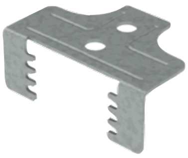
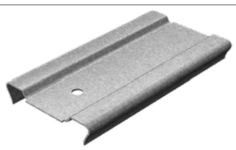
| Profile | Depth | BMT | Length | Code |
|---|---|---|---|---|
|  | 18 | 0.5 | 3000 | T18-30 |
|  | 28 | | 3000 | T28-30 |

## Battens

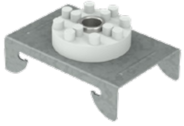
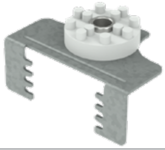
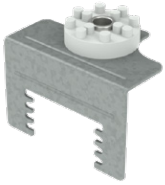
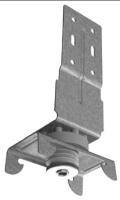
| Profile | | Depth | Width | BMT | Length | Code |
|---|---|---|---|---|---|---|
|  | Domestic Batten | 16 | 35 | 0.38 | 4800 | FCDB-48 |
| | | | | | 6000 | FCDB-60 |
|  | Back Blocking Batten | 16 | 35 | 0.38 | 300 | FCBBB-0300 |
|  | Cyclonic Batten | 22 | 30 | 0.42 | 6100 | FCCB22-61 |
|  | 35mm Batten | 35 | 35 | 0.42 | 4800 • | FCCB35-48 |
| | | | | | 6000 • | FCCB35-60 |

All dimensions are in mm. • Minimum order quantity and lead times apply

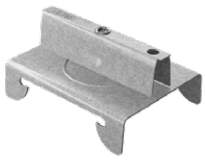
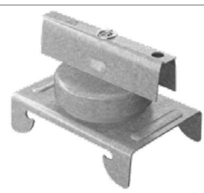
## Furring Channel Clips

| Clip | Name | Code |
|---|---|---|
|  | A Clip 80mm drop | C26-80 |
| | | CW26-80 wide version |
|  | A Clip 180mm drop | C26-180 |
| | | CW26-180 wide version |
|  | Spring Adjustable A Clip | C52 |
|  | Anchor Clip | C37-7H (7.5mm hole) |
| | | C37-9H (9mm hole) |
| | | CW37-7H wide version (7.5mm hole) |
| | | CW37-9H wide version (9mm hole) |
|  | Anchor Clip M6 thread | C37-M6 |
|  | Grip Clip | CGRIP (6.5mm holes) |
| | | CGRIP-9 (9mm holes) |
|  | Grip Clip Long | CGRIP-LONG (6.5mm holes) |
| | | CGRIP-LONG9 (9mm holes) |
|  | Adjustable Mount | CFCAM (7mm holes) |
|  | Furring Channel Joiner | C38 |

## Acoustic Clips

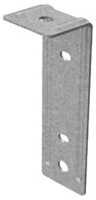
| Clip | Name | Code |
|---|---|---|
|  | Resilient Mount | C001 (6.5mm hole) |
| | | C001M6 (M6 thread) |
|  | Grip Clip Resilient Mount | CGRIP-RES • (6.5mm hole) |
|  | Grip Clip Resilient Mount Long | CGRIP-RESLONG (6.5mm hole) |
|  | Resilient Adjustable Mount | CFCRESAM • (6.5mm hole) |
|  | Purlin to Furring Channel Resilient Clip | C001-PC • |
|  | Wall to Stud Resilient Clip | C001-DCS • (6.5mm hole) |

## Top Cross Rail to Furring Channel Clips

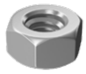
| Clip | Name | Code |
|---|---|---|
|  | Locking Key | C39 |
| | | CW39 wide version |
|  | Swivel Clip | C79S |
|  | Resilient Swivel Clip | C79SRES |

All dimensions are in mm. • Minimum order quantity and lead times apply

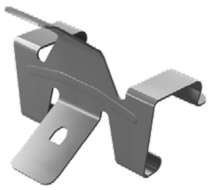
## Suspension Rod Clips

| Clip | Name | Code |
|---|---|---|
|  | Spring Adjustable Purlin to Suspension Rod Clip | C60DF |
|  | Spring Adjustable Anchor to Suspension Rod Clip | C60LDF (6.5mm hole) |
|  | Small Cavity Suspension Rod Bracket | C25-35 (9mm hole) |
|  | Suspension Rod Flat Bracket | C74 |
|  | Suspension Rod Multi-purpose Bracket | C47-74 (6mm hole) |
| | | C47-749 (9mm hole) |
|  | Spring Adjustable Suspension Rod Joiner | C54 |

## Rods

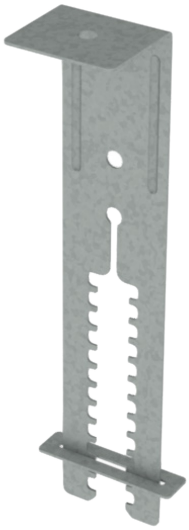
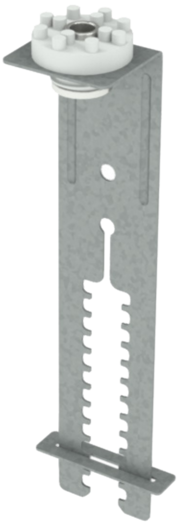
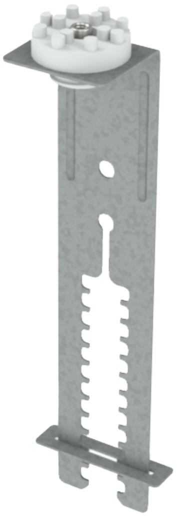
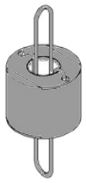
| Clip | Name | Length | Code |
|---|---|---|---|
|  | Suspension Rod 5mm | 3600 | C21-3600 |
| | | 6000 • | C21-6000 |
|  | Threaded Rod One End | 300 • | CTROE-0300MM |
| | | 900 • | CTROE-0900MM |
| | | 1200 • | CTROE-1200MM |
| | | 1800 • | CTROE-1800MM |
| | | 2400 • | CTROE-2400MM |
| | | 3000 • | CTROE-3000MM |
| | | 3600 • | CTROE-3600MM |
|  | M6 Nut | | CTRN-M6 |

## Top Cross Rail Clips

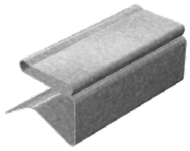
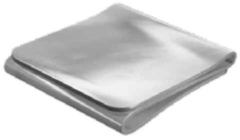
| Clip | Name | Code |
|---|---|---|
|  | Spring Adjustable Suspension Rod to Top Cross Rail Clip | C60 |
|  | Top Cross Rail to Purlin Clip | C66 |
|  | Anchor to Top Cross Rail Clip | C24 |
|  | Spring Adjustable Side Mounted Top Cross Rail Clip | C61S |

All dimensions are in mm. • Minimum order quantity and lead times apply

## Top Cross Rail Clips / Acoustic Clips

| Clip | Name | Code |
|---|---|---|
|  | Adjustable Top Cross Rail Clip<br>(6.5mm hole)<br>3 sizes available:<br>100mm drop, 200mm drop, 300mm drop | CTCR-100 |
| | | CTCR-200 |
| | | CTCR-300 |
|  | Adjustable Top Cross Rail Resilient Clip<br>(6.5mm hole)<br>3 sizes available:<br>100mm drop, 200mm drop, 300mm drop | CTCRRES-100 • |
| | | CTCRRES-200 • |
| | | CTCRRES-300 • |
|  | Adjustable Top Cross Rail Resilient Clip<br>M6 thread<br>3 sizes available:<br>100mm drop, 200mm drop, 300mm drop | CTCRRESM6-100 • |
| | | CTCRRESM6-200 • |
| | | CTCRRESM6-300 • |
|  | Clip Isolation Hanger | CRAIH-05 • |

## Miscellaneous Items

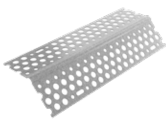
| Clip | Name | Code |
|---|---|---|
|  | Encasement Clip | C.ENCAS |
|  | Staggered Stud Clip | C126 |
|  | Angle Bracket | C88 |
|  | Interhome Aluminium Clip | CIH-L |

## Domestic Batten Clips

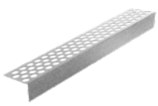
| Clip | Name | Code |
|---|---|---|
|  | Domestic Batten Direct Fix Clip 80mm drop | CDB26-80 |
|  | Domestic Batten Direct Fix Clip 150mm drop | CDB26-150 |
|  | Domestic Batten Anchor Clip | CDB37 |
|  | Domestic Batten to Top Cross Rail Clip | CDB39 |
|  | Domestic Batten Joiner | CDB38 |

All dimensions are in mm. • Minimum order quantity and lead times apply

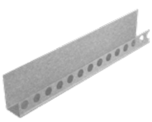
## Steel Angles

| Profile | Name | Width | BMT | Length | Code |
|---|---|---|---|---|---|
|  | External 90 angle | 30 | 0.38 | 2400 | P90EX24 |
| | | | | 2550 | P90EX2550 |
| | | | | 2700 | P90EX27 |
| | | | | 3000 | P90EX30 |
| | | | | 3600 | P90EX36 |
|  | External 135 angle | 30 | 0.38 | 2400 | P135EX24 |
| | | | | 2700 | P135EX27 |
| | | | | 3000 | P135EX30 |
| | | | | 3600 • | P135EX36 |
|  | Internal 90 angle | 30 | 0.38 | 2400 | P90INT24 |
| | | | | 2700 | P90INT27 |
| | | | | 3000 | P90INT30 |
| | | | | 3600 | P90INT36 |
|  | Internal 135 angle | 30 | 0.38 | 2400 | P135INT24 |
| | | | | 2700 | P135INT27 |
| | | | | 3000 | P135INT30 |
| | | | | 3600 • | P135INT36 |

## Stopping Angles

| Profile | Name | Depth | BMT | Length | Code |
|---|---|---|---|---|---|
|  | Stopping Angle | 10 | 0.38 | 3000 | PSA1030 |
| | | 13 | | | PSA1330 |
| | | 16 | | | PSA1630 |
| | | 20 | | | PSA2030 |
|  | Shadowline Stopping Angle | 6 | 0.3 | 3000 • | PSASL0630 |
| | | 10 | 0.38 | 3000 | PSASL30 |

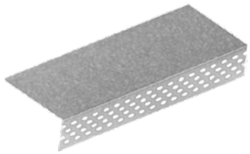
## Beads

| Profile | Name | Depth | BMT | Length | Code |
|---|---|---|---|---|---|
|  | Plaster Stopping Bead | 6 | 0.5 | 3000 • | PSB0630 |
| | | 10 | | 3000 | PSB1030 |
| | | 13 | | 3000 | PSB1330 |
| | | 16 | | 3000 • | PSB1630 |
|  | Plaster Casing Bead | 6 | 0.5 | 3000 • | PCB0630 |
| | | 10 | | 3000 | PCB1030 |
| | | 13 | | 3000 | PCB1330 |
| | | 16 | | 3000 • | PCB1630 |

## Archway Bead

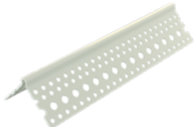
| Profile | Name | Width | BMT | Length | Code |
|---|---|---|---|---|---|
|  | Plaster Archway Bead | 30 | 0.38 | 3000 | PAWB30 |

## Reveal Angles

| Profile | Width | BMT | Length | Code |
|---|---|---|---|---|
|  | 20 | 0.75 | 3000 | PLRA2030 |
| | | | 3600 • | PLRA2036 |
| | 25 | | 3000 | PLRA2530 |
| | | | 3600 • | PLRA2536 |
| | 30 | | 3000 | PLRA3030 |
| | | | 3600 • | PLRA3036 |
| | 35 | | 3000 | PLRA3530 |
| | | | 3600 • | PLRA3536 |
| | 40 | | 3000 | PLRA4030 |
| | | | 3600 • | PLRA4036 |
| | 45 | | 3000 | PLRA4530 |
| | | | 3600 • | PLRA4536 |
| | 50 | | 3000 | PLRA5030 |
| | | | 3600 • | PLRA5036 |
| | 60 | | 3000 | PLRA6030 |
| | | | 3600 • | PLRA6036 |
| | 65 | | 3000 | PLRA6530 |
| | | | 3600 • | PLRA6536 |
| | 75 | | 3000 | PLRA7530 |
| | | | 3600 • | PLRA7536 |
| | 80 | | 3000 | PLRA8030 |
| | | | 3600 • | PLRA8036 |
| | 90 | | 3000 | PLRA9030 |
| | | | 3600 • | PLRA9036 |
| | 100 | | 3000 | PLRA10030 |
| | | | 3600 • | PLRA10036 |
| | 110 | | 3000 | PLRA11030 |
| | 120 | | 3000 | PLRA12030 |
| | 135 | | 3000 | PLRA13530 |
| | 150 | | 3000 | PLRA15030 |
| | | | 3600 • | PLRA15036 |

All dimensions are in mm. • Minimum order quantity and lead times apply

## PVC Angles

| Profile | Name | Width | Gauge | Length | Code |
|---|---|---|---|---|---|
|  | PVC 90º External Angle | 32 | 1.2 | 2400 | PVCP90EX24 |
| | | | | 2700 | PVCP90EX27 |
| | | | | 3000 | PVCP90EX30 |

## PVC Expansion Joint

| Profile | Name | Gauge | Length | Code |
|---|---|---|---|---|
|  | PVC Expansion Joint | 1.2 | 3000 | PVCXJ30 |

## PVC Tearaway Beads

| Profile | Name | Width | Gauge | Length | Code |
|---|---|---|---|---|---|
|  | PVC Tearaway Bead | 32 | 1.2 | 3000 | PVCTAWAYBD10/30 |
|  | PVC Shadowline 10mm Tearaway Bead | 32 | 1.2 | 3000 • | PVCTAWAYBD10/30SL |

## PVC Render Beads

| Profile | Name | Width | Gauge | Length | Code |
|---|---|---|---|---|---|
|  | External Render Trim Bead 2.5mm | 32 | 1.2 | 3000 | PVCTRIMEX2.5/30 |
| | External Render Trim Bead 3.5mm | 32 | 1.2 | 3000 | PVCTRIMEX3.5/30 |

## PVC Casing Beads

| Profile | Name | Width | Gauge | Length | Code |
|---|---|---|---|---|---|
|  | PVC Casing Bead 10mm | 10 | 1.2 | 2400 | PVCCB10-24 |
| | | | | 3000 | PVCCB10-30 |
|  | PVC Casing Bead 13mm | 13 | 1.2 | 2400 • | PVCCB13-24 |
| | | | | 3000 • | PVCCB13-30 |

## PVC Capping

| Profile | Name | Width | Gauge | Length | Code |
|---|---|---|---|---|---|
|  | External Capping 20mm | 20 | 1.2 | 2400 | PVCCA20-24 |
| | External Capping 25mm | 25 | 1.2 | 2400 | PVCCA25-24 |

All dimensions are in mm. • Minimum order quantity and lead times apply

## Metal Access Panels

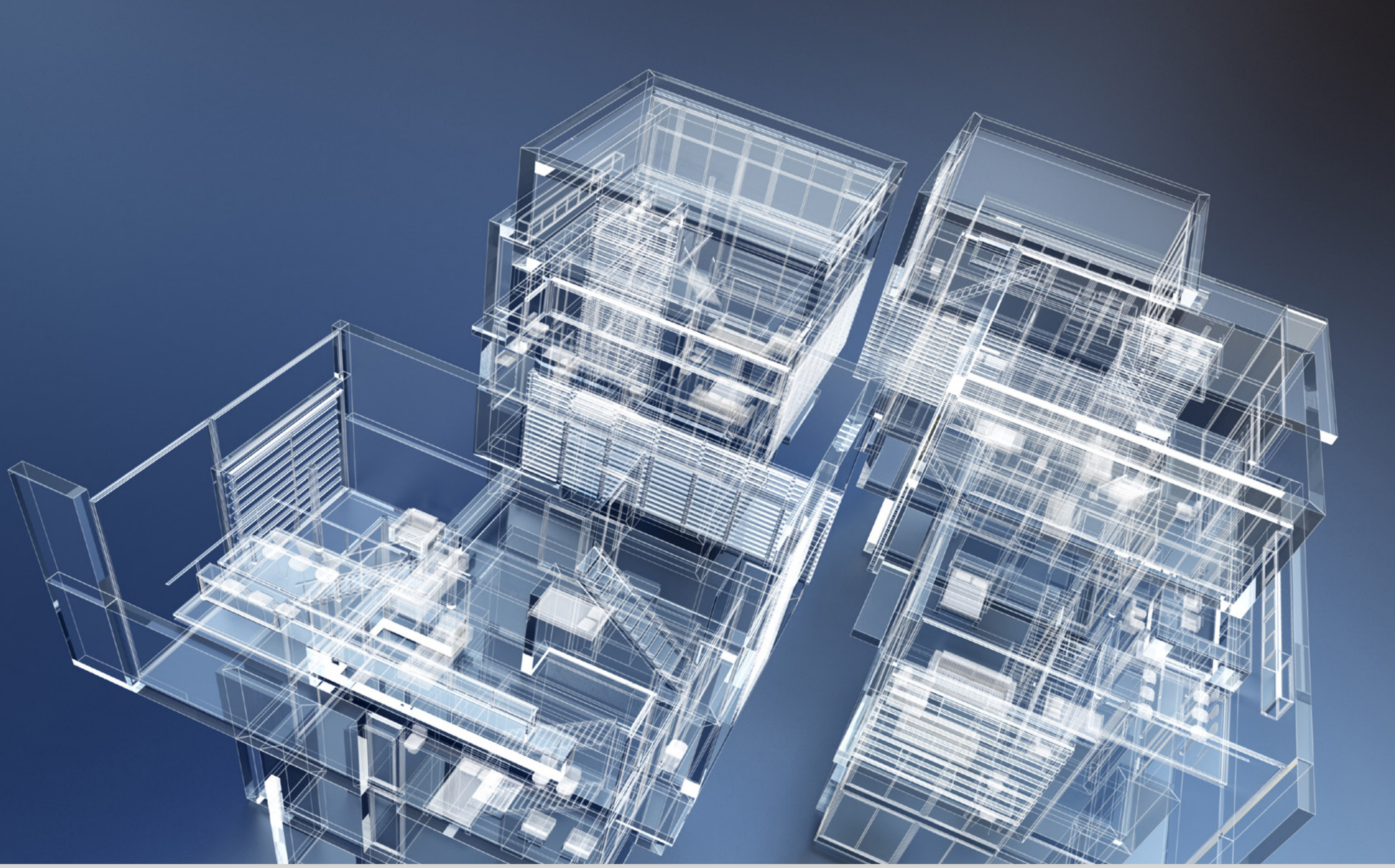
| Image | Name | Size | Code |
|---|---|---|---|
|  | Set Bead | 200 x 200 | APMDSB20 |
| | | 300 x 300 | APMDSB30 |
| | | 450 x 450 | APMDSB45 |
| | | 530 x 530 | APMDSB53 |
| | | 600 x 600 | APMDSB60 |
|  | Flanged | 200 x 200 | APMDFL20 |
| | | 300 x 300 | APMDFL30 |
| | | 450 x 450 | APMDFL45 |
| | | 530 x 530 | APMDFL53 |
| | | 600 x 600 | APMDFL60 |

## Createx Access Panel

| Image | Name | Size | Code |
|---|---|---|---|
|  | Chameleon Access Panel | 600 x 600 | |

All dimensions are in mm. • Minimum order quantity and lead times apply

# 2 Building with Lightweight Construction



# Building with Lightweight Construction

Etex Australia offers a wide range of solutions for lightweight construction including metal framing, plasterboard linings, ceiling tiles, adhesives, jointing compounds, fire sealant and cornice.

Siniat wall and ceiling linings are available with a wide range of properties for different applications from impact resistant plasterboard to aesthetic ceiling linings that absorb sound.

Along with providing these solutions, Siniat offers a suite of Knowhow services to help bring your project to life from instant online calculators and system selectors to personal technical advice and all backed by a 10 year Siniat warranty.

# Benefits of Lightweight Construction

When combined together, lightweight materials provide effective composite performance; the result is a vast range of combinations so the desired performance can be tailor made for construction. Lightweight construction is so called because it can achieve heavy weight performance while decreasing the weight and cost of the entire building.

A typical lightweight wall construction consists of either steel or timber framing, insulation and plasterboard or other lining board.

Siniat steel studs are an efficient way of providing framing for plasterboard and other lining materials.

Combine with Fletcher Insulation's acoustic and thermal insulation to enhance the performance of walls and ceilings.

# 2.1 Materials

## Plasterboard

Plasterboard is made from a core of a naturally occurring mineral called gypsum, also known as calcium sulphate dihydrate or $CaSO_4.2H_2O$. The core is sandwiched between two layers of heavy duty recycled paper. The face paper is suitable for painting or wallpaper. Plasterboard has square profile cut ends and long recessed edges to enable easy jointing.

Etex Australia manufactures plasterboard to strict internal standards which meet or exceed the requirements of *AS/NZS 2588:2018, Gypsum Plasterboard.*

The Australian Standard for plasterboard installation is *AS/NZS 2589:2017, Gypsum linings – Application and finishing.*

Plasterboard is suitable for use as an interior wall and ceiling lining, and also for external ceilings when protected from the weather. For more information about the suitability of plasterboard, please refer to Section 2.2 Care and Use.

### Environment Benefits

Plasterboard is an ideal product for sustainable construction. As a lightweight building material, plasterboard reduces transport costs and emissions as well as the total weight of buildings. Plasterboard is 100% recyclable, with low embodied energy, and made largely from a naturally occurring mineral – gypsum. The liner paper used to make plasterboard is biodegradable and made from recycled paper such as waste newspaper and cardboard.

The plasterboard manufacturing process operates under strict environmental guidelines:

- Efficient use of energy and water including heat recovery and storm water collection
- Effective collection and monitoring of dust.
- Ongoing waste and raw material usage reduction.
- Minimisation of plant impact on surroundings.

Since 2009, Etex Australia has introduced a number of initiatives to reduce carbon emissions which has also resulted in the first certified carbon neutral opt in program for plasterboard.

Combining plasterboard with lightweight framing such as timber or steel provides a vast array of system performances, which can be efficiently gauged to the precise needs of any project.

Lightweight steel framing is both strong and durable, and like plasterboard has the potential to be fully recycled at end of life.

For more information refer to:
**siniat.com.au/sustainability**

## Fire Resistance

All plasterboard is naturally fire resistant. The core slows down the spread of fire by releasing chemically bound water when heated. This is a similar process to evaporation and aids cooling.

## Fire Hazard Properties

The National Construction Code (NCC) regulates the fire hazard properties of coverings and lining materials in buildings according to NCC 2022 Volume One, C2D11. Floor linings and coverings must have a high enough critical radiant flux to comply with NCC 2022 Volume One, C2D11, while wall and ceiling linings must have a low enough group number. The group number indicates how quickly wall and ceiling linings spread fire, with Group 1 products ranked the slowest and Group 4 the fastest.

**Table 1 Product Group Number**

| Product | Group Number | Average Specific Extinction Area ($m^2$/kg) |
|---|---|---|
| Curveshield | 1 | less than 250 |
| Creason | 1 | less than 250 |
| Createx | 1 | less than 250 |
| Fireshield | 1 | less than 250 |
| Intershield | 1 | less than 250 |
| Impactshield | 1 | less than 250 |
| Mastashield | 1 | less than 250 |
| Multishield | 1 | less than 250 |
| Opal | 1 | less than 250 |
| Shaftliner | 1 | less than 250 |
| Soundshield | 1 | less than 250 |
| Spanshield | 1 | less than 250 |
| Trurock | 1 | less than 250 |
| Trurock HD | 1 | less than 250 |
| Watershield | 1 | less than 250 |
| Weather Defence | 1 | less than 250 |

### Fire Hazard Property Report

### Fire Hazard Properties and Combustibility

## Combustibility

Plasterboard is considered to limit the spread of fire; therefore in accordance with NCC 2022 Volume One, C2D10 (6) (a), plasterboard may be used wherever non-combustible materials are required.

## Thermal 'R' Value

The R-Value of plasterboard is a measure of its thermal insulation ability. Higher numbers indicate a better insulator. The values* for plasterboard are:

- 10mm plasterboard = 0.059 $m^2$.K/W
- 13mm plasterboard = 0.076 $m^2$.K/W
- 16mm plasterboard = 0.094 $m^2$.K/W

*Values calculated from thermal conductivity of plasterboard listed in NCC of 0.17 W/mK

## Specific Heat Capacity

Specific heat capacity is the amount of heat energy required to raise the temperature of 1 kg of material by 1°C.

- Plasterboard is 1090 J/kg/K.

## Dimensional Stability

Plasterboard is dimensionally stable when compared to other building materials. Two measures of dimensional stability are listed below:

- Thermal coefficient of linear expansion ($\alpha$) = 16.7 x $10^{-6}$ m / °C, measured unrestrained over the temperature range of 3°C – 32°C
- Hygrometric coefficient of expansion = 6.5 x $10^{-6}$ / %RH, measured unrestrained over the Relative Humidity (RH) range of 10% – 90%.

## Safety

Plasterboard is not classified as hazardous according to the criteria of Safe Work Australia. It is non-toxic and non-flammable.

## Maintenance

Plasterboard is a product that is typically installed as a substrate for further decoration like painting, wall paper or tiles. As such, the requirements for maintenance of plasterboard are usually less compared to the decorative finish.

Where paint is used as the decorative finish, the paint manufacturer's recommendations should be followed for maintenance and cleaning. Similarly, if wall paper or tiles are used then recommendations from the manufacturer should be followed. This relates to the cleaning procedures and the suitable materials/ products that should be used.

Maintenance of plasterboard is likely to be necessary only as required. Otherwise, annual checks are recommended on wall and ceiling systems to assess whether maintenance is required for:

- Physical damage (dents, scratches)
- Structural damage (cracks, compression fractures)
- Fire or excessive heat damage
- Water damage (including moisture affected plasterboard and mould growth, etc)
- Re-painting (as and when desired)
- Cleaning (as and when desired)

If repairs are required, then they must be conducted in a way that maintains the installation requirements of *AS/NZS 2589:2017 Gypsum Linings – Application and Finishing, AS 2785-2020 Suspended Ceilings - Design and installation*, and for fire rated systems in accordance with Siniat technical literature.

### OnBoard - Maintaining Plasterboard

## Durability

The durability of Siniat plasterboard and its ability to perform as a wall or ceiling lining depends on several factors, some include:

- Ventilation of the building (and HVAC system) with the ability to control moisture and condensation
- Amount of humidity and air flow
- Decorative covering (paint, wall paper, tiles)
- Use of building wall wraps, roof sarking and vapour barriers
- Frequency and duration of wet and damp conditions (ie. water leaks)
- Mould growth
- Temperature range experienced
- Movement from substrate framing
- Allowance for framing movement (with control joints)
- Maintenance intervals.

# Steel Framing

Siniat light-weight steel framing is an economical, durable and efficient way of providing the necessary support for a range of internal wall and ceiling linings as well as external cladding and brick veneer. Etex Australia manufactures a comprehensive range of steel framing components for a range of systems including:

- Non-load bearing steel stud wall framing
- Concealed and exposed ceiling framing with associated clips
- Steel stud ceilings
- Top hat and façade systems
- Jamb stud and associated brackets for openings in walls
- Acoustic studs
- Access panels, and
- Plaster finishing accessories.

Bluescope Steel is our supplier of large steel coils which are slit, then cold rolled to form the Siniat steel profiles in our manufacturing plant in Beenleigh, Queensland. The steel coils comply with:

- *AS/NZS 1365:1996 Tolerances for flat-rolled steel products*, and
- *AS 1397: 2011 Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium.*

Certification for systems in Blueprint have been based upon Siniat branded steel products. If other manufacturer's products have been used for the framing, it is the responsibility of that manufacturer to prove equivalent performance of the system and provide the associated certification.

## Combustibility

Steel is non-combustible in accordance with NCC 2022 Volume One, C2D10 (5) (b), and may be used wherever a non-combustible material is required.

## Early Fire Hazard Indices

| Ignitability Index (0-20) | Spread of Flame Index (0-10) | Heat Evolved Index (0-10) | Smoke Developed Index (1-10) |
|---|---|---|---|
| 0 | 0 | 0 | 2 |

1. Zincalume steel
2. Test certificate FNE11602

## Safety

Not classified as hazardous according to the criteria of Safe Work Australia. It is non-toxic and non-flammable.

## Corrosion Protection

Siniat steel framing has a corrosion protection coating applied to the surface for enhanced durability. Etex Australia supplies Siniat branded products with the following corrosion protection:

- Zincalume® AM150 (aluminium / zinc / magnesium) as per AS 1397 for wall studs, top and bottom tracks, wall noggings, furring channels, top cross rails, top hats and most accessories other than listed below.
- Galvaspan® Z350 (zinc) as per AS 1397 for Jamb Stud.
- Galvanised Z275 (zinc) as per AS1397 for ceiling hanging rods, and the following wall framing brackets: UB60, UB80, DB, JSCB, SB45, SCB and Top Hat Cleats.
- Zinc electroplated with clear passivate (Class 1 designation A trivalent chromate) for the following clips C24, C54, C60, C60DF, C60LDF, C61S, C66, C126 and part of C52.

### Table 2 Steel Grade and Corrosion Protection Coating

| Profile | Grade | Ultimate Stress (MPa) | Yield Stress (MPa) | Coating |
|---|---|---|---|---|
| Studs, Head and Base Tracks, Nogging Tracks, Top Hats, Top Cross Rails | G300 | 340 | 300 | AM150 |
| Furring Channel, Domestic Batten, 22mm Cyclonic Batten, 35mm Batten | G550 | 550 | 550 | AM150 |
| Jamb Stud | G450 | 480 | 450 | Z350 |
| Hanging rods and brackets: UB60, UB80, DB, JSCB, SB45, SCB and Top Hat Cleats | G250 | 320 | 250 | Z275 |
| All other clips not listed above (except Interhome aluminium clip or zinc electroplated clips) | G300 | 340 | 300 | AM150 |

## Durability

The durability of Siniat steel products and their ability to perform the intended function for a particular application depends on the severity of exposure. There are many factors related to the severity of exposure, some include:

- Geographical location (ie: near breaking surf or near heavy industry)
- Location on a building / facility
- Construction system the product is used in
- Compatibility with other materials
- Use of building wall wraps, roof sarking and vapour barriers
- Type of external cladding / roof lining used
- Ventilation of the building (and HVAC system) with the ability to control moisture and condensation
- Amount of humidity and air flow
- Exposure to salt and chlorine laden air
- Frequency and duration of wet and damp conditions (ie. water leaks)
- Horizontal surfaces where water, dust or other contaminants like salt may pool
- The ability of the member to be cleaned by rainwater or hosing
- Maintenance intervals.

Siniat steel framing must be effectively separated from the external environment once installed. In addition, they must be installed to enable drying and prevent long periods of wetness. Extended exposure to high moisture may lead to some level of surface corrosion or staining, as such a regular inspection and maintenance schedule is recommended.

Refer to Table 3 for the use of Siniat products for the geographical location and intended application.

For applications not covered in this manual, additional corrosion protection coatings may need to be applied for certain applications or to prolong the intended service life. Siniat steel products do have industry leading factory applied corrosion protection, and they may be suited to other applications not listed in this section. Please consult a corrosion expert for advice.

## Indoor Swimming Pools and Spas

The overall design and maintenance plan of a facility affects the durability of the building products used. Other factors like humidity levels, ventilation, temperature, chemical cleaning treatment (chlorine) and proximity of the pool to walls and ceilings also affect durability. Although these factors are **outside the control** of Etex Australia (Siniat), they are critical to protecting the steel framing from the corrosive atmosphere of an indoor swimming pool and spa.

As such, individual site conditions may require specific control measures and therefore consultants such as HVAC specialists, corrosion experts and building physicists are recommended.

Follow project specific design or comply with these requirements to use Siniat AM150 or Z275 coated steel products for concealed indoor swimming pool wall and ceiling framing:

- The Siniat steel framing must not be exposed to the indoor pool atmosphere and be kept dry.
- A slight negative pressure must be maintained in the pool room relative to the wall and ceiling spaces. This reduces the driving force of moisture into the wall or ceiling cavity where the framing is located.
- Ventilation systems must continuously circulate air and be vented to the outside only. The ceiling plenum must not be used for return air.
- Use a minimum of Class 3 corrosion resistant screws appropriate for the lining and also compatible with the steel framing. Please note that stainless steel screws are not recommended with Siniat steel framing.
- Vapour barriers between the wall and ceiling framing and the indoor pool room must be continuous and sealed at all joints and penetrations. Any following trades must re-seal any penetrations in the vapour barriers. The purpose of the vapour barrier is to prevent water vapour and other airborne contaminants (such as chloramine gas) from the swimming pool or spa passing through the wall or ceiling lining into the cavity, where it may turn into condensation (liquid form).
- Allow wall and ceiling cavities to dry by using ventilation to the outside and vapour permeable membranes under any external claddings.
- Thermal insulation with vapour barrier must be installed under sheet roofing. This is to prevent condensation dripping onto the steel framing. Sarking must be installed under tiled roofs to reduce pressure fluctuations within the roof space which may draw air in from the pool area.
- Periodically inspect the steel framing for the appearance of rust and replace if detected or consult a corrosion specialist.

Zinc electroplated ceiling clips are not recommended for use in indoor swimming pools.

Alternative approaches may be designed and implemented other than listed above (such as cavity drained walls or perforated panels and the like) whereby the steel framing may not be separated from the indoor pool atmosphere. This type of approach will require specialist design and advice to verify the suitability of the steel framing.

**Table 3** Suitability of Siniat Zincalume® AM150 Steel Products

| Application | | | | Geographical Location[1] | | |
|---|---|---|---|---|---|---|
| | | | | Greater than 1km from breaking surf, and greater than 300m from calm salt water. (AS4312 corrosion category ≤ C3) | 300m to 1km from breaking surf, and 50m to 300m from calm salt water. (AS4312 corrosion category C4) | 100m to 300m from breaking surf, and 10m to 50m from calm salt water. |
| **Internal Walls** | Zincalume steel framing in a building with or without external wall wrap, or in an unventilated wall[17] | | | ✓[18] | ✓[18] | ✓[7] |
| **External Walls** | Zincalume steel framing behind external cladding[2] in a drained and vented cavity[3] (inlcudes fibre cement sheets, weatherboard planks, timber, AAC, brick veneer, steel cladding and the like) | No external wall wrap or outside of external wall wrap[4] | Wall stud framing | ✓[18] | ✓ | ✗ |
| | | | Horizontal top hats | | | |
| | | | Vertical top hats | | | ✓[8] |
| | | Behind external wall wrap[4] | Wall stud framing | ✓[18] | ✓[18] | ✓ |
| | | | Horizontal top hats | | | |
| | | | Vertical top hats | | | |
| | Zincalume steel framing behind external cladding in a drained and ventilated cavity[3] (includes Equitone facades and the like) | Outside of external wall wrap[4] | Horizontal top hats | ✓ | ✗ | ✗ |
| | | | Vertical top hats | | ✓ | ✓[8] |
| | | Behind external wall wrap[4] | Wall stud framing | ✓[18] | ✓[18] | ✓ |
| | | | Horizontal top hats | | | |
| | | | Vertical top hats | | | |
| **Ceilings** | Zincalume steel framing under an unventilated roof [6,17] or concrete slab | | | ✓ | ✓ | ✓[7] |
| | Zincalume steel framing under a ventilated roof [6] | | | | | ✗ |

1. Refer to AS4312 Atmospheric corrosivity zones for more accurate location information, especially in tropical areas.
2. External cladding in a closed facade system only, and not in an open facade system.
3. Ventilated cavity is open at the top and bottom allowing continuous airflow behind cladding. Vented cavity is only open at the bottom.
4. Wall wrap, or rigid air barrier board like Siniat Weather Defence.
5. The external wall wrap, rigid air barrier and roof sarking must be suited to the climate zone.
6. Refer to Bluescope's Technical Bulletin TB-34 for unventilated and ventilated roof construction available here.
7. Based on full internal encapsulation with no uninhibited air flow from outside of the building envelope.
8. Performance is expected to vary based on the type of external cladding used.
9. Minimum expected life of 15 years under normal conditions (excluding indoor swimming pools and spas). Actual service life may increase or decrease depending the factors outlined in the section titled 'Durability'.
10. All galvanised products must be used further than 300m from breaking surf and further than 50m from calm salt water and positioned behind an external wall wrap or rigid air barrier.
11. Water must not be permitted to pool on surfaces and must be designed and installed to drain freely.
12. Foil backed insulation must be used under a metal roof to prevent condensation forming on the roof sheeting.
13. Regular recorded inspections to identify any visible signs of deterioration. If any deterioartion is identified, it must be actioned.
14. Fasteners must have a suitable corrosion protection coating to match the application. Refer to Tables 10 and 11 for more information.
15. Stainless steel screws are not recommended with Siniat steel framing.
16. Refer to 'Intensive Animal Farming and Industrial Buildings' and 'Indoor Swimming Pools and Spas' sections for further restrictions.
17. May be used next to breaking surf for dry internal areas only. Unventilated means lined or sarking on both sides (Refer to NASH definition). Note: Within 1km of breaking surf, the sarking must be installed as soon as possible.
18. Siniat Jamb Stud with Z350 corrosion coating suitable for these applications.

## Corrosivity Zones in Australia

*AS 4312 Atmospheric corrosivity zones in Australia,* classifies geographical zones within Australia based upon the theoretical first year atmospheric corrosion rate of mild steel open to exposure.

Actual corrosion rates depend on the severity of exposure, and these zones are a practical indication of the potential severity of the location to corrosion. This standard does not indicate which corrosion protection coatings must be used for certain locations.

As Siniat steel profiles must be effectively separated from the external environment once installed, the corrosivity zones are much less relevant. Refer to Table 3 for the use of Siniat products for the geographical location and intended application.

## Intensive Animal Farming and Industrial Buildings

Certain micro environments have been found to be particularly corrosive such as intensive animal farming buildings. These buildings create an environment with high concentrations of sulphur and ammonia and as such are not suitable with Siniat steel products without the application of additional corrosion protection measures.

Industrial buildings and the like, and surrounding locations that are subject to heavy dust emissions, excessive heat, excessive moisture, corrosive chemicals or acids, fertilizer manufacturing and storage, near the combustion of fossil fuels are also micro environments which will require further advice before the use of Siniat steel products.

Please consult a corrosion expert for advice for these applications.

## Dissimilar Metals

When dissimilar metals (active and noble metals) come into contact along with the presence of an electrolyte such as water they corrode via galvanic action. This is also known as galvanic corrosion or bi-metallic corrosion.

Copper, stainless steel, brass and lead are just some of the metals that can cause galvanic corrosion when in contact with Zincalume®, Galvaspan® or galvanised steel. Therefore, copper pipes, lead flashing and the like must not come in direct contact with Siniat steel products. Also any water flowing from lead flashing or copper pipes onto Siniat steel products shall be prevented.

**Table 4 Compatibility of Siniat Steel**

| Coating / Metal | AM150 | Z275 Z350 |
|---|---|---|
| Zinc (Z), Aluminium/Zinc (AZ), Aluminium/Zinc/Magnesium (AM, ZAM) | Compatible | Compatible |
| Aluminium | Compatible | Compatible |
| Copper, Stainless Steel or Zinc Nickel coated steel | Not suitable | Not suitable |

## Termite Treated Timbers

Green timber and Copper Chrome Arsenic (CCA) treated timbers must not come into direct contact with Siniat steel products. Either they must be isolated or an alternative kiln dried timber treatment compatible with galvanised or Zincalume® corrosion protection must be used.

## Specific Heat Capacity

Steel is 490 J/kg/K.

## Dimensional Stability

Thermal coefficient of linear expansion ($\alpha$) = 12 x $10^{-6}$ m / °C, measured unrestrained at a temperature of 25 °C

## Maintenance

Maintenance can help extend the service life of steel framing and it is likely to be necessary only as required. Annual checks are recommended on wall, ceiling and facade systems to assess whether maintenance is required for:

- Physical damage
- Fire or excessive heat damage
- Corrosion
- Cleaning (as and when desired)

If repairs are required, then they must be conducted in a way that maintains the structural integrity of the original frame. Also, if new materials are introduced with any repairs then they must be compatible with the existing framing.

# Timber

Unless otherwise stated, timber components used in the systems in this manual were designed using grade MGP10 timber. Timber is a natural product and its dimensions vary with changes in surrounding moisture. Timber should be allowed to reach equilibrium with its surroundings before lining it with plasterboard. The equilibrium moisture content of timber is usually 10 -14%.

# Fibre Cement

Systems in Blueprint that include fibre cement were evaluated using Innova™ and/or Equitone® fibre cement products.

Innova™ and Equitone® fibre cement products are manufactured to meet the requirements of *AS/NZS 2908.2 Cellulose-Cement Products Flat Sheets.*

### Table 5 Fibre Cement Internal Linings used in Fire Rated Systems

| Product | Thickness (mm) | Weight (kg/m²) |
|---|---|---|
| Duraliner | 6 | 8.9 |
| | 9 | 13.2 |
| | 12 | 17.9 |

### Table 6 Other Fibre Cement Internal Linings

| Product | Thickness (mm) | Weight (kg/m²) |
|---|---|---|
| Duralux | 6 | 8.9 |
| | 9 | 13.1 |
| Intergroove | 7.5 | 11.1 |

### Table 7 Fibre Cement Flooring

| Product | Thickness (mm) | Weight (kg/m²) |
|---|---|---|
| Durafloor | 19 | 26.7 |
| | 22 | 31.5 |
| Compressed Flooring | 15 | 26.0 |
| | 18 | 31.1 |
| | 24 | 41.2 |
| Ceramic Tile Underlay | 6 | 8.8 |

### Table 8 Fibre Cement External Soffit Lining

| Product | Thickness (mm) | Weight (kg/m²) |
|---|---|---|
| Duralux | 6 | 8.9 |
| | 9 | 13.1 |
| Durasheet | 4.5 | 6.6 |
| | 6 | 8.9 |

### Table 9 Fibre Cement External Cladding

| Product | Thickness (mm) | Weight (kg/m²) |
|---|---|---|
| Duracom | 9 | 14.6 |
| | 12 | 19.5 |
| Duragrid | 9 | 13.4 |
| Duragroove | 9 | 13.5 |
| Durascape | 9 | 13.5 |
| Duratex | 7.5 | 11.0 |
| | 9 | 13.0 |
| Stonesheet | 9 | 13.1 |
| Montage Concrete | 16 | 18.9 |
| Montage Slimline Tile | 18 | 17.0 |
| Montage Stackstone | 18 | 16.7 |
| Montage Woodgrain | 18 | 17.8 |
| Nuline | 14 | 20.0 |
| Stratum | 12 | 16.0 |
| Stratum Woodgrain | 12 | 16.0 |
| Stratum Duo | 12 | 16.0 |
| Stratum Duo Woodgrain | 12 | 16.0 |
| Stratum Trio | 12 | 16.0 |
| Contour | 10 | 12.9 |
| Duraplank | 7.5 | 11.0 |
| Lunara | 10 | 18.6 |
| Lines | 10 | 16.8 |
| Tectiva | 8 | 14.9 |
| Natura | 8 | 15.4 |
| | 12 | 22.8 |
| Pictura | 8 | 15.4 |
| | 12 | 22.8 |
| Inspira | 8 | 16.8 |

For further information on Innova™ fibre cement products please use the link below.

For further information on Equitone® fibre cement products please use the link below.

# Insulation

Bulk insulation is one of the most cost effective and efficient methods of providing acoustic and thermal comfort and is generally included in light-weight construction systems.

Fletcher Insulation® provides a range of acoustic and energy efficient thermal solutions for the residential, commercial and industrial sectors. Fletcher Insulation® manufactures insulation to the requirements of *AS/NZS 4859.1, Materials used in the Thermal Insulation of Buildings*, and have been tested and certified to relevant Australian Standards ensuring compliance with the National Construction Code (NCC) of Australia.

With a history dating back over half a century, Fletcher Insulation® is a leading insulation manufacturer and distributor of insulation and building membranes in Australia. Supplying renowned brands such as Pink® Batts and Sisalation®, Fletcher Insulation® delivers leading insulation solutions designed for residential homes, commercial buildings as well as HVAC applications. With a national sales and distribution footprint to support our Australian manufacturing facilities, Fletcher Insulation® prides itself on providing first-class products backed by leading edge technical support. For more information contact Fletcher Insulation® directly on 1300 654 444 or visit www.insulation.com.au

Certification for systems in Blueprint have been based upon the insulation products from Fletcher Insulation® and are summarised in Table 10.

### Table 10 Insulation used in Blueprint

| Insulation |
|---|
| Pink® Partition 25mm 24kg/m³ R0.7 |
| Pink® Partition 50mm 11kg/m³ R1.2 |
| Pink® Partition 50mm 14kg/m³ R1.3 |
| Pink® Partition 75mm 11kg/m³ R1.8 |
| Pink® Partition 75mm 14kg/m³ R1.9 |
| Pink® Partition 90mm 14kg/m³ R2.2 |
| Pink® Partition 110mm 11kg/m³ R2.5 |
| Pink® Batts Wall R1.5 |
| Pink® Batts Wall R2.0 |
| Pink® Batts Wall R2.0HD |
| Pink® Batts Ceiling R2.5 |
| Polyester R1.5 |
| Polyester Batts Ceiling R2.5 |

Glasswool insulation in system tables with a nominated R-Value have no restrictions on density or thickness. It is recommended to not compress insulation to less than 85% of its original designated thickness when insulation is used for acoustic performance only. Where insulation is utilised for thermal performance, no compression is permitted.

Insulation products nominated in system tables are the minimum required to meet the acoustic rating. Insulation with higher R-value may be required to meet the desired system R-value.

Fletcher insulation also offers a technical design service that can help predict the thermal and acoustic performance of systems.

Fletcher insulation has developed FletcherSpec™ Pro that is a thermal prediction calculator that can be used to determine the overall thermal performance of roof and walling systems and verifies performance against the NCC. Please click here for access to FletcherSpec™ Pro.

Fletcher Insulation® provides a comprehensive range of bulk insulation products including:

- Pink® Partition
- Pink® Batts: Wall
- Pink® Batts: Ceiling
- Pink® Batts: Floor
- Pink® Soundbreak™
- Pink® Building Blanket
- Permastop® Building Blanket
- Permatuff® Building Blanket
- Permastop® Tropic Building Blanket
- Polyester Batts: Wall
- Polyester Batts: Ceiling
- Polyester Batts: Underfloor
- Polyester Batts: Acoustic
- Polyester Acoustic Partition Blanket
- Fire Stop (Party Wall Batts)
- Pink® Thermal Slab
- Pink® NoiseSTOP™ with Durasorb® Facing
- Pink® SonoBatt Blanket

## Wall Wraps and Roof Sarking

Where products are required for vapour control or airflow, the following products are recommended:

- Sisalation® Vapawrap™ Residential Wall Wrap
- Sisalation® Tuff Wrap™ Wall Wrap Standard (497)
- Sisalation® Tuff Wrap™ Wall Wrap Breather (497)
- Sisalation® Multipurpose EHD (456)
- Sisalation® Vapawrap™ Vapour Permeable Metal Roof
- Sisalation® Metal Roof Medium Duty (433)
- Sisalation® Metal Roof Heavy Duty (453)

Fletcher Insulation can assist with condensation modelling and provide advice on the right products to use by climate zone to meet the needs of the NCC. Please contact Fletcher Insulation for assistance on 1300 654 444.

## General Tapes for Building Blankets and Vapour Permeable Sarkings

Vapastop® 883 Tape is recommended for use with building blankets and foil faced sarking and wall membranes.

3M Seaming Tape is recommended for use with Sisalation Vapour Permeable membranes.

## Thermal Break Strip

Thermal break tapes are required by the NCC to isolate steel wall and roof framing.
Thermatape™ Thermal Break Strip is recommended to isolate steel wall and roof framing:

Refer to FletcherSpec™ Pro modelling software that can predict performance of thermal systems inclusive of thermal break. Please click here for access to Fletcher Spec™ Pro

## Acoustic Pipe Wrapping

Soundlag 4525C (5 kg/m$^2$) acoustic pipe wrapping is recommended for the sound protection of ducts, rainwater or waste pipes.

## Loaded Vinyl Barrier

Quadzero™ Loaded Vinyl Barrier is recommended where additional acoustic performance is required.

## Fire Stopping

The following products are recommend for the fire protection of openings and service penetrations in Siniat plasterboard wall and ceiling systems.

- Siniat Bindex Fire and Acoustic Sealant
- Promat PROMASEAL® Retrofit Collars
- Promat PROMASEAL® Wall Collars FCW
- Promat PROMASTOP® UniCollar®
- Promat PROMASEAL® Conduit Collar
- Promat PROMASEAL® Flexiwrap
- Promat PROMASEAL® Bulkhead Batts
- Promat PROMASEAL® Supawrap Sleeve
- Promat PROMASEAL® Supawrap 40
- Promat PROMASEAL® Pillows
- Promat PROMASEAL® Fyrestrip
- Promat PROMASEAL® IBS Foam Strip™
- Promat PROMASEAL® A acrylic sealant
- Promat PROMASEAL® AG acrylic intumescent sealant
- Promat PROMASEAL® Grafitex GRAF4T
- Fire Stop (Party Wall Batts)

# Fasteners

Fasteners used to fix Siniat steel framing products and accessories must be compatible and also have equivalent corrosion protection for the service life of the entire system.

As Siniat steel profiles are roll formed using Zincalume®, Galvaspan® or galvanised corrosion protection coatings, they are particularly compatible with zinc coated fasteners. The zinc layer acts as a sacrificial anode which protects the steel from corrosion.

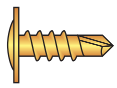
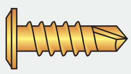
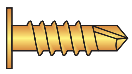
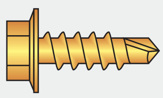
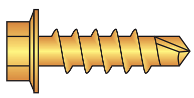
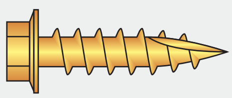
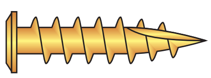
When using any fastener with Siniat steel profiles, it is essential that there is limited exposure to moisture during service. If the screws or studs come into contact with moisture, ensure that all moisture can dry out quickly beneath fastener heads or around washers (if used).

Please note that stainless steel screws are not recommended with Siniat steel framing, or alternatively seek expert advice on corrosion and compatibility prior to use.

Green timber and certain treated timbers such as Copper Chromium Arsenate (CCA) treated timbers are corrosive to steel fasteners, especially in combination with moisture.

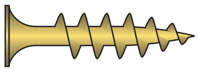
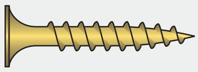
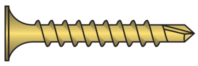
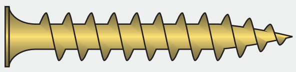
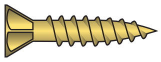
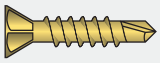
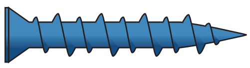
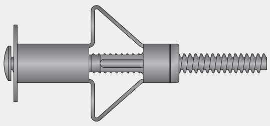
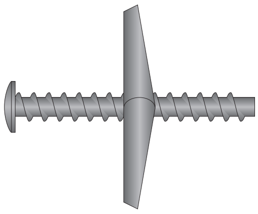
Consult the manufacturer for specific advice on the appropriate fasteners for the application and environmental conditions.

### Table 11 Typical Steel Framing Fasteners

| Typical Applications | Image | Features | Typical Sizes Available |
|---|---|---|---|
| | | | Screw gauge - Threads per inch x Length |
| Steel framing screw 0.75 - 2.50mm BMT. Recommended for Siniat 0.3 - 0.75mm BMT profiles. |  | • Button head<br>• Fine thread<br>• Drill point | 8 - 18 x 12mm<br>8 - 18 x 16mm<br>8 - 18 x 20mm<br>8 - 18 x 25mm<br>8 - 18 x 32mm |
| Steel framing screw 0.75 - 3.50mm BMT. Recommended for Siniat 1.15 - 1.5mm BMT steel profiles. |  | • Wafer head<br>• Fine thread<br>• Drill point | 10 - 16 x 16mm<br>10 - 16 x 22mm<br>10 - 16 x 30mm<br>10 - 16 x 40mm |
| Steel framing screw 0.75 - 3.0mm BMT. Recommended for Siniat 1.15 - 1.5mm BMT steel profiles. |  | • Flat head<br>• Fine thread<br>• Drill point | 10 - 16 x 16mm<br>10 - 16 x 22mm<br>10 - 16 x 30mm |
| Steel framing screw 0.75 - 3.50mm BMT. Recommended for Siniat 1.15 - 1.5mm BMT steel profiles. |  | • Hex head<br>• Fine thread<br>• Drill point | 10 - 16 x 16mm<br>10 - 16 x 25mm |
| Steel framing screw 1.00 - 4.50mm. Recommended for Siniat 1.15 - 1.5mm BMT steel profiles. |  | • Hex head<br>• Fine thread<br>• Drill point | 12 - 14 x 20mm<br>12 - 14 x 30mm<br>12 - 14 x 35mm<br>12 - 14 x 45mm<br>12 - 14 x 55mm<br>12 - 14 x 65mm<br>12 - 14 x 75mm |
| Steel framing to timber |  | • Hex head<br>• Coarse thread<br>• Type 17 point | 10 - 12 x 25mm<br>12 - 11 x 25mm<br>12 - 11 x 40mm<br>12 - 11 x 50mm<br>12 - 11 x 65mm |
| Steel framing to timber |  | • Wafer head<br>• Coarse thread<br>• Type 17 point | 10 - 12 x 25mm<br>10 - 12 x 35mm<br>10 - 12 x 45mm |

1. Information in the table is supplied by ICCONS Pty Ltd, unless otherwise noted. Other fastener / anchor manufacturers product specifications may vary.
2. Refer to the manufacturer's technical literature for the correct in-situ applications, corrosion class and capacity information of a specific fastener or anchor.
3. For external wall framing use screws with a minimum corrosion resistance of Class 3.
4. Drawings are representative only.

## Table 12 Typical Plasterboard and Fibre Cement Fasteners

| Typical Applications | Image | Features | Typical Sizes Available<br>Screw gauge - Threads per inch x Length |
|---|---|---|---|
| Plasterboard to timber |  | • Coarse thread<br>• Bugle head<br>• Needle point | 6 - 9 x 25mm<br>6 - 9 x 32mm<br>6 - 9 x 41mm<br>8 - 9 x 45mm<br>8 - 9 x 50mm<br>8 - 9 x 75mm |
| Plasterboard to timber, or steel up to 0.75mm BMT |  | • Fine thread<br>• Bugle head<br>• Needle point | 6 - 18 x 20mm<br>6 - 18 x 25mm or 7 - 15 x 25mm<br>6 - 18 x 32mm or 7 - 15 x 32mm<br>6 - 18 x 35mm<br>6 - 18 x 41mm<br>6 - 18 x 45mm or 7 - 15 x 45mm<br>7 - 15 x 50mm<br>7 - 15 x 57mm<br>8 - 15 x 65mm<br>8 - 15 x 75mm<br>10 - 12 x 100mm |
| Plasterboard to steel 0.75mm to 2.30mm BMT |  | • Fine thread<br>• Bugle head<br>• Drill point | 6 - 20 x 25mm<br>6 - 20 x 32mm<br>6 - 20 x 41mm<br>6 - 20 x 45mm<br>8 - 18 x 75mm (up to 2.50mm BMT) |
| Plasterboard laminating screw |  | • Coarse thread<br>• Bugle head<br>• Needle point | 10 - 8 x 38mm<br>10 - 8 x 50mm |
| Fibre cement to steel up to 0.75mm BMT |  | • Self embed head<br>• Needle point | 8 -15 x 20mm<br>8 -15 x 30mm |
| Fibre cement to steel 0.75mm to 2.30mm BMT |  | • Fine thread<br>• Self eambed head<br>• Drill point | 8 -15 x 20mm<br>8 -15 x 30mm |
| Plasterboard to masonry or concrete |  | • Tapcon thread<br>• Countersunk head<br>• Needle point | 10 x 32mm<br>10 x 45mm<br>14 x 55mm<br>14 x 70mm |
| Hollow Wall Anchor |  | • Fine thread<br>• Pan head | Various |
| Spring Toggle |  | • Fine thread<br>• Pan head | 1/8" x 50mm<br>1/8" x 75mm<br>3/16" x 50mm<br>3/16" x 75mm<br>3/16" x 100mm |

1. Information in the table is supplied by ICCONS Pty Ltd, unless otherwise noted. Other fastener / anchor manufacturers product specifications may vary.
2. Refer to the manufacturer's technical literature for the correct in-situ applications, corrosion class and capacity information of a specific fastener or anchor.

## Table 13 Recommended Fastener Corrosion Resistance Class - External

| Atmospheric corrosivity category | Typical distance[3] from breaking surf | Recommended Minimum Fastener Corrosion Class | | | |
|---|---|---|---|---|---|
| | | External | | | |
| | | Behind ventilated cladding system - unprotected | Behind ventilated cladding system - protected[4] | Behind vented cladding system | External ceilings |
| C2 (low) | Greater than 50km | Class 3 | Class 2 | Class 2 | Class 2 |
| C3 (medium) | Between 1km to 50km | Class 3 | Class 3 | Class 2 | Class 3 |
| C4 (high) | Between 300m to 1km, or greater than 50m from calm salt water | -[2] | Class 3 | Class 3 | Class 3 |
| C5 (severe) | Between 100m to 300m, or between 10m to 50m from clam salt water | -[2] | Class 3 | Class 3 if covered with wall wrap or external cladding soon after installation, otherwise cover with external grade sealant or use Class 4 | -[2] |

1. This table is a guide only for fasteners used with Siniat top hats, Multishield behind wall wrap or Weather Defence.
2. Obtain specialist advice if in doubt or for applications outside this table.
3. Distances are approximate. Refer to AS4312 for more detail and for specific locations.
4. Protected is defined as fasteners behind wall wrap, wall or ceiling cladding or covered with external grade sealant.
5. For industrial environments and the like, obtain specialist advise of appropriate fastener corrosion class.
6. Stainless steel screws are not recommended with Siniat steel framing.

## Table 14 Recommended Fastener Corrosion Resistance Class - Internal

| Atmospheric corrosivity category | Recommended Minimum Fastener Corrosion Class | | | | |
|---|---|---|---|---|---|
| | Internal | | | | |
| | Dry rooms | Rooms with intermittent high humidity[3] | Rooms with constant high humidity | Swimming pools and spas | |
| | | | | Unprotected | Protected[4] |
| C1 (very low) | Class 1 | Class 2 | Class 3 | Class 4 | Class 3 |

1. This table is a guide only for fasteners used with Siniat plasterboard linings (except for unprotected swimming pools).
2. Obtain specialist advice if in doubt or for applications outside this table.
3. Includes internal wet areas and where condensation may occur.
4. Protected is defined as fasteners behind a wall or ceiling lining or covered with external grade sealant.
5. For industrial, intensive animal framing or food production environments and the like, obtain specialist advice of appropriate fastener corrosion class.
6. Stainless steel screws are not recommended with Siniat steel framing.

# Anchors

Australian Standard *5216:2021 Design of post-installed and* cast-in *fastenings in concrete* provides information to determine the capacity of anchors used to transfer loads to concrete for safety critical applications. The types of loads covered by *AS 5216* include static, quasi-static and seismic loads.

The 2021 version of *AS 5216* introduced the design requirements for post-installed fasteners under seismic actions. This included the fixing of non-structural parts and components to structural elements. For almost all projects, anchors that are pre-qualified for cracked concrete and seismic applications must be used to resist seismic loads.

Seismic loads (also known as seismic actions) for a particular building element are determined by *AS 1170.4 Structural Design Actions – Earthquake actions in Australia* [Refer to 'Seismic Actions' in Section 2.3]. It should be noted that *AS 1170.4* does not distinguish between safety critical and non-safety critical applications. It rather outlines the items that are required to be designed for seismic actions. Items consisting of Siniat plasterboard and light-weight steel framing that must be designed for seismic loads include:

- Walls
- Ceilings and bulkheads (and the like)
- Connections

Appendix F in *AS 5216* outlines two methods for determining the minimum seismic performance category required for anchors to concrete.

## Method 1

A detailed analysis is required by a professional engineer to determine the expected crack width in the concrete substrate at the location of the anchor. [Refer to Table 15].

## Method 2

A conservative but simplified approach to determine the seismic performance category is to use Table 16. The table can be used based on the building importance level, Z hazard factor [Refer to Figure 8 in Section 2.3] and the site sub-soil class. This information is typically available from the structural engineering design document of the primary structure.

### Table 15 Minimum Required Seismic Performance Categories for Fasteners (AS5216:2021 Table F.3.1)

| Crack Width Under Seismic Design Earthquake[1] | Fastener Seismic Performance Category |
|---|---|
| w ≤ 0.3mm | Seismic pre-qualification is not required[2] |
| w ≤ 0.5mm | C1 |
| w ≤ 0.8mm | C2 |
| w > 0.8mm (plastic hinge region) | Not covered by AS 5216 |

1. The crack widths are based on the pre-qualifications requirements in accordance with EOTA TR049.
2. Design of fastener for seismic action is required but the fastener does not require seismic pre-qualification.

### Table 16 Minimum Recommended Seismic Performance Categories for Fasteners

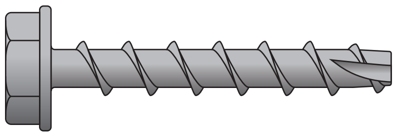
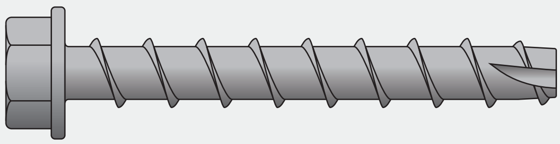
| Hazard Factor Z | Building Importance Level | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | | | | | 3 | | | | | 4 |
| | Sub-soil type | | | | | Sub-soil type | | | | | Sub-soil type |
| | $E_e$ | $D_e$ | $C_e$ | $B_e$ | $A_e$ | $E_e$ | $D_e$ | $C_e$ | $B_e$ | $A_e$ | All |
| 0.08 | C2 | C1 | C1 | * | * | C2 | C2 | C1 | C1 | C1 | C2 |
| 0.09 | C2 | C2 | C1 | * | * | C2 | C2 | C1 | C1 | C1 | C2 |
| 0.10 | C2 | C2 | C1 | * | * | C2 | C2 | C2 | C1 | C1 | C2 |
| 0.11 - 0.12 | C2 | C2 | C1 | C1 | * | C2 | C2 | C2 | C1 | C1 | C2 |
| 0.13 | C2 | C2 | C2 | C1 | C1 | C2 | C2 | C2 | C1 | C1 | C2 |
| 0.14 - 0.16 | C2 | C2 | C2 | C1 | C1 | C2 | C2 | C2 | C2 | C1 | C2 |
| 0.17 - 0.18 | C2 | C2 | C2 | C1 | C1 | C2 | C2 | C2 | C2 | C2 | C2 |
| 0.19 - 0.22 | C2 | C2 | C2 | C2 | C1 | C2 | C2 | C2 | C2 | C2 | C2 |
| > 0.22 | C2 | C2 | C2 | C2 | C2 | C2 | C2 | C2 | C2 | C2 | C2 |

1. Refer to Figure 8 in Section 2.3 for an Australian map with Hazard Factor Z
2. * Seismic pre-qualification is not required

| Sub-soil Type | |
|---|---|
| $A_e$ | Strong rock |
| $B_e$ | Rock |
| $C_e$ | Shallow soil |
| $D_e$ | Deep or soft soil |
| $E_e$ | Very soft soil |

View Hazard Factor Z map by clicking on the link

## Table 17 Siniat Screw Anchor Table

| Typical Applications | Image | Features | Sizes Available<br>Diameter x length |
|---|---|---|---|
| Siniat Screw Anchor for steel track or clips, into concrete or masonry |  | • Seismic **C1** certified<br>• Suitable for overhead applications<br>• Hex head<br>• Close to edge proximity compared to other anchors | 6 x 45mm (SA6x45)<br><br>6 x 60mm (SA6x60) |
| Siniat Screw Anchor for Universal Bracket (UB60 and UB80) and Dropper Bracket (DB), into concrete or masonry |  | • Seismic **C1** certified<br>• Suitable for overhead applications<br>• Hex head<br>• Close to edge proximity compared to other anchors | 8 x 65mm (SA8x65) |

## Table 18 Properties

| Anchor | SA6x45 and SA6x60 | SA8x65 |
|---|---|---|
| Head type | Hex head SW13 | Hex head SW13 |
| Corrosion protection | 8 um zinc coating | 8 um zinc coating |
| Nominal tensile strength $f_{uk}$ (N/mm$^2$) | 930 | 810 |
| Yield strength $f_{yk}$ (N/mm$^2$) | 745 | 695 |
| Stressed cross-section $A_s$ (mm$^2$) | 26.9 | 48.4 |

## Table 19 Concrete Thickness and Anchor Placement

| Anchor | SA6x45 | SA6x60 | SA8x65 |
|---|---|---|---|
| Minimum concrete thickness (mm) | 80 | 100 | 100 |
| Minimum spacing $S_{min}$ (mm) | 35 | 35 | 50 |
| Minimum edge distance $C_{min}$ (mm) | 35 | 35 | 40 |

## Table 20 Static and Quasi-static Performance in Concrete

| Design Resistance in Cracked Concrete (kN) | | Static / Quasi-static Loads | | | | | |
|---|---|---|---|---|---|---|---|
| | | Pull-out | | | Shear | | |
| | | SA6x45 | SA6x60 | SA8x65 | SA6x45 | SA6x60 | SA8x65 |
| Nominal embedment depth $h_{nom}$ (mm) | | 40 | 55 | 60 | 40 | 55 | 60 |
| Concrete Grade (MPa) | 20 | 1.39 | 3.33 | 6.00 | 3.77 | 8.33 | 12.67 |
| | 25 | 1.54 | 3.70 | 6.66 | 4.22 | 8.33 | 12.67 |
| | 32 | 1.76 | 4.22 | 7.59 | 4.77 | 8.33 | 12.67 |
| | 40 | 1.96 | 4.70 | 8.46 | 5.33 | 8.33 | 12.67 |
| | 50 | 2.19 | 5.27 | 9.48 | 5.96 | 8.33 | 12.67 |

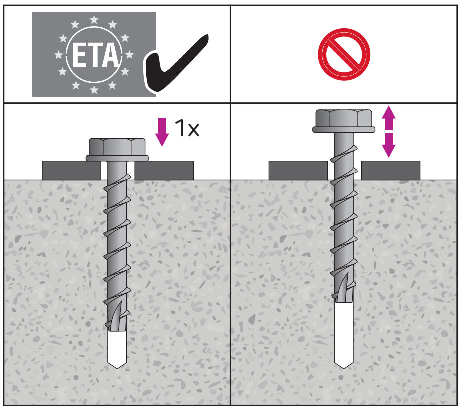
1. No edge distance and spacing influence, or reinforcement affects.
2. Interaction of both Pull-out and Shear to be considered as per AS5216-2018 Equation 8.2.1 (1) and 8.2.1 (2).

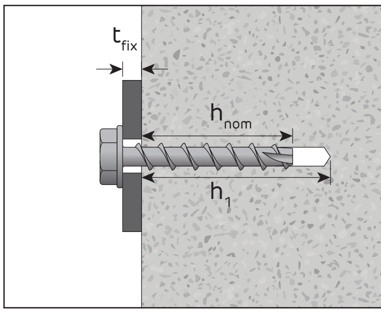
## Table 21 Seismic C1 Performance in Concrete

| Design Resistance in Cracked Concrete (kN) | | Seismic C1 Loads | | | | | |
|---|---|---|---|---|---|---|---|
| | | Pull-out | | | Shear | | |
| | | SA6x45 | SA6x60 | SA8x65 | SA6x45 | SA6x60 | SA8x65 |
| Nominal embedment depth $h_{nom}$ (mm) | | 40 | 55 | 60 | 40 | 55 | 60 |
| Concrete Grade (MPa) | 20 | 1.39 | 2.22 | 6.00 | 1.60 | 1.67 | 3.97 |
| | ≥ 25 | 1.39 | 2.22 | 6.00 | 1.67 | 1.67 | 3.97 |

1. No edge distance and spacing influence, or reinforcement affects.
2. Interaction of both Pull-out and Shear to be considered as per AS5216-2018 Equation 8.2.1 (1) and 8.2.1 (2).
3. $\alpha_{gap}$ = 0.5

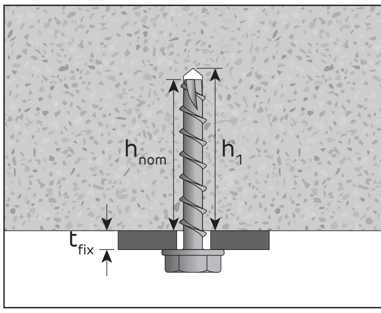
## Screw Anchor Installation
## SA6x45 and SA6x60




| SA6x45 | |
|---|---|
| $h_1$ | 50mm |
| $h_{nom}$ | 40mm |
| $t_{fix}$ | 5mm maximum |
| **SA6x60** | |
| $h_1$ | 65mm |
| $h_{nom}$ | 55mm |
| $t_{fix}$ | 5mm maximum |

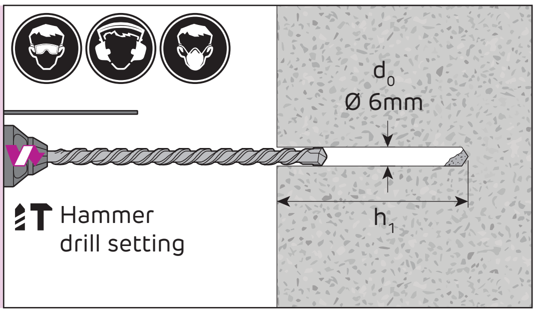
**General Applications**
Section



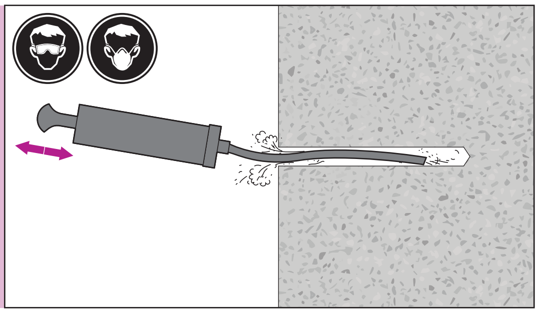

| SA6x45 | |
|---|---|
| $h_1$ | 48mm |
| $h_{nom}$ | 40mm |
| $t_{fix}$ | 5mm maximum |
| **SA6x60** | |
| $h_1$ | 63mm |
| $h_{nom}$ | 55mm |
| $t_{fix}$ | 5mm maximum |

**Overhead Applications**
Section

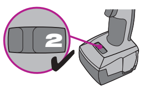
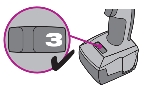
1



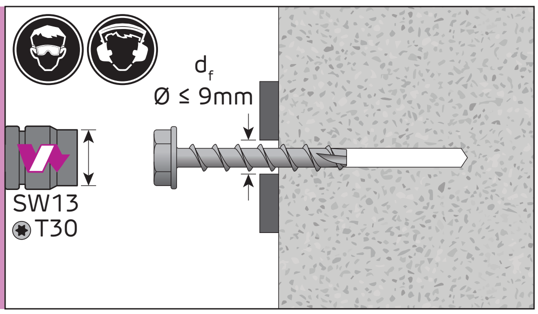

2



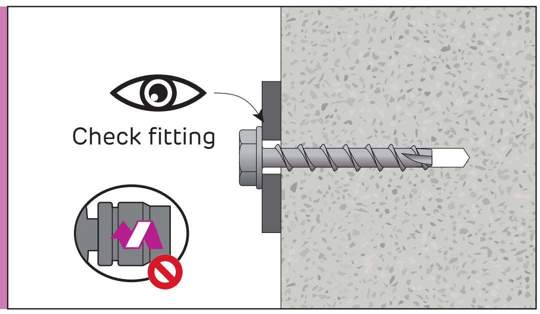
3

| $h_{nom}$ | Hilti Impact Driver / Wrench | | | Installation torque |
|---|---|---|---|---|
| | SID 2-A ½″ | SIW 6AT-A22 ½″ | SIW 22T-A ½″ | |
| 40mm | ✔ |  |  | 20 Nm |
| 55mm | ✔ |  |  | 25 Nm |

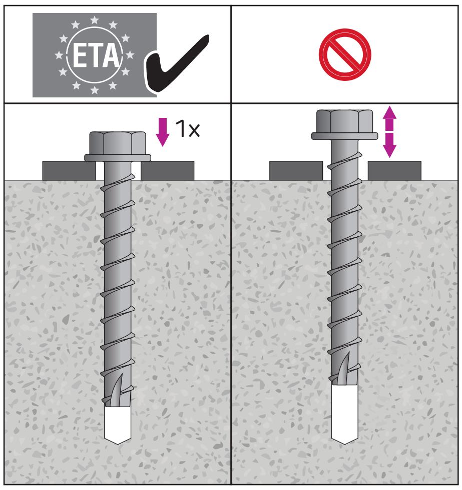
4

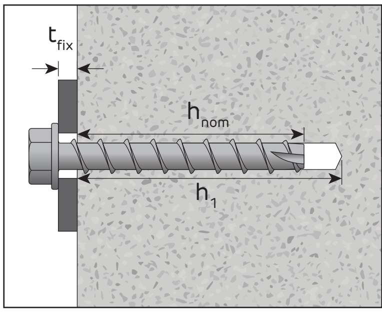



5



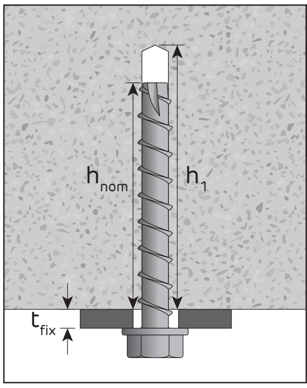
## Siniat Screw Anchor Installation
## SA8x65



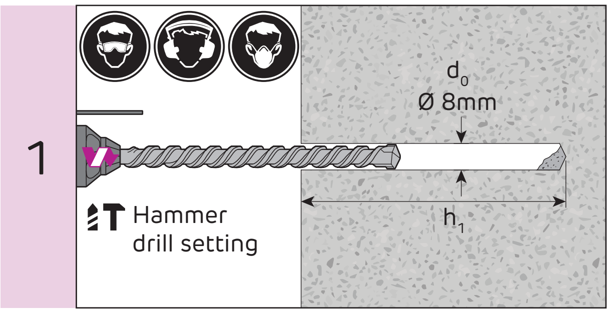

| SA8x65 | |
|---|---|
| $h_1$ | 70mm |
| $h_{nom}$ | 60mm |
| $t_{fix}$ | 5mm maximum |

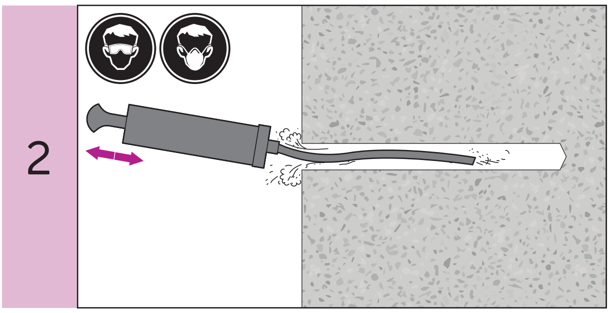
**General Applications**
Section




| SA8x65 | |
|---|---|
| $h_1$ | 70mm |
| $h_{nom}$ | 60mm |
| $t_{fix}$ | 5mm maximum |

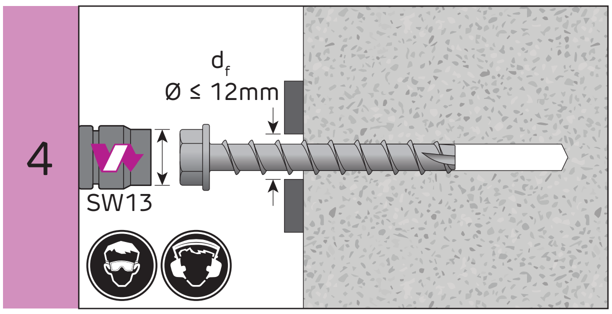
**Overhead Applications**
Section

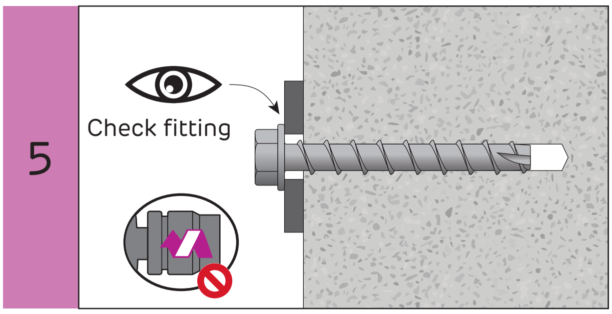



3

| $h_{nom}$ | Hilti Impact Driver / Wrench | | | | |
|---|---|---|---|---|---|
| | SIW 22-A ½″ | SIW 6AT-A22 ½″ | SIW 22T-A ½″ | SIW 22T-A ¾″ | SIW 9-A22 ¾″ |
| 60mm | ✔ | ✔ | ✔ | ✔ | 🚫 |



# 2.2 Care and Use

## Storage, Delivery and Handling

Wall and ceiling linings must be kept dry and should be stacked clear of the floor using supports not more than 600mm apart as shown in Figure 1.

Remove plastic wrapping from plasterboard and accessories soon after storing in a location that is protected from the weather. This will prevent moisture being trapped.

If outdoor storage is unavoidable, linings and accessories should be fully protected from the weather temporarily.

Plasterboard that has been exposed to direct sunlight, or has been fixed and left unpainted for long periods, may become discoloured. If this happens, it must be sealed with a solvent borne stain sealer undercoat as recommended by the paint manufacturer.

Plasterboard ceilings should not be left unpainted as they may absorb moisture from the atmosphere and sag. Plasterboard finishing compound must not be left unpainted as it becomes susceptible to moisture absorption and can develop shrinkage defects or become powdery and flake off if painting is attempted.

To reduce the possibility of damage to plasterboard, arrange delivery to site immediately before installation. During delivery, care should be taken not to damage the surface or edges the plasterboard sheets.

Exposure to excessive humidity during storage can result in plasterboard becoming damp and soft, and may appear defective. In this case allow the plasterboard to dry out and handle with care during installation.

To help protect plasterboard from absorbing humidity:

- Avoid open sources of water such as wet floors
- Wrap the plasterboard temporarily with plastic overnight when storing outside
- Provide ventilation
- Install soon after delivery
- Install during dry weather for best results.

Store Siniat steel products where they are not in constant contact with water or in wet environments for extended periods. Avoid exposure to airborne contaminants such as sea spray.

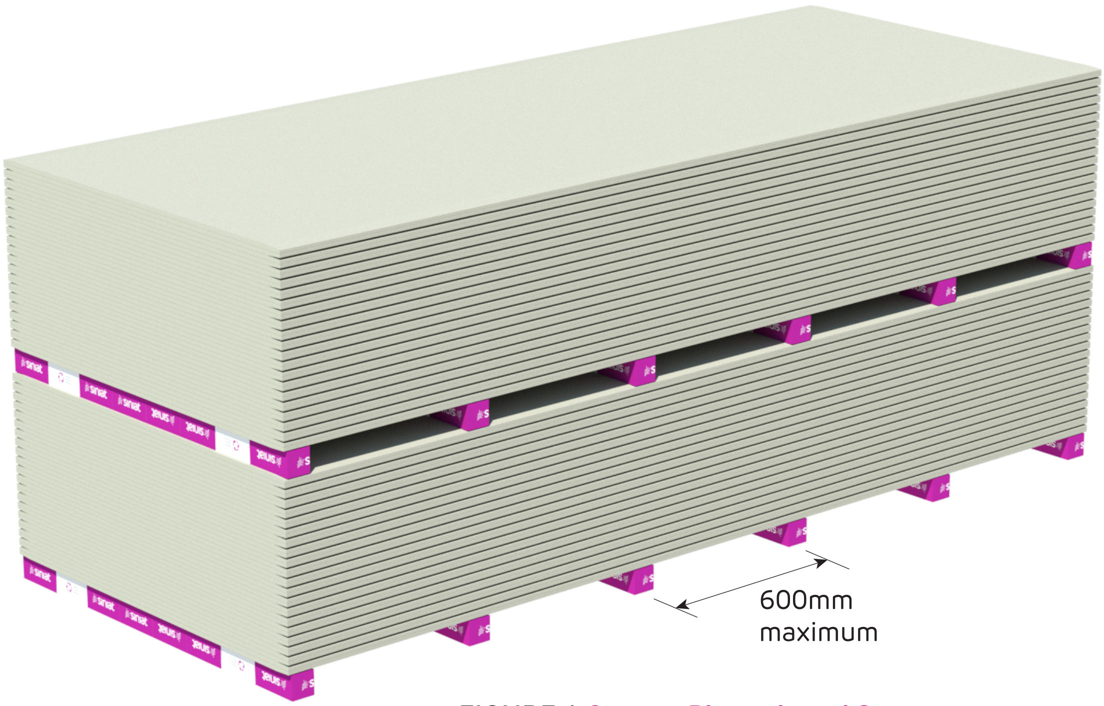



**FIGURE 1** **Correct Plasterboard Storage**

## Weather Protection

All Siniat plasterboard (except Weather Defence), must be installed in a building that is weathertight. Particular care must be taken in areas of high humidity and coastal areas subject to salt spray. Complete all exterior doors, walls, windows and the roof before installing plasterboard. Prevent rain from entering buildings, avoid water on floors or other sources of open water and allow wet concrete or masonry to dry. These precautions will reduce excessive humidity that may be absorbed by timber or unpainted plasterboard and minimise defects caused by timber shrinkage or moist plasterboard.

Siniat plasterboard installed on the exterior side of external wall framing must be protected from the weather until moisture barriers and external cladding are installed. Protect plasterboard from water pooling at ground level.

## Condensation and Ventilation

Condensation of water on a surface occurs when the temperature of a building element falls below the dew point temperature. Moisture from the air then condenses on the surface.

Condensation onto either the face or back of plasterboard and associated substrate framing must be avoided. Insufficient protection from condensation can result in plasterboard joint distortion, sagging, mould growth, fastener popping and corrosion on steel framing.

Many inter-related factors must be taken into account to control condensation. Good practice is to make use of wall and ceiling insulation, vapour barriers, and especially ventilation.

Siniat plasterboard and steel framing must not be subjected to excessive condensation. Ventilation is crucial to the longevity of building materials by reducing condensation. Ventilation must be considered wherever there is the possibility of mositure accumulation such as indoor environments and roof spaces subjected to water vapour ingress.

Continuous ventilation in a wall or ceiling cavity near salt water may reduce the service life of any steel substrate framing. As such, vented wall and ceiling systems with only one opening are recommended. Fully ventilated building systems with multiple openings near salt water must be considered with caution.

To minimise the effects of condensation:

- Use **water**shield, **multi**shield, **tru**rock or **tru**rock hd to increase protection against moisture.
- Use moisture barriers, sarking, and insulation. However, it is important that the right type is selected for the construction type and that it is installed correctly. Refer to the manufacturer's specifications.
- Use foil backed insulation under metal roofs which are susceptible to forming condensation.
- Install eave vents, gable vents and roof ventilators in the roof cavity.
- Remove humidity from bathrooms via an exhaust fan to the outside.
- Use a quality paint system to provide protection against paint peeling and condensation soaking into plasterboard and compounds.
- Ensure the building design controls condensation on the steel components so they are not constantly wet.

In hot and humid climates where the building is air-conditioned below the dew point of the outside air, the wall and ceiling framing members and internal linings should be fully protected by moisture barriers to separate them from the humid external air. The moisture barriers should be thermally insulated to maintain them at a temperature above the dew point.

# Exposure to High Humidity

Plasterboard exposed to high humidity (above 90%) for an extended period, may affect the plasterboards integrity and therefore its ability to perform its intended function.

For rooms with intermittent periods of high humidity such as bathrooms or basements where plasterboard is installed, a source of ventilation is required to enable removal of excess moisture, such as an open window or exhaust fan.

Ceilings in rooms such as indoor swimming pools and communal showers are subject to long periods of high humidity (above 90%). The use of plasterboard on these ceilings is not guaranteed by Etex Australia.

**water**shield, **multi**shield, **tru**rock or **tru**rock hd completely covered with a waterproof membrane complying with *AS/NZS 4858:2004 Wet Area Membranes* may be used for walls in rooms subject to long periods of high relative humidity. Vertical junctions and wall to floor junctions must also be waterproof, refer to Section 3.4 Internal Wet Areas using Plasterboard.

> In areas where high humidity is likely (ie: under concrete slabs with concrete block walls) consider closer framing intervals for ceiling linings to limit sag

# Exposure to Water

Plasterboard that has become wet during its service life must be assessed for damage and then either repaired or replaced. Plasterboard exposed to water can be assessed by anyone familiar with plasterboard such as plasterer.

The Onboard referred to below may be used as a guide for determining if the plasterboard needs repair or replacement.

### OnBoard - Assessing Wet Plasterboard

# Exposure to Excessive Heat

Plasterboard is an ideal building material for normal ambient temperatures. It is not suitable for long periods at elevated temperatures such as installed near fireplace flues or chimneys. Fire resistant plasterboard is no exception. It is designed to slow down a fire, not to resist constant elevated temperatures.

The effect of high temperatures on plasterboard is to chemically dehydrate the core. This process generally begins at around 80°C but can occur at lower temperatures under certain conditions.

*AS/NZS 2589:2017, Gypsum linings – Application and finishing*, states that plasterboard must not be exposed to temperatures above 52°C for prolonged periods.

Heat generating appliances have installation instructions for the correct distances between plasterboard linings and heat sources. The *National Construction Code (NCC)* also has requirements for installation of heating appliances.

## Glass or Stainless Steel Splashback

*AS/NZS 5601.1-2022 Gas Installations* allows plasterboard to be used behind splashbacks near domestic gas burners as follows:

- Behind ceramic tiles minimum 10mm plasterboard may be used if the ceramic tiles are minimum 5mm thick
- If clearance to glass or stainless steel splashback is 200mm* or more, then any plasterboard may be used
- If clearance to glass splashback is less than 200mm* then 10mm plasterboard may be used if the glass is marked as 'toughened safety glass'
- If clearance to stainless steel splashback is less than 200mm* then 6mm fibre cement over 10mm plasterboard may be used if the steel is at least 0.4mm thick.

*Clearance is measured from the edge of the nearest burner to the splashback.

# 2.3 Building Requirements and Solutions

Siniat offers wall and ceilings systems using plasterboard to satisfy a variety of building requirements, including:

- Standard wall partition and ceiling types
- Fire protection
- Sound insulation
- Sound absorption
- Impact resistance
- Thermal insulation
- Wet areas and mould resistance
- X-ray shielding
- Improved indoor air quality solutions
- Aesthetic solutions

All systems in Blueprint have been designed to satisfy the requirements of the *National Construction Code (NCC)*.

System performance relies not only on selecting the correct nominated material components such as plasterboard, compounds, studs and insulation, but also on following the correct installation details such as stud spacing and fixing centres. Even small details like sealing gaps can have an effect on system performance.

Variations in construction or materials may reduce a system's fire and sound insulation rating, structural capacity or other aspects of performance. Where performance is compromised it can result in non-compliance. Non-compliance is costly to rectify and if not done the ultimate cost can be human life.

## Control Joints

Control joints allow for building movement resulting from influences such as moisture migration, structural movement and foundation settlement. Cracks in plasterboard and plasterboard joints should be minimised by using control joints and the correct installation techniques.

According to *AS/NZS 2589:2017, Gypsum linings –Application and finishing*, control joints must be installed in internal plasterboard walls and ceilings at:

- Maximum 12 metre intervals
- At all movement joints in the building
- Any change in the substrate material

Control joints are also recommended at the:

- Junction of a larger room and passageway
- Floor line in stairwells. Cover the gap with a moulding fastened to one edge.

Distance between control joints may need to be reduced to less than 12 metres due to conditions such as large temperature or humidity variations. Control joints used in plasterboard external ceilings must have 6 metre maximum intervals, and for tiled plasterboard walls must have 4.8 metre maximum intervals.

Ceilings in close proximity to roof tiles or metal sheeting may require control joints at much smaller intervals as they are exposed to larger rates of thermal expansion and higher humidity.

An internal or external corner, bulkhead or full height door or window may perform the function of a control joint.

## Design Standards

Wall and ceiling system framing must be designed according to the relevant design standard:

- *AS 1684 Residential Timber Framed Construction*
- *AS 1720 Timber Structures*
- *AS/NZS 2785 Suspended Ceilings*
- *AS/NZS 4600 Cold Formed Steel Structures*
- *NASH Standard for Residential and Low-rise Steel Framing, Part 1 and Part 2*
- *AS/NZS 3700 Masonry Structures*

### Siniat Frame Finder and Estimator

# Structural Frame Design for Lightweight Systems

## Load Determination

To design the frame for a wall or ceiling system, first the loads acting on the system must be determined. The Australian and New Zealand 1170 series of standards must be referenced to define the loads that a structure is subjected to.

- *AS/NZS 1170.0 Structural Design Actions – General Principles*
- *AS/NZS 1170.1 Structural Design Actions – Permanent, imposed and other actions*
- *AS/NZS 1170.2 Structural Design Actions – Wind actions*
- *AS/NZS 1170.3 Structural Design Actions – Snow and ice actions*
- *AS 1170.4 Structural Design Actions – Earthquake actions in Australia*

An abridged version of the wind actions standard, specific to wind loads for certain Australian low-rise residential dwellings may also be used, and it is called AS 4055 Wind loads for housing.

There is also a joint Australian and New Zealand standard specific to suspended ceilings, *AS/NZS 2785 Suspended ceilings – design and installation*, which covers additional loads and load cases.

## Common Loads on Wall and Ceiling Systems

The most common loads which may act on a wall or ceiling system include:

1. Dead loads (G): Weight of the wall or ceiling itself.
2. Live loads (Q): Shelf loads, Hand-rail loads, Impact loads, and any other variable loads.
3. Wind loads (W): External wind loads, and internal wind loads.
4. Services loads (U): A nominal service load specific to ceiling systems.
5. Earthquake loads (E): Forces acting on wall and ceiling systems due to an earthquake event.

Other load types do exist for particular situations, and the AS/NZS 1170 series should be referred to.

# Wind Loads

External and internal wind loads for a building or dwelling on a specific site are determined using the relevant standards, either AS/NZS 1170.2 for larger buildings or AS 4055 for low-rise residential dwellings. Reference to these standards should be made as both contain limitations to the type and size of structures covered.

The calculation of wind pressures using the method prescribed in AS/NZS 1170.2 when used for a specific project is summarised below. As this is a guide only, it is recommended to refer to the standard or seek professional engineering advice when determining wind pressures for a specific building/dwelling.

To determine the wind pressures for a particular structure, the following items need to be determined:

1. Building Importance Level from the National Construction Code (NCC 2022 Volume One, B1D3). This section of the NCC sets out the appropriate annual probability of exceedance limits for wind, snow and earthquake loads for the relevant importance level of the building. The building importance levels range from 1 (least important) to 4 (most important).

2. Determine the site wind speed,

$$V_{sit,\beta} = V_R \, M_c \, M_d \, M_{z,cat} \, M_s \, M_t$$

where:

$V_{sit,\beta}$ is the site wind speed (metres per second) based upon the 8 cardinal directions.

$V_R$ is the regional gust wind speed (metres per second) based upon the wind region [Refer to Figure 2] and the annual probability of exceedance.

$M_c$ is the climate change multiplier. For Regions A (0-5) and B1 is taken as 1, otherwise for Regions B2, C and D is taken as 1.05.

$M_d$ is the wind directional multipliers for the 8 cardinal directions. For simplicity the wind direction multiplier is usually taken is 1.

$M_{z,cat}$ is the terrain/height multiplier, and is a function of the Terrain Category surrounding the location, and the height of the building or particular building element above the ground. The terrain/ height multiplier ranges from 0.75 to 1.32.

$M_s$ is the shielding multiplier, and is usually taken as 1.

$M_t$ is the topography multiplier, and should be checked as it also depends on the terrain surrounding the location. The topography multiplier is usually taken as 1 but it may also go higher than 1.

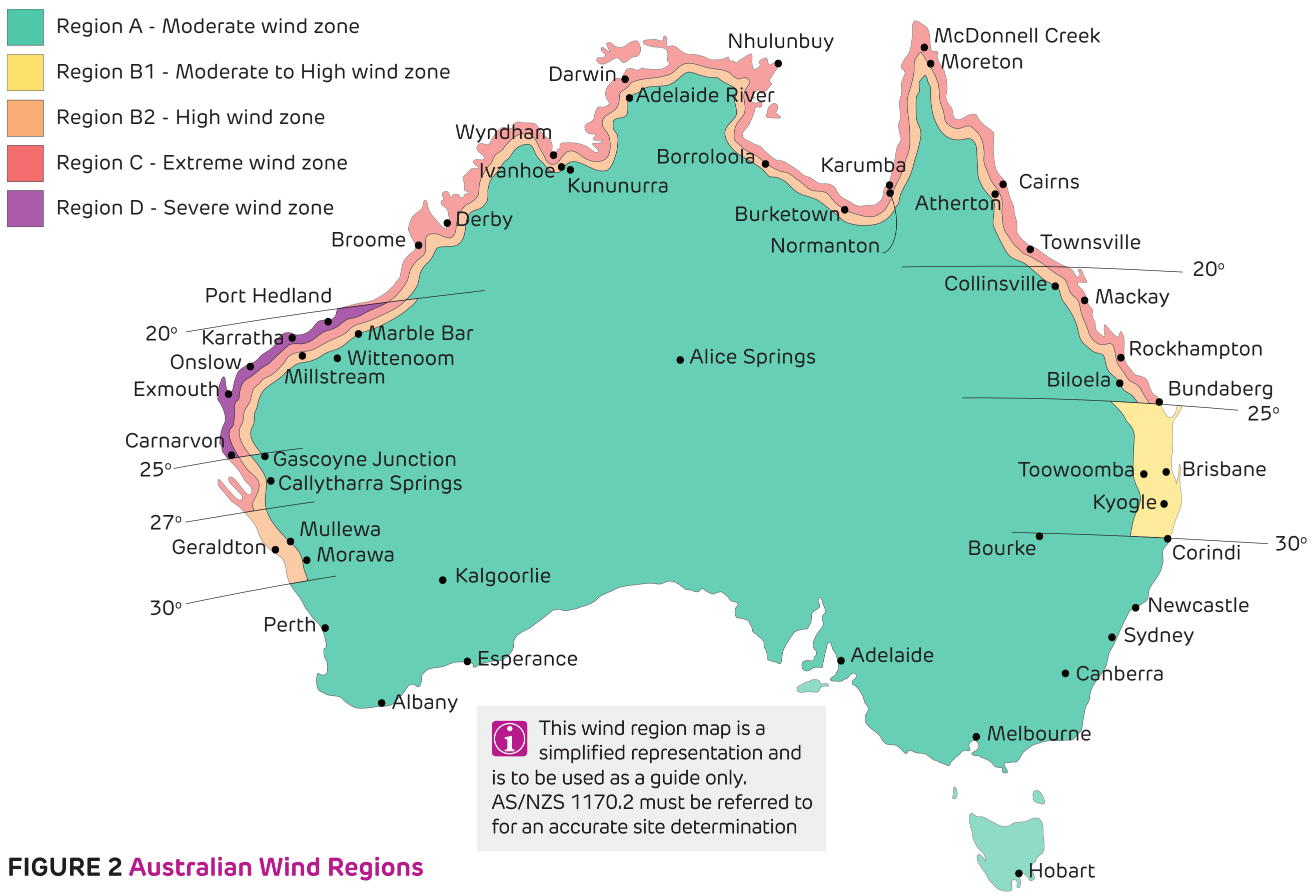



**FIGURE 2** Australian Wind Regions

3. Determine the specific design pressure for the location of a building element.

$p = (0.5\ \rho_{air})\ [V_{des,\theta}]^2\ C_{shp}\ C_{dyn}$

where:

p is the wind pressure, in pascals (Pa). As this is usually a large number it is simplified to kilo-pascals (kPa).

$\rho_{air}$ is the density of air, taken as 1.2 kg/m³

$V_{des,\theta}$ is the maximum value of $V_{sit,\beta}$ in the range of ± 45° from the buildings 4 orthogonal directions.

$C_{shp}$ is an aerodynamic shape factor for the building element in question. $C_{shp}$ can be relevant for external ($C_{shp,e}$), internal ($C_{shp,i}$), and a combination of external and internal wind pressures ($C_{shp,net}$). For a detailed explanation of the aerodynamic shape factor, see the relevant wind sections below.

$C_{dyn}$ is a dynamic response factor and is related to the effects of fluctuating forces and resonant response of wind sensitive buildings. It analyses the along wind and cross wind response of a building during wind events. Generally taken as 1, but it may go higher than 1. Specialist wind engineering expertise may be required for certain buildings.

## External Wind Pressures for Enclosed Rectangular Buildings

External wind pressures apply to cladding elements and structural elements directly supporting cladding like top hat framing. For a specific building element the external aerodynamic shape factor can be calculated by:

$C_{shp,e} = C_{p,e}\ K_a\ K_L\ K_p$

where:

$C_{shp,e}$ is the aerodynamic shape factor for external wind pressures.

$C_{p,e}$ is the external pressure coefficients for the outer surface of a building. There are different external pressure coefficients for windward walls, leeward walls, side walls and roofs.

$K_a$ is an area reduction factor based upon the tributary area (m2) that a building element structurally supports. Generally taken as 1 for light-weight systems as the tributary area is rather small compared to larger structural members supporting the main structure.

$K_L$ is a local pressure factor for wind pressures applied to cladding and members that support the cladding including all relevant fasteners. This factor is dependent on the geometric properties of the building

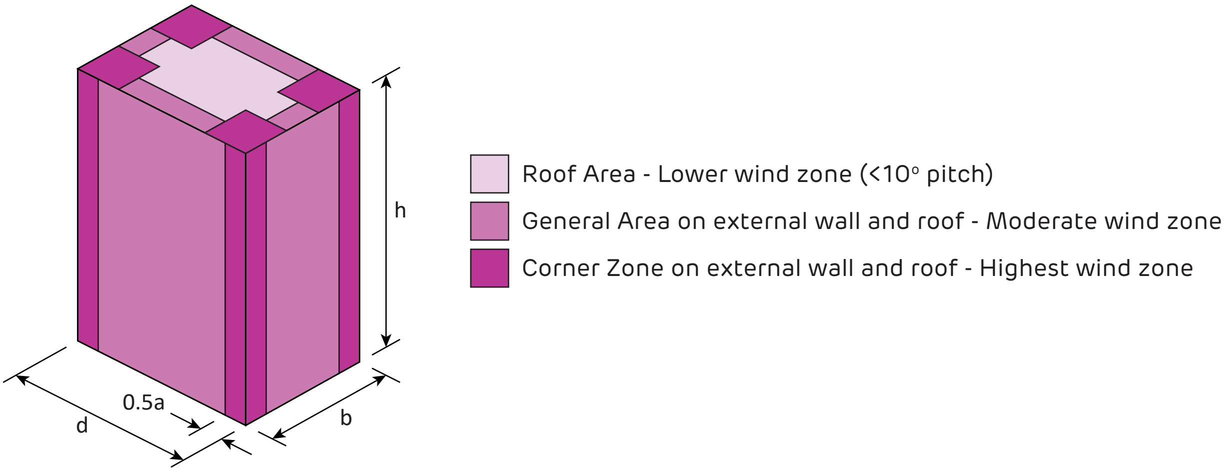



**FIGURE 3 Typical Simplified Wind Zones on a Building**
Combination external plus internal wind pressures (for stud framing)
Simplified to 2 zones

including height (h), breadth (b) and depth (d) [Refer to Figure 3], where depending on the location of the building the local pressure factor may be in the range of 1 up to 3. (a) is the minimum of 0.2b, 0.2d or h.

## Internal Wind Pressures For Enclosed Rectangular Buildings

Internal wind pressures apply to internal wall and ceiling systems, and they are a function of the external wind pressures (site wind speed) and the size of any potential openings in the external surfaces. Potential openings include doors, windows and vents, which may be left open or may fail during a wind high event.

In regions C and D [Refer to Figure 2] the internal wind pressure must also contend with the potential effects of airborne debris during high wind events. An assessment should be made for each case; therefore professional advice will be required.

For a specific building element inside a building, the internal aerodynamic shape factor can be calculated by:

$C_{shp,i} = C_{p,i} K_v$

where:

$C_{shp,i}$ is the aerodynamic shape factor for internal wind pressures.

$C_{p,i}$ is the internal pressure coefficient for the spaces inside a building. When there are no potential openings in any external surface greater than 0.5% of the total surface area, then the internal pressure coefficients are generally taken as the values shown in Figure 4.

Kv is open area / volume factor.

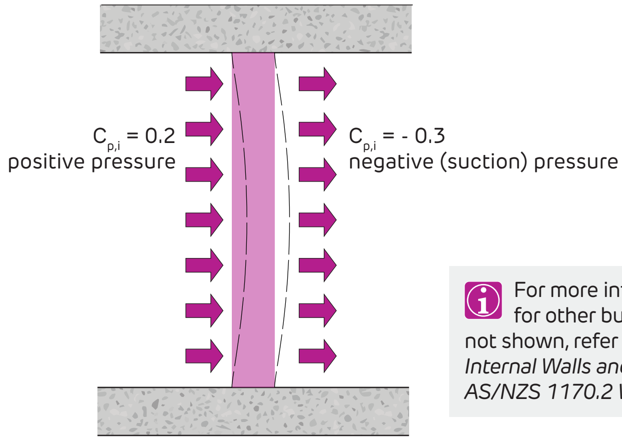
For cases where the potential openings in any external surface can be greater than 0.5%, then the internal wind pressures gradually increase right up to the external pressures if the opening is large enough. Advice should be sought from Siniat or a professional engineer should this case occur for your project.

Implementing a sufficient building management plan for high wind events when a building is operational, is a possible way to reduce the potential size of external openings, and thus keeping the internal wind pressures to more economical levels.

For some applications it is also common in the drywall industry to use nominal internal wind pressures of $W_{ult}$ = 0.375 kPa, and $W_{ser}$ = 0.25 kPa with either a maximum deflection of height/240 for flexible linings (i.e.: untiled wall) or height/360 for brittle linings (i.e.: tiled wall, masonry) for walls, and span/200 for suspended ceilings or span/360 for horizontal stud or top hat ceilings. If a project determines that this design criteria is acceptable, then the nominated wall height and ceiling span tables may be used to select the appropriate frame.

Note that these nominal pressures should not be confused with NCC 2022 Volume One, C2D9 which is a robustness criteria for lightweight fire rated walls, such as fire rated plasterboard walls, and should not be confused with site specific internal wind pressures.

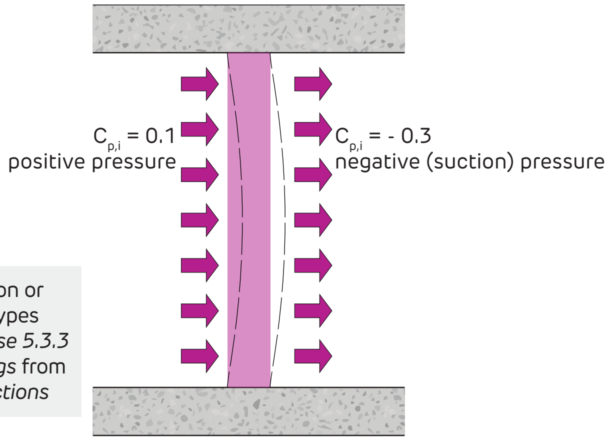
### Siniat Internal Wind Load Calculator




**Case 1: Internal Wall $C_{p,i\ net}$ = 0.5**

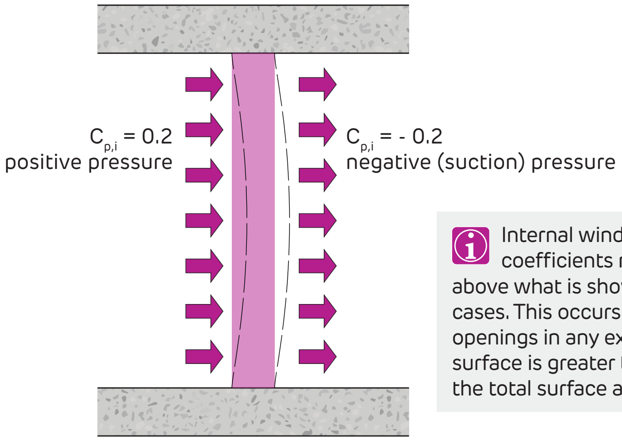
1. Apartment buildings and the like with 2 or 3 walls permeable, and other walls impermeable
2. Single leaf internal wall
3. Effectively sealed wall
4. Adjacent to an external wall.

> For more information or for other building types not shown, refer to *Clause 5.3.3 Internal Walls and Ceilings* from *AS/NZS 1170.2 Wind Actions*




**Case 2: Internal Wall $C_{p,i\ net}$ = 0.4**

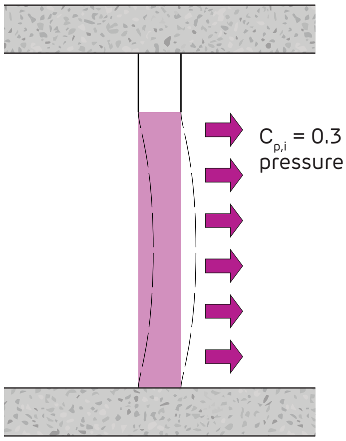
1. Apartment buildings and the like with 2 or 3 walls permeable, and other walls impermeable
2. Single leaf internal wall
3. Effectively sealed wall
4. Other internal walls that provide an effective seal between spaces.




**Case 3: Internal Wall $C_{p,i\ net}$ = 0.4**

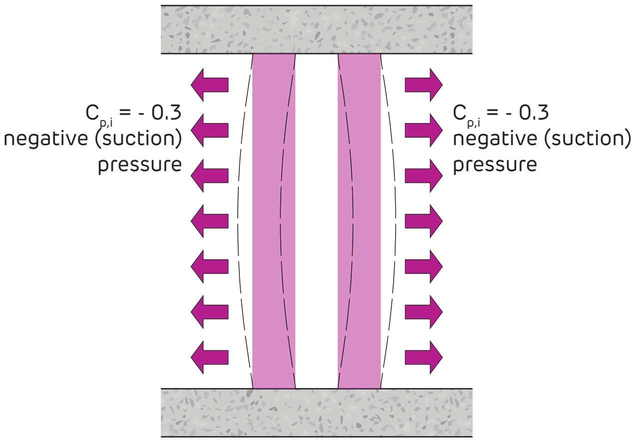
1. Air-conditioned Hospitals, Offices and Shopping Centres (except loading docks) that are effectively sealed where the external walls have non-opening windows
2. Single leaf internal wall
3. Effectively sealed wall
4. Adjacent to an external wall, or other internal walls that provide an effective seal between spaces.

> Internal wind pressure coefficients may go above what is shown in these cases. This occurs when openings in any external surface is greater than 0.5% of the total surface area.



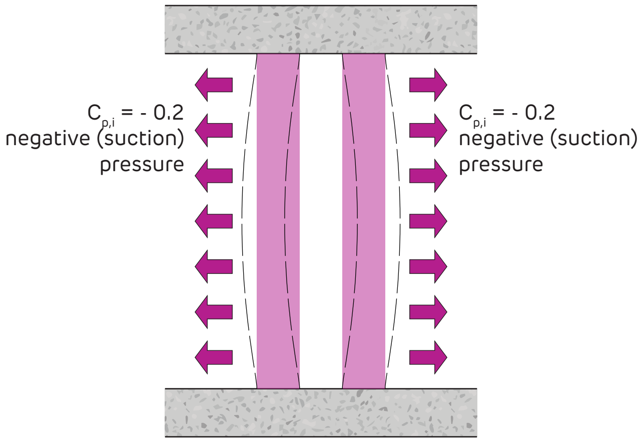

**Case 4: Internal Wall $C_{p,i\ net}$ = 0.3**

1. Single leaf internal wall
2. Wall with no permanent effective seal




**Case 5: Internal Wall $C_{p,i\ net}$ = 0.3**

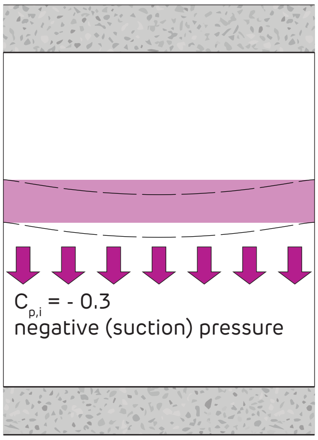
1. Apartment buildings and the like with 2 or 3 walls permeable, and other walls impermeable
2. Double leaf internal wall
3. Effectively sealed wall
4. Adjacent to an external wall.



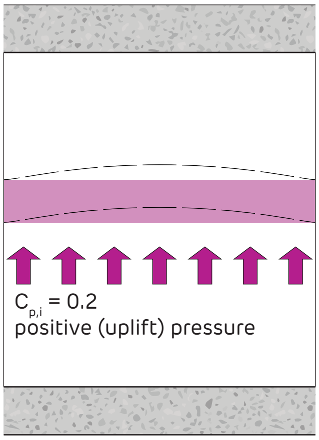

**Case 6: Internal Wall $C_{p,i\ net}$ = 0.2**

1. Air-conditioned Hospitals, Offices and Shopping Centres (except loading docks) that are effectively sealed where the external walls have non-opening windows
2. Double leaf internal wall
3. Effectively sealed wall
4. Adjacent to an external wall.

**FIGURE 4 Typical Simplified Wind Pressure Coefficients for Internal Wall Frame Design**
Region A and B only - No potential openings in any external surface greater than 0.5% of the total surface area
Section view




**Case 1a: Internal Ceiling $C_{p,i}$ = - 0.3 (suction)**

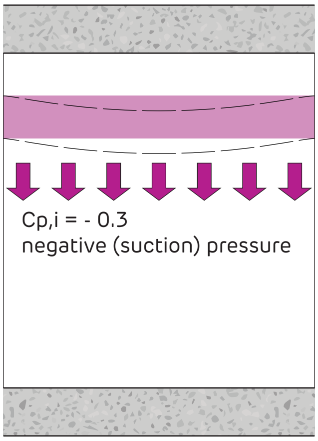



**Case 1b: Internal Ceiling $C_{p,i}$ = 0.2 (uplift)**

1. Apartment buildings and the like with 2 or 3 walls permeable, and other walls impermeable
2. Internal ceiling adjacent to an external wall
3. Ceiling with an impermeable roof/floor.

For more information or for other building types not shown, refer to *Clause 5.3.3 Internal Walls and Ceilings* from *AS/NZS 1170.2 Wind Actions*

Internal wind pressure coefficients may go above what is shown in these cases. This occurs when openings in any external surface is greater than 0.5% of the total surface area.




**Case 2: Internal Ceiling $C_{p,i}$ = - 0.3 (suction)**

1. Air-conditioned Hospitals, Offices and Shopping Centres (except loading docks) that are effectively sealed where the external walls have non-opening windows
2. Internal ceiling
3. Ceiling with an impermeable roof/floor.

**FIGURE 5 Typical Simplified Wind Pressure Coefficients for Internal Ceiling Frame Design**
Region A and B only - No potential openings in any external surface greater than 0.5% of the total surface area
Section view

## Table 22 Internal Wind Pressures $C_{p,i}$ =0.3

| Building Importance Level 2 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| Ultimate Wind Speed V500 (m/s) | 45 | | | | | | | | | | | | 57 | | | | | | | | | | | |
| Serviceability Wind Speed V25 (m/s) | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| Terrain Category | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| Height above ground (z) | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| $M_{z,cat}$ | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| Ultimate Wind Pressure (kPa) | 0.43 | 0.49 | 0.55 | 0.36 | 0.44 | 0.51 | 0.31 | 0.39 | 0.47 | 0.25 | 0.34 | 0.42 | 0.68 | 0.79 | 0.88 | 0.58 | 0.71 | 0.81 | 0.49 | 0.63 | 0.75 | 0.40 | 0.55 | 0.67 |
| Serviceability Wind Pressure (kPa) | 0.29 | 0.33 | 0.37 | 0.25 | 0.30 | 0.34 | 0.21 | 0.27 | 0.31 | 0.17 | 0.23 | 0.28 | 0.32 | 0.37 | 0.41 | 0.27 | 0.33 | 0.38 | 0.23 | 0.30 | 0.35 | 0.19 | 0.26 | 0.31 |

| Building Importance Level 3 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| Ultimate Wind Speed V1000 (m/s) | 46 | | | | | | | | | | | | 60 | | | | | | | | | | | |
| Serviceability Wind Speed V25 (m/s) | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| Terrain Category | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| Height above ground (z) | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| $M_{z,cat}$ | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| Ultimate Wind Pressure (kPa) | 0.44 | 0.51 | 0.58 | 0.38 | 0.46 | 0.53 | 0.32 | 0.41 | 0.49 | 0.26 | 0.36 | 0.44 | 0.76 | 0.87 | 0.98 | 0.65 | 0.78 | 0.90 | 0.54 | 0.70 | 0.83 | 0.45 | 0.61 | 0.74 |
| Serviceability Wind Pressure (kPa) | 0.29 | 0.33 | 0.37 | 0.25 | 0.30 | 0.34 | 0.21 | 0.27 | 0.31 | 0.17 | 0.23 | 0.28 | 0.32 | 0.37 | 0.41 | 0.27 | 0.33 | 0.38 | 0.23 | 0.30 | 0.35 | 0.19 | 0.26 | 0.31 |

| Building Importance Level 4 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| Ultimate Wind Speed V2000 (m/s) | 48 | | | | | | | | | | | | 63 | | | | | | | | | | | |
| Serviceability Wind Speed V25 (m/s) | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| Terrain Category | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| Height above ground (z) | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| $M_{z,cat}$ | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| Ultimate Wind Pressure (kPa) | 0.48 | 0.56 | 0.63 | 0.41 | 0.50 | 0.58 | 0.35 | 0.45 | 0.53 | 0.29 | 0.39 | 0.47 | 0.83 | 0.96 | 1.08 | 0.71 | 0.86 | 0.99 | 0.60 | 0.77 | 0.91 | 0.49 | 0.67 | 0.82 |
| Serviceability Wind Pressure (kPa) | 0.29 | 0.33 | 0.37 | 0.25 | 0.30 | 0.34 | 0.21 | 0.27 | 0.31 | 0.17 | 0.23 | 0.28 | 0.32 | 0.37 | 0.41 | 0.27 | 0.33 | 0.38 | 0.23 | 0.30 | 0.35 | 0.19 | 0.26 | 0.31 |

**Table 23** Internal Wind Pressures $C_{p,i}$ =0.4

| Building Importance Level 2 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Region** | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| **Ultimate Wind Speed V500 (m/s)** | 45 | | | | | | | | | | | | 57 | | | | | | | | | | | |
| **Serviceability Wind Speed V25 (m/s)** | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| **Terrain Category** | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| **Height above ground (z)** | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| **$M_{z,cat}$** | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| **Ultimate Wind Pressure (kPa)** | 0.57 | 0.65 | 0.74 | 0.49 | 0.59 | 0.68 | 0.41 | 0.53 | 0.62 | 0.33 | 0.46 | 0.56 | 0.91 | 1.05 | 1.18 | 0.78 | 0.94 | 1.09 | 0.65 | 0.84 | 1.00 | 0.54 | 0.73 | 0.89 |
| **Serviceability Wind Pressure (kPa)** | 0.38 | 0.44 | 0.50 | 0.33 | 0.40 | 0.46 | 0.28 | 0.36 | 0.42 | 0.23 | 0.31 | 0.38 | 0.43 | 0.49 | 0.55 | 0.37 | 0.44 | 0.51 | 0.31 | 0.39 | 0.47 | 0.25 | 0.34 | 0.42 |

| Building Importance Level 3 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Region** | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| **Ultimate Wind Speed V1000 (m/s)** | 46 | | | | | | | | | | | | 60 | | | | | | | | | | | |
| **Serviceability Wind Speed V25 (m/s)** | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| **Terrain Category** | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| **Height above ground (z)** | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| **$M_{z,cat}$** | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| **Ultimate Wind Pressure (kPa)** | 0.59 | 0.68 | 0.77 | 0.51 | 0.61 | 0.71 | 0.43 | 0.55 | 0.65 | 0.35 | 0.48 | 0.58 | 1.01 | 1.16 | 1.31 | 0.86 | 1.05 | 1.20 | 0.72 | 0.93 | 1.10 | 0.60 | 0.81 | 0.99 |
| **Serviceability Wind Pressure (kPa)** | 0.38 | 0.44 | 0.50 | 0.33 | 0.40 | 0.46 | 0.28 | 0.36 | 0.42 | 0.23 | 0.31 | 0.38 | 0.43 | 0.49 | 0.55 | 0.37 | 0.44 | 0.51 | 0.31 | 0.39 | 0.47 | 0.25 | 0.34 | 0.42 |

| Building Importance Level 4 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Region** | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| **Ultimate Wind Speed V2000 (m/s)** | 48 | | | | | | | | | | | | 63 | | | | | | | | | | | |
| **Serviceability Wind Speed V25 (m/s)** | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| **Terrain Category** | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| **Height above ground (z)** | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| **$M_{z,cat}$** | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| **Ultimate Wind Pressure (kPa)** | 0.64 | 0.74 | 0.84 | 0.55 | 0.67 | 0.77 | 0.46 | 0.60 | 0.71 | 0.38 | 0.52 | 0.63 | 1.11 | 1.28 | 1.44 | 0.95 | 1.15 | 1.33 | 0.80 | 1.03 | 1.22 | 0.66 | 0.90 | 1.09 |
| **Serviceability Wind Pressure (kPa)** | 0.38 | 0.44 | 0.50 | 0.33 | 0.40 | 0.46 | 0.28 | 0.36 | 0.42 | 0.23 | 0.31 | 0.38 | 0.43 | 0.49 | 0.55 | 0.37 | 0.44 | 0.51 | 0.31 | 0.39 | 0.47 | 0.25 | 0.34 | 0.42 |

## Table 24 Internal Wind Pressures $C_{p,i}$ =0.5

| Building Importance Level 2 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Region** | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| **Ultimate Wind Speed V500 (m/s)** | 45 | | | | | | | | | | | | 57 | | | | | | | | | | | |
| **Serviceability Wind Speed V25 (m/s)** | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| **Terrain Category** | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| **Height above ground (z)** | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| **$M_{z,cat}$** | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| **Ultimate Wind Pressure (kPa)** | 0.71 | 0.82 | 0.92 | 0.61 | 0.74 | 0.85 | 0.51 | 0.66 | 0.78 | 0.42 | 0.57 | 0.70 | 1.14 | 1.31 | 1.47 | 0.97 | 1.18 | 1.36 | 0.82 | 1.05 | 1.24 | 0.67 | 0.92 | 1.12 |
| **Serviceability Wind Pressure (kPa)** | 0.48 | 0.55 | 0.62 | 0.41 | 0.50 | 0.57 | 0.34 | 0.44 | 0.52 | 0.28 | 0.39 | 0.47 | 0.53 | 0.61 | 0.69 | 0.46 | 0.55 | 0.64 | 0.38 | 0.49 | 0.58 | 0.31 | 0.43 | 0.52 |

| Building Importance Level 3 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Region** | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| **Ultimate Wind Speed V1000 (m/s)** | 46 | | | | | | | | | | | | 60 | | | | | | | | | | | |
| **Serviceability Wind Speed V25 (m/s)** | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| **Terrain Category** | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| **Height above ground (z)** | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| **$M_{z,cat}$** | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| **Ultimate Wind Pressure (kPa)** | 0.74 | 0.85 | 0.96 | 0.63 | 0.77 | 0.88 | 0.53 | 0.69 | 0.81 | 0.44 | 0.60 | 0.73 | 1.26 | 1.45 | 1.63 | 1.08 | 1.31 | 1.50 | 0.90 | 1.17 | 1.38 | 0.74 | 1.02 | 1.24 |
| **Serviceability Wind Pressure (kPa)** | 0.48 | 0.55 | 0.62 | 0.41 | 0.50 | 0.57 | 0.34 | 0.44 | 0.52 | 0.28 | 0.39 | 0.47 | 0.53 | 0.61 | 0.69 | 0.46 | 0.55 | 0.64 | 0.38 | 0.49 | 0.58 | 0.31 | 0.43 | 0.52 |

| Building Importance Level 4 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Region** | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| **Ultimate Wind Speed V2000 (m/s)** | 48 | | | | | | | | | | | | 63 | | | | | | | | | | | |
| **Serviceability Wind Speed V25 (m/s)** | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| **Terrain Category** | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| **Height above ground (z)** | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| **$M_{z,cat}$** | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| **Ultimate Wind Pressure (kPa)** | 0.81 | 0.93 | 1.05 | 0.69 | 0.84 | 0.96 | 0.58 | 0.75 | 0.88 | 0.48 | 0.65 | 0.79 | 1.39 | 1.60 | 1.80 | 1.19 | 1.44 | 1.66 | 1.00 | 1.29 | 1.52 | 0.82 | 1.12 | 1.36 |
| **Serviceability Wind Pressure (kPa)** | 0.48 | 0.55 | 0.62 | 0.41 | 0.50 | 0.57 | 0.34 | 0.44 | 0.52 | 0.28 | 0.39 | 0.47 | 0.53 | 0.61 | 0.69 | 0.46 | 0.55 | 0.64 | 0.38 | 0.49 | 0.58 | 0.31 | 0.43 | 0.52 |

## Combination External Plus Internal Wind Pressures

$C_{shp,net} = (C_{shp,i}\, K_{ci} + C_{shp,e}\, K_{ce})$

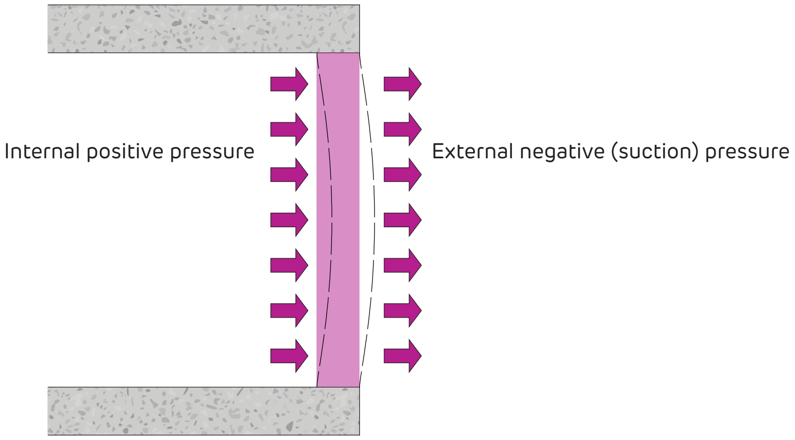
where:

$C_{shp,net}$ is the combination net pressure coefficient of $C_{shp,i}\, K_{ci}$ acting with $C_{shp,e}\, K_{ce}$ [Refer to Figure 6]. Typically, when calculating the combined internal with external wind pressure actions, $C_{p,i}$ is taken as 0.2 for side walls and leeward walls, and either – 0.3 when the building has all walls equally permeable or – 0.2 when the building is effectively sealed having non-openable windows.

$K_c$ is a combination factor. It allows for a concession to the overall net wind pressure when considering the combination of external and internal wind pressures acting together in the same direction. When considering the combined effects of internal and external wind pressures, then $K_{ce}$ can be taken as 0.9, otherwise for all other cases $K_{ce}$ must be taken as 1.

$K_{ci}$ only can be taken as 0.9, when the absolute (positive or negative) value of Cp,i is greater than or equal to 0.4, otherwise Kci must be taken as 1.

As an alternative to determining the site specific wind pressures from AS/NZS 1170.2, a project may employ the services of a specialist wind engineering consultancy to determine the wind pressures associated with a specific building on a specific site. They are usually engaged to provide cost savings for large projects.




**Enternal Wall $C_{shp,net} = C_{shp,i}\, K_{ci}$ acting with $C_{shp,e}\, K_{ce}$**

1. Combination factor $K_{ce}$ can be taken as 0.9
2. Combination factor $K_{ci}$ is either 1.0 when absolute (+ or -) value of $C_{p,i}$ is less than 0.4, otherwise $K_{ci}$ is 0.9

**FIGURE 6 Example of internal and external wind pressures acting in the same direction**
Total wind pressure ($C_{shp,net}$) acting on the external wall stud framing
Section view

# Seismic Actions

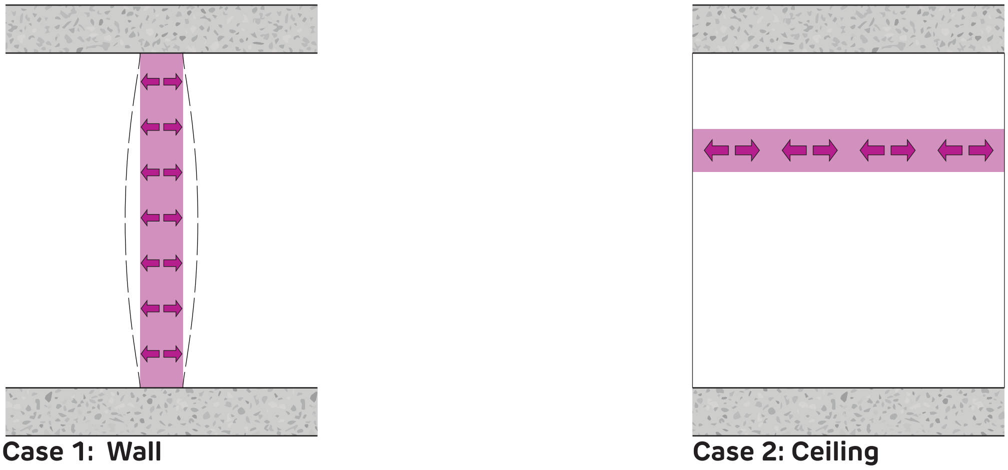



**FIGURE 7** **Typical Seismic Actions for Lightweight Walls and Ceilings**
Section view

Seismic actions for buildings and building elements are determined using *AS/NZS 1170.4 Earthquake Actions in Australia*. Seismic actions accelerate an object causing a corresponding load to be exerted. The load also results in displacement of the object which must be accounted for in structural design.

The seismic load generated on buildings and their respective elements must have a clear path to return the load to the buildings foundation. Displacements of building elements under the nominated seismic load from the standard must also be allowed to occur without major structural failure or collapse. Some damage is expected to occur though depending on the magnitude of an earthquake.

Lightweight walls, ceilings and their connections are considered architectural (non-structural) parts and components. The methods prescribed in AS/NZS 1170.4 to determine the seismic actions and design the architectural parts and components for a specific project are summarised in this section. As this is a simplified guide only, it is recommended to refer to the standard or seek professional engineering advice when determining the seismic actions for a specific building or building element.

To determine the seismic actions applied to lightweight walls and ceilings, the following items need to be determined:

1. Building Importance Level from the National Construction Code (NCC 2022, Volume One, B1D3). This section of the NCC sets out the appropriate annual probability of exceedance limits for wind, snow and earthquake loads for the relevant importance level of the building. The building importance levels range from 1 (least important) to 4 (most important).

2. Determine the probability factor $k_p$ from AS/NZS 1170.4 Clause 3.1 [Refer to Table 25]. This is an amplification factor based on the annual probability of an earthquake event and is affected by the building importance level.

**Table 25 Probability Factor $k_p$**

| Building Importance Level | 2 | 3 | 4 |
|---|---|---|---|
| $k_p$ | 1.0 | 1.3 | 1.5 |

3. Determine the hazard factor Z from AS/NZS 1170.4 Clause 3.2 [Refer to Figure 8]. This factor is also an amplification factor related to the geographic location in Australia and the potential hazard that location presents.

4. Check the multiplication of the probability factor $k_p$ and the hazard factor Z are not below the minimum outlined in AS/NZS 1170.4 Table 3.3.

5. Determine the site sub-soil class from Section 4. There are 5 classifications of sub-soil from strong rock to very soft soil. This is usually determined by geotechnical testing.

6. Determine the earthquake design category (EDC) from Table 2.1. The earthquake design categories are either I, II or III.

7. Design the lightweight wall or ceiling and their associated connections in accordance with Section 5 *Earthquake Design* and Section 8 *Design of Parts and Components*.

This map is a simplified representation and is to be used as a guide only. Refer to AS 1170.4 for detailed maps.

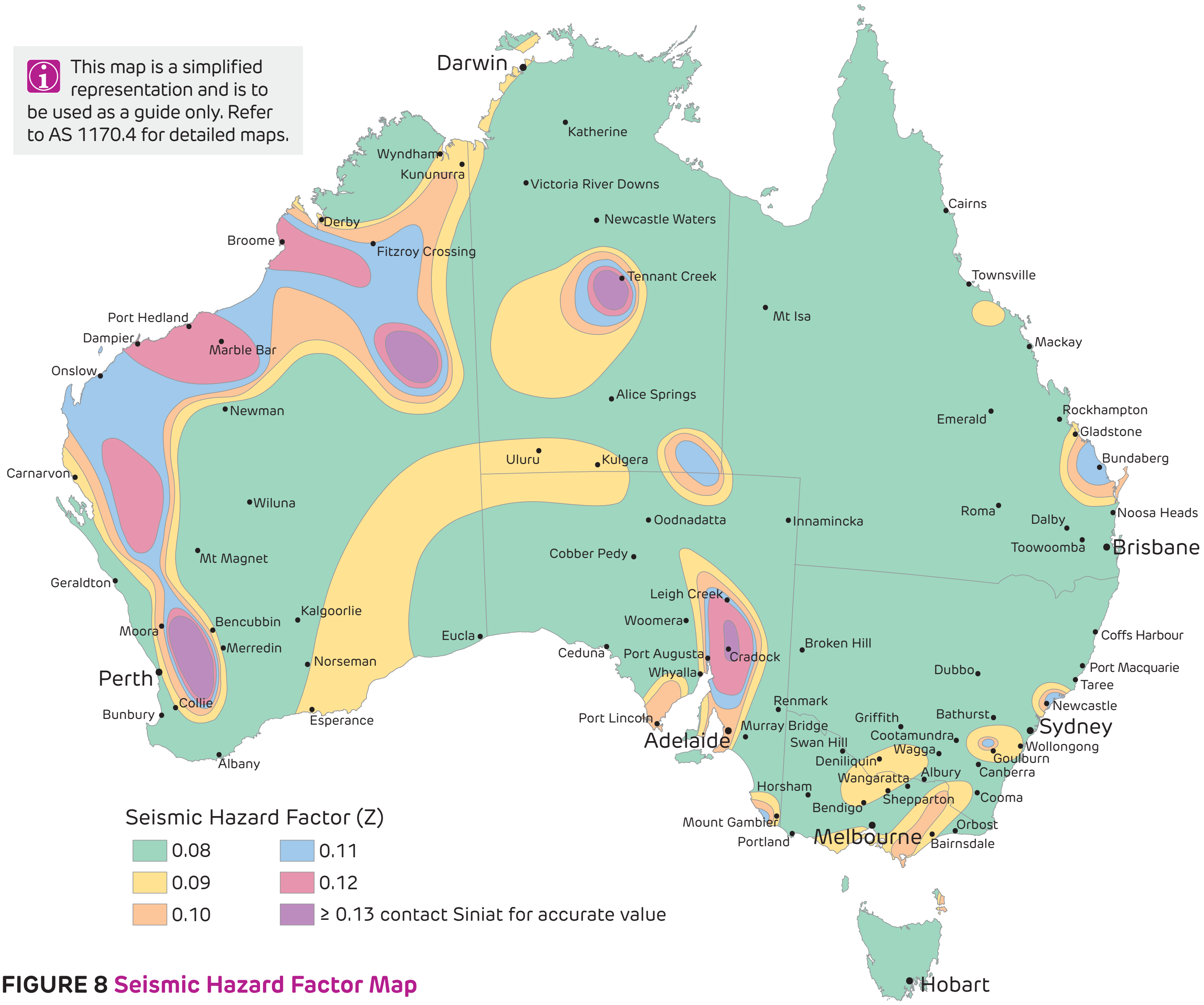



**FIGURE 8** **Seismic Hazard Factor Map**

## Earthquake Design Category I

The design of category I buildings and elements is limited to structures with a height of 12m maximum. Structures and components are designed using an equivalent lateral (horizontal) static load of 10% of the seismic weight acting at the centre of mass of the item being designed.

Vertical actions and pounding are not considered for this category except where any vertical actions arises from the structural analysis.

## Earthquake Design Category II

The design of architectural parts and components for category II is typically conducted in accordance with Section 8 of AS/NZS 1170.4.

Architectural parts and components along with their associated connections to the main structure, are typically designed for the earthquake forces determined via the Simple Method in Clause 8.2 or the Design Accelerations Method in Clause 8.3. They are also required to accommodate the anticipated inter-storey drift.

The inter-storey drift at the ultimate limit state is calculated from an equivalent static method of the building outlined in Section 6 and shall not exceed 1.5% of the storey height.

## Earthquake Design Category III

Similar to category II, the architectural parts and components for category III are designed in accordance with Section 8 of AS/NZS 1170.4.

Also similar to category II, the architectural parts and components and their associated connections to the main structure are typically designed for the earthquake forces determined via the Simple Method in Section 8.2 or the Design Accelerations Method in Section 8.3. They are also required to accommodate the design inter-storey drift.

The inter-storey drift at the ultimate limit state calculated from a dynamic analysis of the building outlined in Section 7 and shall not exceed 1.5% of the storey height.

## Forces on Components

The horizontal earthquake forces on the architectural parts and components are applied at the centre of gravity of the component. They must also be considered in any horizontal direction.

Mechanical connectors used to fix external walls and walls enclosing stairs, stair shafts, lifts and exit paths to the structure, must be designed for 150% of the anticipated seismic force determined via the Simple or Design Accelerations Methods.

## Inter-Storey Drift

Inter-storey drift refers to the horizontal displacement between floors of a building under seismic load. AS/NZS 1170.4 determines the loads to be applied at each floor via an equivalent static method for category II buildings, or a dynamic analysis for category III buildings.

An accurate inter-storey drift displacement can be identified via structural analysis of the building under the loads applied at each floor, or simply limited to a maximum of 1.5% of the storey height.

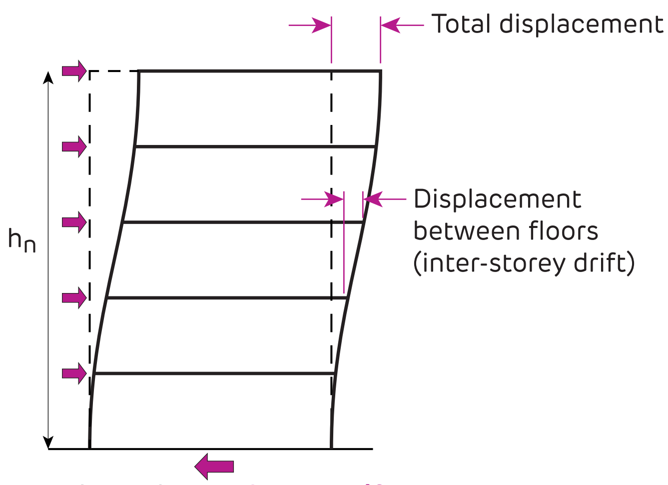



**FIGURE 9** **Inter-Storey Drift**
Section

## Simple Method

The horizontal force on the architectural parts and components using the simple method is determined using the equation:

$F_c = W_c\, k_p\, Z\, Ch(0)\, a_x\, I_c\, a_c \,/\, R_c$ but $> 0.05\, W_c$

where:

$W_c$ is the seismic weight of the component.

$k_p$ is the probability factor from Clause 3.1.

Z is the hazard factor from Clause 3.2.

Ch(0) is the bracketed value of the spectral shape factor for the period of zero seconds from Clause 6.4.

$a_x$ is a height amplification factor to account for the height of the element above the ground

$I_c$ is the component importance factor which is taken as 1.5 for critical for life safety components

$a_c$ is the component amplification factor taken as 1 for light-weight walls and ceilings.

$R_c$ = component ductility factor typically taken as 2.5 for light-weight walls and ceilings, and 1 for connections of those lightweight walls and ceilings.

## Design Accelerations Method

$F_c = a_{floor}\, I_c\, a_c \,/\, R_c \le 0.5\, W_c$

where:

$a_{floor}$ is the effective floor acceleration at the level where the component is situated, and calculated using the equivalent static method of Section 6 or the dynamic analysis of Section 7. $a_{floor}$ must not be $< k_p\, Z\, C_h\,(0)$.

All other factors in the equation are the same for the Simple Method.

# Structural Analysis

Once all the loads on the walls and/or ceilings have been derived, an analysis is conducted using various load cases to determine the strength and stiffness requirements for the frame and lining.

## Walls: Common load cases to satisfy the Ultimate Limit State (Strength):

Case 1: 1.35G

Case 2: 1.2G + $W_U$

Case 3: 1.2G + 1.5$Q_{shelf}$

Case 4: 1.2G + 1.5$Q_{vanity}$

Case 5: 1.2G + 1.5$Q_{handrail}$

Case 7: 1.2G + 1.5$Q_{impact}$

Case 6: 1.2G + 0.6$Q_{shelf}$ + $W_U$

Case 8: 1.2G + 0.6$Q_{shelf}$ + 1.5$Q_{impact}$

Case 9: G + 0.6$Q_{shelf}$ + $E_U$

## Walls: Common load cases to satisfy the Serviceability Limit State (Stiffness):

Case 1: G + $W_S$, deflection limited to height/240 for flexible linings (i.e.: plasterboard) or expressed jointed fibre cement

Case 2: G + $W_S$, deflection limited to height/360 for brittle linings (i.e.: rendered fibre cement, tiled walls, masonry veneer, AAC walls)

Case 3: G + $Q_{shelf}$, deflection limited to height/480

Case 4: G + $Q_{vanity}$, deflection limited to height/480

Case 5: G + $Q_{handrail}$, deflection limited to height/480

Case 6: G + $Q_{impact}$, deflection limited to height/200 or 12mm maximum

Case 7: G + $Q_{shelf}$ + $W_S$, deflection limited to height/360

Case 8: G + 0.6$Q_{shelf}$ + $Q_{impact}$, deflection limited to height/200

Case 9: G + 0.6$Q_{shelf}$ + $E_S$, deflection limited to height/360

## Ceilings: Common load cases to satisfy the Ultimate Limit State:

Case 1: 1.2G + 1.5Q + $Q_{0.03kPa\ service\ load}$

Case 2: 1.2G + $W_U$ (suction) + $Q_{0.03kPa\ service\ load}$

Case 3: 0.9G + $W_U$ (uplift)

Case 4: G + $E_U$ + $Q_{0.03kPa\ service\ load}$

## Ceilings: Common load cases to satisfy the Serviceability Limit State:

Case 1: G, deflection limited to span/360 for a top cross rail and furring channel ceiling with a matt or textured finish

Case 2: G, deflection limited to span/500 for a top cross rail and furring channel ceiling with a gloss or brittle finish

Case 3: G, deflection limited to span/500 for stud ceiling, batten, furring channel or top hat ceilings with any finish type

Case 4: $W_S$, deflection limited to span/200 for a top cross rail and furring channel ceiling with any finish type

Case 5: G + $W_S$, deflection limited to span/360 or 12mm maximum for a stud ceiling with any finish type

Case 6: G + $W_S$, deflection limited to span/200 for top cross rail and furring channel, batten, furring channel, and top hat ceilings with any finish type.

Case 7: G + $E_S$

where:

G is the dead load

Q is the live load

$W_U$ is the ultimate limit state wind load

$W_S$ is the serviceability limit state wind load

$Q_{0.03kPa\ service\ load}$ is a nominal service load specific to ceiling systems equal to 3 kg/m$^2$

$E_U$ is the ultimate limit state earthquake load

$E_S$ is the serviceability limit state earthquake load

After the structural analysis is complete, the frame is designed using the relevant framing design standard [Refer to the Design Standards section], and the most appropriate frame and lining is selected to satisfy the predicted loads during the service life of the wall or ceiling system.

# Fire Resistance

## Fire Definitions

### Fire Resistance Level

Fire systems are rated to withstand a fire under test conditions for a certain period of time. This time is known as the Fire Resistance Level (FRL) and consists of the three criteria listed below:

- Structural Adequacy
- Integrity
- Insulation

Figure 10 below shows an FRL of 60/60/60. This means that if a building element were exposed to a standard fire test, it would not be expected to fail for 60 minutes in each of the three criteria. The NCC specifies FRLs for building elements such as walls, columns, roofs and floors. These FRLs can be many combinations of the three criteria,
e.g. 90/-/-, 90/60/30 or -/60/60. A dash in the FRL means there is no requirement for that criterion.

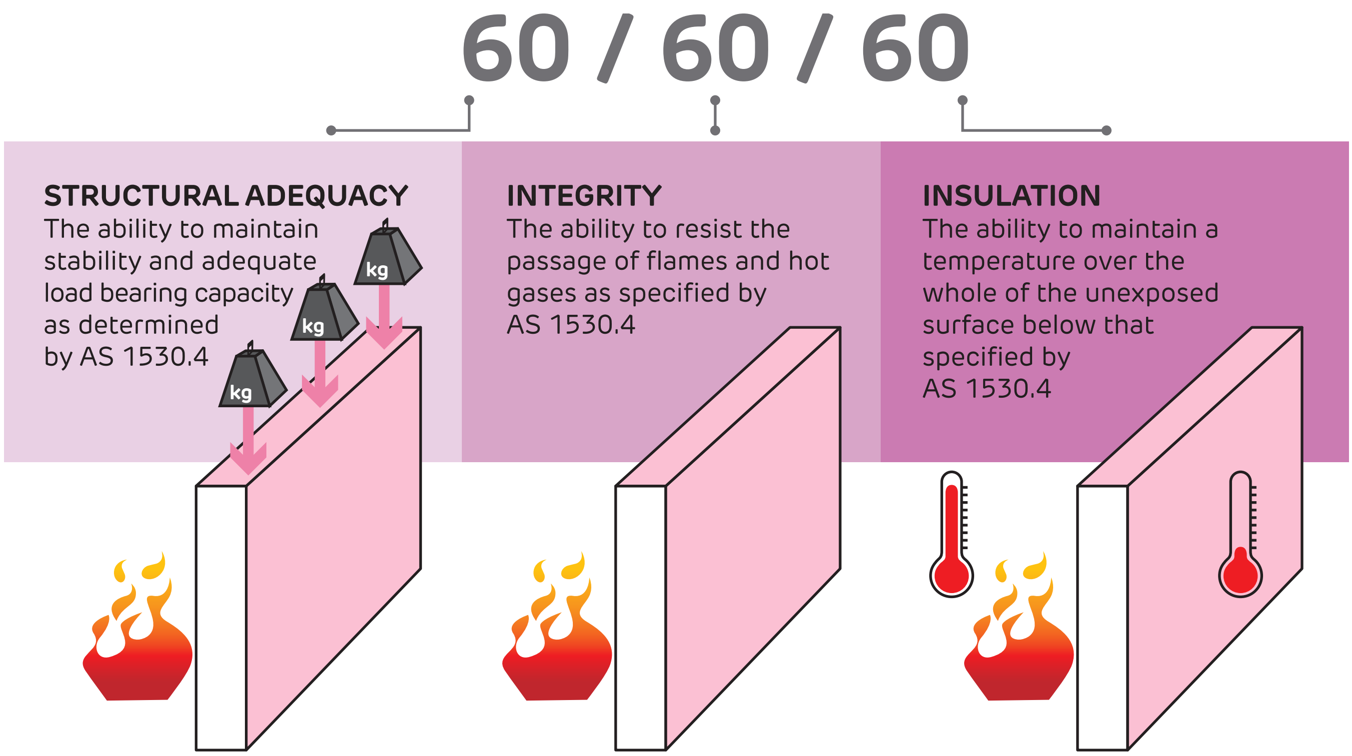



**FIGURE 10** Fire Resistance Level

Fire testing is carried out in accordance with AS 1530.4 *Methods for fire tests on building materials, components and structures*. All fire rated plasterboard systems in this manual have been the subject of a report by an accredited testing authority.

### Resistance to Incipient Spread of Fire (RISF)

Resistance to the Incipient Spread of Fire (RISF) is the ability of a ceiling to limit the temperature rise in the ceiling cavity [Figure 11]. The RISF is a requirement of the NCC in specific applications. They are appropriate where the ceiling is the primary fire barrier that limits fire spread via the ceiling space. The RISF for Siniat fire rated ceilings are stated in the system tables.

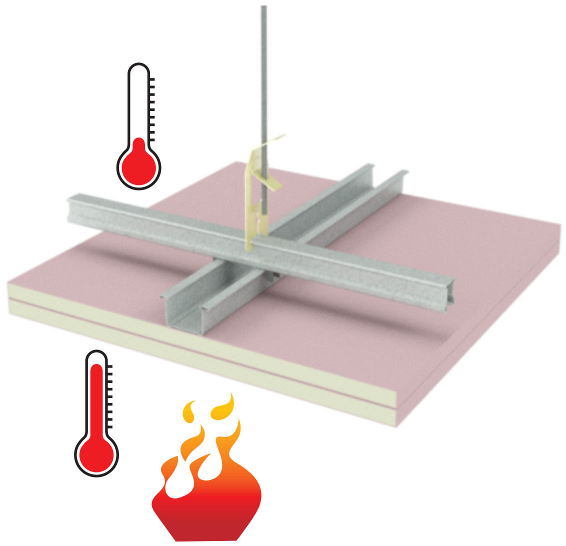


**FIGURE 11** Resistance to Incipient Spread of Fire

### Load Bearing or Non-load Bearing ?

If a building element is load bearing then it must have a Structural Adequacy component to the FRL, for example 60/60/60. The definition of load bearing from the NCC states that a structure is 'intended to resist vertical forces additional to those due to its own weight'. Therefore walls such as those holding up a floor or roof above are load bearing. While (in general) walls that span between concrete slabs and are not holding up the slab, are considered non-load bearing.

The NCC 'deemed to satisfy' provisions, specify FRLs based on whether the building element is load bearing or not [Refer to NCC 2022 Volume One, C2D2]. For example, walls separating sole occupancy units in a Class 2 building of Type A construction (residential high rise) need an FRL of -/60/60 if they are non-load bearing and 90/90/90 if they are load bearing. Residential high rise buildings are usually slab to slab construction in which case the concrete columns are load bearing but the plasterboard infill walls are not.

If an FRL with Structural Adequacy is specified (e.g. 90/90/90) where there is no additional vertical load, a building element without Structural Adequacy may be used (e.g. -/90/90) [Refer to NCC 2022 Volume One, S1C6 Non-load bearing elements].

### Standard Fire Test

*AS 1530.4 Methods for fire tests on buildings materials, components and structures* prescribes the heating conditions, test procedures and criteria for the determining the fire resistance level of building elements.

Completed wall or ceiling specimens are usually loaded onto one face of a fire furnace and then subjected to a standardised time - temperature curve [Figure 12] to determine its performance under fire conditions.

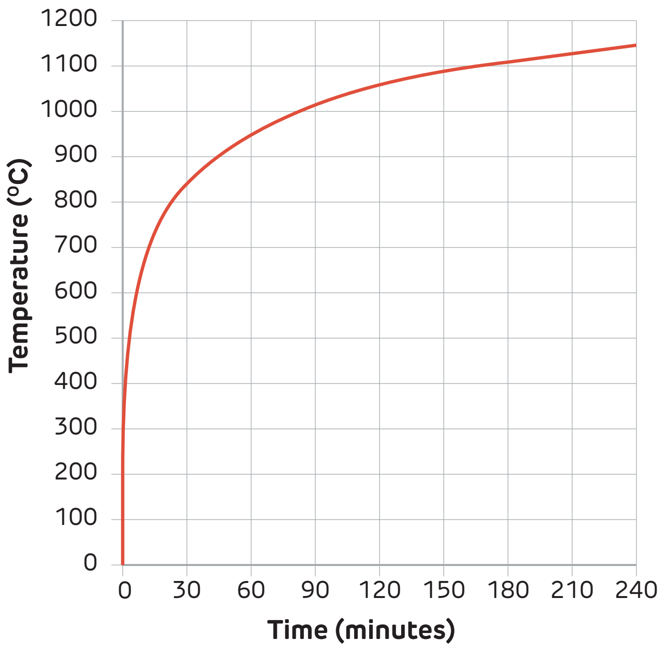



**FIGURE 12** Standard Fire Test
Time - Temperature curve

### Plasterboard to Resist Fire

Siniat recommends the installation of **fire**shield, **multi**shield, **tru**rock or **tru**rock hd for wall and ceiling systems to control the spread of fire.

These specially formulated products contain additives that improve the natural fire resisting properties of the plasterboard.

## Acceptable Variations to Fire Rated Systems

Fire rated systems must be built according to the installation instructions in this manual. However, there are some variations allowed that will not degrade the performance of the system:

- Increasing plasterboard thickness
- Increasing cavity width
- Increasing stud size or metal thickness
- Adding steel, timber or plywood noggings to support fixtures or service
- Decreasing stud spacing
- Decreasing fastener spacing
- Substituting 13mm **fire**shield with 13mm **multi**shield, 13mm **impact**shield, 13mm **tru**rock or 13mm **tru**rock hd
- Substituting 16mm **fire**shield with 16mm **multi**shield or 16mm **tru**rock
- Substituting **masta**shield with **water**shield, **sound**shield or **opal**
- Adding additional linings to a wall or ceiling systems such as layers of plasterboard, fibre cement or plywood
- Adding tiles up to 32kg/m² per side.

## Modifications to Fire Rated Systems

Fire rated systems are often modified by the installation of:

- Fire rated inspection hatches
- Fire rated power points
- Fire rated light fittings
- Fire rated doors
- Fire dampers
- Electrical cables
- Metal or plastic pipes
- Other fire rated penetrations.

It is the responsibility of the manufacturer of these components to ensure that the fire and acoustic properties of the plasterboard system are maintained. Refer to the manufacturer of the penetration item for specific installation detail as well as approval for use in the selected building element.

Some modifications are detailed in this manual, many include the use of **bindex** fire and acoustic sealant. Any modification not covered in this manual must be according to the relevant manufacturer's instructions.

## Construction Details

Construction details in Siniat literature show common situations for installers and designers with guidance on how systems are installed. Siniat does not exclude other construction details for situations not covered by our technical literature. The approved construction details in Siniat technical literature should be used as guides to create site-specific details using the same principles.

Construction details without a specific FRL noted may be used with all systems within that section; the number of layers can vary as well as the framing configuration, e.g. single stud, **acoustic** stud and double stud.

## Smoke Walls

The purpose of a smoke wall is to prevent smoke passing from one side of a wall to the other. A smoke wall must be built from non-combustible materials like steel studs.

Doors and windows used in smoke walls must comply with requirements in the NCC 2022 Volume One, Specification 11. Ducts through the smoke wall must use a smoke damper, unless the duct is part of the smoke handling system and is required to function during a fire.

### Class 9A Healthcare Buildings, Class 2 and 3 Residential Buildings

Smoke walls in Class 9a, 2 and 3 buildings must extend up to:

- The floor above, or
- A non-combustible roof covering, or
- A ceiling having an RISF of 60 minutes.

### Class 9C Aged Care Buildings

Plasterboard used for smoke walls in Class 9c buildings must have a thickness of at least 13mm. Smoke walls in Class 9c buildings may also be lined on one side only and must extend up to:

- The floor above, or
- A non-combustible roof covering, or
- A jointed plasterboard ceiling with a minimum thickness of 13mm with all penetrations sealed.

## Table 26 Fire Resistance Level Requirements for Class 2 and 3 Buildings - Type A

| Construction | Element | | Load Bearing FRL | Non-Load Bearing FRL |
|---|---|---|---|---|
| **Type A without sprinkler** | Internal Walls | Between or bounding SOU's, corridor walls and public lobbies | 90/90/90 | - /60/60 |
| | | Lift, stair and service shaft walls | 90/90/90 | - /90/90 |
| | | Lower storey car park | 90/90/90 and be of masonry or concrete | n/a |
| | | Other load bearing internal walls, beams, trusses and columns | 90/ - / - * | n/a |
| | | All internal walls required to have an FRL with respect to integrity and insulation, must extend to the floor above, or to a ceiling directly below the roof with RISF 60 minutes, or to the underside of the roof covering if it is non-combustible. | | |
| | External Walls where the distance to the fire source feature is | < 1.5m | 90/90/90 | - /90/90 |
| | | 1.5m to < 3m | 90/60/60 | - /60/60 |
| | | ≥ 3m | 90/60/30 | - / - / - |
| | Floors | | 90/90/90 | n/a |
| | Roofs | | - | n/a |
| **Type A with sprinkler system** specified by NCC for a building with rise in storeys of ≤ 3, or 4 if the lowest storey is for car parking | Internal Walls | Between or bounding SOU's, corridor walls and public lobbies | 60/60/60 | - / - / - if lined with 13mm plasterboard |
| | | Lift, stair and service shaft walls | 60/60/60 | - / - / - if lined with 13mm plasterboard |
| | | Lower storey car park | 90/90/90 and be of masonry or concrete | n/a |
| | | Other load bearing internal walls, beams, trusses and columns | 90/ - / - * | n/a |
| | | All internal walls must extend to the floor above, or to a ceiling with RISF 60 minutes, or to the underside of the roof covering if it is non-combustible. | | |
| | External Walls where the distance to the fire source feature is | < 1.5m | 90/90/90 from outside 60/60/60 from inside | - /90/90 |
| | | 1.5m to < 3m | 90/60/60 from outside 60/60/60 from inside | - /60/60 |
| | | ≥ 3m | 90/60/30 from outside 60/60/30 from inside | - / - / - |
| | Floors | | 60/60/60 | n/a |
| | Roofs | | - | n/a |

1. This table is a summary only and is not intended as a substitute for the NCC as it does not consider all building classes, requirements, applications or certain concessions which may apply. [Refer to the NCC for the full details of fire resistance level requirements]
2. 'Service shaft walls' include ventilation, pipe, garbage and the like shafts not used for the discharge of hot products of combustion
3. SOU = Sole Occupancy Unit
4. '-' indicates there is no requirement for that criterion.
5. * concessions apply. May be reduced to FRL 60/60/60 for top floor only of buildings with effective height ≤ 25m.

### Table 27 Fire Resistance Level Requirements for Class 2 and 3 Buildings - Type B

| Construction | Element | | Load Bearing FRL | Non-Load Bearing FRL |
|---|---|---|---|---|
| **Type B without sprinkler** | Internal Walls | Between or bounding SOU's, corridor walls and public lobbies | 60/60/60 | - /60/60 |
| | | Lift, stair and service shaft walls | 90/90/90 | - /90/90 |
| | | Other load bearing walls and columns | 60/ - / - | n/a |
| | | All internal walls required to have an FRL with respect to integrity and insulation, except a wall that bounds a SOU in the topmost storey and there is only one unit in that storey, must extend to the floor above, or to a ceiling with RISF 60 minutes, or to the underside of the roof covering if it is non-combustible. | | |
| | External Walls where the distance to the fire source feature is | < 1.5m | 90/90/90 | - /90/90 |
| | | 1.5m to < 3m | 90/60/30 | - /60/30 |
| | | 3m to < 9m | 90/30/30 | - / - / - |
| | | 9m to < 18m | 90/30/ - | - / - / - |
| | | ≥ 18m | - / - / - | - / - / - |
| | Floors | | 30/30/30, or 13mm fire grade plasterboard or ceiling with RISF 60 minutes. | n/a |
| | Roof | | - | n/a |
| **Type B with sprinkler system** specified by NCC | Internal Walls | Between or bounding SOU's, corridor walls and public lobbies | 60/60/60 | - / - / - if lined with 13mm plasterboard |
| | | Lift, stair and service shaft walls | 60/60/60 | - / - / - if lined with 13mm plasterboard |
| | | Other load bearing walls and columns | 60/ - / - | n/a |
| | | All internal walls must extend to the floor above, or to a ceiling with RISF 60 minutes, or to the underside of the roof covering if it is non-combustible. | | |
| | External Walls where the distance to the fire source feature is | < 1.5m | 90/90/90 from outside 60/60/60 from inside | - /90/90 |
| | | 1.5m to < 3m | 90/60/30 from outside 60/60/30 from inside | - /60/30 |
| | | 3m to < 9m | 90/30/30 from outside 60/30/30 from inside | - / - / - |
| | | 9m to < 18m | 90/30/ - from outside 60/30/ - from inside | - / - / - |
| | | ≥ 18m | - / - / - | - / - / - |
| | Floors | | 30/30/30, or 13mm fire grade plasterboard or ceiling with RISF 60 minutes. | n/a |
| | Roof | | - | n/a |

1. This table is a summary only and is not intended as a substitute for the NCC as it does not consider all building classes, requirements, applications or certain concessions which may apply. [Refer to the NCC for the full details of fire resistance level requirements]
2. 'Service shaft walls' include ventilation, pipe, garbage and the like shafts not used for the discharge of hot products of combustion
3. SOU = Sole Occupancy Unit
4. '-' indicates there is no requirement for that criterion.

### Table 28 Fire Resistance Level Requirements for Class 2 and 3 Buildings - Type C

<table>
<tr><th>Construction</th><th colspan="2">Element</th><th>Load Bearing FRL</th><th>Non-Load Bearing FRL</th></tr>
<tr><td rowspan="7">Type C without sprinkler</td><td rowspan="3">Internal Walls</td><td>Between or bounding SOU's, corridor walls and public lobbies</td><td>60/60/60</td><td>-/60/60</td></tr>
<tr><td>Bounding stairs</td><td>60/60/60</td><td>-/60/60</td></tr>
<tr><td colspan="3">All internal walls must extend to the floor above, or to a ceiling with RISF 60 minutes, or to the underside of the roof covering if it is non-combustible.</td></tr>
<tr><td rowspan="2">External Walls where the distance to the fire source feature is</td><td>< 1.5m</td><td>90/90/90 from outside</td><td>- / - / -</td></tr>
<tr><td>≥ 1.5m</td><td>- / - / -</td><td>- / - / -</td></tr>
<tr><td colspan="2">Floors</td><td>30/30/30,<br>or 13mm fire grade plasterboard</td><td>n/a</td></tr>
<tr><td colspan="2">Roof</td><td>-</td><td>n/a</td></tr>
</table>

1. This table is a summary only and is not intended as a substitute for the NCC as it does not consider all building classes, requirements, applications or certain concessions which may apply. [Refer to the NCC for the full details of fire resistance level requirements]
2. 'Service shaft walls' include ventilation, pipe, garbage and the like shafts not used for the discharge of hot products of combustion
3. SOU = Sole Occupancy Unit
4. '-' indicates there is no requirement for that criterion.

# Acoustics

## Sound Waves

Sound waves create small pressure fluctuations in a transmission medium like air or water. The sound pressure is measured in decibels (dB) using a specific logarithmic scale. Decibel is the unit of measurement used when describing the sound level in a room.

Sound waves also known as vibrations, and are measured in hertz (Hz) which is the number of vibrations per second. The length of a sound wave varies – low pitch sounds have a long wavelength whereas high pitch sounds have a shorter wavelength. Accordingly low pitches (long wavelengths) have a low frequency and high pitches (short wavelength) have a high frequency.

## Perception of Sound

People with normal hearing can perceive sounds between 20 Hz and 20,000 Hz, however the ear is at its most sensitive in the frequencies between 250 and 3150 Hz, also known as the consonant frequency range and where the most important information is contained for speech.

Voice communication is essential for humans and understanding what is said involves much more than the meaning of the words. Tone of voice and rhetoric are also important elements in understanding.

The perception of sound is subjective and contextual, what is perceived as good sound by one person can be very different to another person's view. Physiological factors, taste, culture, habit, mood and environment can all affect our perception of what constitutes positive and negative sound.

## Sound Strategies

It is important that the acoustics of a space match the function of that space; and that everyone that resides or works in that space experiences good acoustic comfort.

In order to modify the sound experienced in a room, there are a number of strategies that can be employed:

- Block the sound from entering the room
- Absorb the sound inside the room
- Spread the sound around the room
- Redirect the sound away from and within the room
- Emphasise the sound in parts of the room
- Mask the sound in the room

The following pages look at the principles and definitions  of sound insulation – a strategy for blocking sound, i.e. preventing it from entering a room, and sound absorption and diffusion – strategies for dealing with the sound inside a room.

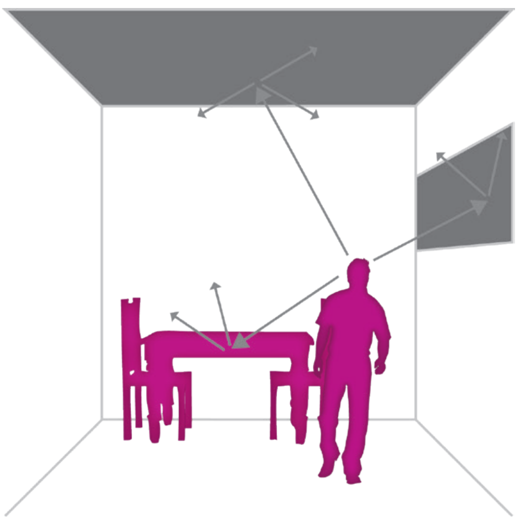


**FIGURE 13** Sound Absorption and Diffusion

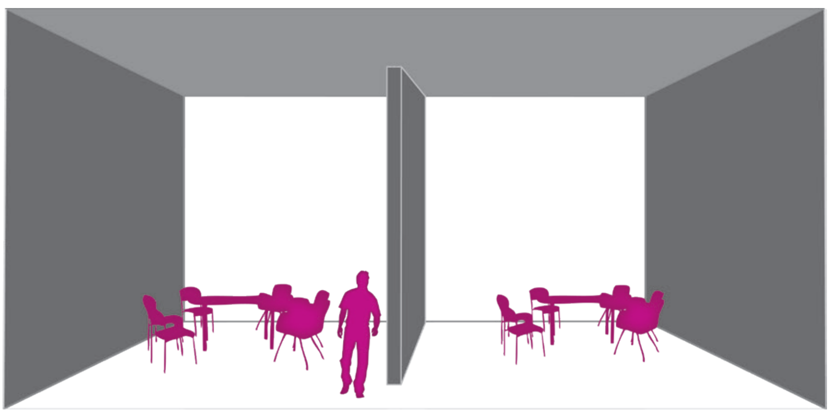


**FIGURE 14** Sound Insulation

# Sound Insulation

## Acoustic Terms and Definitions

### $R_W$ (Weighted Sound Reduction Index)

Rw describes the airborne sound insulating power of a building element. It is a laboratory measured value that can apply to walls, ceiling/floors, ceiling/roofs, doors or windows. The higher the number, the greater the sound insulating power of the building element.

For example, an increase in the Rw of a wall by 10 points will reduce the perceived loudness of sound passing through the wall by about half. Table 29 shows how the sound insulating effectiveness of walls depends on their Rw values.

### $R_W$+$C_{tr}$ ($R_W$ Plus Spectrum Adaptation Term)

Rw + Ctr is equal to Rw with the addition of a low frequency sound correction, Ctr. The use of Rw + Ctr has been adopted due to the increase in low frequency sound sources such as surround sound systems, traffic and aircraft noise, drums and bass guitars. Two walls can have the same Rw rating but have different resistance to low frequency sound, thus a different Rw + Ctr.

### $D_{nTw}$ and $D_{nTw}$+$C_{tr}$ (Measured On-Site)

These values are the equivalent of Rw and Rw + Ctr, but are measured on-site. Rw is the value measured in an acoustic laboratory, while DnTw is the value measured on-site.

An on-site measured value of DnTw + Ctr is permitted to be 5 points lower than the Rw + Ctr value. Where the NCC may call for an Rw + Ctr ≥ 50, the same requirement may be satisfied by measuring DnTw + Ctr ≥ 45 on-site.

### $L_{n,w}$ (Impact Sound Insulation Rating)

$L_{n,w}$ describes how easily impact sound travels through a floor. Impact sound is generated by sources such as dryers, washing machines and heeled shoes on a wooden floor.

Unlike $R_W$ values, better performing floors have lower values. Therefore when specified, Ln,w values are maximums while Rw values are minimums. For example, the NCC requires some floors to have $L_{n,w} \leq 62$.

### Impact Sound Insulation

Walls that have Impact Sound Insulation are defined in the NCC as walls that do not have any rigid mechanical connection between two separate leaves except at the periphery.

Systems in this manual that satisfy this NCC requirement are staggered stud plasterboard walls with no noggings, and walls that use resilient mounts.

### Impact sound insulation with discontinuous construction

Discontinuous Construction is defined in the NCC as walls that have a gap of at least 20mm between two separate leaves, and:

- for masonry, where wall ties are required to connect leaves, the ties are of the resilient type, and
- for other than masonry, there is no mechanical linkage between leaves except at the periphery.

Double stud plasterboard walls and Interhome walls are classed as 'discontinuous'.

### Ceiling Attenuation Class (CAC)

Ceiling Attenuation Class (CAC) indicates the ceiling's ability to reduce airborne sound transmission via the ceiling cavity when the dividing wall does not extend past the ceiling to the underside of the floor or roof.

In this manual CAC is expressed as Rw and Rw + Ctr ratings. These represent the sound reduction from one room to the next via the two ceilings and the cavity above the ceiling.

The noise in the source room can pass through the wall and through the ceiling cavity. To compensate for the additional noise level in the receiving room, when sound isolation is important, Siniat recommends using wall and CAC ceiling systems that both have an Rw rating 3 points higher than the requirement.

According to the NCC 2022 Volume One, F7D6, where a wall required to have sound insulation has a floor or roof above, the wall must continue to the underside of the floor or roof above, or a ceiling that provides the sound insulation required for the wall.

### Table 29 Effect of Various Walls on Sound Insulation Performance

| $R_W$ | Effect of Different Values of $R_W$ on Sound Insulation Performance |
|---|---|
| 25 | Normal speech can be heard easily |
| 30 | Loud speech can be heard easily |
| 35 | Loud speech can be heard but not understood |
| 42 | Loud speech heard as murmur |
| 45 | Must strain to hear loud speech |
| 48 | Loud speech can be barely heard |
| 53 | Loud speech cannot be heard |
| 63 | Music heard faintly, bass notes 'thump' |
| 70 | Loud music still heard very faintly |

## Sound Insulation Requirements

Performance requirements of the NCC relating to sound insulation shown in Table 30 can be satisfied in a number of ways that include the following:

**1. Deemed-to-Satisfy Construction**

Construct a wall or ceiling system that complies with the deemed-to-satisfy provisions of the NCC Volume One, Specification 28. This section of the NCC details generic systems that satisfy the NCC sound insulation requirements. However, more efficient solutions can be found in this manual.

**2. Laboratory Test**

Many of the systems in this manual were tested in an acoustic laboratory according to AS 1191:2002. Acoustic testing laboratories are designed to ensure that flanking paths do not occur. Tested systems are constructed with extreme care to achieve optimum performance. For these reasons, on-site performance may be different to laboratory performance.

**3. On-site Testing**

Conduct on-site acoustic testing on a wall or ceiling system. This is a 'verification method' accepted by the NCC to confirm the performance requirements are met. Also the effectiveness of the complete installed system
can be verified by on-site acoustic testing.

**4. Certification by an Acoustic Consultant**

An acoustic consultant can certify that the construction on a particular site meets the NCC requirements. This certification includes the effectiveness of penetrations and flanking paths. It usually involves some level of
on-site testing.

**5. Acoustic Opinion**

Acoustic consultants can provide acoustic opinions on the sound insulation rating of building elements. An acoustic opinion may provide sufficient evidence of compliance depending on the type and size of building. Check with the building certifier prior to construction.

## Higher Acoustic Requirements

Where performance is critical or noise is higher than normal, accredited acoustic engineers should be consulted. Their role is to ensure that design and construction will meet any specific requirements.

All acoustic ratings in this manual are either test results or professional opinions based on test information. Acoustic opinions in this manual were provided by professional acoustic consulting engineers.

Acoustic predictions for systems not published in Siniat technical literature can often be generated by acoustic modelling software. Contact Siniat Technical Services for an acoustic prediction based on the Siniat product range.

The Association of Australian Acoustical Consultants (AAAC) offer detailed guidance on acceptable acoustic performance. They have published their own star rating system. Ratings range from 2 to 6 stars and are based on field testing by an AAAC consultant to verify that they have been achieved. More information about AAAC Star Ratings for apartments and townhouses is available at www.aaac.org.au

## Acoustic Testing and Actual Performance

Attention to detail during construction is important for achieving good sound insulation, as performance may be is determined by the weakest link in the system. Performance of installed acoustic systems may fall short of laboratory measured results. Acoustic measurements in a typical laboratory test represent the maximum performance that can be achieved.

Actual site conditions are usually less than ideal and sound flanking paths normally exist around the perimeter of the system. Flanking paths may be minimised by sealing the perimeter with sealant and by installing services using acoustically rated details.

## Table 30 Sound Insulation Requirements For Sole Occupancy Units (SOU)

| | Airborne Sound Insulation | Impact Sound Insulation |
|---|---|---|
| **Building Class 1 – NSW, Vic, Qld, Tas, WA, SA and ACT** | | |
| Walls separating a bathroom, toilet, laundry or kitchen and a habitable room (other than a kitchen) in adjoining SOUs. | Rw + Ctr ≥ 50 | ✓ Discontinuous |
| Walls separating SOUs in all other cases. | Rw + Ctr ≥ 50 | |
| Walls or ceilings separating a duct, soil, waste or water supply pipe or storm water pipe from a habitable room. | Rw + Ctr ≥ 40 | |
| Walls or ceilings separating a duct, soil, waste or water supply pipe or storm water pipe from a kitchen, bathroom or other non-habitable room. | Rw + Ctr ≥ 25 | |
| **Building Class 2 & 3 – NSW, Vic, Qld, Tas, WA, SA and ACT** | | |
| Walls separating habitable rooms in adjoining SOUs. | Rw + Ctr ≥ 50 | |
| Walls separating kitchens, toilets, bathrooms and laundries in adjoining SOUs. | Rw + Ctr ≥ 50 | |
| Walls between a bathroom, toilet, laundry or kitchen and a habitable room (other than a kitchen) in adjoining SOUs. | Rw + Ctr ≥ 50 | ✓ Discontinuous |
| Walls between an SOU and a public corridor, public lobby, stairway or the like or parts of a different classification. | Rw ≥ 50 | |
| Walls between an SOU and a plant room or lift shaft. | Rw ≥ 50 | ✓ Discontinuous |
| Walls or ceilings separating a duct, soil, waste or water supply pipe or storm water pipe from a habitable room. | Rw + Ctr ≥ 40 | |
| Walls or ceilings separating a duct, soil, waste or water supply pipe or storm water pipe from a kitchen or other non-habitable room. | Rw + Ctr ≥ 25 | |
| Floors between SOUs and between an SOU and a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification. | Rw + Ctr ≥ 50 | Ln,w ≤ 62 |
| **Building Class 1, 2 and 3 – Northern Territory** | | |
| Walls separating a bathroom, toilet, laundry or kitchen and a habitable room (other than a kitchen) in adjoining SOUs. | Rw ≥ 50 | Impact sound resistant |
| Walls separating SOUs in all other cases. | Rw ≥ 45 | |
| Walls or ceilings separating a soil or waste pipe from a habitable room. | Rw ≥ 45 | |
| Walls or ceilings separating a soil or waste pipe from a kitchen, bathroom or other non-habitable room. | Rw ≥ 30 | |
| Floors between SOUs. | Rw ≥ 45 | |
| **Building Class 9c – All Australian States and Territories** | | |
| Walls separating SOUs from a kitchen or laundry. | Rw ≥ 45 | ✓ Discontinuous for other than masonry |
| Walls and floors separating SOUs and walls separating SOUs from a bathroom, toilet, plant room or utilities room. | Rw ≥ 45 | |
| Walls or ceilings separating a duct, soil, waste or water supply pipe or storm water pipe from a habitable room. | Rw + Ctr ≥ 40* | |
| Walls or ceilings separating a duct, soil, waste or water supply pipe or storm water pipe from a kitchen or other non-habitable room. | Rw + Ctr ≥ 25# | |

This table is a summary only and is not intended as a substitute for the NCC. [Refer to the NCC for the full details of sound insulation requirements]
* For Building Class 9c in Northern Territory, Rw ≥ 45
# For Building Class 9c in Northern Territory, Rw ≥ 30

## Habitable Room

A habitable room means a room used for normal domestic activities and:

- includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre and sunroom; but
- excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods.

## Sound Insulation Performance of Wall and Ceiling Systems

Sound insulation ratings for single steel stud walls are based on 600mm stud spacing and the thinnest BMT.

Sound insulation performance listed in systems tables may vary due to decreased stud spacing and increased steel stud thickness (BMT) to the tested systems. Sound insulation performance may also vary due to any additional linings on battens or on separate stud walls.

The sound insulation rating of a basic wall or ceiling system can be upgraded by using a combination of:

- **sound**shield or **tru**rock
- Additional plasterboard layers
- Insulation in the cavity
- Resilient mounts
- **acoustic** stud
- Larger size studs
- Double stud walls
- Staggered stud walls
- Larger cavity size.

### **sound**shield for Superior Noise Control

Siniat recommends the installation of **sound**shield wall and ceiling systems to minimise noise from aircraft, traffic and neighbours.

**sound**shield is a plasterboard with enhanced sound insulation qualities. **sound**shield has a super high-density* core which helps to resist the transmission of noise into rooms.

*The denser the plasterboard, the better it will resist sound transfer.

# Sound Absorption

Sound absorption is the ability of a material to reduce the amount of sound energy reflecting back into the same space.

As a general rule heavy objects with smooth surfaces such as concrete, reflect sound and light objects with porous surfaces such as fabric, absorb sound.

Sound absorbers can be materials like Fletcher Insulation's glasswool products or they can be a ceiling made from perforated panels like Siniat **Crea**tex or Siniat **Crea**son with a cavity behind.

## Sound Absorption Coefficients

If a material is 100% reflective then its sound absorption coefficient α is 0, and if it is 100% non-reflective, then α is 1.

The same material can have different sound absorption coefficients at different frequencies.

The sound absorption coefficient of a material or system is measured in a reverberation chamber in an acoustic test laboratory. The measured sound absorption coefficient at a one-third octave band frequency such as 100 Hz, 125 Hz and 160 Hz is called $\alpha_S$. For each octave band frequencies such as 125 Hz, 250 Hz and 500 Hz, the average of the measured $\alpha_S$ of three consecutive one third octave band frequencies is rounded to the nearest multiple of 0.05, which is then called the practical sound absorption coefficient, $\alpha_P$.

## Noise Reduction Coefficient (NRC)

A single number sound absorption rating obtained from an arithmetic average of sound absorption coefficients, $\alpha_S$, at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz rounded to the nearest multiple of 0.05.

The higher the NRC, the better the sound absorption of a material or system in the normal frequency range of human speech.

## Weighted Sound Absorption Coefficient ($\alpha_W$)

Designing room acoustics based on NRC can be misleading and result in poor acoustic performance in practice. That's because NRC is an average value that can mask high and low values at different frequencies.

A more sophisticated way to measure acoustic performance is to calculate a weighted sound absorption coefficient ($\alpha_W$). An $\alpha_W$ value is calculated by comparing the sound absorption coefficients $\alpha_P$ at 250 Hz, 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz to a standard curve [*Refer AS ISO 11654:2002*].

The $\alpha_W$ rating is more commonly used in Europe than NRC; it gives a better picture of a material's performance across all of the frequencies important to human hearing, as the $\alpha_W$ rating is reduced by any low performance frequencies with respect to the reference curve. In other words, any weak points in the material's acoustic performance are uncovered by an $\alpha_W$ rating.

**Table 31 Sound Absorption Coefficients**

| Frequency | $\alpha_S$ | $\alpha_P$ |
|---|---|---|
| 100 | 0.45 | |
| 125 | 0.58 | 0.55 |
| 160 | 0.67 | |
| 200 | 0.76 | |
| 250 | 0.82 | 0.85 |
| 315 | 0.92 | |
| 400 | 0.95 | |
| 500 | 0.94 | 0.90 |
| 630 | 0.85 | |
| 800 | 0.82 | |
| 1000 | 0.80 | 0.80 |
| 1250 | 0.79 | |
| 1600 | 0.75 | |
| 2000 | 0.65 | 0.65 |
| 2500 | 0.61 | |
| 3150 | 0.55 | |
| 4000 | 0.60 | 0.60 |
| 5000 | 0.70 | |
| **Average** | 0.73 | |
| **NRC** | 0.80 | |
| $\alpha_W$ | 0.70 | |

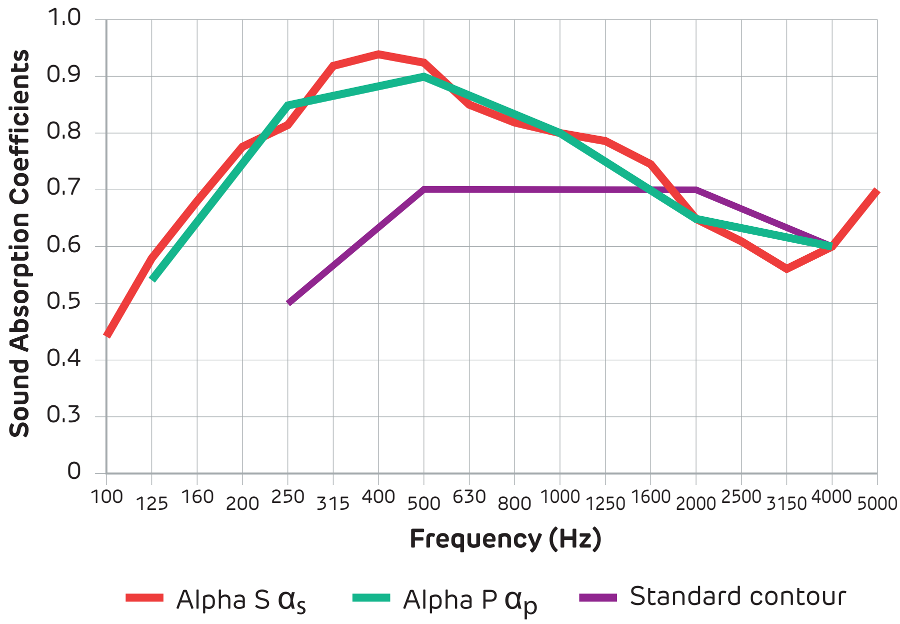



**FIGURE 15 Sound Absorption Profile Comparing NRC with $\alpha_W$**

# Sound Reflection and Diffusion

Sound reflection in multiple scattered directions is called sound diffusion. Sound diffusion is helpful to spread sound evenly inside a closed space and in combination with sound absorption, helps avoid echoes and uneven reverberation time distribution throughout the room. This creates a uniform and favourable acoustics environment.

Siniat Createx or Siniat Creason assist sound diffusion via irregular sound reflection due to the perforations in the products.

# Reverberation Time (RT)

In an enclosed space, sound gets reflected from hard, smooth surfaces creating reverberation, the persistence of sound even after its source has stopped. Sounds reflected from multiple surfaces increase the noise level in a room.

The time required for the reverberated noise level to decay by 60dB is called reverberation time, represented by RT (or RT60) measured in seconds.

Spaces without sound absorbing materials such as large, unfurnished rooms have long reverberation times while spaces with lots of sound absorbers such as cinemas have short reverberation times.

## Reverberation Time Requirements

Reverberation time requirements are dependent on the function of a room. Long reverberation times make a space acoustically 'live', while short reverberation times reduce noise and if too short can deaden the sound.

To enhance speech intelligibility it is important to have a suitable reverberation time across the frequency range.

AS/NZS 2107:2016 provides recommended design sound levels and reverberation times for building interiors [Refer to Table 32].

**Table 32 AS/NZS 2107:2000 Reverberation Time Requirements**

| Application | Recommended Reverberation Time (seconds) |
|---|---|
| Primary school classroom | 0.4 ~ 0.5 |
| Secondary school classroom | 0.5 ~ 0.6 |
| Libraries, open plan offices, medical consulting rooms, hospital corridors & lobbies | 0.4 ~ 0.6 |
| Call centres | 0.1 ~ 0.4 |
| Meeting rooms, office corridors & lobbies, assembly halls, private offices | 0.6 ~ 0.8 |
| Hospital wards, laboratories, waiting rooms & reception areas | 0.4 ~ 0.7 |
| Speech auditoriums, lecture theatres, conference & convention centres, drama theatres | 0.7 ~ 1.0 |

## Siniat Reverberation Time Calculator

Siniat offers an easy to use online reverberation time calculator. It includes reverberation time requirements in accordance with AS/NZS 2107:2016 and estimates the amount and type of sound absorbers required.

**Siniat Reverberation Time Calculator**

## Choosing the Right Siniat Sound Absorption Systems

- Sound absorption systems can be selected from the range of premium acoustic solutions from Siniat, including our Createx and Creason perforated plasterboards. There are several options which cover a range of design and performance requirements like absorption ratings ($\alpha_W$ or NRC), or sound attenuation ratings (CAC).
- Two products or systems with similar NRC or $R_W$ ratings might perform differently in practice. The sound absorption of a product or system at different frequencies must be considered while also evaluating reverberation time and other acoustics characteristics, such as sound diffusion, reflection, attenuation, etc.
- The sound absorption performance of cavity or resonance absorbers such as Siniat **Crea**tex and Siniat **Crea**son can vary depending on the perforation type, perforation ratio, depth of ceiling cavity and the type and thickness of insulation material used in the cavity.
- The placement of sound absorbing materials must take into account the occupants and activity to ensure that sound is absorbed, reflected and spread in the required manner. It is often common practice to only use sound absorbing materials on the ceiling, however in narrow or large rooms with high ceilings, placement of sound absorbers on the walls may be necessary to achieve the right acoustic environment.

### For Sound Absorption Performance

Siniat recommends the installation of **Crea**tex and **Crea**son perforated acoustic linings to create a comfortable acoustic environment and enhance audibility.

**Crea**tex and **Crea**son are available in a range of perforation patterns and have the added benefit of air-cleaning technology.

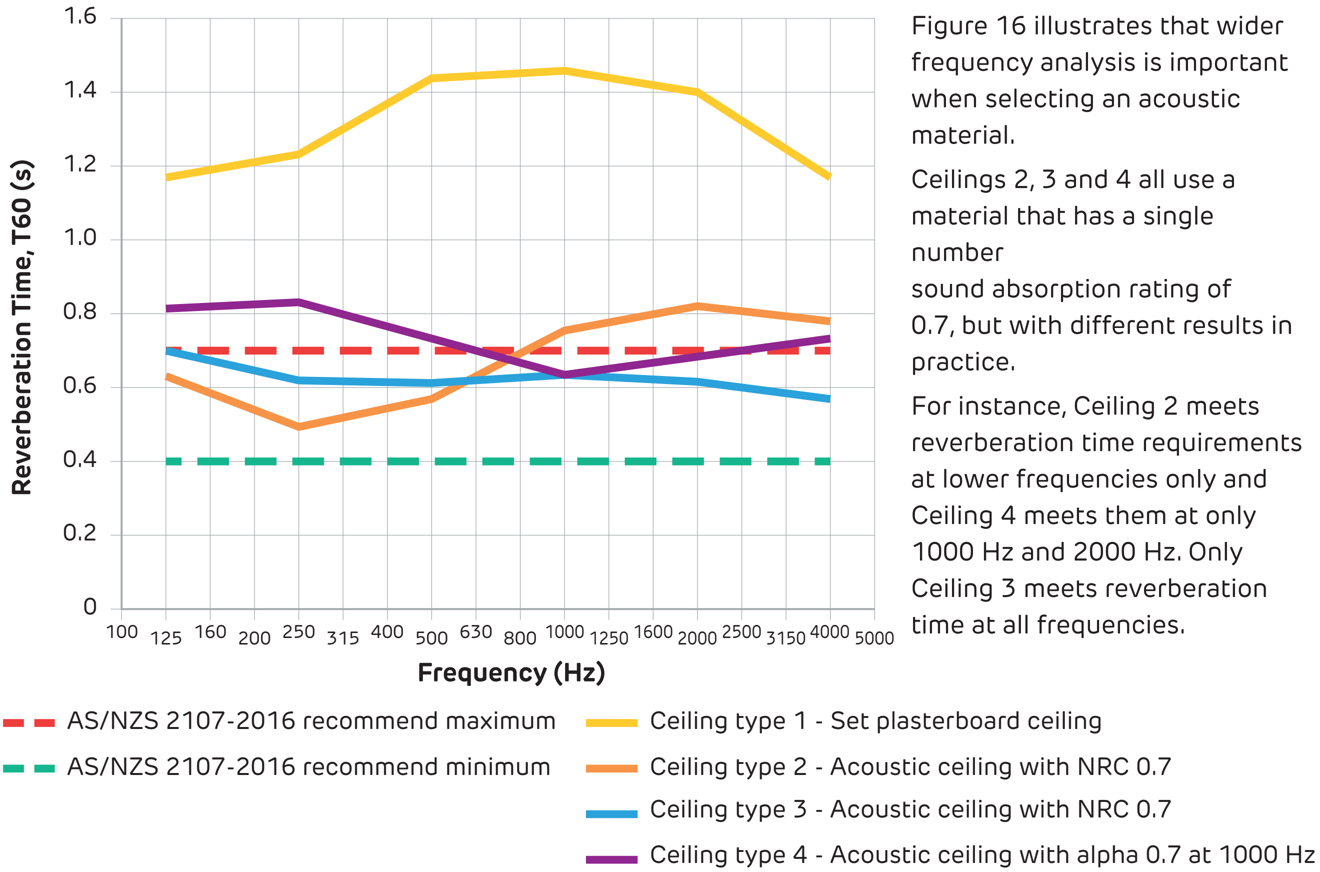



Figure 16 illustrates that wider frequency analysis is important when selecting an acoustic material.

Ceilings 2, 3 and 4 all use a material that has a single number sound absorption rating of 0.7, but with different results in practice.

For instance, Ceiling 2 meets reverberation time requirements at lower frequencies only and Ceiling 4 meets them at only 1000 Hz and 2000 Hz. Only Ceiling 3 meets reverberation time at all frequencies.

**FIGURE 16 Reverberation Time Comparison**
Calculated using Siniat Reverberation Time Calculator for 10m long x 7.5m wide x 4m high reception room in a hospital for hard and smooth surfaced walls, sparsely occupied and lightly furnished.

# Thermal Performance

## The Importance of Total R-Value for Energy Efficiency

Energy efficient construction requires a building envelope that resists the transfer of heat. This thermal resistance is measured as an R-Value ($m^2K/W$).

Total R-Value is one of the most important indicators of the thermal performance of a building element. The higher the Total R-Value, the better the thermal insulation, i.e. the longer it takes the heat to get into the building (in summer) or out of the building (in winter).

Total R-Value is defined in the National Construction Code (NCC 2022) as the sum of the R-Values of individual component layers in a composite element. This includes any building material, insulating material, airspace, thermal bridging and associated surface resistances.

## Definition of R-Value

R-Value is the thermal resistance of a component determined by dividing its thickness by its thermal conductivity. Total R-value is the sum of the components with thermal resistance and surfaces in the system.

Total R-Value along the insulation pathway

$$R_T = R_{Si} + R_1 + R_2 + ... + R_n + R_{Se}$$

Where $R_{Si}$ is the thermal resistance of the internal surface and $R_{Se}$ is the thermal resistance of the external surface; both depend on temperature, speed of air flow and the emissivity of the surface. $R_n$ is the thermal resistance of $n^{th}$ layer parallel to the heat flow direction.

The Total R-Value formula above does not take into account the effects of thermal bridging and hence by itself does not comply with NCC 2022 Volume One for Class 2 to 9 buildings. However, it still complies with NCC 2019 Volume Two for Class 1 and 10 buildings and Section J of NCC 2019 Volume One.

## Winter vs Summer

The R-Value of an individual component may vary in different temperatures, as its thermal conductivity depends on the mean temperature of the material. The higher the mean temperature (i.e. in summer) the higher the thermal conductivity and hence a lower R-Value.

In a solid material, such as concrete or plasterboard, the effect of temperature on thermal conductivity is marginal, but in a thermal insulating material like glasswool, the effect can be greater. The surface thermal resistances, $R_{Si}$ and $R_{Se}$ in the above formula may also vary in winter and summer.

The effect of temperature and the direction of heat flow on R-Value of an air space, such as the cavity in a wall or roof, are even more significant. Therefore, the Total R-Value of a building system may vary in winter (heat flow outwards) and summer (heat flow inwards).

## Total System U-Value

Construction systems can also be evaluated by the thermal transmittance value, or U-Value ($W/m^2K$). This is the inverse of the thermal resistance R-Value. In this case, the lower the number, the better the thermal insulation performance.

## Reflective Air Space

Heat transfer may happen by conduction (transfer via contact of materials, such as heat transfer in solids), convection (transfer via physical movement of material, like heat transfer in liquids and gases) and radiation (transfer without any material via electromagnetic waves, such as solar radiation). Reflective surfaces such as aluminium foil can effectively block the heat transfer via radiation, and hence increase the total R-Value of a building element.

However it's important to be cautious while using the reflective surface's contribution towards the Total R-Value. A very basic principle is that the reflective surface must always face a free air cavity.

The reflectivity of sarking and wall membranes varies and this will impact on the contributing R-value.

## Thermal Bridges

Thermal bridging is the unintended flow of heat through a building envelope between the outside and the inside. Significant thermal bridges occur via materials with high thermal conductivity (ie: steel frame, glazing) or where there are gaps in the installed thermal insulation. The result is heat either being lost from the inside of a building on a cold day, or adding warmth to the inside on a hot day.

The impacts of thermal bridging can result in an increase in energy for heating and cooling to a building as well as comfort issues. Additionally, thermal bridges may lead to condensation forming on cold surfaces. This can then cause mould growth, indoor air quality issues, degradation of building materials and negatively effect the health of building occupants.

Thermal bridges tend to bypass the thermal insulation layer. As such, they can significantly reduce the thermal effectiveness of external building envelopes (ie: external walls, floors and roofs). Therefore the NCC requires that thermal bridging be considered when evaluating the Total R-Value (or Total U-Value) of a building system.

## Thermal Breaks

Thermal breaks can be added to external wall and roof construction systems to reduce the impact of thermal bridging. When using the NCC's deemed-to-satisfy elemental provisions, a thermal break is needed when a metal framing member directly connects the external cladding to the internal lining.

The NCC requires a thermal break material to provide at least an R-value of 0.2, between the outer cladding and metal framing as a way of mitigating the large impact thermal bridges have.

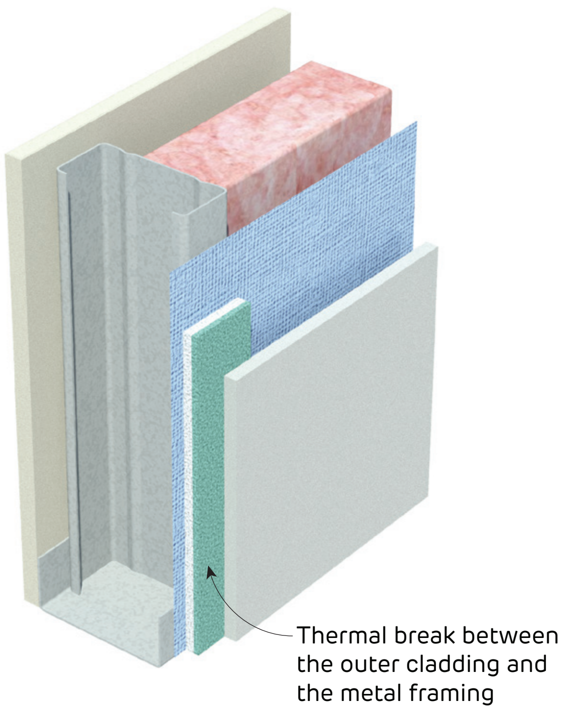


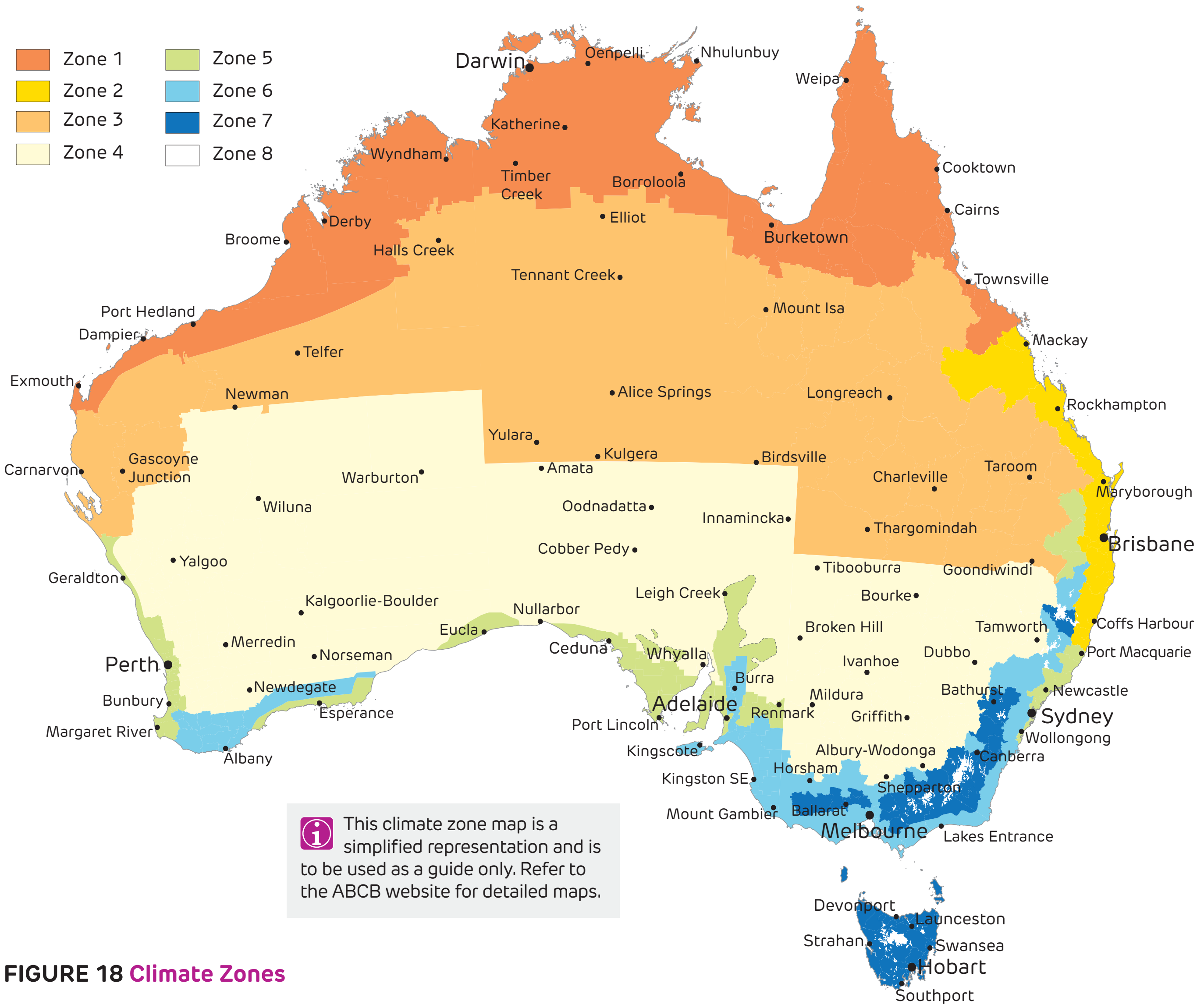

**FIGURE 17** **Installation of Thermal Break**
Perspective

## Calculating Thermal Performance

Fletcher insulation has developed FletcherSpec™ Pro that is a thermal prediction calculator that can be used to determine thermal performance of roof and wall systems inclusive of the type of wall membrane and impact of air space. It can also verify performance against the NCC. Please click here for access to FletcherSpec™ Pro.

### For Thermal Performance

Siniat recommends Fletcher Insulation to provide a cost-effective, thermal and acoustic solutions for energy-efficient construction.




This climate zone map is a simplified representation and is to be used as a guide only. Refer to the ABCB website for detailed maps.

**FIGURE 18** **Climate Zones**

## Climate Zones

Australia has a diverse climate ranging from hot summers to cold winters, with varying degrees of humidity levels and rainfall. Depending on the location, buildings will need specific consideration for the climate experienced, performance expected and the construction systems used.

The National Construction Code (NCC) therefore defines 8 climate zones, each with their own specific performance requirements for heating, cooling and energy efficiency for buildings. These climate zones have different performance attributes that impact products used, e.g. vapour permeable membranes are climate zone specific.

A high detail version of the climate zone map is available by following the link below to the Australian Buildings Codes Board (ABCB) website.

## Building Thermal Performance Requirements Pathways

In an effort to reduce greenhouse gas emissions, new buildings have provisions to limit the amount of energy required to operate them. These building provisions are contained in the NCC and are applicable to houses and most building types.

There are several ways to satisfy the performance requirements of the NCC, including deemed-to-satisfy provisions or performance solutions which may include verification methods.

The compliance pathways for thermal performance have been summarised in the following tables. Please note, almost all states also have their own specific requirements that must be followed. Refer to the NCC for the complete details.

### Table 33 Houses: Class 1 (houses, townhouses, duplexes and the like) buildings

| Compliance Level | NCC Volume Two, Performance Requirements | | | | |
|---|---|---|---|---|---|
| Compliance Options | Deemed to Satisfy Solutions | | Performance Solutions | | |
| | Option 1 | Option 2 | Option 3 (partial) | Option 4 (partial) | Option 5 |
| | | | Verification Methods | | |
| | Nationwide House Energy Rating Scheme (NatHERS) using house energy rating software<br><br>H6D2 (1) (a) and H6D2 (2) (a) | Elemental provisions<br><br>H6D2 (1) (b) and H6D2 (2) (b) | Verification using a reference building<br><br>H6V2 | Verification of building envelope sealing<br><br>H6V3 | First principles |

### Table 34 Apartments: Sole Occupancy Units of Class 2 buildngs and Class 4 part of a building

| Compliance Level | NCC Volume One, Performance Requirements | | | | |
|---|---|---|---|---|---|
| Compliance Options | Deemed to Satisfy Solutions | | Performance Solutions | | |
| | Option 1 | Option 2 | Option 3 (partial) | Option 4 (partial) | Option 5 |
| | | | Verification Methods | | |
| | Nationwide House Energy Rating Scheme (NatHERS) using house energy rating software<br><br>J2D2 (2) (a) and J2D2 (3) | Elemental provisions<br><br>J2D2 (2) (b) and J2D2 (3) | Verification using a reference building<br><br>J1V5 | Verification of building envelope sealing<br><br>J1V4 | First principles |

### Table 35 Commercial Buildings: Common areas of Class 2 buildings, Class 3 buildings and Class 5 to 9 buildings

| Compliance Level | NCC Volume One, Performance Requirements | | | | | |
|---|---|---|---|---|---|---|
| Compliance Options | Deemed to Satisfy Solution | Performance Solutions | | | | |
| | Option 1 | Option 2 (partial) | Option 3 (partial) | Option 4 (partial) | Option 5 | Option 6 |
| | | Verification Methods | | | | |
| | Elemental provisions<br><br>J2D2 (1) and J2D2 (4) | National Australian Built Environment Rating System (NABERS)<br><br>J1V1 | Green Star<br><br>J1V2 | Verification using a reference building<br><br>J1V3 | Verification of building envelope sealing<br><br>J1V4 | First principles |

# Wet Areas

The NCC requires wet area construction to protect the occupants from dangerous or unhealthy conditions, and to protect the building from damage. Acceptable construction for wet areas is detailed in the NCC and Australian Standard AS 3740:2021, Waterproofing of Domestic Wet Areas.

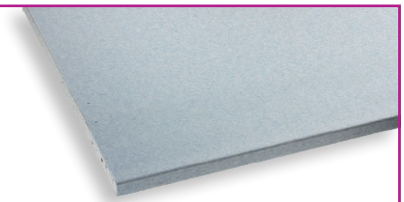
**water**shield, **multi**shield, **tru**rock and **tru**rock hd are all water resistant plasterboards. The installation of these products in accordance with Section 3.4 of this manual complies with the requirements for wet areas from AS 3740 and the NCC.

**multi**shield, **tru**rock and **tru**rock hd are water resistant plasterboards that are also fire resistant and can be substituted for **fire**shield in all systems.

**water**shield, **multi**shield, **tru**rock and **tru**rock hd are manufactured to high internal standards that meet or exceed the requirements for water resistant gypsum board within Australian Standard AS 2588:2018, Gypsum Plasterboard.

**water**shield, **multi**shield, **tru**rock and **tru**rock hd are water resistant, however they are not waterproof. Direct contact with water over time must be avoided and if plasterboard has been water damaged, it must be replaced.

Precautions against condensation listed in Section 2.2 'Condensation and Ventilation' must be followed.



## Water Resistant Plasterboard for Wet Areas

Siniat recommends the installation of **water**shield to resist moisture in wet areas like showers, bathrooms and laundries. For areas that require a fire rating as well as water resistance Siniat recommends **multi**shield, **tru**rock and **tru**rock hd.

**water**shield, **multi**shield, **tru**rock and **tru**rock hd are ideal substrates for tiles as they are dimensionally stable.

# Impact Resistance

Areas subject to wear and tear need special consideration to reduce damage and maintenance costs. High traffic and wear areas are commonly found in:

- Shopping centres
- Educational facilities
- Hotels
- Airports
- Correctional centres
- Hospitals
- Garages
- Gymnasiums
- Corridors
- Rumpus rooms.

## Testing of Impact Resistant Linings

**impact**shield, **tru**rock and **tru**rock hd have been tested for three types of impact resistance

- Soft body representing a person impacting a wall
- Large hard body representing intentional damage
- Small hard body representing incidental damage; every day wear and tear.

### Soft Body Impact

The soft body test involves swinging a sand filled bag into a test wall with studs at 600mm centres and simulates the kind of loads applied to a wall system by the human body.

Soft body impact was tested in accordance with NCC 2022 Volume One, Specification 6, meeting the impact requirements for fire rated walls and fire isolated exits.

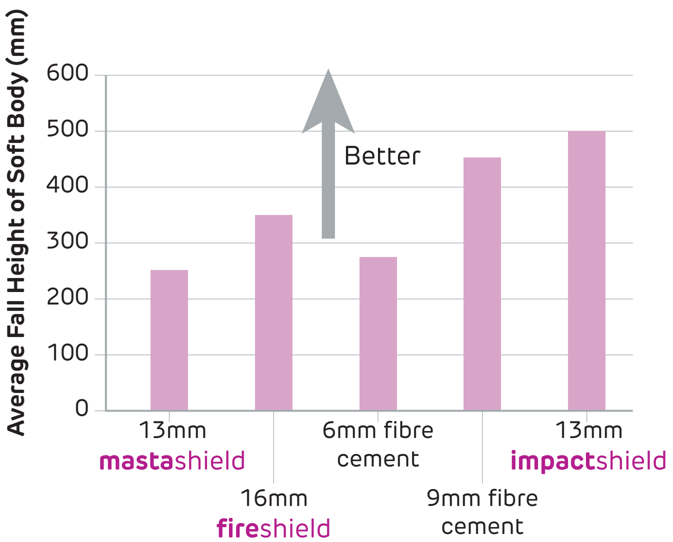



**FIGURE 19** **Soft Body Impact Testing**
Until first damage on face of wall lining appeared

### Large Hard Body Impact - 5kg Steel Ball

Hard body tests were carried out by dropping a steel ball from different heights and measuring the depth of the indentation caused by the impact. Hard body tests simulate loads such as a trolley or swinging a heavy suitcase.

Large hard body impact resistance was tested with a 5 kg spherical steel weight, swung from a height of 300mm. It has about the same energy as a cricket ball travelling at 60 km/h. This impact simulates a reasonable kick with a steel capped boot which makes a hole in standard 13mm plasterboard.

The number of impacts it took to penetrate the lining was recorded. Penetration was defined by the ability of a 10mm diameter probe to pass through the lining when applied with 2.5 kg of force.

13mm standard plasterboard was penetrated after 1 impact, 13mm **tru**rock withstood a further 3 hits before being penetrated on the 4th impact. 13mm **tru**rock hd was penetrated on the 10th impact.

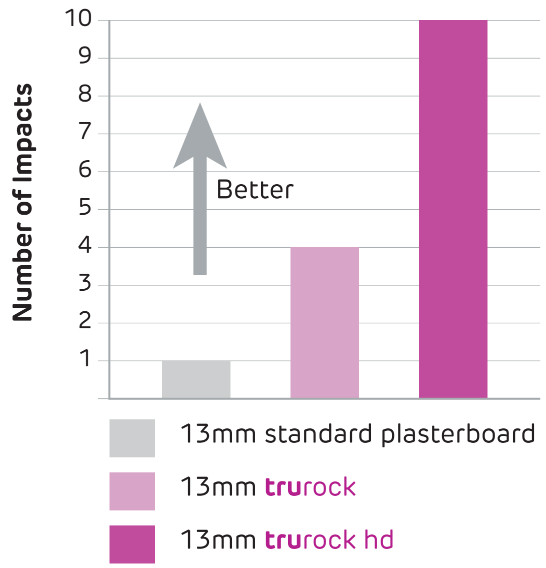



**FIGURE 20** **Large Hard Body Impact Testing**

#### Small Hard Body Impact - 510g Steel Ball

Small hard body impact resistance was tested with a 50mm steel ball weighing 510 grams, dropped onto 400mm square plasterboard samples. The samples were placed on a 300mm square aluminium support sitting on concrete:

- Standard 13mm plasterboard was completely penetrated at a drop height of 2.4m while **impact**shield only sustained a dent 2.2mm deep
- At a 1.6m drop height, 13mm standard plasterboard suffered an impact more than 4mm deep, while **tru**rock showed only a minor dent 1.1mm deep.

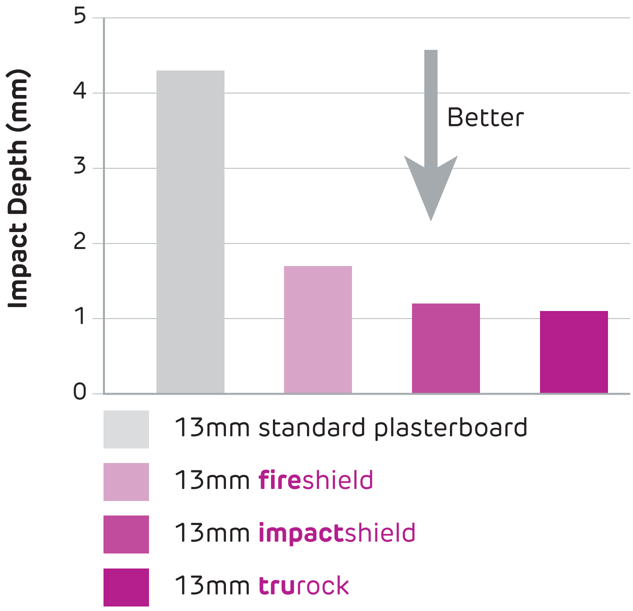



**FIGURE 21** Small Hard Body Impact Testing
1.6m drop height

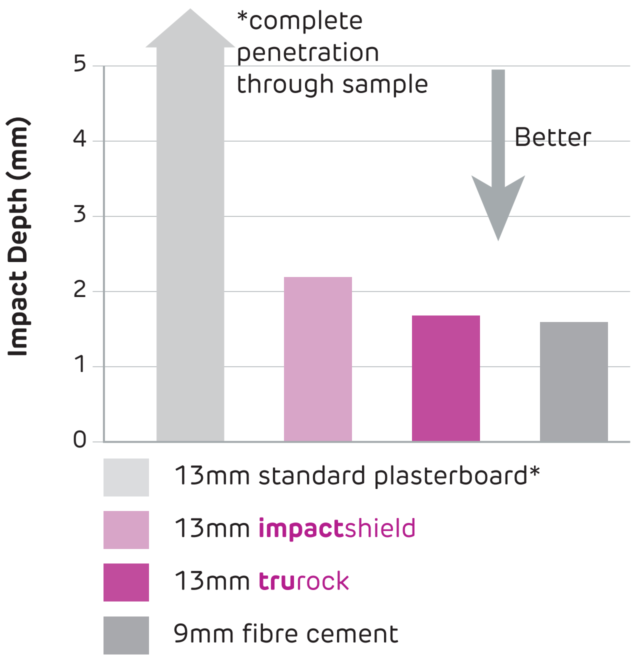



**FIGURE 22** Small Hard Body Impact Testing
2.4m drop height

## Benefits of Impact Resistant Linings

- High resistance to marks, scores, dents and holes
- Twice as tough and hard as standard 13mm plasterboard.

13mm **impact**shield or 13mm **tru**rock can substitute 13mm **fire**shield in any system and maintain the fire and acoustic performance. 16mm **impact**shield or 16mm **tru**rock can also substitute 16mm **fire**shield.

**impact**shield or **tru**rock is not intended to safeguard against damage from deliberate attack with heavy tools or in areas where heavy moving machinery may contact the walls (e.g. unprotected forklift operating areas).

### Impact Resistance

Siniat recommends the installation of **impact**shield or **tru**rock with a high density core and heavy duty face and back paper, to minimise wear and tear in high traffic areas.

**tru**rock hd is an impact resistant plasterboard reinforced with a continuous fibreglass mesh embedded in a high density core.

# X-Ray Resistance

Medical X-ray diagnostic rooms require the use of protective barriers to shield operators and occupants of adjacent areas against unacceptable levels of X-ray radiation.

The level of shielding required depends on:

- X-ray workload and frequency of use
- Direction of X-ray beam, voltage of X-ray tube, number of exposures and X-ray current
- Occupancy and usage of areas adjacent to X-ray suites
- Position of the X-ray unit and the controls in the room
- The dimensions of the room housing the equipment.

Protection usually takes the form of X-ray absorbing sheet material on the walls of the room in which equipment is operated, together with suitably shielded windows and doors. X-ray shielding may also be required on the floors and ceilings of X-ray facilities in multi-storey buildings.

Every Australian State and Territory has individual requirements for radiation shielding of diagnostic medical facilities. A Health Physicist or Radiation Consultant will be typically be involved in projects to ensure that the local requirements for radiation shielding are fulfilled, according to the regulations of the State or Commonwealth.

The advantages of using GIB **x-block**® Shielding systems are:

- Lead free and environmentally friendly
- Easy to install and joint as standard plasterboard
- Enhances other important performance requirements such as noise control and fire ratings
- Eliminates the need for backing joints with lead strips.

## X-ray Resistance Energy Levels

X-ray radiation is measured in kilovolts peak (kVp). Depending on the type of radiation equipment used in the room, diagnostic facilities will have different requirements for shielding:

- CT 120-140 kVp
- General radiographic rooms 60-90 kVp
- Dental 60-80 kVp
- Mammography 25-35 kVp

Other facilities such as nuclear medicine suites may use higher energy X-rays or different types of radiation and additional shielding may be necessary. The level and quality of radiation differs between applications, therefore a Health Physicist must always be involved in determining the shielding requirements for X-ray diagnostic facilities.

### GIB **X-Block**® For Radiation Shielding

Siniat recommends the use of GIB **x-block**® systems to provide X-ray radiation protection in medical X-ray diagnostic rooms within medical facilities and dental clinics.

GIB **x-block**® is a lead-free plasterboard system with high levels of barium sulphate which provides an effective radiation barrier. It eliminates the need for costly and complex installation procedures usually associated with installing lead based lining solutions.

GIB **x-block**® systems use GIB **x-block**® Jointing Compound, a compound specifically designed to give lead equivalent joints on walls and ceilings using GIB **x-block**® plasterboard.

# Systems and Installation Guide



# 3.1 Internal Steel Framed Partition Walls

Internal steel framed walls are used in commercial and high-rise applications such as office buildings and apartment blocks. They are light weight, quick to install, and the components are easy to deliver on site.

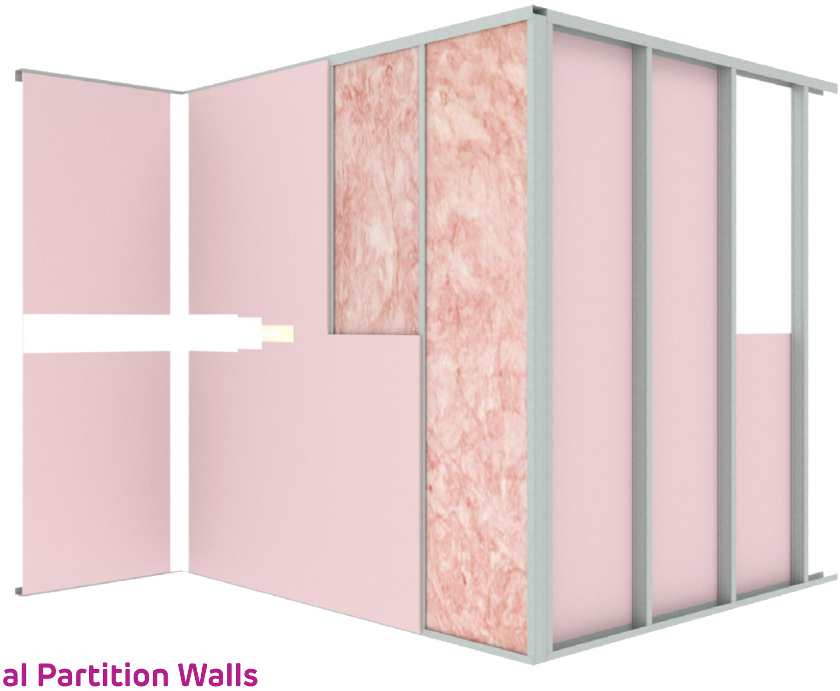
This section includes wall systems, installation instructions and construction details for non-fire rated and fire rated internal steel stud walls. The framing tables and construction details are limited to non-load bearing walls (except for self weight). Non-load bearing walls typically have an allowance for deflection at the head of the wall and are not suitable for vertical axial loads, nor are they suitable as bracing shear walls. Contact Siniat for more information.

# System Directory

## Non-fire Rated Internal Partition Walls

| System | Side 1 | Side 2 | Frame | FRL | Acoustics[1] | |
|---|---|---|---|---|---|---|
| | | | | | Rw | Rw+Ctr |
| SSW1 | 1 x 10mm **masta**shield | - | Stud | - | 29 | 25 |
| SSW10 | 1 x 10mm **masta**shield | 1 x 10mm **masta**shield | Stud | - | 40 | 31 |
| SSW11 | 1 x 10mm **masta**shield | 2 x 10mm **masta**shield | Stud | - | 45 | 35 |
| SSW12 | 2 x 10mm **masta**shield | 2 x 10mm **masta**shield | Stud | - | 50 | 40 |
| SSW210 | 1 x 10mm **sound**shield | 1 x 10mm **sound**shield | Stud | - | 43 | 34 |
| SSW211 | 1 x 10mm **sound**shield | 2 x 10mm **sound**shield | Stud | - | 49 | 39 |
| SSW212 | 2 x 10mm **sound**shield | 2 x 10mm **sound**shield | Stud | - | 53 | 44 |
| SSW4 | 1 x 13mm **masta**shield | - | Stud | - | 32 | 28 |
| SSW15 | 1 x 13mm **masta**shield | 1 x 13mm **masta**shield | Stud | - | 43 | 33 |
| SSW16 | 1 x 13mm **masta**shield | 2 x 13mm **masta**shield | Stud | - | 49 | 39 |
| SSW17 | 2 x 13mm **masta**shield | 2 x 13mm **masta**shield | Stud | - | 53 | 44 |
| SSW215 | 1 x 13mm **sound**shield | 1 x 13mm **sound**shield | Stud | - | 47 | 39 |
| SSW216 | 1 x 13mm **sound**shield | 2 x 13mm **sound**shield | Stud | - | 52 | 44 |
| SSW217 | 2 x 13mm **sound**shield | 2 x 13mm **sound**shield | Stud | - | 55 | 49 |
| SSW276 | 1 x 10mm **sound**shield | 1 x 10mm **sound**shield | Acoustic stud | - | 47 | 38 |
| SSW277 | 1 x 10mm **sound**shield | 2 x 10mm **sound**shield | Acoustic stud | - | 50 | 42 |
| SSW278 | 2 x 10mm **sound**shield | 2 x 10mm **sound**shield | Acoustic stud | - | 57 | 48 |
| SSW85 | 1 x 13mm **masta**shield | 1 x 13mm **masta**shield | Acoustic stud | - | 46 | 37 |
| SSW86 | 1 x 13mm **masta**shield | 2 x 13mm **masta**shield | Acoustic stud | - | 50 | 41 |
| SSW87 | 2 x 13mm **masta**shield | 2 x 13mm **masta**shield | Acoustic stud | - | 56 | 48 |
| SSW281 | 1 x 13mm **sound**shield | 1 x 13mm **sound**shield | Acoustic stud | - | 50 | 42 |
| SSW282 | 1 x 13mm **sound**shield | 2 x 13mm **sound**shield | Acoustic stud | - | 57 | 49 |
| SSW283 | 2 x 13mm **sound**shield | 2 x 13mm **sound**shield | Acoustic stud | - | 62 | 54 |
| SSW20 | 1 x 10mm **masta**shield | 1 x 10mm **masta**shield | Staggered stud | - | 42 | 31 |
| SSW21 | 1 x 10mm **masta**shield | 2 x 10mm **masta**shield | Staggered stud | - | 47 | 35 |
| SSW22 | 2 x 10mm **masta**shield | 2 x 10mm **masta**shield | Staggered stud | - | 52 | 42 |
| SSW220 | 1 x 10mm **sound**shield | 1 x 10mm **sound**shield | Staggered stud | - | 45 | 33 |
| SSW221 | 1 x 10mm **sound**shield | 2 x 10mm **sound**shield | Staggered stud | - | 50 | 40 |
| SSW222 | 2 x 10mm **sound**shield | 2 x 10mm **sound**shield | Staggered stud | - | 54 | 46 |
| SSW25 | 1 x 13mm **masta**shield | 1 x 13mm **masta**shield | Staggered stud | - | 45 | 33 |
| SSW26 | 1 x 13mm **masta**shield | 2 x 13mm **masta**shield | Staggered stud | - | 50 | 40 |
| SSW27 | 2 x 13mm **masta**shield | 2 x 13mm **masta**shield | Staggered stud | - | 54 | 46 |
| SSW225 | 1 x 13mm **sound**shield | 1 x 13mm **sound**shield | Staggered stud | - | 48 | 40 |
| SSW226 | 1 x 13mm **sound**shield | 2 x 13mm **sound**shield | Staggered stud | - | 52 | 46 |
| SSW227 | 2 x 13mm **sound**shield | 2 x 13mm **sound**shield | Staggered stud | - | 58 | 51 |

1. Stud, Acoustic Stud and Staggered stud acoustic values determined using 92mm cavity with glasswool insulation.



## Fire Rated Internal Partition Walls

| System | Side 1 | Side 2 | Frame | Fire Resistance Level | | Acoustics[1] | |
|---|---|---|---|---|---|---|---|
| | | | | | | Rw | Rw+Ctr |
| SSW300 | 1 x 13mm fireshield | - | Stud | - | - | 33 | 29 |
| SSW301 | 2 x 13mm fireshield | - | Stud | -/30/30 | 30/30/30 | 39 | 35 |
| SSW302 | 3 x 13mm fireshield | - | Stud | -/90/90 | 90/90/90 | 42 | 39 |
| SSW310 | 1 x 13mm fireshield | 1 x 13mm fireshield | Stud | -/60/60 | 30/30/30 | 46 | 36 |
| SSW311 | 1 x 13mm fireshield | 2 x 13mm fireshield | Stud | -/90/90 | 30/30/30 | 50 | 42 |
| SSW312 | 2 x 13mm fireshield | 2 x 13mm fireshield | Stud | -/120/120 | 90/90/90 | 55 | 47 |
| SSW314 | 3 x 13mm fireshield | 3 x 13mm fireshield | Stud | -/180/180 | 120/120/120 | 59 | **53** |
| SSW910 | 1 x 13mm trurock | 1 x 13mm trurock | Stud | -/60/60 | 30/30/30 | 47 | 39 |
| SSW911 | 1 x 13mm trurock | 2 x 13mm trurock | Stud | -/90/90 | 30/30/30 | 52 | 45 |
| SSW912 | 2 x 13mm trurock | 2 x 13mm trurock | Stud | -/120/120 | 90/90/90 | 56 | **50** |
| SSW510 | 1 x 13mm fireshield | 1 x 13mm fireshield + 1 x 6mm Duraliner | Stud | -/60/60 | 30/30/30 | 51 | 42 |
| SSW512 | 1 x 13mm fireshield + 1 x 6mm Duraliner | 1 x 13mm fireshield + 1 x 6mm Duraliner | Stud | -/90/90 | 30/30/30 | 55 | 47 |
| SSW303 | 1 x 16mm fireshield | - | Stud | - | - | 33 | 30 |
| SSW304 | 2 x 16mm fireshield | - | Stud | -/60/60 | 60/60/60 | 40 | 37 |
| SSW305 | 3 x 16mm fireshield | - | Stud | -/120/120 | 120/120/120 | 43 | 40 |
| SSW315 | 1 x 16mm fireshield | 1 x 16mm fireshield | Stud | -/90/90 | 60/60/60 | 47 | 39 |
| SSW316 | 1 x 16mm fireshield | 2 x 16mm fireshield | Stud | -/90/90 | 60/60/60 | 52 | 45 |
| SSW317 | 2 x 16mm fireshield | 2 x 16mm fireshield | Stud | -/120/120 | 120/120/120 | 56 | **50** |
| SSW319 | 3 x 16mm fireshield | 3 x 16mm fireshield | Stud | -/240/240 | 120/120/120 | 60 | **55** |
| SSW580 | 4 x 16mm fireshield | 4 x 16mm fireshield | Stud | -/240/240 | 180/180/180 | 66 | **61** |
| SSW582 | 2 x 25mm shaftliner + 1 x 13mm fireshield | 2 x 25mm shaftliner + 1 x 13mm fireshield | Stud | -/240/240 | 180/180/180 | 61 | **56** |
| SSW514 | 1 x 16mm fireshield | 1 x 16mm fireshield + 1 x 6mm Duraliner | Stud | -/90/90 | 60/60/60 | 53 | 43 |
| SSW516 | 1 x 16mm fireshield + 1 x 6mm Duraliner | 1 x 16mm fireshield + 1 x 6mm Duraliner | Stud | -/120/120 | 60/60/60 | 56 | 48 |
| SSW573 | 1 x 16mm fireshield | 1 x 10mm mastashield | Stud | -/60/60 | 60/60/60 | 44 | 32 |
| SSW386 | 1 x 13mm fireshield | 1 x 13mm fireshield | Acoustic stud | -/60/60 | 30/30/30 | 50 | 41 |
| SSW387 | 1 x 13mm fireshield | 2 x 13mm fireshield | Acoustic stud | -/90/90 | 30/30/30 | 56 | 47 |
| SSW388 | 2 x 13mm fireshield | 2 x 13mm fireshield | Acoustic stud | -/120/120 | 90/90/90 | 60 | **52** |
| SSW396 | 1 x 13mm fireshield + 1 x 13mm mastashield | 1 x 13mm fireshield + 1 x 13mm mastashield | Acoustic stud | -/90/90 | 60/60/60 | 58 | **51** |

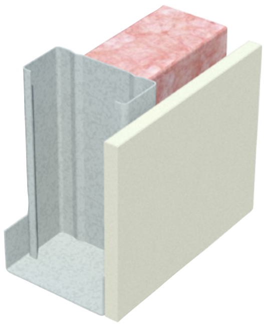
1. Stud and Acoustic Stud acoustic values determined using 92mm cavity with glasswool insulation.

## Fire Rated Internal Partition Walls

| System | Side 1 | Side 2 | Frame[2] | Fire Resistance Level | | Acoustics[1,2] Rw | Acoustics[1,2] Rw+Ctr |
|---|---|---|---|---|---|---|---|
| SSW551 | 2 x 13mm fireshield | 1 x 13mm fireshield + 1 x 6mm Duraliner | Acoustic stud | -/90/90 | 30/30/30 | 59 | **50** |
| SSW552 | 1 x 13mm fireshield + 1 x 6mm Duraliner | 1 x 13mm fireshield + 1 x 6mm Duraliner | Acoustic stud | -/90/90 | 30/30/30 | 58 | **50** |
| SSW391 | 1 x 16mm fireshield | 1 x 16mm fireshield | Acoustic stud | -/90/90 | 60/60/60 | 51 | 43 |
| SSW392 | 1 x 16mm fireshield | 2 x 16mm fireshield | Acoustic stud | -/90/90 | 60/60/60 | 58 | **50** |
| SSW393 | 2 x 16mm fireshield | 2 x 16mm fireshield | Acoustic stud | -/120/120 | 120/120/120 | 62 | **54** |
| SSW397 | 1 x 16mm fireshield + 1 x 10mm mastashield | 1 x 16mm fireshield + 1 x 10mm mastashield | Acoustic stud | -/120/120 | 60/60/60 | 61 | **51** |
| SSW555 | 2 x 16mm fireshield | 1 x 16mm fireshield + 1 x 6mm Duraliner | Acoustic stud | -/120/120 | 60/60/60 | 62 | **53** |
| SSW556 | 1 x 16mm fireshield + 1 x 6mm Duraliner | 1 x 16mm fireshield + 1 x 6mm Duraliner | Acoustic stud | -/120/120 | 60/60/60 | 61 | **51** |
| SSW330 | 1 x 13mm fireshield | 1 x 13mm fireshield | Double stud | -/60/60 | 30/30/30 | 50 | 38 |
| SSW331 | 1 x 13mm fireshield | 2 x 13mm fireshield | Double stud | -/90/90 | 30/30/30 | 60 | **50** |
| SSW332 | 2 x 13mm fireshield | 2 x 13mm fireshield | Double stud | -/120/120 | 90/90/90 | 63 | **53** |
| SSW380 | 1 x 13mm fireshield + 1 x 13mm mastashield | 1 x 13mm fireshield + 1 x 13mm mastashield | Double stud | -/90/90 | 60/60/60 | 62 | **50** |
| SSW531 | 2 x 13mm fireshield | 1 x 13mm fireshield + 1 x 6mm Duraliner | Double stud | -/90/90 | 30/30/30 | 63 | **50** |
| SSW532 | 1 x 13mm fireshield + 1 x 6mm Duraliner | 1 x 13mm fireshield + 1 x 6mm Duraliner | Double stud | -/90/90 | 30/30/30 | 62 | **50** |
| SSW335 | 1 x 16mm fireshield | 1 x 16mm fireshield | Double stud | -/90/90 | 60/60/60 | 60 | **50** |
| SSW336 | 1 x 16mm fireshield | 2 x 16mm fireshield | Double stud | -/90/90 | 60/60/60 | 62 | **51** |
| SSW337 | 2 x 16mm fireshield | 2 x 16mm fireshield | Double stud | -/120/120 | 120/120/120 | 65 | **55** |
| SSW339 | 3 x 16mm fireshield | 3 x 16mm fireshield | Double stud | -/240/240 | 120/120/120 | 72 | **61** |
| SSW581 | 4 x 16mm fireshield | 4 x 16mm fireshield | Double stud | -/240/240 | 180/180/180 | 79 | **71** |
| SSW583 | 2 x 25mm shaftliner + 1 x 13mm fireshield | 2 x 25mm shaftliner + 1 x 13mm fireshield | Double stud | -/240/240 | 180/180/180 | 77 | **70** |
| SSW381 | 1 x 16mm fireshield | 1 x 16mm fireshield + 1 x 10mm mastashield | Double stud | -/90/90 | 60/60/60 | 60 | **50** |
| SSW382 | 1 x 16mm fireshield + 1 x 10mm mastashield | 1 x 16mm fireshield + 1 x 10mm mastashield | Double stud | -/120/120 | 60/60/60 | 64 | **52** |
| SSW534 | 1 x 16mm fireshield | 1 x 16mm fireshield + 1 x 6mm Duraliner | Double stud | -/90/90 | 60/60/60 | 59 | **50** |
| SSW535 | 2 x 16mm fireshield | 1 x 16mm fireshield + 1 x 6mm Duraliner | Double stud | -/120/120 | 60/60/60 | 65 | **52** |
| SSW536 | 1 x 16mm fireshield + 1 x 6mm Duraliner | 1 x 16mm fireshield + 1 x 6mm Duraliner | Double stud | -/120/120 | 60/60/60 | 64 | **51** |
| SSW320 | 1 x 13mm fireshield | 1 x 13mm fireshield | Staggered stud | -/60/60 | 30/30/30 | 50 | 41 |
| SSW321 | 1 x 13mm fireshield | 2 x 13mm fireshield | Staggered stud | -/90/90 | 30/30/30 | 56 | 46 |
| SSW322 | 2 x 13mm fireshield | 2 x 13mm fireshield | Staggered stud | -/120/120 | 90/90/90 | 58 | **50** |
| SSW520 | 1 x 13mm fireshield | 1 x 13mm fireshield + 1 x 6mm Duraliner | Staggered stud | -/60/60 | 30/30/30 | 51 | 43 |
| SSW522 | 1 x 13mm fireshield + 1 x 6mm Duraliner | 1 x 13mm fireshield + 1 x 6mm Duraliner | Staggered stud | -/90/90 | 30/30/30 | 56 | 48 |
| SSW325 | 1 x 16mm fireshield | 1 x 16mm fireshield | Staggered stud | -/90/90 | 60/60/60 | 50 | 42 |
| SSW326 | 1 x 16mm fireshield | 2 x 16mm fireshield | Staggered stud | -/90/90 | 60/60/60 | 52 | 46 |
| SSW327 | 2 x 16mm fireshield | 2 x 16mm fireshield | Staggered stud | -/120/120 | 120/120/120 | 58 | **52** |
| SSW524 | 1 x 16mm fireshield | 1 x 16mm fireshield + 1 x 6mm Duraliner | Staggered stud | -/90/90 | 60/60/60 | 52 | 45 |
| SSW526 | 1 x 16mm fireshield + 1 x 6mm Duraliner | 1 x 16mm fireshield + 1 x 6mm Duraliner | Staggered stud | -/120/120 | 60/60/60 | 59 | **51** |

1. Acoustic stud and Staggered stud acoustic values determined using 92mm cavity with Glasswool insulation.
2. Double stud acoustic values determined using 148mm cavity with Glasswool insulation.

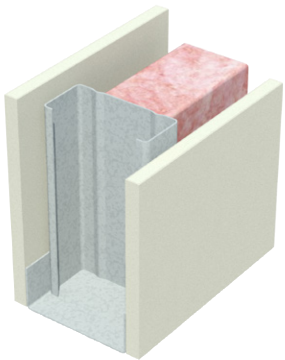
## SSW1



- Steel stud framing at maximum 600mm centres
- 1 layer of 10mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | |
| 51 | 61 | 25 (21) | 29 (25) | Report INSUL v9 |
| 64 | 74 | | | |
| 76 | 86 | | | |
| 92 | 102 | | | |
| 150 | 160 | | | |

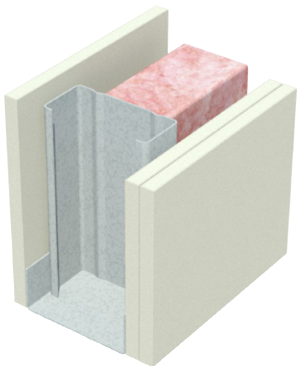
## SSW10



- 1 layer of 10mm **masta**shield or **water**shield
- Steel stud framing at maximum 600mm centres
- 1 layer of 10mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | |
| 51 | 71 | 33 (24) | 37 (29) | Report Day Design 3094-33 |
| 64 | 84 | 33 (24) | 39 (30) | |
| 76 | 96 | 33 (24) | 39 (30) | |
| 92 | 112 | 33 (25) | 40 (31) | |
| 150 | 170 | 35 (25) | 43 (33) | |

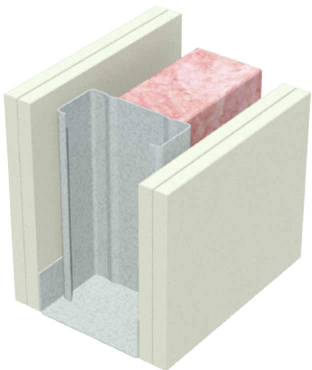
## SSW11



- 1 layer of 10mm **masta**shield or **water**shield
- Steel stud framing at maximum 600mm centres
- 2 layers of 10mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | |
| 51 | 81 | 37 (28) | 42 (34) | Report Day Design 3094-33 |
| 64 | 94 | 38 (29) | 43 (34) | |
| 76 | 106 | 38 (29) | 44 (35) | |
| 92 | 122 | 38 (29) | 45 (35) | |
| 150 | 180 | 40 (29) | 48 (38) | |

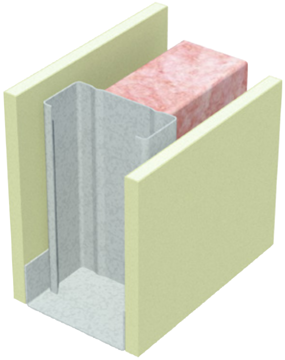
## SSW12



- 2 layers of 10mm **masta**shield or **water**shield
- Steel stud framing at maximum 600mm centres
- 2 layers of 10mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | |
| 51 | 91 | 40 (31) | 47 (37) | Report Day Design 3094-33 |
| 64 | 104 | 41 (32) | 48 (37) | |
| 76 | 116 | 41 (32) | 49 (39) | |
| 92 | 132 | 42 (32) | 50 (40) | |
| 150 | 190 | 44 (36) | 53 (44) | |

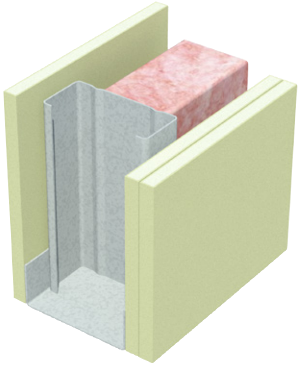
## SSW210



- 1 layer of 10mm **sound**shield or **opal**
- Steel stud framing at maximum 600mm centres
- 1 layer of 10mm **sound**shield or **opal**

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Reports |
| 51 | 71 | 33 (26) | 41 (33) | Day Design 3094-33 |
| 64 | 84 | 33 (26)[1] | 42 (33) | |
| 76 | 96 | 34 (26) | 43 (34) | |
| 92 | 112 | 35 (27) | 43 (34) | [1]STR057 |
| 150 | 170 | 37 (27) | 46 (36) | |

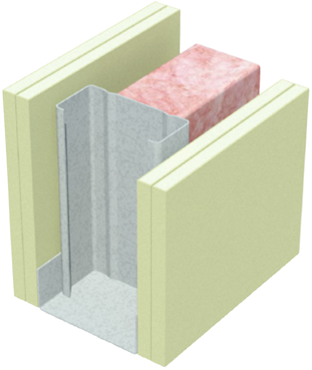
## SSW211



- 1 layer of 10mm **sound**shield or **opal**
- Steel stud framing at maximum 600mm centres
- 2 layers of 10mm **sound**shield or **opal**

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
| 51 | 81 | 39 (31) | 46 (37) | Day Design 3094-33 |
| 64 | 94 | 39 (31) | 46 (37) | |
| 76 | 106 | 40 (31) | 48 (37) | |
| 92 | 122 | 40 (31) | 49 (39) | |
| 150 | 180 | 42 (32) | 50 (42) | |

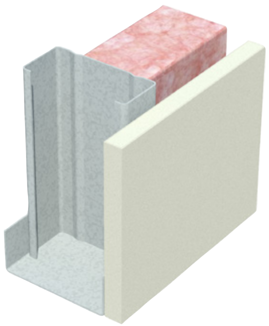
## SSW212



- 2 layers of 10mm **sound**shield or **opal**
- Steel stud framing at maximum 600mm centres
- 2 layers of 10mm **sound**shield or **opal**

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
| 51 | 91 | 43 (33) | 50 (40) | Day Design 3094-33 |
| 64 | 104 | 43 (33) | 51 (42) | |
| 76 | 116 | 44 (34) | 52 (43) | |
| 92 | 132 | 45 (34) | 53 (44) | |
| 150 | 190 | 47 (39) | 54 (47) | |

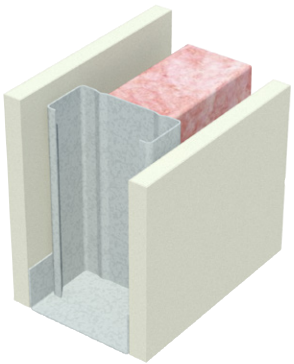
## SSW4



- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | Sound Insulation for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Day Design 3094-35 |
| 51 | 64 | 29 (25) | 32 (28) | |
| 64 | 77 | | | |
| 76 | 89 | | | |
| 92 | 105 | | | |
| 150 | 163 | | | |

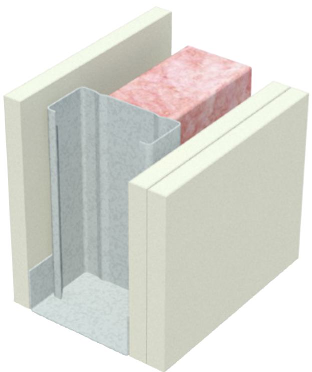
## SSW15



- 1 layer of 13mm **masta**shield or **water**shield
- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | Sound Insulation for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Day Design 3094-33 |
| 51 | 77 | 33 (26) | 41 (33) | |
| 64 | 90 | 34 (26) | 42 (33) | |
| 76 | 102 | 34 (26) | 43 (33) | |
| 92 | 118 | 35 (27) | 43 (33) | |
| 150 | 176 | 37 (27) | 45 (37) | |

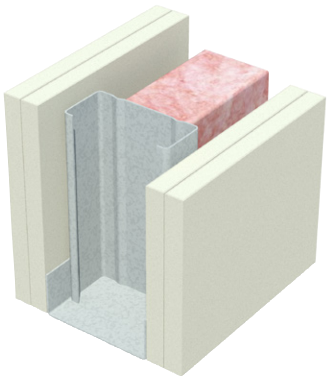
## SSW16



- 1 layer of 13mm **masta**shield or **water**shield
- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | Sound Insulation for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Day Design 3094-33 |
| 51 | 90 | 39 (31) | 46 (36) | |
| 64 | 103 | 39 (31) | 47 (37) | |
| 76 | 115 | 40 (31) | 47 (37) | |
| 92 | 131 | 40 (31) | 49 (39) | |
| 150 | 189 | 42 (32) | 50 (42) | |

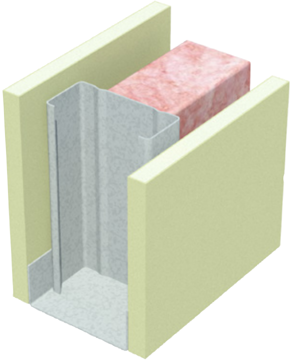
## SSW17



- 2 layers of 13mm **masta**shield or **water**shield
- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | Sound Insulation for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Day Design 3094-33 |
| 51 | 103 | 42 (33) | 50 (40) | |
| 64 | 116 | 43 (33) | 51 (41) | |
| 76 | 128 | 44 (34) | 52 (43) | |
| 92 | 144 | 44 (34) | 53 (44) | |
| 150 | 202 | 47 (39) | 54 (47) | |

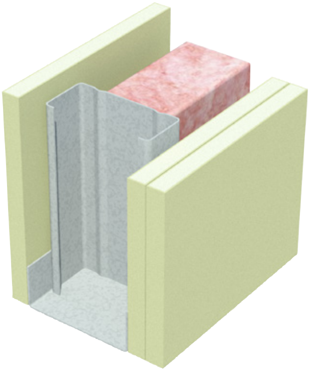
## SSW215



- 1 layer of 13mm **sound**shield
- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **sound**shield

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
| 51 | 77 | 36 (29) | 45 (37) | Day Design 3094-33 |
| 64 | 90 | 37 (29)[1] | 45 (37) | |
| 76 | 102 | 37 (30) | 46 (37) | |
| 92 | 118 | 38 (30) | 47 (39) | [1]TL442b |
| 150 | 176 | 41 (31) | 48 (42) | |

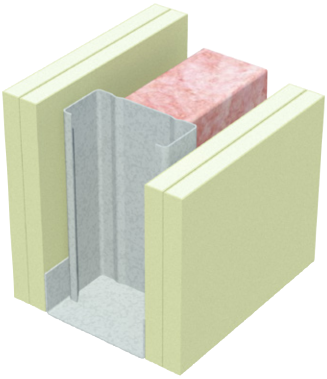
## SSW216



- 1 layer of 13mm **sound**shield
- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **sound**shield

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | |
| 51 | 90 | 42 (34) | 50 (40) | Report |
| 64 | 103 | 43 (34) | 51 (42) | Day Design 3094-33 |
| 76 | 115 | 44 (34) | 51 (43) | |
| 92 | 131 | 45 (35) | 52 (44) | |
| 150 | 189 | 47 (37) | 53 (47) | |

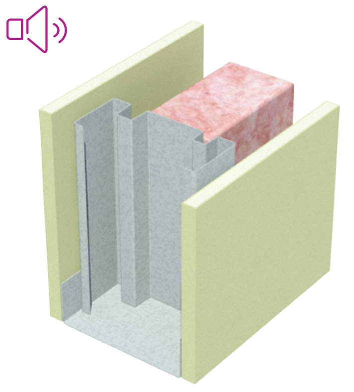
## SSW217



- 2 layers of 13mm **sound**shield
- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **sound**shield

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | |
| 51 | 103 | 46 (40) | 54 (46) | Report |
| 64 | 116 | 47 (41) | 55 (47) | Day Design 3094-33 |
| 76 | 128 | 48 (41) | 55 (48) | |
| 92 | 144 | 49 (42) | 55 (49) | |
| 150 | 202 | 51 (44) | 56 (52) | |

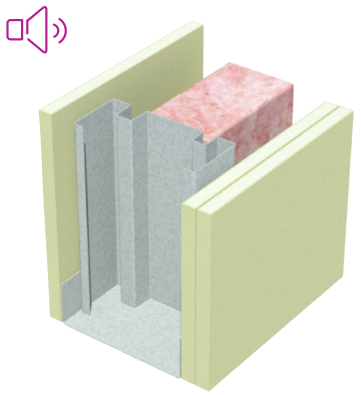
## SSW276



- 1 layer of 10mm **sound**shield or **opal**
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 10mm **sound**shield or **opal**

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 112 | 41 (34) | 47 (38) | Day Design 5008.28 |

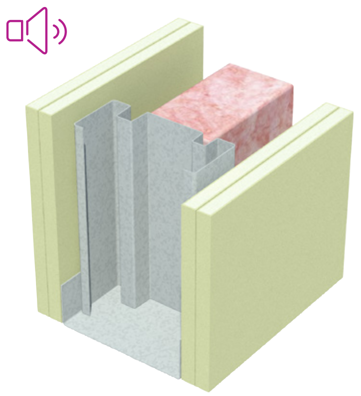
## SSW277



- 1 layer of 10mm **sound**shield or **opal**
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 2 layers of 10mm **sound**shield or **opal**

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 122 | 43 (36) | 50 (42) | Day Design 5008.28 |

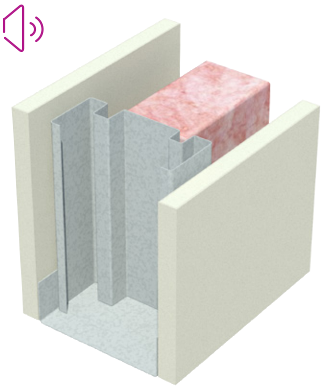
## SSW278



- 2 layers of 10mm **sound**shield or **opal**
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 2 layers of 10mm **sound**shield or **opal**

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 132 | 49 (43) | 57 (48) | Day Design 5008.28 |

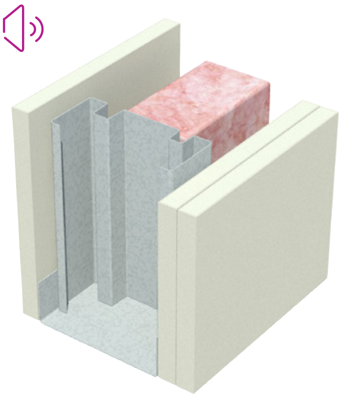
## SSW85



- 1 layer of 13mm **masta**shield or **water**shield
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 13mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 118 | 39 (33) | 46 (37) | Day Design 5008.28 |

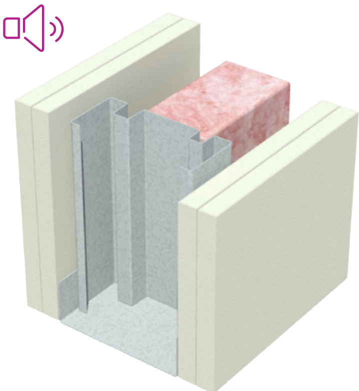
## SSW86



- 1 layer of 13mm **masta**shield or **water**shield
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 2 layers of 13mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 131 | 43 (36) | 50 (41) | Day Design 5008.28 |

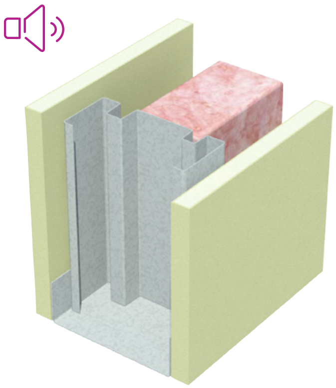
## SSW87



- 2 layers of 13mm **masta**shield or **water**shield
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 2 layers of 13mm **masta**shield or **water**shield

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 144 | 49 (43) | 56 (48) | Day Design 5008.28 |

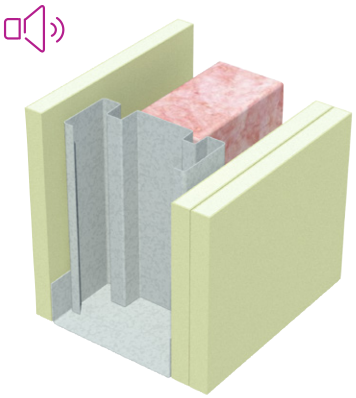
## SSW281



- 1 layer of 13mm **sound**shield
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 13mm **sound**shield

| Stud Size (mm) | Wall Width (mm) | Sound Insulation for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | |
| 92 Siniat Acoustic Stud | 118 | 42 (36) | 50 (42) | Report Day Design 5008.28 |

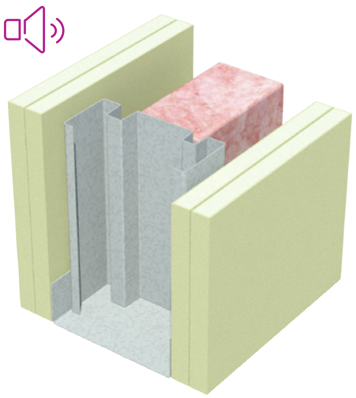
## SSW282



- 1 layer of 13mm **sound**shield
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 2 layers of 13mm **sound**shield

| Stud Size (mm) | Wall Width (mm) | Sound Insulation for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | |
| 92 Siniat Acoustic Stud | 131 | 48 (43) | 57 (49) | Report Day Design 5008.28 |

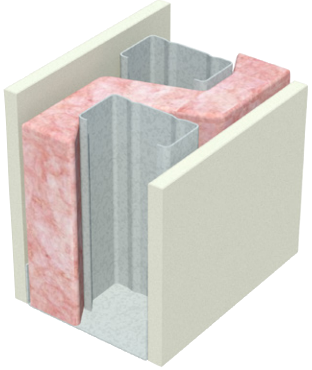
## SSW283



- 2 layers of 13mm **sound**shield
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 2 layers of 13mm **sound**shield

| Stud Size (mm) | Wall Width (mm) | Sound Insulation for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | |
| 92 Siniat Acoustic Stud | 144 | 54 (50) | 62 (54) | Report Day Design 5008.28 |

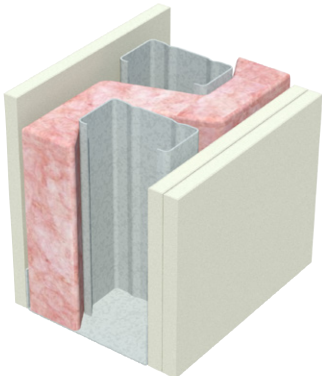
## SSW20



- 1 layer of 10mm **masta**shield or **water**shield
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 1 layer of 10mm **masta**shield or **water**shield

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Pink® Partition 75mm 14kg/m³ R1.9 | Report |
| 92 | 112 | 33 (36) | 42 (31) | 43 (32) | Day Design 3094-33<br>Note: Impact sound Resistant |
| 150 | 170 | 34 (26) | 44 (32) | 45 (33) | |

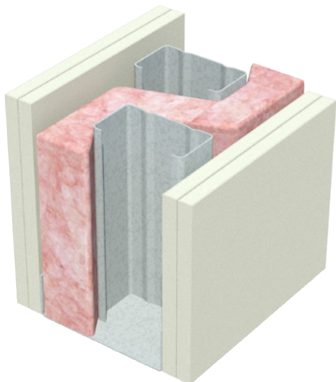
## SSW21



- 1 layer of 10mm **masta**shield or **water**shield
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 10mm **masta**shield or **water**shield

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Pink® Partition 75mm 14kg/m³ R1.9 | Report |
| 92 | 122 | 37 (29) | 47 (35) | 48 (36) | Day Design 3094-33<br>Note: Impact sound Resistant |
| 150 | 180 | 38 (29) | 49 (38) | 50 (39) | |

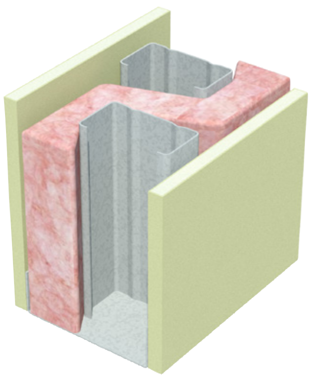
## SSW22



- 2 layers of 10mm **masta**shield or **water**shield
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 10mm **masta**shield or **water**shield

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Pink® Partition 75mm 14kg/m³ R1.9 | Report |
| 92 | 132 | 42 (33) | 52 (42) | 52 (43) | Day Design 3094-33<br>Note: Impact sound Resistant |
| 150 | 190 | 44 (34) | 53 (45) | 54 (46) | |

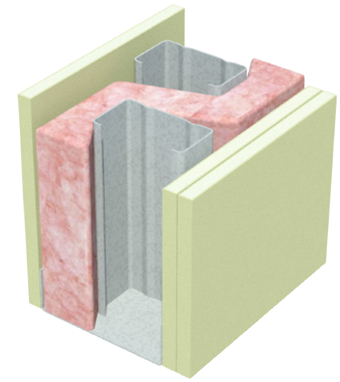
## SSW220



- 1 layer of 10mm **sound**shield or **opal**
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 1 layer of 10mm **sound**shield or **opal**

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Pink® Partition 75mm 14kg/m³ R1.9 | Report |
| 92 | 112 | 35 (28) | 45 (33)[1] | 45 (34) | Day Design 3094-33<br>[1]TL442g<br>Note: Impact sound Resistant |
| 150 | 170 | 37 (28) | 46 (36) | 47 (37) | |

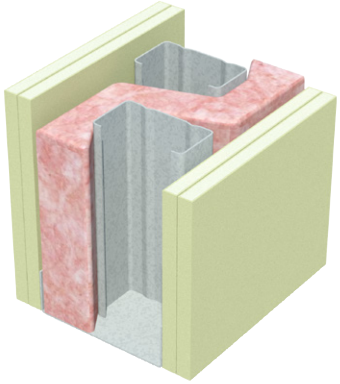
## SSW221



- 1 layer of 10mm **sound**shield or **opal**
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 10mm **sound**shield or **opal**

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | Pink® Partition 75mm 14kg/$m^3$ R1.9 | Report |
| 92 | 122 | 40 (32) | 50 (40) | 50 (41) | Day Design 3094-33 |
| 150 | 180 | 42 (33) | 51 (44) | 52 (45) | Note: Impact sound Resistant |

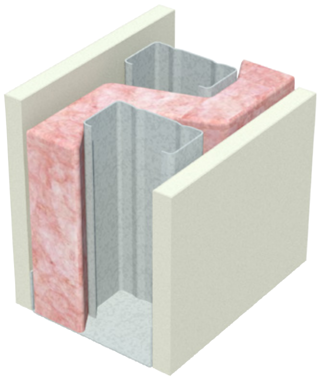
## SSW222



- 2 layers of 10mm **sound**shield or **opal**
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 10mm **sound**shield or **opal**

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | Pink® Partition 75mm 14kg/$m^3$ R1.9 | Report |
| 92 | 132 | 44 (35) | 54 (46) | 55 (47) | Day Design 3094-33 |
| 150 | 190 | 47 (37) | 55 (49) | 56 (50) | Note: Impact sound Resistant |

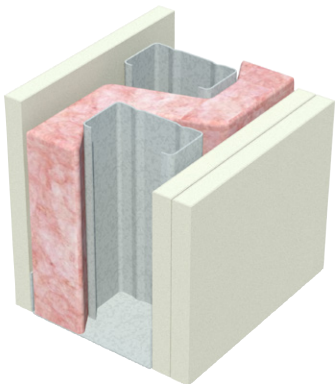
## SSW25



- 1 layer of 13mm **masta**shield or **water**shield
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 1 layer of 13mm **masta**shield or **water**shield

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | Pink® Partition 75mm 14kg/$m^3$ R1.9 | Report |
| 92 | 118 | 35 (27) | 45 (33) | 45 (34) | Day Design 3094-33 |
| 150 | 176 | 36 (28) | 46 (36) | 47 (37) | Note: Impact sound Resistant |

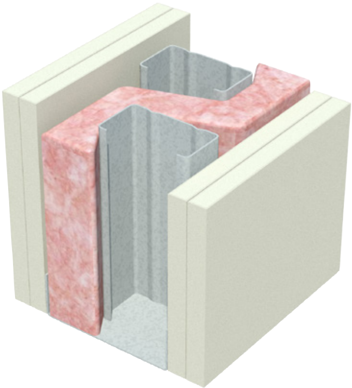
## SSW26



- 1 layer of 13mm **masta**shield or **water**shield
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **masta**shield or **water**shield

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | Pink® Partition 75mm 14kg/$m^3$ R1.9 | Report |
| 92 | 131 | 40 (32) | 50 (40) | 50 (41) | Day Design 3094-33 |
| 150 | 189 | 42 (33) | 51 (44) | 52 (45) | Note: Impact sound Resistant |

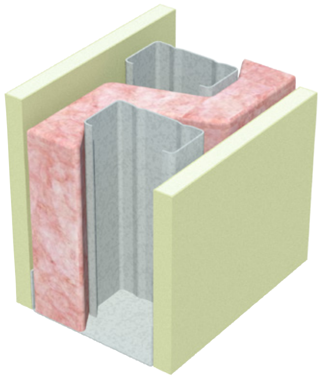
## SSW27



- 2 layers of 13mm **masta**shield or **water**shield
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **masta**shield or **water**shield

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Pink® Partition 75mm 14kg/m³ R1.9 | Report |
| 92 | 144 | 44 (35) | 54 (46) | 54 (47) | Day Design 3094-33 |
| 150 | 202 | 47 (37) | 55 (49) | 56 (49) | Note: Impact sound Resistant |

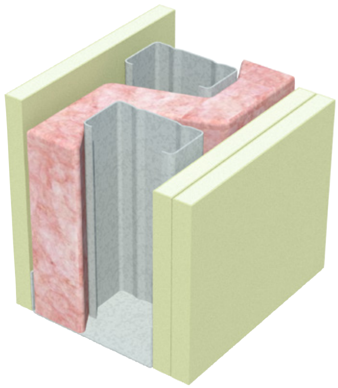
## SSW225



- 1 layer of 13mm **sound**shield
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 1 layer of 13mm **sound**shield

| Track Width (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Pink® Partition 75mm 14kg/m³ R1.9 | Report Day Design 3094-33 [1]TL442C |
| 92 | 118 | 40 (32) | 48 (40) | 49 (41) | |
| 150 | 176 | 42 (33) | 49 (43) | 51 (46)[1] | Note: Impact sound Resistant |

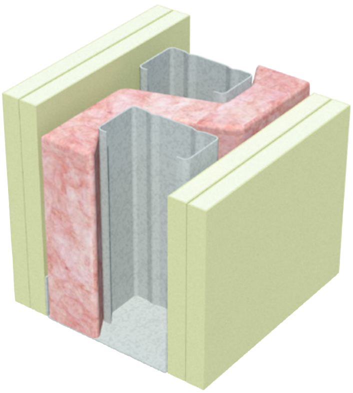
## SSW226



- 1 layer of 13mm **sound**shield
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **sound**shield

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Pink® Partition 75mm 14kg/m³ R1.9 | Report |
| 92 | 131 | 44 (36) | 52 (46) | 53 (47) | Day Design 3094-33 |
| 150 | 189 | 46 (37) | 53 (48) | 54 (49) | Note: Impact sound Resistant |

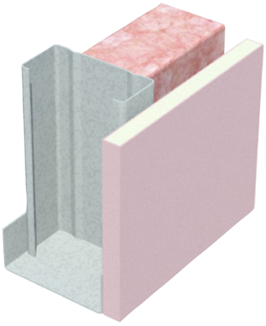
## SSW227



- 2 layers of 13mm **sound**shield
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **sound**shield

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Pink® Partition 75mm 14kg/m³ R1.9 | Report Day Design 3094-33 [1]TL442d |
| 92 | 144 | 49 (42) | 58 (51) | 59 (52) | |
| 150 | 202 | 51 (43) | 59 (53)[1] | 60 (54) | Note: Impact sound Resistant |

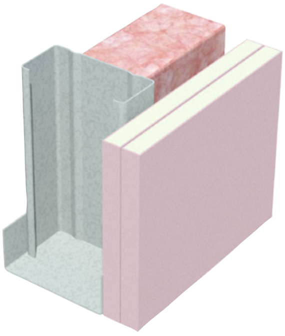
## SSW300



- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report<br>Day Design 3094-35 |
| 51 | 64 | 30 (26) | 33 (29) | |
| 64 | 77 | | | |
| 76 | 89 | | | |
| 92 | 105 | | | |
| 150 | 163 | | | |

## SSW301



- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

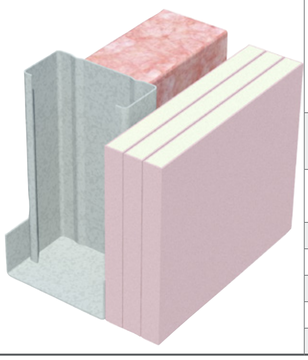
**Fire Resistance Level**

**-/30/30** and **30/30/30** from the lined side only

Report FC13921

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Reports<br>Day Design 3094-33<br>[1]ATF 1530 INSUL v9 |
| 51 | 77 | 34 (30) [1] | 39 (35) | |
| 64 | 90 | | | |
| 76 | 102 | | | |
| 92 | 118 | | | |
| 150 | 176 | | | |

## SSW302



- Steel stud framing at maximum 600mm centres
- 3 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

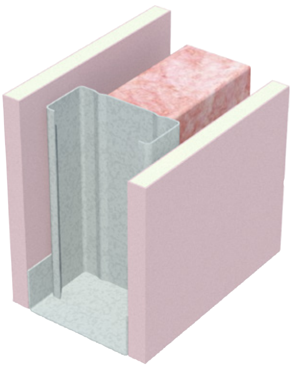
**Fire Resistance Level**

**-/90/90** and **90/90/90** from the lined side only

Report FC13921

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Reports<br>Day Design 3094-33 INSUL v9 |
| 51 | 90 | 37 (34) | 42 (39) | |
| 64 | 103 | | | |
| 76 | 115 | | | |
| 92 | 131 | | | |
| 150 | 189 | | | |

## SSW310



- 1 layer of 13mm **fire**shield or **multi**shield
- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield

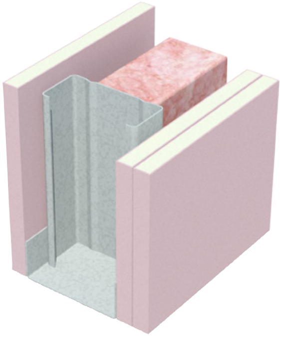
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | Reports<br>Day Design 3094-33<br>[1]STR082 [2]TL561-07<br>● Use Pink® Partition 50mm 32 kg/$m^3$ R1.5 to achieve 45 (36) |
| 51 | 77 | 36 (28) | 43 (34) | |
| 64 | 90 | 36 (28)[1] | 44 (34)[2] ● | |
| 76 | 102 | 37 (28) | 45 (35) | |
| 92 | 118 | 38 (29) | 46 (36) | |
| 150 | 176 | 39 (29) | 47 (40) | |

## SSW311



- 1 layer of 13mm **fire**shield or **multi**shield
- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield

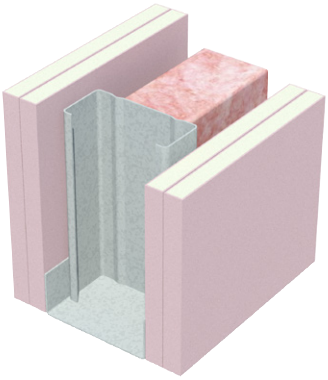
**Fire Resistance Level**

**-/90/90** and **30/30/30**
from either side

Report
FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m$^3$ R1.2 | Pink® Partition 75mm 11kg/m$^3$ R1.8 | Reports<br>Day Design 3094-33<br>[1]TL561-05 |
| 51 | 90 | 41 (33) | 48 (39) | - | |
| 64 | 103 | 42 (33) | 49 (39) | - | |
| 76 | 115 | 42 (33) | 50 (40) | - | |
| 92 | 131 | 43 (33) | 50 (42) | 50 (43)[1] | |
| 150 | 189 | 45 (35) | 52 (45) | - | |

## SSW312



- 2 layers of 13mm **fire**shield or **multi**shield
- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield

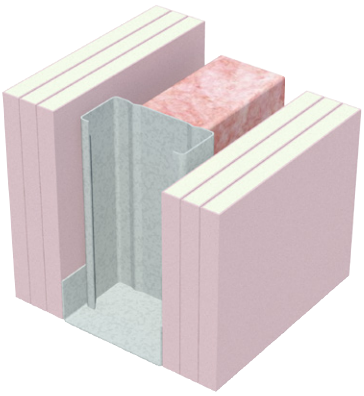
**Fire Resistance Level**

**-/120/120** and **90/90/90**
from either side

Report
FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m$^3$ R1.2 | Reports<br>Day Design 3094-33<br>[1]HAS 087 |
| 51 | 103 | 46 (39) | 52 (43) | |
| 64 | 116 | 47 (40) | 53 (45) | |
| 76 | 128 | 47 (40) | 54 (46) | |
| 92 | 144 | 49 (42)[1] | 55 (47) | |
| 150 | 202 | 51 (42) | 55 (**50**) | |

## SSW314



- 3 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 3 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

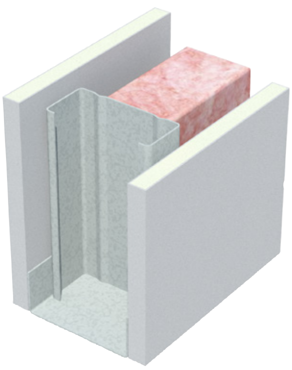
**Fire Resistance Level**

**-/180/180** and **120/120/120**
from either side

Report
FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m$^3$ R1.2 | Report<br>Day Design 3094-33 |
| 51 | 129 | 50 (43) | 58 (**50**) | |
| 64 | 142 | 51 (43) | 58 (**51**) | |
| 76 | 154 | 52 (44) | 59 (**52**) | |
| 92 | 170 | 53 (45) | 59 (**53**) | |
| 150 | 228 | 56 (48) | 60 (**55**) | |

## SSW910



- 1 layer of 13mm **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **impact**shield or **tru**rock

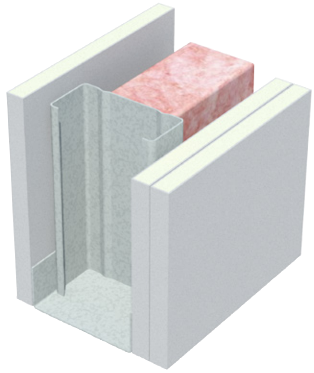
**Fire Resistance Level**

**-/60/60** and **30/30/30**
from either side

Report
FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m$^3$ R1.2 | Reports<br>Day Design 5008-09<br>3094-33 |
| 51 | 77 | 36 (29) | 45 (37) | |
| 64 | 90 | 37 (30) | 46 (37) | |
| 76 | 102 | 38 (30) | 47 (38) | |
| 92 | 118 | 38 (30) | 47 (39) | |
| 150 | 176 | 40 (31) | 49 (42) | |

## SSW911



- 1 layer of 13mm **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **impact**shield or **tru**rock

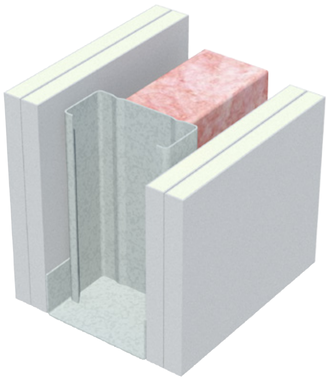
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Reports |
| 51 | 90 | 43 (34) | 50 (41) | Day Design 5008-09 3094-33 |
| 64 | 103 | 43 (34) | 51 (42) | |
| 76 | 115 | 44 (35) | 51 (44) | |
| 92 | 131 | 45 (35) | 52 (45) | |
| 150 | 189 | 47 (37) | 53 (48) | |

## SSW912



- 2 layers of 13mm **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **impact**shield or **tru**rock

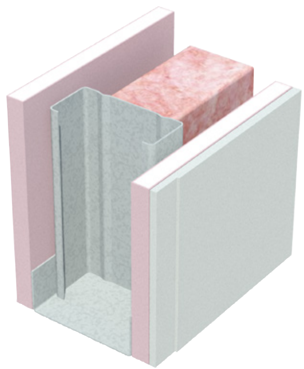
**Fire Resistance Level**

**-/120/120** and **90/90/90** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Reports |
| 51 | 103 | 47 (40) | 54 (46) | Day Design 5008-09 3094-33 |
| 64 | 116 | 48 (41) | 55 (48) | |
| 76 | 128 | 49 (41) | 55 (49) | |
| 92 | 144 | 49 (42) | 56 (**50**) | |
| 150 | 202 | 52 (44) | 56 (**52**) | |

## SSW510



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

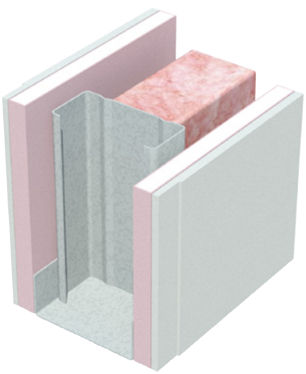
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Reports |
| 51 | 83 | 42 (32) | 48 (39) | Day Design 3094-33 |
| 64 | 96 | 42 (32) | 49 (39) | |
| 76 | 108 | 42 (32) | 50 (40) | |
| 92 | 124 | 43 (33) | 51 (42) | |
| 150 | 182 | 45 (34) | 52 (45) | |

## SSW512



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner
- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

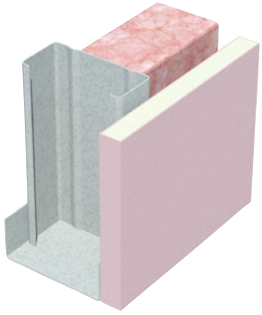
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Reports |
| 51 | 89 | 45 (35) | 53 (42) | Day Design 3094-33 |
| 64 | 102 | 46 (35) | 54 (44) | |
| 76 | 114 | 46 (36) | 55 (46) | |
| 92 | 130 | 47 (36) | 55 (47) | |
| 150 | 188 | 49 (41) | 56 (**50**) | |

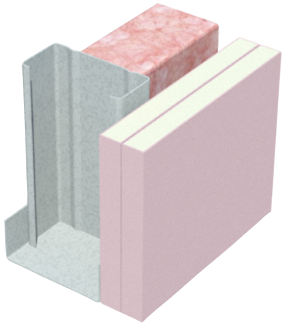
## SSW303



- Steel stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
| 51 | 67 | 30 (27) | 33 (30) | Day Design 3094-35 INSUL v9 |
| 64 | 80 | | | |
| 76 | 92 | | | |
| 92 | 108 | | | |
| 150 | 166 | | | |

## SSW304



- Steel stud framing at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

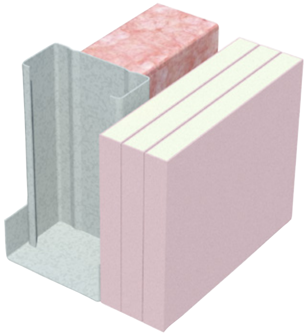
**Fire Resistance Level**

**-/60/60** and **60/60/60**
from the lined side only

Report
FC13921

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
| 51 | 83 | 35 (31) | 40 (37) | Day Design 3094-33 INSUL v9 |
| 64 | 96 | | | |
| 76 | 108 | | | |
| 92 | 124 | | | |
| 150 | 182 | | | |

## SSW305



- Steel stud framing at maximum 600mm centres
- 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock

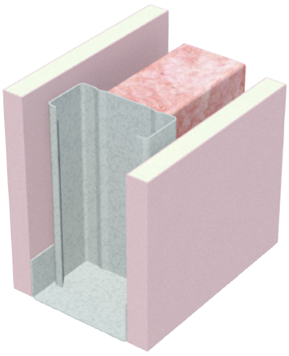
**Fire Resistance Level**

**-/120/120** and **120/120/120**
from the lined side only

Report
FC13921

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
| 51 | 99 | 38 (35) | 43 (40) | Day Design 3094-33 INSUL v9 |
| 64 | 112 | | | |
| 76 | 124 | | | |
| 92 | 140 | | | |
| 150 | 198 | | | |

## SSW315



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

**Fire Resistance Level**

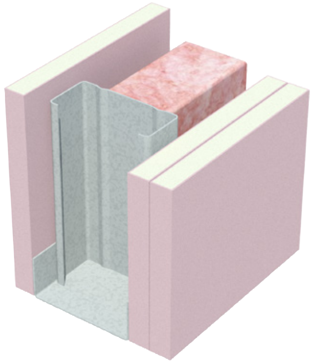
**-/90/90** and **60/60/60**
from either side using Glasswool insulation

**-/60/60** and **60/60/60**
from either side using either polyester insulation or no insulation

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | |
| 51 | 83 | 36 (29) | 45 (37) | Reports Day Design 3094-33 |
| 64 | 96 | 37 (29)[1] | 46 (37) | |
| 76 | 108 | 38 (30) | 47 (38) | [1]HAS 086 |
| 92 | 124 | 38 (30) | 47 (39) | |
| 150 | 182 | 40 (31) | 49 (42) | |

## SSW316



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

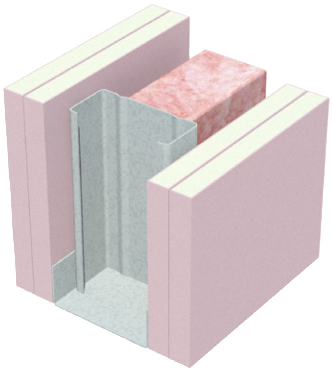
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report Day Design 3094-33 |
| 51 | 99 | 43 (34) | 50 (41) | |
| 64 | 112 | 43 (34) | 51 (42) | |
| 76 | 124 | 44 (35) | 51 (44) | |
| 92 | 140 | 45 (35) | 52 (45) | |
| 150 | 198 | 47 (37) | 53 (48) | |

## SSW317



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

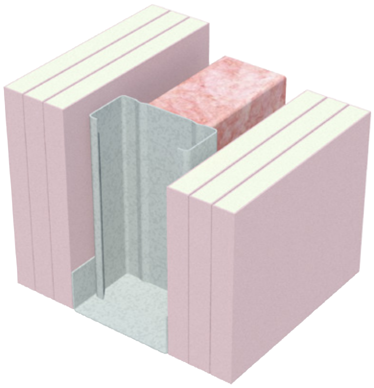
**Fire Resistance Level**

**-/120/120** and **120/120/120** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report Day Design 3094-33 [1]HAS087 |
| 51 | 115 | 47 (40) | 54 (46) | |
| 64 | 128 | 48 (41) | 55 (48) | |
| 76 | 140 | 49 (41) | 55 (49) | |
| 92 | 156 | 49 (42)[1] | 56 (**50**) | |
| 150 | 214 | 52 (44) | 56 (**52**) | |

## SSW319



- 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock

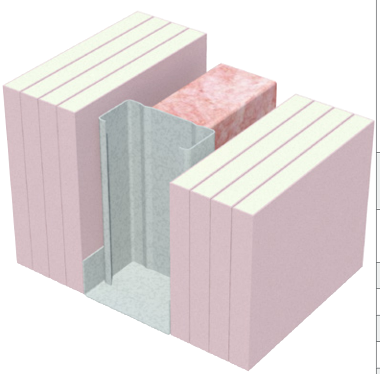
**Fire Resistance Level**

**-/240/240** and **120/120/120** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Reports Day Design 3094-33 |
| 51 | 147 | 53 (46) | 59 (**52**) | |
| 64 | 160 | 54 (47) | 59 (**54**) | |
| 76 | 172 | 55 (47) | 60 (**54**) | |
| 92 | 188 | 56 (48) | 60 (**55**) | |
| 150 | 246 | 59 (**50**) | 60 (**56**) | |

## SSW580



- 4 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 4 layers of 16mm **fire**shield or **multi**shield or **tru**rock

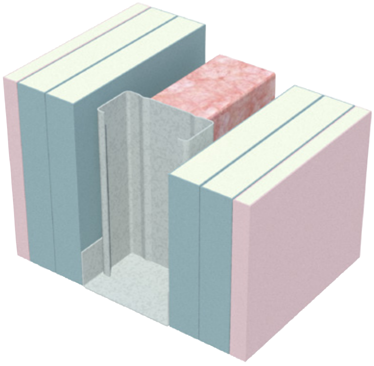
**Fire Resistance Level**

**-/240/240** and **180/180/180** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Reports INSUL v9 |
| 51 | 179 | 61 (**53**) | 65 (**58**) | |
| 64 | 192 | 62 (**54**) | 66 (**59**) | |
| 76 | 204 | 62 (**55**) | 66 (**60**) | |
| 92 | 220 | 63 (**56**) | 66 (**61**) | |
| 150 | 278 | 64 (**58**) | 67 (**62**) | |

## SSW582



- 2 layers of 25mm **shaft**liner or **inter**shield + 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 2 layers of 25mm **shaft**liner or **inter**shield + 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

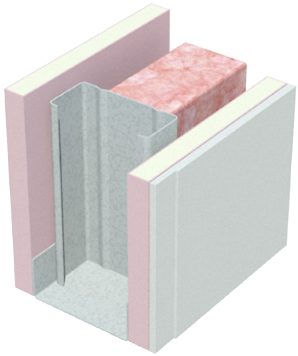
**Fire Resistance Level**

**-/240/240** and **180/180/180**
from either side

Report
FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | |
| 51 | 177 | 57 (49) | 60 (**53**) | Reports INSUL v9 |
| 64 | 190 | 57 (**50**) | 60 (**55**) | |
| 76 | 202 | 58 (**51**) | 60 (**55**) | |
| 92 | 218 | 58 (**51**) | 61 (**56**) | |
| 150 | 276 | 59 (**53**) | 61 (**57**) | |

## SSW514



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

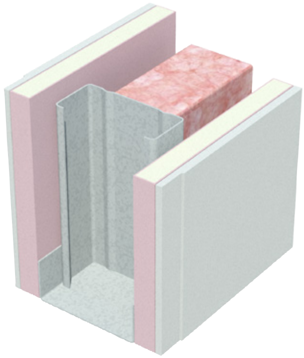
**Fire Resistance Level**

**-/90/90** and **60/60/60**
from either side

Report
FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | |
| 51 | 89 | 44 (32) | 49 (37) | Reports INSUL v9 |
| 64 | 102 | 46 (34) | 51 (39) | |
| 76 | 114 | 47 (36) | 52 (43) | |
| 92 | 130 | 48 (38) | 53 (43) | |
| 150 | 188 | 50 (42) | 56 (47) | |

## SSW516



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner
- Steel stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

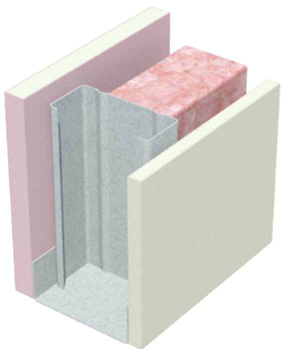
**Fire Resistance Level**

**-/120/120** and **60/60/60**
from either side

Report
FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | |
| 51 | 95 | 46 (39) | 54 (44) | Reports Day Design 3094-33 |
| 64 | 108 | 47 (40) | 55 (46) | |
| 76 | 120 | 47 (40) | 55 (47) | |
| 92 | 136 | 48 (41) | 56 (48) | |
| 150 | 194 | 51 (42) | 56 (**51**) | |

## SSW573



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- 1 layer of 10mm **masta**shield or **water**shield

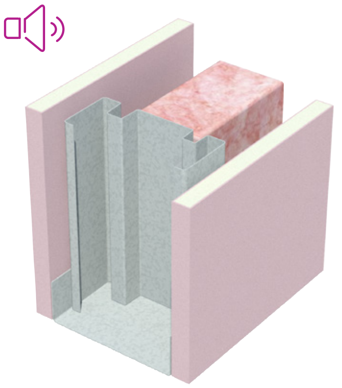
**Fire Resistance Level**

**-/60/60** and **60/60/60**
from the fire rated plasterboard side

Report
FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | |
| 51 | 77 | 37 (29) | 41 (31) | Reports Insul |
| 64 | 90 | 38 (29) | 42 (32) | |
| 76 | 102 | 38 (29) | 43 (31) | |
| 92 | 118 | 39 (29) | 44 (32) | |
| 150 | 176 | 41 (32) | 47 (36) | |

## SSW386



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

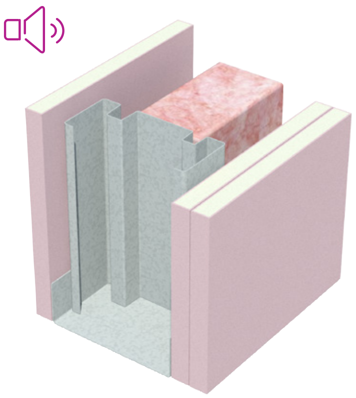
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Reports |
| 92 Siniat Acoustic Stud | 118 | 42 (35) | 50 (41)[1] | Day Design 5008.28<br>[1]TL738-2 |

## SSW387



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

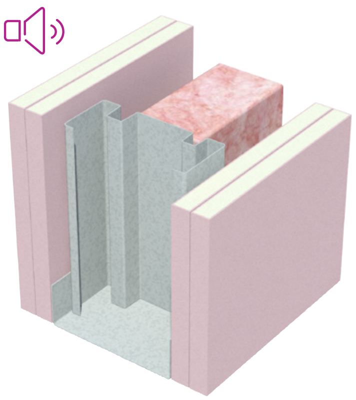
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 131 | 48 (41) | 56 (47) | Day Design 5008.28 |

## SSW388



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

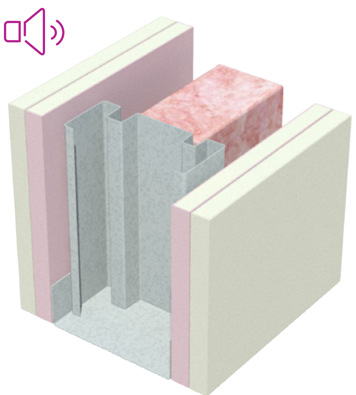
**Fire Resistance Level**

**-/120/120** and **90/90/90** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 144 | 54 (48) | 60 (**52**) | Day Design 5008.28 |

## SSW396



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 13mm **masta**shield or **water**shield
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 13mm **masta**shield or **water**shield

Order of wall linings can be reversed

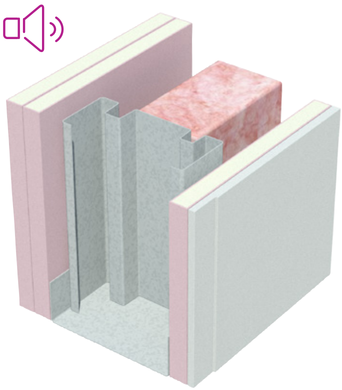
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Reports |
| 92 Siniat Acoustic Stud | 144 | 51 (45) | 58 (**51**)[1] | Day Design 5008.28<br>[1]TL738-3 |

## SSW551



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

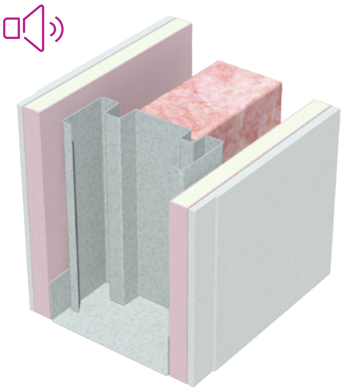
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC13921

| **Stud Size (mm)** | **Wall Width (mm)** | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 137 | 51 (44) | 59 (**50**) | Day Design 5008.28 |

## SSW552



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

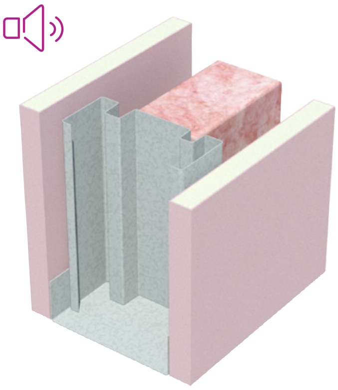
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC13921

| **Stud Size (mm)** | **Wall Width (mm)** | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 130 | 51 (44) | 58 (**50**) | Day Design 5008.28 |

## SSW391



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

**Fire Resistance Level**

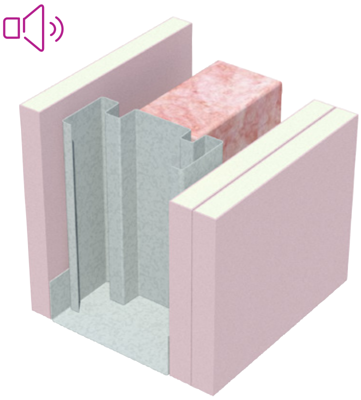
**-/90/90** and **60/60/60** from either side using Glasswool insulation

**-/60/60** and **60/60/60** from either side using either polyester insulation or no insulation

Report FC13921

| **Stud Size (mm)** | **Wall Width (mm)** | **Sound Insulation** Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Pink® Partition 75mm 11 kg/m³ R1.8 | Pink® Partition 90mm 14 kg/m³ R2.2 | Reports |
| 92 Siniat Acoustic Stud | 124 | 42 (36) | at **600**mm stud centres 51 (43)¹ | at **450**mm stud centres 50 (41)² | at **400**mm stud centres 50 (41)³ | Day Design 5008.28 ¹TL738-1 ²TL737-4 ³TL737-5 |

## SSW392



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

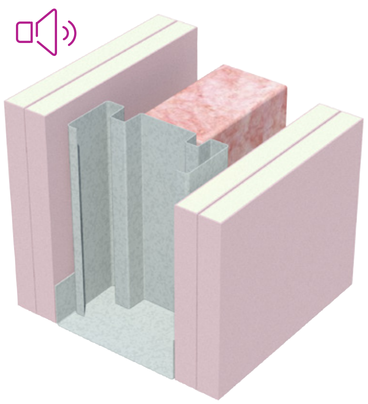
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC13921

| **Stud Size (mm)** | **Wall Width (mm)** | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 140 | 50 (44) | 58 (**50**) | Day Design 5008.28 |

## SSW393



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

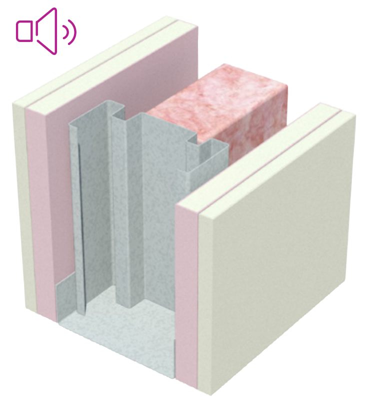
**Fire Resistance Level**

**-/120/120** and **120/120/120** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 156 | 54 (47) | 62 (**54**) | Day Design 5008.28 |

## SSW397



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 10mm **masta**shield or **water**shield
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 10mm **masta**shield or **water**shield

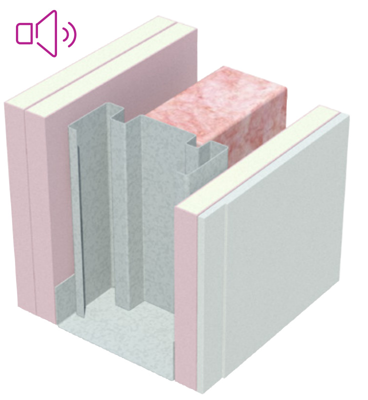
**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 144 | 53 (45) | 61 (**51**) | Day Design 5008.28 |

## SSW555



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

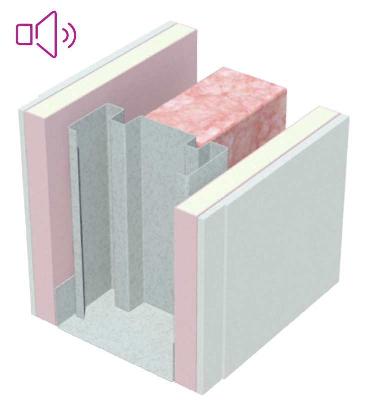
**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 146 | 54 (46) | 62 (**53**) | Day Design 5008.28 |

## SSW556



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner
- 92mm Siniat **acoustic** stud at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

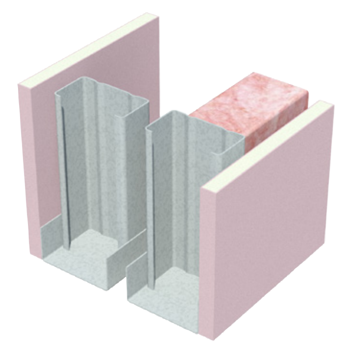
**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC13921

| Stud Size (mm) | Wall Width (mm) | **Sound Insulation** for studs at 600mm centres and thinnest BMT Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 75mm 11 kg/m³ R1.8 | Report |
| 92 Siniat Acoustic Stud | 136 | 52 (45) | 61 (**51**) | Day Design 5008.28 |

## SSW330



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

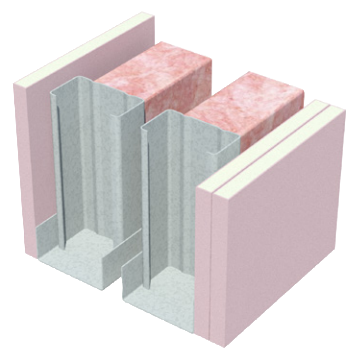
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Reports Day Design 3094-33 [1]ATF 1528 Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 174 | 42 (35)[1] | 50 (38) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 226 | 43 (36) | 51 (41) | |

## SSW331



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

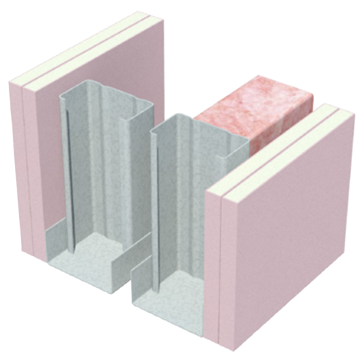
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | **2 x** Pink® Partition 75mm 11 kg/$m^3$ R1.8 | Day Design 4738-L15 Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 187 | 46 (39) | 56 (45) | 60 (**50**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 239 | 47 (39) | 57 (46) | 61 (**50**) | |

## SSW332



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

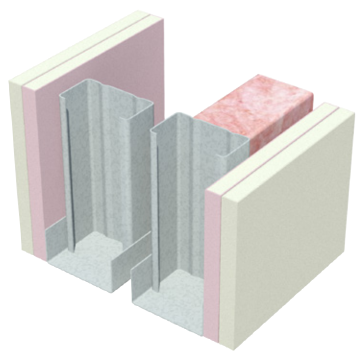
**Fire Resistance Level**

**-/120/120** and **90/90/90** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | **2 x** Pink® Partition 75mm 11 kg/$m^3$ R1.8 | Day Design 4738-L12 [1]ATF1534 [2]TL525-1 Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 200 | 53 (45)[1] | 62 (**50**) | 63 (**53**)[2] | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 252 | 55 (46) | 63 (**52**) | 64 (**55**) | |

## SSW380



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 13mm **masta**shield or **water**shield
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 13mm **masta**shield or **water**shield

**Fire Resistance Level**

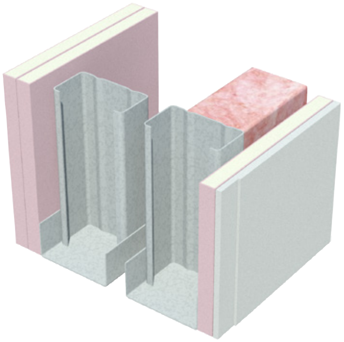
**-/90/90** and **60/60/60** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | **2 x** Pink® Partition 50mm 11kg/$m^3$ R1.2 | Pink® Partition 75mm 11 kg/$m^3$ R1.8 | Reports Day Design 3094-48 Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 200 | 51 (42) | 61 (48) | 64 (**51**) | 62 (**50**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 252 | 52 (44) | 62 (**50**) | 65 (**52**) | 63 (**52**) | |

'2 x' indicates insulation in both frames.

## SSW531



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner

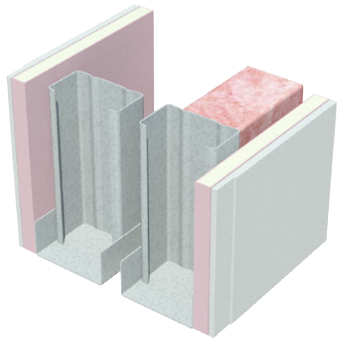
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 $kg/m^3$ R1.2 | Report<br>Day Design 3094-33<br>Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 193 | 52 (44) | 63 (**50**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 245 | 54 (45) | 64 (**52**) | |

## SSW532



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner

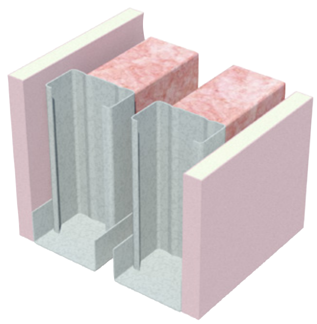
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 $kg/m^3$ R1.2 | Day Design 3094-33<br>Note: Impact sound Resistant - Discontinuous Construction<br>◉ Use Pink® Partition 75mm 11 $kg/m^3$ R1.8 to achieve 62 (**50**) |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 186 | 52 (43) | 62 (49) ◉ | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 238 | 54 (45) | 63 (**52**) | |

## SSW335

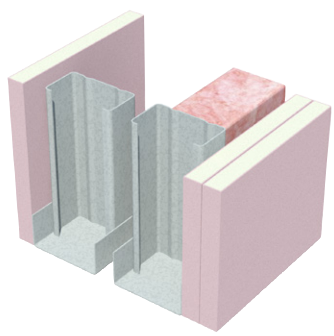


- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

**Fire Resistance Level**
**-/90/90** and **60/60/60** from either side using Glasswool insulation
**-/60/60** and **60/60/60** from either side using either polyester insulation or no insulation
Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | | |
|---|---|---|---|---|---|---|---|
| | | No insulation | Pink 50mm 11 $kg/m^3$ R1.2 | **2 x** Pink 75mm 11 $kg/m^3$ R1.8 | **2 x** Pink 75mm 14 $kg/m^3$ R1.9 | **2 x** Pink 110mm 11 $kg/m^3$ R2.5 | Reports<br>Day Design 3094-33, [1]TL525-3 [2]TL574-1 [3]TL525-2 [4]TL738-4<br>Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 180 | 44 (37) | 53 (42) | 60 (**50**)[4] | 60 (**50**)[2] | - | |
| ≥ 172 (eg. 2 x 64mm studs plus 44mm air gap) | ≥ 204 | - | - | - | - | 60 (**50**)[3] | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 232 | 45 (38) | 54 (44) | 61 (**51**)[1] | - | - | |

## SSW336



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

**Fire Resistance Level**

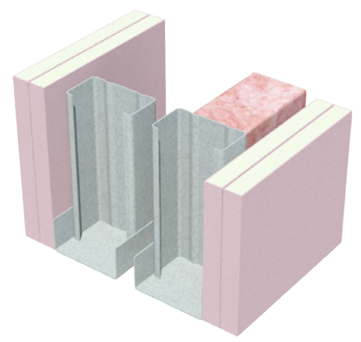
**-/90/90** and **60/60/60** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | **2 x** Pink® Partition 50mm 11kg/$m^3$ R1.2 | Report<br>Day Design 3094-33<br>Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 196 | 50 (42) | 59 (48) | 62 (**51**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 248 | 52 (44) | 60 (**50**) | - | |

'2 x' indicates insulation in both frames.

## SSW337



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

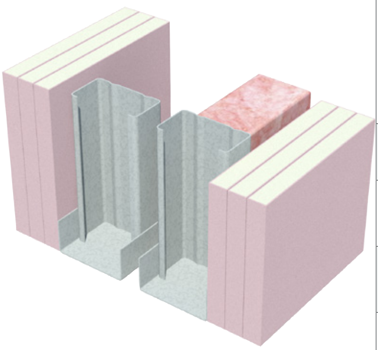
**Fire Resistance Level**

**-/120/120** and **120/120/120**
from either side

Report
FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | **2 x** Pink® Partition 50mm 11 kg/m³ R1.2 | Report Day Design 4738-L4<br>Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 212 | 56 (47) | 65 (**53**) | 65 (**55**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 264 | 58 (49) | 66 (**56**) | 67 (**57**) | |

## SSW339



- 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock

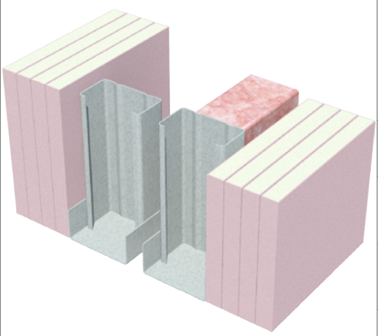
**Fire Resistance Level**

**-/240/240** and **120/120/120**
from either side

Report
FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report Day Design 3094-33<br>Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 244 | 62 (**53**) | 72 (**61**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 296 | 64 (**55**) | 73 (**63**) | |

## SSW581



- 4 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 4 layers of 16mm **fire**shield or **multi**shield or **tru**rock

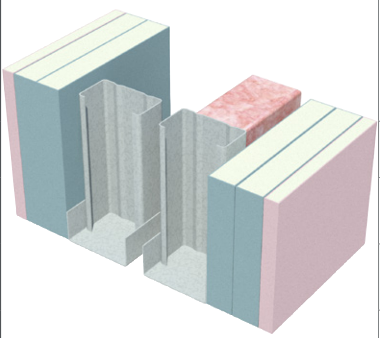
**Fire Resistance Level**

**-/240/240** and **180/180/180**
from either side

Report
FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report INSUL v9<br>Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 276 | 69 (**63**) | 79 (**71**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 328 | 69 (**64**) | 80 (**73**) | |

## SSW583



- 2 layers of 25mm **shaft**liner or **inter**shield + 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 2 layers of 25mm **shaft**liner or **inter**shield + 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

**Fire Resistance Level**

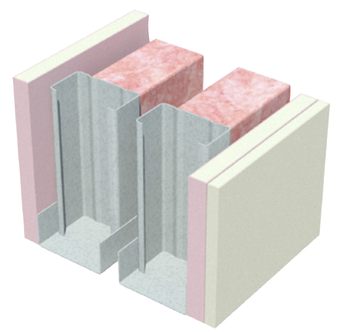
**-/240/240** and **180/180/180**
from either side

Report
FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report INSUL v9<br>Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 274 | 66 (**60**) | 77 (**70**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 326 | 66 (**61**) | 78 (**71**) | |

'2 x' indicates insulation in both frames.

## SSW381



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 10mm **masta**shield or **water**shield

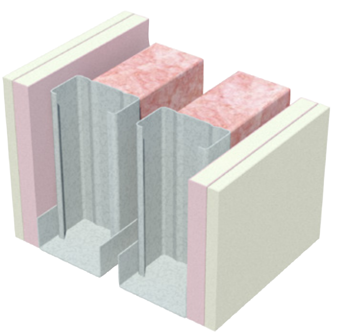
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | Pink® Partition 75mm 11 kg/$m^3$ R1.8 | **2 x** Pink® Partition 75mm 11 kg/$m^3$ R1.8 | Report Day Design 3094-39 Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 190 | 46 (39) | 56 (46) | 57 (48) | 60 (**50**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 242 | 48 (40) | 58 (48) | 59 (**50**) | 62 (**52**) | |

## SSW382



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 10mm **masta**shield or **water**shield
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 10mm **masta**shield or **water**shield

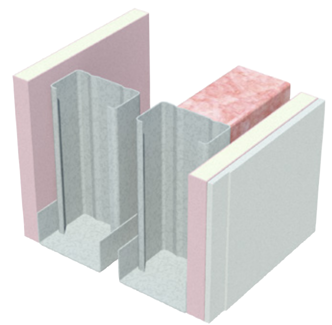
**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | **2 x** Pink® Partition 50mm 11kg/$m^3$ R1.2 | Report Day Design 3094-33 Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 200 | 50 (43) | 61 (49) | 64 (**52**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 252 | 52 (44) | 62 (**51**) | - | |

## SSW534



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

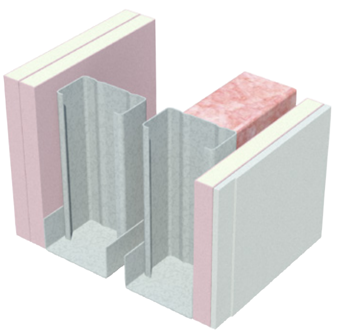
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Day Design 3094-33 Note: Impact sound Resistant - Discontinuous Construction Use Pink® Partition 75mm 11 kg/$m^3$ R1.8 to achieve 59 (**50**) |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 186 | 50 (42) | 59 (47) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 238 | 51 (43) | 59 (49) | |

## SSW535



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

**Fire Resistance Level**

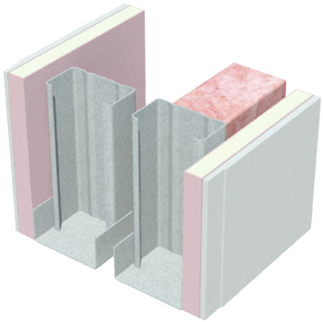
**-/120/120** and **60/60/60** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Day Design 3094-33 Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 202 | 55 (47) | 65 (**52**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 254 | 57 (48) | 66 (**55**) | |

'2 x' indicates insulation in both frames.

## SSW536



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner
- Steel stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Steel stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

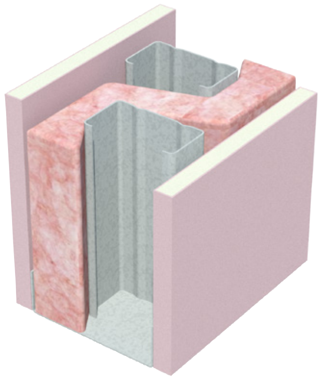
**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC13921

| Minimum Cavity Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report Day Design 3094-33 Note: Impact sound Resistant - Discontinuous Construction |
| ≥ 148 (eg. 2 x 64mm studs plus 20mm air gap) | ≥ 192 | 54 (46) | 64 (**51**) | |
| ≥ 200 (eg. 2 x 64mm studs plus 72mm air gap) | ≥ 244 | 56 (47) | 65 (**54**) | |

## SSW320



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

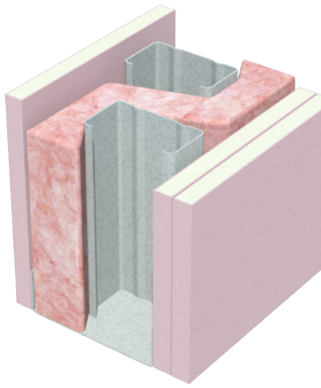
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC13921

| Track Width (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Pink® Partition 75mm 14kg/m³ R1.9 | Report Day Design 3094-33 [1]TL554-18 Note: Impact sound Resistant |
| 92 | 118 | 38 (30) | 47 (36) | 50 (41)[1] | |
| 150 | 176 | 39 (30) | 48 (39) | - | |

## SSW321



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

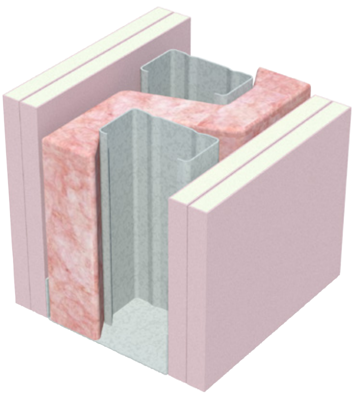
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC13921

| Track Width (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Pink® Partition 75mm 14kg/m³ R1.9 | Report Day Design 3094-33 [1]TL554-19 Note: Impact sound Resistant |
| 92 | 131 | 43 (34) | 51 (43) | 56 (46)[1] | |
| 150 | 189 | 45 (35) | 52 (46) | - | |

## SSW322



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

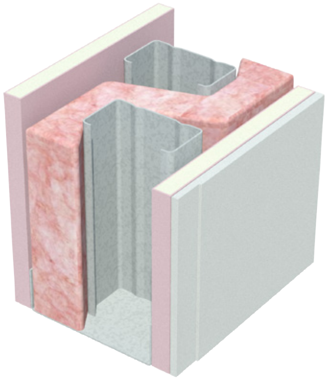
**Fire Resistance Level**

**-/120/120** and **90/90/90** from either side

Report FC13921

| Track Width (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report Day Design 3094-33 Note: Impact sound Resistant |
| 92 | 144 | 47 (40) | 58 (**50**) | |
| 150 | 202 | 49 (41) | 58 (**52**) | |

## SSW520



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

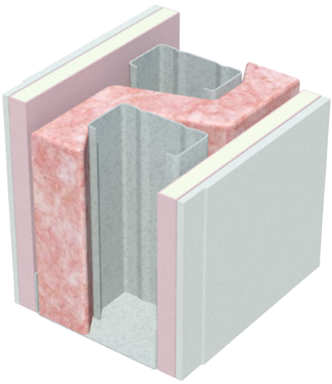
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC13921

| Track Width (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Day Design 3094-33 Note: Impact sound Resistant |
| 92 | 124 | 43 (34) | 51 (43) | |
| 150 | 182 | 45 (35) | 53 (46) | |

## SSW522



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

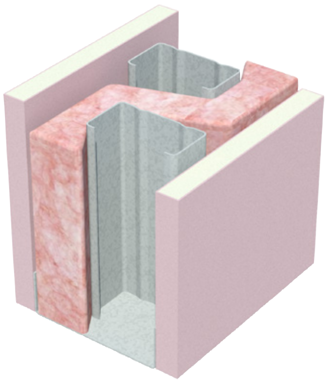
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC13921

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Day Design 3094-33 Note: Impact sound Resistant |
| 92 | 130 | 47 (37) | 56 (48) | |
| 150 | 188 | 49 (39) | 57 (**51**) | |

## SSW325



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

**Fire Resistance Level**

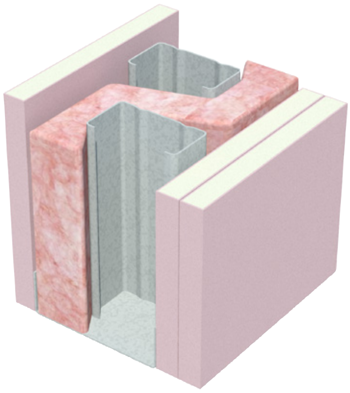
**-/90/90** and **60/60/60** from either side using Glasswool insulation

**-/60/60** and **60/60/60** from either side using either polyester insulation or no insulation

Report FC13921

| Track Width (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/$m^3$ R1.2 | **2 x** Pink® Partition 50mm 11kg/$m^3$ R1.2 | Pink® Partition 75mm 11kg/$m^3$ R1.8 | Reports Day Design 3094-33, 5008-8 [1]TL510b Note: Impact sound Resistant |
| 92 | 124 | 40 (32) | 48 (41) | 52 (44)[1] | 50 (42) | |
| 150 | 182 | 42 (33) | 49 (44) | - | - | |

## SSW326



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

**Fire Resistance Level**

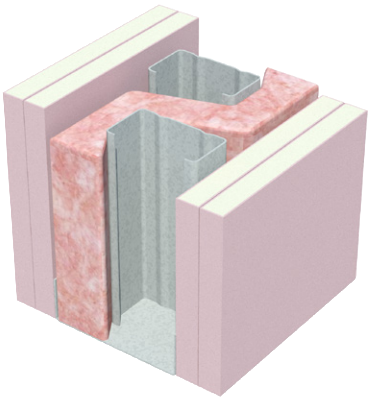
**-/90/90** and **60/60/60** from either side

Report FC13921

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Day Design 3094-33 Note: Impact sound Resistant |
| 92 | 140 | 45 (36) | 52 (46) | |
| 150 | 198 | 47 (38) | 53 (48) | |

'2 x' indicates insulation in both frames

## SSW327



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

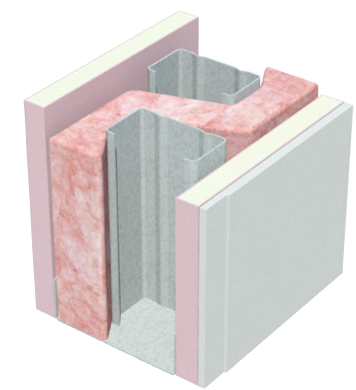
**Fire Resistance Level**

-/120/120 and 120/120/120 from either side

Report FC13921

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report Day Design 3094-33 Note: Impact sound Resistant |
| 92 | 156 | 49 (42) | 58 (**52**) | |
| 150 | 214 | 51 (44) | 59 (**53**) | |

## SSW524



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

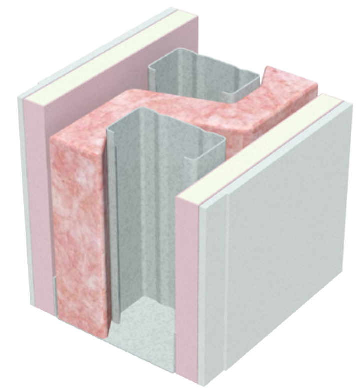
**Fire Resistance Level**

-/90/90 and 60/60/60 from either side

Report FC13921

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report Day Design 3094-33 Note: Impact sound Resistant |
| 92 | 130 | 44 (35) | 52 (45) | |
| 150 | 188 | 46 (37) | 53 (48) | |

## SSW526



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner
- Staggered steel studs at maximum 600mm centres (300mm staggered)
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 6mm Duraliner

Order of wall linings can be reversed

**Fire Resistance Level**

-/120/120 and 60/60/60 from either side

Report FC13921

| Track Width (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report Day Design 3094-33 Note: Impact sound Resistant |
| 92 | 136 | 48 (41) | 59 (**51**) | |
| 150 | 194 | 50 (42) | 59 (**53**) | |

# General Requirements

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Install control joints in internal steel framed walls:<br>> With plasterboard at 12m maximum intervals<br>> With fibre cement at 9m maximum intervals for steel framing < 0.8mm BMT<br>> With fibre cement at 6m maximum intervals for steel framing > 0.8mm BMT<br>> With tiles at 4.5m maximum intervals (plasterboard or fibre cement)<br>> At all movement joints in the building<br>> At any change in the substrate<br>> At the floor line in stairwells. | ✓ | ✓ |
| Only joint the face layer. As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, use **bindex** fire and acoustic sealant according to the Product Data Sheet. | | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | | ✓ |
| Load bearing structural steel members in wall cavities have the Structural Adequacy component of the system's Fire Resistance Level. | | ✓ |
| Non-load bearing system Fire Resistance Levels (eg: -/60/60) are based on using Siniat steel framing. | | ✓ |
| Wall systems with a Structural Adequacy component to their Fire Resistance Level (eg: 60/60/60) may be built with any steel framing provided it is designed according to the relevant Australian Standards, has a minimum 51mm cavity and maximum 600mm horizontal or vertical framing centres for the fixing of linings. As an example, a wall could be comprised of steel studs and an additional layer of furring channels, with or without resilient mounts. | | ✓ |
| Use **bindex** fire and acoustic sealant on all gaps and around perimeter. | | ✓ |
| Attach all fixtures to studs or noggings/blocking. Wall anchors must not be fixed to the plasterboard of fire rated walls. | | ✓ |
| **fire**shield may be substituted with **multi**shield, **impact**shield, **tru**rock and **tru**rock HD of the same or greater thickness and maintain fire performance. | | ✓ |

For acceptable modifications or variations to fire rated systems, refer to Section 2.3 fire Resistance

# Framing

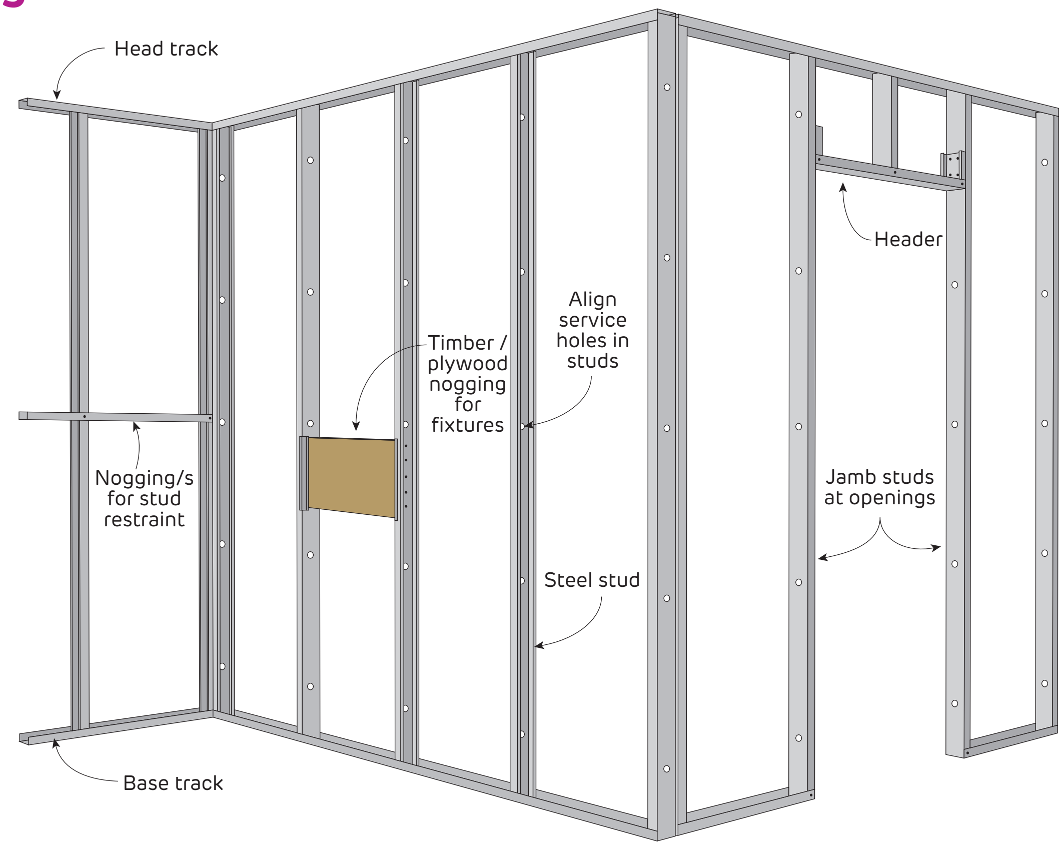



FIGURE 1 **Internal Steel Frame Wall Layout**

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Use a Deflection Head Track if soffit movement of up to 20mm is expected. For higher requirements contact Siniat. Refer to Construction Details for clearances. | ✓ | ✓ |
| Framing members as per framing table or structural design up to 600mm maximum spacing. | ✓ | ✓ |
| Face studs in the same direction if possible, to allow easier fastening of wall lining. However, installation of some services may require the studs to be positioned in opposite directions. Refer to Construction Details. | ✓ | ✓ |
| Twist studs into tracks and push studs down completely into bottom track. | ✓ | ✓ |

### Table 1 Maximum Head and Base Track Anchor Spacing

| Stud Spacing (mm) | Maximum Anchor Spacing (mm) |
|---|---|
| 600 | 600 |
| 450 | 600 |
| 400 | 600 |
| 300 | 450 |
| 200 | 300 |

1. Additional anchors 100mm maximum from track ends.
2. 150mm studs require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

> Noggings are permitted to assist the fixing of services. Copper Chromium Arsenate (CCA) treated timber must not be used.

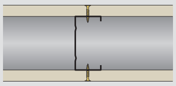
> Plumbing and electrical services must not protrude beyond the face of the studs.

### Siniat Internal Wind Load Calculator

## Table 2 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

**Steel stud walls lined full height on both sides**



Up to BCA Building Importance Level 3

Ultimate pressure $W_U$ (kPa) **0.39**

Serviceability pressure $W_S$ (kPa) **0.25**

| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
|---|---|---|---|---|---|---|---|
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 2740 | 2840 | 2980 | 2310 | 2380 | 2490 |
| | 450 | 3070 | 3190 | 3340 | 2580 | 2670 | 2780 |
| | 400 | 3210 | 3340 | 3510 | 2700 | 2790 | 2910 |
| | 300 | 3580 | 3730 | 3930 | 3010 | 3120 | 3260 |
| 64 x 0.5 | 600 | 3330 | 3440 | 3580 | 2790 | 2870 | 2970 |
| | 450 | 3730 | 3870 | 4040 | 3130 | 3220 | 3340 |
| | 400 | 3900 | 4050 | 4240 | 3270 | 3380 | 3500 |
| | 300 | 4310 | 4500 | 4730 | 3640 | 3770 | 3930 |
| 64 x 0.75 | 600 | 3670 | 3770 | 3900 | 3100 | 3170 | 3260 |
| | 450 | 4080 | 4220 | 4380 | 3450 | 3540 | 3650 |
| | 400 | 4260 | 4410 | 4580 | 3610 | 3710 | 3820 |
| | 300 | 4690 | 4870 | 5080 | 4000 | 4120 | 4260 |
| 64 x 1.15 | 600 | 4090 | 4190 | 4310 | 3480 | 3550 | 3630 |
| | 450 | 4540 | 4660 | 4810 | 3870 | 3950 | 4050 |
| | 400 | 4720 | 4860 | 5020 | 4030 | 4120 | 4230 |
| | 300 | 5190 | 5350 | 5550 | 4450 | 4560 | 4700 |
| 76 x 0.55 | 600 | 3970 | 4100 | 4260 | 3330 | 3410 | 3520 |
| | 450 | 4430 | 4600 | 4790 | 3720 | 3830 | 3960 |
| | 400 | 4620 | 4800 | 5010 | 3890 | 4010 | 4150 |
| | 300 | 5070 | 5290 | 5550 | 4300 | 4460 | 4640 |
| 76 x 0.75 | 600 | 4310 | 4430 | 4570 | 3640 | 3720 | 3810 |
| | 450 | 4780 | 4940 | 5120 | 4050 | 4150 | 4280 |
| | 400 | 4980 | 5150 | 5350 | 4220 | 4340 | 4470 |
| | 300 | 5450 | 5660 | 5900 | 4660 | 4800 | 4970 |
| 76 x 1.15 | 600 | 4750 | 4870 | 5000 | 4040 | 4120 | 4210 |
| | 450 | 5250 | 5400 | 5570 | 4480 | 4580 | 4690 |
| | 400 | 5460 | 5620 | 5810 | 4660 | 4770 | 4900 |
| | 300 | 5970 | 6160 | 6390 | 5130 | 5260 | 5420 |
| 92 x 0.55 | 600 | 4740 | 4900 | 5080 | 3970 | 4070 | 4190 |
| | 450 | 5250 | 5460 | 5690 | 4420 | 4560 | 4720 |
| | 400 | 5460 | 5680 | 5940 | 4610 | 4760 | 4940 |
| | 300 | 5950 | 6210 | 6520 | 5060 | 5250 | 5470 |
| 92 x 0.75 | 600 | 5060 | 5220 | 5390 | 4270 | 4370 | 4480 |
| | 450 | 5590 | 5780 | 6010 | 4740 | 4870 | 5020 |
| | 400 | 5800 | 6010 | 6260 | 4930 | 5080 | 5250 |
| | 300 | 6320 | 6560 | 6860 | 5410 | 5590 | 5800 |
| 92 x 1.15 | 600 | 5590 | 5740 | 5910 | 4760 | 4850 | 4960 |
| | 450 | 6150 | 6330 | 6550 | 5260 | 5380 | 5530 |
| | 400 | 6380 | 6580 | 6810 | 5460 | 5600 | 5760 |
| | 300 | 6940 | 7170 | 7370 | 5980 | 6140 | 6340 |
| 150 x 0.75 | 600 | 7200 | 7300 | 7410 | 6110 | 6200 | 6300 |
| | 450 | 7730 | 7860 | 8000 | 6770 | 6900 | 7040 |
| | 400 | 7940 | 8080 | 8240 | 7050 | 7190 | 7310 |
| | 300 | 8470 | 8630 | 8820 | 7580 | 7710 | 7850 |
| 150 x 1.15 | 600 | 7780 | 7870 | 7970 | 6850 | 6940 | 7040 |
| | 450 | 8340 | 8450 | 8580 | 7460 | 7550 | 7640 |
| | 400 | 8570 | 8690 | 8830 | 7670 | 7770 | 7870 |
| | 300 | 9140 | 9290 | 9450 | 8210 | 8320 | 8440 |

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 4400 | 0 |
| 4400 - 8800 | 1 |
| 8800 - 9450 | 2 |

### Concrete Anchor Table

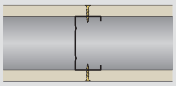
| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 9450 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection).
4. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
5. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.
10. For BCA Building Importance Level 4, please contact Siniat.

## Table 3 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.



| Steel stud walls lined full height on both sides | | Up to BCA Building Importance Level 3 | | | Ultimate pressure $W_U$ (kPa) | | 0.54 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.35 |
| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 2370 | 2450 | 2560 | 2010 | 2070 | 2160 |
| | 450 | 2660 | 2750 | 2860 | 2250 | 2310 | 2400 |
| | 400 | 2780 | 2880 | 3000 | 2350 | 2420 | 2510 |
| | 300 | 3100 | 3220 | 3360 | 2620 | 2700 | 2800 |
| 64 x 0.5 | 600 | 2870 | 2950 | 3060 | 2420 | 2480 | 2560 |
| | 450 | 3220 | 3320 | 3450 | 2710 | 2780 | 2870 |
| | 400 | 3370 | 3480 | 3620 | 2840 | 2910 | 3010 |
| | 300 | 3740 | 3880 | 4050 | 3160 | 3260 | 3370 |
| 64 x 0.75 | 600 | 3190 | 3260 | 3360 | 2700 | 2760 | 2820 |
| | 450 | 3550 | 3650 | 3760 | 3010 | 3080 | 3160 |
| | 400 | 3710 | 3820 | 3940 | 3150 | 3220 | 3300 |
| | 300 | 4110 | 4240 | 4390 | 3500 | 3580 | 3690 |
| 64 x 1.15 | 600 | 3580 | 3650 | 3730 | 3050 | 3100 | 3160 |
| | 450 | 3970 | 4060 | 4170 | 3390 | 3450 | 3520 |
| | 400 | 4140 | 4240 | 4360 | 3540 | 3600 | 3680 |
| | 300 | 4570 | 4690 | 4830 | 3910 | 4000 | 4100 |
| 76 x 0.55 | 600 | 3430 | 3520 | 3630 | 2890 | 2950 | 3030 |
| | 450 | 3830 | 3950 | 4090 | 3230 | 3310 | 3400 |
| | 400 | 4010 | 4140 | 4290 | 3380 | 3460 | 3570 |
| | 300 | 4430 | 4590 | 4780 | 3750 | 3860 | 3990 |
| 76 x 0.75 | 600 | 3740 | 3830 | 3930 | 3170 | 3230 | 3300 |
| | 450 | 4170 | 4280 | 4410 | 3530 | 3610 | 3690 |
| | 400 | 4340 | 4470 | 4610 | 3690 | 3770 | 3870 |
| | 300 | 4780 | 4940 | 5120 | 4080 | 4190 | 4310 |
| 76 x 1.15 | 600 | 4150 | 4230 | 4330 | 3540 | 3590 | 3660 |
| | 450 | 4600 | 4710 | 4830 | 3930 | 4000 | 4080 |
| | 400 | 4790 | 4910 | 5050 | 4100 | 4170 | 4270 |
| | 300 | 5260 | 5410 | 5580 | 4520 | 4620 | 4730 |
| 92 x 0.55 | 600 | 4090 | 4200 | 4330 | 3430 | 3510 | 3590 |
| | 450 | 4550 | 4700 | 4870 | 3840 | 3930 | 4040 |
| | 400 | 4740 | 4910 | 5090 | 4010 | 4110 | 4240 |
| | 300 | 5210 | 5410 | 5640 | 4430 | 4560 | 4720 |
| 92 x 0.75 | 600 | 4390 | 4500 | 4620 | 3710 | 3780 | 3860 |
| | 450 | 4870 | 5010 | 5180 | 4130 | 4230 | 4330 |
| | 400 | 5070 | 5230 | 5410 | 4310 | 4410 | 4530 |
| | 300 | 5550 | 5740 | 5970 | 4750 | 4880 | 5030 |
| 92 x 1.15 | 600 | 4890 | 4990 | 5110 | 4170 | 4230 | 4310 |
| | 450 | 5400 | 5530 | 5690 | 4610 | 4700 | 4800 |
| | 400 | 5610 | 5760 | 5930 | 4800 | 4900 | 5020 |
| | 300 | 6130 | 6310 | 6510 | 5280 | 5400 | 5540 |
| 150 x 0.75 | 600 | 6280 | 6380 | 6490 | 5340 | 5400 | 5470 |
| | 450 | 6960 | 7100 | 7230 | 5930 | 6020 | 6120 |
| | 400 | 7230 | 7340 | 7460 | 6180 | 6290 | 6390 |
| | 300 | 7730 | 7860 | 8000 | 6810 | 6950 | 7090 |
| 150 x 1.15 | 600 | 7040 | 7130 | 7230 | 6020 | 6080 | 6150 |
| | 450 | 7600 | 7690 | 7790 | 6660 | 6750 | 6840 |
| | 400 | 7820 | 7920 | 8030 | 6930 | 7030 | 7140 |
| | 300 | 8360 | 8480 | 8610 | 7500 | 7590 | 7690 |

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 4400 | 0 |
| 4400 - 8610 | 1 |

### Concrete Anchor Table

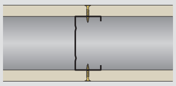
| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 8610 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection).
4. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
5. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.
10. For BCA Building Importance Level 4, please contact Siniat.

## Table 4 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud walls lined full height on both sides |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.70 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.45 |

| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
|---|---|---|---|---|---|---|---|
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 2140 | 2210 | 2300 | 1820 | 1870 | 1950 |
| | 450 | 2390 | 2460 | 2560 | 2030 | 2080 | 2160 |
| | 400 | 2500 | 2580 | 2680 | 2120 | 2180 | 2250 |
| | 300 | 2790 | 2890 | 3000 | 2370 | 2430 | 2510 |
| 64 x 0.5 | 600 | 2580 | 2650 | 2740 | 2190 | 2230 | 2300 |
| | 450 | 2890 | 2970 | 3070 | 2440 | 2500 | 2570 |
| | 400 | 3030 | 3110 | 3220 | 2560 | 2620 | 2690 |
| | 300 | 3370 | 3480 | 3610 | 2850 | 2930 | 3010 |
| 64 x 0.75 | 600 | 2880 | 2940 | 3010 | 2450 | 2490 | 2550 |
| | 450 | 3210 | 3280 | 3370 | 2730 | 2780 | 2840 |
| | 400 | 3350 | 3430 | 3530 | 2850 | 2900 | 2970 |
| | 300 | 3720 | 3820 | 3940 | 3170 | 3240 | 3320 |
| 64 x 1.15 | 600 | 3240 | 3300 | 3370 | 2770 | 2810 | 2860 |
| | 450 | 3600 | 3670 | 3750 | 3080 | 3130 | 3180 |
| | 400 | 3760 | 3830 | 3920 | 3210 | 3270 | 3330 |
| | 300 | 4150 | 4250 | 4360 | 3560 | 3620 | 3700 |
| 76 x 0.55 | 600 | 3080 | 3150 | 3240 | 2600 | 2650 | 2710 |
| | 450 | 3450 | 3540 | 3640 | 2910 | 2970 | 3040 |
| | 400 | 3600 | 3700 | 3820 | 3040 | 3110 | 3190 |
| | 300 | 3990 | 4120 | 4270 | 3390 | 3470 | 3570 |
| 76 x 0.75 | 600 | 3370 | 3440 | 3520 | 2870 | 2910 | 2970 |
| | 450 | 3760 | 3850 | 3950 | 3190 | 3250 | 3320 |
| | 400 | 3920 | 4020 | 4130 | 3340 | 3400 | 3480 |
| | 300 | 4330 | 4460 | 4600 | 3700 | 3780 | 3880 |
| 76 x 1.15 | 600 | 3760 | 3820 | 3900 | 3210 | 3250 | 3310 |
| | 450 | 4170 | 4250 | 4350 | 3570 | 3620 | 3680 |
| | 400 | 4350 | 4440 | 4550 | 3720 | 3780 | 3850 |
| | 300 | 4790 | 4900 | 5040 | 4110 | 4190 | 4280 |
| 92 x 0.55 | 600 | 3670 | 3750 | 3850 | 3090 | 3150 | 3210 |
| | 450 | 4090 | 4140 | 4140 | 3450 | 3530 | 3610 |
| | 400 | 4130 | 4130 | 4130 | 3610 | 3690 | 3790 |
| | 300 | 4710 | 4870 | 5050 | 4000 | 4110 | 4230 |
| 92 x 0.75 | 600 | 3960 | 4040 | 4130 | 3350 | 3410 | 3470 |
| | 450 | 4400 | 4510 | 4630 | 3730 | 3810 | 3890 |
| | 400 | 4580 | 4710 | 4850 | 3900 | 3980 | 4070 |
| | 300 | 5040 | 5190 | 5370 | 4310 | 4410 | 4530 |
| 92 x 1.15 | 600 | 4430 | 4510 | 4590 | 3780 | 3830 | 3890 |
| | 450 | 4900 | 5000 | 5120 | 4190 | 4260 | 4330 |
| | 400 | 5100 | 5210 | 5340 | 4360 | 4440 | 4530 |
| | 300 | 5590 | 5730 | 5900 | 4800 | 4900 | 5020 |
| 150 x 0.75 | 600 | 5680 | 5750 | 5830 | 4840 | 4890 | 4930 |
| | 450 | 6220 | 6220 | 6220 | 5380 | 5450 | 5510 |
| | 400 | 6570 | 6690 | 6810 | 5610 | 5690 | 5770 |
| | 300 | 7210 | 7320 | 7450 | 6190 | 6300 | 6410 |
| 150 x 1.15 | 600 | 6390 | 6460 | 6540 | 5470 | 5520 | 5570 |
| | 450 | 7060 | 7160 | 7250 | 6060 | 6130 | 6200 |
| | 400 | 7300 | 7390 | 7470 | 6310 | 6390 | 6470 |
| | 300 | 7820 | 7920 | 8020 | 6950 | 7050 | 7160 |

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 4400 | 0 |
| 4400 - 8020 | 1 |

### Concrete Anchor Table

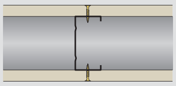
| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 8020 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection).
4. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
5. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.
10. For BCA Building Importance Level 4, please contact Siniat.

## Table 5 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud walls lined full height on both sides |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.59 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
|---|---|---|---|---|---|---|---|
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 2740 | 2840 | 2980 | 2310 | 2380 | 2490 |
| | 450 | 3070 | 3190 | 3340 | 2580 | 2670 | 2780 |
| | 400 | 3210 | 3340 | 3510 | 2700 | 2790 | 2910 |
| | 300 | 3580 | 3730 | 3930 | 3010 | 3120 | 3260 |
| 64 x 0.5 | 600 | 3240 | 3350 | 3410 | 2790 | 2870 | 2970 |
| | 450 | 3730 | 3870 | 4040 | 3130 | 3220 | 3340 |
| | 400 | 3900 | 4050 | 4240 | 3270 | 3380 | 3500 |
| | 300 | 4310 | 4500 | 4730 | 3640 | 3770 | 3930 |
| 64 x 0.75 | 600 | 3670 | 3770 | 3900 | 3100 | 3170 | 3260 |
| | 450 | 4080 | 4220 | 4380 | 3450 | 3540 | 3650 |
| | 400 | 4260 | 4410 | 4580 | 3610 | 3710 | 3820 |
| | 300 | 4690 | 4870 | 5080 | 4000 | 4120 | 4260 |
| 64 x 1.15 | 600 | 4090 | 4190 | 4310 | 3480 | 3550 | 3630 |
| | 450 | 4540 | 4660 | 4810 | 3870 | 3950 | 4050 |
| | 400 | 4720 | 4860 | 5020 | 4030 | 4120 | 4230 |
| | 300 | 5190 | 5350 | 5550 | 4450 | 4560 | 4700 |
| 76 x 0.55 | 600 | 3810 | 3900 | 3950 | 3330 | 3410 | 3520 |
| | 450 | 4430 | 4600 | 4790 | 3720 | 3830 | 3960 |
| | 400 | 4620 | 4800 | 4900 | 3890 | 4010 | 4150 |
| | 300 | 5070 | 5290 | 5550 | 4300 | 4460 | 4640 |
| 76 x 0.75 | 600 | 4310 | 4430 | 4570 | 3640 | 3720 | 3810 |
| | 450 | 4780 | 4940 | 5120 | 4050 | 4150 | 4280 |
| | 400 | 4980 | 5150 | 5350 | 4220 | 4340 | 4470 |
| | 300 | 5450 | 5660 | 5900 | 4660 | 4800 | 4970 |
| 76 x 1.15 | 600 | 4750 | 4870 | 5000 | 4040 | 4120 | 4210 |
| | 450 | 5250 | 5400 | 5570 | 4480 | 4580 | 4690 |
| | 400 | 5460 | 5620 | 5810 | 4660 | 4770 | 4900 |
| | 300 | 5970 | 6160 | 6390 | 5130 | 5260 | 5420 |
| 92 x 0.55 | 600 | 4570 | 4680 | 4690 | 3970 | 4070 | 4190 |
| | 450 | 4910 | 4910 | 4910 | 4420 | 4560 | 4720 |
| | 400 | 4900 | 4900 | 4900 | 4610 | 4760 | 4900 |
| | 300 | 5950 | 6210 | 6520 | 5060 | 5250 | 5470 |
| 92 x 0.75 | 600 | 5060 | 5220 | 5390 | 4270 | 4370 | 4480 |
| | 450 | 5590 | 5780 | 6010 | 4740 | 4870 | 5020 |
| | 400 | 5800 | 6010 | 6260 | 4930 | 5080 | 5250 |
| | 300 | 6320 | 6560 | 6860 | 5410 | 5590 | 5800 |
| 92 x 1.15 | 600 | 5590 | 5740 | 5910 | 4760 | 4850 | 4960 |
| | 450 | 6150 | 6330 | 6550 | 5260 | 5380 | 5530 |
| | 400 | 6380 | 6580 | 6810 | 5460 | 5600 | 5760 |
| | 300 | 6940 | 7170 | 7370 | 5980 | 6140 | 6340 |
| 150 x 0.75 | 600 | 6580 | 6630 | 6600 | 6110 | 6200 | 6300 |
| | 450 | 7380 | 7380 | 7380 | 6770 | 6900 | 7040 |
| | 400 | 7940 | 8080 | 8240 | 7050 | 7190 | 7310 |
| | 300 | 8470 | 8630 | 8820 | 7580 | 7710 | 7850 |
| 150 x 1.15 | 600 | 7780 | 7870 | 7970 | 6850 | 6940 | 7040 |
| | 450 | 8340 | 8450 | 8580 | 7460 | 7550 | 7640 |
| | 400 | 8570 | 8690 | 8830 | 7670 | 7770 | 7870 |
| | 300 | 9140 | 9290 | 9450 | 8210 | 8320 | 8440 |

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 4400 | 0 |
| 4400 - 8800 | 1 |
| 8800 - 9450 | 2 |

### Concrete Anchor Table

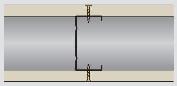
| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 9450 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection).
4. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
5. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.
10. For BCA Building Importance Level 4, please contact Siniat.

## Table 6 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.



| Steel stud walls lined full height on both sides | | Up to BCA Building Importance Level 3 | | | Ultimate pressure $W_U$ (kPa) | | 0.83 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.35 |
| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 2220 | 2330 | 2440 | 2010 | 2070 | 2160 |
| | 450 | 2660 | 2750 | 2860 | 2250 | 2310 | 2400 |
| | 400 | 2780 | 2880 | 3000 | 2350 | 2420 | 2510 |
| | 300 | 3100 | 3220 | 3360 | 2620 | 2700 | 2800 |
| 64 x 0.5 | 600 | 2560 | 2640 | 2720 | 2420 | 2480 | 2560 |
| | 450 | 3110 | 3170 | 3170 | 2710 | 2780 | 2870 |
| | 400 | 3170 | 3170 | 3170 | 2840 | 2910 | 3010 |
| | 300 | 3740 | 3880 | 4050 | 3160 | 3260 | 3370 |
| 64 x 0.75 | 600 | 3190 | 3260 | 3360 | 2700 | 2760 | 2820 |
| | 450 | 3550 | 3650 | 3760 | 3010 | 3080 | 3160 |
| | 400 | 3710 | 3820 | 3940 | 3150 | 3220 | 3300 |
| | 300 | 4110 | 4240 | 4390 | 3500 | 3580 | 3690 |
| 64 x 1.15 | 600 | 3580 | 3650 | 3730 | 3050 | 3100 | 3160 |
| | 450 | 3970 | 4060 | 4170 | 3390 | 3450 | 3520 |
| | 400 | 4140 | 4240 | 4360 | 3540 | 3600 | 3680 |
| | 300 | 4570 | 4690 | 4830 | 3910 | 4000 | 4100 |
| 76 x 0.55 | 600 | 3010 | 3080 | 3130 | 2890 | 2950 | 3030 |
| | 450 | 3490 | 3490 | 3490 | 3230 | 3310 | 3400 |
| | 400 | 3480 | 3480 | 3480 | 3380 | 3460 | 3480 |
| | 300 | 4430 | 4590 | 4650 | 3750 | 3860 | 3990 |
| 76 x 0.75 | 600 | 3740 | 3830 | 3930 | 3170 | 3230 | 3300 |
| | 450 | 4170 | 4280 | 4410 | 3530 | 3610 | 3690 |
| | 400 | 4340 | 4470 | 4610 | 3690 | 3770 | 3870 |
| | 300 | 4780 | 4940 | 5120 | 4080 | 4190 | 4310 |
| 76 x 1.15 | 600 | 4150 | 4230 | 4330 | 3540 | 3590 | 3660 |
| | 450 | 4600 | 4710 | 4830 | 3930 | 4000 | 4080 |
| | 400 | 4790 | 4910 | 5050 | 4100 | 4170 | 4270 |
| | 300 | 5260 | 5410 | 5580 | 4520 | 4620 | 4730 |
| 92 x 0.55 | 600 | 3490 | 3490 | 3490 | 3430 | 3490 | 3490 |
| | 450 | 3490 | 3490 | 3490 | 3490 | 3490 | 3490 |
| | 400 | 3480 | 3480 | 3480 | 3480 | 3480 | 3480 |
| | 300 | 4650 | 4650 | 4650 | 4430 | 4560 | 4650 |
| 92 x 0.75 | 600 | 4390 | 4500 | 4620 | 3710 | 3780 | 3860 |
| | 450 | 4870 | 5010 | 5180 | 4130 | 4230 | 4330 |
| | 400 | 5070 | 5230 | 5410 | 4310 | 4410 | 4530 |
| | 300 | 5550 | 5740 | 5970 | 4750 | 4880 | 5030 |
| 92 x 1.15 | 600 | 4890 | 4990 | 5110 | 4170 | 4230 | 4310 |
| | 450 | 5400 | 5530 | 5690 | 4610 | 4700 | 4800 |
| | 400 | 5610 | 5760 | 5930 | 4800 | 4900 | 5020 |
| | 300 | 6130 | 6310 | 6510 | 5280 | 5400 | 5540 |
| 150 x 0.75 | 600 | 4930 | 4930 | 4930 | 4930 | 4930 | 4930 |
| | 450 | 5240 | 5240 | 5240 | 5240 | 5240 | 5240 |
| | 400 | 5900 | 5900 | 5900 | 5900 | 5900 | 5900 |
| | 300 | 7730 | 7860 | 7870 | 6810 | 6950 | 7090 |
| 150 x 1.15 | 600 | 7040 | 7130 | 7220 | 6020 | 6080 | 6150 |
| | 450 | 7600 | 7690 | 7790 | 6660 | 6750 | 6840 |
| | 400 | 7820 | 7920 | 8030 | 6930 | 7030 | 7140 |
| | 300 | 8360 | 8480 | 8610 | 7500 | 7590 | 7690 |

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 4400 | 0 |
| 4400 - 8610 | 1 |

### Concrete Anchor Table

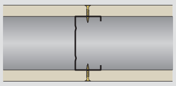
| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 8610 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection).
4. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
5. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.
10. For BCA Building Importance Level 4, please contact Siniat.

## Table 7 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.



| Steel stud walls lined full height on both sides | | Up to BCA Building Importance Level 3 | | | Ultimate pressure $W_U$ (kPa) | | 1.07 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.45 |
| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 1880 | 1970 | 2070 | 1820 | 1870 | 1950 |
| | 450 | 2250 | 2360 | 2460 | 2030 | 2080 | 2160 |
| | 400 | 2430 | 2460 | 2460 | 2120 | 2180 | 2250 |
| | 300 | 2790 | 2890 | 3000 | 2370 | 2430 | 2510 |
| 64 x 0.5 | 600 | 2140 | 2220 | 2290 | 2140 | 2220 | 2290 |
| | 450 | 2460 | 2460 | 2460 | 2440 | 2460 | 2460 |
| | 400 | 2460 | 2460 | 2460 | 2460 | 2460 | 2460 |
| | 300 | 3170 | 3170 | 3170 | 2850 | 2930 | 3010 |
| 64 x 0.75 | 600 | 2880 | 2940 | 3010 | 2450 | 2490 | 2550 |
| | 450 | 3210 | 3280 | 3370 | 2730 | 2780 | 2840 |
| | 400 | 3350 | 3430 | 3530 | 2850 | 2900 | 2970 |
| | 300 | 3720 | 3820 | 3940 | 3170 | 3240 | 3320 |
| 64 x 1.15 | 600 | 3240 | 3300 | 3370 | 2770 | 2810 | 2860 |
| | 450 | 3600 | 3670 | 3750 | 3080 | 3130 | 3180 |
| | 400 | 3760 | 3830 | 3920 | 3210 | 3270 | 3330 |
| | 300 | 4150 | 4250 | 4360 | 3560 | 3620 | 3700 |
| 76 x 0.55 | 600 | 2520 | 2590 | 2640 | 2520 | 2590 | 2640 |
| | 450 | 2710 | 2710 | 2710 | 2710 | 2710 | 2710 |
| | 400 | 2700 | 2700 | 2700 | 2700 | 2700 | 2700 |
| | 300 | 3610 | 3610 | 3610 | 3390 | 3470 | 3570 |
| 76 x 0.75 | 600 | 3340 | 3440 | 3520 | 2870 | 2910 | 2970 |
| | 450 | 3760 | 3850 | 3950 | 3190 | 3250 | 3320 |
| | 400 | 3920 | 4020 | 4130 | 3340 | 3400 | 3480 |
| | 300 | 4330 | 4460 | 4600 | 3700 | 3780 | 3880 |
| 76 x 1.15 | 600 | 3760 | 3820 | 3900 | 3210 | 3250 | 3310 |
| | 450 | 4170 | 4250 | 4350 | 3570 | 3620 | 3680 |
| | 400 | 4350 | 4440 | 4550 | 3720 | 3780 | 3850 |
| | 300 | 4790 | 4900 | 5040 | 4110 | 4190 | 4280 |
| 92 x 0.55 | 600 | 2710 | 2710 | 2710 | 2710 | 2710 | 2710 |
| | 450 | 2710 | 2710 | 2710 | 2710 | 2710 | 2710 |
| | 400 | 2700 | 2700 | 2700 | 2700 | 2700 | 2700 |
| | 300 | 3610 | 3610 | 3610 | 3610 | 3610 | 3610 |
| 92 x 0.75 | 600 | 3790 | 3830 | 3830 | 3350 | 3410 | 3470 |
| | 450 | 4070 | 4070 | 4070 | 3730 | 3810 | 3890 |
| | 400 | 4570 | 4570 | 4570 | 3900 | 3980 | 4070 |
| | 300 | 5040 | 5190 | 5370 | 4310 | 4410 | 4530 |
| 92 x 1.15 | 600 | 4430 | 4510 | 4590 | 3780 | 3830 | 3890 |
| | 450 | 4900 | 5000 | 5120 | 4190 | 4260 | 4330 |
| | 400 | 5100 | 5210 | 5340 | 4360 | 4440 | 4530 |
| | 300 | 5590 | 5730 | 5900 | 4800 | 4900 | 5020 |
| 150 x 0.75 | 600 | 3830 | 3830 | 3830 | 3830 | 3830 | 3830 |
| | 450 | 4070 | 4070 | 4070 | 4070 | 4070 | 4070 |
| | 400 | 4570 | 4570 | 4570 | 4570 | 4570 | 4570 |
| | 300 | 6100 | 6100 | 6100 | 6100 | 6100 | 6100 |
| 150 x 1.15 | 600 | 5600 | 5600 | 5600 | 5470 | 5520 | 5570 |
| | 450 | 7060 | 7160 | 7250 | 6060 | 6130 | 6200 |
| | 400 | 7300 | 7390 | 7470 | 6310 | 6390 | 6470 |
| | 300 | 7820 | 7920 | 8020 | 6950 | 7050 | 7160 |

## Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 4400 | 0 |
| 4400 - 8020 | 1 |

## Concrete Anchor Table

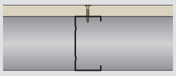
| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 8020 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection).
4. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
5. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.
10. For BCA Building Importance Level 4, please contact Siniat.

## Table 8 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud walls lined full height on one side only |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.39 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
|---|---|---|---|---|---|---|---|
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 2400 | 2430 | 2490 | 2080 | 2110 | 2150 |
| | 450 | 2650 | 2690 | 2740 | 2300 | 2320 | 2360 |
| | 400 | 2770 | 2800 | 2850 | 2390 | 2420 | 2460 |
| | 300 | 3060 | 3100 | 3150 | 2650 | 2670 | 2710 |
| 64 x 0.5 | 600 | 2850 | 2880 | 2920 | 2470 | 2490 | 2530 |
| | 450 | 3160 | 3190 | 3240 | 2730 | 2750 | 2790 |
| | 400 | 3300 | 3330 | 3370 | 2850 | 2870 | 2900 |
| | 300 | 3650 | 3690 | 3740 | 3150 | 3180 | 3210 |
| 64 x 0.75 | 600 | 3230 | 3260 | 3290 | 2800 | 2820 | 2850 |
| | 450 | 3570 | 3600 | 3640 | 3090 | 3110 | 3140 |
| | 400 | 3720 | 3760 | 3800 | 3220 | 3240 | 3270 |
| | 300 | 4120 | 4160 | 4200 | 3560 | 3590 | 3620 |
| 64 x 1.15 | 600 | 3690 | 3720 | 3750 | 3200 | 3220 | 3250 |
| | 450 | 4080 | 4110 | 4150 | 3540 | 3560 | 3580 |
| | 400 | 4250 | 4280 | 4320 | 3690 | 3710 | 3730 |
| | 300 | 4700 | 4730 | 4780 | 4070 | 4100 | 4130 |
| 76 x 0.55 | 600 | 3380 | 3400 | 3410 | 2920 | 2940 | 2970 |
| | 450 | 3740 | 3770 | 3810 | 3230 | 3250 | 3280 |
| | 400 | 3900 | 3930 | 3980 | 3370 | 3390 | 3420 |
| | 300 | 4310 | 4350 | 4410 | 3720 | 3750 | 3790 |
| 76 x 0.75 | 600 | 3760 | 3790 | 3820 | 3250 | 3270 | 3300 |
| | 450 | 4160 | 4190 | 4230 | 3600 | 3620 | 3650 |
| | 400 | 4340 | 4370 | 4410 | 3750 | 3770 | 3800 |
| | 300 | 4790 | 4840 | 4890 | 4140 | 4180 | 4210 |
| 76 x 1.15 | 600 | 4260 | 4280 | 4310 | 3690 | 3710 | 3730 |
| | 450 | 4700 | 4740 | 4770 | 4070 | 4100 | 4120 |
| | 400 | 4900 | 4930 | 4970 | 4240 | 4270 | 4300 |
| | 300 | 5400 | 5450 | 5500 | 4680 | 4710 | 4750 |
| 92 x 0.55 | 600 | 3970 | 3980 | 3950 | 3420 | 3440 | 3470 |
| | 450 | 4400 | 4430 | 4470 | 3790 | 3820 | 3850 |
| | 400 | 4580 | 4620 | 4670 | 3950 | 3980 | 4010 |
| | 300 | 5060 | 5120 | 5180 | 4370 | 4410 | 4450 |
| 92 x 0.75 | 600 | 4350 | 4380 | 4420 | 3760 | 3780 | 3810 |
| | 450 | 4820 | 4850 | 4900 | 4160 | 4190 | 4220 |
| | 400 | 5020 | 5060 | 5110 | 4340 | 4360 | 4400 |
| | 300 | 5540 | 5590 | 5650 | 4790 | 4830 | 4870 |
| 92 x 1.15 | 600 | 4970 | 5000 | 5030 | 4300 | 4320 | 4350 |
| | 450 | 5490 | 5530 | 5570 | 4750 | 4780 | 4810 |
| | 400 | 5720 | 5760 | 5800 | 4950 | 4980 | 5010 |
| | 300 | 6300 | 6350 | 6410 | 5460 | 5500 | 5540 |
| 150 x 0.75 | 600 | 5660 | 5620 | 5590 | 5520 | 5530 | 5550 |
| | 450 | 6600 | 6550 | 6520 | 6100 | 6120 | 6150 |
| | 400 | 6860 | 6820 | 6790 | 6350 | 6380 | 6410 |
| | 300 | 7490 | 7460 | 7440 | 7010 | 7050 | 7090 |
| 150 x 1.15 | 600 | 7260 | 7280 | 7300 | 6320 | 6330 | 6350 |
| | 450 | 7810 | 7840 | 7860 | 6970 | 7000 | 7020 |
| | 400 | 8050 | 8080 | 8100 | 7240 | 7260 | 7280 |
| | 300 | 8650 | 8680 | 8720 | 7790 | 7810 | 7840 |

### Nogging Table

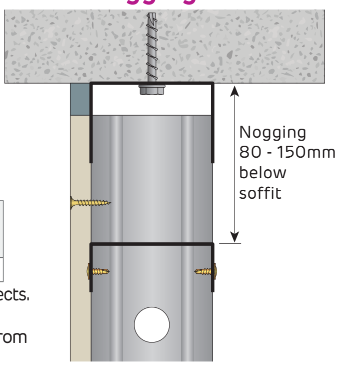
| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 plus soffit nogging |
| 3000 - 6000 | 2 plus soffit nogging |
| 6000 - 8000 | 3 plus soffit nogging |
| 8000 - 8880 | 4 plus soffit nogging |

### Concrete Anchor Table

| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 8880 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

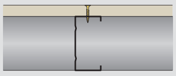
### Soffit Nogging




1. Table refers to Siniat steel of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection). Screw fix base track to unlined side of stud.
4. Stud frames lined on one side only (including double stud walls) must have an additional soffit nogging installed 80-150mm as shown, unless using a slotted deflection head track.
5. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
6. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
7. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.

## Table 9 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud walls lined full height on one side only | |  | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | | 0.46 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.3 |
| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 2250 | 2280 | 2330 | 1950 | 1970 | 2010 |
| | 450 | 2490 | 2520 | 2560 | 2150 | 2180 | 2210 |
| | 400 | 2590 | 2620 | 2670 | 2240 | 2270 | 2300 |
| | 300 | 2870 | 2900 | 2940 | 2480 | 2500 | 2540 |
| 64 x 0.5 | 600 | 2670 | 2700 | 2710 | 2310 | 2330 | 2370 |
| | 450 | 2960 | 2990 | 3030 | 2560 | 2580 | 2610 |
| | 400 | 3080 | 3110 | 3150 | 2670 | 2690 | 2720 |
| | 300 | 3410 | 3450 | 3490 | 2950 | 2970 | 3010 |
| 64 x 0.75 | 600 | 3030 | 3050 | 3080 | 2620 | 2640 | 2670 |
| | 450 | 3350 | 3370 | 3410 | 2900 | 2920 | 2940 |
| | 400 | 3490 | 3520 | 3550 | 3020 | 3040 | 3070 |
| | 300 | 3860 | 3890 | 3930 | 3340 | 3360 | 3390 |
| 64 x 1.15 | 600 | 3460 | 3490 | 3510 | 3010 | 3020 | 3040 |
| | 450 | 3830 | 3850 | 3880 | 3320 | 3340 | 3360 |
| | 400 | 3990 | 4010 | 4050 | 3460 | 3480 | 3500 |
| | 300 | 4400 | 4430 | 4470 | 3820 | 3840 | 3870 |
| 76 x 0.55 | 600 | 3160 | 3190 | 3170 | 2730 | 2750 | 2780 |
| | 450 | 3500 | 3530 | 3560 | 3030 | 3050 | 3070 |
| | 400 | 3650 | 3680 | 3720 | 3150 | 3170 | 3200 |
| | 300 | 4040 | 4070 | 4120 | 3490 | 3510 | 3550 |
| 76 x 0.75 | 600 | 3520 | 3550 | 3580 | 3050 | 3070 | 3090 |
| | 450 | 3900 | 3930 | 3960 | 3370 | 3390 | 3420 |
| | 400 | 4060 | 4090 | 4130 | 3510 | 3540 | 3560 |
| | 300 | 4490 | 4530 | 4570 | 3880 | 3910 | 3940 |
| 76 x 1.15 | 600 | 3990 | 4010 | 4040 | 3460 | 3470 | 3490 |
| | 450 | 4410 | 4440 | 4470 | 3820 | 3840 | 3860 |
| | 400 | 4590 | 4620 | 4660 | 3980 | 4000 | 4020 |
| | 300 | 5070 | 5100 | 5150 | 4390 | 4420 | 4450 |
| 92 x 0.55 | 600 | 3710 | 3690 | 3670 | 3210 | 3220 | 3250 |
| | 450 | 4110 | 4140 | 4180 | 3550 | 3570 | 3600 |
| | 400 | 4290 | 4320 | 4360 | 3700 | 3720 | 3750 |
| | 300 | 4710 | 4710 | 4710 | 4090 | 4120 | 4160 |
| 92 x 0.75 | 600 | 4070 | 4100 | 4130 | 3520 | 3540 | 3560 |
| | 450 | 4510 | 4540 | 4580 | 3900 | 3920 | 3950 |
| | 400 | 4700 | 4730 | 4770 | 4060 | 4090 | 4110 |
| | 300 | 5190 | 5230 | 5280 | 4490 | 4520 | 4550 |
| 92 x 1.15 | 600 | 4660 | 4680 | 4710 | 4030 | 4050 | 4070 |
| | 450 | 5140 | 5180 | 5210 | 4460 | 4480 | 4500 |
| | 400 | 5360 | 5390 | 5430 | 4640 | 4670 | 4690 |
| | 300 | 5910 | 5950 | 6000 | 5120 | 5150 | 5190 |
| 150 x 0.75 | 600 | 5360 | 5320 | 5300 | 5170 | 5190 | 5200 |
| | 450 | 6230 | 6200 | 6180 | 5720 | 5740 | 5760 |
| | 400 | 6490 | 6470 | 6440 | 5960 | 5980 | 6000 |
| | 300 | 7130 | 7110 | 7090 | 6580 | 6610 | 6640 |
| 150 x 1.15 | 600 | 6830 | 6850 | 6870 | 5930 | 5940 | 5950 |
| | 450 | 7450 | 7470 | 7490 | 6540 | 6560 | 6580 |
| | 400 | 7680 | 7700 | 7720 | 6810 | 6830 | 6860 |
| | 300 | 8250 | 8280 | 8310 | 7430 | 7450 | 7470 |

### Nogging Table

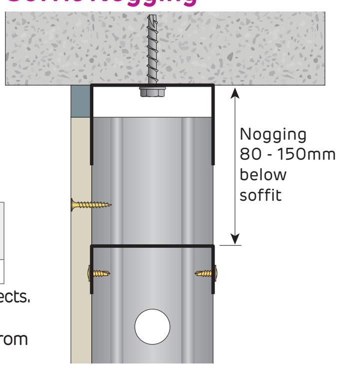
| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 plus soffit nogging |
| 3000 - 6000 | 2 plus soffit nogging |
| 6000 - 8000 | 3 plus soffit nogging |
| 8000 - 8460 | 4 plus soffit nogging |

### Concrete Anchor Table

| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 8460 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

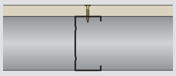
### Soffit Nogging




1. Table refers to Siniat steel of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection). Screw fix base track to unlined side of stud.
4. Stud frames lined on one side only (including double stud walls) must have an additional soffit nogging installed 80-150mm as shown, unless using a slotted deflection head track.
5. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
6. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
7. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.

## Table 10 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud walls lined full height on one side only | |  | | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | 0.54 |
|---|---|---|---|---|---|---|---|
| | | | | | | Serviceability pressure $W_S$ (kPa) | 0.35 |
| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 2130 | 2160 | 2200 | 1850 | 1870 | 1910 |
| | 450 | 2350 | 2380 | 2420 | 2040 | 2060 | 2090 |
| | 400 | 2450 | 2480 | 2520 | 2120 | 2140 | 2180 |
| | 300 | 2710 | 2740 | 2780 | 2350 | 2370 | 2400 |
| 64 x 0.5 | 600 | 2530 | 2530 | 2520 | 2190 | 2210 | 2240 |
| | 450 | 2800 | 2820 | 2860 | 2420 | 2440 | 2470 |
| | 400 | 2920 | 2940 | 2980 | 2520 | 2540 | 2570 |
| | 300 | 3230 | 3260 | 3300 | 2790 | 2810 | 2840 |
| 64 x 0.75 | 600 | 2870 | 2890 | 2920 | 2480 | 2500 | 2530 |
| | 450 | 3170 | 3190 | 3220 | 2740 | 2760 | 2790 |
| | 400 | 3300 | 3330 | 3360 | 2860 | 2880 | 2900 |
| | 300 | 3650 | 3680 | 3710 | 3160 | 3180 | 3210 |
| 64 x 1.15 | 600 | 3280 | 3300 | 3330 | 2850 | 2860 | 2880 |
| | 450 | 3630 | 3650 | 3670 | 3140 | 3160 | 3180 |
| | 400 | 3780 | 3800 | 3830 | 3280 | 3290 | 3310 |
| | 300 | 4170 | 4200 | 4230 | 3620 | 3640 | 3660 |
| 76 x 0.55 | 600 | 2960 | 2930 | 2910 | 2590 | 2610 | 2630 |
| | 450 | 3310 | 3340 | 3370 | 2860 | 2880 | 2910 |
| | 400 | 3450 | 3480 | 3510 | 2980 | 3000 | 3030 |
| | 300 | 3820 | 3850 | 3890 | 3300 | 3320 | 3350 |
| 76 x 0.75 | 600 | 3330 | 3360 | 3380 | 2890 | 2900 | 2930 |
| | 450 | 3690 | 3710 | 3740 | 3190 | 3210 | 3230 |
| | 400 | 3840 | 3870 | 3900 | 3330 | 3350 | 3370 |
| | 300 | 4250 | 4280 | 4320 | 3680 | 3700 | 3730 |
| 76 x 1.15 | 600 | 3780 | 3800 | 3820 | 3280 | 3290 | 3310 |
| | 450 | 4180 | 4200 | 4230 | 3620 | 3640 | 3660 |
| | 400 | 4350 | 4370 | 4400 | 3770 | 3790 | 3810 |
| | 300 | 4800 | 4830 | 4870 | 4160 | 4180 | 4210 |
| 92 x 0.55 | 600 | 3440 | 3430 | 3410 | 3030 | 3050 | 3070 |
| | 450 | 3890 | 3910 | 3930 | 3360 | 3380 | 3400 |
| | 400 | 3970 | 3970 | 3970 | 3500 | 3520 | 3550 |
| | 300 | 4010 | 4010 | 4010 | 3870 | 3900 | 3930 |
| 92 x 0.75 | 600 | 3860 | 3880 | 3900 | 3340 | 3350 | 3370 |
| | 450 | 4270 | 4290 | 4320 | 3690 | 3710 | 3730 |
| | 400 | 4440 | 4480 | 4510 | 3840 | 3870 | 3890 |
| | 300 | 4910 | 4950 | 4990 | 4250 | 4280 | 4310 |
| 92 x 1.15 | 600 | 4410 | 4430 | 4450 | 3820 | 3840 | 3850 |
| | 450 | 4870 | 4900 | 4930 | 4220 | 4240 | 4260 |
| | 400 | 5070 | 5100 | 5140 | 4400 | 4420 | 4440 |
| | 300 | 5590 | 5630 | 5680 | 4850 | 4880 | 4910 |
| 150 x 0.75 | 600 | 5060 | 5040 | 5010 | 4900 | 4910 | 4920 |
| | 450 | 5610 | 5590 | 5560 | 5420 | 5430 | 5450 |
| | 400 | 6130 | 6130 | 6110 | 5640 | 5660 | 5680 |
| | 300 | 6660 | 6660 | 6660 | 6230 | 6250 | 6280 |
| 150 x 1.15 | 600 | 6470 | 6490 | 6510 | 5620 | 5630 | 5640 |
| | 450 | 7140 | 7170 | 7200 | 6200 | 6220 | 6230 |
| | 400 | 7370 | 7400 | 7420 | 6460 | 6470 | 6490 |
| | 300 | 7930 | 7950 | 7980 | 7120 | 7150 | 7170 |

### Nogging Table

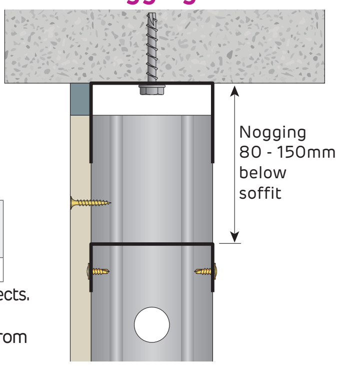
| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 plus soffit nogging |
| 3000 - 6000 | 2 plus soffit nogging |
| 6000 - 8000 | 3 plus soffit nogging |
| 8000 - 8120 | 4 plus soffit nogging |

### Concrete Anchor Table

| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 8120 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

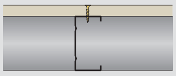
### Soffit Nogging




1. Table refers to Siniat steel of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection). Screw fix base track to unlined side of stud.
4. Stud frames lined on one side only (including double stud walls) must have an additional soffit nogging installed 80-150mm as shown, unless using a slotted deflection head track.
5. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
6. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
7. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.

## Table 11 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud walls lined full height on one side only | |  | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | | 0.59 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.25 |
| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 2150 | 2150 | 2140 | 2080 | 2110 | 2140 |
| | 450 | 2480 | 2480 | 2470 | 2300 | 2320 | 2360 |
| | 400 | 2630 | 2630 | 2610 | 2390 | 2420 | 2460 |
| | 300 | 3040 | 3040 | 3040 | 2650 | 2670 | 2710 |
| 64 x 0.5 | 600 | 2430 | 2430 | 2410 | 2430 | 2430 | 2410 |
| | 450 | 2810 | 2800 | 2780 | 2730 | 2750 | 2780 |
| | 400 | 2980 | 2970 | 2950 | 2850 | 2870 | 2900 |
| | 300 | 3440 | 3440 | 3430 | 3150 | 3180 | 3210 |
| 64 x 0.75 | 600 | 3230 | 3260 | 3260 | 2800 | 2820 | 2850 |
| | 450 | 3570 | 3600 | 3640 | 3090 | 3110 | 3140 |
| | 400 | 3720 | 3760 | 3800 | 3220 | 3240 | 3270 |
| | 300 | 4120 | 4160 | 4200 | 3560 | 3590 | 3620 |
| 64 x 1.15 | 600 | 3690 | 3720 | 3750 | 3200 | 3220 | 3250 |
| | 450 | 4080 | 4110 | 4150 | 3540 | 3560 | 3580 |
| | 400 | 4250 | 4280 | 4320 | 3690 | 3710 | 3730 |
| | 300 | 4700 | 4730 | 4780 | 4070 | 4100 | 4130 |
| 76 x 0.55 | 600 | 2830 | 2810 | 2800 | 2830 | 2810 | 2800 |
| | 450 | 3270 | 3270 | 3250 | 3230 | 3250 | 3250 |
| | 400 | 3470 | 3470 | 3450 | 3370 | 3390 | 3420 |
| | 300 | 3670 | 3670 | 3670 | 3670 | 3670 | 3670 |
| 76 x 0.75 | 600 | 3680 | 3680 | 3670 | 3250 | 3270 | 3300 |
| | 450 | 4160 | 4190 | 4230 | 3600 | 3620 | 3650 |
| | 400 | 4340 | 4370 | 4410 | 3750 | 3770 | 3800 |
| | 300 | 4790 | 4840 | 4890 | 4140 | 4180 | 4210 |
| 76 x 1.15 | 600 | 4260 | 4280 | 4310 | 3690 | 3710 | 3730 |
| | 450 | 4700 | 4740 | 4770 | 4070 | 4100 | 4120 |
| | 400 | 4900 | 4930 | 4970 | 4240 | 4270 | 4300 |
| | 300 | 5400 | 5450 | 5500 | 4680 | 4710 | 4750 |
| 92 x 0.55 | 600 | 3290 | 3290 | 3270 | 3290 | 3290 | 3270 |
| | 450 | 3670 | 3670 | 3670 | 3670 | 3670 | 3670 |
| | 400 | 3630 | 3630 | 3630 | 3630 | 3630 | 3630 |
| | 300 | 3670 | 3670 | 3670 | 3670 | 3670 | 3670 |
| 92 x 0.75 | 600 | 4090 | 4080 | 4060 | 3760 | 3780 | 3810 |
| | 450 | 4710 | 4700 | 4680 | 4160 | 4190 | 4220 |
| | 400 | 4930 | 4920 | 4900 | 4340 | 4360 | 4400 |
| | 300 | 5440 | 5440 | 5420 | 4790 | 4830 | 4870 |
| 92 x 1.15 | 600 | 4970 | 5000 | 5010 | 4300 | 4320 | 4350 |
| | 450 | 5490 | 5530 | 5520 | 4750 | 4780 | 4810 |
| | 400 | 5720 | 5750 | 5730 | 4950 | 4980 | 5010 |
| | 300 | 6300 | 6350 | 6410 | 5460 | 5500 | 5540 |
| 150 x 0.75 | 600 | 4890 | 4880 | 4860 | 4890 | 4880 | 4860 |
| | 450 | 5440 | 5430 | 5400 | 5440 | 5430 | 5400 |
| | 400 | 5660 | 5650 | 5630 | 5660 | 5650 | 5630 |
| | 300 | 6100 | 6100 | 6100 | 6100 | 6100 | 6100 |
| 150 x 1.15 | 600 | 6560 | 6560 | 6550 | 6320 | 6330 | 6350 |
| | 450 | 7110 | 7110 | 7110 | 6970 | 7000 | 7020 |
| | 400 | 8050 | 8080 | 8090 | 7240 | 7260 | 7280 |
| | 300 | 8650 | 8680 | 8720 | 7790 | 7810 | 7840 |

### Nogging Table

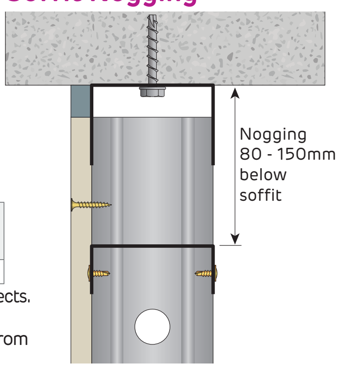
| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 plus soffit nogging |
| 3000 - 6000 | 2 plus soffit nogging |
| 6000 - 8000 | 3 plus soffit nogging |
| 8000 - 8790 | 4 plus soffit nogging |

### Concrete Anchor Table

| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 8790 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

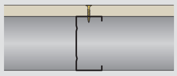
### Soffit Nogging




1. Table refers to Siniat steel of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection). Screw fix base track to unlined side of stud.
4. Stud frames lined on one side only (including double stud walls) must have an additional soffit nogging installed 80-150mm as shown, unless using a slotted deflection head track.
5. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
6. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
7. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.

## Table 12 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.



| Steel stud walls lined full height on one side only | | Up to BCA Building Importance Level 3 | | | Ultimate pressure $W_U$ (kPa) | | 0.71 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.3 |
| **Stud Depth and BMT (mm)** | **Maximum Stud Centres (mm)** | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | **10mm** | **13mm** | **16mm** | **10mm** | **13mm** | **16mm** |
| 51 x 0.5 | 600 | 1960 | 1960 | 1960 | 1950 | 1960 | 1960 |
| | 450 | 2260 | 2260 | 2260 | 2150 | 2180 | 2210 |
| | 400 | 2400 | 2400 | 2400 | 2240 | 2270 | 2300 |
| | 300 | 2770 | 2770 | 2760 | 2480 | 2500 | 2540 |
| 64 x 0.5 | 600 | 2220 | 2220 | 2210 | 2220 | 2220 | 2210 |
| | 450 | 2560 | 2560 | 2550 | 2560 | 2560 | 2550 |
| | 400 | 2720 | 2720 | 2710 | 2670 | 2690 | 2710 |
| | 300 | 3050 | 3050 | 3050 | 2950 | 2970 | 3010 |
| 64 x 0.75 | 600 | 2980 | 2980 | 2960 | 2620 | 2640 | 2670 |
| | 450 | 3350 | 3370 | 3410 | 2900 | 2920 | 2940 |
| | 400 | 3490 | 3520 | 3550 | 3020 | 3040 | 3070 |
| | 300 | 3860 | 3890 | 3930 | 3340 | 3360 | 3390 |
| 64 x 1.15 | 600 | 3460 | 3490 | 3510 | 3010 | 3020 | 3040 |
| | 450 | 3830 | 3850 | 3880 | 3320 | 3340 | 3360 |
| | 400 | 3990 | 4010 | 4050 | 3460 | 3480 | 3500 |
| | 300 | 4400 | 4430 | 4470 | 3820 | 3840 | 3870 |
| 76 x 0.55 | 600 | 2580 | 2580 | 2570 | 2580 | 2580 | 2570 |
| | 450 | 2980 | 2980 | 2960 | 2980 | 2980 | 2960 |
| | 400 | 3020 | 3020 | 3020 | 3020 | 3020 | 3020 |
| | 300 | 3050 | 3050 | 3050 | 3050 | 3050 | 3050 |
| 76 x 0.75 | 600 | 3350 | 3350 | 3350 | 3050 | 3070 | 3090 |
| | 450 | 3870 | 3870 | 3870 | 3370 | 3390 | 3420 |
| | 400 | 4060 | 4090 | 4110 | 3510 | 3540 | 3560 |
| | 300 | 4490 | 4530 | 4570 | 3880 | 3910 | 3940 |
| 76 x 1.15 | 600 | 3990 | 4010 | 4040 | 3460 | 3470 | 3490 |
| | 450 | 4410 | 4440 | 4470 | 3820 | 3840 | 3860 |
| | 400 | 4590 | 4620 | 4660 | 3980 | 4000 | 4020 |
| | 300 | 5070 | 5100 | 5150 | 4390 | 4420 | 4450 |
| 92 x 0.55 | 600 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| | 450 | 3050 | 3050 | 3050 | 3050 | 3050 | 3050 |
| | 400 | 3020 | 3020 | 3020 | 3020 | 3020 | 3020 |
| | 300 | 3050 | 3050 | 3050 | 3050 | 3050 | 3050 |
| 92 x 0.75 | 600 | 3720 | 3720 | 3720 | 3520 | 3540 | 3560 |
| | 450 | 4300 | 4300 | 4290 | 3900 | 3920 | 3950 |
| | 400 | 4560 | 4560 | 4550 | 4060 | 4090 | 4110 |
| | 300 | 5070 | 5070 | 5070 | 4490 | 4520 | 4550 |
| 92 x 1.15 | 600 | 4660 | 4680 | 4710 | 4030 | 4050 | 4070 |
| | 450 | 5140 | 5180 | 5210 | 4460 | 4480 | 4500 |
| | 400 | 5360 | 5390 | 5420 | 4640 | 4670 | 4690 |
| | 300 | 5910 | 5930 | 6000 | 5120 | 5150 | 5190 |
| 150 x 0.75 | 600 | 4550 | 4550 | 4540 | 4550 | 4550 | 4540 |
| | 450 | 5070 | 5070 | 5070 | 5070 | 5070 | 5070 |
| | 400 | 5010 | 5010 | 5010 | 5010 | 5010 | 5010 |
| | 300 | 5070 | 5070 | 5070 | 5070 | 5070 | 5070 |
| 150 x 1.15 | 600 | 6190 | 6190 | 6190 | 5810 | 5810 | 5800 |
| | 450 | 6760 | 6760 | 6760 | 6540 | 6560 | 6580 |
| | 400 | 6980 | 6980 | 6980 | 6810 | 6830 | 6860 |
| | 300 | 8250 | 8280 | 8310 | 7430 | 7450 | 7470 |

## Nogging Table

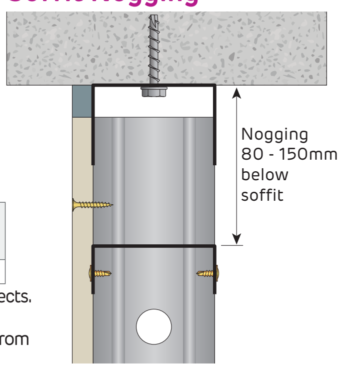
| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 plus soffit nogging |
| 3000 - 6000 | 2 plus soffit nogging |
| 6000 - 8000 | 3 plus soffit nogging |
| 8000 - 8350 | 4 plus soffit nogging |

## Concrete Anchor Table

| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 8350 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

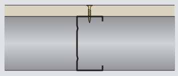
## Soffit Nogging




1. Table refers to Siniat steel of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection). Screw fix base track to unlined side of stud.
4. Stud frames lined on one side only (including double stud walls) must have an additional soffit nogging installed 80-150mm as shown, unless using a slotted deflection head track.
5. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
6. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
7. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.

## Table 13 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.



| Steel stud walls lined full height on one side only | | Up to BCA Building Importance Level 3 | | | | Ultimate pressure $W_U$ (kPa) | 0.83 |
|---|---|---|---|---|---|---|---|
| | | | | | | Serviceability pressure $W_S$ (kPa) | 0.35 |
| **Stud Depth and BMT (mm)** | **Maximum Stud Centres (mm)** | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | **10mm** | **13mm** | **16mm** | **10mm** | **13mm** | **16mm** |
| 51 x 0.5 | 600 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 |
| | 450 | 2090 | 2090 | 2090 | 2040 | 2060 | 2090 |
| | 400 | 2220 | 2220 | 2220 | 2120 | 2140 | 2180 |
| | 300 | 2570 | 2570 | 2570 | 2350 | 2370 | 2400 |
| 64 x 0.5 | 600 | 2050 | 2050 | 2050 | 2050 | 2050 | 2050 |
| | 450 | 2370 | 2370 | 2370 | 2370 | 2370 | 2370 |
| | 400 | 2510 | 2510 | 2510 | 2510 | 2510 | 2510 |
| | 300 | 2610 | 2610 | 2610 | 2610 | 2610 | 2610 |
| 64 x 0.75 | 600 | 2750 | 2750 | 2750 | 2480 | 2500 | 2530 |
| | 450 | 3170 | 3180 | 3180 | 2740 | 2760 | 2790 |
| | 400 | 3300 | 3330 | 3360 | 2860 | 2880 | 2900 |
| | 300 | 3650 | 3680 | 3710 | 3160 | 3180 | 3210 |
| 64 x 1.15 | 600 | 3280 | 3300 | 3330 | 2850 | 2860 | 2880 |
| | 450 | 3630 | 3650 | 3670 | 3140 | 3160 | 3180 |
| | 400 | 3780 | 3800 | 3830 | 3280 | 3290 | 3310 |
| | 300 | 4170 | 4200 | 4230 | 3620 | 3640 | 3660 |
| 76 x 0.55 | 600 | 2390 | 2390 | 2380 | 2390 | 2390 | 2380 |
| | 450 | 2610 | 2610 | 2610 | 2610 | 2610 | 2610 |
| | 400 | 2580 | 2580 | 2580 | 2580 | 2580 | 2580 |
| | 300 | 2610 | 2610 | 2610 | 2610 | 2610 | 2610 |
| 76 x 0.75 | 600 | 3100 | 3100 | 3100 | 2890 | 2900 | 2930 |
| | 450 | 3580 | 3580 | 3580 | 3190 | 3210 | 3230 |
| | 400 | 3800 | 3800 | 3800 | 3330 | 3350 | 3370 |
| | 300 | 4250 | 4280 | 4320 | 3680 | 3700 | 3730 |
| 76 x 1.15 | 600 | 3780 | 3800 | 3820 | 3280 | 3290 | 3310 |
| | 450 | 4180 | 4200 | 4230 | 3620 | 3640 | 3660 |
| | 400 | 4350 | 4370 | 4400 | 3770 | 3790 | 3810 |
| | 300 | 4800 | 4830 | 4870 | 4160 | 4180 | 4210 |
| 92 x 0.55 | 600 | 2610 | 2610 | 2610 | 2610 | 2610 | 2610 |
| | 450 | 2610 | 2610 | 2610 | 2610 | 2610 | 2610 |
| | 400 | 2580 | 2580 | 2580 | 2580 | 2580 | 2580 |
| | 300 | 2610 | 2610 | 2610 | 2610 | 2610 | 2610 |
| 92 x 0.75 | 600 | 3440 | 3440 | 3440 | 3340 | 3350 | 3370 |
| | 450 | 3980 | 3980 | 3980 | 3690 | 3710 | 3730 |
| | 400 | 4220 | 4220 | 4220 | 3840 | 3870 | 3890 |
| | 300 | 4330 | 4330 | 4330 | 4250 | 4280 | 4310 |
| 92 x 1.15 | 600 | 4410 | 4430 | 4440 | 3820 | 3840 | 3850 |
| | 450 | 4870 | 4900 | 4930 | 4220 | 4240 | 4260 |
| | 400 | 5070 | 5100 | 5140 | 4400 | 4420 | 4440 |
| | 300 | 5590 | 5630 | 5650 | 4850 | 4880 | 4910 |
| 150 x 0.75 | 600 | 4270 | 4270 | 4270 | 4270 | 4270 | 4270 |
| | 450 | 4330 | 4330 | 4330 | 4330 | 4330 | 4330 |
| | 400 | 4290 | 4290 | 4290 | 4290 | 4290 | 4290 |
| | 300 | 4330 | 4330 | 4330 | 4330 | 4330 | 4330 |
| 150 x 1.15 | 600 | 5550 | 5550 | 5550 | 5550 | 5550 | 5550 |
| | 450 | 6450 | 6450 | 6450 | 6200 | 6220 | 6230 |
| | 400 | 6680 | 6680 | 6680 | 6460 | 6470 | 6490 |
| | 300 | 7230 | 7230 | 7230 | 7120 | 7150 | 7170 |

### Nogging Table

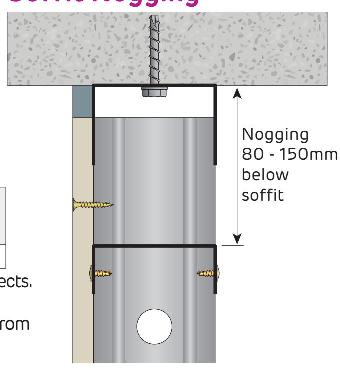
| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 plus soffit nogging |
| 3000 - 6000 | 2 plus soffit nogging |
| 6000 - 7230 | 3 plus soffit nogging |

### Concrete Anchor Table

| Wall Height (mm) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 7230 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 150mm studs require 2 anchors across width.

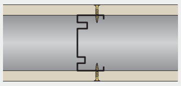
### Soffit Nogging

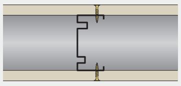


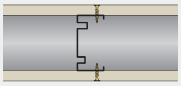

1. Table refers to Siniat steel of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base and head track must be similar Base Metal Thickness (BMT) as the stud.
3. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection). Screw fix base track to unlined side of stud.
4. Stud frames lined on one side only (including double stud walls) must have an additional soffit nogging installed 80-150mm as shown, unless using a slotted deflection head track.
5. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
6. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
7. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*
8. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
9. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.

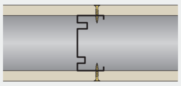
## Table 14 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| **Siniat Acoustic Stud walls lined full height on both sides** | |  | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | | 0.39 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.25 |
| **Stud Depth and BMT (mm)** | **Maximum Stud Centres (mm)** | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | **10mm** | **13mm** | **16mm** | **10mm** | **13mm** | **16mm** |
| 92 x 0.55 Acoustic Stud | 600mm | 5010 | 5170 | 5350 | 4220 | 4320 | 4440 |
| | 450mm | 5540 | 5740 | 5970 | 4690 | 4820 | 4980 |

| **Siniat Acoustic Stud walls lined full height on both sides** | |  | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | | 0.54 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.35 |
| **Stud Depth and BMT (mm)** | **Maximum Stud Centres (mm)** | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | **10mm** | **13mm** | **16mm** | **10mm** | **13mm** | **16mm** |
| 92 x 0.55 Acoustic Stud | 600mm | 4350 | 4460 | 4580 | 3670 | 3740 | 3820 |
| | 450mm | 4820 | 4970 | 5130 | 4090 | 4180 | 4290 |

| **Siniat Acoustic Stud walls lined full height on both sides** | |  | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | | 0.70 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.45 |
| **Stud Depth and BMT (mm)** | **Maximum Stud Centres (mm)** | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | **10mm** | **13mm** | **16mm** | **10mm** | **13mm** | **16mm** |
| 92 x 0.55 Acoustic Stud | 600mm | 3910 | 4000 | 4090 | 3310 | 3370 | 3430 |
| | 450mm | 4350 | 4460 | 4590 | 3690 | 3760 | 3840 |

| **Siniat Acoustic Stud walls lined full height on both sides** | |  | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | | 0.85 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.55 |
| **Stud Depth and BMT (mm)** | **Maximum Stud Centres (mm)** | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | **10mm** | **13mm** | **16mm** | **10mm** | **13mm** | **16mm** |
| 92 x 0.55 Acoustic Stud | 600mm | 3600 | 3670 | 3750 | 3060 | 3100 | 3150 |
| | 450mm | 3840 | 3840 | 3840 | 3410 | 3460 | 3530 |

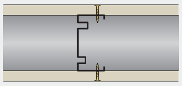
## Concrete Anchor Table

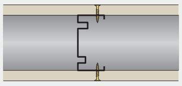
| C1 Anchor | C2 Anchor | Anchor Spacing |
|---|---|---|
| SA6x45 | SXTB08055 | 600mm maximum plus 100mm maximum from track ends |

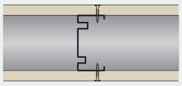
1. Table refers to Siniat steel acoustic studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Deflection Head Track must be 0.55mm Base Metal Thickness (BMT) or greater. Base track must be 0.5mm BMT or greater.
3. Noggings may reduce sound insulation performance.
4. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection).
5. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
6. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
7. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
8. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
9. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
10. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.
11. For BCA Building Importance Level 4, please contact Siniat.

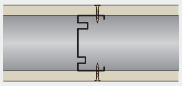
## Table 15 Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Siniat Acoustic Stud walls lined full height on both sides | |  | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | | 0.59 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.25 |
| **Stud Depth and BMT (mm)** | **Maximum Stud Centres (mm)** | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | **10mm** | **13mm** | **16mm** | **10mm** | **13mm** | **16mm** |
| 92 x 0.55 Acoustic Stud | 600mm | 4970 | 5170 | 5350 | 4220 | 4320 | 4440 |
| | 450mm | 5530 | 5530 | 5530 | 4690 | 4820 | 4980 |

| Siniat Acoustic Stud walls lined full height on both sides | |  | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | | 0.83 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.35 |
| **Stud Depth and BMT (mm)** | **Maximum Stud Centres (mm)** | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | **10mm** | **13mm** | **16mm** | **10mm** | **13mm** | **16mm** |
| 92 x 0.55 Acoustic Stud | 600mm | 3870 | 3930 | 3930 | 3670 | 3740 | 3820 |
| | 450mm | 3930 | 3930 | 3930 | 3930 | 3930 | 3930 |

| Siniat Acoustic Stud walls lined full height on both sides | |  | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | | 1.07 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.45 |
| **Stud Depth and BMT (mm)** | **Maximum Stud Centres (mm)** | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | **10mm** | **13mm** | **16mm** | **10mm** | **13mm** | **16mm** |
| 92 x 0.55 Acoustic Stud | 600mm | 3050 | 3050 | 3050 | 3050 | 3050 | 3050 |
| | 450mm | 3050 | 3050 | 3050 | 3050 | 3050 | 3050 |

| Siniat Acoustic Stud walls lined full height on both sides | |  | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | | 1.30 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.55 |
| **Stud Depth and BMT (mm)** | **Maximum Stud Centres (mm)** | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | **10mm** | **13mm** | **16mm** | **10mm** | **13mm** | **16mm** |
| 92 x 0.55 Acoustic Stud | 600mm | 2510 | 2510 | 2510 | 2510 | 2510 | 2510 |
| | 450mm | 2510 | 2510 | 2510 | 2510 | 2510 | 2510 |

## Concrete Anchor Table

| C1 Anchor | C2 Anchor | Anchor Spacing |
|---|---|---|
| SA6x45 | SXTB08055 | 600mm maximum plus 100mm maximum from track ends |

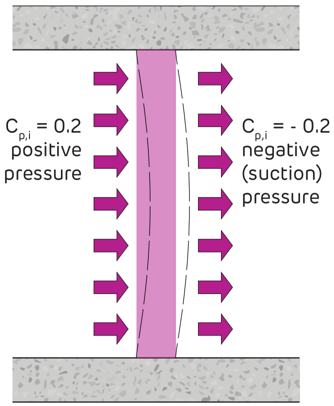
1. Table refers to Siniat steel acoustic studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Deflection Head Track must be 0.55mm Base Metal Thickness (BMT) or greater. Base track must be 0.5mm BMT or greater.
3. Noggings may reduce sound insulation performance.
4. Connections to base track and head track checked. Head track checked with a minimum 20mm overlap length of the stud to DH-Track (max 20mm downward and 10mm upwards overhead soffit deflection).
5. Maximum wall heights based upon ultimate (Wu) lateral wind pressures and the serviceability (Ws) deflection limits stated. Not for external walls.
6. Wall heights include self weight but are not applicable to axially loaded (load bearing) studs, nor are they suitable as bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered, and must be checked with Siniat.
7. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
8. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
9. Earthquake loads determined in accordance with *AS1170.4 Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed by ceiling loads during an earthquake. Specific project information is required.
10. The nominated wind pressures, deflection limits and earthquake load criteria must be checked for suitability for a specific project.
11. For BCA Building Importance Level 4, please contact Siniat.

# Worked Example

## Internal wall partition lined full height on both sides

- Single leaf internal partition - lined full height with 13mm plasterboard on both sides
- Wall is not tiled, so deflection limit h/240 is suitable
- Height of partition is 3400mm
- Shopping centre that is effectively sealed where the external walls have non-opening windows
- Internal partition is adjacent to an external wall with no potential opening in any external surface greater than 0.5%
- Building Importance Level 2
- Terrain Category 2
- Internal partition is located 25m above ground level.

**Step 1** *Determine $C_{p,i}$ net*
From Section 2.3, first find the appropriate $C_{p,i}$ net from the information above, the internal wall partition is the same as Case 3, therefore the appropriate $C_{p,i}$ net is 0.4.




**Case 3: Internal Wall $C_{p,i\ net}$ = 0.4**
1. Air-conditioned Hospitals, Offices and Shopping Centres (except loading docks) that are effectively sealed where the external walls have non-opening windows
2. Single leaf internal wall
3. Effectively sealed wall
4. Adjacent to an external wall, or other internal walls that provide an effective seal between spaces.

**Step 2** *Determine the Wind Region*
From Figure 2 'Australian Wind Regions' in Section 2.3, find Newcastle located in Wind Region A.

**Step 3** *Determine the building's Importance Level (IL)*
Usually found on the front page of the Structural Engineers notes for the project. In this case the IL is 2.

**Step 4** *Determine the Terrain Category (TC)* of the surrounding landscape around the building. Also usually found on the front page of the Structural Engineers notes for the project. In this case the TC is 2.

**Step 5** *Determine Ultimate ($W_U$) and Serviceability ($W_S$) Wind Pressures.*
The floor of the building where the partition is to be built is 25m above the ground level. Refer to Table 23 in Section 2.3 'Internal Wind Pressures $C_{p,i}$ = 0.4'. The pressures found are Wu = 0.59 kPa, and Ws = 0.40 kPa.

**Step 6** *Determine frame.*
Use the relevant 'Internal Non-Load Bearing Steel Stud Wall Height Table' in Section 3.1. For this case the internal wind pressures are rounded up to the nearest tables nominated pressure which are $W_U$ = 0.70 kPa and $W_S$ = 0.45 kPa.

**Answer**

64 x 0.75mm BMT studs at 400mm centres to reach a height of 3430mm.

**Table 23** Internal Wind Pressures $C_{p,i}$ =0.4

| Building Importance Level 2 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| Ultimate Wind Speed V500 (m/s) | 45 | | | | | | | | | | | | 57 | | | | | | | | | | | |
| Serviceability Wind Speed V25 (m/s) | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| Terrain Category | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| Height above ground (z) | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| $M_{z,cat}$ | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| Ultimate Wind Pressure (kPa) | 0.57 | 0.65 | 0.74 | 0.49 | 0.59 | 0.68 | 0.41 | 0.53 | 0.62 | 0.33 | 0.46 | 0.56 | 0.91 | 1.05 | 1.18 | 0.78 | 0.94 | 1.09 | 0.65 | 0.84 | 1.00 | 0.54 | 0.73 | 0.89 |
| Serviceability Wind Pressure (kPa) | 0.38 | 0.44 | 0.50 | 0.33 | 0.40 | 0.46 | 0.28 | 0.36 | 0.42 | 0.23 | 0.31 | 0.38 | 0.43 | 0.49 | 0.55 | 0.37 | 0.44 | 0.51 | 0.31 | 0.39 | 0.47 | 0.25 | 0.34 | 0.42 |

**Table 4** Internal Non-Load Bearing Steel Stud Wall Height Table (mm) - WIND REGION A
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

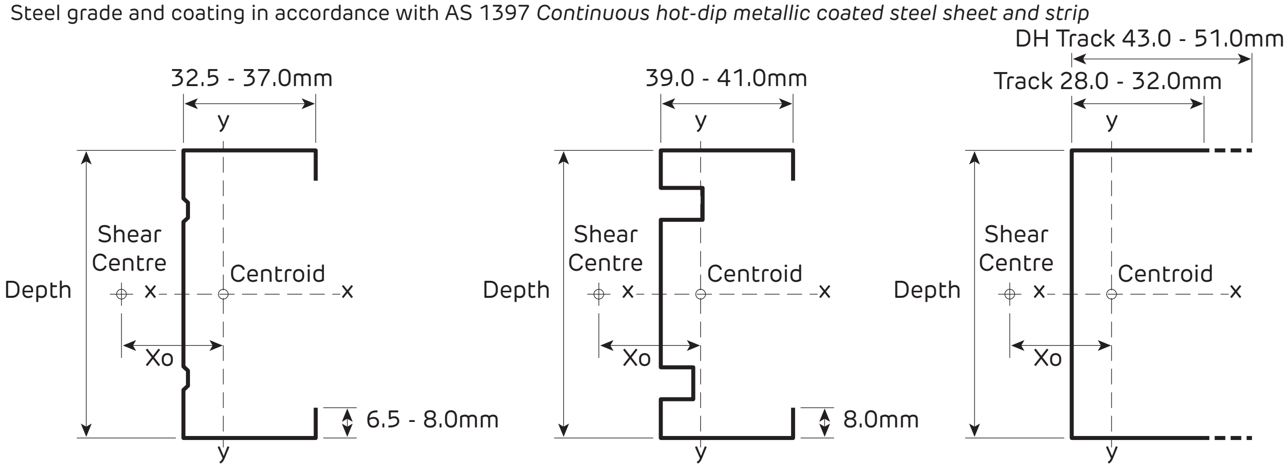
| Steel stud walls lined full height on both sides | | Up to BCA Building Importance Level 3 | | | Ultimate pressure $W_U$ (kPa) / Serviceability pressure $W_S$ (kPa) | 0.70 / 0.45 | |
|---|---|---|---|---|---|---|---|
| Stud Depth and BMT (mm) | Maximum Stud Centres (mm) | Deflection limited to H/240 or 30mm max Untiled plasterboard wall lining | | | Deflection limited to H/360, or 20mm max Any tiled or rendered wall | | |
| | | 10mm | 13mm | 16mm | 10mm | 13mm | 16mm |
| 51 x 0.5 | 600 | 2140 | 2210 | 2300 | 1820 | 1870 | 1950 |
| | 450 | 2390 | 2460 | 2560 | 2030 | 2080 | 2160 |
| | 400 | 2500 | 2580 | 2680 | 2120 | 2180 | 2250 |
| | 300 | 2790 | 2890 | 3000 | 2370 | 2430 | 2510 |
| 64 x 0.5 | 600 | 2580 | 2650 | 2740 | 2190 | 2230 | 2300 |
| | 450 | 2890 | 2970 | 3070 | 2440 | 2500 | 2570 |
| | 400 | 3030 | 3110 | 3220 | 2560 | 2620 | 2690 |
| | 300 | 3370 | 3480 | 3610 | 2850 | 2930 | 3010 |
| 64 x 0.75 | 600 | 2880 | 2940 | 3010 | 2450 | 2490 | 2550 |
| | 450 | 3210 | 3280 | 3370 | 2730 | 2780 | 2840 |
| | 400 | 3350 | 3430 | 3530 | 2850 | 2900 | 2970 |
| | 300 | 3720 | 3820 | 3940 | 3170 | 3240 | 3320 |
| | 600 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

# Steel Profile Information

## Material

| Manufacturer | Grade | Ultimate | Yield | Coating |
|---|---|---|---|---|
| Siniat | G300 | 340 MPa | 300 MPa | AM150 |

1. Steel grade and coating in accordance with AS 1397 *Continuous hot-dip metallic coated steel sheet and strip*




Stud

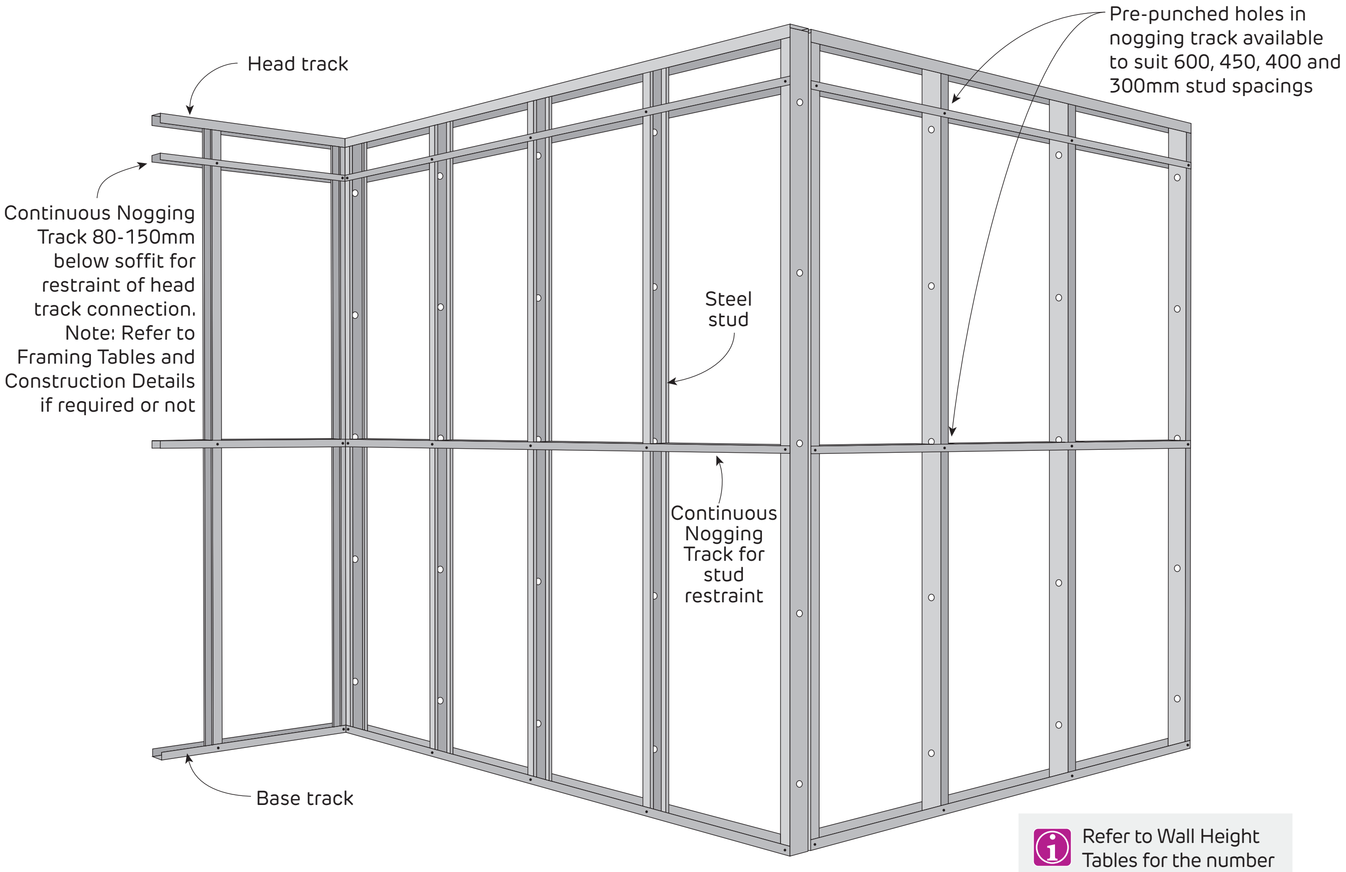
Acoustic Stud

Track / DH Track
0.5mm BMT with safety lip

## Section Properties

| Profile | Dimensions (mm) | | Shear Centre from Centroid (mm) | Area (mm²) | Moment of Inertia (mm⁴) | | Section Modulus (mm³) | | Torsion Constant J (mm⁴) | Warping Constant Iw (mm⁶) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Depth | BMT | Xo | | Ixx | Iyy | Zxx | Zyy | | |
| Stud | 51 | 0.5 | -28.7 | 63.3 | 28,320 | 10,170 | 1,127 | 449 | 5.3 | 5,498,000 |
| | 64 | 0.5 | -26.4 | 69.3 | 46,840 | 10,640 | 1,481 | 453 | 5.8 | 8,545,000 |
| | 64 | 0.75 | -26.5 | 103.8 | 69,520 | 15,960 | 2,207 | 686 | 19.5 | 12,930,000 |
| | 64 | 1.15 | -26.7 | 158.8 | 105,700 | 24,870 | 3,376 | 1,056 | 70.0 | 19,320,000 |
| | 76 | 0.55 | -25.2 | 83.2 | 77,040 | 12,860 | 2,049 | 518 | 8.4 | 13,980,000 |
| | 76 | 0.75 | -27.3 | 116.9 | 108,400 | 20,140 | 2,891 | 798 | 21.9 | 22,800,000 |
| | 76 | 1.15 | -26.4 | 176.0 | 160,600 | 28,700 | 4,305 | 1,161 | 77.6 | 31,980,000 |
| | 92 | 0.55 | -24.4 | 93.4 | 121,800 | 14,540 | 2,672 | 571 | 9.4 | 23,680,000 |
| | 92 | 0.75 | -24.2 | 126.8 | 164,300 | 19,450 | 3,611 | 767 | 23.8 | 31,460,000 |
| | 92 | 1.15 | -24.7 | 194.7 | 251,300 | 30,770 | 5,548 | 1,199 | 85.8 | 48,940,000 |
| | 150 | 0.75 | -20.0 | 171.1 | 529,700 | 23,340 | 7,110 | 847 | 32.1 | 98,580,000 |
| | 150 | 1.15 | -20.0 | 262.1 | 808,500 | 35,850 | 10,880 | 1,296 | 115.6 | 150,300,000 |
| Acoustic Stud | 92 | 0.55 | -22.2 | 126.4 | 156,600 | 20,220 | 3,376 | 712 | 12.8 | 33,640,000 |
| Track | 51 | 0.5 | -22.8 | 57.9 | 27,190 | 6,850 | 1,051 | 290 | 4.8 | 3,112,000 |
| | 64 | 0.5 | -17.8 | 60.4 | 40,650 | 5,196 | 1,256 | 236 | 5.0 | 3,717,000 |
| | 64 | 0.7 | -17.5 | 84.2 | 56,920 | 7,046 | 1,750 | 323 | 13.8 | 5,081,000 |
| | 64 | 1.15 | -18.1 | 140.1 | 95,810 | 12,444 | 2,937 | 558 | 61.8 | 8,989,000 |
| | 76 | 0.55 | -18.2 | 68.4 | 63,000 | 6,549 | 1,642 | 273 | 5.7 | 6,639,000 |
| | 76 | 0.7 | -17.9 | 95.4 | 88,180 | 8,896 | 2,289 | 375 | 15.6 | 9,084,000 |
| | 76 | 1.15 | -16.7 | 153.5 | 141,000 | 12,780 | 3,642 | 561 | 67.7 | 13,160,000 |
| | 92 | 0.55 | -16.5 | 75.9 | 96,680 | 6,602 | 2,085 | 271 | 6.3 | 9,939,000 |
| | 92 | 0.7 | -16.6 | 106.7 | 137,000 | 9,375 | 2,942 | 383 | 17.4 | 14,210,000 |
| | 92 | 1.15 | -15.6 | 172.6 | 220,300 | 13,780 | 4,714 | 583 | 76.1 | 21,050,000 |
| | 150 | 0.75 | -13.0 | 157.6 | 468,000 | 11,220 | 6,199 | 429 | 29.6 | 47,330,000 |
| | 150 | 1.15 | -12.9 | 241.5 | 718,500 | 16,890 | 9,491 | 649 | 106.5 | 71,610,000 |
| DH Track | 51 | 0.55 | -38.3 | 82.5 | 43,020 | 22,890 | 1,651 | 687 | 8.3 | 10,820,000 |
| | 64 | 0.55 | -35.7 | 89.1 | 68,770 | 24,040 | 2,118 | 700 | 9.0 | 17,460,000 |
| | 64 | 0.7 | -35.9 | 113.6 | 88,020 | 30,890 | 2,706 | 897 | 18.6 | 22,490,000 |
| | 64 | 1.15 | -35.7 | 186.3 | 145,500 | 50,170 | 4,450 | 1,461 | 82.1 | 36,820,000 |
| | 76 | 0.55 | -31.4 | 92.4 | 94,900 | 21,510 | 2,467 | 640 | 9.3 | 21,830,000 |
| | 76 | 0.7 | -32.4 | 119.2 | 123,500 | 29,280 | 3,206 | 854 | 19.5 | 29,780,000 |
| | 76 | 1.15 | -33.0 | 193.2 | 188,300 | 48,250 | 5,062 | 1,409 | 85.2 | 45,660,000 |
| | 92 | 0.55 | -32.0 | 104.4 | 151,400 | 27,030 | 3,263 | 739 | 10.5 | 40,000,000 |
| | 92 | 0.7 | -32.2 | 133.2 | 194,300 | 34,750 | 4,176 | 947 | 21.8 | 51,680,000 |
| | 92 | 1.15 | -30.7 | 215.3 | 314,200 | 51,950 | 6,714 | 1,457 | 94.9 | 78,040,000 |
| | 150 | 0.75 | -25.5 | 183.9 | 617,700 | 39,310 | 8,181 | 1,016 | 34.5 | 158,600,000 |
| | 150 | 1.15 | -25.4 | 280.8 | 937,400 | 59,520 | 12,450 | 1,546 | 123.8 | 238,600,000 |

## Fire Rated and Non-Fire Rated
## Continuous Nogging Track




Refer to Wall Height Tables for the number of noggings required

**FIGURE 2** Steel Stud Frame with Continuous Nogging Track

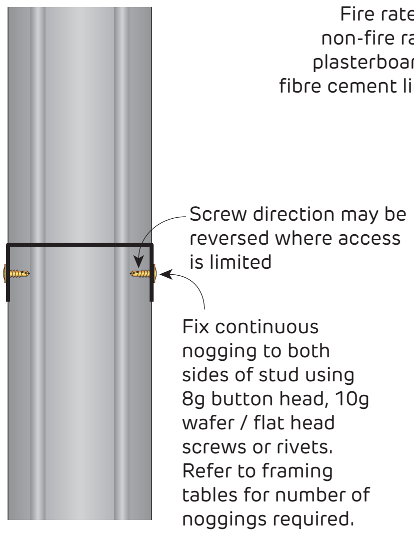



**FIGURE 3** Continuous Nogging Track
Non-load bearing walls lined or unlined, and load bearing walls
Section

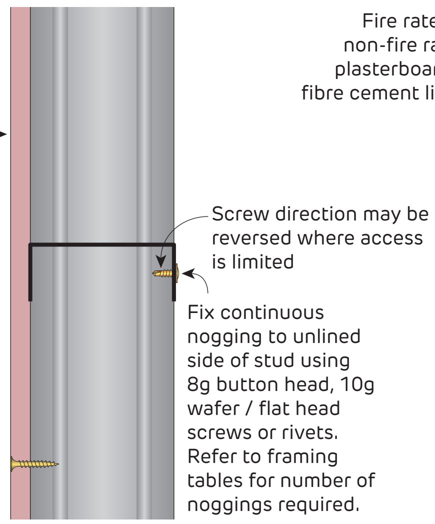



**FIGURE 4** Continuous Nogging Track
Non-load bearing walls lined on one side only
Section

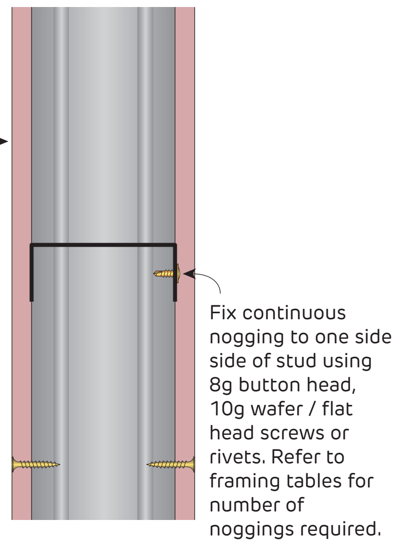



**FIGURE 5** Continuous Nogging Track
Non-load bearing walls lined on both sides
Section

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated and Non-Fire Rated Individual Nogging Track Pieces

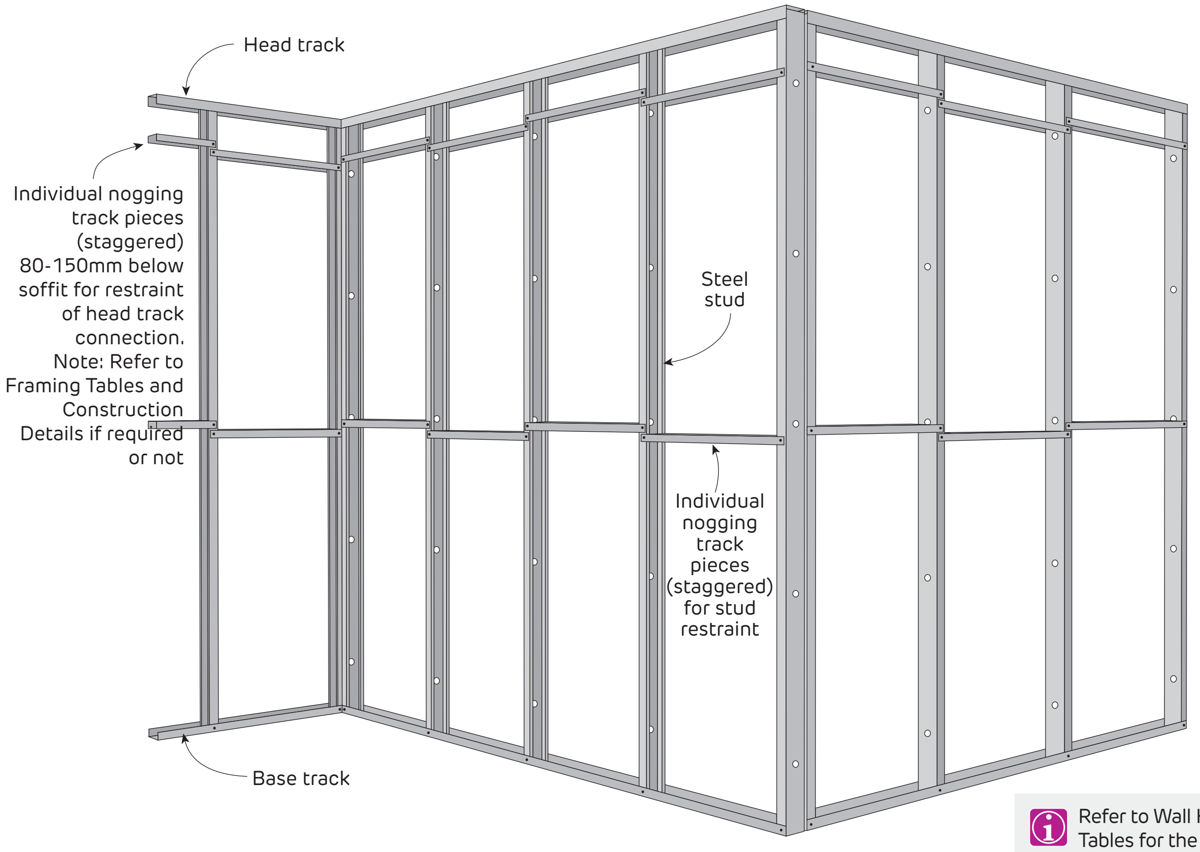



FIGURE 6 **Steel Stud Frame with Individual Nogging Track Pieces**

Refer to Wall Height Tables for the number of noggings required

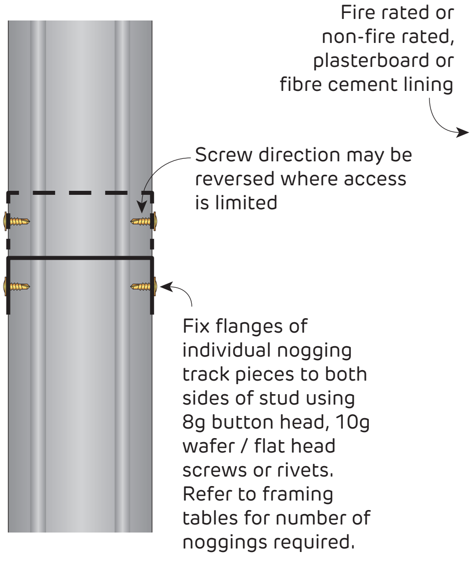



FIGURE 7 **Individual Nogging Track Pieces**
Non-load bearing walls lined or unlined, and load bearing walls
Section

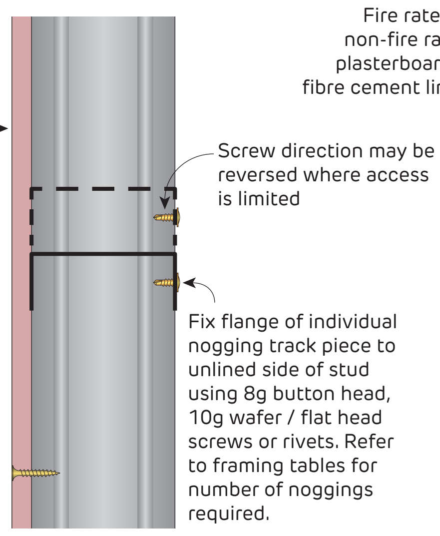



FIGURE 8 **Individual Nogging Track Pieces**
Non-load bearing walls lined on one side only
Section

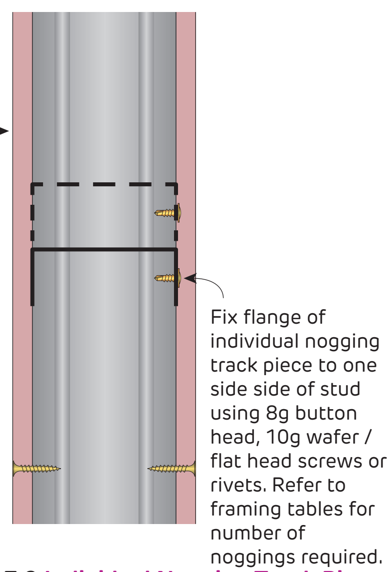
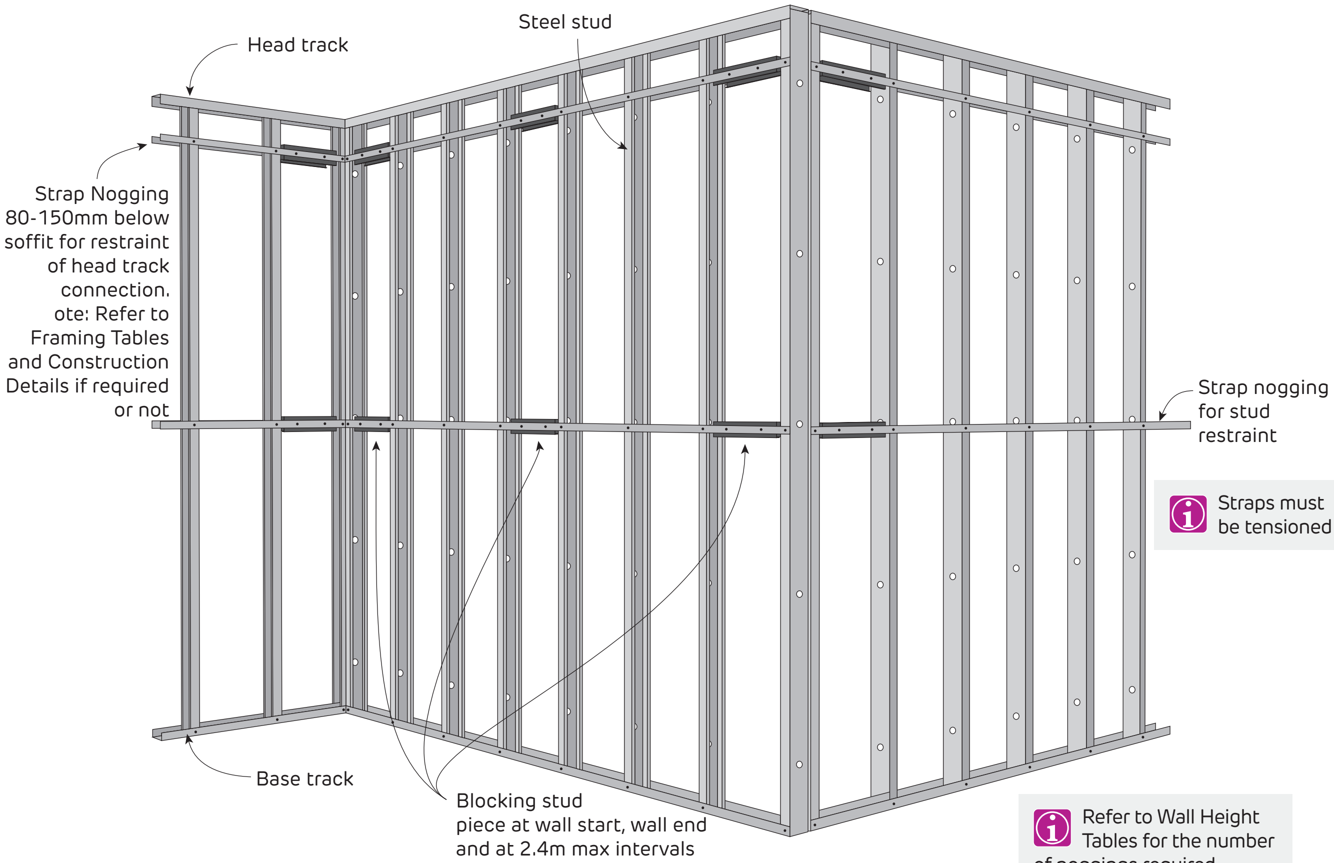



FIGURE 9 **Individual Nogging Track Pieces**
Non-load bearing walls lined on both sides
Section

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

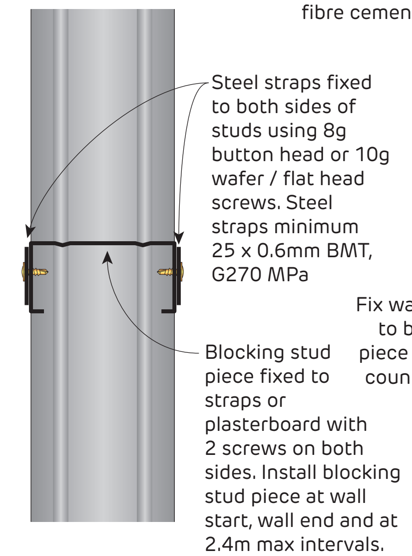
## Fire Rated and Non-Fire Rated
## Strap and Block Nogging Track

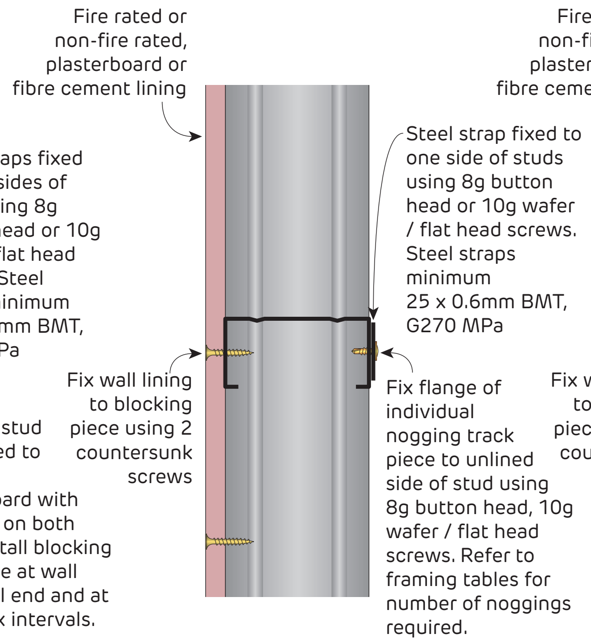



Straps must be tensioned

Refer to Wall Height Tables for the number of noggings required

**FIGURE 10** **Steel Stud Frame with Strap and Block Nogging**



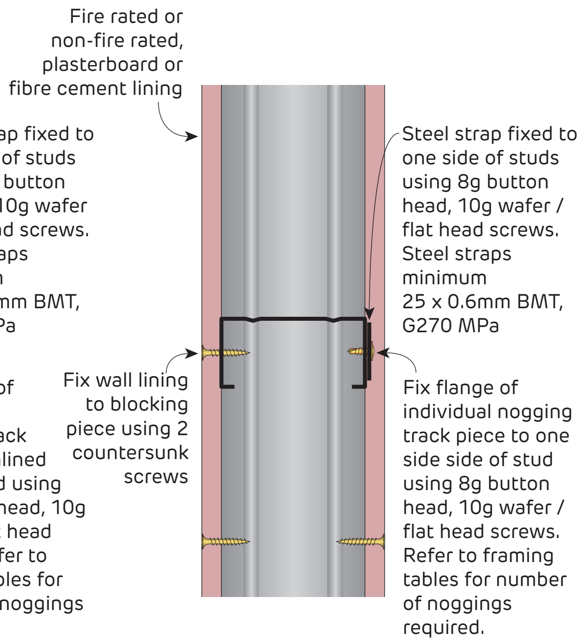




**FIGURE 11** **Strap and Block Nogging**
Non-load bearing walls lined or unlined, and load bearing walls
Section

**FIGURE 12** **Strap and Block Nogging**
Non-load bearing walls lined on one side only
Section

**FIGURE 13** **Strap and Block Nogging**
Non-load bearing walls lined on both sides
Section

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated and Non-Fire Rated
## Strap and Block Nogging Track

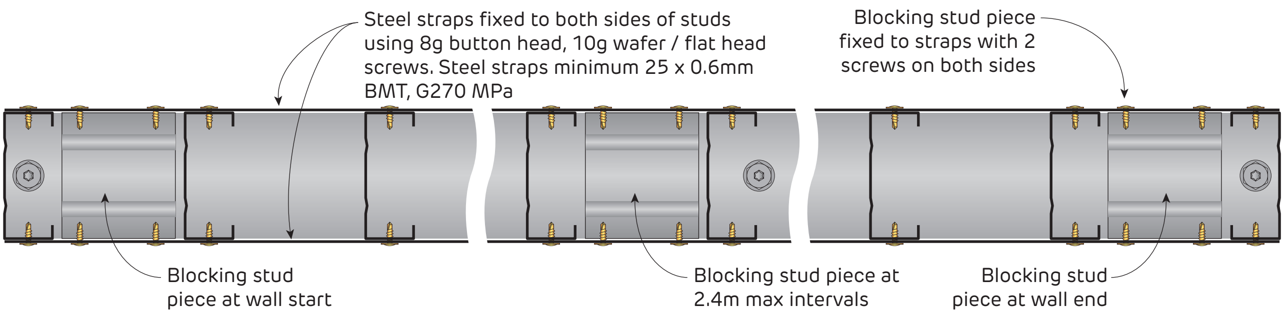



**FIGURE 14** Unlined Stud Wall
Non-load bearing walls lined or unlined, and load bearing walls
Plan

Straps must be tensioned

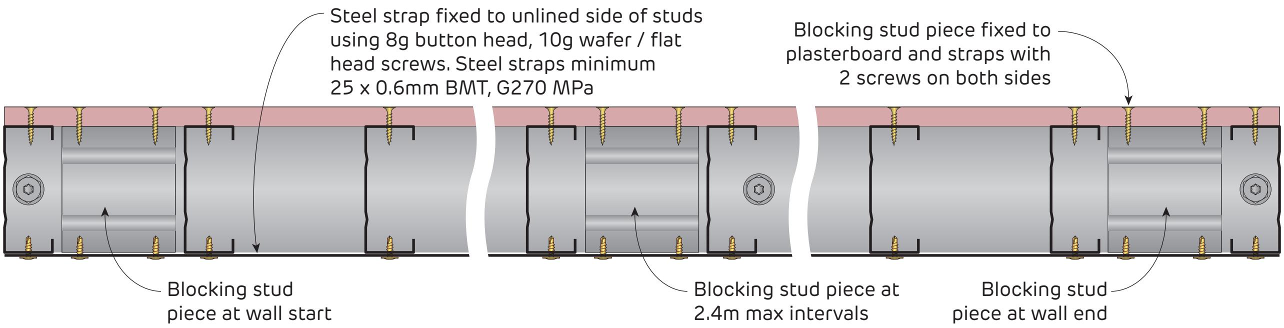



**FIGURE 15** Stud Wall Lined on One Side Only
Non-load bearing walls lined on one side only
Plan

Refer to Wall Height Tables for the number of noggings required

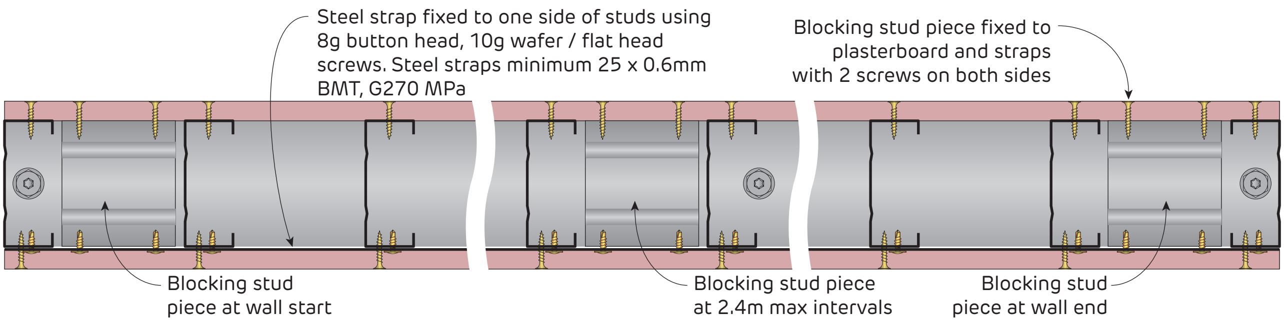



**FIGURE 16** Stud Wall Lined on Both Sides
Non-load bearing walls lined on both sides
Plan

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated and Non-Fire Rated
### Strap Noggings

Detail used to increased staggered stud wall heights but may reduce acoustic performance

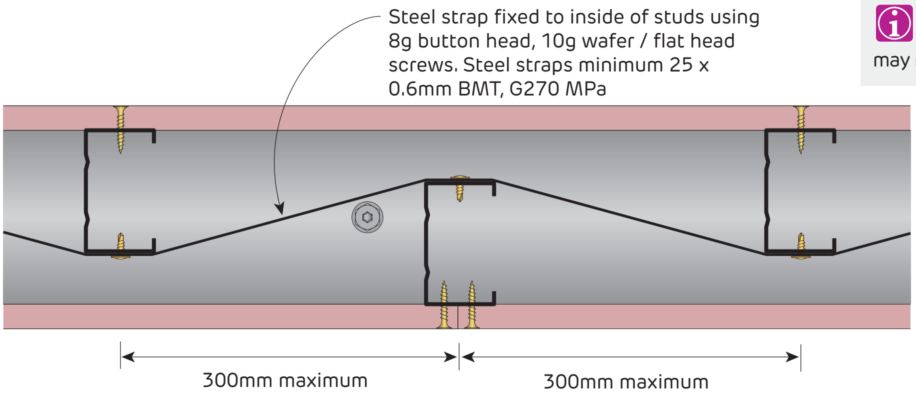
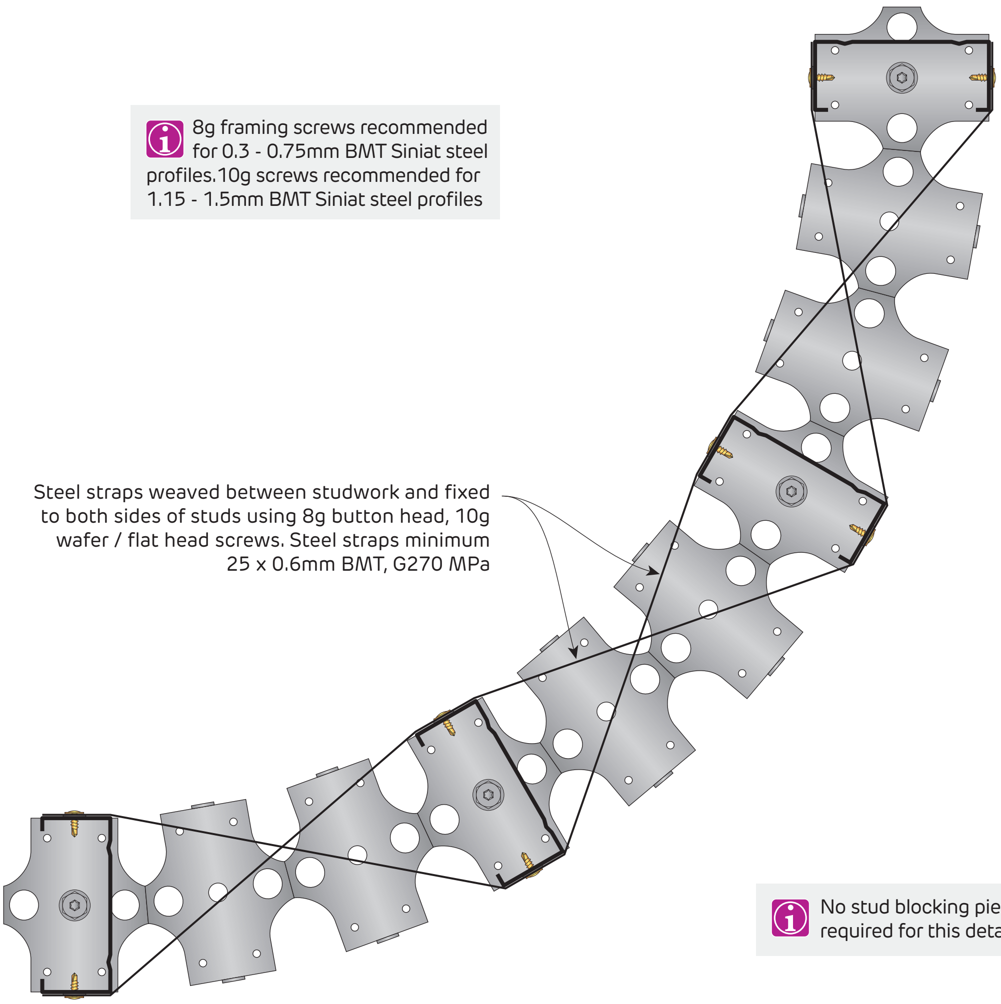



**FIGURE 17** Strap Nogging for Staggered Stud Walls
Plan

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

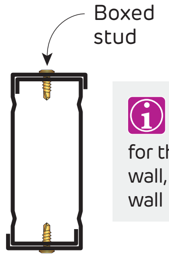



No stud blocking pieces required for this detail

**FIGURE 18** Strap Nogging for Curved Stud Walls
Plan

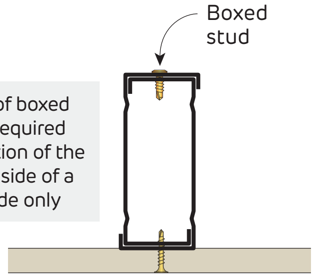
## Fire Rated and Non-Fire Rated

### Fixing of Boxed Studs and Back-to-back Studs

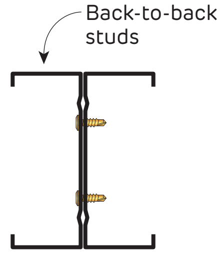



Plan - Through
unlined portion of wall

Screw fixing of boxed studs is only required for the unlined portion of the wall, or the unlined side of a wall lined on one side only




Plan - Through
lined portion of wall




Plan

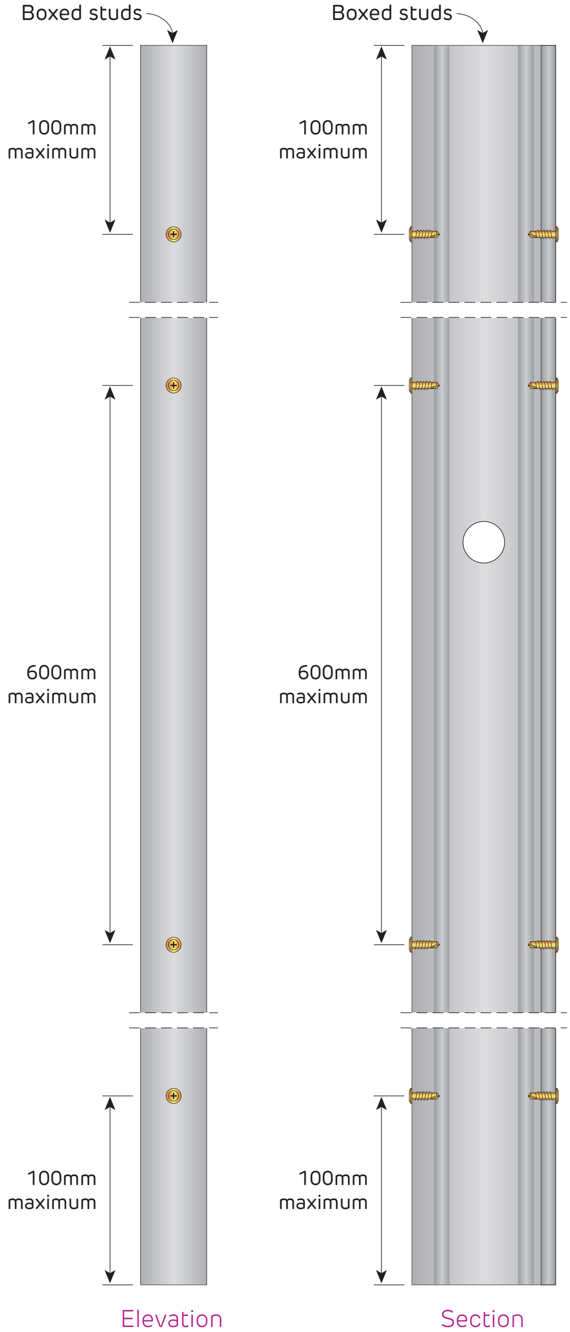



**FIGURE 19 Fixing of Boxed Studs**

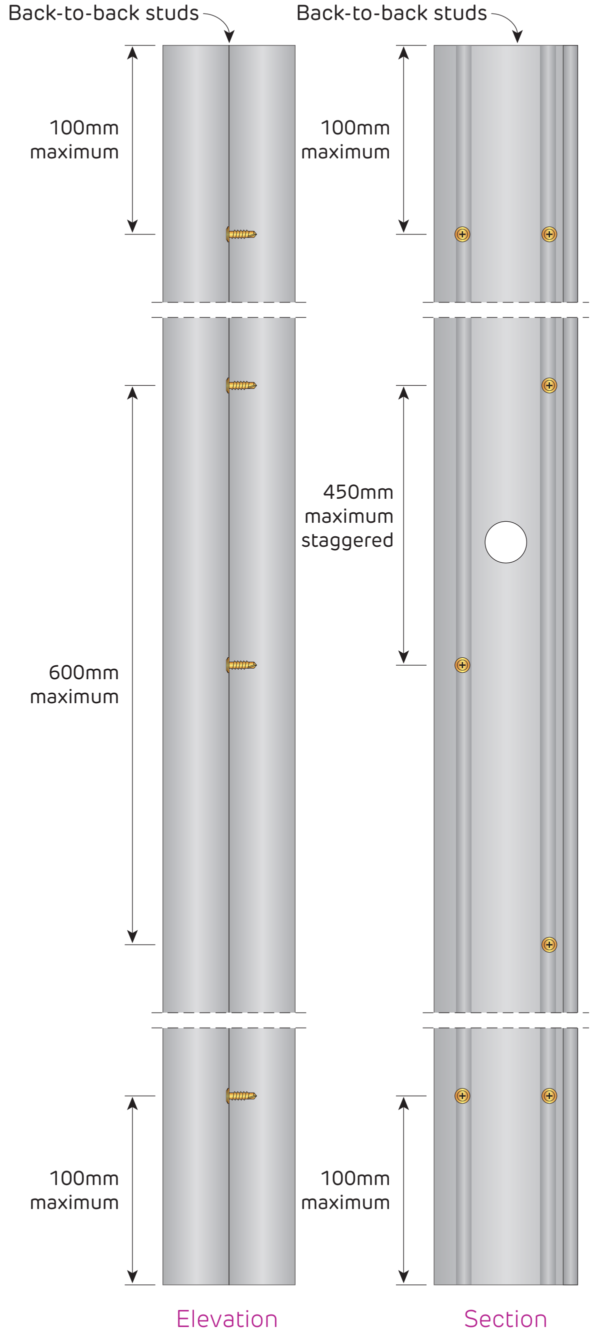



**FIGURE 20 Fixing of Back-to-back Studs**

## Non-Load Bearing Wall

### Steel Stud Cut-Out Tolerances

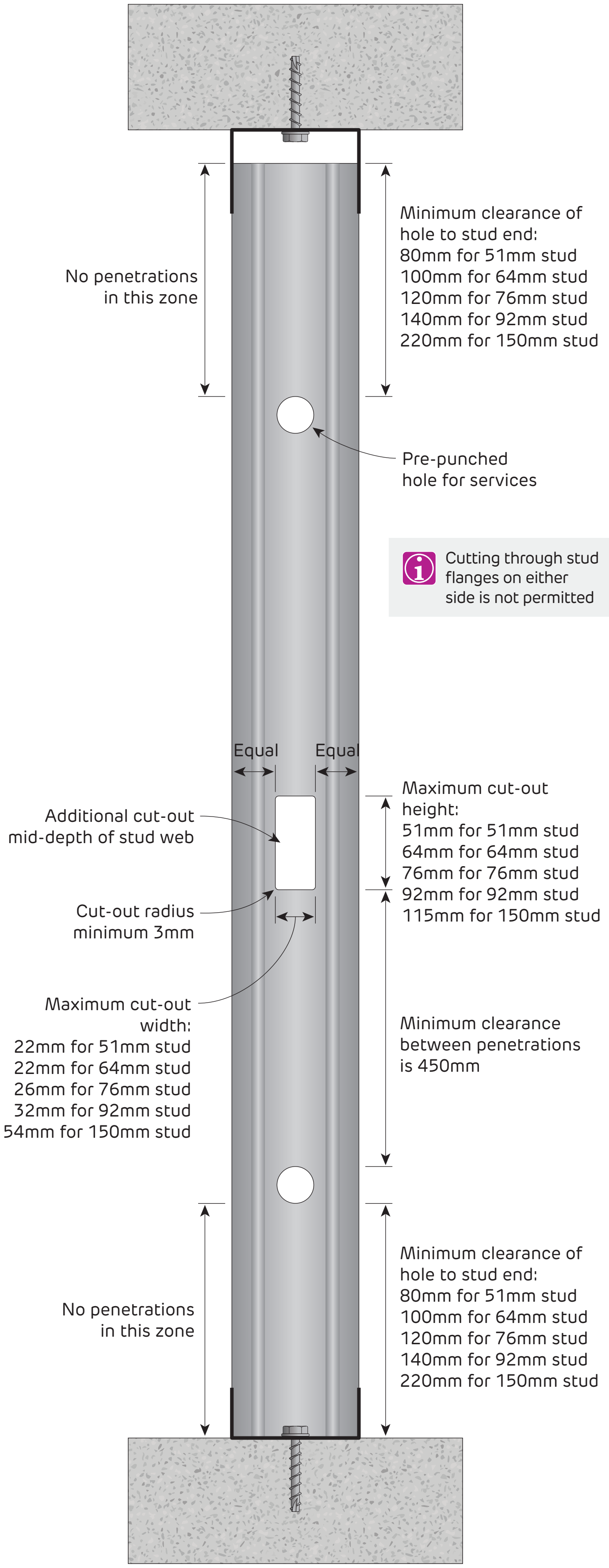



**FIGURE 21** **Stud Cut-out Tolerances**
Non-load bearing walls only
Section

# Plasterboard Layout

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Vertical joints must be 200mm minimum from the edge of any opening such as windows and doorways to minimise cracking at the joints. | ✓ | ✓ |
| Install sheets horizontally when using Siniat Acoustic Stud. Float and back block butt joints according to Installation figures. | ✓ | ✓ |
| **Horizontal Layout** | | |
| Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets and on opposite sides of the wall. | ✓ | ✓ |
| Stagger butt joints in multilayer systems by 300mm minimum on adjoining sheets and between layers. | ✓ | ✓ |
| First layer butt joints must be backed by a stud or back-blocked. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |
| Stagger recessed edges in single layer systems by 300mm minimum on opposite sides of the wall or alternatively, back by a nogging. | | ✓ |
| **Vertical Layout** | | |
| Alternate from one side of the wall to the other when fixing the plasterboard sheets. | ✓ | ✓ |
| Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets and on opposite sides of the wall. | ✓ | ✓ |
| Stagger butt joints by 300mm minimum on adjoining sheets and between layers. | ✓ | ✓ |
| First layer butt joints must be backed by a nogging or back-blocked. | ✓ | |
| First layer butt joints must be backed by a nogging. | | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum on opposite sides of the wall for single layer systems | ✓ | ✓ |

> Install plasterboard sheets horizontally when practical to minimise stud twisting and reduce the effect of glancing light.

> Minimise butt joints by using long sheets.

# Plasterboard Fixing

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ | ✓ |
| Laminating screws can be used to fix butt joints in the second and third layer. | ✓ | ✓ |
| **Screw and Adhesive Method** | | |
| Apply mastagrip Stud Adhesive after the frame is clean, dry, and free from grease, dust and other contaminants. | ✓ | |
| Apply mastagrip daubs 200mm minimum from screws and plasterboard edges. | ✓ | |
| **Screw Only Method** | | |
| Use the 'Screw Only Method' in tiled or fire rated areas. | ✓ | ✓ |

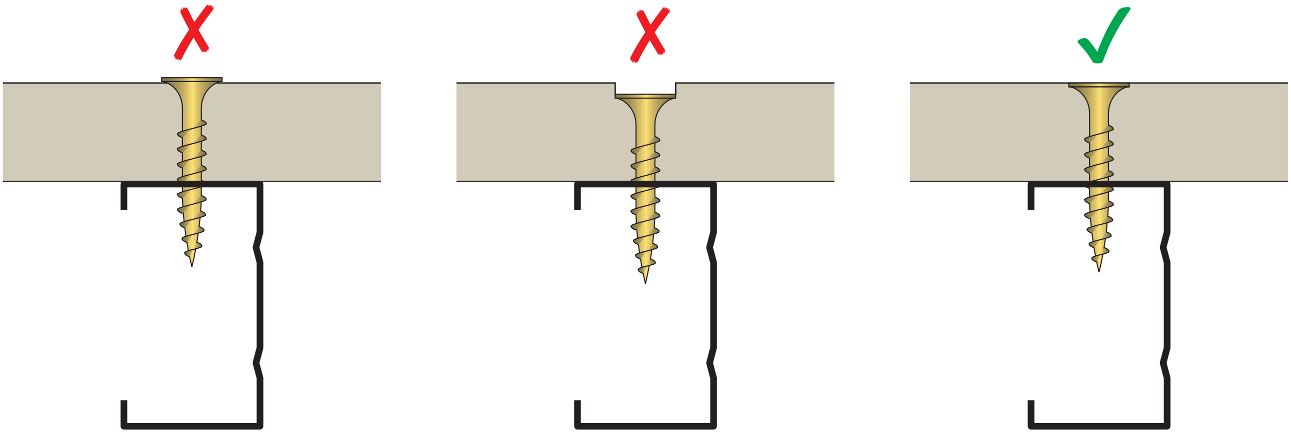


**FIGURE 22** Screw Installation
Plan

The 'Screw and Adhesive Method' is recommended for non-fire rated applications. mastagrip will:

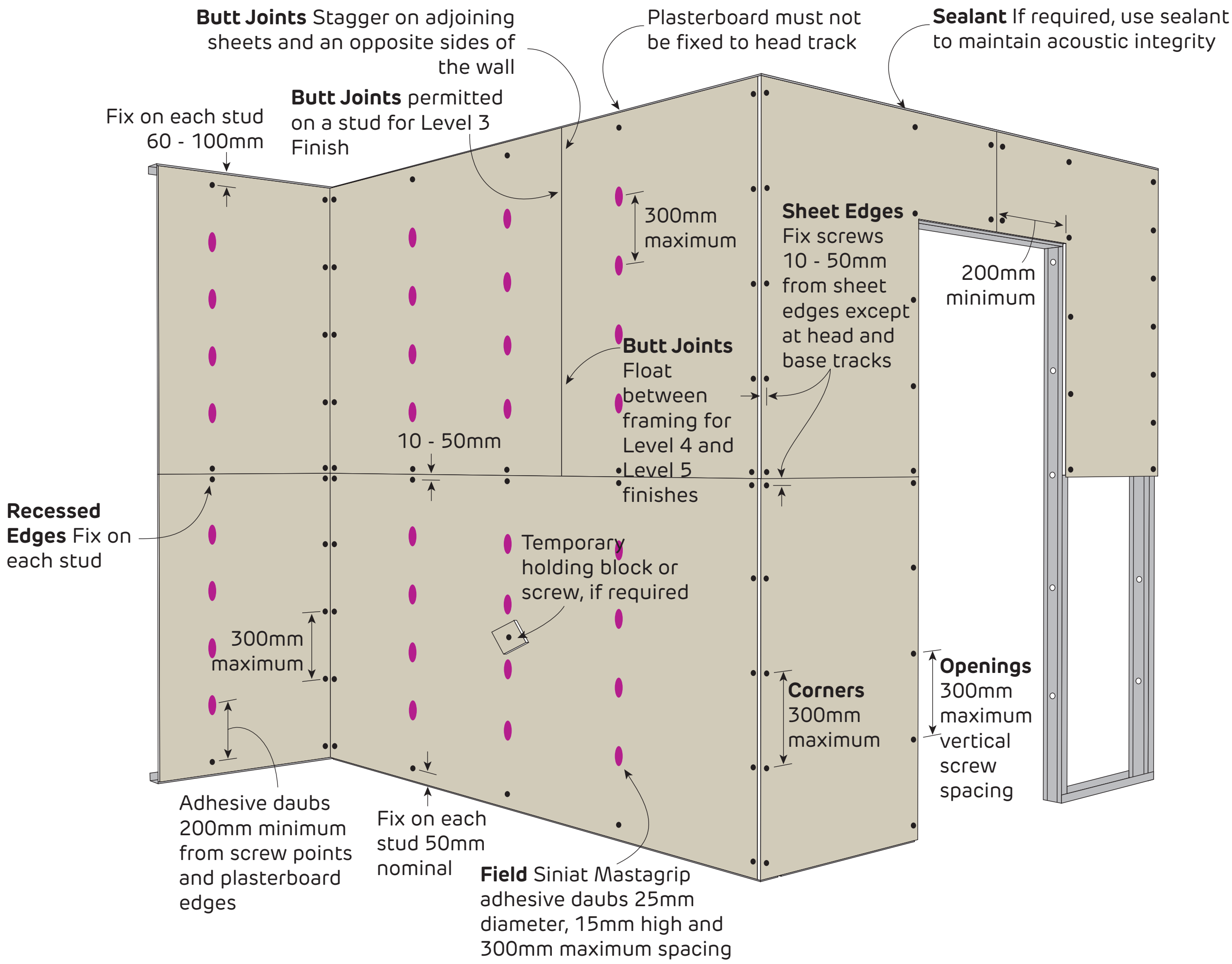
- Minimise screw popping
- Reduce the number of screw heads that may show in glancing light
- Assist in compensating for frame irregularities.

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer | 4th Layer |
|---|---|---|---|---|
| 6.5mm | 6g x 25mm screw | 6g x 25mm screw | - | - |
| 10mm | 6g x 25mm screw | 6g x 41mm screw * | - | - |
| 13mm | 6g x 25mm screw | 6g x 41mm screw * | 7g x 57mm screw * | - |
| 16mm | 6g x 32mm screw | 6g x 45mm screw * | 8g x 65mm screw * | 10g x 38mm laminating screw |
| 2 x 25mm + 1 x 13mm | 6g x 41mm screw | 8g x 65mm screw | 8g x 75mm screw | - |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.
*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

**FIGURE 23 Non-Fire Rated 1 Layer - Horizontal**
Screw and Adhesive Method




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S A A S |
| 900mm | S A A A S |
| 1200mm | S A A A A S |
| 1350mm | S A A A A A S |
| 1400mm | S A A A A A S |

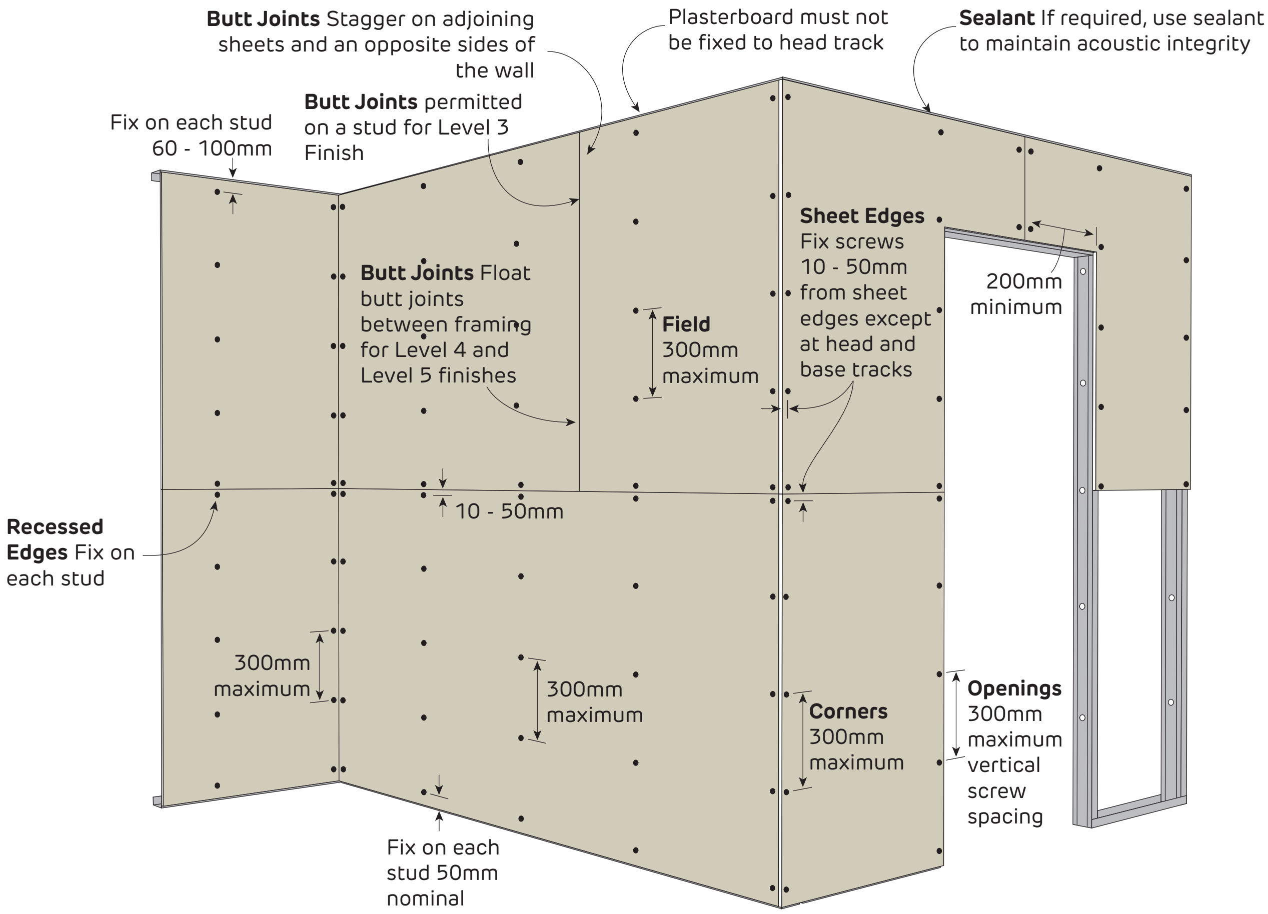
S = Screw
A = Adhesive daub

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 1.00 | 1.33 | 1.50 | 2.00 |
| 13mm | 1.00 | 1.33 | 1.50 | 2.00 |
| 16mm | 1.00 | 1.33 | 1.50 | 2.00 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

FIGURE 24 **Non-Fire Rated 1 Layer - Horizontal**
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

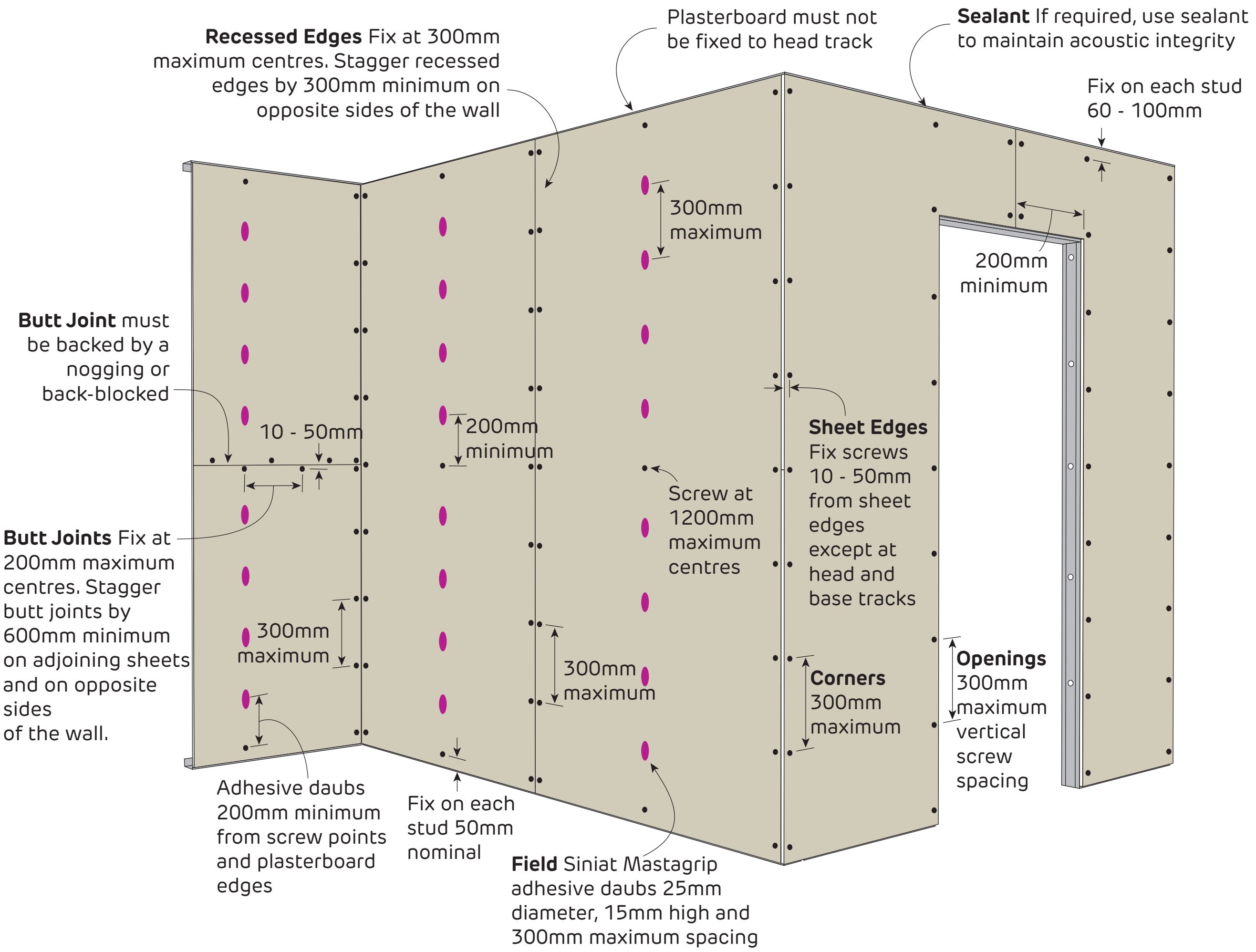
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.86 | 1.15 | 1.30 | 1.73 |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

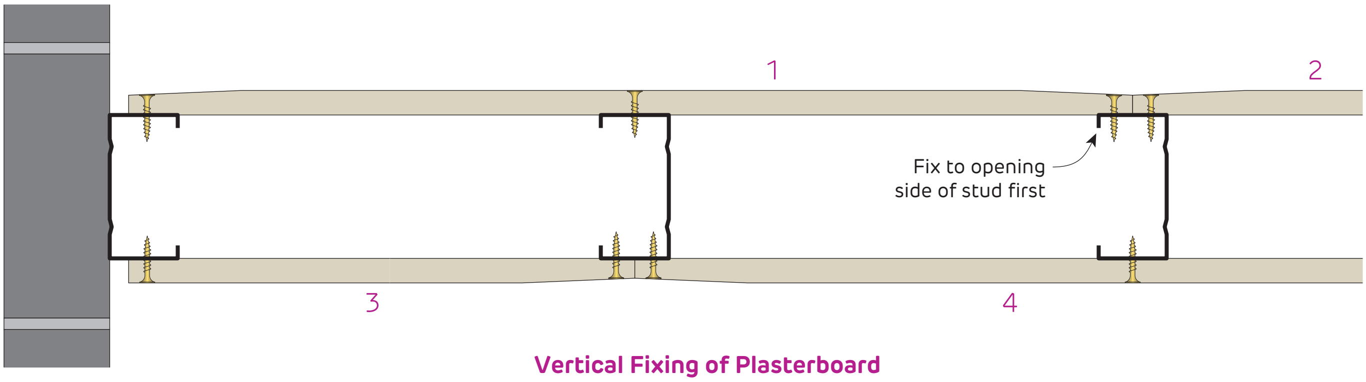
**FIGURE 25** **Non-Fire Rated 1 Layer - Vertical**
Screw and Adhesive Method




## Maximum Ultimate Limit State Wind Load Table (kPa)

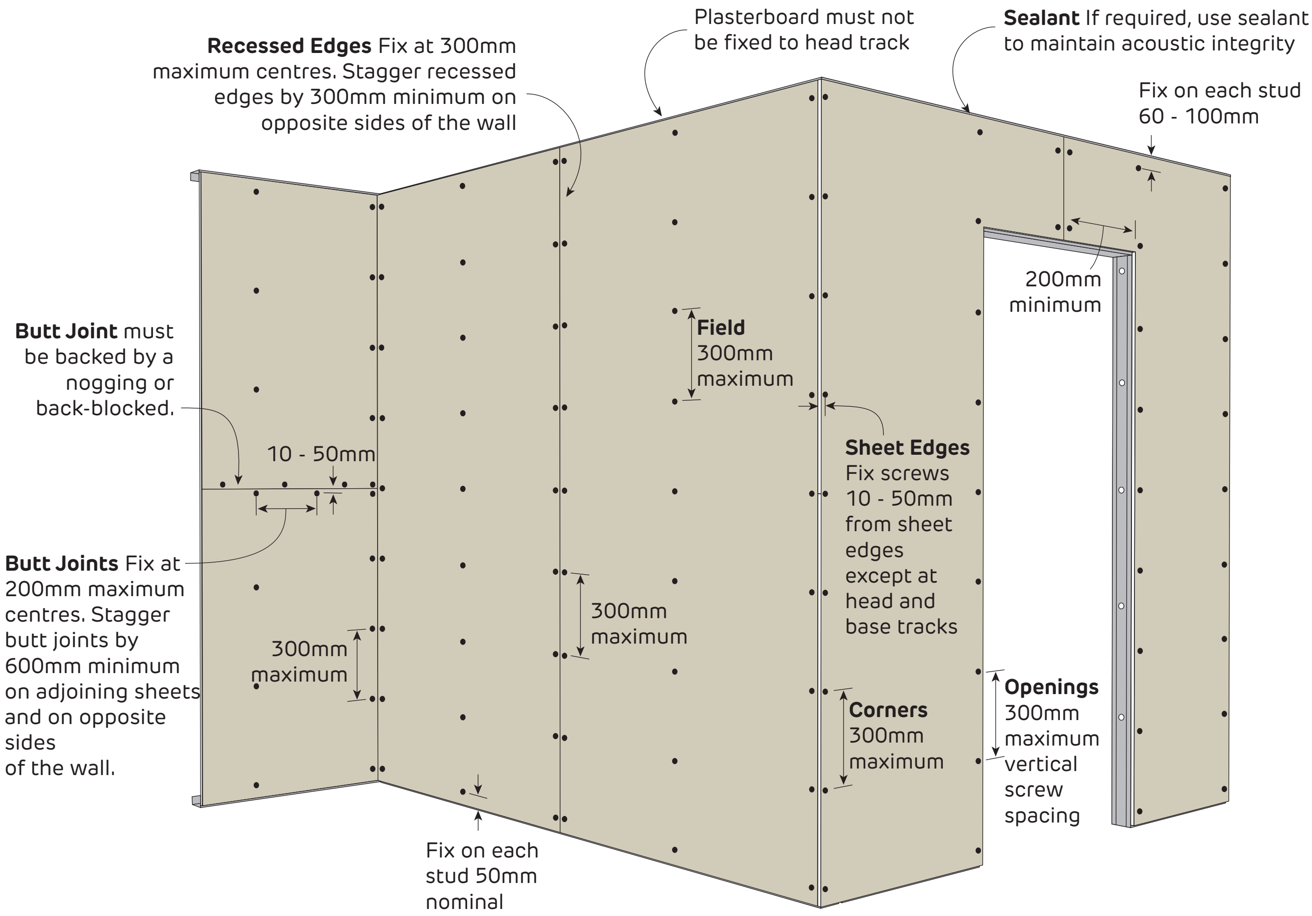
| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.72 | 0.96 | 1.08 | 1.44 |
| 13mm | 0.72 | 0.96 | 1.08 | 1.44 |
| 16mm | 0.72 | 0.96 | 1.08 | 1.44 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 2-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.




**Vertical Fixing of Plasterboard**
Plan

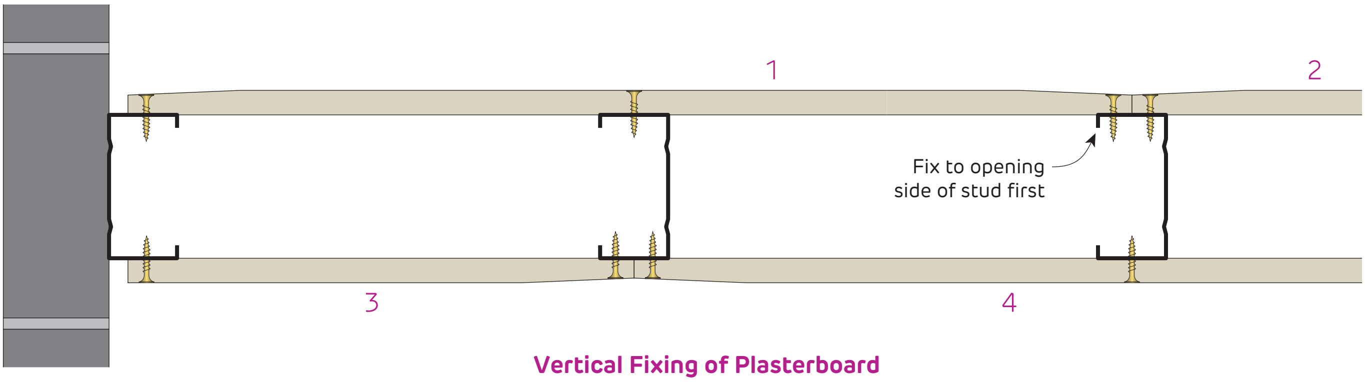
**FIGURE 26** **Non-Fire Rated 1 Layer - Vertical**
Screw Only Method




## Maximum Ultimate Limit State Wind Load Table (kPa)

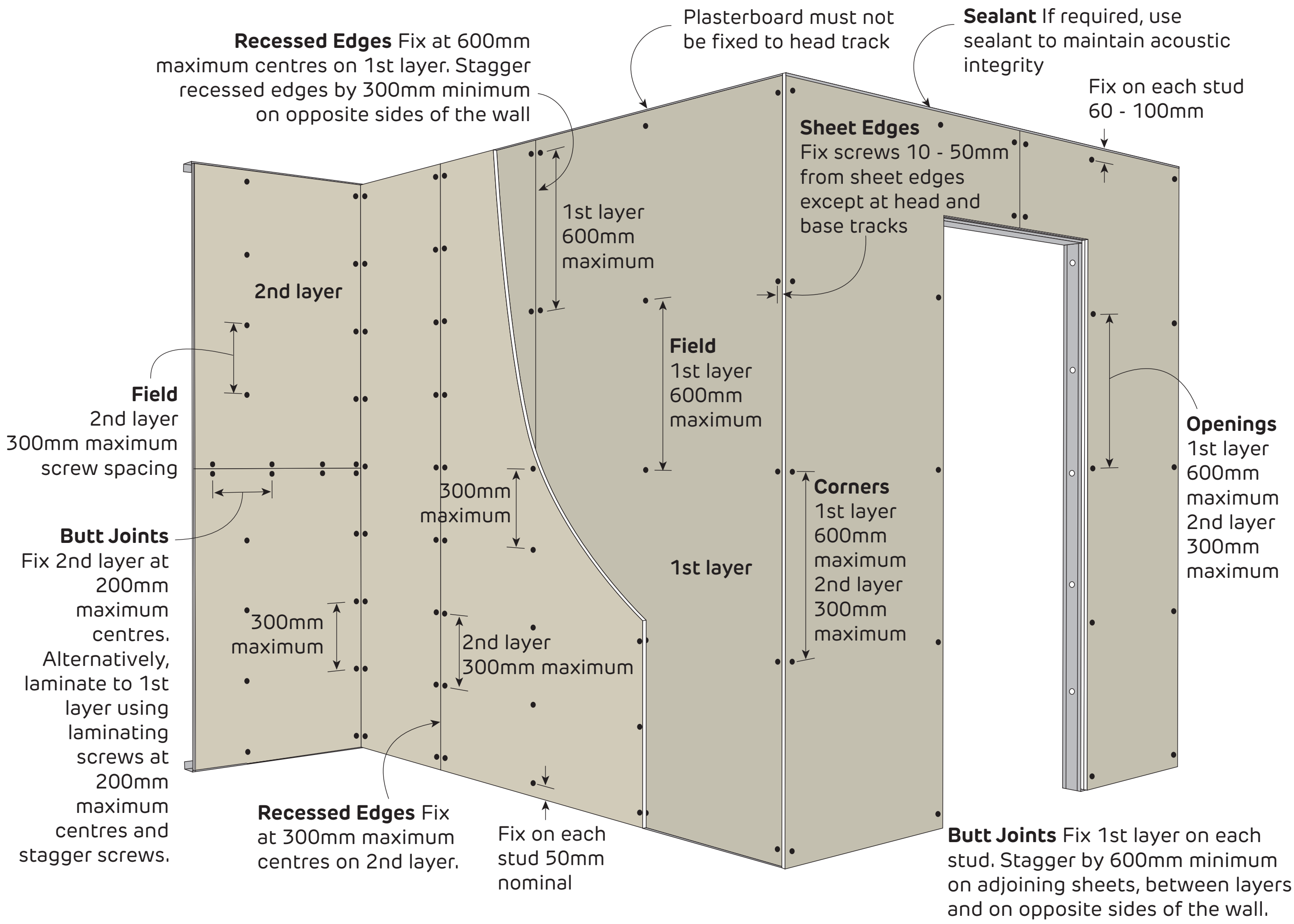
| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.77 | 1.03 | 1.16 | 1.55 |
| 13mm | 0.86 | 1.15 | 1.29 | 1.73 |
| 16mm | 0.86 | 1.15 | 1.29 | 1.73 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 2-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.




**Vertical Fixing of Plasterboard**
Plan

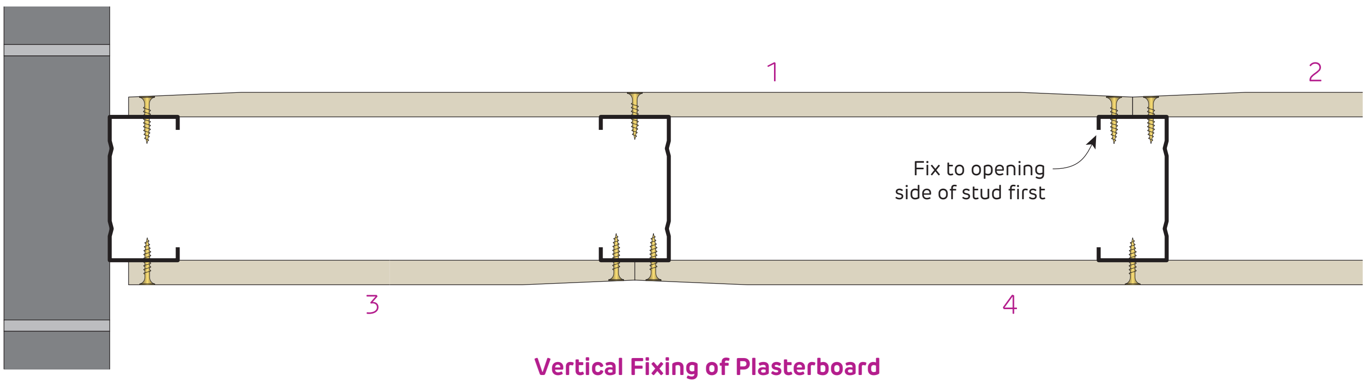
**FIGURE 27** **Non-Fire Rated 2 Layers - Vertical + Vertical**
Screw Only Method




## Maximum Ultimate Limit State Wind Load Table (kPa)

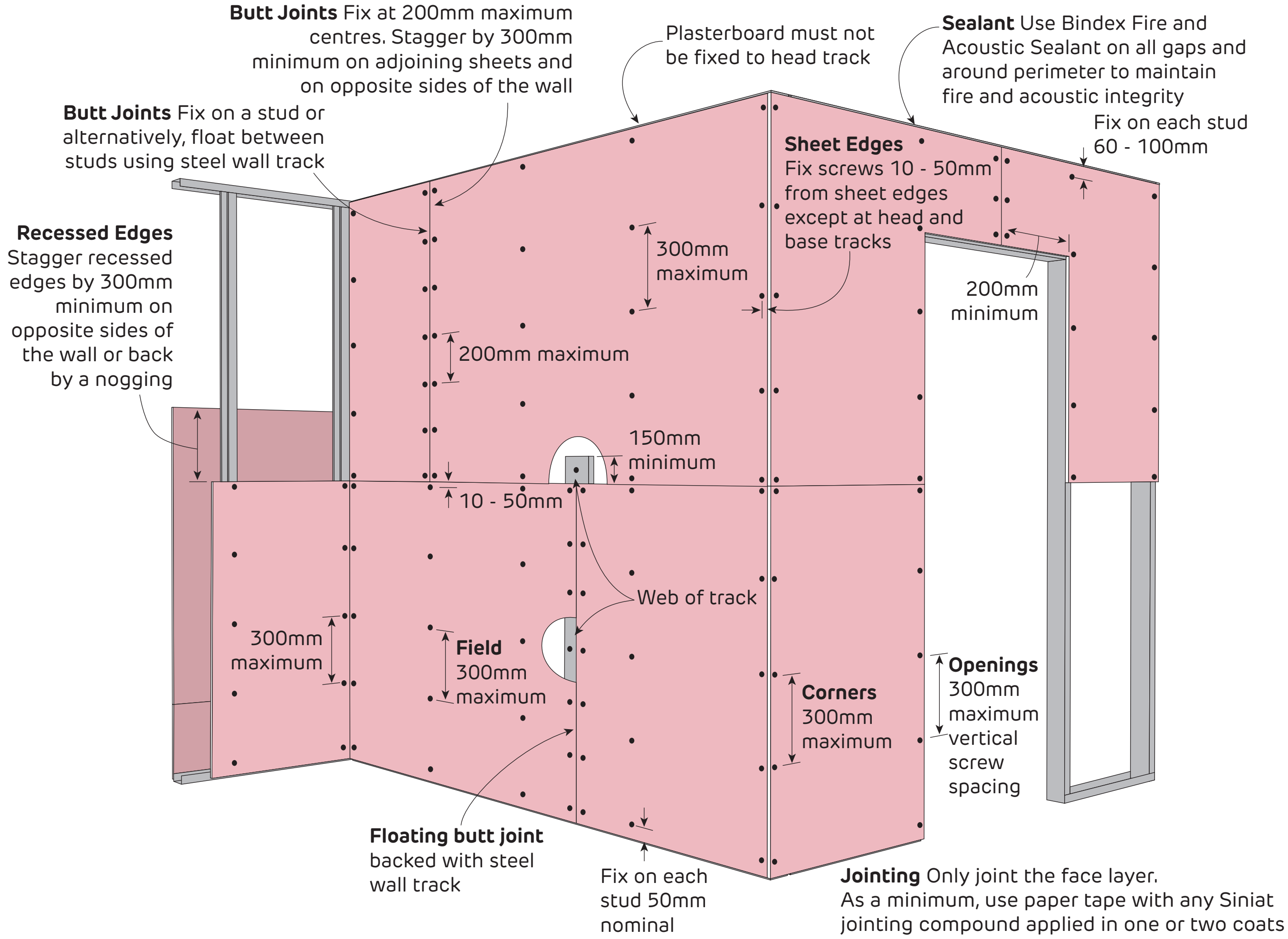
| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.77 | 1.03 | 1.16 | 1.55 |
| 13mm | 0.86 | 1.15 | 1.29 | 1.73 |
| 16mm | 0.86 | 1.15 | 1.29 | 1.73 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 2-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.




**Vertical Fixing of Plasterboard**
Plan

FIGURE 28 **Fire Rated 1 Layer - Horizontal**
Screw Only Method




**Jointing** Only joint the face layer.
As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, for butt joints only, use Bindex Fire and Acoustic Sealant.

## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

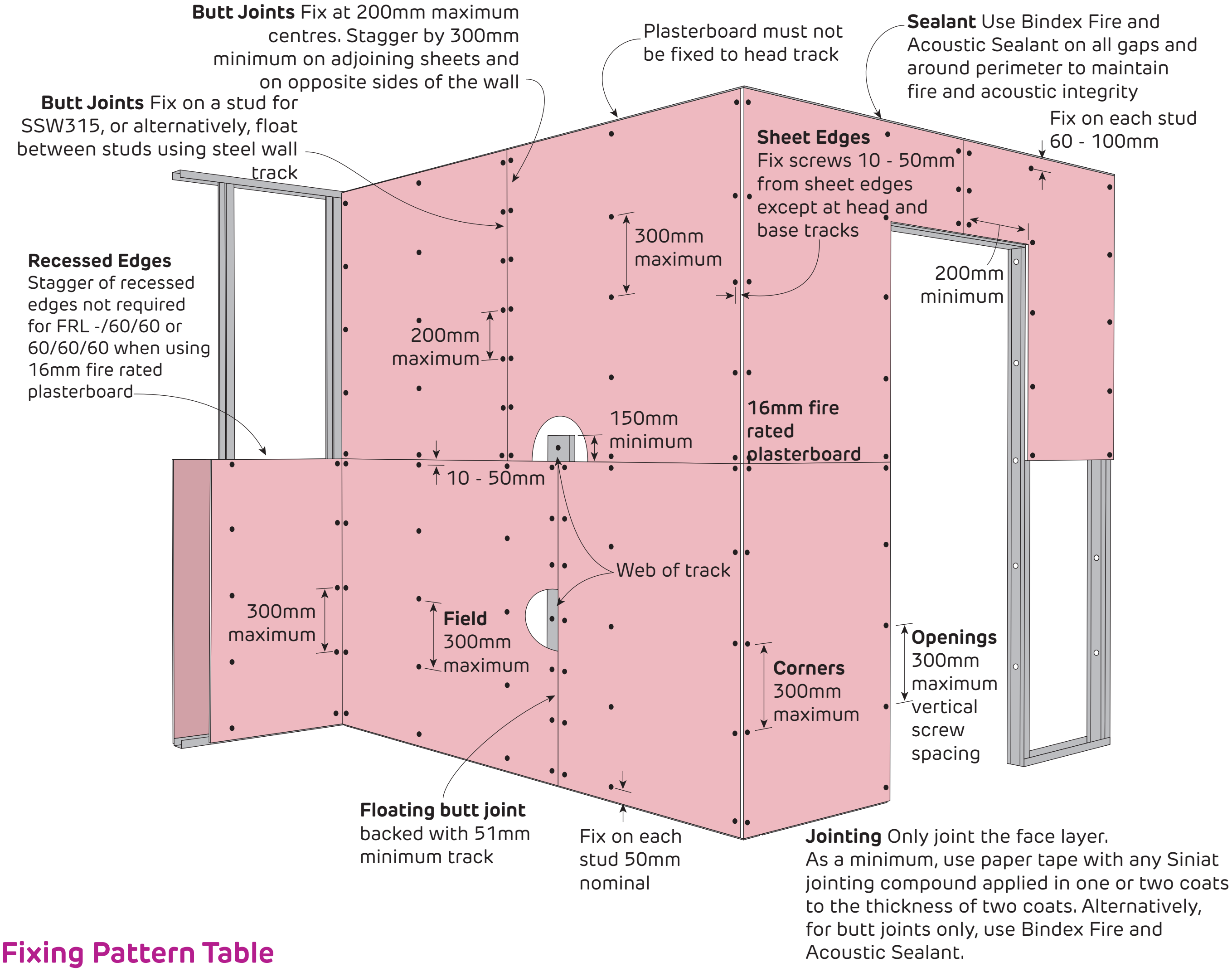
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 29** Fire Rated 1 Layer - Horizontal. FRL -/60/60 and 60/60/60 for systems SSW315 and SSW391 only
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

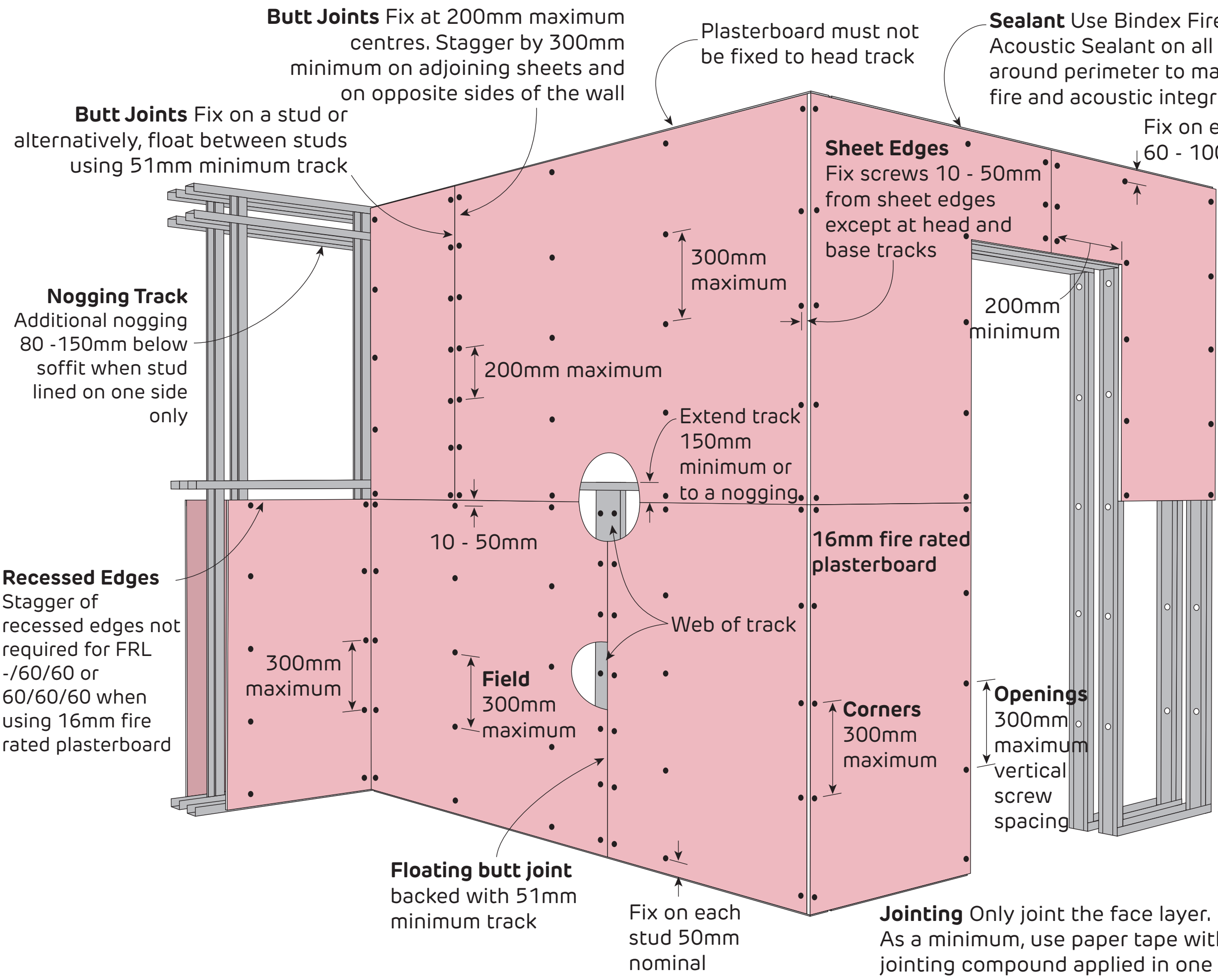
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 30** Fire Rated 1 Layer - Horizontal. FRL -/60/60 or 60/60/60 for system SSW335 only
Screw Only Method




**Jointing** Only joint the face layer.
As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, for butt joints only, use Bindex Fire and Acoustic Sealant.

## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

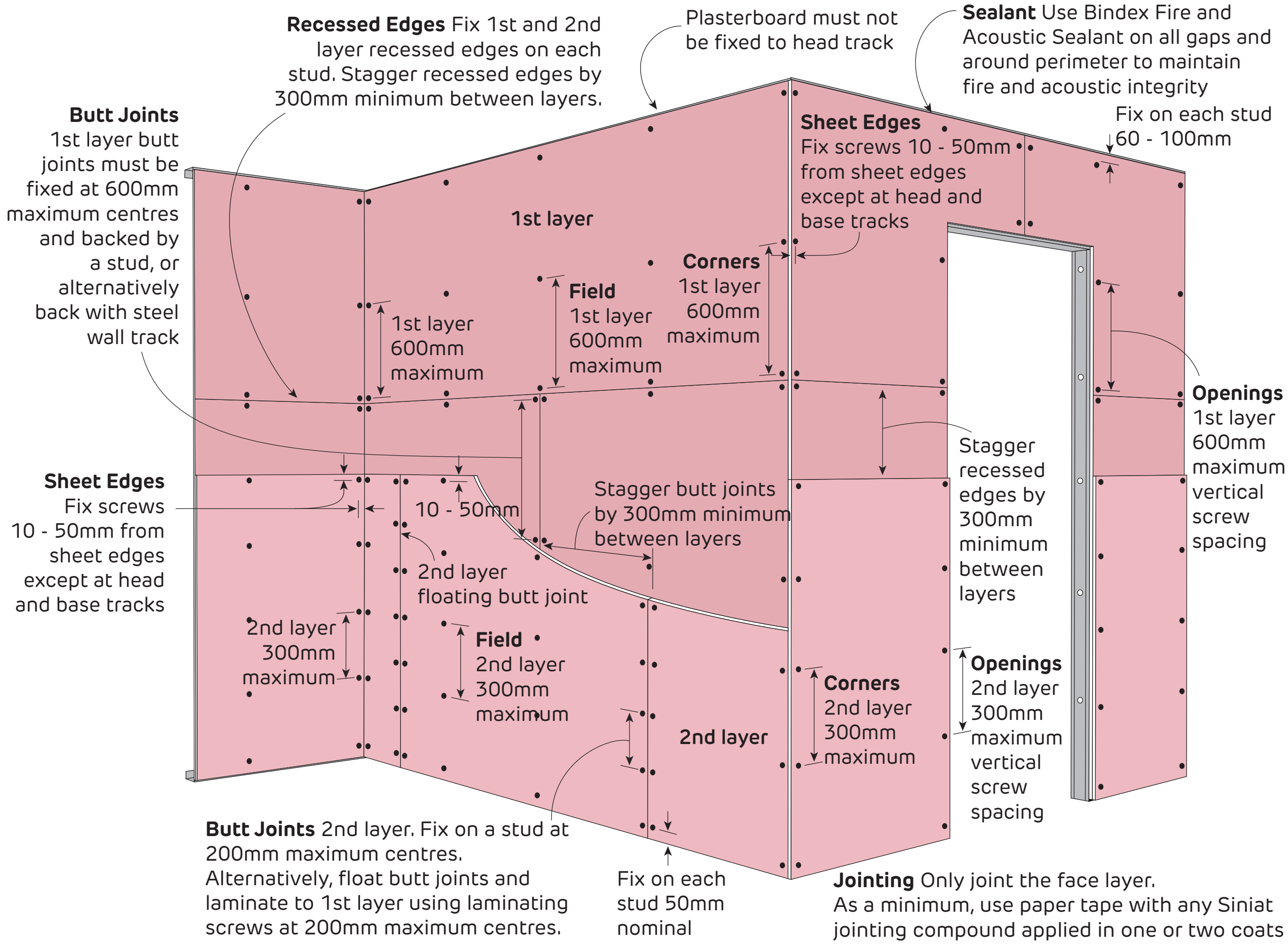
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 31** Fire Rated 2 Layers - Horizontal + Horizontal
Screw Only Method




**Jointing** Only joint the face layer.
As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, for butt joints and recessed joints, use Bindex Fire and Acoustic Sealant.

## 2nd Layer Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

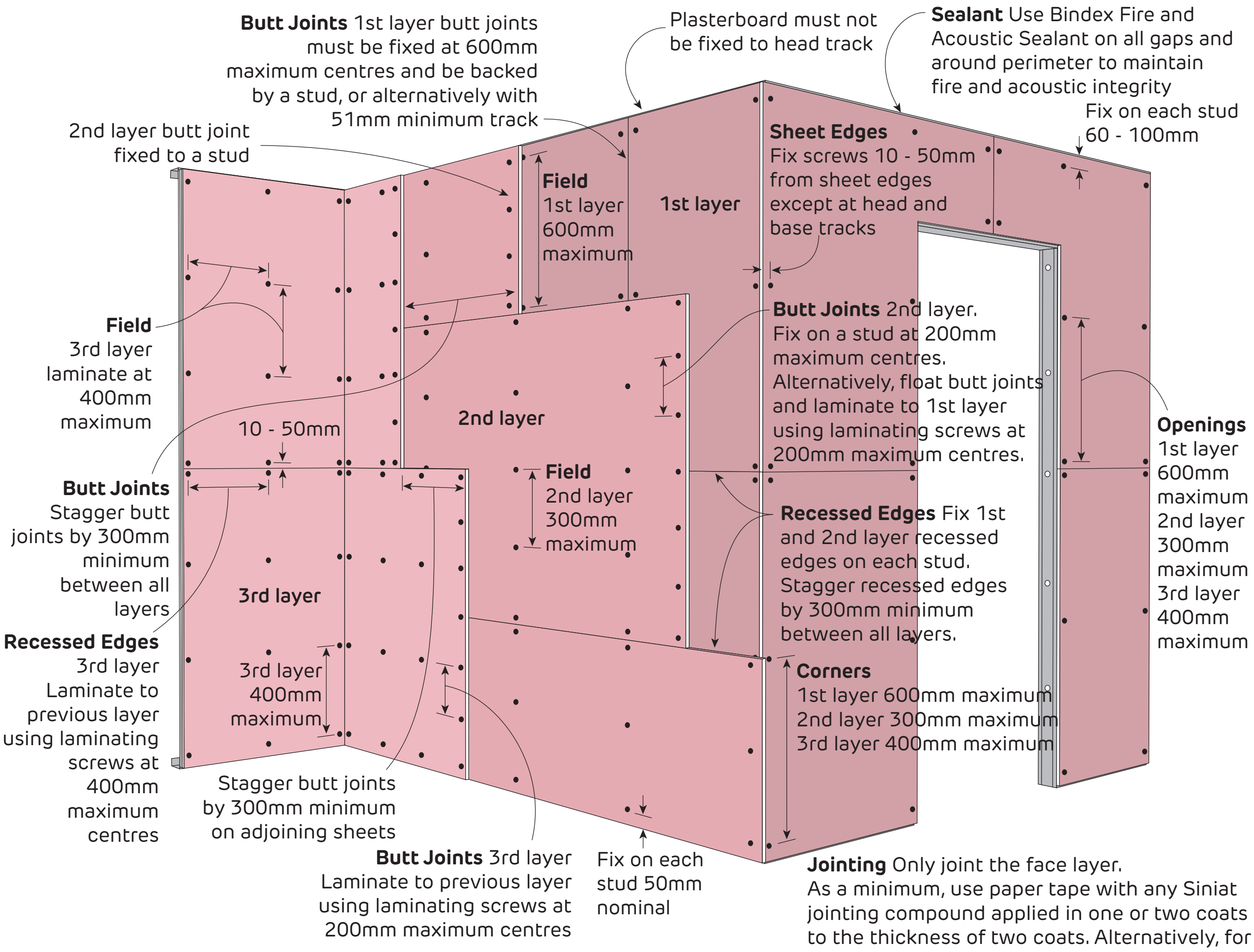
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 32** Fire Rated 3 Layers - Horizontal + Horizontal + Horizontal
Screw Only Method




**Jointing** Only joint the face layer.
As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, for butt joints and recessed joints, use Bindex Fire and Acoustic Sealant.

## 2nd Layer Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

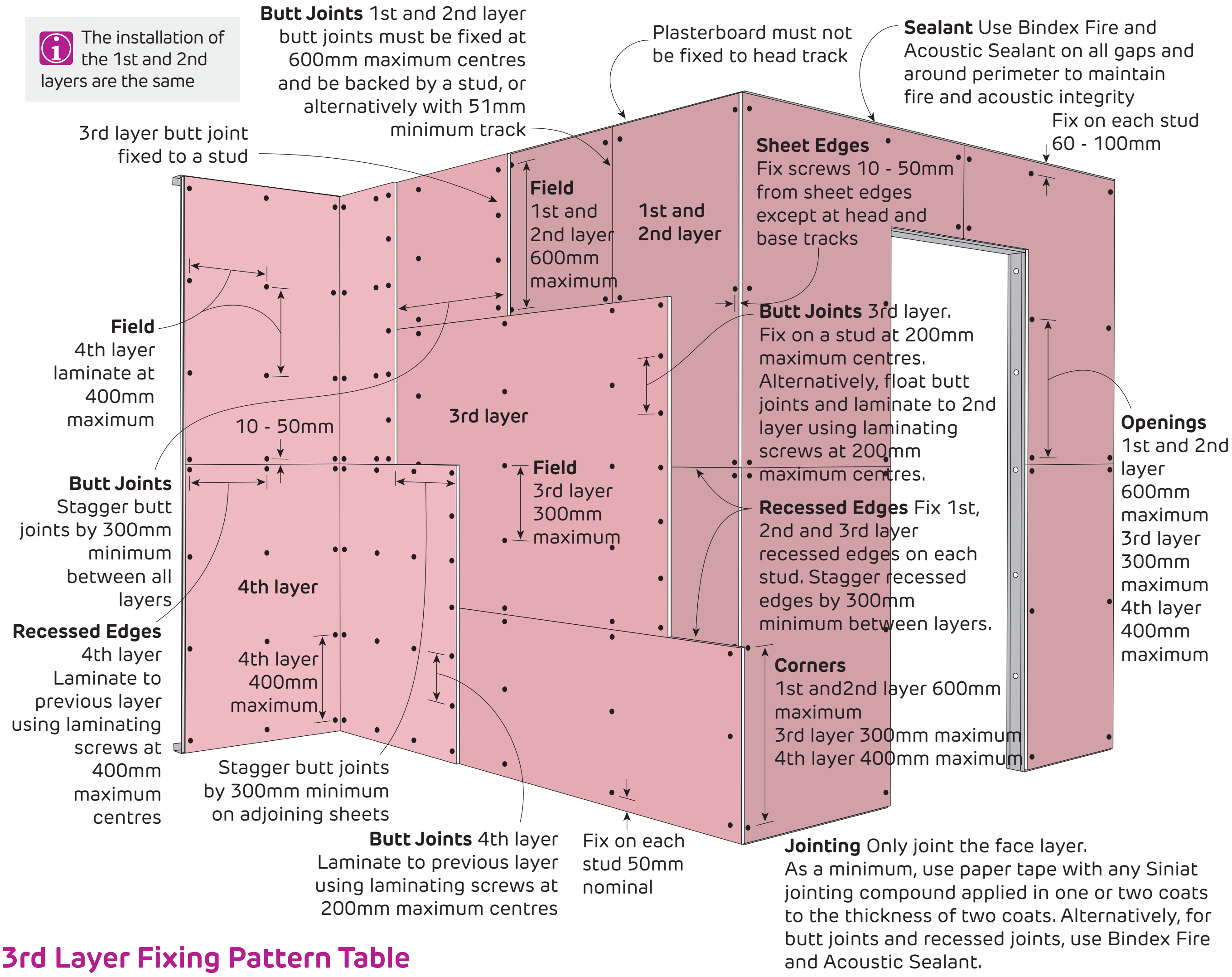
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 33 Fire Rated 4 Layers - Horizontal + Horizontal + Horizontal + Horizontal**
Screw Only Method




## 3rd Layer Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

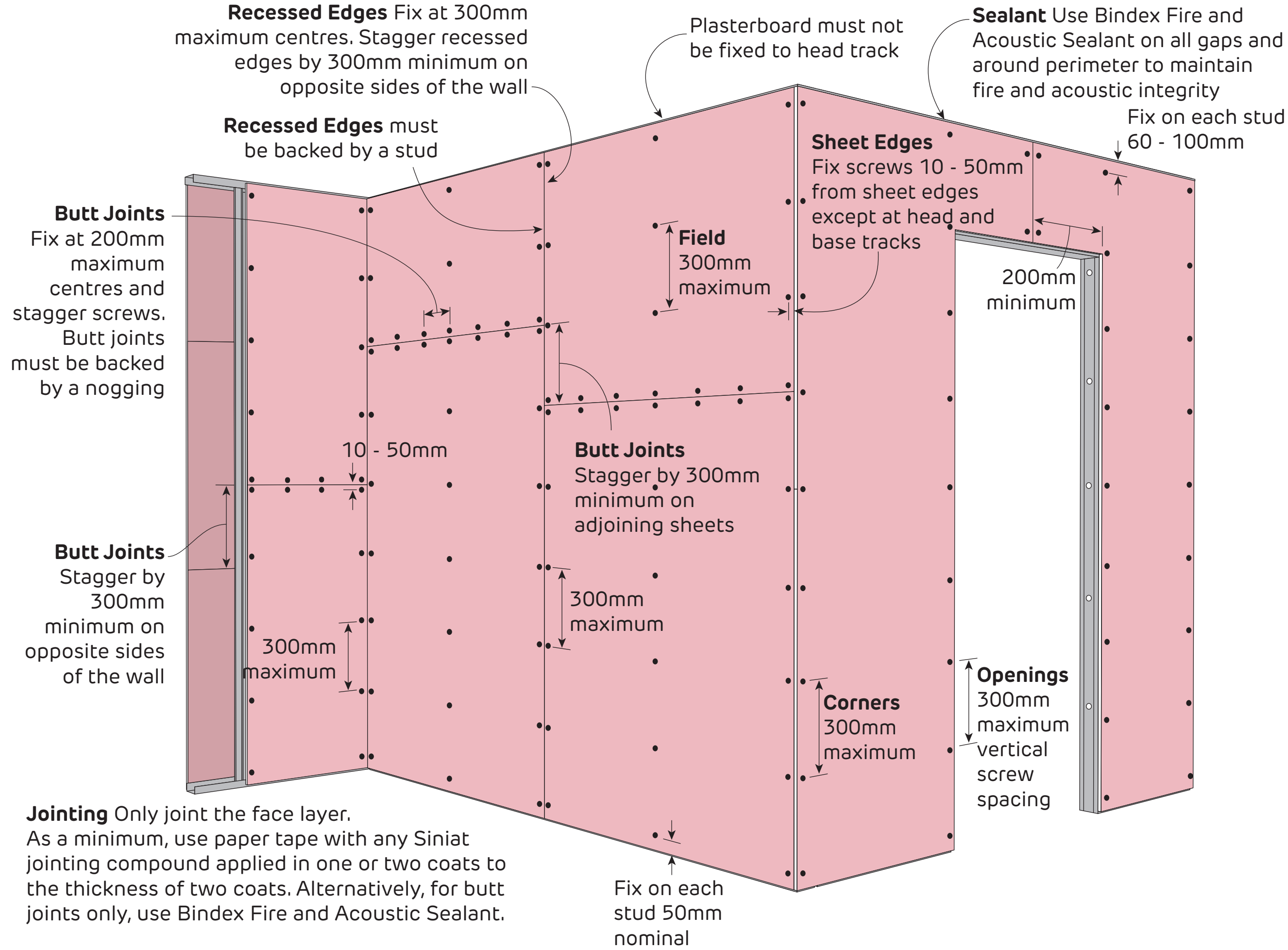
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 34** Fire Rated 1 Layer - Vertical
Screw Only Method

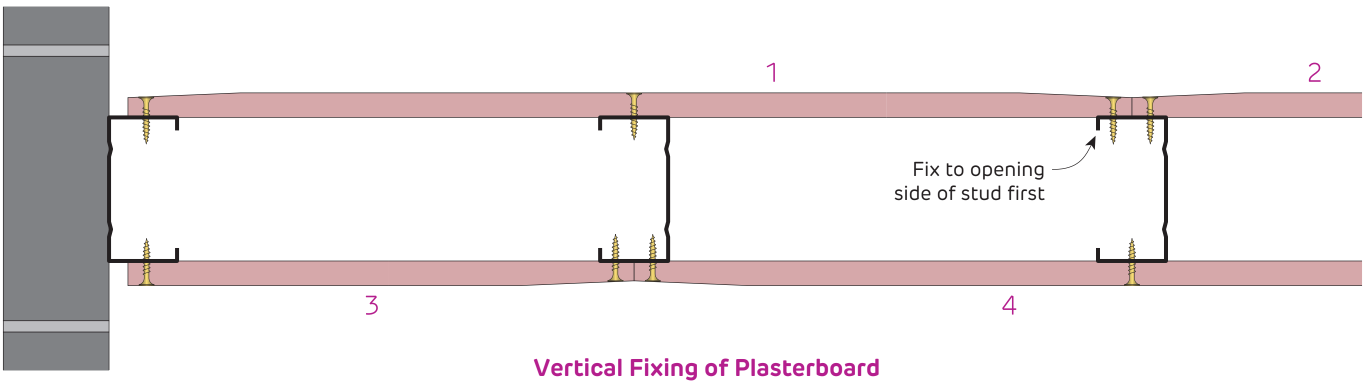



**Jointing** Only joint the face layer.
As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, for butt joints only, use Bindex Fire and Acoustic Sealant.

## Maximum Ultimate Limit State Wind Load Table (kPa)

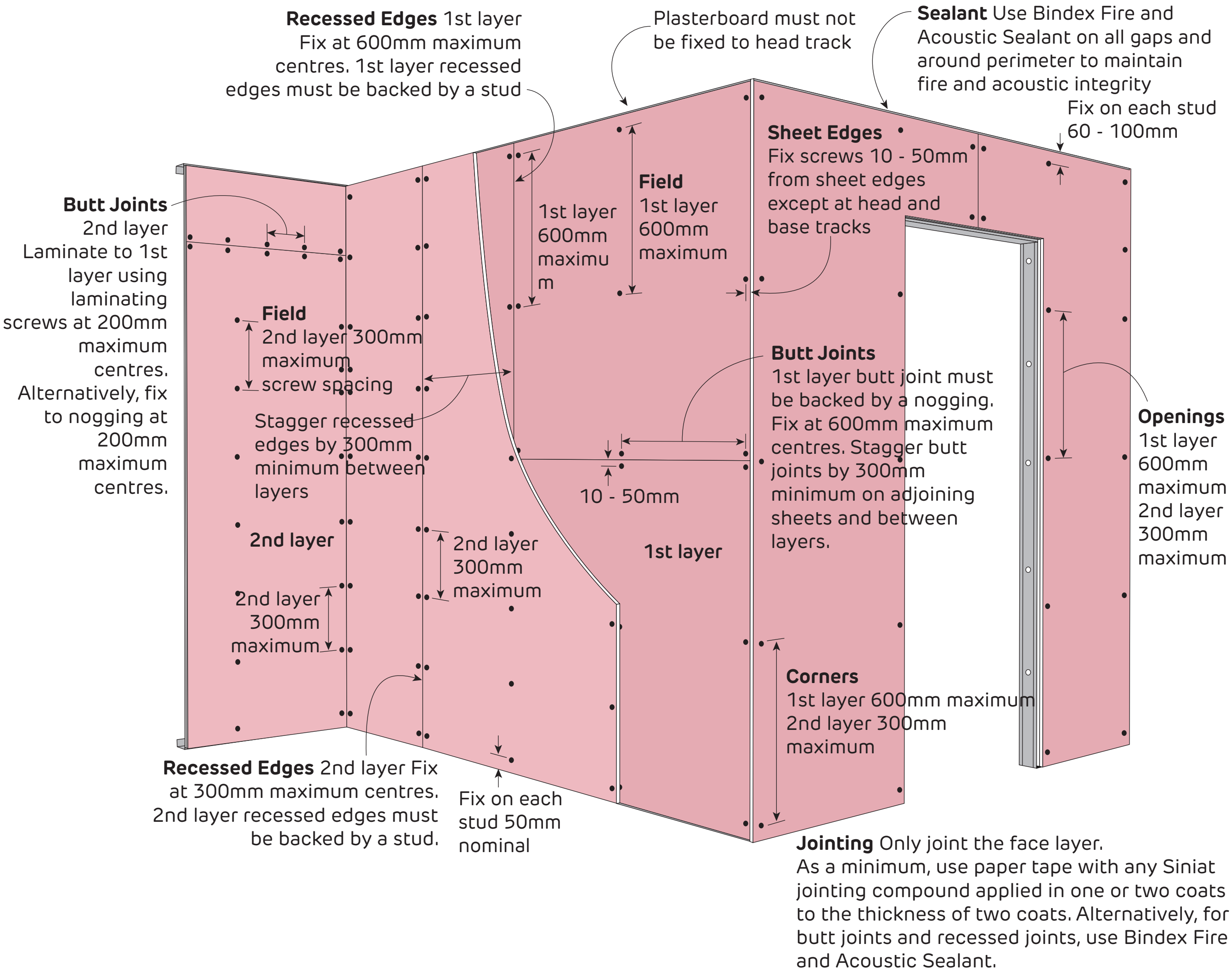
| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.86 | 1.15 | 1.29 | 1.73 |
| 16mm | 0.86 | 1.15 | 1.29 | 1.73 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 2-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.




**Vertical Fixing of Plasterboard**
Plan

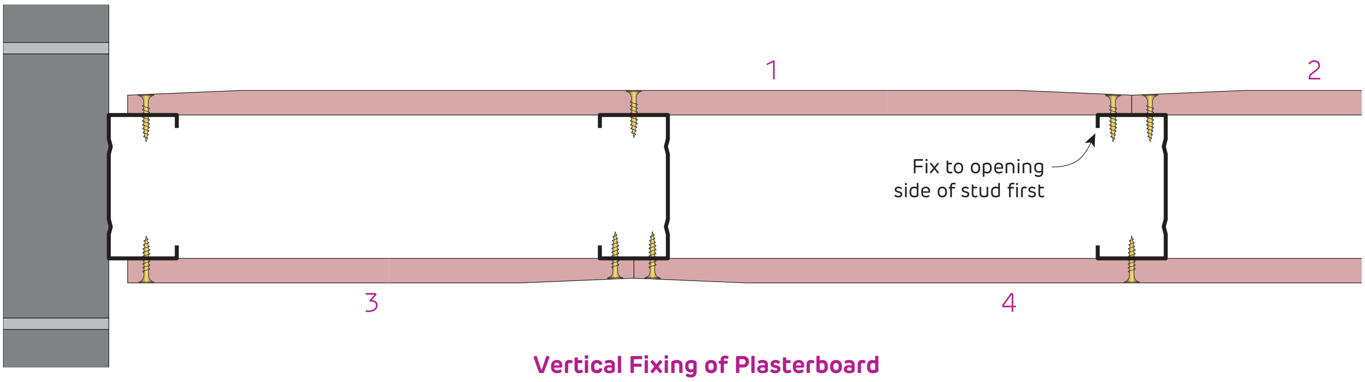
**FIGURE 35** **Fire Rated 2 Layers - Vertical + Vertical**
Screw Only Method




## Maximum Ultimate Limit State Wind Load Table (kPa)

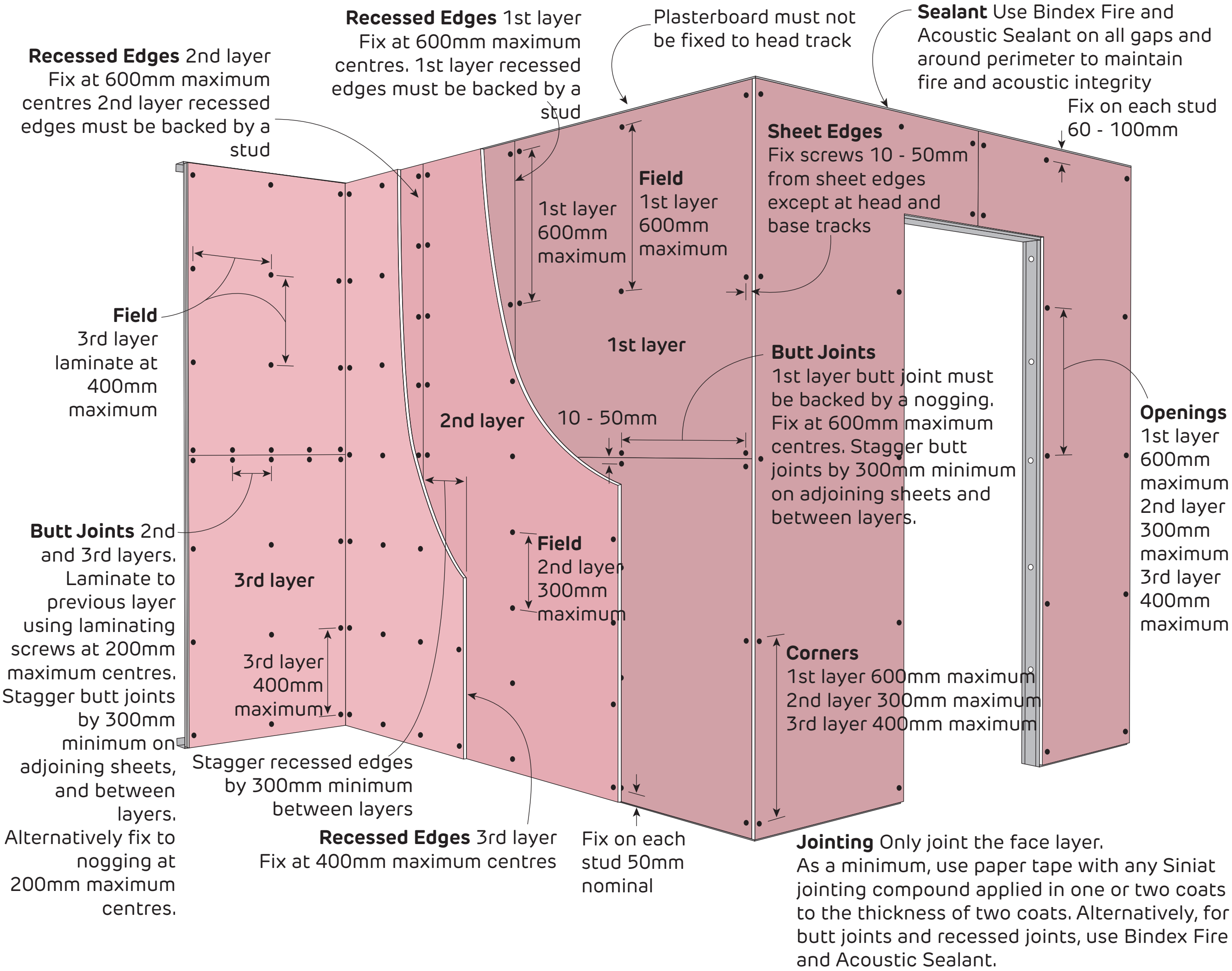
| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.86 | 1.15 | 1.29 | 1.73 |
| 16mm | 0.86 | 1.15 | 1.29 | 1.73 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 2-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.




**Vertical Fixing of Plasterboard**
Plan

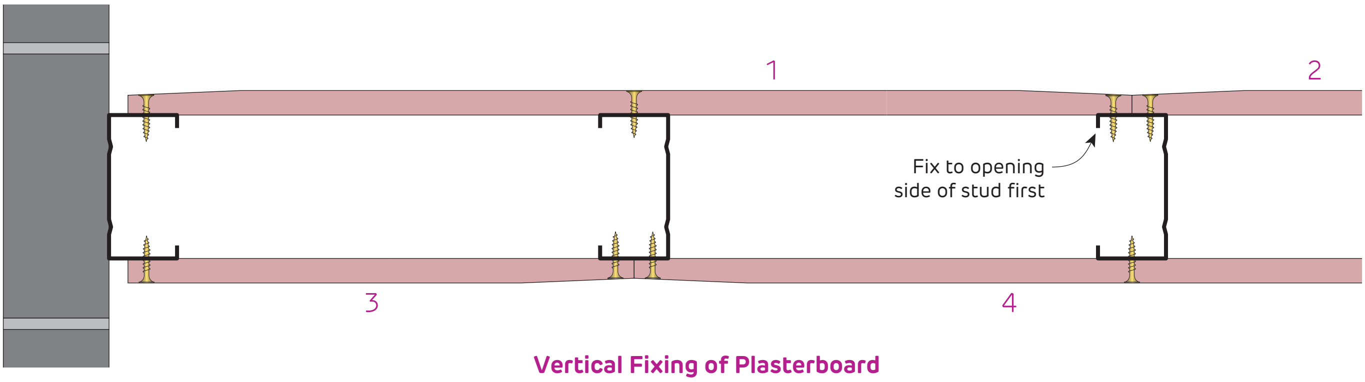
**FIGURE 36** Fire Rated 3 Layers - Vertical + Vertical + Vertical
Screw Only Method




## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.72 | 0.96 | 1.08 | 1.44 |
| 16mm | 0.72 | 0.96 | 1.08 | 1.44 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 2-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.




**Vertical Fixing of Plasterboard**
Plan

## Non-Fire Rated

## Head and Base Details for Internal Stud Walls - Lined Full Height

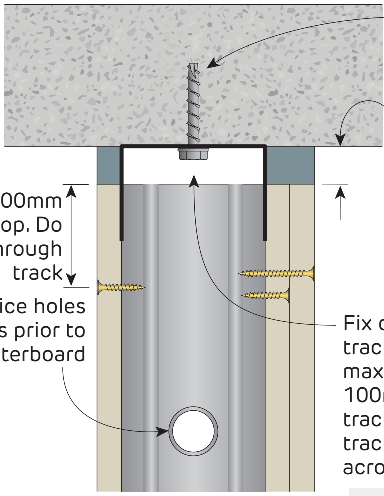



**FIGURE 37** **Wall Head**
Deflection Head Track
Section

> ⓘ Do not rigidly fix cornice to non-load bearing wall head and soffit, as slab deflection is expected

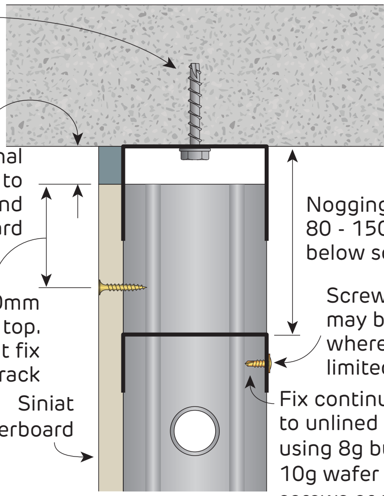



**FIGURE 38** **Wall Head - Lined One Side Only**
Deflection Head Track
Section

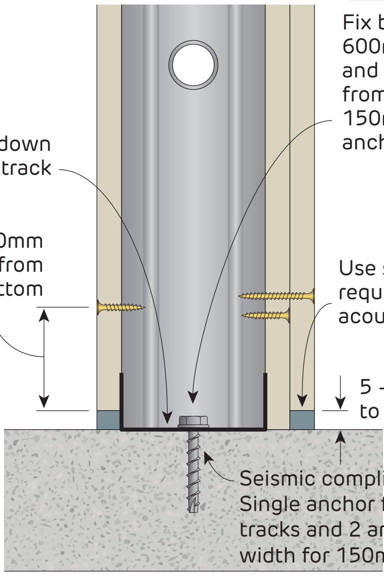



**FIGURE 39** **Wall Base**
Section

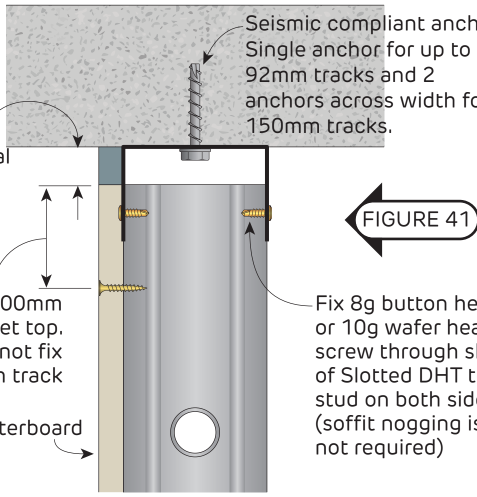



**FIGURE 40** **Wall Head - Lined One Side Only**
Slotted Deflection Head Track
Section

> ⓘ 8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

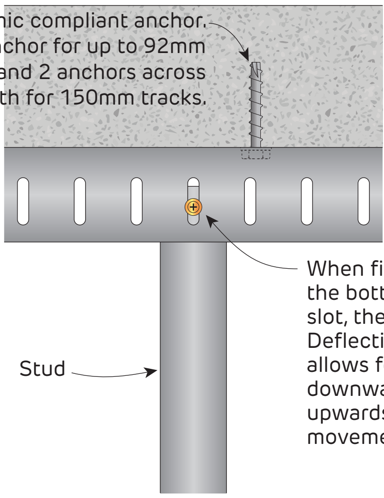



**FIGURE 41** **Wall Head**
Slotted Deflection Head Track
Elevation

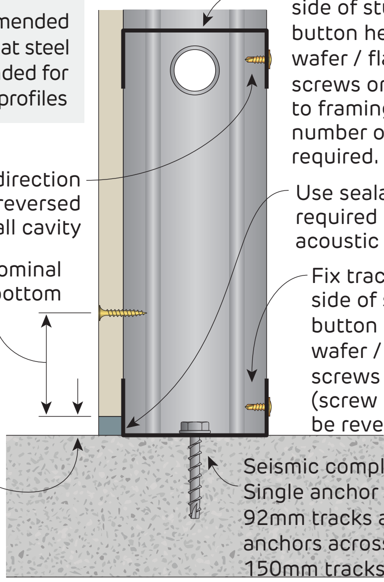



**FIGURE 42** **Wall Base - Lined One Side Only**
Section

## Non-Fire Rated

## Head and Base Details for Internal Stud Walls - Partially Lined

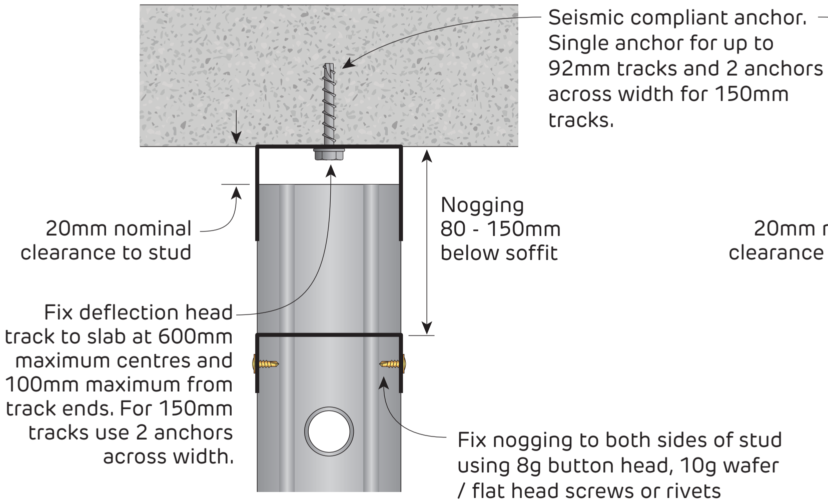



**FIGURE 43** **Wall Head - Partially Lined Wall**
Option 1 - Deflection Head Track
Section

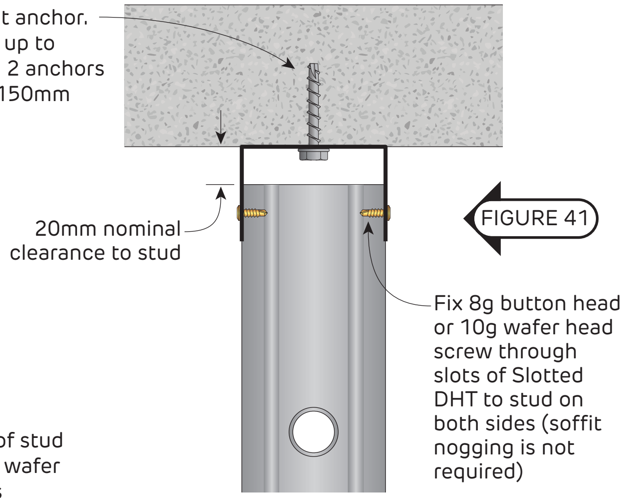



**FIGURE 44** **Wall Head - Partially Lined Wall**
Option 2 - Slotted Deflection Head Track
Section

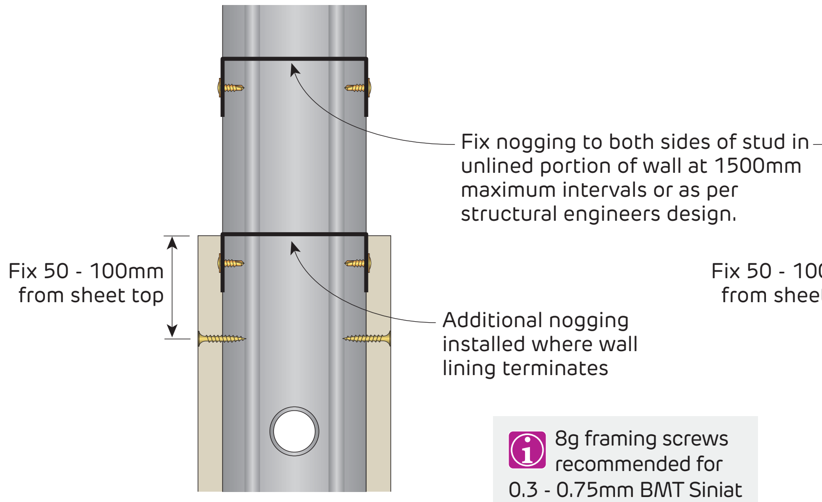



**FIGURE 45** **Partially Lined Wall**
Lined on both sides
Section

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

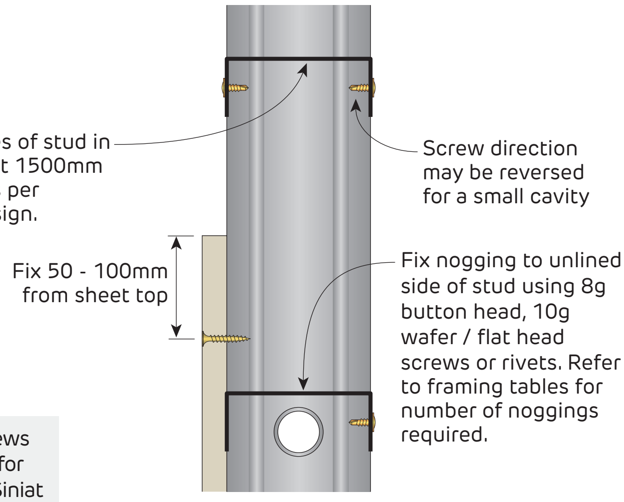



**FIGURE 46** **Partially Lined Wall**
Lined on one side only
Section

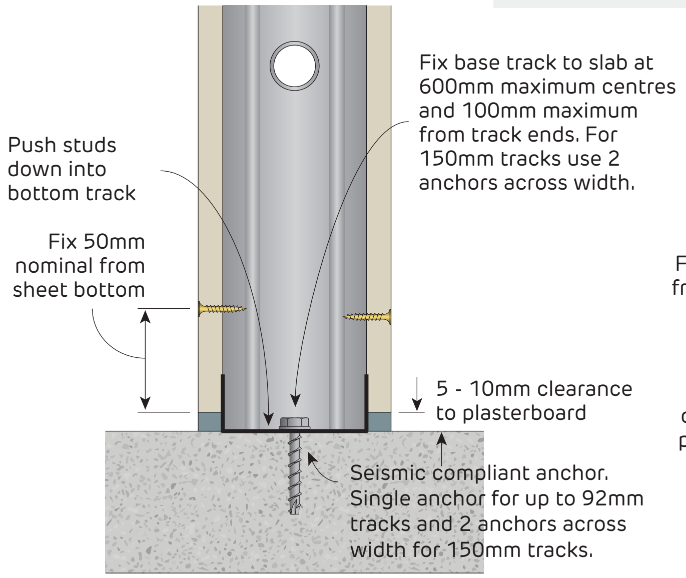



**FIGURE 47** **Wall Base**
Section

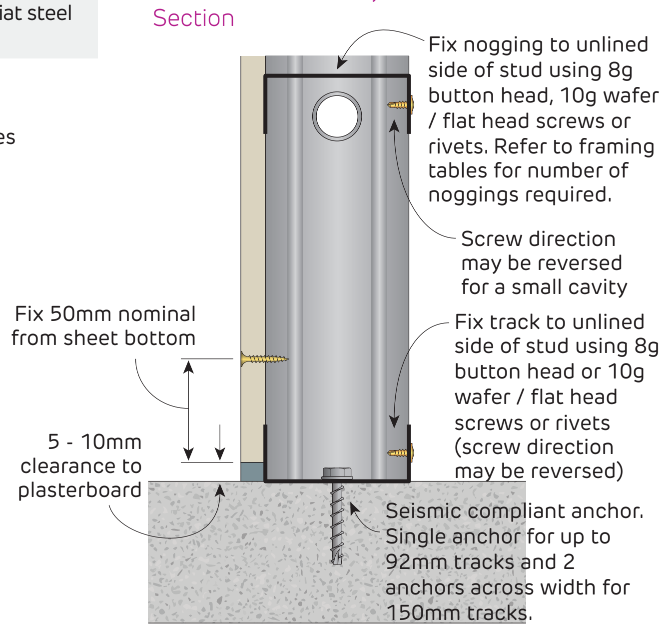



**FIGURE 48** **Wall Base - Lined One Side Only**
Section

## Non-Fire Rated

## Head Finishing Details for Internal Stud Walls

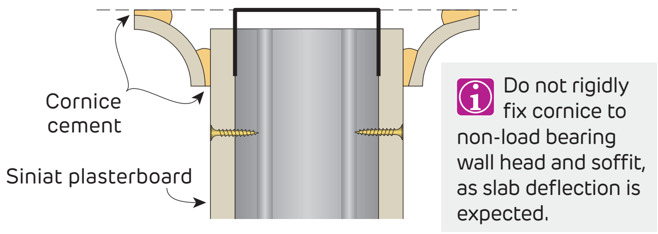



**FIGURE 49** Wall Head - Cornice
Section

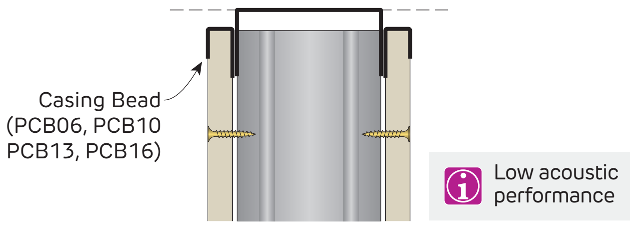



**FIGURE 50** Wall Head - Casing Bead
Section

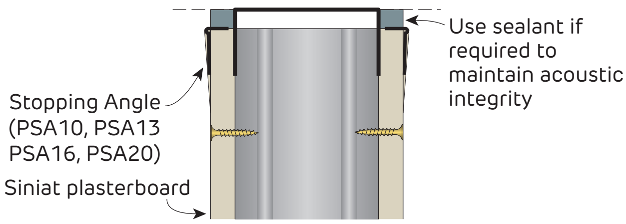



**FIGURE 51** Wall Head - Stopping Angle
Section

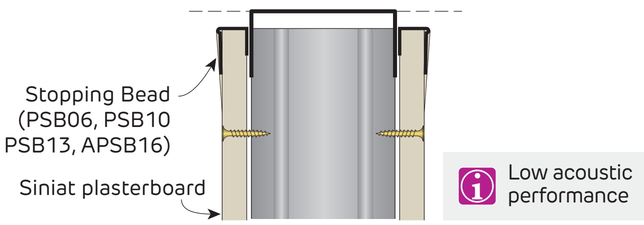



**FIGURE 52** Wall Head - Stopping Bead
Section

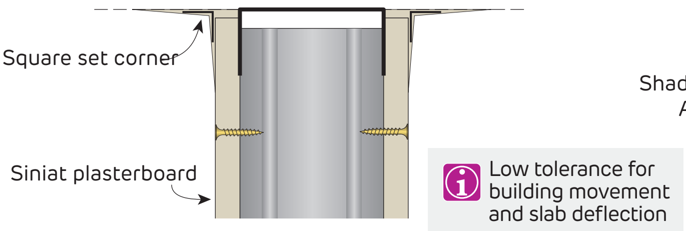



**FIGURE 53** Wall Head - Square Set
Section

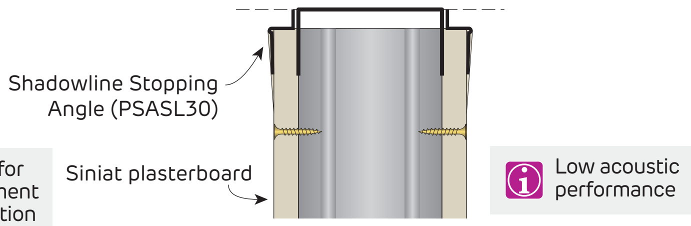



**FIGURE 54** Wall Head - Shadowline Stopping Angle
Section

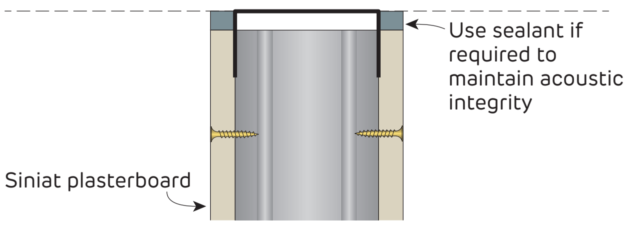



**FIGURE 55** Wall Head - Bare finish with sealant
Section

## Non-Fire Rated
## Internal Stud Walls

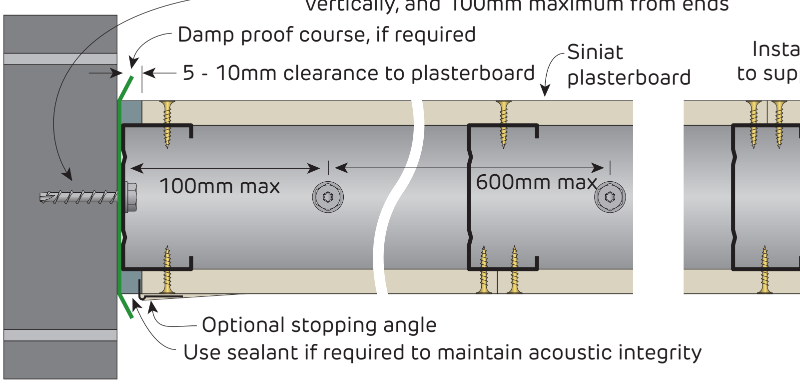



**FIGURE 56** Wall End To Masonry
Plan

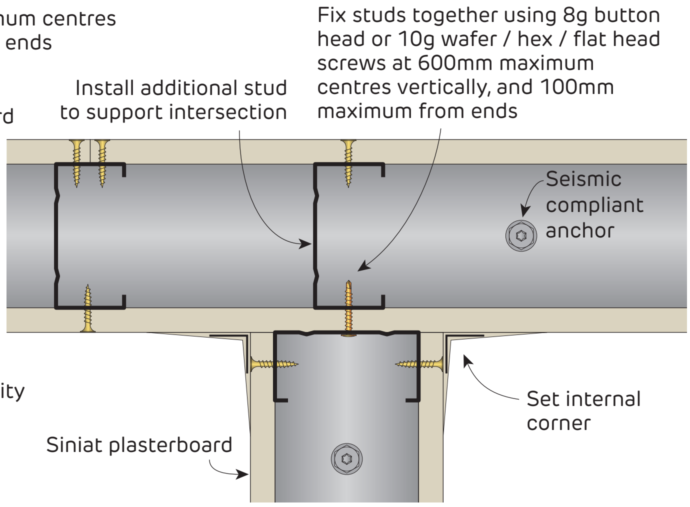



**FIGURE 57** Intersecting Wall
Plan

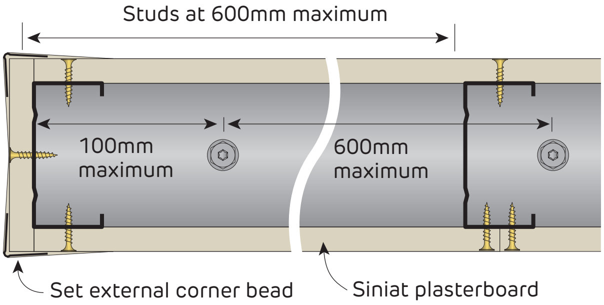



**FIGURE 58** Wall End
Plan

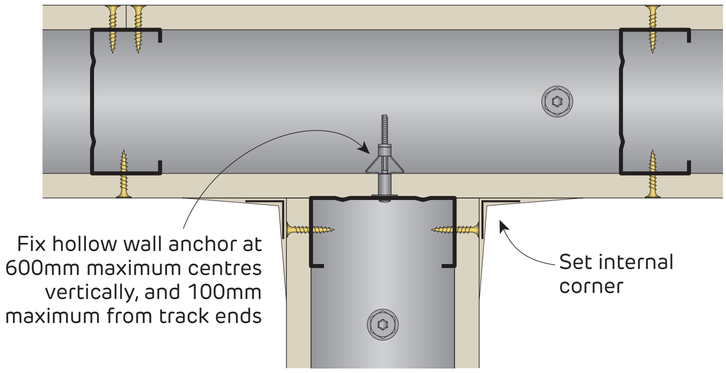



**FIGURE 59** Intersecting Wall
Plan

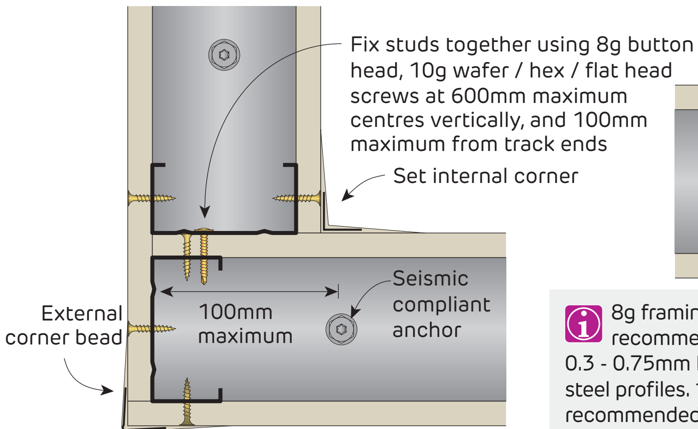



**FIGURE 60** Wall Corner
Plan

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

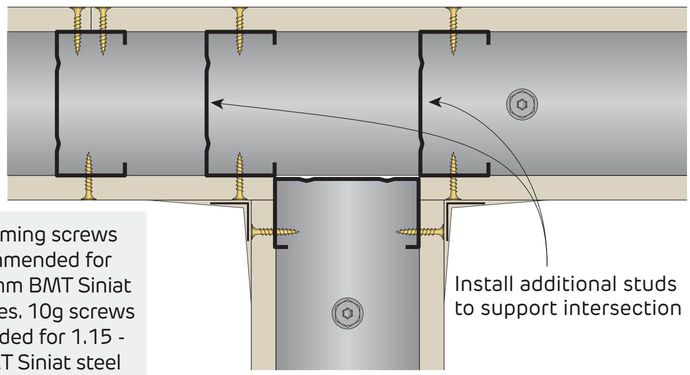



**FIGURE 61** Intersecting Wall
Plan

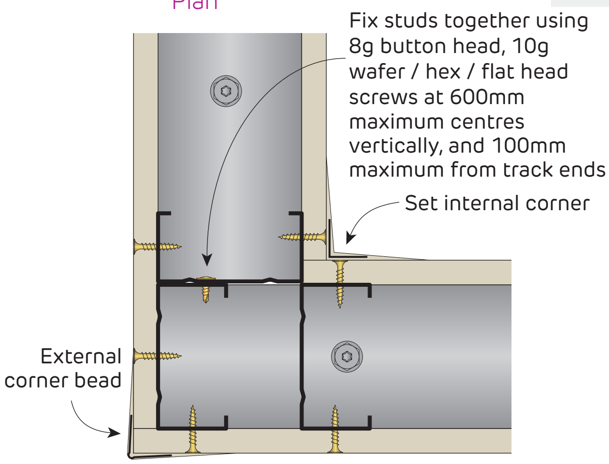



**FIGURE 62** Wall Corner
Plan

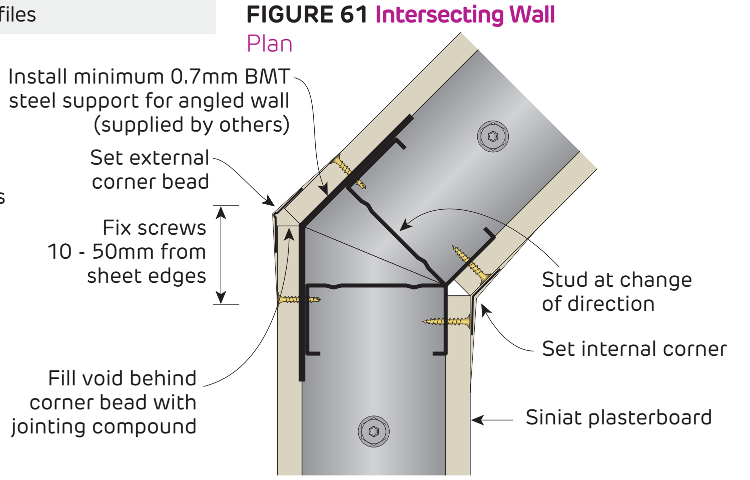



**FIGURE 63** Obtuse Angle Corner
Plan

## Non-Fire Rated
## Sliding Connection Details for Internal Stud Walls

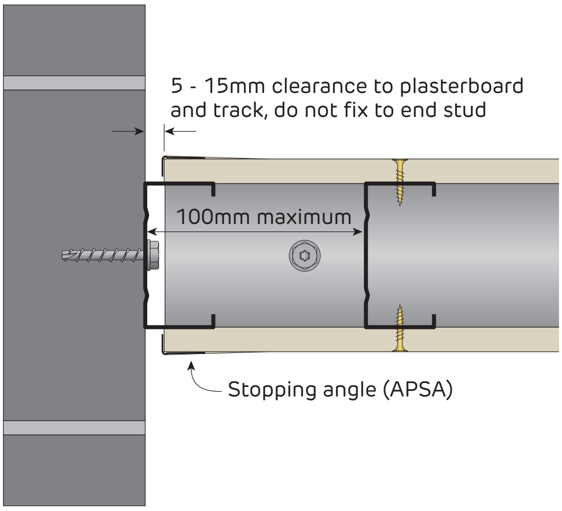



**FIGURE 64** Sliding Wall End To Masonry
Plan

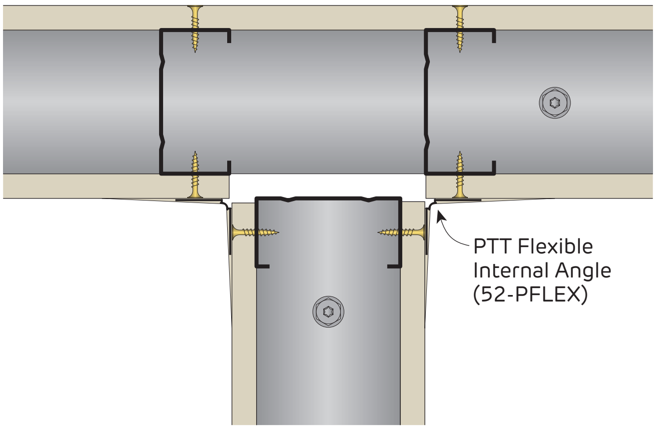



**FIGURE 65** Sliding Intersecting Wall
Plan

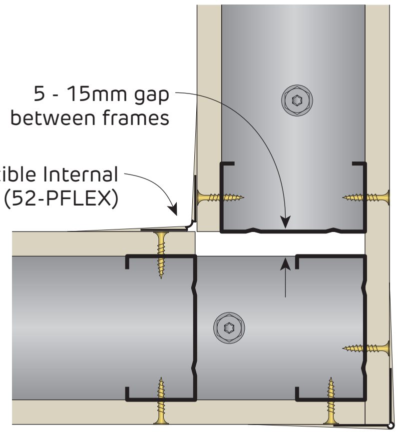



**FIGURE 66** Sliding Wall Corner
Plan

## Fire Rated
## Head and Base Details for Internal Stud Walls - Lined Full Height - Single Layer

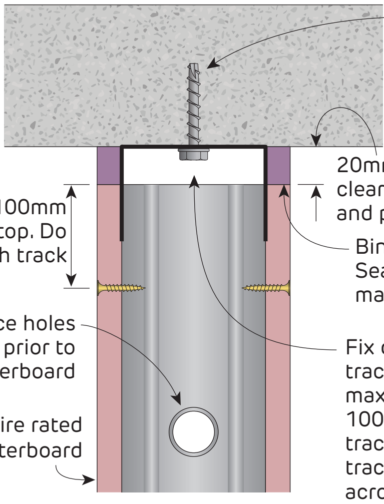



**FIGURE 67 Wall Head**
Deflection Head Track
Section

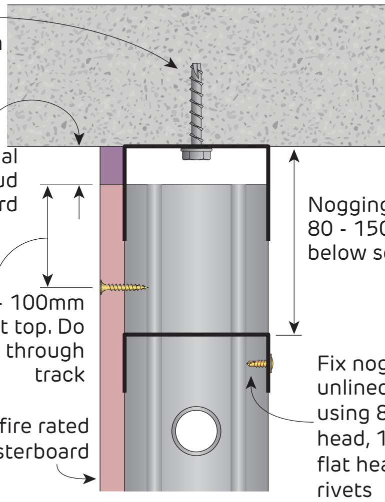



**FIGURE 68 Wall Head - Lined One Side Only**
Deflection Head Track
Section

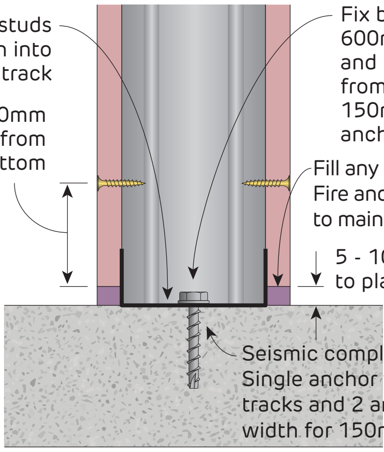



**FIGURE 69 Wall Base**
Section

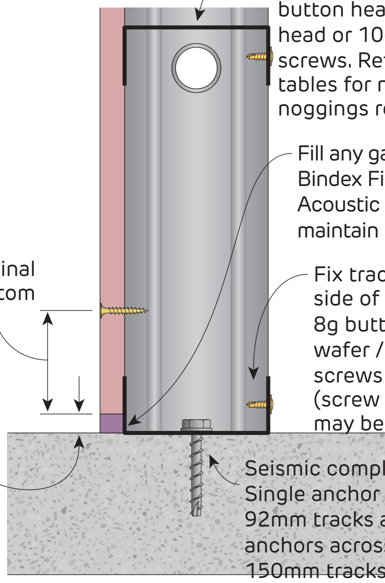



**FIGURE 70 Wall Base - Lined One Side Only**
Section

> Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

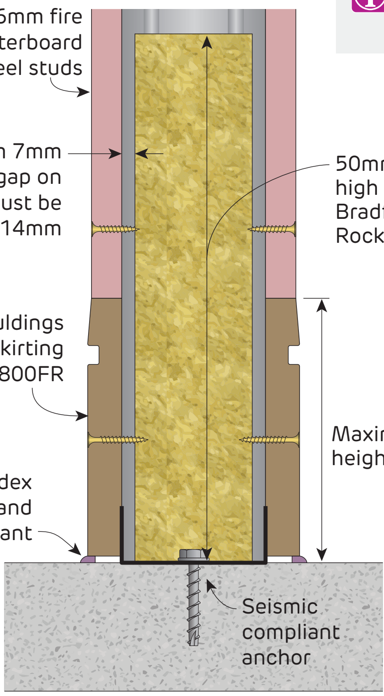



**FIGURE 71 Wall Base with MDF Skirting**
FRL -/60/60 FCO3351 Rev B - Section

> Outermost plasterboard sheets with no gap at the base are at risk of wicking

> 8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated
## Head and Base Details for Internal Stud Walls - Lined Full Height - 2 Layers

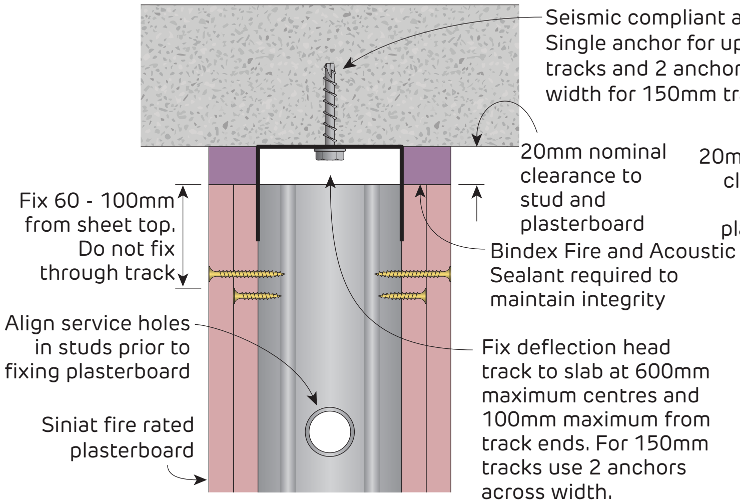



**FIGURE 72** **Wall Head**
Deflection Head Track
Section

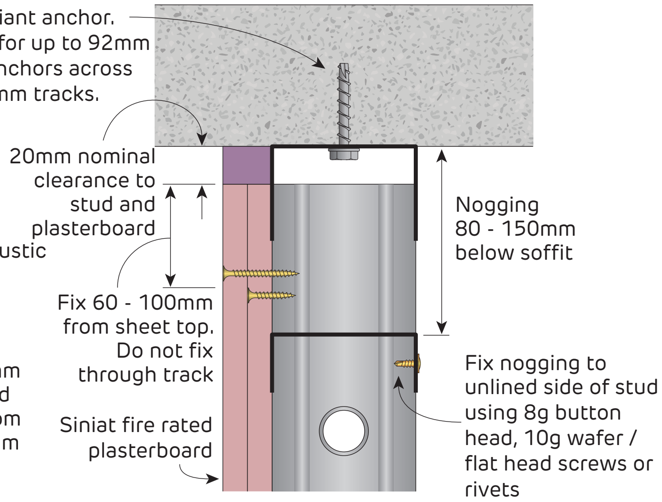



**FIGURE 73** **Wall Head - Lined One Side Only**
Deflection Head Track
Section

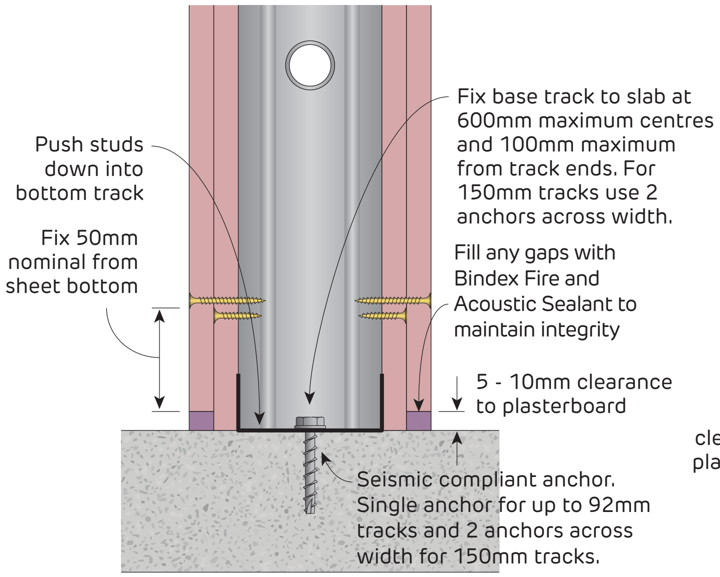



**FIGURE 74** **Wall Base**
Section

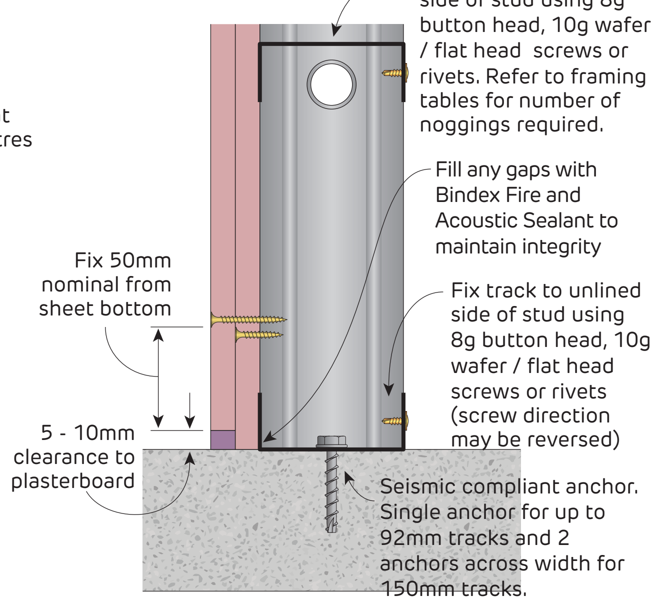



**FIGURE 75** **Wall Base - Lined One Side Only**
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

Outermost plasterboard sheets with no gap at the base are at risk of wicking

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated
## Head and Base Details for Internal Stud Walls - Lined Full Height - 3 Layers

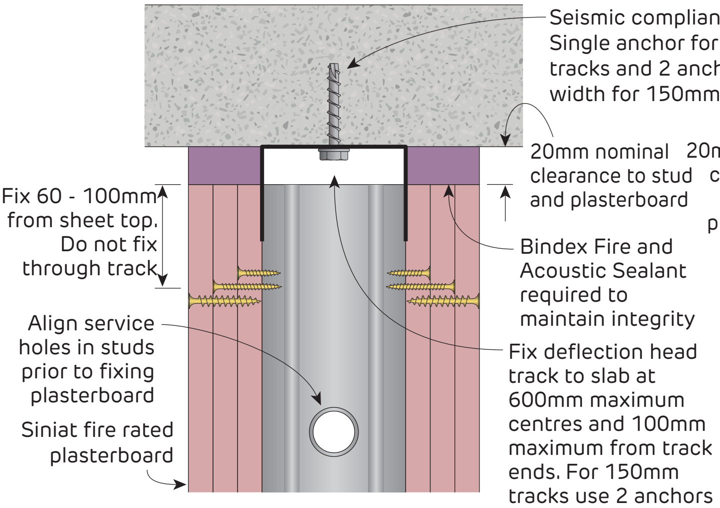



**FIGURE 76** **Wall Head**
Deflection Head Track
Section

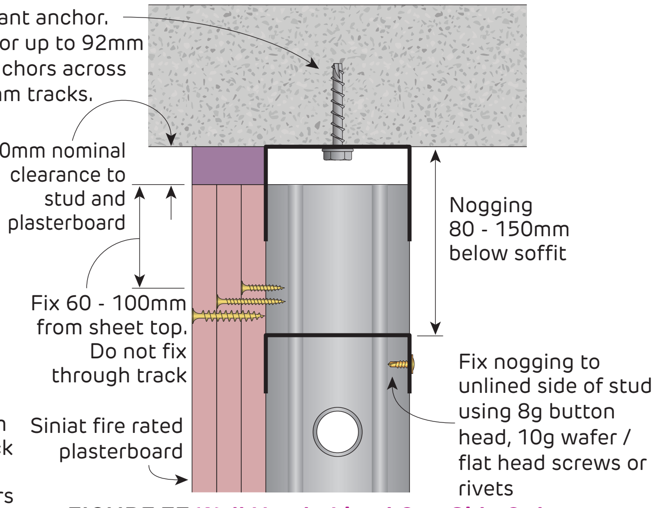



**FIGURE 77** **Wall Head - Lined One Side Only**
Deflection Head Track
Section

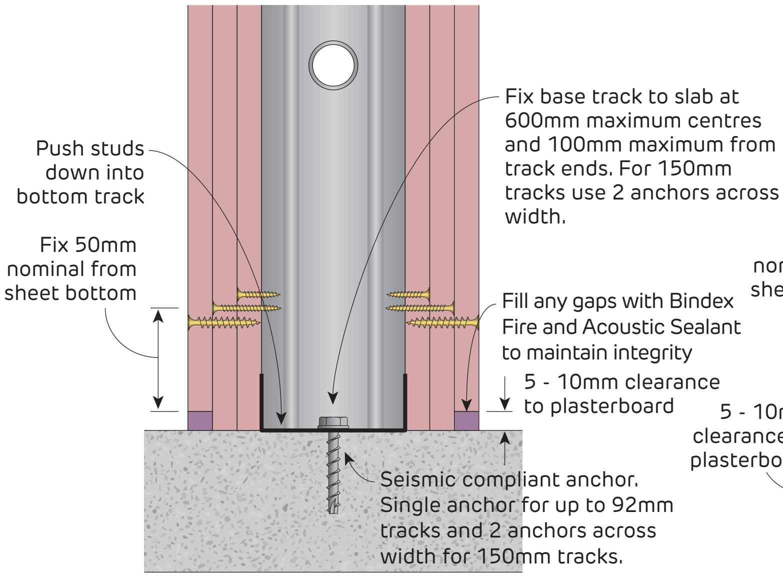



**FIGURE 78** **Wall Base**
Section

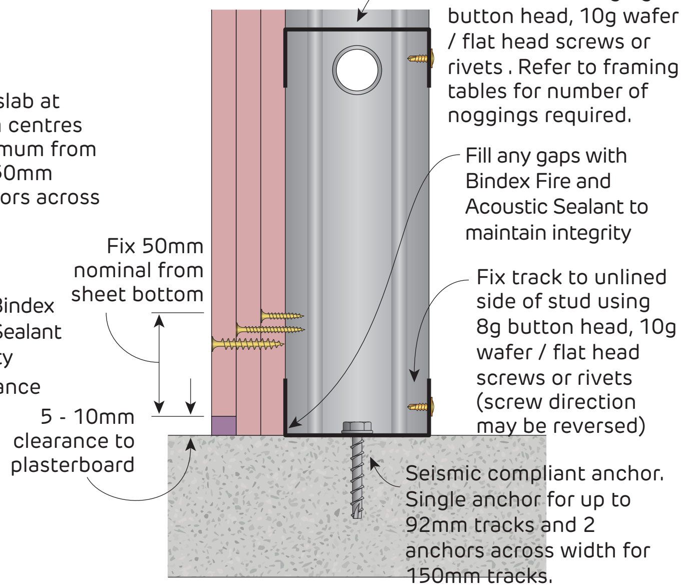



**FIGURE 79** **Wall Base - Lined One Side Only**
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

Outermost plasterboard sheets with no gap at the base are at risk of wicking

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated
## Head and Base Details for Internal Stud Walls - Lined Full Height - 4 Layers

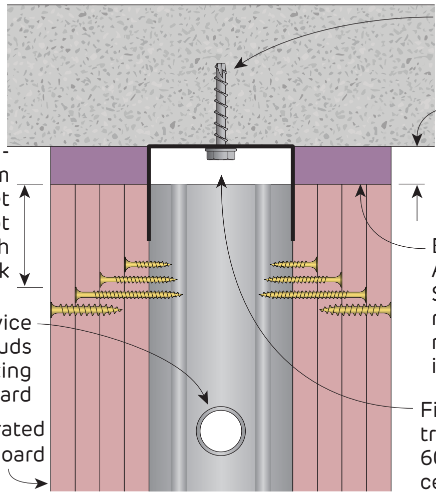



**FIGURE 80** Wall Head
Deflection Head Track
Section

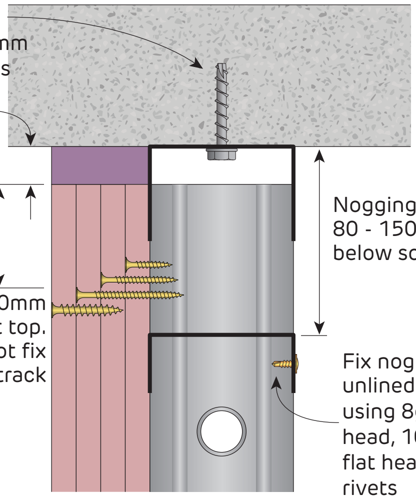



**FIGURE 81** Wall Head - Lined One Side Only
Deflection Head Track
Section

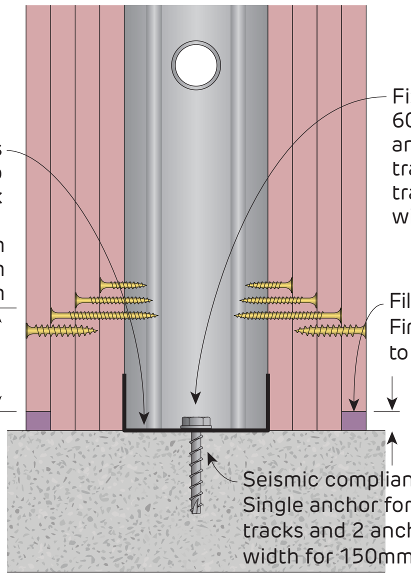



**FIGURE 82** Wall Base
Section

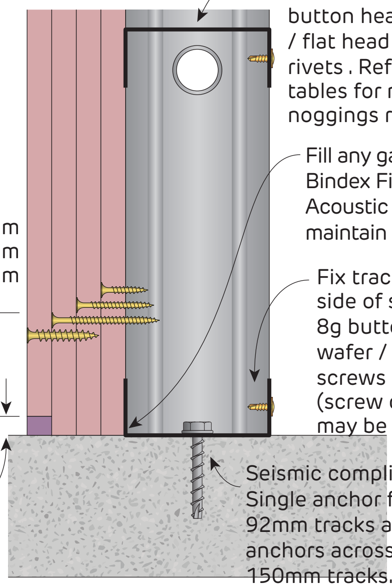



**FIGURE 83** Wall Base - Lined One Side Only
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

Outermost plasterboard sheets with no gap at the base are at risk of wicking

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated
## Head and Base Details for Internal Stud Walls - Lined Full Height - Up to 4 Layers

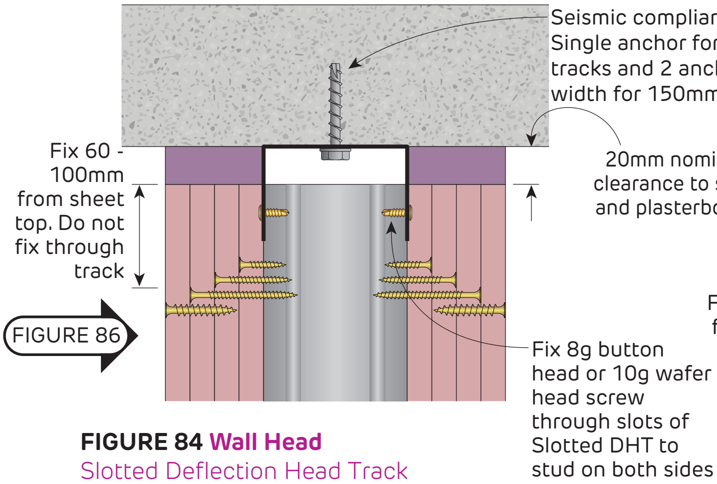



**FIGURE 84** **Wall Head**
Slotted Deflection Head Track
Up to 4 layers on either side - Section

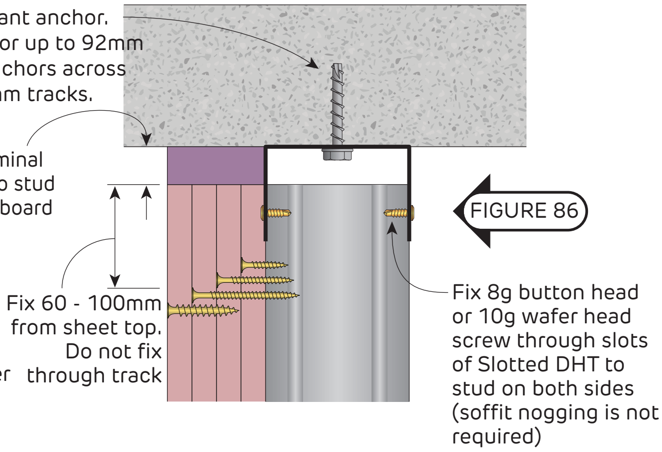



**FIGURE 85** **Wall Head - Lined One Side Only**
Slotted Deflection Head Track
Up to 4 layers - Section

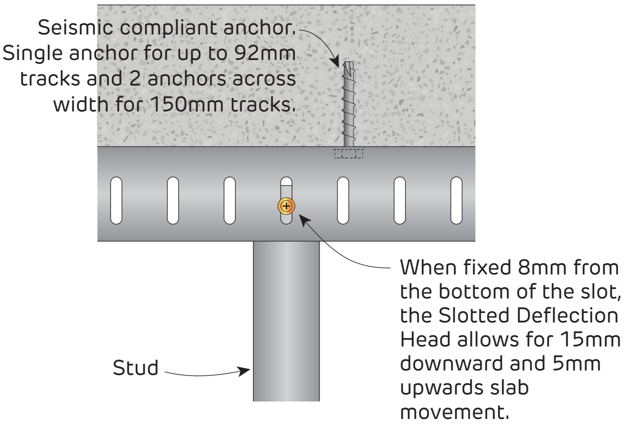
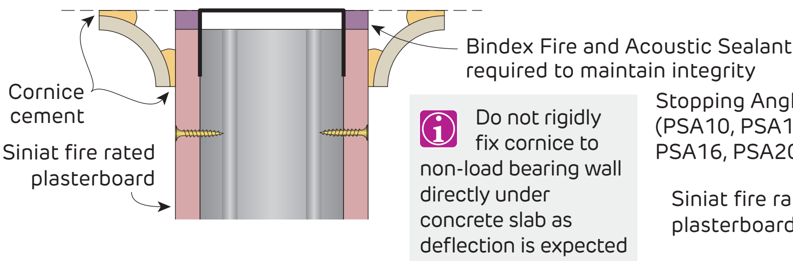



**FIGURE 86** **Wall Head**
Slotted Deflection Head Track
Elevation

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Head Finishing Details for Internal Stud Walls




Do not rigidly fix cornice to non-load bearing wall directly under concrete slab as deflection is expected

**FIGURE 87** **Wall Head - Cornice**
Section

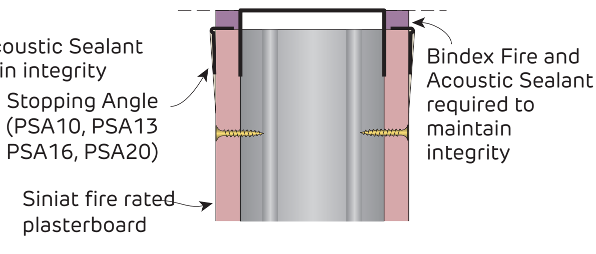
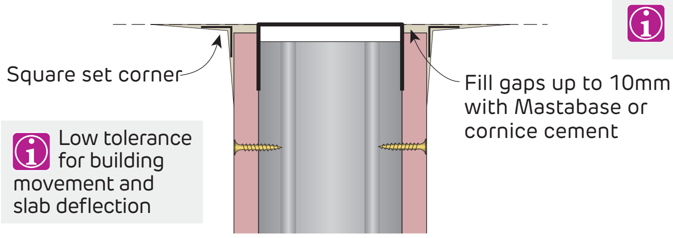



**FIGURE 88** **Wall Head - Stopping Angle**
Section

Details apply from 1 to 4 layers




Low tolerance for building movement and slab deflection

**FIGURE 89** **Wall Head - Square Set**
Section

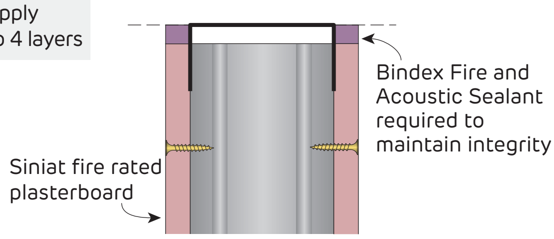



**FIGURE 90** **Wall Head - Bare finish with sealant**
Section

## Fire Rated Internal Stud Walls

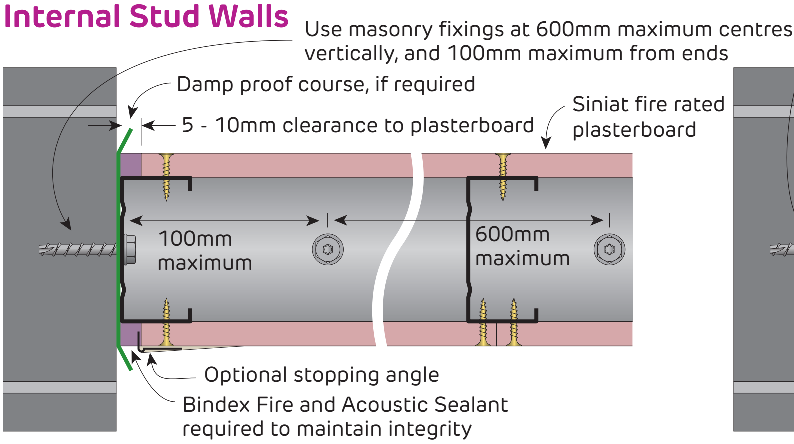



**FIGURE 91** **Wall End To Masonry**
Plan

Details apply from 1 to 4 layers

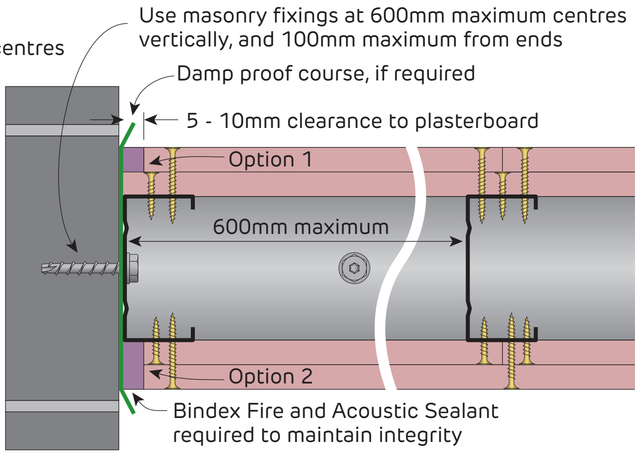



**FIGURE 92** **Wall End To Masonry**
Plan

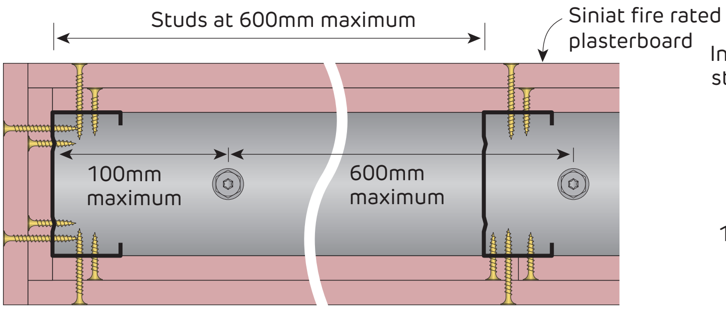



**FIGURE 93** **Wall End**
Plan

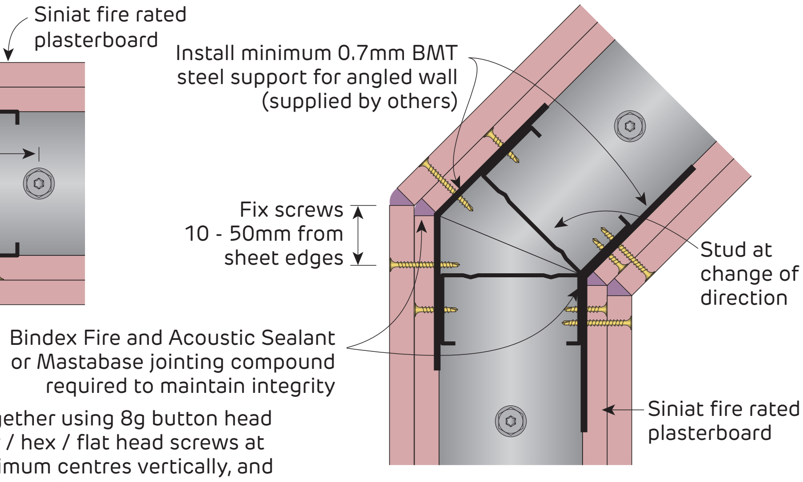



**FIGURE 94** **Obtuse Angle Corner**
Plan

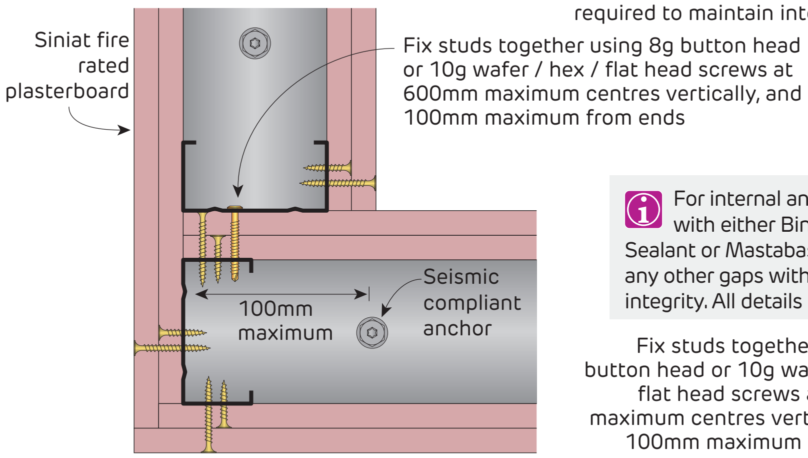



**FIGURE 95** **90⁰ Corner**
Plan

For internal and external corners, fill gaps with either Bindex Fire and Acoustic Sealant or Mastabase jointing compound. Fill any other gaps with Bindex Sealant to maintain integrity. All details apply from 1 to 4 layers.

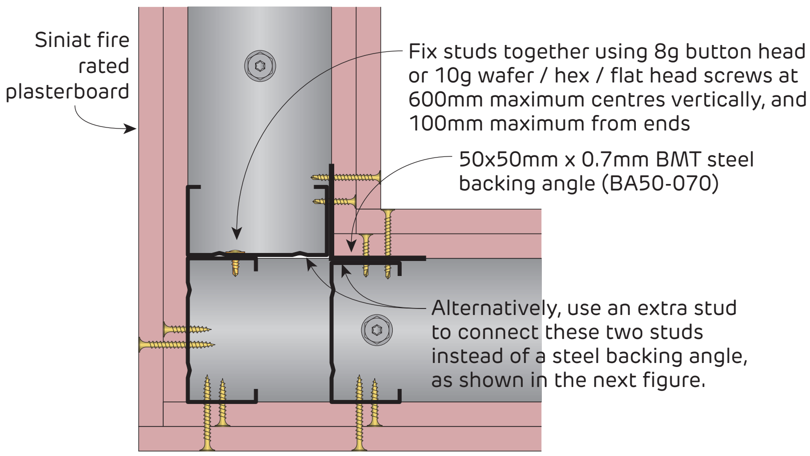



**FIGURE 96** **90⁰ Corner**
Plan

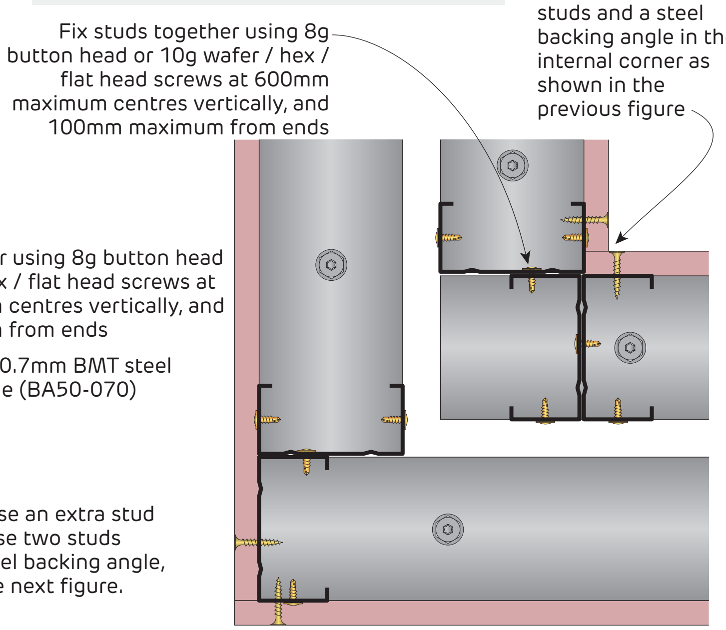
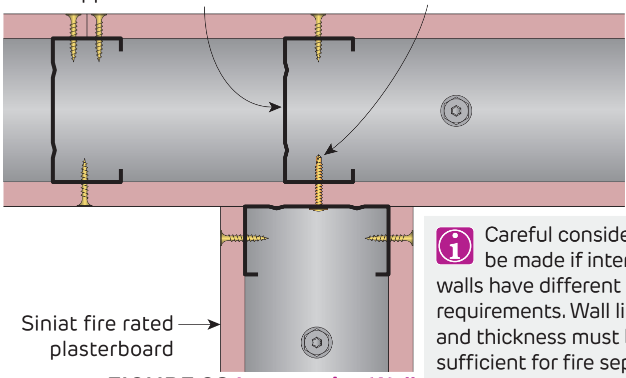



**FIGURE 97** **90⁰ Corner**
Double stud wall
Plan

## Fire Rated Internal Stud Walls

Install additional stud to support intersection

Fix studs together using 8g button head or 10g wafer / hex / flat head screws at 600mm maximum centres vertically, and 100mm maximum from ends



Siniat fire rated plasterboard

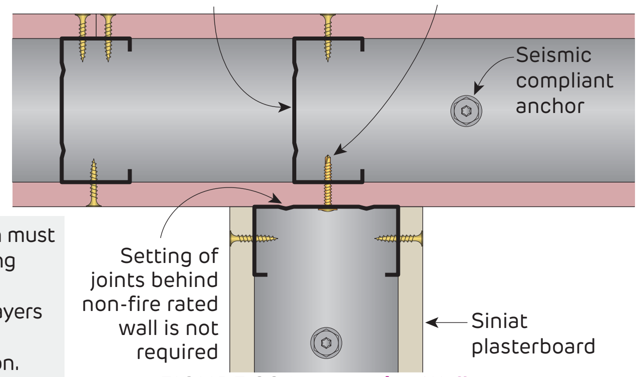
**FIGURE 98** Intersecting Wall
Plan

Careful consideration must be made if intersecting walls have different FRL requirements. Wall lining layers and thickness must be sufficient for fire separation.

Install additional stud to support intersection

Fix studs together using 8g button head or 10g wafer / hex / flat head screws at 600mm maximum centres vertically, and 100mm maximum from ends

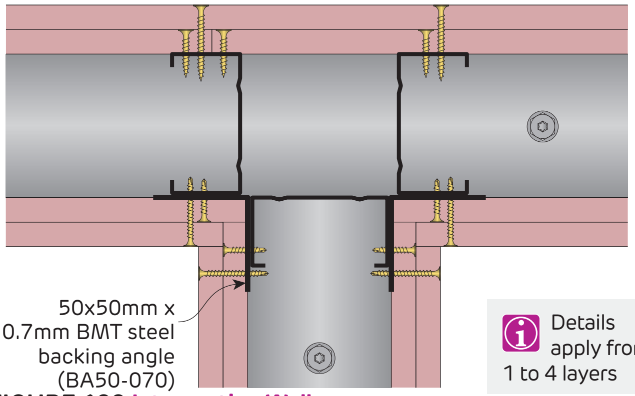
Seismic compliant anchor



Setting of joints behind non-fire rated wall is not required

Siniat plasterboard

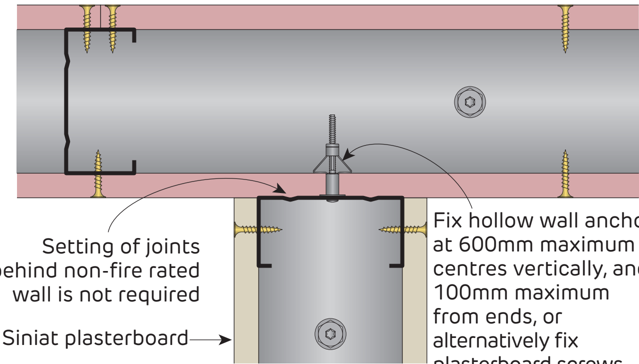
**FIGURE 99** Intersecting Wall
Plan



50x50mm x 0.7mm BMT steel backing angle (BA50-070)

**FIGURE 100** Intersecting Wall
Plan

Details apply from 1 to 4 layers



Setting of joints behind non-fire rated wall is not required

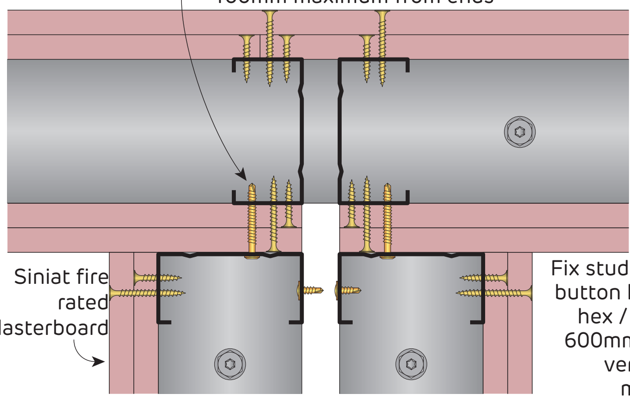
Siniat plasterboard

Fix hollow wall anchor at 600mm maximum centres vertically, and 100mm maximum from ends, or alternatively fix plasterboard screws through fire rated plasterboard into stud

**FIGURE 101** Intersecting Wall
Plan

For internal and external corners, fill gaps with either Bindex Fire and Acoustic Sealant or Mastabase jointing compound. Fill any other gaps with Bindex Sealant to maintain integrity. All details apply from 1 to 4 layers.

Fix studs together using 8g button head or 10g wafer / hex / flat head screws at 600mm maximum centres vertically, and 100mm maximum from ends



Siniat fire rated plasterboard

**FIGURE 102** Intersecting Wall
Plan

Fix studs together using 8g button head or 10g wafer / hex / flat head screws at 600mm maximum centres vertically, and 100mm maximum from ends

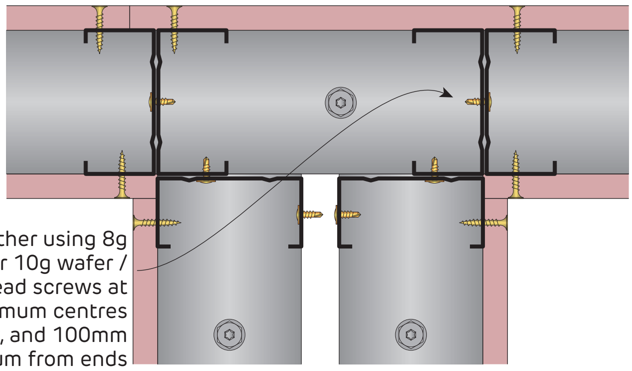


**FIGURE 103** Intersecting Wall
Plan

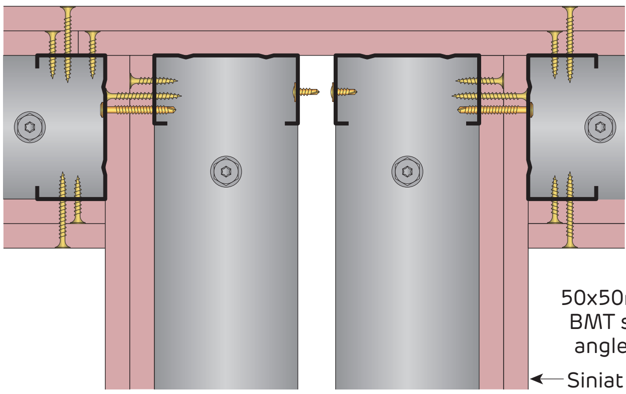


**FIGURE 104** Intersecting Wall
Plan

50x50mm x 0.7mm BMT steel backing angle (BA50-070)

Siniat fire rated plasterboard

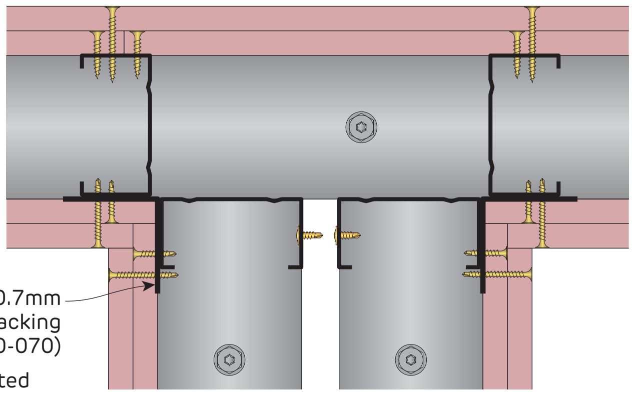


**FIGURE 105** Intersecting Wall
Plan

## Fire Rated
## Internal Stud Walls

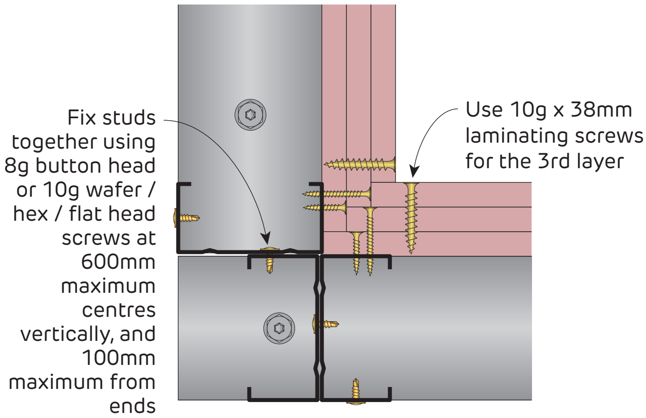



**FIGURE 106** **90⁰ Internal Corner**
Plan

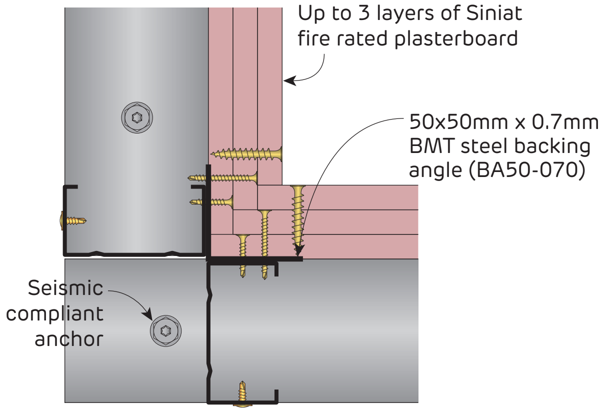



**FIGURE 107** **90⁰ Internal Corner**
Plan

Details apply from 1 to 4 layers

For internal and external corners, fill gaps with either Bindex Fire and Acoustic Sealant or Mastabase jointing compound. Fill any other gaps with Bindex Sealant to maintain integrity. All details apply from 1 to 4 layers.

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

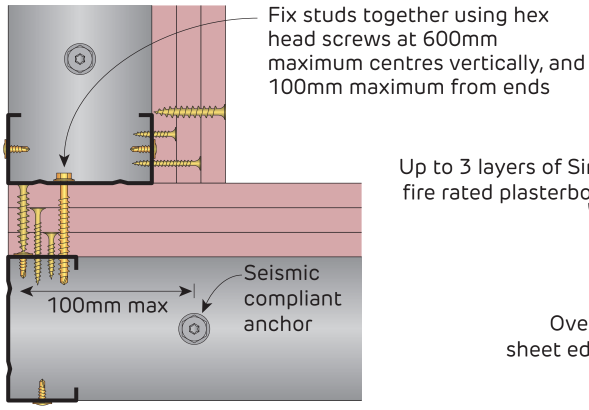



**FIGURE 108** **90⁰ Internal Corner**
Plan

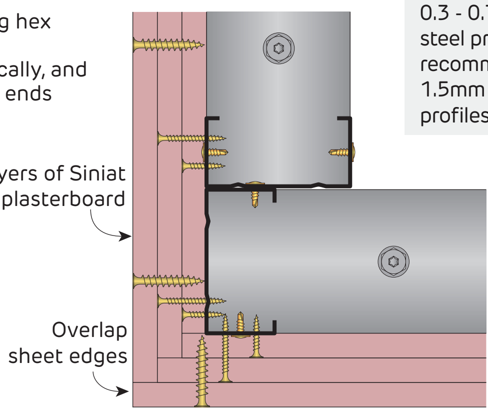



**FIGURE 109** **90⁰ External Corner**
Plan

Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

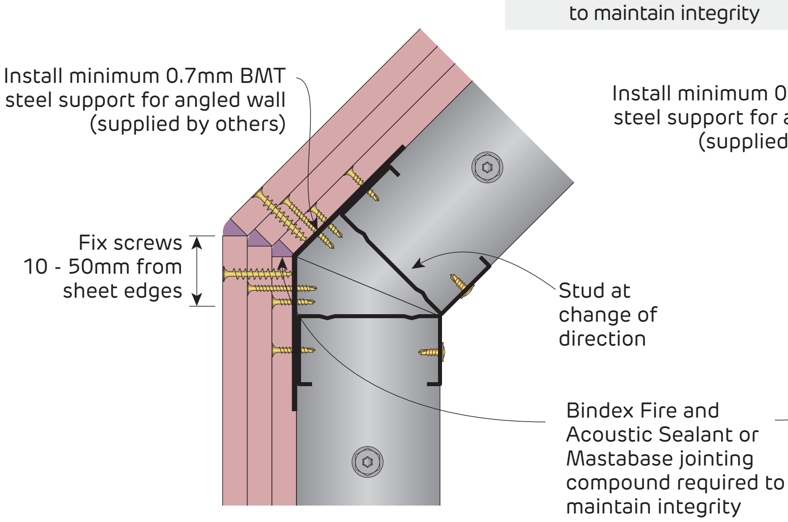



**FIGURE 110** **Obtuse Angle Corner**
Plan

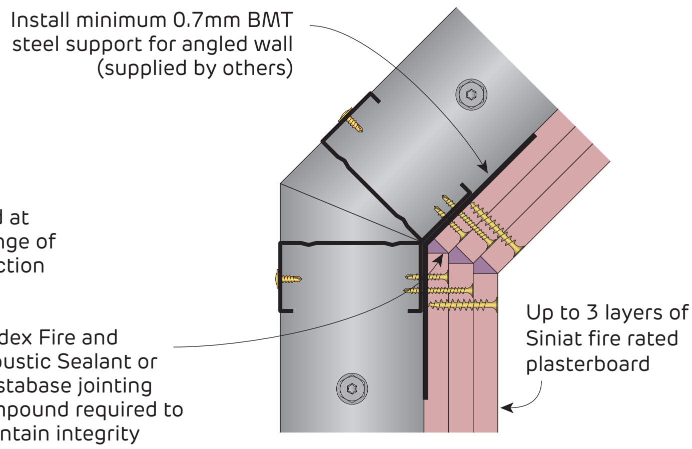
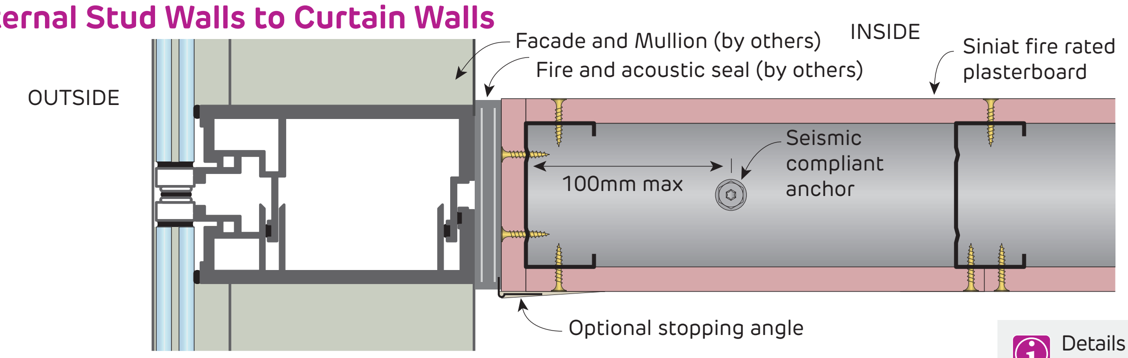



**FIGURE 111** **Obtuse Angle Corner**
Plan

## Fire Rated
## Internal Stud Walls to Curtain Walls




Details apply from 1 to 4 layers

**FIGURE 112** **Internal Wall to Curtain Wall Mullion**
Plan

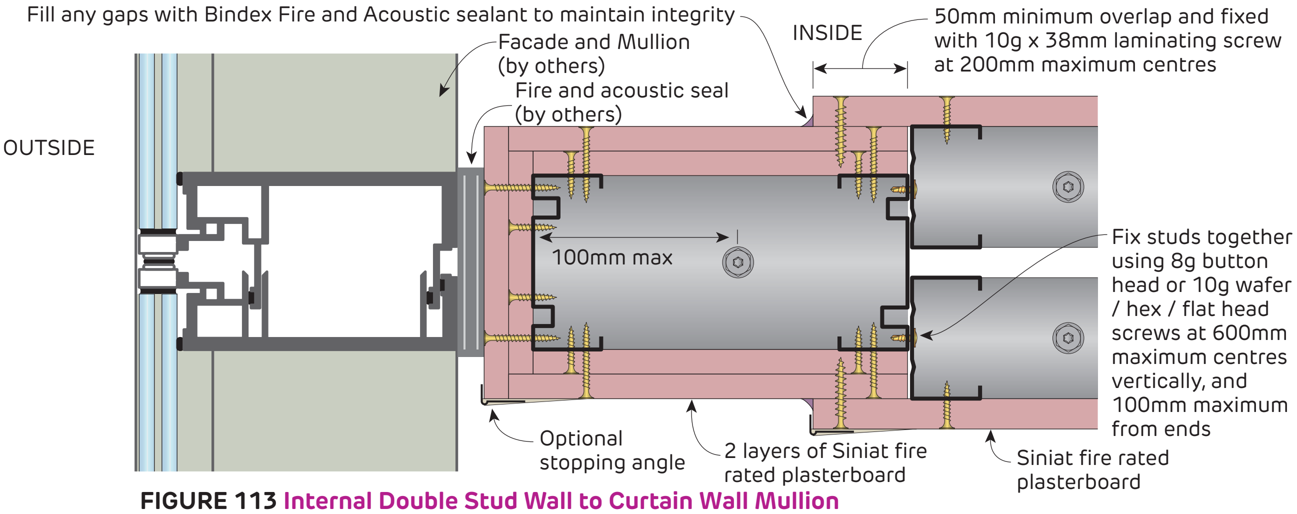
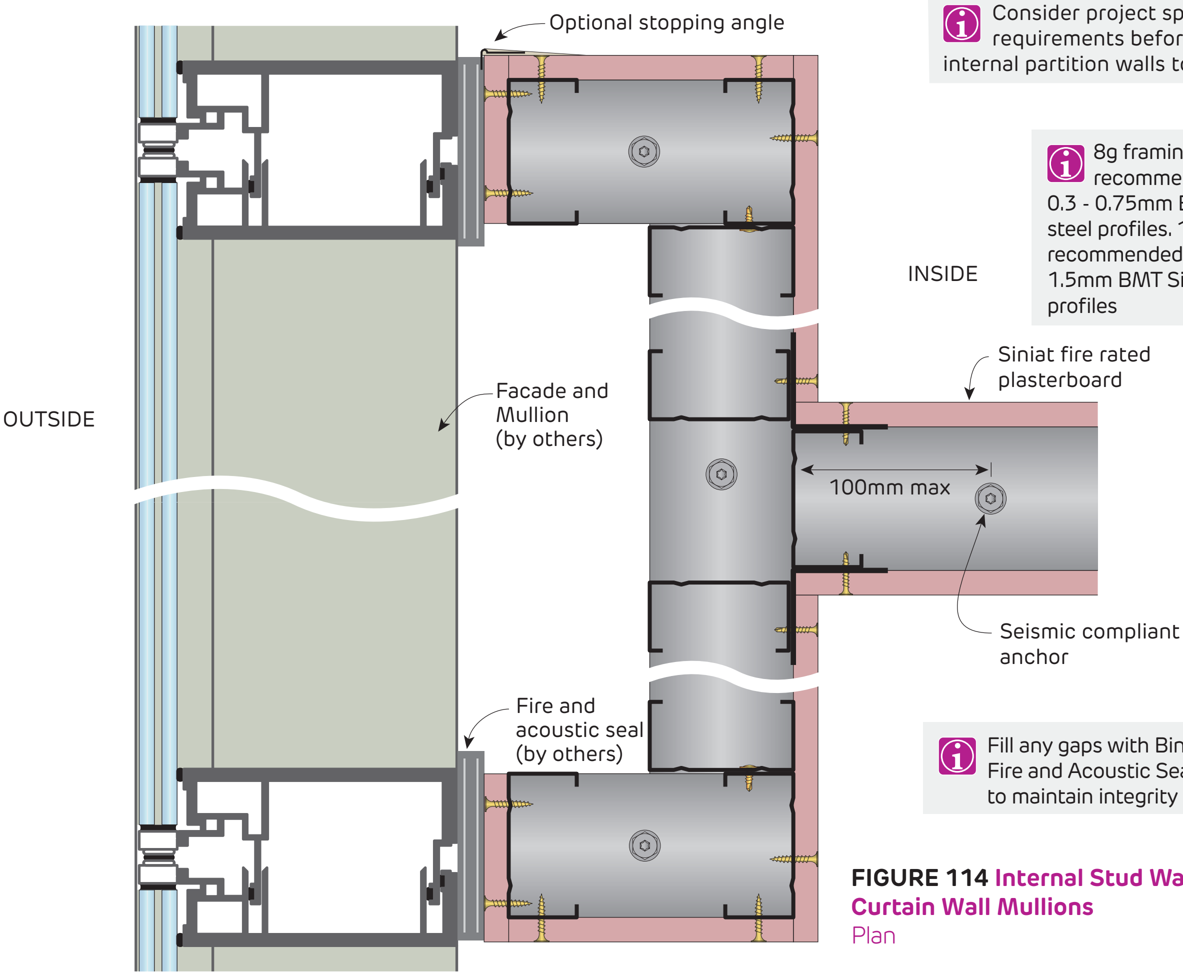



**FIGURE 113** **Internal Double Stud Wall to Curtain Wall Mullion**
Plan




Consider project specific requirements before joining internal partition walls to facades

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

**FIGURE 114** **Internal Stud Wall to Curtain Wall Mullions**
Plan

## Fire Rated
## Internal Stud Walls to External Walls

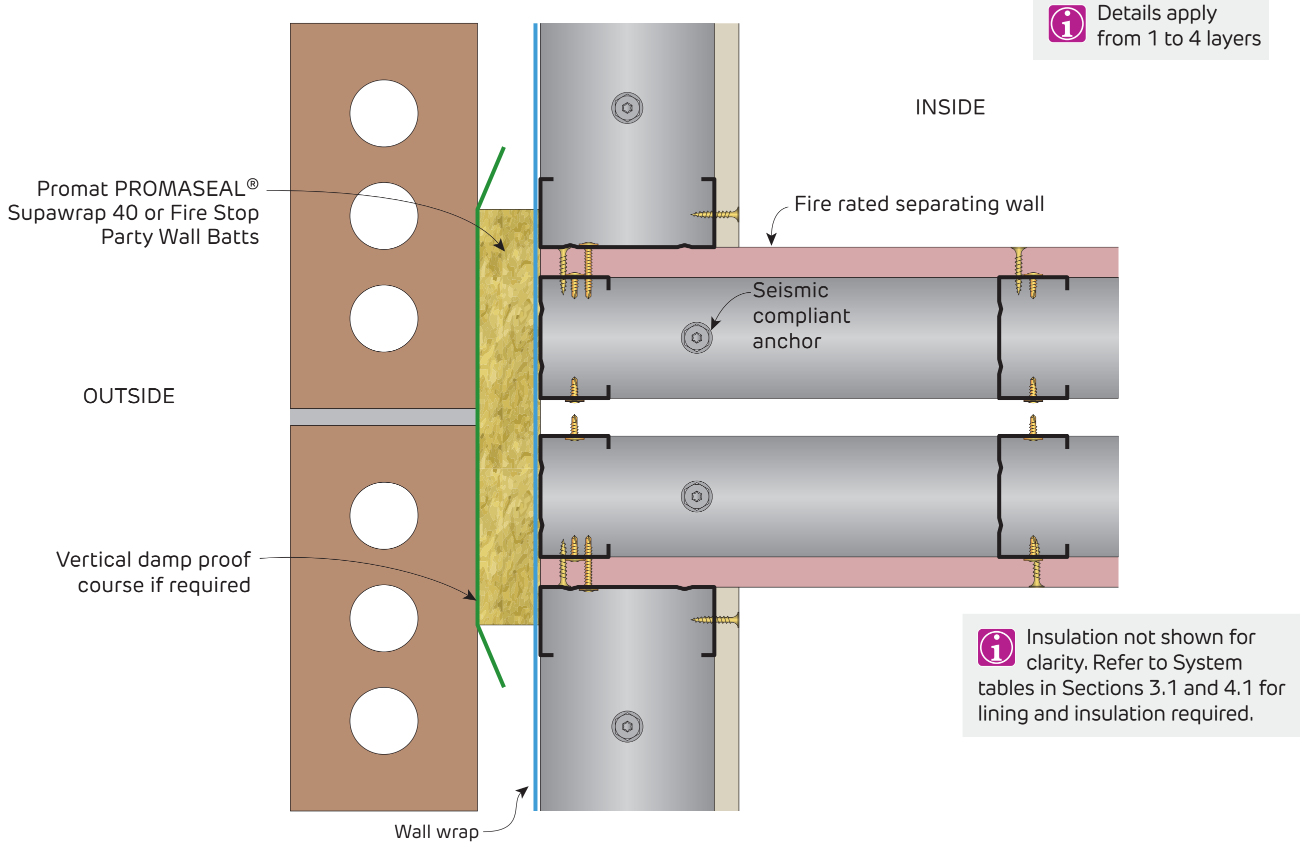



**FIGURE 115** **Internal Stud Wall to Brick Veneer**
Plan

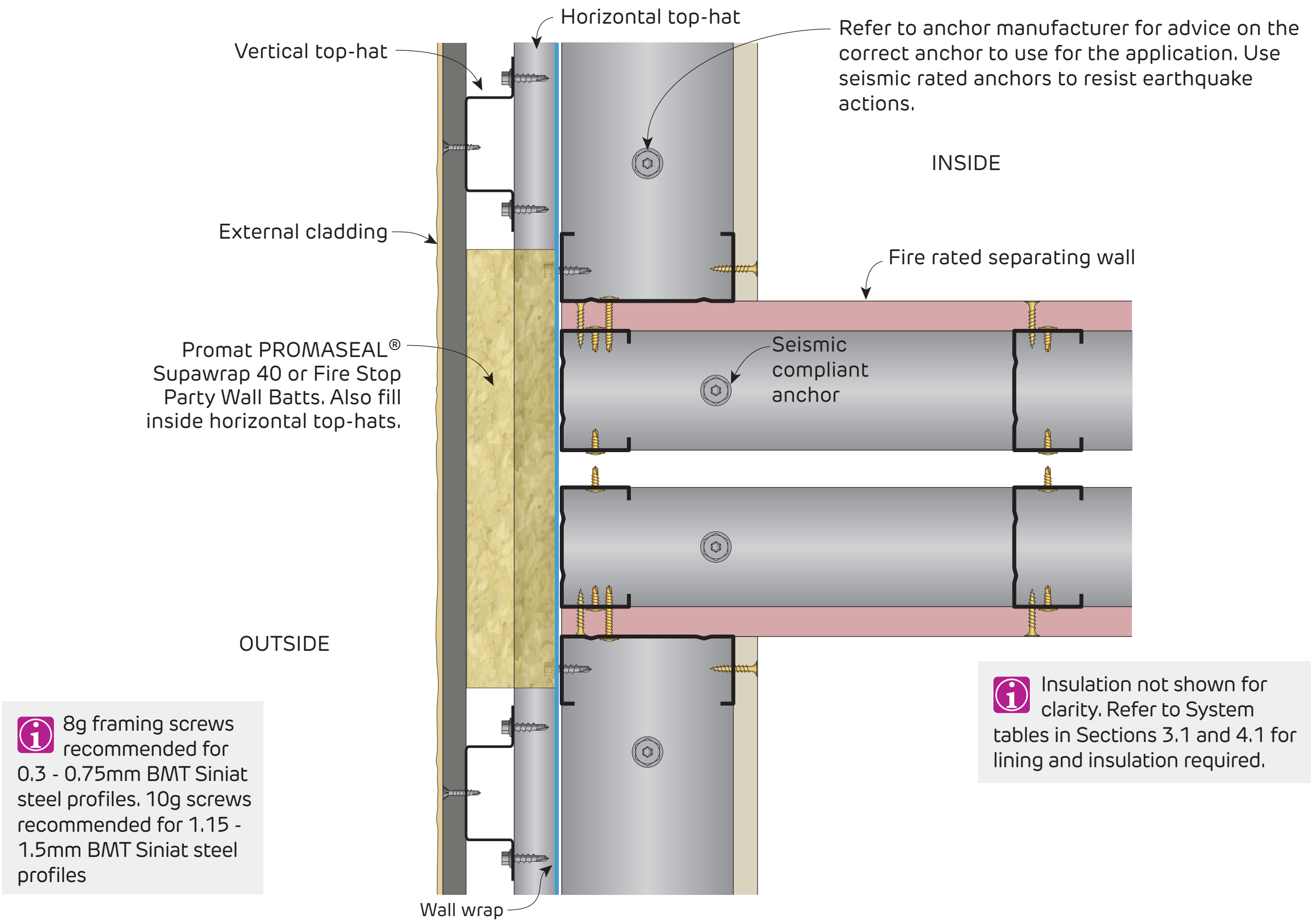



**FIGURE 116** **Internal Stud Wall to External Clad Wall**
Plan

## Fire Rated
## Internal Stud Wall Built From One Side Only

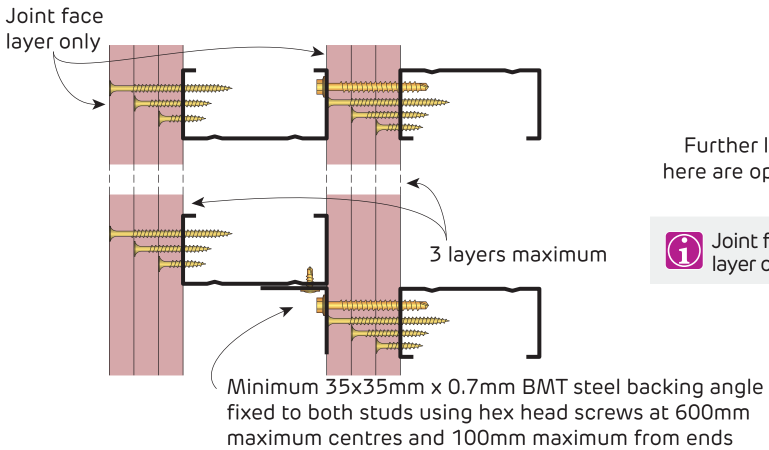



**FIGURE 117** Fire Rated Wall Configuration
Fire rated from both directions
Built from one side only - Plan

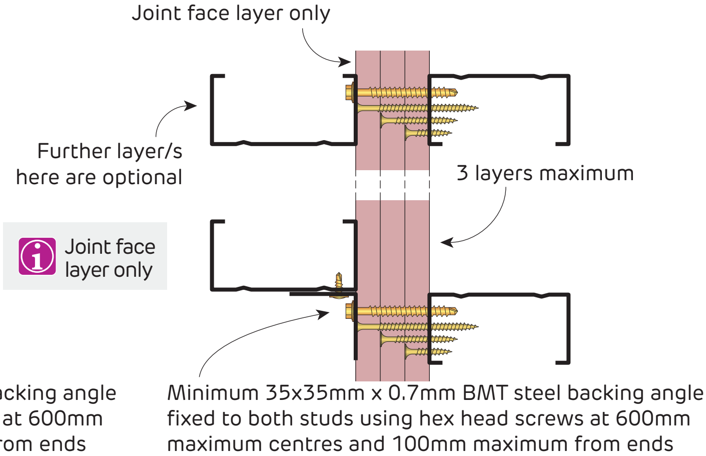



**FIGURE 118** Fire Rated Wall Configuration
Fire rated from both directions
Built from one side only - Plan

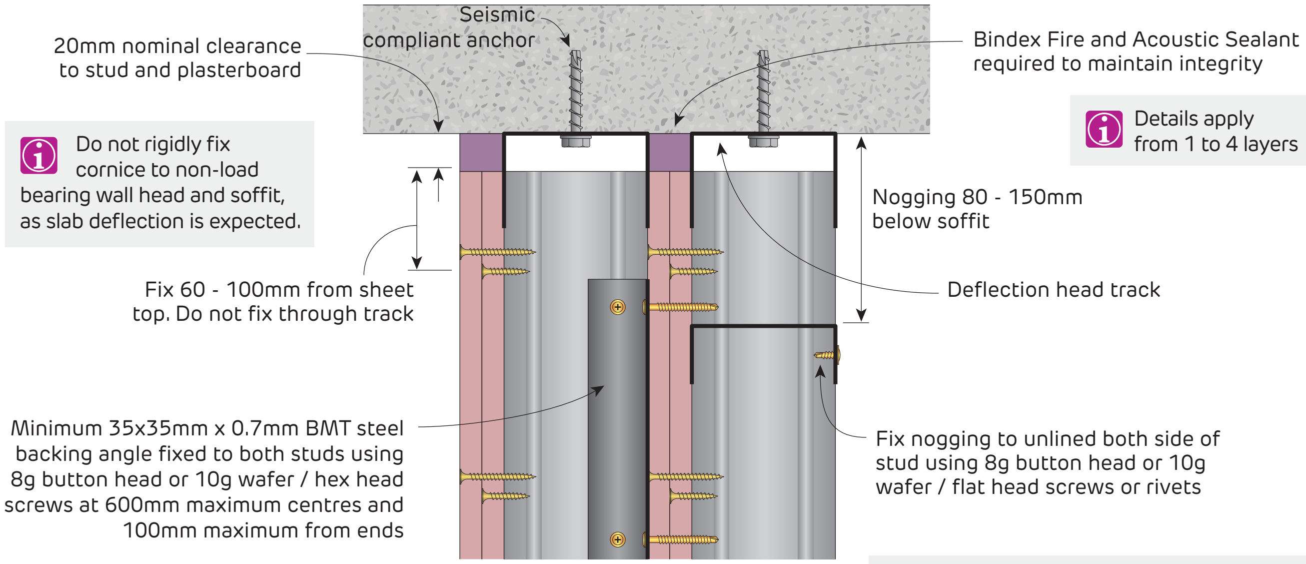



**FIGURE 119** Wall Head
Fire rated from both directions
Built from one side only - Section

Set the face layer of both sets of fire rated plasterboard layers

For internal and external corners, fill gaps with either Bindex Fire and Acoustic Sealant or Mastabase jointing compound. Fill any other gaps with Bindex Sealant to maintain integrity. All details apply from 1 to 4 layers.

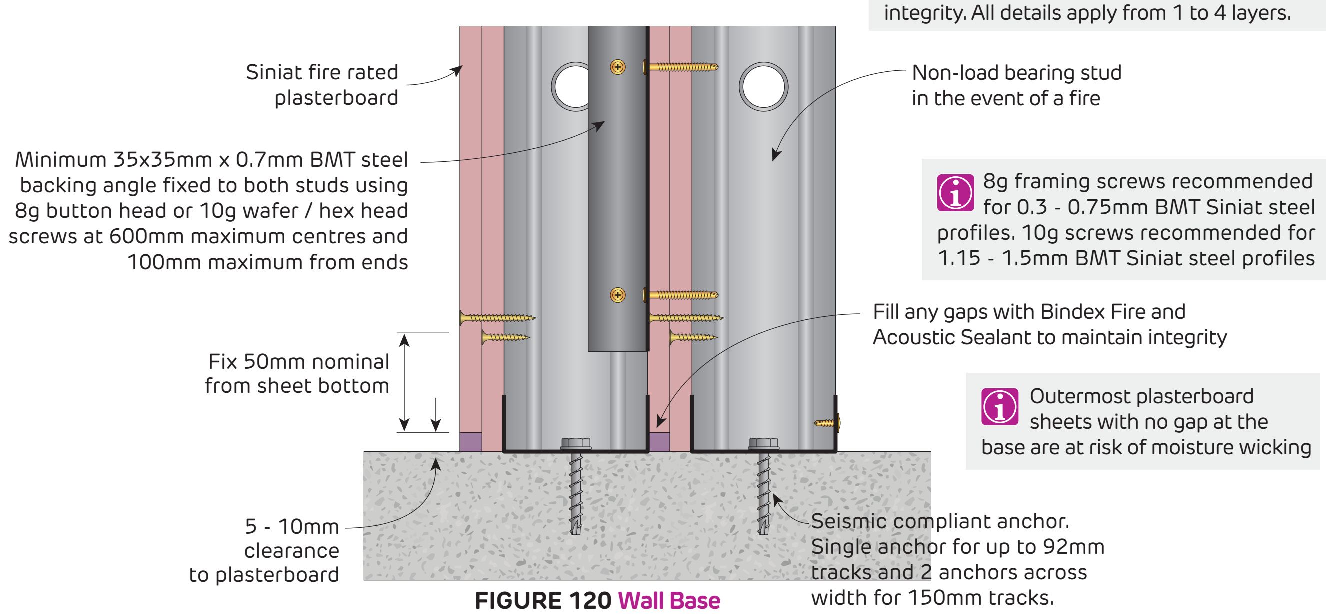
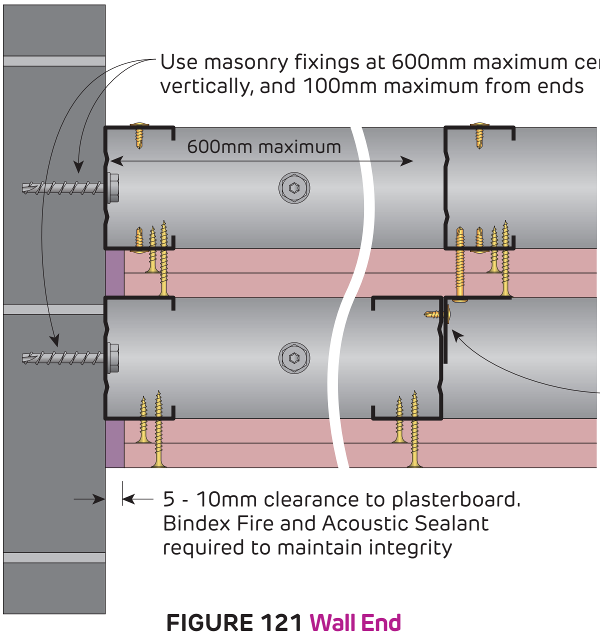



**FIGURE 120** Wall Base
Fire rated from both directions
Built from one side only - Section

## Fire Rated
## Internal Stud Wall Built From One Side Only




Set the face layer of both sets of fire rated plasterboard layers

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

**FIGURE 121** Wall End
Fire rated from both directions
Built from one side only - Plan

For internal and external corners, fill gaps with either Bindex Fire and Acoustic Sealant or Mastabase jointing compound. Fill any other gaps with Bindex Sealant to maintain integrity. All details apply from 1 to 4 layers.

Details apply from 1 to 4 layers

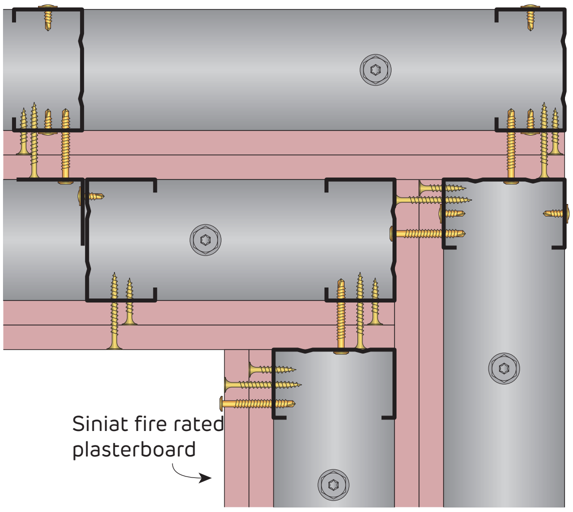



**FIGURE 122** Wall Internal Corner
Fire rated from both directions
Built from one side only - Plan

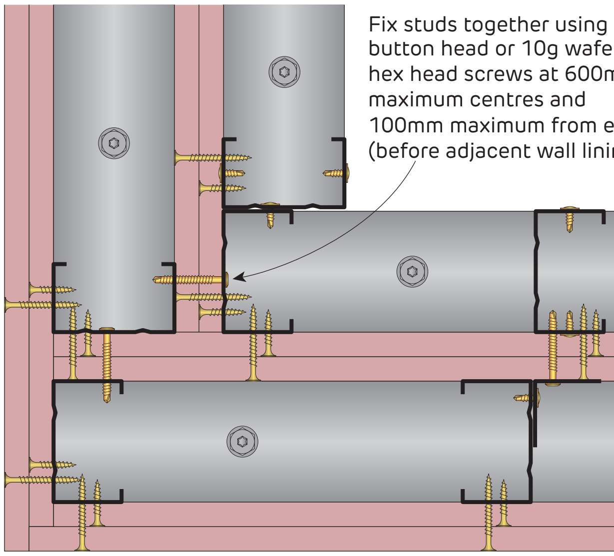



**FIGURE 123** Wall External Corner
Fire rated from both directions
Built from one side only - Plan

## Fire Rated and Non-Fire Rated
## Head and Base Details for Internal Staggered Stud Walls - Lined Full Height

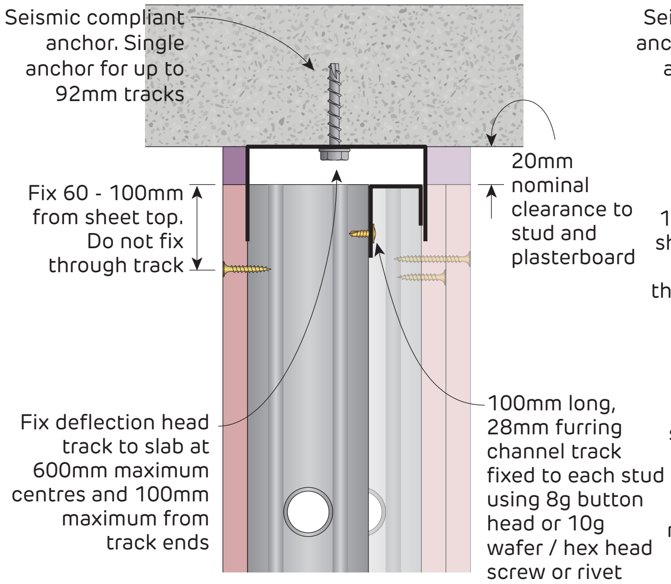



**FIGURE 124** Wall Head - Staggered Stud
64mm Studs in 92mm Deflection Head Track
Section

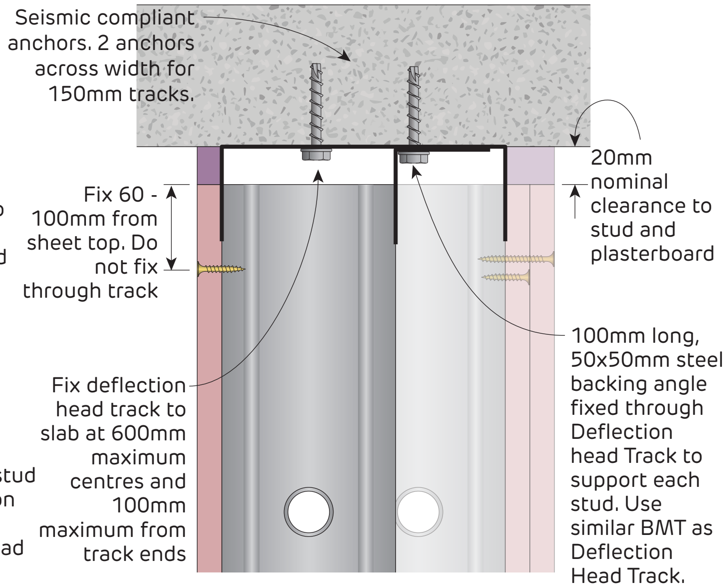



**FIGURE 125** Wall Head - Staggered Stud
92mm Studs in 150mm Deflection Head Track
Section

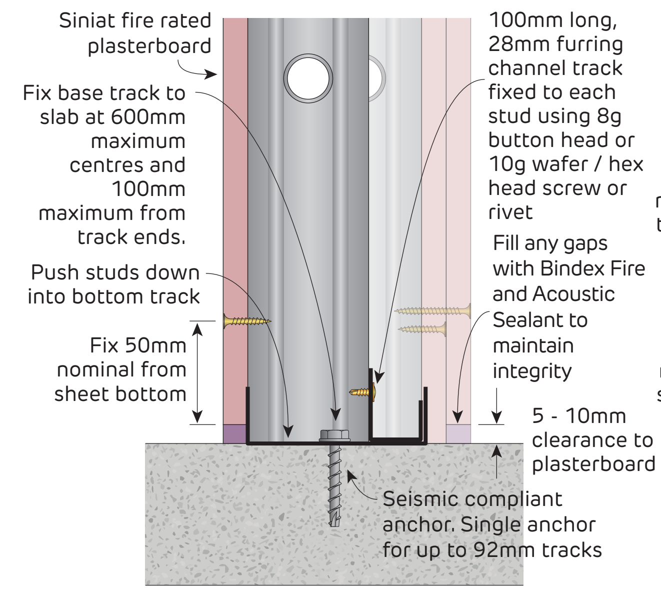



**FIGURE 126** Wall Base - Staggered Stud
64mm Studs in 92mm Base Track
Section

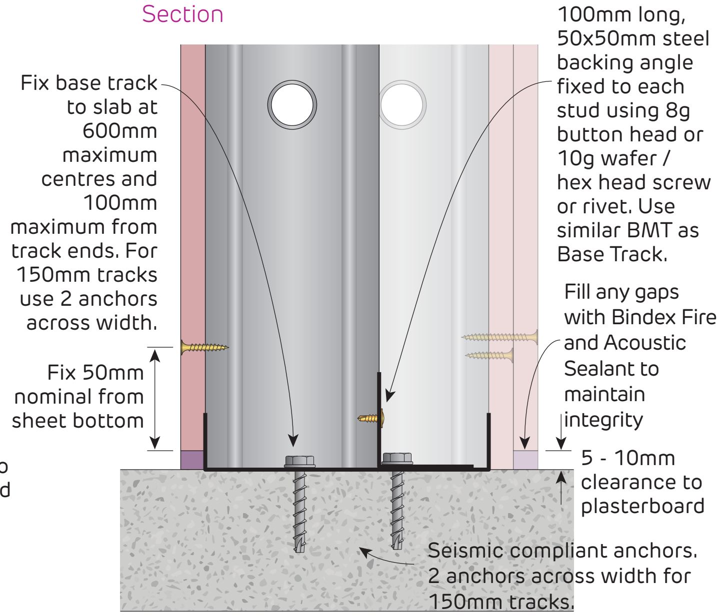



**FIGURE 127** Wall Base - Staggered Stud
92mm Studs in 150mm Base Track
Section

Do not rigidly fix cornice to non-load bearing wall head and soffit, as slab deflection is expected.

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

Details apply from 1 to 4 layers

## Fire Rated
## Internal Staggered Stud Walls

For internal and external corners, fill gaps with either Bindex Fire and Acoustic Sealant or Mastabase jointing compound. Fill any other gaps with Bindex Sealant to maintain integrity. All details apply from 1 to 4 layers.

Details apply from 1 to 4 layers

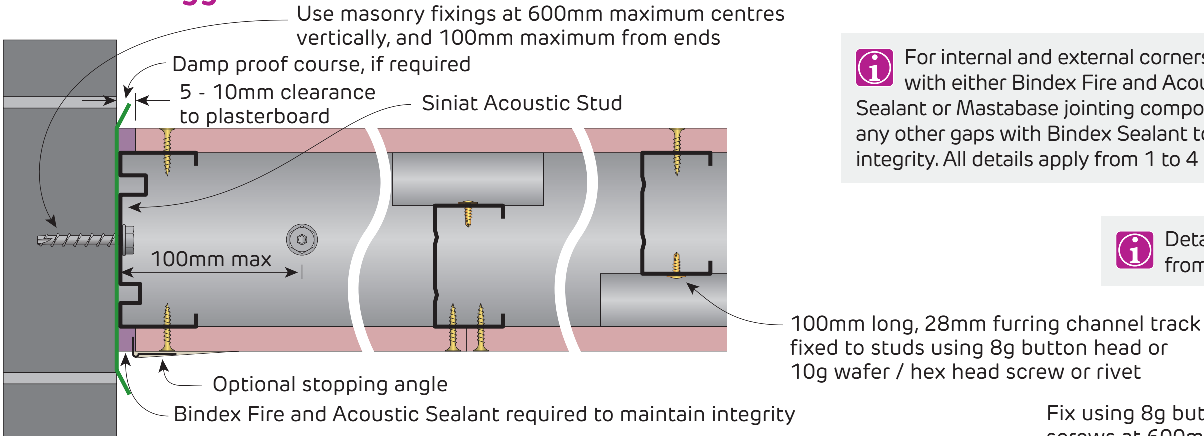



**FIGURE 128** Wall End To Masonry
Plan

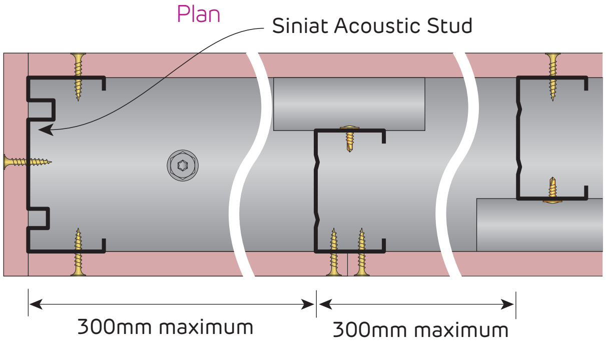
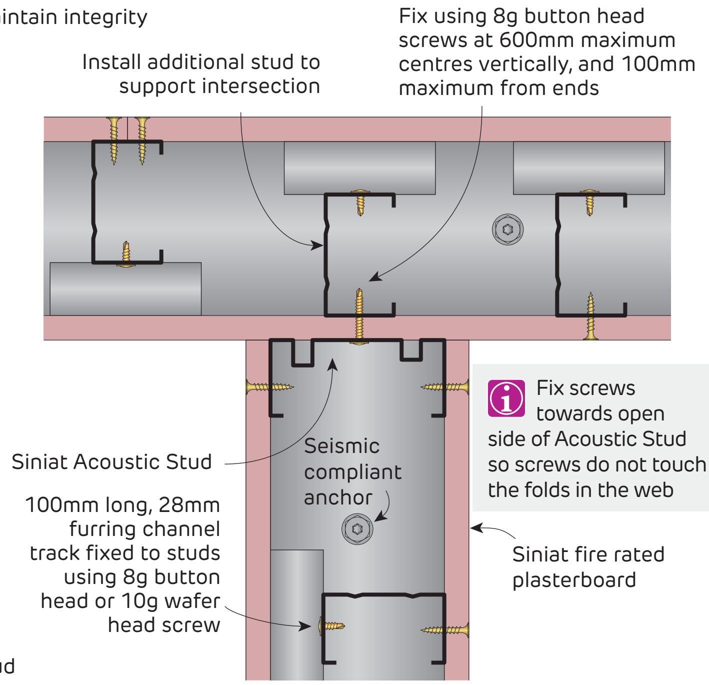



**FIGURE 129** Wall End
Plan




Fix screws towards open side of Acoustic Stud so screws do not touch the folds in the web

**FIGURE 130** Intersecting Wall
Plan

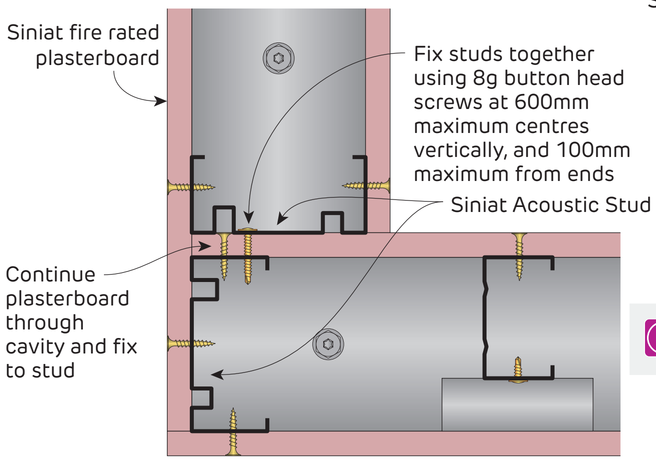



**FIGURE 131** 90⁰ Corner
Plan

Details on this page refer to 64mm studs in a 92mm track only

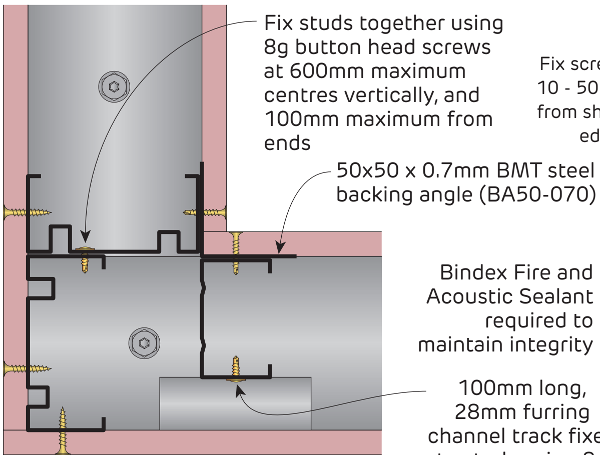



**FIGURE 132** 90⁰ Corner
Plan

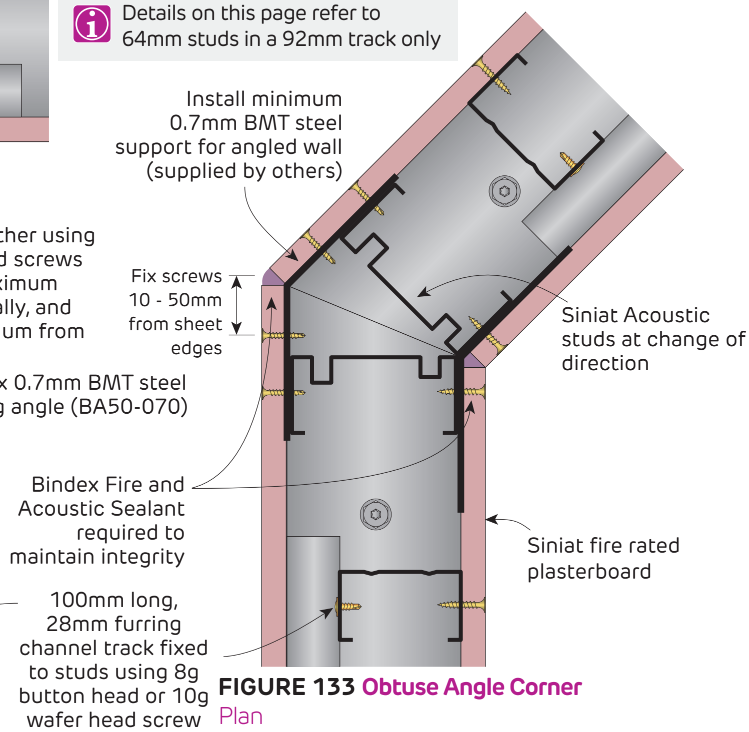



**FIGURE 133** Obtuse Angle Corner
Plan

## Fire Rated and Non-Fire Rated
## Head and Base Details for Internal Acoustic Stud Walls - Lined Full Height

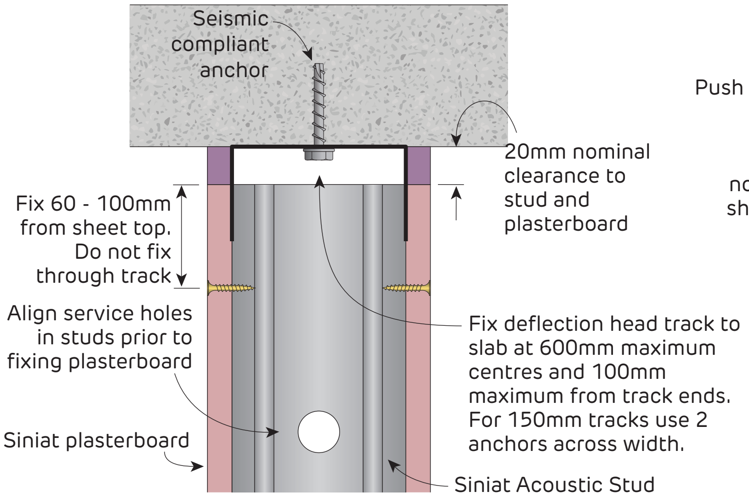



**FIGURE 134 Wall Head**
Acoustic Stud with Deflection Head Track
Section

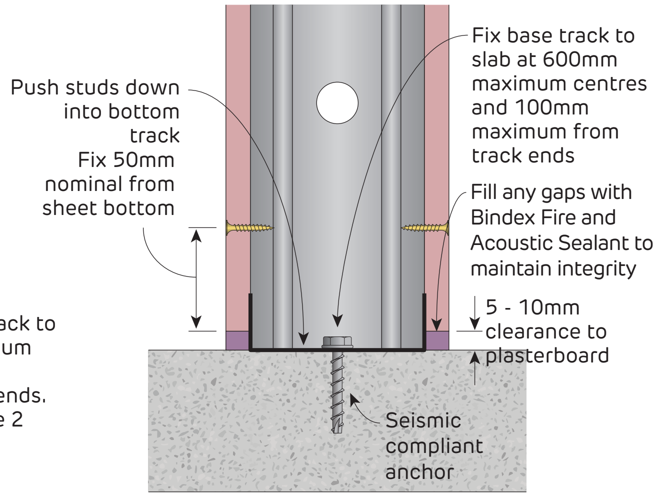
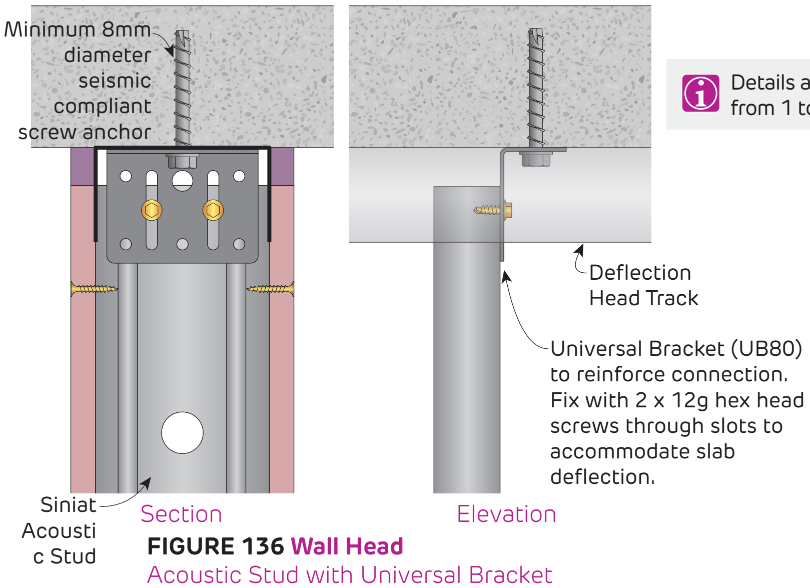



**FIGURE 135 Wall Base**
Acoustic Stud
Section

Details apply from 1 to 4 layers




Details apply from 1 to 4 layers

**FIGURE 136 Wall Head**
Acoustic Stud with Universal Bracket

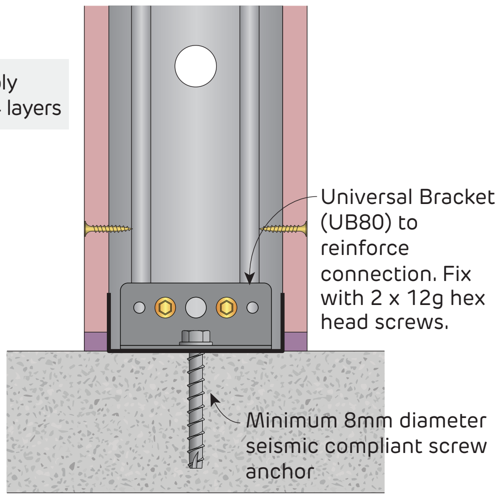



**FIGURE 137 Wall Base**
Acoustic Stud with Universal Bracket
Section

## Fire Rated
## Step in Concrete Slab Detail for Internal Stud Walls

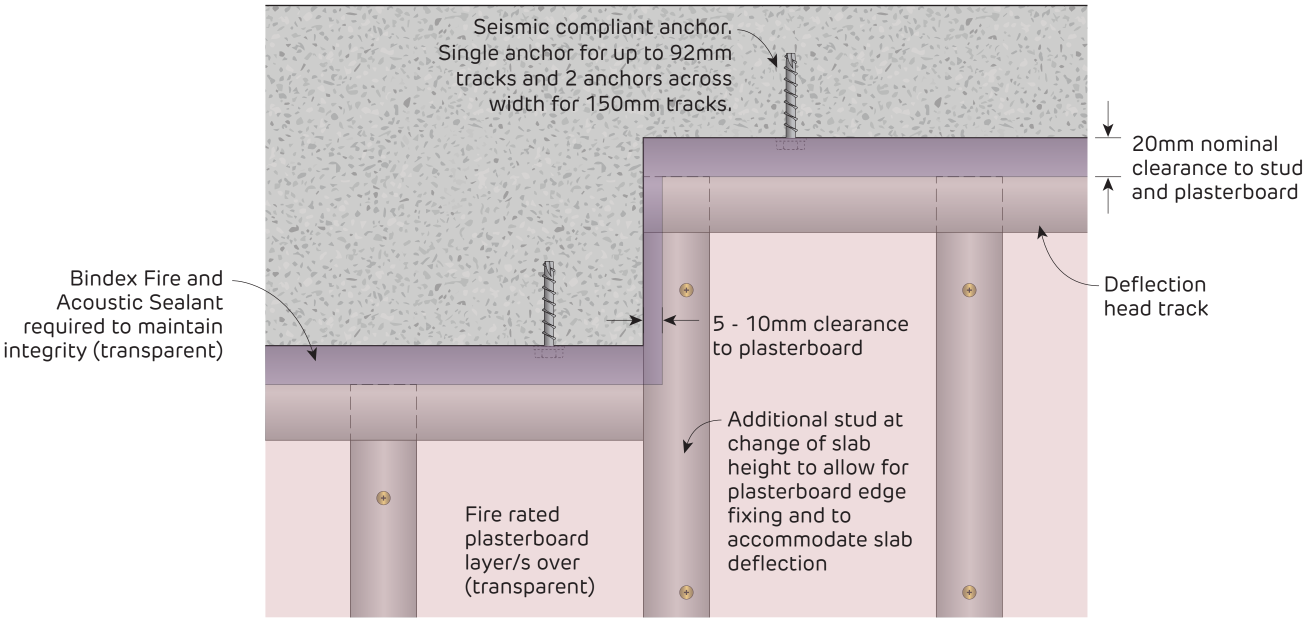



**FIGURE 138** **Step in Concrete Slab**
Elevation

Details apply from 1 to 4 layers

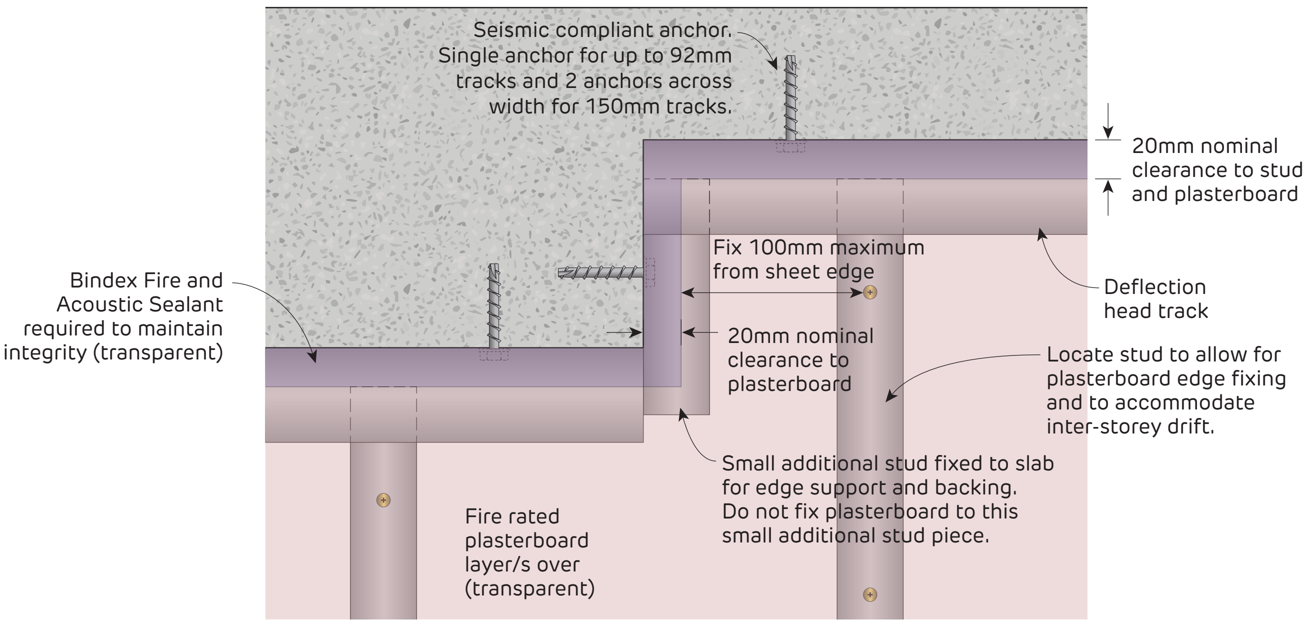



**FIGURE 139** **Step in Concrete Slab with 20mm allowance for Inter-Storey Drift**
Elevation

## Fire Rated
## Sliding Connection Details for Internal Stud Walls

Do not rigidly fix cornice to non-load bearing wall head and soffit, as slab deflection is expected.

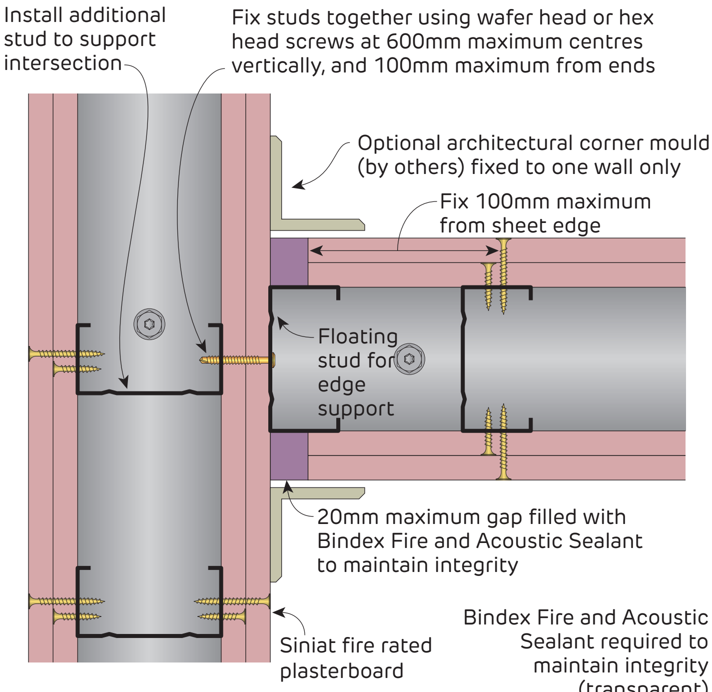



**FIGURE 140** Sliding Wall End To Plasterboard
Plan

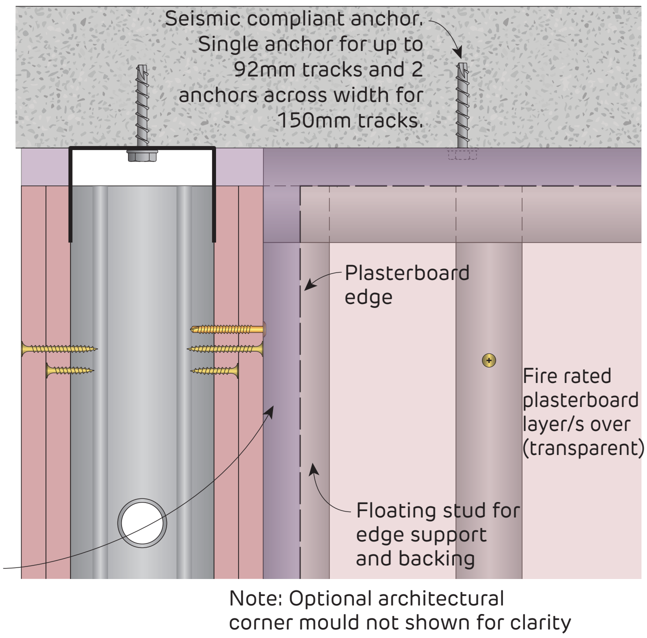



**FIGURE 141** Sliding Wall End To Plasterboard
Elevation

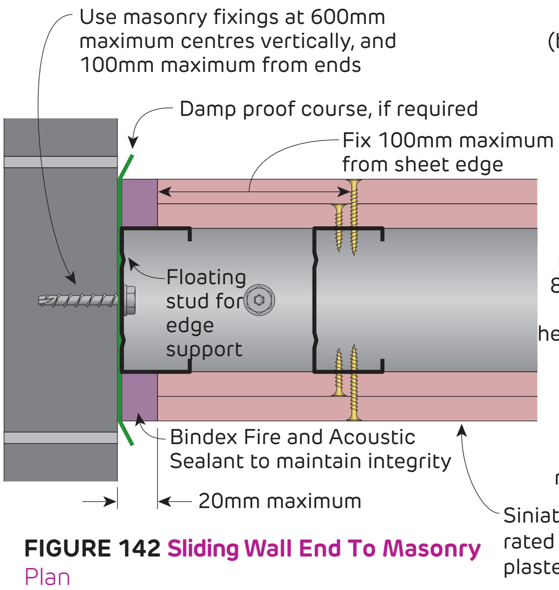



**FIGURE 142** Sliding Wall End To Masonry
Plan

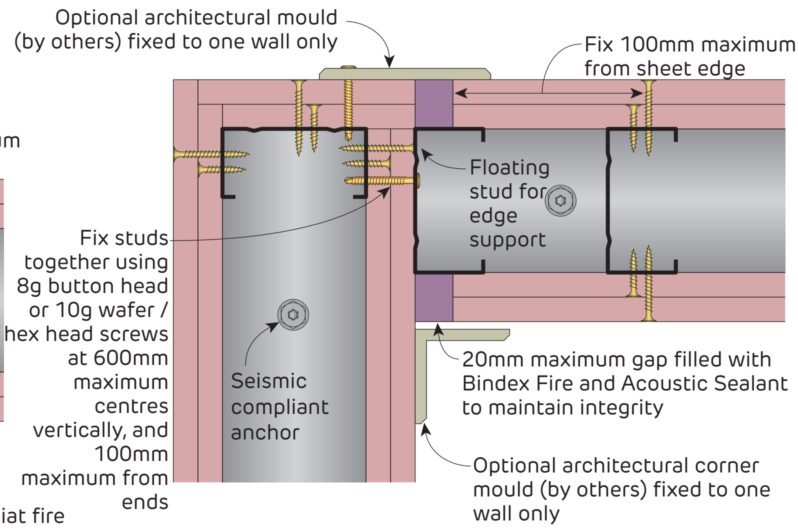



**FIGURE 143** 90° Sliding Corner
Plan

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

Details apply from 1 to 4 layers

## Fire Rated

## Sliding Connection Details for Internal Stud Walls

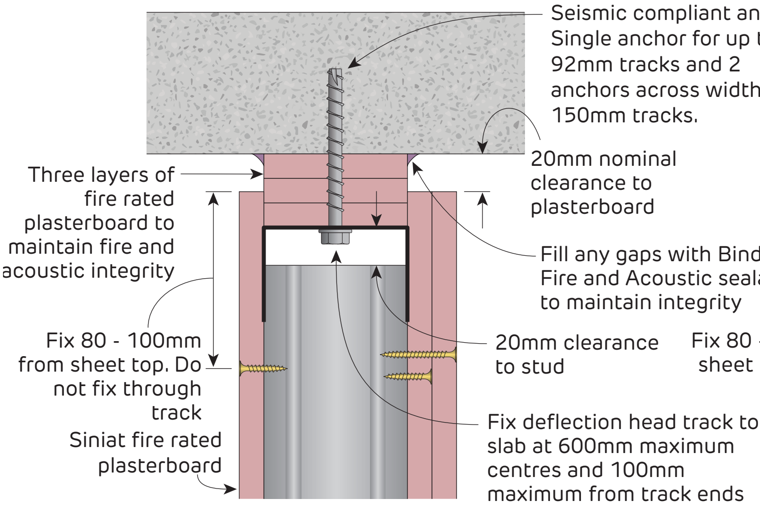



**FIGURE 144** **Sliding Head**
Deflection Head Track
Section

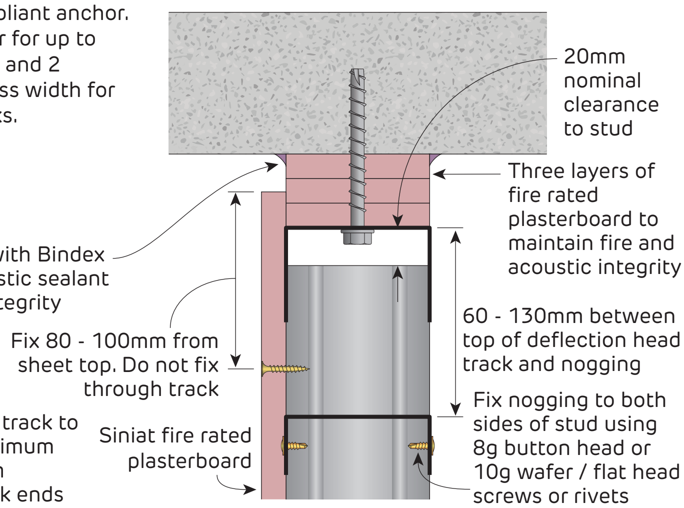



**FIGURE 145** **Sliding Head - Lined One Side Only**
Deflection Head Track
Section

Do not rigidly fix cornice to non-load bearing wall head and soffit, as slab deflection is expected.

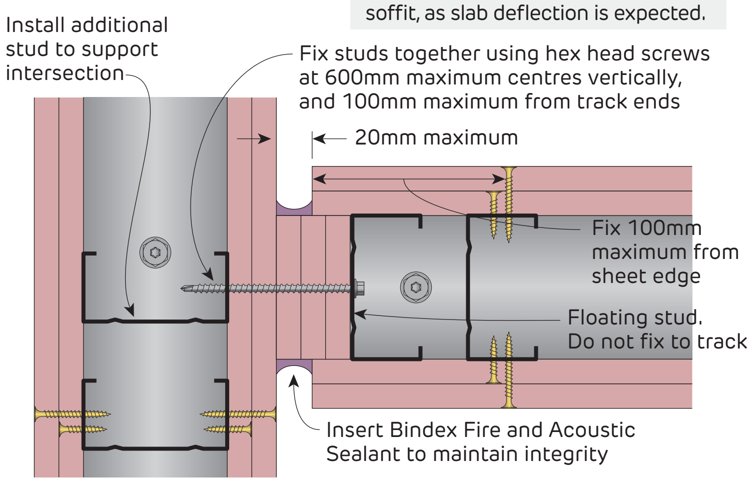



**FIGURE 146** **Sliding Wall End To Plasterboard**
Plan

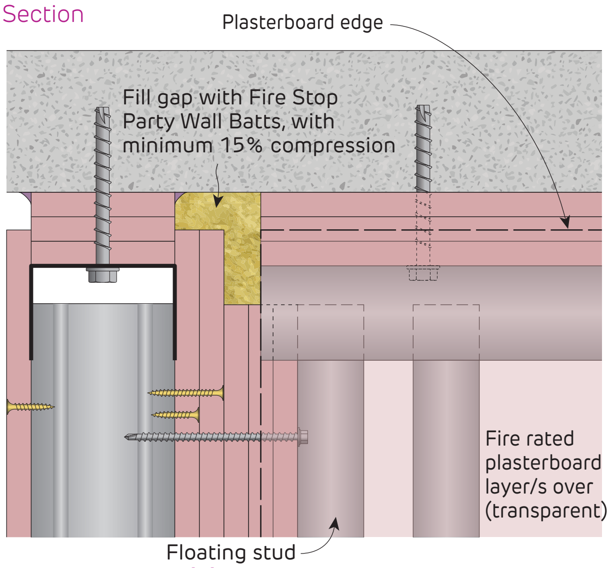



**FIGURE 147** **Sliding Wall End To Plasterboard**
Elevation

Details apply from 1 to 4 layers

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

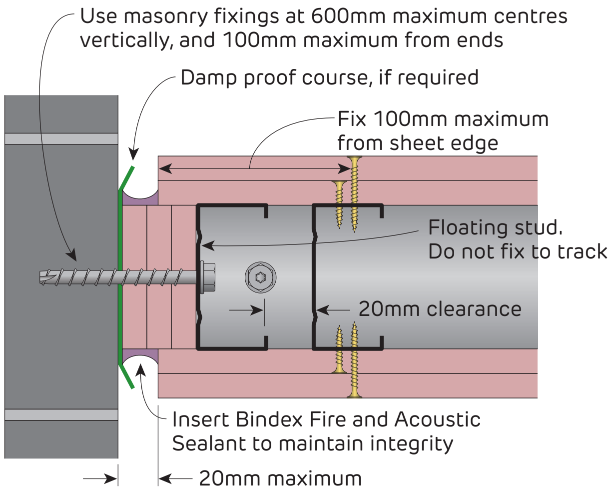



**FIGURE 148** **Sliding Wall End To Masonry**
Plan

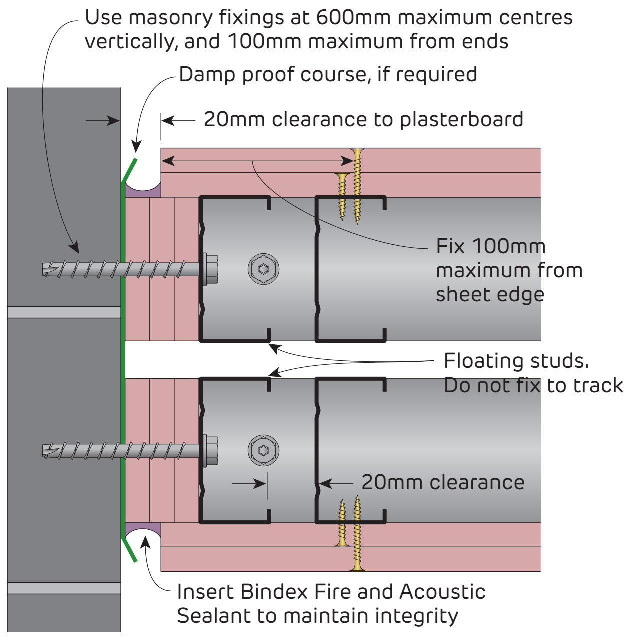
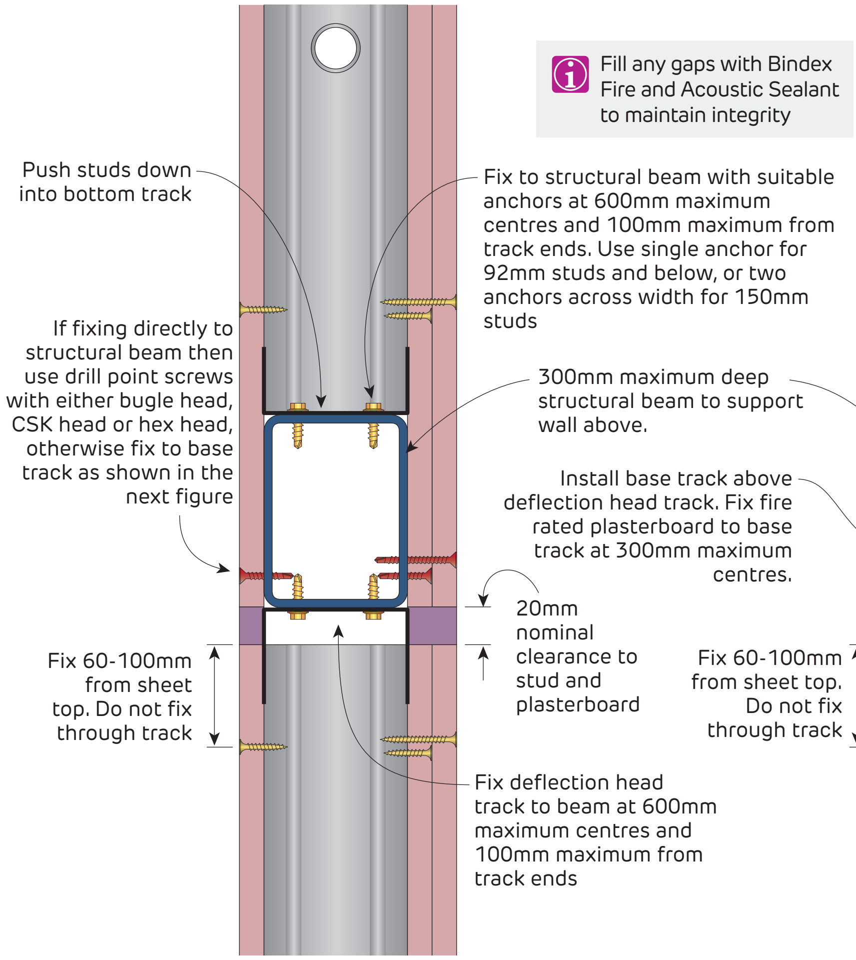



**FIGURE 149** **Sliding Wall End To Masonry**
Plan

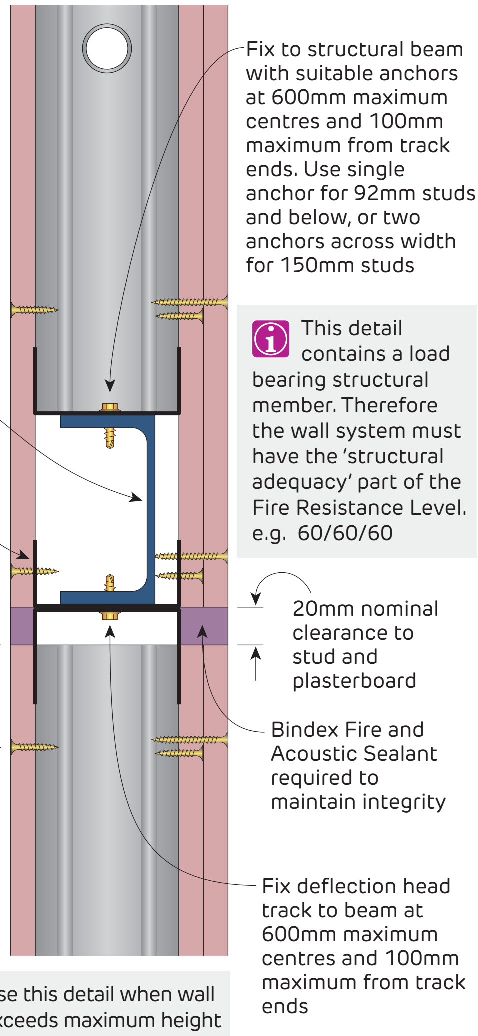
## Fire Rated
## Internal Stud Walls with Integrated Structural Beams to Extend Wall Heights

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity




Use this detail when wall exceeds maximum height

**FIGURE 150** Wall Head to Supporting Beam
With integrated load bearing structural members
Section




This detail contains a load bearing structural member. Therefore the wall system must have the 'structural adequacy' part of the Fire Resistance Level. e.g. 60/60/60

Use this detail when wall exceeds maximum height

**FIGURE 151** Wall Head to Supporting Beam
With integrated load bearing structural members
Section

Details apply from 1 to 4 layers

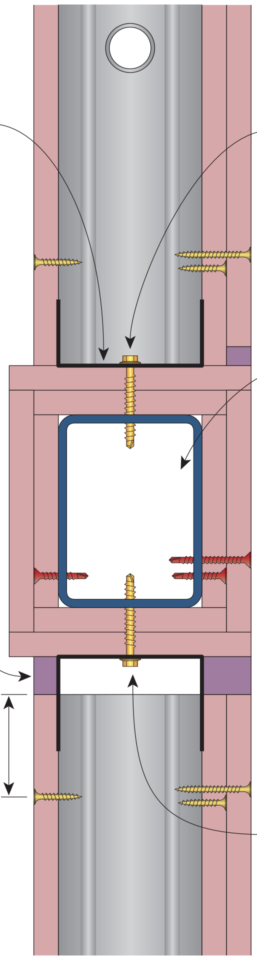
### Table 16 Suggested Sizing of Structural Members in Steel Stud Plasterboard Walls

| Stud Size (mm) | Structural Members | | |
|---|---|---|---|
| | RHS | SHS | PFC |
| 51 | 75x50 RHS<br>100x50 RHS<br>127x51 RHS<br>150x50 RHS | 50x50 SHS | 75PFC5.92<br>100PFC8.33 |
| 64 | 75x50 RHS<br>100x50 RHS<br>127x51 RHS<br>150x50 RHS | 50x50 SHS | 100PFC8.33 |
| 76 | 125x75 RHS<br>102x76 RHS<br>152x76 RHS | 65x65 SHS<br>75x75 SHS | 150PFC17.7<br>180PFC20.9<br>200PFC22.9<br>230PFC25.1 |
| 92 | 125x75 RHS<br>102x76 RHS<br>152x76 RHS | 75x75 SHS<br>89x89 SHS<br>90x90 SHS | - |
| 150 | 250x150 RHS | 150x150 SHS | - |

## Fire Rated
## Internal Stud Walls to Structural Members

Details apply from 1 to 4 layers

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

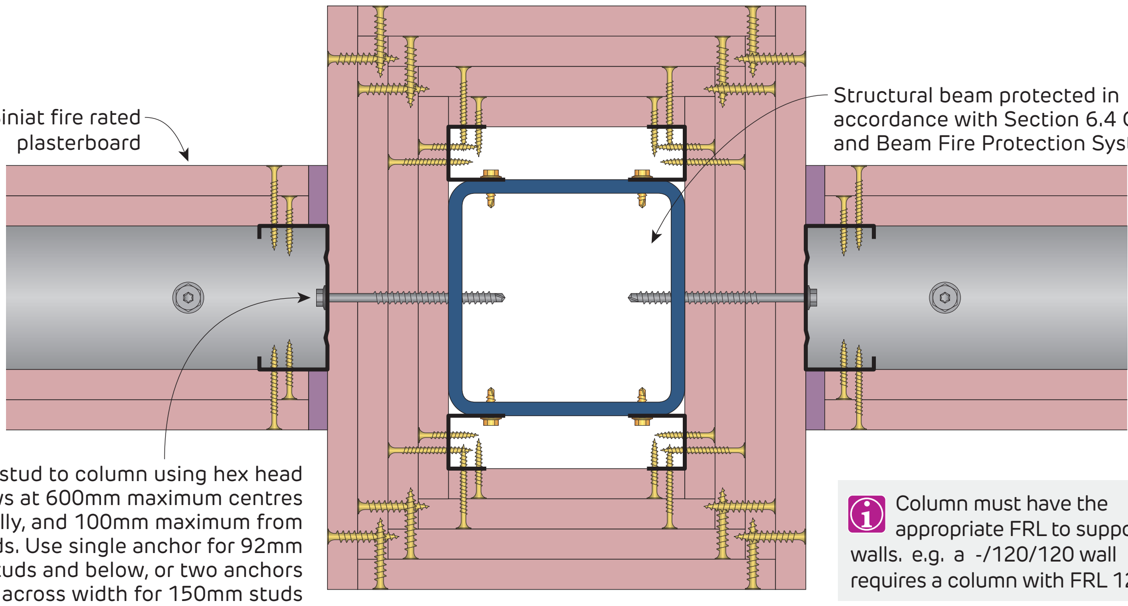



Beam must have the appropriate FRL to support walls. e.g. a -/120/120 wall requires a beam with FRL 120/-/-

Refer to Section 6.4 for Column and Beam Fire Protection systems and installation details

Use this detail when wall exceeds maximum height

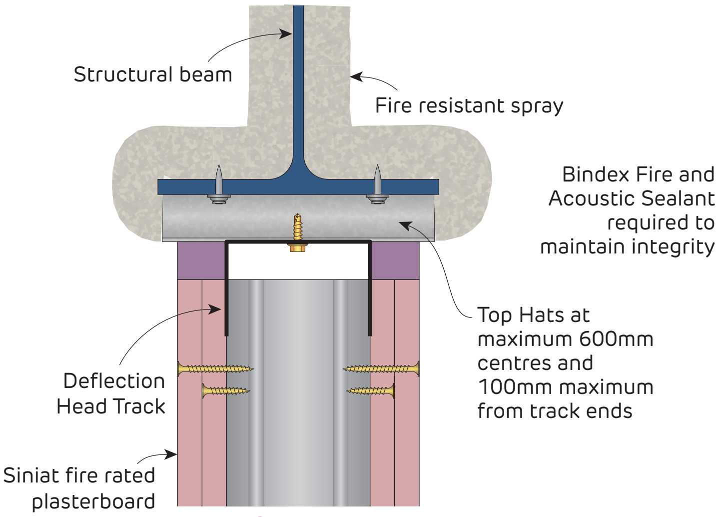
**FIGURE 152** **Wall Head to Supporting Beam**
Section




Column must have the appropriate FRL to support walls. e.g. a -/120/120 wall requires a column with FRL 120/-/-

**FIGURE 153** **Wall to Structural Column**
Plan

## Fire Rated
## Internal Stud Walls to Structural Members



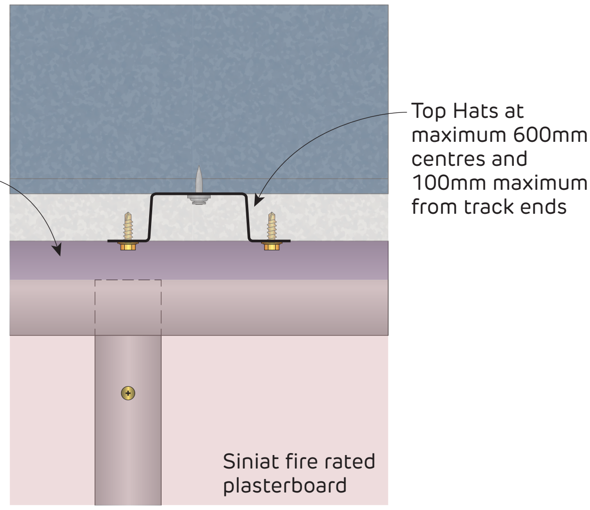
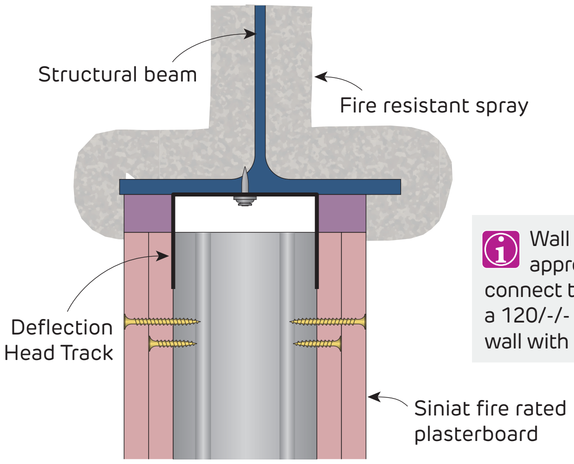




**FIGURE 154** Internal Wall to Structural Beam

Details apply from 1 to 4 layers




Wall must have the appropriate FRL to connect to the beam. e.g. a 120/-/- beam requires a wall with FRL 120/120/120

**FIGURE 155** Internal Wall to Structural Beam
Section

## Fire Rated
## Internal Wall Built Around Columns

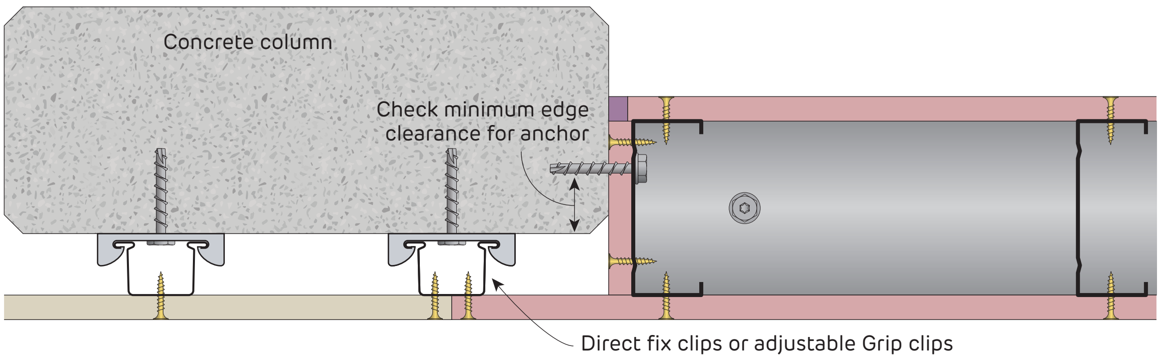



**FIGURE 156** Fire rated Partition Wall to Concrete Column
Plan

## Fire Rated
## Internal Wall Built Around Columns

Details apply from 1 to 4 layers

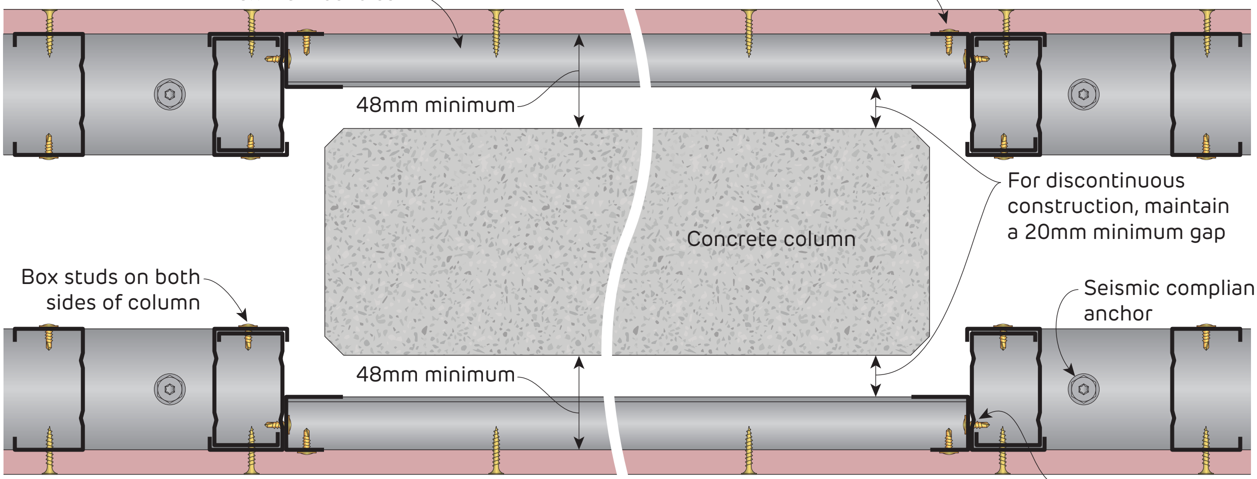



**FIGURE 157** **Blade Wall**
Discontinuous Construction
Plan

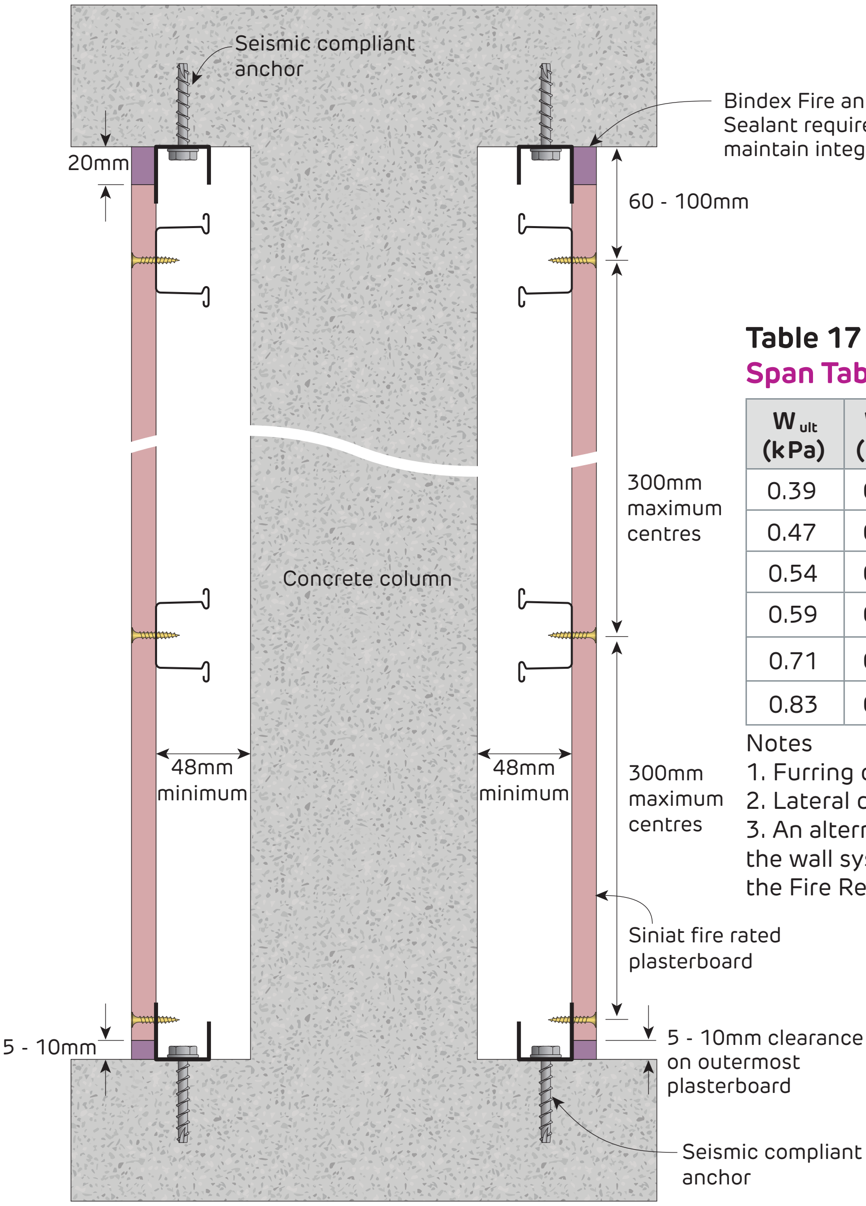



**FIGURE 158** **Blade Wall**
Discontinuous Construction
Section

Insulation not shown for clarity. Refer to System PMW101 in Section 3.5 for lining and insulation required.

### Table 17 Horizontal Furring Channel Span Table over Column

| $W_{ult}$ (kPa) | $W_{ser}$ (kPa) | 28mm Furring Channel (mm) |
|---|---|---|
| 0.39 | 0.25 | 1350 |
| 0.47 | 0.3 | 1280 |
| 0.54 | 0.35 | 1240 |
| 0.59 | 0.25 | 1210 |
| 0.71 | 0.3 | 1150 |
| 0.83 | 0.35 | 1100 |

Notes
1. Furring channels at 300mm maximum centres
2. Lateral deflection limited to span/240
3. An alternative framing design may be used provided the wall system has the 'structural adequacy' part to the Fire Resistance Level for the time period required.

Outermost plasterboard sheets with no gap at the base are at risk of moisture wicking

## Fire Rated
## Internal Wall Built Around Columns

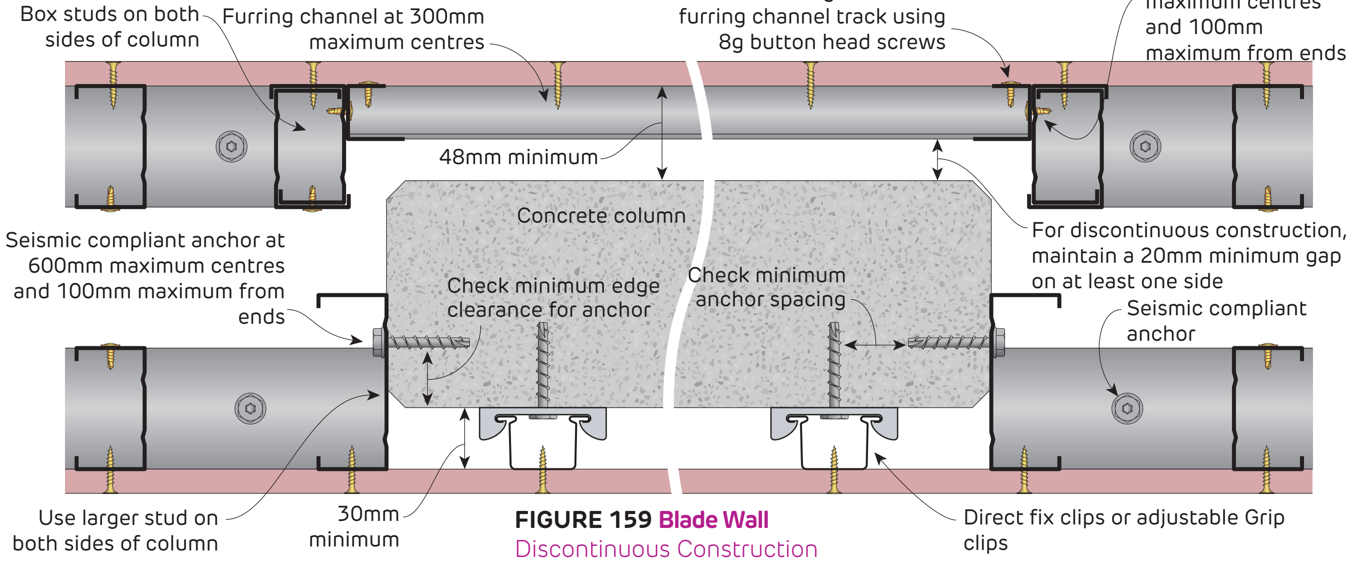



**FIGURE 159 Blade Wall**
Discontinuous Construction
Plan

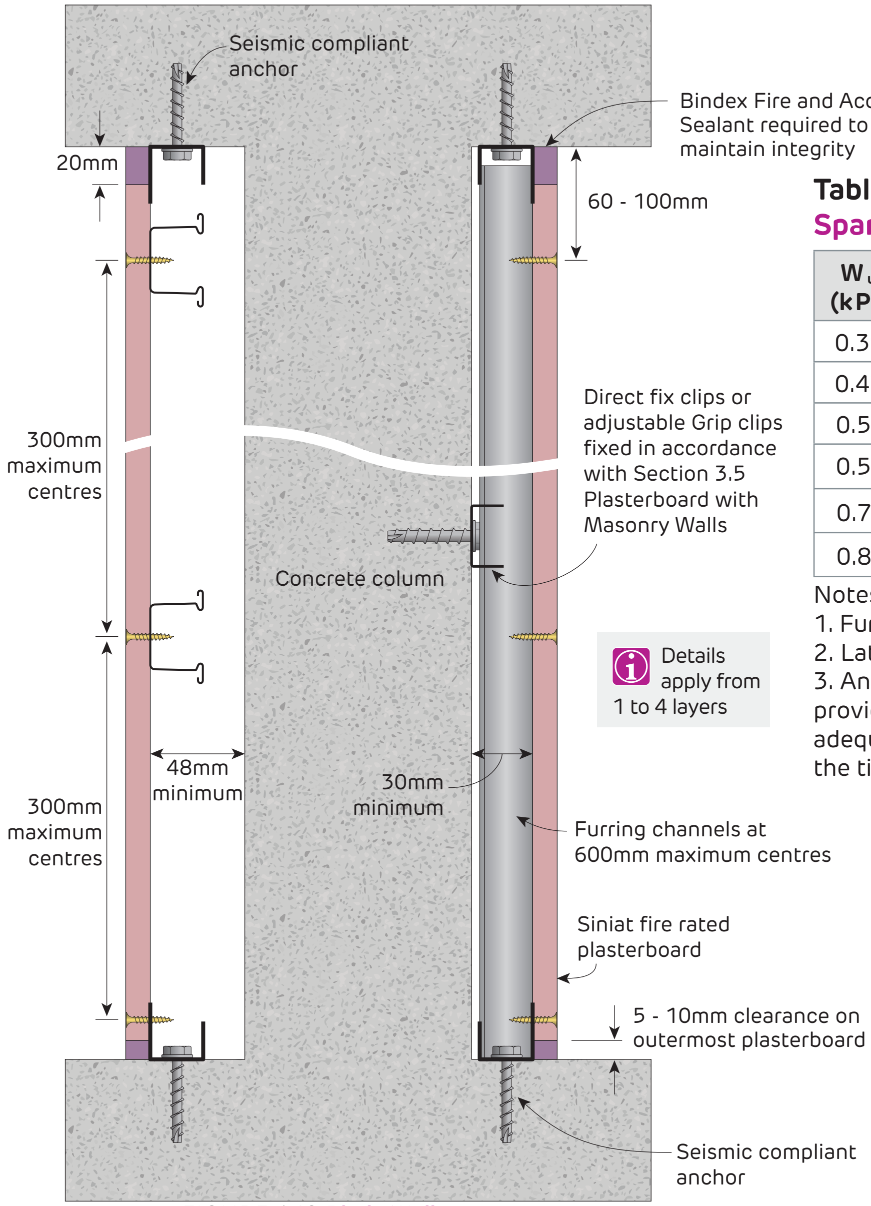



**FIGURE 160 Blade Wall**
Discontinuous Construction
Section

Insulation not shown for clarity. Refer to System PMW101 in Section 3.5 for lining and insulation required.

Details apply from 1 to 4 layers

### Table 18 Horizontal Furring Channel Span Table over Column

| $W_{ult}$ (kPa) | $W_{ser}$ (kPa) | 28mm Furring Channel (mm) |
|---|---|---|
| 0.39 | 0.25 | 1350 |
| 0.47 | 0.3 | 1280 |
| 0.54 | 0.35 | 1240 |
| 0.59 | 0.25 | 1210 |
| 0.71 | 0.3 | 1150 |
| 0.83 | 0.35 | 1100 |

Notes
1. Furring channels at 300mm maximum centres
2. Lateral deflection limited to span/240
3. An alternative framing design may be used provided the wall system has the ‘structural adequacy’ part to the Fire Resistance Level for the time period required.

If a discontinuous wall (Separating Wall) is required, then Direct fix clips or adjustable Grip clips may only be used on one side of the concrete column, and the other side must be separated with a minimum 20mm gap.

Outermost plasterboard sheets with no gap at the base are at risk of moisture wicking

## Fire Rated
## Internal Wall Built Around Columns

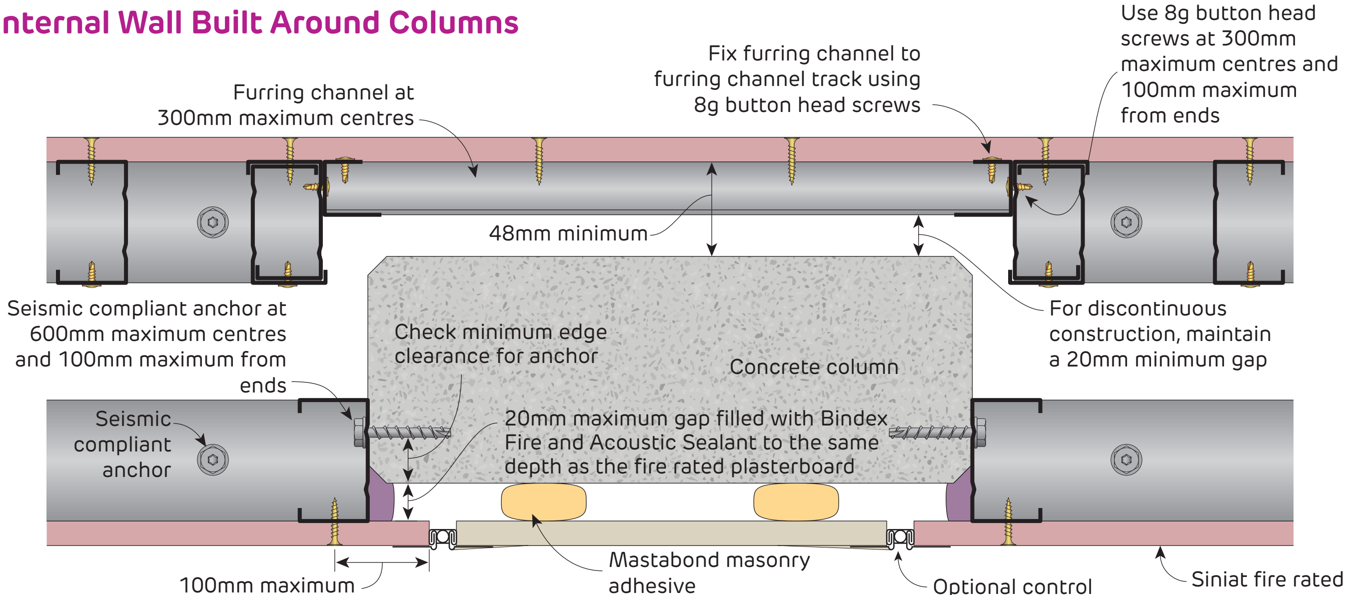
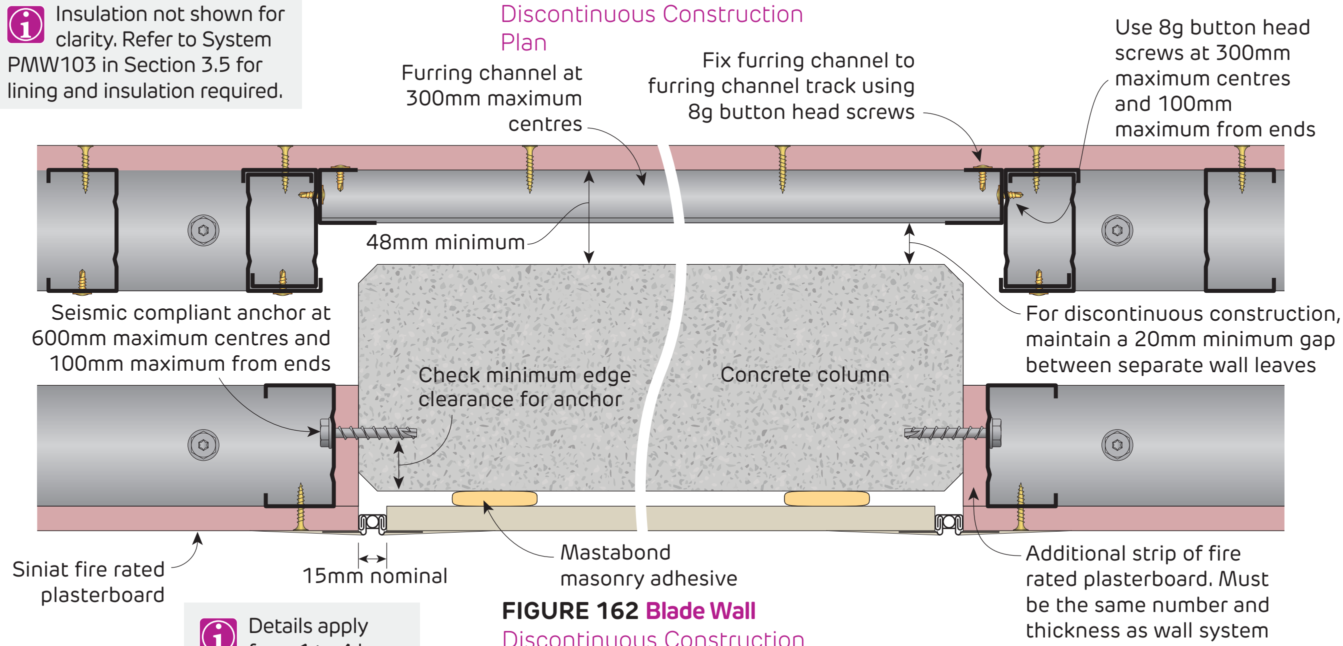



**FIGURE 161 Blade Wall**
Discontinuous Construction
Plan

Insulation not shown for clarity. Refer to System PMW103 in Section 3.5 for lining and insulation required.




Details apply from 1 to 4 layers

**FIGURE 162 Blade Wall**
Discontinuous Construction
Plan

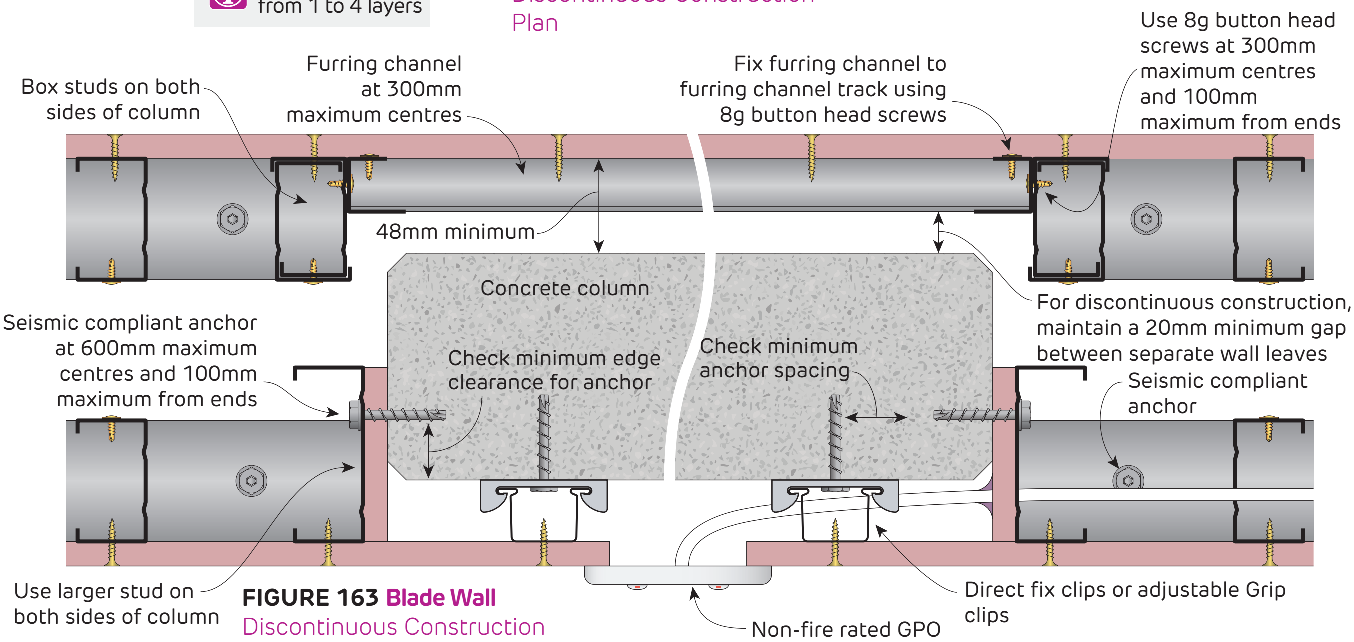
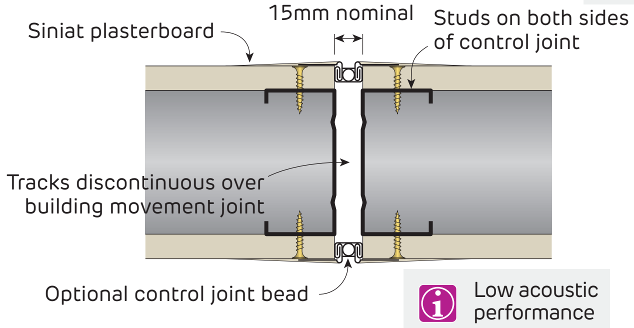



**FIGURE 163 Blade Wall**
Discontinuous Construction
Plan

## Fire Rated and Non-Fire Rated Control Joints in Stud Walls

All control joint details apply from 1 to 4 layers




Low acoustic performance

**FIGURE 164 Control Joint**
Plan

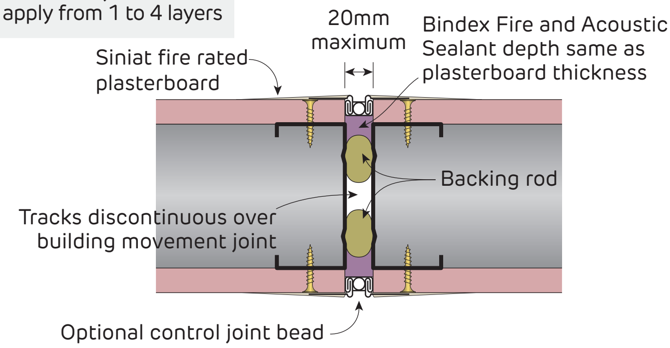



**FIGURE 165 Control Joint**
Fire rated - 1 layer with control joint bead
Plan

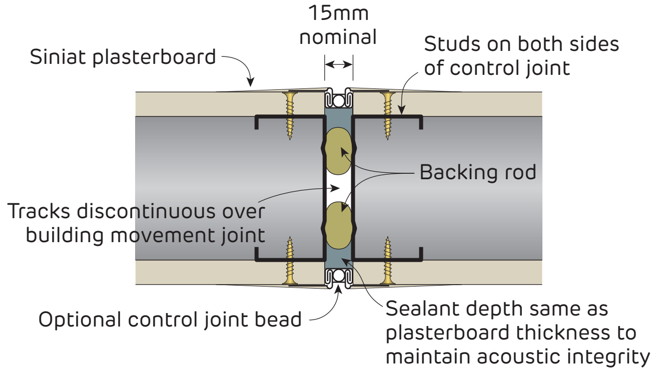



**FIGURE 166 Control Joint**
Plan

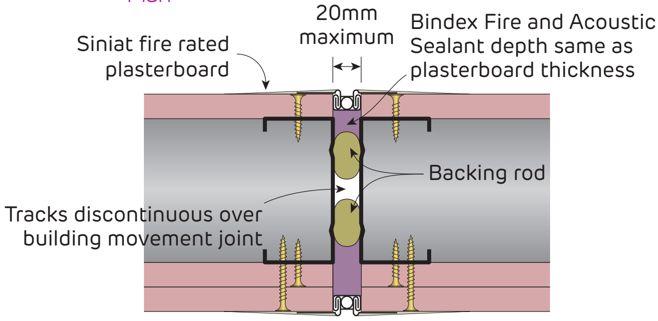



**FIGURE 167 Control Joint**
Fire rated - 1 layer on side side and 2 layers on the other side - Plan

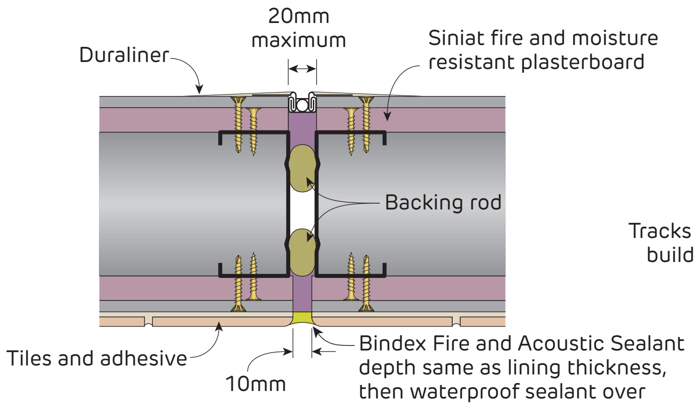



**FIGURE 168 Control Joint**
Fire rated for wet area
Plan

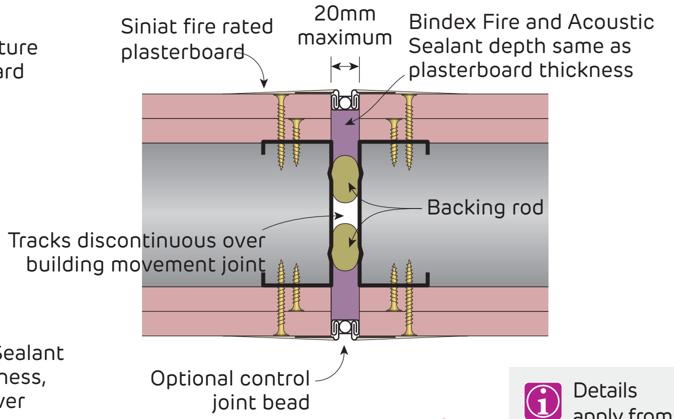



**FIGURE 169 Control Joint**
Fire rated - 2 layers
Plan

Details apply from 1 to 4 layers

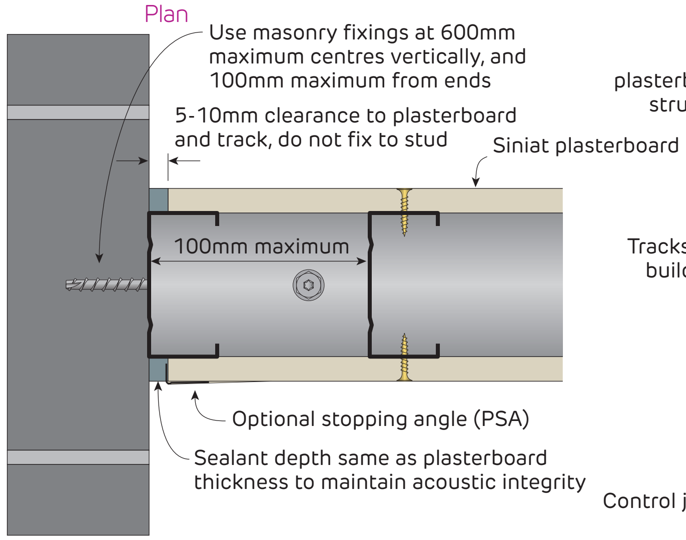



**FIGURE 170 Sliding Wall End to Intersecting Wall**
Plan

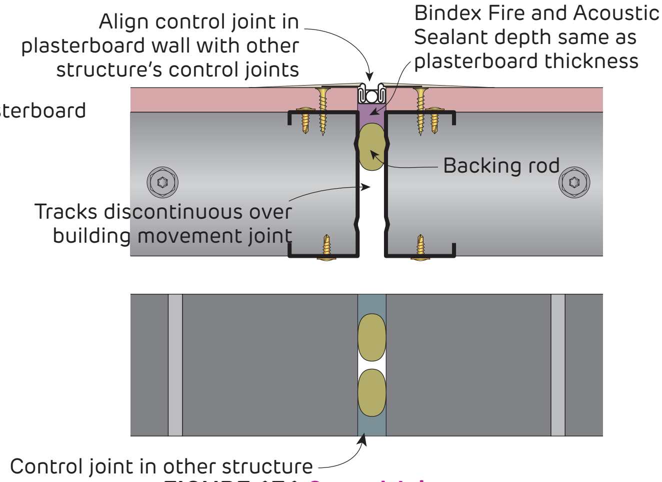



**FIGURE 171 Control Joint**
Fire rated
Plan

## Fire Rated
## Fire Penetration Details for Internal Stud Walls

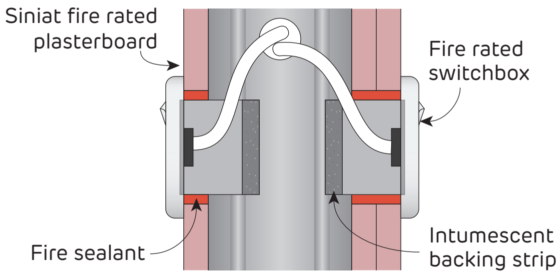
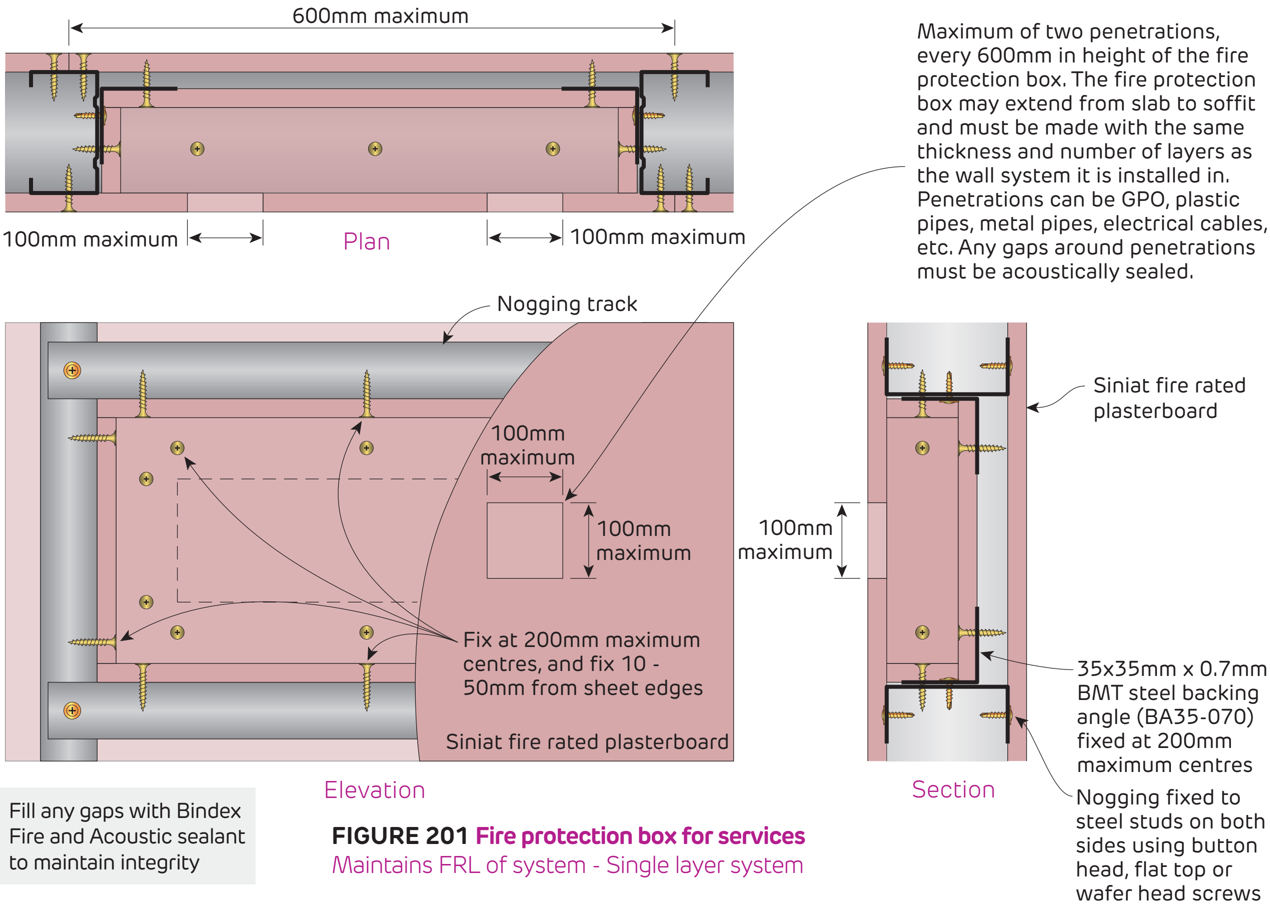



**FIGURE 200** Fire Rated Power-point GPO
Example only
Section

Refer to proprietary fire product manufacturer for performance and specific installation detail as well as approval for use in the selected building element.

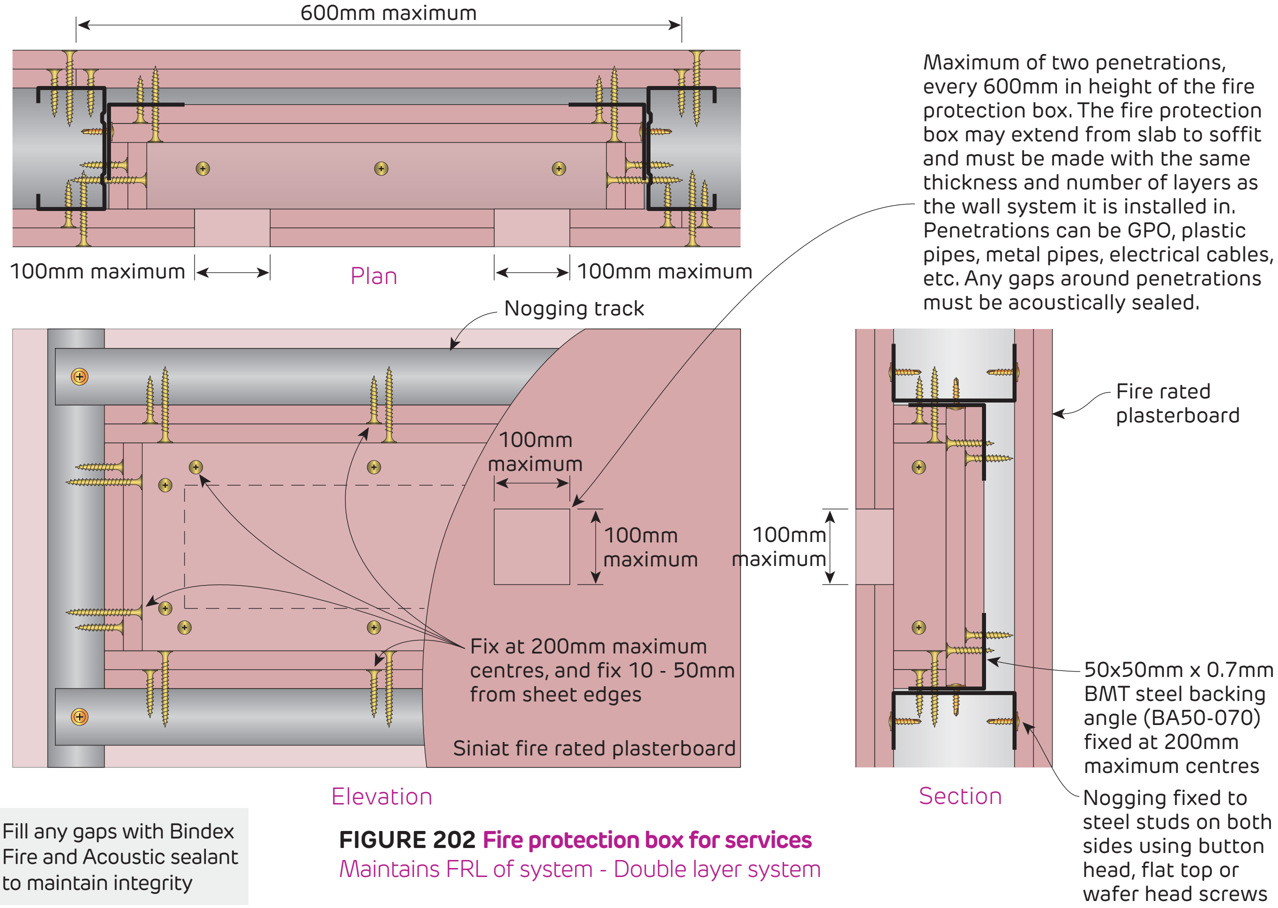



Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

**FIGURE 201** Fire protection box for services
Maintains FRL of system - Single layer system

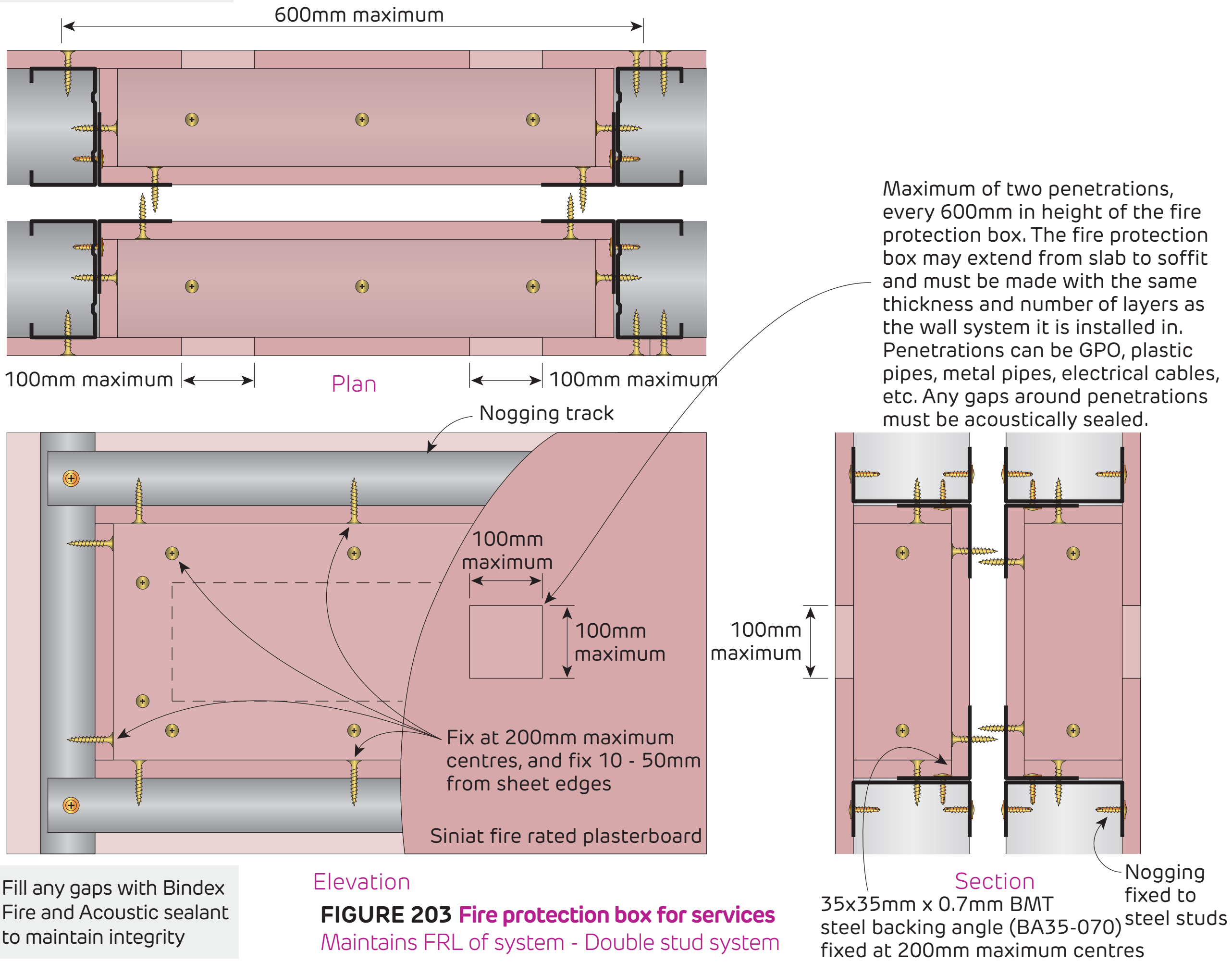
## Fire Rated

## Fire Penetration Details for Internal Stud Walls




Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

**FIGURE 202** **Fire protection box for services**
Maintains FRL of system - Double layer system

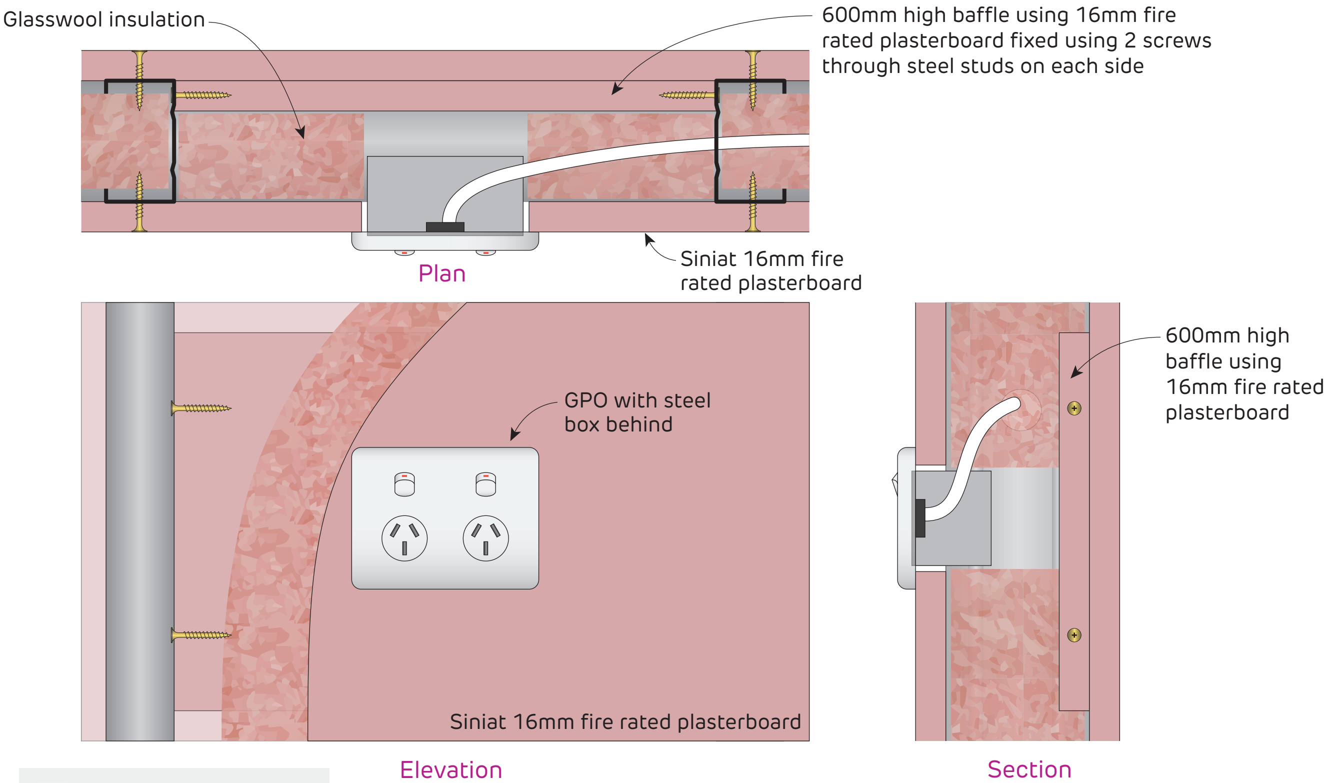



Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

**FIGURE 203** **Fire protection box for services**
Maintains FRL of system - Double stud system

## Fire Rated

## Fire Penetration Details for Internal Stud Walls




Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

**FIGURE 204 Fire Rated Plasterboard Baffle**
Single layer system using 16mm fire rated plasterboard
FRL -/60/60 - Single stud wall

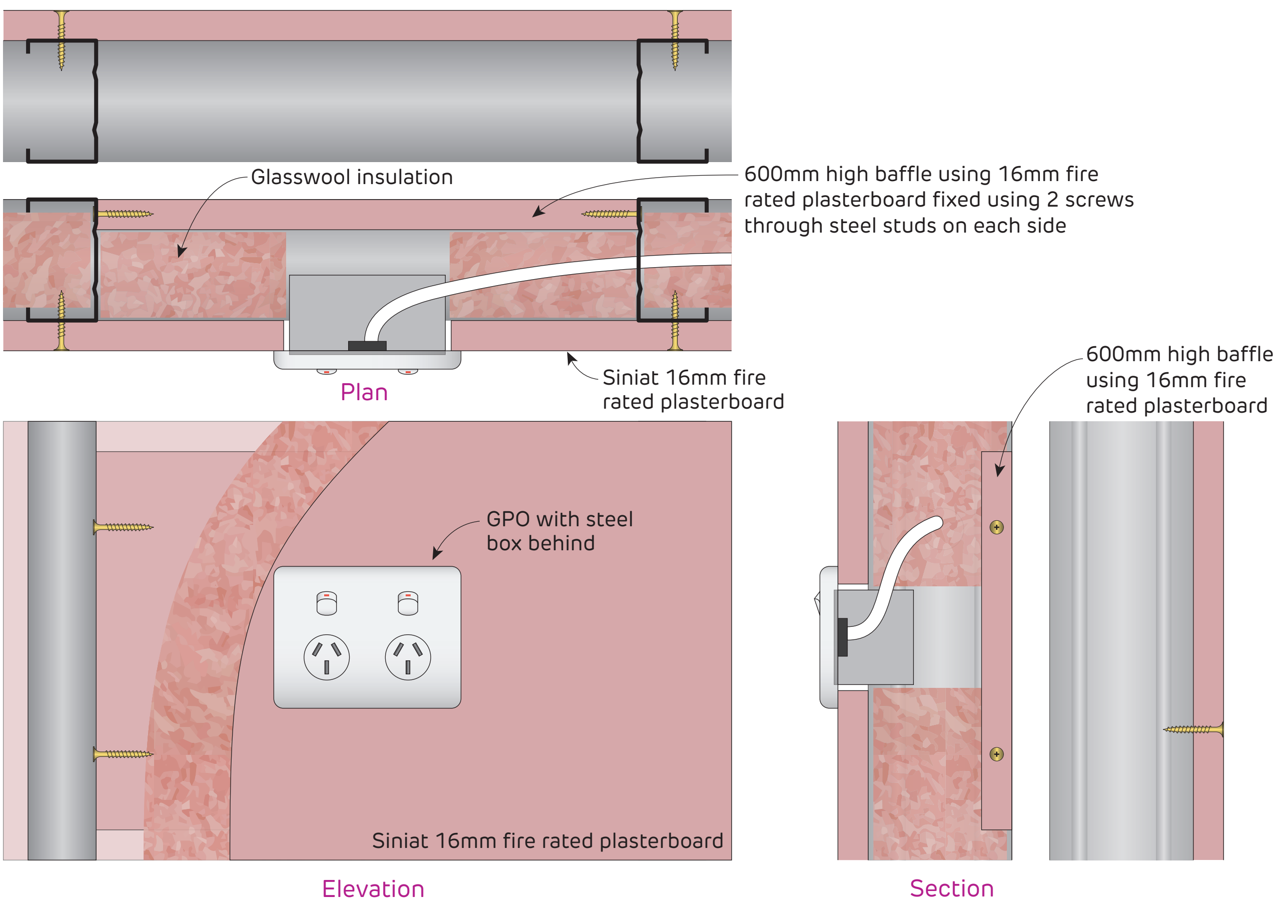



**FIGURE 205 Fire Rated Plasterboard Baffle**
Single layer system using 16mm fire rated plasterboard
FRL -/60/60 - Double stud wall

## Fire Rated
## TPS Power Cable Penetration Details for Stud Walls

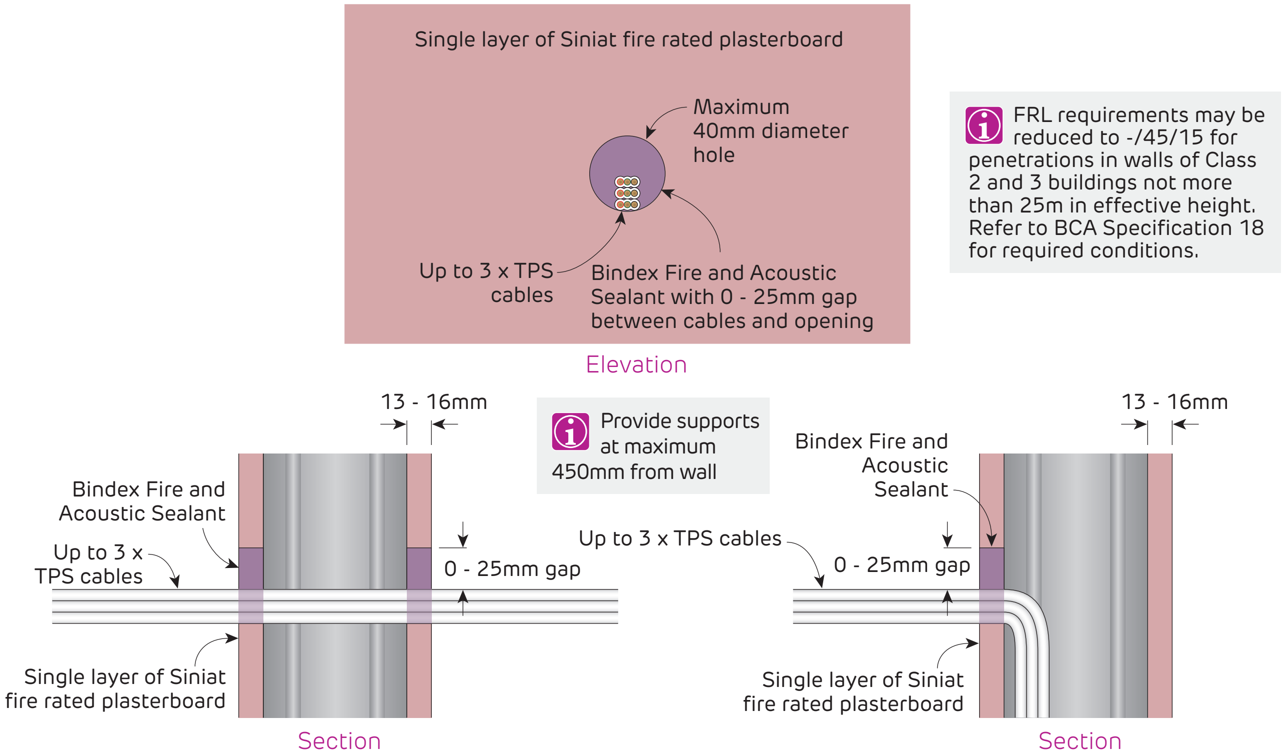
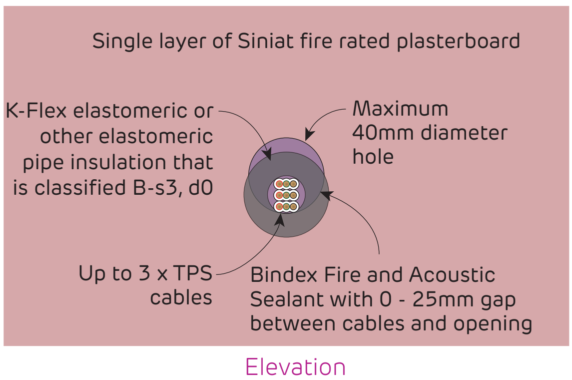



**FIGURE 206** **TPS Cable Penetration**
Single layer system
FRL -/60/30



## Fire Rated
## Power Cable Penetration Details for Stud Walls

FRL requirements may be reduced to -/45/15 for penetrations in walls of Class 2 and 3 buildings not more than 25m in effective height. Refer to BCA Specification 18 for required conditions.

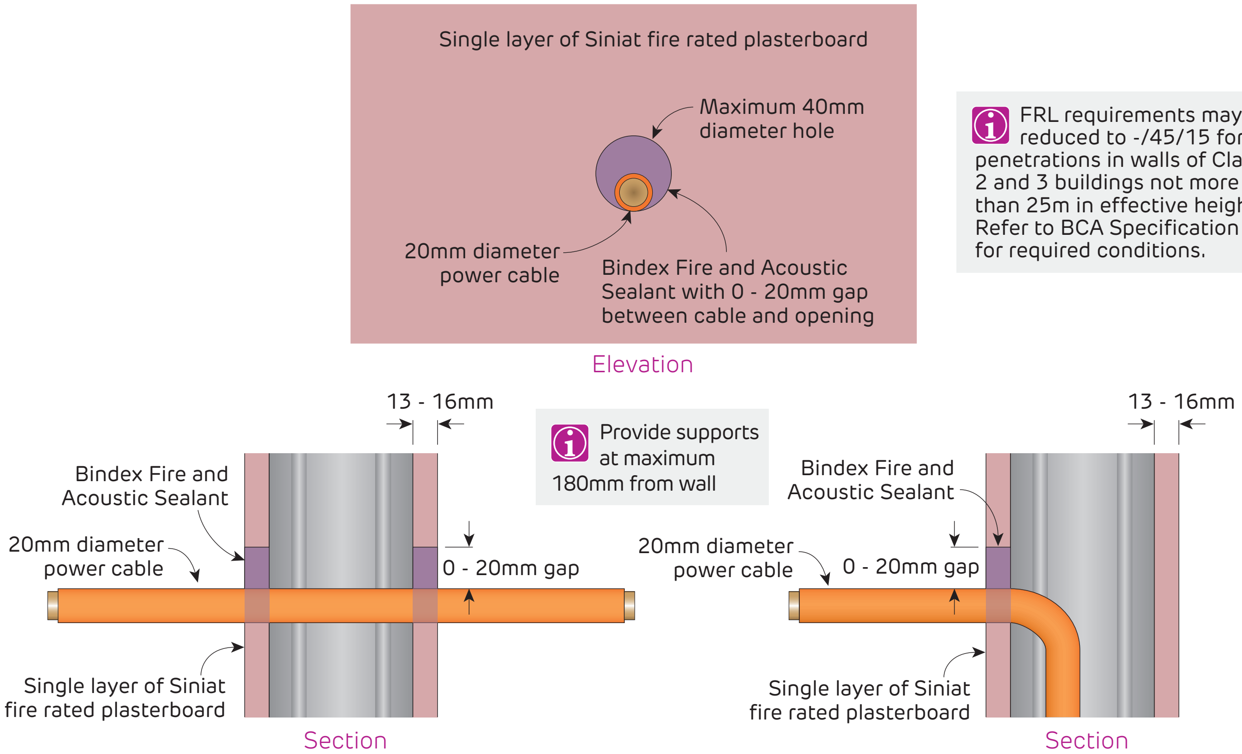



**FIGURE 207 Power Cable Penetration**
Single layer system
FRL -/60/30

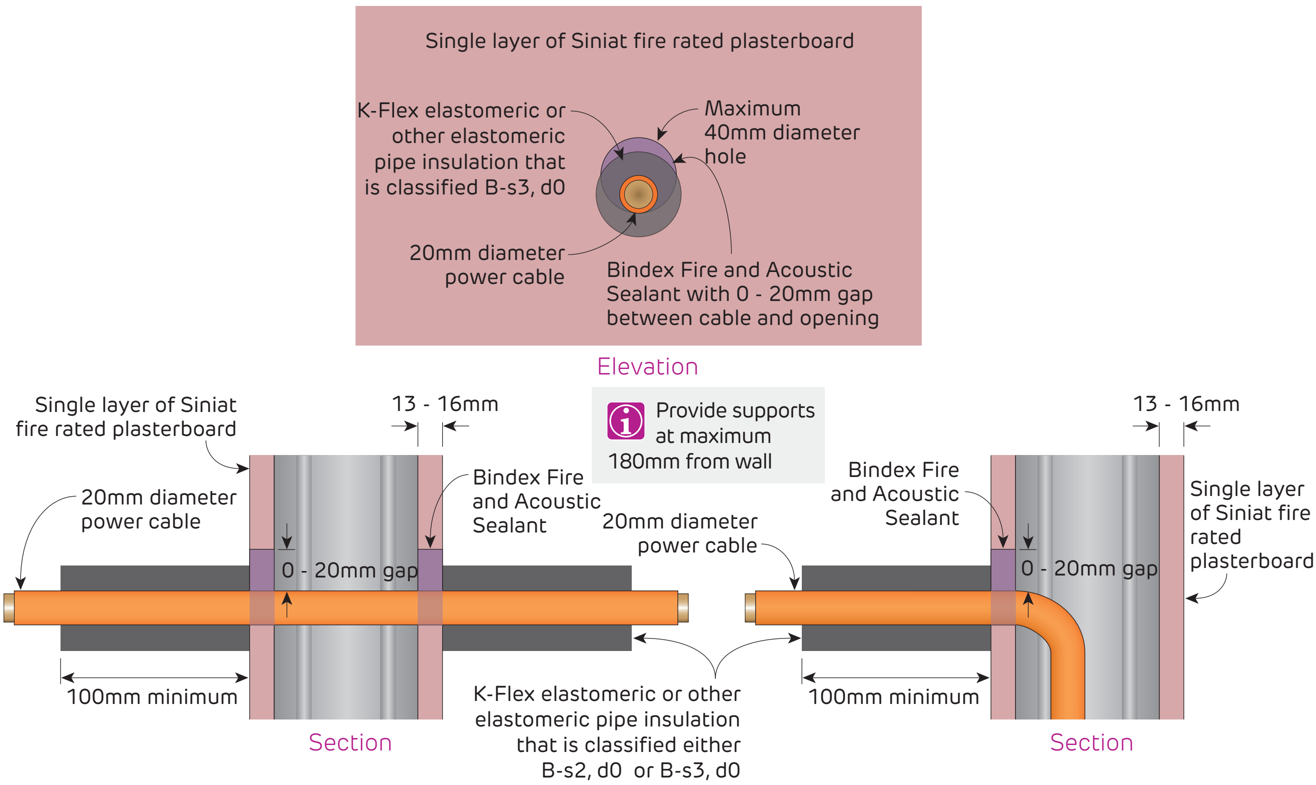
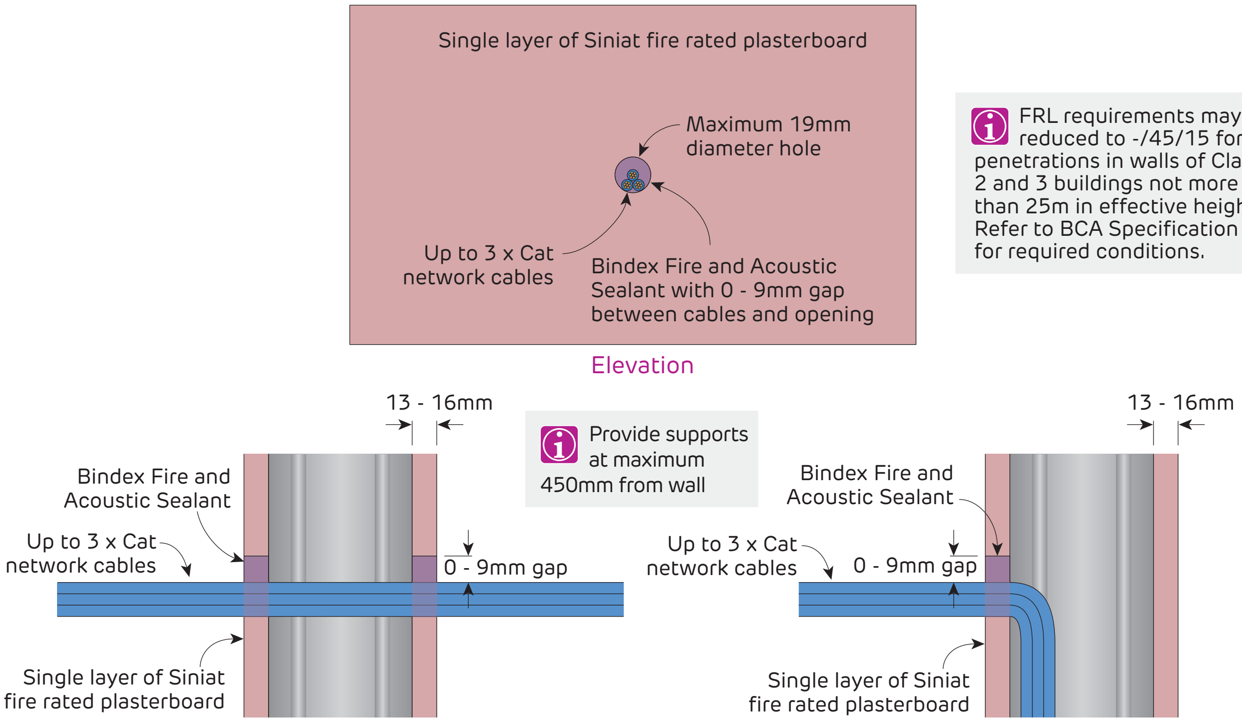



**FIGURE 208 Power Cable Penetration**
Single layer system
FRL -/60/60

## Fire Rated
## Cat Network Cable Penetration Details for Stud Walls

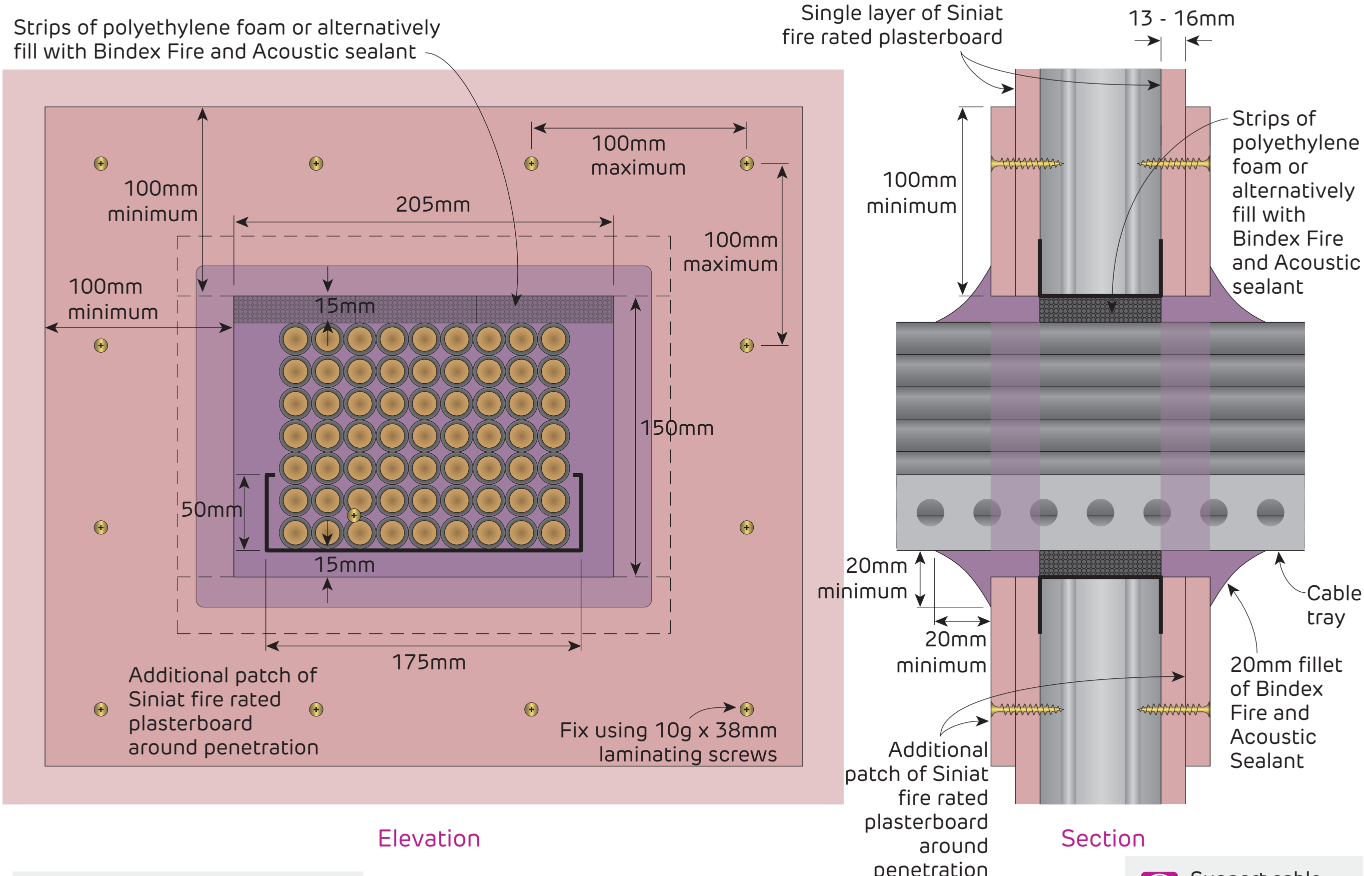



Provide supports at maximum 450mm from wall

FRL requirements may be reduced to -/45/15 for penetrations in walls of Class 2 and 3 buildings not more than 25m in effective height. Refer to BCA Specification 18 for required conditions.

**FIGURE 209** Cat Network Cable Penetration
Single layer system
FRL -/60/60

## Power and Telecommunication Cable Penetration Details for Stud Walls




Refer to Bindex Product Data Sheet for more information

**FIGURE 210** Telecommunication Cable Tray Penetration
FRL -/90/60 limited by wall FRL

Support cable trays 100mm and 400mm from wall

## Fire Rated
## Metal Pipe Penetration Details for Stud Walls

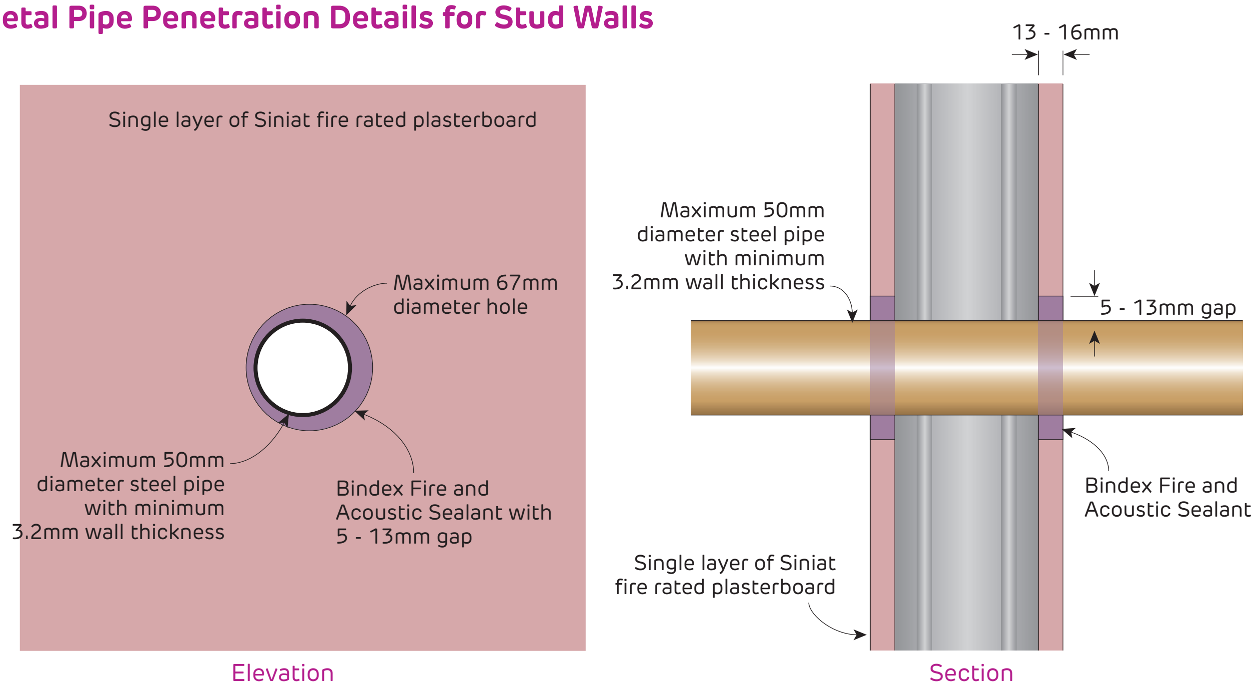



**FIGURE 211** **50mm diameter Steel Pipe Penetration**
Single layer wall system
FRL -/60/30

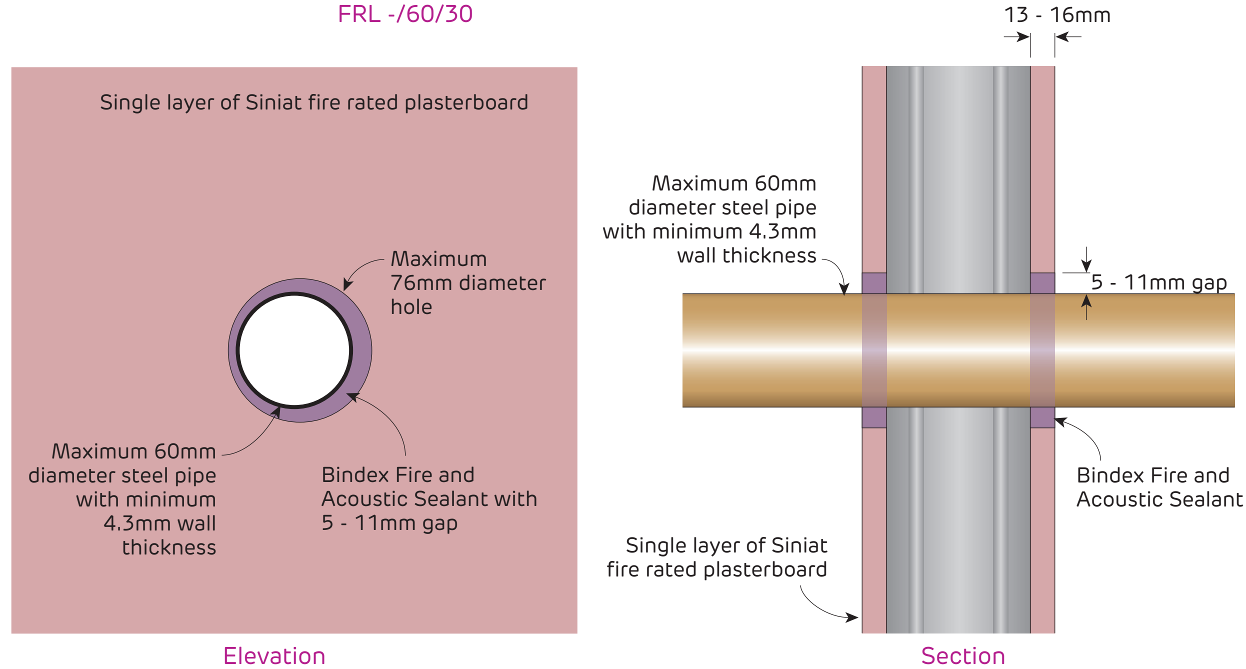
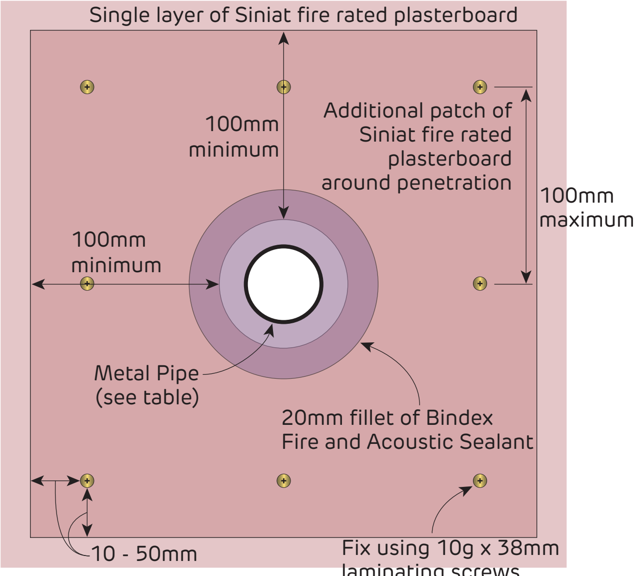



**FIGURE 212** **60mm diameter Steel Pipe Penetration**
Single layer wall system
FRL -/60/30

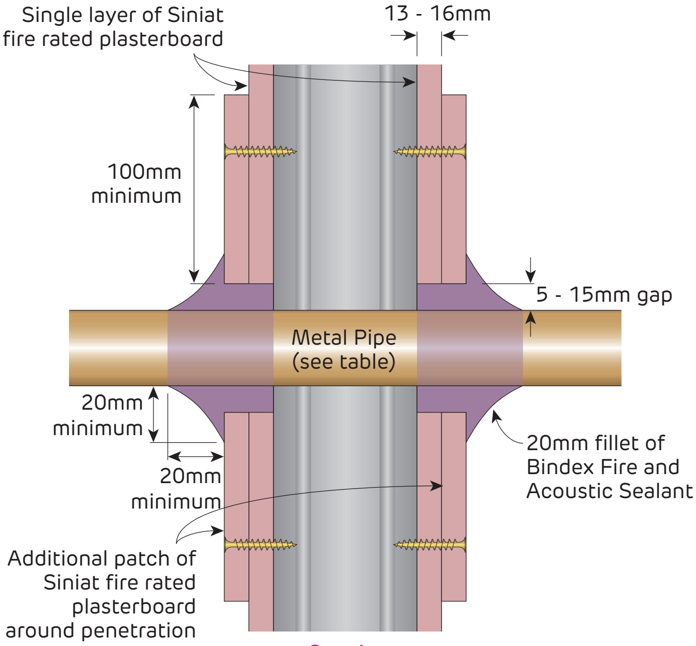
The insulation criteria for the metal pipe penetration may not be needed. Refer to NCC Volume One, C4D15 (2) (a) (ii)

FRL requirements may be reduced to -/45/15 for penetrations in walls of Class 2 and 3 buildings not more than 25m in effective height. Refer to BCA Specification 18 for required conditions.

## Fire Rated
## Metal Pipe Penetration Details for Stud Walls

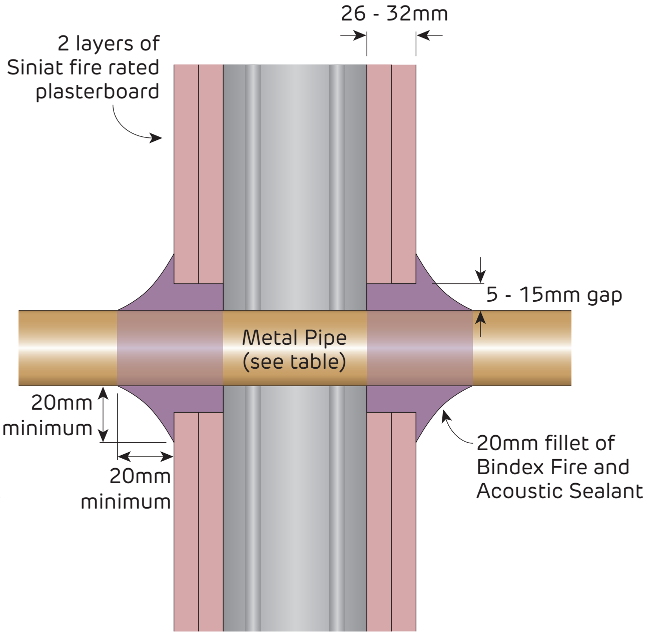



Elevation




Section

**FIGURE 213** **Metal Pipe Penetration**
Single layer wall system with patches
FRL -/90/- limited by wall FRL




Section

**FIGURE 214** **Metal Pipe Penetration**
Double layer wall system
FRL -/180/- limited by wall FRL - Section

*Refer to Bindex Product Data Sheet for more information

## Fire Rated
## Metal Pipe Penetration Details for Stud Walls

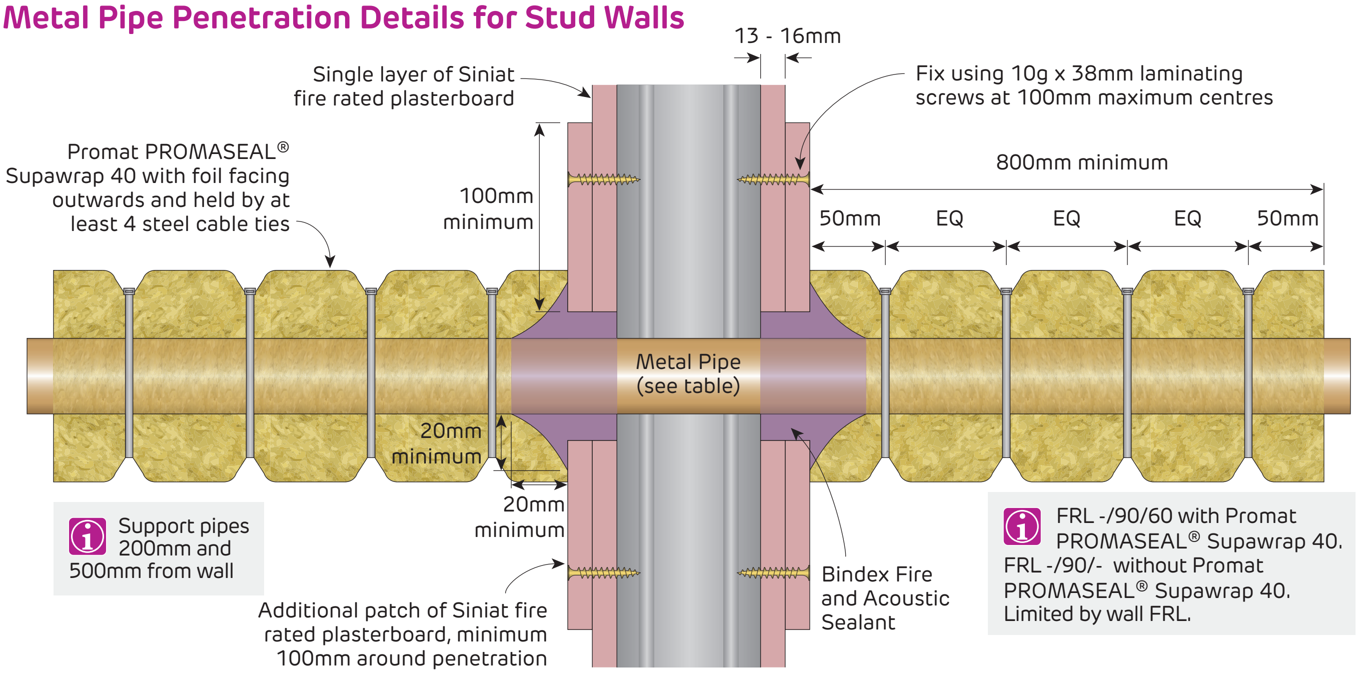



**FIGURE 215** **Metal Pipe Penetration wrapped with Supawrap 40**
FRL -/90/60 limited by wall FRL
Section

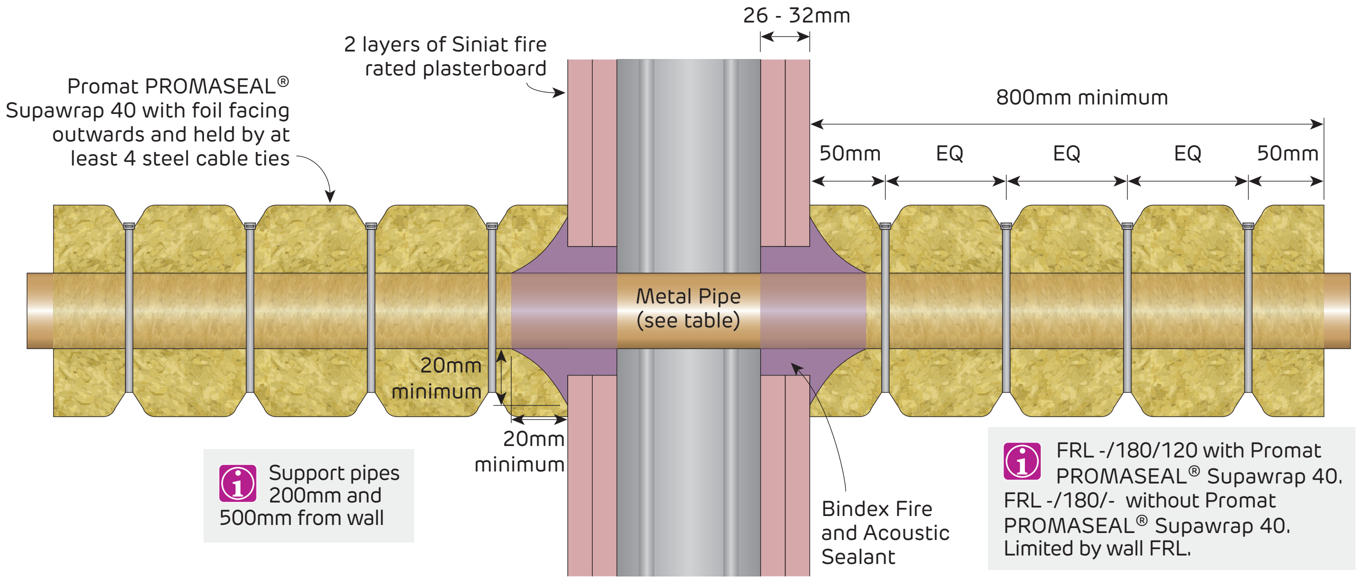



**FIGURE 216** **Metal Pipe Penetration wrapped with Supawrap 40**
FRL -/180/120 limited by wall FRL
Section

**Table 19** **Sizes for Copper, Brass or Ferrous Pipes**

| Pipe Nominal Size (mm) | Maximum Pipe Diameter (mm) | Minimum Wall Thickness (mm) |
|---|---|---|
| 32 | 31.75 | 0.91 |
| 40 | 38.1 | 0.91 |
| 50 | 50.8 | 0.91 |
| 65 | 63.5 | 0.91 |
| 80 | 76.2 | 1.22 |
| 90 | 88.9 | 1.22 |
| 100 | 101.6 | 1.22 |
| 125 | 127 | 1.42 |
| 150 | 152.4 | 1.63 |

## Fire Rated
## Flush Patching of Fire Rated Wall Systems - Maximum 150mm Metal Pipe

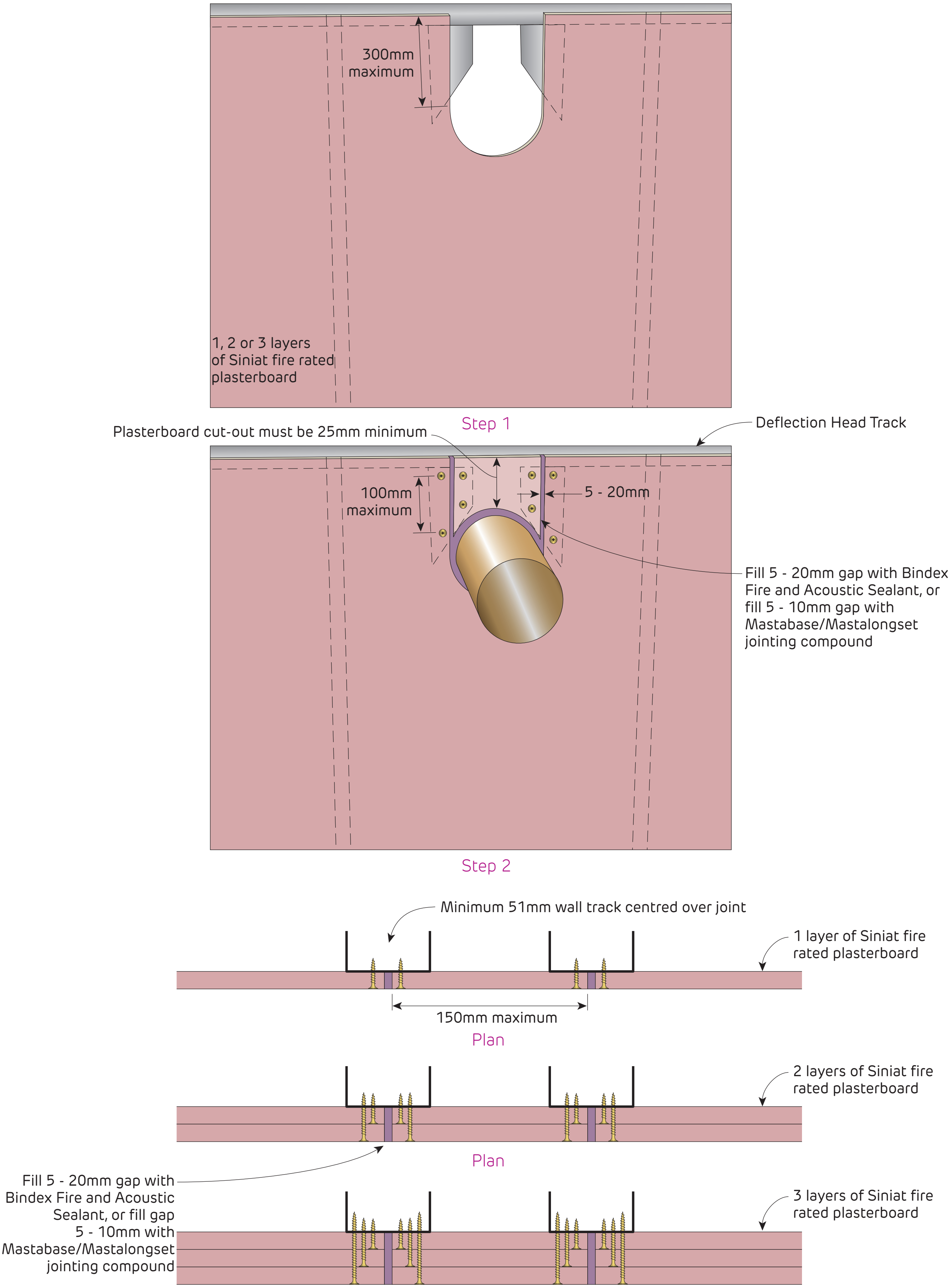
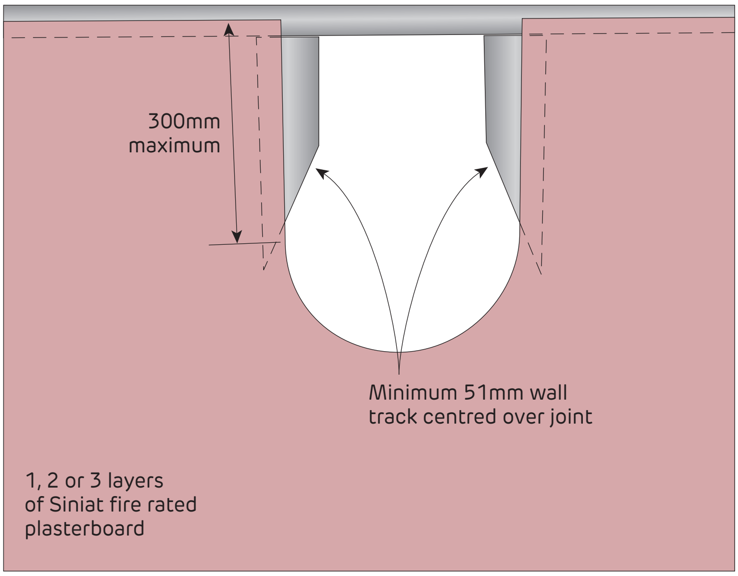


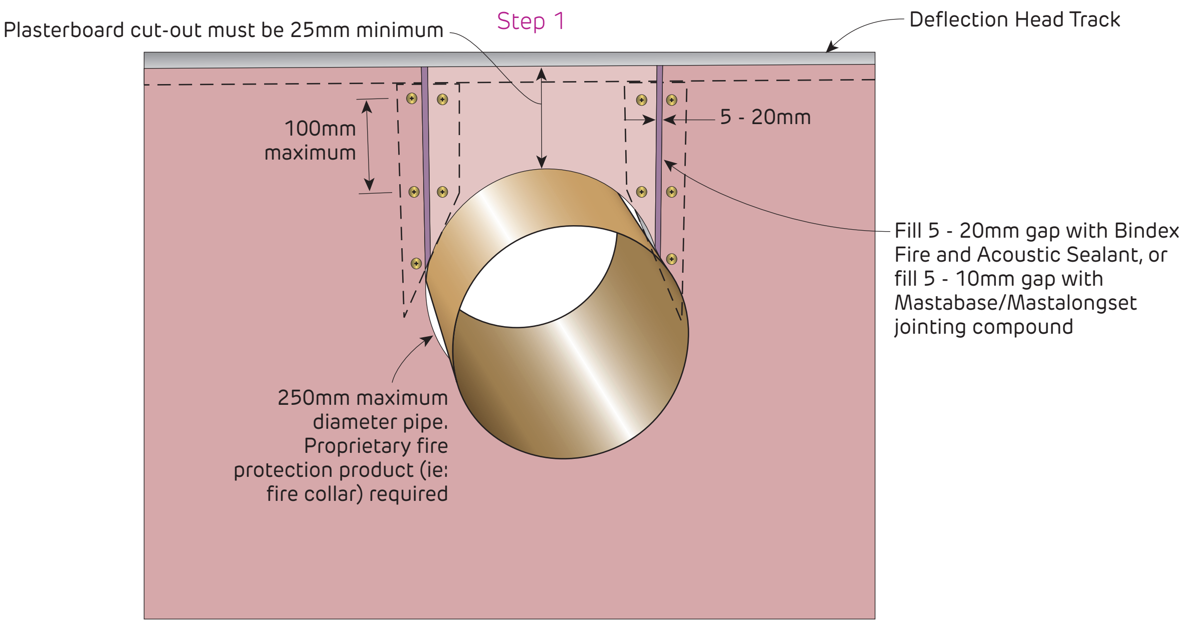

**FIGURE 217** **Flush patch with the lining with pipe penetration**
Maximum 150mm pipes as per Table 19 - Refer to previous pages for FRL

## Fire Rated

## Flush Patching of Fire Rated Wall Systems - Maximum 250mm Metal or PVC Pipe




Step 1




Step 2

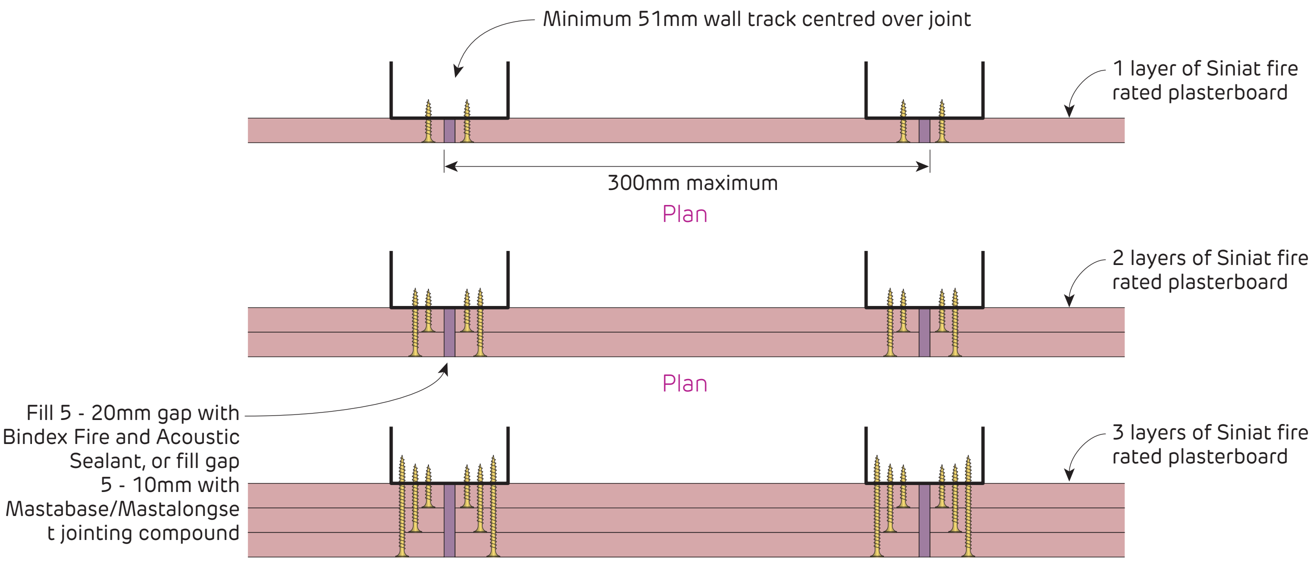



**FIGURE 218 Flush patch with the lining with pipe penetration**
Maximum 250mm diameter pipe - FRL depends on selected proprietary penetration seal

## Fire Rated
## Patching of Pipe Near Deflection Head Track - Single Layer - 50mm or 60mm dia Steel Pipe

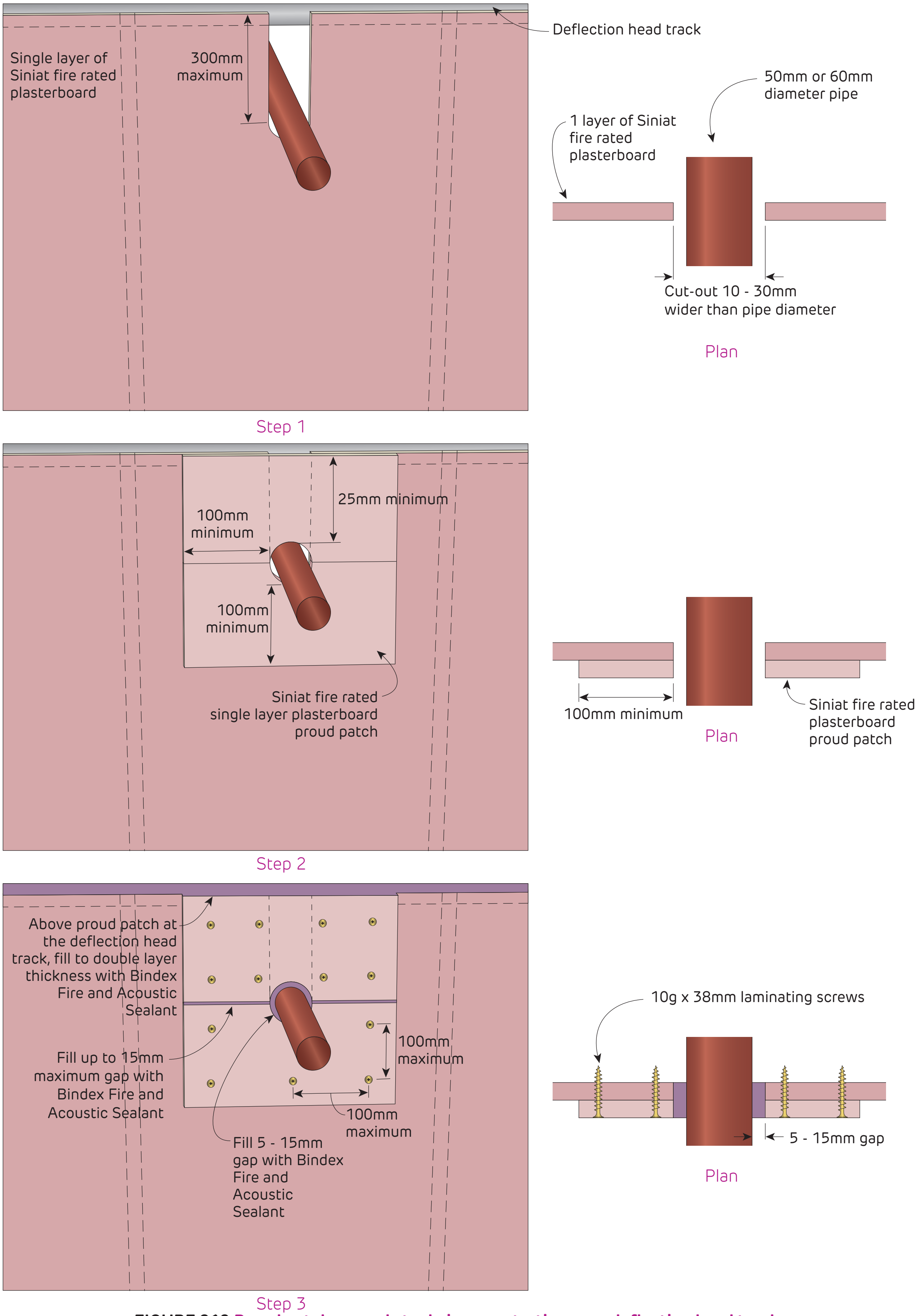



**FIGURE 219** Proud patch around steel pipe penetration near deflection head track
Maximum 60mm diameter pipe - FRL -/60/30

## Fire Rated

## Patching of Pipe Near Deflection Head Track - Single Layer - Maximum 150mm Metal Pipe

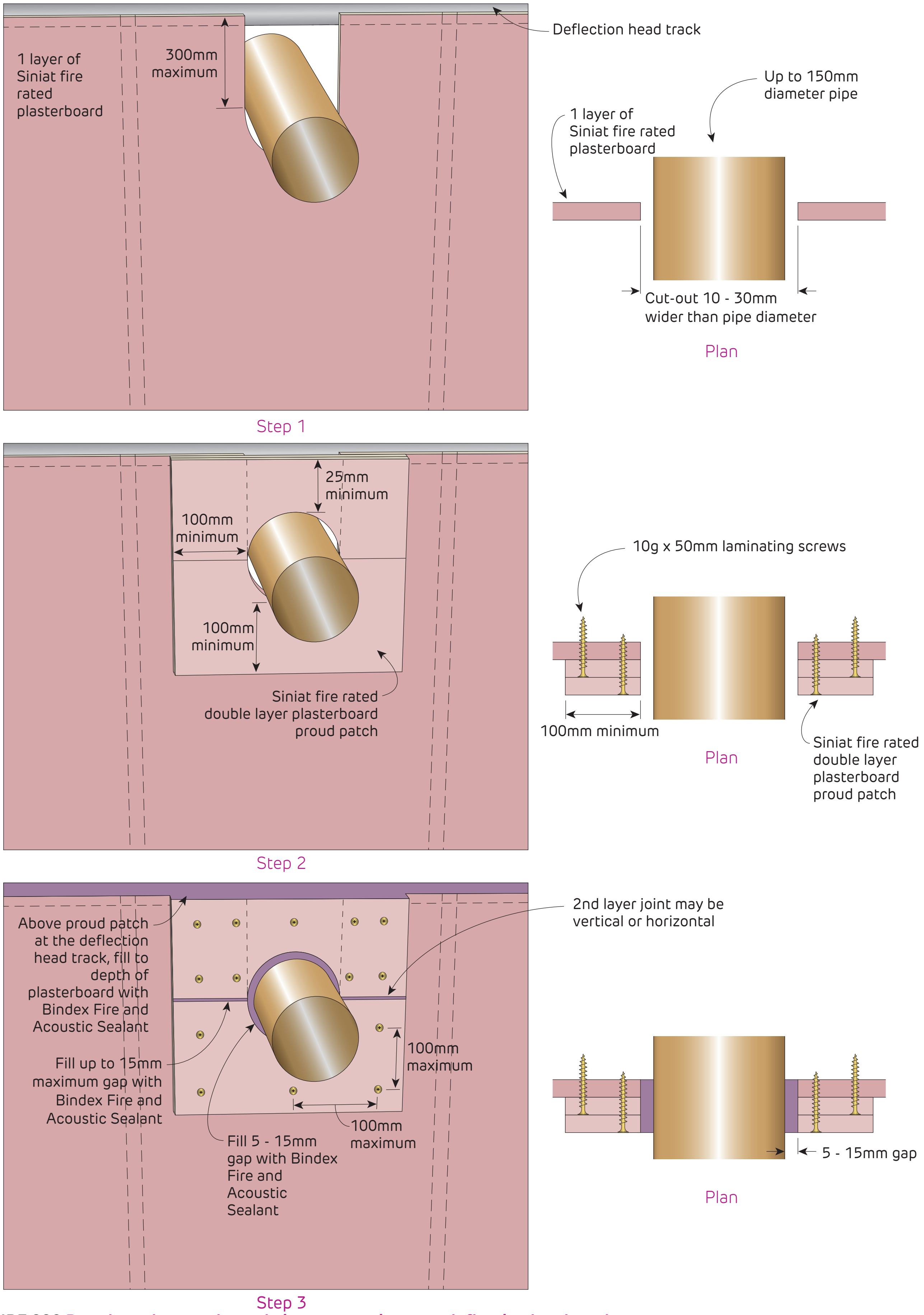



**FIGURE 220 Proud patch around metal pipe penetration near deflection head track**

Maximum 150mm pipes as per Table 19, FRL -/180/- or -/180/120 with Supawrap 40 as previously shown, with FRL limited by wall FRL

## Fire Rated
## Patching of Pipe Near Deflection Head Track - 2 Layers - Maximum 150mm Metal Pipe

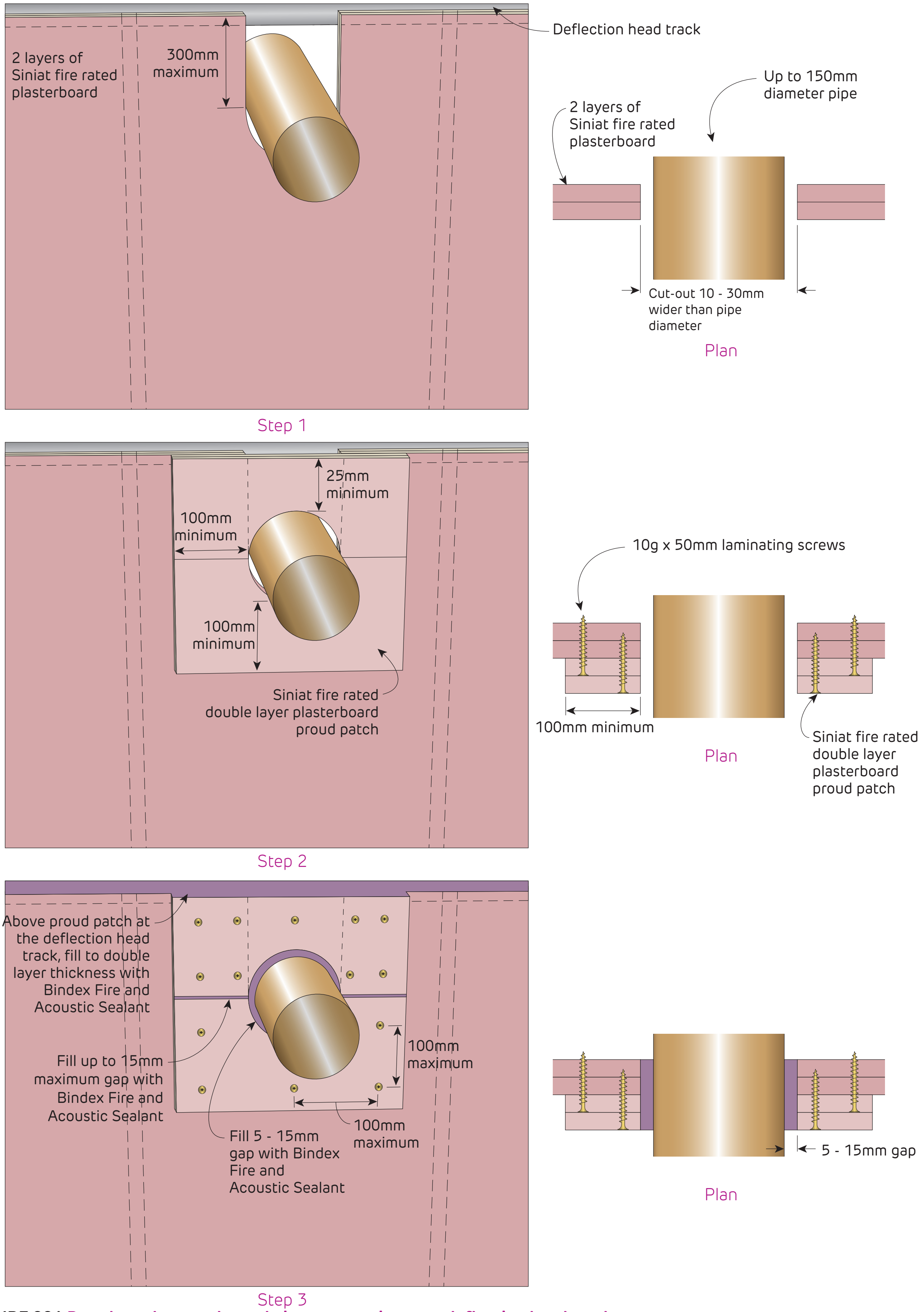



**FIGURE 221 Proud patch around metal pipe penetration near deflection head track**

Maximum 150mm pipes as per Table 19, FRL -/180/- or -/180/120 with Supawrap 40 as previously shown, with FRL limited by wall FRL

## Fire Rated
## PVC Pipe Penetration Detail for Stud Walls

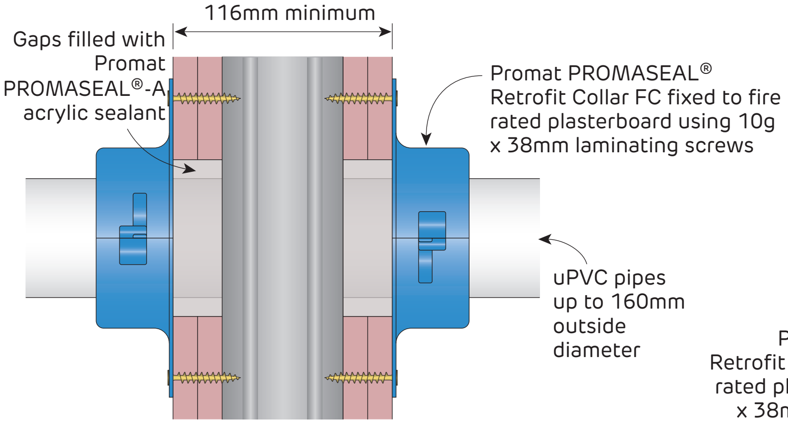



**FIGURE 222 Fire Collar for Plastic Pipes**
Promat Promaseal FC Retrofit Collar
Up to FRL -/120/120 - Section

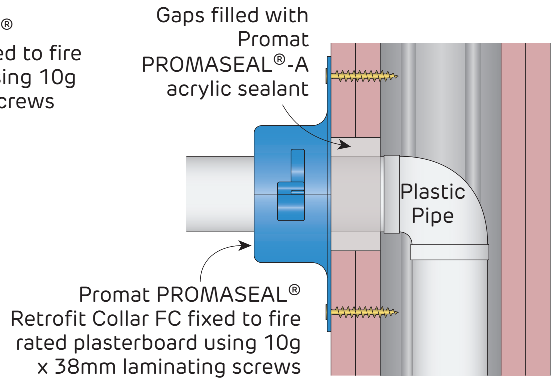



**FIGURE 223 Fire Collar for Plastic Pipes**
Promat Promaseal FC Retrofit Collar
Up to FRL -/120/120 - Section

Refer to Promat for specific performance and installation instructions

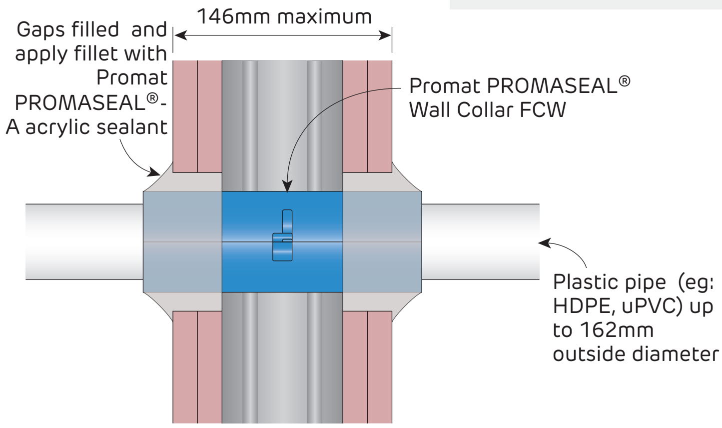



**FIGURE 224 Fire Collar for Plastic Pipes**
Promat Promaseal Wall Collar
Up to FRL -/120/120 - Section

Refer to proprietary fire product manufacturer for performance and installation detail as well as approval for use in the selected building element

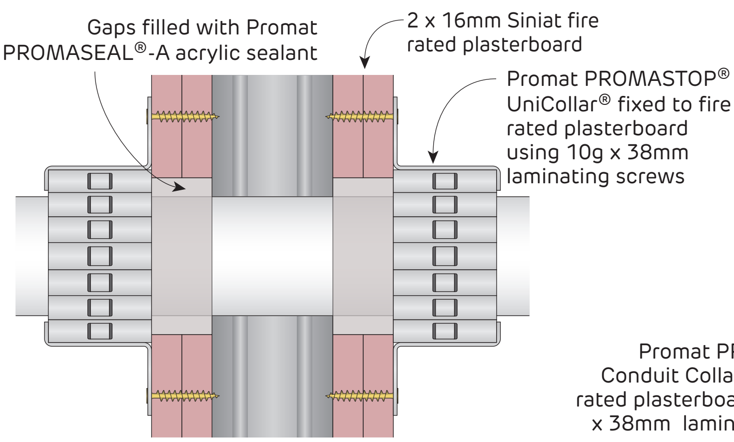



**FIGURE 225 Fire Collar for Plastic Pipes**
Promat Promastop UniCollar
Up to FRL -/120/120 - Section

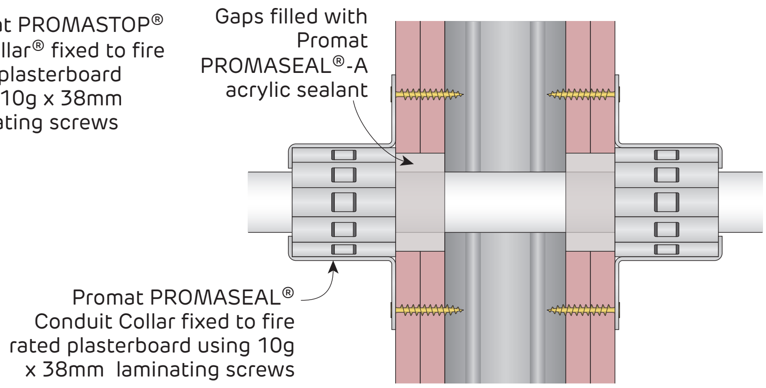



**FIGURE 226 Fire Collar for Plastic Conduit**
Promat Promaseal Conduit Collar
Up to FRL -/120/120 - Section

PVC pipe size limited to 100mm maximum diameter using Promastop UniCollar in FRL -/60/60 walls

## Fire Rated
## PVC Pipe Clash with Stud Walls

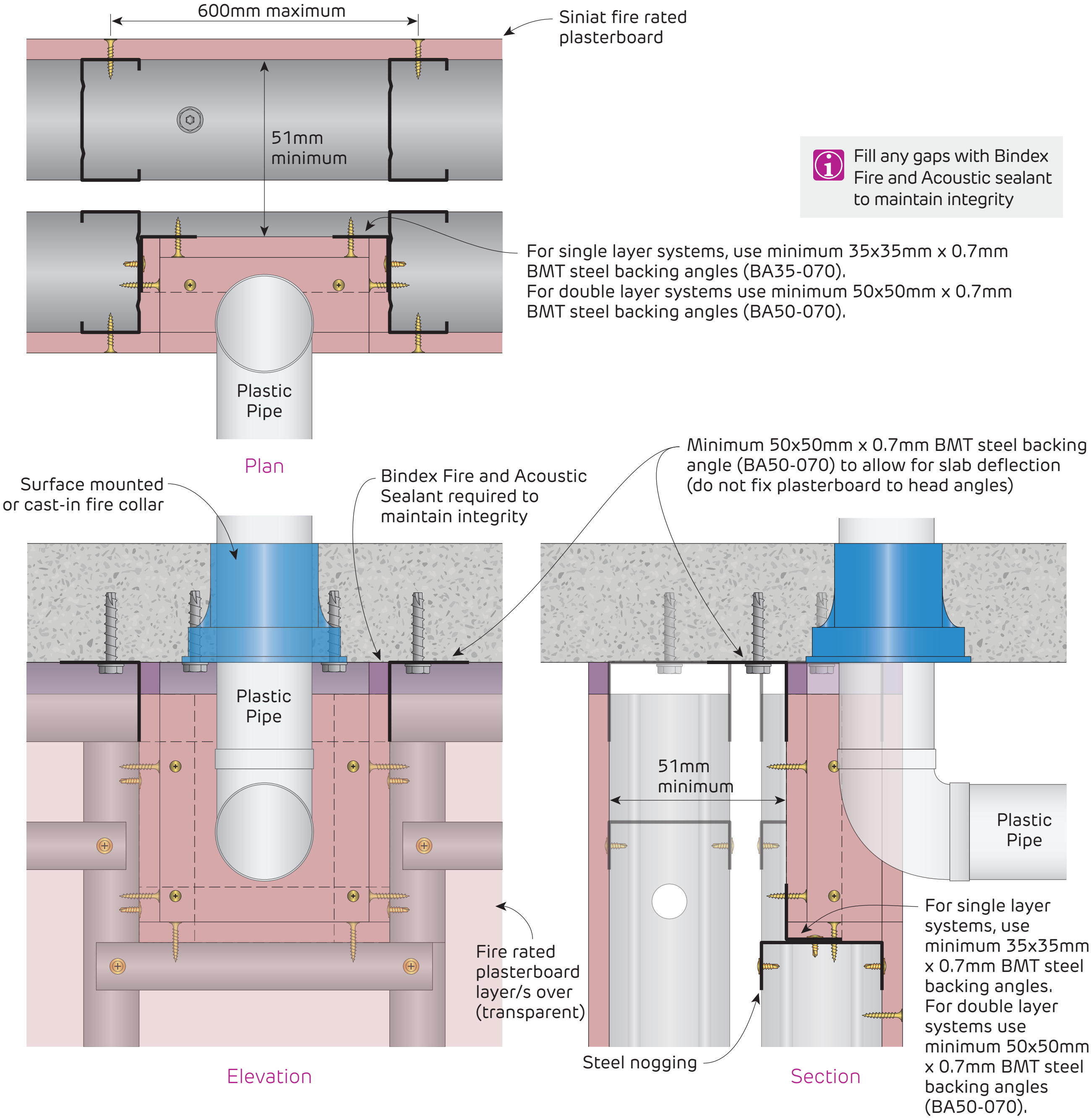



**FIGURE 227 Alcove for Plastic Pipe clash through Head Track**
Wall FRL 60/60/60 with 16mm fire rated plasterboard on both sides
Wall FRL 90/90/90 with 2 x 13mm fire rated plasterboard on both sides
Wall FRL 120/120/120 with 2 x 16mm fire rated plasterboard on both sides
Section

## Fire Rated
## PVC Pipe Clash with Stud Walls

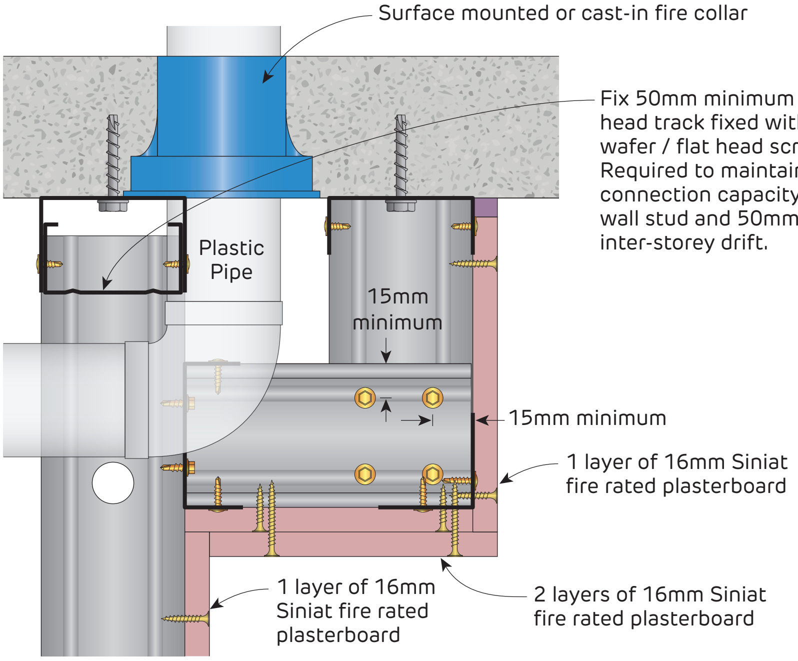



**FIGURE 228** **Bulkhead for Plastic Pipe clash**
FRL -/60/60
Section

Refer to proprietary fire product manufacturer for performance and installation detail as well as approval for use in the selected building element

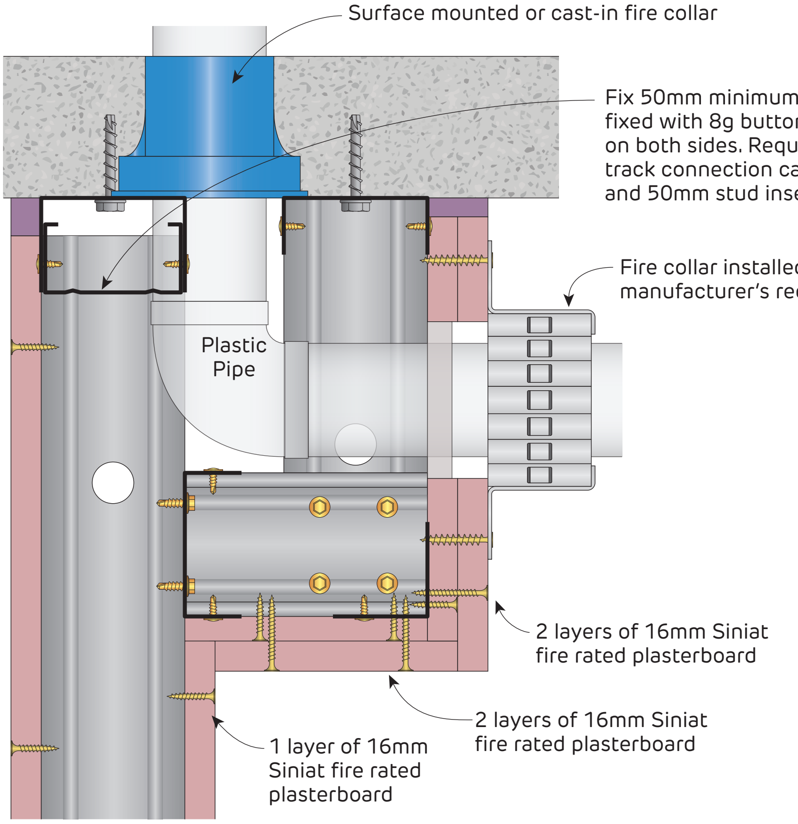



**FIGURE 229** **Fire Rated Bulkhead under Plastic Pipe Slab Penetration**
FRL -/60/60
Section

## Fire Rated
## PVC Pipe Penetration Detail for Stud Walls

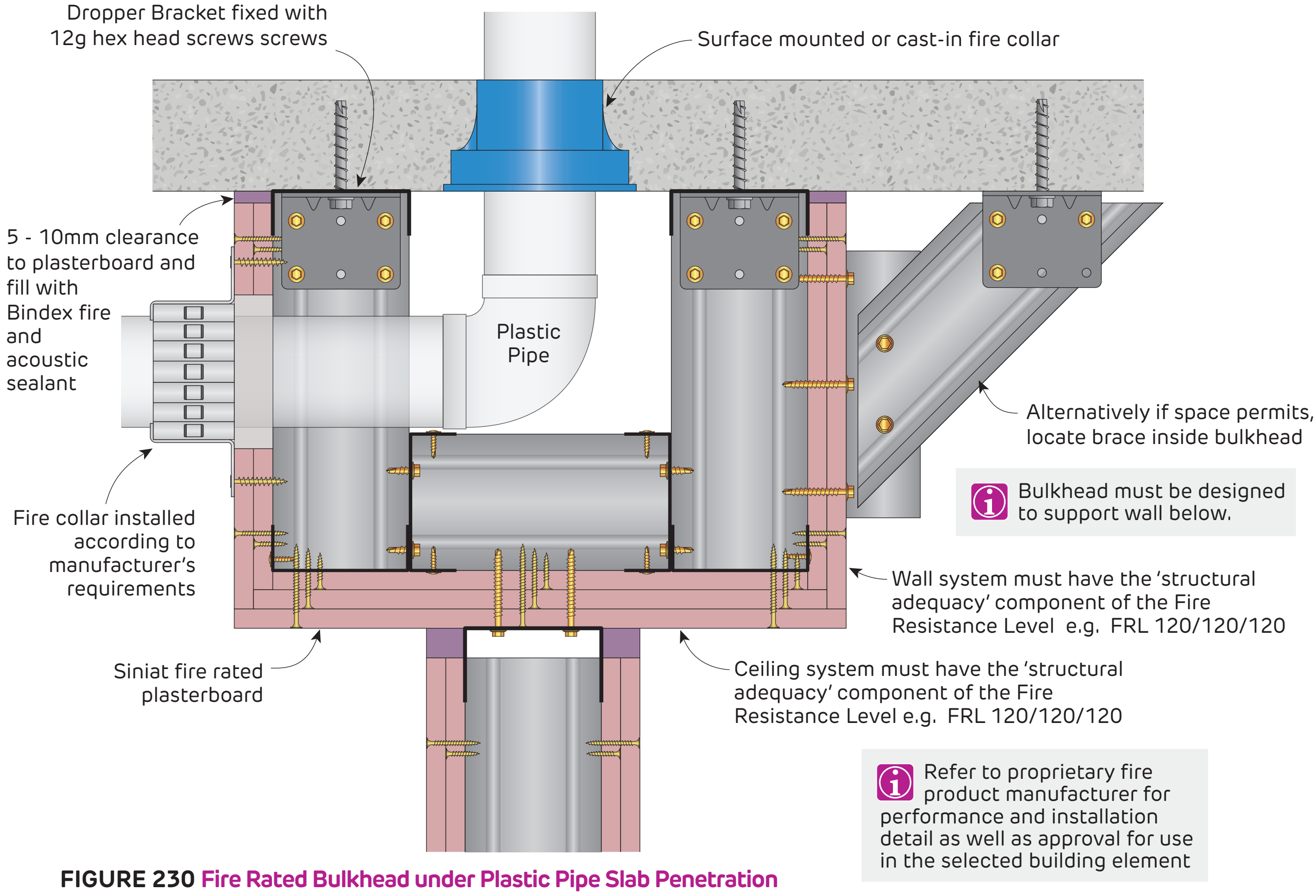



**FIGURE 230** Fire Rated Bulkhead under Plastic Pipe Slab Penetration
Section

## Fire Rated
## Plasterboard Joints with Bindex Fire and Acoustic Sealant

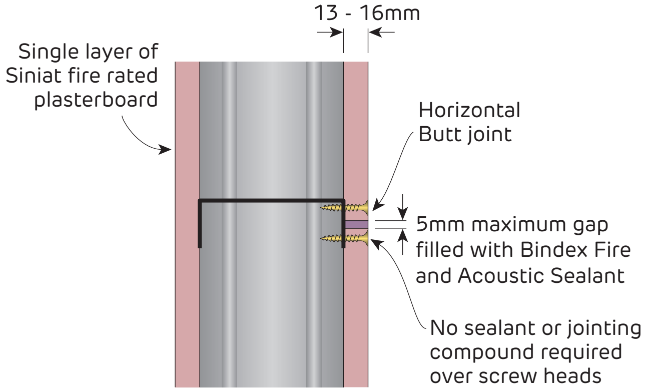



**FIGURE 231** Horizontal Joints in Single Layer Wall Systems
Butt Joints Only
Section

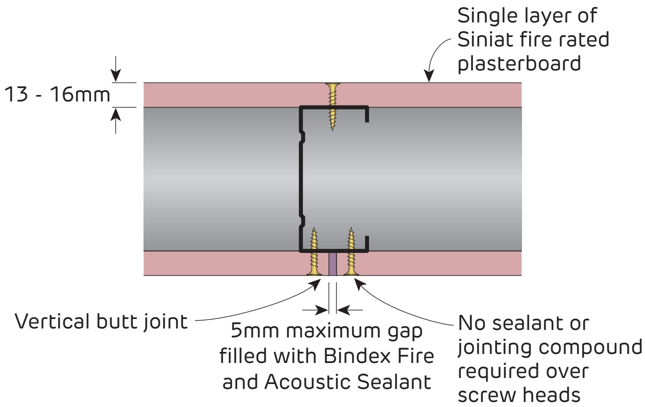



**FIGURE 232** Vertical Joints in Single Layer Wall Systems
Butt Joints Only
Plan

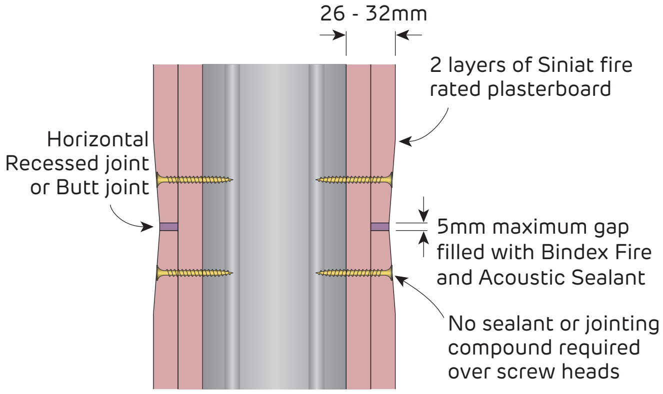



**FIGURE 233** Horizontal Joints in Double Layer Wall Systems
Recessed and Butt Joints
Section

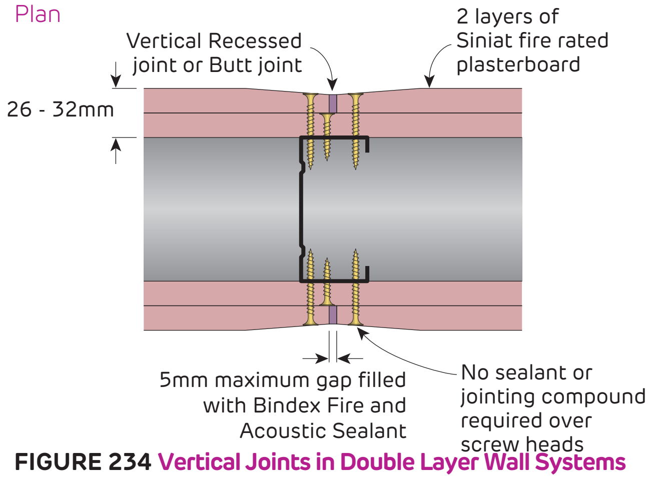



**FIGURE 234** Vertical Joints in Double Layer Wall Systems
Recessed and Butt Joints
Plan

Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

## Fire Rated
## Fire Damper or Access Panel Opening Detail for Stud Walls

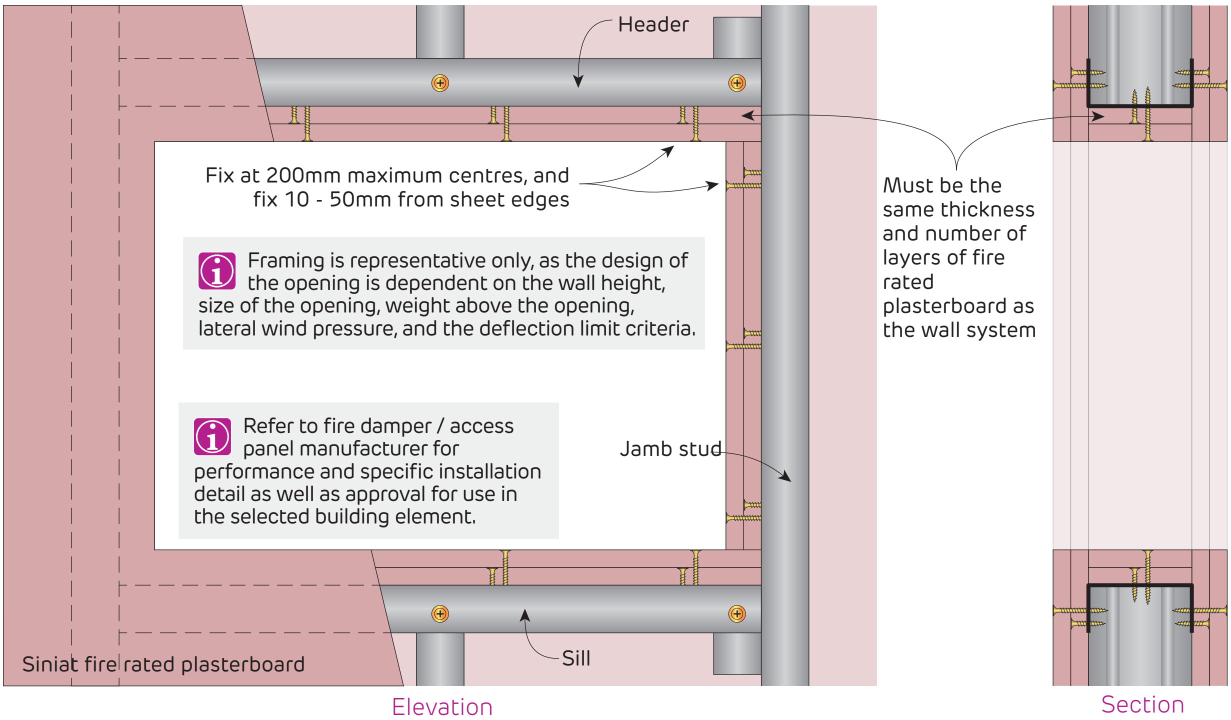
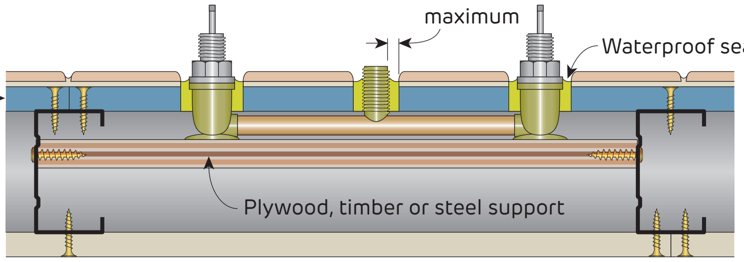



**FIGURE 235** Typical Opening Detail for Fire Damper or Access Panel

## Fire Rated and Non-Fire Rated
## Plumbing Penetration Details for Stud Walls




Isolate copper and brass fitting from steel framing

**FIGURE 236** Plumbing Penetrations
Plan

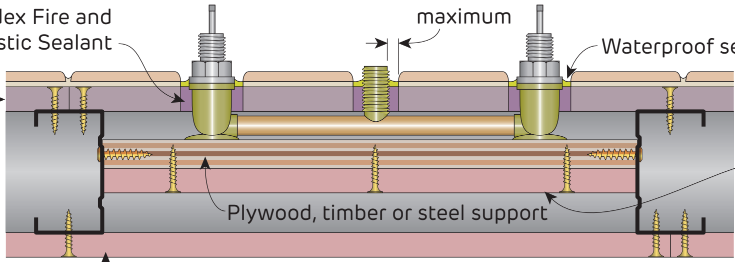



**FIGURE 237** Plumbing Penetrations
FRL -/60/60
Fire rated single layer systems - Plan

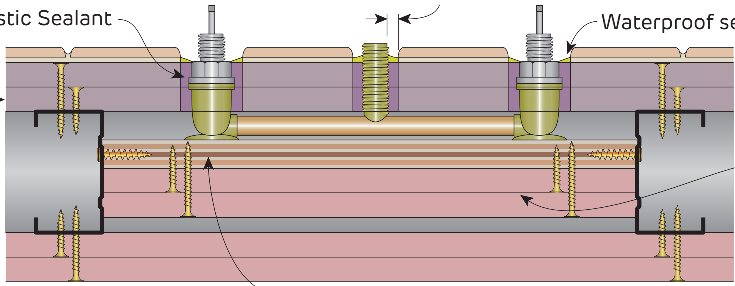



**FIGURE 238** Plumbing Penetrations
FRL -/120/120
Fire rated double layer system - Plan

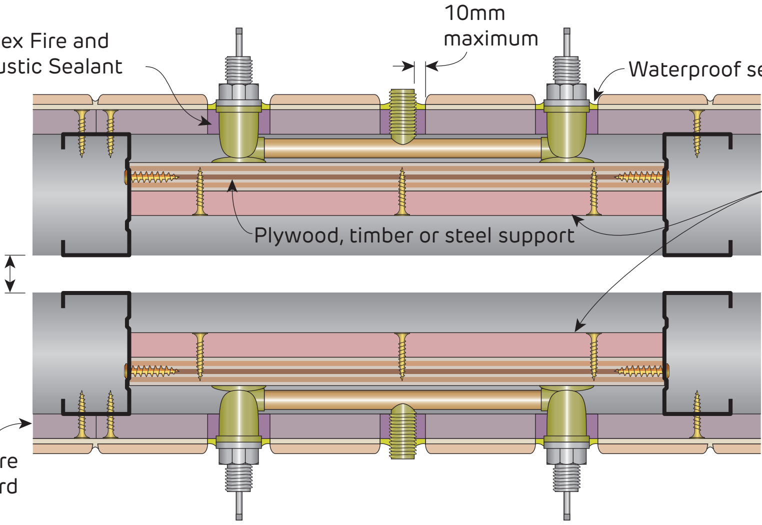



**FIGURE 239** Plumbing Penetrations
FRL -/60/60
Fire rated single layer systems - Plan

## Fire Rated
## Plumbing Penetration Details for Stud Walls

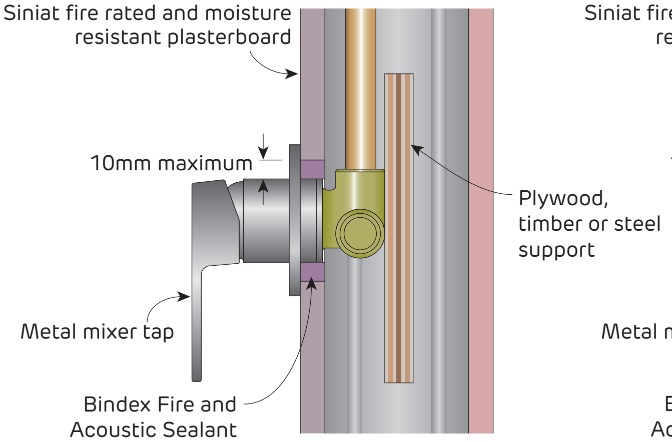



**FIGURE 240** **Plumbing Penetration**
FRL -/60/-
Fire rated single layer systems - Section

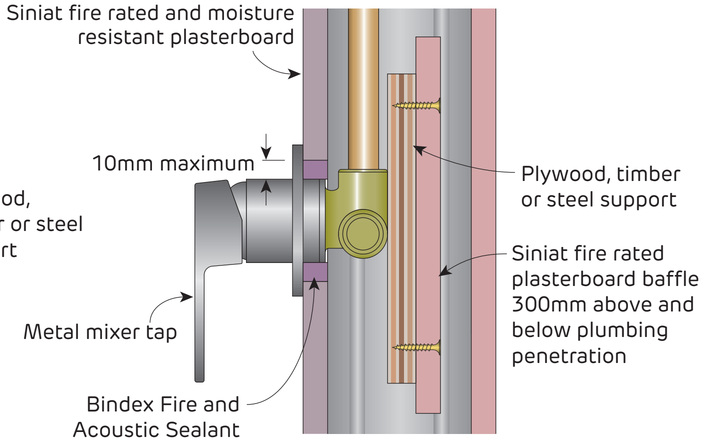



**FIGURE 241** **Plumbing Penetration**
FRL -/60/60
Fire rated single layer systems - Section

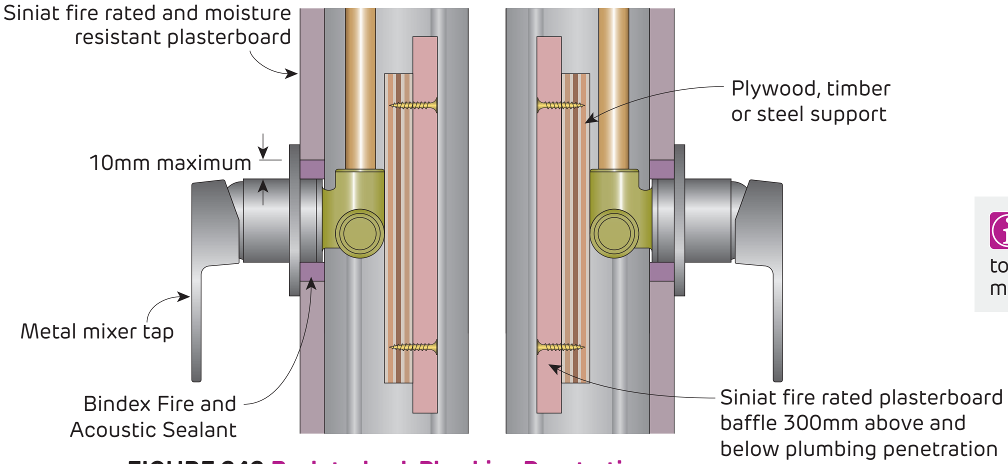



**FIGURE 242** **Back-to-back Plumbing Penetration**
FRL -/60/60
Fire rated single layer systems - Section

Fire rated details on this page only apply to brass, copper, and steel mixer taps and tap sets.

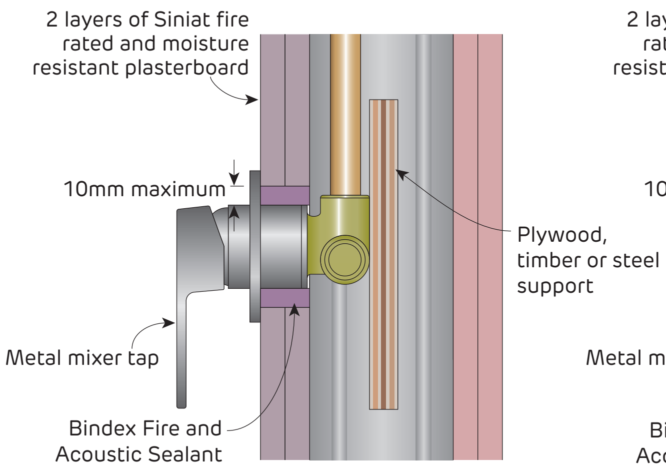



**FIGURE 243** **Plumbing Penetration**
FRL -/120/-
Fire rated double layer systems - Section

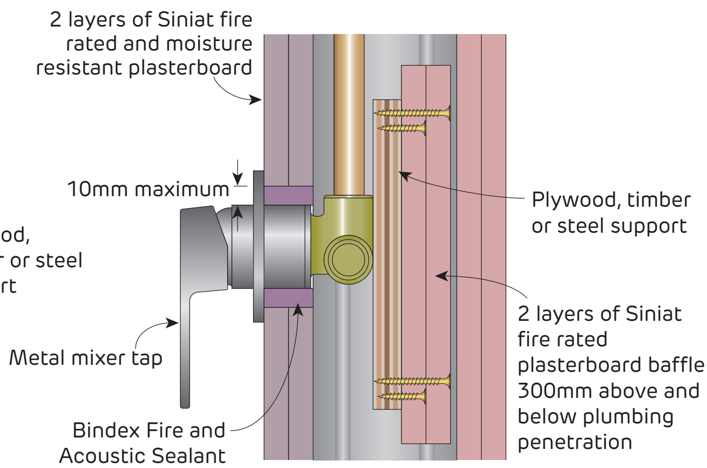
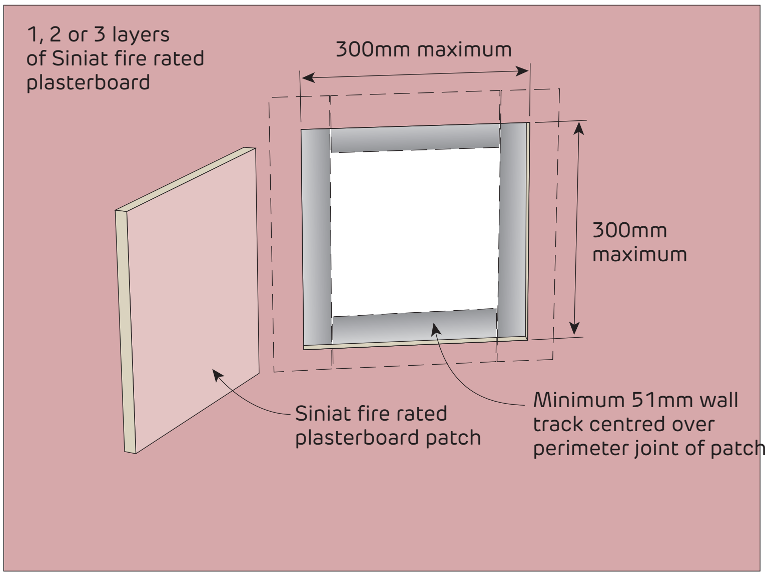
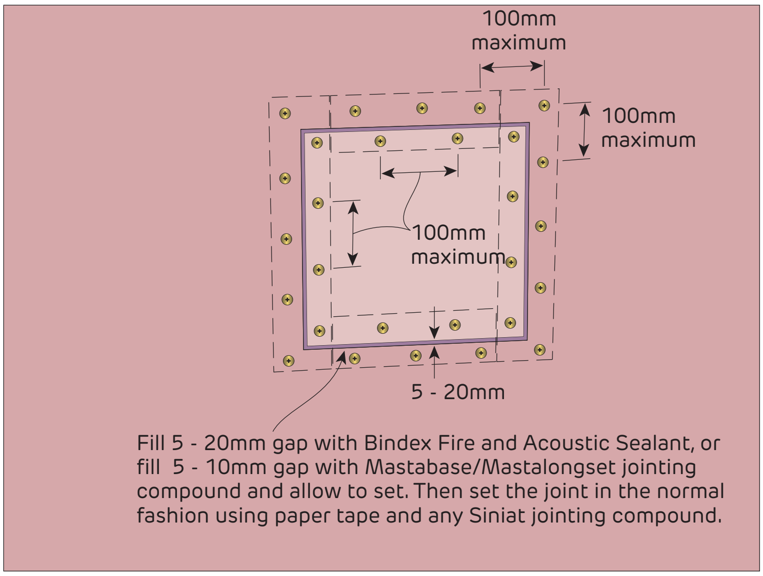



**FIGURE 244** **Plumbing Penetration**
FRL -/120/120
Fire rated double layer systems - Section

## Fire Rated
## Flush Patching of Fire Rated Wall Systems - Maximum 300x300mm Opening




Step 1




Step 2

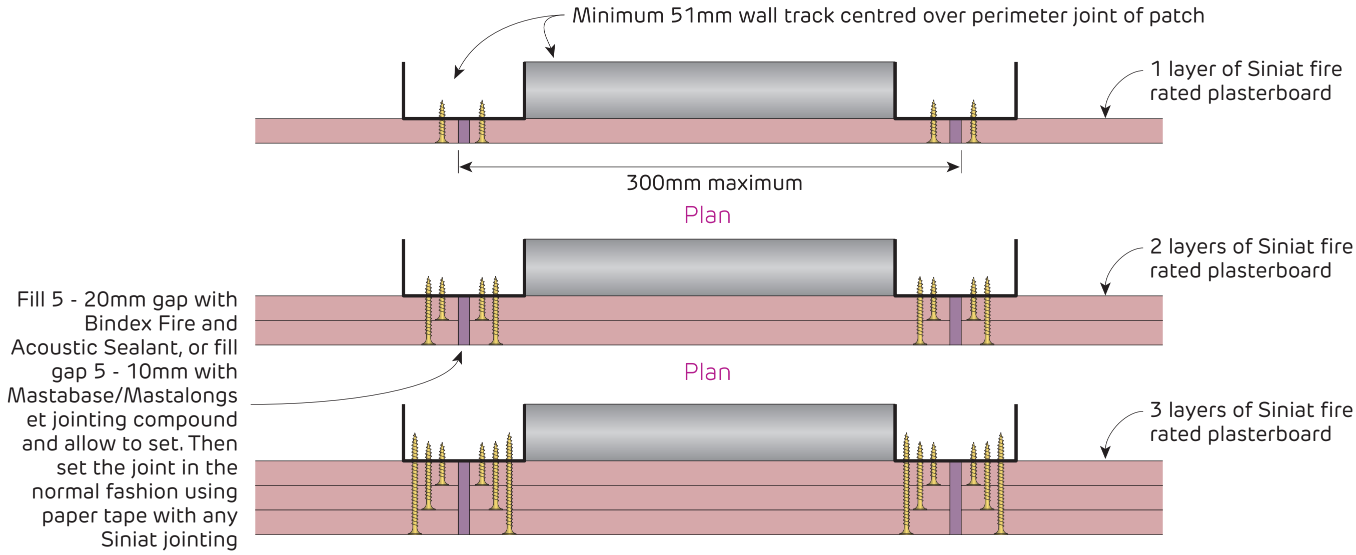
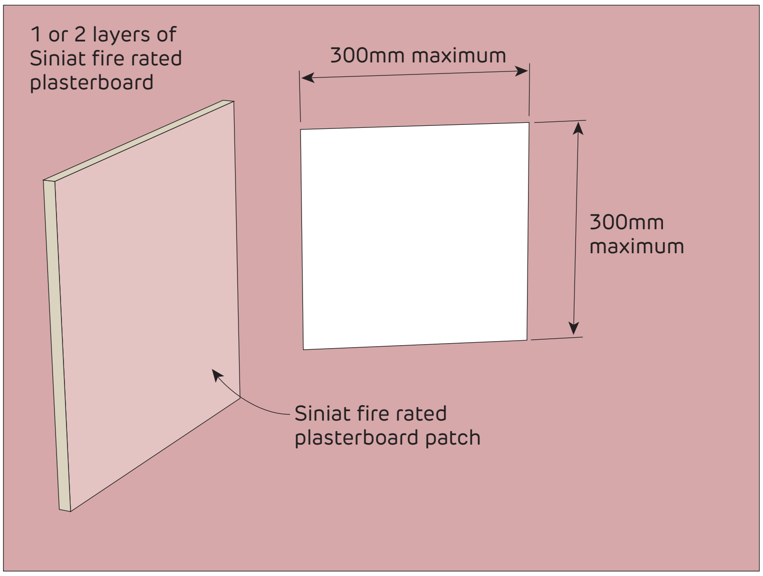


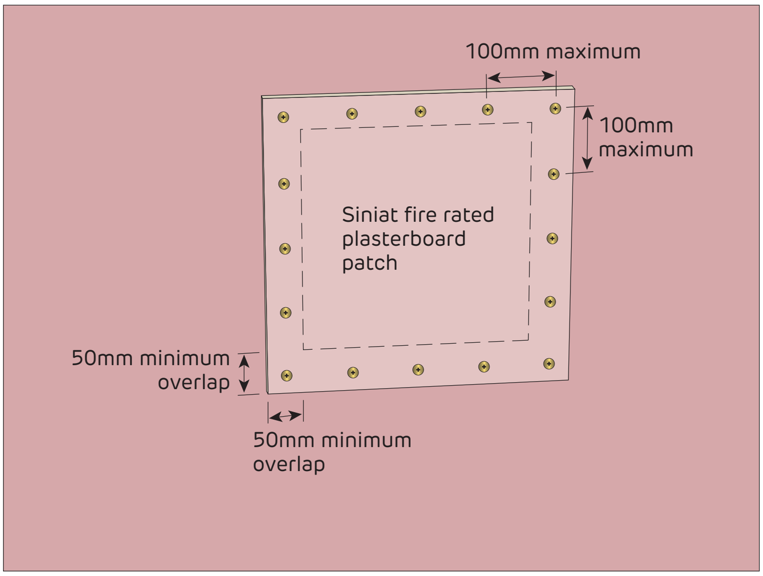

**FIGURE 245 Flush patch**
Maximum 300x300mm opening
Maintains FRL of system

## Fire Rated

## Proud Patching of Fire Rated Wall Systems - Maximum 300x300mm Opening

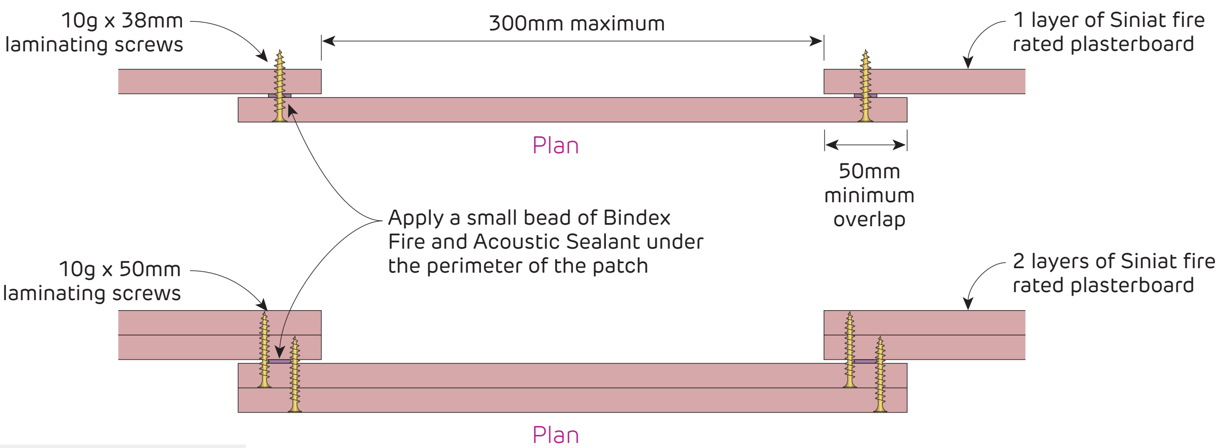



Step 1




Step 2

Fire rated plasterboard patch must be the same thickness and number of layers as the base fire rated system

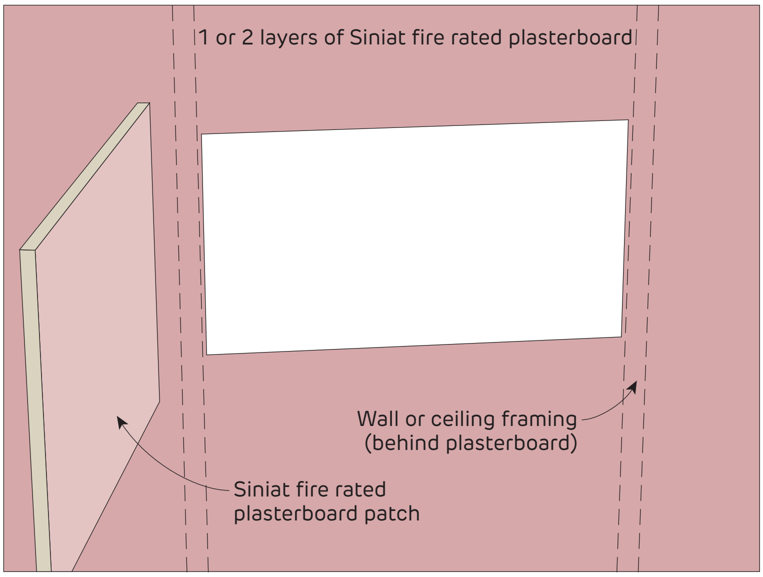



Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

**FIGURE 246 Proud patch**
*Maximum 300x300mm opening*

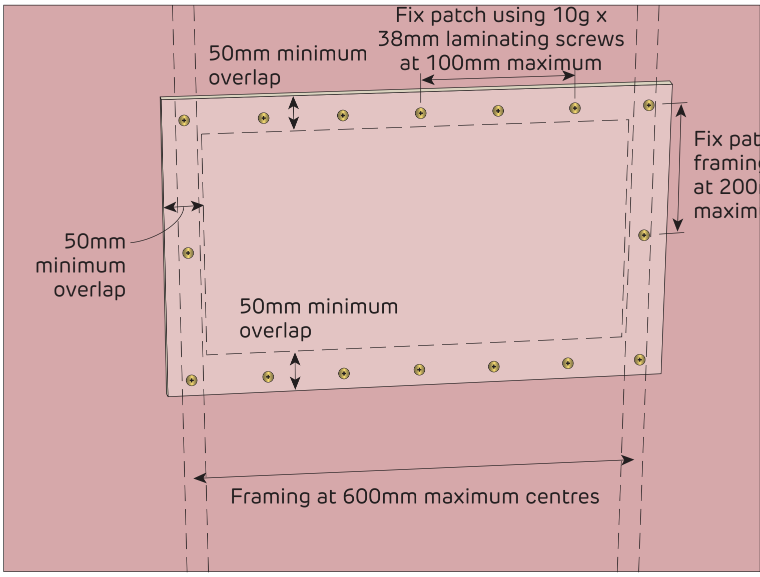
## Fire Rated

## Proud Patching of Fire Rated Wall Systems - Larger Openings



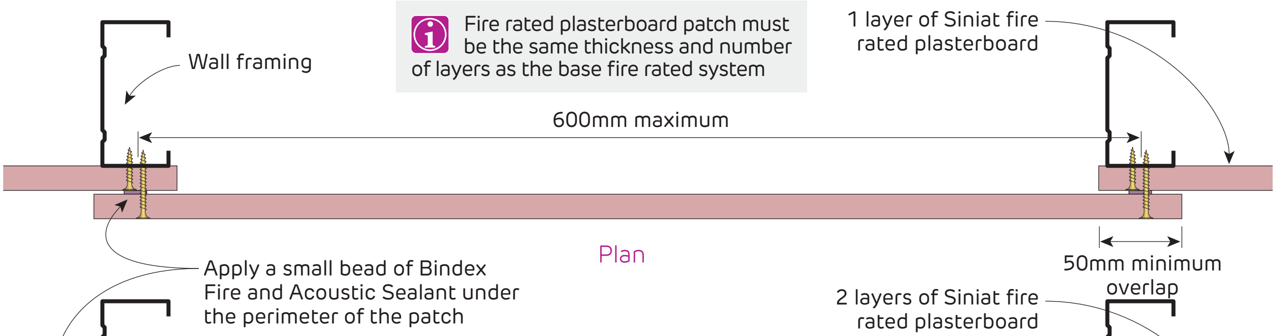

Step 1

To repair a fire rated wall with holes larger than 300mm x 300mm and achieve a flush finish; follow the normal installation instructions to re-instate the system.

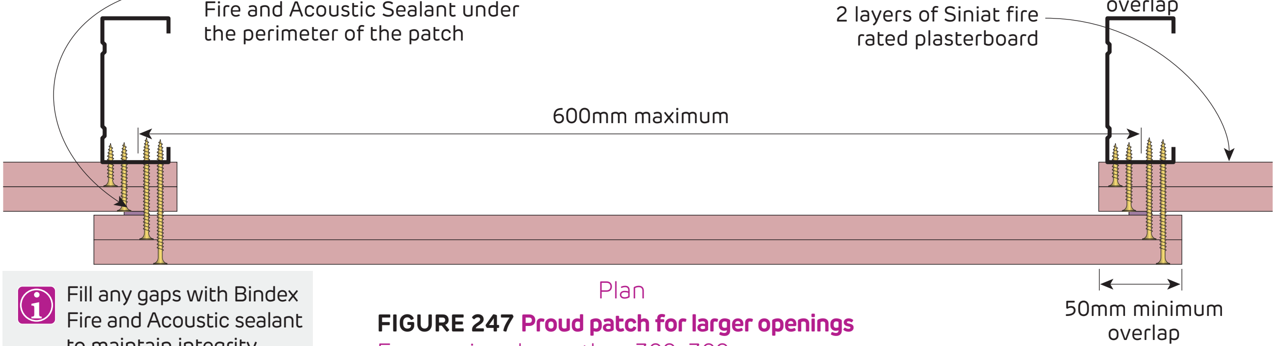



Step 2

Fire rated plasterboard patch must be the same thickness and number of layers as the base fire rated system




Plan



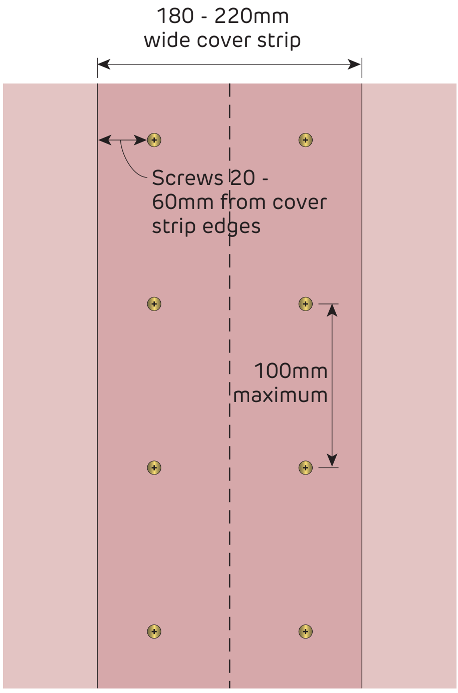

Plan

Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

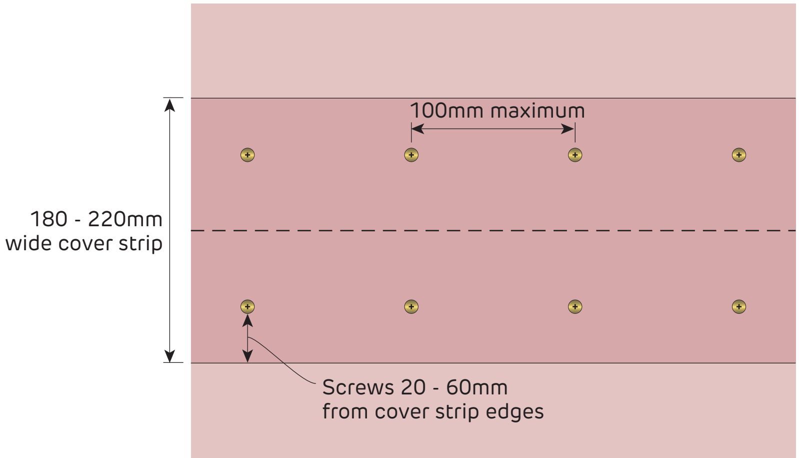
**FIGURE 247** Proud patch for larger openings
For openings larger than 300x300mm

## Fire Rated

## Patching of Fire Rated Wall Systems



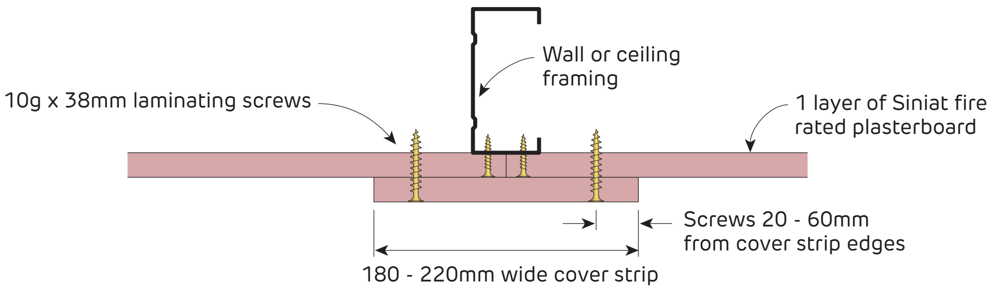

Vertical Joint - Elevation



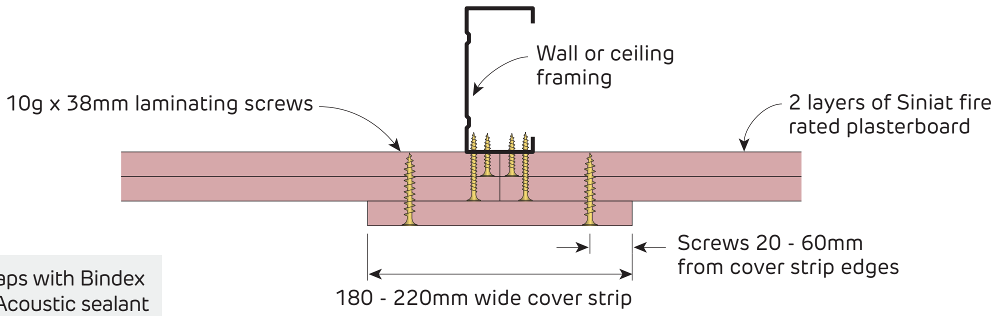

Horizontal Joint - Elevation

Cover strip over a fire rated plasterboard joint can compensate for:

- Joints not staggered in accordance with Siniat Technical Literature
- Use of fibre glass tape
- Incorrect jointing or no jointing material used.




Plan



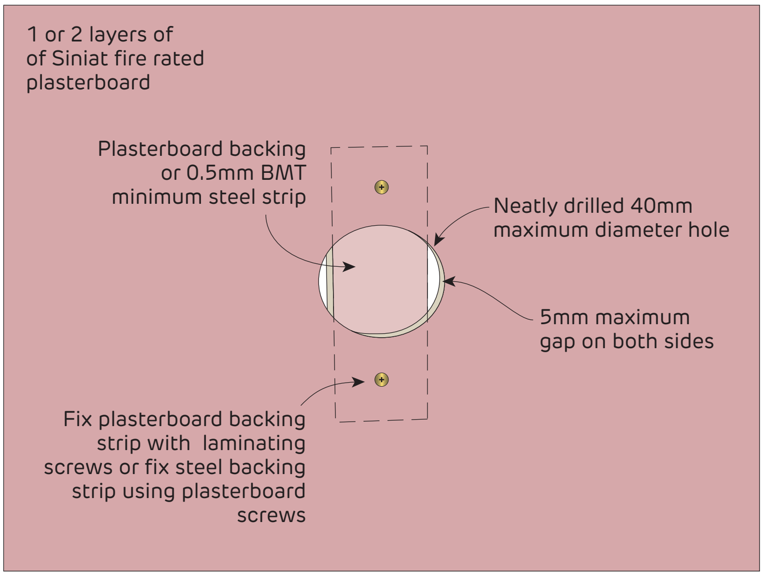

Plan

Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

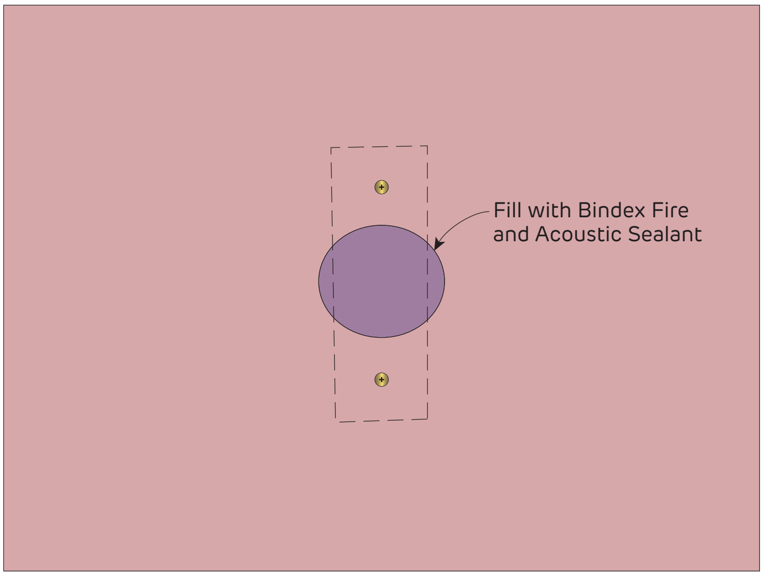
**FIGURE 248** **Cover Strip**

## Fire Rated

## Sealing Fire Rated Wall Systems - Maximum 40mm Diameter Hole




Step 1




Step 2

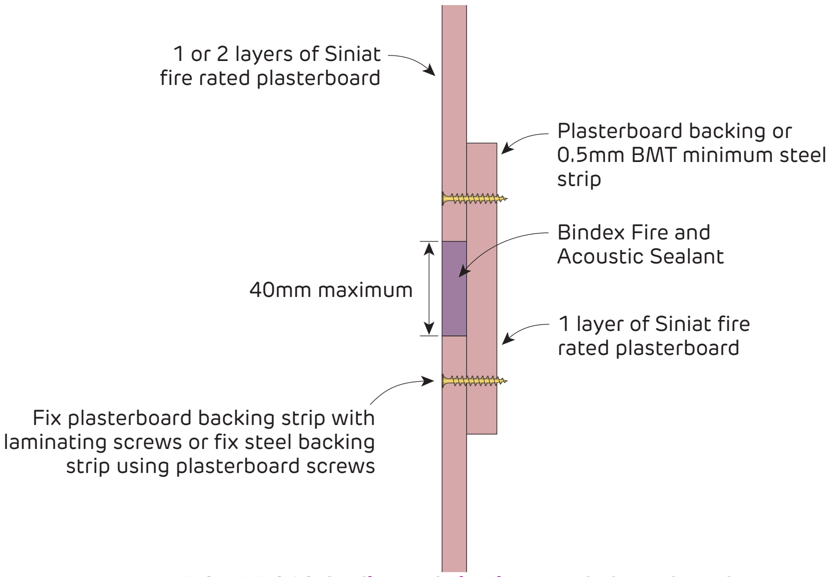



**FIGURE 249** **Sealing Hole in Fire Rated Plasterboard**
Maintains FRL of wall system
Section

## Fire Rated
## Bulkhead Sealer System

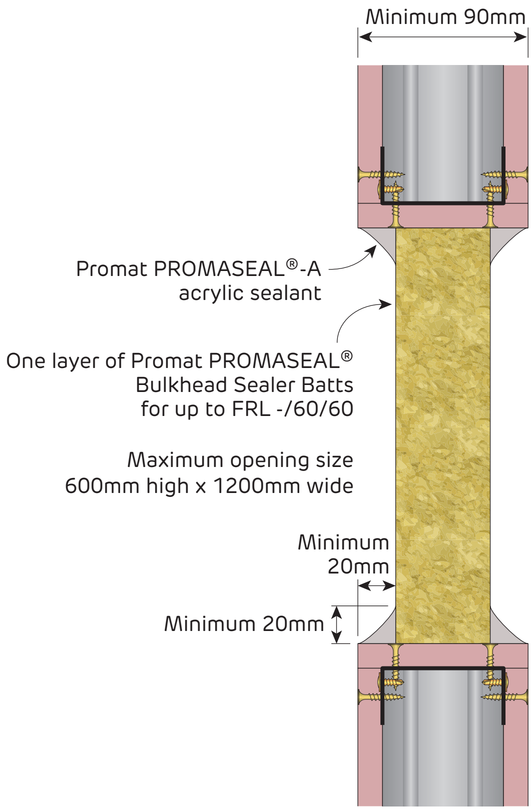



**FIGURE 250**
**Bulkhead Sealer Batt One Layer**
Section

Refer to Promat for allowable penetrations through Bulkhead Sealer Batt

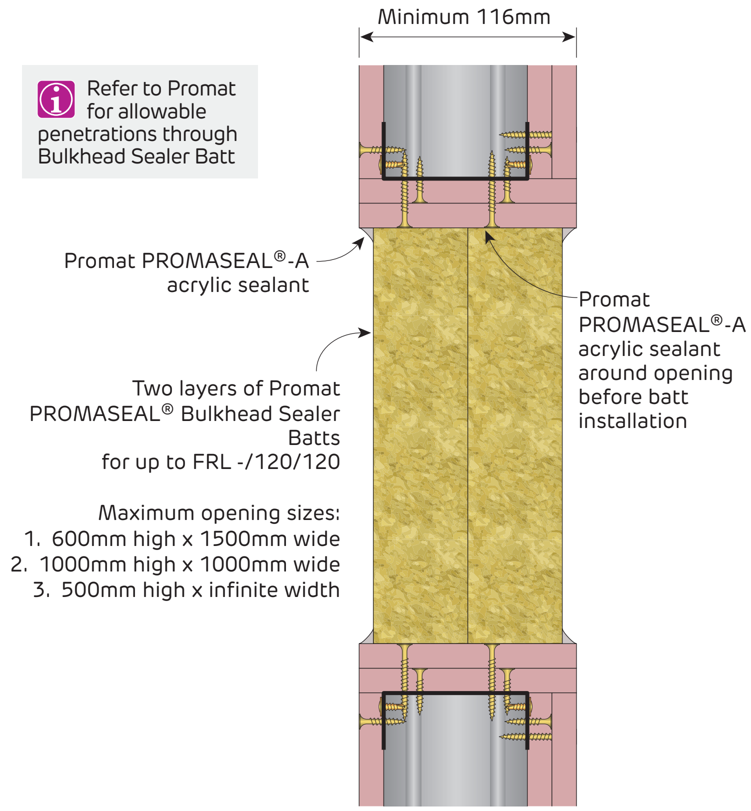



**FIGURE 251**
**Bulkhead Sealer Batt Two Layers**
Section

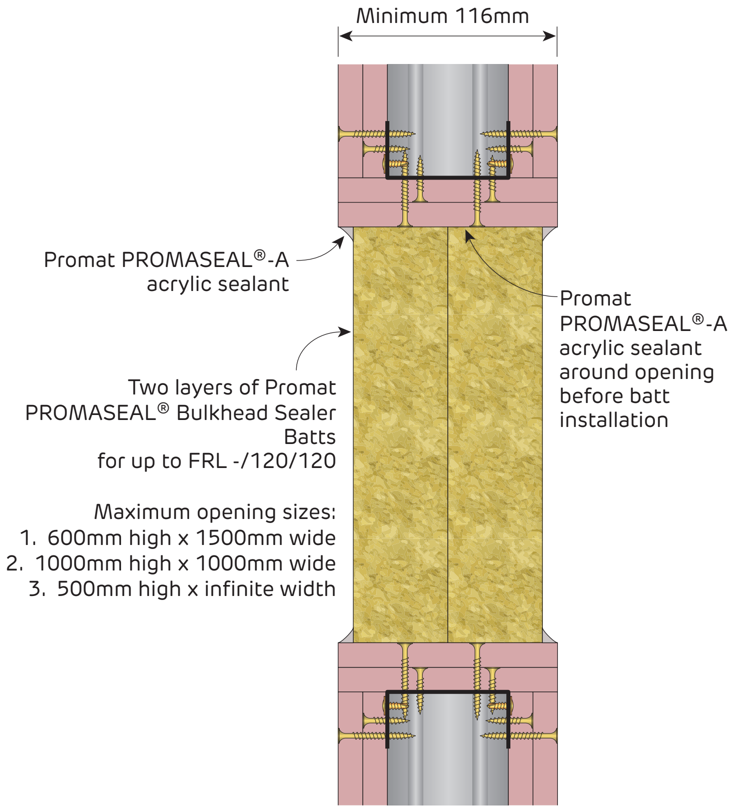



**FIGURE 252**
**Bulkhead Sealer Batt Two Layers**
Section

## Fire Rated
## Bulkhead Sealer System

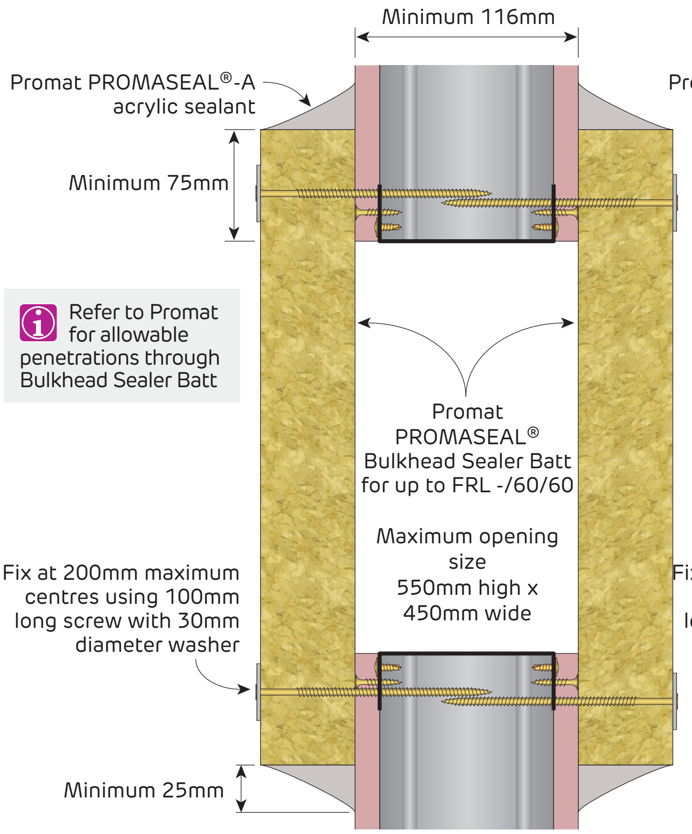



**FIGURE 253**
**Bulkhead Sealer Batt Two Layers**
Section

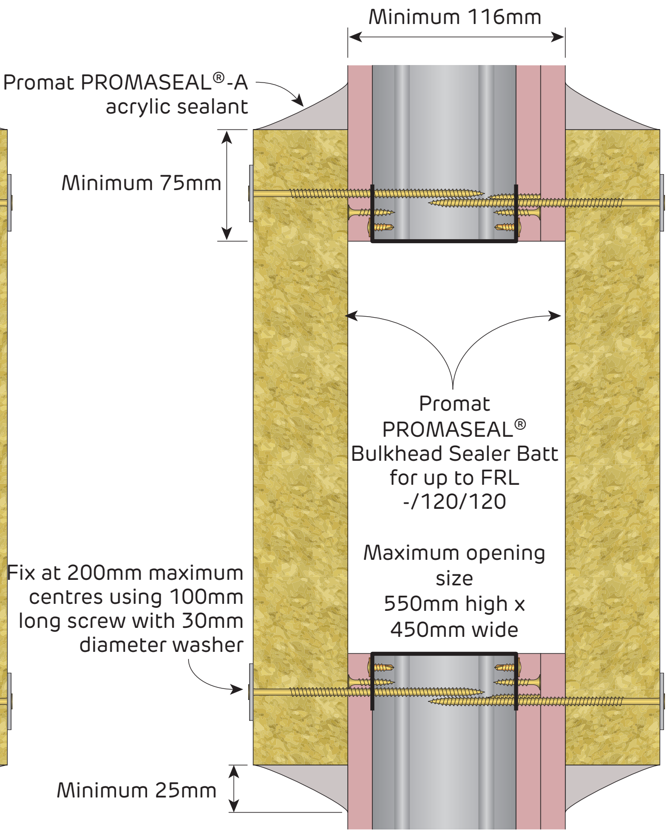



**FIGURE 254**
**Bulkhead Sealer Batt Two Layers**
Section

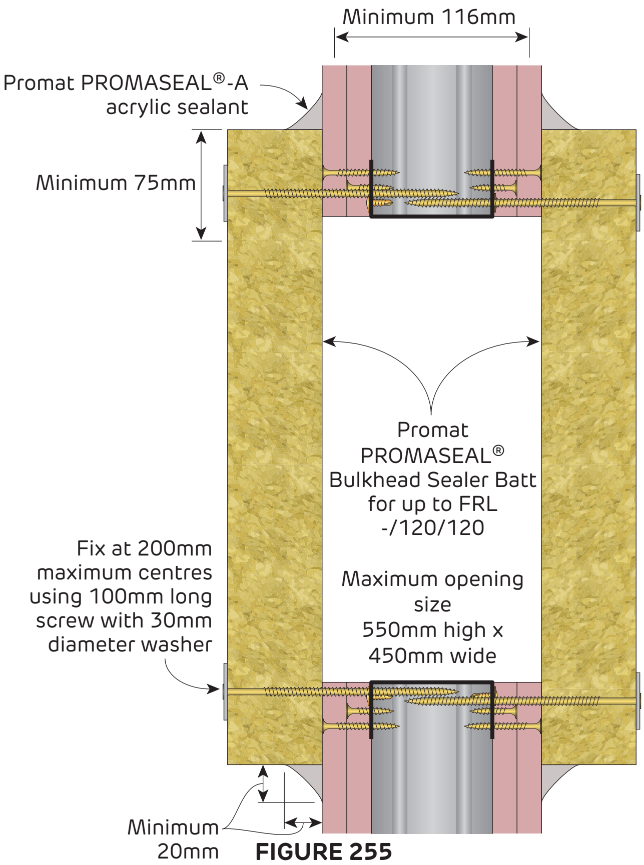



**FIGURE 255**
**Bulkhead Sealer Batt Two Layers**
Section

## Non-Fire Rated
## Light Duty Fixings to Plasterboard

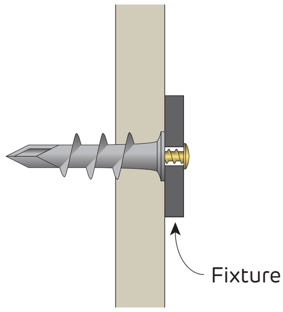



**FIGURE 256**
**Plasterboard Screw**
Section

Refer to fixing manufacturer for capacity and installation information

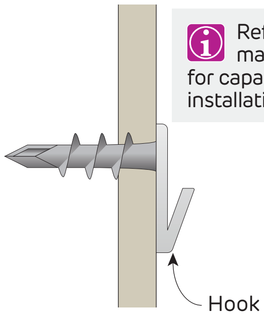



**FIGURE 257**
**Plasterboard Screw**
Section

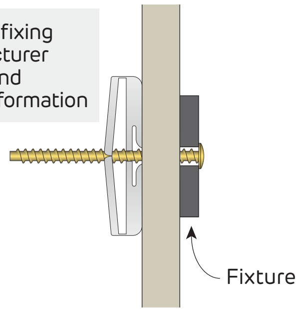



**FIGURE 258**
**Nylon Toggle**
Section

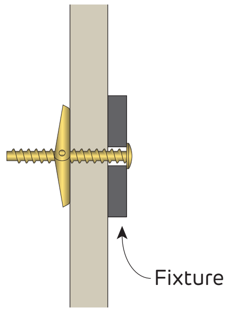
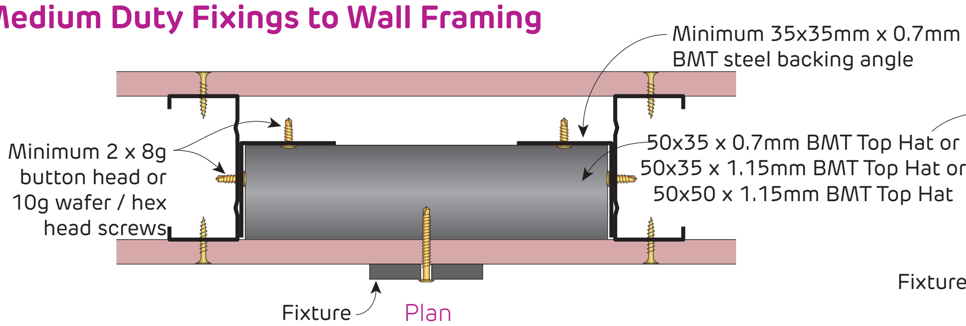



**FIGURE 259**
**Toggle Bolt**
Section

## Fire Rated or Non-Fire Rated
## Medium Duty Fixings to Wall Framing




Plan

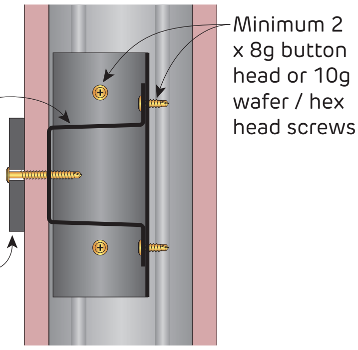



**FIGURE 260** **Top Hat Nogging**

Section

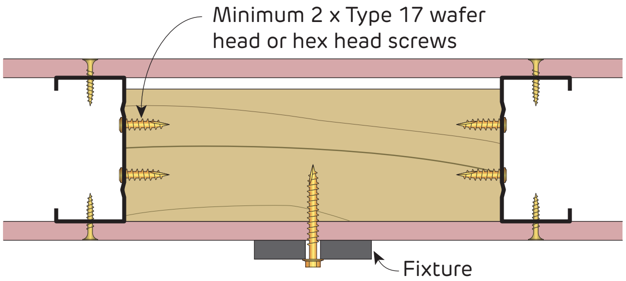



**FIGURE 261** **Timber Nogging**
Plan

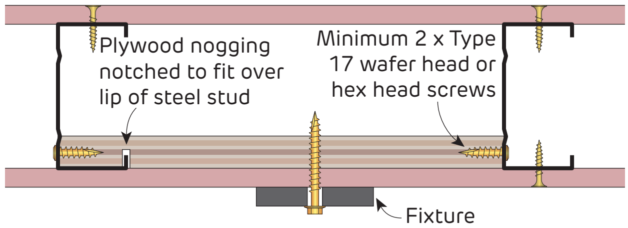



**FIGURE 262** **Plywood Nogging**
Plan

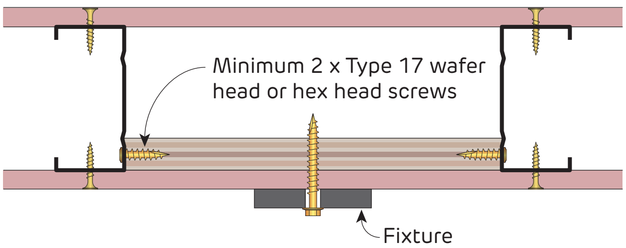



**FIGURE 263** **Plywood Nogging**
Plan

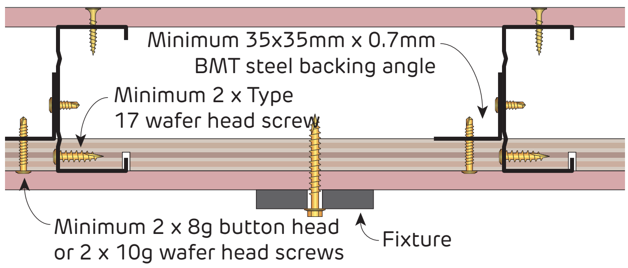



**FIGURE 264** **Continuous Plywood Nogging**
Plan

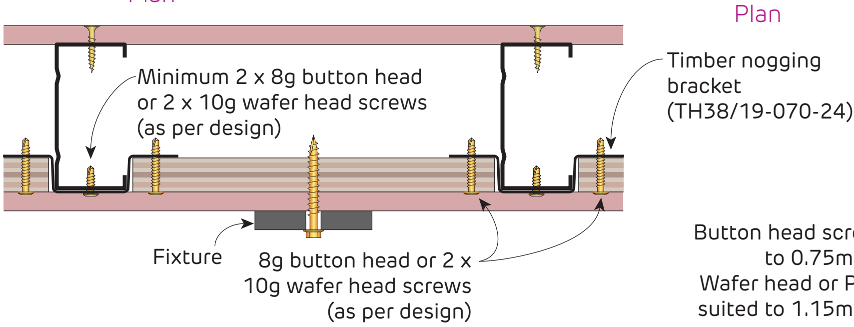



**FIGURE 265** **Timber Nogging Bracket**
Plan

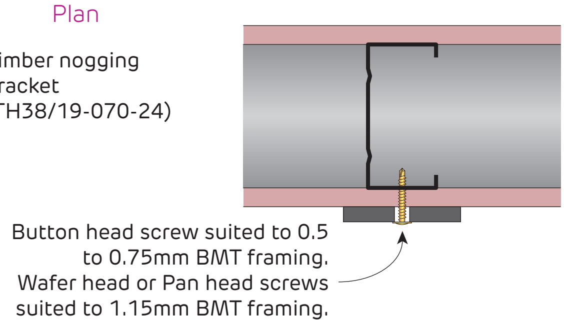



**FIGURE 266** **Stud Fixing**
Plan



# 3.2 Openings in Internal Steel Framed Walls

Siniat steel stud and track profiles are capable of creating the supporting frame around moderately sized doors and windows in internal steel framed partition walls. Siniat stud and track is often readily available on site, making them a practical way to frame around openings.

This section provides typical details of the framing around door and window openings for internal use. The surrounding frame around an opening requires structural engineering design based upon the dimensions of the opening, applied loads and the steel profiles used.

Internal opening framing tables are provided for a range of applications. For larger sized door and window openings, and for heavy doors alternative structural framing by others will need to be used. All details in this section are for non-load bearing frames only.

## Fire Rated and Non-Fire Rated
## Opening Details for Internal Stud Walls

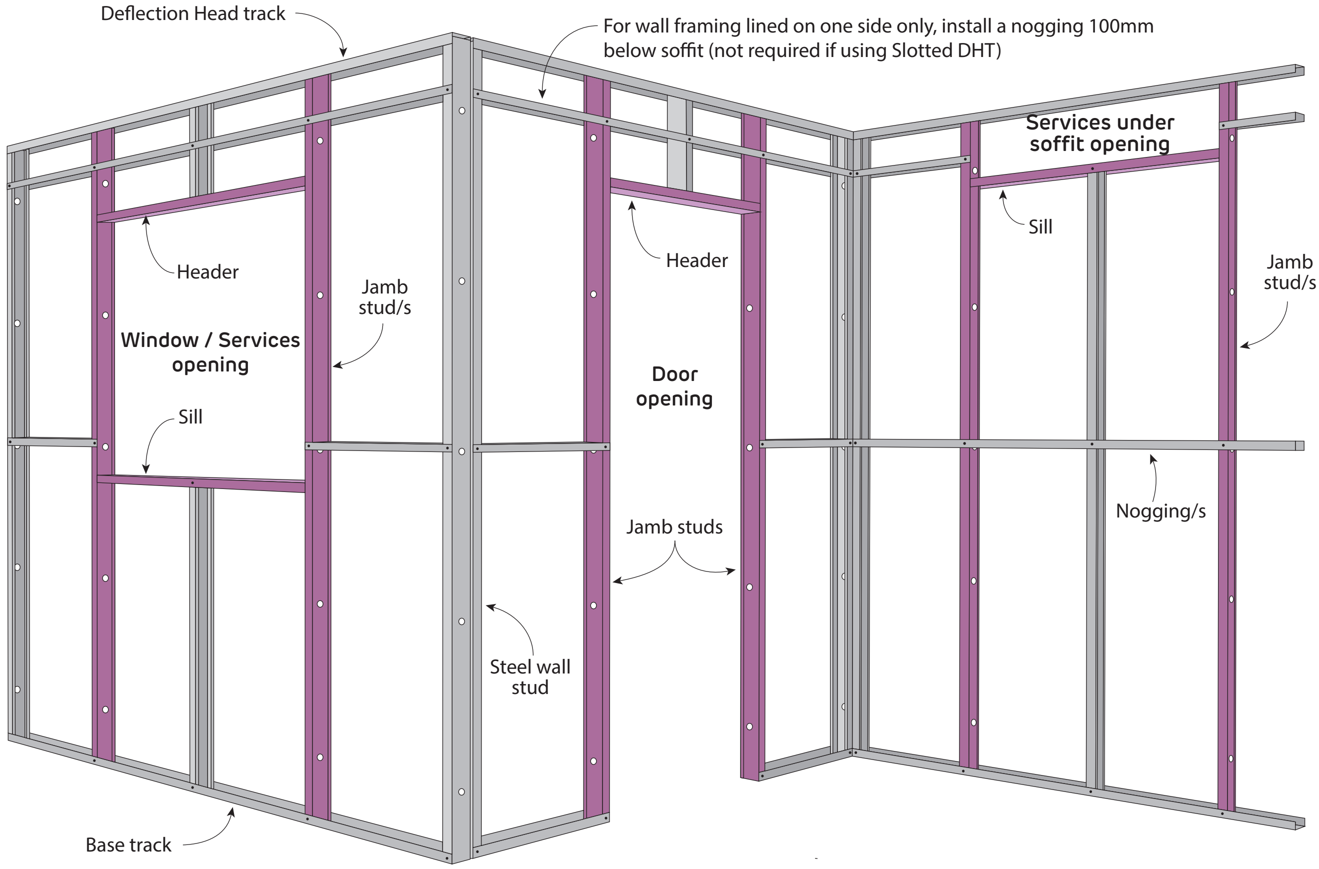



FIGURE 1 Internal Steel Frame Wall with Window and Door Openings


FIGURE 2 Jamb Stud Configurations
Plan

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles


FIGURE 3 Header
Section


FIGURE 4 Sill
Section

# Components

**FIGURE 5** 80mm wide Universal Bracket (UB80)
For 92mm and 150mm studs
Perspective

**FIGURE 6** 60mm wide Universal Bracket (UB60)
For 64mm and 76mm studs
Perspective

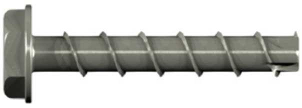


**FIGURE 7** Siniat 6 x 45mm Screw Anchor (SA6x45)
Perspective

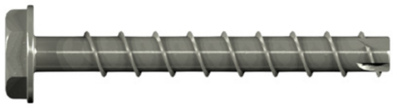


**FIGURE 8** Siniat 6 x 60mm Screw Anchor (SA6x60)
Perspective

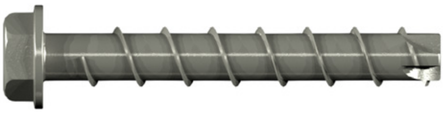


**FIGURE 9** Siniat 8 x 65mm Screw Anchor (SA8x65)
Perspective

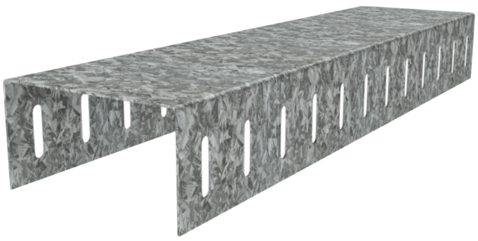


**FIGURE 12** Slotted Deflection Head Track
64mm, 76mm, 92mm and 150mm widths
Perspective

**FIGURE 10** Stud
64mm, 76mm, 92mm and 150mm
Profile

Refer to Section 1 for available profile sizes

**FIGURE 11** Deflection Head Track
64mm, 76mm, 92mm and 150mm
Profile

**FIGURE 13** Base Track
64mm, 76mm, 92mm and 150mm
Profile

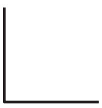


**FIGURE 14** Backing Angle
50x50 x 1.15mm BMT
Profile

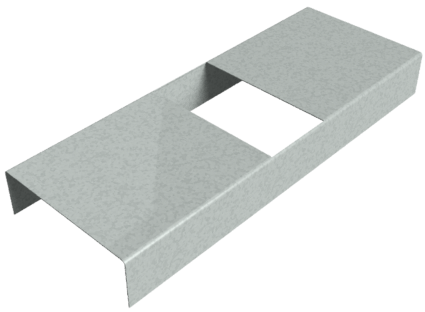
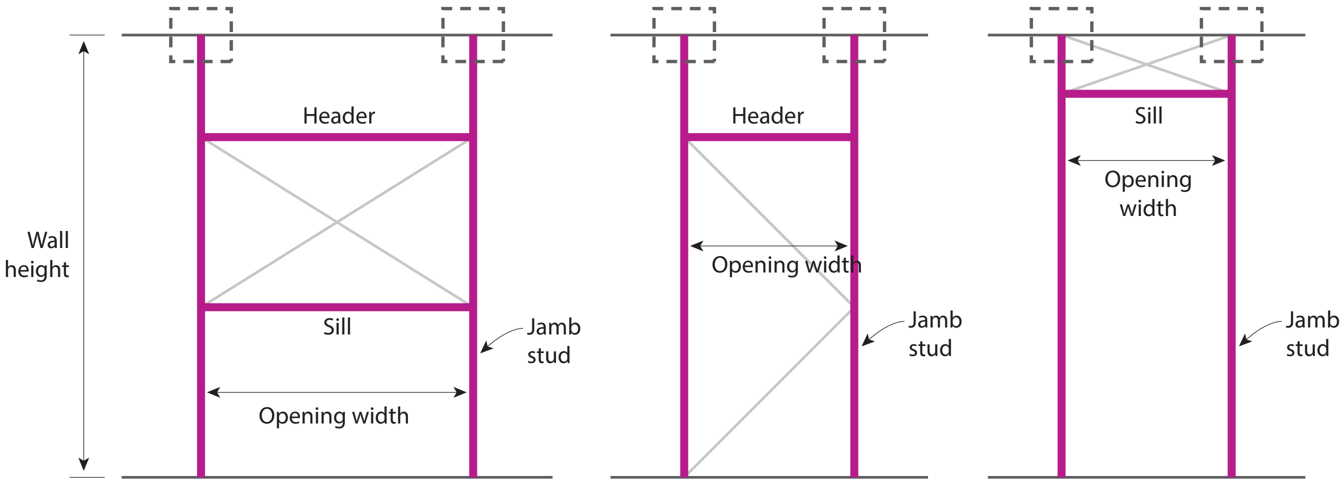


**FIGURE 15** Continuous Nogging Track
64mm, 76mm, 92mm and 150mm widths
Perspective

## Internal Steel Stud Wall Openings
## Typical Head Track Connections




**Window / Services opening** — **Door opening** — **Services under soffit opening**

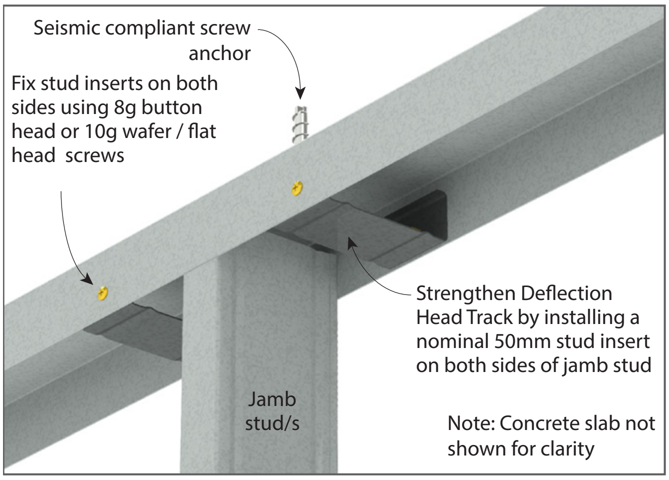



**FIGURE 16a** Head Track Connection HC6
Medium Duty Connection
Perspective

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

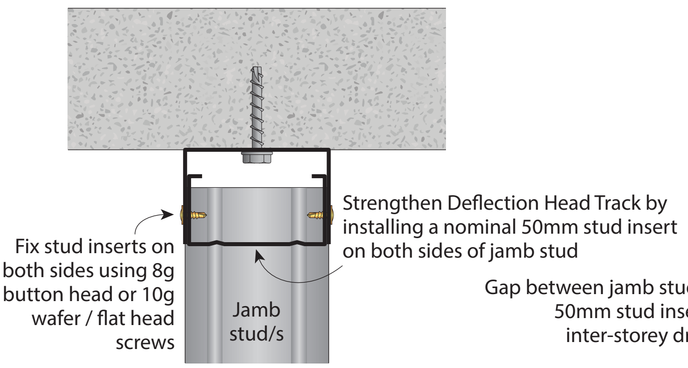



**FIGURE 16b** Head Track Connection HC6
Section

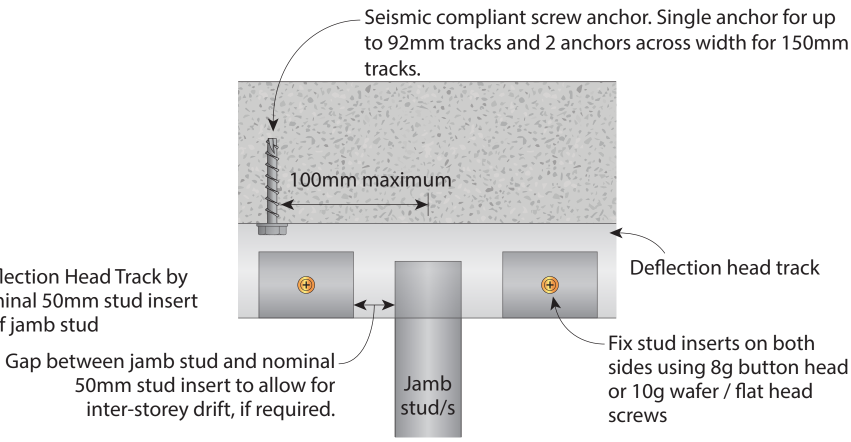



**FIGURE 16c** Head Track Connection HC6
Elevation

## Internal Steel Stud Wall Openings

## Typical Head Track Connections

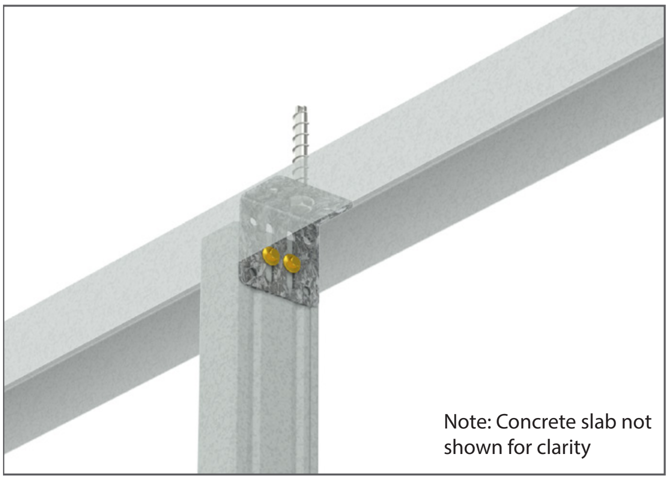



**FIGURE 17a Head Track Connection HC4 using UB60**
Heavy Duty Connection for 64mm and 76mm studs
Perspective

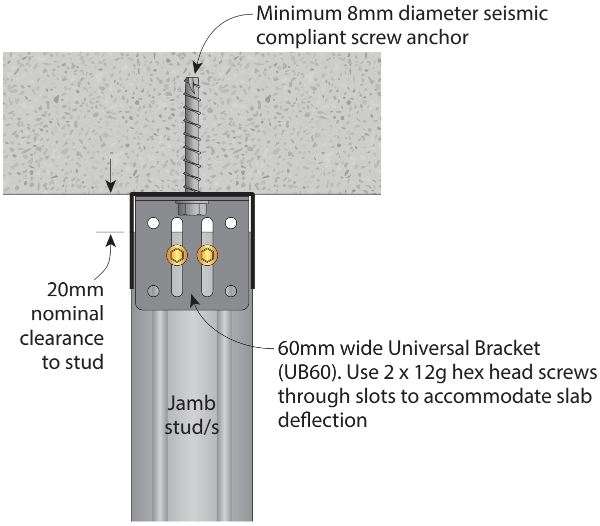



**FIGURE 17b Head Track Connection HC4**
Heavy Duty Connection for 64mm and 76mm studs
Section

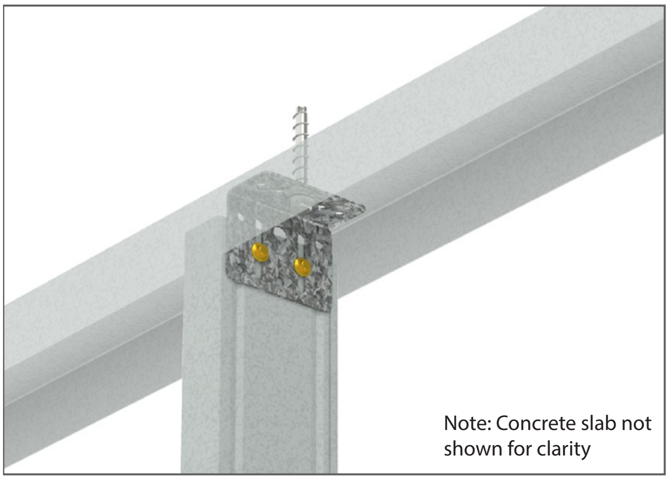



**FIGURE 18a Head Track Connection HC4 using UB80**
Heavy Duty Connection for 92mm and 150mm studs
Perspective

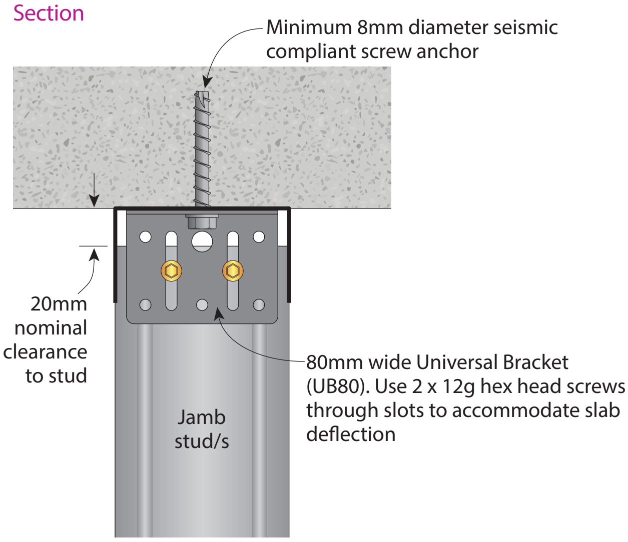
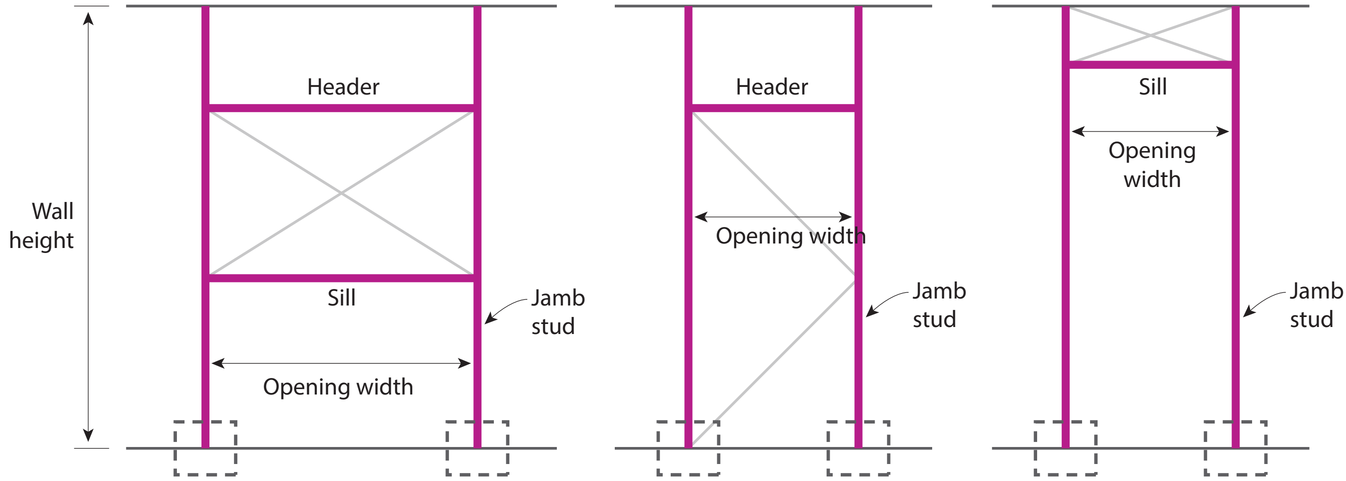



**FIGURE 18b Head Track Connection HC4**
Heavy Duty Connection for 92mm and 150mm studs
Section

## Internal Steel Stud Wall Openings
## Typical Base Track Connections




**Window / Services opening** | **Door opening** | **Services under soffit opening**

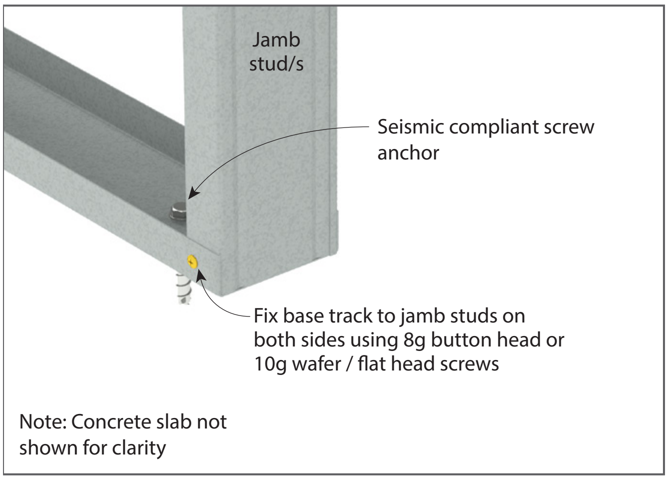



**FIGURE 19a** Base Track Connection BC3 - Doorway
Perspective

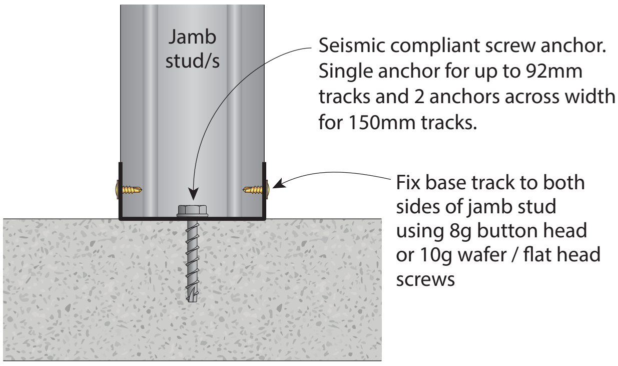



**FIGURE 19b** Base Track Connection BC3
Section

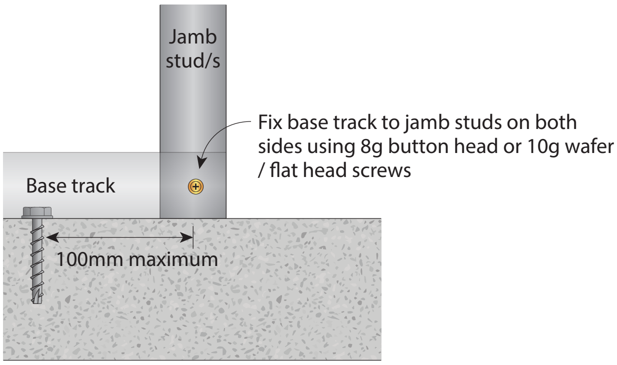



**FIGURE 19c** Base Track Connection BC3 for Door Opening
Elevation

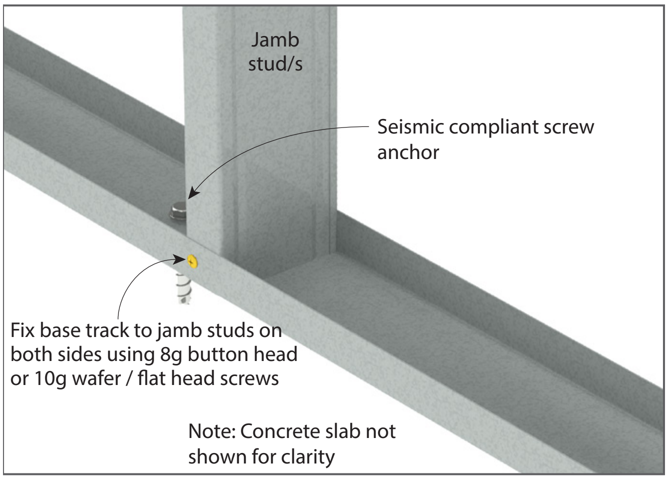



**FIGURE 20a** Base Track Connection BC3 - Window
Perspective

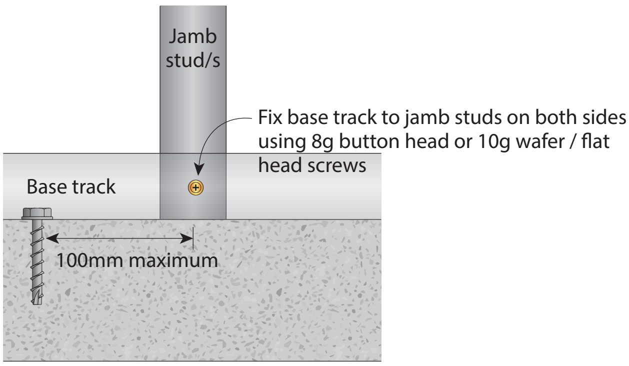



**FIGURE 20b** Base Connection BC3 for Window Opening
Elevation

## Internal Steel Stud Wall Openings
## Typical Base Track Connections

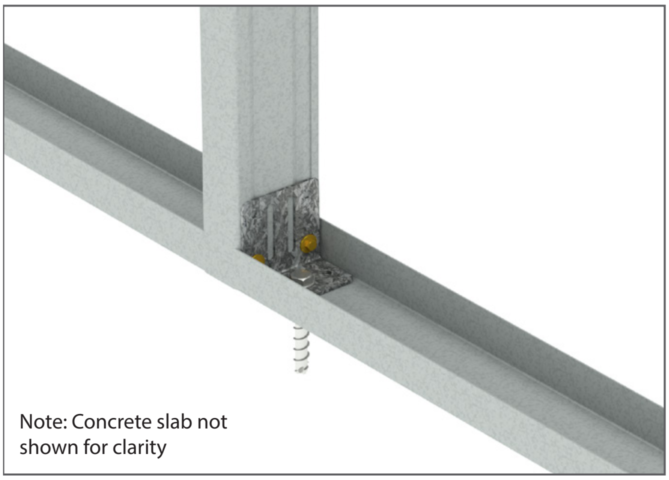



**FIGURE 21a** **Base Track Connection BC4 using UB60**
Heavy Duty Connection for 64mm and 76mm studs
Perspective

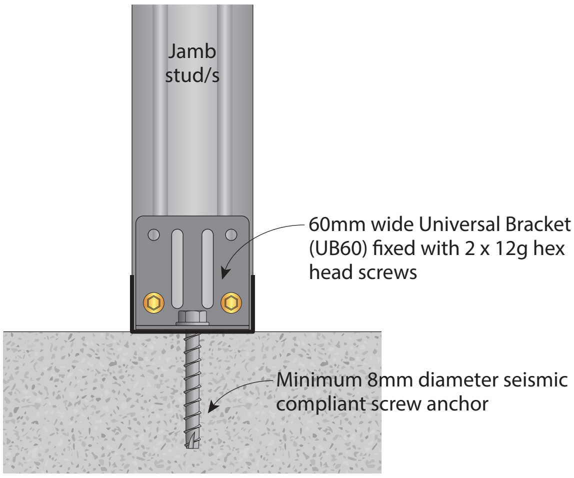



**FIGURE 21b** **BaseTrack Connection BC4**
Heavy Duty Connection for 64mm and 76mm studs
Section

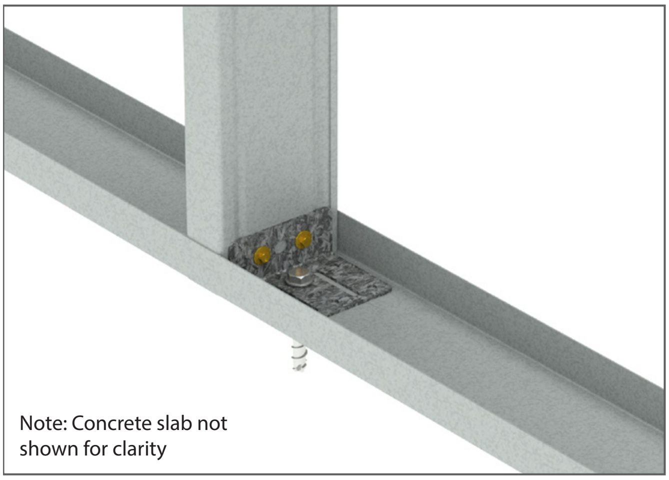



**FIGURE 22a** **Base Track Connection BC4 using UB80**
Heavy Duty Connection for 92mm and 150mm studs
Perspective

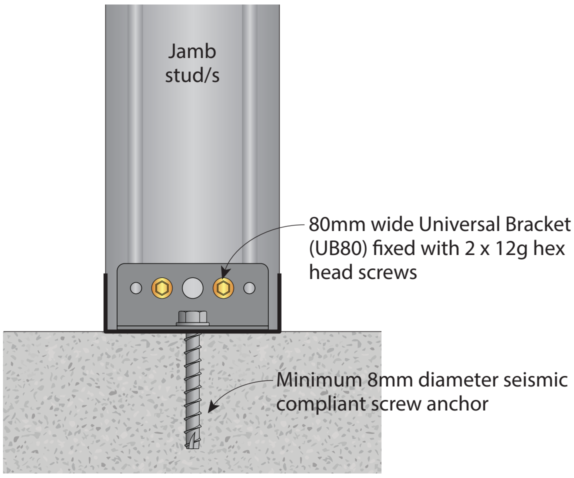
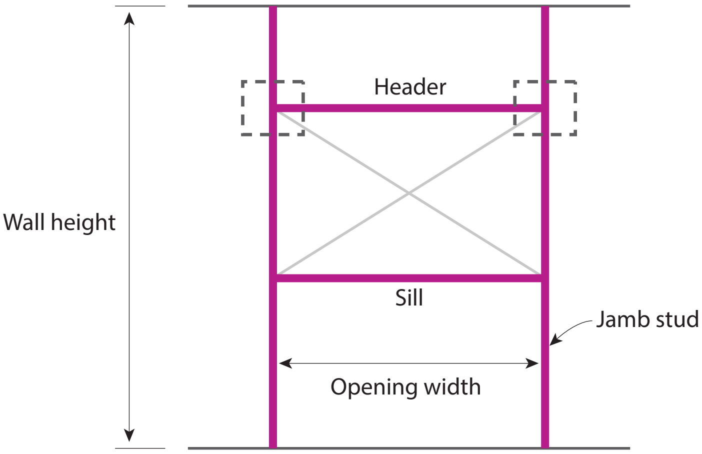
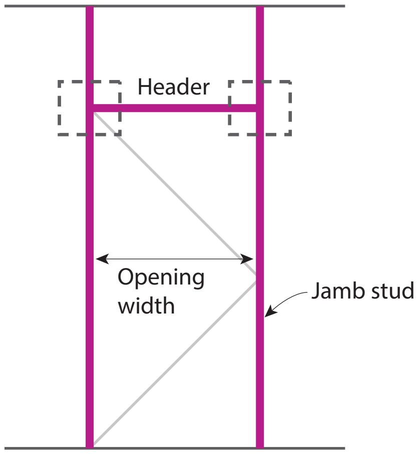



**FIGURE 22b** **Base Track Connection BC4**
Heavy Duty Connection for 92mm and 150mm studs
Section

## Internal Steel Stud Wall Openings
## Typical Header Connections




Window / Services opening




Door opening

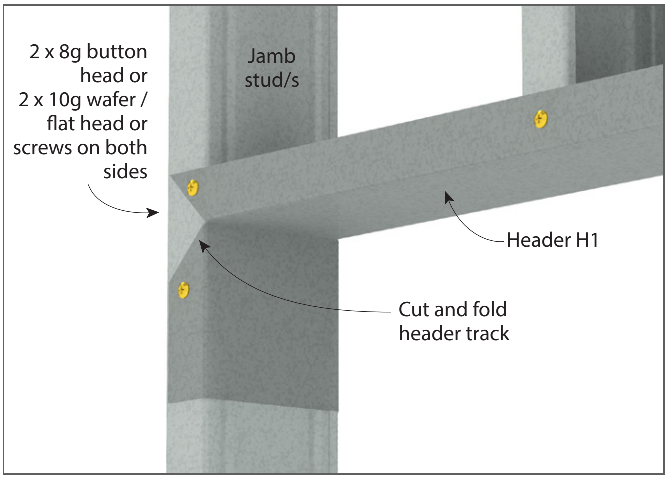



**FIGURE 23a** Header H1 Connection 'cut and fold'
Perspective

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

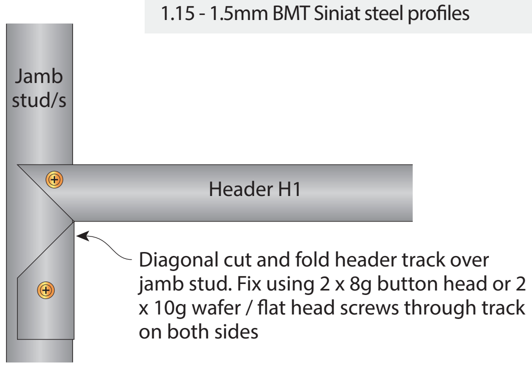



**FIGURE 23b** Header H1 Connection 'cut and fold'
Elevation

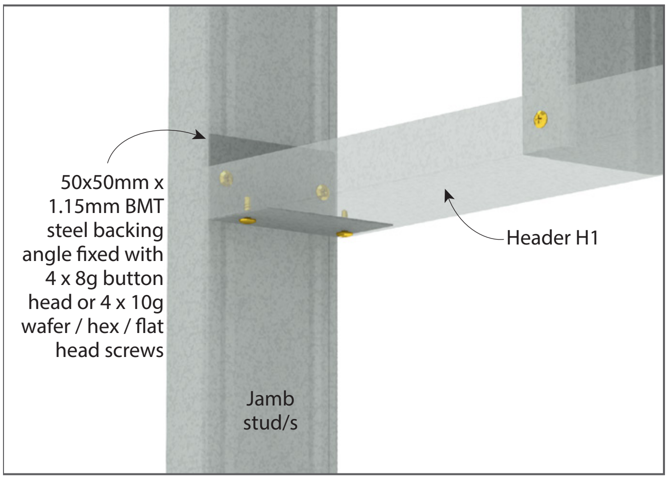



**FIGURE 24a** Alternative Header H1 Connection 'A-2'
Perspective

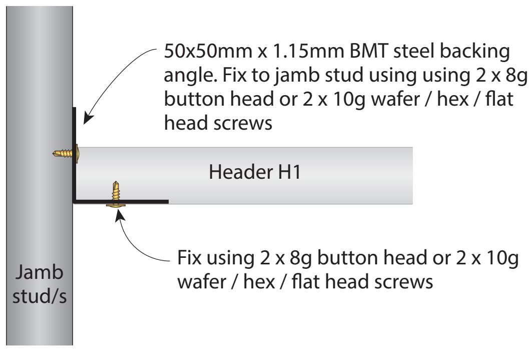
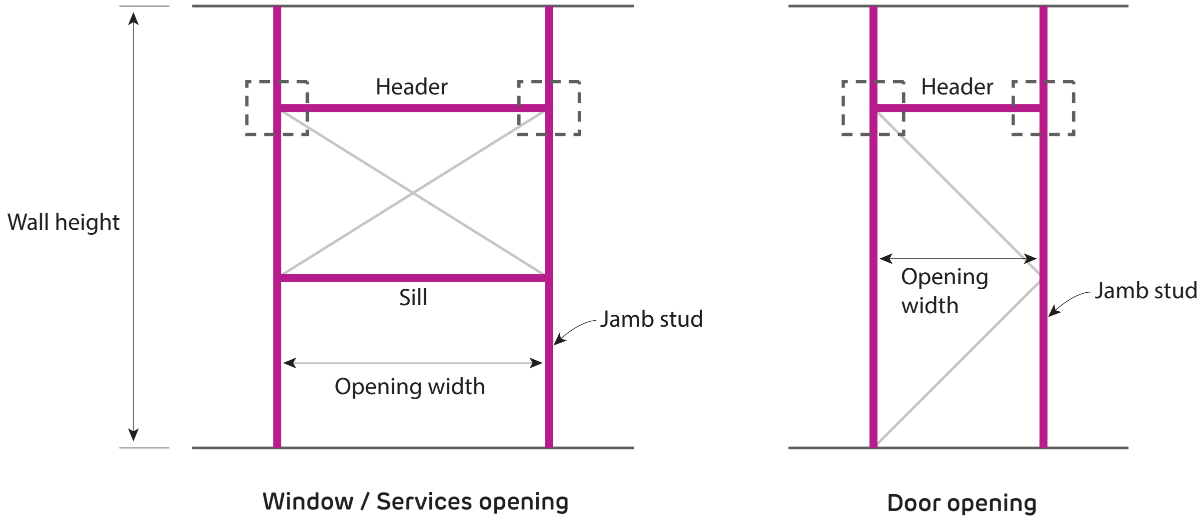



**FIGURE 24b** Alternative Header H1 Connection 'A-2'
Elevation

## Internal Steel Stud Wall Openings
## Typical Header Connections



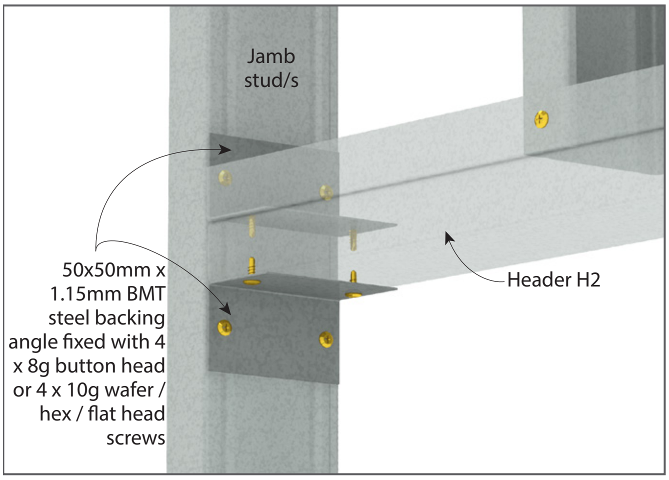




**FIGURE 25a Header H2 Connection '2A-2'**
Perspective

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

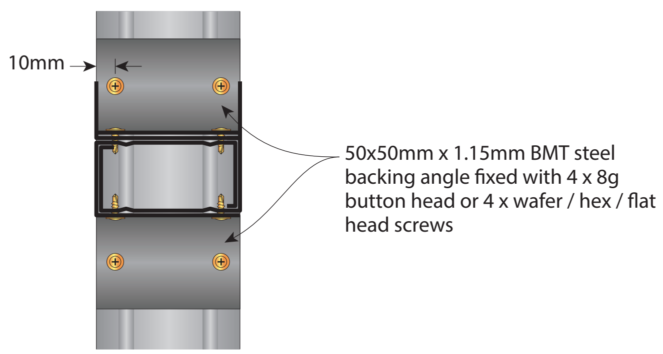



**FIGURE 25b Header H2 Connection '2A-2'**
Section

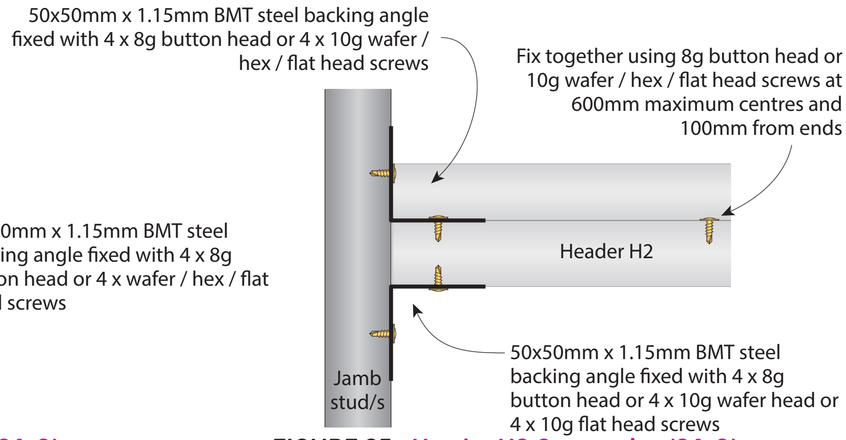
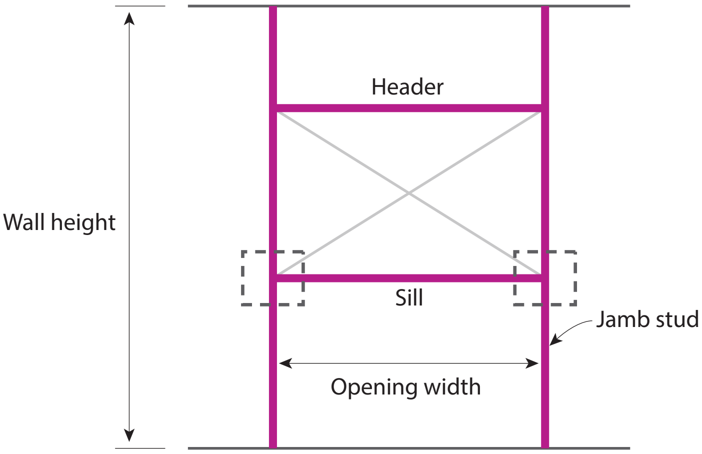
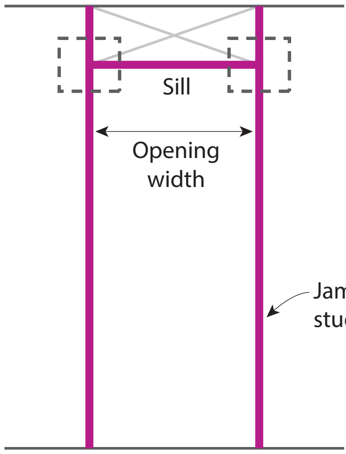



**FIGURE 25c Header H2 Connection '2A-2'**
Elevation

## Internal Steel Stud Wall Openings
## Typical Sill Connections




Window / Services opening




Services under soffit opening

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

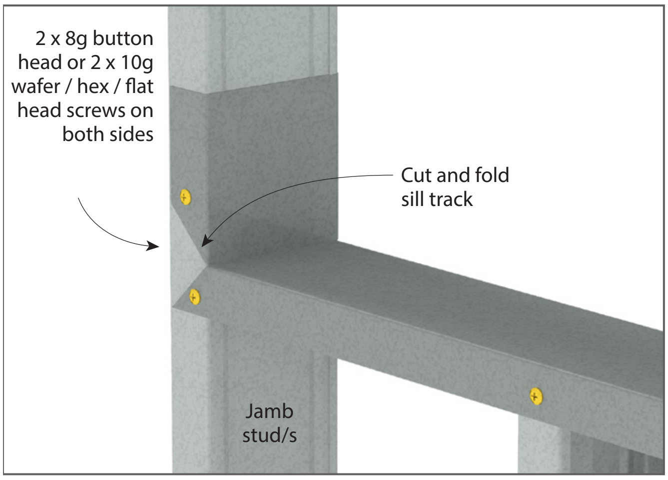



**FIGURE 26a Sill S1 Connection 'cut and fold'**
Perspective

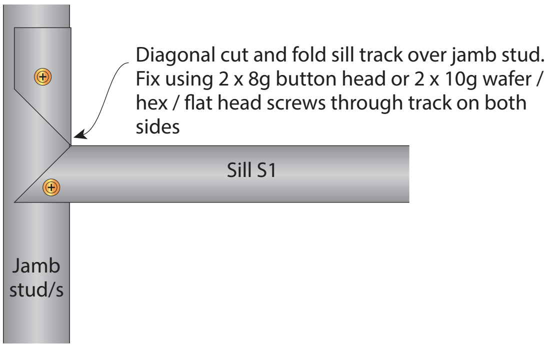



**FIGURE 26b Sill S1 Connection 'cut and fold'**
Elevation

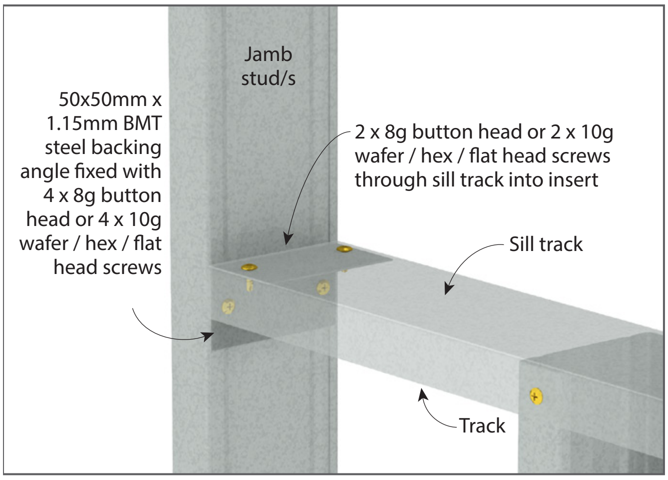



**FIGURE 27a Alternative Sill S1 Connection 'A-2'**
Perspective

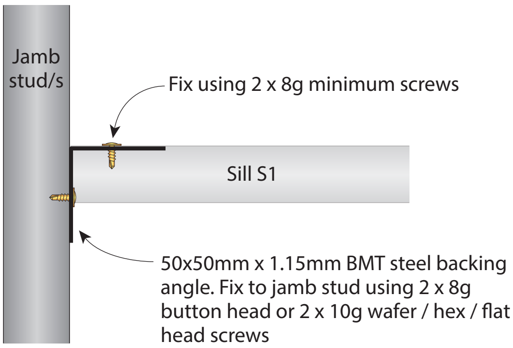
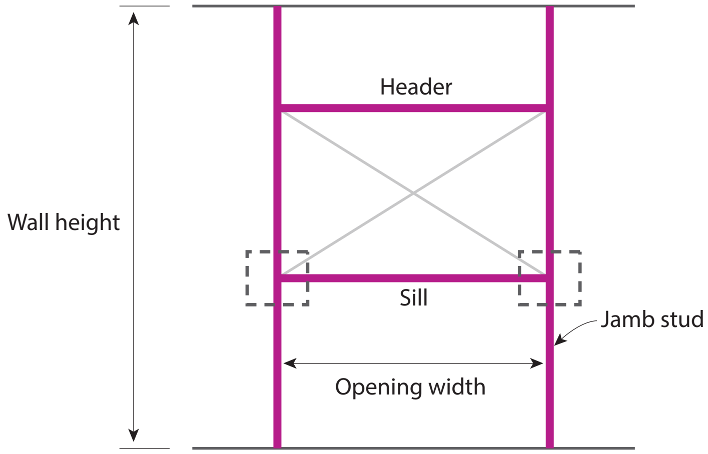
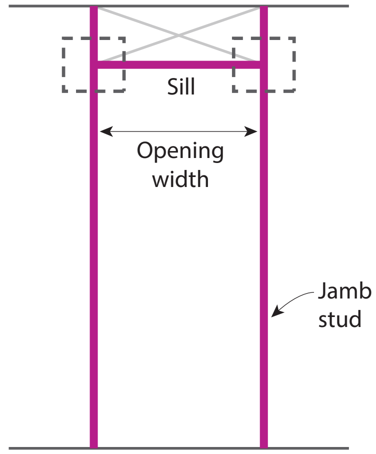



**FIGURE 27b Alternative Sill S1 Connection 'A-2'**
Elevation

## Internal Steel Stud Wall Openings
## Typical Sill Connections




**Window / Services opening**




**Services under soffit opening**

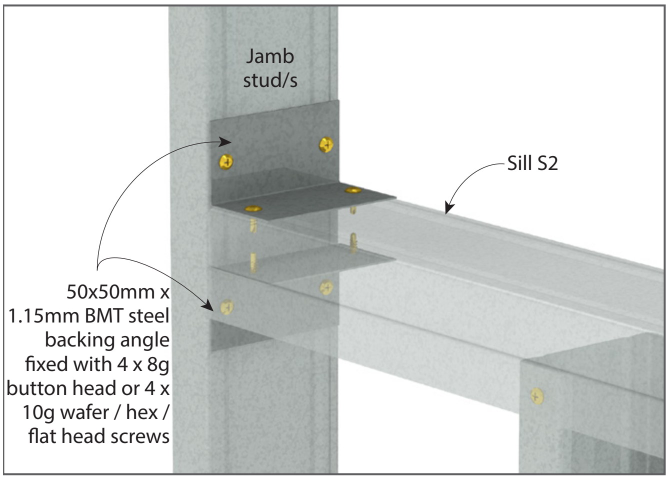



**FIGURE 28a** **Sill S2 Connection '2A-2'**
Perspective

> 8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

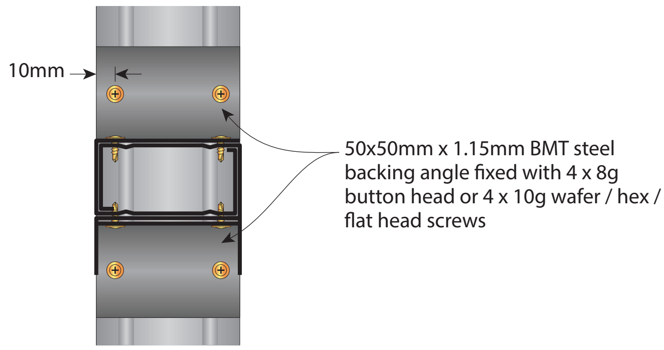



**FIGURE 28b** **Sill S2 Connection '2A-2'**
Section

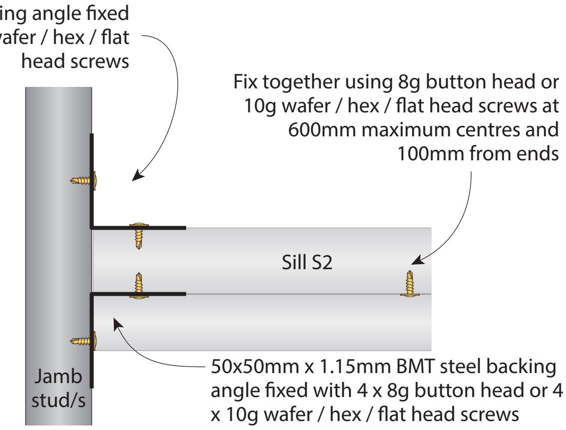
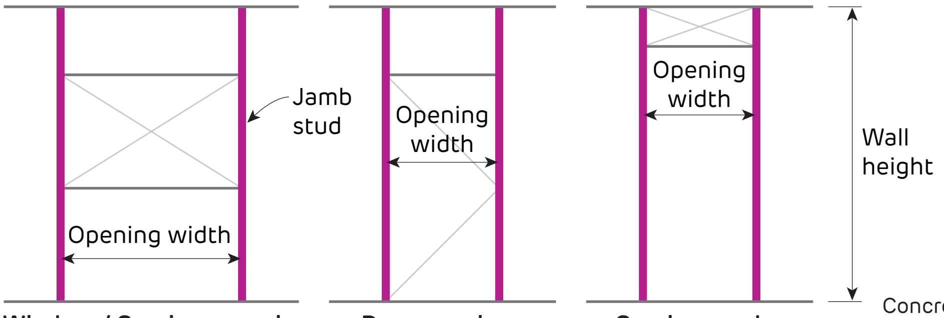



**FIGURE 28c** **Sill S2 Connection '2A-2'**
Elevation

## 0.5mm / 0.55mm BMT jamb stud Openings in Internal Steel Stud Walls

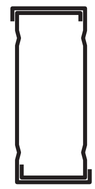
### Chart 1 Opening - WIND REGIONS A0-A5 - HEIGHT/240



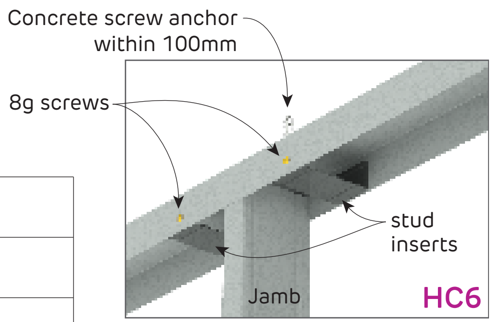

Window / Services opening

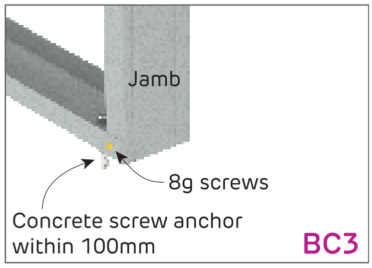
Door opening

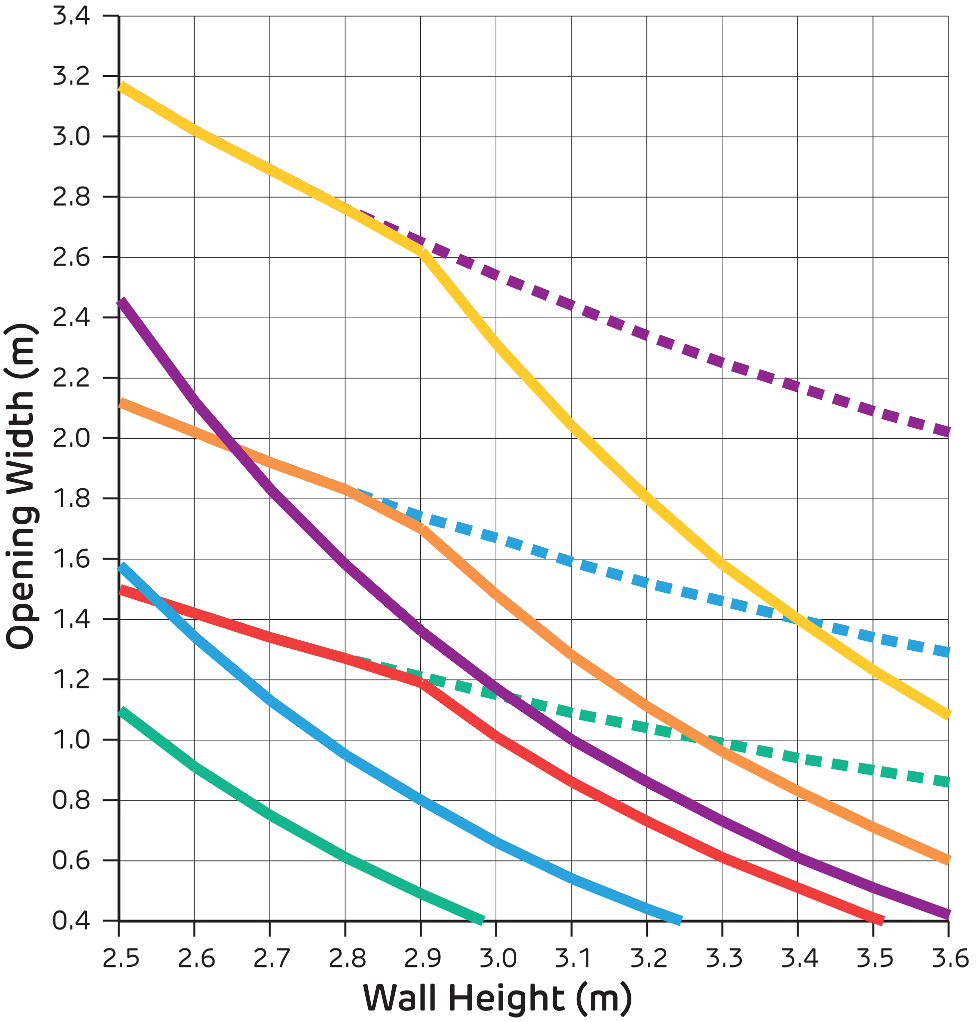
Services under soffit opening

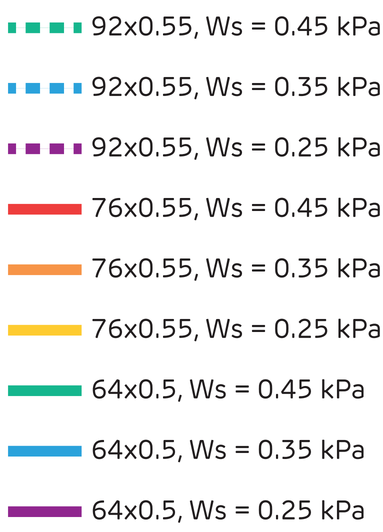


Jamb **J2**
0.5mm / 0.55mm BMT




**NOTES**

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base connection BC3 using 0.5mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 8g screws on both sides.
3. Head connection HC6 using 0.55mm BMT Deflection Head Track (DHT) and two stud inserts fixed with minimum 8g sides on both sides.
4. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
5. Opening widths based upon serviceability wind pressures (Ws) and the deflection limit stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Ultimate wind pressure (Wu) taken as 155% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes upto 50 kg/m² for wall, window or door weight.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

### Corresponding Wind Loads (kPa)

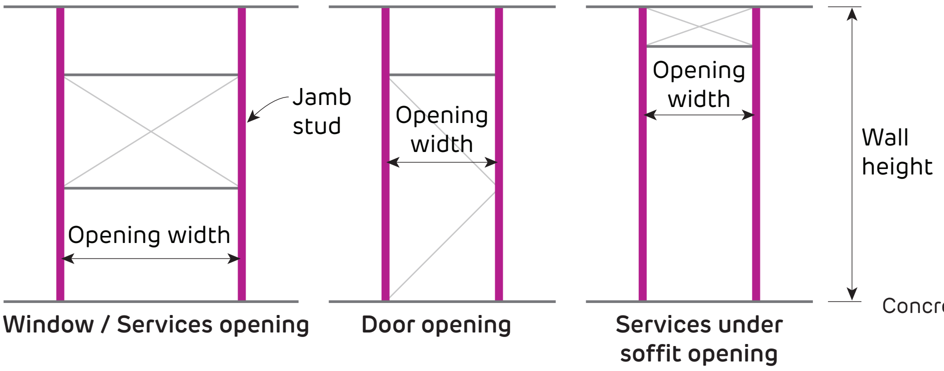
| Ws | Wu |
|---|---|
| 0.25 | 0.39 |
| 0.35 | 0.54 |
| 0.45 | 0.7 |

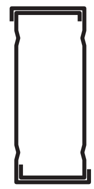
### Concrete Screw Anchor Table

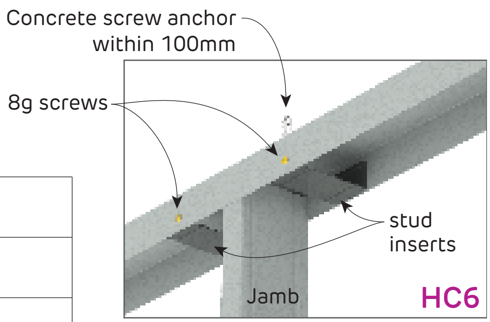
| Seismic Performance Category | |
|---|---|
| C1 | C2 |
| Siniat SA6x45 | Iccons SXTB08055 |

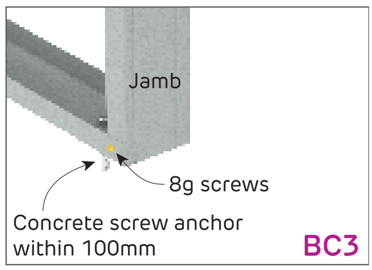
1. Concrete screw anchor within 100mm of jamb stud.
2. Minimum 32 MPa concrete.
3. Minimum 50mm edge distance.

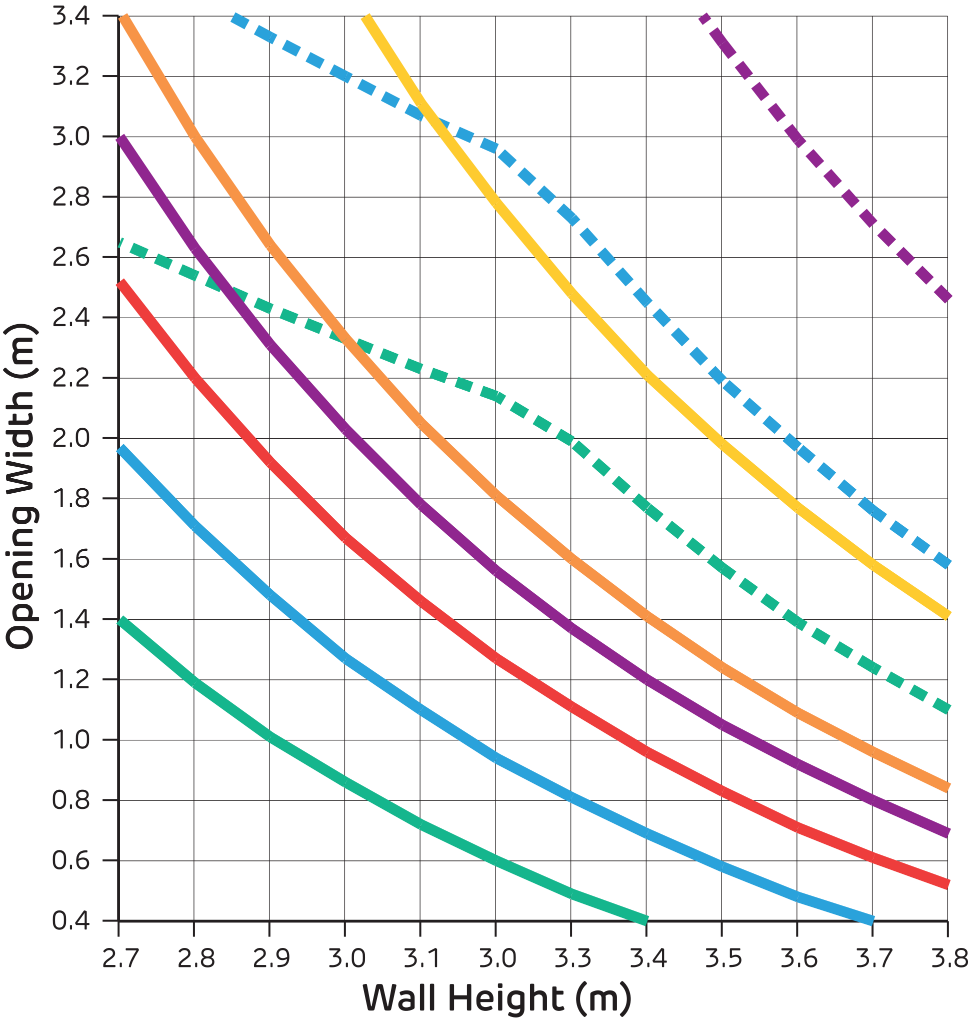
## 0.75mm BMT jamb stud Openings in Internal Steel Stud Walls
## Chart 2 Opening - WIND REGIONS A0-A5 - HEIGHT/240




**NOTES**
1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base connection BC3 using 0.7mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 8g screws on both sides.
3. Head connection HC6 using 0.7mm BMT Deflection Head Track (DHT) and two stud inserts fixed with minimum 8g sides on both sides.
4. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
5. Opening widths based upon serviceability wind pressures (Ws) and the deflection limit stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*. Seek professional engineering advice to determine wind pressures for a specific project.
8. Ultimate wind pressure (Wu) taken as 155% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes upto 50 kg/m² for wall, window or door weight.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

### Corresponding Wind Loads (kPa)

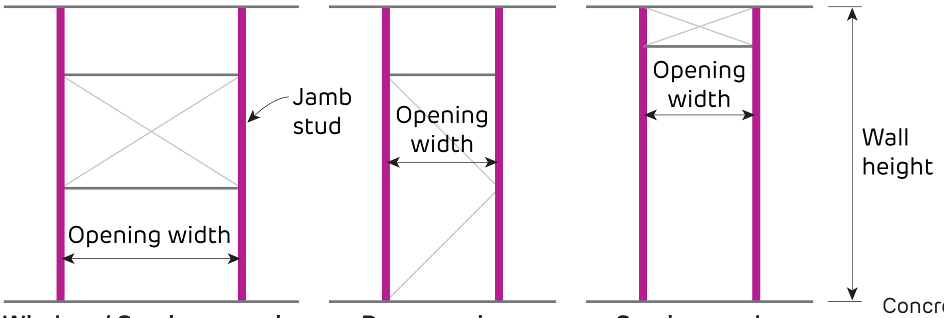
| Ws | Wu |
|---|---|
| 0.25 | 0.39 |
| 0.35 | 0.54 |
| 0.45 | 0.7 |

### Concrete Screw Anchor Table

| Seismic Performance Category | |
|---|---|
| C1 | C2 |
| Siniat SA6x45 | Iccons SXTB08055 |

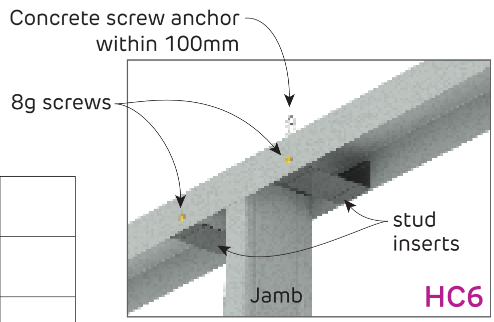
1. Concrete screw anchor within 100mm of jamb stud.
2. Minimum 32 MPa concrete.
3. Minimum 50mm edge distance.

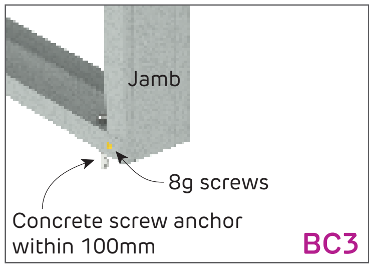
## 1.15mm BMT jamb stud Openings in Internal Steel Stud Walls
## Chart 3 Opening - WIND REGIONS A0-A5 - HEIGHT/240

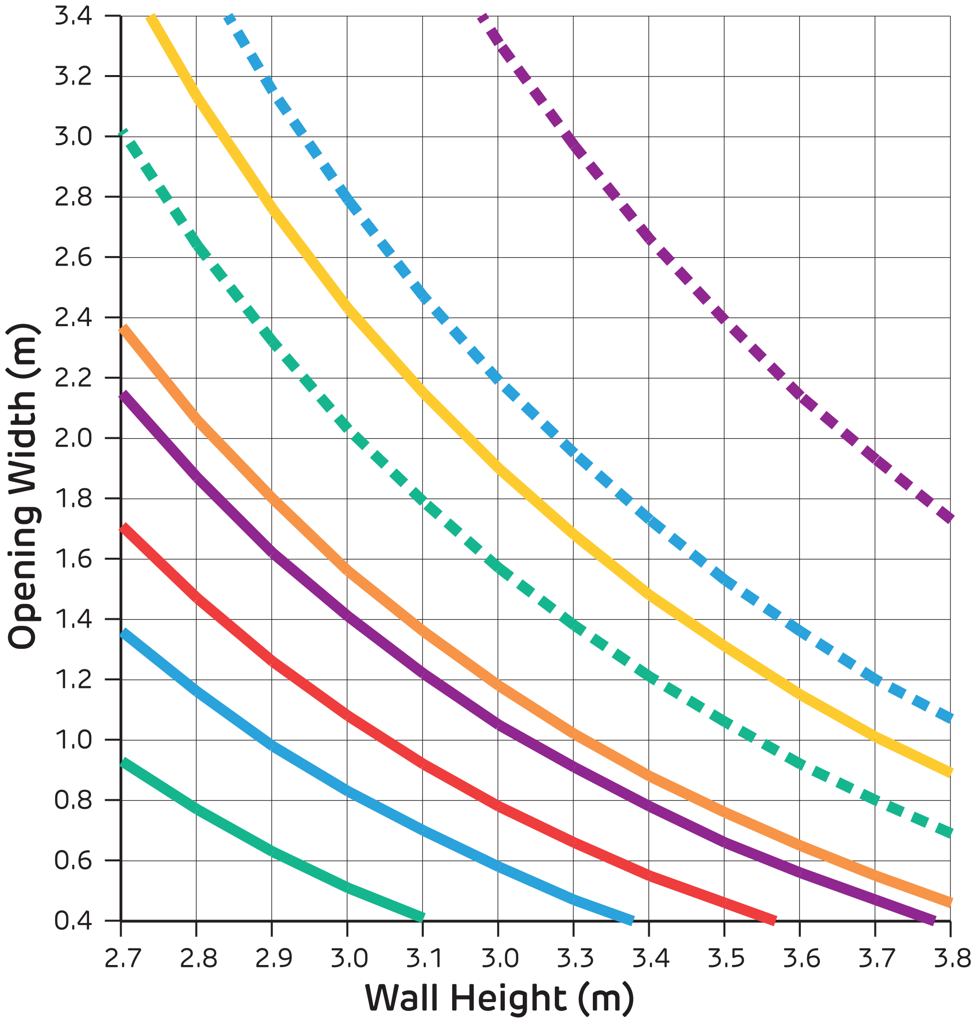



Window / Services opening | Door opening | Services under soffit opening

Jamb **J1**
1.15mm BMT




**NOTES**

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base connection BC3 using 1.15mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 8g screws on both sides.
3. Head connection HC6 using 1.15mm BMT Deflection Head Track (DHT) and two stud inserts fixed with minimum 8g sides on both sides.
4. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
5. Opening widths based upon serviceability wind pressures (Ws) and the deflection limit stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Ultimate wind pressure (Wu) taken as 155% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes upto 50 kg/m² for wall, window or door weight.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

### Corresponding Wind Loads (kPa)

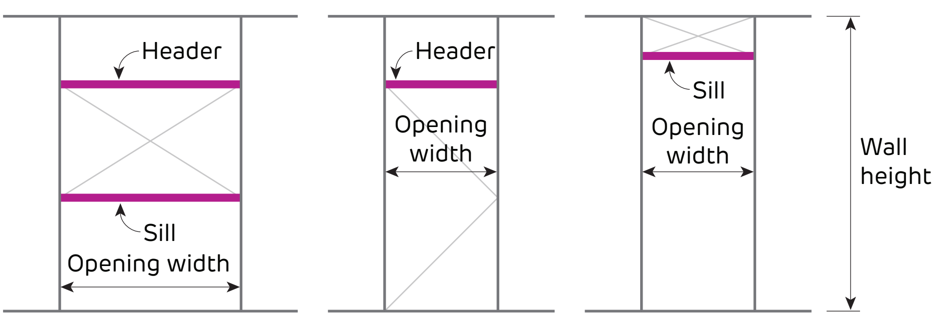
| Ws | Wu |
|---|---|
| 0.25 | 0.39 |
| 0.35 | 0.54 |
| 0.45 | 0.7 |

### Concrete Screw Anchor Table

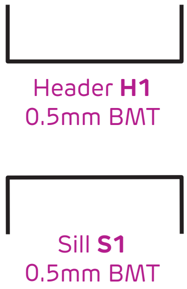
| Seismic Performance Category | |
|---|---|
| C1 | C2 |
| Siniat SA6x45 | Iccons SXTB08055 |

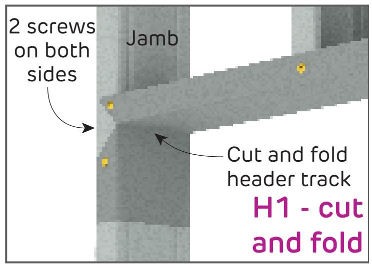
1. Concrete screw anchor within 100mm of jamb stud.
2. Minimum 32 MPa concrete.
3. Minimum 50mm edge distance.

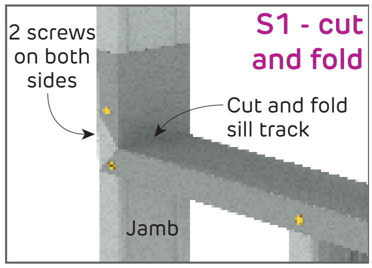
## 0.5mm / 0.55mm BMT Header and Sill Openings in Internal Steel Stud Walls
### Chart 4 Opening - WIND REGIONS A0-A5 - HEIGHT/240

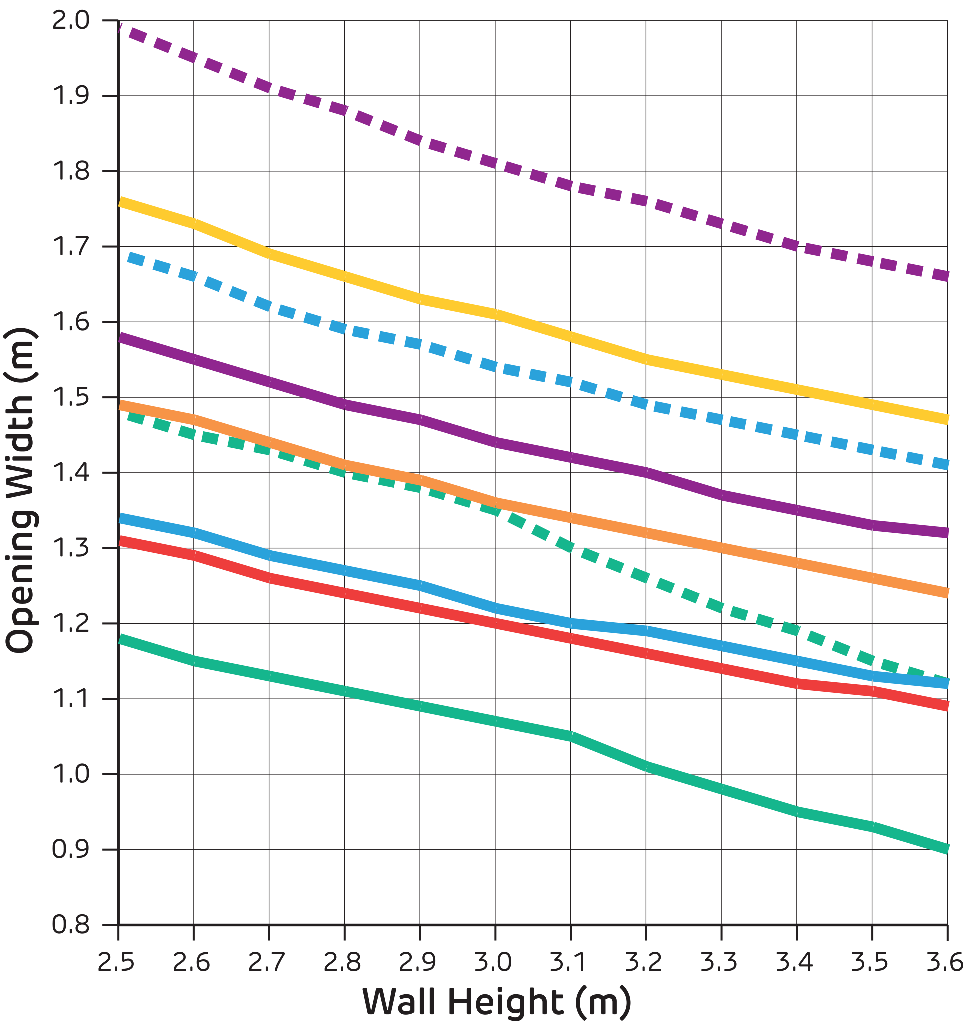



Window / Services opening    Door opening    Services under soffit opening




**NOTES**

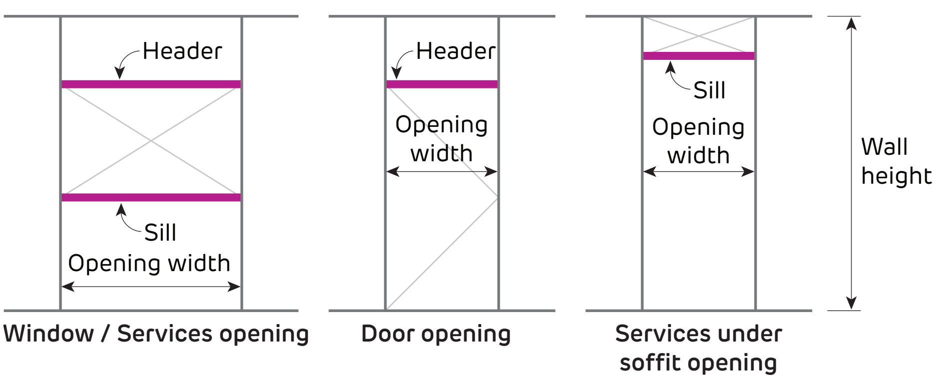
1. Table refers to Siniat steel tracks of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
3. Opening widths based upon serviceability lateral wind pressures and the deflection limit stated. No additional load considered.
4. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
6. Ultimate wind pressure (Wu) taken as 155% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
7. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections.
8. Table includes upto 50 kg/m² for wall, window or door weight.
9. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

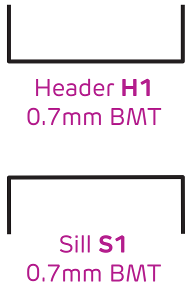
### Corresponding Wind Loads (kPa)

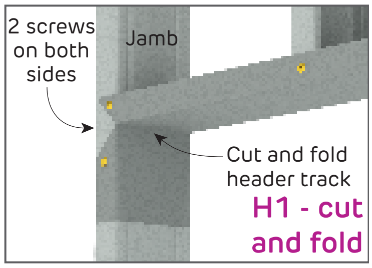
| Ws | Wu |
|---|---|
| 0.25 | 0.39 |
| 0.35 | 0.54 |
| 0.45 | 0.7 |

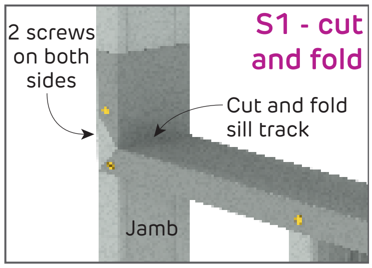
## 0.75mm BMT Header and Sill Openings in Internal Steel Stud Walls

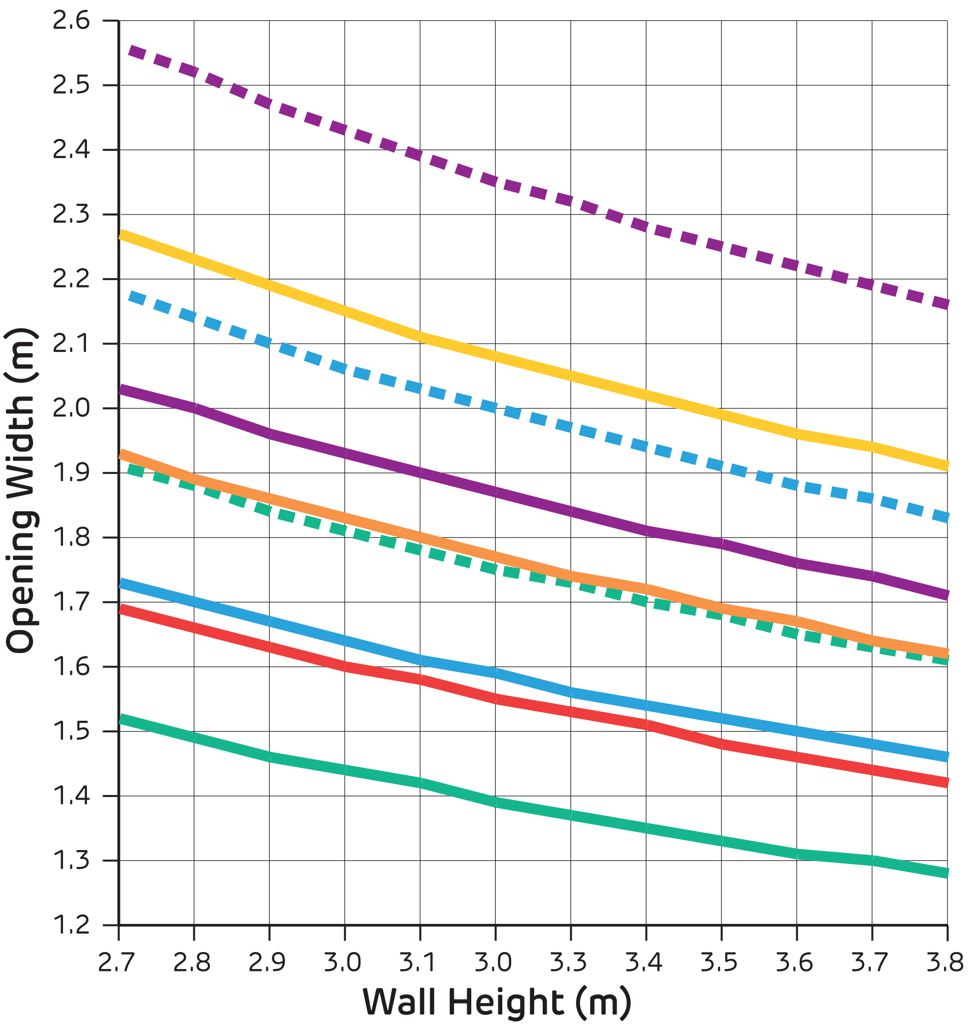
### Chart 5 Opening - WIND REGIONS A0-A5 - HEIGHT/240



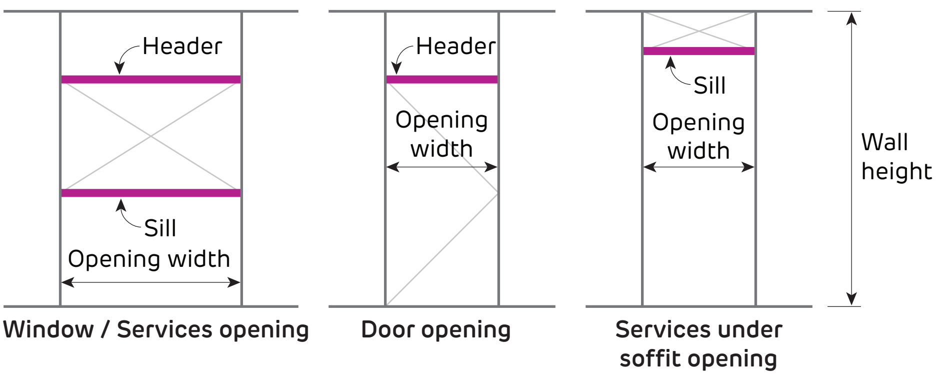

**NOTES**

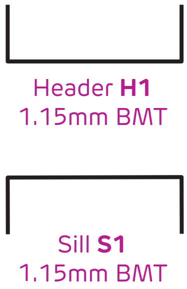
1. Table refers to Siniat steel tracks of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
3. Opening widths based upon serviceability lateral wind pressures and the deflection limit stated. No additional load considered.
4. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
5. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*. Seek professional engineering advice to determine wind pressures for a specific project.
6. Ultimate wind pressure (Wu) taken as 155% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
7. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections.
8. Table includes upto 50 kg/m² for wall, window or door weight.
9. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

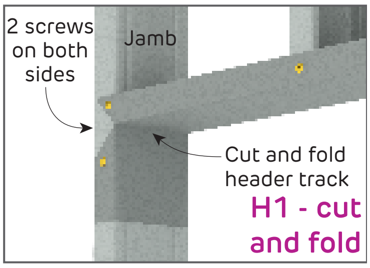
### Corresponding Wind Loads (kPa)

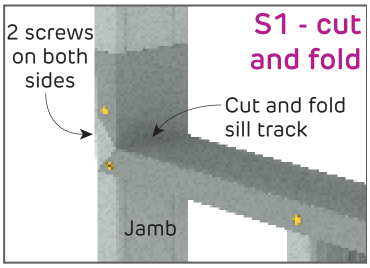
| Ws | Wu |
|---|---|
| 0.25 | 0.39 |
| 0.35 | 0.54 |
| 0.45 | 0.7 |

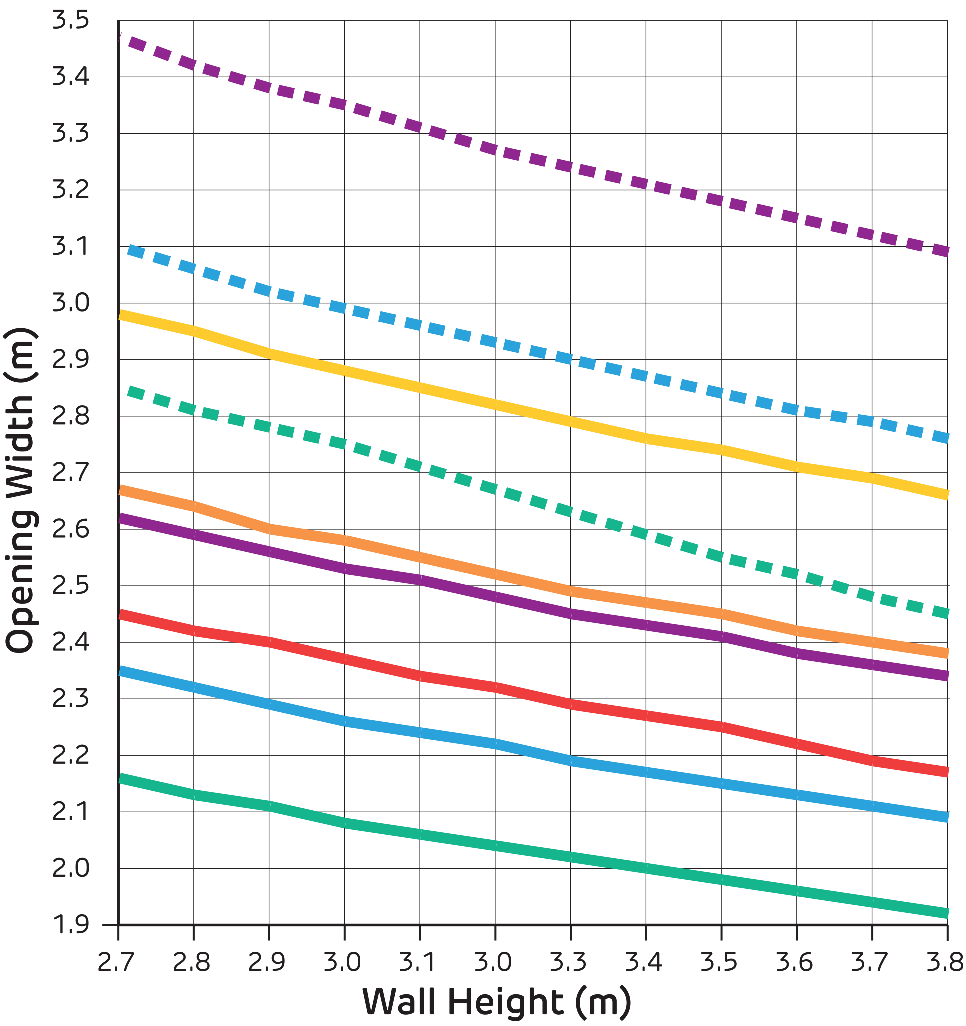
## 1.15mm BMT Header and Sill Openings in Internal Steel Stud Walls
### Chart 6 Opening - WIND REGIONS A0-A5 - HEIGHT/240



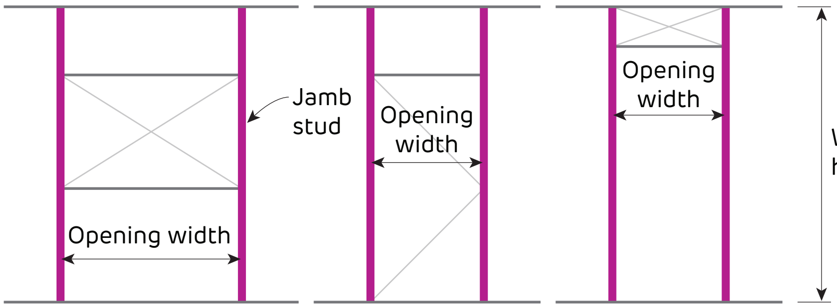

**NOTES**
1. Table refers to Siniat steel tracks of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
3. Opening widths based upon serviceability lateral wind pressures and the deflection limit stated. No additional load considered.
4. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
6. Ultimate wind pressure (Wu) taken as 155% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
7. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections.
8. Table includes upto 50 kg/m² for wall, window or door weight.
9. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

### Corresponding Wind Loads (kPa)

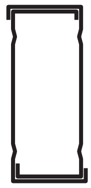
| Ws | Wu |
|---|---|
| 0.25 | 0.39 |
| 0.35 | 0.54 |
| 0.45 | 0.7 |

## 0.5mm / 0.55mm BMT jamb stud Openings in Internal Steel Stud Walls

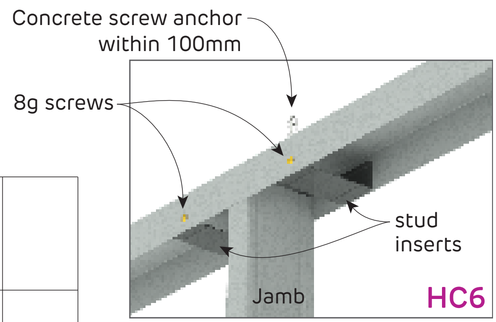
### Chart 7 Opening - WIND REGIONS B1-B2 - HEIGHT/240

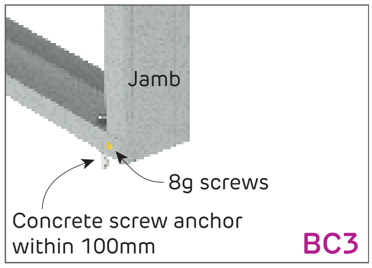


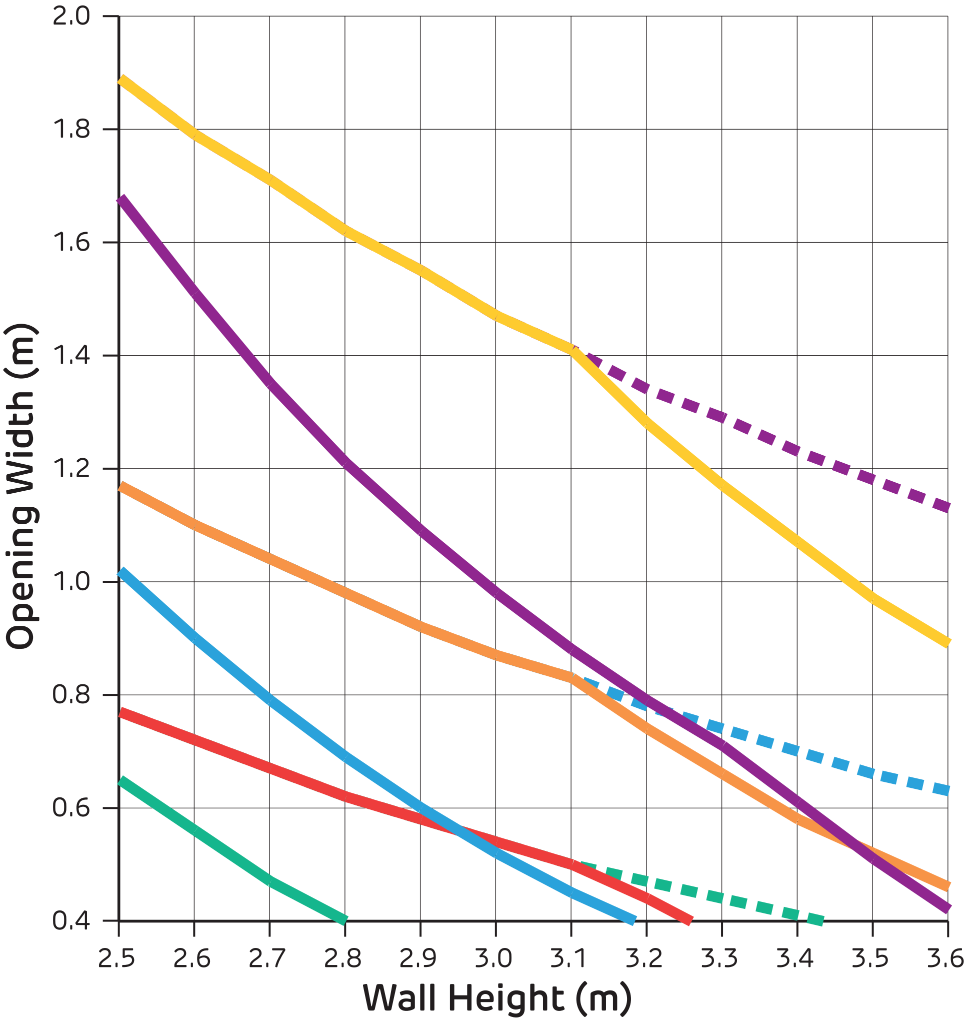

Window / Services opening | Door opening | Services under soffit opening



Jamb **J2**
0.5mm / 0.55mm BMT




**NOTES**

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base connection BC3 using 0.5mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 8g screws on both sides.
3. Head connection HC6 using 0.55mm BMT Deflection Head Track (DHT) and two stud inserts fixed with minimum 8g sides on both sides.
4. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
5. Opening widths based upon serviceability wind pressures (Ws) and the deflection limit stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*. Seek professional engineering advice to determine wind pressures for a specific project.
8. Ultimate wind pressure (Wu) taken as 237% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes upto 50 kg/m$^2$ for wall, window or door weight.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

### Corresponding Wind Loads (kPa)

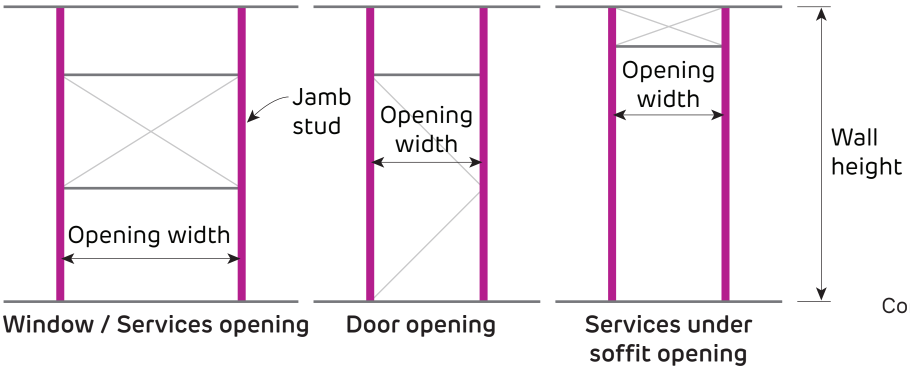
| Ws | Wu |
|---|---|
| 0.25 | 0.59 |
| 0.35 | 0.83 |
| 0.45 | 1.07 |

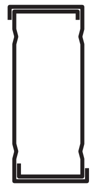
### Concrete Screw Anchor Table

| Seismic Performance Category | |
|---|---|
| C1 | C2 |
| Siniat SA6x45 | Iccons SXTB08055 |

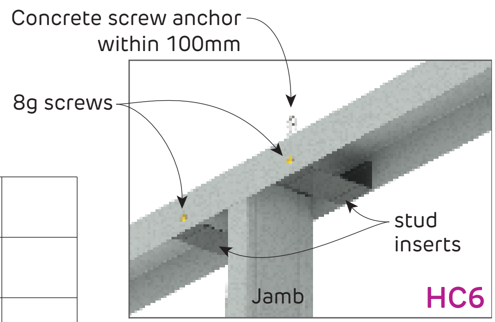
1. Concrete screw anchor within 100mm of jamb stud.
2. Minimum 32 MPa concrete.
3. Minimum 50mm edge distance.

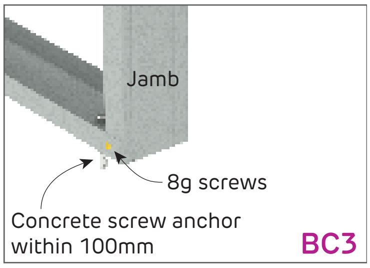
## 0.75mm BMT jamb stud Openings in Internal Steel Stud Walls
## Chart 8 Opening - WIND REGIONS B1-B2 - HEIGHT/240

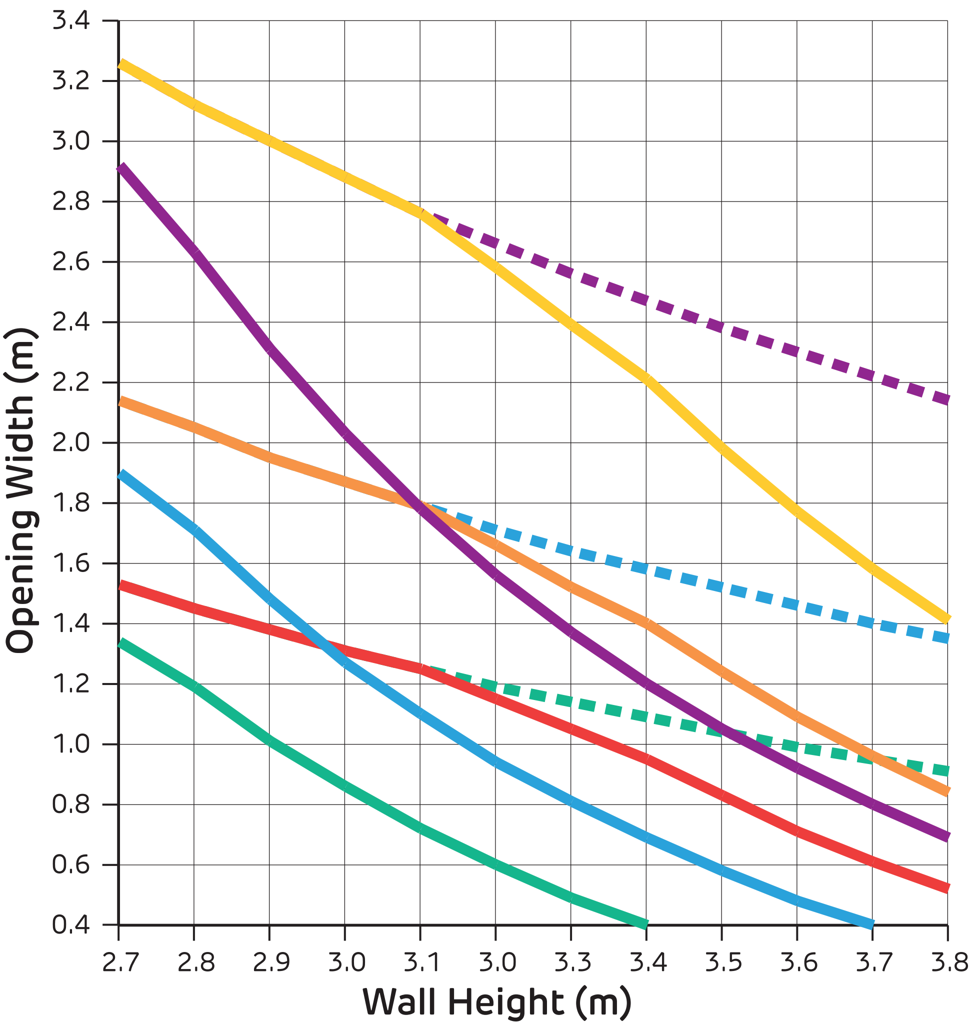


Jamb **J2**
0.75mm BMT




**NOTES**

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base connection BC3 using 0.7mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 8g screws on both sides.
3. Head connection HC6 using 0.7mm BMT Deflection Head Track (DHT) and two stud inserts fixed with minimum 8g sides on both sides.
4. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
5. Opening widths based upon serviceability wind pressures (Ws) and the deflection limit stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Ultimate wind pressure (Wu) taken as 237% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes upto 50 kg/m$^2$ for wall, window or door weight.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

### Corresponding Wind Loads (kPa)

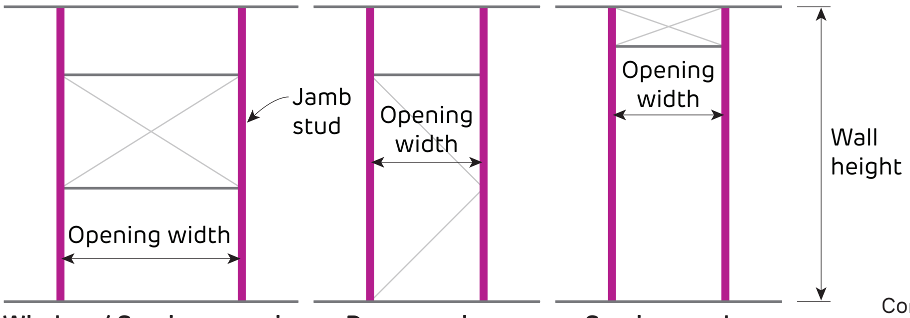
| Ws | Wu |
|---|---|
| 0.25 | 0.59 |
| 0.35 | 0.83 |
| 0.45 | 1.07 |

### Concrete Screw Anchor Table

| Seismic Performance Category | |
|---|---|
| C1 | C2 |
| Siniat SA6x45 | Iccons SXTB08055 |

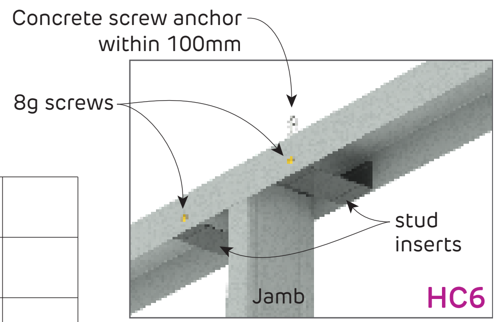
1. Concrete screw anchor within 100mm of jamb stud.
2. Minimum 32 MPa concrete.
3. Minimum 50mm edge distance.

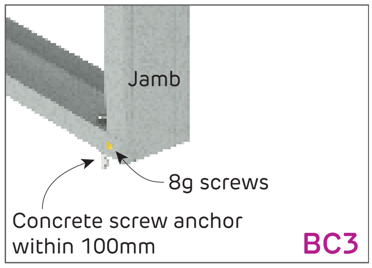
## 1.15mm BMT jamb stud Openings in Internal Steel Stud Walls
## Chart 9 Opening - WIND REGIONS B1-B2 - HEIGHT/240

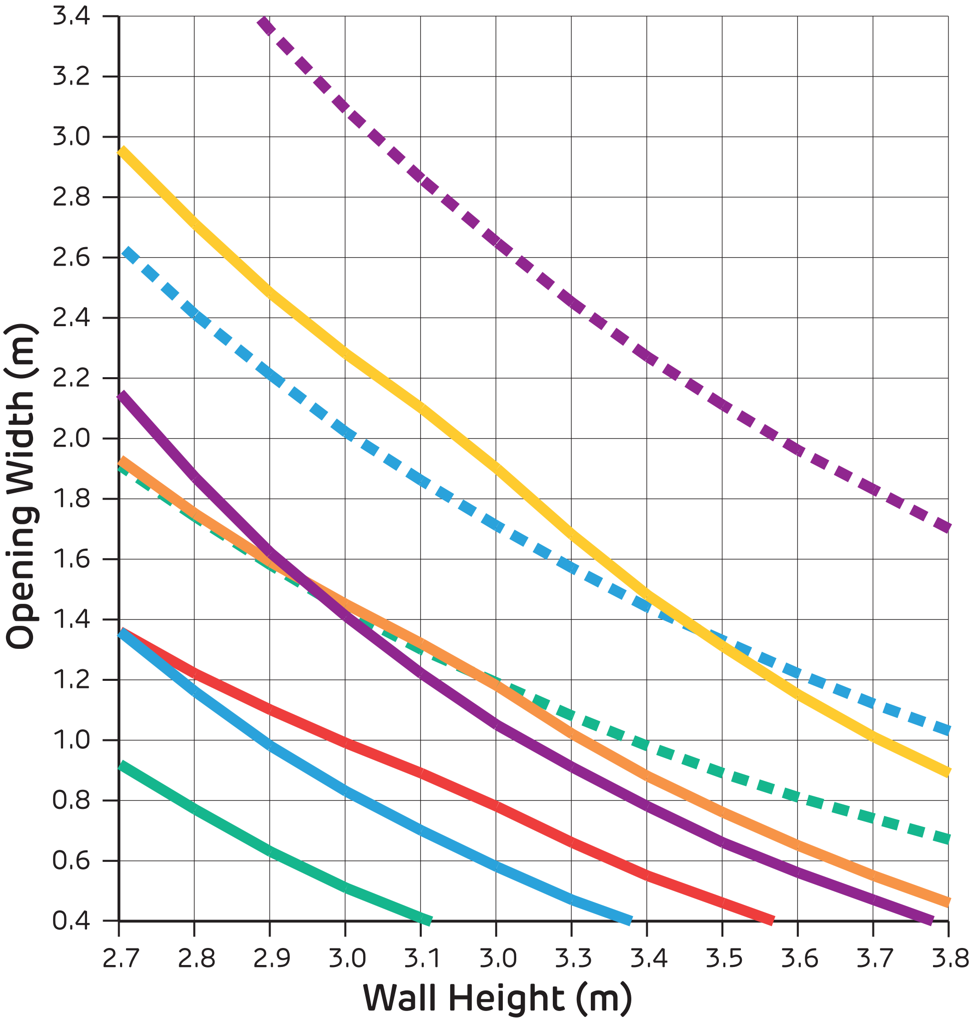



Window / Services opening    Door opening    Services under soffit opening

Jamb **J1**
1.15mm BMT




**NOTES**

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Base connection BC3 using 1.15mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 8g screws on both sides.
3. Head connection HC6 using 1.15mm BMT Deflection Head Track (DHT) and two stud inserts fixed with minimum 8g sides on both sides.
4. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
5. Opening widths based upon serviceability wind pressures (Ws) and the deflection limit stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Ultimate wind pressure (Wu) taken as 237% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes upto 50 kg/m² for wall, window or door weight.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

### Corresponding Wind Loads (kPa)

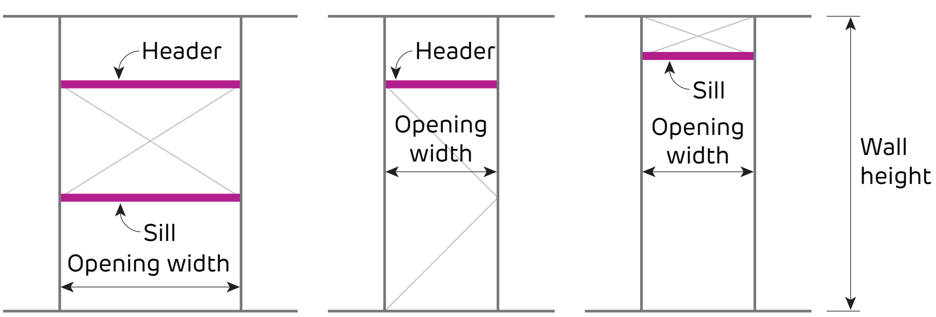
| Ws | Wu |
|---|---|
| 0.25 | 0.59 |
| 0.35 | 0.83 |
| 0.45 | 1.07 |

### Concrete Screw Anchor Table

| Seismic Performance Category | |
|---|---|
| C1 | C2 |
| Siniat SA6x45 | Iccons SXTB08055 |

1. Concrete screw anchor within 100mm of jamb stud.
2. Minimum 32 MPa concrete.
3. Minimum 50mm edge distance.

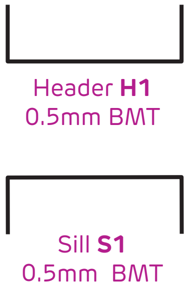
## 0.5mm / 0.55mm BMT Header and Sill Openings in Internal Steel Stud Walls
## Chart 10 Opening - WIND REGIONS B1-B2 - HEIGHT/240

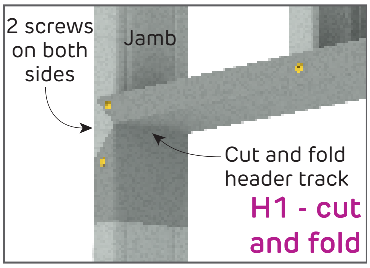


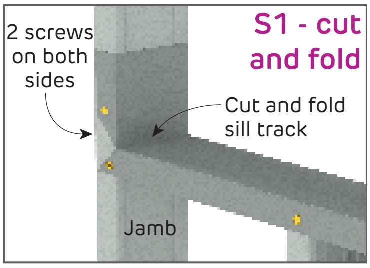

Window / Services opening

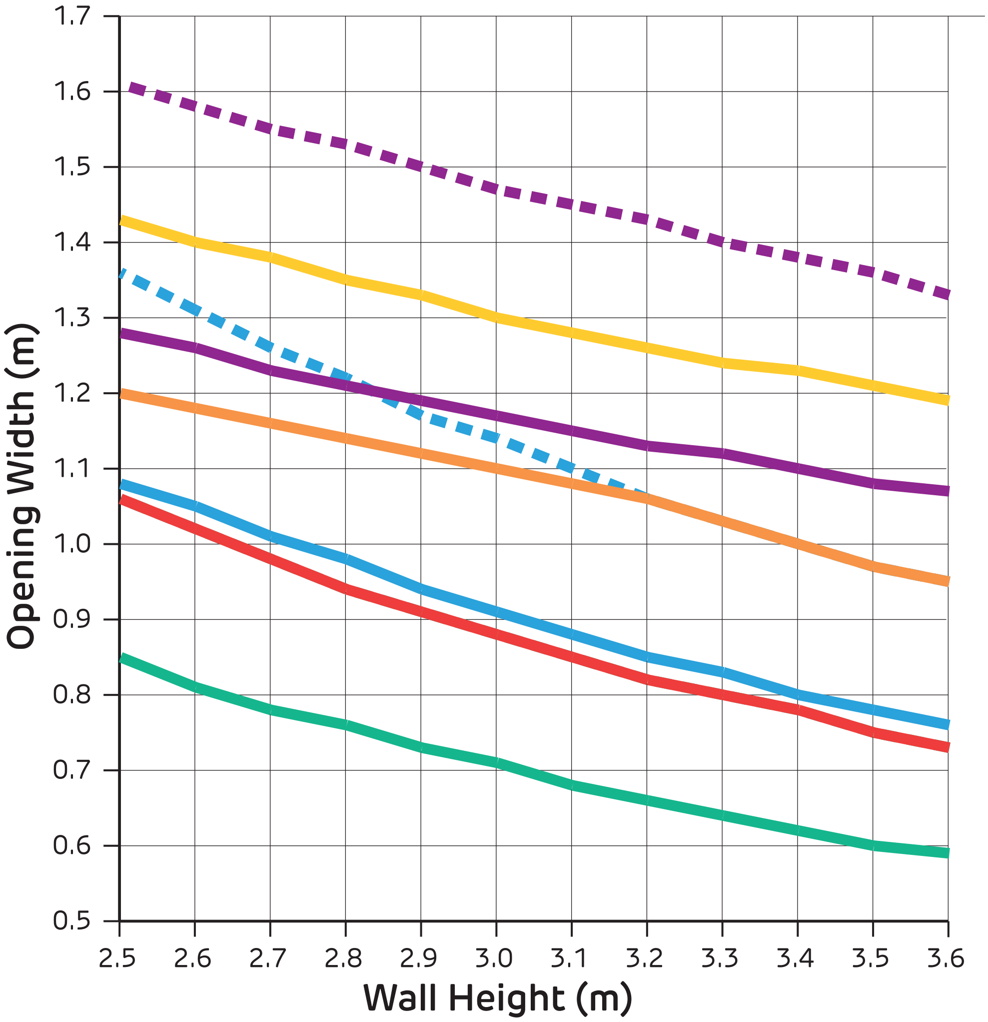
Door opening

Services under soffit opening





**NOTES**

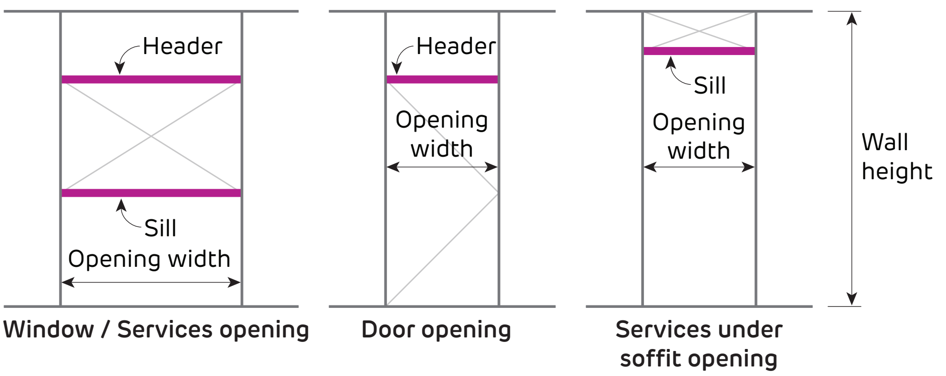
1. Table refers to Siniat steel tracks of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
3. Opening widths based upon serviceability lateral wind pressures and the deflection limit stated. No additional load considered.
4. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
6. Ultimate wind pressure (Wu) taken as 237% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
7. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections.
8. Table includes upto 50 kg/m$^2$ for wall, window or door weight.
9. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

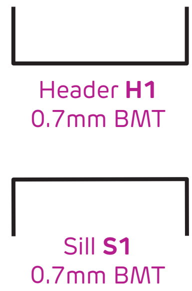
**Corresponding Wind Loads (kPa)**

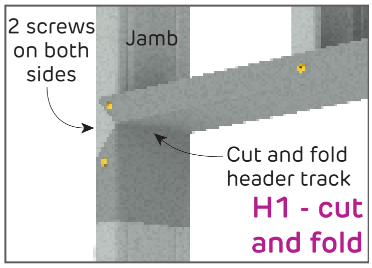
| Ws | Wu |
|---|---|
| 0.25 | 0.59 |
| 0.35 | 0.83 |
| 0.45 | 1.07 |

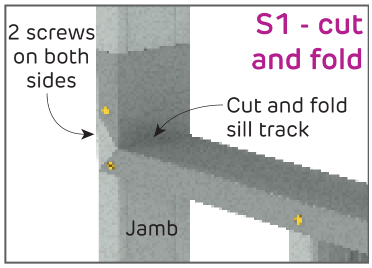
## 0.75mm BMT Header and Sill Openings in Internal Steel Stud Walls

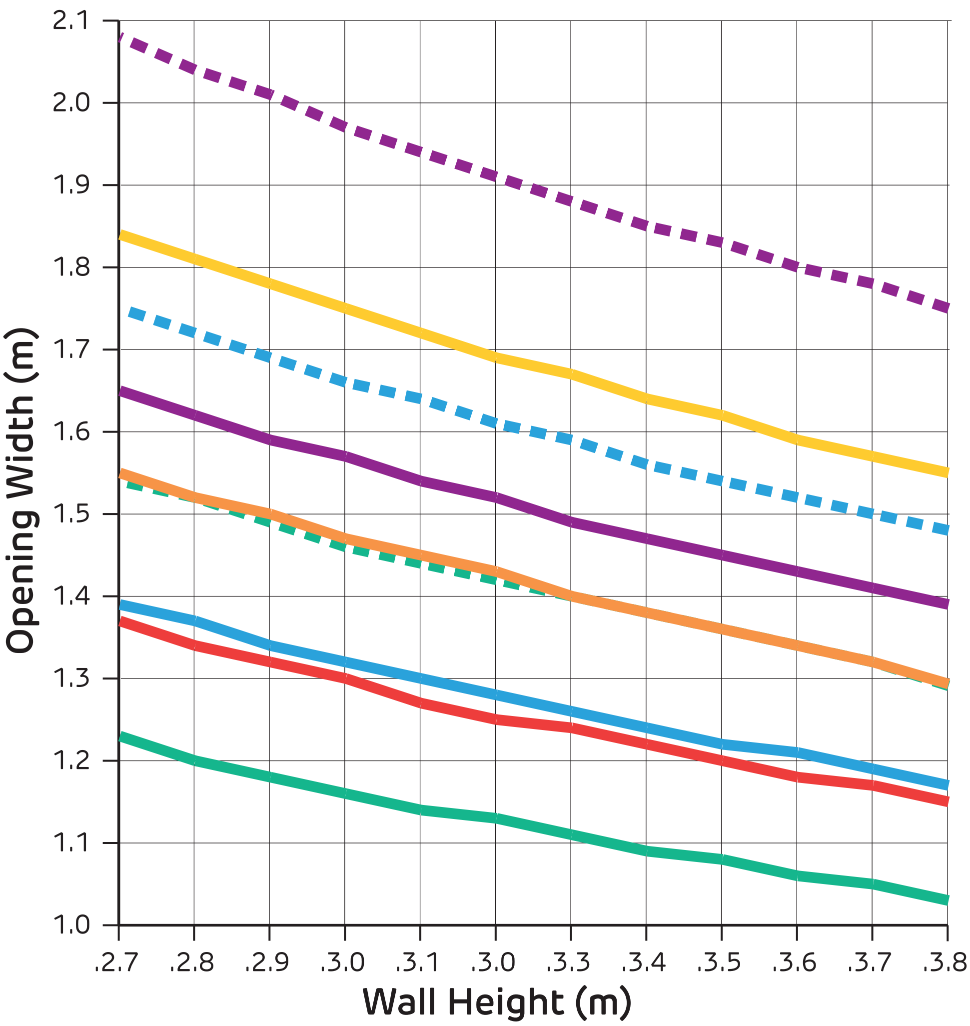
## Chart 11 Opening - WIND REGIONS B1-B2 - HEIGHT/240



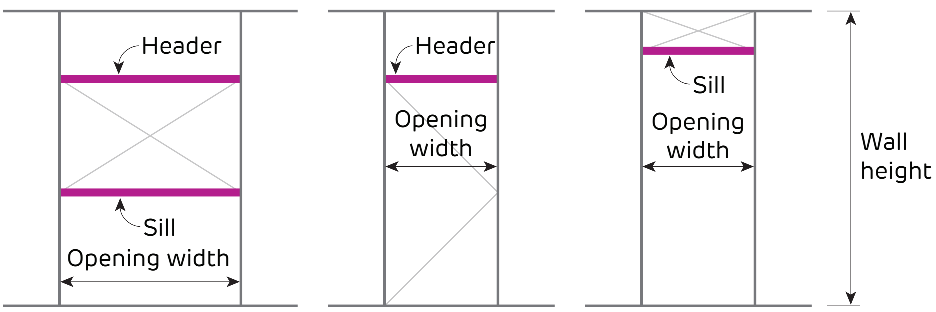

**NOTES**

1. Table refers to Siniat steel tracks of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
3. Opening widths based upon serviceability lateral wind pressures and the deflection limit stated. No additional load considered.
4. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
6. Ultimate wind pressure (Wu) taken as 237% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
7. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections.
8. Table includes upto 50 kg/m² for wall, window or door weight.
9. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

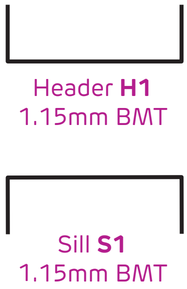
### Corresponding Wind Loads (kPa)

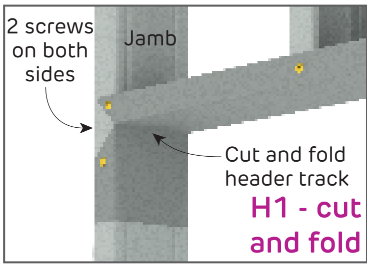
| Ws | Wu |
|---|---|
| 0.25 | 0.59 |
| 0.35 | 0.83 |
| 0.45 | 1.07 |

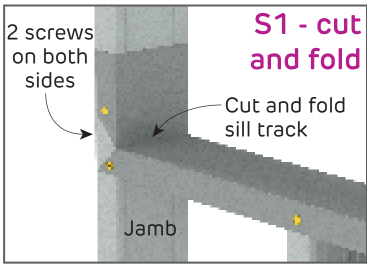
## 1.15mm BMT Header and Sill Openings in Internal Steel Stud Walls
## Chart 12 Opening - WIND REGIONS B1-B2 - HEIGHT/240

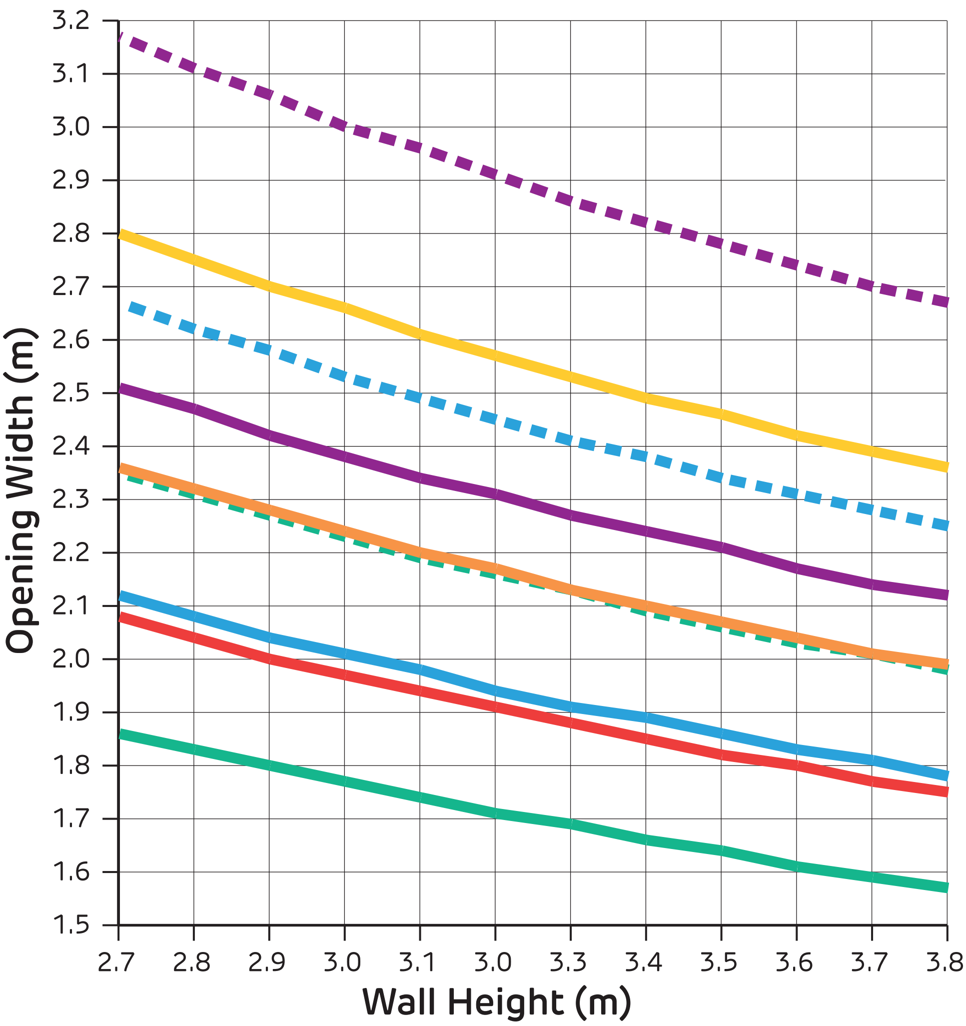



Window / Services opening
Door opening
Services under soffit opening



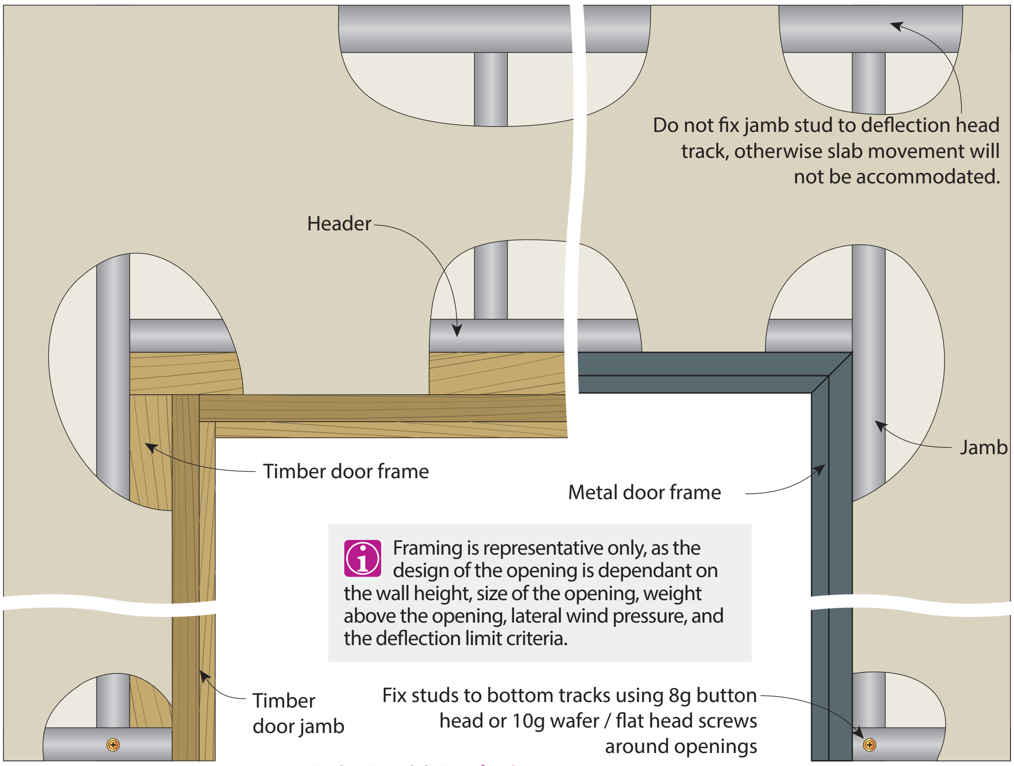




**NOTES**
1. Table refers to Siniat steel tracks of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Either lined on both sides or lined on one side only with noggings at 1500mm maximum intervals.
3. Opening widths based upon serviceability lateral wind pressures and the deflection limit stated. No additional load considered.
4. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
5. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
6. Ultimate wind pressure (Wu) taken as 237% of Serviceability wind pressure (Ws) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
7. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections.
8. Table includes upto 50 kg/m$^2$ for wall, window or door weight.
9. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

**Corresponding Wind Loads (kPa)**

| Ws | Wu |
|---|---|
| 0.25 | 0.59 |
| 0.35 | 0.83 |
| 0.45 | 1.07 |

## Fire Rated and Non-Fire Rated
## Door Opening Details for Internal Stud Walls




Framing is representative only, as the design of the opening is dependant on the wall height, size of the opening, weight above the opening, lateral wind pressure, and the deflection limit criteria.

**FIGURE 29** **Typical Door Frame**
Elevation

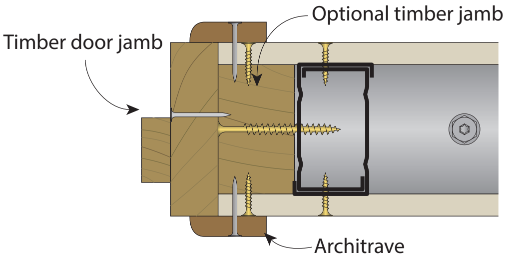



**FIGURE 30** **Typical Timber Door Jamb**
Plan

Refer to door jamb manufacturer for specific installation details

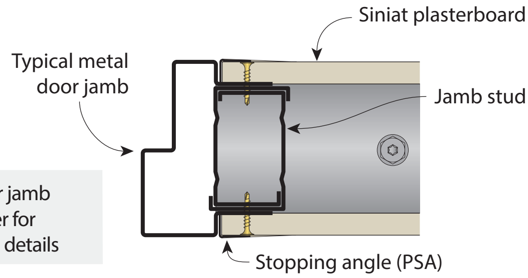



**FIGURE 31** **Typical Metal Door Jamb**
Plan

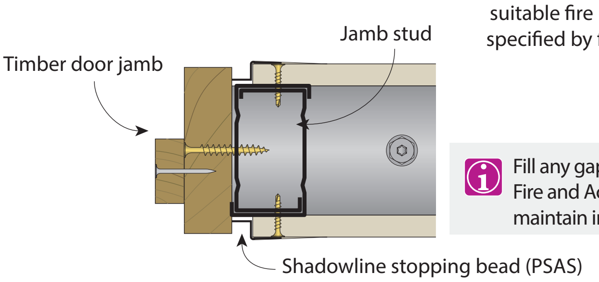



**FIGURE 32** **Typical Timber Door Jamb**
With shadowline stopping bead
Plan

Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

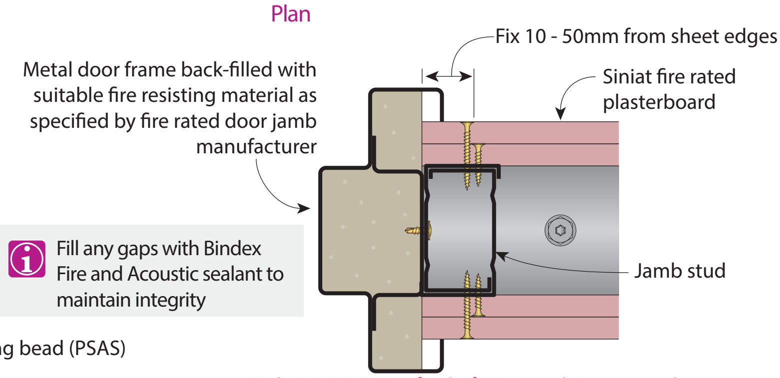



**FIGURE 33** **Typical Fire Rated Door Jamb**
Example only
Plan

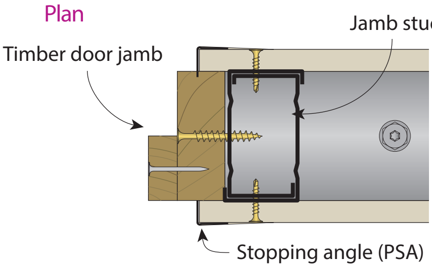



**FIGURE 34** **Typical Timber Door Jamb**
With stopping angle
Plan

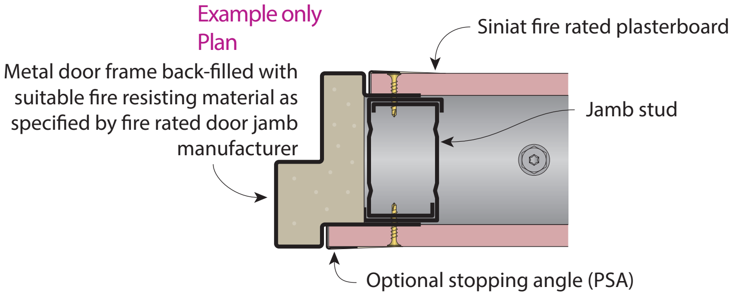



**FIGURE 35** **Typical Fire Rated Door Jamb**
Example only
Plan



# 3.3 Internal Timber Framed Walls

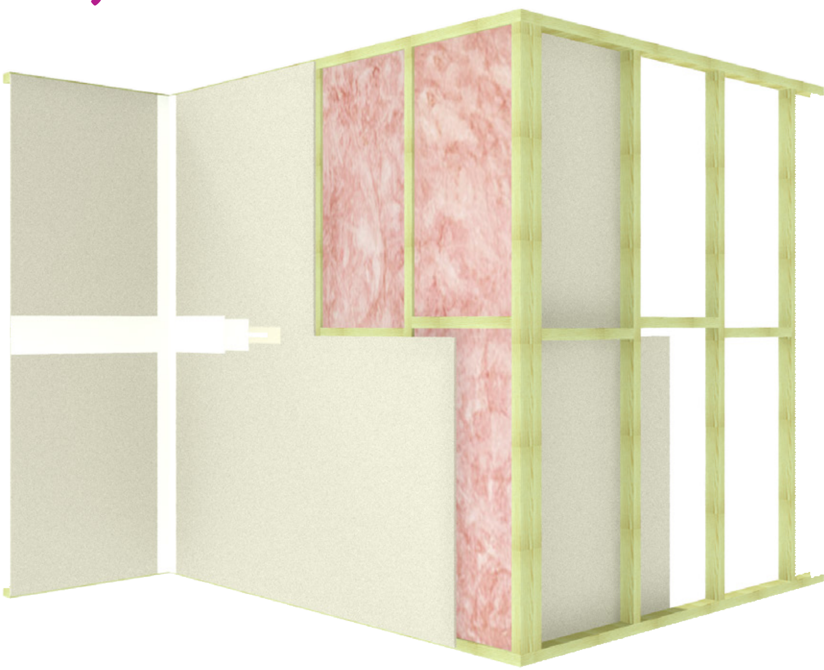
Internal timber walls are a common form of construction for low rise residential and commercial buildings. Applications range from standard residential walls to home theatres and inter-tenancy separation.

This section contains wall systems, installation instructions and construction details for general and fire rated internal timber walls.

For separating wall construction details, refer to Section 3.9.

For Siniat Interhome systems and installation, refer to the latest Interhome manual on the website.

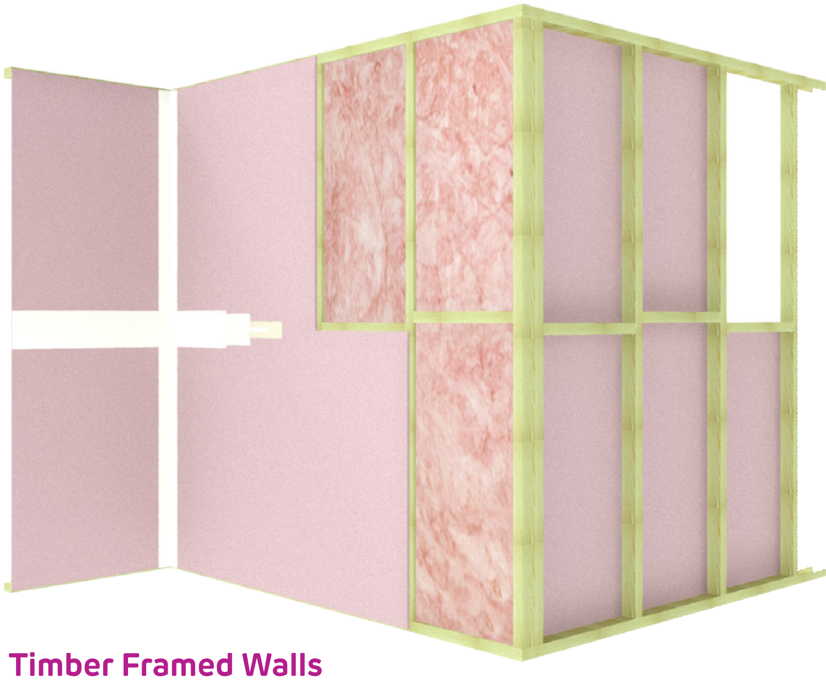
# System Directory



## Non-fire Rated Internal Timber Framed Walls

| System | Side 1 | Side 2 | Frame | FRL | Acoustics[1] | |
|---|---|---|---|---|---|---|
| | | | | | Rw | Rw+Ctr |
| TSW10 | 1 x 10mm **masta**shield | 1 x 10mm **masta**shield | Stud | - | 37 | 28 |
| TSW11 | 1 x 10mm **masta**shield | 2 x 10mm **masta**shield | Stud | - | 41 | 33 |
| TSW12 | 2 x 10mm **masta**shield | 2 x 10mm **masta**shield | Stud | - | 44 | 36 |
| TSW210 | 1 x 10mm **sound**shield | 1 x 10mm **sound**shield | Stud | - | 42 | 31 |
| TSW211 | 1 x 10mm **sound**shield | 2 x 10mm **sound**shield | Stud | - | 44 | 35 |
| TSW212 | 2 x 10mm **sound**shield | 2 x 10mm **sound**shield | Stud | - | 46 | 39 |
| TSW250 | 1 x 10mm **sound**shield | 1 x 10mm **sound**shield | Stud + Resilient Mounts | - | 46 | 35 |
| TSW251 | 1 x 10mm **sound**shield | 2 x 10mm **sound**shield | Stud + Resilient Mounts | - | 51 | 41 |
| TSW15 | 1 x 13mm **masta**shield | 1 x 13mm **masta**shield | Stud | - | 39 | 30 |
| TSW16 | 1 x 13mm **masta**shield | 2 x 13mm **masta**shield | Stud | - | 43 | 34 |
| TSW17 | 2 x 13mm **masta**shield | 2 x 13mm **masta**shield | Stud | - | 46 | 39 |
| TSW215 | 1 x 13mm **sound**shield | 1 x 13mm **sound**shield | Stud | - | 41 | 33 |
| TSW216 | 1 x 13mm **sound**shield | 2 x 13mm **sound**shield | Stud | - | 44 | 39 |
| TSW217 | 2 x 13mm **sound**shield | 2 x 13mm **sound**shield | Stud | - | 47 | 42 |
| TSW255 | 1 x 13mm **sound**shield | 1 x 13mm **sound**shield | Stud + Resilient Mounts | - | 49 | 41 |
| TSW256 | 1 x 13mm **sound**shield | 2 x 13mm **sound**shield | Stud + Resilient Mounts | - | 54 | 46 |
| TSW20 | 1 x 10mm **masta**shield | 1 x 10mm **masta**shield | Staggered stud | - | 41 | 33 |
| TSW21 | 1 x 10mm **masta**shield | 2 x 10mm **masta**shield | Staggered stud | - | 45 | 36 |
| TSW22 | 2 x 10mm **masta**shield | 2 x 10mm **masta**shield | Staggered stud | - | 50 | 41 |
| TSW220 | 1 x 10mm **sound**shield | 1 x 10mm **sound**shield | Staggered stud | - | 43 | 34 |
| TSW221 | 1 x 10mm **sound**shield | 2 x 10mm **sound**shield | Staggered stud | - | 48 | 40 |
| TSW222 | 2 x 10mm **sound**shield | 2 x 10mm **sound**shield | Staggered stud | - | 52 | 46 |
| TSW25 | 1 x 13mm **masta**shield | 1 x 13mm **masta**shield | Staggered stud | - | 43 | 37 |
| TSW26 | 1 x 13mm **masta**shield | 2 x 13mm **masta**shield | Staggered stud | - | 48 | 40 |
| TSW27 | 2 x 13mm **masta**shield | 2 x 13mm **masta**shield | Staggered stud | - | 52 | 45 |
| TSW225 | 1 x 13mm **sound**shield | 1 x 13mm **sound**shield | Staggered stud | - | 47 | 40 |
| TSW226 | 1 x 13mm **sound**shield | 2 x 13mm **sound**shield | Staggered stud | - | 51 | 45 |
| TSW227 | 2 x 13mm **sound**shield | 2 x 13mm **sound**shield | Staggered stud | - | 54 | 50 |

1. Acoustic values determined using 70mm timber stud and R1.5 glasswool insulation.



## Fire Rated Internal Timber Framed Walls

| System | Side 1 | Side 2 | Frame | Fire Resistance Level | | Acoustics[1] | |
|---|---|---|---|---|---|---|---|
| | | | | | | Rw | Rw+Ctr |
| TSW301 | 2 x 13mm fireshield | - | Stud | -/30/30 | 30/30/30 | 34 | 31 |
| TSW302 | 3 x 13mm fireshield | - | Stud | -/90/90 | 90/90/90 | 37 | 35 |
| TSW310 | 1 x 13mm fireshield | 1 x 13mm fireshield | Stud | -/60/60 | 30/30/30 | 41 | 32 |
| TSW311 | 1 x 13mm fireshield | 2 x 13mm fireshield | Stud | -/90/90 | 30/30/30 | 44 | 37 |
| TSW312 | 2 x 13mm fireshield | 2 x 13mm fireshield | Stud | -/120/120 | 90/90/90 | 47 | 41 |
| TSW314 | 3 x 13mm fireshield | 3 x 13mm fireshield | Stud | -/180/180 | 120/120/120 | 51 | 45 |
| TSW350 | 1 x 13mm fireshield | Resilient Mount and 1 x 13mm fireshield | Stud | -/60/60 | 30/30/30 | 47 | 36 |
| TSW352 | 2 x 13mm fireshield | Resilient Mount and 2 x 13mm fireshield | Stud | -/120/120 | 90/90/90 | 56 | 47 |
| TSW510 | 1 x 13mm fireshield | 1 x 13mm fireshield + 1 x 6mm Duraliner | Stud | -/60/60 | 30/30/30 | 44 | 37 |
| TSW512 | 1 x 13mm fireshield + 1 x 6mm Duraliner | 1 x 13mm fireshield + 1 x 6mm Duraliner | Stud | -/90/90 | 60/60/60 | 47 | 41 |
| TSW304 | 2 x 16mm fireshield | - | Stud | -/60/60 | 60/60/60 | 35 | 32 |
| TSW305 | 3 x 16mm fireshield | - | Stud | -/120/120 | 120/120/120 | 38 | 36 |
| TSW315 | 1 x 16mm fireshield | 1 x 16mm fireshield | Stud | -/90/90 | 60/60/60 | 41 | 33 |
| TSW316 | 1 x 16mm fireshield | 2 x 16mm fireshield | Stud | -/120/120 | 60/60/60 | 44 | 39 |
| TSW317 | 2 x 16mm fireshield | 2 x 16mm fireshield | Stud | -/120/120 | 120/120/120 | 47 | 42 |
| TSW319 | 3 x 16mm fireshield | 3 x 16mm fireshield | Stud | -/240/240 | 120/120/120 | 51 | 46 |
| TSW355 | 1 x 16mm fireshield | Resilient Mount and 1 x 16mm fireshield | Stud | -/90/90 | 60/60/60 | 50 | 41 |
| TSW357 | 2 x 16mm fireshield | Resilient Mount and 2 x 16mm fireshield | Stud | -/120/120 | 120/120/120 | 57 | 49 |
| TSW514 | 1 x 16mm fireshield | 1 x 16mm fireshield + 1 x 6mm Duraliner | Stud | -/90/90 | 60/60/60 | 44 | 38 |
| TSW516 | 1 x 16mm fireshield + 1 x 6mm Duraliner | 1 x 16mm fireshield + 1 x 6mm Duraliner | Stud | -/120/120 | 60/60/60 | 47 | 42 |

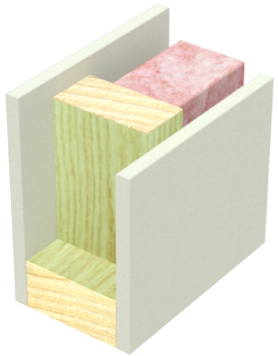
1. Acoustic values determined using 70mm timber stud and R1.5 glasswool insulation.

## Fire Rated Internal Timber Framed Walls

| System | Side 1 | Side 2 | Frame[1,2] | Fire Resistance Level | | Acoustics[1,2] | |
|---|---|---|---|---|---|---|---|
| | | | | | | Rw | Rw+Ctr |
| TSW330 | 1 x 13mm **fire**shield | 1 x 13mm **fire**shield | Double stud | -/60/60 | 30/30/30 | 52 | 42 |
| TSW331 | 1 x 13mm **fire**shield | 2 x 13mm **fire**shield | Double stud | -/90/90 | 30/30/30 | 57 | **50***|
| TSW332 | 2 x 13mm **fire**shield | 2 x 13mm **fire**shield | Double stud | -/120/120 | 90/90/90 | 62 | **54** |
| TSW380 | 1 x 13mm **fire**shield + 1 x 10mm **masta**shield | 1 x 13mm **fire**shield + 1 x 10mm **masta**shield | Double stud | -/90/90 | 60/60/60 | 61 | **52** |
| TSW531 | 2 x 13mm **fire**shield | 1 x 13mm **fire**shield + 1 x 6mm Duraliner | Double stud | -/90/90 | 30/30/30 | 61 | **53** |
| TSW532 | 1 x 13mm **fire**shield + 1 x 6mm Duraliner | 1 x 13mm **fire**shield + 1 x 6mm Duraliner | Double stud | -/90/90 | 60/60/60 | 61 | **52** |
| TSW335 | 1 x 16mm **fire**shield | 1 x 16mm **fire**shield | Double stud | -/90/90 | 60/60/60 | 59 | **50*** |
| TSW336 | 1 x 16mm **fire**shield | 2 x 16mm **fire**shield | Double stud | -/120/120 | 60/60/60 | 59 | **51** |
| TSW337 | 2 x 16mm **fire**shield | 2 x 16mm **fire**shield | Double stud | -/120/120 | 120/120/120 | 64 | **56** |
| TSW381 | 1 x 16mm **fire**shield | 1 x 16mm **fire**shield + 1 x 10mm **masta**shield | Double stud | -/90/90 | 60/60/60 | 58 | **50*** |
| TSW382 | 1 x 16mm **fire**shield + 1 x 10mm **masta**shield | 1 x 16mm **fire**shield + 1 x 10mm **masta**shield | Double stud | -/120/120 | 60/60/60 | 59 | **51** |
| TSW534 | 1 x 16mm **fire**shield | 1 x 16mm **fire**shield + 1 x 6mm Duraliner | Double stud | -/90/90 | 60/60/60 | 59 | **51*** |
| TSW535 | 2 x 16mm **fire**shield | 1 x 16mm **fire**shield + 1 x 6mm Duraliner | Double stud | -/120/120 | 60/60/60 | 63 | **55** |
| TSW536 | 1 x 16mm **fire**shield + 1 x 6mm Duraliner | 1 x 16mm **fire**shield + 1 x 6mm Duraliner | Double stud | -/120/120 | 60/60/60 | 62 | **54** |
| TSW320 | 1 x 13mm **fire**shield | 1 x 13mm **fire**shield | Staggered stud | -/60/60 | 30/30/30 | 46 | 40 |
| TSW321 | 1 x 13mm **fire**shield | 2 x 13mm **fire**shield | Staggered stud | -/90/90 | 30/30/30 | 51 | 45 |
| TSW322 | 2 x 13mm **fire**shield | 2 x 13mm **fire**shield | Staggered stud | -/120/120 | 90/90/90 | 54 | **50** |
| TSW520 | 1 x 13mm **fire**shield | 1 x 13mm **fire**shield + 1 x 6mm Duraliner | Staggered stud | -/60/60 | 30/30/30 | 51 | 45 |
| TSW522 | 1 x 13mm **fire**shield + 1 x 6mm Duraliner | 1 x 13mm **fire**shield + 1 x 6mm Duraliner | Staggered stud | -/90/90 | 60/60/60 | 56 | **50** |
| TSW325 | 1 x 16mm **fire**shield | 1 x 16mm **fire**shield | Staggered stud | -/90/90 | 60/60/60 | 47 | 42 |
| TSW326 | 1 x 16mm **fire**shield | 2 x 16mm **fire**shield | Staggered stud | -/120/120 | 60/60/60 | 52 | 47 |
| TSW327 | 2 x 16mm **fire**shield | 2 x 16mm **fire**shield | Staggered stud | -/120/120 | 120/120/120 | 55 | **51** |
| TSW524 | 1 x 16mm **fire**shield | 1 x 16mm **fire**shield + 1 x 6mm Duraliner | Staggered stud | -/90/90 | 60/60/60 | 51 | 46 |
| TSW526 | 1 x 16mm **fire**shield + 1 x 6mm Duraliner | 1 x 16mm **fire**shield + 1 x 6mm Duraliner | Staggered stud | -/120/120 | 60/60/60 | 54 | **50** |

1. Double stud acoustic values determined using 160mm cavity with glasswool insulation.
2. Staggered stud acoustic values determined using 120mm cavity with glasswool insulation.
3. * using 200mm frame cavity

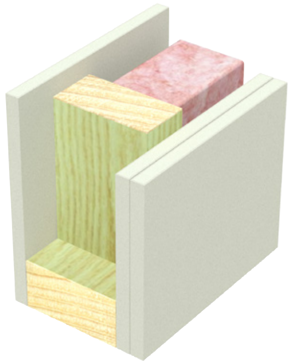
## TSW10



- 1 layer of 10mm **masta**shield or **water**shield
- Timber stud framing at maximum 600mm centres
- 1 layer of 10mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 90 | 33 (25) | 37 (28) | - | 37 (28) | Day Design 3094-45 |
| 90 | 110 | 34 (25) | 38 (28) | 39 (30) | 39 (28) | |

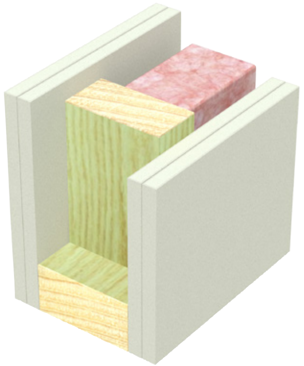
## TSW11



- 1 layer of 10mm **masta**shield or **water**shield
- Timber stud framing at maximum 600mm centres
- 2 layers of 10mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 100 | 37 (30) | 41 (33) | - | 41 (33) | Day Design 3094-45 |
| 90 | 120 | 38 (30) | 42 (33) | 43 (34) | 42 (33) | |

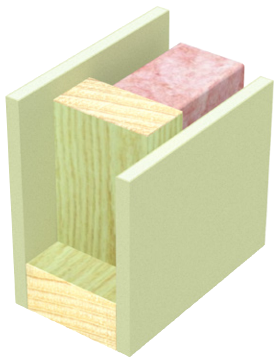
## TSW12



- 2 layers of 10mm **masta**shield or **water**shield
- Timber stud framing at maximum 600mm centres
- 2 layers of 10mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 110 | 41 (33) | 44 (36) | - | 44 (36) | Day Design 3094-45 |
| 90 | 130 | 41 (33) | 45 (37) | 47 (38) | 45 (37) | |

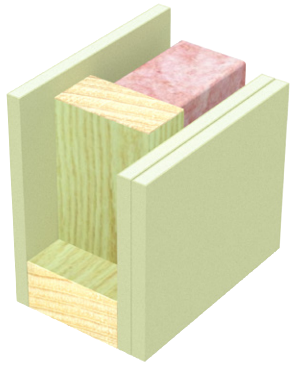
## TSW210



- 1 layer of 10mm **sound**shield or **opal**
- Timber stud framing at maximum 600mm centres
- 1 layer of 10mm **sound**shield or **opal**

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 90 | 34 (27) | 42 (31) | - | 41 (41) | Day Design 3094-45 |
| 90 | 110 | 36 (28) | 42 (32) | 43 (33) | 42 (32) | |

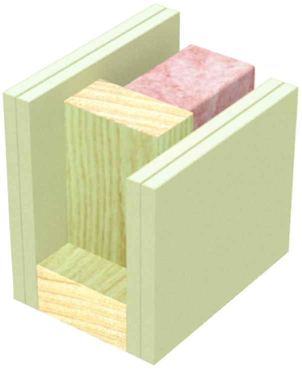
## TSW211



- 1 layer of 10mm **sound**shield or **opal**
- Timber stud framing at maximum 600mm centres
- 2 layers of 10mm **sound**shield or **opal**

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 100 | 39 (32) | 44 (35) | - | 44 (35) | Day Design 3094-45 |
| 90 | 120 | 40 (32) | 44 (37) | 45 (38) | 44 (37) | |

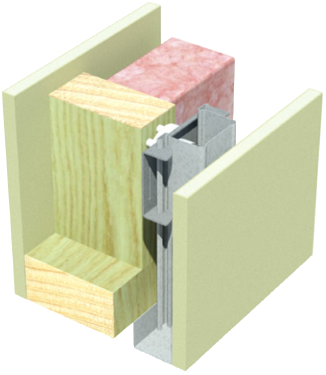
## TSW212



- 2 layers of 10mm **sound**shield or **opal**
- Timber stud framing at maximum 600mm centres
- 2 layers of 10mm **sound**shield or **opal**

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 110 | 42 (35) | 46 (39) | - | 46 (39) | Day Design 3094-45 |
| 90 | 110 | 43 (36) | 47 (40) | 48 (41) | 47 (40) | |

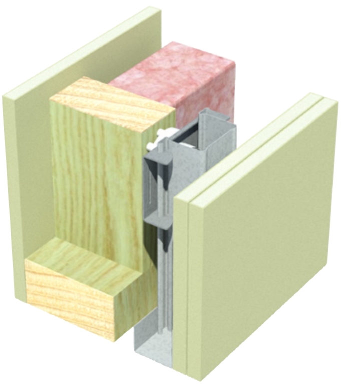
## TSW250



- 1 layer of 10mm **sound**shield or **opal**
- Timber stud framing at maximum 600mm centres
- Resilient Mounts and minimum 18mm Furring Channel
- 1 layer of 10mm **sound**shield or **opal**

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 127 | 37 (29) | 46 (35) | 47 (36) | 46 (35) | Day Design 3094-45 |
| 90 | 147 | 38 (29) | 47 (37) | 48 (37) | 47 (36) | Note: Impact Sound Resistant |

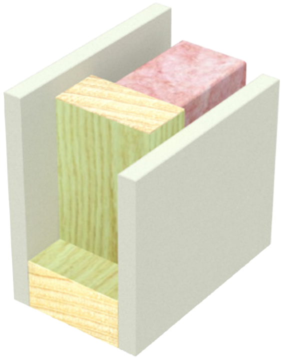
## TSW251



- 1 layer of 10mm **sound**shield or **opal**
- Timber stud framing at maximum 600mm centres
- Resilient Mounts and minimum 18mm Furring Channel
- 2 layers of 10mm **sound**shield or **opal**

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 137 | 42 (33) | 51 (41) | 53 (42) | 51 (40) | Day Design 3094-45 |
| 90 | 157 | 42 (34) | 52 (42) | 53 (43) | 52 (42) | Note: Impact Sound Resistant |

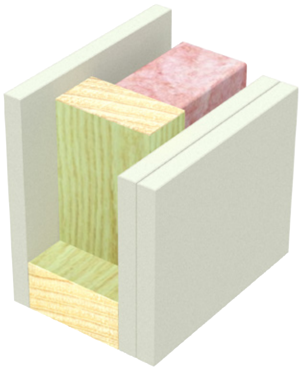
## TSW15



- 1 layer of 13mm **masta**shield or **water**shield
- Timber stud framing at maximum 600mm centres
- 1 layer of 13mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | |
| 70 | 96 | 34 (27) | 39 (30) | - | 39 (30) | Report Day Design 3094-45 |
| 90 | 116 | 35 (27) | 39 (31) | 40 (32) | 39 (31) | |

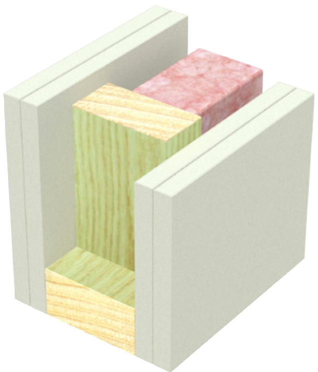
## TSW16



- 1 layer of 13mm **masta**shield or **water**shield
- Timber stud framing at maximum 600mm centres
- 2 layers of 13mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | |
| 70 | 109 | 39 (31) | 43 (34) | - | 43 (34) | Report Day Design 3094-45 |
| 90 | 129 | 39 (32) | 43 (36) | 44 (37) | 43 (36) | |

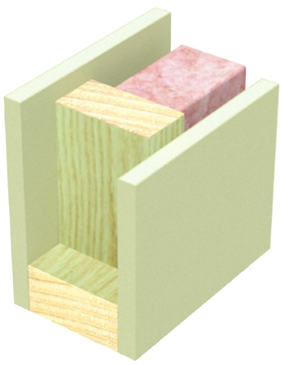
## TSW17



- 2 layers of 13mm **masta**shield or **water**shield
- Timber stud framing at maximum 600mm centres
- 2 layers of 13mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | |
| 70 | 122 | 42 (35) | 46 (39) | - | 46 (39) | Report Day Design 3094-45 |
| 90 | 142 | 43 (36) | 47 (40) | 48 (41) | 47 (40) | |

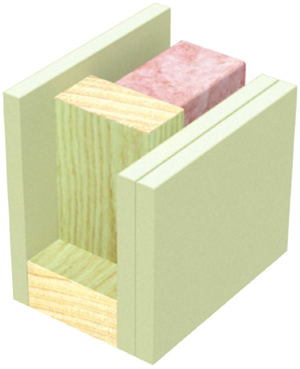
## TSW215



- 1 layer of 13mm **sound**shield
- Timber stud framing at maximum 600mm centres
- 1 layer of 13mm **sound**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | |
| 70 | 96 | 37 (30) | 41 (33) | - | 41 (33) | Report Day Design 3094-45 |
| 90 | 116 | 38 (30) | 42 (34) | 42 (36) | 42 (34) | |

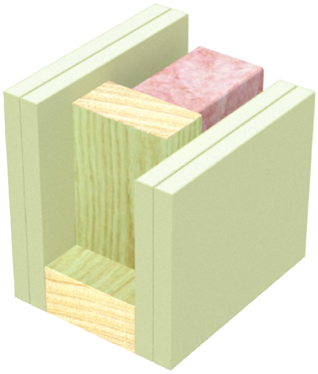
## TSW216



- 1 layer of 13mm **sound**shield
- Timber stud framing at maximum 600mm centres
- 2 layers of 13mm **sound**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 109 | 42 (34) | 44 (39) | - | 44 (39) | Day Design 3094-45 |
| 90 | 129 | 42 (35) | 45 (40) | 46 (41) | 45 (39) | |

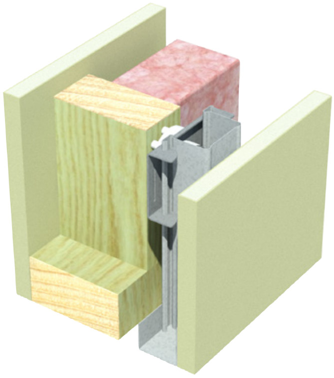
## TSW217



- 2 layers of 13mm **sound**shield
- Timber stud framing at maximum 600mm centres
- 2 layers of 13mm **sound**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 122 | 45 (39) | 47 (42) | - | 47 (42) | Day Design 3094-45 |
| 90 | 142 | 46 (39) | 47 (43) | 48 (44) | 47 (43) | |

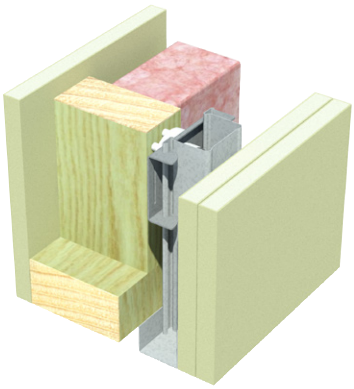
## TSW255



- 1 layer of 13mm **sound**shield
- Timber stud framing at maximum 600mm centres
- Resilient Mounts and minimum 18mm Furring Channel
- 1 layer of 13mm **sound**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 133 | 41 (32) | 49 (41) | 51 (42) | 49 (40) | Day Design 3094-45 |
| 90 | 153 | 42 (33) | 50 (42) | 51 (43) | 50 (42) | Note: Impact Sound Resistant |

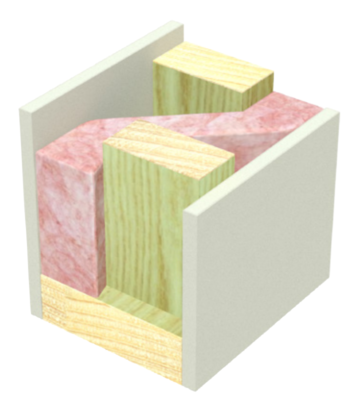
## TSW256



- 1 layer of 13mm **sound**shield
- Timber stud framing at maximum 600mm centres
- Resilient Mounts and minimum 18mm Furring Channel
- 2 layers of 13mm **sound**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 146 | 46 (37) | 54 (46) | 55 (47) | 54 (46) | Day Design 3094-45 |
| 90 | 166 | 47 (38) | 54 (47) | 56 (48) | 54 (47) | Note: Impact Sound Resistant |

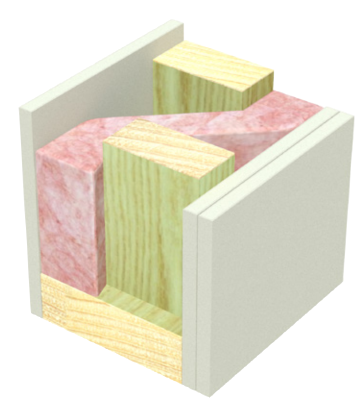
## TSW20



- 1 layer of 10mm **masta**shield or **water**shield
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 1 layer of 10mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant |
| 70 on 90mm plate | 110 | 34 (27) | 41 (33) | 42 (34) | 40 (32) | |
| 90 on 120mm plate | 140 | 35 (29) | 42 (33) | 43 (34) | 42 (32) | |

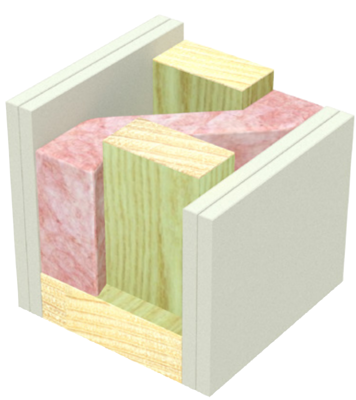
## TSW21



- 1 layer of 10mm **masta**shield or **water**shield
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 10mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant |
| 70 on 90mm plate | 120 | 38 (33) | 45 (36) | 47 (37) | 45 (36) | |
| 90 on 120mm plate | 150 | 38 (33) | 47 (38) | 48 (39) | 47 (38) | |

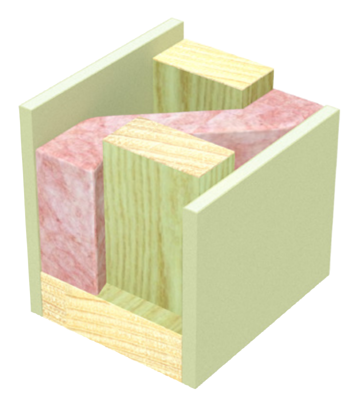
## TSW22



- 2 layers of 10mm **masta**shield or **water**shield
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 10mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant |
| 70 on 90mm plate | 130 | 41 (35) | 50 (41) | 52 (45) | 50 (41) | |
| 90 on 120mm plate | 160 | 42 (36) | 51 (44) | 53 (45) | 51 (43) | |

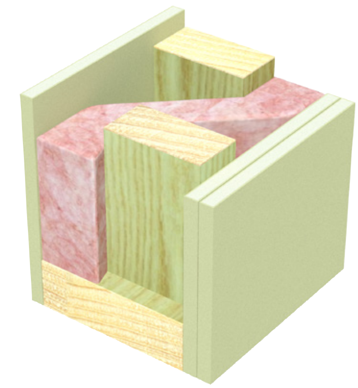
## TSW220



- 1 layer of 10mm **sound**shield or **opal**
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 1 layer of 10mm **sound**shield or **opal**

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant |
| 70 on 90mm plate | 110 | 36 (29) | 43 (34) | 45 (36) | 43 (34) | |
| 90 on 120mm plate | 140 | 37 (32) | 45 (37) | 46 (38) | 44 (37) | |

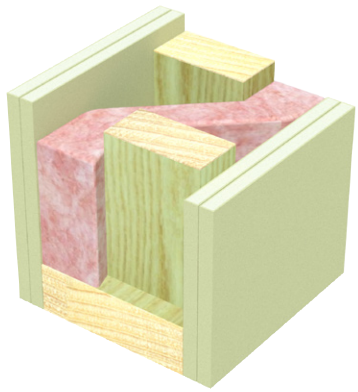
## TSW221



- 1 layer of 10mm **sound**shield or **opal**
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 10mm **sound**shield or **opal**

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 120 | 40 (36) | 48 (40) | 50 (41) | 48 (40) | Day Design 3094-45 |
| 90 on 120mm plate | 150 | 41 (36) | 49 (42) | 51 (43) | 49 (42) | Note: Impact Sound Resistant |

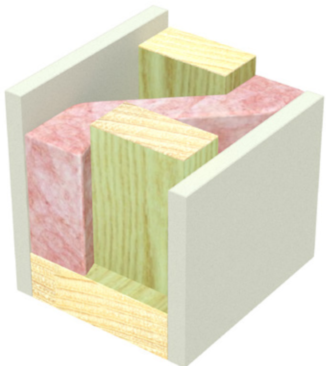
## TSW222



- 2 layers of 10mm **sound**shield or **opal**
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 10mm **sound**shield or **opal**

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 130 | 44 (38) | 52 (46) | 54 (47) | 52 (45) | Day Design 3094-45 |
| 90 on 120mm plate | 160 | 45 (39) | 53 (47) | 54 (49) | 53 (47) | Note: Impact Sound Resistant |

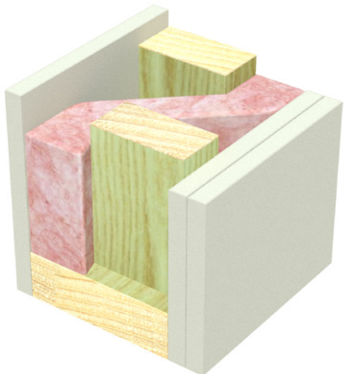
## TSW25



- 1 layer of 13mm **masta**shield or **water**shield
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 1 layer of 13mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 116 | 36 (29) | 43 (37) | 45 (36) | 40 (34) | Day Design 3094-45 |
| 90 on 120mm plate | 146 | 37 (32) | 45 (37) | 46 (38) | 44 (36) | Note: Impact Sound Resistant |

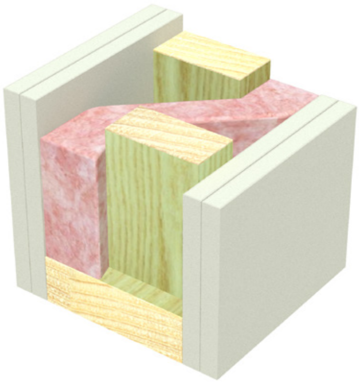
## TSW26



- 1 layer of 13mm **masta**shield or **water**shield
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 129 | 40 (35) | 48 (40) | 50 (41) | 48 (40) | Day Design 3094-45 |
| 90 on 120mm plate | 159 | 41 (35) | 49 (42) | 51 (43) | 49 (42) | Note: Impact Sound Resistant |

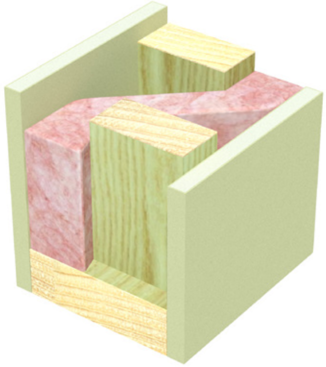
## TSW27



- 2 layers of 13mm **masta**shield or **water**shield
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **masta**shield or **water**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 142 | 44 (38) | 52 (45) | 54 (47) | 52 (45) | Day Design 3094-45 |
| 90 on 120mm plate | 172 | 45 (39) | 53 (47) | 54 (49) | 53 (47) | Note: Impact Sound Resistant |

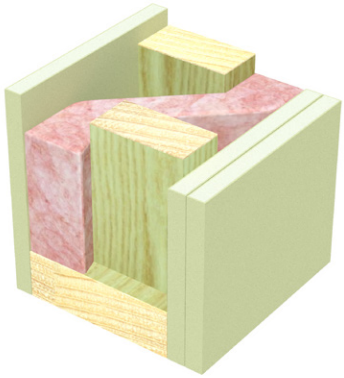
## TSW225



- 1 layer of 13mm **sound**shield
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 1 layer of 13mm **sound**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 116 | 39 (32) | 47 (40) | 48 (41) | 46 (40) | Day Design 3094-45 |
| 90 on 120mm plate | 146 | 41 (35) | 47 (42) | 49 (43) | 47 (42) | Note: Impact Sound Resistant |

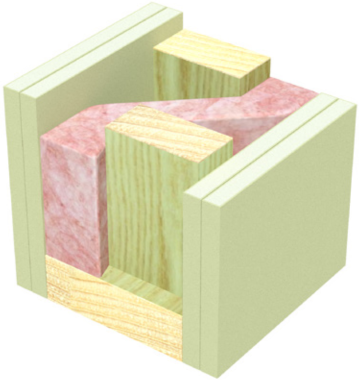
## TSW226



- 1 layer of 13mm **sound**shield
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **sound**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 129 | 44 (39) | 51 (45) | 52 (47) | 51 (45) | Day Design 3094-45 |
| 90 on 120mm plate | 159 | 45 (39) | 52 (47) | 53 (48) | 51 (47) | Note: Impact Sound Resistant |

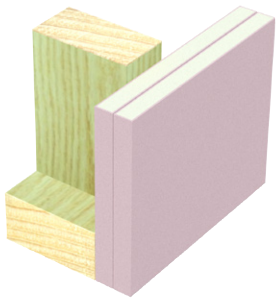
## TSW227



- 2 layers of 13mm **sound**shield
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **sound**shield

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 142 | 48 (42) | 54 (50) | 55 (51) | 54 (50) | Day Design 3094-45 |
| 90 on 120mm plate | 172 | 50 (43) | 55 (51) | 56 (52) | 55 (51) | Note: Impact Sound Resistant |

## TSW301



- Timber stud framing at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

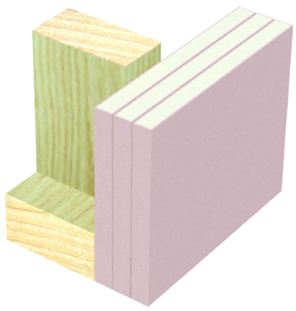
**Fire Resistance Level**

**-/30/30** and **30/30/30** from the lined side only

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| | | No insulation | Report |
| 70 | 96 | 34 (31) | Day Design 3094-45 |
| 90 | 116 | 34 (31) | |

## TSW302



- Timber stud framing at maximum 600mm centres
- 3 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

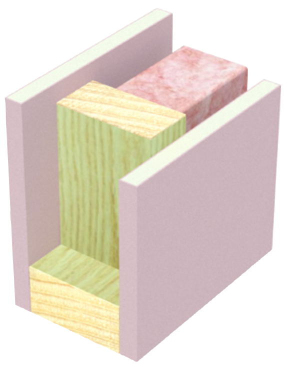
**Fire Resistance Level**

**-/90/90** and **90/90/90** from the lined side only

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| | | No insulation | Report |
| 70 | 109 | 37 (35) | Day Design 3094-45 |
| 90 | 129 | 37 (35) | |

## TSW310



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

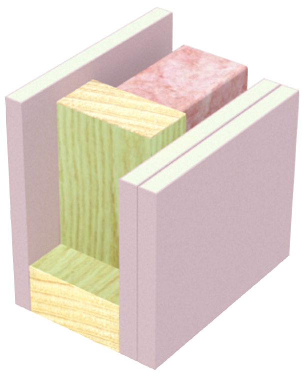
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 96 | 36 (38) | 41 (32) | - | 41 (32) | Day Design 3094-45 |
| 90 | 116 | 37 (29) | 41 (33) | 42 (34) | 41 (33) | |

## TSW311



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

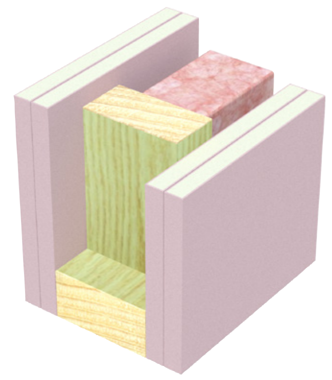
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 109 | 40 (34) | 44 (37) | - | 44 (37) | Day Design 3094-45 |
| 90 | 129 | 41 (34) | 44 (38) | 45 (39) | 44 (38) | |

## TSW312



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

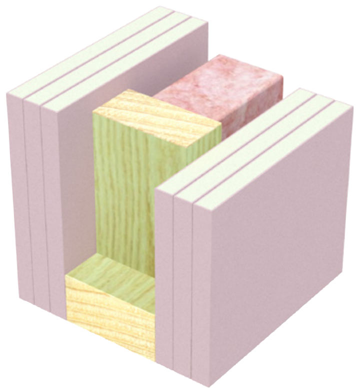
**Fire Resistance Level**

**-/120/120** and **90/90/90** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 |
| 70 | 122 | 44 (37) | 47 (41) | - | 47 (41) | |
| 90 | 142 | 45 (38) | 47 (42) | 48 (43) | 47 (42) | |

## TSW314



- 3 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- 3 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

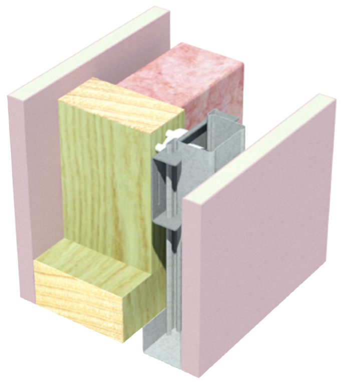
**Fire Resistance Level**

**-/180/180** and **120/120/120** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-50 |
| 70 | 148 | 49 (42) | 51 (45) | - | 51 (46) | |
| 90 | 168 | 50 (43) | 51 (47) | 52 (48) | 51 (47) | |

## TSW350



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Resilient Mounts and minimum 18mm Furring Channel
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

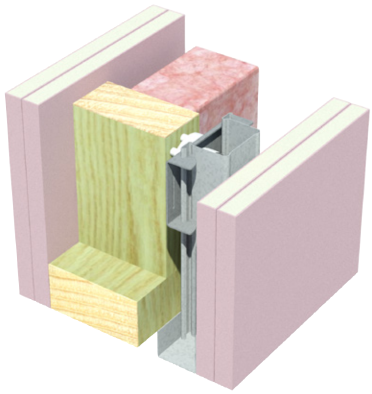
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-50 Note: Impact Sound Resistant |
| 70 | 133 | 37 (29) | 47 (36) | 47 (36) | 46 (36) | |
| 90 | 153 | 38 (31) | 48 (36) | 48 (36) | 47 (36) | |

## TSW352



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Resilient Mounts and minimum 18mm Furring Channel
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

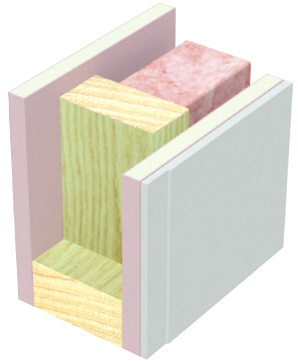
**Fire Resistance Level**

**-/120/120** and **90/90/90** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 [1]TL554-6 Note: Impact Sound Resistant |
| 70 | 159 | 48 (38) | 56 (47) | 57 (48) | 56 (47) | |
| 90 | 179 | 49 (40) | 56 (48) | 58 (**51**)[1] | 56 (48) | |

## TSW510



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 1 layer of 6mm Duraliner

The order of wall linings can be reversed

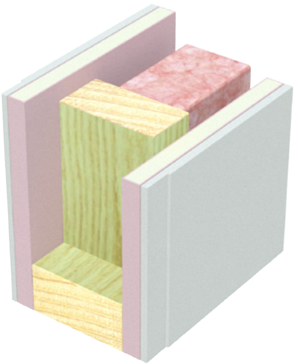
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 102 | 40 (33) | 44 (37) | - | 44 (36) | Day Design 3094-45 |
| 90 | 122 | 41 (33) | 44 (38) | 45 (39) | 44 (38) | |

## TSW512



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 1 layer of 6mm Duraliner
- Timber stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 1 layer of 6mm Duraliner

The order of wall linings can be reversed

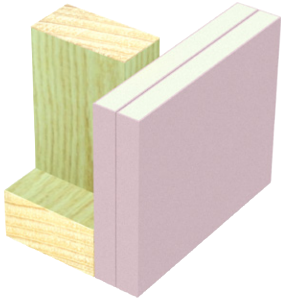
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 108 | 44 (36) | 47 (41) | - | 47 (41) | Day Design 3094-45 |
| 90 | 128 | 44 (37) | 48 (42) | 49 (43) | 48 (42) | |

## TSW304



- Timber stud framing at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

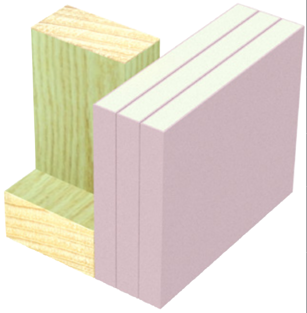
**Fire Resistance Level**

**-/60/60** and **60/60/60**
from the lined side only

Report
FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| | | No insulation | Report<br>Day Design 3094-45 |
| 70 | 102 | 35 (32) | |
| 90 | 122 | 35 (32) | |

## TSW305



- Timber stud framing at maximum 600mm centres
- 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock

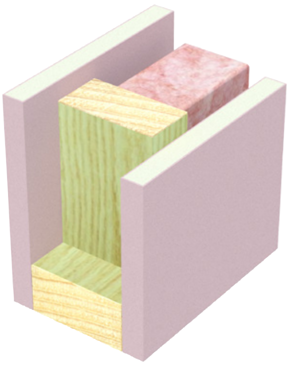
**Fire Resistance Level**

**-/120/120** and **120/120/120**
from the lined side only

Report
FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| | | No insulation | Report<br>Day Design 3094-45 |
| 70 | 118 | 38 (36) | |
| 90 | 138 | 38 (36) | |

## TSW315



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

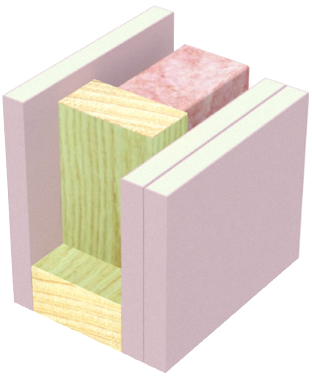
**Fire Resistance Level**

**-/90/90** and **60/60/60**
from either side

Report
FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report<br>Day Design 3094-45 |
| 70 | 102 | 38 (30) | 41 (33) | - | 41 (33) | |
| 90 | 122 | 38 (30) | 42 (34) | 42 (36) | 42 (34) | |

## TSW316



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

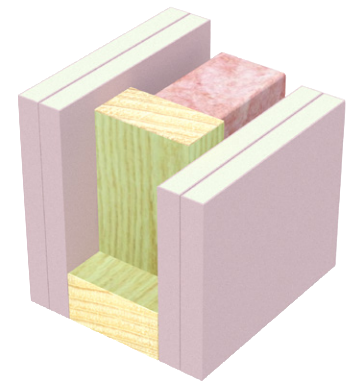
**Fire Resistance Level**

**-/120/120** and **60/60/60**
from either side

Report
FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report<br>Day Design 3094-45 |
| 70 | 118 | 42 (34) | 44 (39) | - | 44 (39) | |
| 90 | 138 | 43 (35) | 44 (40) | 46 (41) | 44 (40) | |

## TSW317



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

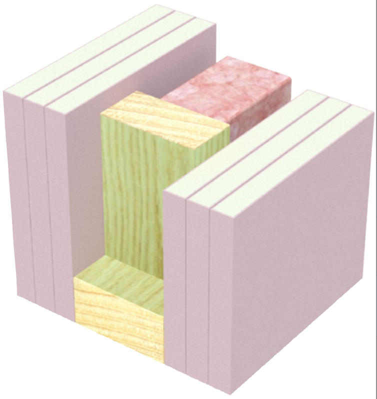
**Fire Resistance Level**

**-/120/120** and **120/120/120** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 134 | 45 (39) | 47 (42) | - | 47 (42) | Day Design 3094-45 |
| 90 | 154 | 46 (39) | 47 (43) | 48 (44) | 47 (43) | |

## TSW319



- 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock

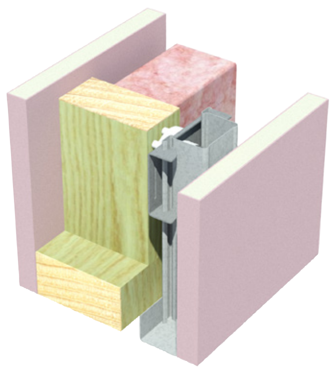
**Fire Resistance Level**

**-/240/240** and **120/120/120** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 166 | 50 (43) | 51 (46) | - | 51 (46) | Day Design 3094-50 |
| 90 | 186 | 50 (44) | 51 (47) | 52 (48) | 51 (47) | |

## TSW355



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Resilient Mounts and minimum 18mm Furring Channel
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

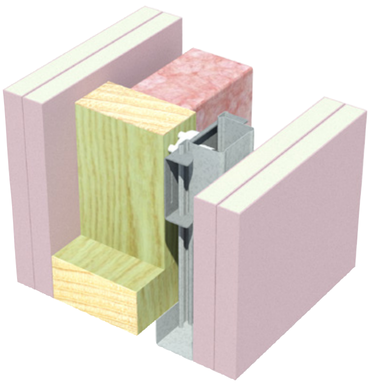
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 139 | 41 (32) | 50 (41) | 51 (42) | 49 (41) | Day Design 3094-50 |
| 90 | 159 | 42 (33) | 50 (42) | 51 (43) | 50 (42) | Note: Impact Sound Resistant |

## TSW357



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Resilient Mounts and minimum 18mm Furring Channel
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

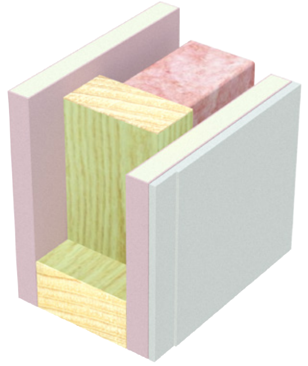
**Fire Resistance Level**

**-/120/120** and **120/120/120** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 | 171 | 50 (40) | 57 (49) | 58 (**50**) | 57 (49) | Day Design 3094-45 |
| 90 | 191 | 51 (42) | 57 (**50**) | 58 (**51**) | 57 (**50**) | Note: Impact Sound Resistant |

## TSW514



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
  + 1 layer of 6mm Duraliner

The order of wall linings can be reversed

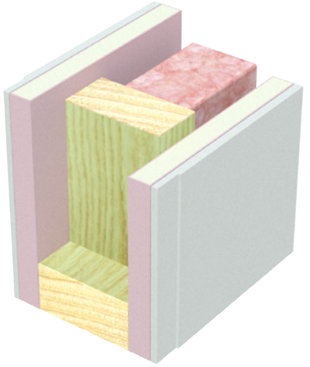
**Fire Resistance Level**

**-/90/90** and **60/60/60**
from either side

Report
FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | |
| 70 | 108 | 41 (33) | 44 (38) | - | 44 (38) | Report<br>Day Design 3094-45 |
| 90 | 128 | 42 (33) | 44 (39) | 45 (40) | 44 (39) | |

## TSW516



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
  + 1 layer of 6mm Duraliner
- Timber stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
  + 1 layer of 6mm Duraliner

The order of wall linings can be reversed

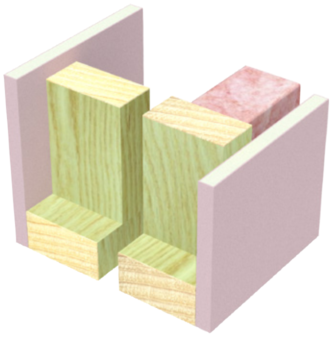
**Fire Resistance Level**

**-/120/120** and **60/60/60**
from either side

Report
FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | |
| 70 | 114 | 44 (37) | 47 (42) | - | 47 (42) | Report<br>Day Design 3094-45 |
| 90 | 134 | 45 (38) | 48 (43) | 49 (44) | 48 (43) | |

## TSW330



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

Insulation in one frame only

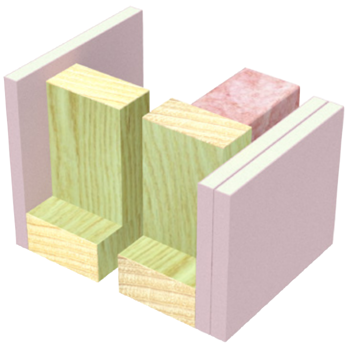
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 186 | 43 (37) | 52 (42) | 53 (43) | 51 (42) | |
| 90 200mm cavity | 226 | 45 (38) | 52 (44) | 54 (44) | 52 (43) | |

## TSW331



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

Insulation in one frame only

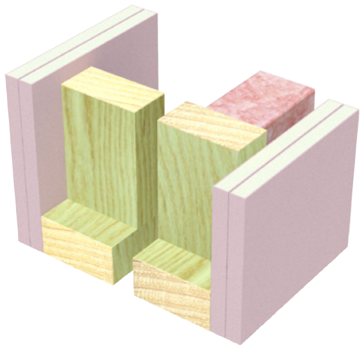
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 199 | 48 (41) | 57 (48) | 58 (49) | 56 (48) | |
| 90 200mm cavity | 239 | 50 (42) | 57 (**50**) | 59 (**50**) | 57 (49) | |

## TSW332



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

Insulation in one frame only

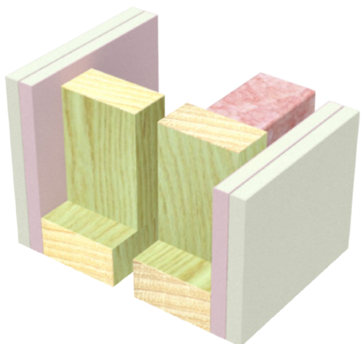
**Fire Resistance Level**

**-/120/120** and **90/90/90** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 [1]ATF1537 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 212 | 53 (45) | 62 (**54**) | 63 (**55**)[1] | 61 (**53**) | |
| 90 200mm cavity | 252 | 55 (46) | 62 (**55**) | 64 (**55**) | 62 (**55**) | |

## TSW380



- 1 layer of 13mm **fire**shield or **multi**shield or **tru**rock + 1 layer of 13mm **masta**shield or **water**shield
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **tru**rock + 1 layer of 13mm **masta**shield or **water**shield

Insulation in one frame only

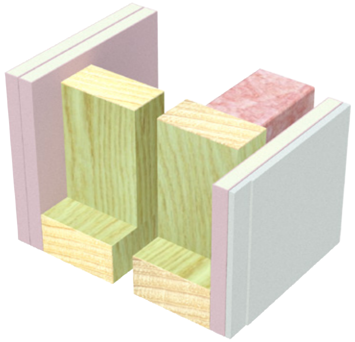
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 212 | 52 (44) | 61 (**52**) | 62 (**53**) | 60 (**52**) | |
| 90 200mm cavity | 252 | 53 (45) | 61 (**54**) | 63 (**54**) | 61 (**53**) | |

## TSW531



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 1 layer of 6mm Duraliner

The order of wall linings can be reversed
Insulation in one frame only

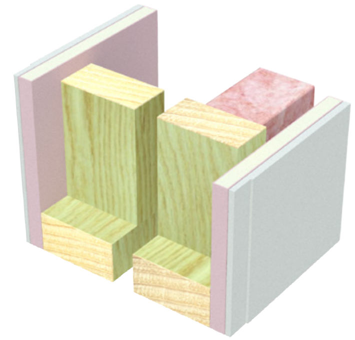
**Fire Resistance Level**

**-/90/90** and **30/30/30**
from either side

Report
FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 205 | 53 (45) | 61 (**53**) | 63 (**54**) | 61 (**53**) | |
| 90 200mm cavity | 245 | 54 (45) | 62 (**55**) | 64 (**55**) | 61 (**54**) | |

## TSW532



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 1 layer of 6mm Duraliner
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 1 layer of 6mm Duraliner

The order of wall linings can be reversed
Insulation in one frame only

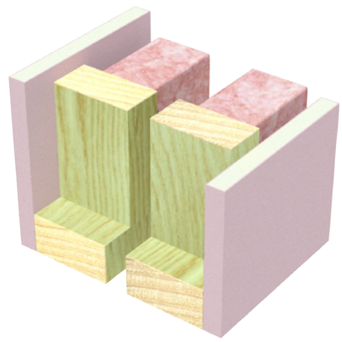
**Fire Resistance Level**

**-/90/90** and **60/60/60**
from either side

Report
FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 199 | 52 (44) | 61 (**52**) | 62 (**53**) | 60 (**52**) | |
| 90 200mm cavity | 239 | 53 (45) | 61 (**54**) | 63 (**54**) | 61 (**53**) | |

## TSW335



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

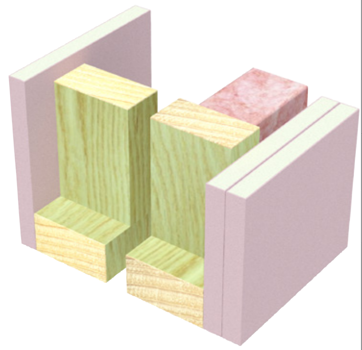
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | | |
|---|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | 2 x Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | 2 x Pink® Batts Wall R2.0 | Report Day Design 3094-45 4738-17 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 192 | 46 (39) | 54 (45) | 58 (48) | 55 (45) | 59 (49) | |
| 90 200mm cavity | 232 | 47 (39) | 55 (46) | 59 (**50**) | 56 (47) | 60 (**51**) | |

## TSW336



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

Insulation in one frame only

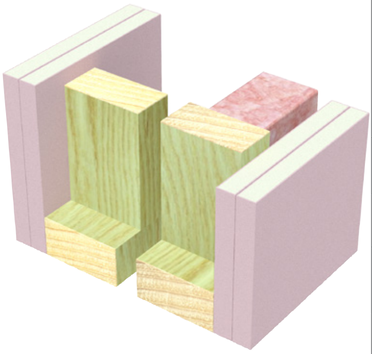
**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 208 | 51 (43) | 59 (**51**) | 60 (**51**) | 58 (**50**) | |
| 90 200mm cavity | 248 | 52 (44) | 60 (**52**) | 61 (**53**) | 59 (**52**) | |

## TSW337



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

Insulation in one frame only

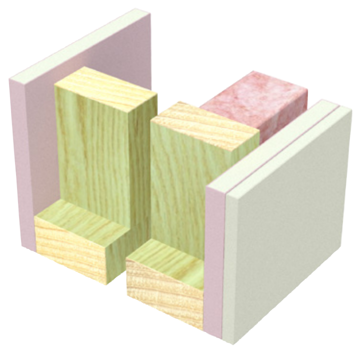
**Fire Resistance Level**

**-/120/120** and **120/120/120** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 224 | 56 (47) | 64 (**56**) | 66 (**57**) | 63 (**56**) | |
| 90 200mm cavity | 264 | 57 (48) | 65 (**58**) | 66 (**59**) | 64 (**58**) | |

## TSW381



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock plus 1 layer of 10mm **masta**shield or **water**shield

Insulation in one frame only

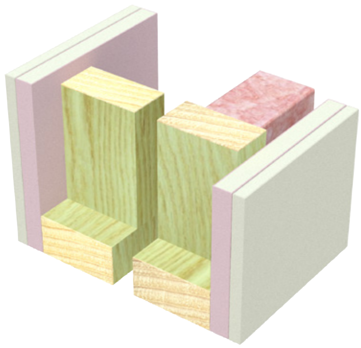
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 202 | 49 (41) | 57 (48) | 58 (49) | 56 (48) | |
| 90 200mm cavity | 242 | 50 (42) | 58 (**50**) | 59 (**51**) | 57 (49) | |

## TSW382



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
  + 1 layer of 10mm **masta**shield or **water**shield
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
  + 1 layer of 10mm **masta**shield or **water**shield

Insulation in one frame only

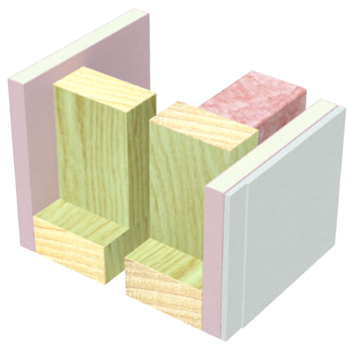
**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 212 | 51 (43) | 59 (**51**) | 61 (**52**) | 59 (**51**) | |
| 90 200mm cavity | 252 | 53 (44) | 60 (**53**) | 62 (**54**) | 59 (**52**) | |

## TSW534



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
  + 1 layer of 6mm Duraliner

The order of wall linings can be reversed
Insulation in one frame only

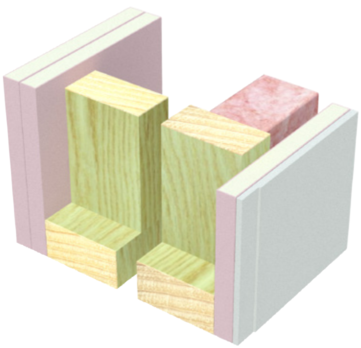
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 198 | 50 (42) | 58 (49) | 60 (**50**) | 57 (49) | |
| 90 200mm cavity | 238 | 51 (43) | 59 (**51**) | 61 (**52**) | 58 (**50**) | |

## TSW535



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
  + 1 layer of 6mm Duraliner

The order of wall linings can be reversed
Insulation in one frame only

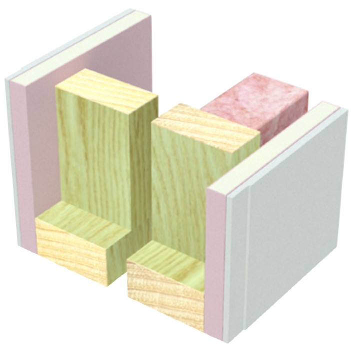
**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 214 | 55 (46) | 63 (**55**) | 65 (**56**) | 63 (**55**) | |
| 90 200mm cavity | 254 | 56 (47) | 64 (**57**) | 66 (**58**) | 63 (**56**) | |

## TSW536



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
  + 1 layer of 6mm Duraliner
- Timber stud framing at maximum 600mm centres
- Minimum 20mm air gap
- Timber stud framing at maximum 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
  + 1 layer of 6mm Duraliner

The order of wall linings can be reversed
Insulation in one frame only

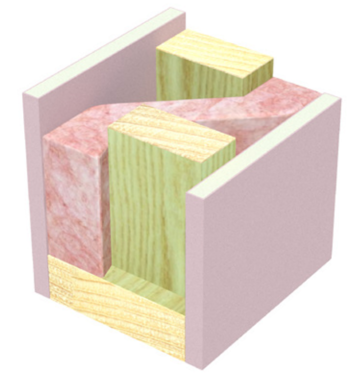
**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report Day Design 3094-45 Note: Impact Sound Resistant - Discontinuous Construction |
| 70 160mm cavity | 204 | 54 (45) | 62 (**54**) | 63 (**54**) | 61 (**53**) | |
| 90 200mm cavity | 244 | 55 (46) | 62 (**55**) | 64 (**56**) | 62 (**55**) | |

## TSW320



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

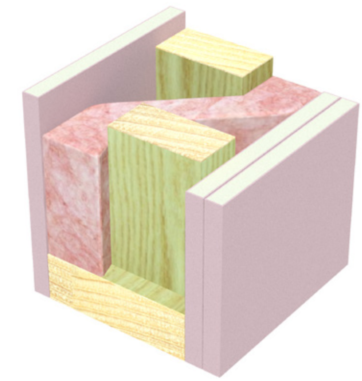
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 116 | 37 (31) | 45 (38) | 47 (39) | 45 (38) | Day Design 3094-45 |
| 90 on 120mm plate | 146 | 38 (33) | 46 (40) | 48 (41) | 46 (40) | Note: Impact Sound Resistant |

## TSW321



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

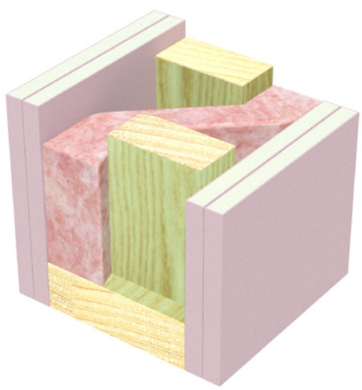
**Fire Resistance Level**

**-/90/90** and **30/30/30** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 129 | 42 (37) | 50 (43) | 54 (45) | 50 (43) | Day Design 3094-45 |
| 90 on 120mm plate | 159 | 43 (38) | 51 (45) | 52 (46) | 51 (45) | Note: Impact Sound Resistant |

## TSW322



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

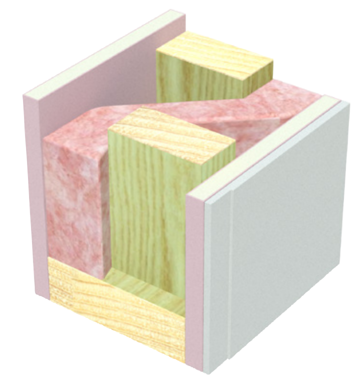
**Fire Resistance Level**

**-/120/120** and **90/90/90** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 142 | 46 (41) | 54 (49) | 55 (**50**) | 54 (48) | Day Design 3094-45 |
| 90 on 120mm plate | 172 | 48 (42) | 54 (**50**) | 55 (**51**) | 54 (**50**) | Note: Impact Sound Resistant |

## TSW520



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 1 layer of 6mm Duraliner

The order of wall linings can be reversed

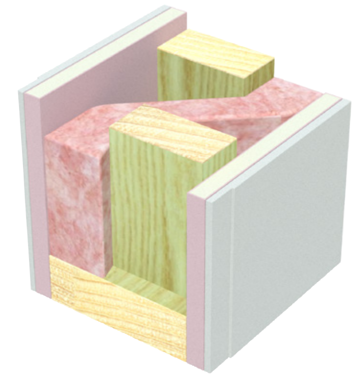
**Fire Resistance Level**

**-/60/60** and **30/30/30** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 122 | 42 (36) | 50 (43) | 51 (44) | 50 (43) | Day Design 3094-45 |
| 90 on 120mm plate | 152 | 43 (37) | 51 (45) | 52 (46) | 51 (44) | Note: Impact Sound Resistant |

## TSW522



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 1 layer of 6mm Duraliner
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock + 1 layer of 6mm Duraliner

The order of wall linings can be reversed

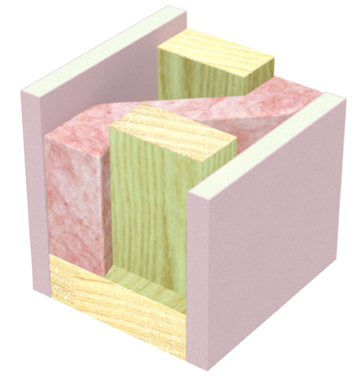
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 128 | 46 (39) | 54 (47) | 55 (48) | 54 (47) | Day Design 3094-45 |
| 90 on 120mm plate | 158 | 47 (40) | 54 (49) | 56 (**50**) | 54 (49) | Note: Impact Sound Resistant |

## TSW325



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

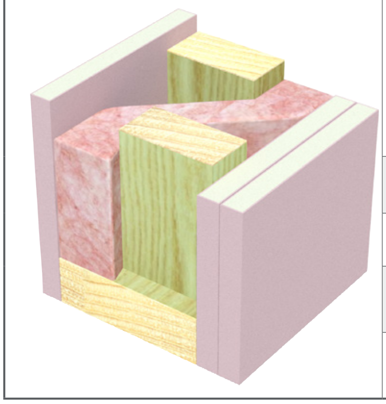
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 122 | 39 (32) | 47 (40) | 48 (41) | 47 (40) | Day Design 3094-45 |
| 90 on 120mm plate | 152 | 41 (35) | 47 (42) | 49 (43) | 47 (42) | Note: Impact Sound Resistant |

## TSW326



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

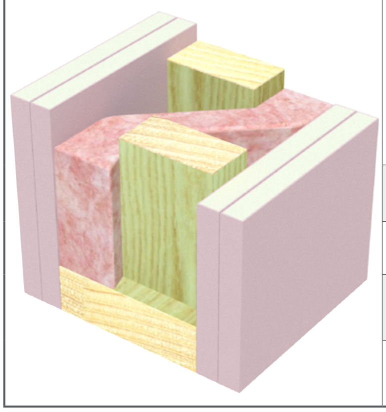
**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 138 | 44 (39) | 51 (46) | 52 (47) | 51 (45) | Day Design 3094-45 |
| 90 on 120mm plate | 168 | 45 (40) | 52 (47) | 53 (48) | 51 (47) | Note: Impact Sound Resistant |

## TSW327



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

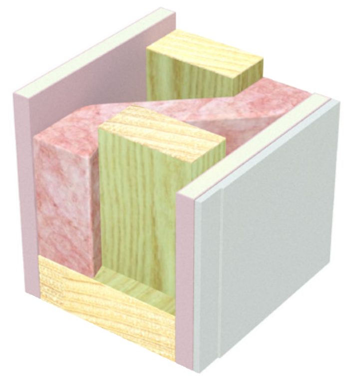
**Fire Resistance Level**

**-/120/120** and **120/120/120** from either side

Report FC14351

| Stud Depth (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 154 | 48 (42) | 54 (**50**) | 55 (**51**) | 54 (**50**) | Day Design 3094-45 |
| 90 on 120mm plate | 184 | 50 (43) | 55 (**51**) | 56 (**53**) | 55 (**51**) | Note: Impact Sound Resistant |

## TSW524



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 1 layer of 6mm Duraliner

The order of wall linings can be reversed

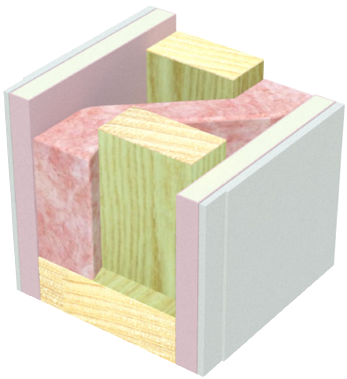
**Fire Resistance Level**

**-/90/90** and **60/60/60** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 128 | 43 (38) | 50 (44) | 52 (46) | 50 (44) | Day Design 3094-45 |
| 90 on 120mm plate | 158 | 45 (39) | 51 (46) | 52 (47) | 51 (46) | Note: Impact Sound Resistant |

## TSW526



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 1 layer of 6mm Duraliner
- Staggered timber studs at maximum 600mm centres (300mm staggered)
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock + 1 layer of 6mm Duraliner

The order of wall linings can be reversed

**Fire Resistance Level**

**-/120/120** and **60/60/60** from either side

Report FC14351

| **Stud Depth (mm)** | **Wall Width (mm)** | **Sound Insulation Rw (Rw + Ctr)** | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester R1.5 | Report |
| 70 on 90mm plate | 134 | 47 (40) | 54 (48) | 55 (**50**) | 54 (48) | Day Design 3094-45 |
| 90 on 120mm plate | 164 | 48 (41) | 54 (**50**) | 56 (**51**) | 54 (**50**) | Note: Impact Sound Resistant |

# General Requirements

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Install control joints in internal timber framed walls:<br>> With plasterboard at 12m maximum intervals<br>> With fibre cement at 7.2m maximum intervals<br>> With tiles at 4.2m maximum intervals (plasterboard or fibre cement)<br>> At all movement joints in the building<br>> At any change in the substrate<br>> At the floor line in stairwells. Cover the gap with a moulding fastened to one edge. | ✓ | ✓ |
| Only joint the face layer. As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, use **bindex** fire and acoustic sealant according to the Product Data Sheet. | | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | | ✓ |
| Load bearing structural steel members in wall cavities have the Structural Adequacy component of the system's Fire Resistance Level. | | ✓ |
| Wall systems with a Structural Adequacy component to their Fire Resistance Level (eg: 60/60/60) may be built with any steel framing provided it is designed according to the relevant Australian Standards, has a minimum 51mm cavity and maximum 600mm horizontal or vertical framing centres for the fixing of linings. As an example, a wall could be comprised of steel studs and an additional layer of furring channels, with or without resilient mounts. | | ✓ |
| Use **bindex** fire and acoustic sealant on all gaps and around perimeter. | | ✓ |
| Attach all fixtures to studs or purpose installed noggings/blocking. Wall anchors must not be fixed only to the plasterboard of fire rated walls. | | ✓ |
| **fire**shield may be substituted with **multi**shield, **impact**shield, **tru**rock and **tru**rock HD of the same or greater thickness and maintain fire performance. | | ✓ |

For acceptable modifications or variations to fire rated systems, refer to Section 2.3 fire Resistance

# Framing

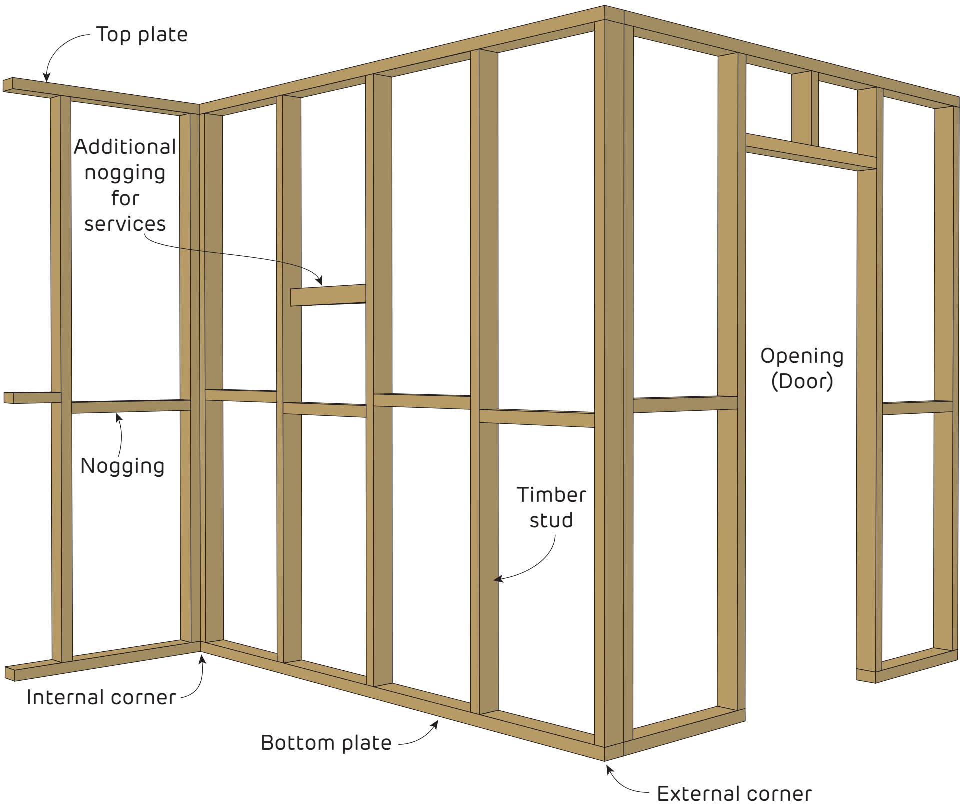


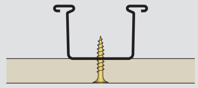

**FIGURE 1** Internal Timber Frame Wall Layout

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Framing members as per framing table or structural design up to 600mm maximum. | ✓ | ✓ |
| Use minimum 70x45mm or 90x35mm timber studs for load bearing walls. | | ✓ |

> Noggings are permitted to assist the fixing of services.
> Plumbing and electrical services must not protrude beyond the face of the studs.

## Table 1 Wall Furring Channel Span Table

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Furring Channels at 600mm maximum centres | | | | |  | |
|---|---|---|---|---|---|---|
| Wind Region | Ultimate $W_u$ (kPa) | Serviceability $W_s$ (kPa)<br>Deflection limited to Span/360 | 18mm Furring Channel (FC18) | | 28mm Furring Channel (FC28) | |
| | | | Span (mm) | Anchor Pull-out and Clip Demand (kN) | Span (mm) | Anchor Pull-out and Clip Demand (kN) |
| REGION A | 0.39 | 0.25 | 800 | 0.24 | 1140 | 0.32 |
| | 0.47 | 0.3 | 750 | 0.27 | 1070 | 0.38 |
| | 0.54 | 0.35 | 710 | 0.29 | 1030 | 0.42 |
| REGION B | 0.59 | 0.25 | 740 | 0.33 | 1010 | 0.45 |
| | 0.71 | 0.3 | 710 | 0.38 | 960 | 0.51 |
| | 0.83 | 0.35 | 680 | 0.42 | 920 | 0.57 |

1. Table based upon self weight and lateral pressures, intended for internal use only. Other loads such as shelf loads, loads from ceilings, or live loads have not been considered.
2. Table refers to Siniat Furring Channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection.
3. Framing calculations based upon 2-or-more spans and designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
4. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
5. Connections to clips must be checked with the *Wall Clip Capacity Table*.
6. Ultimate Limit State Load Case 1: 1.2G + Wu
7. Serviceability Limit State Load Case 1: G + Ws, with deflection limited to Span/360.
8. Anchors for head and base tracks at 600mm maximum centres and 100mm maximum from ends with minimum 0.5 kN shear capacity.
9. Clips may need to be spaced at closer intervals for impact applications.
10. Furring channels cannot be spliced, therefore the maximum wall height using furring channels is 6.0m. Maximum production lengths available are 6.0m.
11. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.

### Siniat Internal Wind Load Calculator

# Plasterboard Layout

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Vertical joints must be 200mm minimum from the edge of any opening such as windows and doorways to minimise cracking at the joints. | ✓ | ✓ |
| **Horizontal Layout** | | |
| Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets and on opposite sides of the wall. | ✓ | ✓ |
| Stagger butt joints in multilayer systems by 300mm minimum on adjoining sheets and between layers. | ✓ | ✓ |
| First layer butt joints must be backed by a stud or back-blocked. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |
| Stagger recessed edges in single layer systems by 300mm minimum on opposite sides of the wall or alternatively, back by a nogging. | | ✓ |
| **Vertical Layout** | | |
| Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets and on opposite sides of the wall. | ✓ | ✓ |
| Stagger butt joints by 300mm minimum on adjoining sheets and between layers. | ✓ | ✓ |
| First layer butt joints must be backed by a nogging or back-blocked. | ✓ | |
| First layer butt joints must be backed by a nogging. | | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum on opposite sides of the wall for single layer systems | ✓ | ✓ |

> Install plasterboard sheets horizontally when practical to reduce the effect of glancing light.
> Minimise butt joints by using long sheets.

# Plasterboard Fixing

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ | ✓ |
| Laminating screws can be used to fix butt joints in the second and third layer. | ✓ | ✓ |
| **Fastener and Adhesive Method** | | |
| Apply **mastagrip** Stud Adhesive after the frame is clean, dry, and free from grease, dust and other contaminants. | ✓ | |
| Apply **mastagrip** daubs 200mm minimum from screws and plasterboard edges. | ✓ | |
| **Fastener Only Method** | | |
| Use the 'Screw Only Method' in tiled or fire rated areas. | ✓ | ✓ |

The 'Fastener and Adhesive Method' is recommended for non-fire rated applications. **mastagrip** will:

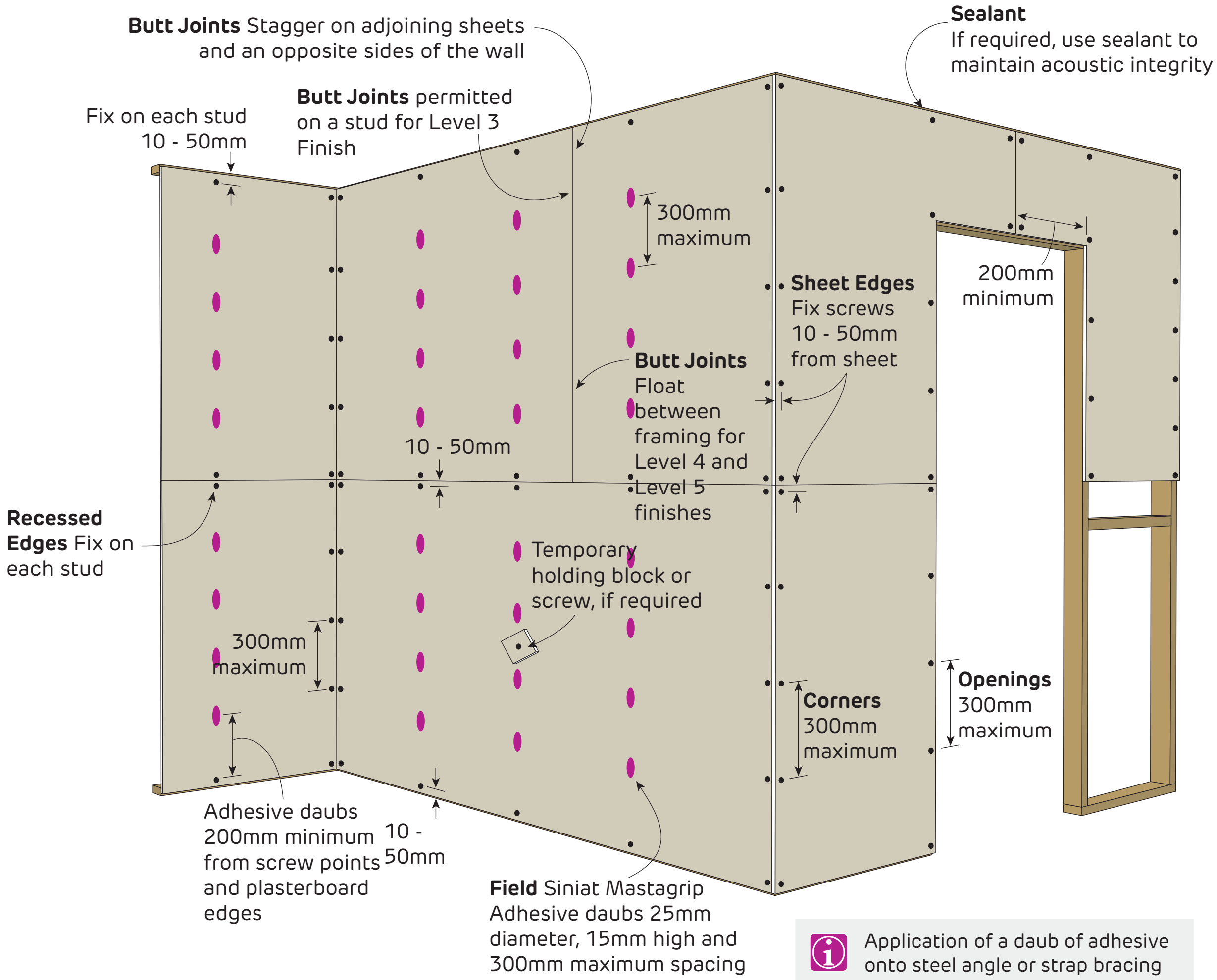
- Minimise screw popping
- Reduce the number of screw heads that may show in glancing light
- Assist in compensating for frame irregularities
- Reduce rattle noise when applied to bracing straps.

### Fastener Type and Minimum Size for the Installation of Plasterboard to Softwood Timber

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 6.5mm | 2.8 x 30mm nail or<br>2.8 x 25mm ring shank nail or<br>6g x 25mm screw | 2.8 x 40mm nail or<br>2.8 x 30mm ring shank nail or<br>6g x 32mm screw | - |
| 10mm | 2.8 x 40mm nail or<br>2.8 x 30mm ring shank nail or<br>6g x 25mm screw for walls or<br>6g x 32mm screw for ceilings | 2.8 x 50mm nail or<br>6g x 41mm screw * | - |
| 13mm | 2.8 x 40mm nail or<br>2.8 x 30mm ring shank nail or<br>6g x 41mm screw | 2.8 x 50mm nail or<br>7g x 50mm screw * | 3.75 x 75mm nail or<br>8g x 65mm screw * |
| 16mm | 2.8 x 50mm nail or<br>7g x 45mm screw | 2.8 x 65mm nail or<br>8g x 60mm screw * | 3.75 x 75mm nail or<br>8g x 75mm screw * |

*10g x 38mm Laminating screws may be used as detailed in installation diagrams.
Also refer to the Siniat Plasterboard installation Guide for minimum screw lengths for non-fire rated walls.

**FIGURE 2** Internal Non-Fire Rated - 1 Layer Horizontal
Fastener and Adhesive Method




Application of a daub of adhesive onto steel angle or strap bracing between framing members will minimise the risk of the bracing rattling against the back of the plasterboard linings.

## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | F A A F |
| 900mm | F A A A F |
| 1200mm | F A A A A F |
| 1350mm | F A A A A A F |
| 1400mm | F A A A A A F |

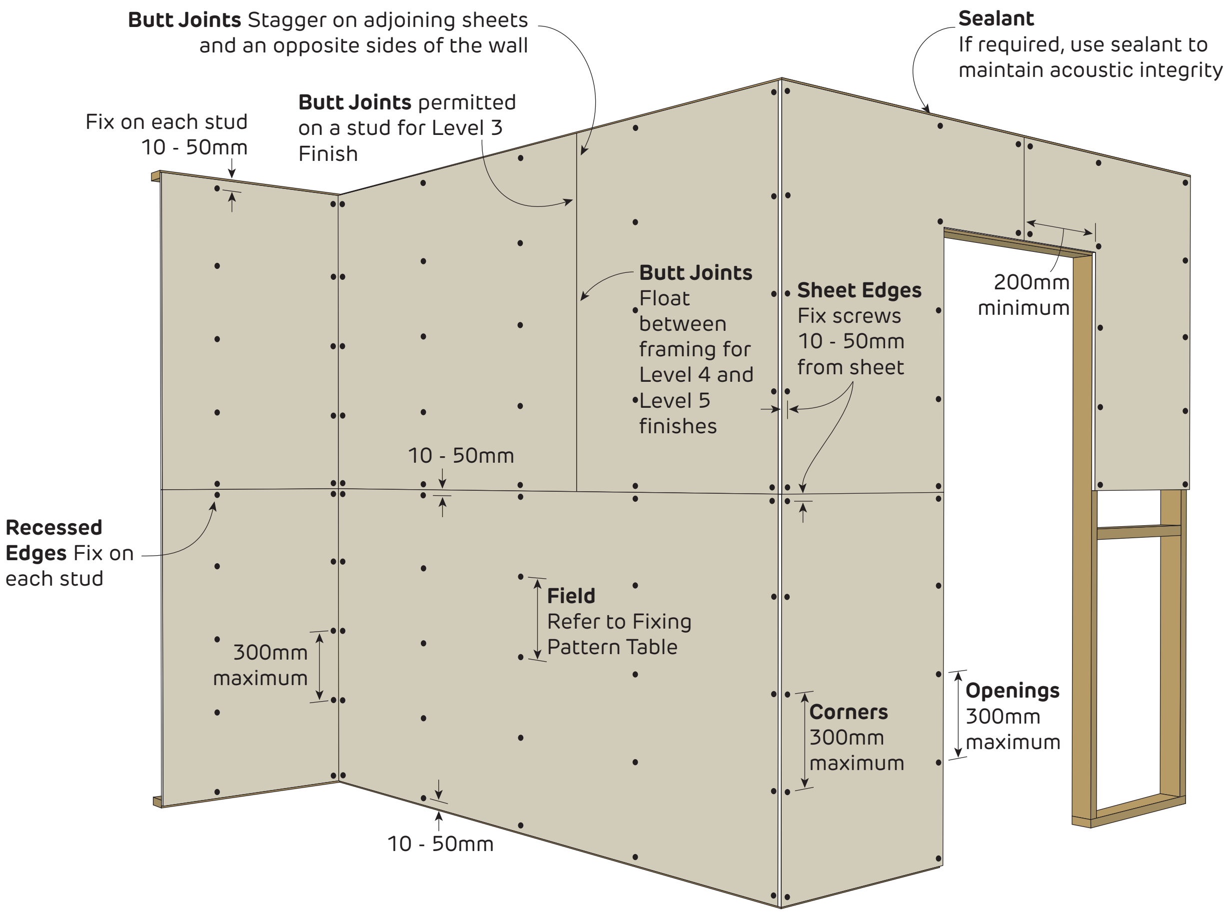
F = Screw or nail
A = Adhesive daub

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 1.00 | 1.33 | 1.50 | 2.00 |
| 13mm | 1.00 | 1.33 | 1.50 | 2.00 |
| 16mm | 1.00 | 1.33 | 1.50 | 2.00 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calculated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 3** **Internal Non-Fire Rated - 1 Layer Horizontal**
Fastener Only Method




## Fixing Pattern Table

| Sheet Width | Fixing Pattern | Nail Fixing Pattern | Double Nail Fixing Pattern |
|---|---|---|---|
| 600mm | S S S (3) | N N N N (4) | N Dn N (3) |
| 900mm | S S S S (4) | N N N N N (5) | N Dn Dn N (4) |
| 1200mm | S S S S (4) | N N N N N N (6) | N Dn Dn N (4) |
| 1350mm | S S S S S (5) | N N N N N N N (7) | N Dn Dn Dn N (5) |
| 1400mm | S S S S S (5) | N N N N N N N (7) | N Dn Dn Dn N (5) |

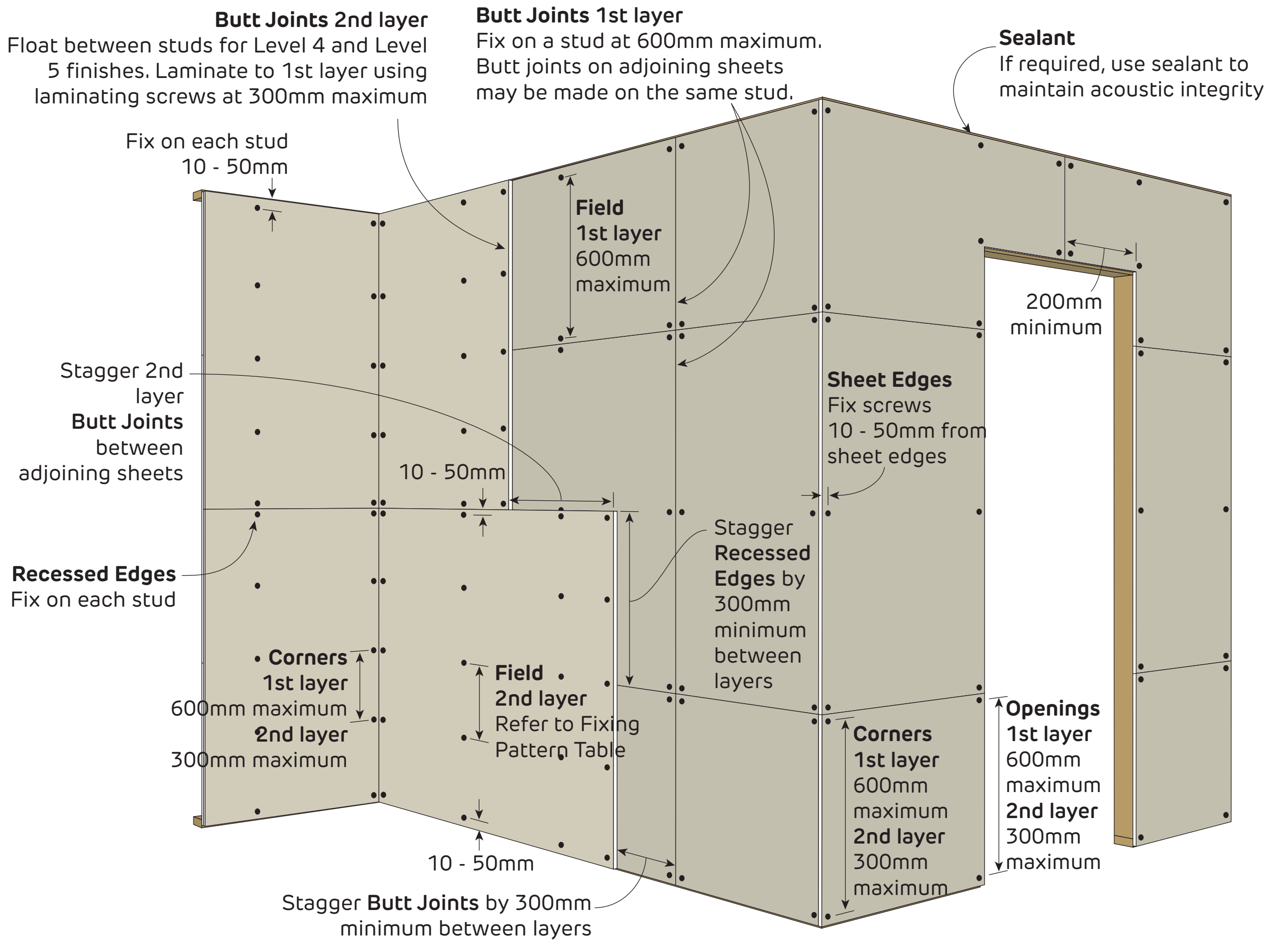
S = Screw
N = Nail
Dn = Double nail

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.65 | 0.86 | 0.97 | 1.30 |
| 13mm | 0.72 | 0.96 | 1.08 | 1.44 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 4** **Internal Non-Fire Rated - 2 Layers Horizontal + Horizontal** Fastener Only Method




## Fixing Pattern Table for 2nd Layer

| Sheet Width | Fixing Pattern | Nail Fixing Pattern | Double Nail Fixing Pattern |
|---|---|---|---|
| 600mm | S S S (3) | N N N N (4) | N Dn N (3) |
| 900mm | S S S S (4) | N N N N N (5) | N Dn Dn N (4) |
| 1200mm | S S S S (4) | N N N N N N (6) | N Dn Dn N (4) |
| 1350mm | S S S S S (5) | N N N N N N N (7) | N Dn Dn Dn N (5) |
| 1400mm | S S S S S (5) | N N N N N N N (7) | N Dn Dn Dn N (5) |

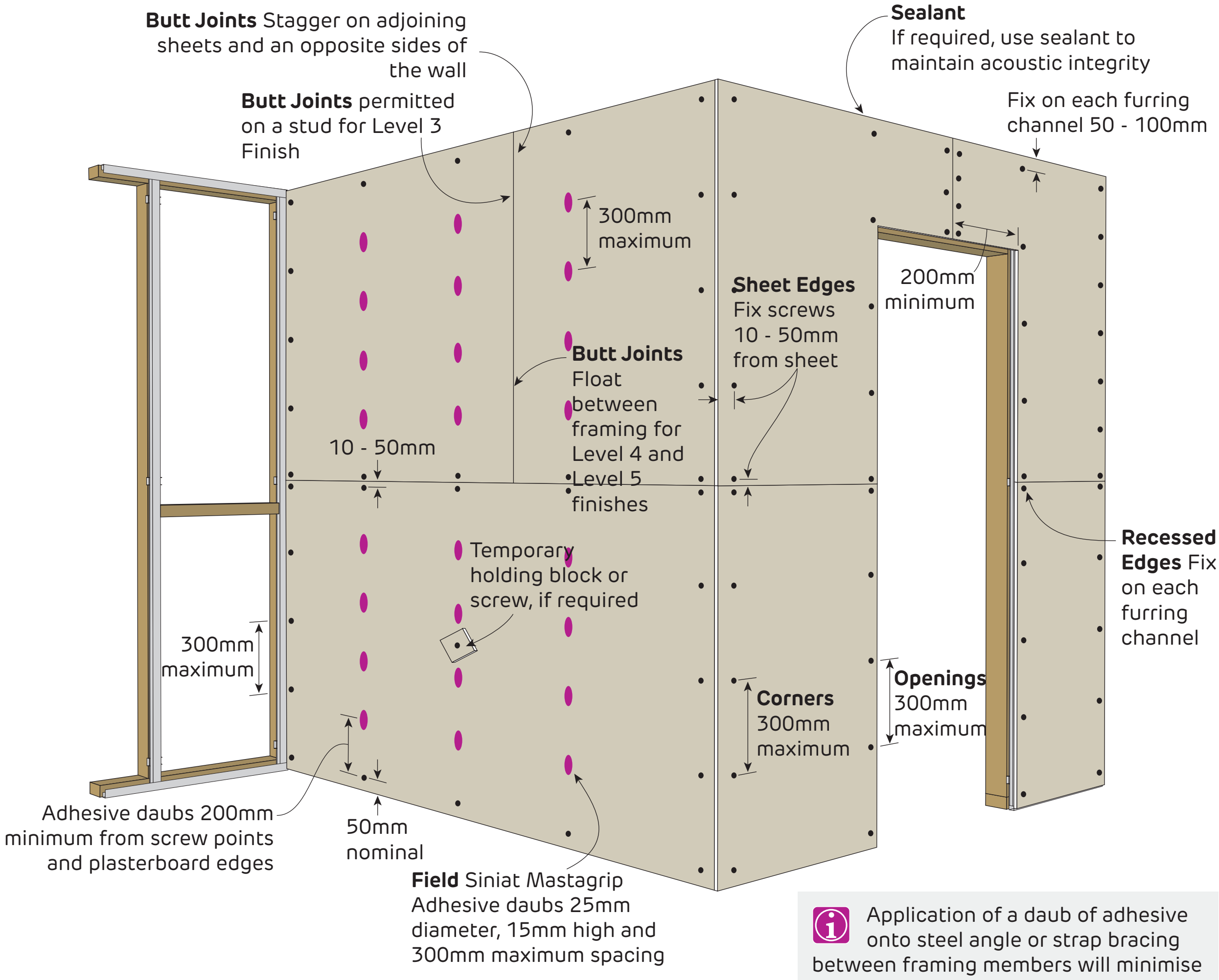
S = Screw
N = Nail
Dn = Double nail

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.65 | 0.86 | 0.97 | 1.30 |
| 13mm | 0.72 | 0.96 | 1.08 | 1.44 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 5** **Internal Non-Fire Rated - 1 Layer Horizontal**
Screw and Adhesive Method over furring channels




Application of a daub of adhesive onto steel angle or strap bracing between framing members will minimise the risk of the bracing rattling against the back of the plasterboard linings.

## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S A A S |
| 900mm | S A A A S |
| 1200mm | S A A A A S |
| 1350mm | S A A A A A S |
| 1400mm | S A A A A A S |

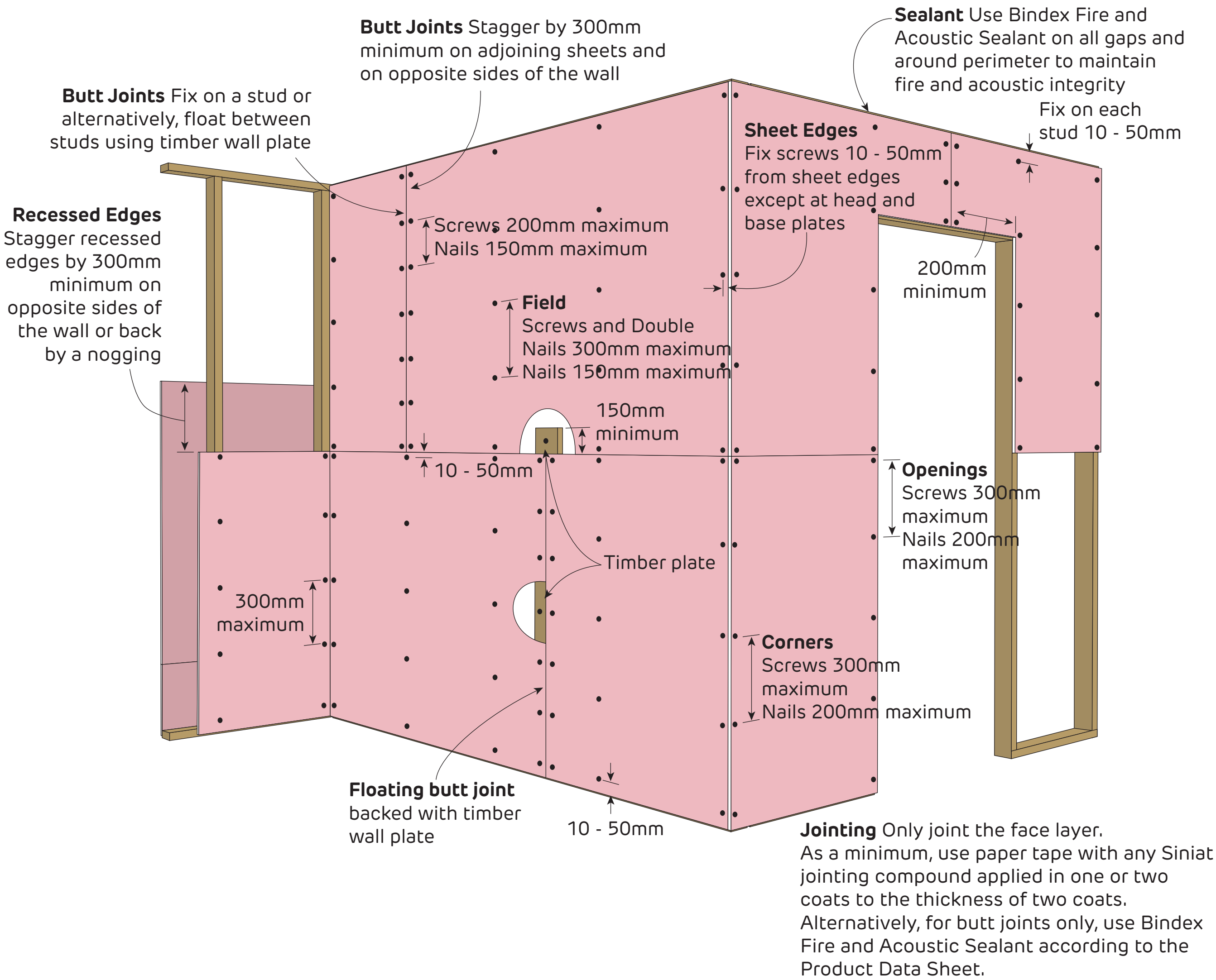
S = Screw
A = Adhesive daub

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 1.00 | 1.33 | 1.50 | 2.00 |
| 13mm | 1.00 | 1.33 | 1.50 | 2.00 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 6** **Fire Rated 1 Layer - Horizontal**
Fastener Only Method




## Fixing Pattern Table

| Sheet Width | Fixing Pattern | Nail Fixing Pattern | Double Nail Fixing Pattern |
|---|---|---|---|
| 600mm | S S S (3) | N N N N N (5) | N Dn N (3) |
| 900mm | S S S S (4) | N N N N N N N (7) | N Dn Dn N (4) |
| 1200mm | S S S S S (5) | N N N N N N N N N (9) | N Dn Dn Dn N (5) |
| 1350mm | S S S S S S (6) | N N N N N N N N N N (10) | N Dn Dn Dn Dn N (6) |
| 1400mm | S S S S S S (6) | N N N N N N N N N N N (11) | N Dn Dn Dn Dn N (6) |

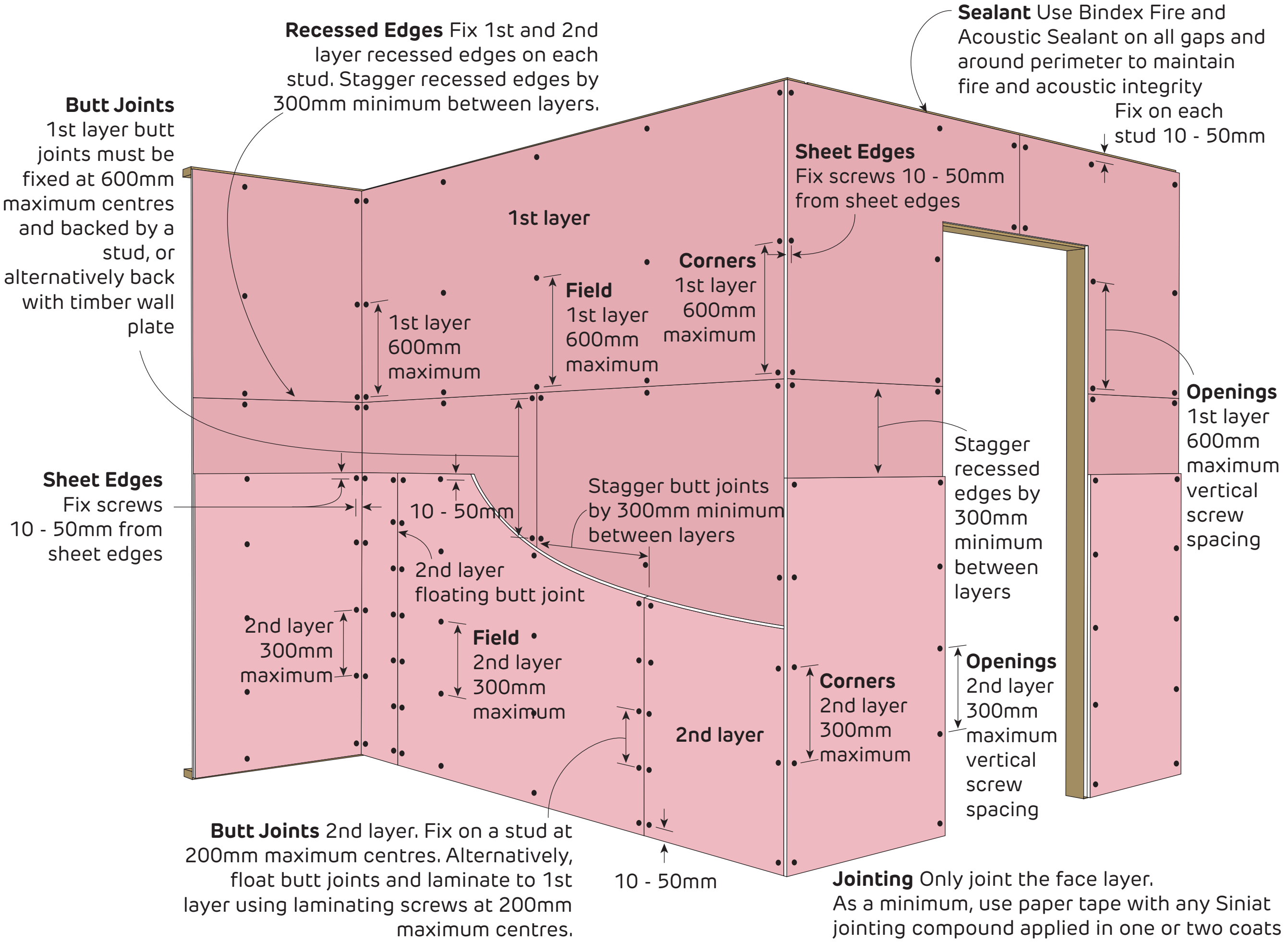
S = Screw
N = Nail
Dn = Double nail

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 7** Fire Rated 2 Layers - Horizontal + Horizontal
Screw Only Method




**Jointing** Only joint the face layer.
As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, for butt joints and recessed joints, use Bindex Fire and Acoustic Sealant according to the Product Data Sheet.

## Fixing Pattern Table for 2nd Layer

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

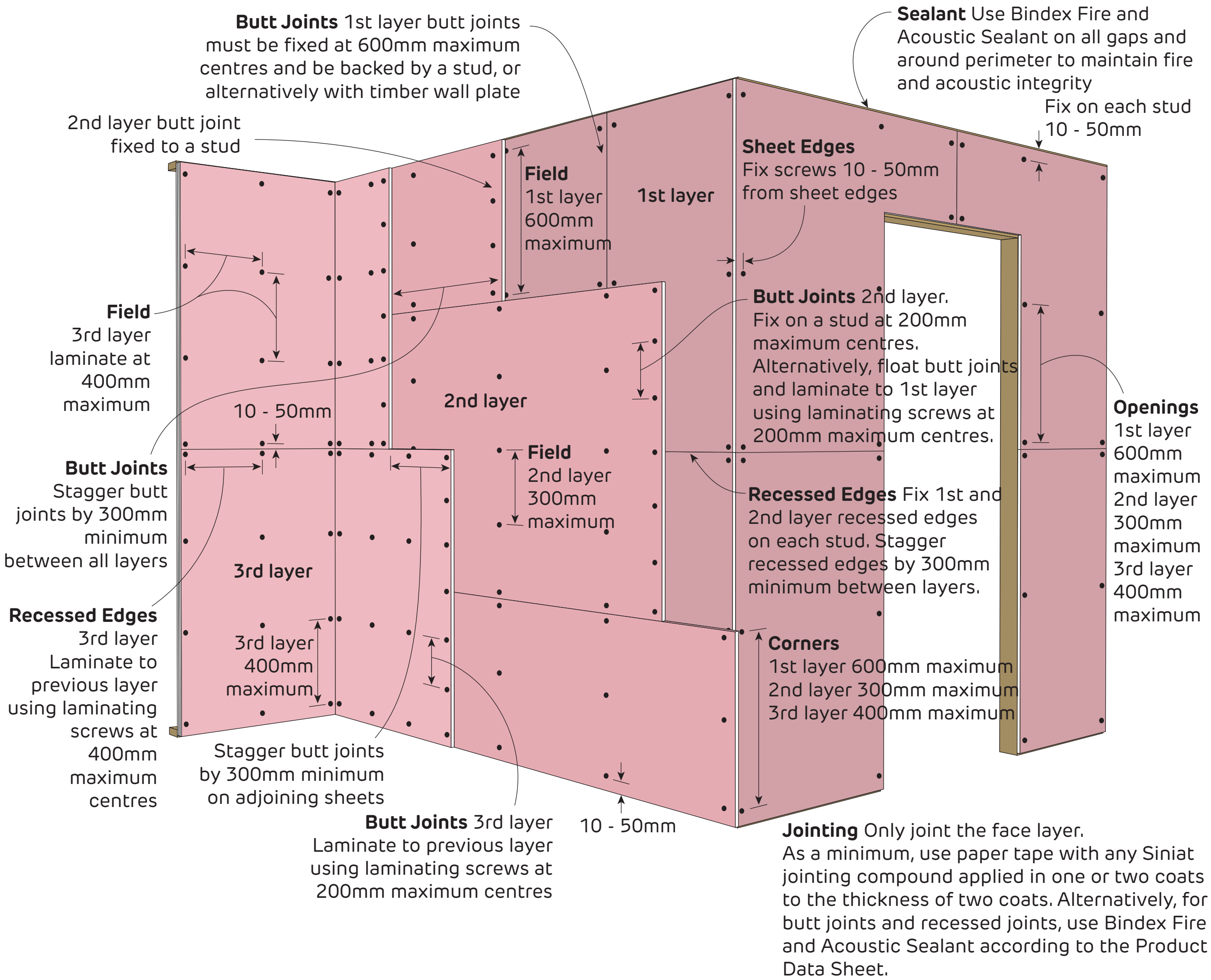
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 8** **Fire Rated 3 Layers - Horizontal + Horizontal + Horizontal**
Screw Only Method




## Fixing Pattern Table for 2nd Layer

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

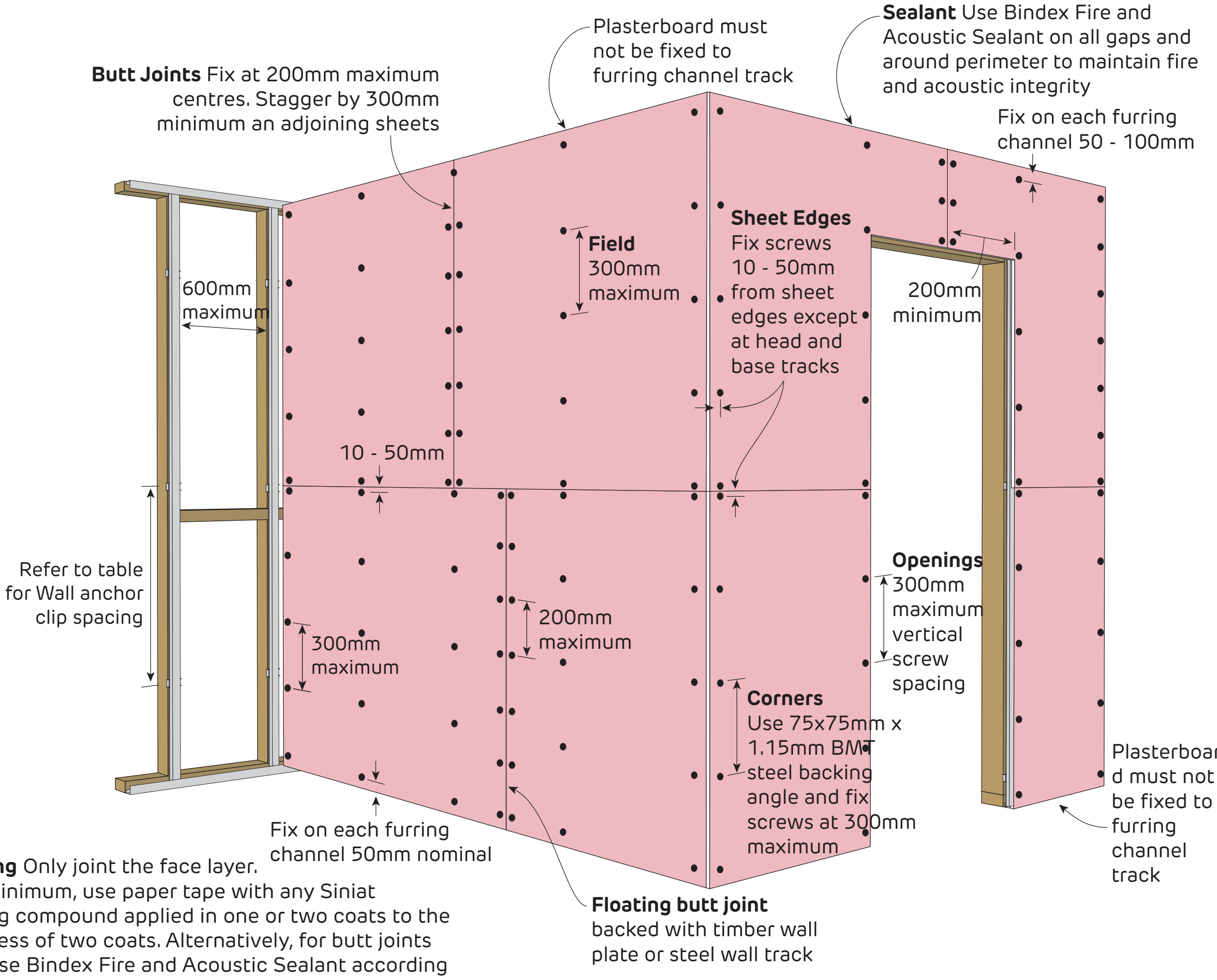
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 9** **Fire Rated - 1 Layer Horizontal**
Screw Only Method over furring channels




**Jointing** Only joint the face layer. As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, for butt joints only, use Bindex Fire and Acoustic Sealant according to the Product Data Sheet.

## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

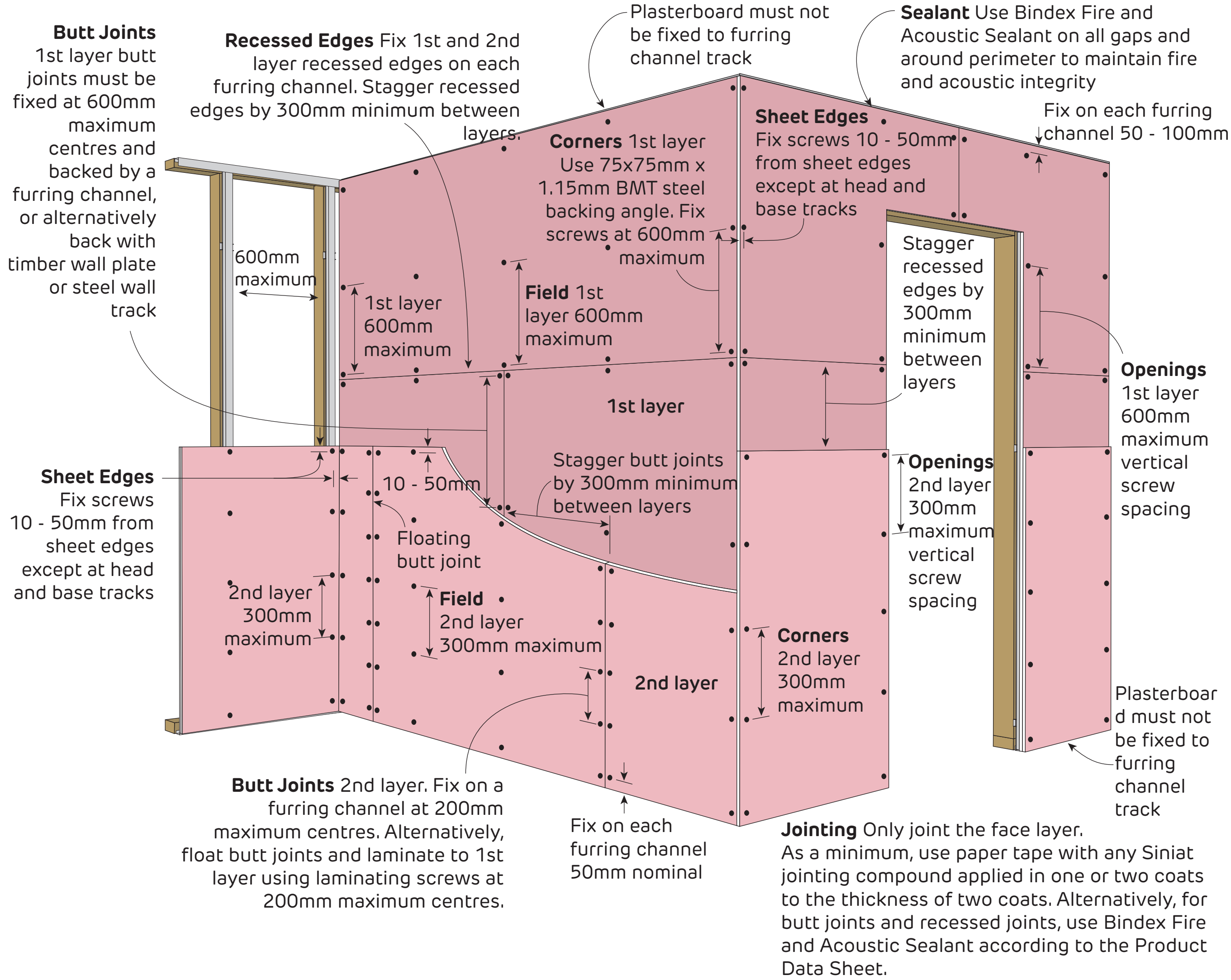
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 10 Fire Rated 2 Layers - Horizontal + Horizontal**
Screw Only Method over furring channels




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

## Non-Fire Rated
## Head and Base Details for Timber Stud Walls

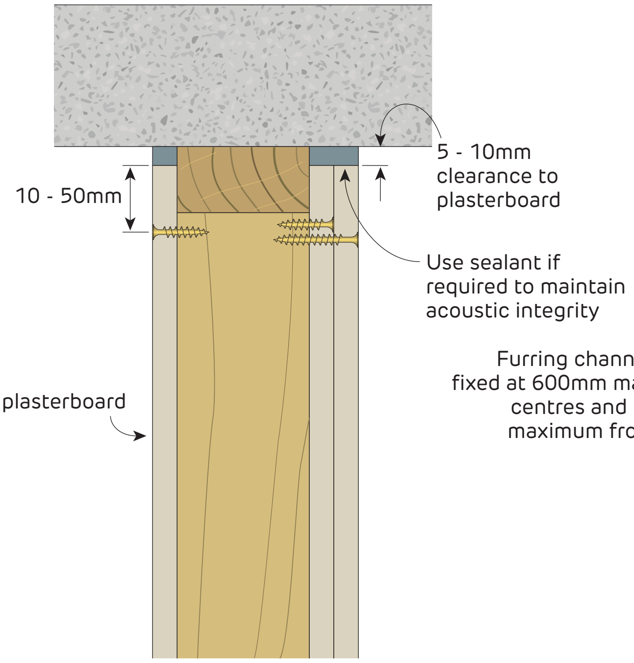



**FIGURE 11** Wall Head
Section

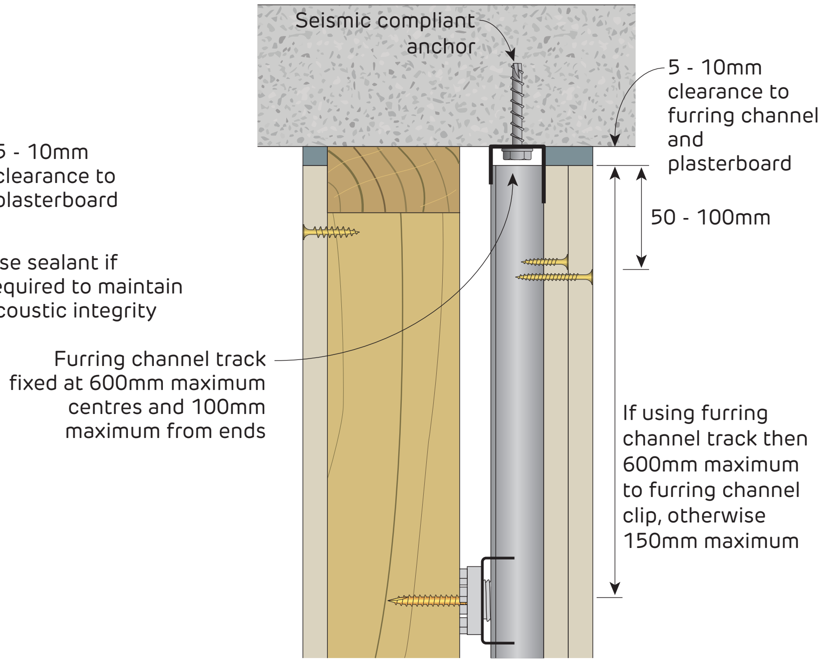



**FIGURE 12** Wall Head with Furring Channel
Section

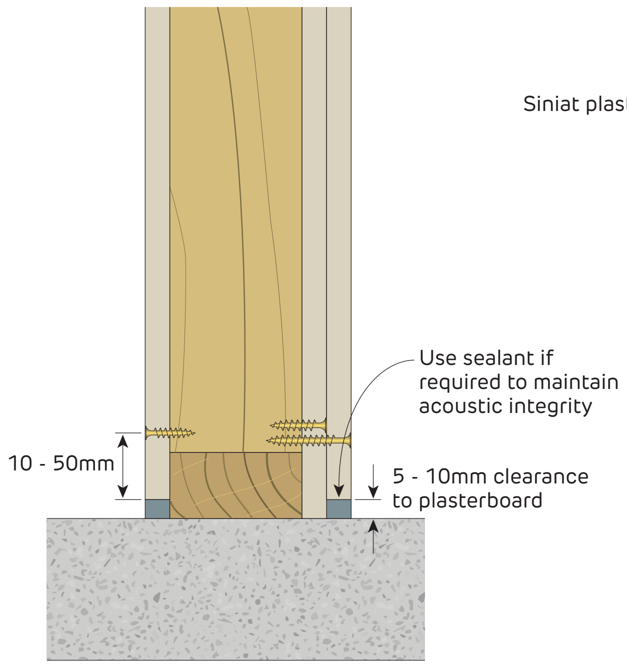



**FIGURE 13** Wall Base
Section

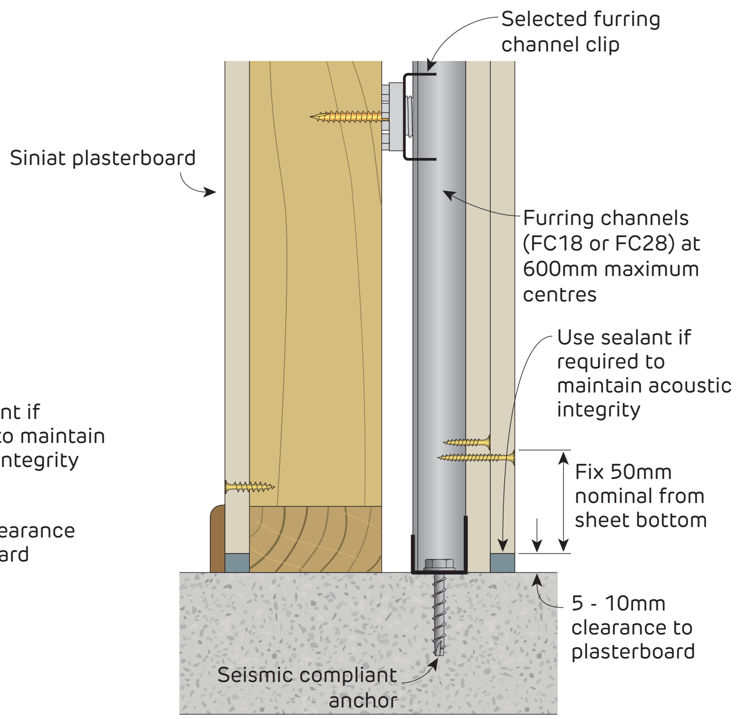



**FIGURE 14** Wall Base with Furring Channel
Section

## Fire Rated
## Head and Base Details for Timber Stud Walls

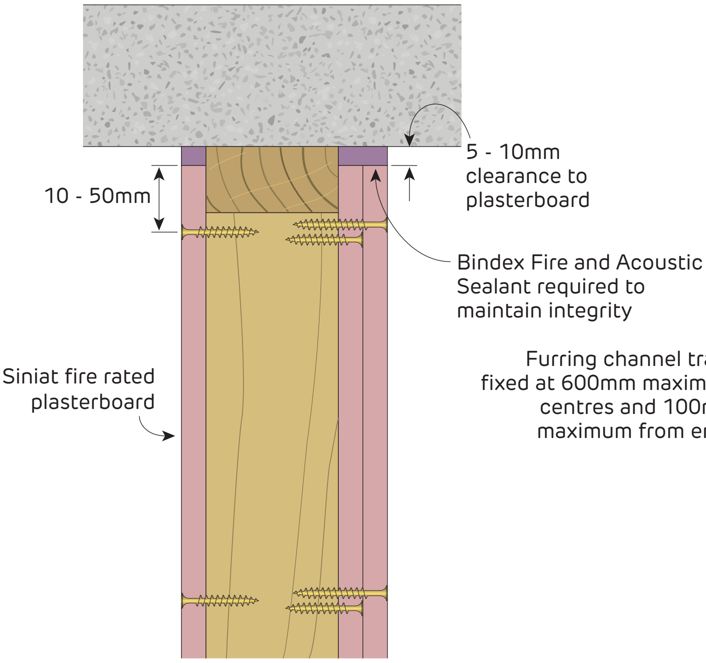



**FIGURE 15** Wall Head
Section

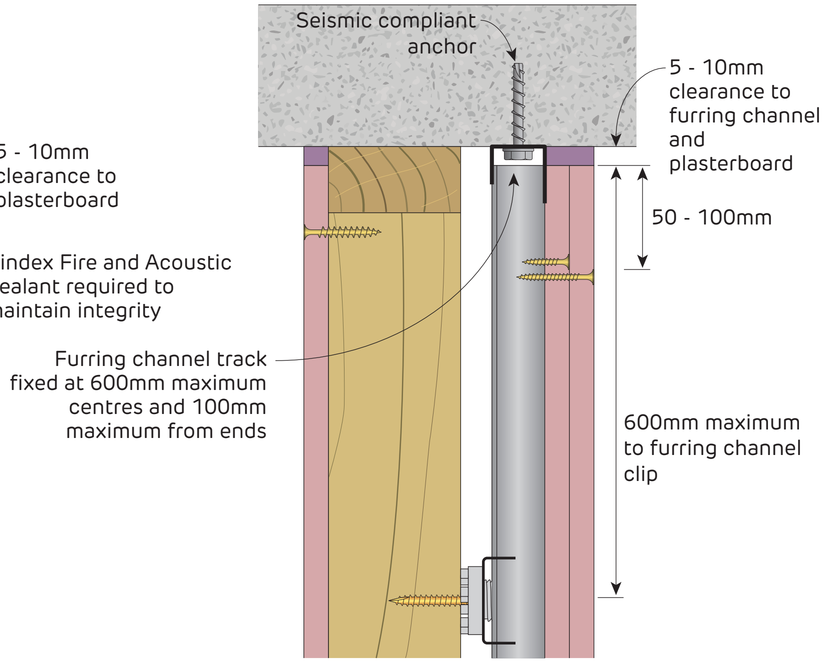



**FIGURE 16** Wall Head with Furring Channel
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

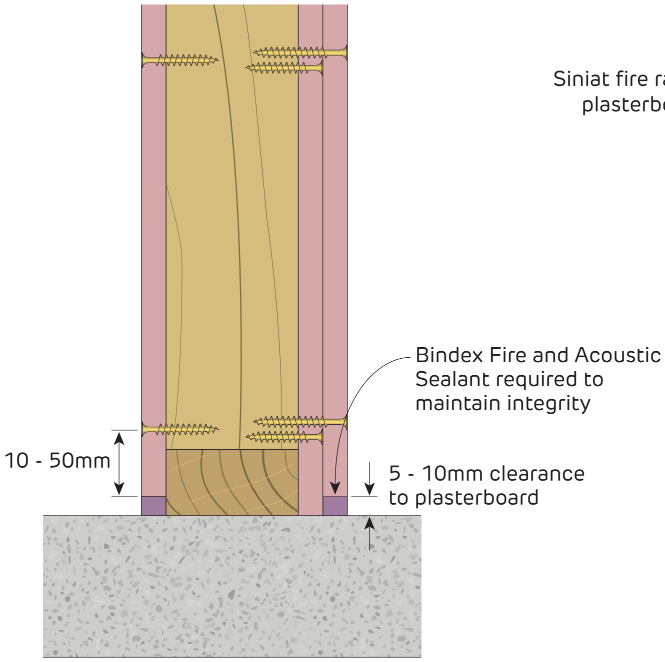



**FIGURE 17** Wall Base
Section

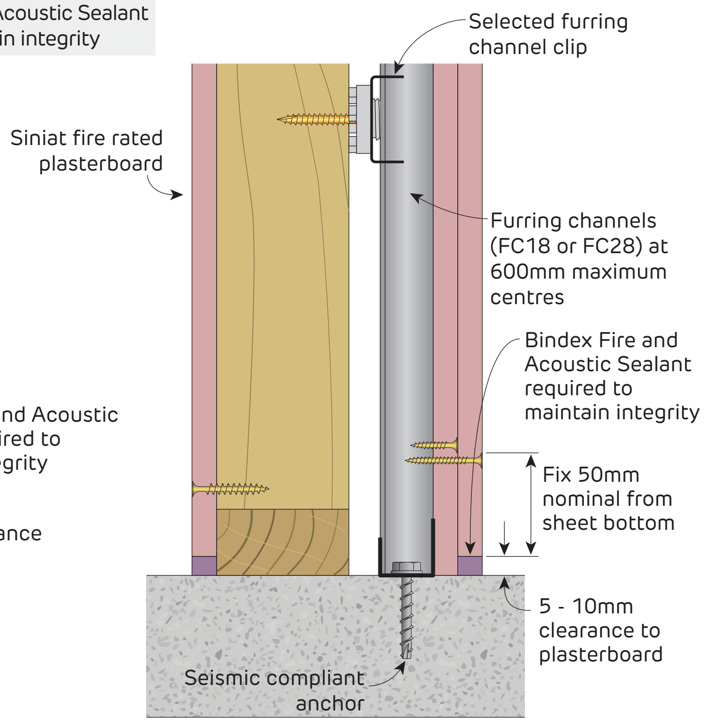



**FIGURE 18** Wall Base with Furring Channel
Section

# Fire Rated
# Internal Stud Walls

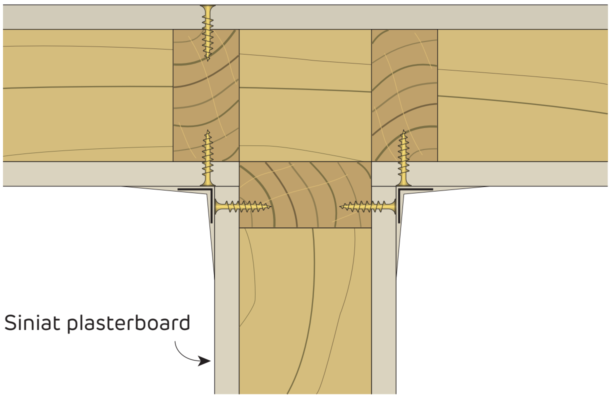



**FIGURE 19** Intersecting Wall
Plan

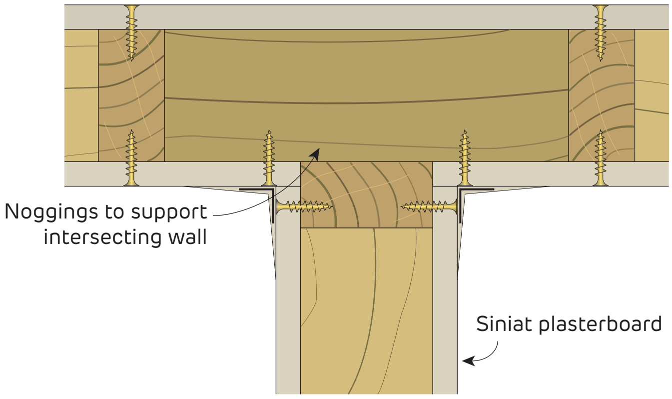



**FIGURE 20** Intersecting Wall
Plan

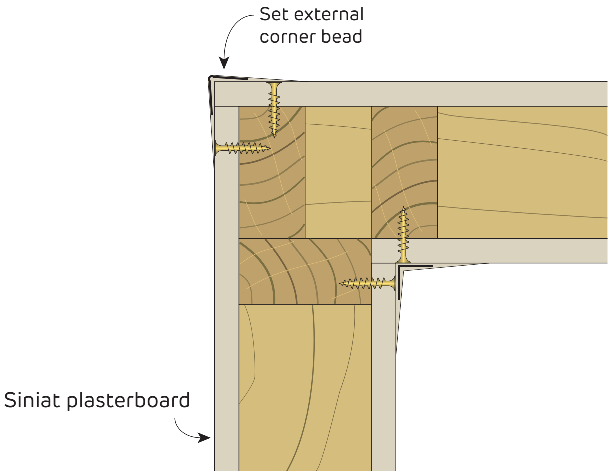



**FIGURE 21** Corner
Plan

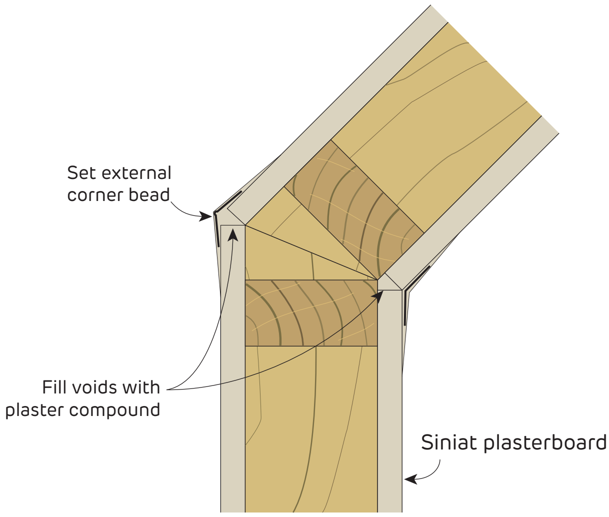



**FIGURE 22** Angled Corner
Plan

## Fire Rated
## Internal Stud Walls

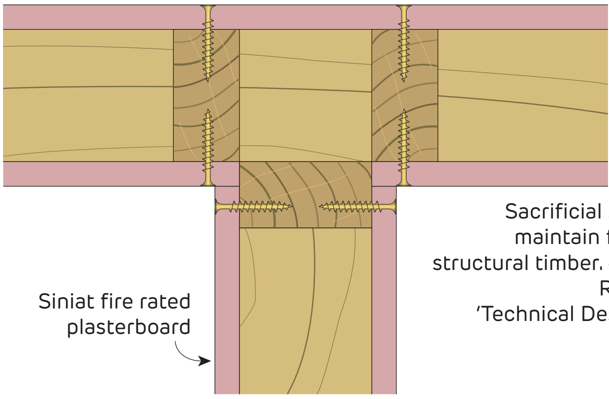



FIGURE 23 **Intersecting Wall**
Plan

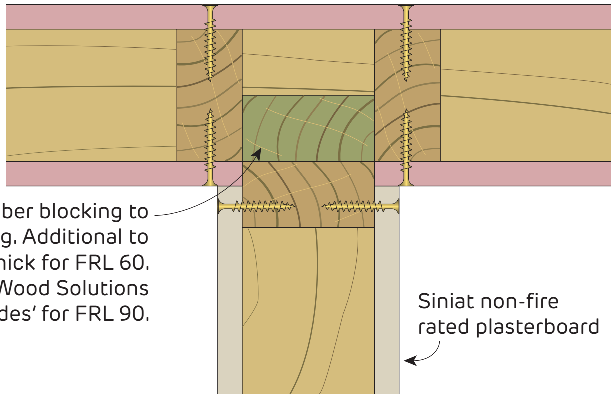



FIGURE 24 **Intersecting Wall**
Plan

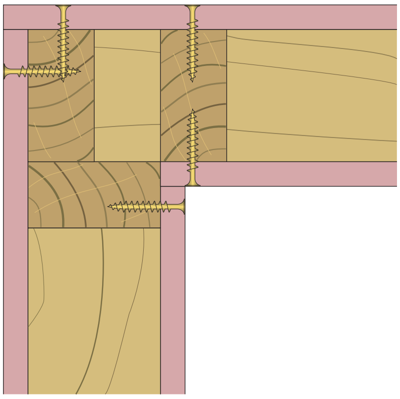



FIGURE 25 **Corner**
Plan

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

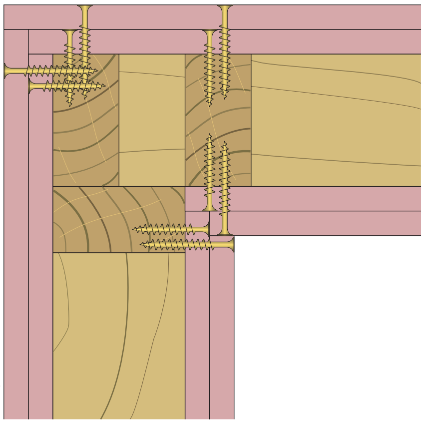



FIGURE 26 **Corner**
Plan

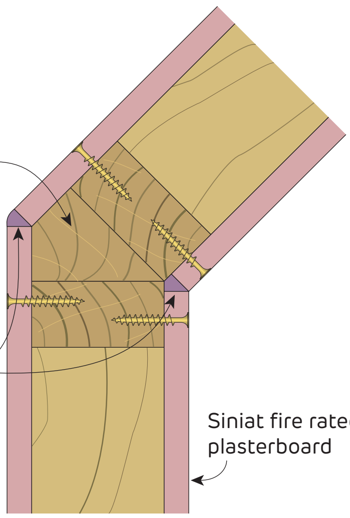
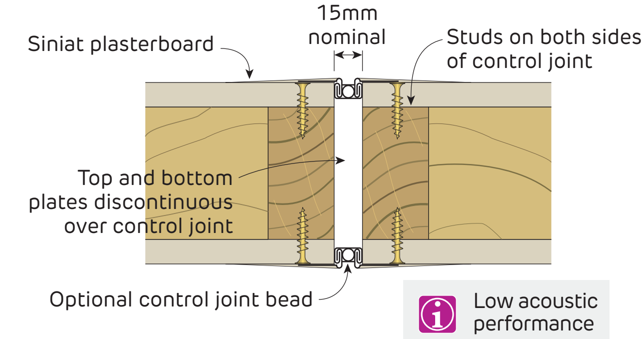



FIGURE 27 **Angled Corner**
Plan

## Fire Rated and Non-Fire Rated Control Joints in Stud Walls




Low acoustic performance

**FIGURE 28 Control Joint**
Plan

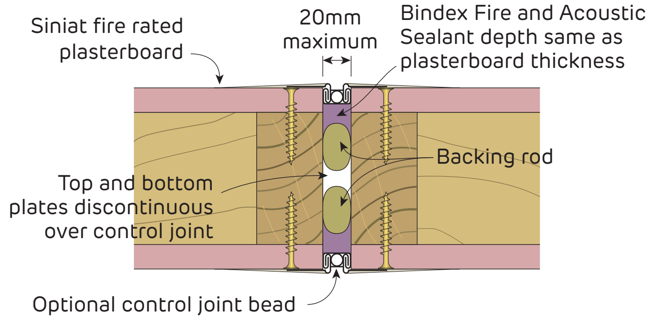



**FIGURE 29 Control Joint**
Fire rated - 1 to 4 layers with control joint bead
Plan

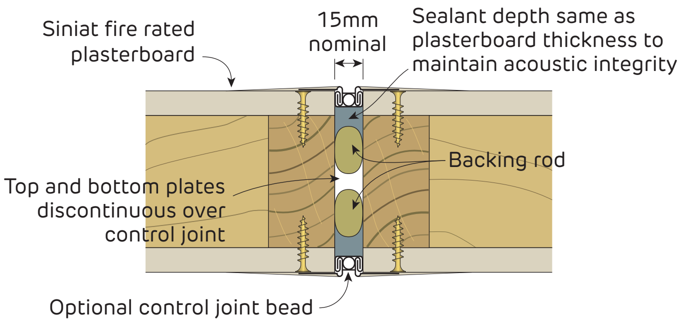



**FIGURE 30 Control Joint**
Plan

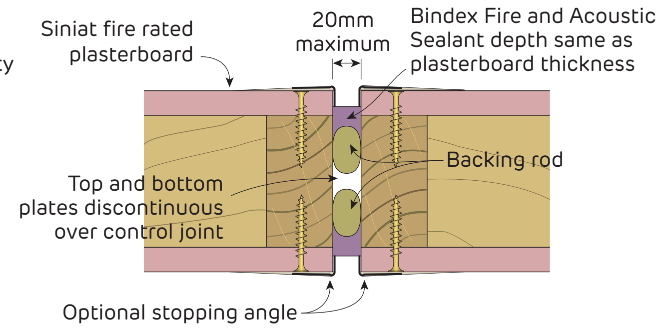



**FIGURE 31 Control Joint**
Fire rated - 1 to 4 layers with stopping angle
Plan

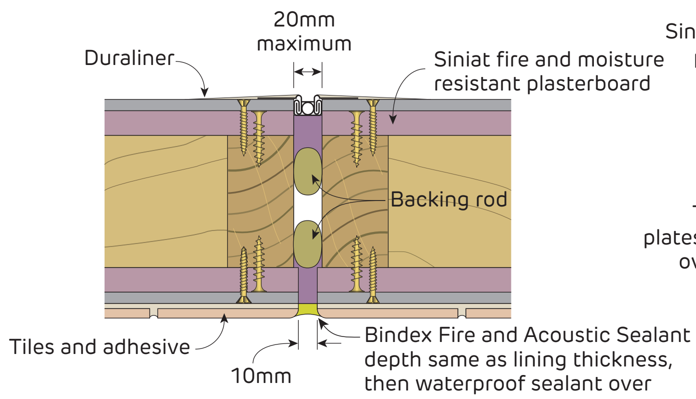



**FIGURE 32 Control Joint**
Fire rated for wet area - 1 to 4 layers
Plan

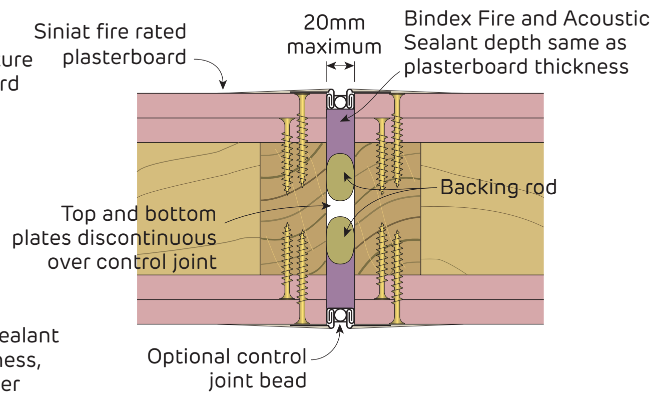



**FIGURE 33 Control Joint**
Fire rated - 1 to 4 layers
Plan

## Fire Rated and Non-Fire Rated Typical Door Jamb Details

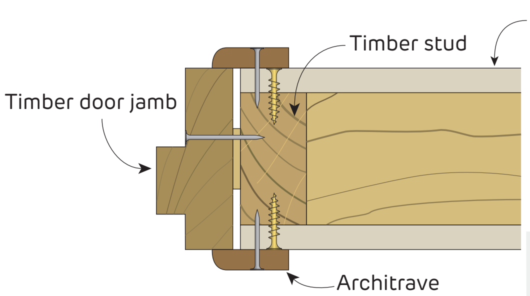



**FIGURE 34** **Typical Timber Door Jamb**
Plan

Refer to door jamb manufacturer for specific installation details

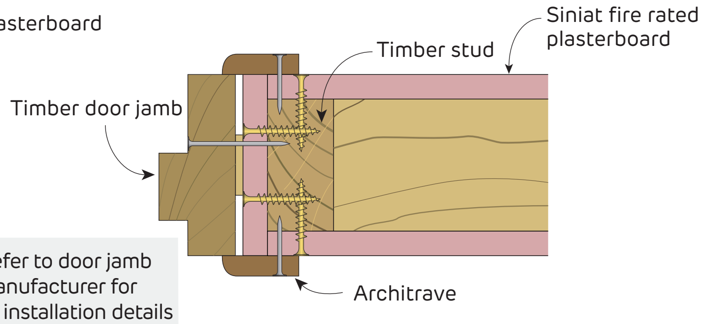



**FIGURE 35** **Typical Fire Rated Door Jamb**
Example only
Plan

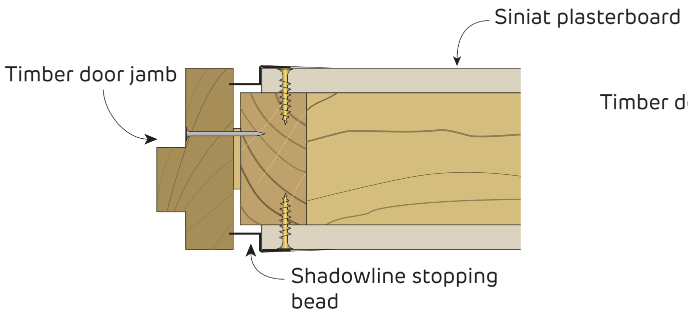



**FIGURE 36** **Typical Timber Door Jamb**
With shadowline stopping bead
Plan

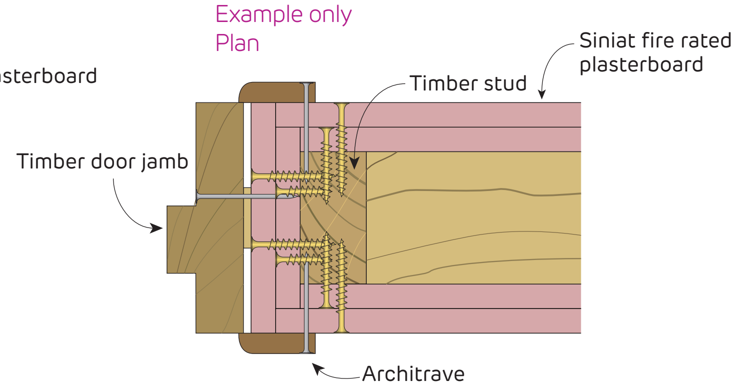



**FIGURE 37** **Typical Fire Rated Door Jamb**
Example only
Plan

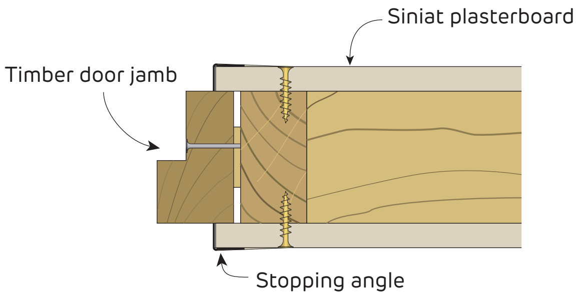



**FIGURE 38** **Typical Timber Door Jamb**
With stopping angle
Plan

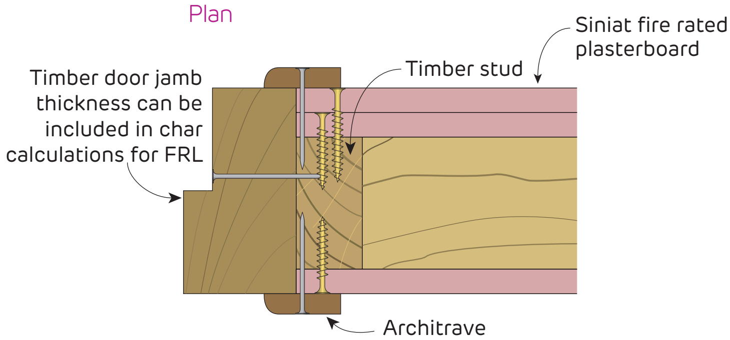
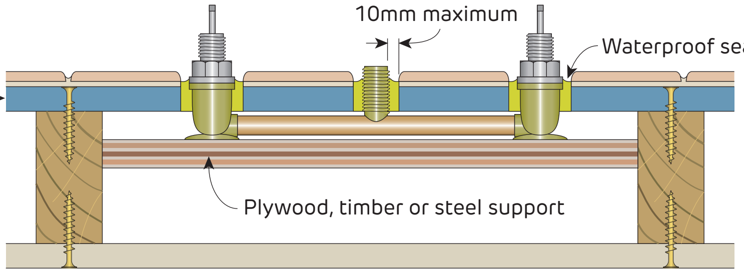



**FIGURE 39** **Typical Fire Rated Door Jamb**
Example only
Plan

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

## Fire Rated and Non-Fire Rated
## Plumbing Penetration Details Timber Stud Walls




Isolate copper and brass fitting from steel framing.

**FIGURE 40** Plumbing Penetrations
Plan

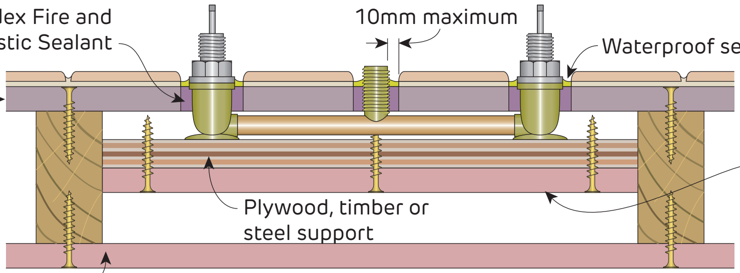



**FIGURE 41** Plumbing Penetrations
FRL -/60/60
Fire rated single layer systems - Plan

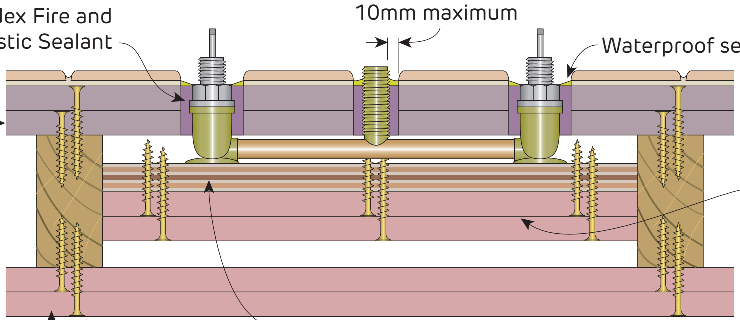



**FIGURE 42** Plumbing Penetrations
FRL -/120/120
Fire rated double layer system - Plan

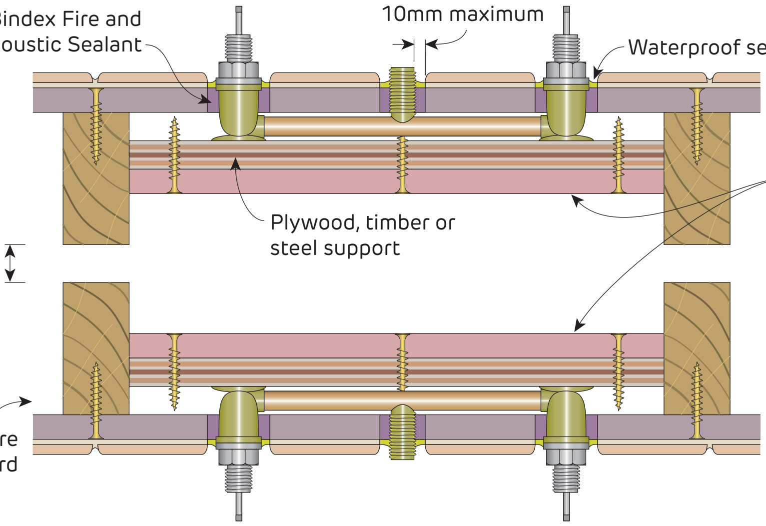



**FIGURE 43** Plumbing Penetrations
FRL -/60/60
Fire rated single layer systems - Plan

## Fire Rated
## Plumbing Penetration Details Timber Stud Walls

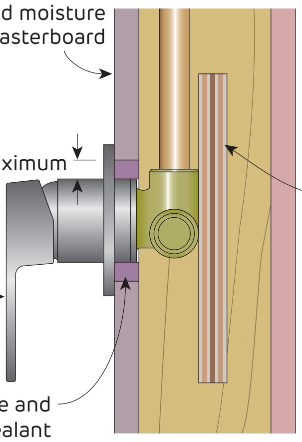



**FIGURE 44** **Plumbing Penetration**
FRL -/60/-
Fire rated single layer systems - Section

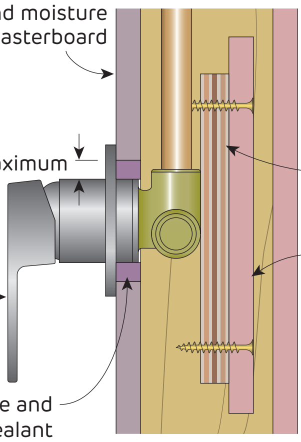



**FIGURE 45** **Plumbing Penetration**
FRL -/60/60
Fire rated single layer systems - Section

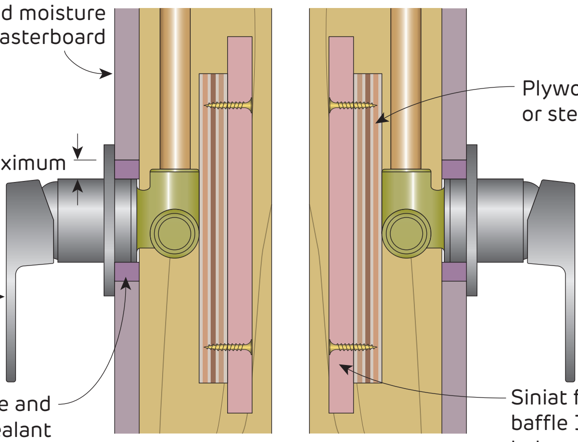



**FIGURE 46** **Back-to-back Plumbing Penetration**
FRL -/60/60
Fire rated single layer systems - Section

Fire rated details on this page only apply to brass, copper, and steel mixer taps and tap sets.

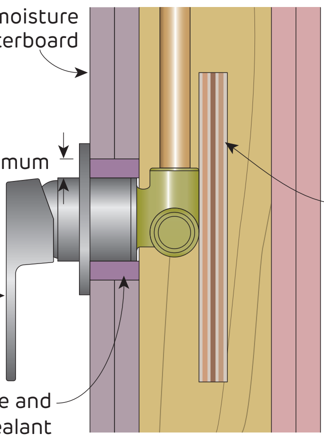



**FIGURE 47** **Plumbing Penetration**
FRL -/120/-
Fire rated double layer systems - Section

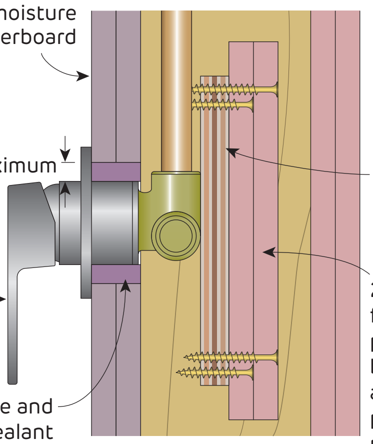



**FIGURE 48** **Plumbing Penetration**
FRL -/120/120
Fire rated double layer systems - Section



# 3.4 Internal Wet Areas using Plasterboard

*Australian Standard AS 3740:2021 - Waterproofing of domestic wet areas* defines a wet area as an area within a building supplied with water from a water supply system and includes bathrooms, showers, laundries and sanitary compartments.

Waterproofing of wet area walls may be achieved by using water resistant plasterboards such as **water**shield, **multi**shield, **tru**rock or **tru**rock hd. Wet area ceilings may be non-water resistant plasterboard.

This section contains:

- Installation instructions for wet area walls
- Waterproofing treatment methods over plasterboard walls
- Construction details for wet areas.

Some elements of wet area installation will be carried out by a plasterer, and other elements will be completed by trades such as plumbers and tilers. All waterproofing must be carried out by an approved applicator [Refer to Section 2.3 for more information on wet areas].

# Definitions

### Waterproof Membrane

Waterproof membranes are a layer of material impervious to water that are usually liquid applied. They must comply with *AS/NZS 4858:2004, Wet Area Membranes* and be applied according to the manufacturer's instructions.

### Flashing

Flashing is a strip or sleeve of impervious material such as metal angle, or a liquid applied product such as a waterproof membrane. It must provide a barrier to moisture movement.

### Shower Area

Shower areas consist of enclosed and unenclosed areas:

> Unenclosed shower areas extend 1500mm horizontally from the shower connection on the wall, up to a height of 1800mm from the finished floor.

> Enclosed shower areas are bounded by walls or screens up to a height of 1800mm from the finished floor. Walls or screens include hinged or sliding doors that control the spread of water to within the enclosure.

A shower fitted with a frameless glass shower screen or screen over a bath less than 1500mm long is not an enclosed shower.

# Wet Area Requirements

Different wet areas require different levels of treatment to protect them from moisture.

**Table 1** Wet Area Installation Requirements

| Area | Level of Risk | Walls | Junctions | Penetrations+ |
|---|---|---|---|---|
| Shower area including with integrated bath and niches | High | Waterproof | Waterproof | Waterproof |
| Bathrooms | Medium | - | Waterproof ^ | - |
| Areas adjacent to inserted baths and spas | Medium | Waterproof to 150mm high | Waterproof | Waterproof * |
| Walls adjoining other vessels such as sinks, basins and laundry tubs | Low | Water resistant to 150mm high | Waterproof | Waterproof * |
| Laundries and WC's ^ | Low | - | Water resistant with waterproof sealant | Waterproof |
| Bathrooms and laundries requiring a floor waste | High | - | Waterproof ^ | Waterproof |

+ Including mechanical fixings or fasteners.
^ WC's with handheld bidet spray require further waterproofing.
* Horizontal surface waterproof, vertical surface water resistant.

# Waterproofing Systems

| **Waterproof Walls** |
|---|
| Use **water**shield, **multi**shield, **tru**rock or **tru**rock hd covered with a waterproof membrane and tiles. |
| For all plasterboard joints, corners and fastener heads use masta**base** or masta**longset**. |
| [Refer to waterproof membrane manufacturer for application instructions] |
| **Water Resistant Walls** |
| Use **water**shield, **multi**shield, **tru**rock or **tru**rock hd covered with a tiles. |
| For all plasterboard joints, corners and fastener heads use masta**base** or masta**longset**. |
| **Waterproof Penetrations** |
| Use a waterproof sealant or a proprietary flange system to waterproof penetrations. |

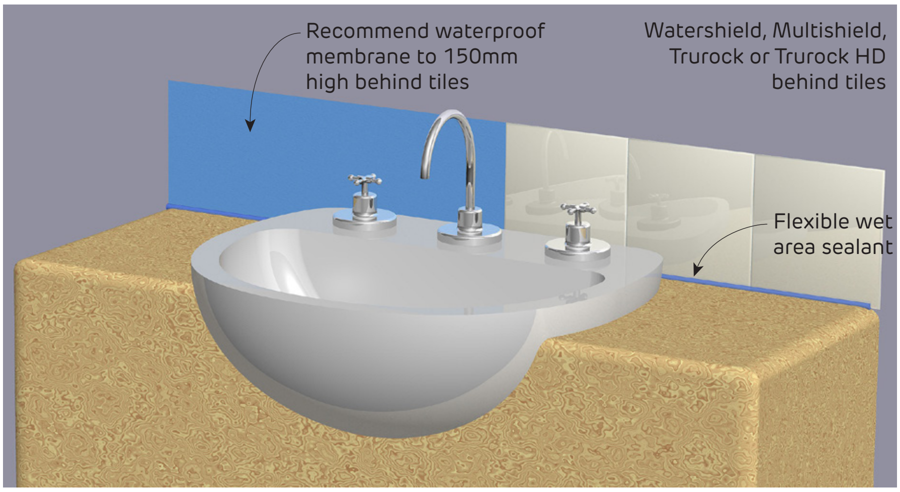



**FIGURE 1** Basin

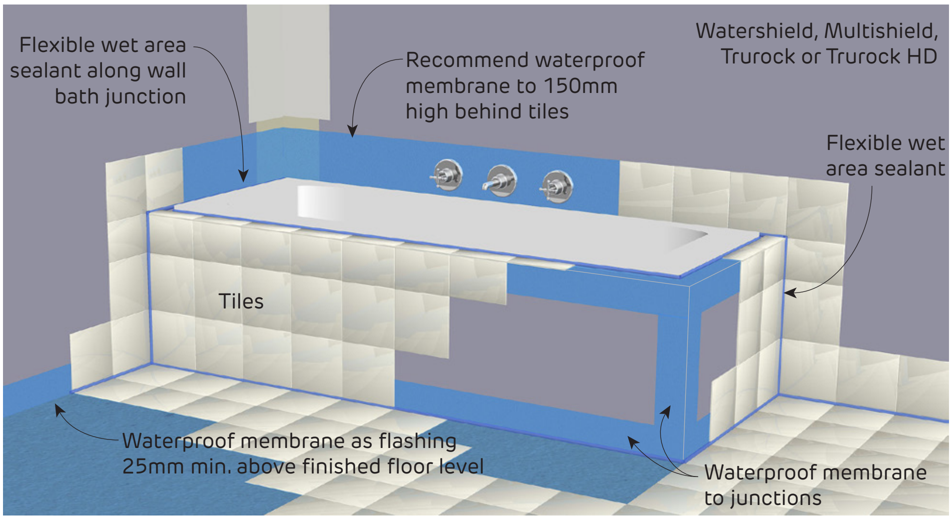



**FIGURE 2** Bath (without shower) installation on timber flooring

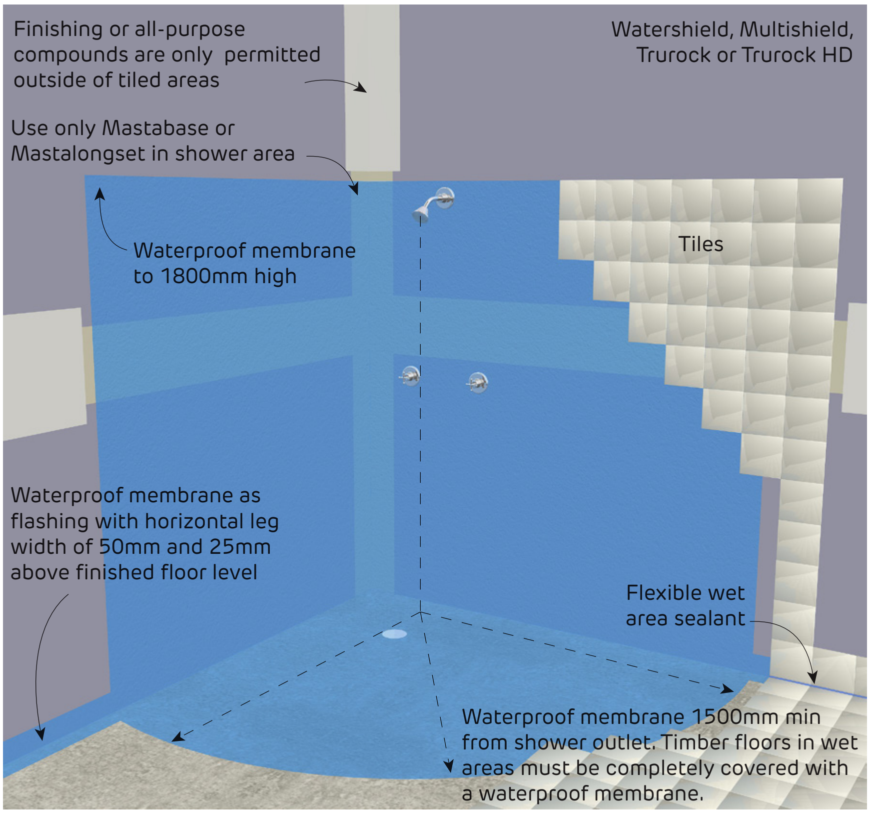



**FIGURE 3** **Internal in situ tray for unenclosed shower**
On concrete or compressed fibre cement floor

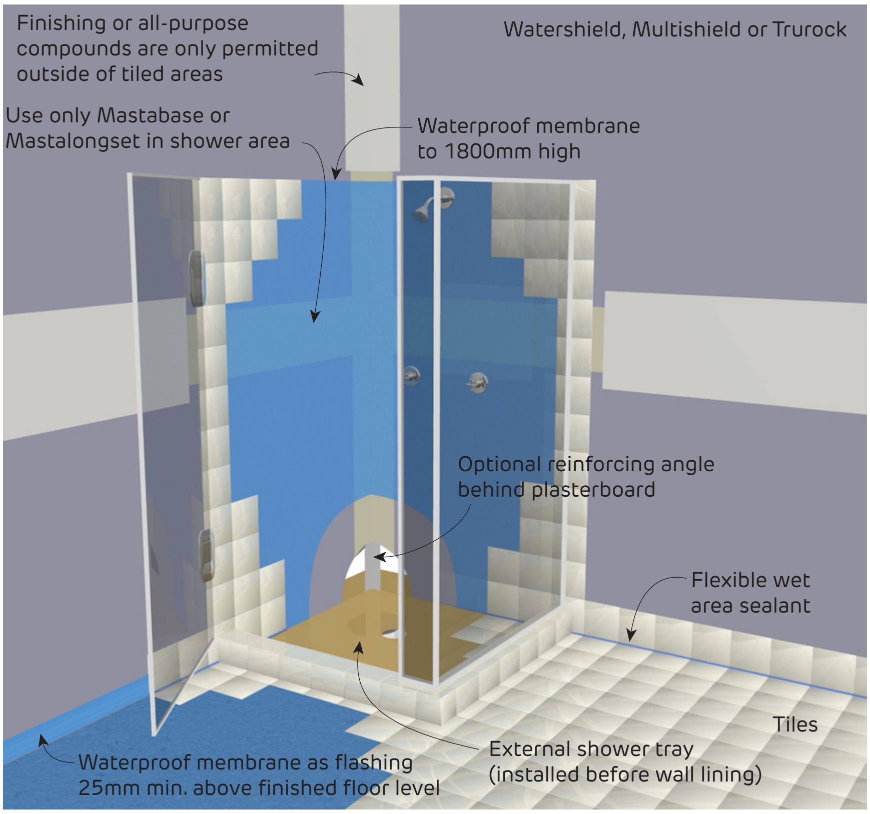



**FIGURE 4** **External tray for enclosed shower**
On timber flooring

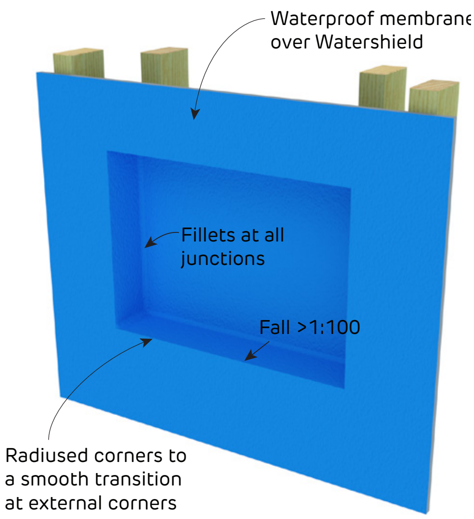



**FIGURE 5** **Shower Niche**

Refer to proprietry waterproof membrane manufacturer for specific application instructions

Internal linings of niches shall be separated from any wall linings on the opposite side of the wall

# General Requirements

| |
|---|
| For **water**shield refer to Section 3.1 non-fire rated requirements. |
| Waterproof all cut edges of **water**shield, **multi**shield, **tru**rock or **tru**rock hd that may be affected by moisture, including all penetrations and the bottom edge over a preformed shower base. |
| Only use paper tape and masta**base** or masta**longset** for jointing in tiled areas to strengthen the joint and provide a continuous surface for the waterproof membrane. |
| Recess pre-formed shower bases, baths and spas sufficiently into the wall to allow the tiles to pass down the inside perimeter rebate of the shower base [Refer to Construction Details]. |
| After the installation of tiles, apply a waterproof sealant to all wall/floor junctions and vertical corner joints. |

> Masonry adhesive and stud adhesive are not permitted in tiled areas

> Frame movement should be limited at junctions in high risk areas such as showers. For this purpose use a minimum 35x35mm x 0.7mm BMT steel backing angle fixed to the frame in internal corners.

# Framing

| |
|---|
| For internal steel framed walls refer to Section 3.1. For internal timber walls refer to Section 3.3. |
| For masonry walls lined with moisture resistant plasterboard and tiles, use the furring channel method. Refer to Section 3.4 |

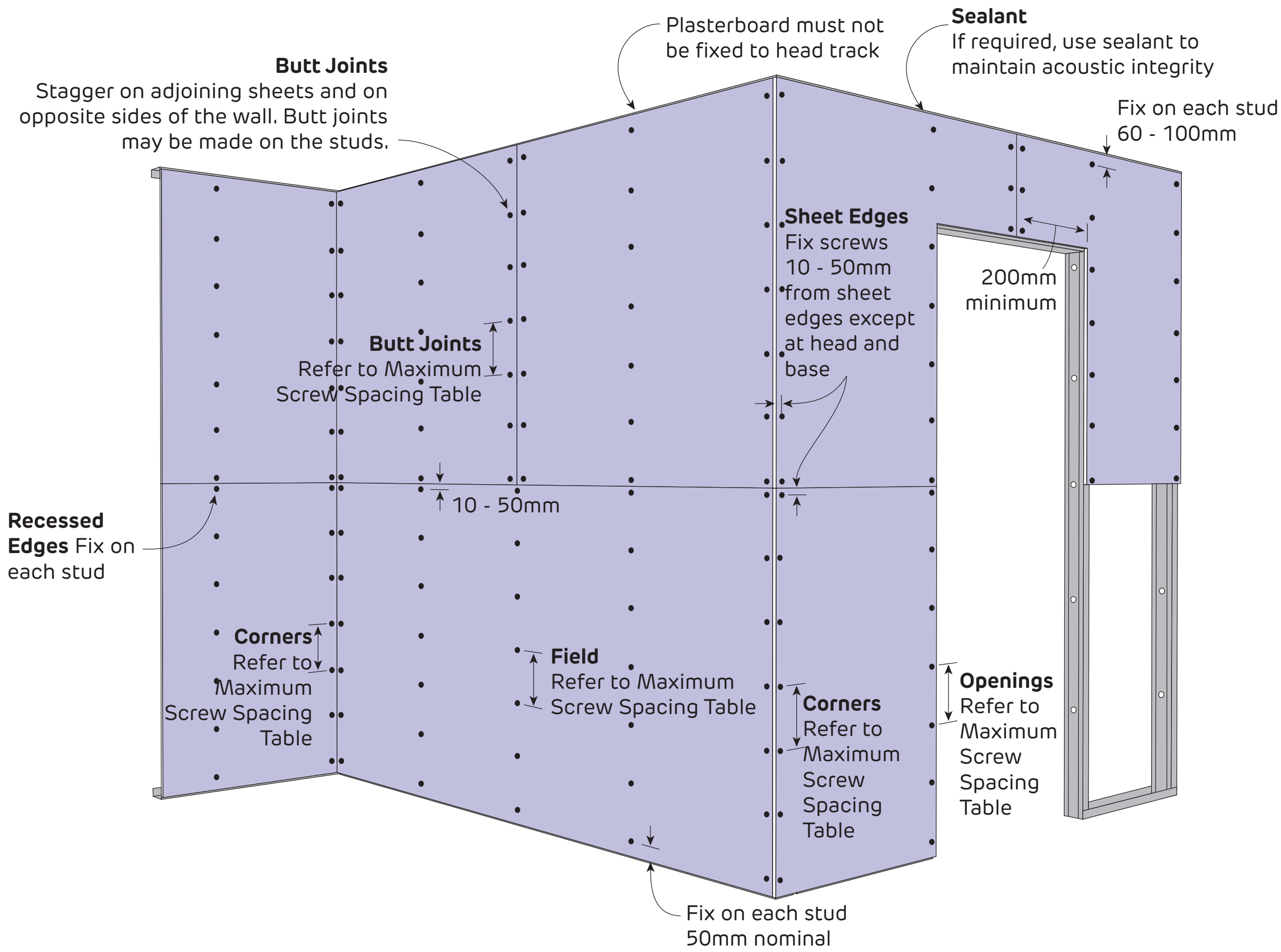
# Plasterboard Layout

| |
|---|
| For **water**shield refer to Section 3.1 or 3.2 non-fire rated requirements. |
| For **multi**shield, **tru**rock or **tru**rock hd refer to Section 3.1 or 3.2 fire rated requirements. |

# Plasterboard Fixing

| |
|---|
| Use the 'Screw Only Method' in tiled or fire rated areas. Masonry adhesive is not permitted. |
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. |
| Laminating screws can be used to fix butt joints in the second and third layer. |
| Tiles weighing up to 22 kg/m² (porcelain 9mm thick) may be installed when fasteners are spaced at 200mm maximum centres. |
| Tiles weighing from 22 to 32 kg/m² may be installed when fasteners are spaced at 200mm maximum centres on studs at 450mm centres, or fasteners spaced at 100mm centres on studs at 600mm maximum centres. |
| The internal lining of niches shall be separated from any wall lining on the opposite side of the wall. |

**FIGURE 6 Tiled Areas 1 Layer - Horizontal**
Screw Only Method




## Maximum Screw Spacing Table For Wet Area Walls (mm)

| Tile Weight | Internal Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| Up to 22 kg/m² (9mm porcelain) | 200 | 200 | 200 | 200 |
| Up to 32 kg/m² (13mm porcelain) | 100 | 200 | 200 | 200 |

## Fixing Pattern Table

| Sheet Width | Fixing Pattern for Screws at 200mm maximum | Fixing Pattern for Screws at 100mm maximum |
|---|---|---|
| 600mm | S S S S (4) | S S S S S S S (7) |
| 900mm | S S S S S S (6) | S S S S S S S S S S (10) |
| 1200mm | S S S S S S S (7) | S S S S S S S S S S S S S (13) |
| 1350mm | S S S S S S S S (8) | S S S S S S S S S S S S S S (14) |
| 1400mm | S S S S S S S S (8) | S S S S S S S S S S S S S S S (15) |

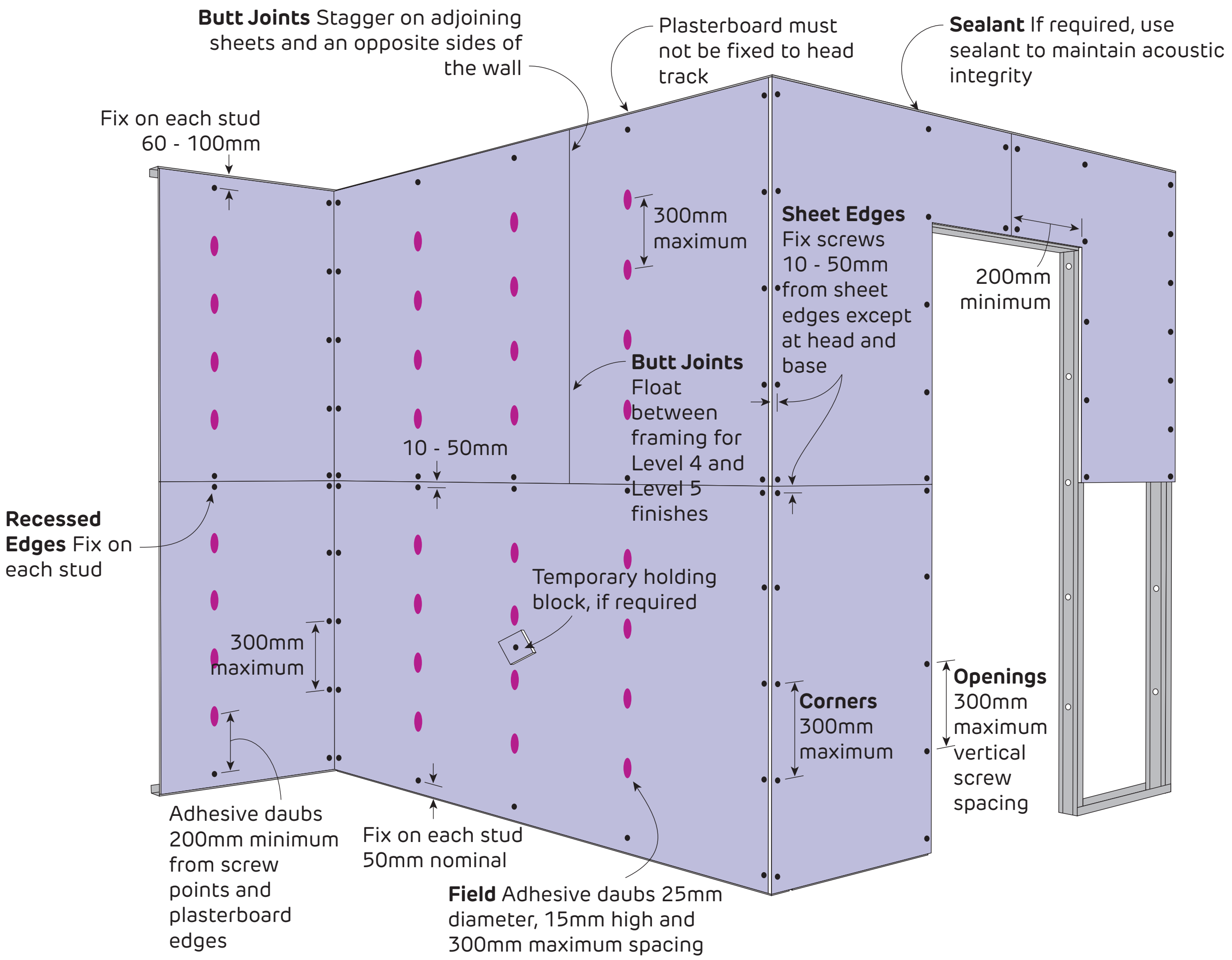
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 1.27 | 1.7 | 1.91 | 2.55 |
| 13mm | 1.42 | 1.89 | 2.13 | 2.84 |
| 16mm | 1.42 | 1.89 | 2.13 | 2.84 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 7** **Untiled Areas 1 Layer - Horizontal**
Screw and Adhesive Method




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S A A S |
| 900mm | S A A A S |
| 1200mm | S A A A A S |
| 1350mm | S A A A A A S |
| 1400mm | S A A A A A S |

S = Screw
A = Adhesive daub

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 1.00 | 1.33 | 1.50 | 2.00 |
| 13mm | 1.00 | 1.33 | 1.50 | 2.00 |
| 16mm | 1.00 | 1.33 | 1.50 | 2.00 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

## Non-Fire Rated
## Shower Wall Details

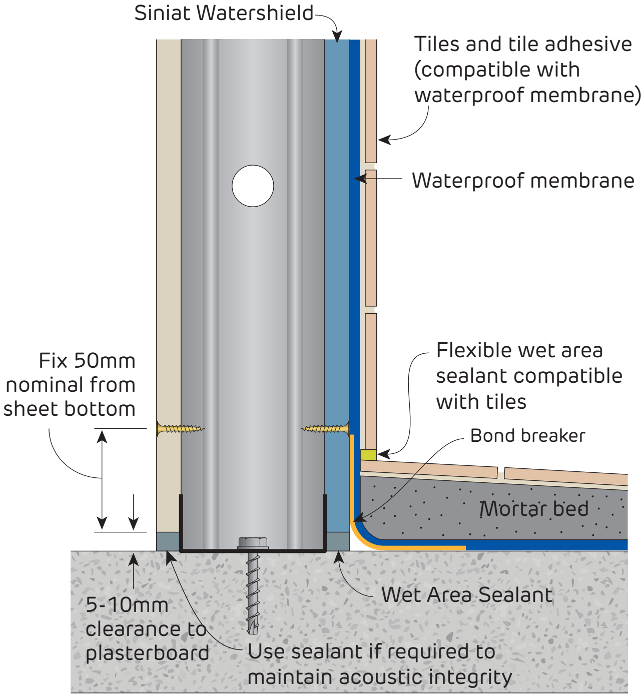



**FIGURE 8 Shower Base**
Class 2 membrane shown - Section

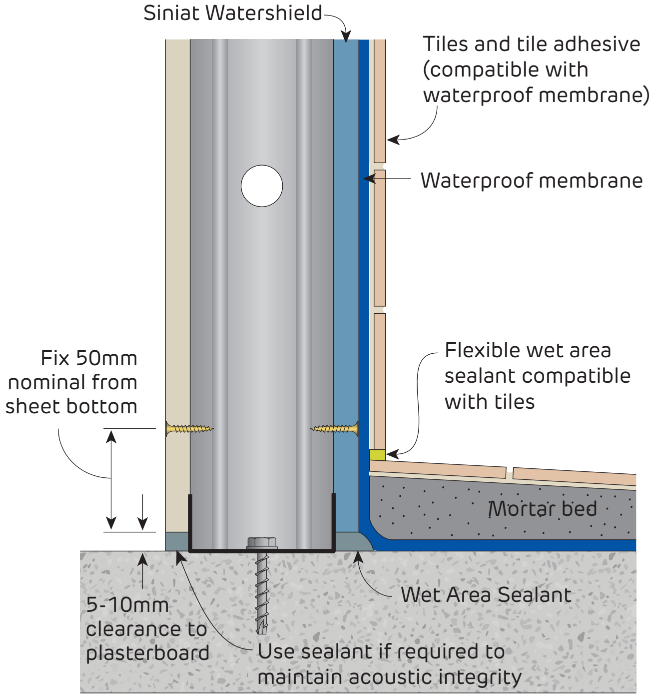



**FIGURE 9 Shower Base**
Class 3 membrane shown - Section

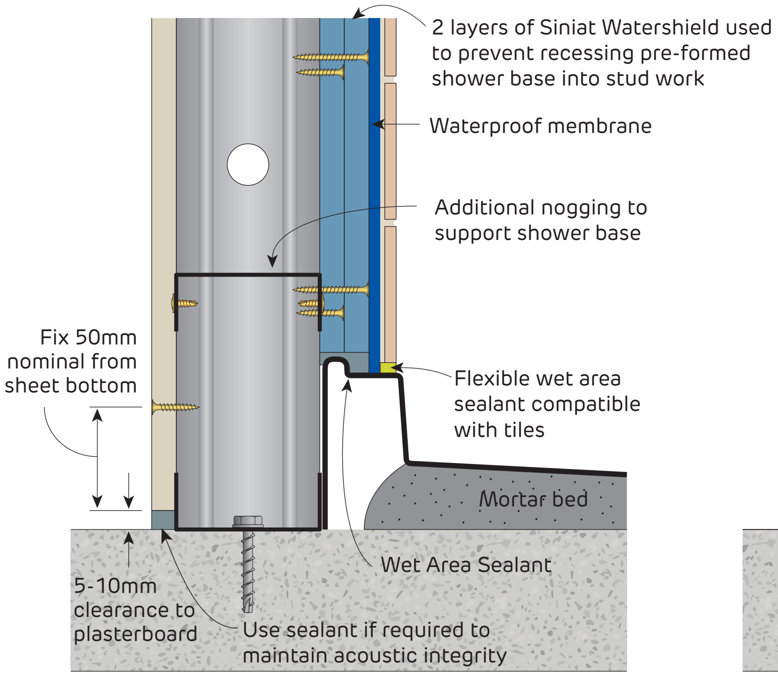



**FIGURE 10 Shower Base**
Pre-formed shower tray - Section

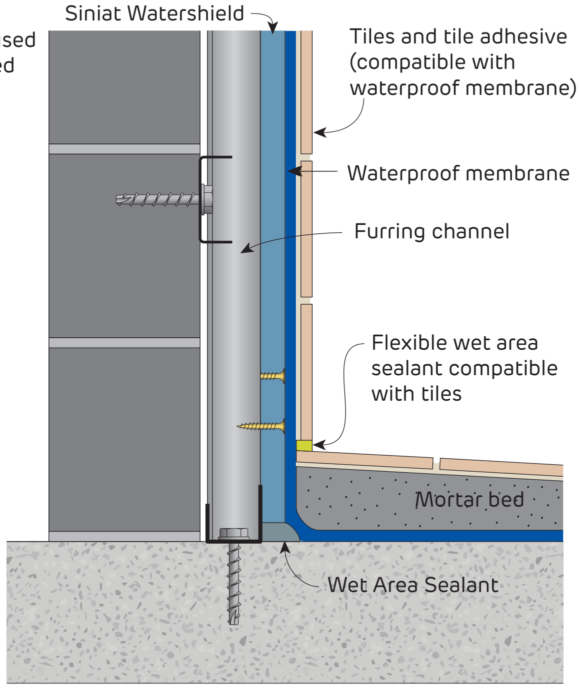



**FIGURE 11 Shower over Masonry Wall**
Class 3 membrane shown - Section

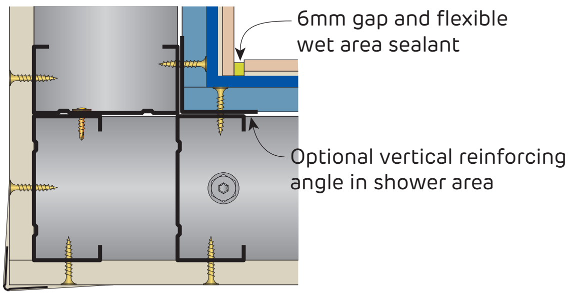



**FIGURE 12 Shower Corner**
Plan

Refer to proprietary waterproof membrane manufacturer for specific application instructions.

## Non-Fire Rated
## Bath Details

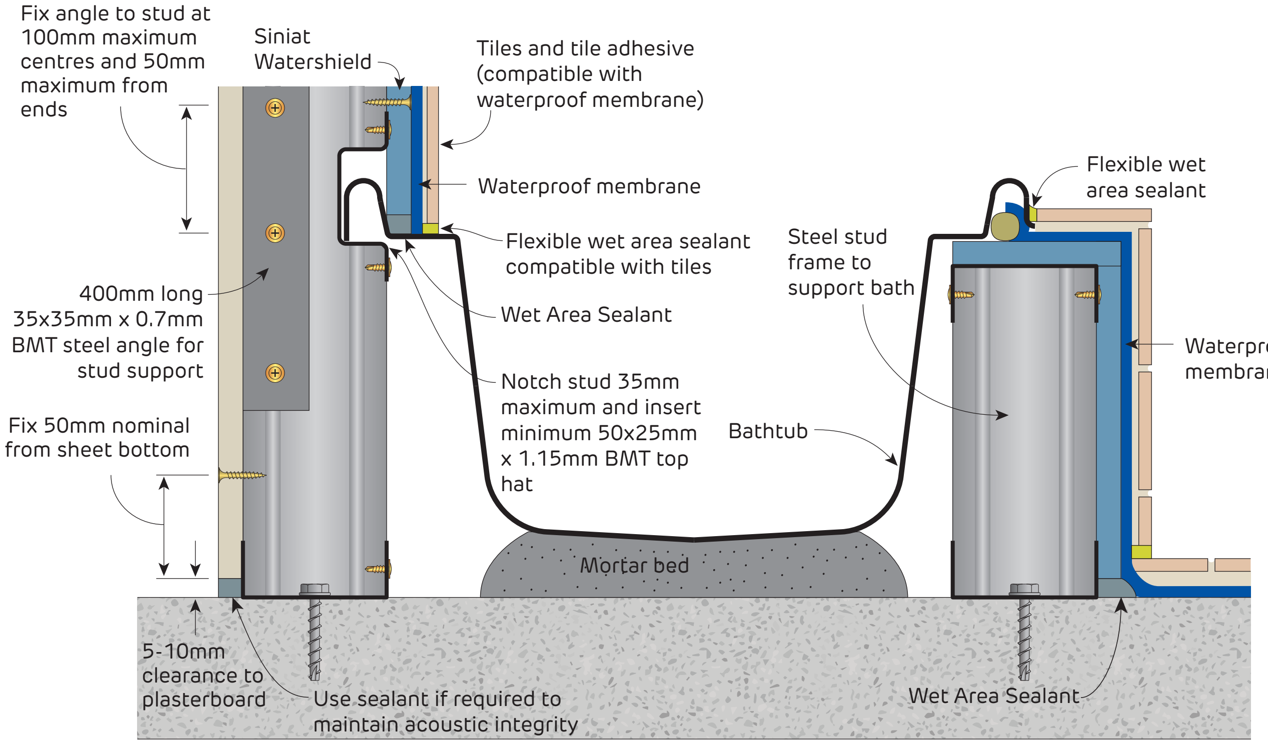



**FIGURE 13** Bathtub
Section

Refer to proprietary waterproof membrane manufacturer for specific application instructions.

## Non-Fire Rated
## General Wet Area Details

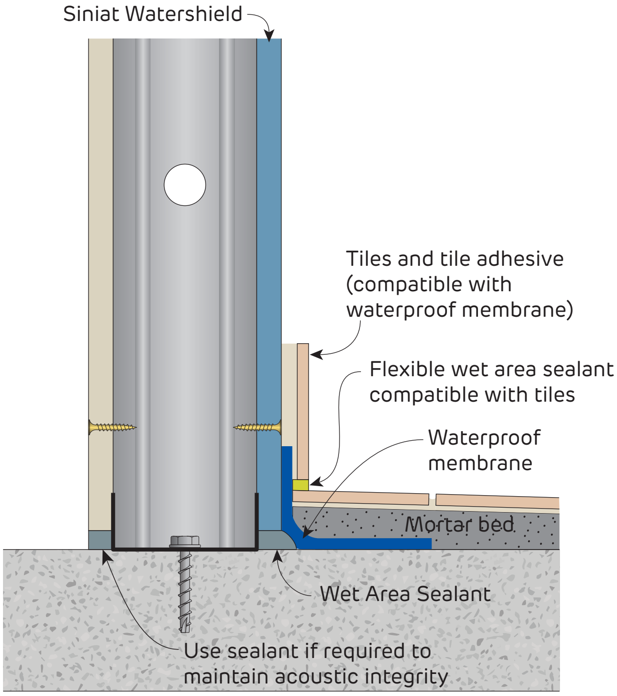



**FIGURE 14** Wall Base in General Wet Area
Outside shower - Class 3 membrane shown
Section

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated
## Shower Wall Details

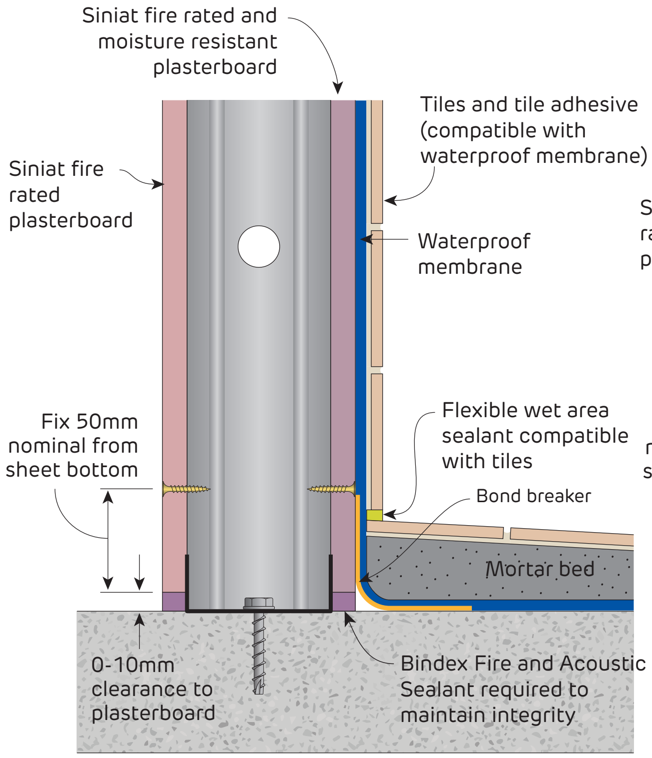



**FIGURE 15 Shower Base**
Class 2 membrane shown - Section

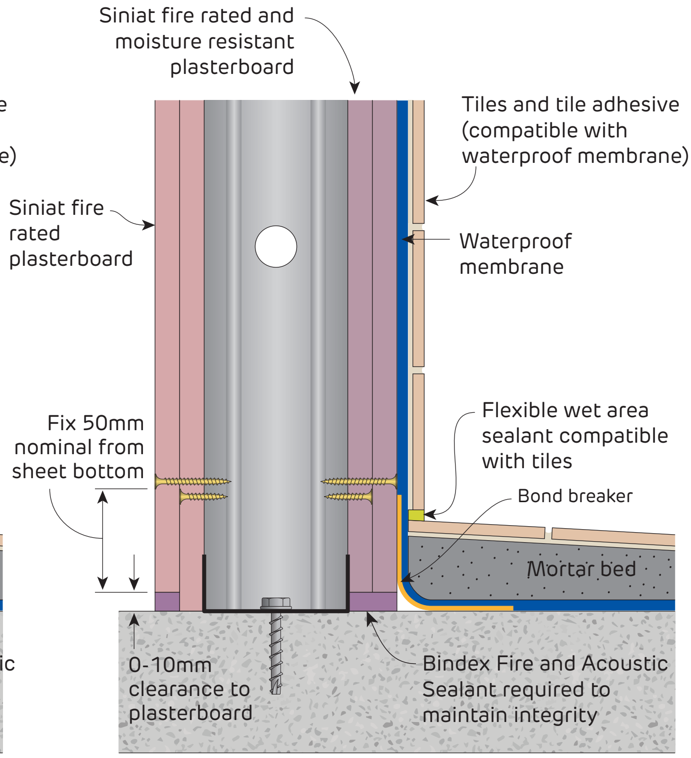



**FIGURE 16 Shower Base**
Class 2 membrane shown - Section

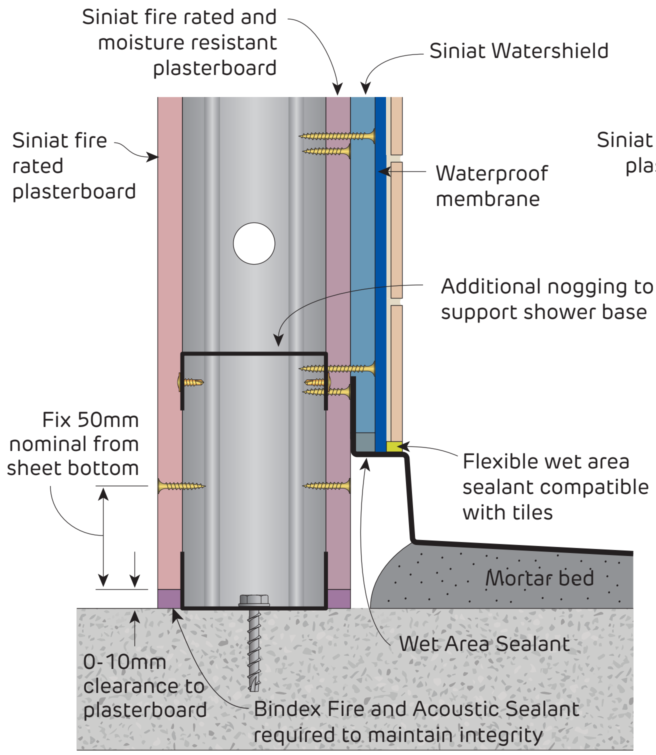



**FIGURE 17 Shower Base**
Pre-formed shower tray with upstand
Section

Refer to proprietary waterproof membrane manufacturer for specific application instructions.

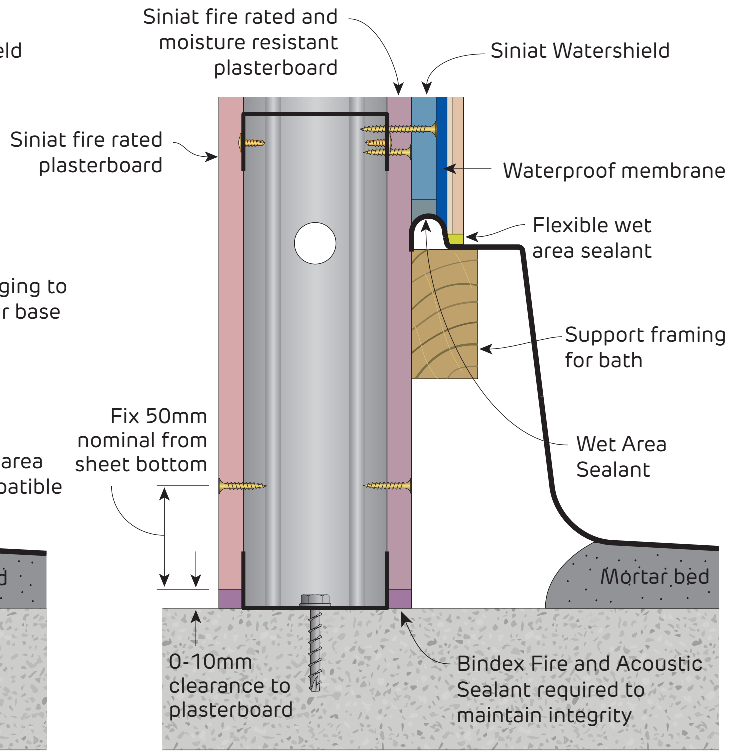



**FIGURE 18 Bathtub**
Section

For fire rated penetration details, refer to Section 3.1 or 3.2



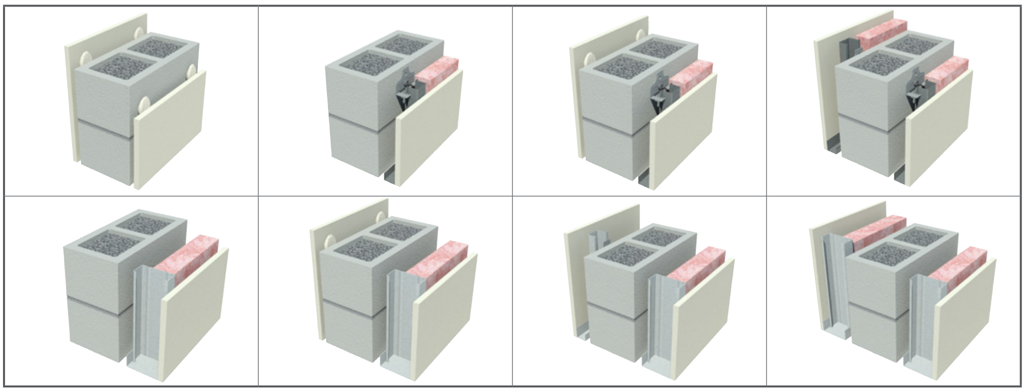
# 3.5 Plasterboard with Masonry Walls

Plasterboard may be installed over masonry walls to create a decorative finish. It removes the need for rendering and may also upgrade the fire and acoustic performance of a wall. Services may be installed in the cavity between the masonry and plasterboard, thus avoiding the chasing of masonry walls.

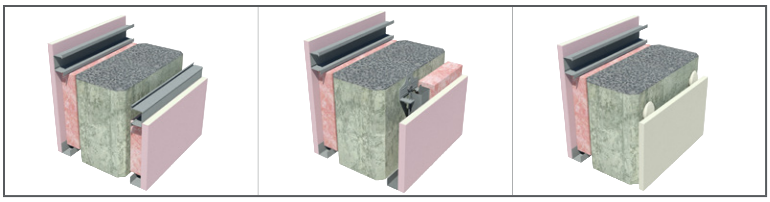
'Masonry' in this manual includes concrete, bricks, blocks, autoclaved aerated concrete (AAC) and concrete filled PVC permanent formwork.

# System Directory

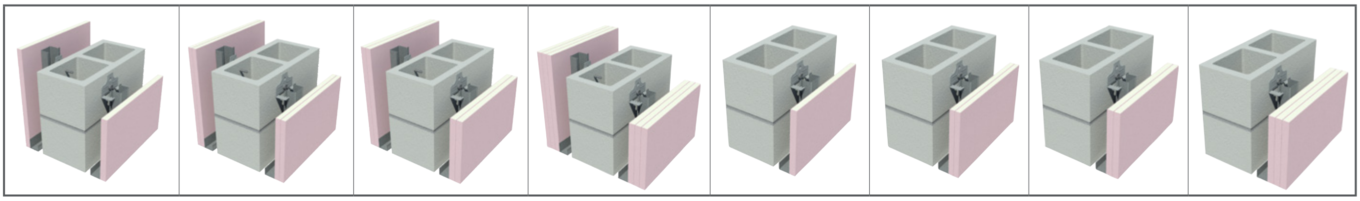
## Acoustic Upgrades with Plasterboard



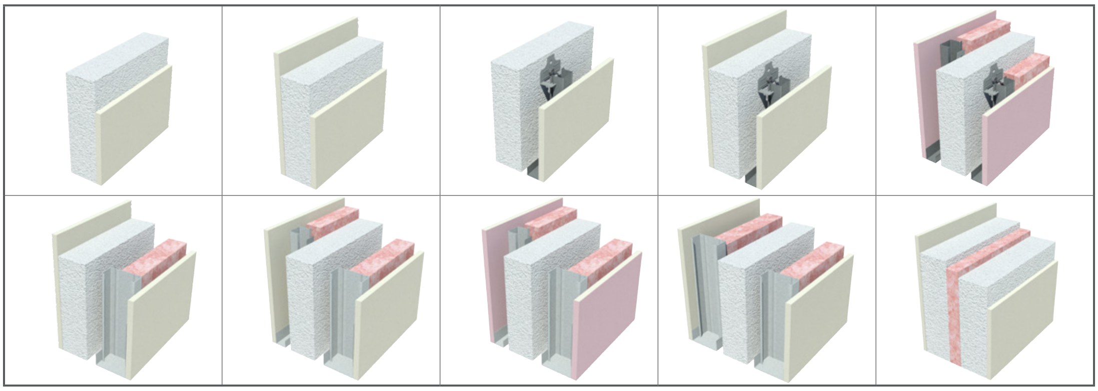
## Blade Column Walls



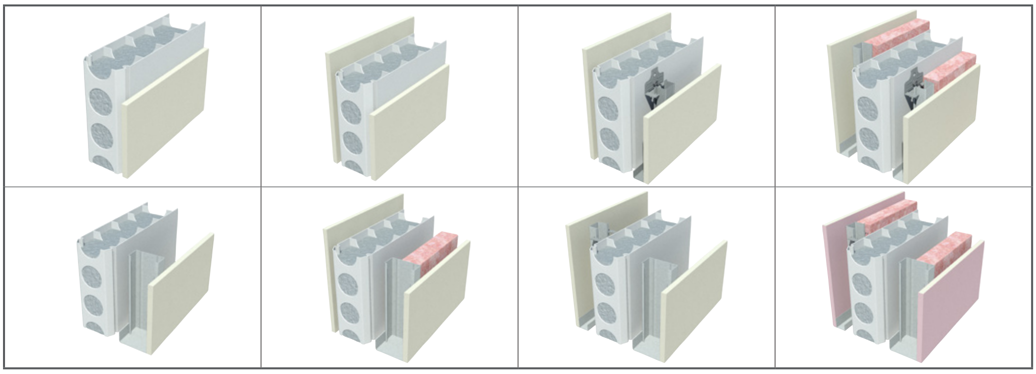
## Fire Upgrades with Plasterboard



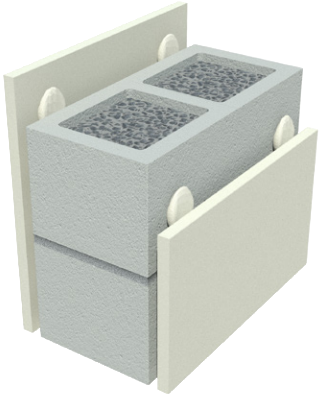
## AAC Systems with Plasterboard



## DINCEL Systems with Plasterboard



## PMW1000



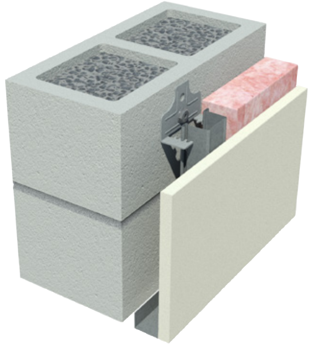
- [Side 1] 1 layer of Plasterboard as specified in table adhered with masta**bond** Masonry Adhesive
- Masonry wall as specified in the table [refer to masonry manufacturer or relevant Australian Standard for FRL]
- [Side 2] 1 layer of Plasterboard as specified in table adhered with masta**bond** Masonry Adhesive

13mm **masta**shield can be substituted with 10mm **opal**, 10mm **sound**shield or 13mm **water**shield

13mm **masta**shield adhered to concrete blocks/concrete with **masta**bond Masonry Adhesive can be left bare, painted or rendered with 13mm render on one side only

| Masonry Type | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|
| | | | No insulation | |
| Minimum 110mm Double Brick with minimum 50mm air-gap<br><br>Minimum laid weight 320 kg/m² | PMW1103 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 53 (48) | Reports<br><br>1021067-R01<br>3094-55<br><br>[1]3094A-7 |
| | PMW1107 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 55 (**50**) | |
| | PMW1111 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 53 (49) | |
| Minimum 140mm unfilled Concrete Block<br><br>Minimum laid weight 180 kg/m² | PMW1453 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 46 (40)[1] | |
| | PMW1457 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 46 (40) | |
| | PMW1461 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 46 (40) | |
| Minimum 140mm core - filled Concrete Block<br><br>Minimum laid weight 280 kg/m² | PMW1153 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 49 (44) | |
| | PMW1157 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 51 (46) | |
| | PMW1161 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 50 (45) | |
| Minimum 190mm unfilled Concrete Block<br><br>Minimum laid weight 220 kg/m² | PMW1503 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 49 (42) | |
| | PMW1507 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 49 (42) | |
| | PMW1511 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 49 (42) | |
| Minimum 190mm core - filled Concrete Block<br><br>Minimum laid weight 280 kg/m² | PMW1203 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 51 (45) | |
| | PMW1207 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 53 (47) | |
| | PMW1211 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 52 (46) | |
| Minimum 150mm Concrete | PMW1253 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 49 (45) | |
| | PMW1257 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 51 (46) | |
| | PMW1261 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 50 (45) | |
| Minimum 200mm Concrete | PMW1303 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 52 (46) | |
| | PMW1307 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 54 (48) | |
| | PMW1311 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 53 (47) | |

## PMW2000

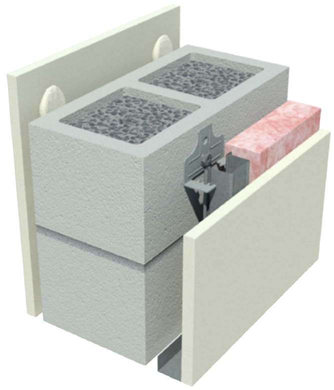


- [Side 1] Left bare
- Masonry wall as specified in the table [refer to masonry manufacturer or relevant Australian Standard for FRL]
- [Side 2] Plasterboard as specified in table fixed to furring channels on clips

13mm **masta**shield can be substituted with 10mm **opal**, 10mm **sound**shield or 13mm **water**shield
13mm **fire**shield can be substituted with 13mm **multi**shield
16mm **fire**shield can be substituted with 16mm **multi**shield
13mm **sound**shield can be substituted with 13mm **impact**shield or 13mm **tru**rock

| Masonry Type | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|---|
| | | | Minimum 30mm cavity with no insulation | Minimum 30mm cavity with Pink® Partition 25mm 24 kg/m³ R0.7 | Minimum 50mm cavity with Pink® Partition 50mm 11 kg/m³ R1.2 | |
| Minimum 140mm unfilled Concrete Block<br>Minimum laid weight 180 kg/m² | PMW2451 | [Side 2] 1 layer of 13mm **masta**shield | 50 (43) | 54 (45) | 57 (47) | Reports<br>1021067-R01<br>4738-13 |
| | PMW2452 | [Side 2] 2 layers of 13mm **masta**shield | 53 (46) | 57 (48) | 60 (**50**) | |
| | PMW2455 | [Side 2] 1 layer of 13mm **sound**shield | 52 (44) | 56 (47) | 59 (49) | |
| | PMW2456 | [Side 2] 2 layers of 13mm **sound**shield | 54 (47) | 58 (**51**) | 61 (**52**) | |
| | PMW2459 | [Side 2] 1 layer of 13mm **fire**shield | 51 (43) | 55 (46) | 58 (48) | |
| | PMW2460 | [Side 2] 2 layers of 13mm **fire**shield | 54 (46) | 58 (49) | 61 (**51**) | |
| Minimum 140mm core - filled Concrete Block<br>Minimum laid weight 280 kg/m² | PMW2151 | [Side 2] 1 layer of 13mm **masta**shield | 50 (42) | 54 (45) | 56 (47) | |
| | PMW2155 | [Side 2] 1 layer of 13mm **sound**shield | 53 (44) | 56 (47) | 58 (49) | |
| | PMW2159 | [Side 2] 1 layer of 13mm **fire**shield | 52 (43) | 55 (46) | 57 (48) | |
| | PMW2164 | [Side 2] 1 layer of 16mm **fire**shield | 53 (44) | 56 (47) | 58 (49) | |
| Minimum 190mm unfilled Concrete Block<br>Minimum laid weight 220 kg/m² | PMW2501 | [Side 2] 1 layer of 13mm **masta**shield | 51 (43) | 55 (46) | 58 (48) | |
| | PMW2502 | [Side 2] 2 layers of 13mm **masta**shield | 54 (45) | 58 (49) | 61 (**51**) | |
| | PMW2505 | [Side 2] 1 layer of 13mm **sound**shield | 53 (44) | 57 (48) | 60 (**50**) | |
| | PMW2509 | [Side 2] 1 layer of 13mm **fire**shield | 52 (44) | 56 (47) | 59 (49) | |
| | PMW2510 | [Side 2] 2 layers of 13mm **fire**shield | 55 (46) | 59 (**50**) | 62 (**52**) | |
| Minimum 190mm core - filled Concrete Block<br>Minimum laid weight 380 kg/m² | PMW2201 | [Side 2] 1 layer of 13mm **masta**shield | 54 (44) | 57 (47) | 59 (**50**) | |
| | PMW2205 | [Side 2] 1 layer of 13mm **sound**shield | 56 (46) | 59 (49) | 61 (**52**) | |
| | PMW2209 | [Side 2] 1 layer of 13mm **fire**shield | 55 (45) | 58 (48) | 60 (**51**) | |
| | PMW2214 | [Side 2] 1 layer of 16mm **fire**shield | 56 (46) | 59 (49) | 61 (**52**) | |
| Minimum 150mm Concrete | PMW2251 | [Side 2] 1 layer of 13mm **masta**shield | 49 (43) | 56 (46) | 63 (**50**) | |
| | PMW2255 | [Side 2] 1 layer of 13mm **sound**shield | 51 (45) | 58 (48) | 65 (**52**) | |
| | PMW2259 | [Side 2] 1 layer of 13mm **fire**shield | 50 (44) | 57 (47) | 64 (**51**) | |
| | PMW2264 | [Side 2] 1 layer of 16mm **fire**shield | 51 (45) | 58 (48) | 65 (**52**) | |
| Minimum 200mm Concrete | PMW2301 | [Side 2] 1 layer of 13mm **masta**shield | 53 (46) | 60 (49) | 66 (**52**) | |
| | PMW2305 | [Side 2] 1 layer of 13mm **sound**shield | 55 (48) | 62 (**51**) | 68 (**54**) | |
| | PMW2309 | [Side 2] 1 layer of 13mm **fire**shield | 54 (47) | 61 (**50**) | 67 (**53**) | |
| | PMW2314 | [Side 2] 1 layer of 16mm **fire**shield | 55 (48) | 62 (**51**) | 68 (**54**) | |

## PMW3000

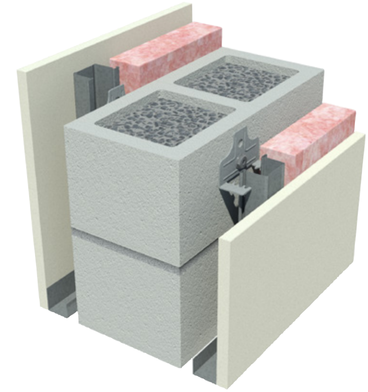


- [Side 1] 1 layer of 13mm **masta**shield adhered with **masta**bond Masonry Adhesive
- Masonry wall as specified in the table [refer to masonry manufacturer or relevant Australian Standard for FRL]
- [Side 2] Plasterboard as specified in table fixed to furring channels on clips

13mm **masta**shield can be substituted with 13mm **water**shield on the furring channel side
13mm **masta**shield adhered to concrete blocks/concrete can be substituted with 13mm render
13mm **masta**shield can be substituted with 10mm **opal** or 10mm **sound**shield
13mm **fire**shield can be substituted with 13mm **multi**shield
13mm **sound**shield can be substituted with 13mm **impact**shield or 13mm **tru**rock
16mm **fire**shield can be substituted with 16mm **multi**shield

| Masonry Type | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|---|
| | | | Minimum 30mm cavity with no insulation | Minimum 30mm cavity with Pink® Partition 25mm 24 kg/m³ R0.7 | Minimum 50mm cavity with Pink® Partition 50mm 11 kg/m³ R1.2 | |
| Minimum 140mm unfilled Concrete Block<br>Minimum laid weight 180 kg/m² | PMW3453 | [Side 2] 1 layer of 13mm **masta**shield | 51 (44) | 55 (46) | 58 (48) | Reports<br>1021067-R01<br>3094-55<br>[1]3094A-5<br>[2]3094-A-4 |
| | PMW3454 | [Side 2] 2 layers of 13mm **masta**shield | 54 (47) | 59 (49) | 61 (**51**) | |
| | PMW3469 | [Side 2] 1 layer of 13mm **sound**shield | 53 (45) | 57 (48) | 60 (**50**) | |
| | PMW3472 | [Side 2] 2 layers of 13mm **sound**shield | 55 (48) | 59 (**52**) | 62 (**53**) | |
| | PMW3470 | [Side 2] 1 layer of 13mm **fire**shield | 52 (44)[1] | 56 (47) | 59 (49)[2] | |
| | PMW3473 | [Side 2] 2 layers of 13mm **fire**shield | 55 (47) | 59 (**50**) | 62 (**52**) | |
| Minimum 140mm core - filled Concrete Block<br>Minimum laid weight 280 kg/m² | PMW3153 | [Side 2] 1 layer of 13mm **masta**shield | 52 (44) | 55 (47) | 57 (49) | |
| | PMW3169 | [Side 2] 1 layer of 13mm **sound**shield | 54 (46) | 57 (49) | 59 (**51**) | |
| | PMW3170 | [Side 2] 1 layer of 13mm **fire**shield | 53 (45) | 56 (48) | 58 (**50**) | |
| | PMW3171 | [Side 2] 1 layer of 16mm **fire**shield | 54 (46) | 57 (49) | 59 (**51**) | |
| Minimum 190mm unfilled Concrete Block<br>Minimum laid weight 220 kg/m² | PMW3503 | [Side 2] 1 layer of 13mm **masta**shield | 52 (44) | 56 (47) | 59 (49) | |
| | PMW3504 | [Side 2] 2 layers of 13mm **masta**shield | 55 (46) | 59 (**50**) | 62 (**52**) | |
| | PMW3519 | [Side 2] 1 layer of 13mm **sound**shield | 54 (45) | 58 (49) | 61 (**51**) | |
| | PMW3520 | [Side 2] 1 layer of 13mm **fire**shield | 53 (45) | 57 (48) | 60 (**50**) | |
| | PMW3523 | [Side 2] 2 layers of 13mm **fire**shield | 56 (47) | 60 (**51**) | 63 (**53**) | |
| Minimum 190mm core - filled Concrete Block<br>Minimum laid weight 380 kg/m² | PMW3203 | [Side 2] 1 layer of 13mm **masta**shield | 55 (46) | 58 (49) | 60 (**51**) | |
| | PMW3219 | [Side 2] 1 layer of 13mm **sound**shield | 57 (48) | 60 (**51**) | 62 (**53**) | |
| | PMW3220 | [Side 2] 1 layer of 13mm **fire**shield | 56 (47) | 59 (**50**) | 61 (**52**) | |
| | PMW3221 | [Side 2] 1 layer of 16mm **fire**shield | 57 (48) | 60 (**51**) | 62 (**53**) | |
| Minimum 150mm Concrete | PMW3253 | [Side 2] 1 layer of 13mm **masta**shield | 50 (44) | 57 (47) | 63 (**50**) | |
| | PMW3269 | [Side 2] 1 layer of 13mm **sound**shield | 52 (46) | 59 (49) | 65 (**52**) | |
| | PMW3270 | [Side 2] 1 layer of 13mm **fire**shield | 51 (45) | 58 (48) | 64 (**51**) | |
| | PMW3271 | [Side 2] 1 layer of 16mm **fire**shield | 52 (46) | 59 (49) | 65 (**52**) | |
| Minimum 200mm Concrete | PMW3303 | [Side 2] 1 layer of 13mm **masta**shield | 53 (46) | 60 (49) | 65 (**53**) | |
| | PMW3319 | [Side 2] 1 layer of 13mm **sound**shield | 55 (48) | 62 (**51**) | 67 (**55**) | |
| | PMW3320 | [Side 2] 1 layer of 13mm **fire**shield | 54 (47) | 61 (**50**) | 66 (**54**) | |
| | PMW3321 | [Side 2] 1 layer of 16mm **fire**shield | 55 (48) | 62 (**51**) | 67 (**55**) | |

## PMW4000

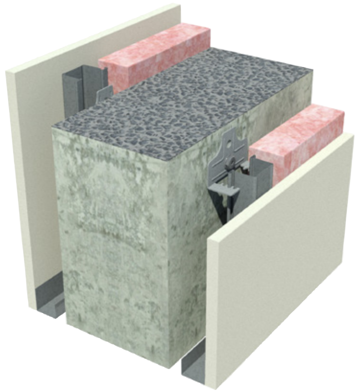


- [Side 2] Plasterboard as specified in table fixed to furring channels on clips
- Masonry wall as specified in the table [refer to masonry manufacturer or relevant Australian Standard for FRL]
- [Side 2] Plasterboard as specified in table fixed to furring channels on clips

13mm **masta**shield can be substituted with 10mm **opal**, 10mm **sound**shield or 13mm **water**shield
13mm **fire**shield can be substituted with 13mm **multi**shield
13mm **sound**shield can be substituted with 13mm **impact**shield or 13mm **tru**rock
16mm **fire**shield can be substituted with 16mm **multi**shield

| Masonry Type | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|---|
| | | | Minimum 30mm cavity with Pink® Partition 25mm 24 kg/m³ R0.7 | | Minimum 50mm cavity with Pink® Partition 50mm 11 kg/m³ R1.2 | | |
| | | | Insulation in one cavity only | Insulation in both cavities | Insulation in one cavity only | Insulation in both cavities | |
| Minimum 110mm Double Brick with minimum 50mm air-gap Minimum laid weight 320 kg/m² | PMW4103 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 57 (49) | 59 (**50**) | 59 (**51**) | 60 (**53**) | |
| | PMW4107 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 59 (**51**) | 61 (**52**) | 61 (**53**) | 62 (**54**) | |
| | PMW4111 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 58 (**50**) | 60 (**51**) | 60 (**52**) | 61 (**52**) | |
| | PMW4116 | [Side 1] 1 layer of 16mm **fire**shield<br>[Side 2] 1 layer of 16mm **fire**shield | 59 (**51**) | 61 (**53**) | 61 (**53**) | 62 (**54**) | |
| Minimum 140mm unfilled Concrete Block<br><br>Minimum laid weight 180 kg/m² | PMW4453 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 54 (45) | - | 57 (47) | - | |
| | PMW4454 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 2 layers of 13mm **masta**shield | 57 (48) | - | 60 (**50**) | - | |
| | PMW4457 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 56 (47) | - | 59 (49) | 59 (**50**) | |
| | PMW4461 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 55 (46) | - | 58 (48) | 58 (**50**) | |
| | PMW4462 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 2 layers of 13mm **fire**shield | 58 (49) | 58 (**50**) | 61 (**51**) | - | |
| Minimum 140mm core - filled Concrete Block<br><br>Minimum laid weight 280 kg/m² | PMW4153 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 52 (41) | 53 (45) | 56 (46) | 58 (47) | |
| | PMW4154 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 2 layers of 13mm **masta**shield | 55 (44) | 56 (47) | 59 (46) | 61 (48) | Reports<br>1021067-R01<br>3094-55 |
| | PMW4157 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 54 (43) | 55 (47) | 58 (48) | 60 (49) | |
| | PMW4161 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 53 (42) | 57 (46) | 57 (47) | 59 (48) | |
| | PMW4162 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 2 layers of 13mm **fire**shield | 56 (45) | 57 (49) | 60 (**50**) | 62 (**51**) | |
| | PMW4166 | [Side 1] 1 layer of 16mm **fire**shield<br>[Side 2] 1 layer of 16mm **fire**shield | 53 (42) | 54 (46) | 57 (47) | 59 (48) | |
| Minimum 190mm unfilled Concrete Block<br><br>Minimum laid weight 220 kg/m² | PMW4503 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 55 (46) | - | 58 (48) | 58 (**50**) | |
| | PMW4504 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 2 layers of 13mm **masta**shield | 58 (49) | 58 (**50**) | 61 (**51**) | - | |
| | PMW4507 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 57 (48) | - | 60 (**50**) | - | |
| | PMW4511 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 56 (47) | - | 59 (49) | 59 (**50**) | |
| | PMW4512 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 2 layers of 13mm **fire**shield | 59 (49) | 59 (**50**) | 62 (**52**) | - | |
| Minimum 190mm core - filled Concrete Block<br><br>Minimum laid weight 380 kg/m² | PMW4203 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 54 (43) | 59 (48) | 57 (49) | 59 (**50**) | |
| | PMW4207 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 56 (45) | 61 (48) | 59 (**50**) | 61 (**52**) | |
| | PMW4211 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 55 (44) | 60 (47) | 58 (49) | 60 (**51**) | |
| | PMW4216 | [Side 1] 1 layer of 16mm **fire**shield<br>[Side 2] 1 layer of 16mm **fire**shield | 56 (45) | 61 (48) | 59 (**50**) | 61 (**52**) | |

## PMW4000 (continued)

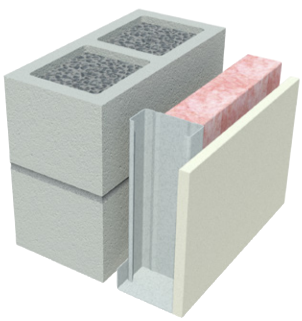


- [Side 2] Plasterboard as specified in table fixed to furring channels on clips
- Masonry wall as specified in the table [refer to masonry manufacturer or relevant Australian Standard for FRL]
- [Side 2] Plasterboard as specified in table fixed to furring channels on clips

13mm **masta**shield can be substituted with 10mm **opal**, 10mm **sound**shield or 13mm **water**shield
13mm **fire**shield can be substituted with 13mm **multi**shield
13mm **sound**shield can be substituted with 13mm **impact**shield or 13mm **tru**rock
16mm **fire**shield can be substituted with 16mm **multi**shield

| Masonry Type | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|---|
| | | | Minimum 30mm cavity with Pink® Partition 25mm 24 kg/m³ R0.7 | | Minimum 50mm cavity with Pink® Partition 50mm 11 kg/m³ R1.2 | | |
| | | | Insulation in one cavity only | Insulation in both cavities | Insulation in one cavity only | Insulation in both cavities | |
| Minimum 150mm Concrete | PMW4253 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 57 (47) | 61 (**50**) | 59 (49) | 62 (**52**) | Reports 1021067-R01 3094-55 |
| | PMW4257 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 59 (49) | 63 (**52**) | 63 (**52**) | 64 (**54**) | |
| | PMW4261 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 58 (48) | 62 (**51**) | 62 (**51**) | 63 (**53**) | |
| | PMW4266 | [Side 1] 1 layer of 16mm **fire**shield<br>[Side 2] 1 layer of 16mm **fire**shield | 59 (49) | 63 (**52**) | 63 (**52**) | 64 (**54**) | |
| Minimum 200mm Concrete | PMW4303 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 60 (**50**) | 64 (**53**) | 64 (**53**) | 65 (**54**) | |
| | PMW4307 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 62 (**52**) | 66 (**55**) | 66 (**55**) | 67 (**56**) | |
| | PMW4311 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 61 (**51**) | 65 (**54**) | 65 (**54**) | 66 (**55**) | |
| | PMW4316 | [Side 1] 1 layer of 16mm **fire**shield<br>[Side 2] 1 layer of 16mm **fire**shield | 62 (**52**) | 66 (**55**) | 66 (**55**) | 67 (**56**) | |

## PMW5000

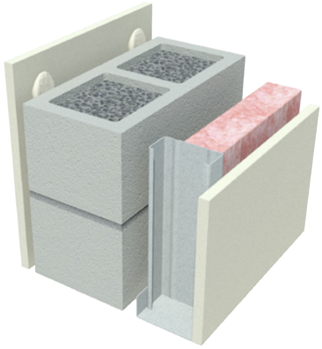


- [Side 1] Left bare
- Masonry wall as specified in table [refer to masonry manufacturer or relevant Australian Standard for FRL]
- Minimum 20mm air gap
- [Side 2] 1 layer of Plasterboard as specified in table fixed to minimum 64mm steel studs or 70mm timber studs

13mm **masta**shield can be substituted with 10mm **opal**, 10mm **sound**shield or 13mm **water**shield

| Masonry Type | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|
| | | | No Insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
| Minimum 140mm core - filled Concrete Block Minimum laid weight 280 kg/m² | PMW5151 | [Side 2] 13mm **masta**shield | 51 (44) | 58 (**50**) | 1021067-R01 Note: Impact Sound Resistant - Discontinuous Construction |
| Minimum 150mm Concrete | PMW5251 | [Side 2] 13mm **masta**shield | 52 (46) | 59 (**52**) | |

## PMW6000

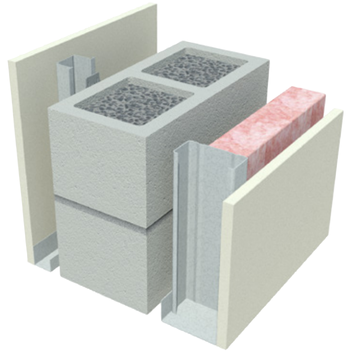


- [Side 1] 1 layer of 13mm mastashield adhered with mastabond Masonry Adhesive
- Masonry wall as specified in the table [refer to masonry manufacturer or relevant Australian Standard for FRL]
- Minimum 20mm air gap
- [Side 2] 1 layer of Plasterboard fixed to wall studs as specified in table

13mm **masta**shield can be substituted with 13mm **water**shield on the stud side
13mm **masta**shield can be substituted with 10mm **opal** or 10mm **sound**shield
13mm **fire**shield can be substituted with 13mm **multi**shield
13mm **masta**shield adhered to concrete blocks/concrete can be substituted with 13mm render
13mm **sound**shield can be substituted with 13mm **impact**shield or 13mm **tru**rock

| **Masonry Type** | **System** | **Plasterboard Lining** | **Sound Insulation Rw (Rw + Ctr)** | | |
|---|---|---|---|---|---|
| | | | Pink® Partition 50mm 11 kg/m³ R1.2 | | |
| | | | 51mm steel stud | Minimum 64mm steel stud or 70mm timber stud | |
| Minimum 110mm Brick Minimum laid weight 160 kg/m² | PMW6053 | [Side 2] 13mm **masta**shield | 53 (45) | 54 (45) | Reports 1021067-R01 4738-15 [1]3094A-6 Note: Impact Sound Resistant - Discontinuous Construction |
| | PMW6069 | [Side 2] 13mm **sound**shield | 55 (47) | 56 (47) | |
| | PMW6070 | [Side 2] 13mm **fire**shield | 54 (46) | 55 (46) | |
| Minimum 140mm unfilled Concrete Block Minimum laid weight 180 kg/m² | PMW6453 | [Side 2] 13mm **masta**shield | 57 (49) | 59 (**51**)[1] | |
| | PMW6469 | [Side 2] 13mm **sound**shield | 60 (**52**) | 61 (**53**) | |
| | PMW6470 | [Side 2] 13mm **fire**shield | 59 (**51**) | 60 (**52**) | |
| Minimum 140mm core - filled Concrete Block Minimum laid weight 280 kg/m² | PMW6153 | [Side 2] 13mm **masta**shield | 62 (**53**) | 63 (**54**) | |
| | PMW6169 | [Side 2] 13mm **sound**shield | 64 (**55**) | 65 (**56**) | |
| | PMW6170 | [Side 2] 13mm **fire**shield | 63 (**54**) | 64 (**55**) | |
| Minimum 190mm core - filled Concrete Block Minimum laid weight 380 kg/m² | PMW6203 | [Side 2] 13mm **masta**shield | 63 (**54**) | 64 (**55**) | |
| | PMW6219 | [Side 2] 13mm **sound**shield | 65 (**56**) | 66 (**56**) | |
| | PMW6220 | [Side 2] 13mm **fire**shield | 64 (**55**) | 65 (**56**) | |
| Minimum 150mm Concrete | PMW6253 | [Side 2] 13mm **masta**shield | 63 (**54**) | 64 (**55**) | |
| | PMW6269 | [Side 2] 13mm **sound**shield | 65 (**56**) | 66 (**57**) | |
| | PMW6270 | [Side 2] 13mm **fire**shield | 64 (**55**) | 65 (**56**) | |
| Minimum 200mm Concrete | PMW6303 | [Side 2] 13mm **masta**shield | 66 (**57**) | 66 (**57**) | |
| | PMW6319 | [Side 2] 13mm **sound**shield | 68 (**59**) | 68 (**59**) | |
| | PMW6320 | [Side 2] 13mm **fire**shield | 67 (**58**) | 67 (**58**) | |

## PMW7000

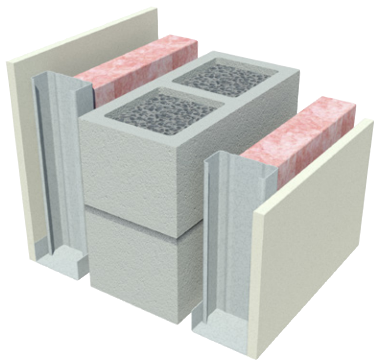


- [Side 1] Plasterboard as specified in table fixed to furring channels on clips with minimum 21mm cavity
- Masonry wall as specified in table [refer to masonry manufacturer or relevant Australian Standard for FRL]
- Minimum 20mm air gap
- [Side 2] Plasterboard fixed to wall studs as specified in table

13mm **masta**shield can be substituted with 10mm **opal**, 10mm **sound**shield or 13mm **water**shield
13mm **fire**shield can be substituted with 13mm **multi**shield
13mm **sound**shield can be substituted with 13mm **impact**shield or 13mm **tru**rock

| Masonry Type | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|
| | | | Insulation in stud cavity only Pink® Partition 50mm 11 kg/m³ R1.2 | | |
| | | | 51mm steel stud | Minimum 64mm steel stud or 70mm timber stud | |
| Minimum 110mm Brick<br><br>Minimum laid weight 160 kg/m² | PMW7053 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 57 (44) | 58 (45) | |
| | PMW7057 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 59 (46) | 60 (47) | |
| | PMW7061 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 58 (45) | 59 (46) | |
| Minimum 140mm unfilled Concrete Block<br><br>Minimum laid weight 180 kg/m² | PMW7453 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 58 (49) | 60 (**51**) | |
| | PMW7454 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 2 layers of 13mm **masta**shield | 61 (**52**) | 62 (**53**) | |
| | PMW7457 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 60 (**51**) | 61 (**52**) | |
| | PMW7461 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 60 (**50**) | 61 (**51**)[1] | Reports<br><br>1021067-R01<br>3094-55<br>4738-15<br><br>[1]3094A-2<br><br>Note: Impact Sound Resistant - Discontinuous Construction |
| Minimum 140mm core - filled Concrete Block<br><br>Minimum laid weight 280 kg/m² | PMW7153 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 59 (**50**) | 60 (**51**) | |
| | PMW7157 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 61 (**52**) | 62 (**53**) | |
| | PMW7161 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 60 (**51**) | 61 (**52**) | |
| Minimum 190mm core - filled Concrete Block<br><br>Minimum laid weight 380 kg/m² | PMW7203 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 62 (**53**) | 63 (**53**) | |
| | PMW7207 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 64 (**55**) | 65 (**55**) | |
| | PMW7211 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 63 (**54**) | 64 (**54**) | |
| Minimum 150mm Concrete | PMW7253 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 60 (**51**) | 61 (**51**) | |
| | PMW7257 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 62 (**53**) | 63 (**53**) | |
| | PMW7261 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 61 (**52**) | 62 (**53**) | |
| Minimum 200mm Concrete | PMW7303 | [Side 1] 1 layer of 13mm **masta**shield<br>[Side 2] 1 layer of 13mm **masta**shield | 68 (**56**) | 68 (**57**) | |
| | PMW7307 | [Side 1] 1 layer of 13mm **sound**shield<br>[Side 2] 1 layer of 13mm **sound**shield | 70 (**58**) | 70 (**59**) | |
| | PMW7311 | [Side 1] 1 layer of 13mm **fire**shield<br>[Side 2] 1 layer of 13mm **fire**shield | 69 (**57**) | 69 (**58**) | |

## PMW8000

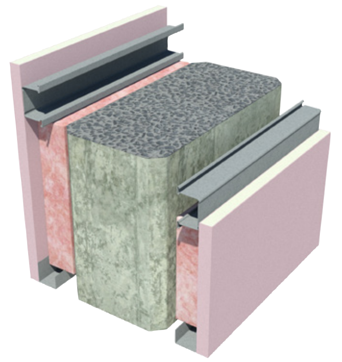


- [Side 1] 1 layer of Plasterboard as specified in table fixed to minimum 64mm steel studs or 70mm timber studs
- Minimum 20mm air gap
- Masonry wall as specified in table [refer to masonry manufacturer or relevant Australian Standard for FRL]
- Minimum 20mm air gap
- [Side 2] 1 layer of Plasterboard as specified in table fixed to minimum 64mm steel studs or 70mm timber studs

13mm **masta**shield can be substituted with 10mm **opal**, 10mm **sound**shield or 13mm **water**shield
13mm **fire**shield can be substituted with 13mm **multi**shield
13mm **sound**shield can be substituted with 13mm **impact**shield or 13mm **tru**rock

| Masonry Type | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|
| | | | Pink® Partition 50mm 11 kg/m$^3$ R1.2 | | |
| | | | Insulation in one stud cavity only | Insulation in both cavities | |
| Minimum 90mm Brick<br>Minimum laid weight 130 kg/m$^2$ | PMW8003 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 58 (48) | 60 (**50**) | Report<br>1021067-R01<br>Note: Impact Sound Resistant - Discontinuous Construction |
| | PMW8007 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 60 (**50**) | 62 (**52**) | |
| | PMW8011 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 59 (49) | 61 (**51**) | |
| Minimum 110mm Brick<br>Minimum laid weight 160 kg/m$^2$ | PMW8053 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 59 (49) | 61 (**51**) | |
| | PMW8057 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 61 (**51**) | 63 (**53**) | |
| | PMW8061 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 60 (**50**) | 62 (**52**) | |
| Minimum 140mm core - filled Concrete Block<br>Minimum laid weight 280 kg/m$^2$ | PMW8153 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 61 (**51**) | 63 (**51**) | |
| | PMW8157 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 63 (**53**) | 65 (**55**) | |
| | PMW8161 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 62 (**52**) | 64 (**54**) | |
| Minimum 150mm Concrete | PMW8253 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 65 (**55**) | 67 (**57**) | |
| | PMW8257 | [Side 1] 13mm **sound**shield<br>[Side 2] 13mm **sound**shield | 67 (**57**) | 69 (**59**) | |
| | PMW8261 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | 66 (**56**) | 68 (**58**) | |

## PMW101

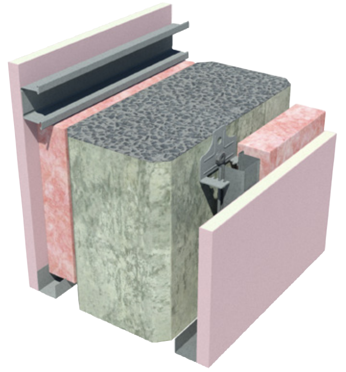


- [Side 1] 1 layer of 16mm **fire**shield
- Horizontal 28mm furring channel spanning across blade column
- Minimum 20mm air gap
- Concrete Blade Column
- Minimum 20mm air gap
- Horizontal 28mm furring channel spanning across blade column
- [Side 2] 1 layer of 16mm **fire**shield

Refer to Section 3.1 for FRL and Construction Details
16mm **fire**shield can be substituted with 16mm **multi**shield or 16mm **tru**rock

| Masonry Type | System | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| | | Minimum 48mm cavities with Pink® Partition 50mm 11kg/m³ R1.2 in both cavities | Report<br>1021067-R01<br>Note: Impact Sound Resistant - Discontinuous Construction |
| Minimum 150mm Concrete | PMW101 | 61 (**53**) | |

## PMW102

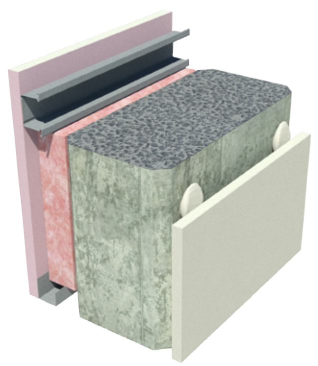


- [Side 1] 1 layer of 16mm **fire**shield
- Horizontal 28mm furring channel spanning across blade column
- Minimum 20mm air gap
- Concrete Blade Column
- Vertical furring channels on clips in a minimum 30mm cavity
- [Side 2] 1 layer of 16mm **fire**shield

Refer to Section 3.1 for FRL and Construction Details
16mm **fire**shield can be substituted with 16mm **multi**shield or 16mm **tru**rock
25mm 24 kg/m³ insulation can be substituted with 50mm 11 kg/m³ insulation for minimum 45mm cavities

| Masonry Type | System | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| | | Minimum 48mm cavity on one side and minimum 30mm cavity on the other with Pink® Partition 25mm 24kg/m³ R0.7 in both cavities | Report<br>1021067-R01<br>Note: Impact Sound Resistant - Discontinuous Construction |
| Minimum 150mm Concrete | PMW102 | 60 (**52**) | |

## PMW103

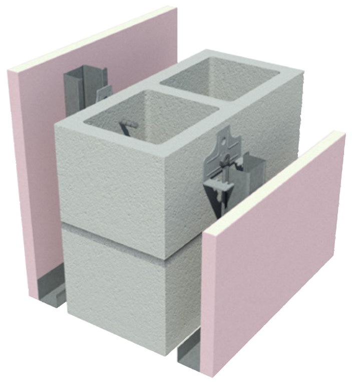


- [Side 1] 1 layer of 16mm **fire**shield
- Horizontal 28mm furring channel spanning across blade column
- Minimum 20mm air gap
- Concrete Blade Column
- [Side 2] 1 layer of 13mm **masta**shield adhered with masta**bond** Masonry Adhesive

Refer to Section 3.1 for FRL and Construction Details
13mm **masta**shield can be substituted with 13mm **water**shield on the stud side
13mm **masta**shield can be substituted with 10mm **opal** or 10mm **sound**shield
16mm **fire**shield can be substituted with 16mm **multi**shield or 16mm **tru**rock

| Masonry Type | System | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| | | Minimum 48mm cavity on furring channel side with Pink® Partition 50mm 11kg/m³ R1.2 | Report<br>1021067-R01<br>Note: Impact Sound Resistant - Discontinuous Construction |
| Minimum 150mm Concrete | PMW103 | 58 (**50**) | |

## PMW16

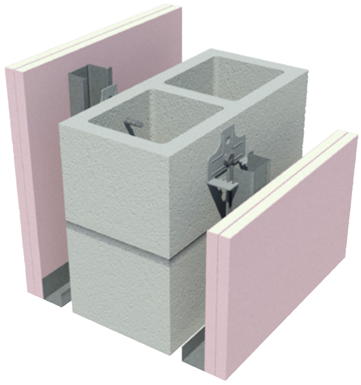


- 1 layer of 16mm fireshield on furring channels or stud walls
- Existing masonry* wall [refer to masonry manufacturer for FRL]
- 1 layer of 16mm fireshield on furring channels or stud walls

This system is designed to upgrade the FRL of the masonry wall
Total Integrity and Total Insulation cannot be greater than Total Structural Adequacy
**fire**shield can be substituted with **multi**shield or **tru**rock

| Additional 'Fire Resistance Level' to Masonry (minutes) | | | |
|---|---|---|---|
| Masonry Structural Adequacy + 30 | Masonry Integrity + 60 | Masonry Insulation + 60 | Rated from either side Report FAR2221 |

## PMW13

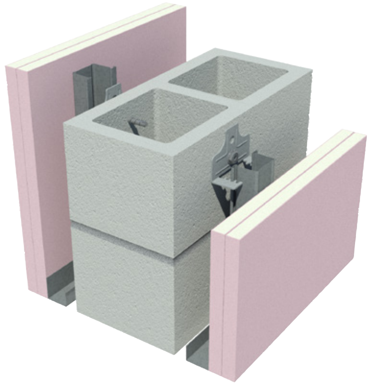


- 2 layers of 13mm fireshield on furring channels or stud walls
- Existing masonry* wall [refer to masonry manufacturer for FRL]
- 2 layers of 13mm fireshield on furring channels or stud walls

This system is designed to upgrade the FRL of the masonry wall
Total Integrity and Total Insulation cannot be greater than Total Structural Adequacy
**fire**shield can be substituted with **multi**shield or **tru**rock

| Additional 'Fire Resistance Level' to Masonry (minutes) | | | |
|---|---|---|---|
| Masonry Structural Adequacy + 60 | Masonry Integrity + 120 | Masonry Insulation + 120 | Rated from either side Report FAR2221 |

## PMW18



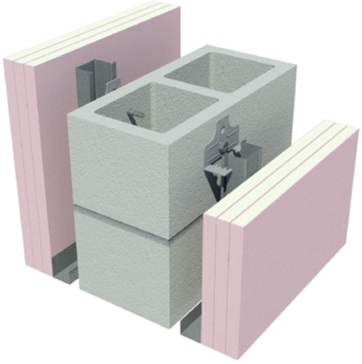
- 2 layers of 16mm fireshield on furring channels or stud walls
- Existing masonry* wall [refer to masonry manufacturer for FRL]
- 2 layers of 16mm fireshield on furring channels or stud walls

This system is designed to upgrade the FRL of the masonry wall
Total Integrity and Total Insulation cannot be greater than Total Structural Adequacy
**fire**shield can be substituted with **multi**shield or **tru**rock

| Additional 'Fire Resistance Level' to Masonry (minutes) | | | |
|---|---|---|---|
| Masonry Structural Adequacy + 90 | Masonry Integrity + 180 | Masonry Insulation + 180 | Rated from either side Report FAR2221 |

*masonry includes concrete, bricks, blocks and concrete filled fibre cement or permanent PVC formwork

## PMW27

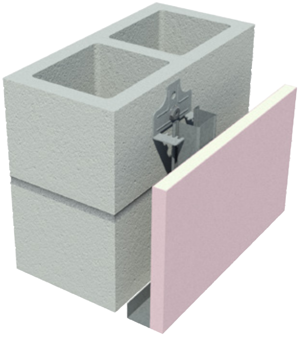


- 3 layers of 16mm fireshield on furring channels or stud walls
- Existing masonry* wall [refer to masonry manufacturer for FRL]
- 3 layers of 16mm fireshield on furring channels or stud walls

This system is designed to upgrade the FRL of the masonry wall
Total Integrity and Total Insulation cannot be greater than Total Structural Adequacy
**fire**shield can be substituted with **multi**shield or **tru**rock

| Additional 'Fire Resistance Level' to Masonry (minutes) | | | |
|---|---|---|---|
| Masonry Structural Adequacy + 120 | Masonry Integrity + 180 | Masonry Insulation + 180 | Rated from either side Report FAR2221 |

## PMW14

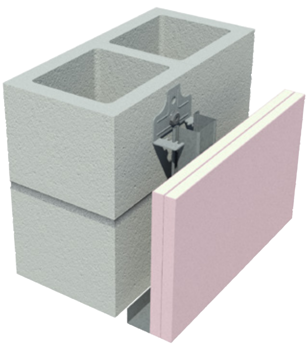


- Existing masonry* wall [refer to masonry manufacturer for FRL]
- 1 layer of 16mm fireshield on furring channels or stud walls

This system is designed to upgrade the FRL of the masonry wall
Total Integrity and Total Insulation cannot be greater than Total Structural Adequacy
**fire**shield can be substituted with **multi**shield or **tru**rock

| Additional 'Fire Resistance Level' to Masonry (minutes) | | | | |
|---|---|---|---|---|
| Fireshield on the **EXPOSED** side to fire | Masonry Structural Adequacy + 30 | Masonry Integrity + 30 | Masonry Insulation + 30 | Report FAR2464 |
| Fireshield on the **UNEXPOSED** side to fire | Masonry Structural Adequacy + 0 | Masonry Integrity + 30 | Masonry Insulation + 30 | |

## PMW10

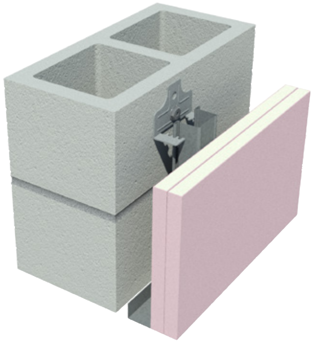


- Existing masonry* wall [refer to masonry manufacturer for FRL]
- 2 layers of 13mm fireshield on furring channels or stud walls

This system is designed to upgrade the FRL of the masonry wall
Total Integrity and Total Insulation cannot be greater than Total Structural Adequacy
**fire**shield can be substituted with **multi**shield or **tru**rock

| Additional 'Fire Resistance Level' to Masonry (minutes) | | | | |
|---|---|---|---|---|
| Fireshield on the **EXPOSED** side to fire | Masonry Structural Adequacy + 60 | Masonry Integrity + 60 | Masonry Insulation + 60 | Report FAR2464 |
| Fireshield on the **UNEXPOSED** side to fire | Masonry Structural Adequacy + 0 | Masonry Integrity + 60 | Masonry Insulation + 60 | |

## PMW15



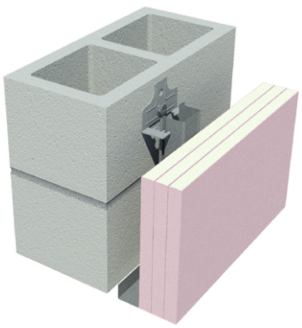
- Existing masonry* wall [refer to masonry manufacturer for FRL]
- 2 layers of 16mm fireshield on furring channels or stud walls

This system is designed to upgrade the FRL of the masonry wall
Total Integrity and Total Insulation cannot be greater than Total Structural Adequacy
**fire**shield can be substituted with **multi**shield or **tru**rock

**Additional 'Fire Resistance Level' to Masonry (minutes)**

| | | | | |
|---|---|---|---|---|
| Fireshield on the **EXPOSED** side to fire | Masonry Structural Adequacy + 90 | Masonry Integrity + 90 | Masonry Insulation + 90 | Report FAR2464 |
| Fireshield on the **UNEXPOSED** side to fire | Masonry Structural Adequacy + 0 | Masonry Integrity + 90 | Masonry Insulation + 90 | |

## PMW26



- Existing masonry* wall [refer to masonry manufacturer for FRL]
- 3 layers of 16mm fireshield on furring channels or stud walls

This system is designed to upgrade the FRL of the masonry wall
Total Integrity and Total Insulation cannot be greater than Total Structural Adequacy
**fire**shield can be substituted with **multi**shield or **tru**rock

**Additional 'Fire Resistance Level' to Masonry (minutes)**

| | | | | |
|---|---|---|---|---|
| Fireshield on the **EXPOSED** side to fire | Masonry Structural Adequacy + 120 | Masonry Integrity + 120 | Masonry Insulation + 120 | Report FAR2464 |
| Fireshield on the **UNEXPOSED** side to fire | Masonry Structural Adequacy + 0 | Masonry Integrity + 120 | Masonry Insulation + 120 | |

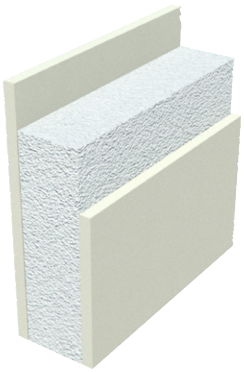
*masonry includes concrete, bricks, blocks and concrete filled fibre cement or permanent PVC formwork

## ACW2 - ACW4

- [Side 1] Left bare
- 75mm AAC Panel, minimum dry weight 37.5 kg/m² [refer to manufacturer for FRL]
- [Side 2] 1 layer of Plasterboard as specified in table fixed with laminating screws

| Plasterboard Lining | System | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|
| | | | No insulation | Reports |
| [Side 2] 10mm **masta**shield | ACW2 | 85 | 38 (36) | Day Design 5008-10.1R 5008-17.1L |
| [Side 2] 10mm **water**shield | ACW3 | 85 | 39 (36) | |
| [Side 2] 13mm **masta**shield | ACW4 | 88 | 39 (36) [1] | [1]TL548-10 |

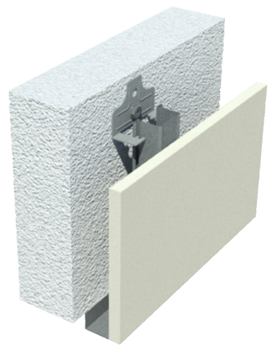
## ACW21 - ACW22



- [Side 1] 1 layer of Plasterboard as specified in table fixed with laminating screws
- 75mm AAC Panel, minimum dry weight 37.5 kg/m² [refer to manufacturer for FRL]
- [Side 2] 1 layer of Plasterboard as specified in table fixed with laminating screws

| Plasterboard Lining | System | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|
| | | | No insulation | Reports |
| [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | ACW21 | 95 | 40 (38) | Day Design 5008-10.1R 5008-17.1L |
| [Side 1] 10mm **water**shield<br>[Side 2] 10mm **water**shield | ACW22 | 95 | 41 (39) | |

## ACW41 - ACW43

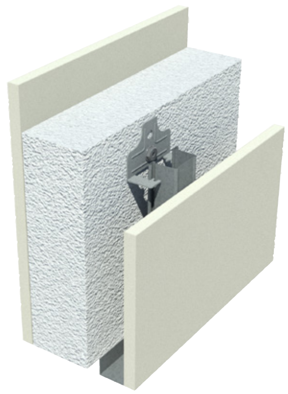


- [Side 1] Left bare
- 75mm AAC Panel, minimum dry weight 37.5 kg/m² [refer to manufacturer for FRL]
- [Side 2] Plasterboard as specified in table fixed to furring channels on clips

**fire**shield can be substituted with **multi**shield or **tru**rock

| Plasterboard Lining | System | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Minimum 30mm cavity | | Minimum 50mm cavity | |
| | | No Insulation | Pink® Partition 25mm 24 kg/m³ R0.7 | Pink® Partition 50mm 11 kg/m³ R1.2 | Reports |
| [Side 2] 10mm **masta**shield | ACW41 | 42 (36) | - | - | Day Design 5008-10.1R 5008-17.1L<br>[2]TL548-8<br>[3]TL548-6 |
| [Side 2] 10mm **water**shield | ACW42 | - | 51 (40) | 53 (41) [2] | |
| [Side 2] 13mm **fire**shield | ACW43 | - | 52 (43) | 55 (45) [3] | |

## ACW61 - ACW62

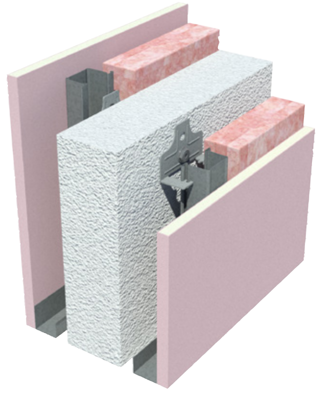


- [Side 1] Plasterboard as specified in table fixed with laminating screws
- 75mm AAC Panel, minimum dry weight 37.5 kg/m² [refer to manufacturer for FRL]
- [Side 2] Plasterboard as specified in table fixed to furring channels on clips

13mm **masta**shield can be substituted with 10mm **water**shield

| Side 1 and 2 Plasterboard Lining | System | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Minimum 30mm cavity | | Minimum 50mm cavity | |
| | | No Insulation | Pink® Partition 25mm 24 kg/m³ R0.7 | Pink® Partition 50mm 11 kg/m³ R1.2 | Reports |
| [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | ACW61 | - | 52 (40) | 54 (41) [4] | Day Design 5008-10.1R 5008-17.1L<br>[4]TL548-7 |
| [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | ACW62 | - | 54 (41) | - | |

## ACW81 - ACW82

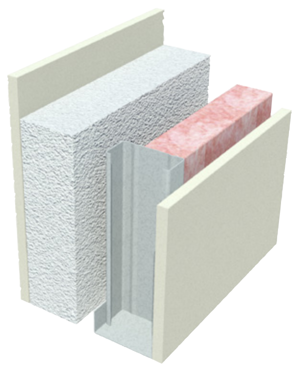


- [Side 1] Plasterboard as specified in table fixed to furring channels on clips
- 75mm AAC Panel, minimum dry weight 37.5 kg/m2 [refer to manufacturer for FRL]
- [Side 2] Plasterboard as specified in table fixed to furring channels on clips

**masta**shield can be substituted with **water**shield
**fire**shield can be substituted with **multi**shield or **tru**rock

| Plasterboard Lining | System | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|
| | | | Minimum 30mm cavity with Pink® Partition 25mm 24 kg/m³ R0.7 | Minimum 50mm cavity with Pink® Partition 50mm 11 kg/m³ R1.2 | Reports<br><br>Day Design 5008-10.1R 5008-17.1L |
| | | | Insulation in both cavities | Insulation in both cavities | |
| [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | ACW81 | 161 | 56 (43) | - | |
| [Side 1] 16mm **fire**shield<br>[Side 2] 16mm **fire**shield | ACW82 | 207 | - | 63 (**51**) | |

## ACW101 - ACW103

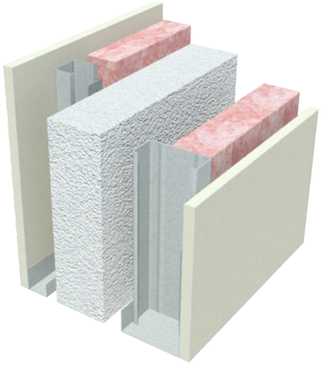


- [Side 1] Plasterboard as specified in table fixed with laminating screws
- 75mm AAC Panel, minimum dry weight 37.5 kg/m² [refer to manufacturer for FRL]
- Minimum 20mm air gap
- [Side 2] Plasterboard as specified in table fixed to minimum 64mm steel studs

**masta**shield can be substituted with **water**shield
**fire**shield can be substituted with **multi**shield or **tru**rock

| Plasterboard Lining | System | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|
| | | | Pink® Partition 50mm 11 kg/m³ R1.2 | Reports<br><br>Day Design 5008-10.1R 5008-17.1L<br><br>5TL548-9<br><br>Note: Impact Sound Resistant - Discontinuous Construction |
| [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | ACW101 | 179 | 56 (47) | |
| [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | ACW102 | 185 | 59 (**50**) 5 | |
| [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | ACW103 | 185 | 62 (**54**) | |

## ACW125 - ACW126

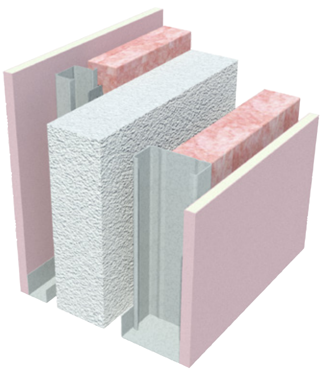


- [Side 1] Minimum 43mm cavity with 1 layer as specified in table fixed to furring channels on clips
- 75mm AAC Panel, minimum dry weight 37.5 kg/m² [refer to manufacturer for FRL]
- Minimum 35mm air gap
- [Side 2] 1 layer as specified in table fixed to minimum 64mm steel studs

**masta**shield can be substituted with **water**shield

| Plasterboard Lining | System | Minimum Cavity Size (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|
| | | | Pink® Partition 50mm 14 kg/m³ R1.3 in furring channel cavity and Pink® Partition 75mm 14 kg/m³ R1.9 in stud cavity | Report<br>TM459-01F01<br>Note: Impact Sound Resistant - Discontinuous Construction |
| [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | ACW125 | [Side 1] 43mm<br>[Side 2] 99mm (64mm steel stud + 35mm air-gap) | 60 (**50**) | |
| [Side 1] 9mm Duraliner<br>[Side 2] 9mm Duraliner | ACW126 | [Side 1] 43mm<br>[Side 2] 99mm (64mm steel stud + 35mm air-gap) | 64 (**53**) | |

## ACW121 - ACW124

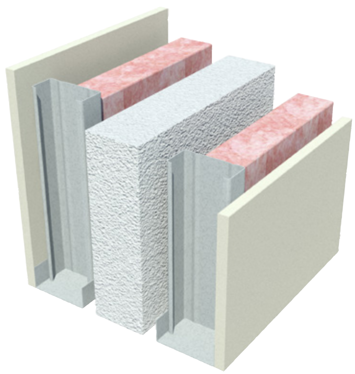


- [Side 1] 1 layer of Plasterboard as specified in table fixed to furring channels on clips
- 75mm AAC Panel, minimum dry weight 37.5 kg/m² [refer to manufacturer for FRL]
- Minimum air gap as specified in table
- [Side 2] 1 layer of Plasterboard as specified in table fixed to minimum 64mm steel studs

**masta**shield can be substituted with **water**shield
**fire**shield can be substituted with **multi**shield or **tru**rock

| Plasterboard Lining | System | Minimum Cavity Size (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|
| | | | Pink® Partition 50mm 11 kg/m³ R1.2 | | Report<br>Day Design 5008-10.1R 5008-17.1L<br>⁶TL548-5<br>Note: Impact Sound Resistant - Discontinuous Construction |
| | | | Insulation in stud cavity only | Insulation in both cavities | |
| [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | ACW121 | [Side 1] 30mm<br>[Side 2] 84mm (64mm steel stud + 20mm air-gap) | 53 (42) | - | |
| [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | ACW122 | [Side 1] 30mm<br>[Side 2] 84mm (64mm steel stud + 20mm air-gap) | 58 (46) | - | |
| [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | ACW123 | [Side 1] 45mm<br>[Side 2] 99mm (64mm steel stud + 35mm air-gap) | - | 62 (**51**) [6] | |
| [Side 1] 13mm **fire**shield<br>[Side 2] 16mm **fire**shield | ACW124 | [Side 1] 30mm<br>[Side 2] 99mm (64mm steel stud + 35mm air-gap) | - | 60 (**50**) | |

## ACW141 - ACW145

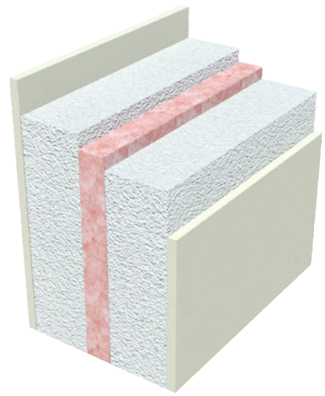


- [Side 1] 1 layer of Plasterboard as specified in table fixed to minimum 64mm steel studs
- Minimum 20mm air gap
- 75mm AAC Panel, minimum dry weight 37.5 kg/m² [refer to manufacturer for FRL]
- Minimum 20mm air gap
- [Side 2] 1 layer of Plasterboard as specified in table fixed to minimum 64mm steel studs

**masta**shield can be substituted with **water**shield
**fire**shield can be substituted with **multi**shield or **tru**rock

| Plasterboard Lining | System | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | Pink® Partition 50mm 11 kg/m³ R1.2 | | Reports<br><br>Day Design<br>5008-10.1R<br>5008-17.1L<br><br>7TL548-3<br><br>Note: Impact Sound Resistant - Discontinuous Construction |
| | | Insulation in one cavity only | Insulation in both cavities | |
| [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | ACW141 | 63 (49) | - | |
| [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | ACW142 | 65 (**50**) | - | |
| [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | ACW143 | 66 (**53**) | - | |
| [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | ACW144 | - | 66 (**53**) 7 | |
| [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | ACW145 | - | 68 (**56**) | |

## ACW161



- [Side 1] 1 layer of Plasterboard as specified in table fixed with laminating screws
- 75mm AAC Panel, minimum dry weight 37.5 kg/m² [refer to manufacturer for FRL]
- Minimum 30mm air gap filled with Pink® Partition 50mm 11 kg/m³ R1.2
- 75mm AAC Panel, minimum dry weight 37.5 kg/m² [refer to manufacturer for FRL]
- [Side 2] 1 layer of Plasterboard as specified in table fixed with laminating screws

**masta**shield can be substituted with **water**shield

| Plasterboard Lining | System | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|
| | | | | Reports<br><br>Day Design<br>5008-10.1R<br>5008-17.1L<br><br>Note: Impact Sound Resistant - Discontinuous Construction |
| [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | ACW161 | 200 | 61 (**55**) | |

## DIN-IW2

- [Side 1] Left bare
- Dincel wall as specified in table [refer to Dincel for FRL]
- [Side 2] 1 layer of Plasterboard as specified in table fixed to Dincel

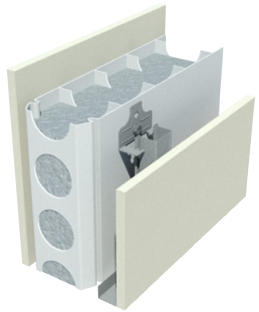
| Dincel Wall | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|
| 110mm Dincel | DIN110-IW2 | [Side 2] 10mm **masta**shield | 45 (41) | Report<br><br>Day Design 5880-6.1R Rev A |
| 155mm Dincel | DIN155-IW2 | [Side 2] 13mm **masta**shield | 50 (45) | |
| 200mm Dincel | DIN200-IW2 | [Side 2] 10mm **masta**shield | 51 (46) | |

## DIN-IW3

- [Side 1] 1 layer of Plasterboard as specified in table fixed to Dincel
- Dincel wall as specified in table [refer to Dincel for FRL]
- [Side 2] 1 layer of Plasterboard as specified in table fixed to Dincel

| Dincel Wall | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|
| 110mm Dincel | DIN110-IW3 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | 45 (41) | Report<br><br>Day Design 5880-6.1R Rev A |
| 155mm Dincel | DIN155-IW3 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 50 (45) | |
| 200mm Dincel | DIN200-IW3 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | 51 (46) | |

## DIN-IW4, IW5

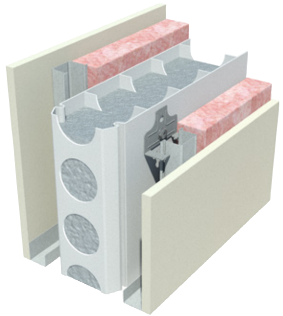


- [Side 1] 1 layer of Plasterboard as specified in table fixed to Dincel
- Dincel wall as specified in table [refer to Dincel for FRL]
- [Side 2] 1 layer of Plasterboard as specified in table fixed to furring channels on clips with minimum 30mm cavity

**masta**shield can be substituted with **water**shield

| Dincel Wall | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|
| | | | No insulation | Pink® Partition 25mm 24kg/m³ R0.7 | |
| 110mm Dincel | DIN110-IW4 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 45 (42) | - | Report<br>Day Design 5880-6.1R Rev A |
| | DIN110-IW5 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | - | 53 (46) | |
| 155mm Dincel | DIN155-IW4 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | 48 (43) | - | |
| | DIN155-IW5 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | - | 55 (48) | |
| 200mm Dincel | DIN200-IW4 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | 53 (46) | - | |
| | DIN200-IW5 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | - | 57 (**50**) | |

## DIN-IW6

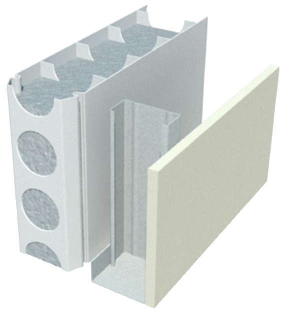


- [Side 1] 1 layer of Plasterboard as specified in table fixed to furring channels on clips with minimum **45mm** cavity
- Dincel wall as specified in table [refer to Dincel for FRL]
- [Side 2] 1 layer of Plasterboard as specified in table fixed to furring channels on clips with minimum **45mm** cavity

**masta**shield can be substituted with **water**shield
**fire**shield can be substituted with **multi**shield or **tru**rock

| Dincel Wall | System | Plasterboard Lining | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|
| | | | Pink® Partition 25mm 24kg/m³ R0.7 in both cavities | |
| 110mm Dincel | DIN110-IW6 | [Side 1] 16mm **fire**shield<br>[Side 2] 16mm **fire**shield | 63 (**50**) | Report<br>Day Design 5880-6.1R Rev A |
| 155mm Dincel | DIN155-IW6 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 60 (**52**) | |
| 200mm Dincel | DIN200-IW6 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 63 (**54**) | |

## DIN-IW7

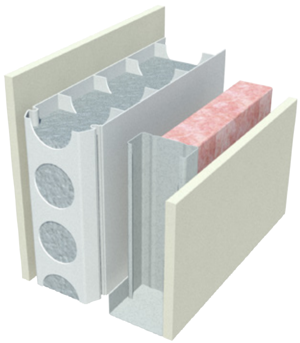


- [Side 1] Left bare
- Dincel wall as specified in table [refer to Dincel for FRL]
- Minimum 20mm air gap
- [Side 2] Plasterboard fixed to steel studs as specified in table

**masta**shield can be substituted with **water**shield

| Dincel Wall | System | Plasterboard Lining | Minimum Cavity Size (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|---|
| | | | | No insulation | Report |
| 110mm Dincel | DIN110-IW7 | [Side 2] 10mm **masta**shield | 71mm (51mm steel stud + 20mm air gap) | 51 (43) | Day Design 5880-6.1R Rev A<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 155mm Dincel | DIN155-IW7 | [Side 2] 10mm **masta**shield | 71mm (51mm steel stud + 20mm air gap) | 54 (45) | |
| 200mm Dincel | DIN200-IW7 | [Side 2] 10mm **masta**shield | 71mm (51mm steel stud + 20mm air gap) | 57 (47) | |

## DIN-IW8

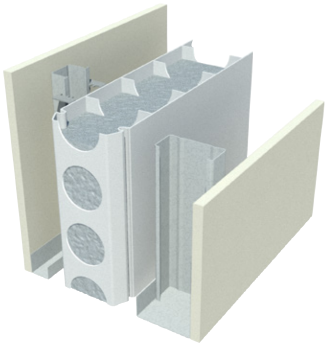


- [Side 1] 1 layer of Plasterboard as specified in table fixed to Dincel
- Dincel wall as specified in table [refer to Dincel for FRL]
- Minimum 20mm air gap
- [Side 2] Plasterboard fixed to steel studs as specified in table

**masta**shield can be substituted with **water**shield

| Dincel Wall | System | Plasterboard Lining | Minimum Cavity Size (mm) | | |
|---|---|---|---|---|---|
| | | | | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
| 110mm Dincel | DIN110-IW8 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 71mm (51mm steel stud + 20mm air gap) | 57 (**50**) | Day Design 5880-6.1R Rev A<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 155mm Dincel | DIN155-IW8 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | 71mm (51mm steel stud + 20mm air gap) | 63 (**51**) | |
| 200mm Dincel | DIN200-IW8 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | 71mm (51mm steel stud + 20mm air gap) | 61 (**53**) | |

## DIN-IW9, IW10

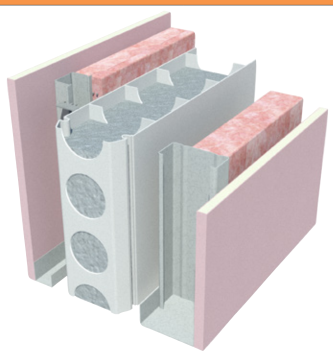


- [Side 1] 1 layer of Plasterboard as specified in table fixed to furring channels on clips with minimum 30mm cavity
- Dincel wall as specified in table [refer to Dincel for FRL]
- minimum 20mm air gap
- [Side 2] Plasterboard fixed to steel studs as specified in table

**masta**shield can be substituted with **water**shield

| Dincel Wall | System | Plasterboard Lining | Minimum Cavity Size (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|---|
| | | | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 in stud cavity | |
| 110mm Dincel | DIN110-IW9 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | [Side 2] 71mm (51mm stud + 20mm air gap) | 47 (41) | - | Report<br><br>Day Design 5880-6.1R Rev A<br><br>Note: Impact Sound Resistant - Discontinuous Construction |
| | DIN110-IW10 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | [Side 2] 71mm (51mm stud + 20mm air gap) | - | 57 (**50**) | |
| 155mm Dincel | DIN155-IW9 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | [Side 2] 71mm (51mm stud + 20mm air gap) | 51 (43) | - | |
| | DIN155-IW10 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | [Side 2] 71mm (51mm stud + 20mm air gap) | - | 63 (**51**) | |
| 200mm Dincel | DIN200-IW9 | [Side 1] 10mm **masta**shield<br>[Side 2] 10mm **masta**shield | [Side 2] 71mm (51mm stud + 20mm air gap) | 55 (46) | - | |
| | DIN200-IW10 | [Side 1] 13mm **masta**shield<br>[Side 2] 13mm **masta**shield | [Side 2] 71mm (51mm stud + 20mm air gap) | - | 61 (**53**) | |

## DIN-IW11



- [Side 1] 1 layer of Plasterboard as specified in table fixed to furring channels on clips with minimum 30mm cavity
- Dincel wall as specified in table [refer to Dincel for FRL]
- minimum 20mm air gap
- [Side 2] Plasterboard fixed to steel studs as specified in table

**masta**shield can be substituted with **water**shield
**fire**shield can be substituted with **multi**shield or **tru**rock

| Dincel Wall | System | Plasterboard Lining | Minimum Cavity Size (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|---|
| | | | Pink® Partition 25mm 24 kg/m³ R0.7 in furring channel cavity + Pink® Partition 50mm 11 kg/m³ R1.2 in stud cavity | | Report<br><br>Day Design 5880-6.1R Rev A<br><br>Note: Impact Sound Resistant - Discontinuous Construction |
| 110mm Dincel | DIN110-IW11 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | [Side 2] 71mm (51mm stud + 20mm air gap) | 62 (**50**) | |
| 155mm Dincel | DIN155-IW11 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | [Side 2] 71mm (51mm stud + 20mm air gap) | 67 (**52**) | |
| 200mm Dincel | DIN200-IW11 | [Side 1] 13mm **fire**shield<br>[Side 2] 13mm **fire**shield | [Side 2] 71mm (51mm stud + 20mm air gap) | 68 (**53**) | |

# General Requirements

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Install control joints in plasterboard walls:<br>> At 12m maximum intervals<br>> At all movement joints in the building<br>> At any change in the substrate | ✓ | ✓ |
| Only joint the face layer. As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, use **bindex** fire and acoustic sealant according to the Product Data Sheet. | | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | | ✓ |
| Use **bindex** fire and acoustic sealant on all gaps and around perimeter. | | ✓ |
| Attach all fixtures to studs or purpose installed noggings. Wall anchors must not be fixed only to the plasterboard of fire rated walls. | | ✓ |
| **fire**shield may be substituted with **multi**shield, **impact**shield, **tru**rock and **tru**rock HD of the same or greater thickness and maintain fire performance. | | ✓ |

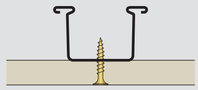
For acceptable modifications or variations to fire rated systems, refer to Section 2.3 Fire Resistance

# Framing

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Framing members as per framing table or structural design up to 600mm maximum. Refer to Section 3.1 Internal Steel Framed Partition Walls for information on steel stud framing. | ✓ | ✓ |

## Table 1 Wall Furring Channel Span Table

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

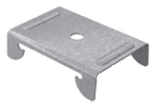
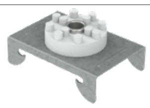
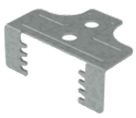
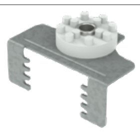
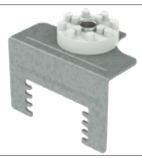
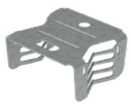


| Furring Channels at 600mm maximum centres | | | | | | |
|---|---|---|---|---|---|---|
| Wind Region | Ultimate $W_u$ (kPa) | Serviceability $W_s$ (kPa) Deflection limited to Span/360 | 18mm Furring Channel (FC18) | | 28mm Furring Channel (FC28) | |
| | | | Span (mm) | Anchor Pull-out and Clip Demand (kN) | Span (mm) | Anchor Pull-out and Clip Demand (kN) |
| REGION A | 0.39 | 0.25 | 800 | 0.24 | 1140 | 0.32 |
| | 0.47 | 0.3 | 750 | 0.27 | 1070 | 0.38 |
| | 0.54 | 0.35 | 710 | 0.29 | 1030 | 0.42 |
| REGION B | 0.59 | 0.25 | 740 | 0.33 | 1010 | 0.45 |
| | 0.71 | 0.3 | 710 | 0.38 | 960 | 0.51 |
| | 0.83 | 0.35 | 680 | 0.42 | 920 | 0.57 |

1. Table based upon self weight and lateral pressures, intended for internal use only. Other loads such as shelf loads, loads from ceilings, or live loads have not been considered.
2. Table refers to Siniat Furring Channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection.
3. Framing calculations based upon 2-or-more spans and designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
4. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
5. Clip capacities must be checked with the *Wall Clip Capacity Table*.
6. Ultimate Limit State Load Case 1: 1.2G + Wu
7. Serviceability Limit State Load Case 1: G + Ws, with deflection limited to Span/360.
8. Anchors for head and base tracks at 600mm maximum centres and 100mm maximum from ends with minimum 0.5 kN shear capacity.
9. Clips may need to be spaced at closer intervals for impact applications.
10. Furring channels cannot be spliced, therefore the maximum wall height using furring channels is 6.0m. Maximum production lengths available are 6.0m.
11. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.

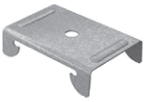
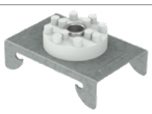
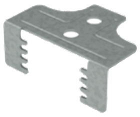
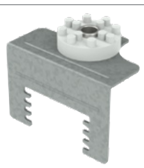
### Siniat Internal Wind Load Calculator

### Table 2 Wall Clip Capacity Table

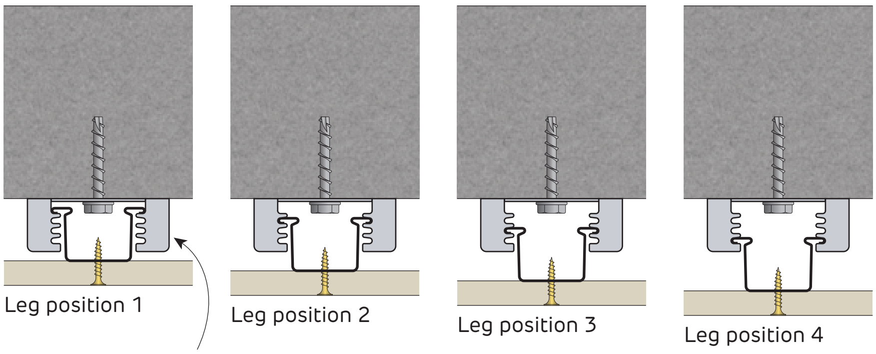
<table>
<tr><th>Image</th><th>Name</th><th>Code</th><th>ULS Design Capacity (kN)</th></tr>
<tr><td rowspan="4"></td><td rowspan="4">Anchor Clip<br>(standard and wide versions)</td><td>C37-7H (7.5mm hole)</td><td rowspan="4">1.69</td></tr>
<tr><td>CW37-7H (7.5mm hole)</td></tr>
<tr><td>C37-9H (9mm hole)</td></tr>
<tr><td>CW37-9H (9mm hole)</td></tr>
<tr><td></td><td>Resilient Mount, with 6.5mm hole suitable for screws</td><td>C001</td><td>1.69</td></tr>
<tr><td></td><td>Furring Channel Screw Adjustable Mount</td><td>CFCSAM</td><td>1.69</td></tr>
<tr><td></td><td>Concrete to Stud Wall Mount</td><td>C001-DCS</td><td>4.00</td></tr>
<tr><td rowspan="2"></td><td rowspan="2">Grip Clip</td><td>CGRIP (6.5mm holes)</td><td rowspan="2">1.24<br>when fixed through hole closest to teeth</td></tr>
<tr><td>CGRIP-9 (9mm holes)</td></tr>
<tr><td rowspan="2"></td><td rowspan="2">Grip Clip Long</td><td>CGRIP-LONG (6.5mm holes)</td><td rowspan="2">0.69<br>when fixed through hole closest to teeth</td></tr>
<tr><td>CGRIP-LONG9 (9mm holes)</td></tr>
<tr><td></td><td>Grip Clip Resilient Mount, with 6.5mm hole suitable for screws</td><td>CGRIP-RES</td><td>0.47</td></tr>
<tr><td></td><td>Grip Clip Resilient Mount Long, with 6.5mm hole suitable for screws</td><td>CGRIP-RESLONG</td><td>0.41</td></tr>
<tr><td></td><td>Adjustable Mount, with 7mm hole suitable for screws</td><td>CFCAM</td><td>0.79</td></tr>
<tr><td></td><td>Resilient Adjustable Mount, with 6.5mm hole suitable for screws</td><td>CFCRESAM</td><td>0.79</td></tr>
</table>

1. Clip capacities are applicable to Siniat products only.
2. Clip capacities determined in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*, Section 8.2.
3. Suitable for internal use only.

## Table 3 Cavity Size Table (mm)

| Clip Image | Clip Name and Code | Leg Position | Cavity Size with 28mm Furring Channel | Cavity Size with 18mm Furring Channel |
|---|---|---|---|---|
|  | Anchor Clip | - | 34 | 23 |
|  | Resilient Mount | Completely wound in | 44 | 33 |
|  | Grip Clip | 4 | 51 | 40 |
| | | 3 | 45 | 34 |
| | | 2 | 39 | - |
| | | 1 | 33 | - |
|  | Grip Clip Long | 4 | 70 | 60 |
| | | 3 | 64 | 54 |
| | | 2 | 58 | - |
| | | 1 | 52 | - |
|  | Grip Clip Resilient Mount | 4 | 60 | 50 |
| | | 3 | 54 | 44 |
| | | 2 | 48 | - |
| | | 1 | 42 | - |
|  | Grip Clip Resilient Mount Long | 4 | 80 | 70 |
| | | 3 | 74 | 64 |
| | | 2 | 68 | - |
| | | 1 | 62 | - |
|  | Adjustable Mount | 4 | 48 | 37 |
| | | 3 | 42 | 31 |
| | | 2 | 36 | - |
| | | 1 | 30 | - |
|  | Resilient Adjustable Mount | 4 | 58 | 48 |
| | | 3 | 52 | 42 |
| | | 2 | 46 | - |
| | | 1 | 40 | - |

1. Cavity sizes are intended as a guide only.




> Plumbing and electrical services must not protrude beyond the face of the stud.

> Resilient mounts or direct fix clips with furring channel do not meet the requirements of 'discontinuous construction' for walls. Resilient mounts only meet the requirements of 'impact sound resistance'.

# Plasterboard Layout

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Vertical joints must be 200mm minimum from the edge of any opening such as windows and doorways to minimise cracking at the joints. | ✓ | ✓ |
| **Horizontal Layout** | | |
| Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets. | ✓ | ✓ |
| Stagger butt joints in multilayer systems by 300mm minimum on adjoining sheets and between layers. | ✓ | ✓ |
| First layer butt joints must be backed by a stud, furring channel or back-blocked. Refer to installation diagrams. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |

- Install plasterboard sheets horizontally when practical to minimise stud twisting and reduce the effect of glancing light.
- Minimise butt joints by using long sheets.

# Plasterboard Fixing

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ | ✓ |
| Laminating screws can be used to fix butt joints in the second and third layer. | ✓ | ✓ |
| **Masonry Adhesive Method** | | |
| Use the masta**bond** Masonry Adhesive Method | ✓ | |
| **Screw and Adhesive Method** to Steel Studs and Furring Channels | | |
| Apply masta**grip** Stud Adhesive after the frame is clean, dry, and free from grease, dust and other contaminants. | ✓ | |
| Apply masta**grip** daubs 200mm minimum from screws and plasterboard edges. | ✓ | |
| **Screw Only Method** to Steel Studs and Furring Channels | | |
| Use the 'Screw Only Method' in tiled or fire rated areas. | ✓ | ✓ |
| **Laminating Screw Only Method** | | |
| Use 10g x 38mm laminating screws for Autoclaved Aerated Concrete. | ✓ | ✓ |

The 'Screw and Adhesive Method' is recommended for non-fire rated applications. masta**grip** will:

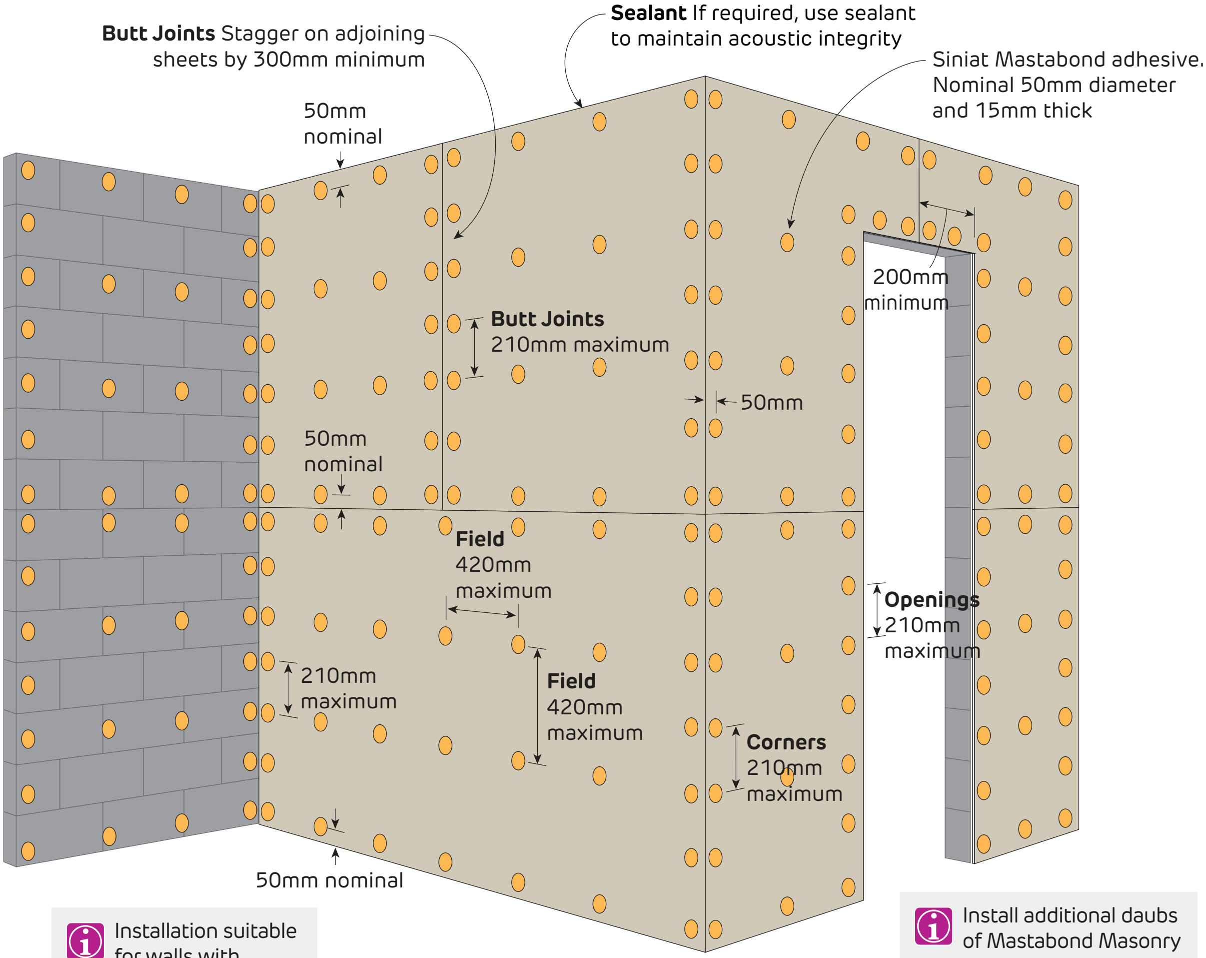
- Minimise screw popping
- Reduce the number of screw heads that may show in glancing light
- Assist in compensating for frame irregularities.

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 6.5mm | 6g x 25mm screw | 6g x 25mm screw | - |
| 10mm | 6g x 25mm screw | 6g x 41mm screw * | - |
| 13mm | 6g x 25mm screw | 6g x 41mm screw * | 8g x 57mm screw * |
| 16mm | 6g x 32mm screw | 6g x 45mm screw * | 8g x 65mm screw * |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.
*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

**FIGURE 1** **Non-Fire Rated 1 Layer - Horizontal**
Masonry Adhesive Method




Installation suitable for walls with irregularities up to 15mm

Install additional daubs of Mastabond Masonry Adhesive around power points and plumbing fixtures

## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | M M M (3) |
| 900mm | M M M (3) |
| 1200mm | M M M M (4) |
| 1350mm | M M M M (4) |
| 1400mm | M M M M M (5) |

M = Masonry adhesive daub

## Maximum Ultimate Limit State Wind Load Table (kPa)

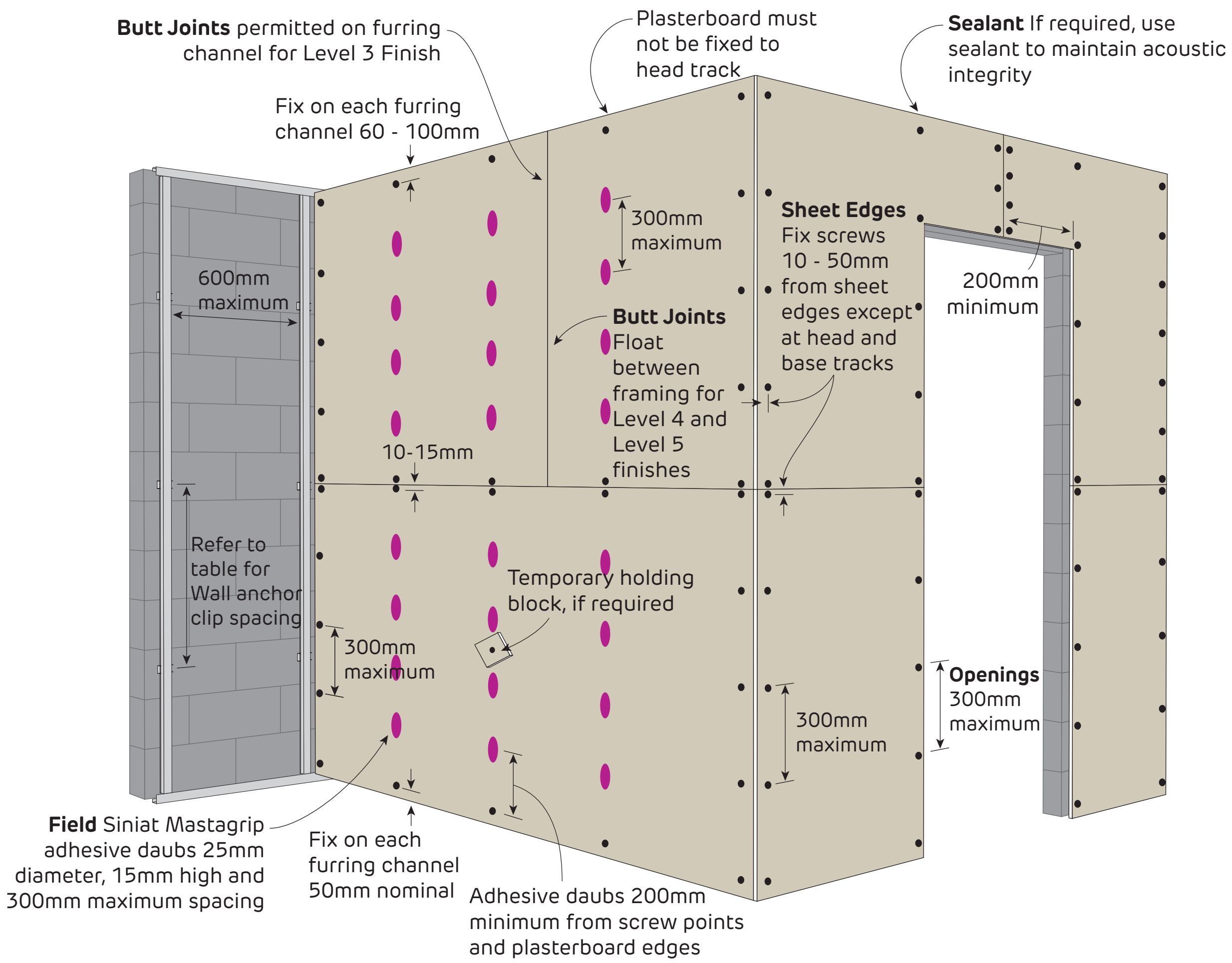
| Plasterboard Thickness | Maximum Adhesive Daub Column Spacing | |
|---|---|---|
| | 420mm | 300mm |
| 10mm | 0.8 | 1.12 |
| 13mm | 0.8 | 1.12 |
| 16mm | 0.8 | 1.12 |

1. Calculations do not include the substrate which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

Do not use the Masonry Adhesive method for:

- Masonry with a glazed surface finish
- Fire rated systems
- Multi-layer systems
- Walls over 3 metres high
- Substrates (ie: concrete panels) that have a release agent or incompatible surface coating reducing the effectiveness of the adhesive
- Walls where the surface deviation is above 15mm
- Walls that may become damp during service.
- Walls that have tiles adhered to plasterboard.

**FIGURE 2** **Non-Fire Rated 1 Layer - Horizontal**
Screw and Adhesive Method over vertical furring channels




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S A A S |
| 900mm | S A A A S |
| 1200mm | S A A A A S |
| 1350mm | S A A A A A S |
| 1400mm | S A A A A A S |

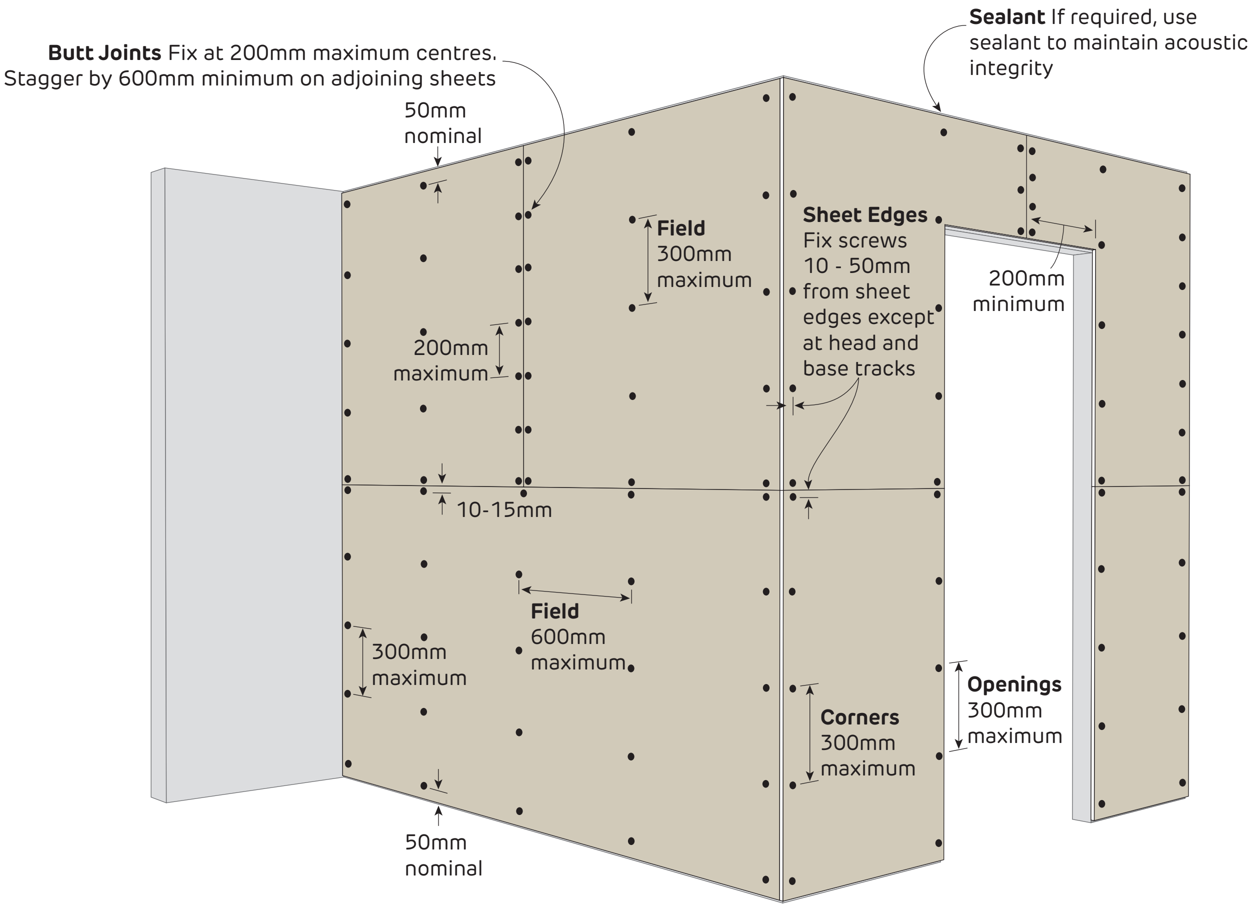
S = Screw
A = Adhesive daub

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Furring Channel Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 1.00 | 1.33 | 1.50 | 2.00 |
| 13mm | 1.00 | 1.33 | 1.50 | 2.00 |
| 16mm | 1.00 | 1.33 | 1.50 | 2.00 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 3** **Non-Fire Rated 1 Layer - Horizontal**
Laminating Screw Method to Autoclaved Aerated Concrete (AAC)




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

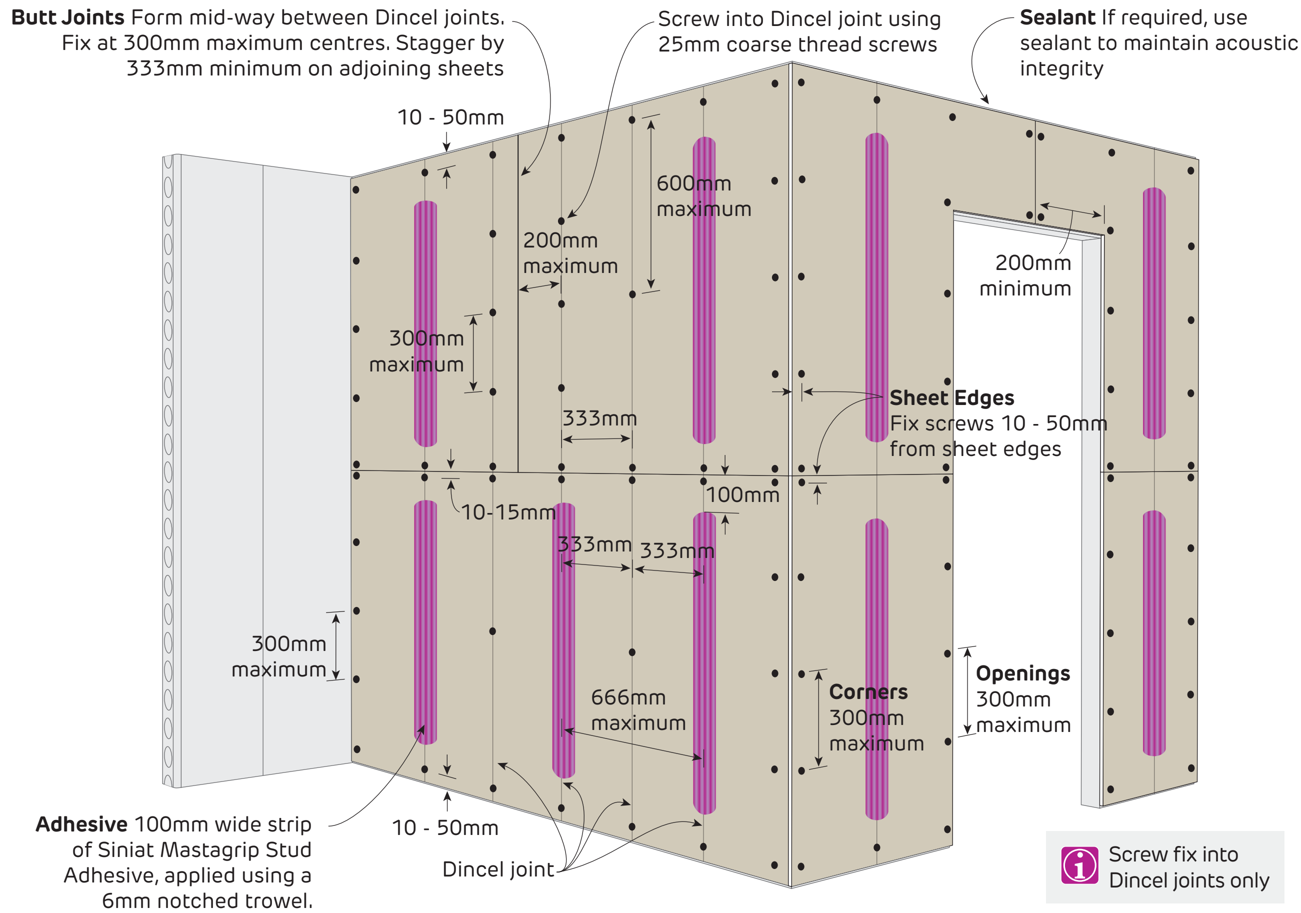
S = Screw
A = Adhesive daub

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Screw Column Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.86 | 1.15 | 1.30 | 1.73 |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the substrate which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 4** **Non-Fire Rated 1 Layer - Horizontal**
Screw and Adhesive Method to concrete filled Dincel PVC Permanent Formwork

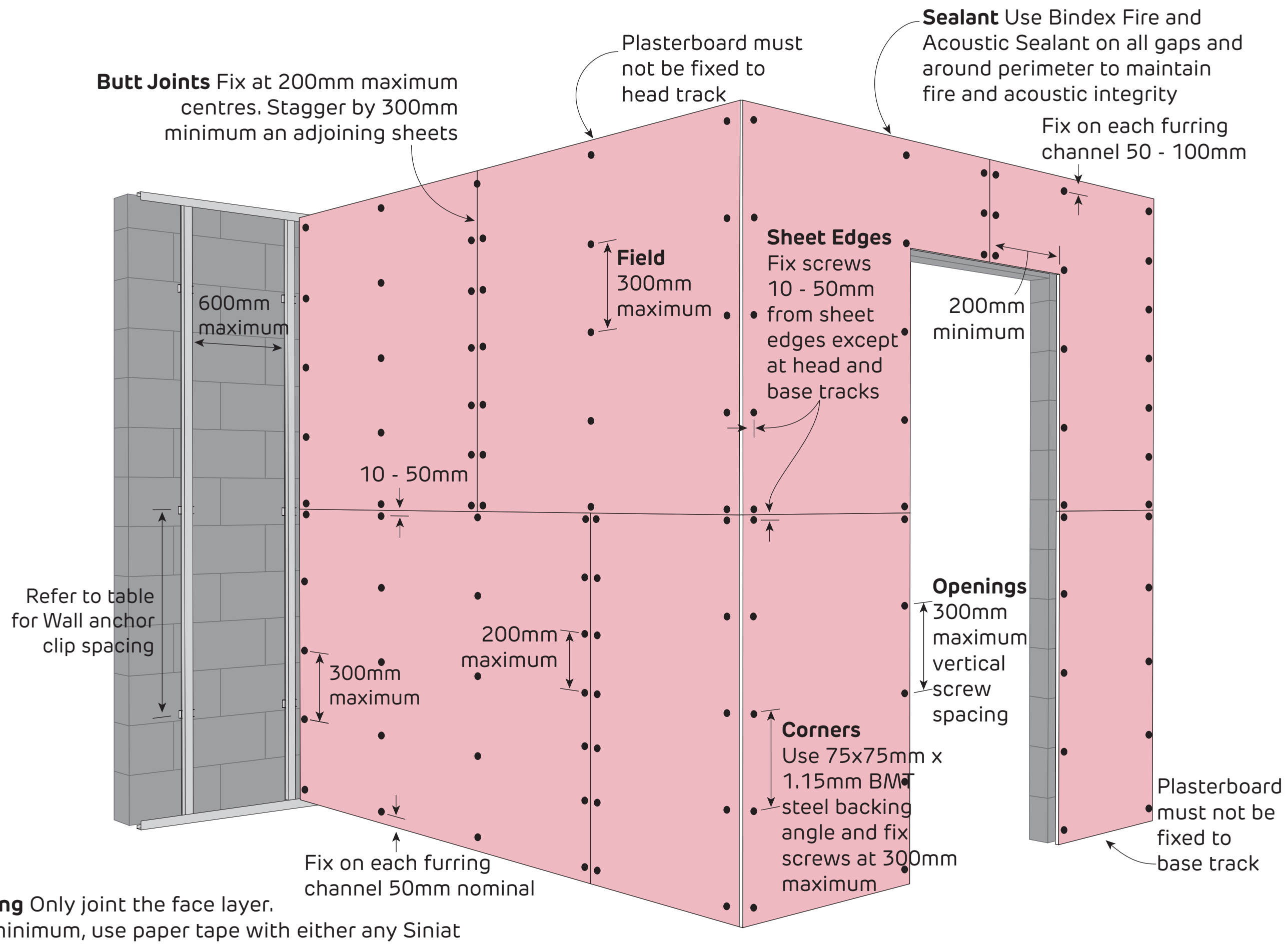



## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Fixing Column Spacing |
|---|---|
| | 333mm |
| 13mm | 0.75 |
| 16mm | 0.75 |

1. Calculations do not include the substrate which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 5** **Fire Rated - 1 Layer Horizontal**
Screw Method over vertical furring channels




**Jointing** Only joint the face layer.
As a minimum, use paper tape with either any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, for butt joints only, use Bindex Fire and Acoustic Sealant according to the Product Data Sheet.

## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

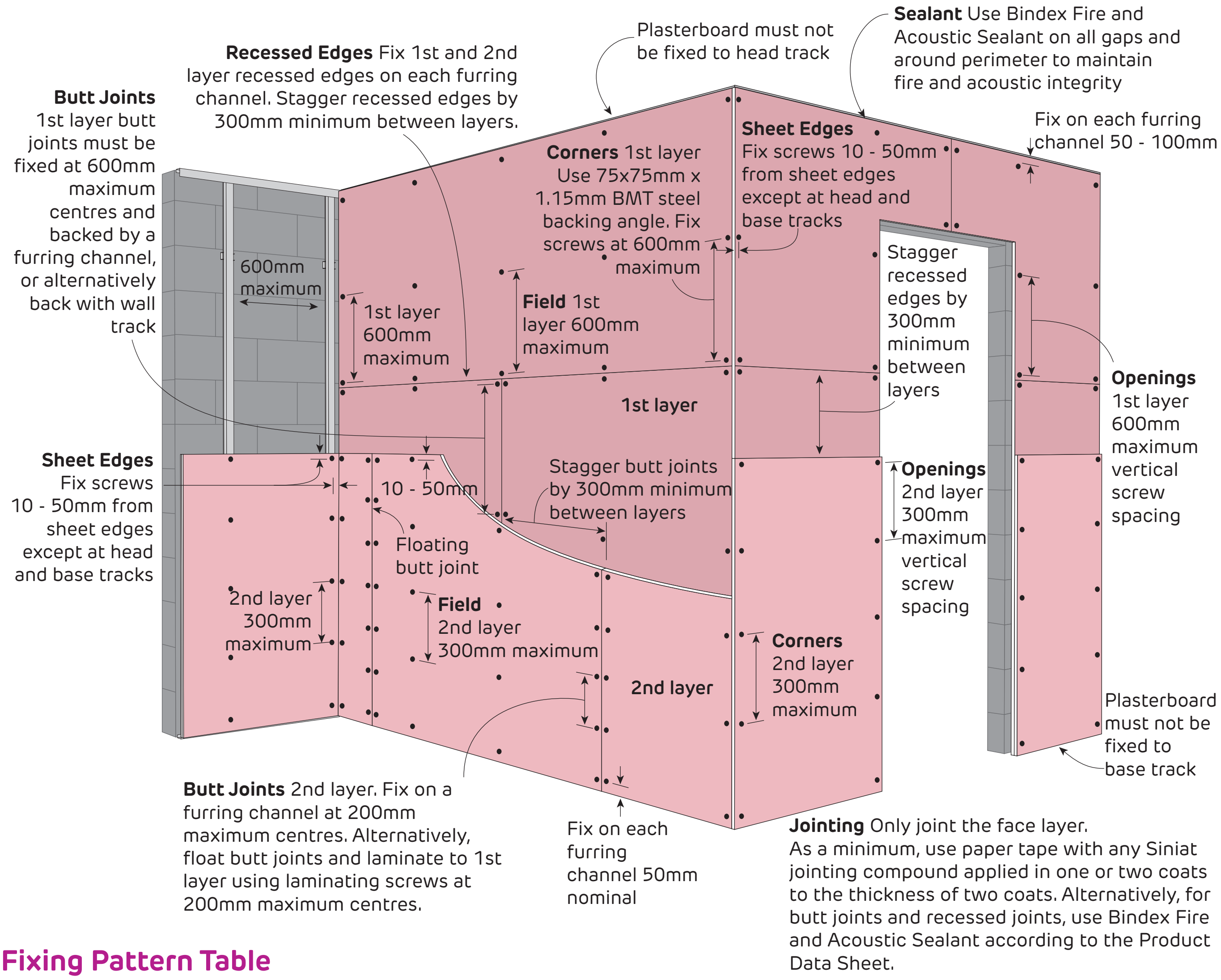
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Furring Channel Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the substrate which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 6** **Fire Rated 2 Layers - Horizontal + Horizontal**
Screw Only Method over vertical furring channels




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Furring Channel Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.85 | 1.15 | 1.30 | 1.75 |
| 16mm | 0.85 | 1.15 | 1.30 | 1.75 |

1. Calculations do not include the substrate which must be independently designed to suit the desired loads.
2. Calcuated over 3-or-more spans.
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

## Fire Rated and Non-Fire Rated
## Furring Channel Clips into Masonry

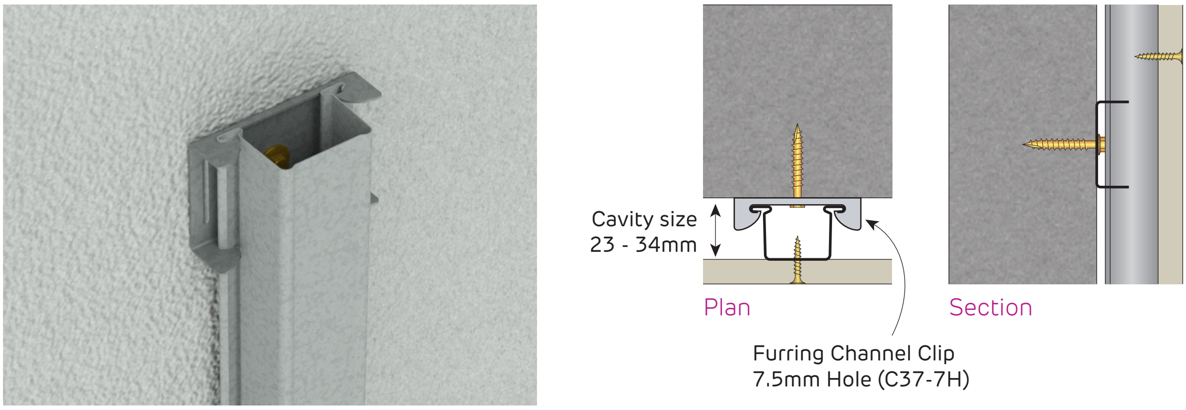



**FIGURE 7 Furring Channel Clip**
With 7mm hole suitable for Hex head screws

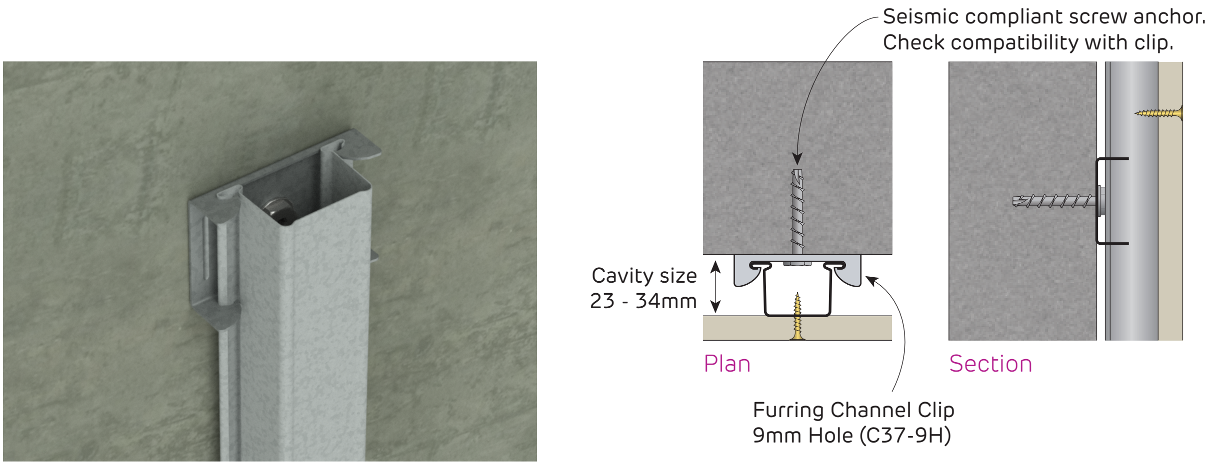



**FIGURE 8 Furring Channel Clip**
With 9mm hole suitable for 6mm Screw Anchor

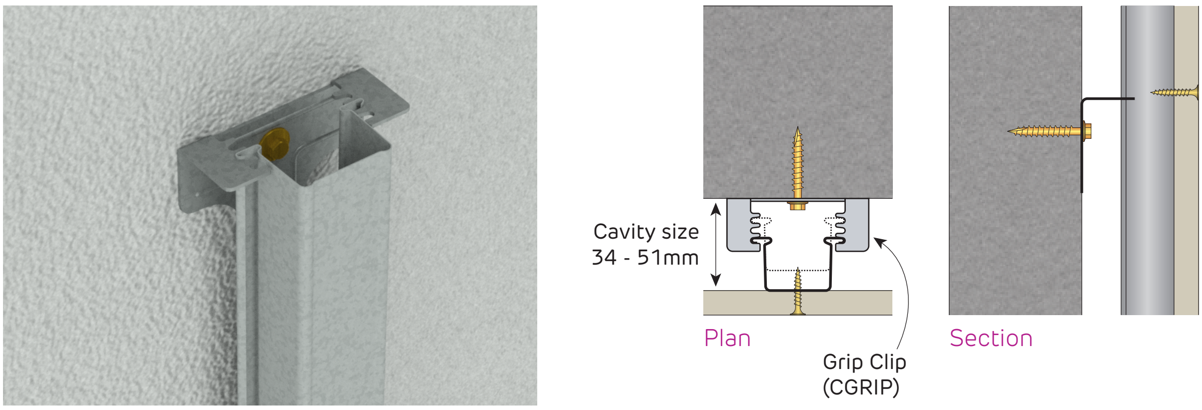



**FIGURE 9 Grip Clip**
With 6mm hole suitable for Hex head screws

## Fire Rated and Non-Fire Rated
## Furring Channel Clips into Masonry

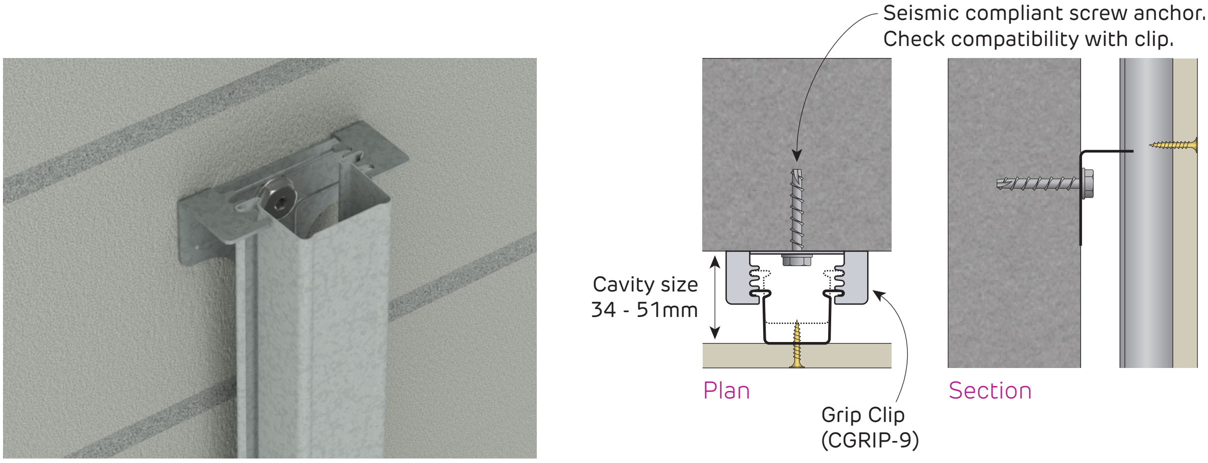



**FIGURE 10** **Grip Clip**
With 9mm hole suitable for 6mm Screw Anchor

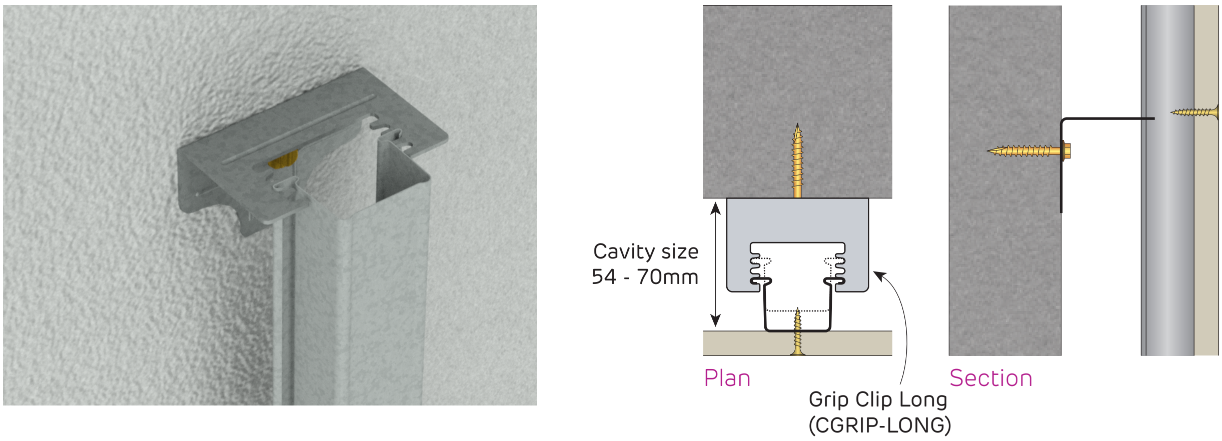



**FIGURE 11** **Grip Clip Long**
With 6.5mm hole suitable for Hex head screws

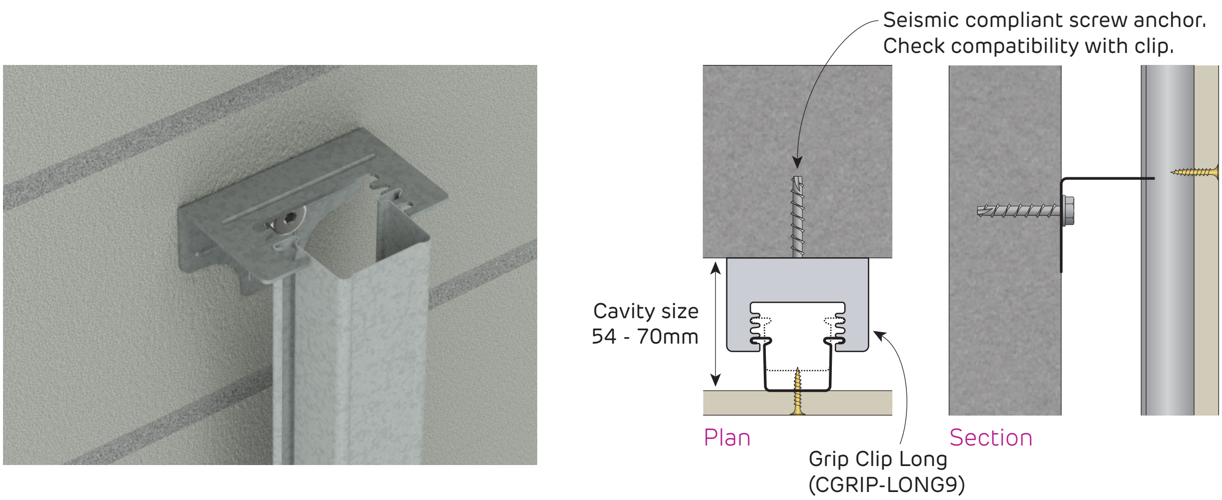
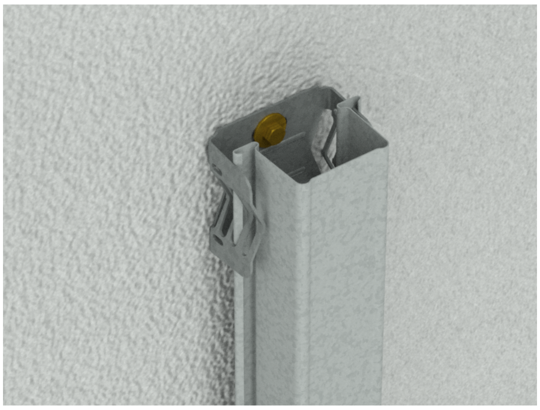



**FIGURE 12** **Grip Clip Long**
With 9mm hole suitable for 6mm Screw Anchor

## Fire Rated and Non-Fire Rated
## Furring Channel Clips into Masonry



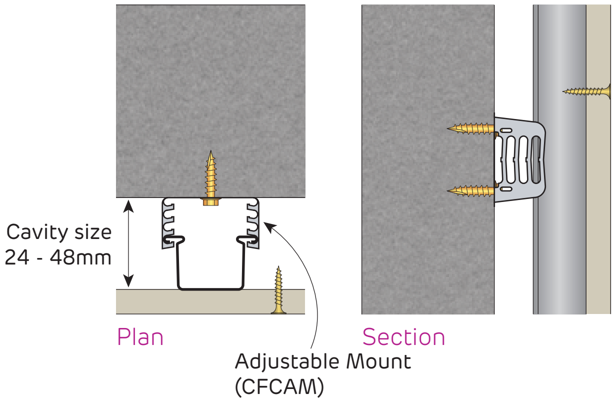



**FIGURE 13 Adjustable Mount**
With 7mm hole suitable for Hex head screws

## Fire Rated and Non-Fire Rated
## Head and Base Details for Plasterboard with Masonry Walls

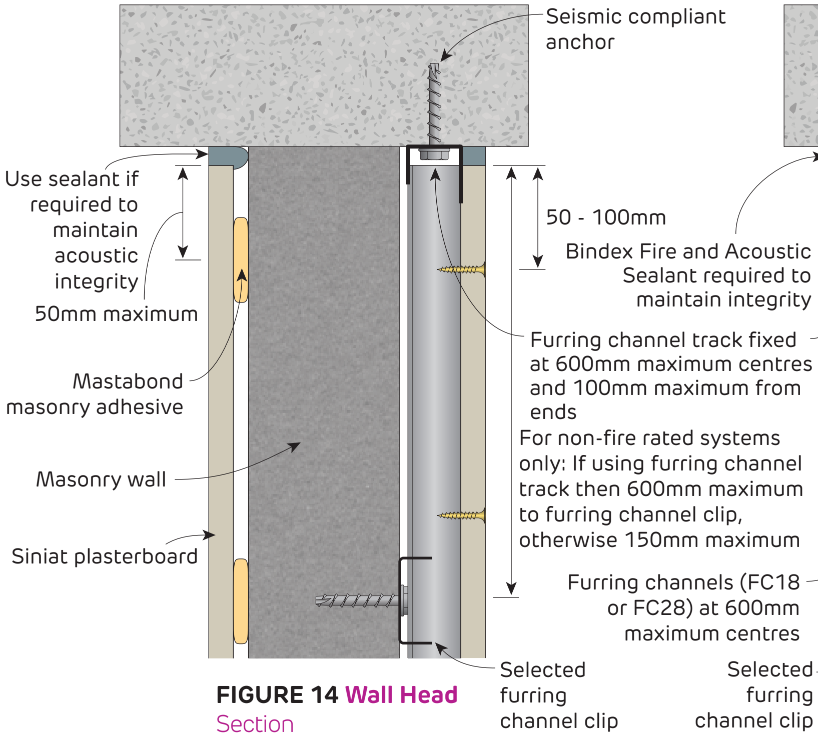



**FIGURE 14 Wall Head**
Section

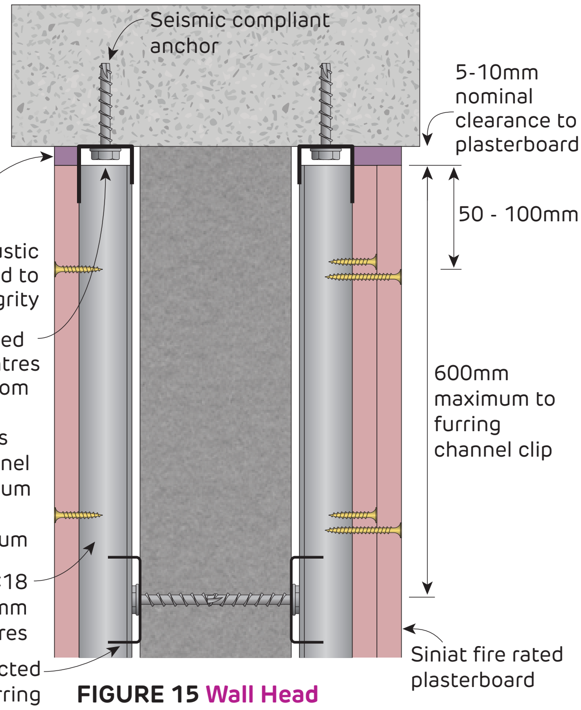



**FIGURE 15 Wall Head**
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

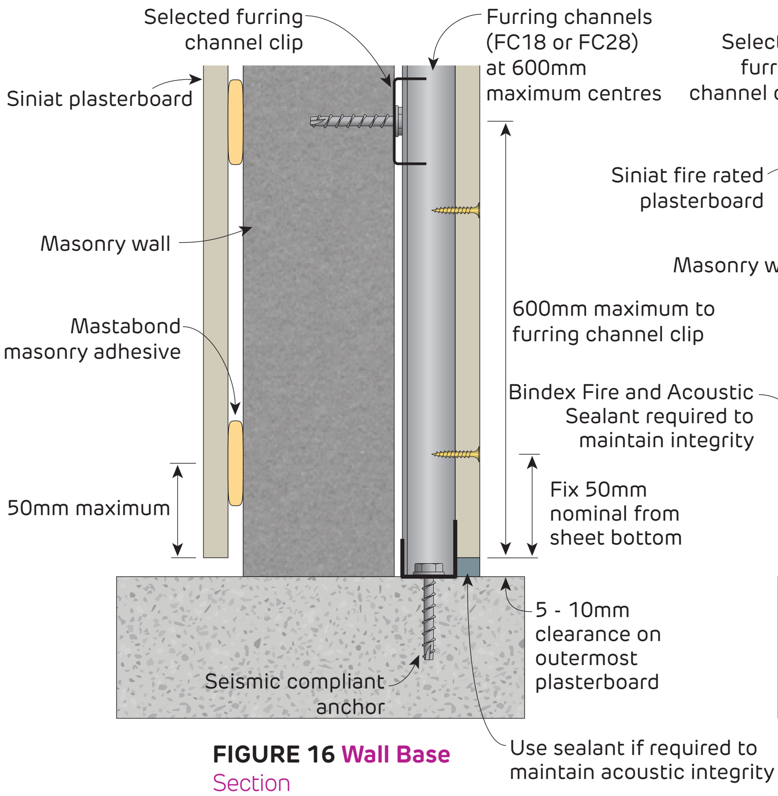



**FIGURE 16 Wall Base**
Section

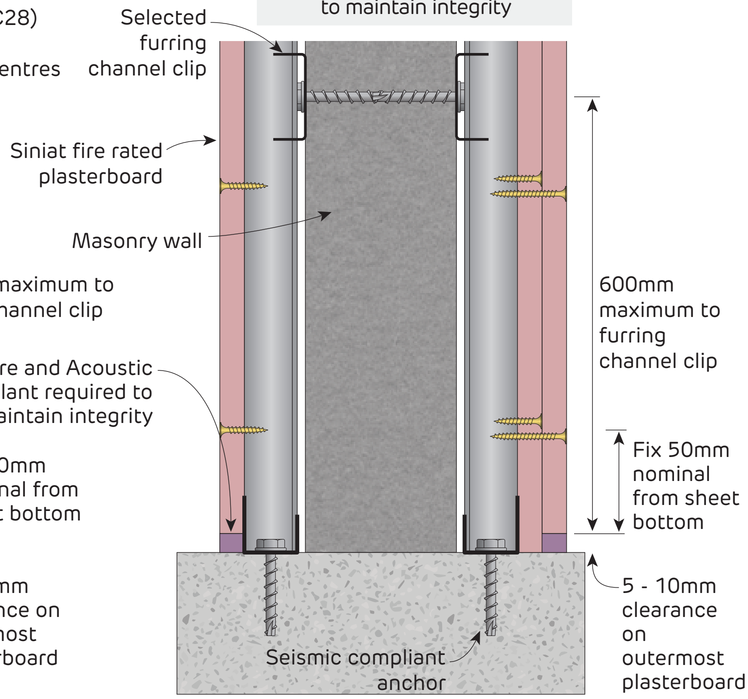



**FIGURE 17 Wall Base**
Section

Outermost plasterboard sheets with no gap at the base are at risk of moisture wicking

## Fire Rated and Non-Fire Rated
## Details for Openings in Plasterboard with Masonry Walls

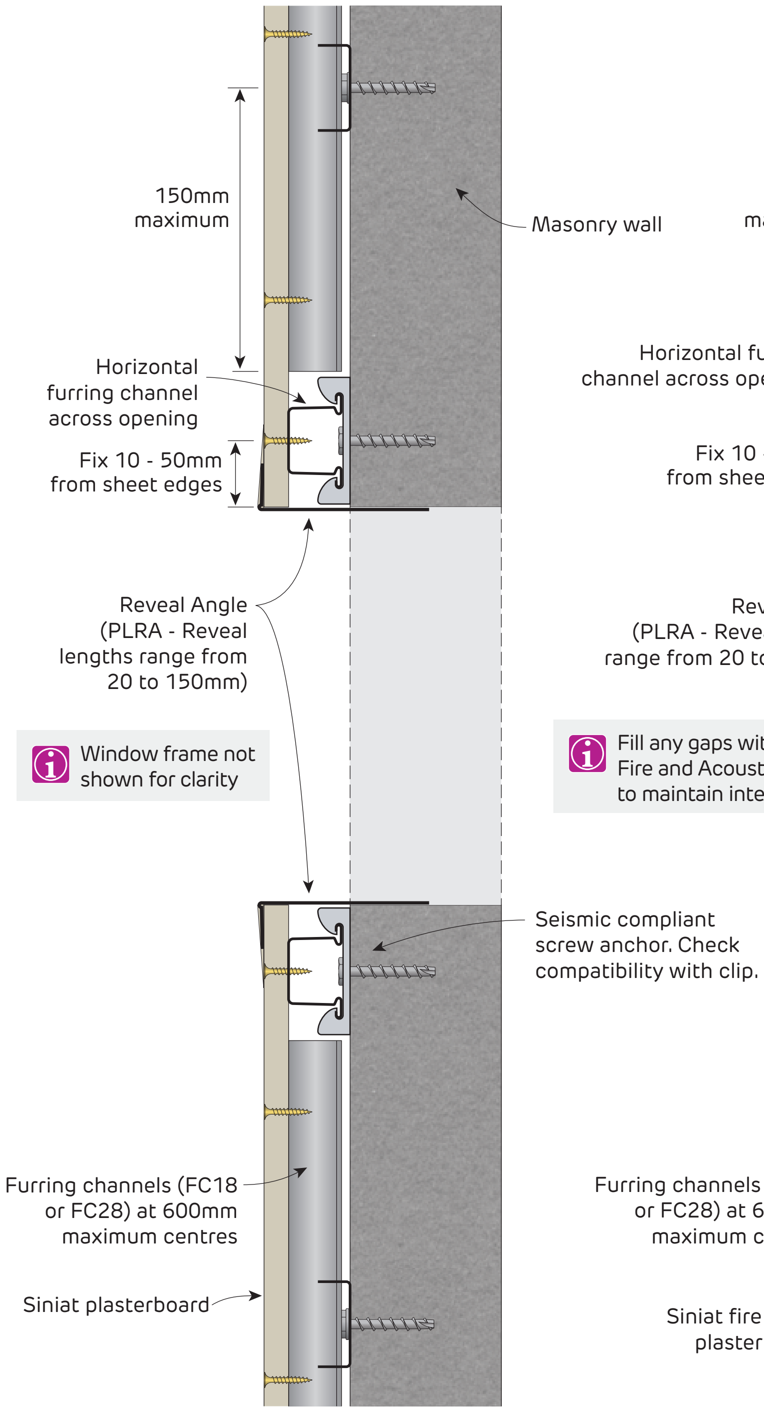



**FIGURE 18 Wall Opening**
Section

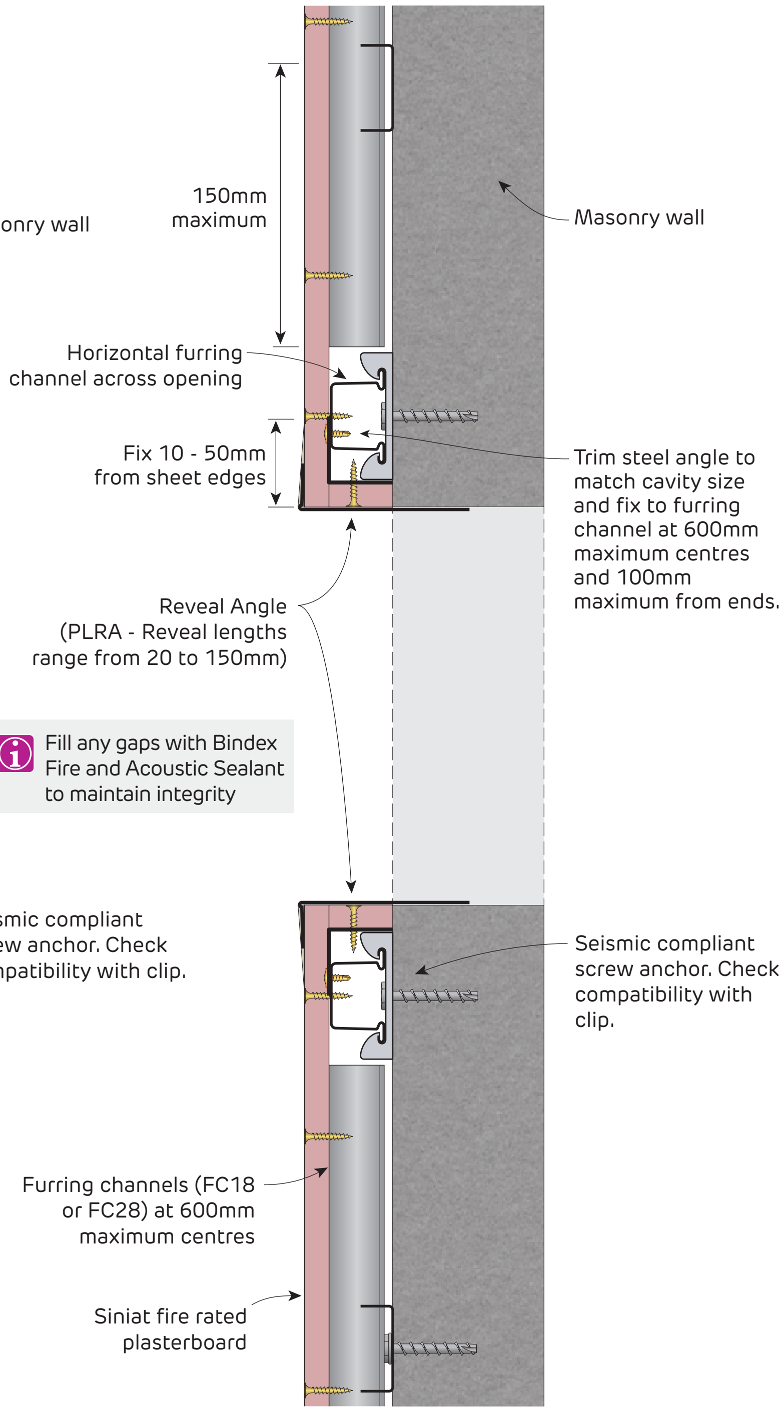



**FIGURE 19 Wall Opening**
Section

## Fire Rated and Non-Fire Rated
## Details for Plasterboard with Masonry Walls

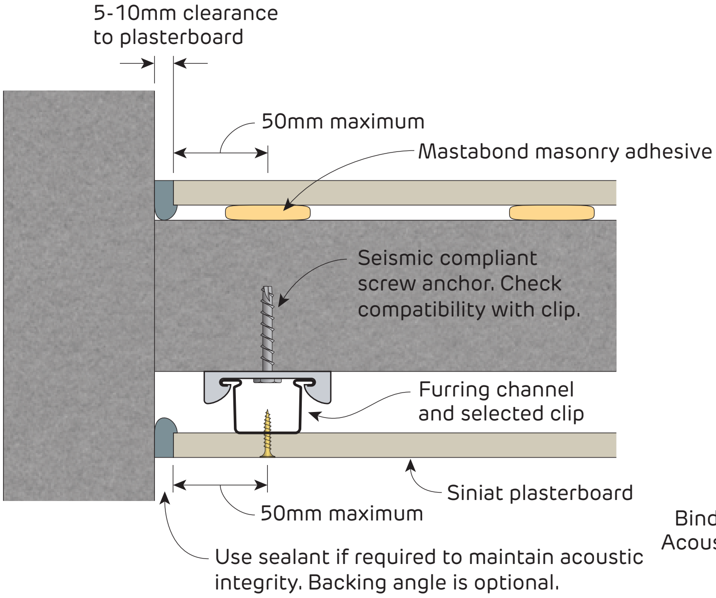



**FIGURE 20 Wall End**
Plan

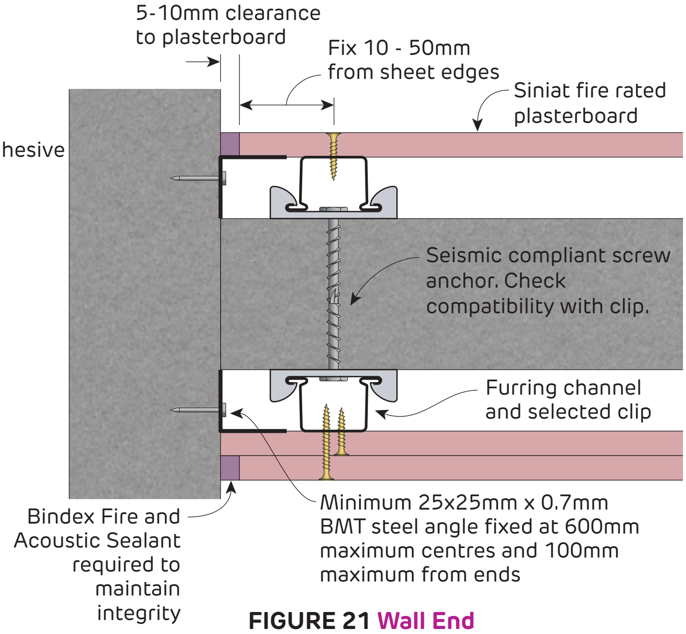



**FIGURE 21 Wall End**
Plan

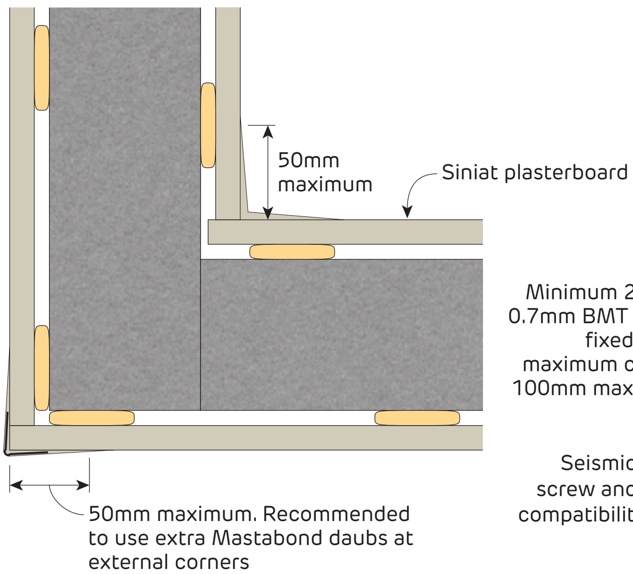



**FIGURE 22 Wall Corner**
Plan

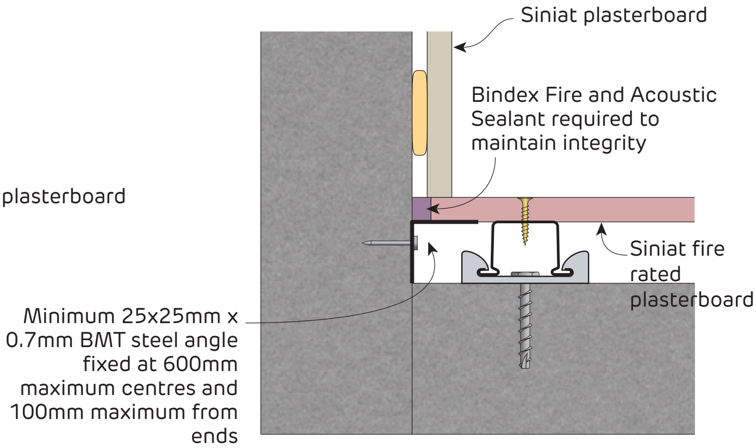
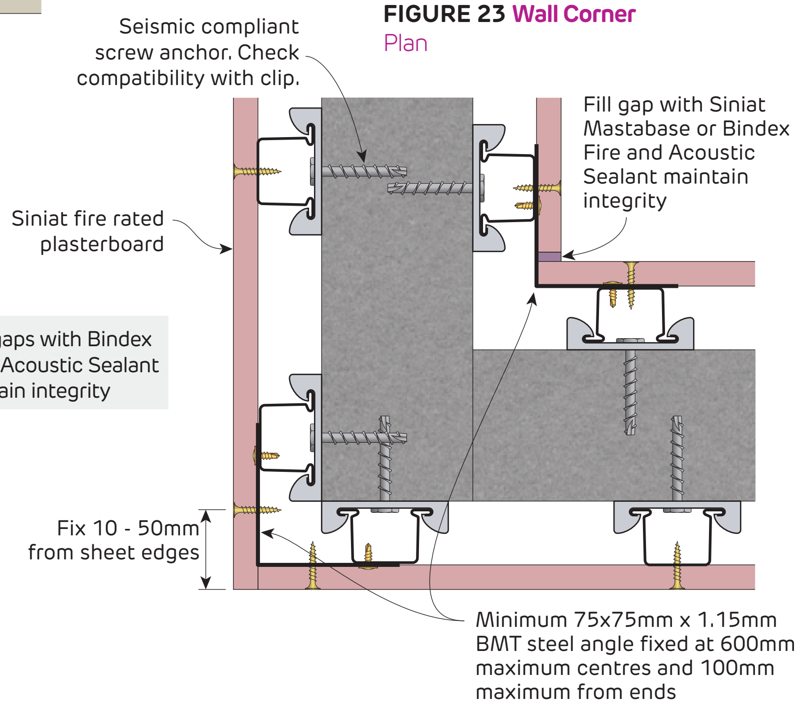



**FIGURE 23 Wall Corner**
Plan




Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

**FIGURE 24 Wall Corner**
Plan

# Fire Rated and Non-Fire Rated
## Details for Plasterboard with Masonry Walls

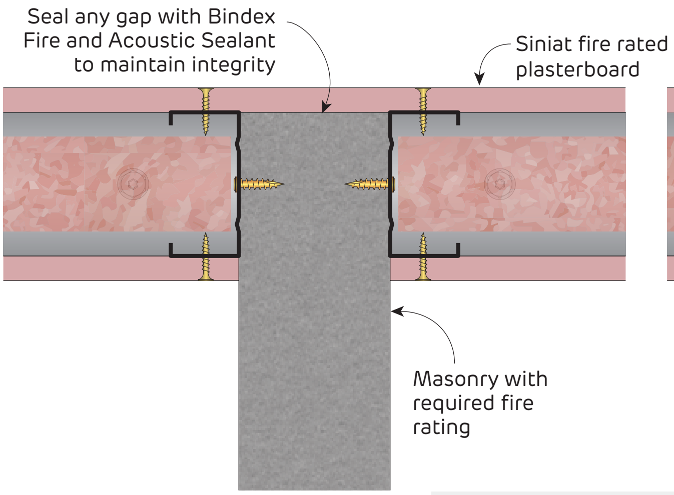



**FIGURE 25** Wall Intersection
Plan

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

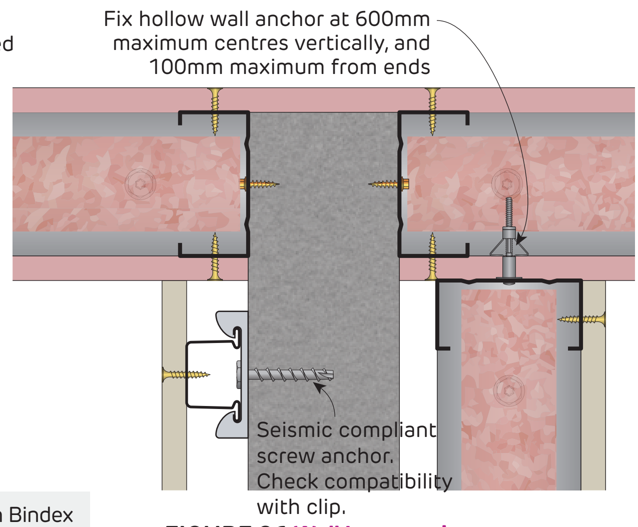
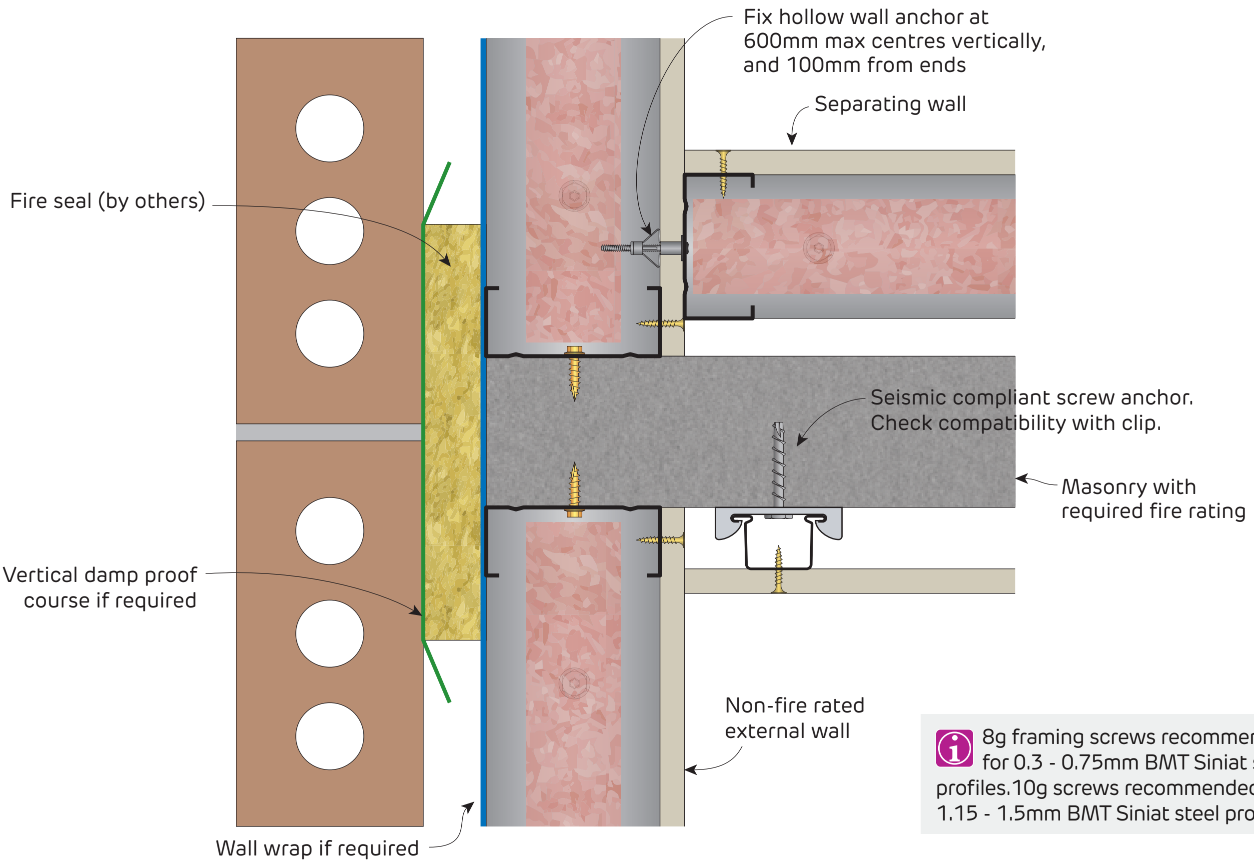



**FIGURE 26** Wall Intersection
Plan




8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

**FIGURE 27** Typical Internal Masonry Separating Wall to Brick Veneer
Example Only
Plan

## Fire Rated and Non-Fire Rated
## Control Joints in Plasterboard with Masonry Walls

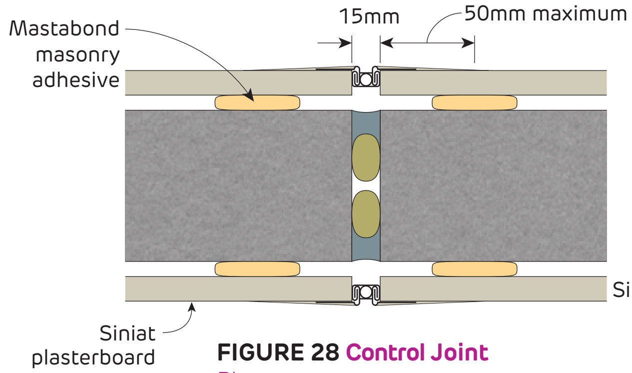



**FIGURE 28 Control Joint**
Plan

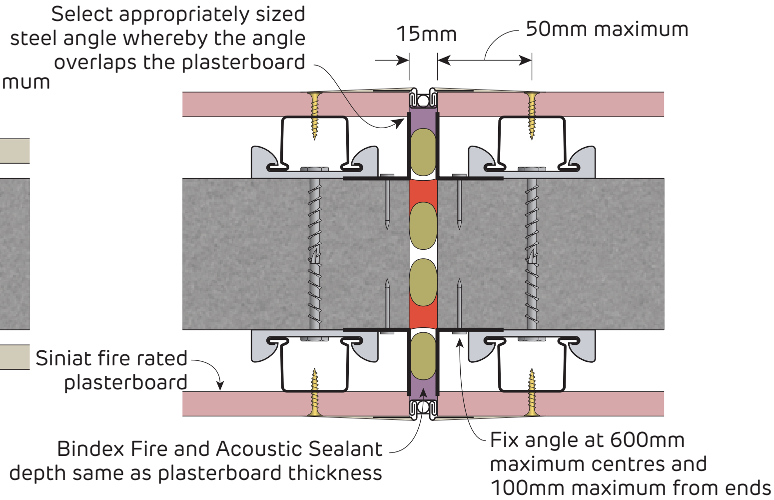



**FIGURE 29 Control Joint**
Fire rated - 1 layer
Plan

Low acoustic performance

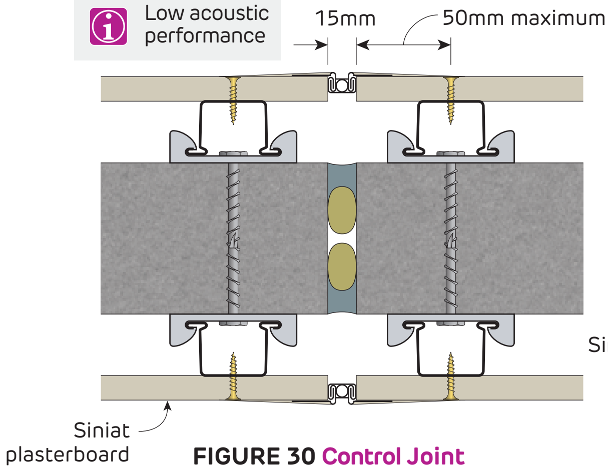



**FIGURE 30 Control Joint**
Plan

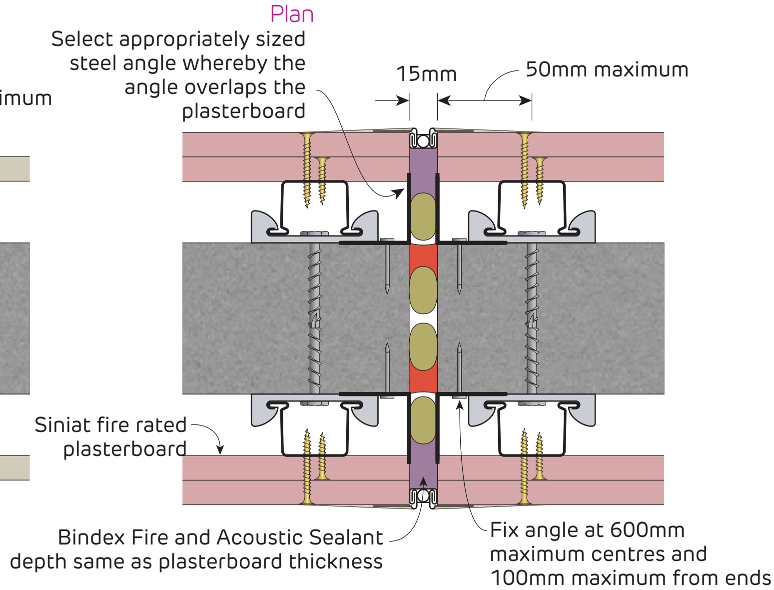



**FIGURE 31 Control Joint**
Fire rated - 2 layers
Plan

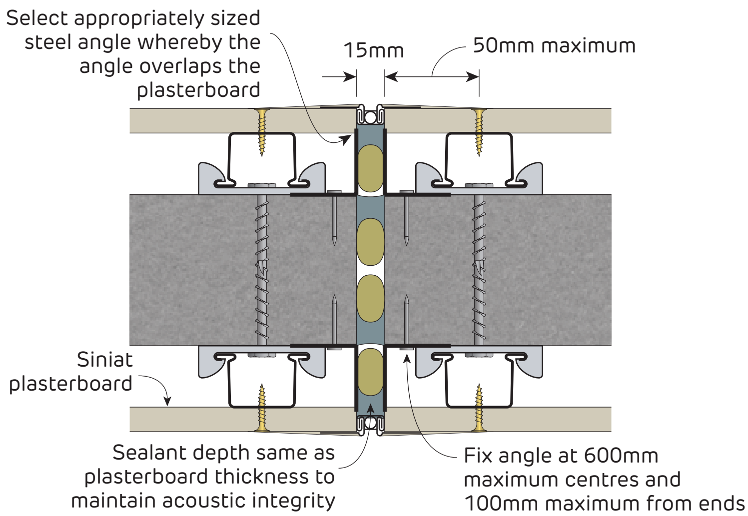



**FIGURE 32 Control Joint**
Plan

Siniat backing steel angle sizes available:
35x35mm x 0.7mm BMT
50x50mm x 0.7mm BMT
50x50mm x 1.15mm BMT
75x75mm x 1.15mm BMT
100x100mm x 1.15mm BMT



# 3.6 Interhome High-Rise Wall

**inter**home high-rise systems are designed to meet fire protection and sound insulation requirements for walls separating Sole Occupancy Units (SOU). They are suited to slab-to-slab construction in Class 2 or 3 buildings (apartments, hotels or hostels).

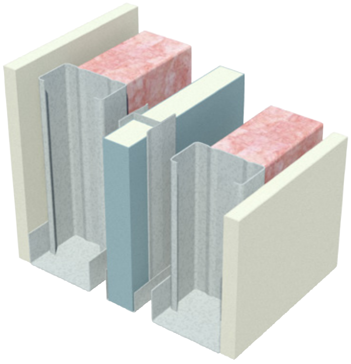
**inter**home high-rise systems consist of twin steel framed walls with a central fire barrier of 25mm **shaftl**iner or **inter**shield encased in steel **inter**home H-studs. 16mm **fire**shield laminated to the central fire barrier is required when the outer wall linings do not extend to the soffit. All details in this section are for non-load bearing walls only.

The central fire barrier provides the primary fire protection and sound insulation barrier for the system, and thus simplifies installation by allowing non-fire rated installation of internal linings and non-fire rated penetrations of the outer wall linings during construction and also once a SOU is occupied.

Warning: All **inter**home high-rise systems are <u>not</u> suitable for use in timber or steel framed buildings with SOU's separated by timber or steel framed floors that require a Fire Resistance Level (FRL). An example of such a building would be a timber framed multi-residential building which has SOU's above one another.

# Separating Wall Systems

## IHS115



- 1 layer of 13mm **masta**shield
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 13mm **masta**shield

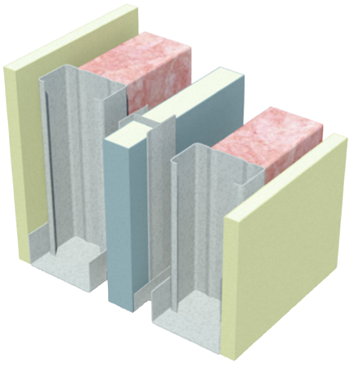
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| Cavity size = stud size + air gap | | Pink® Partition 75mm 11 kg/m³ in both cavities | Pink® Partition 90mm 14 kg/m³ in both cavities | [8] Insul Prediction v8<br>[7] Day Design 5008-29<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 110 (eg: 64 stud + 46 gap) | 271 | - | 65 (**50**) [8] | |
| 130 (eg: 64 stud + 66 gap) | 311 | 68 (**50**) [7] | - | |

## IHS125



- 1 layer of 13mm **sound**shield or **impact**shield or **tru**rock
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 13mm **sound**shield or **impact**shield or **tru**rock

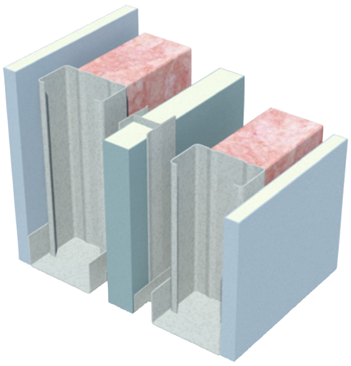
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| Cavity size = stud size + air gap | | Pink® Partition 75mm 11 kg/m³ R1.8 in both cavities | Day Design 5008-18<br>[1]CSIRO TL601-01<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 71 (eg: 51 stud + 20 gap) | 193 | 64 (**51**) | |
| 84 (eg: 64 stud + 20 gap) | 219 | 66 (**53**) [1] | |
| 110 | 271 | 67 (**54**) | |

## IHS145



- 1 layer of 13mm **water**shield
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 13mm **water**shield

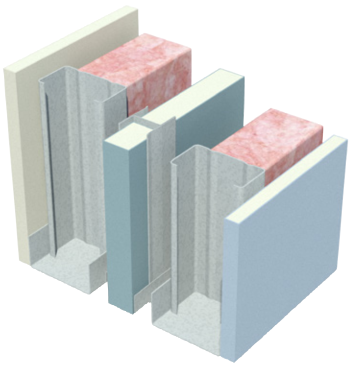
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| Cavity size = stud size + air gap | | Pink® Partition 75mm 11 kg/m³ R1.8 in both cavities | Day Design 5008-18<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 84 (eg: 64 stud + 20 gap) | 219 | 65 (**50**) | |
| 110 (eg: 64 stud + 46 gap) | 271 | 66 (**51**) | |

## IHS155



- 1 layer of 13mm **masta**shield
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 13mm **water**shield

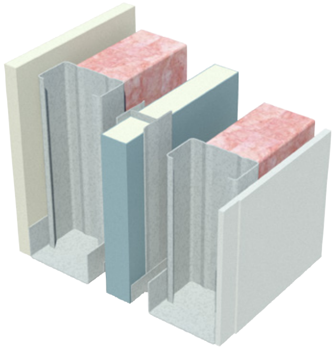
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| Cavity size = stud size + air gap | | Pink® Partition 75mm 11 kg/m³ in both cavities | Pink® Partition 90mm 14 kg/m³ in both cavities | Insul Prediction v8<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 110 (eg: 64 stud + 46 gap) | 271 | - | 66 (**52**) | |
| 130 (eg: 64 stud + 66 gap) | 311 | 68 (**50**) | - | |

## IHS153



- 1 layer of 13mm **masta**shield
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 6mm Duraliner

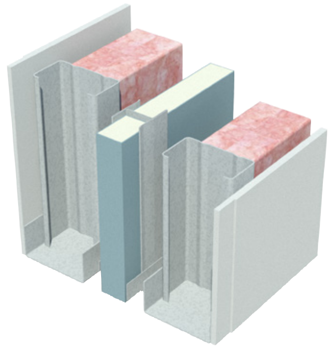
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| Cavity size = stud size + air-gap | | Pink® Partition 90mm 14 kg/m$^3$ R2.2 in both cavities | Insul Prediction v8<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 110 (eg: 64 stud + 46 gap) | 264 | 65 (**51**) | |

## IHS150



- 1 layer of 6mm Duraliner
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 6mm Duraliner

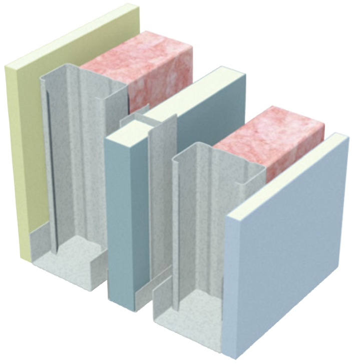
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| Cavity size = stud size + air-gap | | Pink® Partition 90mm 14 kg/m$^3$ R2.2 in both cavities | Insul Prediction v8<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 110 (eg: 64 stud + 46 gap) | 257 | 65 (**51**) | |

## IHS156



- 1 layer of 13mm **sound**shield
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 13mm **water**shield

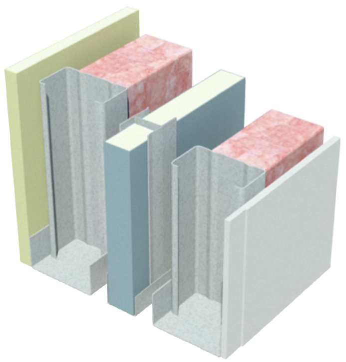
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| Cavity size = stud size + air gap | | Pink® Partition 75mm 11 kg/m$^3$ R1.8 in both cavities | Day Design 5008-48<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 84 (eg: 64 stud + 20 gap) | 219 | 66 (**52**) | |
| 96 (eg: 76 stud + 20 gap) | 243 | 66 (**52**) | |
| 110 | 271 | 67 (**53**) | |

## IHS154



- 1 layer of 13mm **sound**shield or **impact**shield or **tru**rock
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 6mm Duraliner

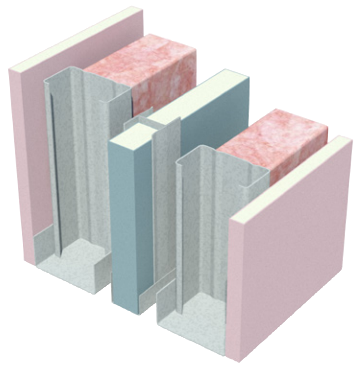
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| Cavity size = stud size + air gap | | Pink® Partition 75mm 11 kg/m$^3$ R1.8 in both cavities | Day Design 5008-48<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 84 (eg: 64 stud + 20 gap) | 212 | 66 (**52**) | |
| 96 (eg: 76 stud + 20 gap) | 236 | 66 (**52**) | |
| 110 | 264 | 67 (**53**) | |

## IHS130



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield

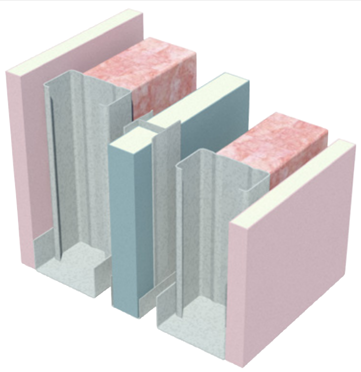
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| Cavity size = stud size + air gap | | Pink® Partition 75mm 11 $kg/m^3$ R1.8 in both cavities | Day Design 5008-18<br>[2]CSIRO TL601-02<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 71 (eg: 51 stud + 20 gap) | 193 | 64 (**50**) | |
| 84 (eg: 64 stud + 20 gap) | 219 | 66 (**52**) [2] | |
| 110 (eg: 64 stud + 46 gap) | 271 | 67 (**53**) | |

## IHS135



- 1 layer of 16mm **fire**shield or **multi**shield
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 16mm **fire**shield or **multi**shield

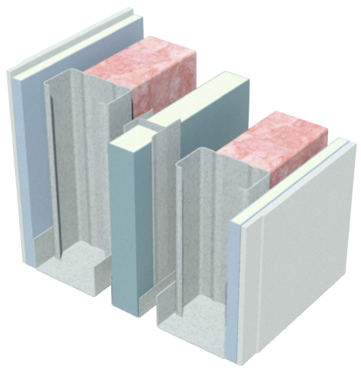
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| Cavity size = stud size + air gap | | Pink® Partition 75mm 11 $kg/m^3$ R1.8 in both cavities | Day Design 5008-18<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 71 (eg: 51 stud + 20 gap) | 199 | 64 (**51**) | |
| 84 (eg: 64 stud + 20 gap) | 225 | 66 (**53**) | |
| 110 (eg: 64 stud + 46 gap) | 277 | 67 (**54**) | |

## IHS151



- 1 layer of 10mm **water**shield + 1 layer of 6mm Duraliner
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 1 layer of 10mm **water**shield + 1 layer of 6mm Duraliner

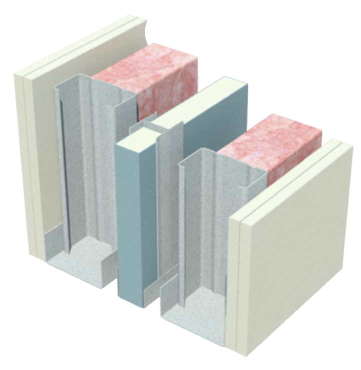
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| Cavity size = stud size + air gap | | Pink® Partition 75mm 11 $kg/m^3$ R1.8 in both cavities | Day Design 5008-18<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 71 (eg: 51 stud + 20 gap) | 199 | 65 (**52**) | |
| 84 (eg: 64 stud + 20 gap) | 225 | 67 (**54**) | |
| 110 (eg: 64 stud + 46 gap) | 277 | 68 (**55**) | |

## IHS112



- 2 layers of 10mm **masta**shield or **water**shield
- Steel stud framing
- Minimum 20mm air gap
- 25mm **shaft**liner or **inter**shield encased in **inter**home H-studs
- Minimum 20mm air gap
- Steel stud framing
- 2 layers of 10mm **masta**shield or **water**shield

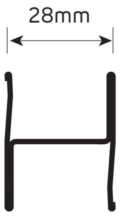
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR 4815

| Minimum Cavity On Both Sides (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| Cavity size = stud size + air gap | | Pink® Partition 75mm 11 $kg/m^3$ R1.8 in both cavities | Day Design 5008-18<br>Note: Impact Sound Resistant - Discontinuous Construction |
| 71 (eg: 51 stud + 20 gap) | 207 | 64 (**51**) | |
| 84 (eg: 64 stud + 20 gap) | 233 | 66 (**53**) | |
| 110 (eg: 64 stud + 46 gap) | 285 | 67 (**54**) | |

# Components

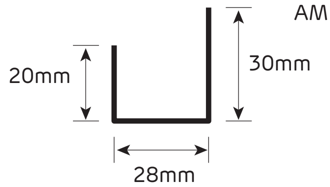



0.55mm BMT
G300
AM150 Zincalume® steel

Use 3m H-stud for 3m Shaftliner. Use 3.6m H-stud for 3.6m Shaftliner.

| Product Code | Length (mm) |
|---|---|
| IHS25-30 | 3000 |
| IHS25-36 | 3600 |

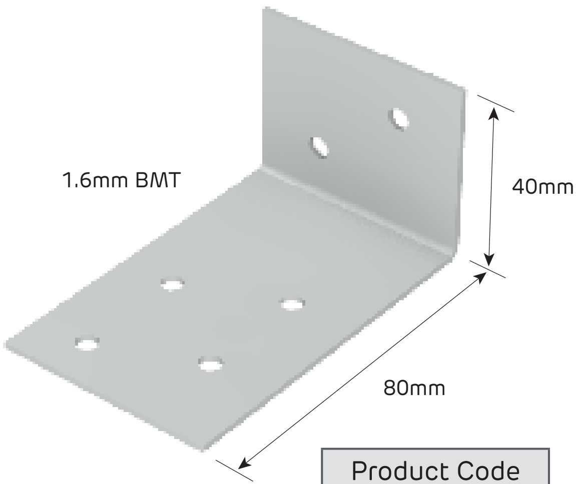
**FIGURE 1 interhome H-stud**
Profile




0.5mm BMT
G300
AM150 Zincalume® steel

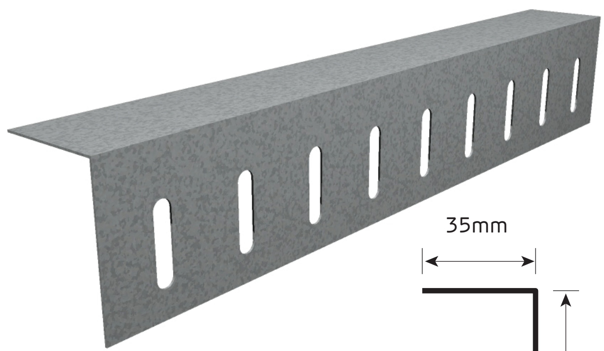
| Product Code | Length (mm) |
|---|---|
| T28-30 | 3000 |

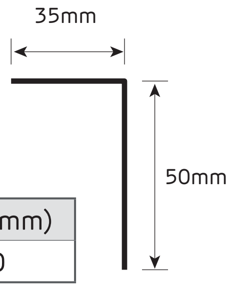
**FIGURE 2 J-Track**
Profile




| Product Code |
|---|
| CIH-L |

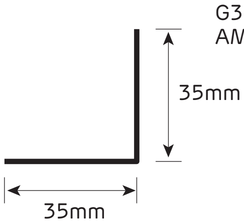
**FIGURE 3 interhome aluminium clip**
Isometric






| Product Code | Length (mm) |
|---|---|
| SBA50-075-30 | 3000 |

**FIGURE 4 Slotted Head Angle**
0.75mm BMT
Profile and Perspective




0.7mm BMT
G300
AM150 Zincalume® steel

| Product Code | Length (mm) |
|---|---|
| BA35-070-30 | 3000 |
| BA35-070-36 | 3600 |

**FIGURE 5 35x35mm Steel Backing Angle**
0.7mm BMT
Profile

## Plasterboard

**Central Fire Barrier**

- Siniat 25mm **shaft**liner
- Siniat 25mm **inter**shield

**Wall Linings**

- Siniat **masta**shield
- Siniat **sound**shield
- Siniat **water**shield
- Siniat **fire**shield
- Siniat **multi**shield
- Siniat **tru**rock
- Innova Duraliner

# General Requirements

| |
|---|
| Use either **shaft**liner, or for added mould protection **inter**shield in the central fire barrier |
| Apply **bindex** fire and acoustic sealant to all gaps in the central fire barrier to maintain fire and acoustic integrity. If sheets or tracks are touch fitting and no gap exists, fire sealant is not required. |
| If **inter**home aluminium clips (CIH-L) are required, they are to connect **inter**home H-studs to the stud frames on either side. Aluminium will melt in a fire so the frame of the SOU on the fire side can detach from the central fire barrier. |
| Leave a gap of at least 20mm between the central fire barrier and the studs of both frames. A gap of at least 25mm is recommended on the side that has the **fire**shield laminated to the **shaft**liner. |
| Control joints are not required in the central fire barrier. |
| Refer to Section 3.1 for steel stud framing and internal lining requirements. |

- Refer to the **inter**home high-rise 90 Minute Supplement for non-load bearing FRL -/90/90 walls.
- Refer to the **inter**home Class 1 Systems and Installation Guide for load bearing walls with an FRL of 60/60/60 for separating Class 1 buildings from ground to roof.
- Refer to the **inter**home Class 2 Systems and Installation Guide for load bearing walls with an FRL of 90/90/90 for Class 2 Type A buildings where the wall starts at a slab or other fire rated support and finishes under a roof.

# Fire Resistance

| |
|---|
| All systems in this section are displayed with an FRL of -/60/60 to indicate that they are not usually used to support other building elements. However, these systems do have an FRL of 60/60/60 for the frame on the opposite side to fire attack. In a fire event, the framing on the fire side of the central fire barrier is considered to collapse before 60 minutes. |
| Where the outer wall linings do not extend full height to the soffit, 16mm **fire**shield is laminated to the 25mm **shaft**liner which also provides an FRL of -/60/60. The 16mm **fire**shield must overlap a minimum of 150mm below the ceiling [refer to construction details]. |
| The outer wall lining and cavity insulation of any **inter**home high-rise system can be used on one side of a different system without reducing its FRL. The linings may also transition along a wall from one Interhome High-Rise system to another. |

# Sound Insulation

| |
|---|
| Services installed in one cavity have an acoustic rating to the other side of the **inter**home high-rise wall of at least Rw + Ctr 40 which meets the requirements of the NCC for walls separating soil, waste or water supply pipes from a habitable room. |
| When the internal lining and cavity insulation of one **inter**home high-rise system is used on one side of a different **inter**home high-rise system, the acoustic rating is the lower of the two provided that the central fire barrier and stud cavity sizes are the same. |

# Framing

| |
|---|
| Use 3m **inter**home H-studs with 3m **shaft**liner panels and 3.6m **inter**home H-studs with 3.6m **shaft**liner panels. Use **inter**home aluminium clips as shown in Figure 16 for walls higher than the H-stud length and 7.2m. |

## Siniat Internal Wind Load Calculator

**Table 1** Screw Type and Minimum Size for Steel Framing

| Fixing Aluminium Clips | Fastener |
|---|---|
| **inter**home aluminium clips to steel **inter**home H-studs | 8g x 16mm fine thread screw |
| **inter**home aluminium clips to steel **inter**home H-studs through 16mm **fire**shield | 8g x 30mm fine thread screw |
| **General Steel Framing** | **Fastener** |
| 0.5 - 0.75mm steel framing | 8g x 16mm fine thread screw |
| 1.15mm steel framing | 10g x 16mm fine thread screw |

Refer to 'Fasteners and Anchors' in Section 2 for typical fasteners and anchors available.

# Plasterboard Fixing

| |
|---|
| **shaft**liner or **inter**shield are friction fitted into the **inter**home H-studs and J-tracks |
| Install the outer (internal) wall linings with the 'Screw and Adhesive Method' or the 'Screw Only Method'. Both methods can be used to achieve the fire rating. |

**Table 2** Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer |
|---|---|
| 10mm | 6g x 25mm screw |
| 13mm | 6g x 25mm screw |
| 16mm | 6g x 32mm screw |

1. For steel ≤ 0.75mm BMT, use fine thread needle point screws.
2. For steel ≥ 0.75mm BMT, use fine thread drill point screws.
3. 10g x 38mm Laminating screws may be used as detailed in installation diagrams.

# Installation Sequence

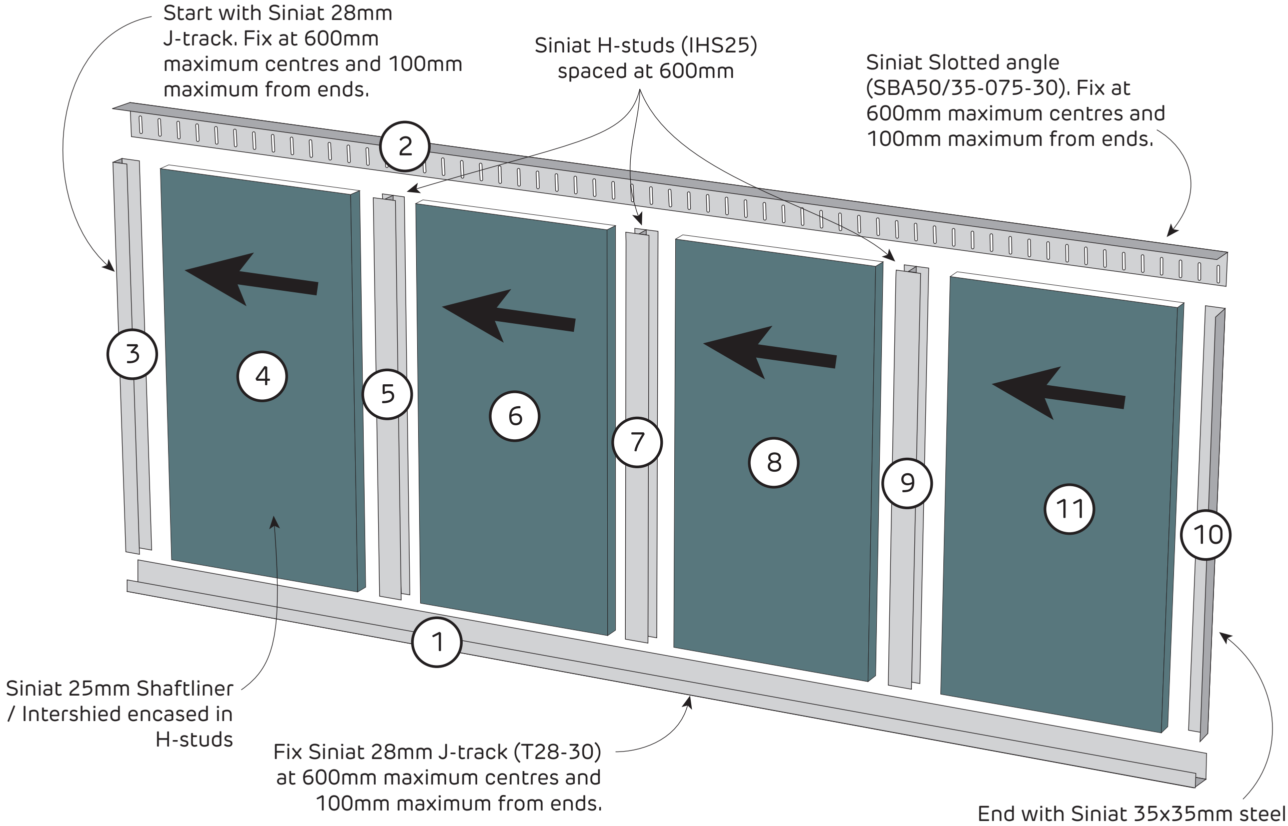



**FIGURE 6** **Shaftliner Construction Sequence**
Perspective

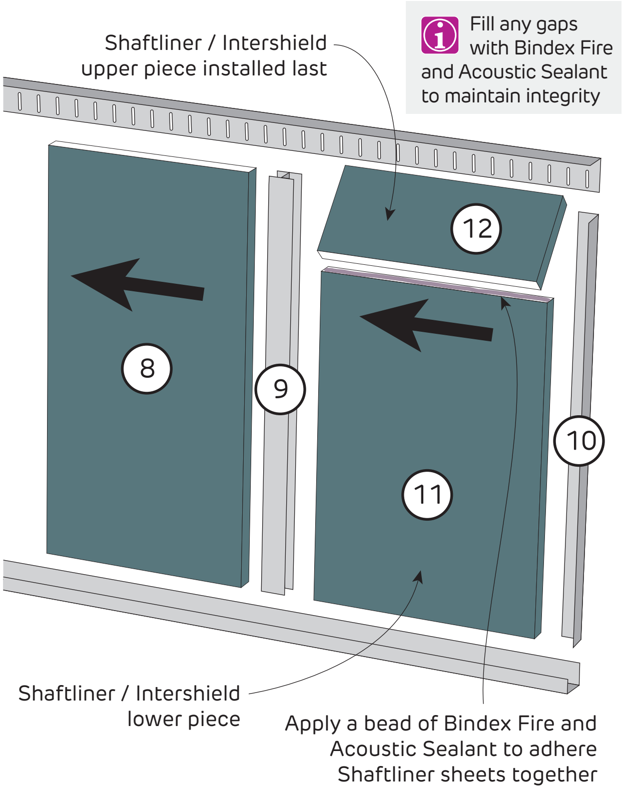



**FIGURE 7** **Alternative Shaftliner End Construction**
Step 1 - Perspective

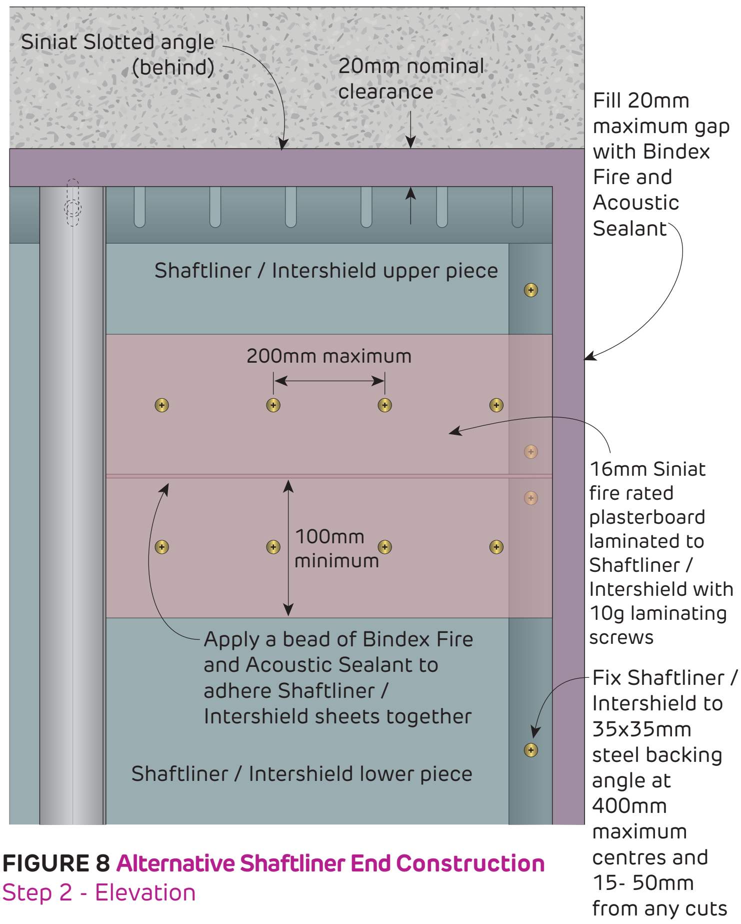



**FIGURE 8** **Alternative Shaftliner End Construction**
Step 2 - Elevation

## Fire Rated
## InterHome High-Rise Central Fire Barrier Installation

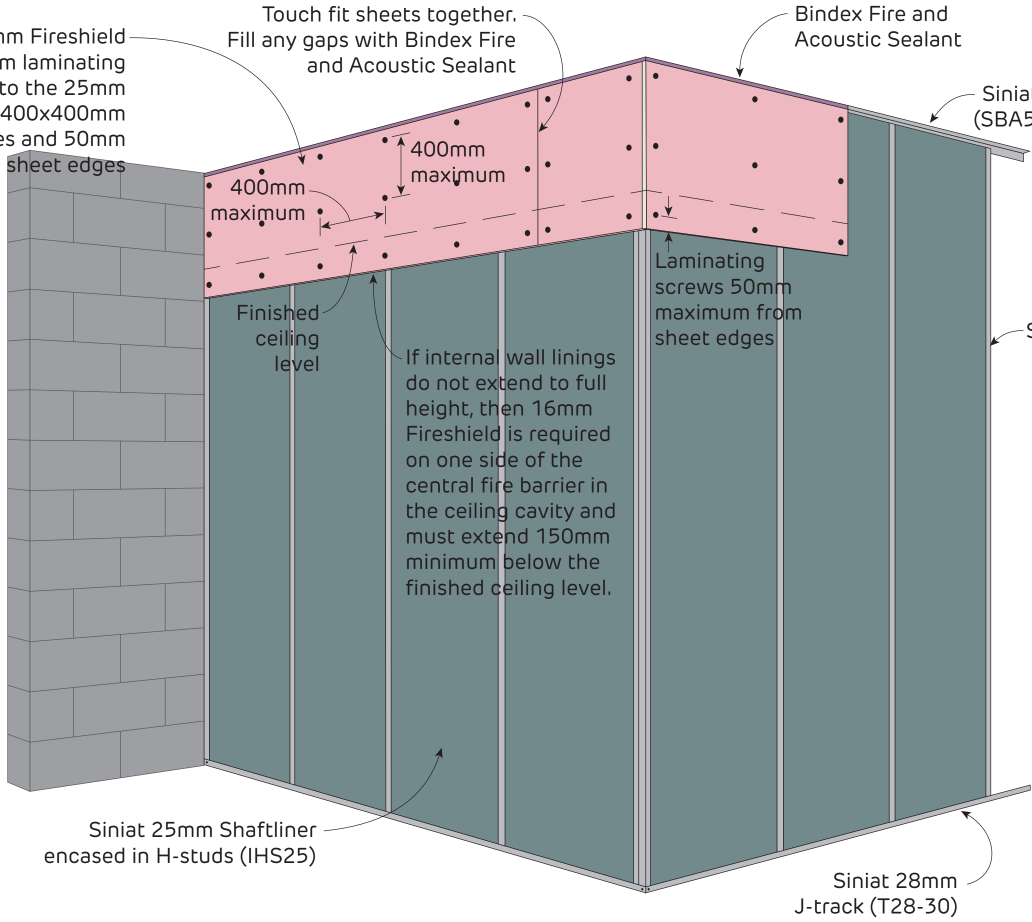
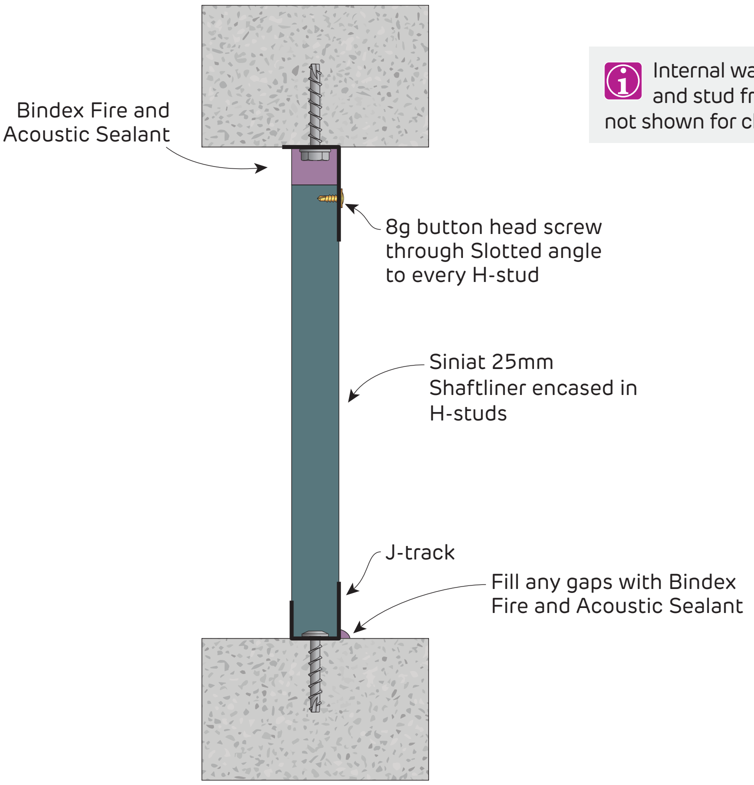



**FIGURE 9** **Central Fire Barrier**
Perspective




Internal wall linings and stud framing not shown for clarity

**FIGURE 10** **Central Fire Barrier**
Section

## Fire Rated
## Interhome High-Rise Head and Base Detail - FRL -/60/60 - Wall Height ≤ 3.6m

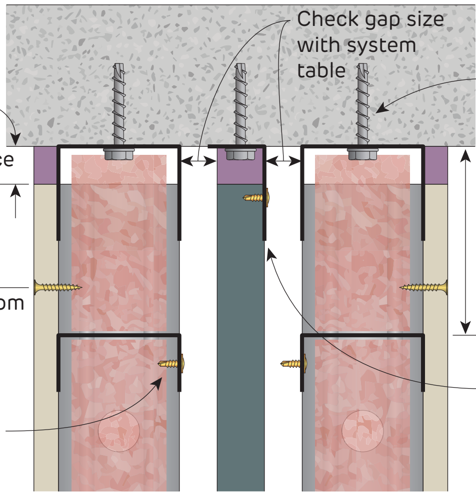
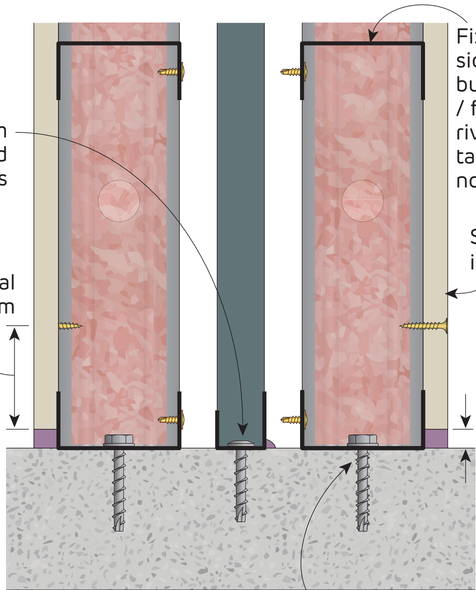



**FIGURE 11 Wall Head**
Slotted Steel Angle above Shaftliner
Section

Do not rigidly fix cornice to non-load bearing wall head and soffit, as slab deflection is expected

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity




8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

**FIGURE 12 Wall Base**
J-track below Shaftliner
Section

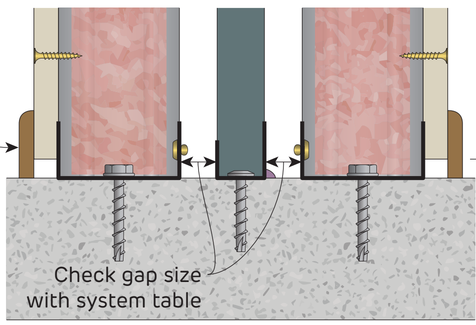



**FIGURE 13 Alternative Wall Base using Rivets**
J-track below Shaftliner
Section

## Fire Rated
## Interhome High-Rise Head Details with CAC Ceiling - FRL -/60/60 - Wall Height ≤ 3.6m

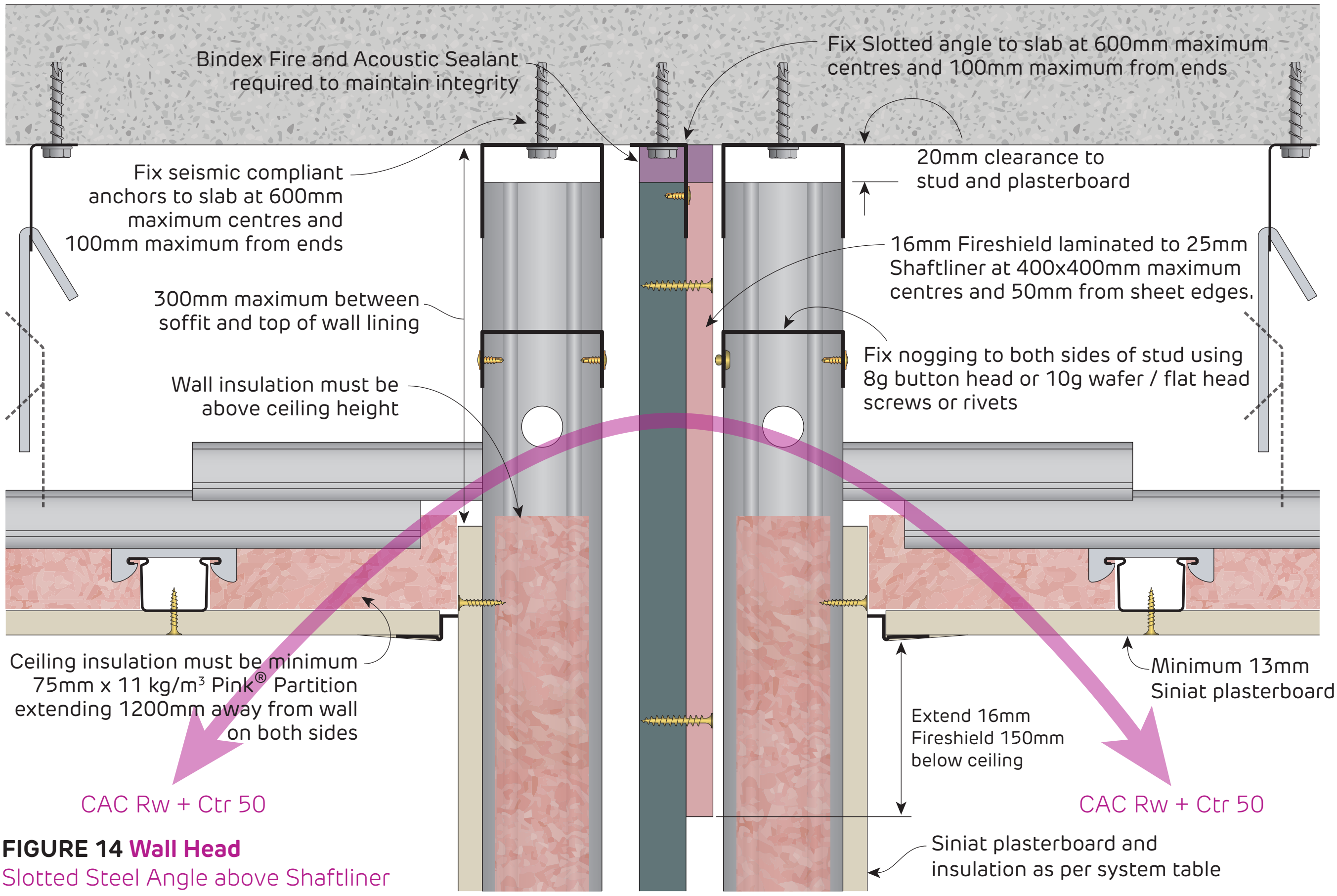



**FIGURE 14** Wall Head
Slotted Steel Angle above Shaftliner Section

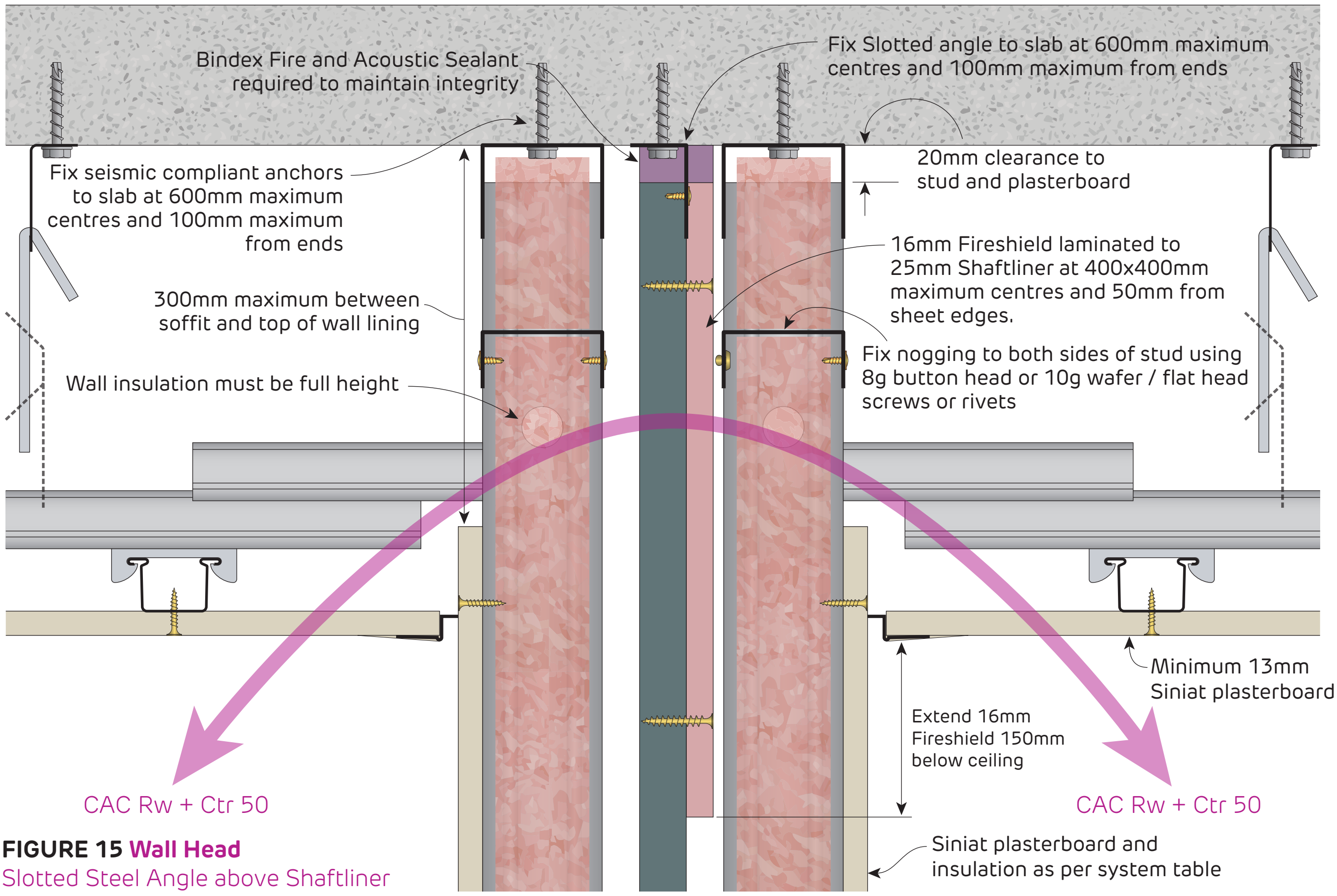



**FIGURE 15** Wall Head
Slotted Steel Angle above Shaftliner Section

## Fire Rated
## Interhome High-Rise Head Details with CAC Ceiling - FRL -/60/60 - Wall Height 3.6m to 7.2m

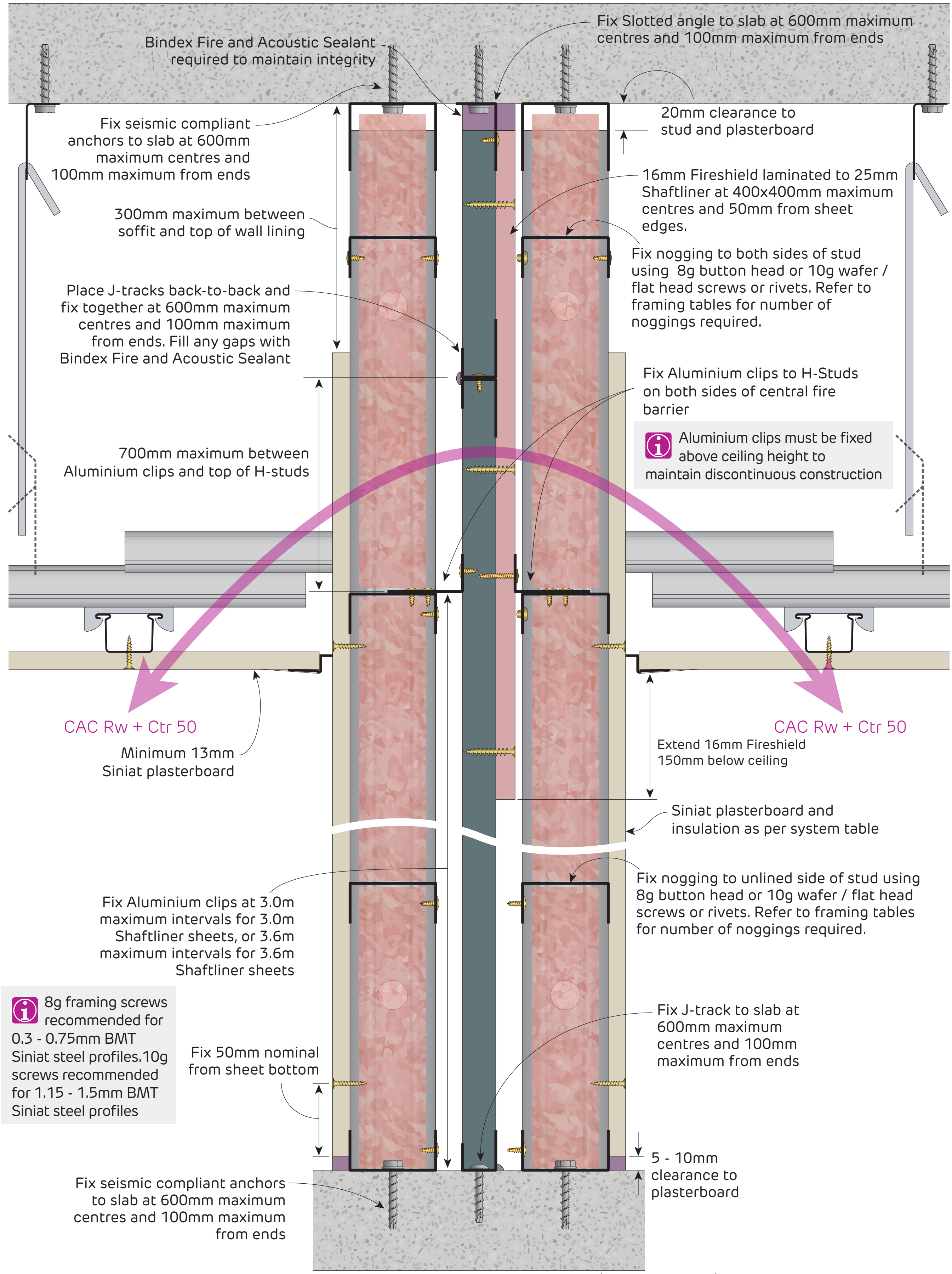



**FIGURE 16** Walls above 3.0m/3.6m (H-stud length) to 7.2m
Slotted Steel Angle above Shaftliner
Section

## Fire Rated
## Interhome High-Rise Head Details with CAC Ceiling - FRL -/60/60

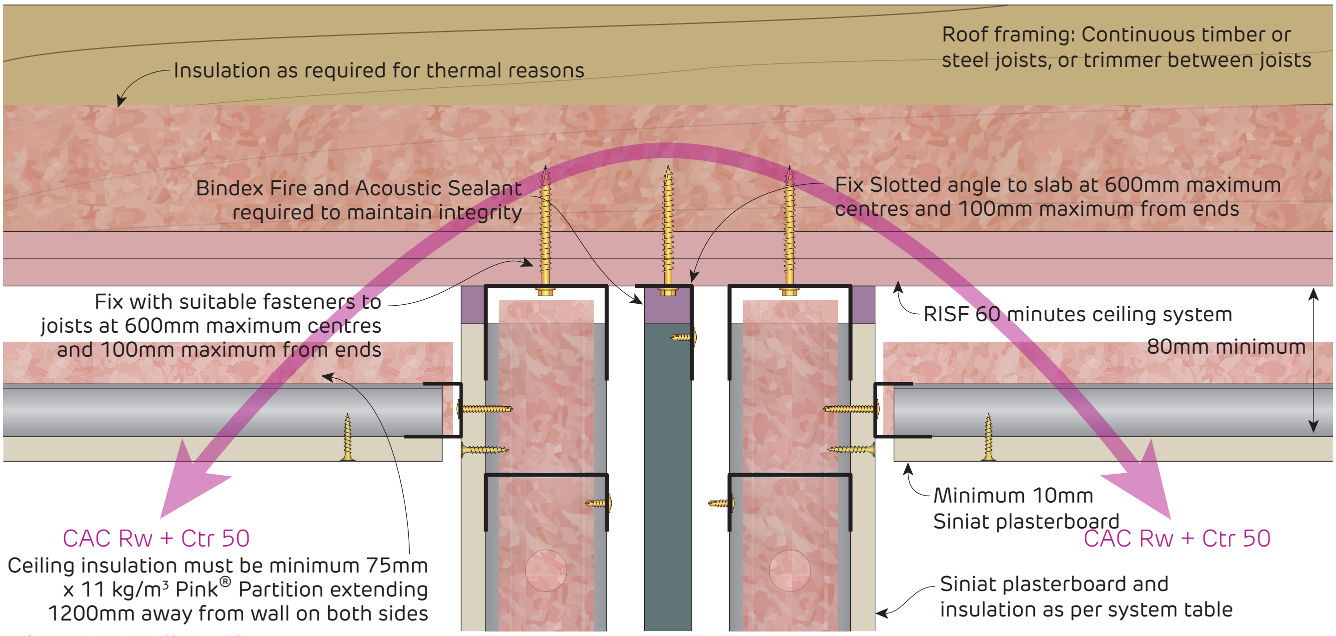



**FIGURE 17** **Wall Head**
Slotted Steel Angle above Shaftliner Section

## Fire Rated
## Interhome High-Rise Details - FRL -/60/60

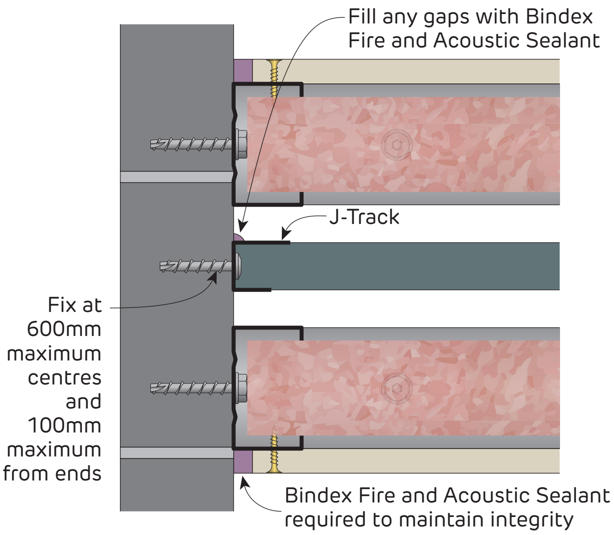



**FIGURE 18 Wall End to Masonry J-track**
Plan

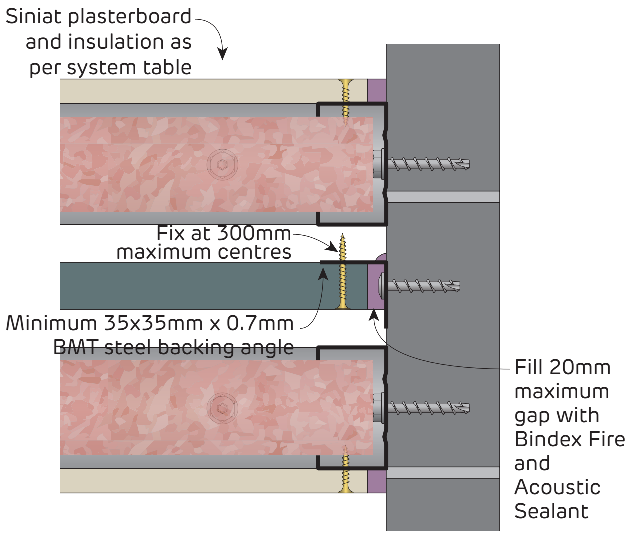



**FIGURE 19 Wall End to Masonry Steel angle**
Plan

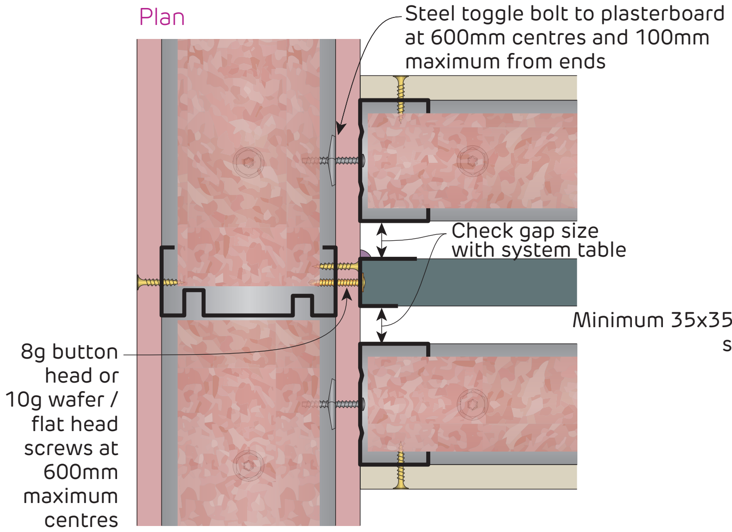



**FIGURE 20 Wall End to Corridor Wall J-track**
Plan

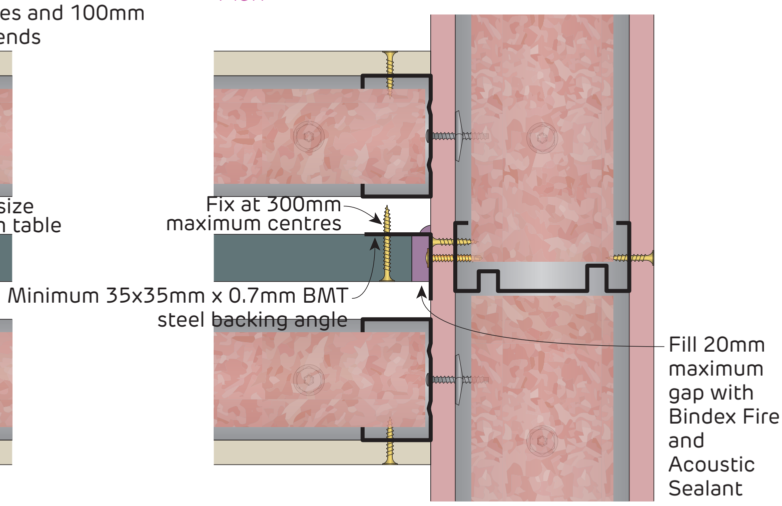



**FIGURE 21 Wall End to Corridor Wall Steel angle**
Plan

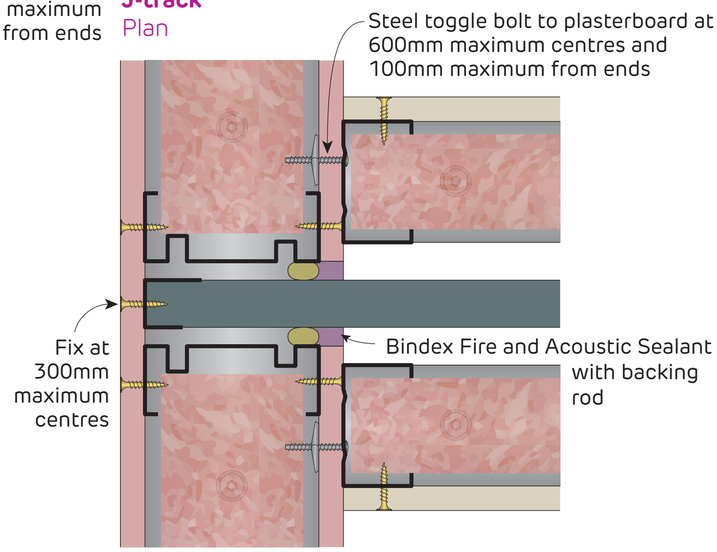



**FIGURE 22 Wall End to Corridor Wall Improved Acoustic Detail - J-track**
Plan

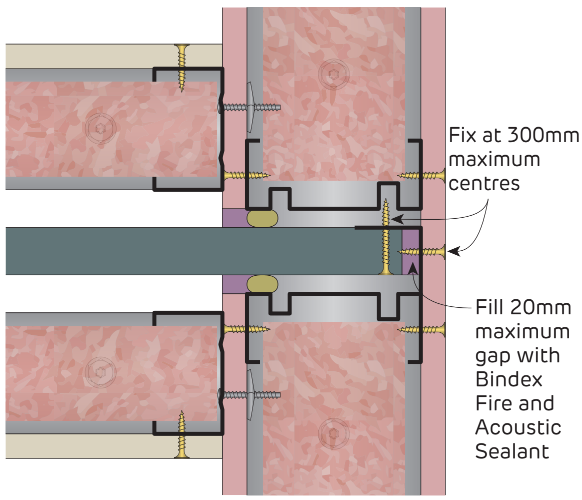



**FIGURE 23 Wall End to Corridor Wall Improved Acoustic Detail - Steel angle**
Plan

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

## Fire Rated

## Interhome High-Rise Details - FRL -/60/60

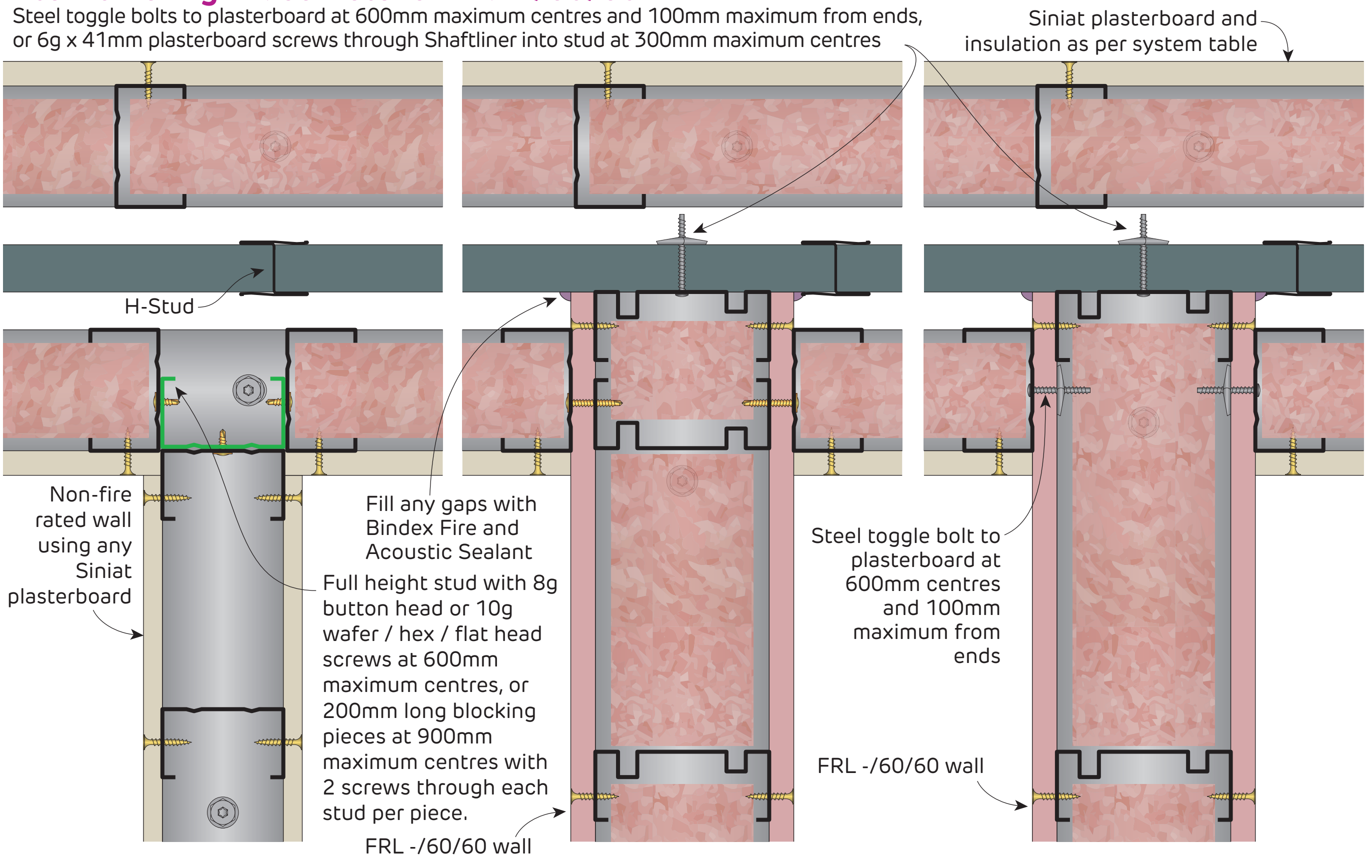
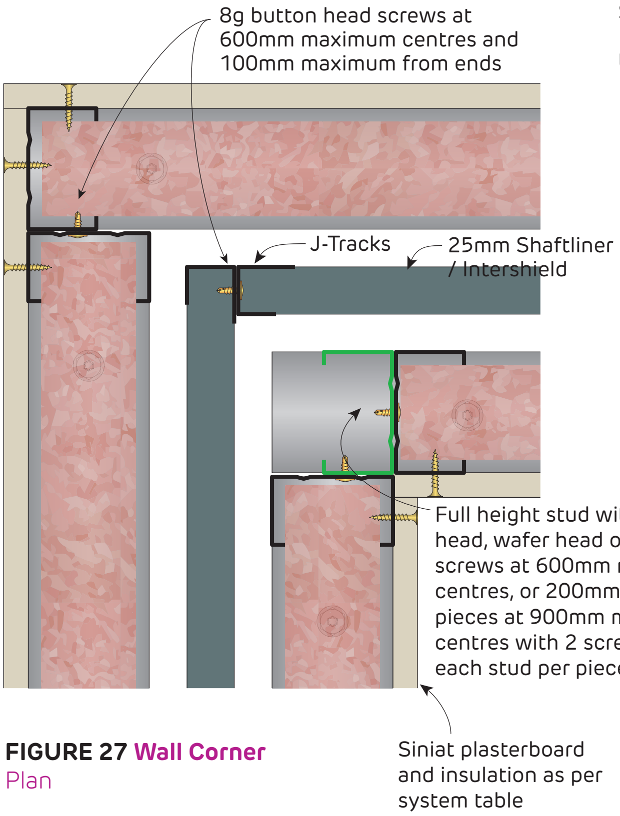



**FIGURE 24** Wall Intersection with Non-Fire Rated Wall
Plan

**FIGURE 25** Wall Intersection with Fire Rated Wall
Plan

**FIGURE 26** Wall Intersection with Fire Rated Wall
Plan

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity



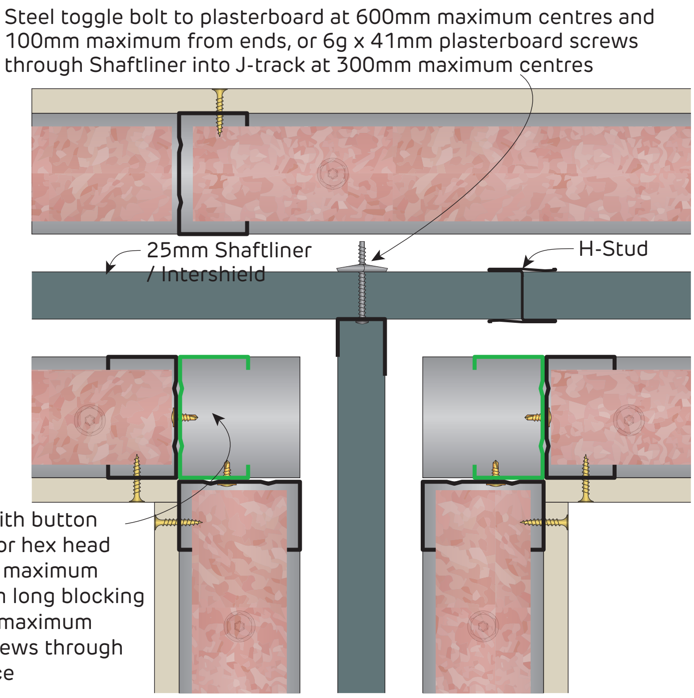




**FIGURE 27** Wall Corner
Plan

**FIGURE 28** Corridor Wall to Inter-tenancy Wall Junction
Plan

# Fire Rated
# Interhome High-Rise Details - FRL -/60/60

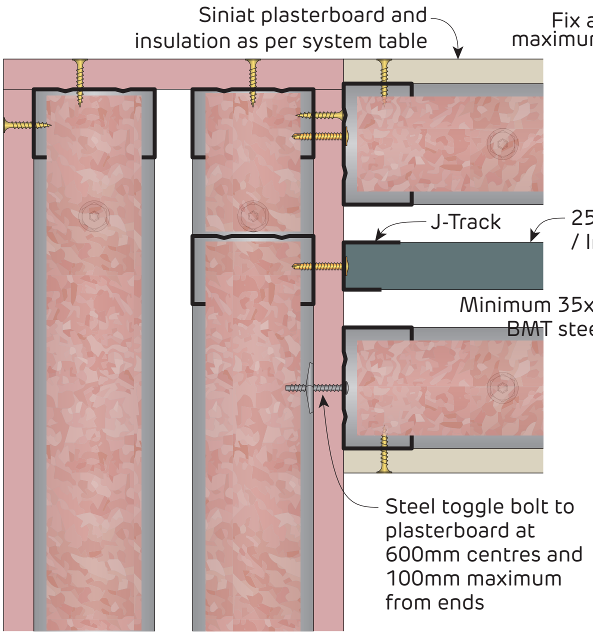



**FIGURE 29** **Interhome High-Rise Wall Connection to Fire Rated Plasterboard Wall**
Plan

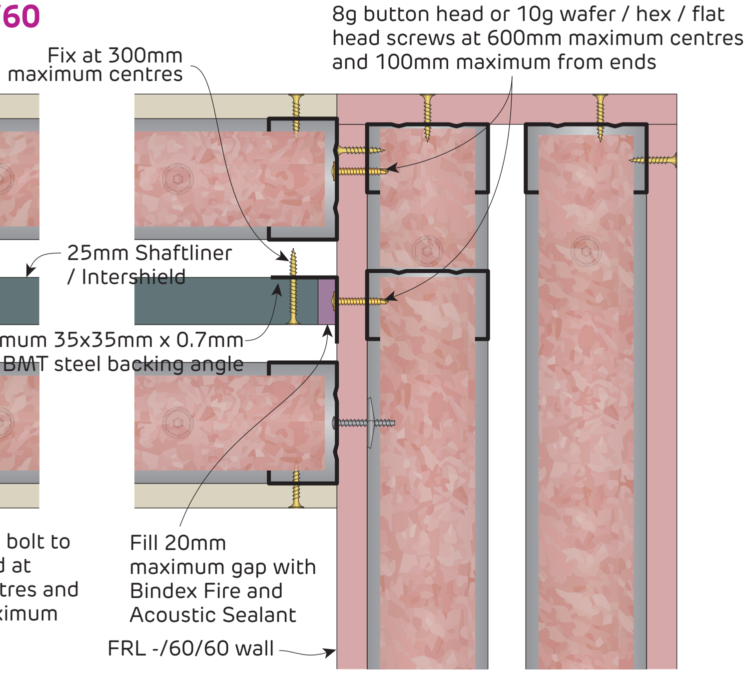



**FIGURE 30** **Interhome High-Rise Wall Connection to Fire Rated Plasterboard Wall**
Plan

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

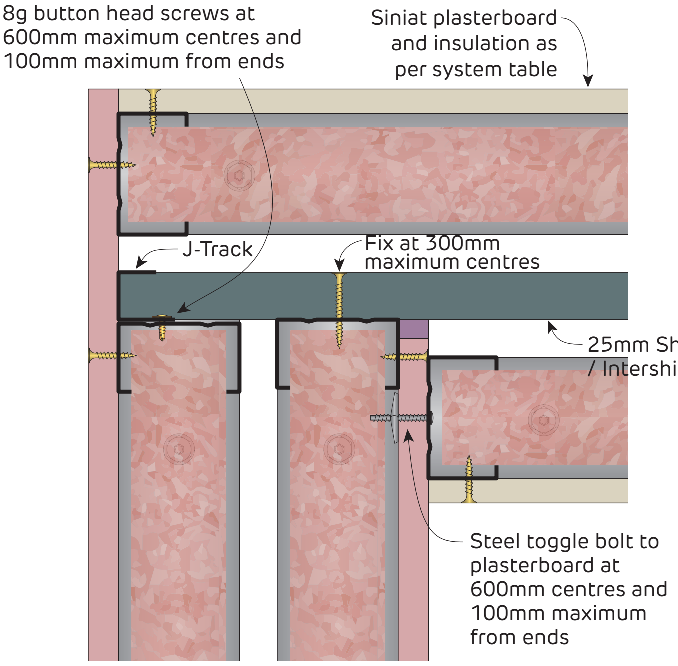



**FIGURE 31** **Interhome High-Rise Wall Connection to Fire Rated Plasterboard Wall**
Plan

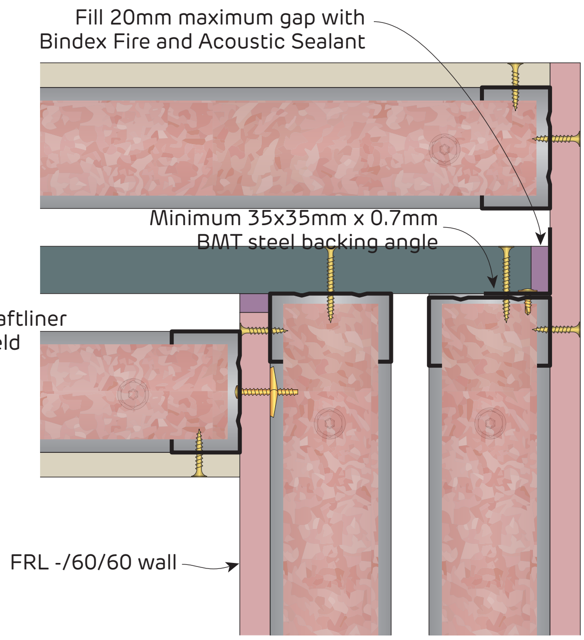



**FIGURE 32** **Interhome High-Rise Wall Connection to Fire Rated Plasterboard Wall**
Plan

## Fire Rated
## Interhome High-Rise Details - FRL -/60/60

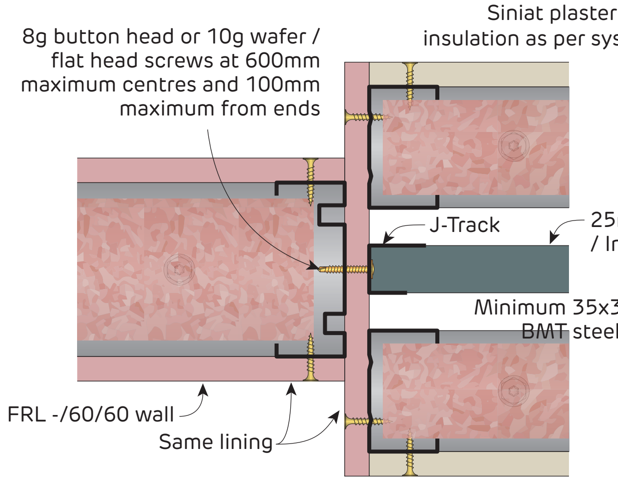



**FIGURE 33** **Interhome High-Rise Wall Transition to Single Stud Fire Rated Plasterboard Wall**
Plan

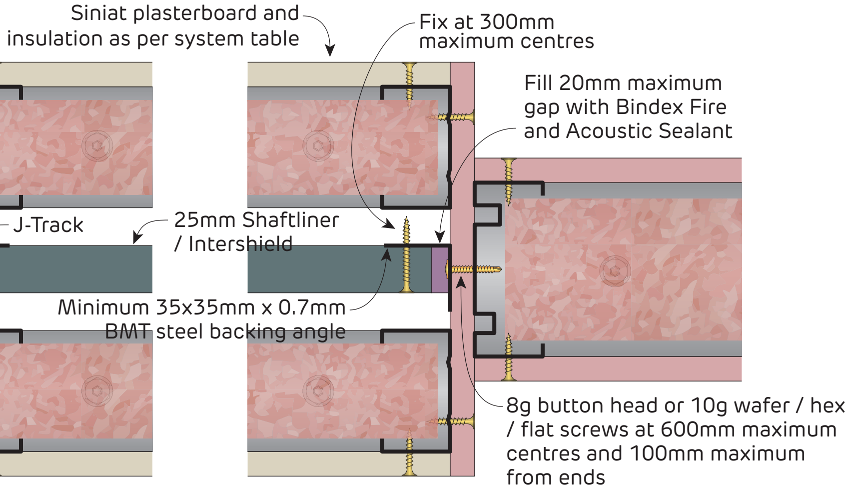



**FIGURE 34** **Interhome High-Rise Wall Transition to Single Stud Fire Rated Plasterboard Wall**
Plan

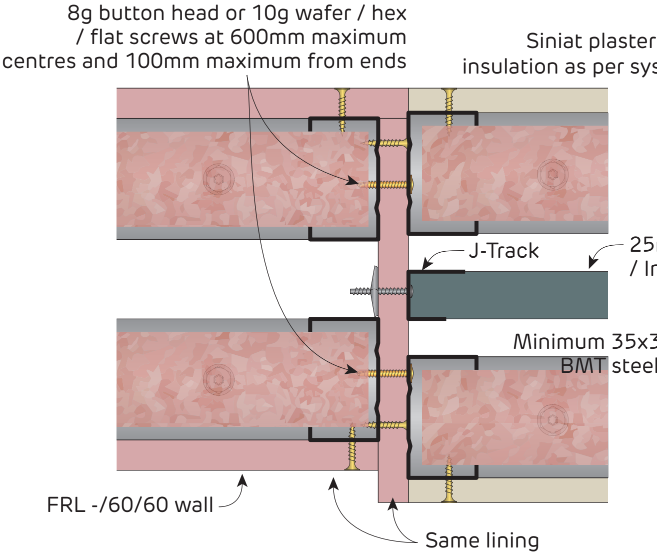



**FIGURE 35** **Interhome High-Rise Wall Transition to Double Stud Fire Rated Plasterboard Wall**
Plan

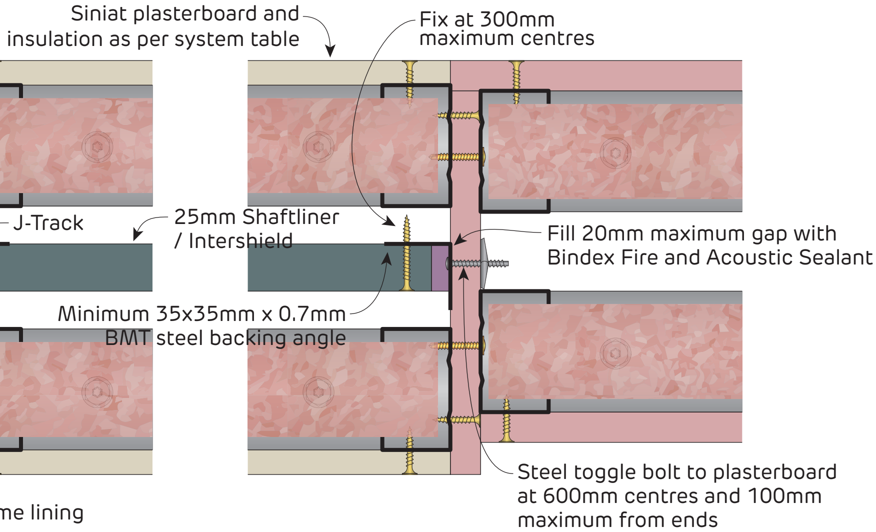



**FIGURE 36** **Interhome High-Rise Wall Transition to Double Stud Fire Rated Plasterboard Wall**
Plan

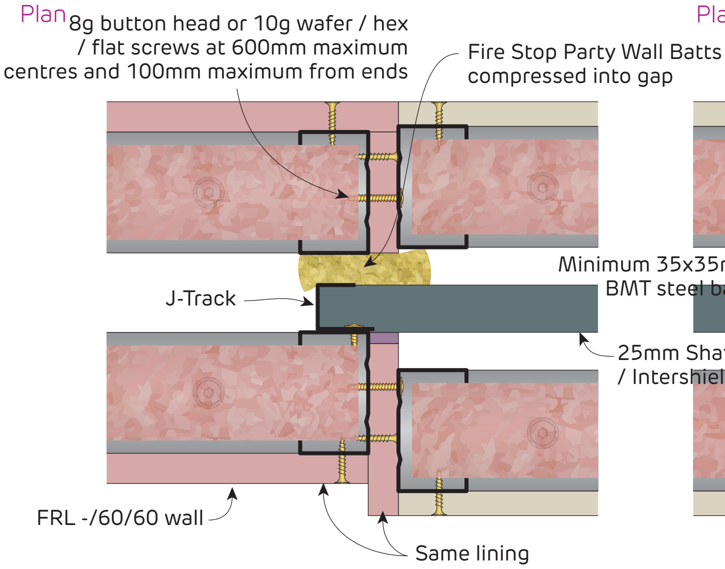



**FIGURE 37** **Interhome High-Rise Wall Transition to Double Stud Fire Rated Plasterboard Wall**
Plan

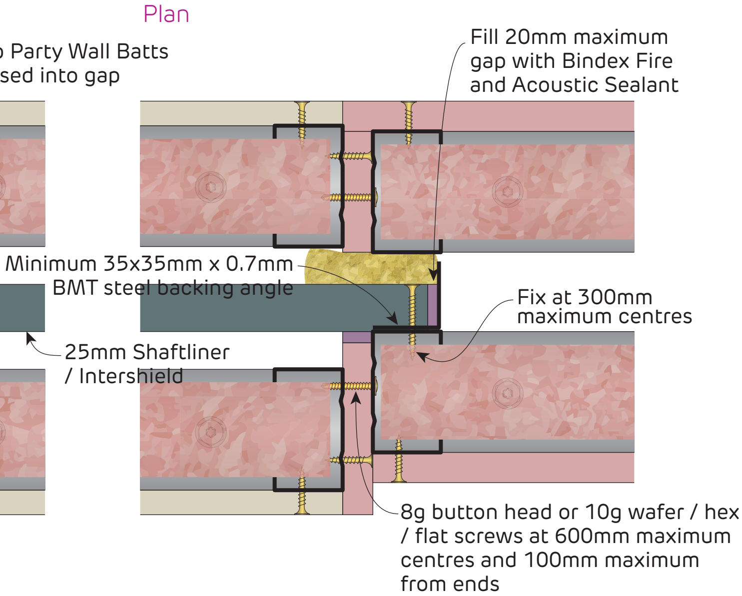



**FIGURE 38** **Interhome High-Rise Wall Transition to Double Stud Fire Rated Plasterboard Wall**
Plan

## Fire Rated
## Interhome High-Rise Around Column Details - FRL -/60/60

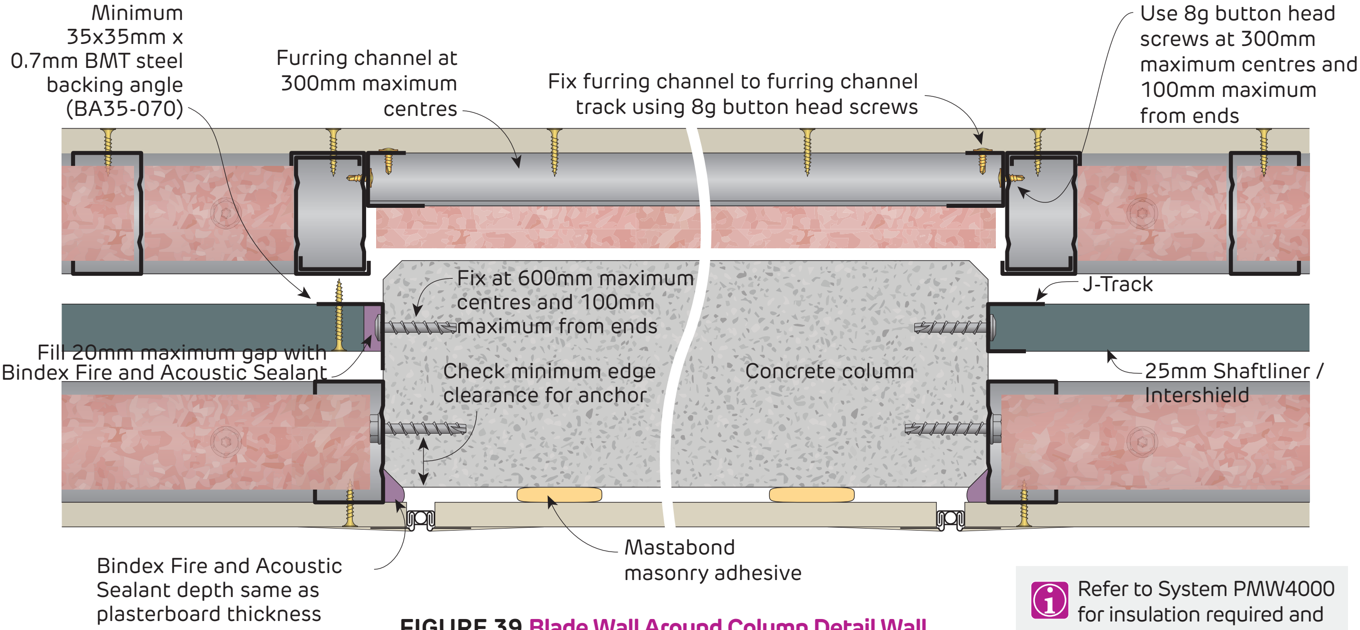



**FIGURE 39** Blade Wall Around Column Detail Wall
Plan

> Refer to System PMW4000 for insulation required and acoustic performance through concrete blade column

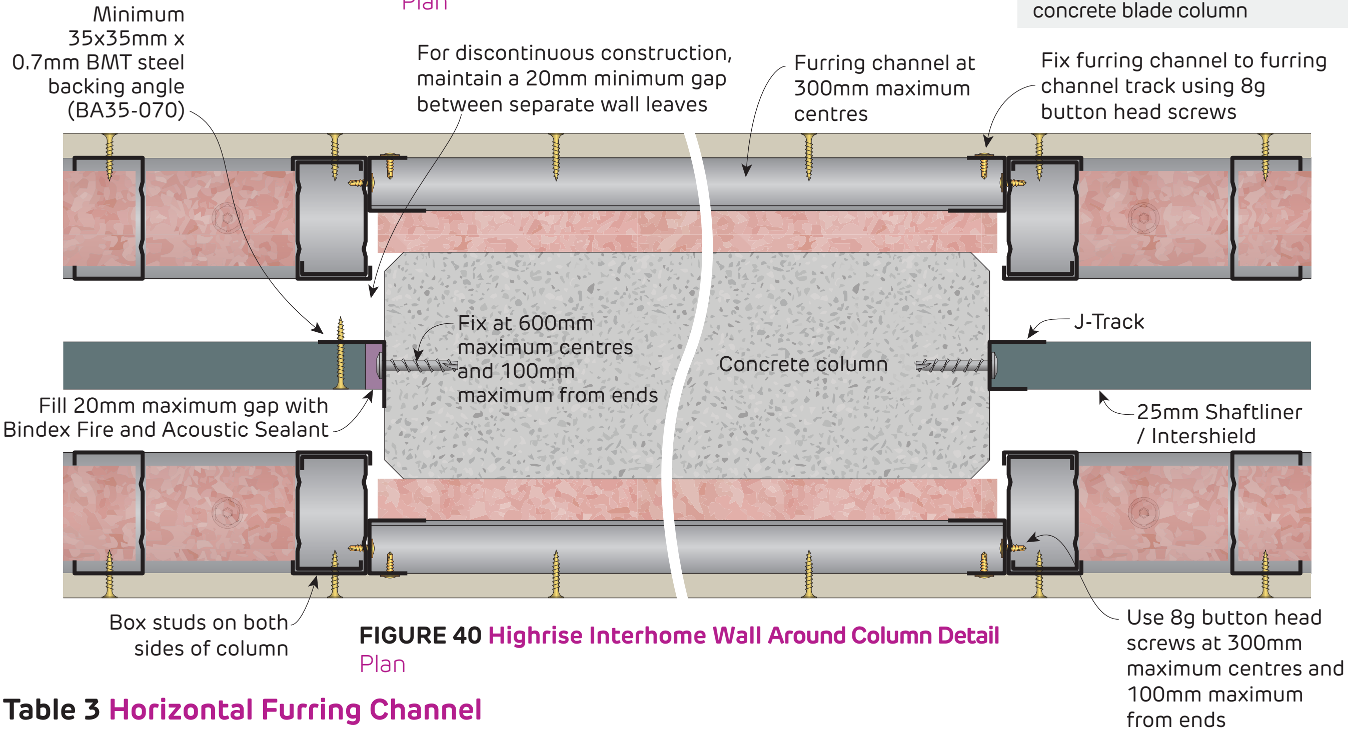



**FIGURE 40** Highrise Interhome Wall Around Column Detail
Plan

### Table 3 Horizontal Furring Channel Span Table over Column

| $W_{ult}$ (kPa) | $W_{ser}$ (kPa) | 28mm Furring Channel (mm) |
|---|---|---|
| 0.39 | 0.25 | 1350 |
| 0.47 | 0.3 | 1280 |
| 0.54 | 0.35 | 1240 |
| 0.59 | 0.25 | 1210 |
| 0.71 | 0.3 | 1150 |
| 0.83 | 0.35 | 1100 |

Notes
1. Furring channels at 300mm maximum centres
2. Lateral deflection limited to span/240
3. An alternative framing design may be used provided the wall system has the 'structural adequacy' part to the Fire Resistance Level for the time period required.

> 8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated
## Interhome High-Rise Details - FRL -/60/60

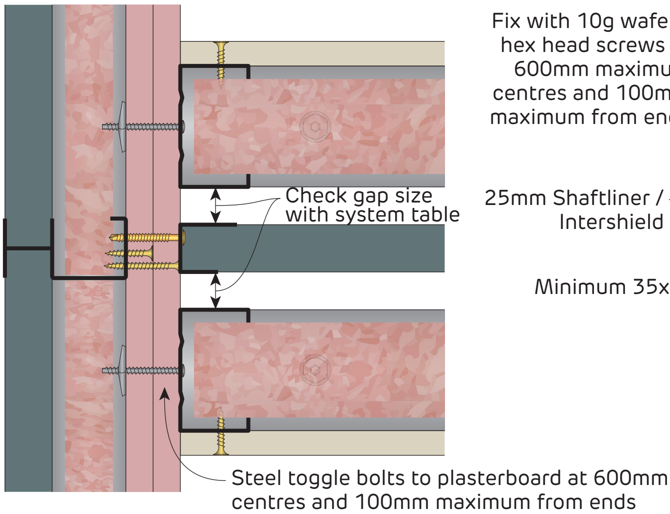



FIGURE 41 **Interhome High-Rise Wall to Shaft Wall**
Plan

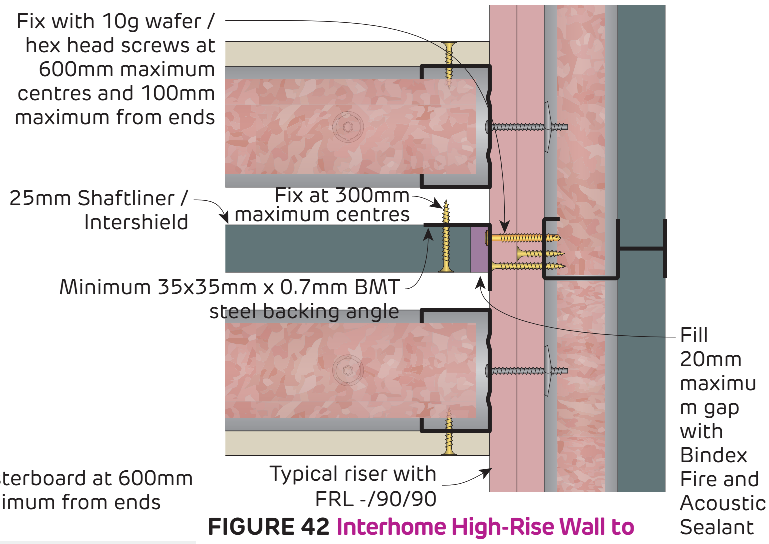



FIGURE 42 **Interhome High-Rise Wall to Shaft Wall**
Plan

Low sound flanking resistance for separating walls

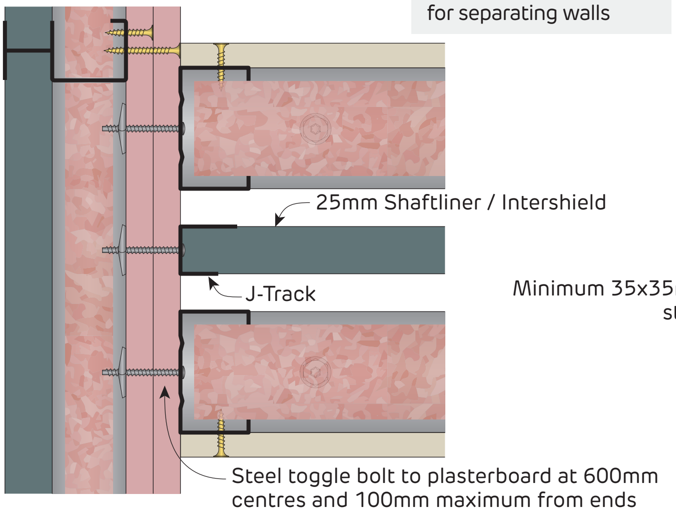



FIGURE 43 **Interhome High-Rise Wall to Shaft Wall**
Plan

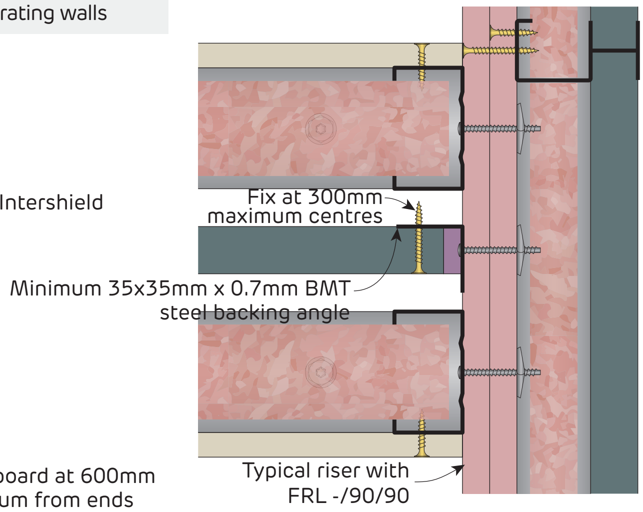



FIGURE 44 **Interhome High-Rise Wall to Shaft Wall**
Plan

Low sound flanking resistance for separating walls

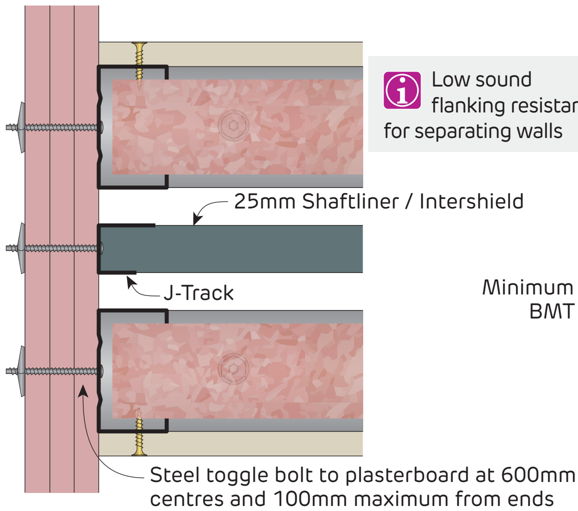



FIGURE 45 **Interhome High-Rise Wall to Laminated Vertical Duct**
Plan

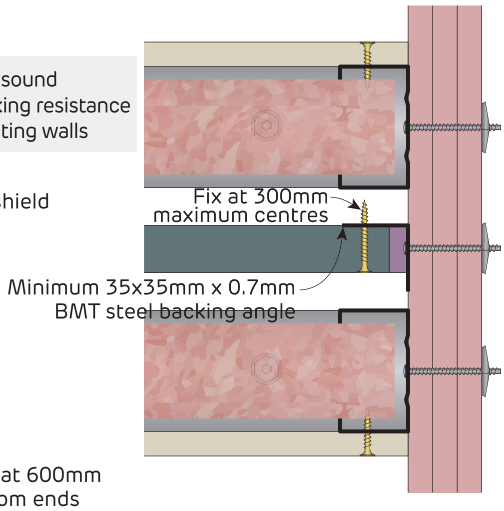



FIGURE 46 **Interhome High-Rise Wall to Laminated Vertical Duct**
Plan

## Fire Rated
## Interhome High-Rise Details - FRL -/60/60

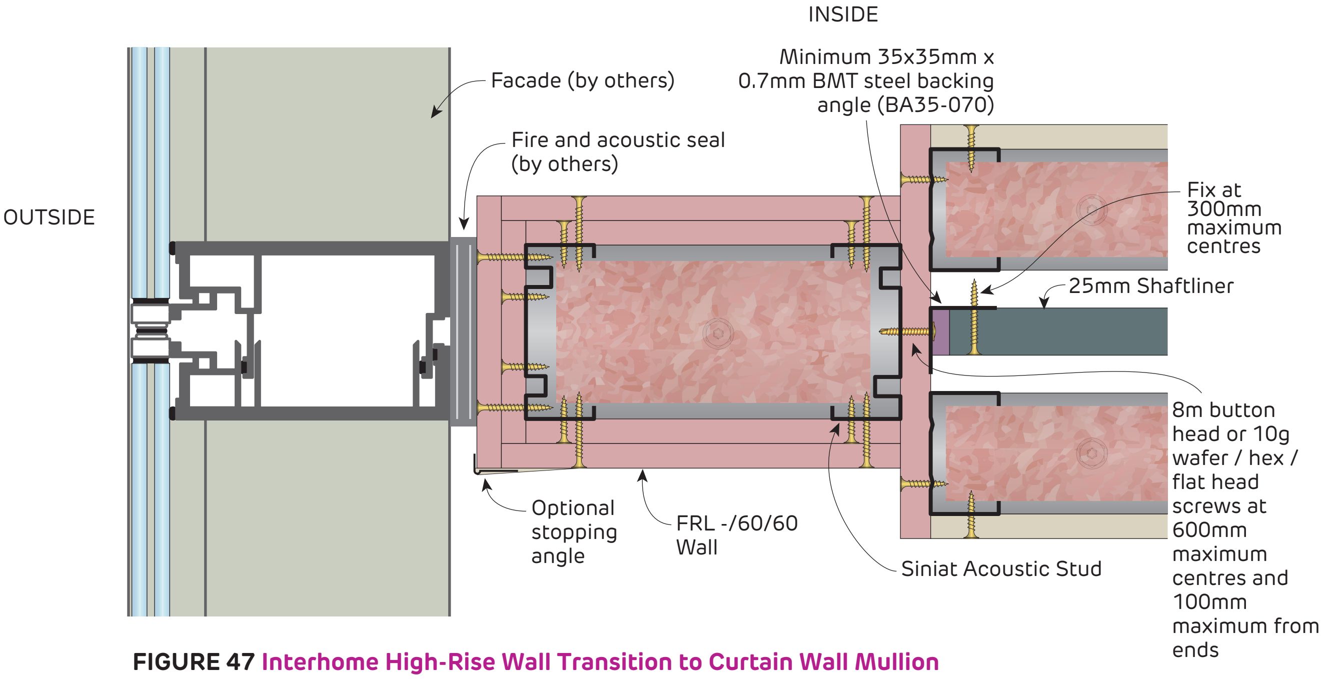



**FIGURE 47** Interhome High-Rise Wall Transition to Curtain Wall Mullion
Plan

Consider project specific requirements before joining internal partition walls to facades

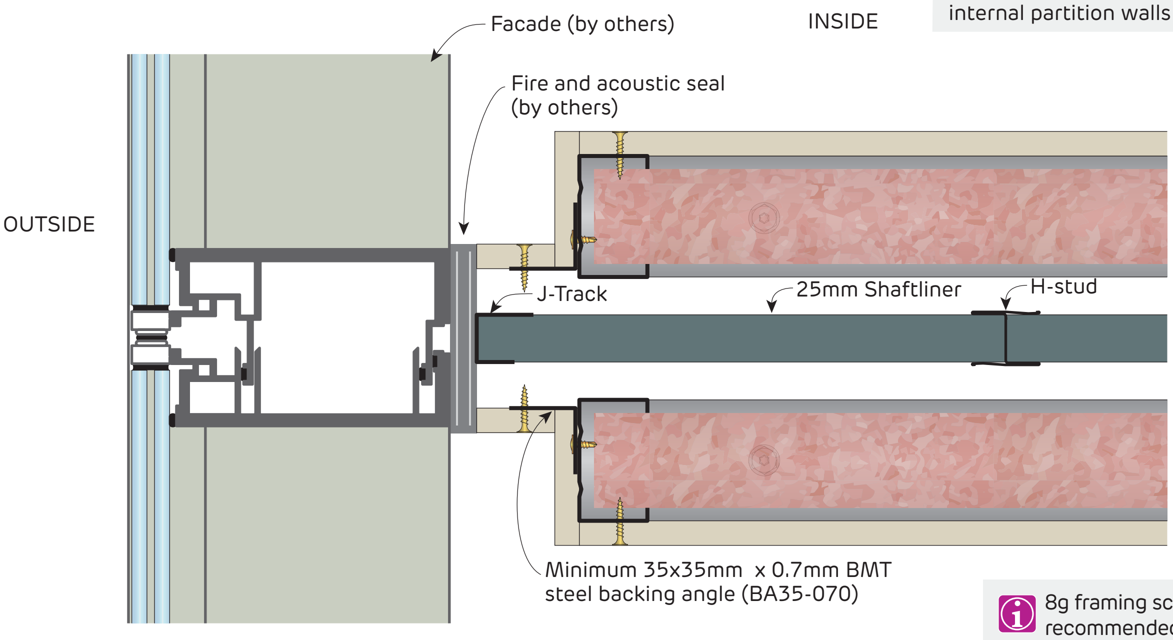


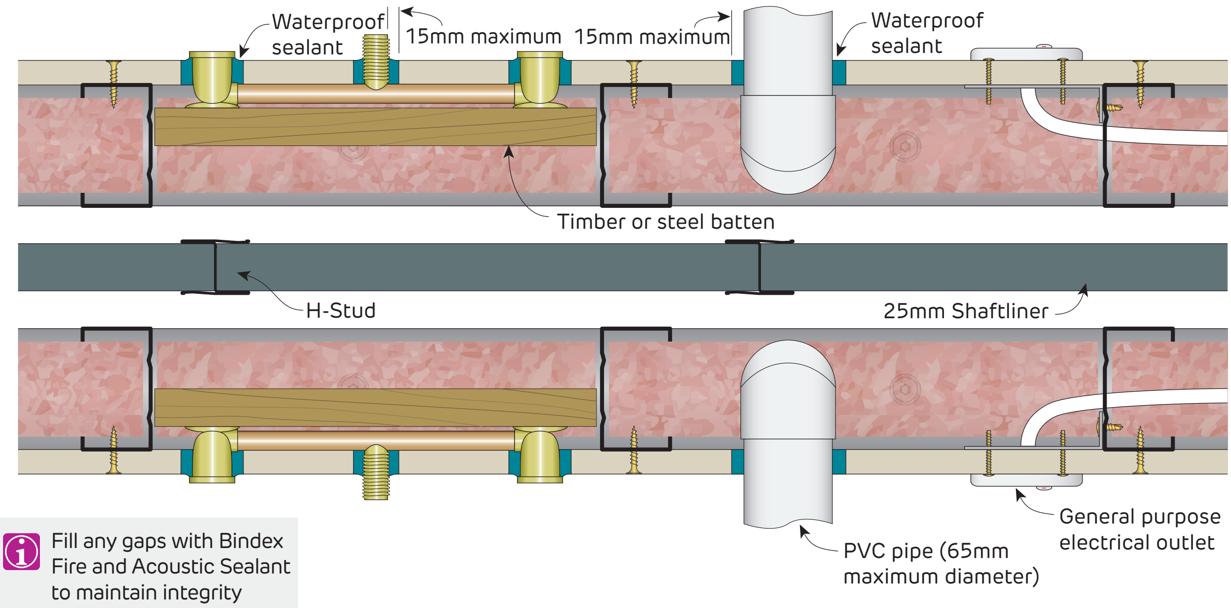

**FIGURE 48** Interhome High-Rise Wall Transition to Curtain Wall Mullion
Plan

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated
## Interhome High-Rise Penetration Details - FRL -/60/60

Prevent contact between all services and the central fire barrier.

Penetrations in wall linings can be back-to-back. Penetrations through the central fire barrier must be in accordance with an approved detail.




Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

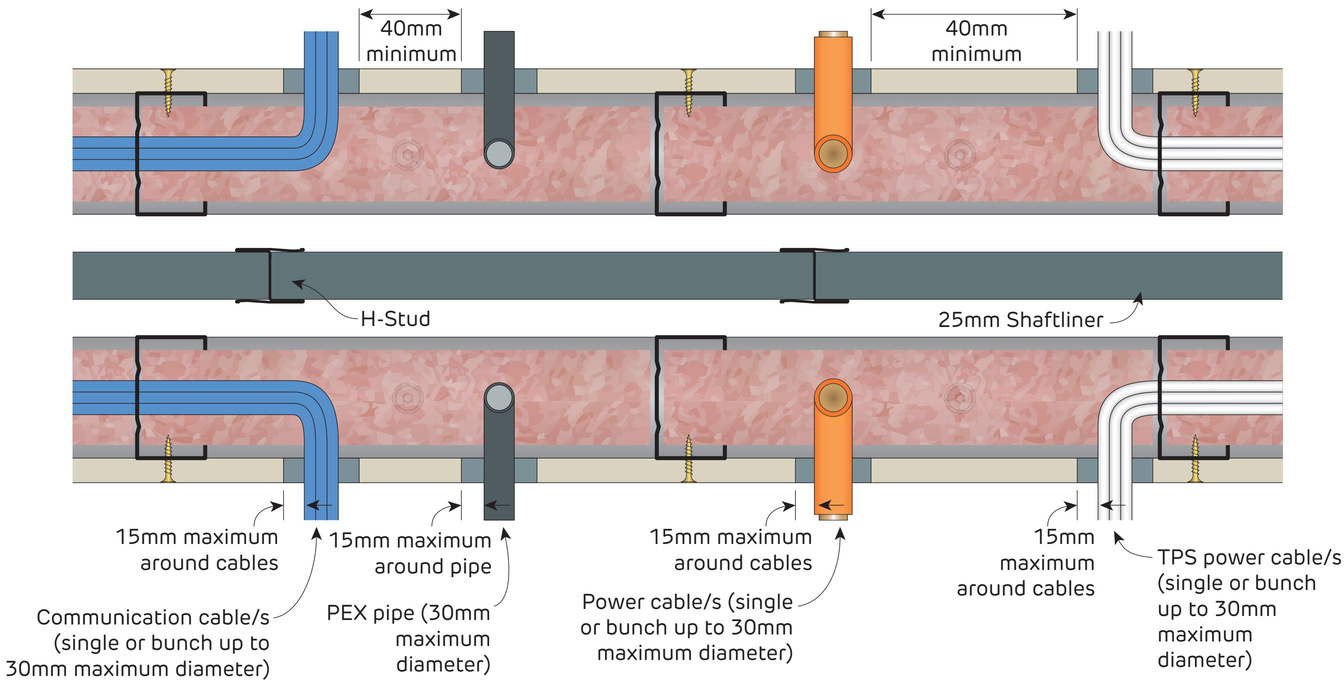



**FIGURE 49** Plumbing and Electrical Penetrations in Wall Linings
Plan

## Fire Rated
## Patching of Central Fire Barrier for Service Penetrations

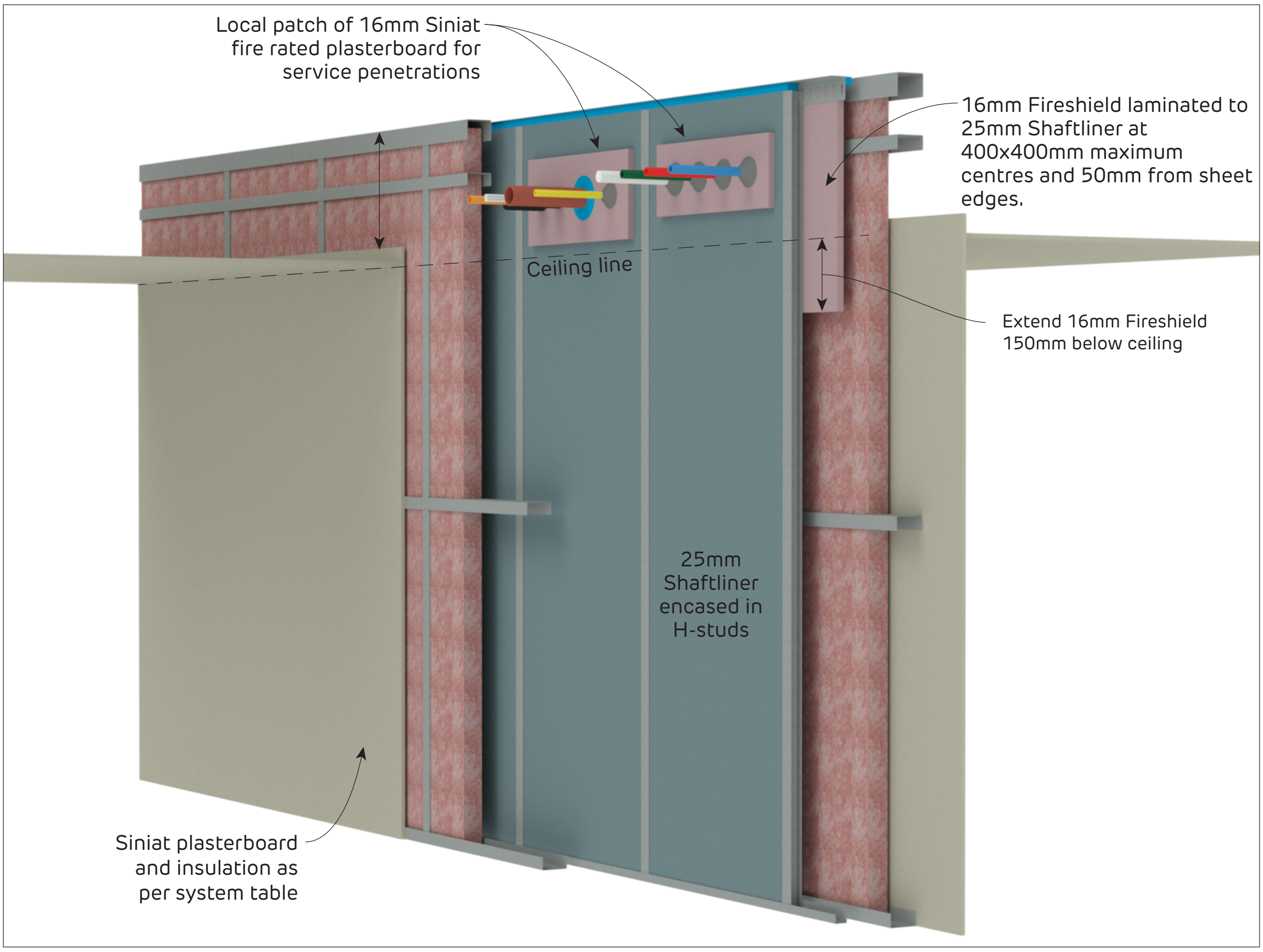



**FIGURE 50** **Penetrations Through Central Fire Barrier Along Ceiling Cavity**
Perspective

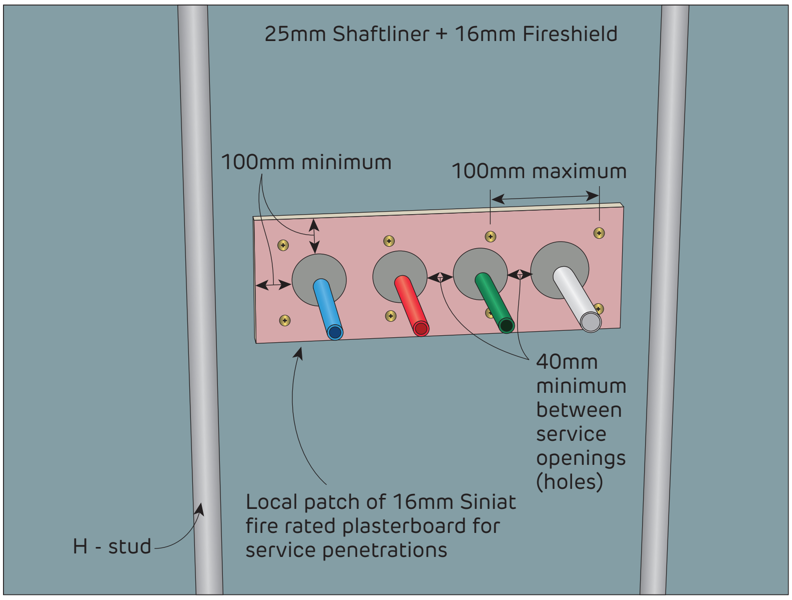



**FIGURE 51** **Local Patch for Penetrations Through Central Fire Barrier**
With example service penetrations
Perspective

## Fire Rated
## Patching of Central Fire Barrier for Service Penetrations

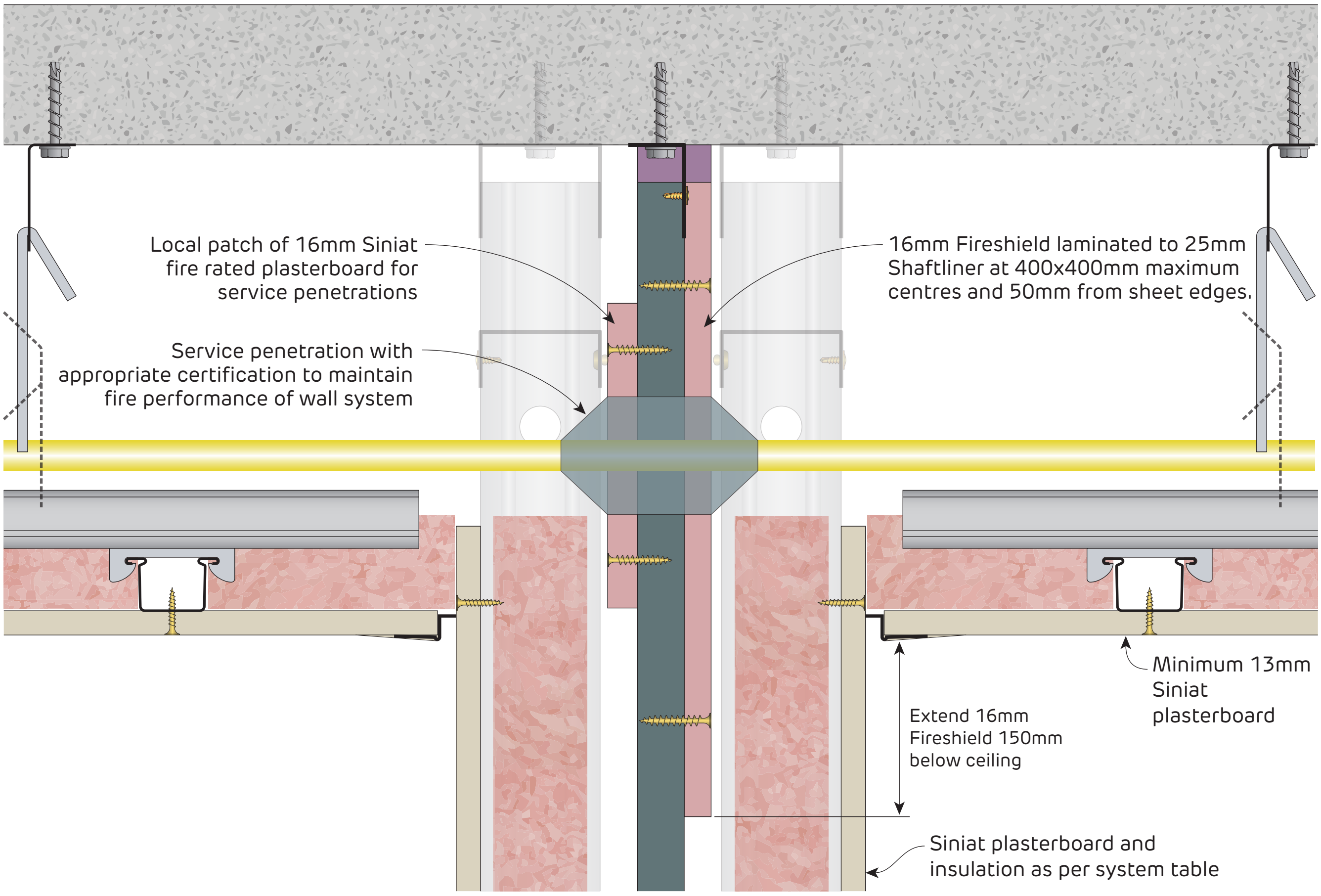



**FIGURE 52** **Penetrations Through Central Fire Barrier Along Ceiling Cavity**
With example service penetration
Section

## Fire Rated
## Interhome High-Rise Penetration Details

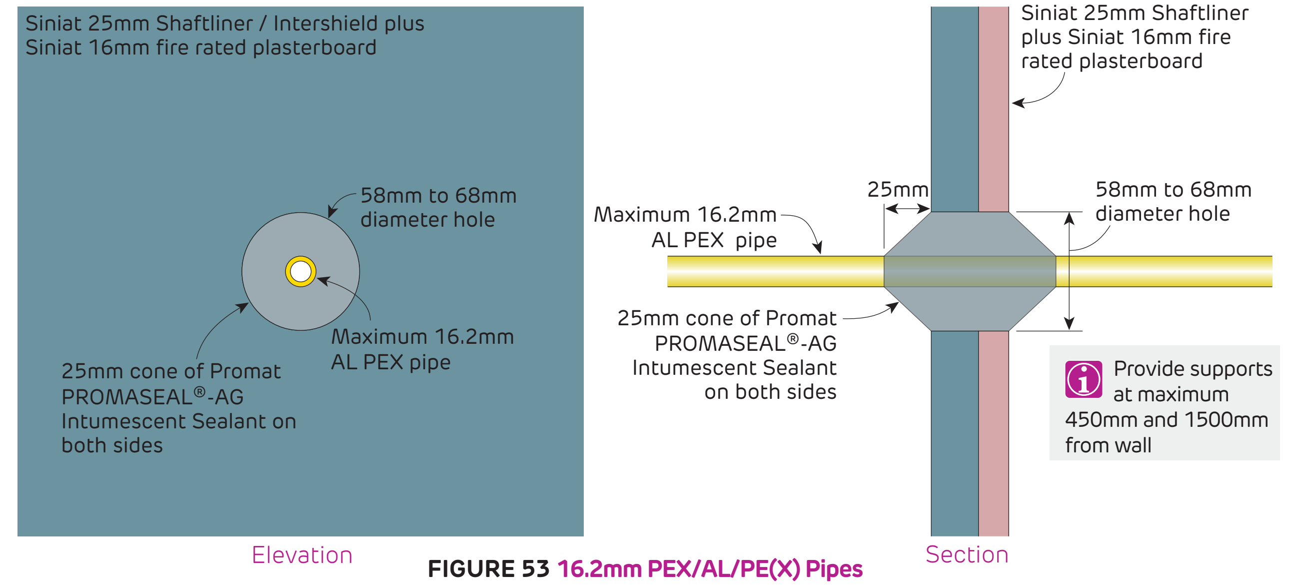



**FIGURE 53** 16.2mm PEX/AL/PE(X) Pipes
FRL -/60/60

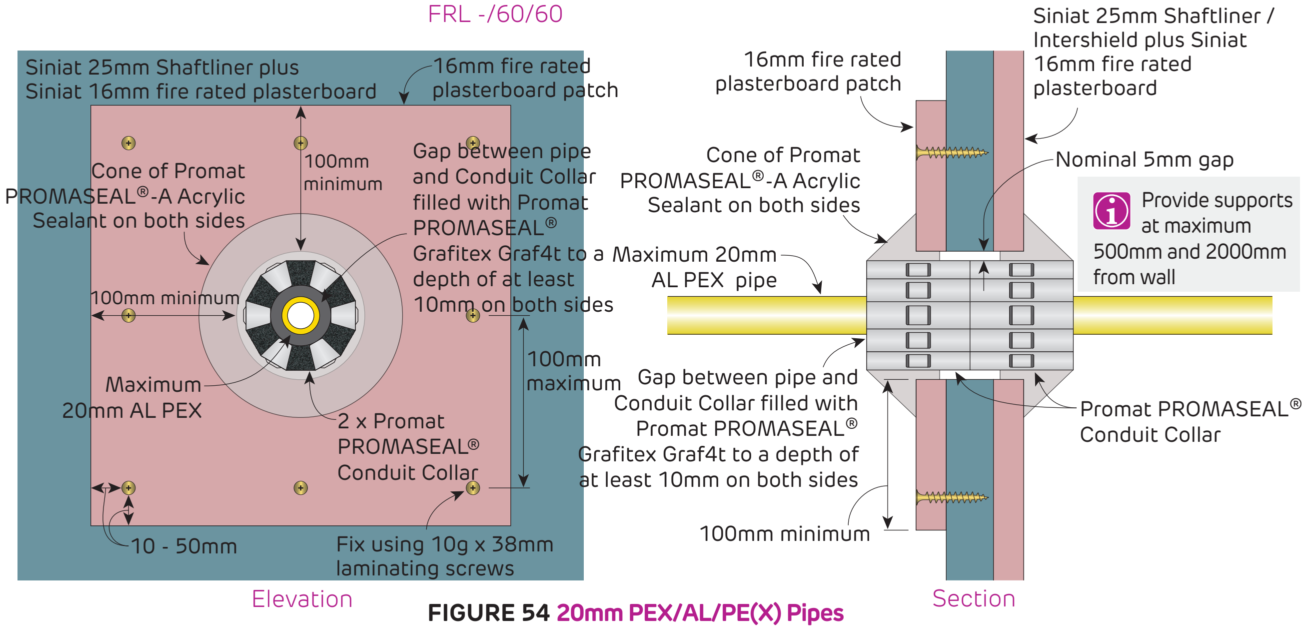



**FIGURE 54** 20mm PEX/AL/PE(X) Pipes
FRL -/60/60

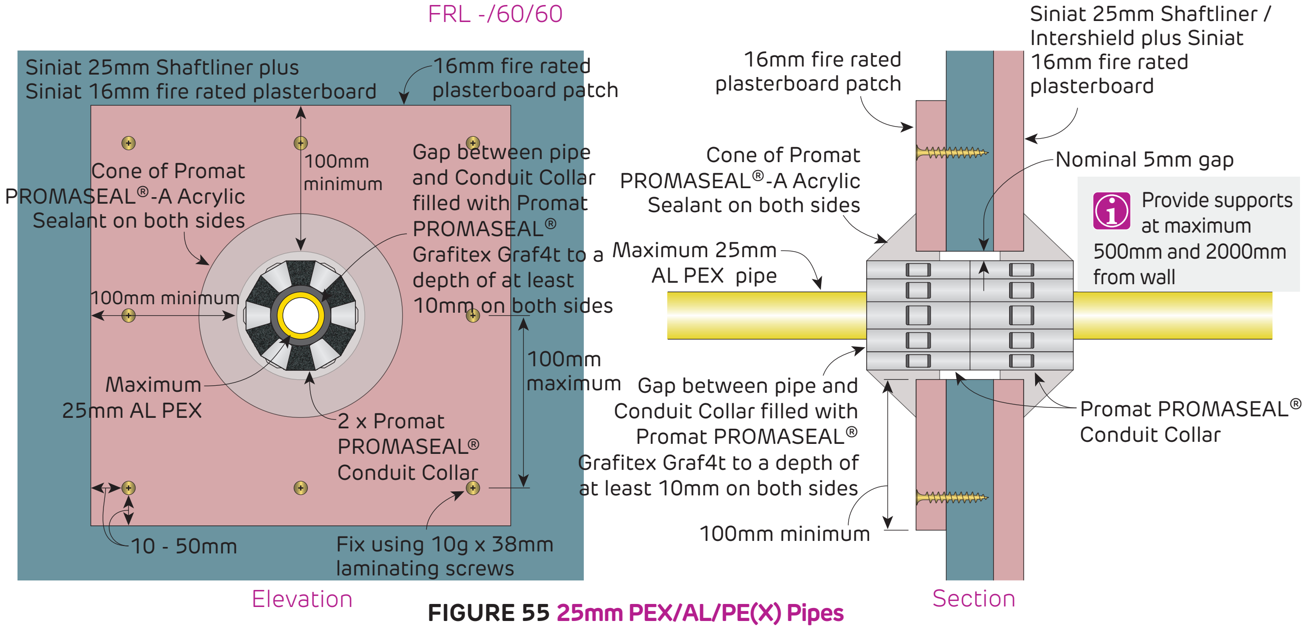



**FIGURE 55** 25mm PEX/AL/PE(X) Pipes
FRL -/60/30

## Fire Rated
## Interhome High-Rise Penetration Details

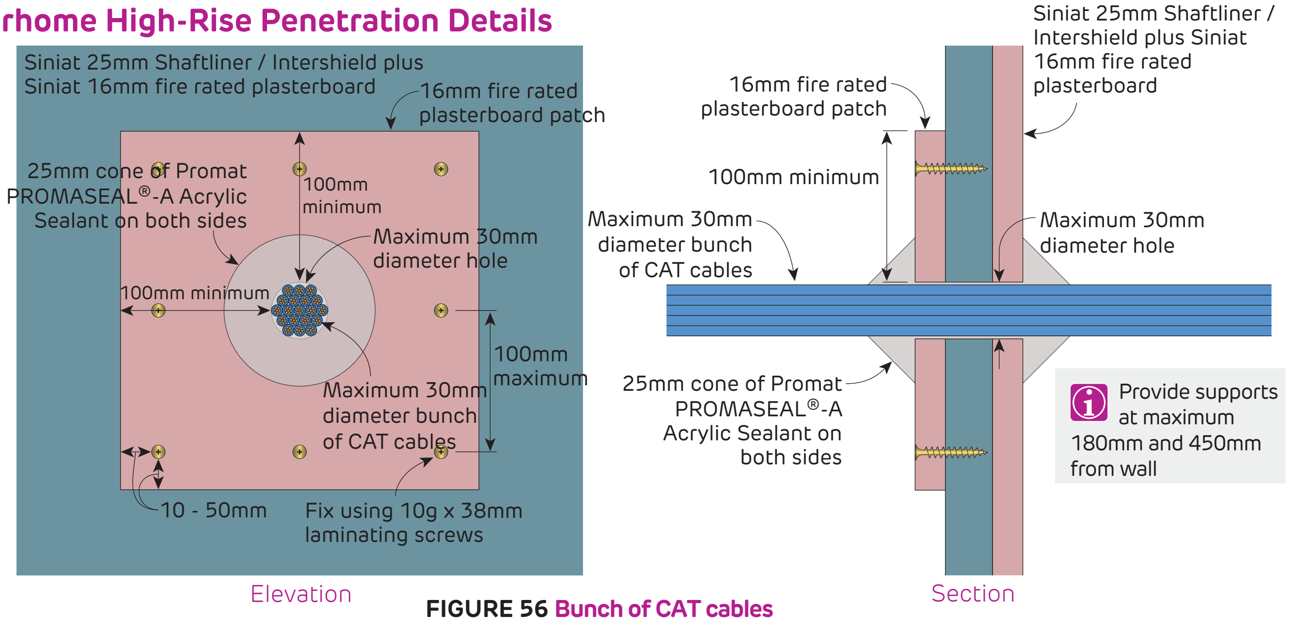



**FIGURE 56 Bunch of CAT cables**
FRL -/60/30

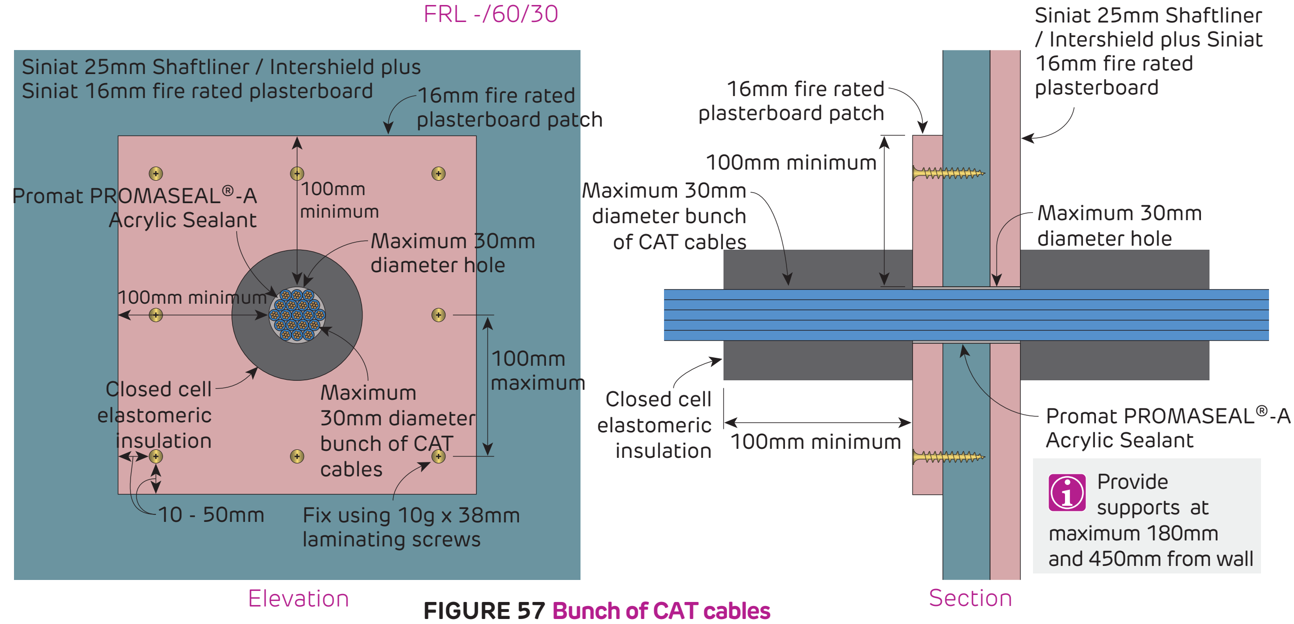



**FIGURE 57 Bunch of CAT cables**
FRL -/60/60

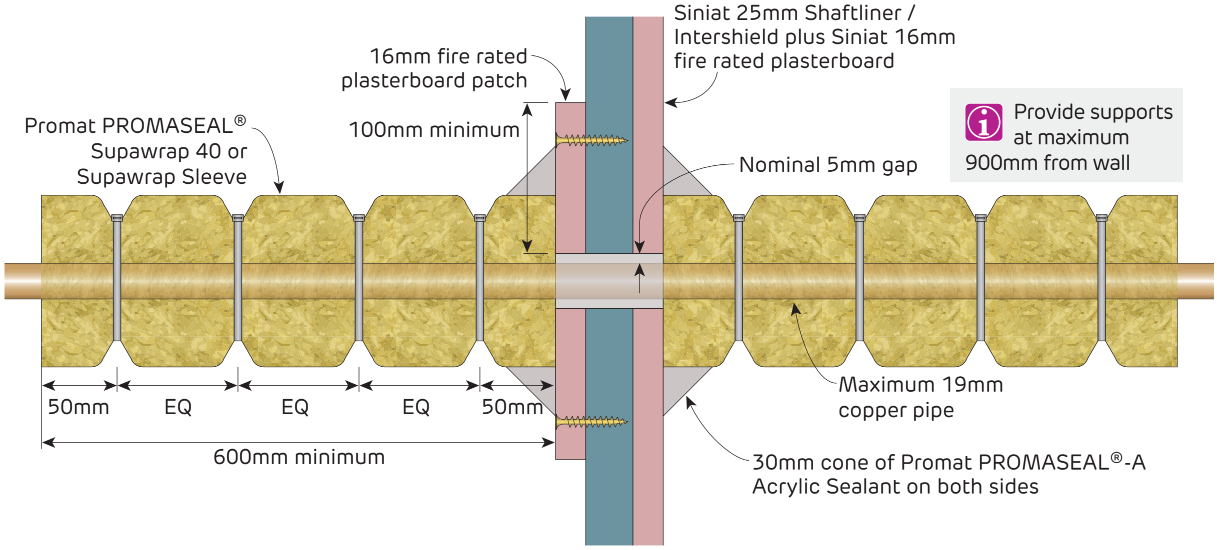



**FIGURE 58 Copper pipe**
FRL -/60/60
Section

# Fire Rated
# Interhome High-Rise Penetration Details

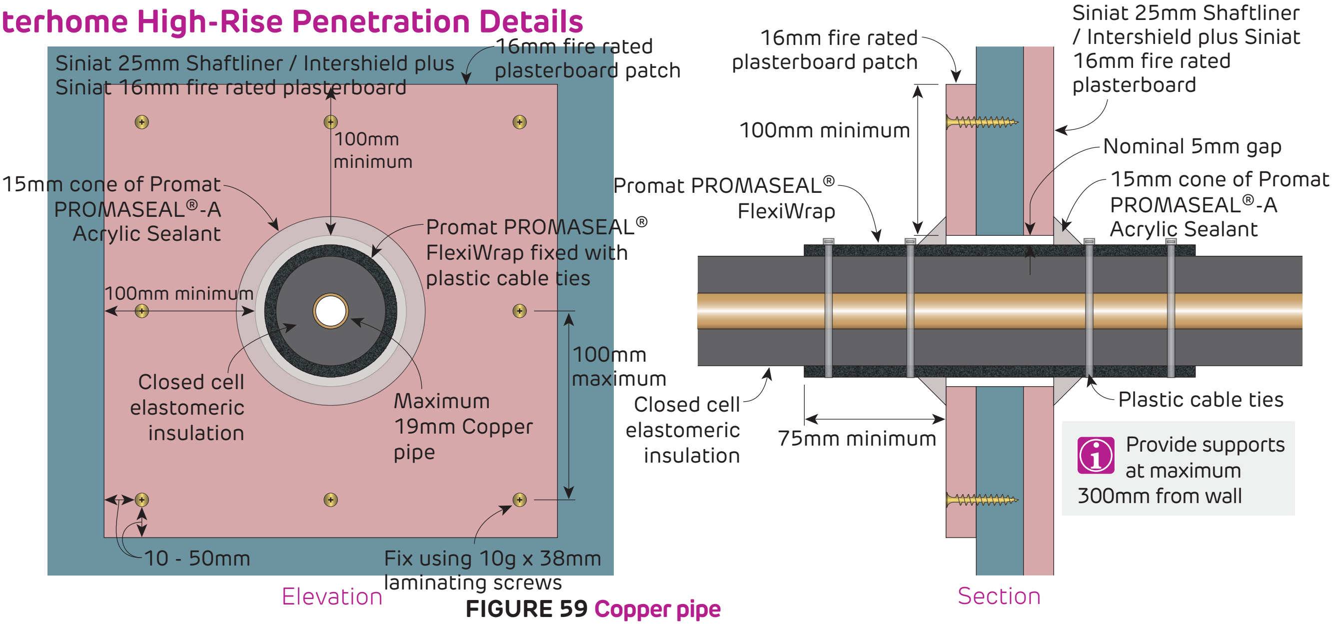



**FIGURE 59** Copper pipe
FRL -/60/60

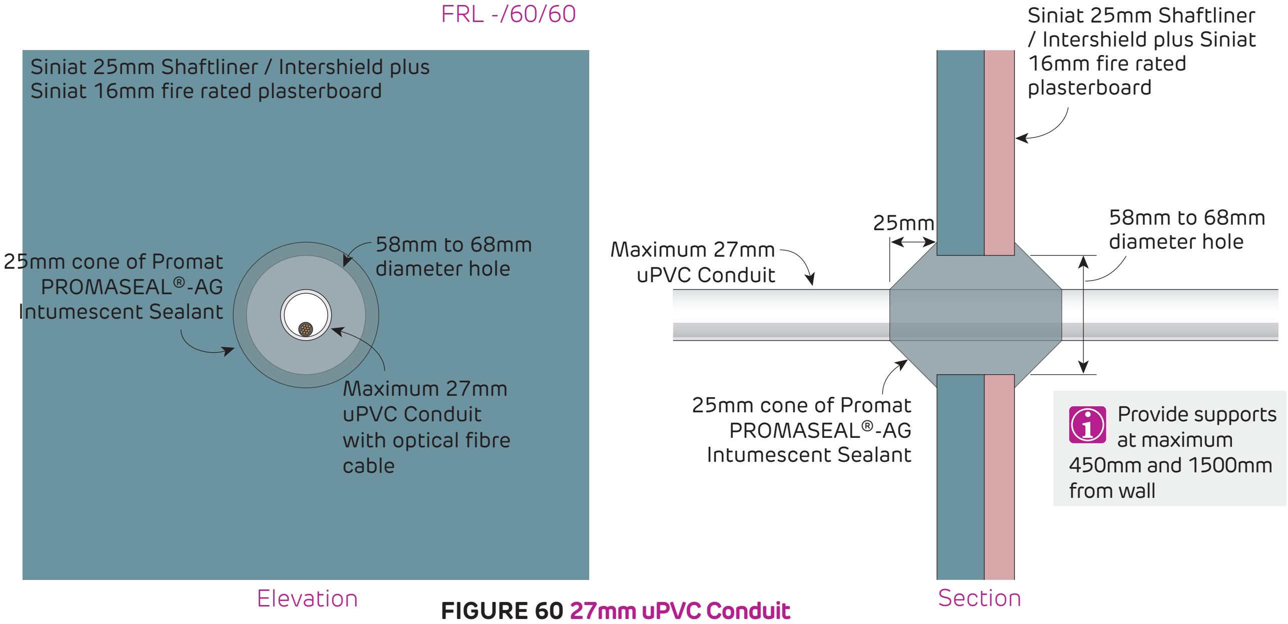



**FIGURE 60** 27mm uPVC Conduit
FRL -/60/60

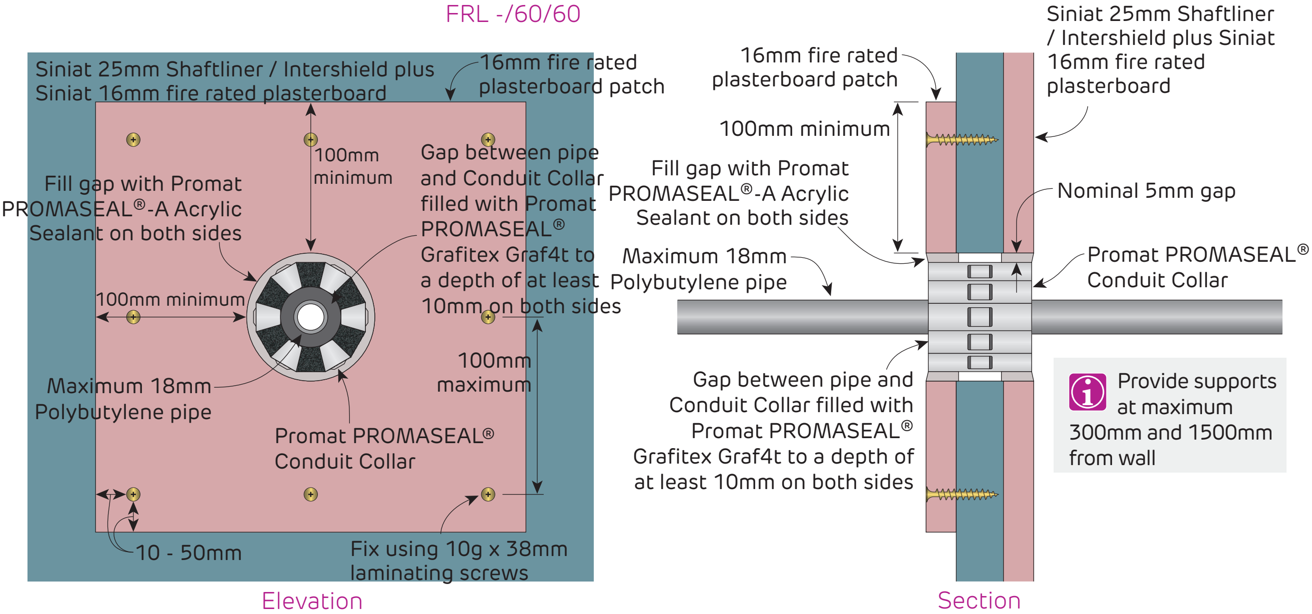



**FIGURE 61** 18mm Polybutylene (Pro-fit) Pipes
FRL -/60/60

## Fire Rated
## Interhome High-Rise Penetration Details

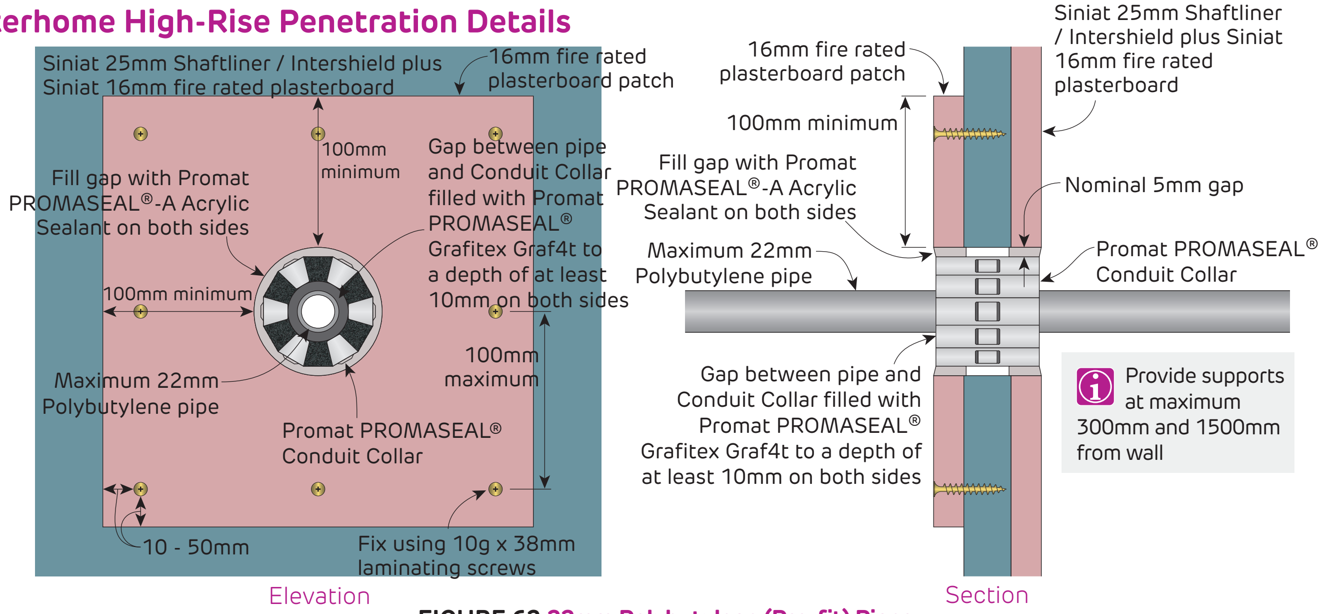



**FIGURE 62** 22mm Polybutylene (Pro-fit) Pipes
FRL -/60/60

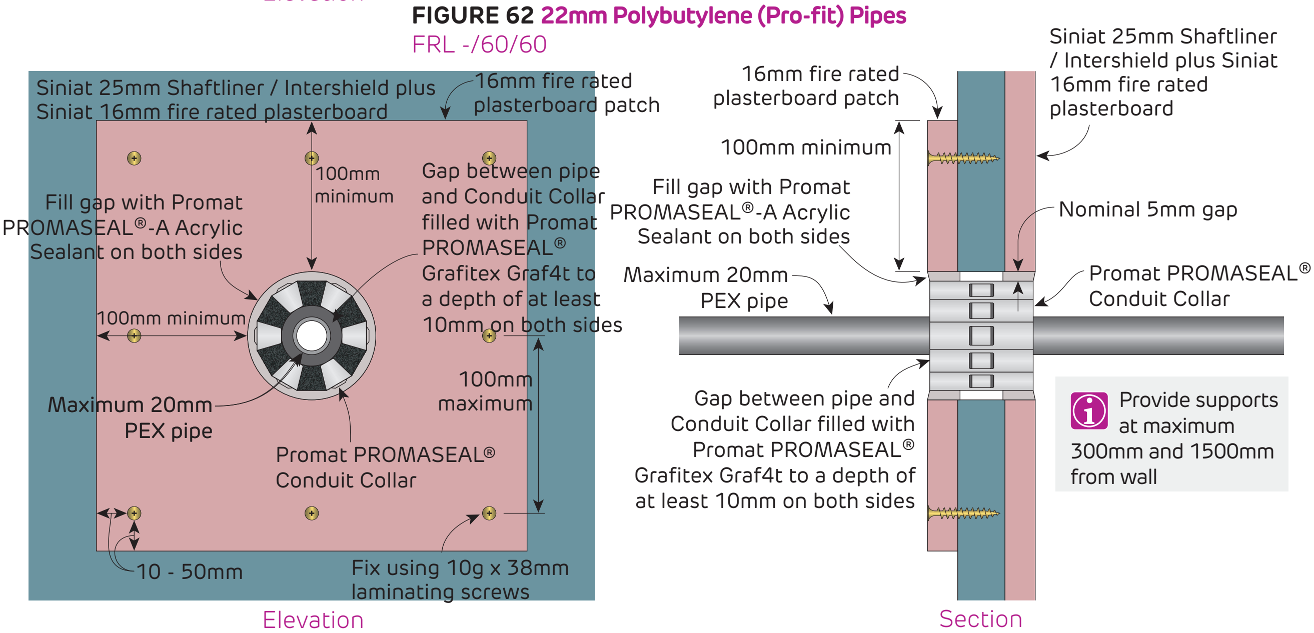



**FIGURE 63** 20mm PEX Pipes
FRL -/60/60

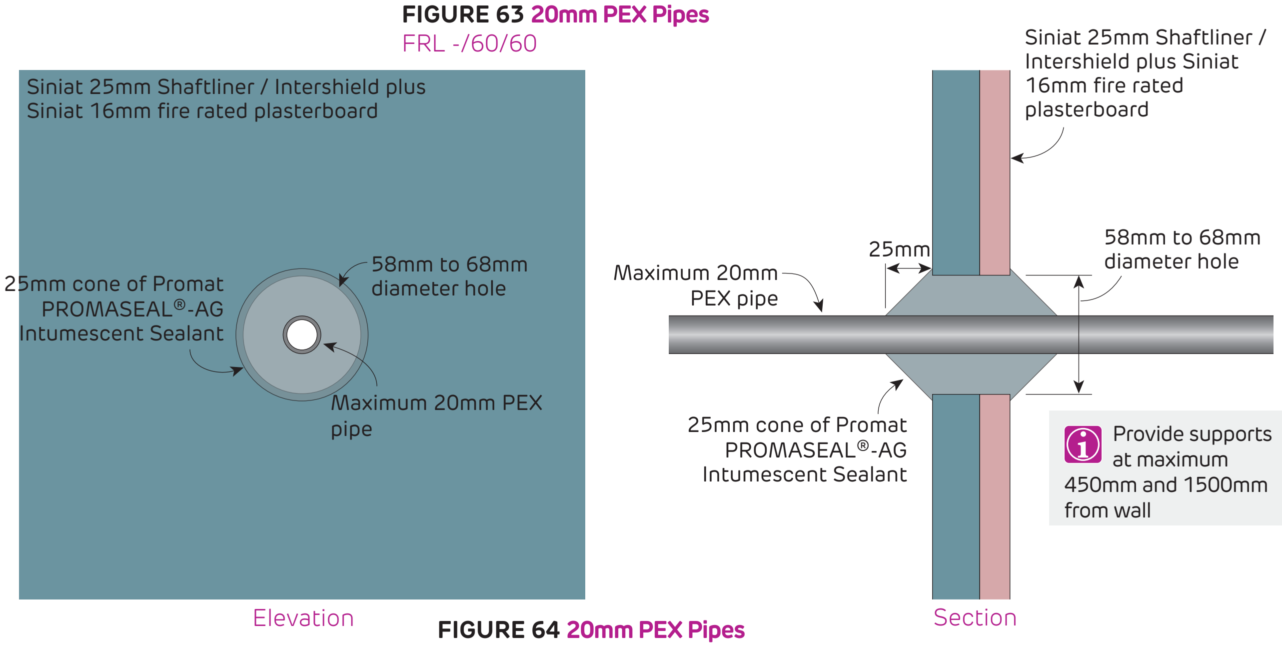



**FIGURE 64** 20mm PEX Pipes
FRL -/60/60

## Fire Rated
## Interhome High-Rise Penetration Details

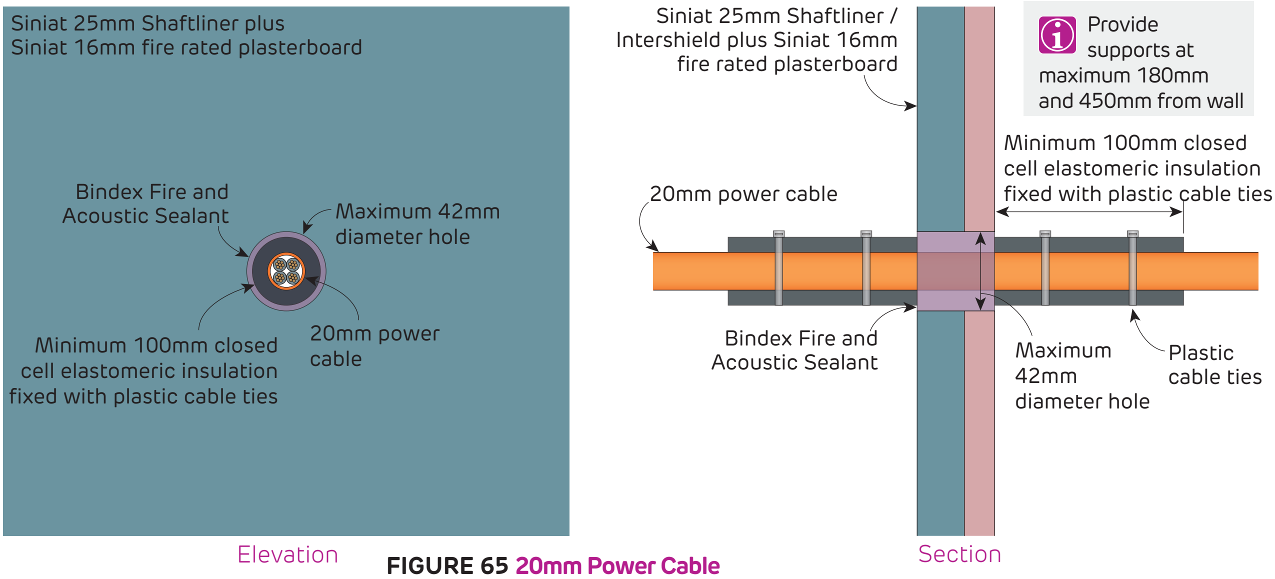



**FIGURE 65** **20mm Power Cable**
FRL -/60/60

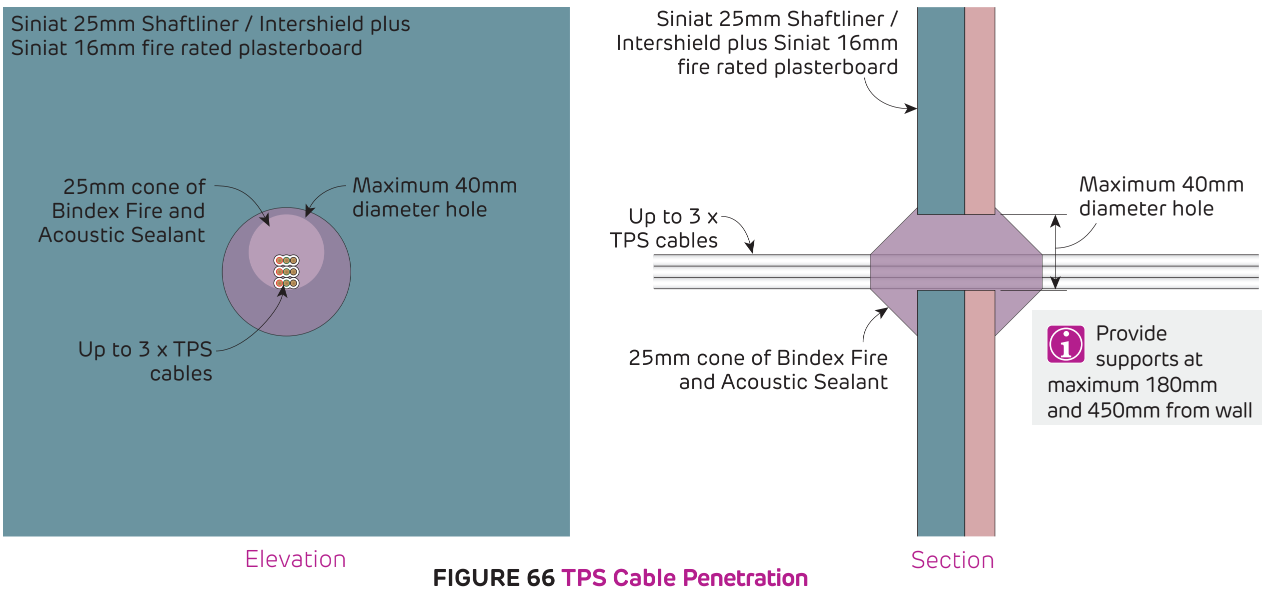



**FIGURE 66** **TPS Cable Penetration**
FRL -/60/30

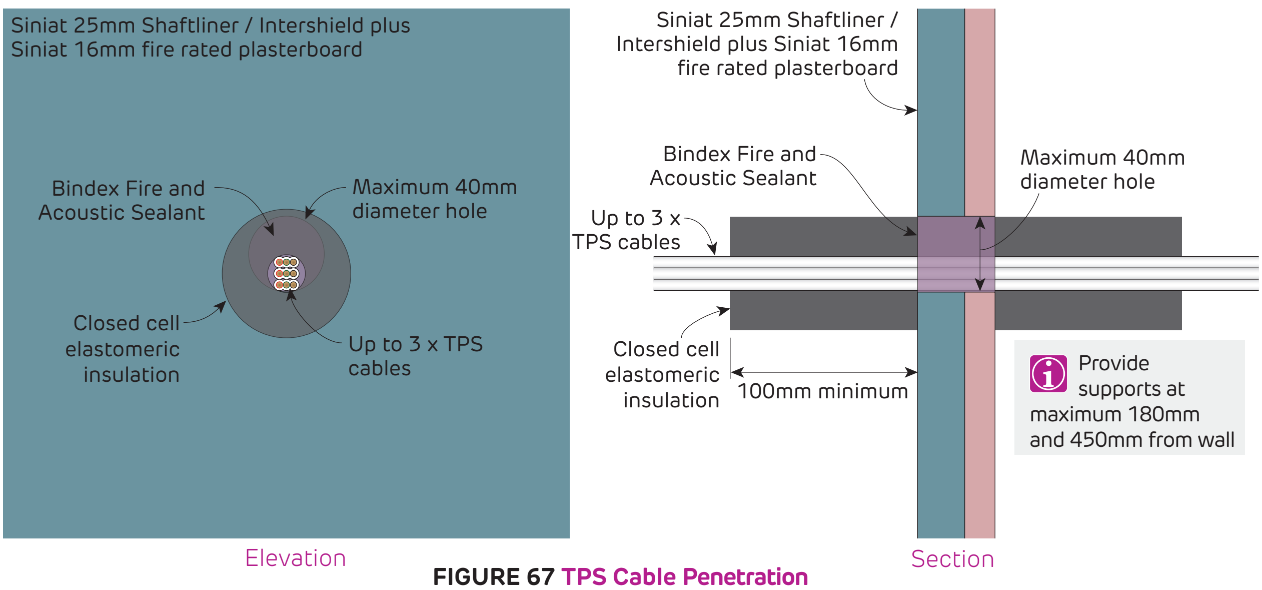
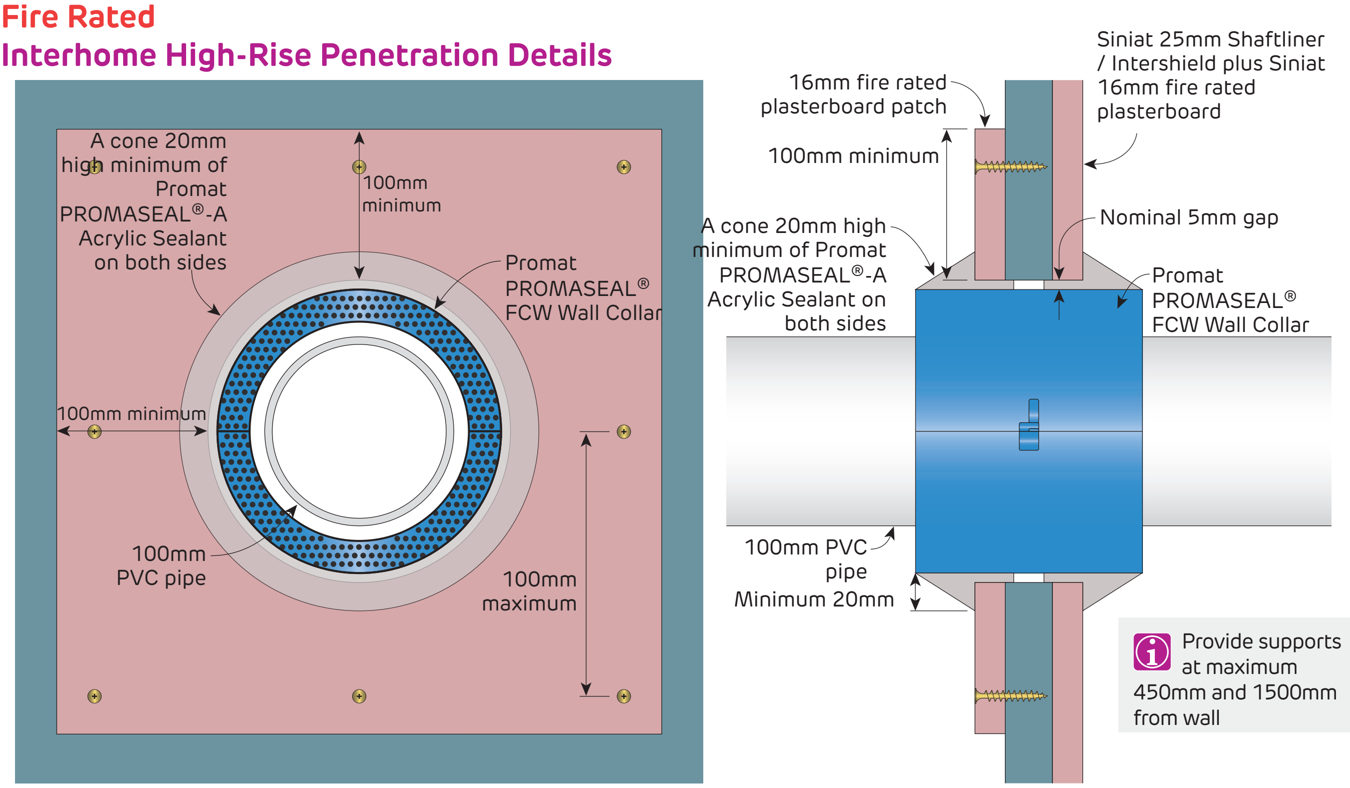


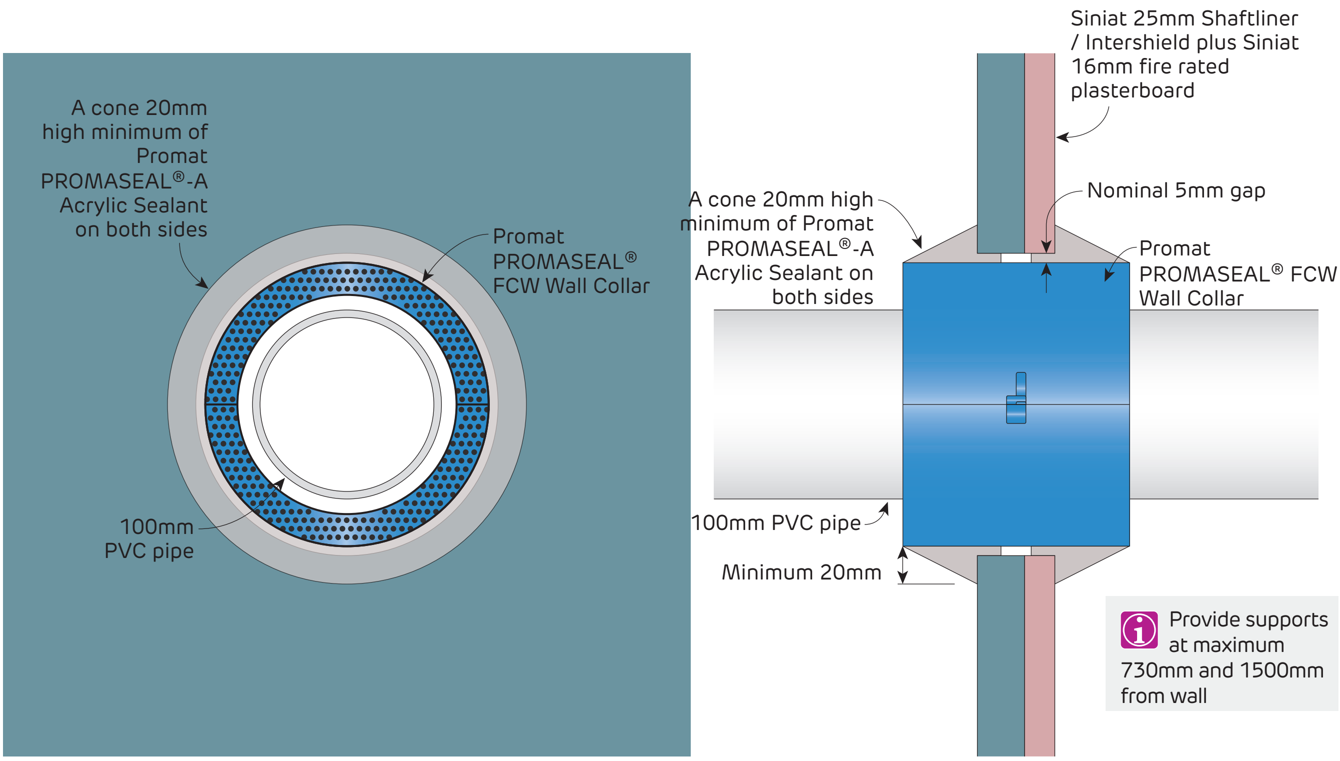

**FIGURE 67** **TPS Cable Penetration**
FRL -/60/60

# Fire Rated
## Interhome High-Rise Penetration Details




Elevation | Section

**FIGURE 68 100mm PVC Pipe**
FRL -/60/60




Elevation | Section

**FIGURE 69 100mm PVC Pipe**
FRL -/60/60

## Fire Rated
## Interhome High-Rise Penetration Details

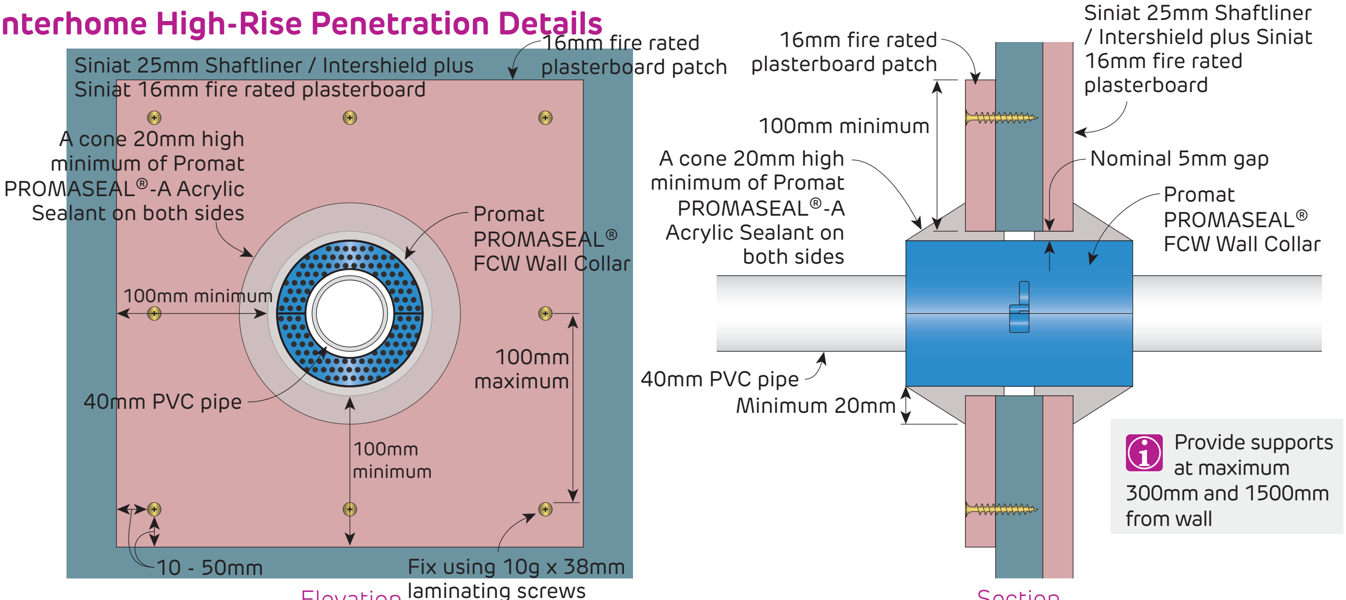



**FIGURE 70** **40mm PVC Pipe**
FRL -/60/60

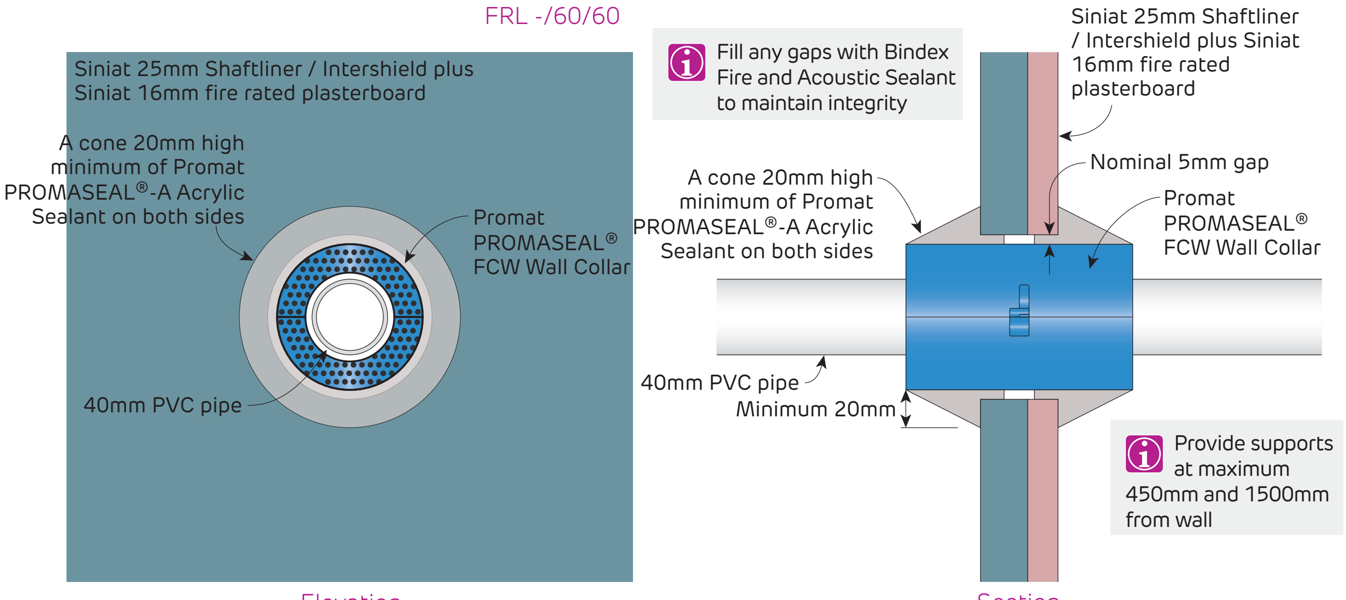



**FIGURE 71** **40mm PVC Pipe**
FRL -/60/30

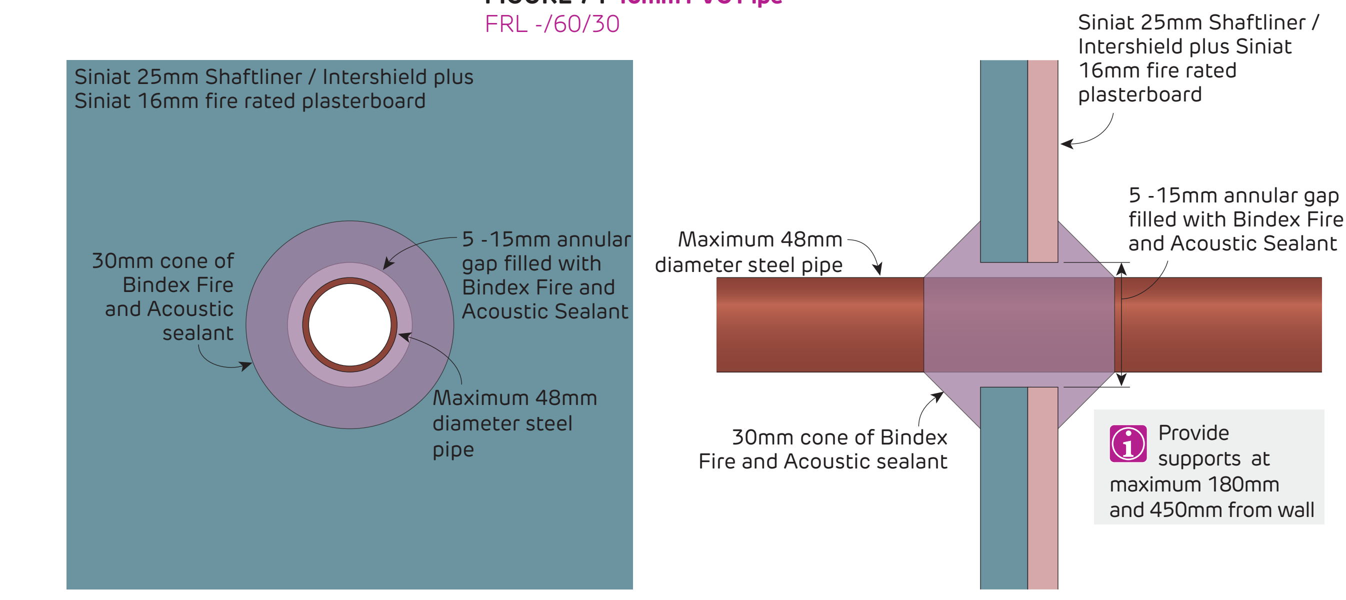



**FIGURE 72** **Maximum 48mm Steel Pipe**
FRL -/60/30

## Fire Rated
## Interhome High-Rise Penetration Details

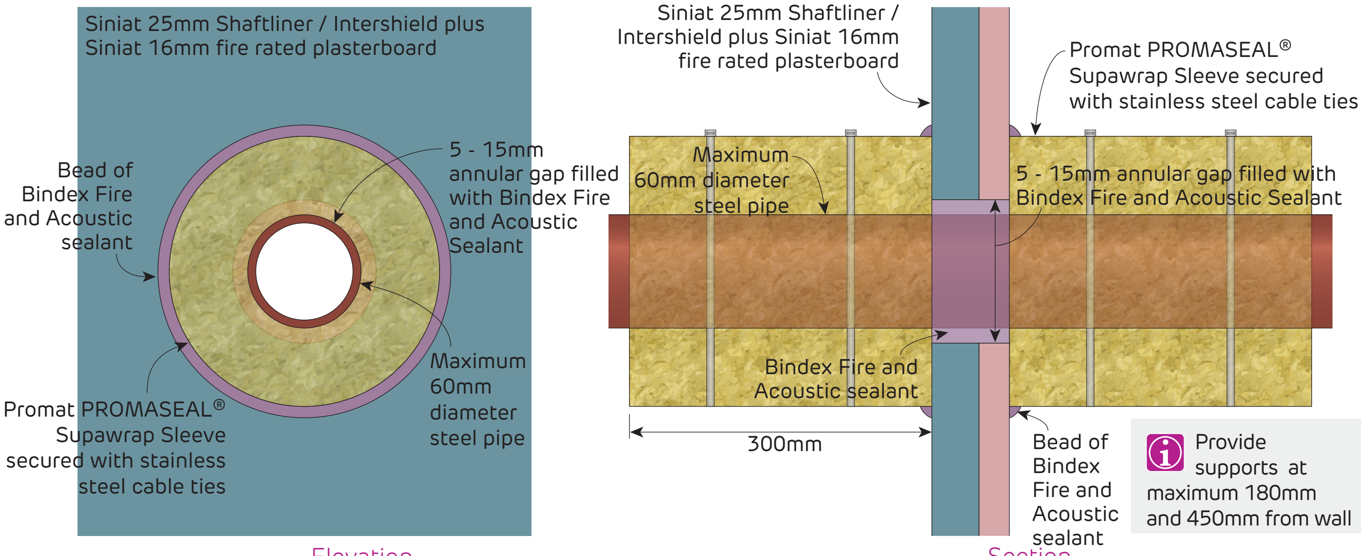



**FIGURE 73** **Maximum 60mm Steel Pipe**
FRL -/60/60

## Fire Rated
## Interhome High-Rise Penetration Details

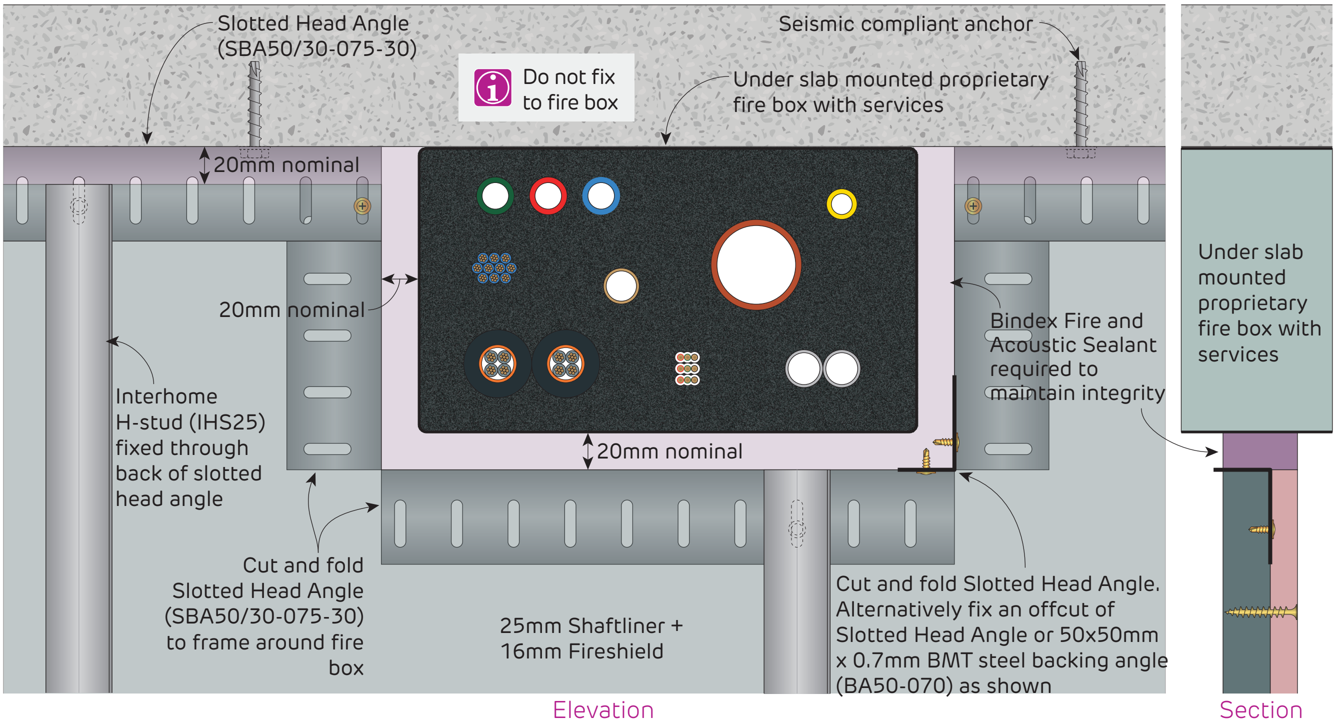
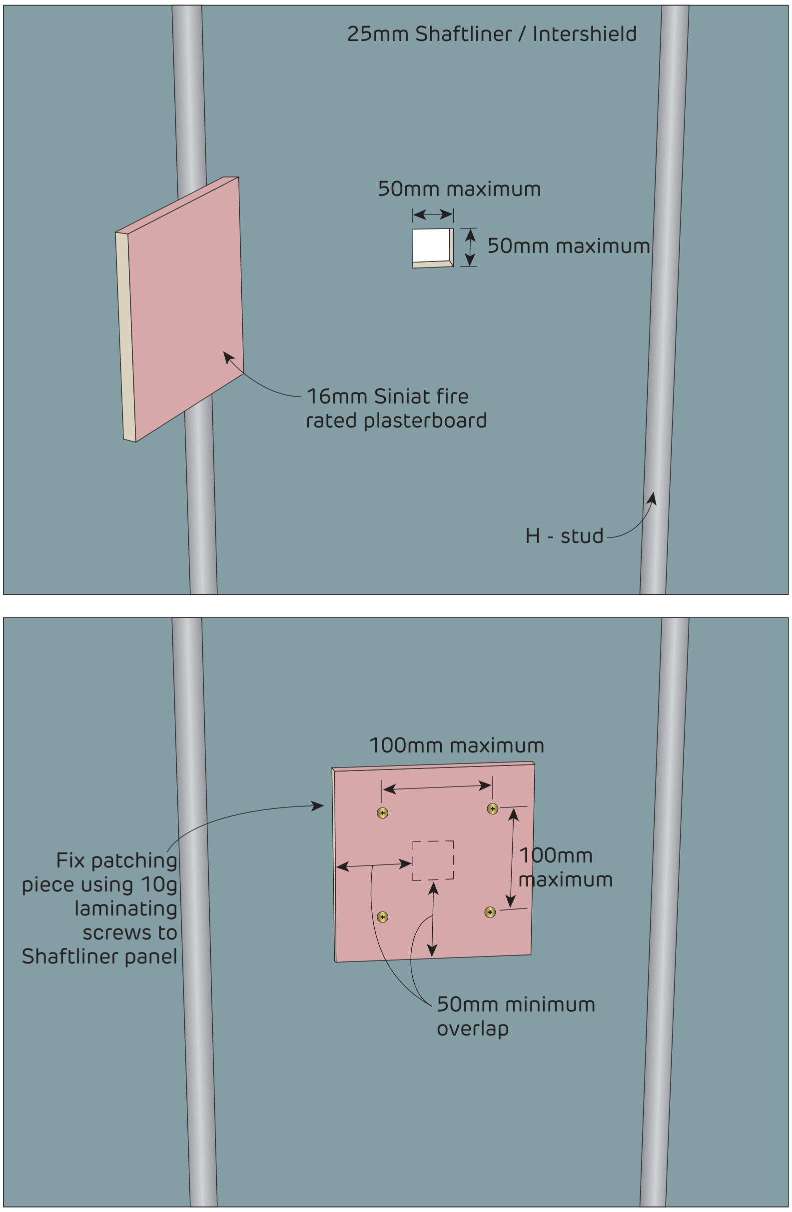



**FIGURE 74** **Under Slab Mounted Fire Box Detail through Central Fire Barrier**

## Fire Rated
## Patching of Central Fire Barrier - 50 x 50mm maximum opening




Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

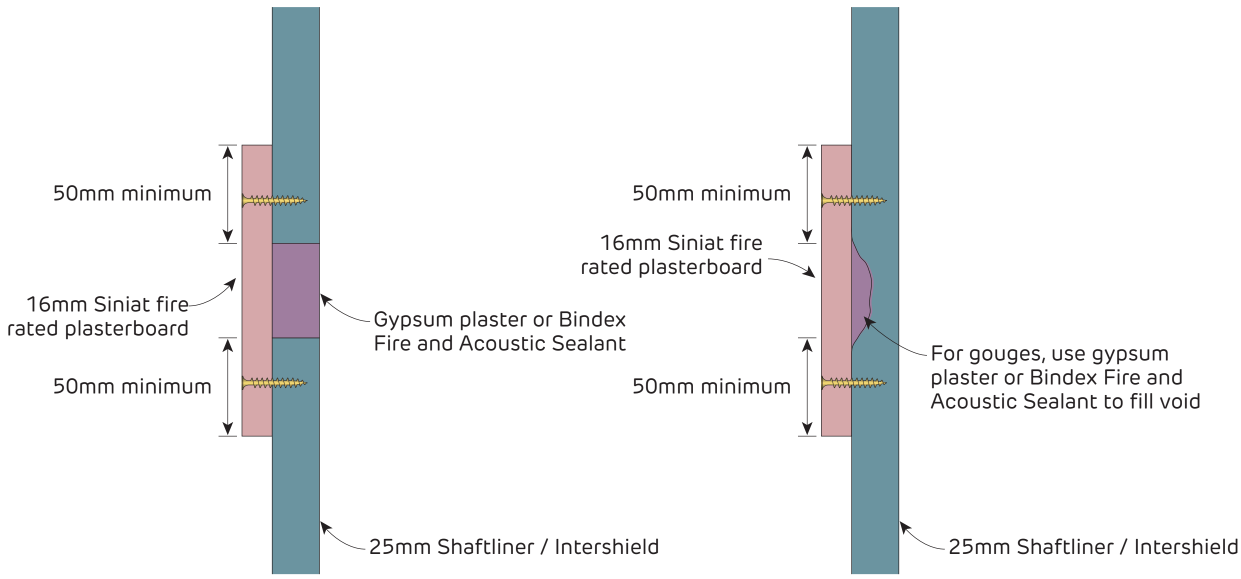
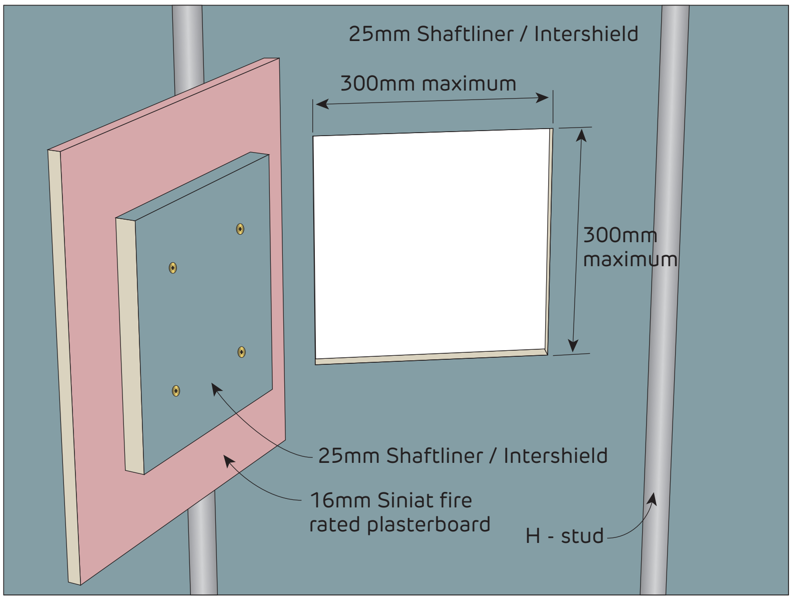
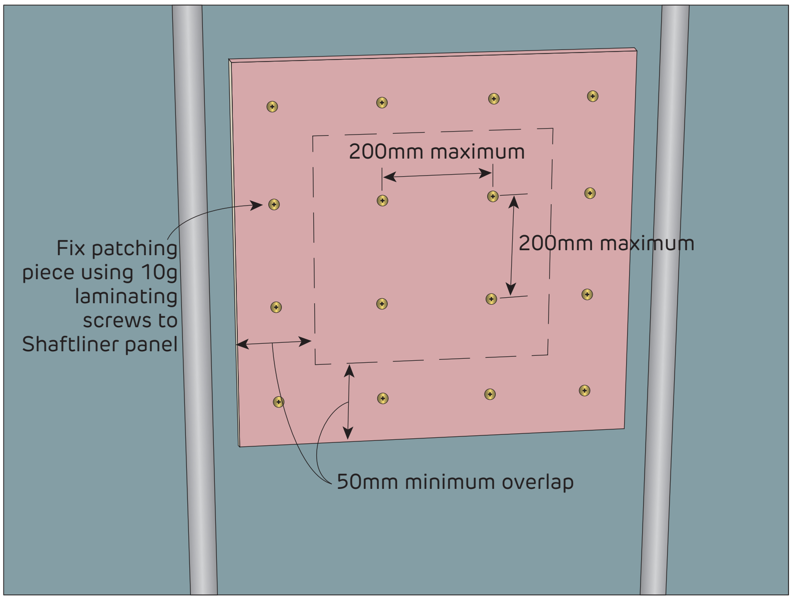



**FIGURE 75** Fire Rated Patch for Shaftliner panel
Section - FRL -/60/60

## Fire Rated

## Patching of Central Fire Barrier - 300 x 300mm maximum opening




Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

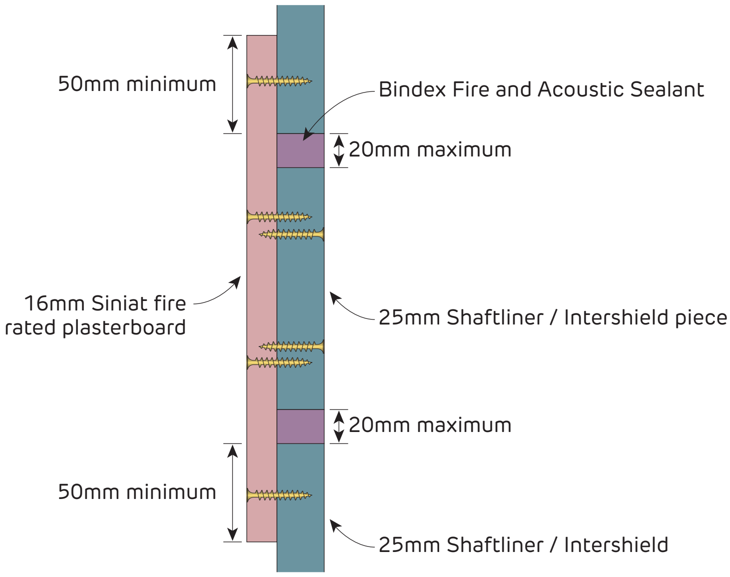
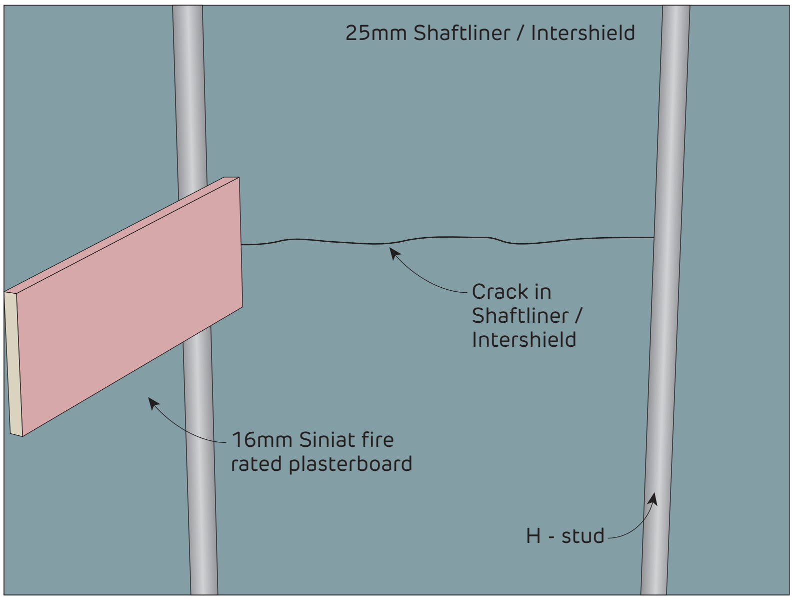
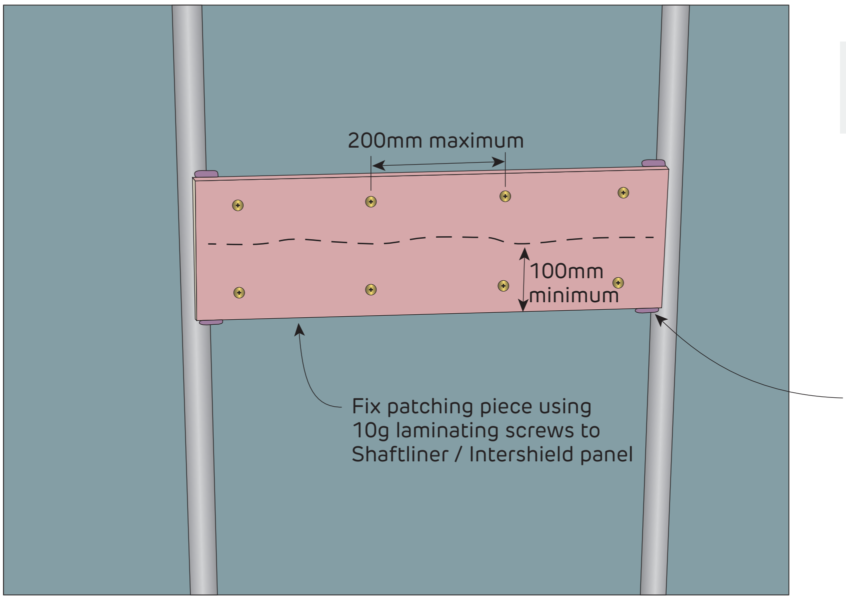



**FIGURE 76** **Fire Rated Patch for Shaftliner panel**
Section - FRL -/60/60

## Fire Rated
## Patching of Central Fire Barrier - Crack in Shaftliner




Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

Seal gap between H-Stud and patching piece with Bindex Fire and Acoustic Sealant

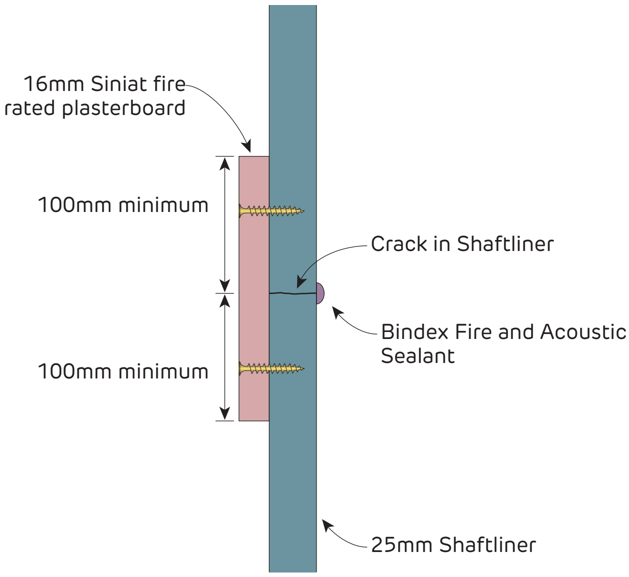



**FIGURE 77** Fire Rated Patch for Shaftliner panel
Section - FRL -/60/60



# 3.7 Shaft Wall

Shaft Wall systems are fire rated non-load bearing walls commonly used for shafts and service ducts.

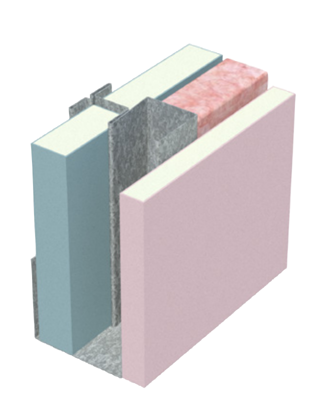
Shaft Wall systems are ideal when constructing a wall where access is only possible from one side. This side is referred to as the storey side.

Shaft Wall has advantages compared with masonry construction:

- 75% lighter
- Thinner – typically less than 100mm wide using 64mm CH Studs
- No wet trades required
- Faster installation – no scaffolding is required inside the shaft.

Shaft Wall systems are not suitable to operate as an air supply duct while exposed to an external fire or to contain products of combustion, ie: smoke exhaust. Shaft Wall systems have been tested to *AS 1530.4: Fire-resistance tests for elements of construction,* Section 3 (Walls) but not *AS 1530.4,* Section 9 (Air Ducts).

## SHW1



- 25mm **shaft**liner encased in Shaft Wall CH Studs at 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

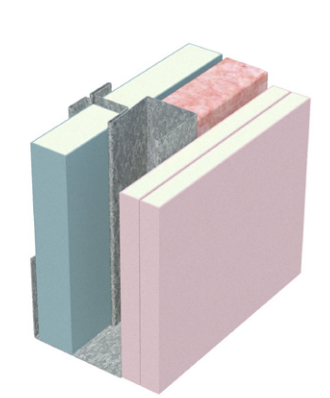
**Fire Resistance Level**

**-/60/60**
from either side

Report FAR2863

| CH Stud Size (mm) | | Maximum Height (mm) | | | | | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) for studs at 600mm centres and thinnest BMT | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth | BMT | Wu (kPa) | 0.37 | 0.52 | 0.74 | 1.00 | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Koikas 6228 |
| | | Ws (kPa) | 0.25 | 0.35 | 0.50 | 0.68 | | | | |
| 64 | 0.55 | | 2950 | 2640 | - | - | 80 | 42 (33) | 44 (35) | |
| | 0.9 | | 3460 | 3450 | 3300 | 2760 | | | | |
| 102 | 0.55 | | 3730 | 2660 | - | - | 118 | 43 (35) | 46 (40) | |
| | 0.9 | | 4980 | 4190 | 3730 | 2760 | | | | |

## SHW5



- 25mm **shaft**liner encased in Shaft Wall CH Studs at 600mm centres
- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

**Fire Resistance Level**

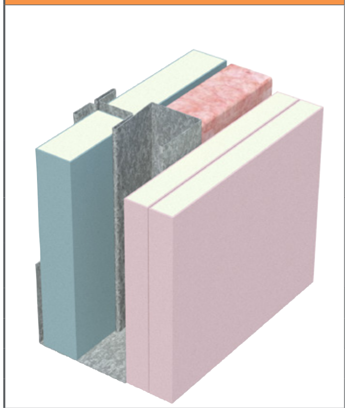
**-/90/90***
from either side

Report

| CH Stud Size (mm) | | Maximum Height (mm) | | | | | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) for studs at 600mm centres and thinnest BMT | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth | BMT | Wu (kPa) | 0.37 | 0.52 | 0.74 | 1.00 | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Koikas 6228 |
| | | Ws (kPa) | 0.25 | 0.35 | 0.50 | 0.68 | | | | |
| 64 | 0.55 | | 3320 | 2660 | - | - | 90 | 45 (33) | 48 (37) | |
| | 0.9 | | 3460 | 3090 | 3090 | 2760 | | | | |
| 102 | 0.55 | | 3730 | 2660 | - | - | 128 | 46 (38) | 50 (44) | |
| | 0.9 | | 4980 | 4190 | 3680 | 2760 | | | | |

* The FRL of SHW5 is -/120/120, however due to the limited availability of suitable penetrations the system is listed as FRL -/90/90.

## SHW2



- 25mm **shaft**liner encased in Shaft Wall CH Studs at 600mm centres
- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

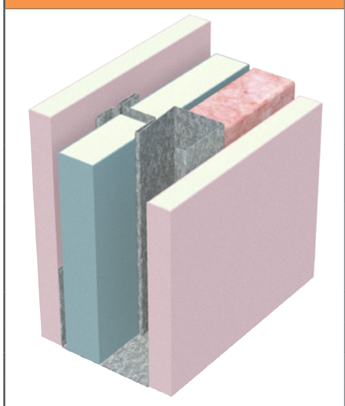
**Fire Resistance Level**

**-/120/120**
from either side

Report FAR2863

| CH Stud Size (mm) | | Maximum Height (mm) | | | | | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) for studs at 600mm centres and thinnest BMT | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth | BMT | Wu (kPa) | 0.37 | 0.52 | 0.74 | 1.00 | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Koikas 6228 |
| | | Ws (kPa) | 0.25 | 0.35 | 0.50 | 0.68 | | | | |
| 64 | 0.55 | | 3730 | 2660 | - | - | 96 | 45 (34) | 48 (38) | |
| | 0.9 | | 4380 | 3890 | 3220 | 2760 | | | | |
| 102 | 0.55 | | 3730 | 2660 | - | - | 134 | 47 (39) | 49 (45) | |
| | 0.9 | | 5510 | 4190 | 3680 | 2760 | | | | |

## SHW3



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- 25mm **shaft**liner encased in Shaft Wall CH Studs at 600mm centres
- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

**Fire Resistance Level**

**-/120/120**
from either side

Report FAR2863

| CH Stud Size (mm) | | Maximum Height (mm) | | | | | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) for studs at 600mm centres and thinnest BMT | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth | BMT | Wu (kPa) | 0.37 | 0.52 | 0.74 | 1.00 | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report Koikas 6228 |
| | | Ws (kPa) | 0.25 | 0.35 | 0.50 | 0.68 | | | | |
| 64 | 0.55 | | 3730 | 2660 | - | - | 96 | 44 (35) | 47 (37) | |
| | 0.9 | | 4380 | 3890 | 3220 | 2760 | | | | |
| 102 | 0.55 | | 3730 | 2660 | - | - | 134 | 47 (39) | 49 (44) | |
| | 0.9 | | 5510 | 4190 | 3680 | 2760 | | | | |

Maximum wall heights based upon ultimate (Wu) lateral wind pressures and serviceability (Ws) deflection limited to h/240.

# Components

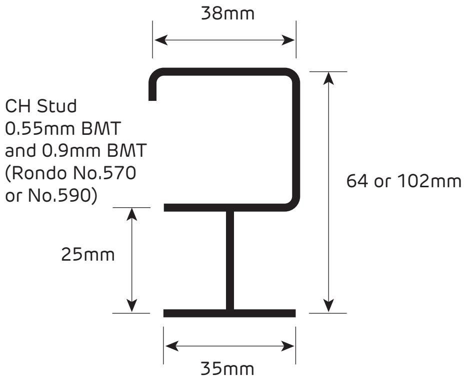



**FIGURE 1** Shaft Wall CH Stud
Section

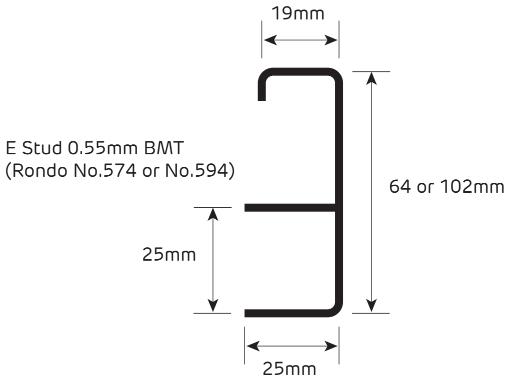



**FIGURE 2** Shaft Wall E Stud
Section

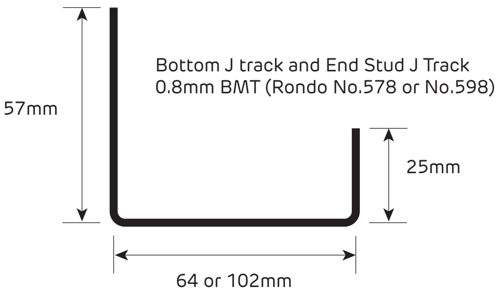



**FIGURE 3** Shaft Wall J Track
Section

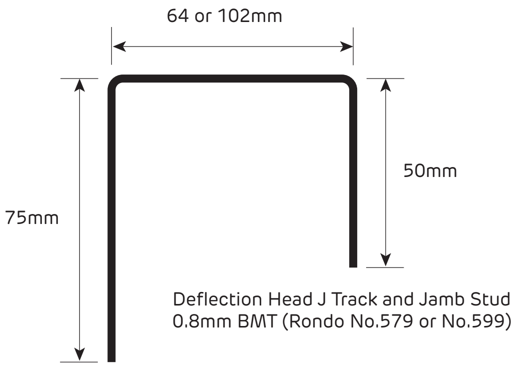



**FIGURE 4** Shaft Wall Deflection Head J Track
Section

# General Requirements

| | Fire Rated |
|---|---|
| Install control joints in plasterboard walls:<br>> At 12m maximum intervals<br>> At all movement joints in the building<br>> At any change in the substrate | ✓ |
| Only joint the face layer. As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, use **bindex** fire and acoustic sealant according to the Product Data Sheet. | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | ✓ |
| Use **bindex** fire and acoustic sealant on all gaps and around perimeter. | ✓ |
| Attach all fixtures to studs or purpose installed noggings/blocking. Wall anchors must not be fixed only to the plasterboard of fire rated walls. | ✓ |
| **fire**shield may be substituted with **multi**shield, **impact**shield, **tru**rock and **tru**rock HD of the same or greater thickness and maintain fire performance. | ✓ |

For acceptable modifications or variations to fire rated systems, refer to Section 2.3 Fire Resistance

# Framing

| | Fire Rated |
|---|---|
| CH Studs as per framing table or structural design. Space CH Studs at 600mm (full **shaft**liner). | ✓ |
| Twist CH Studs into base tracks and push studs down completely. | ✓ |

### Table 1 Maximum Head and Base Track Anchor Spacing

| Stud Spacing (mm) | Maximum Anchor Spacing (mm) |
|---|---|
| 600 | 600 |

1. Additional anchors 100mm maximum from track ends.
2. 102mm studs require 2 anchors across width.

### Table 2 Concrete Anchor Table

| Wall Height (m) | C1 Anchor | C2 Anchor |
|---|---|---|
| 0 - 6.92 | SA6x45 | SXTB08055 |

1. Concrete 20 MPa minimum. No edge / spacing effects.
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and also 100mm maximum from track ends.
3. 102mm CH Studs require 2 anchors across width.

Plumbing and electrical services must not protrude beyond the face of the studs.

**Siniat Internal Wind Load Calculator**

# Installation Sequence

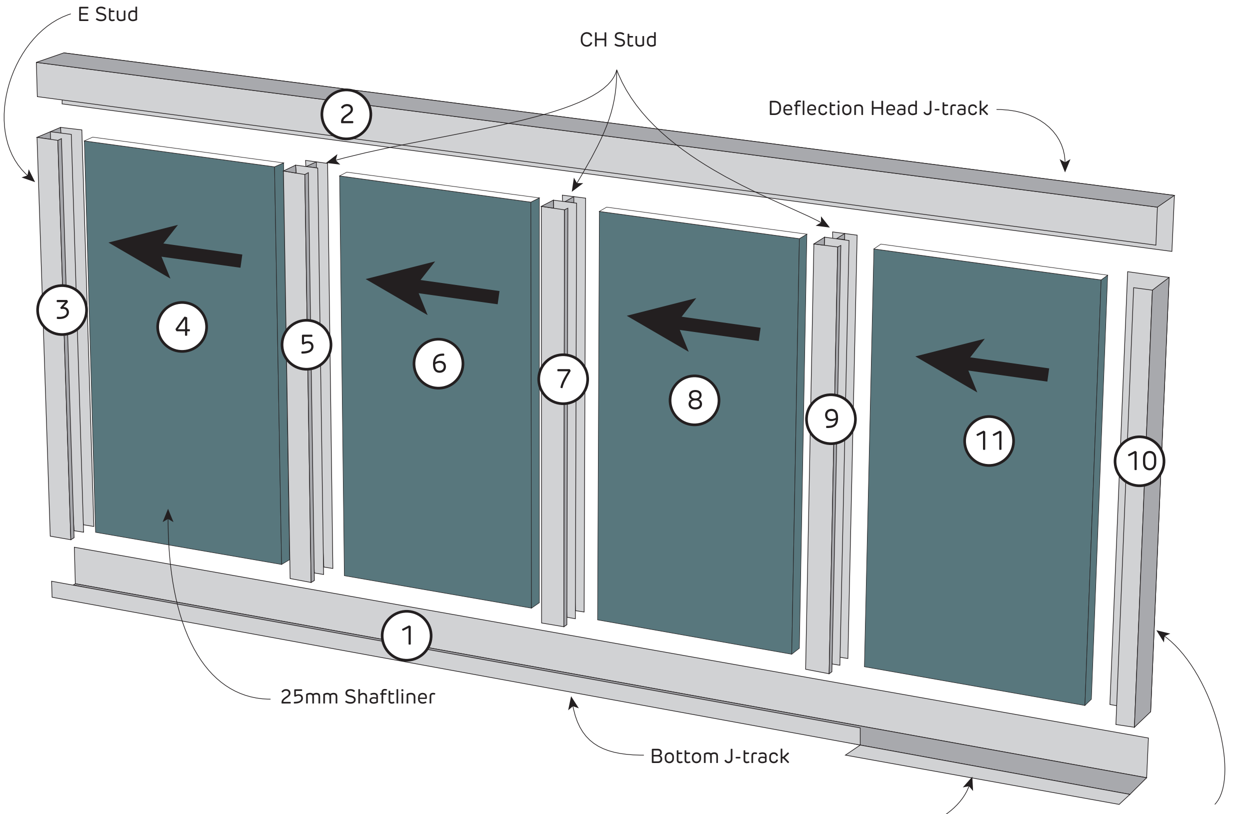



**FIGURE 5** **Shaft Wall Construction Sequence**
Perspective

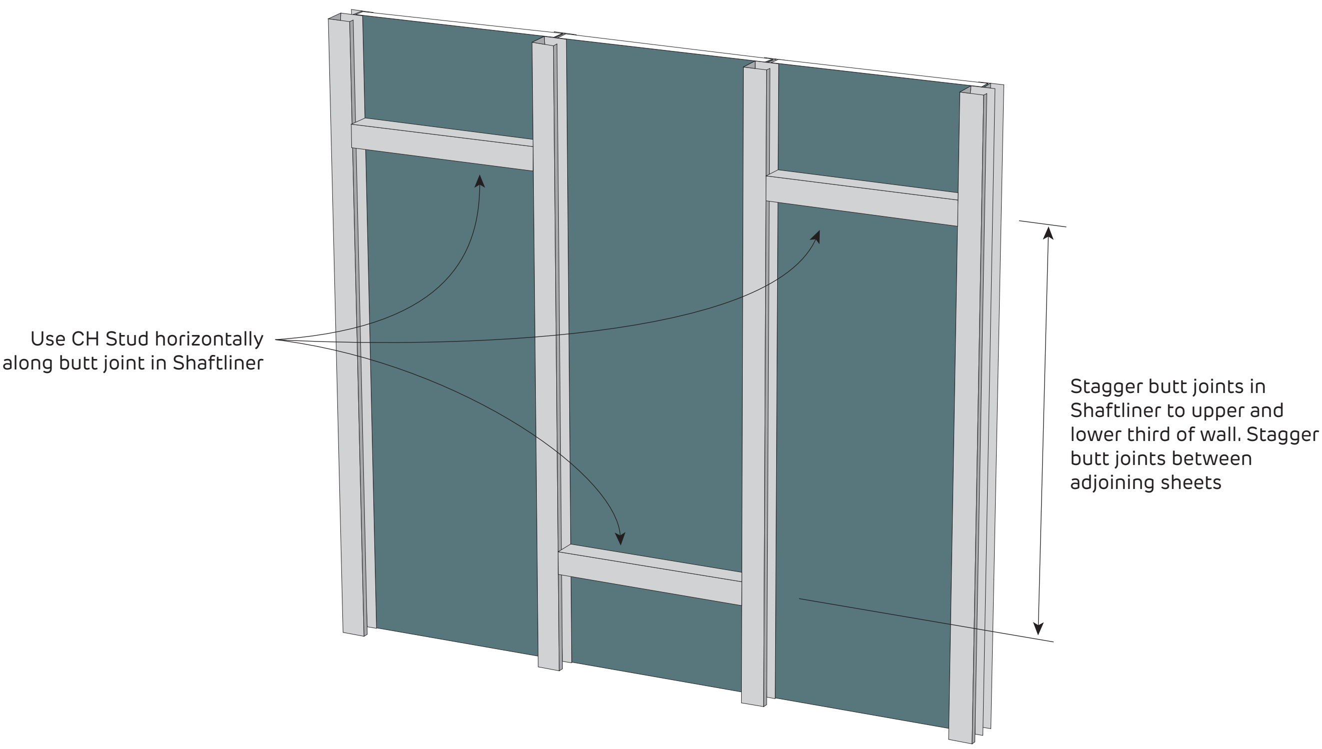



**FIGURE 6** **Shaftliner Butt Joint Layout**
Perspective

# Plasterboard Layout

| | Fire Rated |
|---|---|
| Vertical joints must be 200mm minimum from the edge of any opening such as windows and doorways to minimise cracking at the joints. | ✓ |
| **Fireshield Horizontal Layout** | |
| Stagger butt joints by 300mm minimum on adjoining sheets and between layers. | ✓ |
| First layer butt joints must be backed by a CH Stud. Refer to installation diagrams. | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ |
| **Fireshield Vertical Layout** | |
| Stagger butt joints by 300mm minimum on adjoining sheets and between layers. | ✓ |
| First layer butt joints must be backed by a nogging. | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ |
| **Shaftliner Layout** | |
| If the wall height exceeds the length of **shaft**liner, position the **shaft**liner butt joints within the upper and lower third of the wall. [Refer to Figure 6] | ✓ |
| Stagger **shaft**liner butt joints for adjacent panels and reinforce with horizontal CH Stud cut to fit between the vertical studs. [Refer to Figure 6] | ✓ |

> Install Fireshield horizontally when practical to reduce the effect of glancing light.

> Minimise butt joints by using long sheets.

# Plasterboard Fixing

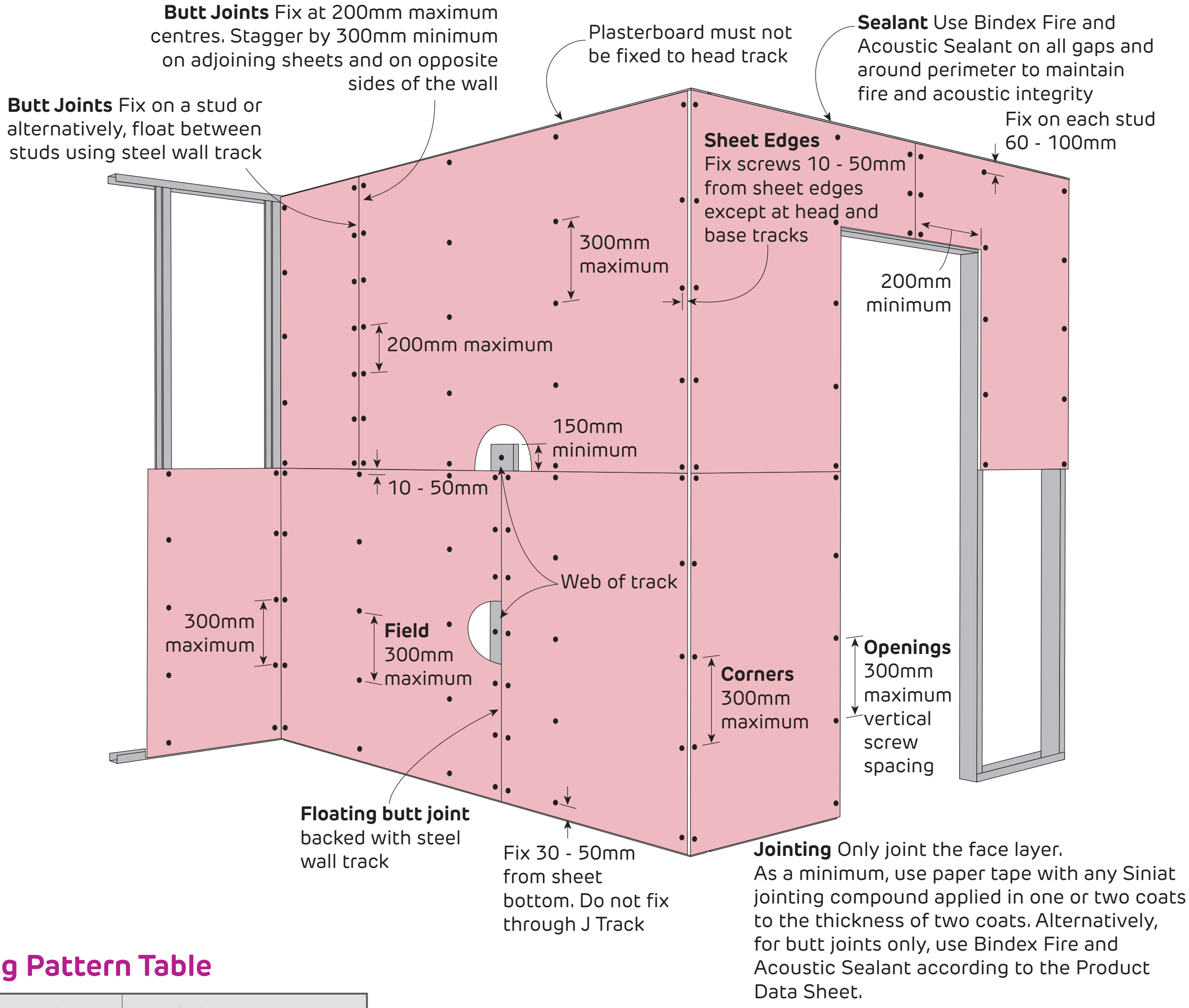
| | Fire Rated |
|---|---|
| Use the 'Screw Only Method' in tiled or fire rated areas. | ✓ |
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ |
| Laminating screws can be used to fix butt joints in the second and third layer. | ✓ |

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 16mm **fire**shield | 6g x 32mm screw | 6g x 45mm screw * | 8g x 65mm screw * |
| 25mm **shaft**liner | 6g x 45mm screw # | - | - |

1. For steel ≤ 0.75mm BMT, use fine thread needle point screws.
2. For steel ≥ 0.75mm BMT, use fine thread drill point screws.
3. *10g x 38mm Laminating screws may be used as detailed in installation diagrams.
4. # For securing Shaftliner to J Track when the J Track is used as an end stud.

**FIGURE 7 Shaft Wall Fire Rated 1 Layer - Horizontal**
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

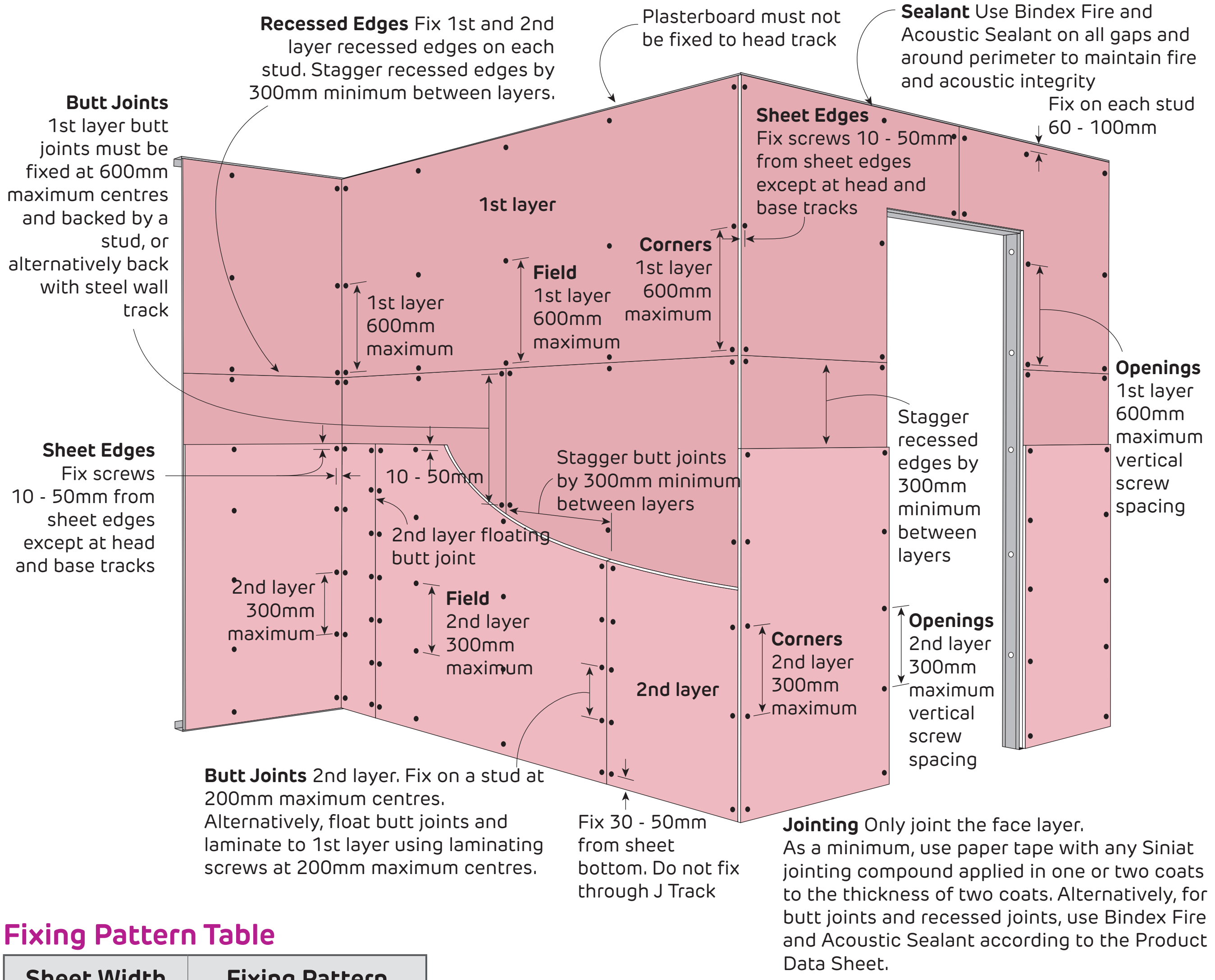
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 8** **Shaft Wall Fire Rated 2 Layers - Horizontal + Horizontal**
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |
| 1400mm | S S S S S S (6) |

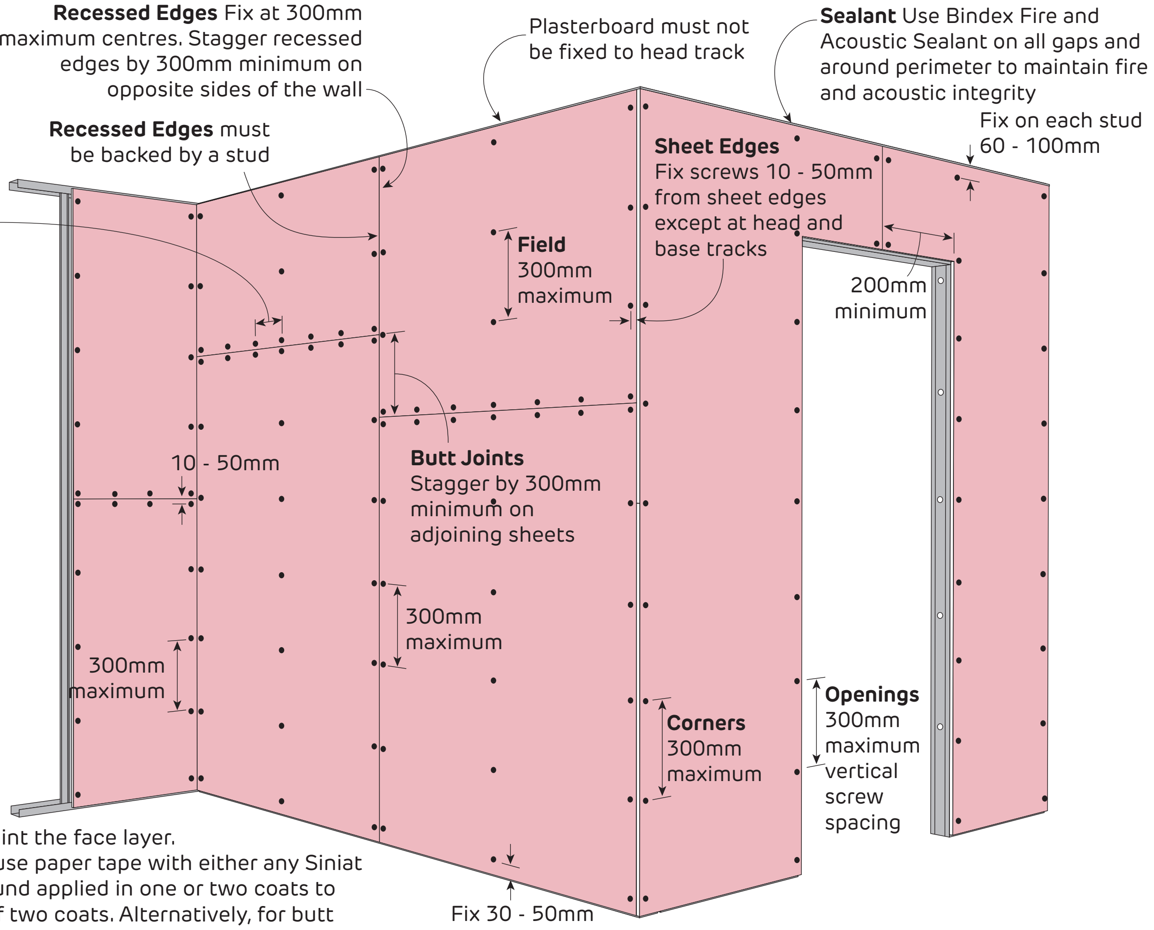
S = Screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.96 | 1.28 | 1.44 | 1.92 |
| 16mm | 0.96 | 1.28 | 1.44 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 9** **Shaft Wall Fire Rated 1 Layer - Vertical**
Screw Only Method



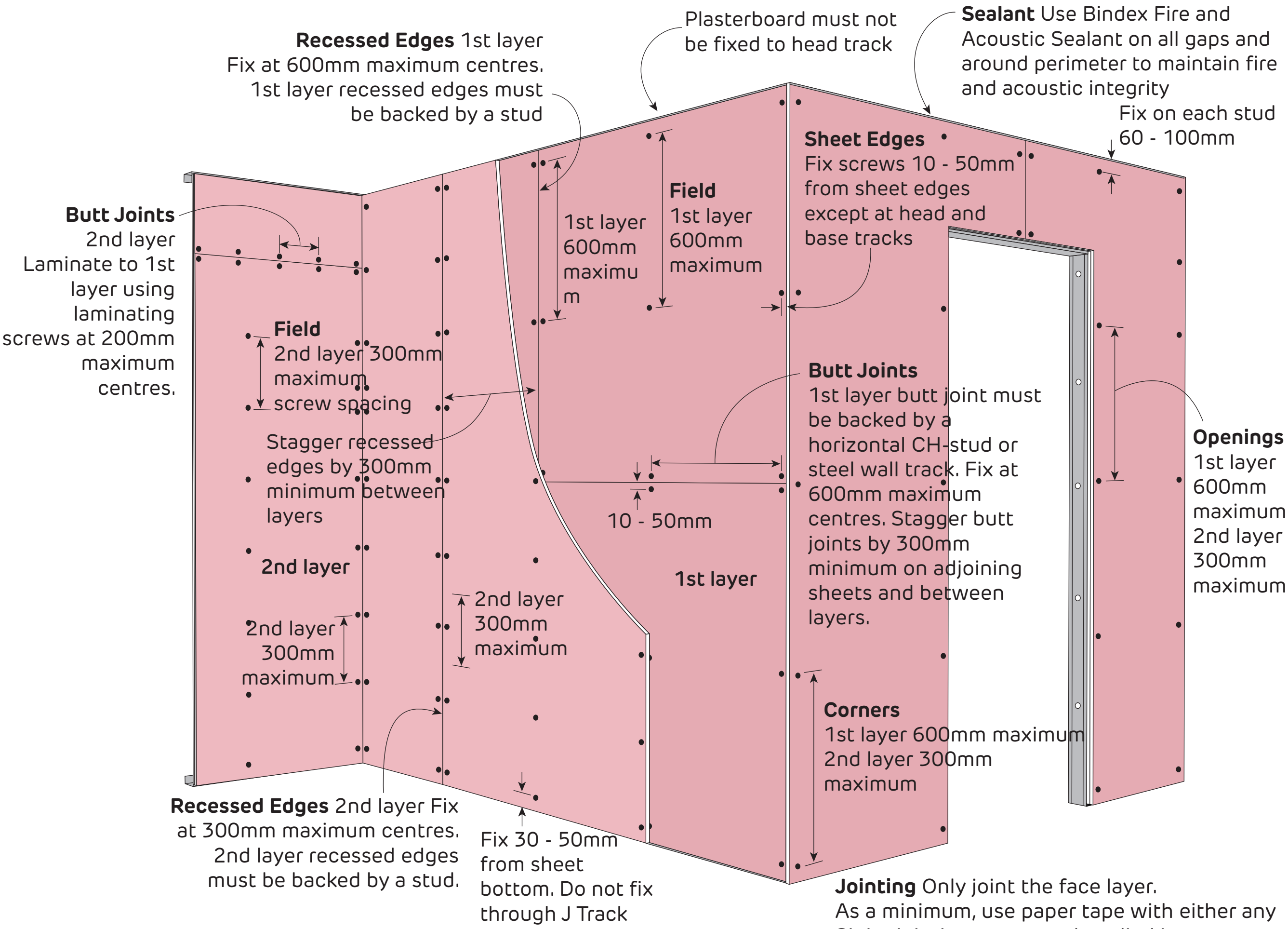

**Jointing** Only joint the face layer.
As a minimum, use paper tape with either any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, for butt joints only, use Bindex Fire and Acoustic Sealant according to the Product Data Sheet.

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.86 | 1.15 | 1.29 | 1.73 |
| 16mm | 0.86 | 1.15 | 1.29 | 1.73 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 10** **Shaft Wall Fire Rated 2 Layers - Vertical + Vertical**
Screw Only Method




**Jointing** Only joint the face layer.
As a minimum, use paper tape with either any Siniat jointing compound applied in one or two coats to the thickness of two coats.
Alternatively, for butt joints and recessed joints, use Bindex Fire and Acoustic Sealant according to the Product Data Sheet.

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.86 | 1.15 | 1.29 | 1.73 |
| 16mm | 0.86 | 1.15 | 1.29 | 1.73 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. If higher internal wind pressures are expected, please contact Siniat for specific design.

# Fire Rated
# Shaft Wall Details

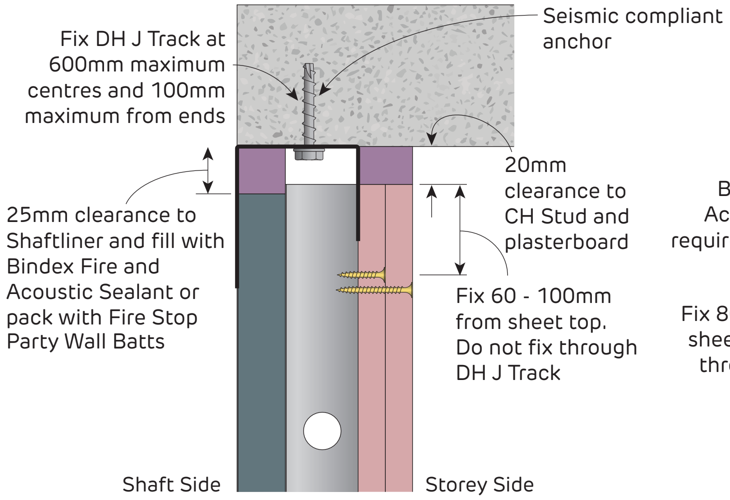



**FIGURE 11** **Shaft Wall Deflection Head**
System SHW2 - Section

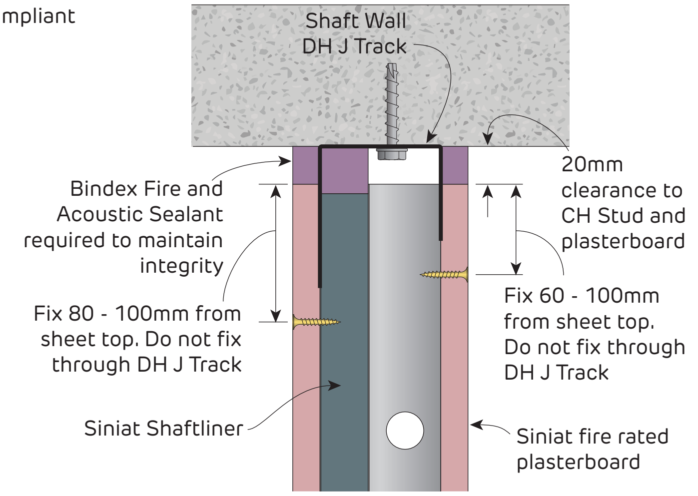



**FIGURE 12** **Shaft Wall Deflection Head**
System SHW1 and SHW3 - Section

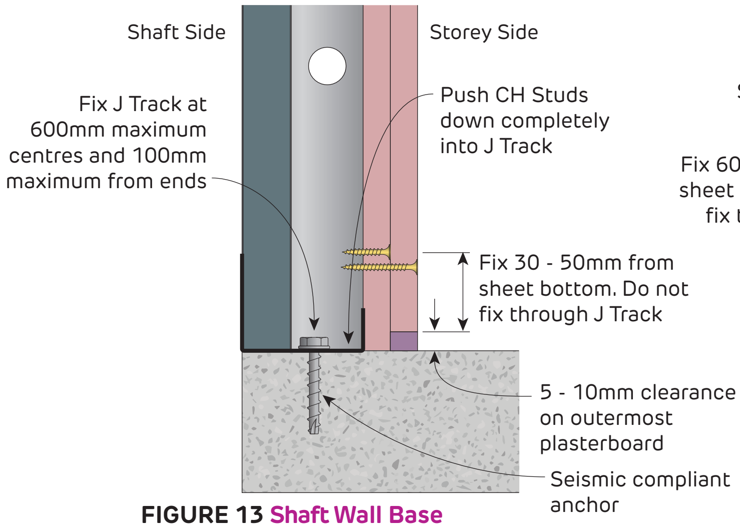



**FIGURE 13** **Shaft Wall Base**
System SHW2
Section

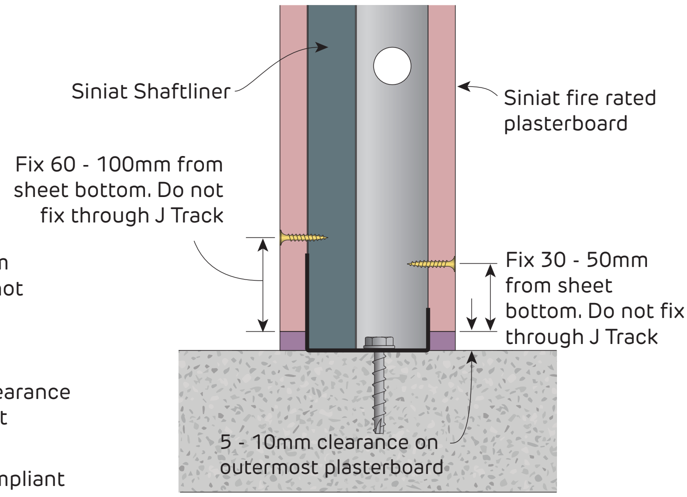



**FIGURE 14** **Shaft Wall Base**
System SHW1 and SHW3
Section

8g framing screws recommended for 0.55mm BMT Siniat steel profiles. 10g screws recommended for 0.9mm BMT Siniat steel profiles

# Fire Rated
# Shaft Wall Details

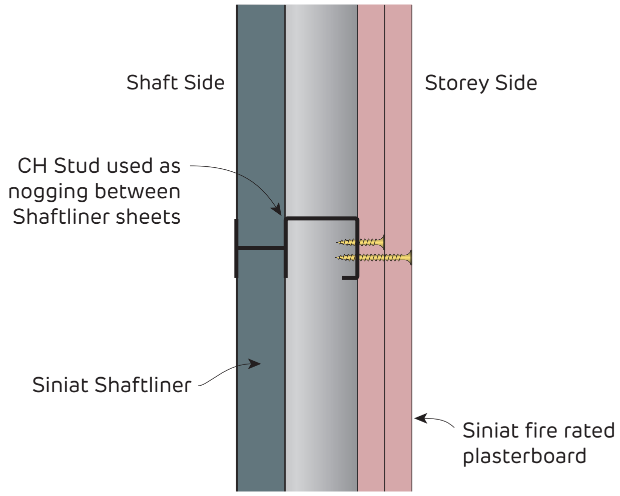



**FIGURE 15 Butt Joint in Shaftliner**
Section

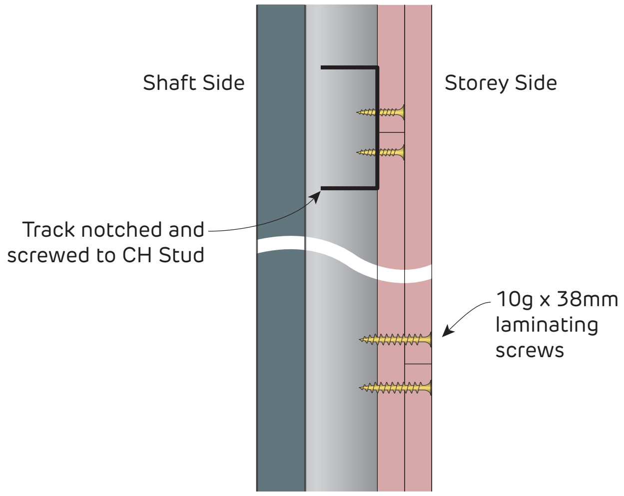
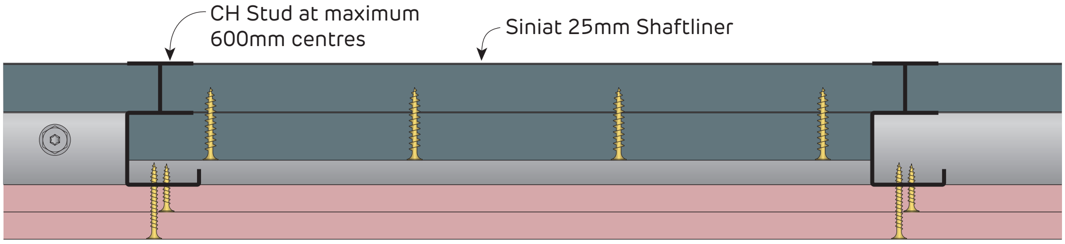
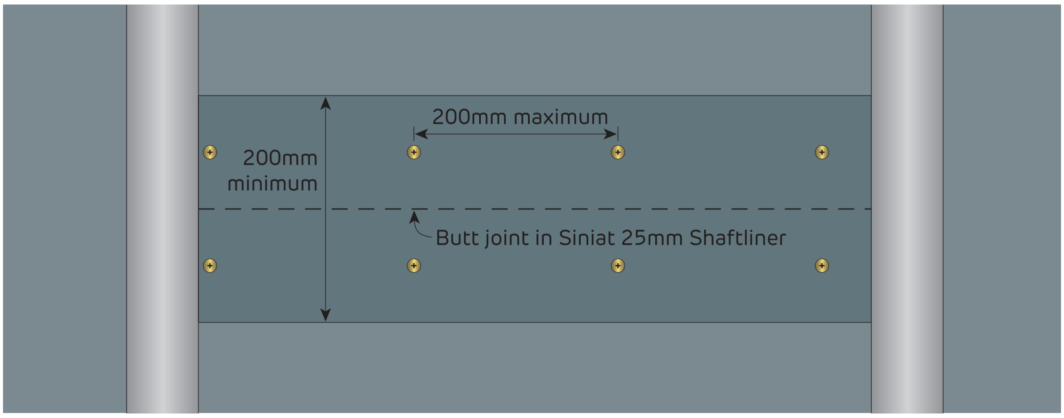



**FIGURE 16 Butt Joint in Fire Rated Plasterboard**
Section




Plan




Elevation

**FIGURE 17 Butt Joint in Shaftliner**
Section

# Fire Rated
# Shaft Wall Details

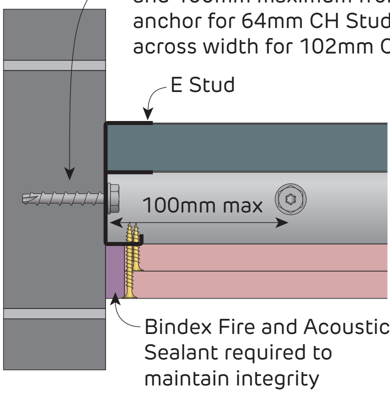



**FIGURE 18 Shaft Wall Start**
E Stud
Plan

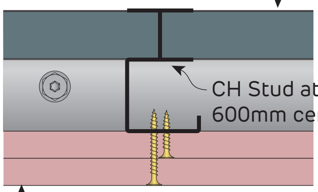



**FIGURE 19 Shaft Wall Middle**
CH Stud
Plan

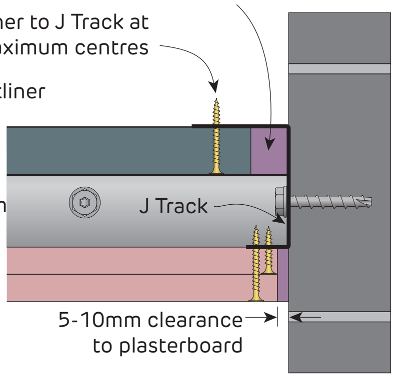



**FIGURE 20 Shaft Wall End**
J Track
Plan

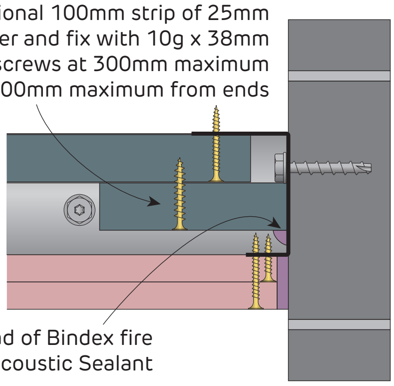
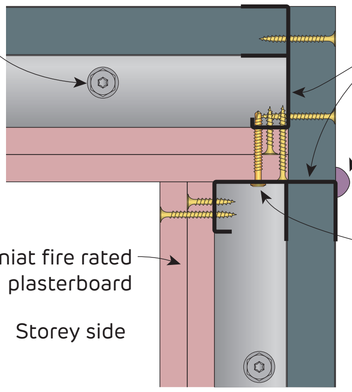



**FIGURE 21 Alternative Shaft Wall End**
J Track
Plan

> Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity




Fix together using 8g button head or 10g wafer / hex head screws at 600mm maximum centres vertically, and 100mm maximum from ends

**FIGURE 22 Shaft Wall Internal Corner**
Plan

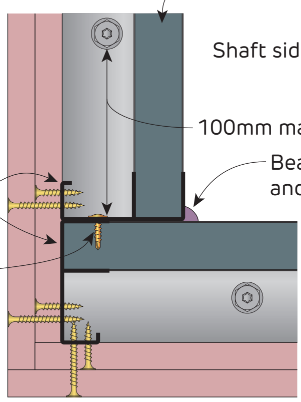



**FIGURE 23 Shaft Wall External Corner**
Plan

> 8g framing screws recommended for 0.55mm BMT Siniat steel profiles. 10g screws recommended for 0.9mm BMT Siniat steel profiles

## Fire Rated
## Shaft Wall Details

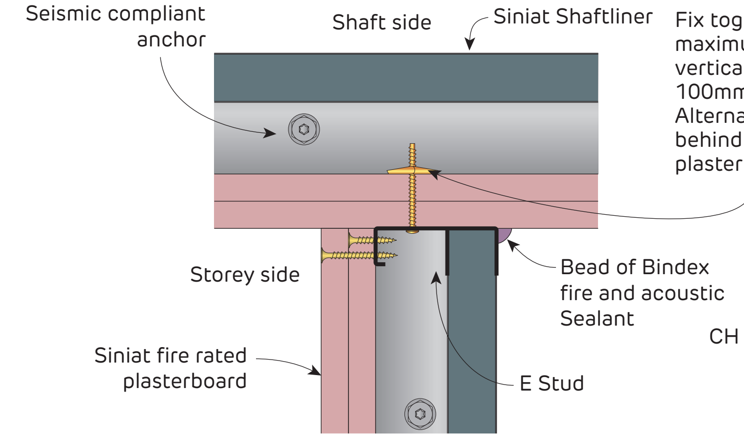



**FIGURE 24** Shaft Wall Intersecting Wall
Plan

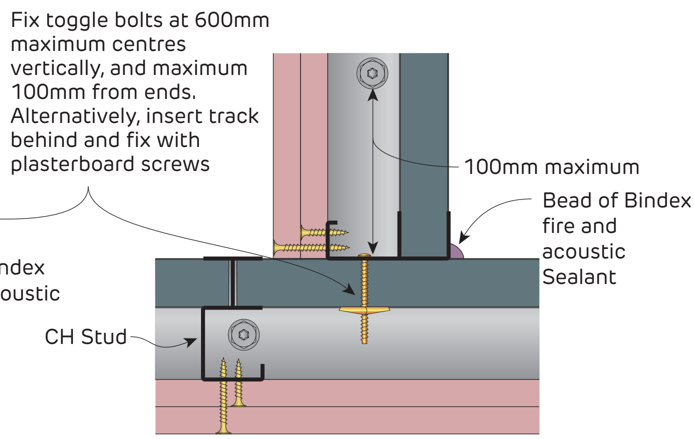



**FIGURE 25** Shaft Wall Intersecting Wall
Plan

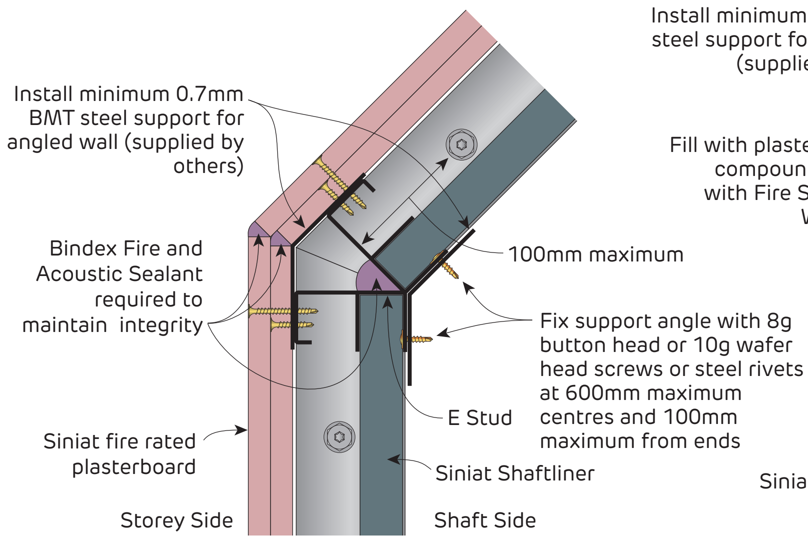



**FIGURE 26** Shaft Wall Obtuse Angle
Plan

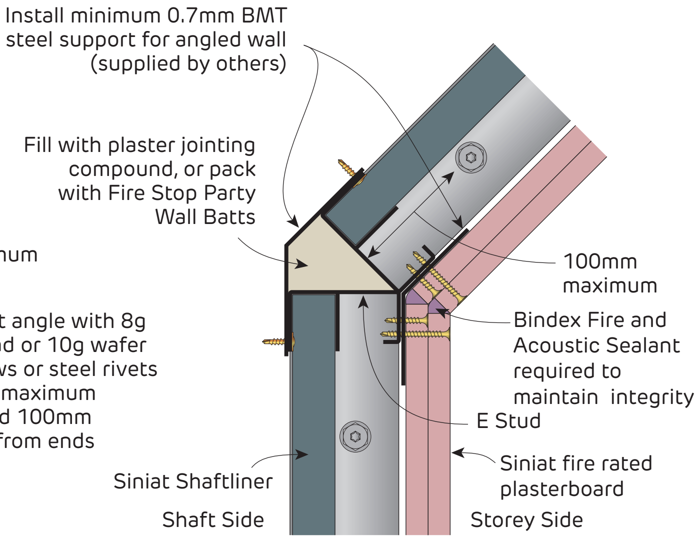



**FIGURE 27** Shaft Wall Obtuse Angle
Plan

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

8g framing screws recommended for 0.55mm BMT Siniat steel profiles. 10g screws recommended for 0.9mm BMT Siniat steel profiles

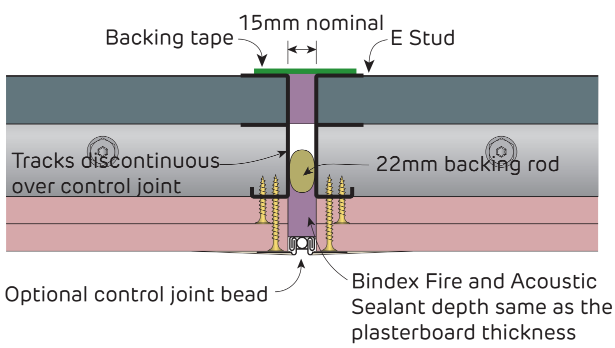



**FIGURE 28** Shaft Wall Control Joint
Plan

# Fire Rated
# Shaft Wall Details

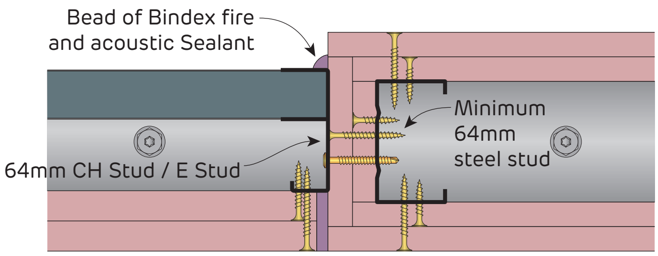



**FIGURE 29** **Shaft Wall transition to Internal Partition Wall**
Plan

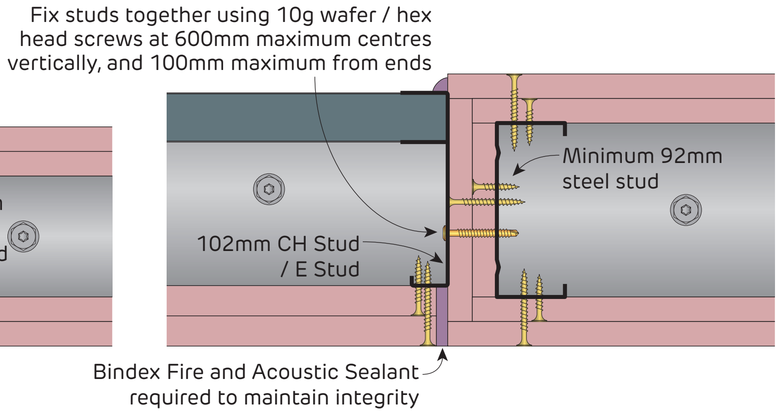



**FIGURE 30** **Shaft Wall transition to Internal Partition Wall**
Plan

Wall lining layers and thickness must be sufficient for fire separation

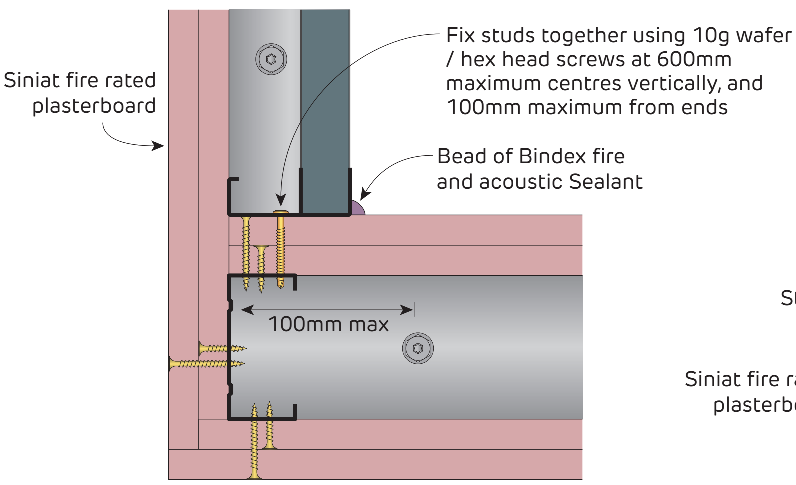



**FIGURE 31** **Shaft Wall to Internal Partition Corner**
Plan

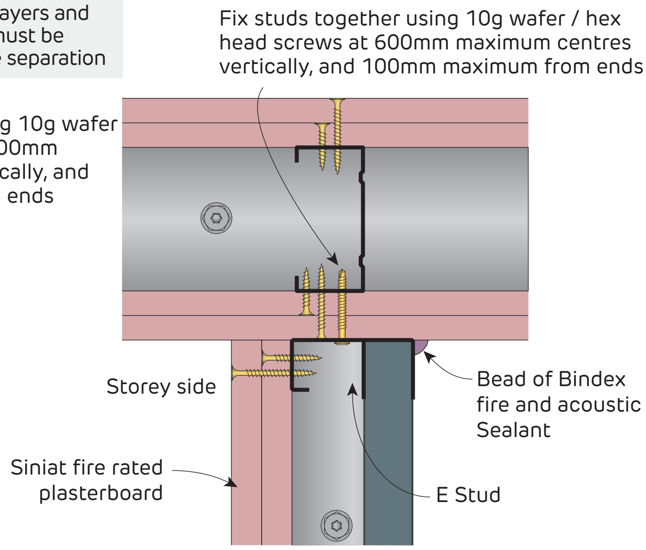



**FIGURE 32** **Shaft Wall to Intersecting Partition Wall**
Plan

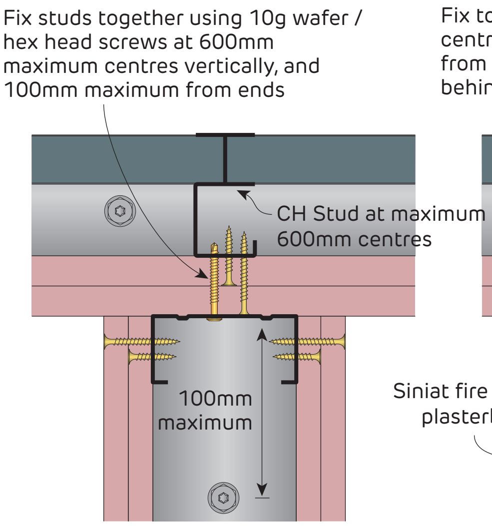



**FIGURE 33** **Shaft Wall to Intersecting Partition Wall**
Plan

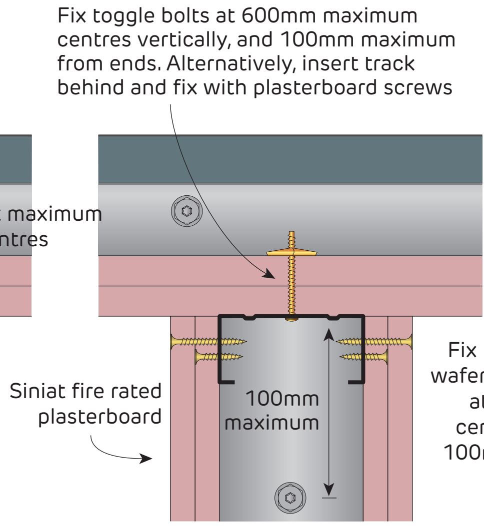



**FIGURE 34** **Shaft Wall to Intersecting Partition Wall**
Plan

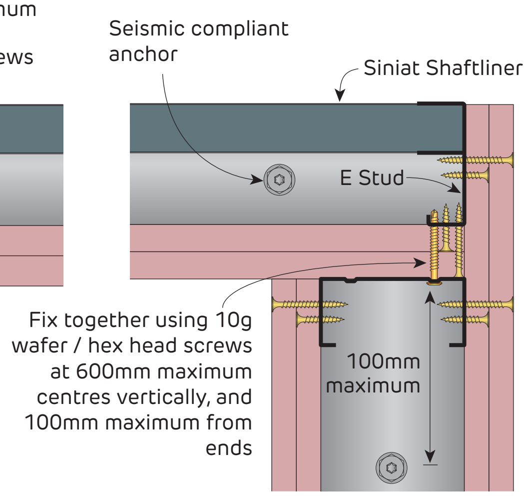
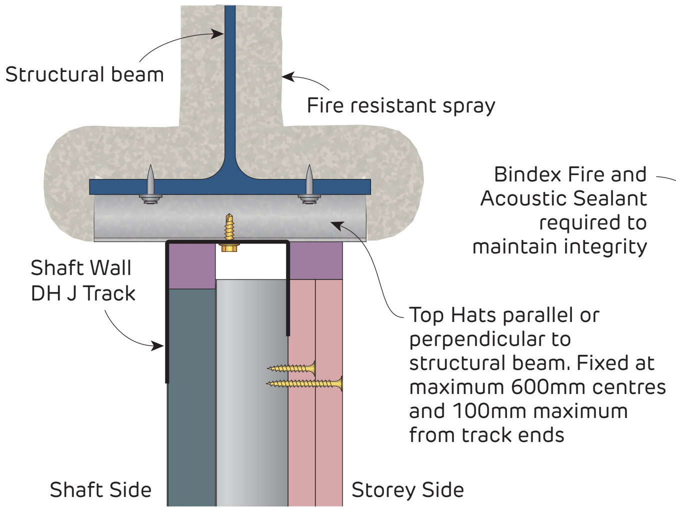


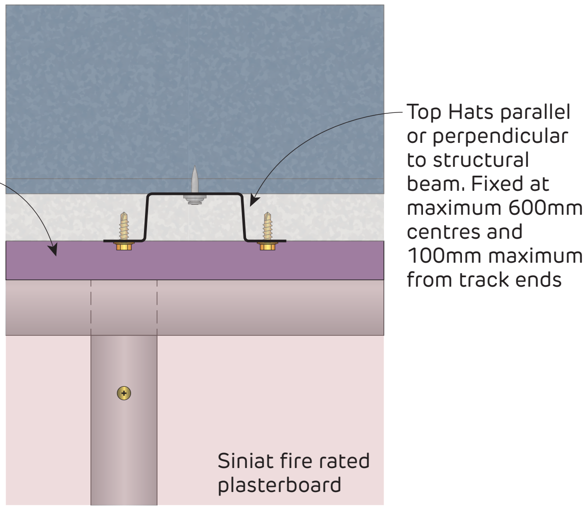

**FIGURE 35** **Shaft Wall to Intersecting Partition Wall**
Plan

Shaft Wall and fire rated intersecting wall must have the same FRL

## Fire Rated
## Shaft Wall Section Details to Structural Members




Section




Elevation

**FIGURE 36** **Internal Wall to Structural Beam**

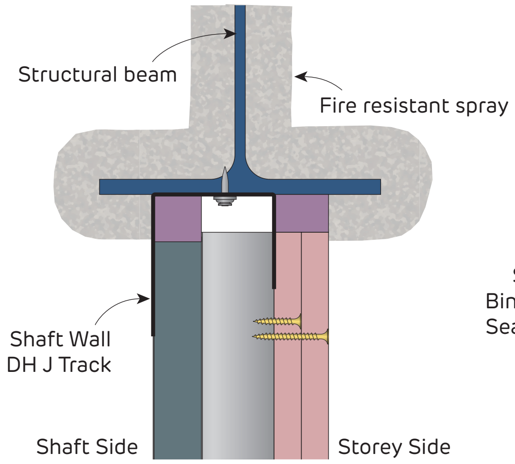



**FIGURE 37** **Shaft Wall to Structural Beam**
Section

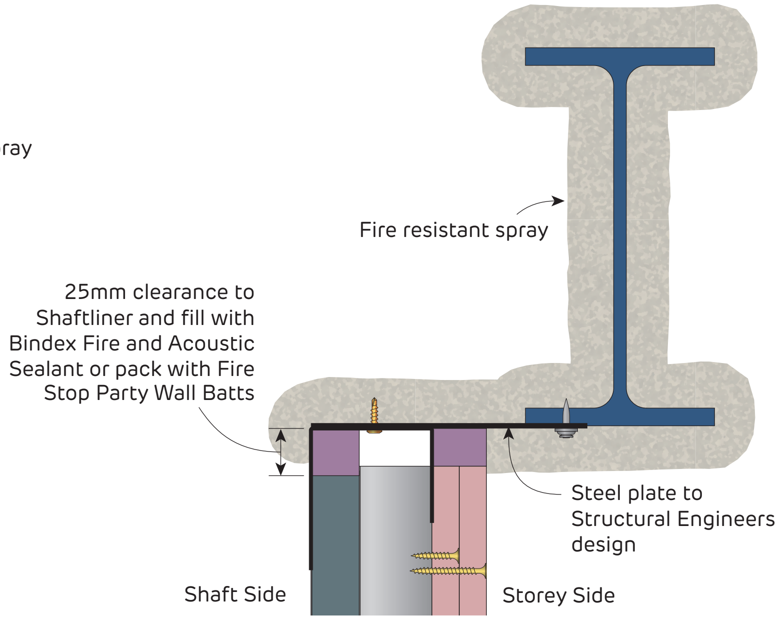



**FIGURE 38** **Shaft Wall to Structural Beam**
Section

## Fire Rated
## Shaft Wall Below Fire Rated Bulkhead Details

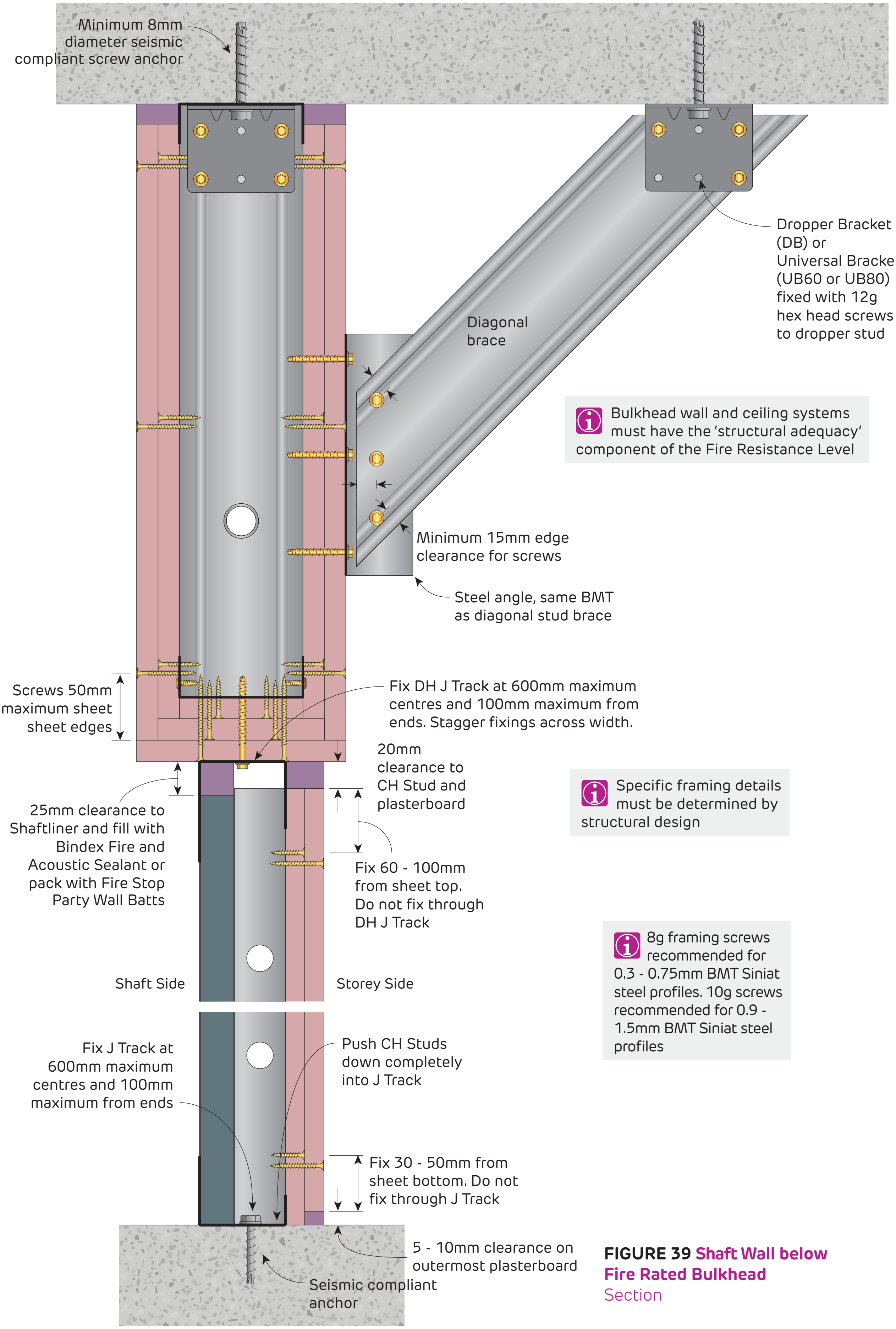



**FIGURE 39 Shaft Wall below Fire Rated Bulkhead**
Section

## Fire Rated
## Shaft Wall Section Details with Structural Members

Recommended to use a maximum 3.5mm BMT for the structural support to enable the screw fixing of plasterboard

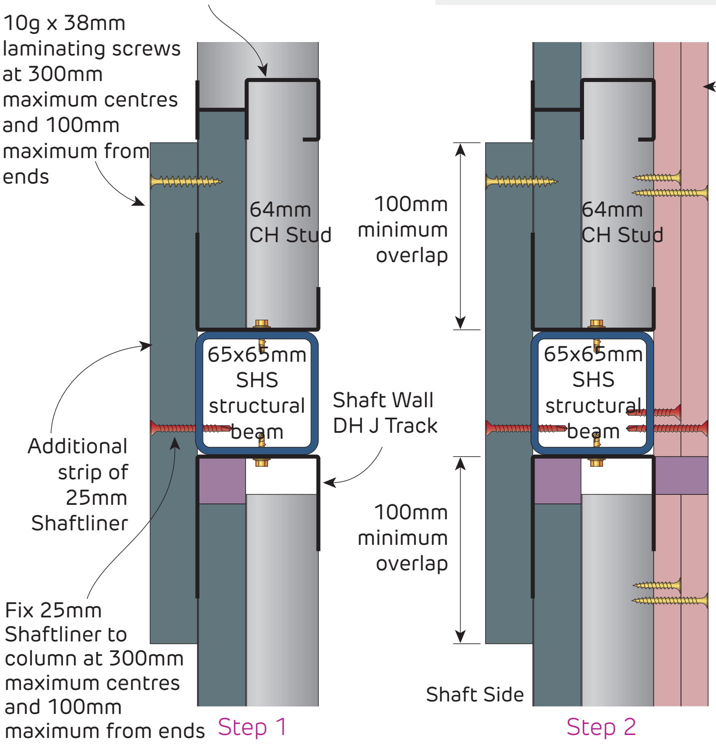



**FIGURE 40** Detail using SHS Beam with 64mm CH Studs
SHW2
Section

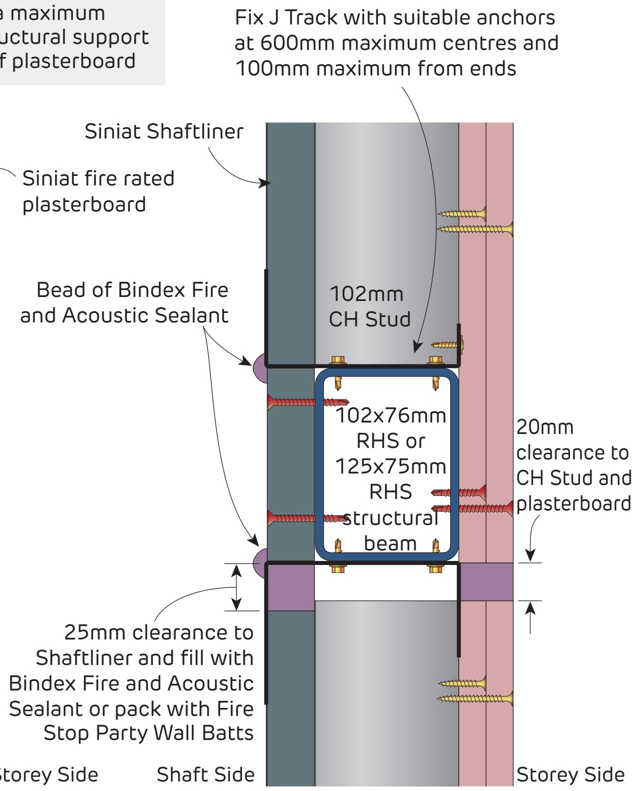



**FIGURE 41** Detail using RHS Beam with 102mm CH Studs
SHW2 - Section

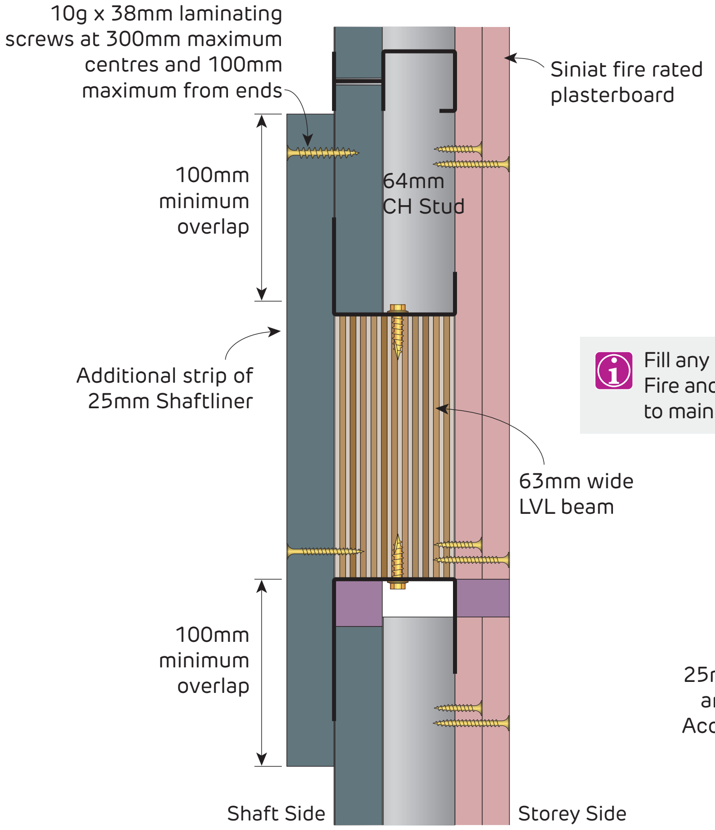



**FIGURE 42** Detail using LVL Beam with 64mm CH Studs
SHW2
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

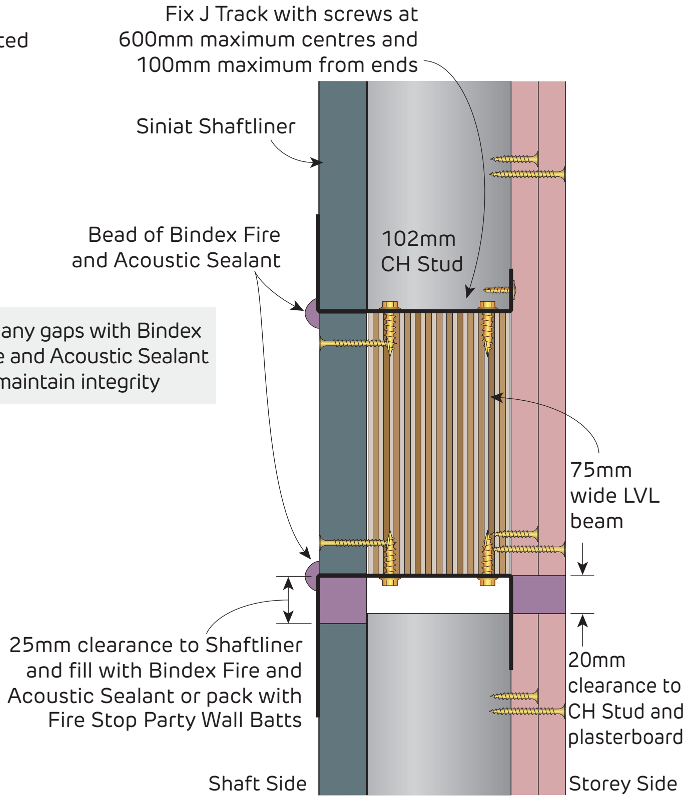



**FIGURE 43** Detail using LVL Beam with 102mm CH Studs
SHW2 - Section

## Fire Rated
## Shaft Wall Riser Details with Timber Floors

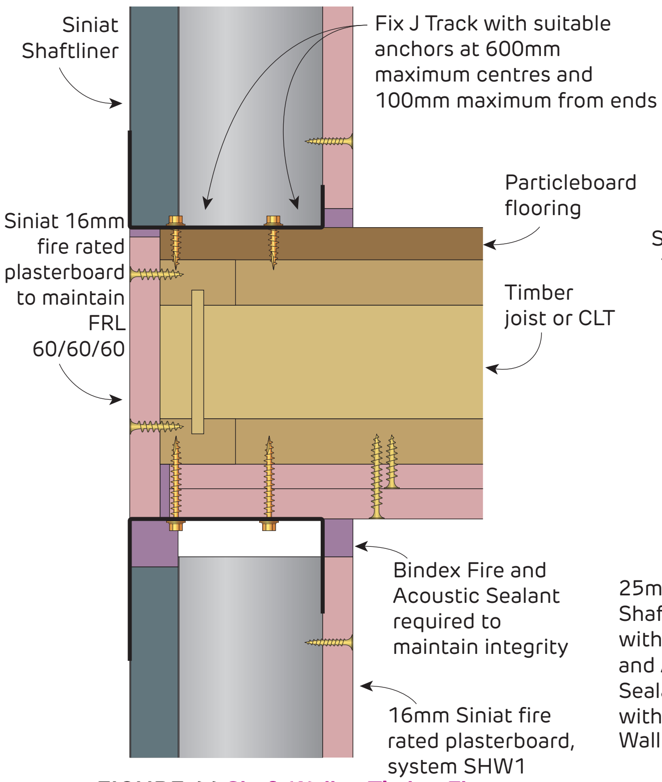



**FIGURE 44** **Shaft Wall to Timber Floor**
FRL -/60/60
Section

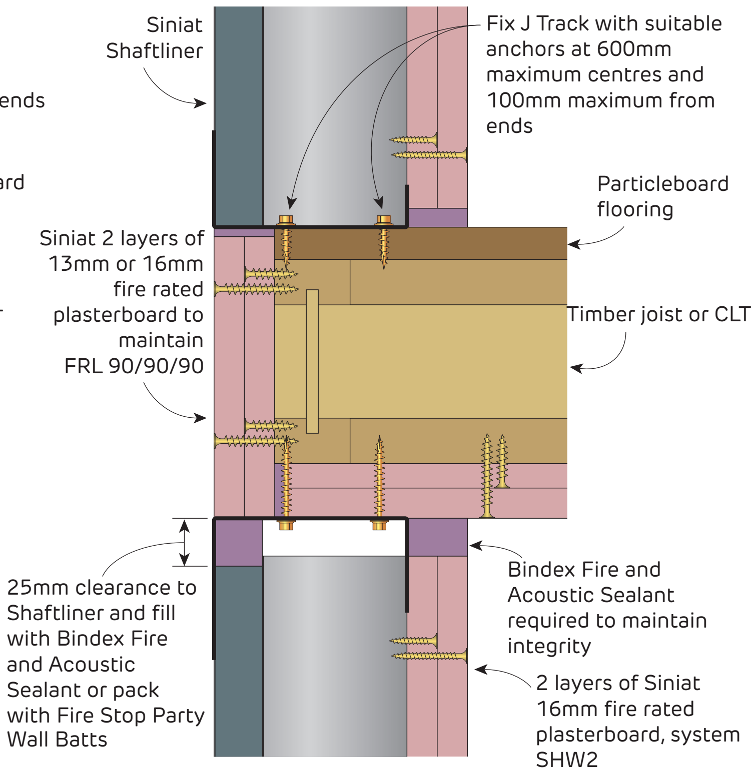



**FIGURE 45** **Shaft Wall to Timber Floor**
FRL -/90/90
Section

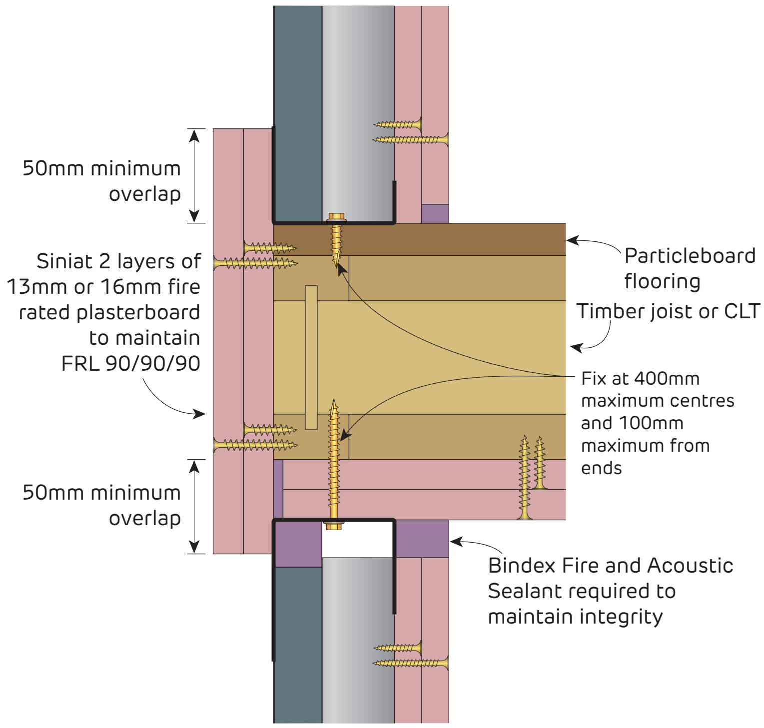
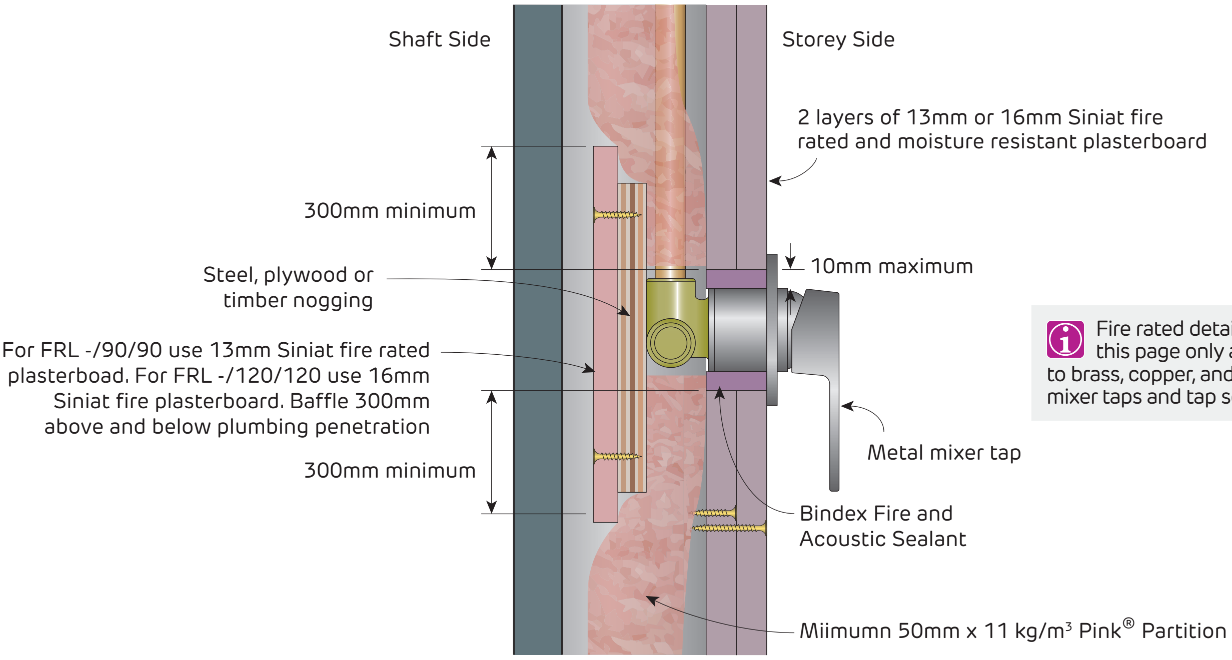



**FIGURE 46** **Shaft Wall Around Fire Rated Timber Floor**
FRL -/90/90
Section

# Fire Rated
## Shaft Wall Details for Plumbing Penetrations




Fire rated details on this page only apply to brass, copper, and steel mixer taps and tap sets.

**FIGURE 47** **Mixer Tap or Tapset Penetration with 102mm CH-stud**
FRL -/90/90 with Siniat 2 x 13mm fire rated plasterboard
FRL -/120/120 with Siniat 2 x 16mm fire rated plasterboard
Section

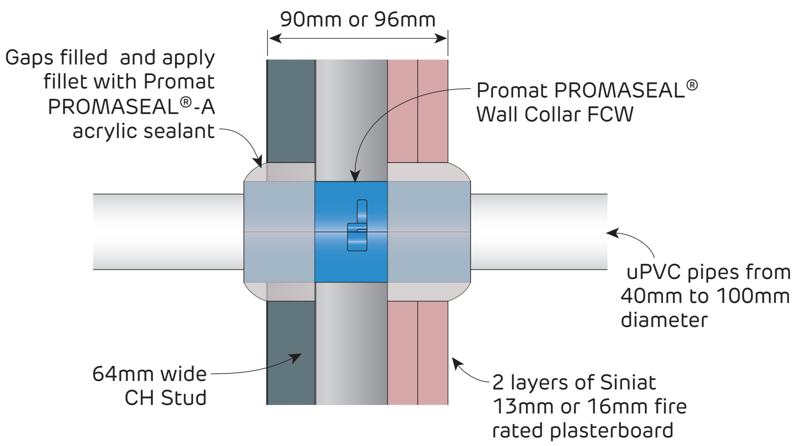
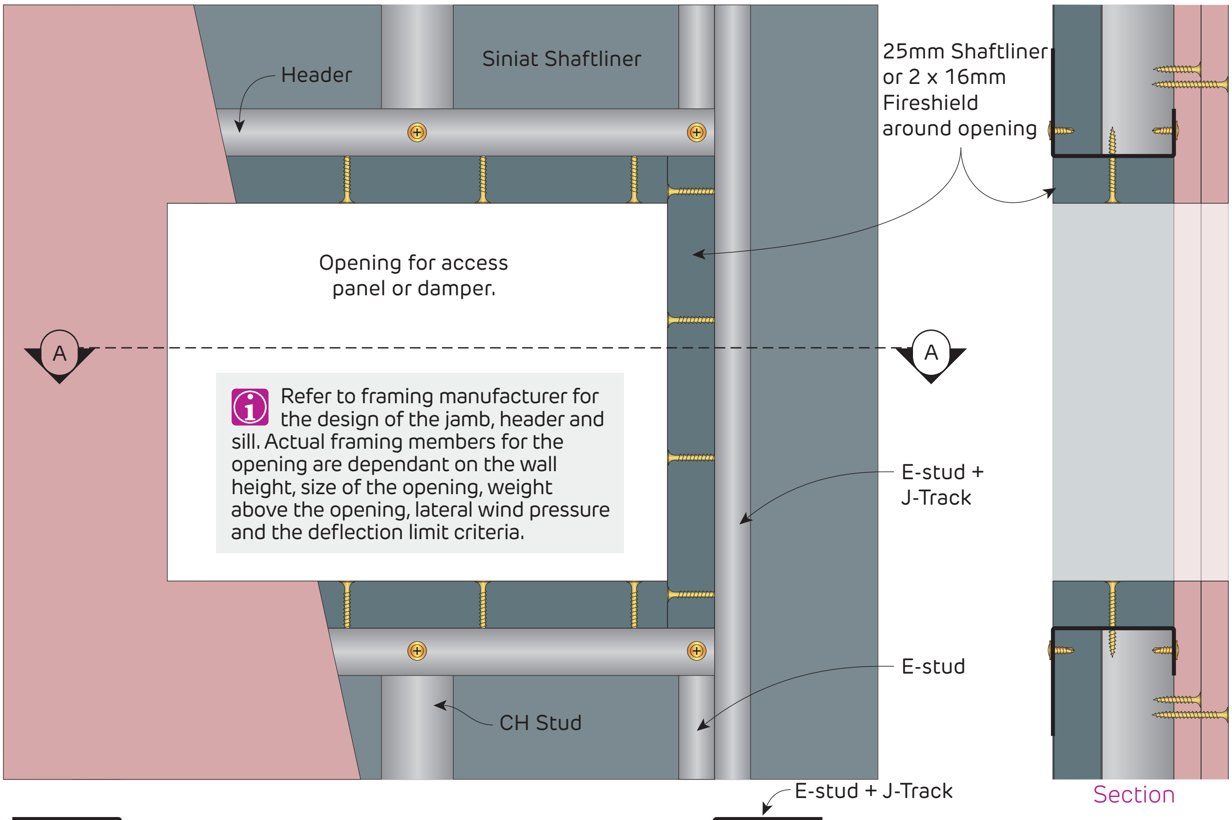



**FIGURE 48** **Fire Collar**
Promat Promaseal FCW Collar
Up to FRL -/120/120 - Section

Refer to Promat for specific performance and installation instructions

## Fire Rated
## Shaft Wall Details for Access Panel and Fire Damper



Section

Refer to access panel / fire damper manufacturer for specific installation detail of the proprietary item. The item installed in the opening must maintain the FRL of the system.

Section Plan A-A

**FIGURE 49** **Typical Opening Detail For Fire Damper or Access Panel**
Fire rated from both directions but built from one side only

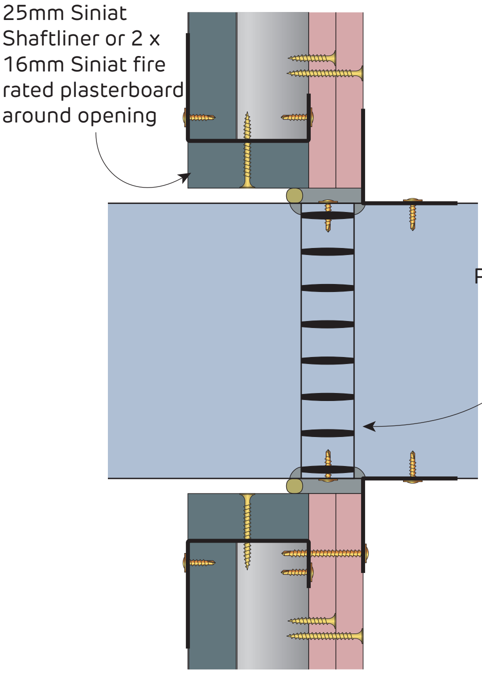



**FIGURE 50** **Fire Damper Example Detail**
Section

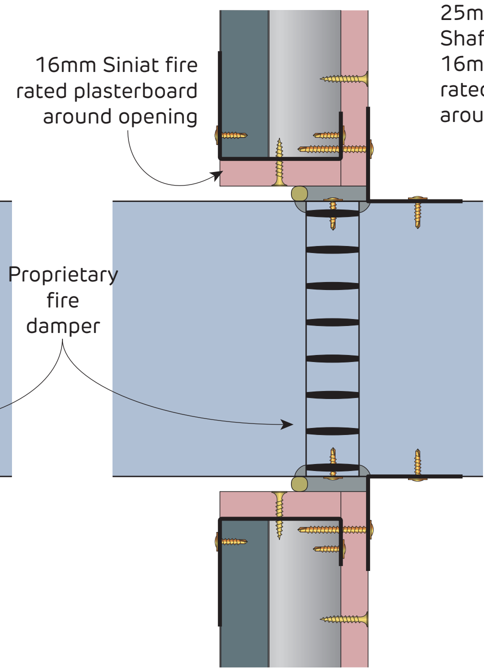



**FIGURE 51** **Fire Damper Example Detail**
Section

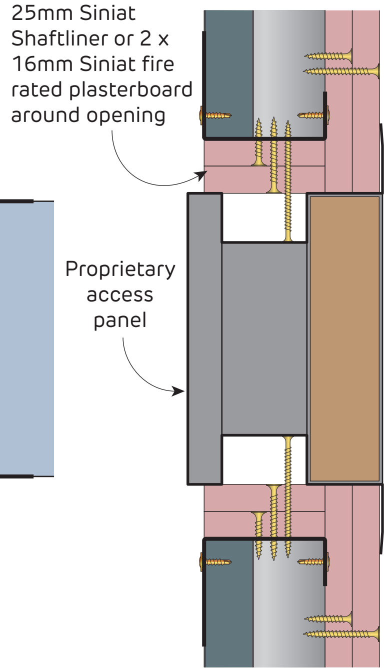



**FIGURE 52** **Access Panel Example Detail**
Section

## Fire Rated
## Patching of Shaft Wall System

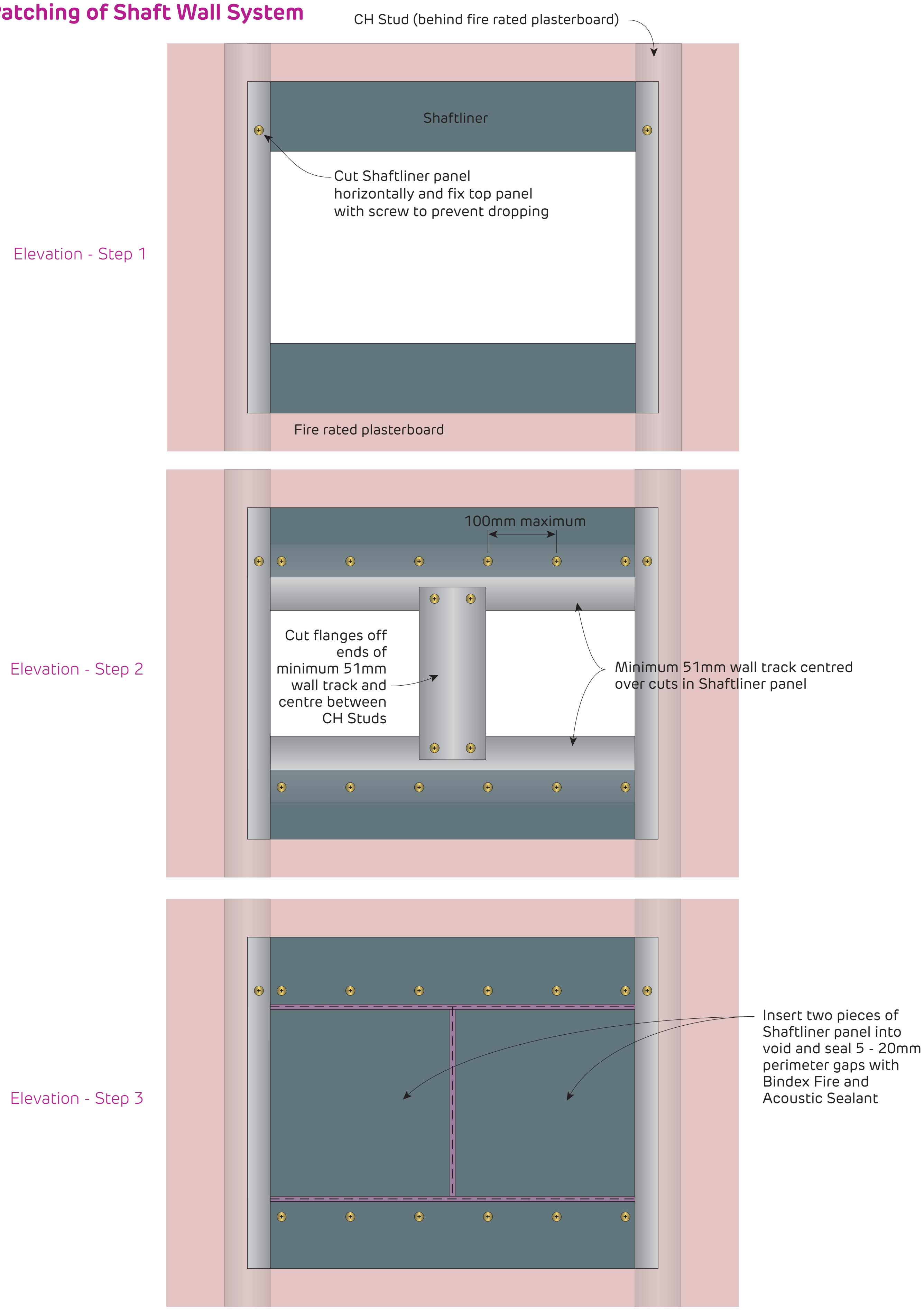



**FIGURE 53A Fire Rated Patch for Shaft Wall**

## Fire Rated
## Patching of Shaft Wall System

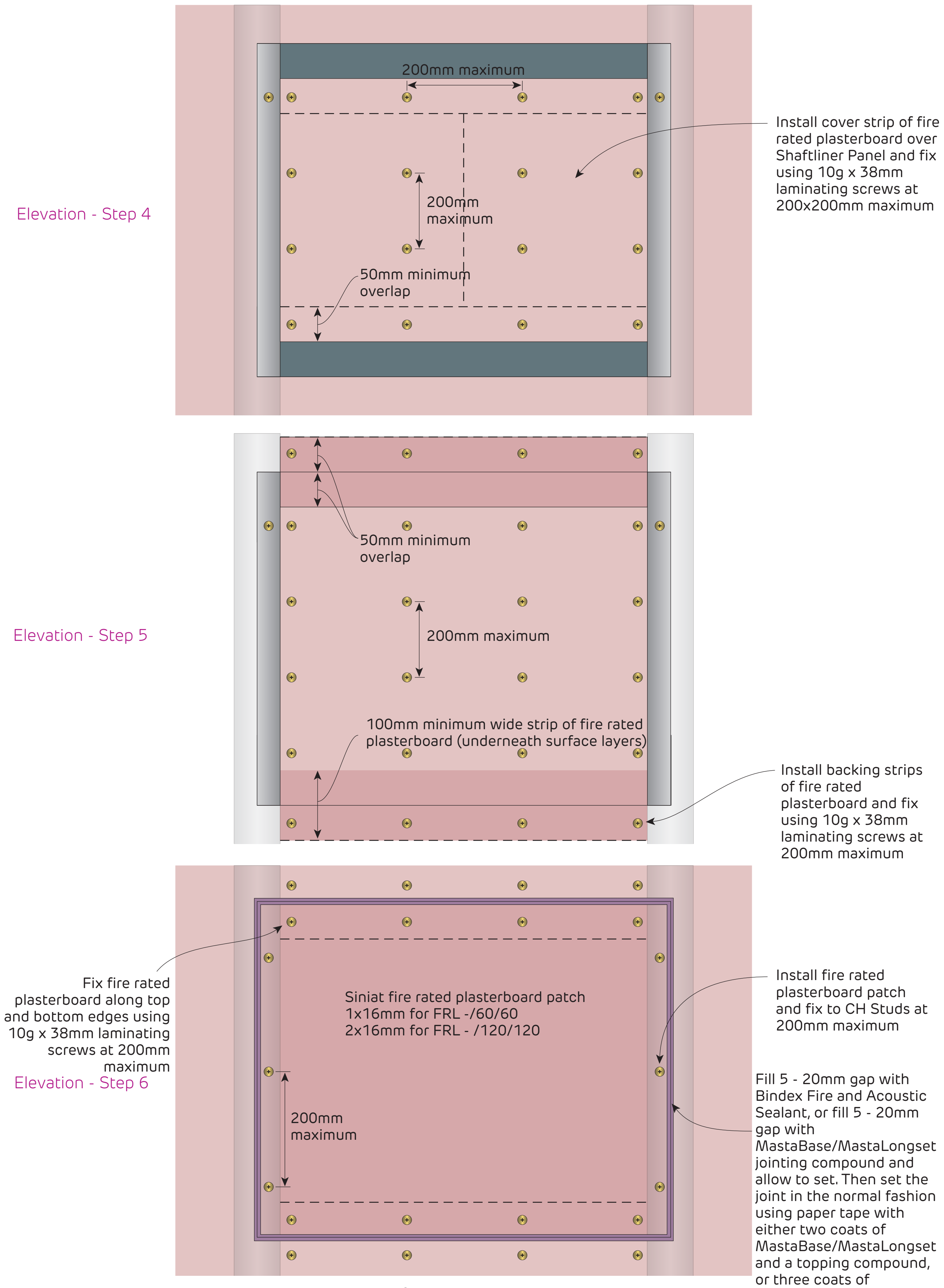



**FIGURE 53B Fire Rated Patch for Shaft Wall**

## Fire Rated
## Replacing Damaged Shaftliner

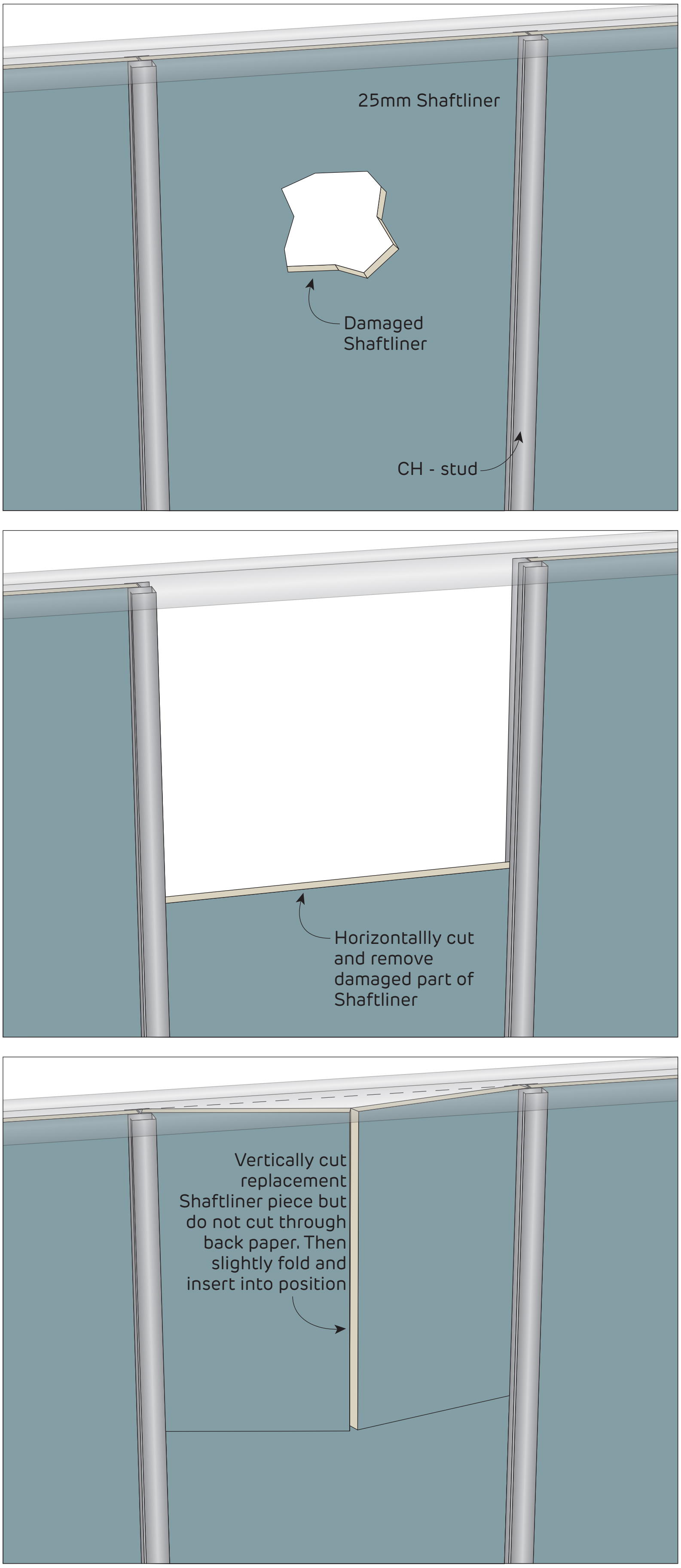
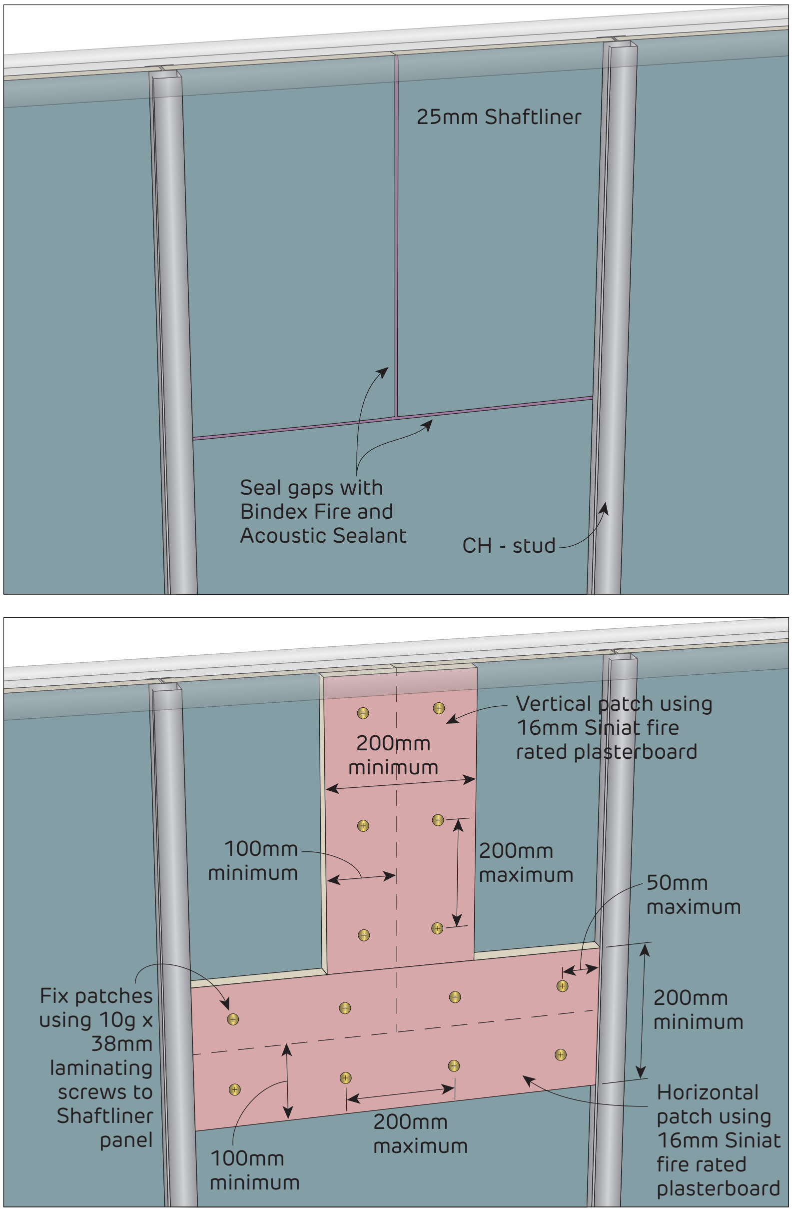



**FIGURE 54** Replacing Damaged Shaftliner
Perspective

## Fire Rated
## Replacing Damaged Shaftliner




Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

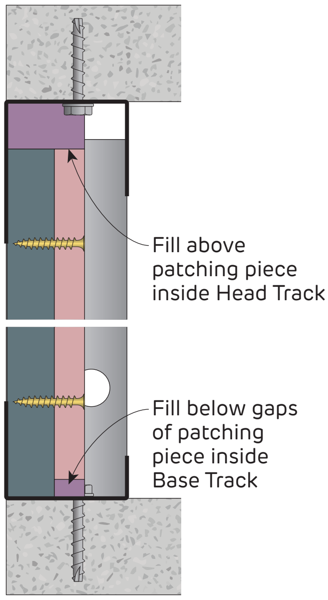



**FIGURE 54 continued Replacing Damaged Shaftliner**
Perspective

Section



# 3.8 Security Walls

Security wall is an upgrade solution to improve security for any wall system. Applications for security wall can include common walls in multi-residential apartments and hotels, partitioning in shopping centres and retail outlets such as pharmacies.

The system uses a sheet metal or expanded mesh barrier that is installed as part of the framing construction. The construction is cost-effective as it allows simple and quick assembly. The security wall upgrade may be applied to any Siniat single, staggered or double stud wall system without reducing fire and acoustic performance.

## Fire Rated and Non-Fire Rated Details for Security Walls

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

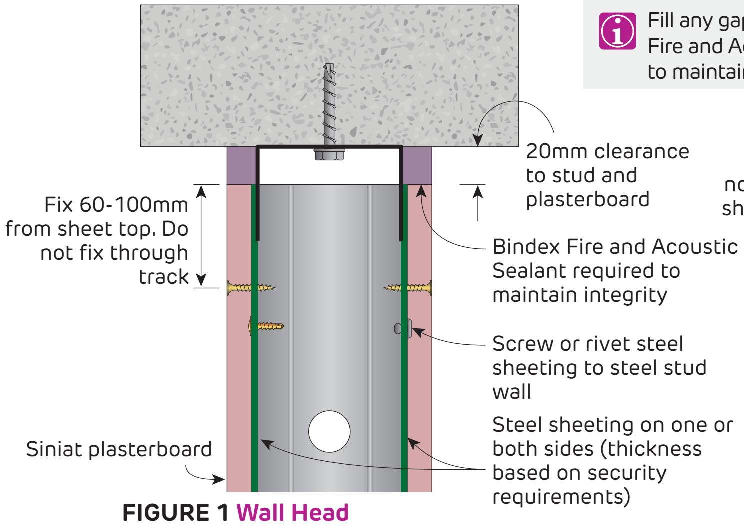



**FIGURE 1 Wall Head**
Steel sheeting between stud and plasterboard
Section

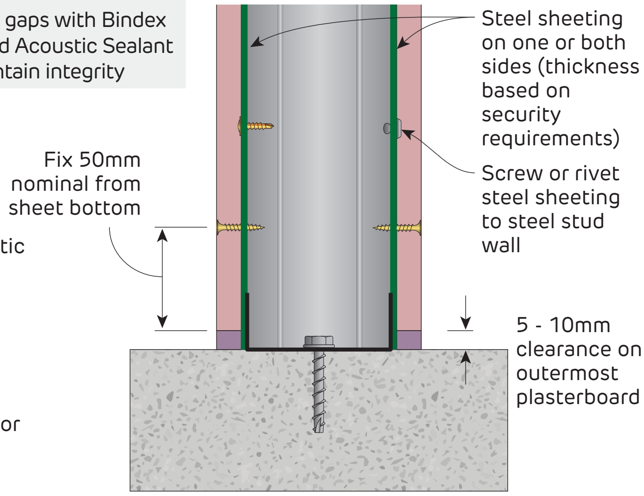



**FIGURE 2 Wall Base**
Steel sheeting between stud and plasterboard
Section

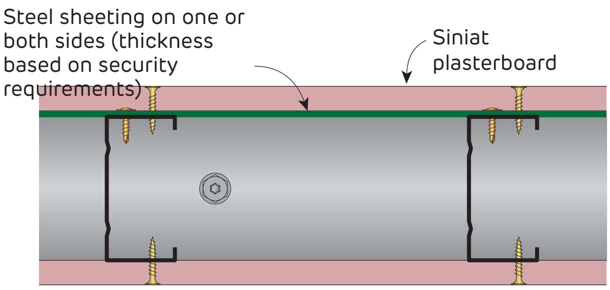



**FIGURE 3 Single Stud Wall**
1 layer of steel sheeting
Plan

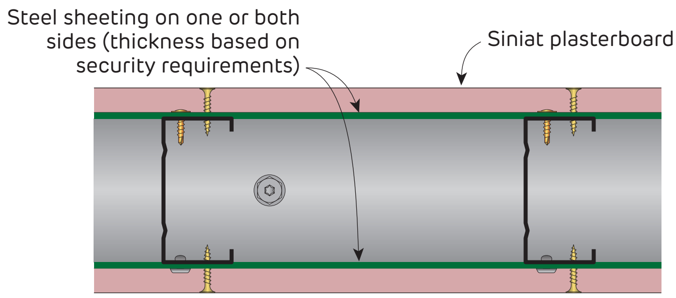



**FIGURE 4 Single Stud Wall**
2 layers of steel sheeting
Plan

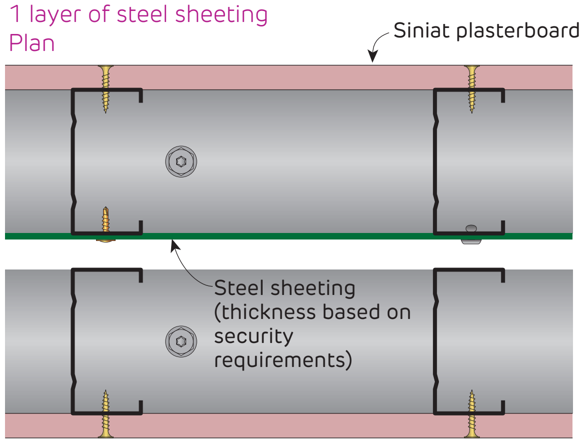



**FIGURE 5 Double Stud Wall**
1 layer of steel sheeting between stud framing
Plan

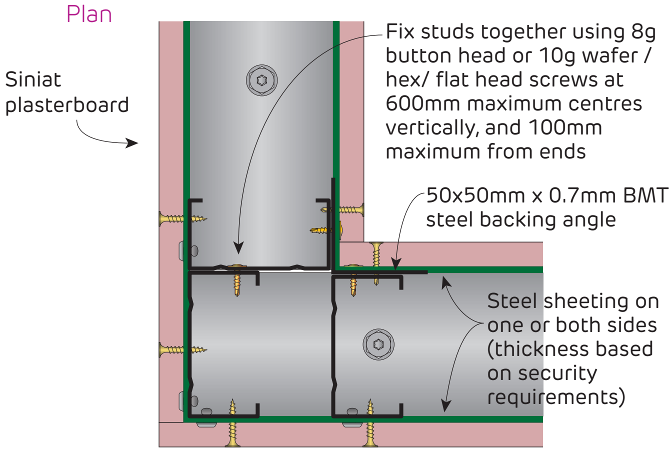



**FIGURE 6 90⁰ Corner**
2 layers of steel sheeting
Plan

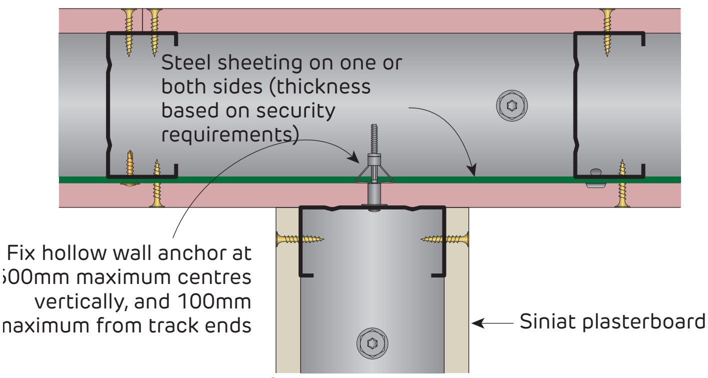



**FIGURE 7 Intersecting Wall**
1 layer of steel sheeting
Plan

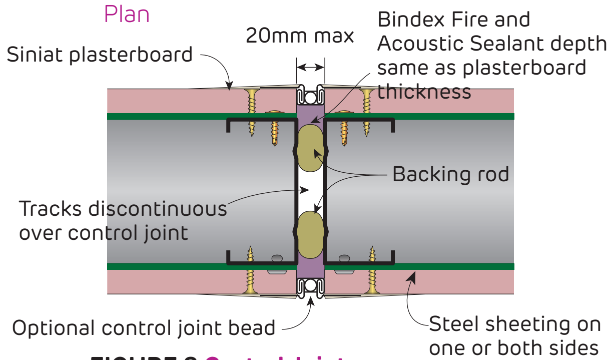



**FIGURE 8 Control Joint**
2 layers of steel sheeting
Plan



# 3.9 Timber Separating Wall Details

Timber double stud walls are commonly used as load bearing separating walls for Class 1 dwellings and Class 2 multi-residential buildings, providing fire safety and acoustic separation between sole occupancy units.

This section contains construction details only for 60 minute fire rated load bearing separating walls. For internal timber framed wall systems refer to Section 3.3 and for ceiling systems refer to Section 5.1.

For additional infomration on timber separating walls, including FRL 90 minute construction details, refer to the 'Technical Design Guide 2' available from Wood Solutions www.woodsolutions.com.au

For load bearing Class 1 applications also consider Siniat InterHome system, and for non-load bearing Class 2 separating wall systems consider Siniat InterHome High-Rise walls in Section 3.6.

## Fire Rated
## Separating Wall

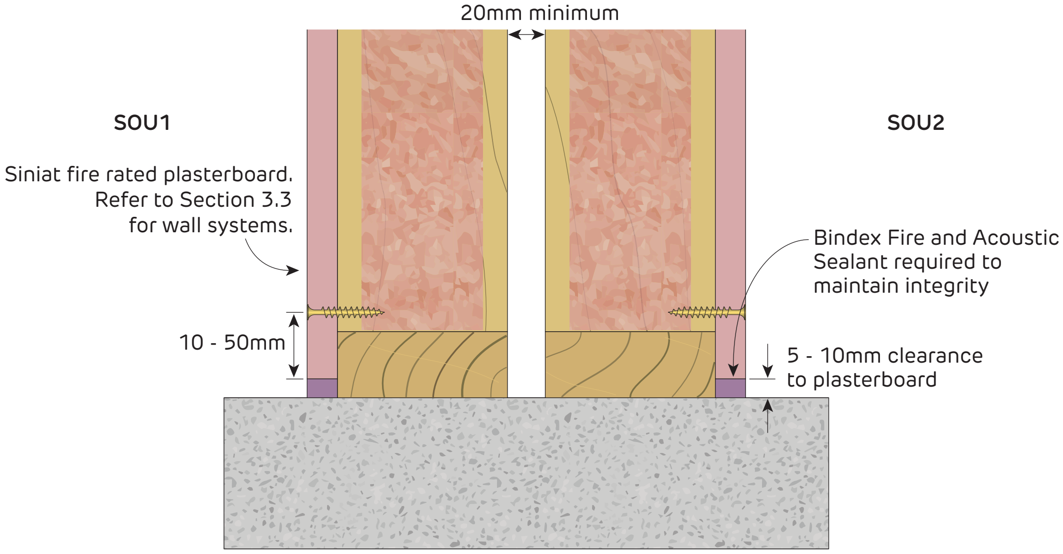



**FIGURE 1 Separating Wall Base to Slab**
FRL 60/60/60
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

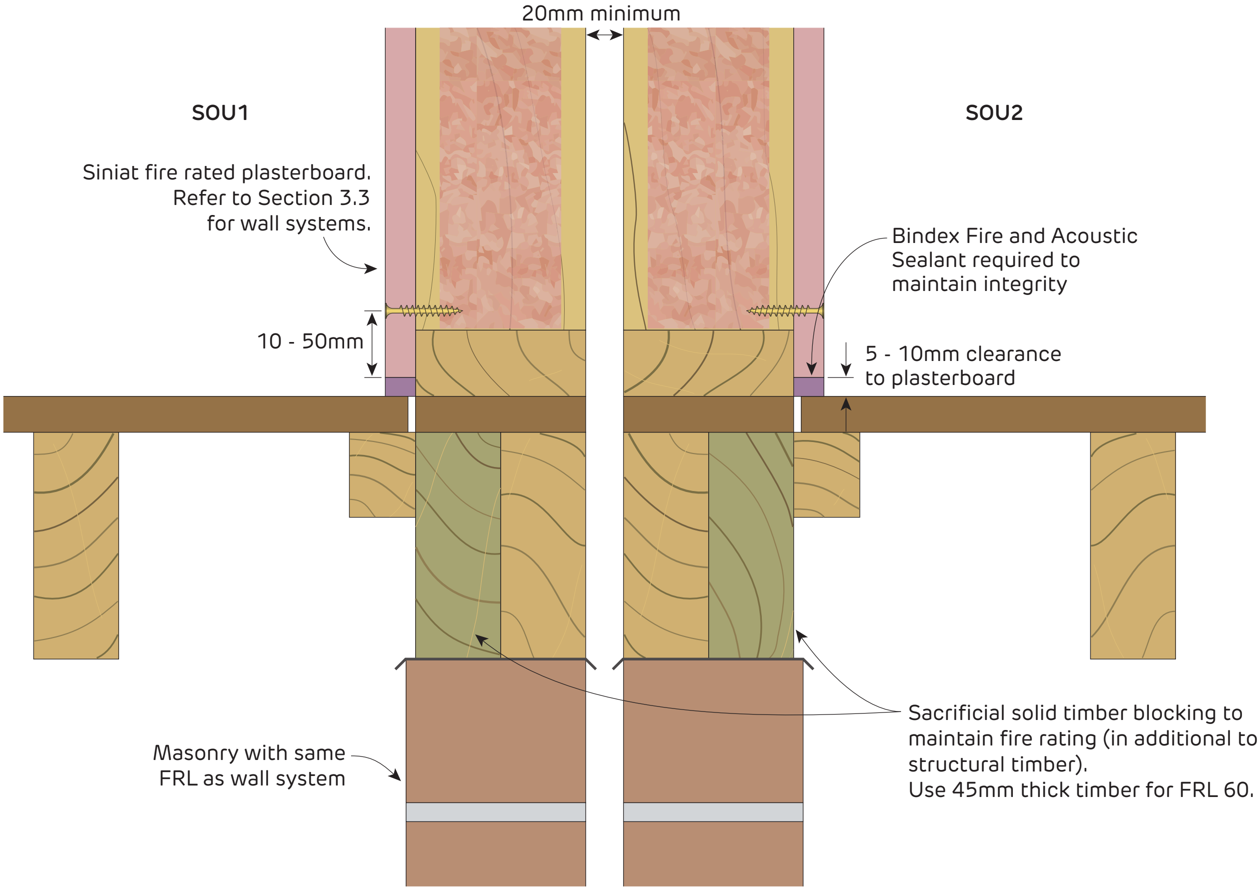



**FIGURE 2 Separating Wall with Suspended Ground Floor**
FRL 60/60/60
Section

## Fire Rated
## Separating Wall FRL with Suspended Floor inside SOU

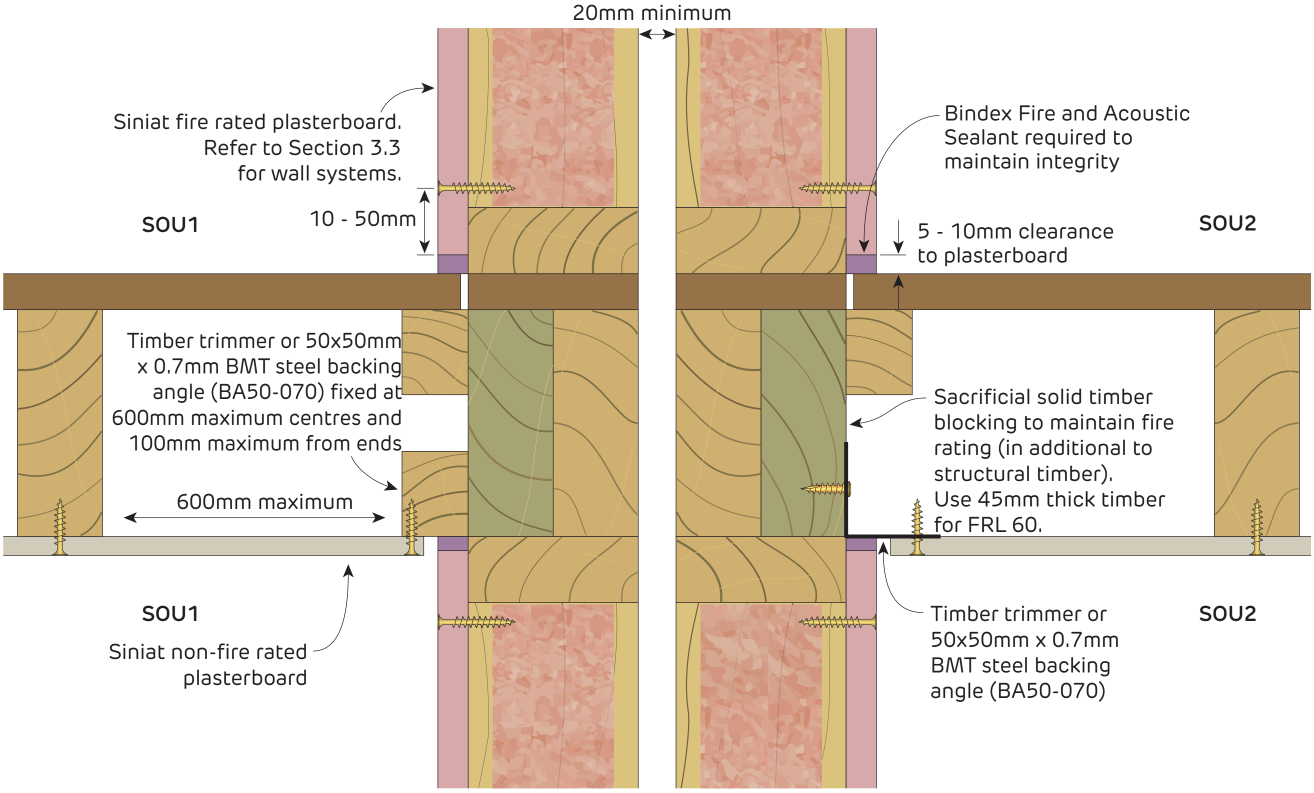



**FIGURE 3** Separating Wall with Suspended Floor
FRL 60/60/60
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

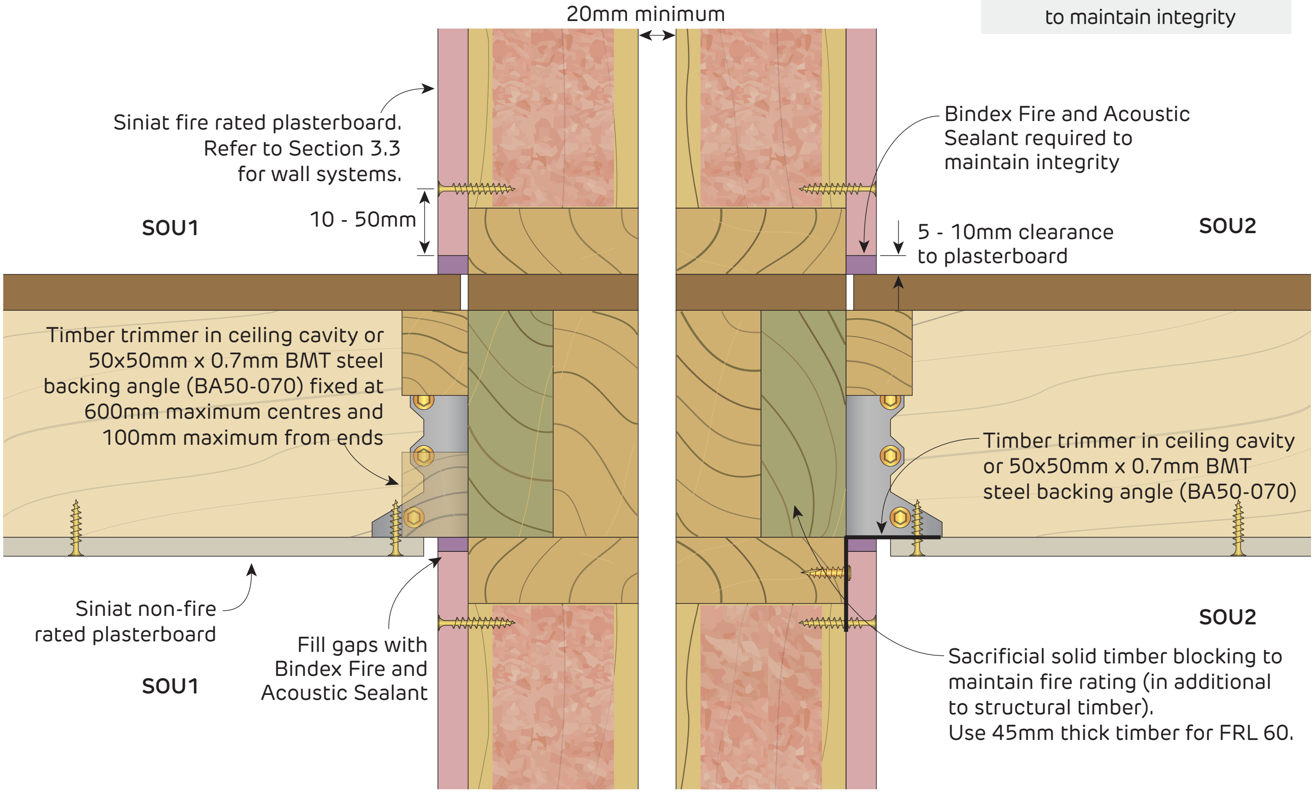



**FIGURE 4** Separating Wall with Suspended Floor
Floor joists on framing brackets
FRL 60/60/60 - Section

## Fire Rated

## Separating Wall FRL with Suspended Floor inside SOU

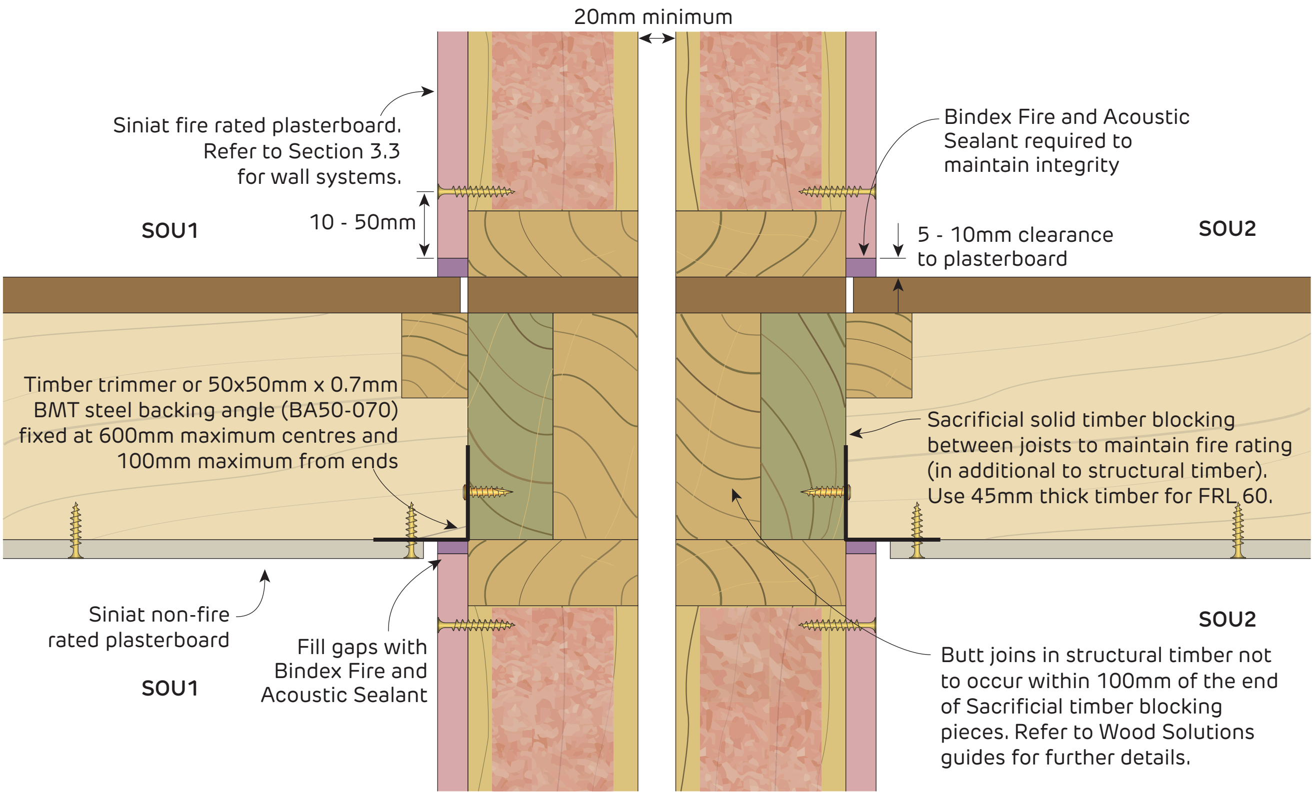



**FIGURE 5A** Separating Wall with Suspended Floor
Floor joists seated on wall plates
FRL 60/60/60 - Section

> Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

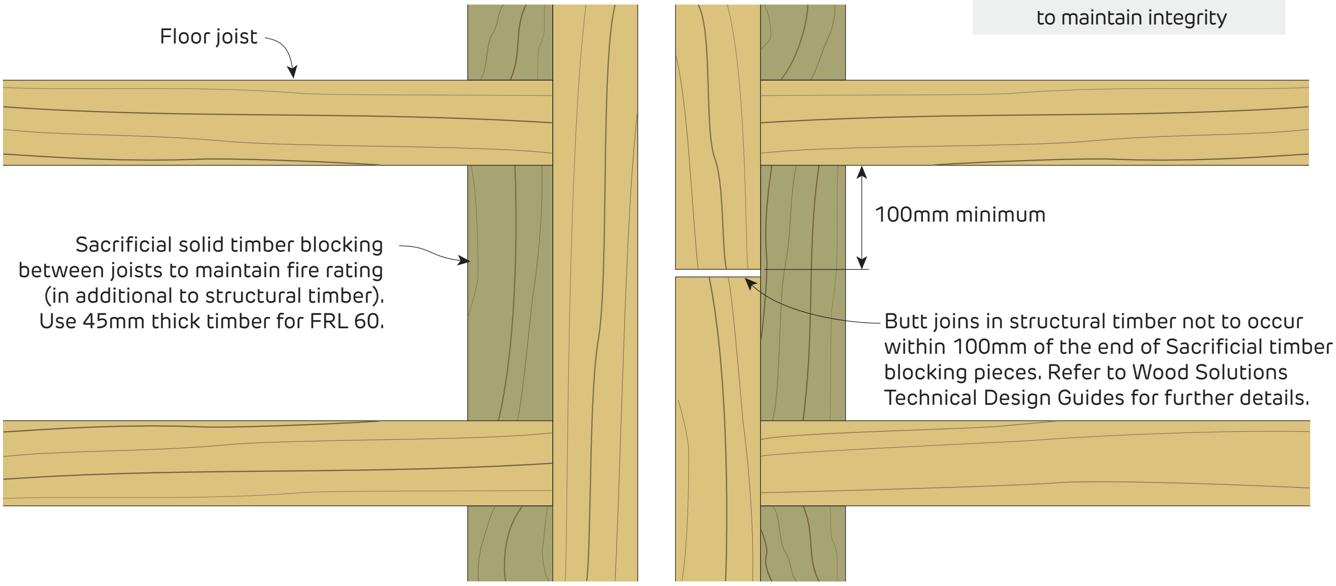



**FIGURE 5B** Separating Wall with Suspended Floor
Plan

## Fire Rated
## Separating Wall FRL with Suspended Floor Details

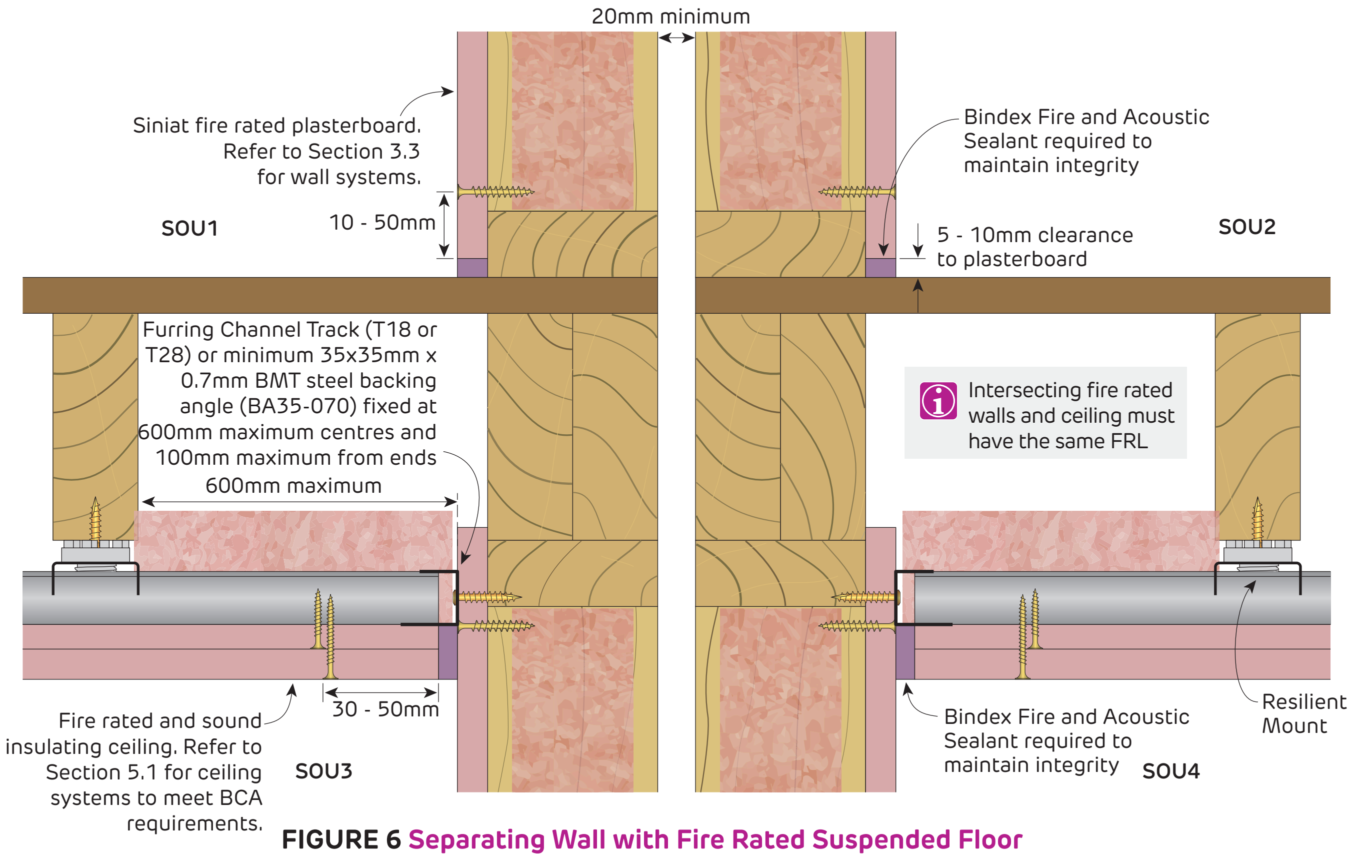



**FIGURE 6** Separating Wall with Fire Rated Suspended Floor
FRL 60/60/60
Section

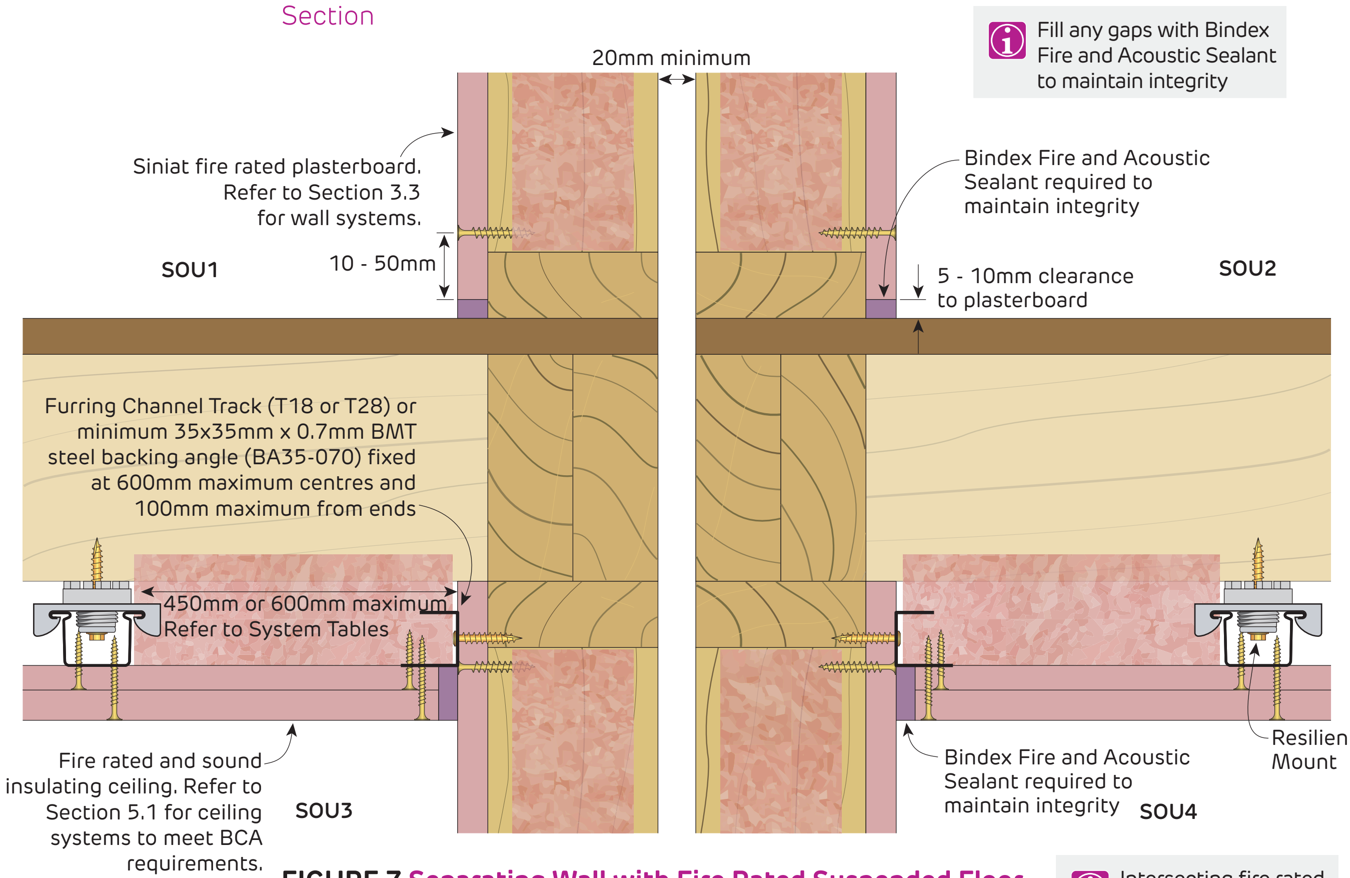



**FIGURE 7** Separating Wall with Fire Rated Suspended Floor
FRL 60/60/60
Section

Intersecting fire rated walls and ceiling must have the same FRL

## Fire Rated
## Separating Wall to Non-Combustible Roof Lining

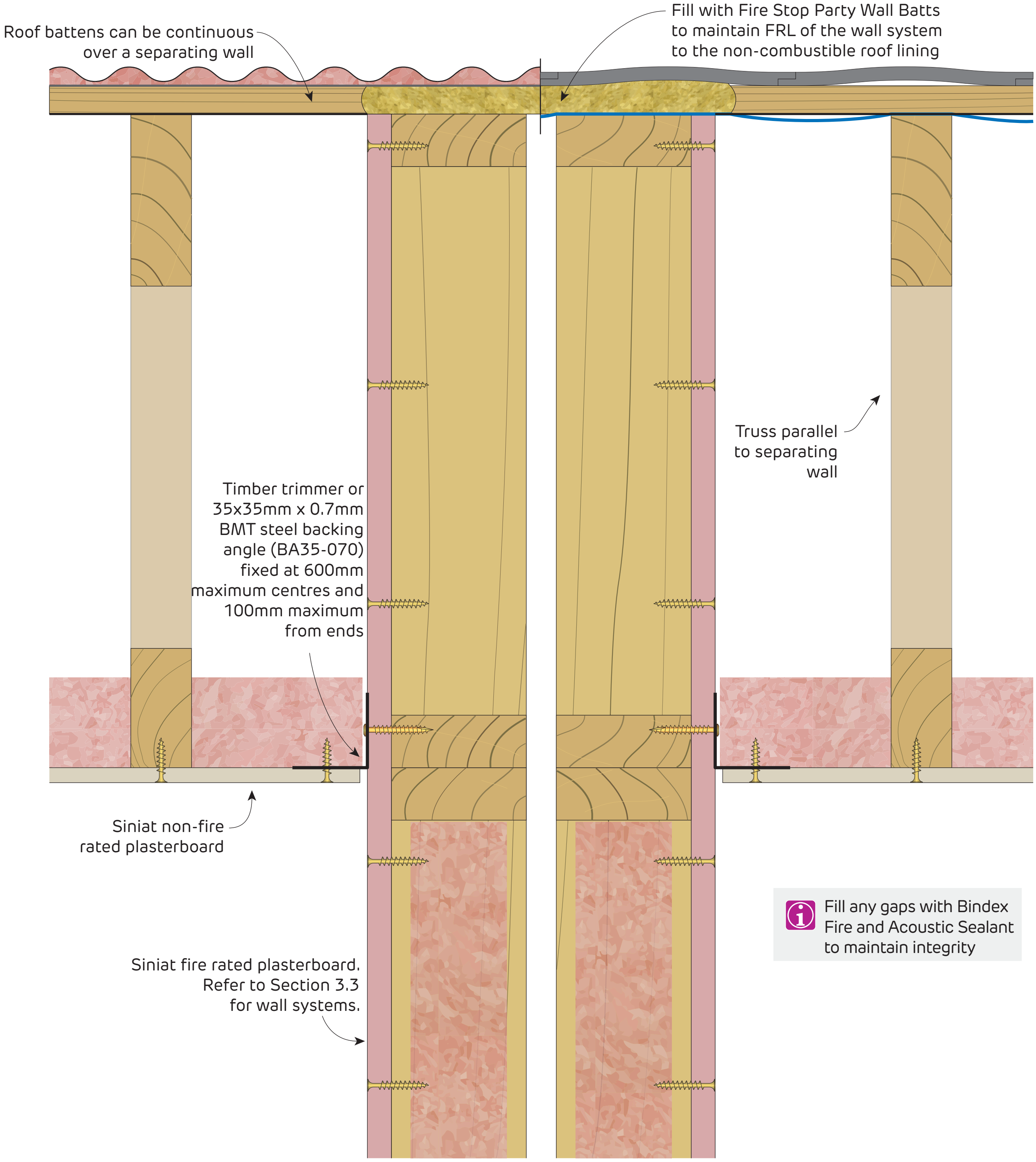



**FIGURE 8** Separating Wall to Non-combustible Roof Lining
FRL 60/60/60
Section

## Fire Rated
## Separating Wall to Non-Combustible Roof Lining

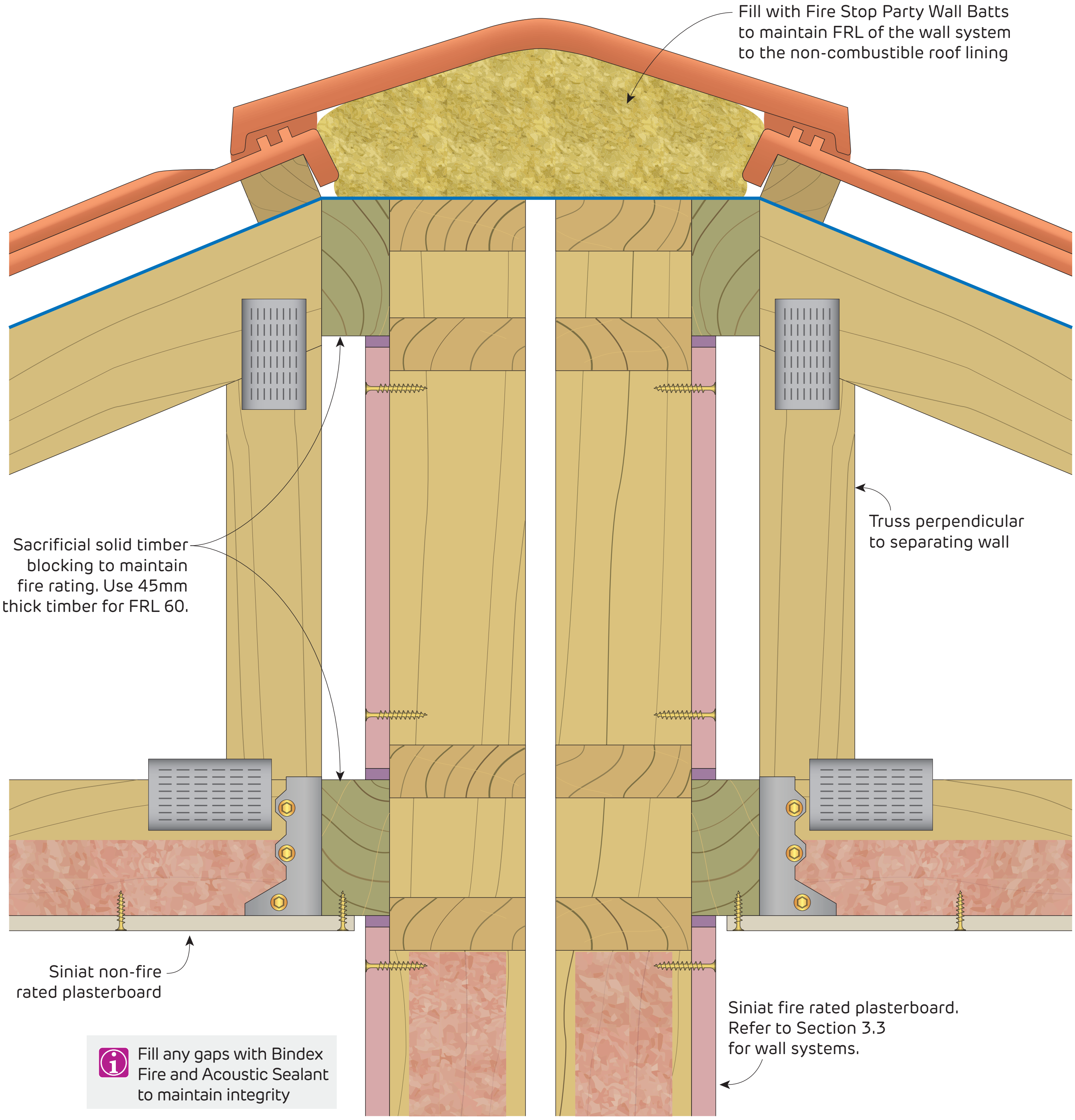



**FIGURE 9** Separating Wall to Non-combustible Roof Lining
FRL 60/60/60
Section

## Fire Rated
## Separating Wall to External Wall Above

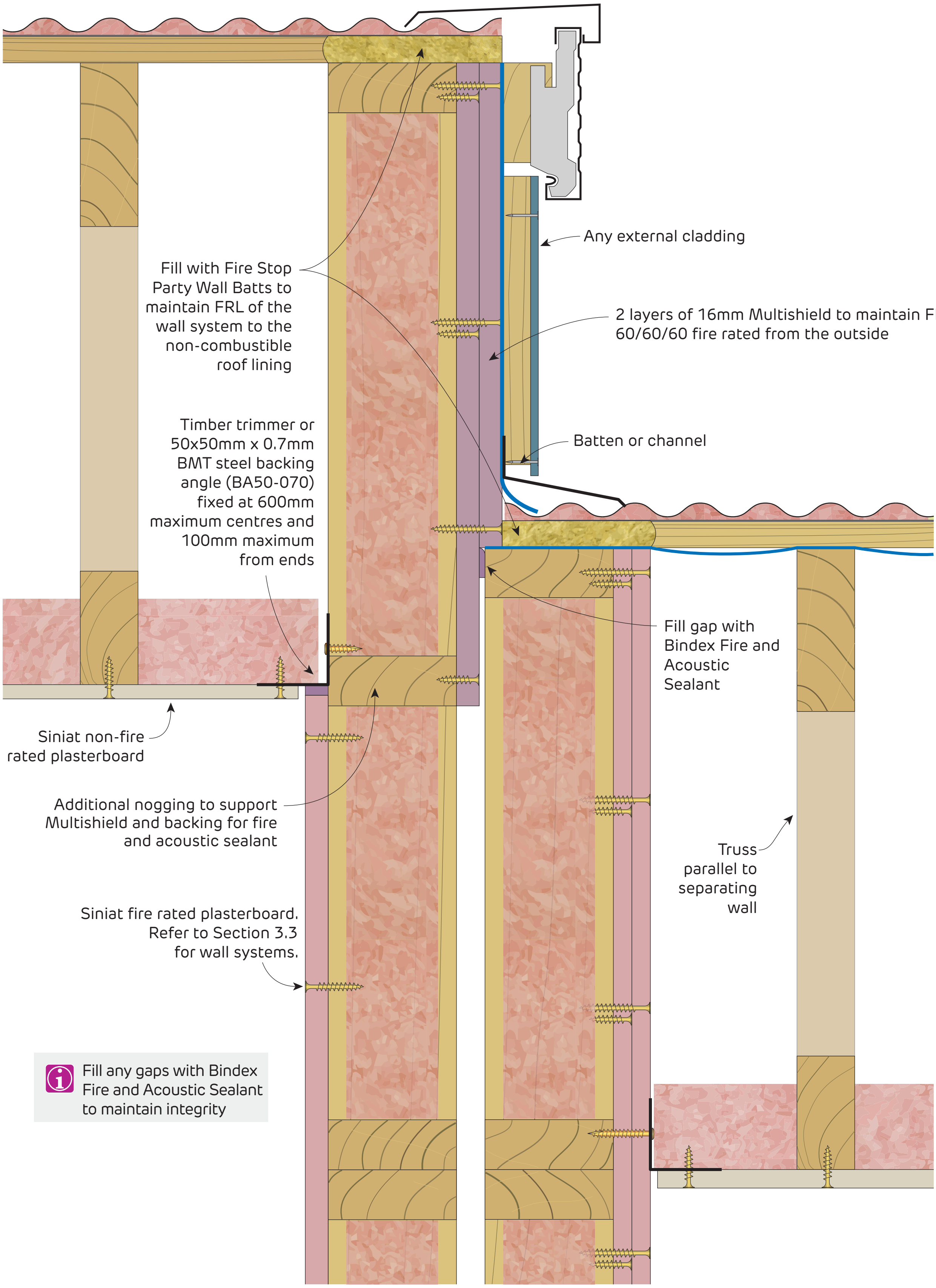



**FIGURE 10** Separating Wall with External Wall Above
FRL 60/60/60
Section

## Fire Rated
## Separating Wall over Eaves

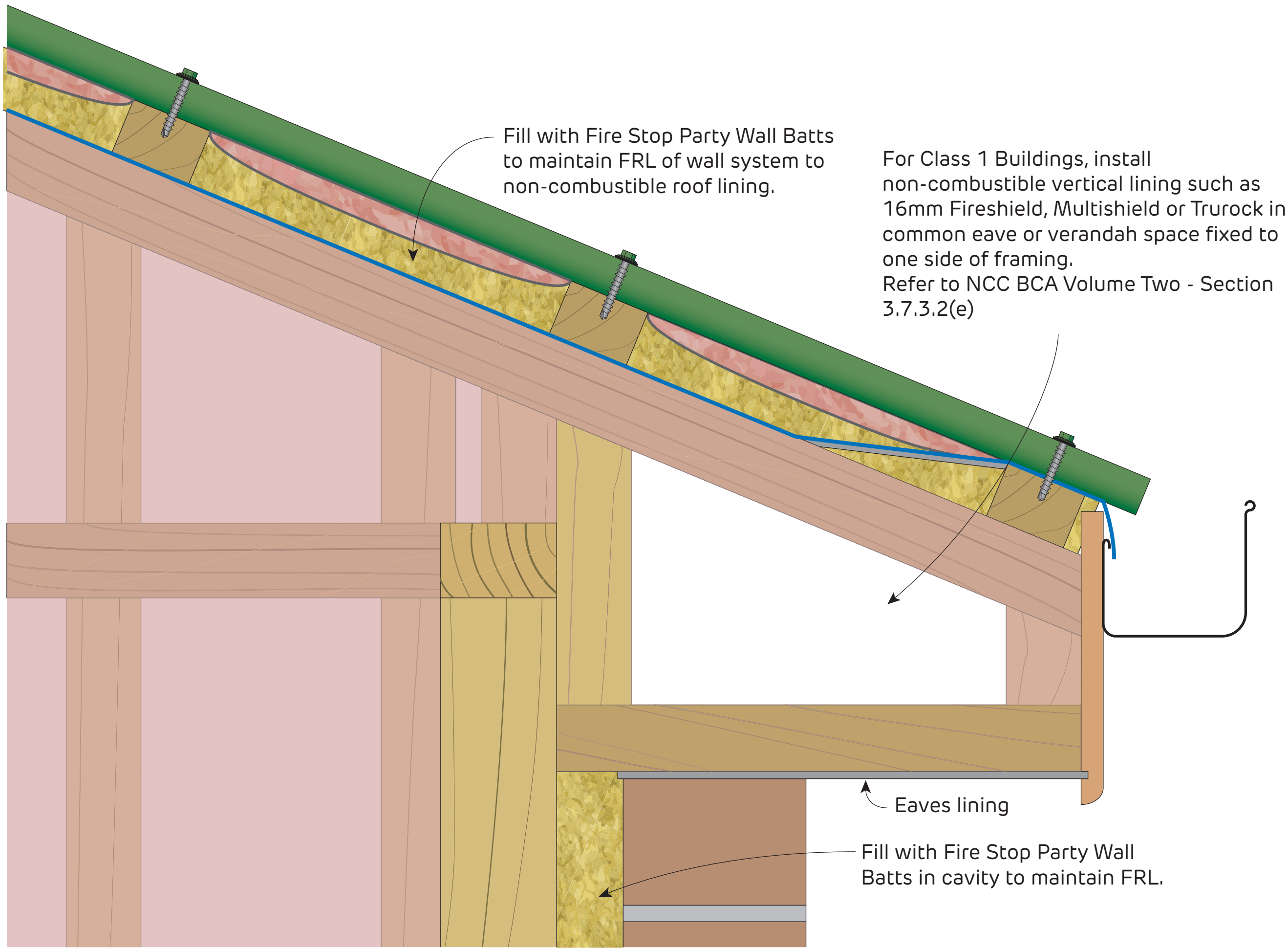



**FIGURE 11** Separating Wall Over Eaves Lining
FRL 60/60/60 - Section

## Fire Rated
## Non-Fire Rated Intersecting Walls

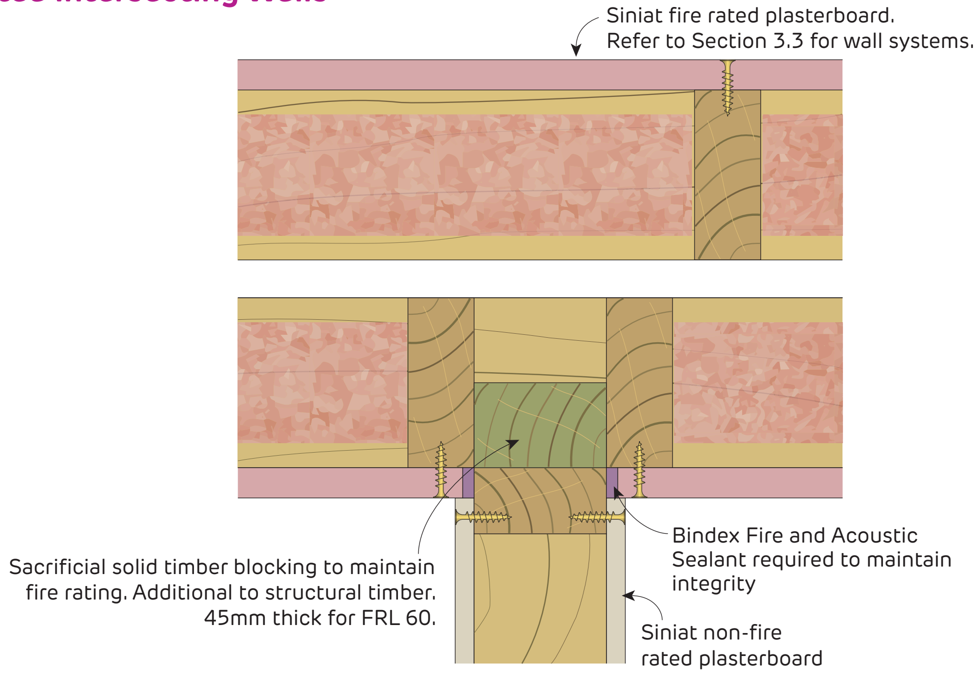



**FIGURE 12** Separating Wall with Non-Fire Rated Intersecting Wall
FRL 60/60/60 - Plan

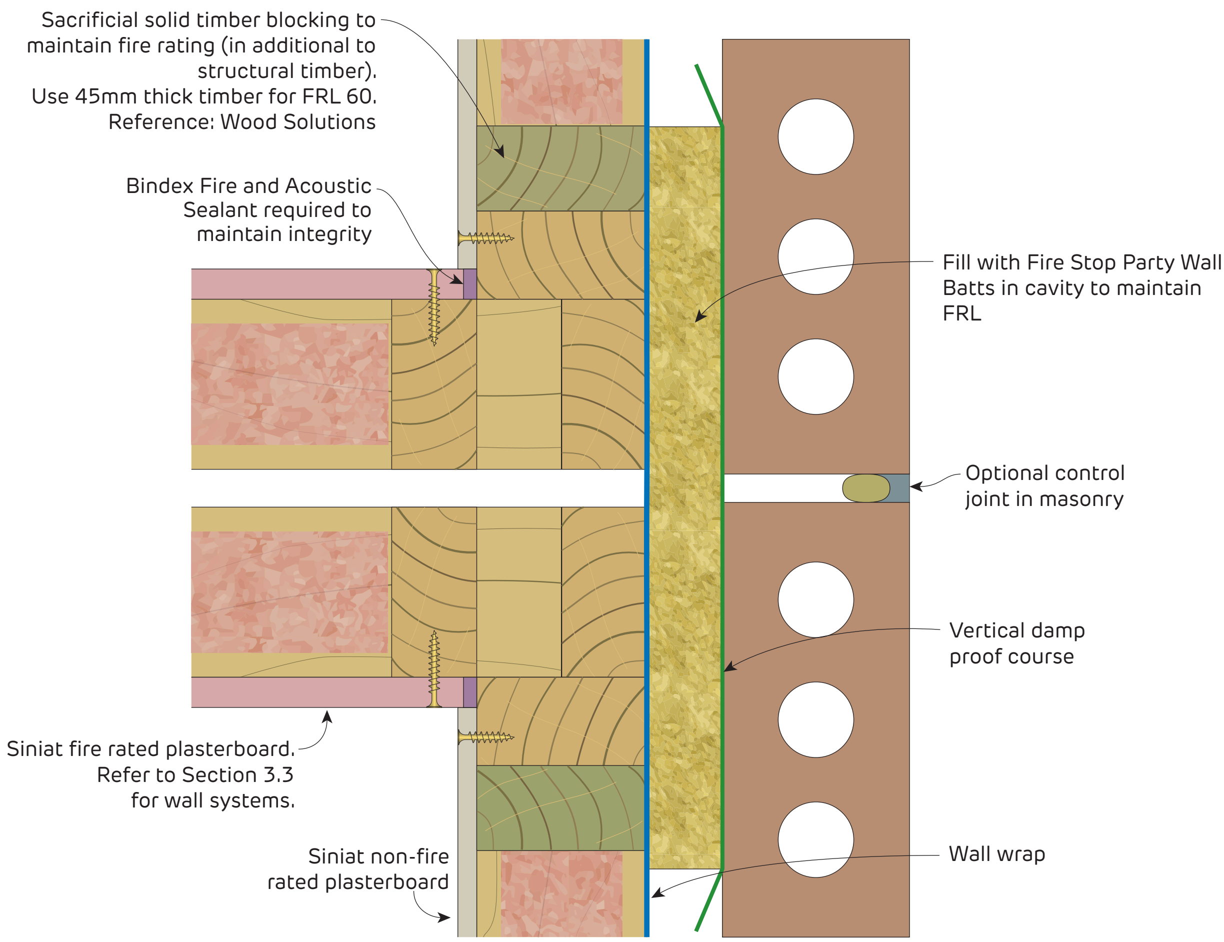



**FIGURE 13** Separating Wall to External Brick Wall
FRL 60/60/60
Plan

## Fire Rated
## Separating Wall to External Wall

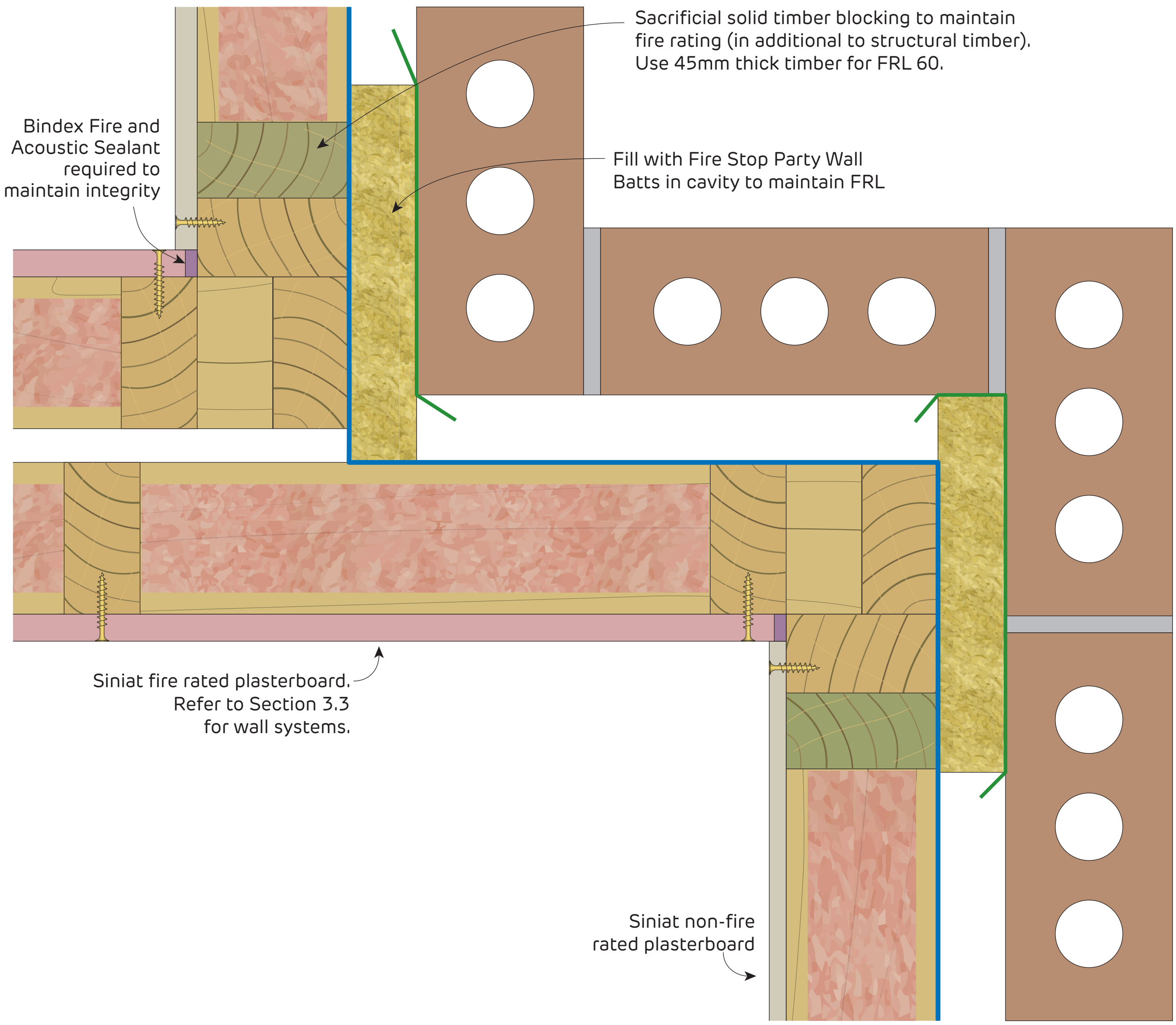



**FIGURE 14** Separating Wall to External Brick Wall
FRL 60/60/60
Plan



# 3.10 Portal Frame Construction Details

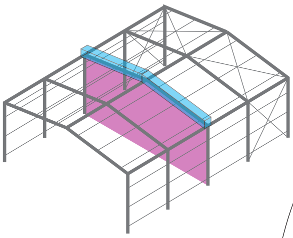
Fire rated steel frame partition walls can be used to divide portal frame construction into separate fire compartments.

Under normal conditions these walls are non-load bearing but may bear the load from the roof or unprotected beams in the event of fire. In these cases, a wall with the 'structural adequacy' component to the Fire Resistance Level (FRL) should be used and additional structural columns may be required to support the intended loads under fire conditions. The NCC requires all structures to have Structural Reliability (NCC B1P1 (1) (c)) whereby local damage such as a fire in one part of the building does not compromise the structural stability of the rest of the building. This indicates that a review of the buildings structural stability in the event of a fire must be completed.

As portal frames are complex structures, advice from fire engineers is recommended to assist with cost effective solutions for issues such as the transmission of heat through structural members crossing fire walls. In this case, a performance based solution is usually implemented.

This section contains construction details around structural steel beams and columns, as well as purlins and girts. Refer to Section 3.1 for Steel Framed Partitions Walls and Section 6.4 for fire protection of structural members such as columns and beams.

## Fire Rated
## Wall Partition Around Steel Beam to Roof Lining



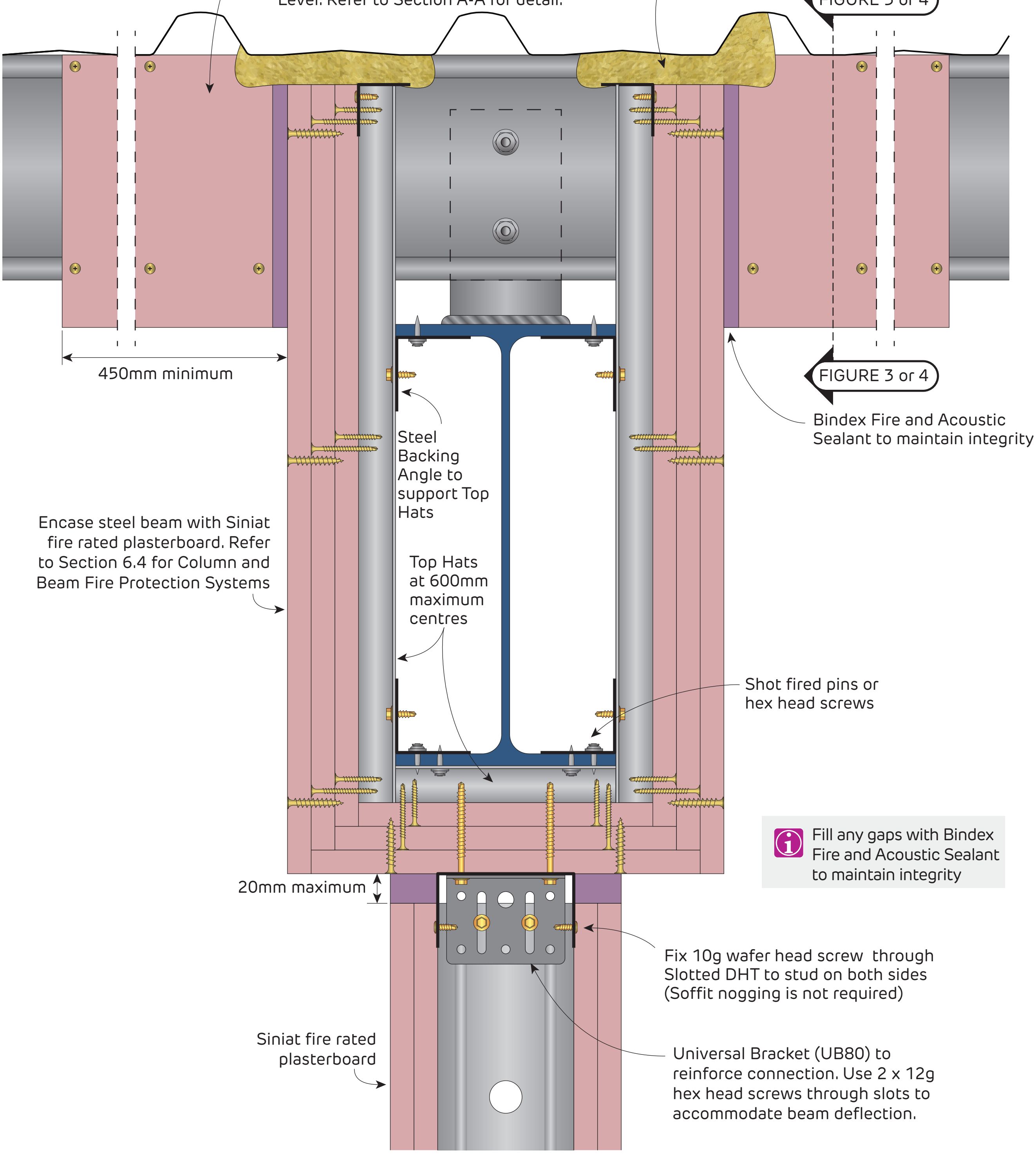



**FIGURE 1** **Wall Head Detail**
Up to FRL 120/120/120
Section

## Fire Rated
## Wall Partition Around Steel Beam to Roof Lining - Higher Deflection Allowance

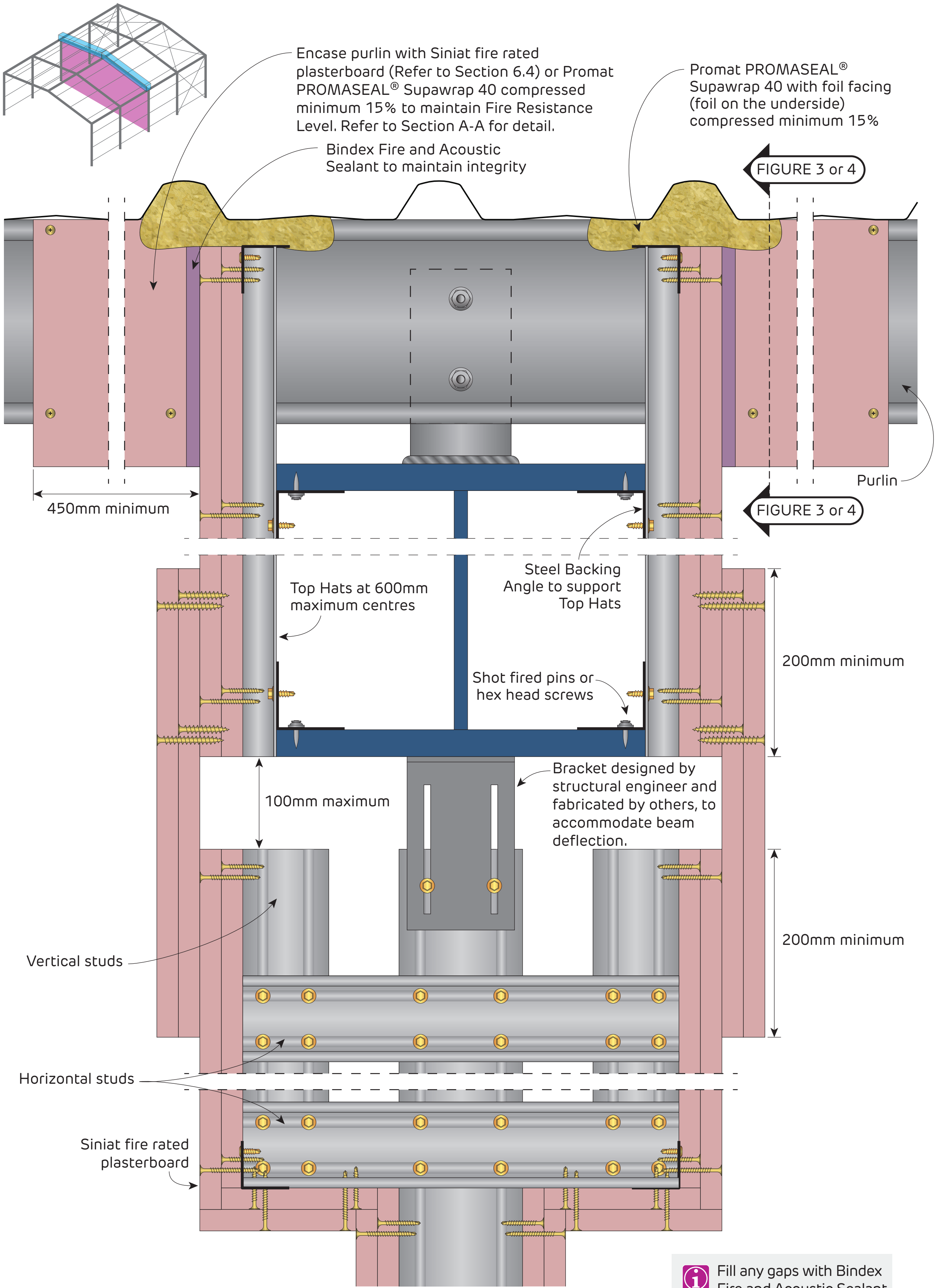
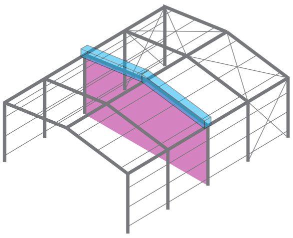
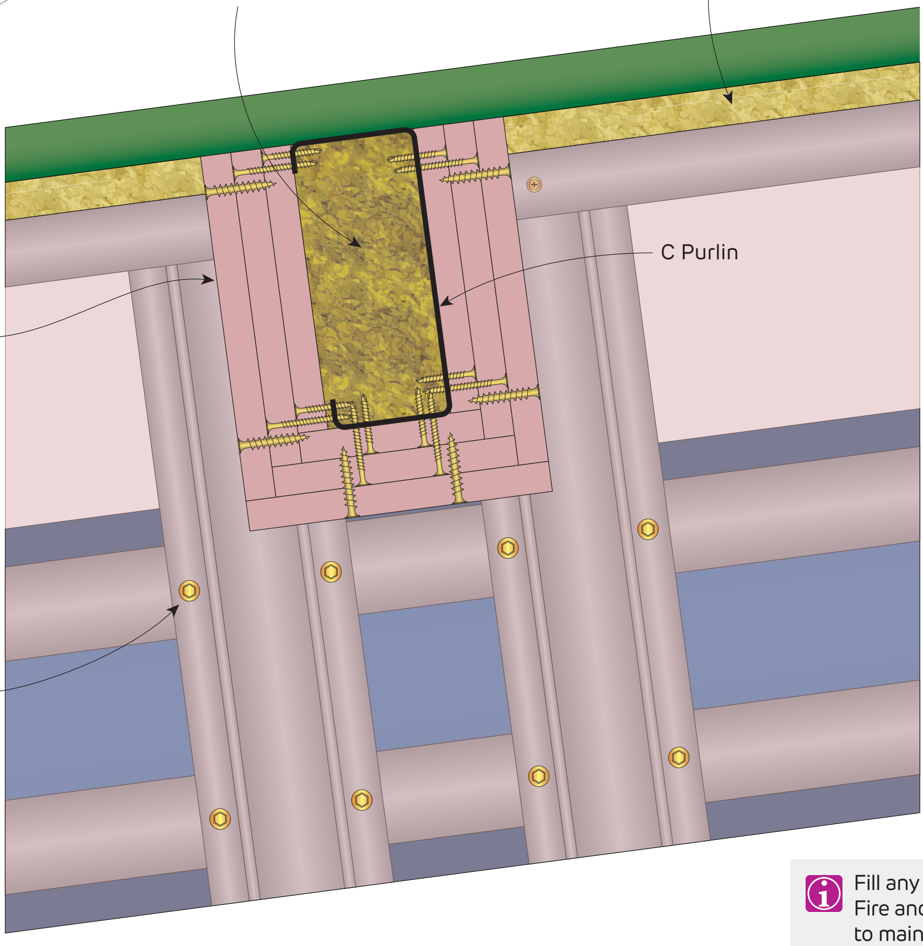



**FIGURE 2** Wall Head Detail
Up to FRL 120/120/120 - Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

## Fire Rated
## Wall Partition Around Steel Beam to Roof Lining

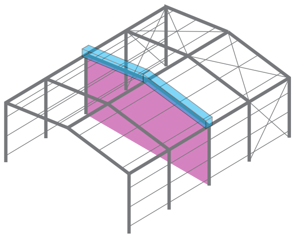


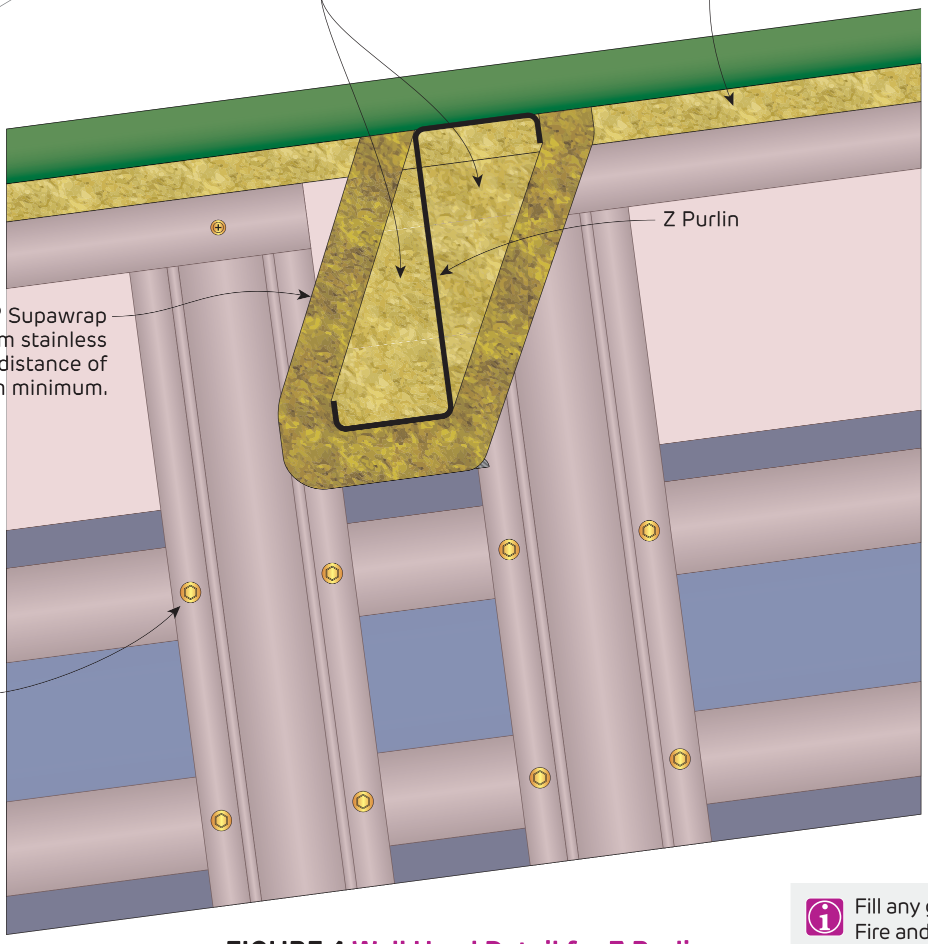



Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

**FIGURE 3** **Wall Head Detail for C Purlin**
Up to FRL 120/120/120
Elevation

## Fire Rated
## Wall Partition Around Steel Beam to Roof Lining






Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

**FIGURE 4** **Wall Head Detail for Z Purlin**
Up to FRL 120/120/120
Elevation

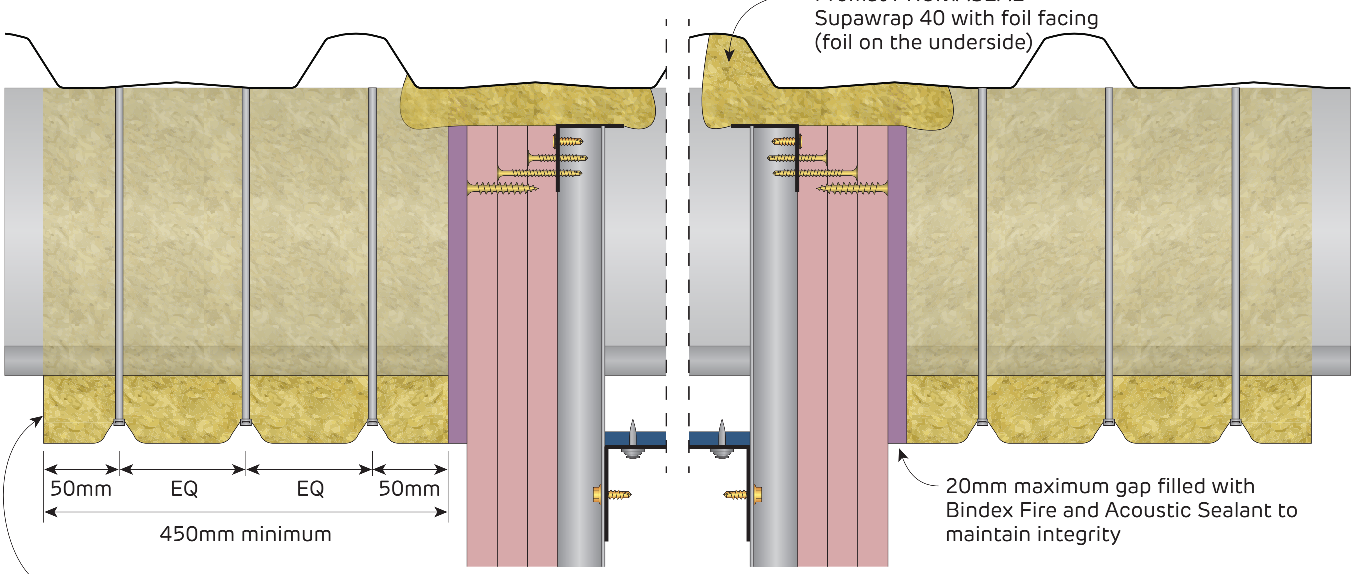
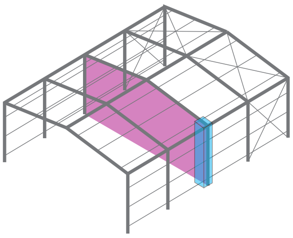



**FIGURE 5** **Purlin Crossing Fire Wall**
Up to FRL 120/120/120
Section

## Fire Rated
## Wall Partition Around Steel Column to Precast Concrete



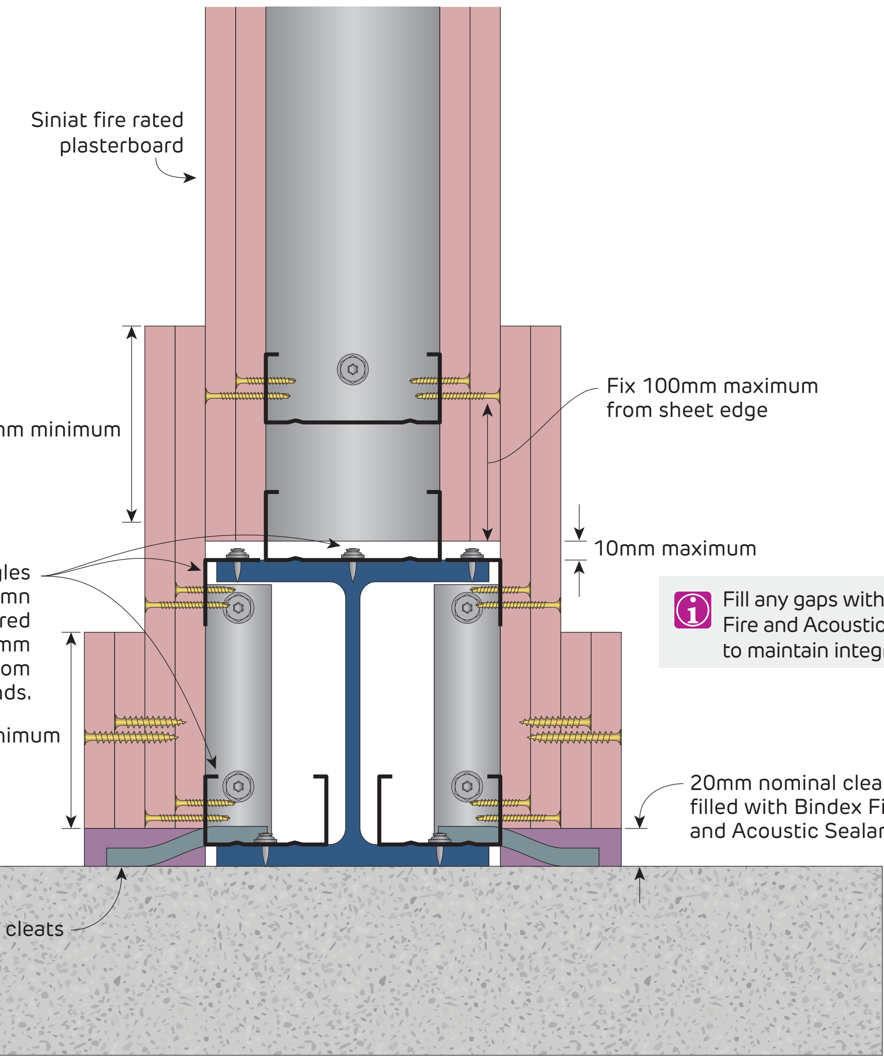



**FIGURE 6** **Wall End to Precast Wall**
Up to FRL 120/120/120
Plan

## Fire Rated
## Wall Partition Around Steel Column to Wall Cladding

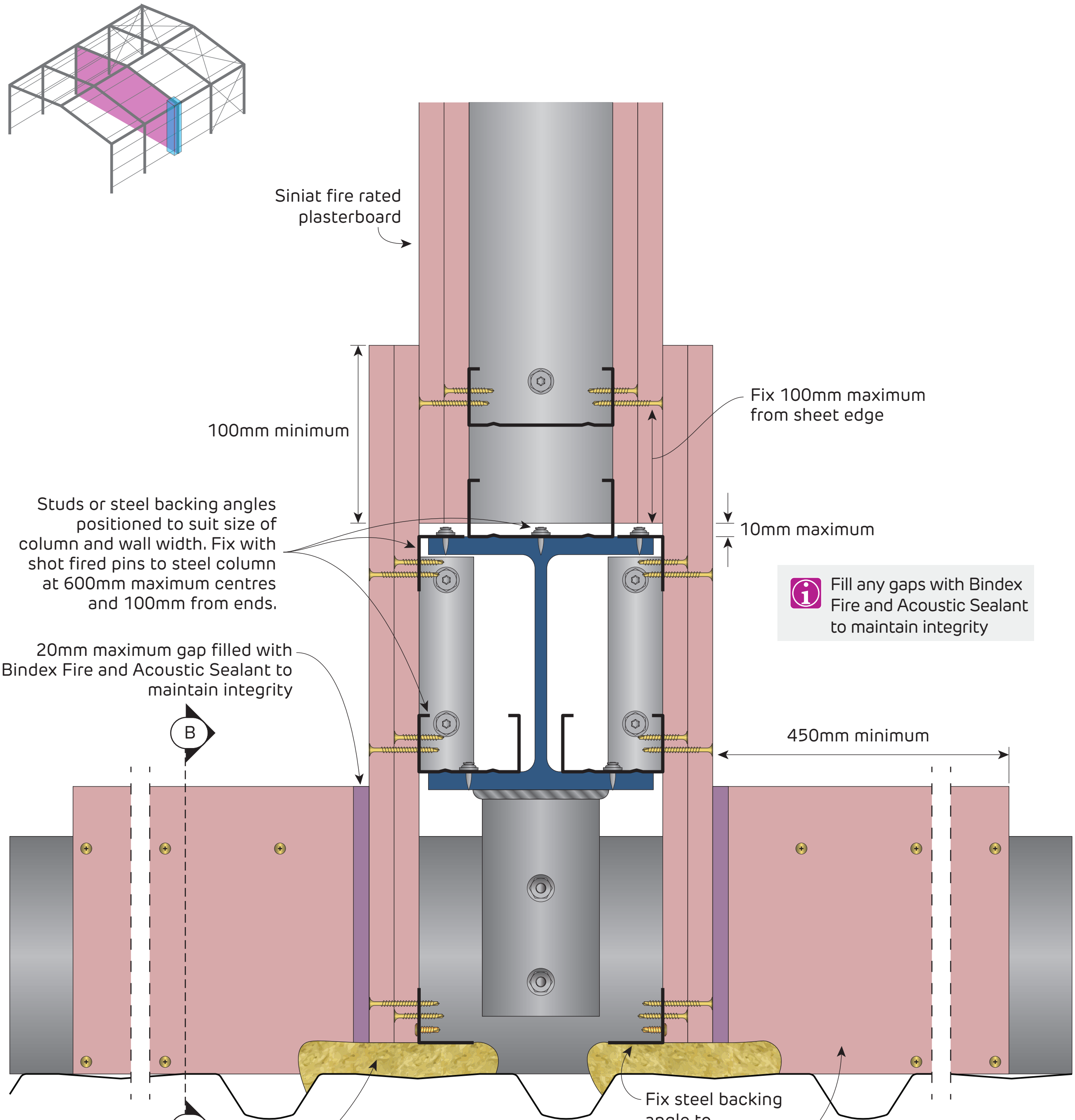
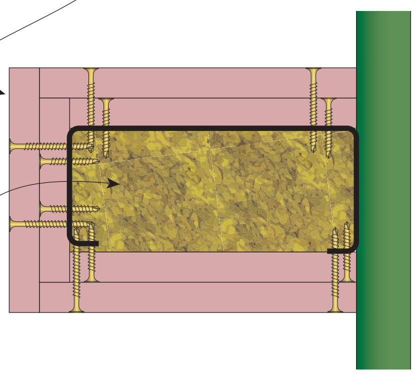
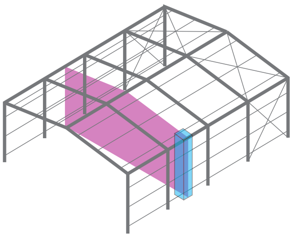



**FIGURE 7 Wall End to Wall Cladding**
Up to FRL 120/120/120
Plan




**SECTION B-B Fire Protection of Wall Girt**
Section

## Fire Rated
## Wall Partition to Wall Cladding



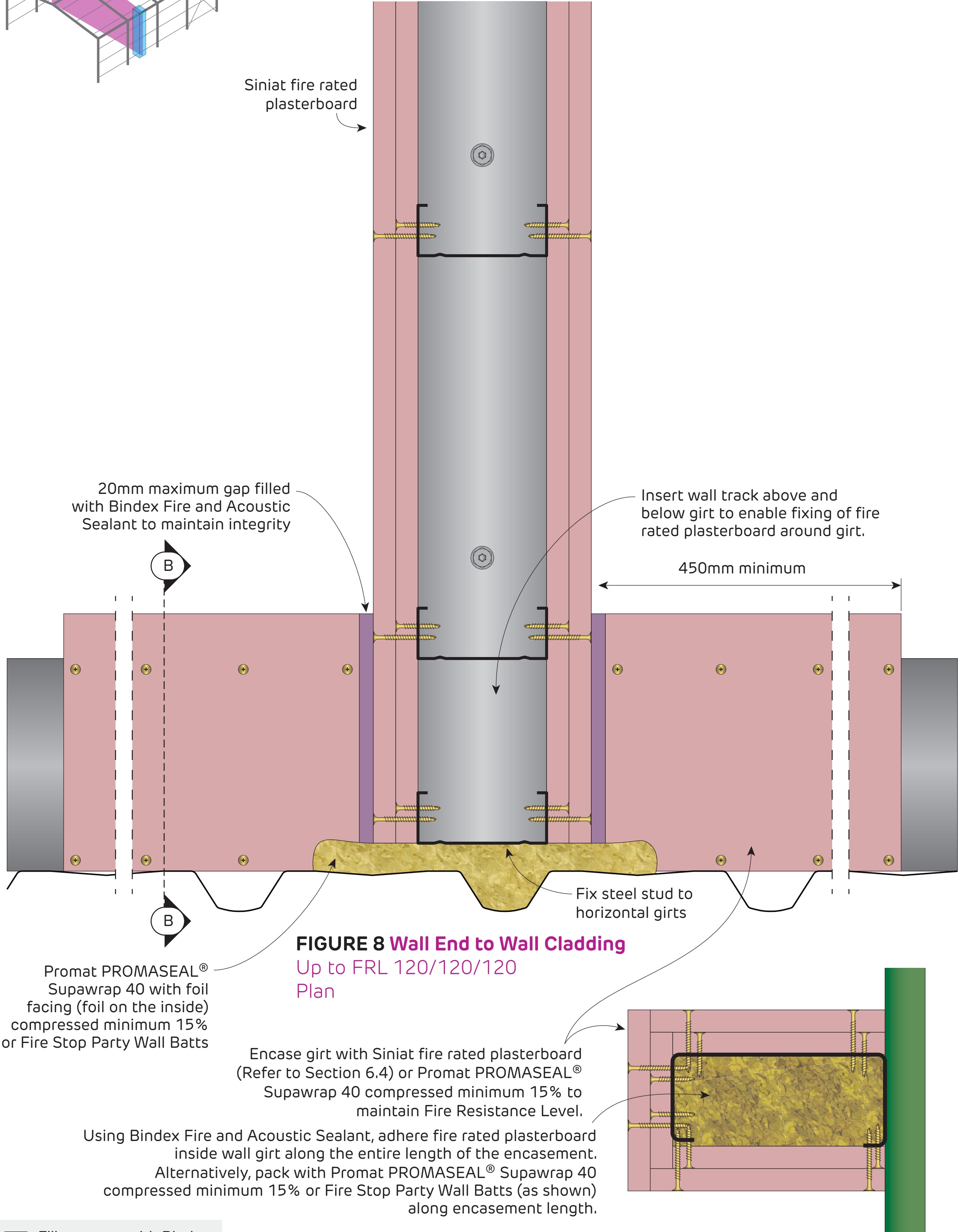
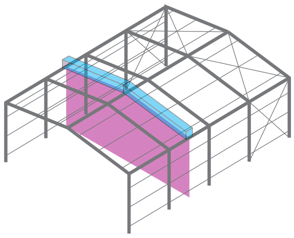



**FIGURE 8** Wall End to Wall Cladding
Up to FRL 120/120/120
Plan

**SECTION B-B** Fire Protection of Wall Girt
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

## Fire Rated
## Wall Head Details Around C or Z Purlins



Partition walls may become load bearing in the event of fire

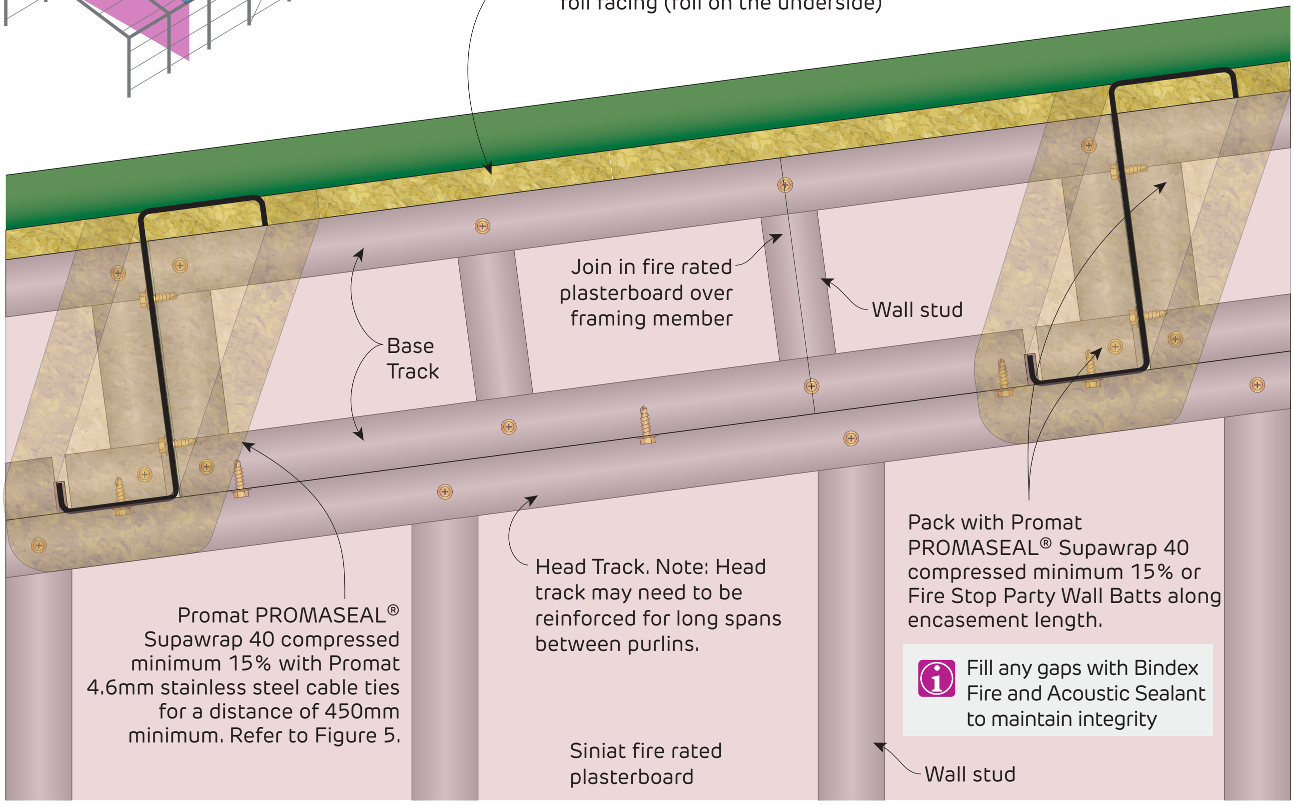



**FIGURE 9** Partition Wall to Roof - Perpendicular to C or Z Purlins
Up to FRL 120/120/120
Elevation

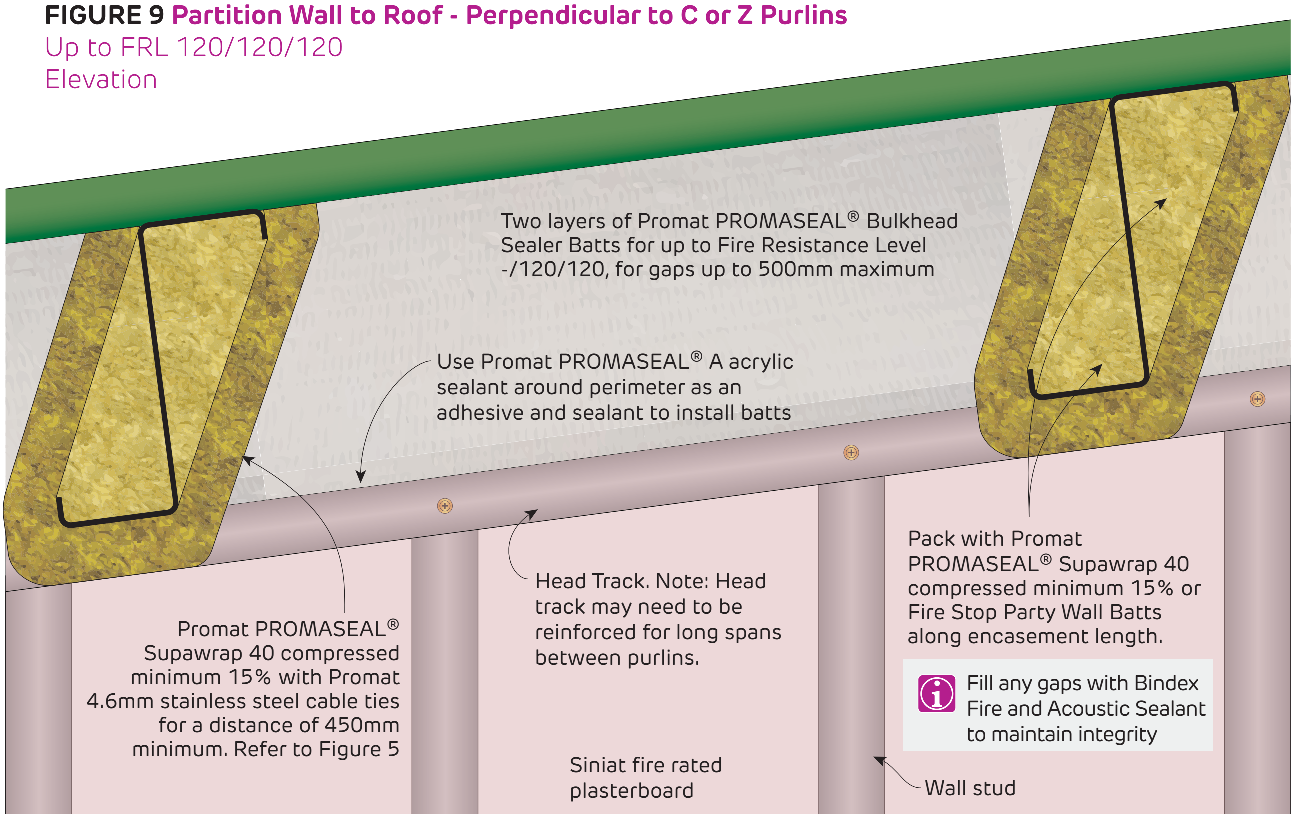



**FIGURE 10** Partition Wall to Roof - Perpendicular to C or Z Purlins
Up to FRL 120/120/120
Elevation

## Fire Rated
## Wall Head Details Around C or Z Purlins

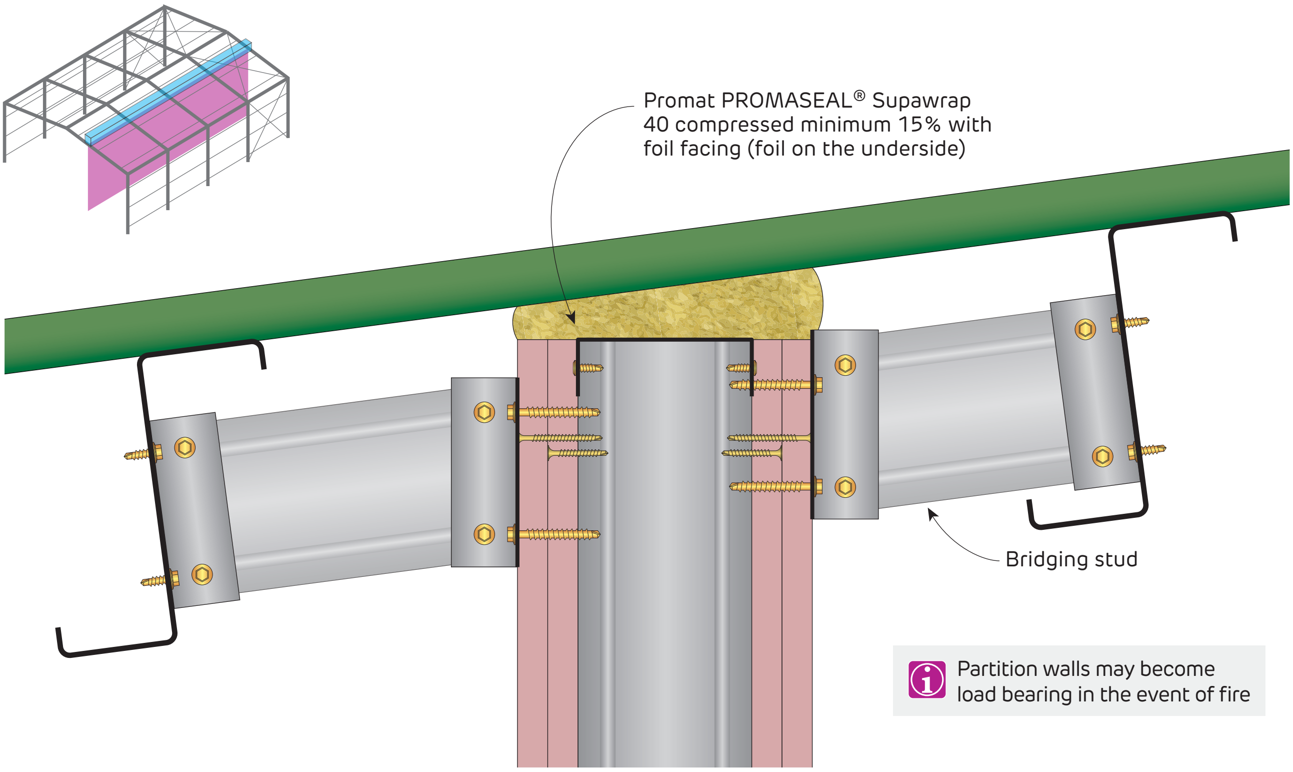



**FIGURE 11** Partition Wall to Roof - Parallel to Purlins
Up to FRL 120/120/120
Section

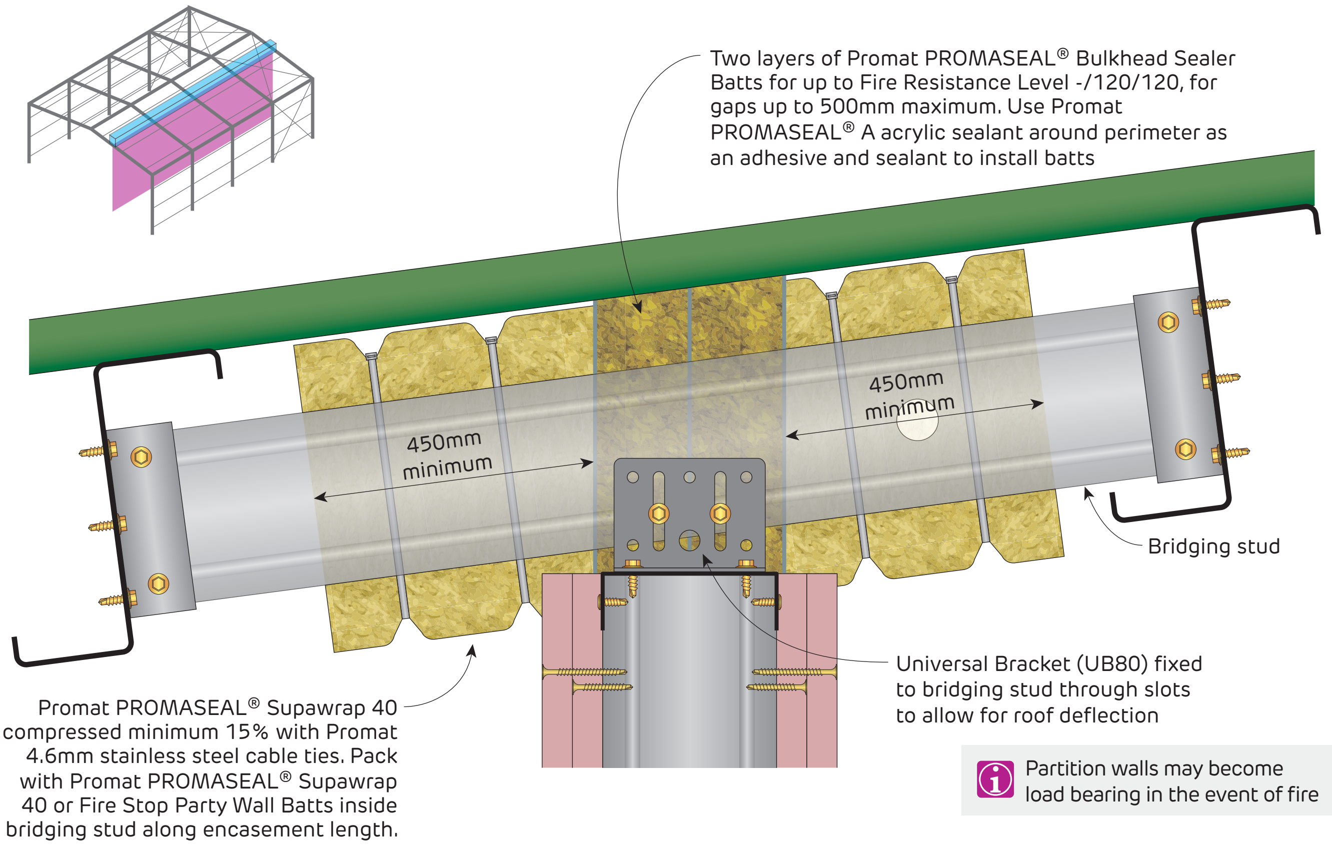



**FIGURE 12** Partition Wall to Roof - Parallel to Purlins
Up to FRL 120/120/120
Section



# 4.1 External Steel Stud Walls

External steel framed walls protect the inside from weather, noise and when applicable, fire. They must also comply with local energy efficiency provisions.

Fire rated systems in this section can satisfy the National Construction Codes Fire Safety requirements for spandrel walls and walls built close to a fire source feature such as a property boundary. These walls are often required to be fire rated from the outside only.

**multi**shield forms part of the outer wall adding fire and sound resistance which is covered by a moisture barrier and external cladding for weather protection.

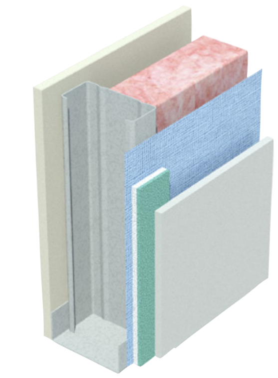
This section contains wall systems, installation instructions and construction details for non-fire rated and fire rated external steel framed walls. The framing tables and construction details are also limited to non-load bearing walls (except for self weight). Non-load bearing walls typically have an allowance for deflection at the head of the wall and are not suitable for vertical axial loads, nor are they suitable as bracing shear walls. Contact Siniat for more information.

# System Directory

| System | Inside Lining | Outer Lining and Cladding | Frame | FRL | Acoustics[1] | |
|---|---|---|---|---|---|---|
| | | | | | Rw | Rw+Ctr |
| SSW73 | 1 x 10mm **masta**shield | 7.5mm fibre cement sheeting | Steel stud | - | 41 | 30 |
| SSW274 | 2 x 10mm **sound**shield | 7.5mm fibre cement sheeting | Steel stud | - | 48 | 36 |
| SSW378 | 3 x 13mm **fire**shield | 7.5mm fibre cement sheeting | Steel stud | - | 52 | 40 |
| SSW470 | 1 x 10mm **masta**shield | 1 x 13mm **multi**shield plus any external cladding | Steel stud | 30/30/30 from outside | 40 | 30 |
| SSW473 | 1 x 10mm **masta**shield | 1 x 16mm **multi**shield plus any external cladding | Steel stud | 60/60/60 from outside | 41 | 31 |
| SSW471 | 1 x 10mm **masta**shield | 2 x 13mm **multi**shield plus any external cladding | Steel stud | 90/90/90 from outside | 45 | 34 |
| SSW472 | 1 x 10mm **masta**shield | 3 x 13mm **multi**shield plus any external cladding | Steel stud | 120/120/120 from outside | 48 | 38 |
| SSW491 | Optional | 2 x 13mm **multi**shield plus any external cladding | Steel stud | 30/30/30 from outside | 34 | 30 |
| SSW494 | Optional | 2 x 16mm **multi**shield plus any external cladding | Steel stud | 60/60/60 from outside | 35 | 31 |
| SSW492 | Optional | 3 x 13mm **multi**shield plus any external cladding | Steel stud | 90/90/90 from outside | 37 | 34 |
| SSW495 | Optional | 3 x 16mm **multi**shield plus any external cladding | Steel stud | 120/120/120 from outside | 38 | 35 |
| SSW496 | 1 x 13mm **fire**shield | 1 x 13mm **multi**shield plus any external cladding | Steel stud | -/60/60 | 42 | 32 |
| SSW476 | 1 x 16mm **fire**shield | 1 x 16mm **multi**shield plus any external cladding | Steel stud | 60/60/60 or -/90/90 using glasswool | 44 | 35 |
| SSW477 | 1 x 16mm **fire**shield | 2 x 13mm **multi**shield plus any external cladding | Steel stud | 90/90/90 from outside 60/60/60 from inside | 48 | 39 |
| SSW478 | 2 x 13mm **fire**shield | 2 x 13mm **multi**shield plus any external cladding | Steel stud | 90/90/90 or -/120/120 | 51 | 44 |
| SSW479 | 2 x 16mm **fire**shield | 2 x 16mm **multi**shield plus any external cladding | Steel stud | 120/120/120 | 51 | 46 |
| SSW70 | 1 x 10mm **masta**shield | 110mm masonry | Steel stud | 60/60/60 from outside | 57 | **53** |
| SSW373 | 1 x 16mm **fire**shield | 110mm masonry | Steel stud | 60/60/60 | 54 | **52** |
| SSW371 | 2 x 13mm **fire**shield | 110mm masonry | Steel stud | 90/90/90 | 56 | **53** |
| SSW374 | 2 x 16mm **fire**shield | 110mm masonry | Steel stud | 120/120/120 | 54 | **52** |

1. Sound Insulation values determined using glasswool insulation.
2. Refer to 'Exterior Cladding' table in this section for all external cladding options.

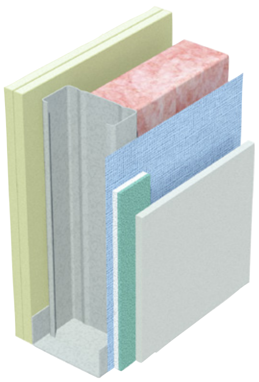
## SSW73



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- Wall wrap + thermal break
- 1 layer of minimum 7.5mm Innova fibre cement

| Stud Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report |
| 70 | 100 approx | 37 (28) | 41 (30) | Insul |

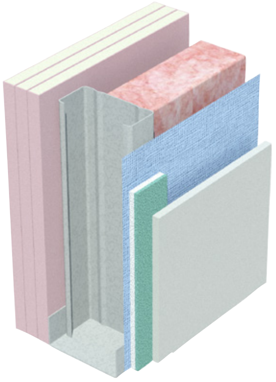
## SSW274



- 2 layers of 10mm **sound**shield or **opal**
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- Wall wrap + thermal break
- 1 layer of minimum 7.5mm Innova fibre cement

| Stud Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Report |
| 70 | 110 approx | 44 (32) | 48 (36) | Koikas 6228 |

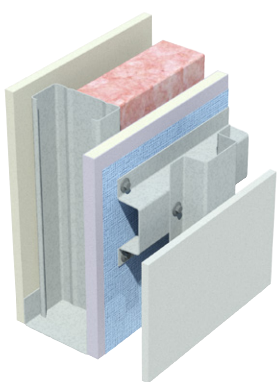
## SSW378



- 3 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- Wall wrap + thermal break
- 1 layer of minimum 7.5mm Innova fibre cement

| Stud Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Report |
| 70 | 130 approx | 46 (35) | 52 (40) | Koikas 6228 |

## SSW470



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 1 layer of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls without framed suspended floors

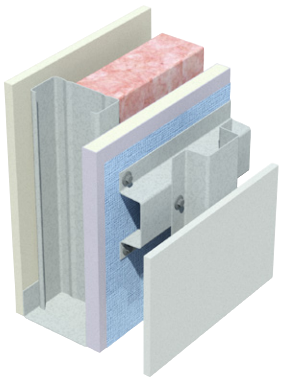
**Fire Resistance Level**

**30/30/30**
from the outside only

Report
FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report |
| 70 | 140 approx | 36 (28) | 40 (30) | Insul |

## SSW473



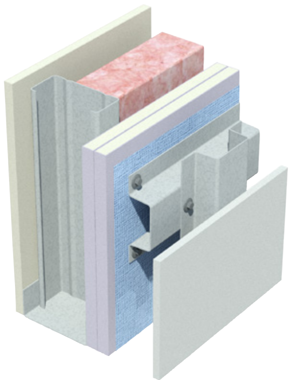
- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 1 layer of 16mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls <u>without</u> framed suspended floors

**Fire Resistance Level**
**60/60/60**
from the outside only
Report
FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report Insul |
| 70 | 145 approx | 37 (29) | 41 (31) | |

## SSW471



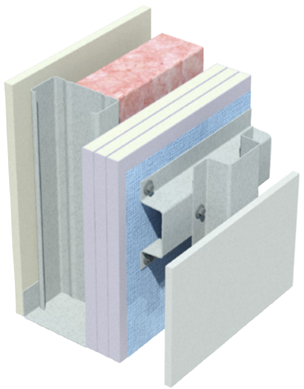
- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls <u>without</u> framed suspended floors

**Fire Resistance Level**
**90/90/90**
from the outside only
Report
FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report Insul |
| 70 | 155 approx | 41 (32) | 45 (34) | |

## SSW472



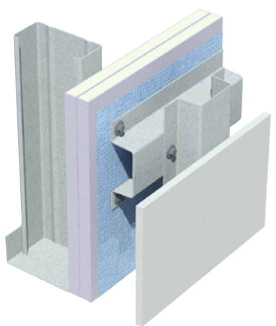
- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 3 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls <u>without</u> framed suspended floors

**Fire Resistance Level**
**120/120/120**
from the outside only
Report
FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report Insul |
| 70 | 170 approx | 44 (34) | 48 (38) | |

## SSW491



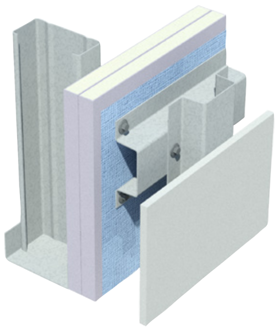
- Optional internal wall lining
- Optional wall insulation
- Minimum 70mm steel stud framing at 600mm maximum centres
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls with framed suspended floors

**Fire Resistance Level**
**30/30/30**
from the outside only
Report
FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report Day Design 3094-33 |
| 70 | 145 approx | 34 (30) | 34 (30) | |

## SSW494



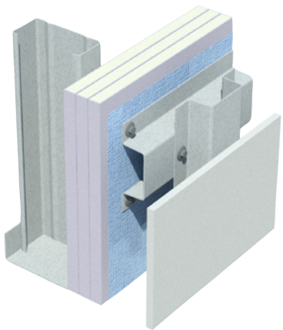
- Optional internal wall lining
- Optional wall insulation
- Minimum 70mm steel stud framing at 600mm maximum centres
- 2 layers of 16mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls with framed suspended floors

**Fire Resistance Level**
**60/60/60**
from the outside only
Report FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report |
| 70 | 150 approx | 35 (31) | 35 (31) | Day Design 3094-33 |

## SSW492



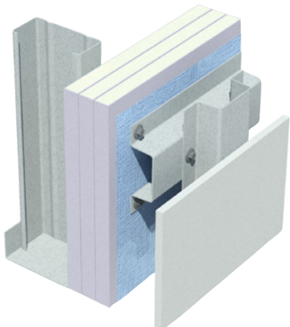
- Optional internal wall lining
- Optional wall insulation
- Minimum 70mm steel stud framing at 600mm maximum centres
- 3 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls with framed suspended floors

**Fire Resistance Level**
**90/90/90**
from the outside only
Report FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report |
| 70 | 155 approx | 37 (34) | 37 (34) | Day Design 3094-33 |

## SSW495



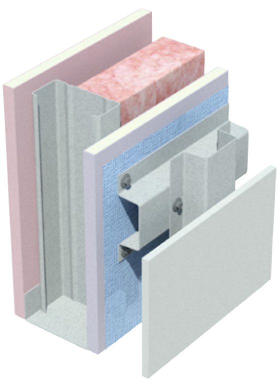
- Optional internal wall lining
- Optional wall insulation
- Minimum 70mm steel stud framing at 600mm maximum centres
- 3 layers of 16mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls with framed suspended floors

**Fire Resistance Level**
**120/120/120**
from the outside only
Report FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report |
| 70 | 165 approx | 38 (35) | 38 (35) | Day Design 3094-33 |

## SSW496

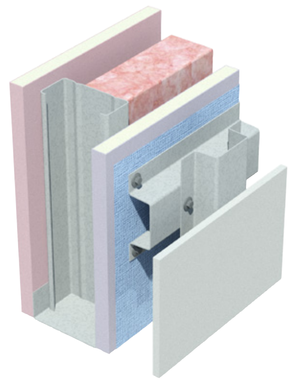


- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 1 layer of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

**Fire Resistance Level**
**-/60/60**
**30/30/30**
from either side
Report FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report |
| 70 | 145 approx | 38 (29) | 42 (32) | Insul |

## SSW476

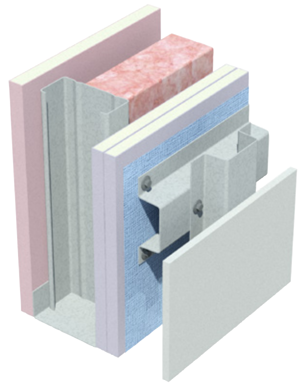


- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 1 layer of 16mm **multi**shield or 16mm **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

**Fire Resistance Level**
**60/60/60**
from either side
**-/90/90**
from either side using glasswool insulation
Report FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report |
| 70 | 150 approx | 40 (30) | 44 (35) | Insul |

## SSW477

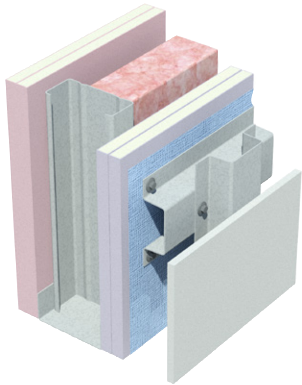


- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

**Fire Resistance Level**
**90/90/90**
from the outside
**60/60/60**
from the inside
Report FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report |
| 70 | 160 approx | 44 (34) | 48 (39) | Insul |

## SSW478

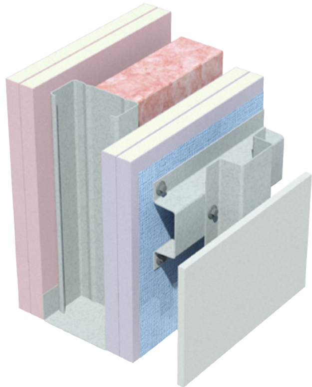


- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

**Fire Resistance Level**
**90/90/90**
**-/120/120**
from either side
Report FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report |
| 70 | 170 approx | 48 (39) | 51 (44) | Insul |

## SSW479

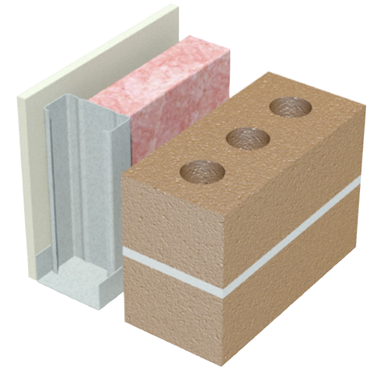


- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 2 layers of 16mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

**Fire Resistance Level**
**120/120/120**
from either side
Report FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R2.0HD | Report |
| 70 | 185 approx | 49 (42) | 51 (46) | Insul |

## SSW70



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 90mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 40mm air-gap with brick ties
- 110mm masonry with FRL 60/60/60 and minimum laid weight 176 kg/m$^2$

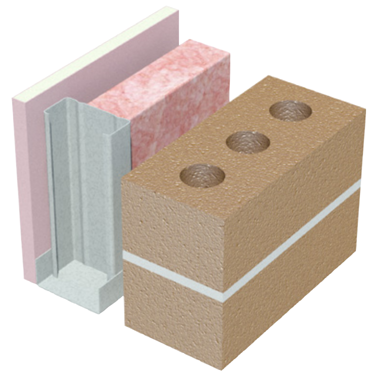
**Fire Resistance Level**

**60/60/60**
from the outside only

Report
FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Report Koikas 6228 |
| 90 | 250 approx | 53 (46) | 57 (**53**) | |

## SSW373



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 90mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 40mm air-gap with brick ties
- 110mm masonry with FRL 60/60/60 and minimum laid weight 176 kg/m$^2$

System designed to provide fire protection to stud (not masonry)

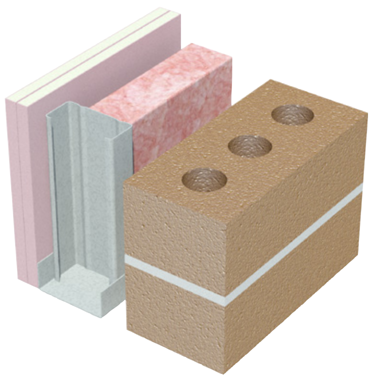
**Fire Resistance Level**

**60/60/60**
from either side

Report
FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Report Koikas 6228 |
| 90 | 256 approx | 53 (**50**) | 54 (**52**) | |

## SSW371



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 90mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 40mm air-gap with brick ties
- 110mm masonry with FRL 90/90/90 and minimum laid weight 176 kg/m$^2$

System designed to provide fire protection to stud (not masonry)

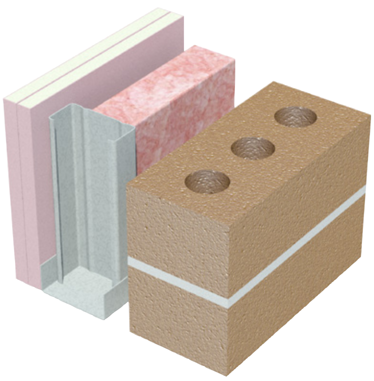
**Fire Resistance Level**

**90/90/90**
from either side

Report
FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Report Koikas 6228 |
| 90 | 266 approx | 55 (**52**) | 56 (**53**) | |

## SSW374



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 90mm steel stud framing at 600mm maximum centres
- Optional wall insulation
- 40mm air-gap with brick ties
- 110mm masonry with FRL 120/120/120 and minimum laid weight 176 kg/m$^2$

System designed to provide fire protection to stud (not masonry)

**Fire Resistance Level**

**120/120/120**
from either side

Report
FC13921

| Stud Size (mm) | Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Report Koikas 6228 |
| 90 | 272 approx | 54 (**51**) | 54 (**52**) | |

# General Requirements

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Install control joints in plasterboard walls:<br>> At 12m maximum intervals<br>> At all movement joints in the building<br>> At any change in the substrate | ✓ | ✓ |
| Jointing of **multi**shield is not required due to the overlying breathable wall wrap and cladding. | | ✓ |
| Joint the face layer on the internal side. As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, use **bindex** fire and acoustic sealant according to the Product Data Sheet. | | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. Refer to the **i** box below. | | ✓ |
| Use approved fire rated penetration details for systems that use the internal non-fire rated plasterboard wall lining to maintain the FRL. Refer to **i** box below. | | ✓ |
| Load bearing structural steel members in wall cavities have the Structural Adequacy component of the system's Fire Resistance Level. | | ✓ |
| Non-load bearing system Fire Resistance Levels (eg: -/60/60) are based on using Siniat steel framing. | | ✓ |
| Wall systems with a Structural Adequacy component to their Fire Resistance Level (eg: 60/60/60) may be built with any steel framing provided it is designed according to the relevant Australian Standards, has a minimum 51mm cavity and maximum 600mm horizontal or vertical framing centres for the fixing of linings. As an example, a wall could be comprised of steel studs and an additional layer of furring channels, with or without resilient mounts. | | ✓ |
| Protect plasterboard sheets from the weather when installed on the exterior side of external wall framing until the moisture barrier and exterior cladding are installed. **multi**shield is resistant to fire, water and mould but must be protected from high wind events and excessive rain. | ✓ | ✓ |
| Protect plasterboard from water pooling at ground level. | ✓ | ✓ |
| Use **bindex** fire and acoustic sealant on all gaps and around perimeter. | | ✓ |
| Attach all fixtures to studs or purpose installed noggings. Wall anchors must not be fixed only to the plasterboard of fire rated walls. | | ✓ |
| **fire**shield may be substituted with **multi**shield, **impact**shield, **tru**rock and **tru**rock HD of the same or greater thickness and maintain fire performance. | | ✓ |

> For acceptable modifications or variations to fire rated systems, refer to Section 2.3 Fire Resistance.
> Penetrations in external walls may not need a Fire Resistance Level. Refer to the NCC Volume One, C4D2 and C4D15, or NCC Volume Two, Part 9.2.3.
> Insulation products nominated in system tables are the minimum required to meet the acoustic rating. Insulation with higher R-value may be required to meet the desired system R-value.

# Framing

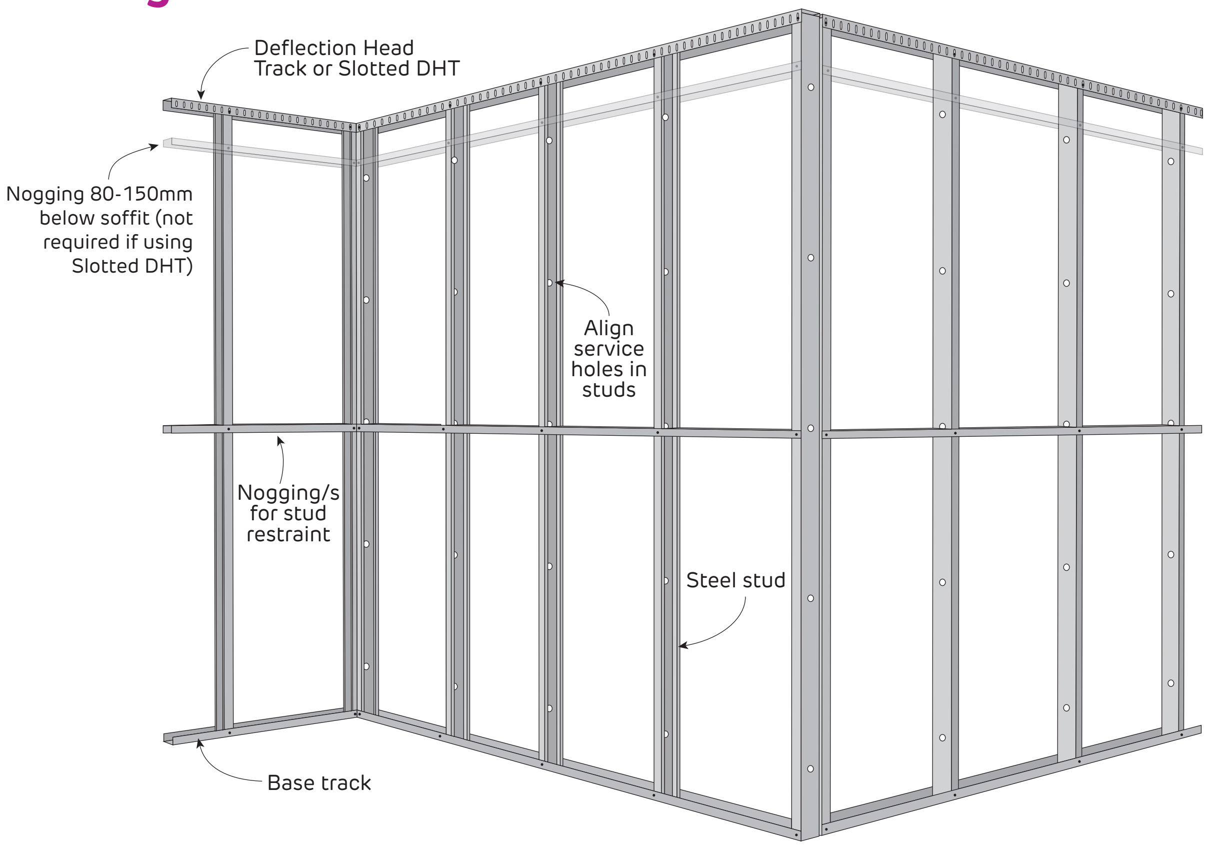



**FIGURE 1** **Typical External Steel Frame Wall Layout**

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Use minimum Class 3 drill point screws for external wall framing. | ✓ | ✓ |
| Use a Deflection Head Track if soffit movement of up to 20mm is expected. For higher requirements contact Siniat. Refer to Construction Details for clearances. | ✓ | ✓ |
| Framing members as per framing table or structural design up to 600mm maximum. Refer to the Stud Spacing Charts for appropriate framing selection. | ✓ | ✓ |
| Face studs in the same direction if possible, to allow easier fastening of wall lining. However, installation of some services may require the studs to be positioned in opposite directions. Refer to Construction Details. | ✓ | ✓ |
| Twist studs into tracks and push studs down completely into bottom track. | ✓ | ✓ |
| Structural wall designs must allow for the intended dead, live, wind and seismic loads in accordance with the AS/NZS 1170 series. | ✓ | ✓ |

**Table 1 Maximum Head and Base Track Anchor Spacing**

| Stud Spacing (mm) | Maximum Anchor Spacing (mm) |
|---|---|
| 600 | 600 |
| 450 | 600 |
| 400 | 600 |
| 300 | 450 |
| 200 | 300 |

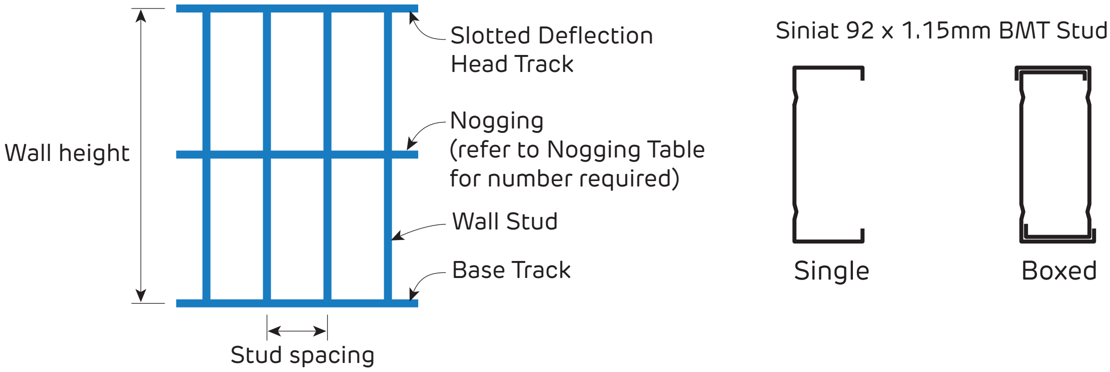
1. Additional anchors 100mm maximum from track ends.
2. 150mm studs require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

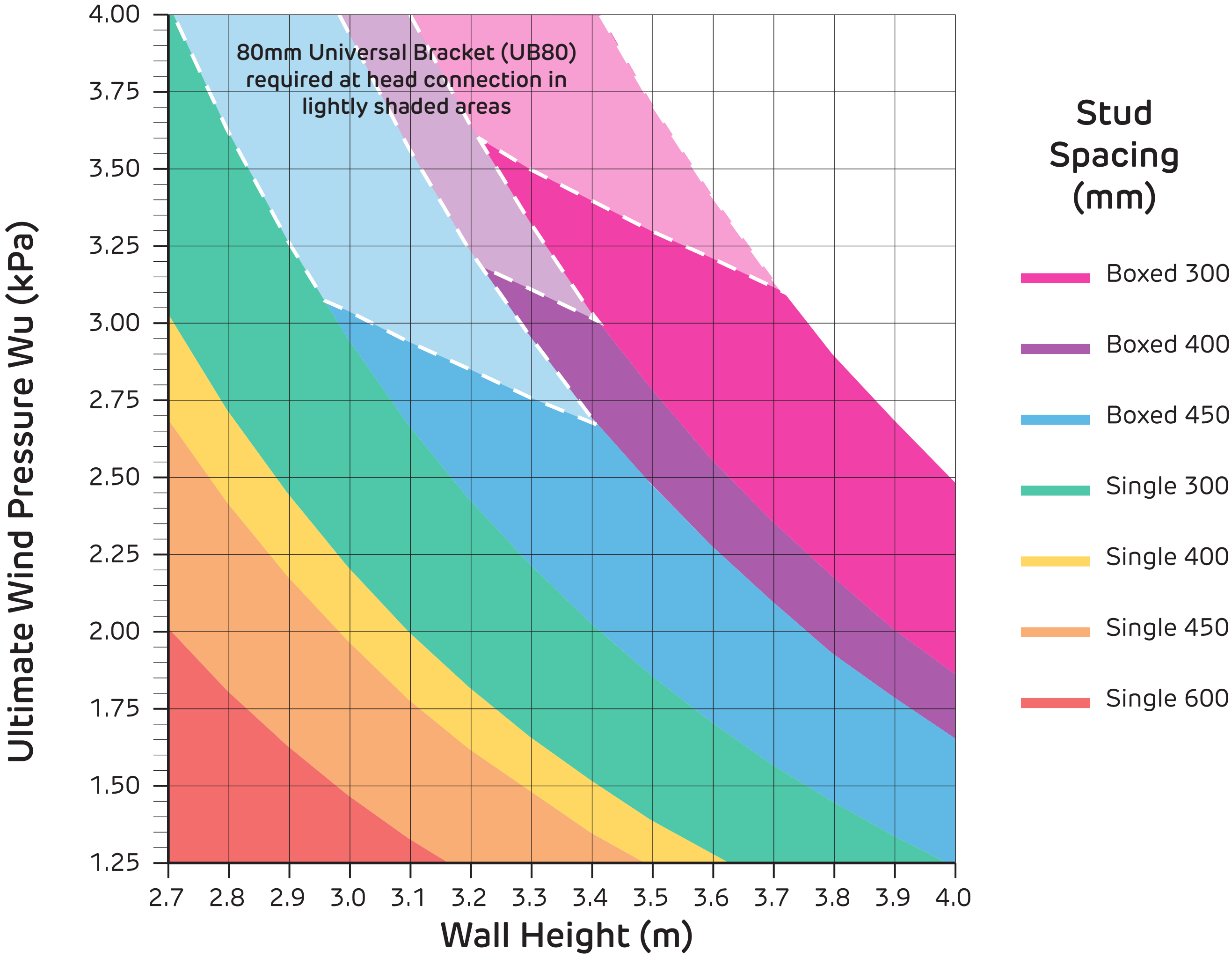
> Noggings are permitted to assist the fixing of services. Copper Chromium Arsenate (CCA) treated timber must not be used.

> Plumbing and electrical services must not protrude beyond the face of the studs.

## Non-Load Bearing External Steel Stud Wall

### Chart 1 Stud Spacing - WIND REGIONS A0-A5 - HEIGHT/240 - Expressed Jointed CFC / Metal Cladding




**NOTES**

1. Table refers to Siniat Steel Studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
3. Table not applicable to axially loaded (load bearing) studs or bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered.
4. Base connection BC2 using 1.15mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 10g screws on both sides.
5. Head connection HC2 or HC4 (UB80) using 1.15mm BMT Slotted Deflection Head Track (SDHT). Studs must be fixed through SDHT slots with 10g wafer head screws on both sides.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
7. Serviceability lateral wind pressure (Ws) taken as 67% of ultimate which is suitable for buildings up to Importance Level 3.
8. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
9. The nominated lateral wind pressures, deflection limits and earthquake criteria must be checked for suitability for a specific project.
10. Table based upon evenly distributed lateral wind pressures and the deflection limit stated. A sufficient number of cladding battens/top-hats, or brick-ties must be installed to provide an even distribution of lateral load to the stud framing.
11. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 |
| 3001 - 4000 | 2 |

1. Brick Veneer construction requires noggings at 1200mm max centres.

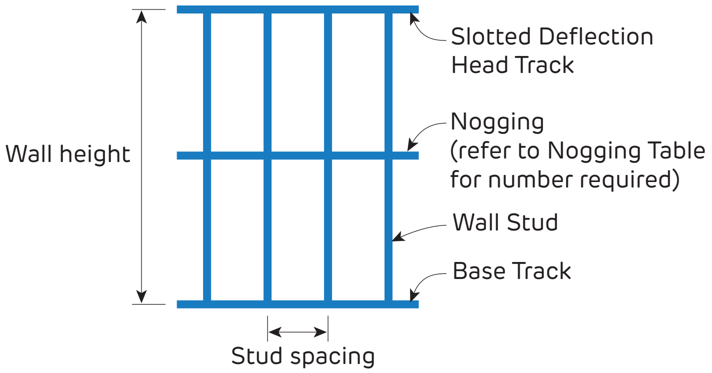
### Concrete Screw Anchor Table for Slotted DHT and Base Tracks

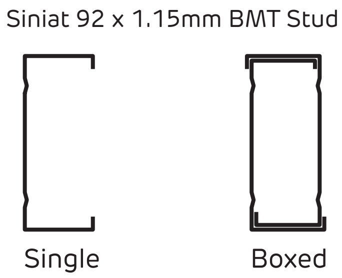
| Head Connection | Seismic Performance Category | |
|---|---|---|
| | C1 | C2 |
| Without UB80 | Siniat SA6x45 | Iccons SXTB08055 |
| With UB80 | Siniat SA8x65 | Iccons SXTB08055 |

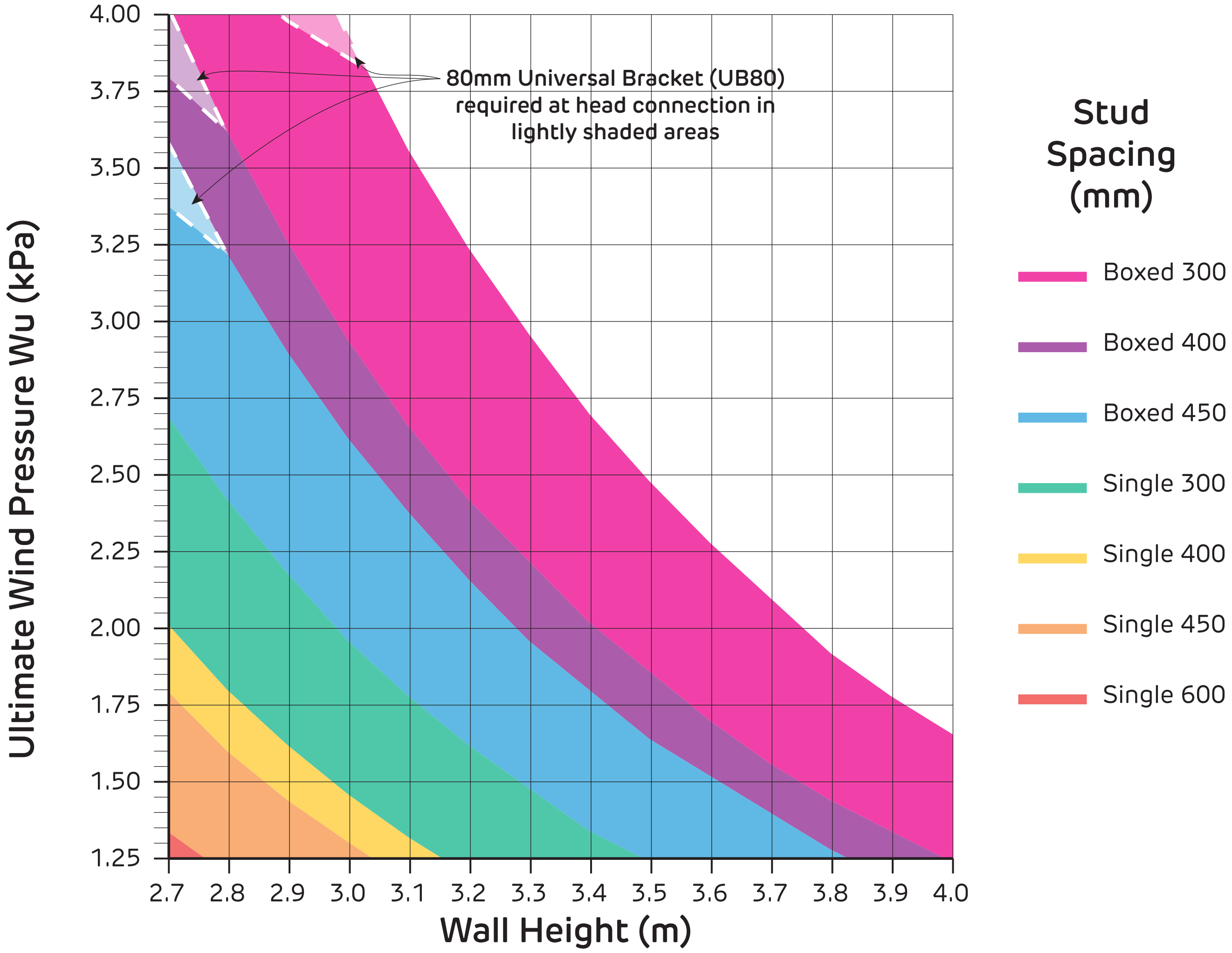
1. Concrete screw anchor spacing is the same as the stud spacing.
2. Minimum 32 MPa concrete and minimum 50mm edge distance.

## Non-Load Bearing External Steel Stud Wall

### Chart 2 Stud Spacing - WIND REGIONS A0-A5 - HEIGHT/360 - Rendered or Tiled CFC / AAC / Brick Veneer




**NOTES**

1. Table refers to Siniat Steel Studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
3. Table not applicable to axially loaded (load bearing) studs or bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered.
4. Base connection BC2 using 1.15mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 10g screws on both sides.
5. Head connection HC2 or HC4 (UB80) using 1.15mm BMT Slotted Deflection Head Track (SDHT). Studs must be fixed through SDHT slots with 10g wafer head screws on both sides.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
7. Serviceability lateral wind pressure (Ws) taken as 67% of ultimate which is suitable for buildings up to Importance Level 3.
8. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
9. The nominated lateral wind pressures, deflection limits and earthquake criteria must be checked for suitability for a specific project.
10. Table based upon evenly distributed lateral wind pressures and the deflection limit stated. A sufficient number of cladding battens/top-hats, or brick-ties must be installed to provide an even distribution of lateral load to the stud framing.
11. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 |
| 3001 - 4000 | 2 |

1. Brick Veneer construction requires noggings at 1200mm max centres.

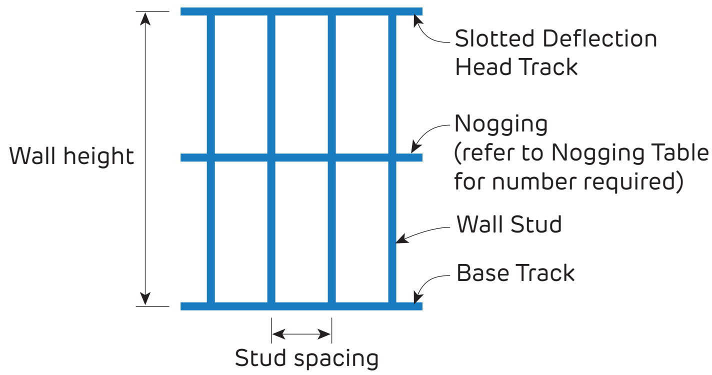
### Concrete Screw Anchor Table for Slotted DHT and Base Tracks

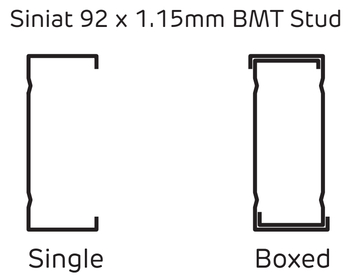
| Head Connection | Seismic Performance Category | |
|---|---|---|
| | C1 | C2 |
| Without UB80 | Siniat SA6x45 | Iccons SXTB08055 |
| With UB80 | Siniat SA8x65 | Iccons SXTB08055 |

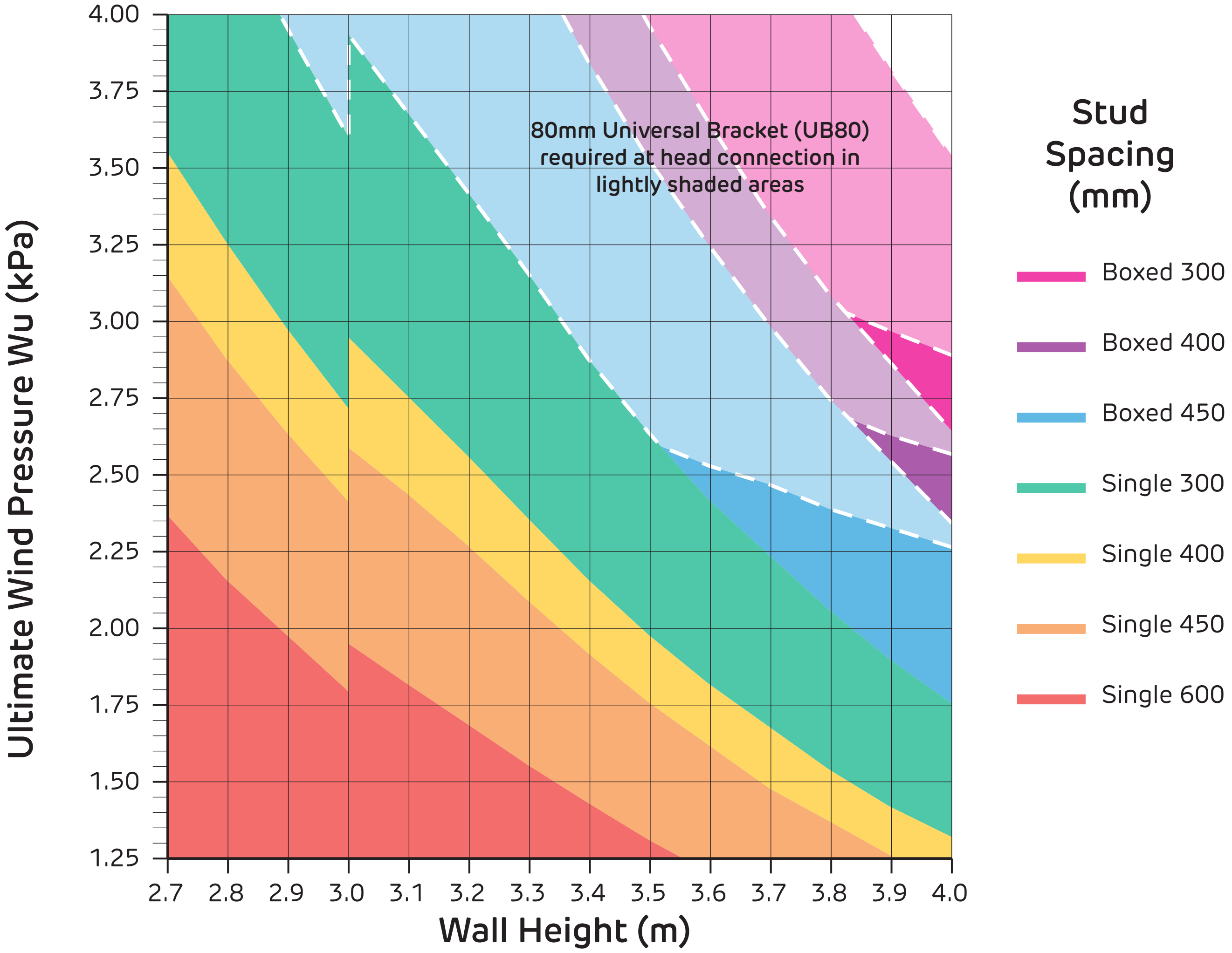
1. Concrete screw anchor spacing is the same as the stud spacing.
2. Minimum 32 MPa concrete and minimum 50mm edge distance.

## Non-Load Bearing External Steel Stud Wall

### Chart 3 Stud Spacing - WIND REGIONS B1-B2 - HEIGHT/240 - Expressed Jointed CFC / Metal Cladding




**NOTES**

1. Table refers to Siniat Steel Studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
3. Table not applicable to axially loaded (load bearing) studs or bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered.
4. Base connection BC2 using 1.15mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 10g screws on both sides.
5. Head connection HC2 or HC4 (UB80) using 1.15mm BMT Slotted Deflection Head Track (SDHT). Studs must be fixed through SDHT slots with 10g wafer head screws on both sides.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
7. Serviceability lateral wind pressure (Ws) taken as 47% of ultimate which is suitable for buildings up to Importance Level 3.
8. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
9. The nominated lateral wind pressures, deflection limits and earthquake criteria must be checked for suitability for a specific project.
10. Table based upon evenly distributed lateral wind pressures and the deflection limit stated. A sufficient number of cladding battens/top-hats, or brick-ties must be installed to provide an even distribution of lateral load to the stud framing.
11. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 |
| 3001 - 4000 | 2 |

1. Brick Veneer construction requires noggings at 1200mm max centres.

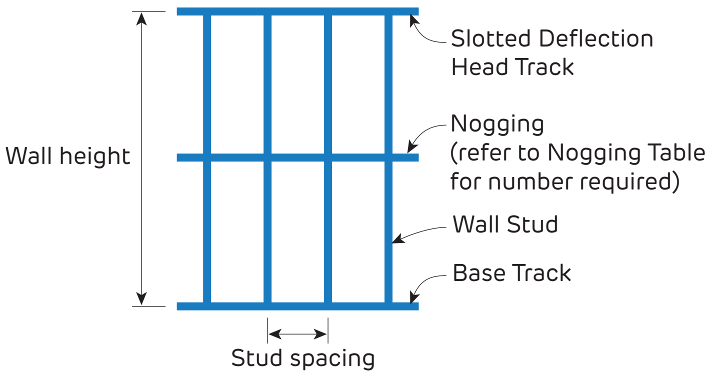
### Concrete Screw Anchor Table for Slotted DHT and Base Tracks

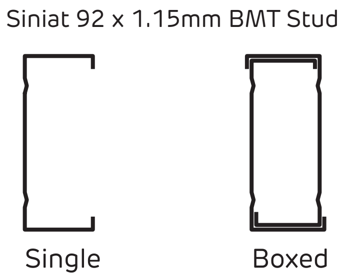
| Head Connection | Seismic Performance Category | |
|---|---|---|
| | C1 | C2 |
| Without UB80 | Siniat SA6x45 | Iccons SXTB08055 |
| With UB80 | Siniat SA8x65 | Iccons SXTB08055 |

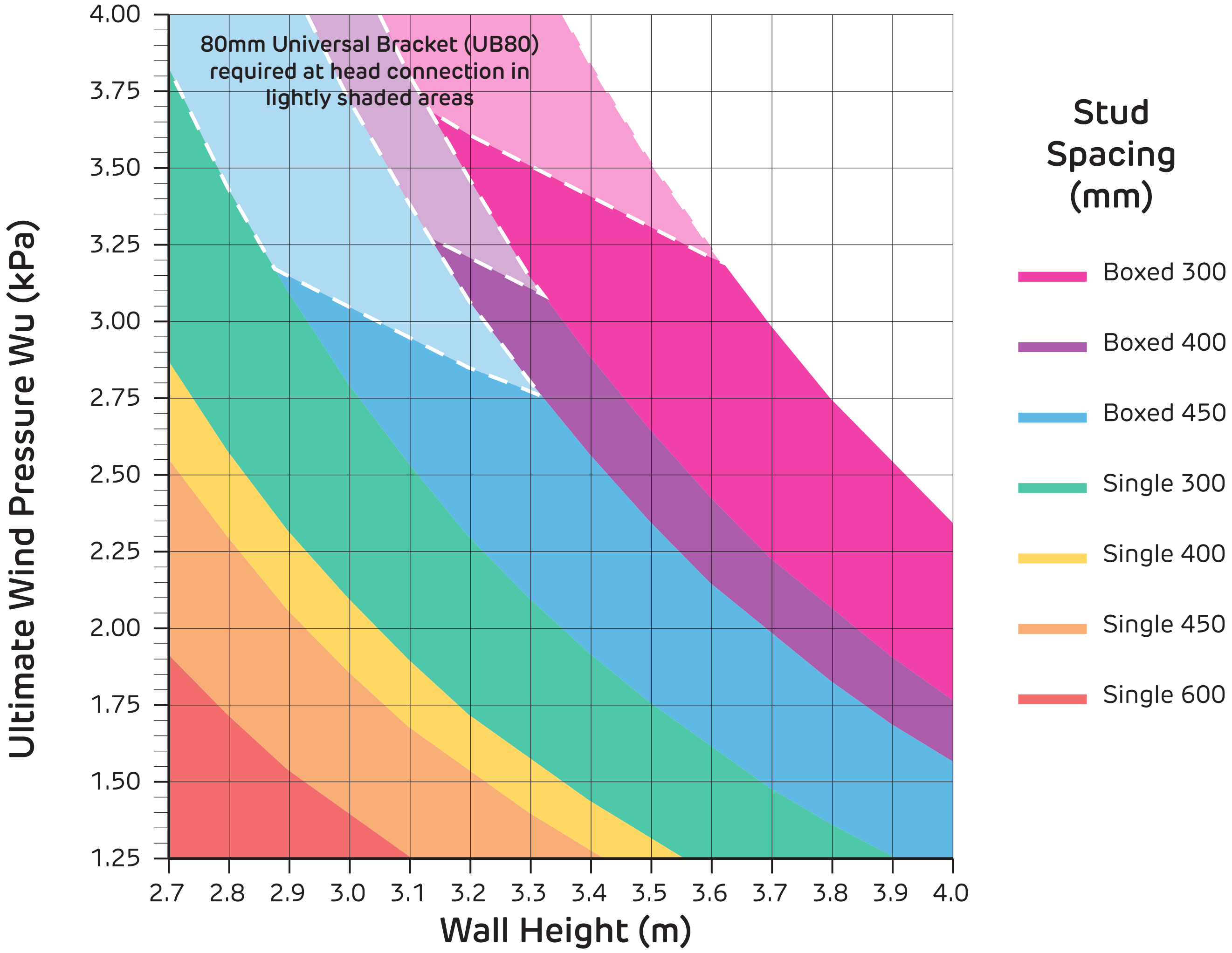
1. Concrete screw anchor spacing is the same as the stud spacing.
2. Minimum 32 MPa concrete and minimum 50mm edge distance.

## Non-Load Bearing External Steel Stud Wall

**Chart 4 Stud Spacing - WIND REGIONS B1-B2 - HEIGHT/360 - Rendered or Tiled CFC / AAC / Brick Veneer**




**NOTES**

1. Table refers to Siniat Steel Studs of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
3. Table not applicable to axially loaded (load bearing) studs or bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered.
4. Base connection BC2 using 1.15mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 10g screws on both sides.
5. Head connection HC2 or HC4 (UB80) using 1.15mm BMT Slotted Deflection Head Track (SDHT). Studs must be fixed through SDHT slots with 10g wafer head screws on both sides.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
7. Serviceability lateral wind pressure (Ws) taken as 47% of ultimate which is suitable for buildings up to Importance Level 3.
8. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
9. The nominated lateral wind pressures, deflection limits and earthquake criteria must be checked for suitability for a specific project.
10. Table based upon evenly distributed lateral wind pressures and the deflection limit stated. A sufficient number of cladding battens/top-hats, or brick-ties must be installed to provide an even distribution of lateral load to the stud framing.
11. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 |
| 3001 - 4000 | 2 |

1. Brick Veneer construction requires noggings at 1200mm max centres.

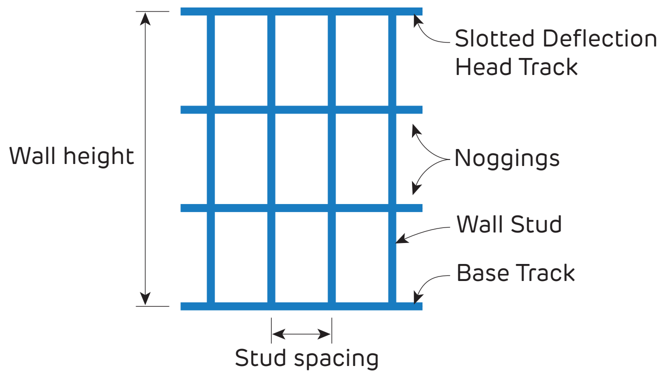
### Concrete Screw Anchor Table for Slotted DHT and Base Tracks

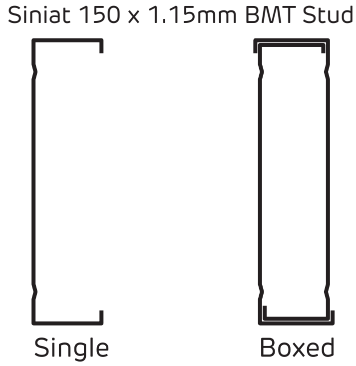
| Head Connection | Seismic Performance Category | |
|---|---|---|
| | C1 | C2 |
| Without UB80 | Siniat SA6x45 | Iccons SXTB08055 |
| With UB80 | Siniat SA8x65 | Iccons SXTB08055 |

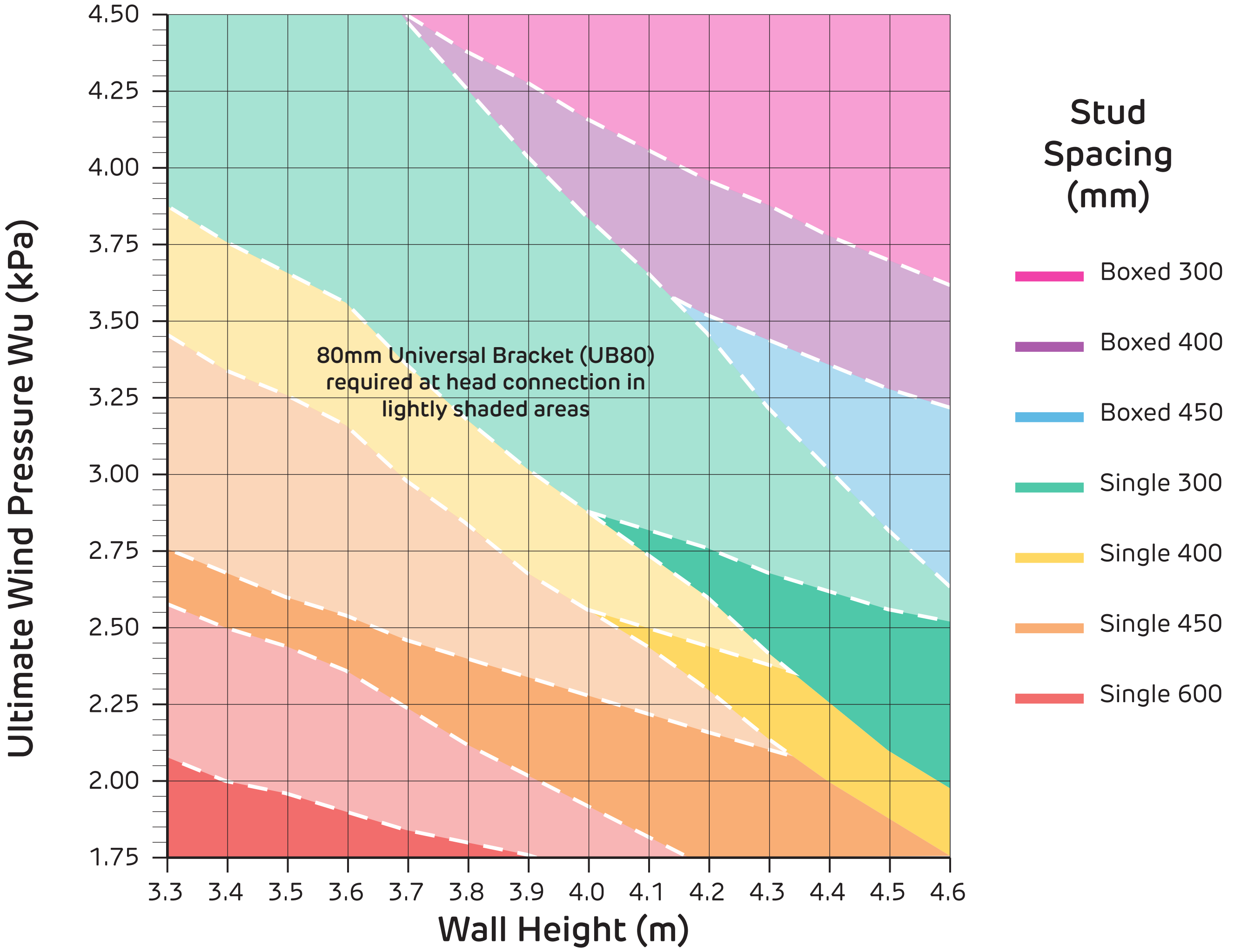
1. Concrete screw anchor spacing is the same as the stud spacing.
2. Minimum 32 MPa concrete and minimum 50mm edge distance.

## Non-Load Bearing External Steel Stud Wall

### Chart 5 Stud Spacing - WIND REGIONS A0-A5 - HEIGHT/240 - Expressed Jointed CFC / Metal Cladding




**NOTES**

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3. Table not applicable to axially loaded (load bearing) studs or bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered.
4. Base connection BC2 using 1.15mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 10g screws on both sides.
5. Head connection HC2 or HC4 (UB80) using 1.15mm BMT Slotted Deflection Head Track (SDHT). Studs must be fixed through SDHT slots with 10g wafer head screws on both sides.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*. Seek professional engineering advice to determine wind pressures for a specific project.
7. Serviceability lateral wind pressure (Ws) taken as 67% of ultimate which is suitable for buildings up to Importance Level 3.
8. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
9. The nominated lateral wind pressures, deflection limits and earthquake criteria must be checked for suitability for a specific project.
10. Table based upon evenly distributed lateral wind pressures and the deflection limit stated. A sufficient number of cladding battens/top-hats, or brick-ties must be installed to provide an even distribution of lateral load to the stud framing.
11. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 |
| 3001 - 4000 | 2 |

1. Brick Veneer construction requires noggings at 1200mm max centres.

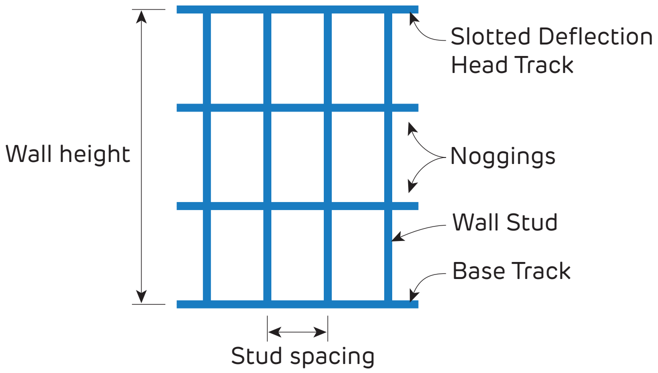
### Concrete Screw Anchor Table for Slotted DHT and Base Tracks

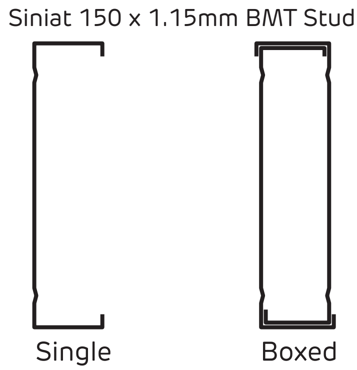
| Head Connection | Seismic Performance Category | |
|---|---|---|
| | C1 | C2 |
| Without UB80 | 2 x Siniat SA6x45 | 2 x Iccons SXTB08055 |
| With UB80 | Siniat SA8x65 | Iccons SXTB08070 |

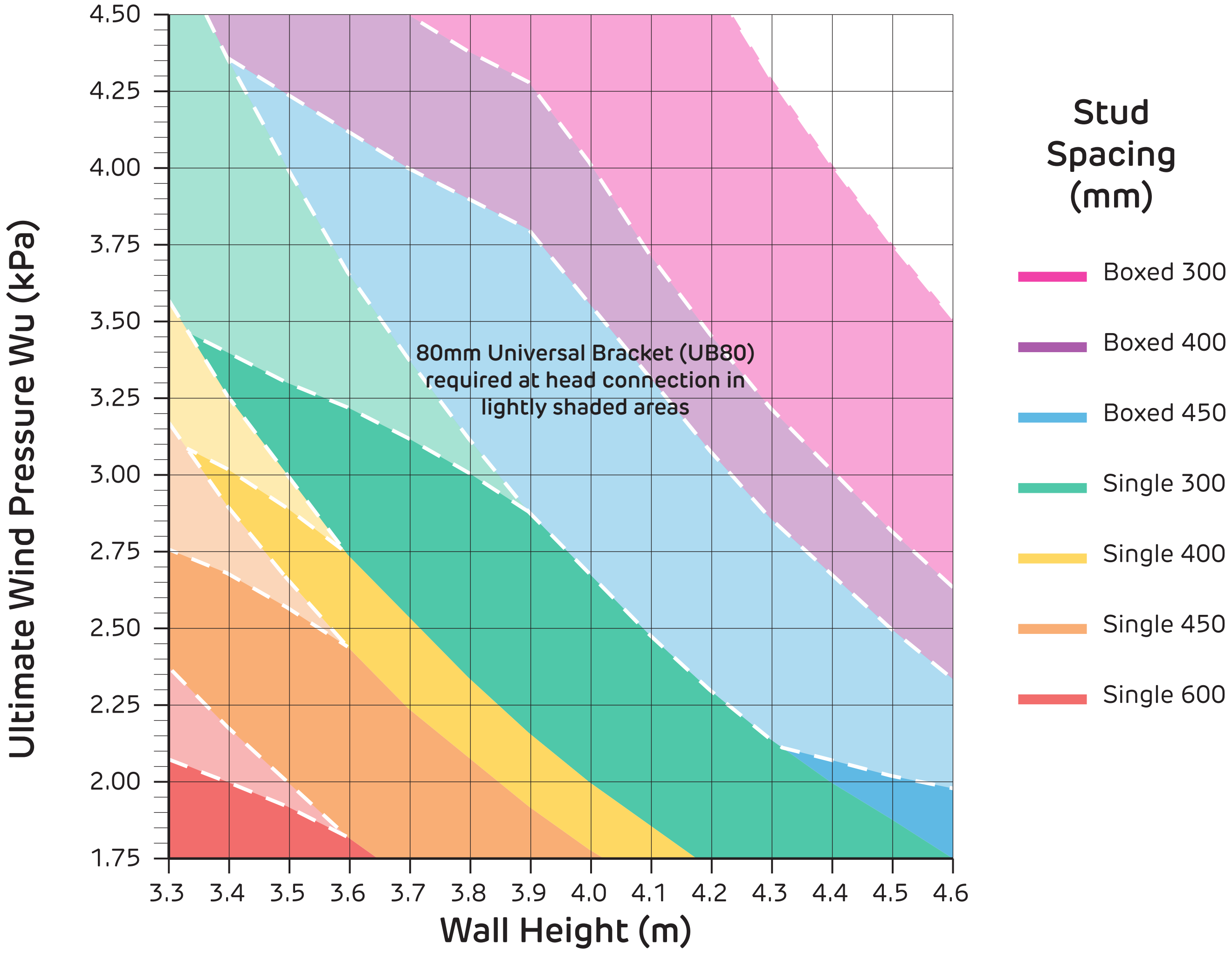
1. Concrete screw anchor spacing is the same as the stud spacing.
2. Minimum 32 MPa concrete and minimum 50mm edge distance.

## Non-Load Bearing External Steel Stud Wall

### Chart 6 Stud Spacing - WIND REGIONS A0-A5 - HEIGHT/360 - Rendered or Tiled CFC / AAC / Brick Veneer

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6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
7. Serviceability lateral wind pressure (Ws) taken as 67% of ultimate which is suitable for buildings up to Importance Level 3.
8. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
9. The nominated lateral wind pressures, deflection limits and earthquake criteria must be checked for suitability for a specific project.
10. Table based upon evenly distributed lateral wind pressures and the deflection limit stated. A sufficient number of cladding battens/top-hats, or brick-ties must be installed to provide an even distribution of lateral load to the stud framing.
11. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 |
| 3001 - 4000 | 2 |

1. Brick Veneer construction requires noggings at 1200mm max centres.

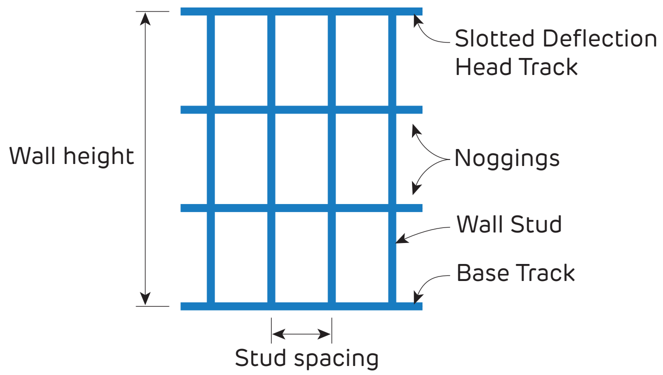
### Concrete Screw Anchor Table for Slotted DHT and Base Tracks

| Head Connection | Seismic Performance Category | |
|---|---|---|
| | C1 | C2 |
| Without UB80 | 2 x Siniat SA6x45 | 2 x Iccons SXTB08055 |
| With UB80 | Siniat SA8x65 | Iccons SXTB08070 |

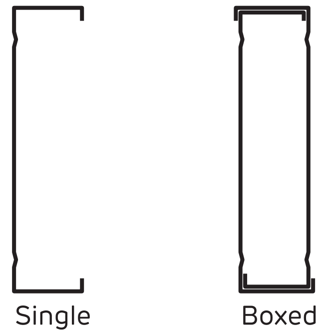
1. Concrete screw anchor spacing is the same as the stud spacing.
2. Minimum 32 MPa concrete and minimum 50mm edge distance.

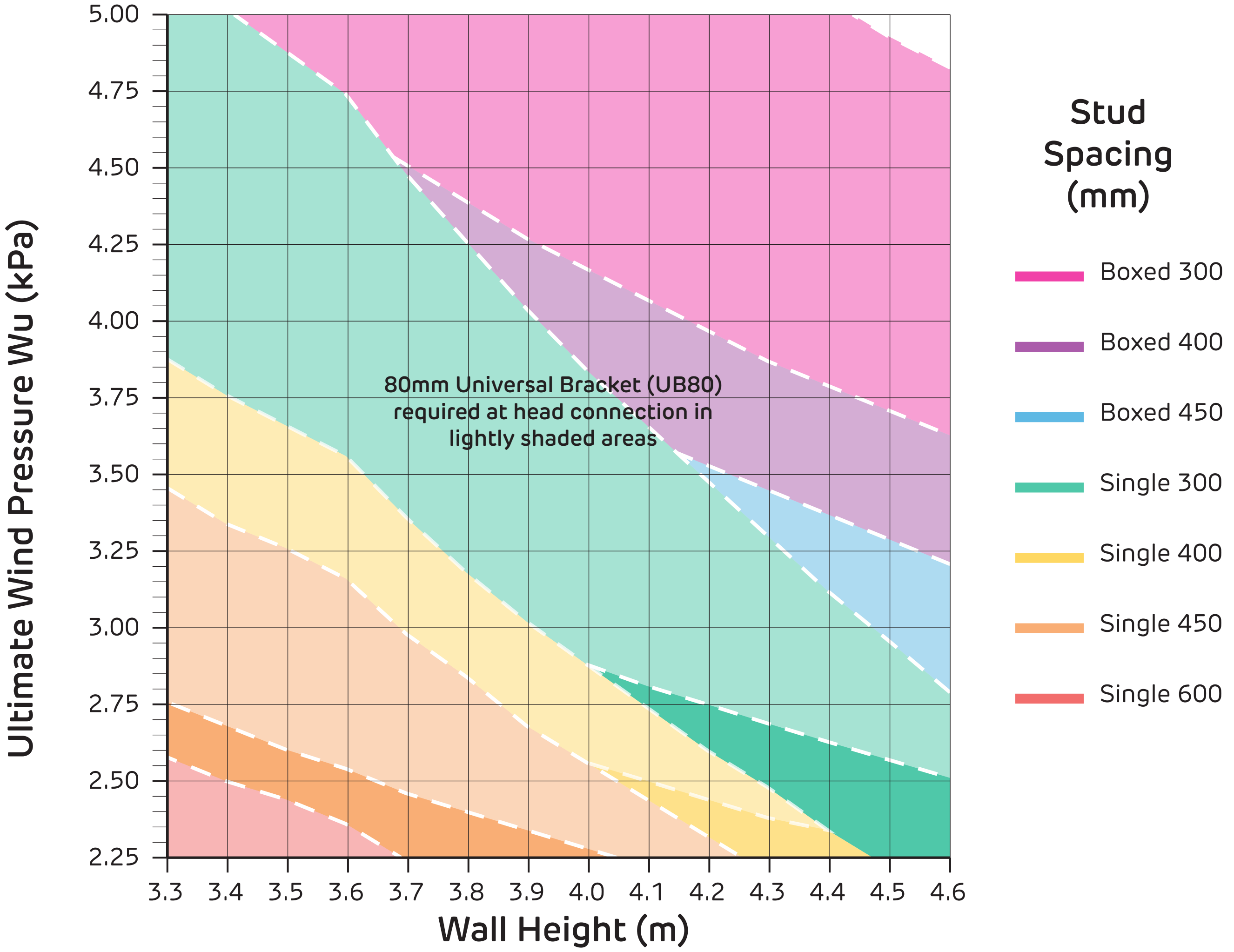
## Non-Load Bearing External Steel Stud Wall

### Chart 7 Stud Spacing - WIND REGIONS B1-B2 - HEIGHT/240 - Expressed Jointed CFC / Metal Cladding




Siniat 150 x 1.15mm BMT Stud

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4. Base connection BC2 using 1.15mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 10g screws on both sides.
5. Head connection HC2 or HC4 (UB80) using 1.15mm BMT Slotted Deflection Head Track (SDHT). Studs must be fixed through SDHT slots with 10g wafer head screws on both sides.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*. Seek professional engineering advice to determine wind pressures for a specific project.
7. Serviceability lateral wind pressure (Ws) taken as 47% of ultimate which is suitable for buildings up to Importance Level 3.
8. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
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10. Table based upon evenly distributed lateral wind pressures and the deflection limit stated. A sufficient number of cladding battens/top-hats, or brick-ties must be installed to provide an even distribution of lateral load to the stud framing.
11. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 |
| 3001 - 4000 | 2 |

1. Brick Veneer construction requires noggings at 1200mm max centres.

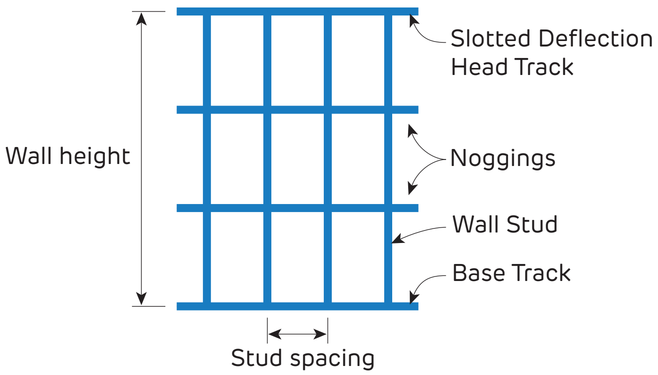
### Concrete Screw Anchor Table for Slotted DHT and Base Tracks

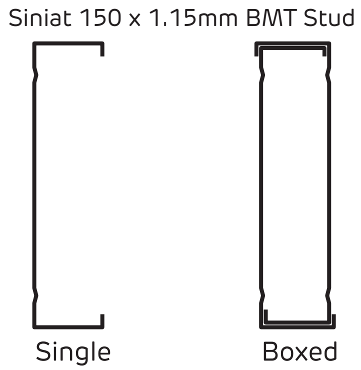
| Head Connection | Seismic Performance Category | |
|---|---|---|
| | C1 | C2 |
| Without UB80 | 2 x Siniat SA6x45 | 2 x Iccons SXTB08055 |
| With UB80 | Siniat SA8x65 | Iccons SXTB08070 |

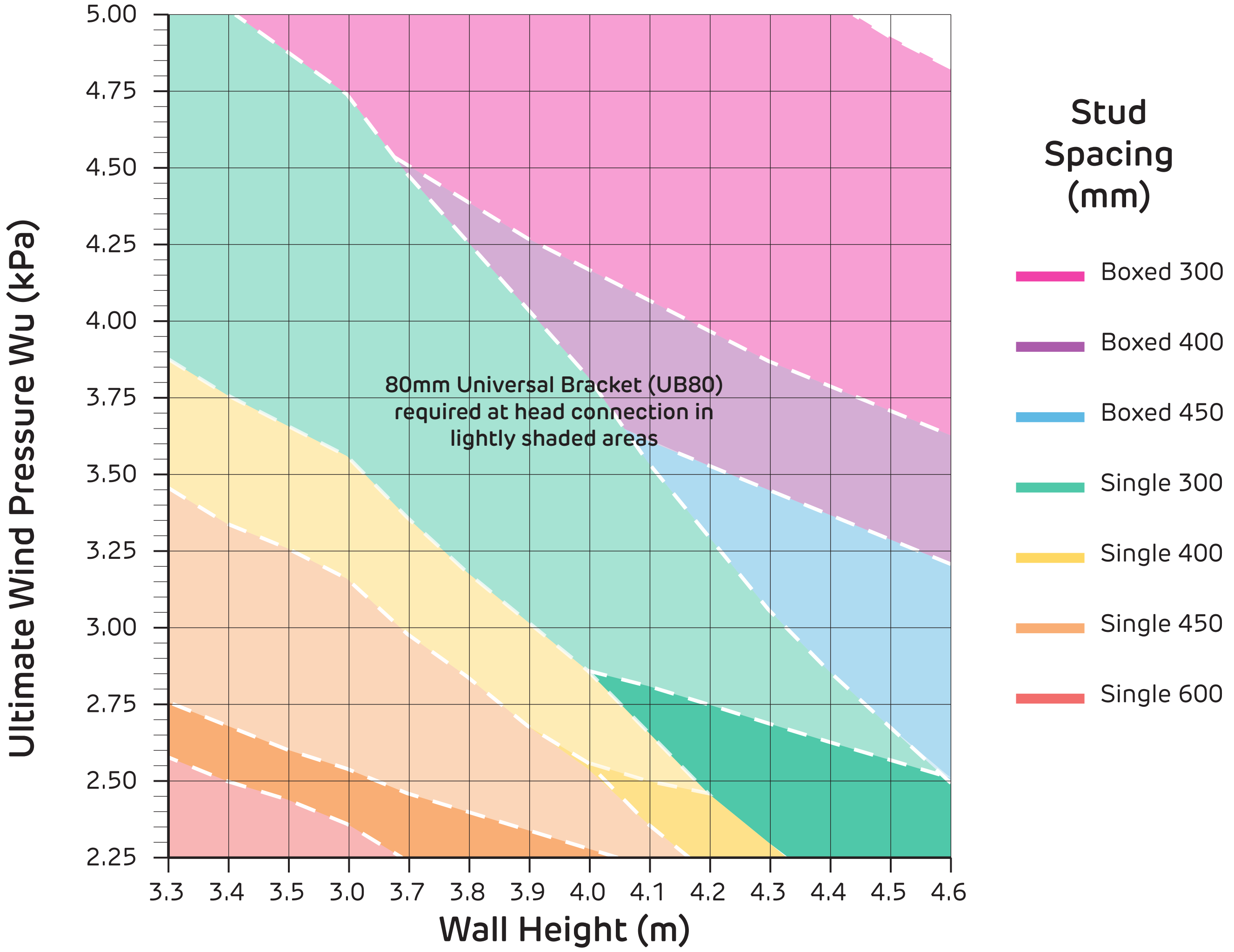
1. Concrete screw anchor spacing is the same as the stud spacing.
2. Minimum 32 MPa concrete and minimum 50mm edge distance.

## Non-Load Bearing External Steel Stud Wall

### Chart 8 Stud Spacing - WIND REGIONS B1-B2 - HEIGHT/360 - Rendered or Tiled CFC / AAC / Brick Veneer

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3. Table not applicable to axially loaded (load bearing) studs or bracing shear walls. Point loads and other loads such as shelf loads or live loads are not considered.
4. Base connection BC2 using 1.15mm BMT track (Base Metal Thickness). Stud must be fixed to base track with 10g screws on both sides.
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6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
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10. Table based upon evenly distributed lateral wind pressures and the deflection limit stated. A sufficient number of cladding battens/top-hats, or brick-ties must be installed to provide an even distribution of lateral load to the stud framing.
11. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.

### Nogging Table

| Wall Height (mm) | No. of Noggings evenly spaced |
|---|---|
| 0 - 3000 | 1 |
| 3001 - 4000 | 2 |

1. Brick Veneer construction requires noggings at 1200mm max centres.

### Concrete Screw Anchor Table for Slotted DHT and Base Tracks

| Head Connection | Seismic Performance Category | |
|---|---|---|
| | C1 | C2 |
| Without UB80 | 2 x Siniat SA6x45 | 2 x Iccons SXTB08055 |
| With UB80 | Siniat SA8x65 | Iccons SXTB08070 |

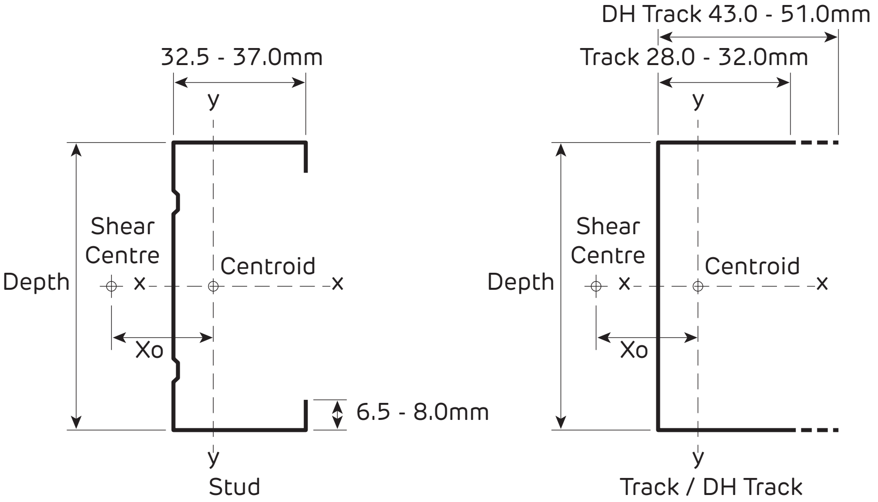
1. Concrete screw anchor spacing is the same as the stud spacing.
2. Minimum 32 MPa concrete and minimum 50mm edge distance.

# Steel Profile Information

## Material

| Manufacturer | Grade | Ultimate | Yield | Coating |
|---|---|---|---|---|
| Siniat | G300 | 340 MPa | 300 MPa | AM150 |

1. Steel grade and coating in accordance with AS 1397 *Continuous hot-dip metallic coated steel sheet and strip.*




## Section Properties

| Profile | Dimensions (mm) | | Shear Centre from Centroid (mm) | Area ($mm^2$) | Moment of Inertia ($mm^4$) | | Section Modulus ($mm^3$) | | Torsion Constant J ($mm^4$) | Warping Constant Iw ($mm^6$) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Depth | BMT | Xo | | Ixx | Iyy | Zxx | Zyy | | |
| Stud | 92 | 1.15 | -24.7 | 194.7 | 251,300 | 30,770 | 5,548 | 1,199 | 85.8 | 48,940,000 |
| | 150 | 1.15 | -20.0 | 262.1 | 808,500 | 35,850 | 10,880 | 1,296 | 115.6 | 150,300,000 |
| Track | 92 | 1.15 | -15.6 | 172.6 | 220,300 | 13,780 | 4,714 | 583 | 76.1 | 21,050,000 |
| | 150 | 1.15 | -12.9 | 241.5 | 718,500 | 16,890 | 9,491 | 649 | 106.5 | 71,610,000 |
| DH Track | 92 | 1.15 | -30.7 | 215.3 | 314,200 | 51,950 | 6,714 | 1,457 | 94.9 | 78,040,000 |
| | 150 | 1.15 | -25.4 | 280.8 | 937,400 | 59,520 | 12,450 | 1,546 | 123.8 | 238,600,000 |

# Plasterboard Layout

| | Non-fire Rated | Fire Rated |
|---|---|---|
| For single layer systems, vertical joints must be 200mm minimum from the edge of any opening such as windows and doorways to minimise cracking at the joints. | ✓ | ✓ |
| **Horizontal Layout** | | |
| Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets and on opposite sides of the wall. | ✓ | ✓ |
| Stagger butt joints in multilayer systems by 300mm minimum on adjoining sheets and between layers. | ✓ | ✓ |
| First layer butt joints must be backed by a stud or back-blocked. Refer to installation diagrams. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |
| Stagger recessed edges in single layer systems by 300mm minimum on opposite sides of the wall or alternatively, back by a nogging. | | ✓ |
| **Vertical Layout** | | |
| Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets and on opposite sides of the wall. | ✓ | ✓ |
| Stagger butt joints by 300mm minimum on adjoining sheets and between layers. | ✓ | ✓ |
| First layer butt joints must be backed by a nogging or back-blocked. | ✓ | |
| First layer butt joints must be backed by a nogging. | | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum on opposite sides of the wall for single layer systems | ✓ | ✓ |

- Install plasterboard sheets horizontally when practical to minimise stud twisting and reduce the effect of glancing light.
- Minimise butt joints by using long sheets.

# Plasterboard Fixing

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ | ✓ |
| Laminating screws can be used to fix butt joints in the second and third layer. | ✓ | ✓ |
| **Screw and Adhesive Method** | | |
| Apply **mastagrip** Stud Adhesive after the frame is clean, dry, and free from grease, dust and other contaminants. | ✓ | |
| Apply **mastagrip** daubs 200mm minimum from screws and plasterboard edges. | ✓ | |
| **Screw Only Method** | | |
| Use the 'Screw Only Method' in tiled or fire rated areas. | ✓ | ✓ |

The 'Screw and Adhesive Method' is recommended for non-fire rated applications.
**mastagrip** will:

- Minimise screw popping
- Reduce the number of screw heads that may show in glancing light
- Assist in compensating for frame irregularities.

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 10mm | 6g x 25mm screw | 6g x 41mm screw * | - |
| 13mm | 6g x 25mm screw | 6g x 41mm screw * | 7g x 57mm screw * |
| 16mm | 6g x 32mm screw | 6g x 45mm screw * | 8g x 65mm screw * |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.
*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

**FIGURE 2** **Fire Rated 1 Layer - Horizontal**
Screw Only Method

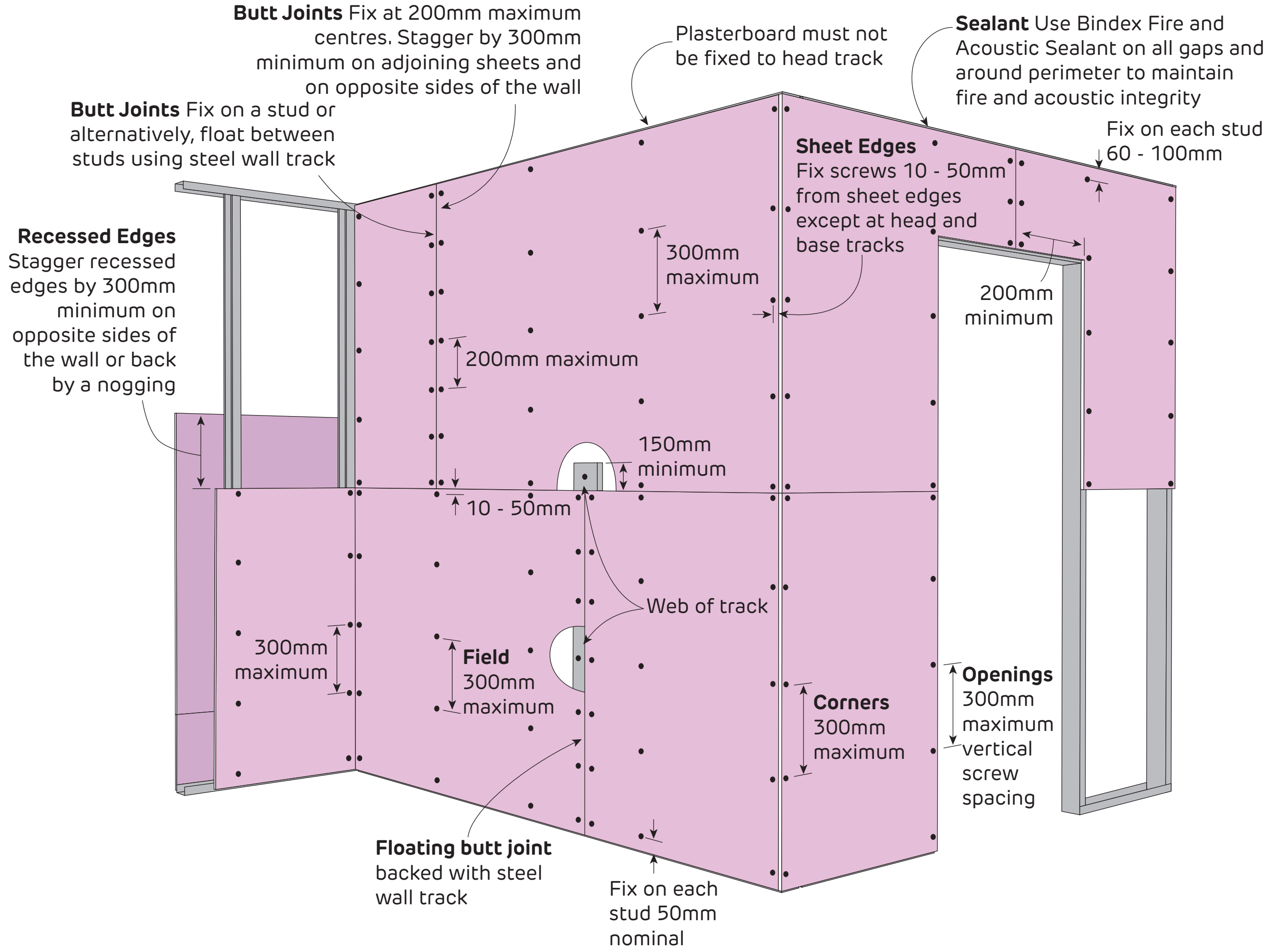


**FIGURE 3** **Fire Rated 2 Layers - Horizontal + Horizontal**
Screw Only Method

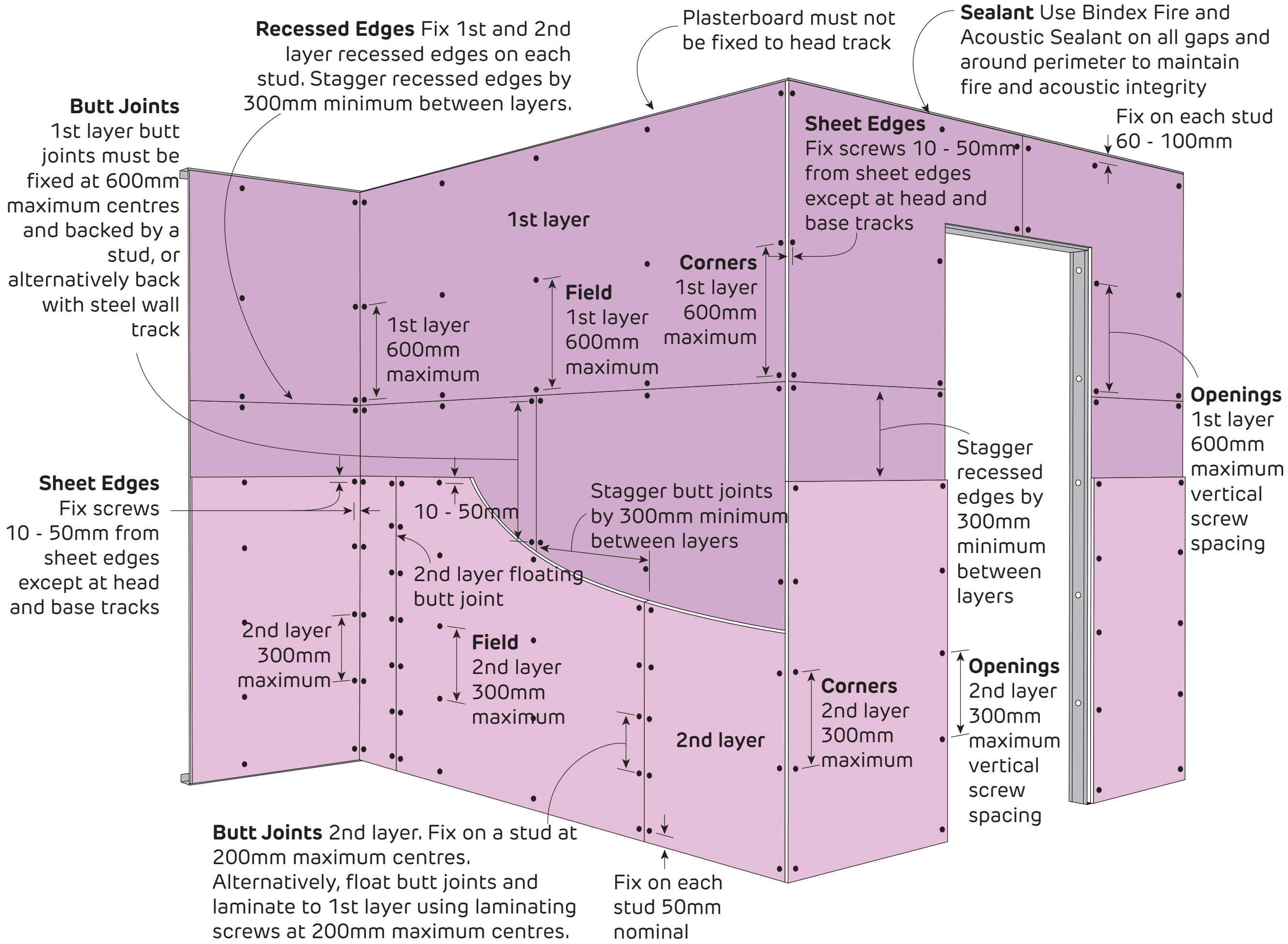
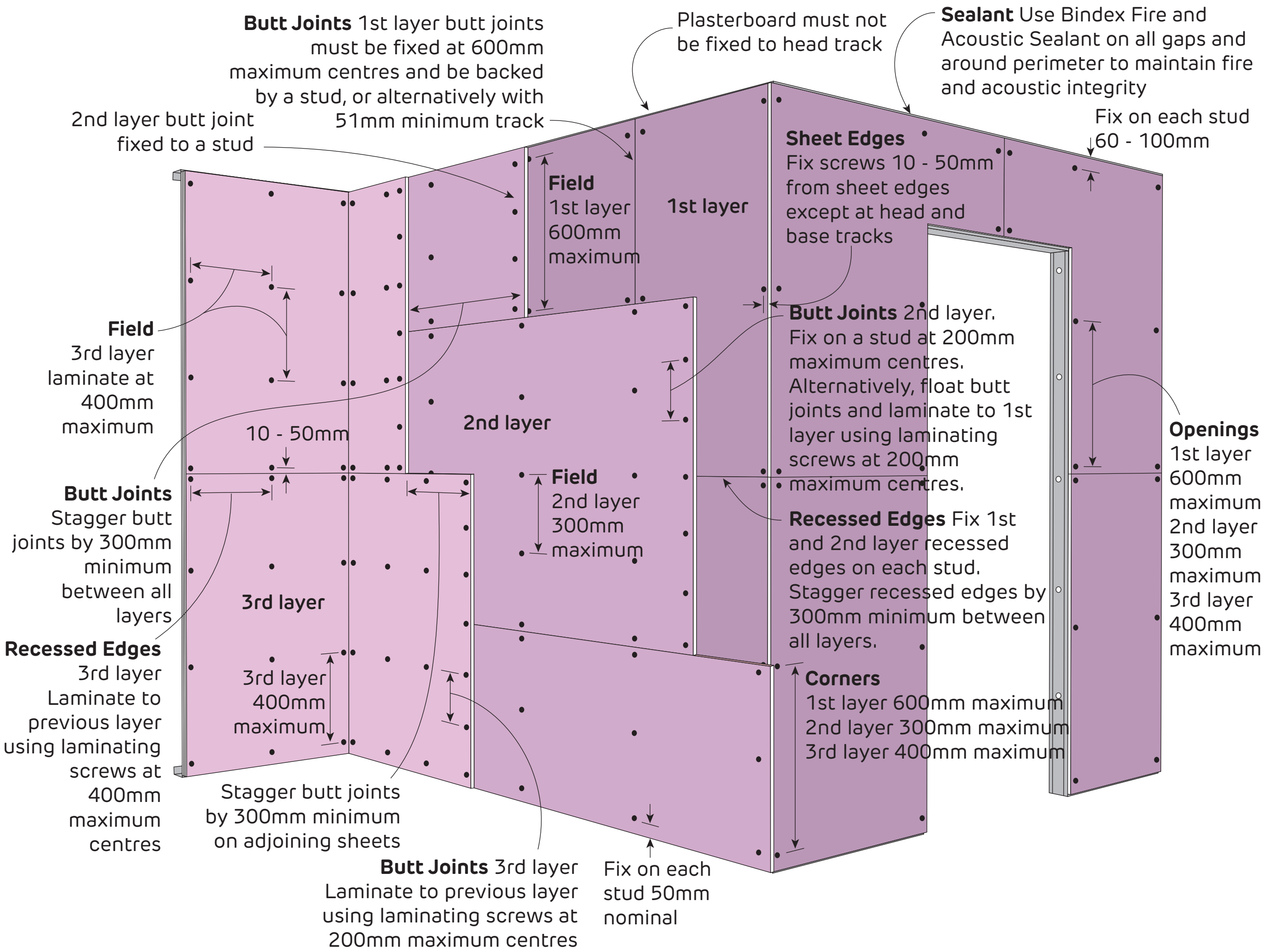


**FIGURE 4** Fire Rated 3 Layers - Horizontal + Horizontal + Horizontal
Screw Only Method



# Exterior Cladding

| | Fire Rated |
|---|---|
| The following cladding sheets or planks are not considered detrimental to the FRL of the wall:<br>> Innova fibre cement<br>> Equitone fibre cement<br>> Glass-fibre reinforced cement aggregate board<br>> Wood or timber<br>> Steel<br>> Aluminium<br>> PVC<br>> Rendered polystyrene<br>> Cladding fixed and supported independently of the wall.<br>For class 2 to 9 buildings, also refer to NCC Volume One Section C, CP2 Spread of fire requirements. | ✓ |
| Fix cladding or cladding top hats to the steel frame through the **multi**shield. | ✓ |

- Protect plasterboard sheets from the weather when installed on the exterior side of external wall framing until the moisture barrier and exterior cladding are installed.
- Exterior cladding and the moisture barrier once installed, must provide protection from the weather.
- Use construction techniques that direct condensation and rain away from plasterboard.
- Siniat recommends a drained cavity between the external cladding and the **multi**shield for weathertightness and durability.
- Top hats between external cladding and external plasterboard do not change the FRL of the system.
- Horizontal and vertical top hats are shown in system images as an common option to provide a drained and vented cavity as well as meet the NCC thermal break requirements. Alternatively, use a thermal break strip with insulated value R0.2 between the steel stud framing and external cladding, or top hats on top hat cleats, or other suitable framing.

## Non-Fire Rated

## Head and Base Details for External Steel Stud Walls

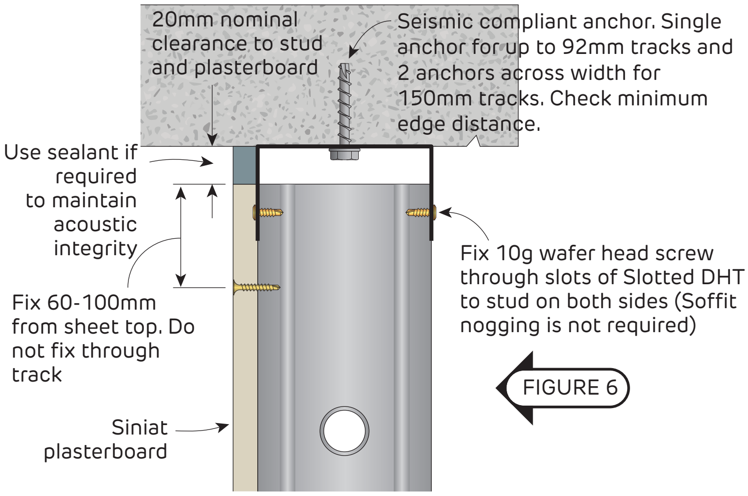



**FIGURE 5 Head Connection HC2**
Slotted Deflection Head Track
Section

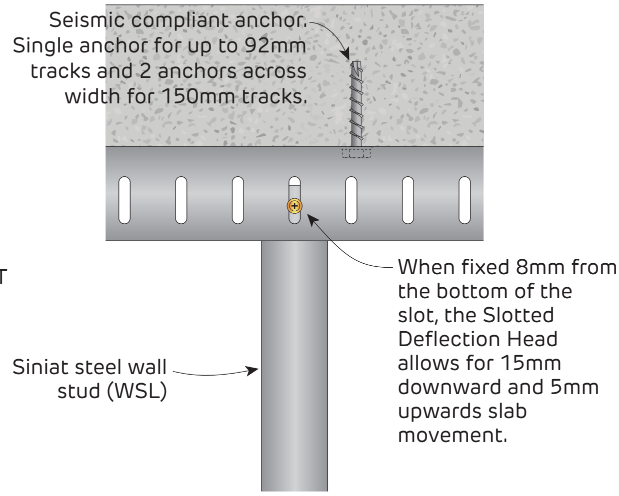



**FIGURE 6 Slotted Deflection Head Connection**
Elevation

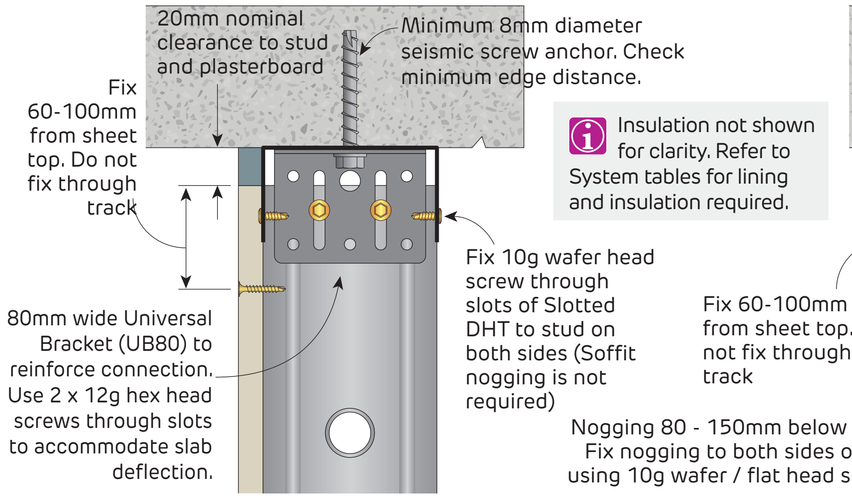



**FIGURE 7 Head Connection HC4**
Slotted Deflection Head Track with Universal Bracket UB80
Section

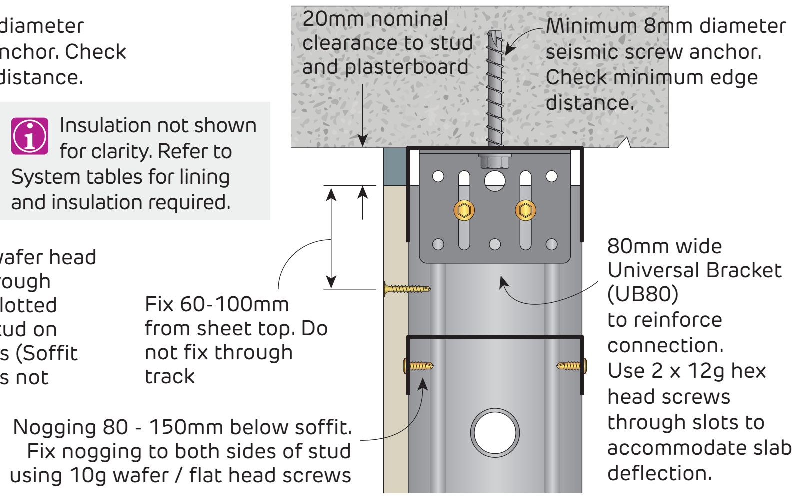



**FIGURE 8 Head Connection HC3**
With Universal Bracket UB80
Section

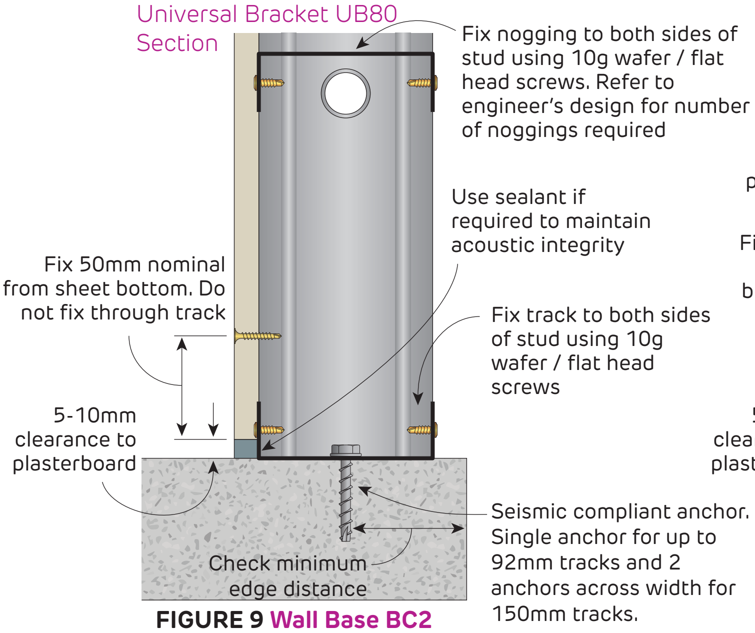



**FIGURE 9 Wall Base BC2**
Section

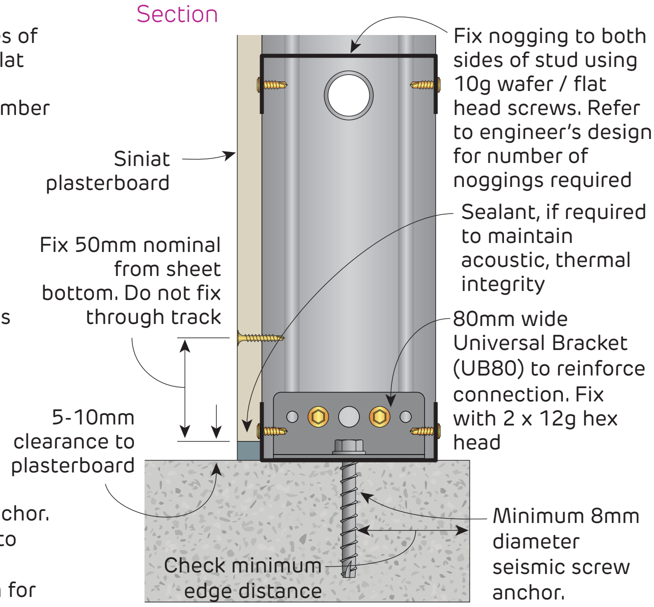



**FIGURE 10 Wall Base BC4**
With Universal Bracket UB80
Section

## Non-Fire Rated

## Typical Head and Base Details for Non-Load Bearing External Steel Stud Walls

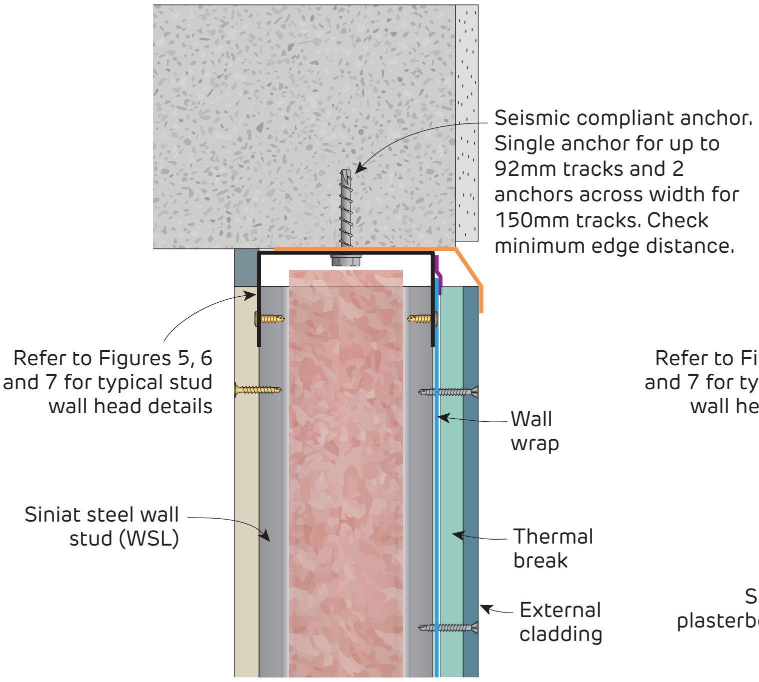



**FIGURE 11** **External Steel Stud Wall Head**
With cladding over thermal break
Section

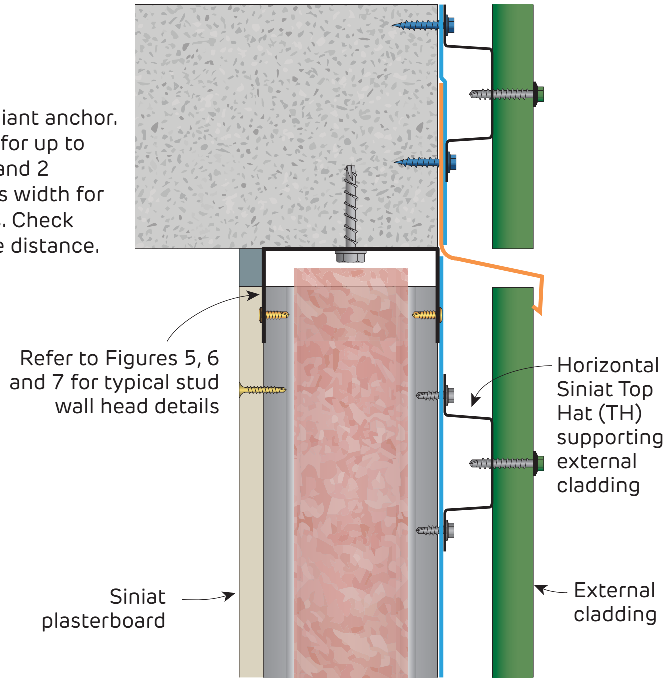



**FIGURE 12** **External Steel Stud Wall Head**
With cladding over horizontal top-hats
Section

Non-load bearing walls are unsuitable for bracing wall applications

Top hats must not be fixed to noggings or deflection head tracks

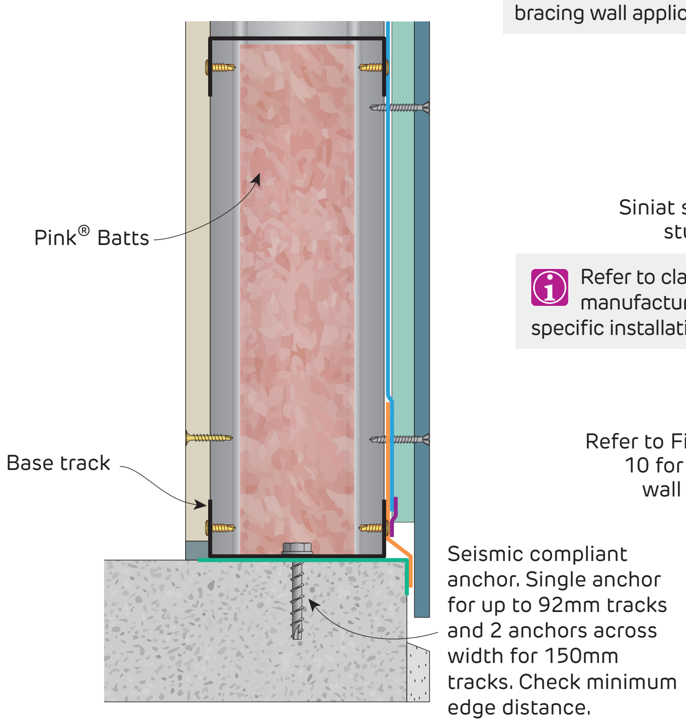
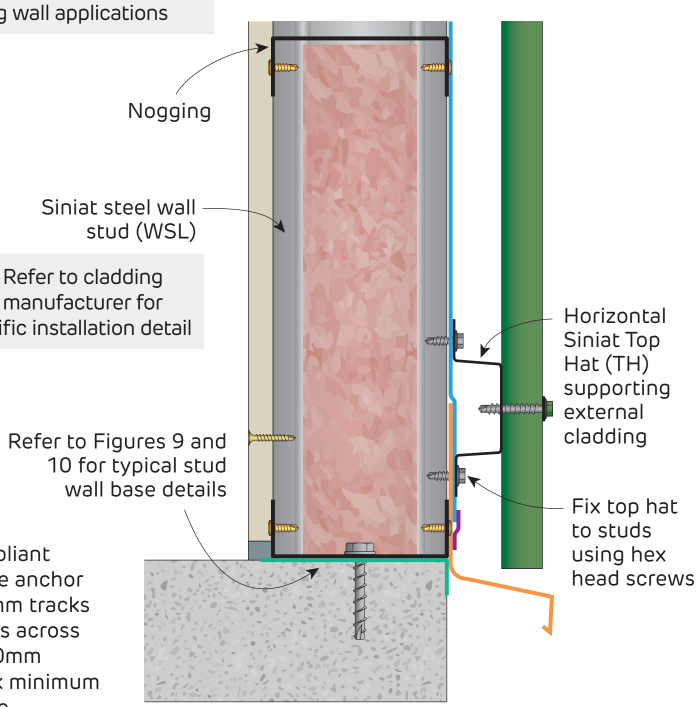



**FIGURE 13** **External Steel Stud Wall Base**
With cladding over thermal break
Section




Refer to cladding manufacturer for specific installation detail

**FIGURE 14** **External Steel Stud Wall Base**
With cladding over horizontal top-hats
Section

Damp Proof Course (DPC) required under bottom tracks of external walls on ground slabs. DPC not required under internal walls and upper storeys.

## Non-Fire Rated

## Typical Head and Base Details for Non-Load Bearing External Steel Stud Walls

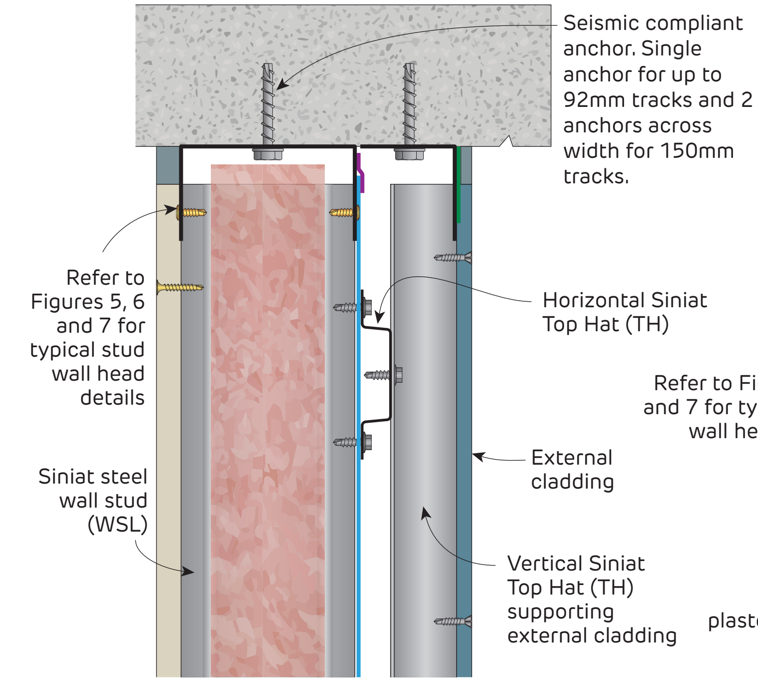



**FIGURE 15 External Steel Stud Wall Head**
With cladding over horizontal + vertical Top Hats
Section

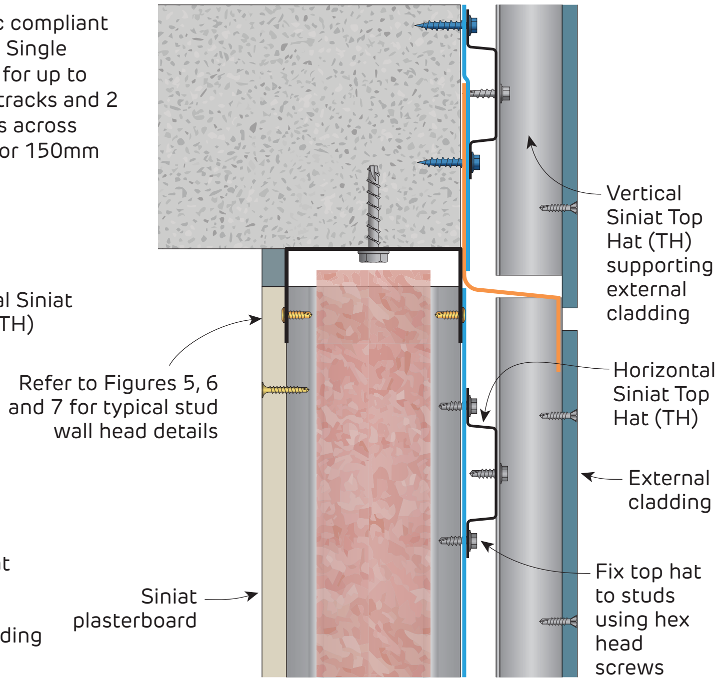



**FIGURE 16 External Steel Stud Wall Head**
With cladding over horizontal + vertical Top Hats
Section

Non-load bearing walls are unsuitable for bracing wall applications

Refer to cladding manufacturer for specific installation detail

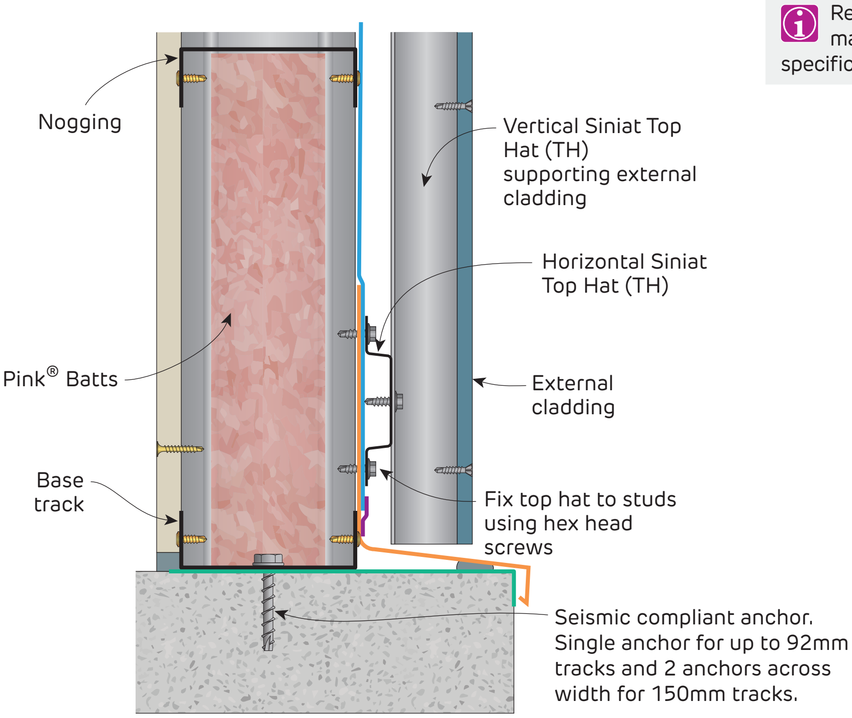



**FIGURE 17 External Steel Stud Wall Base**
With cladding over horizontal + vertical Top Hats
Section

Damp Proof Course (DPC) required under bottom tracks of external walls on ground slabs. DPC not required under internal walls and upper storeys.

## Fire Rated
## Typical Head and Base Details for Non-Load Bearing External Steel Stud Walls

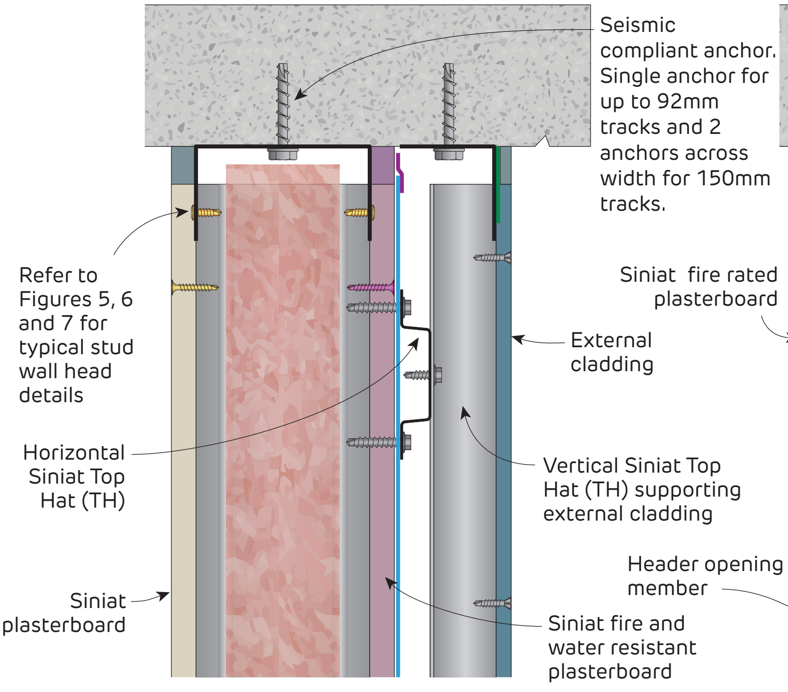



**FIGURE 18** **External Steel Stud Wall Head**
With cladding over horizontal + vertical Top Hats
Fire rated from the outside only - Section

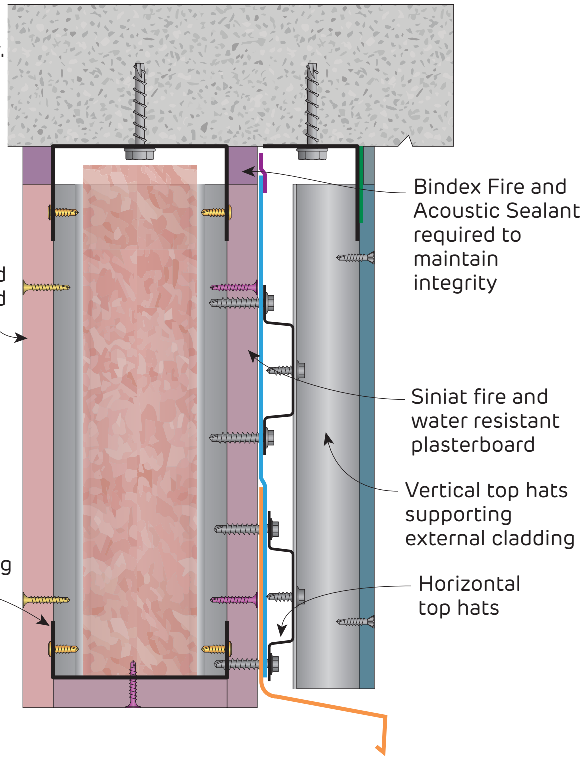



**FIGURE 19** **External Steel Stud Wall Head**
With cladding over horizontal + vertical Top Hats
Fire rated from both directions - Section

Top hats must not be fixed to noggings or deflection head tracks

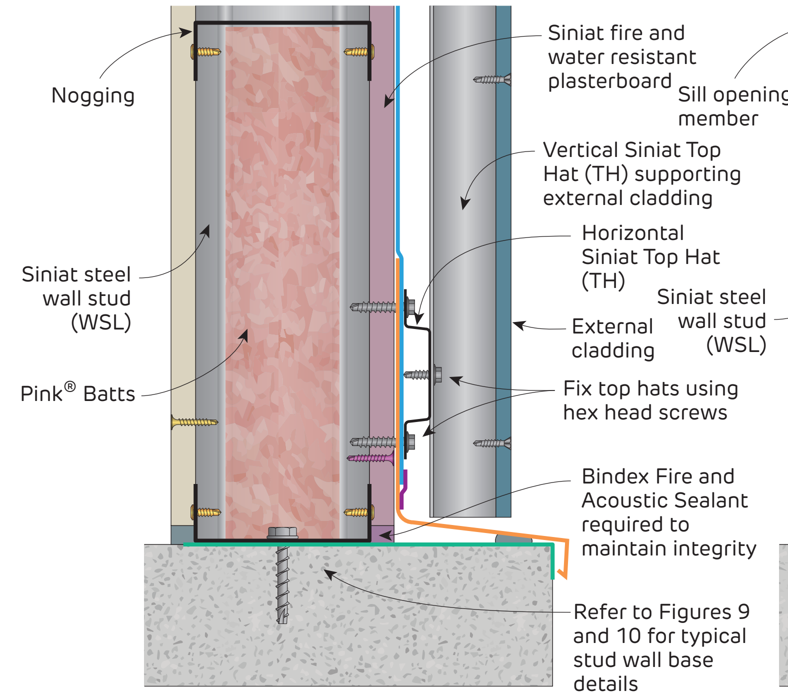



**FIGURE 20** **External Steel Stud Wall Base**
With cladding over horizontal + vertical Top Hats
Fire rated from the outside only - Section

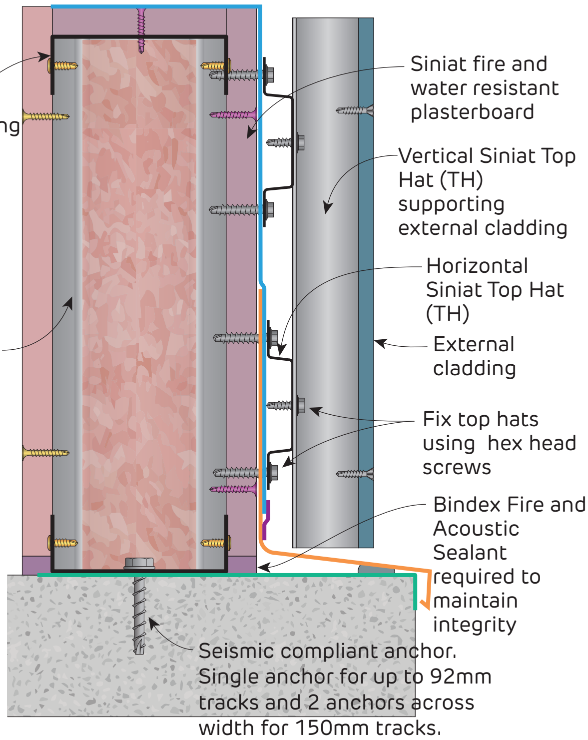



**FIGURE 21** **External Steel Stud Wall Base**
With cladding over horizontal + vertical Top Hats
Fire rated from both directions - Section

Damp Proof Course (DPC) required under bottom tracks of external walls on ground slabs. DPC not required under internal walls and upper storeys.

Non-load bearing walls are unsuitable for bracing wall applications

Refer to cladding manufacturer for specific installation detail

## Non-Fire Rated

## Typical Head and Base Details for Non-Load Bearing External Steel Stud Walls

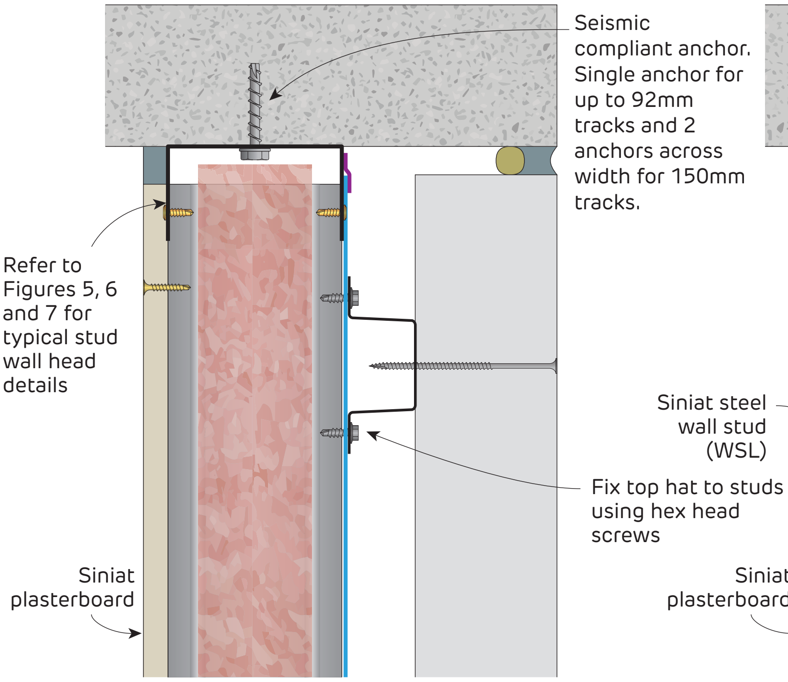



**FIGURE 22** External Steel Stud Wall Head
With horizontal Top Hats under AAC
Section

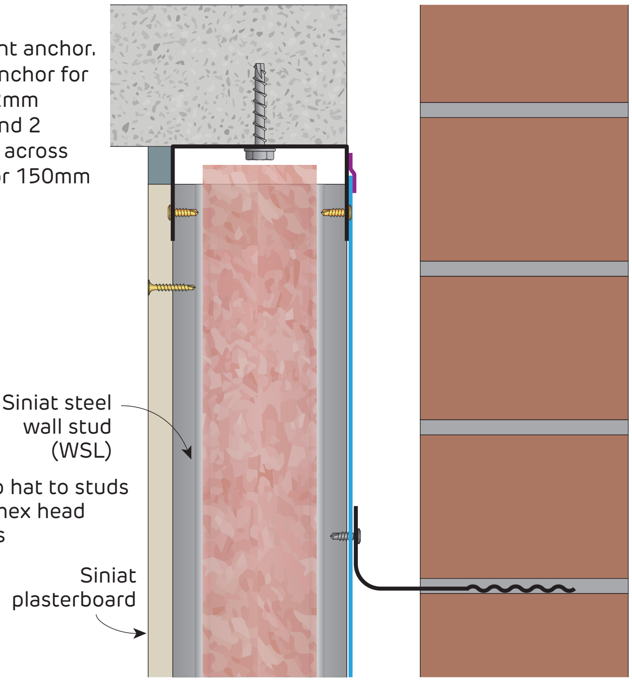



**FIGURE 23** External Steel Stud Wall Head
With brick veneer
Section

Refer to cladding manufacturer for specific installation detail

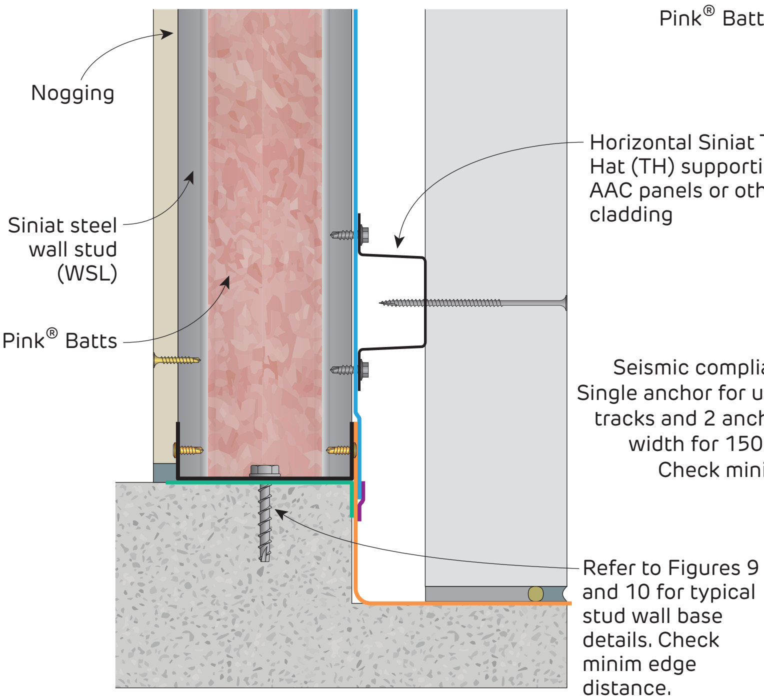



**FIGURE 24** External Steel Stud Wall Base
With horizontal Top Hats under AAC
Section

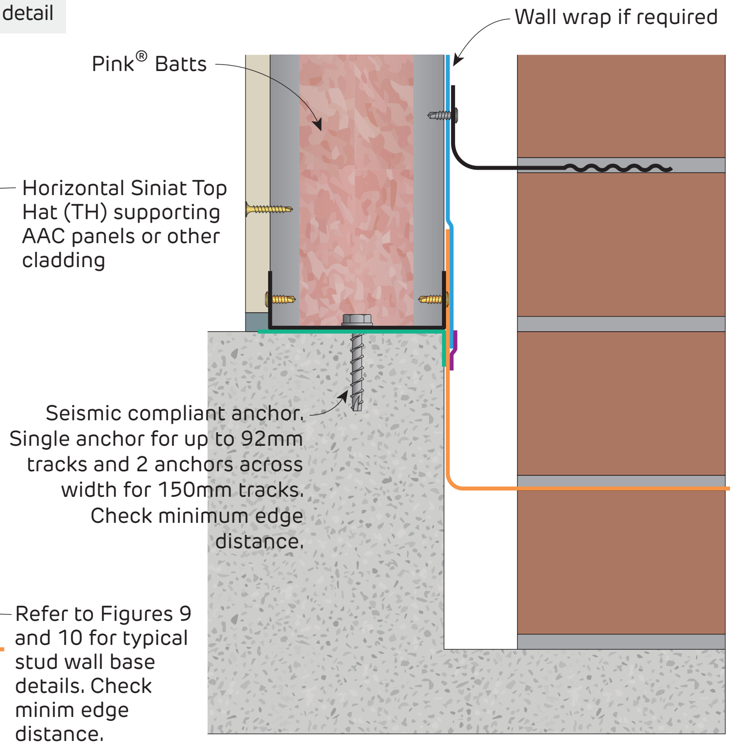



**FIGURE 25** External Steel Stud Wall Base
With brick veneer
Section

Damp Proof Course (DPC) required under bottom tracks of external walls on ground slabs. DPC not required under internal walls and upper storeys.

Brick veneer ties must be compatible with Zincalume steel. Stainless steel brick ties and other more noble metals must be electrically isolated from the steel studs.

## Fire Rated
## Typical Details for Spandrel Walls

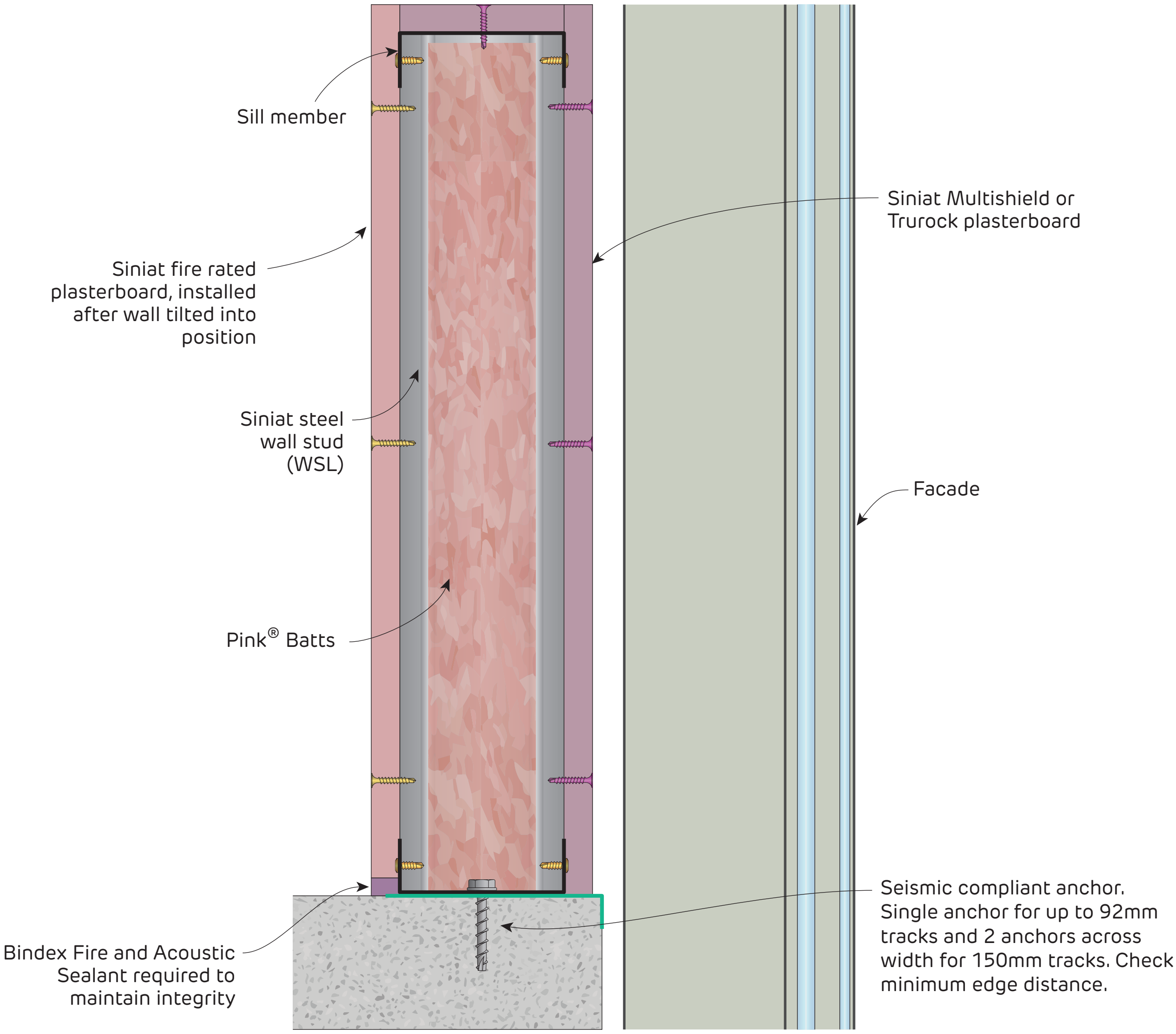



**FIGURE 26** **Spandrel Steel Stud Wall**
Spandrel wall tilted into position near facade
Section

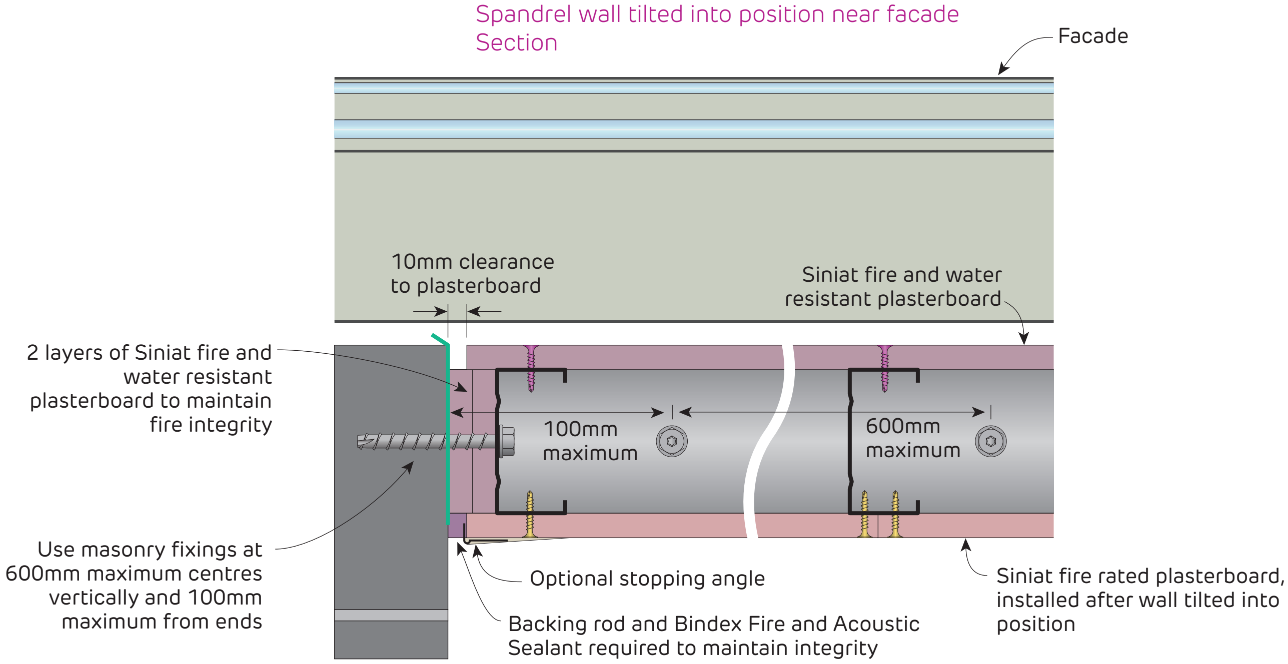



**FIGURE 27** **Spandrel Steel Stud Wall End**
Spandrel wall tilted into position near facade
Plan



# 4.2 Openings in External Steel Framed Walls

The Siniat Jamb Stud system is a purpose designed opening frame system for external walls. It is typically used for window and door openings as it is durable, strong and fast to install.

The unique Jamb Stud profile is a heavy duty cold formed steel section 1.5mm thick, high grade tensile steel (G450). It is the superior solution for frame openings. The system does not require welding but rather installed with steel framing screws and Siniat's concrete screw anchors.

The Jamb Stud profile is coupled with a unique Jamb Stud Connector Bracket which allows access to install all fasteners, even for pre-fabricated door frames where access is normally restricted. This is the only bracket available with this feature.

Charts are available in this section to design the opening frame based upon wall height and opening width as well as the wind load, which is the dominant load governing the opening frame design. All details in this section are for non-load bearing frames only.

# Framing

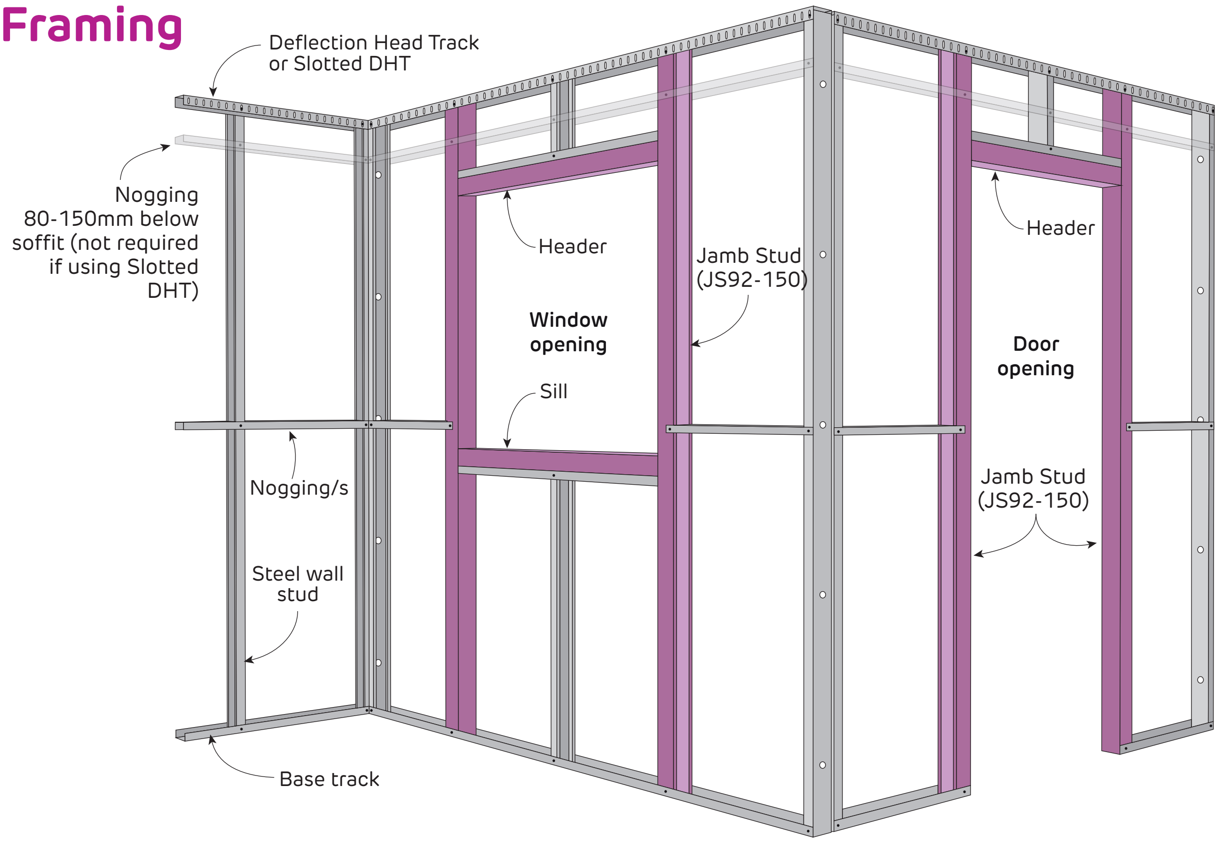
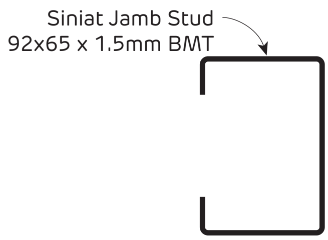
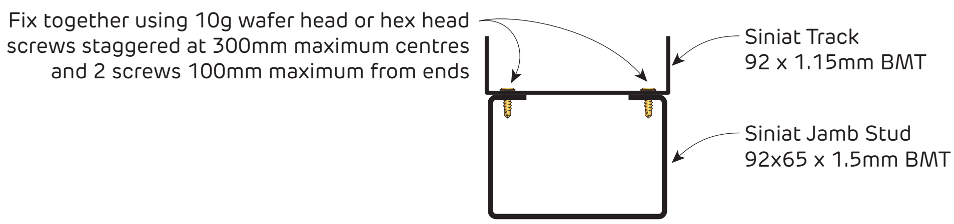



**FIGURE 1** **Typical External Steel Frame Wall with Window and Door Openings**



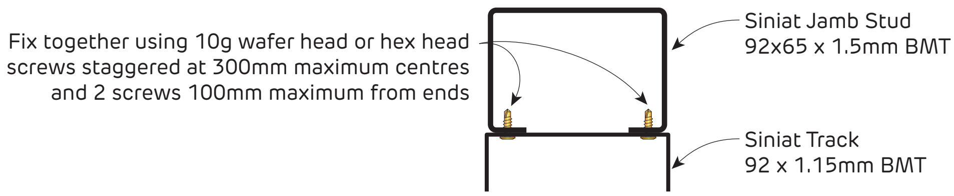

**J5** Jamb Stud

**FIGURE 2** **Jamb Stud**
Plan




**H5** Track + Jamb Stud

**FIGURE 3** **Header**
Section




**S5** Track + Jamb Stud

**FIGURE 4** **Sill**
Section

# Components

**FIGURE 5** **80mm wide Universal Bracket (UB80)**
For 92mm studs
Perspective

**FIGURE 6** **Jamb Stud Connector Bracket (JSCB)**
For 92mm Jamb Stud
Perspective

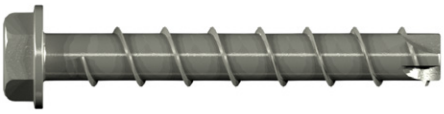


**FIGURE 7** **8mm diameter Screw Anchor**
Perspective

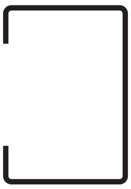


**FIGURE 8** **Jamb Stud**
92x65 x 1.5mm BMT
Plan

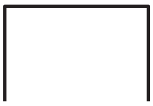


**FIGURE 9** **Deflection Head Track**
92 x 1.15mm BMT
Profile

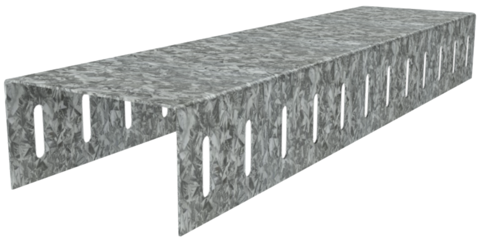


**FIGURE 10** **Slotted Deflection Head Track**
92 x 1.15mm BMT
Perspective

**FIGURE 11** **Stud**
92 x 1.15mm BMT
Profile

**FIGURE 12** **Base Track**
92 x 1.15mm BMT
Profile

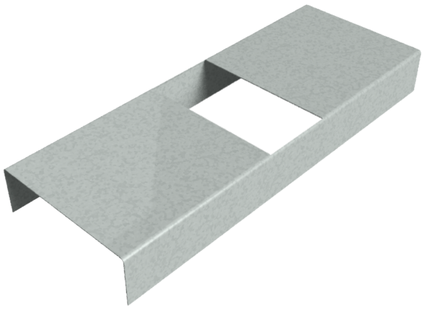
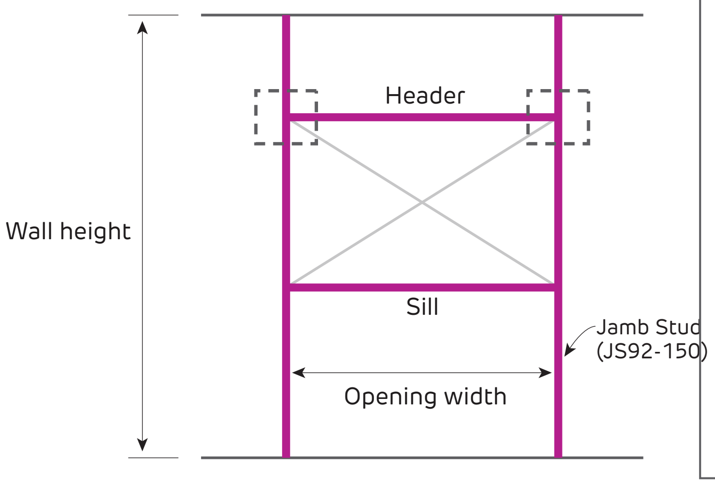


**FIGURE 13** **Continuous Nogging Track**
92 x 0.7mm BMT
Perspective

Refer to Section 1 for available profile sizes

## Jamb Stud Openings
### Header Connections for Windows




Window opening

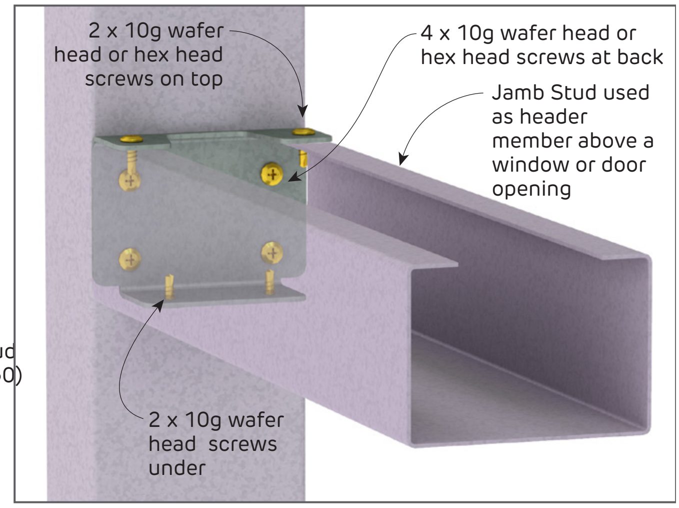



**FIGURE 14** **Jamb Stud Connector Bracket**
With access from above and below
Perspective

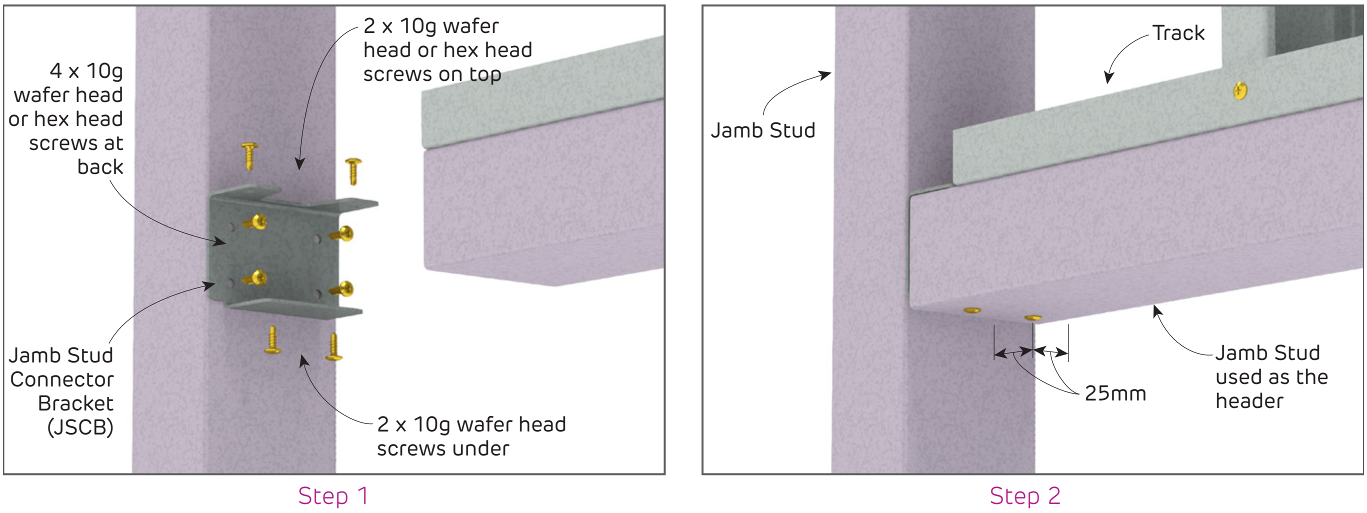



**FIGURE 15** **Header to Jamb Stud Connection**
Perspective

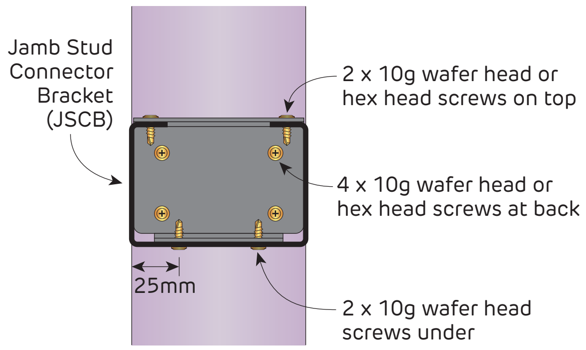



**FIGURE 16a** **Header to Jamb Stud Connection**
With Jamb Stud Connector Bracket
Section

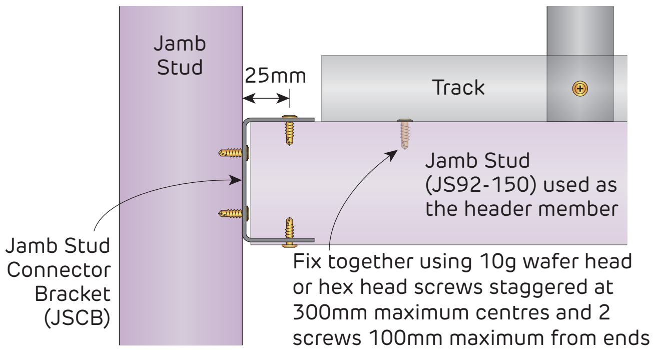
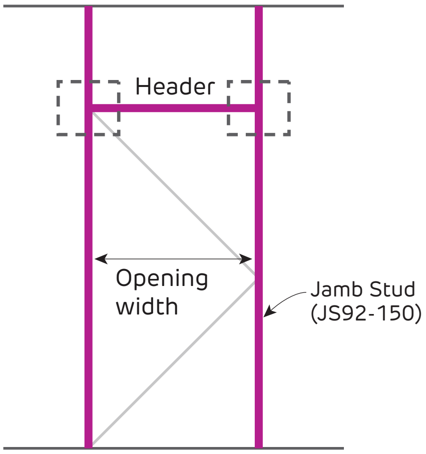



**FIGURE 16b** **Header to Jamb Stud Connection**
With Jamb Stud Connector Bracket
Elevation

## Jamb Stud Openings

## Header Connections for Prefabricated Door Frame




Door opening

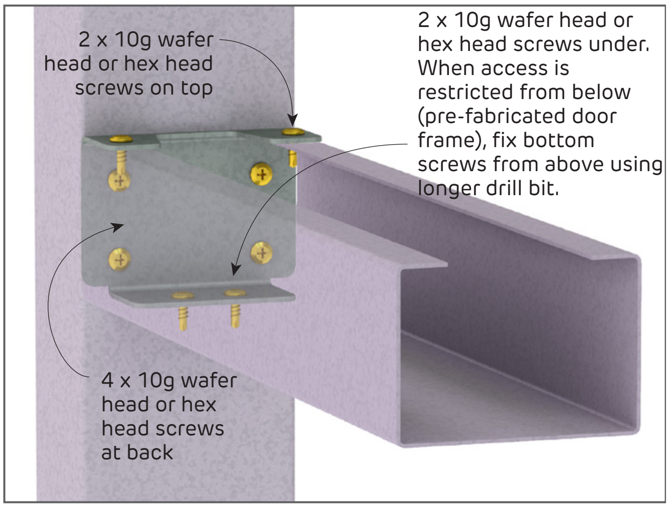



**FIGURE 17** **Jamb Stud Connector Bracket**
With access from above only (pre-fabricated door frames)
Perspective

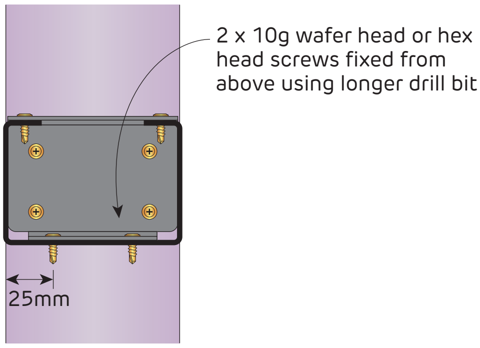



**FIGURE 18a** **Header to Jamb Stud Connection for Prefabricated Door Frames**
Section

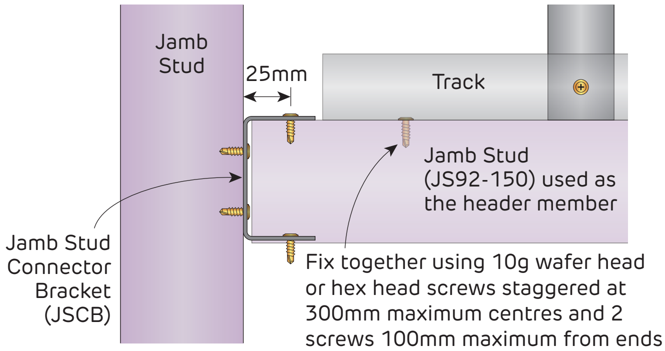
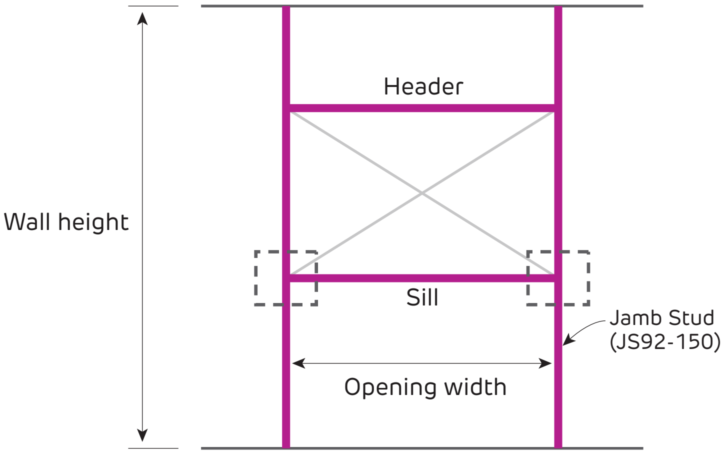
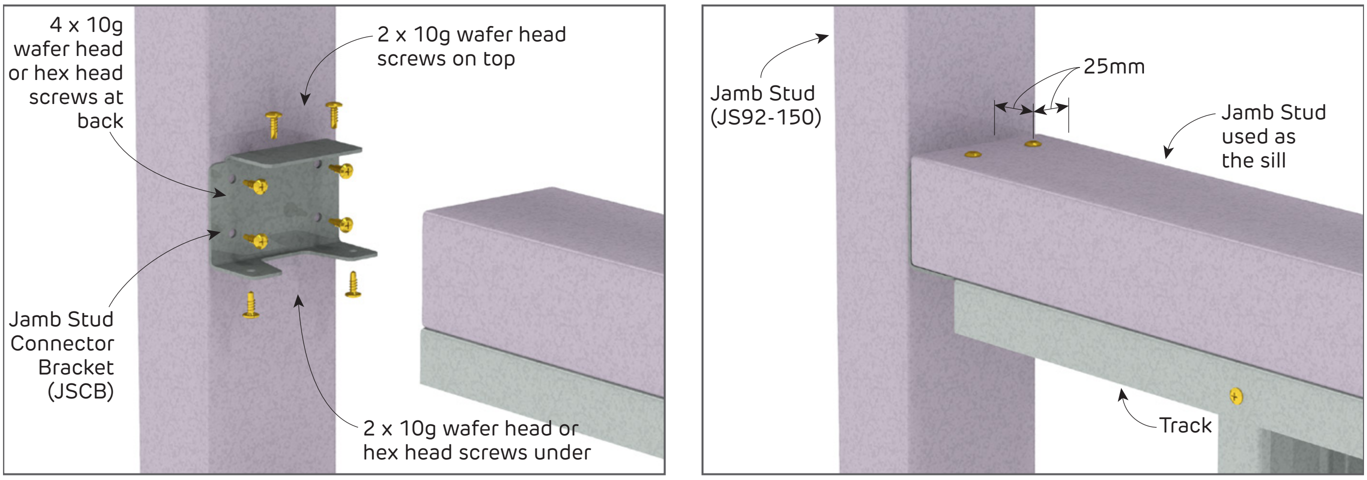



**FIGURE 18b** **Header to Jamb Stud Connection for Prefabricated Door Frames**
Elevation

## Jamb Stud Openings
## Sill Connections for Windows




**Window opening**




Step 1

Step 2

**FIGURE 19** Sill to Jamb Stud Connection
Perspective

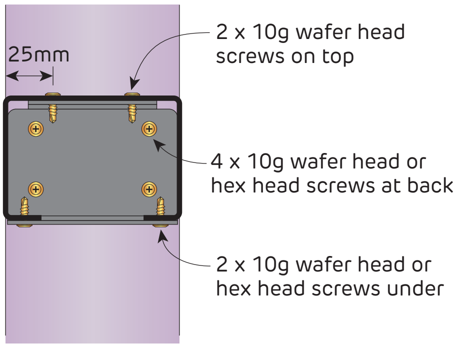



**FIGURE 20a** Sill to Jamb Stud Connection
With Jamb Stud Connector Bracket
Section

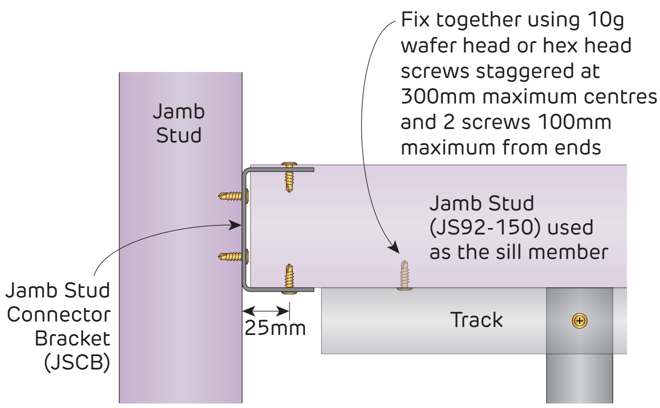
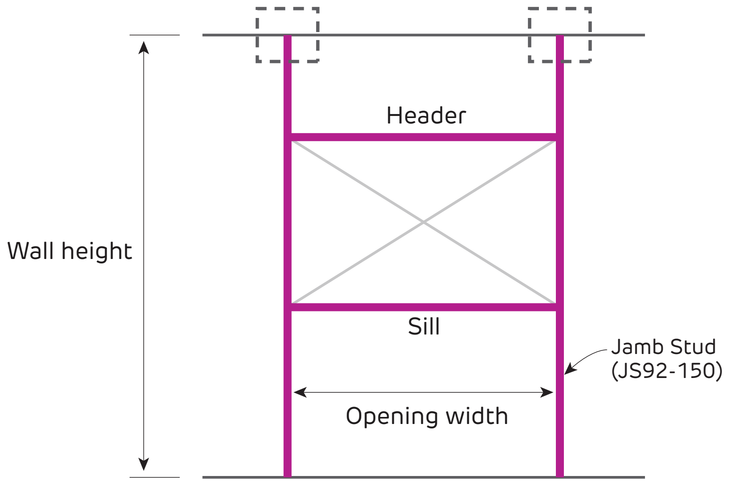


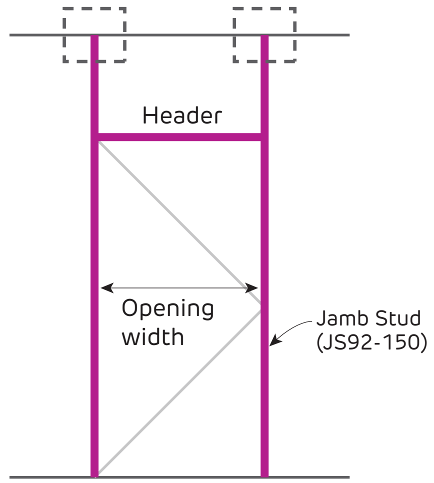

**FIGURE 20b** Sill to Jamb Stud Connection
With Jamb Stud Connector Bracket
Elevation

## Jamb Stud Openings

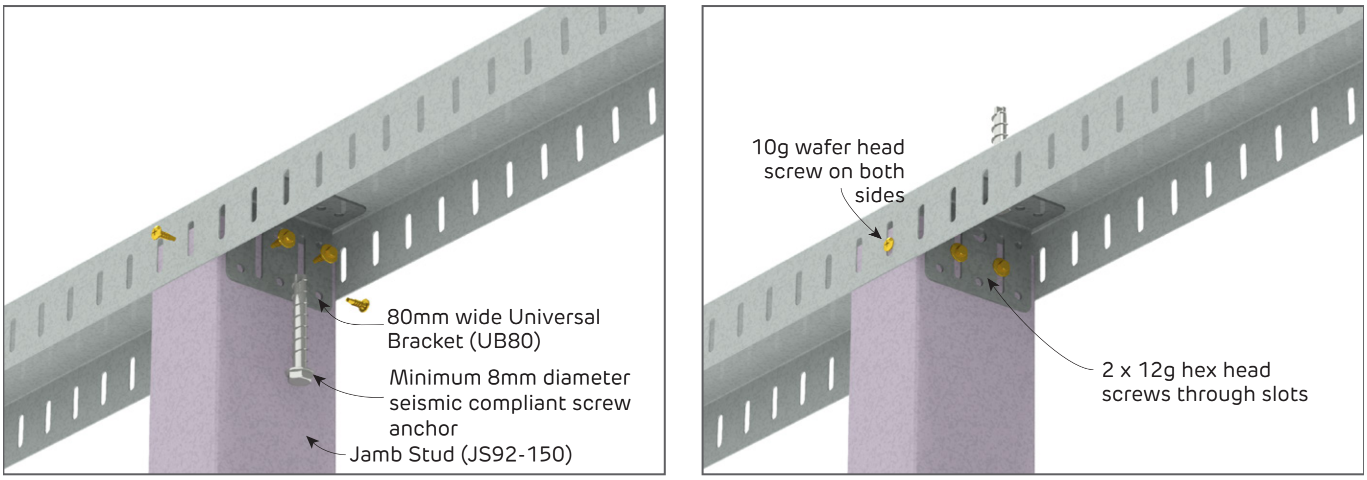
## Head Track Connections for Doors and Windows




**Window opening**




**Door opening**




Step 1 Step 2

**FIGURE 21** Jamb Stud Head Connection HC5
Perspective

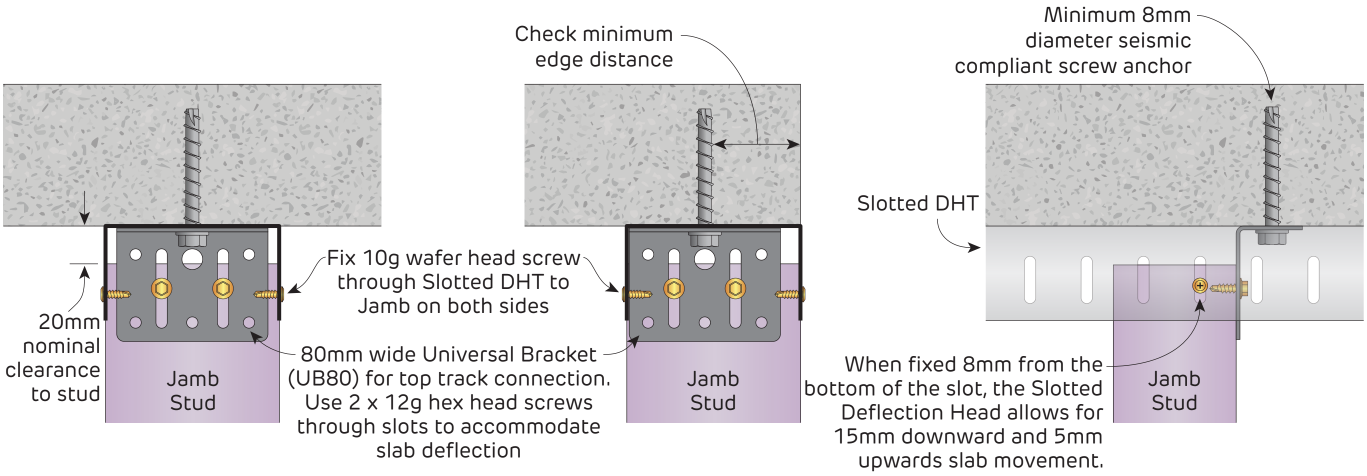
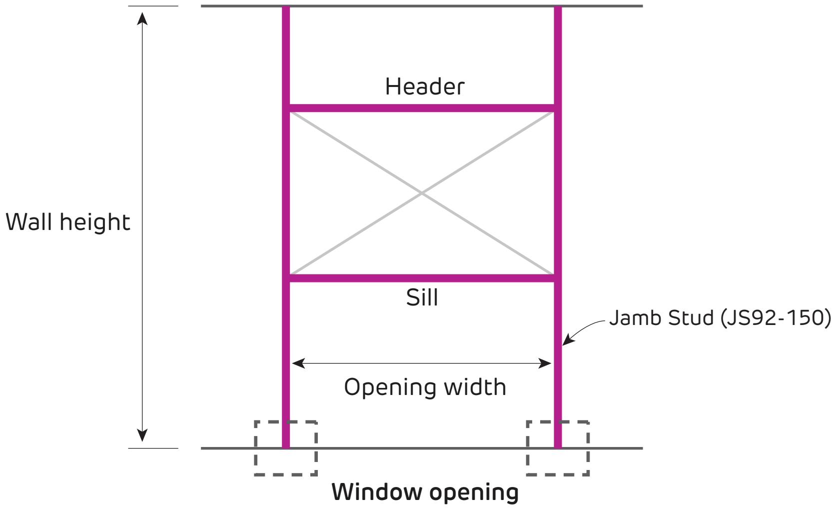


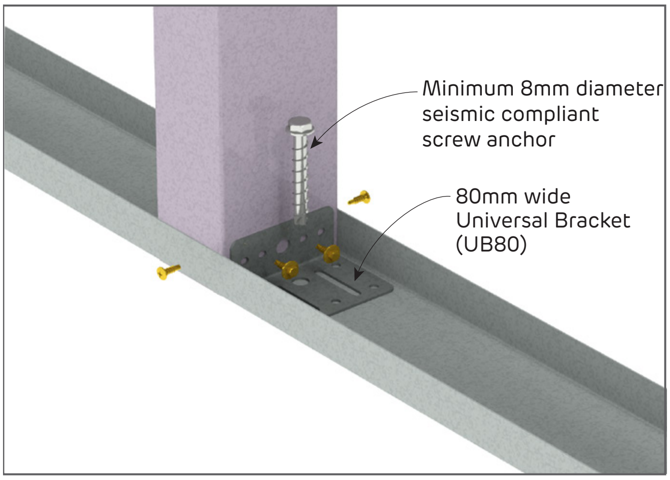

**FIGURE 22a** Head Connection HC5
With Universal Bracket UB80
Section

**FIGURE 22b** Head Connection HC5 on Slab Edge
With Universal Bracket UB80
Section

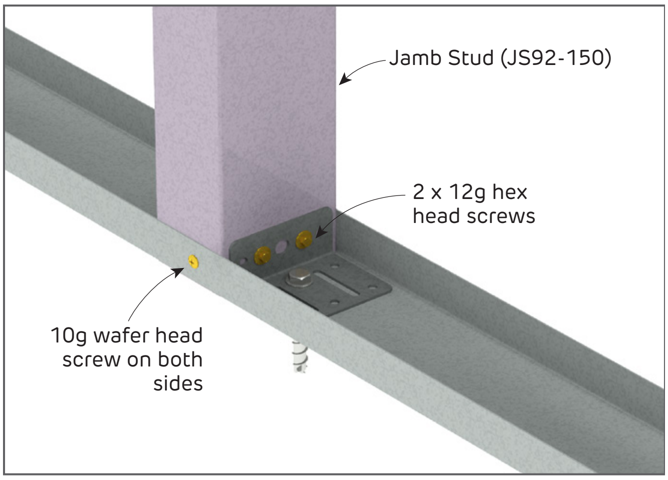
**FIGURE 22c** Head Connection HC5
With Universal Bracket UB80
Elevation

## Jamb Stud Openings
## Base Track Connections for Windows




Step 1




Step 2

**FIGURE 23 Jamb Stud Base Connection BC6**
Perspective

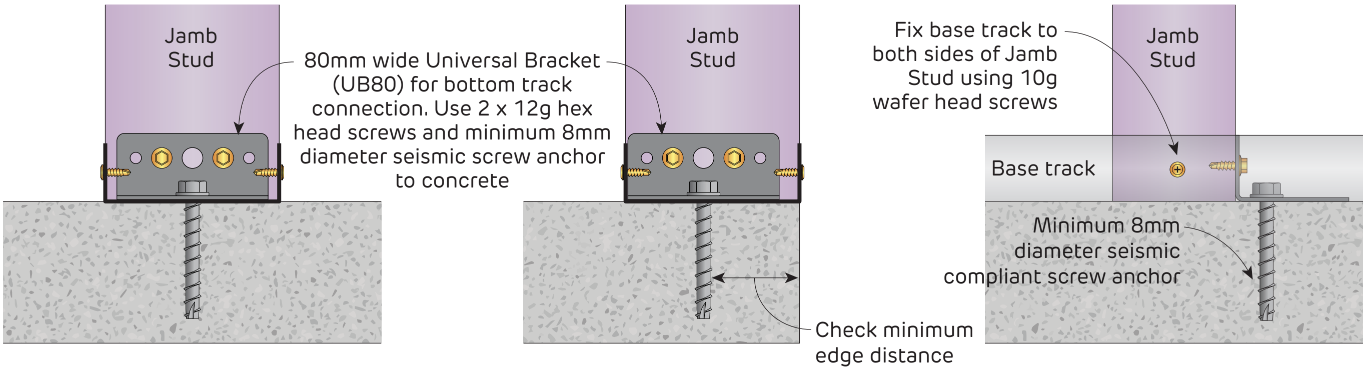


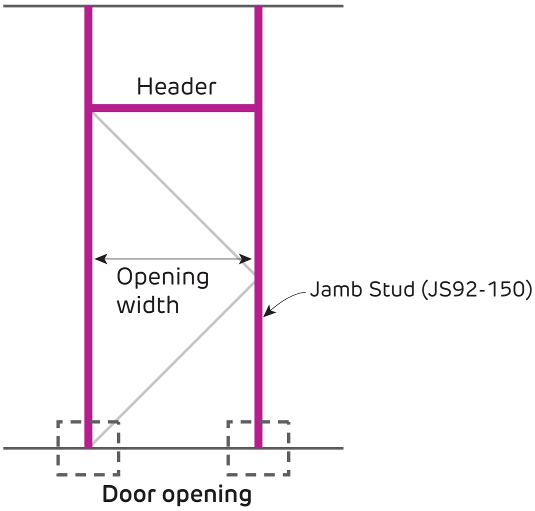

**FIGURE 24a Base Connection BC6 for Window Opening**
With Universal Bracket UB80
Section

**FIGURE 24b Base Connection BC6 for Window Opening on Slab Edge**
With Universal Bracket UB80
Section

**FIGURE 24c Base Connection BC6 for Window Opening**
With Universal Bracket UB80
Elevation

## Jamb Stud Openings

## Base Track Connections for Doors



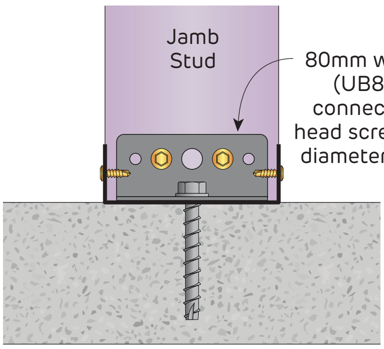




**FIGURE 25a Base Connection BC6 for Door Opening**
Section

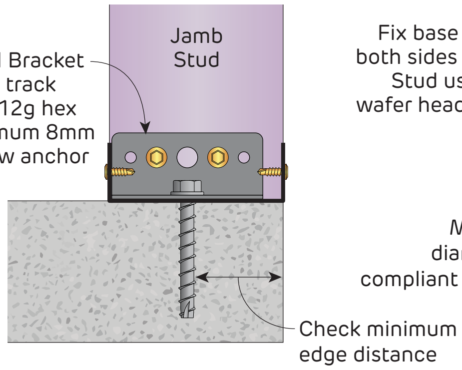



**FIGURE 25b Base Connection BC6 for Window Opening on Slab Edge**
With Universal Bracket UB80
Section

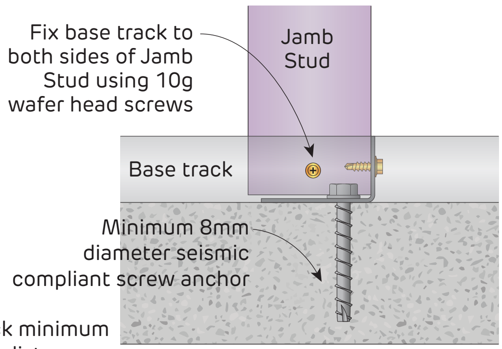



**FIGURE 25b Base Connection BC6 for Door Opening**
Elevation

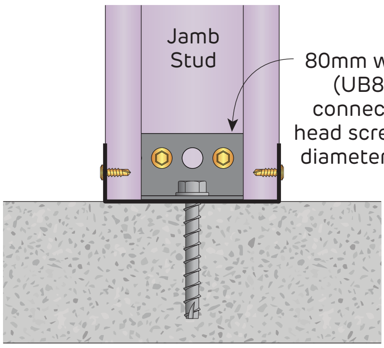



**FIGURE 26a Base Connection BC6 for Prefabricated Door Frames**
Section

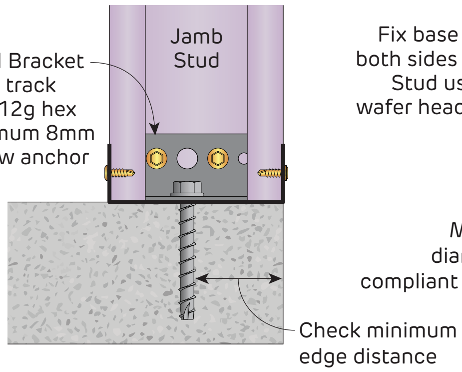



**FIGURE 25b Base Connection BC6 for Window Opening on Slab Edge**
With Universal Bracket UB80
Section

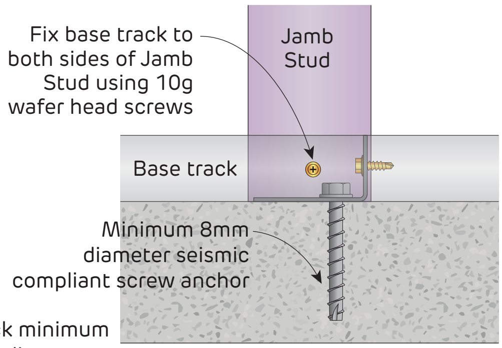


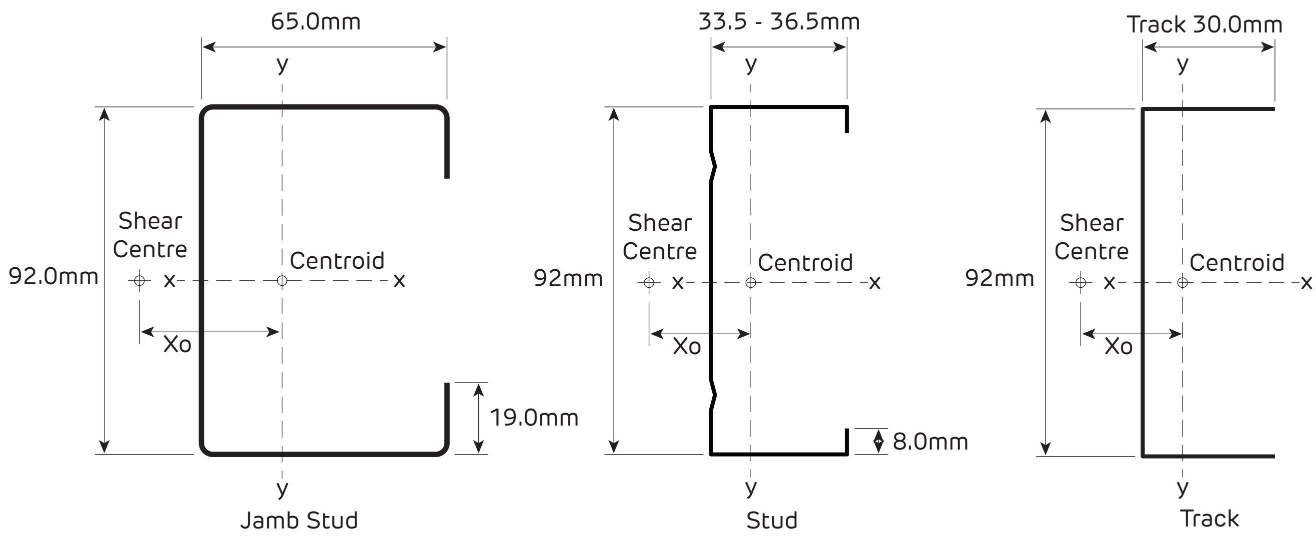

**FIGURE 26b Base Connection BC6 for Prefabricated Door Frames**
Elevation

# Steel Profile Information

## Material

| Manufacturer | Profile | Grade | Ultimate | Yield | Coating |
|---|---|---|---|---|---|
| Siniat | Jamb Stud | G450 | 480 MPa | 450 MPa | Z350 |
| Siniat | Stud and Track | G300 | 340 MPa | 300 MPa | AM150 |

1. Steel grade and coating in accordance with AS 1397 *Continuous hot-dip metallic coated steel sheet and strip*

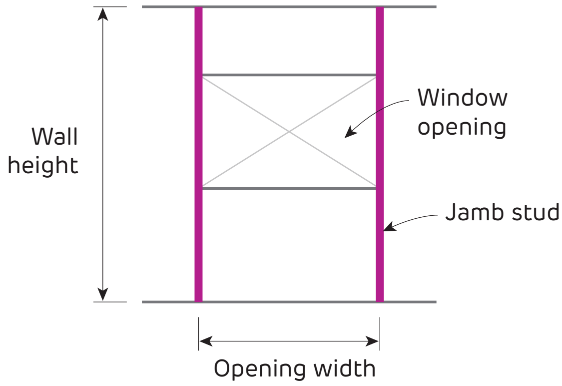


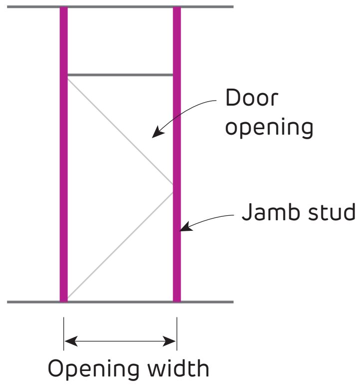

## Section Properties

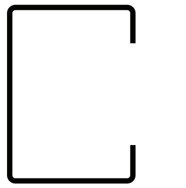
| Profile | Dimensions (mm) | | | Shear Centre from Centroid (mm) | Area (mm²) | Moment of Inertia (mm⁴) | | Section Modulus (mm³) | | Torsion Constant J (mm⁴) | Warping Constant Iw (mm⁶) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Depth | Width | BMT | Xo | | Ixx | Iyy | Zxx | Zyy | | |
| Jamb Stud | 92 | 65 | 1.5 | -59.31 | 375.1 | 543,360 | 232,230 | 11,812 | 5,903 | 281.3 | 512,090,000 |
| Stud | 92 | 35 | 1.15 | -24.7 | 194.7 | 251,300 | 30,770 | 5,548 | 1,199 | 85.8 | 48,940,000 |
| Track | 92 | 30 | 1.15 | -15.6 | 172.6 | 220,300 | 13,780 | 4,714 | 583 | 76.1 | 21,050,000 |

## Jamb Stud Openings in External Steel Stud Walls

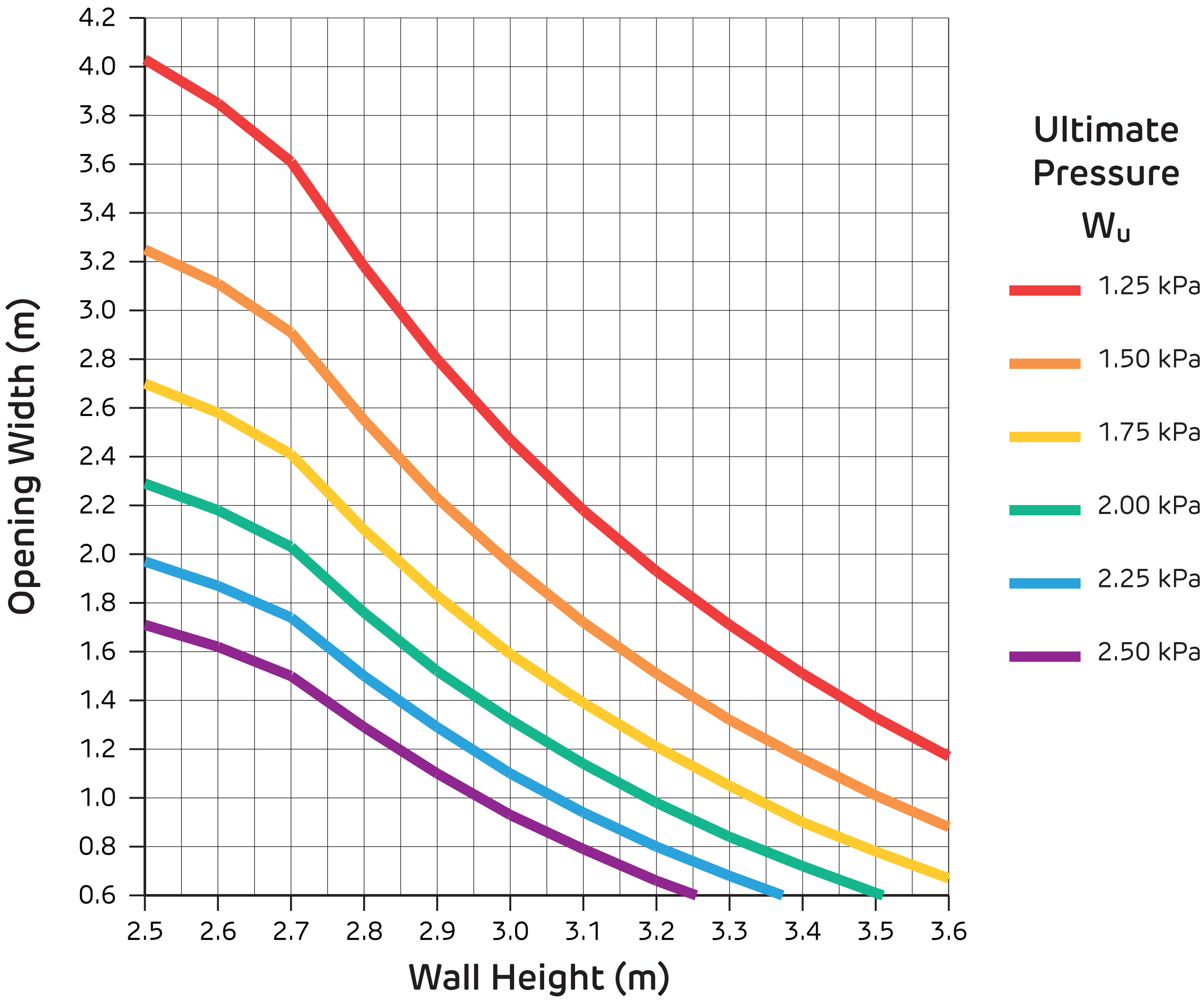
## Chart 1 Opening - WIND REGION A - HEIGHT/240



Jamb **J5**
92x65 x 1.5mm BMT




**NOTES**

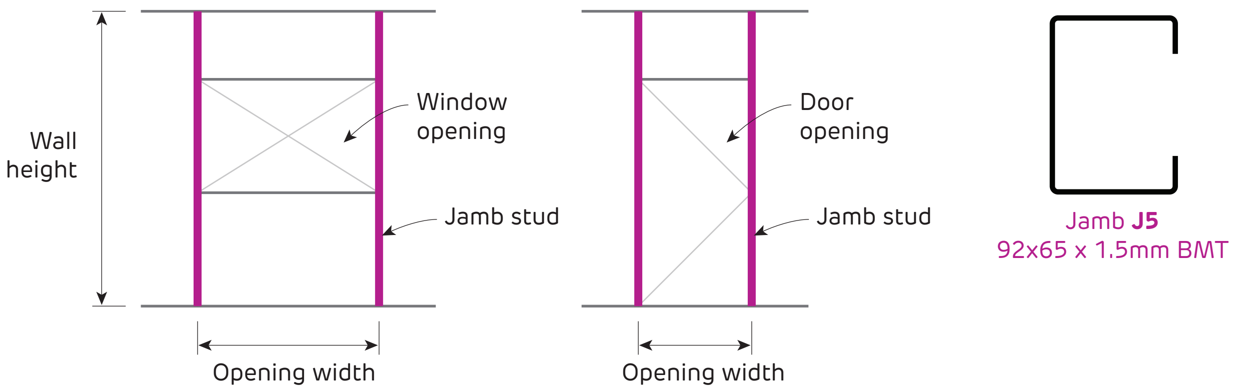
1. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating. Check maximum production lengths.
2. Base connection BC6 using 1.15mm BMT track (Base Metal Thickness) and Siniat UB80. Stud must be fixed to base track with 10g screws on both sides.
3. Head connection HC5 using 1.15mm BMT Slotted Deflection Head Track (SDHT) and Siniat UB80. 10g wafer head screw through slots on both sides.
4. Noggings at 1500mm maximum intervals.
5. Opening widths based upon ultimate lateral wind pressures and the deflection limits stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Serviceability wind pressure (Ws) taken as 67% of Ultimate wind pressure (Wu) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

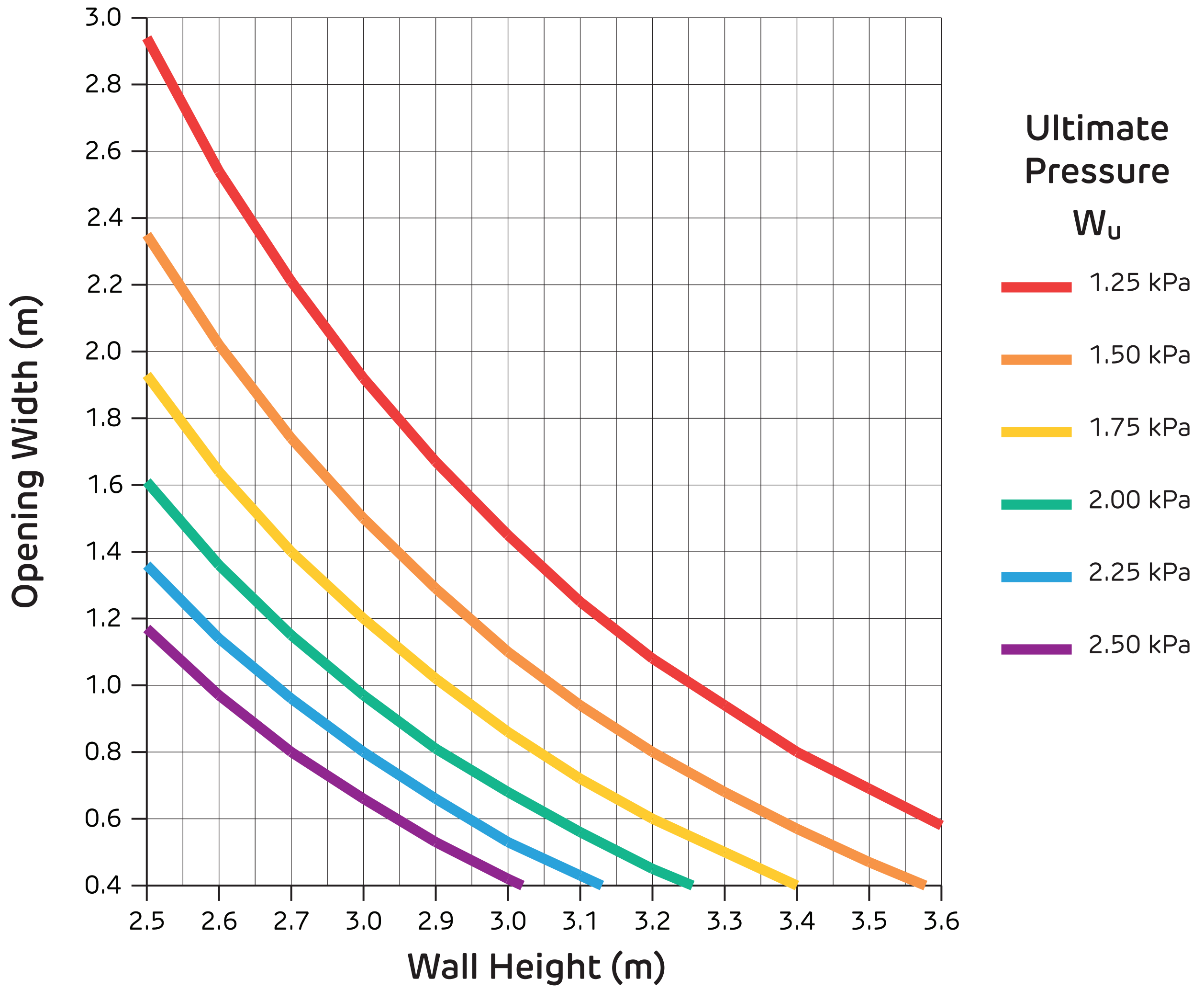
## Concrete Screw Anchor Table

| Seismic Performance Category | |
|---|---|
| C1 | C2 |
| Siniat SA8x65 | Hilti HUS3-H 8x75 |

1. Minimum 32 MPa concrete.
2. Minimum 52mm edge distance.

## Jamb Stud Openings in External Steel Stud Walls
## Chart 2 Opening - WIND REGION A - HEIGHT/360



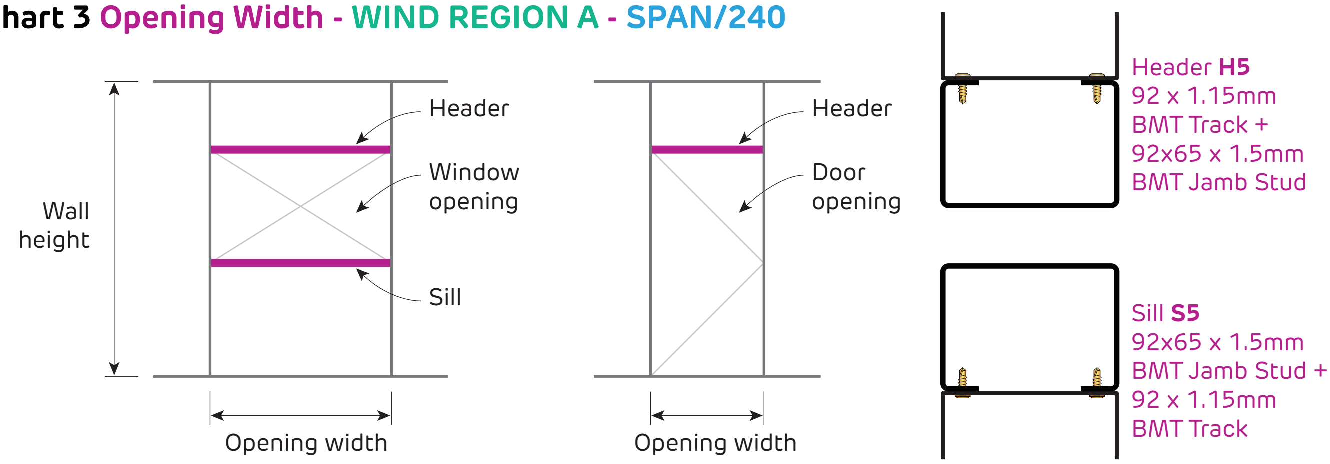

**NOTES**
1. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating. Check maximum production lengths.
2. Base connection BC6 using 1.15mm BMT track (Base Metal Thickness) and Siniat UB80. Stud must be fixed to base track with 10g screws on both sides.
3. Head connection HC5 using 1.15mm BMT Slotted Deflection Head Track (SDHT) and Siniat UB80. 10g wafer head screw through slots on both sides.
4. Noggings at 1500mm maximum intervals.
5. Opening widths based upon ultimate lateral wind pressures and the deflection limits stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Serviceability wind pressure (Ws) taken as 67% of Ultimate wind pressure (Wu) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

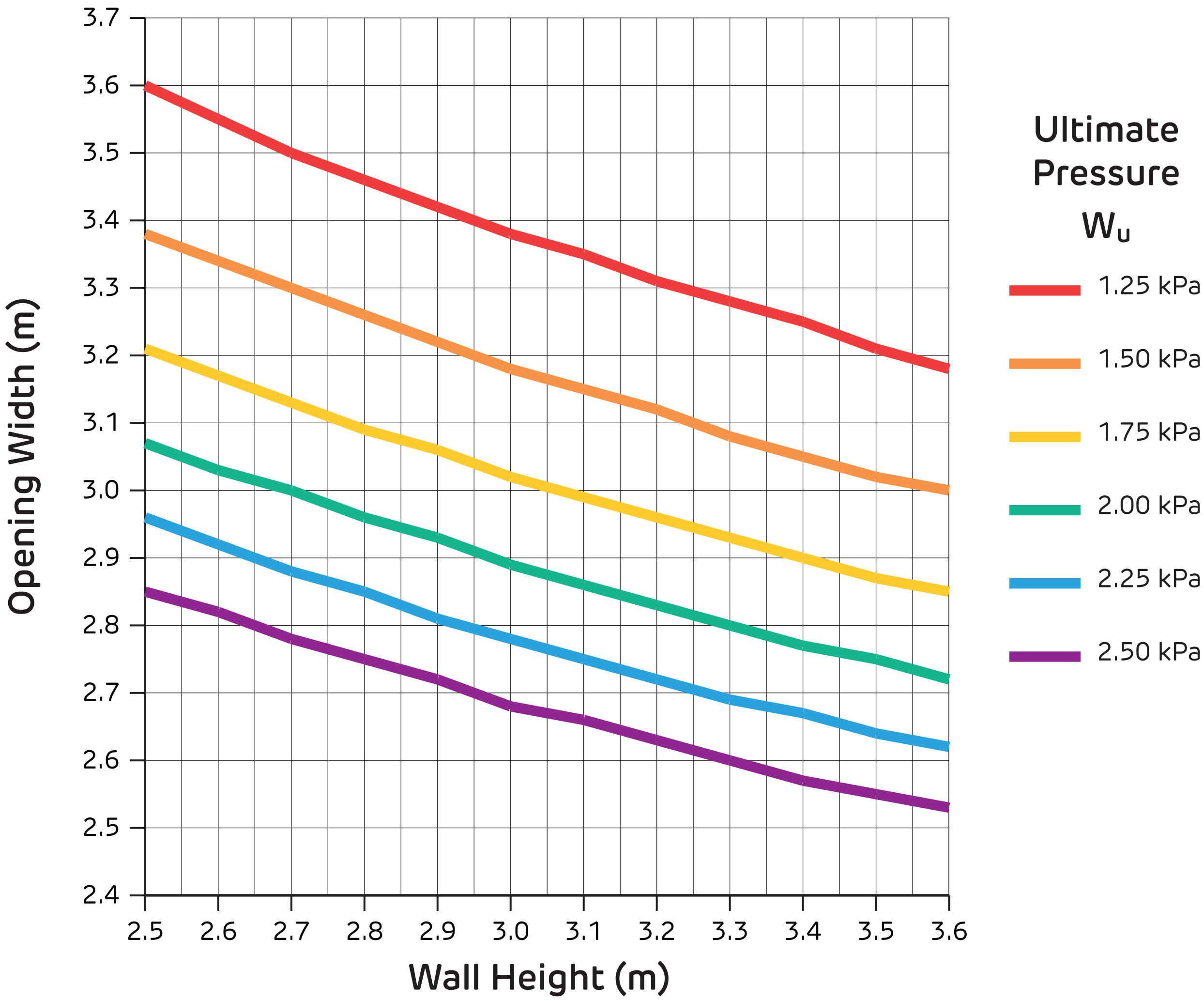
### Concrete Screw Anchor Table

| Seismic Performance Category | |
|---|---|
| C1 | C2 |
| Siniat SA8x65 | Hilti HUS3-H 8x75 |

1. Minimum 32 MPa concrete.
2. Minimum 52mm edge distance.

## Jamb Stud Openings in External Steel Stud Walls
## Chart 3 Opening Width - WIND REGION A - SPAN/240

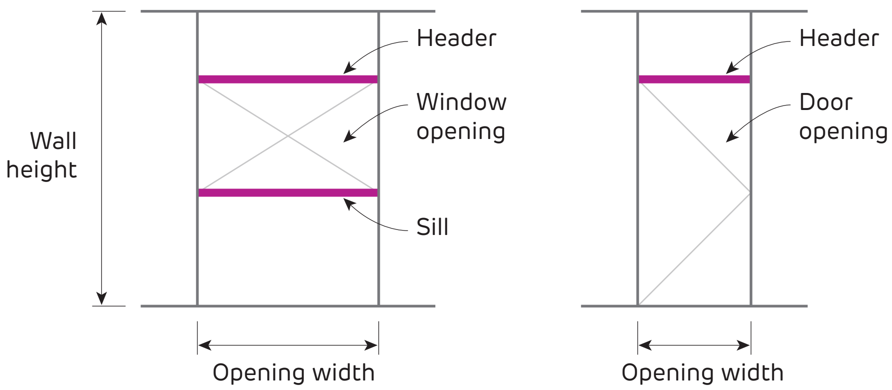


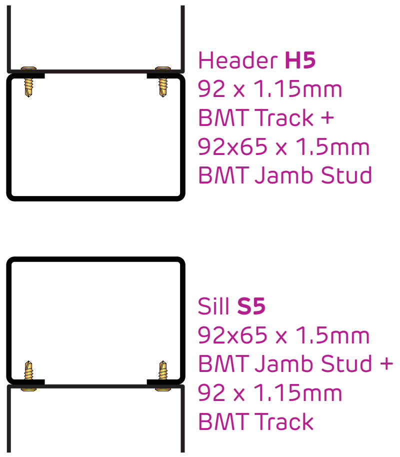



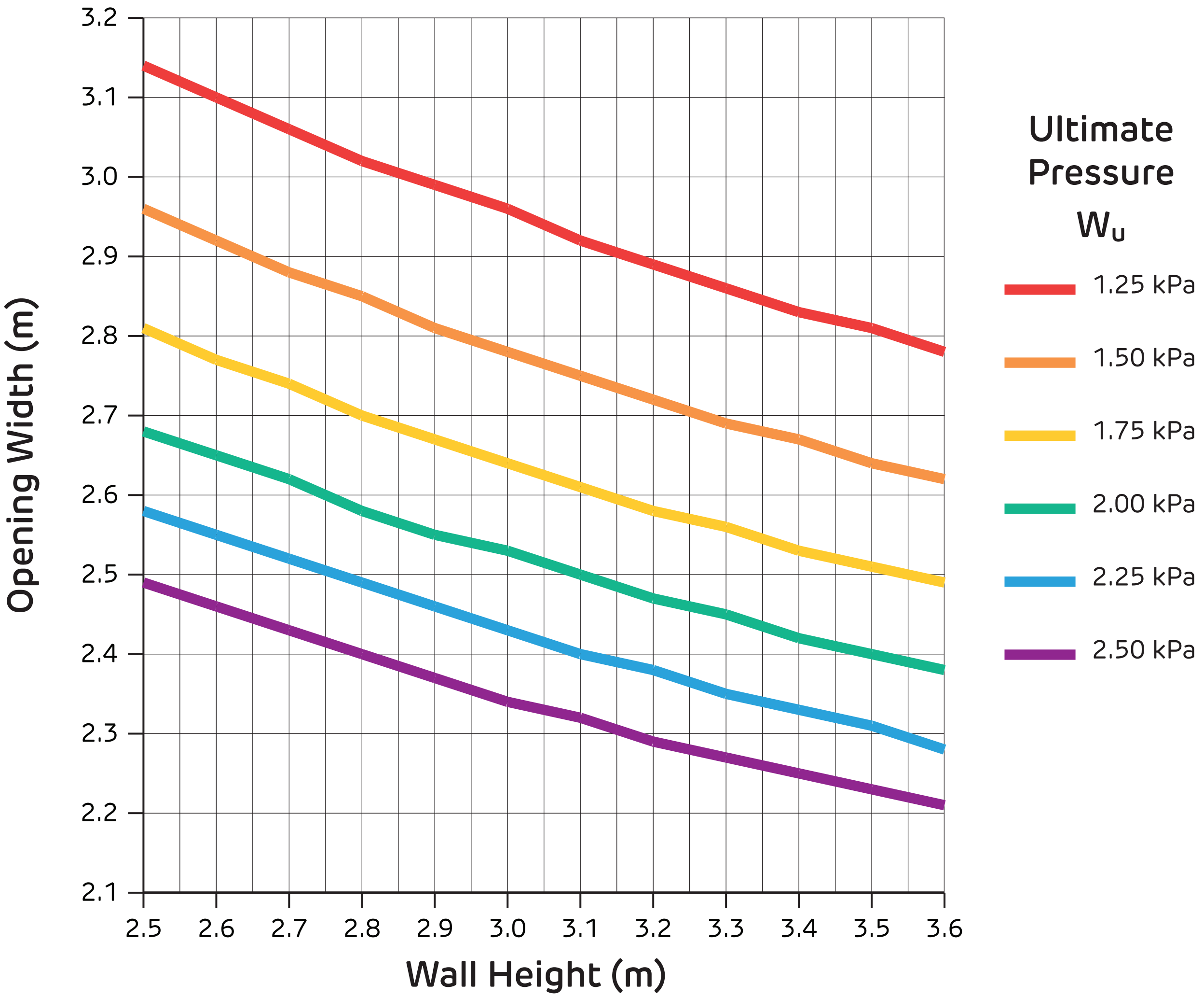

**NOTES**

1. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat track G300 with Zincalume™ AM150 corrosion coating. Check maximum production lengths.
2. Base connection BC6 using 1.15mm BMT track (Base Metal Thickness) and Siniat UB80. Stud must be fixed to base track with 10g screws on both sides.
3. Head connection HC5 using 1.15mm BMT Slotted Deflection Head Track (SDHT) and Siniat UB80. 10g wafer head screw through slots on both sides.
4. Noggings at 1500mm maximum intervals.
5. Opening widths based upon ultimate lateral wind pressures and the deflection limits stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Serviceability wind pressure (Ws) taken as 67% of Ultimate wind pressure (Wu) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m$^2$ only. The weight of external cladding over 30 kg/m$^2$ (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

## Jamb Stud Openings in External Steel Stud Walls
## Chart 4 Opening Width - WIND REGION A - SPAN/360

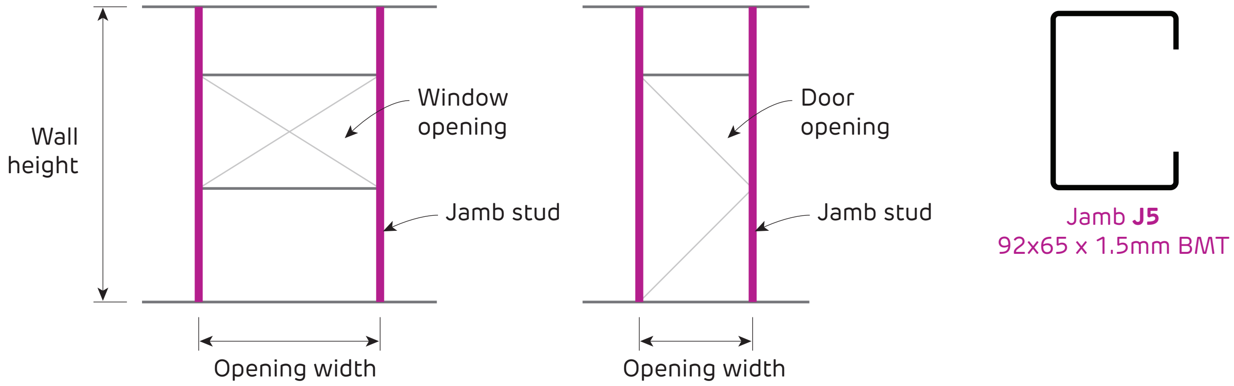


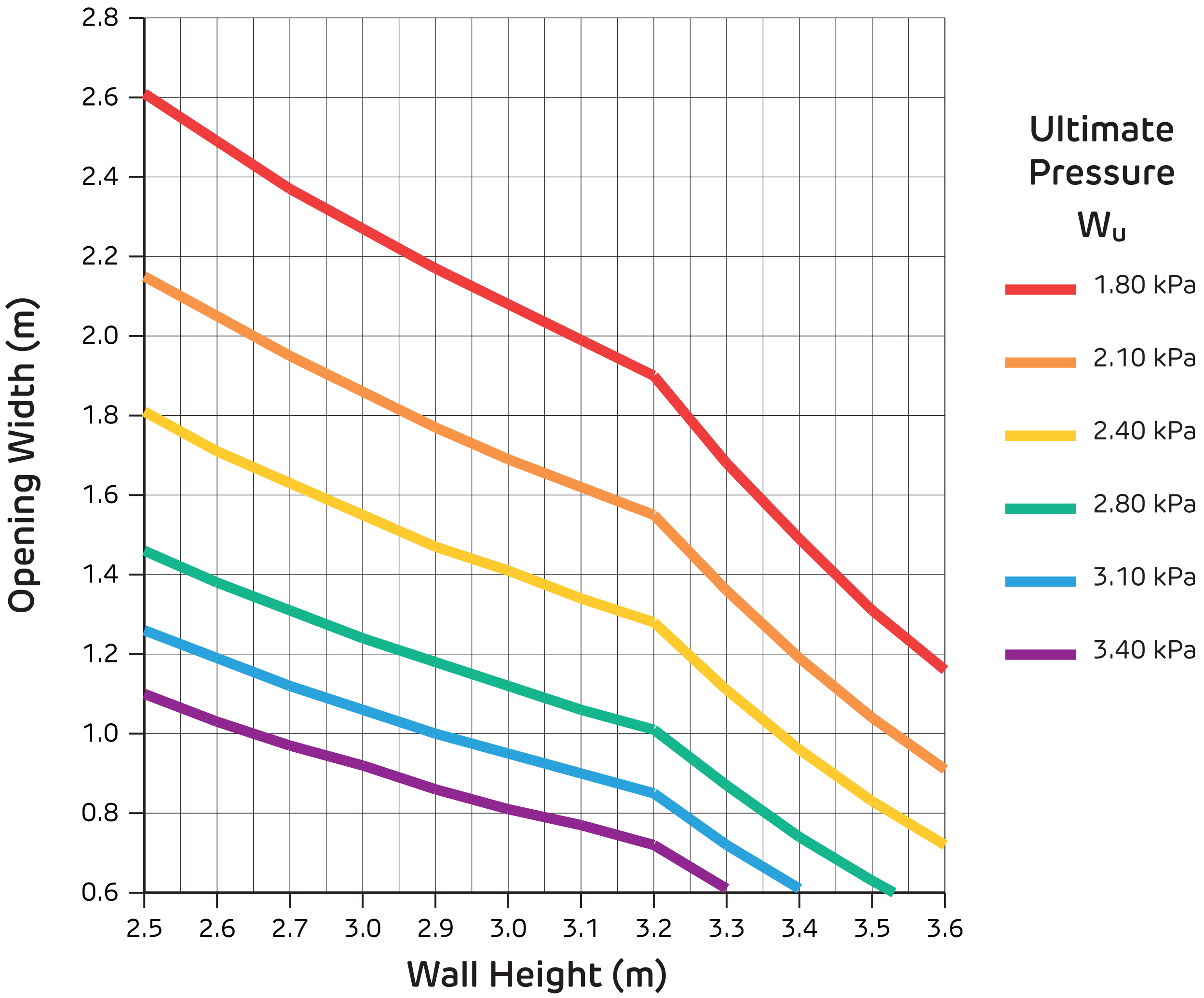




**NOTES**
1. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat track G300 with Zincalume™ AM150 corrosion coating. Check maximum production lengths.
2. Base connection BC6 using 1.15mm BMT track (Base Metal Thickness) and Siniat UB80. Stud must be fixed to base track with 10g screws on both sides.
3. Head connection HC5 using 1.15mm BMT Slotted Deflection Head Track (SDHT) and Siniat UB80. 10g wafer head screw through slots on both sides.
4. Noggings at 1500mm maximum intervals.
5. Opening widths based upon ultimate lateral wind pressures and the deflection limits stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Serviceability wind pressure (Ws) taken as 67% of Ultimate wind pressure (Wu) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m$^2$ only. The weight of external cladding over 30 kg/m$^2$ (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

## Jamb Stud Openings in External Steel Stud Walls
## Chart 5 Opening Width - WIND REGION B - HEIGHT/240



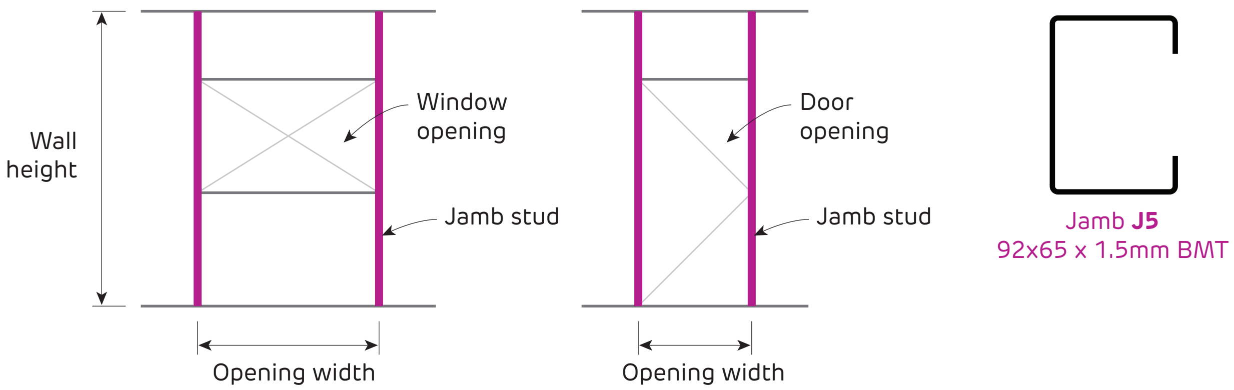

**NOTES**
1. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating. Check maximum production lengths.
2. Base connection BC6 using 1.15mm BMT track (Base Metal Thickness) and Siniat UB80. Stud must be fixed to base track with 10g screws on both sides.
3. Head connection HC5 using 1.15mm BMT Slotted Deflection Head Track (SDHT) and Siniat UB80. 10g wafer head screw through slots on both sides.
4. Noggings at 1500mm maximum intervals.
5. Opening widths based upon ultimate lateral wind pressures and the deflection limits stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Serviceability wind pressure (Ws) taken as 47% of Ultimate wind pressure (Wu) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/$m^2$ only. The weight of external cladding over 30 kg/$m^2$ (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

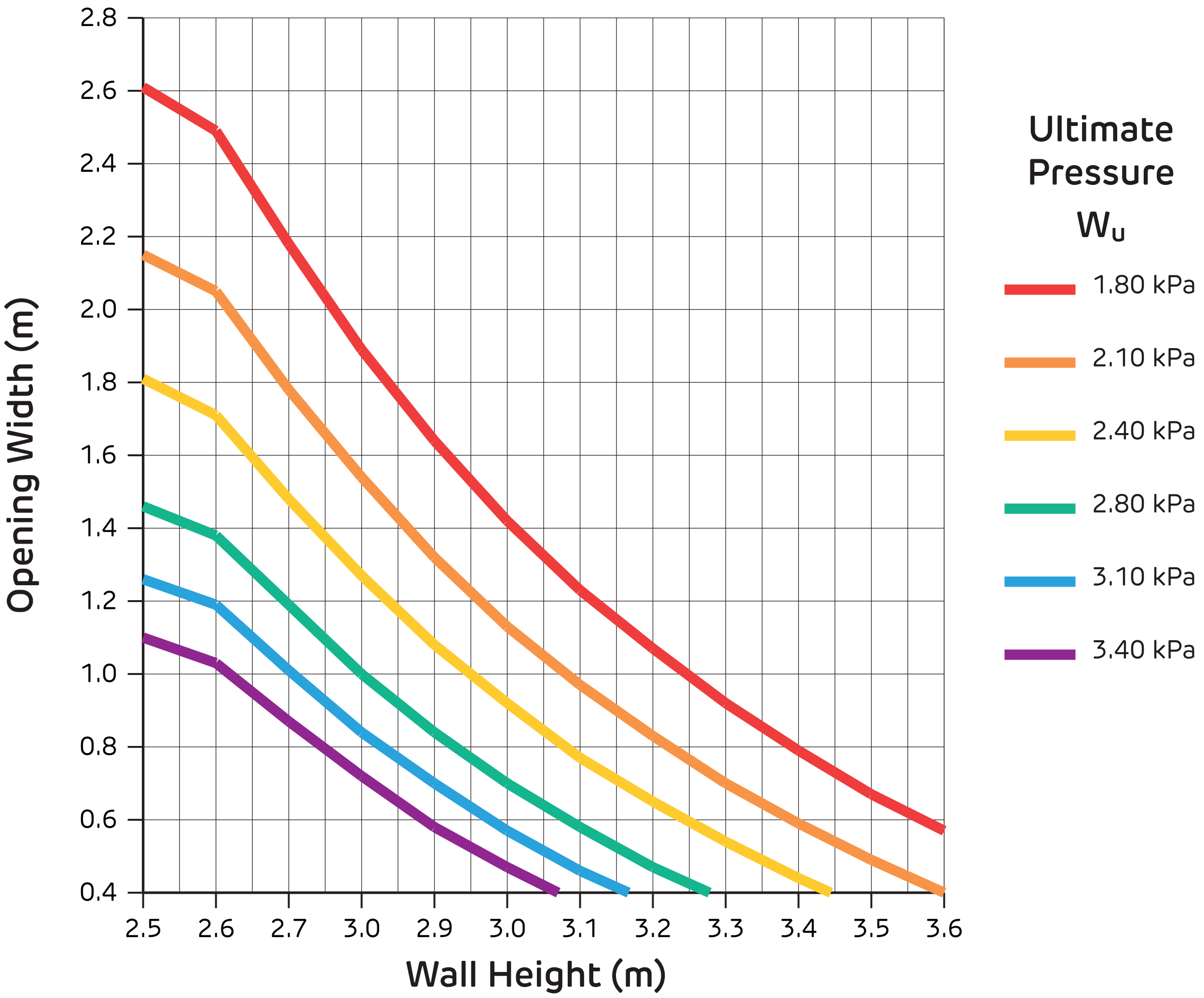
### Concrete Screw Anchor Table

| Seismic Performance Category | |
|---|---|
| C1 | C2 |
| Siniat SA8x65 | Hilti HUS3-H 8x75 |

1. Minimum 32 MPa concrete.
2. Minimum 52mm edge distance.

## Jamb Stud Openings in External Steel Stud Walls
## Chart 6 Opening Width - WIND REGION B - HEIGHT/360




**NOTES**

1. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating. Check maximum production lengths.
2. Base connection BC6 using 1.15mm BMT track (Base Metal Thickness) and Siniat UB80. Stud must be fixed to base track with 10g screws on both sides.
3. Head connection HC5 using 1.15mm BMT Slotted Deflection Head Track (SDHT) and Siniat UB80. 10g wafer head screw through slots on both sides.
4. Noggings at 1500mm maximum intervals.
5. Opening widths based upon ultimate lateral wind pressures and the deflection limits stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Serviceability wind pressure (Ws) taken as 47% of Ultimate wind pressure (Wu) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m$^2$ only. The weight of external cladding over 30 kg/m$^2$ (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

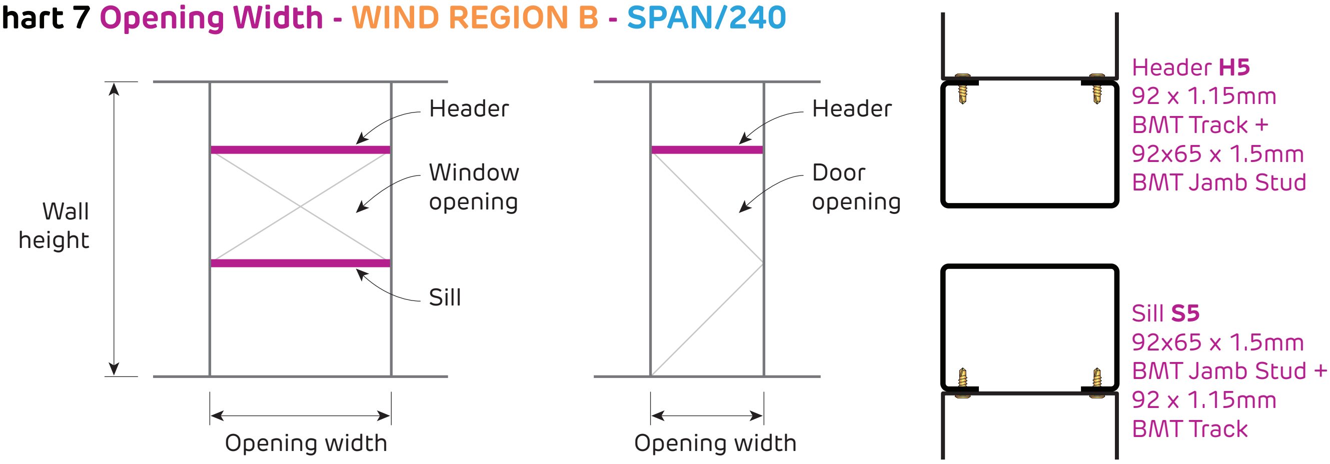
### Concrete Screw Anchor Table

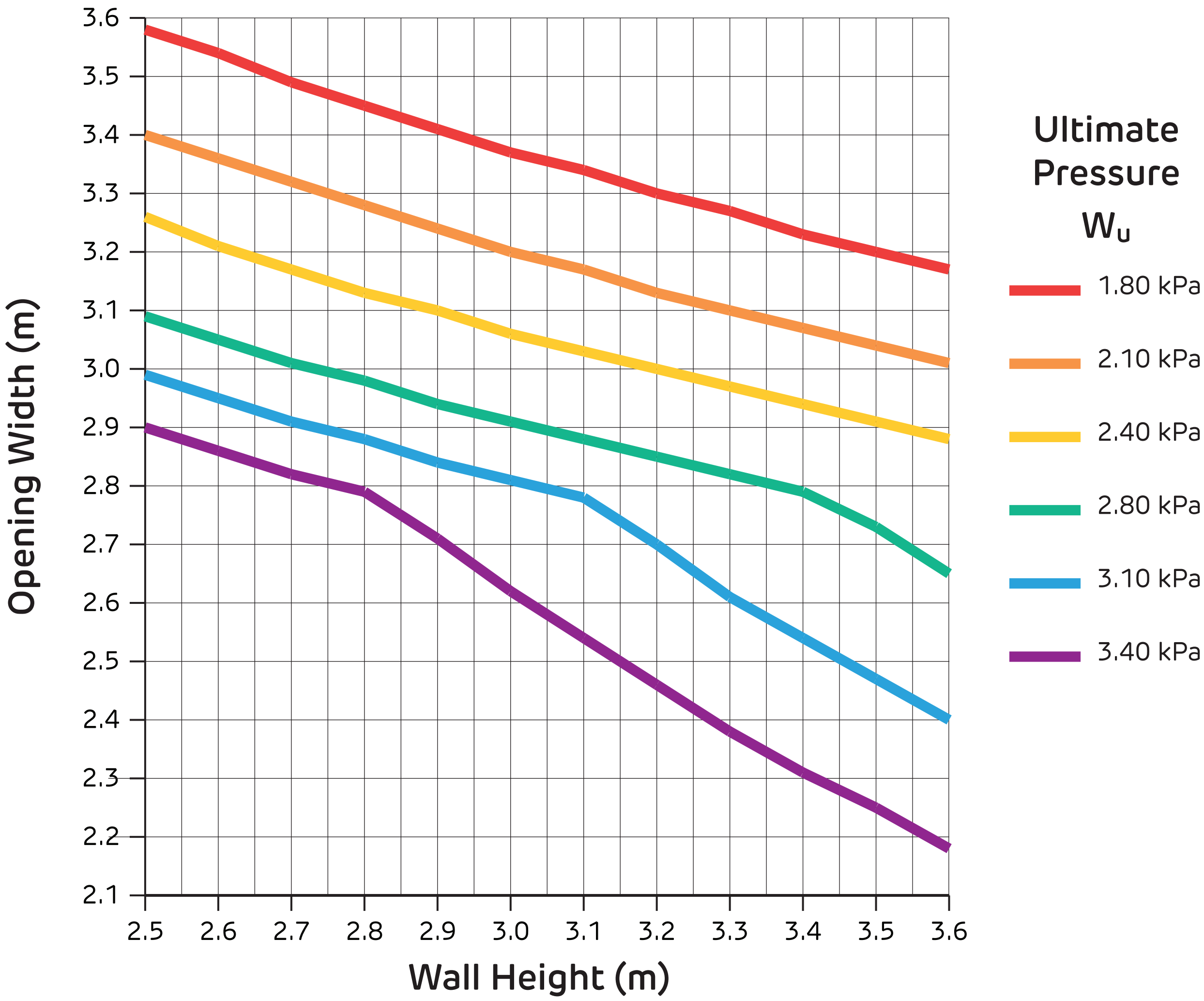
| Seismic Performance Category | |
|---|---|
| C1 | C2 |
| Siniat SA8x65 | Hilti HUS3-H 8x75 |

1. Minimum 32 MPa concrete.
2. Minimum 52mm edge distance.

## Jamb Stud Openings in External Steel Stud Walls

### Chart 7 Opening Width - WIND REGION B - SPAN/240

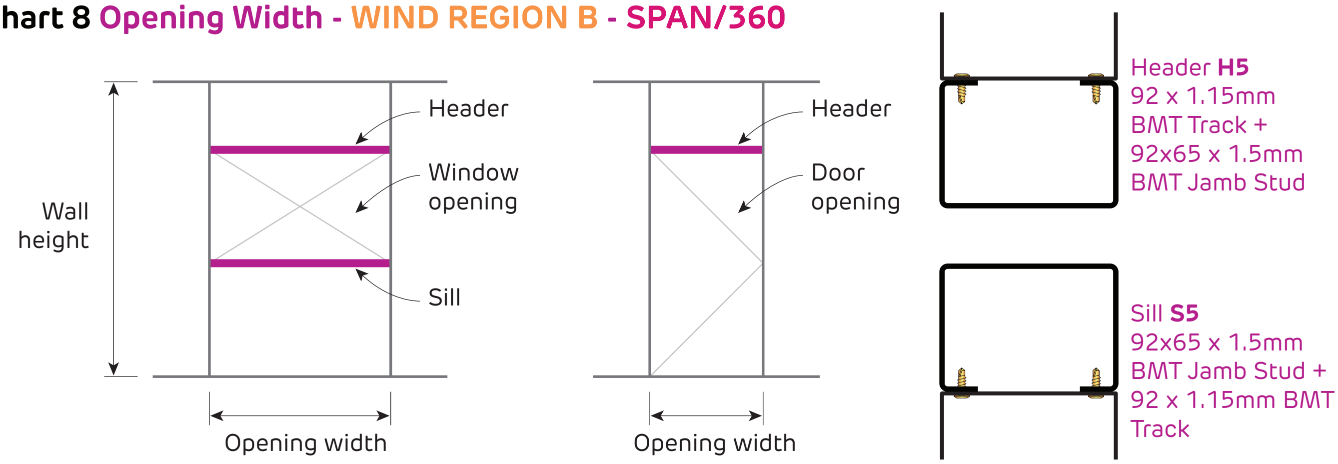


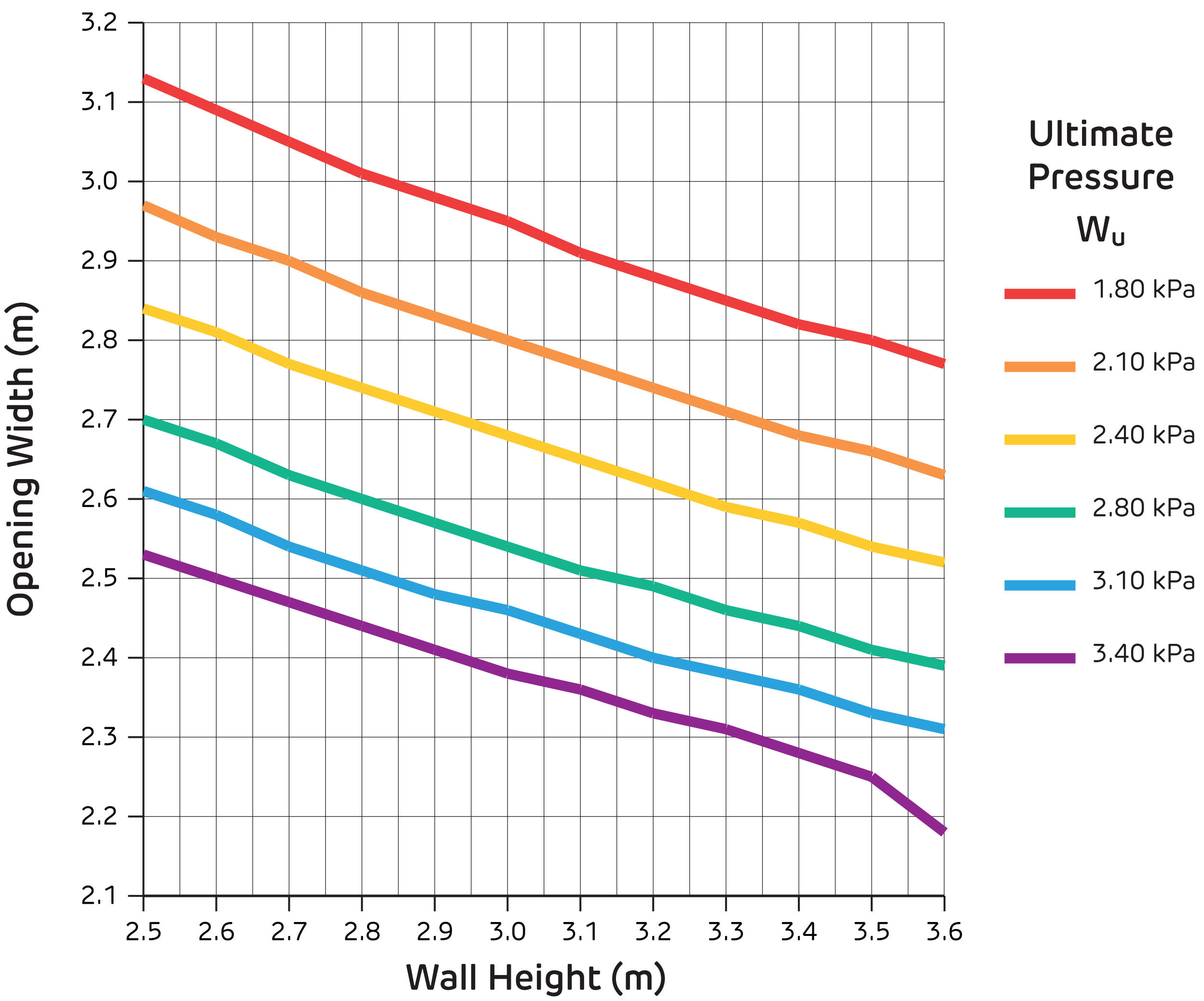




**NOTES**

1. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat track G300 with Zincalume™ AM150 corrosion coating. Check maximum production lengths.
2. Base connection BC6 using 1.15mm BMT track (Base Metal Thickness) and Siniat UB80. Stud must be fixed to base track with 10g screws on both sides.
3. Head connection HC5 using 1.15mm BMT Slotted Deflection Head Track (SDHT) and Siniat UB80. 10g wafer head screw through slots on both sides.
4. Noggings at 1500mm maximum intervals.
5. Opening widths based upon ultimate lateral wind pressures and the deflection limits stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Serviceability wind pressure (Ws) taken as 47% of Ultimate wind pressure (Wu) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.

## Jamb Stud Openings in External Steel Stud Walls
## Chart 8 Opening Width - WIND REGION B - SPAN/360




**NOTES**

1. Table refers to Siniat Jamb Stud G450 with Z350 corrosion coating or Siniat track G300 with Zincalume™ AM150 corrosion coating. Check maximum production lengths.
2. Base connection BC6 using 1.15mm BMT track (Base Metal Thickness) and Siniat UB80. Stud must be fixed to base track with 10g screws on both sides.
3. Head connection HC5 using 1.15mm BMT Slotted Deflection Head Track (SDHT) and Siniat UB80. 10g wafer head screw through slots on both sides.
4. Noggings at 1500mm maximum intervals.
5. Opening widths based upon ultimate lateral wind pressures and the deflection limits stated. Table not applicable to axially loaded (load bearing) studs. No additional load considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.* Seek professional engineering advice to determine wind pressures for a specific project.
8. Serviceability wind pressure (Ws) taken as 47% of Ultimate wind pressure (Wu) which is suitable for up to Importance Level (IL) 3 buildings. Contact Siniat for IL4 buildings.
9. Earthquake loads determined in accordance with AS1170.4 *Earthquake Actions* using $k_p$ = 1.3, Z= 0.1, Ch(0) = 1.3, $a_x$ = 3, $I_c$ = 1.5., $R_c$ = 2.5 for parts and $R_c$ = 1 for connections. Contact Siniat or a structural engineer to check walls for other earthquake actions or any imposed ceiling loads during an earthquake. Specific project information is required.
10. Table includes self weight and upto 2 layers of plasterboard internally and external cladding weight up to 180 kg/m² only. The weight of external cladding over 30 kg/m² (ie: Masonry and AAC panels and the like) must be supported by the floor below and not the stud wall.
11. The nominated lateral wind pressures, deflection limit and earthquake criteria must be checked for suitability for a specific project.



# 4.3 External Timber Framed Walls

External timber framed plasterboard walls protect the inside from weather, noise and, when applicable, fire. They must also comply with local energy efficiency provisions.

Fire rated systems in this section are designed to satisfy BCA fire rating requirements for walls built close to a property boundary. These walls are usually required to be fi re rated from the outside only.

**multi**shield forms part of the outer wall adding fire and sound resistance which is covered by a moisture barrier and external cladding which provide the weather protection.

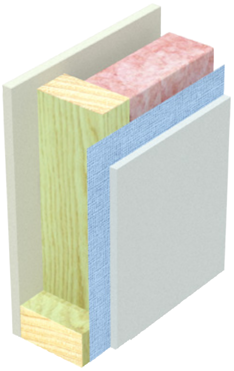
This section contains building systems, installation instructions and construction details for fire rated and non-fire rated external timber framed walls.

# System Directory

| System | Inside Lining | Outer Lining and Cladding | Frame | FRL | Acoustics[1] | |
|---|---|---|---|---|---|---|
| | | | | | Rw | Rw+Ctr |
| TSW73 | 1 x 10mm **masta**shield | Minimum 7.5mm fibre cement | Timber stud | - | 40 | 29 |
| TSW274 | 2 x 10mm **sound**shield | Minimum 7.5mm fibre cement | Timber stud | - | 47 | 36 |
| TSW470 | 1 x 10mm **masta**shield | 1 x 13mm **multi**shield plus any external cladding | Timber stud | 30/30/30 from outside | 39 | 32 |
| TSW473 | 1 x 10mm **masta**shield | 1 x 16mm **multi**shield plus any external cladding | Timber stud | 60/60/60 from outside | 39 | 32 |
| TSW471 | 1 x 10mm **masta**shield | 2 x 13mm **multi**shield plus any external cladding | Timber stud | 90/90/90 from outside | 45 | 37 |
| TSW472 | 1 x 10mm **masta**shield | 3 x 13mm **multi**shield plus any external cladding | Timber stud | 120/120/120 from outside | 48 | 40 |
| TSW491 | Optional | 2 x 13mm **multi**shield plus any external cladding | Timber stud | 30/30/30 from outside | 34 | 31 |
| TSW494 | Optional | 2 x 16mm **multi**shield plus any external cladding | Timber stud | 60/60/60 from outside | 35 | 32 |
| TSW492 | Optional | 3 x 13mm **multi**shield plus any external cladding | Timber stud | 90/90/90 from outside | 37 | 35 |
| TSW495 | Optional | 3 x 16mm **multi**shield plus any external cladding | Timber stud | 120/120/120 from outside | 38 | 36 |
| TSW476 | 1 x 16mm **fire**shield | 1 x 16mm **multi**shield plus any external cladding | Timber stud | 60/60/60 | 42 | 34 |
| TSW477 | 1 x 16mm **fire**shield | 2 x 13mm **multi**shield plus any external cladding | Timber stud | 90/90/90 from outside 60/60/60 from inside | 44 | 38 |
| TSW478 | 2 x 13mm **fire**shield | 2 x 13mm **multi**shield plus any external cladding | Timber stud | 90/90/90 | 47 | 42 |
| TSW479 | 2 x 16mm **fire**shield | 2 x 16mm **multi**shield plus any external cladding | Timber stud | 120/120/120 | 47 | 43 |
| TSW480 | 1 x 10mm **masta**shield | 1 x 13mm **multi**shield plus 7.5mm Duratex | Timber stud | 30/30/30 from outside | 45 | 33 |
| TSW483 | 1 x 10mm **masta**shield | 1 x 16mm **multi**shield plus 7.5mm Duratex | Timber stud | 60/60/60 from outside | 47 | 39 |
| TSW481 | 1 x 10mm **masta**shield | 2 x 13mm **multi**shield plus 7.5mm Duratex | Timber stud | 90/90/90 from outside | 48 | 36 |
| TSW484 | 1 x 10mm **masta**shield | 2 x 16mm **multi**shield plus 7.5mm Duratex | Timber stud | 90/90/90 from outside | 50 | 42 |
| TSW482 | 1 x 10mm **masta**shield | 3 x 13mm **multi**shield plus 7.5mm Duratex | Timber stud | 120/120/120 from outside | 50 | 39 |
| TSW486 | 1 x 16mm **fire**shield | 1 x 16mm **multi**shield plus 7.5mm Duratex | Timber stud | 60/60/60 | 47 | 41 |
| TSW487 | 1 x 16mm **fire**shield | 2 x 13mm **multi**shield plus 7.5mm Duratex | Timber stud | 90/90/90 from outside 60/60/60 from inside | 49 | 37 |
| TSW488 | 2 x 13mm **fire**shield | 2 x 13mm **multi**shield plus 7.5mm Duratex | Timber stud | 90/90/90 | 52 | 43 |
| TSW489 | 2 x 16mm **fire**shield | 2 x 16mm **multi**shield plus 7.5mm Duratex | Timber stud | 120/120/120 | 52 | 42 |
| TSW70 | 1 x 10mm **masta**shield | 110mm masonry | Timber stud | 60/60/60 from outside | 57 | **53** |
| TSW373 | 1 x 16mm **fire**shield | 110mm masonry | Timber stud | 60/60/60 | 54 | **52** |
| TSW371 | 2 x 13mm **fire**shield | 110mm masonry | Timber stud | 90/90/90 | 56 | **53** |
| TSW374 | 2 x 16mm **fire**shield | 110mm masonry | Timber stud | 120/120/120 | 54 | **52** |

1. Sound Insulation values determined using 90mm timber stud and R1.5 glasswool insulation.
2. Refer to 'Exterior Cladding' table in the Installation section for all external cladding options.

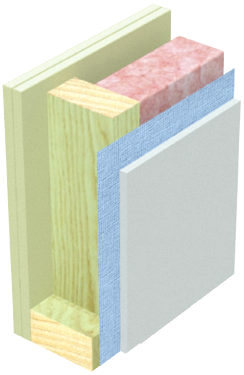
## TSW73



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- Wall wrap
- 1 layer of minimum 7.5mm Innova fibre cement

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Insul |
| 70 | 88 approx | 39 (29) | - | 38 (29) | |
| 90 | 108 approx | 40 (29) | 40 (29) | 39 (28) | |

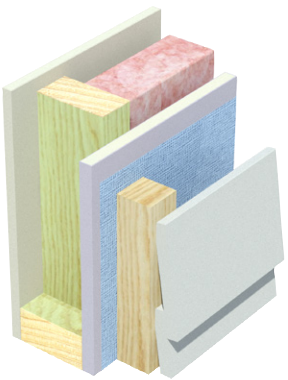
## TSW274



- 2 layers of 10mm **sound**shield or **opal**
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- Wall wrap
- 1 layer of minimum 7.5mm Innova fibre cement

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Insul |
| 70 | 96 approx | 46 (34) | - | 44 (32) | |
| 90 | 116 approx | 47 (36) | 47 (36) | 46 (34) | |

## TSW470



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls without suspended floors

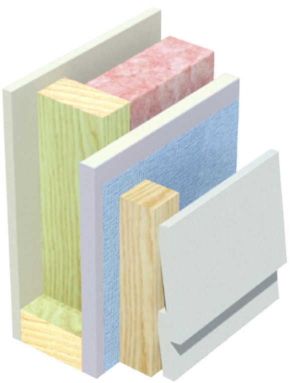
**Fire Resistance Level**

**30/30/30**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Insul |
| 70 | 93 + cavity + cladding | 39 (31) | - | 39 (31) | |
| 90 | 113 + cavity + cladding | 39 (32) | 40 (32) | 39 (31) | |

## TSW473



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 16mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls without suspended floors

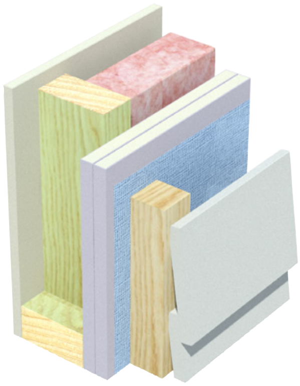
**Fire Resistance Level**

**60/60/60**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Insul |
| 70 | 96 + cavity + cladding | 39 (31) | - | 39 (31) | |
| 90 | 116 + cavity + cladding | 39 (32) | 40 (33) | 39 (32) | |

## TSW471



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls without framed suspended floors

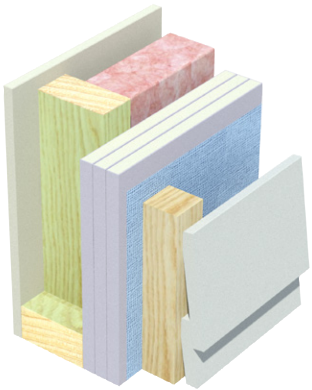
**Fire Resistance Level**

**90/90/90**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report |
| 70 | 106 + cavity + cladding | 44 (36) | - | 44 (36) | Insul |
| 90 | 126 + cavity + cladding | 45 (37) | 45 (38) | 45 (37) | |

## TSW472



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 3 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls without framed suspended floors

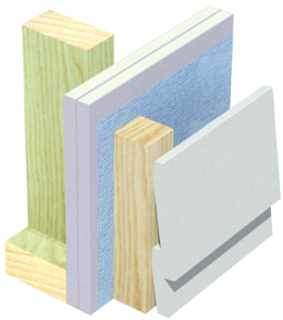
**Fire Resistance Level**

**120/120/120**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report |
| 70 | 119 + cavity + cladding | 47 (38) | - | 47 (38) | Insul |
| 90 | 139 + cavity + cladding | 48 (40) | 48 (41) | 48 (40) | |

## TSW491



- Optional internal wall lining
- Minimum 70mm timber stud framing at 600mm maximum centres
- Optional wall insulation
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls with framed suspended floors

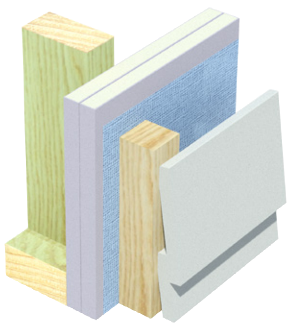
**Fire Resistance Level**

**30/30/30**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No Insulation | Pink® Batts Wall R1.5 | Polyester Wall R1.5 | Report |
| 70 | 96 + cavity + cladding | 34 (31) | 34 (31) | 34 (31) | Day Design 3094-45 |
| 90 | 116 + cavity + cladding | 34 (31) | 34 (31) | 34 (31) | |

## TSW494



- Optional internal wall lining
- Minimum 70mm timber stud framing at 600mm maximum centres
- Optional wall insulation
- 2 layers of 16mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls with framed suspended floors

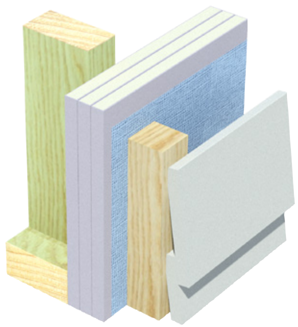
**Fire Resistance Level**

**60/60/60**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No Insulation | Pink® Batts Wall R1.5 | Polyester Wall R1.5 | Report |
| 70 | 102 + cavity + cladding | 35 (32) | 35 (32) | 35 (32) | Day Design 3094-45 |
| 90 | 122 + cavity + cladding | 35 (32) | 35 (32) | 35 (32) | |

## TSW492



- Optional internal wall lining
- Minimum 70mm timber stud framing at 600mm maximum centres
- Optional wall insulation
- 3 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls with framed suspended floors

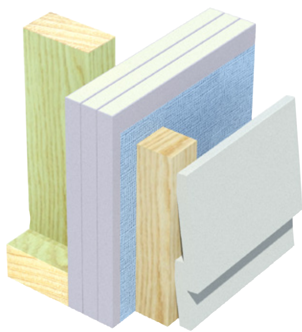
**Fire Resistance Level**

**90/90/90**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No Insulation | Pink® Batts Wall R1.5 | Polyester Wall R1.5 | Report |
| 70 | 109 + cavity + cladding | 37 (35) | 37 (35) | 37 (35) | Day Design 3094-45 |
| 90 | 129 + cavity + cladding | 37 (35) | 37 (35) | 37 (35) | |

## TSW495



- Optional internal wall lining
- Minimum 70mm timber stud framing at 600mm maximum centres
- Optional wall insulation
- 3 layers of 16mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

Note: Suited to load bearing walls with framed suspended floors

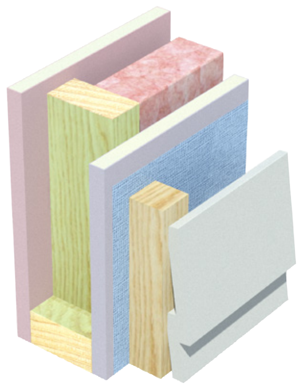
**Fire Resistance Level**

**120/120/120**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No Insulation | Pink® Batts Wall R1.5 | Polyester Wall R1.5 | Report |
| 70 | 118 + cavity + cladding | 38 (36) | 38 (36) | 38 (36) | Day Design 3094-45 |
| 90 | 128 + cavity + cladding | 38 (36) | 38 (36) | 38 (36) | |

## TSW476



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 16mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

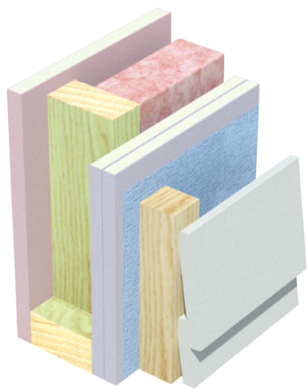
**Fire Resistance Level**

**60/60/60**
from either side

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report |
| 70 | 102 + cavity + cladding | 41 (33) | - | 41 (33) | Day Design 3094-45 |
| 90 | 122 + cavity + cladding | 42 (34) | 42 (36) | 42 (34) | |

## TSW477



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

**Fire Resistance Level**

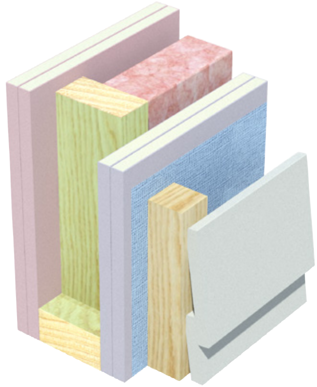
**90/90/90**
from the outside

**60/60/60**
from the inside

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report |
| 70 | 112 + cavity + cladding | 44 (37) | - | 44 (37) | Day Design 3094-45 |
| 90 | 132 + cavity + cladding | 44 (38) | 45 (39) | 44 (38) | |

## TSW478



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

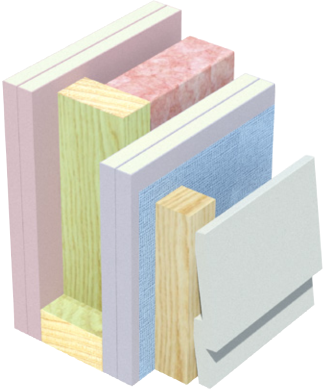
**Fire Resistance Level**

**90/90/90**
from either side

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Day Design 3094-45 |
| 70 | 122 + cavity + cladding | 47 (41) | - | 47 (41) | |
| 90 | 142 + cavity + cladding | 47 (42) | 48 (43) | 47 (42) | |

## TSW479



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 16mm **multi**shield or **tru**rock
- Wall wrap
- External cladding as nominated in the 'Exterior Cladding' table

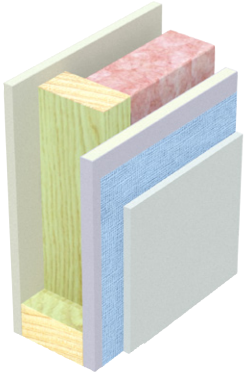
**Fire Resistance Level**

**120/120/120**
from either side

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Day Design 3094-45 |
| 70 | 134 + cavity + cladding | 47 (42) | - | 47 (42) | |
| 90 | 154 + cavity + cladding | 47 (43) | 48 (44) | 47 (43) | |

## TSW480



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 13mm **multi**shield or **tru**rock
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement

Note: Suited to load bearing walls without framed suspended floors

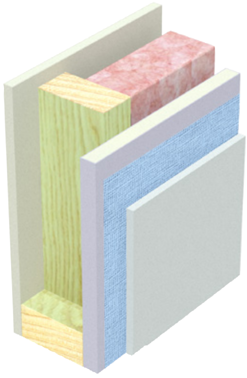
**Fire Resistance Level**

**30/30/30**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Insul |
| 70 | 101 approx | 43 (32) | - | 43 (33) | |
| 90 | 121 approx | 45 (33) | 45 (33) | 44 (32) | |

## TSW483



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 16mm **multi**shield or **tru**rock
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement

Note: Suited to load bearing walls without framed suspended floors

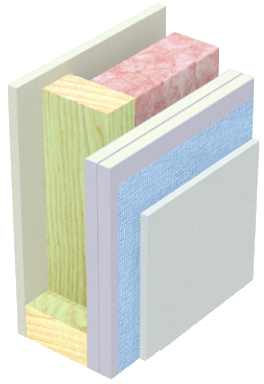
**Fire Resistance Level**

**60/60/60**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Day Design 3094-43 |
| 70 | 104 approx | 47 (38) | - | 46 (38) | |
| 90 | 124 approx | 47 (39) | 47 (39) | 47 (39) | |

## TSW481



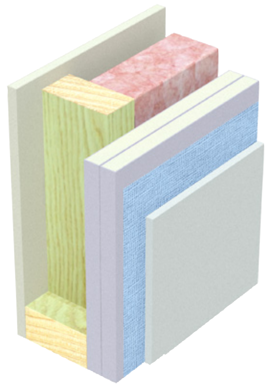
- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement

Note: Suited to load bearing walls without framed suspended floors

**Fire Resistance Level**
**90/90/90**
from the outside only
Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Insul |
| 70 | 114 approx | 47 (35) | - | 46 (35) | |
| 90 | 134 approx | 48 (36) | 48 (36) | 47 (35) | |

## TSW484



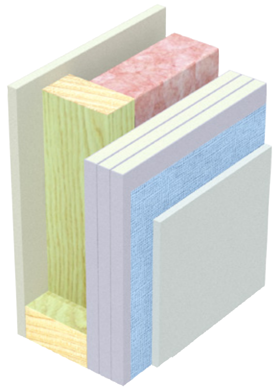
- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 16mm **multi**shield or **tru**rock
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement

Note: Suited to load bearing walls without framed suspended floors

**Fire Resistance Level**
**90/90/90**
from the outside only
Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Day Design 3094-43 |
| 70 | 120 approx | 49 (40) | - | 49 (40) | |
| 90 | 140 approx | 50 (42) | 50 (42) | 50 (42) | |

## TSW482



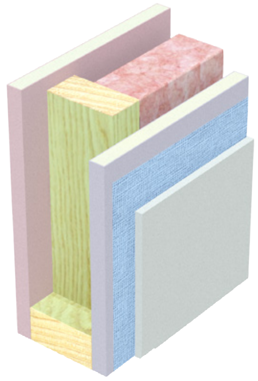
- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 3 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement

Note: Suited to load bearing walls without framed suspended floors

**Fire Resistance Level**
**120/120/120**
from the outside only
Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Insul |
| 70 | 127 approx | 49 (38) | - | 48 (37) | |
| 90 | 147 approx | 50 (39) | 50 (39) | 49 (37) | |

## TSW486

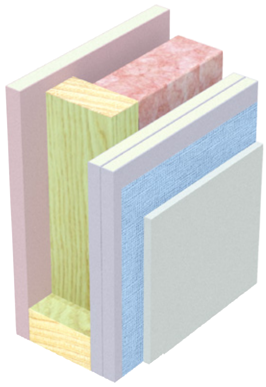


- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 16mm **multi**shield or **tru**rock
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement

**Fire Resistance Level**
**60/60/60**
from either side
Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Day Design 3094-43 |
| 70 | 110 approx | 47 (40) | - | 47 (39) | |
| 90 | 130 approx | 47 (41) | 47 (41) | 47 (41) | |

## TSW487



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement

**Fire Resistance Level**

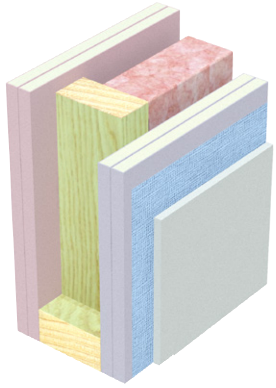
**90/90/90**
from the outside

**60/60/60**
from the inside

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Insul |
| 70 | 120 approx | 49 (36) | - | 48 (35) | |
| 90 | 140 approx | 49 (37) | 49 (37) | 49 (35) | |

## TSW488



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield or **tru**rock
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement

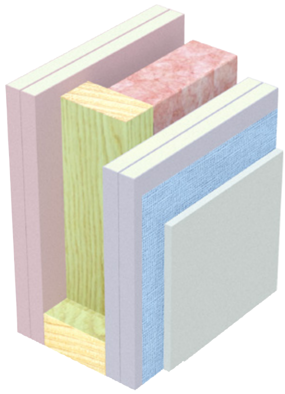
**Fire Resistance Level**

**90/90/90**
from either side

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Insul |
| 70 | 130 approx | 52 (41) | - | 51 (39) | |
| 90 | 150 approx | 52 (43) | 52 (43) | 52 (41) | |

## TSW489



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 16mm **multi**shield or **tru**rock
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement

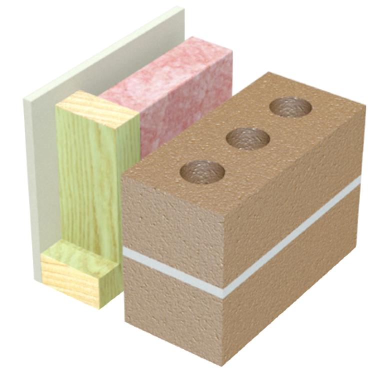
**Fire Resistance Level**

**120/120/120**
from either side

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | Pink® Batts Wall R1.5 | Pink® Batts Wall R2.0 | Polyester Wall R1.5 | Report Insul |
| 70 | 142 approx | 52 (40) | - | 51 (38) | |
| 90 | 162 approx | 52 (42) | 52 (42) | 52 (40) | |

## TSW70



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 90mm timber stud framing at 600mm max centres
- Optional wall insulation
- 40mm air-gap with brick ties
- 110mm masonry with FRL 60/60/60 and minimum laid weight 176 kg/m²

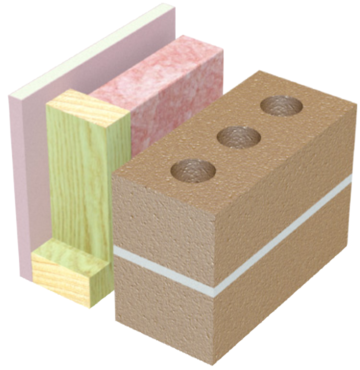
**Fire Resistance Level**

**60/60/60**
from the outside only

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Report Koikas 6228 |
| 90 | 250 approx | 53 (46) | 57 (**53**) | |

## TSW373



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 90mm timber stud framing at 600mm max centres
- Optional wall insulation
- 40mm air-gap with brick ties
- 110mm masonry with FRL 60/60/60 and minimum laid weight 176 kg/m²

System designed to provide fire protection to stud (not masonry)

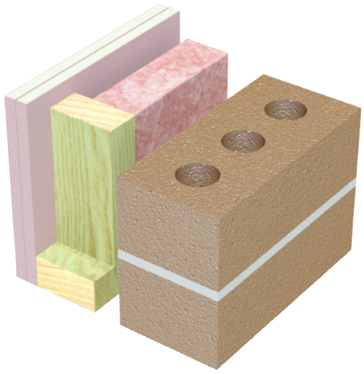
**Fire Resistance Level**

**60/60/60**
from either side

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Report Koikas 6228 |
| 90 | 256 approx | 53 (**50**) | 54 (**52**) | |

## TSW371



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 90mm timber stud framing at 600mm max centres
- Optional wall insulation
- 40mm air-gap with brick ties
- 110mm masonry with FRL 90/90/90 and minimum laid weight 176 kg/m²

System designed to provide fire protection to stud (not masonry)

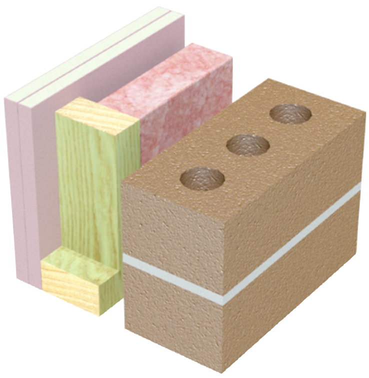
**Fire Resistance Level**

**90/90/90**
from either side

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Report Koikas 6228 |
| 90 | 266 approx | 55 (**52**) | 56 (**53**) | |

## TSW374



- 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 90mm timber stud framing at 600mm max centres
- Optional wall insulation
- 40mm air-gap with brick ties
- 110mm masonry with FRL 120/120/120 and minimum laid weight 176 kg/m²

System designed to provide fire protection to stud (not masonry)

**Fire Resistance Level**

**120/120/120**
from either side

Report
FC14351

| Stud Size (mm) | Wall Width (mm) | Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Batts Wall R1.5 | Report Koikas 6228 |
| 90 | 272 approx | 54 (**51**) | 54 (**52**) | |

# General Requirements

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Install control joints in plasterboard walls:<br>> At 12m maximum intervals<br>> At all movement joints in the building<br>> At any change in the substrate | ✓ | ✓ |
| Jointing of **multi**shield is not required due to the overlying breathable wall wrap and cladding. | | ✓ |
| Joint the face layer on the internal side. As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, use **bindex** fire and acoustic sealant according to the Product Data Sheet. | | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | | ✓ |
| Protect plasterboard sheets from the weather when installed on the exterior side of external wall framing until the moisture barrier and exterior cladding are installed. **multi**shield is resistant to fire, water and mould but must be protected from high wind events and excessive rain. | ✓ | ✓ |
| Protect plasterboard from water pooling at ground level. | ✓ | ✓ |
| Load bearing structural steel members in wall cavities have the Structural Adequacy component of the system's Fire Resistance Level. | | ✓ |
| Wall systems with a Structural Adequacy component to their Fire Resistance Level (eg: 60/60/60) may be built with any steel framing provided it is designed according to the relevant Australian Standards, has a minimum 51mm cavity and maximum 600mm horizontal or vertical framing centres for the fixing of linings. As an example, a wall could be comprised of steel studs and an additional layer of furring channels, with or without resilient mounts. | | ✓ |
| Use **bindex** fire and acoustic sealant on all gaps and around perimeter. Vermiculite plaster is not permitted. | | ✓ |
| Attach all fixtures to studs or purpose installed noggings. Wall anchors must not be fixed only to the plasterboard of fire rated walls. | | ✓ |
| **fire**shield may be substituted with **multi**shield, **impact**shield, **tru**rock and **tru**rock HD of the same or greater thickness and maintain fire performance. | | ✓ |

> For acceptable modifications or variations to fire rated systems, refer to Section 2.3 Fire Resistance.
> Penetrations in external walls of Class 1 buildings do not need to have an FRL, refer to NCC Volume Two, Clause 3.7.1.5
> Insulation products nominated in system tables are the minimum required to meet the acoustic rating. Insulation with higher R-value may be required to meet the desired system R-value.

## Framing

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Framing members as per structural design up to 600mm maximum. | ✓ | ✓ |
| Use minimum 70x45mm or 90x35mm timber studs for load bearing walls. | | ✓ |

> Plumbing and electrical services must not protrude beyond the face of the studs.
> Noggings are permitted to assist the fixing of services.
> For non-fire rated walls, noggings are not required behind recessed joints when sheeting plasterboard horizontally.

## Plasterboard Layout

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Vertical joints must be 200mm minimum from the edge of any opening such as windows and doorways to minimise cracking at the joints. | ✓ | ✓ |
| **Horizontal Layout** | | |
| Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets and on opposite sides of the wall. | ✓ | ✓ |
| Stagger butt joints in multilayer systems by 300mm minimum on adjoining sheets and between layers. | ✓ | ✓ |
| First layer butt joints must be backed by a stud or back-blocked. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |
| Stagger recessed edges in single layer systems by 300mm minimum on opposite sides of the wall or alternatively, back by a nogging. | | ✓ |
| **Vertical Layout** | | |
| Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets and on opposite sides of the wall. | ✓ | ✓ |
| Stagger butt joints by 300mm minimum on adjoining sheets and between layers. | ✓ | ✓ |
| First layer butt joints must be backed by a nogging or back-blocked. | ✓ | |
| First layer butt joints must be backed by a nogging. | | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum on opposite sides of the wall for single layer systems | ✓ | ✓ |

> Install plasterboard sheets horizontally when practical reduce the effect of glancing light.
> Minimise butt joints by using long sheets.

# Plasterboard Fixing

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ | ✓ |
| Laminating screws can be used to fix butt joints in the second and third layer. | ✓ | ✓ |
| **Fastener and Adhesive Method** | | |
| Apply mastagrip Stud Adhesive after the frame is clean, dry, and free from grease, dust and other contaminants. | ✓ | |
| Apply mastagrip daubs 200mm minimum from screws and plasterboard edges. | ✓ | |
| **Fastener Only Method** | | |
| Use the 'Screw Only Method' in fire rated areas. | ✓ | ✓ |

The 'Fastener and Adhesive Method' is recommended for non-fire rated applications. mastagrip will:

- Minimise screw popping
- Reduce the number of screw heads that may show in glancing light
- Assist in compensating for frame irregularities
- Reduce rattle noise when applied to bracing straps.

## Fastener Type and Minimum Size for the Installation of Plasterboard to Softwood Timber

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 6.5mm | 2.8 x 30mm galvanised nail or 2.8 x 25mm ring shank nail or 6g x 25mm screw | 2.8 x 40mm galvanised nail or 2.8 x 30mm ring shank nail or 6g x 32mm screw | - |
| 10mm | 2.8 x 40mm galvanised nail or 2.8 x 30mm ring shank nail or 6g x 25mm screw for walls or 6g x 32mm screw for ceilings | 2.8 x 50mm galvanised nail or 6g x 41mm screw * | - |
| 13mm | 2.8 x 40mm galvanised nail or 2.8 x 30mm ring shank nail or 6g x 41mm screw | 2.8 x 50mm galvanised nail or 7g x 50mm screw * | 3.75 x 75mm galvanised nail or 8g x 65mm screw * |
| 16mm | 2.8 x 50mm galvanised nail or 7g x 45mm screw | 3.15 x 65mm galvanised nail or 8g x 60mm screw * | 3.75 x 75mm galvanised nail or 8g x 75mm screw * |

*10g x 38mm Laminating screws may be used as detailed in installation diagrams.
Also refer to the Siniat Plasterboard installation Guide for minimum screw lengths for non-fire rated walls.

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 10mm | 6g x 25mm screw | 6g x 41mm screw * | - |
| 13mm | 6g x 25mm screw | 6g x 41mm screw * | 7g x 57mm screw * |
| 16mm | 6g x 32mm screw | 6g x 45mm screw * | 8g x 65mm screw * |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.
*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

**FIGURE 1** **Fire Rated 1 Layer - Horizontal**
Fastener Only Method

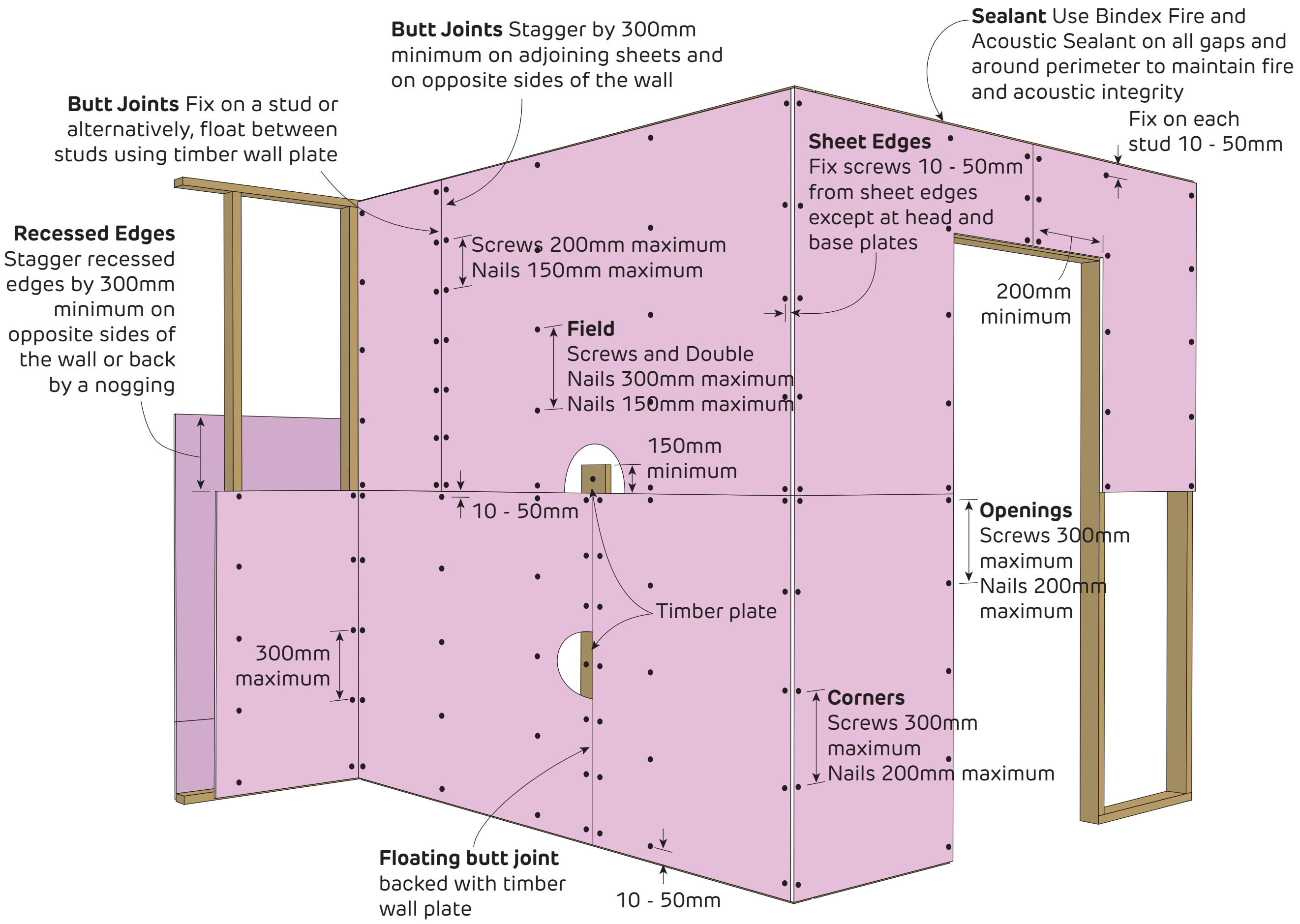


**FIGURE 2** **Fire Rated 2 Layers - Horizontal + Horizontal**
Screw Only Method

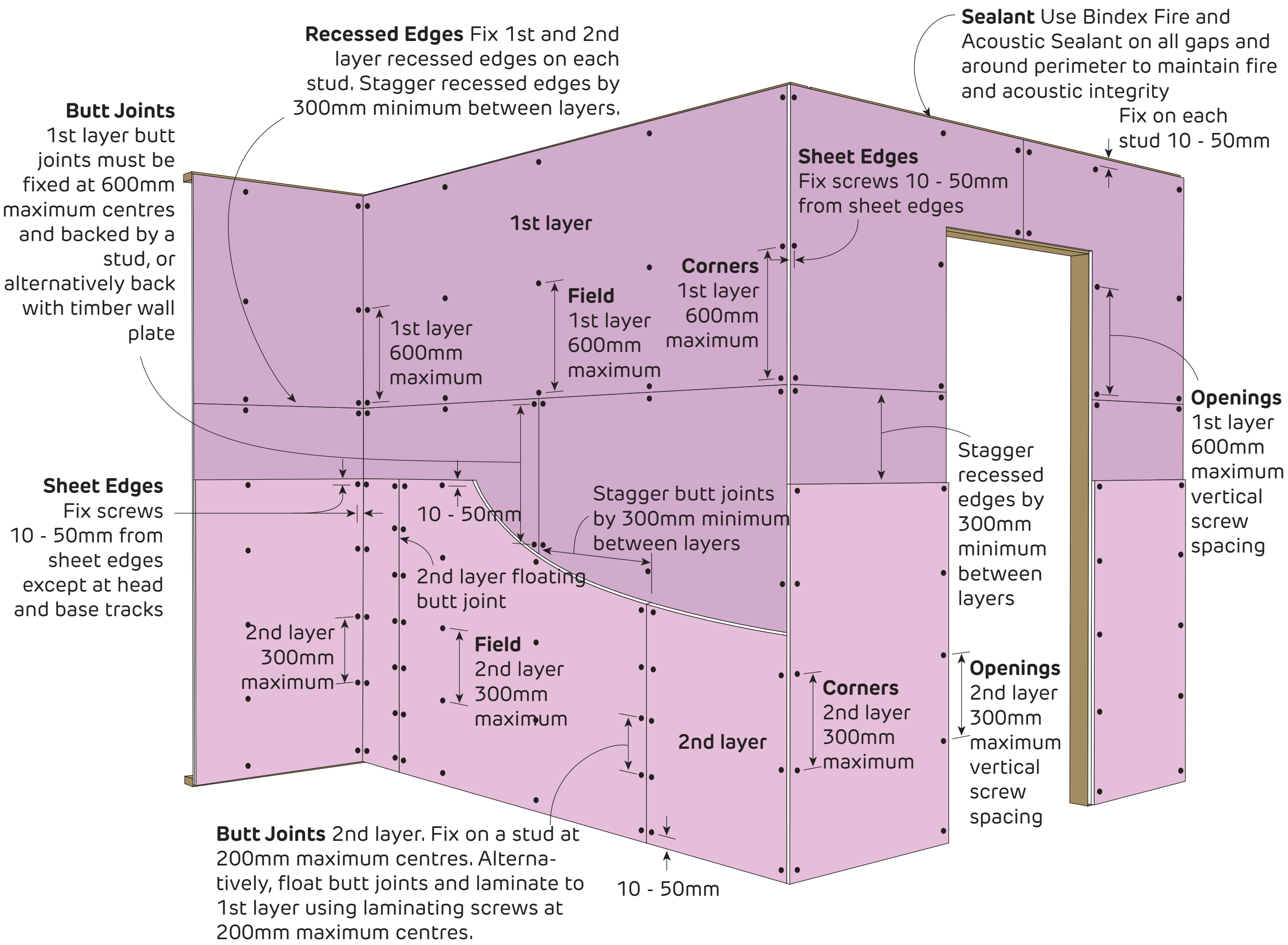
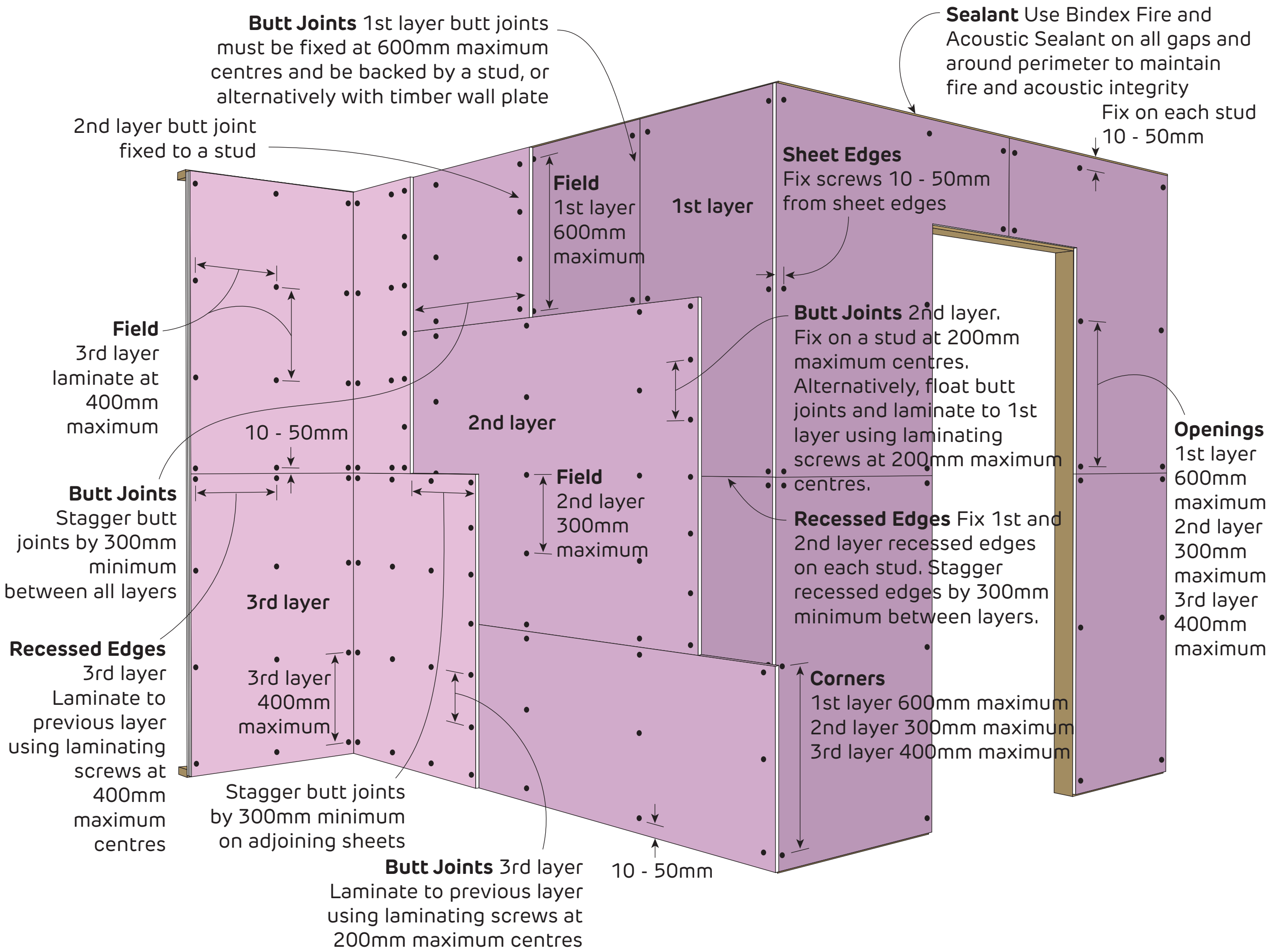


**FIGURE 3** Fire Rated 3 Layers - Horizontal + Horizontal + Horizontal
Screw Only Method



# Exterior Cladding

| | Fire Rated |
|---|---|
| The following cladding sheets or planks are not considered detrimental to the FRL of the wall:<br>> Innova fibre cement<br>> Equitone fibre cement<br>> Glass-fibre reinforced cement aggregate board<br>> Wood or timber<br>> Steel<br>> Aluminium<br>> PVC<br>> Rendered polystyrene<br>> Cladding fixed and supported independently of the wall<br>For class 2 to 9 buildings, also refer to NCC Volume One Section C, CP2 Spread of fire requirements. | ✓ |
| Fix cladding or cladding battens to the timber frame through the **multi**shield. | ✓ |

- Protect plasterboard sheets from the weather when installed on the exterior side of external wall framing until the moisture barrier and exterior cladding are installed.
- Exterior cladding and the moisture barrier once installed, must provide protection from the weather.
- Use construction techniques that direct condensation and rain away from plasterboard.
- Siniat recommends a drained cavity between the external cladding and the **multi**shield for weathertightness and durability.
- Battens between external cladding and external plasterboard do not change the FRL of the system.

## Fire Rated
## Typical Details for External Timber Stud Walls

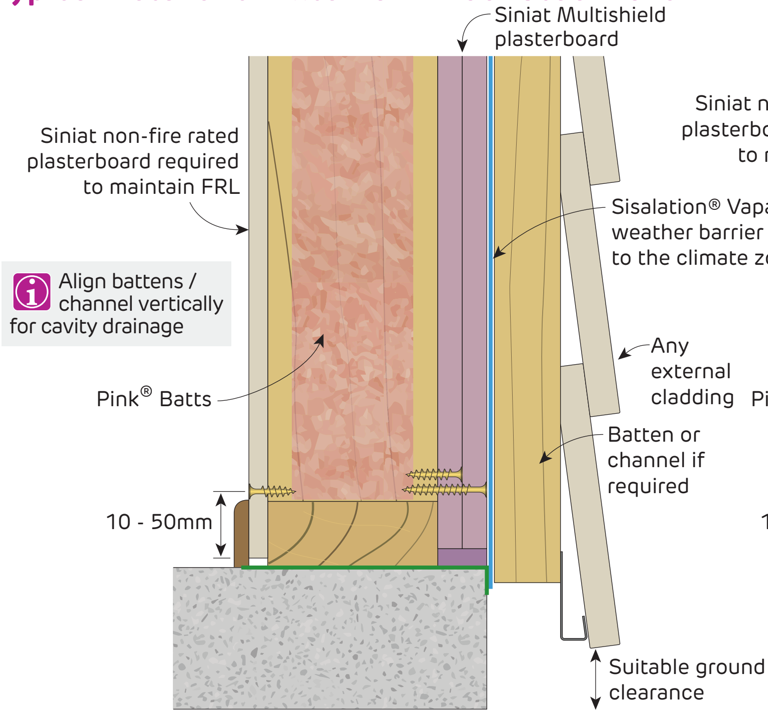



**FIGURE 4** **External Timber Stud Wall Base**
With any external cladding over battens
Section

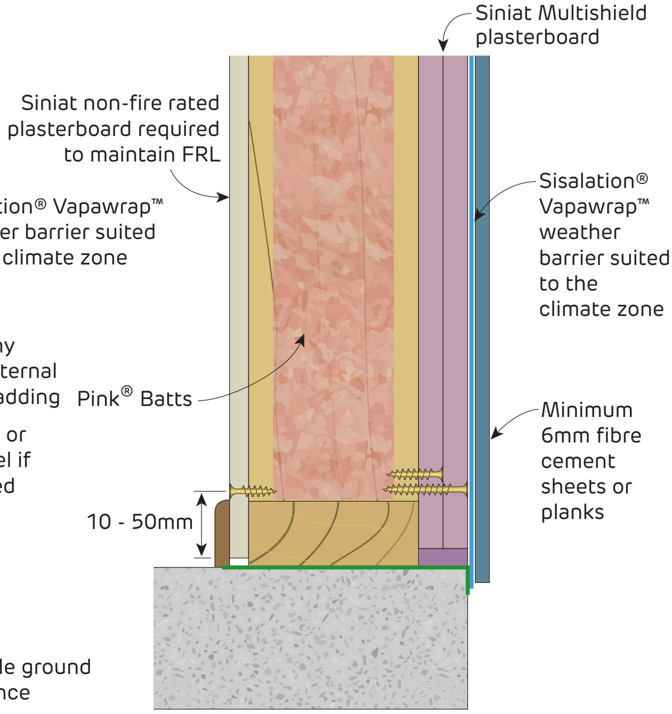



**FIGURE 5** **External Timber Stud Wall Base**
With fibre cement sheets or planks
Section

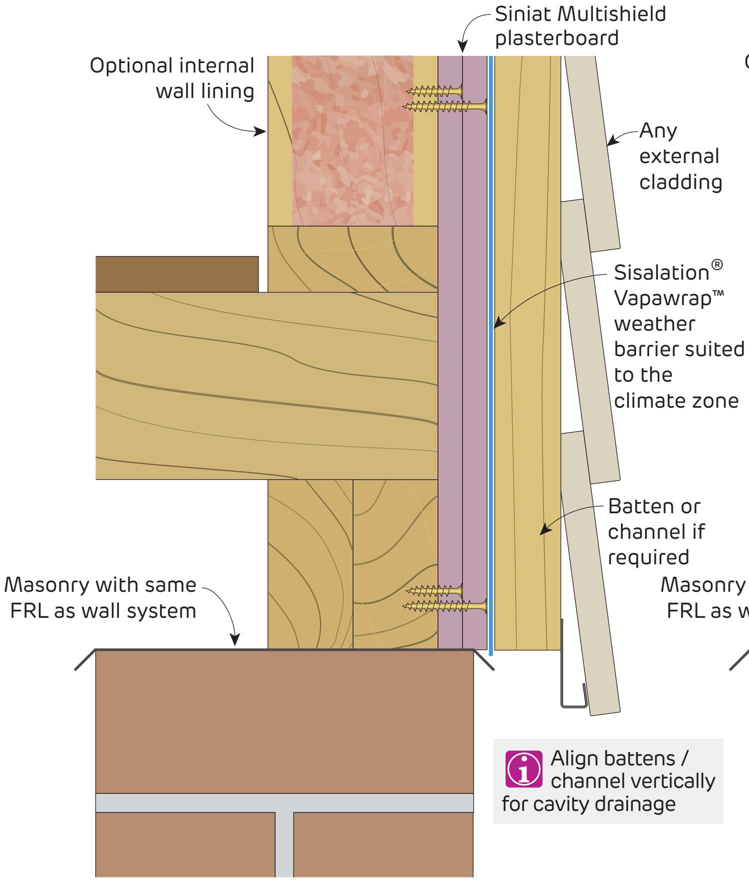



**FIGURE 6** **External Timber Wall Base with Sub-floor**
With any external cladding over battens
Systems TSW491, TSW492, TSW494 and TSW495
Section

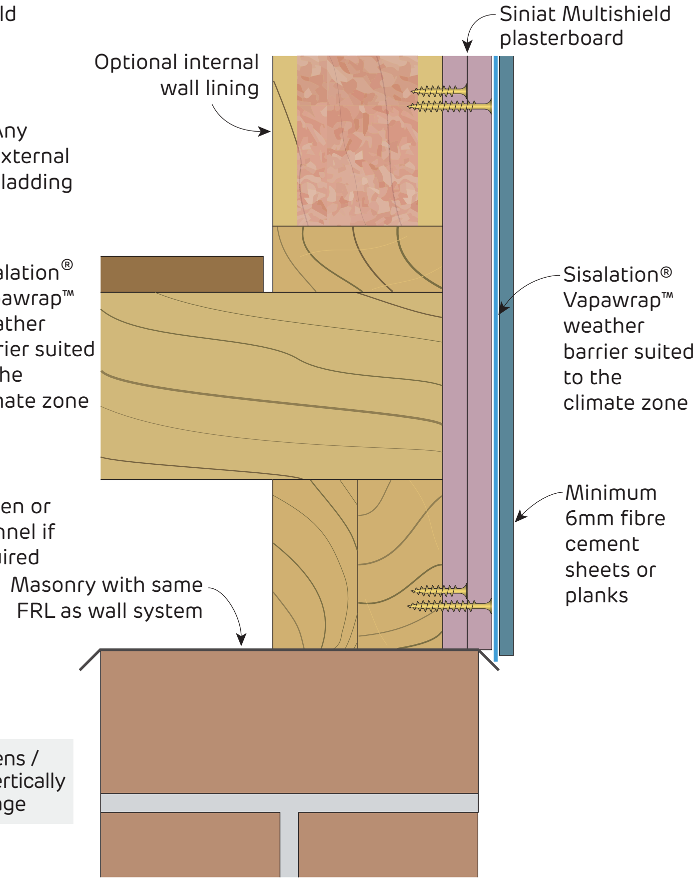



**FIGURE 7** **External Timber Wall Base with Sub-floor**
With fibre cement sheets or planks
Systems TSW491, TSW492, TSW494 and TSW495
Section

## Fire Rated
## Typical Details for External Timber Stud Walls

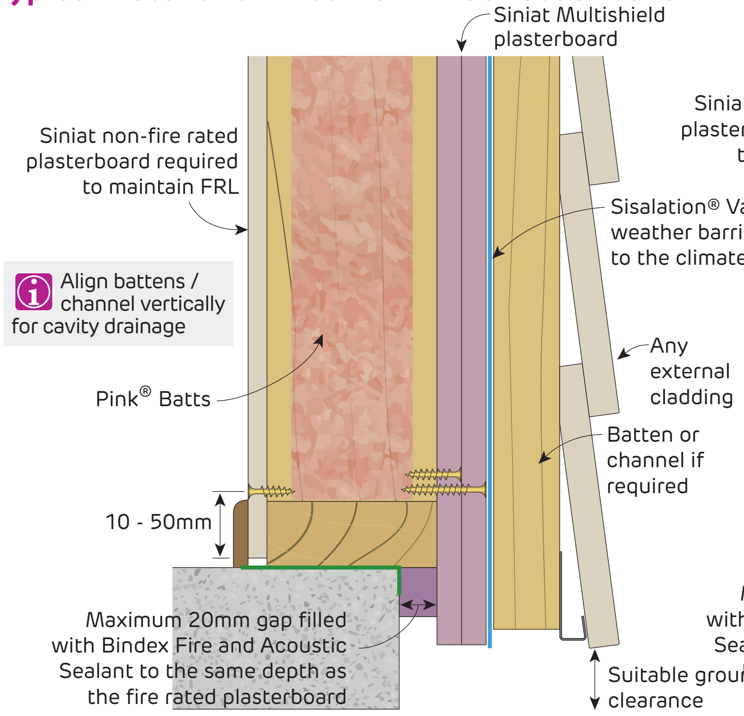



**FIGURE 8** **External Timber Stud Wall Base - Alternative Detail**
With any external cladding over battens
Section

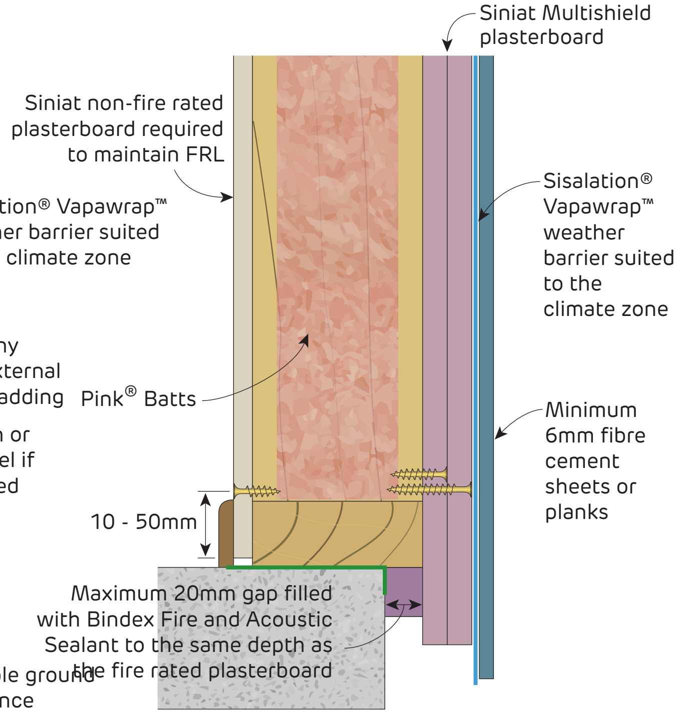



**FIGURE 9** **External Timber Stud Wall Base - Alternative Detail**
With fibre cement sheets or planks
Section

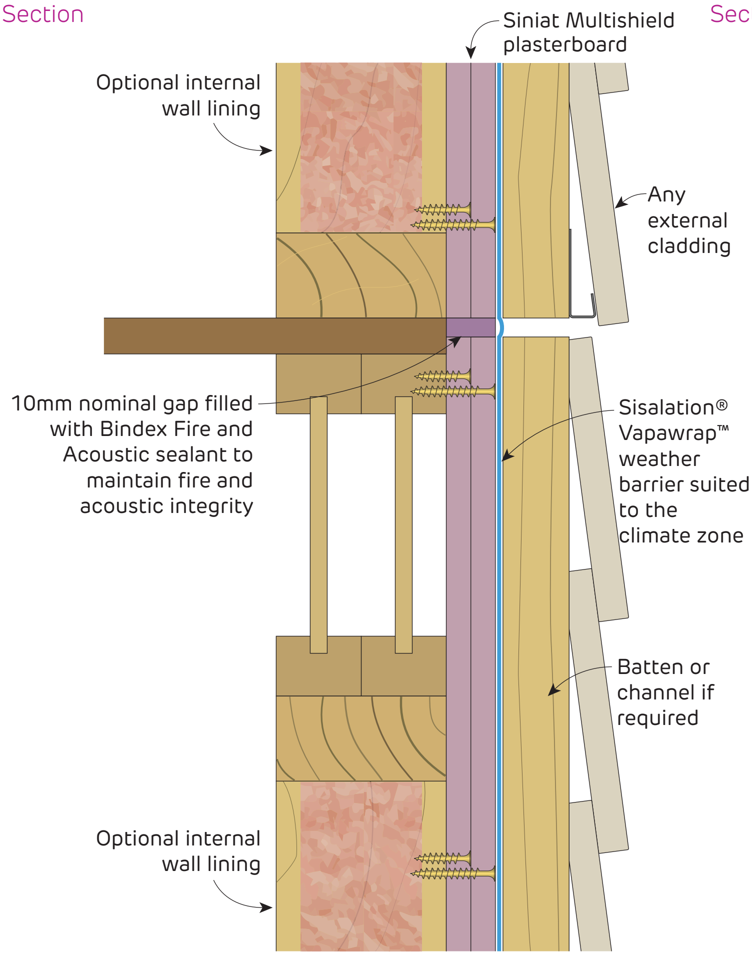



**FIGURE 10** **External Timber Wall with Suspended Floor**
With any external cladding over battens
System TSW491, TSW492, TSW494 and TSW495
Section

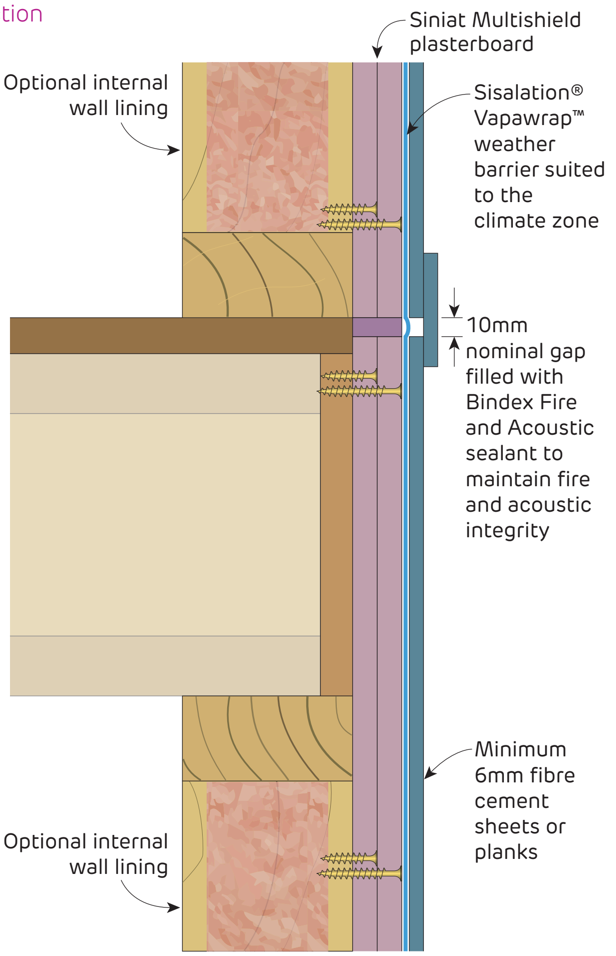



**FIGURE 11** **External Timber Wall with Suspended Floor**
With fibre cement sheets or planks
Systems TSW491, TSW492, TSW494 and TSW495
Section

## Fire Rated
## Typical Details for External Timber Stud Walls

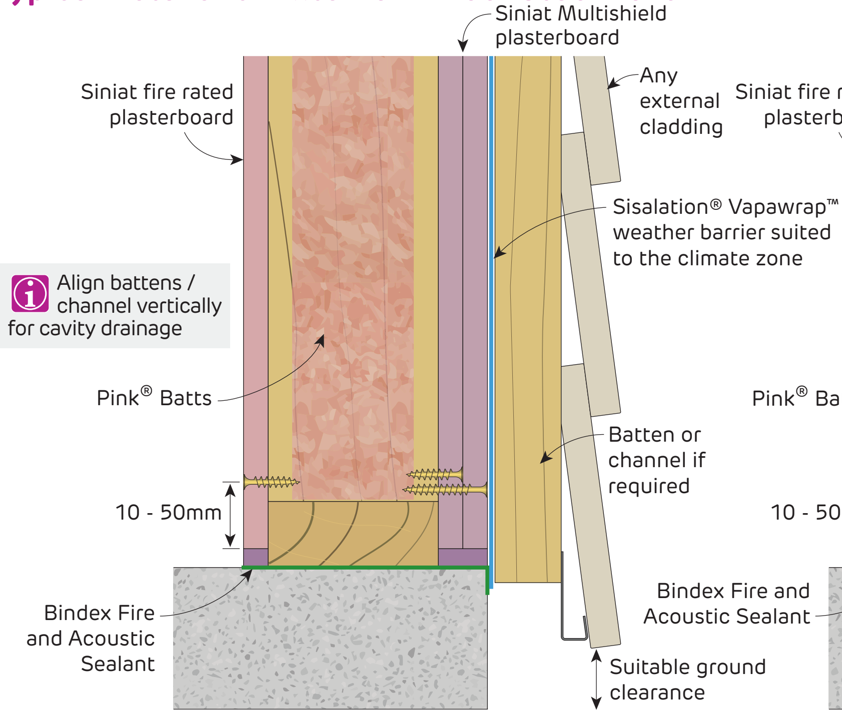



**FIGURE 12 External Timber Stud Wall Base**
With any external cladding over battens
Section

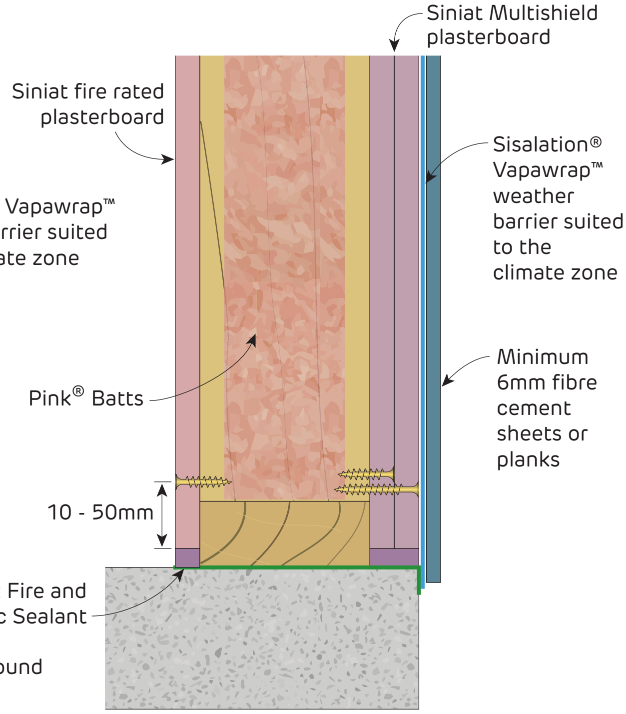



**FIGURE 13 External Timber Stud Wall Base**
With fibre cement sheets or planks
Section

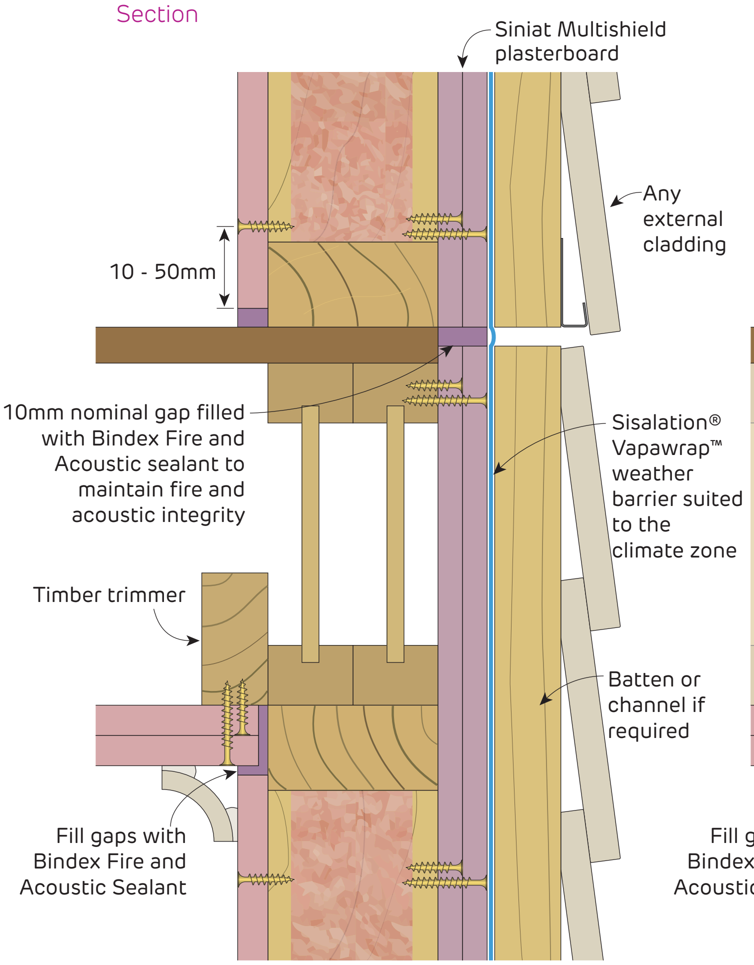



**FIGURE 14 External Timber Wall with Suspended Floor**
With any external cladding over battens
Section

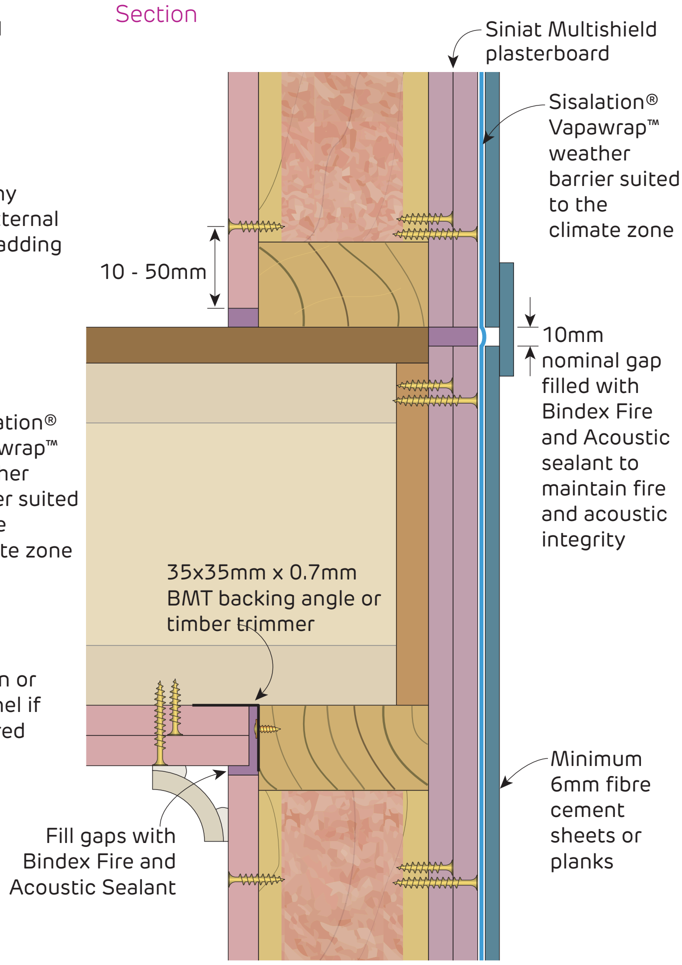



**FIGURE 15 External Timber Wall with Suspended Floor**
With fibre cement sheets or planks
Section

## Fire Rated
## Typical Details for External Timber Stud Walls

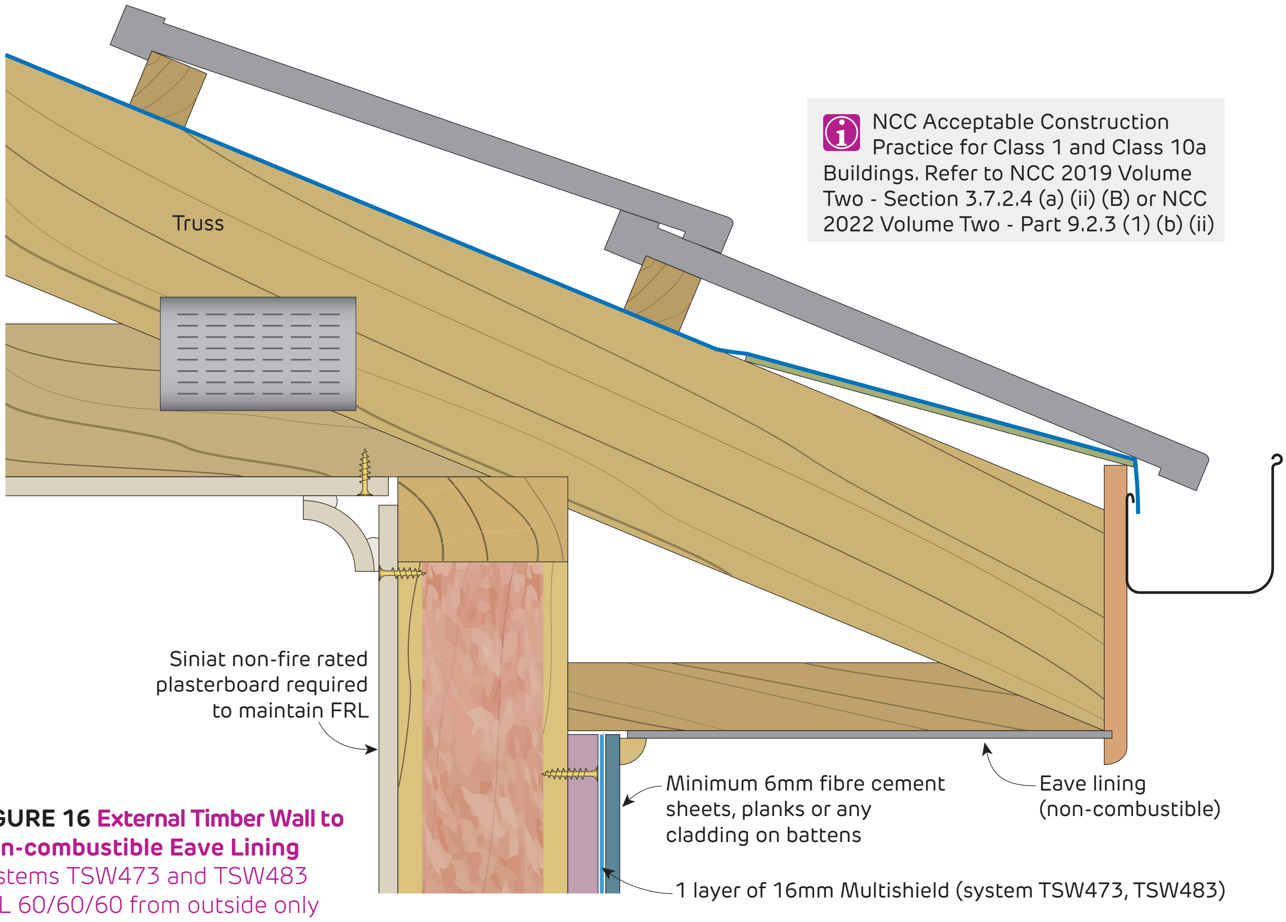



**FIGURE 16** **External Timber Wall to Non-combustible Eave Lining**
Systems TSW473 and TSW483
FRL 60/60/60 from outside only
Section

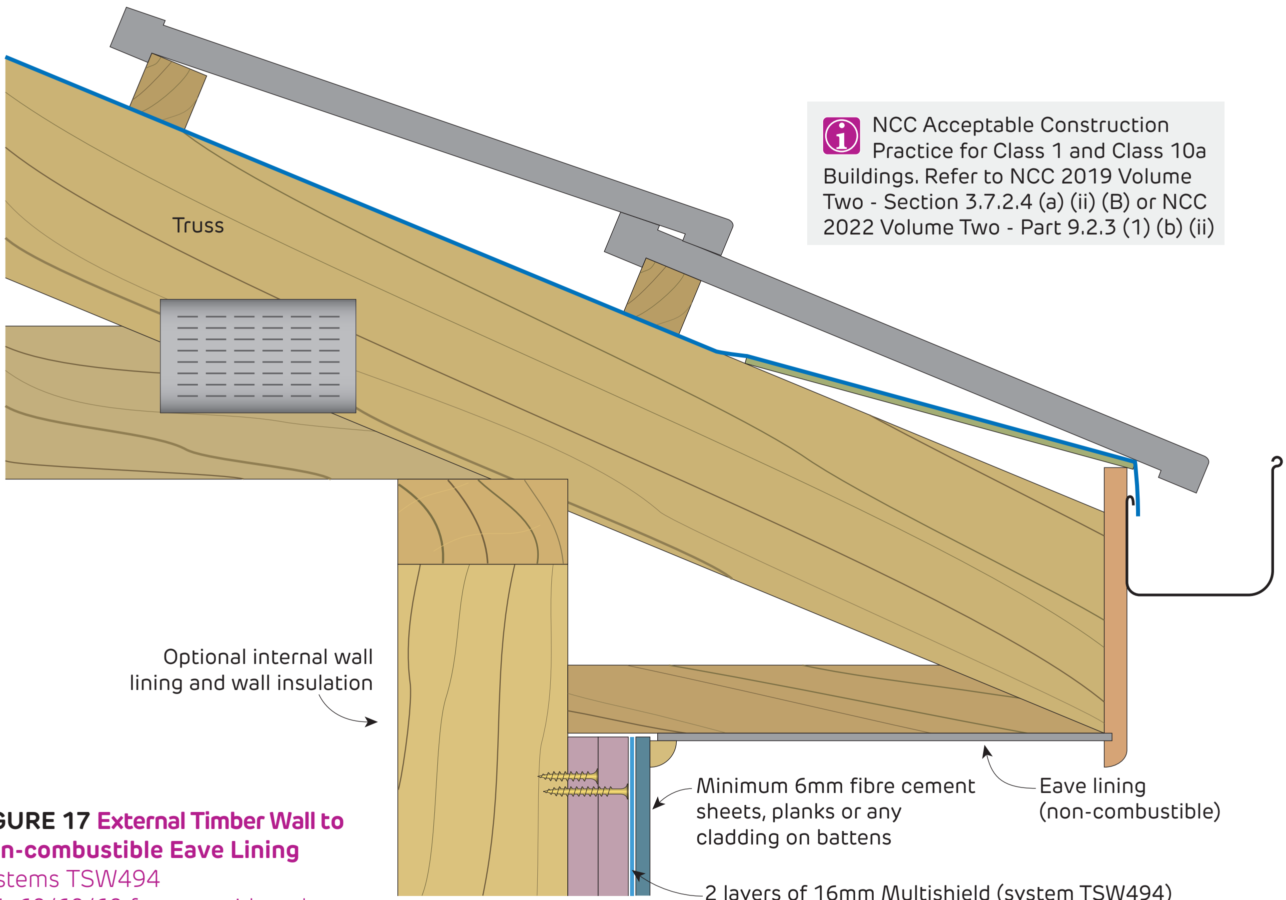



**FIGURE 17** **External Timber Wall to Non-combustible Eave Lining**
Systems TSW494
FRL 60/60/60 from outside only
Section

## Fire Rated
## Typical Details for External Timber Stud Walls

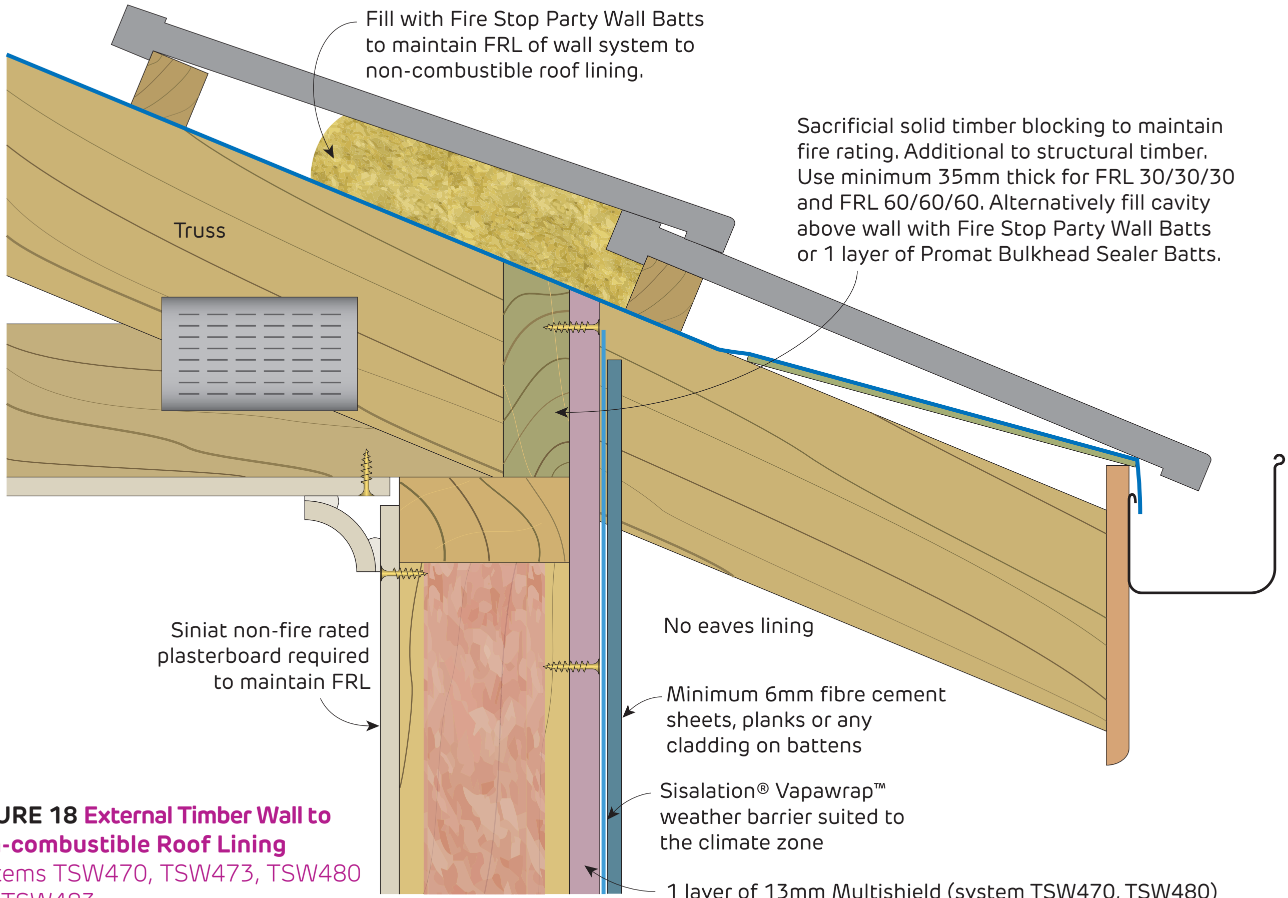



**FIGURE 18** **External Timber Wall to Non-combustible Roof Lining**
Systems TSW470, TSW473, TSW480 and TSW483
Section

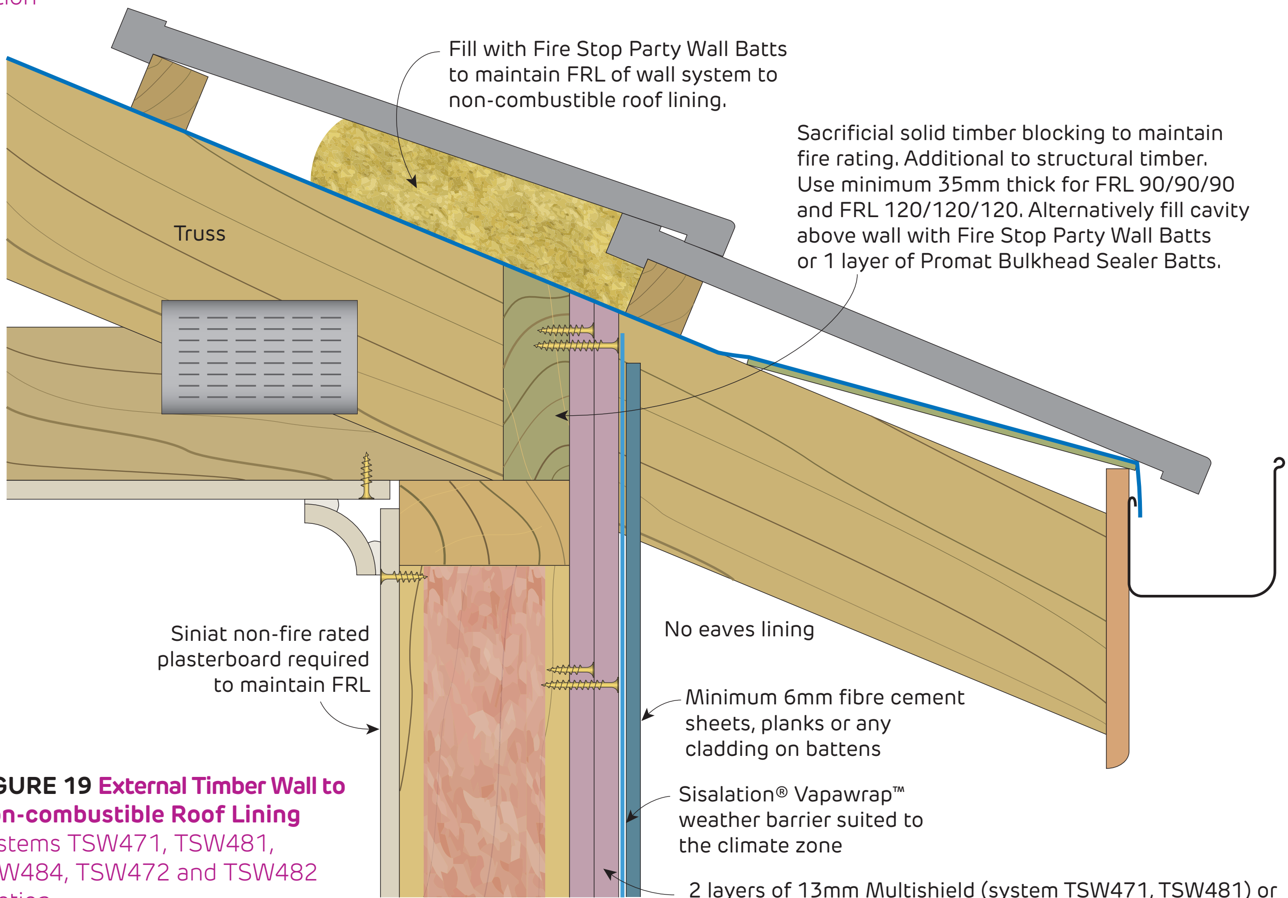



**FIGURE 19** **External Timber Wall to Non-combustible Roof Lining**
Systems TSW471, TSW481, TSW484, TSW472 and TSW482
Section

## Fire Rated
## Typical Details for External Timber Stud Walls

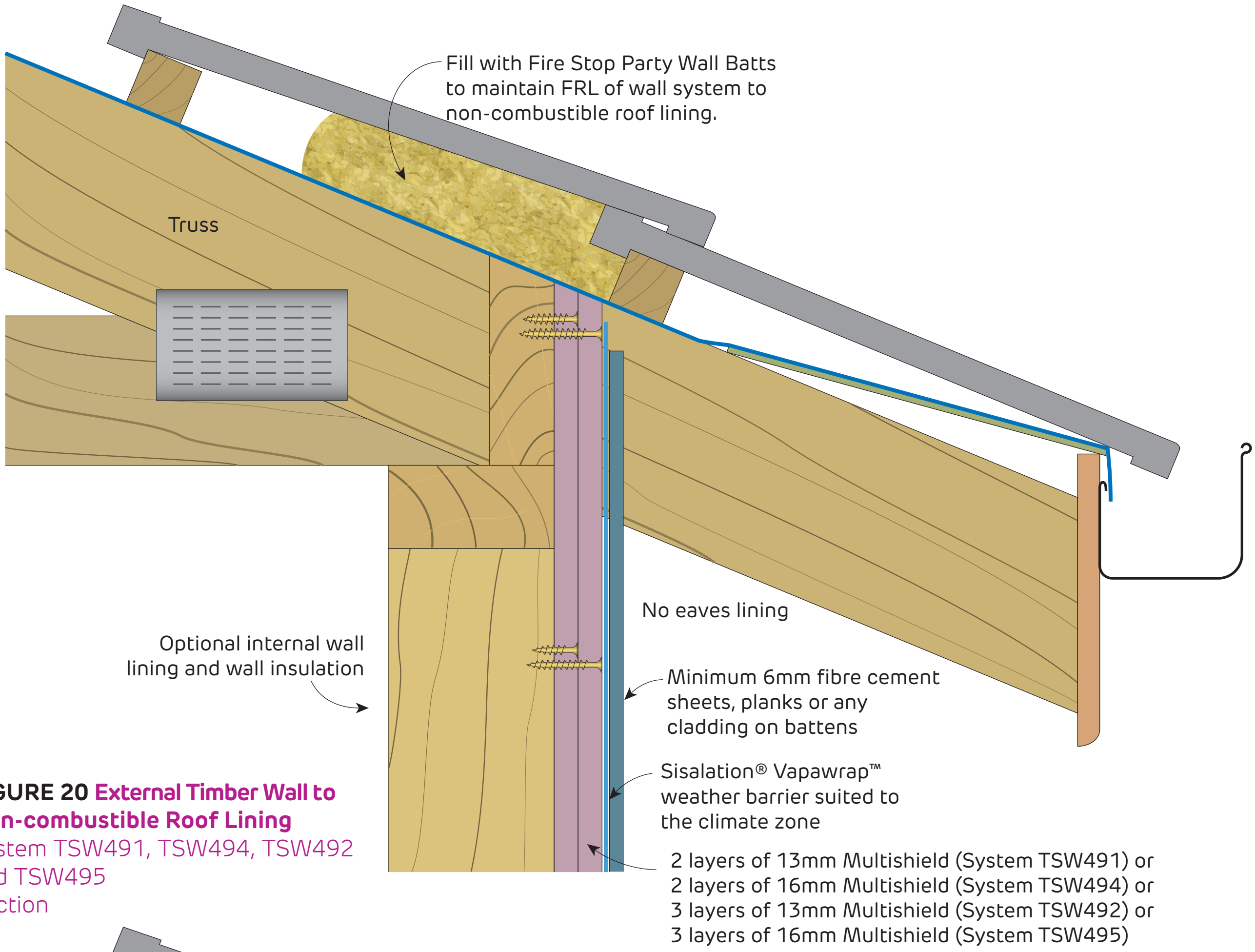



**FIGURE 20 External Timber Wall to Non-combustible Roof Lining**
System TSW491, TSW494, TSW492 and TSW495
Section

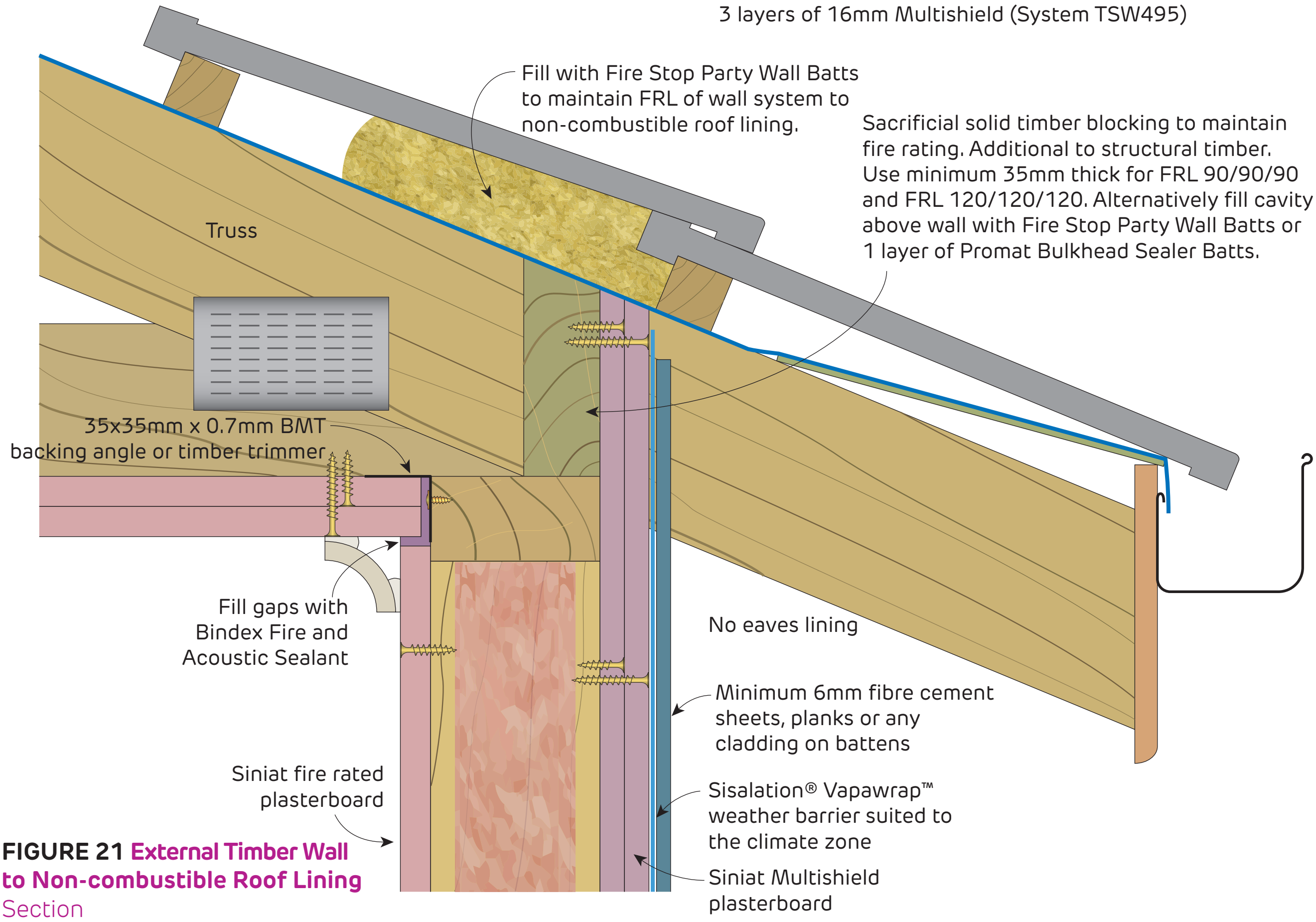



**FIGURE 21 External Timber Wall to Non-combustible Roof Lining**
Section

## Fire Rated

## Typical Details for External Timber Stud Walls

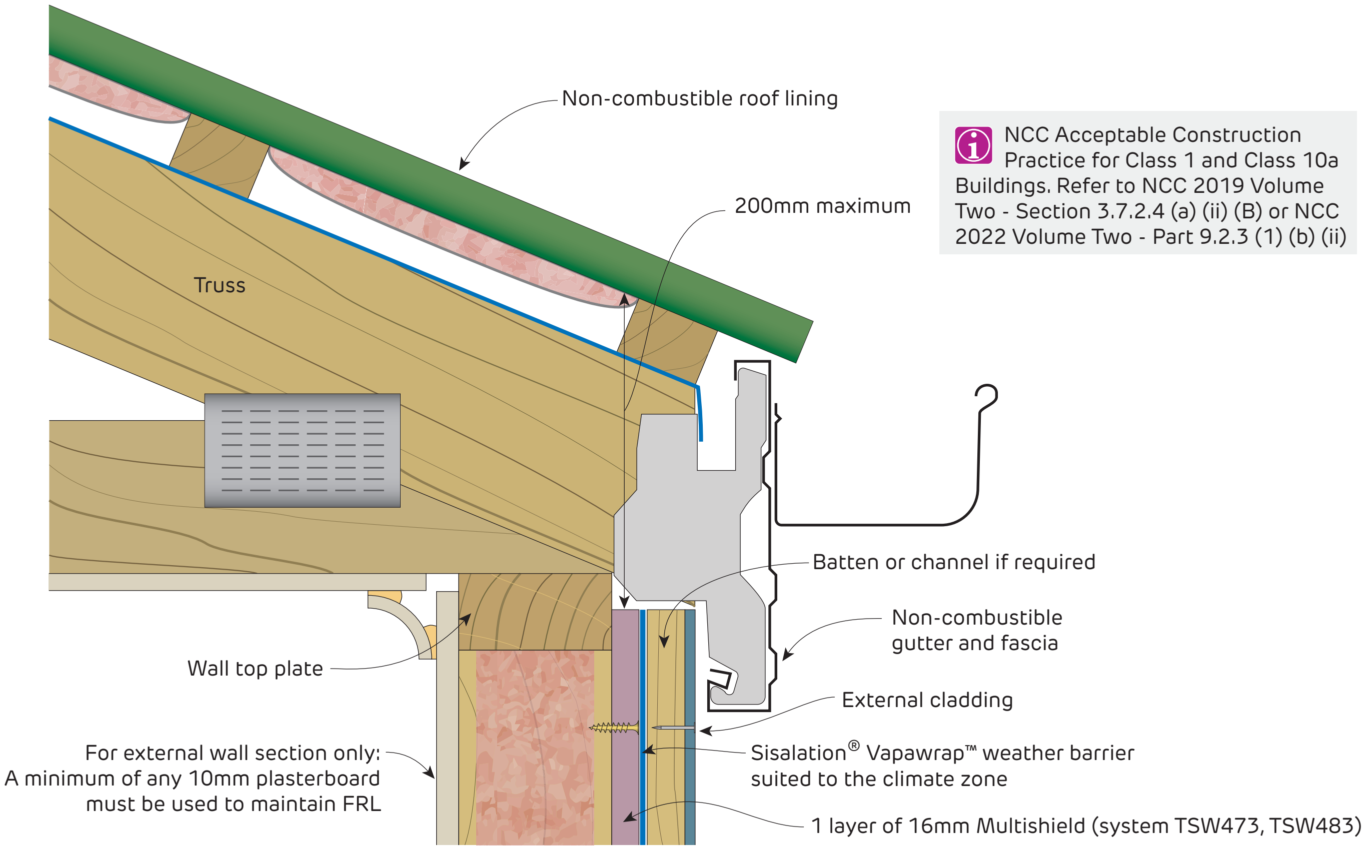



**FIGURE 22** **External Timber Wall to Non-combustible Gutter and Fascia**
Systems TSW473 and TSW483 - FRL 60/60/60 from outside only
Section

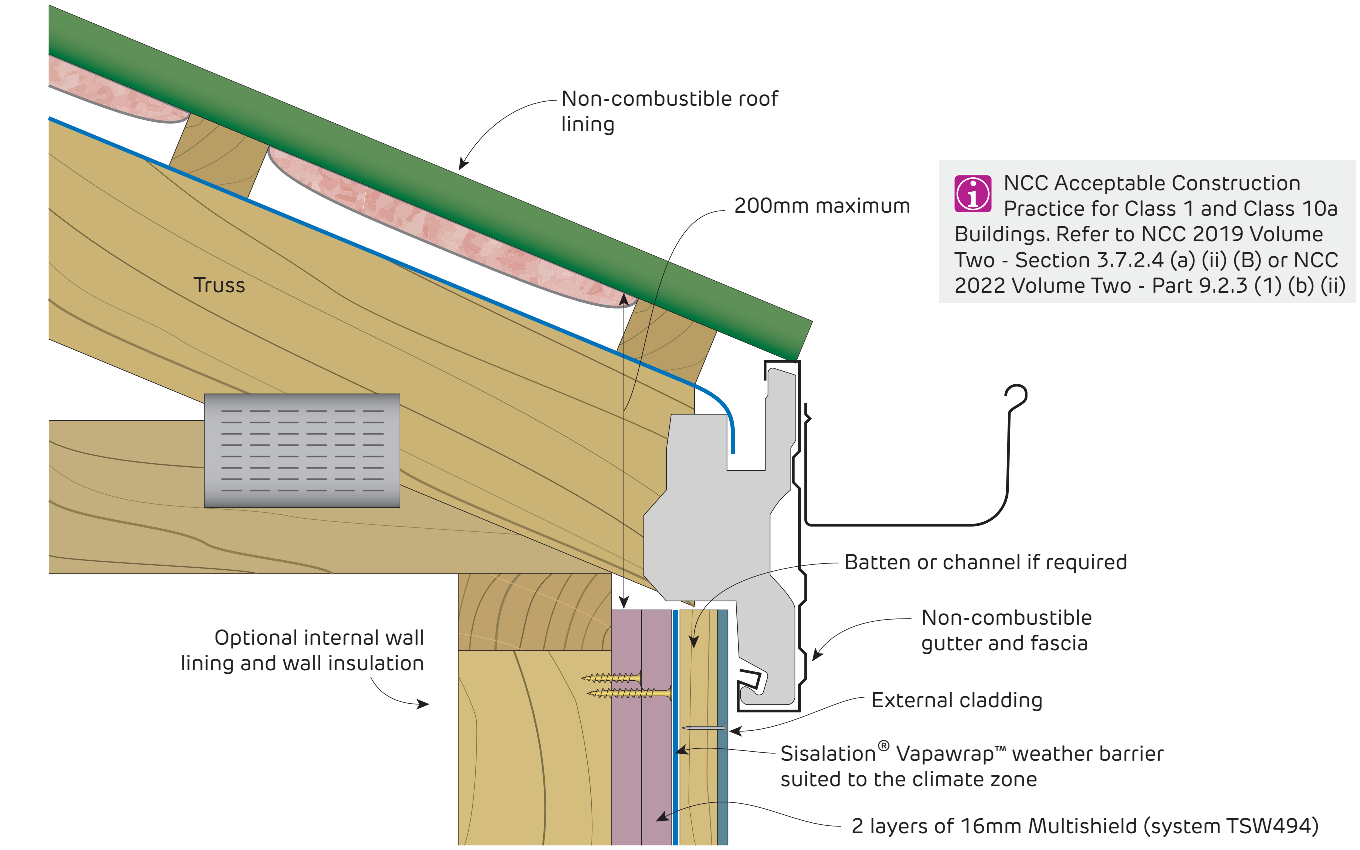



**FIGURE 23** **External Timber Wall to Non-combustible Gutter and Fascia**
Systems TSW494 - FRL 60/60/60 from outside only
Section

## Fire Rated
## Typical Details for External Timber Stud Walls

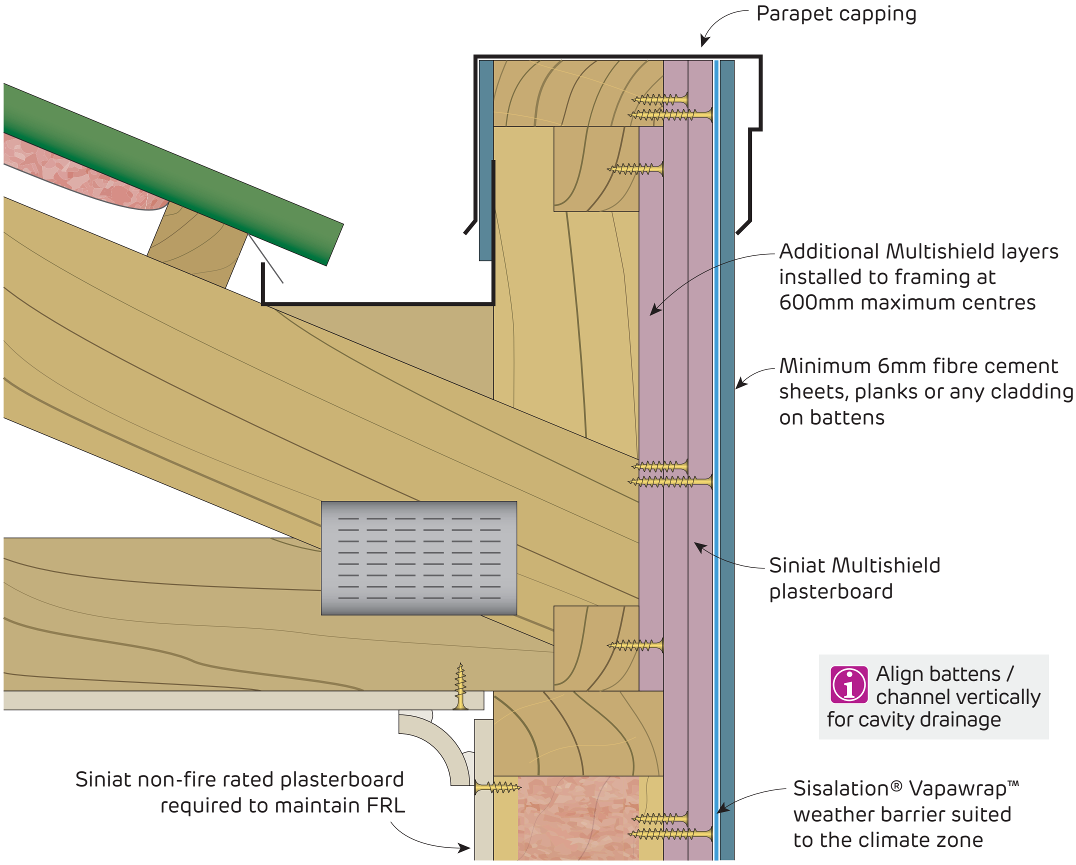



**FIGURE 24** External Timber Wall to Non-combustible Roof Lining
Section

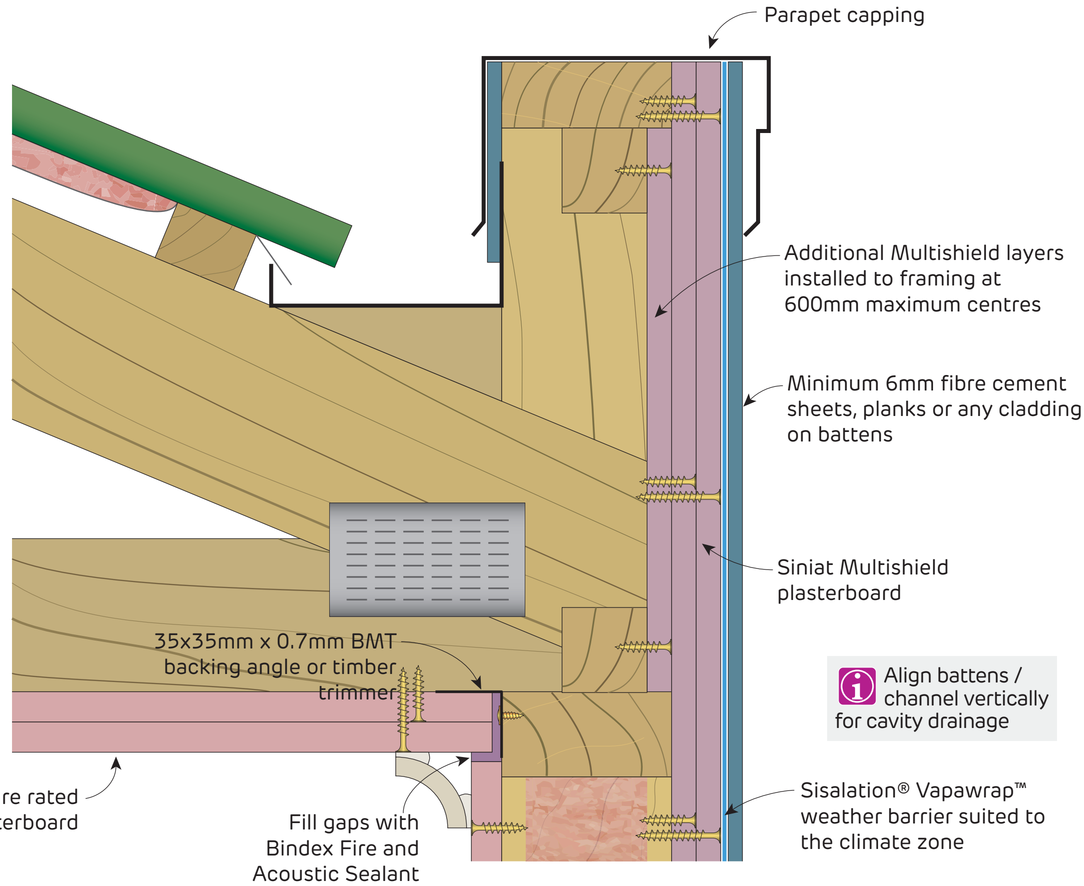



**FIGURE 25** External Timber Wall to Non-combustible Roof Lining
Section

## Fire Rated
## Typical Details for External Timber Stud Walls

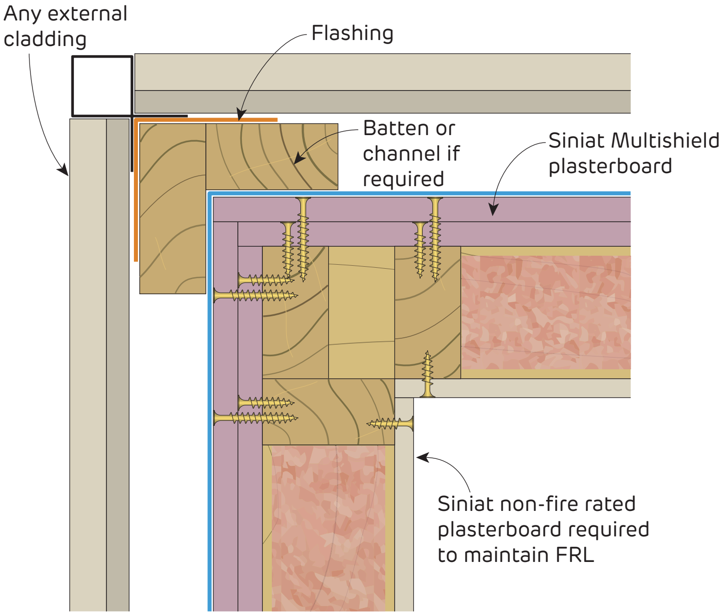



**FIGURE 26** External Corner
Section

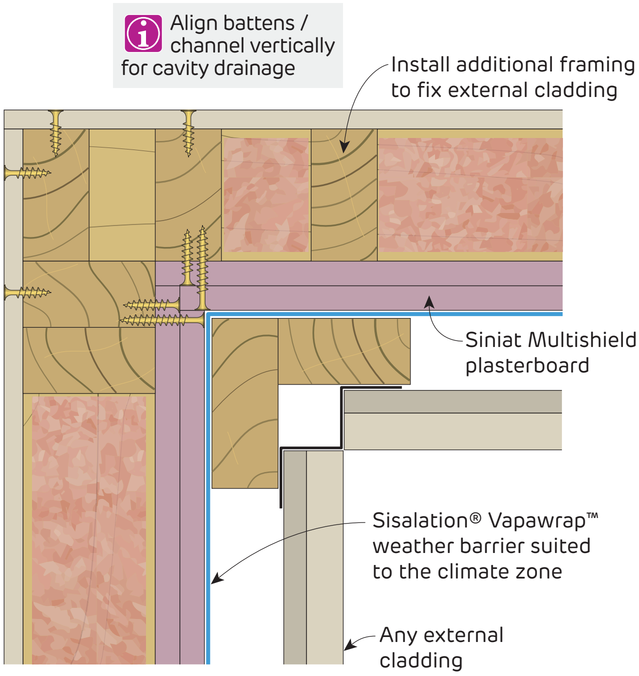



**FIGURE 27** Internal Corner
Section

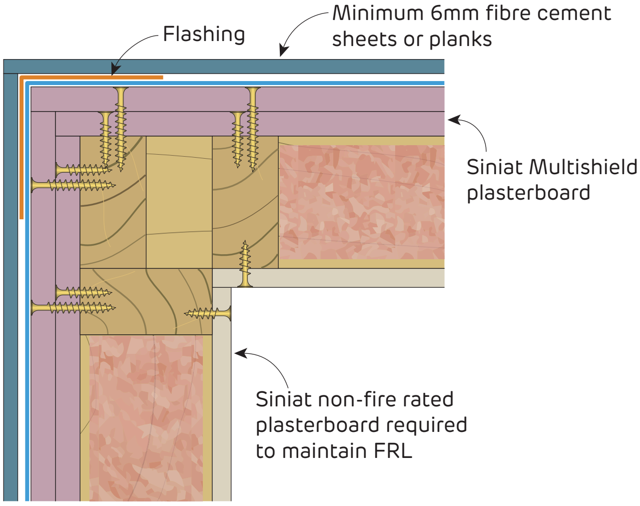



**FIGURE 28** External Corner
Section

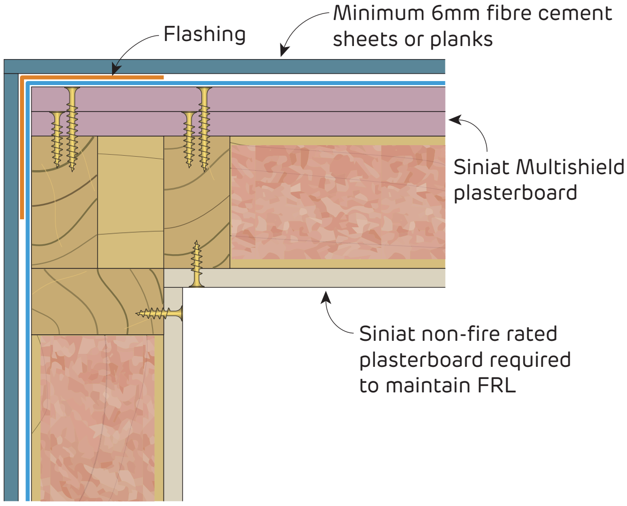



**FIGURE 29** External Fire Rated Wall to Non-Fire Rated Wall
Section

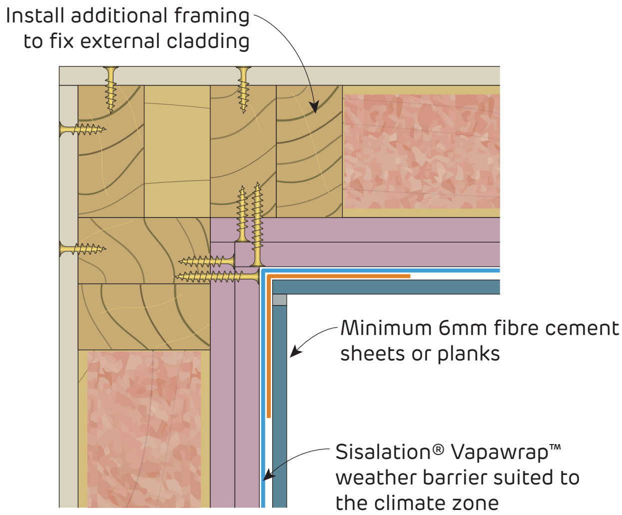



**FIGURE 30** Internal Corner
Section

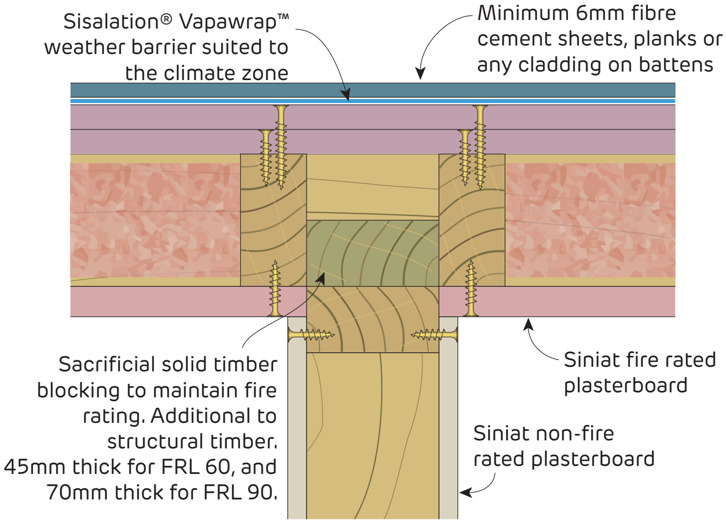



**FIGURE 31** Intersecting Wall
Plan

## Fire Rated
## Typical Details for External Timber Stud Walls

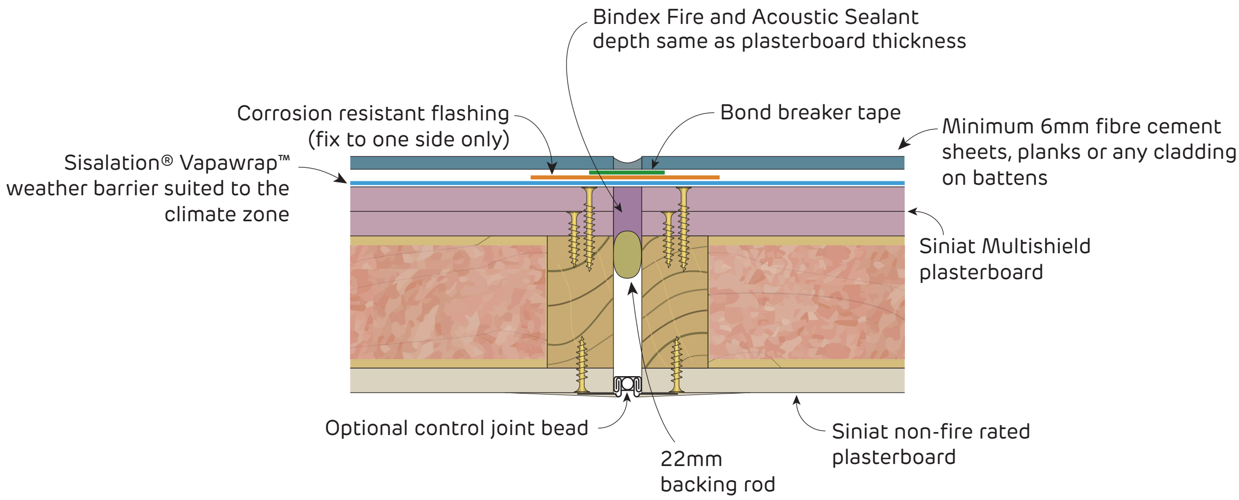



**FIGURE 32** **Control Joint**
Plan

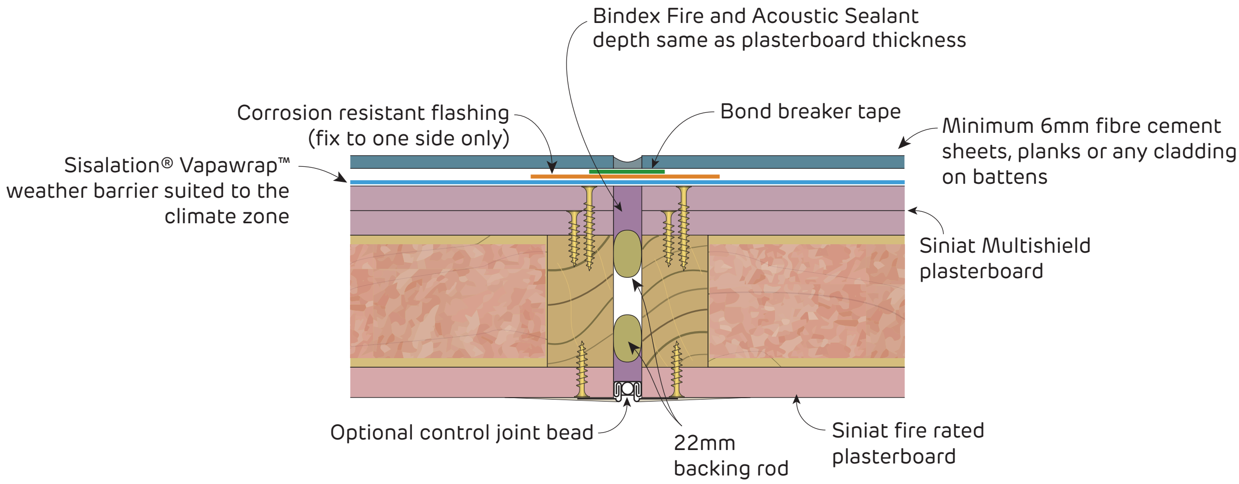



**FIGURE 33** **Control Joint**
Plan

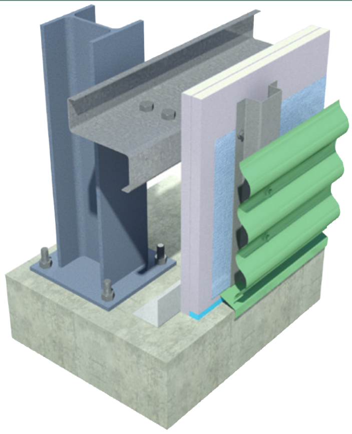


# 4.4 External Steel Girt Walls

External structural steel walls with horizontal girts are used in buildings such as car parks, factories, industrial units and workshops. If these walls are built close to property boundaries, they often require fire protection from the outside.

Systems in this section provide fire protection from the outside for up to 120 minutes. **multi**shield forms part of the wall, which is covered by a moisture barrier and external cladding to provide protection from the weather.

## SSW504

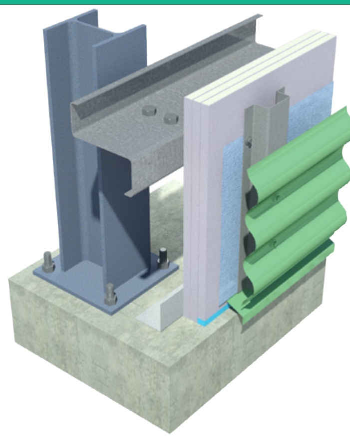


- Horizontal girts at 1200mm maximum spacing or vertical top hats at 600mm maximum spacing
- 2 layers of 16mm **multi**shield or **tru**rock
- Breathable wall wrap
- Top-Hats
- Exterior steel cladding

**Fire Resistance Level**
**60/60/60**
from the outside only
Report FAR 3998

| Maximum Frame Spacing (mm) | Plasterboard Thickness (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| 1200mm for horizontal girts or 600mm for vertical top tats | 32 | 35 (31) | Report Day Design 3094-33 |

## SSW502

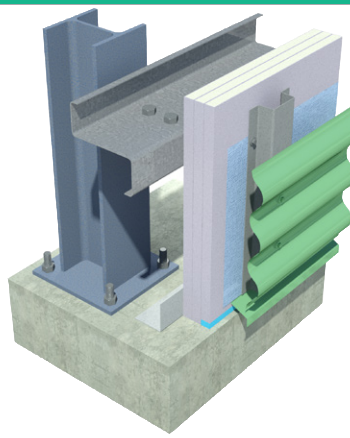


- Horizontal girts at 1200mm maximum spacing or vertical top hats at 600mm maximum spacing
- 3 layers of 13mm **multi**shield or **tru**rock
- Breathable wall wrap
- Top-Hats
- Exterior steel cladding

**Fire Resistance Level**
**90/90/90**
from the outside only
Report FAR 3998

| Maximum Frame Spacing (mm) | Plasterboard Thickness (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| 1200mm for horizontal girts or 600mm for vertical top tats | 39 | 37 (34) | Report Day Design 3094-33 |

## SSW505



- Horizontal girts at 1200mm maximum spacing or vertical top hats at 600mm maximum spacing
- 3 layers of 16mm **multi**shield or **tru**rock
- Breathable wall wrap
- Top-Hats
- Exterior steel cladding

**Fire Resistance Level**
**120/120/120**
from the outside only
Report FAR 3998

| Maximum Frame Spacing (mm) | Plasterboard Thickness (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| 1200mm for horizontal girts or 600mm for vertical top tats | 49 | 38 (35) | Report Day Design 3094-33 |

## General Requirements

| | Fire Rated |
|---|---|
| Install control joints in plasterboard walls:<br>> At 12m maximum intervals<br>> At all control joints in the structure<br>> At any change in the substrate | ✓ |
| Jointing of **multi**shield is not required due to the overlying wall wrap and external sheeting. | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | ✓ |
| Pack any gaps between the top of the wall and the underside of the roof covering with mineral fibre or other suitable fire resisting material. | ✓ |
| Protect plasterboard from water pooling at ground level. | ✓ |
| Attach all fixtures to studs or purpose installed noggings. Wall anchors must not be fixed only to the plasterboard of fire rated walls. | ✓ |

For acceptable modifications or variations to fire rated systems, refer to Section 2.3 Fire Resistance

## Framing

| | Fire Rated |
|---|---|
| Install 1.15mm BMT Steel Backing Angle to:<br>> Base of wall<br>> Internal for external corners of girts<br>> Control joints | ✓ |
| Install an anti-splash board at the base of the wall to protect the plasterboard from water damage (Refer to Details) | ✓ |
| Framing members as systems table | ✓ |
| Refer to Section 4.5 for information on Top-Hat framing. | ✓ |

# Plasterboard Layout

| | Fire Rated |
|---|---|
| Install plasterboard sheets perpendicular to framing | ✓ |
| Stagger butt joints by 600mm minimum on adjoining sheets and between layers | ✓ |
| First layer butt joints must be back-blocked by framing. | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ |

If a jointed finish on the interior of the wall is desired, face the first layer inwards.

# Plasterboard Fixing

| | Fire Rated |
|---|---|
| Use the 'Screw Only Method' in tiled or fire rated areas. | ✓ |
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ |
| For horizontal girt framing refer to Figures 1 and 2. | ✓ |
| For vertical top hat framing refer to installation figures in Section 3.1 | ✓ |

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 13mm | 6g x 25mm screw | 6g x 41mm screw * | 7g x 57mm screw * |
| 16mm | 6g x 32mm screw | 6g x 45mm screw * | 8g x 65mm screw * |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.
*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

# Exterior Cladding

| | Fire Rated |
|---|---|
| Fix cladding or cladding top hats through the **multi**shield to the steel girts behind. | ✓ |

- Exterior cladding and moisture barrier must provide protection from the weather.
- Use construction techniques that direct condensation and rain away from plasterboard.
- Siniat recommends a drained cavity between the external cladding and the **multi**shield for weathertightness and durability.
- Top hats between external cladding and external plasterboard do not change the FRL of the system.

**FIGURE 1** **Fire Rated 2 Layers - Vertical + Vertical**
Screw Only Method

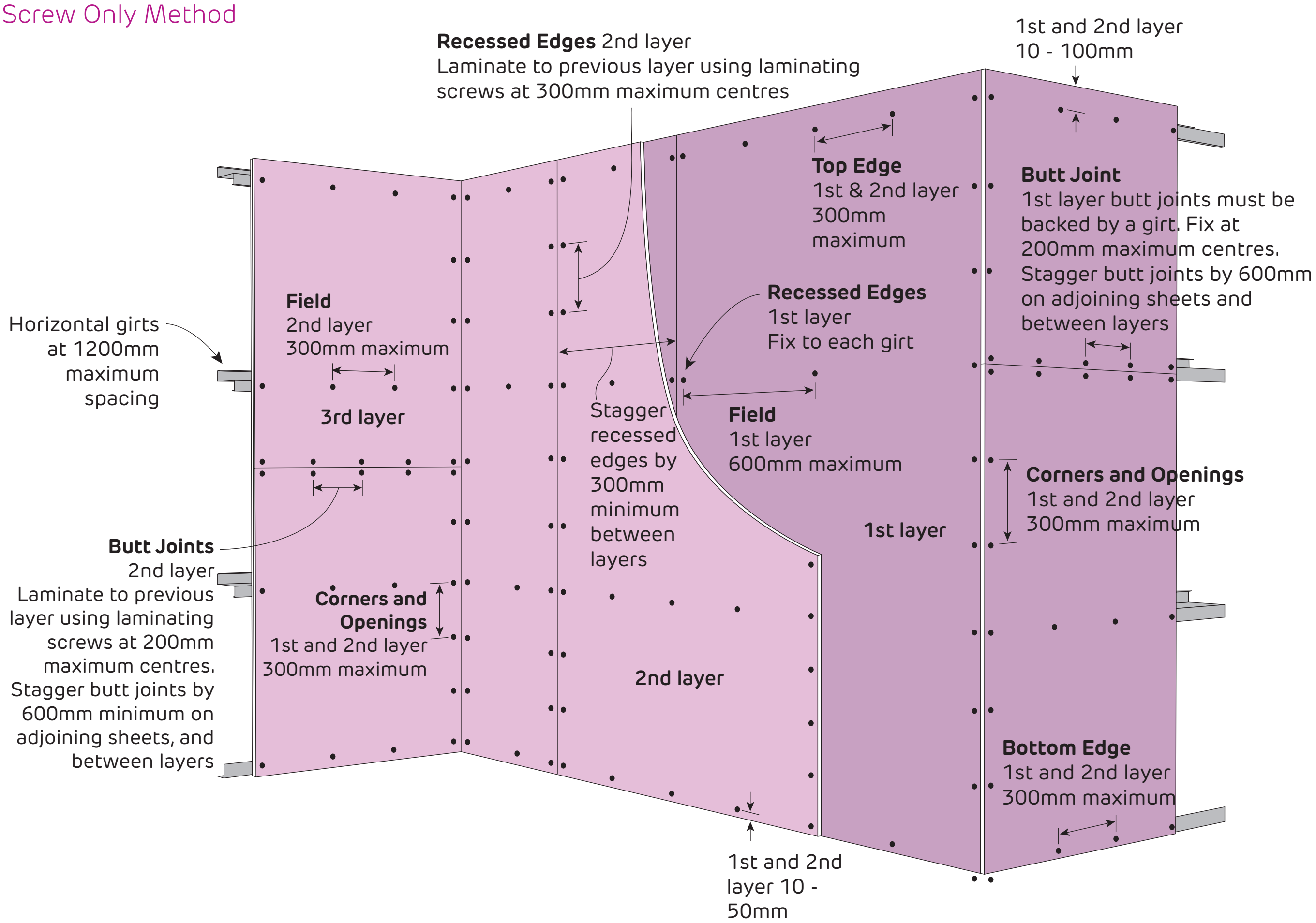
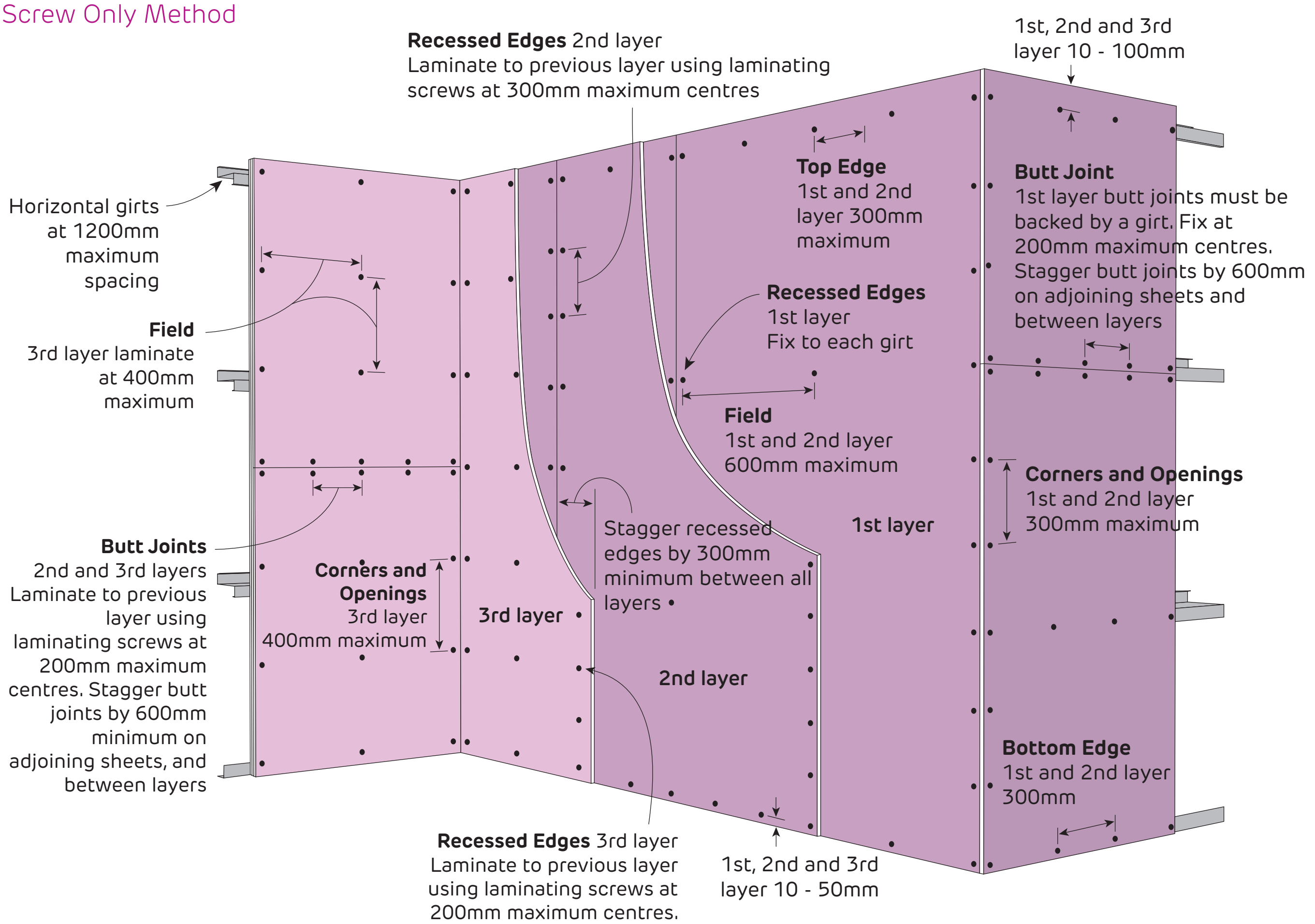



**FIGURE 2** **Fire Rated 3 Layers - Vertical + Vertical + Vertical**
Screw Only Method



## Fire Rated

## Typical Head and base Details for External Steel Girt Walls

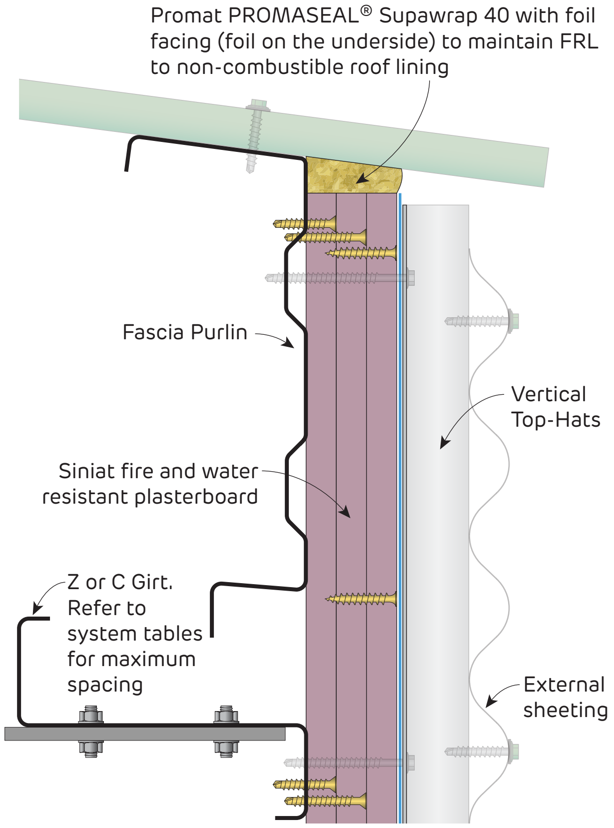



**FIGURE 4 Wall Head to Roof**
Section

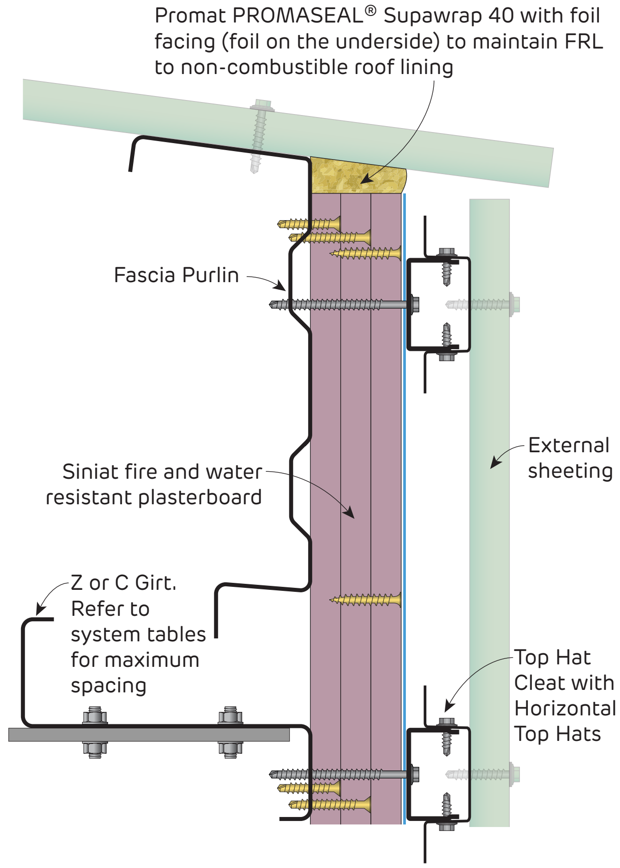



**FIGURE 5 Wall Head to Roof**
Section

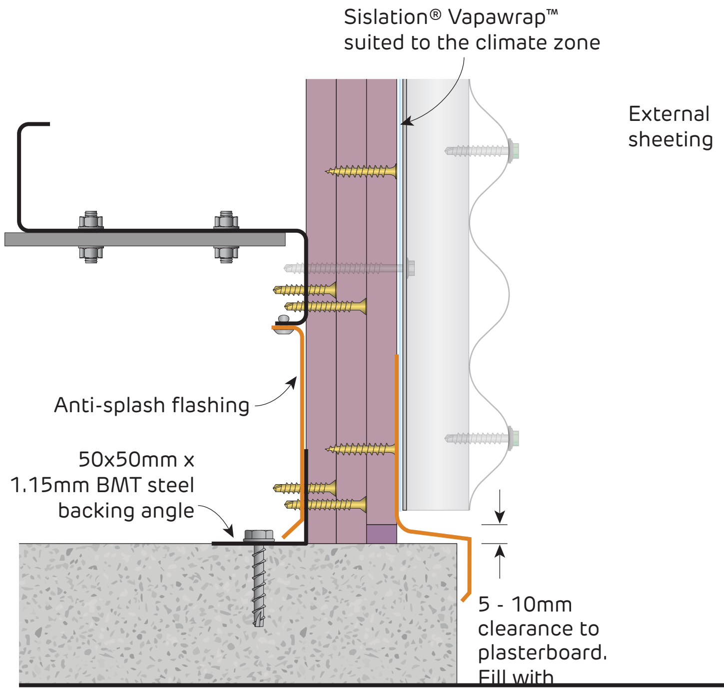



**FIGURE 6 Wall Base to Slab**
Section

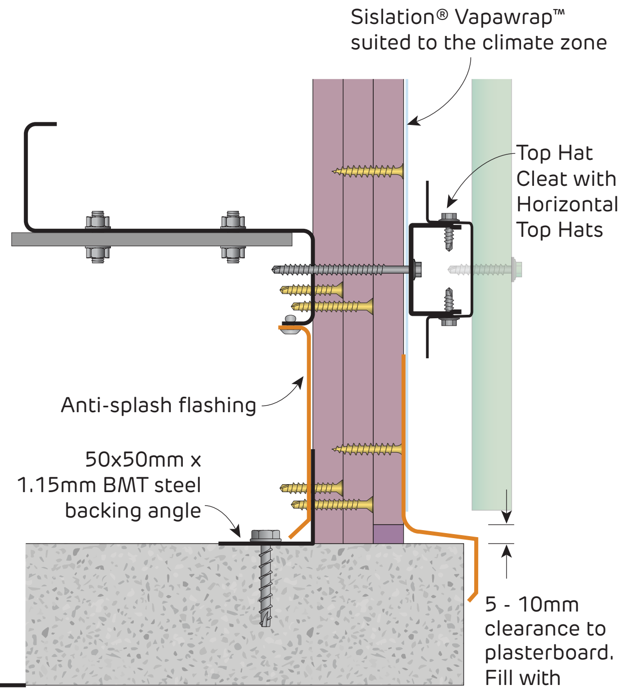



**FIGURE 7 Wall Base to Slab**
Section



# 4.5 Top Hats over Wall Framing

Top Hats are an effective means of providing structural framing behind various types of external cladding such as expressed jointed fibre cement, rendered and pre-finished fibre cement, timber cladding, aerated concrete panels (AAC) and steel sheeting. Siniat Top Hats are durable and come with industry leading Zincalume AM150 corrosion protection.

Top Hats may be installed horizontally over stud wall framing which suits metal sheeting and AAC. When vertical framing is desired for certain external cladding like expressed jointed fibre cement, top hats can be installed vertically over stud framing with top hat cleats, or first by providing a layer of horizontal top hats over the stud framing, followed by a layer of vertical top hats.

Details in this manual show how Top Hats can be installed to promote drying and ventilation in the cavity behind the external cladding which helps for long lasting external wall systems. When installed horizontally, Siniat Top Hats come with sloping flanges to re-direct moisture towards the outside and away from the inside of a building. When installed vertically, Siniat Top Hats provide free drainage to the bottom of the wall cavity.

# Framing

## Vertical Top Hats over Horizontal Framing

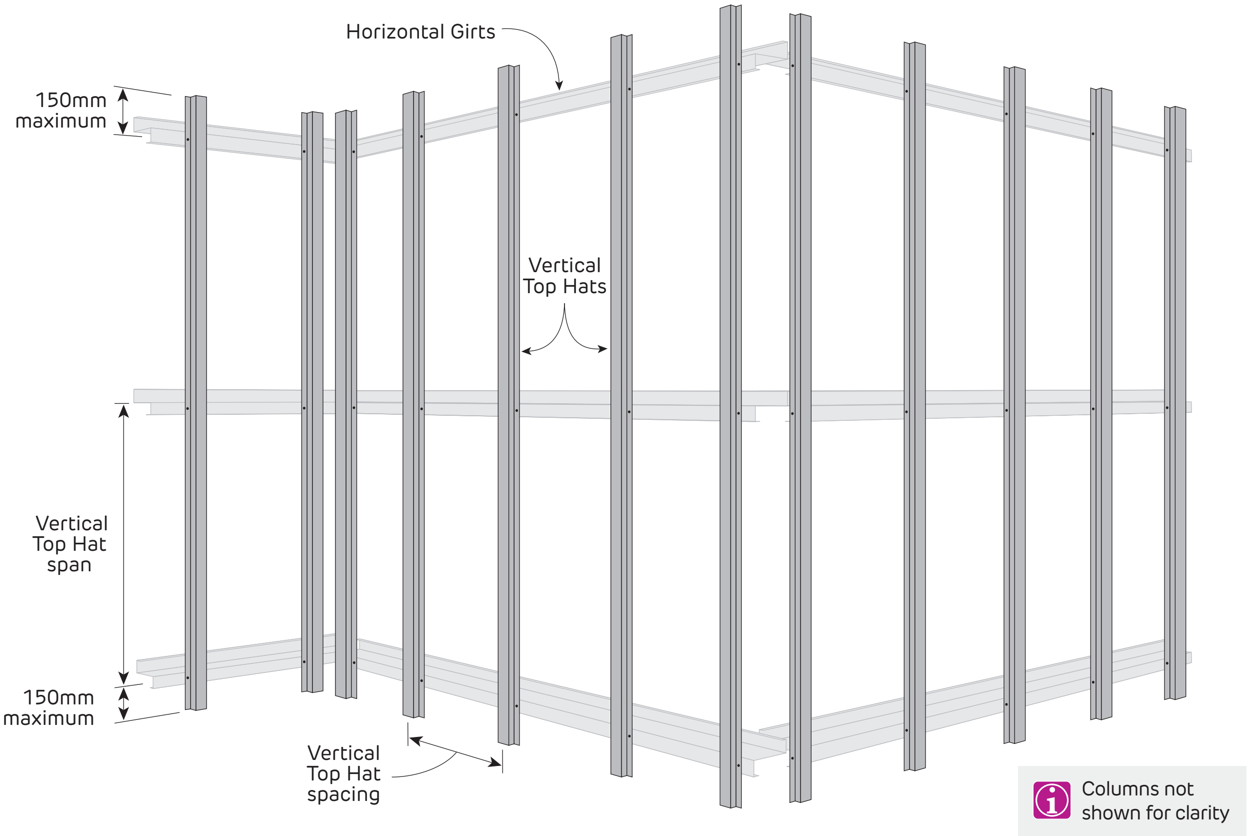
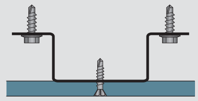


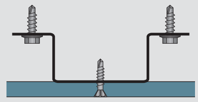

**FIGURE 1** Vertical Steel Top Hat Layout

## Table 1 Vertical 50x15 x 1.15mm BMT Top Hat Span Table (mm)



| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| **Serviceability deflection limit Span / 250** | Single span | 600 | 870 | 760 | 690 | 640 | 600 | 570 | 550 | 510 | 470 |
| | | 450 | 960 | 840 | 760 | 710 | 660 | 630 | 600 | 560 | 530 |
| | | 400 | 1000 | 870 | 790 | 730 | 690 | 660 | 630 | 580 | 550 |
| | | 300 | 1100 | 960 | 870 | 810 | 760 | 720 | 690 | 640 | 600 |
| | 2 or more spans | 600 | 920 | 800 | 720 | 660 | 620 | 590 | 560 | 510 | 470 |
| | | 450 | 1020 | 880 | 800 | 740 | 690 | 650 | 620 | 570 | 530 |
| | | 400 | 1070 | 920 | 830 | 770 | 720 | 680 | 650 | 600 | 560 |
| | | 300 | 1190 | 1020 | 920 | 850 | 800 | 760 | 720 | 660 | 620 |
| **Serviceability deflection limit Span / 360** | Single span | 600 | 770 | 670 | 610 | 570 | 530 | 510 | 480 | 450 | 420 |
| | | 450 | 850 | 740 | 670 | 620 | 590 | 560 | 530 | 490 | 460 |
| | | 400 | 880 | 770 | 700 | 650 | 610 | 580 | 550 | 510 | 480 |
| | | 300 | 970 | 850 | 770 | 720 | 670 | 640 | 610 | 570 | 530 |
| | 2 or more spans | 600 | 920 | 800 | 720 | 660 | 620 | 590 | 560 | 510 | 470 |
| | | 450 | 1020 | 880 | 800 | 740 | 690 | 650 | 620 | 570 | 530 |
| | | 400 | 1070 | 920 | 830 | 770 | 720 | 680 | 650 | 600 | 560 |
| | | 300 | 1190 | 1020 | 920 | 850 | 800 | 760 | 720 | 660 | 620 |

## Table 2 Vertical 50x25 x 1.15mm Top Hat Span Table (mm)

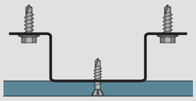


| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| **Serviceability deflection limit Span / 250** | Single span | 600 | 1260 | 1110 | 1020 | 960 | 900 | 860 | 820 | 760 | 720 |
| | | 450 | 1390 | 1220 | 1110 | 1040 | 990 | 940 | 900 | 840 | 790 |
| | | 400 | 1440 | 1260 | 1160 | 1080 | 1020 | 980 | 940 | 880 | 820 |
| | | 300 | 1590 | 1390 | 1260 | 1180 | 1110 | 1060 | 1020 | 960 | 900 |
| | 2 or more spans | 600 | 1260 | 1110 | 1020 | 960 | 900 | 830* | 730* | 580* | 480* |
| | | 450 | 1390 | 1220 | 1110 | 1040 | 990 | 940 | 900 | 780* | 650* |
| | | 400 | 1440 | 1260 | 1160 | 1080 | 1020 | 980 | 940 | 870* | 730* |
| | | 300 | 1590 | 1390 | 1260 | 1180 | 1110 | 1060 | 1020 | 960 | 900 |
| **Serviceability deflection limit Span / 360** | Single span | 600 | 1210 | 1050 | 960 | 890 | 840 | 790 | 760 | 700 | 660 |
| | | 450 | 1330 | 1160 | 1050 | 980 | 920 | 870 | 840 | 780 | 730 |
| | | 400 | 1380 | 1210 | 1100 | 1020 | 960 | 910 | 870 | 810 | 760 |
| | | 300 | 1520 | 1330 | 1210 | 1120 | 1050 | 1000 | 960 | 890 | 840 |
| | 2 or more spans | 600 | 1260 | 1110 | 1020 | 960 | 900 | 830* | 730* | 580* | 480* |
| | | 450 | 1390 | 1220 | 1110 | 1040 | 990 | 940 | 900 | 780* | 650* |
| | | 400 | 1440 | 1260 | 1160 | 1080 | 1020 | 980 | 940 | 870* | 730* |
| | | 300 | 1590 | 1390 | 1260 | 1180 | 1110 | 1060 | 1020 | 960 | 900 |

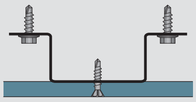
*Limited by 2x10g hex head screw connection capacity.

1. Tables refer to Siniat Top Hats of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Check maximum cladding span and fastener spacing requirements from the manufacturer's literature. Maximum cladding weight 22 kg/m$^2$.
3. All top hats must be supported 150mm maximum from ends and splicing of top hats is not permitted.
4. Table based upon ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated. Point loads or live loads are not considered.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case 1: 1.2G + Wu
8. Serviceability Load Case 1: G + Ws, with deflection limited to span/250 or span/360. Serviceability wind pressure taken as 65% of ultimate wind pressure suitable for Region A and Region B.
9. Connections checked using 2 x 10g hex head screws into minimum 1.0mm BMT G550 steel, minimum 1.2mm BMT G500 steel or minimum 1.5mm BMT G450 steel (purlins or girts). Contact Siniat if fixing to a different substrate for the possibility of spanning further.
10. Do not use tables for vertical top hats over horizontal top hat construction.
11. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.

## Table 3 Vertical 50x35 x 1.15mm BMT or 75x35 x 1.15mm BMT or 120x35 x 1.15mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection limit Span / 250 | Single span | 600 | 1470 | 1300 | 1200 | 1130 | 1070 | 1020 | 980 | 910 | 850 |
| | | 450 | 1610 | 1420 | 1300 | 1220 | 1160 | 1110 | 1070 | 1000 | 940 |
| | | 400 | 1660 | 1470 | 1350 | 1270 | 1200 | 1150 | 1110 | 1040 | 980 |
| | | 300 | 1820 | 1610 | 1470 | 1380 | 1300 | 1250 | 1200 | 1130 | 1070 |
| | 2 or more spans | 600 | 1470 | 1300 | 1200 | 1130 | 970* | 830* | 730* | 580* | 480* |
| | | 450 | 1610 | 1420 | 1300 | 1220 | 1160 | 1110 | 970* | 780* | 650* |
| | | 400 | 1660 | 1470 | 1350 | 1270 | 1200 | 1150 | 1090* | 870* | 730* |
| | | 300 | 1820 | 1610 | 1470 | 1380 | 1300 | 1250 | 1200 | 1130 | 970* |
| Serviceability deflection limit Span / 360 | Single span | 600 | 1470 | 1300 | 1200 | 1130 | 1070 | 1010 | 970 | 900 | 850 |
| | | 450 | 1610 | 1420 | 1300 | 1220 | 1160 | 1110 | 1070 | 990 | 930 |
| | | 400 | 1660 | 1470 | 1350 | 1270 | 1200 | 1150 | 1110 | 1030 | 970 |
| | | 300 | 1820 | 1610 | 1470 | 1380 | 1300 | 1250 | 1200 | 1130 | 1070 |
| | 2 or more spans | 600 | 1470 | 1300 | 1200 | 1130 | 970* | 830* | 730* | 580* | 480* |
| | | 450 | 1610 | 1420 | 1300 | 1220 | 1160 | 1110 | 970* | 780* | 650* |
| | | 400 | 1660 | 1470 | 1350 | 1270 | 1200 | 1150 | 1090* | 870* | 730* |
| | | 300 | 1820 | 1610 | 1470 | 1380 | 1300 | 1250 | 1200 | 1130 | 970* |

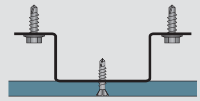
## Table 4 Vertical 50x50 x 1.15mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection limit Span / 250 | Single span | 600 | 1790 | 1600 | 1480 | 1390 | 1330 | 1270 | 1230 | 1150 | 1090 |
| | | 450 | 1950 | 1740 | 1600 | 1510 | 1430 | 1370 | 1330 | 1250 | 1190 |
| | | 400 | 2010 | 1790 | 1650 | 1560 | 1480 | 1420 | 1370 | 1290 | 1230 |
| | | 300 | 2190 | 1950 | 1790 | 1680 | 1600 | 1530 | 1480 | 1390 | 1330 |
| | 2 or more spans | 600 | 1790 | 1600 | 1460* | 1170* | 970* | 830* | 730* | 580* | 480* |
| | | 450 | 1950 | 1740 | 1600 | 1510 | 1300* | 1110* | 970* | 780* | 650* |
| | | 400 | 2010 | 1790 | 1650 | 1560 | 1460* | 1250* | 1090* | 870* | 730* |
| | | 300 | 2190 | 1950 | 1790 | 1680 | 1600 | 1530 | 1460* | 1170* | 970* |
| Serviceability deflection limit Span / 360 | Single span | 600 | 1790 | 1600 | 1480 | 1390 | 1330 | 1270 | 1230 | 1150 | 1090 |
| | | 450 | 1950 | 1740 | 1600 | 1510 | 1430 | 1370 | 1330 | 1250 | 1190 |
| | | 400 | 2010 | 1790 | 1650 | 1560 | 1480 | 1420 | 1370 | 1290 | 1230 |
| | | 300 | 2190 | 1950 | 1790 | 1680 | 1600 | 1530 | 1480 | 1390 | 1330 |
| | 2 or more spans | 600 | 1790 | 1600 | 1460* | 1170* | 970* | 830* | 730* | 580* | 480* |
| | | 450 | 1950 | 1740 | 1600 | 1510 | 1300* | 1110* | 970* | 780* | 650* |
| | | 400 | 2010 | 1790 | 1650 | 1560 | 1460* | 1250* | 1090* | 870* | 730* |
| | | 300 | 2190 | 1950 | 1790 | 1680 | 1600 | 1530 | 1460* | 1170* | 970* |

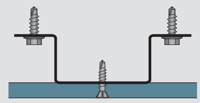
*Limited by 2x10g hex head screw connection capacity.

1. Tables refer to Siniat Top Hats of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Check maximum cladding span and fastener spacing requirements from the manufacturer's literature. Maximum cladding weight 22 kg/m².
3. All top hats must be supported 150mm maximum from ends and splicing of top hats is not permitted.
4. Table based upon ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated. Point loads or live loads are not considered.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case 1: 1.2G + Wu
8. Serviceability Load Case 1: G + Ws, with deflection limited to span/250 or span/360. Serviceability wind pressure taken as 65% of ultimate wind pressure suitable for Region A and Region B.
9. Connections checked using 2 x 10g hex head screws into minimum 1.0mm BMT G550 steel, minimum 1.2mm BMT G500 steel or minimum 1.5mm BMT G450 steel (purlins or girts). Contact Siniat if fixing to a different substrate for the possibility of spanning further.
10. Do not use tables for vertical top hats over horizontal top hat construction.
11. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.

## Table 5 Vertical 50x15 x 0.75mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection limit Span / 250 | Single span | 600 | 720 | 640 | 580 | 540 | 510 | 480 | 460 | 420 | 380 |
| | | 450 | 780 | 690 | 640 | 600 | 560 | 530 | 510 | 470 | 440 |
| | | 400 | 810 | 720 | 660 | 620 | 580 | 550 | 530 | 490 | 460 |
| | | 300 | 880 | 780 | 720 | 670 | 640 | 610 | 580 | 540 | 510 |
| | 2 or more spans | 600 | 720 | 640 | 580 | 540 | 510 | 480 | 460 | 420 | 380 |
| | | 450 | 780 | 690 | 640 | 600 | 560 | 530 | 510 | 470 | 440 |
| | | 400 | 810 | 720 | 660 | 620 | 580 | 550 | 530 | 490 | 460 |
| | | 300 | 880 | 780 | 720 | 670 | 640 | 610 | 580 | 540 | 510 |
| Serviceability deflection limit Span / 360 | Single span | 600 | 670 | 580 | 530 | 490 | 460 | 440 | 420 | 390 | 370 |
| | | 450 | 740 | 640 | 580 | 540 | 510 | 480 | 460 | 430 | 400 |
| | | 400 | 760 | 670 | 610 | 560 | 530 | 500 | 480 | 450 | 420 |
| | | 300 | 840 | 740 | 670 | 620 | 580 | 550 | 530 | 490 | 460 |
| | 2 or more spans | 600 | 720 | 640 | 580 | 540 | 510 | 480 | 460 | 420 | 380 |
| | | 450 | 780 | 690 | 640 | 600 | 560 | 530 | 510 | 470 | 440 |
| | | 400 | 810 | 720 | 660 | 620 | 580 | 550 | 530 | 490 | 460 |
| | | 300 | 880 | 780 | 720 | 670 | 640 | 610 | 580 | 540 | 510 |

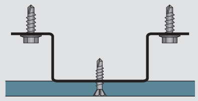
## Table 6 Vertical 50x25 x 0.75mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection limit Span / 250 | Single span | 600 | 1040 | 930 | 850 | 790 | 740 | 700 | 670 | 610 | 570 |
| | | 450 | 1120 | 1010 | 930 | 870 | 820 | 780 | 740 | 680 | 640 |
| | | 400 | 1160 | 1040 | 960 | 900 | 850 | 810 | 780 | 710 | 670 |
| | | 300 | 1260 | 1120 | 1040 | 980 | 930 | 890 | 850 | 790 | 740 |
| | 2 or more spans | 600 | 1040 | 930 | 850 | 790 | 740 | 700 | 670 | 580* | 480* |
| | | 450 | 1120 | 1010 | 930 | 870 | 820 | 780 | 740 | 680 | 640 |
| | | 400 | 1160 | 1040 | 960 | 900 | 850 | 810 | 780 | 710 | 670 |
| | | 300 | 1260 | 1120 | 1040 | 980 | 930 | 890 | 850 | 790 | 740 |
| Serviceability deflection limit Span / 360 | Single span | 600 | 1040 | 910 | 830 | 770 | 720 | 690 | 660 | 610 | 570 |
| | | 450 | 1120 | 1010 | 910 | 850 | 800 | 760 | 720 | 670 | 630 |
| | | 400 | 1160 | 1040 | 950 | 880 | 830 | 790 | 750 | 700 | 660 |
| | | 300 | 1260 | 1120 | 1040 | 970 | 910 | 870 | 830 | 770 | 720 |
| | 2 or more spans | 600 | 1040 | 930 | 850 | 790 | 740 | 700 | 670 | 580* | 480* |
| | | 450 | 1120 | 1010 | 930 | 870 | 820 | 780 | 740 | 680 | 640 |
| | | 400 | 1160 | 1040 | 960 | 900 | 850 | 810 | 780 | 710 | 670 |
| | | 300 | 1260 | 1120 | 1040 | 980 | 930 | 890 | 850 | 790 | 740 |

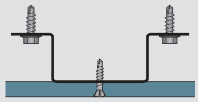
*Limited by 2x10g hex head screw connection capacity.

1. Tables refer to Siniat Top Hats of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Check maximum cladding span and fastener spacing requirements from the manufacturer's literature. Maximum cladding weight 22 kg/m².
3. All top hats must be supported 150mm maximum from ends and splicing of top hats is not permitted.
4. Table based upon ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated. Point loads or live loads are not considered.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case 1: 1.2G + Wu
8. Serviceability Load Case 1: G + Ws, with deflection limited to span/250 or span/360. Serviceability wind pressure taken as 65% of ultimate wind pressure suitable for Region A and Region B.
9. Connections checked using 2 x 10g hex head screws into minimum 1.0mm BMT G550 steel, minimum 1.2mm BMT G500 steel or minimum 1.5mm BMT G450 steel (purlins or girts). Contact Siniat if fixing to a different substrate for the possibility of spanning further.
10. Do not use tables for vertical top hats over horizontal top hat construction.
11. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.

## Table 7 Vertical 50x35 x 0.75mm BMT or 120x35 x 0.75mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure Wu (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection limit Span / 250 | Single span | 600 | 1250 | 1120 | 1040 | 980 | 920 | 870 | 820 | 750 | 700 |
| | | 450 | 1350 | 1210 | 1120 | 1060 | 1010 | 960 | 920 | 840 | 790 |
| | | 400 | 1390 | 1250 | 1160 | 1090 | 1040 | 1000 | 960 | 880 | 820 |
| | | 300 | 1510 | 1350 | 1250 | 1180 | 1120 | 1080 | 1040 | 980 | 920 |
| | 2 or more spans | 600 | 1250 | 1120 | 1040 | 980 | 920 | 830* | 730* | 580* | 480* |
| | | 450 | 1350 | 1210 | 1120 | 1060 | 1010 | 960 | 920 | 780* | 650* |
| | | 400 | 1390 | 1250 | 1160 | 1090 | 1040 | 1000 | 960 | 870* | 730* |
| | | 300 | 1510 | 1350 | 1250 | 1180 | 1120 | 1080 | 1040 | 980 | 920 |
| Serviceability deflection limit Span / 360 | Single span | 600 | 1250 | 1120 | 1040 | 980 | 920 | 870 | 820 | 750 | 700 |
| | | 450 | 1350 | 1210 | 1120 | 1060 | 1010 | 960 | 920 | 840 | 790 |
| | | 400 | 1390 | 1250 | 1160 | 1090 | 1040 | 1000 | 960 | 880 | 820 |
| | | 300 | 1510 | 1350 | 1250 | 1180 | 1120 | 1080 | 1040 | 980 | 920 |
| | 2 or more spans | 600 | 1250 | 1120 | 1040 | 980 | 920 | 830* | 730* | 580* | 480* |
| | | 450 | 1350 | 1210 | 1120 | 1060 | 1010 | 960 | 920 | 780* | 650* |
| | | 400 | 1390 | 1250 | 1160 | 1090 | 1040 | 1000 | 960 | 870* | 730* |
| | | 300 | 1510 | 1350 | 1250 | 1180 | 1120 | 1080 | 1040 | 980 | 920 |

## Table 8 Vertical 50x50 x 0.75mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure Wu (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection limit Span / 250 | Single span | 600 | 1550 | 1380 | 1260 | 1180 | 1110 | 1050 | 1000 | 920 | 860 |
| | | 450 | 1670 | 1500 | 1380 | 1290 | 1220 | 1160 | 1110 | 1030 | 960 |
| | | 400 | 1720 | 1550 | 1430 | 1340 | 1260 | 1210 | 1160 | 1070 | 1000 |
| | | 300 | 1860 | 1670 | 1550 | 1460 | 1380 | 1320 | 1260 | 1180 | 1110 |
| | 2 or more spans | 600 | 1550 | 1380 | 1260 | 1170* | 970* | 830* | 730* | 580* | 480* |
| | | 450 | 1670 | 1500 | 1380 | 1290 | 1220 | 1110* | 970* | 780* | 650* |
| | | 400 | 1720 | 1550 | 1430 | 1340 | 1260 | 1210 | 1090* | 870* | 730* |
| | | 300 | 1860 | 1670 | 1550 | 1460 | 1380 | 1320 | 1260 | 1170* | 970* |
| Serviceability deflection limit Span / 360 | Single span | 600 | 1550 | 1380 | 1260 | 1180 | 1110 | 1050 | 1000 | 920 | 860 |
| | | 450 | 1670 | 1500 | 1380 | 1290 | 1220 | 1160 | 1110 | 1030 | 960 |
| | | 400 | 1720 | 1550 | 1430 | 1340 | 1260 | 1210 | 1160 | 1070 | 1000 |
| | | 300 | 1860 | 1670 | 1550 | 1460 | 1380 | 1320 | 1260 | 1180 | 1110 |
| | 2 or more spans | 600 | 1550 | 1380 | 1260 | 1170* | 970* | 830* | 730* | 580* | 480* |
| | | 450 | 1670 | 1500 | 1380 | 1290 | 1220 | 1110* | 970* | 780* | 650* |
| | | 400 | 1720 | 1550 | 1430 | 1340 | 1260 | 1210 | 1090* | 870* | 730* |
| | | 300 | 1860 | 1670 | 1550 | 1460 | 1380 | 1320 | 1260 | 1170* | 970* |

*Limited by 2x10g hex head screw connection capacity.

1. Tables refer to Siniat Top Hats of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Check maximum cladding span and fastener spacing requirements from the manufacturer's literature. Maximum cladding weight 22 kg/m².
3. All top hats must be supported 150mm maximum from ends and splicing of top hats is not permitted.
4. Table based upon ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated. Point loads or live loads are not considered.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case 1: 1.2G + Wu
8. Serviceability Load Case 1: G + Ws, with deflection limited to span/250 or span/360. Serviceability wind pressure taken as 65% of ultimate wind pressure suitable for Region A and Region B.
9. Connections checked using 2 x 10g hex head screws into minimum 1.0mm BMT G550 steel, minimum 1.2mm BMT G500 steel or minimum 1.5mm BMT G450 steel (purlins or girts). Contact Siniat if fixing to a different substrate for the possibility of spanning further.
10. Do not use tables for vertical top hats over horizontal top hat construction.
11. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.

## Horizontal Top Hats over Stud Framing

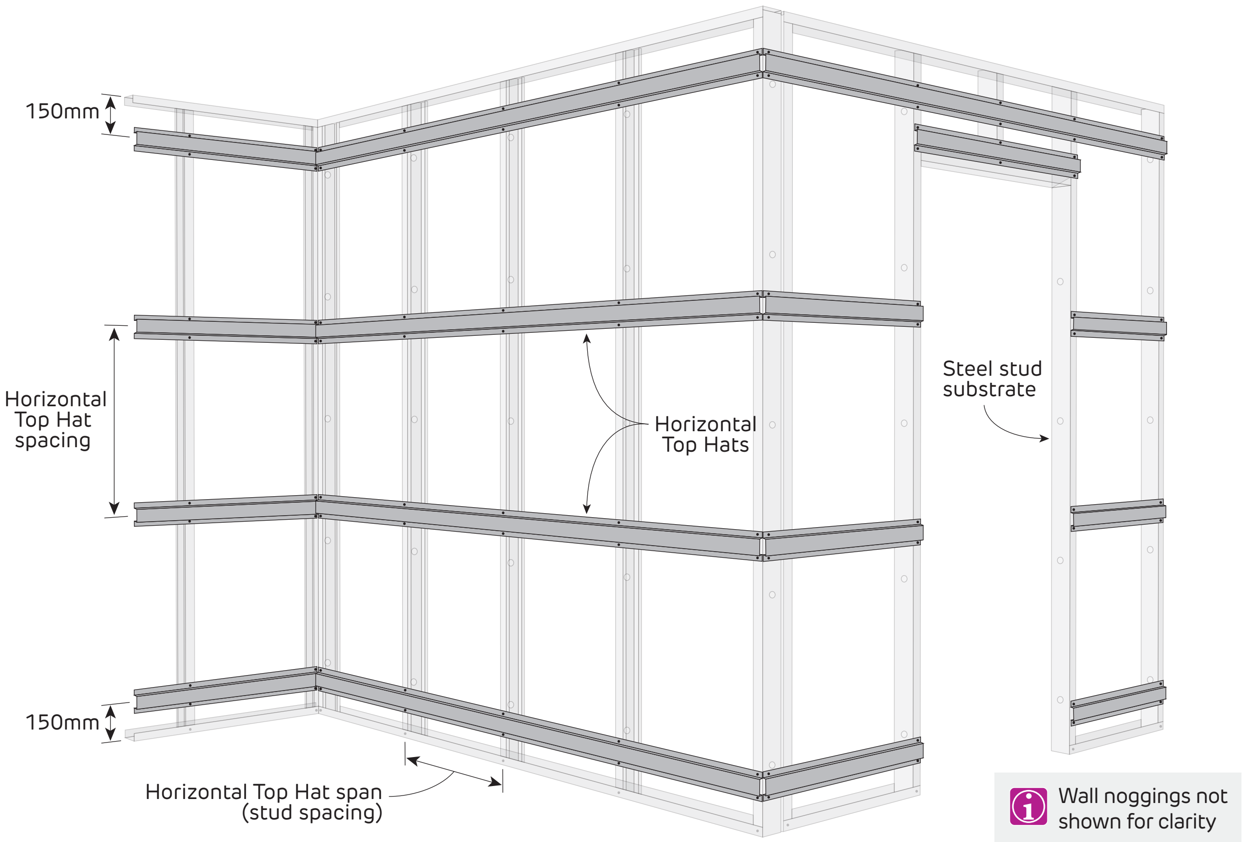
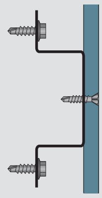


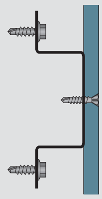

**FIGURE 2** **Horizontal Steel Top Hat Layout**

## Table 9 Horizontal 50x15 x 1.15mm BMT Top Hat Spacing Table (mm)



| | Span type | Stud spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 |
| Serviceability deflection limit Span / 250 | Single span | 600 | 900 | 620 | 460 | 370 | 310 | 260 |
| | | 450 | 900 | 900 | 900 | 830 | 690 | 590 |
| | | 400 | 900 | 900 | 900 | 900 | 900 | 780 |
| | | 300 | 900 | 900 | 900 | 900 | 900 | 900 |
| | 2 or more spans | 600 | 900 | 670 | 500 | 400 | 330 | 280 |
| | | 450 | 900 | 900 | 680* | 540* | 450* | 390* |
| | | 400 | 900 | 900 | 760* | 610* | 510* | 430* |
| | | 300 | 900 | 900 | 900 | 820* | 680* | 580* |
| Serviceability deflection limit Span / 360 | Single span | 600 | 640 | 430 | 320 | 250 | 210 | 180 |
| | | 450 | 900 | 900 | 760 | 610 | 510 | 430 |
| | | 400 | 900 | 900 | 900 | 870 | 720 | 620 |
| | | 300 | 900 | 900 | 900 | 900 | 900 | 900 |
| | 2 or more spans | 600 | 900 | 670 | 500 | 400 | 330 | 280 |
| | | 450 | 900 | 900 | 680* | 540* | 450* | 390* |
| | | 400 | 900 | 900 | 760* | 610* | 510* | 430* |
| | | 300 | 900 | 900 | 900 | 820* | 680* | 580* |

## Table 10 Horizontal 50x25 x 1.15mm BMT or 50x35 x 1.15mm BMT or 50x50 x 1.15mm BMT Top Hat Spacing Table (mm)

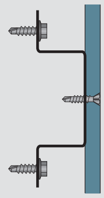


| | Span type | Stud spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 |
| Serviceability deflection limit Span / 250 | Single span | 600 | 900 | 900 | 900 | 900 | 850 | 730 |
| | | 450 | 900 | 900 | 900 | 900 | 900 | 900 |
| | | 400 | 900 | 900 | 900 | 900 | 900 | 900 |
| | | 300 | 900 | 900 | 900 | 900 | 900 | 900 |
| | 2 or more spans | 600 | 900 | 680* | 510* | 410* | 340* | 290* |
| | | 450 | 900 | 900 | 680* | 540* | 450* | 390* |
| | | 400 | 900 | 900 | 760* | 610* | 510* | 430* |
| | | 300 | 900 | 900 | 900 | 820* | 680* | 580* |
| Serviceability deflection limit Span / 360 | Single span | 600 | 900 | 900 | 900 | 900 | 820 | 700 |
| | | 450 | 900 | 900 | 900 | 900 | 900 | 900 |
| | | 400 | 900 | 900 | 900 | 900 | 900 | 900 |
| | | 300 | 900 | 900 | 900 | 900 | 900 | 900 |
| | 2 or more spans | 600 | 900 | 680* | 510* | 410* | 340* | 290* |
| | | 450 | 900 | 900 | 680* | 540* | 450* | 390* |
| | | 400 | 900 | 900 | 760* | 610* | 510* | 430* |
| | | 300 | 900 | 900 | 900 | 820* | 680* | 580* |

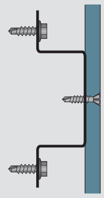
*Limited by 2x10g hex head screw connection capacity.

1. Tables refer to Siniat Top Hats of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Top Hat spacing limited to maximum 900mm spacing to apply an evenly distributed load to stud frame substrate.
3. Check maximum cladding span and fastener spacing requirements from the manufacturer's literature. Maximum cladding weight 22 kg/m$^2$ or seat cladding on floor.
4. All top hats must be supported 150mm maximum from ends and splicing of top hats is not permitted.
5. Table based upon ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated. Point loads or live loads are not considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Load Case 1: 1.2G + Wu
9. Serviceability Load Case 1: G + Ws, with deflection limited to span/250 or span/360. Serviceability wind pressure taken as 65% of ultimate wind pressure suitable for Region A and Region B.
10. Connections checked using 2 x 10g hex head screws into minimum 1.15mm thick G300 steel.
11. Do not use tables for vertical top hats over horizontal top hat construction.
12. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.

## Table 11 Horizontal 50x15 x 0.75mm BMT Top Hat Spacing Table (mm)

| | Span type | Stud spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | |  | |
|---|---|---|---|---|---|---|---|---|
| | | | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 |
| Serviceability deflection limit Span / 250 | Single span | 600 | 560 | 370 | 280 | 220 | 180 | 160 |
| | | 450 | 900 | 860 | 640 | 510 | 430 | 360 |
| | | 400 | 900 | 900 | 840 | 670 | 560 | 480 |
| | | 300 | 900 | 900 | 900 | 900 | 900 | 850 |
| | 2 or more spans | 600 | 560 | 370 | 280 | 220 | 180 | 160 |
| | | 450 | 900 | 860 | 640 | 510 | 430 | 360 |
| | | 400 | 900 | 900 | 760* | 610* | 510* | 430* |
| | | 300 | 900 | 900 | 900 | 820* | 680* | 580* |
| Serviceability deflection limit Span / 360 | Single span | 600 | 420 | 280 | 210 | 160 | 140 | 120 |
| | | 450 | 900 | 660 | 500 | 400 | 330 | 280 |
| | | 400 | 900 | 900 | 710 | 570 | 470 | 400 |
| | | 300 | 900 | 900 | 900 | 900 | 900 | 850 |
| | 2 or more spans | 600 | 560 | 370 | 280 | 220 | 180 | 160 |
| | | 450 | 900 | 860 | 640 | 510 | 430 | 360 |
| | | 400 | 900 | 900 | 760* | 610* | 510* | 430* |
| | | 300 | 900 | 900 | 900 | 820* | 680* | 580* |

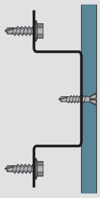
## Table 12 Horizontal 50x25 x 0.75mm BMT Top Hat Spacing Table (mm)

| | Span type | Stud spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | |  | |
|---|---|---|---|---|---|---|---|---|
| | | | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 |
| Serviceability deflection limit Span / 250 | Single span | 600 | 900 | 900 | 790 | 630 | 530 | 450 |
| | | 450 | 900 | 900 | 900 | 900 | 900 | 870 |
| | | 400 | 900 | 900 | 900 | 900 | 900 | 900 |
| | | 300 | 900 | 900 | 900 | 900 | 900 | 900 |
| | 2 or more spans | 600 | 900 | 680* | 510* | 410* | 340* | 290* |
| | | 450 | 900 | 900 | 680* | 540* | 450* | 390* |
| | | 400 | 900 | 900 | 760* | 610* | 510* | 430* |
| | | 300 | 900 | 900 | 900 | 820* | 680* | 580* |
| Serviceability deflection limit Span / 360 | Single span | 600 | 900 | 900 | 790 | 630 | 530 | 450 |
| | | 450 | 900 | 900 | 900 | 900 | 900 | 870 |
| | | 400 | 900 | 900 | 900 | 900 | 900 | 900 |
| | | 300 | 900 | 900 | 900 | 900 | 900 | 900 |
| | 2 or more spans | 600 | 900 | 680* | 510* | 410* | 340* | 290* |
| | | 450 | 900 | 900 | 680* | 540* | 450* | 390* |
| | | 400 | 900 | 900 | 760* | 610* | 510* | 430* |
| | | 300 | 900 | 900 | 900 | 820* | 680* | 580* |

*Limited by 2x10g hex head screw connection capacity.

1. Tables refer to Siniat Top Hats of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Top Hat spacing limited to maximum 900mm spacing to apply an evenly distributed load to stud frame substrate.
3. Check maximum cladding span and fastener spacing requirements from the manufacturer's literature. Maximum cladding weight 22 kg/m$^2$ or seat cladding on floor.
4. All top hats must be supported 150mm maximum from ends and splicing of top hats is not permitted.
5. Table based upon ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated. Point loads or live loads are not considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Load Case 1: 1.2G + Wu
9. Serviceability Load Case 1: G + Ws, with deflection limited to span/250 or span/360. Serviceability wind pressure taken as 65% of ultimate wind pressure suitable for Region A and Region B.
10. Connections checked using 2 x 10g hex head screws into minimum 1.15mm thick G300 steel.
11. Do not use tables for vertical top hats over horizontal top hat construction.
12. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.

## Table 13 Horizontal 50x35 x 0.75mm BMT or 50x50 x 0.75mm BMT Top Hat Spacing Table (mm)

| | Span type | Stud spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | |  | |
|---|---|---|---|---|---|---|---|---|
| | | | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 |
| **Serviceability deflection limit Span / 250** | Single span | 600 | 900 | 900 | 900 | 900 | 850 | 730 |
| | | 450 | 900 | 900 | 900 | 900 | 900 | 900 |
| | | 400 | 900 | 900 | 900 | 900 | 900 | 900 |
| | | 300 | 900 | 900 | 900 | 900 | 900 | 900 |
| | 2 or more spans | 600 | 900 | 680* | 510* | 410* | 340* | 290* |
| | | 450 | 900 | 900 | 680* | 540* | 450* | 390* |
| | | 400 | 900 | 900 | 760* | 610* | 510* | 430* |
| | | 300 | 900 | 900 | 900 | 820* | 680* | 580* |
| **Serviceability deflection limit Span / 360** | Single span | 600 | 900 | 900 | 900 | 900 | 850 | 730 |
| | | 450 | 900 | 900 | 900 | 900 | 900 | 900 |
| | | 400 | 900 | 900 | 900 | 900 | 900 | 900 |
| | | 300 | 900 | 900 | 900 | 900 | 900 | 900 |
| | 2 or more spans | 600 | 900 | 680* | 510* | 410* | 340* | 290* |
| | | 450 | 900 | 900 | 680* | 540* | 450* | 390* |
| | | 400 | 900 | 900 | 760* | 610* | 510* | 430* |
| | | 300 | 900 | 900 | 900 | 820* | 680* | 580* |

*Limited by 2x10g hex head screw connection capacity.

1. Tables refer to Siniat Top Hats of grade G300 steel with Zincalume™ AM150 corrosion protection.
2. Top Hat spacing limited to maximum 900mm spacing to apply an evenly distributed load to stud frame substrate.
3. Check maximum cladding span and fastener spacing requirements from the manufacturer's literature. Maximum cladding weight 22 kg/m$^2$ or seat cladding on floor.
4. All top hats must be supported 150mm maximum from ends and splicing of top hats is not permitted.
5. Table based upon ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated. Point loads or live loads are not considered.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Load Case 1: 1.2G + Wu
9. Serviceability Load Case 1: G + Ws, with deflection limited to span/250 or span/360. Serviceability wind pressure taken as 65% of ultimate wind pressure suitable for Region A and Region B.
10. Connections checked using 2 x 10g hex head screws into minimum 1.15mm thick G300 steel.
11. Do not use tables for vertical top hats over horizontal top hat construction.
12. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.

## Horizontal + Vertical Top Hats over Stud Framing

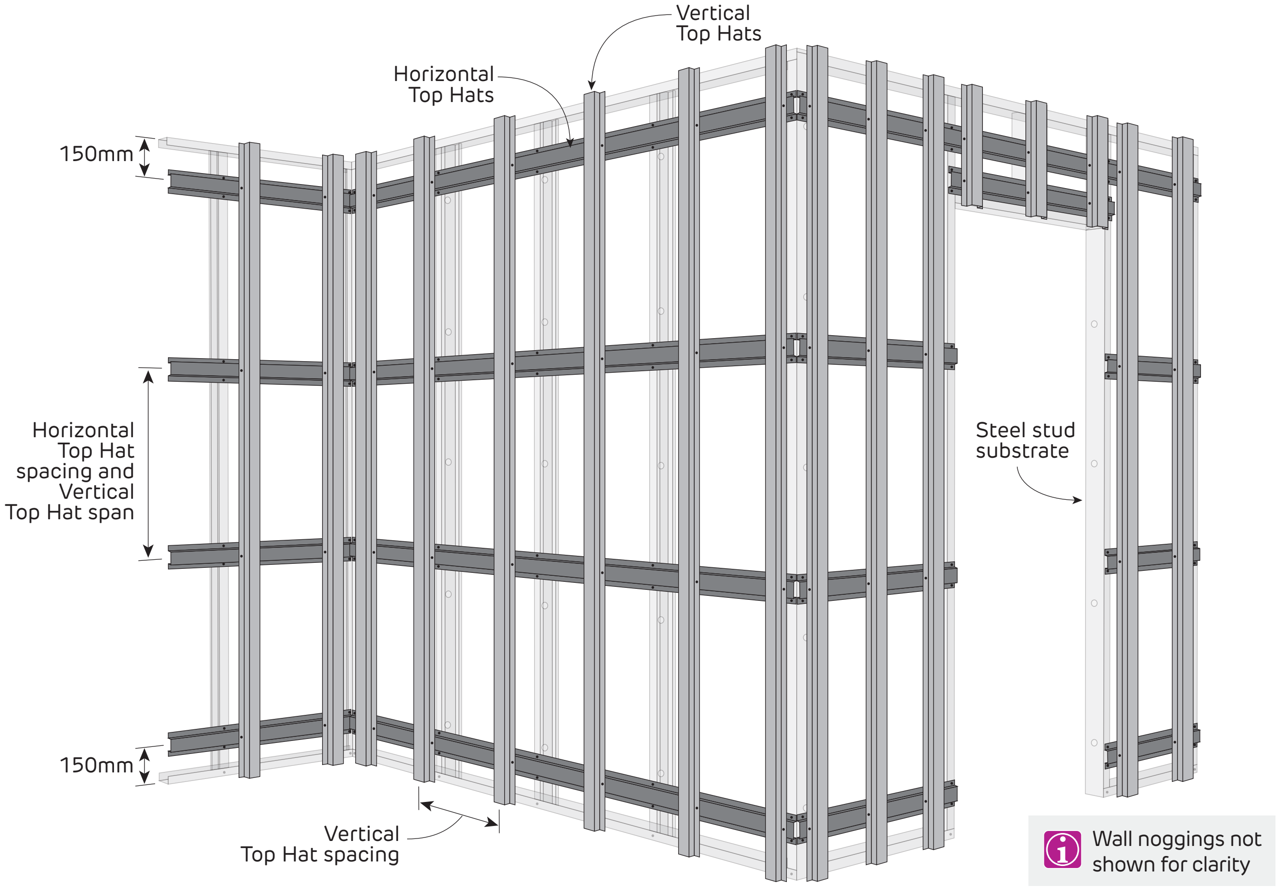



FIGURE 3 Vertical Top Hats over Horizontal Top Hats

Many cladding systems require vertical top hats as the substrate. Siniat Top Hat Cleats may be used to install vertical top hats directly over studs although this may not always be practical. A flexible solution is to install horizontal top hats and then vertical top hats which can be placed wherever they are needed [Refer to Figure 3]. Contact Siniat for a framing design with vertical top hats over horizontal top hats.

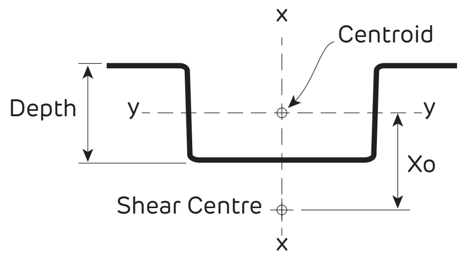
With horizontal top hat and vertical top hat framing over wall studs, a thermal break is typically not required.

# Steel Profile Information

## Material

| Manufacturer | Grade | Ultimate | Yield | Coating |
|---|---|---|---|---|
| Siniat | G300 | 340 MPa | 300 MPa | AM150 |

1. Steel grade and coating in accordance with AS 1397 *Continuous hot-dip metallic coated steel sheet and strip*




Top Hats

## Section Properties

| Profile | Dimensions (mm) | | Shear Centre from Centroid (mm) | Area (mm²) | Moment of Inertia (mm⁴) | | Section Modulus (mm³) | | Torsion Constant J (mm⁴) | Warping Constant Iw (mm⁶) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Depth | BMT | Xo | | Ixx | Iyy | Zxx | Zyy | | |
| 50x15x0.75 | 15 | 0.75 | -11.2 | 75.4 | 41,268 | 2,781 | 1,028 | 334 | 14.1 | 517,040 |
| 50x25x0.75 | 25 | 0.75 | -19.7 | 99.5 | 67,737 | 10,632 | 1,461 | 844 | 18.7 | 2,482,400 |
| 50x35x0.75 | 35 | 0.75 | -29.6 | 111.5 | 69,125 | 22,319 | 1,594 | 1,193 | 20.9 | 5,708,900 |
| 50x50x0.75 | 50 | 0.75 | -42.0 | 140.0 | 97,829 | 54,286 | 2,022 | 2,178 | 26.3 | 17,086,000 |
| 120x35x0.75 | 35 | 0.75 | -24.5 | 173.0 | 510,570 | 31,661 | 5,810 | 1,356 | 32.4 | 59,138,000 |
| 50x15x1.15 | 15 | 1.15 | -11.2 | 115.5 | 63,281 | 4,267 | 1,568 | 513 | 50.9 | 791,440 |
| 50x25x1.15 | 25 | 1.15 | -19.7 | 152.6 | 103,830 | 16,300 | 2,229 | 1,294 | 67.3 | 3,799,990 |
| 50x35x1.15 | 35 | 1.15 | -29.0 | 171.0 | 108,950 | 33,724 | 2,444 | 1,846 | 75.4 | 8,407,000 |
| 50x50x1.15 | 50 | 1.15 | -42.0 | 214.7 | 149,990 | 83,217 | 3,088 | 3,339 | 94.7 | 26,182,000 |
| 120x35x1.15 | 35 | 1.15 | -24.5 | 265.3 | 782,880 | 48,559 | 8,889 | 2,114 | 116.9 | 90,681,000 |

# Top Hat Cleats

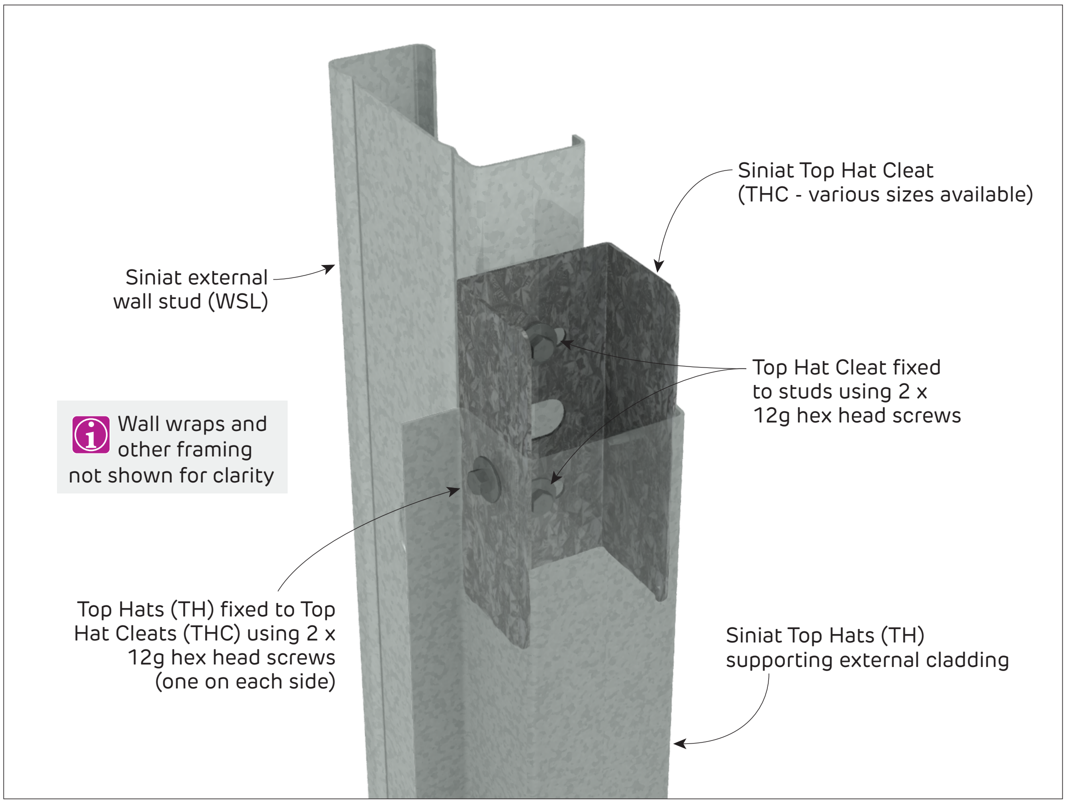



**FIGURE 4** **Top Hat Cleat over External Steel Stud Wall**
Vertical Top Hats over Top Hat Cleats
Perspective

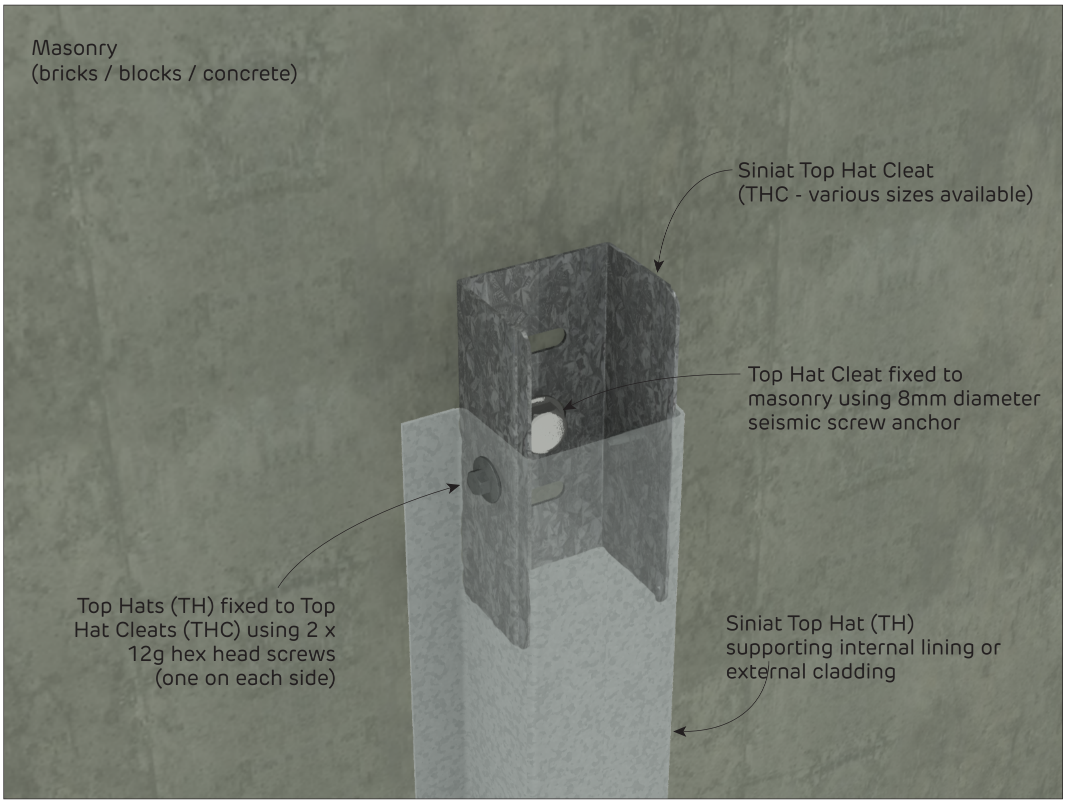



**FIGURE 5** **Top Hat Cleat over Masonry Wall**
Vertical or Horizontal Top Hats over Top Hat Cleats
Perspective

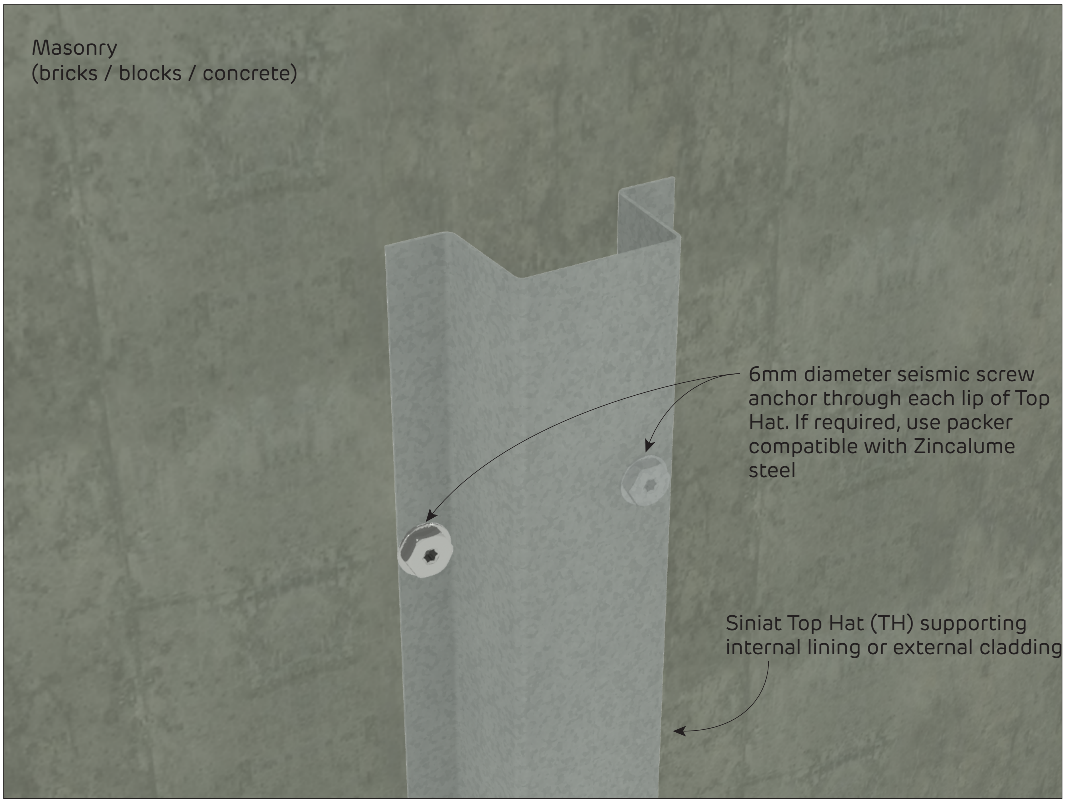



**FIGURE 6** **Top Hat over Masonry Wall**
Vertical or Horizontal Top Hats directly fixed to masonry
Perspective

## Fire Rated and Non-Fire Rated Top Hat Cleats

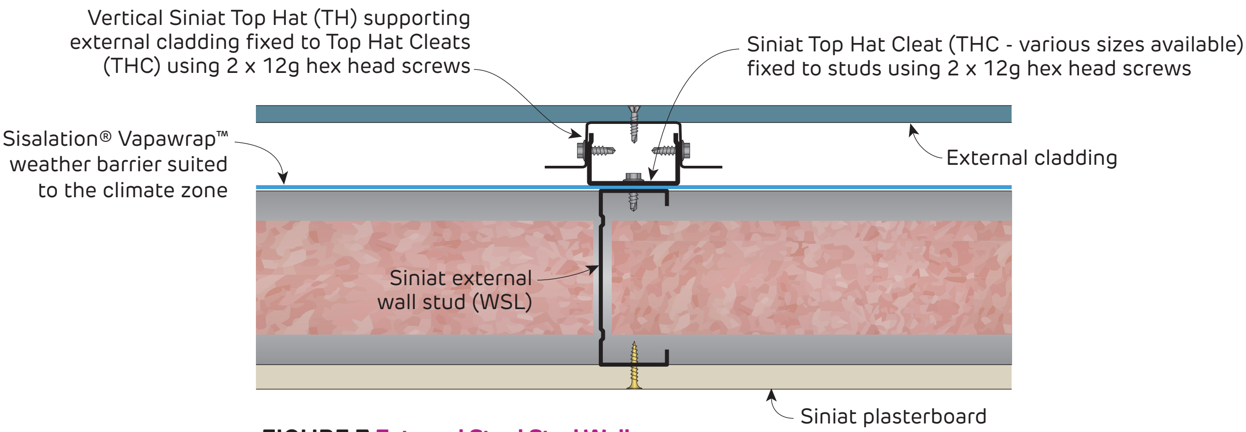



**FIGURE 7** **External Steel Stud Wall**
Vertical Top Hats over Top Hat Cleats
Plan

## Fire Rated and Non-Fire Rated Top Hat Cleats

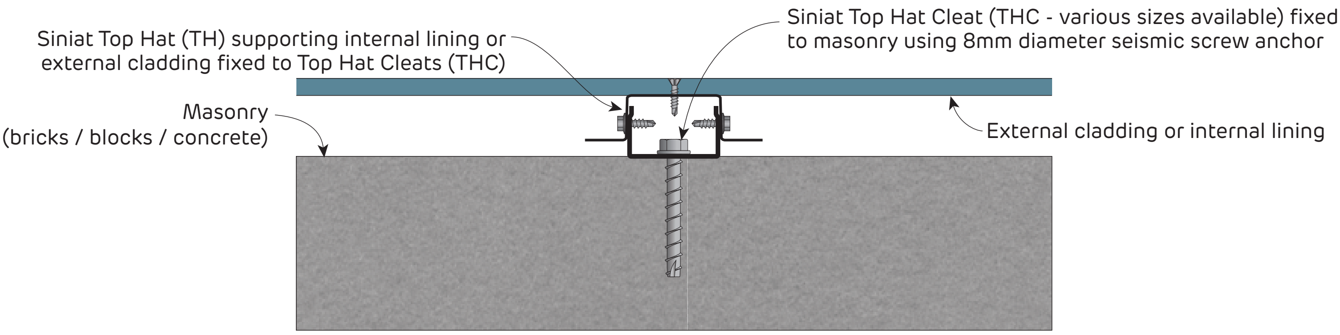



**FIGURE 8 Masonry Wall**
Vertical or Horizontal Top Hats over Top Hat Cleats
Plan

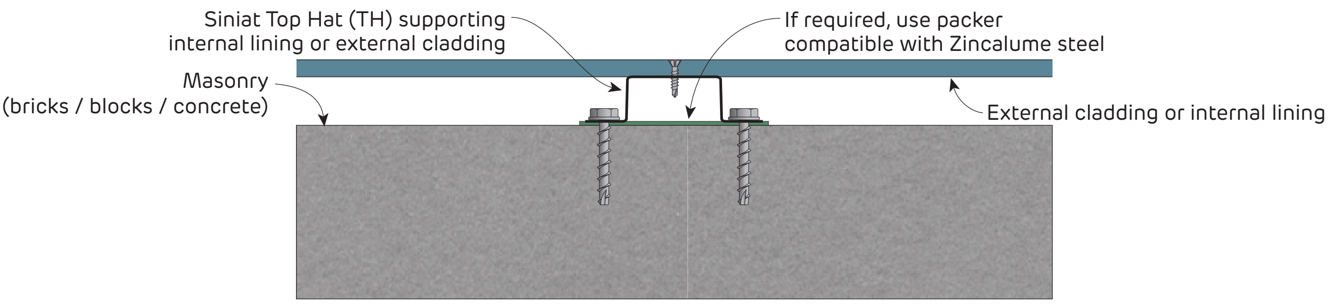



**FIGURE 9 Masonry Wall**
Vertical or Horizontal Top Hats directly fixed to Masonry
Plan

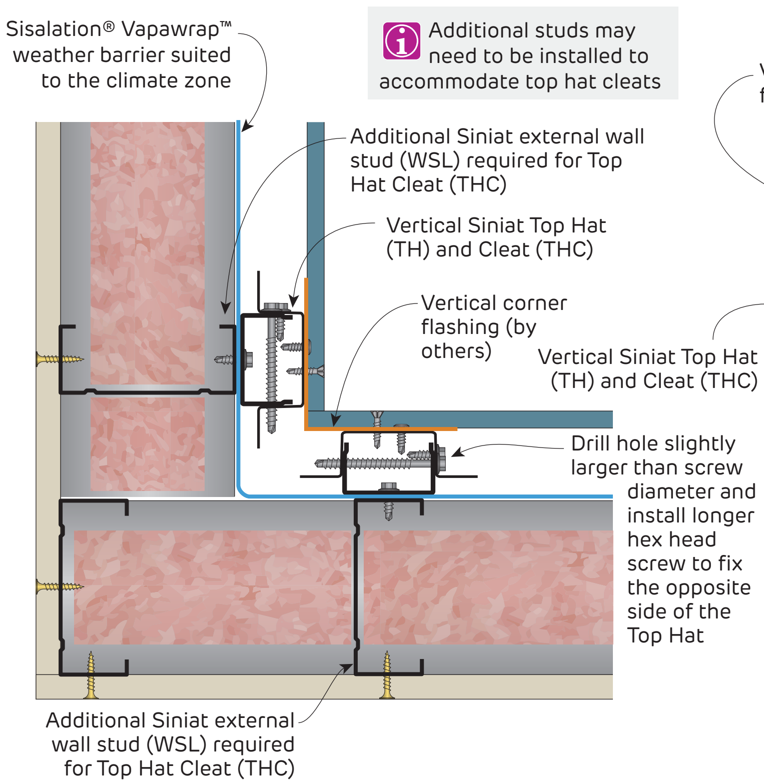



**FIGURE 10 External Steel Stud Wall Internal Corner**
Vertical Top Hats over Top Hat Cleats
Plan

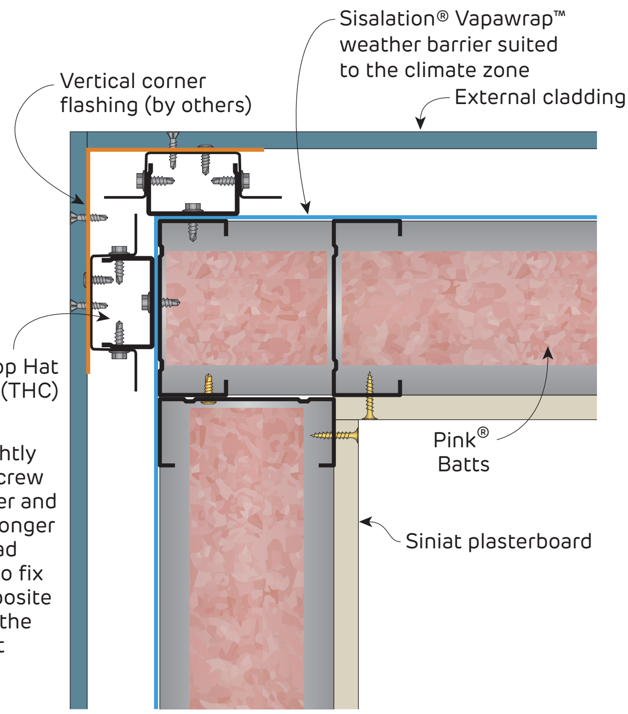



**FIGURE 11 External Steel Stud Wall External Corner**
Vertical Top Hats over Top Hat Cleats
Plan

## Fire Rated and Non-Fire Rated
## Horizontal + Vertical Top Hats over External Wall

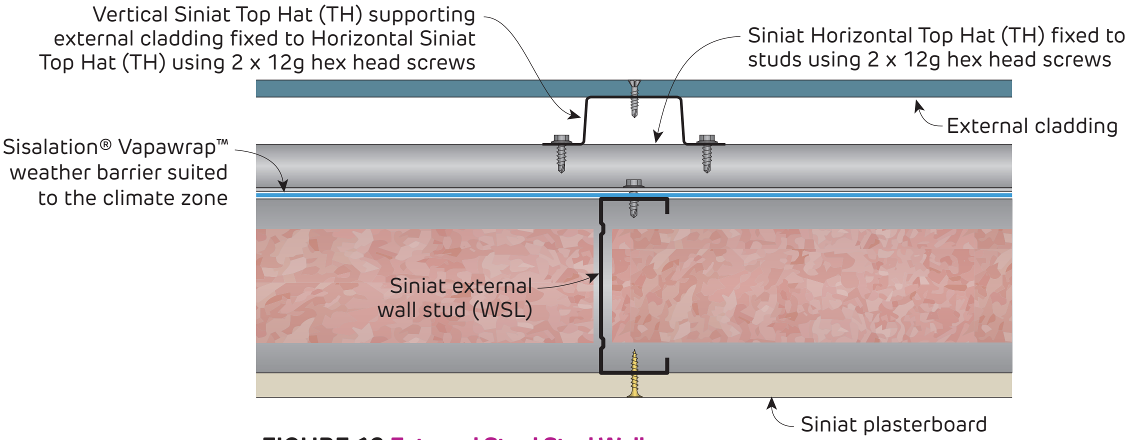



**FIGURE 12 External Steel Stud Wall**
Horizontal + Vertical Top Hats
Plan

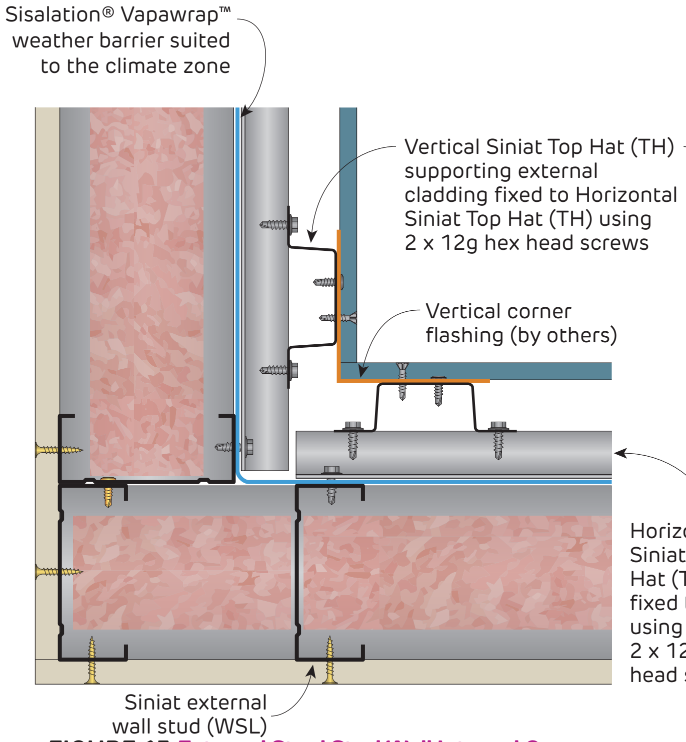



**FIGURE 13 External Steel Stud Wall Internal Corner**
Horizontal + Vertical Top Hats
Plan

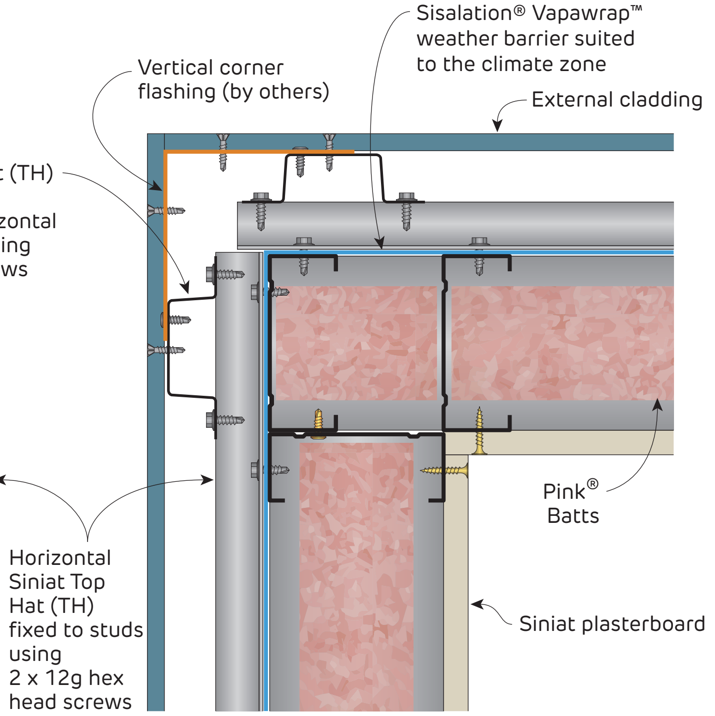



**FIGURE 14 External Steel Stud Wall External Corner**
Horizontal + Vertical Top Hats
Plan

| | |
|---|---|
| FEATURES | 514 |
| BENEFITS | 514 |
| APPLICATIONS | 514 |
| PROPERTIES | 514 |
| **SYSTEMS** | **515** |
| **INSTALLATION** | **518** |
| TYPICAL INSTALLATION | 518 |
| WEATHERTIGHTNESS | 518 |
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# 4.6 Weather Defence

**weather** defence™ is a 13mm thick external sheathing board (also known as a rigid air barrier) which is used behind facade cladding systems to create a pressure equalised cavity. **weather** defence™ forms part of the weatherproofing system for an external wall of a building and can often replace wall sarking.

**weather** defence™ provides a weather resistive layer to prevent moisture ingress and excessive air leakage of a building. Installations using **weather** defence™ can achieve airtightness targets that contribute to a building's energy efficiency and allow any glasswool insulation in the cavity to perform as intended by avoiding wind washing.

**weather** defence™ can be left exposed to the weather for up to 12 months before being covered by external cladding.

This section includes wall systems, installation and construction details for non-fire and fire rated **weather** defence™ external walls.

Refer to Section 3.1 and Section 3.3 for the installation of internal linings. Refer to the **weather** defence™ Bushfire installation guide for bushfire applications.

**weather** defence™ has been tested to *AS/NZS 4284 Testing of building facades*, and can be used wherever non-combustible materials are required by the National Construction Code (NCC).

# Features

- High vapour permeability (Class 4) meaning it is suitable for most climate zones
- Tested to *AS/NZS 4284 Testing of building facades* with EQUITONE® and other cladding
- Fully recyclable gypsum core
- Low embodied carbon to manufacture
- Not classified as hazardous according to Safe Work Australia criteria.

# Benefits

- Weather resistive (water and air) layer
- Breathable layer (with high vapour permeability)
- Can be left exposed for up to 12 months
- Improves external wall acoustic and thermal performance
- May be used wherever a non-combustible material is required according to NCC 2022 Volume One, C2D10 (6) (a), and Volume Two H3D2 (1) (a)
- Enclose buildings faster so the interior fitout can start sooner
- Easy to cut, shape and install without specialist cutting equipment or segregated areas.

# Applications

**weather** defence™ is designed to be installed on residental, multi-residential, commercial, office, health-care, education and public buildings. Typically **weather** defence™ is installed on:

- Light weight steel stud framing
- Timber stud framing, and
- Modular buildings.

**weather** defence™ is recommended for use in climate zones 2 to 8. In climate zone 1, it is recommended to apply a vapour control layer over the external surface.

# Properties

## Fire Hazard Properties

The National Construction Code (NCC) regulates the fire hazard properties of coverings and lining materials in buildings according to NCC 2022 Volume One, C2D11. Floor linings and coverings must have a high enough critical radiant flux to comply with NCC 2022 Volume One, C2D11, while internal wall and ceiling linings must have a low enough group number. The group number indicates how quickly wall and ceiling linings spread fire, with Group 1 products ranked the slowest and Group 4 the fastest.

**Table 2 Product Group Number**

| Product | Group Number | Average Specific Extinction Area ($m^2$/kg) |
|---|---|---|
| weather defence | 1 | less than 250 |

## Combustibility

**weather** defence™ is a plasterboard manufactured to meet the requirements of *AS/NZS 2588:2018 - Gypsum plasterboard.* As such, it is considered to limit the spread of fire; therefore in accordance with NCC 2022 Volume One, C2D10 (6) (a), and NCC 2022 Volume Two, H3D2 (1) (a), plasterboard may be used wherever non-combustible materials are required by the NCC.

## Thermal 'R' Value

The R-Value of plasterboard is a measure of its thermal insulation ability. Higher numbers indicate a better insulator. The values* for plasterboard are:

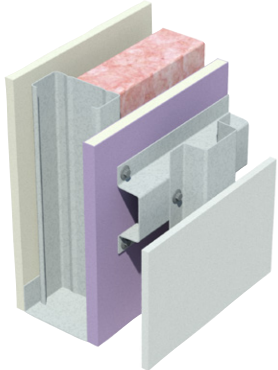
- 13mm plasterboard = 0.076 $m^2$.K/W

*Values calculated from thermal conductivity of plasterboard listed in NCC of 0.17 W/mK

**Table 1 Weather Defence Properties**

| Property | Result | Reference |
|---|---|---|
| Vapour permeance | 1.52 µg/Ns (Class 4) | AS/NZS 4100.1 and ASTM E96 |
| Vapour resistance | 0.7 MNs/g | ASTM E96 |
| Resistance to water penetration | Pass | AS/NZS 4201.4 |
| Resistance to mould growth | 10/10 (no mould growth) | ASTM D3273 |

## SSW770



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm steel stud framing at 600mm maximum centres
- Minimum Pink® Partition 75mm R1.8 insulation
- 1 layer of 13mm **weather** defence
- External cladding as nominated in the 'Exterior Cladding' table

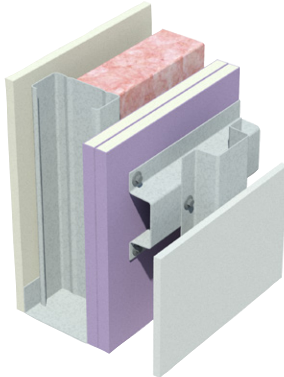
**Fire Resistance Level**

**30/30/30**
rated from the outside only

Report
FC20363

| Stud Size (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | |
|---|---|---|
| | Pink® Partition 75mm R1.8 | Report Insul |
| 70 | 40 (30) | |

## SSW771



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm steel stud framing at 600mm maximum centres
- Minimum Pink® Partition 75mm R1.8 insulation
- 2 layers of 13mm **weather** defence
- External cladding as nominated in the 'Exterior Cladding' table

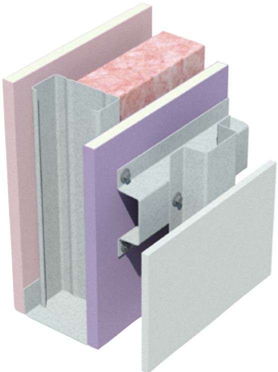
**Fire Resistance Level**

**90/90/90**
rated from the outside only

Report
FC20363

| Stud Size (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | |
|---|---|---|
| | Pink® Partition 75mm R1.8 | Report Insul |
| 70 | 46 (35) | |

## SSW780



- 1 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 70mm steel stud framing at 600mm maximum centres
- Minimum Pink® Partition 75mm R1.8 insulation
- 1 layer of 13mm **weather** defence
- External cladding as nominated in the 'Exterior Cladding' table

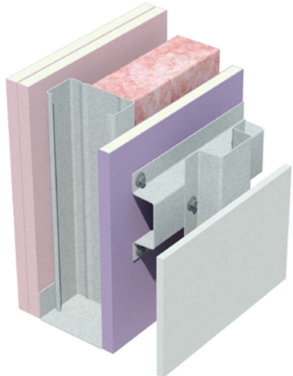
**Fire Resistance Level**

**-/60/60 and 30/30/30**
rated from both directions

Report
FC20363

| Stud Size (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | |
|---|---|---|
| | Pink® Partition 75mm R1.8 | Report Insul |
| 70 | 43 (33) | |

## SSW776



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 70mm steel stud framing at 600mm maximum centres
- Minimum Pink® Partition 75mm R1.8 insulation
- 1 layer of 13mm **weather** defence
- External cladding as nominated in the 'Exterior Cladding' table

**Fire Resistance Level**

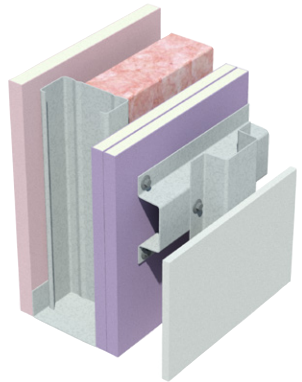
**-/90/90 and 30/30/30**
rated from the outside

**90/90/90**
rated from the inside

Report
FC20363

| Stud Size (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | |
|---|---|---|
| | Pink® Partition 75mm R1.8 | Report Insul |
| 70 | 47 (38) | |

## SSW784



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm steel stud framing at 600mm maximum centres
- Minimum Pink® Partition 75mm R1.8 insulation
- 2 layers of 13mm **weather** defence
- External cladding as nominated in the 'Exterior Cladding' table

**Fire Resistance Level**

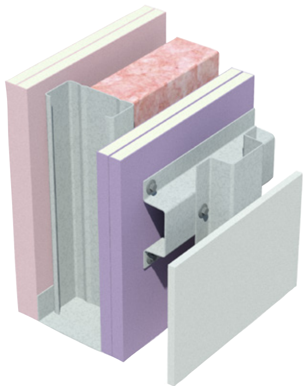
**90/90/90**
rated from the outside

**60/60/60**
rated from the inside

Report
FC20363

| Stud Size (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | |
|---|---|---|
| | Pink® Partition 75mm R1.8 | Report |
| 70 | 48 (40) | Insul |

## SSW782



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 70mm steel stud framing at 600mm maximum centres
- Minimum Pink® Partition 75mm R1.8 insulation
- 2 layers of 13mm **weather** defence
- External cladding as nominated in the 'Exterior Cladding' table

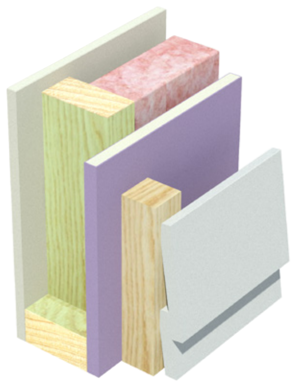
**Fire Resistance Level**

**-/120/120 and 90/90/90**
rated from both directions

Report
FC20363

| Stud Size (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | |
|---|---|---|
| | Pink® Partition 75mm R1.8 | Report |
| 70 | 51 (44) | Insul |

## TSW770



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Minimum Pink® Partition 75mm R1.8 insulation
- 1 layer of 13mm **weather** defence
- External cladding as nominated in the 'Exterior Cladding' table

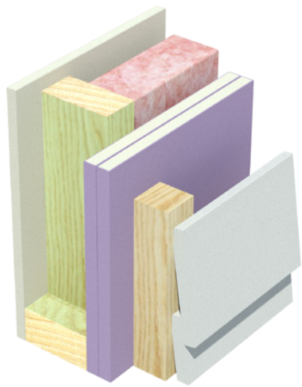
**Fire Resistance Level**

**30/30/30**
rated from the outside only

Report
FC20363

| Stud Size (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | |
|---|---|---|
| | Pink® Partition 75mm R1.8 | Report |
| 70 | 40 (29) | Insul |

## TSW771



- 1 layer of 10mm **masta**shield or **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Minimum Pink® Partition 75mm R1.8 insulation
- 2 layers of 13mm **weather** defence
- External cladding as nominated in the 'Exterior Cladding' table

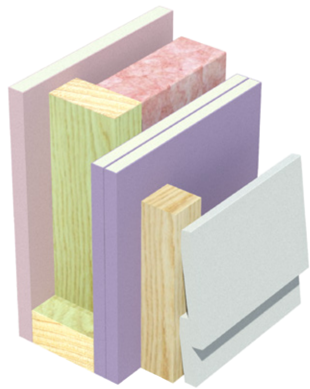
**Fire Resistance Level**

**90/90/90**
rated from the outside only

Report
FC20363

| Stud Size (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | |
|---|---|---|
| | Pink® Partition 75mm R1.8 | Report |
| 70 | 45 (34) | Insul |

## TSW784



- 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 70mm timber stud framing at 600mm maximum centres
- Minimum Pink® Partition 75mm R1.8 insulation
- 2 layers of 13mm **weather** defence
- External cladding as nominated in the 'Exterior Cladding' table

**Fire Resistance Level**

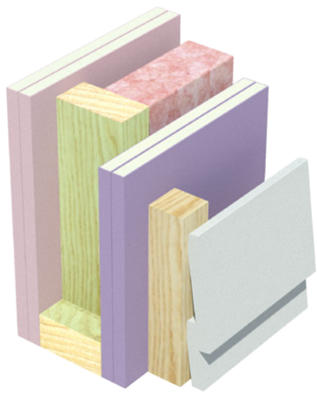
**90/90/90**
rated from the outside

**60/60/60**
rated from the inside

Report
FC20363

| Stud Size (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | |
|---|---|---|
| | Pink® Partition 75mm R1.8 | Report |
| 70 | 47 (34) | Insul |

## TSW782



- 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 70mm timber stud framing at 600mm maximum centres
- Minimum Pink® Partition 75mm R1.8 insulation
- 2 layers of 13mm **weather** defence
- External cladding as nominated in the 'Exterior Cladding' table

**Fire Resistance Level**

**90/90/90**
rated from both directions

Report
FC20363

| Stud Size (mm) | Sound Insulation without external cladding Rw (Rw + Ctr) | |
|---|---|---|
| | Pink® Partition 75mm R1.8 | Report |
| 70 | 50 (39) | Insul |

# Typical Installation

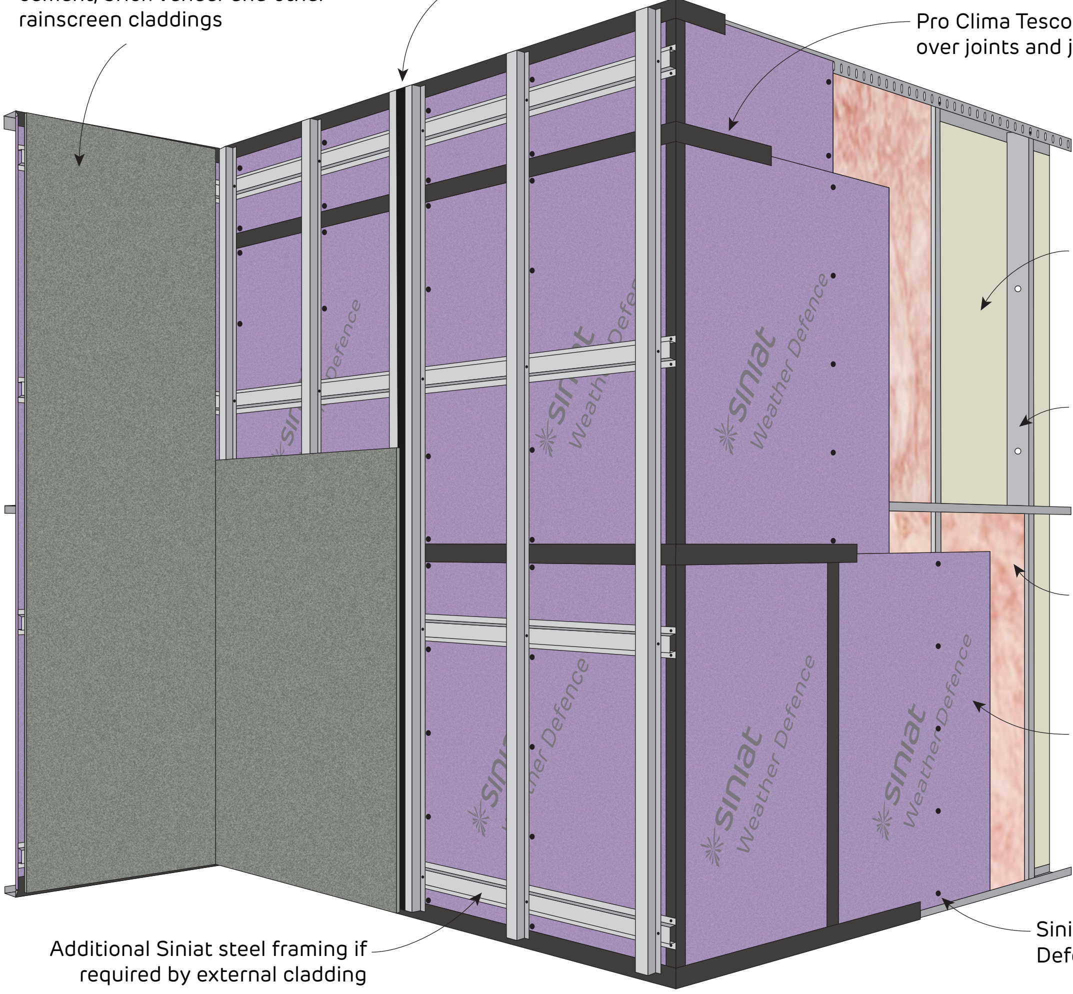



**FIGURE 1** **Typical Weather Defence Installation**
Perspective

# Weathertightness

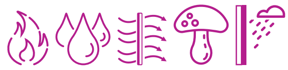
The construction details shown are limited to the approved wind pressure limits of the choosen cladding system. The cladding details shown are to be used as a guide only, and tested details of a cladding manufacturer should take precedence.

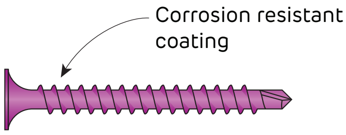
**weather** defence™ has been tested with EQUITONE® to *AS/NZS 4284 Testing of building facades* for the purpose of compliance with NCC 2022 F3P1 and H2P2 to the following wind pressures:

- Ultimate wind pressure ± 4.5 kPa
- Serviceability wind pressure ± 2.5 kPa

Although **weather** defence™ has been tested to AS/NZS 4284 with Equitone and other cladding, a facade engineer is required to generate a performance solution for any external facade in Class 2-9 builings.

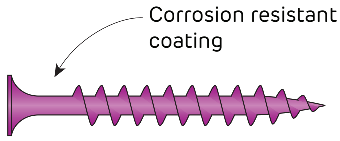
# Components

| Name | Thickness (mm) | Width (mm) | Length (mm) | Weight (kg/m²) | Properties |
|---|---|---|---|---|---|
| weather defence™ | 13 | 1200 | 2400 | 11.7 |  |




| Product Code | Box screw |
|---|---|
| 4084645 | 1000 screws |

**FIGURE 2 6g x 38mm Weather Defence Screw**
Fine thread drill point screw




| Product Code | Box screw |
|---|---|
| 4084646 | 1000 screws |

**FIGURE 3 6g x 42mm Weather Defence Screw**
Coarse thread needle point screw

| Product Code | Length | Width |
|---|---|---|
| 13206 | 30 m | 60 mm |
| 13280 | 30 m | 100 mm |
| 14891 | 30 m | 150 mm |

**FIGURE 4 Pro Clima Tescon Extora®**
Flashing Tape - (Supplied by Pro Clima)

| Product Code | Length | Width |
|---|---|---|
| 14152 | 20 m | 150 mm |
| 14156 | 20 m | 200 mm |

**FIGURE 5 Pro Clima Tescon Extoseal®**
Sill Tape - (Supplied by Pro Clima)
Note: Can be used as a substitute for Tescon Extora® Flashing Tape

Wet Seal Connection Tape may be omitted as long as sealant manufacturer can confirm compatibility with Pro Clima's Tescon Extora® and Tescon Extoseal®

| Product Code | Length | Width |
|---|---|---|
| 16849 | 30 m | 38 mm |

**FIGURE 6 Pro Clima Tescon® WS**
Wet Seal Connection Tape - (Supplied by Pro Clima)

| Product Code | Length | Width |
|---|---|---|
| 13599 | 20 m | 50 mm |

**FIGURE 7 Pro Clima Tescon® Naideck**
Double sided self sealing strip (Supplied by Pro Clima)

# General Requirements

| |
|---|
| Install control joints in **weather** defence™ walls:<br>> At every slab level<br>> At all control joints in the structure<br>> At any change in the substrate |
| Jointing of **weather** defence™ is not required. |
| Protect **weather** defence™ from water pooling at ground level. |
| Avoid gaps in cladding that let sunlight though as the flashing tape may degrade over time. |
| Attach top hats or other cladding framing through **weather** defence™ to the structural frame. |
| Attach all fixtures to studs, purpose installed noggings or blocking. Wall anchors or screws must not be fixed only to **weather** defence™. |
| For multiple layer wall systems, the underlying layer of **weather** defence™ may be substituted with **multi**shield. |

# Framing

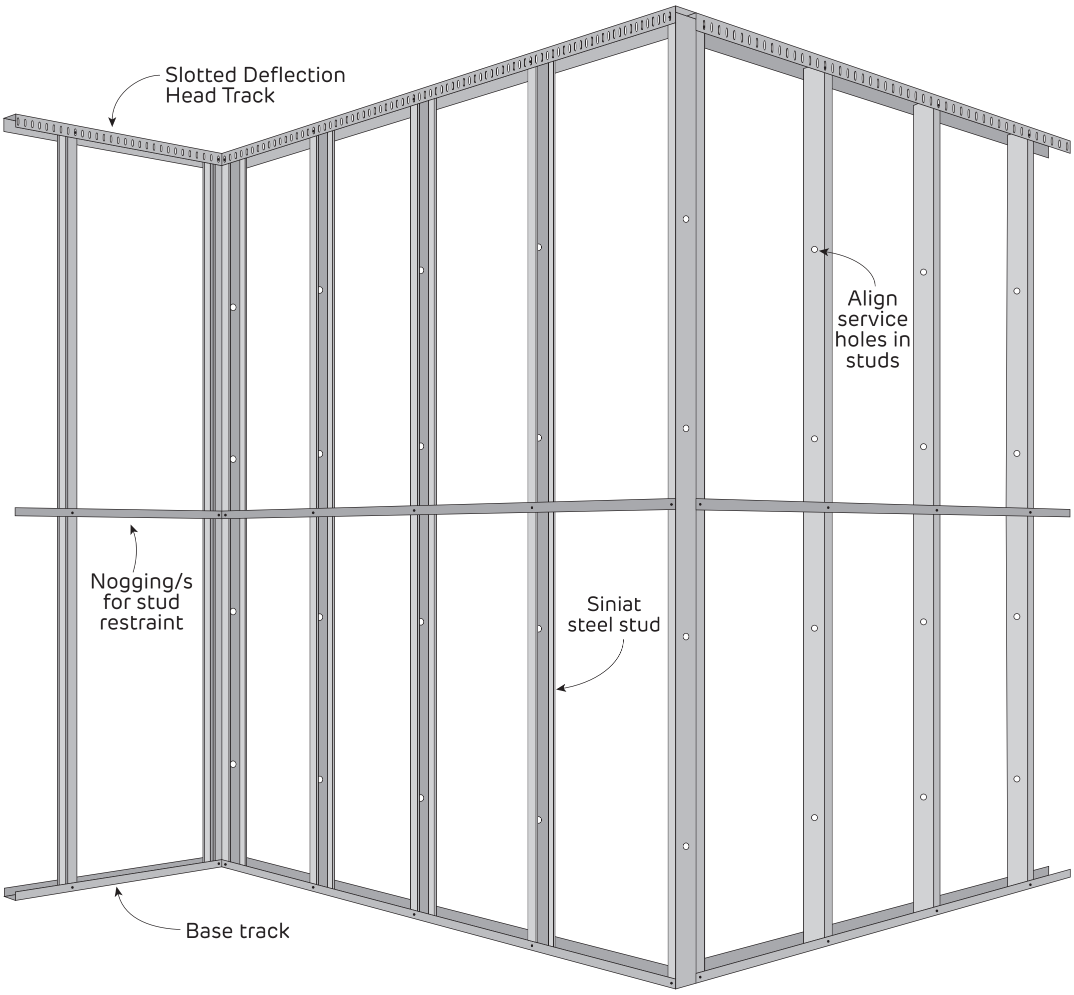



**FIGURE 8** **Typical External Steel Frame Wall Layout**
Perspective

# Framing continued

| |
|---|
| Steel framing members up to 600mm maximum spacing and designed in accordance with *AS/NZS 4600 Cold formed steel structures* or *NASH Standard for Residential and Low-rise steel framing*. |
| Timber framing members up to 600mm maximum spacing and designed in accordance with *AS 1720 Timber structures* or *AS/NZS 1684 Residential timber framed construction.* |
| Structural wall designs must allow for the intended dead, live, wind and seismic loads in accordance with the AS/NZS 1170 series. |

- > Noggings are permitted to assist the fixing of services. Copper Chromium Arsenate (CCA) treated timber must not be used with steel framing.
- > Plumbing and electrical services must not protrude beyond the face of the studs.

# Layout

| |
|---|
| Preferably, install **weather** defence™ boards with a 0-2mm gap around each sheet. Gaps of 10mm maximum between boards are permitted. |
| **Horizontal Layout** |
| Install **weather** defence™ boards horizontally across studs in a 'brick bond' pattern. |

# Curving

| |
|---|
| Minimum curve radius is 4m with 400mm maximum stud spacing. Note: smaller stud spacing may be required for wind loads. |
| Fix flat plate to studs corresponding with all horizontal board joints. |

# Fixing

| |
|---|
| Use Siniat **weather** defence™ screws to fix **weather** defence™ board to external wall framing. |
| Drive screws to just below the sheet surface, taking care not to break the fleece liner. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch with Pro Clima Tescon Extora® tape. |
| Use the 'Screw Only Method'. Stud adhesive is not permitted. |
| Cover screws with flashing tape for corrosivity zones C4 and C5 unless covered with wall wrap. |

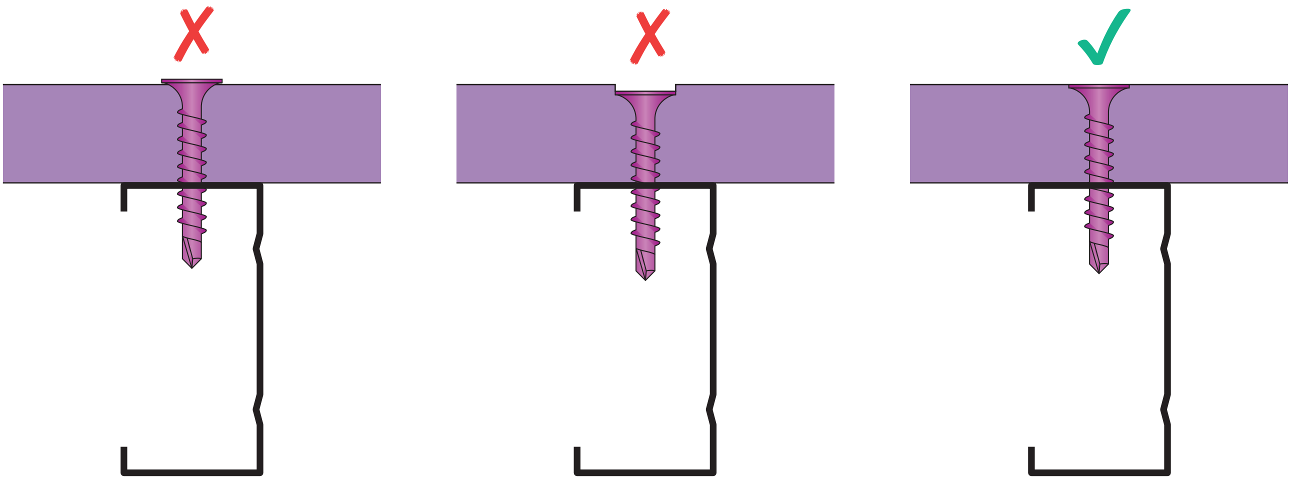


**FIGURE 9 Screw Installation**
Plan

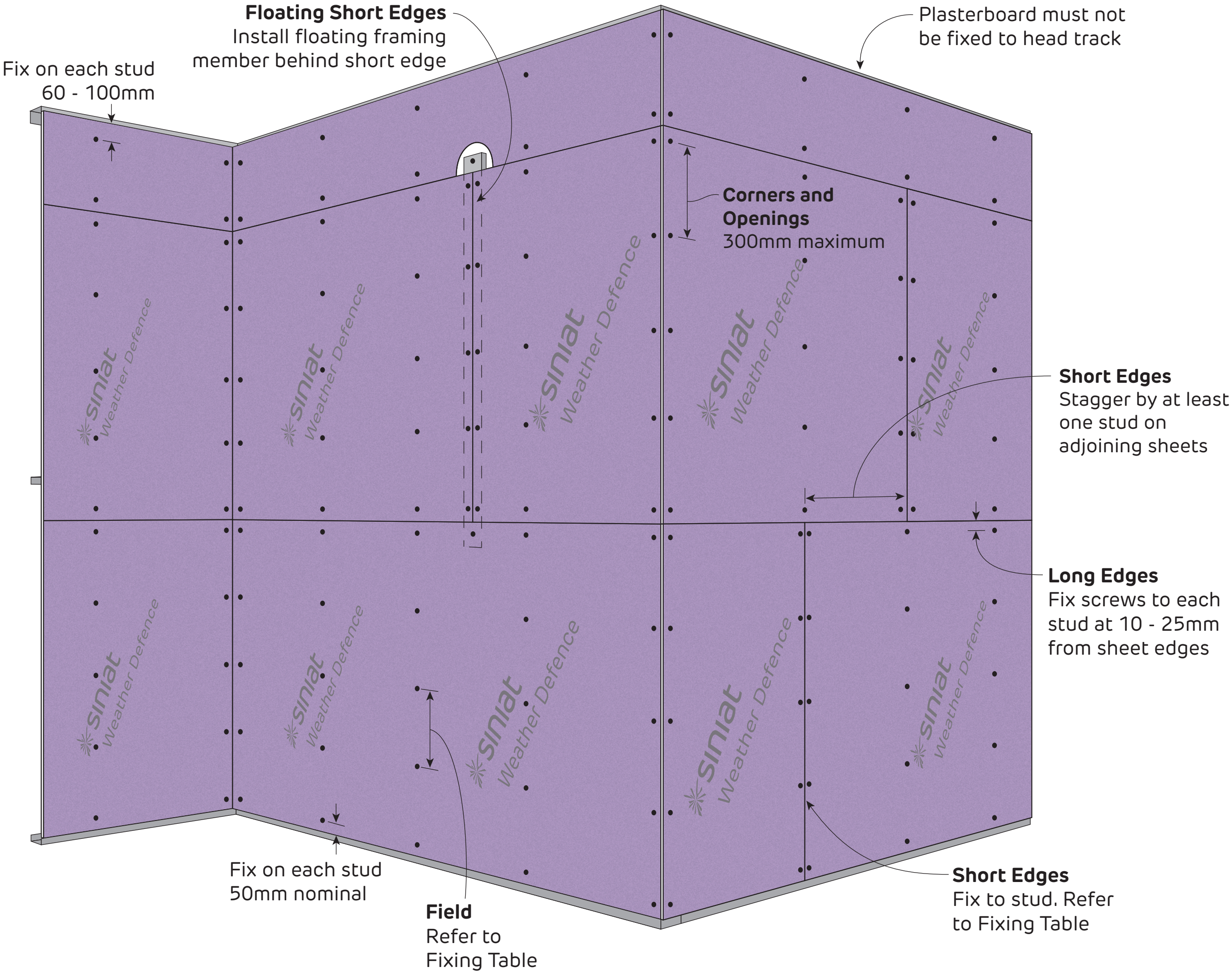
### Table 3 Screw Type for the Installation of weather defence™ to Steel

| Plasterboard Thickness | 1st Layer and 2nd Layer |
|---|---|
| 13mm | 6g x 38mm fine thread drill point **weather** defence™ screw |

### Table 4 Screw Type for the Installation of weather defence™ to Timber

| Plasterboard Thickness | 1st Layer and 2nd Layer |
|---|---|
| 13mm | 6g x 42mm coarse thread needle point **weather** defence™ screw |

**FIGURE 10** **1 Layer - Horizontal**
Screw Only Method

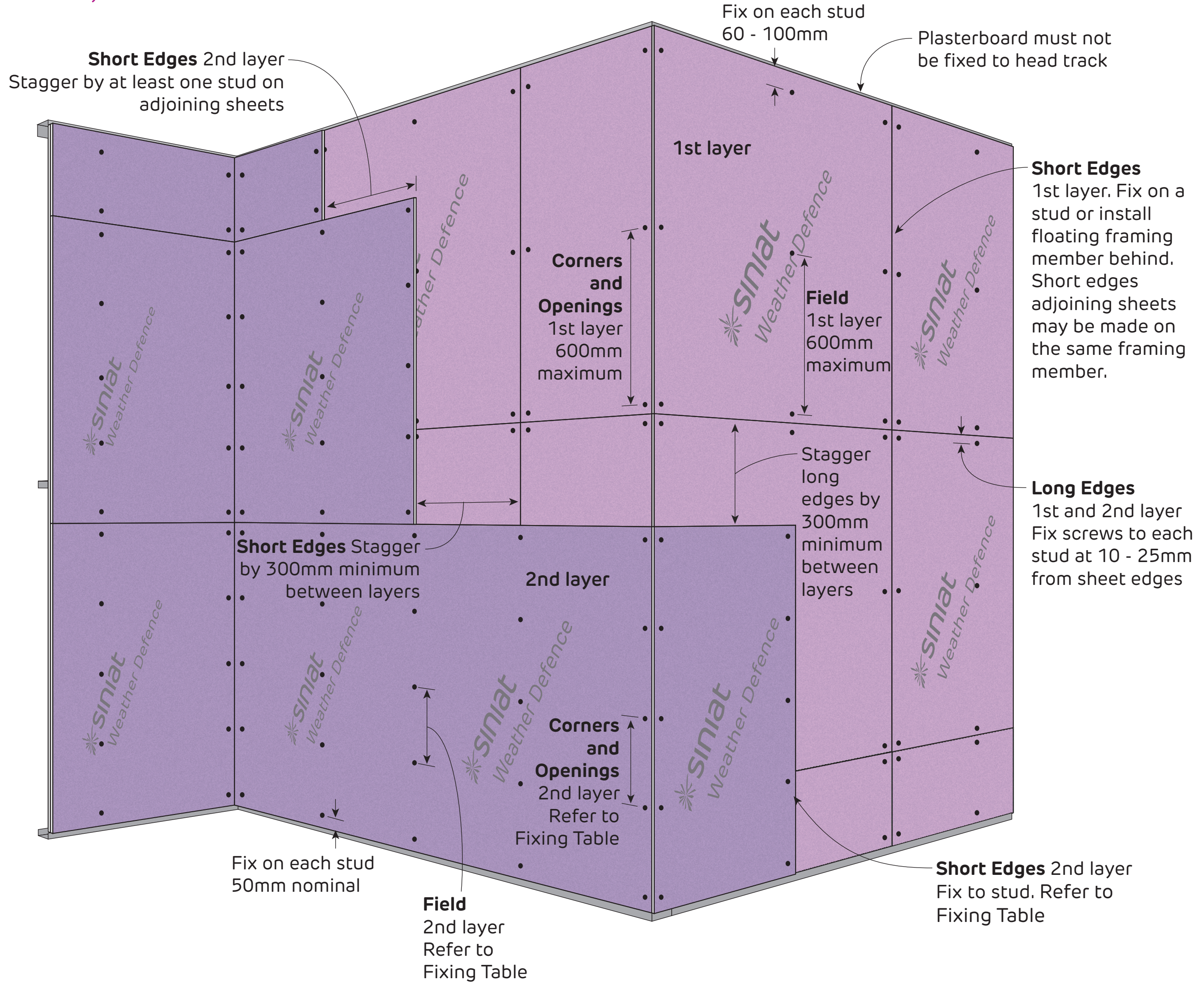



## Maximum Ultimate Limit State Wind Load Table (kPa)

| Fixing Pattern | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| S S S S S (5) | 1.31 | 1.74 | 1.96 | 2.62 |
| S S S S S S (6) | 1.64 | 2.18 | 2.46 | 3.28 |
| S S S S S S S (7) | 1.95 | 2.62 | 2.95 | 3.93 |
| S S S S S S S S (8) | 1.95 | 3.08 | 3.47 | 4.63 |

S = Screw. Screws evenly spaced along sheet width and located 10 - 25mm from sheet edges.
1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. If higher wind pressures are expected, please contact Siniat for specific design.

**FIGURE 11** **2 Layers - Horizontal + Horizontal**
Screw Only Method




## Maximum Ultimate Limit State Wind Load Table (kPa)

| Fixing Pattern | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| S S S S S (5) | 1.31 | 1.74 | 1.96 | 2.62 |
| S S S S S S (6) | 1.64 | 2.18 | 2.46 | 3.28 |
| S S S S S S S (7) | 1.95 | 2.62 | 2.95 | 3.93 |
| S S S S S S S S (8) | 1.95 | 3.08 | 3.47 | 4.63 |

S = Screw. Screws evenly spaced along sheet width and located 10 - 25mm from sheet edges.
1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. If higher wind pressures are expected, please contact Siniat for specific design.

# Sealing

| |
|---|
| **weather** defence™ and other adjoining surfaces must be clean, dry and free of oil, dust and other particles or chemicals that could cause poor adhesion of tapes – contamination will impair adhesion. |
| Check the Pro Clima product data sheets for further information on Tescon Extora®, Tescon Extoseal® and Tescon Naideck®. |
| Starting at the bottom of the wall, apply Pro Clima Tescon Extora® tapes over the face layer of **weather** defence™ and other adjoining surfaces as shown in the construction details. Tapes must overlap joints in **weather** defence™ by 20mm minimum. |
| Apply with joint running along the centre of the tape – this will usually cover screw fixings. Peel backing paper from the tape as the operation progresses. |
| Apply without wrinkles or excessive tension in the tape. Firmly press, and smooth against **weather** defence™, running over the tape with the applicator paddle to ensure adhesion. |
| Stop and start horizontal tapes around internal and external corners. |
| Adjoining tapes must overlap so water is directed away from **weather** defence™ and into the drained cavity. |
| Minimise the number of pieces of tape used to reduce the risk of gaps. Overlap tape ends by 100mm minimum where multiple pieces have to be used. Ensure overlaps are pressed firmly against board and fully sealed. |
| Patch tapes with additional 150mm pieces perpendicular to the original tape, rather than removing strips from **weather** defence™ and risking damage to the glass fibre based fleece. |
| Apply Pro Clima Tescon Extoseal® tapes around openings as shown in the construction details. |
| Pro Clima Tescon tapes are limited to an exposure period of 6 months. Tapes may be reapplied within the twelve months exposure period overlaping the top edge of the underlying tape so as to channel water away from the surface. |
| Where high levels of rain and airtightness are required, it is advised to use a hose to lightly spray water over the wall or openings to identify holes or gaps. If any gaps are present, then a re-application of the tapes / sealant will be required. Please note that applying water at high pressure or saturating will drive moisture into even the most tightly sealed installations. High pressure water testing must only be conducted after the installation of the external cladding. |

### Table 5 Application of Pro Clima products

| Tape | Application |
|---|---|
| Tescon Extora® 60mm | Jointing |
| Tescon Extora® 100mm | Vertical control joints, internal and external corners, sides and top of openings |
| Tescon Extoseal® 150mm | 92mm window / door openings |
| Tescon Extoseal® 200mm | 150mm window / door openings |
| Tescon® Naideck 50mm | For under external cladding framing and under screws |
| Tescon® WS | For under sealant around external openings |

# Before Enclosing

| |
|---|
| Inspect **weather** defence™ boards for any damage prior to closing off the sheathing layer and after extreme weather. |
| Minor damage to **weather** defence™ can be repaired with the application of suitably sized pieces of Pro Clima Tescon Extora® or Extoseal® tapes that overlap the damage by 50mm minimum in all directions. |
| More extensive damage may require the replacement of the damaged section with a piece of **weather** defence™ board cut to size and Pro Clima Tescon Extora® tape applied to all horizontal and vertical joints. Back all joints with framing and fix with **weather** defence™ screws at 100mm maximum spacing. |

# Exterior Cladding

| | Fire Rated |
|---|---|
| The following cladding sheets or planks are not considered detrimental to the FRL of the wall:<br>> Innova fibre cement<br>> Equitone fibre cement<br>> Glass-fibre reinforced cement aggregate board<br>> Wood or timber<br>> Steel<br>> Aluminium<br>> PVC<br>> Rendered polystyrene<br>> Cladding fixed and supported independently of the wall.<br>For class 2 to 9 buildings, also refer to NCC Volume One Section C, CP2 Spread of fire requirements. | ✓ |
| Fix cladding or cladding top hats to the steel frame through **weather** defence™. | ✓ |

- Exterior cladding must provide protection from the weather once installed.
- Use construction techniques that direct condensation and rain away from plasterboard.
- Siniat recommends a drained cavity between the external cladding and **weather** defence™ for weathertightness and durability.
- Top hats or cladding battens between external cladding and **weather** defence™ do not change the FRL of the system.
- Horizontal and vertical top hats are shown in system images as an option to provide a drained and vented cavity as well as meet the NCC thermal break requirements. Alternatively, use a thermal break strip with insulated value R0.2 between the steel stud framing and external cladding.

## Non-Fire Rated
## Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*

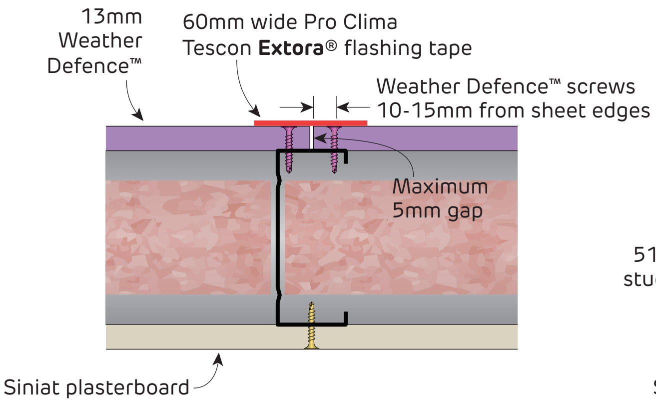



**FIGURE 12** **Vertical Joint**
Plan

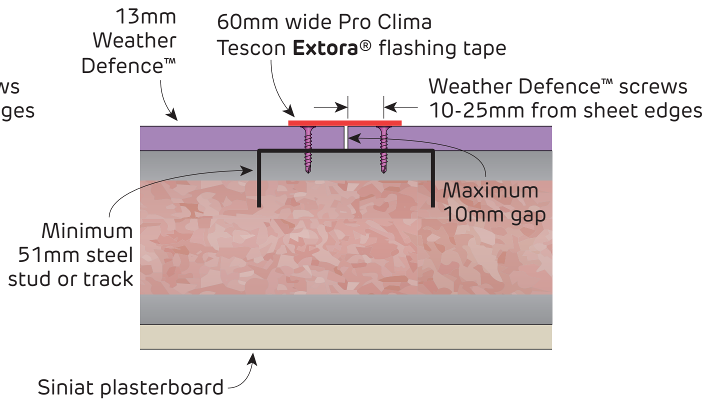



**FIGURE 13** **Floating Vertical Joint**
Plan

Colour of Pro Clima tape shown in details varies from actual product colour

External cladding and associated framing not shown for clarity

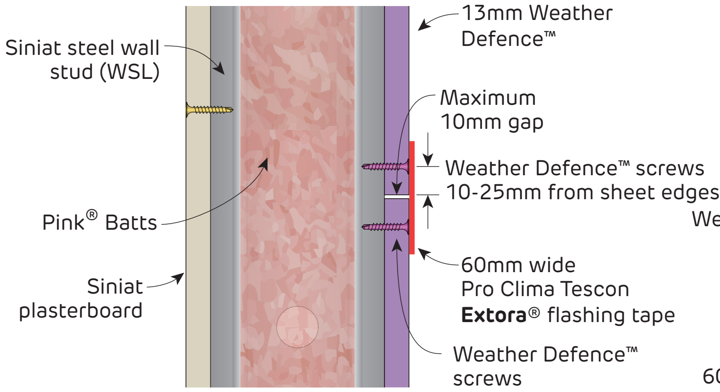



**FIGURE 14** **Horizontal Joint**
Section

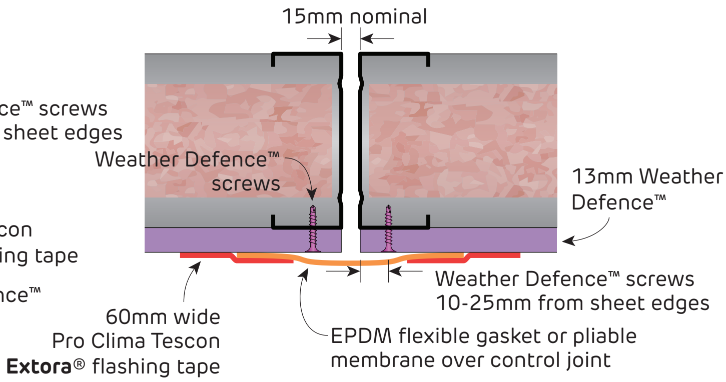



**FIGURE 15** **Vertical Control Joint**
Plan

External cladding and associated framing not shown for clarity

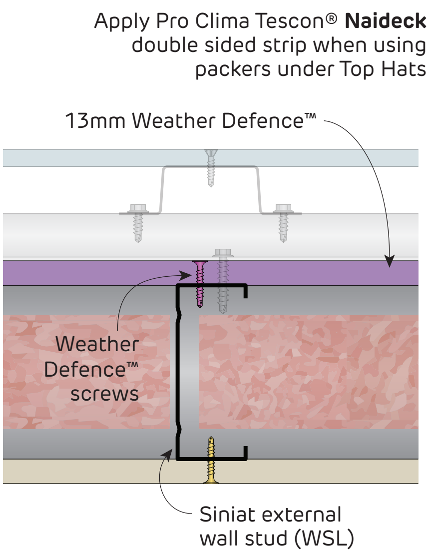



**FIGURE 16** **Weather Defence Installation with Top Hats**
Plan

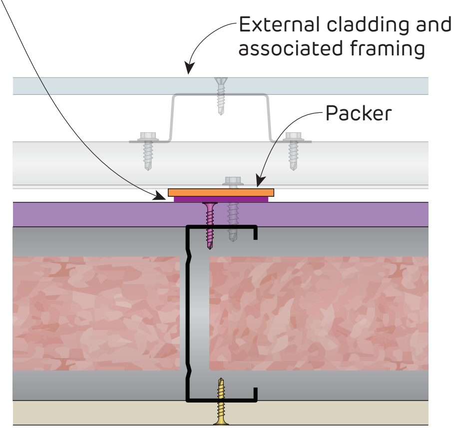



**FIGURE 17** **Weather Defence Installation with Packers under Top Hats**
Plan

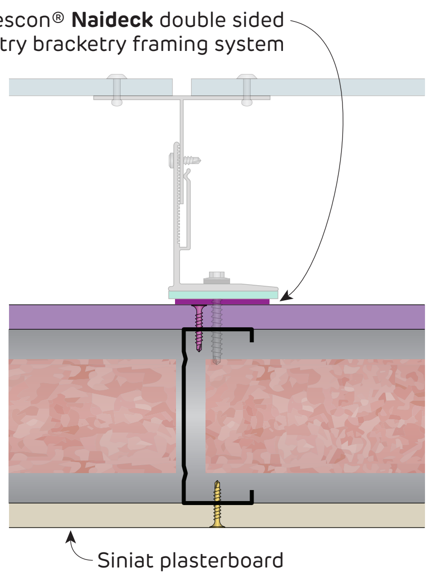



**FIGURE 18** **Weather Defence Installation with Bracketry Framing**
Plan

# Non-Fire Rated
## Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*

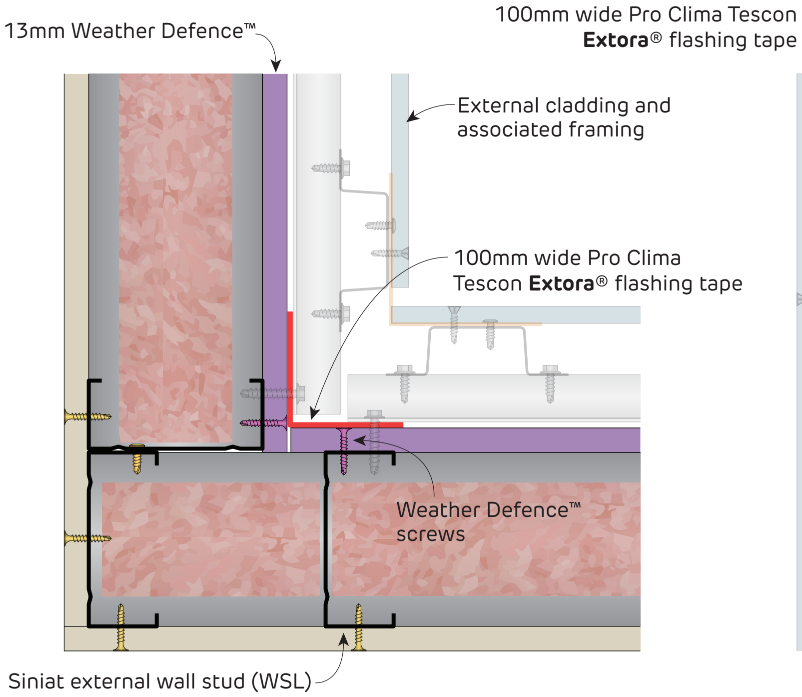



**FIGURE 19** **Exterior Internal Corner**
Plan

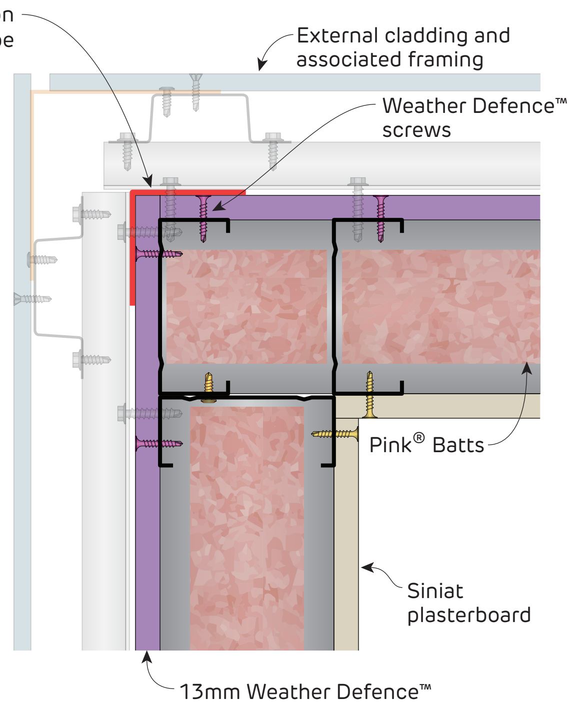



**FIGURE 20** **Exterior External Corner**
Plan

Colour of Pro Clima tape shown in details varies from actual product colour

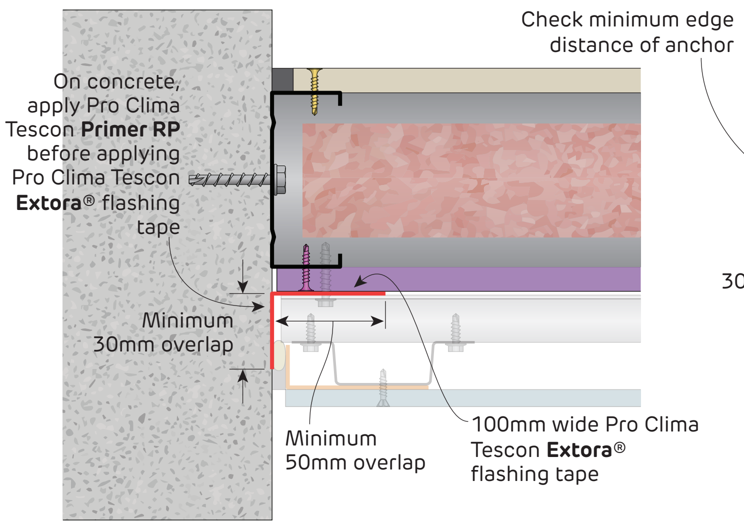



**FIGURE 21** **Wall to Concrete Column Detail**
Plan

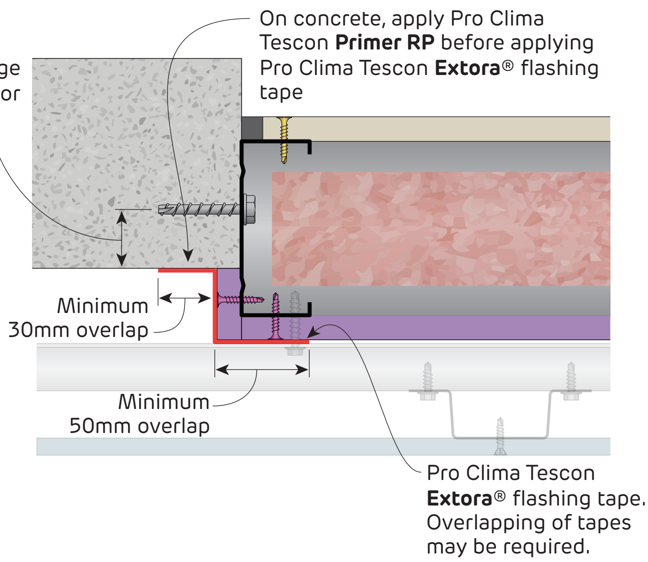



**FIGURE 22** **Wall to Concrete Column Detail**
Plan

## Non-Fire Rated
## Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*.
*Marked details are not tested and their suitability must be confimed by an appropriately qualified person.

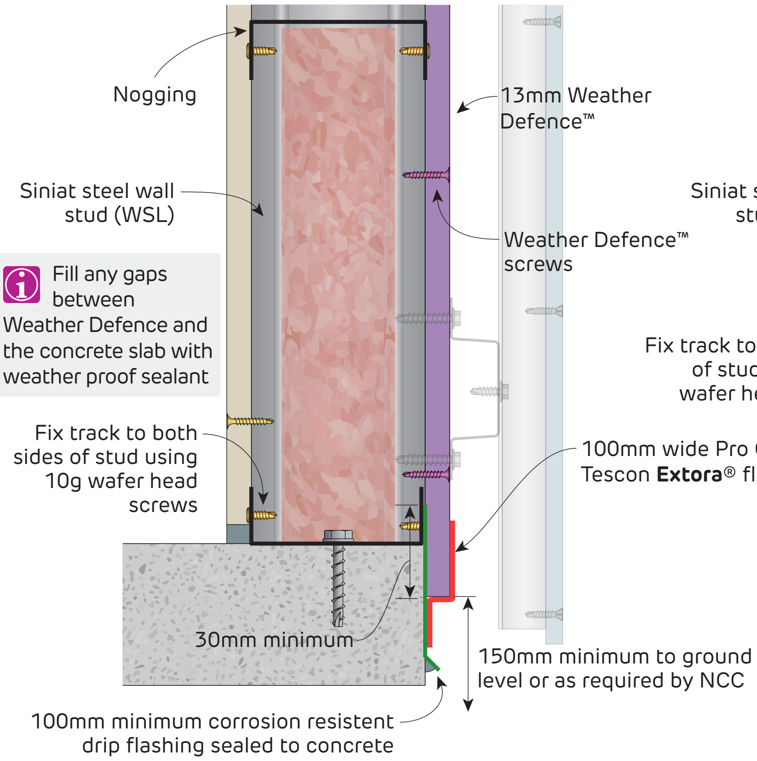



**FIGURE 23** Wall Base to Concrete Slab*
Section

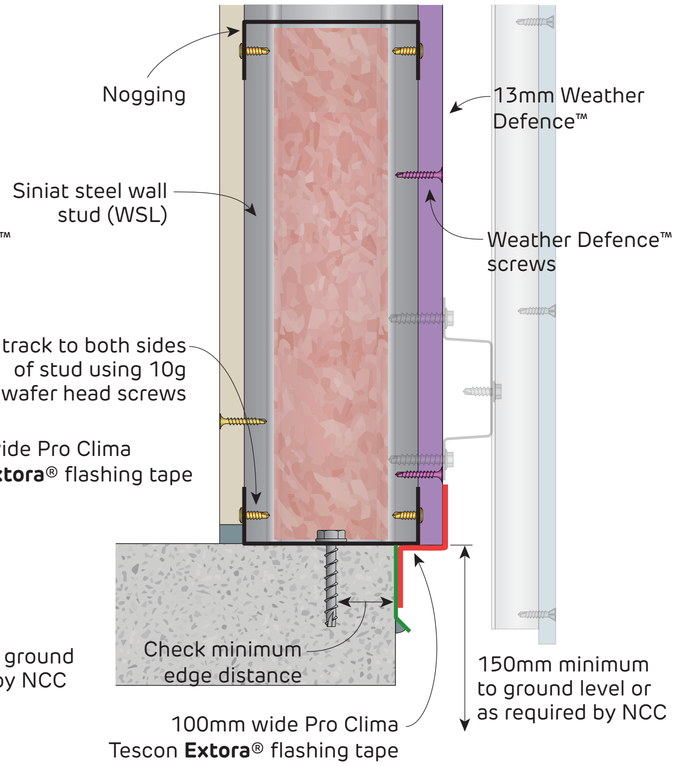



**FIGURE 24** Wall Base to Concrete Slab*
Section

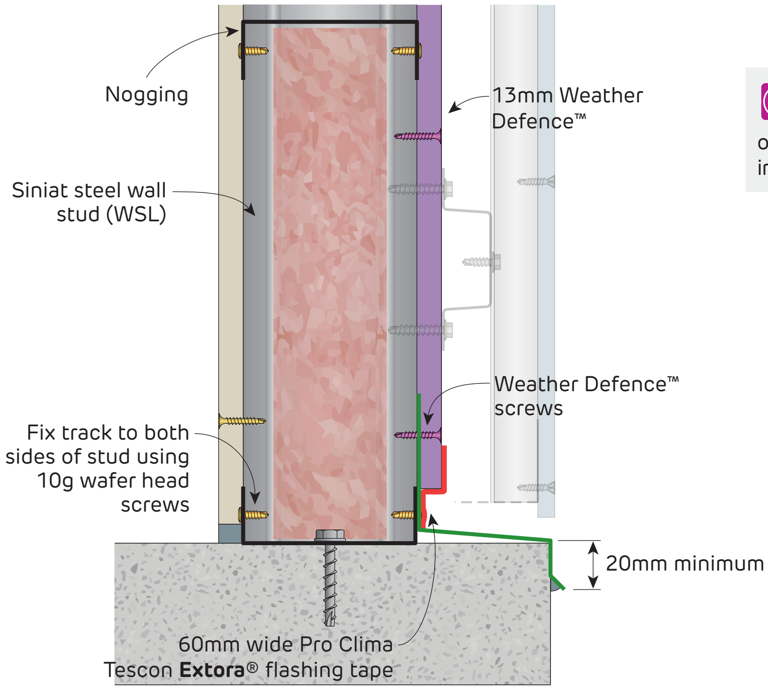



**FIGURE 25** Wall Base to Concrete Slab
Section

Damp Proof Course (DPC) required under bottom tracks of external walls on ground slabs. DPC not required under internal walls and upper storeys.

## Non-Fire Rated
## Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*.
*Marked details are not tested and their suitability must be confined by an appropriately qualified person.

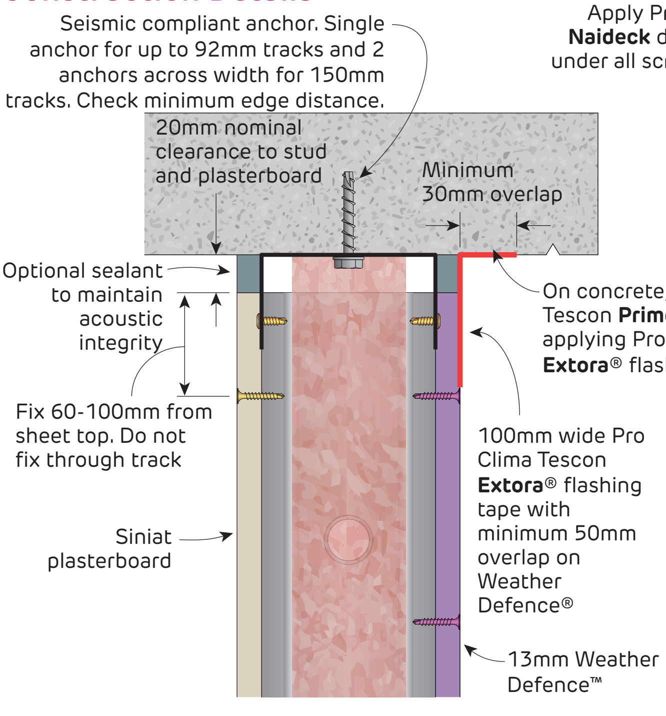



**FIGURE 26** Wall Head to Concrete Slab*
Slotted Deflection Head Track
Section

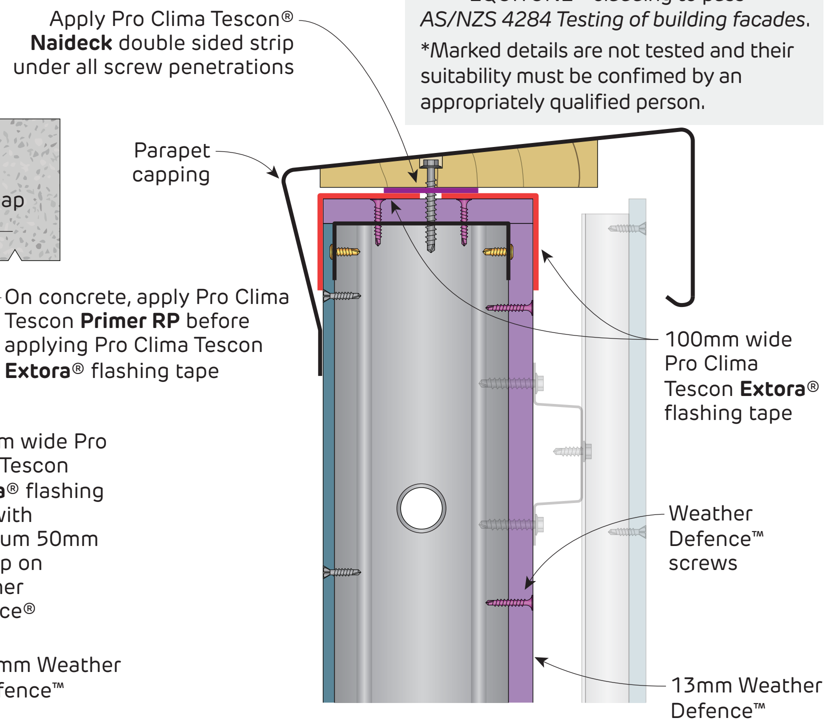



**FIGURE 27** Wall Head to Parapet
Section

Colour of Pro Clima tape shown in details varies from actual product colour

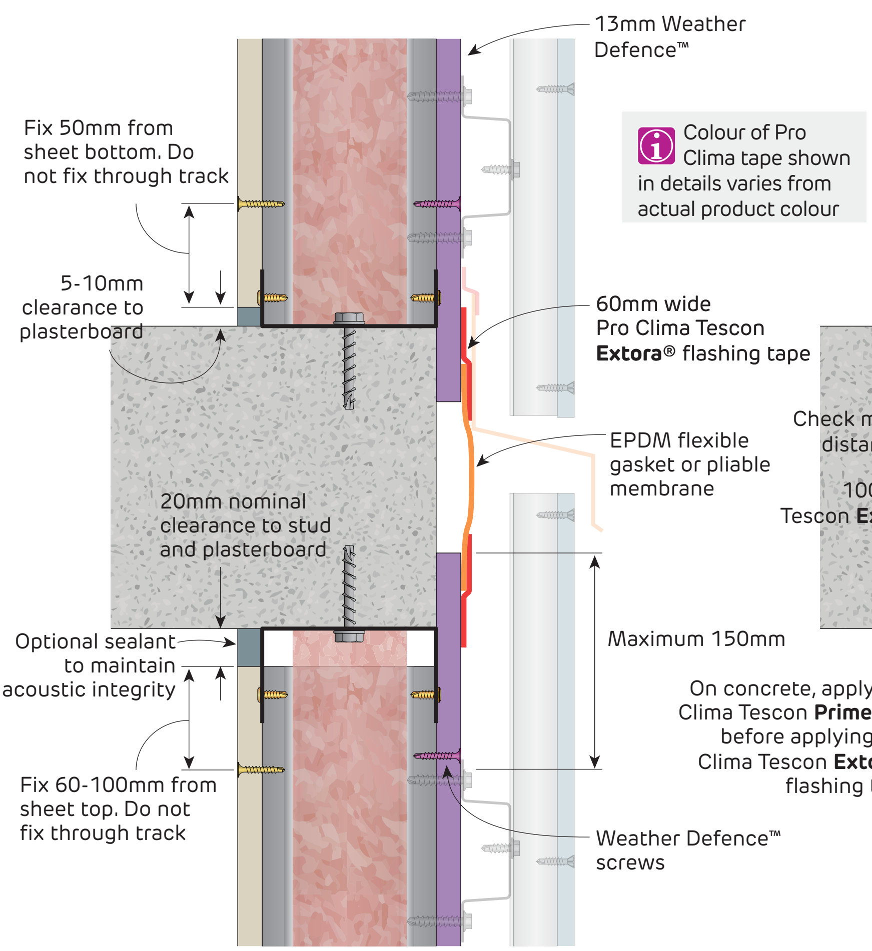



**FIGURE 28** Wall Head and Base over Suspended Slab
Section

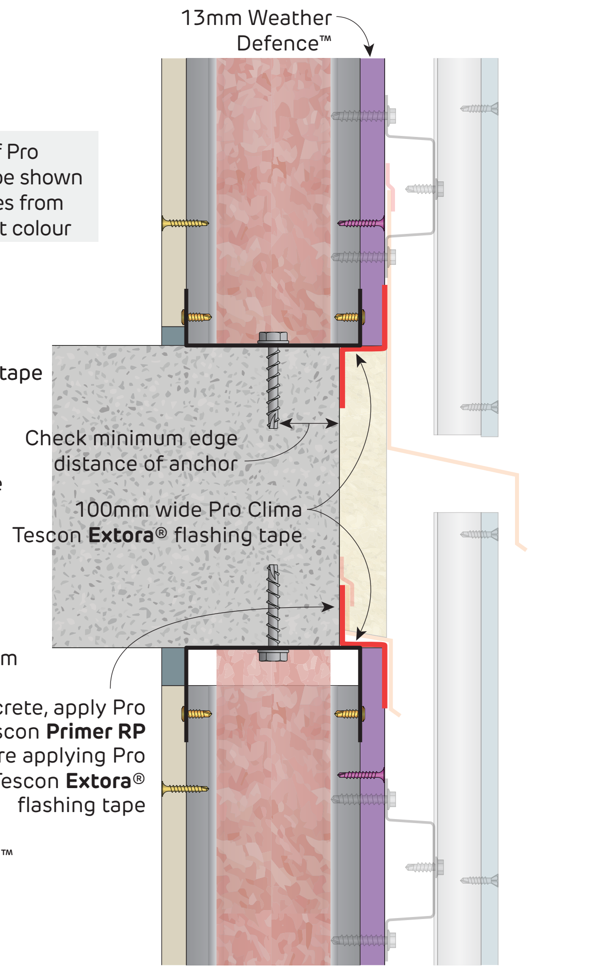



**FIGURE 29** Wall Head and Base over Suspended Slab*
Section

## Non-Fire Rated
## Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*.

*Marked details are not tested and their suitability must be confirmed by an appropriately qualified person.

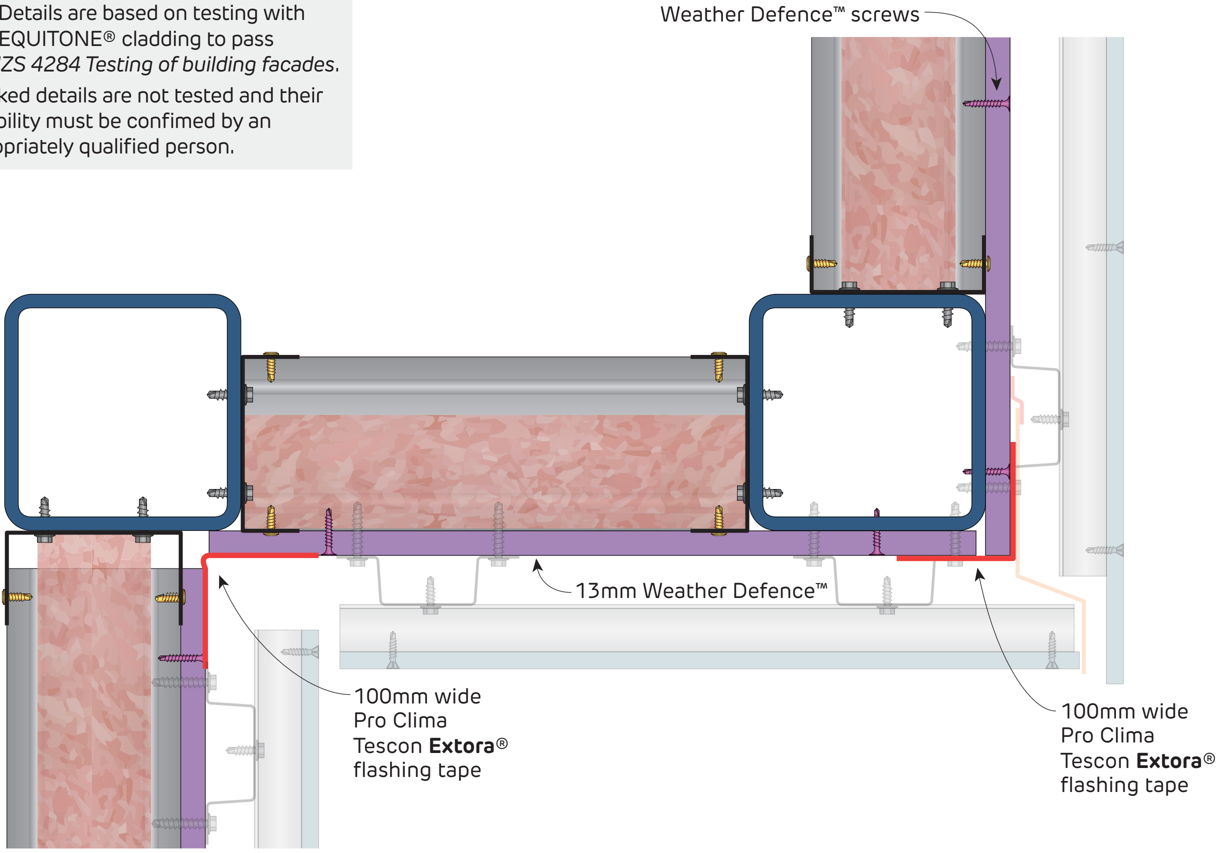



**FIGURE 30 Soffit Junction**
Section

Colour of Pro Clima tape shown in details varies from actual product colour

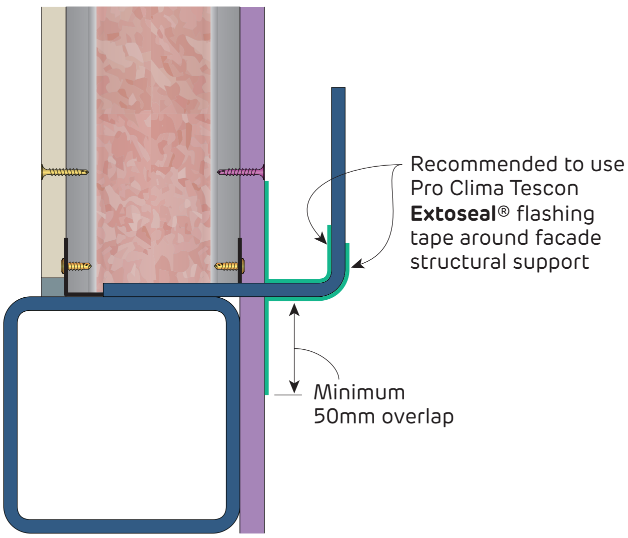



**FIGURE 31 Facade Structural Support***
Section

## Non-Fire Rated
## Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*

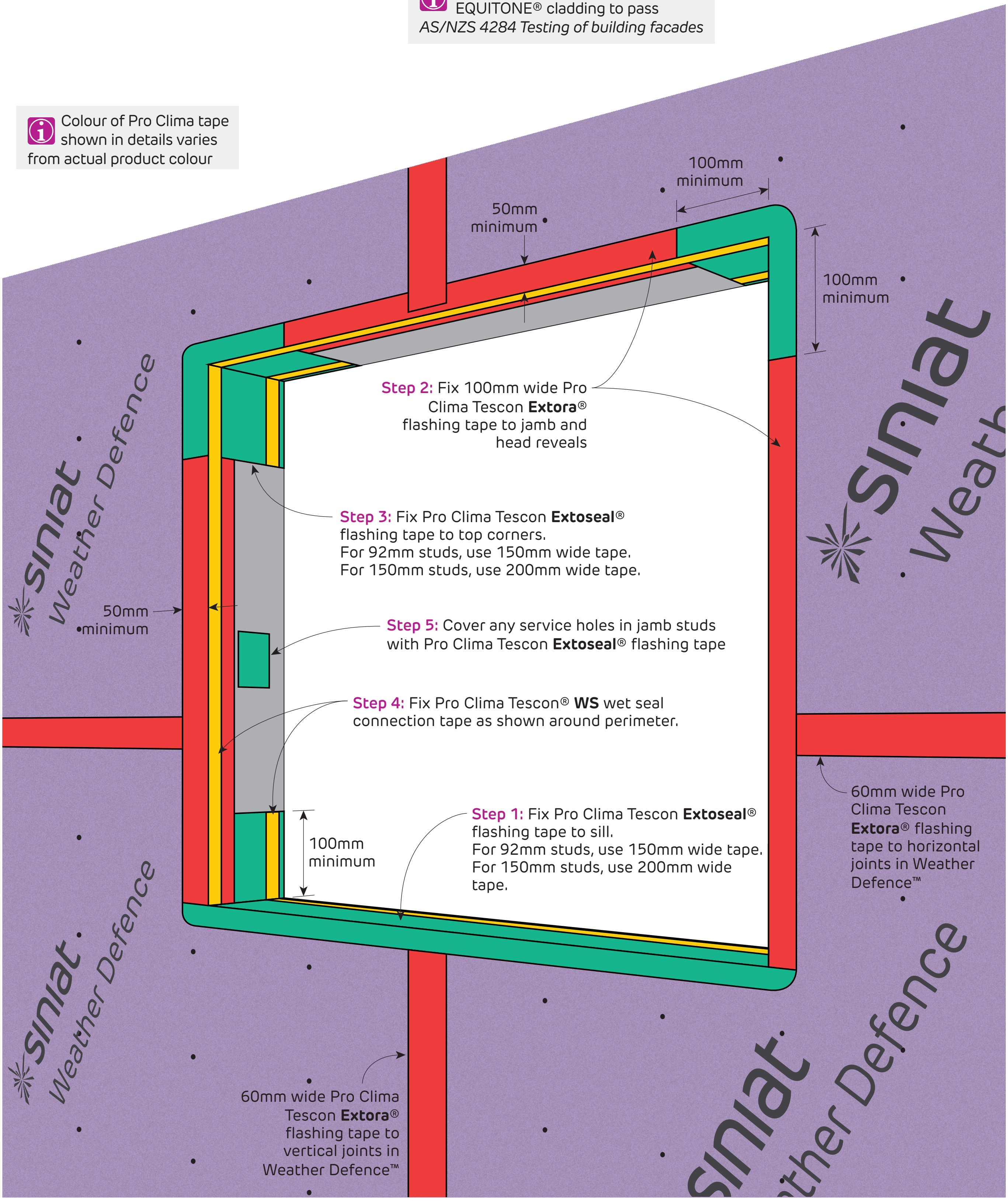



**FIGURE 32 Flashing Tapes Around Openings**
Perspective

## Non-Fire Rated
## Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*

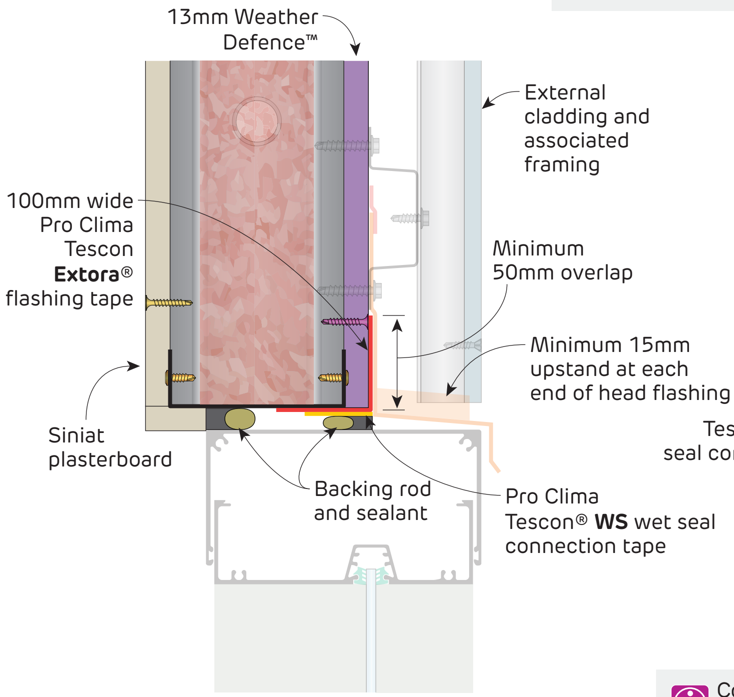



**FIGURE 33** **Window Head Detail**
Example Detail
Section

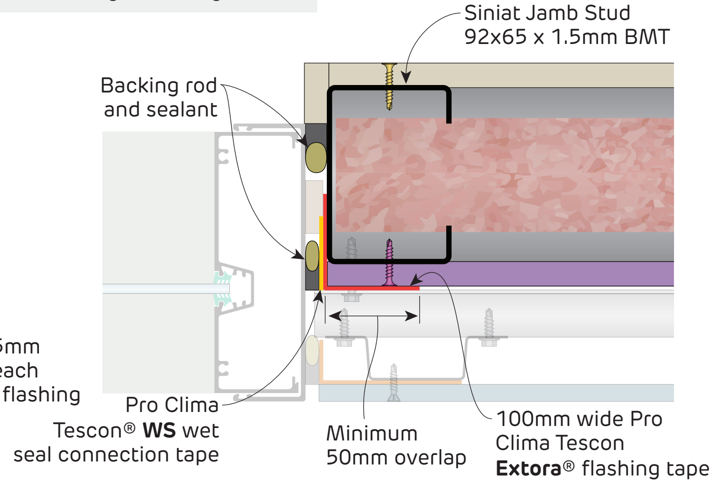



**FIGURE 34** **Window Jamb Detail**
Example Detail
Plan

Colour of Pro Clima tape shown in details varies from actual product colour

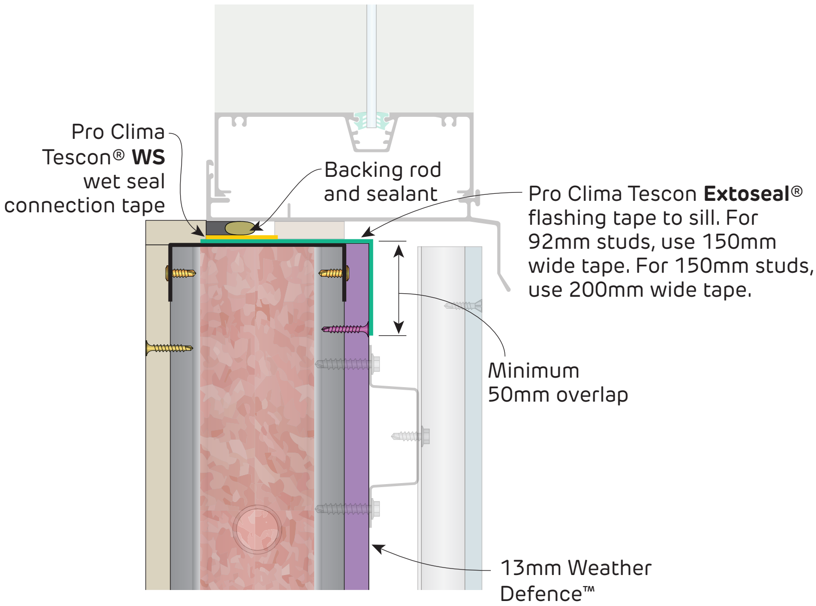



**FIGURE 35** **Window Sill Detail**
Example Detail
Section

## Non-Fire Rated
## Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*

Colour of Pro Clima tape shown in details varies from actual product colour

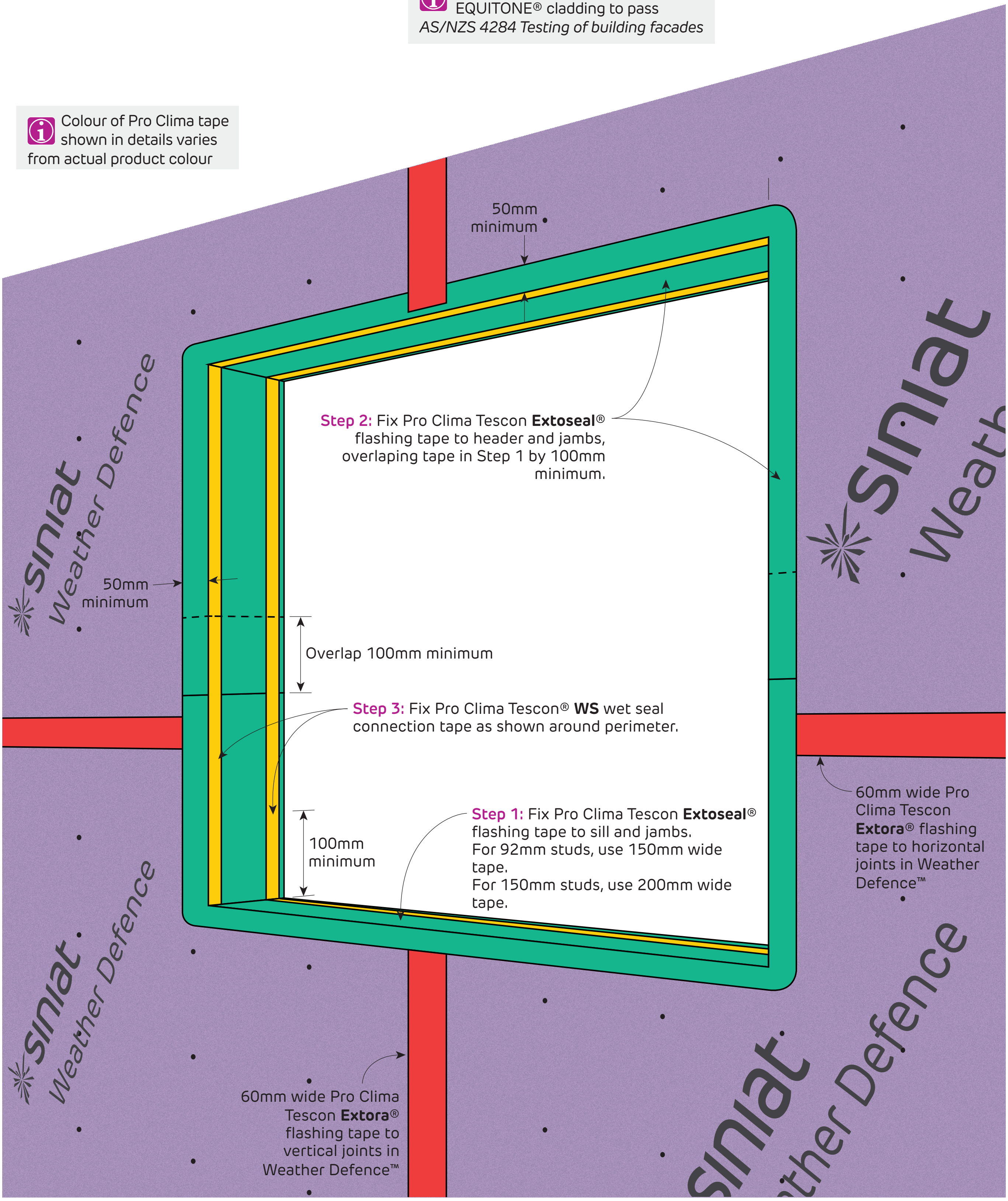



**FIGURE 36** Alternative Flashing Tape Around Openings
Perspective

# Non-Fire Rated
## Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*

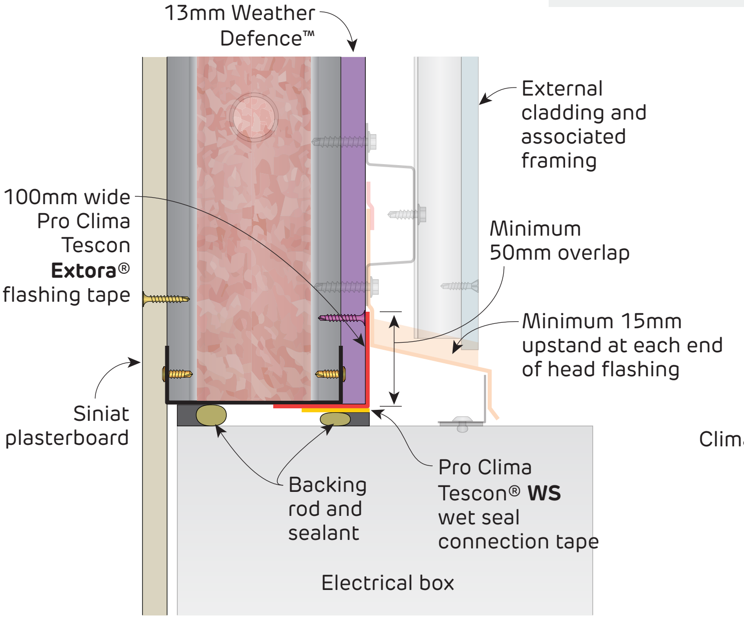



**FIGURE 37** Electrical Box Detail
Example Detail
Section

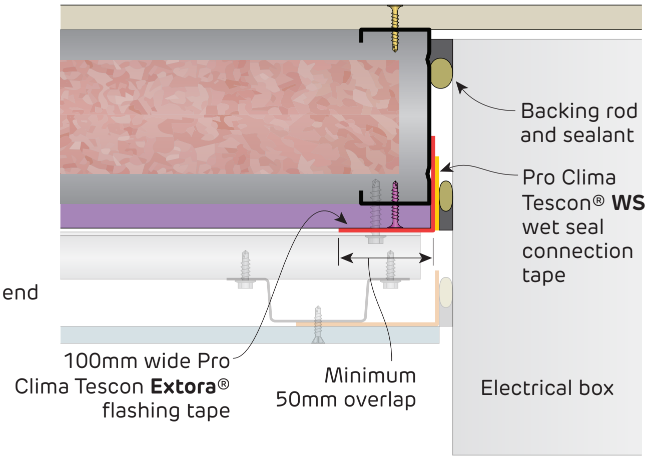



**FIGURE 38** Electrical Box Detail
Plan

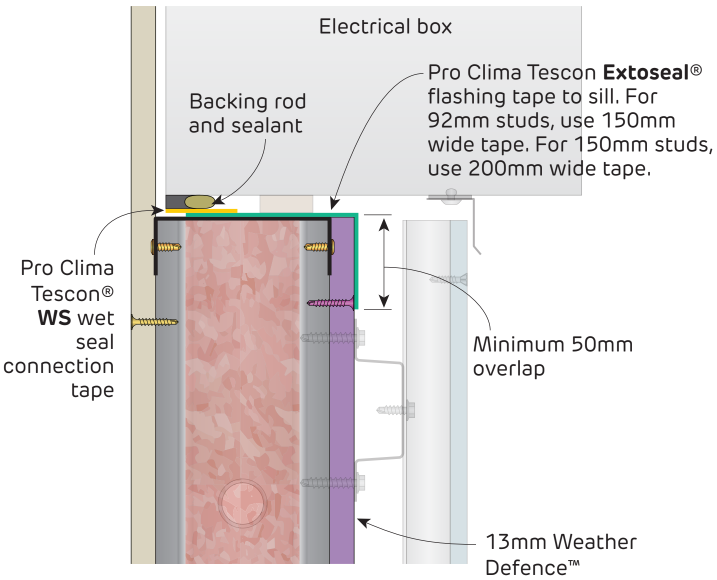



**FIGURE 39** Electrical Box Detail
Example Detail
Section

## Non-Fire Rated
## Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*

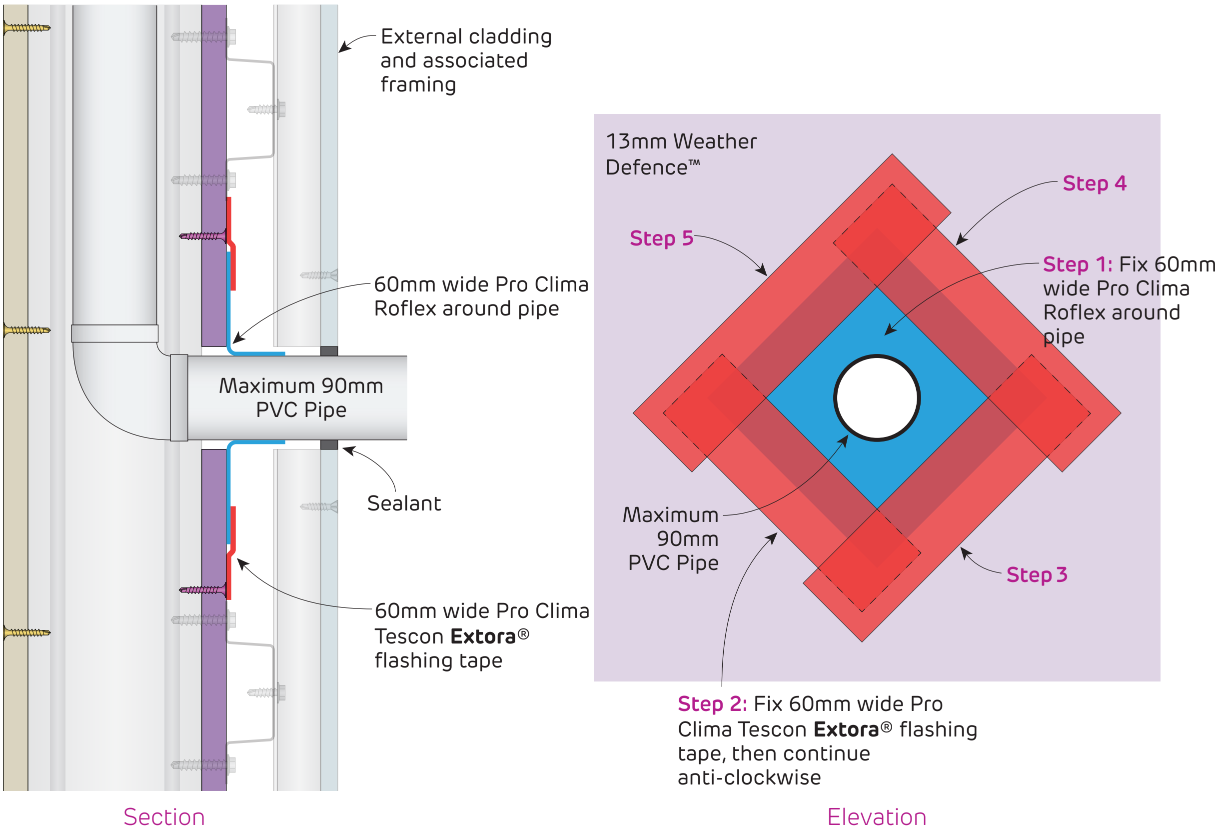



**FIGURE 40** Drainage Outlet Detail

## Fire Rated Construction Details

Fill any additional gaps with Bindex Fire and Acoustic sealant to maintain integrity

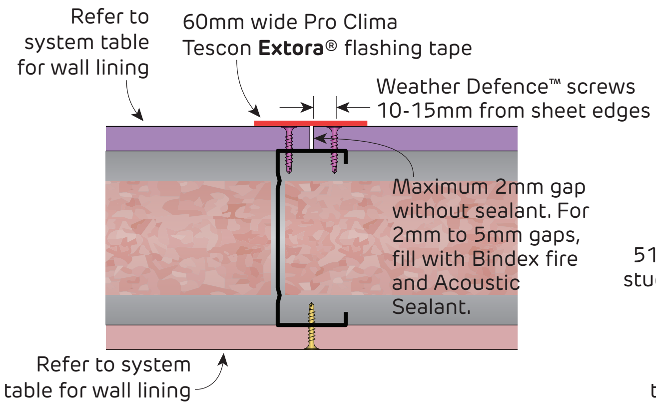



**FIGURE 41 Vertical Joint**
Plan

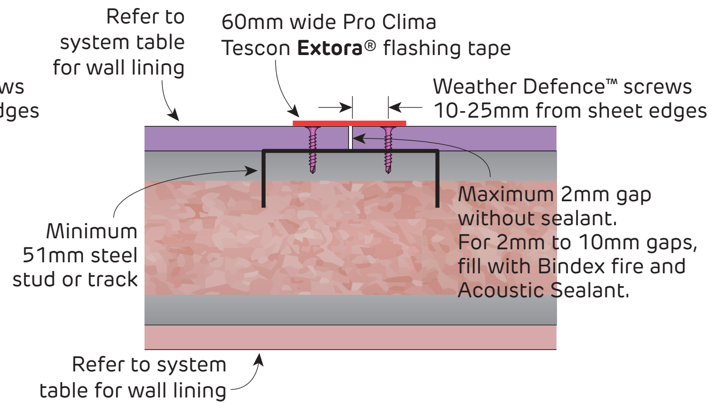



**FIGURE 42 Floating Vertical Joint**
Plan

Colour of Pro Clima tape shown in details varies from actual product colour

External cladding and associated framing not shown for clarity

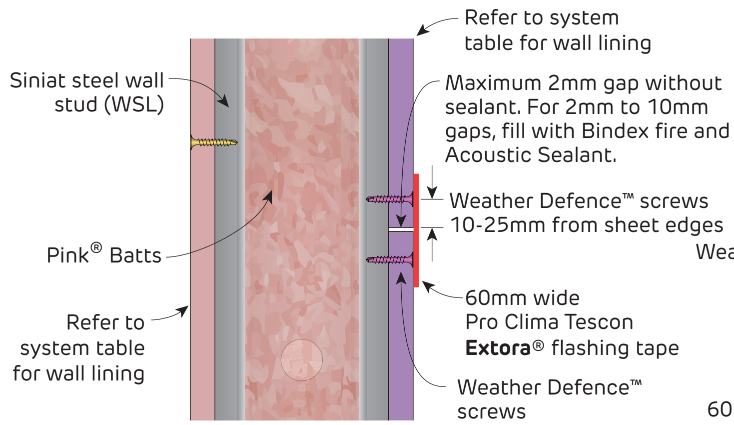



**FIGURE 43 Horizontal Joint**
Section

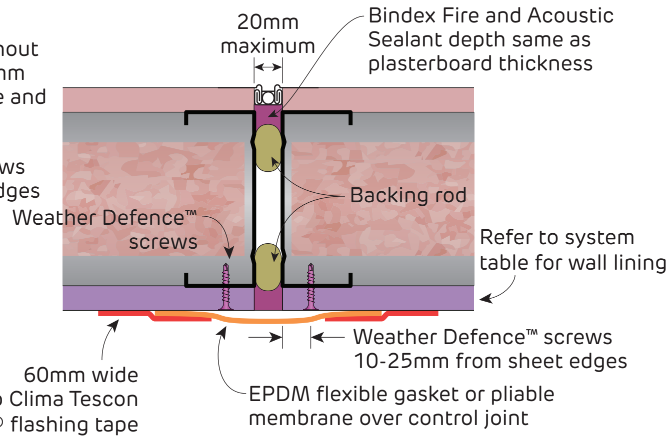



**FIGURE 44 Vertical Control Joint**
Plan

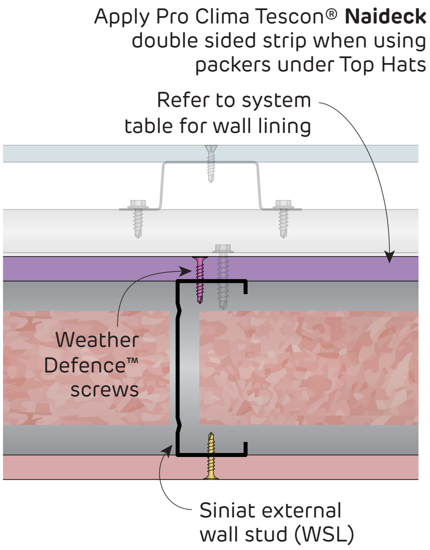



**FIGURE 45 Weather Defence Installation with Top Hats**
Plan

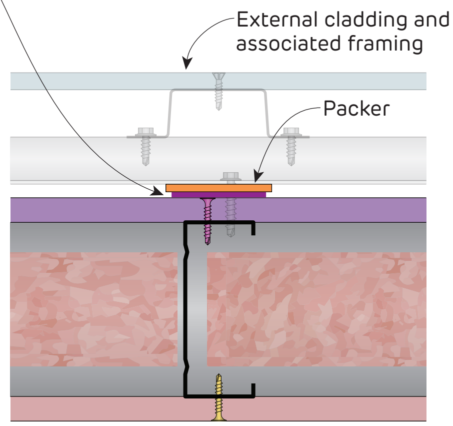



**FIGURE 46 Weather Defence Installation with Packers under Top Hats**
Plan

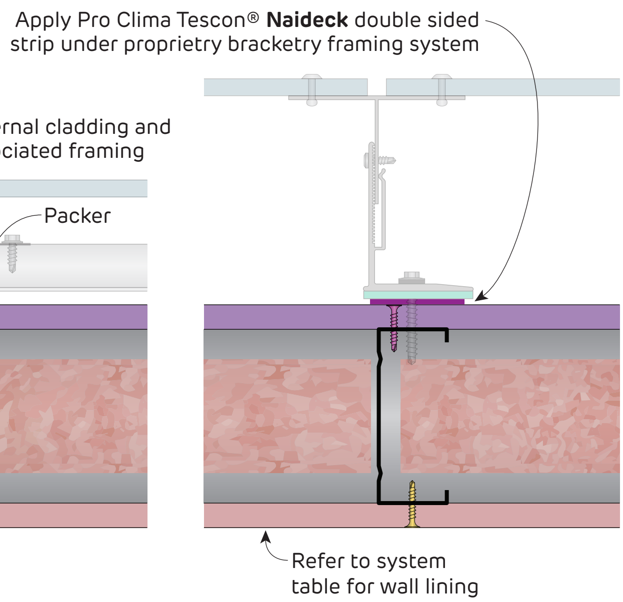



**FIGURE 47 Weather Defence Installation with Bracketry Framing**
Plan

## Fire Rated
## Construction Details

Fill any additional gaps with Bindex Fire and Acoustic sealant to maintain integrity

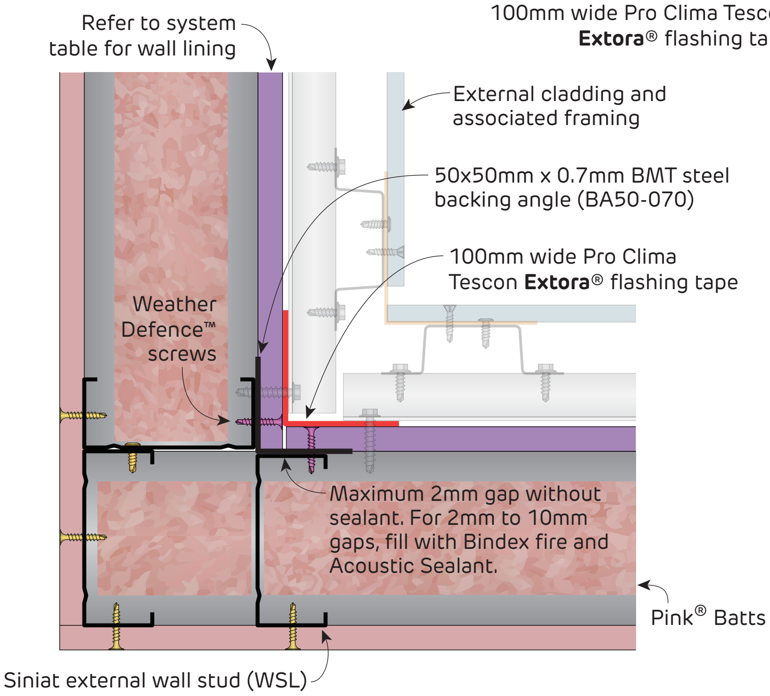



**FIGURE 48** **Exterior Internal Corner**
Plan

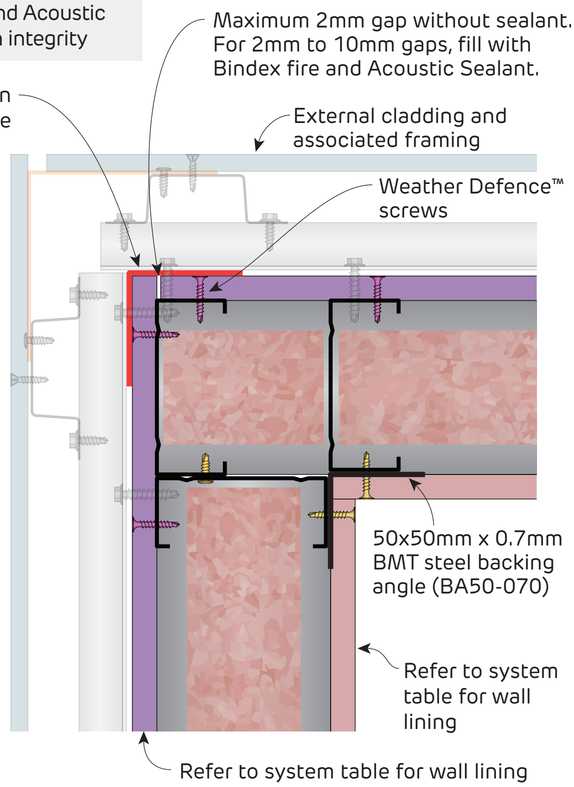



**FIGURE 49** **Exterior External Corner**
Plan

Colour of Pro Clima tape shown in details varies from actual product colour

Fill any additional gaps with Bindex Fire and Acoustic sealant to maintain integrity

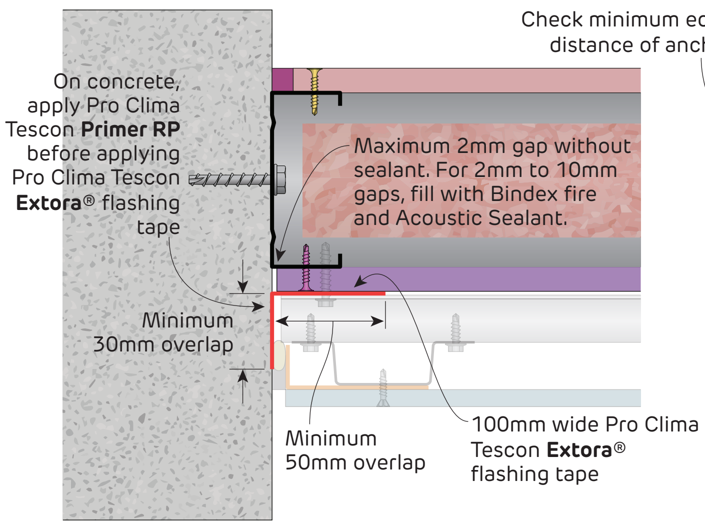



**FIGURE 50** **Wall to Concrete Column Detail**
Plan

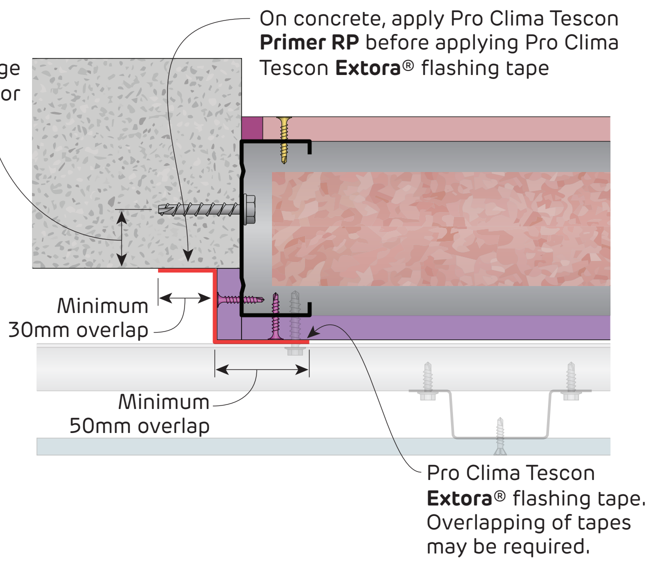



**FIGURE 51** **Wall to Concrete Column Detail**
Plan

## Fire Rated Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*.

*Marked details are not tested and their suitability must be confirmed by an appropriately qualified person.

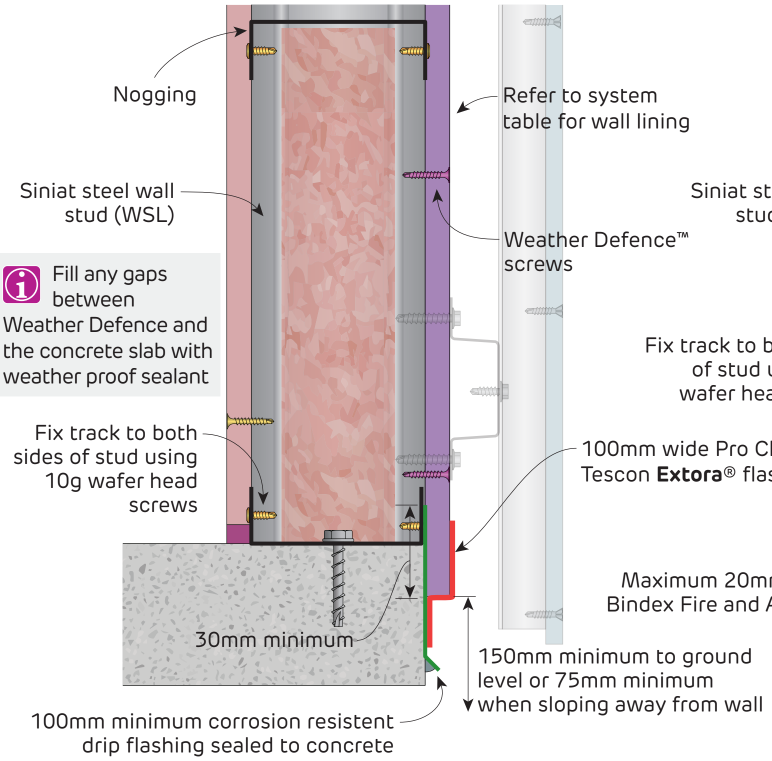



**FIGURE 52** **Wall Base to Concrete Slab***
Section

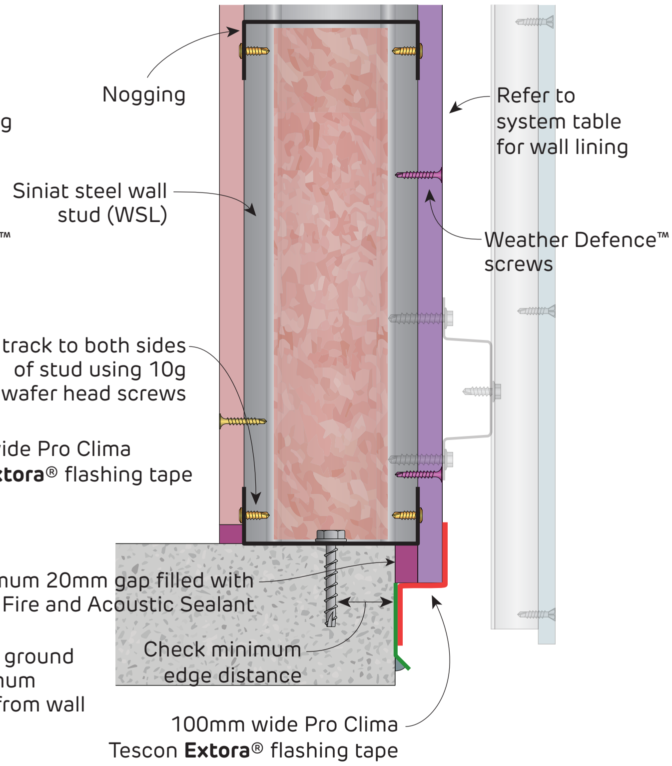



**FIGURE 53** **Wall Base to Concrete Slab***
Section

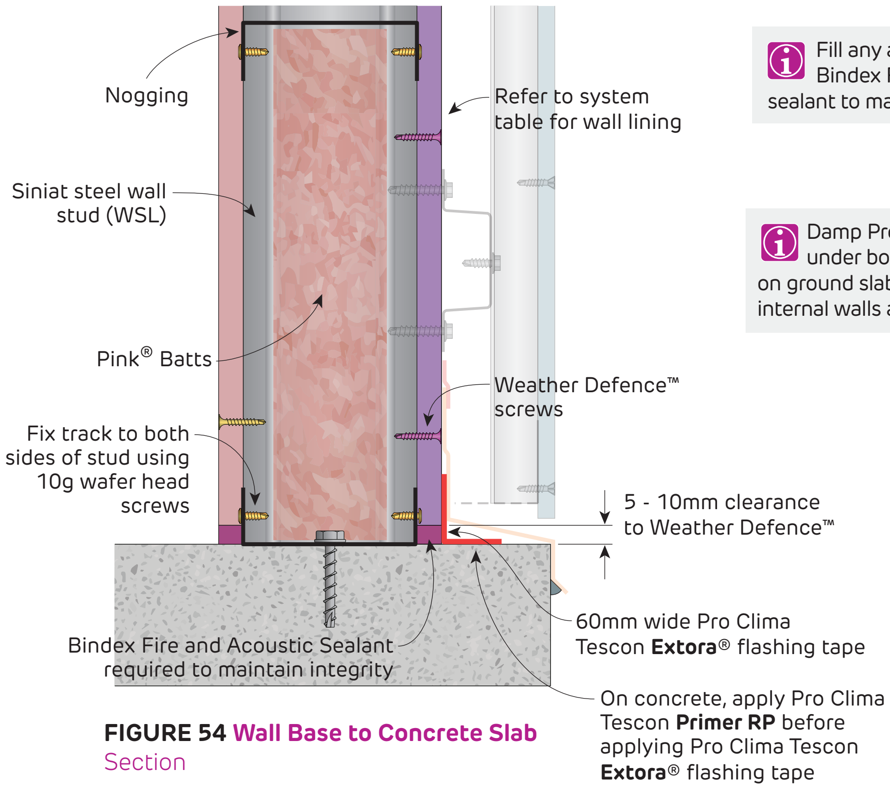



**FIGURE 54** **Wall Base to Concrete Slab**
Section

Fill any additional gaps with Bindex Fire and Acoustic sealant to maintain integrity

Damp Proof Course (DPC) required under bottom tracks of external walls on ground slabs. DPC not required under internal walls and upper storeys.

## Fire Rated Construction Details

Details are based on testing with EQUITONE® cladding to pass *AS/NZS 4284 Testing of building facades*.

*Marked details are not tested and their suitability must be confined by an appropriately qualified person.

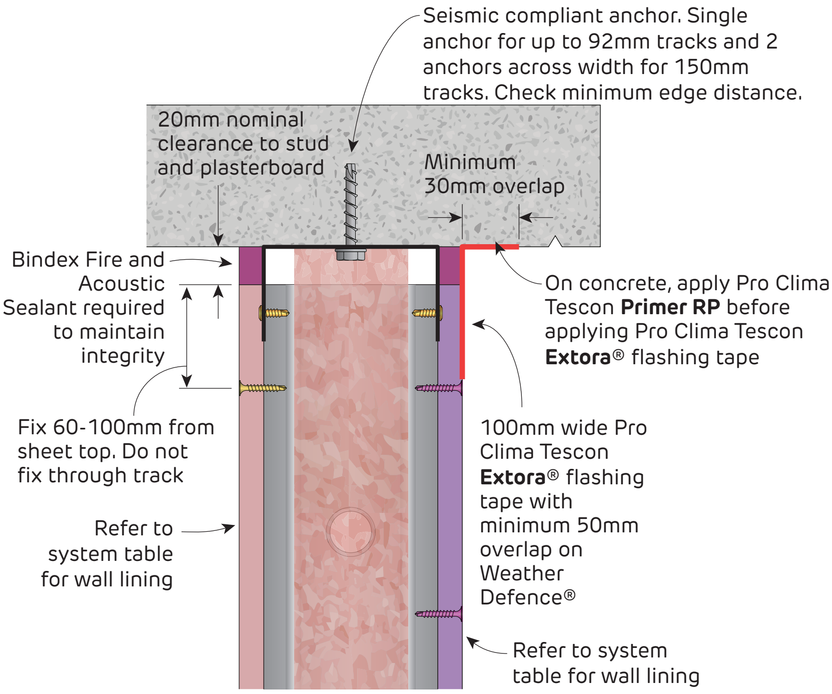



**FIGURE 55 Wall Head to Concrete Slab***
Slotted Deflection Head Track
Section

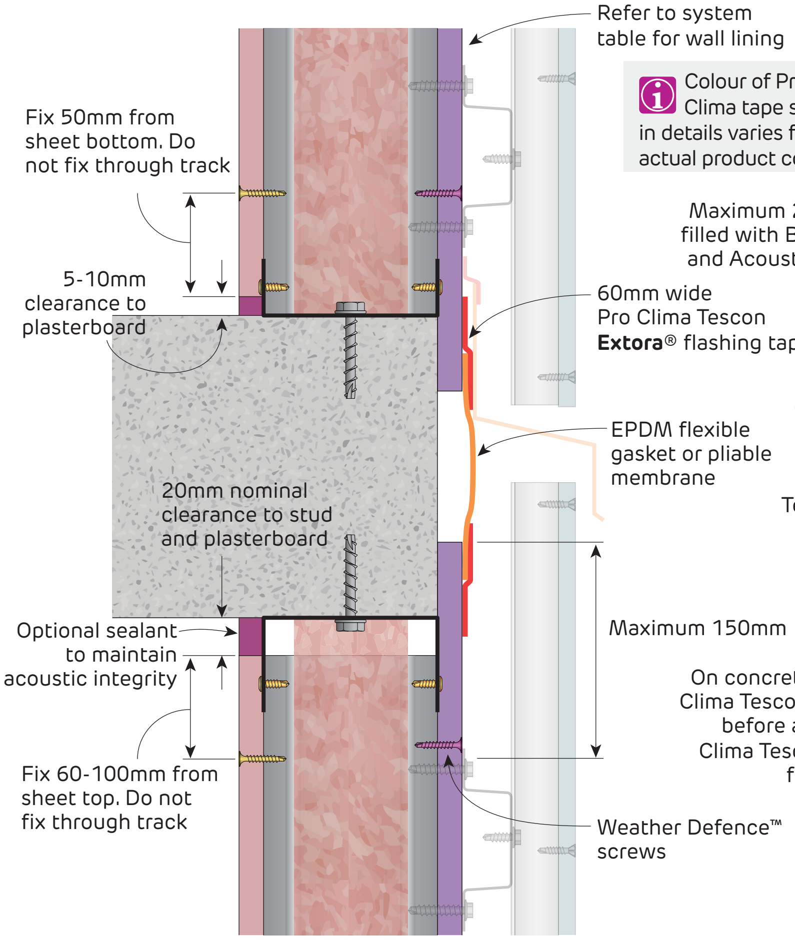



**FIGURE 56 Wall Head and Base over Suspended Slab**
Section

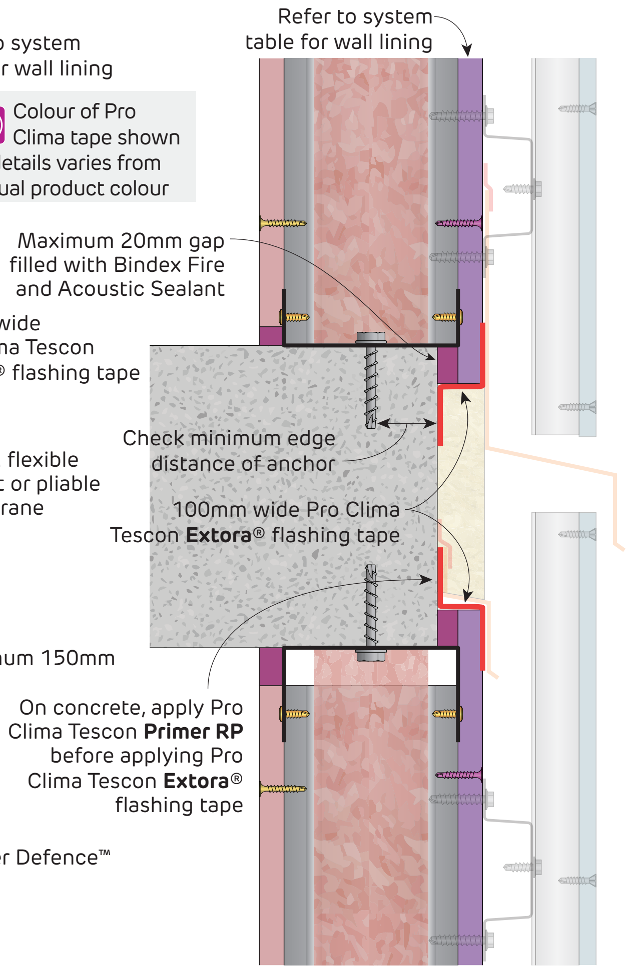



**FIGURE 57 Wall Head and Base over Suspended Slab***
Section

# Fire Rated
## Construction Details

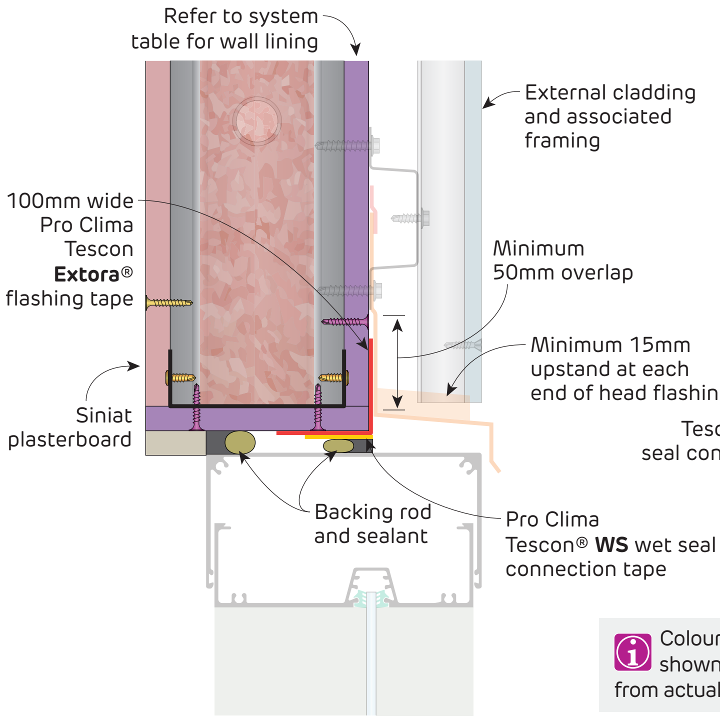



**FIGURE 58** **Window Head Detail**
Example Detail
Section

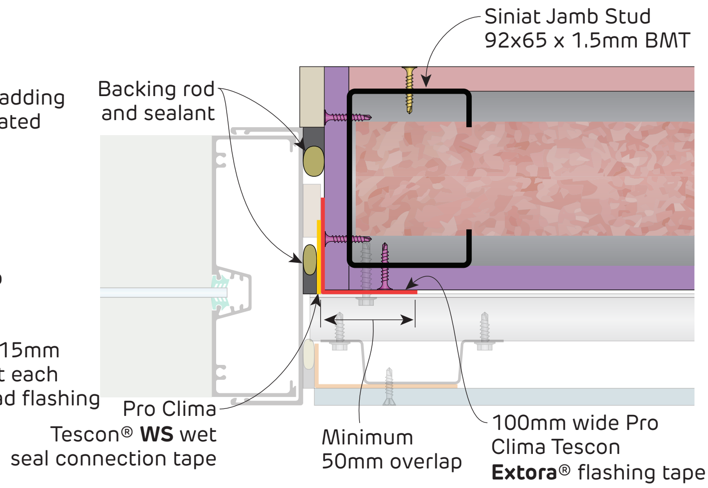



**FIGURE 59** **Window Jamb Detail**
Example Detail
Plan

Colour of Pro Clima tape shown in details varies from actual product colour

Refer to proprietary fire product manufacturer for performance and specific installation detail as well as approval for use in the selected building element.

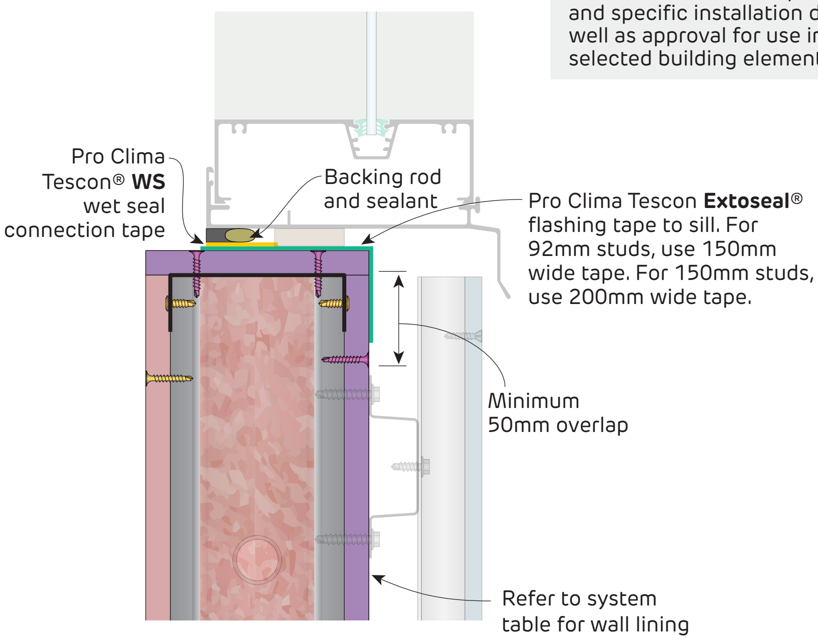



**FIGURE 60** **Window Sill Detail**
Example Detail
Section



# 5.1 Ceilings

This section contains a wide range of internal ceiling solutions that can meet aesthetic, sound insulation and fire protection requirements. They are either directly fixed to joists or are installed to a concealed suspended steel frame.

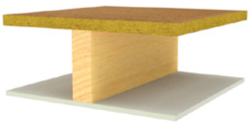
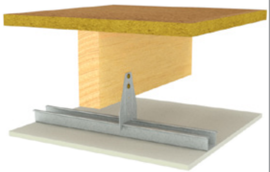
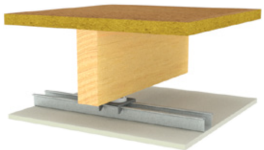
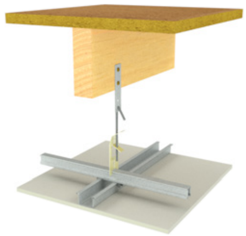
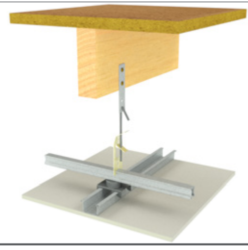
Most fire rated ceilings as per National Construction Code (NCC) requirements are rated from below only. For ceilings fire rated from above, or fire rated from above and below refer to Sections 5.3 and 5.4.

This section includes ceiling systems, installation instructions and construction details for general and fire rated ceilings.

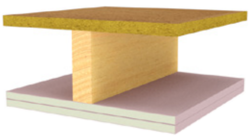
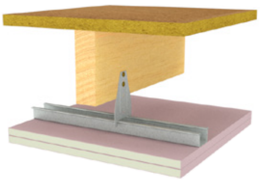
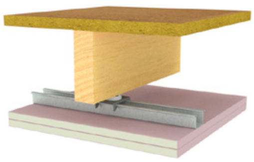
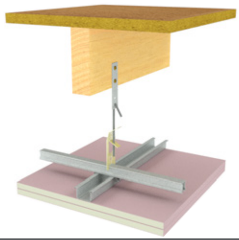
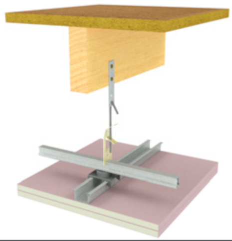
Exterior ceiling applications have additional requirements [Refer to External Ceilings in this section].

# System Directory

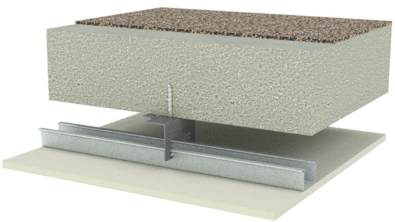
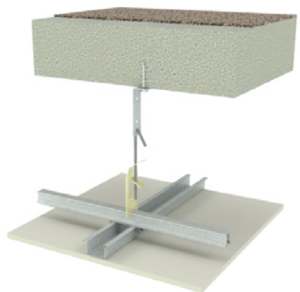
## Ceiling Under Floor Framing

| Plasterboard fixed to joist | A-clips and Furring Channel | Resilient Mount and Furring Channel | Top Cross Rail and Furring Channel | Top Cross Rail, Resilient Mount and Furring Channel |
|---|---|---|---|---|
|  |  |  |  |  |

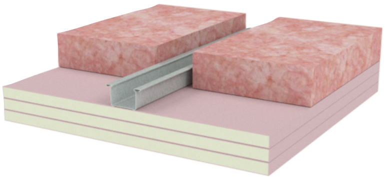
## Fire Rated Ceilings Under Floor Framing

| Plasterboard fixed to joist | A-clips and Furring Channel | Resilient Mount and Furring Channel | Top Cross Rail and Furring Channel | Top Cross Rail, Resilient Mount and Furring Channel |
|---|---|---|---|---|
|  |  |  |  |  |

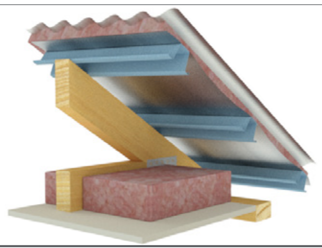
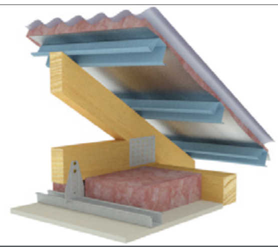
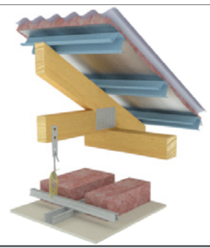
## Non-Fire Rated and Fire Rated Ceiling Under a Concrete Slab

| Clips and Furring Channel | Resilient Mount and Furring Channel | Top Cross Rail and Furring Channel |
|---|---|---|
|  |  |  |

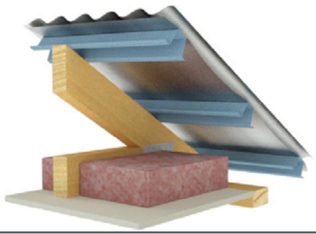
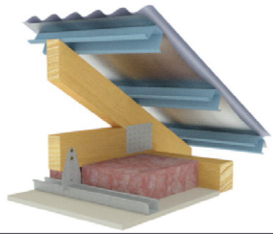
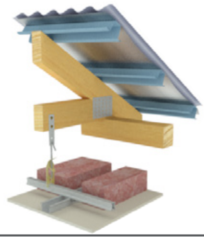
## Universal Fire Rated Ceilings

| Joist or Furring Channel |
|---|
|  |

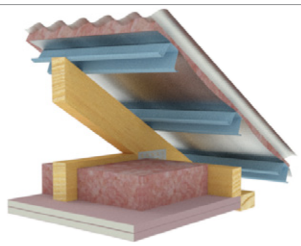
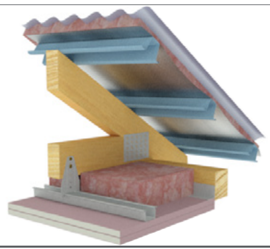
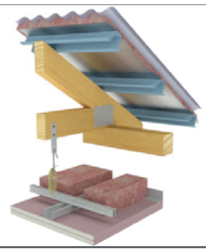
## Ceiling Under Steel Roof Sheeting with Foil Backed Insulation

| Plasterboard fixed to joist | A-clips and Furring Channel | Top Cross Rail and Furring Channel |
|---|---|---|
|  |  |  |

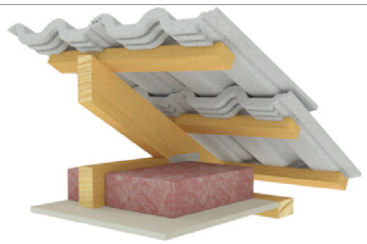
## Ceiling Under Steel Roof Sheeting with Reflective Foil Only

| Plasterboard fixed to joist | A-clips and Furring Channel | Top Cross Rail and Furring Channel |
|---|---|---|
|  |  |  |

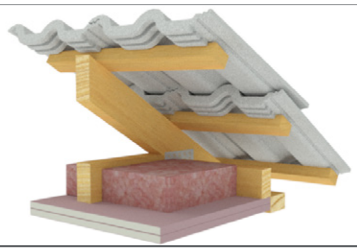
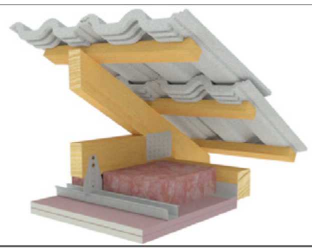
## Fire Rated Ceiling Under Steel Roof Sheeting with Foil Backed Insulation

| Plasterboard fixed to joist | A-clips and Furring Channel | Top Cross Rail and Furring Channel |
|---|---|---|
|  |  |  |

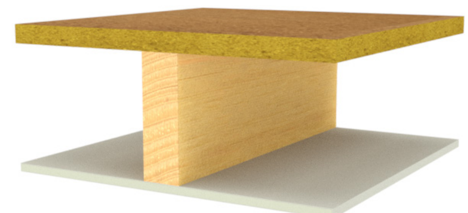
## Ceiling Under Tiled Roof

| Plasterboard fixed to joist | A-clips and Furring Channel |
|---|---|
|  |  |

## Fire Rated Ceiling Under Tiled Roof

| Plasterboard fixed to joist | A-clips and Furring Channel |
|---|---|
|  |  |

## CUJ10-CUJ19

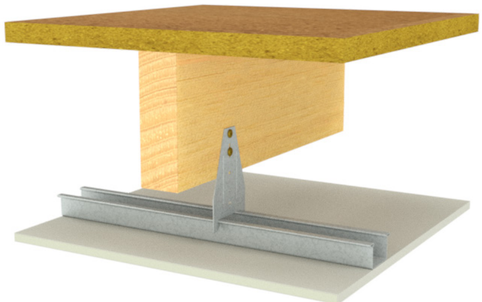


- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Minimum 140mm cavity with timber or steel ceiling joists
- Plasterboard ceiling lining as specified in the table

[Carpet requires an underlay and tiles require a fibre cement underlay]
[Impact Sound Insulation values determined using insulation]

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | Impact Sound Insulation Ln,w | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Carpet and Underlay | Tiled or Left bare | Report |
| CUJ10 | 1 layer of 10mm **masta**shield or **span**shield | 44 (37) | 46 (40) | 39 | 78 | Day Design 3094-26 |
| CUJ11 | 2 layers of 10mm **masta**shield or **span**shield | 47 (41) | 48 (43) | 38 | 76 | |
| CUJ14 | 1 layer of 13mm **masta**shield | 44 (38) | 46 (41) | 38 | 77 | |
| CUJ16 | 1 layer of 10mm **sound**shield or **opal** | 44 (38) [1] | 46 (41) [2] | 38 [3] | 77 [4] | [1]TL458Ta |
| CUJ17 | 2 layers of 10mm **sound**shield or **opal** | 48 (42) | 49 (44) | 37 | 75 | [2]TL458Tb |
| CUJ18 | 1 layer of 13mm **sound**shield | 45 (40) | 46 (41) | 38 | 76 | [3]TL458id |
| CUJ19 | 2 layers of 13mm **sound**shield | 49 (44) | 49 (45) | 37 | 73 | [4]TL458ic |

## CUJ20-CUJ29

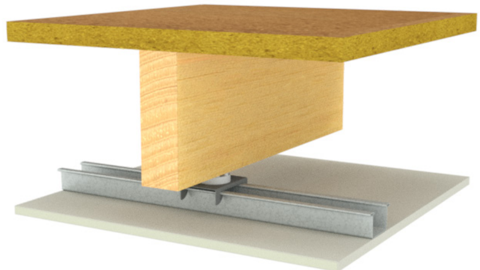


- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Minimum 140mm cavity with timber or steel ceiling joists
- A-clips and Furring Channel
- Plasterboard ceiling lining as specified in the table

[Carpet requires an underlay and tiles require a fibre cement underlay]
[Impact Sound Insulation values determined using insulation]

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | Impact Sound Insulation Ln,w | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Carpet and Underlay | Tiled or Left bare | |
| CUJ20 | 1 layer of 10mm **masta**shield or **span**shield | 47 (41) | 53 (46) | 39 | 71 | Report |
| CUJ21 | 2 layers of 10mm **masta**shield or **span**shield | 50 (44) | 55 (49) | 38 | 68 | Day Design 3094-26 |
| CUJ24 | 1 layer of 13mm **masta**shield | 48 (42) | 53 (46) | 38 | 69 | |
| CUJ26 | 1 layer of 10mm **sound**shield or **opal** | 48 (42) | 53 (46) | 38 [1] | 69 | |
| CUJ27 | 2 layers of 10mm **sound**shield or **opal** | 51 (46) | 56 (49) | 37 | 67 | [1]TL458Tie |
| CUJ28 | 1 layer of 13mm **sound**shield | 49 (43) | 53 (47) | 38 | 68 | |
| CUJ29 | 2 layers of 13mm **sound**shield | 52 (47) | 56 (50) | 37 | 65 | |

## CUJ30-CUJ39



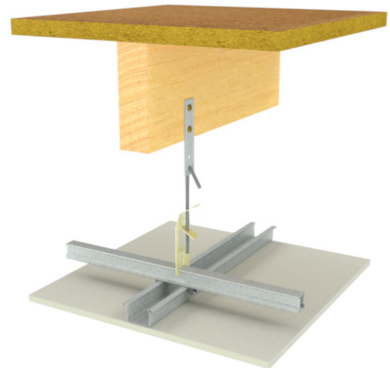
- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Minimum 140mm cavity with timber or steel ceiling joists
- Resilient Mounts and Furring Channel
- Plasterboard ceiling lining as specified in the table

[Carpet requires an underlay and tiles require a fibre cement underlay]
[Impact Sound Insulation values determined using insulation]

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | Impact Sound Insulation Ln,w | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Carpet and Underlay | Tiled or Left bare | |
| CUJ30 | 1 layer of 10mm **masta**shield or **span**shield | 45 (40) | 50 (42) | 28 | 68 | Report |
| CUJ31 | 2 layers of 10mm **masta**shield or **span**shield | 49 (44) | 54 (48) | 27 | 66 | Day Design 3094-26 |
| CUJ34 | 1 layer of 13mm **masta**shield | 46 (41) | 51 (44) | 27 | 67 | |
| CUJ36 | 1 layer of 10mm **sound**shield or **opal** | 46 (41) | 51 (44) | 27 | 67 | [1]TL458Tf |
| CUJ37 | 2 layers of 10mm **sound**shield or **opal** | 51 (45) [1] | 56 (50) | 26 | 64 [2] | [2]TL458Tih |
| CUJ38 | 1 layer of 13mm **sound**shield | 48 (43) | 53 (47) | 27 | 66 | |
| CUJ39 | 2 layers of 13mm **sound**shield | 53 (48) | 57 (52) | 26 | 63 | |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUJ40-CUJ49

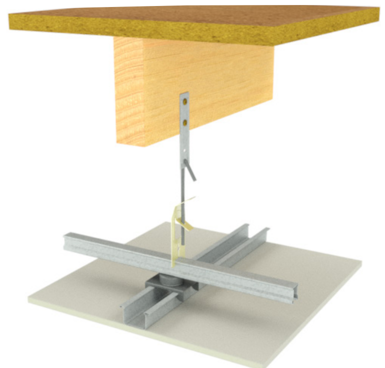


- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Minimum 140mm cavity with timber or steel ceiling joists
- Suspended Top Cross Rail and Furring Channel
- Plasterboard ceiling lining as specified in the table

[Carpet requires an underlay and tiles require a fibre cement underlay]
[Impact Sound Insulation values determined using insulation]

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | Impact Sound Insulation Ln,w | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Carpet and Underlay | Tiled or Left bare | |
| CUJ40 | 1 layer of 10mm **masta**shield or **span**shield | 45 (37) | 52 (45) | 28 | 67 | Report Day Design 3094-26 [1]TL458Tik |
| CUJ41 | 2 layers of 10mm **masta**shield or **span**shield | 50 (41) | 55 (51) | 27 | 65 | |
| CUJ44 | 1 layer of 13mm **masta**shield | 47 (38) | 52 (47) | 27 | 66 | |
| CUJ46 | 1 layer of 10mm **sound**shield or **opal** | 47 (38) | 52 (47) | 27 | 66 | |
| CUJ47 | 2 layers of 10mm **sound**shield or **opal** | 51 (43) | 56 (51) | 26 | 63 [1] | |
| CUJ48 | 1 layer of 13mm **sound**shield | 48 (40) | 53 (49) | 27 | 65 | |
| CUJ49 | 2 layers of 13mm **sound**shield | 53 (45) | 57 (53) | 26 | 62 | |

## CUJ50-CUJ59



- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Minimum 140mm cavity with timber or steel ceiling joists
- Suspended Top Cross Rail with Resilient Mount and Furring Channel
- Plasterboard ceiling lining as specified in the table

[Carpet requires an underlay and tiles require a fibre cement underlay]
[Impact Sound Insulation values determined using insulation]

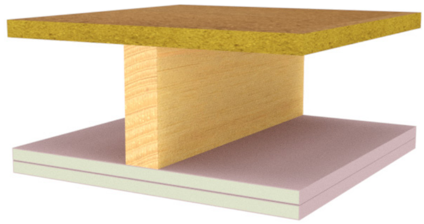
| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | Impact Sound Insulation Ln,w | | |
|---|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Carpet and Underlay | Tiled or Left bare | |
| CUJ50 | 1 layer of 10mm **masta**shield or **span**shield | 46 (38) | 54 (48) | 28 | 67 | Report Day Design 3094-26 [1]TL458Til |
| CUJ51 | 2 layers of 10mm **masta**shield or **span**shield | 50 (42) | 58 (53) | 27 | 65 | |
| CUJ54 | 1 layer of 13mm **masta**shield | 47 (40) | 55 (49) | 27 | 66 | |
| CUJ56 | 1 layer of 10mm **sound**shield or **opal** | 47 (40) | 55 (49) | 27 | 66 [1] | |
| CUJ57 | 2 layers of 10mm **sound**shield or **opal** | 52 (44) | 59 (54) | 26 | 63 | |
| CUJ58 | 1 layer of 13mm **sound**shield | 50 (42) | 56 (52) | 27 | 65 | |
| CUJ59 | 2 layers of 13mm **sound**shield | 55 (47) | 60 (57) | 26 | 62 | |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUJ210-CUJ218

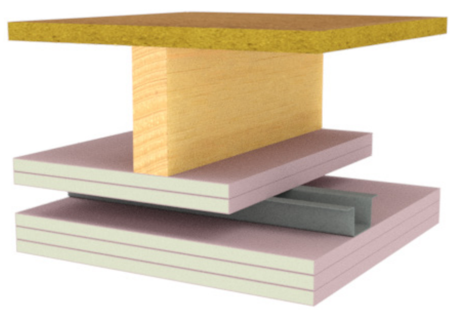
- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Minimum 140mm cavity with timber or steel ceiling joists
- Plasterboard Ceiling Lining ad specified in table

[Carpet requires an underlay and tiles require a fibre cement underlay]
[Impact Sound Insulation values determined using insulation]
**fire**shield can be substituted with **multi**shield or **tru**rock



| FRL<br>Rated from below | RISF | System | Ceiling Lining | Max Framing Centres (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | Impact Sound Insulation Ln,w | | |
|---|---|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Carpet and Underlay | Tiled or Left bare | |
| **30/30/30** | - | CUJ210 | 1 layer of 13mm **fire**shield | 600 | 45 (39) | 46 (41) | **38** | 77 | Report<br>Day Design<br>3094-26<br>3094-50 |
| **60/60/60** | - | CUJ211 | 2 layers of 13mm **fire**shield | 450 | 48 (43) | 49 (45) | **37** | 75 | |
| **60/60/60** | - | CUJ212 | 1 layer of 16mm **fire**shield | 450 | 45 (40) | 46 (41) | **38** | 76 | |
| **60/60/60** | 60 | CUJ213 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | 49 (43) | 49 (45) | **37** | 75 | |
| **60/60/60** | 60 | CUJ214 | 2 layers of 16mm **fire**shield | 600 | 50 (44) | 51 (46) | **37** | 73 | |
| **90/90/90** | 60 | CUJ215 | 2 layers of 16mm **fire**shield | 450 | 50 (44) | 51 (46) | **37** | 73 | |
| **90/90/90** | 60 | CUJ216 | 3 layers of 13mm **fire**shield | 450 | 51 (46) | 51 (47) | **36** | 72 | |
| **120/120/120** | 60 | CUJ217 | 1 layer of 13mm **fire**shield applied first plus 2 layers of 16mm **fire**shield | 450 | 52 (46) | 52 (48) | **36** | 72 | |
| **120/120/120** | 60 | CUJ218 | 3 layers of 16mm **fire**shield | 450 | 52 (47) | 52 (48) | **35** | 72 | |

## CUJ500



- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Timber or steel ceiling joists
- 2 layers of 16mm **fire**shield
- Perpendicular top-hats or furring channels at maximum 450mm centres
- [Below] 3 layers of 16mm **fire**shield

**fire**shield can be substituted with **multi**shield

**Fire Resistance Level**

**180/180/180**
from below only

**RISF 180 minutes**

Report FC14332

**Sound Insulation** for framing at 450mm centres
**Rw (Rw + Ctr)**

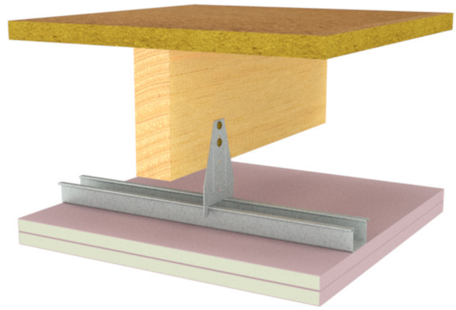
| No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | |
|---|---|---|
| 53 (45) | 54 (**50**) | Report<br>INSUL v9 |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUJ220-CUJ228

- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Minimum 140mm cavity with timber or steel ceiling joists
- A-clips and Furring Channel
- Plasterboard ceiling lining as specified in the table

[Carpet requires an underlay and tiles require a fibre cement underlay]
[Impact Sound Insulation values determined using insulation]
**fire**shield can be substituted with **multi**shield or **tru**rock

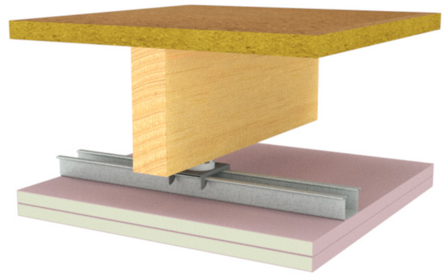


| FRL Rated from below | RISF | System | Ceiling Lining | Max Framing Centres (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | Impact Sound Insulation Ln,w | | |
|---|---|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Carpet and Underlay | Tiled or Left bare | |
| **30/30/30** | - | CUJ220 | 1 layer of 13mm **fire**shield | 600 | 47 (42) | 51 (45) | **38** | 69 | Report<br>Day Design 3094-26 3094-50 |
| **60/60/60** | - | CUJ221 | 2 layers of 13mm **fire**shield | 450 | 52 (46) | 57 (**50**) | **37** | 66 | |
| **60/60/60** | - | CUJ222 | 1 layer of 16mm **fire**shield | 450 | 49 (43) | 54 (48) | **38** | 68 | |
| **60/60/60** | 60 | CUJ223 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | 53 (47) | 56 (**51**) | **37** | 66 | |
| **60/60/60** | 60 | CUJ224 | 2 layers of 16mm **fire**shield | 600 | 53 (48) | 56 (**51**) | **37** | 66 | |
| **90/90/90** | 60 | CUJ225 | 2 layers of 16mm **fire**shield | 450 | 53 (48) | 56 (**51**) | **37** | 66 | |
| **90/90/90** | 60 | CUJ226 | 3 layers of 13mm **fire**shield | 450 | 55 (**50**) | 58 (**53**) | **36** | 65 | |
| **120/120/120** | 60 | CUJ227 | 1 layer of 13mm **fire**shield applied first plus 2 layers of 16mm **fire**shield | 450 | 56 (**50**) | 59 (**54**) | **36** | 64 | |
| **120/120/120** | 60 | CUJ228 | 3 layers of 16mm **fire**shield | 450 | 56 (**51**) | 59 (**54**) | **36** | 64 | |

## CUJ230-CUJ238

- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Minimum 140mm cavity with timber or steel ceiling joists
- Resilient Mounts and Furring Channel
- Plasterboard ceiling lining as specified in the table

[Carpet requires an underlay and tiles require a fibre cement underlay]
[Impact Sound Insulation values determined using insulation]
**fire**shield can be substituted with **multi**shield or **tru**rock

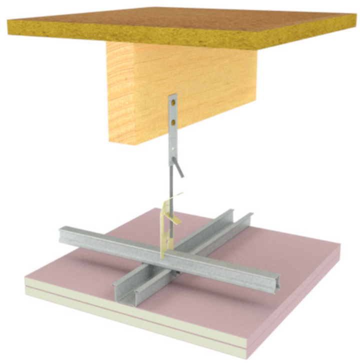


| FRL Rated from below | RISF | System | Ceiling Lining | Max Framing Centres (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | Impact Sound Insulation Ln,w | | |
|---|---|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Carpet and Underlay | Tiled or Left bare | |
| **30/30/30** | - | CUJ230 | 1 layer of 13mm **fire**shield | 600 | 47 (42) | 51 (45) | **27** | 65 | Report<br>Day Design 3094-26 3094-50<br>[1]TL458Tj [2]TL458Tij |
| **60/60/60** | - | CUJ231 | 2 layers of 13mm **fire**shield | 450 | 51 (46) | 56 (**50**) | **26** | 63 | |
| **60/60/60** | - | CUJ232 | 1 layer of 16mm **fire**shield | 450 | 48 (43) | 53 (47) | **27** | 65 | |
| **60/60/60** | 60 | CUJ233 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | 53 (48) | 56 (**51**) | **26** | **62** [2] | |
| **60/60/60** | 60 | CUJ234 | 2 layers of 16mm **fire**shield | 600 | 54 (48) | 56 (**51**) | **26** | **62** | |
| **90/90/90** | 60 | CUJ235 | 2 layers of 16mm **fire**shield | 450 | 54 (48) | 56 (**51**) | **26** | **62** | |
| **90/90/90** | 60 | CUJ236 | 3 layers of 13mm **fire**shield | 450 | 55 (**50**) | 59 (**53**) | **26** | **61** | |
| **120/120/120** | 60 | CUJ237 | 1 layer of 13mm **fire**shield applied first plus 2 layers of 16mm **fire**shield | 450 | 56 (**51**) | 59 (**54**) | **26** | **60** | |
| **120/120/120** | 60 | CUJ238 | 3 layers of 16mm **fire**shield | 450 | 57 (**51**) | 59 (**54**) | **26** | **60** | |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUJ240-CUJ248

- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Minimum 140mm cavity with timber or steel ceiling joists
- Suspended Top Cross Rail and Furring Channel
- Plasterboard ceiling lining as specified in the table

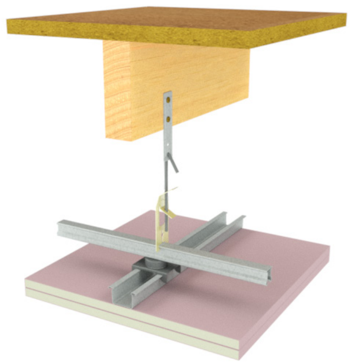


[Carpet requires an underlay and tiles require a fibre cement underlay]
[Impact Sound Insulation values determined using insulation]
**fire**shield can be substituted with **multi**shield or **tru**rock

| FRL Rated from below | RISF | System | Ceiling Lining | Max Framing Centres (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | Impact Sound Insulation Ln,w | | |
|---|---|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Carpet and Underlay | Tiled or Left bare | |
| **30/30/30** | - | CUJ240 | 1 layer of 13mm **fire**shield | 600 | 48 (40) | 53 (48) | **27** | 65 | Report Day Design 3094-26 3094-50 |
| **60/60/60** | - | CUJ241 | 2 layers of 13mm **fire**shield | 450 | 52 (44) | 57 (**52**) | **26** | 63 | |
| **60/60/60** | - | CUJ242 | 1 layer of 16mm **fire**shield | 450 | 48 (40) | 53 (49) | **27** | 65 | |
| **60/60/60** | 60 | CUJ243 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | 53 (45) | 57 (**53**) | **26** | **62** | |
| **60/60/60** | 60 | CUJ244 | 2 layers of 16mm **fire**shield | 600 | 54 (46) | 58 (**54**) | **26** | **62** | |
| **90/90/90** | 60 | CUJ245 | 2 layers of 16mm **fire**shield | 450 | 54 (46) | 58 (**54**) | **26** | **62** | |
| **90/90/90** | 60 | CUJ246 | 3 layers of 13mm **fire**shield | 450 | 55 (47) | 59 (**55**) | **26** | **61** | |
| **120/120/120** | 60 | CUJ247 | 1 layer of 13mm **fire**shield applied first plus 2 layers of 16mm **fire**shield | 450 | 56 (48) | 59 (**56**) | **26** | **60** | |
| **120/120/120** | 60 | CUJ248 | 3 layers of 16mm **fire**shield | 450 | 56 (48) | 60 (**56**) | **26** | **60** | |

## CUJ250-CUJ258

- Minimum 19mm particleboard flooring or timber flooring with either carpet, tiles or left bare
- Minimum 140mm cavity with timber or steel ceiling joists
- Suspended Top Cross Rail with Resilient Mount and Furring Channel
- Plasterboard ceiling lining as specified in the table



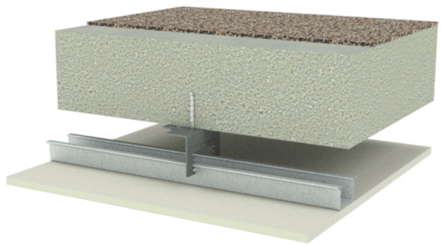
[Carpet requires an underlay and tiles require a fibre cement underlay]
[Impact Sound Insulation values determined using insulation]
**fire**shield can be substituted with **multi**shield or **tru**rock

| FRL Rated from below | RISF | System | Ceiling Lining | Max Framing Centres (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | Impact Sound Insulation Ln,w | | |
|---|---|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Carpet and Underlay | Tiled or Left bare | |
| **30/30/30** | - | CUJ250 | 1 layer of 13mm **fire**shield | 600 | 49 (41) | 55 (**51**) | **27** | 64 | Report Day Design 3094-26 |
| **60/60/60** | - | CUJ251 | 2 layers of 13mm **fire**shield | 450 | 53 (45) | 60 (**55**) | **26** | 63 | |
| **60/60/60** | - | CUJ252 | 1 layer of 16mm **fire**shield | 450 | 50 (42) | 56 (**52**) | **27** | 64 | |
| **60/60/60** | 60 | CUJ253 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | 54 (46) | 60 (**56**) | **26** | **62** | |
| **60/60/60** | 60 | CUJ254 | 2 layers of 16mm **fire**shield | 600 | 55 (47) | 61 (**57**) | **26** | **62** | |
| **90/90/90** | 60 | CUJ255 | 2 layers of 16mm **fire**shield | 450 | 55 (47) | 61 (**57**) | **26** | **62** | |
| **90/90/90** | 60 | CUJ256 | 3 layers of 13mm **fire**shield | 450 | 57 (49) | 62 (**59**) | **26** | **61** | |
| **120/120/120** | 60 | CUJ257 | 1 layer of 13mm **fire**shield applied first plus 2 layers of 16mm **fire**shield | 450 | 58 (**50**) | 63 (**59**) | **26** | **60** | |
| **120/120/120** | 60 | CUJ258 | 3 layers of 16mm **fire**shield | 450 | 58 (**50**) | 63 (**60**) | **26** | **60** | |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUC20-CUC228

- 4.5mm thick Regupol 4515 or 4mm thick A1 Rubber 720 AcoustaMat, if specified in table
- Concrete slab as specified in table, with either carpet, tiles, timber flooring or left bare
- Minimum 50mm cavity with Clips and Furring Channel
- Plasterboard ceiling lining as specified in the table

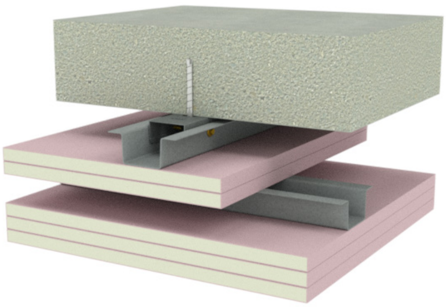


**masta**shield can be substituted with **water**shield
**fire**shield can be substituted with **multi**shield or **tru**rock
FRL is applicable to any concrete slab thickness

| FRL Rated from below | RISF | System | Ceiling Lining | Maximum Framing Centres (mm) | Insulation | Airborne Sound Insulation Rw (Rw + Ctr) | Impact Sound Insulation Ln,w<br>Day Design 5008-25, 5008-43 | | |
|---|---|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | Pink® Partition 50mm 11kg/m³ R1.2 | | Tiled, timber flooring or left bare | Tiled or timber flooring with acoustic underlay | Carpet and Underlay |
| **150mm thick concrete slab** | | | | | | | | | |
| - | - | CUC20 | 1 layer of 10mm **masta**shield | 450 | No | 55 (45) | 70 | **59** | **43** |
| | | | | | Yes | 59 (49) | 67 | **54** | **38** |
| - | - | CUC22 | 1 layer of 10mm **span**shield | 600 | No | 55 (45) | 70 | **59** | **43** |
| | | | | | Yes | 59 (49) | 67 | **54** | **38** |
| - | - | CUC24 | 1 layer of 13mm **masta**shield | 600 | No | 56 (46) | 70 | **59** | **43** |
| | | | | | Yes | 60 (**50**) | 67 | **54** | **38** |
| - | - | CUC26 | 1 layer of 10mm **sound**shield or **opal** | 600 | No | 56 (46) | 70 | **59** | **43** |
| | | | | | Yes | 60 (**50**) | 64 [1] | **54** | **38** |
| **30/30/30** | - | CUC220 | 1 layer of 13mm **fire**shield | 600 | No | 57 (47) | 70 | **58** | **42** |
| | | | | | Yes | 62 (**52**) | 67 | **53** | **37** |
| **60/60/60** | - | CUC222 | 1 layer of 16mm **fire**shield | 450 | No | 58 (48) | 70 | **58** | **42** |
| | | | | | Yes | 63 (**53**) | 67 | **53** | **37** |
| **60/60/60** | 60 | CUC223 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | No | 60 (**52**) | 68 | **57** | **41** |
| | | | | | Yes | 65 (**54**) | 65 | **52** | **36** |
| **90/90/90** | 60 | CUC225 | 2 layers of 16mm **fire**shield | 450 | No | 61 (**53**) | 68 | **57** | **41** |
| | | | | | Yes | 65 (**55**) | 65 | **52** | **36** |
| **120/120/120** | 60 | CUC228 | 3 layers of 16mm **fire**shield | 450 | No | 62 (**55**) | 68 | **56** | **40** |
| | | | | | Yes | 67 (**56**) | 65 | **51** | **35** |
| **200mm thick concrete slab** | | | | | | | | | |
| - | - | CUC120 | 1 layer of 10mm **masta**shield | 450 | No | 58 (48) | 68 | **58** | **42** |
| | | | | | Yes | 62 (**51**) | 65 | **53** | **37** |
| - | - | CUC122 | 1 layer of 10mm **span**shield | 600 | No | 58 (48) | 68 | **58** | **42** |
| | | | | | Yes | 62 (**51**) | 65 | **53** | **37** |
| - | - | CUC124 | 1 layer of 13mm **masta**shield | 600 | No | 59 (**50**) | 68 | **58** | **42** |
| | | | | | Yes | 63 (**52**) | 64 | **53** | **37** |
| - | - | CUC126 | 1 layer of 10mm **sound**shield or **opal** | 600 | No | 59 (49) | 68 | **58** | **42** |
| | | | | | Yes | 63 (**52**) | 64 | **53** | **37** |
| **30/30/30** | - | CUC320 | 1 layer of 13mm **fire**shield | 600 | No | 61 (**50**) | 67 | **57** | **41** |
| | | | | | Yes | 65 (**53**) | 64 | **52** | **36** |
| **60/60/60** | - | CUC322 | 1 layer of 16mm **fire**shield | 450 | No | 63 (**51**) | 67 | **57** | **41** |
| | | | | | Yes | 66 (**54**) | 64 | **52** | **36** |
| **60/60/60** | 60 | CUC323 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | No | 64 (**54**) | 65 | **56** | **40** |
| | | | | | Yes | 67 (**58**) | 63 | **51** | **35** |
| **90/90/90** | 60 | CUC325 | 2 layers of 16mm **fire**shield | 450 | No | 64 (**55**) | 65 | **56** | **40** |
| | | | | | Yes | 67 (**58**) | 63 | **51** | **35** |
| **120/120/120** | 60 | CUC328 | 3 layers of 16mm **fire**shield | 450 | No | 65 (**56**) | 64 | **55** | **39** |
| | | | | | Yes | 68 (**59**) | 63 | **50** | **34** |

[1] TL458io
Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUC500



- Minimum 150mm thick concrete slab
- 2 layers of 16mm **fire**shield
- Perpendicular top-hats or furring channels at maximum 450mm centres
- [Below] 3 layers of 16mm **fire**shield

**Fire Resistance Level**

**180/180/180**
from below only

**RISF 180 minutes**

Report FC14332

**Sound Insulation** for framing at 450mm centres
**Rw (Rw + Ctr)**

| No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
|---|---|---|
| 64 (**58**) | 65 (**61**) | INSUL v9 |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUC30-CUC238

- 4.5mm thick Regupol 4515 or 4mm thick A1 Rubber 720 AcoustaMat, if specified in table
- Concrete slab as specified in table, with either carpet, tiles, timber flooring or left bare
- Minimum 50mm cavity with Resilient Mounts and Furring Channel or separate stud ceiling frame
- Plasterboard ceiling lining as specified in the table

**masta**shield can be substituted with **water**shield
**fire**shield can be substituted with **multi**shield or **tru**rock
FRL is applicable to any concrete slab thickness

| FRL Rated from below | RISF | System | Ceiling Lining | Maximum Framing Centres (mm) | Insulation | Airborne Sound Insulation Rw (Rw + Ctr) | Impact Sound Insulation Ln,w Day Design 5008-25, 5008-43 | | |
|---|---|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | Pink® Partition 50mm 11kg/m³ R1.2 | | Tiled, timber flooring or left bare | Tiled or timber flooring with acoustic underlay | Carpet and Underlay |
| **150mm thick concrete slab** | | | | | | | | | |
| - | - | CUC30 | 1 layer of 10mm **masta**shield | 450 | No | 56 (46) | 65 | **54** | **38** |
| | | | | | Yes | 61 (**51**) | **62** | **49** | **33** |
| - | - | CUC32 | 1 layer of 10mm **span**shield | 600 | No | 56 (46) | 65 | **54** | **38** |
| | | | | | Yes | 61 (**51**) | **62** | **49** | **33** |
| - | - | CUC34 | 1 layer of 13mm **masta**shield | 600 | No | 57 (47) | 65 | **54** | **38** |
| | | | | | Yes | 62 (**52**) | **62** | **49** | **33** |
| - | - | CUC36 | 1 layer of 10mm **sound**shield or **opal** | 600 | No | 57 (47) | 65 | **54** | **38** |
| | | | | | Yes | 62 (**52**) | **61** [1] | **49** | **33** |
| **30/30/30** | - | CUC230 | 1 layer of 13mm **fire**shield | 600 | No | 58 (48) | 65 | **53** | **37** |
| | | | | | Yes | 64 (**54**) | **62** | **48** | **32** |
| **60/60/60** | - | CUC232 | 1 layer of 16mm **fire**shield | 450 | No | 59 (49) | 65 | **53** | **37** |
| | | | | | Yes | 65 (**55**) | **62** | **48** | **32** |
| **60/60/60** | 60 | CUC233 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | No | 61 (**52**) | 63 | **52** | **36** |
| | | | | | Yes | 66 (**56**) | **60** | **47** | **31** |
| **90/90/90** | 60 | CUC235 | 2 layers of 16mm **fire**shield | 450 | No | 62 (**53**) | 63 | **52** | **36** |
| | | | | | Yes | 66 (**57**) | **60** | **47** | **31** |
| **120/120/120** | 60 | CUC238 | 3 layers of 16mm **fire**shield | 450 | No | 65 (**55**) | 63 | **51** | **35** |
| | | | | | Yes | 68 (**58**) | **60** | **46** | **30** |
| **200mm thick concrete slab** | | | | | | | | | |
| - | - | CUC130 | 1 layer of 10mm **masta**shield | 450 | No | 62 (**51**) | 63 | **53** | **37** |
| | | | | | Yes | 65 (**54**) | **60** | **48** | **32** |
| - | - | CUC132 | 1 layer of 10mm **span**shield | 600 | No | 62 (**51**) | 63 | **53** | **37** |
| | | | | | Yes | 65 (**54**) | **60** | **48** | **32** |
| - | - | CUC134 | 1 layer of 13mm **masta**shield | 600 | No | 63 (**52**) | 63 | **53** | **37** |
| | | | | | Yes | 66 (**55**) | **59** | **48** | **32** |
| - | - | CUC136 | 1 layer of 10mm **sound**shield or **opal** | 600 | No | 63 (**52**) | 63 | **53** | **37** |
| | | | | | Yes | 66 (**55**) | **59** | **48** | **32** |
| **30/30/30** | - | CUC330 | 1 layer of 13mm **fire**shield | 600 | No | 65 (**54**) | **62** | **52** | **36** |
| | | | | | Yes | 68 (**57**) | **59** | **47** | **31** |
| **60/60/60** | - | CUC332 | 1 layer of 16mm **fire**shield | 450 | No | 66 (**55**) | **62** | **52** | **36** |
| | | | | | Yes | 69 (**58**) | **59** | **47** | **31** |
| **60/60/60** | 60 | CUC333 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | No | 67 (**56**) | **60** | **51** | **35** |
| | | | | | Yes | 70 (**59**) | **58** | **46** | **30** |
| **90/90/90** | 60 | CUC335 | 2 layers of 16mm **fire**shield | 450 | No | 67 (**57**) | **60** | **51** | **35** |
| | | | | | Yes | 70 (**60**) | **58** | **46** | **30** |
| **120/120/120** | 60 | CUC338 | 3 layers of 16mm **fire**shield | 450 | No | 68 (**58**) | **59** | **50** | **34** |
| | | | | | Yes | 71 (**61**) | **58** | **45** | **29** |

[1] TL458io

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUC40-CUC248

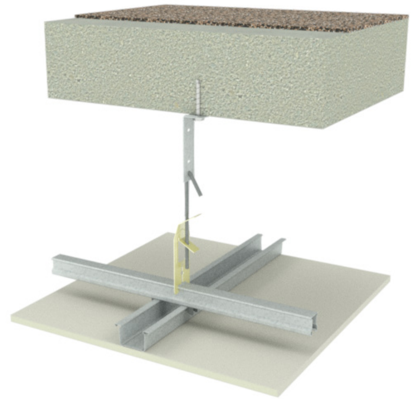
- 4.5mm thick Regupol 4515 or 4mm thick A1 Rubber 720 AcoustaMat, if specified in table
- Concrete slab as specified in table, with either carpet, tiles, timber flooring or left bare
- Minimum 300mm cavity with Suspended Top Cross Rail and Furring Channel, or steel stud ceiling without dropper studs with minimum 10mm gap between studs and concrete.
- Plasterboard ceiling lining as specified in the table

For a cavity size of 150mm to 300mm:

> Rw and Rw+Ctr ratings will reduce by 2 points

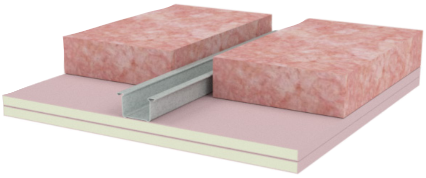
> Ln,w will remain unchanged

**masta**shield can be substituted with **water**shield
**fire**shield can be substituted with **multi**shield or **tru**rock
FRL is applicable to any concrete slab thickness



| **FRL** Rated from below | **RISF** | **System** | **Ceiling Lining** | **Maximum Framing Centres (mm)** | **Insulation** | **Airborne Sound Insulation Rw (Rw + Ctr)** | **Impact Sound Insulation Ln,w** Day Design 5008-25, 5008-43 | | |
|---|---|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | Pink® Partition 50mm 11kg/m³ R1.2 | | Tiled, timber flooring or left bare | Tiled or timber flooring with acoustic underlay | Carpet and Underlay |
| **150mm thick concrete slab** | | | | | | | | | |
| - | - | CUC40 | 1 layer of 10mm **masta**shield | 450 | No | 61 (**50**) | 64 | **53** | **37** |
| | | | | | Yes | 64 (**53**) | **61** | **48** | **32** |
| - | - | CUC42 | 1 layer of 10mm **span**shield | 600 | No | 61 (**50**) | 64 | **53** | **37** |
| | | | | | Yes | 64 (**53**) | **61** | **48** | **32** |
| - | - | CUC44 | 1 layer of 13mm **masta**shield | 600 | No | 62 (**51**) | 64 | **53** | **37** |
| | | | | | Yes | 65 (**54**) | **61** | **48** | **32** |
| - | - | CUC46 | 1 layer of 10mm **sound**shield or **opal** | 600 | No | 62 (**51**) | 64 | **53** | **37** |
| | | | | | Yes | 65 (**54**) | **61** | **48** | **32** |
| **30/30/30** | - | CUC240 | 1 layer of 13mm **fire**shield | 600 | No | 64 (**53**) | 64 | **52** | **36** |
| | | | | | Yes | 67 (**56**) | **61** | **47** | **31** |
| **60/60/60** | - | CUC242 | 1 layer of 16mm **fire**shield | 450 | No | 65 (**54**) | 64 | **52** | **36** |
| | | | | | Yes | 68 (**57**) | **61** | **47** | **31** |
| **60/60/60** | 60 | CUC243 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | No | 66 (**55**) | **62** | **51** | **35** |
| | | | | | Yes | 69 (**58**) | **59** | **46** | **30** |
| **90/90/90** | 60 | CUC245 | 2 layers of 16mm **fire**shield | 450 | No | 66 (**56**) | **62** | **51** | **35** |
| | | | | | Yes | 69 (**59**) | **59** | **46** | **30** |
| **120/120/120** | 60 | CUC248 | 3 layers of 16mm **fire**shield | 450 | No | 67 (**57**) | **62** | **50** | **34** |
| | | | | | Yes | 70 (**60**) | **59** | **45** | **29** |
| **200mm thick concrete slab** | | | | | | | | | |
| - | - | CUC140 | 1 layer of 10mm **masta**shield | 450 | No | 64 (**53**) | **62** | **52** | **36** |
| | | | | | Yes | 67 (**56**) | **59** | **47** | **31** |
| - | - | CUC142 | 1 layer of 10mm **span**shield | 600 | No | 64 (**53**) | **62** | **52** | **36** |
| | | | | | Yes | 67 (**56**) | **59** | **47** | **31** |
| - | - | CUC144 | 1 layer of 13mm **masta**shield | 600 | No | 65 (**54**) | **62** | **52** | **36** |
| | | | | | Yes | 68 (**57**) | **58** | **47** | **31** |
| - | - | CUC146 | 1 layer of 10mm **sound**shield or **opal** | 600 | No | 65 (**54**) | **62** | **52** | **36** |
| | | | | | Yes | 68 (**57**) | **58** | **47** | **31** |
| **30/30/30** | - | CUC340 | 1 layer of 13mm **fire**shield | 600 | No | 67 (**56**) | **61** | **51** | **35** |
| | | | | | Yes | 70 (**59**) | **58** | **46** | **30** |
| **60/60/60** | - | CUC342 | 1 layer of 16mm **fire**shield | 450 | No | 68 (**57**) | **61** | **51** | **35** |
| | | | | | Yes | 71 (**60**) | **58** | **46** | **30** |
| **60/60/60** | 60 | CUC343 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | No | 69 (**58**) | **59** | **50** | **34** |
| | | | | | Yes | 72 (**61**) | **57** | **45** | **29** |
| **90/90/90** | 60 | CUC345 | 2 layers of 16mm **fire**shield | 450 | No | 69 (**59**) | **59** | **50** | **34** |
| | | | | | Yes | 72 (**62**) | **57** | **45** | **29** |
| **120/120/120** | 60 | CUC348 | 3 layers of 16mm **fire**shield | 450 | No | 70 (**60**) | **58** | **49** | **33** |
| | | | | | Yes | 73 (**63**) | **57** | **44** | **28** |

## UCS400



- Minimum 140mm cavity with timber joists, steel ceiling joists or any furring channel ceiling at maximum 450mm centres
- [Below] 2 layers of 13mm **fire**shield

**fire**shield can be substituted with **multi**shield

**Fire Resistance Level**

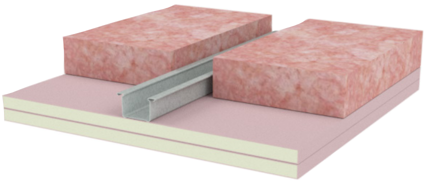
**30/30/30**
from below only

Report FC14332

**Sound Insulation** for framing at 450mm centres
**Rw (Rw + Ctr)**

| No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
|---|---|---|
| 34 (30)[1] | 39 (35) | Day Design 3094-33<br>[1]ATF1530 INSUL v9 |

## UCS401



- Minimum 140mm cavity with timber joists, steel ceiling joists or any furring channel ceiling at maximum **600mm** centres
- [Below] 2 layers of 16mm **fire**shield

**fire**shield can be substituted with **multi**shield

**Fire Resistance Level**

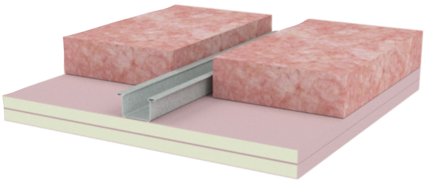
**30/30/30**
from below only

Report FC14332

**Sound Insulation** for framing at 600mm centres
**Rw (Rw + Ctr)**

| No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
|---|---|---|
| 35 (32) | 40 (37) | Day Design 3094-23<br>Insul v9 |

## UCS402



- Minimum 140mm cavity with timber joists, steel ceiling joists or any furring channel ceiling at maximum **450mm** centres
- [Below] 2 layers of 16mm **fire**shield

**fire**shield can be substituted with **multi**shield

**Fire Resistance Level**

**60/60/60**
from below only

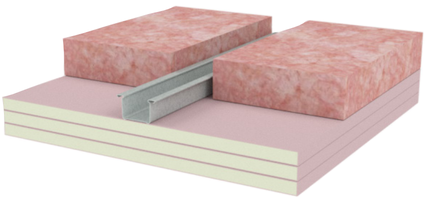
**RISF 60 minutes**

Report FC14332

**Sound Insulation** for framing at 450mm centres
**Rw (Rw + Ctr)**

| No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
|---|---|---|
| 35 (32) | 40 (37) | Day Design 3094-23<br>Insul v9 |

## UCS403



- Minimum 140mm cavity with timber joists, steel ceiling joists or any furring channel ceiling at maximum 450mm centres
- [Below] 3 layers of 16mm **fire**shield

**fire**shield can be substituted with **multi**shield

**Fire Resistance Level**

**90/90/90**
from below only

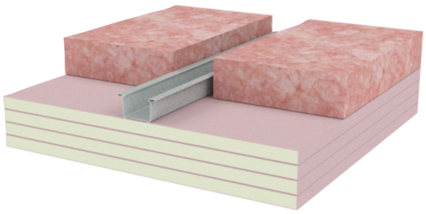
**RISF 90 minutes**

Report FC14332

**Sound Insulation** for framing at 450mm centres
**Rw (Rw + Ctr)**

| No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
|---|---|---|
| 38 (36) | 44 (40) | Day Design 3094-23<br>Insul v9 |

## UCS404



- Minimum 140mm cavity with timber joists, steel ceiling joists or any furring channel ceiling at maximum 450mm centres
- [Below] 4 layers of 16mm **fire**shield

**fire**shield can be substituted with **multi**shield

**Fire Resistance Level**

**120/120/120**
from below only

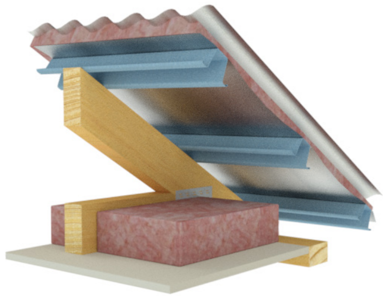
**RISF 120 minutes**

Report FC14332

**Sound Insulation** for framing at 450mm centres
**Rw (Rw + Ctr)**

| No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | Report |
|---|---|---|
| 41 (39) | 46 (43) | Insul v9 |

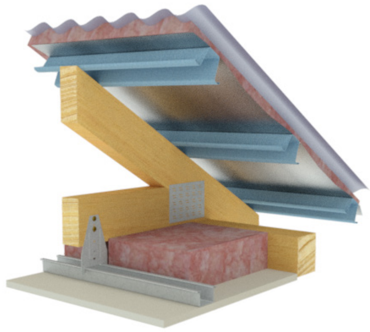
## CUR10-CUR19



- Sheet metal roofing
- Permastop® Building Blanket R1.3 with Sisalation® reflective facing foil
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- Insulation as specified in the table
- Plasterboard ceiling lining as specified in the table

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| CUR10 | 1 layer of 10mm **masta**shield or **span**shield | 41 (37) | 41 (35) | Report Day Design 5008-24 [1]TL458Rf |
| CUR11 | 2 layers of 10mm **masta**shield or **span**shield | 43 (40) | 43 (39) | |
| CUR14 | 1 layer of 13mm **masta**shield | 43 (39) | 43 (37) | |
| CUR16 | 1 layer of 10mm **sound**shield or **opal** | 44 (40) | 44 (38) | |
| CUR17 | 2 layers of 10mm **sound**shield or **opal** | 45 (42)[1] | 45 (41) | |
| CUR18 | 1 layer of 13mm **sound**shield | 44 (41) | 44 (39) | |
| CUR19 | 2 layers of 13mm **sound**shield | 47 (45) | 48 (44) | |

## CUR20-CUR29

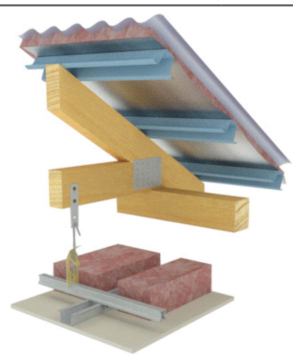


- Sheet metal roofing
- Permastop® Building Blanket R1.3 with Sisalation® reflective facing foil
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- A-clips and Furring Channel
- Insulation as specified in the table
- Plasterboard ceiling lining as specified in the table

[Lateral restraint of truss bottom chord must be considered, ie: bottom chord ties and steelbrace]

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| CUR20 | 1 layer of 10mm **masta**shield or **span**shield | 51 (42) | 50 (40) | Report Day Design 5008-24 [1]TL458Rm |
| CUR21 | 2 layers of 10mm **masta**shield or **span**shield | 53 (45) | 52 (43) | |
| CUR24 | 1 layer of 13mm **masta**shield | 53 (44) | 52 (42) | |
| CUR26 | 1 layer of 10mm **sound**shield or **opal** | 54 (45) | 53 (43) | |
| CUR27 | 2 layers of 10mm **sound**shield or **opal** | 55 (48)[1] | 55 (46) | |
| CUR28 | 1 layer of 13mm **sound**shield | 55 (46) | 54 (44) | |
| CUR29 | 2 layers of 13mm **sound**shield | 58 (51) | 58 (49) | |

## CUR40-CUR49



- Sheet metal roofing
- Permastop® Building Blanket R1.3 with Sisalation® reflective facing foil
- Timber or steel, rafters, purlins or trusses
- Suspended Top Cross Rail and Furring Channel
- Insulation as specified in the table
- Plasterboard ceiling lining as specified in the table

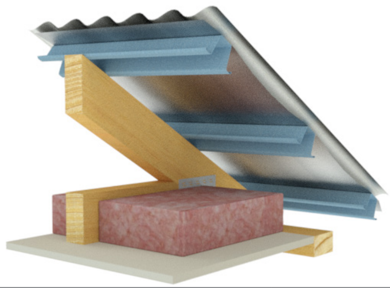
[Lateral restraint of truss bottom chord must be considered, ie: bottom chord ties and steelbrace]

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| CUR40 | 1 layer of 10mm **masta**shield or **span**shield | 51 (42) | 50 (40) | Report Day Design 5008-24 [1]TL458Ri |
| CUR41 | 2 layers of 10mm **masta**shield or **span**shield | 53 (45) | 52 (44) | |
| CUR44 | 1 layer of 13mm **masta**shield | 53 (44) | 52 (42) | |
| CUR46 | 1 layer of 10mm **sound**shield or **opal** | 54 (45) | 53 (43) | |
| CUR47 | 2 layers of 10mm **sound**shield or **opal** | 55 (48)[1] | 55 (46) | |
| CUR48 | 1 layer of 13mm **sound**shield | 55 (46) | 54 (44) | |
| CUR49 | 2 layers of 13mm **sound**shield | 58 (51) | 58 (49) | |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUR60-CUR69

- Sheet metal roofing
- Sisalation® Metal Roof Sarking
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- Insulation as specified in the table
- Plasterboard ceiling lining as specified in the table

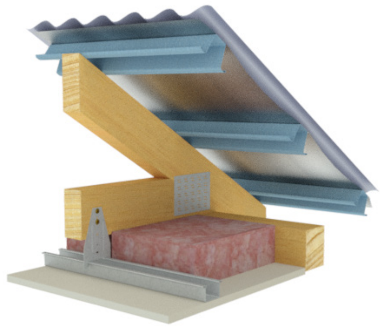


| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| CUR60 | 1 layer of 10mm **masta**shield or **span**shield | 39 (36) | 39 (34) | Report Day Design 5008-27 |
| CUR61 | 2 layers of 10mm **masta**shield or **span**shield | 41 (39) | 41 (38) | |
| CUR64 | 1 layer of 13mm **masta**shield | 42 (38) | 42 (36) | |
| CUR66 | 1 layer of 10mm **sound**shield or **opal** | 42 (49) | 42 (37) | |
| CUR67 | 2 layers of 10mm **sound**shield or **opal** | 43 (41) | 43 (40) | |
| CUR68 | 1 layer of 13mm **sound**shield | 42 (40) | 42 (38) | |
| CUR69 | 2 layers of 13mm **sound**shield | 45 (44) | 46 (43) | |

## CUR70-CUR79

- Sheet metal roofing
- Sisalation® Metal Roof Sarking
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- A-clips and Furring Channel
- Insulation as specified in the table
- Plasterboard ceiling lining as specified in the table

[Lateral restraint of truss bottom chord must be considered, ie: bottom chord ties and steelbrace]

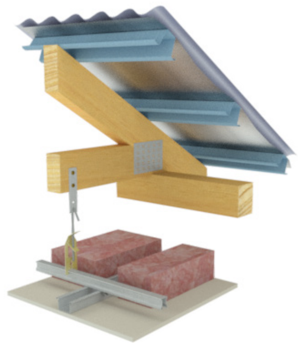


| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| CUR70 | 1 layer of 10mm **masta**shield or **span**shield | 49 (41) | 48 (39) | Report Day Design 5008-27 |
| CUR71 | 2 layers of 10mm **masta**shield or **span**shield | 51 (44) | 50 (42) | |
| CUR74 | 1 layer of 13mm **masta**shield | 51 (43) | 50 (41) | |
| CUR76 | 1 layer of 10mm **sound**shield or **opal** | 52 (44) | 51 (42) | |
| CUR77 | 2 layers of 10mm **sound**shield or **opal** | 53 (47) | 53 (45) | |
| CUR78 | 1 layer of 13mm **sound**shield | 53 (45) | 52 (43) | |
| CUR79 | 2 layers of 13mm **sound**shield | 56 (50) | 56 (48) | |

## CUR90-CUR99

- Sheet metal roofing
- Sisalation® Metal Roof Sarking
- Timber or steel, rafters, purlins or trusses
- Suspended Top Cross Rail and Furring Channel
- Insulation as specified in the table
- Plasterboard ceiling lining as specified in the table

[Lateral restraint of truss bottom chord must be considered, ie: bottom chord ties and steelbrace]

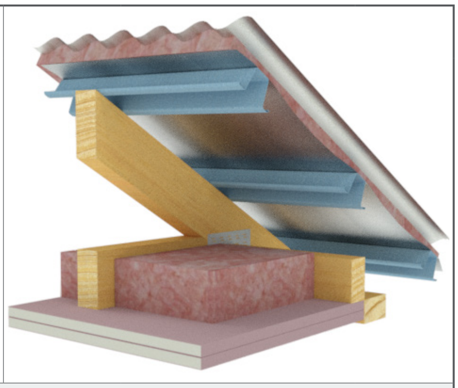


| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| CUR90 | 1 layer of 10mm **masta**shield or **span**shield | 49 (41) | 48 (39) | Report Day Design 5008-27 |
| CUR91 | 2 layers of 10mm **masta**shield or **span**shield | 51 (44) | 50 (43) | |
| CUR94 | 1 layer of 13mm **masta**shield | 51 (43) | 50 (41) | |
| CUR96 | 1 layer of 10mm **sound**shield or **opal** | 52 (44) | 51 (42) | |
| CUR97 | 2 layers of 10mm **sound**shield or **opal** | 53 (47) | 53 (45) | |
| CUR98 | 1 layer of 13mm **sound**shield | 53 (45) | 52 (43) | |
| CUR99 | 2 layers of 13mm **sound**shield | 56 (50) | 56 (48) | |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUR210-CUR218

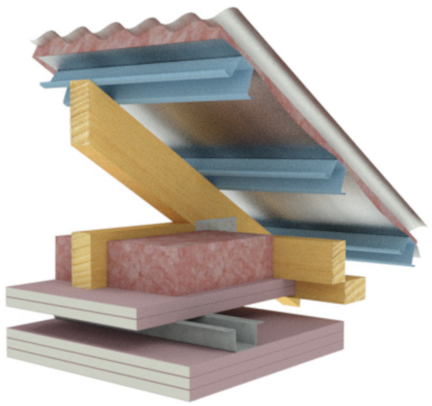
- Sheet metal roofing
- Permastop® Building Blanket minimum R1.3 with Sisalation® reflective facing foil
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- Ceiling insulation as specified in the table (not required for FRL)
- Plasterboard ceiling lining as specified in the table



**fire**shield can be substituted with **multi**shield or **tru**rock

| FRL Rated from below | RISF | System | Ceiling Lining | Max Framing Centres (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| **30/30/30** | - | CUR210 | 1 layer of 13mm **fire**shield | 600 | 43 (39) | 43 (38) | Report Day Design 5008-24 3094-50 |
| **60/60/60** | - | CUR211 | 2 layers of 13mm **fire**shield | 450 | 45 (44) | 44 (43) | |
| **60/60/60** | - | CUR212 | 1 layer of 16mm **fire**shield | 450 | 44 (41) | 43 (39) | |
| **60/60/60** | 60 | CUR213 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | 46 (45) | 47 (44) | |
| **60/60/60** | 60 | CUR214 | 2 layers of 16mm **fire**shield | 600 | 48 (46) | 48 (45) | |
| **90/90/90** | 60 | CUR215 | 2 layers of 16mm **fire**shield | 450 | 48 (46) | 48 (45) | |
| **90/90/90** | 60 | CUR216 | 3 layers of 13mm **fire**shield | 450 | 49 (48) | 50 (46) | |
| **120/120/120** | 60 | CUR217 | 1 layer of 13mm **fire**shield applied first plus 2 layers of 16mm **fire**shield | 450 | 50 (49) | 51 (47) | |
| **120/120/120** | 60 | CUR218 | 3 layers of 16mm **fire**shield | 450 | 52 (50) | 52 (49) | |

## CUR500



- Sheet metal roofing
- Permastop® Building Blanket minimum R1.3 with Sisalation® reflective facing foil
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- Ceiling insulation as specified in the table (not required for FRL)
- 2 layers of 16mm **fire**shield
- Perpendicular top-hats or furring channels at maximum 450mm centres
- [Below] 3 layers of 16mm **fire**shield

**Fire Resistance Level**

**180/180/180**
from below only

**RISF 180 minutes**

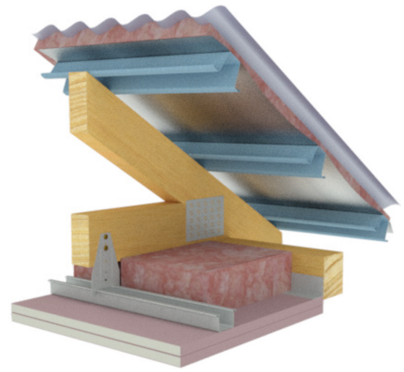
Report FC14332

| **Sound Insulation** for framing at 450mm centres Rw (Rw + Ctr) | | |
|---|---|---|
| Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | Report INSUL v9 |
| 64 (**52**) | 64 (**52**) | |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUR220-CUR228

- Sheet metal roofing
- Permastop® Building Blanket minimum R1.3 with Sisalation® reflective facing foil
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- A-clips and Furring Channel
- Ceiling insulation as specified in the table (not required for FRL)
- Plasterboard ceiling lining as specified in the table

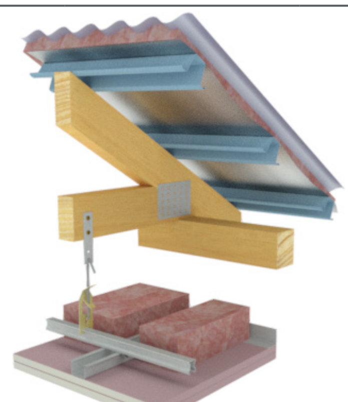


[Lateral restraint of truss bottom chord must be considered, ie: bottom chord ties and steelbrace]
**fire**shield can be substituted with **multi**shield or **tru**rock

| FRL Rated from below | RISF | System | Ceiling Lining | Max Framing Centres (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| **30/30/30** | - | CUR220 | 1 layer of 13mm **fire**shield | 600 | 51 (42) | 50 (41) | Report Day Design 5008-24 3094-50 [1]TL458Rn |
| **60/60/60** | - | CUR221 | 2 layers of 13mm **fire**shield | 450 | 55 (48) | 55 (46) | |
| **60/60/60** | - | CUR222 | 1 layer of 16mm **fire**shield | 450 | 52 (43) | 51 (42) | |
| **60/60/60** | 60 | CUR223 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | 56 (49) | 55 (47) | |
| **60/60/60** | 60 | CUR224 | 2 layers of 16mm **fire**shield | 600 | 57 (**50**)[1] | 56 (48) | |
| **90/90/90** | 60 | CUR225 | 2 layers of 16mm **fire**shield | 450 | 57 (**50**) | 56 (48) | |
| **90/90/90** | 60 | CUR226 | 3 layers of 13mm **fire**shield | 450 | 58 (**52**) | 58 (**50**) | |
| **120/120/120** | 60 | CUR227 | 1 layer of 13mm **fire**shield applied first plus 2 layers of 16mm **fire**shield | 450 | 59 (**53**) | 59 (**51**) | |
| **120/120/120** | 60 | CUR228 | 3 layers of 16mm **fire**shield | 450 | 61 (**55**) | 61 (**53**) | |

## CUR240-CUR248

- Sheet metal roofing
- Permastop® Building Blanket minimum R1.3 with Sisalation® reflective facing foil
- Timber or steel, rafters, purlins or trusses
- Ceiling insulation as specified in the table (not required for FRL)
- Suspended Top Cross Rail and Furring Channel
- Plasterboard ceiling lining as specified in the table



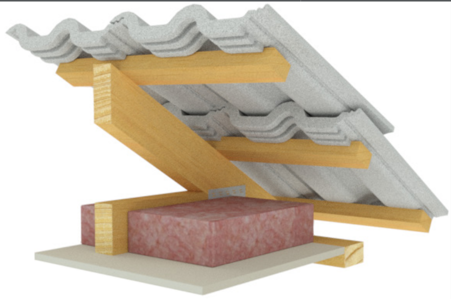
[Lateral restraint of truss bottom chord must be considered, ie: bottom chord ties and steelbrace]
**fire**shield can be substituted with **multi**shield or **tru**rock

| FRL Rated from below | RISF | System | Ceiling Lining | Max Framing Centres (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| **30/30/30** | - | CUR240 | 1 layer of 13mm **fire**shield | 600 | 50 (43) | 49 (41) | Report Day Design 5008-24 3094-50 |
| **60/60/60** | - | CUR241 | 2 layers of 13mm **fire**shield | 450 | 54 (47) | 53 (46) | |
| **60/60/60** | - | CUR242 | 1 layer of 16mm **fire**shield | 450 | 51 (43) | 50 (42) | |
| **60/60/60** | 60 | CUR243 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | 55 (49) | 54 (47) | |
| **60/60/60** | 60 | CUR244 | 2 layers of 16mm **fire**shield | 600 | 56 (**50**) | 55 (48) | |
| **90/90/90** | 60 | CUR245 | 2 layers of 16mm **fire**shield | 450 | 56 (**50**) | 55 (48) | |
| **90/90/90** | 60 | CUR246 | 3 layers of 13mm **fire**shield | 450 | 57 (**52**) | 57 (**50**) | |
| **120/120/120** | 60 | CUR247 | 1 layer of 13mm **fire**shield applied first plus 2 layers of 16mm **fire**shield | 450 | 59 (**53**) | 58 (**51**) | |
| **120/120/120** | 60 | CUR248 | 3 layers of 16mm **fire**shield | 450 | 60 (**55**) | 60 (**53**) | |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUR110-CUR119

- Concrete or terracotta tiles
- Optional heavy duty reflective foil
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- Insulation as specified in the table
- Plasterboard ceiling lining as specified in the table

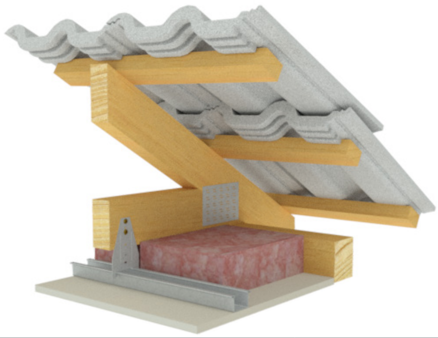


| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | Report |
| CUR110 | 1 layer of 10mm **masta**shield or **span**shield | 50 (41) | 50 (40) | Day Design 5008-24 3094-25 |
| CUR111 | 2 layers of 10mm **masta**shield or **span**shield | 51 (42) | 51 (41) | |
| CUR114 | 1 layer of 13mm **masta**shield | 51 (42) | 51 (41) | |
| CUR116 | 1 layer of 10mm **sound**shield or **opal** | 51 (43) | 51 (42) | |
| CUR117 | 2 layers of 10mm **sound**shield or **opal** | 51 (44)[1] | 51 (44) | [1] TL458Ra |
| CUR118 | 1 layer of 13mm **sound**shield | 51 (42) | 51 (42) | |
| CUR119 | 2 layers of 13mm **sound**shield | 52 (44) | 52 (44) | |

## CUR120-CUR129

- Concrete or terracotta tiles
- Optional heavy duty reflective foil
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- A-clips and Furring Channel
- Insulation as specified in the table (not required for FRL)
- Plasterboard ceiling lining as specified in the table

[Lateral restraint of truss bottom chord must be considered, ie: bottom chord ties and steelbrace]

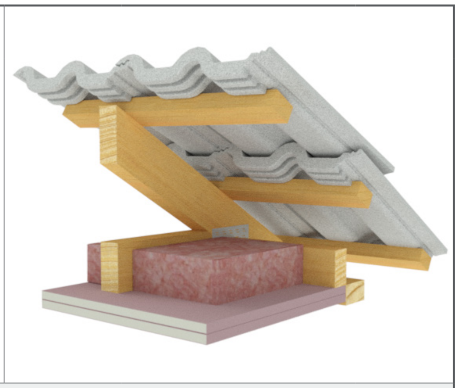


| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | Report |
| CUR120 | 1 layer of 10mm **masta**shield or **span**shield | 51 (44) | 50 (43) | Day Design 5008-24 3094-25 |
| CUR121 | 2 layers of 10mm **masta**shield or **span**shield | 52 (46) | 52 (46) | |
| CUR124 | 1 layer of 13mm **masta**shield | 52 (45) | 51 (44) | |
| CUR126 | 1 layer of 10mm **sound**shield or **opal** | 52 (46)[1] | 51 (45) | |
| CUR127 | 2 layers of 10mm **sound**shield or **opal** | 52 (47) | 52 (48) | [1]TL458Rb |
| CUR128 | 1 layer of 13mm **sound**shield | 52 (46) | 52 (45) | |
| CUR129 | 2 layers of 13mm **sound**shield | 53 (49) | 53 (48) | |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUR310-CUR318

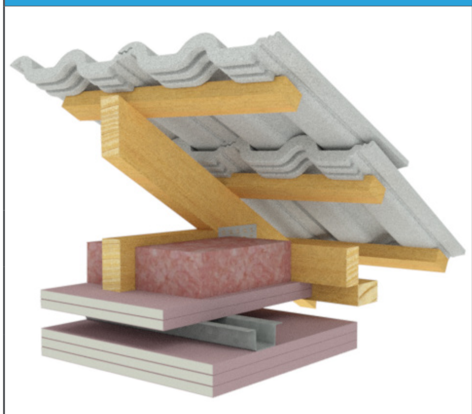
- Concrete or terracotta tiles
- Optional heavy duty reflective foil
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- Insulation as specified in the table (not required for FRL)
- Plasterboard ceiling lining as specified in the table



**fire**shield can be substituted with **multi**shield or **tru**rock

| **FRL** Rated from below | **RISF** | **System** | **Ceiling Lining** | **Max Framing Centres (mm)** | **Airborne Sound Insulation Rw (Rw + Ctr)** | | |
|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| **30/30/30** | - | CUR310 | 1 layer of 13mm **fire**shield | 600 | 48 (42) | 48 (42) | |
| **60/60/60** | - | CUR311 | 2 layers of 13mm **fire**shield | 450 | 50 (44) | 50 (44) | |
| **60/60/60** | - | CUR312 | 1 layer of 16mm **fire**shield | 450 | 48 (43) | 48 (42) | Report |
| **60/60/60** | 60 | CUR313 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | 50 (44) | 50 (44) | Day Design 5008-24 |
| **60/60/60** | 60 | CUR314 | 2 layers of 16mm **fire**shield | 600 | 51 (45) | 51 (45) | 3094-50 |
| **90/90/90** | 60 | CUR315 | 2 layers of 16mm **fire**shield | 450 | 51 (45)[1] | 51 (45) | [1]TL458RI |
| **90/90/90** | 60 | CUR316 | 3 layers of 13mm **fire**shield | 450 | 52 (46) | 52 (46) | |
| **120/120/120** | 60 | CUR317 | 1 layer of 13mm **fire**shield applied first plus 2 layers of 16mm **fire**shield | 450 | 52 (46) | 52 (46) | |
| **120/120/120** | 60 | CUR318 | 3 layers of 16mm **fire**shield | 450 | 52 (46) | 52 (46) | |

## CUR501



- Concrete or terracotta tiles
- Optional heavy duty reflective foil
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- 2 layers of 16mm **fire**shield
- Perpendicular top-hats or furring channels at maximum 450mm centres
- [Below] 3 layers of 16mm **fire**shield

**Fire Resistance Level**

**180/180/180**
from below only

**RISF 180 minutes**

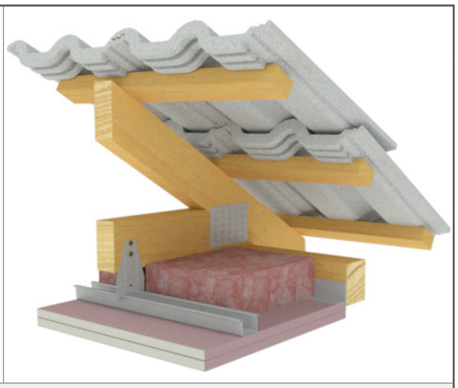
Report FC14332

| **Sound Insulation** for framing at 450mm centres **Rw (Rw + Ctr)** | | |
|---|---|---|
| Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | Report |
| 62 (**51**) | 62 (**51**) | INSUL v9 |

Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

## CUR320-CUR328

- Concrete or terracotta tiles
- Optional heavy duty reflective foil
- Minimum 140mm cavity with timber or steel, rafters, purlins or trusses
- A-clips and Furring Channel
- Insulation as specified in the table (not required for FRL)
- Plasterboard ceiling lining as specified in the table



[Lateral restraint of truss bottom chord must be considered, ie: bottom chord ties and steelbrace]
**fire**shield can be substituted with **multi**shield or **tru**rock

| FRL<br>Rated from below | RISF | System | Ceiling Lining | Max Framing Centres (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|---|---|
| Report FC14332 | | | | | Pink® Batts Ceiling R2.5 | Polyester Batts Ceiling R2.5 | |
| **30/30/30** | - | CUR320 | 1 layer of 13mm **fire**shield | 600 | 51 (45) | 51 (44) | Report<br>Day Design 5008-24 3094-50<br>[1]TL458Rc |
| **60/60/60** | - | CUR321 | 2 layers of 13mm **fire**shield | 450 | 52 (47) | 52 (47) | |
| **60/60/60** | - | CUR322 | 1 layer of 16mm **fire**shield | 450 | 51 (46) | 51 (45) | |
| **60/60/60** | 60 | CUR323 | 1 layer of 13mm **fire**shield applied first plus 1 layer of 16mm **fire**shield | 600 | 53 (48) | 53 (47) | |
| **60/60/60** | 60 | CUR324 | 2 layers of 16mm **fire**shield | 600 | 54 (49)[1] | 54 (48) | |
| **90/90/90** | 60 | CUR325 | 2 layers of 16mm **fire**shield | 450 | 54 (49) | 54 (48) | |
| **90/90/90** | 60 | CUR326 | 3 layers of 13mm **fire**shield | 450 | 55 (49) | 55 (49) | |
| **120/120/120** | 60 | CUR327 | 1 layer of 13mm **fire**shield applied first plus 2 layers of 16mm **fire**shield | 450 | 55 (50) | 55 (50) | |
| **120/120/120** | 60 | CUR328 | 3 layers of 16mm **fire**shield | 450 | 56 (51) | 56 (50) | |

# General Requirements

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Install control joints in plasterboard ceilings:<br>> At 12m maximum intervals for internal ceilings<br>> At 6m maximum intervals for external ceilings<br>> At all movement joints in the building<br>> At any change in the substrate<br>> At the junction of a larger room and passageway. | ✓ | ✓ |
| All ceilings in this section are non-trafficable. Do not walk on plasterboard ceilings! | ✓ | ✓ |
| Limit dead loads on plasterboard ceilings to 2 kg/m² for plasterboard spanning 600mm framing centres. | ✓ | ✓ |
| Limit dead loads on plasterboard ceilings to 2.5 kg/m² for plasterboard spanning 450mm framing centres where the plasterboard can usually span 600mm centres. | ✓ | ✓ |
| Only joint the face layer. As a minimum, use paper tape with either masta**base** or masta**longset**. | | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | | ✓ |
| Use **bindex** fire and acoustic sealant on all gaps and around perimeter. | | ✓ |
| Attach ceiling fixtures to framing members only. Ensure the framing is designed to carry any additional load. | ✓ | ✓ |
| All structures supporting fire rated ceilings must have an equal or greater FRL than the ceiling they support eg, a ceiling with FRL of 90/90/90 must be supported by a load bearing wall or column with FRL of at least 90 minutes. | | ✓ |
| **fire**shield may be substituted with **multi**shield, **impact**shield, **tru**rock and **tru**rock HD of the same or greater thickness and maintain fire performance. | | ✓ |

- Structural beams enclosed by a fire rated ceiling are given the same structural protection rating as the ceiling eg, a structural beam located above a ceiling rated to FRL 90/90/90 would have FRL of 90/–/–.
- Compensate for uneven framing by attaching a furring channel system with adjustable direct fix clips.
- Timber trusses may settle or move with changing seasons. Reduce occurrence of plasterboard cracking due to this movement by fixing plasterboard to furring channel or battens.
- The FRL and RISF will not be reduced if a fire rated ceiling is built on an angle eg, a raked ceiling.
- Consider the corrosive effect of sea spray and salt laden air on steel components, select framing and fasteners accordingly.
- The FRL will not be reduced if the insulation directly above plasterboard is omitted.
- Plasterboard installations in close proximity to roofs (ie: raked ceiling or with small ceiling cavities) require smaller control joint intervals as they are exposed to larger rates of thermal expansion.
- Excessive vibration of the ceiling (by installing ceiling services, etc) is known to cause joint cracking and joint peaking.
- Locate ceiling services so they do not cut through ceiling framing members, otherwise some degradation of the ceiling can be expected.

# Framing

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Framing members as per system table and framing table or structural design up to 600mm maximum. | ✓ | ✓ |
| For a specific project, determine the relevant wind pressure load on an internal ceiling from Section 2.3, or the QR link below. Wind pressure loads must be considered for internal ceilings to comply with *AS/NZS 1170.2 Wind Actions* and *AS/NZS 2785 Suspended Ceilings - Design and Installation*. | ✓ | ✓ |
| Stagger joins in adjacent Top Cross Rails and Furring Channels by 1200mm | ✓ | ✓ |
| Install additional framing members around openings. | ✓ | ✓ |

## Siniat Internal Wind Load Calculator

Timber battens are not permitted in fire rated ceilings.

### Table 1 Maximum Perimeter Track Anchor Spacing

| Ceiling Framing Member Spacing (mm) | Maximum Anchor Spacing (mm) |
|---|---|
| 600 | 600 |
| 450 | 600 |
| 400 | 600 |
| 300 | 450 |

1. Additional anchors 100mm maximum from track ends.
2. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

### Table 2 Maximum Span (Framing Spacing) for Plasterboard Ceilings

| Plasterboard Type | General Internal Areas | Areas of Intermittent High Humidity eg. Unventilated Bathrooms, Basements and External Ceilings |
|---|---|---|
| 10mm **masta**shield | 450mm | - |
| 13mm **masta**shield | 600mm | 450mm |
| 10mm **span**shield | 600mm | 450mm |
| 10mm **opal** | 600mm | 450mm |
| 10mm and 13mm **sound**shield | 600mm | 450mm |
| 10mm and 13mm **water**shield | 600mm | 450mm |
| 13mm and 16mm **fire**shield | 600mm | 450mm |
| 13mm and 16mm **multi**shield | 600mm | 450mm |
| 13mm and 16mm **tru**rock | 600mm | 450mm |
| 13mm **tru**rock hd | 600mm | 450mm |

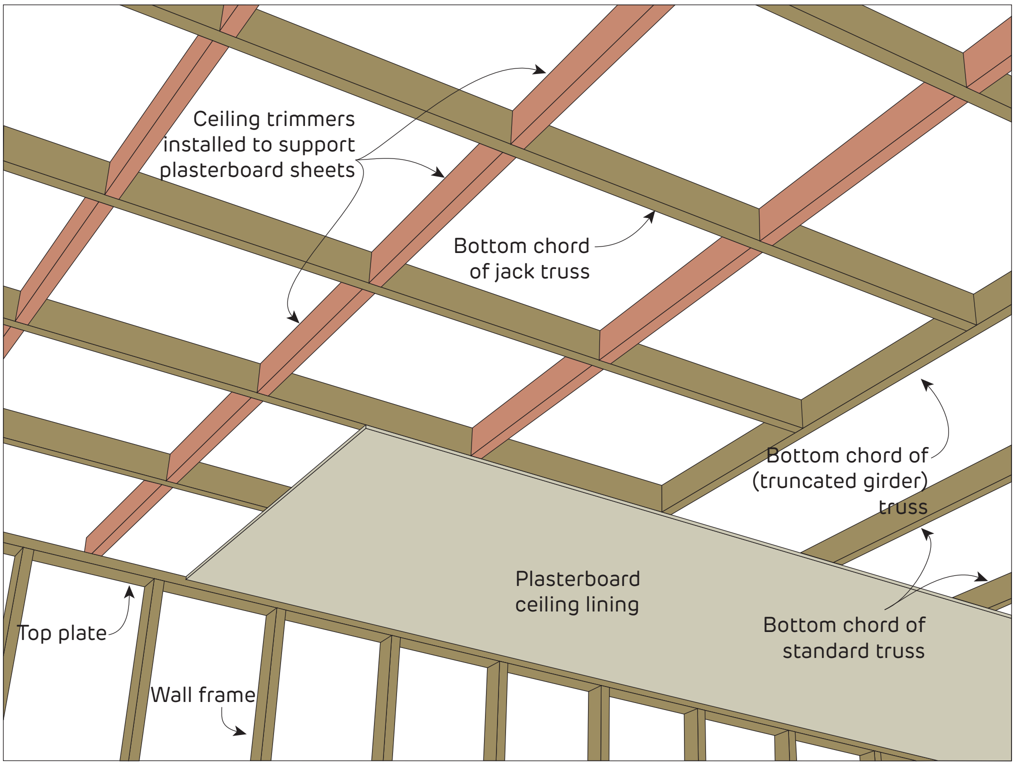



**FIGURE 1** **Trimmers to Support Ceiling Lining at Change of Truss Direction**
Perspective

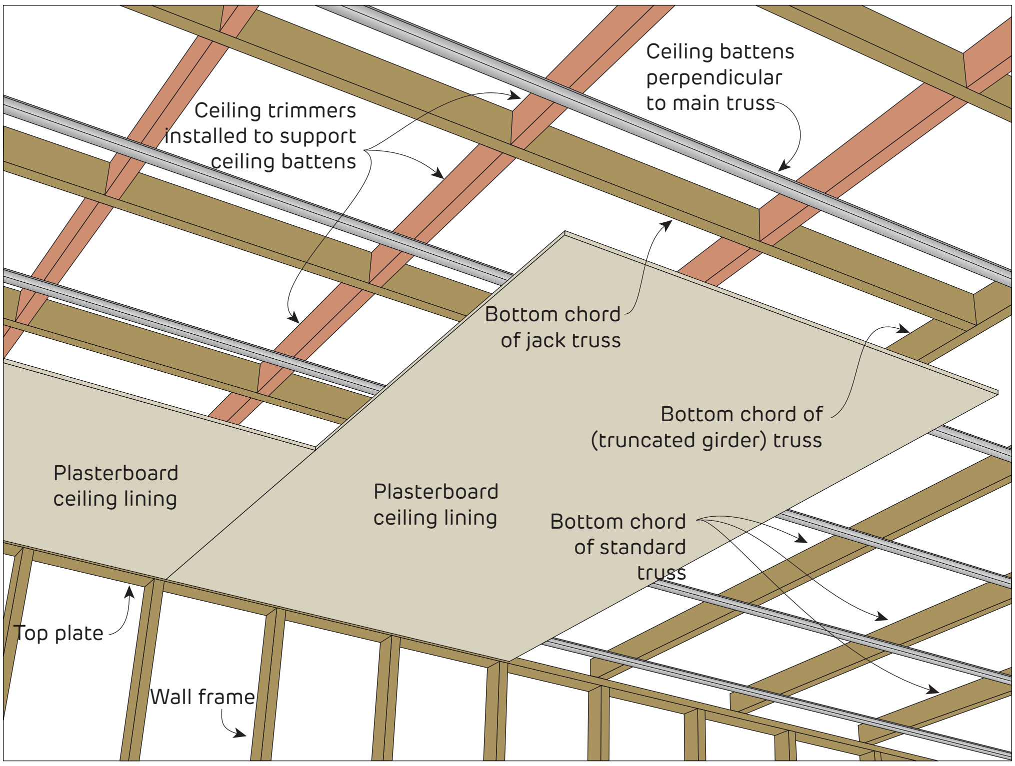



**FIGURE 2** **Trimmers to Support Ceiling Battens at Change of Truss Direction**
Perspective

## Fire Rated and Non-Fire Rated
## Internal Direct Fix Ceiling Frames

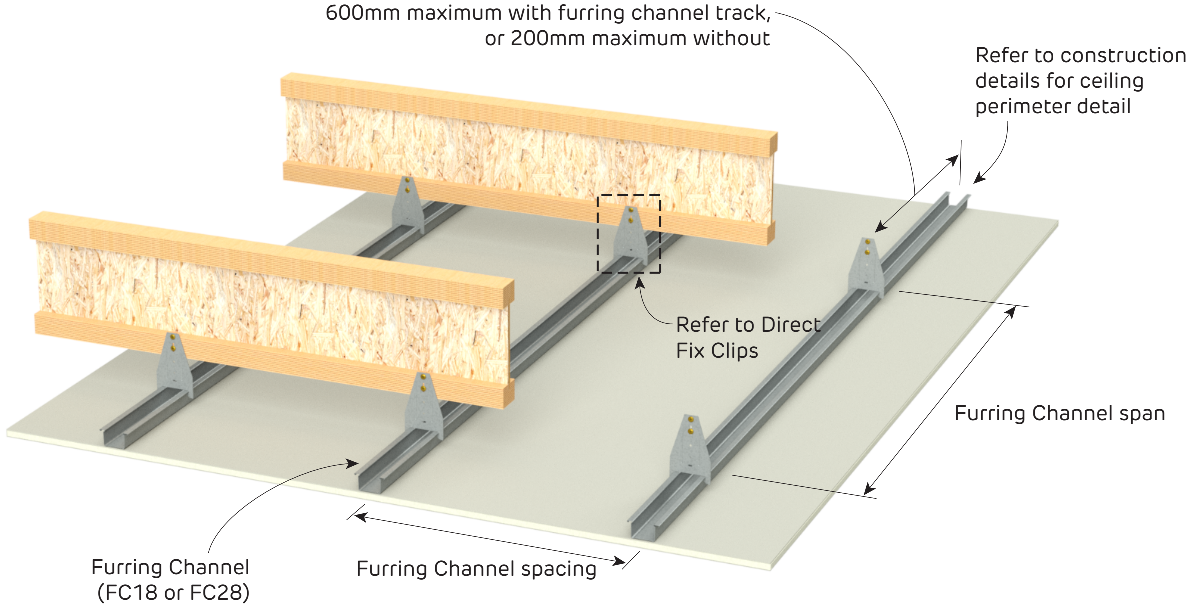



**FIGURE 3** **Direct Fix Furring Channel Ceiling Frame**
Fire rated and Non-fire rated
Perspective

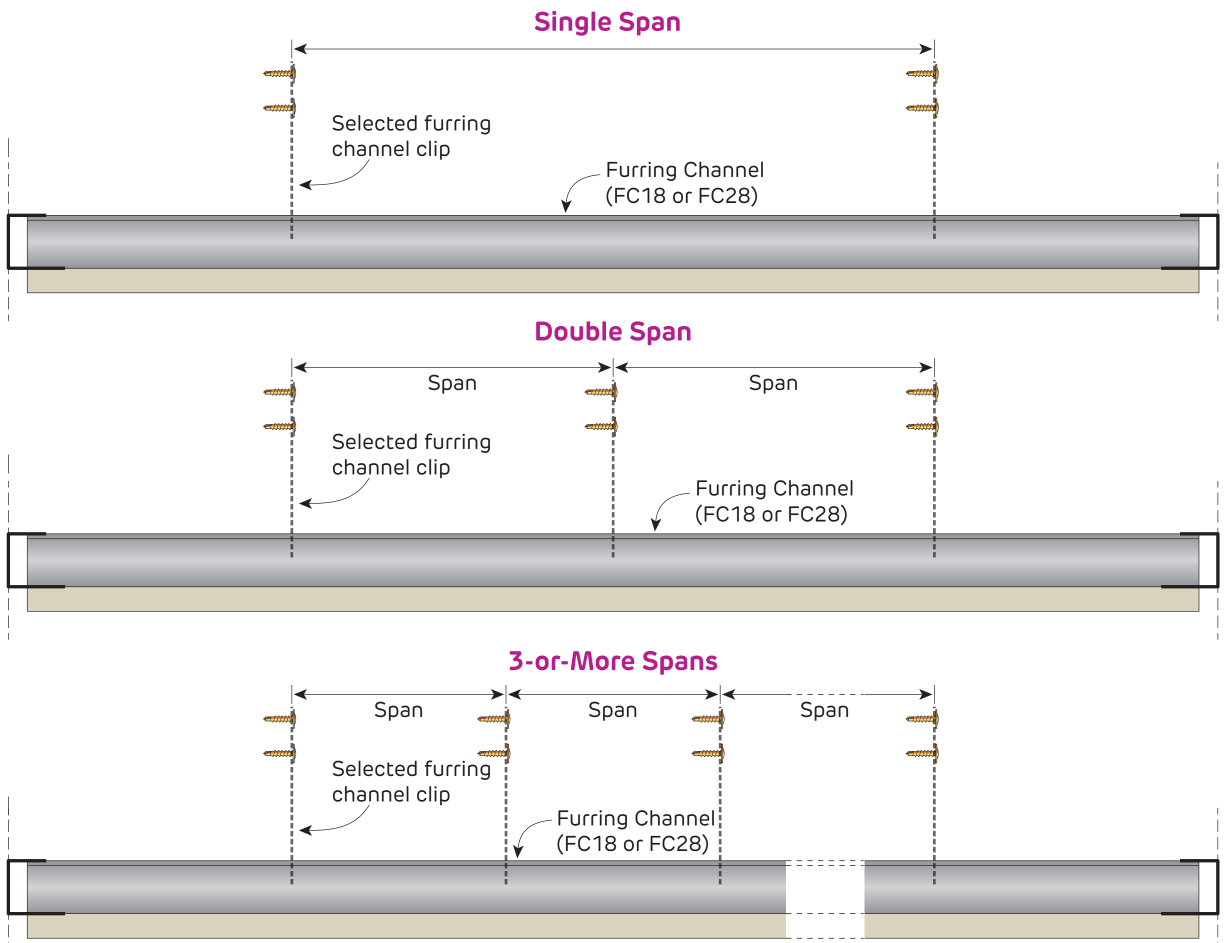
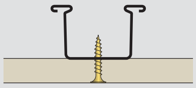



**FIGURE 4** **Single, Double and 3-or-more Spans**
Section

## Table 3 28mm Furring Channel Ceiling Span Table - REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 28mm Furring Channel (AFC28) Ceiling Span Table |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.39 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.25 |

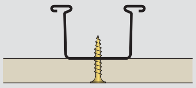
| Ceiling Lining | Furring Channel Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 10mm | 600 | 1270 | 0.21 | 1700 | 0.70 | 1570 | 0.59 |
| | 450 | 1390 | 0.17 | 1870 | 0.58 | 1720 | 0.49 |
| | 400 | 1450 | 0.16 | 1940 | 0.54 | 1790 | 0.46 |
| | 300 | 1590 | 0.13 | 2130 | 0.45 | 1970 | 0.38 |
| 2 layers of 10mm | 600 | 1180 | 0.23 | 1590 | 0.78 | 1460 | 0.65 |
| | 450 | 1300 | 0.19 | 1740 | 0.64 | 1610 | 0.54 |
| | 400 | 1350 | 0.18 | 1810 | 0.59 | 1670 | 0.50 |
| | 300 | 1480 | 0.15 | 1990 | 0.49 | 1840 | 0.42 |
| 1 layer of 13mm | 600 | 1230 | 0.22 | 1640 | 0.74 | 1520 | 0.62 |
| | 450 | 1350 | 0.18 | 1810 | 0.61 | 1670 | 0.52 |
| | 400 | 1400 | 0.17 | 1880 | 0.57 | 1730 | 0.48 |
| | 300 | 1540 | 0.14 | 2060 | 0.47 | 1900 | 0.40 |
| 2 layers of 13mm | 600 | 1120 | 0.25 | 1500 | 0.84 | 1390 | 0.71 |
| | 450 | 1230 | 0.21 | 1650 | 0.70 | 1520 | 0.59 |
| | 400 | 1280 | 0.19 | 1720 | 0.65 | 1580 | 0.54 |
| | 300 | 1410 | 0.16 | 1890 | 0.53 | 1740 | 0.45 |
| 3 layers of 13mm | 600 | 1010 | 0.27 | 1360 | 0.91 | 1250 | 0.77 |
| | 450 | 1110 | 0.22 | 1490 | 0.75 | 1370 | 0.63 |
| | 400 | 1150 | 0.21 | 1550 | 0.70 | 1430 | 0.59 |
| | 300 | 1270 | 0.17 | 1700 | 0.58 | 1570 | 0.49 |
| 1 layer of 16mm | 600 | 1220 | 0.22 | 1640 | 0.75 | 1510 | 0.63 |
| | 450 | 1340 | 0.18 | 1800 | 0.62 | 1660 | 0.52 |
| | 400 | 1390 | 0.17 | 1870 | 0.57 | 1720 | 0.48 |
| | 300 | 1530 | 0.14 | 2050 | 0.47 | 1890 | 0.40 |
| 2 layers of 16mm | 600 | 1110 | 0.25 | 1490 | 0.85 | 1370 | 0.72 |
| | 450 | 1220 | 0.21 | 1640 | 0.71 | 1510 | 0.60 |
| | 400 | 1270 | 0.19 | 1700 | 0.65 | 1570 | 0.55 |
| | 300 | 1390 | 0.16 | 1870 | 0.54 | 1730 | 0.46 |
| 3 layers of 16mm | 600 | 990 | 0.27 | 1330 | 0.92 | 1230 | 0.78 |
| | 450 | 1090 | 0.23 | 1460 | 0.76 | 1350 | 0.64 |
| | 400 | 1130 | 0.21 | 1520 | 0.70 | 1400 | 0.59 |
| | 300 | 1250 | 0.17 | 1670 | 0.58 | 1540 | 0.49 |

1. Table refers to Siniat furring channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m.
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) pressure and serviceability (Ws) deflection limits stated, intended for internal use only.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Direct Fix Ceiling* or *Ceiling Clip Capacity - Resilient Mounts* Tables.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
9. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit.
   Serviceability Limit State Load Case 2: G + Ws, with deflection limited to Span/200.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
12. For BCA Building Importance Level 4, please contact Siniat.

## Siniat Internal Wind Load Calculator

## Table 4 28mm Furring Channel Ceiling Span Table - REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

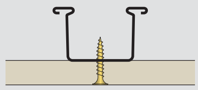
| 28mm Furring Channel (AFC28) Ceiling Span Table |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.46 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.3 |

| Ceiling Lining | Furring Channel Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 10mm | 600 | 1210 | 0.23 | 1630 | 0.76 | 1500 | 0.64 |
| | 450 | 1330 | 0.19 | 1790 | 0.63 | 1650 | 0.53 |
| | 400 | 1390 | 0.17 | 1860 | 0.58 | 1720 | 0.49 |
| | 300 | 1520 | 0.14 | 2040 | 0.48 | 1890 | 0.41 |
| 2 layers of 10mm | 600 | 1140 | 0.25 | 1530 | 0.83 | 1410 | 0.70 |
| | 450 | 1250 | 0.20 | 1680 | 0.69 | 1550 | 0.58 |
| | 400 | 1300 | 0.19 | 1750 | 0.64 | 1610 | 0.54 |
| | 300 | 1430 | 0.16 | 1920 | 0.53 | 1770 | 0.44 |
| 1 layer of 13mm | 600 | 1180 | 0.24 | 1580 | 0.79 | 1460 | 0.67 |
| | 450 | 1290 | 0.20 | 1740 | 0.66 | 1600 | 0.55 |
| | 400 | 1350 | 0.18 | 1810 | 0.61 | 1670 | 0.51 |
| | 300 | 1480 | 0.15 | 1980 | 0.50 | 1830 | 0.42 |
| 2 layers of 13mm | 600 | 1090 | 0.27 | 1460 | 0.89 | 1340 | 0.75 |
| | 450 | 1190 | 0.22 | 1600 | 0.74 | 1480 | 0.62 |
| | 400 | 1240 | 0.20 | 1670 | 0.69 | 1540 | 0.58 |
| | 300 | 1360 | 0.17 | 1830 | 0.57 | 1690 | 0.48 |
| 3 layers of 13mm | 600 | 1010 | 0.29 | 1360 | 0.98 | 1250 | 0.83 |
| | 450 | 1110 | 0.24 | 1490 | 0.81 | 1370 | 0.68 |
| | 400 | 1150 | 0.22 | 1550 | 0.75 | 1430 | 0.63 |
| | 300 | 1270 | 0.19 | 1700 | 0.62 | 1570 | 0.52 |
| 1 layer of 16mm | 600 | 1170 | 0.24 | 1570 | 0.80 | 1450 | 0.67 |
| | 450 | 1290 | 0.20 | 1730 | 0.66 | 1590 | 0.56 |
| | 400 | 1340 | 0.18 | 1800 | 0.61 | 1660 | 0.52 |
| | 300 | 1470 | 0.15 | 1970 | 0.51 | 1820 | 0.43 |
| 2 layers of 16mm | 600 | 1080 | 0.27 | 1450 | 0.91 | 1330 | 0.76 |
| | 450 | 1180 | 0.22 | 1590 | 0.75 | 1470 | 0.63 |
| | 400 | 1230 | 0.21 | 1650 | 0.69 | 1520 | 0.58 |
| | 300 | 1350 | 0.17 | 1820 | 0.57 | 1680 | 0.48 |
| 3 layers of 16mm | 600 | 990 | 0.29 | 1330 | 0.99 | 1230 | 0.83 |
| | 450 | 1090 | 0.24 | 1460 | 0.81 | 1350 | 0.69 |
| | 400 | 1130 | 0.22 | 1520 | 0.76 | 1400 | 0.64 |
| | 300 | 1250 | 0.19 | 1670 | 0.62 | 1540 | 0.53 |

1. Table refers to Siniat furring channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m.
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) pressure and serviceability (Ws) deflection limits stated, intended for internal use only.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Direct Fix Ceiling* or *Ceiling Clip Capacity - Resilient Mounts* Tables.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03\text{kPa Service Load}}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
9. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit.
   Serviceability Limit State Load Case 2: G + Ws, with deflection limited to Span/200.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
12. For BCA Building Importance Level 4, please contact Siniat.

## Table 5 28mm Furring Channel Ceiling Span Table - REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

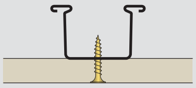
| 28mm Furring Channel (AFC28) Ceiling Span Table |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.59 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Ceiling Lining | Furring Channel Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 10mm | 600 | 1240 | 0.28 | 1530 | 0.56 | 1550 | 0.80 |
| | 450 | 1390 | 0.24 | 1770 | 0.49 | 1720 | 0.67 |
| | 400 | 1450 | 0.22 | 1880 | 0.46 | 1790 | 0.62 |
| | 300 | 1590 | 0.18 | 2130 | 0.61 | 1970 | 0.51 |
| 2 layers of 10mm | 600 | 1160 | 0.30 | 1450 | 0.93 | 1450 | 0.85 |
| | 450 | 1300 | 0.25 | 1670 | 0.80 | 1610 | 0.71 |
| | 400 | 1350 | 0.23 | 1770 | 0.76 | 1670 | 0.65 |
| | 300 | 1480 | 0.19 | 1990 | 0.64 | 1840 | 0.54 |
| 1 layer of 13mm | 600 | 1200 | 0.29 | 1500 | 0.90 | 1500 | 0.82 |
| | 450 | 1350 | 0.24 | 1730 | 0.78 | 1670 | 0.69 |
| | 400 | 1400 | 0.22 | 1830 | 0.73 | 1730 | 0.64 |
| | 300 | 1540 | 0.19 | 2060 | 0.62 | 1900 | 0.53 |
| 2 layers of 13mm | 600 | 1100 | 0.31 | 1380 | 0.98 | 1380 | 0.90 |
| | 450 | 1230 | 0.26 | 1590 | 0.85 | 1520 | 0.74 |
| | 400 | 1280 | 0.24 | 1680 | 0.80 | 1580 | 0.69 |
| | 300 | 1410 | 0.20 | 1890 | 0.68 | 1740 | 0.57 |
| 3 layers of 13mm | 600 | 1010 | 0.33 | 1280 | 1.05 | 1250 | 0.94 |
| | 450 | 1110 | 0.27 | 1480 | 0.91 | 1370 | 0.77 |
| | 400 | 1150 | 0.25 | 1550 | 0.85 | 1430 | 0.72 |
| | 300 | 1270 | 0.21 | 1700 | 0.70 | 1570 | 0.59 |
| 1 layer of 16mm | 600 | 1190 | 0.29 | 1490 | 0.90 | 1490 | 0.83 |
| | 450 | 1340 | 0.24 | 1720 | 0.78 | 1660 | 0.69 |
| | 400 | 1390 | 0.23 | 1820 | 0.74 | 1720 | 0.64 |
| | 300 | 1530 | 0.19 | 2050 | 0.63 | 1890 | 0.53 |
| 2 layers of 16mm | 600 | 1090 | 0.32 | 1360 | 0.98 | 1360 | 0.90 |
| | 450 | 1220 | 0.27 | 1570 | 0.85 | 1510 | 0.75 |
| | 400 | 1270 | 0.25 | 1670 | 0.81 | 1570 | 0.69 |
| | 300 | 1390 | 0.20 | 1870 | 0.68 | 1730 | 0.58 |
| 3 layers of 16mm | 600 | 990 | 0.33 | 1260 | 1.06 | 1230 | 0.94 |
| | 450 | 1090 | 0.28 | 1460 | 0.92 | 1350 | 0.78 |
| | 400 | 1130 | 0.25 | 1520 | 0.85 | 1400 | 0.72 |
| | 300 | 1250 | 0.21 | 1670 | 0.71 | 1540 | 0.60 |

1. Table refers to Siniat furring channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m.
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) pressure and serviceability (Ws) deflection limits stated, intended for internal use only.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Direct Fix Ceiling* or *Ceiling Clip Capacity - Resilient Mounts* Tables.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation.*
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
9. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit.
   Serviceability Limit State Load Case 2: G + Ws, with deflection limited to Span/200.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
12. For BCA Building Importance Level 4, please contact Siniat.

## Table 6 28mm Furring Channel Ceiling Span Table - REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

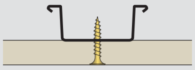
| 28mm Furring Channel (AFC28) Ceiling Span Table |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.71 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.3 |

| Ceiling Lining | Furring Channel Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 10mm | 600 | 1150 | 0.30 | 1370 | 0.63 | 1430 | 0.86 |
| | 450 | 1320 | 0.26 | 1590 | 0.54 | 1650 | 0.74 |
| | 400 | 1390 | 0.24 | 1690 | 0.51 | 1720 | 0.69 |
| | 300 | 1520 | 0.20 | 1950 | 0.44 | 1890 | 0.57 |
| 2 layers of 10mm | 600 | 1090 | 0.32 | 1360 | 0.99 | 1360 | 0.91 |
| | 450 | 1250 | 0.27 | 1560 | 0.86 | 1550 | 0.78 |
| | 400 | 1300 | 0.25 | 1660 | 0.81 | 1610 | 0.72 |
| | 300 | 1430 | 0.21 | 1910 | 0.70 | 1770 | 0.60 |
| 1 layer of 13mm | 600 | 1120 | 0.31 | 1400 | 0.97 | 1400 | 0.88 |
| | 450 | 1290 | 0.27 | 1610 | 0.83 | 1600 | 0.76 |
| | 400 | 1350 | 0.25 | 1710 | 0.79 | 1670 | 0.70 |
| | 300 | 1480 | 0.21 | 1970 | 0.68 | 1830 | 0.58 |
| 2 layers of 13mm | 600 | 1040 | 0.33 | 1300 | 1.04 | 1300 | 0.95 |
| | 450 | 1190 | 0.29 | 1490 | 0.90 | 1480 | 0.81 |
| | 400 | 1240 | 0.27 | 1580 | 0.85 | 1540 | 0.75 |
| | 300 | 1360 | 0.22 | 1830 | 0.74 | 1690 | 0.62 |
| 3 layers of 13mm | 600 | 970 | 0.35 | 1210 | 1.10 | 1220 | 1.02 |
| | 450 | 1110 | 0.30 | 1400 | 0.96 | 1370 | 0.86 |
| | 400 | 1150 | 0.28 | 1490 | 0.91 | 1430 | 0.80 |
| | 300 | 1270 | 0.23 | 1700 | 0.78 | 1570 | 0.66 |
| 1 layer of 16mm | 600 | 1110 | 0.31 | 1390 | 0.97 | 1390 | 0.88 |
| | 450 | 1280 | 0.27 | 1600 | 0.84 | 1590 | 0.76 |
| | 400 | 1340 | 0.25 | 1700 | 0.79 | 1660 | 0.71 |
| | 300 | 1470 | 0.21 | 1960 | 0.69 | 1820 | 0.58 |
| 2 layers of 16mm | 600 | 1030 | 0.33 | 1290 | 1.05 | 1290 | 0.96 |
| | 450 | 1180 | 0.29 | 1480 | 0.90 | 1470 | 0.82 |
| | 400 | 1230 | 0.27 | 1570 | 0.85 | 1520 | 0.76 |
| | 300 | 1350 | 0.22 | 1810 | 0.74 | 1680 | 0.63 |
| 3 layers of 16mm | 600 | 960 | 0.36 | 1200 | 1.12 | 1200 | 1.02 |
| | 450 | 1090 | 0.30 | 1390 | 0.97 | 1350 | 0.86 |
| | 400 | 1130 | 0.28 | 1470 | 0.91 | 1400 | 0.80 |
| | 300 | 1250 | 0.23 | 1670 | 0.78 | 1540 | 0.66 |

1. Table refers to Siniat furring channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m.
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) pressure and serviceability (Ws) deflection limits stated, intended for internal use only.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Direct Fix Ceiling* or *Ceiling Clip Capacity - Resilient Mounts* Tables.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
9. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit.
   Serviceability Limit State Load Case 2: G + Ws, with deflection limited to Span/200.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
12. For BCA Building Importance Level 4, please contact Siniat.

## Table 7 18mm Furring Channel Ceiling Span Table - REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

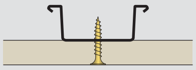
| 18mm Furring Channel (AFC18) Ceiling Span Table |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.39 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Ceiling Lining | Furring Channel Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 10mm | 600 | 860 | 0.14 | 1160 | 0.48 | 1070 | 0.40 |
| | 450 | 950 | 0.12 | 1270 | 0.39 | 1170 | 0.33 |
| | 400 | 980 | 0.11 | 1320 | 0.37 | 1220 | 0.31 |
| | 300 | 1080 | 0.09 | 1450 | 0.30 | 1340 | 0.26 |
| 2 layers of 10mm | 600 | 800 | 0.16 | 1080 | 0.53 | 990 | 0.44 |
| | 450 | 880 | 0.13 | 1180 | 0.43 | 1090 | 0.37 |
| | 400 | 920 | 0.12 | 1230 | 0.40 | 1140 | 0.34 |
| | 300 | 1010 | 0.10 | 1350 | 0.33 | 1250 | 0.28 |
| 1 layer of 13mm | 600 | 830 | 0.15 | 1120 | 0.50 | 1030 | 0.42 |
| | 450 | 910 | 0.12 | 1230 | 0.41 | 1130 | 0.35 |
| | 400 | 950 | 0.11 | 1280 | 0.38 | 1180 | 0.32 |
| | 300 | 1040 | 0.09 | 1400 | 0.32 | 1290 | 0.27 |
| 2 layers of 13mm | 600 | 760 | 0.17 | 1020 | 0.57 | 940 | 0.48 |
| | 450 | 840 | 0.14 | 1120 | 0.47 | 1030 | 0.40 |
| | 400 | 870 | 0.13 | 1170 | 0.44 | 1080 | 0.37 |
| | 300 | 950 | 0.11 | 1280 | 0.36 | 1180 | 0.30 |
| 3 layers of 13mm | 600 | 680 | 0.18 | 920 | 0.62 | 850 | 0.52 |
| | 450 | 750 | 0.15 | 1010 | 0.51 | 930 | 0.43 |
| | 400 | 780 | 0.14 | 1050 | 0.47 | 970 | 0.40 |
| | 300 | 860 | 0.12 | 1160 | 0.39 | 1070 | 0.33 |
| 1 layer of 16mm | 600 | 830 | 0.15 | 1110 | 0.50 | 1020 | 0.42 |
| | 450 | 910 | 0.12 | 1220 | 0.42 | 1120 | 0.35 |
| | 400 | 940 | 0.11 | 1270 | 0.39 | 1170 | 0.33 |
| | 300 | 1040 | 0.10 | 1390 | 0.32 | 1290 | 0.27 |
| 2 layers of 16mm | 600 | 750 | 0.17 | 1010 | 0.58 | 930 | 0.49 |
| | 450 | 830 | 0.14 | 1110 | 0.48 | 1030 | 0.40 |
| | 400 | 860 | 0.13 | 1160 | 0.44 | 1070 | 0.37 |
| | 300 | 950 | 0.11 | 1270 | 0.37 | 1170 | 0.31 |
| 3 layers of 16mm | 600 | 670 | 0.18 | 900 | 0.62 | 830 | 0.52 |
| | 450 | 740 | 0.15 | 990 | 0.51 | 920 | 0.44 |
| | 400 | 770 | 0.14 | 1030 | 0.47 | 950 | 0.40 |
| | 300 | 850 | 0.12 | 1140 | 0.39 | 1050 | 0.33 |

1. Table refers to Siniat furring channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m.
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) pressure and serviceability (Ws) deflection limits stated, intended for internal use only.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Direct Fix Ceiling* or *Ceiling Clip Capacity - Resilient Mounts* Tables.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
9. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit.
   Serviceability Limit State Load Case 2: G + Ws, with deflection limited to Span/200.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
12. For BCA Building Importance Level 4, please contact Siniat.

## Table 8 18mm Furring Channel Ceiling Span Table - REGION A

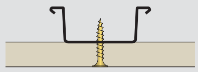
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 18mm Furring Channel (AFC18) Ceiling Span Table | |  | | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | 0.46 |
|---|---|---|---|---|---|---|---|
| | | | | | | Serviceability pressure $W_S$ (kPa) | 0.3 |
| **Ceiling Lining** | **Furring Channel Spacing (mm)** | **Single Span** | | **Double Span** | | **3-or-more Spans** | |
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 10mm | 600 | 820 | 0.15 | 1110 | 0.52 | 1020 | 0.43 |
| | 450 | 910 | 0.13 | 1220 | 0.43 | 1120 | 0.36 |
| | 400 | 940 | 0.12 | 1260 | 0.39 | 1170 | 0.33 |
| | 300 | 1030 | 0.10 | 1390 | 0.33 | 1280 | 0.28 |
| 2 layers of 10mm | 600 | 770 | 0.17 | 1040 | 0.56 | 960 | 0.48 |
| | 450 | 850 | 0.14 | 1140 | 0.46 | 1050 | 0.39 |
| | 400 | 880 | 0.13 | 1190 | 0.43 | 1100 | 0.36 |
| | 300 | 970 | 0.11 | 1310 | 0.36 | 1200 | 0.30 |
| 1 layer of 13mm | 600 | 800 | 0.16 | 1070 | 0.54 | 990 | 0.45 |
| | 450 | 880 | 0.13 | 1180 | 0.44 | 1090 | 0.38 |
| | 400 | 910 | 0.12 | 1230 | 0.41 | 1130 | 0.35 |
| | 300 | 1000 | 0.10 | 1350 | 0.34 | 1240 | 0.29 |
| 2 layers of 13mm | 600 | 740 | 0.18 | 990 | 0.61 | 910 | 0.51 |
| | 450 | 810 | 0.15 | 1090 | 0.50 | 1000 | 0.42 |
| | 400 | 840 | 0.14 | 1130 | 0.46 | 1040 | 0.39 |
| | 300 | 930 | 0.11 | 1240 | 0.38 | 1150 | 0.32 |
| 3 layers of 13mm | 600 | 680 | 0.20 | 920 | 0.66 | 850 | 0.56 |
| | 450 | 750 | 0.16 | 1010 | 0.55 | 930 | 0.46 |
| | 400 | 780 | 0.15 | 1050 | 0.51 | 970 | 0.43 |
| | 300 | 860 | 0.12 | 1160 | 0.42 | 1070 | 0.36 |
| 1 layer of 16mm | 600 | 790 | 0.16 | 1070 | 0.54 | 980 | 0.45 |
| | 450 | 870 | 0.13 | 1170 | 0.45 | 1080 | 0.38 |
| | 400 | 910 | 0.12 | 1220 | 0.41 | 1120 | 0.35 |
| | 300 | 1000 | 0.10 | 1340 | 0.34 | 1240 | 0.29 |
| 2 layers of 16mm | 600 | 730 | 0.18 | 980 | 0.61 | 900 | 0.51 |
| | 450 | 800 | 0.15 | 1080 | 0.51 | 1000 | 0.43 |
| | 400 | 840 | 0.14 | 1120 | 0.47 | 1030 | 0.39 |
| | 300 | 920 | 0.12 | 1230 | 0.39 | 1140 | 0.33 |
| 3 layers of 16mm | 600 | 670 | 0.20 | 900 | 0.67 | 830 | 0.56 |
| | 450 | 740 | 0.16 | 990 | 0.55 | 920 | 0.47 |
| | 400 | 770 | 0.15 | 1030 | 0.51 | 950 | 0.43 |
| | 300 | 850 | 0.13 | 1140 | 0.42 | 1050 | 0.36 |

1. Table refers to Siniat furring channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m.
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) pressure and serviceability (Ws) deflection limits stated, intended for internal use only.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Direct Fix Ceiling* or *Ceiling Clip Capacity - Resilient Mounts* Tables.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
9. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit.
   Serviceability Limit State Load Case 2: G + Ws, with deflection limited to Span/200.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
12. For BCA Building Importance Level 4, please contact Siniat.

## Table 9 18mm Furring Channel Ceiling Span Table - REGION B

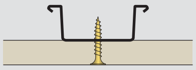
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 18mm Furring Channel (AFC18) Ceiling Span Table | |  | | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | 0.59 |
|---|---|---|---|---|---|---|---|
| | | | | | | Serviceability pressure $W_S$ (kPa) | 0.25 |
| **Ceiling Lining** | **Furring Channel Spacing (mm)** | **Single Span** | | **Double Span** | | **3-or-more Spans** | |
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 10mm | 600 | 860 | 0.19 | 1100 | 0.62 | 1070 | 0.55 |
| | 450 | 950 | 0.16 | 1270 | 0.54 | 1170 | 0.45 |
| | 400 | 980 | 0.15 | 1320 | 0.50 | 1220 | 0.42 |
| | 300 | 1080 | 0.12 | 1450 | 0.41 | 1340 | 0.35 |
| 2 layers of 10mm | 600 | 800 | 0.20 | 1030 | 0.66 | 990 | 0.58 |
| | 450 | 880 | 0.17 | 1180 | 0.57 | 1090 | 0.48 |
| | 400 | 920 | 0.16 | 1230 | 0.53 | 1140 | 0.45 |
| | 300 | 1010 | 0.13 | 1350 | 0.43 | 1250 | 0.37 |
| 1 layer of 13mm | 600 | 830 | 0.20 | 1070 | 0.64 | 1030 | 0.56 |
| | 450 | 910 | 0.16 | 1230 | 0.55 | 1130 | 0.46 |
| | 400 | 950 | 0.15 | 1280 | 0.51 | 1180 | 0.43 |
| | 300 | 1040 | 0.13 | 1400 | 0.42 | 1290 | 0.36 |
| 2 layers of 13mm | 600 | 760 | 0.22 | 980 | 0.69 | 940 | 0.61 |
| | 450 | 840 | 0.18 | 1120 | 0.60 | 1030 | 0.50 |
| | 400 | 870 | 0.16 | 1170 | 0.55 | 1080 | 0.47 |
| | 300 | 950 | 0.14 | 1280 | 0.46 | 1180 | 0.38 |
| 3 layers of 13mm | 600 | 680 | 0.22 | 910 | 0.75 | 850 | 0.64 |
| | 450 | 750 | 0.18 | 1010 | 0.62 | 930 | 0.52 |
| | 400 | 780 | 0.17 | 1050 | 0.58 | 970 | 0.49 |
| | 300 | 860 | 0.14 | 1160 | 0.48 | 1070 | 0.40 |
| 1 layer of 16mm | 600 | 830 | 0.20 | 1060 | 0.64 | 1020 | 0.56 |
| | 450 | 910 | 0.17 | 1220 | 0.55 | 1120 | 0.47 |
| | 400 | 940 | 0.15 | 1270 | 0.51 | 1170 | 0.43 |
| | 300 | 1040 | 0.13 | 1390 | 0.42 | 1290 | 0.36 |
| 2 layers of 16mm | 600 | 750 | 0.22 | 970 | 0.70 | 930 | 0.61 |
| | 450 | 830 | 0.18 | 1110 | 0.60 | 1030 | 0.51 |
| | 400 | 860 | 0.17 | 1160 | 0.56 | 1070 | 0.47 |
| | 300 | 950 | 0.14 | 1270 | 0.46 | 1170 | 0.39 |
| 3 layers of 16mm | 600 | 670 | 0.22 | 900 | 0.75 | 830 | 0.64 |
| | 450 | 740 | 0.19 | 990 | 0.62 | 920 | 0.53 |
| | 400 | 770 | 0.17 | 1030 | 0.58 | 950 | 0.49 |
| | 300 | 850 | 0.14 | 1140 | 0.48 | 1050 | 0.40 |

1. Table refers to Siniat furring channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m.
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) pressure and serviceability (Ws) deflection limits stated, intended for internal use only.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Direct Fix Ceiling* or *Ceiling Clip Capacity - Resilient Mounts* Tables.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
9. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit.
   Serviceability Limit State Load Case 2: G + Ws, with deflection limited to Span/200.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
12. For BCA Building Importance Level 4, please contact Siniat.

## Table 10 18mm Furring Channel Ceiling Span Table - REGION B

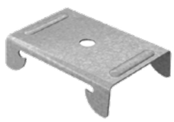
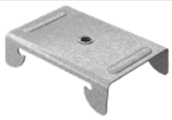
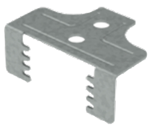
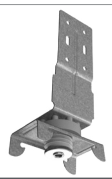
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 18mm Furring Channel (AFC18) Ceiling Span Table | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.71 |
|---|---|---|---|---|
| |  | | Serviceability pressure $W_S$ (kPa) | 0.3 |

| Ceiling Lining | Furring Channel Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 10mm | 600 | 820 | 0.21 | 1020 | 0.67 | 1020 | 0.61 |
| | 450 | 910 | 0.18 | 1180 | 0.58 | 1120 | 0.50 |
| | 400 | 940 | 0.16 | 1250 | 0.55 | 1170 | 0.47 |
| | 300 | 1030 | 0.14 | 1390 | 0.46 | 1280 | 0.38 |
| 2 layers of 10mm | 600 | 770 | 0.22 | 970 | 0.71 | 960 | 0.64 |
| | 450 | 850 | 0.19 | 1120 | 0.61 | 1050 | 0.53 |
| | 400 | 880 | 0.17 | 1190 | 0.58 | 1100 | 0.49 |
| | 300 | 970 | 0.14 | 1310 | 0.48 | 1200 | 0.40 |
| 1 layer of 13mm | 600 | 800 | 0.22 | 1000 | 0.69 | 990 | 0.62 |
| | 450 | 880 | 0.18 | 1150 | 0.59 | 1090 | 0.52 |
| | 400 | 910 | 0.17 | 1220 | 0.56 | 1130 | 0.48 |
| | 300 | 1000 | 0.14 | 1350 | 0.47 | 1240 | 0.39 |
| 2 layers of 13mm | 600 | 740 | 0.24 | 920 | 0.73 | 910 | 0.66 |
| | 450 | 810 | 0.19 | 1070 | 0.64 | 1000 | 0.55 |
| | 400 | 840 | 0.18 | 1130 | 0.60 | 1040 | 0.51 |
| | 300 | 930 | 0.15 | 1240 | 0.50 | 1150 | 0.42 |
| 3 layers of 13mm | 600 | 680 | 0.25 | 870 | 0.79 | 850 | 0.71 |
| | 450 | 750 | 0.20 | 1000 | 0.68 | 930 | 0.58 |
| | 400 | 780 | 0.19 | 1050 | 0.64 | 970 | 0.54 |
| | 300 | 860 | 0.16 | 1160 | 0.53 | 1070 | 0.45 |
| 1 layer of 16mm | 600 | 790 | 0.22 | 990 | 0.69 | 980 | 0.62 |
| | 450 | 870 | 0.18 | 1150 | 0.60 | 1080 | 0.52 |
| | 400 | 910 | 0.17 | 1210 | 0.56 | 1120 | 0.48 |
| | 300 | 1000 | 0.14 | 1340 | 0.47 | 1240 | 0.40 |
| 2 layers of 16mm | 600 | 730 | 0.24 | 920 | 0.75 | 900 | 0.67 |
| | 450 | 800 | 0.20 | 1060 | 0.65 | 1000 | 0.56 |
| | 400 | 840 | 0.18 | 1120 | 0.61 | 1030 | 0.51 |
| | 300 | 920 | 0.15 | 1230 | 0.50 | 1140 | 0.43 |
| 3 layers of 16mm | 600 | 670 | 0.25 | 860 | 0.80 | 830 | 0.70 |
| | 450 | 740 | 0.21 | 990 | 0.69 | 920 | 0.59 |
| | 400 | 770 | 0.19 | 1030 | 0.64 | 950 | 0.54 |
| | 300 | 850 | 0.16 | 1140 | 0.53 | 1050 | 0.45 |

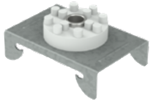
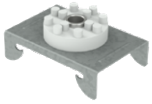
1. Table refers to Siniat furring channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m.
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) pressure and serviceability (Ws) deflection limits stated, intended for internal use only.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Direct Fix Ceiling* or *Ceiling Clip Capacity - Resilient Mounts* Tables.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
9. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit.
   Serviceability Limit State Load Case 2: G + Ws, with deflection limited to Span/200.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
12. For BCA Building Importance Level 4, please contact Siniat.

### Table 11 Ceiling Clip Capacity - Direct Fix Ceiling Frames

| Image | Name | Code | ULS Design Capacity (kN) |
|---|---|---|---|
|  | A Clip<br>80mm drop<br>(standard and wide version) | C26-80<br>CW26-80 | 1.23 |
|  | A Clip<br>180mm drop<br>(standard and wide version) | C26-180<br>CW26-180 | 1.23 |
|  | Spring Adjustable A Clip | C52 | 1.23 |
|  | Anchor Clip<br>(standard and wide versions) | C37-7H (7.5mm hole)<br>CW37-7H (7.5mm hole)<br>C37-9H (9mm hole)<br>CW37-9H (9mm hole) | 1.69 |
|  | Anchor Clip<br>M6 thread | C37-M6 | 1.69 |
|  | Grip Clip | CGRIP (6.5mm holes)<br>CGRIP-9 (9mm holes) | 1.24<br>when fixed through hole closest to teeth |
|  | Grip Clip Long | CGRIP-LONG (6.5mm holes)<br>CGRIP-LONG9 (9mm holes) | 0.69<br>when fixed through hole closest to teeth |
|  | Adjustable Mount, with 7mm holes suitable for screws | CFCAM | 0.79 |
|  | Purlin to Furring Channel Resilient Clip | C001-PC | 1.69 |

1. Clip capacities are applicable to Siniat products only.
2. Clip capacities determined in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*, Section 8.2.
3. Suitable for internal use only.

### Table 12 Ceiling Clip Capacity - Resilient Mounts

| Image | Name | Code | ULS Design Capacity (kN) |
|---|---|---|---|
|  | Resilient Mount, with 6.5mm hole suitable for screws | C001 | 1.69 |
|  | Resilient Mount, with M6 thread | C001M6 | 1.69 |
|  | Resilient Adjustable Mount, with 6.5mm hole suitable for screws | CFCRESAM | 0.79 |

1. Clip capacities are applicable to Siniat products only.
2. Clip capacities determined in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*, Section 8.2.
3. Suitable for internal use only.

## Fire Rated and Non-Fire Rated
## Internal Suspended Ceiling Frames

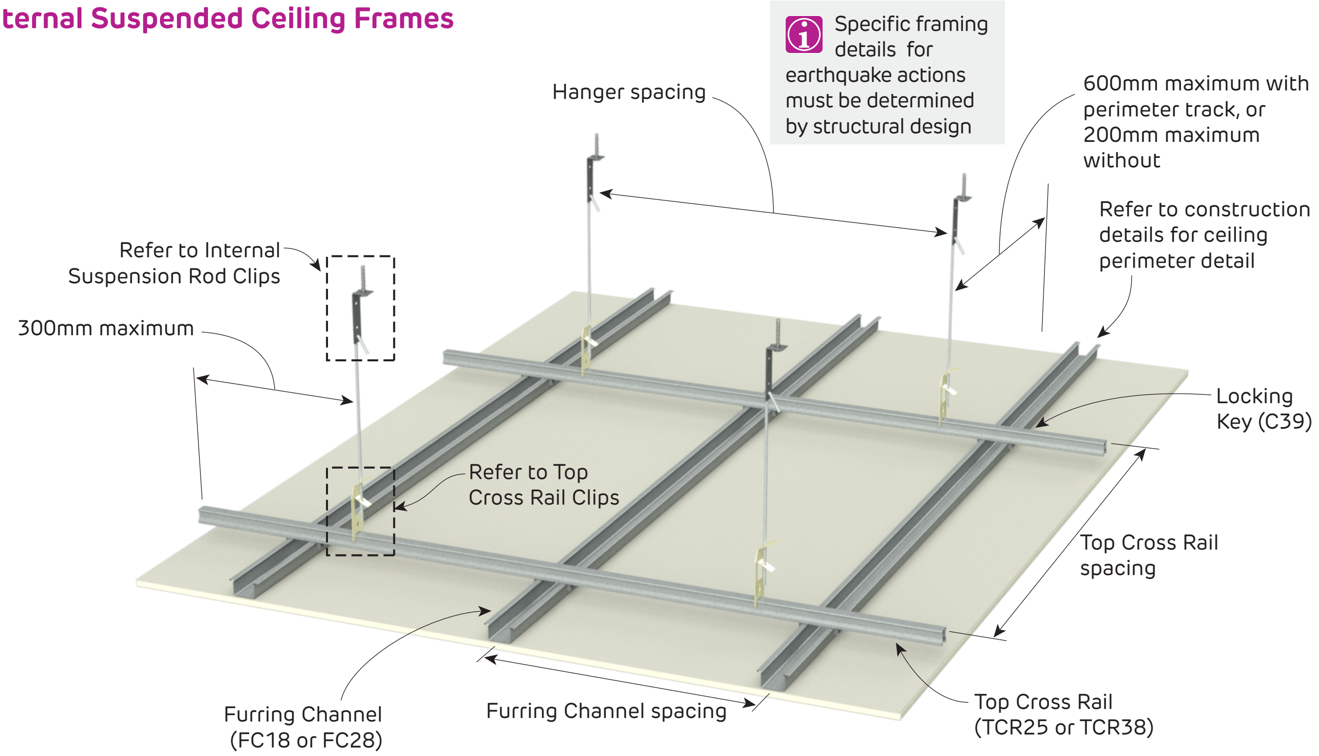



**FIGURE 5 Suspended Ceiling Frame**
Fire rated and Non-fire rated
Perspective

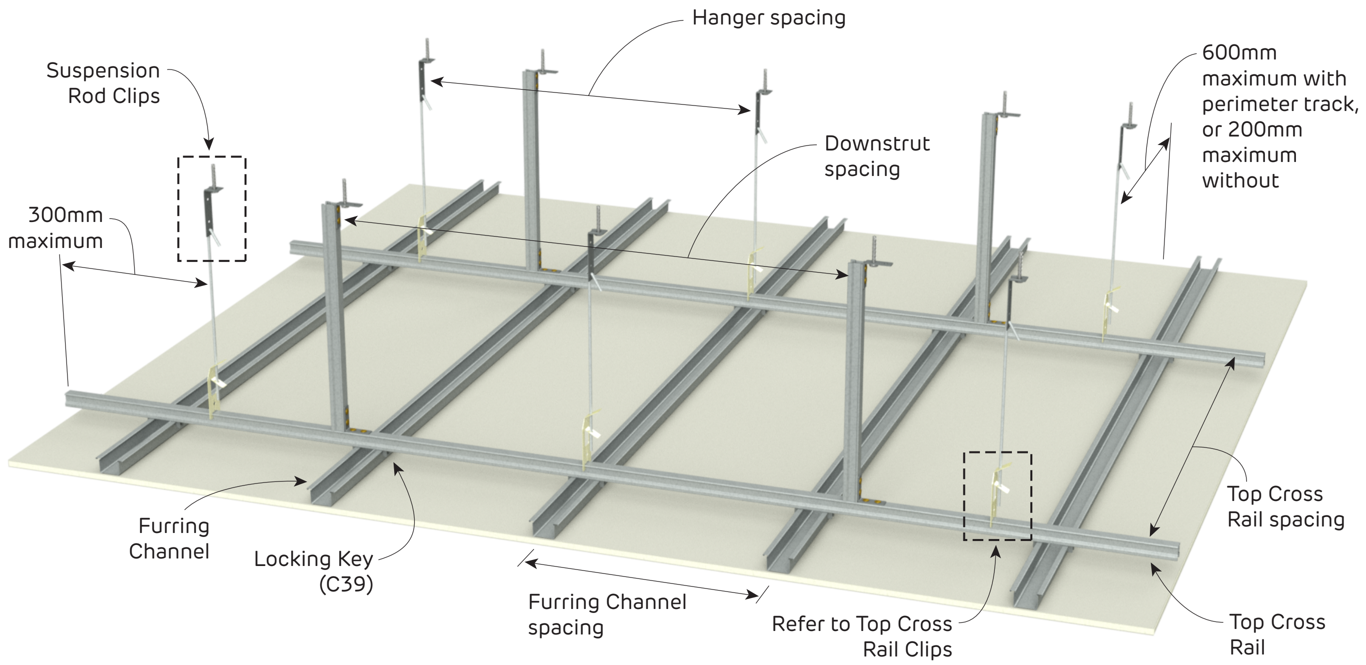



**FIGURE 6 Suspended Ceiling Frame with Downstruts**
Fire rated and Non-fire rated
Perspective

## Fire Rated and Non-Fire Rated
## Internal Suspended Ceiling Frames

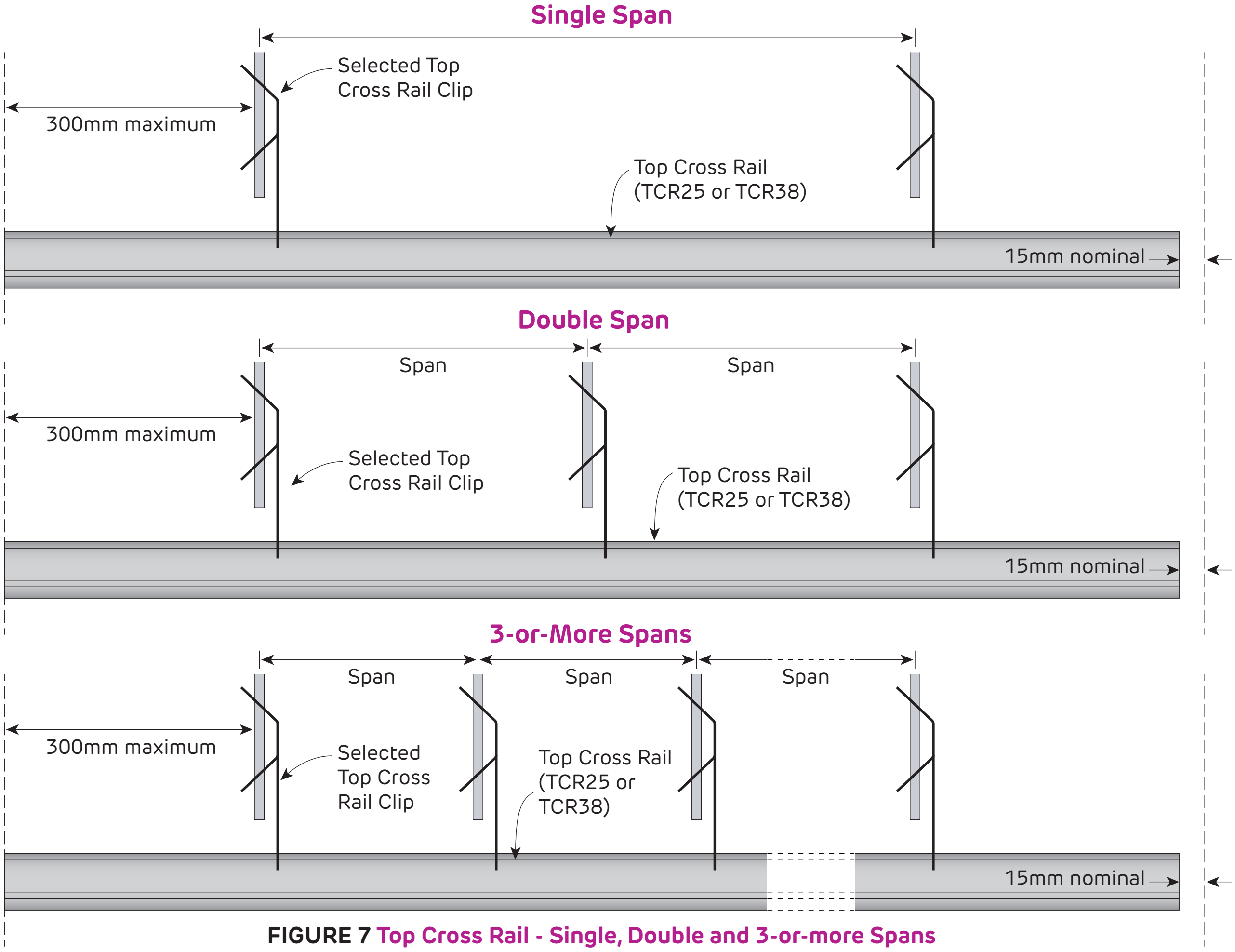



**FIGURE 7** Top Cross Rail - Single, Double and 3-or-more Spans
Section

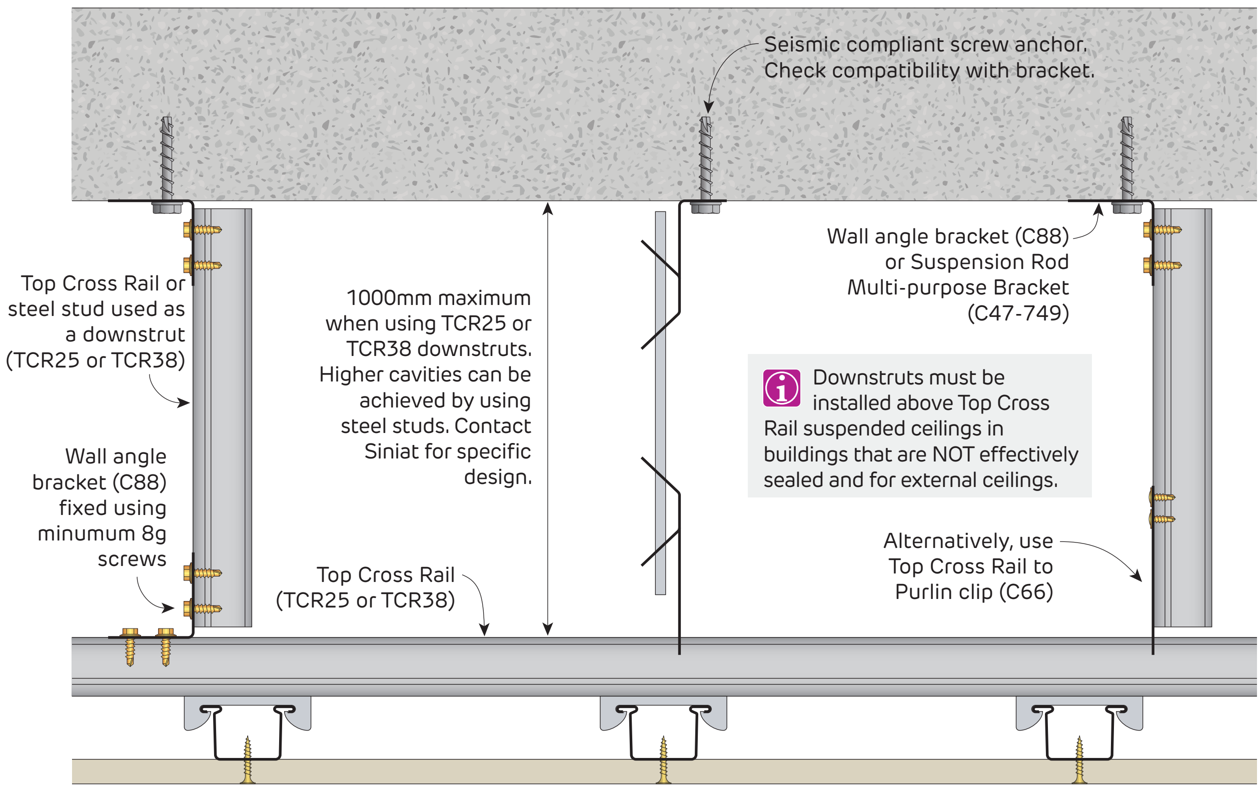



**FIGURE 8** Downstrut
Section

## Fire Rated and Non-Fire Rated
## Internal Suspended Ceiling Frames

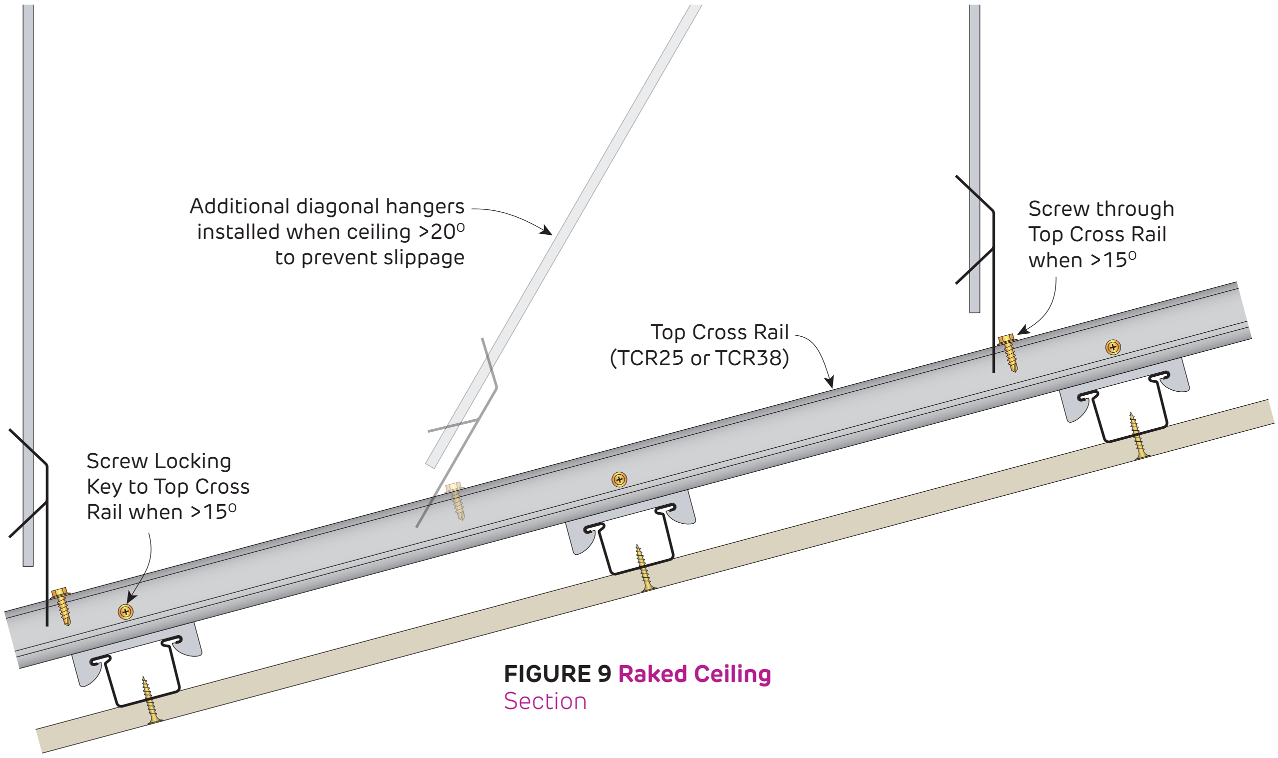



**FIGURE 9** **Raked Ceiling**
Section

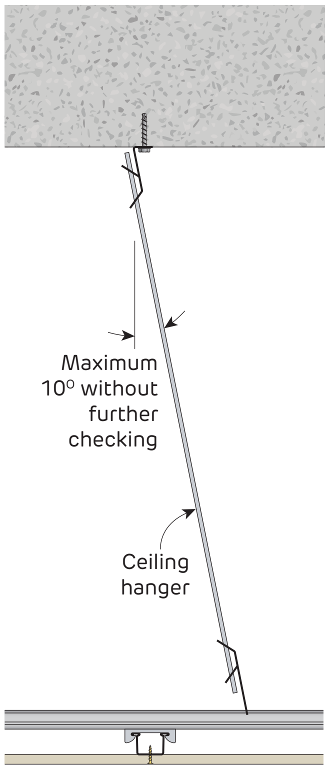
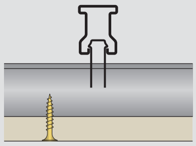



**FIGURE 10** **Angled Hanger**
Section

## Table 13 25mm Top Cross Rail Ceiling Span Table - REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 25mm Top Cross Rail Ceiling Span Table | | Up to BCA Building Importance Level 3 | | |
|---|---|---|---|---|
| |  | | Ultimate pressure $W_U$ (kPa) | 0.39 |
| | | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Ceiling Lining | Furring Channel Spacing (mm) | Top Cross Rail Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 10mm | 600 | 900 | 1220 | 0.46 | 1010 | 0.95 | 1090 | 0.94 |
| | | 1050 | 1150 | 0.51 | 940 | 1.03 | 1010 | 1.02 |
| | | 1200 | 1080 FC28 | 0.54 | 880 FC28 | 1.10 | 950 FC28 | 1.09 |
| | 450 | 900 | 1220 | 0.46 | 1080 | 1.02 | 1170 | 1.01 |
| | | 1050 | 1150 | 0.51 | 1000 | 1.10 | 1080 | 1.09 |
| | | 1200 | 1080 FC28 | 0.54 | 930 FC28 | 1.17 | 1010 FC28 | 1.16 |
| 2 layers of 10mm | 600 | 900 | 1080 | 0.48 | 930 | 1.04 | 1010 | 1.03 |
| | | 1050 | 1030 FC28 | 0.53 | 860 FC28 | 1.12 | 930 FC28 | 1.10 |
| | | 1200 | 990 FC28 | 0.59 | 810 FC28 | 1.20 | 870 FC28 | 1.18 |
| | 450 | 900 | 1080 | 0.48 | 990 | 1.11 | 1070 | 1.09 |
| | | 1050 | 1030 | 0.54 | 920 | 1.20 | 990 | 1.18 |
| | | 1200 | 980 FC28 | 0.58 | 860 FC28 | 1.28 | 930 FC28 | 1.26 |
| 1 layer of 13mm | 600 | 900 | 1180 | 0.48 | 970 | 0.99 | 1050 | 0.98 |
| | | 1050 | 1110 FC28 | 0.53 | 900 FC28 | 1.07 | 970 FC28 | 1.06 |
| | | 1200 | 1040 FC28 | 0.57 | 840 FC28 | 1.14 | 910 FC28 | 1.13 |
| | 450 | 900 | 1170 | 0.48 | 1040 | 1.07 | 1120 | 1.05 |
| | | 1050 | 1100 | 0.53 | 960 | 1.15 | 1040 | 1.14 |
| | | 1200 | 1040 FC28 | 0.57 | 900 FC28 | 1.23 | 970 FC28 | 1.21 |
| 2 layers of 13mm | 600 | 900 | 970 | 0.49 | 870 | 1.11 | 940 | 1.09 |
| | | 1050 | 920 FC28 | 0.55 | 810 FC28 | 1.20 | 870 FC28 | 1.18 |
| | | 1200 | 880 FC28 | 0.60 | 750 FC28 | 1.27 | 820 FC28 | 1.27 |
| | 450 | 900 | 970 | 0.50 | 930 | 1.19 | 1000 | 1.17 |
| | | 1050 | 920 FC28 | 0.55 | 860 FC28 | 1.28 | 930 FC28 | 1.26 |
| | | 1200 | 880 FC28 | 0.60 | 800 FC28 | 1.36 | 870 FC28 | 1.35 |
| 3 layers of 13mm | 600 | 900 | 860 FC28 | 0.52 | 800 FC28 | 1.22 | 860 FC28 | 1.20 |
| | | 1050 | 820 FC28 | 0.58 | 740 FC28 | 1.31 | 800 FC28 | 1.30 |
| | | 1200 | 780 FC28 | 0.63 | 690 FC28 | 1.40 | 740 FC28 | 1.37 |
| | 450 | 750 | 910 | 0.46 | 930 | 1.18 | 1010 | 1.18 |
| | | 900 | 860 | 0.52 | 850 | 1.30 | 920 | 1.28 |
| | | 1050 | 810 FC28 | 0.58 | 790 FC28 | 1.40 | 850 FC28 | 1.38 |
| 1 layer of 16mm | 600 | 900 | 1160 | 0.48 | 970 | 1.01 | 1040 | 0.99 |
| | | 1050 | 1100 FC28 | 0.53 | 890 FC28 | 1.08 | 970 FC28 | 1.07 |
| | | 1200 | 1030 FC28 | 0.57 | 840 FC28 | 1.16 | 900 FC28 | 1.13 |
| | 450 | 900 | 1160 | 0.48 | 1030 | 1.07 | 1110 | 1.06 |
| | | 1050 | 1100 | 0.53 | 950 | 1.15 | 1030 | 1.14 |
| | | 1200 | 1030 FC28 | 0.57 | 890 FC28 | 1.23 | 960 FC28 | 1.22 |
| 2 layers of 16mm | 600 | 900 | 950 | 0.49 | 860 | 1.12 | 930 | 1.11 |
| | | 1050 | 910 FC28 | 0.55 | 800 FC28 | 1.21 | 860 FC28 | 1.19 |
| | | 1200 | 870 FC28 | 0.60 | 750 FC28 | 1.30 | 810 FC28 | 1.28 |
| | 450 | 900 | 950 | 0.50 | 920 | 1.20 | 990 | 1.18 |
| | | 1050 | 900 FC28 | 0.55 | 850 FC28 | 1.29 | 920 FC28 | 1.28 |
| | | 1200 | 870 FC28 | 0.60 | 800 FC28 | 1.39 | 860 FC28 | 1.37 |
| 3 layers of 16mm | 600 | 900 | 840 FC28 | 0.53 | 790 FC28 | 1.24 | 850 FC28 | 1.22 |
| | | 1050 | 800 FC28 | 0.58 | 730 FC28 | 1.33 | 790 FC28 | 1.32 |
| | | 1200 | 770 FC28 | 0.64 | 680 FC28 | 1.42 | 730 FC28 | 1.39 |
| | 450 | 750 | 890 | 0.47 | 920 | 1.20 | 990 | 1.18 |
| | | 900 | 840 | 0.53 | 840 | 1.32 | 910 | 1.30 |
| | | 1050 | 800 FC28 | 0.58 | 780 FC28 | 1.43 | 840 FC28 | 1.40 |

'FC28' indicates only 28mm Furring Channel is suitable. When 'FC28' is not present in the table both 18mm and 28mm Furring Channels are suitable.

## Concrete Soffit Anchor Table

| Concrete Grade | C1 Anchor |
|---|---|
| 20 - 25 MPa | SA6x60 |
| ≥32MPa | SA6x45 |

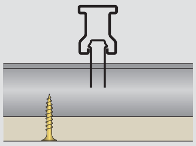
| Concrete Grade | C2 Anchor |
|---|---|
| ≥ 20 MPa | SXTB08055 |

1. No edge / spacing effects.

1. Table refers to Siniat furring channels of 0.42mm Base Metal Thickness (BMT) of grade G550 steel and Siniat top cross rails of 0.75mm BMT of grade G300, both with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) wind pressure and serviceability (Ws) deflection limits stated, intended for internal use only. Down-struts are required for uplift.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Suspended Ceiling Frames* Table.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
7. Furring Channels checked for 2-or-more spans only. If required, contact Siniat for Single Span furring channel check.
8. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
9. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
10. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$. Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
11. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit. Serviceability Limit State Load Case 2: Ws, with deflection limited to Span/200.
12. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
13. For BCA Building Importance Level 4, please contact Siniat.

## Table 14 25mm Top Cross Rail Ceiling Span Table - REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 25mm Top Cross Rail Ceiling Span Table | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.59 |
|---|---|---|---|---|
| |  | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Ceiling Lining | Furring Channel Spacing (mm) | Top Cross Rail Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 10mm | 600 | 900 | 1070 | 0.55 | 870 | 1.11 | 940 | 1.10 |
| | | 1050 | 990 | 0.59 | 800 | 1.19 | 870 | 1.19 |
| | | 1200 | 930 FC28 | 0.63 | 750 FC28 | 1.28 | 810 FC28 | 1.26 |
| | 450 | 900 | 1070 | 0.55 | 930 | 1.20 | 1000 | 1.18 |
| | | 1050 | 990 | 0.59 | 860 | 1.29 | 930 | 1.27 |
| | | 1200 | 930 FC28 | 0.64 | 800 FC28 | 1.37 | 870 FC28 | 1.36 |
| 2 layers of 10mm | 600 | 900 | 1010 | 0.59 | 810 | 1.18 | 880 | 1.17 |
| | | 1050 | 930 FC28 | 0.63 | 750 FC28 | 1.27 | 820 FC28 | 1.27 |
| | | 1200 | 870 FC28 | 0.67 | 710 FC28 | 1.37 | 760 FC28 | 1.34 |
| | 450 | 900 | 1010 | 0.59 | 870 | 1.27 | 940 | 1.25 |
| | | 1050 | 930 | 0.63 | 810 | 1.37 | 870 | 1.35 |
| | | 1200 | 870 FC28 | 0.67 | 750 FC28 | 1.45 | 810 FC28 | 1.44 |
| 1 layer of 13mm | 600 | 750 | 1130 | 0.51 | 920 | 1.04 | 1000 | 1.04 |
| | | 900 | 1040 | 0.57 | 840 | 1.14 | 910 | 1.13 |
| | | 1050 | 960 FC28 | 0.61 | 780 FC28 | 1.24 | 840 FC28 | 1.22 |
| | 450 | 900 | 1040 | 0.57 | 900 | 1.23 | 970 | 1.21 |
| | | 1050 | 960 | 0.61 | 830 | 1.32 | 900 | 1.31 |
| | | 1200 | 900 FC28 | 0.65 | 780 FC28 | 1.42 | 840 FC28 | 1.39 |
| 2 layers of 13mm | 600 | 750 | 1030 | 0.55 | 850 | 1.14 | 920 | 1.13 |
| | | 900 | 960 | 0.62 | 770 | 1.24 | 840 | 1.24 |
| | | 1050 | 890 FC28 | 0.67 | 720 FC28 | 1.35 | 770 FC28 | 1.32 |
| | 450 | 750 | 1030 | 0.55 | 900 | 1.21 | 980 | 1.21 |
| | | 900 | 950 | 0.61 | 830 | 1.34 | 890 | 1.31 |
| | | 1050 | 880 FC28 | 0.66 | 760 FC28 | 1.43 | 830 FC28 | 1.43 |
| 3 layers of 13mm | 600 | 750 | 910 | 0.56 | 790 | 1.23 | 850 | 1.21 |
| | | 900 | 860 FC28 | 0.64 | 720 FC28 | 1.34 | 780 FC28 | 1.33 |
| | | 1050 | 820 FC28 | 0.71 | 670 FC28 | 1.45 | 720 FC28 | 1.43 |
| | 450 | 750 | 910 | 0.57 | 840 | 1.31 | 910 | 1.29 |
| | | 900 | 860 | 0.64 | 770 | 1.43 | 830 | 1.41 |
| | | 1050 | 810 FC28 | 0.70 | 710 FC28 | 1.54 | 770 FC28 | 1.53 |
| 1 layer of 16mm | 600 | 750 | 1130 | 0.52 | 920 | 1.06 | 990 | 1.04 |
| | | 900 | 1030 | 0.57 | 840 | 1.15 | 910 | 1.14 |
| | | 1050 | 960 FC28 | 0.62 | 780 FC28 | 1.25 | 840 FC28 | 1.23 |
| | 450 | 900 | 1030 | 0.57 | 890 | 1.23 | 970 | 1.22 |
| | | 1050 | 960 | 0.62 | 830 | 1.33 | 890 | 1.31 |
| | | 1200 | 900 FC28 | 0.66 | 770 FC28 | 1.41 | 840 FC28 | 1.41 |
| 2 layers of 16mm | 600 | 750 | 1010 | 0.55 | 840 | 1.15 | 910 | 1.14 |
| | | 900 | 950 | 0.62 | 770 | 1.26 | 830 | 1.24 |
| | | 1050 | 880 FC28 | 0.67 | 710 FC28 | 1.36 | 770 FC28 | 1.34 |
| | 450 | 750 | 1010 | 0.55 | 900 | 1.23 | 970 | 1.22 |
| | | 900 | 950 | 0.62 | 820 | 1.35 | 880 | 1.32 |
| | | 1050 | 880 FC28 | 0.67 | 760 FC28 | 1.45 | 820 FC28 | 1.44 |
| 3 layers of 16mm | 600 | 750 | 900 | 0.57 | 780 | 1.24 | 840 | 1.22 |
| | | 900 | 840 FC28 | 0.64 | 710 FC28 | 1.35 | 770 FC28 | 1.34 |
| | | 1050 | 800 FC28 | 0.71 | 660 FC28 | 1.46 | 710 FC28 | 1.44 |
| | 450 | 750 | 890 | 0.57 | 830 | 1.32 | 900 | 1.31 |
| | | 900 | 840 | 0.64 | 760 | 1.45 | 820 | 1.43 |
| | | 1050 | 800 FC28 | 0.71 | 700 FC28 | 1.55 | 760 FC28 | 1.54 |

'FC28' indicates only 28mm Furring Channel is suitable. When 'FC28' is not present in the table both 18mm and 28mm Furring Channels are suitable.

## Concrete Soffit Anchor Table

| Concrete Grade | C1 Anchor |
|---|---|
| 20 - 25 MPa | SA6x60 |
| ≥32MPa | SA6x45 |

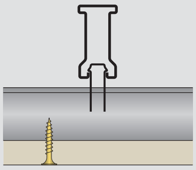
| Concrete Grade | C2 Anchor |
|---|---|
| ≥ 20 MPa | SXTB08055 |

1. No edge / spacing effects.

1. Table refers to Siniat furring channels of 0.42mm Base Metal Thickness (BMT) of grade G550 steel and Siniat top cross rails of 0.75mm BMT of grade G300, both with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) wind pressure and serviceability (Ws) deflection limits stated, intended for internal use only. Down-struts are required for uplift.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Suspended Ceiling Frames* Table.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
7. Furring Channels checked for 2-or-more spans only. If required, contact Siniat for Single Span furring channel check.
8. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation.*
9. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
10. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$. Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
11. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit. Serviceability Limit State Load Case 2: Ws, with deflection limited to Span/200.
12. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
13. For BCA Building Importance Level 4, please contact Siniat.

## Table 15 38mm Top Cross Rail Ceiling Span Table - REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.



| 38mm Top Cross Rail Ceiling Span Table | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.39 |
|---|---|---|---|
| | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Ceiling Lining | Furring Channel Spacing (mm) | Top Cross Rail Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 10mm | 600 | 900 | 1590 | 0.60 | 1200 | 1.14 | 1290 | 1.12 |
| | | 1050 | 1500 | 0.66 | 1110 | 1.22 | 1200 | 1.21 |
| | | 1200 | 1420 FC28 | 0.71 | 1040 FC28 | 1.31 | 1120 FC28 | 1.29 |
| | 450 | 900 | 1590 | 0.61 | 1290 | 1.23 | 1390 | 1.21 |
| | | 1050 | 1490 | 0.66 | 1190 | 1.32 | 1290 | 1.31 |
| | | 1200 | 1420 FC28 | 0.72 | 1120 FC28 | 1.42 | 1210 FC28 | 1.40 |
| 2 layers of 10mm | 600 | 900 | 1490 | 0.67 | 1100 | 1.23 | 1190 | 1.22 |
| | | 1050 | 1400 FC28 | 0.73 | 1020 FC28 | 1.33 | 1100 FC28 | 1.31 |
| | | 1200 | 1320 FC28 | 0.78 | 950 FC28 | 1.41 | 1030 FC28 | 1.40 |
| | 450 | 900 | 1490 | 0.67 | 1180 | 1.32 | 1280 | 1.31 |
| | | 1050 | 1400 | 0.73 | 1100 | 1.44 | 1190 | 1.42 |
| | | 1200 | 1320 FC28 | 0.79 | 1030 FC28 | 1.54 | 1110 FC28 | 1.51 |
| 1 layer of 13mm | 600 | 900 | 1540 | 0.63 | 1150 | 1.18 | 1240 | 1.16 |
| | | 1050 | 1450 FC28 | 0.69 | 1060 FC28 | 1.27 | 1150 FC28 | 1.26 |
| | | 1200 | 1370 FC28 | 0.75 | 1000 FC28 | 1.36 | 1080 FC28 | 1.35 |
| | 450 | 900 | 1540 | 0.63 | 1240 | 1.28 | 1340 | 1.26 |
| | | 1050 | 1450 | 0.70 | 1140 | 1.37 | 1240 | 1.36 |
| | | 1200 | 1370 FC28 | 0.75 | 1070 FC28 | 1.47 | 1160 FC28 | 1.45 |
| 2 layers of 13mm | 600 | 900 | 1380 | 0.70 | 1030 | 1.31 | 1110 | 1.29 |
| | | 1050 | 1310 FC28 | 0.78 | 950 FC28 | 1.41 | 1030 FC28 | 1.40 |
| | | 1200 | 1250 FC28 | 0.85 | 890 FC28 | 1.51 | 960 FC28 | 1.49 |
| | 450 | 900 | 1370 | 0.70 | 1110 | 1.42 | 1200 | 1.40 |
| | | 1050 | 1310 FC28 | 0.78 | 1030 FC28 | 1.54 | 1110 FC28 | 1.51 |
| | | 1200 | 1250 FC28 | 0.85 | 960 FC28 | 1.63 | 1040 FC28 | 1.62 |
| 3 layers of 13mm | 600 | 900 | 1220 FC28 | 0.74 | 940 FC28 | 1.43 | 1020 FC28 | 1.42 |
| | | 1050 | 1160 FC28 | 0.82 | 870 FC28 | 1.55 | 940 FC28 | 1.53 |
| | | 1200 | 1110 FC28 | 0.90 | 810 FC28 | 1.64 | 880 FC28 | 1.63 |
| | 450 | 750 | 1290 | 0.66 | 1110 | 1.42 | 1200 | 1.40 |
| | | 900 | 1220 | 0.75 | 1010 | 1.54 | 1100 | 1.54 |
| | | 1050 | 1160 FC28 | 0.83 | 940 FC28 | 1.67 | 1010 FC28 | 1.65 |
| 1 layer of 16mm | 600 | 900 | 1530 | 0.64 | 1140 | 1.19 | 1230 | 1.17 |
| | | 1050 | 1440 FC28 | 0.70 | 1060 FC28 | 1.28 | 1140 FC28 | 1.26 |
| | | 1200 | 1360 FC28 | 0.75 | 990 FC28 | 1.37 | 1070 FC28 | 1.35 |
| | 450 | 900 | 1530 | 0.64 | 1230 | 1.29 | 1330 | 1.27 |
| | | 1050 | 1440 | 0.70 | 1140 | 1.39 | 1230 | 1.37 |
| | | 1200 | 1360 FC28 | 0.76 | 1060 FC28 | 1.47 | 1150 FC28 | 1.46 |
| 2 layers of 16mm | 600 | 900 | 1360 | 0.71 | 1020 | 1.33 | 1100 | 1.31 |
| | | 1050 | 1290 FC28 | 0.78 | 940 FC28 | 1.43 | 1020 FC28 | 1.42 |
| | | 1200 | 1230 FC28 | 0.85 | 880 FC28 | 1.53 | 950 FC28 | 1.51 |
| | 450 | 900 | 1350 | 0.71 | 1100 | 1.44 | 1180 | 1.41 |
| | | 1050 | 1290 FC28 | 0.79 | 1020 FC28 | 1.55 | 1100 FC28 | 1.53 |
| | | 1200 | 1230 FC28 | 0.86 | 950 FC28 | 1.65 | 1030 FC28 | 1.64 |
| 3 layers of 16mm | 600 | 900 | 1200 FC28 | 0.75 | 930 FC28 | 1.46 | 1000 FC28 | 1.43 |
| | | 1050 | 1140 FC28 | 0.83 | 860 FC28 | 1.57 | 930 FC28 | 1.55 |
| | | 1200 | 1090 FC28 | 0.91 | 800 FC28 | 1.67 | 860 FC28 | 1.64 |
| | 450 | 750 | 1270 | 0.67 | 1090 | 1.43 | 1180 | 1.42 |
| | | 900 | 1200 | 0.75 | 1000 | 1.57 | 1080 | 1.55 |
| | | 1050 | 1140 FC28 | 0.83 | 930 FC28 | 1.70 | 1000 FC28 | 1.67 |

'FC28' indicates only 28mm Furring Channel is suitable. When 'FC28' is not present in the table both 18mm and 28mm Furring Channels are suitable.

### Concrete Soffit Anchor Table

| Concrete Grade | C1 Anchor |
|---|---|
| 20 - 25 MPa | SA6x60 |
| ≥32MPa | SA6x45 |

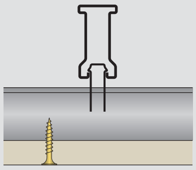
| Concrete Grade | C2 Anchor |
|---|---|
| ≥ 20 MPa | SXTB08055 |

1. No edge / spacing effects.

1. Table refers to Siniat furring channels of 0.42mm Base Metal Thickness (BMT) of grade G550 steel and Siniat top cross rails of 0.75mm BMT of grade G300, both with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) wind pressure and serviceability (Ws) deflection limits stated, intended for internal use only. Down-struts are required for uplift.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Suspended Ceiling Frames* Table.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
7. Furring Channels checked for 2-or-more spans only. If required, contact Siniat for Single Span furring channel check.
8. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
9. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
10. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$. Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
11. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit. Serviceability Limit State Load Case 2: Ws, with deflection limited to Span/200.
12. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
13. For BCA Building Importance Level 4, please contact Siniat.

## Table 16 38mm Top Cross Rail Ceiling Span Table - REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 38mm Top Cross Rail Ceiling Span Table |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.46 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.3 |

| Ceiling Lining | Furring Channel Spacing (mm) | Top Cross Rail Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 10mm | 600 | 900 | 1520 | 0.65 | 1130 | 1.20 | 1220 | 1.19 |
| | | 1050 | 1430 FC28 | 0.71 | 1040 FC28 | 1.29 | 1130 FC28 | 1.28 |
| | | 1200 | 1350 FC28 | 0.76 | 980 FC28 | 1.39 | 1060 FC28 | 1.37 |
| | 450 | 1050 | 1420 | 0.71 | 1120 | 1.40 | 1210 | 1.38 |
| | | 1200 | 1350 FC28 | 0.77 | 1050 FC28 | 1.49 | 1140 FC28 | 1.48 |
| | | 1350 | 1280 FC28 | 0.82 | 990 FC28 | 1.58 | 1070 FC28 | 1.56 |
| 2 layers of 10mm | 600 | 900 | 1430 | 0.71 | 1050 | 1.30 | 1130 | 1.28 |
| | | 1050 | 1340 FC28 | 0.77 | 970 FC28 | 1.40 | 1050 FC28 | 1.38 |
| | | 1200 | 1270 FC28 | 0.83 | 910 FC28 | 1.49 | 980 FC28 | 1.47 |
| | 450 | 900 | 1430 | 0.71 | 1130 | 1.40 | 1220 | 1.38 |
| | | 1050 | 1340 | 0.77 | 1040 | 1.50 | 1130 | 1.49 |
| | | 1200 | 1270 FC28 | 0.84 | 980 FC28 | 1.62 | 1060 FC28 | 1.60 |
| 1 layer of 13mm | 600 | 900 | 1470 | 0.67 | 1090 | 1.25 | 1180 | 1.24 |
| | | 1050 | 1390 FC28 | 0.74 | 1010 FC28 | 1.35 | 1090 FC28 | 1.33 |
| | | 1200 | 1310 FC28 | 0.80 | 940 FC28 | 1.43 | 1020 FC28 | 1.42 |
| | 450 | 900 | 1470 | 0.68 | 1170 | 1.34 | 1260 | 1.32 |
| | | 1050 | 1380 | 0.74 | 1080 | 1.44 | 1170 | 1.43 |
| | | 1200 | 1310 FC28 | 0.80 | 1010 FC28 | 1.54 | 1100 FC28 | 1.54 |
| 2 layers of 13mm | 600 | 900 | 1360 | 0.76 | 990 | 1.38 | 1060 | 1.35 |
| | | 1050 | 1280 FC28 | 0.83 | 910 FC28 | 1.48 | 980 FC28 | 1.45 |
| | | 1200 | 1200 FC28 | 0.89 | 850 FC28 | 1.58 | 920 FC28 | 1.56 |
| | 450 | 900 | 1360 | 0.76 | 1060 | 1.48 | 1150 | 1.47 |
| | | 1050 | 1270 FC28 | 0.83 | 980 FC28 | 1.60 | 1060 FC28 | 1.58 |
| | | 1200 | 1200 FC28 | 0.89 | 920 FC28 | 1.71 | 990 FC28 | 1.68 |
| 3 layers of 13mm | 600 | 900 | 1220 FC28 | 0.80 | 910 FC28 | 1.49 | 980 FC28 | 1.47 |
| | | 1050 | 1160 FC28 | 0.89 | 840 FC28 | 1.61 | 900 FC28 | 1.58 |
| | | 1200 | 1110 FC28 | 0.97 | 780 FC28 | 1.70 | 840 FC28 | 1.68 |
| | 450 | 750 | 1290 | 0.71 | 1070 | 1.47 | 1160 | 1.46 |
| | | 900 | 1220 | 0.80 | 980 | 1.61 | 1060 | 1.60 |
| | | 1050 | 1160 FC28 | 0.89 | 900 FC28 | 1.73 | 980 FC28 | 1.72 |
| 1 layer of 16mm | 600 | 900 | 1470 | 0.68 | 1080 | 1.25 | 1170 | 1.24 |
| | | 1050 | 1380 FC28 | 0.74 | 1000 FC28 | 1.35 | 1080 FC28 | 1.33 |
| | | 1200 | 1300 FC28 | 0.80 | 940 FC28 | 1.45 | 1010 FC28 | 1.42 |
| | 450 | 900 | 1460 | 0.68 | 1160 | 1.35 | 1260 | 1.34 |
| | | 1050 | 1380 | 0.75 | 1080 | 1.46 | 1160 | 1.44 |
| | | 1200 | 1300 FC28 | 0.80 | 1010 FC28 | 1.56 | 1090 FC28 | 1.54 |
| 2 layers of 16mm | 600 | 900 | 1350 | 0.77 | 980 | 1.39 | 1050 | 1.37 |
| | | 1050 | 1260 FC28 | 0.83 | 900 FC28 | 1.49 | 970 FC28 | 1.47 |
| | | 1200 | 1190 FC28 | 0.90 | 840 FC28 | 1.59 | 910 FC28 | 1.57 |
| | 450 | 900 | 1350 | 0.77 | 1050 | 1.50 | 1130 | 1.47 |
| | | 1050 | 1260 FC28 | 0.84 | 970 FC28 | 1.61 | 1050 FC28 | 1.60 |
| | | 1200 | 1190 FC28 | 0.90 | 910 FC28 | 1.73 | 980 FC28 | 1.70 |
| 3 layers of 16mm | 600 | 900 | 1200 FC28 | 0.81 | 890 FC28 | 1.50 | 960 FC28 | 1.48 |
| | | 1050 | 1140 FC28 | 0.90 | 830 FC28 | 1.63 | 890 FC28 | 1.60 |
| | | 1200 | 1090 FC28 | 0.98 | 770 FC28 | 1.73 | 830 FC28 | 1.70 |
| | 450 | 750 | 1270 | 0.72 | 1060 | 1.50 | 1140 | 1.47 |
| | | 900 | 1200 | 0.81 | 960 | 1.62 | 1040 | 1.61 |
| | | 1050 | 1140 FC28 | 0.90 | 890 FC28 | 1.75 | 970 FC28 | 1.75 |

'FC28' indicates only 28mm Furring Channel is suitable. When 'FC28' is not present in the table both 18mm and 28mm Furring Channels are suitable.

## Concrete Soffit Anchor Table

| Concrete Grade | C1 Anchor |
|---|---|
| 20 - 25 MPa | SA6x60 |
| ≥32MPa | SA6x45 |

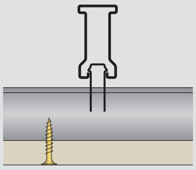
| Concrete Grade | C2 Anchor |
|---|---|
| ≥ 20 MPa | SXTB08055 |

1. No edge / spacing effects.

1. Table refers to Siniat furring channels of 0.42mm Base Metal Thickness (BMT) of grade G550 steel and Siniat top cross rails of 0.75mm BMT of grade G300, both with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) wind pressure and serviceability (Ws) deflection limits stated, intended for internal use only. Down-struts are required for uplift.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Suspended Ceiling Frames* Table.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m$^2$ insulation weight with an additional 3 kg/m$^2$ service load. No further allowance for additional point loads or live loads.
6. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
7. Furring Channels checked for 2-or-more spans only. If required, contact Siniat for Single Span furring channel check.
8. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation.*
9. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
10. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$. Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
11. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit. Serviceability Limit State Load Case 2: Ws, with deflection limited to Span/200.
12. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
13. For BCA Building Importance Level 4, please contact Siniat.

## Table 17 38mm Top Cross Rail Ceiling Span Table - REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 38mm Top Cross Rail Ceiling Span Table | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.59 |
|---|---|---|---|---|
| |  | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Ceiling Lining | Furring Channel Spacing (mm) | Top Cross Rail Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 10mm | 600 | 900 | 1410 | 0.72 | 1030 | 1.32 | 1110 | 1.30 |
| | | 1050 | 1320 | 0.79 | 950 | 1.42 | 1030 | 1.41 |
| | | 1200 | 1250 FC28 | 0.85 | 890 FC28 | 1.52 | 960 FC28 | 1.50 |
| | 450 | 1050 | 1320 | 0.79 | 1020 | 1.53 | 1110 | 1.52 |
| | | 1200 | 1250 FC28 | 0.86 | 960 FC28 | 1.65 | 1030 FC28 | 1.61 |
| | | 1350 | 1180 FC28 | 0.91 | 900 FC28 | 1.73 | 980 FC28 | 1.73 |
| 2 layers of 10mm | 600 | 900 | 1340 | 0.78 | 960 | 1.40 | 1040 | 1.38 |
| | | 1050 | 1250 FC28 | 0.85 | 890 FC28 | 1.51 | 960 FC28 | 1.49 |
| | | 1200 | 1180 FC28 | 0.91 | 830 FC28 | 1.61 | 900 FC28 | 1.59 |
| | 450 | 900 | 1330 | 0.78 | 1040 | 1.52 | 1120 | 1.49 |
| | | 1050 | 1250 | 0.85 | 960 | 1.63 | 1040 | 1.62 |
| | | 1200 | 1180 FC28 | 0.92 | 900 FC28 | 1.75 | 970 FC28 | 1.72 |
| 1 layer of 13mm | 600 | 900 | 1370 | 0.75 | 1000 | 1.36 | 1080 | 1.35 |
| | | 1050 | 1290 FC28 | 0.82 | 920 FC28 | 1.46 | 990 FC28 | 1.44 |
| | | 1200 | 1220 FC28 | 0.89 | 860 FC28 | 1.56 | 930 FC28 | 1.54 |
| | 450 | 900 | 1370 | 0.75 | 1070 | 1.46 | 1160 | 1.45 |
| | | 1050 | 1290 | 0.82 | 990 | 1.58 | 1070 | 1.56 |
| | | 1200 | 1210 FC28 | 0.88 | 930 FC28 | 1.69 | 1000 FC28 | 1.66 |
| 2 layers of 13mm | 600 | 900 | 1280 | 0.83 | 910 | 1.47 | 990 | 1.46 |
| | | 1050 | 1200 FC28 | 0.90 | 840 FC28 | 1.58 | 910 FC28 | 1.56 |
| | | 1200 | 1130 FC28 | 0.97 | 790 FC28 | 1.70 | 850 FC28 | 1.67 |
| | 450 | 900 | 1280 | 0.83 | 990 | 1.60 | 1070 | 1.58 |
| | | 1050 | 1200 FC28 | 0.90 | 910 FC28 | 1.71 | 990 FC28 | 1.71 |
| | | 1200 | 1130 FC28 | 0.97 | 810 FC28 | 1.74 | 890 FC28 | 1.75 |
| 3 layers of 13mm | 600 | 750 | 1290 | 0.80 | 930 | 1.45 | 1010 | 1.44 |
| | | 900 | 1200 FC28 | 0.89 | 850 FC28 | 1.58 | 920 FC28 | 1.57 |
| | | 1050 | 1120 FC28 | 0.97 | 780 FC28 | 1.69 | 850 FC28 | 1.69 |
| | 450 | 750 | 1290 | 0.80 | 1000 | 1.56 | 1090 | 1.55 |
| | | 900 | 1200 | 0.90 | 920 | 1.72 | 990 | 1.69 |
| | | 1050 | 1120 FC28 | 0.97 | 800 FC28 | 1.74 | 880 FC28 | 1.75 |
| 1 layer of 16mm | 600 | 900 | 1370 | 0.76 | 990 | 1.36 | 1070 | 1.35 |
| | | 1050 | 1280 FC28 | 0.82 | 920 FC28 | 1.48 | 990 FC28 | 1.45 |
| | | 1200 | 1210 FC28 | 0.89 | 860 FC28 | 1.58 | 920 FC28 | 1.54 |
| | 450 | 900 | 1360 | 0.75 | 1070 | 1.48 | 1150 | 1.45 |
| | | 1050 | 1280 | 0.82 | 990 | 1.59 | 1070 | 1.58 |
| | | 1200 | 1210 FC28 | 0.89 | 920 FC28 | 1.69 | 1000 FC28 | 1.68 |
| 2 layers of 16mm | 600 | 900 | 1270 | 0.83 | 910 | 1.49 | 980 | 1.47 |
| | | 1050 | 1190 FC28 | 0.91 | 840 FC28 | 1.61 | 900 FC28 | 1.57 |
| | | 1200 | 1120 FC28 | 0.98 | 780 FC28 | 1.70 | 840 FC28 | 1.68 |
| | 450 | 900 | 1270 | 0.84 | 980 | 1.61 | 1060 | 1.60 |
| | | 1050 | 1190 FC28 | 0.91 | 900 FC28 | 1.73 | 980 FC28 | 1.72 |
| | | 1200 | 1120 FC28 | 0.98 | 800 FC28 | 1.75 | 870 FC28 | 1.74 |
| 3 layers of 16mm | 600 | 750 | 1270 | 0.81 | 920 | 1.46 | 990 | 1.44 |
| | | 900 | 1190 FC28 | 0.91 | 840 FC28 | 1.60 | 910 FC28 | 1.58 |
| | | 1050 | 1110 FC28 | 0.99 | 770 FC28 | 1.71 | 840 FC28 | 1.70 |
| | 450 | 750 | 1270 | 0.81 | 990 | 1.58 | 1070 | 1.56 |
| | | 900 | 1190 | 0.91 | 910 | 1.74 | 980 | 1.71 |
| | | 1050 | 1110 FC28 | 0.99 | 790 FC28 | 1.76 | 860 FC28 | 1.75 |

'FC28' indicates only 28mm Furring Channel is suitable. When 'FC28' is not present in the table both 18mm and 28mm Furring Channels are suitable.

## Concrete Soffit Anchor Table

| Concrete Grade | C1 Anchor |
|---|---|
| 20 - 25 MPa | SA6x60 |
| ≥32MPa | SA6x45 |

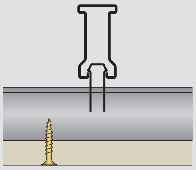
| Concrete Grade | C2 Anchor |
|---|---|
| ≥ 20 MPa | SXTB08055 |

1. No edge / spacing effects.

1. Table refers to Siniat furring channels of 0.42mm Base Metal Thickness (BMT) of grade G550 steel and Siniat top cross rails of 0.75mm BMT of grade G300, both with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) wind pressure and serviceability (Ws) deflection limits stated, intended for internal use only. Down-struts are required for uplift.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Suspended Ceiling Frames* Table.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
7. Furring Channels checked for 2-or-more spans only. If required, contact Siniat for Single Span furring channel check.
8. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation.*
9. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
10. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$. Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
11. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit. Serviceability Limit State Load Case 2: Ws, with deflection limited to Span/200.
12. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
13. For BCA Building Importance Level 4, please contact Siniat.

## Table 18 38mm Top Cross Rail Ceiling Span Table - REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 38mm Top Cross Rail Ceiling Span Table |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.71 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.3 |

| Ceiling Lining | Furring Channel Spacing (mm) | Top Cross Rail Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 10mm | 600 | 900 | 1320 | 0.79 | 950 | 1.41 | 1030 | 1.40 |
| | | 1050 | 1240 FC28 | 0.86 | 880 FC28 | 1.52 | 950 FC28 | 1.51 |
| | | 1200 | 1170 FC28 | 0.93 | 820 FC28 | 1.62 | 890 FC28 | 1.61 |
| | 450 | 900 | 1320 | 0.79 | 1030 | 1.54 | 1110 | 1.51 |
| | | 1050 | 1240 | 0.86 | 950 | 1.65 | 1030 | 1.64 |
| | | 1200 | 1170 FC28 | 0.93 | 880 FC28 | 1.75 | 960 FC28 | 1.74 |
| 2 layers of 10mm | 600 | 900 | 1260 | 0.84 | 900 | 1.49 | 970 | 1.47 |
| | | 1050 | 1180 FC28 | 0.91 | 830 FC28 | 1.60 | 900 FC28 | 1.59 |
| | | 1200 | 1120 FC28 | 0.99 | 780 FC28 | 1.72 | 840 FC28 | 1.69 |
| | 450 | 900 | 1260 | 0.84 | 970 | 1.61 | 1050 | 1.60 |
| | | 1050 | 1180 | 0.91 | 900 | 1.74 | 970 | 1.72 |
| | | 1200 | 1120 FC28 | 0.99 | 790 FC28 | 1.75 | 870 FC28 | 1.76 |
| 1 layer of 13mm | 600 | 900 | 1290 | 0.81 | 930 | 1.46 | 1000 | 1.43 |
| | | 1050 | 1210 FC28 | 0.88 | 860 FC28 | 1.57 | 930 FC28 | 1.55 |
| | | 1200 | 1140 FC28 | 0.95 | 800 FC28 | 1.67 | 860 FC28 | 1.64 |
| | 450 | 900 | 1290 | 0.81 | 1000 | 1.57 | 1080 | 1.55 |
| | | 1050 | 1210 | 0.89 | 930 | 1.70 | 1000 | 1.67 |
| | | 1200 | 1140 FC28 | 0.95 | 840 FC28 | 1.76 | 920 FC28 | 1.76 |
| 2 layers of 13mm | 600 | 750 | 1310 | 0.79 | 940 | 1.42 | 1020 | 1.41 |
| | | 900 | 1220 | 0.89 | 860 | 1.56 | 930 | 1.54 |
| | | 1050 | 1140 FC28 | 0.96 | 790 FC28 | 1.67 | 860 FC28 | 1.66 |
| | 450 | 750 | 1310 | 0.80 | 1020 | 1.55 | 1100 | 1.53 |
| | | 900 | 1210 | 0.88 | 930 | 1.69 | 1000 | 1.66 |
| | | 1050 | 1140 FC28 | 0.97 | 820 FC28 | 1.74 | 900 FC28 | 1.75 |
| 3 layers of 13mm | 600 | 750 | 1240 | 0.85 | 880 | 1.52 | 950 | 1.50 |
| | | 900 | 1150 FC28 | 0.95 | 800 FC28 | 1.65 | 870 FC28 | 1.64 |
| | | 1050 | 1070 FC28 | 1.03 | 730 FC28 | 1.76 | 790 FC28 | 1.74 |
| | 450 | 750 | 1240 | 0.86 | 950 | 1.64 | 1030 | 1.63 |
| | | 900 | 1150 | 0.95 | 850 | 1.76 | 930 | 1.76 |
| | | 1050 | 1070 FC28 | 1.03 | 720 FC28 | 1.74 | 790 FC28 | 1.74 |
| 1 layer of 16mm | 600 | 900 | 1290 | 0.82 | 920 | 1.45 | 1000 | 1.45 |
| | | 1050 | 1210 FC28 | 0.89 | 850 FC28 | 1.57 | 920 FC28 | 1.55 |
| | | 1200 | 1140 FC28 | 0.96 | 800 FC28 | 1.68 | 860 FC28 | 1.65 |
| | 450 | 900 | 1290 | 0.82 | 1000 | 1.59 | 1080 | 1.57 |
| | | 1050 | 1210 | 0.89 | 920 | 1.70 | 1000 | 1.69 |
| | | 1200 | 1140 FC28 | 0.96 | 830 FC28 | 1.75 | 910 FC28 | 1.75 |
| 2 layers of 16mm | 600 | 750 | 1300 | 0.80 | 940 | 1.45 | 1010 | 1.42 |
| | | 900 | 1210 | 0.89 | 850 | 1.57 | 920 | 1.55 |
| | | 1050 | 1130 FC28 | 0.97 | 790 FC28 | 1.70 | 850 FC28 | 1.67 |
| | 450 | 750 | 1300 | 0.80 | 1010 | 1.56 | 1090 | 1.54 |
| | | 900 | 1210 | 0.89 | 920 | 1.70 | 1000 | 1.69 |
| | | 1050 | 1130 FC28 | 0.97 | 810 FC28 | 1.74 | 890 FC28 | 1.75 |
| 3 layers of 16mm | 600 | 750 | 1230 | 0.87 | 870 | 1.53 | 940 | 1.51 |
| | | 900 | 1140 FC28 | 0.96 | 800 FC28 | 1.69 | 860 FC28 | 1.66 |
| | | 1050 | 1060 FC28 | 1.04 | 710 FC28 | 1.74 | 780 FC28 | 1.75 |
| | 450 | 750 | 1230 | 0.87 | 940 | 1.66 | 1020 | 1.64 |
| | | 900 | 1140 | 0.96 | 830 | 1.75 | 910 | 1.76 |
| | | 1050 | 1060 FC28 | 1.04 | 710 FC28 | 1.75 | 780 FC28 | 1.76 |

'FC28' indicates only 28mm Furring Channel is suitable. When 'FC28' is not present in the table both 18mm and 28mm Furring Channels are suitable.

### Concrete Soffit Anchor Table

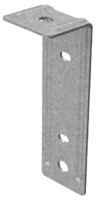
| Concrete Grade | C1 Anchor |
|---|---|
| 20 - 25 MPa | SA6x60 |
| ≥32MPa | SA6x45 |

| Concrete Grade | C2 Anchor |
|---|---|
| ≥ 20 MPa | SXTB08055 |

1. No edge / spacing effects.

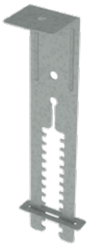
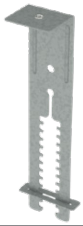
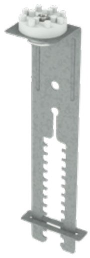
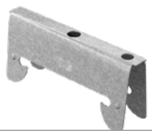
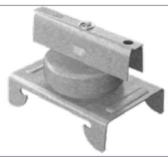
1. Table refers to Siniat furring channels of 0.42mm Base Metal Thickness (BMT) of grade G550 steel and Siniat top cross rails of 0.75mm BMT of grade G300, both with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
2. Table based upon downward (suction) and upward (uplift) ultimate (Wu) wind pressure and serviceability (Ws) deflection limits stated, intended for internal use only. Down-struts are required for uplift.
3. Clip capacities must be checked with the *Ceiling Clip Capacity - Suspended Ceiling Frames* Table.
4. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
5. Table includes self weight and 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
7. Furring Channels checked for 2-or-more spans only. If required, contact Siniat for Single Span furring channel check.
8. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation.*
9. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
10. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$. Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
11. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360. For gloss or brittle ceiling finishes contact Siniat for Span/500 deflection limit. Serviceability Limit State Load Case 2: Ws, with deflection limited to Span/200.
12. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
13. For BCA Building Importance Level 4, please contact Siniat.

## Table 19 Ceiling Clip Capacity - Suspended Ceiling Frames

| Image | Name | Code | ULS Design Capacity (kN) |
|---|---|---|---|
|  | Spring Adjustable Purlin to Suspension Rod Clip | C60DF | 1.80 |
|  | Spring Adjustable Anchor to Suspension Rod Clip | C60LDF (6.5mm diameter hole) | 1.80 |
|  | Suspension Rod Flat Bracket | C74 | 1.06 |
|  | Suspension Rod Multi-purpose Bracket | C47-74 (6mm diameter hole)<br>C47-749 (9mm diameter hole) | 1.06 |
|  | Spring Adjustable Suspension Rod to Top Cross Rail Clip | C60 | 1.80 |
|  | Anchor to Top Cross Rail Clip | C24 | 1.80 |
|  | Top Cross Rail to Purlin Clip | C66 | 1.80 |
|  | Spring Adjustable Side Mounted Top Cross Rail Clip | C61S | 1.31 |

1. Clip capacities are applicable to Siniat products only.
2. Clip capacities determined in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*, Section 8.2.
3. Suitable for internal use only.

## Table 19 continued Ceiling Clip Capacity - Suspended Ceiling Frames

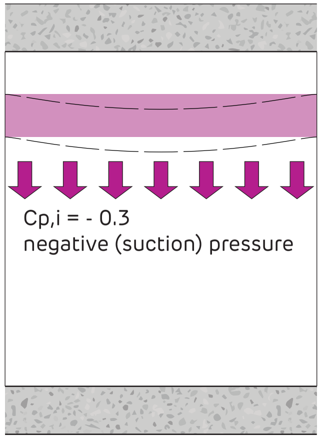
| Image | Name | Code | ULS Design Capacity (kN) |
|---|---|---|---|
|  | Spring Adjustable Suspension Rod Joiner | C54 | 1.80 |
|  | Adjustable Top Cross Rail Clip, with 6.5mm hole suitable for screws<br>3 sizes available:<br>100mm drop,<br>200mm drop,<br>300mm drop | CTCR-100<br>CTCR-200<br>CTCR-300 | 1.70 |
|  | Adjustable Top Cross Rail Clip, with M6 thread<br>100mm drop | CTCR/M6-100 | 1.70 |
|  | Adjustable Top Cross Rail Resilient Clip, with 6.5mm hole suitable for screws<br>3 sizes available:<br>100mm drop,<br>200mm drop,<br>300mm drop | CTCRRES-100<br>CTCRRES-200<br>CTCRRES-300 | 1.70 |
|  | Adjustable Top Cross Rail Resilient Clip, with M6 thread<br>3 sizes available:<br>100mm drop,<br>200mm drop,<br>300mm drop | CTCRRESM6-100<br>CTCRRESM6-200<br>CTCRRESM6-300 | 1.70 |
|  | Top Cross Rail to Furring Channel Locking Key (clik clak) (standard and wide versions) | C39<br>CW39 (wide) | 1.26 |
|  | Top Cross Rail to Furring Channel Swivel Clip | C79S | 1.32 |
|  | Top Cross Rail to Furring Channel Resilient Swivel Clip | C79SRES | 1.32 |
|  | Clip Isolation Hanger | CRAIH-05 | 1.06 |

1. Clip capacities are applicable to Siniat products only.
2. Clip capacities determined in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*, Section 8.2.
3. Suitable for internal use only.

# Worked Example

## Internal suspended ceiling lined with plasterboard

- Internal suspended top cross rail and furring channel ceiling - lined 2 x 16mm fire rated plasterboard
- Large ceiling area with 3-or-more spans for both the top cross rail and the furring channel
- Deflection limit of G less than span/360 and G+Ws less than span/200 is suitable
- Shopping centre that is effectively sealed where the external walls have non-opening windows
- Building location is Brisbane
- Building Importance Level is 2
- Terrain Category is 2.5
- Floor of the internal suspended ceiling to be built is located 10m from ground level.




**Case 2: Internal Ceiling $C_{p,i}$ = - 0.3 (suction)**

1. Air-conditioned Hospitals, Offices and Shopping Centres (except loading docks) that are effectively sealed where the external walls have non-opening windows
2. Internal ceiling
3. Ceiling with an impermeable roof/floor.

**Step 1** *Determine $C_{p,i}$ net*
From Section 2.3, first find the appropriate $C_{p,i}$. From the information above, the internal suspended ceiling is the same as Case 2, therefore the appropriate $C_{p,i}$ is 0.3.

**Step 2** *Determine the Wind Region*
From Figure 2 'Australian Wind Regions' in Section 2.3, find Brisbane located in Wind Region B1.

**Step 3** *Determine the building's Importance Level (IL)* Usually found on the front page of the Structural Engineers notes for the project. In this case the IL is 2.

**Step 4** *Determine the Terrain Category (TC)* of the surrounding landscape around the building. Also usually found on the front page of the Structural Engineers notes for the project. In this case the TC is 2.5.

**Step 5** *Determine Ultimate ($W_U$) and Serviceability ($W_S$) Wind Pressures.*
The floor of the building where the ceiling is to be built is 10m above the ground level. Refer to Table 9 in Section 2.3 'Internal Wind Pressures $C_{p,i}$ = 0.3'.

The pressures found are Wu = 0.49 kPa, and Ws = 0.23 kPa.

**Step 6** *Determine ceiling frame.*
Use the relevant '38mm Top Cross Rail Suspended Ceiling Span Table - Region B' in Section 5.1. For this case the internal wind pressures are rounded up to the nearest tables nominated pressure which are $W_U$ = 0.59 kPa and $W_S$ = 0.25 kPa.

**Answer**

A solution can be found using:

- 28mm Furring Channel (FC28) at 600mm centres
- 38mm Top Cross Rail (TCR38) spaced at 1200mm centres
- Hangers along the TCR38 at 840mm maximum intervals.
- Clip and anchor demand is 1.68 kN which can be checked using Tables 19 'Ceiling Clip Capacity' and from Section 2.1 Table 20 'Static and Quasi-static Performance in Concrete'.

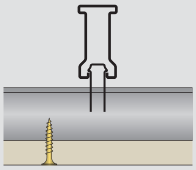
**Table 19 Internal Wind Pressures $C_{p,i}$ =0.3**

| Building Importance Level 2 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | A | | | | | | | | | | | | B1 and B2 | | | | | | | | | | | |
| Ultimate Wind Speed V500 (m/s) | 45 | | | | | | | | | | | | 57 | | | | | | | | | | | |
| Serviceability Wind Speed V25 (m/s) | 37 | | | | | | | | | | | | 39 | | | | | | | | | | | |
| Terrain Category | 1 | | | 2 | | | 2.5 | | | 3 | | | 1 | | | 2 | | | 2.5 | | | 3 | | |
| Height above ground (z) | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 | 10 | 25 | 50 |
| $M_{z,cat}$ | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 | 1.08 | 1.16 | 1.23 | 1.00 | 1.10 | 1.18 | 0.92 | 1.04 | 1.13 | 0.83 | 0.97 | 1.07 |
| Ultimate Wind Pressure (kPa) | 0.43 | 0.49 | 0.55 | 0.36 | 0.44 | 0.51 | 0.31 | 0.39 | 0.47 | 0.25 | 0.34 | 0.42 | 0.68 | 0.79 | 0.88 | 0.58 | 0.71 | 0.81 | 0.49 | 0.63 | 0.75 | 0.40 | 0.55 | 0.67 |
| Serviceability Wind Pressure (kPa) | 0.29 | 0.33 | 0.37 | 0.25 | 0.30 | 0.34 | 0.21 | 0.27 | 0.31 | 0.17 | 0.23 | 0.28 | 0.32 | 0.37 | 0.41 | 0.27 | 0.33 | 0.38 | 0.23 | 0.30 | 0.35 | 0.19 | 0.26 | 0.31 |

# Worked Example continued

## Table 20 38mm Top Cross Rail Ceiling Span Table - REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 38mm Top Cross Rail Ceiling Span Table | | Up to BCA Building Importance Level 3 | | |
|---|---|---|---|---|
| 38mm Top Cross Rail Ceiling Span Table |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.59 |
| | | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Ceiling Lining | Furring Channel Spacing (mm) | Top Cross Rail Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 10mm | 600 | 900 | 1410 | 0.72 | 1030 | 1.32 | 1110 | 1.30 |
| | | 1050 | 1320 | 0.79 | 950 | 1.42 | 1030 | 1.41 |
| | | 1200 | 1250 FC28 | 0.85 | 890 FC28 | 1.52 | 960 FC28 | 1.50 |
| | 450 | 1050 | 1320 | 0.79 | 1020 | 1.53 | 1110 | 1.52 |
| | | 1200 | 1250 FC28 | 0.86 | 960 FC28 | 1.65 | 1030 FC28 | 1.61 |
| | | 1350 | 1180 FC28 | 0.91 | 900 FC28 | 1.73 | 980 FC28 | 1.73 |
| 2 layers of 10mm | 600 | 900 | 1340 | 0.78 | 960 | 1.40 | 1040 | 1.38 |
| | | 1050 | 1250 FC28 | 0.85 | 890 FC28 | 1.51 | 960 FC28 | 1.49 |
| | | 1200 | 1180 FC28 | 0.91 | 830 FC28 | 1.61 | 900 FC28 | 1.59 |
| | 450 | 900 | 1330 | 0.78 | 1040 | 1.52 | 1120 | 1.49 |
| | | 1050 | 1250 | 0.85 | 960 | 1.63 | 1040 | 1.62 |
| | | 1200 | 1180 FC28 | 0.92 | 900 FC28 | 1.75 | 970 FC28 | 1.72 |
| 1 layer of 13mm | 600 | 900 | 1370 | 0.75 | 1000 | 1.36 | 1080 | 1.35 |
| | | 1050 | 1290 FC28 | 0.82 | 920 FC28 | 1.46 | 990 FC28 | 1.44 |
| | | 1200 | 1220 FC28 | 0.89 | 860 FC28 | 1.56 | 930 FC28 | 1.54 |
| | 450 | 900 | 1370 | 0.75 | 1070 | 1.46 | 1160 | 1.45 |
| | | 1050 | 1290 | 0.82 | 990 | 1.58 | 1070 | 1.56 |
| | | 1200 | 1210 FC28 | 0.88 | 930 FC28 | 1.69 | 1000 FC28 | 1.66 |
| 2 layers of 13mm | 600 | 900 | 1280 | 0.83 | 910 | 1.47 | 990 | 1.46 |
| | | 1050 | 1200 FC28 | 0.90 | 840 FC28 | 1.58 | 910 FC28 | 1.56 |
| | | 1200 | 1130 FC28 | 0.97 | 790 FC28 | 1.70 | 850 FC28 | 1.67 |
| | 450 | 900 | 1280 | 0.83 | 990 | 1.60 | 1070 | 1.58 |
| | | 1050 | 1200 FC28 | 0.90 | 910 FC28 | 1.71 | 990 FC28 | 1.71 |
| | | 1200 | 1130 FC28 | 0.97 | 810 FC28 | 1.74 | 890 FC28 | 1.75 |
| 3 layers of 13mm | 600 | 750 | 1290 | 0.80 | 930 | 1.45 | 1010 | 1.44 |
| | | 900 | 1200 FC28 | 0.89 | 850 FC28 | 1.58 | 920 FC28 | 1.57 |
| | | 1050 | 1120 FC28 | 0.97 | 780 FC28 | 1.69 | 850 FC28 | 1.69 |
| | 450 | 750 | 1290 | 0.80 | 1000 | 1.56 | 1090 | 1.55 |
| | | 900 | 1200 | 0.90 | 920 | 1.72 | 990 | 1.69 |
| | | 1050 | 1120 FC28 | 0.97 | 800 FC28 | 1.74 | 880 FC28 | 1.75 |
| 1 layer of 16mm | 600 | 900 | 1370 | 0.76 | 990 | 1.36 | 1070 | 1.35 |
| | | 1050 | 1280 FC28 | 0.82 | 920 FC28 | 1.48 | 990 FC28 | 1.45 |
| | | 1200 | 1210 FC28 | 0.89 | 860 FC28 | 1.58 | 920 FC28 | 1.54 |
| | 450 | 900 | 1360 | 0.75 | 1070 | 1.48 | 1150 | 1.45 |
| | | 1050 | 1280 | 0.82 | 990 | 1.59 | 1070 | 1.58 |
| | | 1200 | 1210 FC28 | 0.89 | 920 FC28 | 1.69 | 1000 FC28 | 1.68 |
| **2 layers of 16mm** | **600** | 900 | 1270 | 0.83 | 910 | 1.49 | 980 | 1.47 |
| | | 1050 | 1190 FC28 | 0.91 | 840 FC28 | 1.61 | 900 FC28 | 1.57 |
| | | 1200 | 1120 FC28 | 0.98 | 780 FC28 | 1.70 | **840 FC28** | **1.68** |
| | 450 | 900 | 1270 | 0.84 | 980 | 1.61 | 1060 | 1.60 |
| | | 1050 | 1190 FC28 | 0.91 | 900 FC28 | 1.73 | 980 FC28 | 1.72 |
| | | 1200 | 1120 FC28 | 0.98 | 800 FC28 | 1.75 | 870 FC28 | 1.74 |
| 3 layers of 16mm | 600 | 750 | 1270 | 0.81 | 920 | 1.46 | 990 | 1.44 |
| | | 900 | 1190 FC28 | 0.91 | 840 FC28 | 1.60 | 910 FC28 | 1.58 |
| | | 1050 | 1110 FC28 | 0.99 | 770 FC28 | 1.71 | 840 FC28 | 1.70 |
| | 450 | 750 | 1270 | 0.81 | 990 | 1.58 | 1070 | 1.56 |
| | | 900 | 1190 | 0.91 | 910 | 1.74 | 980 | 1.71 |
| | | 1050 | 1110 FC28 | 0.99 | 790 FC28 | 1.76 | 860 FC28 | 1.75 |

'FC28' indicates only 28mm Furring Channel is suitable. When 'FC28' is not present in the table both 18mm and 28mm Furring Channels are suitable.

# External Ceilings

External ceilings include alfresco areas, carports, balconies, breezeways and foyers with plasterboard installed horizontally or sloping away from the main dwelling. External ceilings are subjected to harsher conditions than internal ceilings, and therefore they need additional protection from the weather. This extra protection is designed to control the major causes of external ceiling faults which are:

- Condensation on the plasterboard, ceiling framing, roof framing or roof lining and dripping down onto the ceiling
- Water penetrating the paint system
- Distortion of plasterboard joints
- Plasterboard swelling and sagging
- Mould growth
- Fastener popping
- Corrosion of ceiling framing.

## Minimum Conditions to Use Plasterboard and Steel Ceiling Framing in External Ceilings

- The plasterboard and associated substrate must be designed for the appropriate loading conditions including wind loads. Down-struts must also be included to prevent uplift.
- The plasterboard and steel framing must be suitable for the application [Refer to 'Plasterboard' and 'Steel Framing' in Section 2.1]
- The cavity above the plasterboard ceiling must comply with the requirements of NCC Volume One, Part F8 or NCC Volume Two, Part 10.8. Please note, continuous air-flow in and out of a ceiling cavity near salt water may decrease the durability of steel framing.
- Condensation on the back and front of the plasterboard lining and any steel framing must be controlled. Use condensation prevention measures such as, adequate roof cavity ventilation and thermal insulation. In particular, foil backed insulation must be used under a metal roof.
- Anchors and fasteners used must be minimum Class 3 or higher depending on the application, or protected from corrosion by other means. Note that stainless steel fasteners are not permitted with galvanised or Zincalume protected steels.
- The plasterboard, compounds and steel framing must not be subjected to any direct water, long periods of high humidity, sea spray or damp conditions.
- The plasterboard and compounds must be installed after the roof covering has been completely installed and sealed.
- Minimum 100mm clearance from external ceiling lining to lower edge of verandah beam or masonry lintel, otherwise provide protection against wind blown rain.
- Periodic inspections of any steel ceiling framing must be conducted to identify any areas of corrosion or damage which must be immediately rectified.

## Installation Requirements for External Ceilings

- Use either 10mm **span**shield, 13mm **masta**shield, 10mm **opal**, 10mm or 13mm **water**shield, 10mm or 13mm **sound**shield, 13mm or 16mm **fire**shield, **multi**shield or **tru**rock.
- Ceiling framing at maximum 450mm framing centres.
- Provide additional framing around the perimeter by inserting trimmers between ceiling frames or installing steel angle, or installing additional ceiling battens.
- Fix the ceiling plasterboard using the 'Screw Only Method'. Nails are not permitted in this application.Additional screws may be required for high wind areas.
- Fix the perimeter of the plasterboard sheets using screws at 300mm maximum spacing.
- Install control joints at 6m maximum intervals.
- Back-block all plasterboard joints. [Refer to Section 7.2]
- Plaster set joints using two coats of **masta**base or **masta**longset and any Siniat finish coat.
- Roll or brush on a high quality sealer undercoat designed for exterior use.
- Use a premium exterior paint system that includes a mould inhibitor.

Please note that plasterboard must not be installed in eaves or as exterior cladding.

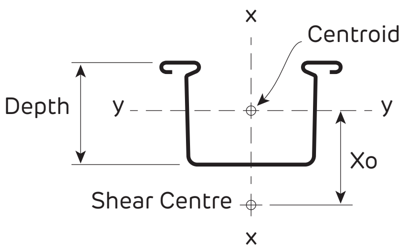
Thermal insulation is recommended directly above the plasterboard. This will minimise the temperature difference between the plasterboard and outside air, limiting ceiling sag and mould formation by reducing condensation on the plasterboard.

# Steel Profile Information

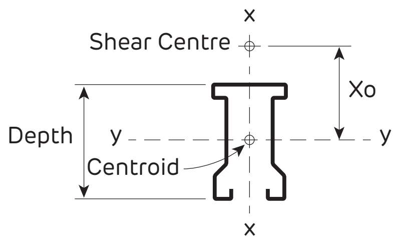
## Material

| Manufacturer | Item | Grade | Ultimate | Yield | Coating |
|---|---|---|---|---|---|
| Siniat | Top Cross Rails | G300 | 340 MPa | 300 MPa | AM150 |
| | Furring Channels | G550 | 550 MPa | 550 MPa | AM150 |

1. Steel grade and coating in accordance with AS 1397 *Continuous hot-dip metallic coated steel sheet and strip*




Furring Channels




Top Cross Rails

## Section Properties

| Profile | Dimensions (mm) | | Shear Centre from Centroid (mm) | Area ($mm^2$) | Moment of Inertia ($mm^4$) | | Section Modulus ($mm^3$) | | Torsion Constant J ($mm^4$) | Warping Constant Iw ($mm^6$) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Depth | BMT | Xo | | Ixx | Iyy | Zxx | Zyy | | |
| Furring Channels | 18 | 0.42 | -14.0 | 37.5 | 11,040 | 1,815 | 432 | 176 | 2.2 | 265,300 |
| | 28 | 0.42 | -25.2 | 49.1 | 14,880 | 5,811 | 580 | 397 | 2.9 | 1,143,000 |
| Top Cross Rails | 25 | 0.75 | -22.6 | 66.3 | 3,782 | 5,432 | 362 | 413 | 12.4 | 388,500 |
| | 38 | 0.75 | -34.1 | 85.8 | 4,624 | 15,590 | 452 | 789 | 16.1 | 833,500 |

# Plasterboard Layout

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Sheet ceilings perpendicular to framing members. | ✓ | ✓ |
| Stagger face layer butt joints by at least one framing member on adjoining sheets. | ✓ | ✓ |
| Stagger butt joints by at least one framing member between layers. | ✓ | ✓ |
| Float face layer butt joints centrally between framing members for:<br>> Three layer systems<br>> Two layer systems on 600mm framing centres. | | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |
| Follow the back-blocking requirements and butt joint placement for the level of finish selected. [Refer To Section 7] | ✓ | |

- Sheet ceilings parallel to the light source to reduce the effect of glancing light.
- Minimise butt joints by using the longest sheet possible.
- Butt joints on underlying layers (not face layer) may be made on the same framing member.
- For 2 layer systems at 450mm centres, face layer butt joints may be fixed to framing members.

# Plasterboard Fixing

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ | ✓ |
| Use laminating screws to fix floating butt joints in the second, third and fourth layers. | ✓ | ✓ |
| **Fastener and Adhesive Method** | | |
| Apply mastagrip Stud Adhesive after the frame is clean, dry, and free from grease, dust and other contaminants. | ✓ | |
| Apply mastagrip daubs 200mm minimum from screws and plasterboard edges. | ✓ | |
| **Screw Only Method** | | |
| Use the 'Screw Only Method' for fire rated ceilings. | ✓ | ✓ |

The 'Fastener and Adhesive Method' is recommended for non-fire rated applications. mastagrip will:

- Minimise screw popping
- Reduce the number of screw heads that may show in glancing light
- Assist in compensating for frame irregularities.

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer | 4th Layer |
|---|---|---|---|---|
| 6.5mm | 6g x 25mm screw | 6g x 25mm screw | - | - |
| 10mm | 6g x 25mm screw | 6g x 41mm screw * | - | - |
| 13mm | 6g x 25mm screw | 6g x 41mm screw * | 7g x 57mm screw * | - |
| 16mm | 6g x 32mm screw | 6g x 45mm screw * | 8g x 65mm screw * | 8g x 75mm screw * |

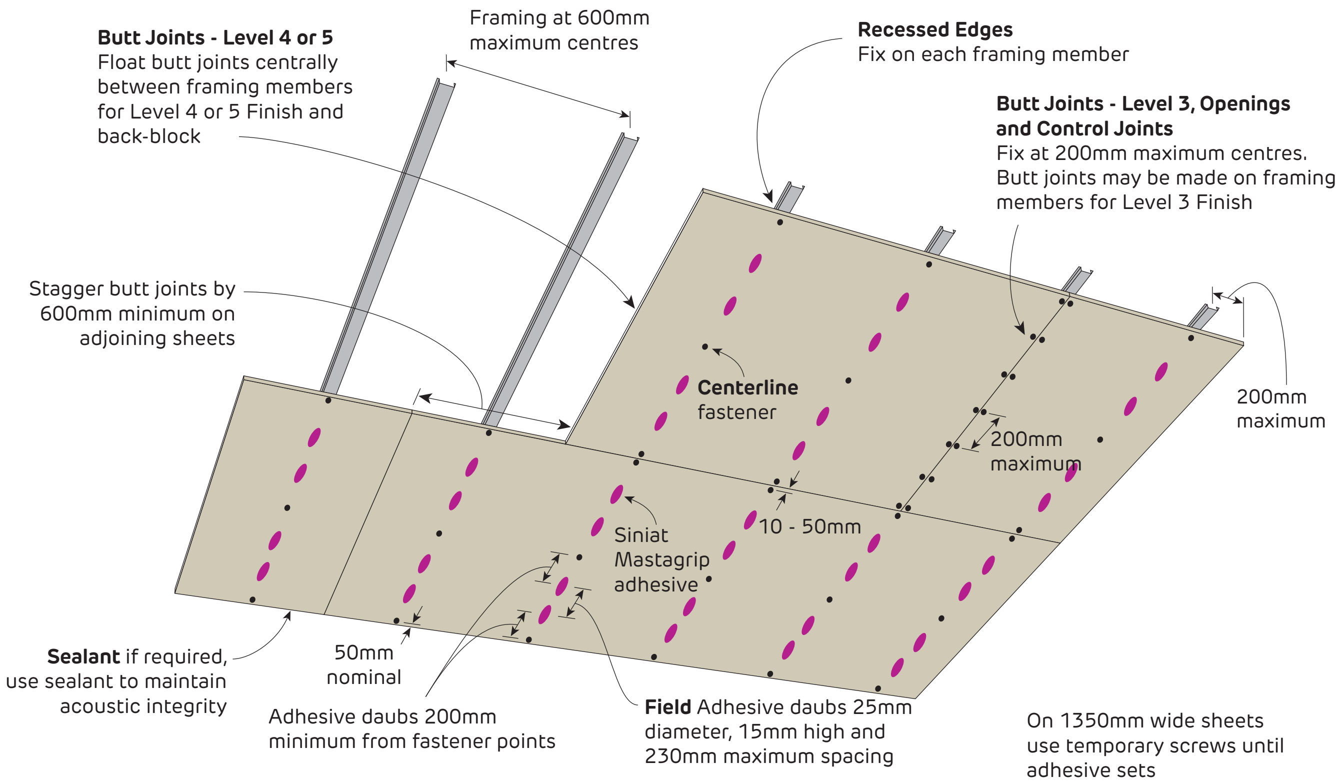
For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.
*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

## Fastener Type and Minimum Size for the Installation of Plasterboard to Softwood Timber

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer | 4th Layer |
|---|---|---|---|---|
| 6.5mm | 2.8 x 30mm galvanised nail or 2.8 x 25mm ring shank nail or 6g x 25mm screw | 2.8 x 40mm galvanised nail or 2.8 x 30mm ring shank nail or 6g x 32mm screw | - | - |
| 10mm | 2.8 x 40mm galvanised nail or 2.8 x 30mm ring shank nail or 6g x 25mm screw for walls or 6g x 32mm screw for ceilings | 2.8 x 50mm galvanised nail or 6g x 41mm screw * | - | - |
| 13mm | 2.8 x 40mm galvanised nail or 2.8 x 30mm ring shank nail or 6g x 41mm screw | 2.8 x 50mm galvanised nail or 7g x 50mm screw * | 3.75 x 75mm galvanised nail or 8g x 65mm screw * | - |
| 16mm | 2.8 x 50mm galvanised nail or 7g x 45mm screw | 3.15 x 65mm galvanised nail or 8g x 60mm screw * | 3.75 x 75mm galvanised nail or 8g x 75mm screw * | 10g x 100mm fine thread screw * |

*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

**FIGURE 11** **Internal Ceiling Non-Fire Rated - 1 Layer**
Fastener and Adhesive Method




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | F F F F |
| 900mm | F A F/F A F |
| 1200mm | F A A F/F A A F |
| 1350mm | F A A F/F A A F |

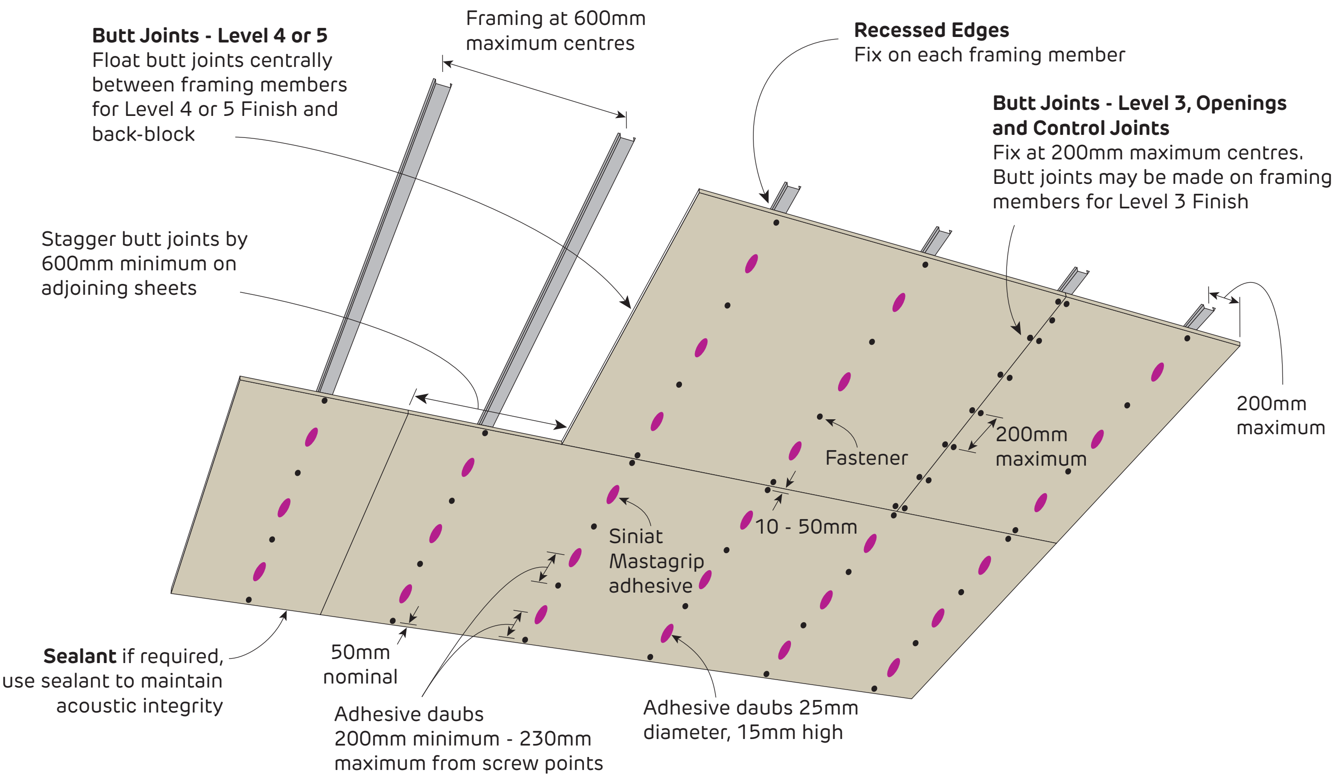
F = One screw or nail
F/F = One screw or double nails
A = One adhesive daub
Note: On 1350mm wide sheets use temporary fasteners until adhesive sets.

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.93 | 1.29 | 1.47 | 2.00 |
| 13mm | 0.88 | 1.24 | 1.42 | 1.95 |
| 16mm | 0.85 | 1.21 | 1.39 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 2.5 kg/m2 (equivalent to R5.0 Pink® Batts Ceiling insulation).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 12** **Internal Ceiling Non-Fire Rated - 1 Layer**
1/3 Fastener and Adhesive Method




## Fixing Pattern Table

| Sheet Width | Fixing Pattern |
|---|---|
| 600mm | F F F F |
| 900mm | F A F A F |
| 1200mm | F A F A F A F |
| 1350mm | F A F A F A F |

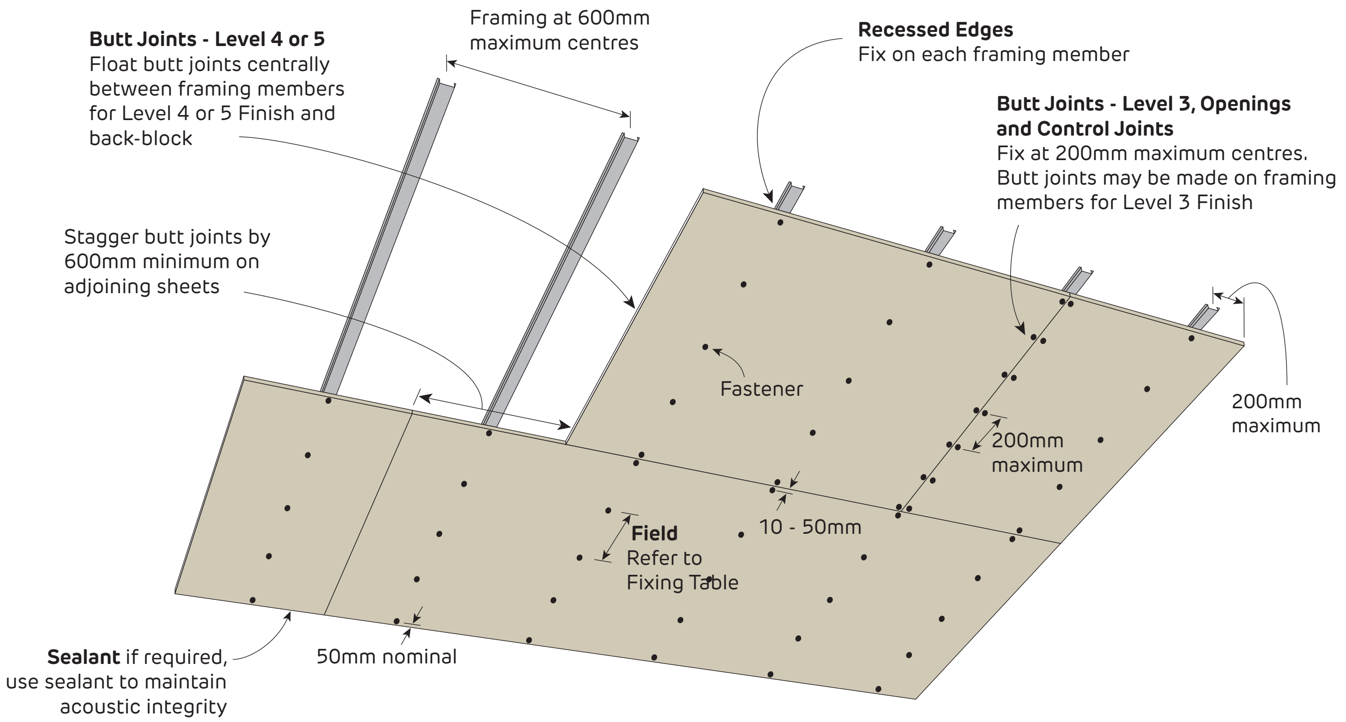
F = One nail or screw
A = One adhesive daub
Note: On 1350mm wide sheets use temporary fasteners until adhesive sets.

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.93 | 1.29 | 1.47 | 2.00 |
| 13mm | 0.88 | 1.24 | 1.42 | 1.95 |
| 16mm | 0.85 | 1.21 | 1.39 | 1.92 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 2.5 kg/m2 (equivalent to R5.0 Pink® Batts Ceiling insulation).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 13** **Internal Ceiling Non-Fire Rated - 1 Layer**
Fastener Only Method




## Fixing Pattern Table

| Sheet Width | Screw Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |

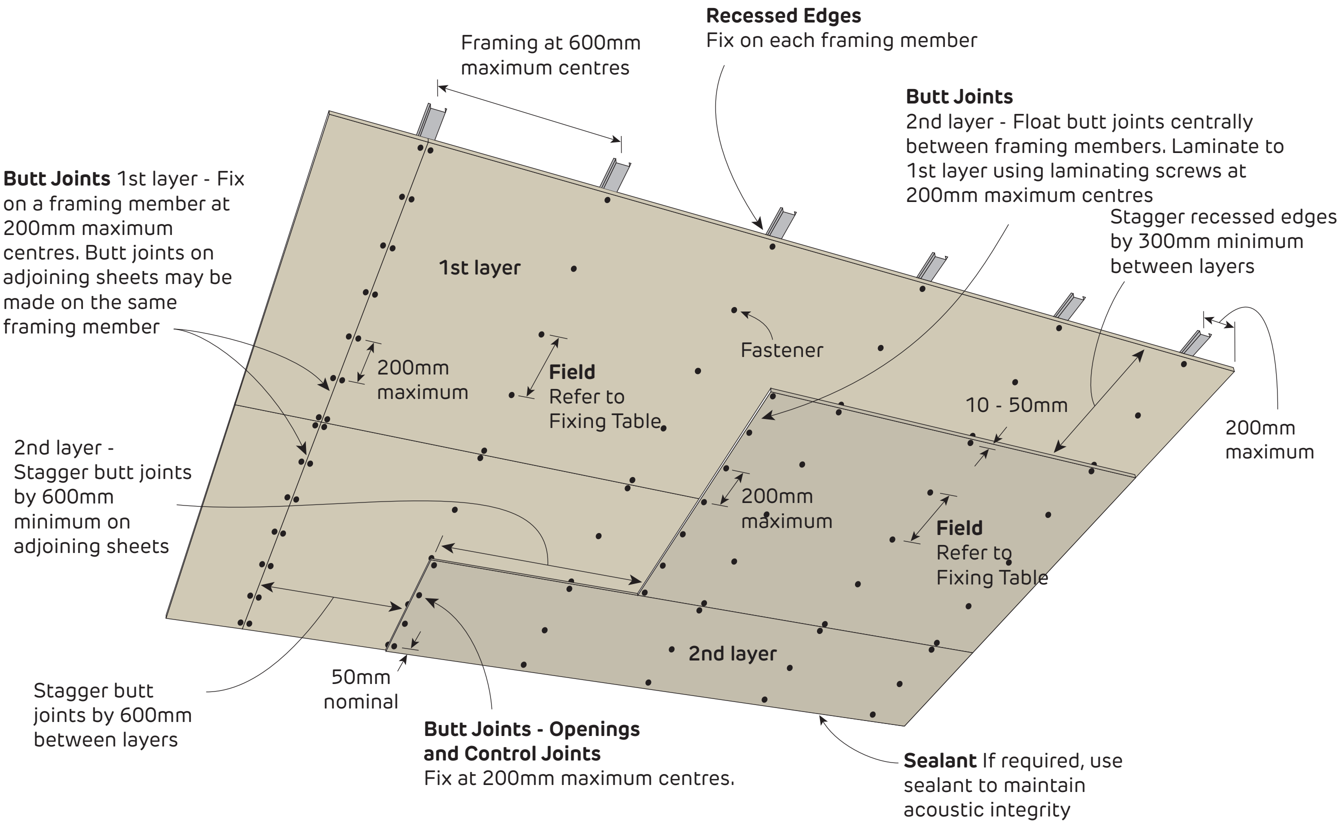
S = One screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.74 | 1.02 | 1.17 | 1.59 |
| 13mm | 0.77 | 1.08 | 1.24 | 1.71 |
| 16mm | 0.74 | 1.05 | 1.21 | 1.68 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 2.5 kg/m2 (equivalent to R5.0 Pink® Batts Ceiling insulation).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 14** **Internal Ceiling Non-Fire Rated - 2 Layers**
Fastener Only Method




## Fixing Pattern Table

| Sheet Width | Screw Fixing Pattern |
|---|---|
| 600mm | S S S (3) |
| 900mm | S S S S (4) |
| 1200mm | S S S S S (5) |
| 1350mm | S S S S S S (6) |

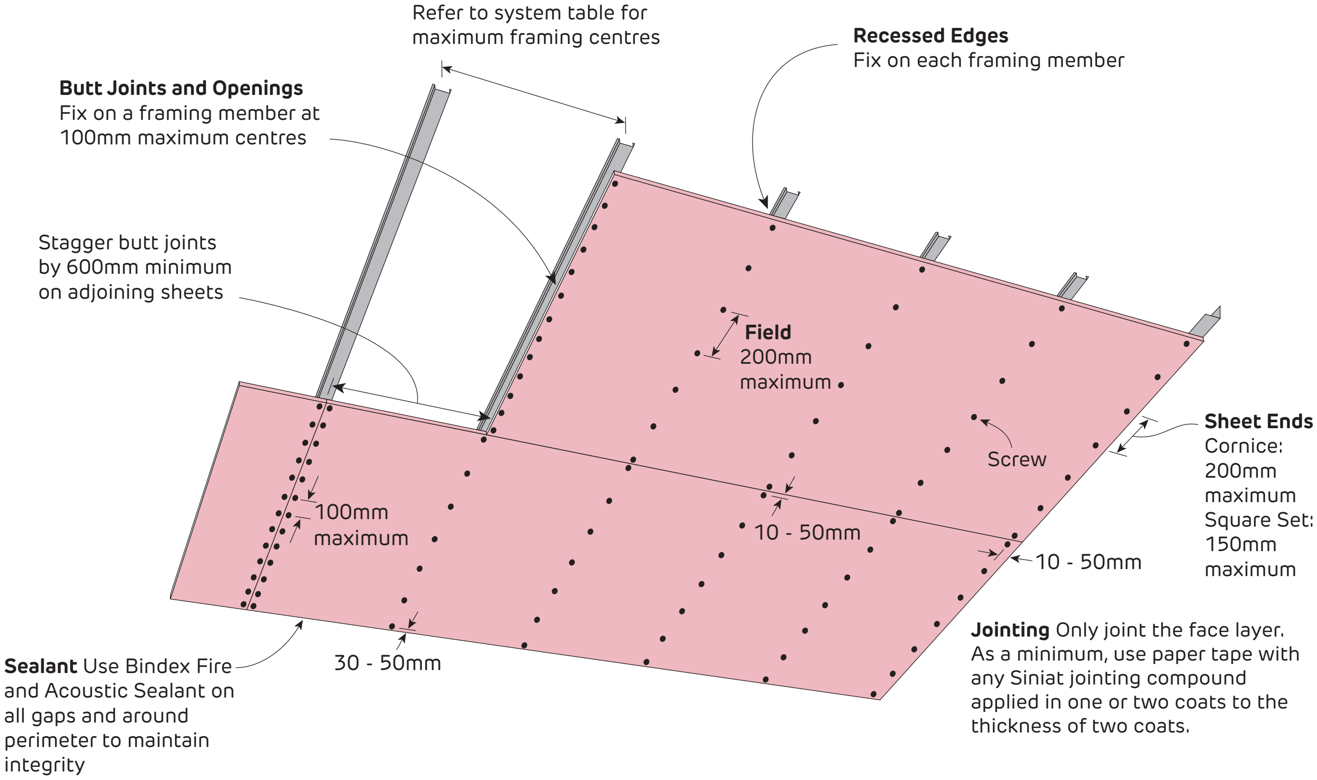
S = One screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 10mm | 0.74 | 1.02 | 1.17 | 1.59 |
| 13mm | 0.77 | 1.08 | 1.24 | 1.71 |
| 16mm | 0.74 | 1.05 | 1.21 | 1.68 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 2.5 kg/m2 (equivalent to R5.0 Pink® Batts Ceiling insulation).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 15** **Internal Ceiling Fire Rated - 1 Layer**
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Screw Fixing Pattern |
|---|---|
| 600mm | S S S S (4) |
| 900mm | S S S S S S (6) |
| 1200mm | S S S S S S S (7) |
| 1350mm | S S S S S S S S (8) |

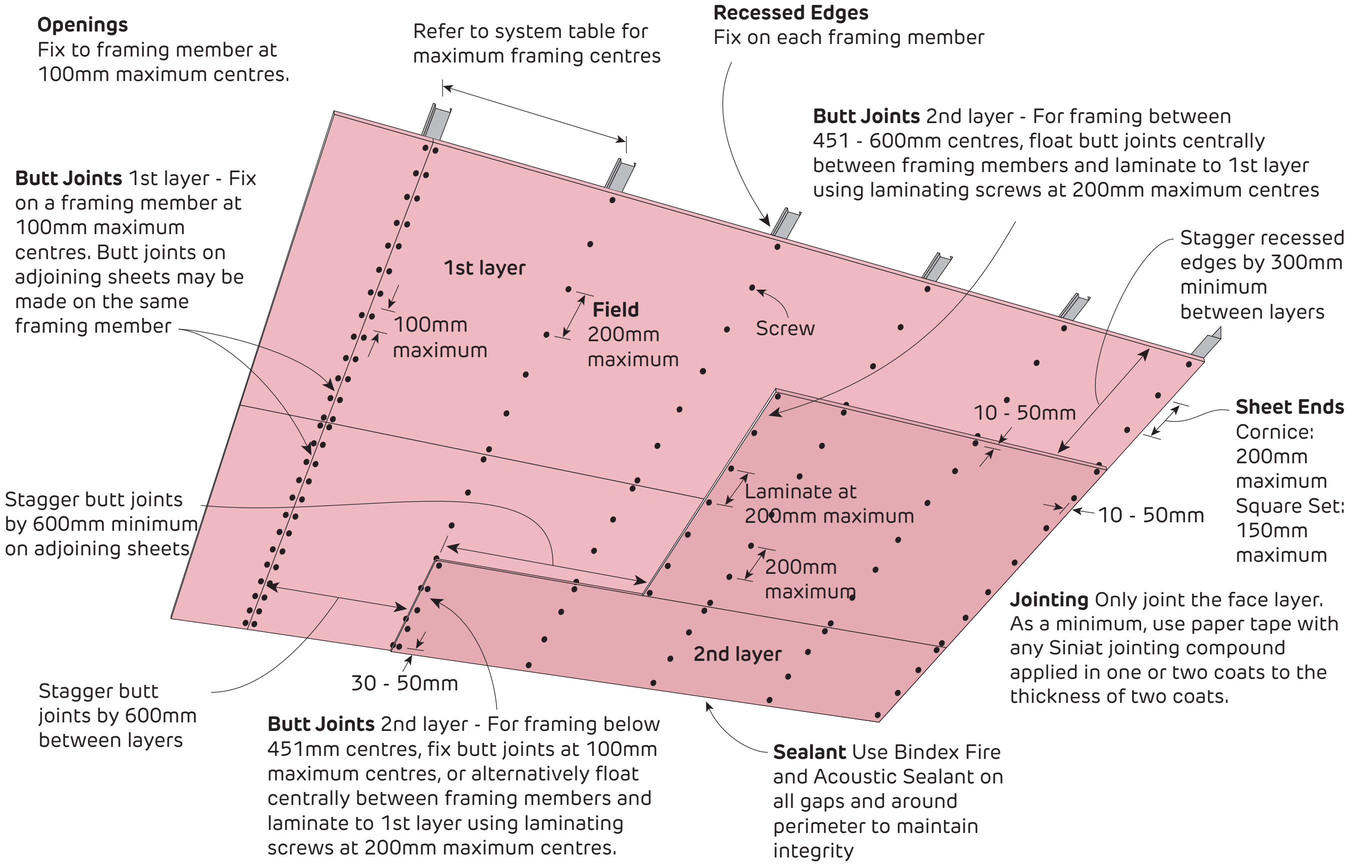
S = One screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 1.24 | 1.71 | 1.95 | 2.66 |
| 16mm | 1.21 | 1.68 | 1.92 | 2.63 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 2.5 kg/m2 (equivalent to R5.0 Pink® Batts Ceiling insulation).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 16** **Internal Ceiling Fire Rated - 2 Layers**
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Screw Fixing Pattern |
|---|---|
| 600mm | S S S S (4) |
| 900mm | S S S S S S (6) |
| 1200mm | S S S S S S S (7) |
| 1350mm | S S S S S S S S (8) |

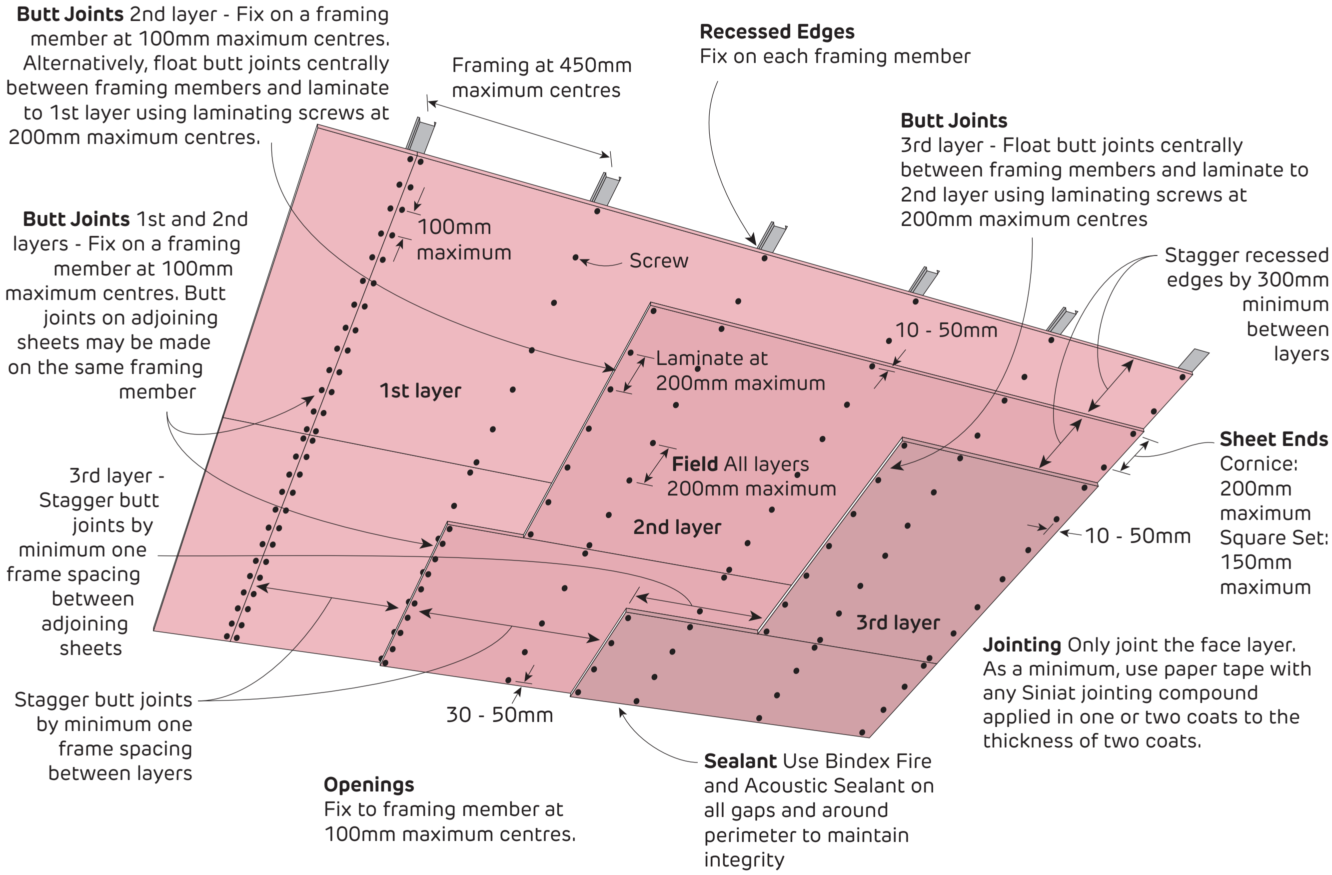
S = One screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 1.24 | 1.71 | 1.95 | 2.66 |
| 16mm | 1.21 | 1.68 | 1.92 | 2.63 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 2.5 kg/m2 (equivalent to R5.0 Pink® Batts Ceiling insulation).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 17** Internal Ceiling Fire Rated - 3 Layers
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Screw Fixing Pattern |
|---|---|
| 600mm | S S S S (4) |
| 900mm | S S S S S S (6) |
| 1200mm | S S S S S S S (7) |
| 1350mm | S S S S S S S S (8) |

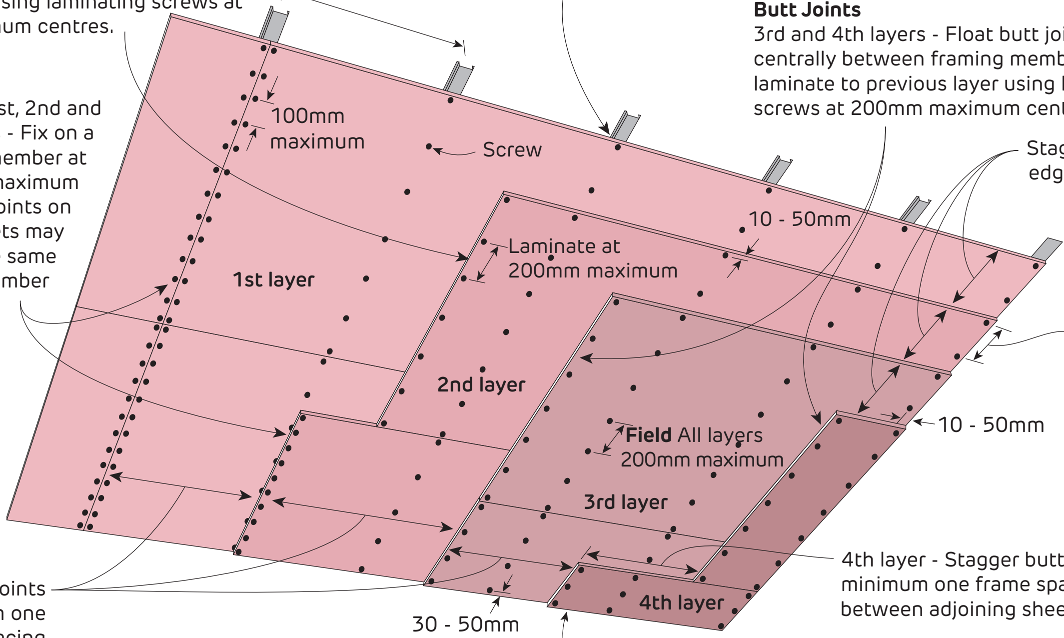
S = One screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 1.24 | 1.71 | 1.95 | 2.66 |
| 16mm | 1.21 | 1.68 | 1.92 | 2.63 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 2.5 kg/m2 (equivalent to R5.0 Pink® Batts Ceiling insulation).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 18** **Internal Ceiling Fire Rated - 4 Layers**
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Screw Fixing Pattern |
|---|---|
| 600mm | S S S S (4) |
| 900mm | S S S S S S (6) |
| 1200mm | S S S S S S S (7) |
| 1350mm | S S S S S S S S (8) |

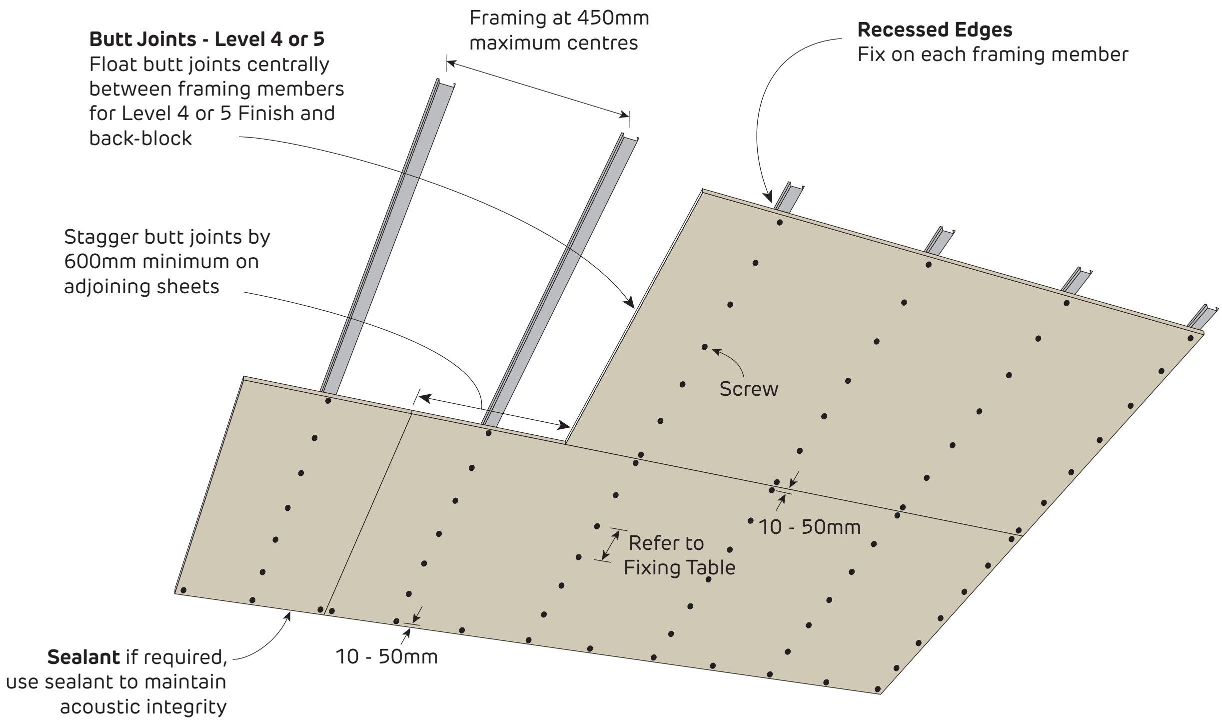
S = One screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 1.24 | 1.71 | 1.95 | 2.66 |
| 16mm | 1.21 | 1.68 | 1.92 | 2.63 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 2.5 kg/m2 (equivalent to R5.0 Pink® Batts Ceiling insulation).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 19** **External Ceiling Non-Fire Rated - 1 Layer**
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Screw Fixing Pattern |
|---|---|
| 600mm | S S S S (4) |
| 900mm | S S S S S S (6) |
| 1200mm | S S S S S S S (7) |
| 1350mm | S S S S S S S S (8) |

S = One screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | |
|---|---|---|---|
| | 450mm | 400mm | 300mm |
| 10mm | 1.59 | 1.81 | 2.45 |
| 13mm | 1.71 | 1.95 | 2.66 |
| 16mm | 1.68 | 1.92 | 2.63 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 2.5 kg/m2 (equivalent to R5.0 Pink® Batts Ceiling insulation).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

## Fire Rated and Non-Fire Rated
### Internal Ceilings - Direct Fix

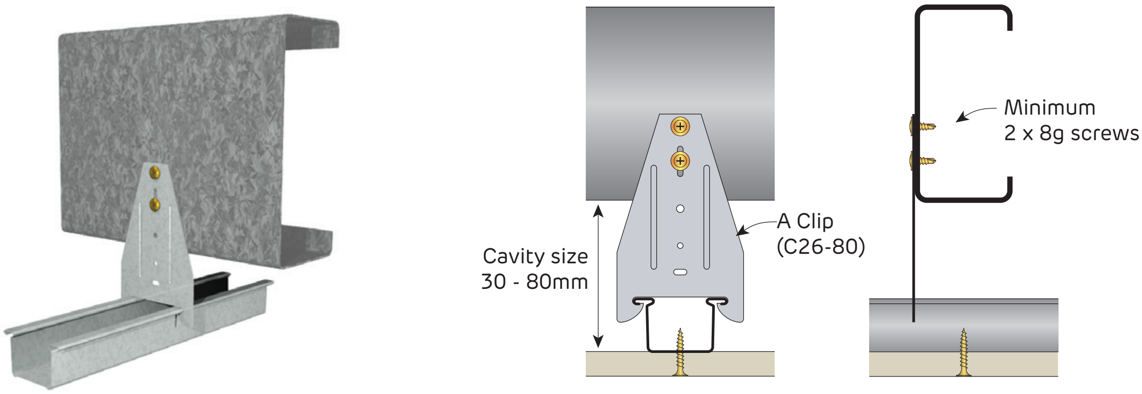



**FIGURE 20 A Clip**
Perspective and Sections

Direct fixing clips may generate noise when fixed to materials subject to daily thermal expansion and contraction

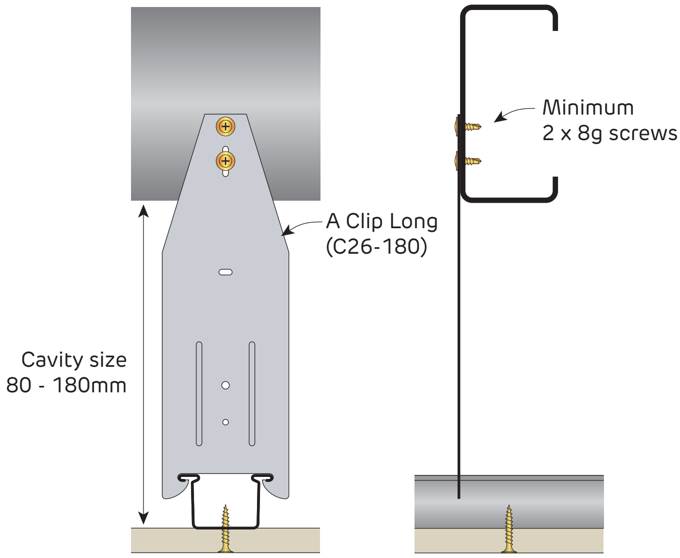



**FIGURE 21 A Clip Long**
Perspective and Sections

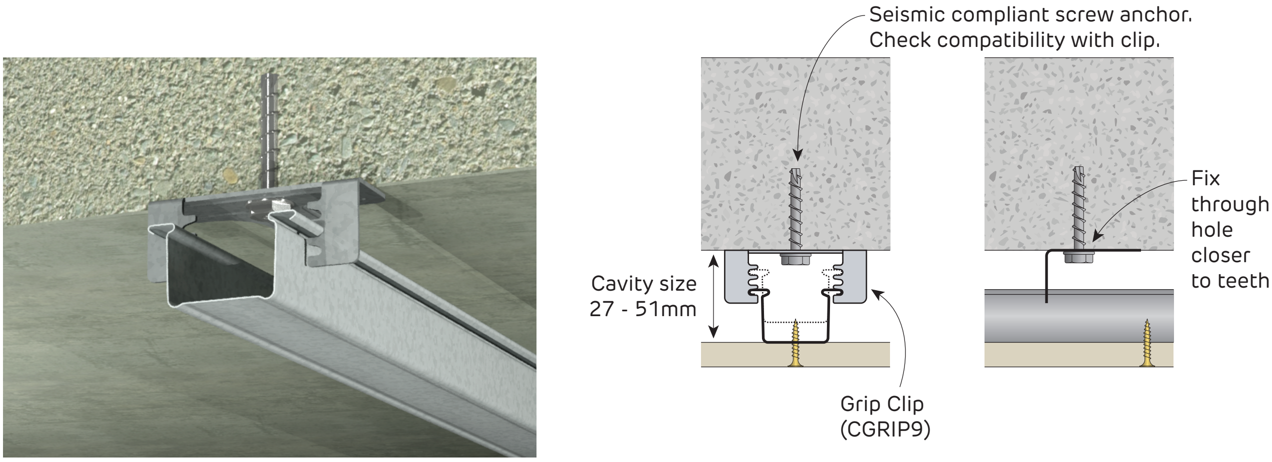



**FIGURE 22 Grip Clip**
With 9mm hole suitable for 6mm Screw Anchor
Perspective and Sections

## Fire Rated and Non-Fire Rated
## Internal Ceilings - Direct Fix

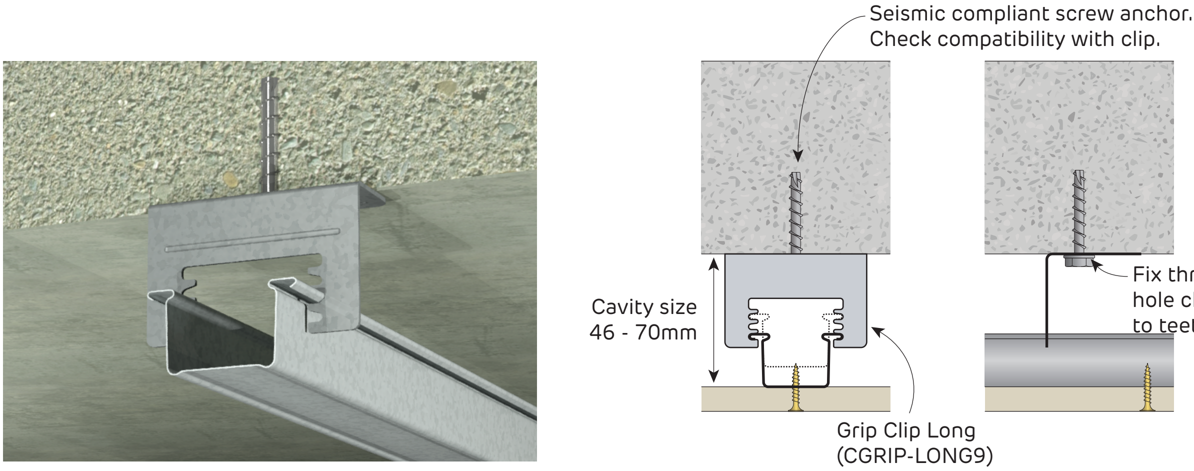



**FIGURE 23 Grip Clip Long**
With 9mm hole suitable for 6mm Screw Anchor
Perspective and Sections

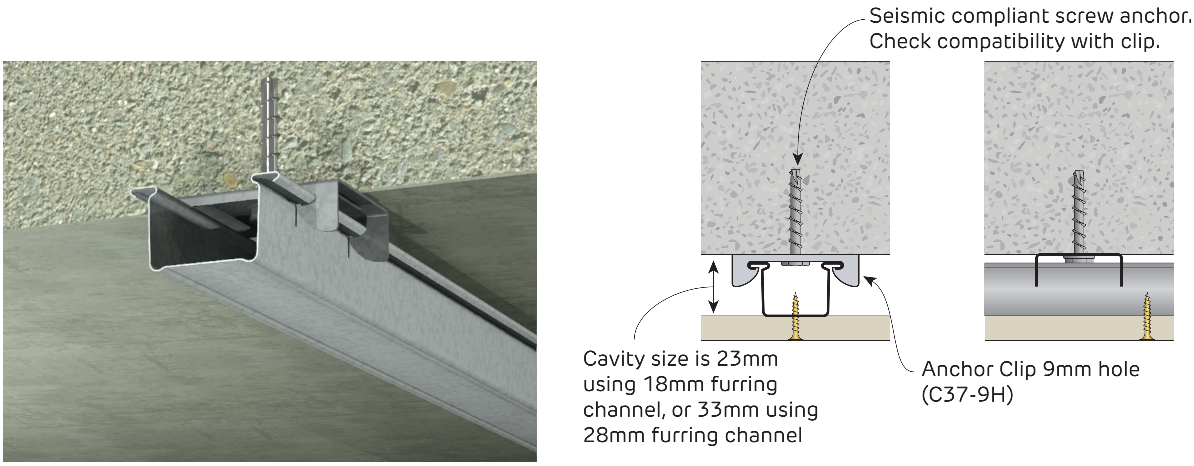



**FIGURE 24 Anchor Clip**
With 9mm hole suitable for 6mm Screw Anchor
Perspective and Sections

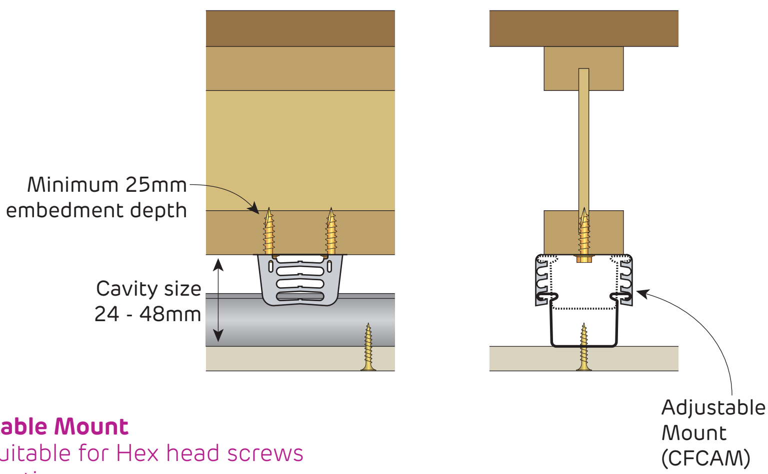



**FIGURE 25 Adjustable Mount**
With 7mm holes suitable for Hex head screws
Perspective and Sections

## Fire Rated and Non-Fire Rated
### Internal Ceilings - Acoustic Clips

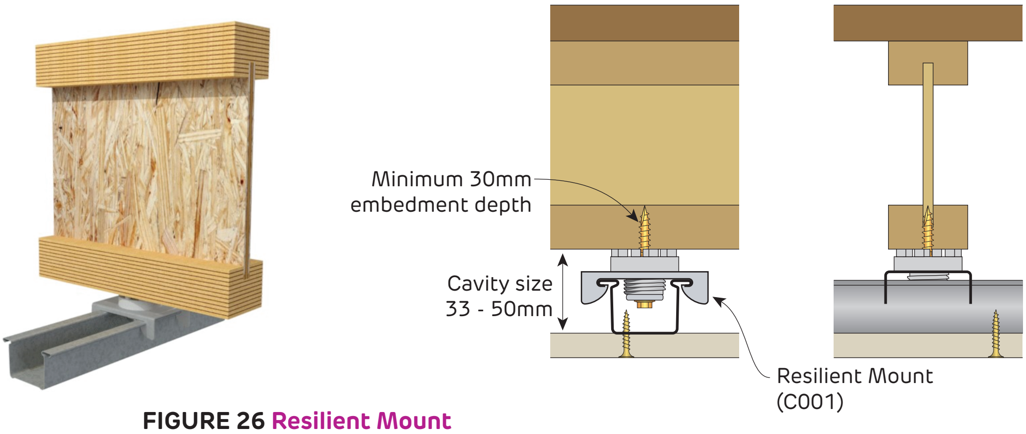



**FIGURE 26 Resilient Mount**
With 6.5mm hole suitable for Hex head screws
Perspective and Sections

## Fire Rated and Non-Fire Rated
## Suspension Rod Clips

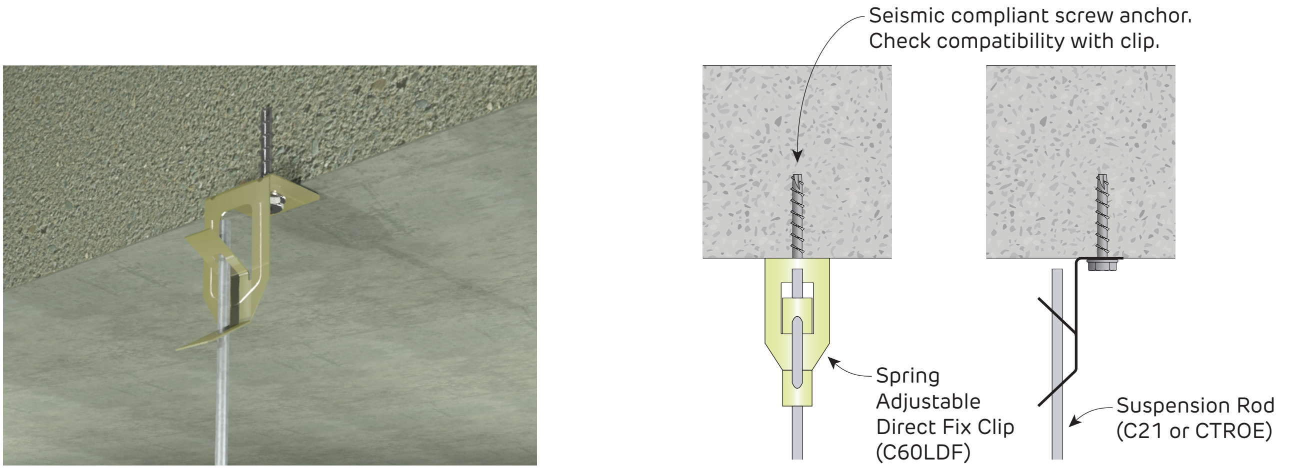



**FIGURE 27** **Spring Adjustable Direct Fix Clip to Concrete**
Perspective and Sections

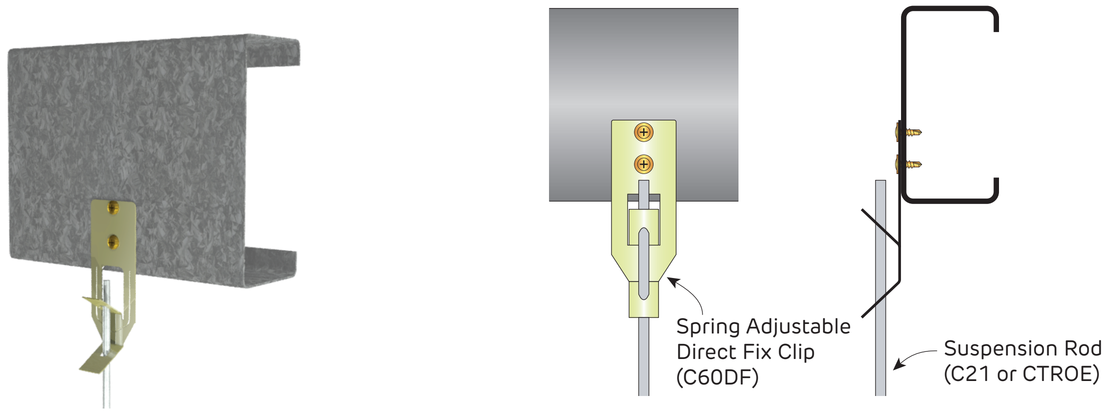



**FIGURE 28** **Spring Adjustable Direct Fix Clip to Purlin**
Perspective and Sections

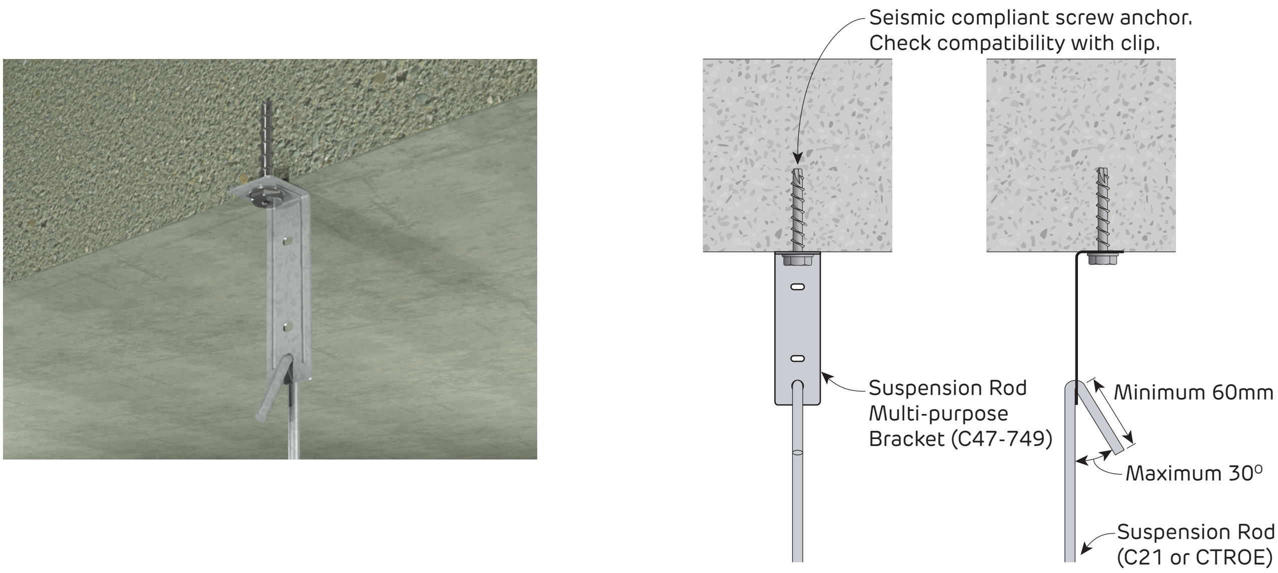



**FIGURE 29** **Suspension Rod Multi-purpose Bracket**
Perspective and Sections

## Fire Rated and Non-Fire Rated
## Suspension Rod Clips

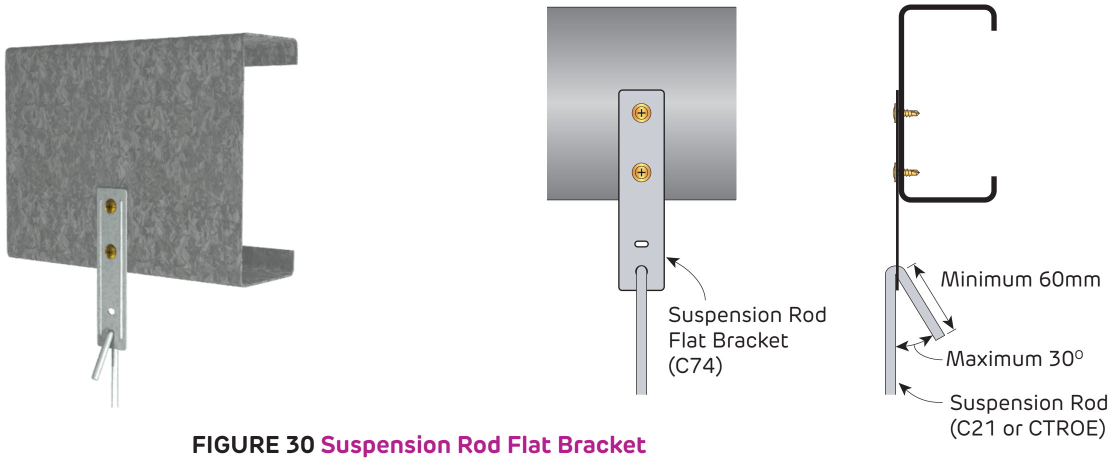
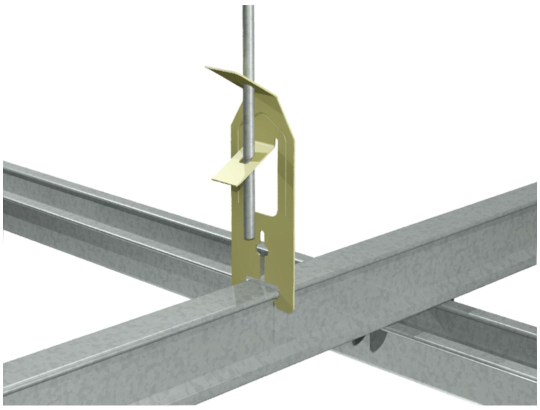



**FIGURE 30 Suspension Rod Flat Bracket**
Perspective and Sections

## Fire Rated and Non-Fire Rated
## Top Cross Rail Clips



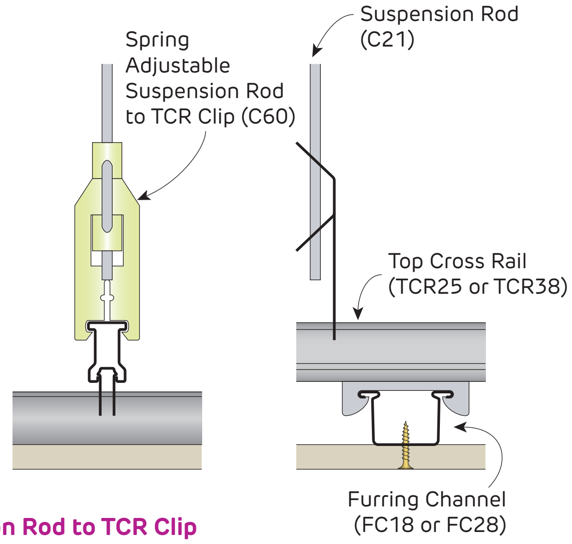



**FIGURE 31 Spring Adjustable Suspension Rod to TCR Clip**
Perspective and Sections

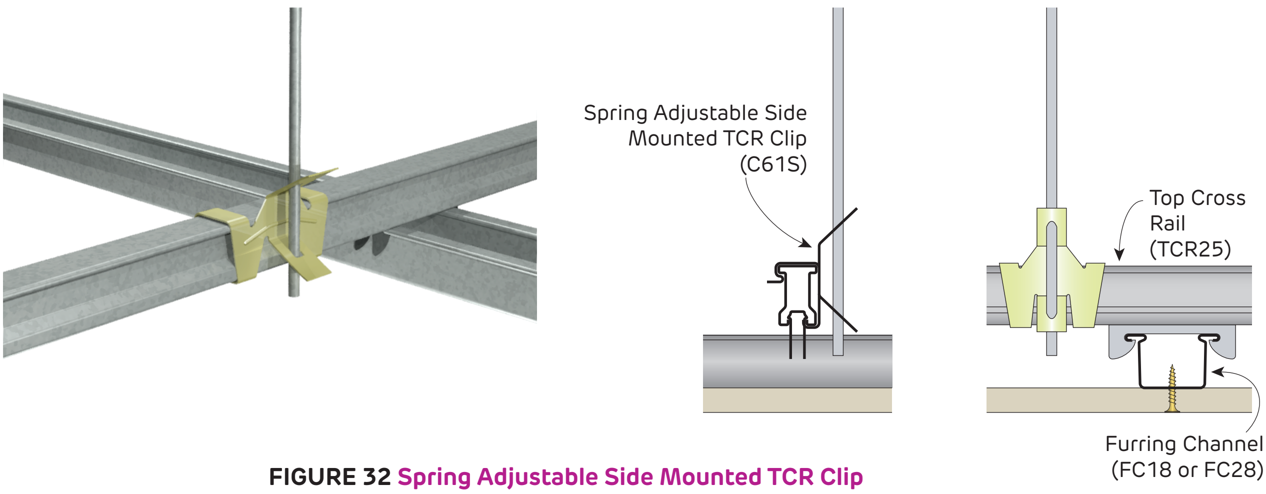



**FIGURE 32 Spring Adjustable Side Mounted TCR Clip**
Perspective and Sections

## Fire Rated and Non-Fire Rated
## Top Cross Rail Clips

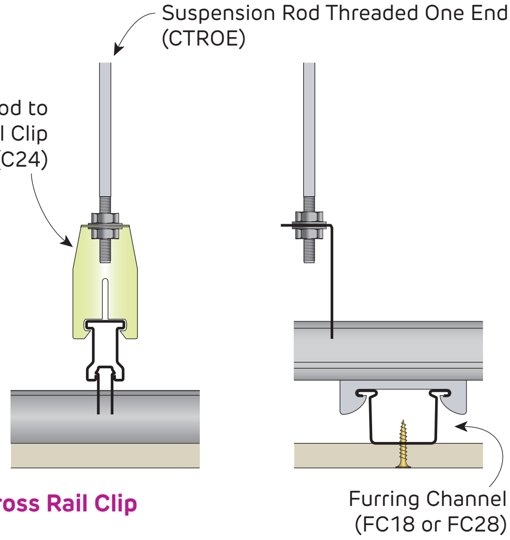



**FIGURE 33** **Threaded Rod to Top Cross Rail Clip**
Perspective and Sections

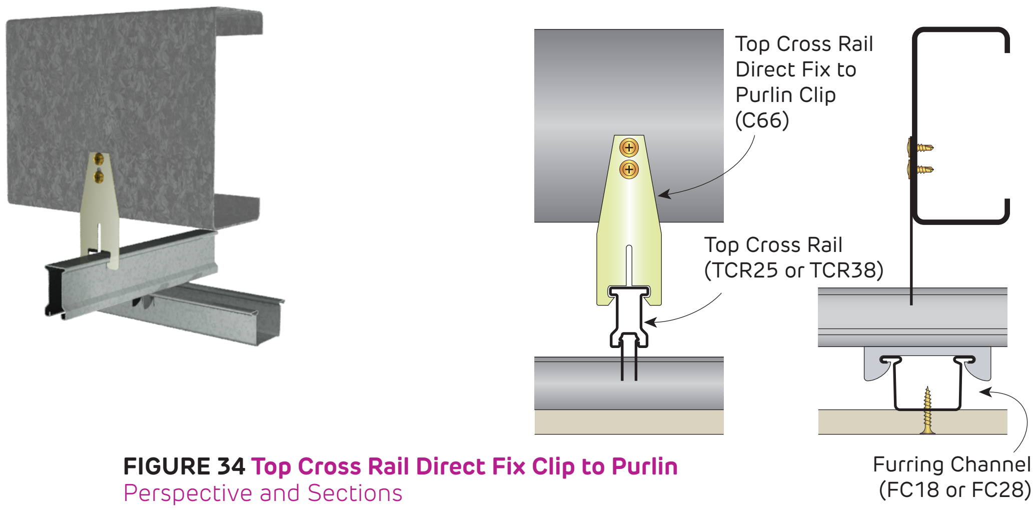



**FIGURE 34** **Top Cross Rail Direct Fix Clip to Purlin**
Perspective and Sections

## Fire Rated and Non-Fire Rated
## Locking Key

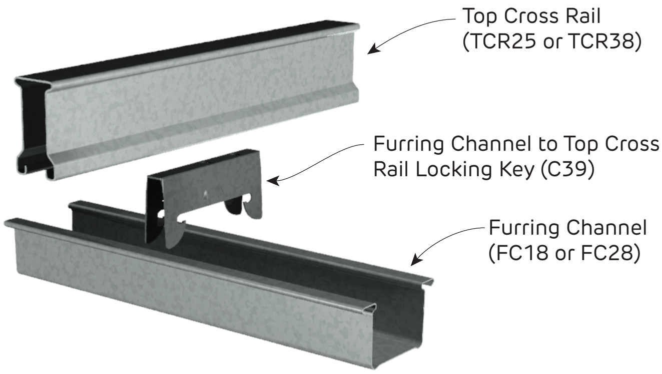



**FIGURE 35** **Locking Key**
Perspective

## Non-Fire Rated

### Internal Ceilings - Direct Fix

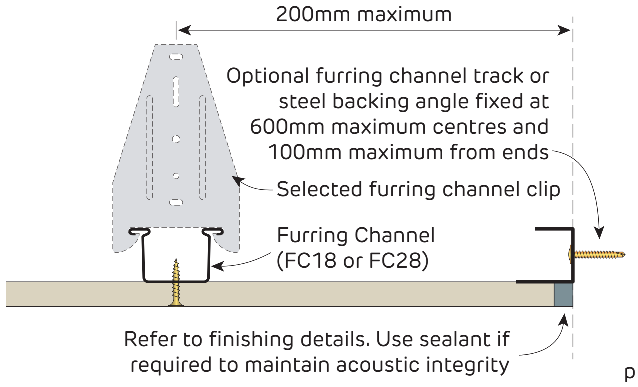



**FIGURE 36 Direct Fix Ceiling Frame**
Perimeter detail for acoustic integrity
Section

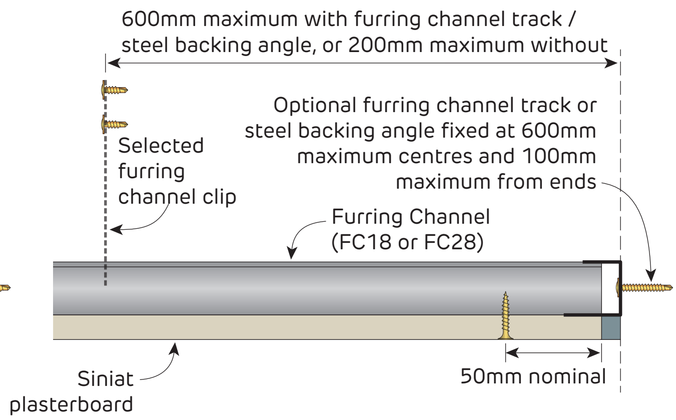



**FIGURE 37 Direct Fix Ceiling Frame**
Perimeter detail for acoustic integrity
Section

Suspended ceiling systems like battens installed with clips, do not provide sufficient diaphragm action to transfer wind loads from roofs to bracing walls. As such, an alternative method of transferring these loads must be used.

## Fire Rated

### Internal Ceilings - Direct Fix

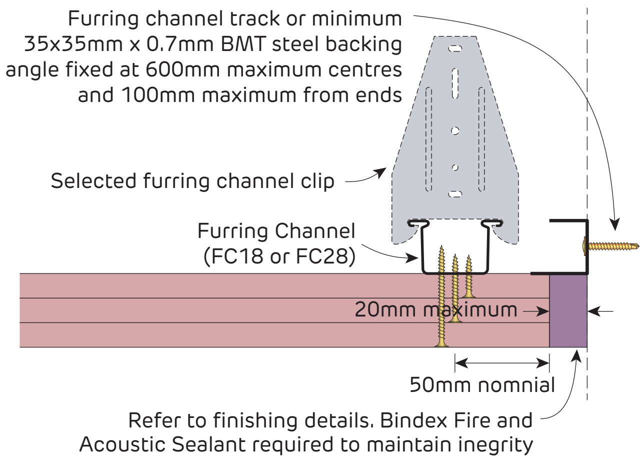



**FIGURE 38 Direct Fix Ceiling**
Perimeter detail for fire and acoustic integrity
Section

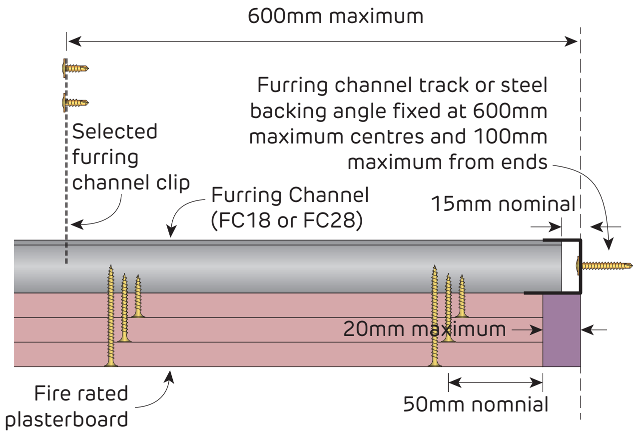
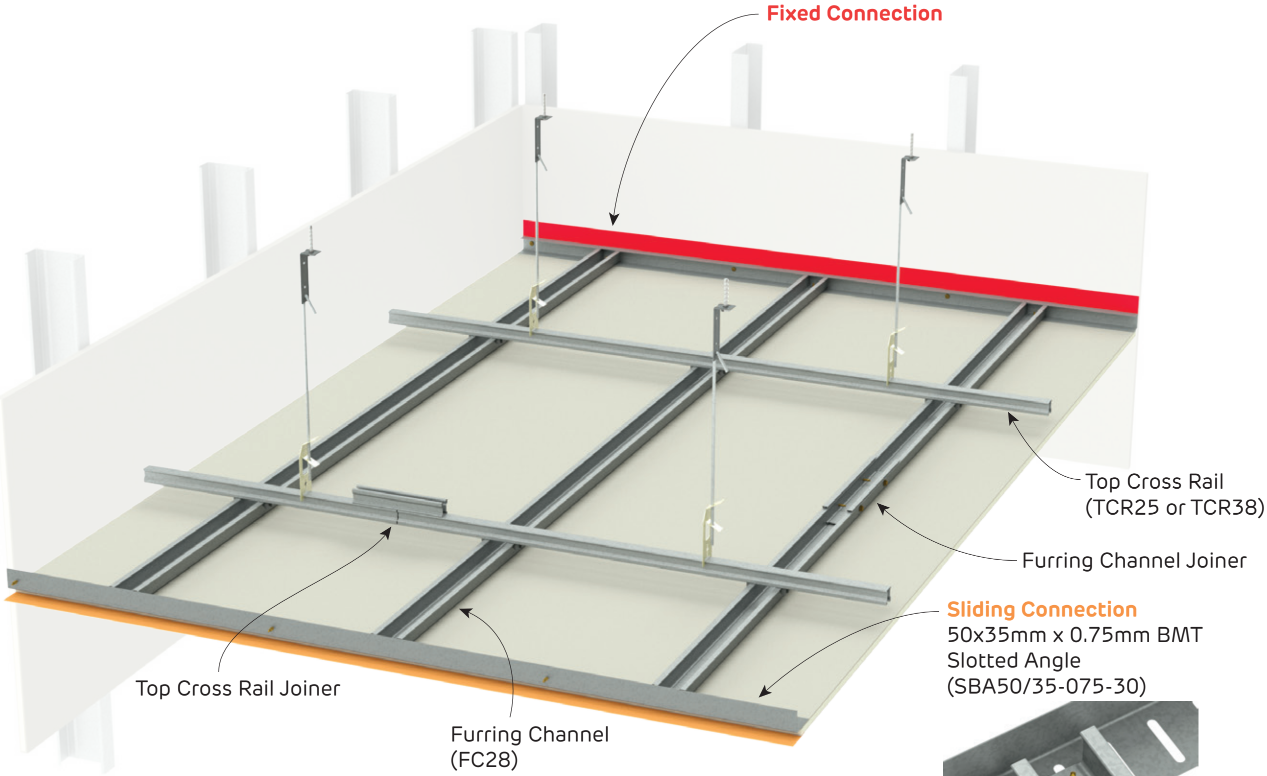



**FIGURE 39 Direct Fix Ceiling**
Perimeter detail for fire and acoustic integrity
Section

## Non-Fire Rated

### Seismic Details for Suspended Ceiling - Type A Fixed / Sliding



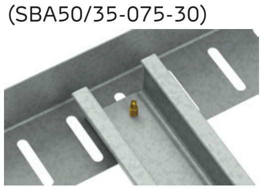
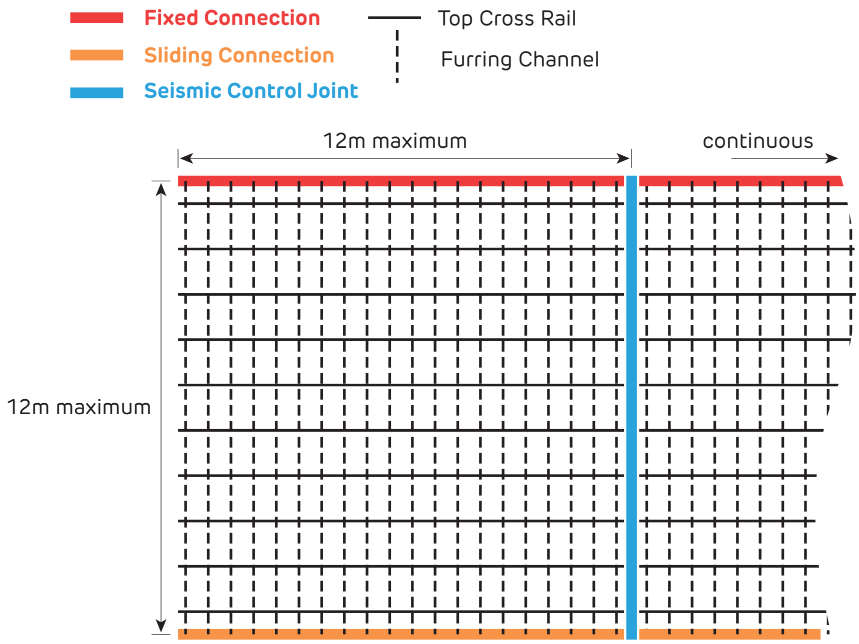



**FIGURE 40** Suspended Ceiling Frame - Type A
One side **Fixed** and the opposite side **Sliding**
Perspective




Specific project details must be determined by structural design

**FIGURE 41** Suspended Ceiling Frame - Type A Fixed / Sliding
One Side **Fixed** and the opposite Side **Sliding**
Plan

## Non-Fire Rated

### Seismic Details for Suspended Ceiling - Type A Fixed / Sliding

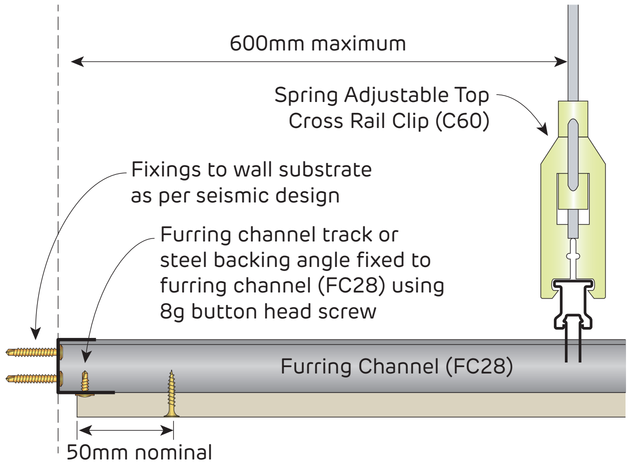



**FIGURE 42 Furring Channel Fixed Connection**
Perimeter detail
Section

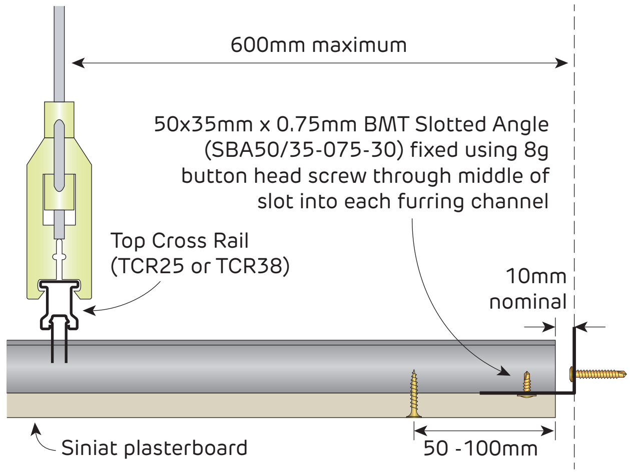



**FIGURE 43 Furring Channel Sliding Connection**
Perimeter detail
Section

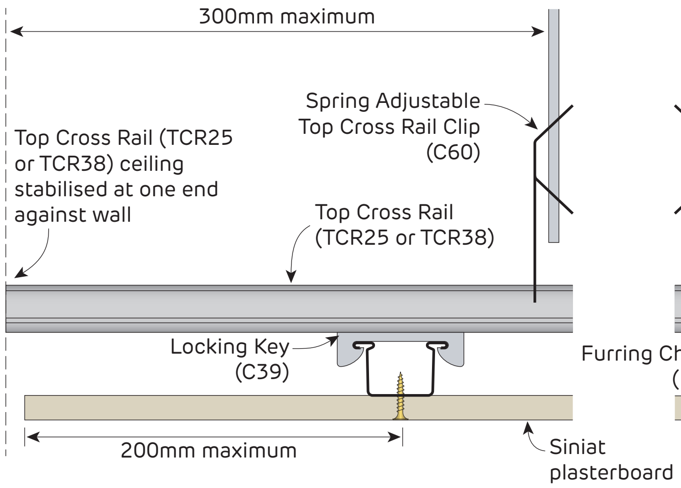



**FIGURE 44 Top Cross Rail Stabilised End Detail**
Perimeter detail
Section

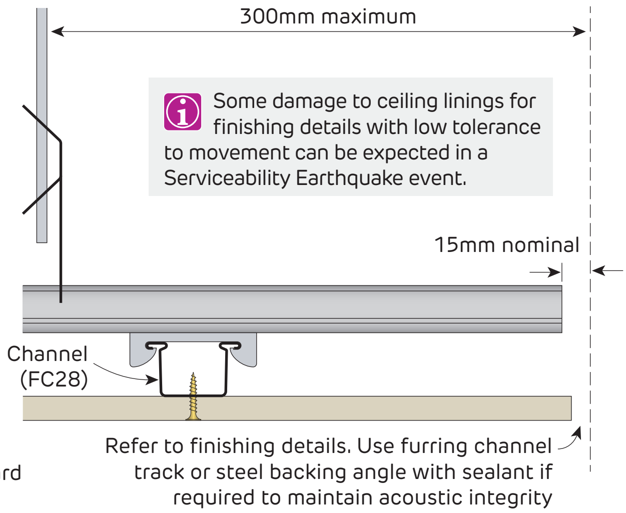



**FIGURE 45 Top Cross Rail End Detail**
Perimeter detail
Section

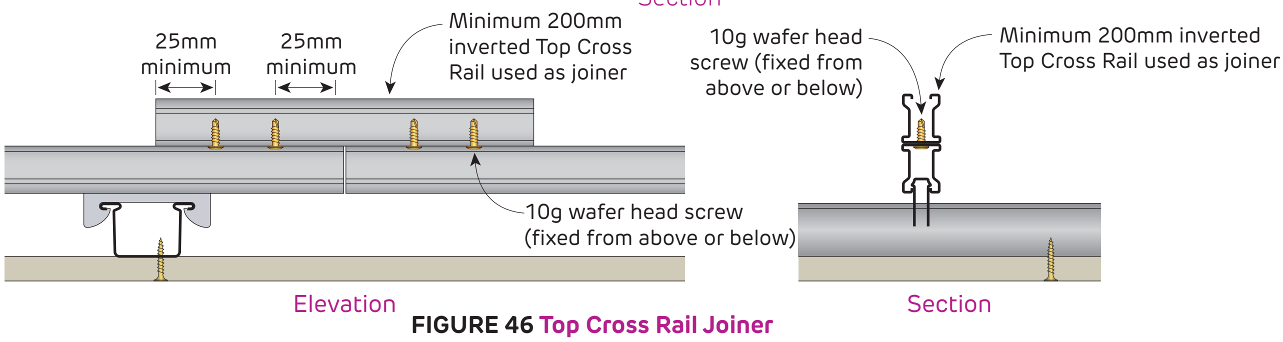



**FIGURE 46 Top Cross Rail Joiner**
For Type A Suspended Ceilings

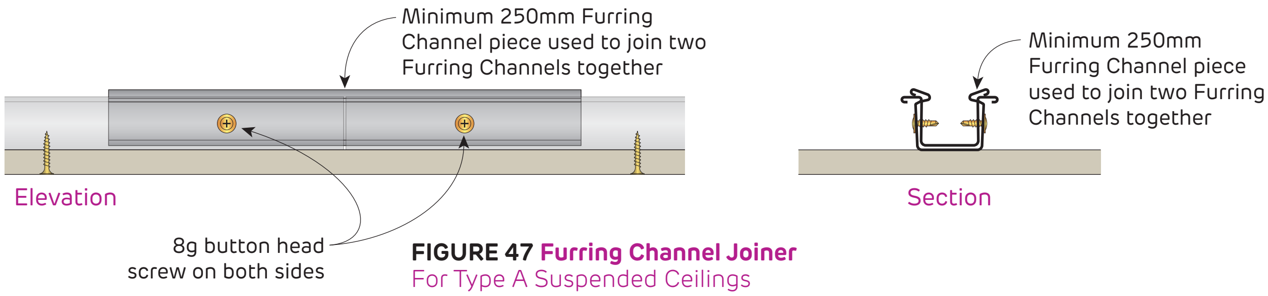



**FIGURE 47 Furring Channel Joiner**
For Type A Suspended Ceilings

## Non-Fire Rated

### Bulkhead Details for Suspended Ceiling - Type A

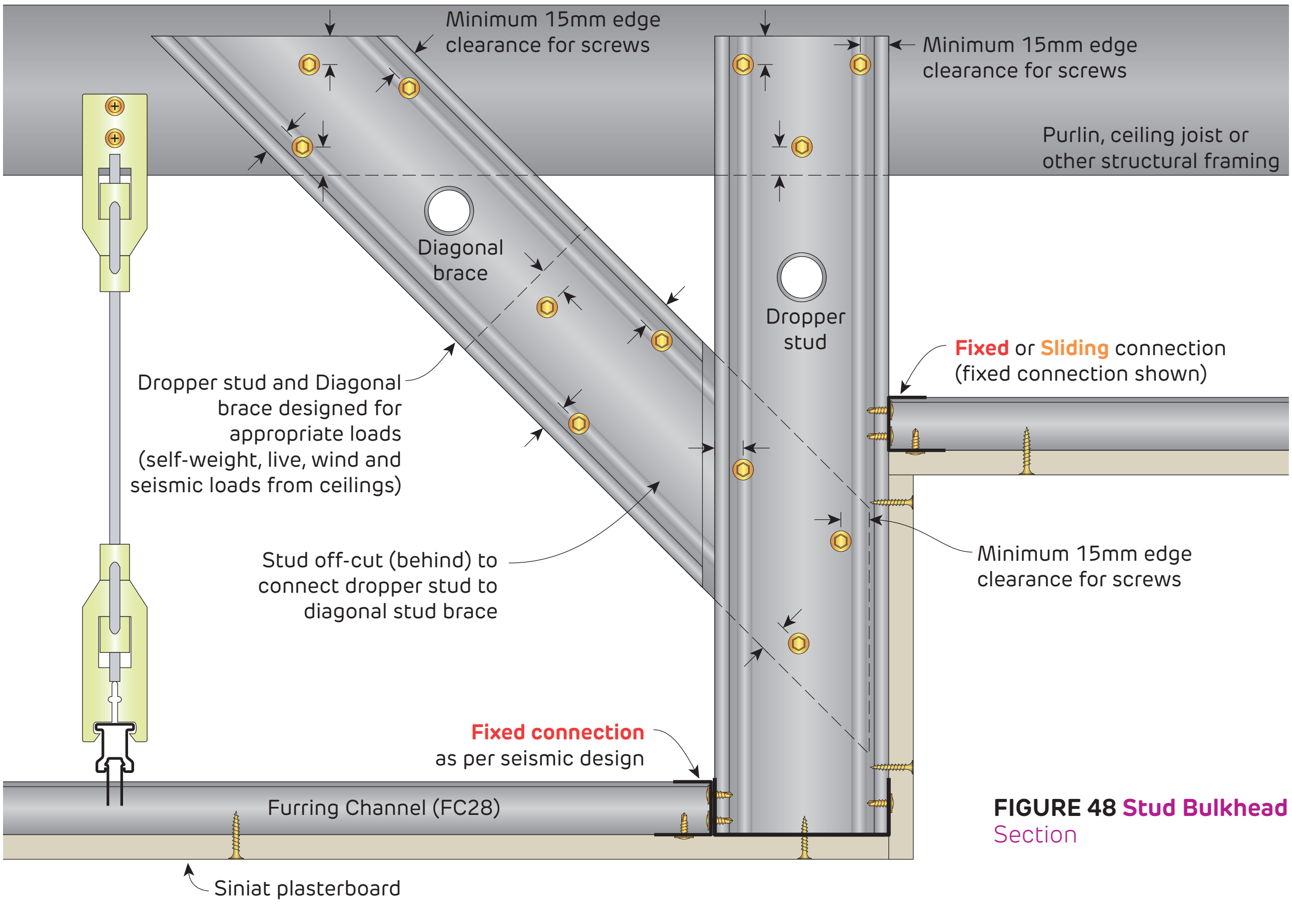



**FIGURE 48 Stud Bulkhead**
Section

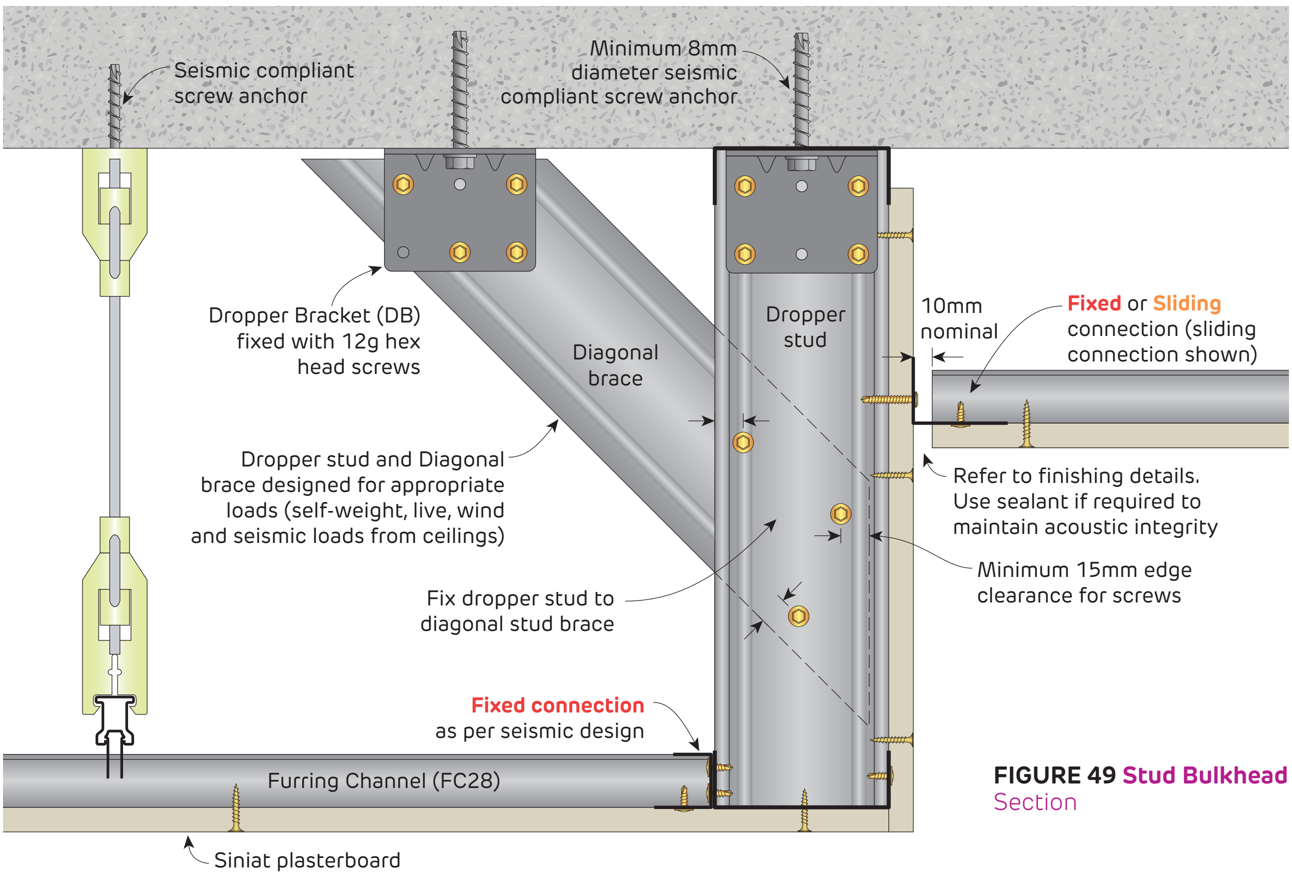



**FIGURE 49 Stud Bulkhead**
Section

## Fire Rated
### Seismic Details for Suspended Ceiling - Type A Fixed / Sliding

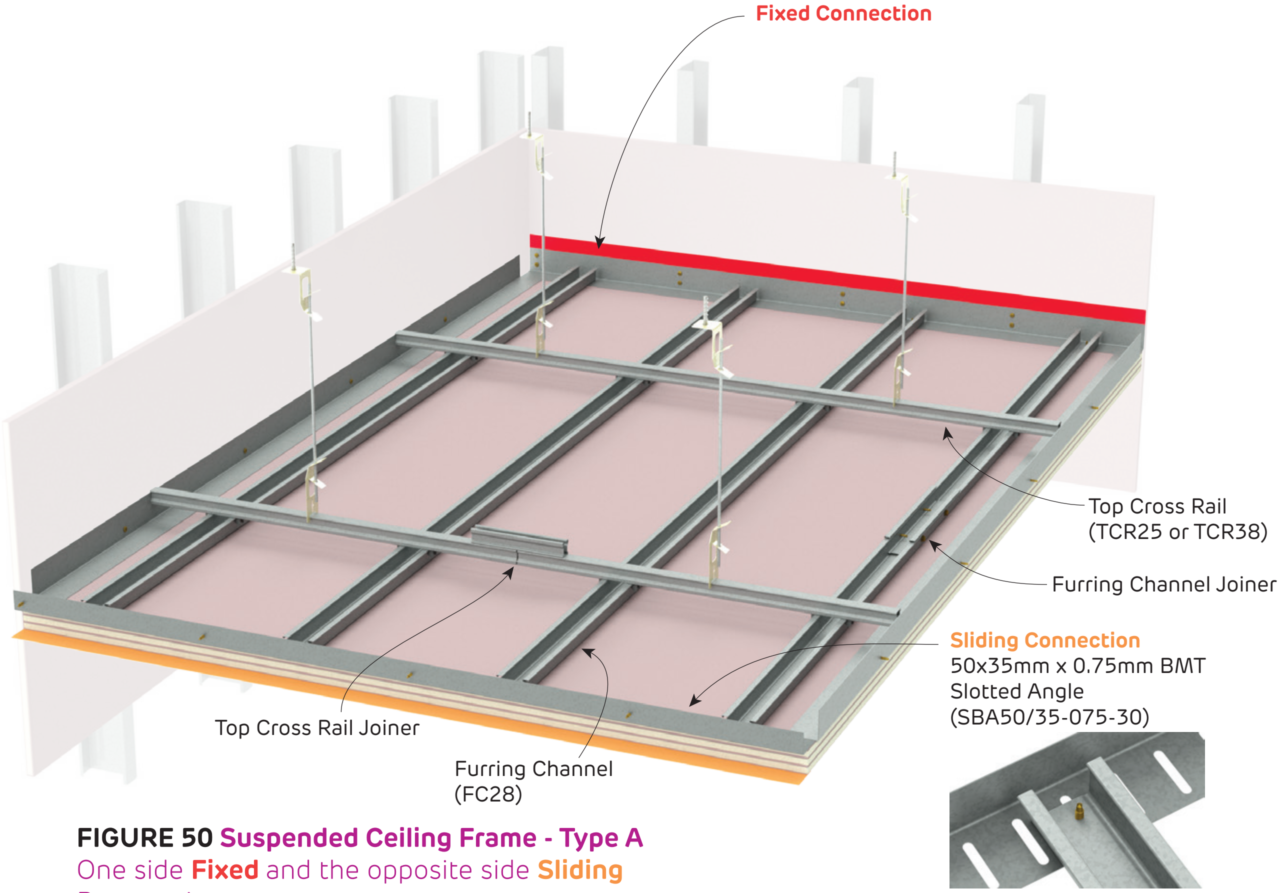
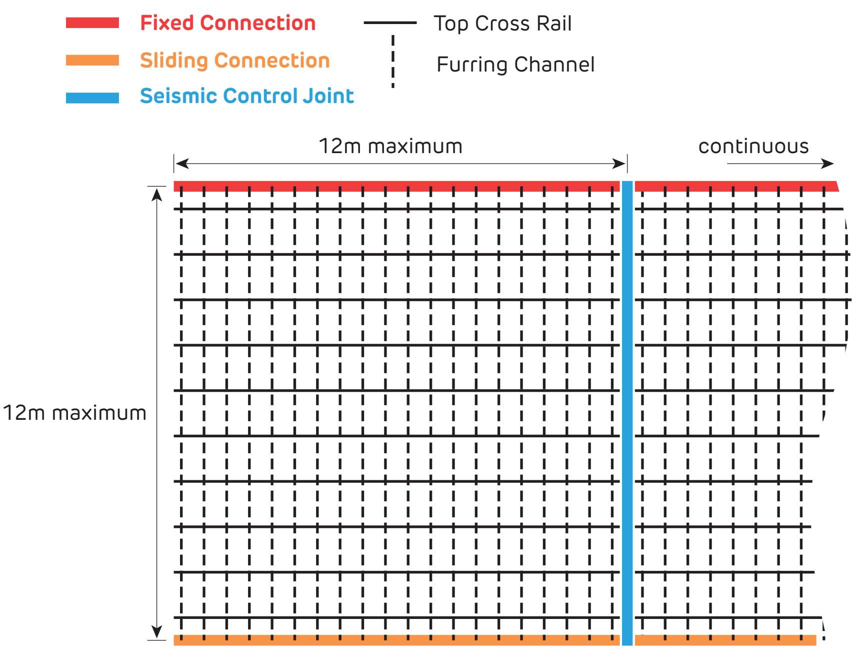



**FIGURE 50** Suspended Ceiling Frame - Type A
One side **Fixed** and the opposite side **Sliding**
Perspective




Specific project details must be determined by structural design

**FIGURE 51** Suspended Ceiling Frame - Type A Fixed / Sliding
One side **Fixed** and the opposite side **Sliding**
Plan

# Fire Rated

## Seismic Details for Suspended Ceiling - Type A Fixed / Sliding

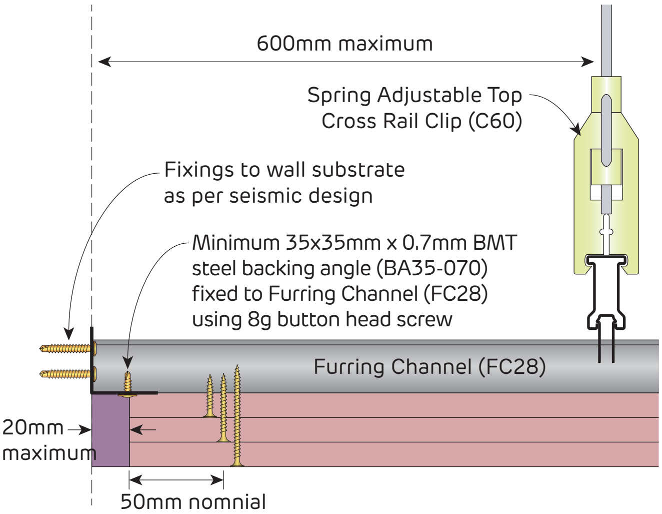



**FIGURE 52** Furring Channel Fixed Connection
Perimeter detail
Section

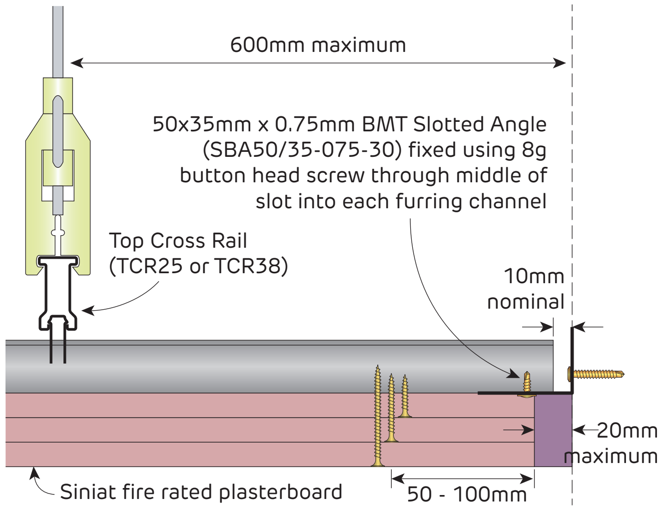



**FIGURE 53** Furring Channel Sliding Connection
Perimeter detail
Section

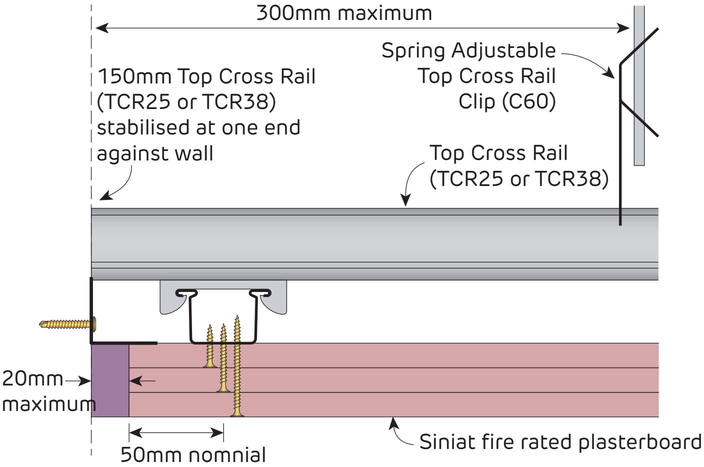



**FIGURE 54** Top Cross Rail Stabilised End Detail
Perimeter detail
Section

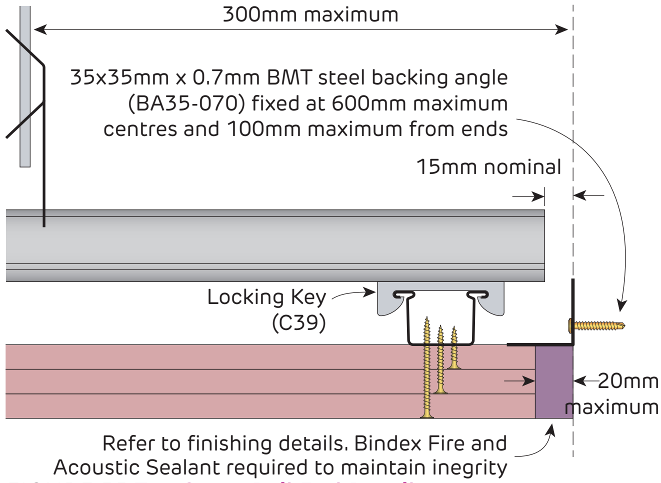



**FIGURE 55** Top Cross Rail End Detail
Perimeter detail
Section

Some damage to ceiling linings for finishing details with low tolerance to movement can be expected in a Serviceability Earthquake event.

## Fire Rated
## Seismic Details for Suspended Ceiling - Type A Fixed / Sliding

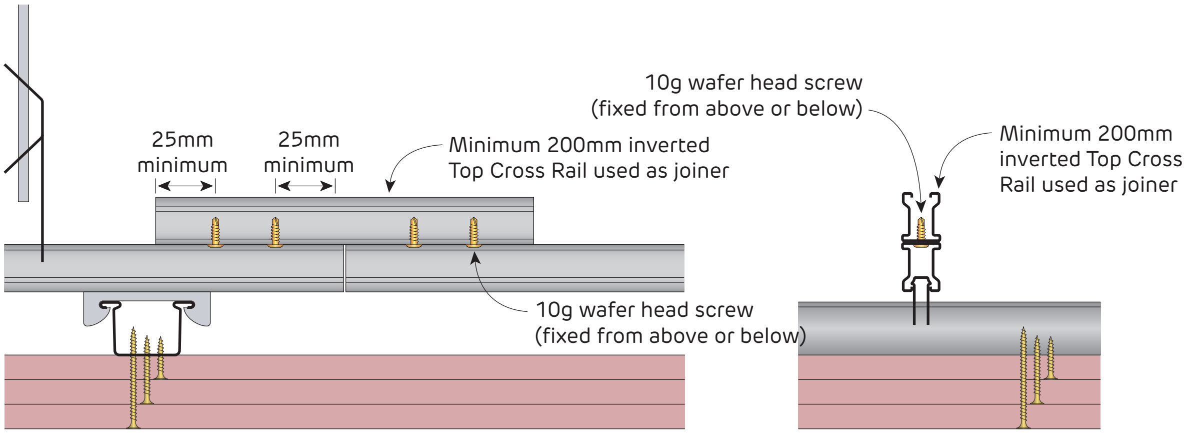



**FIGURE 56 Top Cross Rail Joiner**
For Type A Suspended Ceilings

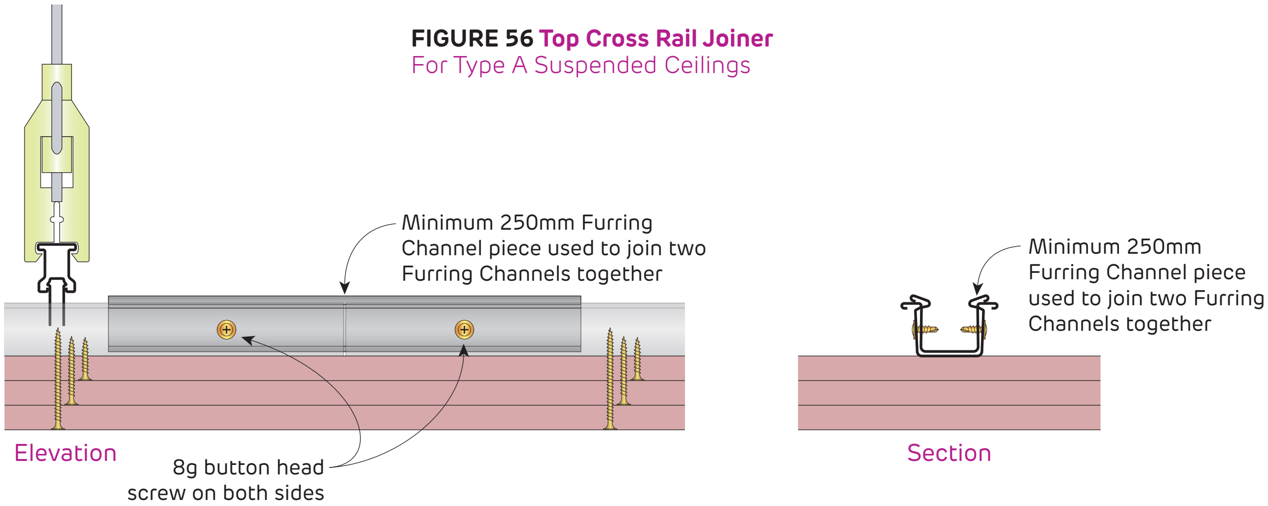



**FIGURE 57 Furring Channel Joiner**
For Type A Suspended Ceilings

## Fire Rated
## Bulkhead Details for Suspended Ceiling - Type A

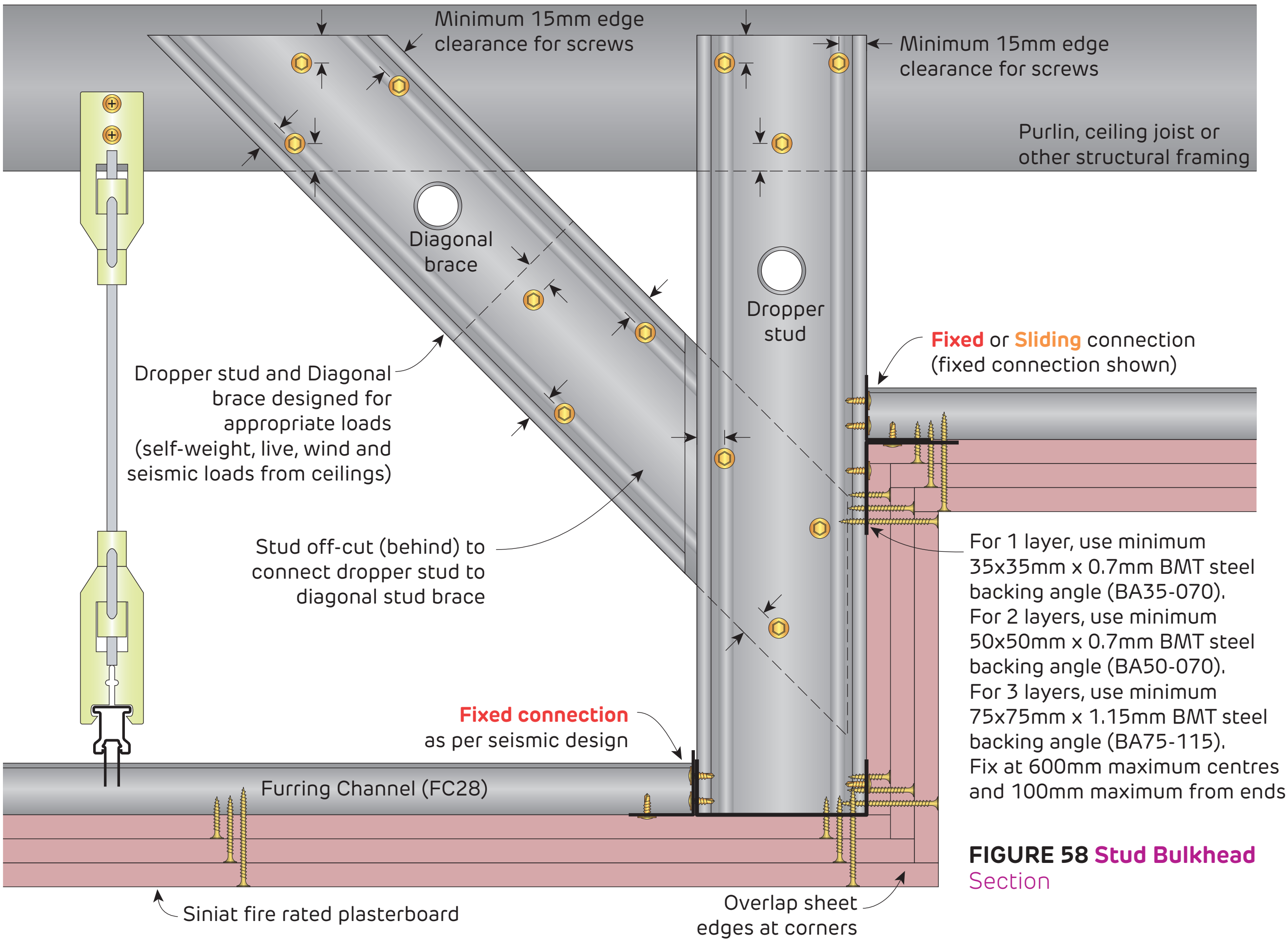



**FIGURE 58** Stud Bulkhead
Section

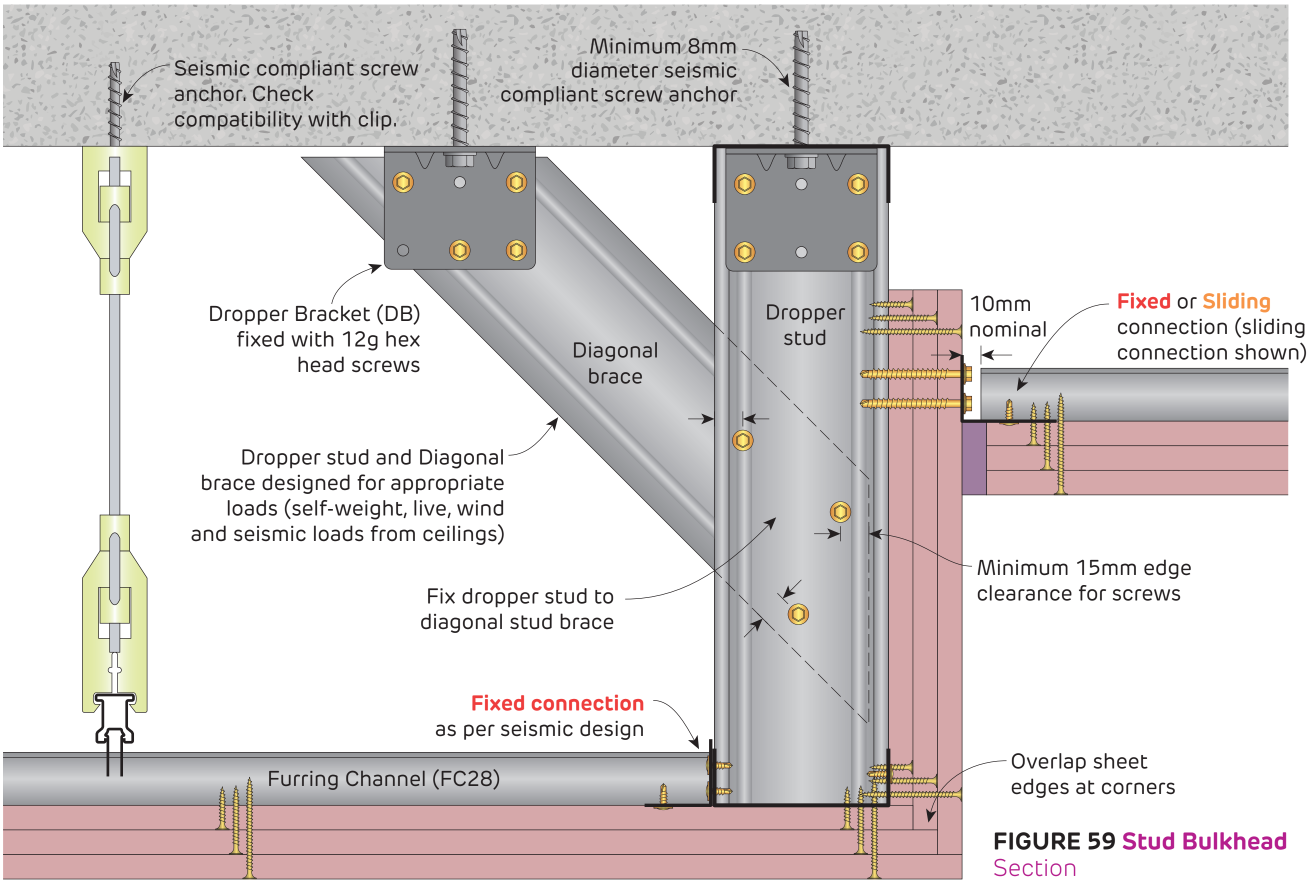



**FIGURE 59** Stud Bulkhead
Section

## Non-Fire Rated

### Seismic Details for Suspended Ceiling - Type B1 and B2 Fixed / Free

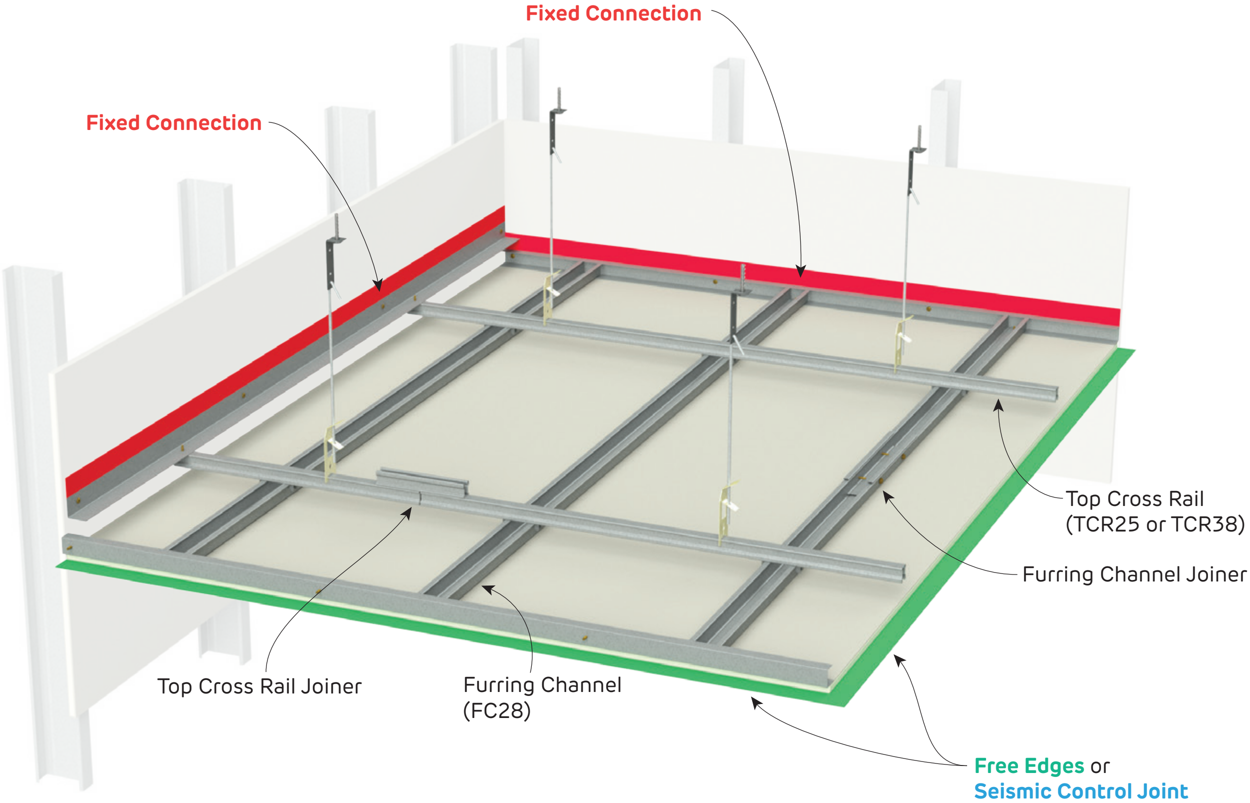



**FIGURE 60** **Suspended Ceiling - Type B1 and B2**
Two adjacent sides **Fixed** and two adjacent sides **Free**
Perspective

## Fire Rated

### Seismic Details for Internal Suspended Ceiling - Type B1 and B2 Fixed / Free

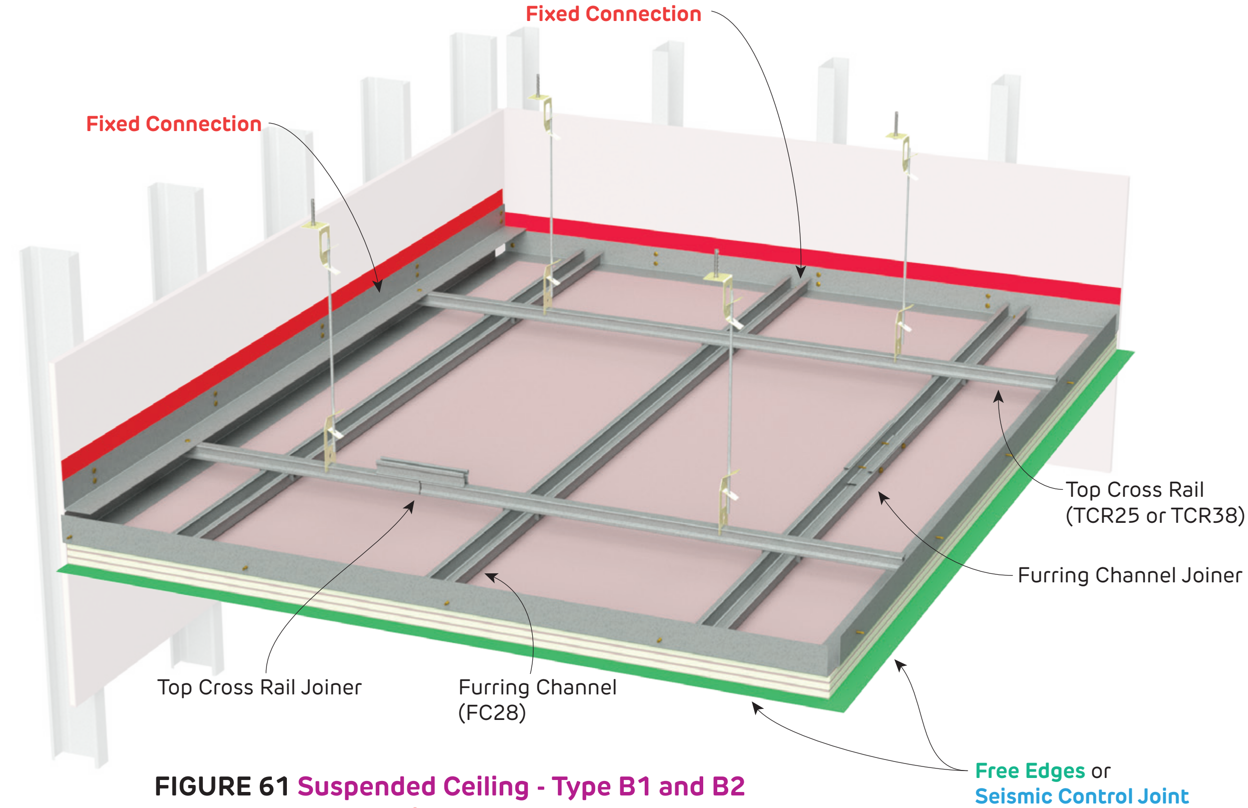



**FIGURE 61** **Suspended Ceiling - Type B1 and B2**
Two adjacent sides **Fixed** and two adjacent sides **Free**
Perspective

## Fire Rated and Non-Fire Rated
### Seismic Details for Suspended Ceiling - Type B1 and B2 Fixed / Free

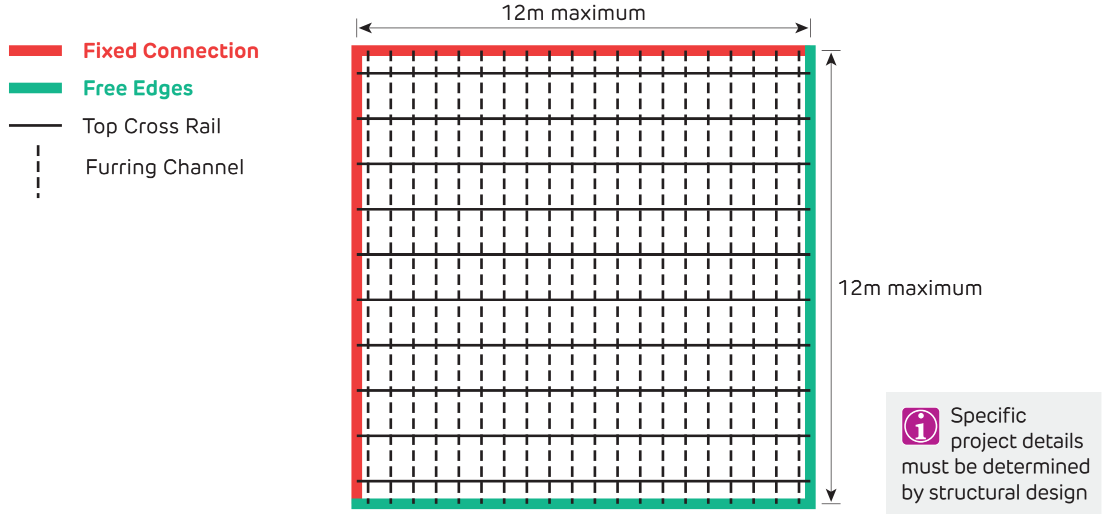



**FIGURE 62** Suspended Ceiling - Type B1
Two adjacent sides **Fixed** and two adjacent sides **Free**
Plan

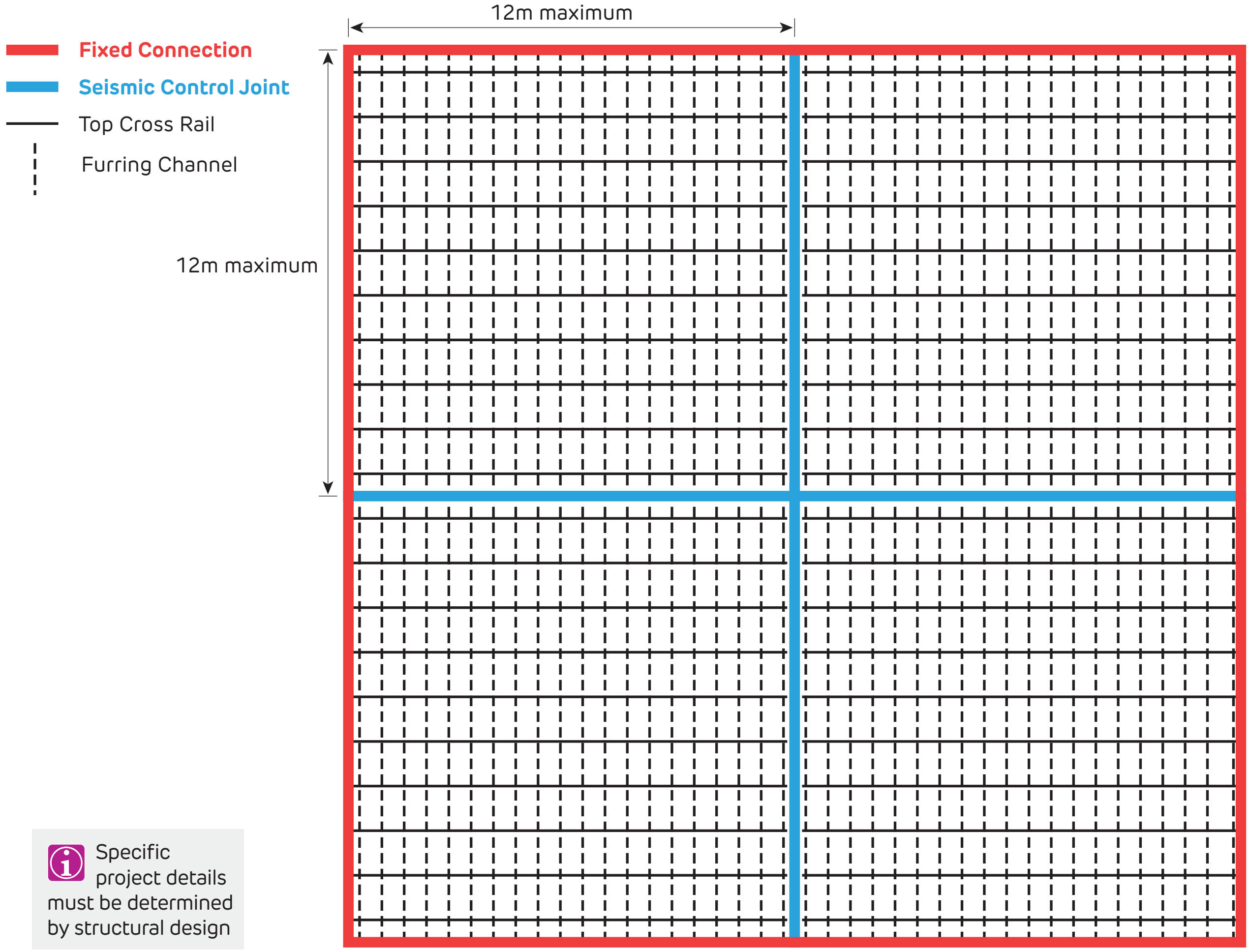



**FIGURE 63** Suspended Ceiling - Type B2
Four sides **Fixed** with internal **Seismic Control Joint**
Plan

## Non-Fire Rated

### Seismic Details for Suspended Ceiling - Type B1 and B2 Fixed / Free

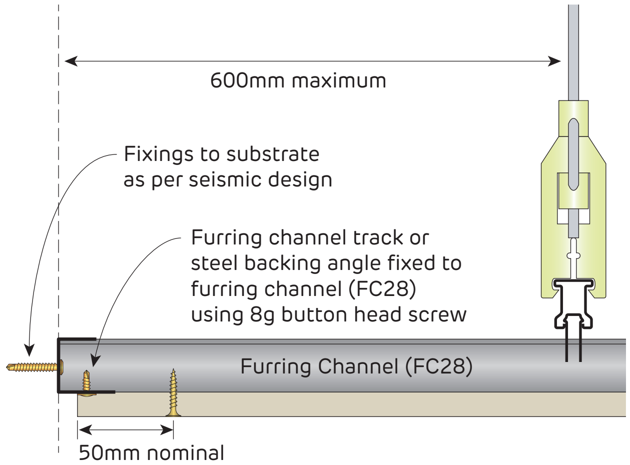



**FIGURE 64 Furring Channel Fixed Connection**
Perimeter detail
Section

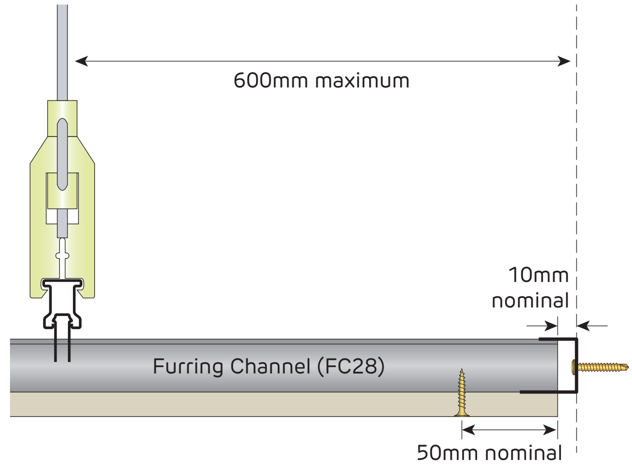



**FIGURE 65 Furring Channel Free Edge**
Perimeter detail
Section

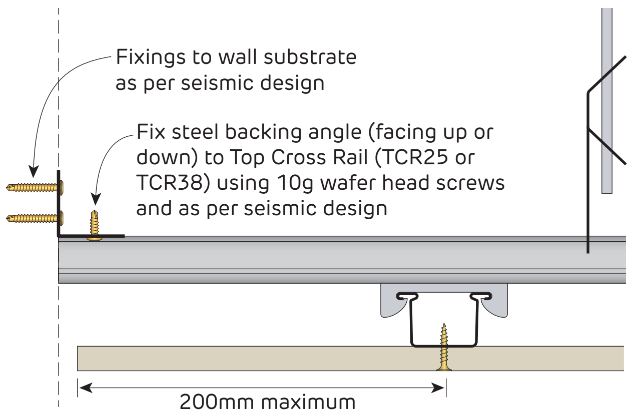



**FIGURE 66 Top Cross Rail Fixed Connection**
Perimeter detail
Section

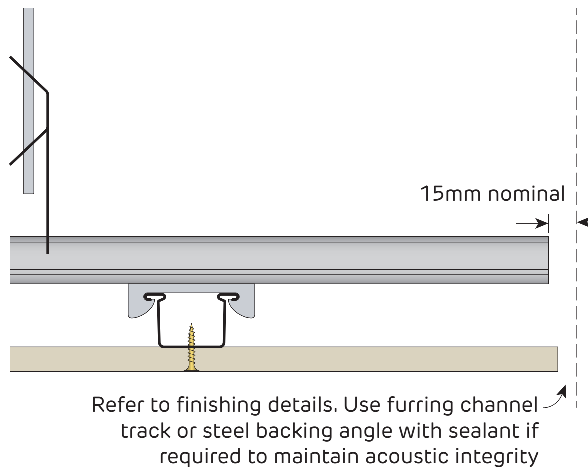



**FIGURE 67 Top Cross Rail Free Edge**
Perimeter detail
Section

## Non-Fire Rated

### Seismic Details for Suspended Ceiling - Type B2

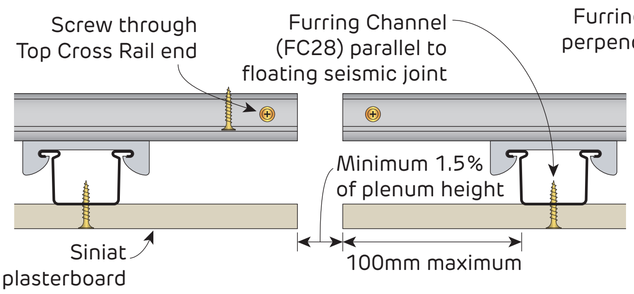



**FIGURE 68 Seismic Control Joint**
Parallel to furring channel
Section

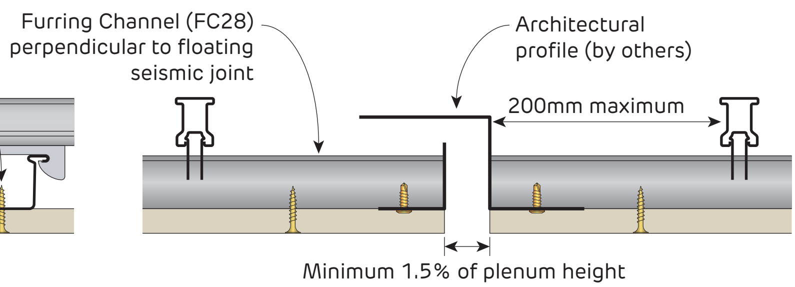



**FIGURE 69 Seismic Control Joint**
Perpendicular to furring channel
Section

## Fire Rated

### Seismic Details for Suspended Ceiling - Type B1 and B2 Fixed / Free

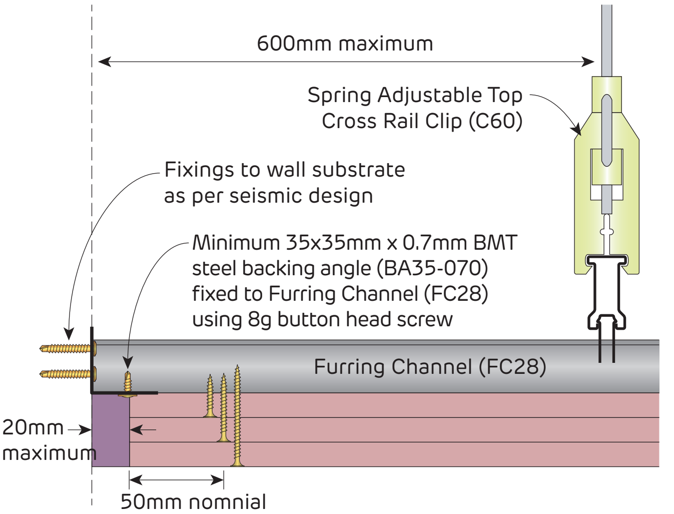



**FIGURE 70** Furring Channel Fixed Connection
Perimeter detail
Section

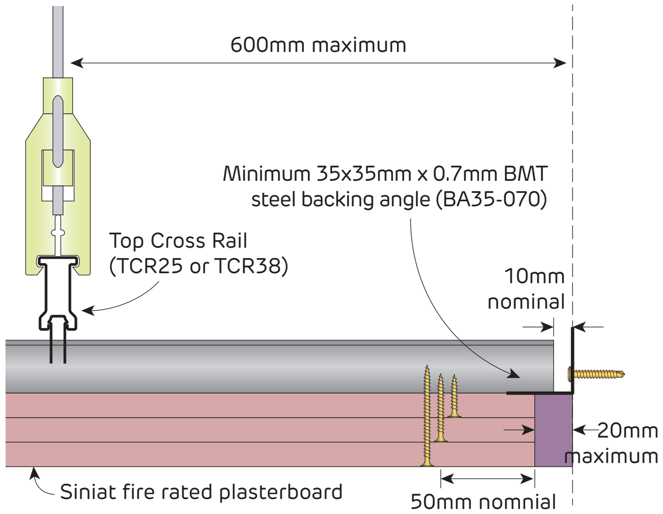



**FIGURE 71** Furring Channel Free Edge
Perimeter detail
Section

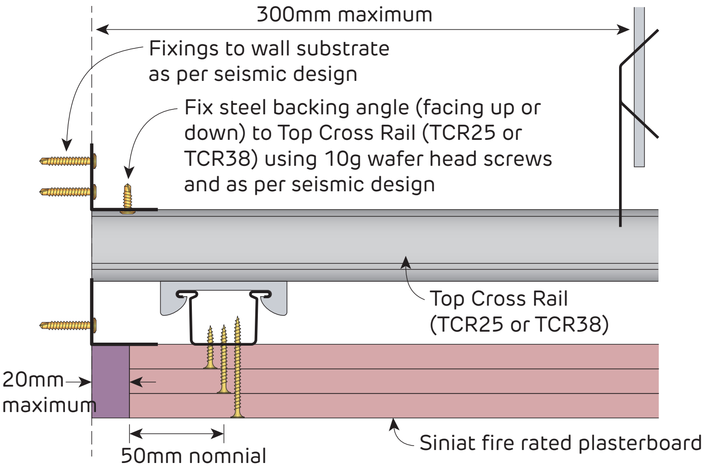



**FIGURE 72** Top Cross Rail Fixed Connection
Perimeter detail
Section

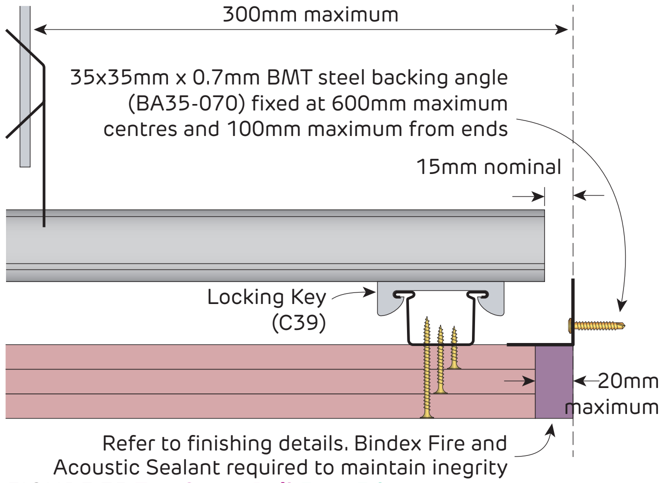



**FIGURE 73** Top Cross Rail Free Edge
Perimeter detail
Section

## Fire Rated and Non-Fire Rated
### Seismic Details for Suspended Ceiling - Type B1 and B2 Fixed / Free

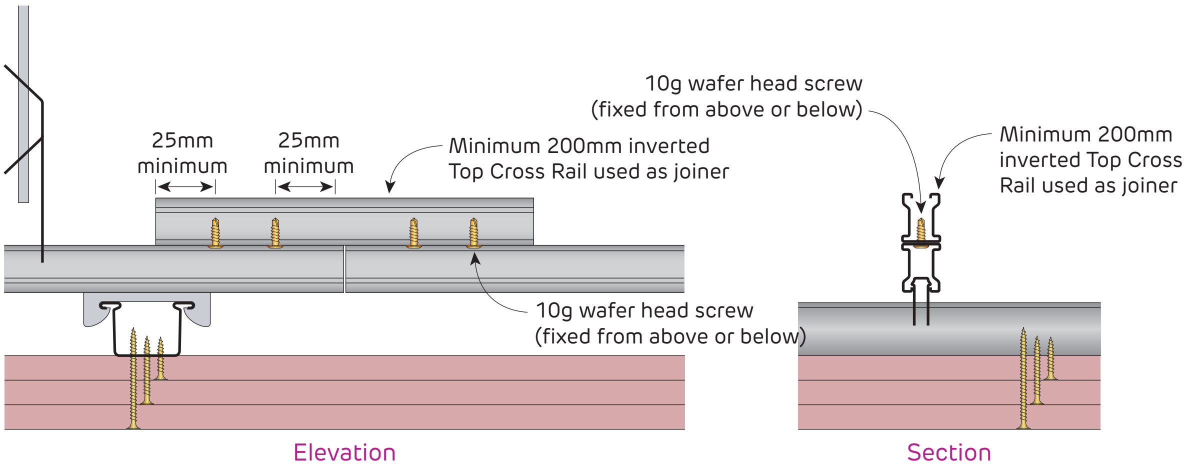



**FIGURE 74 Top Cross Rail Joiner**
For Type B1 and B2 Suspended Ceilings

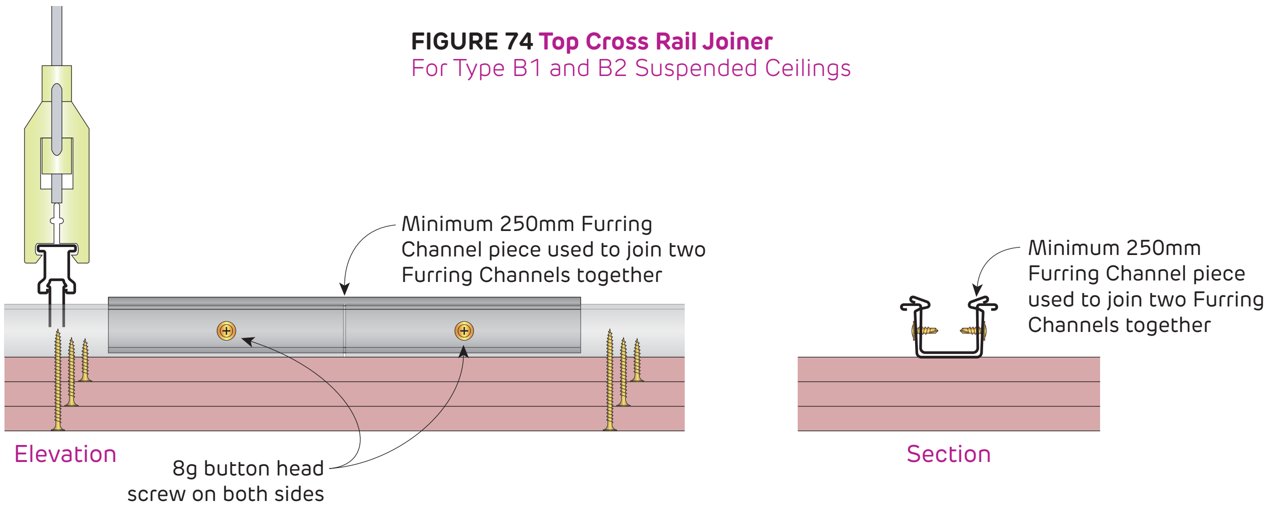



**FIGURE 75 Furring Channel Joiner**
For Type B1 and B2 Suspended Ceilings

## Non-Fire Rated

### Seismic Details for Suspended Ceiling - Type C, 2-way Plenum Braced

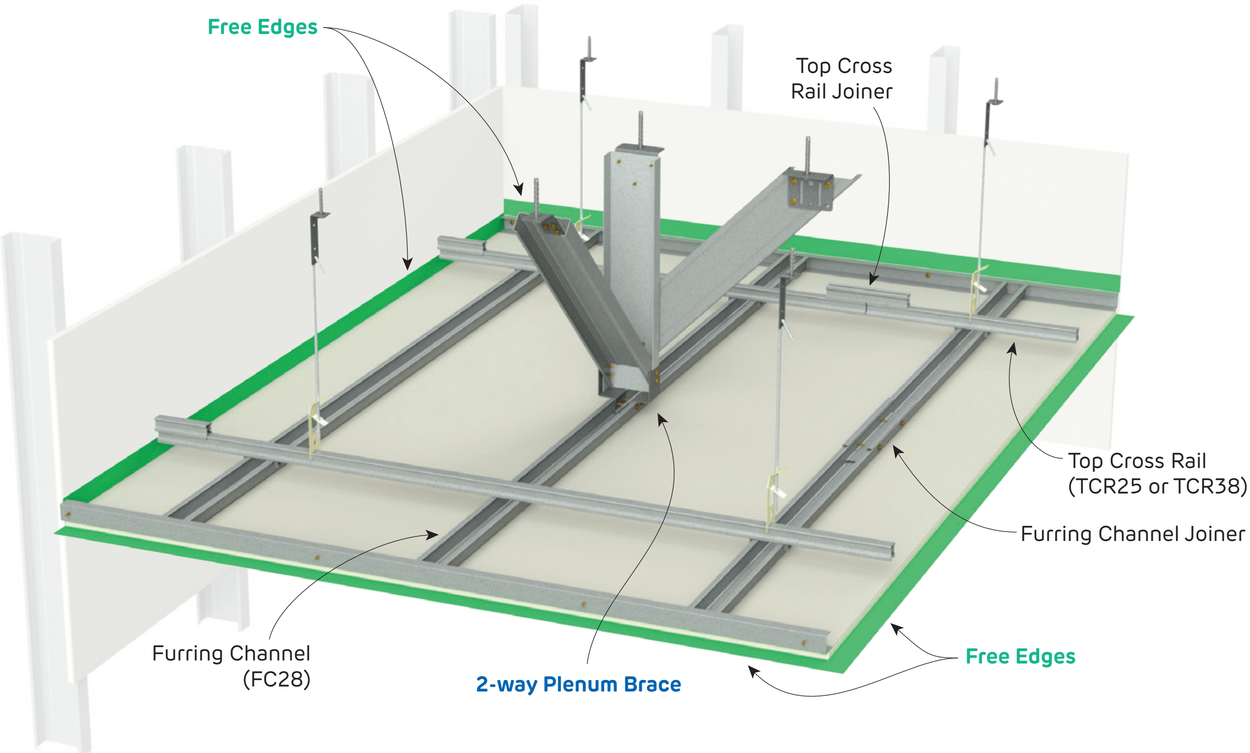



**FIGURE 76 Suspended Ceiling - Type C, 2-way Plenum Braced**
**2-way Plenum Brace** with four sides **Free**
Perspective

## Fire Rated

### Seismic Details for Suspended Ceiling - Type C, 2-way Plenum Braced

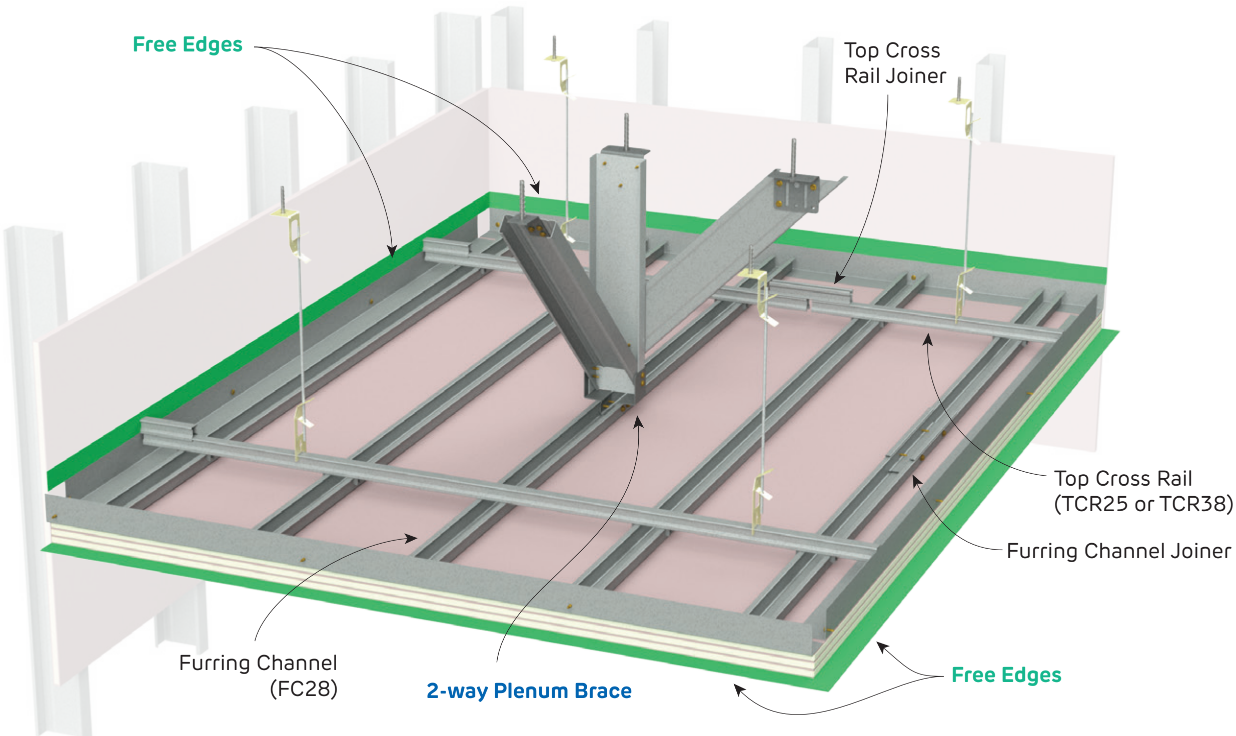



**FIGURE 77 Suspended Ceiling Frame - Type C, 2-way Plenum Braced**
**2-way Plenum Brace** with four sides **Free**
Perspective

## Fire Rated and Non-Fire Rated
### Seismic Details for Suspended Ceiling - Type C, 2-way Plenum Braced

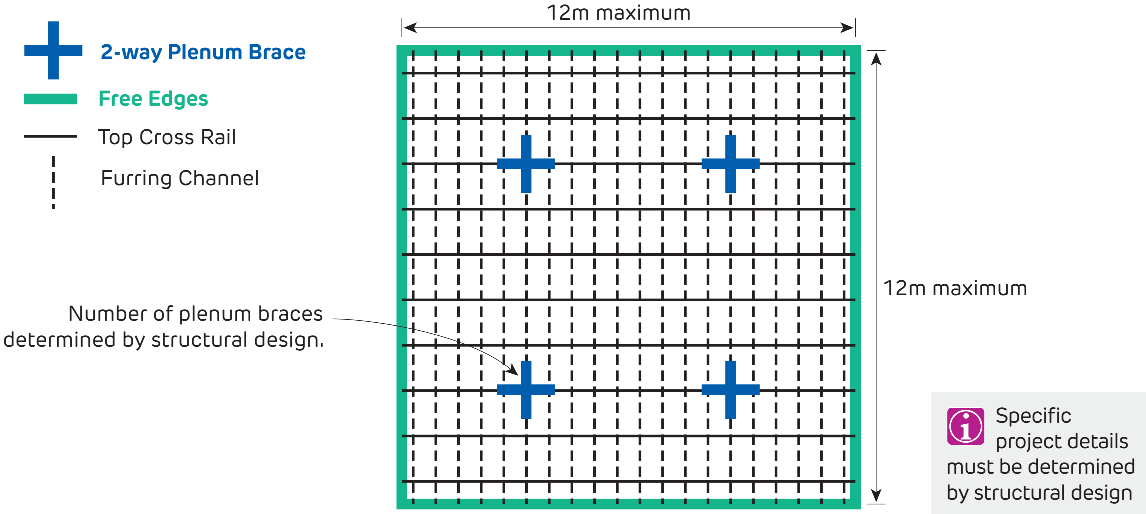



**FIGURE 78** Suspended Ceiling - Type C, 2-way Plenum Braced
2-way Plenum Brace with four sides Free
Plan

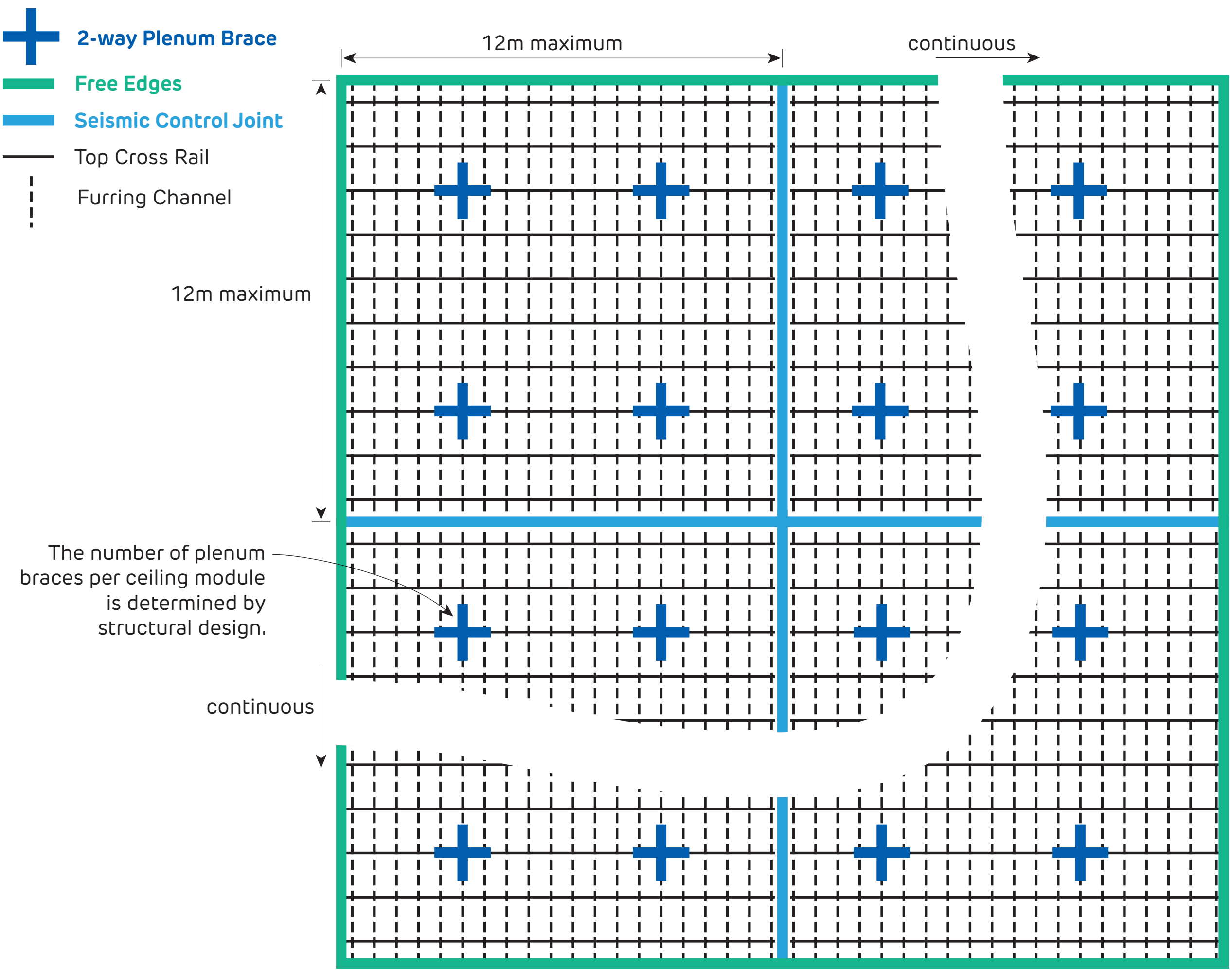



**FIGURE 79** Suspended Ceiling - Type C, 2-way Plenum Braced
2-way Plenum Brace with four sides Free
Plan

## Fire Rated and Non-Fire Rated
## Seismic Details for Suspended Ceiling - Type C, 2-way Plenum Braced

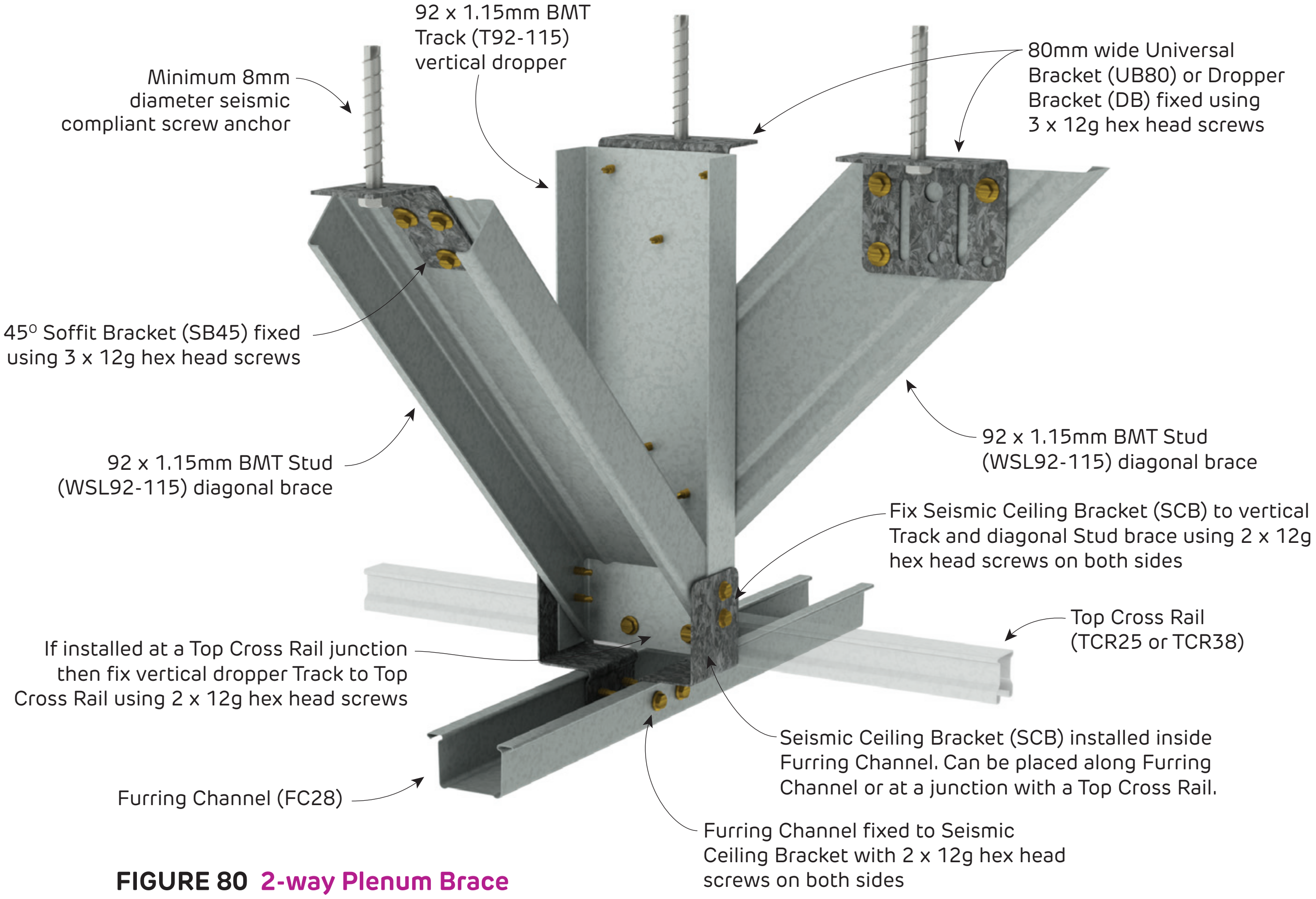



**FIGURE 80 2-way Plenum Brace**
Perspective

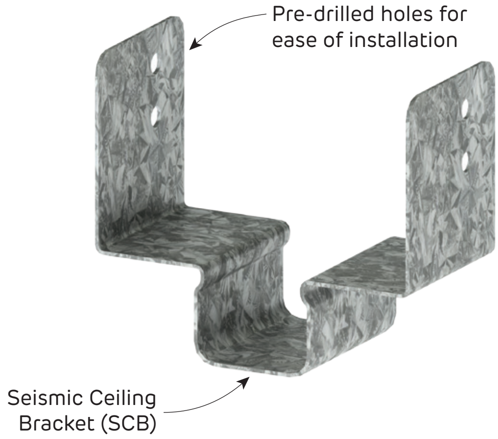



**FIGURE 81 Seismic Ceiling Bracket**
Perspective

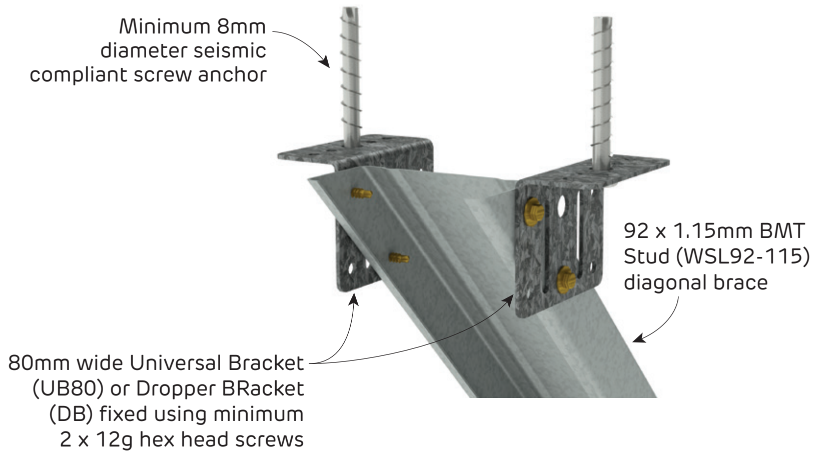



**FIGURE 82 Alternative Diagonal Brace Soffit Connection**
Perspective

## Fire Rated and Non-Fire Rated
### Seismic Details for Suspended Ceiling - Type C, 2-way Plenum Braced

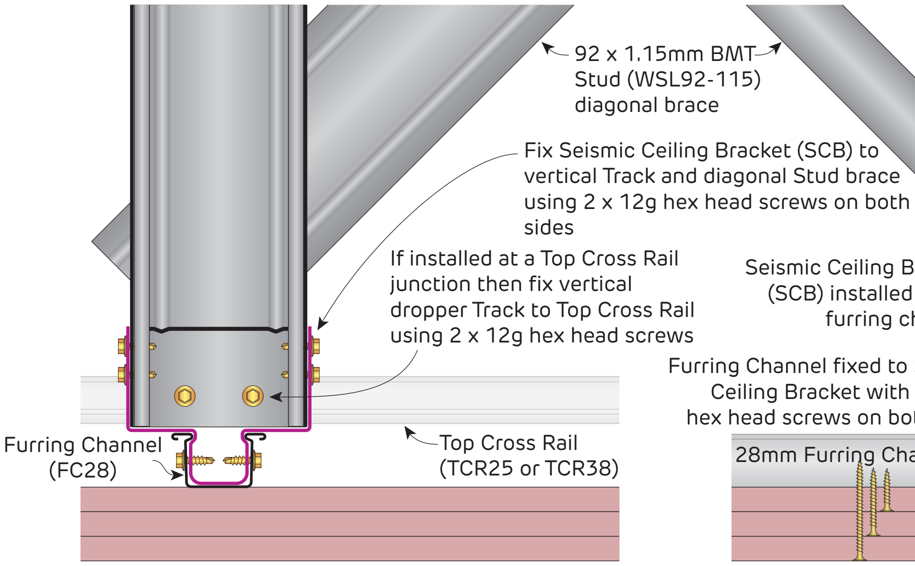



**FIGURE 83 2-way Plenum Brace**
Section

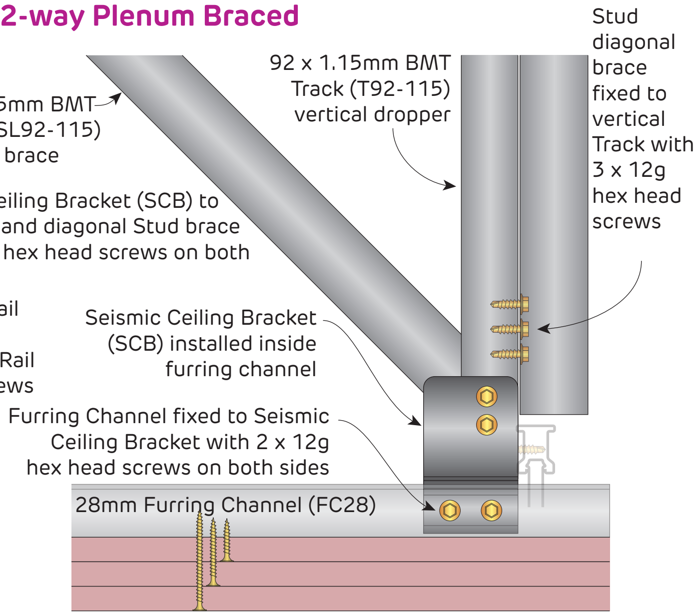



**FIGURE 84 2-way Plenum Brace**
Elevation

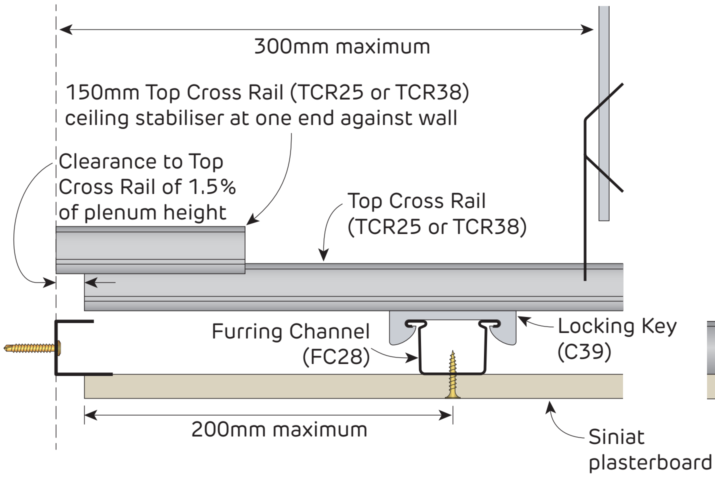



**FIGURE 85 Top Cross Rail Free Edges**
Perimeter detail
Section

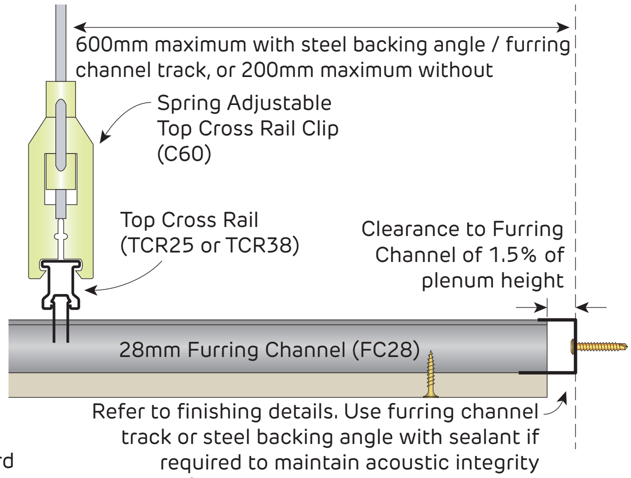



**FIGURE 86 Furring Channel Free Edges**
Perimeter detail
Section

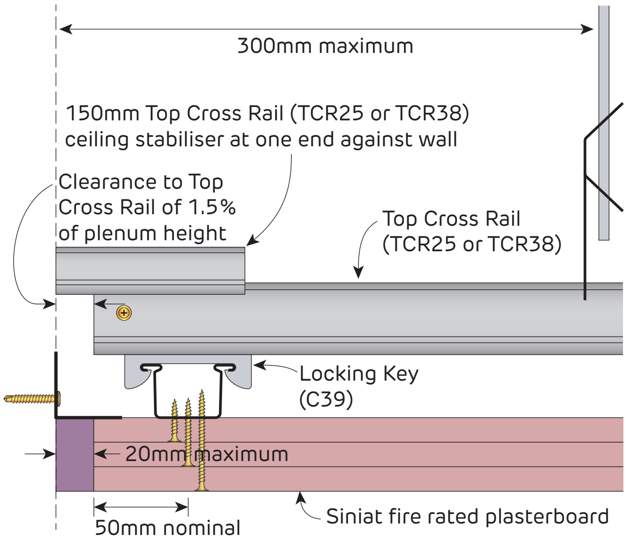



**FIGURE 87 Top Cross Rail Free Edges**
Perimeter detail
Section

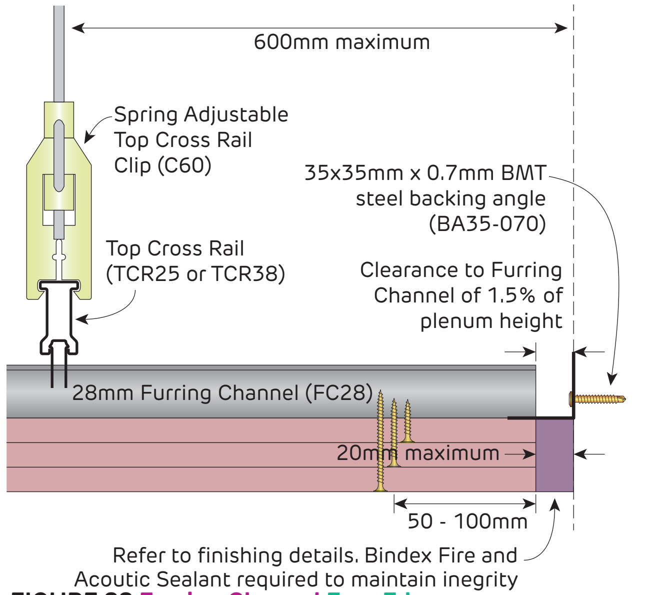



**FIGURE 88 Furring Channel Free Edges**
Perimeter detail
Section

## Fire Rated and Non-Fire Rated
### Seismic Details for Suspended Ceiling - Type C, 2-way Plenum Braced

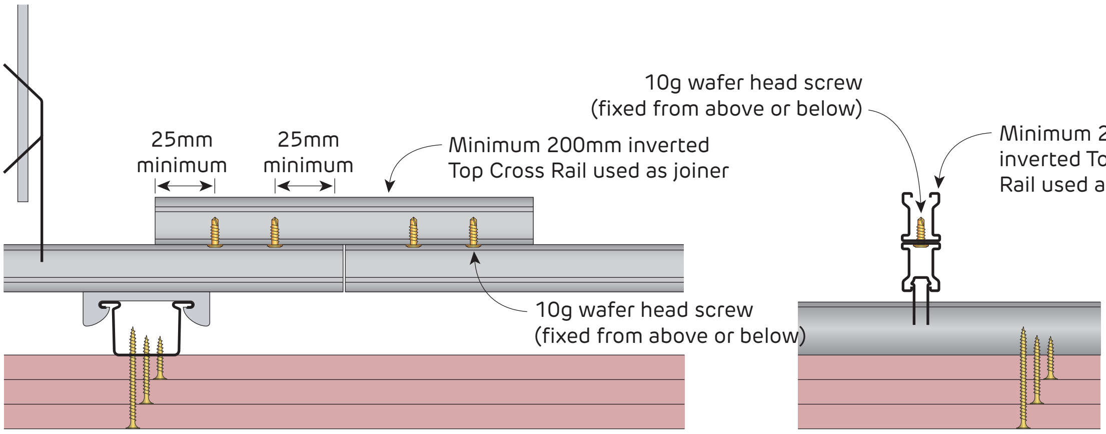



**FIGURE 89 Top Cross Rail Joiner**
For Type C Suspended Ceilings

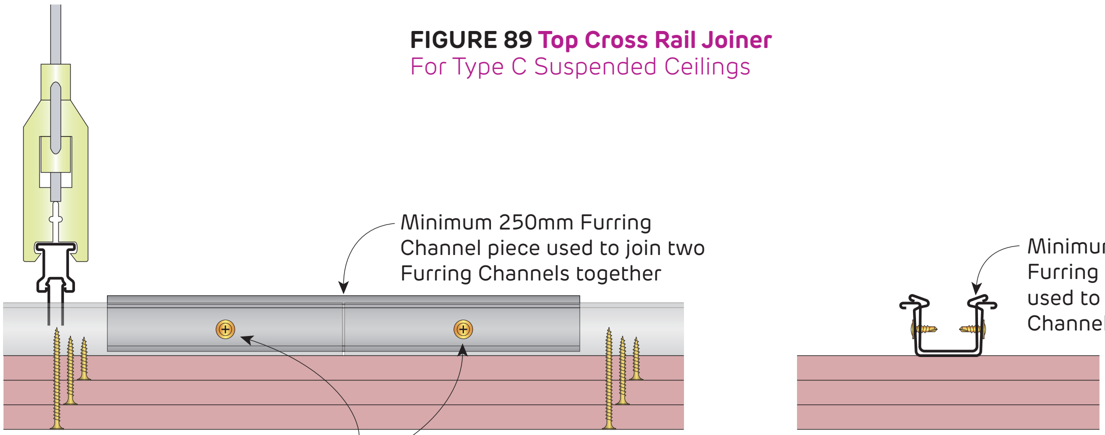



**FIGURE 90 Furring Channel Joiner**
For Type C Suspended Ceilings

## Non-Fire Rated

### Bulkhead Details for Suspended Ceiling - Type C, 2-way Plenum Braced

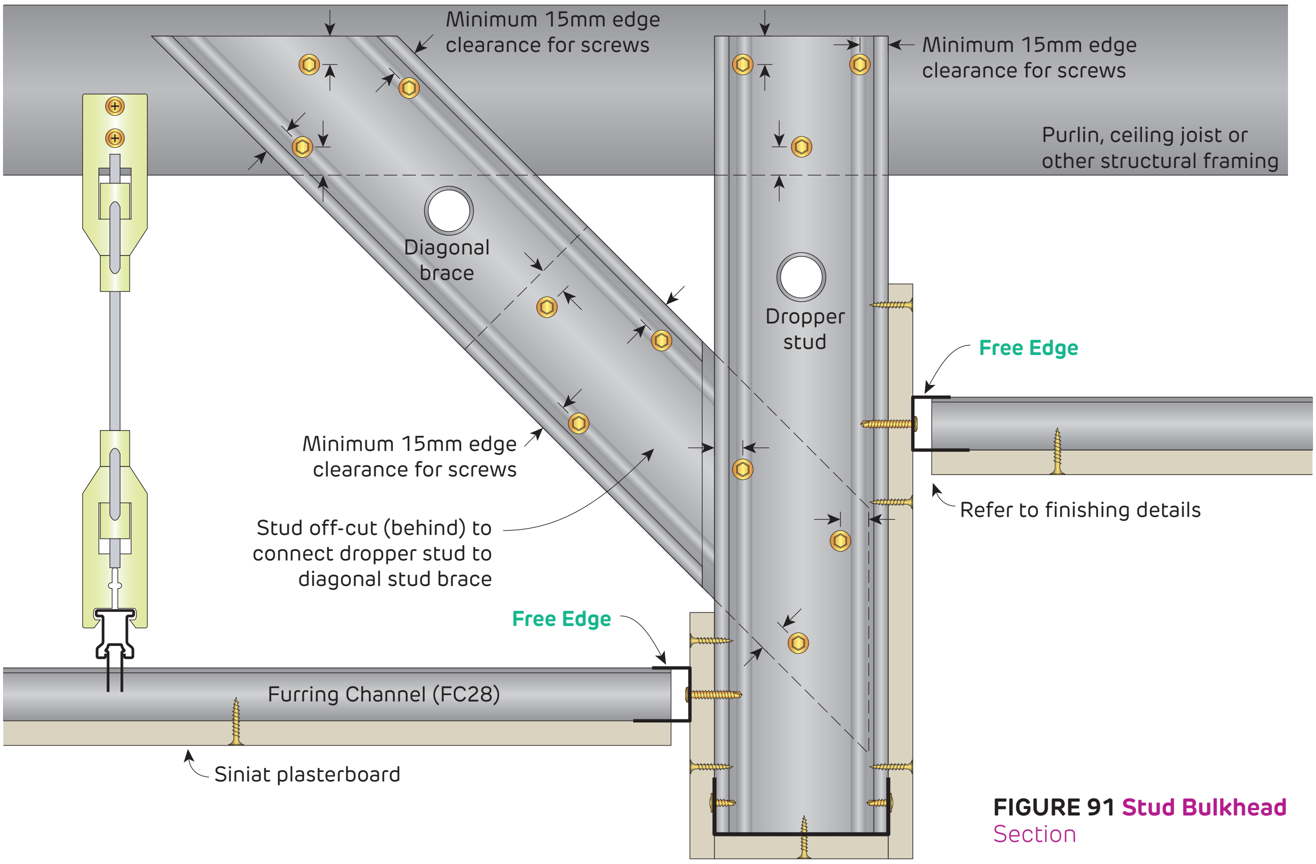



**FIGURE 91** **Stud Bulkhead**
Section

## Non-Fire Rated

## Control Joint Details for Suspended Ceilings

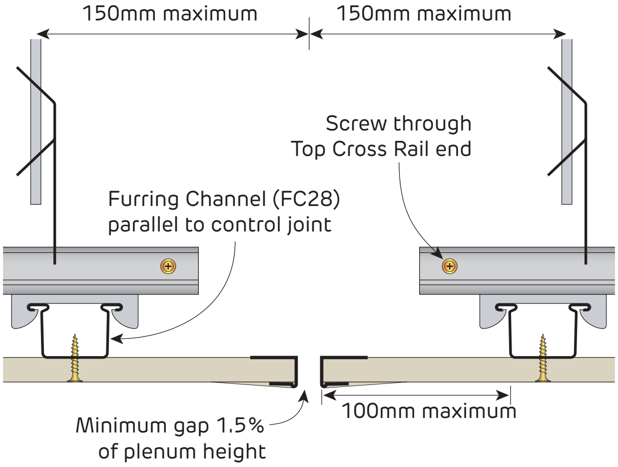



**FIGURE 92** **Seismic Control Joint**
Parallel to furring channel
Section

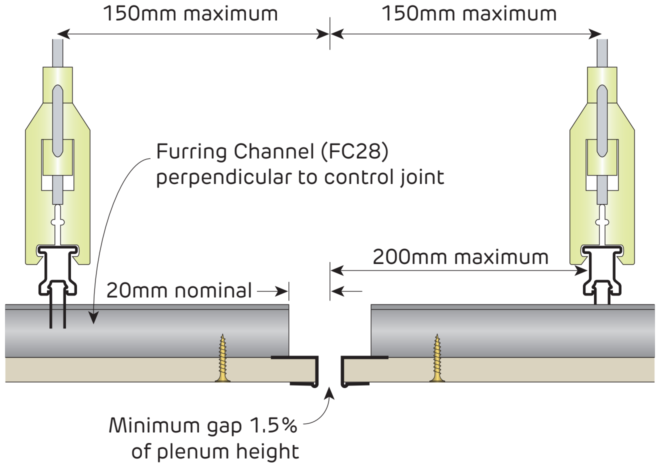



**FIGURE 93** **Seismic Control Joint**
Perpendicular to furring channel
Section

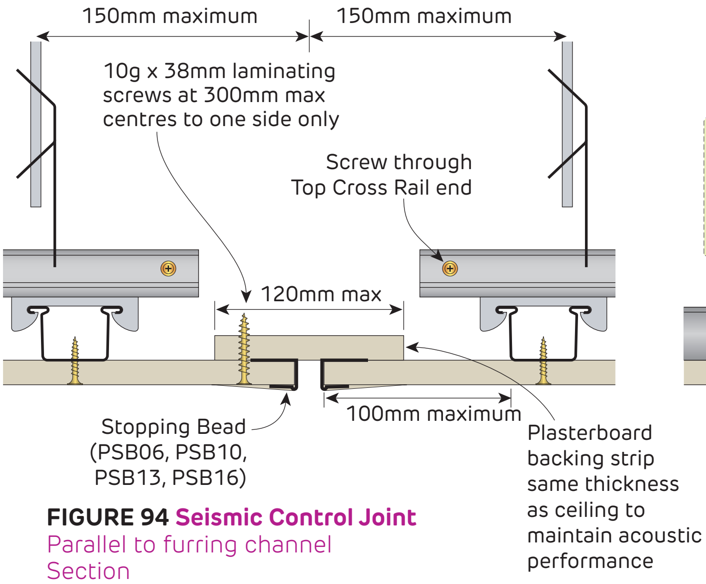



**FIGURE 94** **Seismic Control Joint**
Parallel to furring channel
Section

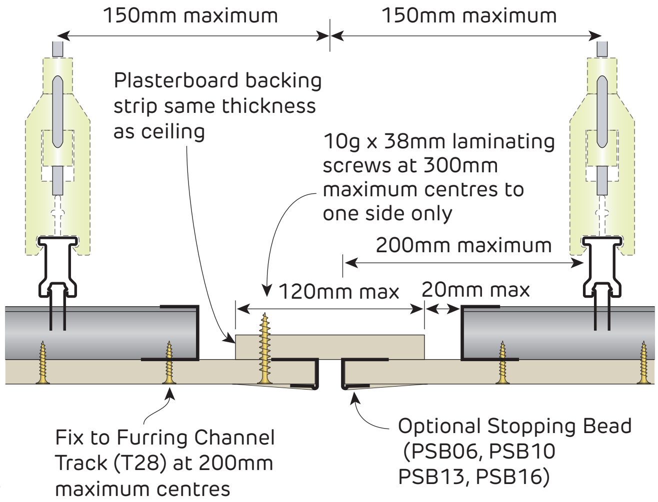



**FIGURE 95** **Seismic Control Joint**
Perpendicular to furring channel
Section

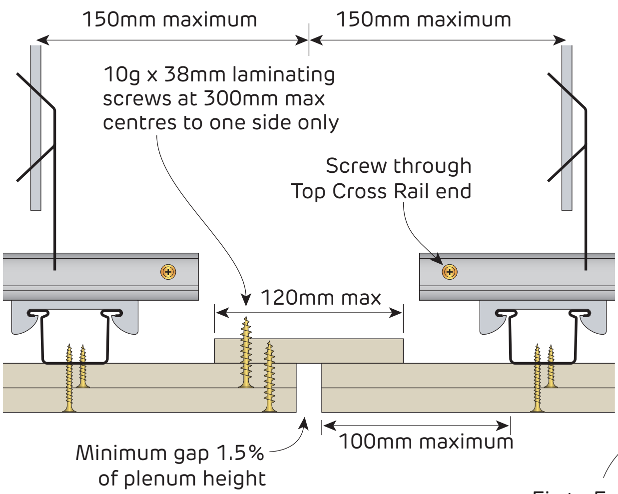



**FIGURE 96** **Seismic Control Joint**
Parallel to furring channel
Section

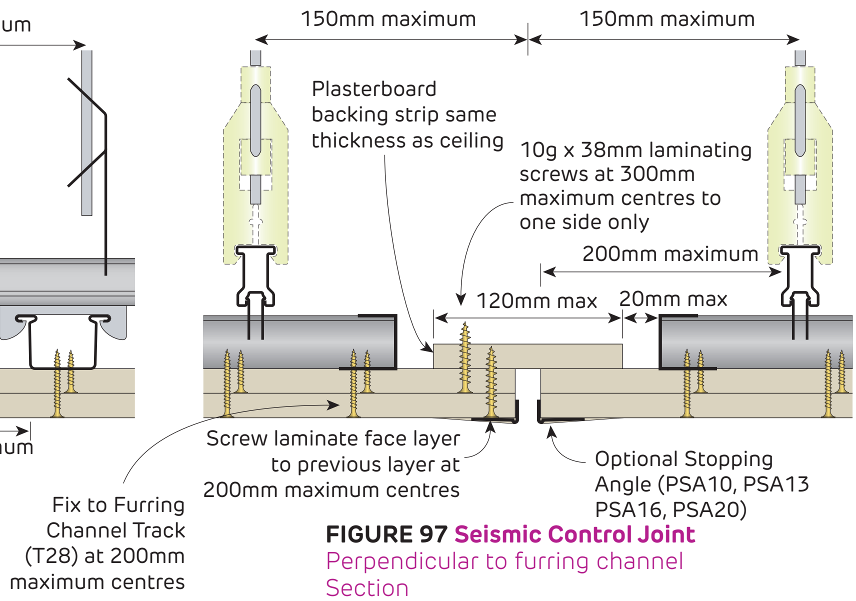



**FIGURE 97** **Seismic Control Joint**
Perpendicular to furring channel
Section

# Fire Rated
## Control Joint Details for Suspended Ceilings

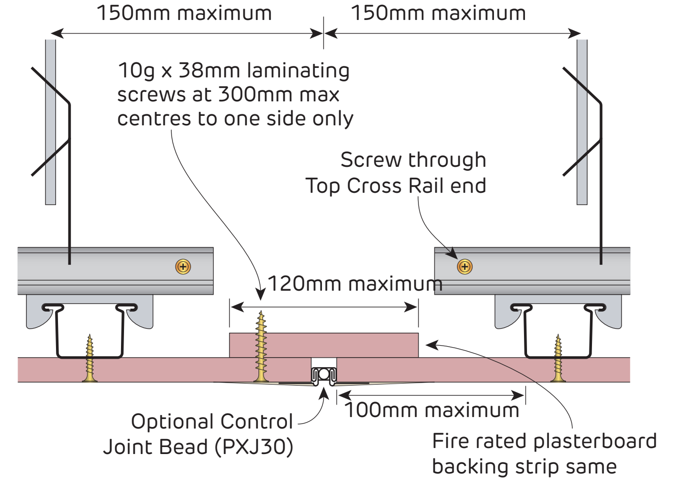



**FIGURE 98 Seismic Control Joint**
Parallel to furring channel
Section

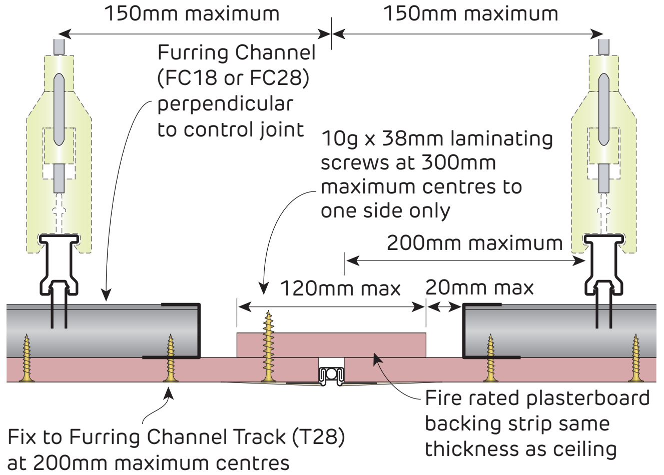



**FIGURE 99 Seismic Control Joint**
Perpendicular to furring channel
Section

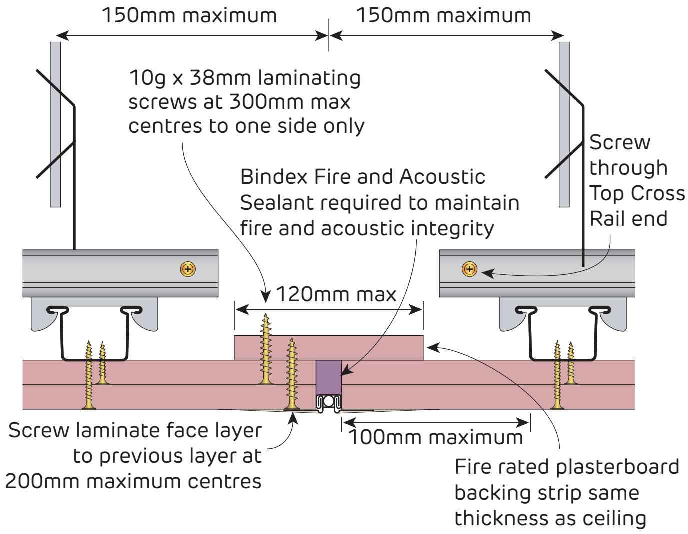



**FIGURE 100 Seismic Control Joint**
Parallel to furring channel
Section

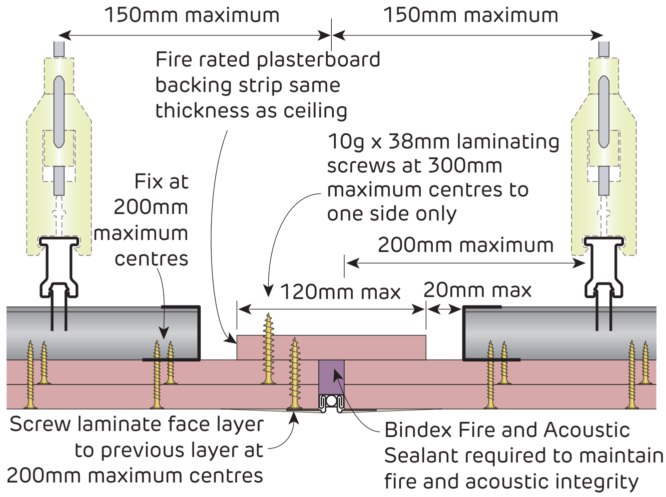



**FIGURE 101 Seismic Control Joint**
Perpendicular to furring channel
Section

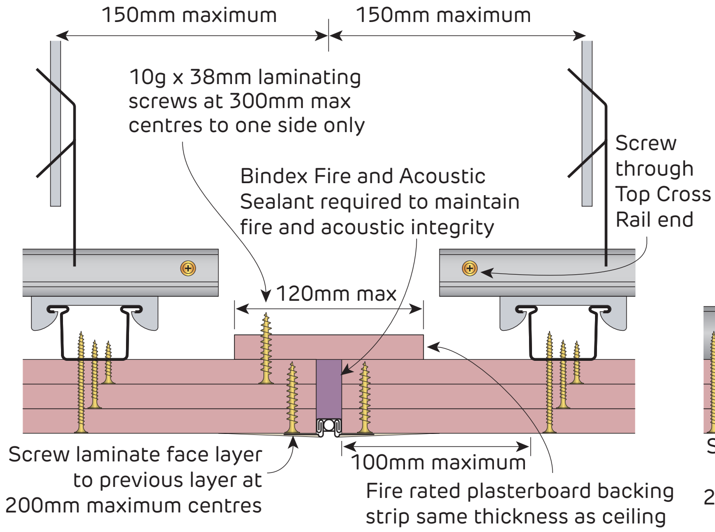



**FIGURE 102 Seismic Control Joint**
Parallel to furring channel
Section

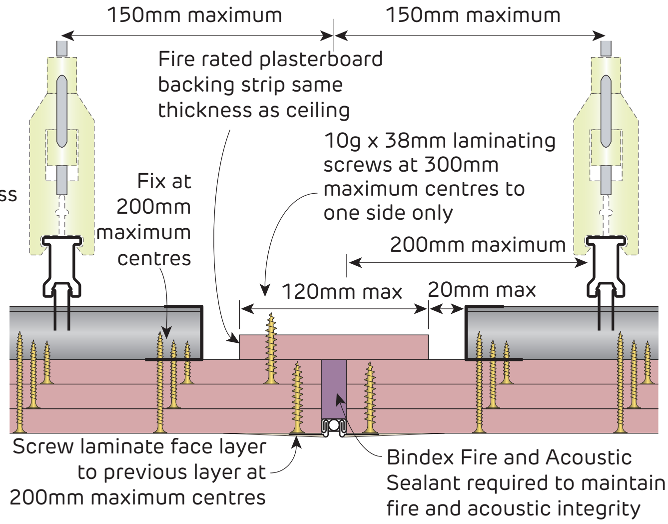



**FIGURE 103 Seismic Control Joint**
Perpendicular to furring channel
Section

# Fire Rated

## Suspended Ceiling Under a Fire Rated Ceiling

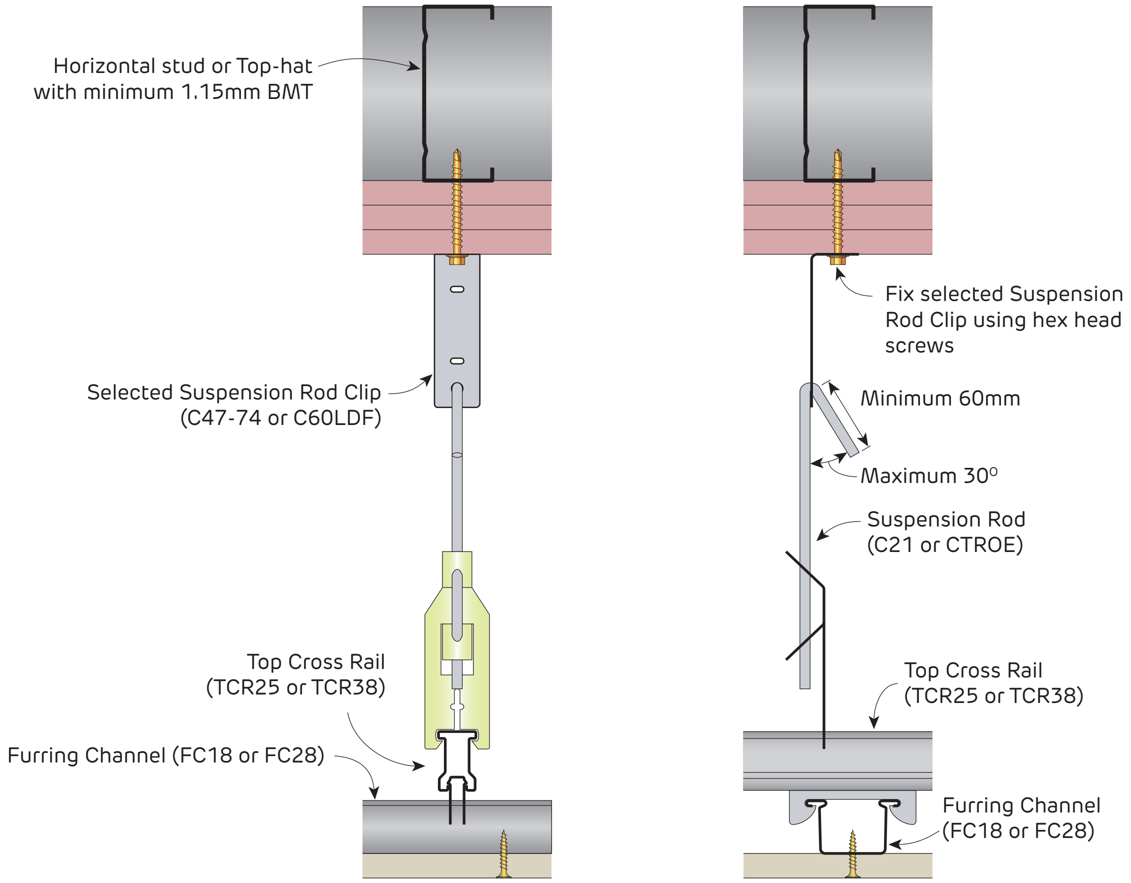



**FIGURE 104** Suspended Ceiling under a Fire Rated Ceiling
Section

# Non-Fire Rated

## Top Cross Rail Bridging Under Point Load

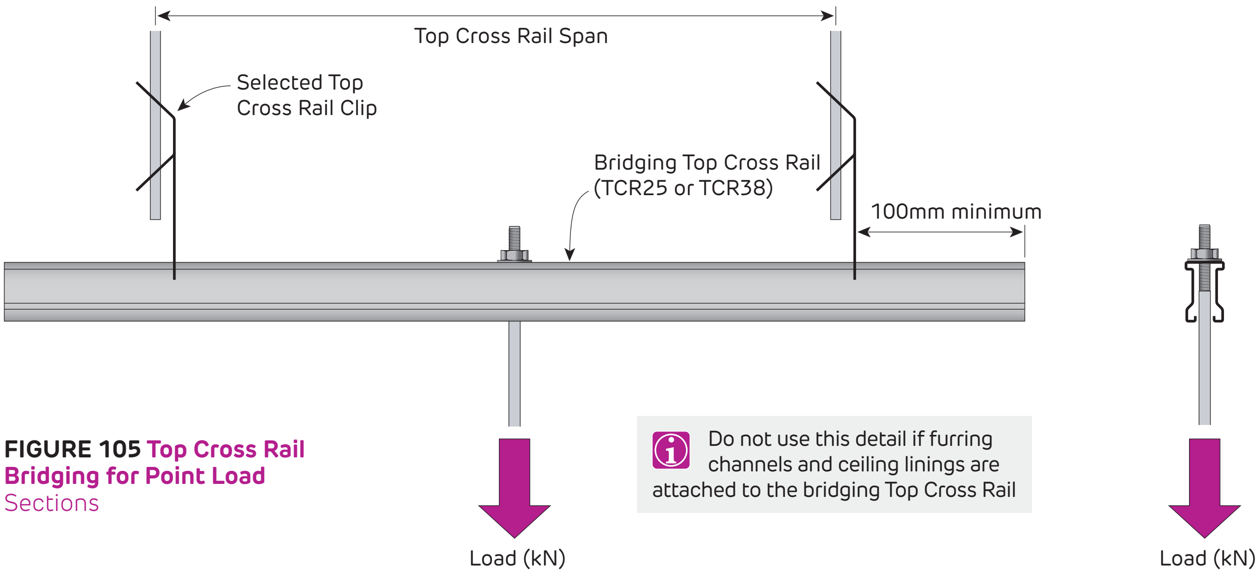



**FIGURE 105** Top Cross Rail Bridging for Point Load
Sections

Do not use this detail if furring channels and ceiling linings are attached to the bridging Top Cross Rail

## Top Cross Rail Bridging Table

| TCR Span | Maximum Load (kg) | |
|---|---|---|
| | TCR25x0.75 | TCR38x0.75 |
| 600mm | 39 | 75 |
| 900mm | 17 | 50 |
| 1200mm | 10 | 28 |
| 1500mm | 6 | 18 |
| 1800mm | - | 12 |

1. Table based upon downward load, intended for internal use only.
2. Maximum load refers only to dead load (G). Other loads such as live, wind, service loads, etc are not included.
3. Table have not been checked for earthquake actions.
4. Table refer to Siniat Top Cross Rails of Base Metal Thickness (BMT) 0.75mm of grade G300 steel with Zincalume™ AM150 corrosion protection.
5. Calculations based upon a single span, and designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Connections to clips must be checked with the clip capacity table.
7. Ultimate Limit State Load Case 1: 1.4G
8. Serviceability Limit State Load Case 1: G, with deflection limited to Span/360
9. The project engineer must approve the nominated load and deflection limits are appropriate for a specific project.

## Non-Fire Rated
## Ceiling Perimeter Finishing Details

Gaps around the ceiling perimeter may reduce acoustic performance

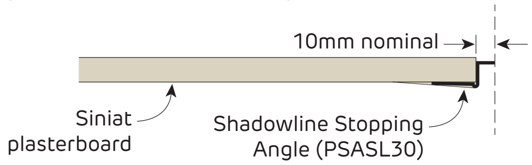



**FIGURE 106** **Finishing Detail - Shadowline**
Section

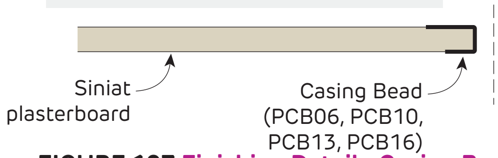



**FIGURE 107** **Finishing Detail - Casing Bead**
Section

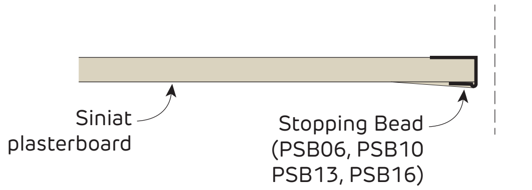



**FIGURE 108** **Finishing Detail - Stopping Bead**
Section

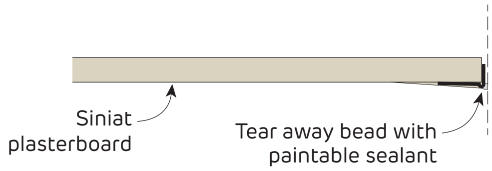



**FIGURE 109** **Finishing Detail - Square Set**
Section

Ceilings using a square set finishing detail have low tolerance for building movement and are more prone to cracking and joint peaking

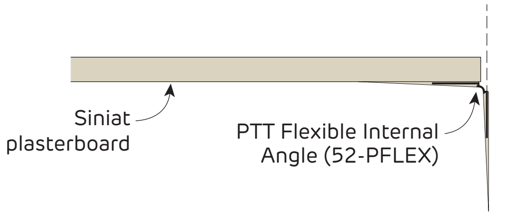



**FIGURE 110** **Finishing Detail - Flexible Square Set**
Section

Some damage to ceiling linings for finishing details with low tolerance to movement can be expected in a Serviceability Earthquake event

## Fire Rated and Non-Fire Rated
## Ceiling Perimeter Finishing Details

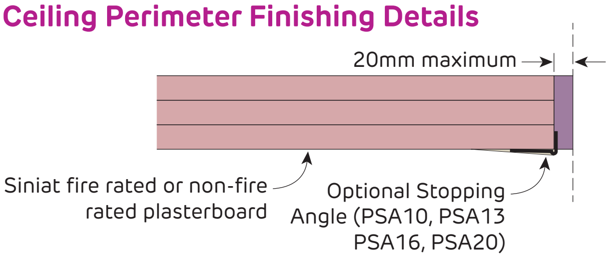



**FIGURE 111** **Finishing Detail - Stopping Angle**
Valid for 1 to 4 layers
Section

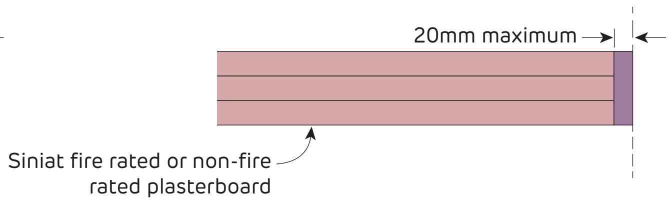



**FIGURE 112** **Finishing Detail - Bare finish with Sealant**
Valid for 1 to 4 layers
Section

Not suitable for single layer ceiling

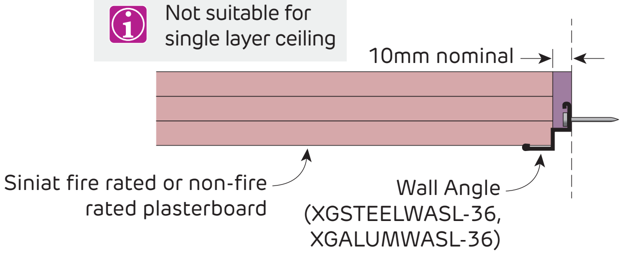



**FIGURE 113** **Finishing Detail - Shadowline Wall Angle**
Valid for 2 to 4 layers only
Section

Not suitable for single layer ceiling

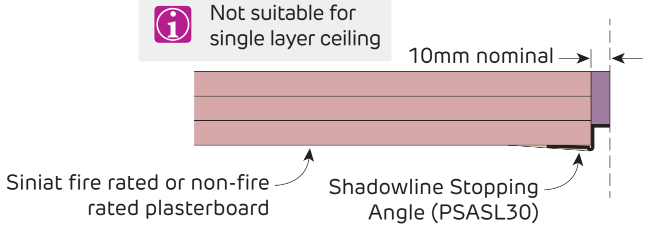



**FIGURE 114** **Finishing Detail - Shadowline**
Valid for 2 to 4 layers only
Section

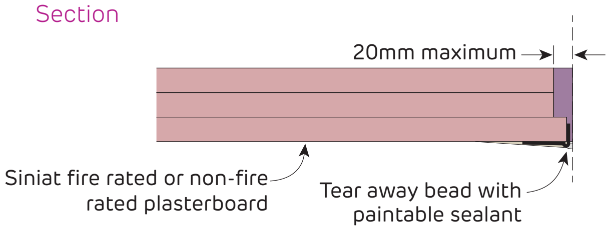



**FIGURE 115** **Finishing Detail - Square Set**
Valid for 1 to 4 layers
Section

Ceilings using a square set finishing detail have low tolerance for building movement and are more prone to cracking and joint peaking

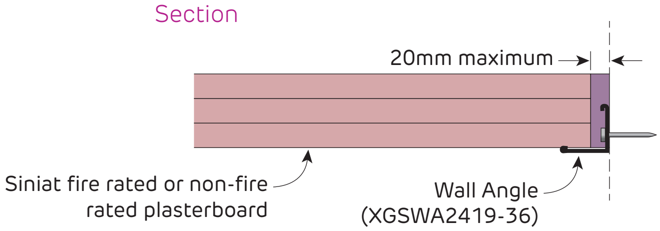



**FIGURE 116** **Finishing Detail - Wall Angle**
Valid for 1 to 4 layers
Section

Some damage to ceiling linings for finishing details with low tolerance to movement can be expected in a Serviceability Earthquake event

## Fire Rated
## Fire Penetration Details

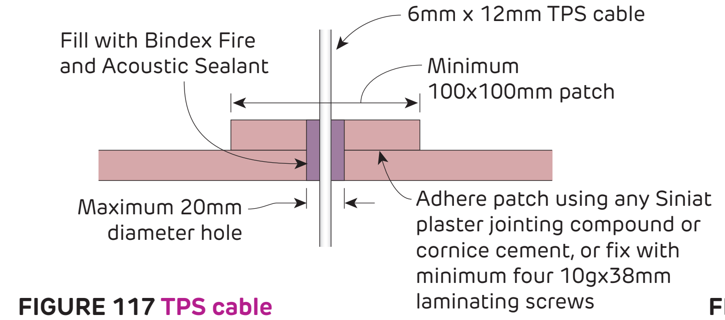



**FIGURE 117 TPS cable**
Maintains FRL of ceiling under floor/roof systems
Patch above ceiling lining
Valid for 1 layer systems only - Section

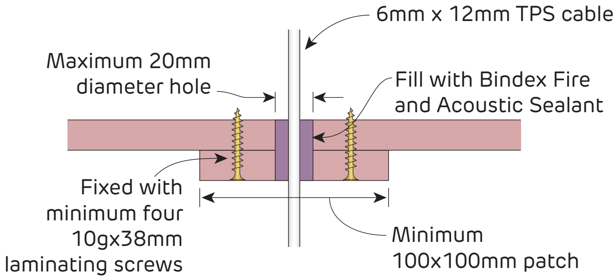



**FIGURE 118 TPS cable**
Maintains FRL of ceiling under floor/roof systems
Patch below ceiling lining
Valid for 1 layer systems only - Section

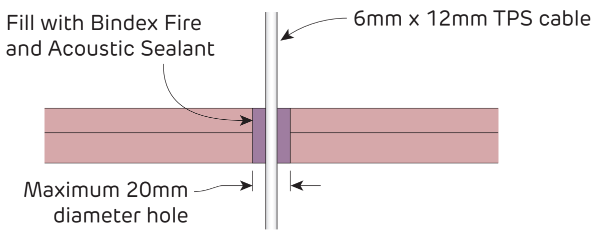



**FIGURE 119 TPS cable**
Maintains FRL and RISF of ceiling under floor/roof systems
Valid for 2 to 3 layers only
Section

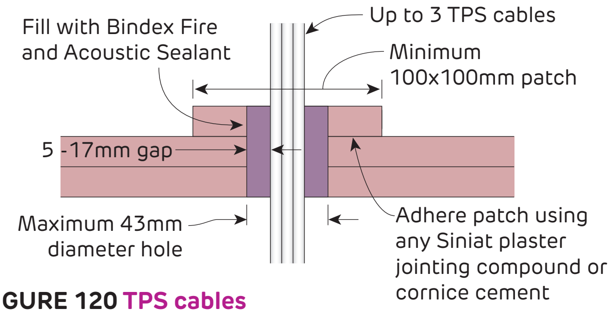



**FIGURE 120 TPS cables**
Maintains FRL of ceiling under floor/roof systems
Patch above ceiling lining
Valid for 2 layers only - Section

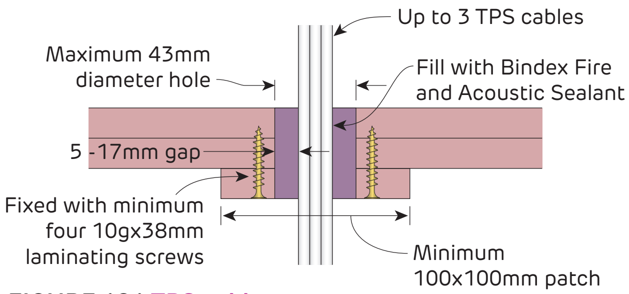



**FIGURE 121 TPS cables**
Maintains FRL of ceiling under floor/roof systems
Patch below ceiling lining
Valid for 2 layers only - Section

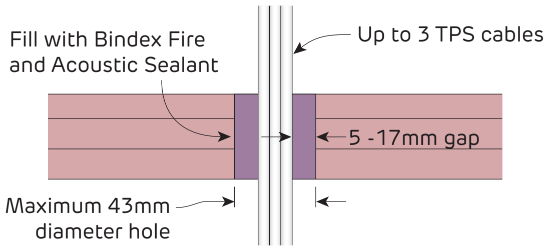



**FIGURE 122 TPS cables**
Maintains FRL of ceiling under floor/roof systems
Valid for 3 layers only
Section

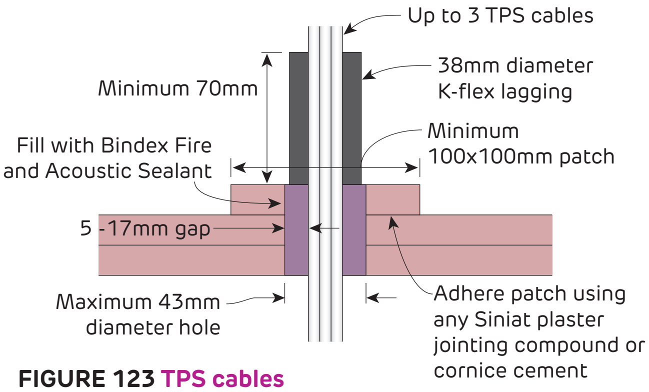



**FIGURE 123 TPS cables**
Maintains RISF and FRL of ceiling under floor/roof systems
Patch above ceiling lining
Valid for 2 layers only - Section

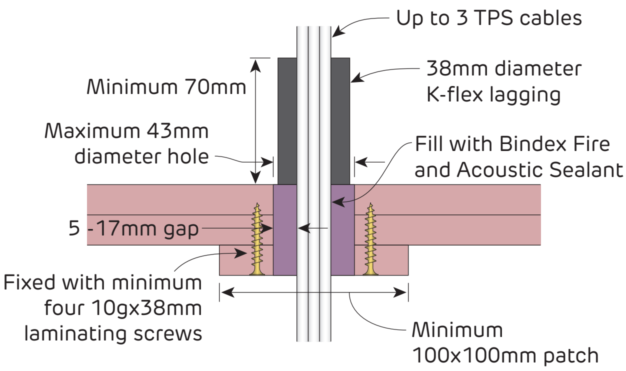



**FIGURE 124 TPS cables**
Maintains RISF and FRL of ceiling under floor/roof systems
Patch below ceiling lining
Valid for 2 layers only - Section

# Fire Rated
## Fire Penetration Details

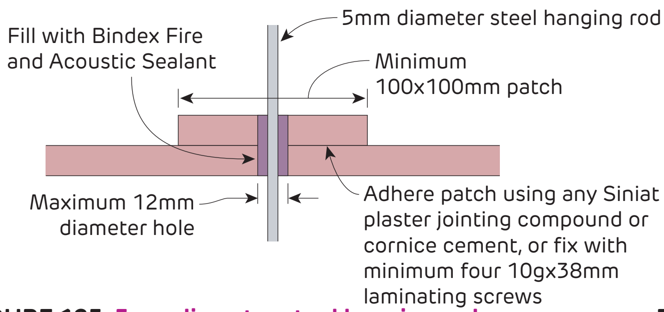



**FIGURE 125** **5mm diameter steel hanging rod**
Maintains FRL of ceiling under floor/roof systems
Patch above ceiling lining
Valid for 1 layer systems only - Section

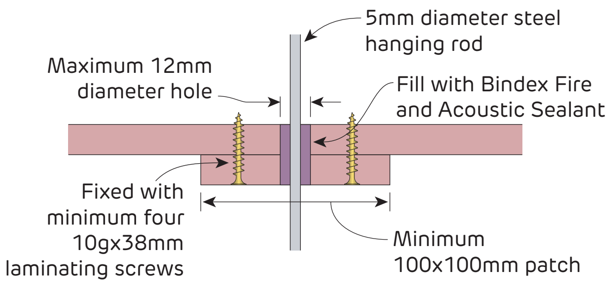



**FIGURE 126** **5mm diameter steel hanging rod**
Maintains FRL of ceiling under floor/roof systems
Patch below ceiling lining
Valid for 1 layer systems only - Section

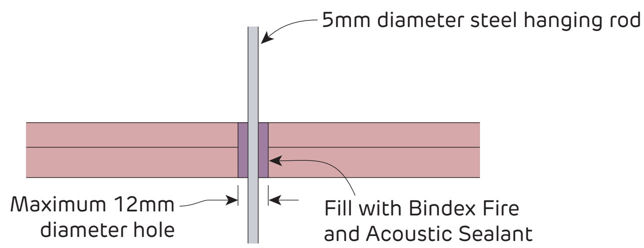



**FIGURE 127** **5mm diameter steel hanging rod**
Maintains FRL of ceiling under floor/roof systems
Valid for 2 to 3 layers only
Section

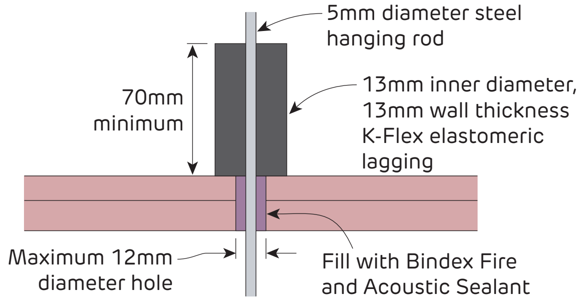



**FIGURE 128** **5mm diameter steel hanging rod**
Maintains RISF and FRL of ceiling under floor/roof systems
Valid for 2 to 3 layers only
Section

## Fire Rated
## Fire Penetration Details

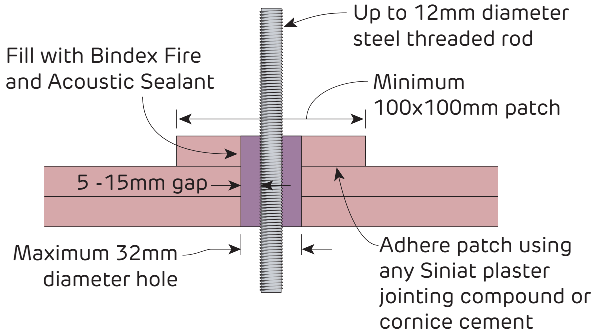



**FIGURE 129** **Up to 12mm steel diameter threaded rod**
Maintains RISF and FRL of ceiling under floor/roof systems
Patch above ceiling lining
Valid for 2 layers only - Section

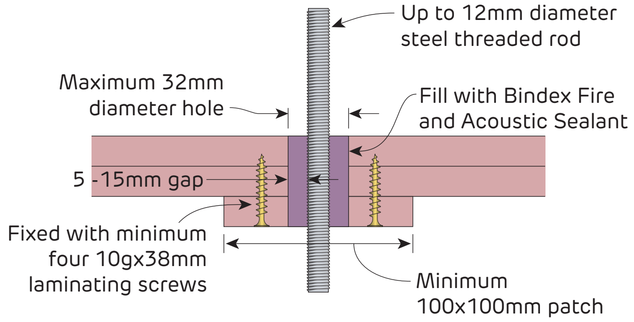



**FIGURE 130** **Up to 12mm steel diameter threaded rod**
Maintains RISF and FRL of ceiling under floor/roof systems
Patch below ceiling lining
Valid for 2 layers only - Section

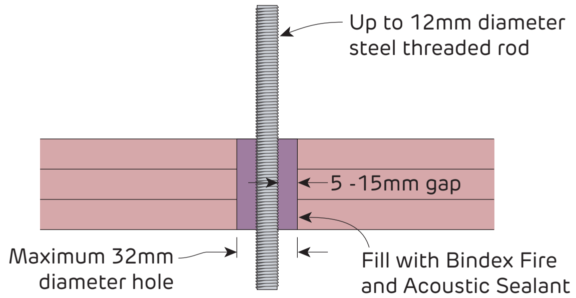



**FIGURE 131** **Up to 12mm steel diameter threaded rod**
Maintains RISF and FRL of ceiling under floor/roof systems
Valid for 3 layers only
Section

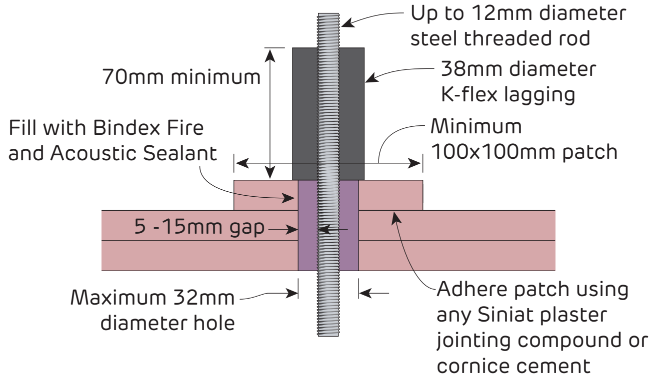



**FIGURE 132** **Up to 12mm steel diameter threaded rod**
Maintains RISF and FRL of Universal Ceiling Systems
Patch above ceiling lining
Valid for 2 layers only - Section

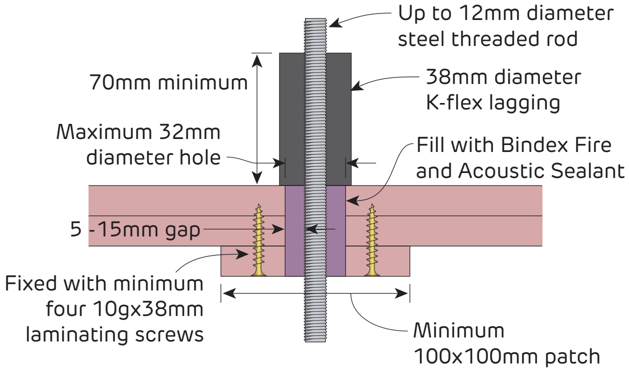



**FIGURE 133** **Up to 12mm steel diameter threaded rod**
Maintains RISF and FRL of Universal Ceiling Systems
Patch below ceiling lining
Valid for 2 layers only - Section

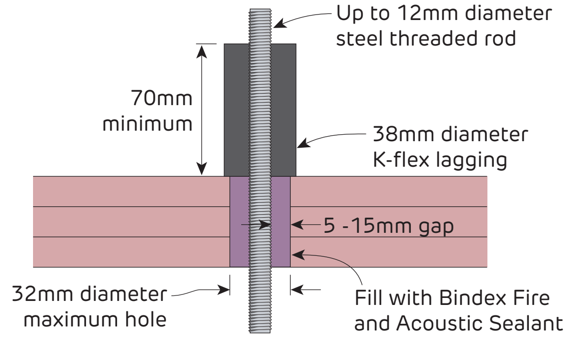



**FIGURE 134** **Up to 12mm steel diameter threaded rod**
Maintains RISF and FRL of Universal Ceiling Systems
Valid for 3 to 4 layers only
Section

## Fire Rated

## Flush Patching of Fire Rated Ceiling Systems - Maximum 300x300mm Opening

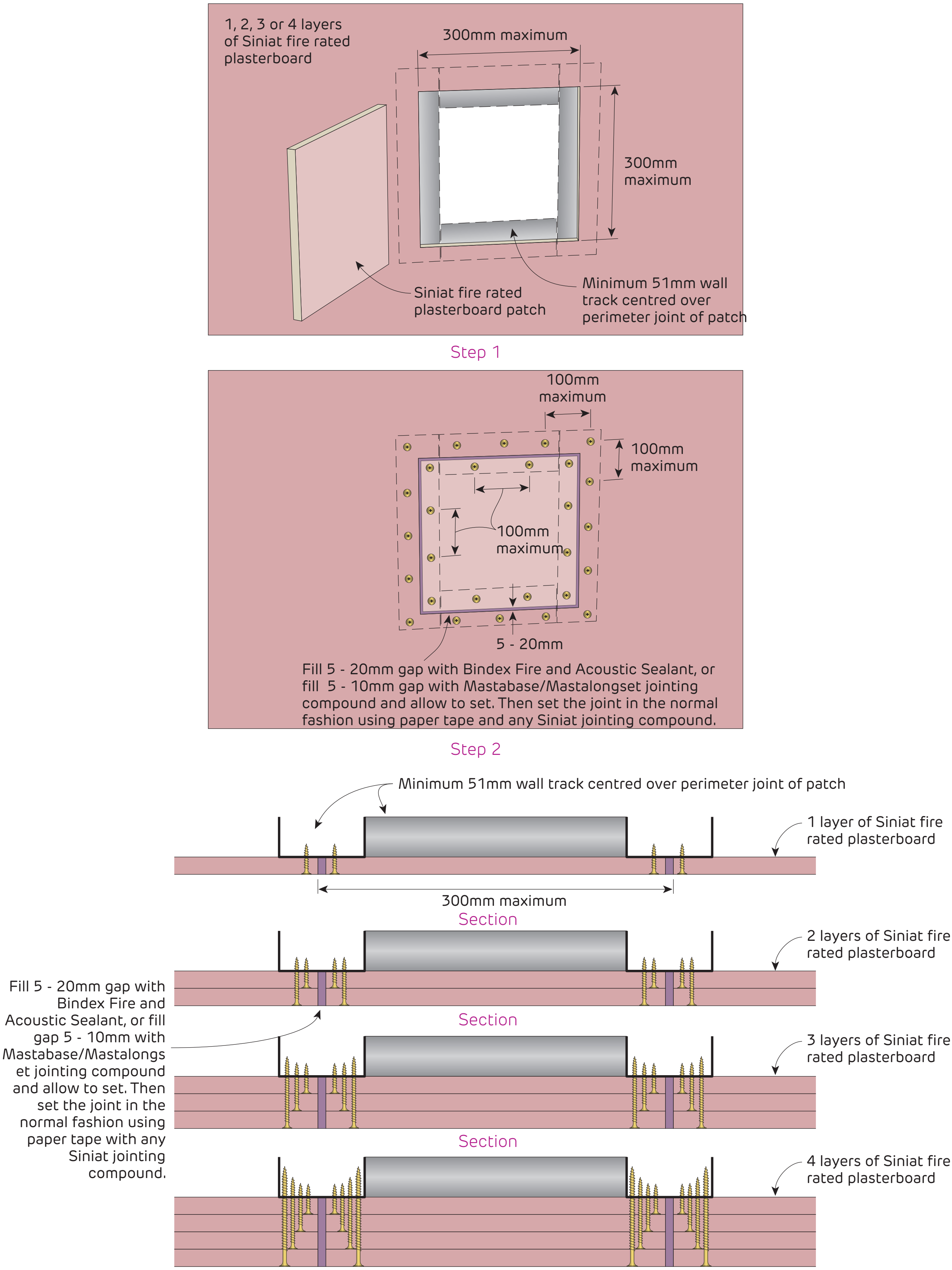
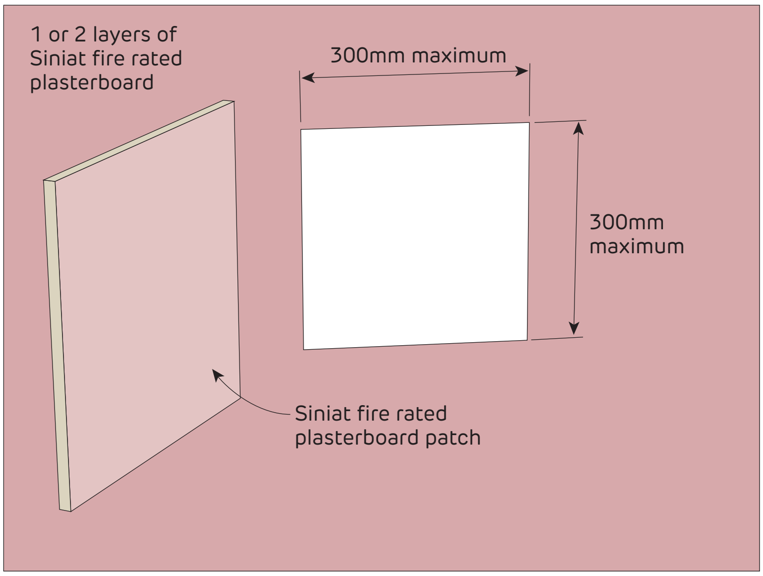


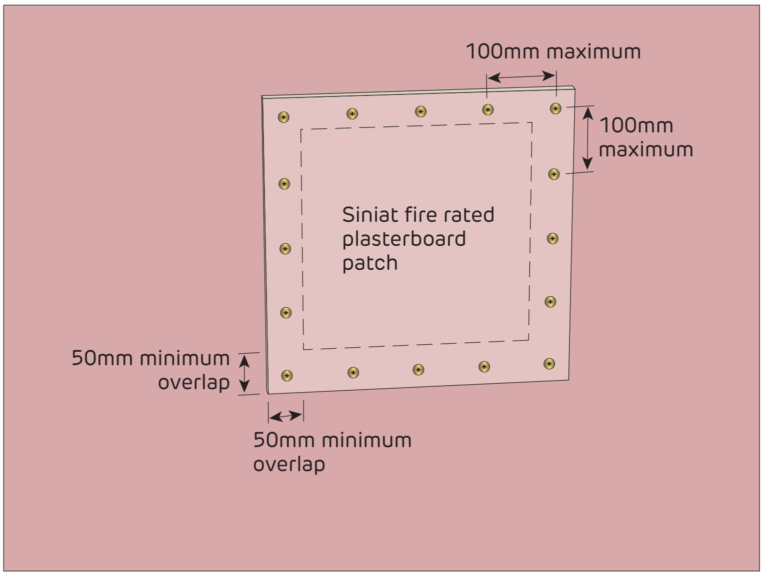

**FIGURE 135** **Flush patch**
Maximum 300x300mm opening
Maintains FRL of system

## Fire Rated

## Proud Patching of Fire Rated Ceiling Systems - Maximum 300x300mm Opening

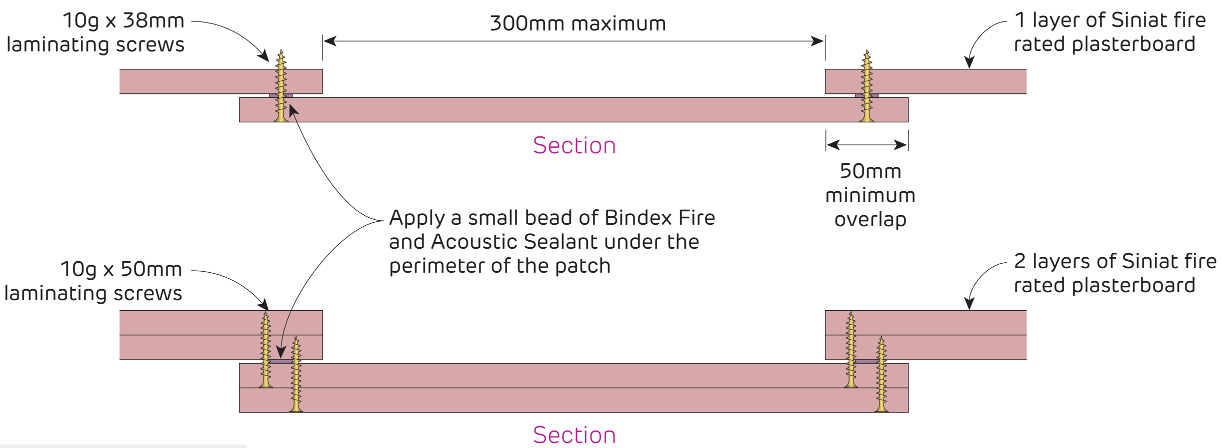



Step 1




Step 2

Fire rated plasterboard patch must be the same thickness and number of layers as the base fire rated system

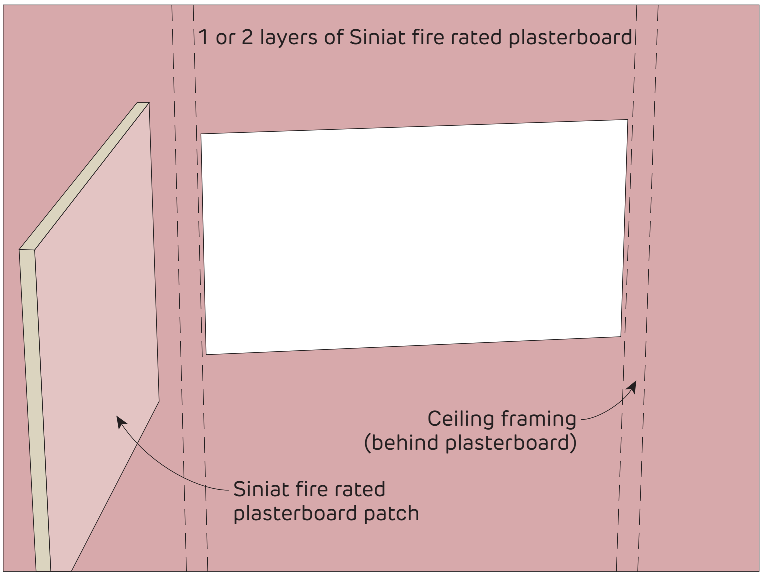



Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

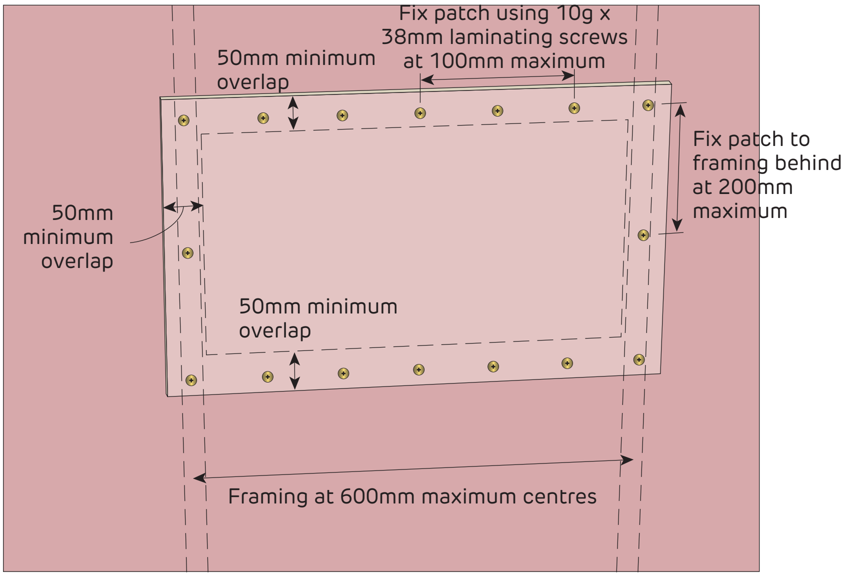
**FIGURE 136 Proud patch**
Maximum 300x300mm opening

## Fire Rated

## Proud Patching of Fire Rated Ceiling Systems - Larger Openings



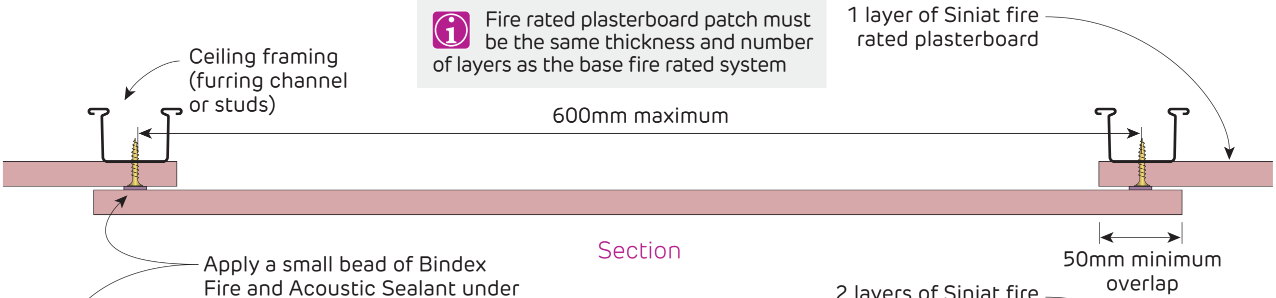

Step 1



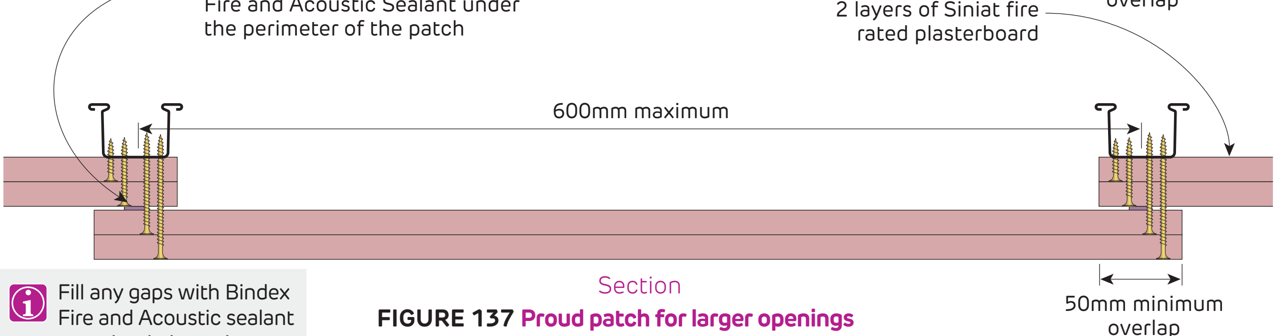

Step 2

To repair a fire rated ceiling with holes larger than 300mm x 300mm and achieve a flush finish; follow the normal installation instructions to re-instate the system.

Fire rated plasterboard patch must be the same thickness and number of layers as the base fire rated system




Section

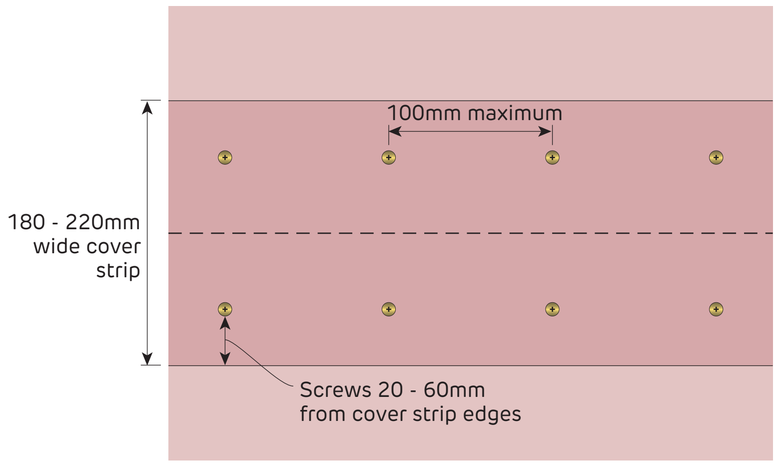



Section

Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

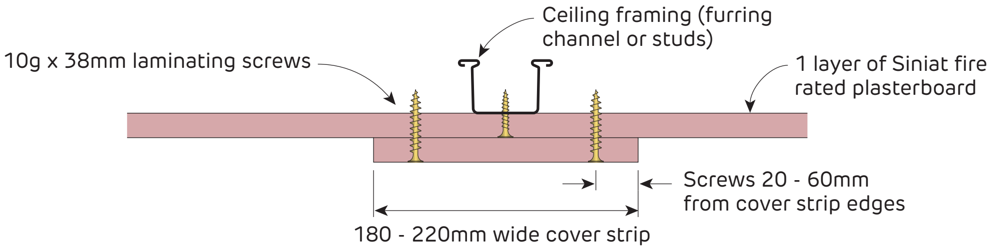
**FIGURE 137 Proud patch for larger openings**
For openings larger than 300x300mm

## Fire Rated
## Patching of Fire Rated Ceiling Systems

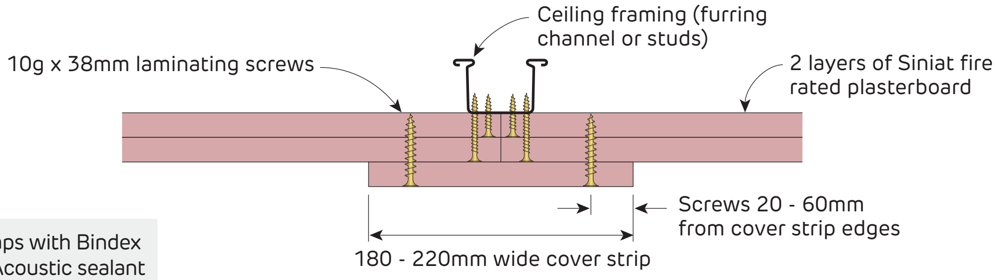



Ceiling Joint

Cover strip over a fire rated plasterboard joint can compensate for:
- Joints not staggered in accordance with Siniat Technical Literature
- Use of fibre glass tape
- Incorrect jointing or no jointing material used.




Plan




Plan

Fill any gaps with Bindex Fire and Acoustic sealant to maintain integrity

**FIGURE 138 Cover Strip**



# 5.2 Ceiling Attenuation Class Systems

Ceiling Attenuation Class (CAC) ceiling systems display resistance to sound passing up and over a wall. The sound insulation rating given for the ceiling system indicates the sound reduction from one room to the next via the two ceilings and the above-ceiling plenum.

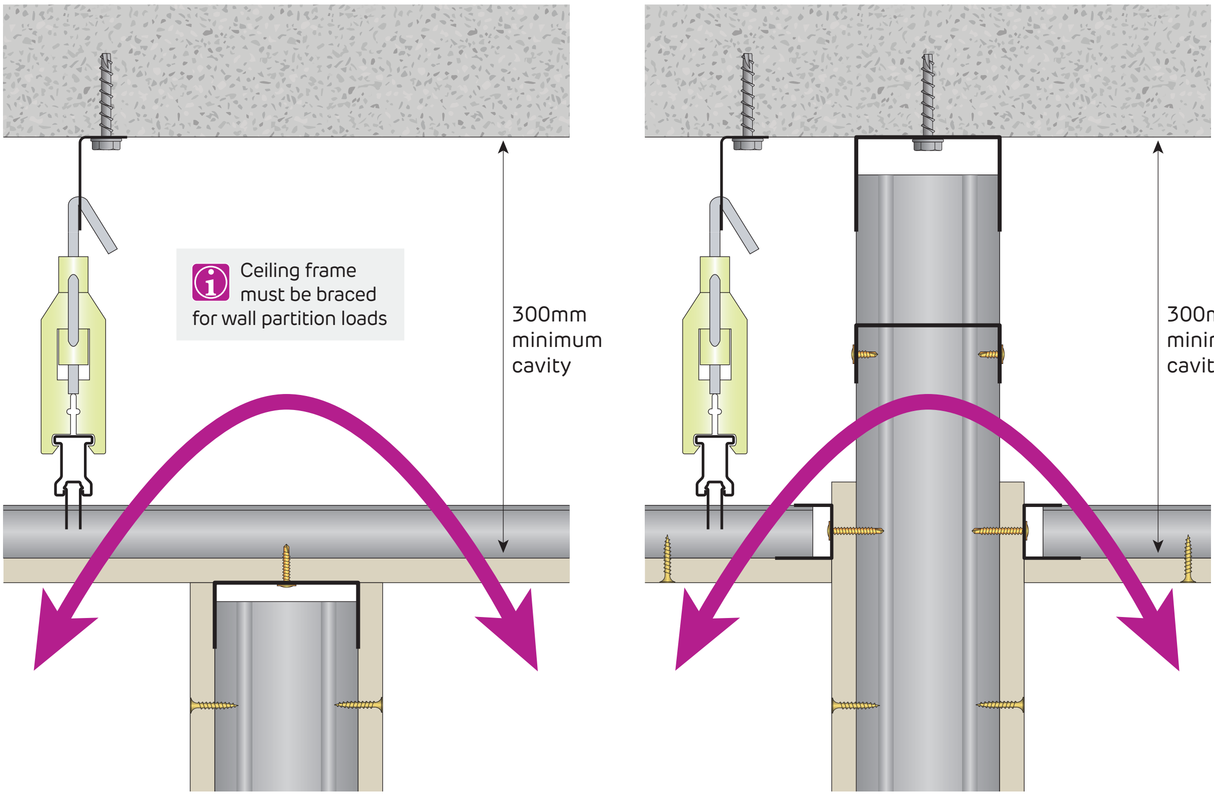
Rather than introduce another term to building designers such as CAC, the more familiar terms Rw and Rw + Ctr are used. CAC systems without a central barrier must have a maximum of 1 downlight every 5 $m^2$ and other penetrations acoustically treated in the rooms adjacent to the wall are required to maintain sound insulation performance.

Refer to Section 5.1 for ceiling to wall finishing details.

## CAC1 - CAC28

[Option 1] Suspended ceiling frame with set plasterboard ceiling
[Option 2] Suspended T-bar exposed grid frame with ceiling tiles for system CAC1

[All systems are suitable under a concrete slab, timber roof framing or steel roof framing]
[Sound insulation numbers based on minimum 300mm cavity]
[Penetrations in ceiling lining may degrade sound insulation performance]
[Wall to have equal or higher sound insulation rating than CAC ceiling]



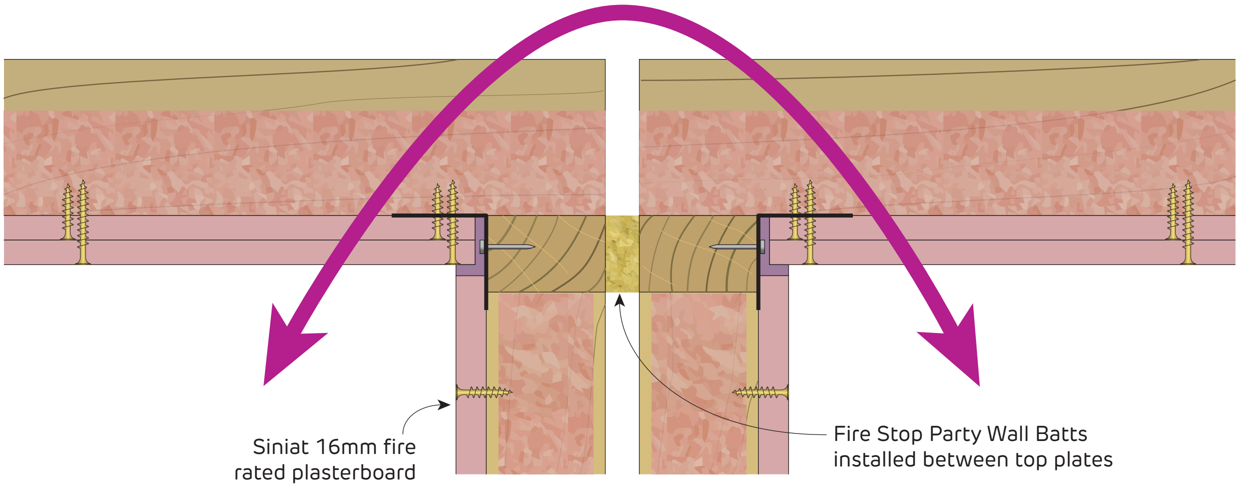

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No Insulation | Pink® Partition 50mm 11 kg/m³ R1.2 insulation above ceiling to 1200mm both sides of wall | Pink® Partition 50mm 11 kg/m³ R1.2 insulation over entire ceiling | |
| CAC1 | 10mm plasterboard ceiling tiles in exposed grid | 36 (30) | 41 (35) | 43 (37) | |
| CAC10 | 1 layer of 10mm **masta**shield or **span**shield | 38 (32) | 43 (36) | 45 (38) | |
| CAC11 | 2 layers of 10mm **masta**shield or **span**shield | 43 (37) | 47 (41) | 48 (42) | |
| CAC14 | 1 layer of 13mm **masta**shield | 41 (34) | 45 (38) | 47 (40) | |
| CAC16 | 1 layer of 10mm **sound**shield or **opal** | 41 (34) | 45 (38) | 47 (40) | |
| CAC17 | 2 layers of 10mm **sound**shield or **opal** | 44 (38) | 48 (42) | 49 (43) | Report<br>Day Design 4738-5 |
| CAC18 | 1 layer of 13mm **sound**shield | 43 (36) | 47 (40) | 48 (41) | |
| CAC19 | 2 layers of 13mm **sound**shield | 49 (42) | 52 (45) | 52 (45) | |
| CAC20 | 1 layer of 13mm **fire**shield | 43 (36) | 47 (40) | 48 (41) | |
| CAC22 | 1 layer of 16mm **fire**shield | 43 (36) | 47 (40) | 48 (41) | |
| CAC23 | 1 layer of 13mm **fire**shield plus 1 layer of 16mm **fire**shield | 49 (42) | 52 (45) | 52 (45) | |
| CAC24 | 2 layers of 16mm **fire**shield | 49 (42) | 52 (45) | 52 (45) | |
| CAC26 | 3 layers of 13mm **fire**shield | 51 (44) | 53 (46) | 53 (46) | |
| CAC27 | 1 layer of 13mm **fire**shield plus 2 layers of 16mm **fire**shield | 51 (44) | 53 (46) | 53 (46) | |
| CAC28 | 3 layers of 16mm **fire**shield | 51 (44) | 53 (46) | 53 (46) | |

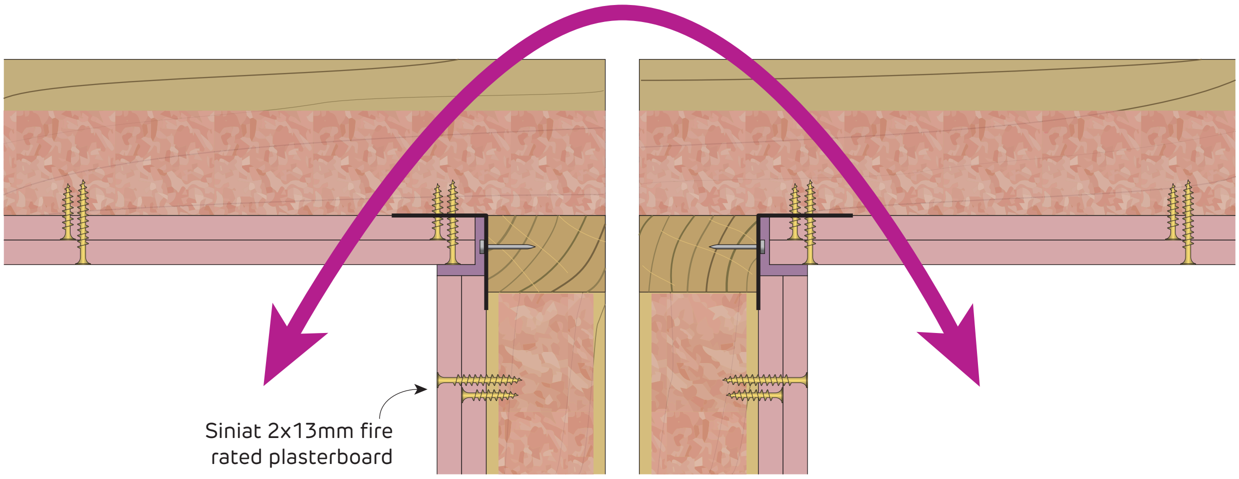
For more information on Pink® Partition batts please refer to Section 2.1 - Insulation.

## CAC120 - CAC128

- Set plasterboard ceiling divided by discontinuous wall frames and discontinuous timber or steel joists or trusses

[Maintains RISF 60 when using an RISF 60 minute ceiling]
[Double stud wall timber or steel frame with minimum 20mm air-gap]
[All systems are suitable under roof or floor with timber or steel framing]
[Sound insulation numbers based on minimum 300mm cavity]
[Penetrations in ceiling lining may degrade sound insulation performance]
[Wall to have equal or higher sound insulation rating than CAC ceiling]




| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No Insulation | Pink® Partition 50mm 11 kg/m³ R1.2 insulation above ceiling to 1200mm both sides of wall | Pink® Partition 50mm 11 kg/m³ R1.2 insulation over entire ceiling | |
| CAC120 | 1 layer of 13mm **fire**shield | 49 (43) | 54 (46) | 56 (48) | Report<br><br>Day Design 4738-5 |
| CAC121 | 2 layers of 13mm **fire**shield | 52 (45) | 58 (58) | 59 (**50**) | |
| CAC122 | 1 layer of 16mm **fire**shield | 42 (43) | 55 (46) | 56 (48) | |
| CAC123 | 1 layer of 13mm **fire**shield plus<br>1 layer of 16mm **fire**shield | 52 (45) | 58 (48) | 59 (**50**) | |
| CAC124 | 2 layers of 16mm **fire**shield | 52 (45) | 58 (48) | 59 (**50**) | |
| CAC126 | 3 layers of 13mm **fire**shield | 51 (46) | 59 (49) | 60 (**50**) | |
| CAC127 | 1 layer of 13mm **fire**shield plus<br>2 layers of 16mm **fire**shield | 56 (47) | 59 (**50**) | 60 (**50**) | |
| CAC128 | 3 layers of 16mm **fire**shield | 56 (48) | 59 (**51**) | 60 (**50**) | |

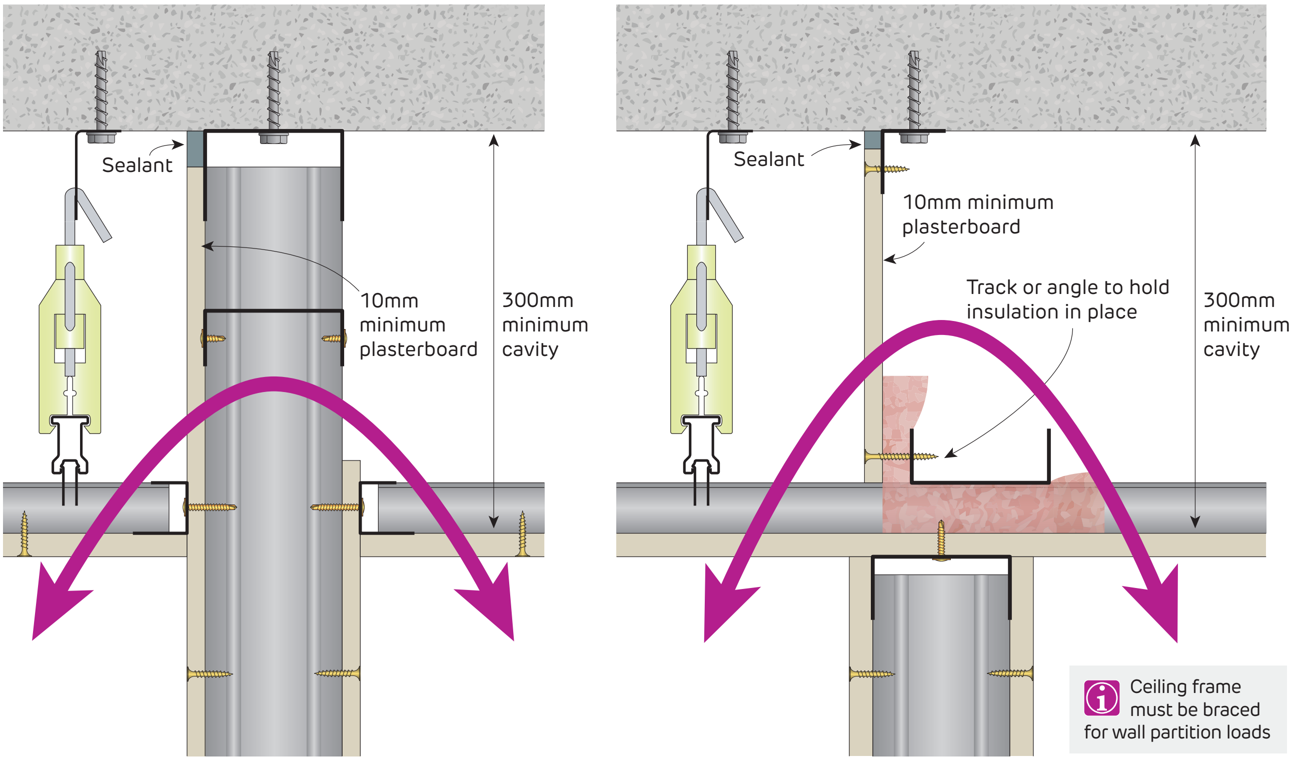
For more information on Pink® Partition batts please refer to Section 2.1 - Insulation.

## CAC3 - CAC48

- [Ceiling Option 1] Suspended ceiling frame with set plasterboard ceiling
  [Ceiling Option 2] Suspended T-bar exposed grid frame with ceiling tiles for system CAC3

- [Above Ceiling Option 1] 10mm minimum plasterboard on one side of stud only, continued up to concrete slab or roof lining [Above Ceiling Option 2] 10mm minimum plasterboard fixed to concrete slab or roof lining with track or angle. Insulation placed above ceiling lining and held in place using track or angle.

[All systems are suitable under a concrete slab, timber roof framing or steel roof framing]
[Sound insulation numbers based on minimum 300mm cavity]
[Wall to have equal or higher sound insulation rating than CAC ceiling]




| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No Insulation | Pink® Partition 50mm 11 kg/m³ R1.2 insulation above ceiling to 1200mm both sides of wall | Pink® Partition 50mm 11 kg/m³ R1.2 insulation over entire ceiling | |
| CAC3 | 10mm plasterboard ceiling tiles in exposed grid | 41 (35) | 46 (40) | 48 (42) | Report Day Design 4738-5 |
| CAC30 | 1 layer of 10mm **masta**shield or **span**shield | 45 (37) | 50 (42) | 52 (44) | |
| CAC31 | 2 layers of 10mm **masta**shield or **span**shield | 51 (41) | 54 (44) | 56 (46) | |
| CAC34 | 1 layer of 13mm **masta**shield | 47 (37) | 52 (42) | 54 (44) | |
| CAC36 | 1 layer of 10mm **sound**shield or **opal** | 48 (38) | 52 (42) | 54 (44) | |
| CAC37 | 2 layers of 10mm **sound**shield or **opal** | 52 (42) | 55 (45) | 57 (47) | |
| CAC38 | 1 layer of 13mm **sound**shield | 49 (39) | 53 (43) | 55 (45) | |
| CAC39 | 2 layers of 13mm **sound**shield | 53 (43) | 56 (46) | 57 (47) | |
| CAC40 | 1 layer of 13mm **fire**shield | 49 (39) | 53 (43) | 55 (45) | |
| CAC42 | 1 layer of 16mm **fire**shield | 50 (40) | 54 (44) | 56 (46) | |
| CAC43 | 1 layer of 13mm **fire**shield plus 1 layer of 16mm **fire**shield | 53 (43) | 56 (46) | 57 (47) | |
| CAC44 | 2 layers of 16mm **fire**shield | 53 (43) | 56 (46) | 57 (47) | |
| CAC46 | 3 layers of 13mm **fire**shield | 55 (45) | 57 (47) | 58 (48) | |
| CAC47 | 1 layer of 13mm **fire**shield plus 2 layers of 16mm **fire**shield | 55 (45) | 57 (47) | 58 (48) | |
| CAC48 | 3 layers of 16mm **fire**shield | 55 (45) | 57 (47) | 58 (48) | |

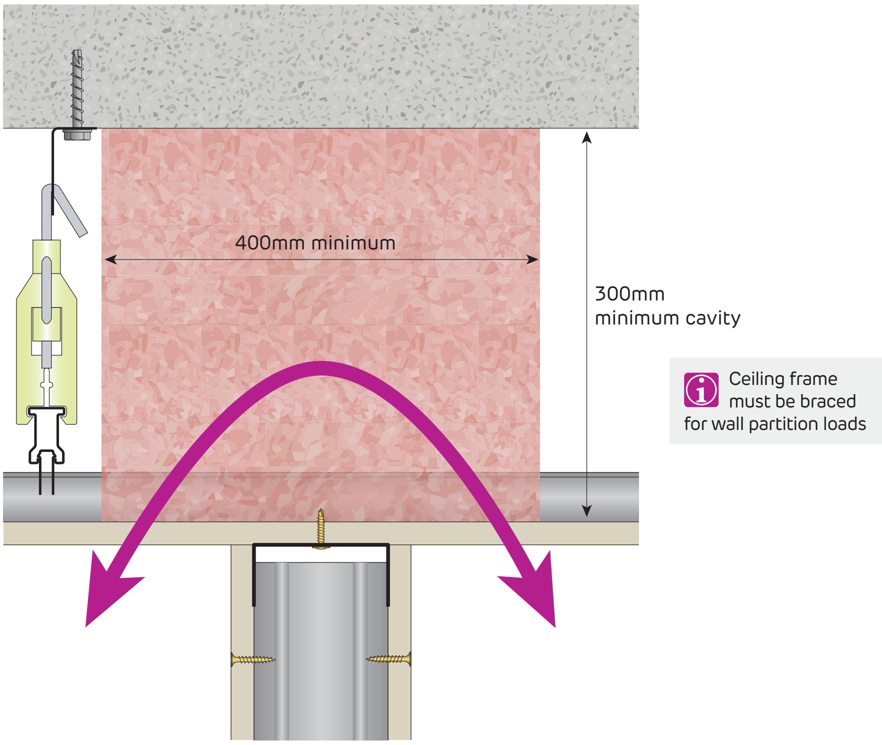
For more information on Pink® Partition batts please refer to Section 2.1 - Insulation.

## CAC5 - CAC68

- [Ceiling Option 1] Suspended ceiling frame with set plasterboard ceiling
  [Ceiling Option 2] Suspended T-bar exposed grid frame with ceiling tiles for system CAC5

- [Above Ceiling] Pink® Partition 50mm 14 kg/m³ R1.3 insulation baffle in 400mm wide strips to extend from ceiling to concrete slab or roof lining with no gaps or holes.

[All systems are suitable under a concrete slab, timber roof framing or steel roof framing]
[Sound insulation numbers based on minimum 300mm cavity]
[Penetrations in ceiling lining may degrade sound insulation performance]
[Wall to have equal or higher sound insulation rating than CAC ceiling]




| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| | | Pink® Partition 50mm 14 kg/m³ R1.3 insulation above ceiling lining in 400mm minimum wide strips continued up to concrete slab or roof lining | |
| CAC5 | 10mm plasterboard ceiling tiles in exposed grid | 43 (36) | Report Day Design 4738-5 |
| CAC50 | 1 layer of 10mm **masta**shield or **span**shield | 45 (38) | |
| CAC51 | 2 layers of 10mm **masta**shield or **span**shield | 52 (42) | |
| CAC54 | 1 layer of 13mm **masta**shield | 50 (40) | |
| CAC56 | 1 layer of 10mm **sound**shield or **opal** | 50 (40) | |
| CAC57 | 2 layers of 10mm **sound**shield or **opal** | 53 (43) | |
| CAC58 | 1 layer of 13mm **sound**shield | 51 (41) | |
| CAC59 | 2 layers of 13mm **sound**shield | 53 (43) | |
| CAC60 | 1 layer of 13mm **fire**shield | 51 (41) | |
| CAC62 | 1 layer of 16mm **fire**shield | 51 (41) | |
| CAC63 | 1 layer of 13mm **fire**shield plus 1 layer of 16mm **fire**shield | 53 (43) | |
| CAC64 | 2 layers of 16mm **fire**shield | 53 (43) | |
| CAC66 | 3 layers of 13mm **fire**shield | 54 (44) | |
| CAC67 | 1 layer of 13mm **fire**shield plus 2 layers of 16mm **fire**shield | 54 (44) | |
| CAC68 | 3 layers of 16mm **fire**shield | 54 (44) | |

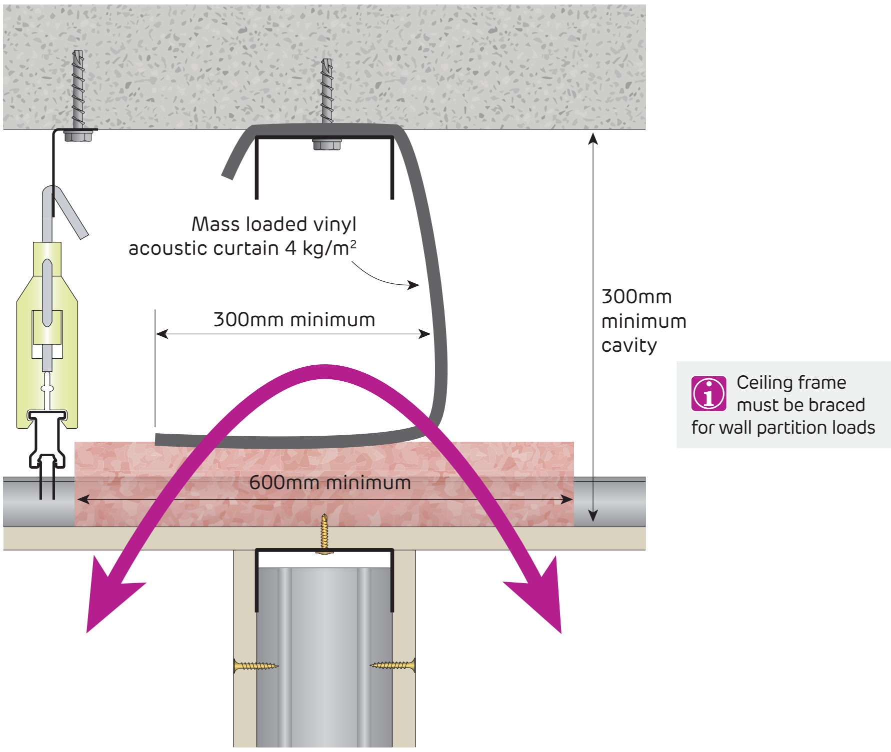
For more information on Pink® Partition batts please refer to Section 2.1 - Insulation.

## CAC7 - CAC88

- [Ceiling Option 1] Suspended ceiling frame with set plasterboard ceiling
  [Ceiling Option 2] Suspended T-bar exposed grid frame with ceiling tiles for system CAC7

- [Above Ceiling] Quadzero™ Loaded Vinyl Barrier 4 kg/m² above wall to extend from ceiling to concrete slab or roof with no gaps or holes. Pink® Partition 50mm 11 kg/m³ R1.2 insulation placed above ceiling lining.

[All systems are suitable under a concrete slab, timber roof framing or steel roof framing]
[Sound insulation numbers based on minimum 300mm cavity]
[Wall to have equal or higher sound insulation rating than CAC ceiling]



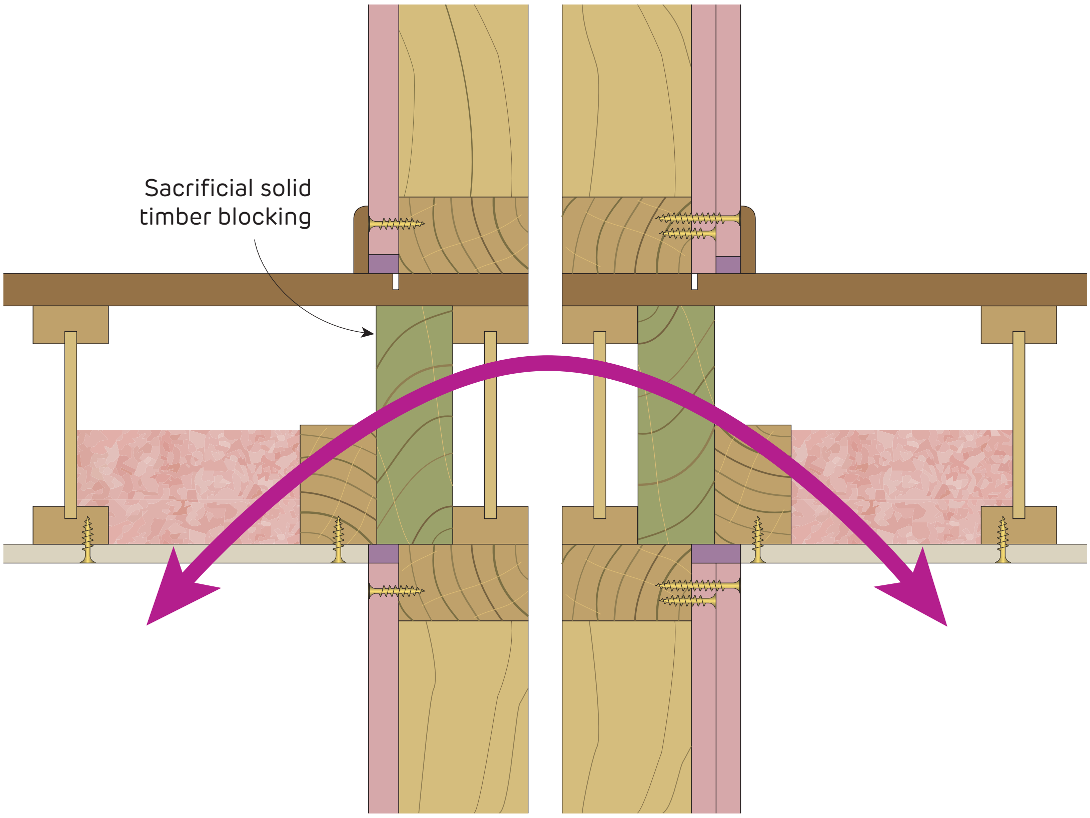

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|
| | | Quadzero™ Loaded Vinyl Barrier 4 kg/m² with Pink® Partition 50mm 11 kg/m³ R1.2 insulation above ceiling lining in a 600mm minimum wide strip | Report<br><br>Day Design 3094-40 |
| CAC7 | 10mm plasterboard ceiling tiles in exposed grid | 44 (38) | |
| CAC70 | 1 layer of 10mm **masta**shield or **span**shield | 47 (40) | |
| CAC71 | 2 layers of 10mm **masta**shield or **span**shield | 52 (42) | |
| CAC74 | 1 layer of 13mm **masta**shield | 50 (40) | |
| CAC76 | 1 layer of 10mm **sound**shield or **opal** | 50 (40) | |
| CAC77 | 2 layers of 10mm **sound**shield or **opal** | 53 (43) | |
| CAC78 | 1 layer of 13mm **sound**shield | 51 (41) | |
| CAC79 | 2 layers of 13mm **sound**shield | 54 (44) | |
| CAC80 | 1 layer of 13mm **fire**shield | 51 (41) | |
| CAC82 | 1 layer of 16mm **fire**shield | 52 (42) | |
| CAC83 | 1 layer of 13mm **fire**shield plus<br>1 layer of 16mm **fire**shield | 54 (44) | |
| CAC84 | 2 layers of 16mm **fire**shield | 54 (44) | |
| CAC86 | 3 layers of 13mm **fire**shield | 55 (45) | |
| CAC87 | 1 layer of 13mm **fire**shield plus<br>2 layers of 16mm **fire**shield | 55 (45) | |
| CAC88 | 3 layers of 16mm **fire**shield | 55 (45) | |

For more information on Pink® Partition batts please refer to Section 2.1 - Insulation.

## CAC130

- Minimum 10mm plasterboard ceiling divided by discontinuous wall frames and discontinuous joists

[Sound insulation numbers based on minimum 300mm cavity]



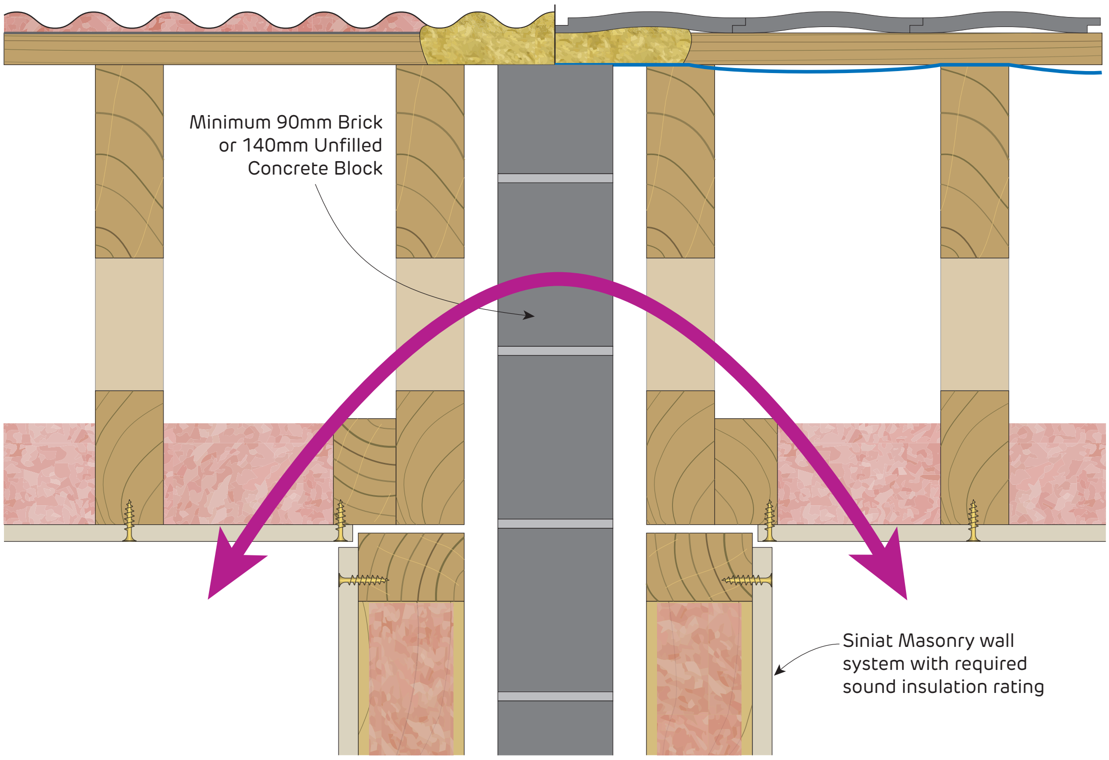

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No Insulation | Minimum Pink® Batts R1.5 over the ceiling in adjacent cavities or 1200mm from wall | Report<br><br>Day Design 4738-16 |
| CAC130 | 1 layer of 10mm **masta**shield or **span**shield | 60 (**50**) | 64 (**54**) | |

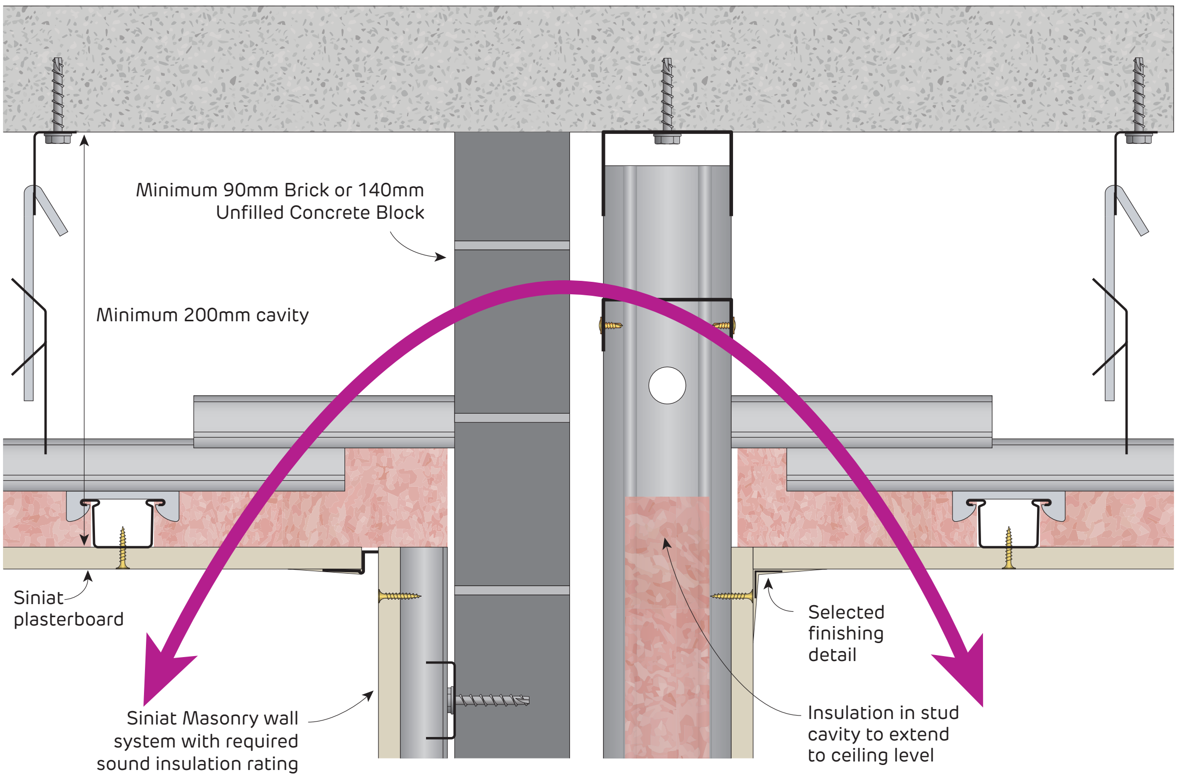
For more information on Pink® Batts please refer to Section 2.1 - Insulation.

## CAC140

- Minimum 10mm plasterboard ceiling divided by minimum 90mm brick or 140mm unfilled concrete block

[Sound insulation numbers based on minimum 200mm cavity]



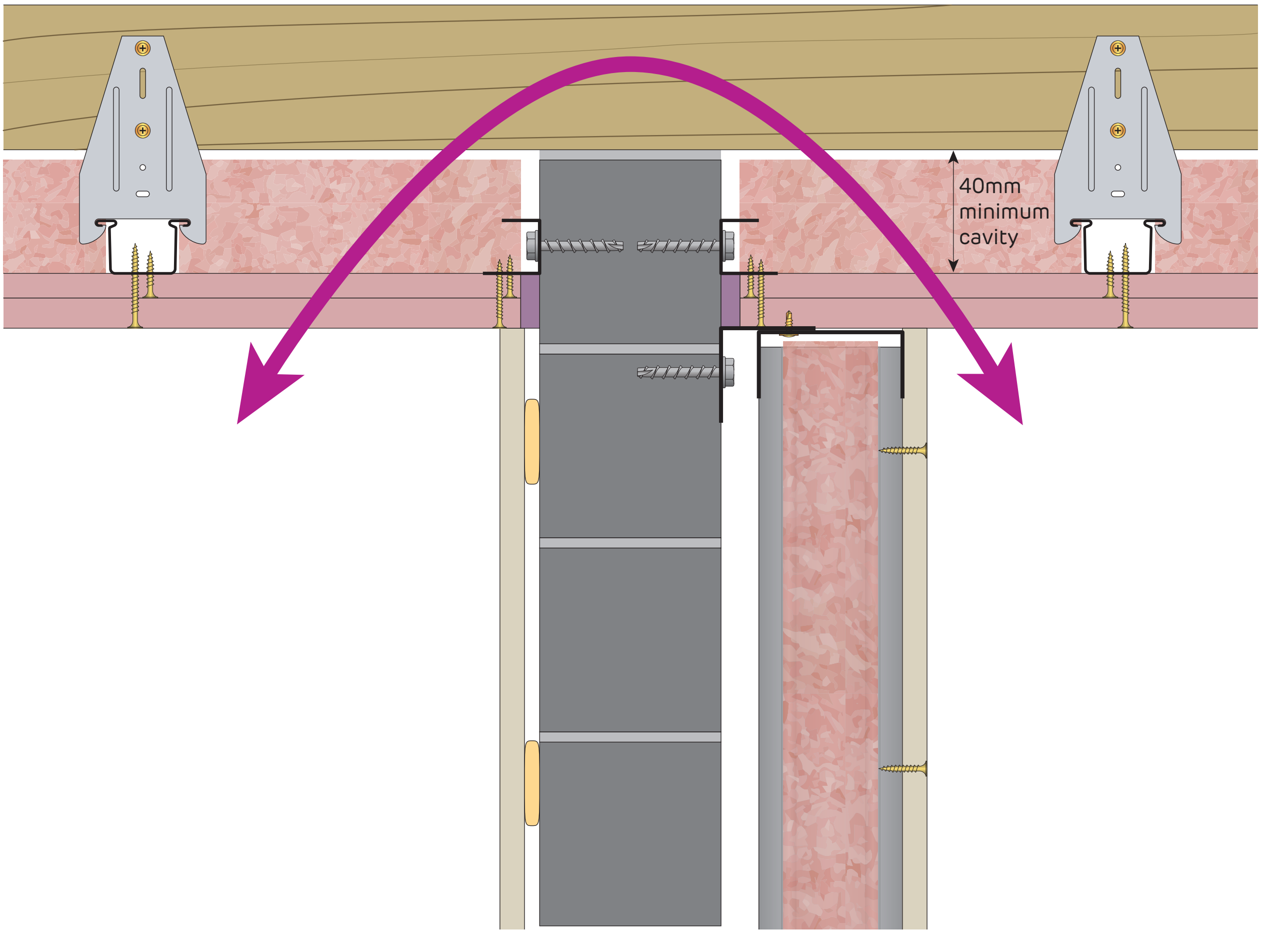

| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No Insulation | Minimum Pink® Batts R1.5 over the ceiling 1200mm from wall | Report<br>Day Design 4738-16 |
| CAC140 | 1 layer of 10mm **mastashield** or **spanshield** | 58 (48) | 60 (**50**) | |

For more information on Pink® Batts please refer to Section 2.1 - Insulation.

## CAC141

- Minimum 13mm fireshield and 16mm fireshield ceiling on clips and furring channel with minimum 40mm cavity to the underside of the joists, rafters or trusses.

[Maintains RISF 60 when using an RISF 60 minute ceiling]
[Sound insulation numbers based on minimum 300mm cavity]
[Non-acoustic penetrations in ceiling lining may degrade sound insulation performance]
[Wall to have equal or higher sound insulation rating than CAC ceiling]



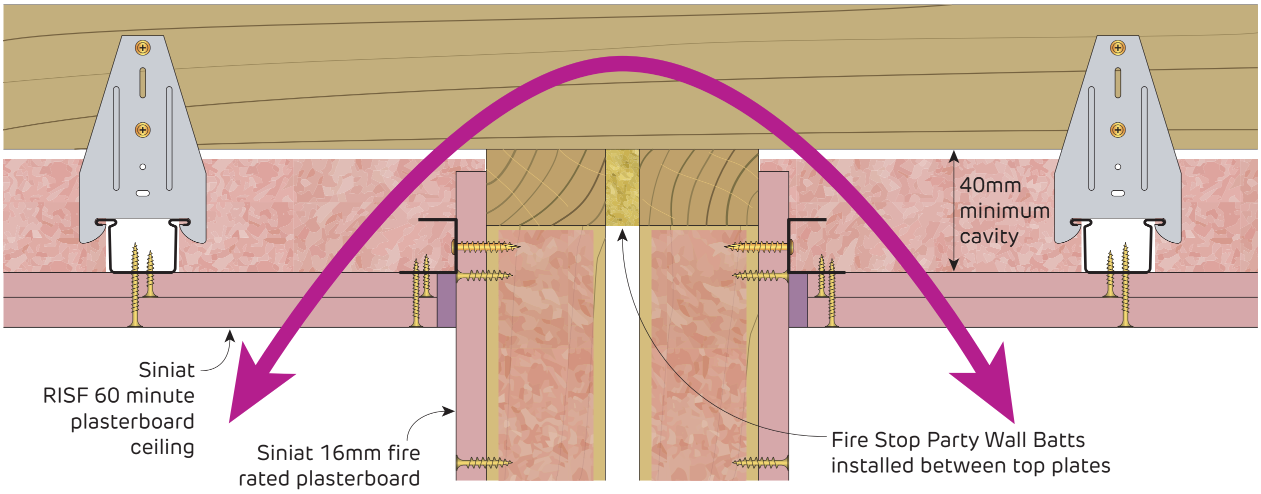

| System | Ceiling Lining | Airborne Sound Insulation (Rw + Ctr) | |
|---|---|---|---|
| | | Minimum Pink® Batts R1.5 over the ceiling 1200mm from wall | Report PKA 215 085 |
| CAC141 | 13mm **fire**shield and 16mm **fire**shield | (**50**) | |

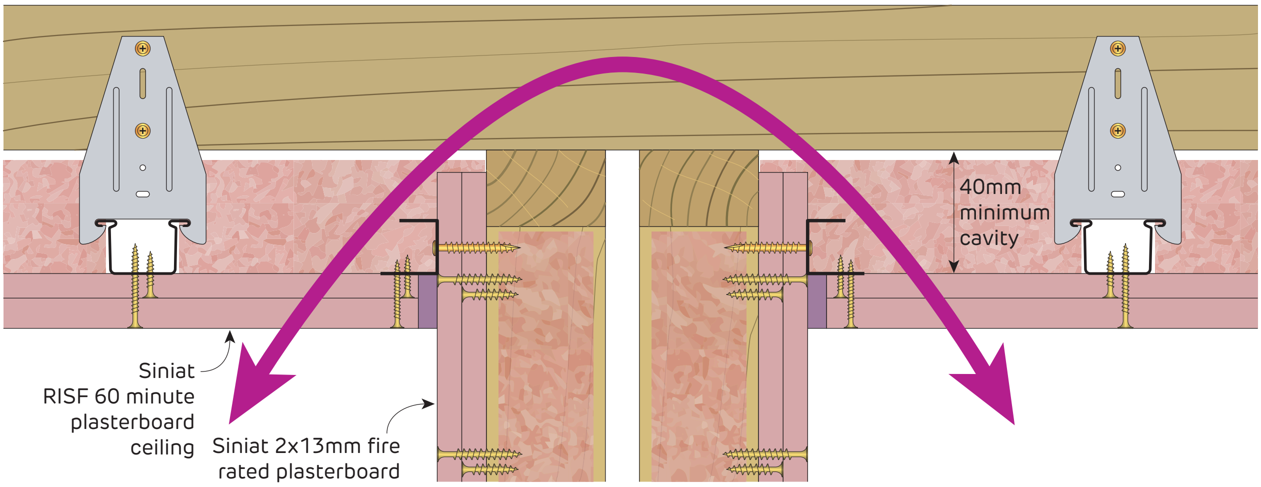
For more information on Pink® Batts please refer to Section 2.1 - Insulation.

## CAC160

- Minimum 13mm fireshield and 16mm fireshield ceiling on clips and furring channel with minimum 40mm cavity to the underside of the timber or steel joists, rafters or trusses.

[Maintains RISF 60 when using an RISF 60 minute ceiling]
[Sound insulation numbers based on minimum 300mm cavity]
[Non-acoustic penetrations in ceiling lining may degrade sound insulation performance]
[Wall to have equal or higher sound insulation rating than CAC ceiling]



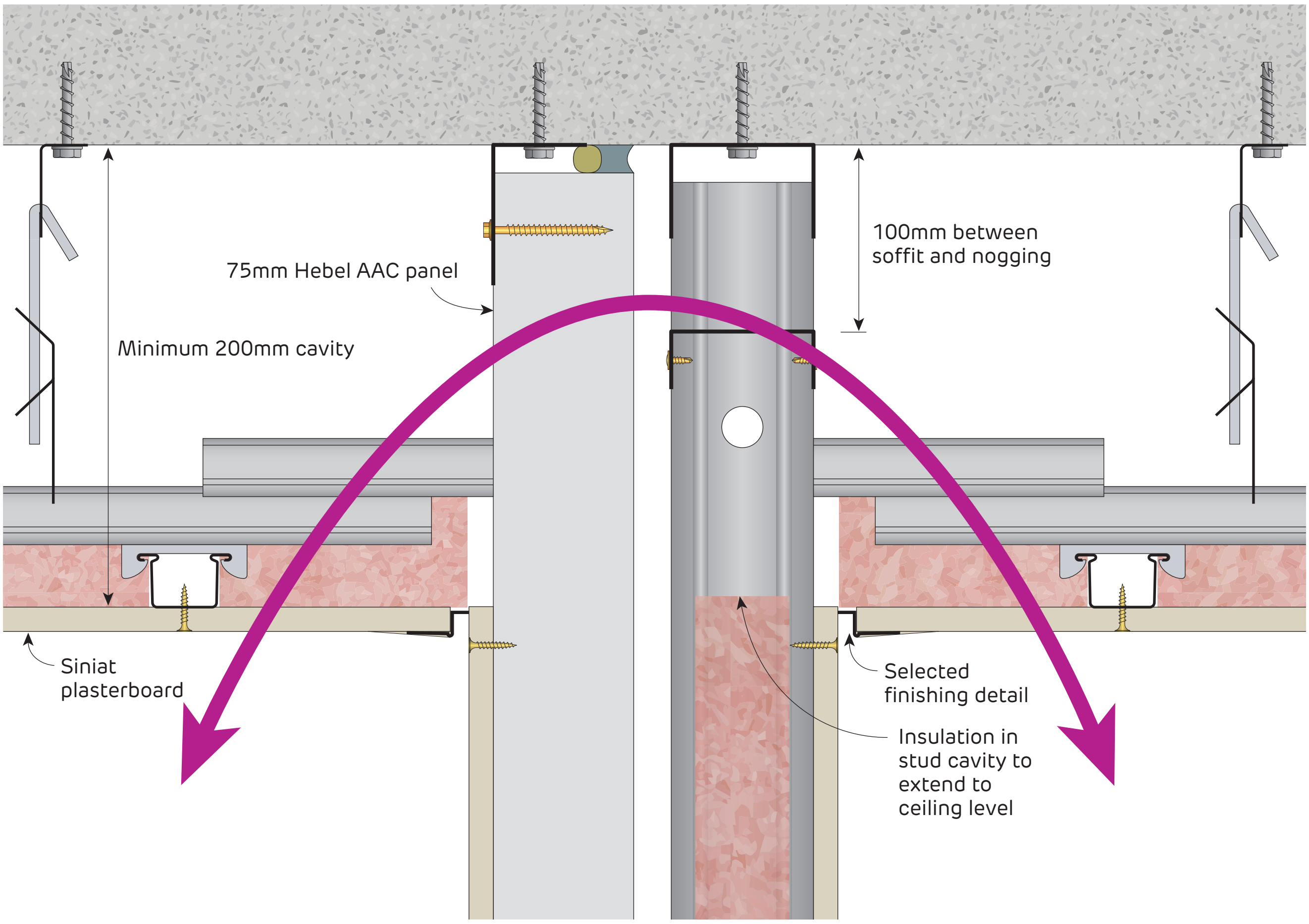

| System | Ceiling Lining | Airborne Sound Insulation (Rw + Ctr) | |
|---|---|---|---|
| | | Minimum Pink® Batts R1.5 over the ceiling 1200mm from wall | Report PKA 215 085 |
| CAC160 | 13mm **fire**shield and 16mm **fire**shield | (**50**) | |

For more information on Pink® Batts please refer to Section 2.1 - Insulation.

## CAC150 - CAC151

- Minimum 10mm plasterboard ceiling divided by any Hebel AAC wall system suitable for separating walls

[Sound insulation numbers based on minimum 200mm cavity]
[Wall to have equal or higher sound insulation rating than CAC ceiling]




| System | Ceiling Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No Insulation | Pink® Partition 50mm 11 kg/m³ R1.2 to 600mm both sides of wall | Report Day Design 5008.10-1 |
| CAC150 | 1 layer of 10mm **masta**shield or **span**shield | 45 (40) | 50 (45) | |
| CAC151 | 1 layer of 13mm **masta**shield | 50 (45) | 55 (**50**) | |

For more information on Pink® Partition batts please refer to Section 2.1 - Insulation.



# 5.3 Steel Stud Ceilings

The ceilings in this section are constructed using steel studs as the ceiling joists. Common applications for these ceilings include corridors, above stairwells, and under concrete floors.

This section contains systems for fire rated ceilings, including fire rated from above only, and fire rated from above and below.

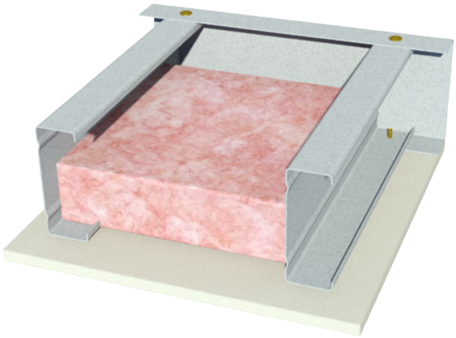
If access is from below only, and the ceiling is required to be fire rated from above, a sacrificaial frame must be installed first. Refer to 'built from the underside' construction details in this section for more information. Alternatively, consider the Shaft Wall Ceiling, refer to Section 5.4.

For acoustic ceiling systems using steel stud framing to control soil and waste pipe noise, refer to Section 6.1.

For additional information of ceiling installation, refer to Section 5.1.

Steel stud ceiling and duct systems are not suitable to operate as an air supply duct while exposed to an external fire or to contain products of combustion, ie: smoke exhaust. Shaft Wall systems have been tested to *AS 1530.4: Fire-resistance tests for elements of construction*, Section 3 (Walls) but not *AS 1530.4*, Section 9 (Air Ducts).

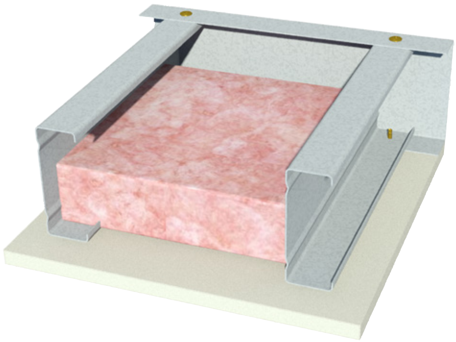
## SSC102



- Minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 1 layer of 10mm **span**shield

| Stud Depth (mm) | Ceiling Thickness (mm) | Sound Insulation for studs at 450mm centres Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 74 | 28 (24) | 31 (27) | Day Design 3094-35 |
| 76 | 86 | | | |
| 92 | 102 | | | |
| 150 | 160 | | | |

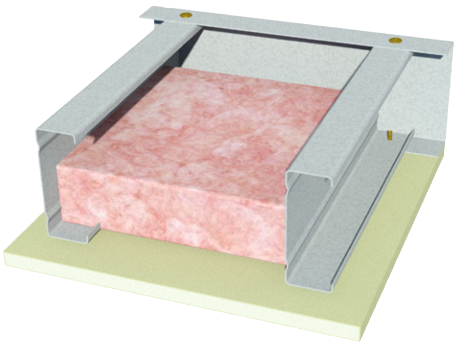
## SSC104



- Minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 1 layer of 13mm **masta**shield or **water**shield

| Stud Depth (mm) | Ceiling Thickness (mm) | Sound Insulation for studs at 450mm centres Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 77 | 29 (25) | 32 (28) | Day Design 3094-35 |
| 76 | 89 | | | |
| 92 | 105 | | | |
| 150 | 163 | | | |

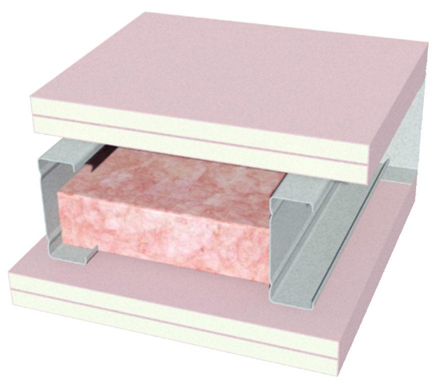
## SSC108



- Minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 1 layer of 13mm **sound**shield or **opal**

| Stud Depth (mm) | Ceiling Thickness (mm) | Sound Insulation for studs at 450mm centres Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 77 | 30 (27) | 33 (30) | Day Design 3094-35 |
| 76 | 89 | | | |
| 92 | 105 | | | |
| 150 | 163 | | | |

## SSC2



- [Above] 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

**Fire Resistance Level**

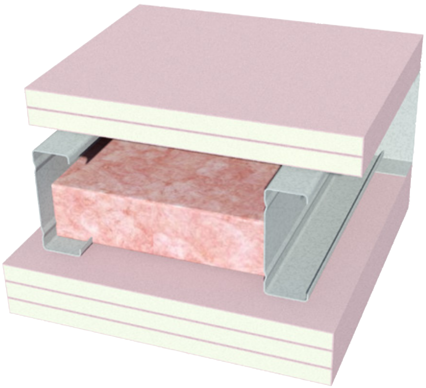
**120/120/120**
from above

**90/90/90**
from below

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | Sound Insulation for studs at 450mm centres Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 128 | 47 (38) | 50 (42) | Day Design 3094-23 Insul v8 |
| 76 | 140 | 48 (39) | 50 (43) | |
| 92 | 156 | 49 (42) | 55 (49) | |
| 150 | 214 | 51 (44) | 55 (**51**) | |

## SSC3



- [Above] 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock

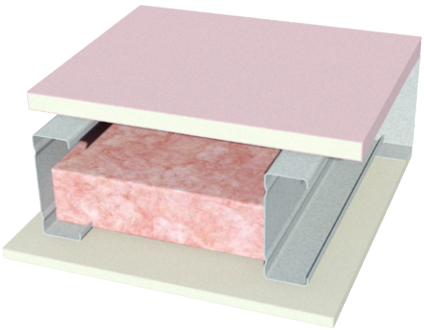
**Fire Resistance Level**

**120/120/120**
from above and below

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | Sound Insulation for studs at 450mm centres Rw (Rw + Ctr) No insulation | Pink® Partition 50mm 11kg/m³ | Report |
|---|---|---|---|---|
| 64 | 144 | 50 (41) | 52 (45) | Day Design 3094-23 Insul v8 |
| 76 | 156 | 50 (41) | 52 (46) | |
| 92 | 172 | 52 (45) | 57 (**52**) | |
| 150 | 230 | 54 (47) | 57 (**53**) | |

## SSC4



- [Above] 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 1 layer of 10mm **masta**shield or **water**shield

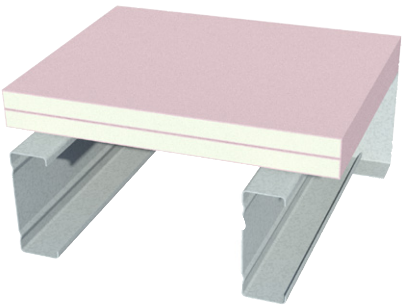
**Fire Resistance Level**

**60/60/60**
from above only

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | Sound Insulation for studs at 450mm centres Rw (Rw + Ctr) No insulation | Pink® Partition 50mm 11kg/m³ | Report |
|---|---|---|---|---|
| 64 | 90 | 37 (28) | 40 (31) | Insul v8 |
| 76 | 102 | 37 (29) | 41 (31) | |
| 92 | 118 | 38 (28) | 42 (31) | |
| 150 | 176 | 40 (30) | 45 (35) | |

## SSC6



- [Above] 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 64mm steel ceiling studs at maximum 450mm centres

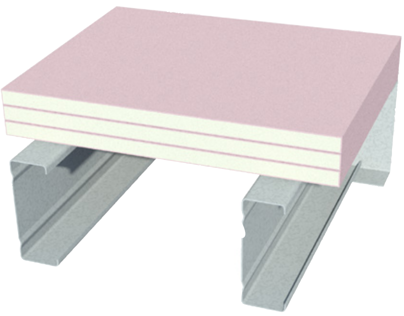
**Fire Resistance Level**

**60/60/60**
from above only

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | Sound Insulation for studs at 450mm centres Rw (Rw + Ctr) No insulation | Report |
|---|---|---|---|
| 64 | 96 | 35 (32) | Day Design 3094-23 |
| 76 | 108 | | |
| 92 | 124 | | |
| 150 | 182 | | |

## SSC7



- [Above] 3 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 64mm steel ceiling studs at maximum 450mm centres

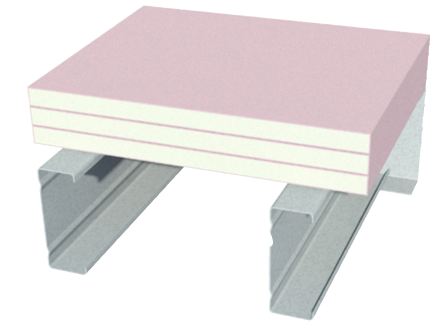
**Fire Resistance Level**

**90/90/90**
from above only

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | Sound Insulation for studs at 450mm centres Rw (Rw + Ctr) No insulation | Report |
|---|---|---|---|
| 64 | 103 | 37 (35) | Day Design 3094-23 |
| 76 | 115 | | |
| 92 | 131 | | |
| 150 | 189 | | |

## SSC8



- [Above] 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 64mm steel ceiling studs at maximum 450mm centres

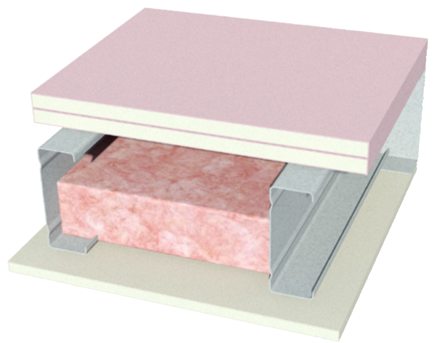
**Fire Resistance Level**

**120/120/120**
from above only

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | **Sound Insulation** for studs at 450mm centres Rw (Rw + Ctr) | |
|---|---|---|---|
| | | No insulation | Report |
| 64 | 112 | 38 (36) | Day Design 3094-23 |
| 76 | 124 | | |
| 92 | 140 | | |
| 150 | 198 | | |

## SSC9



- [Above] 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock
- Minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 1 layer of 10mm **masta**shield or **water**shield

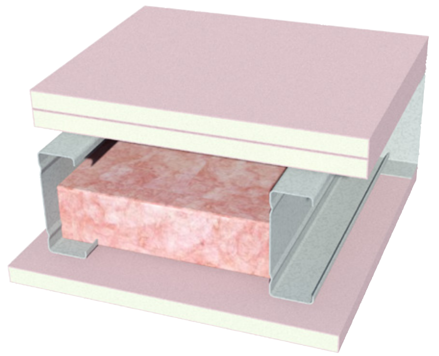
**Fire Resistance Level**

**90/90/90**
from above only

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | **Sound Insulation** for studs at 450mm centres Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 100 | 40 (31) | 44 (34) | Insul v8 |
| 76 | 112 | 41 (31) | 44 (34) | |
| 92 | 128 | 42 (31) | 47 (35) | |
| 150 | 186 | 44 (34) | 49 (39) | |

## SSC10



- [Above] 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

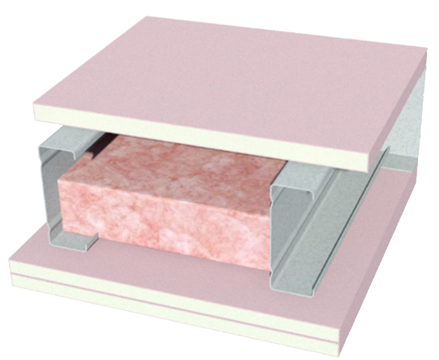
**Fire Resistance Level**

**120/120/120**
from above only

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | **Sound Insulation** for studs at 450mm centres Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 112 | 43 (32) | 46 (37) | Insul v8 |
| 76 | 124 | 44 (33) | 47 (38) | |
| 92 | 140 | 44 (35) | 48 (40) | |
| 150 | 198 | 46 (38) | 49 (43) | |

## SSC11



- [Above] 1 layers of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 2 layer of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

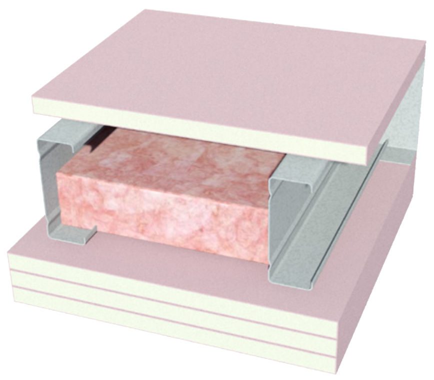
**Fire Resistance Level**

**60/60/60**
from above and below

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | **Sound Insulation** for studs at 450mm centres Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 106 | 43 (31) | 46 (36) | Insul v8 |
| 76 | 118 | 43 (32) | 46 (37) | |
| 92 | 134 | 44 (35) | 48 (40) | |
| 150 | 192 | 46 (38) | 49 (43) | |

## SSC12



- [Above] 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock
- Minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock

**Fire Resistance Level**

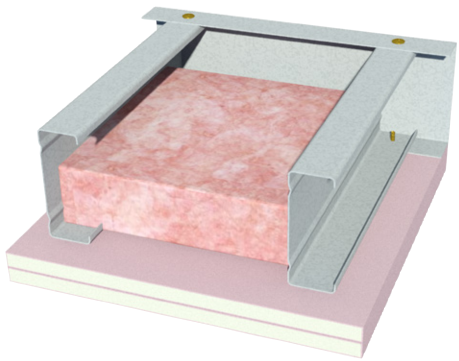
**60/60/60**
from above

**120/120/120**
from below

Report FC14332

| **Stud Depth** (mm) | **Ceiling Thickness** (mm) | **Sound Insulation** for studs at 450mm centres **Rw (Rw + Ctr)** | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 128 | 46 (35) | 49 (40) | Day Design 3094-23 Insul v8 |
| 76 | 140 | 47 (36) | 49 (41) | |
| 92 | 156 | 48 (39) | 51 (43) | |
| 150 | 214 | 49 (42) | 53 (46) | |

## SSC200



- Minimum 140mm cavity with minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 2 layers of 13mm **fire**shield or **multi**shield or **impact**shield or **tru**rock

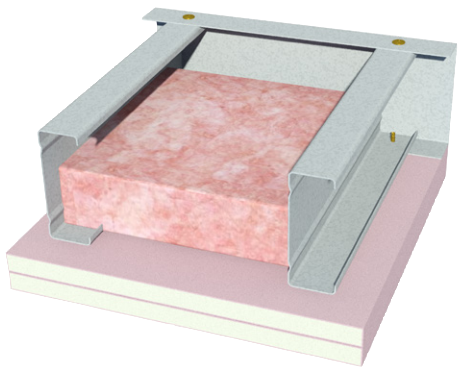
**Fire Resistance Level**

**30/30/30**
from below only

Report FC14332

| **Stud Depth** (mm) | **Ceiling Thickness** (mm) | **Sound Insulation** for studs at 450mm centres **Rw (Rw + Ctr)** | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 96 | 34 (31) | 39 (35) | Day Design 3094-23 INSUL v9 |
| 76 | 108 | | | |
| 92 | 124 | | | |
| 150 | 182 | | | |

## SSC201



- Minimum 140mm cavity with minimum 64mm steel ceiling studs at maximum **600mm** centres
- [Below] 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

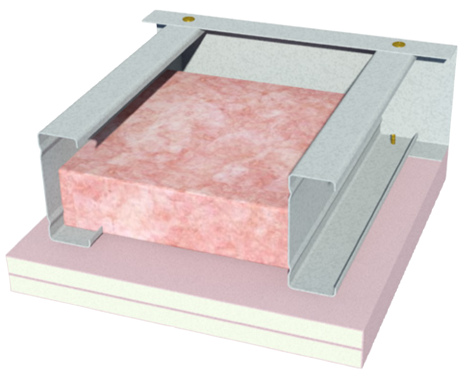
**Fire Resistance Level**

**30/30/30**
from below only

Report FC14332

| **Stud Depth** (mm) | **Ceiling Thickness** (mm) | **Sound Insulation** for studs at 450mm centres **Rw (Rw + Ctr)** | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 96 | 35 (32) | 40 (37) | Day Design 3094-23 INSUL v9 |
| 76 | 108 | | | |
| 92 | 124 | | | |
| 150 | 182 | | | |

## SSC202



- Minimum 140mm cavity with minimum 64mm steel ceiling studs at maximum **450mm** centres
- [Below] 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

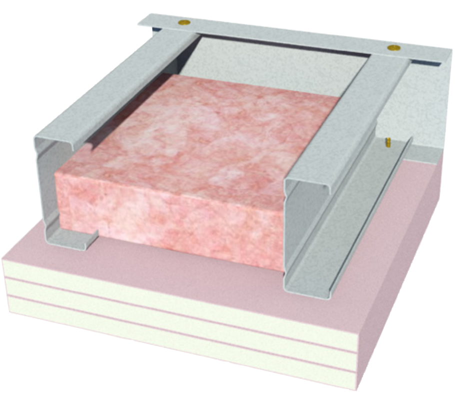
**Fire Resistance Level**

**60/60/60**
from below only

Report FC14332

| **Stud Depth** (mm) | **Ceiling Thickness** (mm) | **Sound Insulation** for studs at 450mm centres **Rw (Rw + Ctr)** | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ | Report |
| 64 | 96 | 35 (32) | 40 (37) | Day Design 3094-23 INSUL v9 |
| 76 | 108 | | | |
| 92 | 124 | | | |
| 150 | 182 | | | |

## SSC203



- Minimum 140mm cavity with minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock

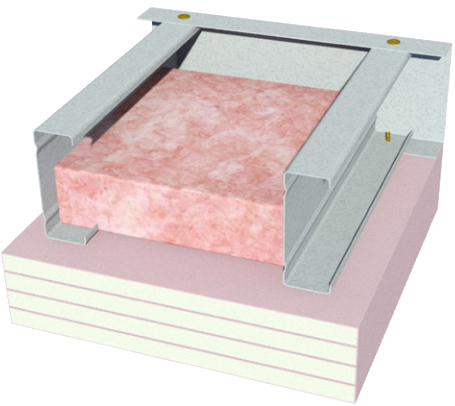
**Fire Resistance Level**

**90/90/90**
from below only

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | **Sound Insulation** for studs at 450mm centres **Rw (Rw + Ctr)** | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m$^3$ | Report |
| 64 | 112 | 38 (36) | 43 (40) | Day Design 3094-23 INSUL v9 |
| 76 | 124 | | | |
| 92 | 140 | | | |
| 150 | 198 | | | |

## SSC204



- Minimum 140mm cavity with minimum 64mm steel ceiling studs at maximum 450mm centres
- [Below] 4 layers of 16mm **fire**shield or **multi**shield or **tru**rock

**Fire Resistance Level**

**120/120/120**
from below only

Report FC14332

| Stud Depth (mm) | Ceiling Thickness (mm) | **Sound Insulation** for studs at 450mm centres **Rw (Rw + Ctr)** | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m$^3$ | Report |
| 64 | 128 | 41 (39) | 46 (43) | INSUL v9 |
| 76 | 140 | | | |
| 92 | 156 | | | |
| 150 | 214 | | | |

## General Requirements

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Install control joints in plasterboard ceilings:<br>> At 12m maximum intervals for internal ceilings<br>> At 6m maximum intervals for external ceilings<br>> At all movement joints in the building<br>> At any change in the substrate<br>> At the junction of a larger room and passageway. | ✓ | ✓ |
| All ceilings in this section are non-trafficable. Do not walk on plasterboard ceilings! | ✓ | ✓ |
| Limit dead loads on plasterboard ceilings to 2 kg/m² for plasterboard spanning 600mm framing centres. | ✓ | ✓ |
| Limit dead loads on plasterboard ceilings to 2.5 kg/m² for plasterboard spanning 450mm framing centres where the plasterboard can usually span 600mm centres. | ✓ | ✓ |
| Only joint the face layer. As a minimum, use paper tape with either masta**base** or masta**longset**. | | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | | ✓ |
| Use **bindex** fire and acoustic sealant on all gaps and around perimeter. | | ✓ |
| Attach ceiling fixtures to framing members only. Ensure the framing is designed to carry any additional load. | ✓ | ✓ |
| All structures supporting fire rated ceilings must have an equal or greater FRL than the ceiling they support eg, a ceiling with FRL of 90/90/90 must be supported by a load bearing wall or column with FRL of at least 90 minutes. | | ✓ |
| **fire**shield may be substituted with **multi**shield, **impact**shield, **tru**rock and **tru**rock HD of the same or greater thickness and maintain fire performance. | | ✓ |

> Structural beams enclosed by a fire rated ceiling are given the same structural protection rating as the ceiling eg, a structural beam located above a ceiling rated to FRL 90/90/90 would have FRL of 90/–/–.
> The FRL and RISF will not be reduced if a fire rated ceiling is built on an angle eg, a raked ceiling.
> Consider the corrosive effect of sea spray on steel components, select framing and fasteners accordingly.
> The FRL will not be reduced if the insulation directly above plasterboard is omitted.
> Plasterboard installations in close proximity to metal roofs (ie: raked ceiling or with small ceiling cavities) require smaller control joint intervals as they are exposed to larger rates of thermal expansion.
> Excessive vibration of the ceiling (by installing ceiling services, etc) is known to cause joint cracking and joint peaking.
> Locate ceiling services so they do not cut through ceiling framing members, otherwise some degradation of the ceiling can be expected.

# Framing

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Framing members as per framing table or structural design up to 600mm maximum. | ✓ | ✓ |
| For a specific project, determine the relevant wind pressure load on an internal ceiling from Section 2.3, or the QR link below. Wind pressure loads must be considered for internal ceilings to comply with *AS/NZS 1170.2 Wind Actions* and *AS/NZS 2785 Suspended Ceilings - Design and Installation.* | ✓ | ✓ |
| Stagger joins in adjacent Top Cross Rails and Furring Channels by 1200mm | ✓ | ✓ |
| Install additional framing members around openings. | ✓ | ✓ |

## Siniat Internal Wind Load Calculator

### Table 1 Maximum Perimeter Track Anchor Spacing

| Ceiling Framing Member Spacing (mm) | Maximum Anchor Spacing (mm) |
|---|---|
| 600 | 600 |
| 450 | 600 |
| 400 | 600 |
| 300 | 450 |

1. Additional anchors 100mm maximum from track ends.
2. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

### Table 2 Maximum Span (Framing Spacing) for Plasterboard

| Plasterboard Type | General Internal Areas | Areas of Intermittent High Humidity eg. Unventilated Bathrooms, Basements and External Ceilings |
|---|---|---|
| 10mm **masta**shield | 450mm | 300mm |
| 13mm **masta**shield | 600mm | 450mm |
| 10mm **span**shield | 600mm | 450mm |
| 10mm **opal** | 600mm | 450mm |
| 10mm and 13mm **sound**shield | 600mm | 450mm |
| 10mm and 13mm **water**shield | 600mm | 450mm |
| 13mm and 16mm **fire**shield | 600mm | 450mm |
| 13mm and 16mm **multi**shield | 600mm | 450mm |
| 13mm and 16mm **tru**rock | 600mm | 450mm |
| 13mm and 16mm **tru**rock hd | 600mm | 450mm |

## Fire Rated and Non-Fire Rated
## Stud Ceiling End Connections

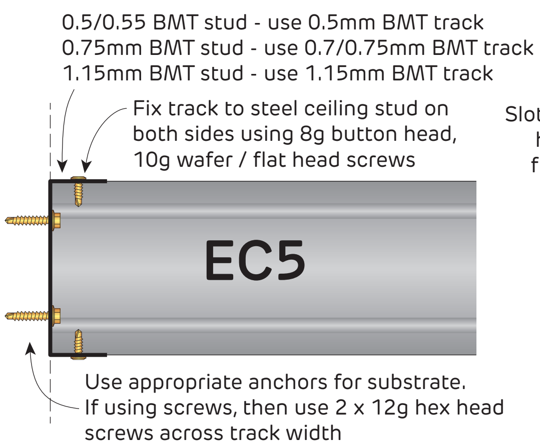



**FIGURE 1** Fixed End Connection EC5
Section

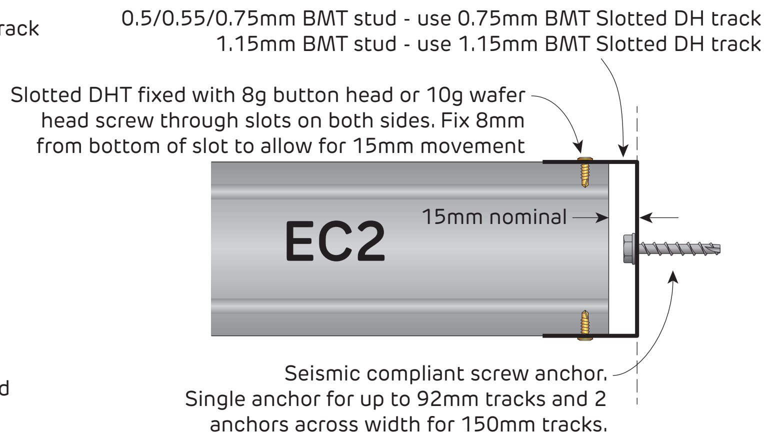



**FIGURE 2** Sliding End Connection EC2
Section

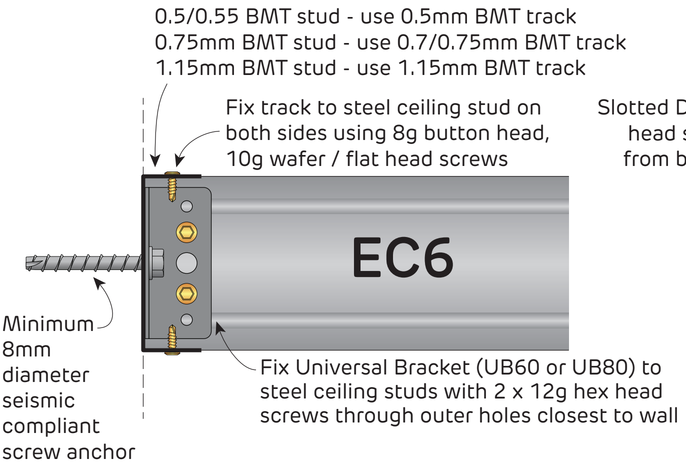



**FIGURE 3** Fixed End Connection EC6
92mm or 150mm studs only
Section

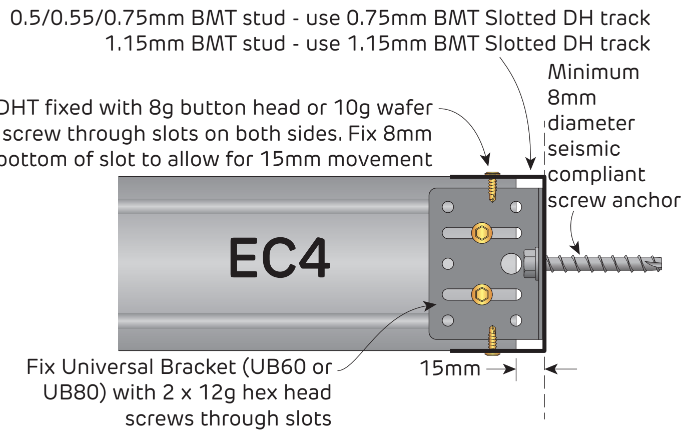
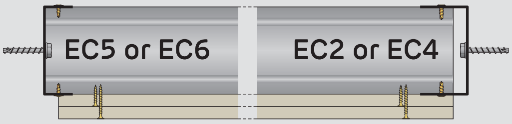



**FIGURE 4** Sliding End Connection EC4
92mm or 150mm studs only
Section

> 8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Table 3 Single Span Internal Steel Stud Ceiling Span Table (mm) - REGION A

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud ceiling lined on the underside only |   | | | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | | | | 0.39 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Serviceability pressure $W_S$ (kPa) | | | | 0.25 |
| **Ceiling Stud Depth and BMT (mm)** | **Maximum Ceiling Stud Centres (mm)** | **1x10mm** | **2x10mm** | **1x13mm** | **2x13mm** | **3x13mm** | **1x16mm** | **2x16mm** | **3x16mm** | **4x16mm** |
| 64 x 0.5 | 600 | 2080 | 1950 | 2010 | 1850 | 1720 | 1830 | 1830 | - | - |
| | 450 | 2290 | 2130 | 2210 | 2020 | 1890 | 2010 | 2010 | 1870 | 1710 |
| | 400 | 2370 | 2220 | 2300 | 2100 | 1970 | 2080 | 2080 | 1940 | 1780 |
| | 300 | 2600 | 2430 | 2520 | 2310 | 2150 | 2290 | 2290 | 2130 | 1960 |
| 64 x 0.75 | 600 | 2360 | 2210 | 2290 | 2090 | 1960 | 2080 | 2080 | - | - |
| | 450 | 2590 | 2420 | 2510 | 2300 | 2150 | 2280 | 2280 | 2120 | 1950 |
| | 400 | 2690 | 2520 | 2610 | 2390 | 2230 | 2370 | 2370 | 2210 | 2020 |
| | 300 | 2950 | 2760 | 2850 | 2620 | 2450 | 2600 | 2600 | 2420 | 2220 |
| 64 x 1.15 | 600 | 2710 | 2530 | 2620 | 2400 | 2240 | 2380 | 2380 | - | - |
| | 450 | 2960 | 2770 | 2870 | 2630 | 2460 | 2610 | 2610 | 2440 | 2240 |
| | 400 | 3070 | 2880 | 2980 | 2730 | 2560 | 2710 | 2710 | 2530 | 2320 |
| | 300 | 3350 | 3150 | 3250 | 2990 | 2800 | 2970 | 2970 | 2770 | 2540 |
| 76 x 0.55 | 600 | 2460 | 2290 | 2370 | 2170 | 2030 | 2150 | 2150 | - | - |
| | 450 | 2700 | 2520 | 2610 | 2390 | 2230 | 2370 | 2370 | 2200 | 2020 |
| | 400 | 2800 | 2620 | 2710 | 2480 | 2320 | 2460 | 2460 | 2290 | 2100 |
| | 300 | 3070 | 2870 | 2970 | 2720 | 2540 | 2700 | 2700 | 2520 | 2310 |
| 76 x 0.75 | 600 | 2740 | 2560 | 2650 | 2430 | 2260 | 2410 | 2410 | - | - |
| | 450 | 3000 | 2810 | 2910 | 2660 | 2490 | 2640 | 2640 | 2460 | 2260 |
| | 400 | 3120 | 2910 | 3020 | 2770 | 2580 | 2740 | 2740 | 2560 | 2350 |
| | 300 | 3410 | 3190 | 3300 | 3030 | 2830 | 3010 | 3010 | 2800 | 2570 |
| 76 x 1.15 | 600 | 3100 | 2900 | 3000 | 2750 | 2570 | 2730 | 2730 | - | - |
| | 450 | 3390 | 3180 | 3290 | 3020 | 2820 | 2990 | 2990 | 2790 | 2560 |
| | 400 | 3520 | 3300 | 3410 | 3130 | 2930 | 3110 | 3110 | 2900 | 2660 |
| | 300 | 3840 | 3600 | 3720 | 3420 | 3210 | 3400 | 3400 | 3170 | 2910 |
| 92 x 0.55 | 600 | 2860 | 2670 | 2760 | 2530 | 2360 | 2510 | 2510 | - | - |
| | 450 | 3130 | 2930 | 3030 | 2780 | 2590 | 2750 | 2750 | 2560 | 2350 |
| | 400 | 3250 | 3040 | 3150 | 2890 | 2690 | 2860 | 2860 | 2660 | 2440 |
| | 300 | 3560 | 3330 | 3450 | 3160 | 2960 | 3140 | 3140 | 2930 | 2680 |
| 92 x 0.75 | 600 | 3140 | 2940 | 3040 | 2790 | 2600 | 2760 | 2760 | - | - |
| | 450 | 3440 | 3220 | 3330 | 3060 | 2860 | 3030 | 3030 | 2830 | 2590 |
| | 400 | 3570 | 3340 | 3460 | 3180 | 2970 | 3150 | 3150 | 2940 | 2690 |
| | 300 | 3910 | 3660 | 3780 | 3480 | 3250 | 3450 | 3450 | 3220 | 2950 |
| 92 x 1.15 | 600 | 3590 | 3360 | 3480 | 3190 | 2980 | 3170 | 3170 | - | - |
| | 450 | 3930 | 3680 | 3810 | 3500 | 3270 | 3470 | 3470 | 3240 | 2970 |
| | 400 | 4060 | 3820 | 3950 | 3630 | 3400 | 3600 | 3600 | 3360 | 3080 |
| | 300 | 4400 | 4160 | 4300 | 3970 | 3710 | 3930 | 3930 | 3680 | 3370 |
| 150 x 0.75 | 600 | 4540 | 4320 | 4430 | 4100 | 3740 | 4060 | 4060 | - | - |
| | 450 | 4850 | 4620 | 4740 | 4450 | 4200 | 4420 | 4420 | 4160 | 3640 |
| | 400 | 4990 | 4750 | 4870 | 4570 | 4350 | 4550 | 4550 | 4320 | 3910 |
| | 300 | 5320 | 5080 | 5200 | 4890 | 4660 | 4860 | 4860 | 4620 | 4340 |
| 150 x 1.15 | 600 | 5010 | 4770 | 4890 | 4590 | 4370 | 4560 | 4560 | - | - |
| | 450 | 5340 | 5100 | 5220 | 4910 | 4680 | 4880 | 4880 | 4640 | 4360 |
| | 400 | 5480 | 5230 | 5360 | 5050 | 4810 | 5020 | 5020 | 4770 | 4480 |
| | 300 | 5830 | 5580 | 5710 | 5380 | 5130 | 5350 | 5350 | 5100 | 4790 |

### Nogging Table

| Ceiling Span (m) | Number of Noggings evenly spaced along ceiling joist |
|---|---|
| 0 - 2.0 | 0 |
| 2.0 - 4.0 | 1 |
| above 4.0 | 2 |

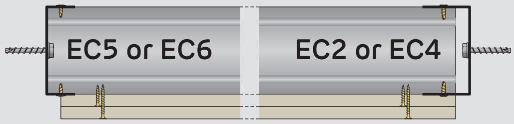
### End Track Anchor Demand

1. Maximum anchor shear and tension demand = 1.32 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is **Sliding** type EC2 or EC4. End Connection 2 is **Fixed** type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
4. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03\text{kPa Service Load}}$ Ultimate Load Case 2: 0.9G + Wu (uplift).
8. Serviceability Load Case 1: G with deflection limited to span/500 Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
9. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
10. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 4 Single Span Internal Steel Stud Ceiling Span Table (mm) - REGION A

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud ceiling lined on the underside only |   | | | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | | | 0.54 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Serviceability pressure $W_S$ (kPa) | | | 0.35 | |
| **Ceiling Stud Depth and BMT (mm)** | **Maximum Ceiling Stud Centres (mm)** | **1x10mm** | **2x10mm** | **1x13mm** | **2x13mm** | **3x13mm** | **1x16mm** | **2x16mm** | **3x16mm** | **4x16mm** |
| 64 x 0.5 | 600 | 1920 | 1820 | 1870 | 1740 | 1640 | 1860 | 1730 | - | - |
| | 450 | 2110 | 2000 | 2050 | 1910 | 1800 | 2040 | 1900 | 1790 | 1650 |
| | 400 | 2190 | 2070 | 2130 | 1990 | 1870 | 2120 | 1970 | 1860 | 1720 |
| | 300 | 2410 | 2280 | 2340 | 2180 | 2060 | 2330 | 2160 | 2040 | 1890 |
| 64 x 0.75 | 600 | 2180 | 2070 | 2130 | 1980 | 1870 | 2120 | 1970 | - | - |
| | 450 | 2400 | 2270 | 2330 | 2170 | 2050 | 2320 | 2160 | 2030 | 1880 |
| | 400 | 2490 | 2360 | 2420 | 2260 | 2130 | 2410 | 2240 | 2110 | 1960 |
| | 300 | 2730 | 2580 | 2660 | 2480 | 2340 | 2650 | 2460 | 2310 | 2150 |
| 64 x 1.15 | 600 | 2500 | 2370 | 2440 | 2270 | 2140 | 2430 | 2250 | - | - |
| | 450 | 2740 | 2600 | 2670 | 2490 | 2350 | 2660 | 2470 | 2330 | 2160 |
| | 400 | 2850 | 2700 | 2770 | 2590 | 2440 | 2760 | 2570 | 2420 | 2240 |
| | 300 | 3110 | 2950 | 3030 | 2830 | 2670 | 3020 | 2810 | 2650 | 2460 |
| 76 x 0.55 | 600 | 2270 | 2140 | 2210 | 2050 | 1910 | 2200 | 2040 | - | - |
| | 450 | 2490 | 2360 | 2420 | 2250 | 2120 | 2410 | 2240 | 2100 | 1940 |
| | 400 | 2590 | 2450 | 2520 | 2340 | 2210 | 2510 | 2330 | 2190 | 2030 |
| | 300 | 2840 | 2690 | 2760 | 2570 | 2430 | 2750 | 2550 | 2400 | 2230 |
| 76 x 0.75 | 600 | 2530 | 2390 | 2460 | 2290 | 2160 | 2450 | 2280 | - | - |
| | 450 | 2780 | 2630 | 2700 | 2520 | 2370 | 2690 | 2500 | 2350 | 2180 |
| | 400 | 2880 | 2730 | 2810 | 2610 | 2470 | 2790 | 2600 | 2440 | 2260 |
| | 300 | 3160 | 2990 | 3080 | 2870 | 2710 | 3060 | 2850 | 2680 | 2490 |
| 76 x 1.15 | 600 | 2870 | 2720 | 2790 | 2600 | 2450 | 2780 | 2580 | - | - |
| | 450 | 3140 | 2980 | 3060 | 2850 | 2690 | 3050 | 2830 | 2670 | 2470 |
| | 400 | 3260 | 3090 | 3180 | 2960 | 2800 | 3160 | 2940 | 2770 | 2570 |
| | 300 | 3560 | 3380 | 3470 | 3240 | 3060 | 3460 | 3220 | 3040 | 2820 |
| 92 x 0.55 | 600 | 2640 | 2490 | 2570 | 2390 | 2250 | 2550 | 2370 | - | - |
| | 450 | 2890 | 2740 | 2820 | 2620 | 2470 | 2810 | 2600 | 2450 | 2270 |
| | 400 | 3010 | 2850 | 2930 | 2720 | 2570 | 2910 | 2710 | 2550 | 2360 |
| | 300 | 3300 | 3120 | 3210 | 2990 | 2820 | 3200 | 2970 | 2800 | 2590 |
| 92 x 0.75 | 600 | 2900 | 2750 | 2830 | 2630 | 2480 | 2820 | 2610 | - | - |
| | 450 | 3180 | 3020 | 3100 | 2890 | 2720 | 3090 | 2870 | 2700 | 2500 |
| | 400 | 3310 | 3130 | 3220 | 3000 | 2830 | 3210 | 2980 | 2810 | 2600 |
| | 300 | 3620 | 3430 | 3530 | 3290 | 3110 | 3510 | 3270 | 3080 | 2850 |
| 92 x 1.15 | 600 | 3330 | 3150 | 3240 | 3020 | 2850 | 3230 | 3000 | - | - |
| | 450 | 3640 | 3450 | 3550 | 3310 | 3120 | 3530 | 3290 | 3100 | 2870 |
| | 400 | 3780 | 3580 | 3680 | 3430 | 3240 | 3670 | 3410 | 3210 | 2980 |
| | 300 | 4120 | 3920 | 4020 | 3760 | 3550 | 4000 | 3730 | 3520 | 3270 |
| 150 x 0.75 | 600 | 4270 | 4050 | 4160 | 3730 | 3540 | 4140 | 3710 | - | - |
| | 450 | 4580 | 4400 | 4500 | 4250 | 4010 | 4480 | 4220 | 3870 | 3230 |
| | 400 | 4710 | 4530 | 4620 | 4390 | 4170 | 4610 | 4360 | 4130 | 3630 |
| | 300 | 5040 | 4850 | 4940 | 4700 | 4500 | 4930 | 4670 | 4470 | 4200 |
| 150 x 1.15 | 600 | 4730 | 4550 | 4640 | 4410 | 4190 | 4630 | 4380 | - | - |
| | 450 | 5060 | 4860 | 4960 | 4710 | 4520 | 4950 | 4690 | 4490 | 4220 |
| | 400 | 5190 | 5000 | 5100 | 4850 | 4650 | 5080 | 4820 | 4620 | 4370 |
| | 300 | 5540 | 5330 | 5440 | 5180 | 4970 | 5420 | 5150 | 4940 | 4670 |

## Nogging Table

| Ceiling Span (m) | Number of Noggings evenly spaced along ceiling joist |
|---|---|
| 0 - 2.0 | 0 |
| 2.0 - 4.0 | 1 |
| above 4.0 | 2 |

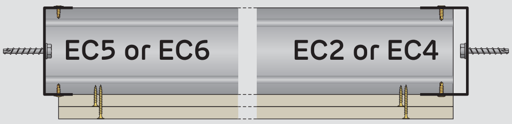
## End Track Anchor Demand

1. Maximum anchor shear and tension demand = 1.48 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is **Sliding** type EC2 or EC4. End Connection 2 is **Fixed** type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
4. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
7. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03kPa}$ Service Load Ultimate Load Case 2: 0.9G + Wu (uplift).
8. Serviceability Load Case 1: G with deflection limited to span/500 Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
9. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
10. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 5 Single Span Internal Steel Stud Ceiling Span Table (mm) - REGION B

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.




| Steel stud ceiling lined on the underside only | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.59 |
|---|---|---|---|
| | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Ceiling Stud Depth and BMT (mm) | Maximum Ceiling Stud Centres (mm) | 1x10mm | 2x10mm | 1x13mm | 2x13mm | 3x13mm | 1x16mm | 2x16mm | 3x16mm | 4x16mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 64 x 0.5 | 600 | 2080 | 1820 | 2010 | 1760 | 1680 | 2000 | 1750 | - | - |
| | 450 | 2290 | 2130 | 2210 | 2020 | 1840 | 2200 | 2010 | 1830 | 1710 |
| | 400 | 2370 | 2220 | 2300 | 2100 | 1910 | 2280 | 2080 | 1890 | 1780 |
| | 300 | 2600 | 2430 | 2520 | 2310 | 2150 | 2500 | 2290 | 2130 | 1950 |
| 64 x 0.75 | 600 | 2360 | 2210 | 2290 | 2090 | 1950 | 2270 | 2080 | - | - |
| | 450 | 2590 | 2420 | 2510 | 2300 | 2150 | 2490 | 2280 | 2120 | 1950 |
| | 400 | 2690 | 2520 | 2610 | 2390 | 2230 | 2590 | 2370 | 2210 | 2020 |
| | 300 | 2950 | 2760 | 2850 | 2620 | 2450 | 2840 | 2600 | 2420 | 2220 |
| 64 x 1.15 | 600 | 2710 | 2530 | 2620 | 2400 | 2240 | 2610 | 2380 | - | - |
| | 450 | 2960 | 2770 | 2870 | 2630 | 2460 | 2850 | 2610 | 2440 | 2240 |
| | 400 | 3070 | 2880 | 2980 | 2730 | 2560 | 2960 | 2710 | 2530 | 2320 |
| | 300 | 3350 | 3150 | 3250 | 2990 | 2800 | 3230 | 2970 | 2770 | 2540 |
| 76 x 0.55 | 600 | 2460 | 2290 | 2370 | 2170 | 2030 | 2360 | 2150 | - | - |
| | 450 | 2700 | 2520 | 2610 | 2390 | 2230 | 2590 | 2370 | 2200 | 2020 |
| | 400 | 2800 | 2620 | 2710 | 2480 | 2320 | 2690 | 2460 | 2290 | 2100 |
| | 300 | 3070 | 2870 | 2970 | 2720 | 2540 | 2960 | 2700 | 2520 | 2310 |
| 76 x 0.75 | 600 | 2740 | 2560 | 2650 | 2430 | 2260 | 2630 | 2410 | - | - |
| | 450 | 3000 | 2810 | 2910 | 2660 | 2490 | 2890 | 2640 | 2460 | 2260 |
| | 400 | 3120 | 2910 | 3020 | 2770 | 2580 | 3000 | 2740 | 2560 | 2350 |
| | 300 | 3410 | 3190 | 3300 | 3030 | 2830 | 3280 | 3010 | 2800 | 2570 |
| 76 x 1.15 | 600 | 3100 | 2900 | 3000 | 2750 | 2570 | 2990 | 2730 | - | - |
| | 450 | 3390 | 3180 | 3290 | 3020 | 2820 | 3270 | 2990 | 2790 | 2560 |
| | 400 | 3520 | 3300 | 3410 | 3130 | 2930 | 3390 | 3110 | 2900 | 2660 |
| | 300 | 3840 | 3600 | 3720 | 3420 | 3210 | 3700 | 3400 | 3170 | 2910 |
| 92 x 0.55 | 600 | 2860 | 2670 | 2760 | 2530 | 2360 | 2750 | 2510 | - | - |
| | 450 | 3130 | 2930 | 3030 | 2780 | 2590 | 3010 | 2750 | 2560 | 2350 |
| | 400 | 3250 | 3040 | 3150 | 2890 | 2690 | 3130 | 2860 | 2660 | 2440 |
| | 300 | 3560 | 3330 | 3450 | 3160 | 2960 | 3430 | 3140 | 2930 | 2680 |
| 92 x 0.75 | 600 | 3140 | 2940 | 3040 | 2790 | 2600 | 3020 | 2760 | - | - |
| | 450 | 3440 | 3220 | 3330 | 3060 | 2860 | 3310 | 3030 | 2830 | 2590 |
| | 400 | 3570 | 3340 | 3460 | 3180 | 2970 | 3440 | 3150 | 2940 | 2690 |
| | 300 | 3910 | 3660 | 3780 | 3480 | 3250 | 3760 | 3450 | 3220 | 2950 |
| 92 x 1.15 | 600 | 3590 | 3360 | 3480 | 3190 | 2980 | 3460 | 3170 | - | - |
| | 450 | 3930 | 3680 | 3810 | 3500 | 3270 | 3790 | 3470 | 3240 | 2970 |
| | 400 | 4060 | 3820 | 3950 | 3630 | 3400 | 3920 | 3600 | 3360 | 3080 |
| | 300 | 4400 | 4160 | 4300 | 3970 | 3710 | 4270 | 3930 | 3680 | 3370 |
| 150 x 0.75 | 600 | 4390 | 4170 | 4280 | 4000 | 3480 | 4270 | 3640 | - | - |
| | 450 | 4850 | 4620 | 4740 | 4430 | 3840 | 4720 | 4350 | 3780 | 3120 |
| | 400 | 4990 | 4750 | 4870 | 4570 | 4310 | 4850 | 4550 | 4220 | 3500 |
| | 300 | 5320 | 5080 | 5200 | 4890 | 4660 | 5180 | 4860 | 4620 | 4340 |
| 150 x 1.15 | 600 | 5010 | 4770 | 4890 | 4590 | 4370 | 4870 | 4560 | - | - |
| | 450 | 5340 | 5100 | 5220 | 4910 | 4680 | 5200 | 4880 | 4640 | 4360 |
| | 400 | 5480 | 5230 | 5360 | 5050 | 4810 | 5340 | 5020 | 4770 | 4480 |
| | 300 | 5830 | 5580 | 5710 | 5380 | 5130 | 5690 | 5350 | 5100 | 4790 |

### Nogging Table

| Ceiling Span (m) | Number of Noggings evenly spaced along ceiling joist |
|---|---|
| 0 - 2.0 | 0 |
| 2.0 - 4.0 | 1 |
| above 4.0 | 2 |

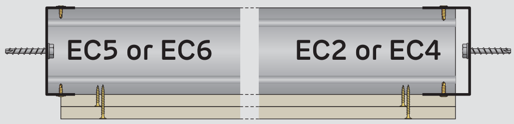
### End Track Anchor Demand

1. Maximum anchor shear and tension demand = 1.61 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is **Sliding** type EC2 or EC4. End Connection 2 is **Fixed** type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
4. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03kPa}$ Service Load Ultimate Load Case 2: 0.9G + Wu (uplift).
8. Serviceability Load Case 1: G with deflection limited to span/500 Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
9. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
10. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 6 Single Span Internal Steel Stud Ceiling Span Table (mm) - REGION B

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.




| Steel stud ceiling lined on the underside only | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.83 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.35 | | | | | | |
| **Ceiling Stud Depth and BMT (mm)** | **Maximum Ceiling Stud Centres (mm)** | **1x10mm** | **2x10mm** | **1x13mm** | **2x13mm** | **3x13mm** | **1x16mm** | **2x16mm** | **3x16mm** | **4x16mm** |
| 64 x 0.5 | 600 | 1730 | 1680 | 1710 | 1630 | 1560 | 1700 | 1620 | - | - |
| | 450 | 2110 | 2000 | 2050 | 1790 | 1730 | 2040 | 1790 | 1720 | 1620 |
| | 400 | 2190 | 2070 | 2130 | 1860 | 1790 | 2120 | 1850 | 1780 | 1690 |
| | 300 | 2410 | 2280 | 2340 | 2180 | 2060 | 2330 | 2160 | 2040 | 1850 |
| 64 x 0.75 | 600 | 2180 | 2070 | 2130 | 1910 | 1850 | 2120 | 1910 | - | - |
| | 450 | 2400 | 2270 | 2330 | 2170 | 2050 | 2320 | 2160 | 2030 | 1880 |
| | 400 | 2490 | 2360 | 2420 | 2260 | 2130 | 2410 | 2240 | 2110 | 1960 |
| | 300 | 2730 | 2580 | 2660 | 2480 | 2340 | 2650 | 2460 | 2310 | 2150 |
| 64 x 1.15 | 600 | 2500 | 2370 | 2440 | 2270 | 2140 | 2430 | 2250 | - | - |
| | 450 | 2740 | 2600 | 2670 | 2490 | 2350 | 2660 | 2470 | 2330 | 2160 |
| | 400 | 2850 | 2700 | 2770 | 2590 | 2440 | 2760 | 2570 | 2420 | 2240 |
| | 300 | 3110 | 2950 | 3030 | 2830 | 2670 | 3020 | 2810 | 2650 | 2460 |
| 76 x 0.55 | 600 | 2180 | 2070 | 2130 | 1830 | 1770 | 2120 | 1830 | - | - |
| | 450 | 2490 | 2360 | 2420 | 2250 | 2120 | 2410 | 2240 | 2100 | 1830 |
| | 400 | 2590 | 2450 | 2520 | 2340 | 2210 | 2510 | 2330 | 2190 | 2030 |
| | 300 | 2840 | 2690 | 2760 | 2570 | 2430 | 2750 | 2550 | 2400 | 2230 |
| 76 x 0.75 | 600 | 2530 | 2390 | 2460 | 2290 | 2160 | 2450 | 2280 | - | - |
| | 450 | 2780 | 2630 | 2700 | 2520 | 2370 | 2690 | 2500 | 2350 | 2180 |
| | 400 | 2880 | 2730 | 2810 | 2610 | 2470 | 2790 | 2600 | 2440 | 2260 |
| | 300 | 3160 | 2990 | 3080 | 2870 | 2710 | 3060 | 2850 | 2680 | 2490 |
| 76 x 1.15 | 600 | 2870 | 2720 | 2790 | 2600 | 2450 | 2780 | 2580 | - | - |
| | 450 | 3140 | 2980 | 3060 | 2850 | 2690 | 3050 | 2830 | 2670 | 2470 |
| | 400 | 3260 | 3090 | 3180 | 2960 | 2800 | 3160 | 2940 | 2770 | 2570 |
| | 300 | 3560 | 3380 | 3470 | 3240 | 3060 | 3460 | 3220 | 3040 | 2820 |
| 92 x 0.55 | 600 | 2520 | 2410 | 2470 | 2310 | 2180 | 2460 | 2290 | - | - |
| | 450 | 2870 | 2740 | 2820 | 2620 | 2470 | 2810 | 2600 | 2450 | 2270 |
| | 400 | 3010 | 2850 | 2930 | 2720 | 2570 | 2910 | 2710 | 2550 | 2360 |
| | 300 | 3300 | 3120 | 3210 | 2990 | 2820 | 3200 | 2970 | 2800 | 2590 |
| 92 x 0.75 | 600 | 2900 | 2750 | 2830 | 2630 | 2480 | 2820 | 2610 | - | - |
| | 450 | 3180 | 3020 | 3100 | 2890 | 2720 | 3090 | 2870 | 2700 | 2500 |
| | 400 | 3310 | 3130 | 3220 | 3000 | 2830 | 3210 | 2980 | 2810 | 2600 |
| | 300 | 3620 | 3430 | 3530 | 3290 | 3110 | 3510 | 3270 | 3080 | 2850 |
| 92 x 1.15 | 600 | 3330 | 3150 | 3240 | 3020 | 2850 | 3230 | 3000 | - | - |
| | 450 | 3640 | 3450 | 3550 | 3310 | 3120 | 3530 | 3290 | 3100 | 2870 |
| | 400 | 3780 | 3580 | 3680 | 3430 | 3240 | 3670 | 3410 | 3210 | 2980 |
| | 300 | 4120 | 3920 | 4020 | 3760 | 3550 | 4000 | 3730 | 3520 | 3270 |
| 150 x 0.75 | 600 | 3610 | 3490 | 3550 | 3380 | 3110 | 3540 | 3370 | - | - |
| | 450 | 4230 | 3840 | 4050 | 3570 | 3180 | 4010 | 3520 | 3120 | 2660 |
| | 400 | 4610 | 4320 | 4530 | 3880 | 3570 | 4500 | 3870 | 3500 | 2980 |
| | 300 | 5040 | 4850 | 4940 | 4700 | 4500 | 4930 | 4670 | 4460 | 3810 |
| 150 x 1.15 | 600 | 4730 | 4550 | 4640 | 4410 | 4190 | 4630 | 4380 | - | - |
| | 450 | 5060 | 4860 | 4960 | 4710 | 4520 | 4950 | 4690 | 4490 | 4220 |
| | 400 | 5190 | 5000 | 5100 | 4850 | 4650 | 5080 | 4820 | 4620 | 4370 |
| | 300 | 5540 | 5330 | 5440 | 5180 | 4970 | 5420 | 5150 | 4940 | 4670 |

## Nogging Table

| Ceiling Span (m) | Number of Noggings evenly spaced along ceiling joist |
|---|---|
| 0 - 2.0 | 0 |
| 2.0 - 4.0 | 1 |
| above 4.0 | 2 |

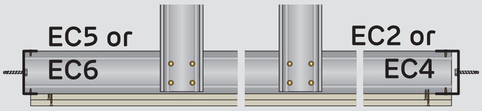
## End Track Anchor Demand

1. Maximum anchor shear and tension demand = 1.89 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is **Sliding** type EC2 or EC4. End Connection 2 is **Fixed** type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
4. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures.*
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
7. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03kPa}$ Service Load Ultimate Load Case 2: 0.9G + Wu (uplift).
8. Serviceability Load Case 1: G with deflection limited to span/500 Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
9. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
10. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 7 2-or-more Span Internal Steel Stud Ceiling Span Table (mm) - REGION A

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud ceiling lined on the underside only |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.39 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| Ceiling Stud Depth and BMT (mm) | Maximum Ceiling Stud Centres (mm) | 1 layer up to 13 kg/m² | Intermediate Support Demand (kN) | 2 layers up to 26 kg/m² | Intermediate Support Demand (kN) | 3 layers up to 39 kg/m² | Intermediate Support Demand (kN) |
|---|---|---|---|---|---|---|---|
| 64 x 0.5 | 600 | 2020 | 0.93 | 1880 | 1.08 | - | - |
| | 450 | 2180 | 0.75 | 2050 | 0.89 | 1940 | 1.01 |
| | 400 | 2240 | 0.69 | 2120 | 0.82 | 2010 | 0.93 |
| | 300 | 2410 | 0.56 | 2280 | 0.66 | 2170 | 0.76 |
| 64 x 0.75 | 600 | 2270 | 1.05 | 2140 | 1.24 | - | - |
| | 450 | 2450 | 0.86 | 2310 | 1.01 | 2200 | 1.16 |
| | 400 | 2520 | 0.79 | 2380 | 0.93 | 2270 | 1.06 |
| | 300 | 2710 | 0.64 | 2560 | 0.76 | 2440 | 0.86 |
| 64 x 1.15 | 600 | 2630 | 1.23 | 2480 | 1.45 | - | - |
| | 450 | 2840 | 1.01 | 2670 | 1.19 | 2540 | 1.35 |
| | 400 | 2930 | 0.93 | 2760 | 1.09 | 2620 | 1.24 |
| | 300 | 3160 | 0.77 | 2980 | 0.90 | 2830 | 1.02 |
| 76 x 0.55 | 600 | 2210 | 1.01 | 2080 | 1.20 | - | - |
| | 450 | 2370 | 0.82 | 2240 | 0.97 | 2140 | 1.12 |
| | 400 | 2440 | 0.75 | 2310 | 0.89 | 2200 | 1.02 |
| | 300 | 2620 | 0.61 | 2480 | 0.72 | 2360 | 0.83 |
| 76 x 0.75 | 600 | 2500 | 1.16 | 2360 | 1.37 | - | - |
| | 450 | 2690 | 0.94 | 2540 | 1.12 | 2420 | 1.27 |
| | 400 | 2770 | 0.87 | 2610 | 1.02 | 2490 | 1.17 |
| | 300 | 2970 | 0.71 | 2810 | 0.84 | 2680 | 0.95 |
| 76 x 1.15 | 600 | 2800 | 1.32 | 2640 | 1.55 | - | - |
| | 450 | 3020 | 1.08 | 2840 | 1.27 | 2710 | 1.45 |
| | 400 | 3110 | 1.00 | 2930 | 1.17 | 2790 | 1.33 |
| | 300 | 3350 | 0.82 | 3160 | 0.96 | 3010 | 1.09 |
| 92 x 0.55 | 600 | 2390 | 1.10 | 2250 | 1.30 | - | - |
| | 450 | 2570 | 0.90 | 2420 | 1.06 | 2310 | 1.21 |
| | 400 | 2640 | 0.82 | 2490 | 0.97 | 2380 | 1.11 |
| | 300 | 2830 | 0.67 | 2680 | 0.79 | 2560 | 0.90 |
| 92 x 0.75 | 600 | 2580 | 1.20 | 2440 | 1.42 | - | - |
| | 450 | 2770 | 0.98 | 2620 | 1.15 | 2500 | 1.32 |
| | 400 | 2860 | 0.90 | 2700 | 1.06 | 2570 | 1.21 |
| | 300 | 3070 | 0.74 | 2900 | 0.87 | 2760 | 0.99 |
| 92 x 1.15 | 600 | 2950 | 1.39 | 2780 | 1.64 | - | - |
| | 450 | 3180 | 1.15 | 3000 | 1.34 | 2860 | 1.53 |
| | 400 | 3280 | 1.06 | 3090 | 1.24 | 2940 | 1.41 |
| | 300 | 3520 | 0.87 | 3320 | 1.02 | 3170 | 1.16 |
| 150 x 0.75 | 600 | 3030 | 1.42 | 2860 | 1.68 | - | - |
| | 450 | 3250 | 1.16 | 3070 | 1.37 | 2930 | 1.56 |
| | 400 | 3340 | 1.07 | 3160 | 1.26 | 3020 | 1.44 |
| | 300 | 3570 | 0.88 | 3380 | 1.03 | 3240 | 1.17 |
| 150 x 1.15 | 600 | 3400 | 1.63 | 3220 | 1.93 | - | - |
| | 450 | 3650 | 1.34 | 3450 | 1.57 | 3300 | 1.79 |
| | 400 | 3760 | 1.24 | 3550 | 1.45 | 3390 | 1.65 |
| | 300 | 4020 | 1.03 | 3810 | 1.20 | 3640 | 1.36 |

## Noggings

Spans in this table do not require noggings

## End Track Anchor Demand

1. Maximum anchor shear and tension demand = 0.68 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

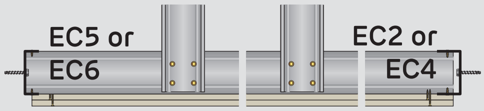
## Intermediate Support

| Stud BMT | Soffit Connection (kN) | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC1 | SC2 2x10g screws | SC2 3x10g screws | SC2 4x10g screws | SC3 2x10g screws | SC3 3x10g screws | SC3 4x10g screws |
| 0.5 | 0.51 | 1.08 | 1.62 | 2.16 | 1.08 | 1.62 | 2.16 |
| 0.55 | 0.61 | 1.26 | 1.89 | 2.50 | 1.26 | 1.89 | 2.52 |
| 0.75 | 0.96 | 2.00 | 2.50 | 2.50 | 2.00 | 3.00 | 4.00 |
| 1.15 | 1.68 | 2.50 | 2.50 | 2.50 | 3.80 | 5.70 | 7.60 |

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is **Sliding** type EC2 or EC4. End Connection 2 is **Fixed** type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. For anchors used with intermediate supports, refer to the Siniat Anchor Product Data Sheet on current capacity information into concrete.
4. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
5. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03kPa}$ Service Load
   Ultimate Load Case 2: 0.9G + Wu (uplift).
9. Serviceability Load Case 1: G with deflection limited to span/500
   Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 8 2-or-more Span Internal Steel Stud Ceiling Span Table (mm) - REGION A

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud ceiling lined on the underside only |  | | | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | | 0.54 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.35 | |
| **Ceiling Stud Depth and BMT (mm)** | **Maximum Ceiling Stud Centres (mm)** | **1 layer** up to 13 kg/m$^2$ | Intermediate Support Demand (kN) | **2 layers** up to 26 kg/m$^2$ | Intermediate Support Demand (kN) | **3 layers** up to 39 kg/m$^2$ | Intermediate Support Demand (kN) | |
| 64 x 0.5 | 600 | 1890 | 1.08 | 1780 | 1.22 | - | - | |
| | 450 | 2060 | 0.89 | 1940 | 1.00 | 1850 | 1.12 | |
| | 400 | 2120 | 0.81 | 2010 | 0.93 | 1920 | 1.04 | |
| | 300 | 2280 | 0.66 | 2180 | 0.76 | 2090 | 0.85 | |
| 64 x 0.75 | 600 | 2150 | 1.24 | 2050 | 1.42 | - | - | |
| | 450 | 2310 | 1.00 | 2200 | 1.15 | 2120 | 1.29 | |
| | 400 | 2380 | 0.92 | 2270 | 1.06 | 2180 | 1.18 | |
| | 300 | 2560 | 0.75 | 2440 | 0.86 | 2350 | 0.96 | |
| 64 x 1.15 | 600 | 2480 | 1.44 | 2360 | 1.65 | - | - | |
| | 450 | 2680 | 1.18 | 2550 | 1.35 | 2440 | 1.50 | |
| | 400 | 2760 | 1.09 | 2630 | 1.24 | 2520 | 1.39 | |
| | 300 | 2980 | 0.89 | 2840 | 1.02 | 2720 | 1.13 | |
| 76 x 0.55 | 600 | 2090 | 1.19 | 1990 | 1.37 | - | - | |
| | 450 | 2240 | 0.96 | 2140 | 1.11 | 2060 | 1.25 | |
| | 400 | 2310 | 0.89 | 2200 | 1.01 | 2120 | 1.14 | |
| | 300 | 2480 | 0.72 | 2370 | 0.82 | 2280 | 0.93 | |
| 76 x 0.75 | 600 | 2360 | 1.36 | 2250 | 1.56 | - | - | |
| | 450 | 2540 | 1.11 | 2420 | 1.27 | 2330 | 1.42 | |
| | 400 | 2620 | 1.02 | 2500 | 1.17 | 2400 | 1.31 | |
| | 300 | 2810 | 0.83 | 2680 | 0.95 | 2580 | 1.06 | |
| 76 x 1.15 | 600 | 2640 | 1.54 | 2520 | 1.76 | - | - | |
| | 450 | 2850 | 1.26 | 2710 | 1.44 | 2600 | 1.61 | |
| | 400 | 2940 | 1.16 | 2800 | 1.33 | 2680 | 1.48 | |
| | 300 | 3170 | 0.96 | 3020 | 1.09 | 2890 | 1.21 | |
| 92 x 0.55 | 600 | 2250 | 1.29 | 2130 | 1.47 | - | - | |
| | 450 | 2430 | 1.05 | 2320 | 1.21 | 2210 | 1.34 | |
| | 400 | 2500 | 0.96 | 2390 | 1.11 | 2290 | 1.24 | |
| | 300 | 2680 | 0.78 | 2560 | 0.90 | 2460 | 1.01 | |
| 92 x 0.75 | 600 | 2440 | 1.41 | 2330 | 1.62 | - | - | |
| | 450 | 2620 | 1.14 | 2500 | 1.31 | 2410 | 1.48 | |
| | 400 | 2700 | 1.05 | 2580 | 1.21 | 2480 | 1.35 | |
| | 300 | 2900 | 0.86 | 2770 | 0.98 | 2660 | 1.10 | |
| 92 x 1.15 | 600 | 2790 | 1.63 | 2660 | 1.87 | - | - | |
| | 450 | 3000 | 1.33 | 2860 | 1.52 | 2750 | 1.71 | |
| | 400 | 3090 | 1.23 | 2950 | 1.40 | 2830 | 1.57 | |
| | 300 | 3330 | 1.01 | 3170 | 1.15 | 3050 | 1.28 | |
| 150 x 0.75 | 600 | 2870 | 1.67 | 2740 | 1.92 | - | - | |
| | 450 | 3070 | 1.36 | 2940 | 1.56 | 2820 | 1.74 | |
| | 400 | 3160 | 1.25 | 3020 | 1.43 | 2910 | 1.60 | |
| | 300 | 3390 | 1.02 | 3240 | 1.17 | 3120 | 1.31 | |
| 150 x 1.15 | 600 | 3220 | 1.91 | 3070 | 2.18 | - | - | |
| | 450 | 3460 | 1.57 | 3300 | 1.78 | 3170 | 1.99 | |
| | 400 | 3560 | 1.44 | 3400 | 1.65 | 3270 | 1.84 | |
| | 300 | 3820 | 1.19 | 3650 | 1.35 | 3510 | 1.51 | |

## Noggings

Spans in this table do not require noggings

## End Track Anchor Demand

1. Maximum anchor shear and tension demand = 0.76 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

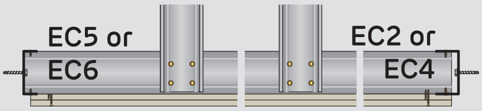
## Intermediate Support

| Stud BMT | Soffit Connection (kN) | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC1 | SC2 2x10g screws | SC2 3x10g screws | SC2 4x10g screws | SC3 2x10g screws | SC3 3x10g screws | SC3 4x10g screws |
| 0.5 | 0.51 | 1.08 | 1.62 | 2.16 | 1.08 | 1.62 | 2.16 |
| 0.55 | 0.61 | 1.26 | 1.89 | 2.50 | 1.26 | 1.89 | 2.52 |
| 0.75 | 0.96 | 2.00 | 2.50 | 2.50 | 2.00 | 3.00 | 4.00 |
| 1.15 | 1.68 | 2.50 | 2.50 | 2.50 | 3.80 | 5.70 | 7.60 |

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is **Sliding** type EC2 or EC4. End Connection 2 is **Fixed** type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. For anchors used with intermediate supports, refer to the Siniat Anchor Product Data Sheet on current capacity information into concrete.
4. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
5. Table includes self weight plus 2 kg/m$^2$ insulation weight with an additional 3 kg/m$^2$ service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03kPa}$ Service Load Ultimate Load Case 2: 0.9G + Wu (uplift).
9. Serviceability Load Case 1: G with deflection limited to span/500 Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 9 2-or-more Span Internal Steel Stud Ceiling Span Table (mm) - REGION B

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud ceiling lined on the underside only |  EC5 or EC6 | | EC2 or EC4 | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | | 0.59 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.25 |
| **Ceiling Stud Depth and BMT (mm)** | **Maximum Ceiling Stud Centres (mm)** | **1 layer** up to 13 kg/m² | Intermediate Support Demand (kN) | **2 layers** up to 26 kg/m² | Intermediate Support Demand (kN) | **3 layers** up to 39 kg/m² | Intermediate Support Demand (kN) |
| 64 x 0.5 | 600 | 1850 | 1.13 | 1750 | 1.27 | - | - |
| | 450 | 2020 | 0.93 | 1910 | 1.04 | 1830 | 1.16 |
| | 400 | 2090 | 0.85 | 1980 | 0.96 | 1890 | 1.07 |
| | 300 | 2240 | 0.69 | 2150 | 0.79 | 2060 | 0.88 |
| 64 x 0.75 | 600 | 2110 | 1.29 | 2020 | 1.47 | - | - |
| | 450 | 2270 | 1.05 | 2170 | 1.19 | 2090 | 1.33 |
| | 400 | 2340 | 0.96 | 2240 | 1.10 | 2150 | 1.22 |
| | 300 | 2520 | 0.79 | 2410 | 0.89 | 2320 | 1.00 |
| 64 x 1.15 | 600 | 2440 | 1.51 | 2320 | 1.71 | - | - |
| | 450 | 2630 | 1.23 | 2510 | 1.40 | 2410 | 1.55 |
| | 400 | 2720 | 1.14 | 2590 | 1.29 | 2490 | 1.43 |
| | 300 | 2930 | 0.93 | 2800 | 1.06 | 2690 | 1.17 |
| 76 x 0.55 | 600 | 2050 | 1.25 | 1950 | 1.41 | - | - |
| | 450 | 2210 | 1.01 | 2110 | 1.15 | 2030 | 1.29 |
| | 400 | 2270 | 0.93 | 2170 | 1.06 | 2090 | 1.18 |
| | 300 | 2440 | 0.75 | 2340 | 0.86 | 2250 | 0.96 |
| 76 x 0.75 | 600 | 2320 | 1.42 | 2220 | 1.62 | - | - |
| | 450 | 2500 | 1.16 | 2390 | 1.32 | 2300 | 1.47 |
| | 400 | 2570 | 1.06 | 2460 | 1.21 | 2370 | 1.35 |
| | 300 | 2770 | 0.87 | 2650 | 0.99 | 2550 | 1.10 |
| 76 x 1.15 | 600 | 2600 | 1.61 | 2480 | 1.83 | - | - |
| | 450 | 2800 | 1.32 | 2680 | 1.50 | 2570 | 1.66 |
| | 400 | 2890 | 1.22 | 2760 | 1.38 | 2650 | 1.53 |
| | 300 | 3110 | 1.00 | 2970 | 1.13 | 2860 | 1.25 |
| 92 x 0.55 | 600 | 2210 | 1.35 | 2090 | 1.52 | - | - |
| | 450 | 2390 | 1.10 | 2280 | 1.25 | 2180 | 1.39 |
| | 400 | 2460 | 1.01 | 2350 | 1.15 | 2260 | 1.28 |
| | 300 | 2640 | 0.82 | 2530 | 0.93 | 2430 | 1.04 |
| 92 x 0.75 | 600 | 2400 | 1.48 | 2300 | 1.68 | - | - |
| | 450 | 2580 | 1.20 | 2470 | 1.37 | 2380 | 1.52 |
| | 400 | 2660 | 1.10 | 2540 | 1.25 | 2450 | 1.40 |
| | 300 | 2860 | 0.90 | 2730 | 1.02 | 2630 | 1.14 |
| 92 x 1.15 | 600 | 2740 | 1.71 | 2620 | 1.94 | - | - |
| | 450 | 2950 | 1.39 | 2820 | 1.58 | 2710 | 1.76 |
| | 400 | 3040 | 1.29 | 2910 | 1.46 | 2800 | 1.62 |
| | 300 | 3280 | 1.06 | 3130 | 1.19 | 3010 | 1.32 |
| 150 x 0.75 | 600 | 2820 | 1.75 | 2700 | 1.99 | - | - |
| | 450 | 3030 | 1.42 | 2900 | 1.62 | 2790 | 1.80 |
| | 400 | 3110 | 1.31 | 2980 | 1.48 | 2870 | 1.65 |
| | 300 | 3340 | 1.07 | 3200 | 1.21 | 3080 | 1.35 |
| 150 x 1.15 | 600 | 3170 | 2.00 | 3030 | 2.27 | - | - |
| | 450 | 3400 | 1.63 | 3260 | 1.85 | 3140 | 2.06 |
| | 400 | 3500 | 1.51 | 3350 | 1.70 | 3230 | 1.90 |
| | 300 | 3760 | 1.24 | 3600 | 1.40 | 3470 | 1.55 |

## Noggings

Spans in this table do not require noggings

## End Track Anchor Demand

1. Maximum anchor shear and tension demand = 0.79 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

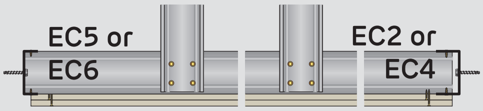
## Intermediate Support

| Stud BMT | Soffit Connection (kN) | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC1 | SC2 2x10g screws | SC2 3x10g screws | SC2 4x10g screws | SC3 2x10g screws | SC3 3x10g screws | SC3 4x10g screws |
| 0.5 | 0.51 | 1.08 | 1.62 | 2.16 | 1.08 | 1.62 | 2.16 |
| 0.55 | 0.61 | 1.26 | 1.89 | 2.50 | 1.26 | 1.89 | 2.52 |
| 0.75 | 0.96 | 2.00 | 2.50 | 2.50 | 2.00 | 3.00 | 4.00 |
| 1.15 | 1.68 | 2.50 | 2.50 | 2.50 | 3.80 | 5.70 | 7.60 |

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is **Sliding** type EC2 or EC4. End Connection 2 is **Fixed** type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. For anchors used with intermediate supports, refer to the Siniat Anchor Product Data Sheet on current capacity information into concrete.
4. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
5. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03kPa}$ Service Load Ultimate Load Case 2: 0.9G + Wu (uplift).
9. Serviceability Load Case 1: G with deflection limited to span/500 Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 10 2-or-more Span Internal Steel Stud Ceiling Span Table (mm) - REGION B

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud ceiling lined on the underside only |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.83 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.35 |

| Ceiling Stud Depth and BMT (mm) | Maximum Ceiling Stud Centres (mm) | 1 layer up to 13 kg/m² | Intermediate Support Demand (kN) | 2 layers up to 26 kg/m² | Intermediate Support Demand (kN) | 3 layers up to 39 kg/m² | Intermediate Support Demand (kN) |
|---|---|---|---|---|---|---|---|
| 64 x 0.5 | 600 | 1700 | 1.34 | 1620 | 1.47 | - | - |
| | 450 | 1870 | 1.11 | 1790 | 1.22 | 1720 | 1.32 |
| | 400 | 1930 | 1.02 | 1850 | 1.12 | 1780 | 1.22 |
| | 300 | 2100 | 0.84 | 2020 | 0.92 | 1950 | 1.00 |
| 64 x 0.75 | 600 | 1980 | 1.57 | 1910 | 1.74 | - | - |
| | 450 | 2130 | 1.27 | 2050 | 1.40 | 1990 | 1.54 |
| | 400 | 2190 | 1.17 | 2110 | 1.29 | 2050 | 1.41 |
| | 300 | 2360 | 0.95 | 2280 | 1.05 | 2210 | 1.15 |
| 64 x 1.15 | 600 | 2270 | 1.81 | 2190 | 2.01 | - | - |
| | 450 | 2450 | 1.48 | 2360 | 1.63 | 2290 | 1.78 |
| | 400 | 2530 | 1.36 | 2440 | 1.50 | 2360 | 1.64 |
| | 300 | 2730 | 1.12 | 2630 | 1.23 | 2550 | 1.34 |
| 76 x 0.55 | 600 | 1910 | 1.51 | 1830 | 1.66 | - | - |
| | 450 | 2070 | 1.23 | 1990 | 1.36 | 1920 | 1.48 |
| | 400 | 2130 | 1.13 | 2060 | 1.25 | 1990 | 1.36 |
| | 300 | 2290 | 0.91 | 2210 | 1.01 | 2140 | 1.10 |
| 76 x 0.75 | 600 | 2180 | 1.73 | 2100 | 1.91 | - | - |
| | 450 | 2340 | 1.40 | 2260 | 1.55 | 2190 | 1.70 |
| | 400 | 2410 | 1.29 | 2330 | 1.43 | 2260 | 1.56 |
| | 300 | 2590 | 1.05 | 2500 | 1.16 | 2430 | 1.27 |
| 76 x 1.15 | 600 | 2430 | 1.95 | 2340 | 2.15 | - | - |
| | 450 | 2620 | 1.59 | 2520 | 1.75 | 2440 | 1.91 |
| | 400 | 2700 | 1.46 | 2600 | 1.61 | 2520 | 1.76 |
| | 300 | 2910 | 1.20 | 2810 | 1.32 | 2720 | 1.44 |
| 92 x 0.55 | 600 | 2040 | 1.61 | 1960 | 1.78 | - | - |
| | 450 | 2220 | 1.32 | 2130 | 1.46 | 2060 | 1.59 |
| | 400 | 2300 | 1.22 | 2210 | 1.35 | 2130 | 1.46 |
| | 300 | 2480 | 0.99 | 2390 | 1.10 | 2320 | 1.20 |
| 92 x 0.75 | 600 | 2250 | 1.79 | 2170 | 1.98 | - | - |
| | 450 | 2420 | 1.45 | 2330 | 1.60 | 2260 | 1.75 |
| | 400 | 2490 | 1.33 | 2400 | 1.47 | 2330 | 1.61 |
| | 300 | 2680 | 1.09 | 2580 | 1.20 | 2510 | 1.31 |
| 92 x 1.15 | 600 | 2560 | 2.06 | 2470 | 2.27 | - | - |
| | 450 | 2760 | 1.68 | 2660 | 1.85 | 2580 | 2.02 |
| | 400 | 2850 | 1.55 | 2740 | 1.70 | 2660 | 1.86 |
| | 300 | 3060 | 1.26 | 2960 | 1.40 | 2860 | 1.52 |
| 150 x 0.75 | 600 | 2640 | 2.11 | 2540 | 2.33 | - | - |
| | 450 | 2840 | 1.72 | 2740 | 1.90 | 2660 | 2.08 |
| | 400 | 2920 | 1.58 | 2820 | 1.74 | 2740 | 1.91 |
| | 300 | 3130 | 1.28 | 3030 | 1.42 | 2940 | 1.55 |
| 150 x 1.15 | 600 | 2970 | 2.41 | 2870 | 2.66 | - | - |
| | 450 | 3190 | 1.96 | 3080 | 2.17 | 2990 | 2.37 |
| | 400 | 3290 | 1.81 | 3170 | 1.99 | 3080 | 2.18 |
| | 300 | 3530 | 1.49 | 3410 | 1.63 | 3310 | 1.78 |

## Noggings

Spans in this table do not require noggings

## End Track Anchor Demand

1. Maximum anchor shear and tension demand = 0.91 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

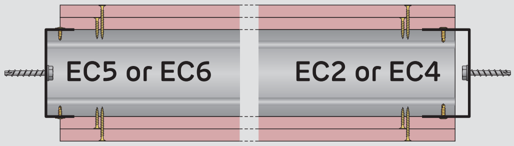
## Intermediate Support

| Stud BMT | Soffit Connection (kN) | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC1 | SC2 2x10g screws | SC2 3x10g screws | SC2 4x10g screws | SC3 2x10g screws | SC3 3x10g screws | SC3 4x10g screws |
| 0.5 | 0.51 | 1.08 | 1.62 | 2.16 | 1.08 | 1.62 | 2.16 |
| 0.55 | 0.61 | 1.26 | 1.89 | 2.50 | 1.26 | 1.89 | 2.52 |
| 0.75 | 0.96 | 2.00 | 2.50 | 2.50 | 2.00 | 3.00 | 4.00 |
| 1.15 | 1.68 | 2.50 | 2.50 | 2.50 | 3.80 | 5.70 | 7.60 |

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is **Sliding** type EC2 or EC4. End Connection 2 is **Fixed** type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. For anchors used with intermediate supports, refer to the Siniat Anchor Product Data Sheet on current capacity information into concrete.
4. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
5. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Load Case 2: 0.9G + Wu (uplift).
9. Serviceability Load Case 1: G with deflection limited to span/500
   Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 11 Single Span Internal Steel Stud Ceiling Span Table (mm) - REGION A

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| **Steel stud ceiling lined above and below** |   | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.54 | |
|---|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.35 | |
| **Ceiling Stud Depth and BMT (mm)** | **Maximum Ceiling Stud Centres (mm)** | System Number | | | |
| | | **SSC4** | **SSC9, SSC10, SSC11** | **SSC2, SSC12** | **SSC3** |
| 64 x 0.5 | 450 | 2230 | 2020 | 1880 | 1760 |
| | 400 | 2330 | 2120 | 1980 | 1870 |
| | 300 | 2600 | 2350 | 2200 | 2070 |
| 64 x 0.75 | 450 | 2470 | 2250 | 2110 | 2000 |
| | 400 | 2580 | 2340 | 2200 | 2080 |
| | 300 | 2870 | 2600 | 2430 | 2300 |
| 64 x 1.15 | 450 | 2770 | 2520 | 2370 | 2240 |
| | 400 | 2890 | 2620 | 2460 | 2340 |
| | 300 | 3190 | 2900 | 2730 | 2580 |
| 76 x 0.55 | 450 | 2640 | 2350 | 2190 | 2050 |
| | 400 | 2770 | 2490 | 2320 | 2180 |
| | 300 | 3090 | 2780 | 2600 | 2450 |
| 76 x 0.75 | 450 | 2880 | 2610 | 2440 | 2310 |
| | 400 | 3010 | 2720 | 2550 | 2410 |
| | 300 | 3350 | 3030 | 2830 | 2680 |
| 76 x 1.15 | 450 | 3200 | 2900 | 2720 | 2580 |
| | 400 | 3340 | 3020 | 2840 | 2690 |
| | 300 | 3690 | 3350 | 3140 | 2980 |
| 92 x 0.55 | 450 | 3090 | 2730 | 2540 | 2380 |
| | 400 | 3270 | 2890 | 2690 | 2530 |
| | 300 | 3650 | 3280 | 3060 | 2890 |
| 92 x 0.75 | 450 | 3370 | 3030 | 2830 | 2680 |
| | 400 | 3520 | 3170 | 2960 | 2800 |
| | 300 | 3910 | 3530 | 3300 | 3120 |
| 92 x 1.15 | 450 | 3760 | 3390 | 3180 | 3010 |
| | 400 | 3920 | 3540 | 3320 | 3150 |
| | 300 | 4320 | 3920 | 3680 | 3490 |
| 150 x 0.75 | 450 | 4930 | 3950 | 3430 | 3030 |
| | 400 | 5080 | 4190 | 3640 | 3210 |
| | 300 | 5450 | 5080 | 4810 | 4250 |
| 150 x 1.15 | 450 | 5290 | 4920 | 4700 | 4510 |
| | 400 | 5440 | 5070 | 4840 | 4650 |
| | 300 | 5800 | 5430 | 5200 | 5000 |

*Greater span possible using Sliding type EC4 end connection. Contact Siniat if required.

## Nogging Table

| Ceiling Span (m) | Number of Noggings evenly spaced along ceiling joist |
|---|---|
| 0 - 2.0 | 0 |
| 2.0 - 4.0 | 1 |
| above 4.0 | 2 |

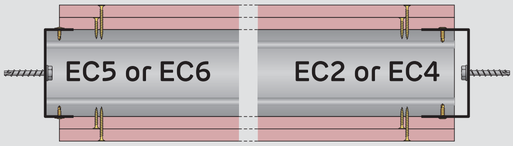
## End Track Anchor Demand

1. Maximum anchor shear and tension demand = 1.64 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is Sliding type EC2 or EC4. End Connection 2 is Fixed type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
4. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions.*
7. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Load Case 2: 0.9G + Wu (uplift).
8. Serviceability Load Case 1: G with deflection limited to span/500
   Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
9. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
10. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 12 Single Span Internal Steel Stud Ceiling Span Table (mm) - REGION B

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud ceiling lined above and below |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.83 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.35 |



| Ceiling Stud Depth and BMT (mm) | Maximum Ceiling Stud Centres (mm) | System Number | | | |
|---|---|---|---|---|---|
| | | SSC4 | SSC9, SSC10, SSC11 | SSC2, SSC12 | SSC3 |
| 64 x 0.5 | 450 | 1990 | 1800 | 1700 | 1610 |
| | 400 | 2110 | 1910 | 1800 | 1710 |
| | 300 | 2430 | 2200 | 2080 | 1970 |
| 64 x 0.75 | 450 | 2470 | 2250 | 2110 | 2000 |
| | 400 | 2580 | 2340 | 2200 | 2080 |
| | 300 | 2870 | 2600 | 2430 | 2300 |
| 64 x 1.15 | 450 | 2770 | 2520 | 2370 | 2240 |
| | 400 | 2890 | 2620 | 2460 | 2340 |
| | 300 | 3190 | 2900 | 2730 | 2580 |
| 76 x 0.55 | 450 | 2320 | 2100 | 1980 | 1880 |
| | 400 | 2450 | 2230 | 2100 | 1990 |
| | 300 | 2830 | 2570 | 2420 | 2300 |
| 76 x 0.75 | 450 | 2880 | 2610 | 2440 | 2310 |
| | 400 | 3010 | 2720 | 2550 | 2410 |
| | 300 | 3350 | 3030 | 2830 | 2680 |
| 76 x 1.15 | 450 | 3200 | 2900 | 2720 | 2580 |
| | 400 | 3340 | 3020 | 2840 | 2690 |
| | 300 | 3690 | 3350 | 3140 | 2980 |
| 92 x 0.55 | 450 | 2690 | 2440 | 2300 | 2180 |
| | 400 | 2850 | 2580 | 2440 | 2310 |
| | 300 | 3280 | 2980 | 2810 | 2550 |
| 92 x 0.75 | 450 | 3320 | 3010 | 2830 | 2550 |
| | 400 | 3520 | 3170 | 2960 | 2710 |
| | 300 | 3910 | 3530 | 3300 | 3120 |
| 92 x 1.15 | 450 | 3760 | 3390 | 3180 | 3010 |
| | 400 | 3920 | 3540 | 3320 | 3150 |
| | 300 | 4320 | 3920 | 3680 | 3490 |
| 150 x 0.75 | 450 | 3830 | 3160 | 2820 | 2540 |
| | 400 | 4070 | 3360 | 2990 | 2700 |
| | 300 | 5220 | 4440 | 3960 | 3570 |
| 150 x 1.15 | 450 | 5290 | 4920 | 4700 | 4510 |
| | 400 | 5440 | 5070 | 4840 | 4650 |
| | 300 | 5800 | 5430 | 5200 | 5000 |

*Greater span possible using Sliding type EC4 end connection. Contact Siniat if required.

## Nogging Table

| Ceiling Span (m) | Number of Noggings evenly spaced along ceiling joist |
|---|---|
| 0 - 2.0 | 0 |
| 2.0 - 4.0 | 1 |
| above 4.0 | 2 |

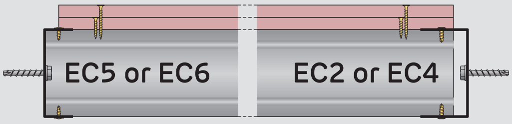
## End Track Anchor Demand

1. Maximum anchor shear and tension demand = 1.64 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is Sliding type EC2 or EC4. End Connection 2 is Fixed type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
4. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03\text{kPa Service Load}}$
   Ultimate Load Case 2: 0.9G + Wu (uplift).
8. Serviceability Load Case 1: G with deflection limited to span/500
   Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
9. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
10. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 13 Single Span Internal Steel Stud Ceiling Span Table (mm) - REGION A

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud ceiling lined on the above side only |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.54 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.35 |

| Ceiling Stud Depth and BMT (mm) | Maximum Ceiling Stud Centres (mm) | System Number | | |
|---|---|---|---|---|
| | | SSC6 | SSC7 | SSC8 |
| 64 x 0.5 | 450 | 1870 | 1800 | 1750 |
| | 400 | 1940 | 1870 | 1820 |
| | 300 | 2130 | 2060 | 1990 |
| 64 x 0.75 | 450 | 2120 | 2050 | 1990 |
| | 400 | 2200 | 2130 | 2060 |
| | 300 | 2420 | 2340 | 2260 |
| 64 x 1.15 | 450 | 2430 | 2350 | 2280 |
| | 400 | 2520 | 2440 | 2370 |
| | 300 | 2760 | 2670 | 2590 |
| 76 x 0.55 | 450 | 2200 | 2120 | 2060 |
| | 400 | 2280 | 2210 | 2140 |
| | 300 | 2510 | 2430 | 2350 |
| 76 x 0.75 | 450 | 2450 | 2370 | 2300 |
| | 400 | 2550 | 2470 | 2390 |
| | 300 | 2800 | 2710 | 2620 |
| 76 x 1.15 | 450 | 2780 | 2690 | 2610 |
| | 400 | 2890 | 2800 | 2710 |
| | 300 | 3170 | 3060 | 2970 |
| 92 x 0.55 | 450 | 2560 | 2470 | 2400 |
| | 400 | 2660 | 2570 | 2490 |
| | 300 | 2920 | 2820 | 2730 |
| 92 x 0.75 | 450 | 2820 | 2720 | 2640 |
| | 400 | 2930 | 2830 | 2740 |
| | 300 | 3210 | 3110 | 3010 |
| 92 x 1.15 | 450 | 3230 | 3120 | 3030 |
| | 400 | 3350 | 3240 | 3150 |
| | 300 | 3670 | 3550 | 3450 |
| 150 x 0.75 | 450 | 4150 | 4010 | 3730 |
| | 400 | 4310 | 4170 | 4040 |
| | 300 | 4610 | 4500 | 4400 |
| 150 x 1.15 | 450 | 4630 | 4520 | 4420 |
| | 400 | 4760 | 4650 | 4540 |
| | 300 | 5090 | 4970 | 4860 |

*Greater span possible using Sliding type EC4 end connection. Contact Siniat if required.

## Nogging Table

| Ceiling Span (m) | Number of Noggings evenly spaced along ceiling joist |
|---|---|
| 0 - 2.0 | 0 |
| 2.0 - 4.0 | 1 |
| above 4.0 | 2 |

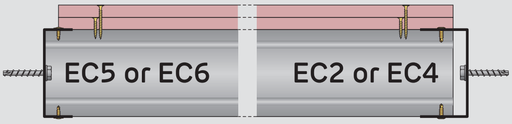
## End Track Anchor Demand

1. Maximum anchor shear and tension demand = 1.33 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is Sliding type EC2 or EC4. End Connection 2 is Fixed type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
4. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Load Case 2: 0.9G + Wu (uplift).
8. Serviceability Load Case 1: G with deflection limited to span/500
   Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
9. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
10. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

## Table 14 Single Span Internal Steel Stud Ceiling Span Table (mm) - REGION B

Refer to Blueprint Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| Steel stud ceiling lined on the above side only |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.83 |
|---|---|---|---|---|
| | | | Serviceability pressure $W_S$ (kPa) | 0.35 |



| Ceiling Stud Depth and BMT (mm) | Maximum Ceiling Stud Centres (mm) | System Number | | |
|---|---|---|---|---|
| | | SSC6 | SSC7 | SSC8 |
| 64 x 0.5 | 450 | 1770 | 1730 | 1690 |
| | 400 | 1830 | 1790 | 1760 |
| | 300 | 2130 | 2060 | 1920 |
| 64 x 0.75 | 450 | 2120 | 2050 | 1970 |
| | 400 | 2200 | 2130 | 2060 |
| | 300 | 2420 | 2340 | 2260 |
| 64 x 1.15 | 450 | 2430 | 2350 | 2280 |
| | 400 | 2520 | 2440 | 2370 |
| | 300 | 2760 | 2670 | 2590 |
| 76 x 0.55 | 450 | 2200 | 2120 | 2060 |
| | 400 | 2280 | 2210 | 2140 |
| | 300 | 2510 | 2430 | 2350 |
| 76 x 0.75 | 450 | 2450 | 2370 | 2300 |
| | 400 | 2550 | 2470 | 2390 |
| | 300 | 2800 | 2710 | 2620 |
| 76 x 1.15 | 450 | 2780 | 2690 | 2610 |
| | 400 | 2890 | 2800 | 2710 |
| | 300 | 3170 | 3060 | 2970 |
| 92 x 0.55 | 450 | 2560 | 2470 | 2400 |
| | 400 | 2660 | 2570 | 2490 |
| | 300 | 2920 | 2820 | 2730 |
| 92 x 0.75 | 450 | 2820 | 2720 | 2640 |
| | 400 | 2930 | 2830 | 2740 |
| | 300 | 3210 | 3110 | 3010 |
| 92 x 1.15 | 450 | 3230 | 3120 | 3030 |
| | 400 | 3350 | 3240 | 3150 |
| | 300 | 3670 | 3550 | 3450 |
| 150 x 0.75 | 450 | 3400 | 3180 | 2980 |
| | 400 | 3810 | 3570 | 3350 |
| | 300 | 4610 | 4500 | 4260 |
| 150 x 1.15 | 450 | 4630 | 4520 | 4420 |
| | 400 | 4760 | 4650 | 4540 |
| | 300 | 5090 | 4970 | 4860 |

*Greater span possible using Sliding type EC4 end connection. Contact Siniat if required.

## Nogging Table

| Ceiling Span (m) | Number of Noggings evenly spaced along ceiling joist |
|---|---|
| 0 - 2.0 | 0 |
| 2.0 - 4.0 | 1 |
| above 4.0 | 2 |

## End Track Anchor Demand

1. Maximum anchor shear and tension demand = 1.33 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 150mm tracks require 2 anchors across width unless using an 80mm wide Universal Bracket (UB80).

1. Table refers to Siniat steel studs of grade G300 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 7.2m
2. End Connection 1 is Sliding type EC2 or EC4. End Connection 2 is Fixed type EC5 or EC6. Refer to *Stud Ceiling End Connections* for end connection details including track BMT.
3. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated, for internal use only.
4. Table includes self weight plus 2 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case1: 1.2G + Wu (suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Load Case 2: 0.9G + Wu (uplift).
8. Serviceability Load Case 1: G with deflection limited to span/500
   Serviceability Load Case 2: G + Ws with deflection limited to span/360 or 12mm.
9. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
10. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

# Plasterboard Layout

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| Sheet ceilings perpendicular to framing members. | ✓ | ✓ |
| Stagger face layer butt joints by 600mm minimum on adjoining sheets and between layers. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ | ✓ |
| Follow the back-blocking requirements and butt joint placement for the level of finish selected. [Refer To Section 7] | ✓ | |

> Sheet ceilings parallel to the light source to reduce the effect of glancing light.
> Minimise butt joints by using the longest sheet possible.
> Butt joints on underlying layers (not face layer) may be made on the same framing member.
> For 2 layer systems at 450mm centres, face layer butt joints may be fixed to framing members.

# Plasterboard Fixing

| | Non-Fire Rated | Fire Rated |
|---|---|---|
| For the installation of plasterboard to ceiling framing, refer to Section 5.1. | ✓ | ✓ |
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ | ✓ |
| Use laminating screws to fix floating butt joints in the second, third and fourth layers. | ✓ | ✓ |
| **Screw and Adhesive Method** | | |
| Apply mastagrip Stud Adhesive after the frame is clean, dry, and free from grease, dust and other contaminants. | ✓ | |
| Apply mastagrip daubs 200mm minimum from screws and plasterboard edges. | ✓ | |
| **Screw Only Method** | | |
| Use the 'Screw Only Method' for fire rated ceilings. | ✓ | ✓ |

The 'Screw and Adhesive Method' is recommended for non-fire rated applications. mastagrip will:
> Minimise screw popping
> Reduce the number of screw heads that may show in glancing light
> Assist in compensating for frame irregularities.

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer | 4th Layer |
|---|---|---|---|---|
| 6.5mm | 6g x 25mm screw | 6g x 25mm screw | - | - |
| 10mm | 6g x 25mm screw | 6g x 41mm screw * | - | - |
| 13mm | 6g x 25mm screw | 6g x 41mm screw * | 7g x 57mm screw * | - |
| 16mm | 6g x 32mm screw | 6g x 45mm screw * | 8g x 65mm screw * | 8g x 75mm screw * |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.
*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

## Non-Fire Rated
## Steel Stud Ceilings

Refer to seismic construction details for earthquake resistant ceilings

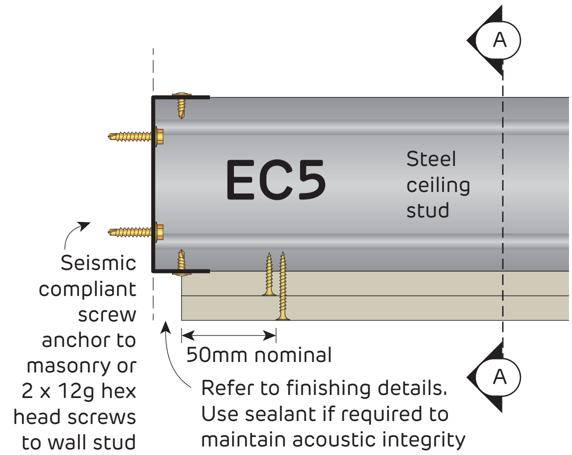



**FIGURE 5** **Fixed Connection EC5**
Fixed Track
Section

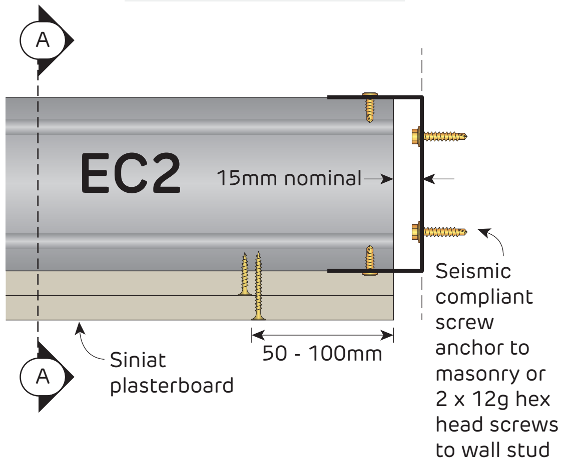



**FIGURE 6** **Sliding Connection EC2**
Slotted Deflection Head Track
Section

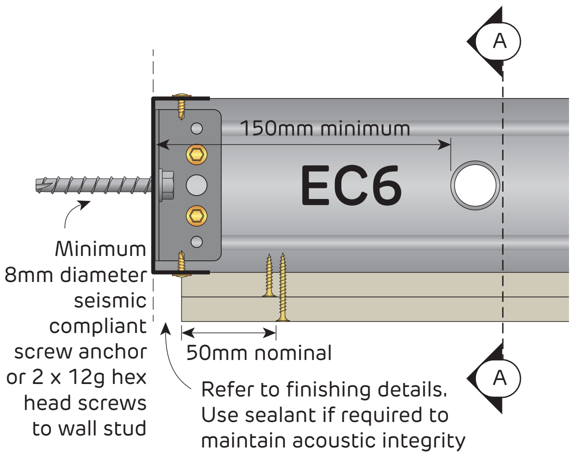



**FIGURE 7** **Fixed Connection EC6**
Universal Bracket (UB60 or UB80)
Section

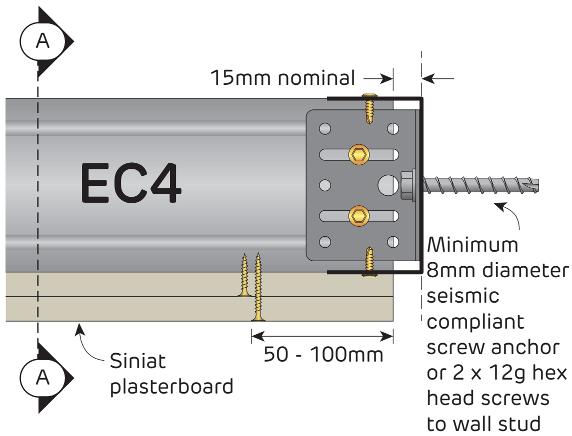
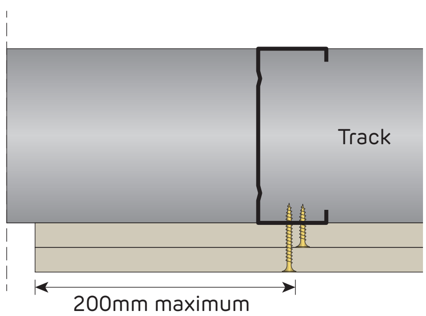
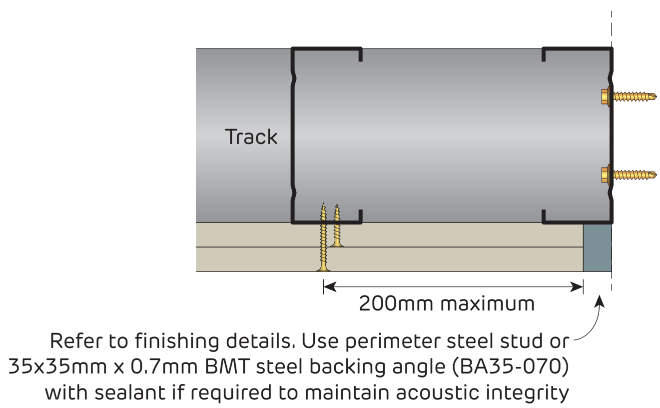



**FIGURE 8** **Sliding Connection EC4**
Universal Bracket (UB60 or UB80)
Section




**SECTION A-A** **Ceiling Edge**
Section




**SECTION A-A** **Alternative Ceiling Edge**
Section

## Fire Rated
## Steel Stud Ceilings

Refer to seismic construction details for earthquake resistant ceilings

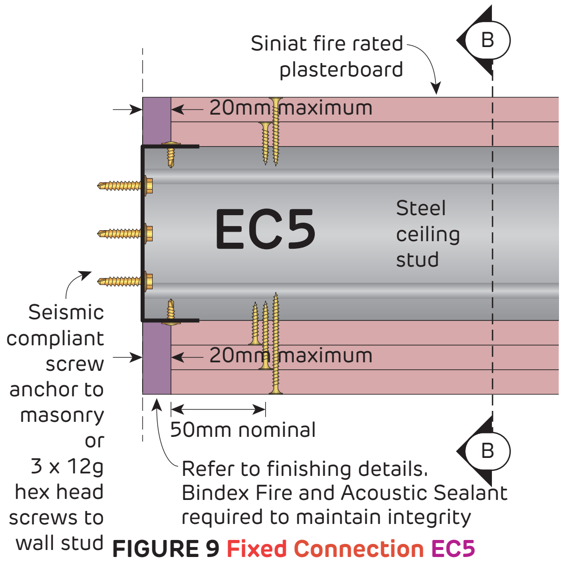



**FIGURE 9 Fixed Connection EC5**
Fixed Track
Section

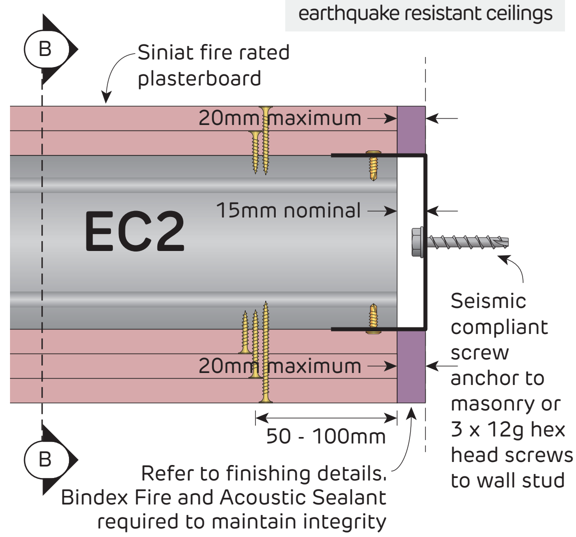



**FIGURE 10 Sliding Connection EC2**
Slotted Deflection Head Track
Section

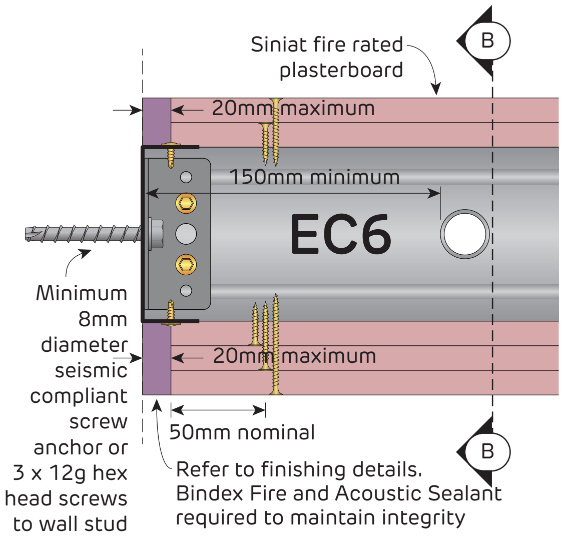



**FIGURE 11 Fixed Connection EC6**
Universal Bracket (UB60 or UB80)
Section

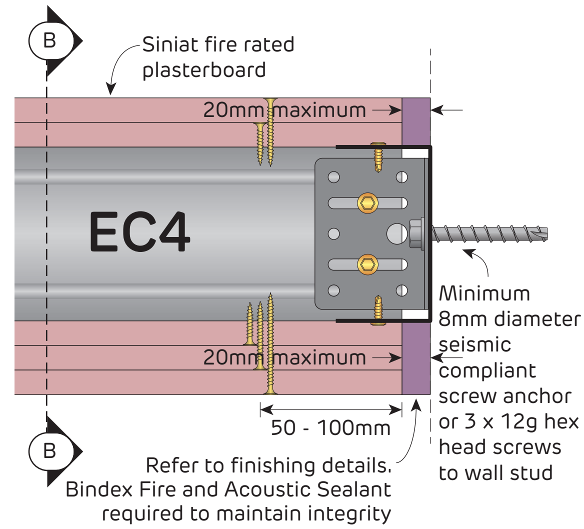
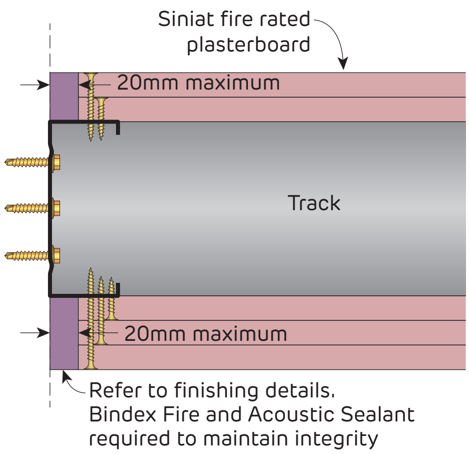
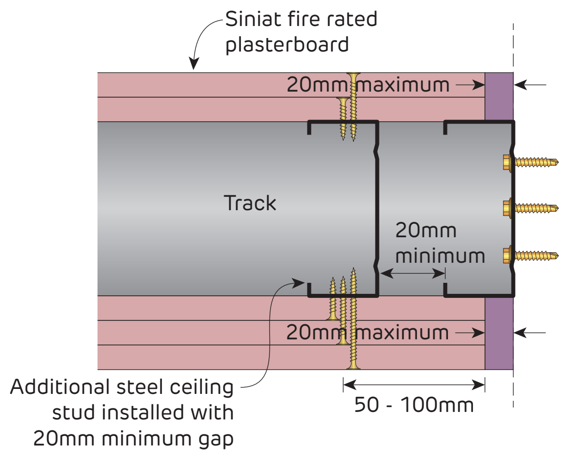



**FIGURE 12 Sliding Connection EC4**
Universal Bracket (UB60 or UB80)
Section




**SECTION B-B Ceiling Edge**
Section




**SECTION B-B Alternative Ceiling Edge**
Section

## Fire Rated and Non-Fire Rated
## Stud Dropper Connections to Concrete

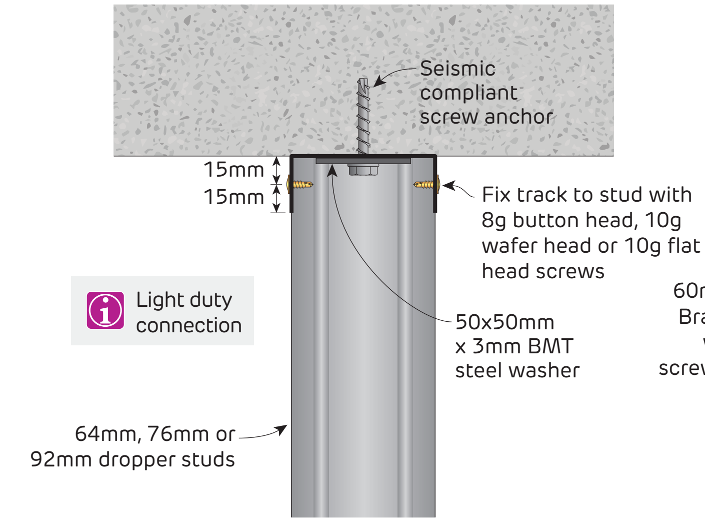



**FIGURE 13 Concrete Soffit Connection SC1**
Light duty connection
Section

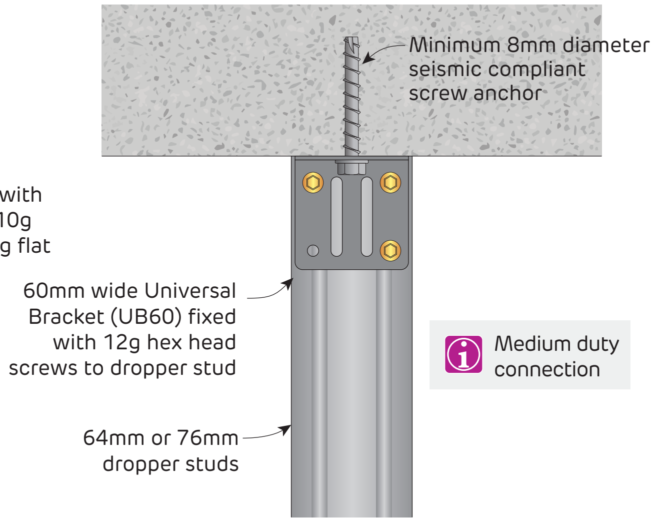



**FIGURE 14 Concrete Soffit Connection SC2**
64mm or 76mm studs only - Medium duty
Section

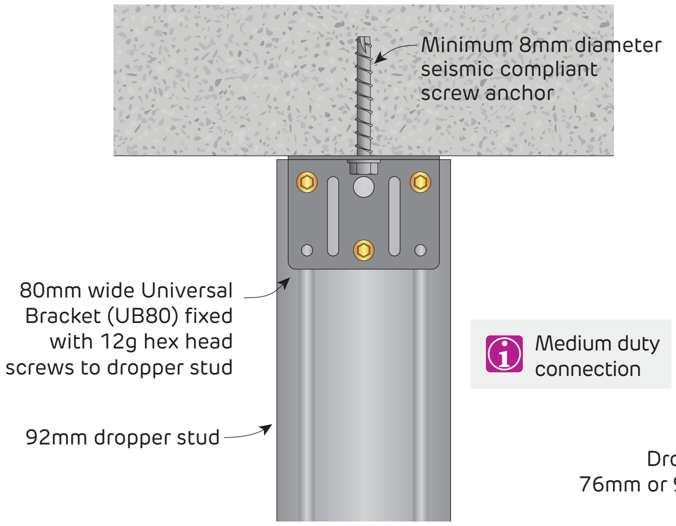



**FIGURE 15 Concrete Soffit Connection SC3**
92mm studs only - Medium duty
Section

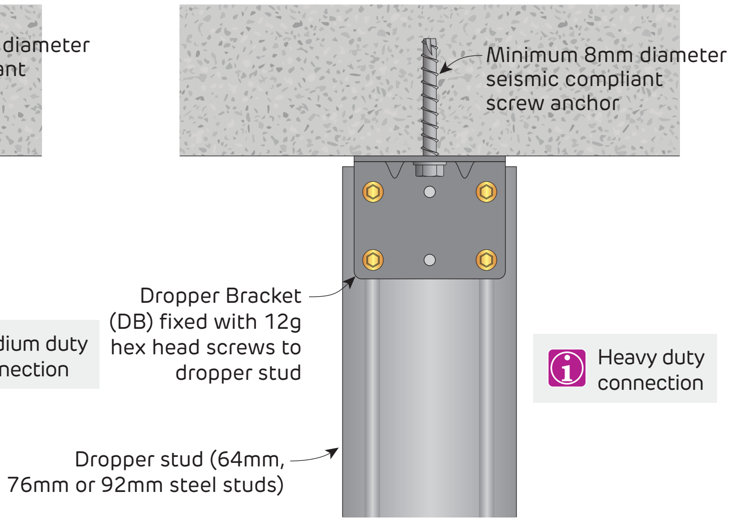



**FIGURE 16 Concrete Soffit Connection SC4**
Heavy duty
Section

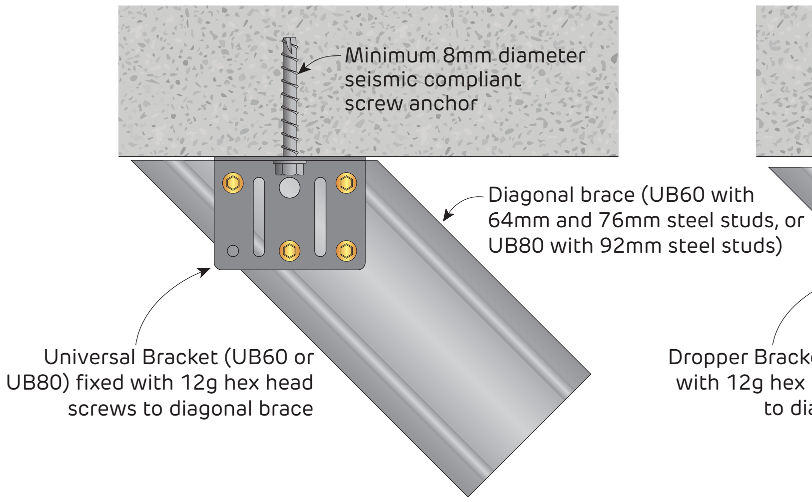



**FIGURE 17 Diagonal Brace to Concrete**
64mm, 76mm or 92mm studs only - Medium duty
Section

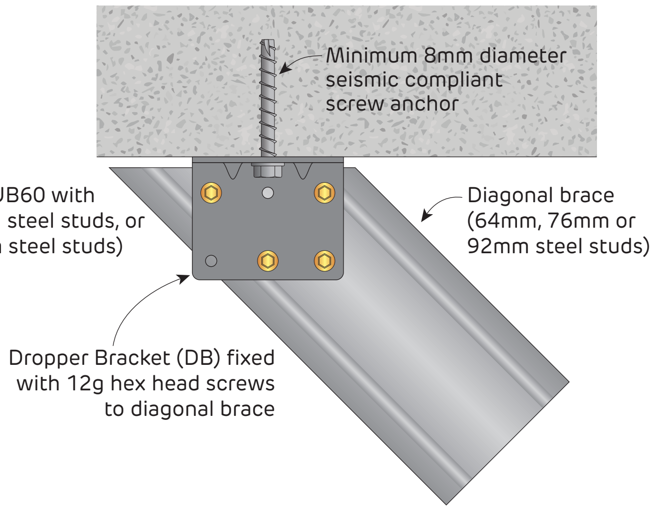



**FIGURE 18 Diagonal Brace to Concrete**
64mm, 76mm or 92mm studs only - Heavy duty
Section

## Fire Rated and Non-Fire Rated
## Stud Dropper Connections to Purlins

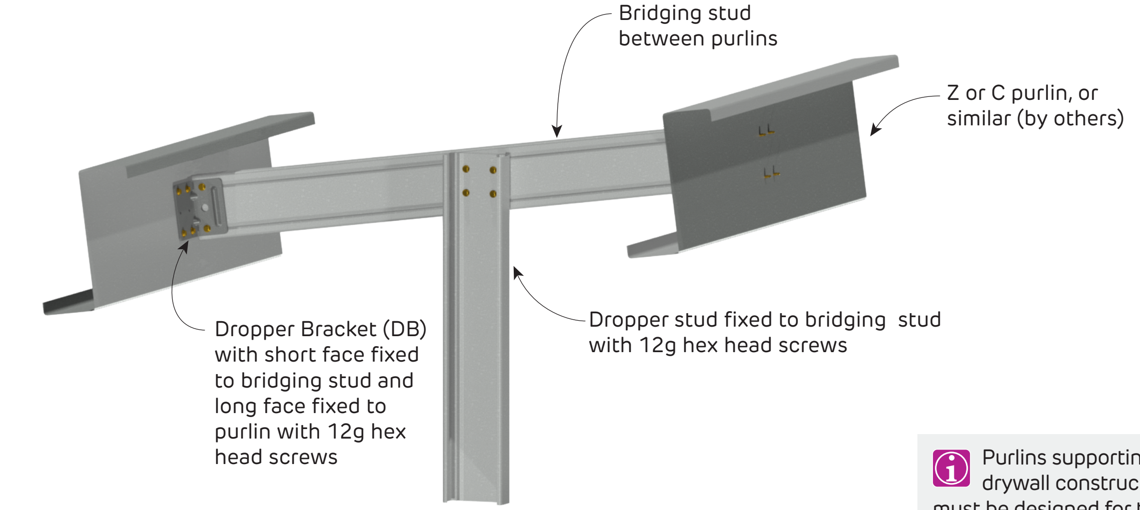



**FIGURE 19 Dropper Stud to Bridging between Purlins**
Perspective and Section

Purlins supporting drywall construction must be designed for the additional intended loads

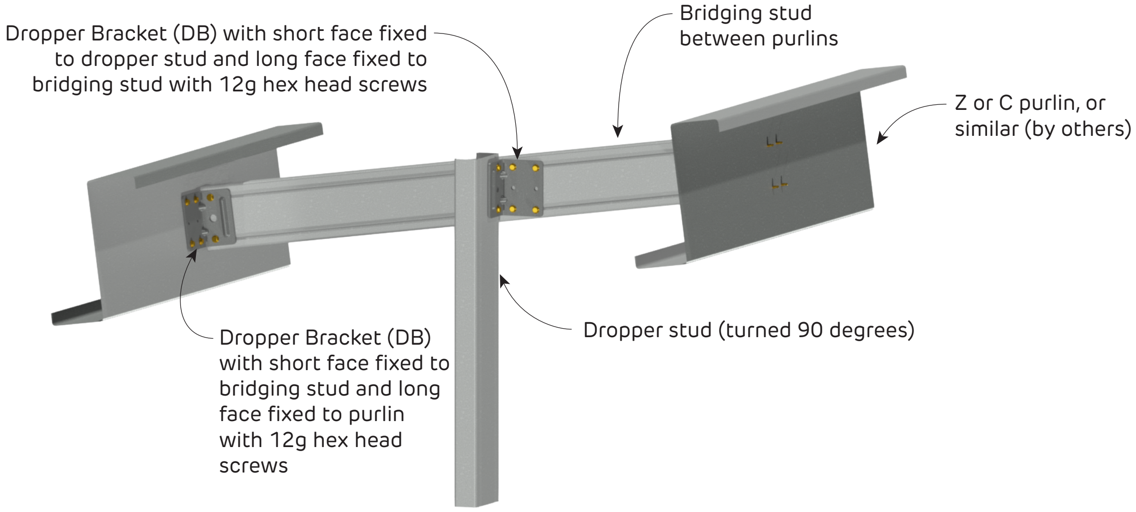



**FIGURE 20 Alternative Dropper Stud to Bridging between Purlins**
Perspective and Section

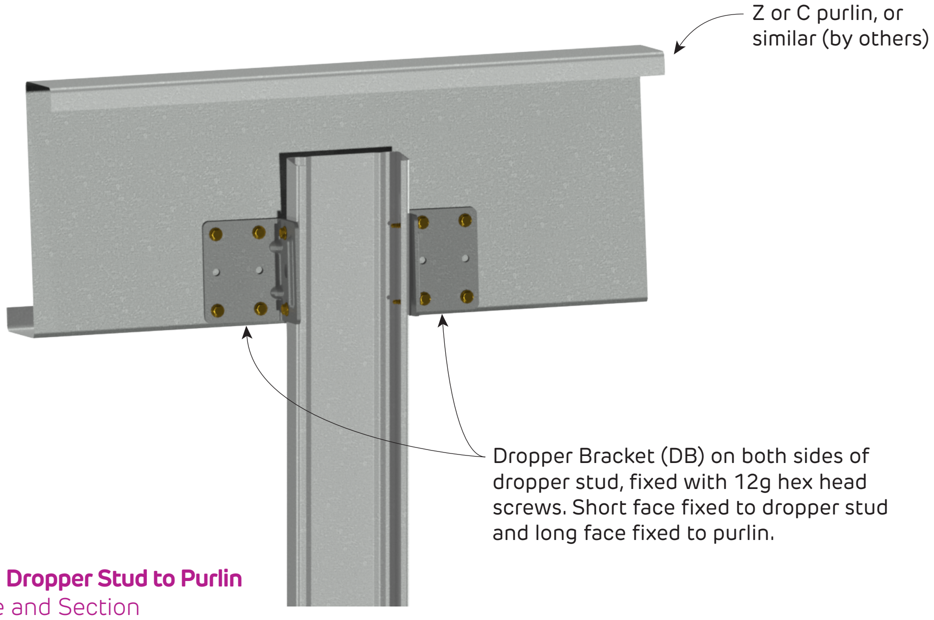



**FIGURE 21 Dropper Stud to Purlin**
Perspective and Section

## Fire Rated and Non-Fire Rated
## Diagonal Bracing Connections to Purlins

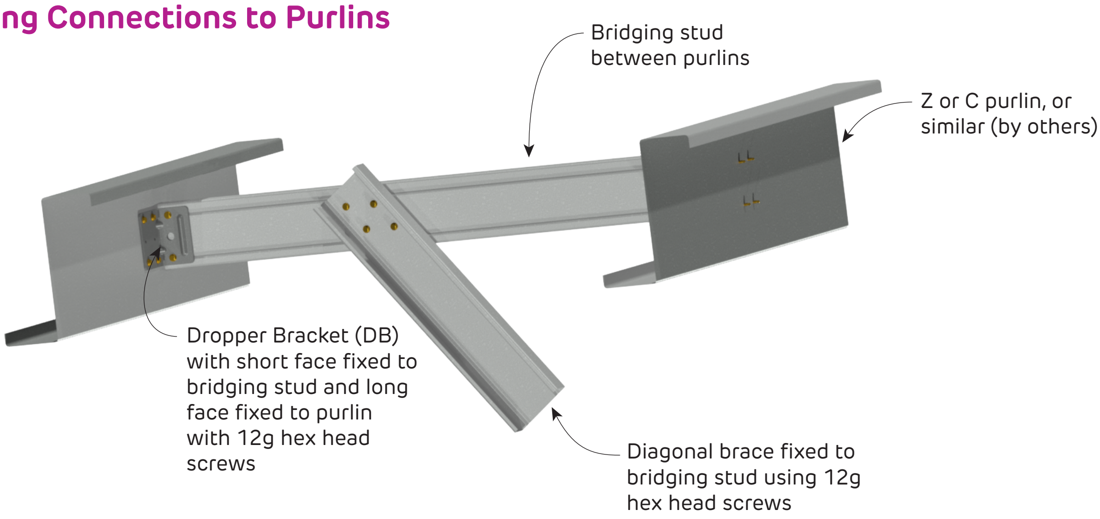



**FIGURE 22 Diagonal Brace to Bridging between Purlins**
Brace Perpendicular to Purlins
Perspective and Section

Purlins supporting drywall construction must be designed for the additional intended loads

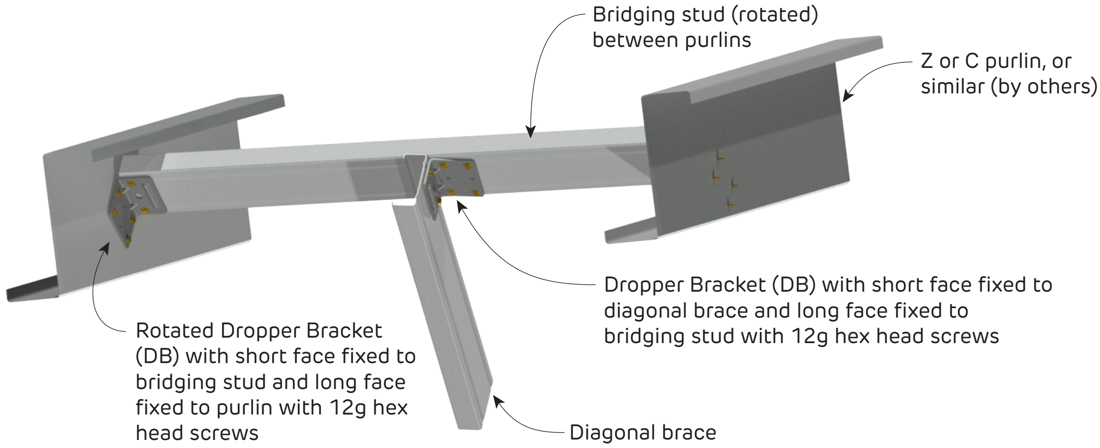



**FIGURE 23 Alternative Diagonal Brace to Bridging between Purlins**
Brace Parallel to Purlins
Perspective and Section

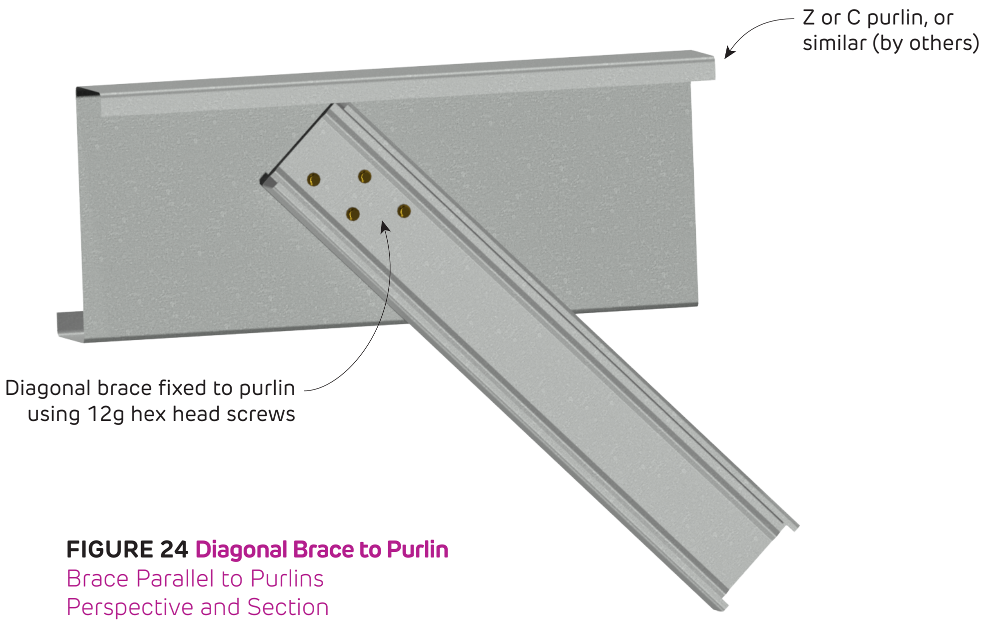
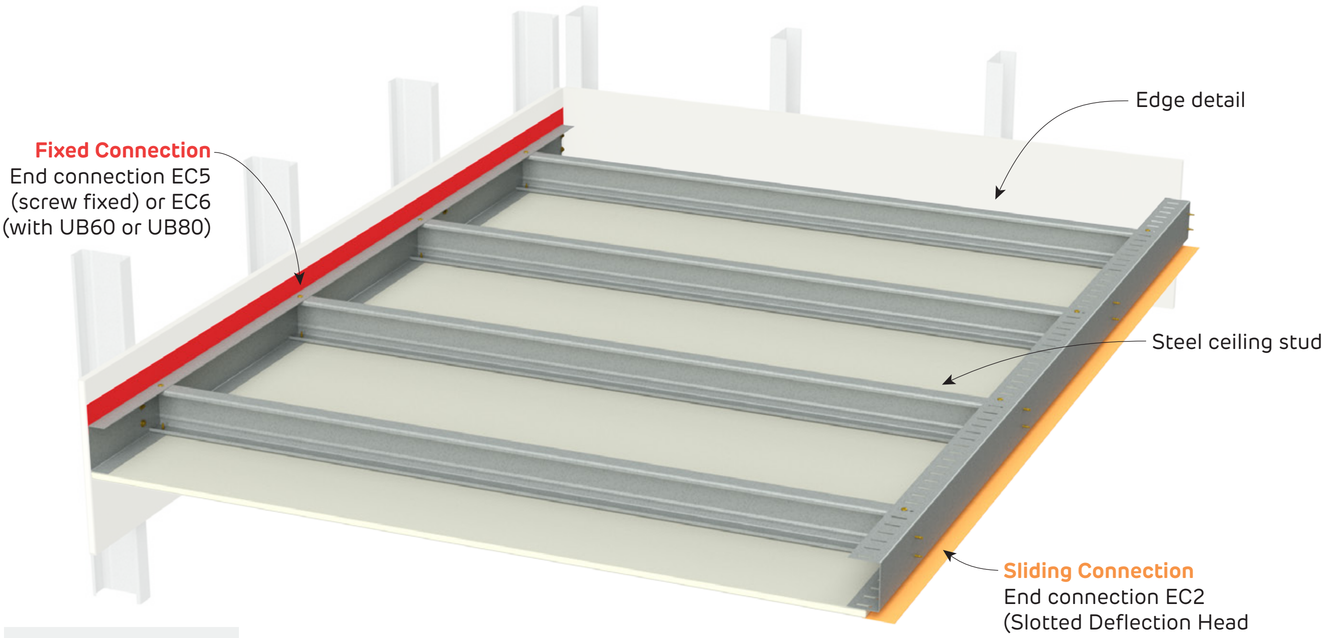



**FIGURE 24 Diagonal Brace to Purlin**
Brace Parallel to Purlins
Perspective and Section

## Non-Fire Rated

### Seismic Details for Stud Ceiling - Type A1 Fixed / Sliding




Specific framing details for earthquake actions must be determined by structural design

**FIGURE 25** **Stud Ceiling Type A1 - Fixed / Sliding**
One side **Fixed** and the opposite side **Sliding**
Perspective

Some damage to ceiling linings for finishing details with low tolerance to movement can be expected in a Serviceability Earthquake event.

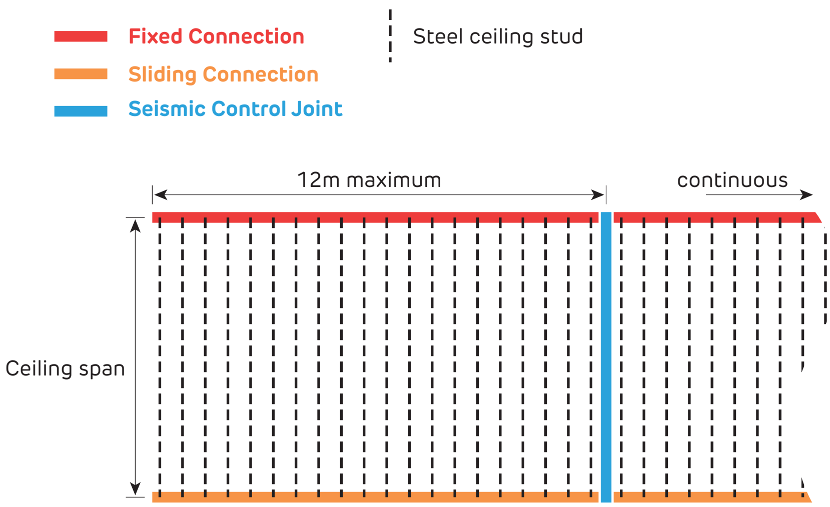



**FIGURE 26** **Stud Ceiling Type A1 - Fixed / Sliding**
One side **Fixed** and the opposite side **Sliding**
Plan

## Non-Fire Rated
## Seismic Details for Stud Ceiling - Type A1 Fixed / Sliding

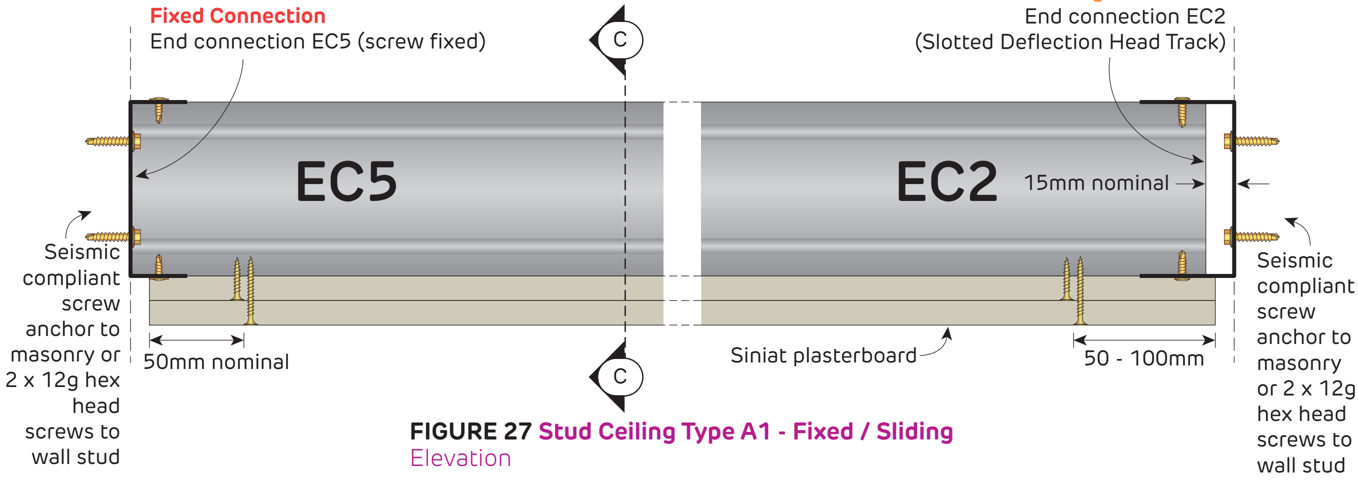



**FIGURE 27** Stud Ceiling Type A1 - Fixed / Sliding
Elevation

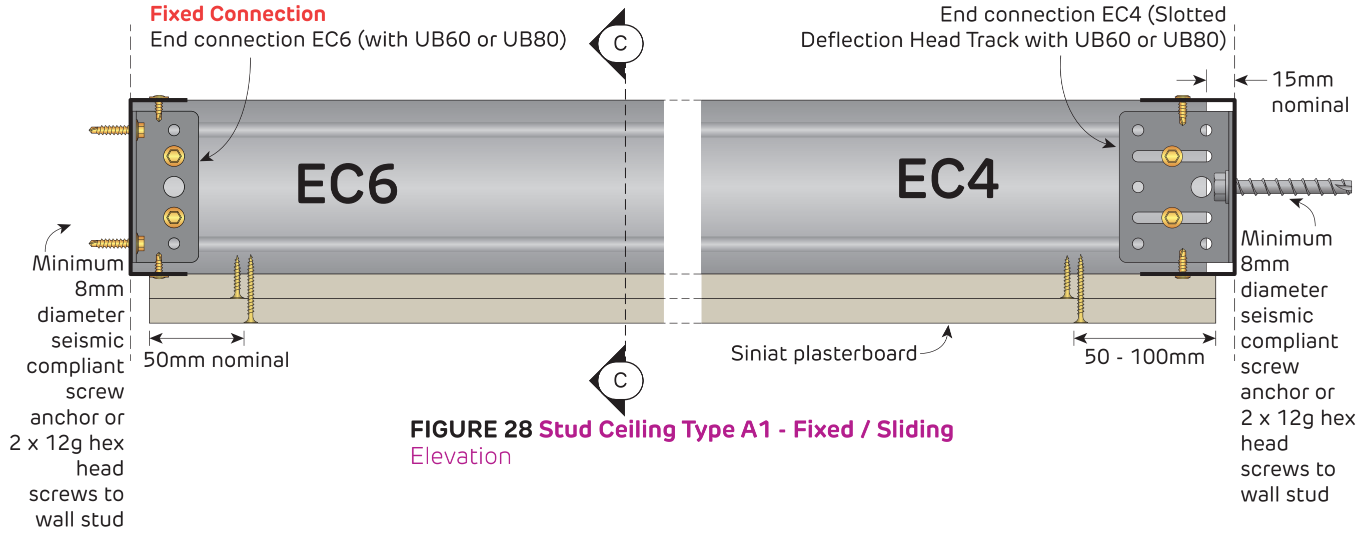
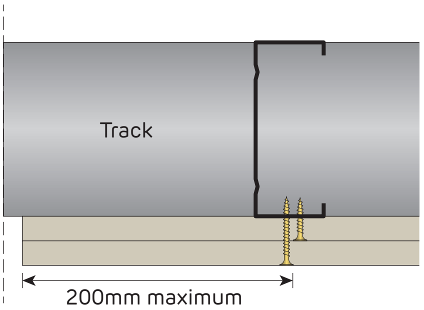
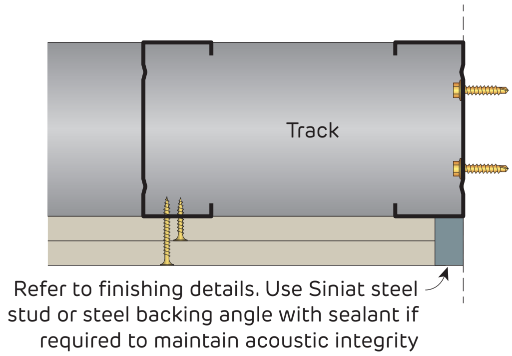



**FIGURE 28** Stud Ceiling Type A1 - Fixed / Sliding
Elevation

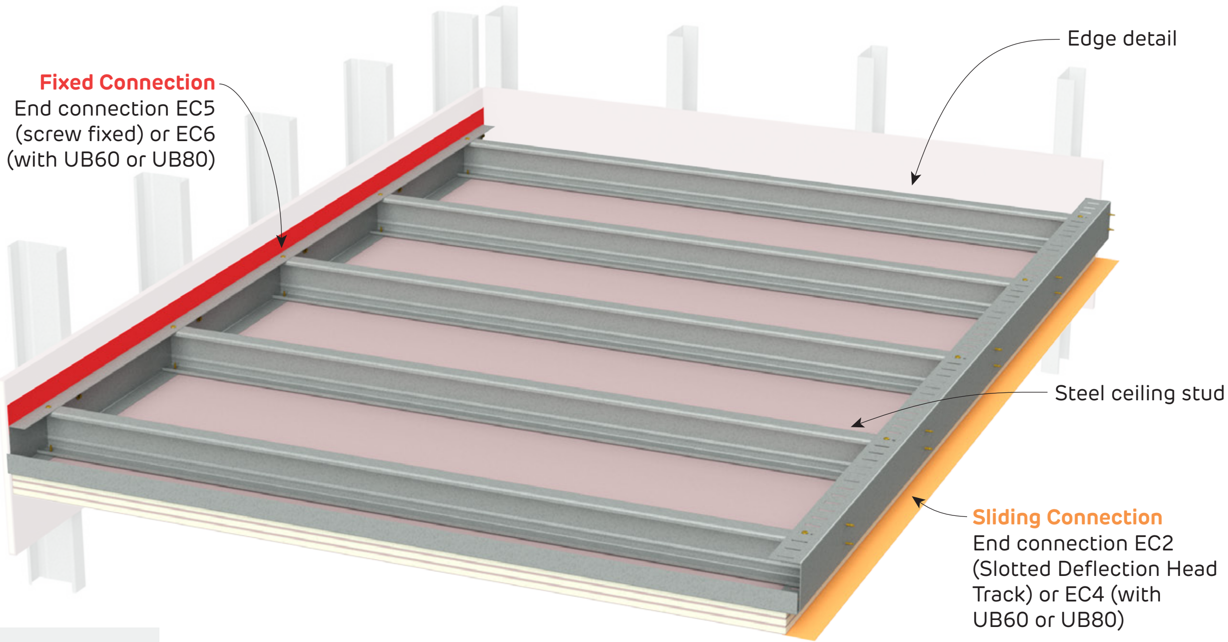



**SECTION C-C** Ceiling Edge
Section




**SECTION C-C** Alternative Ceiling Edge
Section

## Fire Rated
## Seismic Details for Stud Ceiling - Type A1 Fixed / Sliding




Specific framing details for earthquake actions must be determined by structural design

**FIGURE 29** **Stud Ceiling Type A1 - Fixed / Sliding**
One side **Fixed** and the opposite side **Sliding**
Perspective

Some damage to ceiling linings for finishing details with low tolerance to movement can be expected in a Serviceability Earthquake event.

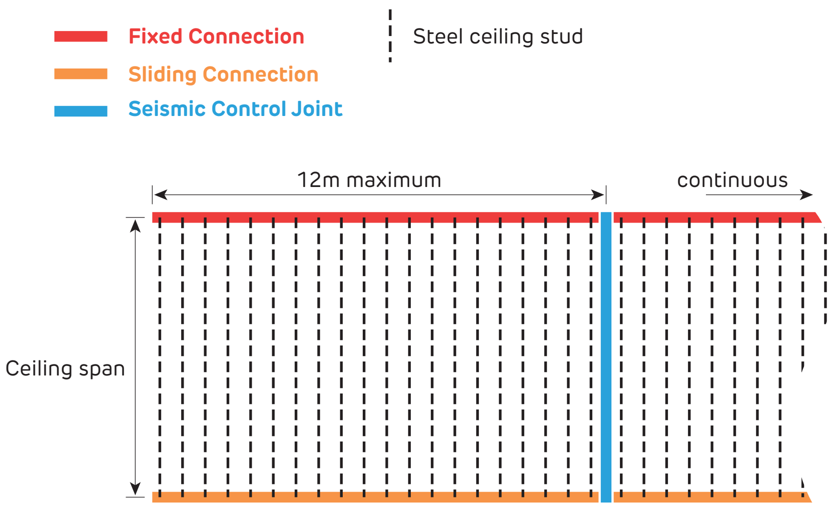



**FIGURE 30** **Stud Ceiling Type A1 - Fixed / Sliding**
One side **Fixed** and the opposite side **Sliding**
Plan

## Fire Rated

## Seismic Details for Stud Ceiling - Type A1 Fixed / Sliding

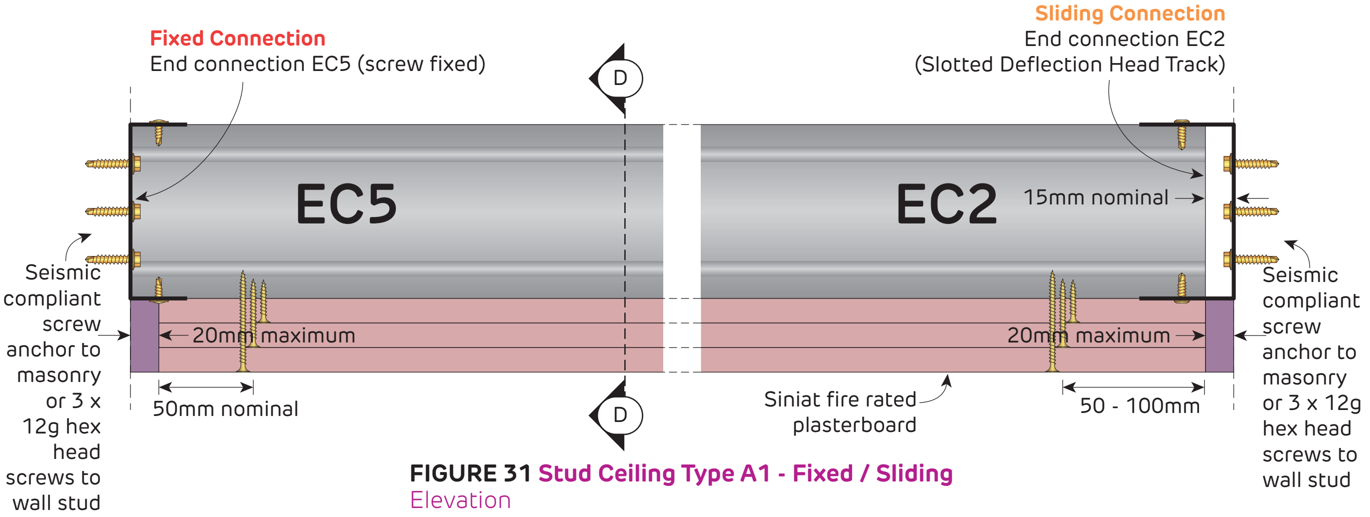



**FIGURE 31** Stud Ceiling Type A1 - Fixed / Sliding
Elevation

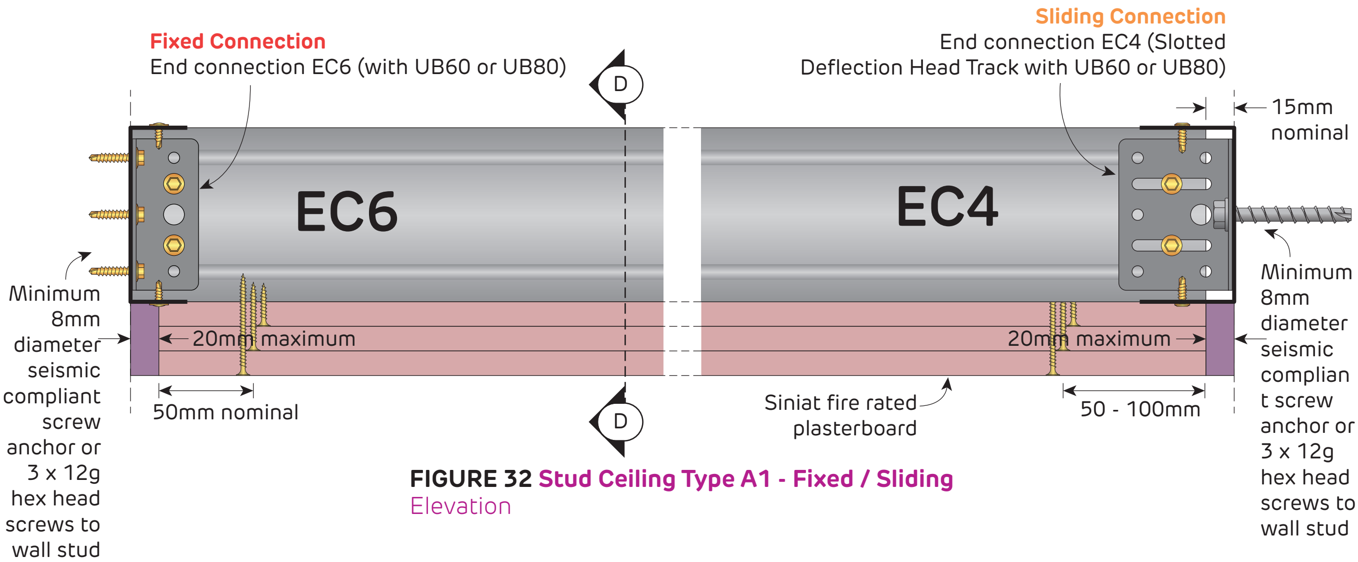
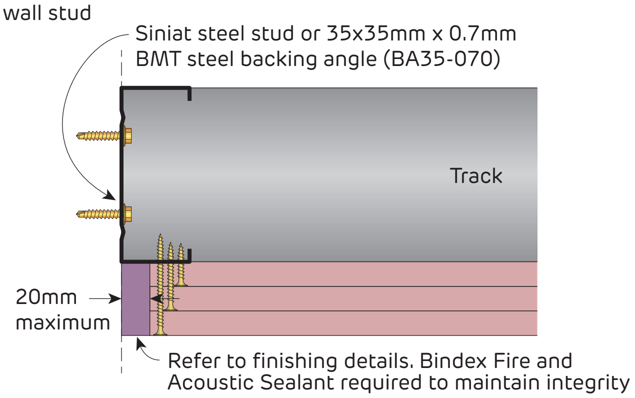
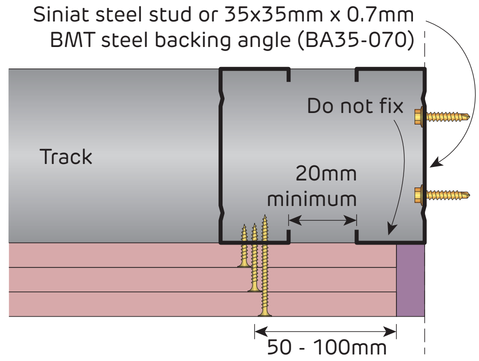



**FIGURE 32** Stud Ceiling Type A1 - Fixed / Sliding
Elevation

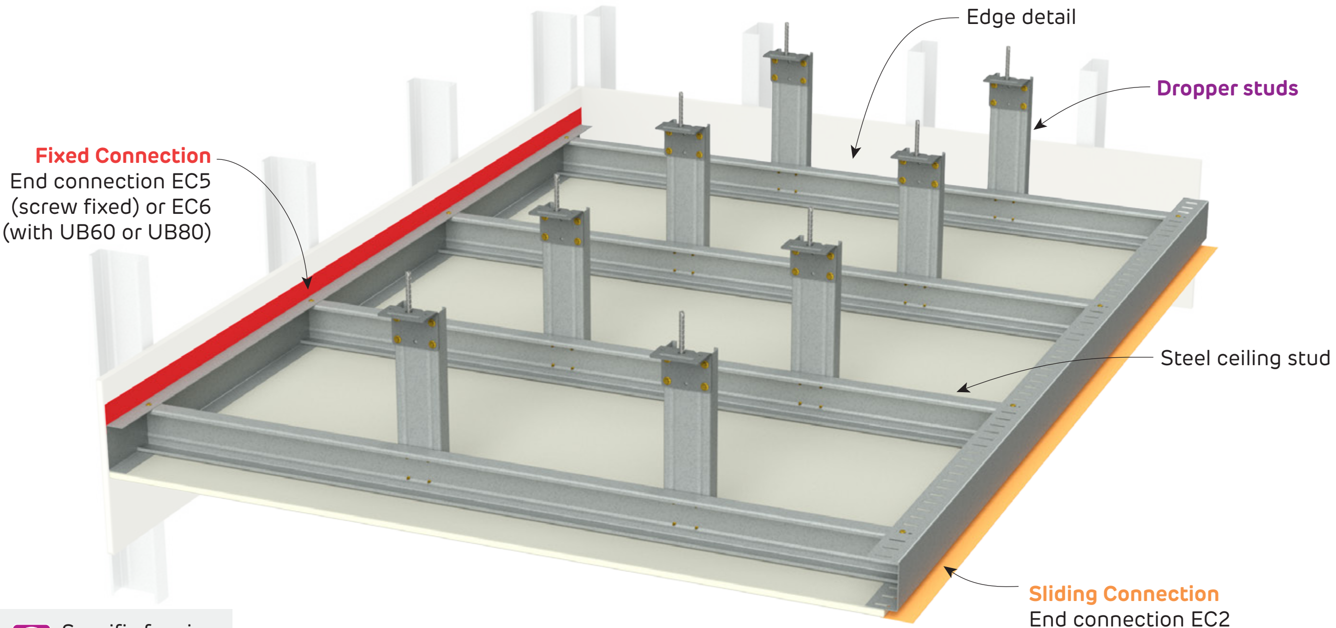



**SECTION D-D** Ceiling Edge
Section




**SECTION D-D** Alternative Ceiling Edge
Section

## Fire Rated and Non-Fire Rated
## Seismic Details for Stud Ceiling - Type A2 Fixed / Sliding




Specific framing details for earthquake actions must be determined by structural design

**FIGURE 33** Stud Ceiling Type A2 - Fixed / Sliding
One side **Fixed** and the opposite side **Sliding**
Perspective

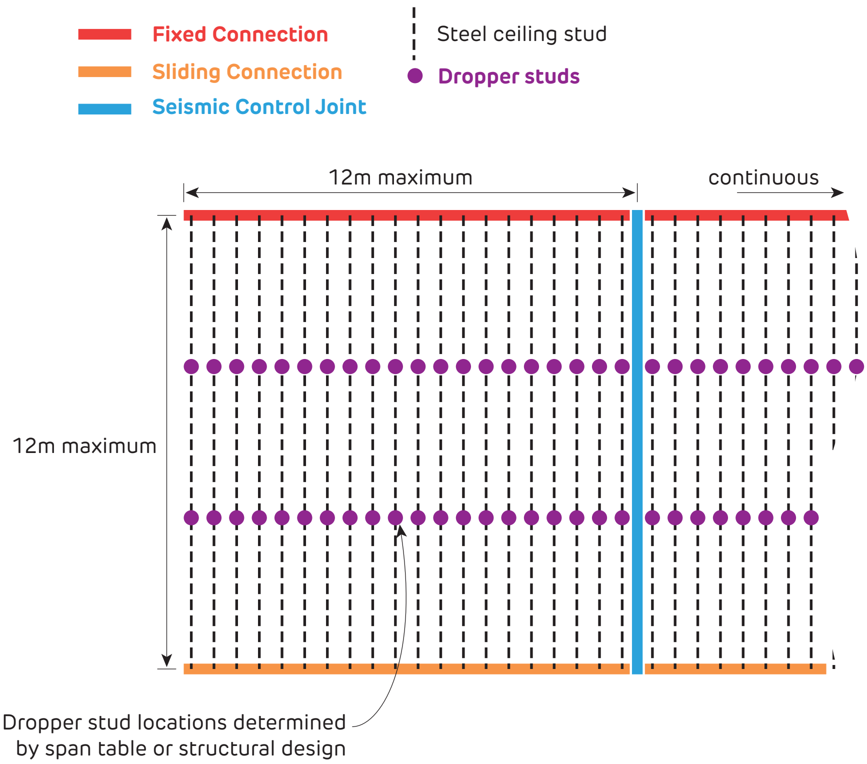



**FIGURE 34** Stud Ceiling Type A2 - Fixed / Sliding
One side **Fixed** and the opposite side **Sliding**
Plan

## Non-Fire Rated

## Seismic Details for Stud Ceiling - Type A2 Fixed / Sliding

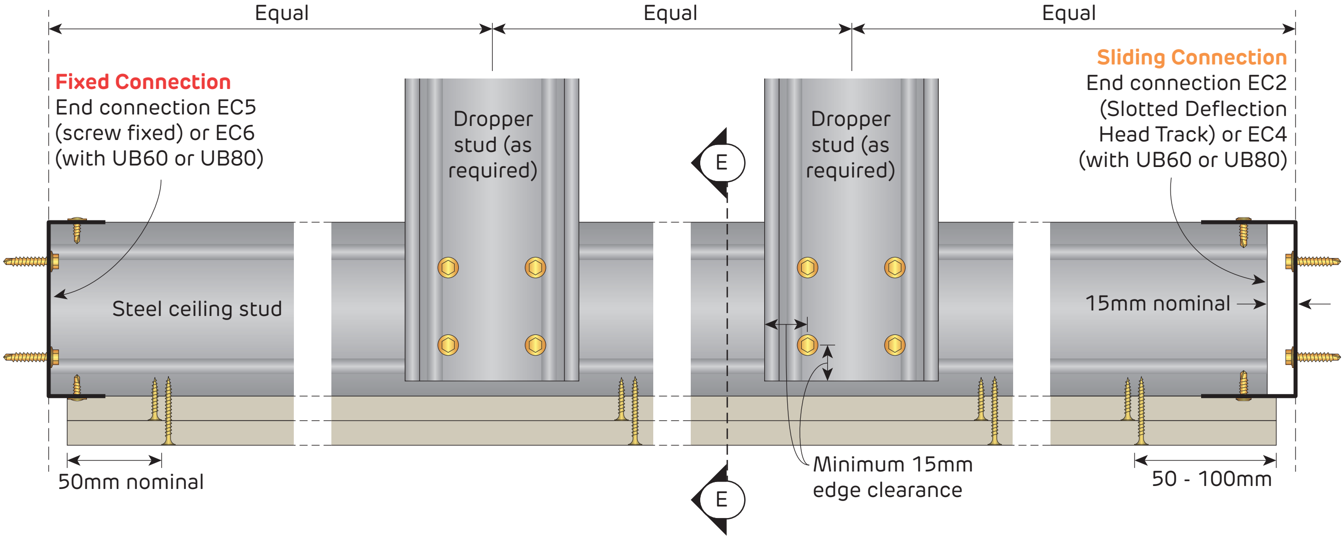
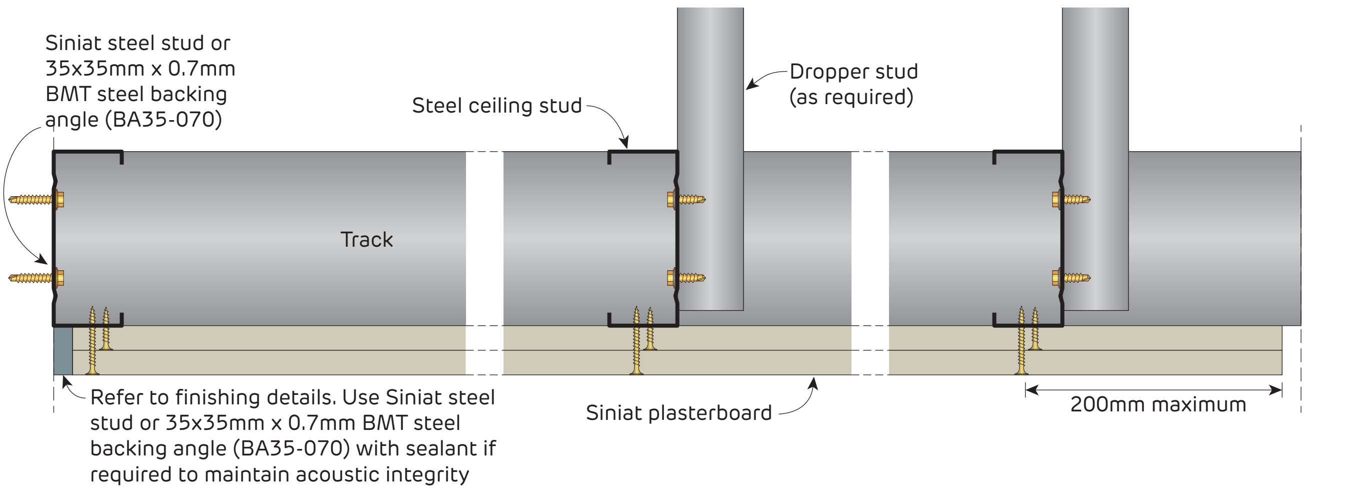



**FIGURE 35** Stud Ceiling Type A2 - Fixed / Sliding
Elevation




**SECTION E-E** Ceiling Edge
Section

**SECTION E-E** Ceiling Stud Detail
Section

**SECTION E-E** Alternative Ceiling Edge
Section

## Fire Rated
## Seismic Details for Stud Ceiling - Type A2 Fixed / Sliding

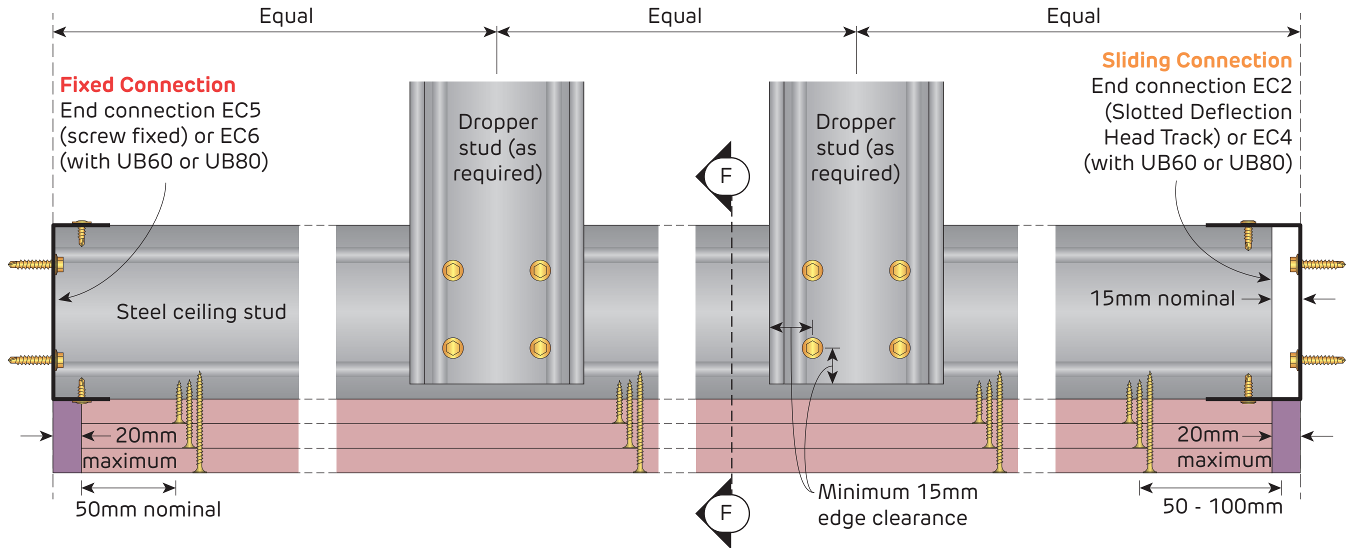
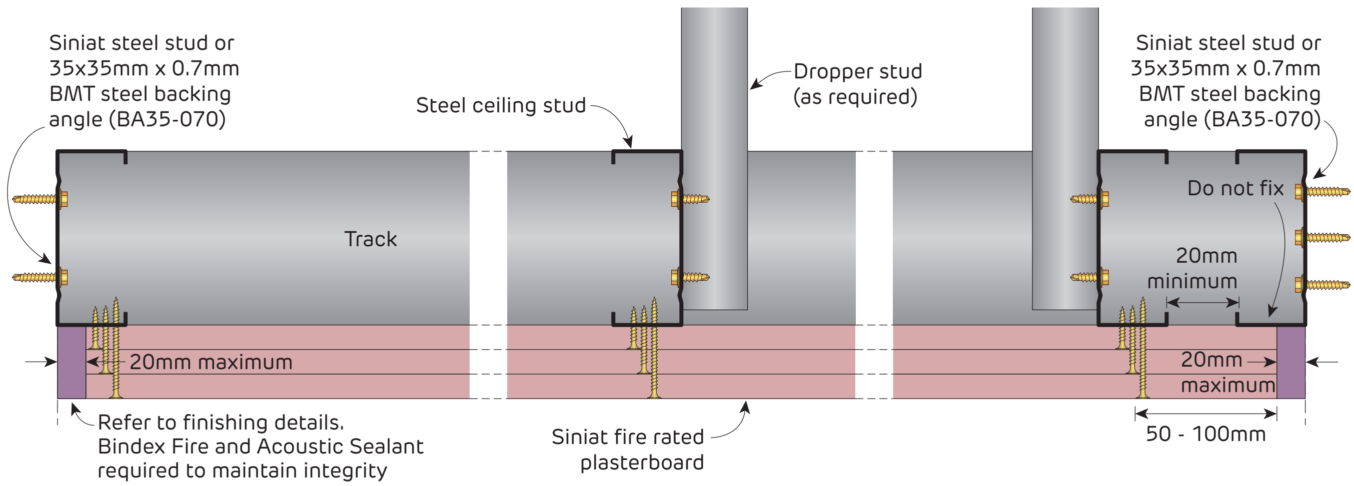



**FIGURE 36** Stud Ceiling Type A2 - Fixed / Sliding
Elevation




**SECTION F-F** Ceiling Edge
Section

**SECTION F-F** Ceiling Stud Detail
Section

**SECTION F-F** Alternative Ceiling Edge
Section

## Fire Rated and Non-Fire Rated
## Seismic Details for Stud and Batten Ceiling - Type A3 Fixed / Sliding

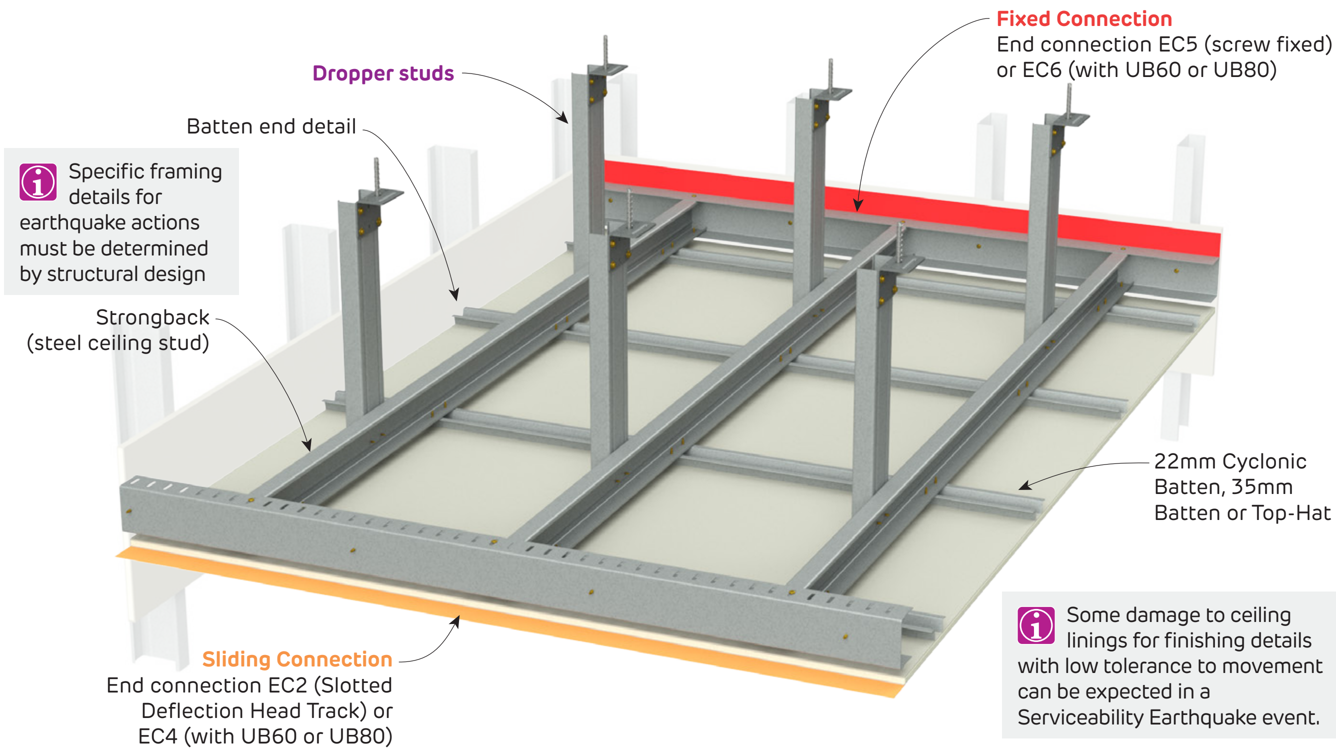



**FIGURE 37** Stud Ceiling Type A3 - Fixed / Sliding
One side **Fixed** and the opposite side **Sliding**
Perspective

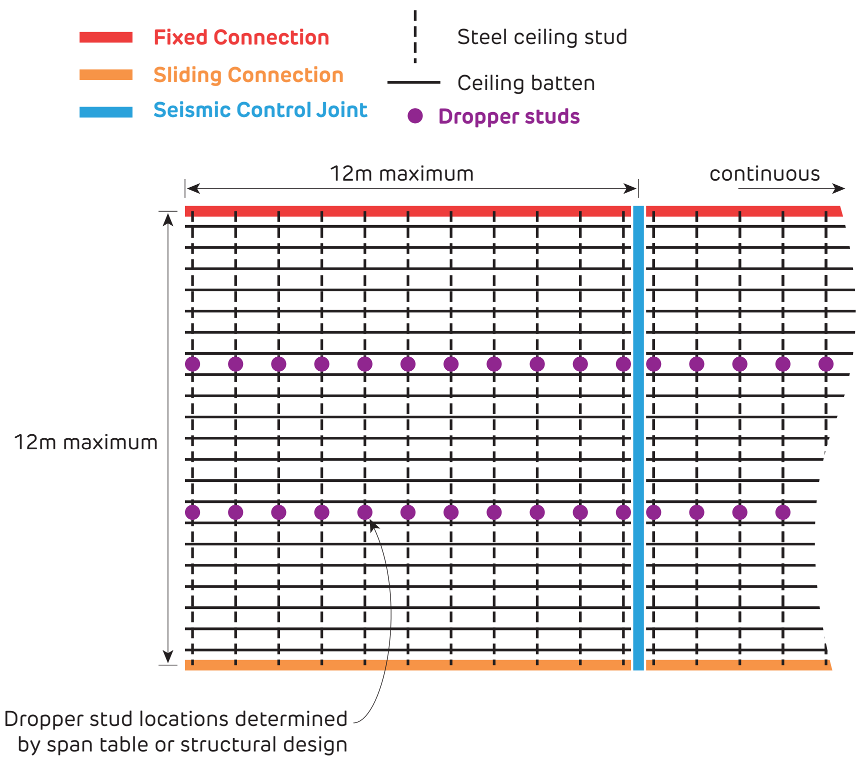



**FIGURE 38** Stud Ceiling Type A3 - Fixed / Sliding
One Side **Fixed** and the other Side **Sliding**
Plan

## Non-Fire Rated

## Seismic Details for Stud and Batten Ceiling - Type A3 Fixed / Sliding

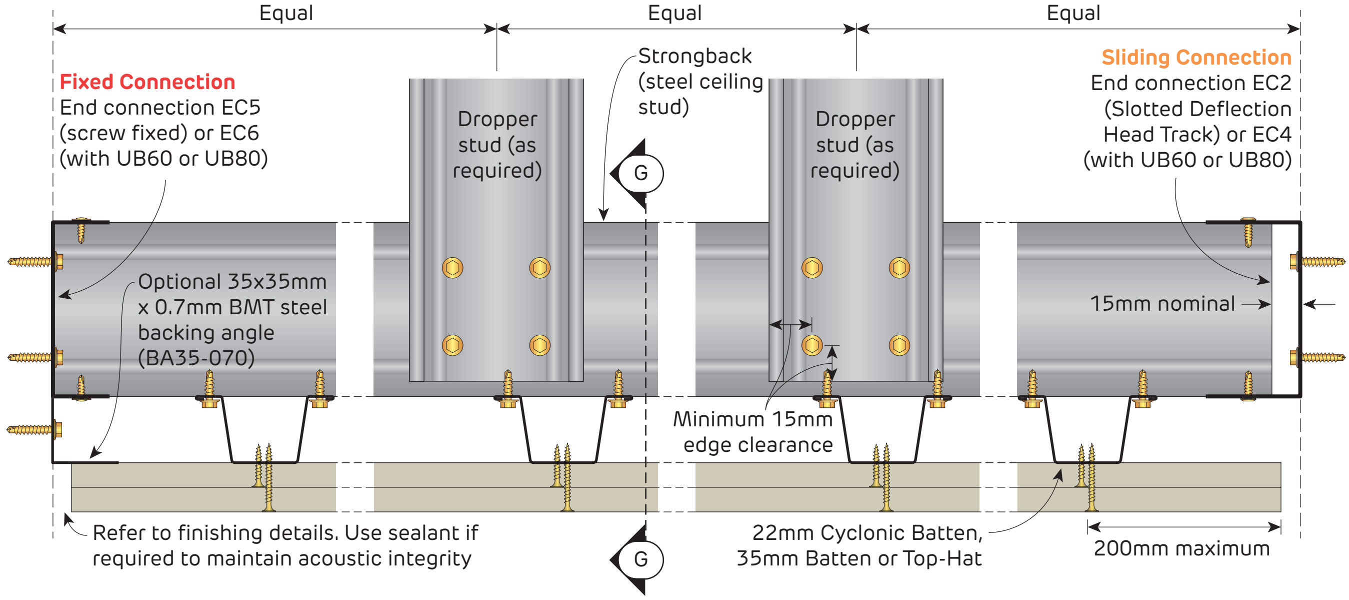
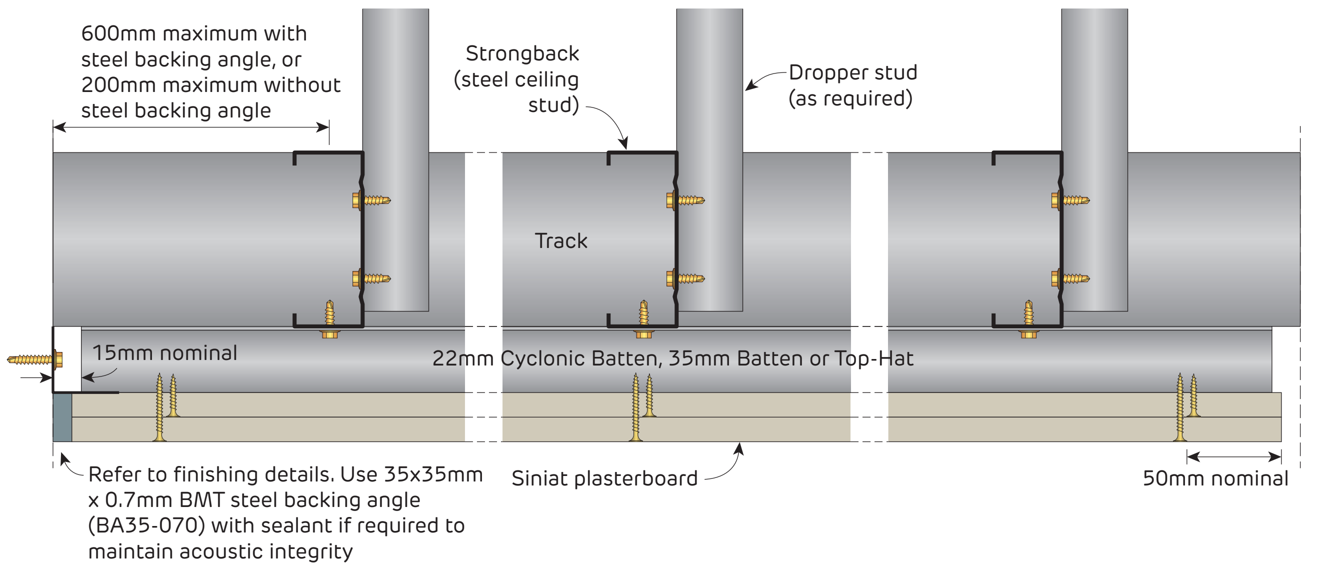



**FIGURE 39** Stud Ceiling Type A3 - Fixed / Sliding
Elevation




**SECTION G-G** Ceiling Edge
Section

**SECTION G-G** Ceiling Stud Detail
Section

**SECTION G-G** Alternative Ceiling Edge
Section

## Fire Rated
## Seismic Details for Stud and Batten Ceiling - Type A3 Fixed / Sliding

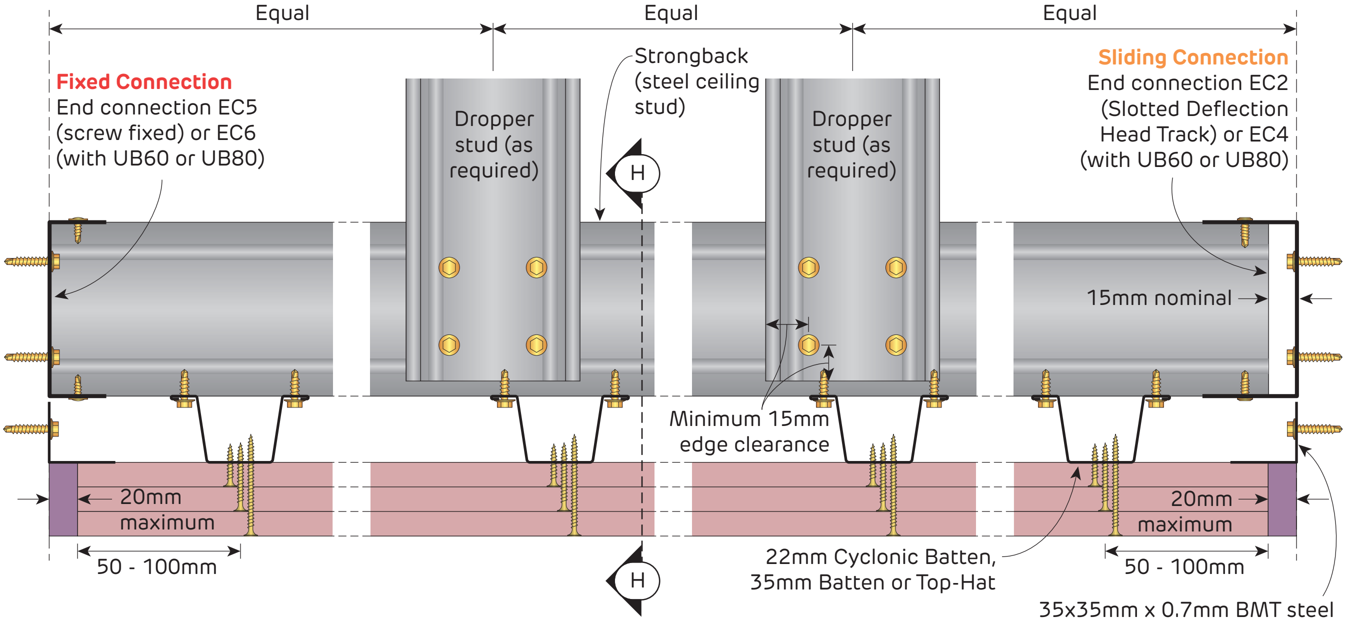
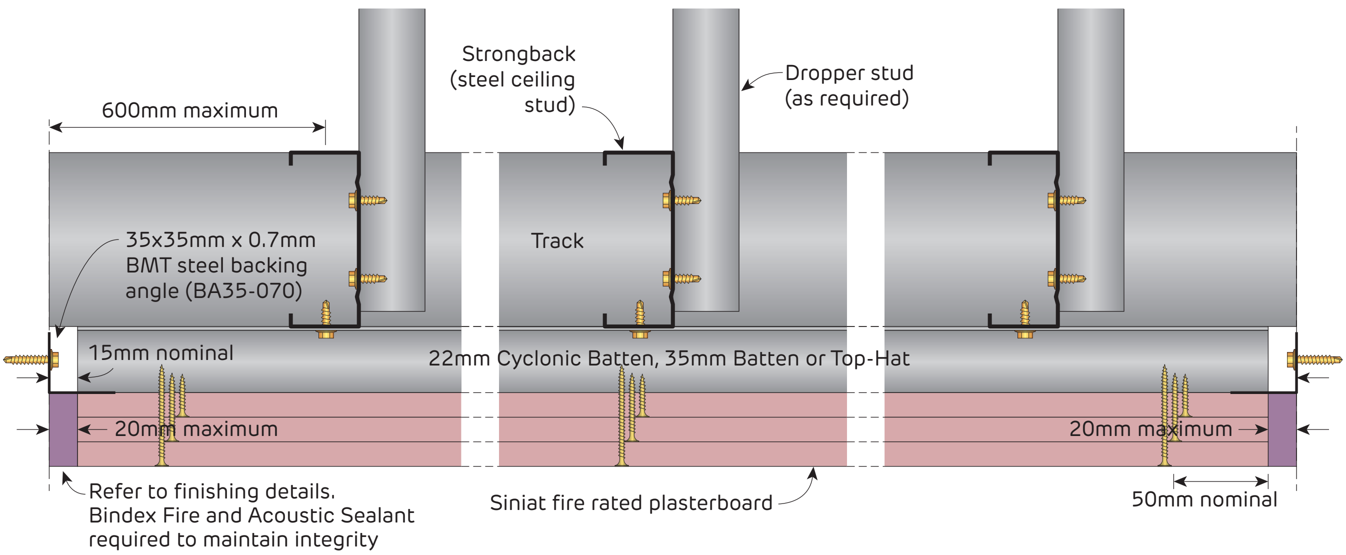



**FIGURE 40** Stud Ceiling Type A3 - Fixed / Sliding
Elevation

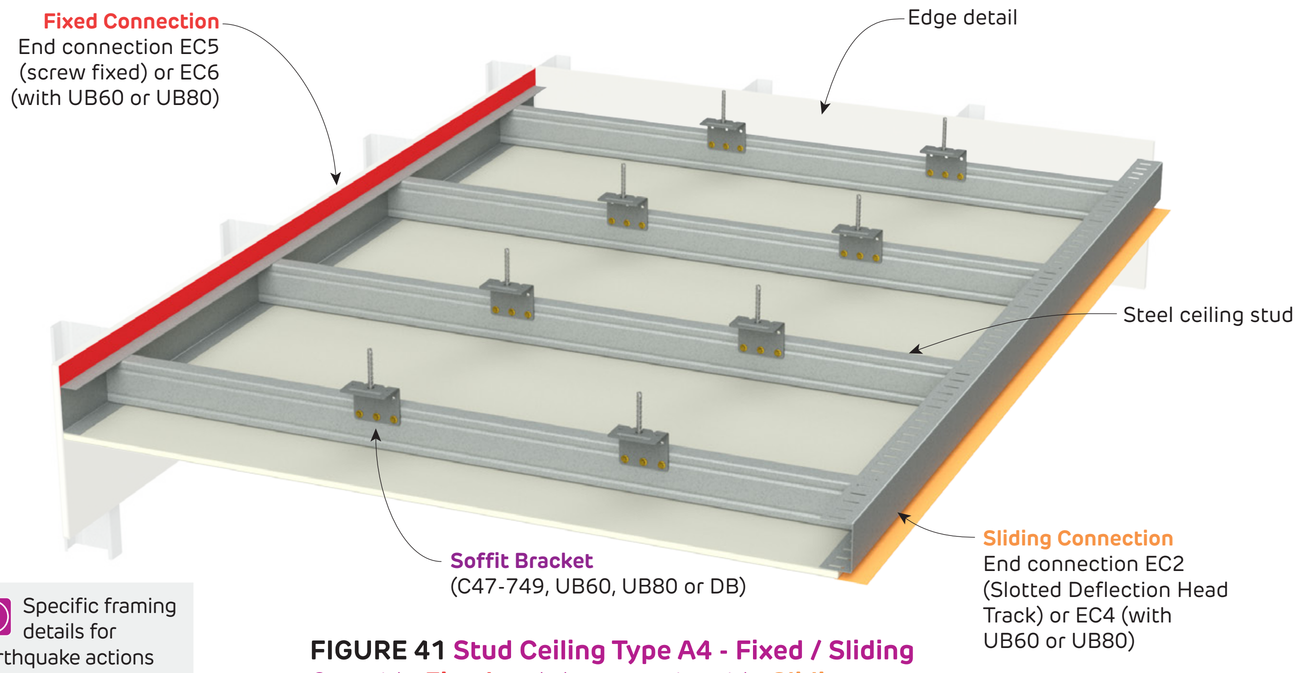



**SECTION H-H** Ceiling Edge
Section

**SECTION H-H** Ceiling Stud Detail
Section

**SECTION H-H** Ceiling Edge
Section

## Fire Rated and Non-Fire Rated
## Seismic Details for Stud Ceiling - Type A4 Fixed / Sliding




Specific framing details for earthquake actions must be determined by structural design

**FIGURE 41** Stud Ceiling Type A4 - Fixed / Sliding
One side **Fixed** and the opposite side **Sliding**
Perspective

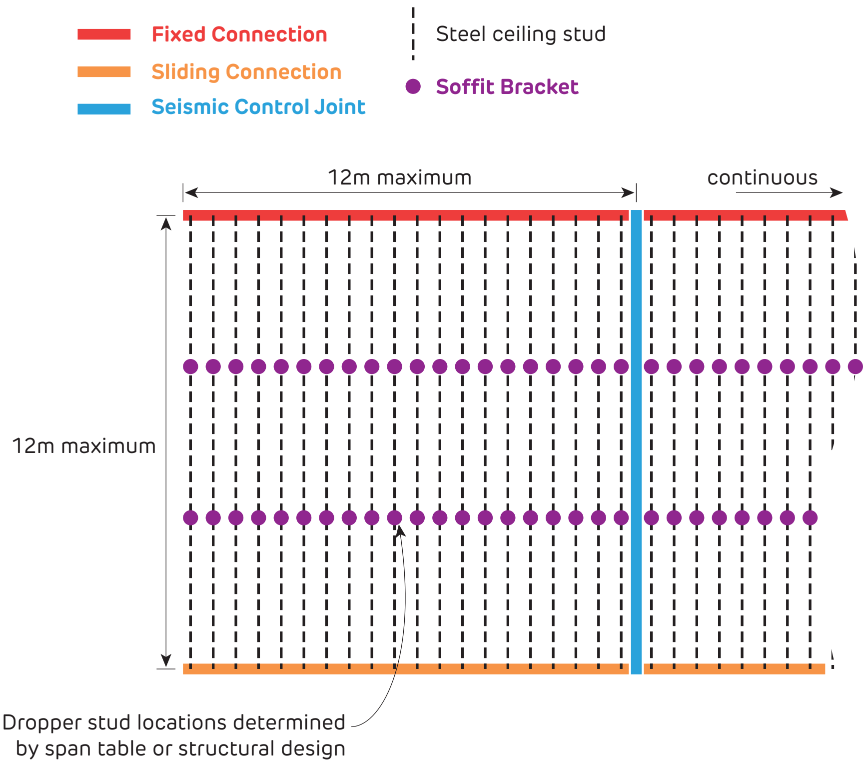



**FIGURE 42** Stud Ceiling Type A4 - Fixed / Sliding
One Side **Fixed** and the other Side **Sliding**
Plan

## Non-Fire Rated

## Seismic Details for Stud Ceiling - Type A4 Fixed / Sliding

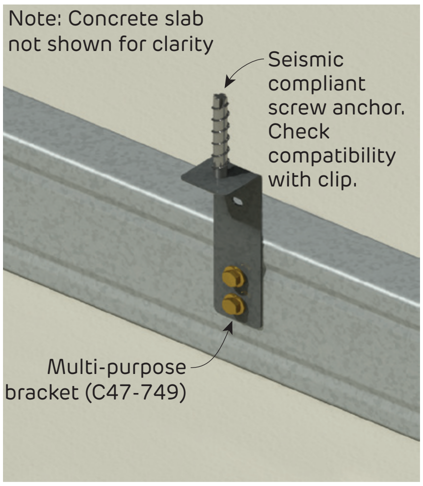



**FIGURE 43 Multi-purpose Bracket**
Option 1 Light Duty Connection
Perspective

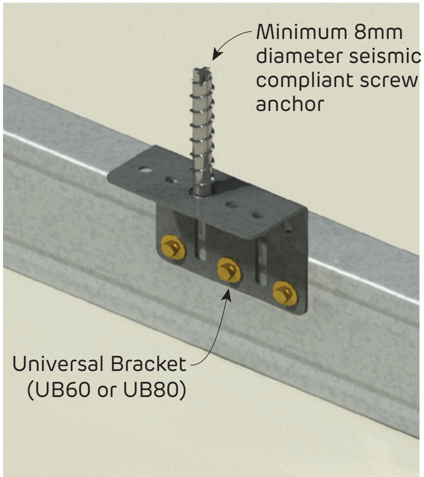



**FIGURE 44 Universal Bracket**
Option 2 Medium Duty Connection
Perspective

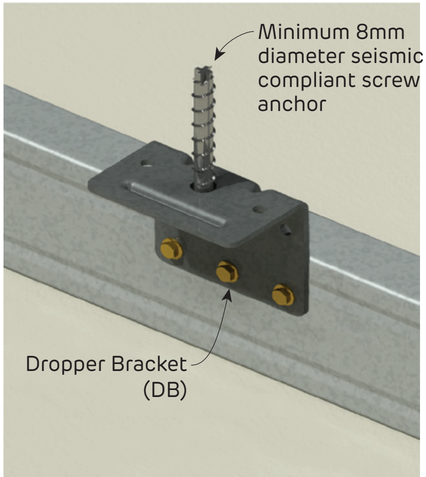



**FIGURE 45 Dropper Bracket**
Option 3 Heavy Duty Connection
Perspective

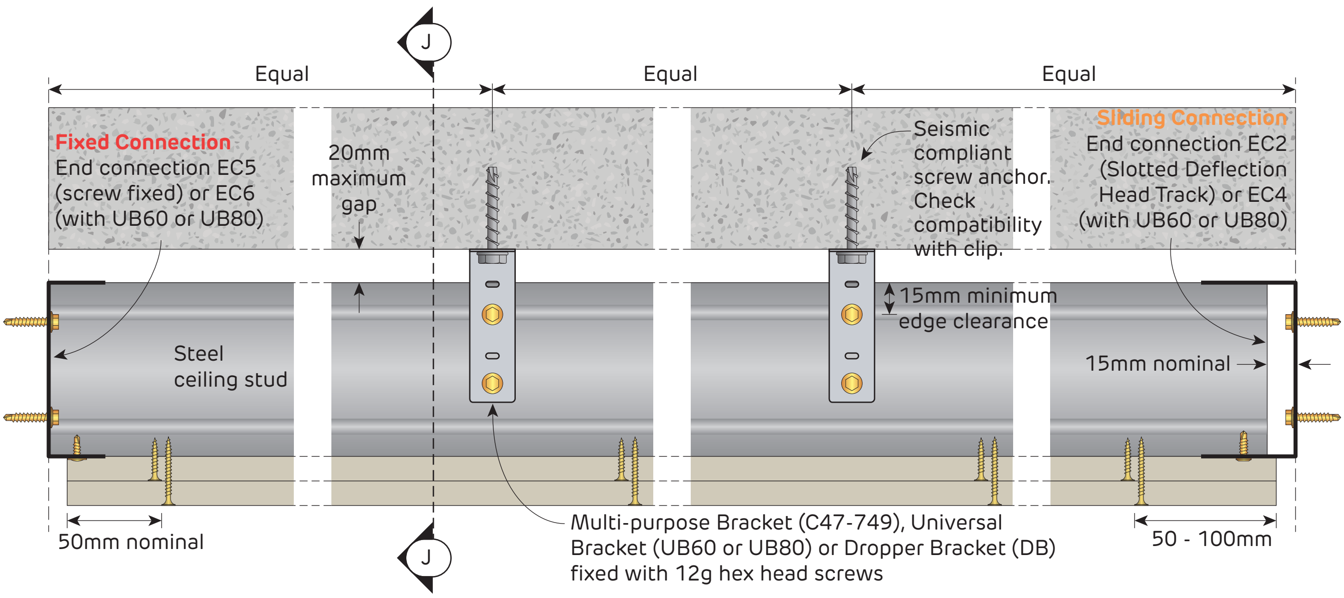
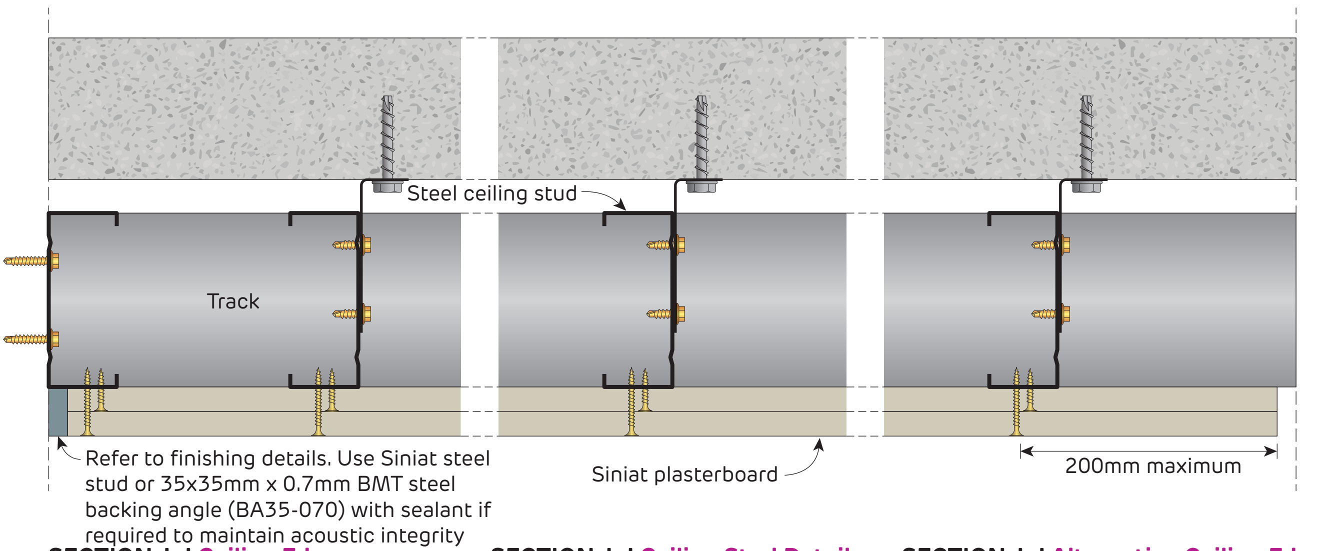



**FIGURE 46 Stud Ceiling Type A4 - Fixed / Sliding**
Elevation




**SECTION J-J Ceiling Edge**
Section

**SECTION J-J Ceiling Stud Detail**
Section

**SECTION J-J Alternative Ceiling Edge**
Section

## Fire Rated
## Seismic Details for Stud Ceiling - Type A4 Fixed / Sliding

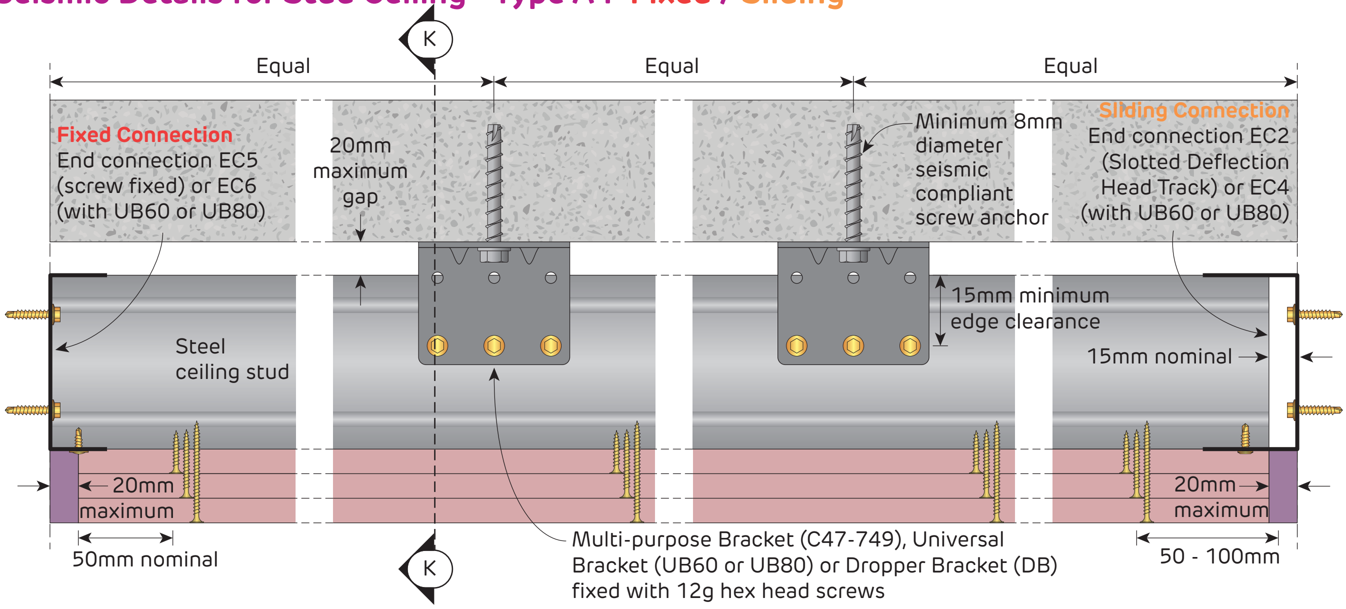
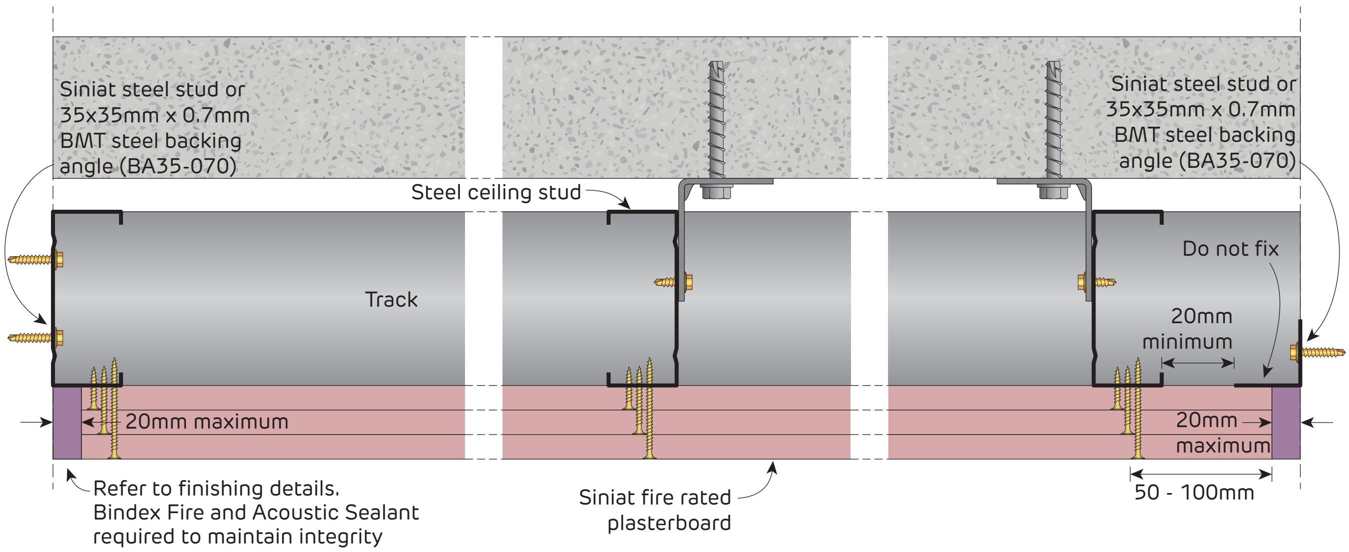



**FIGURE 47** Stud Ceiling Type A4 - Fixed / Sliding
Elevation




**SECTION K-K** Ceiling Edge
Section

**SECTION K-K** Ceiling Stud Detail
Section

**SECTION K-K** Alternative Ceiling Edge
Section

## Fire Rated and Non-Fire Rated
## Seismic Details for Stud Ceiling - Type C1 - 2-way Plenum Braced

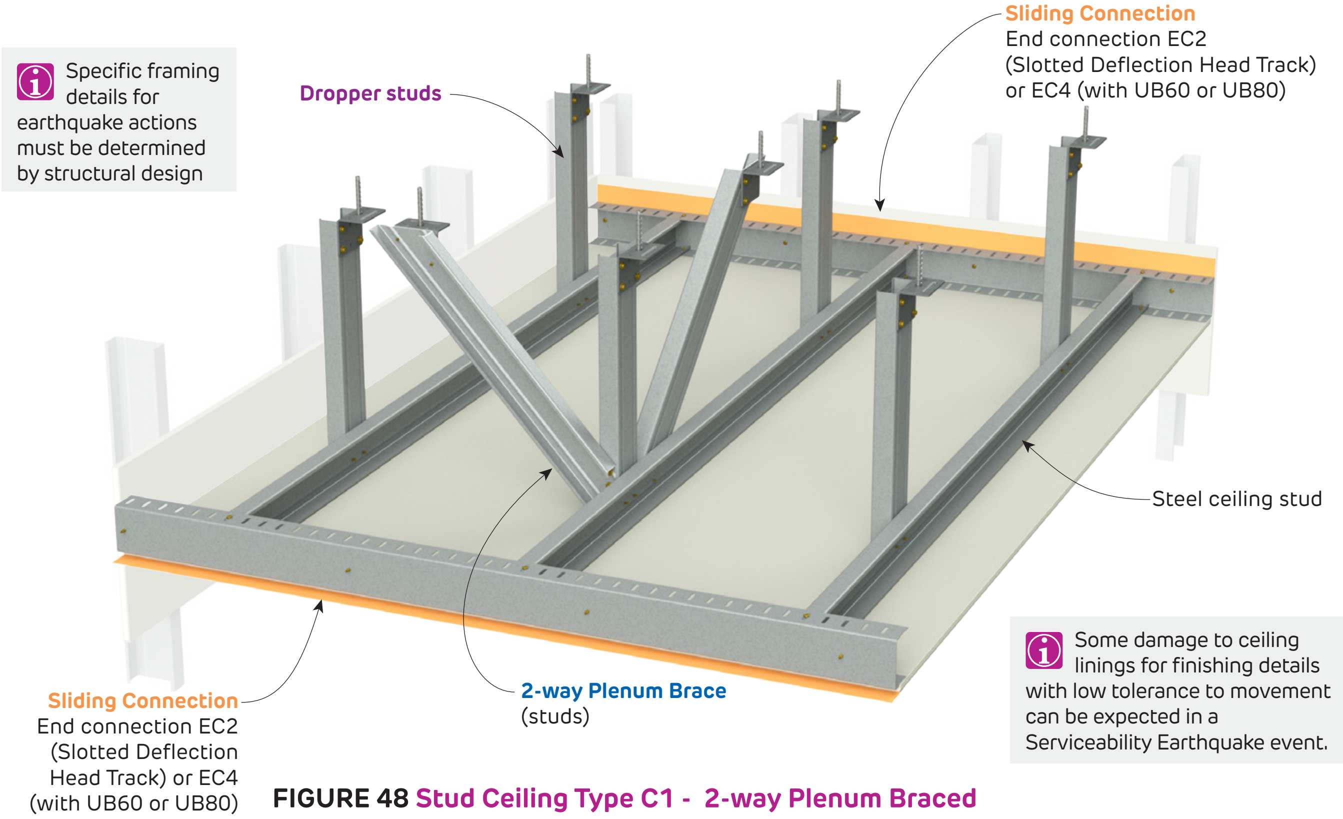



**FIGURE 48** Stud Ceiling Type C1 - 2-way Plenum Braced
Perspective

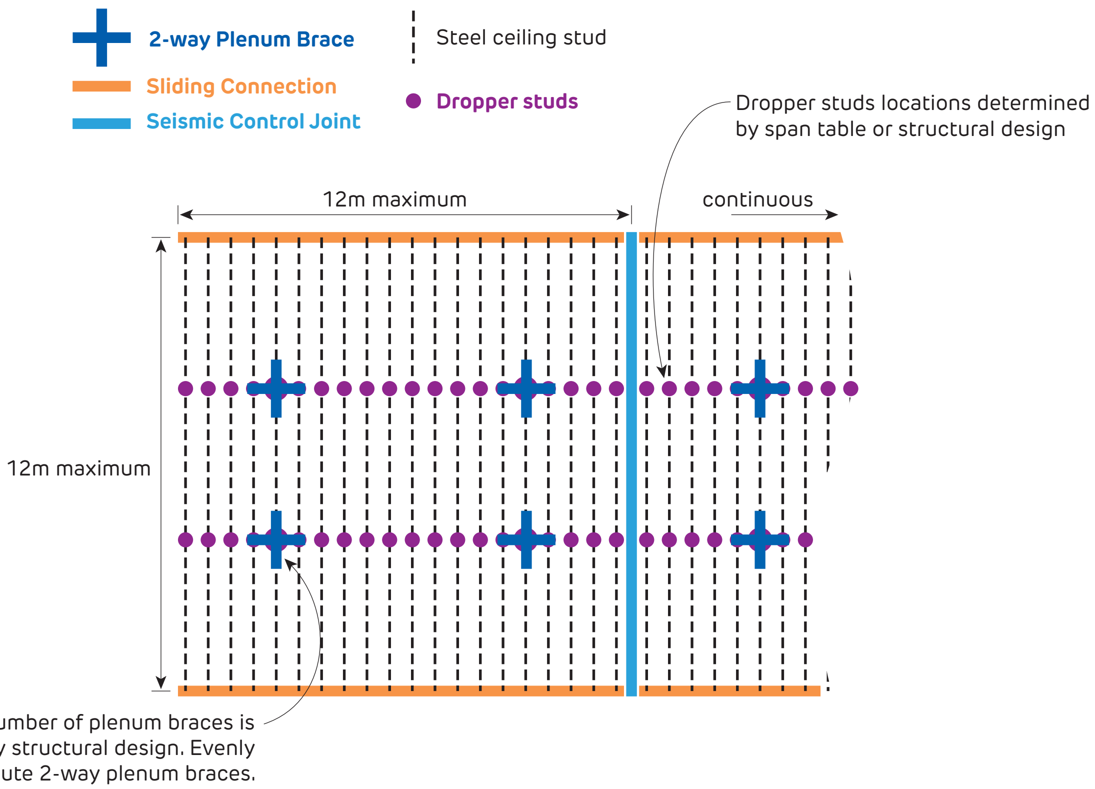



**FIGURE 49** Stud Ceiling Type C1 - 2-way Plenum Braced
Plan

## Non-Fire Rated

## Seismic Details for Stud Ceiling - Type C1 - 2-way Plenum Braced

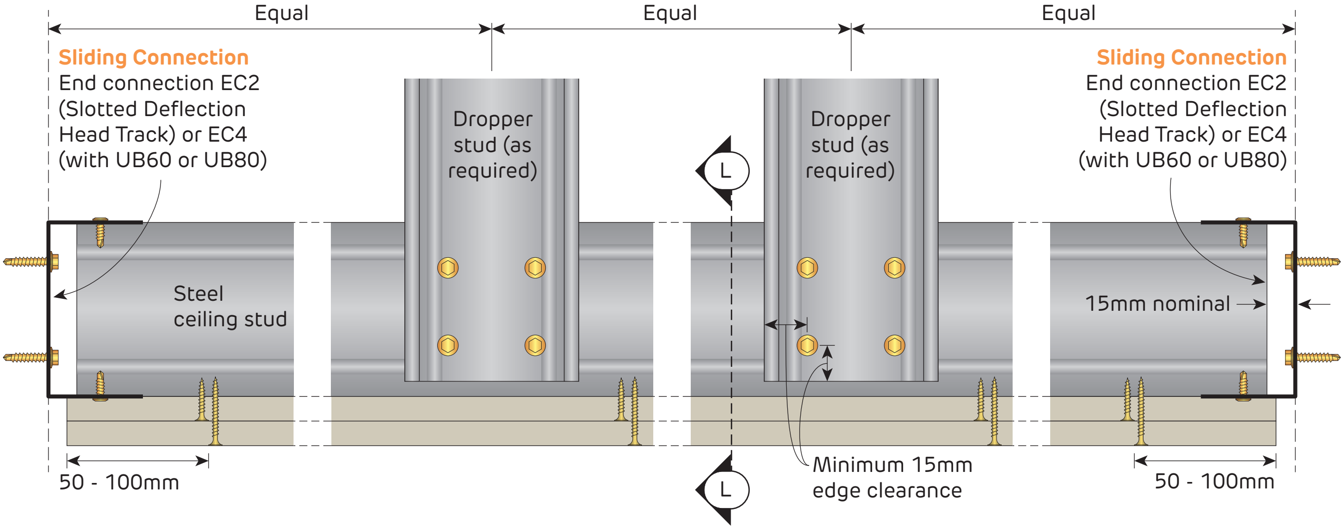
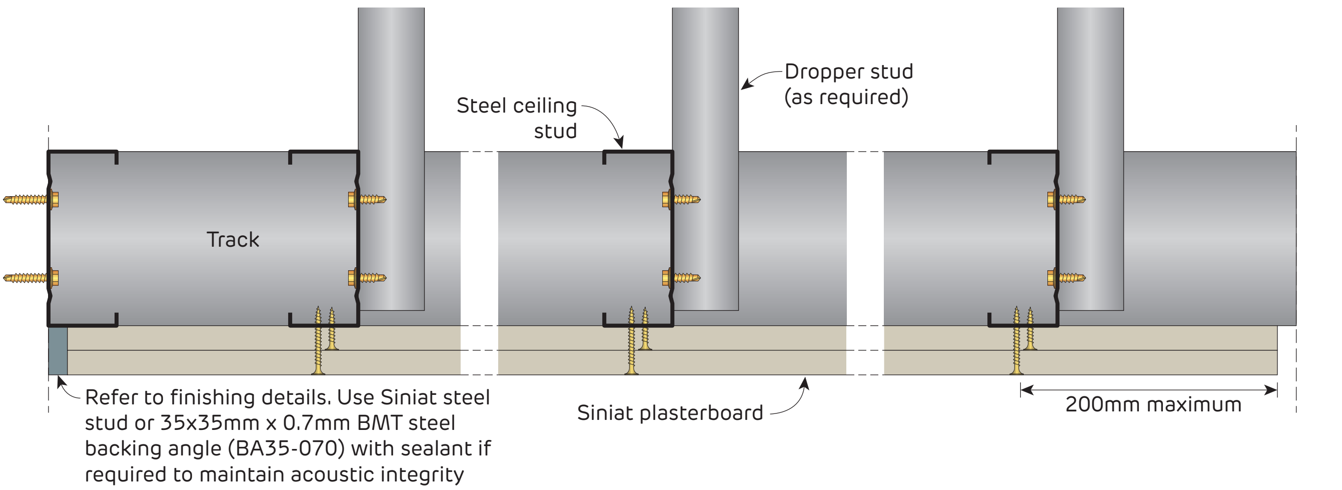



**FIGURE 50** Stud Ceiling Type C1 - 2-way Plenum Braced
Elevation




**SECTION L-L** Ceiling Edge
Section

**SECTION L-L** Ceiling Stud Detail
Section

**SECTION L-L** Alternative Ceiling Edge
Section

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated
## Seismic Details for Stud Ceiling - Type C1 - 2-way Plenum Braced

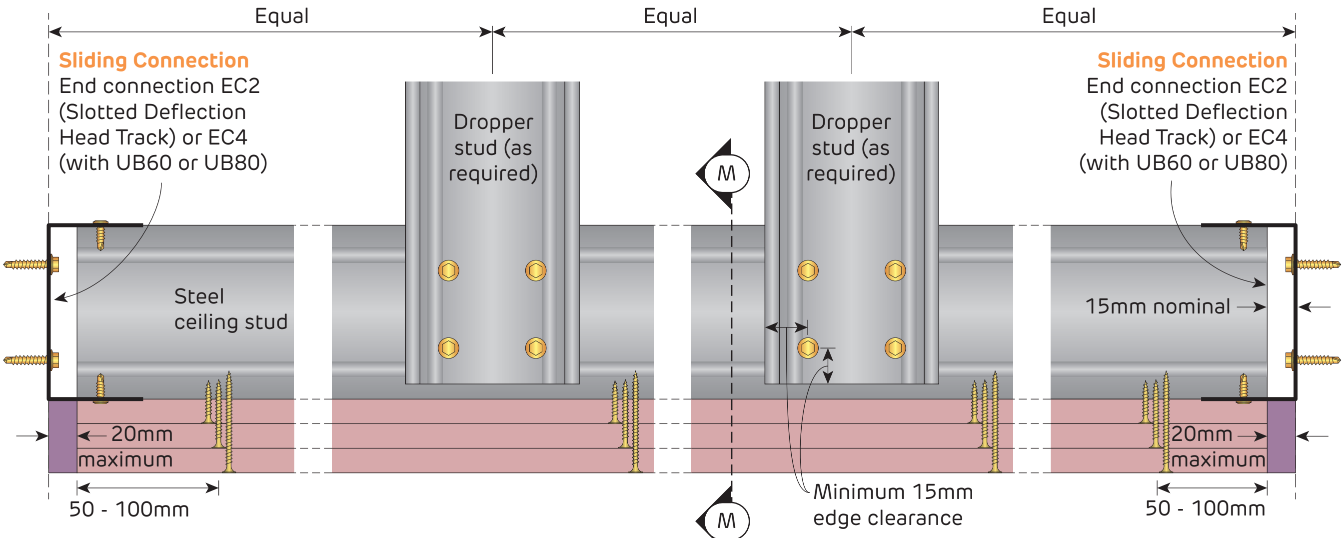
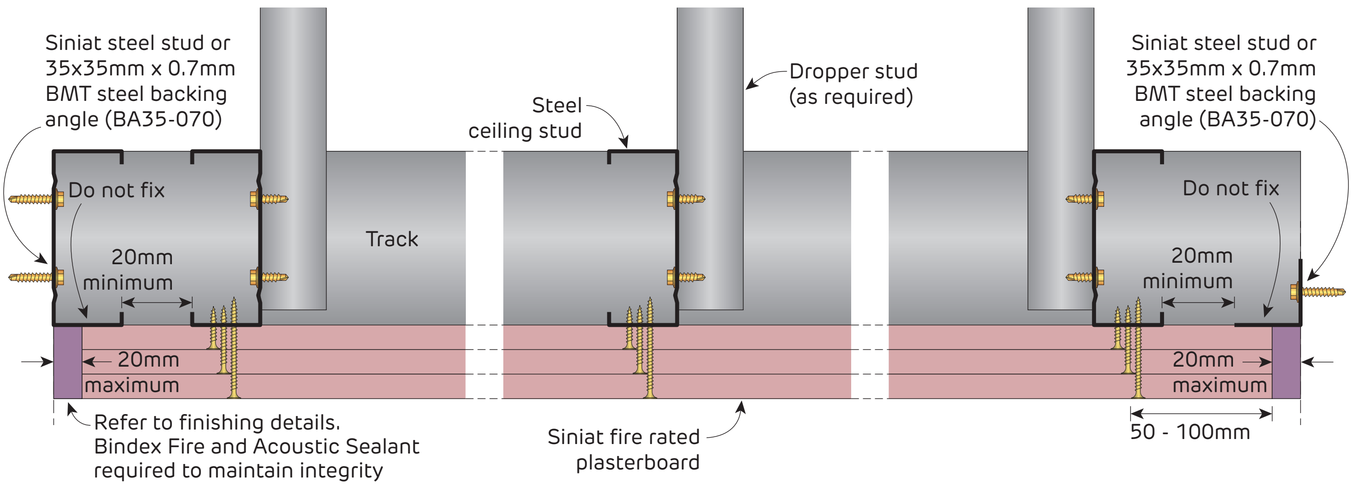



**FIGURE 51** Stud Ceiling Type C1 - 2-way Plenum Braced
Elevation




**SECTION M-M** Ceiling Edge
Section

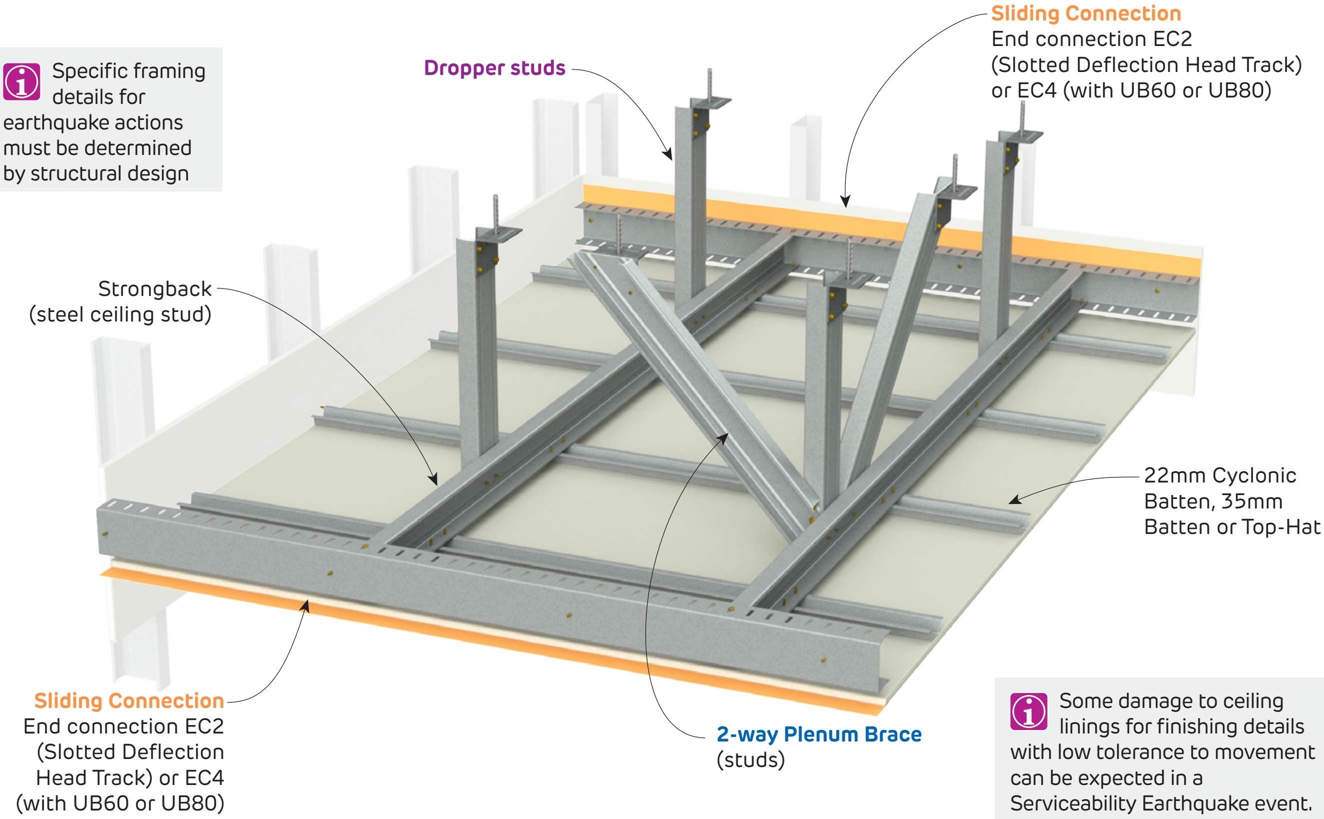
**SECTION M-M** Ceiling Stud Detail
Section

**SECTION M-M** Alternative Ceiling Edge
Section

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated and Non-Fire Rated
## Seismic Details for Stud and Batten Ceiling - Type C2 - 2-way Plenum Braced

Specific framing details for earthquake actions must be determined by structural design




Some damage to ceiling linings for finishing details with low tolerance to movement can be expected in a Serviceability Earthquake event.

**FIGURE 52** Stud Ceiling Type C2 - 2-way Plenum Braced
Perspective

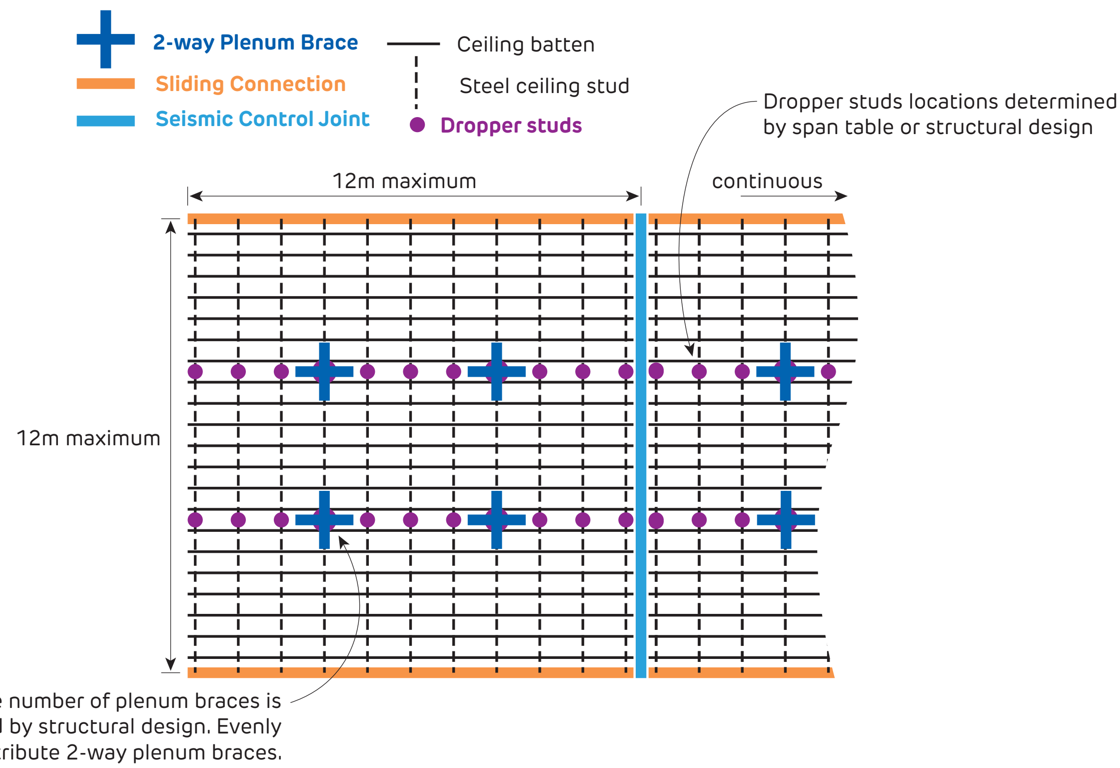



**FIGURE 53** Stud Ceiling Type C2 - 2-way Plenum Braced
Plan

## Non-Fire Rated

## Seismic Details for Stud and Batten Ceiling - Type C2 - 2-way Plenum Braced

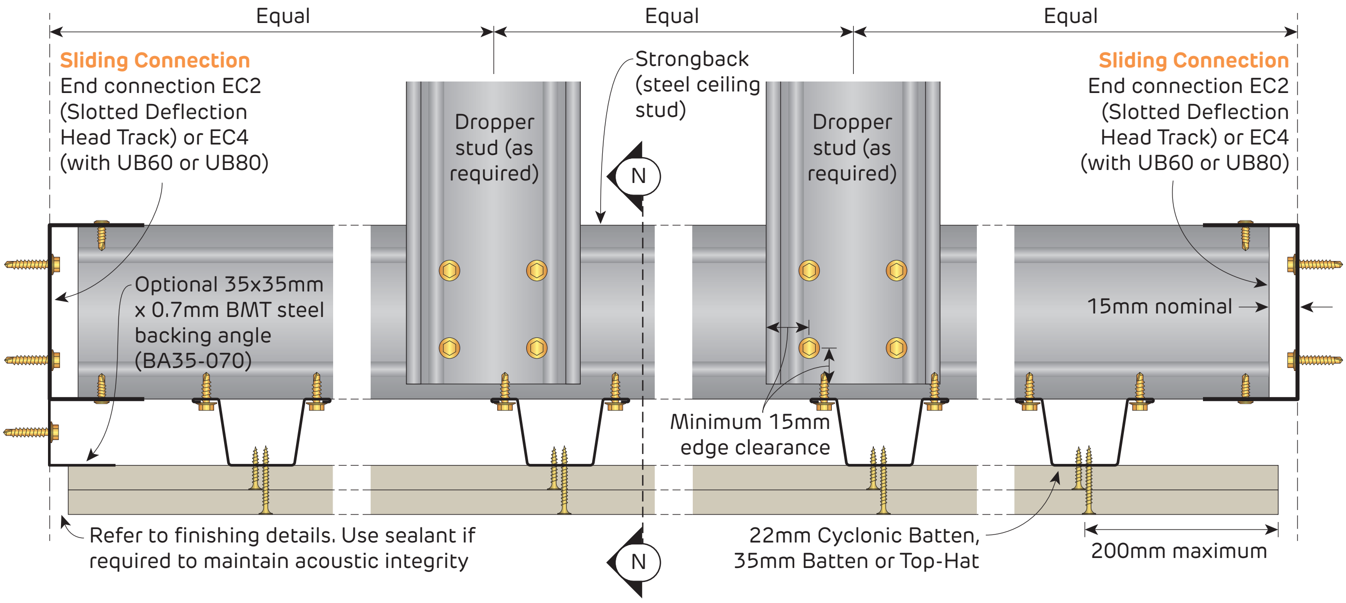
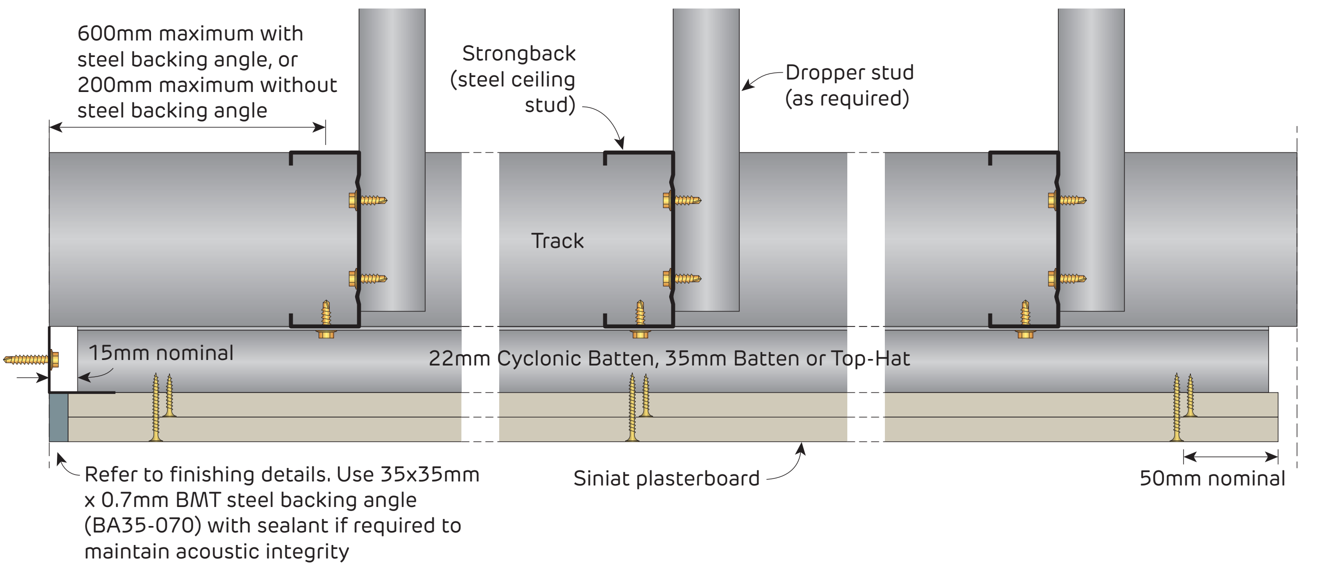



**FIGURE 54 Stud Ceiling Type C2 - 2-way Plenum Braced**
Elevation




**SECTION N-N Ceiling Edge**
Section

**SECTION N-N Ceiling Stud Detail**
Section

**SECTION N-N Alternative Ceiling Edge**
Section

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated
## Seismic Details for Stud and Batten Ceiling - Type C2 - 2-way Plenum Braced

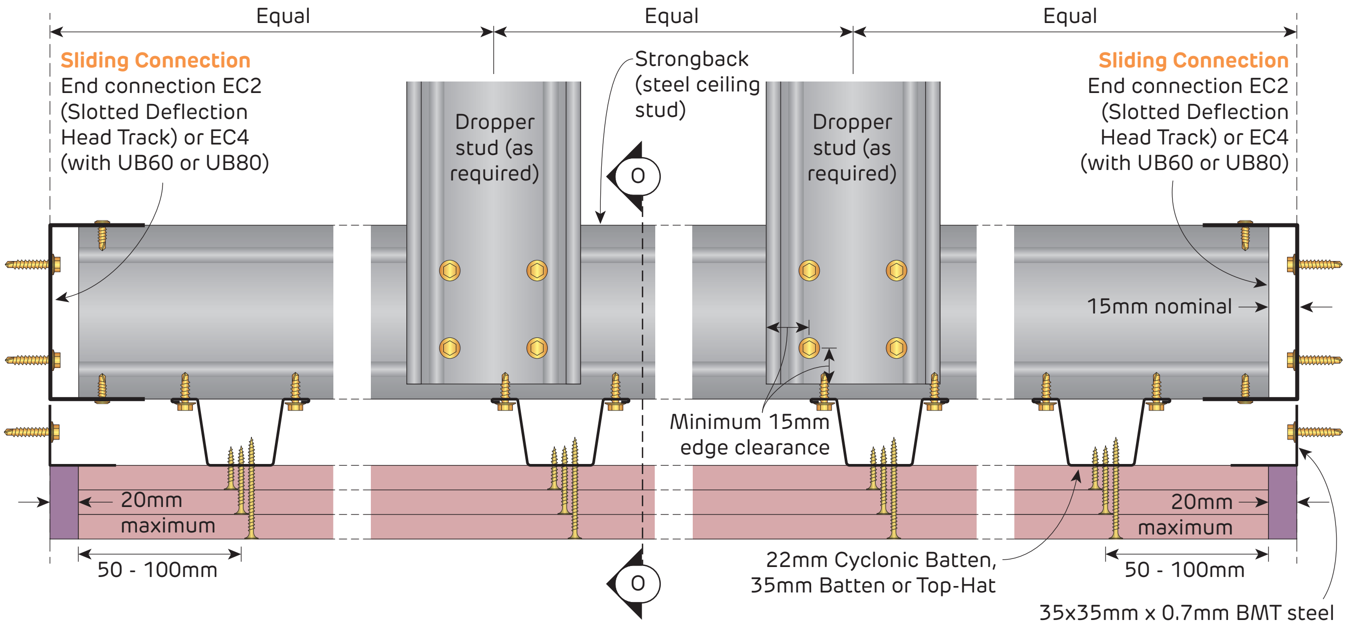
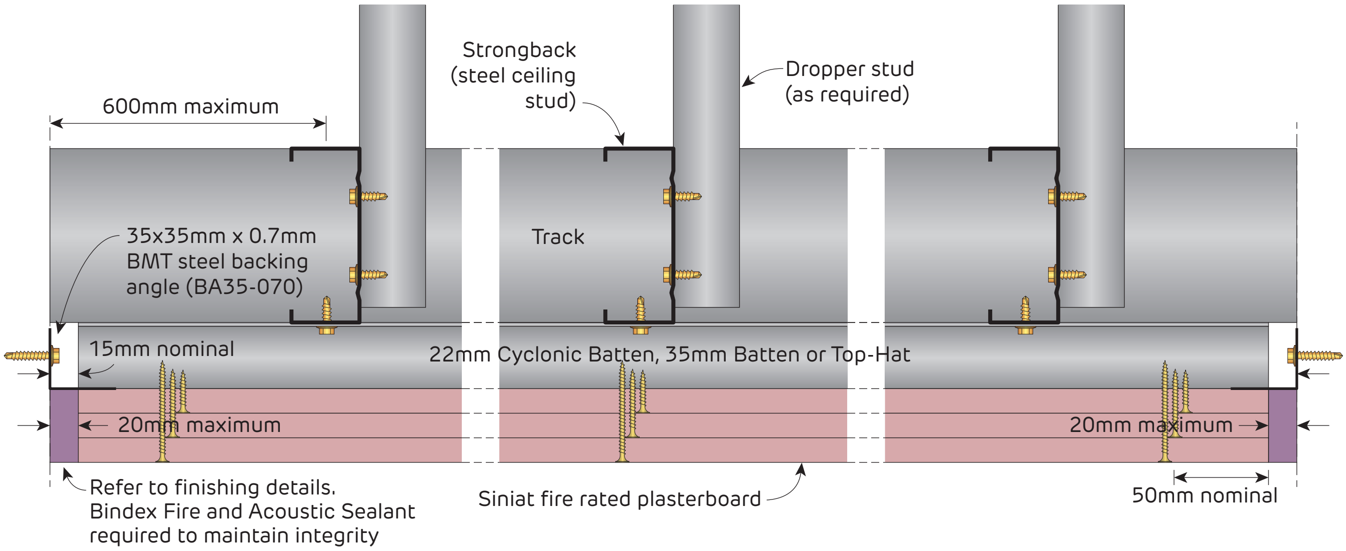



**FIGURE 55** Stud Ceiling Type C2 - 2-way Plenum Braced
Elevation




**SECTION O-O** Ceiling Edge
Section

**SECTION O-O** Ceiling Stud Detail
Section

**SECTION O-O** Ceiling Edge
Section

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated and Non-Fire Rated
## 2-way Plenum Brace

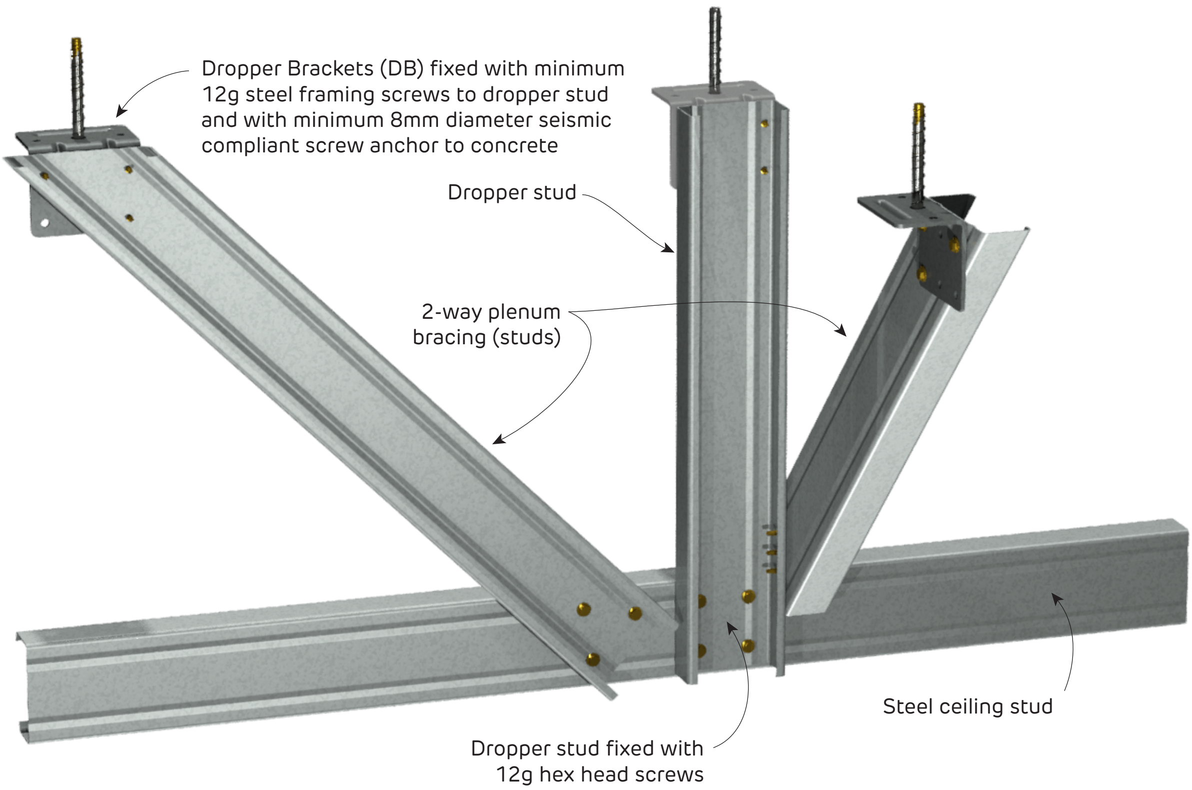



**FIGURE 56 2-way Plenum Brace**
Perspective

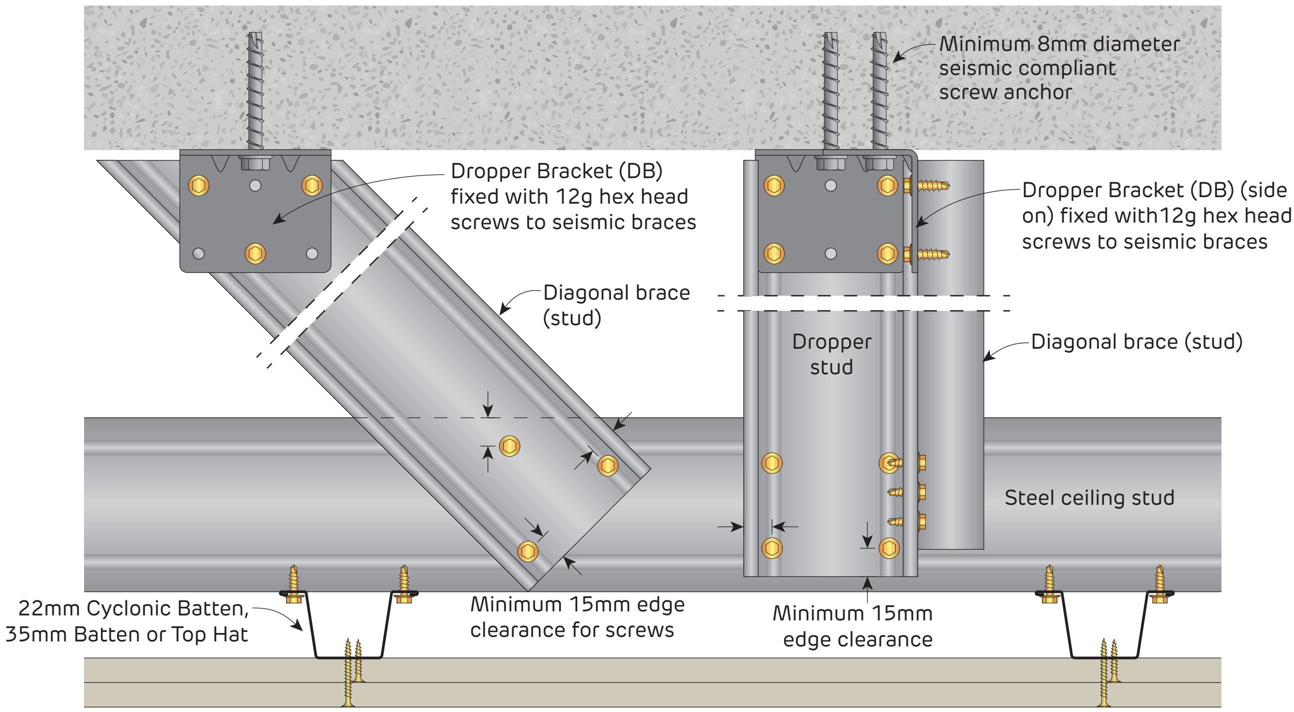



**FIGURE 57 2-way Plenum Brace**
Elevation

## Fire Rated and Non-Fire Rated
## Steel Ceiling Stud Splicing

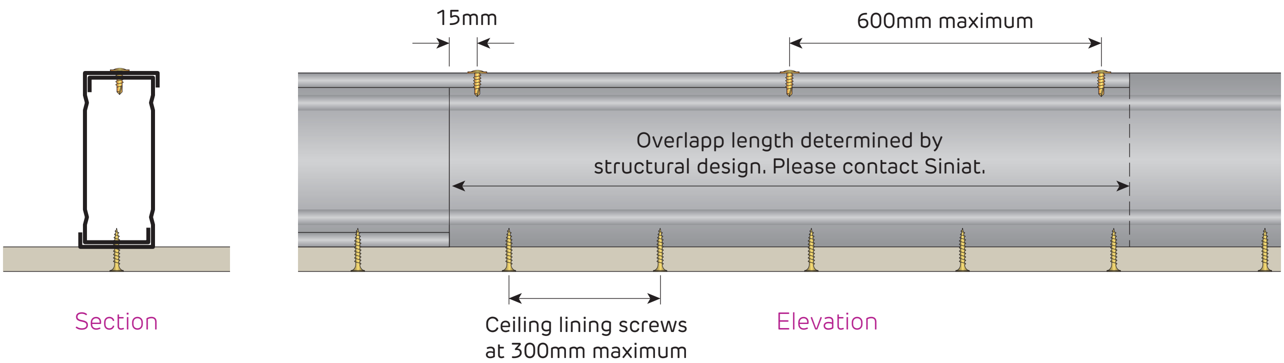



**FIGURE 58** **Splicing Steel Ceiling Studs via Overlap Method**

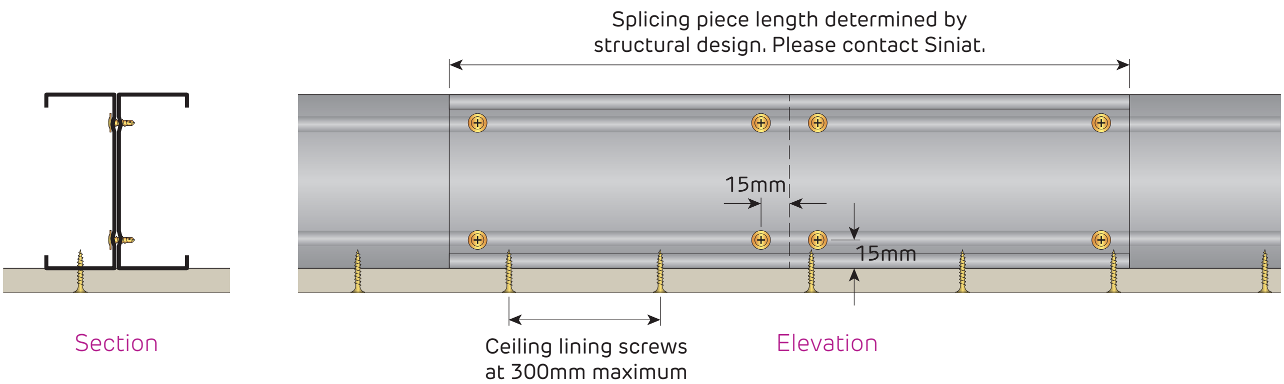



**FIGURE 59** **Splicing Steel Ceiling Studs via Back-to-back Method**

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated
## Steel Stud Ceilings

This detail contains a load bearing wall. Therefore the wall system must have the 'structural adequacy' part of the Fire Resistance Level e.g. 120/120/120

Bracing may be required when connected to stud walls

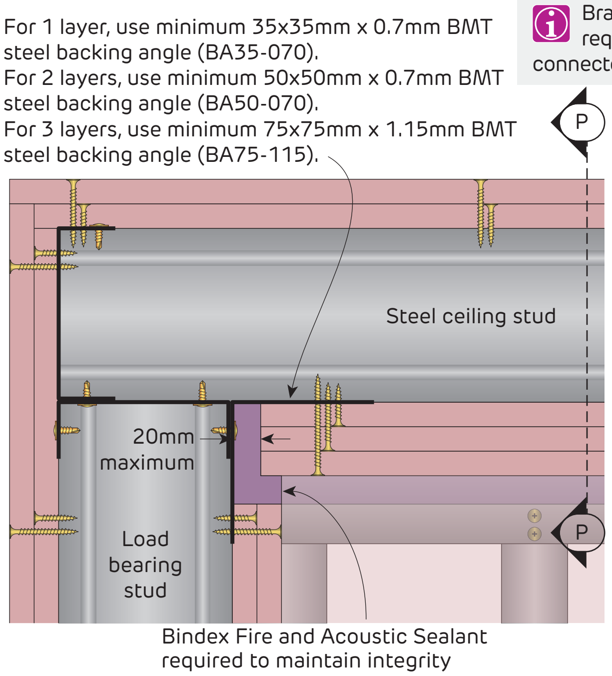
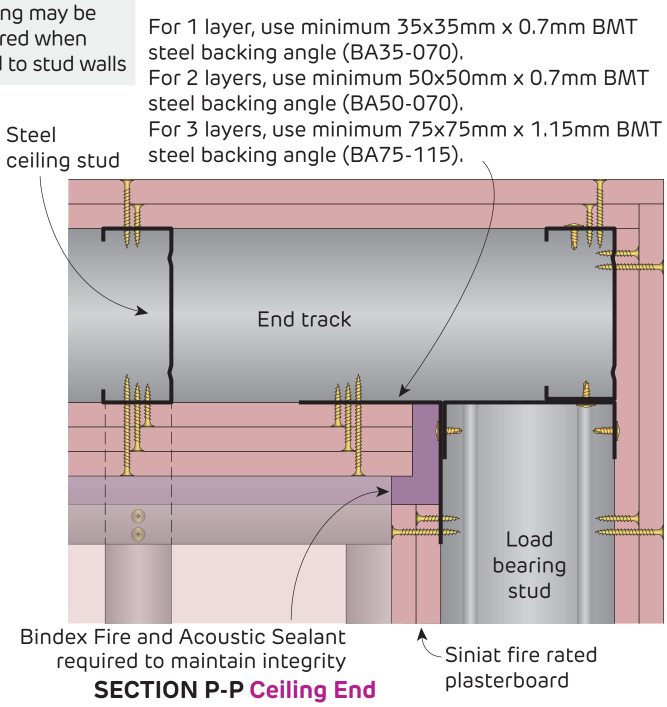



**FIGURE 60** **Ceiling End**
Steel ceiling stud fixed to load bearing stud wall
Section




**SECTION P-P** **Ceiling End**
Steel ceiling stud fixed to load bearing stud wall
Section

# Fire Rated
## Steel Stud Ceilings - Built From the Underside

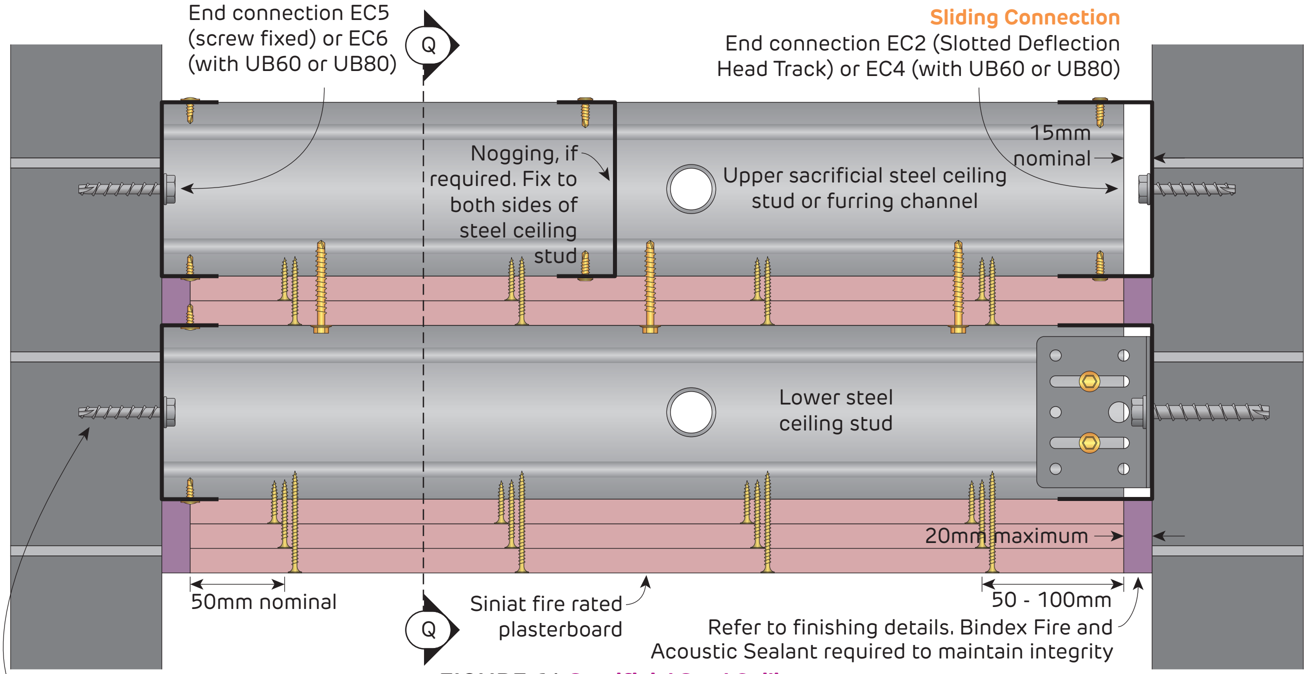
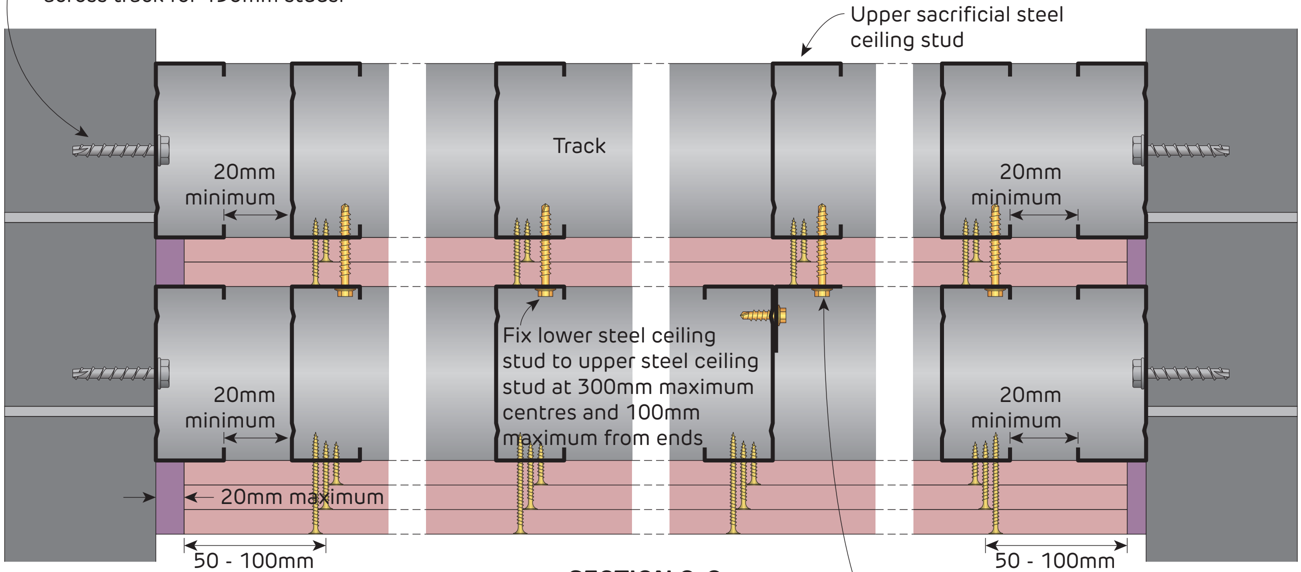
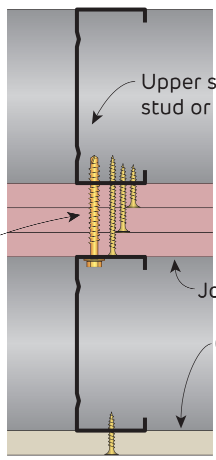



**FIGURE 61** Sacrificial Stud Ceiling
Fire rated from above and below (Built from underside)
Section




**SECTION Q-Q**
Section




8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

**FIGURE 62** Sacrificial Stud Ceiling
Fire rated from above (Built from underside)
Section

## Fire Rated
## Steel Stud Ceilings - Built From the Underside

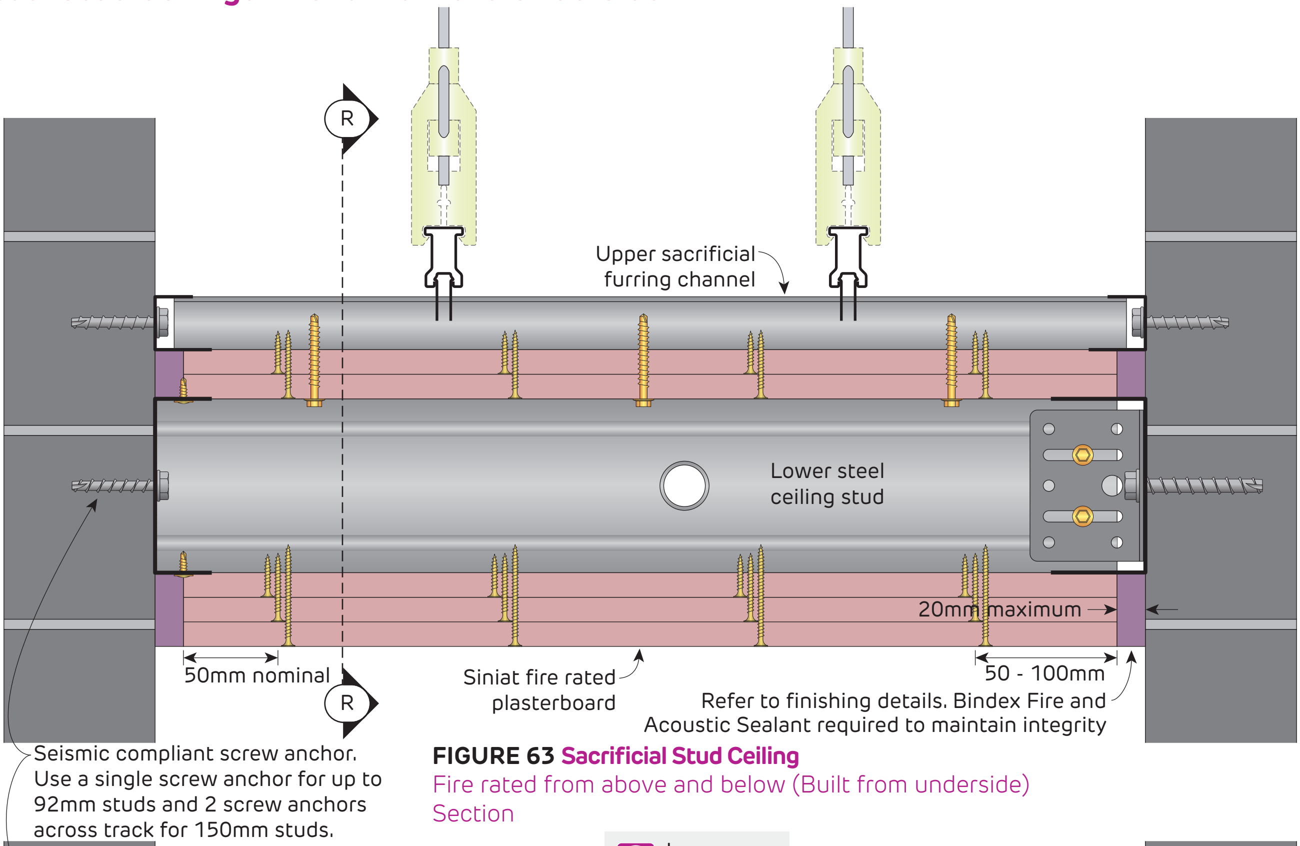
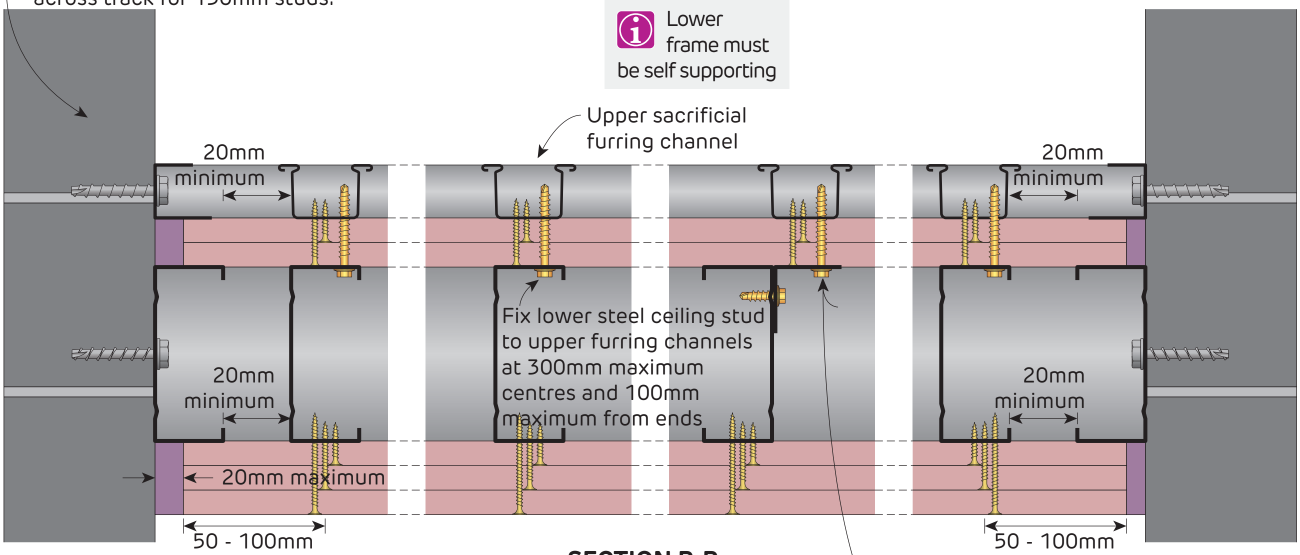


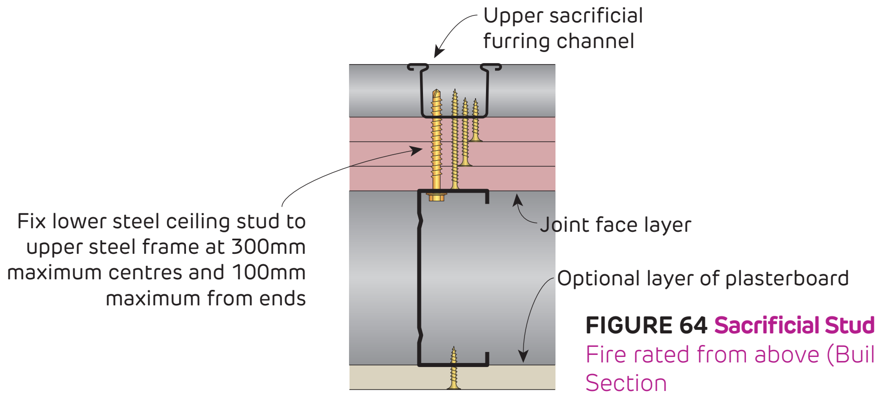

**FIGURE 63 Sacrificial Stud Ceiling**
Fire rated from above and below (Built from underside)
Section

Lower frame must be self supporting




**SECTION R-R**
Section

Alternative fixing method. Fix 35x35mm x 0.7mm BMT steel angle to both stud and furring channel at 300mm maximum centres and 100mm maximum from ends




8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

**FIGURE 64 Sacrificial Stud Ceiling**
Fire rated from above (Built from underside)
Section

## Non-Fire Rated
## L-shaped Horizontal Duct

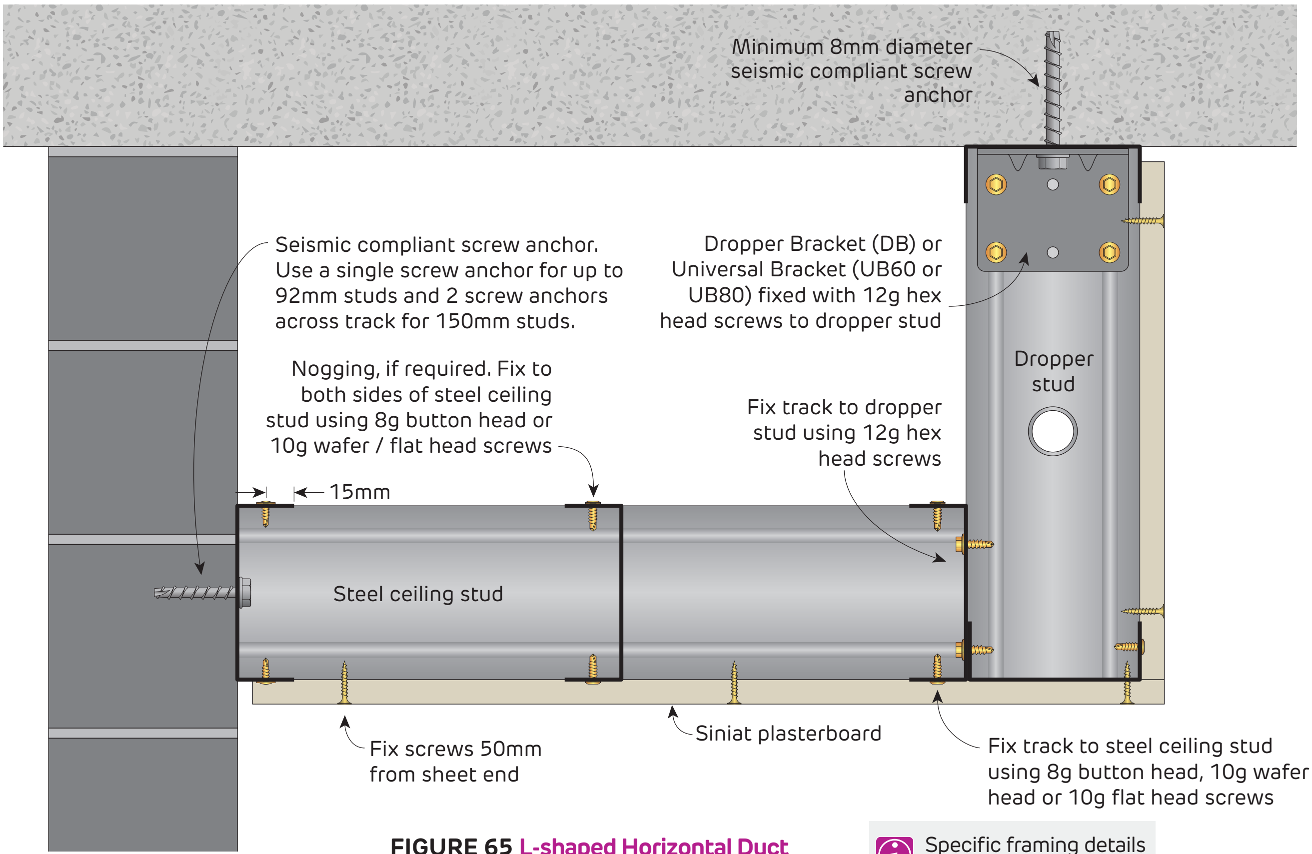



**FIGURE 65** L-shaped Horizontal Duct
Section

Specific framing details must be determined by structural design

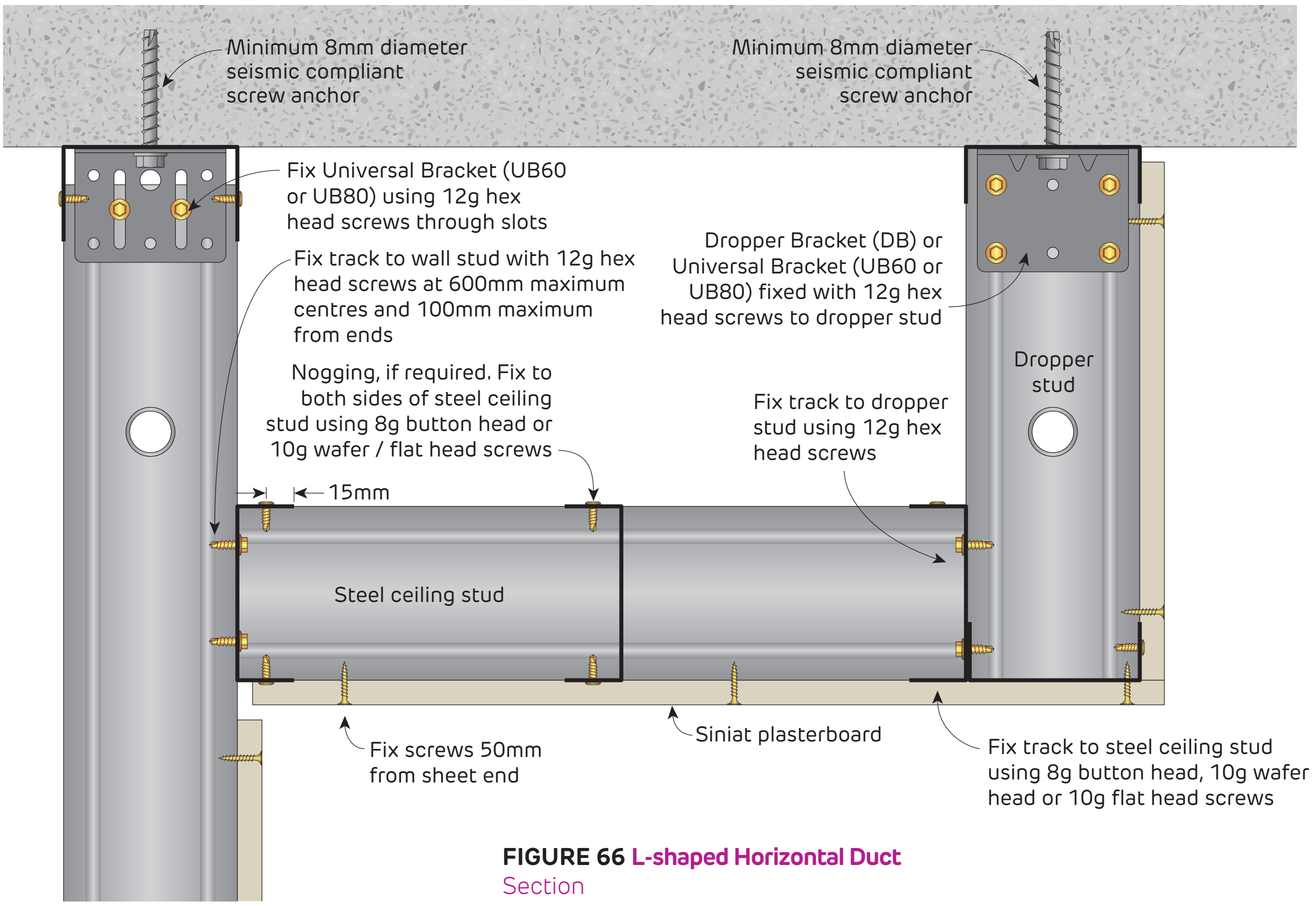



**FIGURE 66** L-shaped Horizontal Duct
Section

## Fire Rated
## L-shaped Horizontal Duct

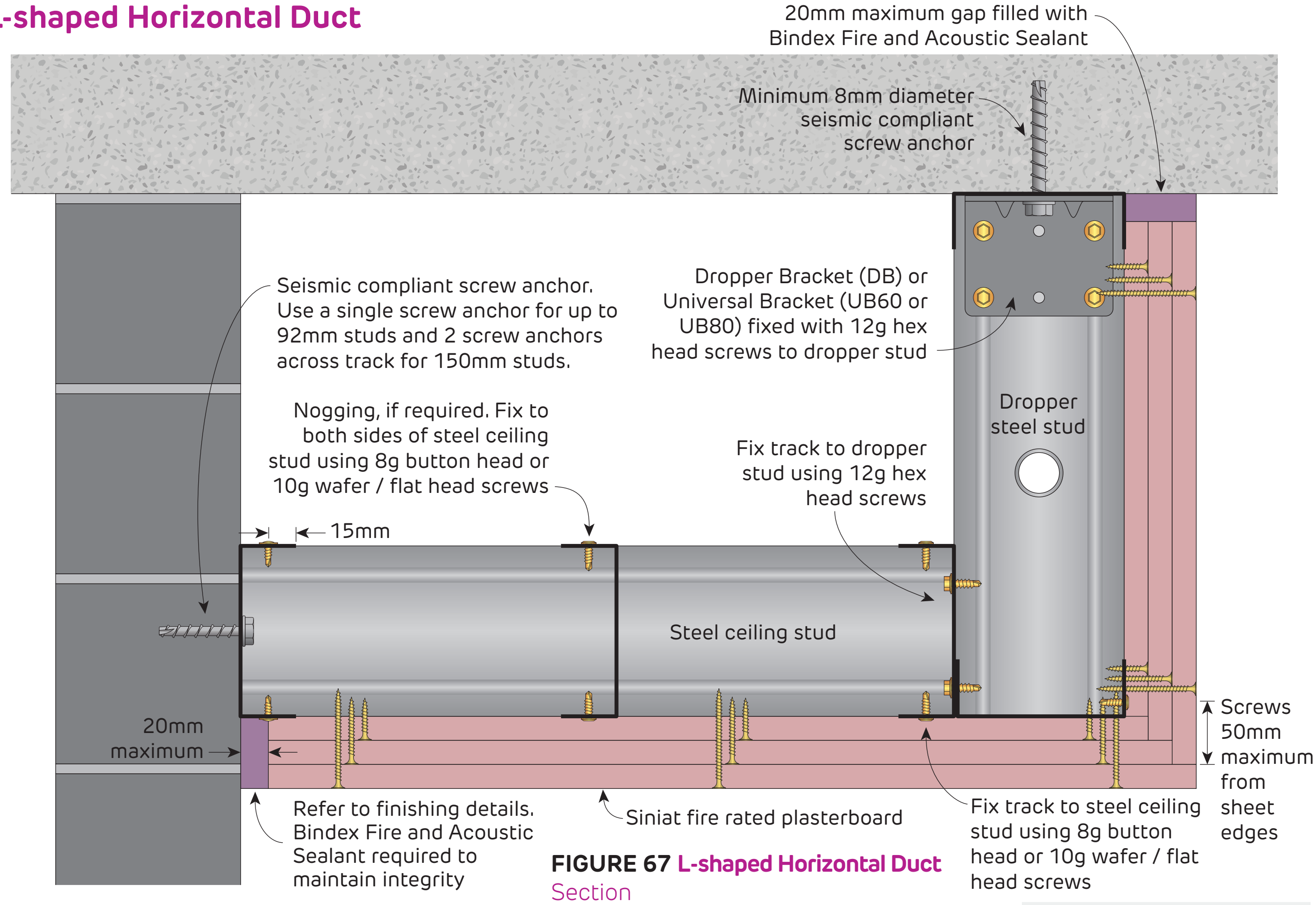



**FIGURE 67** L-shaped Horizontal Duct
Section

L-shaped Ducts from fire rated plasterboard are not suitable on their own as an air supply duct while exposed to an external fire or to contain products of combustion, ie: smoke exhaust.

Specific framing details must be determined by structural design

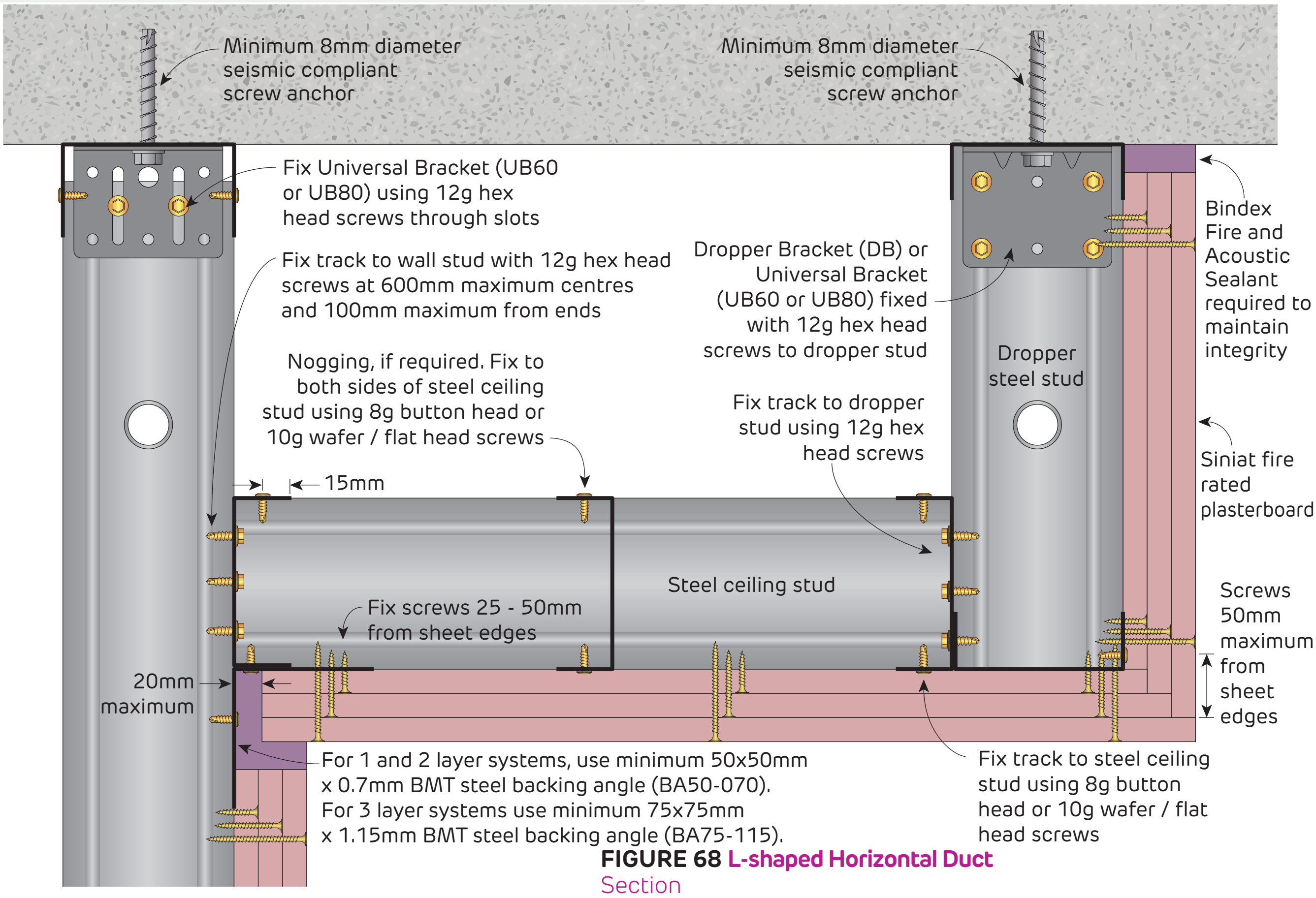



**FIGURE 68** L-shaped Horizontal Duct
Section

## Fire Rated and Non-Fire Rated
## Wall with Integrated Bulkhead

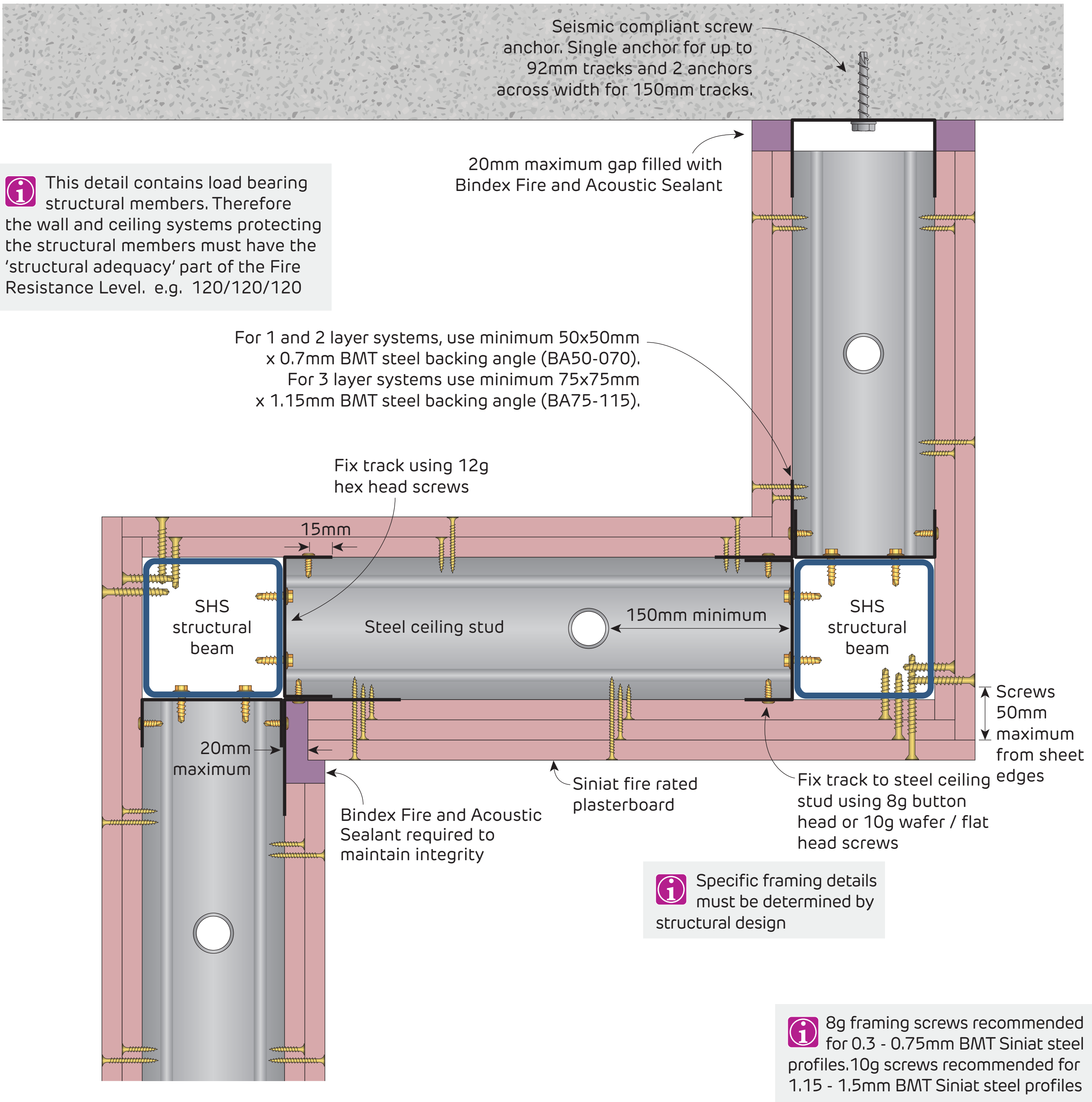



**FIGURE 69** Stud Wall with Integrated Bulkhead
Section

## Suggested Sizing of Structural Members in Steel Stud Plasterboard Walls and Ceilings

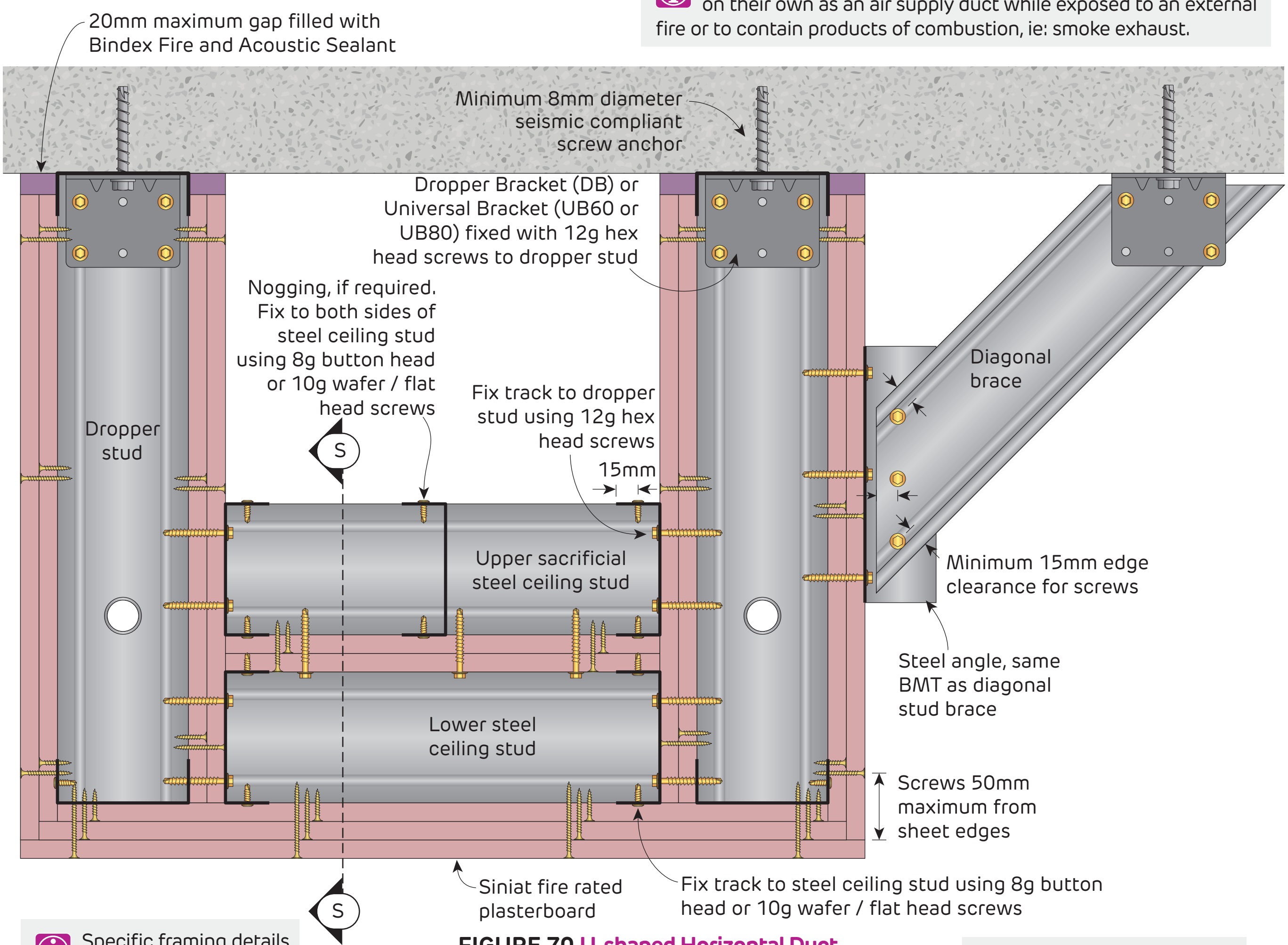
| Stud Size (mm) | Structural Members SHS |
|---|---|
| 76 | 75x75 SHS |
| 92 | 90x90 SHS |
| 150 | 150x150 SHS |

## Fire Rated

## U-shaped Horizontal Duct - Fire Rated from Both Directions

### Using Wall Systems SSW312 or SSW317 with Ceiling Systems SSC2 or SSC3

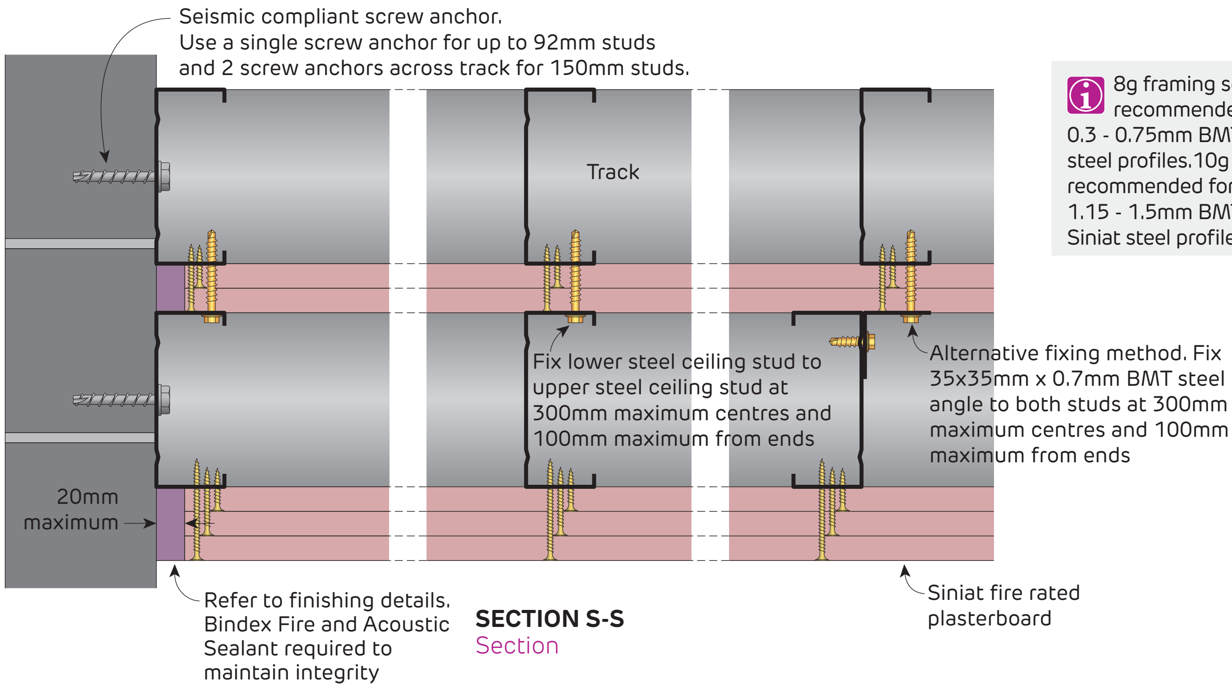
U-shaped Ducts from fire rated plasterboard are not suitable on their own as an air supply duct while exposed to an external fire or to contain products of combustion, ie: smoke exhaust.




Specific framing details must be determined by structural design

**FIGURE 70 U-shaped Horizontal Duct**
Fire rated from both directions
Section

Screws to be minimum 15mm from steel profile ends and edges




8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

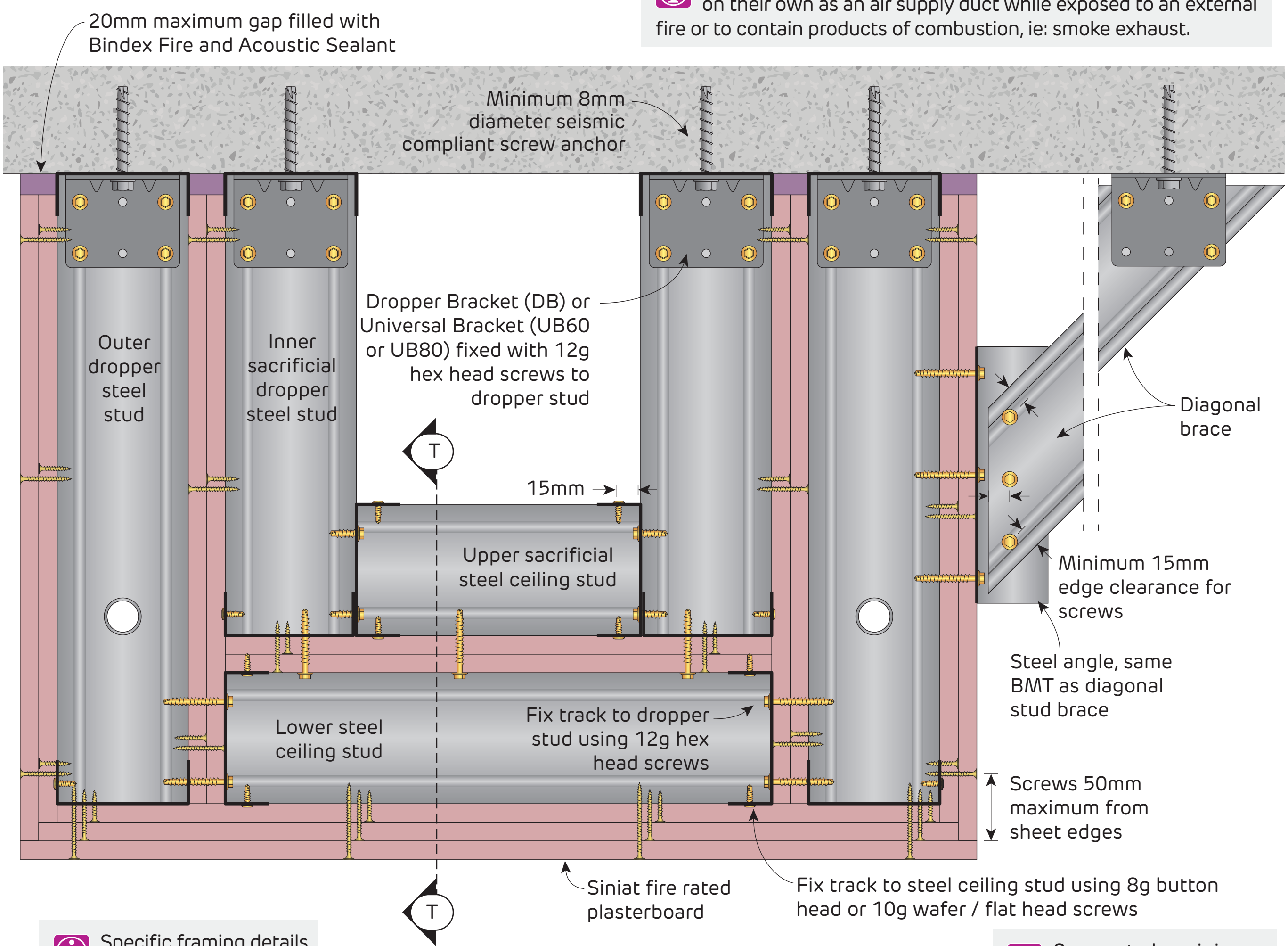
**SECTION S-S**
Section

## Fire Rated

### U-shaped Horizontal Duct - Fire Rated from Both Directions

Using Wall Systems SSW312 or SSW317 with Ceiling Systems SSC2 or SSC3

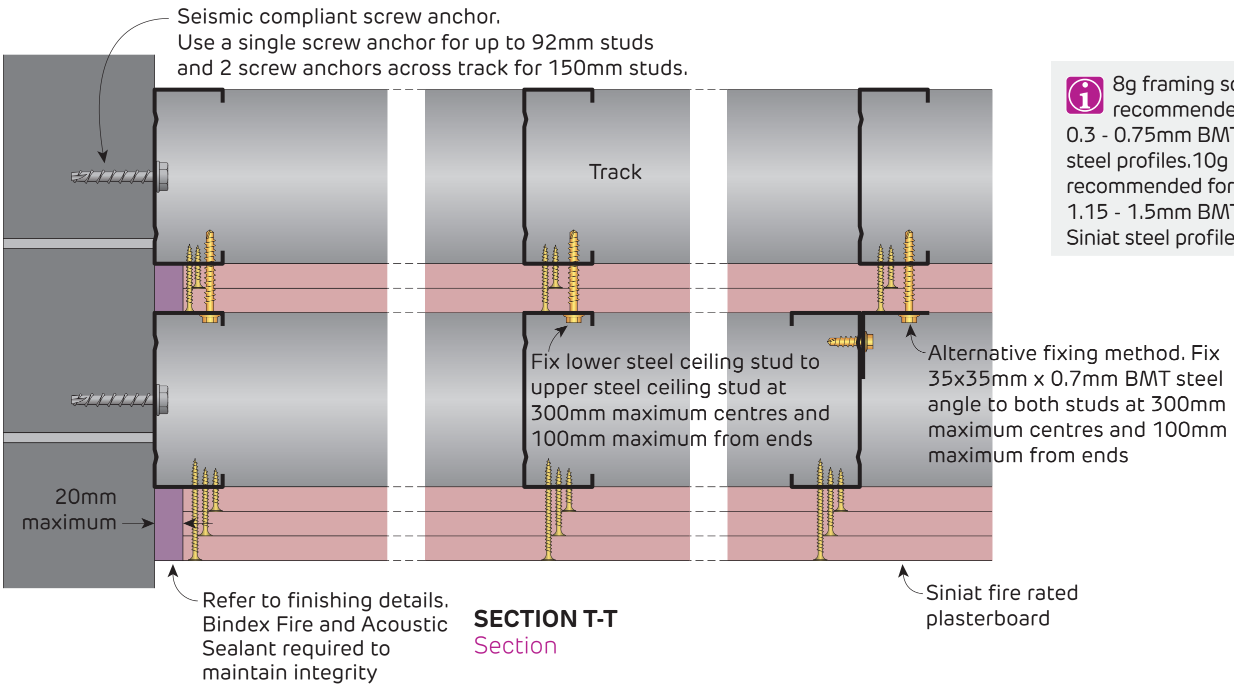
U-shaped Ducts from fire rated plasterboard are not suitable on their own as an air supply duct while exposed to an external fire or to contain products of combustion, ie: smoke exhaust.




Specific framing details must be determined by structural design

**FIGURE 71 U-shaped Horizontal Duct**
Fire rated from both directions (Built from outside only)
Section

Screws to be minimum 15mm from steel profile ends and edges




**SECTION T-T**
Section

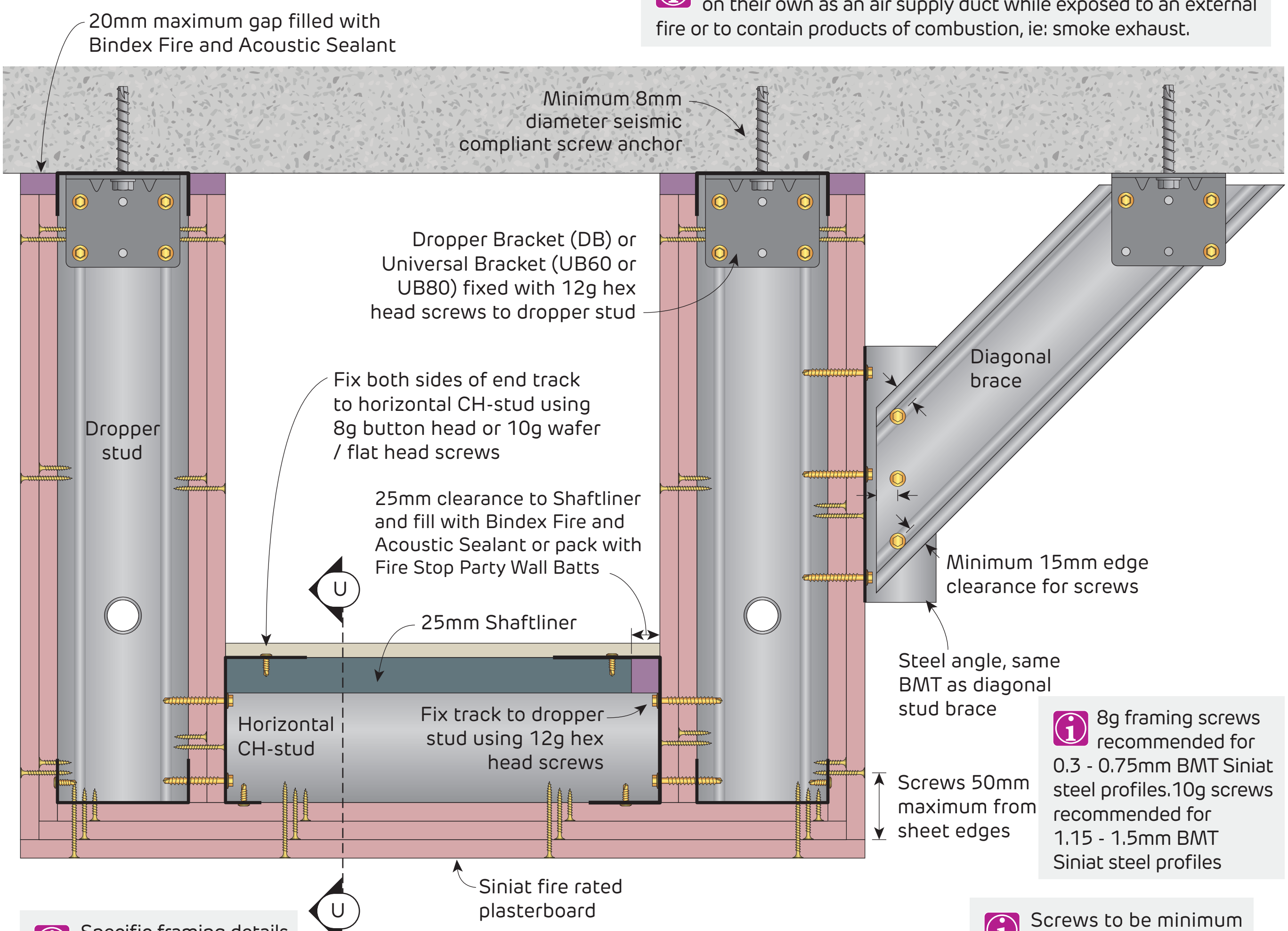
8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

## Fire Rated

## U-shaped Horizontal Duct - Fire Rated from Both Directions

### Using Wall Systems SSW312 or SSW317 with Ceiling Systems SHC3 or SHC4

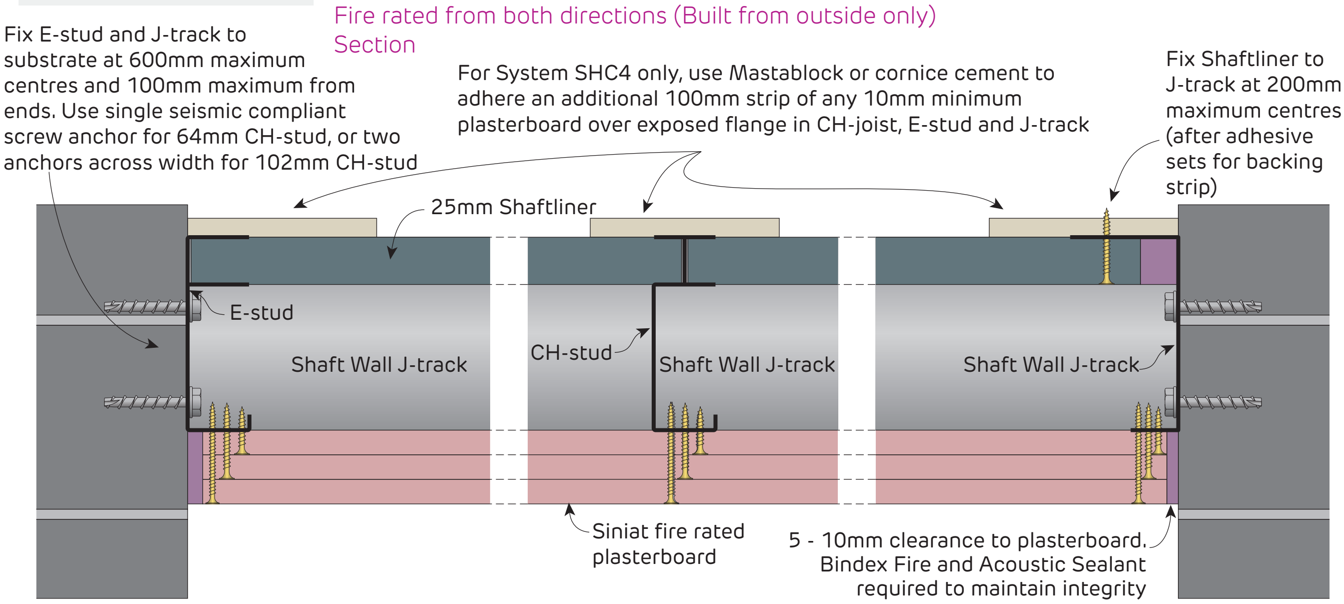
U-shaped Ducts from fire rated plasterboard are not suitable on their own as an air supply duct while exposed to an external fire or to contain products of combustion, ie: smoke exhaust.




Specific framing details must be determined by structural design

Screws to be minimum 15mm from steel profile ends and edges

**FIGURE 72 U-shaped Horizontal Duct Using Shaft Wall Ceiling**
Fire rated from both directions (Built from outside only)
Section




**SECTION U-U**
Section

## Fire Rated
## Steel Stud Raked Ceiling

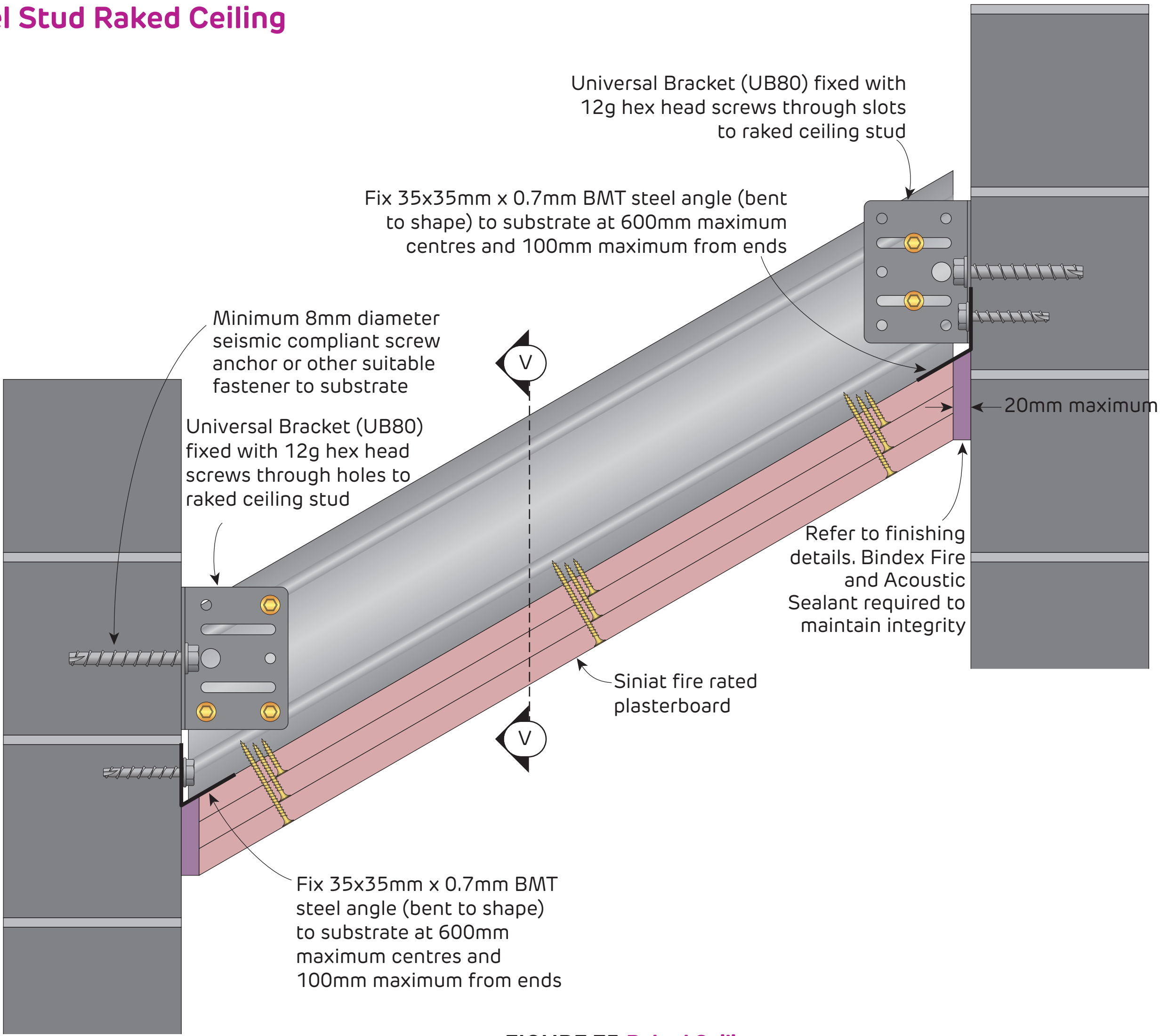
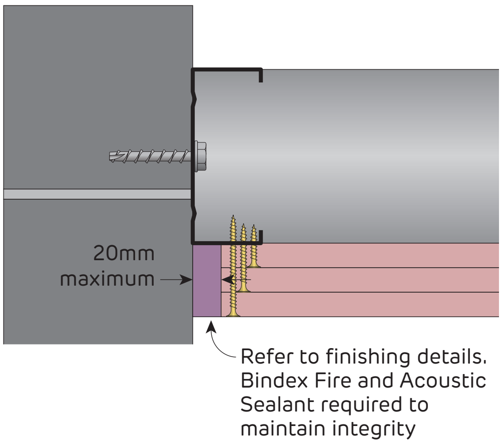



**FIGURE 73** Raked Ceiling
Fire rated from below side only
Section




**SECTION V-V**
Section

## Non-Fire Rated
## Ceiling Perimeter Finishing Details

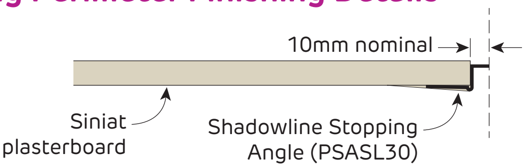



**FIGURE 74 Finishing Detail - Shadowline**
Section

Gaps around the ceiling perimeter may reduce acoustic performance

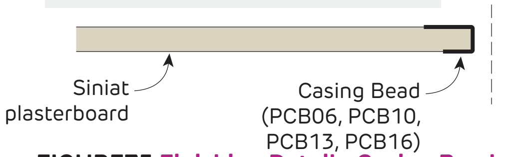



**FIGURE75 Finishing Detail - Casing Bead**
Section

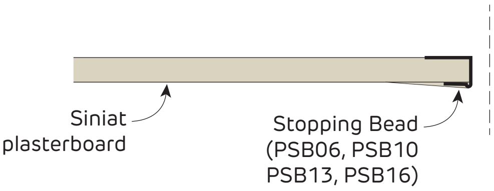



**FIGURE 76 Finishing Detail - Stopping Bead**
Section

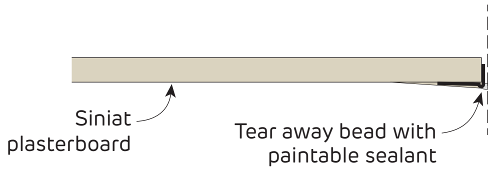



**FIGURE 77 Finishing Detail - Square Set**
Section

Ceilings using a square set finishing detail have low tolerance for building movement and are more prone to cracking and joint peaking

Some damage to ceiling linings for finishing details with low tolerance to movement can be expected in a Serviceability Earthquake event

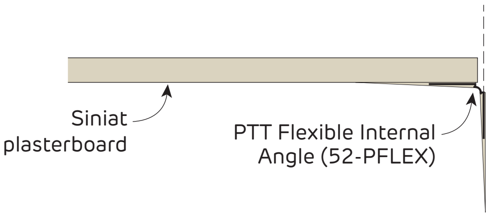



**FIGURE 78 Finishing Detail - Flexible Square Set**
Section

## Fire Rated and Non-Fire Rated
## Ceiling Perimeter Finishing Details

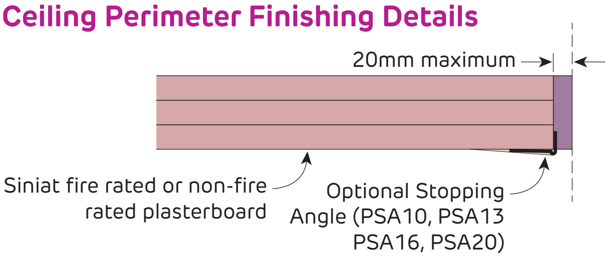



**FIGURE 79 Finishing Detail - Stopping Angle**
Valid for 1 to 4 layers
Section

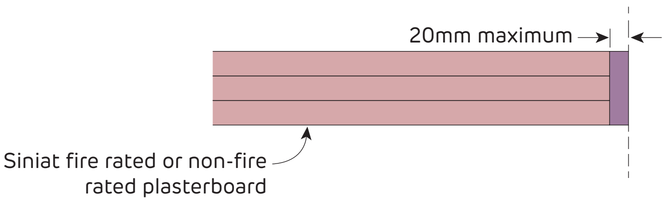



**FIGURE 80 Finishing Detail - Bare finish with Sealant**
Valid for 1 to 4 layers
Section

Not suitable for single layer ceiling

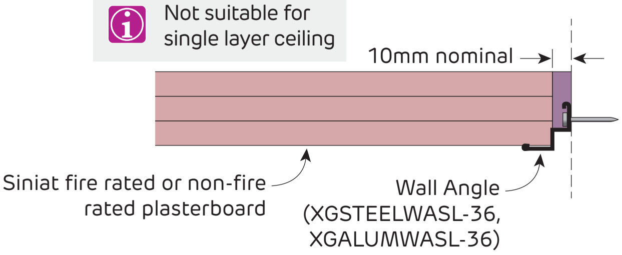



**FIGURE 81 Finishing Detail - Shadowline Wall Angle**
Valid for 2 to 4 layers only
Section

Not suitable for single layer ceiling

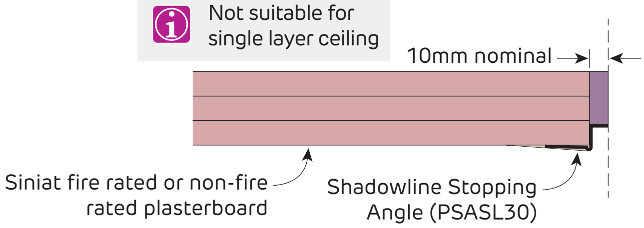



**FIGURE 82 Finishing Detail - Shadowline**
Valid for 2 to 4 layers only
Section

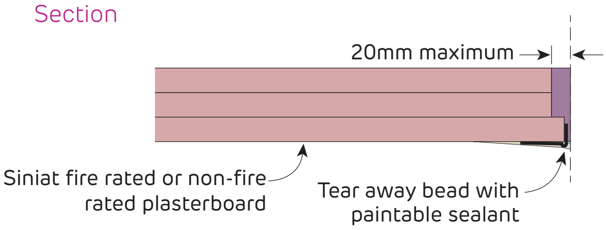



**FIGURE 83 Finishing Detail - Square Set**
Valid for 1 to 4 layers
Section

Ceilings using a square set finishing detail have low tolerance for building movement and are more prone to cracking and joint peaking

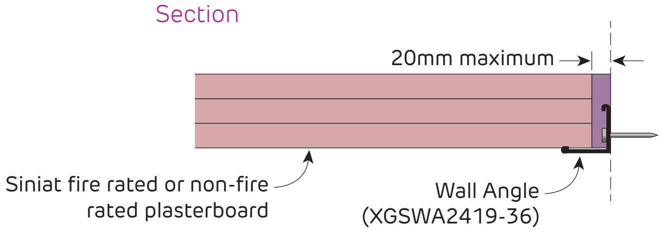



**FIGURE 84 Finishing Detail - Wall Angle**
Valid for 1 to 4 layers
Section

Some damage to ceiling linings for finishing details with low tolerance to movement can be expected in a Serviceability Earthquake event



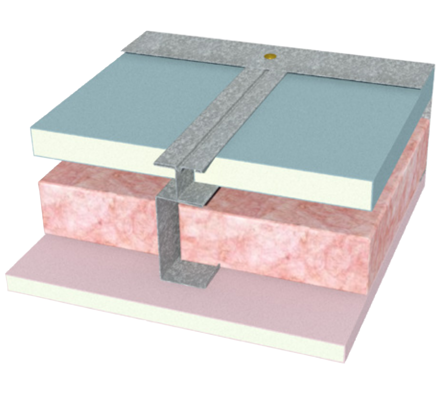
# 5.4 Shaft Wall Ceilings

Shaft Wall Ceilings are constructed in a similar way to a standard Shaft Wall and uses the same components. They are constructed using steel CH-studs as the ceiling joists.

Shaft Wall Ceilings are ideal for building a ceiling when access is only possible from below and a fire rating is required from above, or from above and below.

Shaft Wall Ceilings are not suitable to operate as an air supply duct while exposed to an external fire or to contain products of combustion, ie: smoke exhaust. Shaft Wall systems have been tested to *AS 1530.4: Fire-resistance tests for elements of construction,* Section 3 (Walls) but not *AS 1530.4,* Section 9 (Air Ducts).

## SHC1



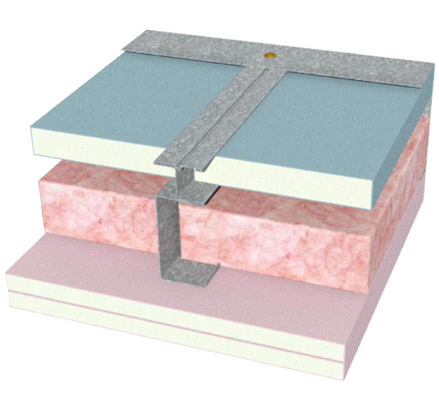
- [Above] 25mm **shaft**liner encased in Shaft Wall CH-studs
- [Below] 1 layer of 16mm **fire**shield or **multi**shield or **tru**rock

Deflection limited to Span/ 360 or 10mm maximum

**Fire Resistance Level**
**60/60/60**
from above only
Report FC14332

| CH-stud Size (mm) | | Span (mm) | | Thickness (mm) | Sound Insulation Rw (Rw + Ctr) for joists at 600mm centres and thinnest BMT | | |
|---|---|---|---|---|---|---|---|
| Depth | BMT | Ws 0.35 kPa Joist Spacing (mm) | | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report |
| | | 300 | 600 | | | | |
| 64 | 0.55 | 2330 | 1850 | 80 | 39 (32) | 46 (39) | Day Design 3094-17 |
| | 0.9 | 2730 | 2170 | | | | |
| 102 | 0.55 | 3400 | 1960 | 118 | 42 (33) | 48 (41) | |
| | 0.9 | 3880 | 3160 | | | | |

## SHC2



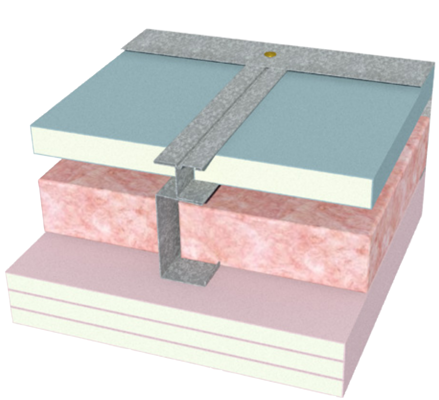
- [Above] 25mm **shaft**liner encased in Shaft Wall CH-studs
- [Below] 2 layers of 16mm **fire**shield or **multi**shield or **tru**rock

Deflection limited to Span/ 360 or 10mm maximum

**Fire Resistance Level**
**60/60/60**
from above and below
Report FC14332

| CH-stud Size (mm) | | Span (mm) | | Thickness (mm) | Sound Insulation Rw (Rw + Ctr) for joists at 600mm centres and thinnest BMT | | |
|---|---|---|---|---|---|---|---|
| Depth | BMT | Ws 0.35 kPa Joist Spacing (mm) | | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report |
| | | 300 | 600 | | | | |
| 64 | 0.55 | 2740 | 1650 | 96 | 44 (36) | 50 (42) | Day Design 3094-17 |
| | 0.9 | 3000 | 2570 | | | | |
| 102 | 0.55 | 3290 | 1650 | 134 | 46 (37) | 52 (46) | |
| | 0.9 | 3920 | 3090 | | | | |

## SHC3



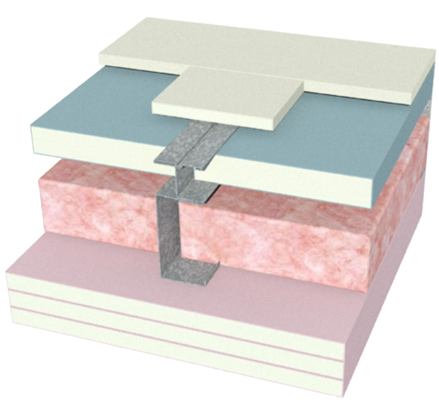
- [Above] 25mm **shaft**liner encased in Shaft Wall CH-studs
- [Below] 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock

Deflection limited to Span/ 360 or 10mm maximum

**Fire Resistance Level**
**90/90/90**
from above and below
Report FC14332

| CH-stud Size (mm) | | Span (mm) | | Thickness (mm) | Sound Insulation Rw (Rw + Ctr) for joists at 600mm centres and thinnest BMT | | |
|---|---|---|---|---|---|---|---|
| Depth | BMT | Ws 0.35 kPa Joist Spacing (mm) | | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report |
| | | 300 | 600 | | | | |
| 64 | 0.55 | 2600 | 1420 | 112 | 46 (37) | 53 (45) | Day Design 3094-17 |
| | 0.9 | 2850 | 2440 | | | | |
| 102 | 0.55 | 2840 | 1420 | 150 | 49 (40) | 55 (49) | |
| | 0.9 | 3790 | 2660 | | | | |

## SHC4



- [Above] 100mm wide strips of minimum 10mm plasterboard over exposed metal framing, adhered with any plaster cornice or back-blocking cement
- 25mm **shaft**liner encased in Shaft Wall CH-studs
- [Below] 3 layers of 16mm **fire**shield or **multi**shield or **tru**rock

Deflection limited to Span/ 360 or 10mm maximum

**Fire Resistance Level**
**120/120/120**
from above and below
Report FC14332

| CH-stud Size (mm) | | Span (mm) | | Thickness (mm) | Sound Insulation Rw (Rw + Ctr) for joists at 600mm centres and thinnest BMT | | |
|---|---|---|---|---|---|---|---|
| Depth | BMT | Ws 0.35 kPa Joist Spacing (mm) | | | No insulation | Pink® Partition 50mm 11 kg/$m^3$ R1.2 | Report |
| | | 300 | 600 | | | | |
| 64 | 0.55 | 2600 | 1420 | 122 | 46 (37) | 53 (45) | Day Design 3094-17 |
| | 0.9 | 2850 | 2440 | | | | |
| 102 | 0.55 | 2840 | 1420 | 160 | 49 (40) | 55 (49) | |
| | 0.9 | 3790 | 2660 | | | | |

# General Requirements

| | Fire Rated |
|---|---|
| Install control joints in internal plasterboard ceilings:<br>> At 12m maximum intervals<br>> At all movement joints in the building<br>> At any change in the substrate<br>> At the junction of a larger room and passageway. | ✓ |
| Shaft Wall Ceilings are non-trafficable. Do not walk on plasterboard ceilings! | ✓ |
| Limit dead loads on plasterboard ceilings to 2 kg/m$^2$. | ✓ |
| Only joint the face layer. As a minimum, use paper tape with either masta**base** or masta**longset**. | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | ✓ |
| Use **bindex** fire and acoustic sealant on all gaps and around perimeter. Vermiculite plaster is not permitted. | ✓ |
| Attach ceiling fixtures to framing members only. Ensure the framing is designed to carry any additional load. | ✓ |
| **fire**shield may be substituted with **multi**shield, **impact**shield, **tru**rock and **tru**rock HD of the same or greater thickness and maintain fire performance. | ✓ |

# Framing

| | Fire Rated |
|---|---|
| CH-studs as per framing table or structural design. Space CH-studs at 600mm (full **shaft**liner) or 300mm centres (**shaft**liner cut in half lengthways) | ✓ |
| Twist CH-studs into perimeter Shaft Wall J-tracks and Shaft Wall Deflection Head J-tracks. | ✓ |
| For Shaft Wall components and installation sequence, refer to Section 3.6 Shaft Wall. | ✓ |

### Table 1 Maximum Perimeter Track Anchor Spacing

| Stud Spacing (mm) | Maximum Anchor Spacing (mm) |
|---|---|
| 600 | 600 |
| 300 | 450 |

1. Additional anchors 100mm maximum from track ends.
2. 102mm studs require 2 anchors across width.

### Anchor Demand From System Tables

1. Maximum anchor shear and tension demand = 1.13 kN
2. Anchors at maximum 1.5 x stud spacing up to 600mm maximum, and 100mm maximum from ends.
3. 102mm tracks where minimum 2 anchors across width.

### Siniat Internal Wind Load Calculator

# Plasterboard Layout

| Fireshield Layout | Fire Rated |
|---|---|
| Install **fire**shield perpendicular to the framing members. | ✓ |
| Stagger face layer butt joints by 600mm minimum on adjoining sheets and between layers. | ✓ |
| First layer butt joints must be backed by a CH-stud joist. | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ |
| **Shaftliner Layout** | |
| If the ceiling width exceeds the length of **shaft**liner, position the **shaft**liner butt joints within the first and last third of the ceiling. [Refer to Section 3.6] | ✓ |
| Stagger **shaft**liner butt joints for adjacent panels and reinforce with horizontal CH-stud cut to fit between the ceiling CH-studs. [Refer to Section 3.6] | ✓ |

Minimise butt joints by using long sheets.

# Plasterboard Fixing

| | Fire Rated |
|---|---|
| Use the 'Screw Only Method'. | ✓ |
| For the installation of **fire**shield to CH-studs joists, refer to Section 5.1. | ✓ |
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ |
| Laminating screws can be used to fix butt joints in the second and third layer. | ✓ |

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 16mm **fire**shield | 6g x 30mm screw | 6g x 45mm screw * | 8g x 65mm screw * |
| 25mm **shaft**liner | 6g x 45mm screw # | - | - |

1. For steel ≤ 0.75mm BMT, use fine thread needle point screws.
2. For steel ≥ 0.75mm BMT, use fine thread drill point screws.
3. *10g x 38mm Laminating screws may be used as detailed in installation diagrams.
4. # For securing Shaftliner to J-track when the J-track is used as an end stud.

## Fire Rated
## Shaft Wall Ceilings

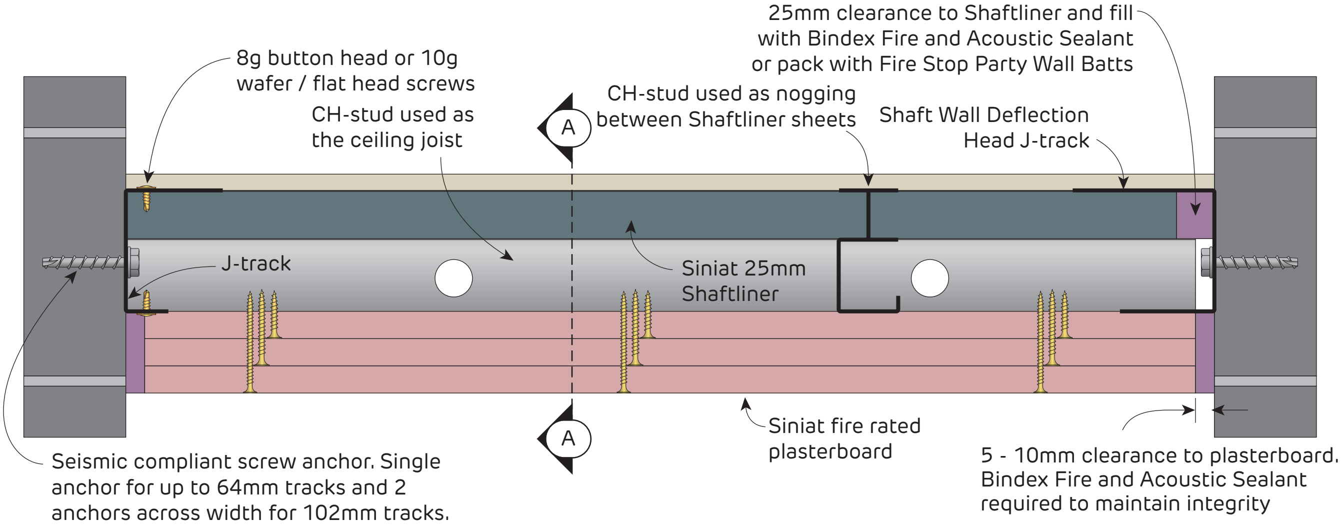
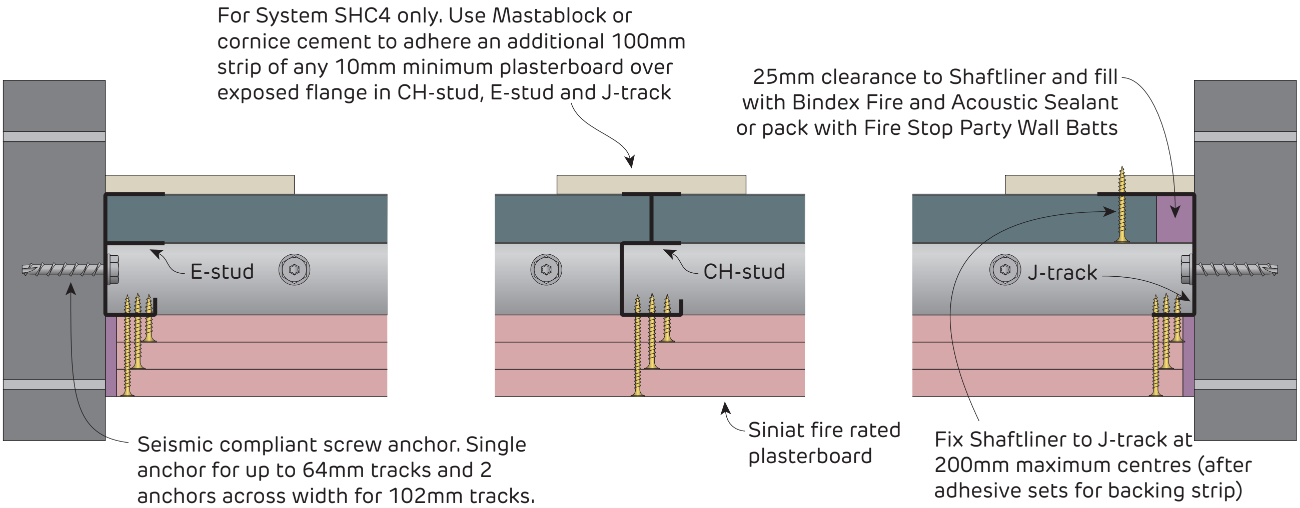



**FIGURE 1** Shaft Wall Ceiling to Masonry Wall
Section




**SECTION A-A** Ceiling Start
E-stud
Section

**SECTION A-A** Ceiling Middle
CH-stud
Section

**SECTION A-A** Ceiling End
J-track
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

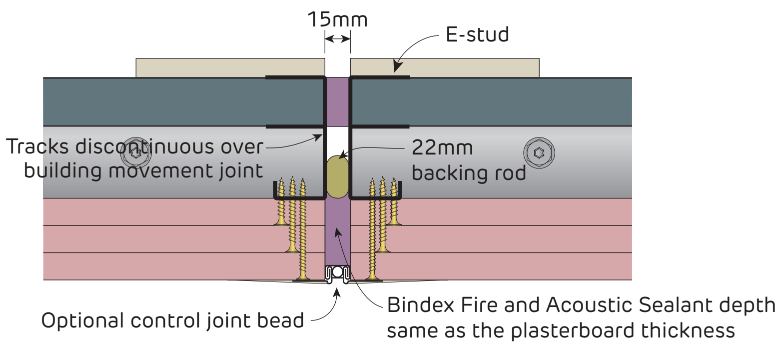



**FIGURE 2** Shaft Wall Ceiling Control Joint
Section

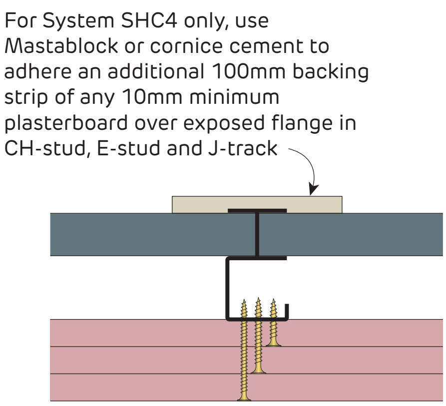



**FIGURE 3** Shaft Wall Ceiling Backing Strips
System SHC4 only
Section

# Fire Rated
## Shaft Wall Ceiling and Supporting Load Bearing Wall

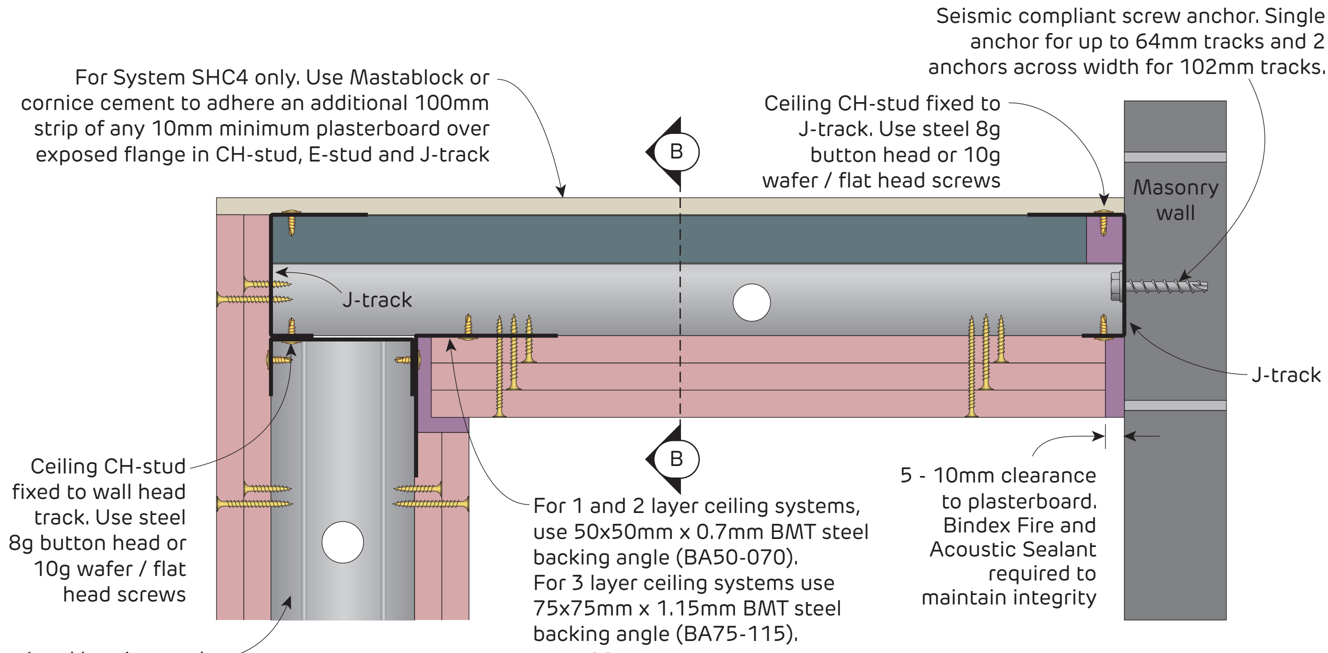
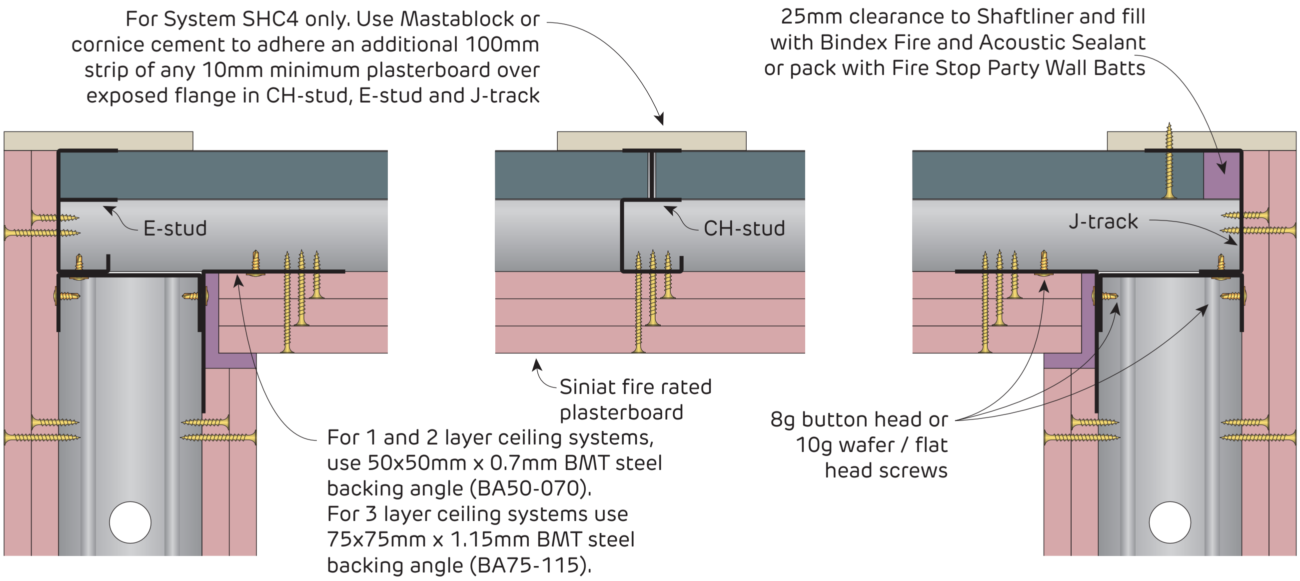



**FIGURE 4** **Shaft Wall Ceiling to Steel Stud Wall**
SSW317 and SHC4
Section

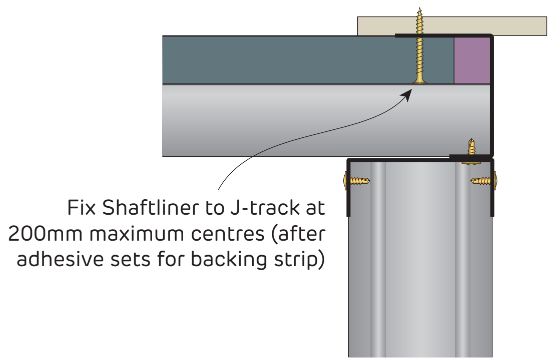



**SECTION B-B** **Ceiling Start**
E-stud
Section

**SECTION B-B** **Ceiling Middle**
CH-stud
Section

**SECTION B-B** **Ceiling End**
J-track
Section

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles. 10g screws recommended for 0.9 - 1.5mm BMT Siniat steel profiles




**SECTION B-B** **Construction of Ceiling End**
J-track
Section

## Fire Rated
## Shaft Wall Ceiling using Structural Beams

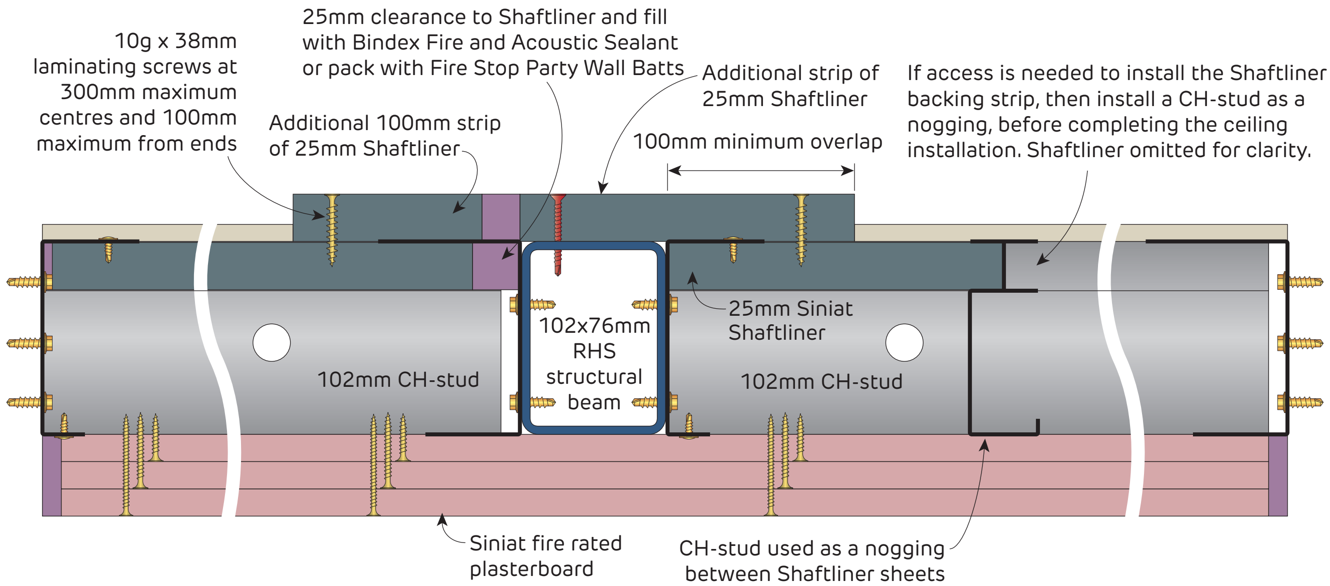
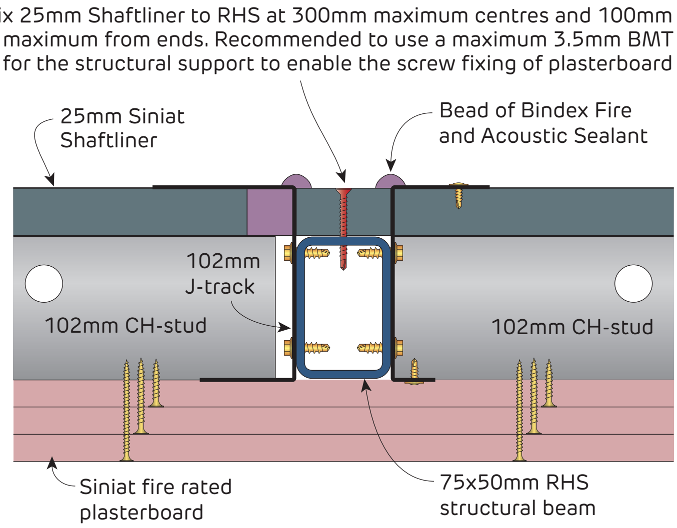



**FIGURE 5** **Shaft Wall Ceiling with RHS Structural Beam**
Used to increase the span of 102mm CH-stud Shaft Wall Ceilings
Section




Additional 100mm strip of any 10mm minimum plasterboard over exposed flange in CH-stud, E-stud and J-track is not shown for clarify

**FIGURE 6** **Alternative Detail with RHS Structural Beam**
Used to increase the span of 102mm CH-stud Shaft Wall Ceilings
Section

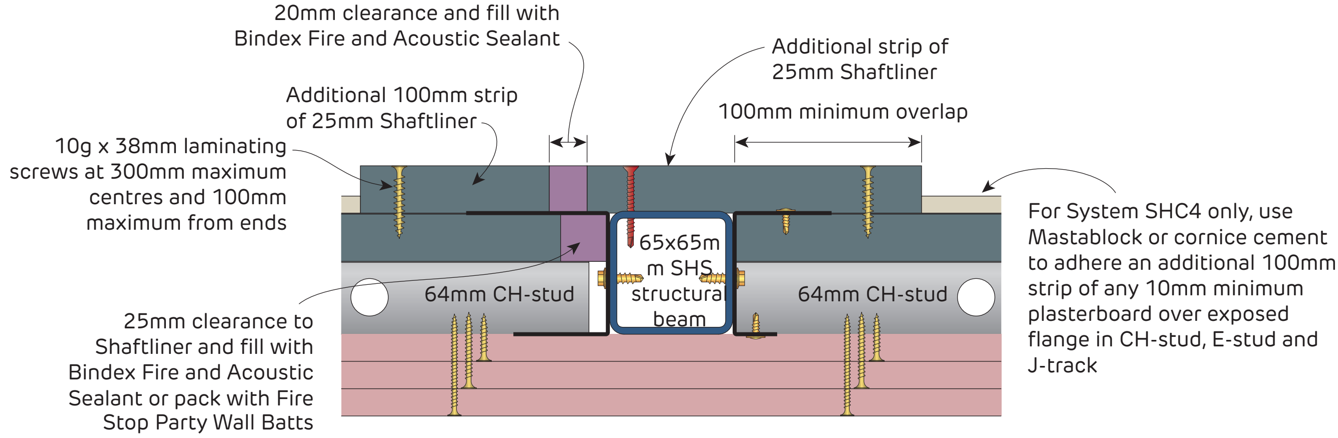



**FIGURE 7** **Shaft Wall Ceiling with SHS Structural Beam**
Used to increase the span of 64mm CH-stud Shaft Wall Ceilings
Section

## Fire Rated
## Shaft Wall Ceiling using Structural Beams

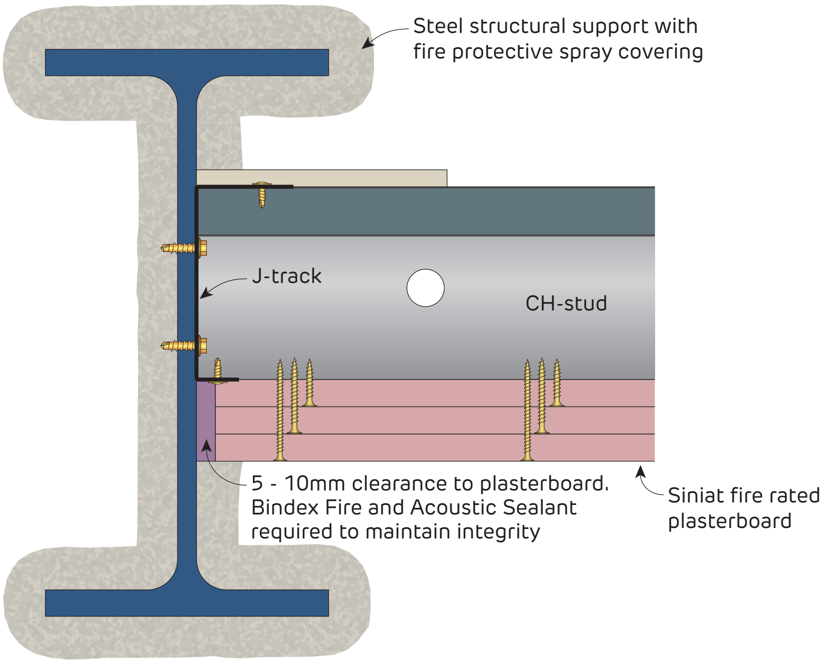



**FIGURE 8** **Shaft Wall Ceiling to Structural Beam**
Section

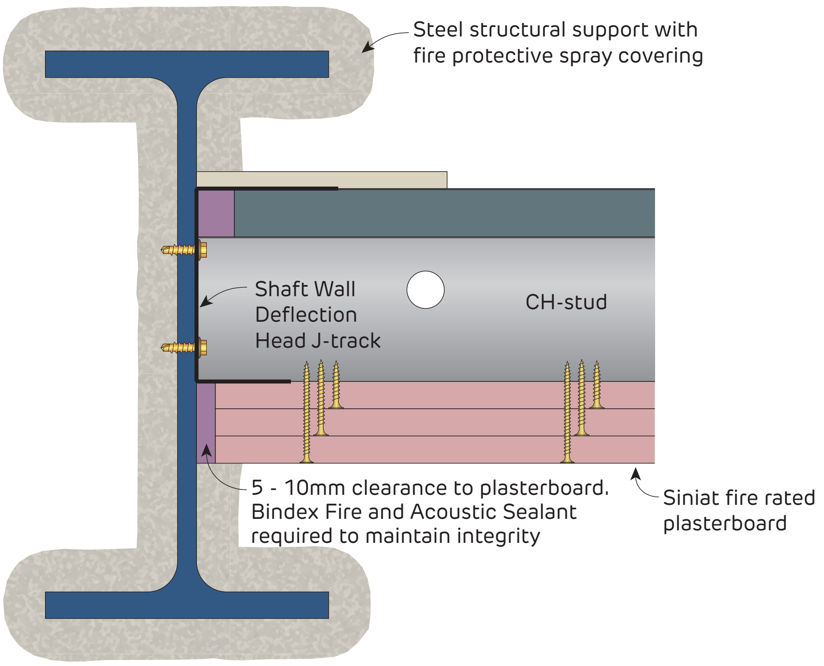



**FIGURE 9** **Shaft Wall Ceiling to Structural Beam**
Section

## Fire Rated

### Shaft Wall L-shaped Ducts - Fire Rated from Both Directions

Using Wall Systems SSW312 or SSW317 with Ceiling Systems SHC3 or SHC4

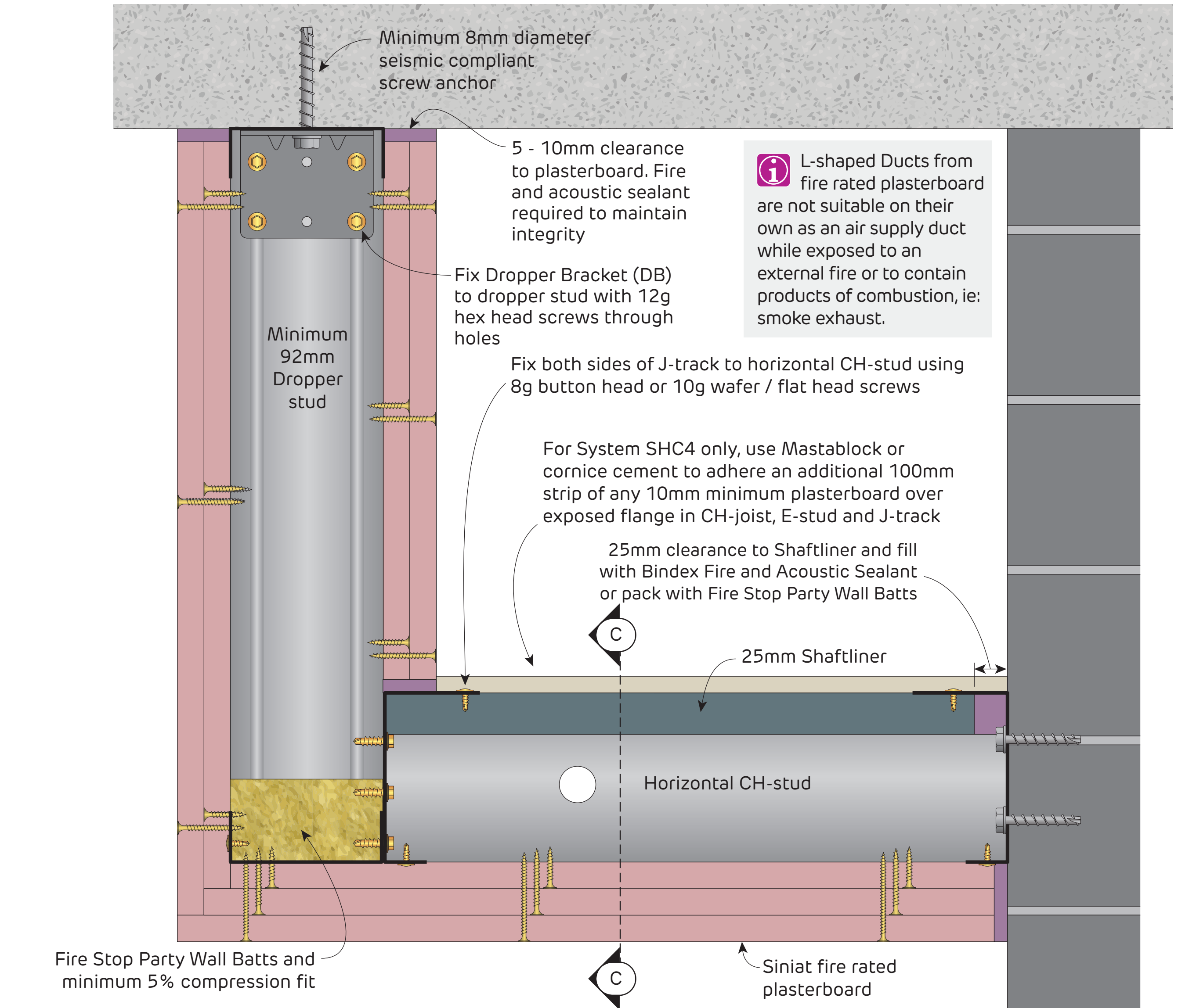
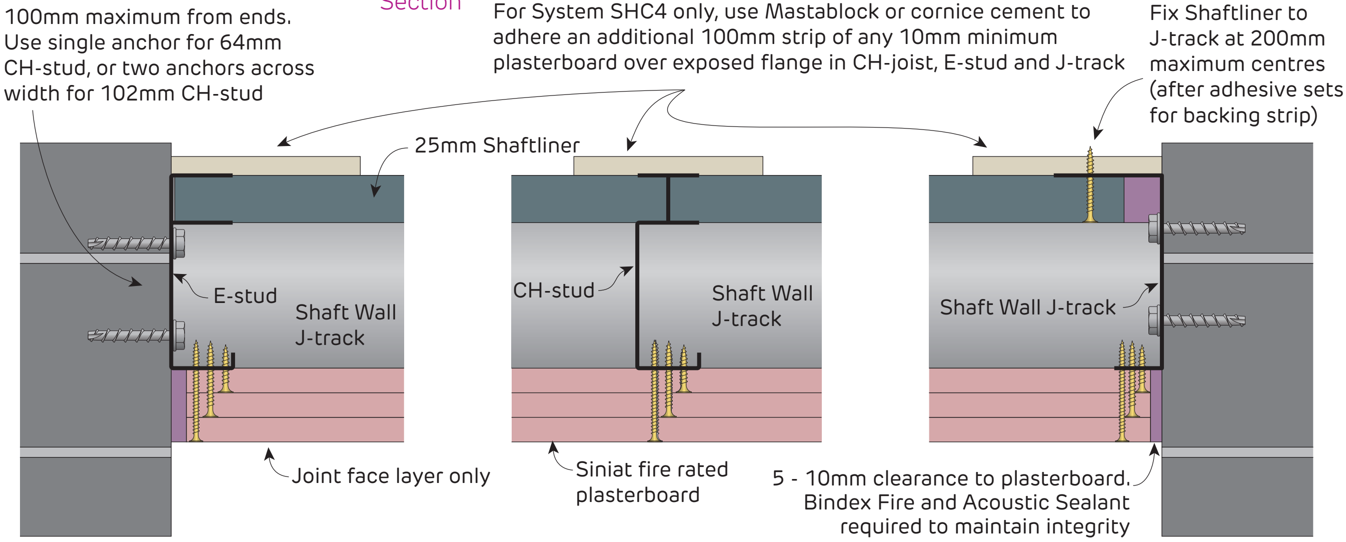



**FIGURE 10** **L-shaped Duct with Stud Bulkhead and Shaft Wall Ceiling**
Fire rated from both directions (Built from outside only)
Section




**SECTION C-C** **Ceiling Start**
Horizontal E-stud fixed to substrate
Section

**SECTION C-C** **Ceiling Middle**
Section

**SECTION C-C** **Ceiling End**
Horizontal J-track fixed to substrate
Section

# Fire Rated
## Shaft Wall L-shaped Ducts using Structural Beams

L-shaped Ducts from fire rated plasterboard are not suitable on their own as an air supply duct while exposed to an external fire or to contain products of combustion, ie: smoke exhaust.

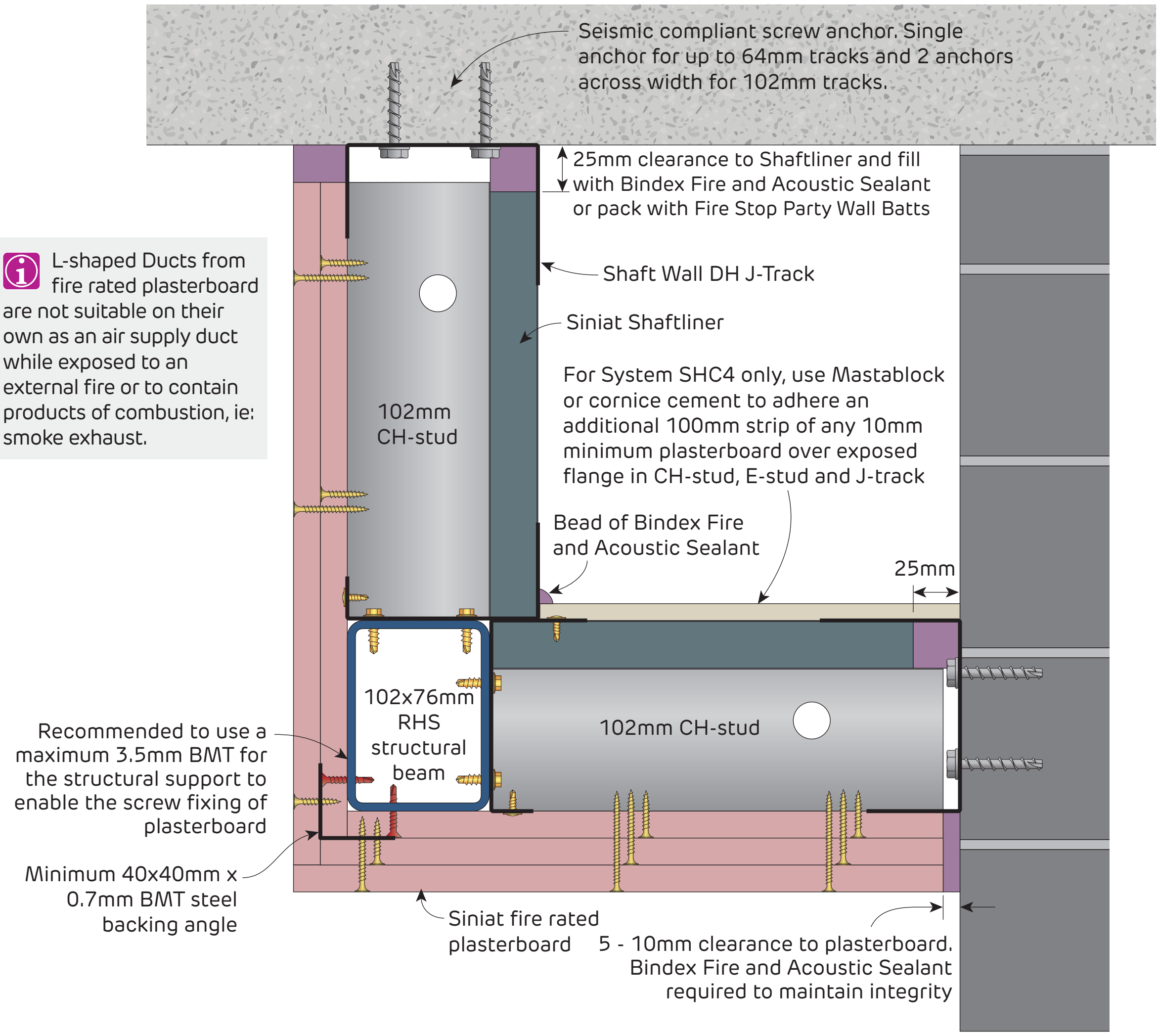



**FIGURE 11** **Shaft Wall L-shaped Duct with RHS Structural Beam**
SHW2 and SHC4
Section

Recommended to install ceiling system before bulkhead system to enable the installation of the additional 100mm strip of 25mm Shaftliner and Sealant in the inside corner.

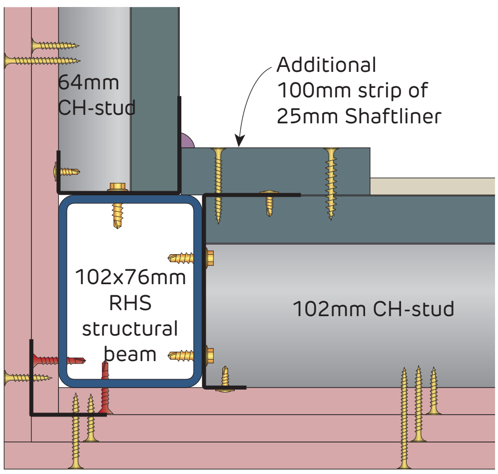



**FIGURE 12** **Alternative detail using RHS Beam with 64 and 102mm CH-Studs**
SHW2 and SHC4
Section

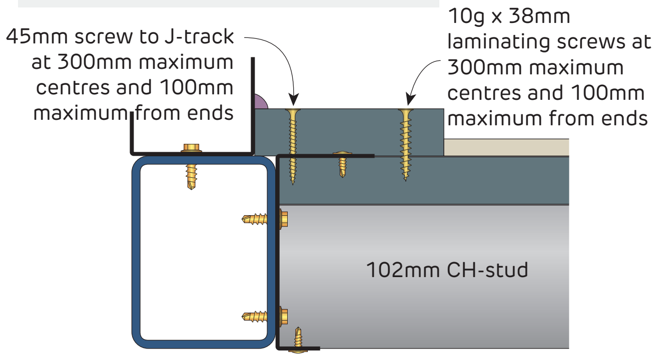



**FIGURE 13** **Construction of Shaft Wall Ceiling and Bulkhead**
Section

# Fire Rated
## Shaft Wall Ceiling L-shaped Duct using Structural Beams

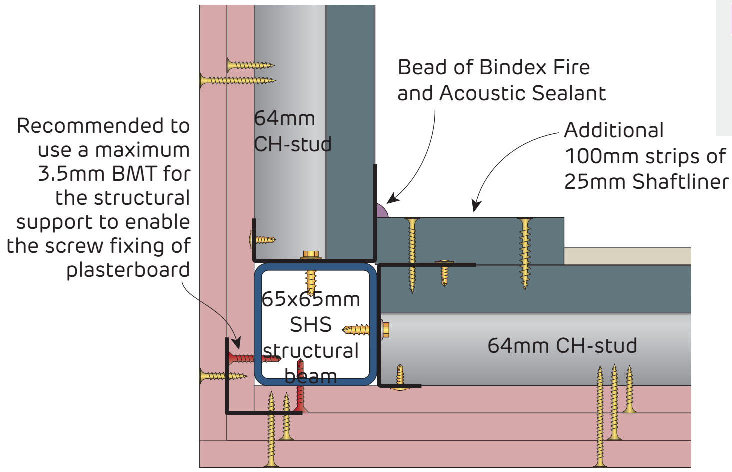



**FIGURE 14 Detail using SHS Beam with 64mm CH-Studs**
SHW2 and SHC4
Section

Recommended to install ceiling system before bulkhead system to enable the installation of the additional 100mm strip of 25mm Shaftliner and Sealant in the inside corner.

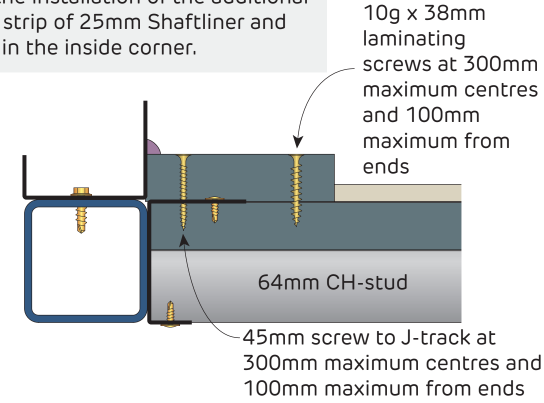



**FIGURE 15 Construction of Shaft Wall L-shaped Duct**
Section

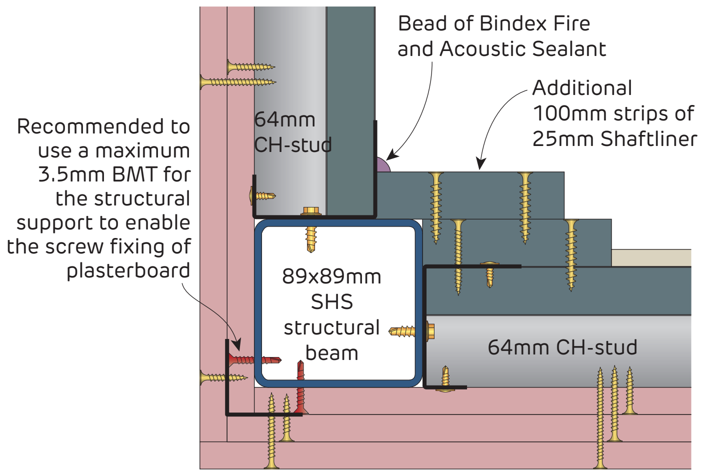



**FIGURE 16 Alternative Detail using SHS Beam with 64mm CH-Studs**
SHW2 and SHC4
Section

Recommended to install ceiling system before bulkhead system to enable the installation of the additional 100mm strip of 25mm Shaftliner and Sealant in the inside corner.

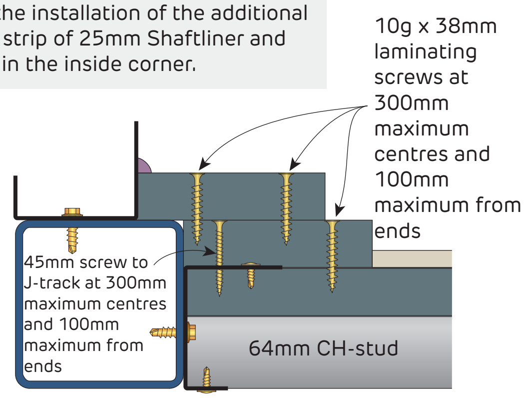



**FIGURE 17 Construction of Shaft Wall L-shaped Duct**
Section

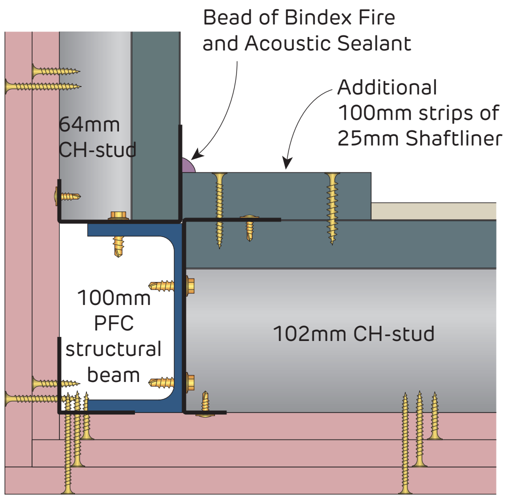



**FIGURE 18 Detail using PFC Beam with 64 and 102mm CH-Studs**
SHW2 and SHC4
Section

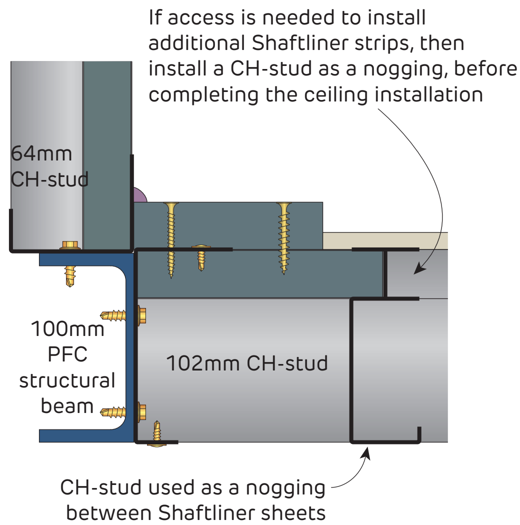



**FIGURE 19 Construction of Shaft Wall L-shaped Duct**
Section

## Fire Rated
## Shaft Wall Bulkheads using Structural Columns

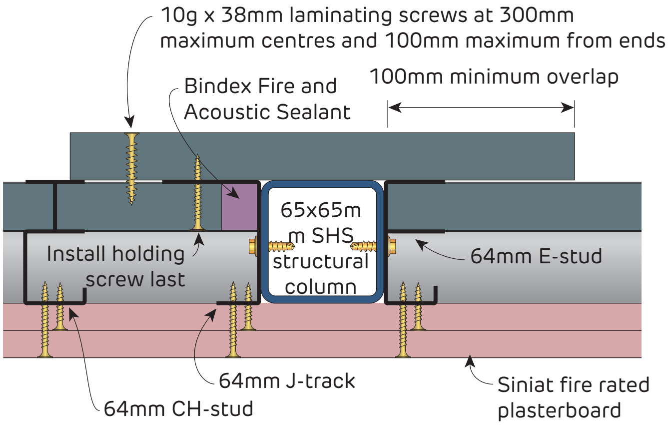



**FIGURE 20 Shaft Wall Bulkhead using SHS Column with 64mm CH-Studs**
SHW2
Plan

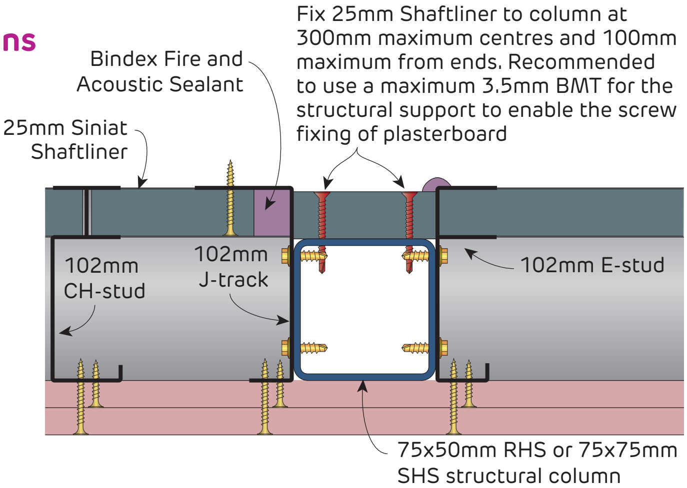



**FIGURE 21 Shaft Wall Bulkhead using SHS Column with 102mm CH-Studs**
SHW2
Plan

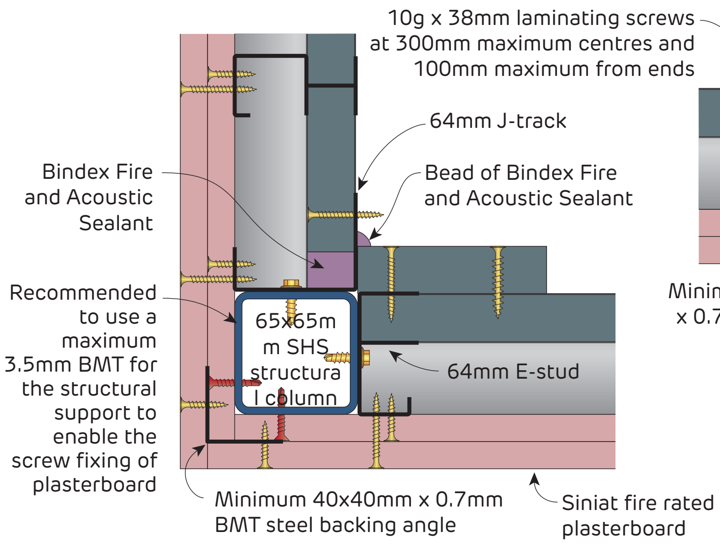



**FIGURE 22 Shaft Wall Bulkhead External Corner using SHS Column with 64mm CH-Studs**
SHW2
Plan

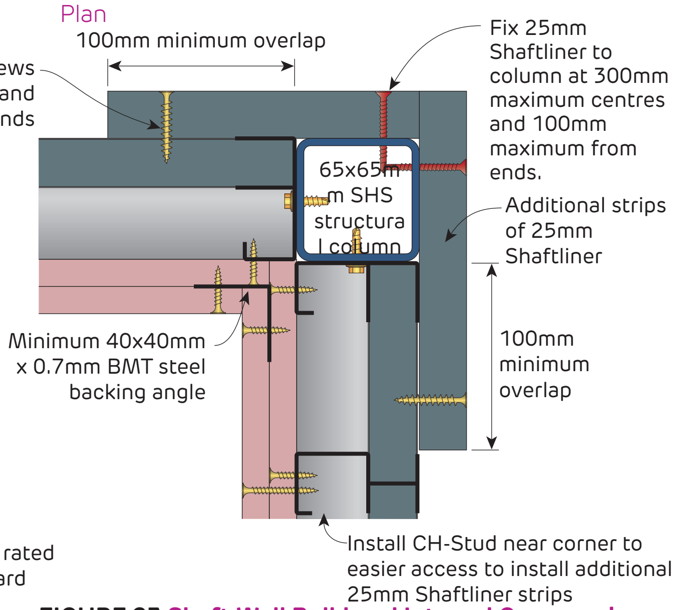



**FIGURE 23 Shaft Wall Bulkhead Internal Corner using SHS Column with 64mm CH-Studs**
SHW2
Plan

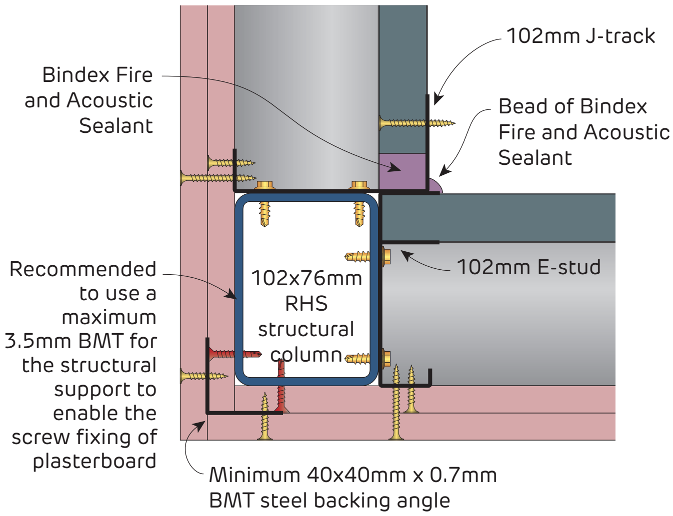



**FIGURE 24 Shaft Wall Bulkhead External Corner using RHS Column with 102mm CH-Studs**
SHW2
Plan

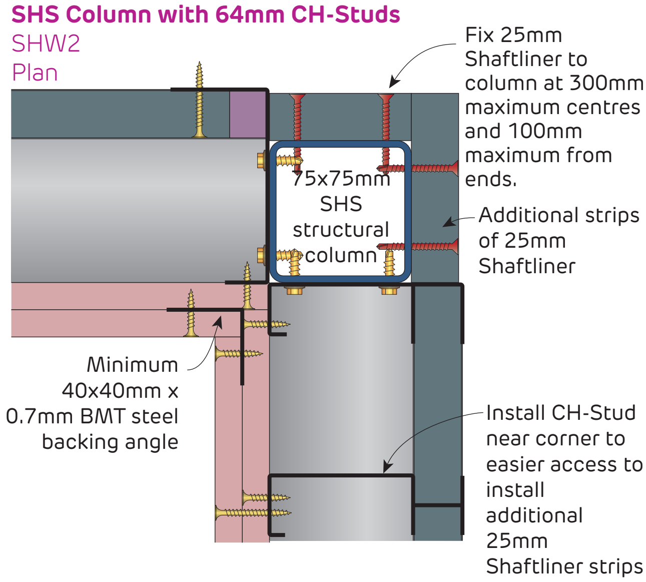



**FIGURE 25 Shaft Wall Bulkhead Internal Corner using SHS Column with 102mm CH-Studs**
SHW2
Plan

## Fire Rated
## Shaft Wall Ceilings and Bulkhead using Structural Columns and Beams

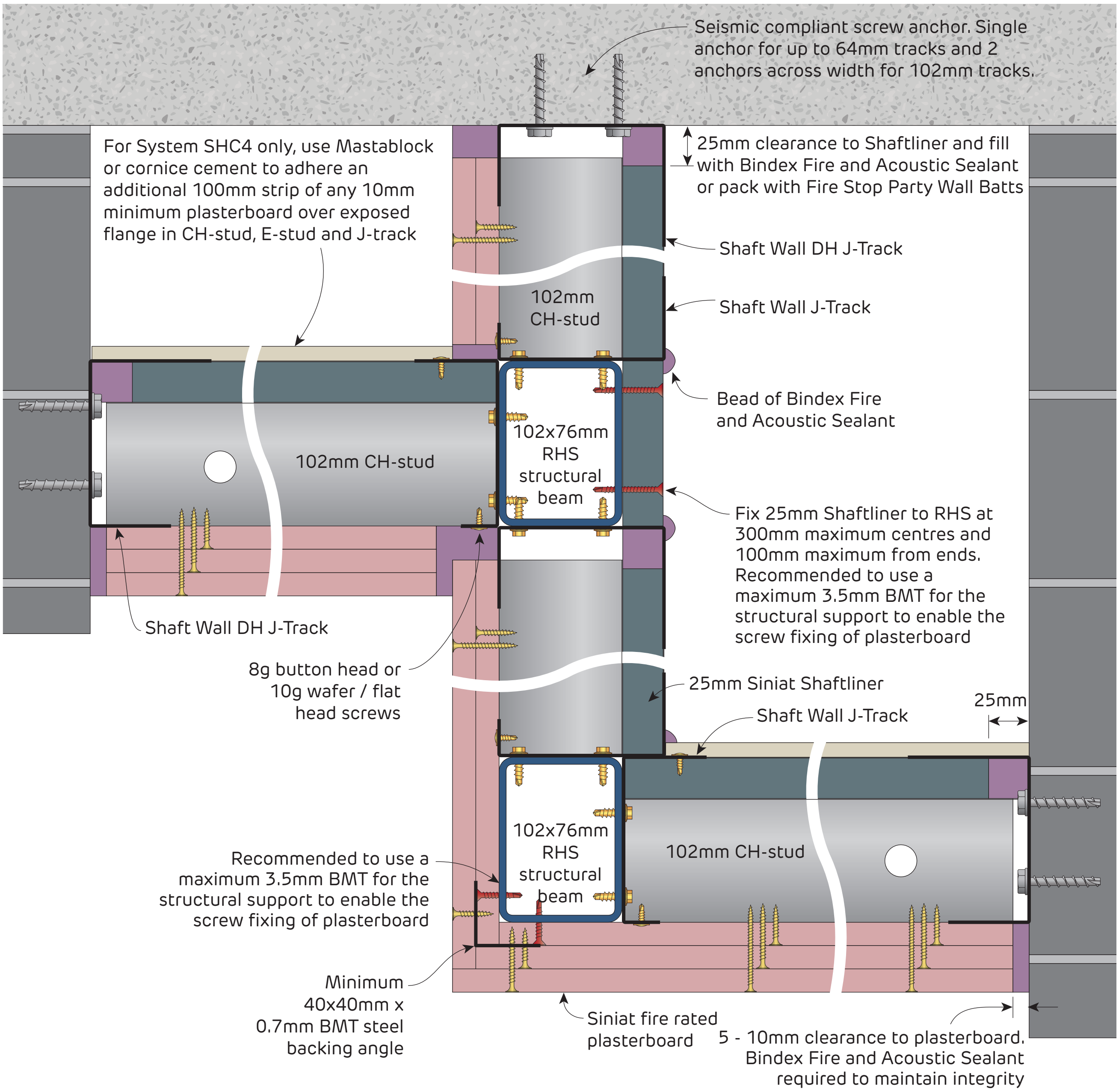



**FIGURE 26** **Shaft Wall Ceilings and Bulkhead using RHS Structural Columns and Beams**
SHW2 and SHC4
Section

## Fire Rated
## Shaft Wall L-shaped Duct using Structural Beams

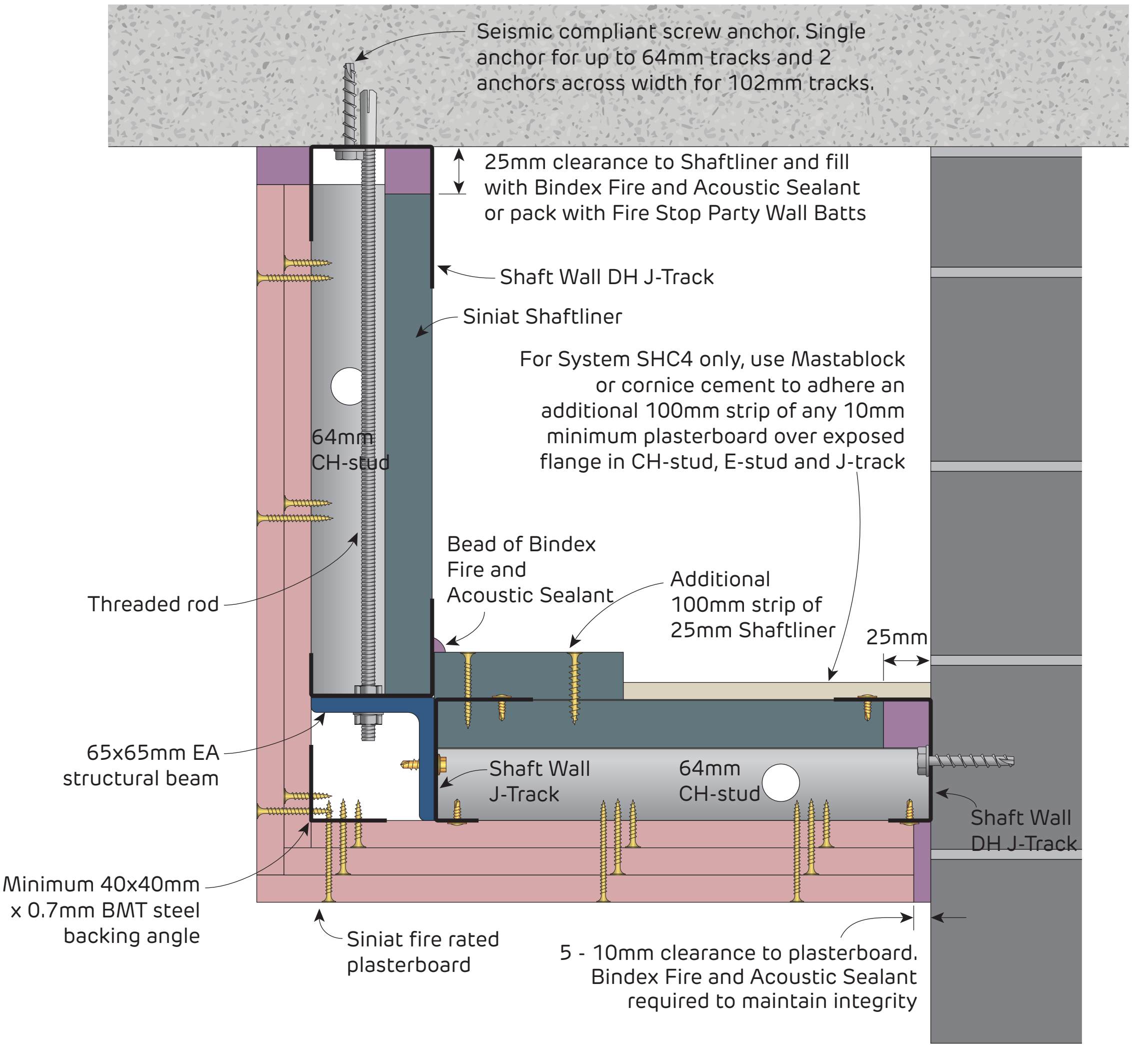



**FIGURE 27** Shaft Wall L-shaped Duct with EA Structural Beam
SHW2 and SHC4
Section

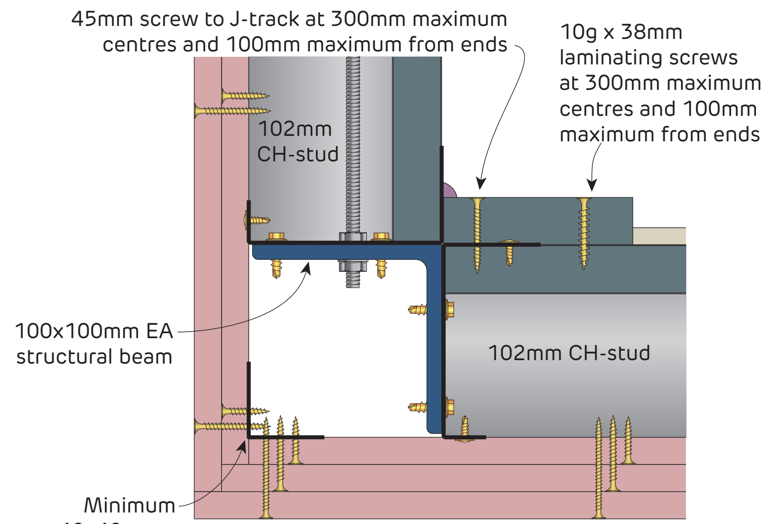



**FIGURE 28** Detail using EA Beam with 102mm CH-Studs
SHW2 and SHWC4
Section

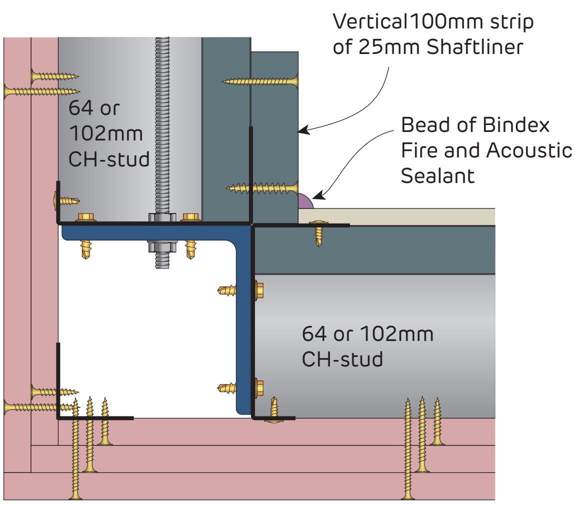



**FIGURE 29** Alternative Detail using EA Beam with 64mm or 102mm CH-Studs
SHW2 and SHC4
Section



# 5.5 Top Hat Ceilings

Top Hats are an effective means of providing structural framing behind various ceiling linings. Siniat Top Hats are durable and come with industry leading Zincalume AM150 corrosion protection.

Top Hats are typically installed under purlins or concrete slabs for various ceiling linings when high wind pressures or large spans are required.

Top Hat ceiling frames in this section are non-trafficable. Do not walk on Top Hat ceilings!

# Framing

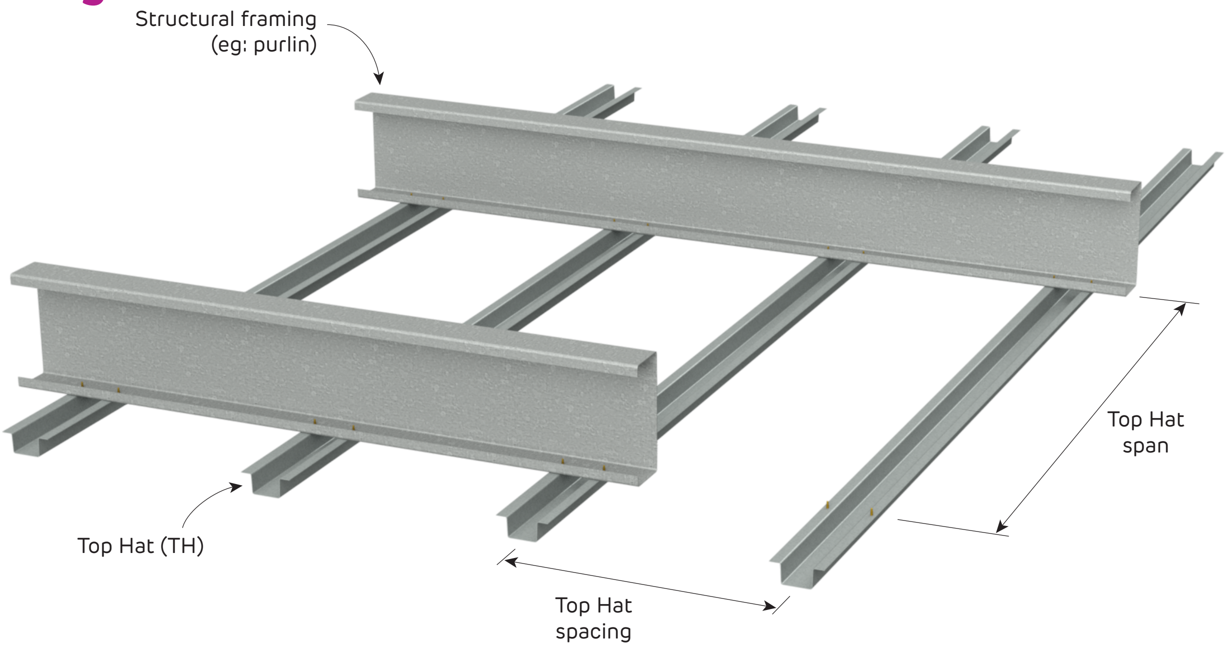
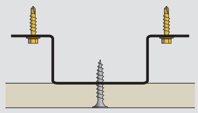
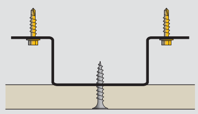



**FIGURE 1** Top Hat Span and Spacing

## Table 1 Ceiling 50x15 x 1.15mm BMT Top Hat Span Table (mm)

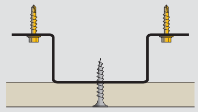
| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection Span / 360 | Single span | 600 | 700 | 630 | 580 | 540 | 510 | 490 | 470 | 440 | 410 |
| | | 450 | 770 | 690 | 640 | 600 | 570 | 540 | 520 | 480 | 460 |
| | | 400 | 800 | 720 | 660 | 620 | 590 | 560 | 540 | 500 | 470 |
| | | 300 | 880 | 790 | 730 | 690 | 650 | 620 | 590 | 550 | 520 |
| | 2 or more spans | 600 | 870 | 780 | 720 | 670 | 640 | 610 | 580 | 540 | 460* |
| | | 450 | 950 | 860 | 790 | 740 | 700 | 670 | 640 | 600 | 570 |
| | | 400 | 990 | 890 | 820 | 770 | 730 | 700 | 670 | 620 | 590 |
| | | 300 | 1090 | 980 | 910 | 850 | 800 | 770 | 740 | 690 | 650 |

## Table 2 Ceiling 50x25 x 1.15mm BMT Top Hat Span Table (mm)

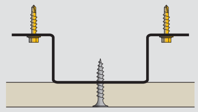
| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection Span / 360 | Single span | 600 | 1100 | 980 | 910 | 850 | 810 | 770 | 740 | 690 | 650 |
| | | 450 | 1210 | 1080 | 1000 | 940 | 890 | 850 | 810 | 760 | 720 |
| | | 400 | 1250 | 1130 | 1040 | 980 | 920 | 880 | 850 | 790 | 750 |
| | | 300 | 1380 | 1240 | 1150 | 1070 | 1020 | 970 | 930 | 870 | 820 |
| | 2 or more spans | 600 | 1360 | 1220 | 1130 | 1050 | 890* | 770* | 680* | 550* | 460* |
| | | 450 | 1490 | 1340 | 1240 | 1160 | 1100 | 1030* | 910* | 740* | 620* |
| | | 400 | 1550 | 1400 | 1290 | 1210 | 1140 | 1090 | 1030* | 830* | 700* |
| | | 300 | 1710 | 1540 | 1420 | 1330 | 1260 | 1200 | 1150 | 1080 | 930* |

*Limited by 2x10g hex head screw connection capacity.

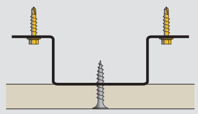
## Table 3 Ceiling 50x35 x 1.15mm BMT or 75x35 x 1.15mm BMT or 120x35 x 1.15mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection Span / 360 | Single span | 600 | 1400 | 1260 | 1160 | 1090 | 1030 | 980 | 940 | 880 | 830 |
| | | 450 | 1540 | 1380 | 1280 | 1200 | 1130 | 1080 | 1040 | 970 | 910 |
| | | 400 | 1600 | 1440 | 1330 | 1240 | 1180 | 1120 | 1080 | 1010 | 950 |
| | | 300 | 1760 | 1580 | 1460 | 1370 | 1300 | 1240 | 1190 | 1110 | 1050 |
| | 2 or more spans | 600 | 1730 | 1560 | 1290* | 1060* | 890* | 770* | 680* | 550* | 460* |
| | | 450 | 1900 | 1710 | 1580 | 1410* | 1190* | 1030* | 910* | 740* | 620* |
| | | 400 | 1980 | 1780 | 1640 | 1540 | 1340* | 1160* | 1030* | 830* | 700* |
| | | 300 | 2180 | 1960 | 1810 | 1700 | 1610 | 1530 | 1370* | 1110* | 930* |

## Table 4 Ceiling 50x50 x 1.15mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection Span / 360 | Single span | 600 | 1890 | 1700 | 1570 | 1470 | 1390 | 1330 | 1280 | 1190 | 1120 |
| | | 450 | 2080 | 1870 | 1730 | 1620 | 1530 | 1460 | 1400 | 1310 | 1240 |
| | | 400 | 2160 | 1950 | 1800 | 1680 | 1590 | 1520 | 1460 | 1360 | 1290 |
| | | 300 | 2380 | 2140 | 1980 | 1850 | 1760 | 1680 | 1610 | 1500 | 1420 |
| | 2 or more spans | 600 | 2320* | 1660* | 1290* | 1060* | 890* | 770* | 680* | 550* | 460* |
| | | 450 | 2570 | 2210* | 1720* | 1410* | 1190* | 1030* | 910* | 740* | 620* |
| | | 400 | 2680 | 2410 | 1940* | 1590* | 1340* | 1160* | 1030* | 830* | 700* |
| | | 300 | 2950 | 2650 | 2450 | 2120* | 1790* | 1550* | 1370* | 1110* | 930* |

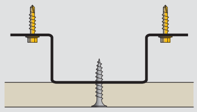
## Table 5 Ceiling 50x15 x 0.75mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection Span / 360 | Single span | 600 | 610 | 540 | 500 | 470 | 450 | 420 | 410 | 380 | 360 |
| | | 450 | 670 | 600 | 550 | 520 | 490 | 470 | 450 | 420 | 400 |
| | | 400 | 690 | 620 | 580 | 540 | 510 | 490 | 470 | 440 | 410 |
| | | 300 | 760 | 690 | 630 | 590 | 560 | 540 | 510 | 480 | 450 |
| | 2 or more spans | 600 | 750 | 670 | 620 | 580 | 550 | 510 | 480 | 430 | 390 |
| | | 450 | 830 | 740 | 680 | 640 | 610 | 580 | 560 | 490 | 450 |
| | | 400 | 860 | 770 | 710 | 670 | 630 | 600 | 580 | 520 | 480 |
| | | 300 | 950 | 850 | 780 | 740 | 700 | 660 | 640 | 590 | 550 |

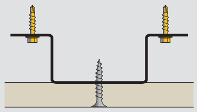
*Limited by 2x10g hex head screw connection capacity.

1. Tables refer to Siniat top hats of grade G300 steel with ZincalumeTM AM150 corrosion protection.
2. Check maximum cladding span and fastener spacing requirements from the manufacturer's literature. Maximum cladding weight 22 kg/m².
3. All top hats must be supported 150mm maximum from ends and splicing of top hats is not permitted.
4. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated. Point loads or live loads are not considered.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case 1: 1.2G + Wu (suction), Ultimate Load Case 2: 0.9G + Wu (uplift)
8. Serviceability Load Case 1: G, with deflection limited to span/500, and Serviceability Load Case 2: G + Ws, with deflection limited to span/360. Serviceability pressure taken as 65% of ultimate wind pressure suitable for Region A and Region B.
9. Connections checked using 2 x 10g hex head screws into minimum 1.0mm BMT G550 steel or minimum 1.5mm BMT G450 steel (purlins or girts). Contact Siniat if fixing to a different substrate for the possibility of spanning further.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

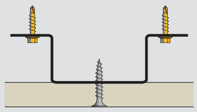
## Table 6 Ceiling 50x25 x 0.75mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection Span / 360 | Single span | 600 | 950 | 850 | 790 | 740 | 700 | 670 | 640 | 600 | 560 |
| | | 450 | 1050 | 940 | 870 | 810 | 770 | 730 | 700 | 660 | 620 |
| | | 400 | 1090 | 980 | 900 | 850 | 800 | 760 | 730 | 680 | 650 |
| | | 300 | 1200 | 1080 | 990 | 930 | 880 | 840 | 810 | 750 | 710 |
| | 2 or more spans | 600 | 1180 | 1060 | 980 | 900 | 830 | 770 | 680* | 550* | 460* |
| | | 450 | 1290 | 1160 | 1070 | 1010 | 950 | 890 | 840 | 740* | 620* |
| | | 400 | 1350 | 1210 | 1120 | 1050 | 990 | 950 | 890 | 800 | 700* |
| | | 300 | 1480 | 1330 | 1230 | 1150 | 1090 | 1040 | 1000 | 920 | 840 |

## Table 7 Ceiling 50x35 x 0.75mm BMT or 120x35 x 0.75mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection Span / 360 | Single span | 600 | 1220 | 1090 | 1010 | 950 | 900 | 860 | 820 | 770 | 700 |
| | | 450 | 1340 | 1200 | 1110 | 1040 | 990 | 940 | 900 | 840 | 800 |
| | | 400 | 1390 | 1250 | 1160 | 1080 | 1030 | 980 | 940 | 880 | 830 |
| | | 300 | 1530 | 1380 | 1270 | 1190 | 1130 | 1080 | 1040 | 970 | 910 |
| | 2 or more spans | 600 | 1510 | 1350 | 1190 | 1060* | 890* | 770* | 680* | 550* | 460* |
| | | 450 | 1660 | 1490 | 1370 | 1240 | 1140 | 1030* | 910* | 740* | 620* |
| | | 400 | 1730 | 1550 | 1430 | 1320 | 1210 | 1130 | 1030* | 830* | 700* |
| | | 300 | 1900 | 1710 | 1580 | 1480 | 1400 | 1300 | 1220 | 1100 | 930* |

## Table 8 Ceiling 50x50 x 0.75mm BMT Top Hat Span Table (mm)

| | Span type | Top Hat spacing (mm) | Ultimate Wind Pressure $W_u$ (kPa) | | | | | |  | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 |
| Serviceability deflection Span / 360 | Single span | 600 | 1640 | 1470 | 1360 | 1270 | 1210 | 1130 | 1060 | 950 | 870 |
| | | 450 | 1800 | 1620 | 1500 | 1400 | 1330 | 1270 | 1220 | 1100 | 1010 |
| | | 400 | 1880 | 1690 | 1560 | 1460 | 1380 | 1320 | 1270 | 1170 | 1070 |
| | | 300 | 2070 | 1860 | 1710 | 1610 | 1520 | 1450 | 1390 | 1300 | 1230 |
| | 2 or more spans | 600 | 2030 | 1660* | 1290* | 1060* | 890* | 770* | 680* | 550* | 460* |
| | | 450 | 2230 | 2010 | 1720* | 1410* | 1190* | 1030* | 910* | 740* | 620* |
| | | 400 | 2320 | 2090 | 1920 | 1590* | 1340* | 1160* | 1030* | 830* | 700* |
| | | 300 | 2560 | 2300 | 2120 | 1990 | 1790* | 1550* | 1370* | 1110* | 930* |

*Limited by 2x10g hex head screw connection capacity.

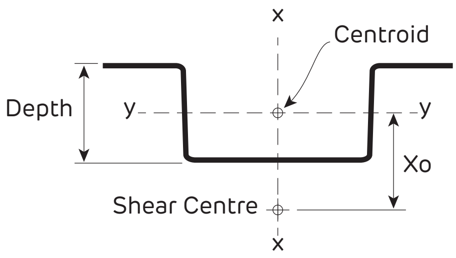
1. Tables refer to Siniat top hats of grade G300 steel with ZincalumeTM AM150 corrosion protection.
2. Check maximum cladding span and fastener spacing requirements from the manufacturer's literature. Maximum cladding weight 22 kg/m$^2$.
3. All top hats must be supported 150mm maximum from ends and splicing of top hats is not permitted.
4. Table based upon downward (suction) and upward (uplift) ultimate (Wu) lateral wind pressure and serviceability (Ws) deflection limits stated. Point loads or live loads are not considered.
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Ultimate Load Case 1: 1.2G + Wu (suction), Ultimate Load Case 2: 0.9G + Wu (uplift)
8. Serviceability Load Case 1: G, with deflection limited to span/500, and Serviceability Load Case 2: G + Ws, with deflection limited to span/360. Serviceability pressure taken as 65% of ultimate wind pressure suitable for Region A and Region B.
9. Connections checked using 2 x 10g hex head screws into minimum 1.0mm BMT G550 steel or minimum 1.5mm BMT G450 steel (purlins or girts). Contact Siniat if fixing to a different substrate for the possibility of spanning further.
10. The nominated lateral wind pressures and deflection limits must be checked for suitability for a specific project.
11. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.

# Steel Profile Information

## Material

| Manufacturer | Grade | Ultimate | Yield | Coating |
|---|---|---|---|---|
| Siniat | G300 | 340 MPa | 300 MPa | AM150 |

1. Steel grade and coating in accordance with AS 1397 *Continuous hot-dip metallic coated steel sheet and strip*

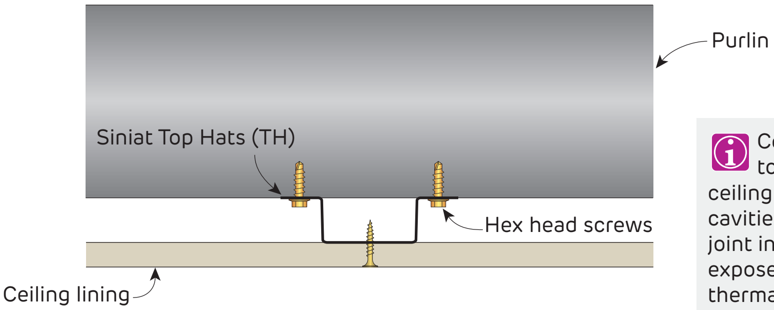



Top Hats

## Section Properties

| Profile | Dimensions (mm) | | Shear Centre from Centroid (mm) | Area (mm²) | Moment of Inertia ($mm^4$) | | Section Modulus ($mm^3$) | | Torsion Constant J ($mm^4$) | Warping Constant Iw ($mm^6$) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Depth | BMT | Xo | | Ixx | Iyy | Zxx | Zyy | | |
| 50x15x0.75 | 15 | 0.75 | -11.2 | 75.4 | 41,268 | 2,781 | 1,028 | 334 | 14.1 | 517,040 |
| 50x25x0.75 | 25 | 0.75 | -19.7 | 99.5 | 67,737 | 10,632 | 1,461 | 844 | 18.7 | 2,482,400 |
| 50x35x0.75 | 35 | 0.75 | -29.6 | 111.5 | 69,125 | 22,319 | 1,594 | 1,193 | 20.9 | 5,708,900 |
| 50x50x0.75 | 50 | 0.75 | -42.0 | 140.0 | 97,829 | 54,286 | 2,022 | 2,178 | 26.3 | 17,086,000 |
| 120x35x0.75 | 35 | 0.75 | -24.5 | 173.0 | 510,570 | 31,661 | 5,810 | 1,356 | 32.4 | 59,138,000 |
| 50x15x1.15 | 15 | 1.15 | -11.2 | 115.5 | 63,281 | 4,267 | 1,568 | 513 | 50.9 | 791,440 |
| 50x25x1.15 | 25 | 1.15 | -19.7 | 152.6 | 103,830 | 16,300 | 2,229 | 1,294 | 67.3 | 3,799,990 |
| 50x35x1.15 | 35 | 1.15 | -29.0 | 171.0 | 108,950 | 33,724 | 2,444 | 1,846 | 75.4 | 8,407,000 |
| 50x50x1.15 | 50 | 1.15 | -42.0 | 214.7 | 149,990 | 83,217 | 3,088 | 3,339 | 94.7 | 26,182,000 |
| 120x35x1.15 | 35 | 1.15 | -24.5 | 265.3 | 782,880 | 48,559 | 8,889 | 2,114 | 116.9 | 90,681,000 |

## Fire Rated and Non-Fire Rated
## Top Hat Ceilings




Ceilings in close proximity to metal roofs (ie: raked ceiling or with small ceiling cavities) require smaller control joint intervals as they are exposed to large rates of thermal expansion.

**FIGURE 2** **Internal or External Top Hat Ceiling under Purlins**
Horizontal Top Hats under Purlins
Section

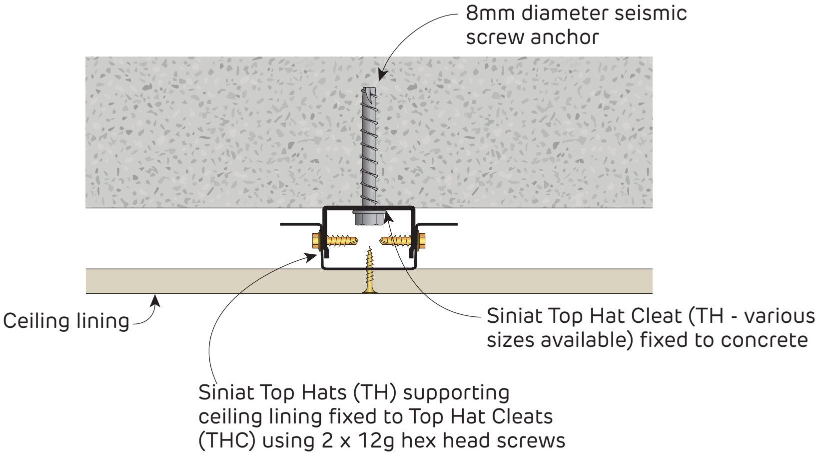



**FIGURE 3** **Internal or External Top Hat Ceiling under Concrete**
Horizontal Top Hats over Top Hat Cleats
Section

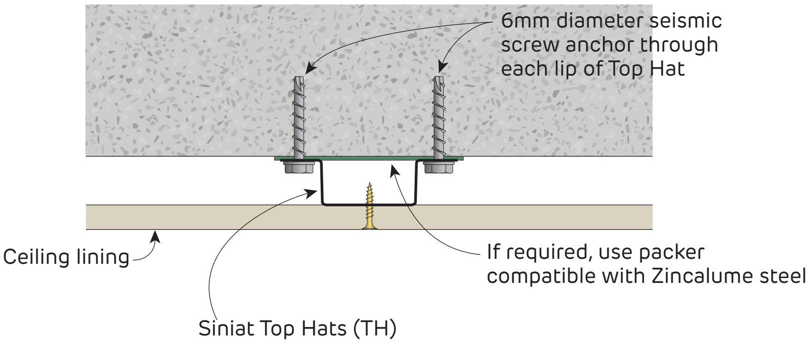



**FIGURE 4** **Internal or External Top Hat Ceiling under Concrete**
Horizontal Top Hats directly fixed to Concrete
Section




# 6.1 Soil and Water Pipe Acoustic Systems

Soil and waste pipe systems provide sound insulation ratings for water services in a ceiling cavity, bulkhead or a duct. These systems have been designed to comply with National Construction Code (NCC) requirements.

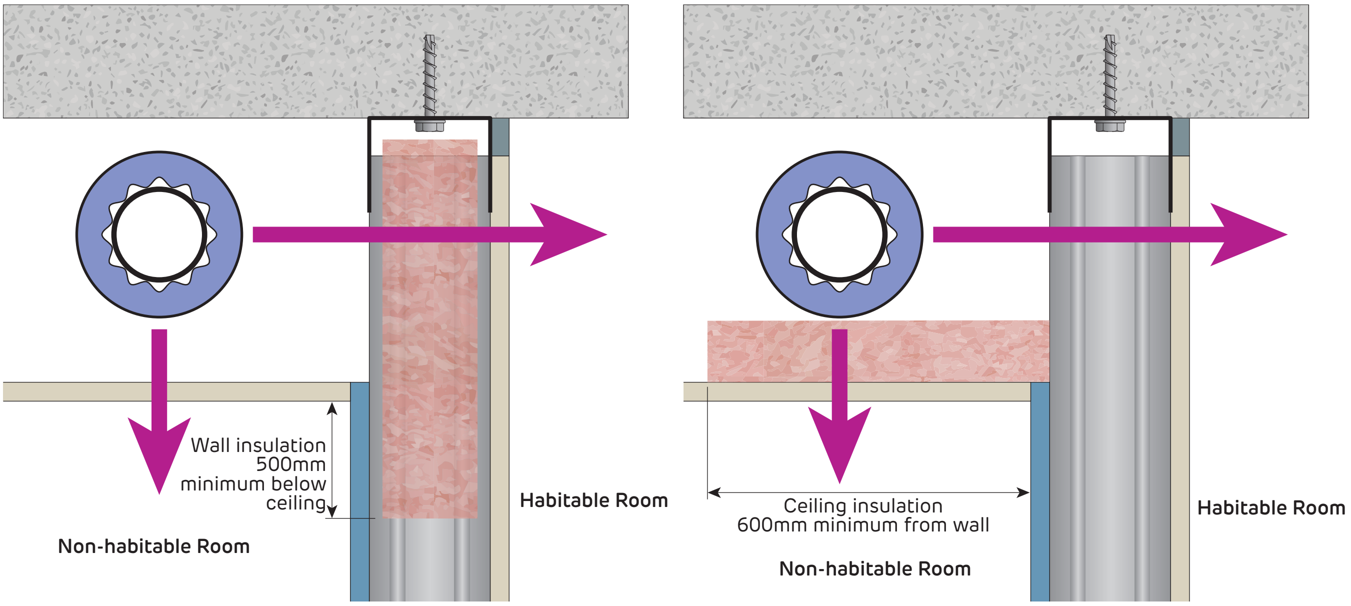
The soil and water pipe systems cover a range of situations including where soil, waste or water supply pipes and ducts pass through ceilings, riser ducts or bulkheads in bathrooms, kitchens, bedrooms and lounge rooms. Certain systems may require the pipes to be lagged but alternative systems exist that include covering the pipes in plasterboard or the use of a double ceiling when wrapping is not practical.

This section includes only the system tables for soil and water pipe acoustic systems. For installation requirements, refer to the relevant wall or ceiling section.

# BATHROOM TO WALL AND CEILING JUNCTION 1

- **Pipe wrapped with 5 kg/m² mass barrier and foam**
- **Plasterboard lining as specified in tables**

[Pipe wrapping must not be in contact with insulation, stud framing or plasterboard]



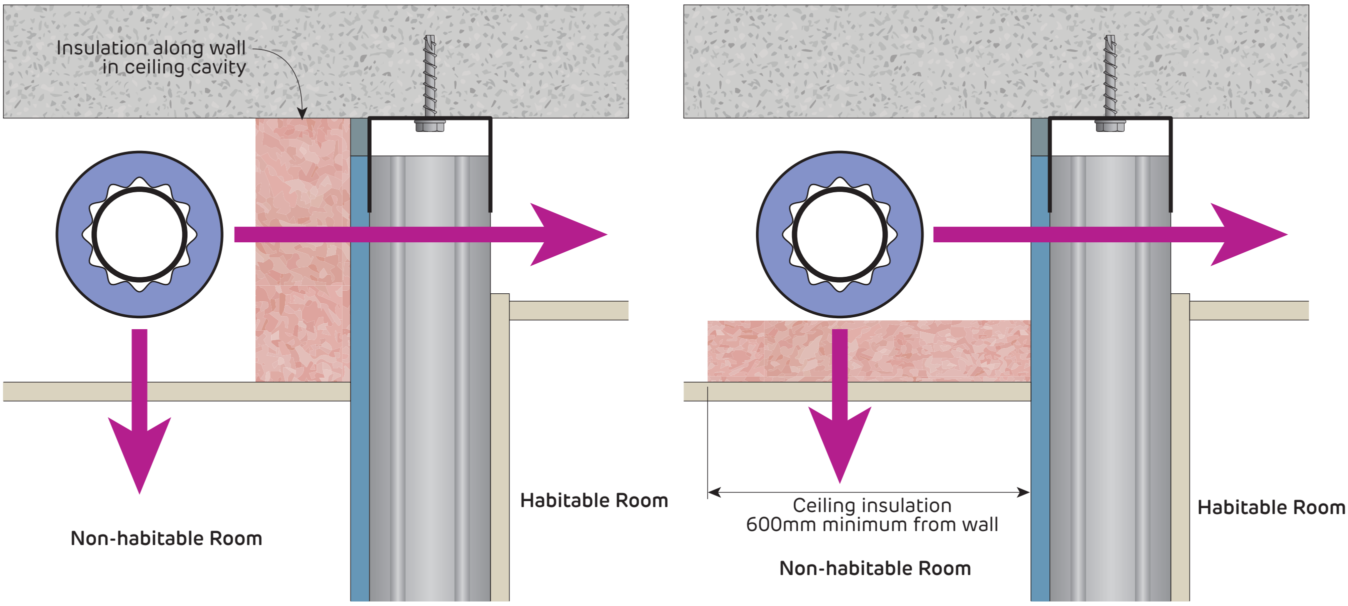

| WALL TO HABITABLE ROOM | | | |
|---|---|---|---|
| **System** | **Habitable Room Wall Lining** | **Airborne Sound Insulation Rw (Rw + Ctr)** | |
| | | Pink® Partition 50mm 11 kg/m³ R1.2 insulation in wall or along ceiling as shown above | Report<br><br>Day Design<br>3094-38<br>5008-47 |
| SWP22 | 1 layer of 13mm **masta**shield | 48 (**40**) | |
| SWP32 | 1 layer of 13mm **water**shield | 48 (**40**) | |
| SWP34 | 1 layer of 13mm **fire**shield | 49 (**40**) | |
| SWP28 | 1 layer of 13mm **sound**shield | 49 (**41**) | |
| SWP35 | 1 layer of 16mm **fire**shield | 50 (**41**) | |

| CEILING TO NON-HABITABLE ROOM | | | | |
|---|---|---|---|---|
| **System** | **Ceiling Lining** | **Airborne Sound Insulation Rw (Rw + Ctr)** | | |
| | | Pink® Partition 50mm 11 kg/m³ R1.2 insulation in wall or along ceiling as shown above | Pink® Partition 50mm 11 kg/m³ R1.2 insulation over entire ceiling | Report<br><br>Day Design<br>3094-38<br>5008-47 |
| SWP22 | 1 layer of 13mm **masta**shield | 45 (35) | 48 (**40**) | |
| SWP32 | 1 layer of 13mm **water**shield | 45 (37) | 48 (**40**) | |
| SWP34 | 1 layer of 13mm **fire**shield | 46 (37) | 49 (**40**) | |
| SWP28 | 1 layer of 13mm **sound**shield | 46 (38) | 49 (**41**) or<br>47 (**40**) with 1 non-acoustic rated downlight per 5m² | |
| SWP35 | 1 layer of 16mm **fire**shield | 46 (38) | 50 (**41**) | |

## BATHROOM TO WALL AND CEILING JUNCTION 2

- **Pipe wrapped with 5 kg/m² mass barrier and foam**
- **Plasterboard lining as specified in tables**

[Pipe wrapping must not be in contact with insulation, stud framing or plasterboard]



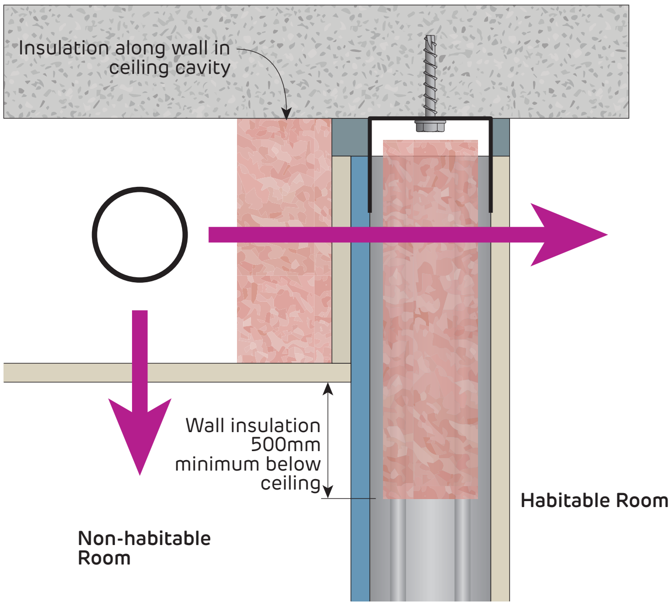

| WALL TO HABITABLE ROOM | | | |
|---|---|---|---|
| **System** | **Non-Habitable Room Wall Lining** | **Airborne Sound Insulation Rw (Rw + Ctr)** | |
| | | Pink® Partition 50mm 11 kg/m³ R1.2 insulation in ceiling cavity as shown above | Report<br>Day Design 5008-47 |
| SWP22 | 1 layer of 13mm **masta**shield | 48 (**40**) | |
| SWP32 | 1 layer of 13mm **water**shield | 48 (**40**) | |

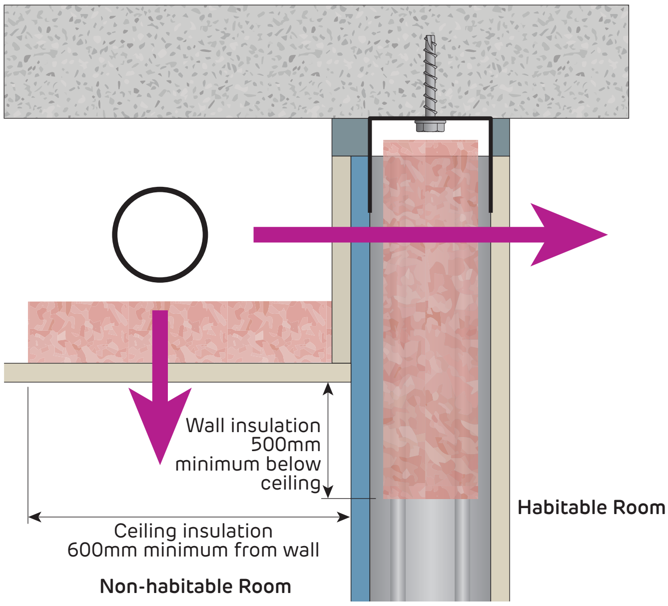
| CEILING TO NON-HABITABLE ROOM | | | | |
|---|---|---|---|---|
| **System** | **Ceiling Lining** | **Airborne Sound Insulation Rw (Rw + Ctr)** | | |
| | | Pink® Partition 50mm 11 kg/m³ R1.2 insulation in wall or along ceiling as shown above | Pink® Partition 50mm 11 kg/m³ R1.2 insulation over entire ceiling | Report<br>Day Design 5008-47 |
| SWP22 | 1 layer of 13mm **masta**shield | 45 (35) | 48 (**40**) | |
| SWP32 | 1 layer of 13mm **water**shield | 45 (37) | 48 (**40**) | |
| SWP34 | 1 layer of 13mm **fire**shield | 46 (37) | 49 (**40**) | |
| SWP28 | 1 layer of 13mm **sound**shield | 46 (38) | 49 (**41**) or 47 (**40**) with 1 non-acoustic rated downlight per 5m² | |

# BATHROOM TO WALL AND CEILING JUNCTION 3

- **Plasterboard lining as specified in tables**

[Pipe wrapping must not be in contact with insulation, stud framing or plasterboard]



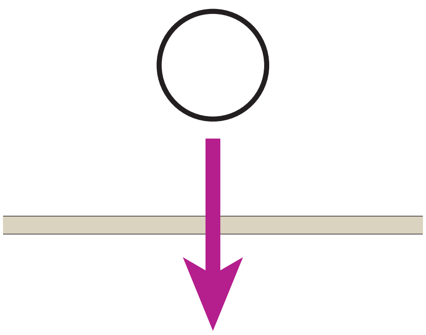




| WALL TO HABITABLE ROOM | | | | | | |
|---|---|---|---|---|---|---|
| **System** | **Additional Plasterboard Strip Along Wall in Ceiling Cavity** | **Non-Habitable Room Wall Lining** | **Habitable Room Wall Lining** | **Airborne Sound Insulation Rw (Rw + Ctr)** | | |
| | | | | Pink® Partition 50mm 11 kg/m³ R1.2 insulation in wall and ceiling as shown above | | |
| | | | | 64mm stud | 92mm stud | |
| SWP111 | 2 layers of 10mm **water**shield | 10mm **water**shield | 10mm **masta**shield | 50 (**40**) | - | Report<br>Day Design 5008-47 |
| SWP108 | 1 layer of 13mm **sound**shield | 10mm **water**shield | 10mm **masta**shield | 49 (39) | (**40**) | |
| SWP114 | 1 layer of 13mm **fire**shield | 10mm **water**shield | 10mm **masta**shield | 48 (38) | (**40**) | |
| SWP210 | 1 layer of 16mm **fire**shield | 10mm **water**shield | 13mm **masta**shield | 50 (**40**) | - | |
| SWP212 | 1 layer of 16mm **fire**shield | 13mm **water**shield | 10mm **masta**shield | 50 (**40**) | - | |

| CEILING TO NON-HABITABLE ROOM | | | | |
|---|---|---|---|---|
| **System** | **Ceiling Lining** | **Airborne Sound Insulation Rw (Rw + Ctr)** | | |
| | | Pink® Partition 50mm 11 kg/m³ R1.2 insulation in ceiling cavity as shown above | Pink® Partition 50mm 11 kg/m³ R1.2 insulation over entire ceiling | |
| SWP3 | 1 layer of 13mm **masta**shield | 29 (25) | 32 (28) or 26 (25) with 3 non-acoustic rated downlight per 5m² | Report<br>Day Design 5008-47 |
| SWP13 | 1 layer of 13mm **water**shield | 29 (26) | 32 (29) or 26 (26) with 3 non-acoustic rated downlight per 5m² | |
| SWP15 | 1 layer of 13mm **fire**shield | 30 (26) | 33 (29) or 25 (25) with 4 non-acoustic rated downlight per 5m² | |
| SWP9 | 1 layer of 13mm **sound**shield | 30 (27) | 33 (30) or 25 (25) with 4 non-acoustic rated downlight per 5m² | |

## SWP2-SWP15

- Plasterboard wall, ceiling, bulkhead or duct lining as specified in the table

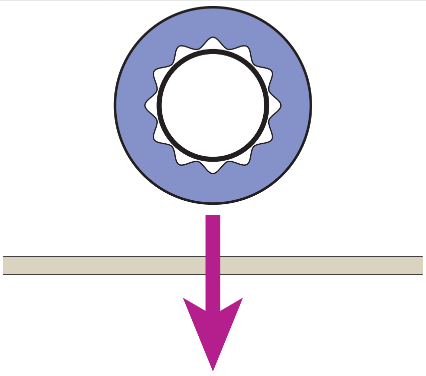


[Number of non-acoustic rated downlights for every 5m² area]
[Downlights should be evenly distributed and no closer than 900mm apart]

| System | Plasterboard Wall, Ceiling or Duct Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | | | |
|---|---|---|---|---|---|---|
| | | No insulation | | Pink® Partition 50mm 11 kg/m³ R1.2 | | |
| SWP2 | 2 layer of 10mm **masta**shield | 32 (27) | 28 (25) with 2 downlights | 35 (30) | 27 (26) with 4 downlights | Report<br><br>Day Design 3094-35<br><br>Pipes must not be in contact with insulation or plasterboard |
| SWP3 | 1 layer of 13mm **masta**shield | 29 (25) | - | 32 (28) | 26 (25) with 3 downlights | |
| SWP5 | 1 layer of 10mm **span**shield | 28 (24) | - | 31 (27) | 27 (25) with 2 downlights | |
| SWP6 | 2 layers of 10mm **span**shield | 32 (28) | 26 (25) with 3 downlights | 35 (31) | 27 (27) with 4 downlights | |
| SWP8 | 2 layers of 10mm **sound**shield or **opal** | 33 (30) | 25 (25) with 4 downlights | 36 (33) | 28 (28) with 4 downlights | |
| SWP9 | 1 layer of 13mm **sound**shield | 30 (27) | 26 (25) with 2 downlights | 33 (30) | 25 (25) with 4 downlights | |
| SWP12 | 2 layers of 10mm **water**shield | 32 (28) | 26 (25) with 3 downlights | 35 (31) | 27 (27) with 4 downlights | |
| SWP13 | 1 layer of 13mm **water**shield | 29 (26) | 27 (25) with 1 downlight | 32 (29) | 26 (26) with 3 downlight | |
| SWP15 | 1 layer of 13mm **fire**shield | 30 (26) | 28 (25) with 1 downlight | 33 (29) | 25 (25) with 4 downlight | |

## SWP20-SWP35

- Pipe wrapped with 5 kg/m² mass barrier and foam
- Plasterboard wall, ceiling, bulkhead or duct lining as specified in the table



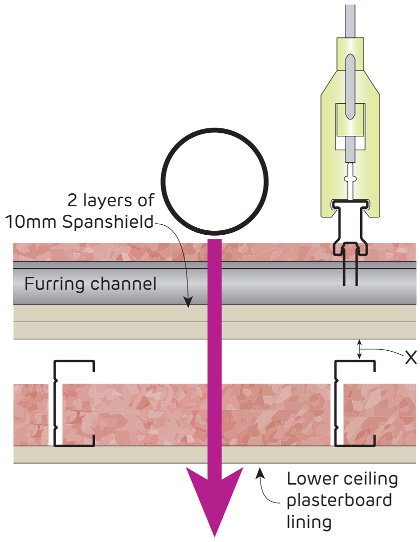
[Number of non-acoustic rated downlights for every 5m² area]
[Downlights should be evenly distributed and no closer than 900mm apart]

| System | Plasterboard Wall, Ceiling or Duct Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | | |
|---|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11 kg/m³ R1.2 | | |
| SWP21 | 2 layers of 10mm **masta**shield | 48 (38) | 51 (**41**) | 49 (**40**) with 1 downlight | Report<br><br>Day Design 3094-35 3094-38 5008-47 |
| SWP22 | 1 layer of 13mm **masta**shield | 45 (35) | 48 (**40**) | - | |
| SWP25 | 2 layers of 10mm **span**shield | 48 (39) | 51 (**42**) | 47 (**40**) with 2 downlights | |
| SWP28 | 1 layer of 13mm **sound**shield | 46 (38) | 49 (**41**) | 47 (**40**) with 1 downlight | |
| SWP31 | 2 layers of 10mm **water**shield | 48 (39) | 51 (**42**) | 47 (**40**) with 2 downlights | |
| SWP32 | 1 layer of 13mm **water**shield | 45 (37) | 48 (**40**) | - | |
| SWP34 | 1 layer of 13mm **fire**shield | 46 (37) | 49 (**40**) | - | |
| SWP35 | 1 layer of 16mm **fire**shield | 46 (38) | 50 (**41**) | - | |

## SWP143-SWP151

- Upper lining of 2 layer of 10mm **span**shield attached to a suspended or direct fix ceiling frame
- Minimum gap as specified in table
- Minimum 64mm steel studs used as ceiling joists (Refer to Section 5.3)
- Pink® Partition 50mm 11 kg/m3 R1.2 insulation in both ceiling cavities

[Number of non-acoustic rated downlights for every 5m² area]
[Downlights should be evenly distributed and no closer than 900mm apart]

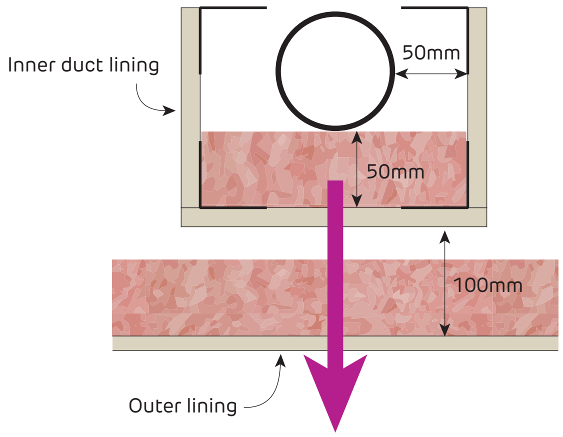



| System | Lower Ceiling Plasterboard Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | X = 0mm | X = 10mm minimum | Report |
| SWP143 | 2 layer of 13mm **masta**shield | 54 (**41**) with 4 downlights | 55 (**42**) with 4 downlights | Day Design 5008-1<br>Pipes must not be in contact with insulation or plasterboard |
| SWP145 | 2 layers of 10mm **span**shield | 54 (**40**) | 55 (**40**) with 4 downlights | |
| SWP148 | 1 layer of 13mm **sound**shield | 51 (39) | 54 (**40**) | |
| SWP151 | 2 layers of 10mm **water**shield | 54 (**40**) | 55 (**40**) with 4 downlights | |

## SWP163-SWP174

- Inner Duct Lining around pipe as specified in table
- Insulation as specified in table
- Outer plasterboard wall, ceiling, bulkhead or duct lining as specified in table

[Soil and water pipe systems can be a wall, ceiling, bulkhead or duct]
[Number of non-acoustic rated downlights for every 5m² area]
[Insulation to 1200mm minimum on both sides of pipe]
[Downlights should be evenly distributed and no closer than 900mm apart]

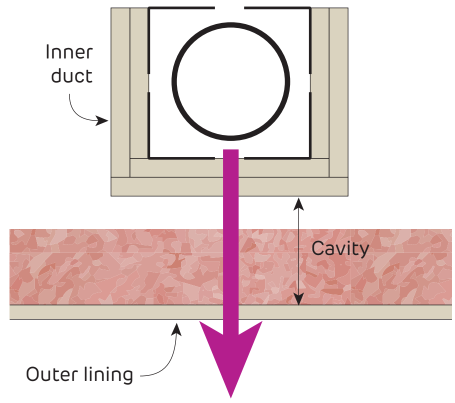



| System | Inner Duct Lining | Outer Plasterboard Lining | Airborne Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|
| | | | Pink® Partition 50mm 11 kg/m³ R1.2 insulation in both cavities as shown above | Report |
| SWP163 | 1 layer of 13mm **masta**shield | 2 layers of 13mm **masta**shield | 54 (**41**) with 4 downlights | Day Design 5008-1<br>Pipes must not be in contact with insulation or plasterboard |
| SWP165 | 1 layer of 13mm **masta**shield | 2 layers of 10mm **span**shield | 54 (**40**) | |
| SWP168 | 1 layer of 13mm **sound**shield, **water**shield or **fire**shield | 1 layer of 13mm **sound**shield | 53 (**40**) | |
| SWP174 | 1 layer of 13mm **sound**shield, **water**shield or **fire**shield | 1 layer of 13mm **fire**shield | 51 (**40**) | |

## SWP83-SWP95

- Inner duct lining of 2 layers of 13mm **sound**shield, **water**shield or **fire**shield
- Insulation as specified in table
- Outer plasterboard wall, ceiling, bulkhead or duct lining as specified in table

[Soil and water pipe systems can be a wall, ceiling, bulkhead or duct]
[Number of non-acoustic rated downlights for every 5m² area]
[Insulation to 1200mm minimum on both sides of pipe]
[Downlights should be evenly distributed and no closer than 900mm apart]

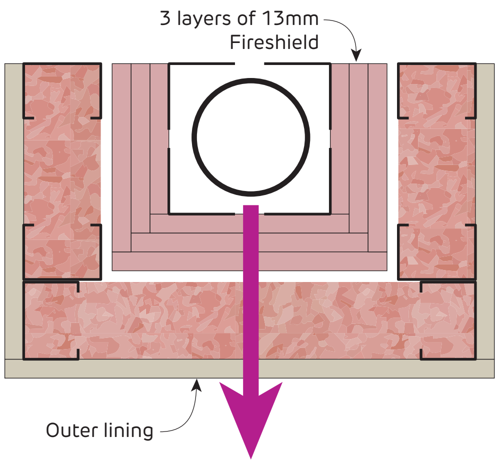



| System | Outer Plasterboard Lining | Minimum Cavity (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|---|
| | | | Pink® Partition 50mm 11 kg/m³ R1.2 | | |
| SWP82 | 2 layers of 13mm **masta**shield | 75 | 55 (**43**) | 49 (**40**) with 3 downlights | Report<br>Day Design 3094-35 5008-1<br>Pipes must not be in contact with plasterboard |
| SWP85 | 2 layers of 10mm **span**shield | 75 | 53 (**42**) | 49 (**40**) with 2 downlights | |
| SWP88 | 1 layer of 13mm **sound**shield | 75 | 52 (**40**) | - | |
| SWP88 | 1 layer of 13mm **sound**shield | 100 | 55 (**45**) | 53 (**43**) with 4 downlights | |
| SWP91 | 1 layer of 10mm **water**shield | 100 | 51 (**40**) | 49 (**40**) with 1 downlights | |
| SWP95 | 1 layer of 13mm **fire**shield | 100 | 52 (**41**) | 50 (**40**) with 4 downlights | |

## SWP182-SWP194

- Inner duct lining of 3 layers of 13mm **fire**shield
- Minimum 51mm steel stud framing
- Insulation as specified in table
- Outer plasterboard wall, ceiling or duct lining as specified in table

[Soil and water pipe systems can be a wall, ceiling, bulkhead or duct]
[Number of non-acoustic rated downlights for every 5m² area]
[Downlights should be evenly distributed and no closer than 900mm apart]




| System | Outer Plasterboard Lining | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | Pink® Partition 50mm 11 kg/m³ R1.2 | | Report<br>Day Design 5008-1<br>Pipes must not be in contact with plasterboard |
| SWP182 | 1 layer of 13mm **masta**shield | 49 (**40**) | 47 (39) with 4 downlights | |
| SWP194 | 1 layer of 13mm **fire**shield | 50 (**41**) | 48 (**40**) with 4 downlights | |



# 6.2 Laminated Vertical Shaft

The laminated vertical shaft system consists of fire rated plasterboard laminated together to form enclosures for building services. They are designed to provide fire and acoustic isolation for electrical, plumbing and air-handling services.

Laminated vertical shaft systems have been tested to *AS 1530.4: Fire-resistance tests for elements of construction*, Section 3 (Walls) but not *AS 1530.4*, Section 9 (Air Ducts). They are not suitable to operate as an air supply duct while exposed to an external fire or contain products of combustion, ie: smoke exhaust.

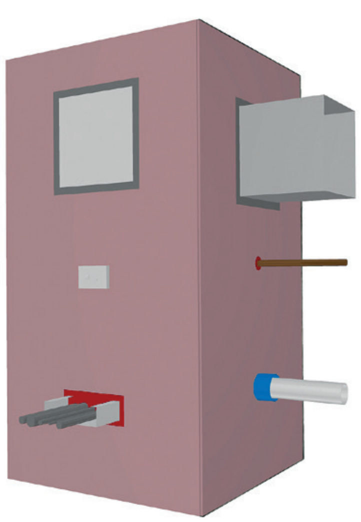
The laminated vertical shaft systems are constructed from three layers of either 13mm or 16mm **fire**shield and metal angle framing. They can form one up to four sides of a fire rated enclosure and can be easily joined to other plasterboard, masonry or concrete walls with an equivalent or higher fire rating.

Laminated vertical shaft systems are suitable for use with fire rated penetrations including access panels, fire dampers, pipes and cables.

Laminated vertical shaft systems are non-load bearing and must not support roof, ceiling or floor loads.

For acoustic upgrades, refer to Section 6.1.

## LVS1 - LVS2



- 50 x 50mm x 0.7mm BMT Steel Backing Angle framing
- 3 layers of 13mm or 16mm fireshield laminated together

fireshield can be substituted with multishield
Laminated Riser Shaft can be 1, 2, 3 or 4 sided

| Fire Resistance Level Report FAR1660 | System | Plasterboard Lining | Plasterboard Thickness (mm) | Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|---|---|---|
| - / 90 /90 from either side | LVS1 | 3 layers of 13mm fireshield | 39 | 37 (34) | Report Day Design 3094-33 |
| - / 120 /120 from either side | LVS2 | 3 layers of 16mm fireshield | 48 | 38 (35) | |

# General Requirements

| | Fire Rated |
|---|---|
| Only joint the face layer. As a minimum to achieve the FRL, only use paper tape and two coats of mastabase or mastalongset. | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | ✓ |
| Use bindex fire and acoustic sealant on all gaps and around perimeter. | ✓ |
| fireshield may be substituted with multishield, impactshield, trurock and trurock HD of the same or greater thickness and maintain fire performance. | ✓ |

For acceptable modifications or variations to fire rated systems, refer to Section 2.3 Fire Resistance

# Framing

## Combined Fire and Structural Limited Wall Heights

| Maximum Shaft Width (m) | Maximum Shaft Height (m) |
|---|---|
| 3.5 | 2.4 |
| 3.18 | 2.7 |
| 3.0 | 3.0 |
| 2.4 | 3.6 |
| 2.16 | 4.2 |
| 1.8 | 4.8 |
| 1.2 | 5.4 |

1. Dimensions apply to both LVS1 and LVS2
2. Serviceability Limit State load 0.35 kPa.

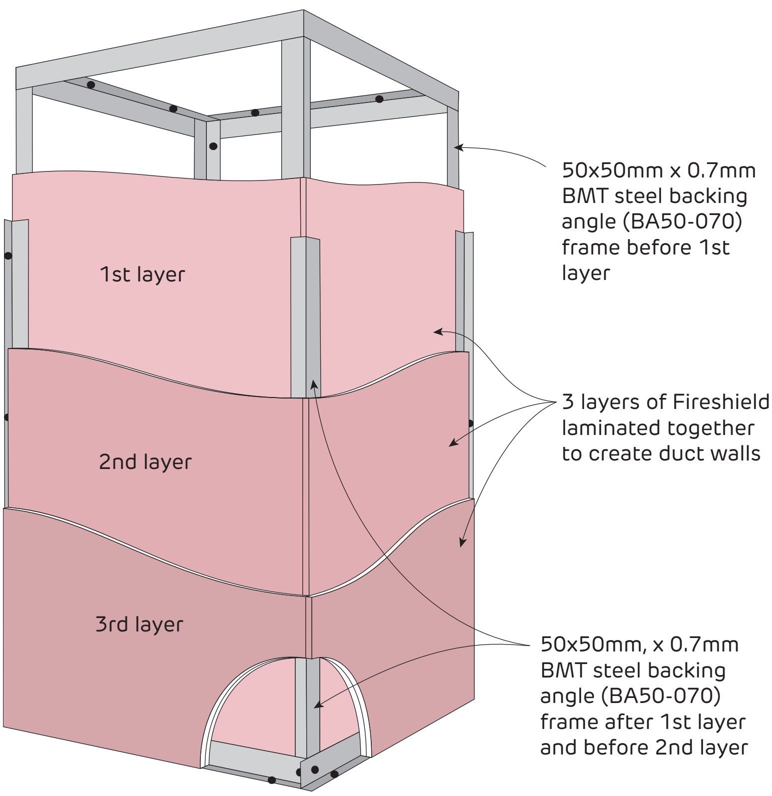



FIGURE 1 Framing and Plasterboard Layout

# Plasterboard Layout

| Vertical Layout | Fire Rated |
|---|---|
| Stagger butt joints by 600mm minimum on adjoining sheets and between layers. | ✓ |
| First layer butt joints must be backed by 50x50mm x 0.7mm BMT steel backing angle | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ |

Minimise butt joints by using long sheets.

# Plasterboard Fixing

| | Fire Rated |
|---|---|
| Use the 'Screw Only Method' in tiled or fire rated areas. | ✓ |
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ |
| Laminating screws are used in the field for the second and third layer, as well as where shown in the construction details. | ✓ |
| Vertically offset screws by 50mm between layers. | ✓ |

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 13mm | 6g x 25mm screw | 6g x 25mm screw * | 6g x 35mm screw * |
| 16mm | 6g x 32mm screw | 6g x 32mm screw * | 6g x 45mm screw * |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.
*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

**FIGURE 2** Fire Rated Laminated Vertical Shaft - 1st Layer - Vertical

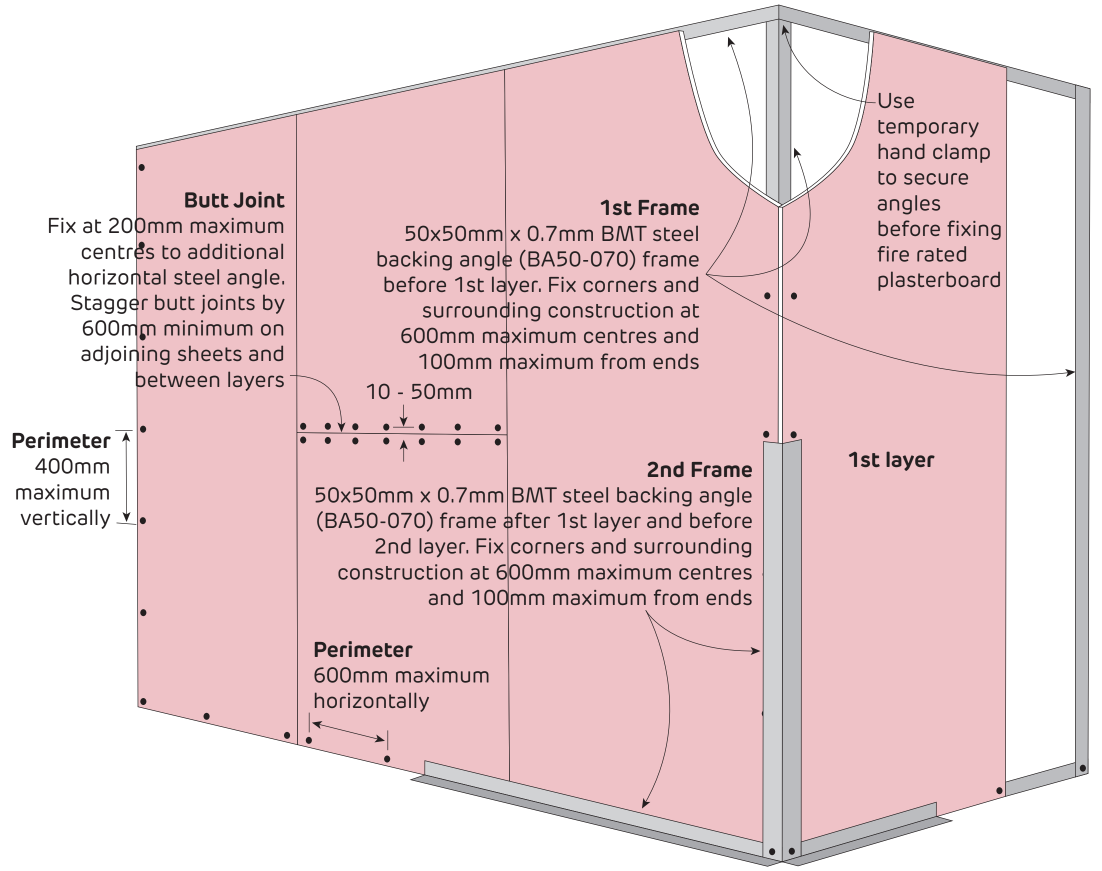
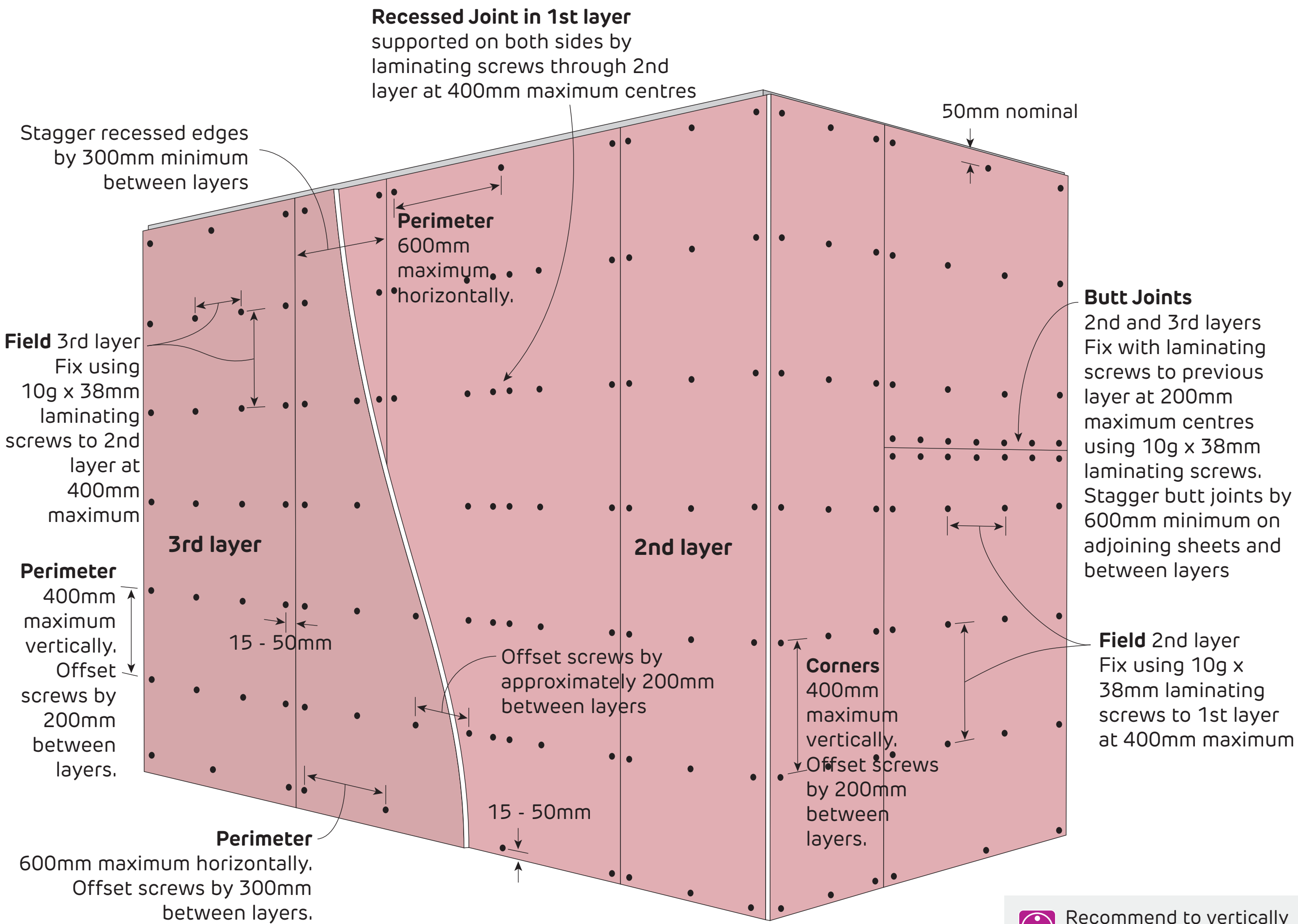



**FIGURE 3** Fire Rated Laminated Vertical Shaft - 2nd and 3rd Layers - Vertical + Vertical




**Jointing** Only joint the face layer. As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats.

Recommend to vertically offset laminating screws by 50mm between layers

## Fire Rated
## Laminated Vertical Shaft

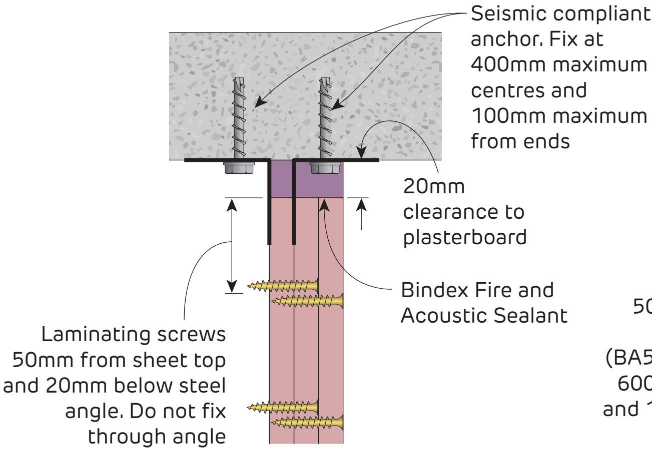



**FIGURE 4 Laminated Vertical Shaft Deflection Head to Slab**
Section

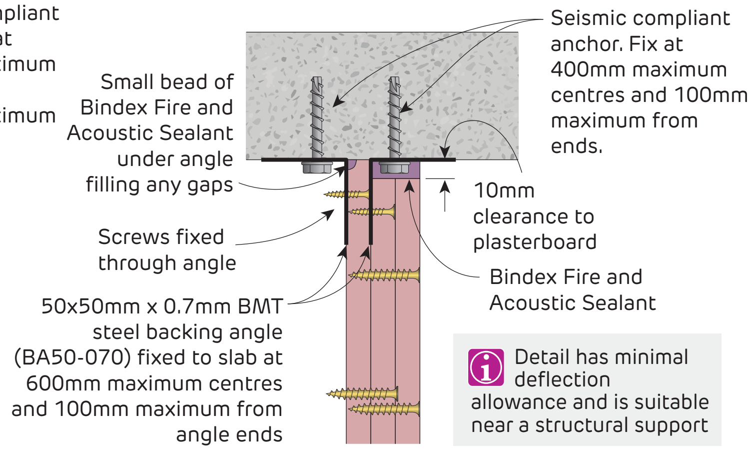



**FIGURE 5 Laminated Vertical Shaft Head to Slab near Structural Support**
Section

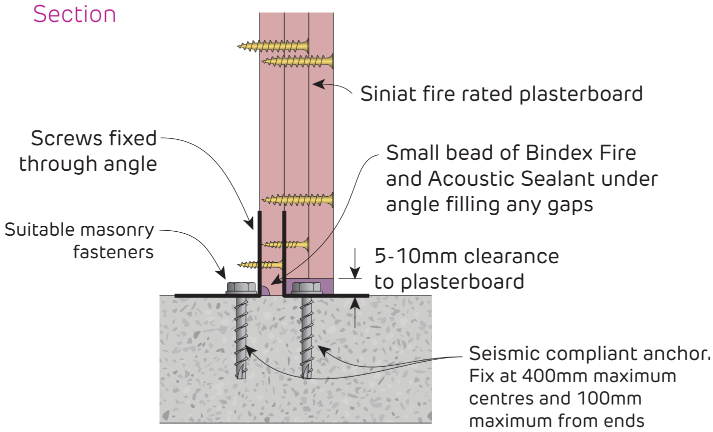



**FIGURE 6 Laminated Vertical Shaft Base to Slab**
Section

Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

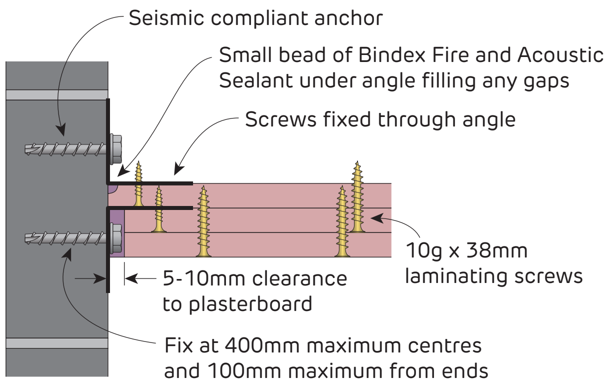



**FIGURE 7 Laminated Vertical Shaft to Masonry Wall**
Plan view

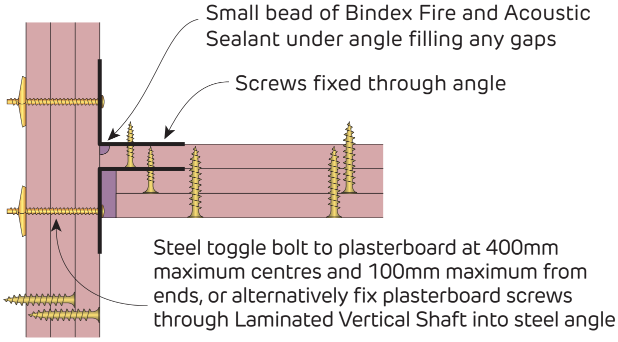



**FIGURE 8 Laminated Vertical Shaft T Intersection**
Plan view

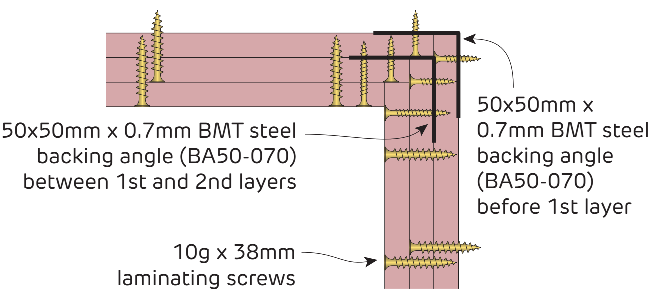



**FIGURE 9 Laminated Vertical Shaft Internal Corner**
Plan view

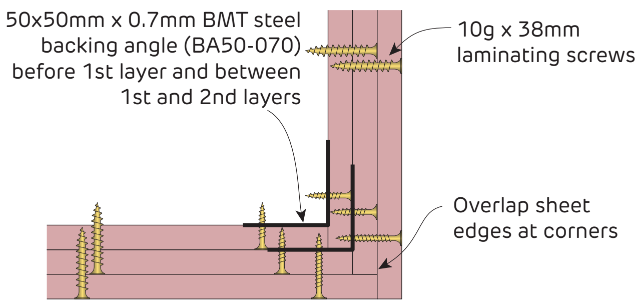



**FIGURE 10 Laminated Vertical Shaft External Corner**
Plan view

# Fire Rated
# Laminated Vertical Shaft

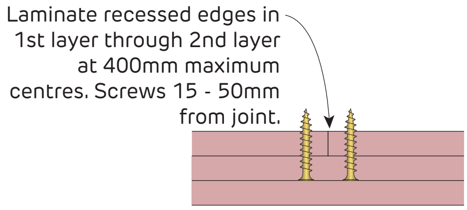



**FIGURE 11 Laminated Vertical Shaft Recessed Edge in 1st Layer**
Plan view

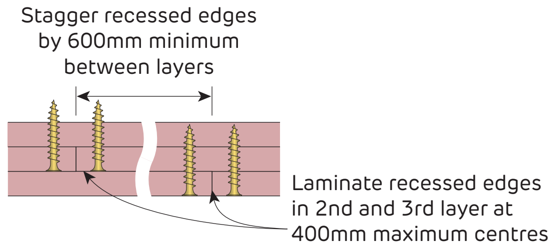



**FIGURE 12 Laminated Vertical Shaft Recessed Edge in 2nd and 3rd Layer**
Plan view

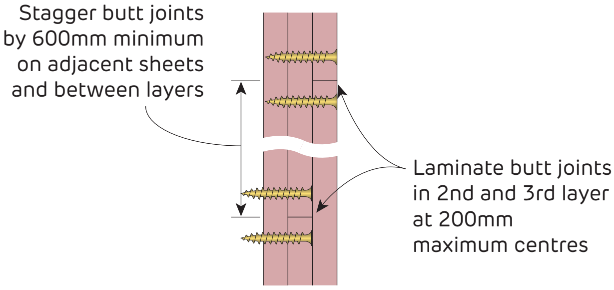



**FIGURE 13 Laminated Vertical Shaft Butt Joint in 2nd and 3rd Layer**
Section

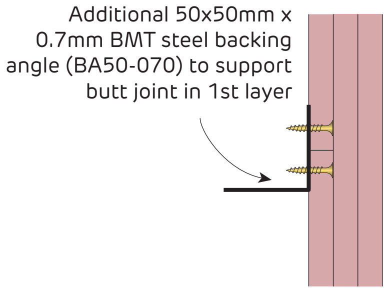



**FIGURE 14 Laminated Vertical Shaft Butt Joint in 1st Layer**
Section

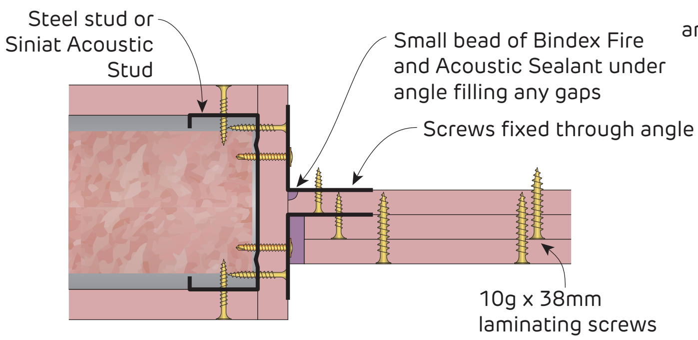



**FIGURE 15 Laminated Vertical Shaft Transition to Steel Framed Partition Wall**
Plan view

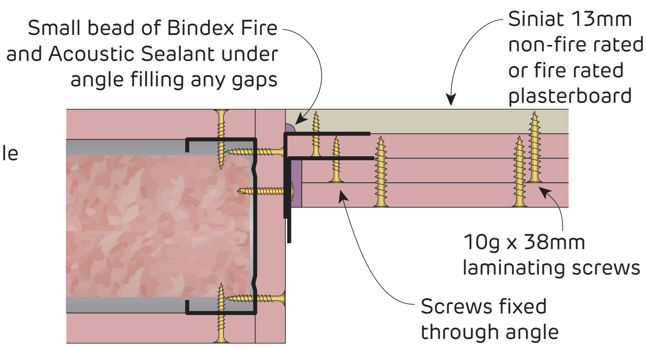



**FIGURE 16 Laminated Vertical Shaft Transition to Steel Framed Partition Wall**
Alternative Detail - Plan view

> Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

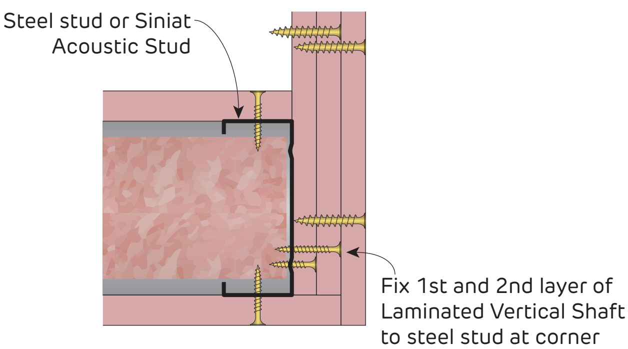



**FIGURE 17 Laminated Vertical Shaft Corner Transition to Steel Framed Partition Wall**
Plan view

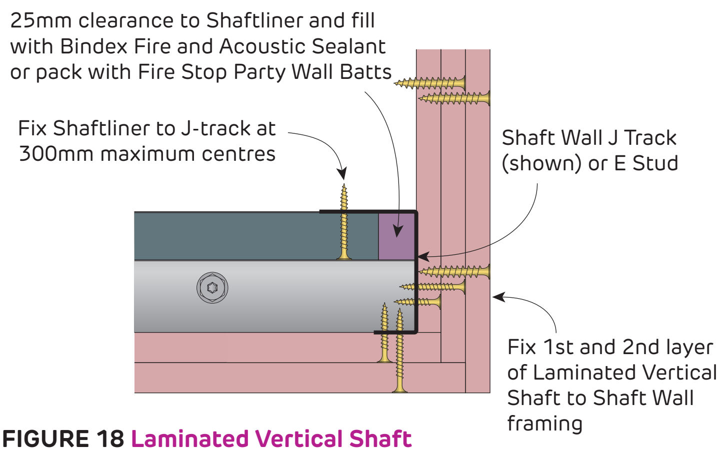



**FIGURE 18 Laminated Vertical Shaft Corner Transition to Shaft Wall**
Plan view

## Fire Rated
## Laminated Vertical Shaft with Timber Floors

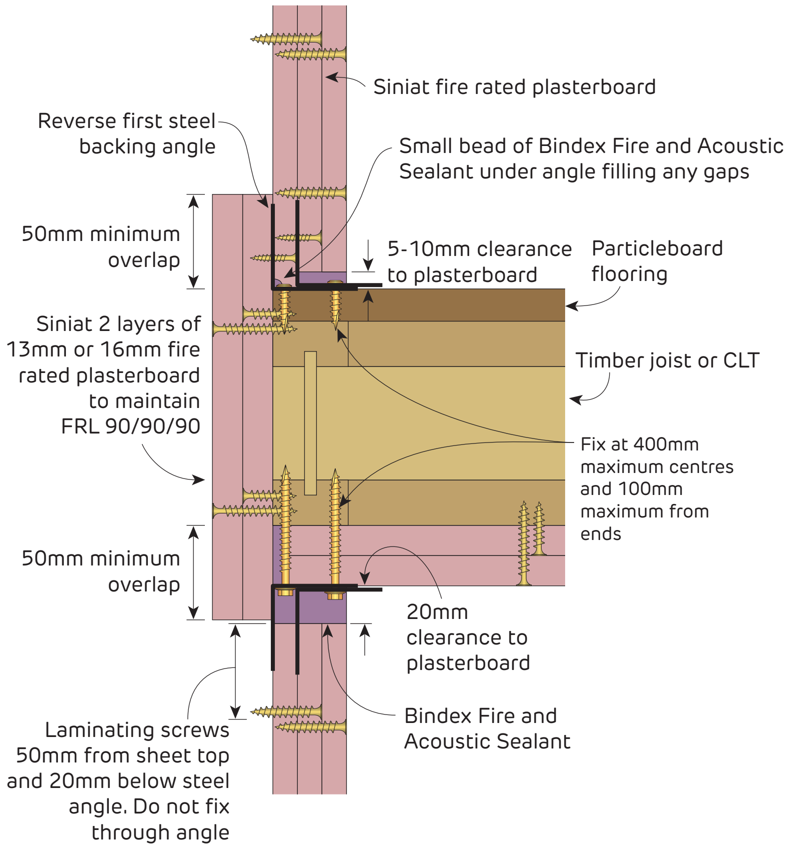



**FIGURE 19** **Laminated Vertical Shaft Around Fire Rated Timber Floor**
FRL -/90/90
Section

## Fire Rated
## Fire Penetration Details for Laminated Vertical Shaft

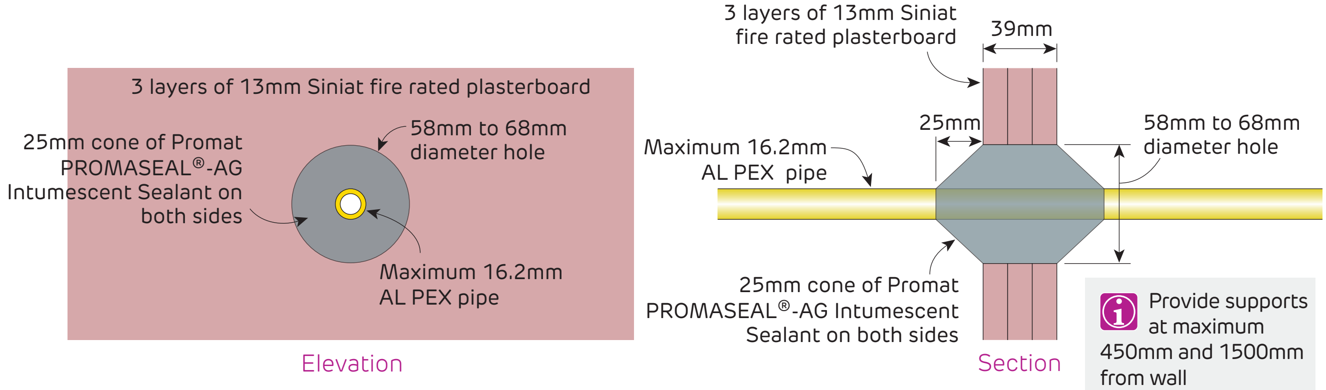



**FIGURE 20** 16.2mm PEX/AL/PE(X) Pipes
FRL -/90/90

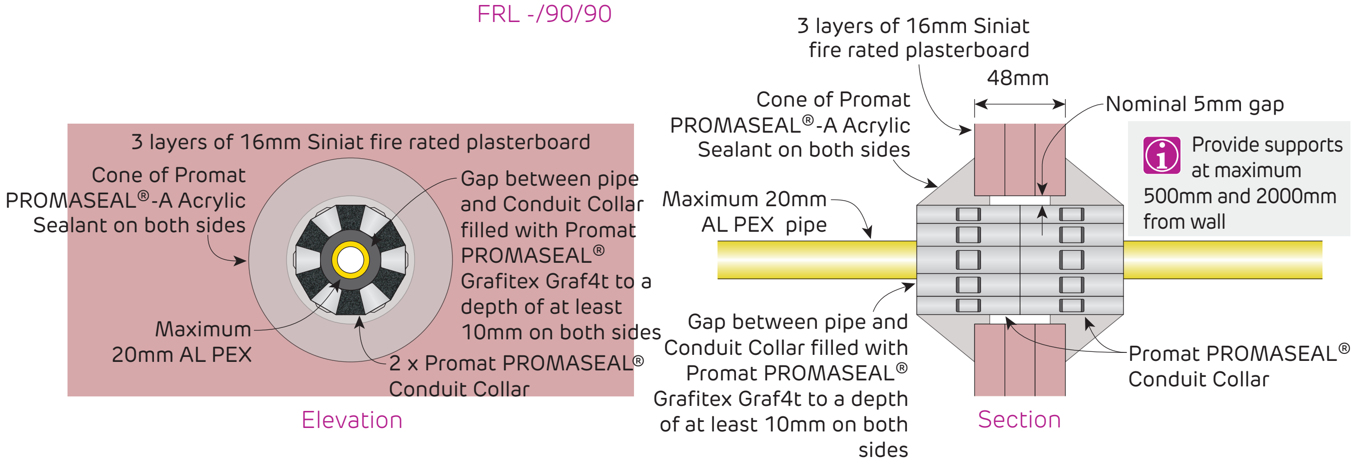



**FIGURE 21** 20mm PEX/AL/PE(X) Pipes
FRL -/120/90

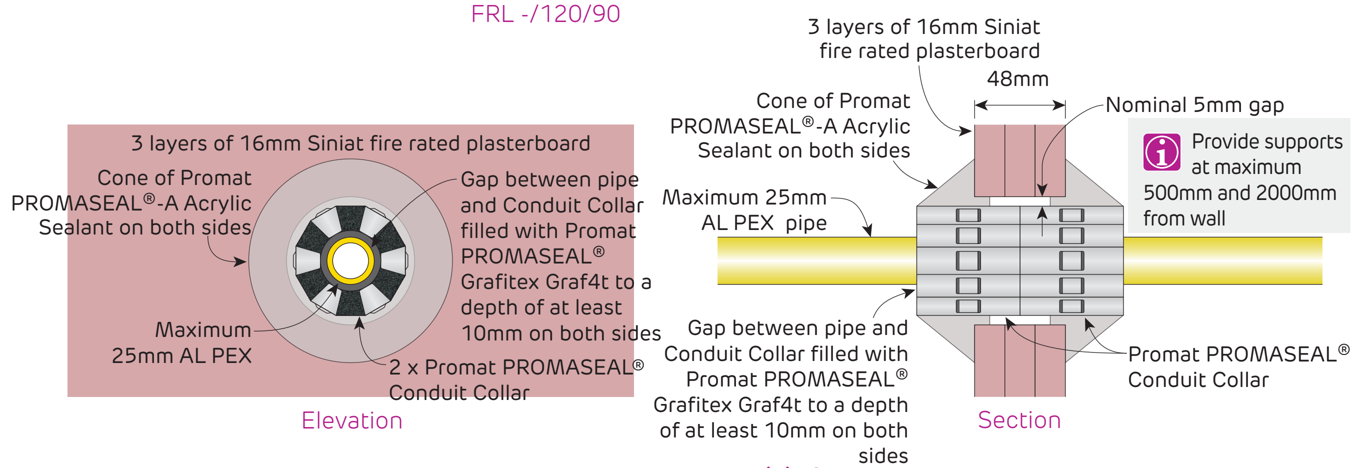



**FIGURE 22** 25mm PEX/AL/PE(X) Pipes
FRL -/120/30

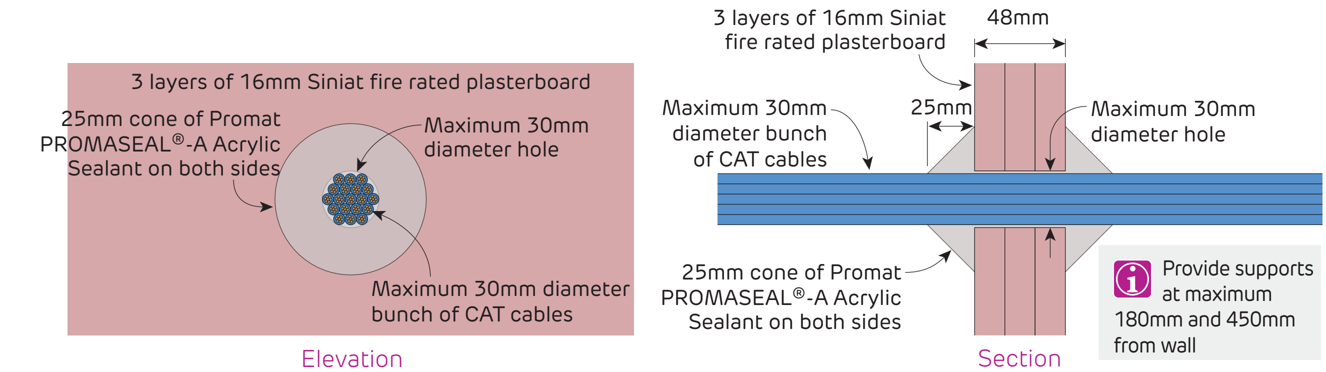



**FIGURE 23** Bunch of CAT cables
FRL -/120/30

## Fire Rated
## Fire Penetration Details for Laminated Vertical Shaft

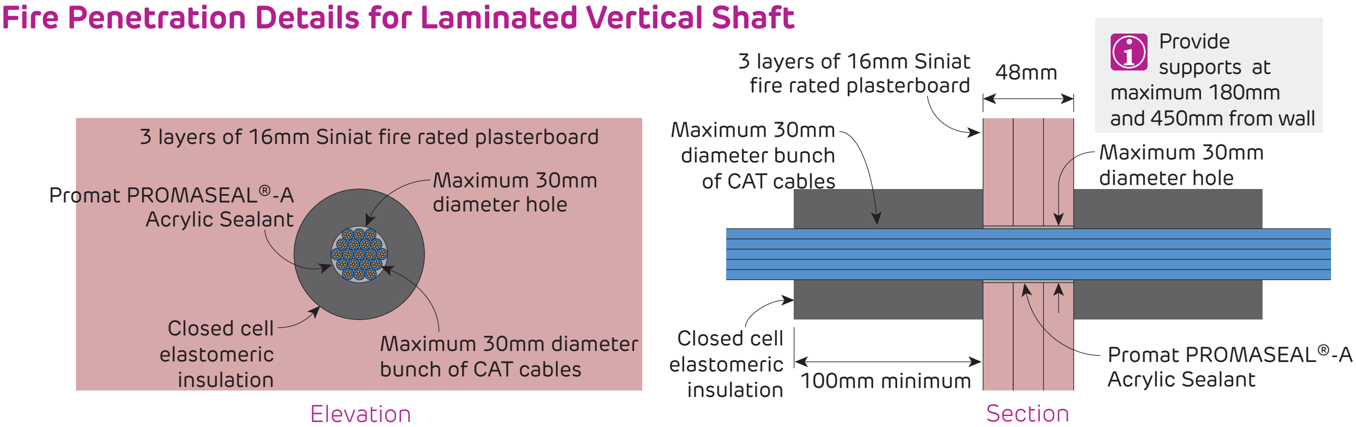



**FIGURE 24 Bunch of CAT cables**
FRL -/120/60

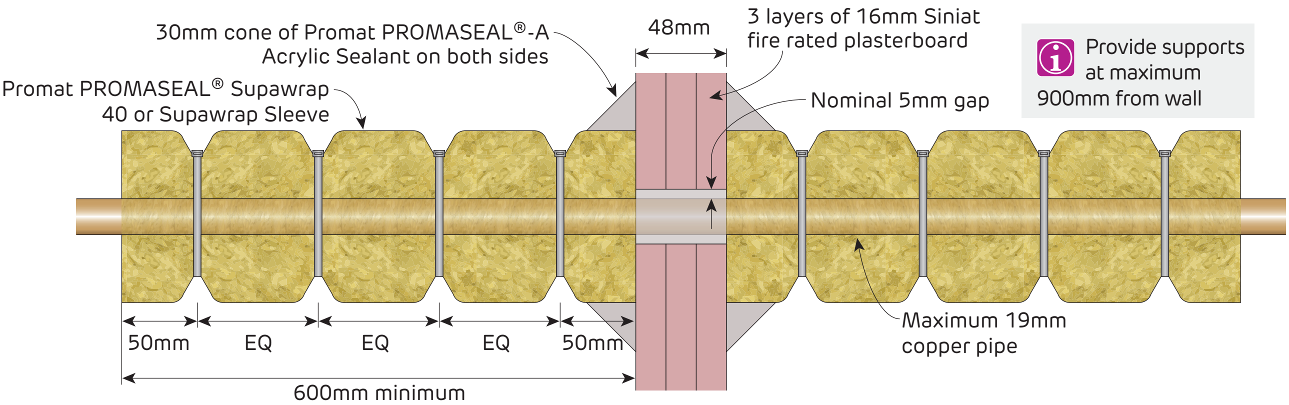



**FIGURE 25 Copper pipe**
FRL -/120/90
Section

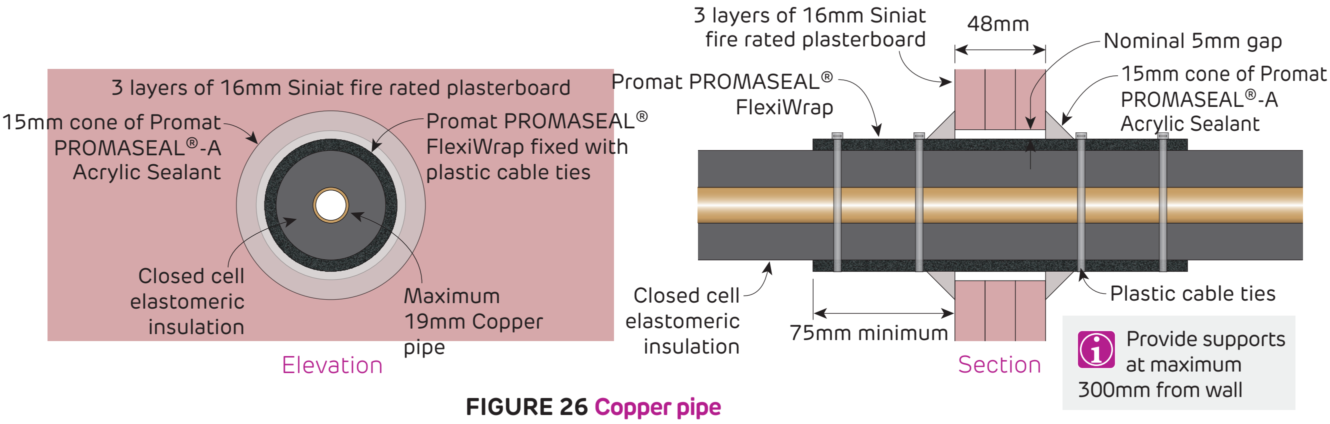



**FIGURE 26 Copper pipe**
FRL -/120/60

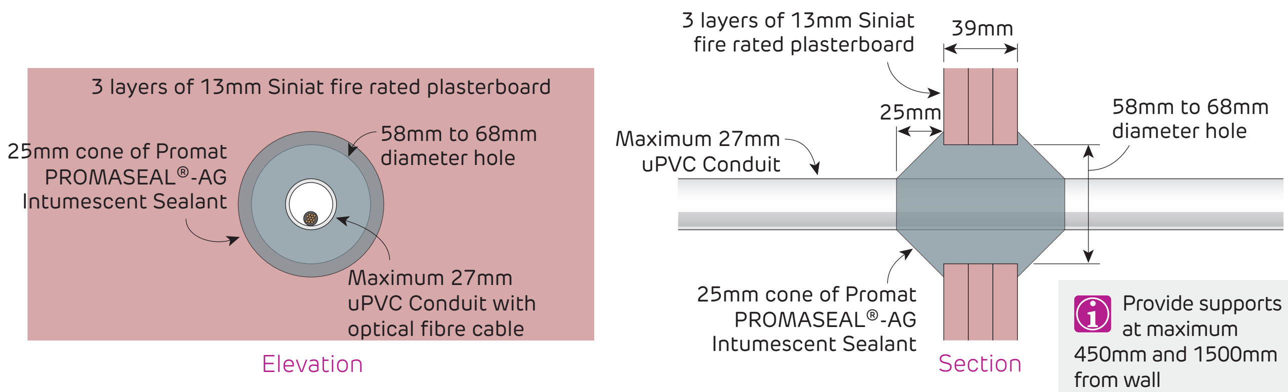



**FIGURE 27 27mm uPVC Conduit**
FRL -/90/90

# Fire Rated
## Fire Penetration Details for Laminated Vertical Shaft

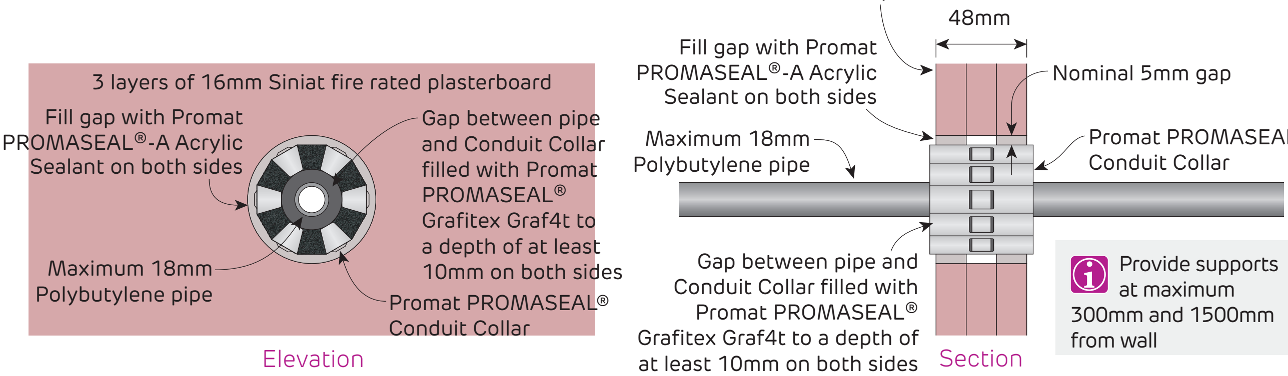



**FIGURE 28** **18mm Polybutylene (Pro-fit) Pipes**
FRL -/120/90

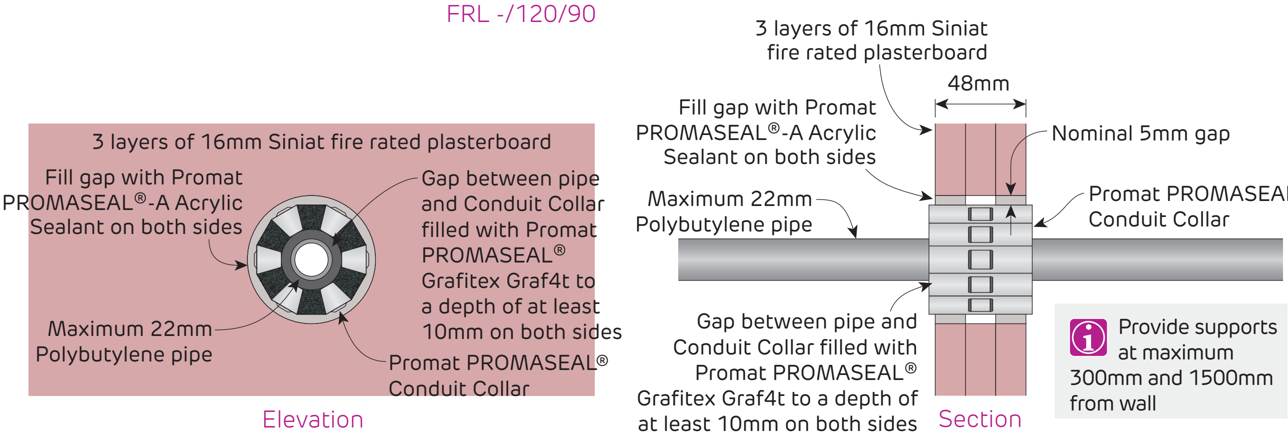



**FIGURE 29** **22mm Polybutylene (Pro-fit) Pipes**
FRL -/120/60

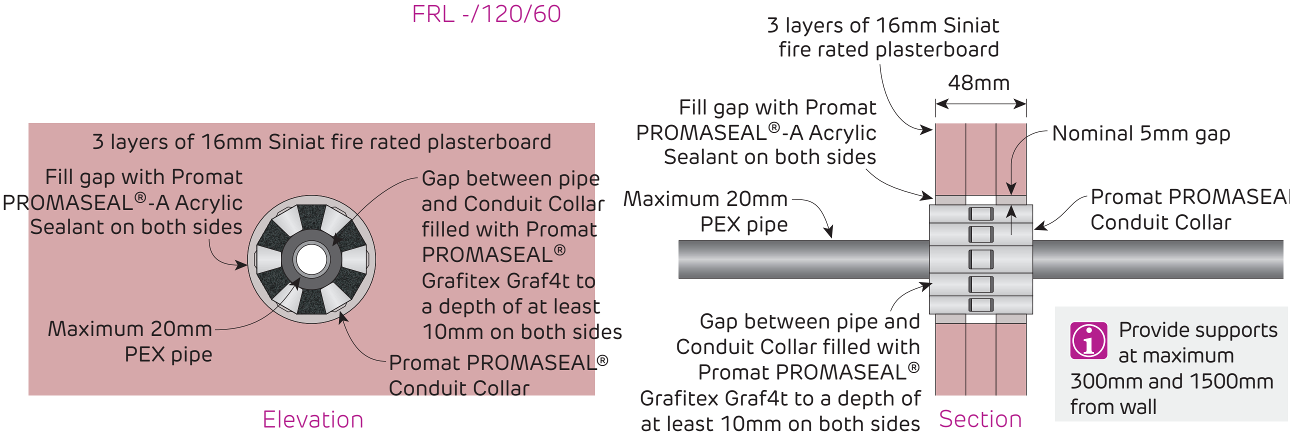



**FIGURE 30** **20mm PEX Pipes**
FRL -/90/90

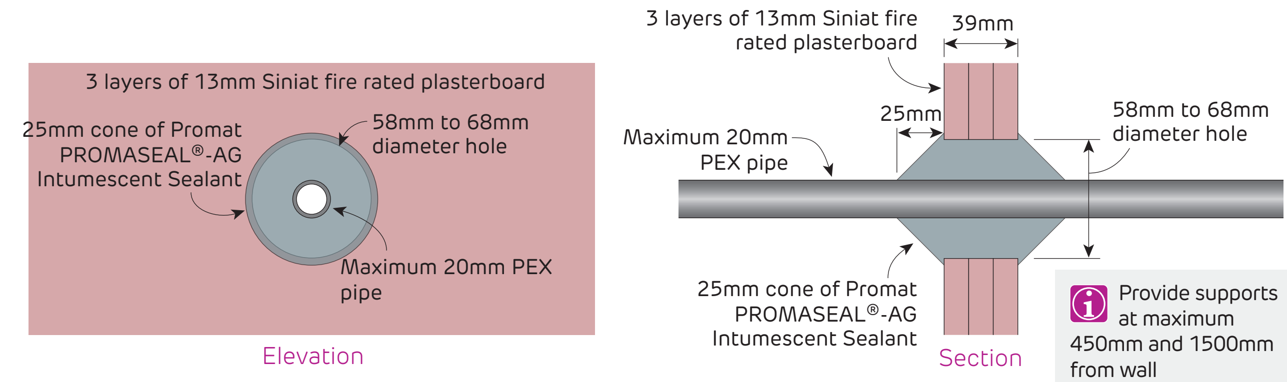
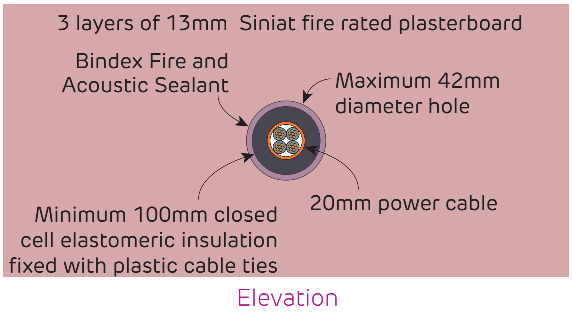



**FIGURE 31** **20mm PEX Pipes**
FRL -/90/90

## Fire Rated
## Fire Penetration Details for Laminated Vertical Shaft



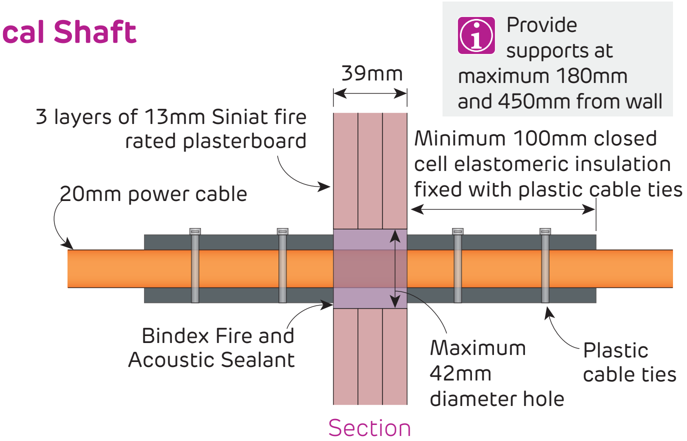
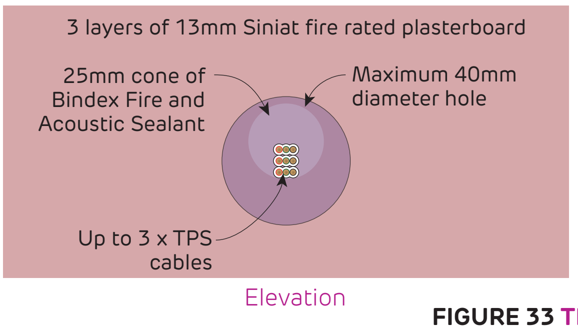




**FIGURE 32 20mm Power Cable**
FRL -/90/60



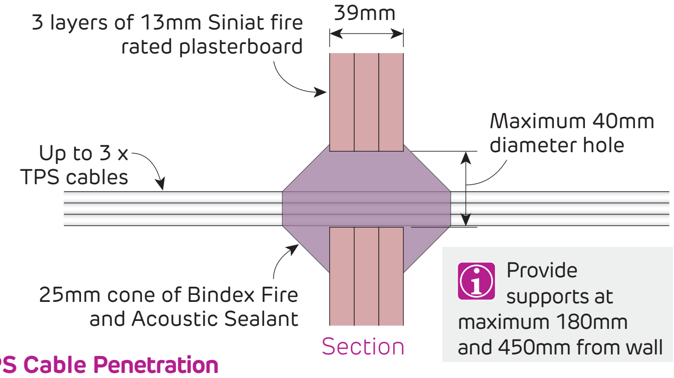
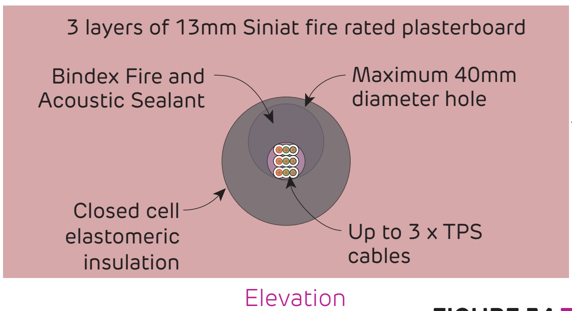




**FIGURE 33 TPS Cable Penetration**
FRL -/90/30



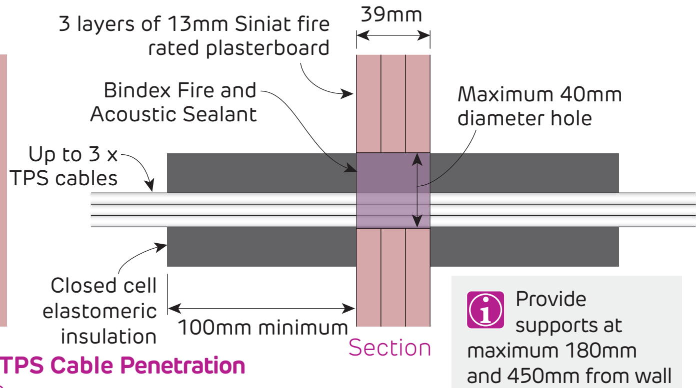
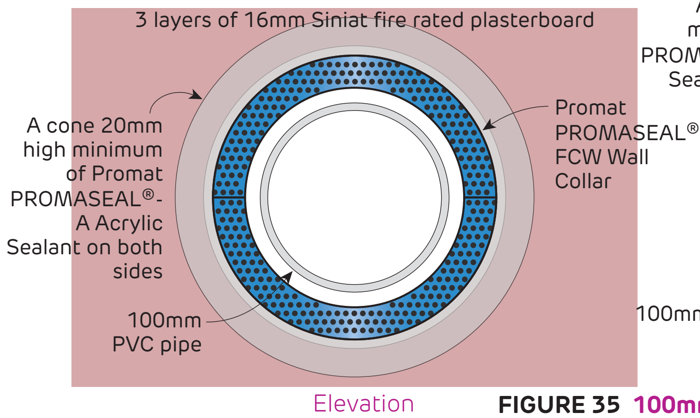




**FIGURE 34 TPS Cable Penetration**
FRL -/90/60



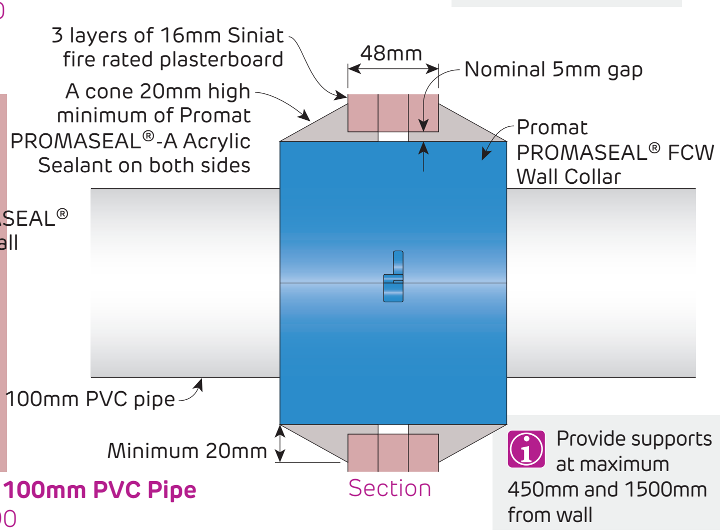
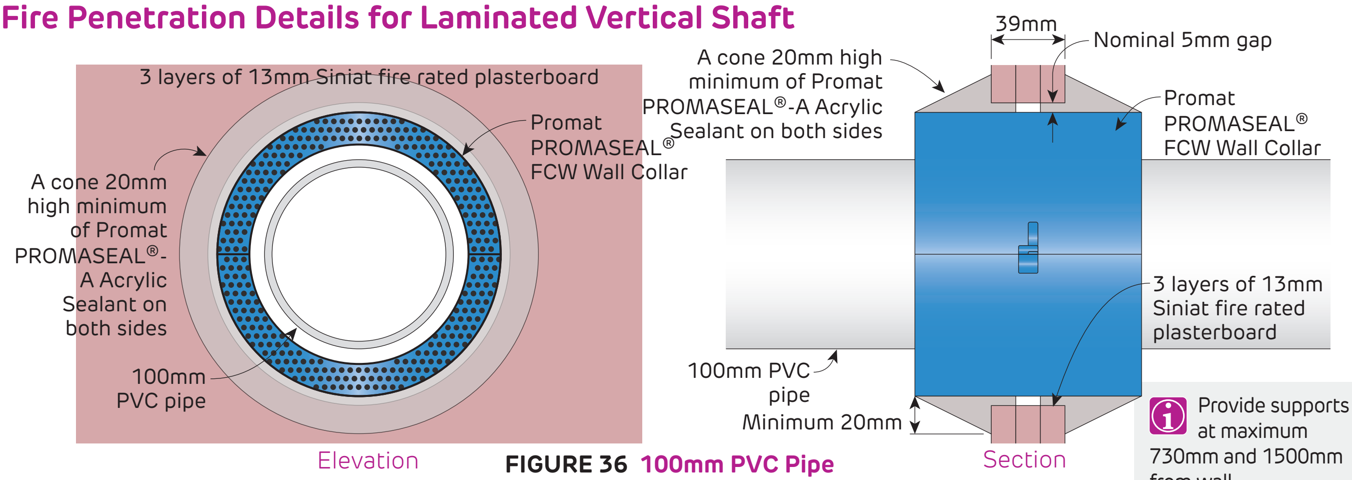



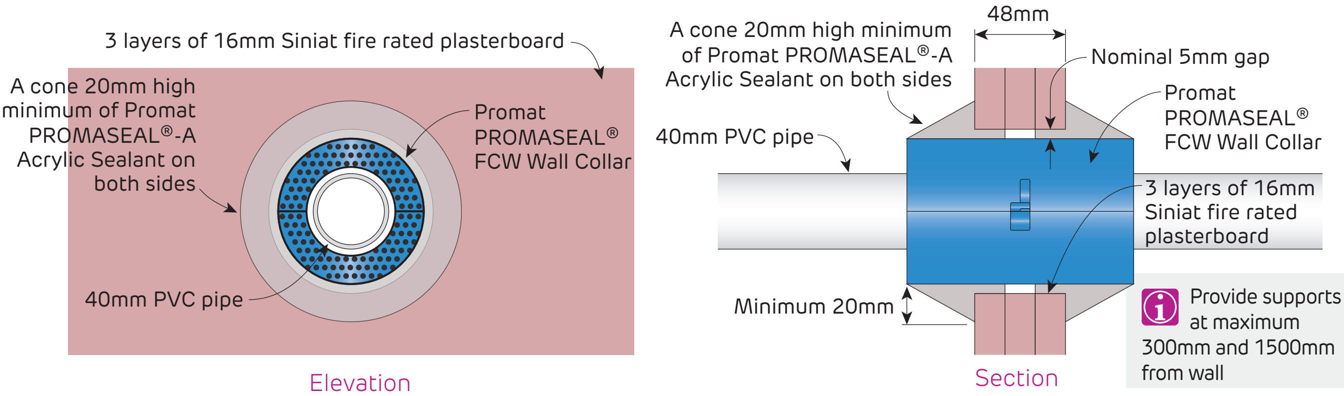

**FIGURE 35 100mm PVC Pipe**
FRL -/120/90

## Fire Rated
## Fire Penetration Details for Laminated Vertical Shaft



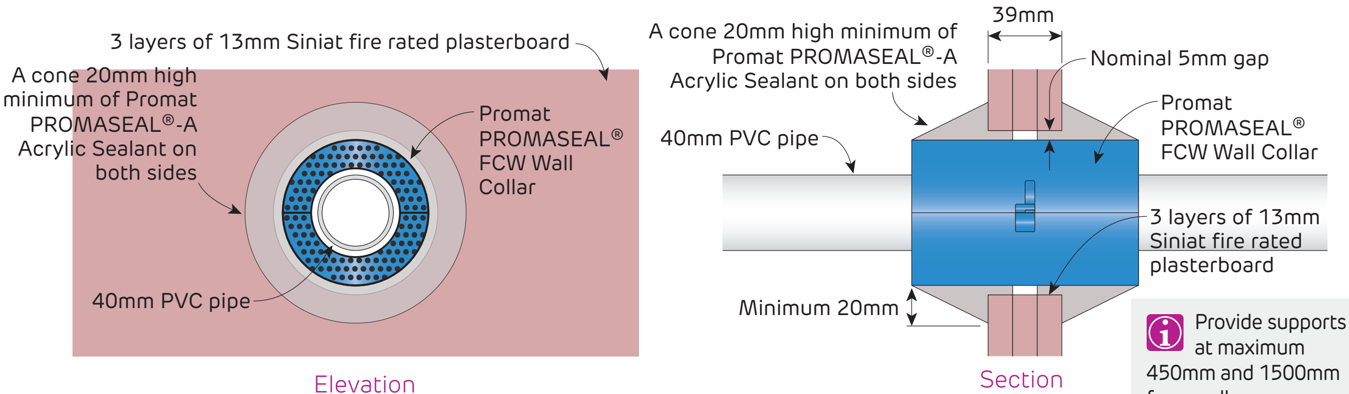

Provide supports at maximum 730mm and 1500mm from wall

**FIGURE 36** **100mm PVC Pipe**
FRL -/90/60



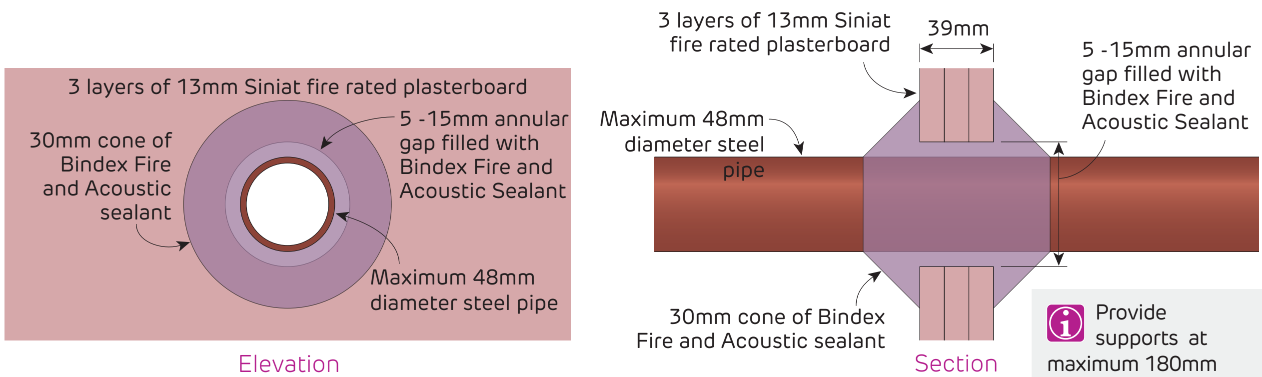

Provide supports at maximum 300mm and 1500mm from wall

**FIGURE 37** **40mm PVC Pipe**
FRL -/120/120




Provide supports at maximum 450mm and 1500mm from wall

**FIGURE 38** **40mm PVC Pipe**
FRL -/90/30




Provide supports at maximum 180mm and 450mm from wall

**FIGURE 39** **Maximum 48mm Steel Pipe**
FRL -/90/30

## Fire Rated
## Fire Penetration Details for Laminated Vertical Shaft

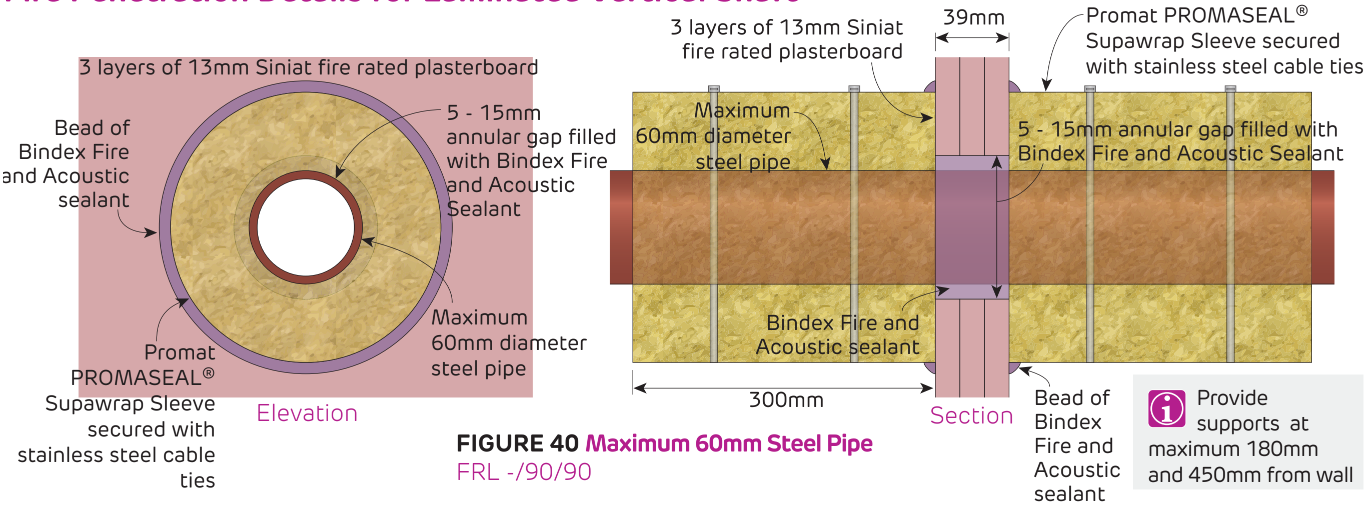



**FIGURE 40** **Maximum 60mm Steel Pipe**
FRL -/90/90



# 6.4 Column and Beam Fire Protection

Column and beam fire protection systems consist of **fire**shield and **shaft**liner layers protecting structural timber, steel or concrete. This enables the structural members to maintain their load carrying capacity in the event of a fire.

This section details the most common methods to encase timber, steel or concrete columns and beams to achieve a structural fire resistance level.

The FRL (Fire Resistance Level) for structural protection systems do not require the Integrity and Insulation ratings. They are expressed with only first number for structural adequacy and two dashes, for example 90/–/–

Steel and concrete protection systems limit the temperature directly beneath the plasterboard to 550°C. Timber protection systems limit char to less than 4mm.

Refer to *AS/NZS 1170.0:2002 Structural design actions Clause 4.2.4* for combinations of actions in a fire event.

For more information, refer to Section 2.3 Fire Resistance.

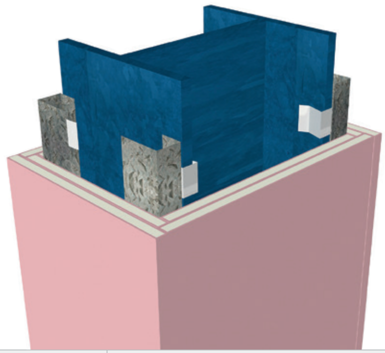
## SFP1 - SFP9

- Steel column or beam encased in either **fire**shield or **shaft**liner

[Option 1] Plasterboard screwed to light gauge steel framing fixed to structural steel

[Option 2] Plasterboard directly fixed to structural steel

**fire**shield can be substituted with **multi**shield or **impact**shield or **tru**rock



| **Fire Resistance Level** Report FC14029 | **System** | **Plasterboard Lining** | **Plasterboard Thickness (mm)** |
|---|---|---|---|
| **30/ – / –** | SFP1 | 1 layer of 13mm **fire**shield | 13 |
| **60/ – / –** | SFP2 | 1 layer of 16mm **fire**shield | 16 |
| **60/ – / –** | SFP3 | 2 layers of 13mm **fire**shield | 26 |
| **60/ – / –** | SFP4 | 1 layer of 25mm **shaft**liner | 25 |
| **90/ – / –** | SFP5 | 2 layers of 16mm **fire**shield | 32 |
| **120/ – / –** | SFP6 | 3 layers of 13mm **fire**shield | 39 |
| **120/ – / –** | SFP7 | 1 layer of 13mm **fire**shield plus 1 layer of 25mm **shaft**liner | 38 |
| **180/ – / –** | SFP8 | 4 layers of 16mm **fire**shield | 64 |
| **180/ – / –** | SFP9 | 1 layer of 13mm **fire**shield plus 2 layers of 25mm **shaft**liner | 63 |

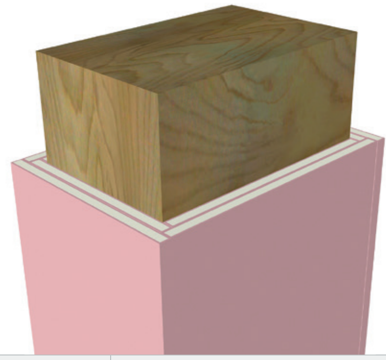
## SFP10 - SFP30

- Timber column or beam (minimum dimensions 100 x 100mm) encased in either **fire**shield or **shaft**liner

[Option 1] Plasterboard screwed to light gauge steel framing fixed to structural timber

[Option 2] Plasterboard directly fixed to structural timber

**fire**shield can be substituted with **multi**shield or **impact**shield or **tru**rock



| **Fire Resistance Level** Report FC14029 | **System** | **Plasterboard Lining** | **Plasterboard Thickness (mm)** |
|---|---|---|---|
| **30/ – / –** | SFP10 | 1 layer of 13mm **fire**shield | 13 |
| **60/ – / –** | SFP11 | 2 layers of 13mm **fire**shield | 26 |
| **60/ – / –** | SFP12 | 1 layer of 25mm **shaft**liner | 25 |
| **90/ – / –** | SFP13 | 3 layers of 13mm **fire**shield | 39 |
| **90/ – / –** | SFP14 | 1 layer of 13mm **fire**shield plus 1 layer of 25mm **shaft**liner | 38 |
| **120/ – / –** | SFP15 | 3 layers of 16mm **fire**shield | 48 |
| **180/ – / –** | SFP16 | 4 layers of 16mm **fire**shield | 64 |

## SFP20 - SFP24

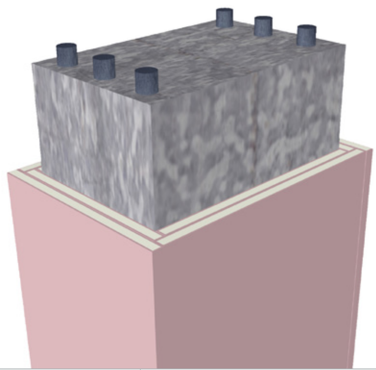
- Concrete column or beam encased in **fire**shield

[Option 1] Plasterboard screwed to light gauge steel framing fixed to concrete

[Option 2] Plasterboard fixed to concrete directly with Tapcon countersunk screws

These systems are designed to upgrade the FRL of the concrete column or beam. Refer to AS3600 for the existing FRL of the concrete column or beam.

**fire**shield can be substituted with **multi**shield or **impact**shield or **tru**rock



| **Fire Resistance Level** Report FC14029 | **System** | **Plasterboard Lining** | **Plasterboard Thickness (mm)** |
|---|---|---|---|
| **Concrete Structural Adequacy + 30/ – / –** | SFP20 | 1 layer of 13mm **fire**shield | 13 |
| **Concrete Structural Adequacy + 60/ – / –** | SFP21 | 1 layer of 16mm **fire**shield | 16 |
| **Concrete Structural Adequacy + 90/ – / –** | SFP22 | 2 layers of 16mm **fire**shield | 32 |
| **Concrete Structural Adequacy + 120/ – / –** | SFP23 | 3 layers of 13mm **fire**shield | 39 |
| **Concrete Structural Adequacy + 180/ – / –** | SFP24 | 4 layers of 16mm **fire**shield | 64 |

# General Requirements

| | Fire Rated |
|---|---|
| Only joint the face layer. As a minimum, use paper tape with either mastabase, mastalongset, mastaline, mastatape-in or mastalite applied in one or two coats to the thickness of two coats. | ✓ |
| Use fire sealant on all gaps and around perimeter. | ✓ |
| Check the NCC Volume One, C2D9 for additional requirements for columns such as filling any void solid up to 1.2m high, or to provide further damage protection. | ✓ |
| Protect intersecting framing members to the column or beam with 450mm of the plasterboard protection system or Promat Promaseal® Supawrap 40. | ✓ |
| Fix items such as top hats through the plasterboard into the column or beam using maximum 12g screws. | ✓ |
| Mitred and folded corners are permitted for single layer systems only. | ✓ |
| fireshield may be substituted with multishield, impactshield, trurock and trurock HD of the same or greater thickness and maintain fire performance. | ✓ |

# Framing

| | Fire Rated |
|---|---|
| Install steel framing members at maximum 300mm centres in the horizontal plane (bottom of beams) and maximum 600mm centres in the vertical plane (columns and, top and sides of beams). Steel framing may be screwed, welded or riveted to the column or beam. | ✓ |
| Install steel framing at each end of the column/beam and behind first layer butt joints. | ✓ |
| Use Table 1 for furring channels onto columns and Section 5.1 for furring channels onto beams. Alternatively for top hats, refer to Section 4.5 for columns or Section 5.5 for beams. | ✓ |

**Table 1 Furring Channel Anchor Spacing to Columns**

| Framing Member | Columns |
|---|---|
| 13mm Recessed Furring Channel | 900mm |
| 18mm Furring Channel (FC18) | 900mm |
| 28mm Furring Channel (FC28) | 900mm |

Anchors for furring channel must also be fixed 100mm maximum from ends.

# Plasterboard Layout

| | Fire Rated |
|---|---|
| Stagger butt joints by 300mm minimum on adjoining sheets and between layers. | ✓ |
| Stagger recessed edges by 300mm minimum between layers. | ✓ |

# Plasterboard Fixing

| | Fire Rated |
|---|---|
| Use the 'Screw Only Method'. | ✓ |
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ |
| Laminating screws can be used to fix butt joints in the second, third and fourth layers. | ✓ |
| Fix plasterbooard to a column or beam using maximum 12g screws. | ✓ |
| Hex head screws may be used on the face layer. | ✓ |

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer | 4th Layer |
|---|---|---|---|---|
| 13mm | 6g x 25mm screw | 6g x 41mm screw | 7g x 57mm screw or 10g x 38mm laminating screws | - |
| 16mm | 6g x 32mm screw | 6g x 45mm screw | 8g x 65mm screw or 10g x 38mm laminating screws | 10g x 38mm laminating screws |
| 25mm | 6g x 41mm screw | - | - | - |
| 13mm + 25mm + 25mm | 6g x 25mm screw | 7g x 50mm screw | 10g x 50mm laminating screws | - |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.

## Screw Type and Minimum Size for the Installation of Plasterboard to Timber

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer | 4th Layer |
|---|---|---|---|---|
| 13mm | 6g x 40mm screw | 8g x 50mm screw | 10g x 38mm laminating screws | - |
| 16mm | 6g x 45mm screw | 8g x 60mm screw | 10g x 38mm laminating screws | 10g x 38mm laminating screws |
| 25mm | 8g x 50mm screw | 10g x 50mm laminating screws | - | - |
| 13mm + 25mm | 6g x 40mm screw | 8g x 65mm screw | - | - |

10g x 38mm Laminating screws may be used as detailed in installation diagrams.

## Screw Type and Minimum Size for the Installation of Plasterboard to Concrete

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd and 4th Layer |
|---|---|---|---|
| 13mm | 10g x 32mm tapcon screw | 10g x 45mm tapcon screw | 10g x 38mm laminating screws |
| 16mm | 10g x 32mm tapcon screw | 10g x 45mm tapcon screw | 10g x 38mm laminating screws |

For concrete use tapcon screws with countersunk head.

**FIGURE 1** **Steel Column or Beam**
Screw Only Method

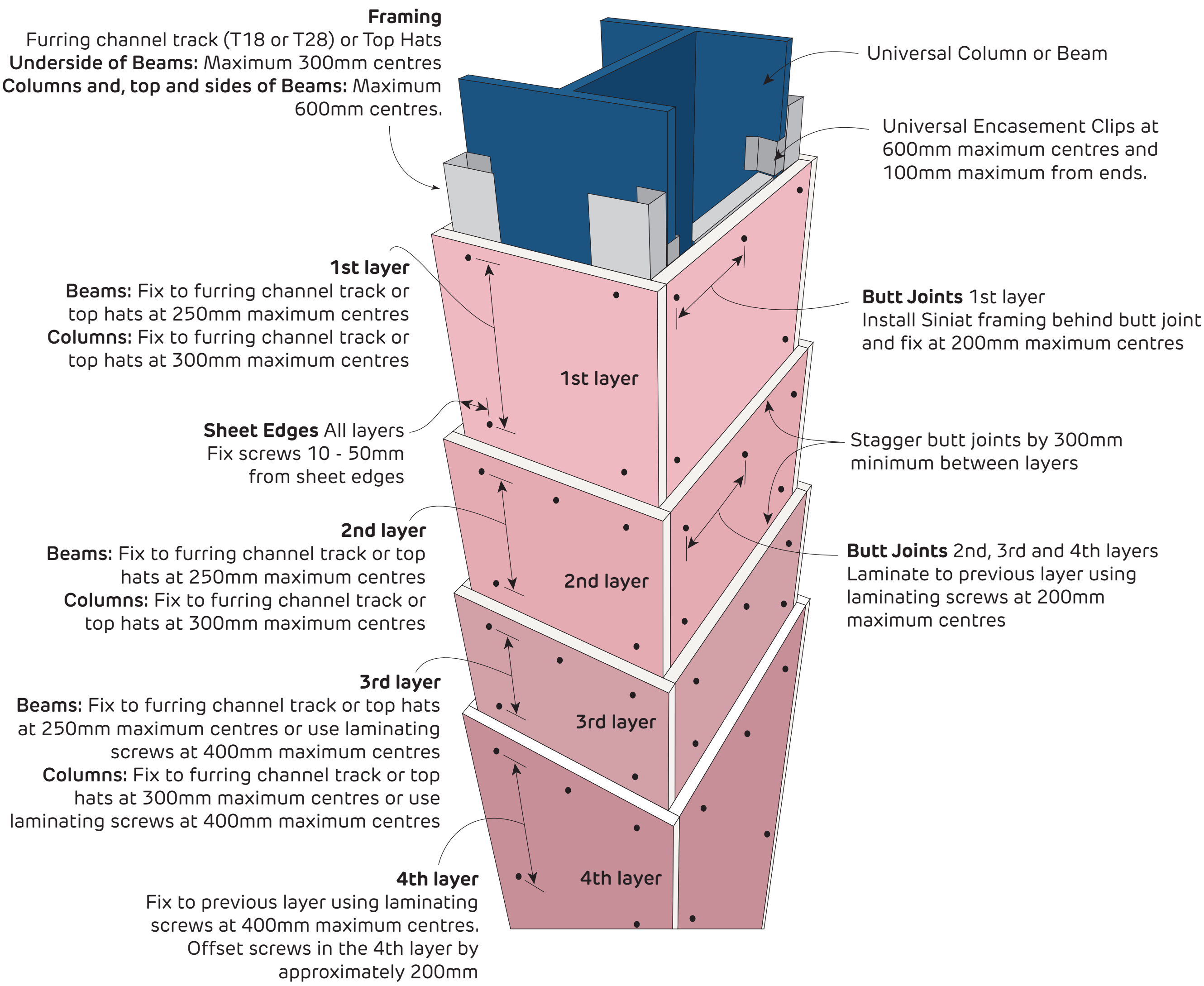
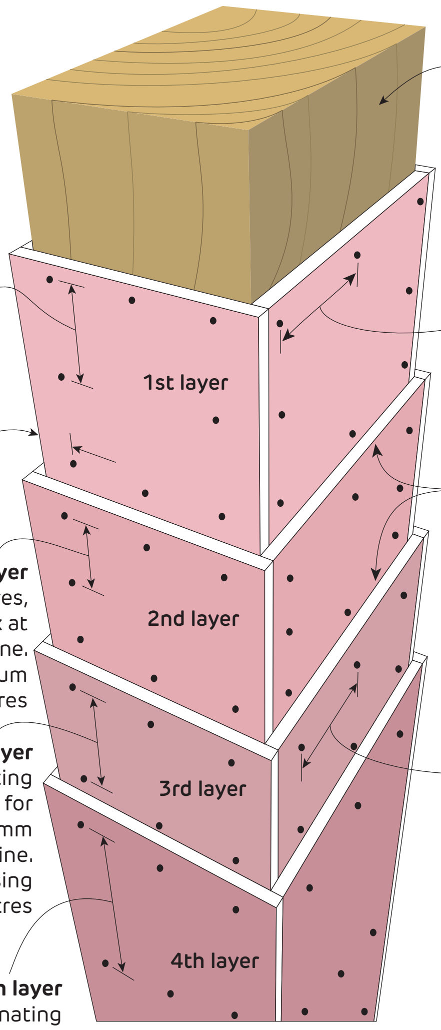


**FIGURE 2** **Timber Column or Beam**
Screw Only Method




Timber Column or Beam

**1st layer**
**Beams:** Fix to timber at 100mm maximum centres, and for beams wider than 300mm also fix at 250mm maximum centres in the centerline.
**Columns:** Fix to timber at 200mm maximum centres

**Butt Joints** 1st and 2nd layers
Fix to timber at 200mm maximum centres

**Sheet Edges** All layers
Fix screws 10 - 75mm from sheet edges

Stagger butt joints by 300mm minimum between layers

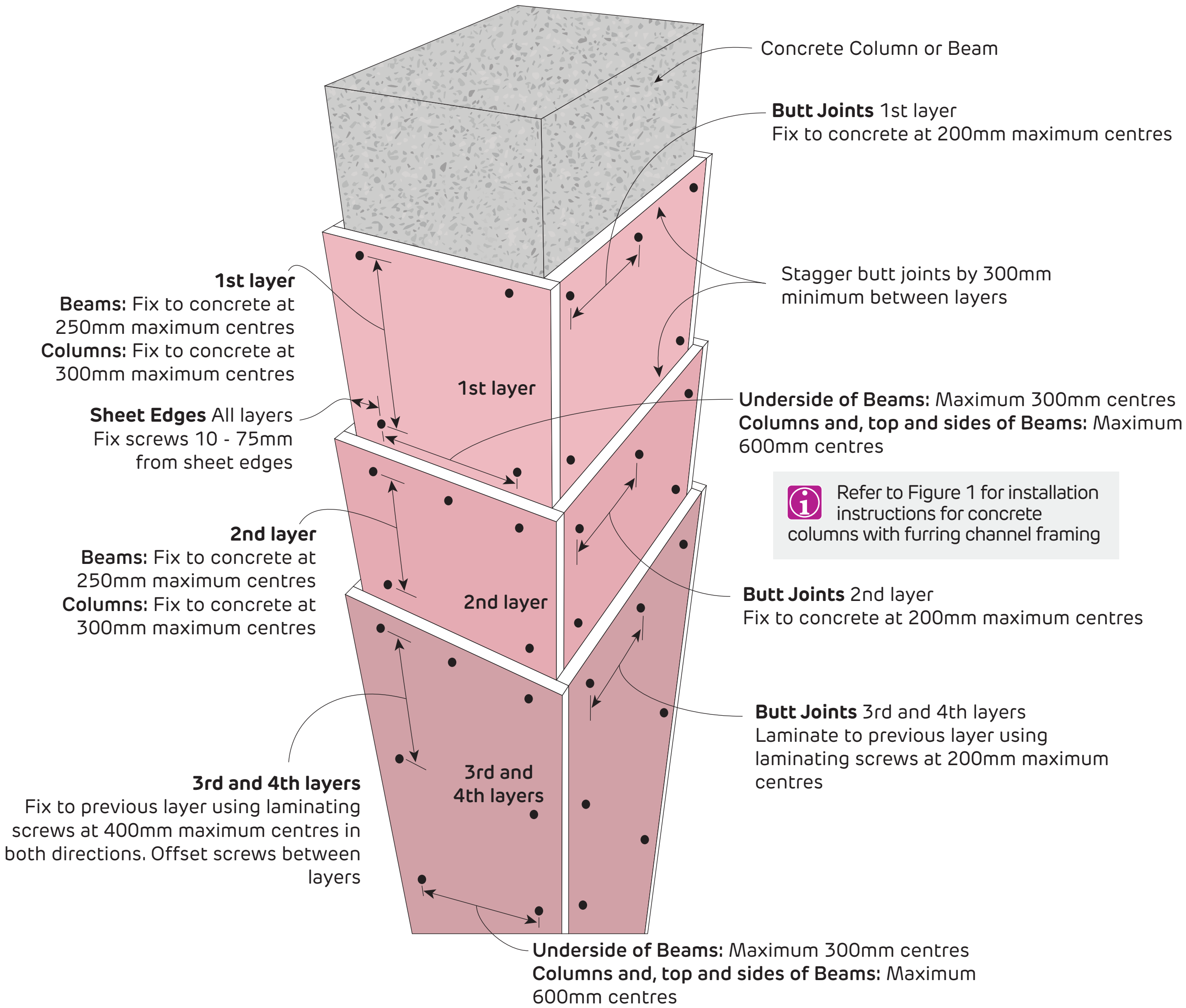
**2nd layer**
**eams:** Fix to timber at 100mm maximum centres, and for beams wider than 300mm also fix at 250mm maximum centres in the centerline.
**Columns:** Fix to timber at 200mm maximum centres

**3rd layer**
**Beams:** Fix to previous layer using laminating screws at 100mm maximum centres and for beams wider than 300mm also fix at 250mm maximum centres in the centerline.
**Columns:** Fix to previous layer using laminating screws at 200mm maximum centres

**Butt Joints** 3rd and 4th layers
Fix to previous layer using laminating screws at 100mm maximum centres for beams, and 200mm maximum centres for columns

**4th layer**
**Beams:** Fix to previous layer using laminating screws at 100mm maximum centres and for beams wider than 300mm also fix at 250mm maximum centres in the centerline.
**Columns:** Fix to previous layer using laminat-ing screws at 200mm maximum centres
Offset screws in the 4th layer by approximately 100mm

**FIGURE 3** **Concrete Column or Beam**
Screw Only Method



# Fire Rated
## Details for Steel Column and Beam Fire Protection

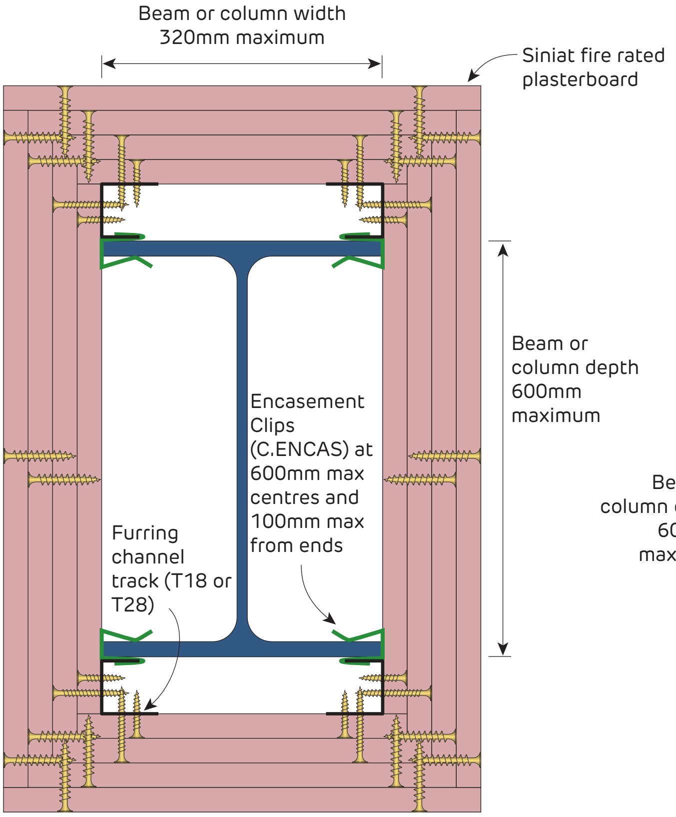



**FIGURE 4** 4 Sided Protection for I-Beam/Column
Plan or Section

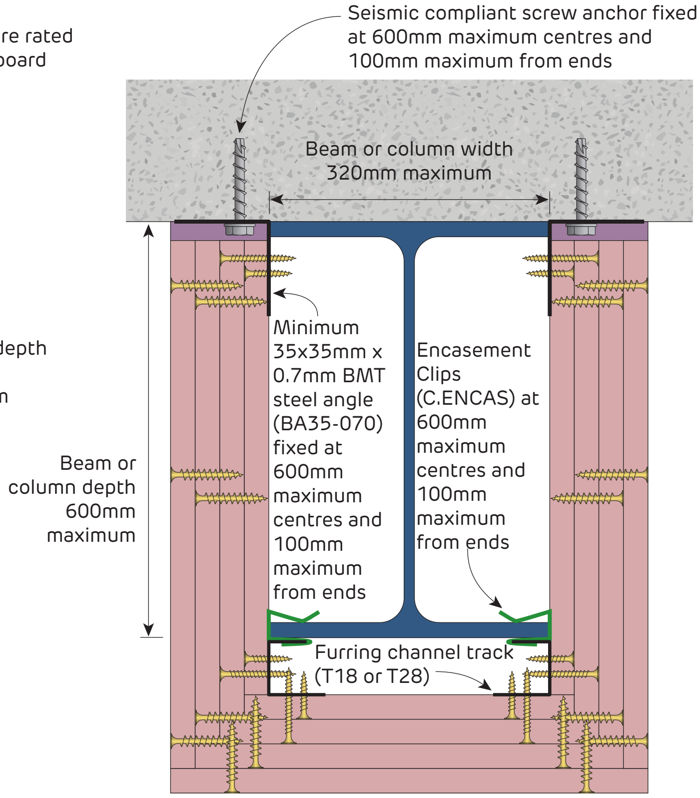



**FIGURE 5** 3 Sided Protection for I-Beam/Column
Plan or Section

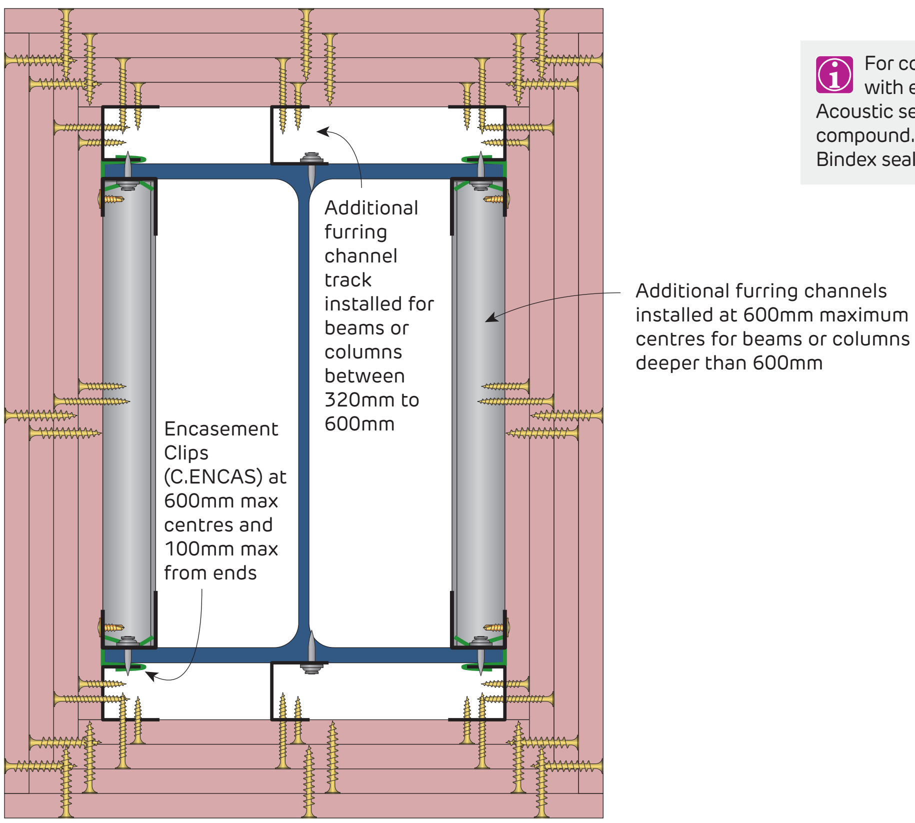



**FIGURE 6** 4 Sided Protection for I-Beam/Column
Plan or Section

For corner gaps up to 3mm, fill with either Bindex Fire and Acoustic sealant or Mastabase jointing compound. Fill any other gaps with Bindex sealant to maintain integrity.

# Fire Rated
## Details for Steel Column and Beam Fire Protection

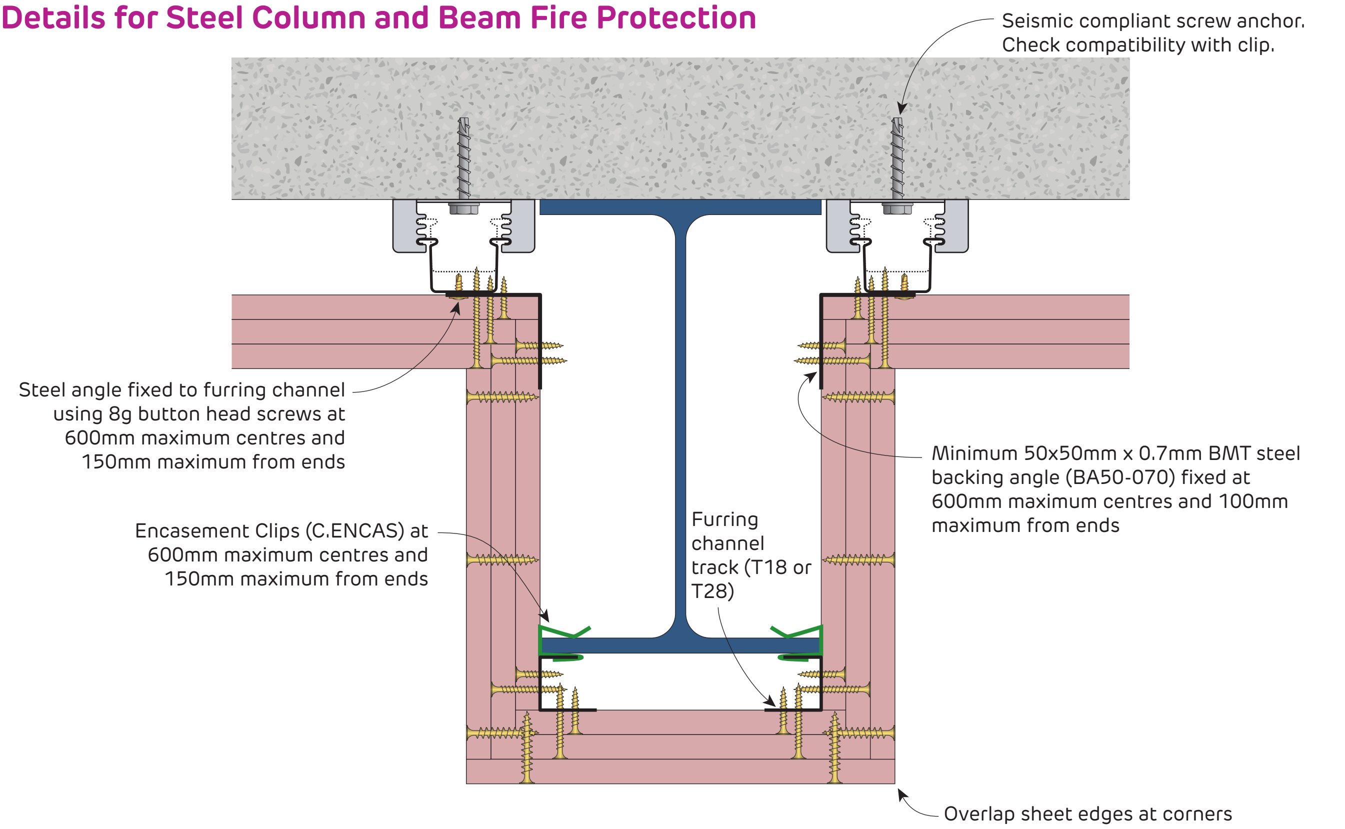



**FIGURE 7** 3 Sided Protection for I-Beam to Ceiling
Section

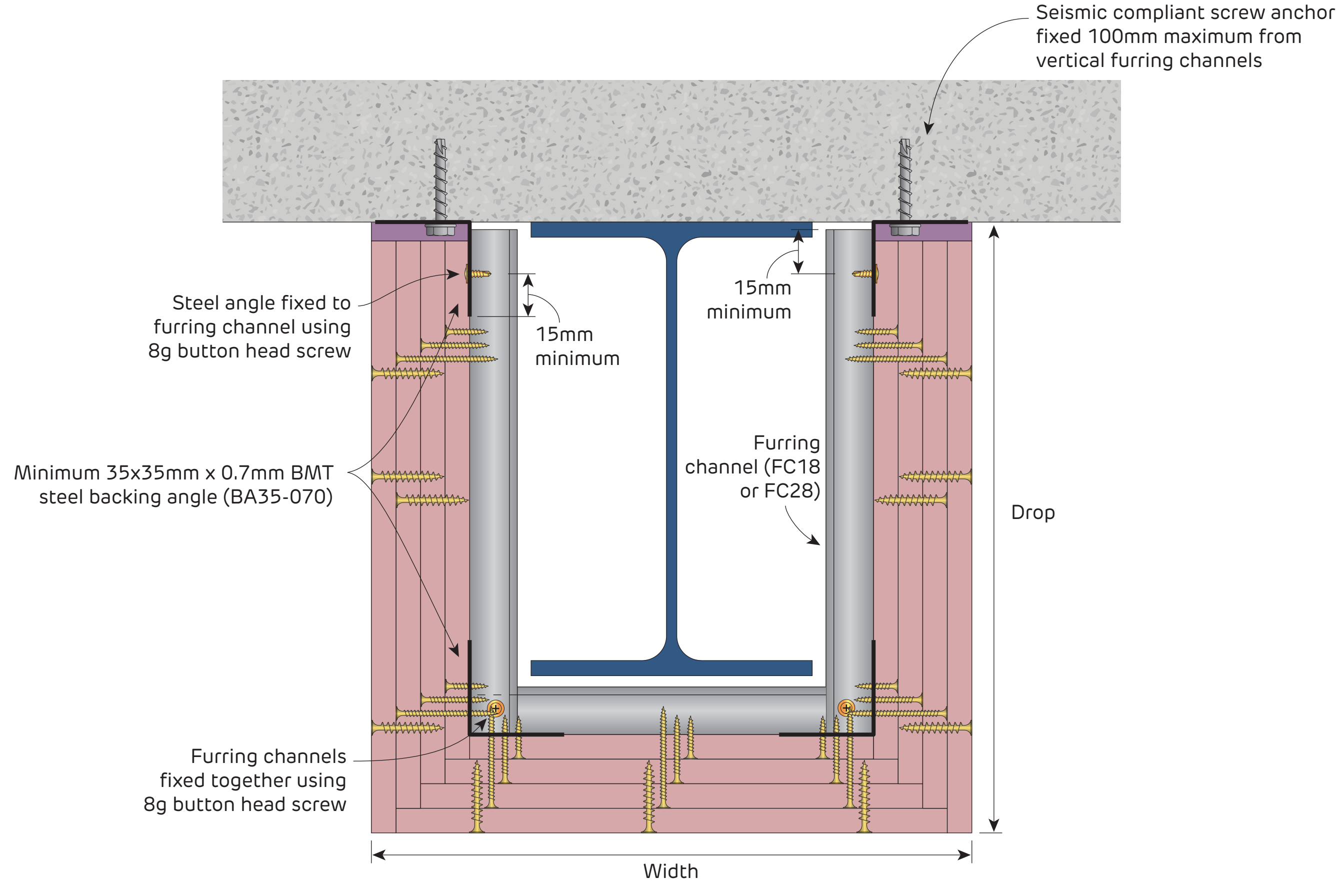
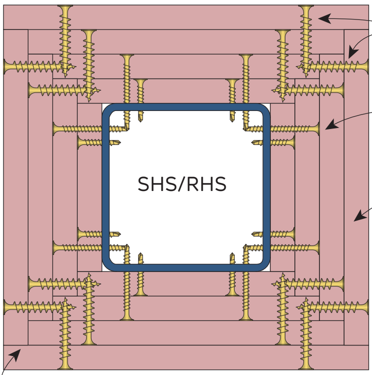



**FIGURE 8** U-Shaped Bulkhead
Section

## Fire Rated
## Details for Steel Column and Beam Fire Protection




Hex head screws may be used on the face layer

**FIGURE 9** 4 Sided Protection for SHS / RHS
Plan or Section

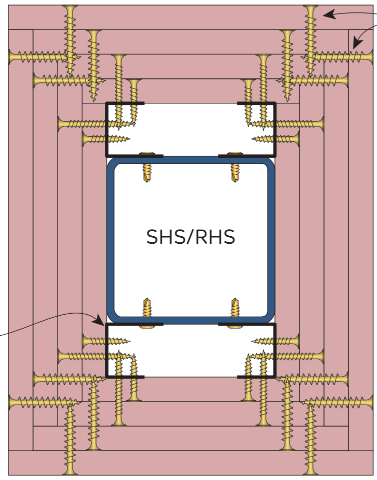



**FIGURE 10** 4 Sided Protection for SHS / RHS
Plan or Section

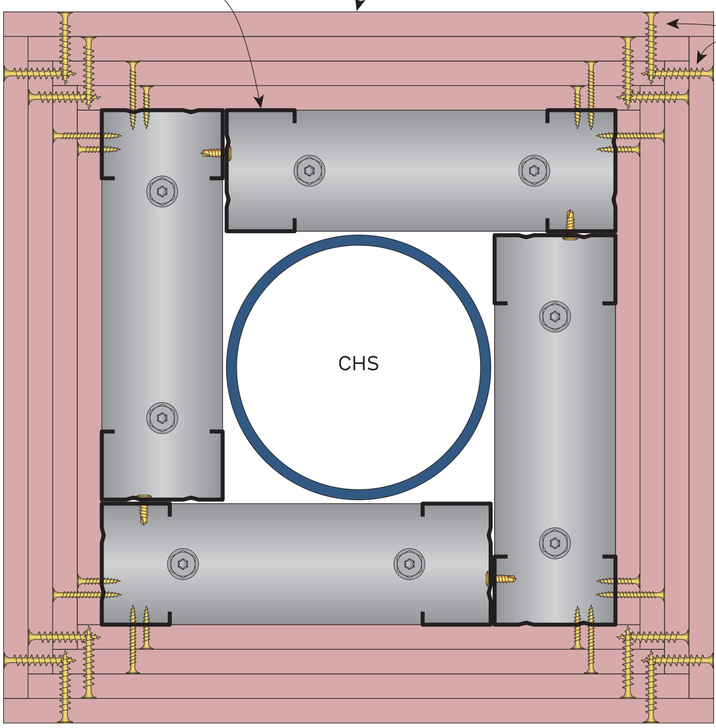



**FIGURE 11** 4 Sided Protection for CHS
Plan

For corner gaps up to 3mm, fill with either Bindex Fire and Acoustic sealant or Mastabase jointing compound. Fill any other gaps with Bindex sealant to maintain integrity.

## Fire Rated
## Details for Timber Column and Beam Fire Protection

For corner gaps up to 3mm, fill with either Bindex Fire and Acoustic sealant or Mastabase jointing compound. Fill any other gaps with Bindex sealant to maintain integrity.

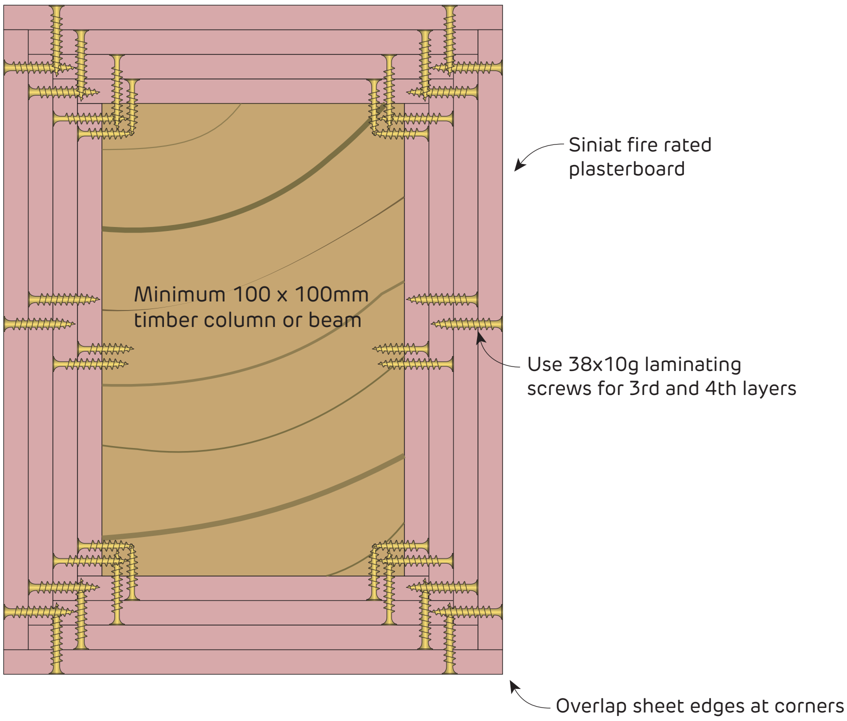
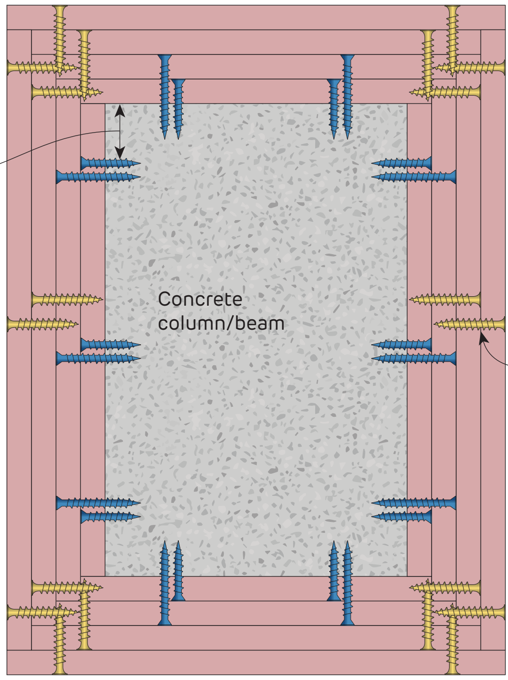



**FIGURE 12** **4 Sided Protection Timber Column/Beam**
Plan or Section

## Fire Rated
## Details for Concrete Column and Beam Fire Protection




For corner gaps up to 3mm, fill with either Bindex Fire and Acoustic sealant or Mastabase jointing compound. Fill any other gaps with Bindex sealant to maintain integrity.

**FIGURE 13** 4 Sided Protection Concrete Column/Beam
Plan

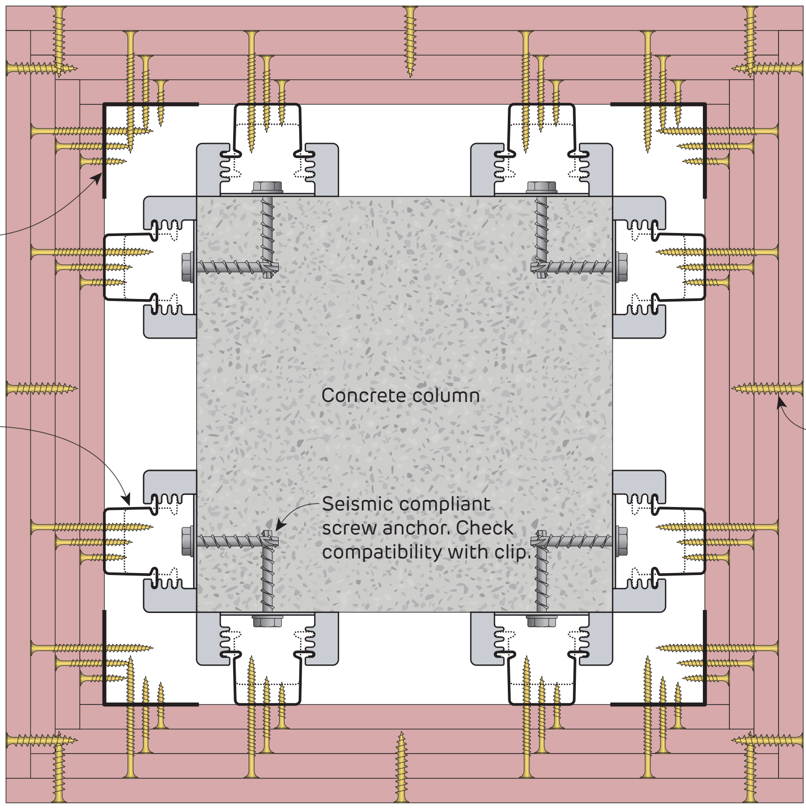
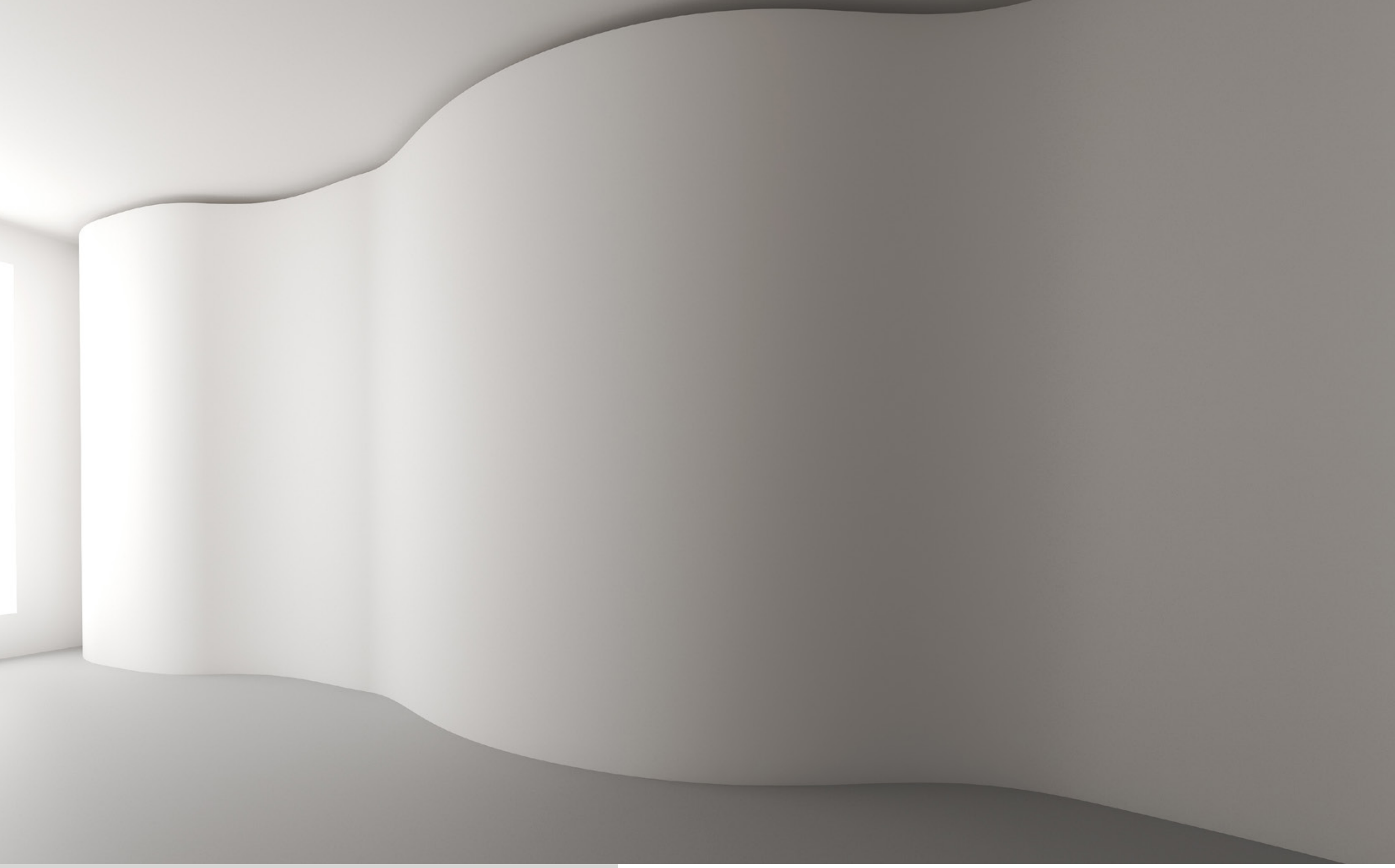



**FIGURE 14** 4 Sided Protection Concrete Column
Plan





# 6.5 Curved Walls and Ceilings

Plasterboard can be curved to create imaginative architectural effects. With careful installation and proper framing methods, tightly curved walls and ceilings are possible.

**curve**shield is designed for this purpose and will achieve the tightest curves. All of the Siniat plasterboard product range can be curved if required.

This section provides details on how to bend plasterboard, including installation, framing geometry and bend radius information.

# General Requirements

| |
|---|
| Only use **curve**shield for applications where the radius is less than 900mm. |
| Fix ceiling framing at 300mm maximum centres for the installation of **curve**shield. |
| Ensure that the radius on the convex side is not too tight for the corresponding concave side. |
| Stagger recessed edges and butt joints by 200mm minimum between layers. |

## Wetting Curved Plasterboard

Hot, humid conditions are ideal for curving plasterboard. In cold, low-humidity conditions or if very tight curves are required, prepare the plasterboard as follows:

> Use a clean paint roller or sponge to apply a small amount of water to the plasterboard surface that will be in compression. Add a small amount of detergent to the water in very dry conditions to act as a wetting agent.

> Allow at least 15 minutes for the water to soak in before bending the plasterboard.

> Siniat Flexi-Track and stud system is recommended for framing curved walls or ceilings.

> Avoid joints parallel to studs in the curved section.

> Only the face layer needs to be jointed.

> The minimum curve radius is determined by the concave side.

> Two layers of **curve**shield must be used (single layer is not permitted).

> A tighter curve radius can be achieved by curving widthways [Figure 2]

# Framing

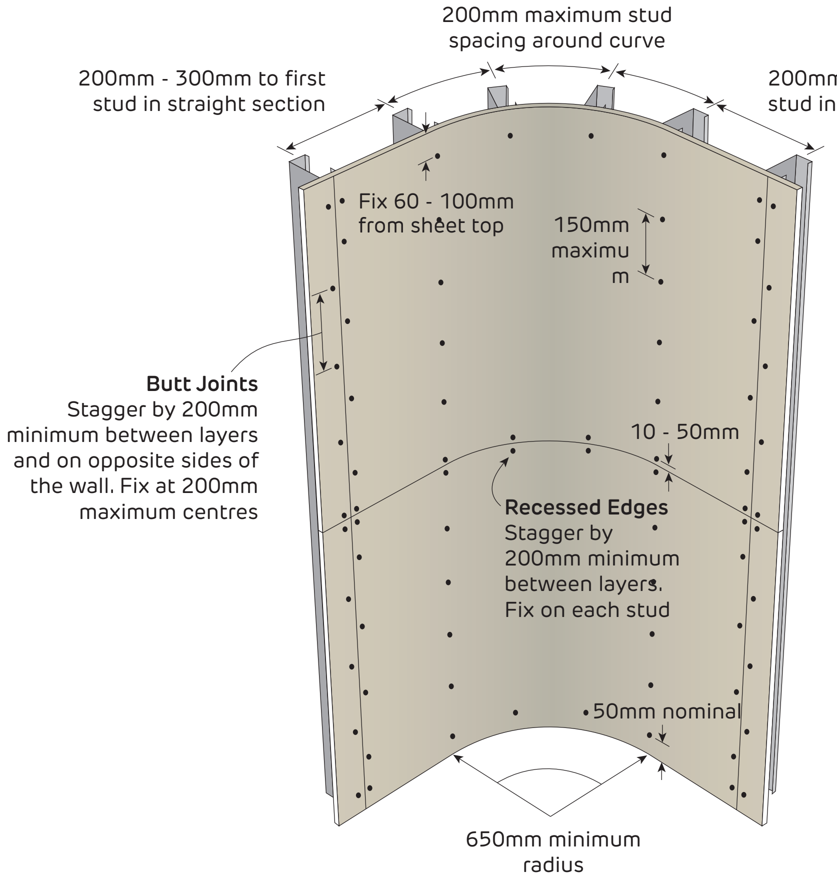
### Table 1 Maximum Frame Spacing and Minimum Curve Radius for Curveshield

| **curve**shield | Curve Radius (mm) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 250 - 450 | 450 - 600 | 650 - 900 | 900 - 1000 | 1000 - 1500 | 1500 - 2000 | > 2000 |
| | Maximum Framing Centres (mm) | | | | | | |
| Concave - curved along length | - | - | 200 | 200 | 200 | 250 | 300 |
| Convex - curved along length | - | 200 | 200 | 200 | 200 | 250 | 300 |
| Concave - curved along width | - | 150 | 150 | 150 | 200 | 250 | 300 |
| Convex - curved along width | 125 | 150 | 150 | 150 | 200 | 250 | 300 |

### Table 2 Maximum Frame Spacing and Minimum Curve Radius for regular Plasterboard

| Other Plasterboards | **masta**shield only | | | | All plasterboard except perforated | | |
|---|---|---|---|---|---|---|---|
| | 900 - 1000 | 1000 - 1500 | 1500 - 2000 | 2000 - 2500 | 2500 - 3000 | 3000 - 4000 | > 4000 |
| Plasterboard Thickness | Maximum Framing Centres (mm) | | | | | | |
| 10mm | 150 | 200 | 250 | 300 | 350 | 400 | 500 |
| 13mm | - | 150 | 200 | 250 | 300 | 400 | 500 |
| 16mm | - | - | - | - | 200 | 250 | 350 |

**FIGURE 1** **Curveshield on a Concave Wall - Horizontal**
Curved lengthways - For radius less than 900mm
Screw Only Method




Refer to framing tables for maximum frame spacing along curves

**FIGURE 2** **Curveshield on a Concave Wall - Vertical**
Curved widthways - For radius less than 900mm
Screw Only Method

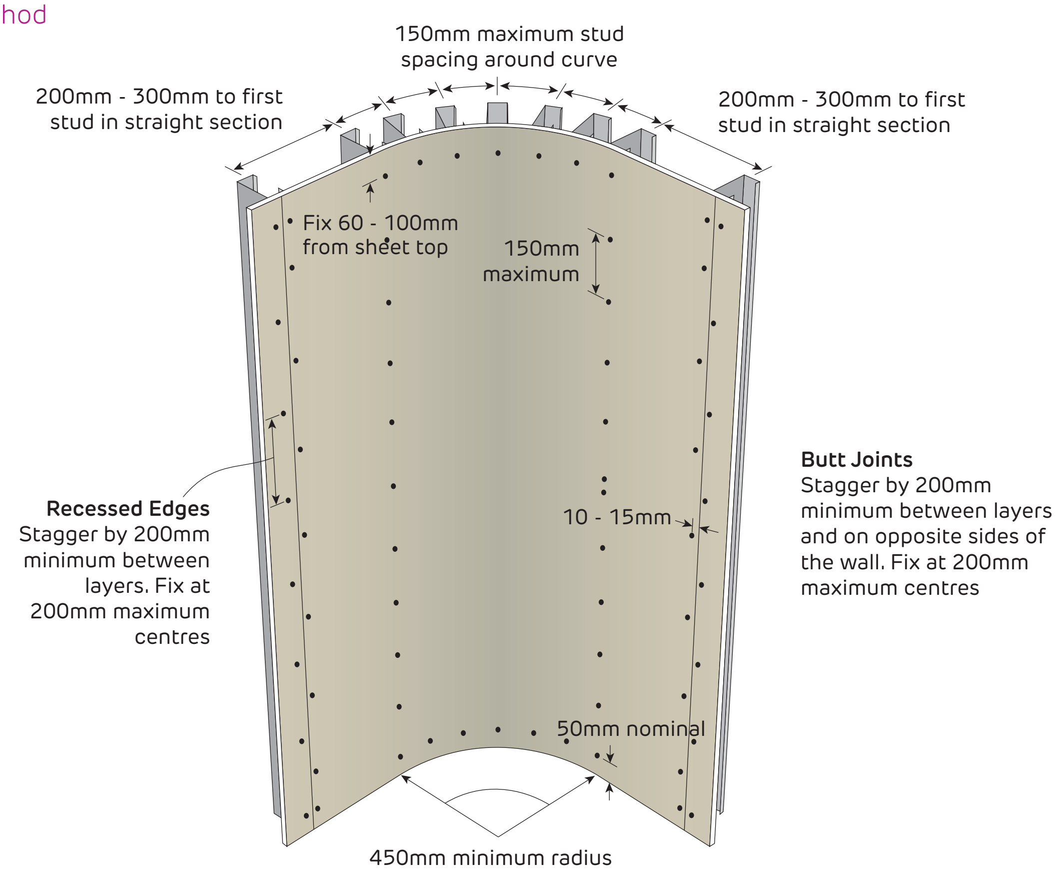
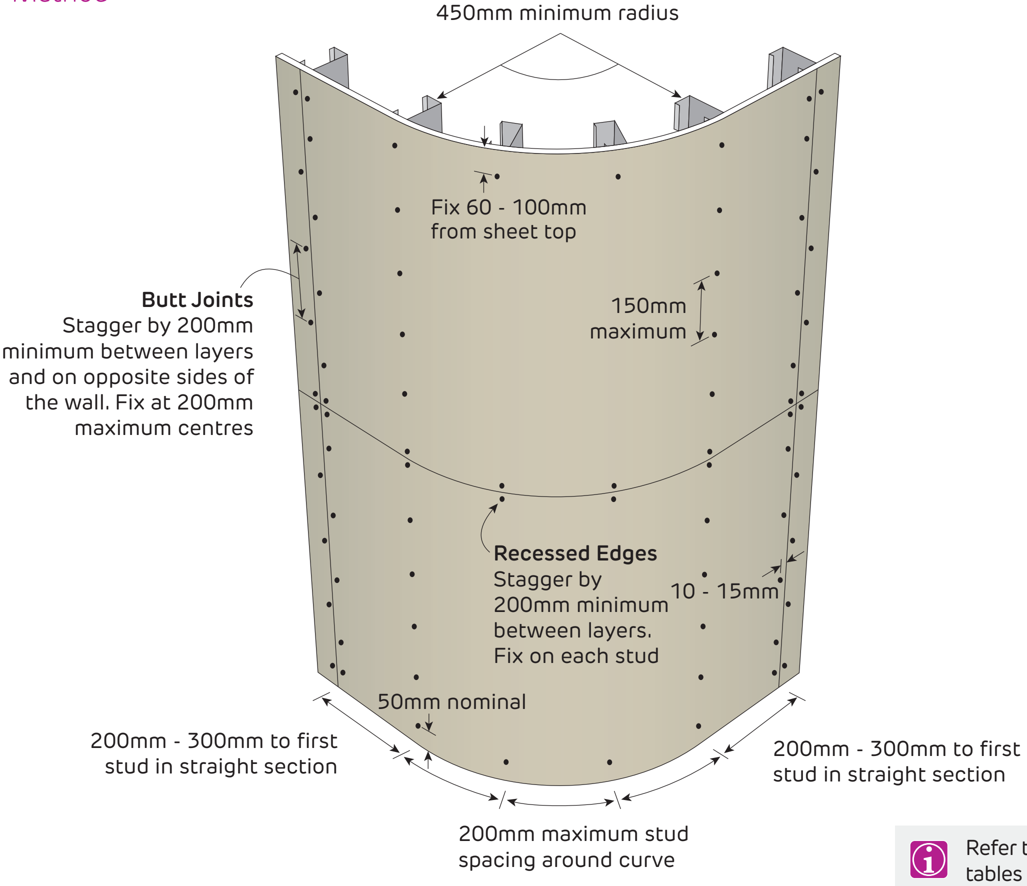
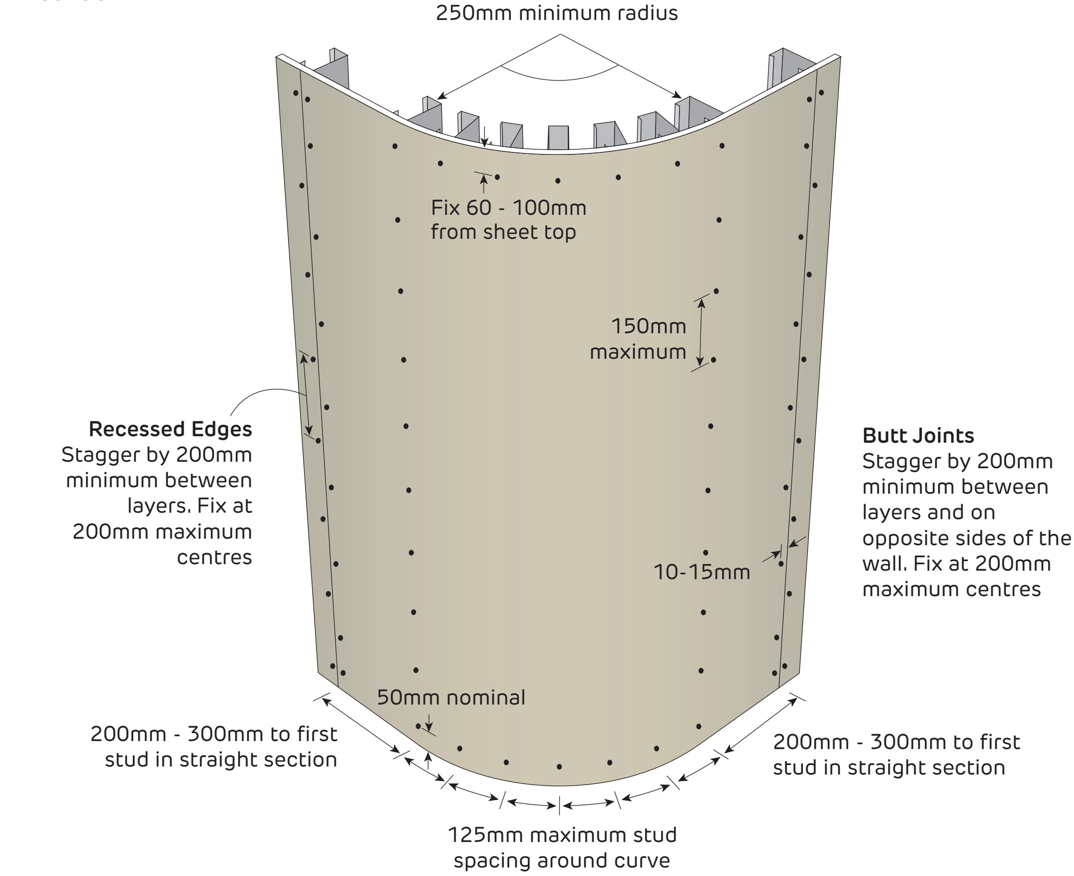


**FIGURE 3 Curveshield on a Convex Wall - Horizontal**
Curved lengthways - For radius less than 900mm
Screw Only Method




Refer to framing tables for maximum frame spacing along curves

**FIGURE 4 Curveshield on a Convex Wall - Vertical**
Curved widthways- For radius less than 900mm
Screw Only Method



## Non-Fire Rated
## Curved Wall

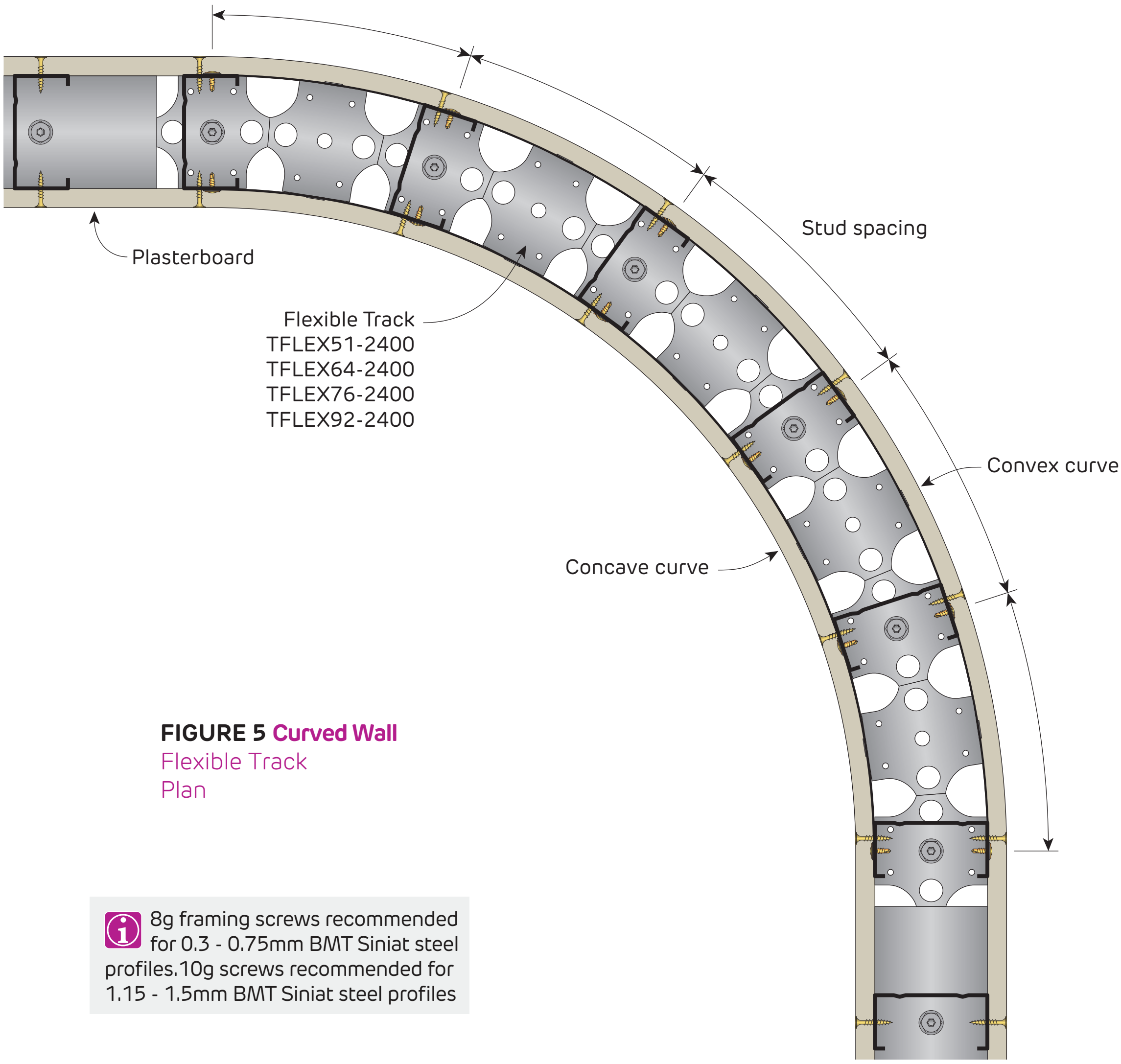



**FIGURE 5 Curved Wall**
Flexible Track
Plan

8g framing screws recommended for 0.3 - 0.75mm BMT Siniat steel profiles.10g screws recommended for 1.15 - 1.5mm BMT Siniat steel profiles

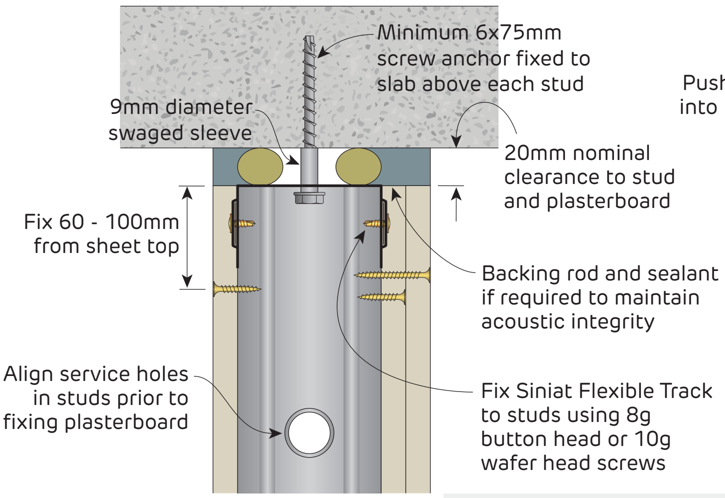



**FIGURE 6 Wall Head**
Flexible Track
Section

Do not rigidly fix cornice to non-load bearing wall head and soffit, as slab deflection is expected.

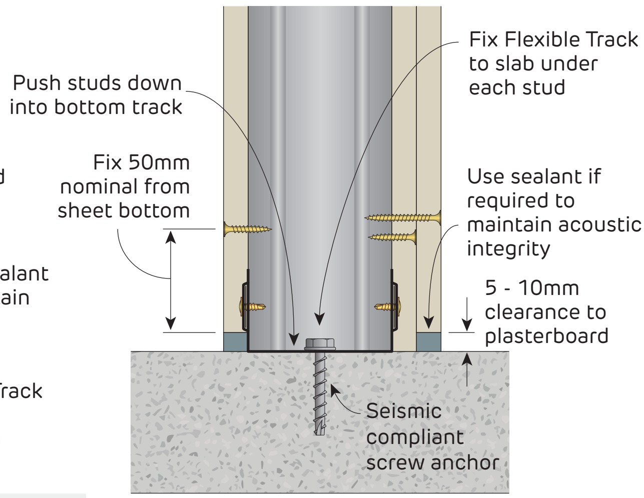



**FIGURE 7 Wall Base**
Flexible Track
Section

## Non-Fire Rated
## Curved Ceiling

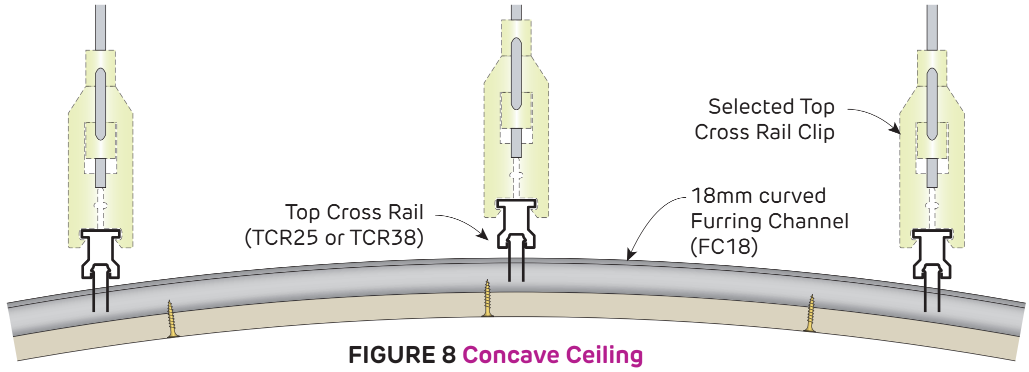



**FIGURE 8 Concave Ceiling**
Concave furring channel
Section

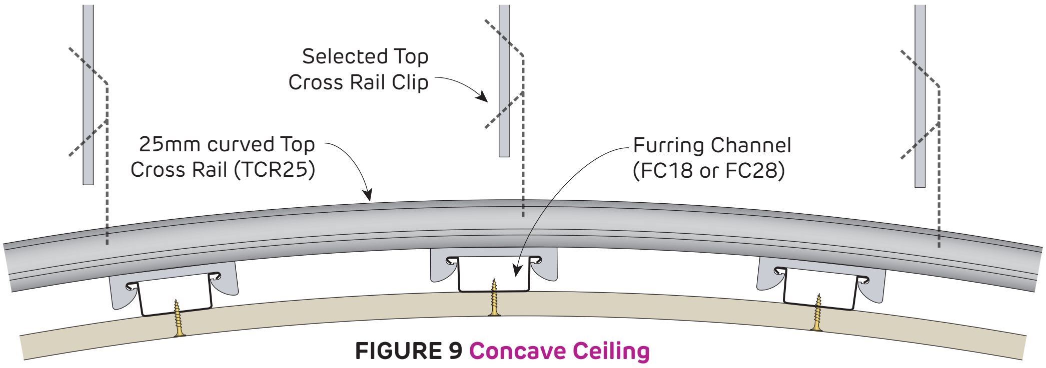



**FIGURE 9 Concave Ceiling**
Concave top cross rail
Section

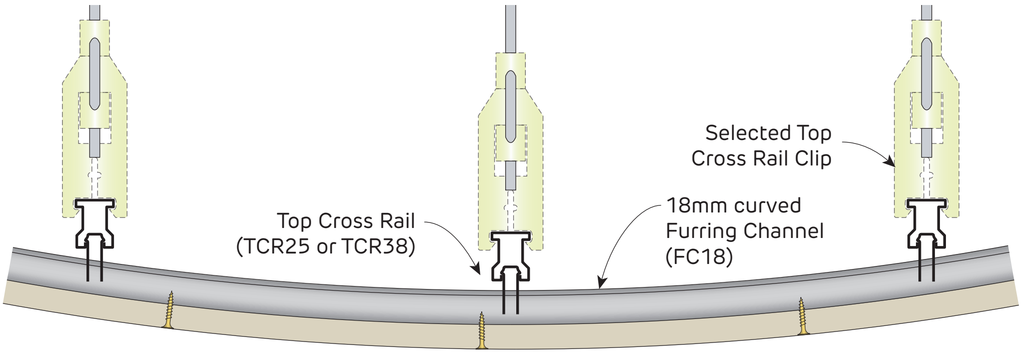



**FIGURE 10 Convex Ceiling**
Convex furring channel
Section

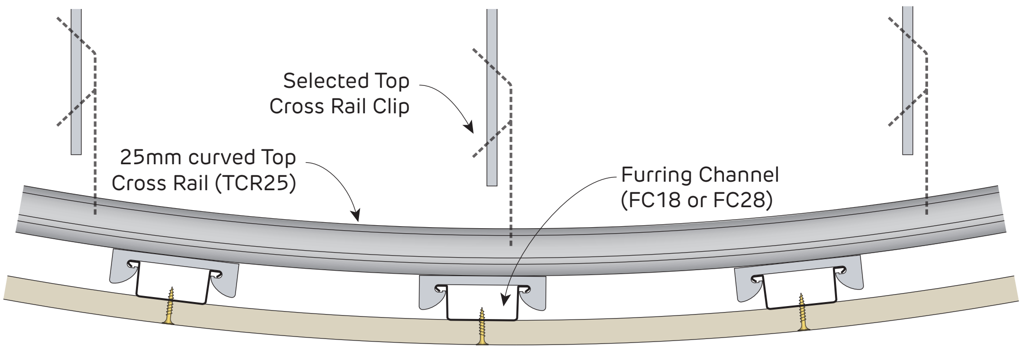



**FIGURE 11 Convex Ceiling**
Convex top cross rail
Section



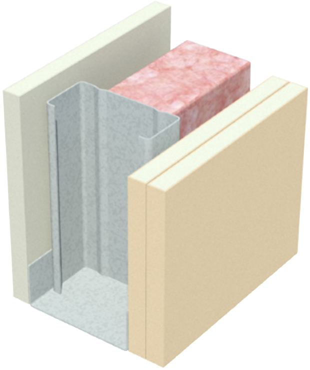

# 6.6 X-Ray Protection Systems

GIB **x-block**® is a lead free plasterboard system used as an effective radiation barrier. Barium Sulphate in the GIB **x-block**® plasterboard and compound provide protection against X-rays.

X-ray shielding requirements are usually specified as a thickness of lead. The lead equivalence of GIB **x-block**® systems depend on the energy level of the radiation. Tables 1 and 2 state the lead equivalence of GIB **x-block**® systems at various X-ray energy levels. Always seek advice from a Health Physicist to ensure that the requirements for radiation shielding are met.

This section contains radiation test results, shielding requirements, building systems, installation instructions and construction details for GIB **x-block**® systems. [Refer to Section 2.3 for more information on X-ray resistance]

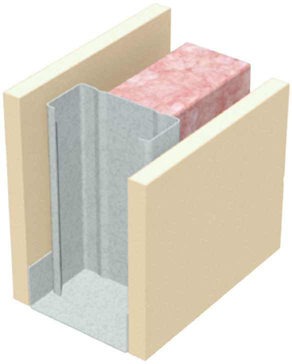
## XRP1



- 1 layer of 13mm **masta**shield
- Steel or timber stud framing at 600mm maximum centres
- 2 layers of 13mm GIB **x-block**®

| Stud Depth (mm) | Width (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Report |
| 64 steel | 103 | 44 (38) | 51 (42) | Day Design 3094-4 |
| 70 timber | 109 | 42 (37) | 46 (41) | |

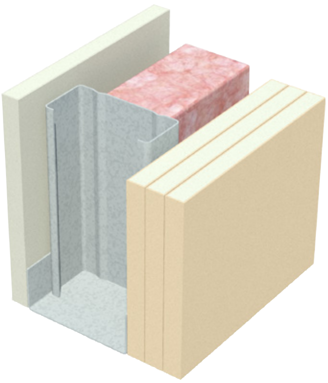
## XRP2



- 1 layer of 13mm GIB **x-block**®
- Steel or timber stud framing at 600mm maximum centres
- 1 layer of 13mm GIB **x-block**®

| Stud Depth (mm) | Width (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Report |
| 64 steel | 90 | 40 (35) | 49 (40) | Day Design 3094-4 |
| 70 timber | 96 | 38 (33) | 42 (38) | |

## XRP3

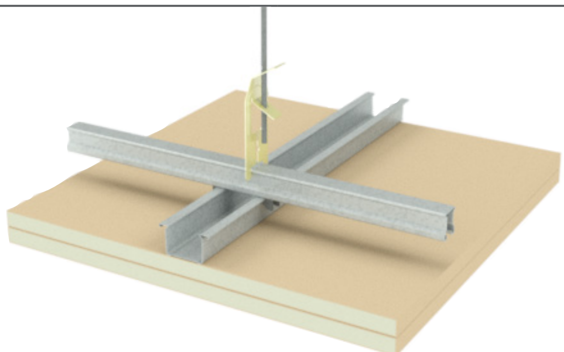


- 1 layer of 13mm **masta**shield
- Steel or timber stud framing at 600mm maximum centres
- 3 layers of 13mm GIB **x-block**®

| Stud Depth (mm) | Width (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | | |
|---|---|---|---|---|
| | | No insulation | Pink® Partition 50mm 11kg/m³ R1.2 | Report |
| 64 steel | 116 | 47 (41) | 55 (45) | Day Design 3094-4 |
| 70 timber | 124 | 45 (40) | 49 (44) | |

## XRP4

- [Option 1] Timber or steel ceiling joists
- [Option 2] Clips and Furring Channel
- [Option 3] Suspended Top Cross Rail and Furring Channel
- 2 layers of 13mm GIB **x-block**®



| Maximum Framing Centres (mm) | Airborne Sound Insulation Rw (Rw + Ctr) | |
|---|---|---|
| 600 | 35 (33) | Report Day Design 3094-4 |

# Radiation Test Results

## Table 1 Lead Equivalence in (mm)

| 13mm GIB x-block® Lead Equivalence measured in mm | | | | |
|---|---|---|---|---|
| X-Ray Energy (kVp) | 1 layer | 2 layers | 3 layers | 4 layers |
| 80 | 0.8 | 1.6 | 2.4 | - * |
| 100 | 0.75 | 1.5 | 2.25 | 2.9 |
| 125 | 0.5 | 1.0 | 1.4 | 1.9 |
| 150 | 0.4 | 0.7 | 1.0 | 1.3 |

1. Uncertainties ± 0.1mm
2. National Radiation Laboratory Reports 24062003/1, 24062008, 20022009.
3. *Quote from Report 20022009: 'Determination of lead equivalence for 4 layers of x-block Plasterboard at 80kVp was not feasible owing to the extremely low transmission of the X-rays through this sample thickness'.
4. kVp - kilovolts peak. Maximum voltage applied across the X-ray tube. The kVp controls the maximum energy of the emitted X-rays.

## Table 2 Lead Equivalence in (kg/m²)

| 13mm GIB x-block® Lead Equivalence measured in kg/m² | | | | |
|---|---|---|---|---|
| X-Ray Energy (kVp) | 1 layer | 2 layers | 3 layers | 4 layers |
| 80 | 9.1 | 18.1 | 27.2 | - |
| 100 | 8.5 | 17.0 | 25.5 | 32.9 |
| 125 | 5.7 | 11.3 | 15.9 | 21.5 |
| 150 | 4.5 | 7.9 | 12.5 | 14.7 |

1. Calculated using the density of lead as 11340 kg/m³

## X-Ray Resistance Energy Levels

X-Ray radiation is measured in kilovolts peak (kVp). Depending on the type of radiation equipment used in the room, diagnostic facilities will have different requirements for shielding:

- CT 120-140 kVp
- General radiographic rooms 60-90 kVp
- Dental 60-80 kVp
- Mammography 25-35 kVp

## General Requirements

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Install control joints in internal plasterboard walls and ceilings at:<br>> 12m maximum intervals<br>> At all movement joints in the building<br>> At any change in the substrate | ✓ | ✓ |
| Use GIB **x-block**® jointing compound:<br>> In the gap between the sheets<br>> To fill the recessed joints on every layer<br>> As the bedding coat with paper tape and as the second coat for the face layer. For the finish coat use masta**line** or masta**lite**.<br>> To fill any other gaps and to cover all face layer fastener heads. | ✓ | ✓ |
| Treat all penetrations as shown in the construction details to maintain radiation protection or use lead of the appropriate thickness. | ✓ | ✓ |
| Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance. | | ✓ |
| Attach all fixtures to studs or purpose installed noggings. Wall anchors must not be fixed only to the plasterboard of fire rated walls. | | ✓ |

For acceptable modifications or variations to fire rated systems, refer to Section 2.3 Fire Resistance

## Framing

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Use steel or timber framing. | ✓ | ✓ |
| Framing members as per framing table or structural design up to 600mm maximum. | ✓ | ✓ |

- Noggings are permitted to assist the fixing of services.
- Plumbing and electrical services must not protrude beyond the face of the studs.

# Plasterboard Layout

| | Non-fire Rated | Fire Rated |
|---|---|---|
| **Vertical Layout** | | |
| Sit GIB **x-block**® directly on the floor, leave no gap at the base of the sheet. | ✓ | ✓ |
| All recessed and butt joints must be backed by a framing member. | ✓ | ✓ |
| Leave a gap of 2mm between GIB **x-block**® sheets to allow GIB **x-block**® jointing compound to fill any gaps between and behind the sheets. [Figure 1] | ✓ | ✓ |
| Vertical joints must be 200mm minimum from the edge of any opening such as windows and doorways to minimise cracking at the joints. | ✓ | ✓ |
| Stagger recessed edges by 300mm minimum between layers and on opposite sides of the wall. | ✓ | ✓ |
| Stagger butt joints by 300mm minimum on adjoining sheets, between layers and on opposite sides of the wall. | ✓ | ✓ |

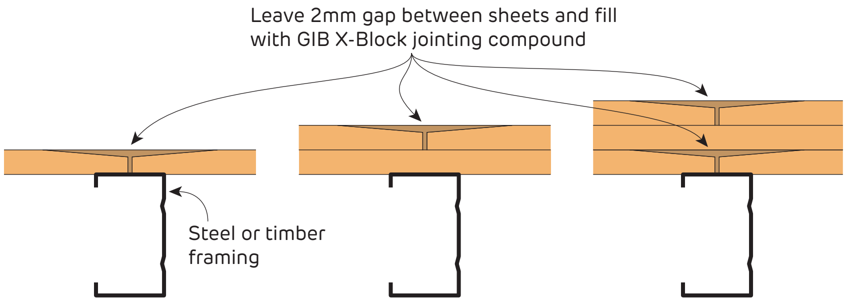



**FIGURE 1** X-Block Jointing
Plan

# Plasterboard Fixing

| | Non-fire Rated | Fire Rated |
|---|---|---|
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. | ✓ | ✓ |
| Use the 'Screw Only Method'. | ✓ | ✓ |

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

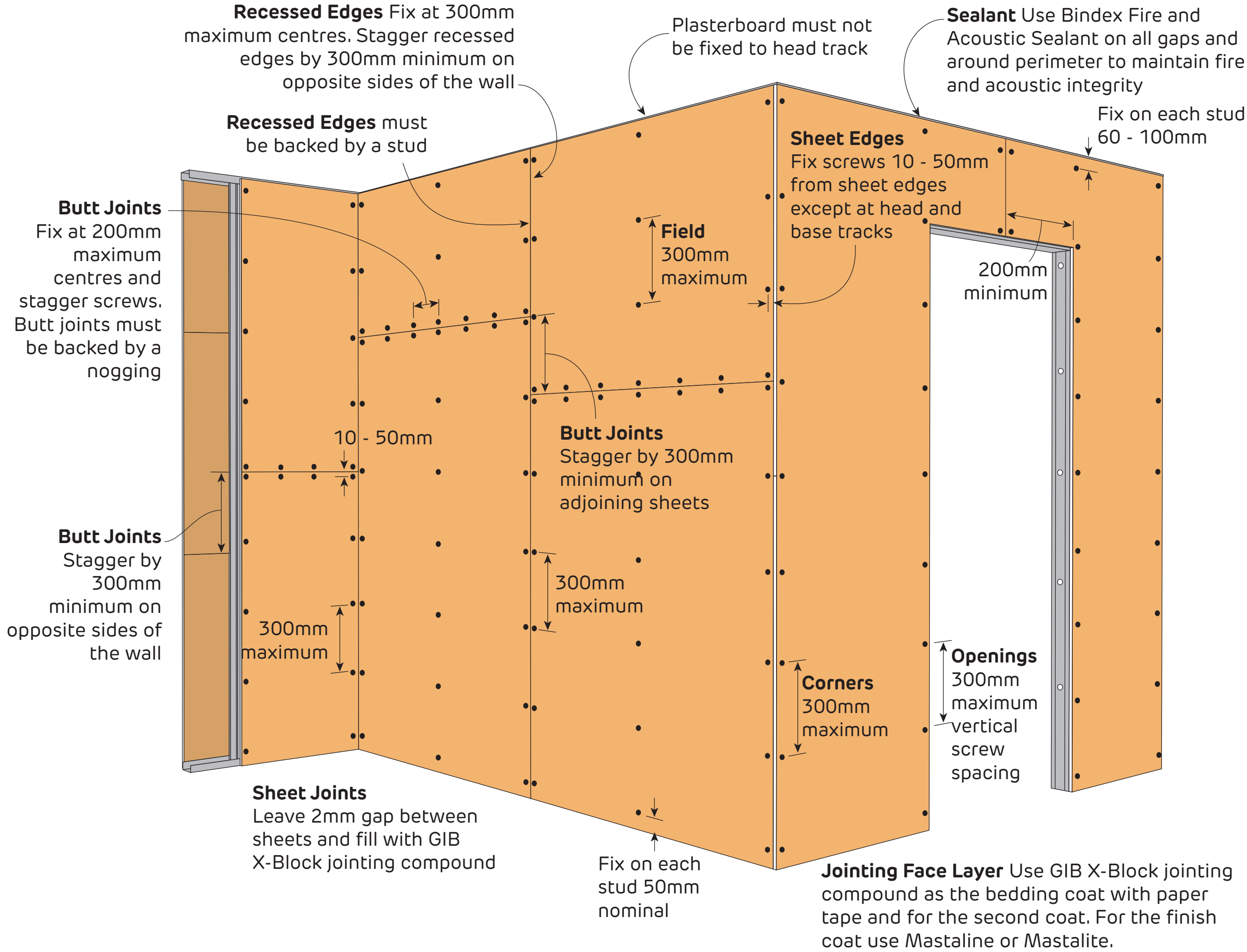
| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 13mm | 6g x 25mm screw | 6g x 41mm screw * | 7g x 57mm screw * |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.
*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

## Screw Type and Minimum Size for the Installation of Plasterboard to Timber

| Plasterboard Thickness | 1st Layer | 2nd Layer | 3rd Layer |
|---|---|---|---|
| 13mm | 6g x 32mm screw | 8g x 45mm screw | 8g x 65mm screw |

**FIGURE 2** **Fire Rated 1 Layer - Vertical**
Screw Only Method

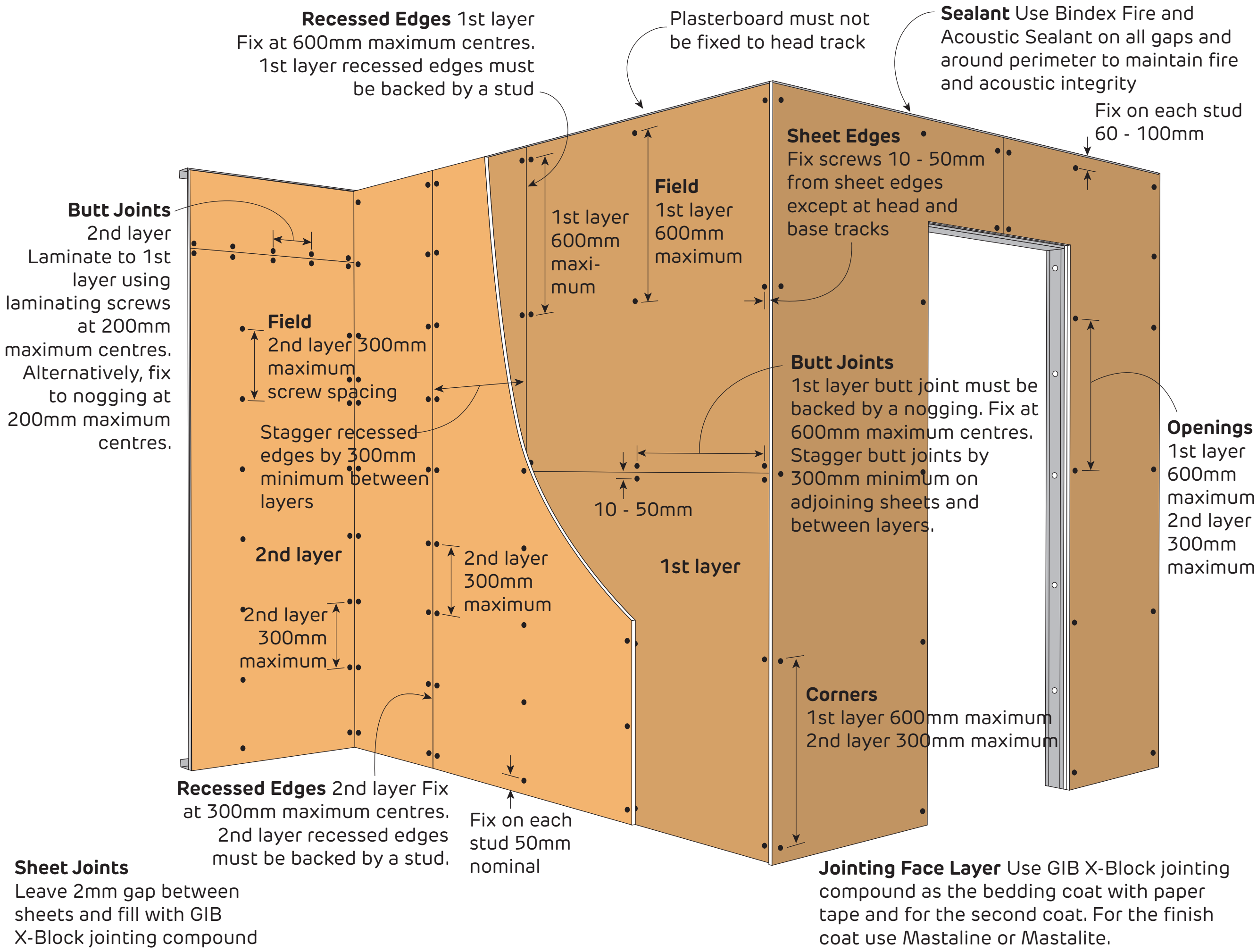



## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.85 | 1.15 | 1.30 | 1.70 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 3** Fire Rated 2 Layers - Vertical + Vertical
Screw Only Method

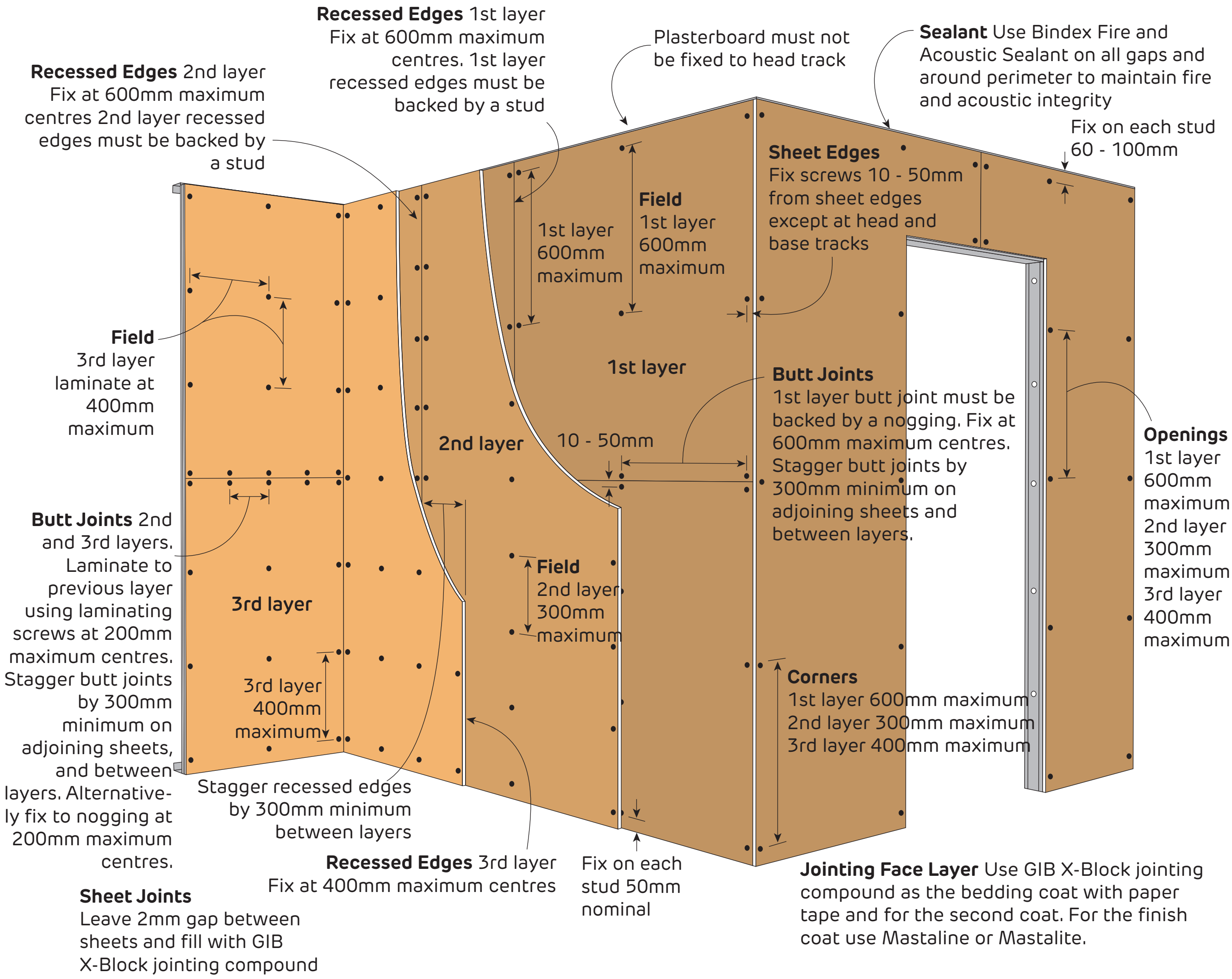



## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.85 | 1.15 | 1.30 | 1.70 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 4** **Fire Rated 3 Layers - Vertical + Vertical + Vertical**
Screw Only Method

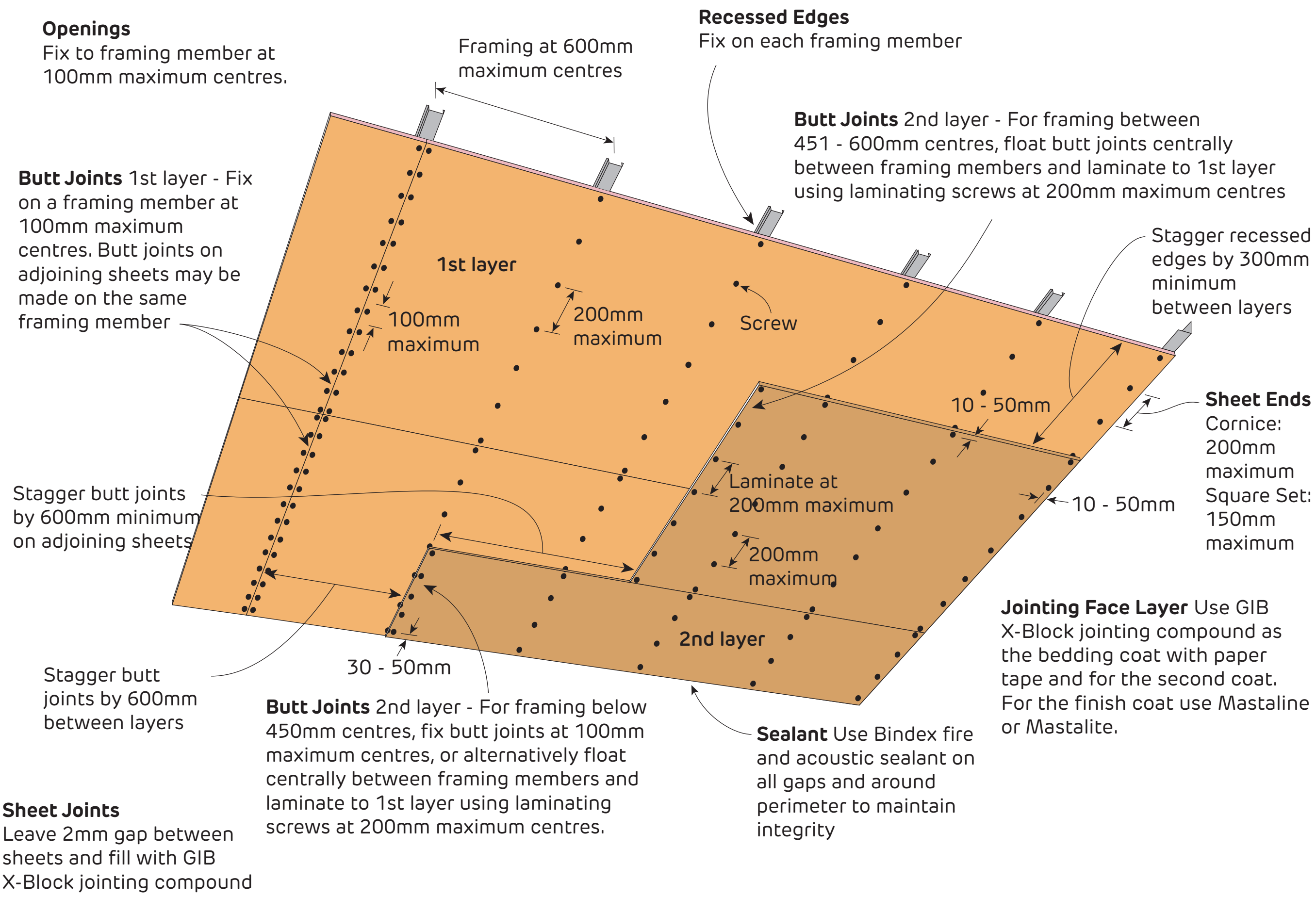



## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Wall Stud Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 0.85 | 1.15 | 1.30 | 1.70 |

1. Calculations do not include the framing which must be independently designed to suit the desired loads.
2. If higher internal wind pressures are expected, please contact Siniat for specific design.

**FIGURE 5** Fire Rated - 2 Layers
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Screw Fixing Pattern |
|---|---|
| 600mm | S S S S (4) |
| 900mm | S S S S S S (6) |
| 1200mm | S S S S S S S (7) |
| 1350mm | S S S S S S S S (8) |

S = One screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | | |
|---|---|---|---|---|
| | 600mm | 450mm | 400mm | 300mm |
| 13mm | 1.15 | 1.60 | 1.80 | 2.45 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 2.5 kg/m2 (equivalent to R5.0 Pink® Batts Ceiling insulation).
3. If higher internal wind pressures are expected, please contact Siniat for specific design.

## Non-Fire Rated

## X-Ray Protection Details - Systems XRP1 and XRP5 only

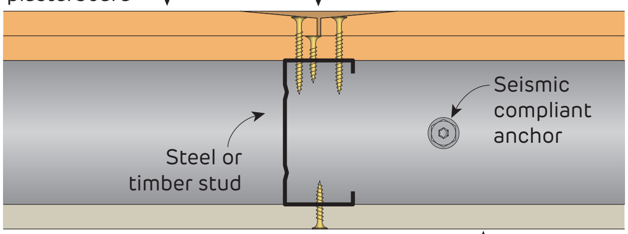



**FIGURE 6** Jointing over Stud
Plan

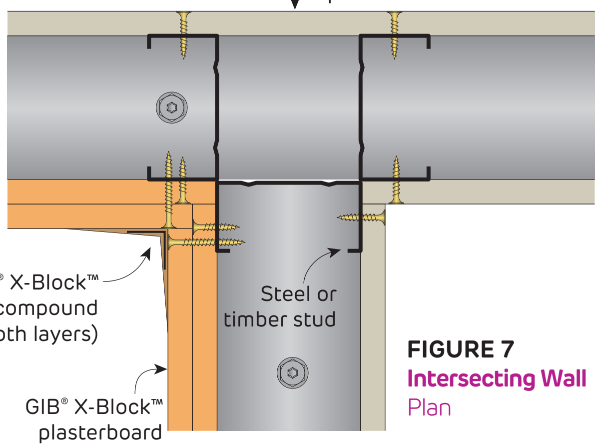



**FIGURE 7** Intersecting Wall
Plan

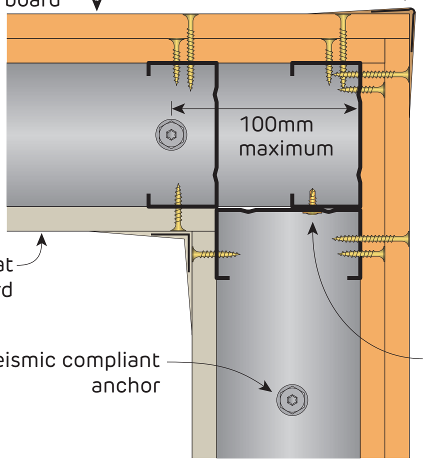



**FIGURE 8** Wall Corner
Plan

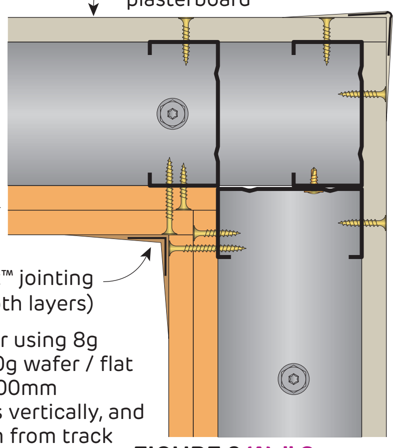



**FIGURE 9** Wall Corner
Plan

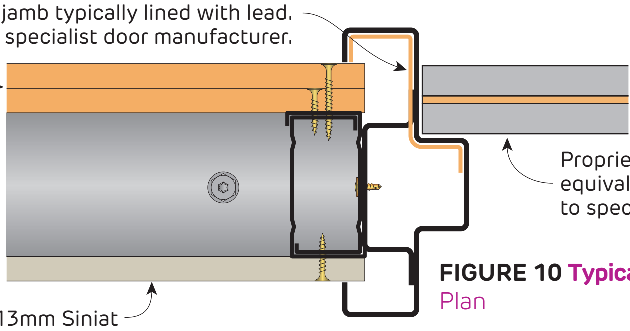



**FIGURE 10** Typical Door Jamb
Plan

Fill any gaps with GIB® X-Block™ jointing compound

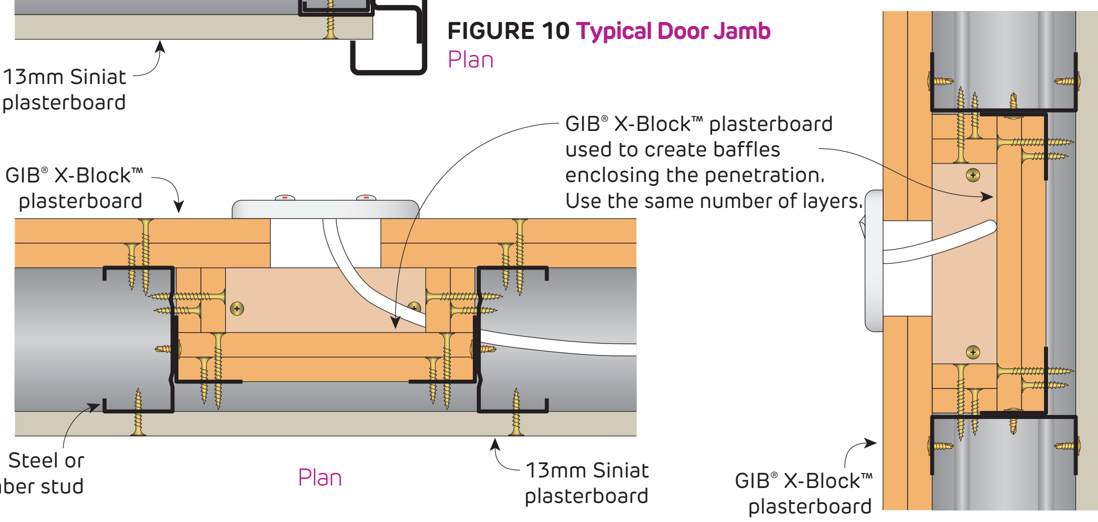



**FIGURE 11** GPO Penetration

## Non-Fire Rated

## X-Ray Protection Details - Systems XRP2 only

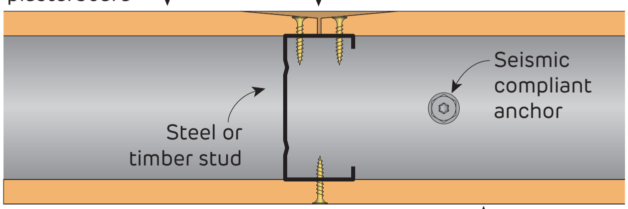



**FIGURE 12 Jointing over Stud**
Plan

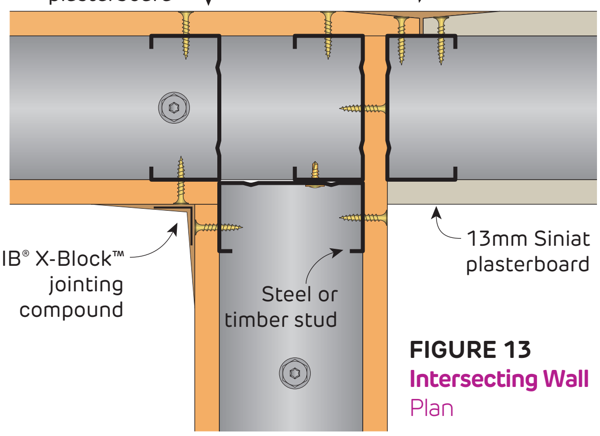



**FIGURE 13 Intersecting Wall**
Plan

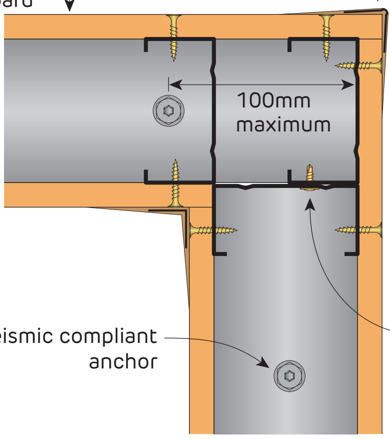



**FIGURE 14 Wall Corner**
Plan

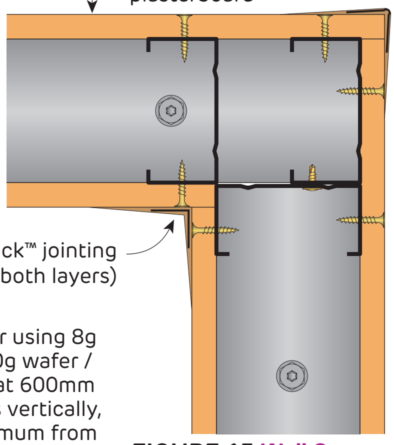



**FIGURE 15 Wall Corner**
Plan

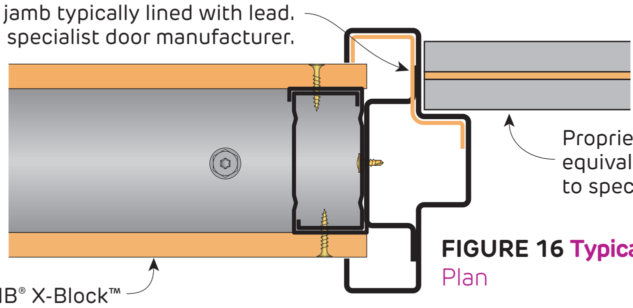
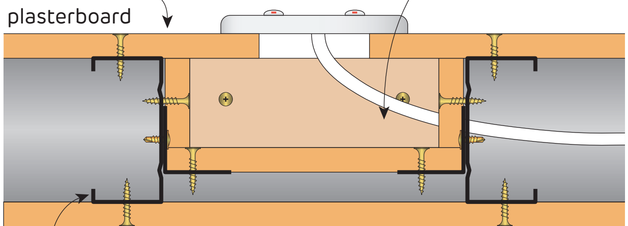
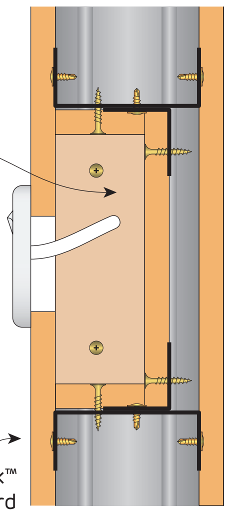



**FIGURE 16 Typical Door Jamb**
Plan

Fill any gaps with GIB® X-Block™ jointing compound




Plan




Section

**FIGURE 17 GPO Penetration**

## Non-Fire Rated

## X-Ray Protection Details - Systems XRP3 and XRP6 only

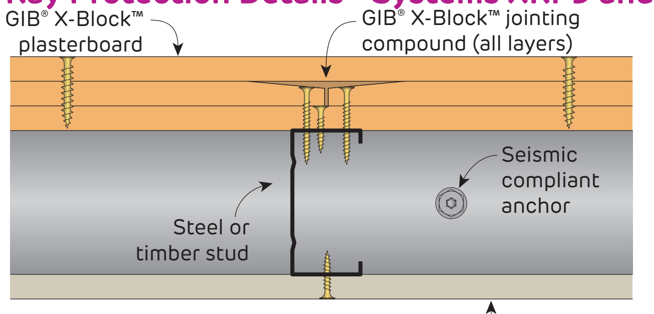



**FIGURE 18 Jointing over Stud**
Plan

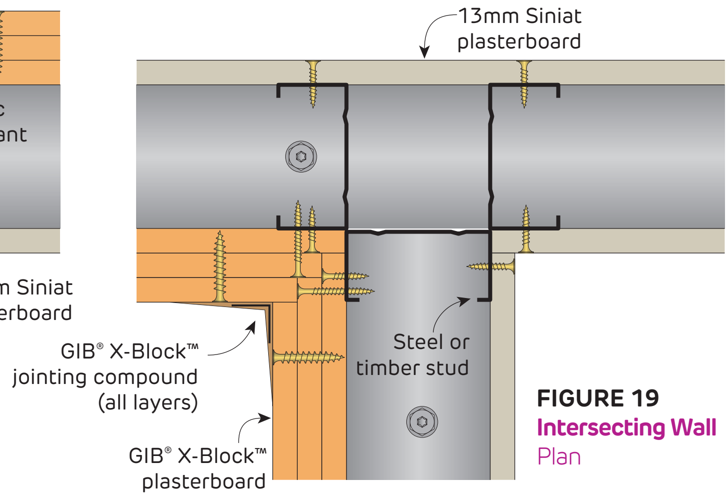



**FIGURE 19 Intersecting Wall**
Plan

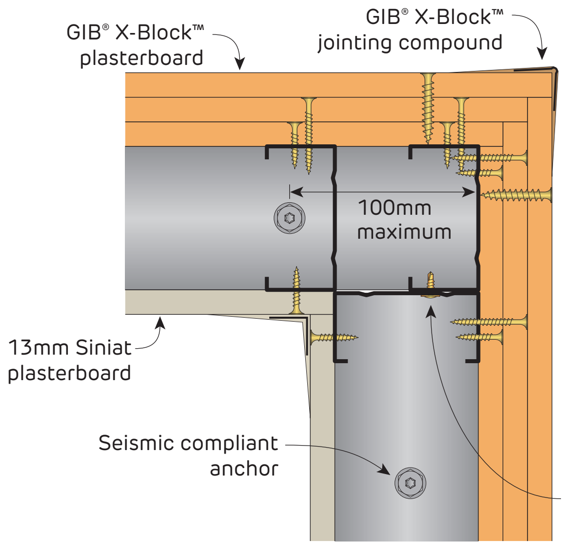



**FIGURE 20 Wall Corner**
Plan

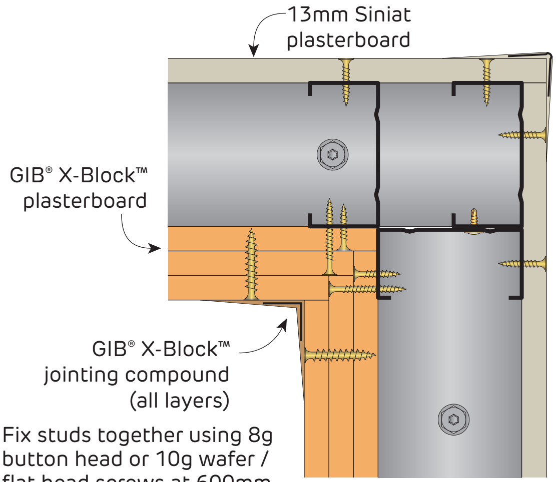



**FIGURE 21 Wall Corner**
Plan

Fill any gaps with GIB® X-Block™ jointing compound

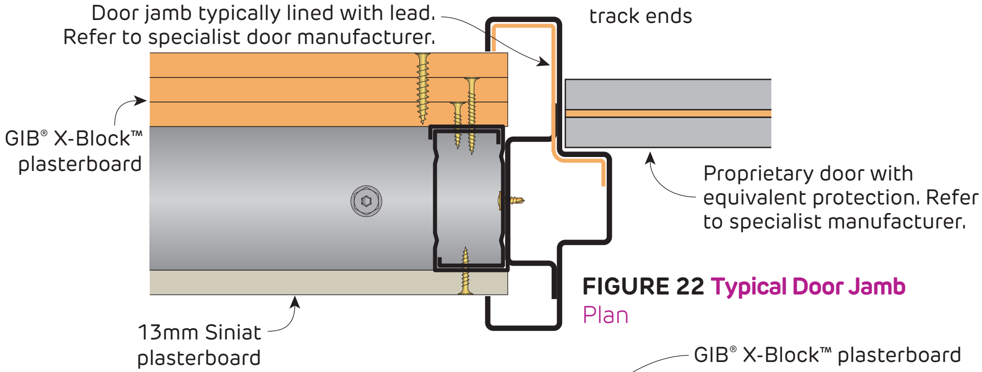



**FIGURE 22 Typical Door Jamb**
Plan

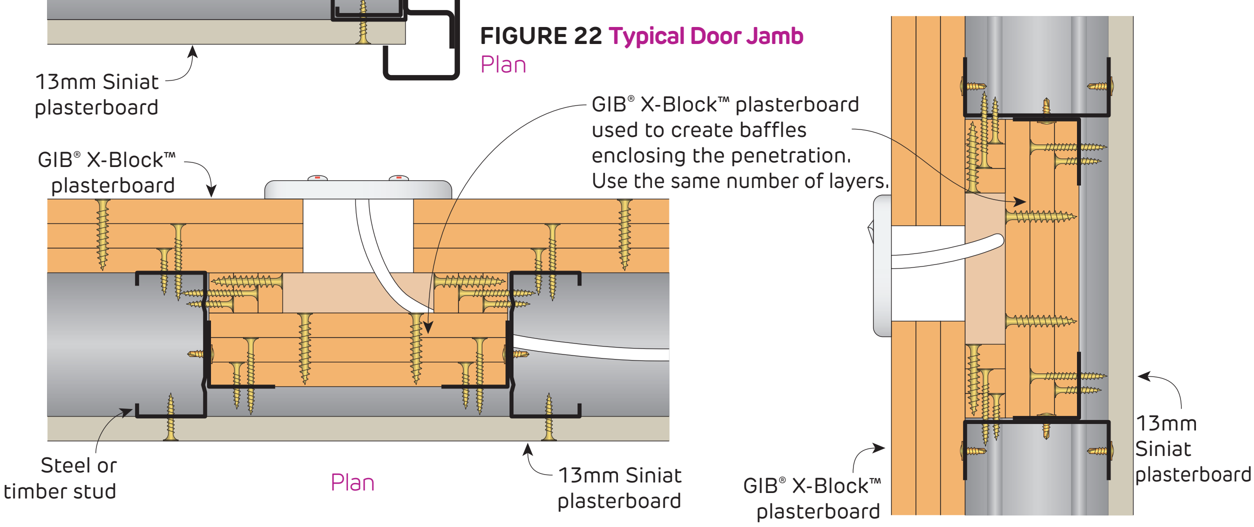



**FIGURE 23 GPO Penetration**

## Fire Rated

## X-Ray Protection Details - Systems XRP7 only

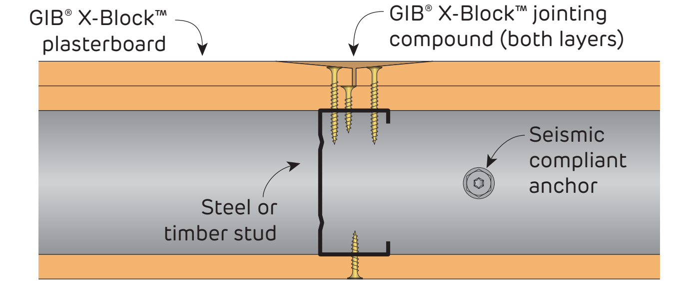



**FIGURE 24 Jointing over Stud**
Plan

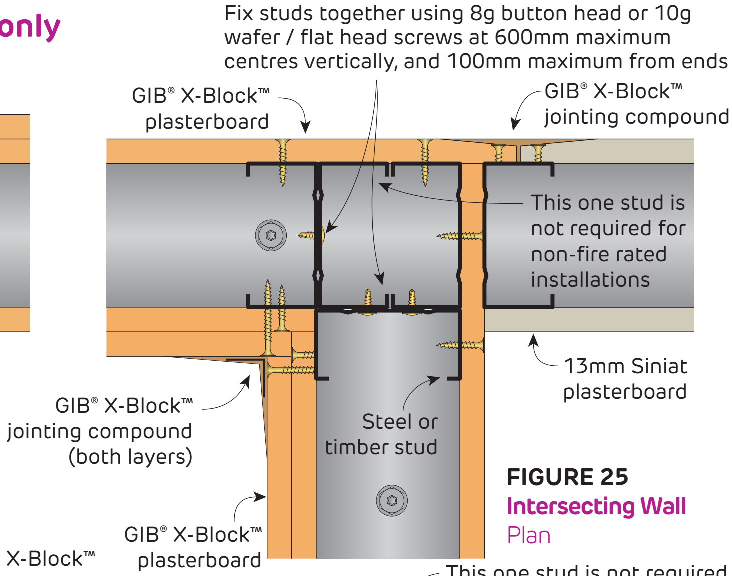



**FIGURE 25 Intersecting Wall**
Plan

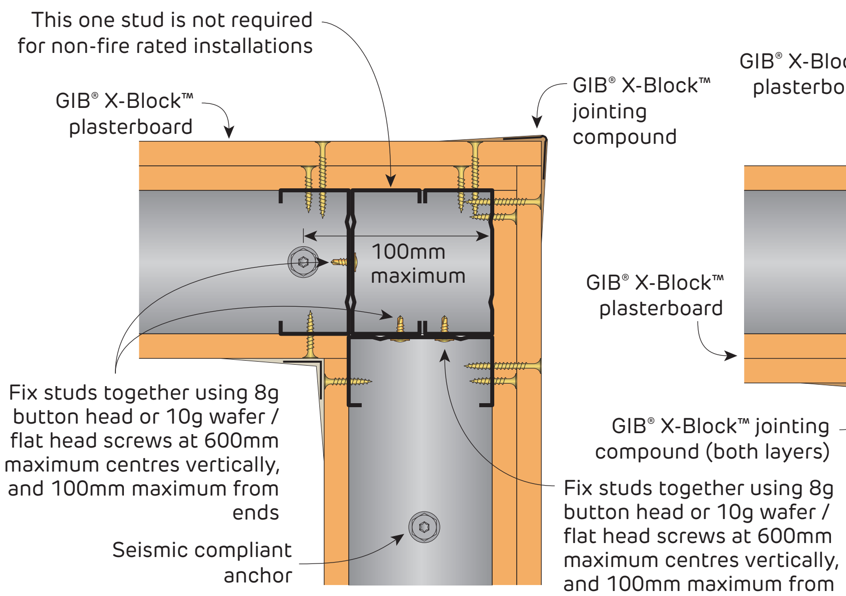



**FIGURE 26 Wall Corner**
Plan

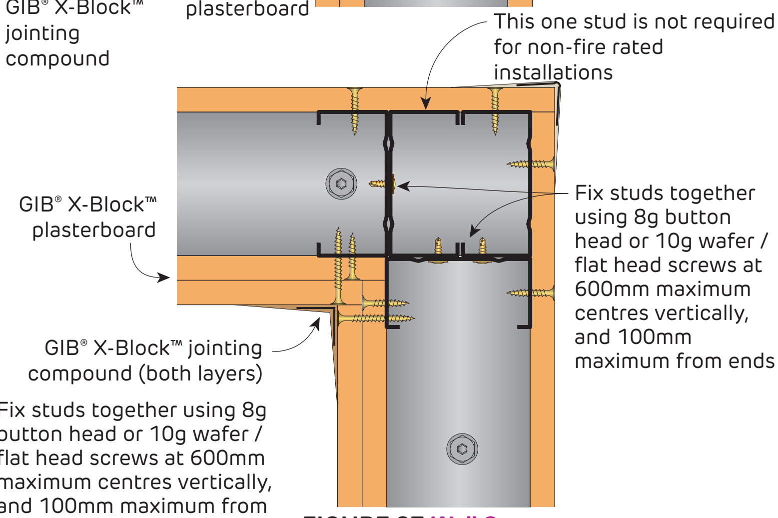



**FIGURE 27 Wall Corner**
Plan

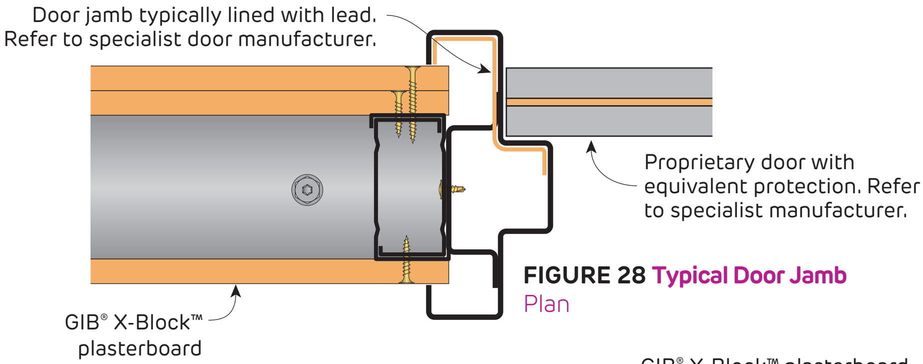



**FIGURE 28 Typical Door Jamb**
Plan

Fill any gaps with GIB® X-Block™ jointing compound

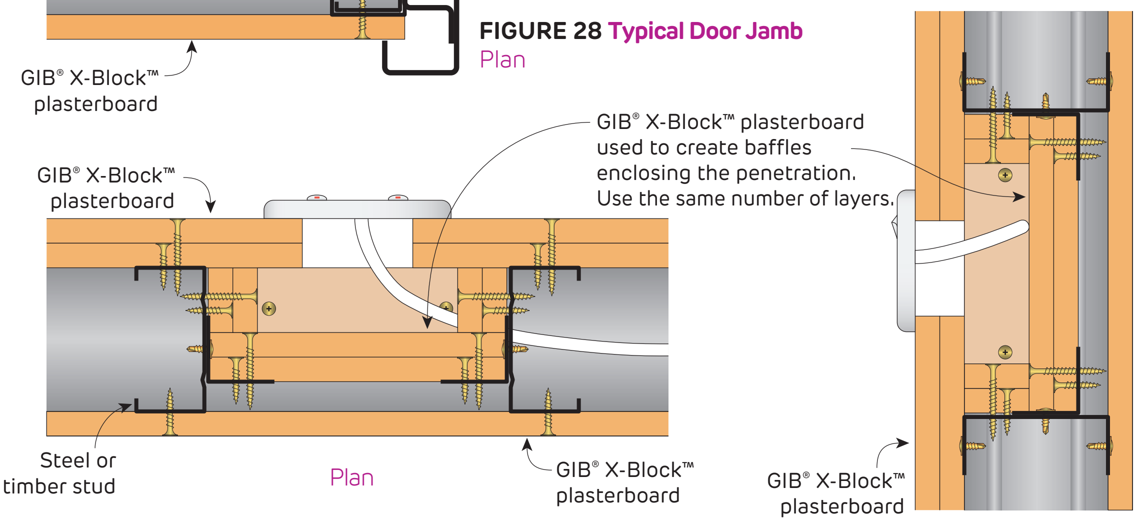
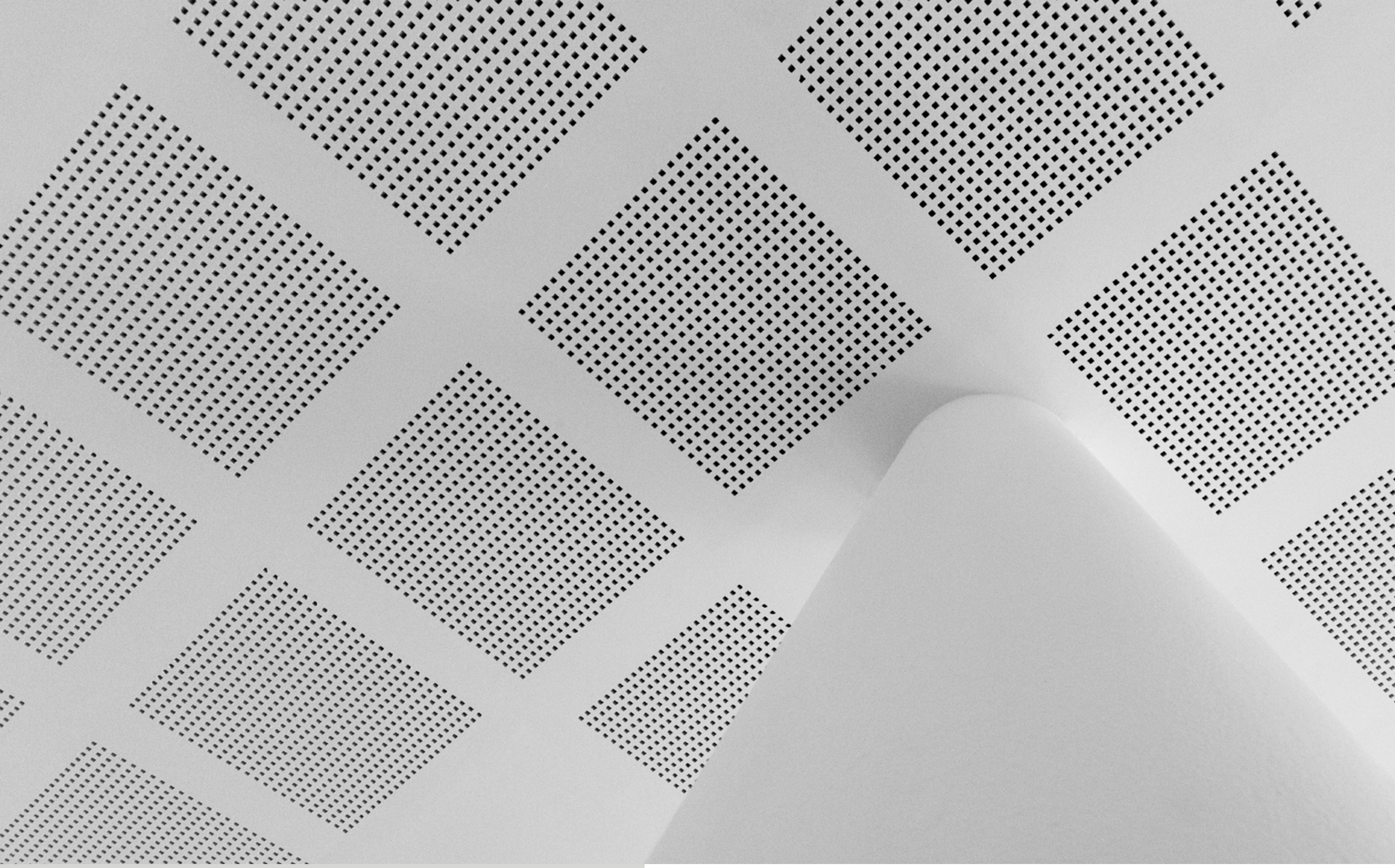



**FIGURE 29 GPO Penetration**





# 6.7 Creason Perforated Plasterboard

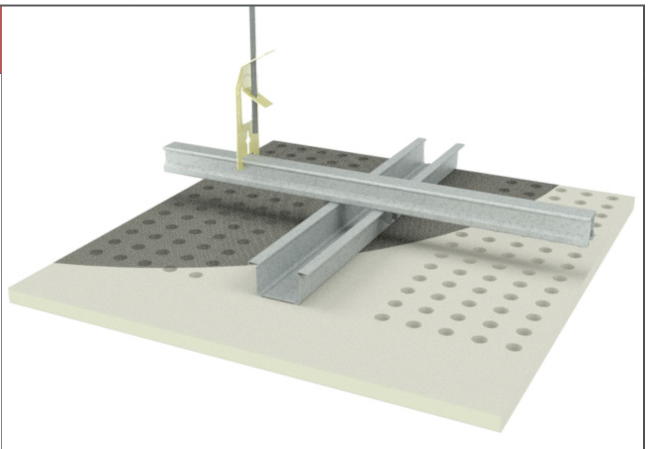
**creason** is part of Siniat's range of acoustic perforated plasterboard. **creason** offers not only great acoustic performance with beautiful aesthetics, but now also offers air cleaning properties with inbuilt CAPT'AIR® technology.

It is ideal for use in a range of internal applications where controlling the sound reverberation time is required for large open areas such as offices, shopping centres, airports, schools, hospitals, conference halls, lecture theatres and libraries. **creason** can also be installed in residential ceilings to provide noise absorption in open plan living areas and home theatres. If **creason** is to be used on walls, we recommend installing above trafficable areas.

The acoustic performance of **creason** is achieved through a combination of sound diffusion, where reflected sound is dispersed and by sound absorption, whereby sound travels through the perforation holes and acoustic fleece backing. The result is a high quality sound experience with excellent speech intelligibility. Additional optional insulation improves the sound absorption.

The **creason** range is installed like regular plasterboard.

## Round R12/25 No.8



12mm diameter circles with dark backing fleece

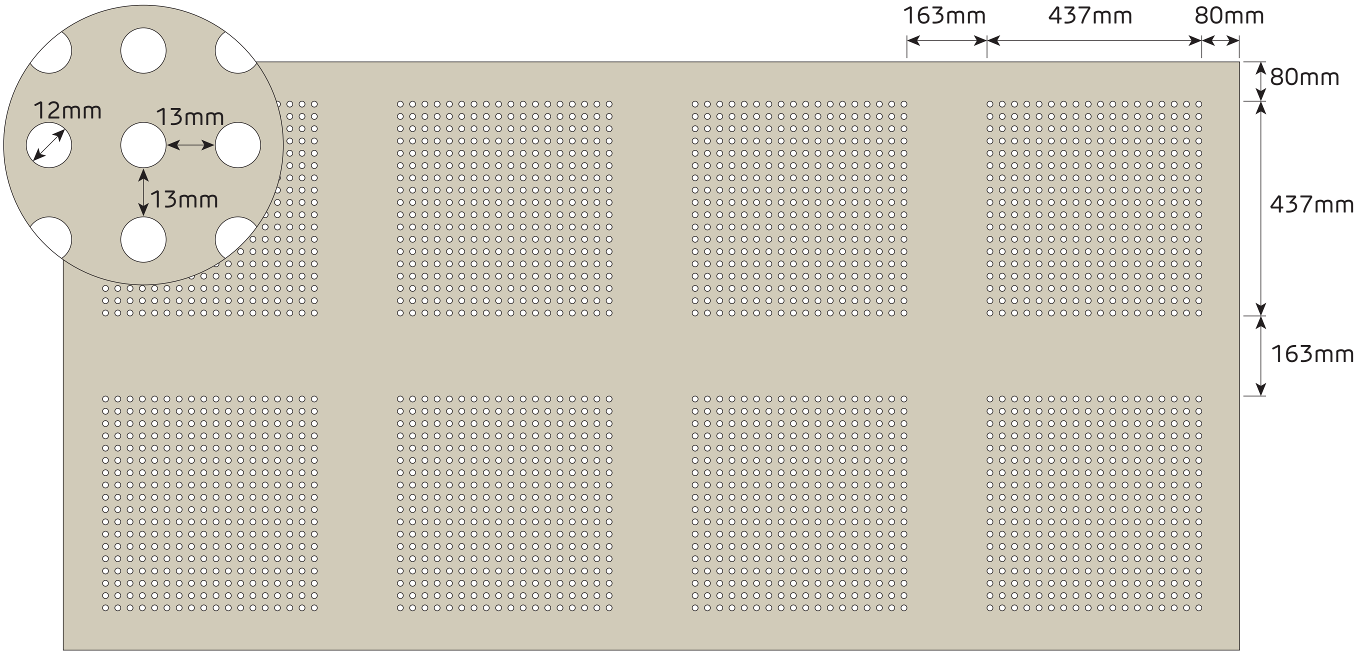
**Open Area:** 10.2 %

**Nominal Sheet Dimensions:** 12.5 x 1200 x 2400mm

**Actual Sheet Dimensions:** 12.5 x 1197 x 2397mm

**Weight:** 10 kg/m² (approximate)

| | Ceiling Cavity (mm) | $\alpha_p$ - Frequency (Hz) | | | | | | $\alpha_w$ | NRC |
|---|---|---|---|---|---|---|---|---|---|
| | | 125 | 250 | 500 | 1000 | 2000 | 4000 | | |
| No Insulation | 187 | 0.4 | 0.7 | 0.65 | 0.55 | 0.45 | 0.4 | **0.5** | **0.6** |
| Pink® Partition 75mm 14kg/m³ R1.9 | 187 | 0.55 | 0.7 | 0.65 | 0.55 | 0.5 | 0.45 | **0.55** | **0.6** |



## Cube C12/25 No.8

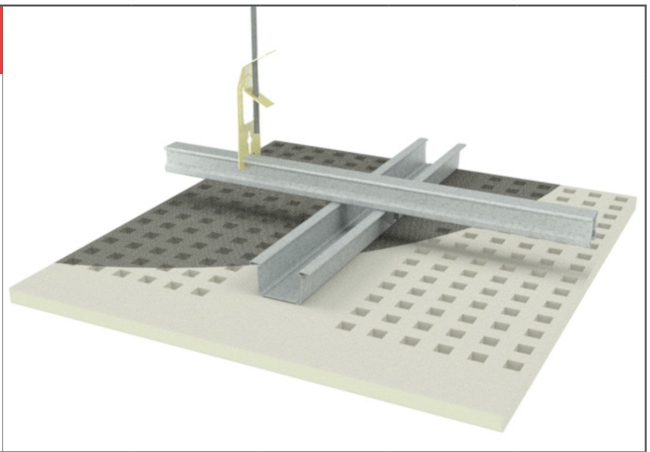
12 x 12mm squares with dark backing fleece

**Open Area:** 16.1 %

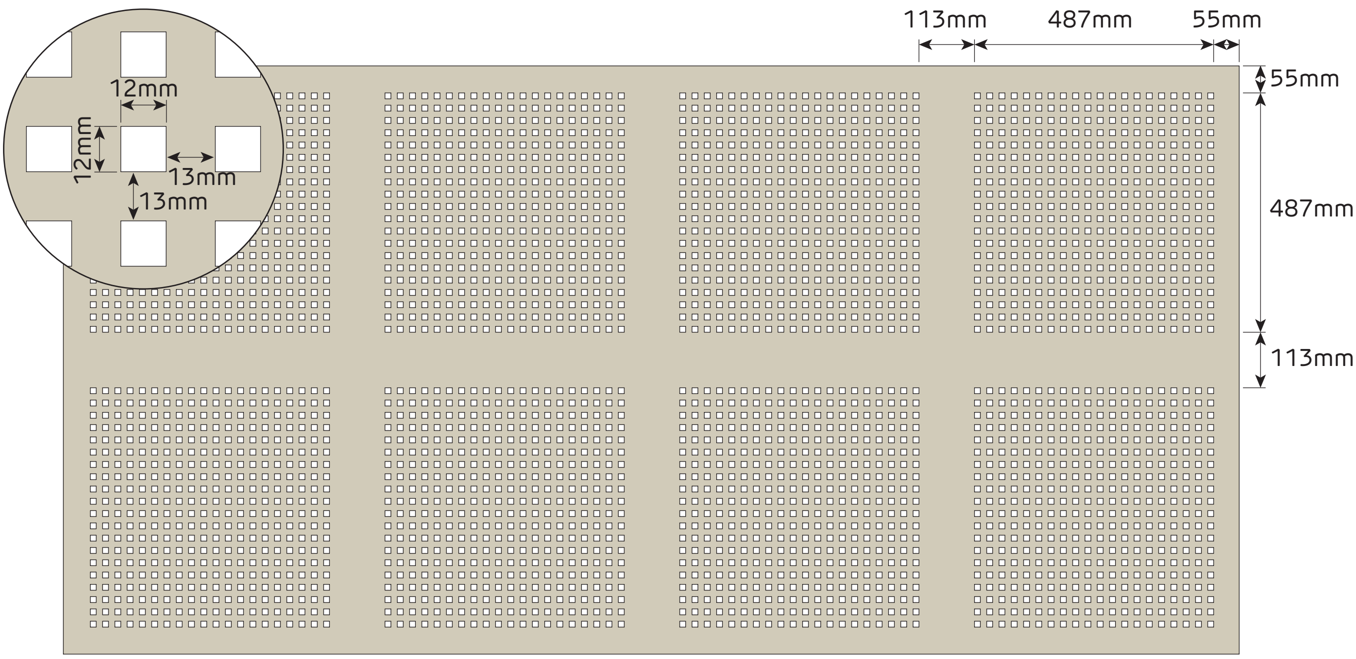
**Nominal Sheet Dimensions:** 12.5 x 1200 x 2400mm

**Actual Sheet Dimensions:** 12.5 x 1197 x 2397mm

**Weight:** 10 kg/m² (approximate)



| | Ceiling Cavity (mm) | $\alpha_p$ - Frequency (Hz) | | | | | | $\alpha_w$ | NRC |
|---|---|---|---|---|---|---|---|---|---|
| | | 125 | 250 | 500 | 1000 | 2000 | 4000 | | |
| No Insulation | 47 | 0.15 | 0.45 | 0.75 | 0.8 | 0.6 | 0.45 | **0.6** | **0.65** |
| | 187 | 0.45 | 0.75 | 0.8 | 0.65 | 0.55 | 0.5 | **0.6** | **0.7** |
| Pink® Partition 75mm 14kg/m³ R1.9 | 47 | 0.4 | 0.75 | 0.9 | 0.8 | 0.65 | 0.55 | **0.7** | **0.8** |
| | 187 | 0.6 | 0.85 | 0.8 | 0.75 | 0.7 | 0.65 | **0.75** | **0.8** |
| | 587 | 0.7 | 0.75 | 0.8 | 0.7 | 0.6 | 0.6 | **0.7** | **0.7** |



# General Requirements

| |
|---|
| Install control joints in internal plasterboard ceilings:<br>> At 12m maximum intervals<br>> At all movement joints in the building<br>> At any change in the substrate<br>> At the junction of a large room and passageway.<br>Separate creason ceilings from other building elements, such as walls and columns by creating control joints that allow for movement, e.g. utilising a shadow line profile or tear away bead. |
| All ceilings in this section are non-trafficable. Do not walk on plasterboard ceilings! |
| Limit dead loads on plasterboard ceilings to 2 kg/m$^2$ for plasterboard spanning 600mm framing centres. |
| Limit dead loads on plasterboard ceilings to 2.5 kg/m$^2$ for plasterboard spanning 450mm framing centres. |
| Attach ceiling fixtures to framing members only. Ensure the framing is designed to carry any additional load. |

- creason must have an air cavity behind it for it to perform as a sound absorber.
- Plasterboard installations in close proximity to metal roofs (i.e. raked ceiling or with small ceiling cavities) require smaller control joint intervals or joints left unfilled as they are exposed to larger rates of thermal expansion and contraction of the roof and/or ceiling framing otherwise cracking of the ceiling and joint peaking is expected.
- Excessive vibration of the ceiling (by the installation of ceiling services, etc) is known to cause jointing cracking and joint peaking.
- Locate ceiling services so they do not cut through ceiling framing members, otherwise some degradation of the ceiling can be expected

Use the Siniat Reverberation time calculator to assist in determining how much of the ceiling and or wall area should be covered. Alternatively involve an acoustic consultant, especially for very high ceilings and unusually shaped rooms such as those with domed or sloping ceilings.

**Siniat Reverberation Time Calculator**

# Framing

| |
|---|
| Framing members as per framing tables or structural design up to 600mm maximum. Also refer to Section 5.1 for more information on ceiling framing. |
| For a specific project, determine the relevant wind pressure load on an internal ceiling from Section 2.3, or the QR link below in the Span Tables section. Wind pressure loads must be considered for internal ceilings to comply with *AS/NZS 1170.2 Wind Actions* and *AS/NZS 2785 Suspended Ceilings - Design and Installation.* |
| Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required. |
| Stagger joins in adjacent Top Cross Rails and Furring Channels by 1200mm minimum. |
| Install additional framing members around openings. |

## Non-Fire Rated
## Internal Direct Fix Ceiling Frames

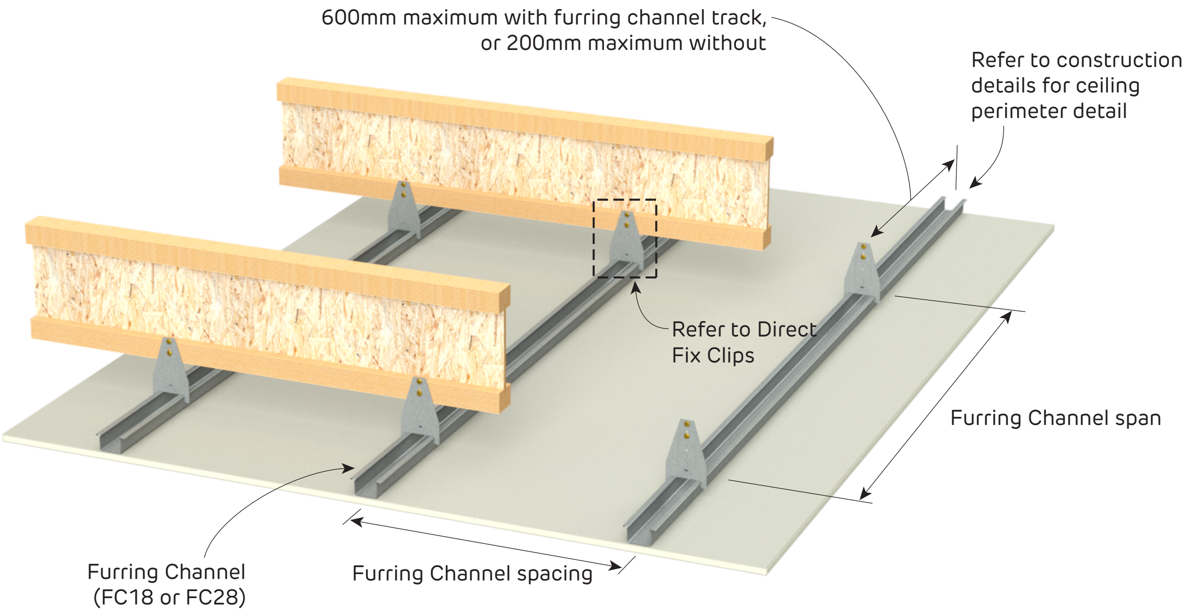



**FIGURE 1** **Direct Fix Furring Channel Ceiling Frame**
Perspective

## Non-Fire Rated
## Details for Single Span, Double Span or 3-or-More Span Ceilings

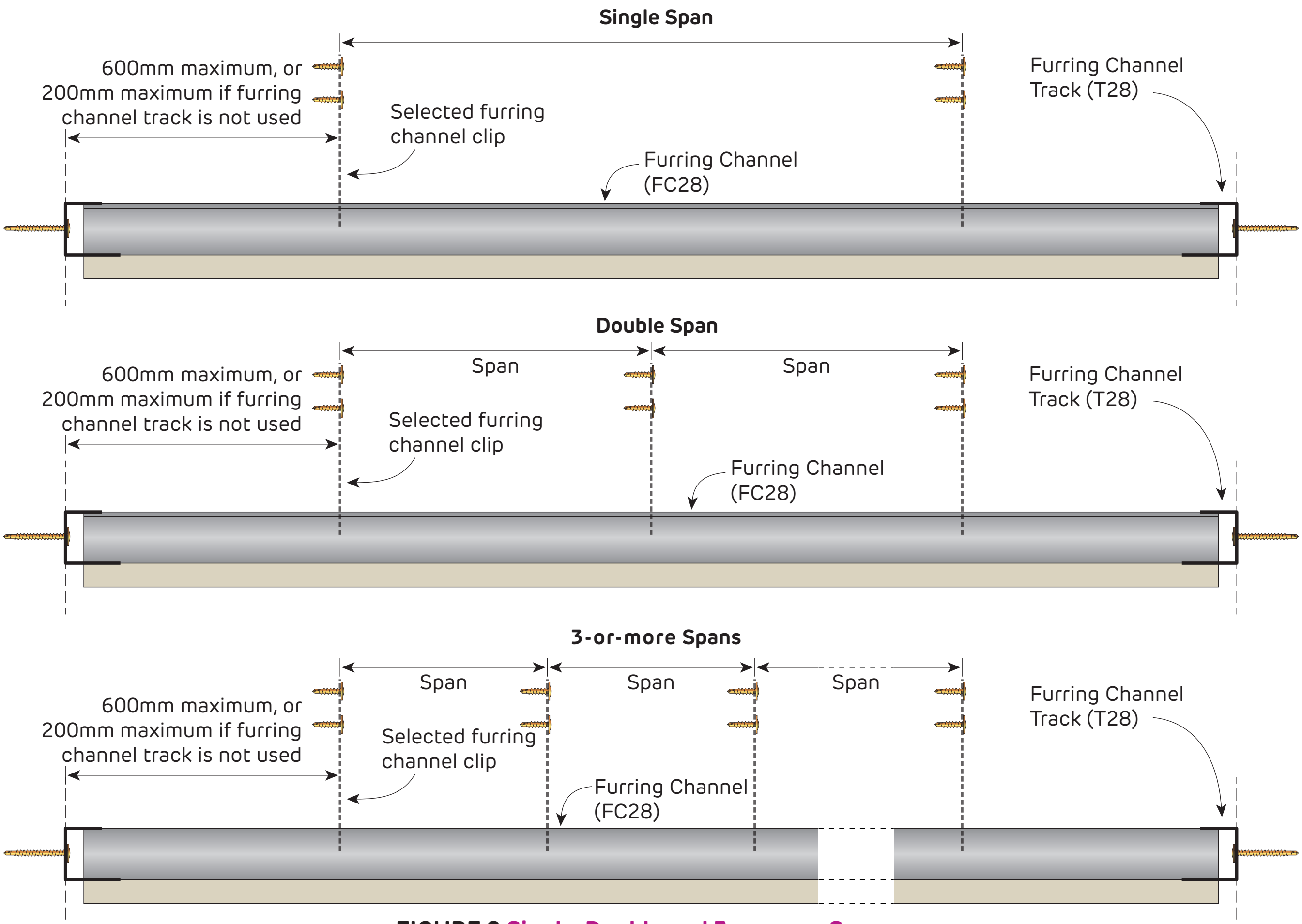



**FIGURE 2** **Single, Double and 3-or-more Spans**
Section

## Non-Fire Rated
## Typical Direct Fix Clips

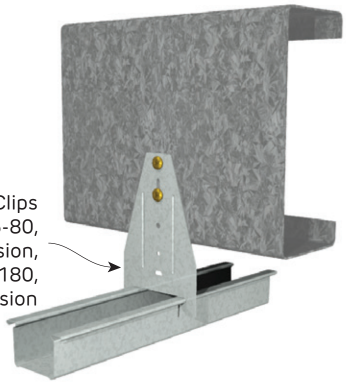



**FIGURE 3** A Clip and Furring Channel
Perspective

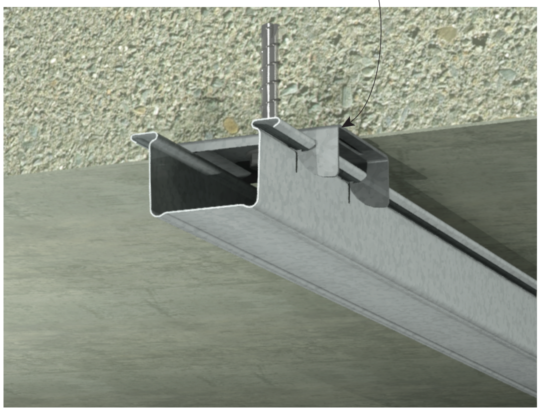
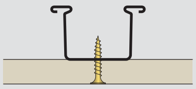



**FIGURE 4** Anchor Clip and Furring Channel
Perspective

> Direct fixing clips may generate noise when fixed to materials subject to daily thermal expansion and contraction

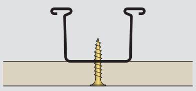
### Table 1 28mm Furring Channel Ceiling Span Table - WIND REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| **28mm Furring Channel (AFC28) Ceiling Span Table** | |  | | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | **0.39** |
|---|---|---|---|---|---|---|---|
| | | | | | | Serviceability pressure $W_S$ (kPa) | **0.25** |
| **Ceiling Lining** | **Furring Channel Spacing (mm)** | **Single Span** | | **Double Span** | | **3-or-more Spans** | |
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 12.5mm Creason | 600 | 1180 | 0.21 | 1580 | 0.72 | 1460 | 0.60 |
| | 400 | 1350 | 0.16 | 1810 | 0.55 | 1670 | 0.46 |
| | 300 | 1480 | 0.13 | 1990 | 0.45 | 1840 | 0.38 |

### Table 2 28mm Furring Channel Ceiling Span Table - WIND REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| **28mm Furring Channel (AFC28) Ceiling Span Table** | |  | | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | **0.46** |
|---|---|---|---|---|---|---|---|
| | | | | | | Serviceability pressure $W_S$ (kPa) | **0.3** |
| **Ceiling Lining** | **Furring Channel Spacing (mm)** | **Single Span** | | **Double Span** | | **3-or-more Spans** | |
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 12.5mm Creason | 600 | 1110 | 0.22 | 1490 | 0.75 | 1370 | 0.63 |
| | 400 | 1270 | 0.17 | 1700 | 0.57 | 1570 | 0.48 |
| | 300 | 1400 | 0.14 | 1870 | 0.47 | 1730 | 0.40 |

## Table 3 28mm Furring Channel Ceiling Span Table - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 28mm Furring Channel (AFC28) Ceiling Span Table | | | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | | 0.59 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.25 |
| **Ceiling Lining** | **Furring Channel Spacing (mm)** | **Single Span** | | **Double Span** | | **3-or-more Spans** | |
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 12.5mm Creason | 600 | 1130 | 0.27 | 1410 | 0.85 | 1410 | 0.78 |
| | 400 | 1350 | 0.22 | 1730 | 0.70 | 1670 | 0.61 |
| | 300 | 1480 | 0.18 | 1990 | 0.60 | 1840 | 0.51 |

## Table 4 28mm Furring Channel Ceiling Span Table - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| 28mm Furring Channel (AFC28) Ceiling Span Table | | | Up to BCA Building Importance Level 3 | | Ultimate pressure $W_U$ (kPa) | | 0.71 |
|---|---|---|---|---|---|---|---|
| | | | | | Serviceability pressure $W_S$ (kPa) | | 0.3 |
| **Ceiling Lining** | **Furring Channel Spacing (mm)** | **Single Span** | | **Double Span** | | **3-or-more Spans** | |
| | | Span (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) | Spans (mm) | Connection Demand (kN) |
| 1 layer of 12.5mm Creason | 600 | 1050 | 0.29 | 1310 | 0.91 | 1310 | 0.83 |
| | 400 | 1270 | 0.23 | 1610 | 0.74 | 1570 | 0.66 |
| | 300 | 1400 | 0.19 | 1860 | 0.64 | 1730 | 0.55 |

1. Tables based upon downward (suction) and upward (uplift) pressures, intended for internal use only.
2. Tables includes self weight and 1 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
3. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
4. Tables refer to Siniat Furring Channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Connections to clips must be checked with the *Clip Capacity Table*.
8. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
9. Serviceability Limit State Load Case 1: G, with deflection limited to Span/500.
   Serviceability Limit State Load Case 2: Ws, with deflection limited to Span/360.
10. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
11. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.
12. For BCA Building Importance Level 4, please contact Siniat.

## Siniat Internal Wind Load Calculator

## Non-Fire Rated

## Internal Suspended Ceiling Frames

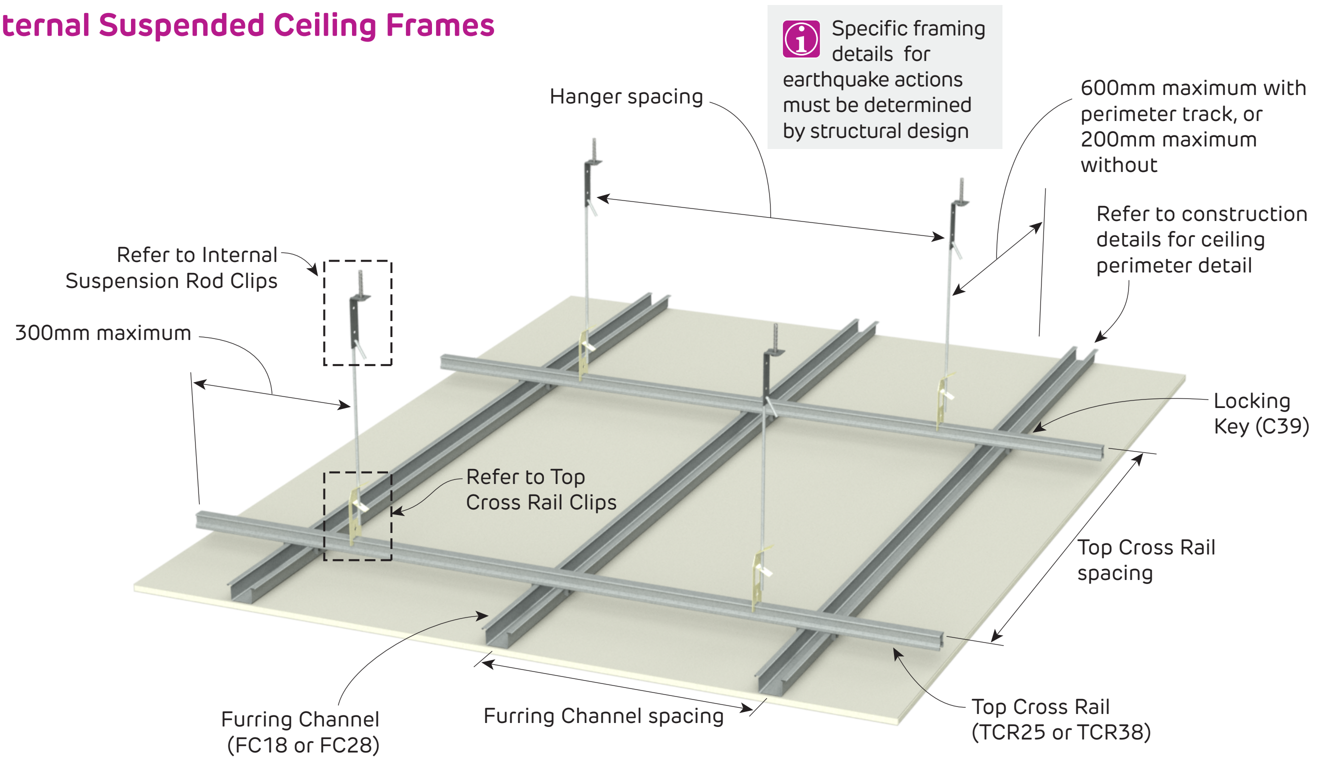



**FIGURE 5 Suspended Ceiling Frame**
Perspective

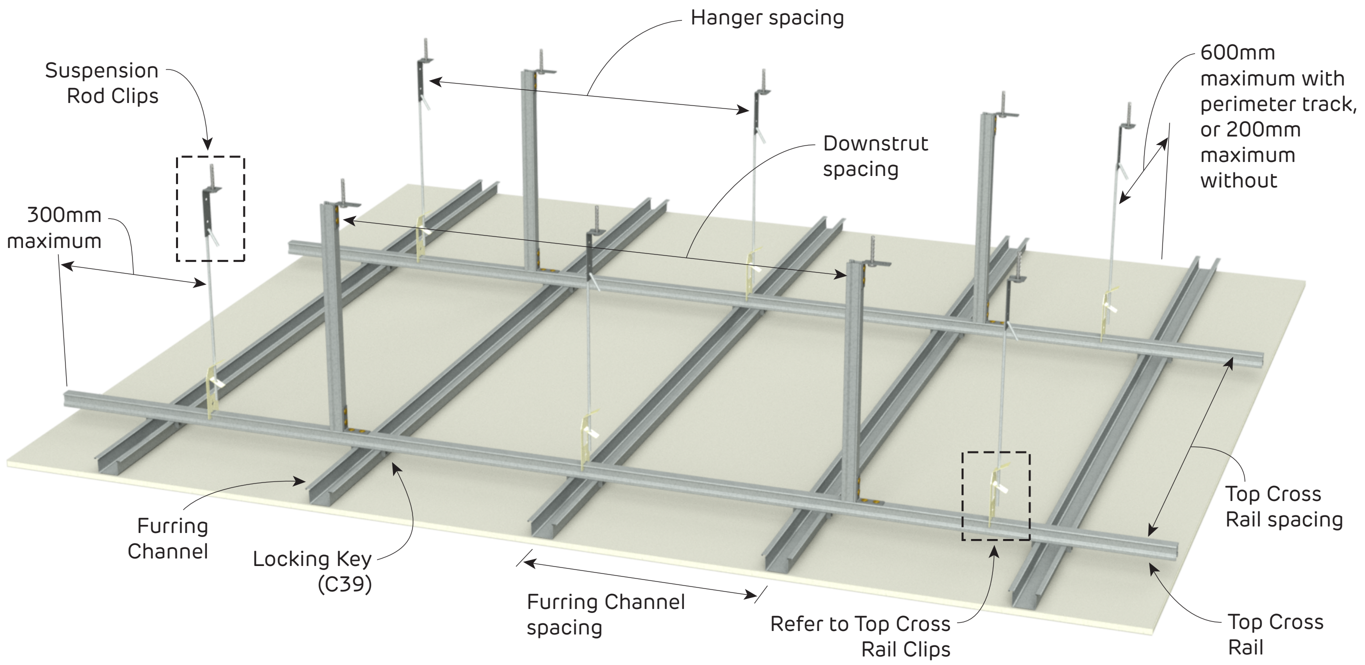



**FIGURE 6 Suspended Ceiling Frame with Downstruts**
Perspective

## Non-Fire Rated

## Typical Suspension Rod Clips

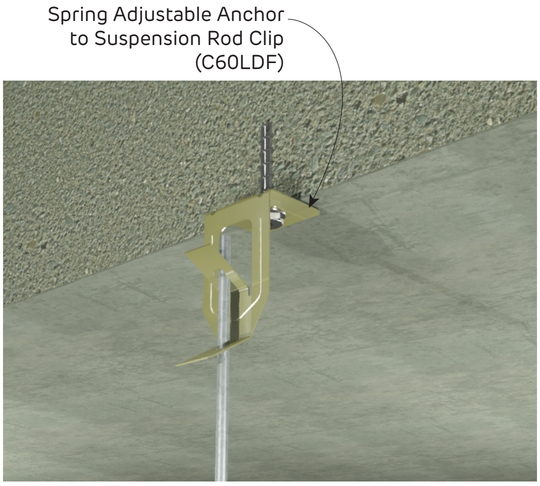



**FIGURE 7** **Spring Adjustable Direct Fix Clip to Concrete**
Perspective

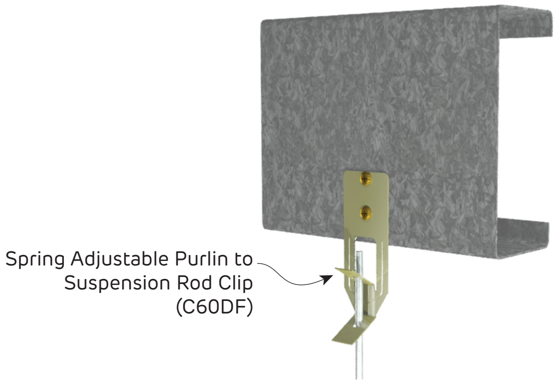



**FIGURE 8** **Spring Adjustable Direct Fix Clip to Purlin**
Perspective

## Typical Top Cross Rail Clips

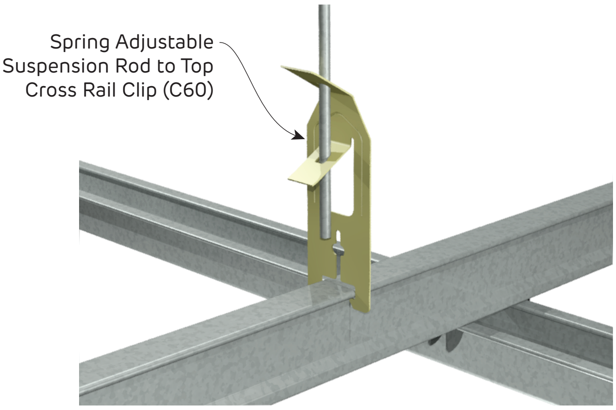



**FIGURE 9** **Spring Adjustable Suspension Rod to TCR Clip**
Perspective and Sections

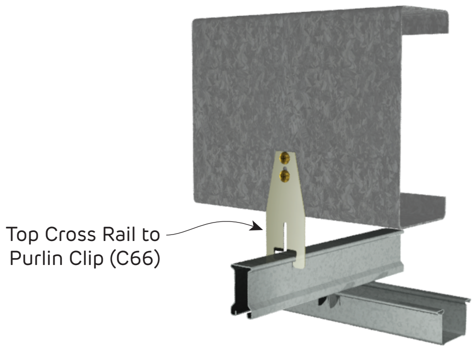



**FIGURE 10** **Top Cross Rail Direct Fix Clip to Purlin**
Perspective and Sections

## Locking Key

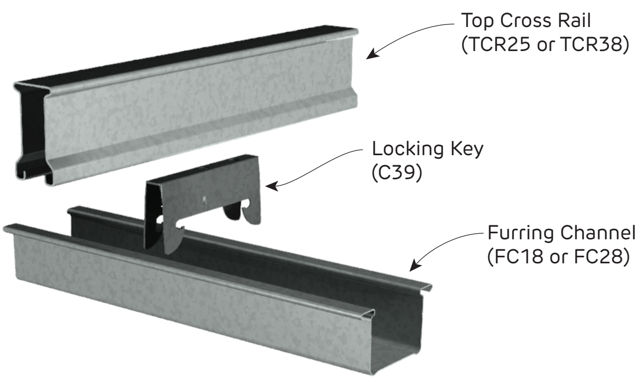
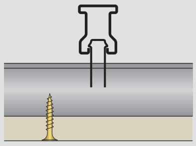



**FIGURE 11** **Locking Key**
Perspective

## Table 5 25mm Top Cross Rail Ceiling Span Table - WIND REGION A

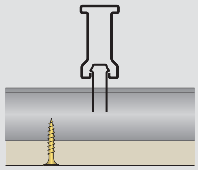
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| | | | | |
|---|---|---|---|---|
| **25mm Top Cross Rail Span Suspended Ceiling Table** |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.39 |
| | | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| **Ceiling Lining** | **28mm Furring Channel Spacing (mm)** | **Top Cross Rail Spacing (mm)** | **Single Span** | | **Double Span** | | **3-or-more Spans** | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 12.5mm Creason | 600 | 900 | 1040 | 0.42 | 970 | 0.99 | 1050 | 0.98 |
| | | 1050 | 990 | 0.47 | 900 | 1.07 | 970 | 1.05 |
| | | 1200 | 950 | 0.52 | 840 | 1.14 | 910 | 1.13 |
| | 400 | 900 | 1040 | 0.42 | 1040 | 1.06 | 1120 | 1.04 |
| | | 1050 | 990 | 0.47 | 960 | 1.14 | 1040 | 1.13 |
| | | 1200 | 900 | 0.52 | 900 | 1.22 | 970 | 1.20 |

## Table 6 38mm Top Cross Rail Ceiling Span Table - WIND REGION A

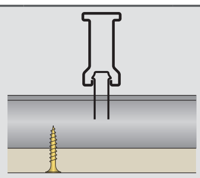
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| | | | | |
|---|---|---|---|---|
| **38mm Top Cross Rail Span Suspended Ceiling Table** |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.39 |
| | | | Serviceability pressure $W_S$ (kPa) | 0.25 |

| **Ceiling Lining** | **28mm Furring Channel Spacing (mm)** | **Top Cross Rail Spacing (mm)** | **Single Span** | | **Double Span** | | **3-or-more Spans** | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 12.5mm Creason | 600 | 1050 | 1410 | 0.67 | 107 | 1.27 | 115 | 1.25 |
| | | 1200 | 1350 | 0.73 | 100 | 1.36 | 108 | 1.34 |
| | | 1350 | 1300 | 0.79 | 940 | 1.44 | 102 | 1.43 |
| | 400 | 1050 | 1410 | 0.67 | 1150 | 1.37 | 1240 | 1.35 |
| | | 1200 | 1350 | 0.73 | 1080 | 1.47 | 1160 | 1.44 |
| | | 1350 | 1300 | 0.79 | 1010 | 1.54 | 1100 | 1.54 |

## Table 7 38mm Top Cross Rail Ceiling Span Table - WIND REGION A

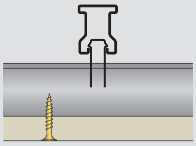
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| | | | | |
|---|---|---|---|---|
| **38mm Top Cross Rail Span Suspended Ceiling Table** |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | 0.46 |
| | | | Serviceability pressure $W_S$ (kPa) | 0.3 |

| **Ceiling Lining** | **28mm Furring Channel Spacing (mm)** | **Top Cross Rail Spacing (mm)** | **Single Span** | | **Double Span** | | **3-or-more Spans** | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 12.5mm Creason | 600 | 900 | 1360 | 0.72 | 1010 | 1.34 | 1090 | 1.32 |
| | | 1050 | 1300 | 0.79 | 940 | 1.42 | 1020 | 1.41 |
| | | 1200 | 1250 | 0.85 | 890 | 1.52 | 960 | 1.50 |
| | 400 | 1050 | 1360 | 0.72 | 1090 | 1.45 | 1180 | 1.43 |
| | | 1200 | 1300 | 0.79 | 1020 | 1.55 | 1100 | 1.52 |
| | | 1350 | 1250 | 0.85 | 960 | 1.64 | 1040 | 1.62 |

## Table 8 25mm Top Cross Rail Ceiling Span Table - WIND REGION B

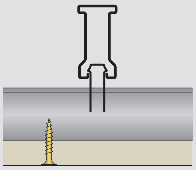
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| | | | | |
|---|---|---|---|---|
| **25mm Top Cross Rail Span Suspended Ceiling Table** |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | **0.59** |
| | | | Serviceability pressure $W_S$ (kPa) | **0.25** |

| Ceiling Lining | 28mm Furring Channel Spacing (mm) | Top Cross Rail Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 12.5mm Creason | 600 | 750 | 1110 | 0.50 | 920 | 1.04 | 1000 | 1.03 |
| | | 900 | 1040 | 0.56 | 840 | 1.14 | 910 | 1.13 |
| | | 1050 | 960 | 0.61 | 780 | 1.23 | 840 | 1.22 |
| | 400 | 900 | 1040 | 0.56 | 900 | 1.22 | 970 | 1.20 |
| | | 1050 | 960 | 0.61 | 830 | 1.31 | 900 | 1.30 |
| | | 1200 | 900 | 0.65 | 780 | 1.41 | 840 | 1.39 |

## Table 9 38mm Top Cross Rail Ceiling Span Table - WIND REGION B

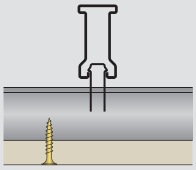
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| | | | | |
|---|---|---|---|---|
| **38mm Top Cross Rail Span Suspended Ceiling Table** |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | **0.59** |
| | | | Serviceability pressure $W_S$ (kPa) | **0.25** |

| Ceiling Lining | 28mm Furring Channel Spacing (mm) | Top Cross Rail Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 12.5mm Creason | 600 | 900 | 1380 | 0.75 | 1000 | 1.36 | 1080 | 1.34 |
| | | 1050 | 1290 | 0.82 | 920 | 1.46 | 1000 | 1.45 |
| | | 1200 | 1220 | 0.88 | 860 | 1.55 | 930 | 1.54 |
| | 400 | 900 | 1380 | 0.75 | 1080 | 1.46 | 1160 | 1.44 |
| | | 1050 | 1290 | 0.82 | 1000 | 1.58 | 1080 | 1.56 |
| | | 1200 | 1220 | 0.88 | 930 | 1.68 | 1010 | 1.67 |

## Table 10 38mm Top Cross Rail Ceiling Span Table - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| | | | | |
|---|---|---|---|---|
| **38mm Top Cross Rail Span Suspended Ceiling Table** |  | Up to BCA Building Importance Level 3 | Ultimate pressure $W_U$ (kPa) | **0.71** |
| | | | Serviceability pressure $W_S$ (kPa) | **0.3** |

| Ceiling Lining | 28mm Furring Channel Spacing (mm) | Top Cross Rail Spacing (mm) | Single Span | | Double Span | | 3-or-more Spans | |
|---|---|---|---|---|---|---|---|---|
| | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 1 layer of 12.5mm Creason | 600 | 900 | 1300 | 0.81 | 930 | 1.45 | 1000 | 1.43 |
| | | 1050 | 1220 | 0.89 | 860 | 1.56 | 930 | 1.55 |
| | | 1200 | 1150 | 0.96 | 800 | 1.66 | 870 | 1.65 |
| | 400 | 900 | 1300 | 0.81 | 1000 | 1.56 | 1090 | 1.55 |
| | | 1050 | 1220 | 0.89 | 930 | 1.69 | 1000 | 1.66 |
| | | 1200 | 1150 | 0.96 | 840 | 1.75 | 920 | 1.75 |

1. Tables based upon downward (suction) and upward (uplift) pressures, intended for internal use only. Down-struts are required for uplift.
2. Tables includes self weight and 2 kg/m$^2$ insulation weight with an additional 3 kg/m$^2$ service load. No further allowance for additional point loads or live loads.
3. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
4. Tables refer to Siniat Furring Channels of 0.42mm Base Metal Thickness (BMT) of grade G550 steel and Siniat Top Cross Rails of 0.75mm BMT of grade G300, both with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
5. Furring Channels checked for 2-or-more spans only. If required, contact Siniat for Single Span furring channel check.
6. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2020 Suspended Ceilings - Design and Installation*.
7. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
8. Connections to clips must be checked with the *Clip Capacity Table* in Section 5.1.
9. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
10. Serviceability Limit State Load Case 1: G, with deflection limited to Span/500.
    Serviceability Limit State Load Case 2: Ws, with deflection limited to Span/200.
11. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
12. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.
13. For BCA Building Importance Level 4, please contact Siniat.

## Concrete Soffit Anchor Table

| Concrete Grade | C1 Anchor |
|---|---|
| 20 - 25 MPa | SA6x60 |
| ≥32MPa | SA6x45 |

| Concrete Grade | C2 Anchor |
|---|---|
| ≥ 20 MPa | SXTB08055 |

1. No edge / spacing effects.

## Downstrut

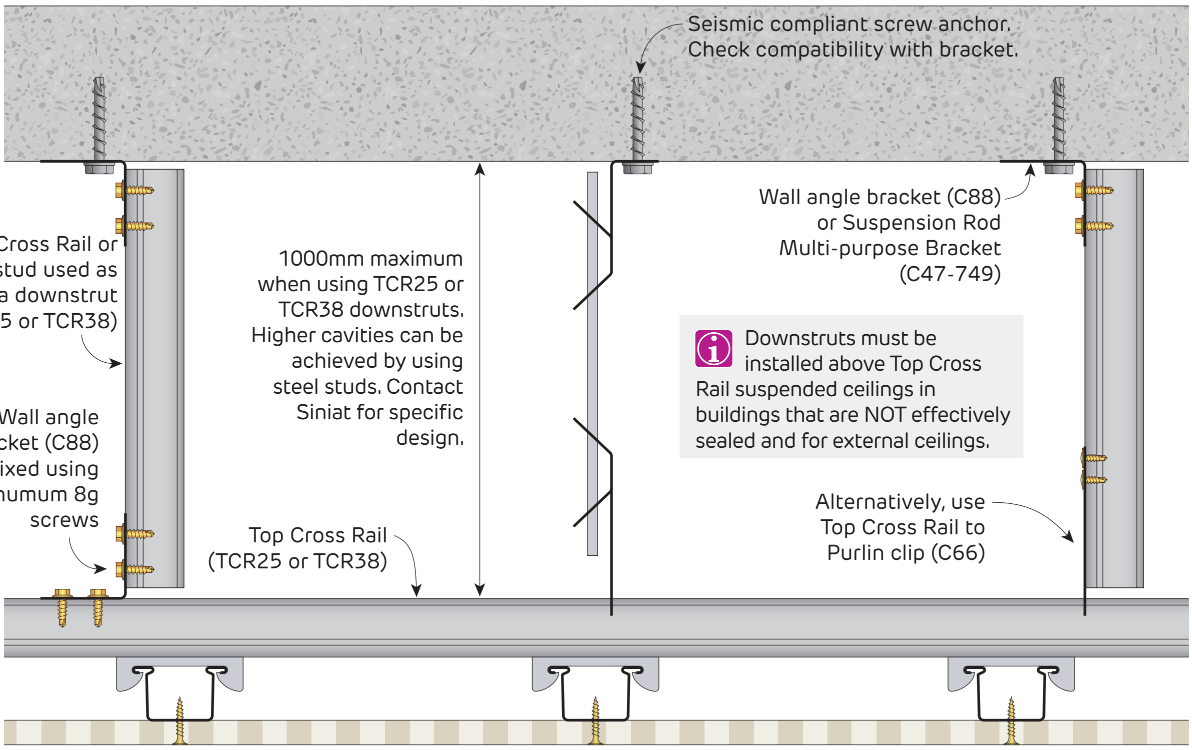
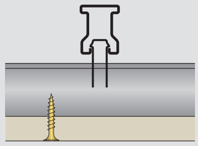



**FIGURE 12** **Downstrut**
Section

## Table 11 Downstrut Table - WIND REGION A

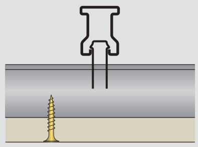
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| **Downstrut Interval Table (along Top Cross Rail)**<br>Suspended ceiling lined with Createx and<br>28mm Furring channels (AFC28) at 400mm maximum spacing | | | |  | Up to BCA Building Importance Level 3 |
|---|---|---|---|---|---|
| **Ultimate Wind Pressure $W_u$ (kPa)** | **Serviceability Wind Pressure $W_s$ (kPa)** | **Top Cross Rail** | **Top Cross Rail Spacing (mm)** | **Double Span**<br>Maximum Downstrut Intervals (mm) | **3 or more Spans**<br>Maximum Downstrut Intervals (mm) |
| 0.39 | 0.25 | TCR25 | 900 | 1570 | 1670 |
| | | | 1050 | 1470 | 1570 |
| | | | 1200 | 1400 | 1490 |
| | | TCR38 | 900 | 1960 | 2070 |
| | | | 1050 | 1860 | 1960 |
| | | | 1200 | 1780 | 1870 |
| 0.47 | 0.3 | TCR25 | 900 | 1430 | 1530 |
| | | | 1050 | 1340 | 1430 |
| | | | 1200 | 1260 | 1350 |
| | | TCR38 | 900 | 1820 | 1920 |
| | | | 1050 | 1720 | 1780 |
| | | | 1200 | 1630 | 1670 |

1. Downstruts must be installed for TCR suspended ceilings in all buildings except air-conditioned hospitals, offices and shopping centres that are effectively sealed where the external walls have non-opening windows.

## Table 12 Downstrut Table - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| **Downstrut Interval Table (along Top Cross Rail)**<br>Suspended ceiling lined with Createx and<br>28mm Furring channels (AFC28) at 400mm maximum spacing | | | |  | Up to BCA Building Importance Level 3 |
|---|---|---|---|---|---|
| **Ultimate Wind Pressure $W_u$ (kPa)** | **Serviceability Wind Pressure $W_s$ (kPa)** | **Top Cross Rail** | **Top Cross Rail Spacing (mm)** | **Double Span**<br>Maximum Downstrut Intervals (mm) | **3 or more Spans**<br>Maximum Downstrut Intervals (mm) |
| 0.59 | 0.25 | TCR25 | 900 | 1280 | 1360 |
| | | | 1050 | 1190 | 1280 |
| | | | 1200 | 1120 | 1200 |
| | | TCR38 | 900 | 1650 | 1690 |
| | | | 1050 | 1550 | 1560 |
| | | | 1200 | 1470 | 1460 |
| 0.71 | 0.3 | TCR25 | 900 | 1160 | 1100 |
| | | | 1050 | 1090 | 1160 |
| | | | 1200 | 1020 | 1100 |
| | | TCR38 | 900 | 1520 | 1520 |
| | | | 1050 | 1410 | 1400 |
| | | | 1200 | 1230 | 1310 |

1. Downstruts must be installed for TCR suspended ceilings in all buildings except air-conditioned hospitals, offices and shopping centres that are effectively sealed where the external walls have non-opening windows.

# Access Panel

| |
|---|
| Mark out the opening in the creason perforated plasterboard using the chameleon access panel frame. Carefully cut-out the creason piece and insert into the chameleon access panel. |
| If any furring channel is cut, reinforce the opening with extra furring channel. Refer to Figure 14 and 15. |
| Leave a 30mm to 50mm area around the perimeter of the opening to allow for the access panel frame. Refer to Figure 13. |
| Fix the creason sheet to the access panel's aluminium frame as shown in Figure 13. |

## Non-Fire Rated
## Creason Ceiling Access Panel

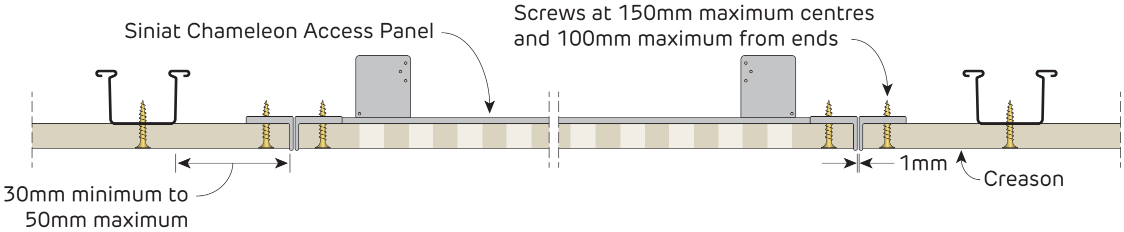



**FIGURE 13** Siniat Chameleon Access Panel
Section

### Table 11 Access Panel Compatibility

| Creason Pattern | Access Panel Compatibility |
|---|---|
| Round R12/25 No.8 | Yes - minimum 450x450mm |
| Cube C12/25 No.8 | Yes - minimum 500x500mm |

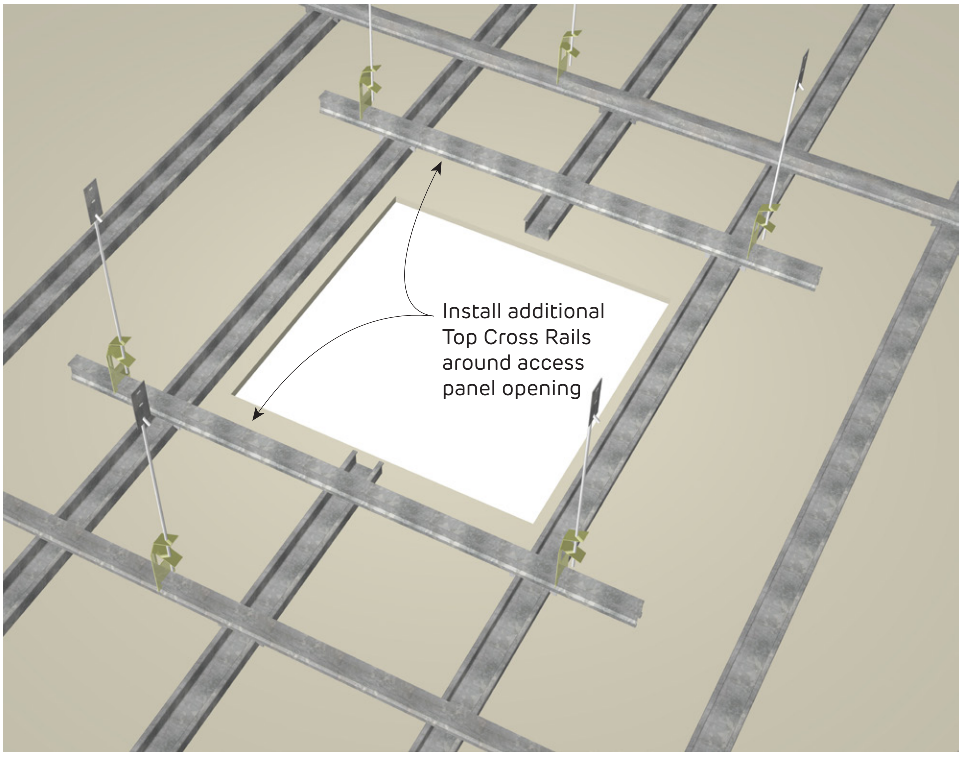



**FIGURE 14** **Creason Access Panel Framing**
Perspective

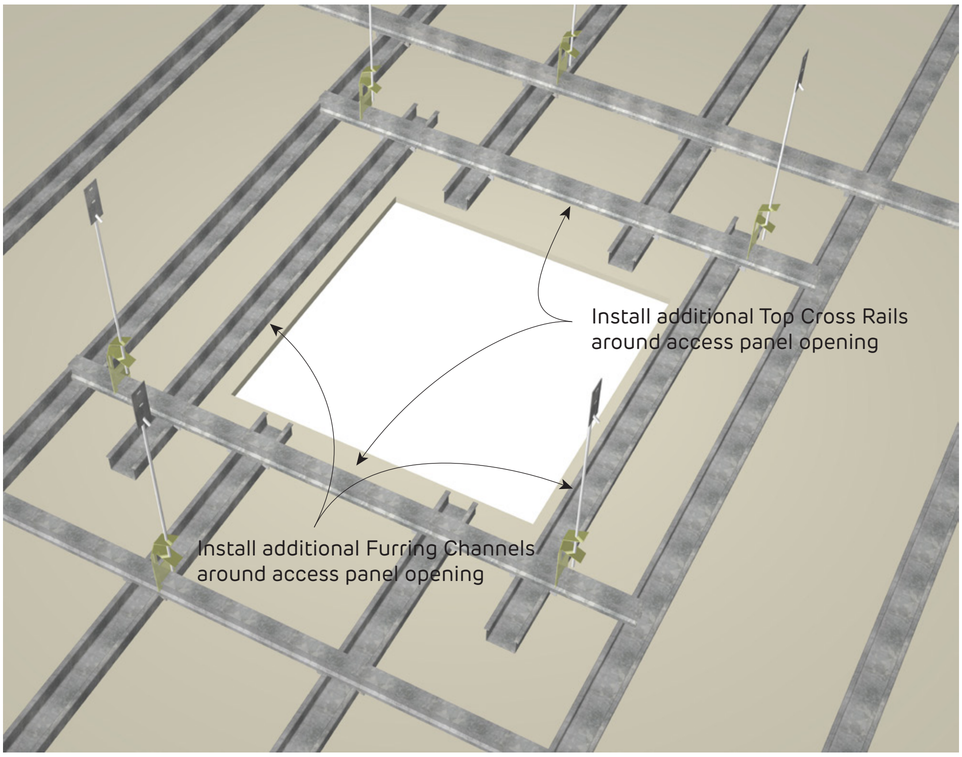



**FIGURE 15** **Creason Access Panel Framing**
Perspective

# Layout

| |
|---|
| Plan the ceiling layout to suit the **creason** sheet size in order to minimise the number of joints and create symmetrical patterns. |
| Start sheeting from the centre of the room. |
| Install **creason** ceilings perpendicular to framing members. |
| Chamfer butt joints and cut edges in preparation for jointing. |
| Fix butt joints on Wide-face Furring Channel (FC60/28). |
| Install one entire row in each direction before proceeding. Refer to Figure 16. |

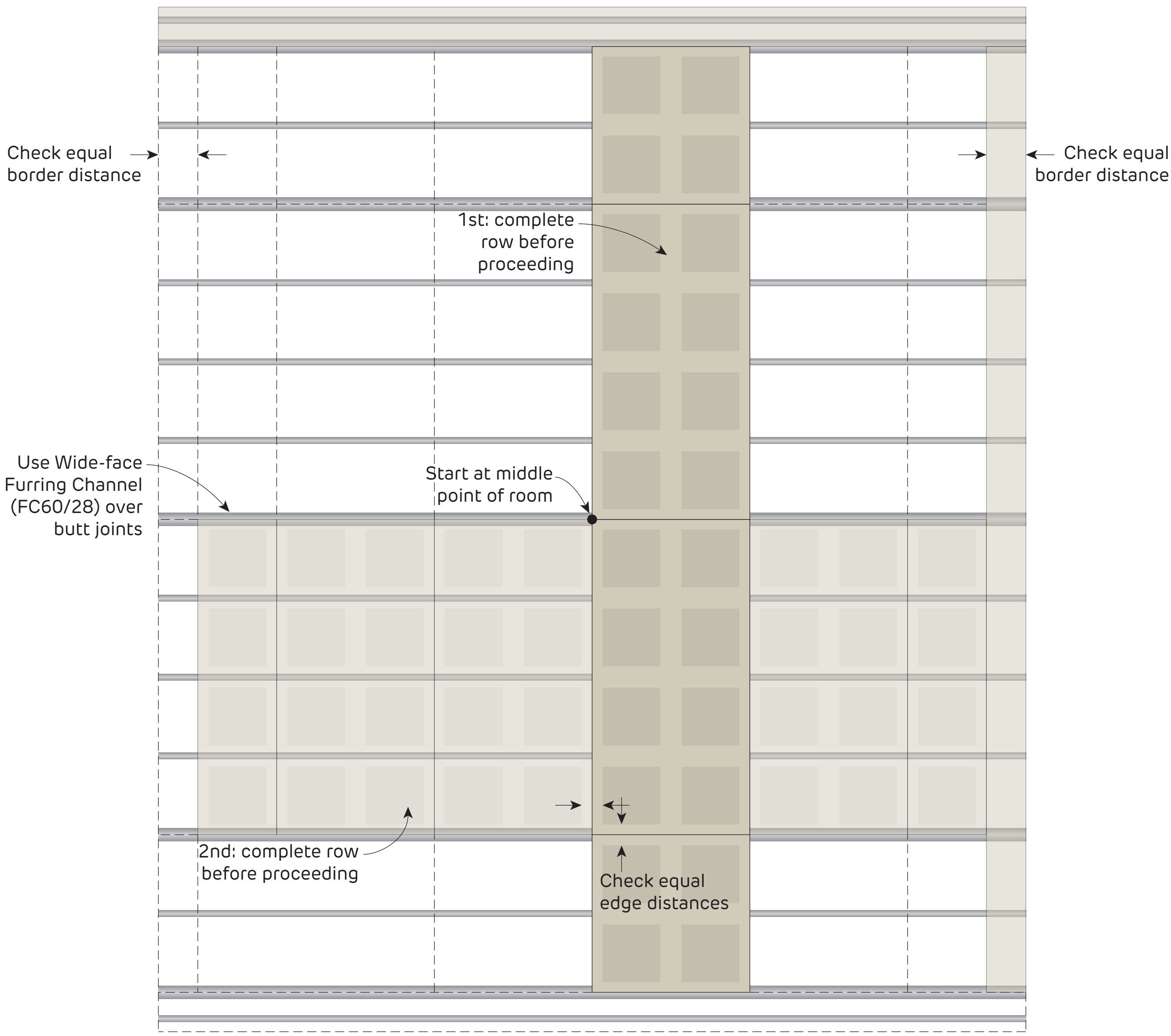



**FIGURE 16 Ceiling Layout**
Plan

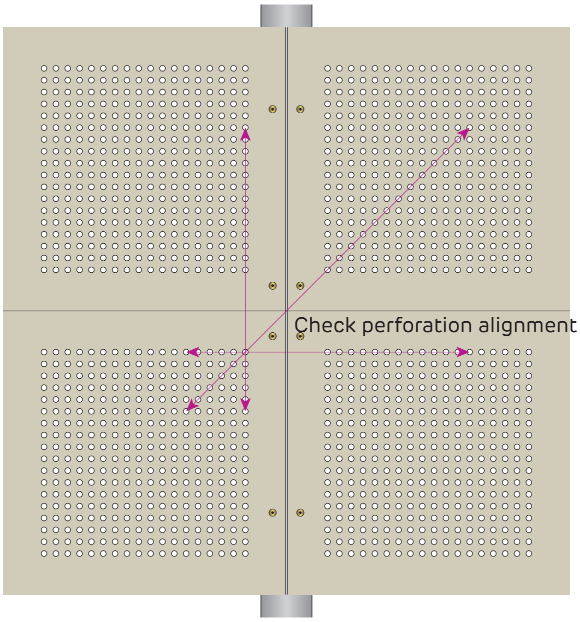



**FIGURE 17** **Perforation Alignment**
Plan

# Fixing

| |
|---|
| Use the 'Screw Only Method'. Adhesive is not permitted. |
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. |

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

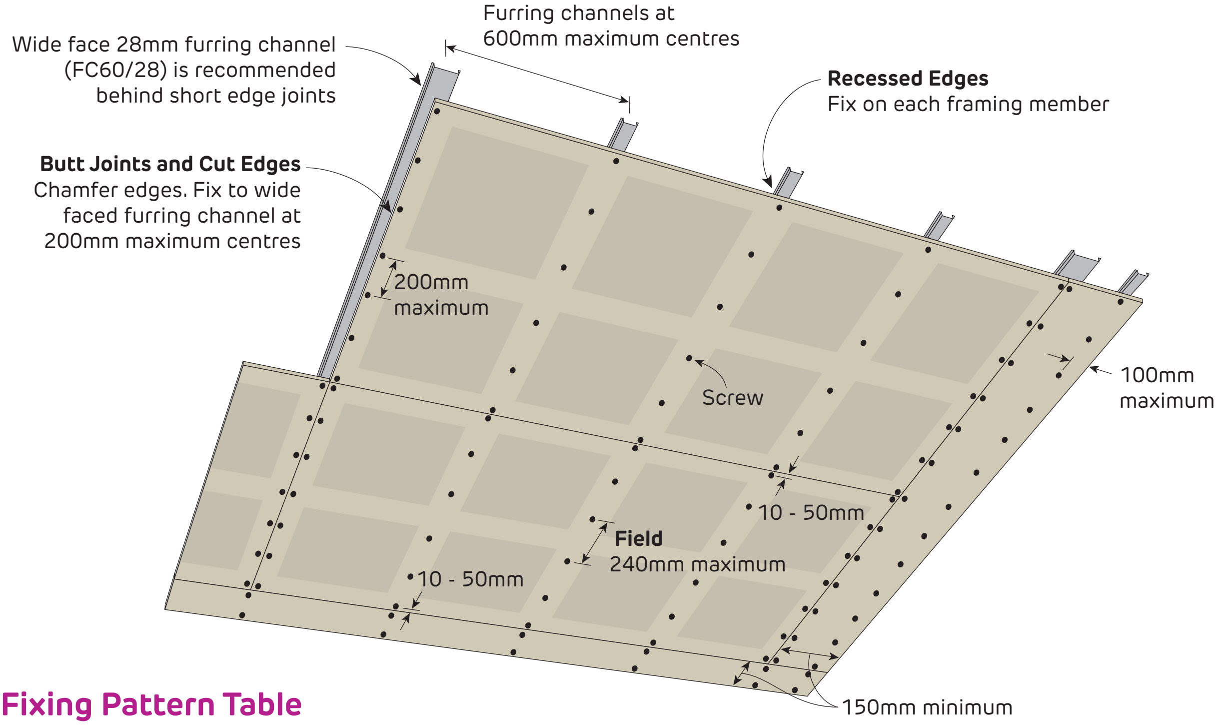
| Plasterboard Thickness | 1st Layer |
|---|---|
| 12.5mm | 6g x 25mm screw |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.

## Fastener Type and Minimum Size for the Installation of Plasterboard to Softwood Timber

| Plasterboard Thickness | 1st Layer |
|---|---|
| 12.5mm | 6g x 32mm screw |

**FIGURE 18** Creason Internal Ceiling - 1 Layer
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Location | Screw Fixing Pattern |
|---|---|---|
| 1200mm | Field | S S S S S S (6) |
| | Short edges (butt joints) | S S S S S S S (7) |

S = One screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | | |
|---|---|---|---|
| | 600mm | 400mm | 300mm |
| 12.5mm | 1.00 | 1.55 | 2.10 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 1.05 kg/m² (equivalent to Pink® Partition 75mm 14kg/m³ R1.9 Batts).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

# Curving

| |
| --- |
| Apply water on the front face with a roller and leave for 30 minutes. |
| Lay the sheet over a template. Secure the panel on one side of the template. |
| Press the sheet against the template using a batten, moving it every 100mm. Secure the panel on the other side of the template. Drying time approximately 2 hours. |

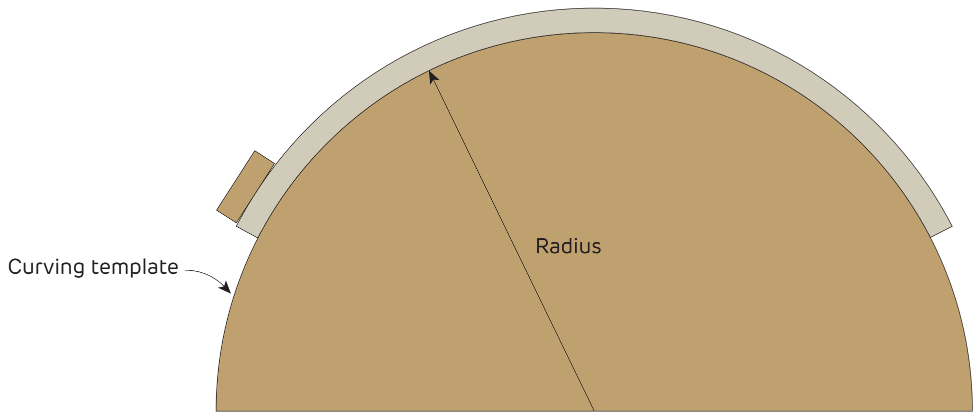



**FIGURE 19** **Curving Template**
Section

**Table 13 Maximum Frame Spacing and Minimum Curve Radius for Creason**

| Creason | Curve Radius (mm) | | |
| --- | --- | --- | --- |
| | 2000 | 2500 | 3000 |
| | **Maximum Framing Centres (mm)** | | |
| Concave - curved along length | 300 | 300 | 400 |
| Convex - curved along length | 300 | 300 | 400 |
| Concave - curved along width | - | 300 | 400 |
| Convex - curved along width | - | - | 400 |

# Finishing

## Jointing

| |
|---|
| Jointing must not be conducted until all ceiling services and access panels are installed in the ceiling, otherwise the excessive vibration may cause joint cracking or peaking. |
| Dampen chamfered edges with water to remove any loose gypsum before applying jointing compounds. |
| Use paper tape and 2 coats of **masta**base, **masta**longset or **masta**tape-in and a finish coat of **masta**glide, **masta**line or **masta**lite. For more information refer to Section 7.3. |
| Do not obstruct perforations during jointing. |

## Sanding

| |
|---|
| Sanding is a critical part of achieving a high quality finish. Care should be taken when sanding joints to achieve a smooth surface. |
| Lightly sand to a smooth even surface using 150 to 220 grit sandpaper or sanding mesh. Do not expose or scuff the paper linerboard while sanding. |

## Painting

| |
|---|
| A three coat paint system must be applied in accordance with Australian Standard *AS/NZS 2311, Guide to the painting of buildings*. Both the quality of the paint and how it is applied have a large effect on the finished appearance of the crea**son** plasterboard. |
| Apply the paint with a short napped roller and avoid the application of excess paint at any time. |

> Only use a roller application for painting. Roller application applies a uniform texture over the entire surface and ensures the paint does not fill the perforations or contact the acoustic felt on the back of the plasterboard.
> Spray painting is not permitted.
> For more information on finishing plasterboard refer to Section 7.

## Non-Fire Rated
## Creason Details

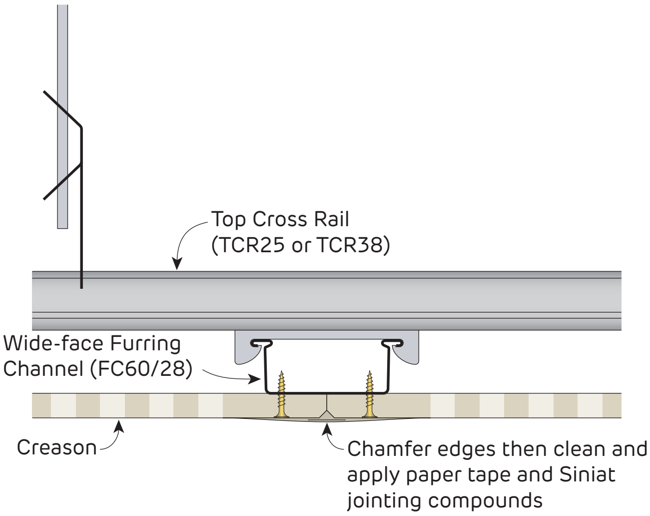



**FIGURE 20 Butt Joints**
Section

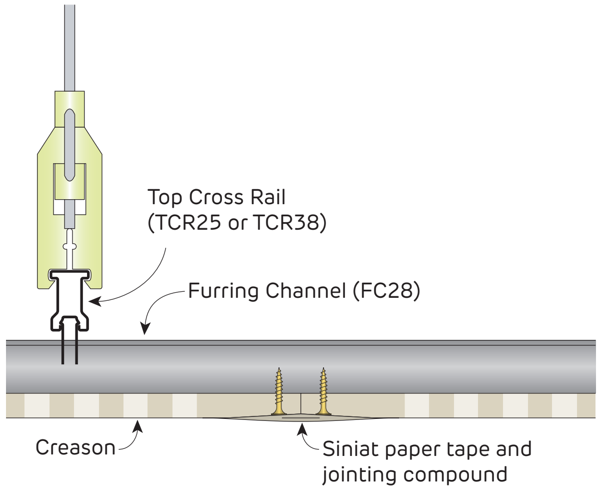



**FIGURE 21 Recessed Joints**
Section

## Control Joints

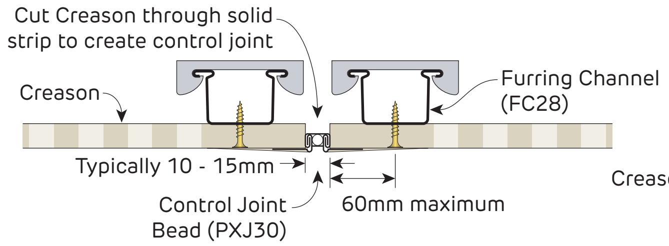



**FIGURE 22 Control Joint**
Parallel to furring channel
Section

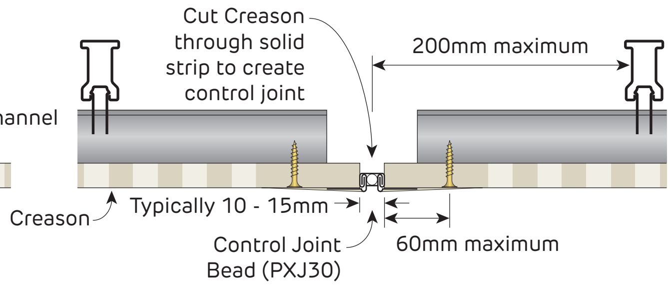



**FIGURE 23 Control Joint**
Perpendicular to furring channel
Section

## Non-Fire Rated
## Ceiling Perimeter Finishing Details

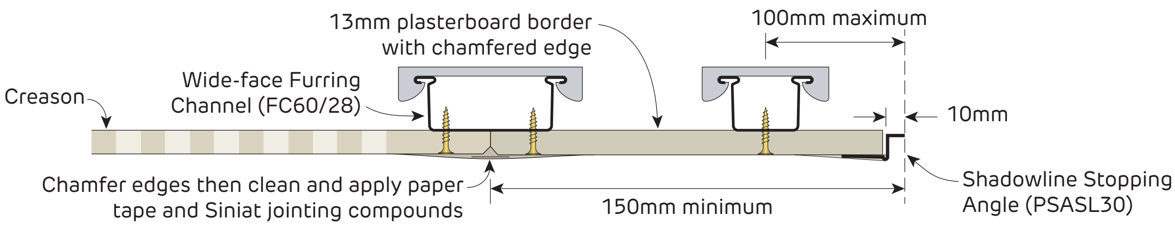



**FIGURE 24** **Finishing Detail - Shadowline**
Section

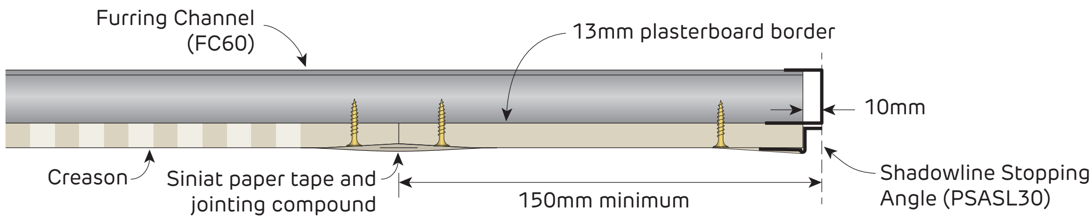



**FIGURE 25** **Finishing Detail - Shadowline**
Section

Some damage to ceiling linings for finishing details with low tolerance to movement can be expected in a Serviceability Earthquake event

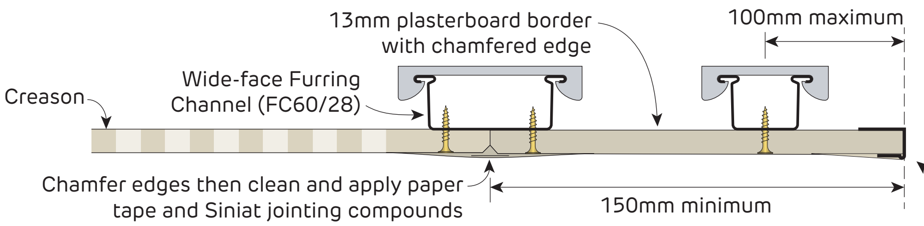



**FIGURE 26** **Finishing Detail - Stopping Bead**
Section

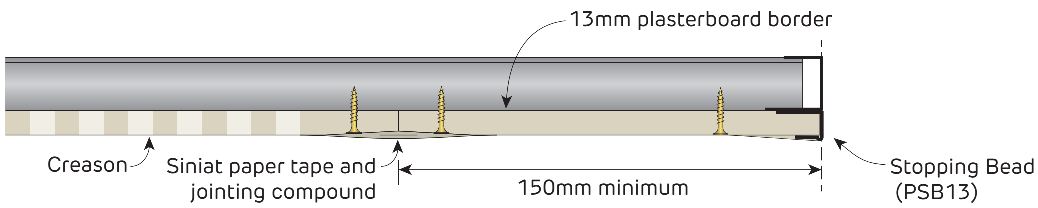



**FIGURE 27** **Finishing Detail - Stopping Bead**
Section

Ceilings using a square set finishing detail have low tolerance for building movement and are more prone to cracking and joint peaking

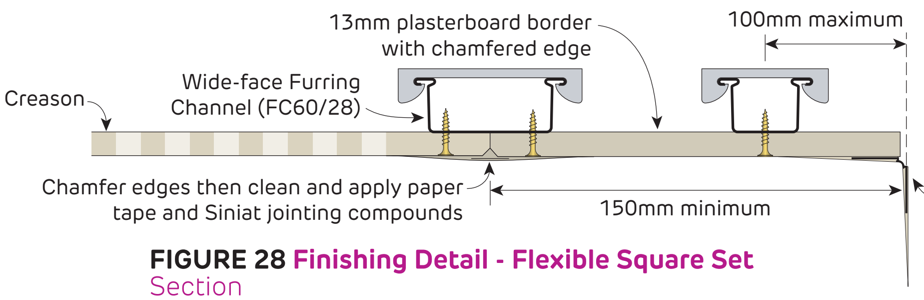



**FIGURE 28** **Finishing Detail - Flexible Square Set**
Section

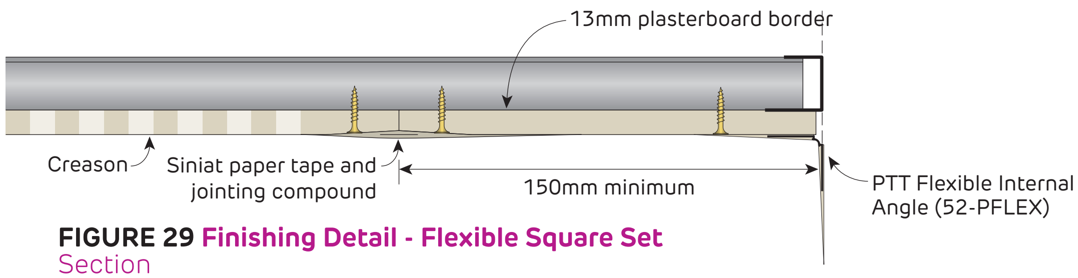
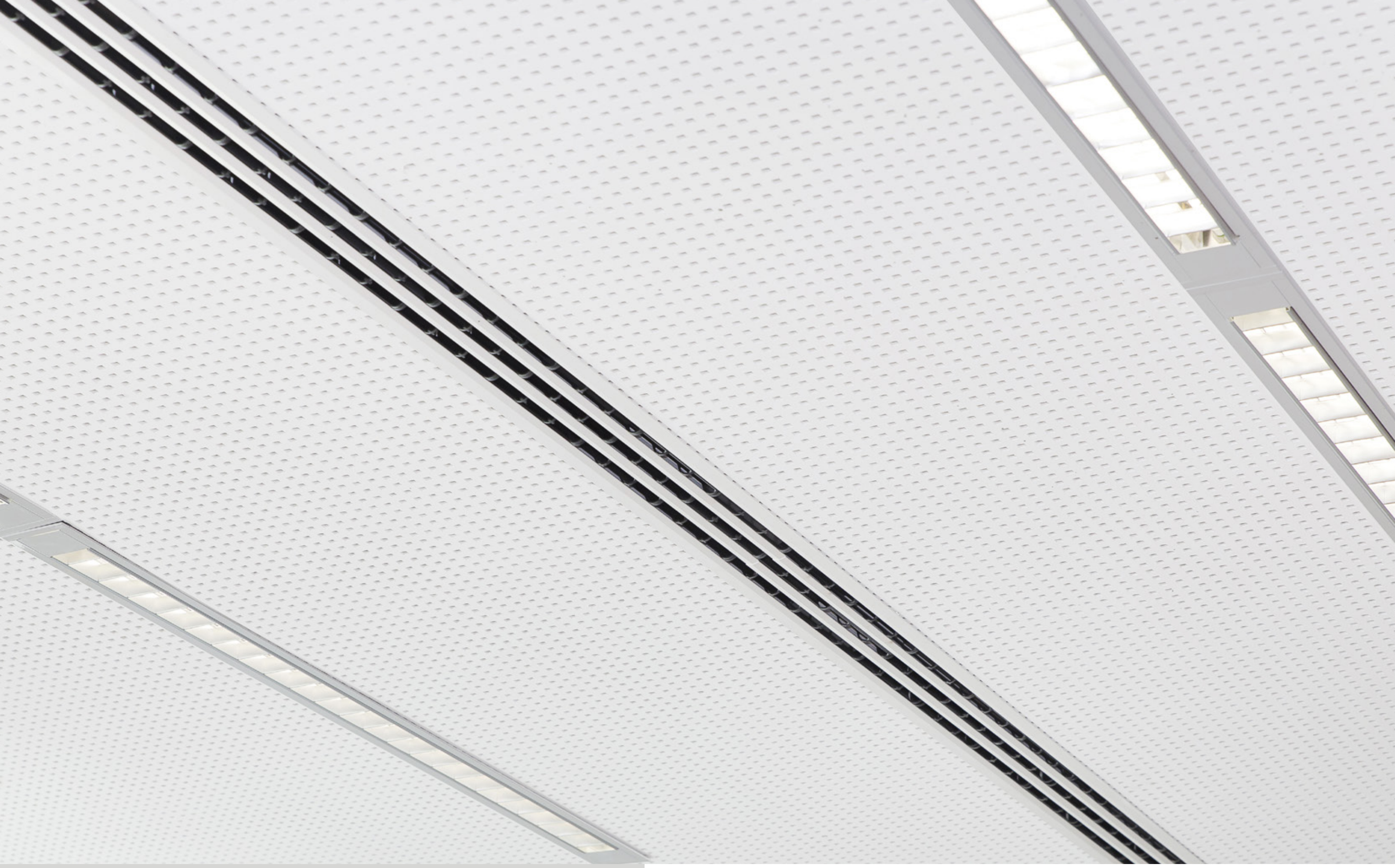



**FIGURE 29** **Finishing Detail - Flexible Square Set**
Section





# 6.8 Createx Perforated Plasterboard

createx with CAPT'AIR® technology brings a breath of fresh air to wall and acoustic ceiling linings. Delivering excellent acoustic performance, stunning aesthetics and CAPT'AIR® air cleaning properties, createx is the smart choice for all commercial applications.

Manufactured with high quality, ultra-sharp perforations in a variety of continuous perforated patterns for a seamless finish, createx with CAPT'AIR® technology meets the high level of acoustic performance required for commercial public areas such as offices, shopping centres, airports, schools, hospitals, conference halls, lecture theatres and libraries.

createx with CAPT'AIR® technology incorporates urea polymer manufacturing process which reacts with formaldehyde creating a non-harmful compound that is absorbed by the plasterboard. This results in a safer environment for any space where createx is installed.

## Round R8/18

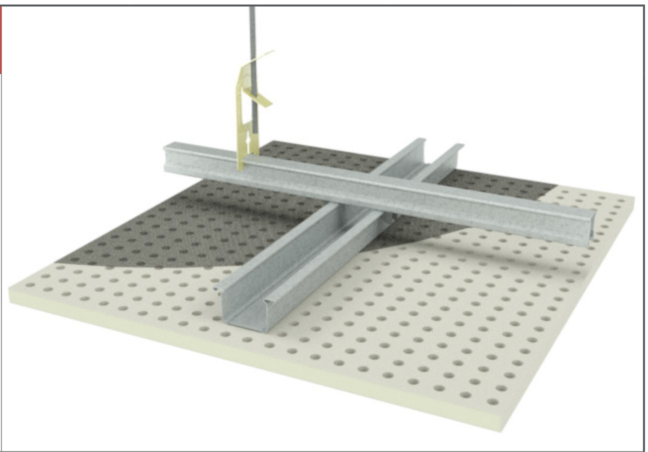
8mm diameter circle perforations with dark backing fleece

**Open Area:** 14.3 %

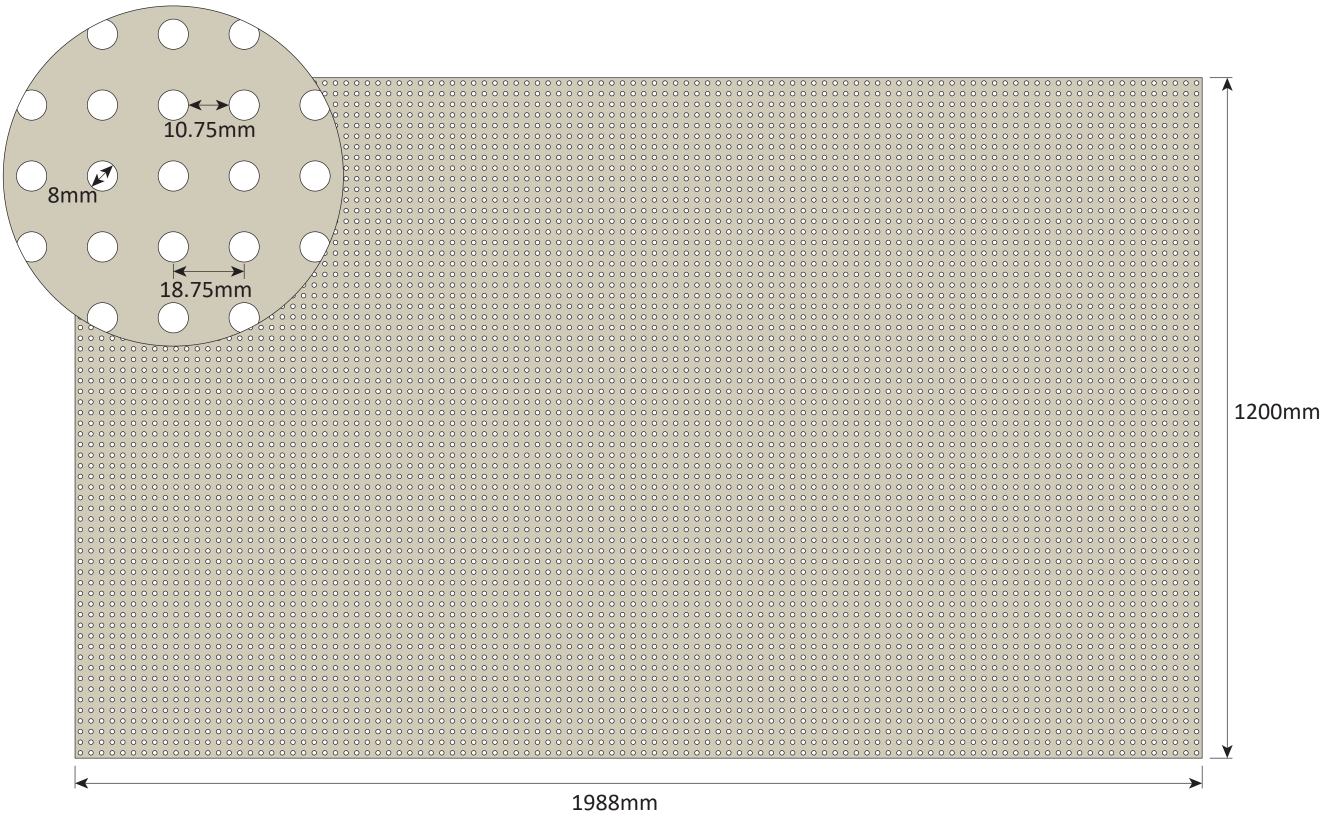
**Furring Channel Centres:** 400mm maximum

**Sheet Dimensions:** 1200 x 1988 x 12.5mm

**Weight:** 10 kg/m² (approximate)



| | Ceiling Cavity (mm) | $\alpha_p$ - Frequency (Hz) | | | | | | $\alpha_w$ | NRC |
|---|---|---|---|---|---|---|---|---|---|
| | | 125 | 250 | 500 | 1000 | 2000 | 4000 | | |
| Pink® Partition 50mm 14kg/m³ R1.3 | 50 | 0.35 | 0.85 | 1.0 | 0.9 | 0.65 | 0.6 | **0.7** | **0.85** |
| | 200 | 0.55 | 0.95 | 0.85 | 0.85 | 0.65 | 0.6 | **0.7** | **0.85** |
| Pink® Partition 75mm 14kg/m³ R1.9 | 187 | 0.55 | 0.8 | 0.8 | 0.75 | 0.7 | 0.65 | **0.7** | **0.75** |
| No Insulation | 187 | 0.45 | 0.7 | 0.8 | 0.7 | 0.65 | 0.6 | **0.7** | **0.7** |
| Pink® Partition 75mm 14kg/m³ R1.9 | 600 | 0.65 | 0.7 | 0.8 | 0.7 | 0.6 | 0.65 | **0.7** | **0.7** |



## Round R12/25

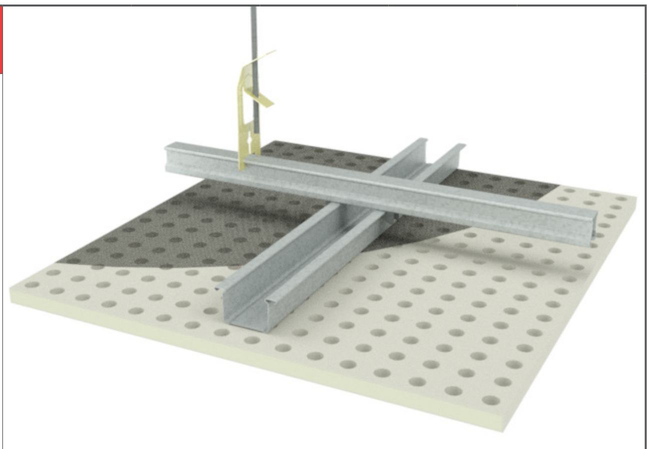
12mm diameter circle perforations with dark backing fleece

**Open Area:** 18.2 %

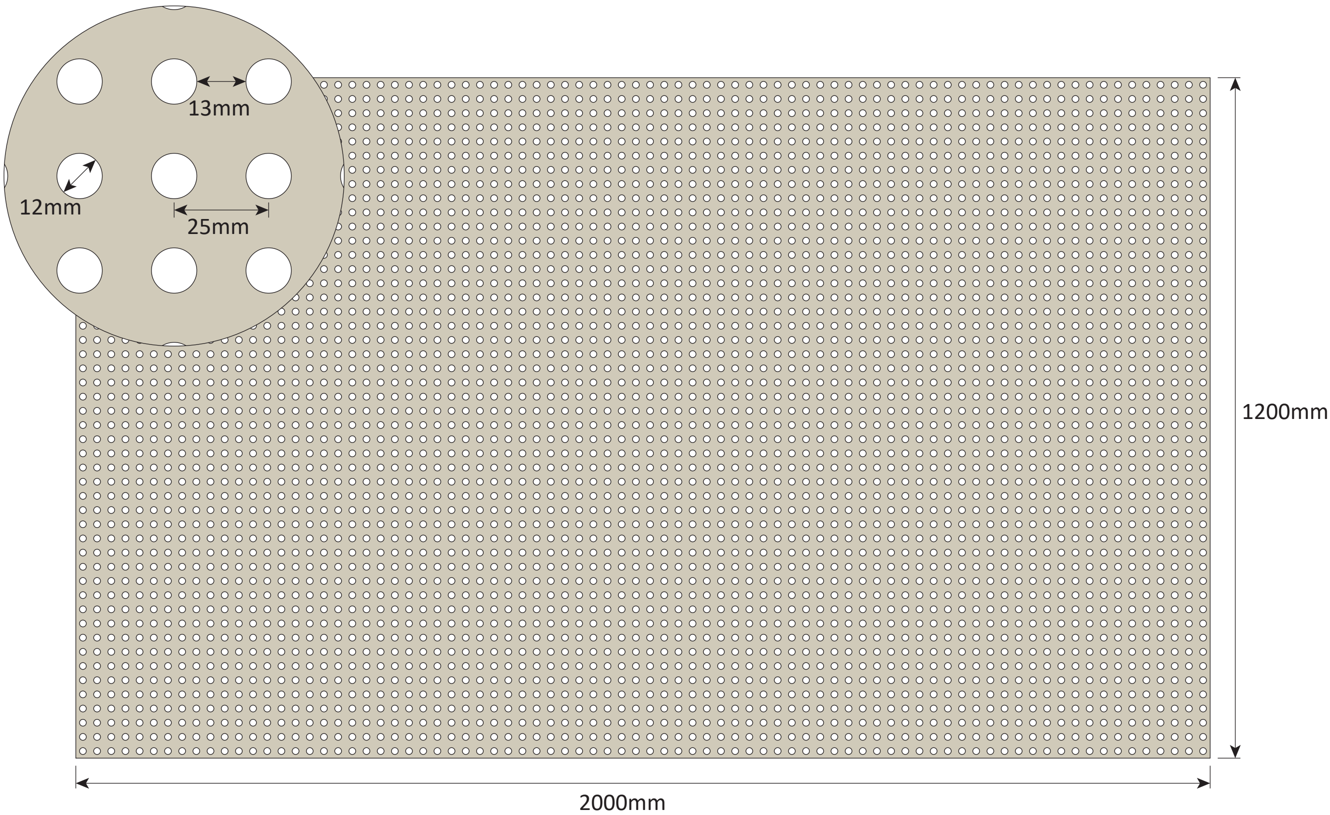
**Furring Channel Centres:** 400mm maximum

**Sheet Dimensions:** 1200 x 2000 x 12.5mm

**Weight:** 10 kg/m$^2$ (approximate)



| | Ceiling Cavity (mm) | $\alpha_p$ - Frequency (Hz) | | | | | | $\alpha_w$ | NRC |
|---|---|---|---|---|---|---|---|---|---|
| | | 125 | 250 | 500 | 1000 | 2000 | 4000 | | |
| Pink® Partition 50mm 14kg/m$^3$ R1.3 | 45 | 0.35 | 0.75 | 0.95 | 0.9 | 0.75 | 0.65 | **0.8** | **0.85** |
| Pink® Partition 75mm 14kg/m$^3$ R1.9 | 187 | 0.6 | 0.8 | 0.85 | 0.8 | 0.8 | 0.75 | **0.75** | **0.8** |
| No Insulation | 187 | 0.45 | 0.75 | 0.9 | 0.7 | 0.7 | 0.55 | **0.7** | **0.75** |



## Cube C12/25

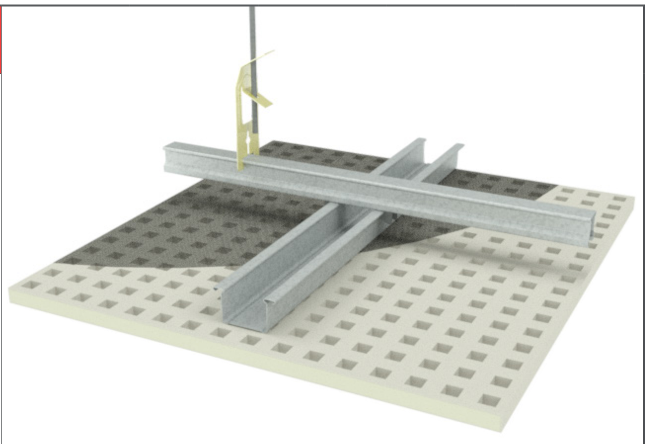
12mm square perforations with dark backing fleece

**Open Area:** 23.1 %

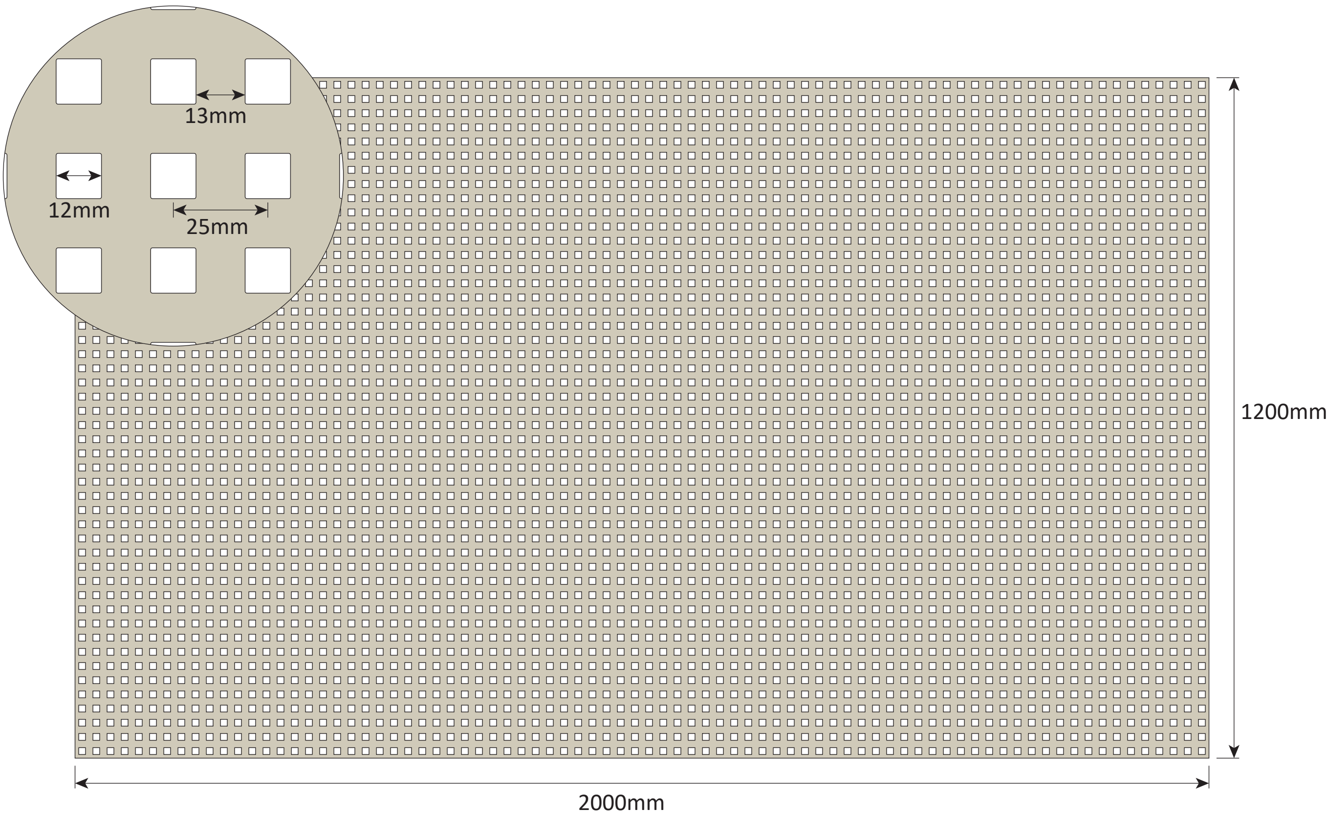
**Furring Channel Centres:** 400mm maximum

**Sheet Dimensions:** 1200 x 2000 x 12.5mm

**Weight:** 10 kg/m² (approximate)



| | Ceiling Cavity (mm) | $\alpha_p$ - Frequency (Hz) | | | | | | $\alpha_w$ | NRC |
|---|---|---|---|---|---|---|---|---|---|
| | | 125 | 250 | 500 | 1000 | 2000 | 4000 | | |
| Pink® Partition 50mm 14kg/m³ R1.3 | 50 | 0.25 | 0.7 | 0.85 | 0.85 | 0.75 | 0.75 | **0.85** | **0.8** |
| No Insulation | 187 | 0.45 | 0.8 | 0.9 | 0.75 | 0.7 | 0.65 | **0.75** | **0.8** |
| Pink® Partition 75mm 14kg/m³ R1.9 | 187 | 0.6 | 0.9 | 0.95 | 0.9 | 0.85 | 0.8 | **0.9** | **0.9** |
| Pink® Partition 75mm 14kg/m³ R1.9 | 600 | 0.75 | 0.8 | 0.9 | 0.85 | 0.75 | 0.8 | **0.85** | **0.85** |



## Dynamic D8-12

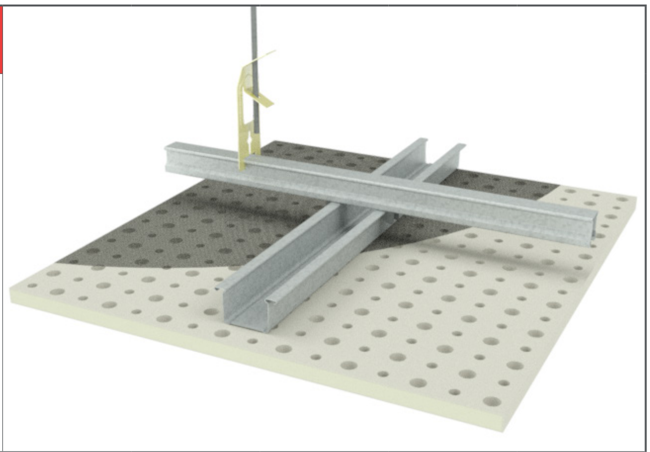
8mm and 12mm diameter circle perforations with dark backing fleece

**Open Area:** 13.1 %

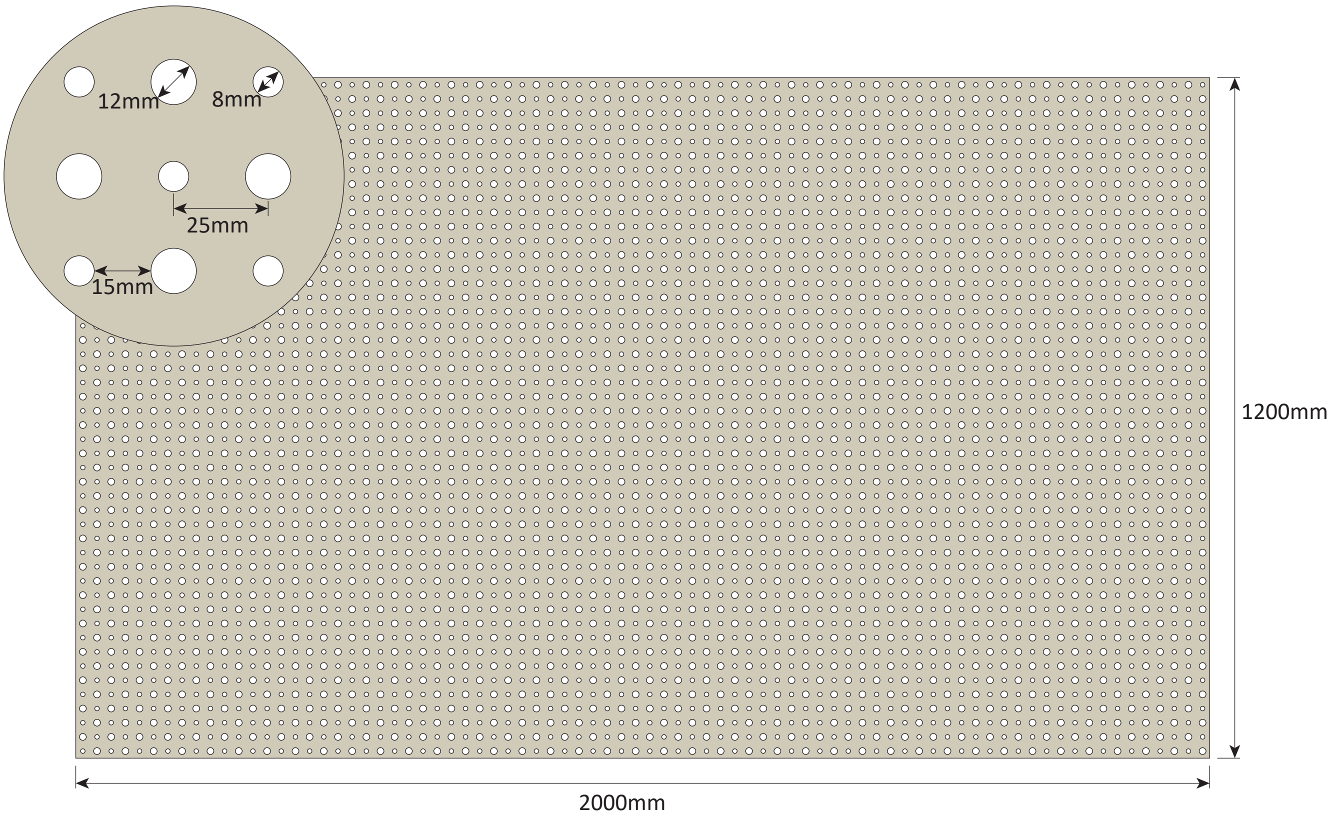
**Furring Channel Centres:** 400mm maximum

**Sheet Dimensions:** 1200 x 2000 x 12.5mm

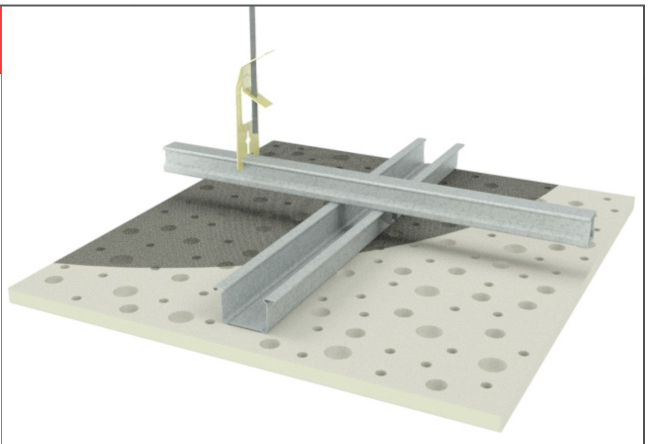
**Weight:** 10 kg/m² (approximate)



| | Ceiling Cavity (mm) | $\alpha_p$ - Frequency (Hz) | | | | | | $\alpha_w$ | NRC |
|---|---|---|---|---|---|---|---|---|---|
| | | 125 | 250 | 500 | 1000 | 2000 | 4000 | | |
| No Insulation | 187 | 0.25 | 0.65 | 0.6 | 0.35 | 0.3 | 0.35 | **0.35** | **0.5** |
| Pink® Partition 75mm 14kg/m³ R1.9 | 187 | 0.55 | 1.0 | 0.9 | 0.7 | 0.5 | 0.45 | **0.55** | **0.8** |
| Pink® Partition 75mm 14kg/m³ R1.9 | 600 | 0.6 | 0.7 | 0.75 | 0.7 | 0.6 | 0.6 | **0.7** | **0.7** |



## Space S8-15-20



8mm, 15mm and 20mm diameter circle perforations with dark backing fleece

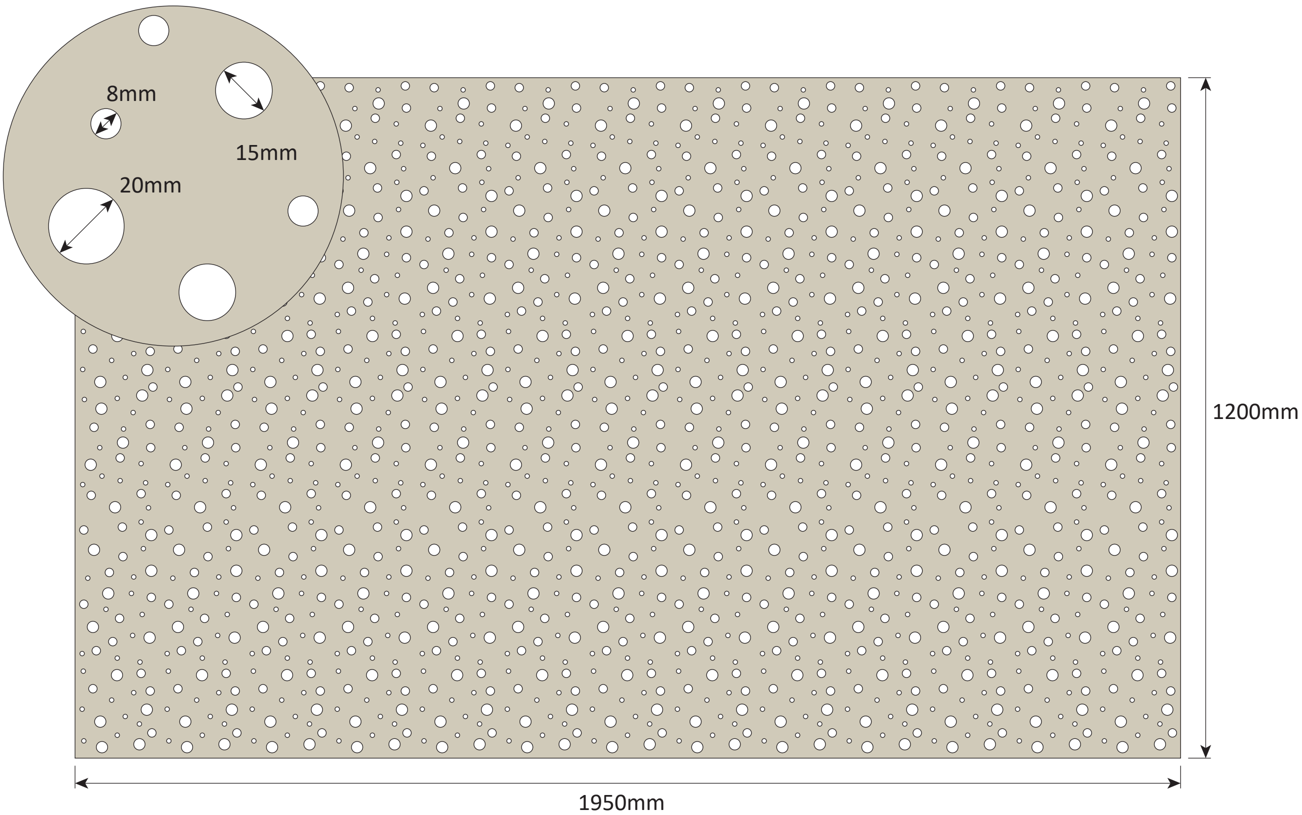
**Open Area:** 10.2 %

**Furring Channel Centres:** 400mm maximum

**Sheet Dimensions:** 1200 x 1950 x 12.5mm

**Weight:** 10 kg/m² (approximate)

| | Ceiling Cavity (mm) | $\alpha_p$ - Frequency (Hz) | | | | | | $\alpha_w$ | NRC |
|---|---|---|---|---|---|---|---|---|---|
| | | 125 | 250 | 500 | 1000 | 2000 | 4000 | | |
| Pink® Partition 50mm 14kg/m³ R1.3 | 45 | 0.4 | 0.7 | 0.65 | 0.65 | 0.5 | 0.5 | **0.6** | **0.65** |
| No Insulation | 187 | 0.45 | 0.65 | 0.7 | 0.6 | 0.45 | 0.4 | **0.5** | **0.6** |
| Pink® Partition 50mm 14kg/m³ R1.3 | 187 | 0.45 | 0.6 | 0.65 | 0.65 | 0.5 | 0.5 | **0.6** | **0.6** |
| Pink® Partition 75mm 14kg/m³ R1.9 | 187 | 0.5 | 0.65 | 0.65 | 0.65 | 0.5 | 0.5 | **0.6** | **0.6** |
| Pink® Partition 75mm 14kg/m³ R1.9 | 600 | 0.6 | 0.6 | 0.7 | 0.65 | 0.45 | 0.45 | **0.55** | **0.6** |



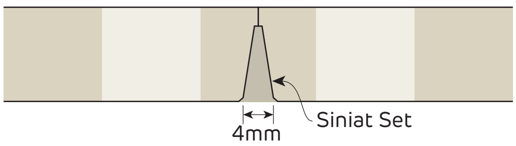
# Edge Type

## V Edge

All **createx** perforation patterns come with a V edge profile.

The V edge profile easily facilitates precise alignment of the perforated boards, ensuring that the boards are straight and the continuous perforation patterns align perfectly.

The V edge is used when a jointless appearance is required. Joints are tapeless and virtually invisible when filled with Siniat **set** jointing compound followed by masta**lite**, masta**glide**, or masta**line** to finish the joint ready for painting.



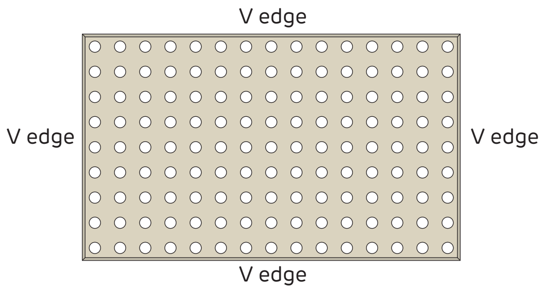




**FIGURE 1** **V Edge**
Section

## Createx Jointing Compound

| Name | Application | Size | Type | Working Time | Setting Time |
|---|---|---|---|---|---|
| Siniat **set** | Createx Joints | 10 kg bag | Powder | 45 minutes | 60 minutes |

# General Requirements

| |
|---|
| Install control joints in internal plasterboard ceilings:<br>> At 10m maximum intervals<br>> At all movement joints in the building<br>> At any change in the substrate<br>> At the junction of a larger room and passageway.<br>Separate **createx** ceilings from other building elements, such as walls and columns by creating control joints that allow for movement, e.g. utilising a shadow line profile or tear away bead. |
| Do not rigidly fix **createx** to the perimeter. |
| All ceilings in this section are non-trafficable. Do not walk on plasterboard ceilings! |
| Limit dead loads on **createx** ceilings to 2 kg/m$^2$. |
| Attach ceiling fixtures to framing members only. Ensure the framing is designed to carry any additional load. |
| Cut all openings for services before jointing with Siniat **set**. |
| Locate ceiling services between framing to avoid cutting of top cross rails or furring channels. If furring channels are cut then provide additional support with top cross rails and hangers. Refer to Figures 14 and 15. |

- **createx** must have an air cavity behind it for it to perform as a sound absorber.
- **createx** installations in close proximity to metal roofs (i.e. raked ceiling or with small ceiling cavities) require smaller control joint intervals or joints left unfilled as they are exposed to larger rates of thermal expansion and contraction of the roof and/or ceiling framing otherwise cracking of the ceiling and joint peaking is expected.
- Excessive vibration of the ceiling (by installing ceiling services, etc) is known to cause jointing cracking and joint peaking.
- Locate ceiling services so they do not cut through ceiling framing members, otherwise some degradation of the ceiling can be expected.

Use the Siniat Reverberation time calculator to assist in determining how much of the ceiling and or wall area should be covered. Alternatively involve an acoustic consultant, especially for very high ceilings and unusually shaped rooms such as those with domed or sloping ceilings.

**Siniat Reverberation Time Calculator**

# Framing

| |
|---|
| Framing members as per framing tables or structural design up to 400mm maximum. Also refer to Section 5.1 for more information on ceiling framing. |
| For a specific project, determine the relevant wind pressure load on an internal ceiling from Section 2.3, or the QR link below. Wind pressure loads must be considered for internal ceilings to comply with *AS/NZS 1170.2 Wind Actions* and *AS/NZS 2785 Suspended Ceilings - Design and Installation.* |
| Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required. |
| Stagger joins in adjacent Top Cross Rails and Furring Channels by 1200mm minimum. |
| Install additional framing members around openings. |
| Back all short edges (butt joints) with a Siniat Wide-face Furring Channel (F60/28). |
| Downstruts must be installed for Top Cross Rail suspended ceilings in all buildings except air-conditioned hospitals, offices and shopping centres that are effectively sealed where the external walls have non-opening windows. Refer to Downstrut Framing Tables. |

Do not fix crea**tex** directly to timber joists

## Siniat Internal Wind Load Calculator

## Non-Fire Rated
## Internal Direct Fix Ceiling Frames

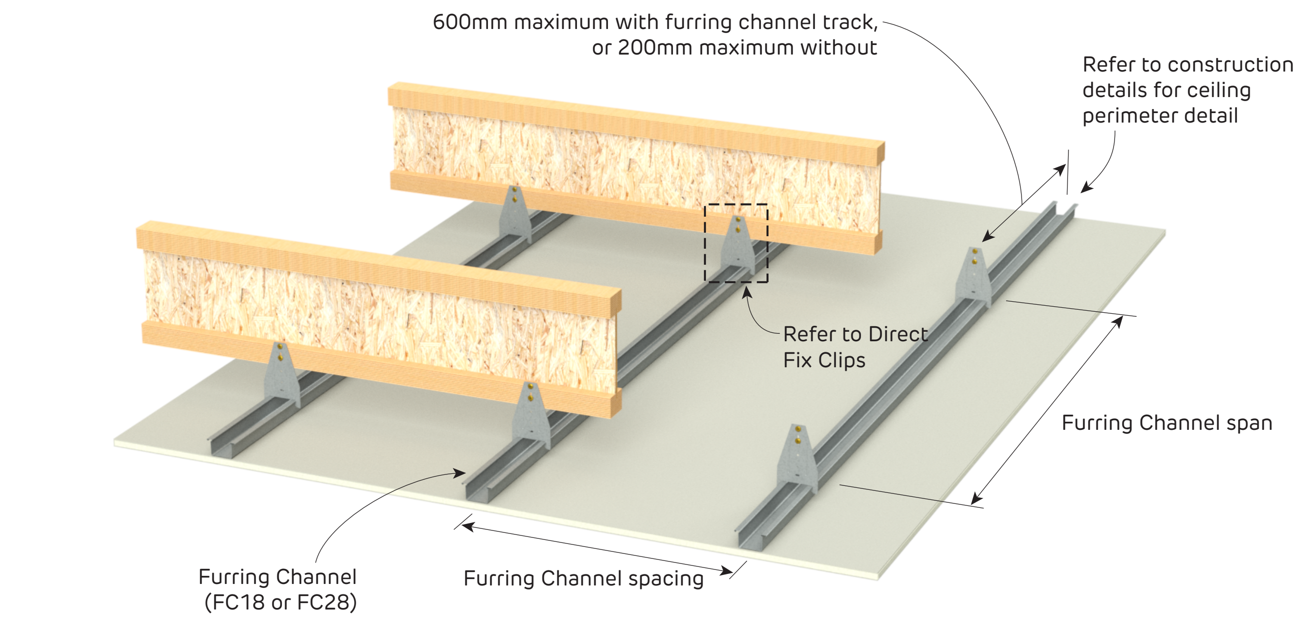



**FIGURE 1** Direct Fix Furring Channel Ceiling Frame
Perspective

## Details for Single Span, Double Span or 3-or-More Span Ceilings

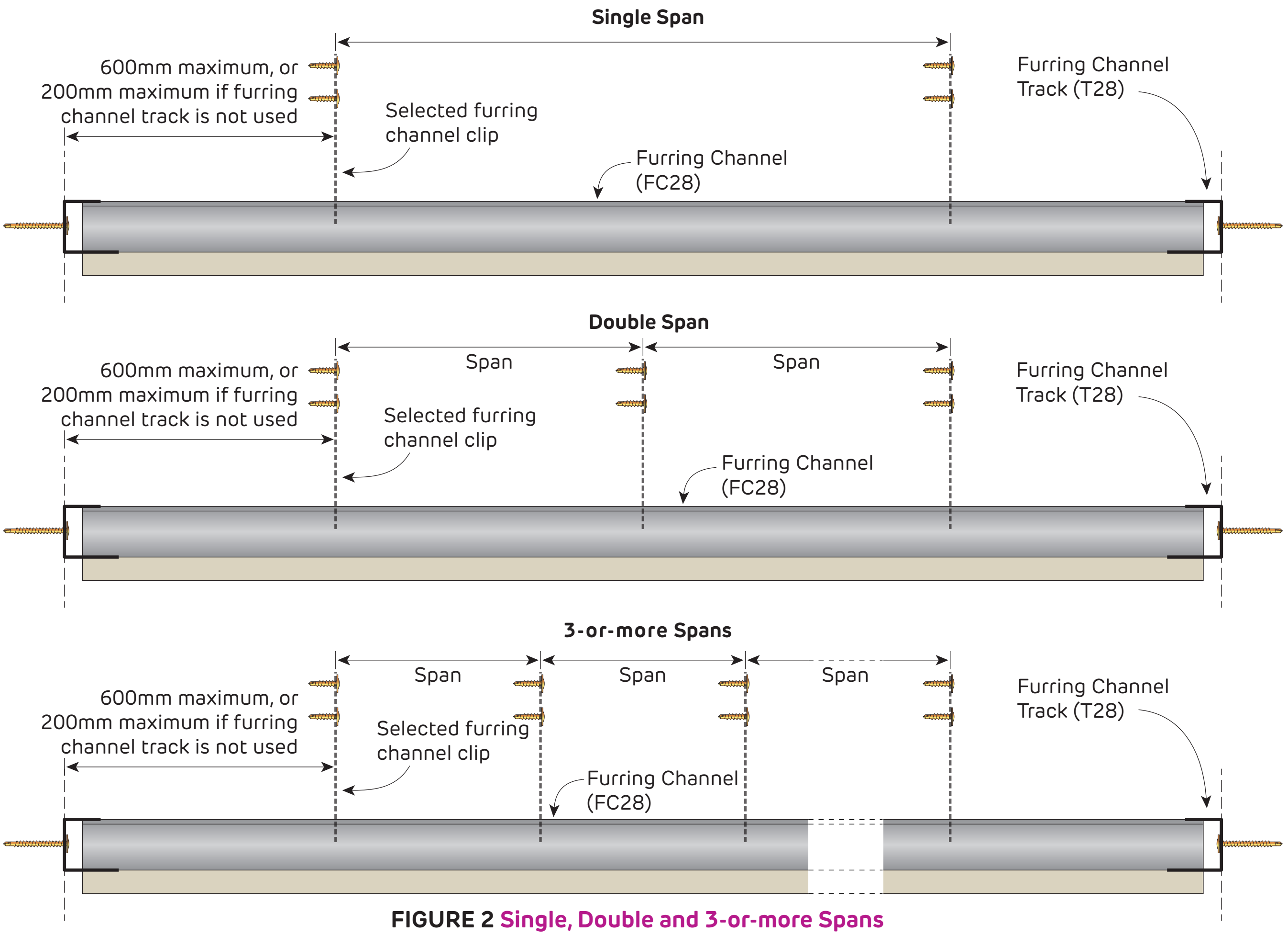



**FIGURE 2** Single, Double and 3-or-more Spans
Section

## Non-Fire Rated
## Typical Direct Fix Clips

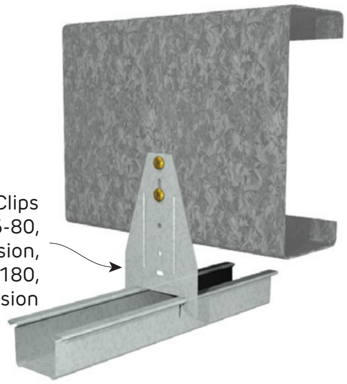



**FIGURE 3** **A Clip and Furring Channel**
Perspective

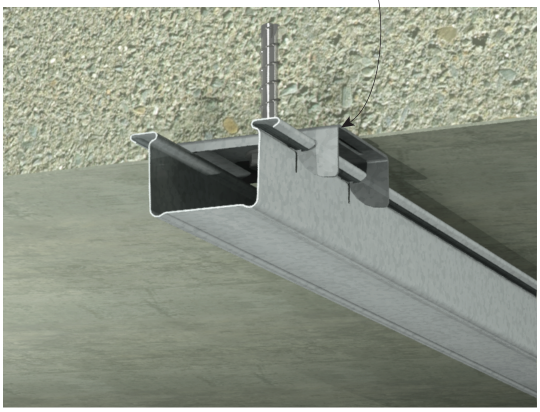


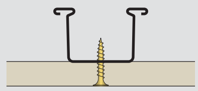

**FIGURE 4** **Anchor Clip and Furring Channel**
Perspective

Direct fixing clips may generate noise when fixed to materials subject to daily thermal expansion and contraction

### Table 1 28mm Furring Channel Ceiling Span Table

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

**28mm Furring Channel (AFC28) Ceiling Span Table**
Furring channels at 400mm maximum spacing



| Wind Region | Ultimate Wind Pressure $W_u$ (kPa) | Serviceability Wind Pressure $W_s$ (kPa) | Single Span | | 2 or more Spans | |
|---|---|---|---|---|---|---|
| | | | Maximum Span (mm) | Connection Demand (kN) | Maximum Span (mm) | Connection Demand (kN) |
| REGION A | 0.39 | 0.25 | 1350 | 0.15 | 1670 | 0.47 |
| | 0.47 | 0.3 | 1270 | 0.16 | 1570 | 0.50 |
| | 0.54 | 0.35 | 1200 | 0.17 | 1490 | 0.53 |
| REGION B | 0.59 | 0.25 | 1350 | 0.20 | 1670 | 0.63 |
| | 0.71 | 0.3 | 1270 | 0.22 | 1570 | 0.69 |
| | 0.83 | 0.35 | 1200 | 0.24 | 1490 | 0.74 |

1. Table based upon downward (suction) and upward (uplift) pressures, intended for internal use only.
2. Table includes self weight and 2 kg/m$^2$ insulation weight with an additional 3 kg/m$^2$ service load. No further allowance for additional point loads or live loads.
3. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
4. Table refers to Siniat Furring Channel of Base Metal Thickness (BMT) 0.42mm of grade G550 steel with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
5. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2000 Suspended Ceilings - Design and Installation*.
6. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
7. Connections to clips must be checked with the *Clip Capacity Table* in Section 5.1.
8. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ \text{Service Load}}$
   Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
9. Serviceability Limit State Load Case 1: G, with deflection limited to Span/500.
   Serviceability Limit State Load Case 2: Ws, with deflection limited to Span/360.
10. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
11. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.
12. For BCA Building Importance Level 4, please contact Siniat.

## Non-Fire Rated
## Internal Suspended Ceiling Frames

Specific framing details for earthquake actions must be determined by structural design

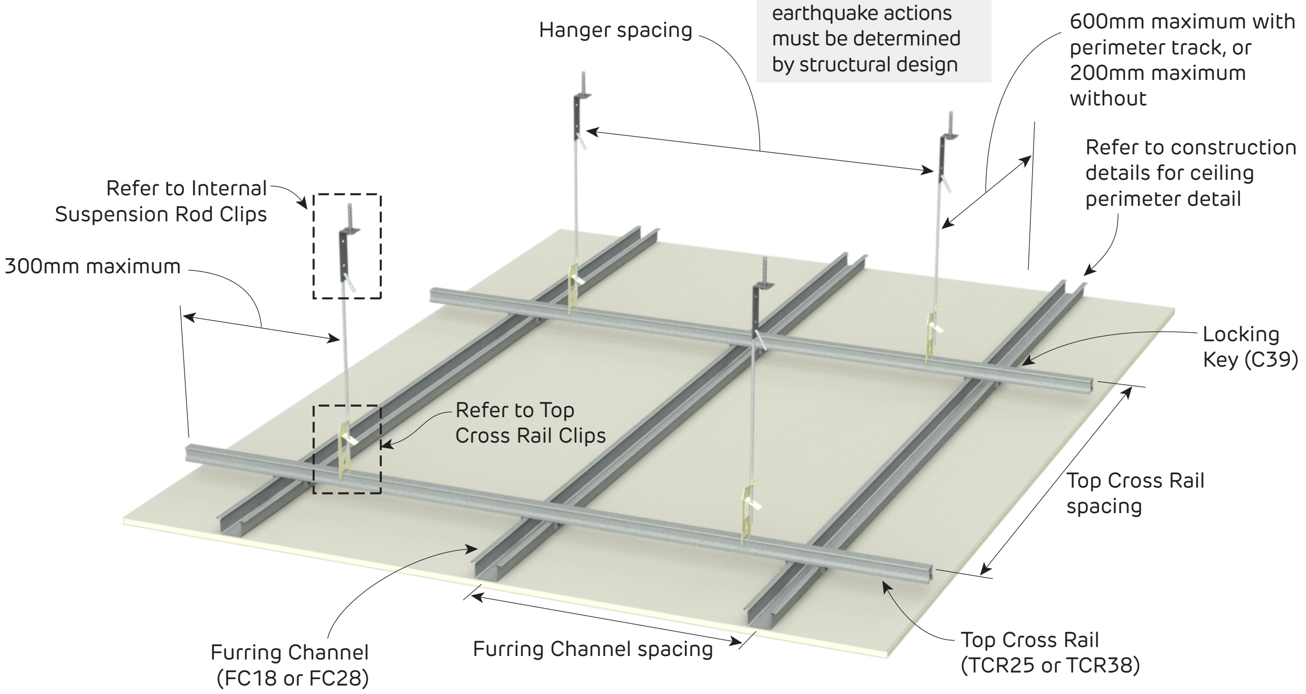



**FIGURE 5** **Suspended Ceiling Frame**
Perspective

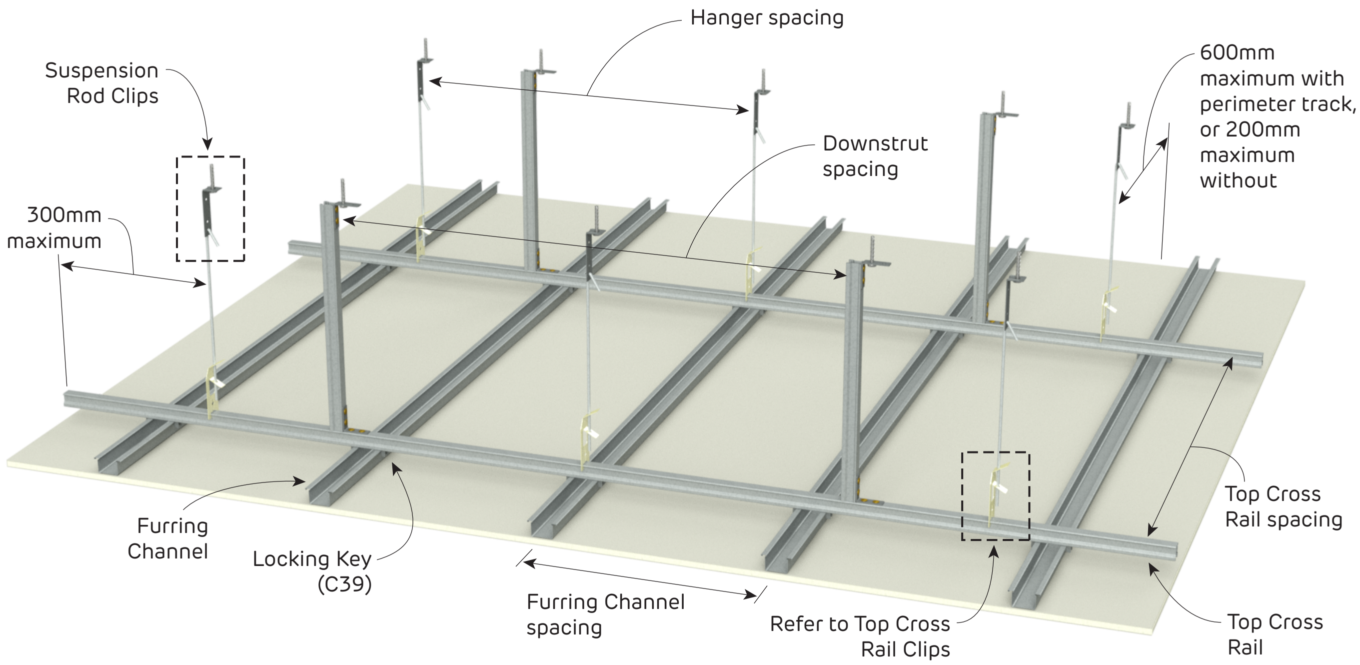



**FIGURE 6** **Suspended Ceiling Frame with Downstruts**
Perspective

## Non-Fire Rated

## Typical Suspension Rod Clips

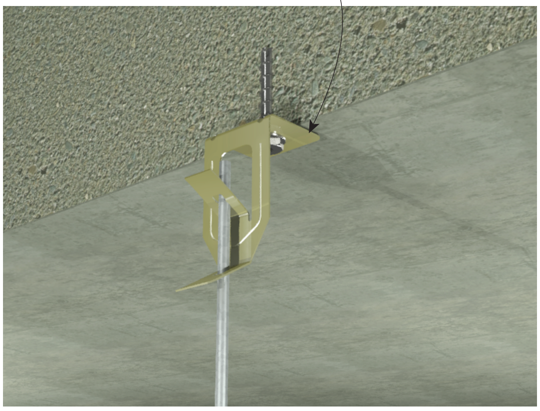



**FIGURE 7** **Spring Adjustable Direct Fix Clip to Concrete**
Perspective

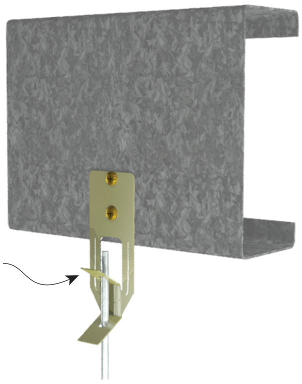



**FIGURE 8** **Spring Adjustable Direct Fix Clip to Purlin**
Perspective

## Typical Top Cross Rail Clips

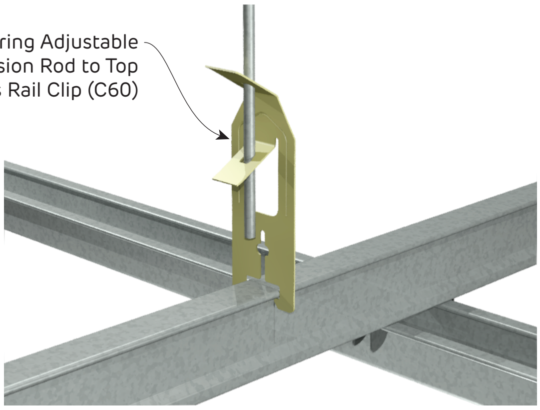



**FIGURE 9** **Spring Adjustable Suspension Rod to TCR Clip**
Perspective and Sections

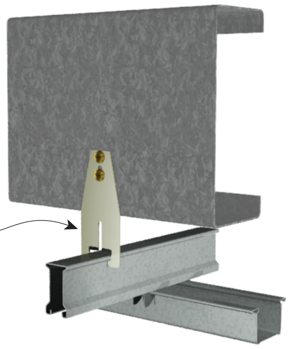



**FIGURE 10** **Top Cross Rail Direct Fix Clip to Purlin**
Perspective and Sections

## Locking Key

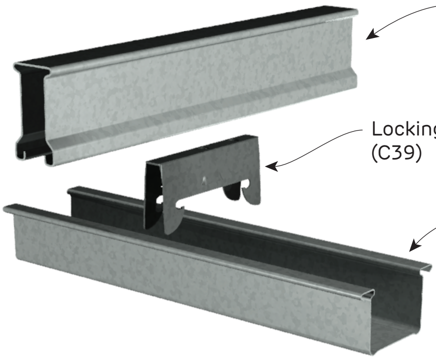
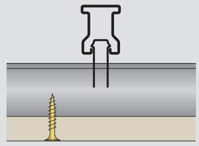



**FIGURE 11** **Locking Key**
Perspective

## Table 2 Top Cross Rail Ceiling Span Table - WIND REGION A

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| **Top Cross Rail Span Table**<br>Suspended ceiling lined with Createx and<br>28mm Furring channels (AFC28) at 400mm maximum spacing | | | |  | | Up to BCA Building Importance Level 3 | |
|---|---|---|---|---|---|---|---|
| **Ultimate Wind Pressure $W_U$ (kPa)** | **Serviceability Wind Pressure $W_S$ (kPa)** | **Top Cross Rail** | **Top Cross Rail Spacing (mm)** | **Double Span** | | **3 or more Spans** | |
| | | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 0.39 | 0.25 | TCR25 | 900 | 1060 | 1.04 | 1150 | 1.03 |
| | | | 1050 | 980 | 1.12 | 1060 | 1.11 |
| | | | 1200 | 920 | 1.20 | 990 | 1.18 |
| | | TCR38 | 900 | 1270 | 1.24 | 1370 | 1.23 |
| | | | 1050 | 1170 | 1.34 | 1270 | 1.33 |
| | | | 1200 | 1100 | 1.43 | 1200 | 1.42 |
| 0.47 | 0.3 | TCR25 | 900 | 1000 | 1.11 | 1080 | 1.10 |
| | | | 1050 | 920 | 1.19 | 1000 | 1.19 |
| | | | 1200 | 860 | 1.28 | 930 | 1.26 |
| | | TCR38 | 900 | 1190 | 1.32 | 1290 | 1.31 |
| | | | 1050 | 1100 | 1.43 | 1190 | 1.41 |
| | | | 1200 | 1030 | 1.53 | 1110 | 1.51 |
| 0.54 | 0.35 | TCR25 | 900 | 950 | 1.17 | 1020 | 1.15 |
| | | | 1050 | 880 | 1.26 | 950 | 1.25 |
| | | | 1200 | 820 | 1.35 | 890 | 1.34 |
| | | TCR38 | 900 | 1130 | 1.39 | 1220 | 1.37 |
| | | | 1050 | 1050 | 1.51 | 1130 | 1.48 |
| | | | 1200 | 980 | 1.61 | 1060 | 1.59 |

1. Table based upon downward (suction) and upward (uplift) pressures, intended for internal use only. Down-struts are required for uplift.
2. Table includes self weight and 1 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
3. Downstruts must be installed for TCR suspended ceilings in all buildings except air-conditioned hospitals, offices and shopping centres that are effectively sealed where the external walls have non-opening windows.
4. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
5. Table refers to Siniat Furring Channels of 0.42mm Base Metal Thickness (BMT) of grade G550 steel and Siniat Top Cross Rails of 0.75mm BMT of grade G300, both with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
6. Furring Channels checked for 2-or-more spans only. If required, contact Siniat for Single Span furring channel check.
7. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2000 Suspended Ceilings - Design and Installation*.
8. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
9. Connections to clips must be checked with the *Clip Capacity Table* in Section 5.1.
10. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
    Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
11. Serviceability Limit State Load Case 1: G, with deflection limited to Span/500.
12. Serviceability Limit State Load Case 2: G + Ws, with deflection limited to Span/200.
13. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
14. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.
15. For BCA Building Importance Level 4, please contact Siniat.

## Concrete Soffit Anchor Table

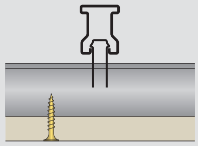
| **Concrete Grade** | **C1 Anchor** |
|---|---|
| 20 - 25 MPa | SA6x60 |
| ≥32MPa | SA6x45 |

| **Concrete Grade** | **C2 Anchor** |
|---|---|
| ≥ 20 MPa | SXTB08055 |

1. No edge / spacing effects.

## Table 3 Top Cross Rail Ceiling Span Table - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| **Top Cross Rail Span Table**<br>Suspended ceiling lined with Createx and<br>28mm Furring channels (AFC28) at 400mm maximum spacing | | | |  | | Up to BCA Building Importance Level 3 | |
|---|---|---|---|---|---|---|---|
| **Ultimate Wind Pressure $W_U$ (kPa)** | **Serviceability Wind Pressure $W_S$ (kPa)** | **Top Cross Rail** | **Top Cross Rail Spacing (mm)** | **Double Span** | | **3 or more Spans** | |
| | | | | Hanger Spacing (mm) | Hanger Demand (kN) | Hanger Spacing (mm) | Hanger Demand (kN) |
| 0.59 | 0.25 | TCR25 | 900 | 910 | 1.20 | 990 | 1.19 |
| | | | 1050 | 850 | 1.30 | 920 | 1.29 |
| | | | 1200 | 790 | 1.39 | 860 | 1.38 |
| | | TCR38 | 900 | 1090 | 1.43 | 1180 | 1.42 |
| | | | 1050 | 1010 | 1.55 | 1090 | 1.53 |
| | | | 1200 | 950 | 1.67 | 1020 | 1.64 |
| 0.71 | 0.3 | TCR25 | 900 | 850 | 1.29 | 920 | 1.28 |
| | | | 1050 | 790 | 1.40 | 850 | 1.38 |
| | | | 1200 | 740 | 1.50 | 800 | 1.48 |
| | | TCR38 | 900 | 1020 | 1.55 | 1100 | 1.53 |
| | | | 1050 | 940 | 1.66 | 1020 | 1.65 |
| | | | 1200 | 860 | 1.74 | 950 | 1.76 |
| 0.83 | 0.35 | TCR25 | 900 | 800 | 1.38 | 860 | 1.35 |
| | | | 1050 | 740 | 1.49 | 800 | 1.47 |
| | | | 1200 | 690 | 1.58 | 750 | 1.57 |
| | | TCR38 | 900 | 960 | 1.65 | 1030 | 1.62 |
| | | | 1050 | 870 | 1.75 | 950 | 1.74 |
| | | | 1200 | 760 | 1.74 | 830 | 1.74 |

1. Table based upon downward (suction) and upward (uplift) pressures, intended for internal use only. Down-struts are required for uplift.
2. Table includes self weight and 1 kg/m² insulation weight with an additional 3 kg/m² service load. No further allowance for additional point loads or live loads.
3. Downstruts must be installed for TCR suspended ceilings in all buildings except air-conditioned hospitals, offices and shopping centres that are effectively sealed where the external walls have non-opening windows.
4. Contact Siniat or a structural engineer to check ceiling for earthquake actions. Specific project information is required.
5. Table refers to Siniat Furring Channels of 0.42mm Base Metal Thickness (BMT) of grade G550 steel and Siniat Top Cross Rails of 0.75mm BMT of grade G300, both with Zincalume™ AM150 corrosion protection. Maximum production lengths available are 6.0m
6. Furring Channels checked for 2-or-more spans only. If required, contact Siniat for Single Span furring channel check.
7. Designed in accordance with *AS/NZS 4600:2018 Cold Formed Steel Structures* and *AS/NZS 2785:2000 Suspended Ceilings - Design and Installation*.
8. Wind pressures determined in accordance with *AS/NZS 1170.2 Wind Actions*.
9. Connections to clips must be checked with the *Clip Capacity Table* in Section 5.1.
10. Ultimate Limit State Load Case 1: 1.2G + Wu (Suction) + $Q_{0.03kPa\ Service\ Load}$
    Ultimate Limit State Load Case 2: 0.9G + Wu (Uplift).
11. Serviceability Limit State Load Case 1: G, with deflection limited to Span/500.
12. Serviceability Limit State Load Case 2: G + Ws, with deflection limited to Span/200.
13. Perimeter anchors at 600mm maximum centres and 100mm maximum from track ends with minimum 0.7 kN shear capacity.
14. The nominated lateral pressures and deflection limits must be checked for suitability for a specific project.
15. For BCA Building Importance Level 4, please contact Siniat.

## Concrete Soffit Anchor Table

| Concrete Grade | C1 Anchor |
|---|---|
| 20 - 25 MPa | SA6x60 |
| ≥32MPa | SA6x45 |

| Concrete Grade | C2 Anchor |
|---|---|
| ≥ 20 MPa | SXTB08055 |

1. No edge / spacing effects.

## Downstrut

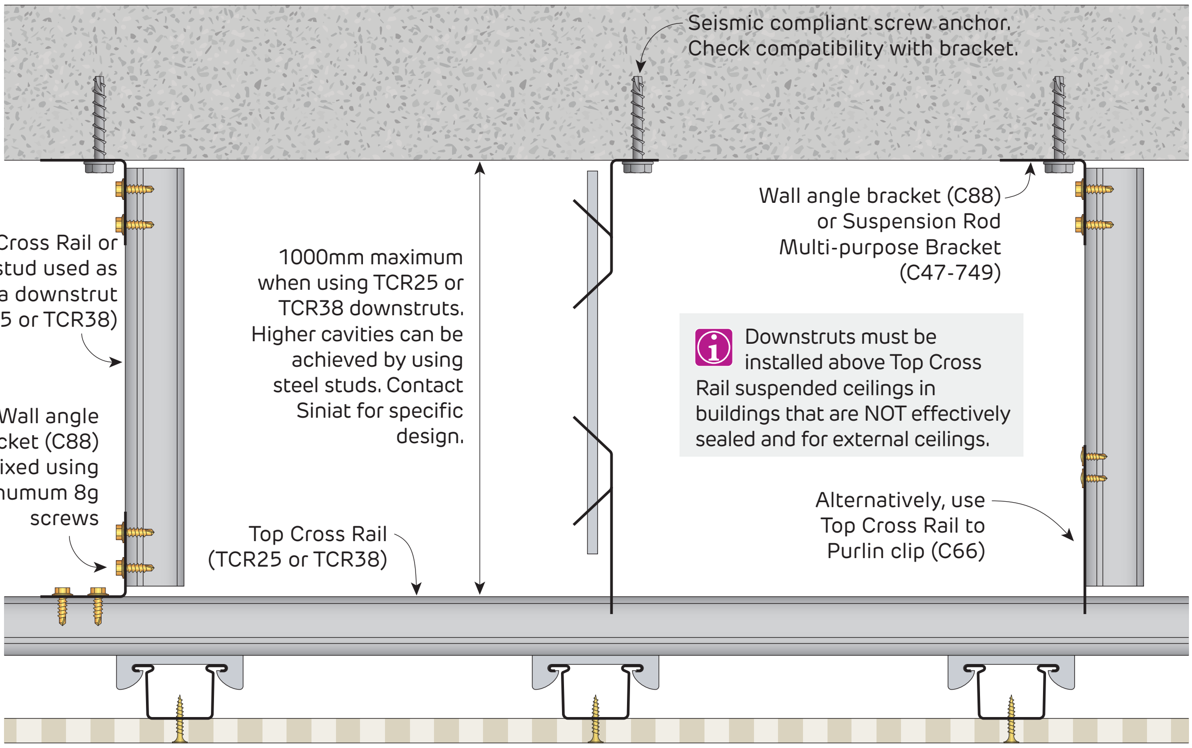
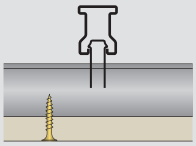



**FIGURE 12** **Downstrut**
Section

### Table 4 Downstrut Table - WIND REGION A

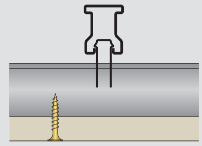
Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| **Downstrut Interval Table (along Top Cross Rail)**<br>Suspended ceiling lined with Createx and<br>28mm Furring channels (AFC28) at 400mm maximum spacing | | | |  | Up to BCA Building Importance Level 3 |
|---|---|---|---|---|---|
| **Ultimate Wind Pressure $W_U$ (kPa)** | **Serviceability Wind Pressure $W_S$ (kPa)** | **Top Cross Rail** | **Top Cross Rail Spacing (mm)** | **Double Span** | **3 or more Spans** |
| | | | | Maximum Downstrut Intervals (mm) | Maximum Downstrut Intervals (mm) |
| 0.39 | 0.25 | TCR25 | 900 | 1570 | 1670 |
| | | | 1050 | 1470 | 1570 |
| | | | 1200 | 1400 | 1490 |
| | | TCR38 | 900 | 1960 | 2070 |
| | | | 1050 | 1860 | 1960 |
| | | | 1200 | 1780 | 1870 |
| 0.47 | 0.3 | TCR25 | 900 | 1430 | 1530 |
| | | | 1050 | 1340 | 1430 |
| | | | 1200 | 1260 | 1350 |
| | | TCR38 | 900 | 1820 | 1920 |
| | | | 1050 | 1720 | 1780 |
| | | | 1200 | 1630 | 1670 |
| 0.54 | 0.35 | TCR25 | 900 | 1330 | 1430 |
| | | | 1050 | 1250 | 1330 |
| | | | 1200 | 1180 | 1260 |
| | | TCR38 | 900 | 1330 | 1770 |
| | | | 1050 | 1250 | 1640 |
| | | | 1200 | 1180 | 1540 |

1. Downstruts must be installed for TCR suspended ceilings in all buildings except air-conditioned hospitals, offices and shopping centres that are effectively sealed where the external walls have non-opening windows.

## Table 5 Downstrut Table - WIND REGION B

Refer to Section 2.3 for assistance determining the relevant wind pressures for a specific project.

| **Downstrut Interval Table (along Top Cross Rail)**<br>Suspended ceiling lined with Createx and<br>28mm Furring channels (AFC28) at 400mm maximum spacing | | | |  | Up to BCA Building Importance Level 3 |
|---|---|---|---|---|---|
| **Ultimate Wind Pressure $W_u$ (kPa)** | **Serviceability Wind Pressure $W_s$ (kPa)** | **Top Cross Rail** | **Top Cross Rail Spacing (mm)** | **Double Span**<br>Maximum Downstrut Intervals (mm) | **3 or more Spans**<br>Maximum Downstrut Intervals (mm) |
| 0.59 | 0.25 | TCR25 | 900 | 1280 | 1360 |
| | | | 1050 | 1190 | 1280 |
| | | | 1200 | 1120 | 1200 |
| | | TCR38 | 900 | 1650 | 1690 |
| | | | 1050 | 1550 | 1560 |
| | | | 1200 | 1470 | 1460 |
| 0.71 | 0.3 | TCR25 | 900 | 1160 | 1100 |
| | | | 1050 | 1090 | 1160 |
| | | | 1200 | 1020 | 1100 |
| | | TCR38 | 900 | 1520 | 1520 |
| | | | 1050 | 1410 | 1400 |
| | | | 1200 | 1230 | 1310 |
| 0.83 | 0.35 | TCR25 | 900 | 1080 | 1150 |
| | | | 1050 | 1000 | 1080 |
| | | | 1200 | 930 | 1010 |
| | | TCR38 | 900 | 1380 | 1390 |
| | | | 1050 | 1180 | 1290 |
| | | | 1200 | 1030 | 1130 |

1. Downstruts must be installed for TCR suspended ceilings in all buildings except air-conditioned hospitals, offices and shopping centres that are effectively sealed where the external walls have non-opening windows.

# Access Panel

| |
|---|
| Mark out the opening in the createx perforated plasterboard using the chameleon access **panel** frame. Carefully cut-out the createx piece and insert into the chameleon access **panel**. |
| If any furring channel is cut, reinforce the opening with extra furring channel. Refer to Figure 14 and 15. |
| Leave a 30mm to 50mm area around the perimeter of the opening to allow for the access panel frame. Refer to Figure 13. |
| Fix the createx sheet to the access panel's aluminium frame as shown in Figure 13. |

**Non-Fire Rated**

## Createx Ceiling Access Panel

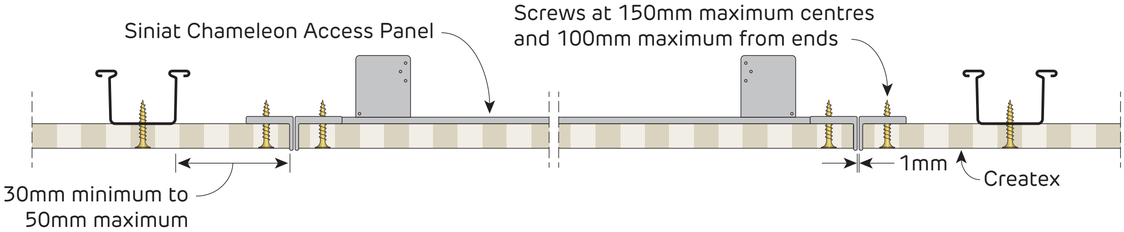



**FIGURE 13** Siniat Chameleon Access Panel
Section

### Table 6 Chameleon Access Panel Compatibility

| Createx Pattern | 600x600mm Chameleon Access Panel Compatibility |
|---|---|
| R8/18 | Yes |
| R12/25 | Yes |
| C12/25 | Yes |
| D8-12 | Yes |
| Space S8-15-20 | Yes but some perforations may need to be filled |

## Siniat Chameleon Access Panel Installation

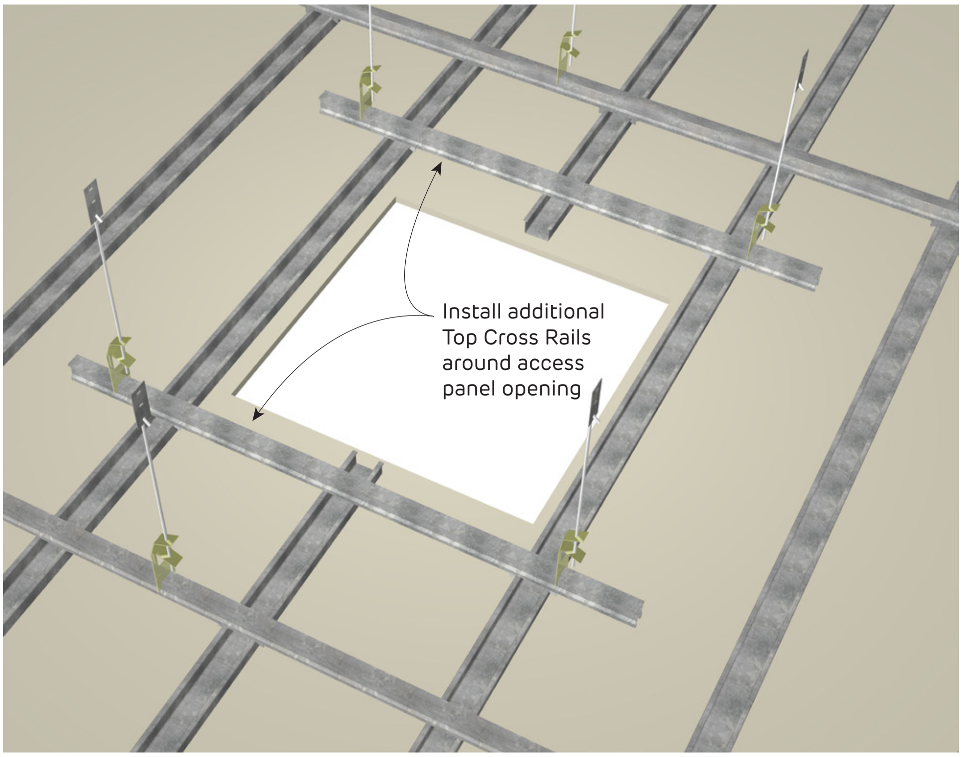



**FIGURE 14** **Createx Access Panel Framing**
Perspective

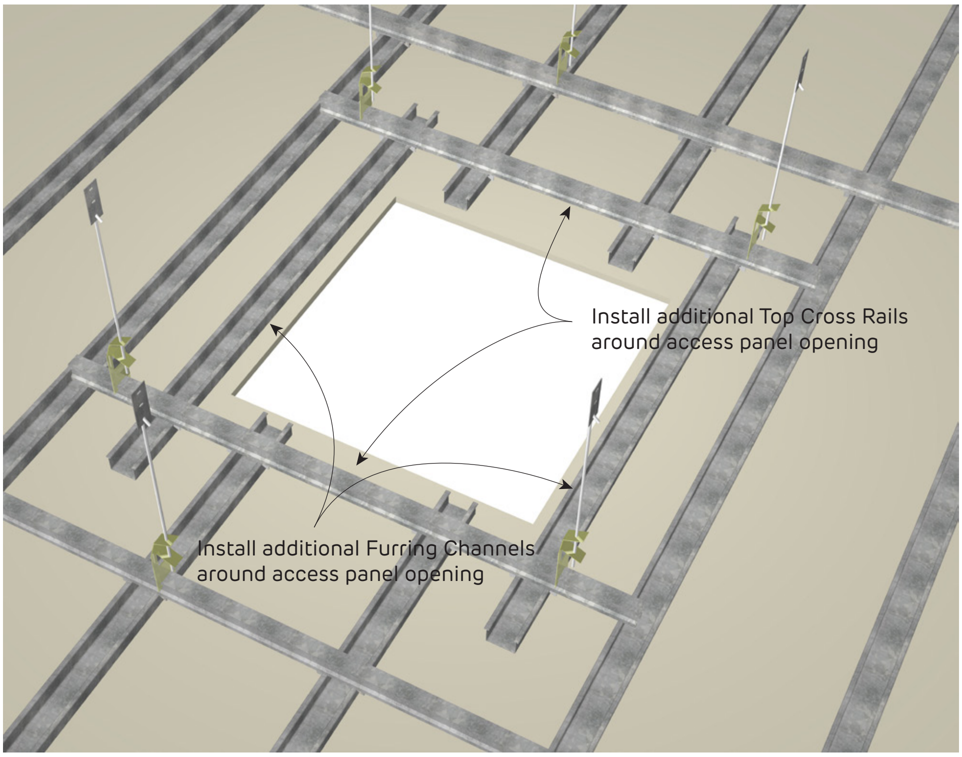



**FIGURE 15** **Createx Access Panel Framing**
Perspective

# Layout

| |
|---|
| Start sheeting from the centre of the room. |
| Install createx ceilings perpendicular to framing members. |
| Fix short edges on a Wide-face Furring Channel (F60/28). |
| Install one entire row in each direction before proceeding. Refer to Figure 16. |

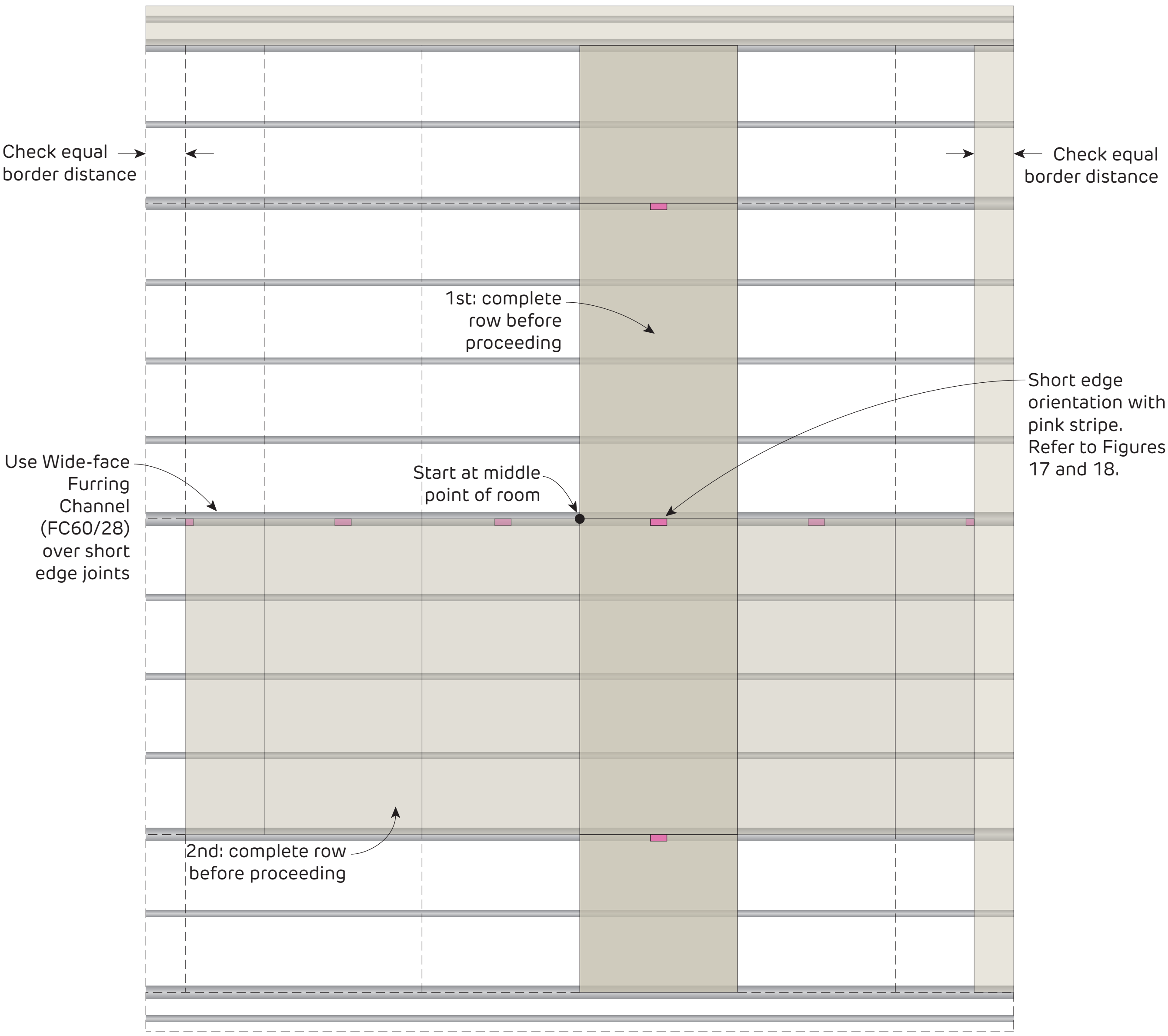



**FIGURE 16 Ceiling Layout**
Plan

## Sheet Orientation Along Short Edges

| |
|---|
| Align the short edges of createx sheets so that the pink paint stripe does <u>not</u> coincide with each other. Refer to Figure 17 for the correct orientation. |

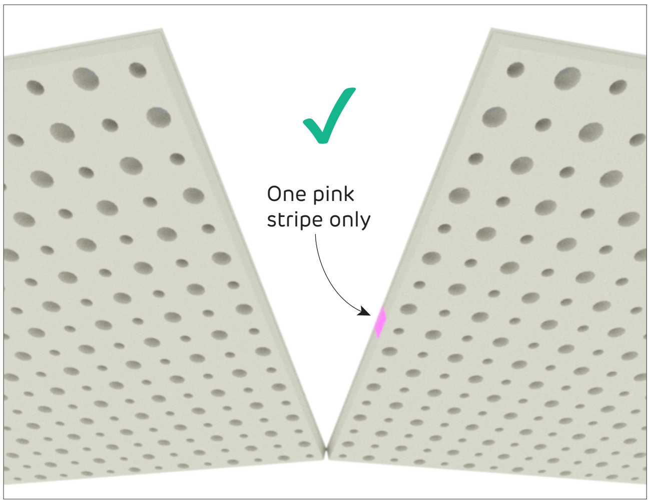



**FIGURE 17 Correct Short Edge Orientation**
Perspective

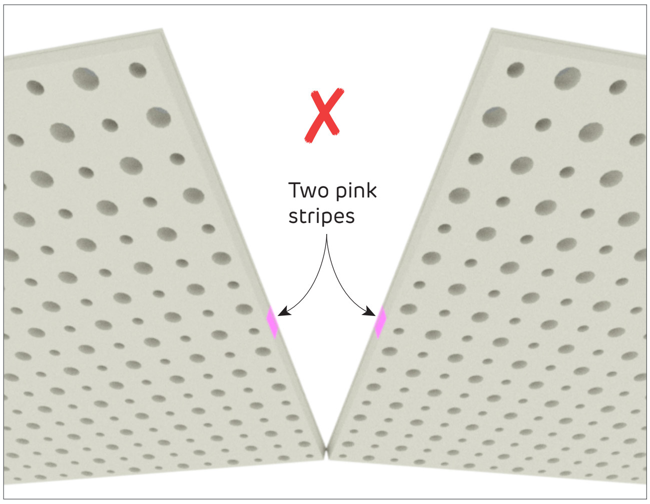



**FIGURE 18 Incorrect Short Edge Orientation**
Perspective

## Perforation Alignment

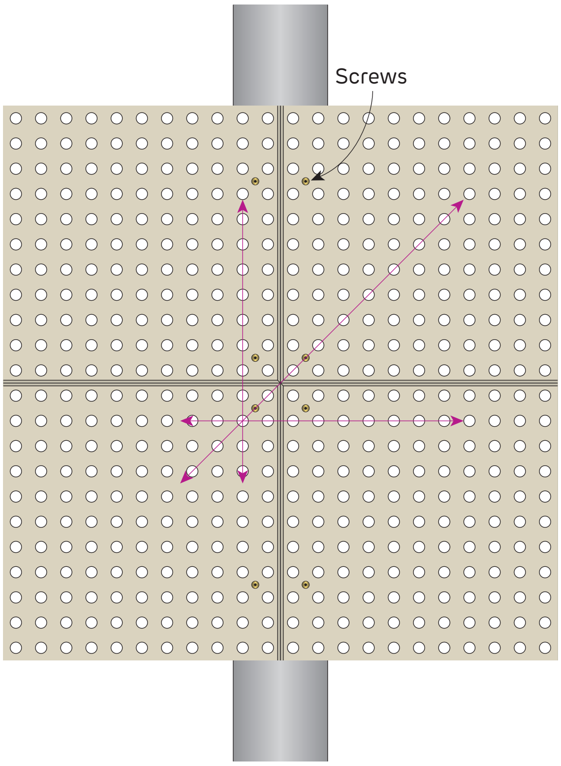



**FIGURE 19 Perforation Alignment**
Plan

# Fixing

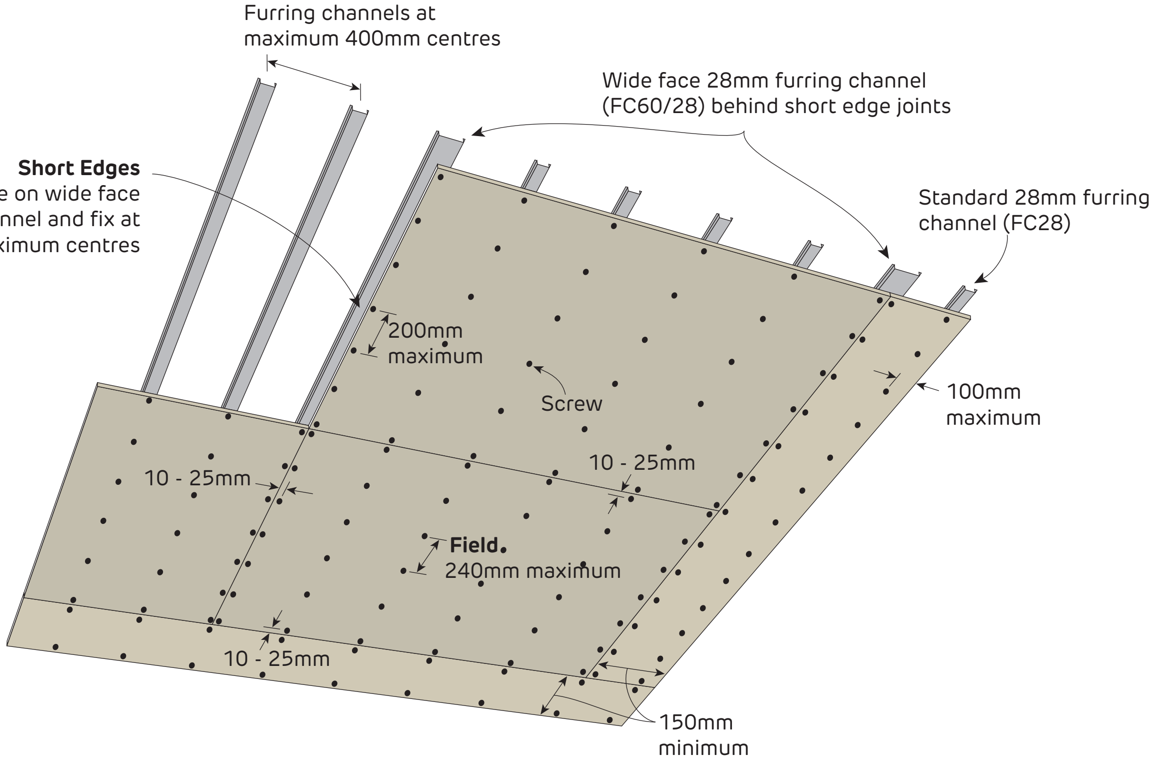
| |
|---|
| Use the 'Screw Only Method'. Adhesive is not permitted. |
| Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch. |
| Press **createx** firmly on to the grid when screwing. |
| Start fastening from the corner, where the plasterboard meets previously attached boards. |
| Fasten long edge first and then short edges. |
| Use a straight edge across adjoining sheets to check both sheets are level across the joints. If necessary, adjust the level of the sheets by unscrewing perimeter screws slightly, so both sheets are level across joints. |

## Screw Type and Minimum Size for the Installation of Plasterboard to Steel

| Plasterboard Thickness | 1st Layer |
|---|---|
| 12.5mm | 6g x 25mm screw |

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.

**FIGURE 20** **Createx Internal Ceiling - 1 Layer**
Screw Only Method




## Fixing Pattern Table

| Sheet Width | Location | Screw Fixing Pattern |
|---|---|---|
| 1200mm | Field | S S S S S S (6) |
| | Short edges (butt joints) | S S S S S S S (7) |

S = One screw

## Maximum Ultimate Limit State Wind Load Table (kPa)

| Plasterboard Thickness | Maximum Ceiling Frame Spacing | |
|---|---|---|
| | 400mm | 300mm |
| 12.5mm | 1.50 | 2.05 |

1. Calculations do not include the framing which must be independently designed to suit the desired load.
2. Calculations include a ceiling insulation with maximum weight of 1.05 kg/m$^2$ (equivalent to Pink® Partition 75mm 14kg/m$^3$ R1.9 Batts).
3. Calcuated over 3-or-more spans.
4. If higher internal wind pressures are expected, please contact Siniat for specific design.

# Finishing

## Jointing

| |
|---|
| **Jointing must not be conducted until all ceiling services and access panels are installed in the ceiling, otherwise the excessive vibration may cause joint cracking or peaking.** |
| **Use a wet brush to clean dust from joints after fixing the boards.** |
| Prime site cut edges with a PVA based primer (ie: one part Bondcrete to four parts water). For improved jointing compound adhesion, factory V edge joints can also be primed. |
| Slightly overfill joints with Siniat **set** jointing compound. It is recommended to use a sausage caulking gun to apply the jointing compound. When it has partially set (approximately 1 hour depending on weather conditions), then scrape off excess jointing compound to level the joint. Refer to Figure 21. |
| Use masta**lite**, masta**glide**, or masta**line** for finishing joints and screw heads. For more information refer to Section 7.3. |
| Do not obstruct perforations during jointing. |


**FIGURE 21 V Edge Jointing**
Section

## Sanding

| |
|---|
| Sanding is a critical part of achieving a high quality finish. Care should be taken when sanding joints to achieve a smooth surface. |
| Lightly sand to a smooth even surface using 180 to 220 grit sandpaper or sanding mesh. Care must be taken to not scuff the paper linerboard especially around perforations while sanding. |

## Painting

| |
|---|
| A three coat paint system must be applied in accordance with Australian Standard *AS/NZS 2311, Guide to the painting of buildings*. Both the quality of the paint and how it is applied have a large effect on the finished appearance of the crea**tex** plasterboard. |
| Apply the paint with a short napped roller and avoid the application of excess paint at any time. |

> Only use a roller application for painting. Roller application applies a uniform texture over the entire surface and ensures the paint does not fill the perforations or contact the acoustic felt on the back of the plasterboard.
> Spray painting is not permitted.
> For more information on finishing plasterboard refer to Section 7.

## Non-Fire Rated
### Createx Joints

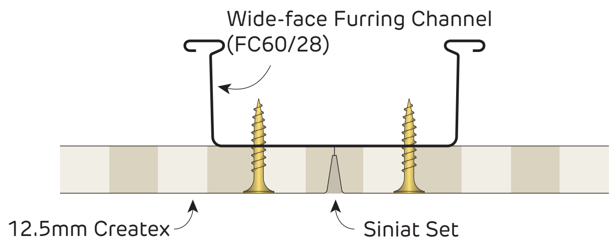



**FIGURE 22 Createx with V Joint**
Using Wide-face Furring Channel
Section

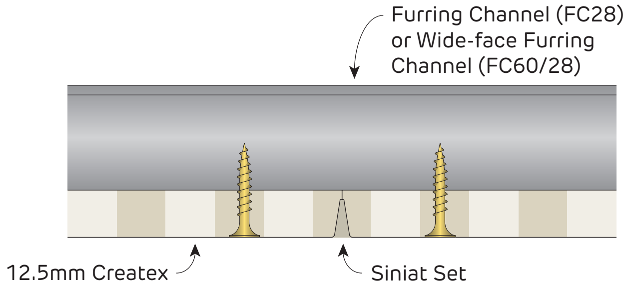



**FIGURE 23 Createx with V Joint**
Elevation

If necessary, use packers to ensure easy jointing of 12.5mm Createx with 13mm Mastashield

Prime any cut edges of Createx and plasterboard with PVA based primer when Siniat Set is used for jointing

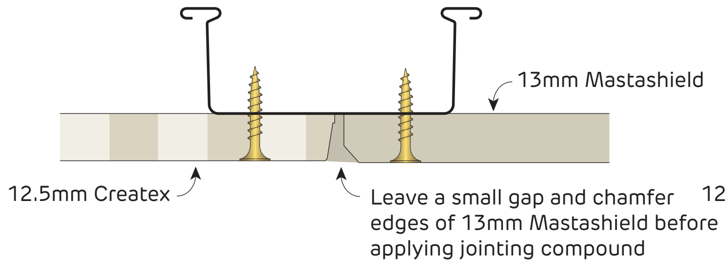



**FIGURE 24 Createx to ceiling border**
Using Wide-face Furring Channel
Section

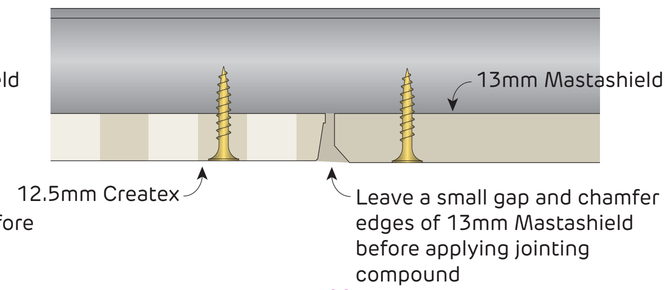



**FIGURE 25 Createx to ceiling border**
Elevation

### Control Joints

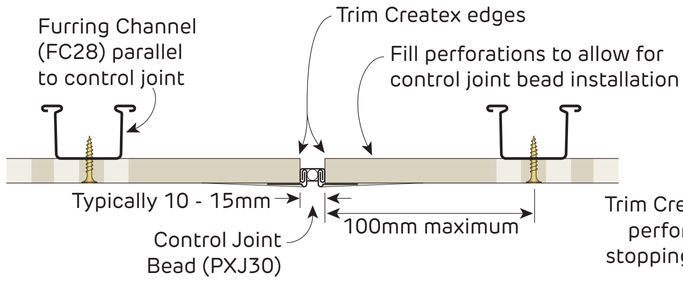



**FIGURE 26 Control Joint - Control Joint Bead**
Parallel to furring channel
Section

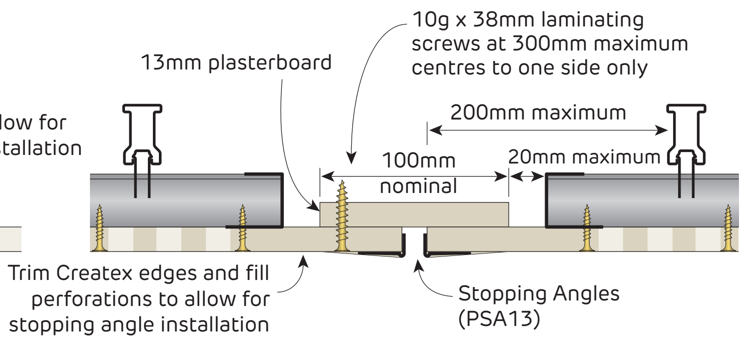



**FIGURE 27 Control Joint - Stopping Angles**
Perpendicular to furring channel
Section

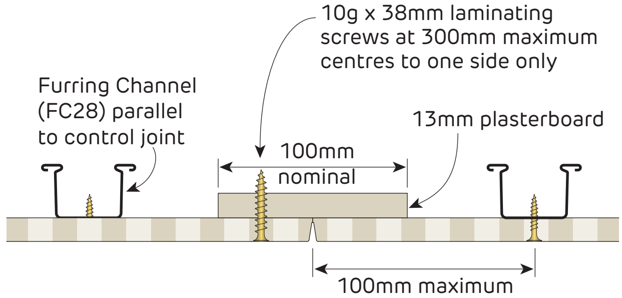



**FIGURE 28 Control Joint - Bare V Edges**
Parallel to furring channel
Section

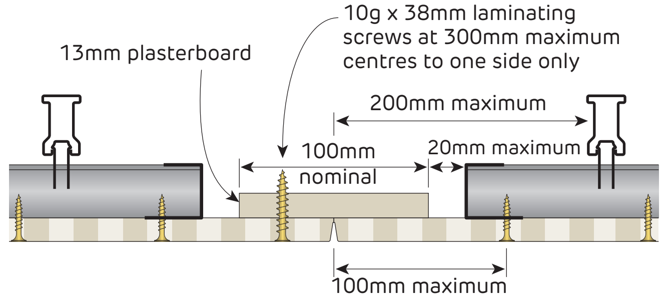



**FIGURE 29 Control Joint - Bare V Edges**
Perpendicular to furring channel
Section

## Non-Fire Rated
## Createx Perimeter Details

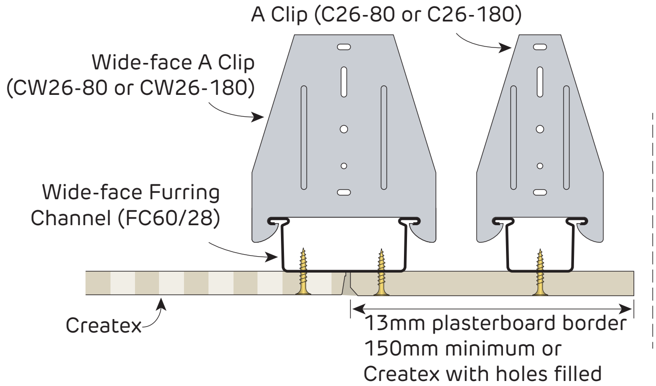



**FIGURE 30 Perimeter Detail - Border**
Createx Direct Fix Ceiling Frame
Section

The recommended ceiling border detail is to continue the Createx to the wall and fill holes with Siniat Set and then MastaLite as a finishing coat

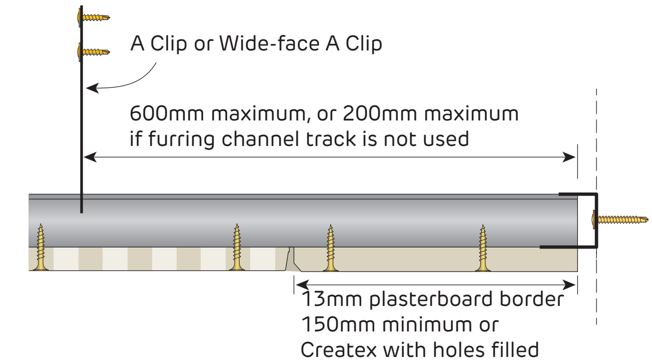



**FIGURE 31 Perimeter Detail - Border**
Createx Direct Fix Ceiling Frame
Section

If necessary, use packers to ensure easy jointing of 12.5mm Createx with 13mm Mastashield

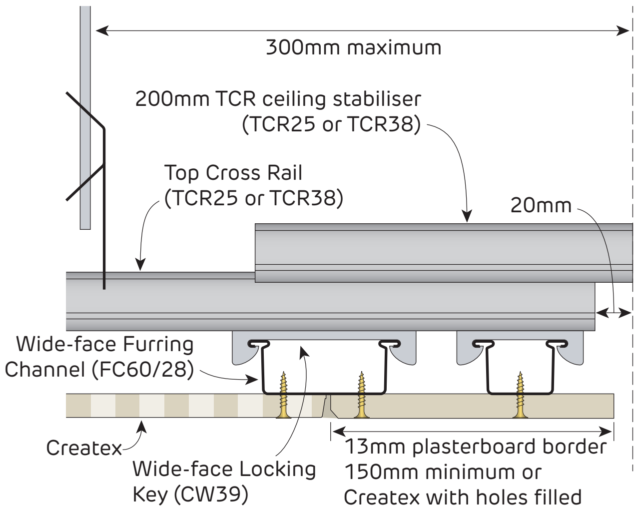



**FIGURE 32 Perimeter Detail - Border**
Createx Suspended Ceiling Frame
Section

Prime any cut edges of Createx and plasterboard with PVA based primer when Siniat Set is used for jointing

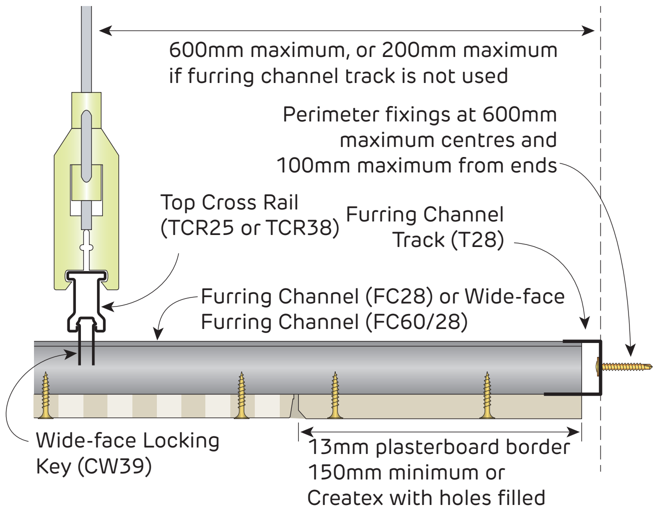



**FIGURE 33 Perimeter Detail - Border**
Createx Suspended Ceiling Frame
Section

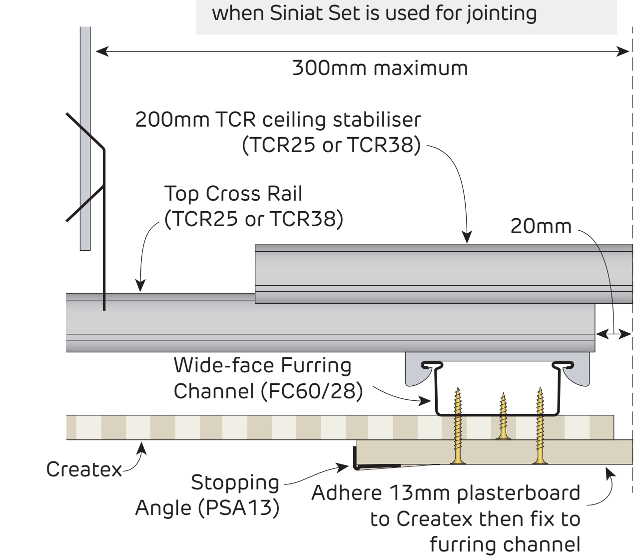



**FIGURE 34 Perimeter Detail - Proud Border**
Createx Suspended Ceiling Frame
Section

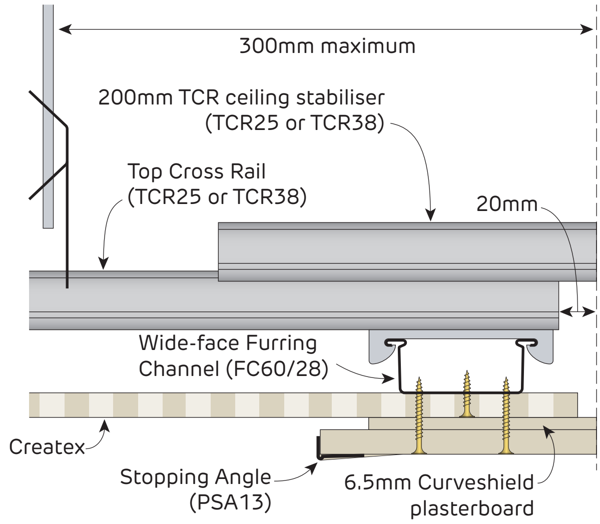



**FIGURE 35 Perimeter Detail - Proud Shadow Border**
Createx Suspended Ceiling Frame
Section

## Non-Fire Rated
## Ceiling Perimeter Finishing Details

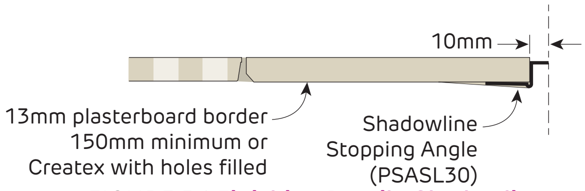



**FIGURE 36** **Finishing Detail - Shadowline**
Section

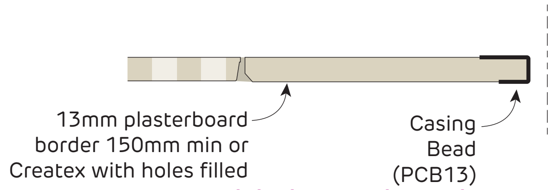



**FIGURE 37** **Finishing Detail - Casing Bead**
Section

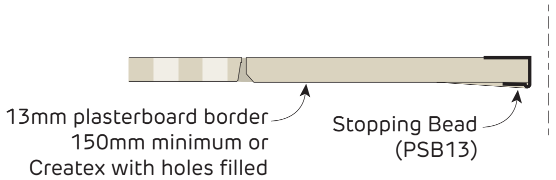



**FIGURE 38** **Finishing Detail - Stopping Bead**
Section

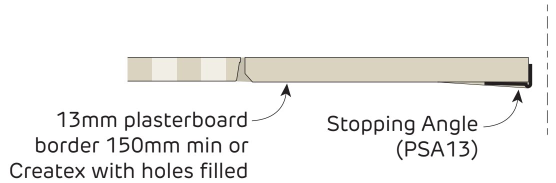



**FIGURE 39** **Finishing Detail - Stopping Angle**
Section

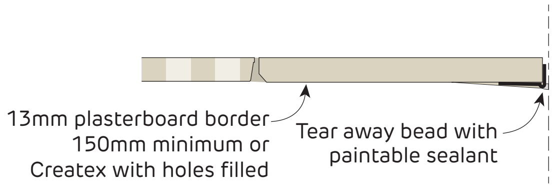



**FIGURE 40** **Finishing Detail - Tear Away Bead**
Section

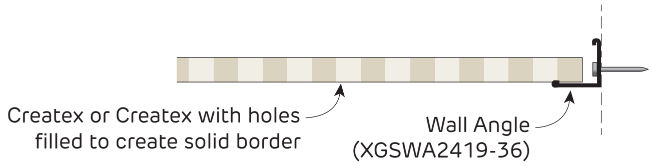



**FIGURE 41** **Finishing Detail - Wall Angle**
Section

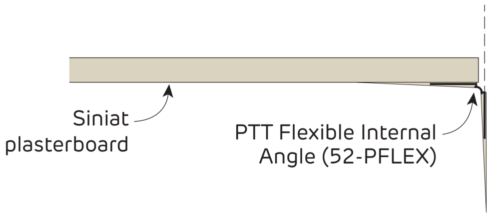



**FIGURE 42** **Finishing Detail - Flexible Square Set**
Section

Ceilings using a square set finishing detail have low tolerance for building movement and are more prone to cracking and joint peaking

Some damage to ceiling linings for finishing details with low tolerance to movement can be expected in a Serviceability Earthquake event

# 7 Finishing Plasterboard



# 7.1 Levels of Finish

Plasterboard is finished using jointing compounds, which are sanded and then painted to achieve an even appearance.

No building lining system has a surface that is perfectly flat and totally free of imperfections. By paying attention to framing, plasterboard sheet orientation, paint finishes and lighting conditions, it is possible to attain the perception of flatness.

Careful workmanship is required at each stage of construction to achieve a high quality finish. If faults are not corrected at the earliest opportunity it may be impossible to disguise them afterwards. In addition, there are some key design principles that should be followed to avoid conditions known to highlight imperfections.

## Australian Standard Requirements

The plasterboard installation standard *AS/NZS 2589:2017, Gypsum linings – Application and finishing*, refers to three 'Levels of Finish' (Levels 3, 4 and 5). The standard nominates Level 4 as the default finish unless otherwise specified.

Installation in accordance with Siniat instructions will achieve a Level 4 Finish.

### Framing Requirements for Each Level of Finish

Australian Standard 2589 defines allowable deviations in the flatness of the framing surface to achieve the required level of finish. Framing members must have a minimum fixing face width of 32mm for screw fixing and 35mm for nail fixing. Framing should be true, plumb and level. Before installing plasterboard, the frame must be flat enough for the required level of finish. Over a 1.8m straight edge the frame must not deviate more than the values listed in Table 1.

## Level 3 Finish

A Level 3 Finish is recommended where no decoration is required such as walls above ceilings and concealed storage areas. The requirements for a Level 3 Finish are:

> Framing as per the requirements in Table 1

> A bedding coat and second coat on all face layer joints and corners.

## Level 4 Finish

Level 4 is the default finish and is recommended for most applications when lighting is favourable and light colour, matt or low sheen paints are used. The requirements for a Level 4 Finish are:

> Framing and back-blocking as per the requirements in Table 1

> Face layer joints finished as detailed in Section 7.3 Three Coat Jointing System

> A quality three coat paint system as detailed in Section 7.5 Painting Plasterboard.

## Level 5 Finish

A Level 5 Finish is the highest level of finish defined in the Australian Standard. Installation of the frame and plasterboard, finishing with compounds and the correct application of paint all contribute to a Level 5 Finish. Even if completed correctly, a Level 5 Finish may not result in all surface deviations being concealed, only minimised.

A Level 5 Finish is recommended where gloss, semi-gloss or dark colour paints are used, or in harsh or critical lighting conditions which are referred to as glancing light.Higher standards are required for frame flatness, jointing and back-blocking. It involves coating the entire wall or ceiling to provide an even surface texture and porosity, which helps conceal joints and fixing points. The coating may be sprayed, rolled or trowelled over the surface.

The requirements for a Level 5 Finish are:

> Framing as per requirements in Table 1

> Back-blocking of all ceiling joints and wall butt joints

> Joints finished as detailed in Section 7.3 Three Coat Jointing System

> Application of an additional coating over the entire surface to provide uniform texture and porosity

> A quality three coat paint system as detailed in Section 7.5 Painting Plasterboard.

For a premium Level 4 Finish use **opal**.

**Table 1** Level of Finish Requirements for Non-Fire Rated Systems

| Level of Finish Requirements | Level 3 | Level 4 | Level 5 |
|---|---|---|---|
| Back-block recessed joints on ceilings with 3 or more recessed joints | Optional | ✓ [1] | ✓ |
| Back-block recessed joints on ceilings with less than 3 recessed joints | Optional | Optional [1] | ✓ |
| Ceiling butt joints permitted on framing members | ✓ | ✗ [2] | ✗ [2] |
| Wall butt joints permitted on framing members | ✓ | ✗ [2] | ✗ [2] |
| Minimum number of coats for jointing | 2 | 3 | 3 plus skim coat |
| Maximum frame deviation of 90% of area (mm) [3] | 4 | 4 | 3 |
| Maximum frame deviation of remaining area (mm) [3] | 5 | 5 | 4 |

1. Back-blocking not required for recessed joints on suspended ceiling with no rigid connection at wall/ceiling junction.
2. Back-blocking is required on these joints. [For more information, Refer to Section 7.2]
3. Over a 1.8m straight edge the frame must not deviate by more than these values.

# 7.2 Back-Blocking

Back-blocking is a method for reinforcing plasterboard joints to minimise joint cracking and peaking.

Back-blocked joints use strips of plasterboard adhered to the back of the joint between the framing members. Back-blocking adhesive must be set before commencing jointing.

### Table 2 Back Blocking Requirements

| Back Blocking Requirements | |
|---|---|
| Butt joints not made on a framing member. Refer to requirements in Table 1. | ✓ |
| Ceiling joints in balconies and breezeways | ✓ |
| Joints using mastaline, mastalite or mastacoat3 for the bedding (1st) coat except those made over a framing member | ✓ |
| Joints using self-adhesive fibreglass tape except those made over a framing member | ✓ |
| Joints made over a framing member | ✗ |
| Multi-layer systems | ✗ |
| Wall butt joints less than 400mm in length and more than 2 metres above the floor | ✗ |
| Masonry walls | ✗ |

## Back-Blocking Ceiling Recessed Joints

It is strongly recommended to back-block all ceiling recessed joints, not just those required by Table 1 and Table 2.

### Method

- Ensure the back of the plasterboard is free of dust and dirt.
- Cut back-blocking strips 200mm minimum wide and long enough to fit loosely between the framing members with a gap not greater than 30mm at each end.
- Use a notched spreader to apply mastablock to the back-blocking strips to form 6mm beads at right angles to the joint.
- Apply back-blocking strips firmly to the back of the joint.
- Where there is no access to the back of the ceiling, fix the first ceiling sheet, apply mastablock to the back-blocking strip and place it midway on the board, then fix the next board.
- Allow mastablock to set before commencing any jointing.

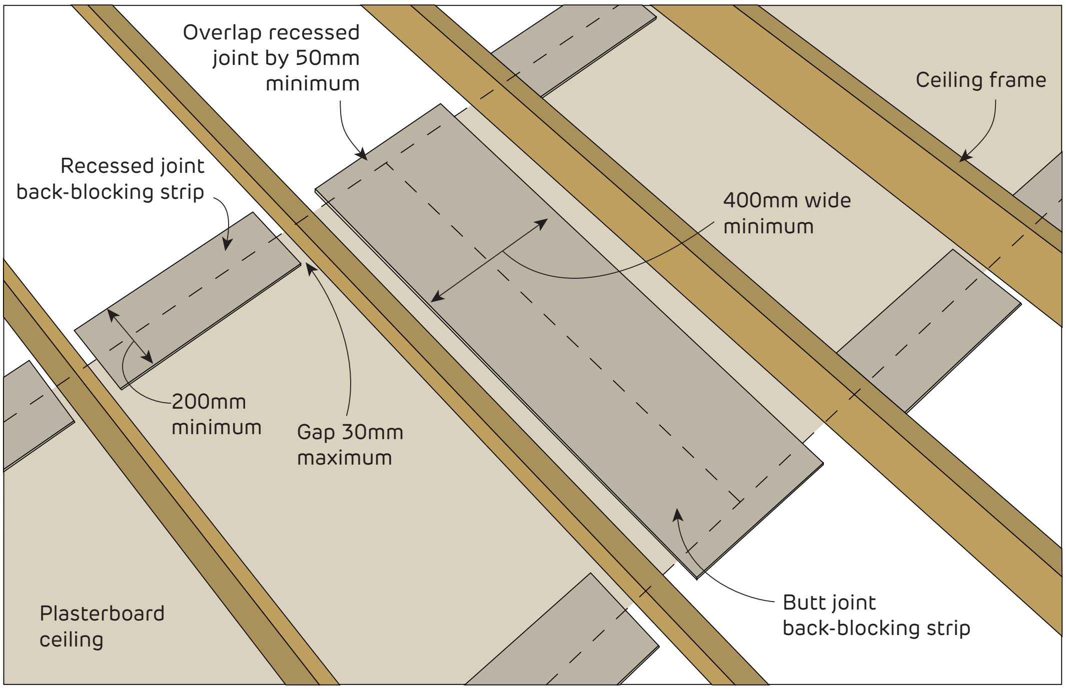



**FIGURE 1** Placement of Back-Blocking Strips For Recessed and Butt Joints

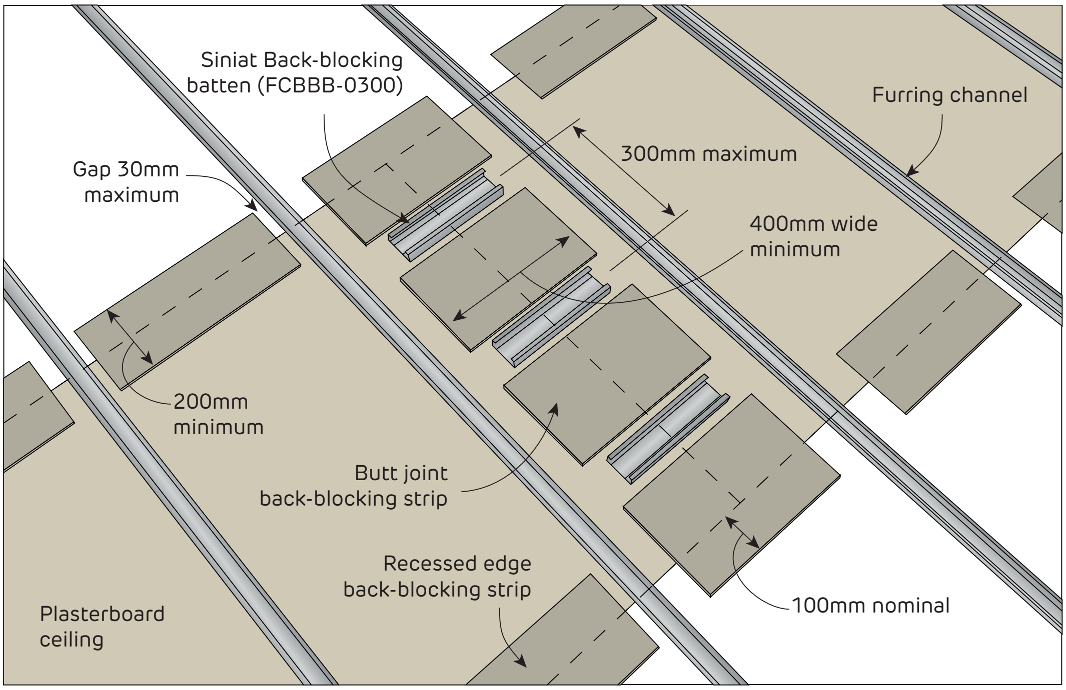



**FIGURE 2** Placement of Back-Blocking Batten and Back-Blocking Strips for Recessed and Butt Joints

# Back-Blocking Butt Joints

Butt joints are more difficult to conceal than recessed joints so they should be minimised. If butt joints are unavoidable, concealing them can be made easier by creating the joint mid-way between framing members, forming a recess and back-blocking.

Butt joint requirements differ for each level of finish [Refer to Table 1].

## Method

> Create a recess by using either back-blocking battens as shown in Figure 3 or packers as shown in Figure 4 and 5.
> Ensure the back of the plasterboard is free of dust and dirt.
> Cut back-blocking strips 400mm minimum wide and long enough to fit loosely between the framing members. Back-blocking strips are to overlap recessed joints by 50mm minimum.
> Wall butt joints need support for the back-blocking strips as shown in Figure 5.
> Use a notched spreader to apply masta**block** to the back-blocking strips to form 6mm beads at right angles to the joint.
> Apply back-blocking strips firmly to the back of the joint.
> Where there is no access to the back of the ceiling, fix the first ceiling sheet. Apply masta**block** to the back-blocking strip and place it midway on the board, then fix the next board.
> Allow masta**block** to set before commencing any jointing.
> Where possible, avoid wall butt joints over single doors and cavity sliding doors to minimise joint cracking from vibration.

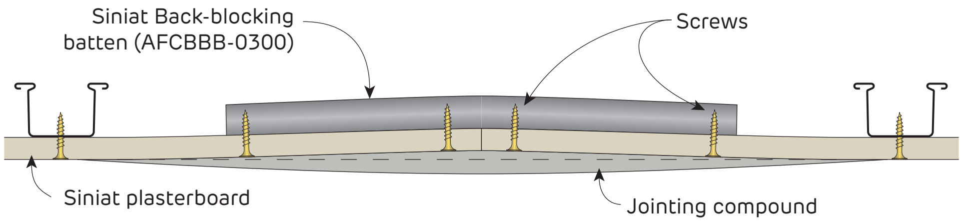



**FIGURE 3** **Creating a Recess on a Ceiling Butt Joint using Back-Blocking Battens**
Section

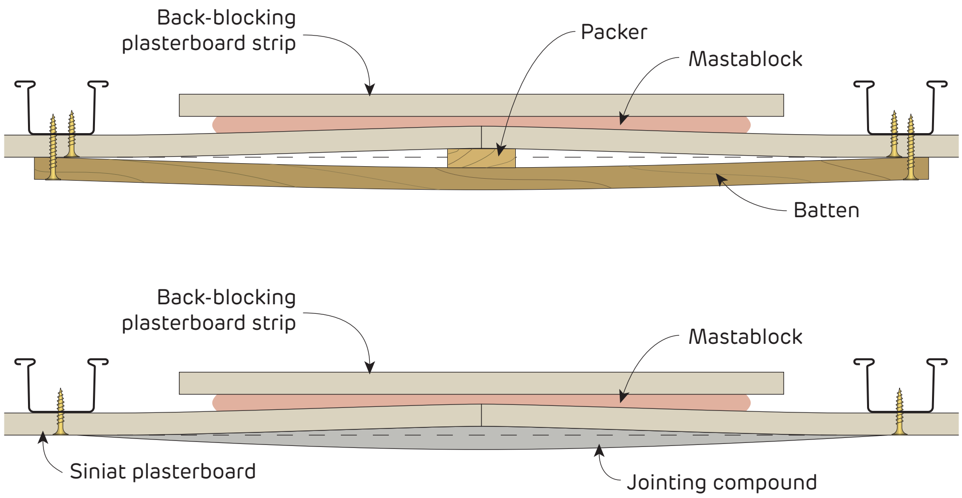



**FIGURE 4** **Creating a Recess on a Ceiling Butt Joint using a Temporary Packer**
Section

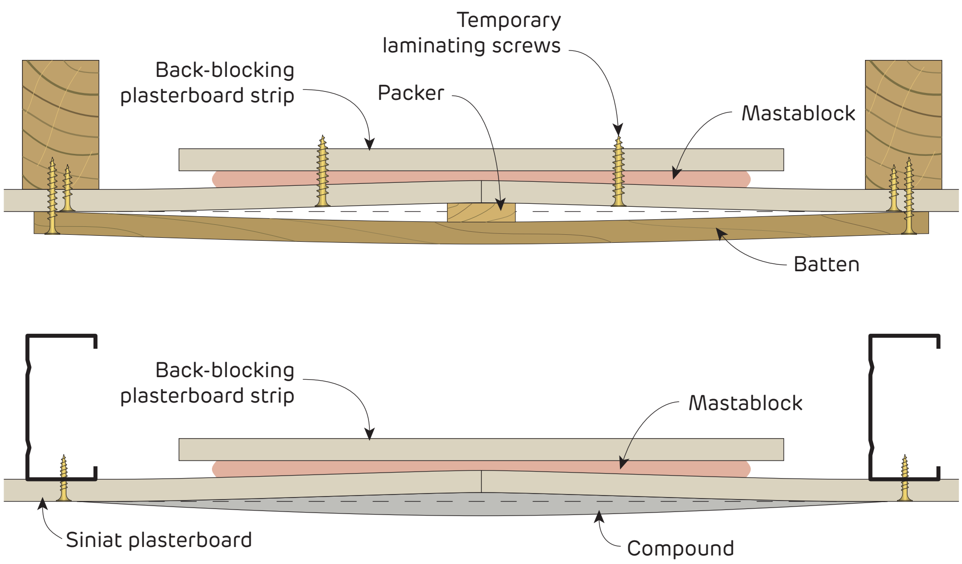



**FIGURE 5** **Creating a Recess on a Wall Butt Joint using a Temporary Packer**
Plan

# 7.3 Jointing Plasterboard

Plasterboard walls and ceilings are jointed using compounds and reinforced with Siniat paper **tape** or corner beads.

All joints, internal and external corners and fastener heads must be evenly finished with compounds and lightly sanded to remove tool marks and ridges prior to decoration.

## Compounds

Use Siniat compounds and paper **tape** with Siniat plasterboard systems. Performance of all systems in this guide rely on using nominated Siniat compounds and paper **tape**. Use of non-Siniat compounds and paper **tape** may reduce a system's fire rating, adhesion, appearance or other aspects of performance.

To achieve the FRL, fire rated systems require as a minimum, paper **tape** and two coats of masta**base**/ masta**longset** or three coats of any Siniat all purpose air-drying compound. Alternatively use **bindex** fire and acoustic sealant as permitted and detailed in the Bindex Product Data Sheet.

Joints in wet areas must use paper tape. Areas to be tiled must only use masta**base** or masta**longset**. Multi-layer systems only require face layer joints to be set, except GIB X-Block systems where all layers must be set.

There are two types of products used for jointing plasterboard: chemical setting compounds and air-drying compounds.

### Chemical Setting Compounds

Chemical setting compounds are plaster based, supplied in powder form and when combined with water harden by chemical reaction. They create the strongest joint. Chemical setting compounds can be completely set but still damp. In cold and humid conditions, additional coats of chemical setting compounds can be applied to the joints when the compound is hard but before it is completely dry.

Hot and dry conditions may dry out a setting compound before it sets resulting in reduced strength and tape adhesion issues. Accelerating and retarding additives must not be used as they can also reduce strength. Chemical setting compounds must not be applied over air-drying compounds.

### Air-Drying Compounds

Air-drying compounds are premixed and harden by drying out.

Previous coats of air-drying compound or chemical setting compounds must be completely dry before applying the next coat and before sanding.

In cold and humid conditions air-drying compounds may take longer to dry. Ventilation such as open windows or an exhaust fan may be required. Air-drying compounds must not be used in temperatures lower than 10°C.

**Table 3 Type and Use of Finishing Compounds**

| Compound | Type | Application | | | Wet Areas Under Tiles | Fire Rated Systems |
|---|---|---|---|---|---|---|
| | | Bedding | Second | Finish | | |
| **Bedding Cements** | | | | | | |
| masta**base** | Chemical setting powder | ✓ | ✓ | ✗ | ✓ | ✓ |
| masta**longset** | Chemical setting powder | ✓ | ✓ | ✗ | ✓ | ✓ |
| **Finishing Compounds** | | | | | | |
| masta**glide** | Air-drying premixed | ✗ | ✗ | ✓ | ✗ | ✓ |
| **All Purpose Compounds** | | | | | | |
| masta**lite** | Air-drying premixed | ✓ | ✓ | ✓ | ✗ | ✓ |
| masta**line** | Air-drying premixed | ✓ | ✓ | ✓ | ✗ | ✓ |
| box ready masta**line** | Air-drying premixed | ✓ | ✓ | ✓ | ✗ | ✓ |
| masta**tape-in** | Air-drying premixed | ✓ | ✓ | ✗ | ✗ | ✓ |
| masta**coat3** | Air-drying premixed | ✓ | ✓ | ✓ | ✗ | ✓ |

# Three Coat Jointing System

The Three Coat Jointing System consists of a Bedding Coat, a Second Coat and a Finish Coat of compound. Level 4 Finish and Level 5 Finish must use the Three Coat Jointing System for all joints and external corners.

Internal corners only require a Bedding Coat and a Finish Coat.

## Bedding (First) Coat

### Method

- Fill any gaps more than 3mm at the joint and allow compound to set or dry
- Using a broadknife, evenly fill the recess with compound [Refer to Figure 10 for minimum coat widths]
- Place Siniat paper **tape** along the joint and bed it into the compound, removing excess compound and any air bubbles from behind the paper **tape** [Refer to Figure 6]
- Apply a skim coat of compound over the paper **tape**.

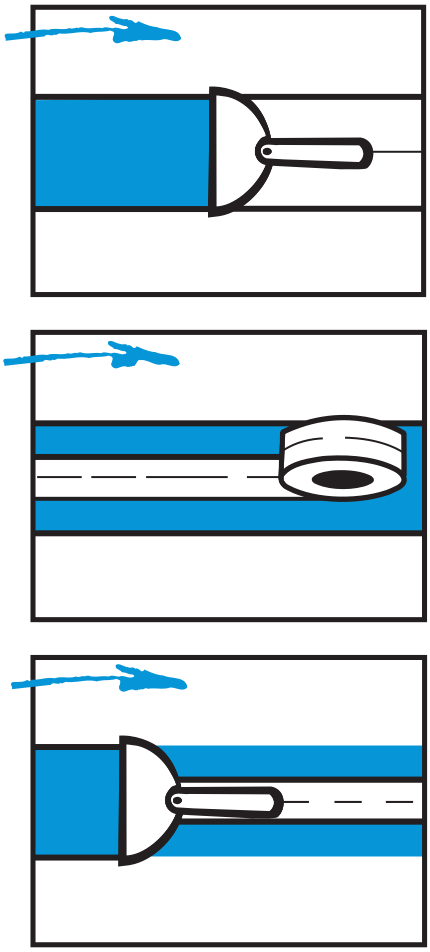


FIGURE 6 **Bedding Coat**

## Second Coat

### Method

- Allow the first coat of compound to set or dry
- Using a 200mm trowel to apply a second coat of compound [Refer to Figure 7 and to Figure 10 for minimum coat widths]
- Feather the joint edges to remove excess.

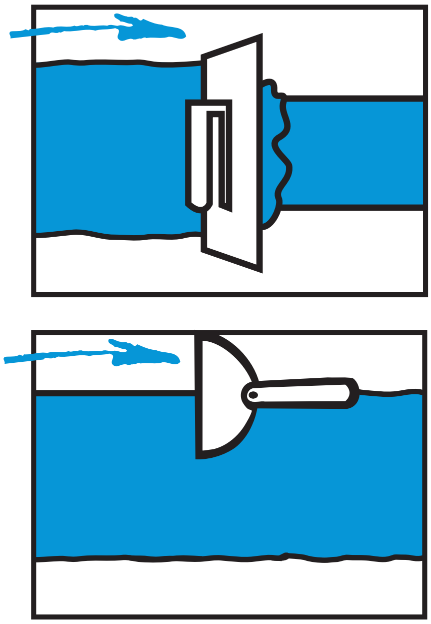


FIGURE 7 **Second Coat**

- Siniat paper **tape** is strongly recommended for all joints.
- Joints made using paper tape are stronger and less prone to defects than those made with fibreglass tape. For the strongest joint, paper tape is recommended with two coats of masta**base**, masta**longset** or masta**tape-in** and a final coat of masta**glide**, masta**lite** or masta**line**.
- If fibreglass tape is used, all joints must be back-blocked or backed by a framing member. Fibreglass tape is not permitted for use in wet areas or fire rated systems.
- If masta**lite** or masta**line** is used for all 3 coats, then all joints must be back-blocked or backed by a framing member.

## Finishing (Third) Coat

### Method

- Allow the second coat to set and dry, then lightly scrape off any lumps and high spots of compound
- Use a 280mm trowel to apply a third coat of compound [Refer to Figure 8 and to Figure 10 for minimum coat widths]
- Feather the joint edges to a smooth even surface, removing any excess
- Allow the compound to fully dry before sanding.

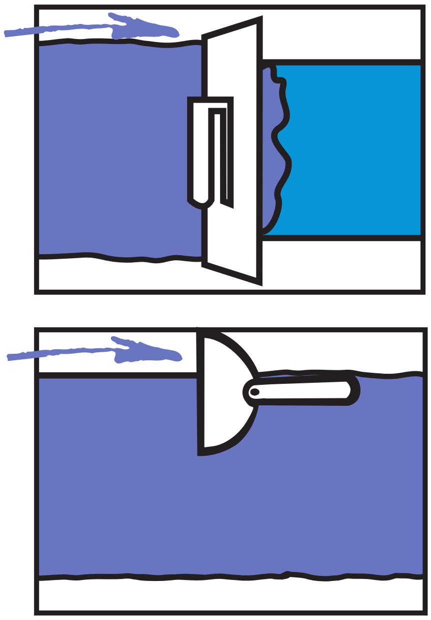


**FIGURE 8** **Finishing Coat**

## Fasteners

- For level 4 and 5 finishes, cover fastener heads with two coats of compound. Apply each coat in a different direction.
- For a level 3 finish, cover with one coat of compound.
- For fire rated systems, the setting of fasteners is not required for a level 3 finish.

## Sanding

### Method

- Lightly sand to a smooth even surface using 180 to 220 grit sandpaper or sanding mesh. [Figure 9]
- Do not expose or scuff the paper linerboard while sanding
- Use power sanders with care as they can easily over sand the joint
- A finished joint should have a slight crown.

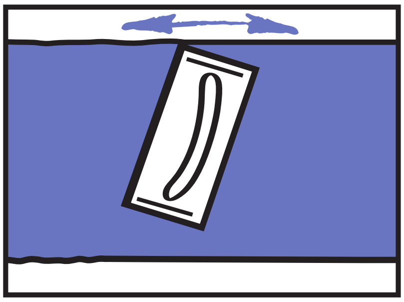
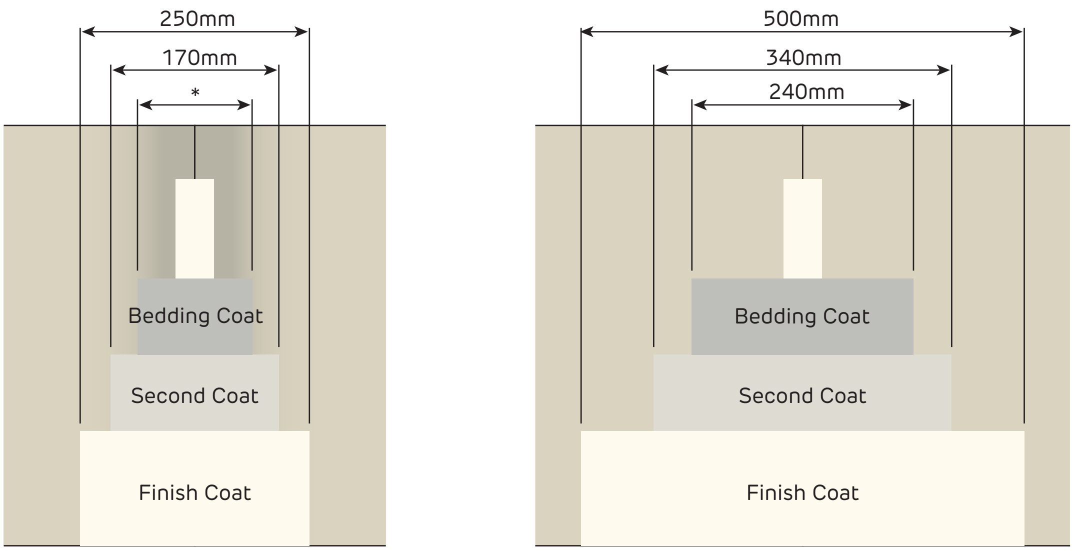


**FIGURE 9** **Sanding**




Recessed Joint and back-blocked Butt Joints
* Fill recess completely

Butt Joint made over a framing member

**FIGURE 10** **Minimum Coat Widths**

## Internal Corners

### Method

- Use a 75mm broadknife to apply compound to the corner
- Fold paper tape in half and bed it into the compound using a corner taping tool
- Cover the tape with a thin coat of bedding compound and remove any excess. Allow to set or dry
- Apply a finish coat with a 100mm broadknife to both sides of the angle
- Feather the edges and finish the joint with an internal angle finishing tool. Allow to dry
- Lightly sand to a smooth finish before painting.

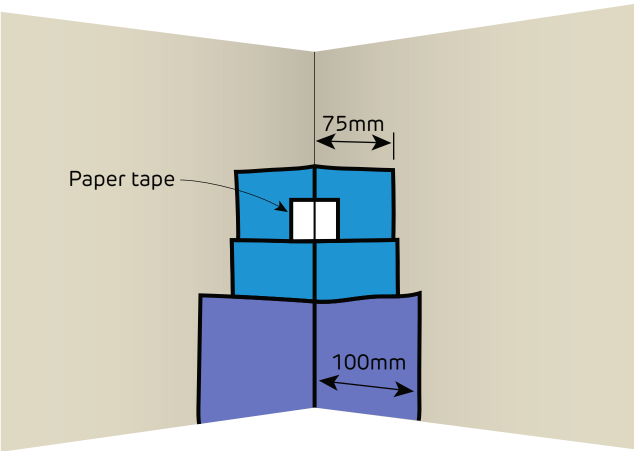



**FIGURE 11** Internal Corner

## External Corners

### Method

Position the Siniat corner bead ensuring that it is plumb and straight [Figure 12]

Fix the bead in place using fasteners or staples at 300mm centres on both sides.

For PVC corner beads, follow the manufacturer;s installation instructions.

Treat external corner beads with the three coat jointing system as described previously. The minimum width of the three coats on both sides of the external corner is:

- Bedding coat 200mm
- Second coat 230mm
- Finish coat 250mm.

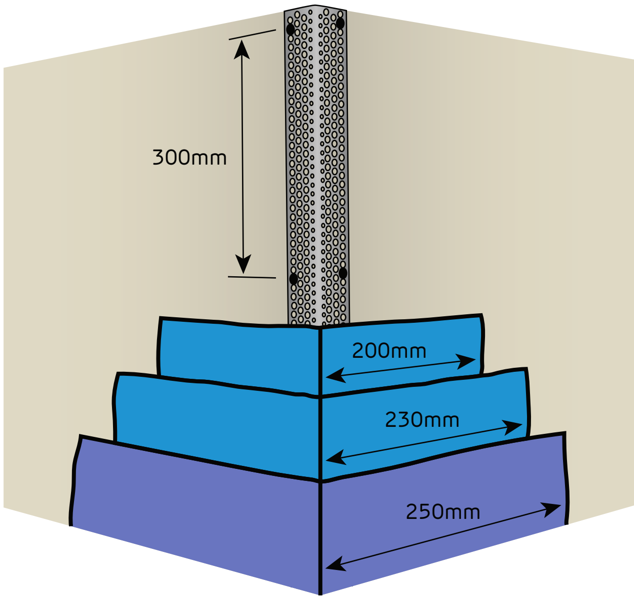



**FIGURE 12** External Corner

# 7.4 Cornice Installation

Cornice is used to complete the decoration of the building. Cornice is fixed to walls and ceilings using cornice cements, which are chemical setting compounds available in powder form.

Cornice cements are selected depending on the length and stability of the setting time, as well as their features for practical application, such as the ability to work back the cornice cement, polish mitres and the instant grab strength.

## Method

- Ensure that wall and ceiling surfaces are free of dust and dirt
- Measure and cut all cornices to the required lengths. Cut internal and external mitres using a mitre box
- Avoid joints in straight runs where possible. If necessary, mitred joints are recommended
- Measure and mark cornice projection on wall and ceiling to ensure accurate placement
- Mix only the quantity of cornice cement that can be used within the setting time
- Spread a 10mm continuous bead of cement along both back edges and the mitred end of the cornice [Figure 13]
- Press the cornice into place and if necessary hold with temporary nails in the wall and ceiling along the edges of the cornice [Figure 14]
- Clean off excess and remove nails when cement has partially set. Straight stop along cornice edge at wall and ceiling. [Figure 15]
- Finish mitres using a small cornice tool [Figure 16]
- Wipe down the cornice with a wet sponge [Figure 17].

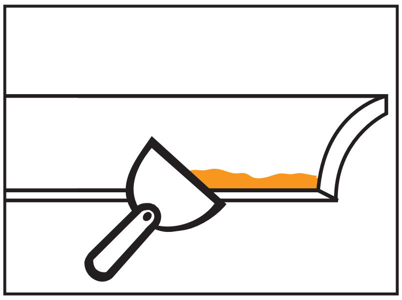


**FIGURE 13** Butter Up

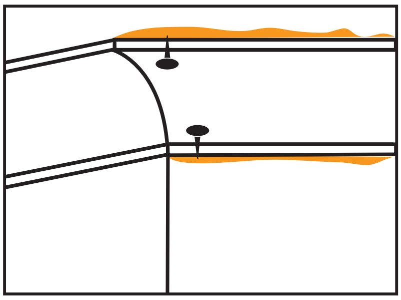


**FIGURE 14** Position Cornice

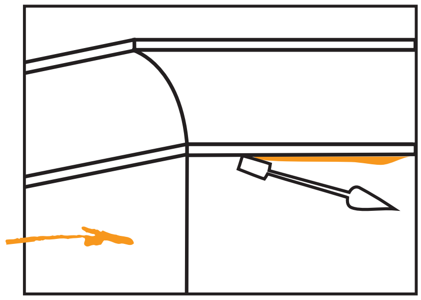


**FIGURE 15** Clean Off Excess

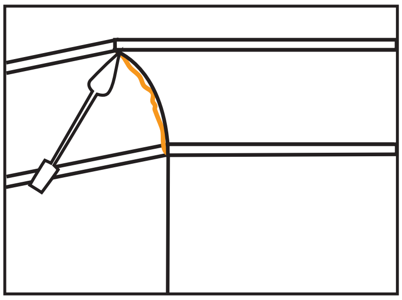


**FIGURE 16** Mitres

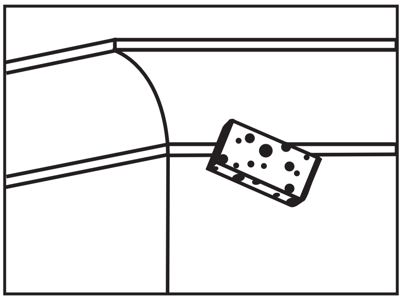


**FIGURE 17** Wipe Down

Control joints in cornices shall coincide with control joints in linings

**Table 4** Type and Use of Compounds - Cornice Cements

| Compound | Type | Setting Time | Application | | |
|---|---|---|---|---|---|
| | | Minutes | Cornicing | Patching | Jointing (1st and 2nd coat) |
| **Cornice Cements** | | | | | |
| mastacove45 | Chemical setting powder | 45 | ✓ | ✓ | |
| mastacove75 | Chemical setting powder | 75 | ✓ | ✓ | |
| **3-in-1 Specialty Compounds** | | | | | |
| mastafix20 | Chemical setting powder | 20 | ✓ | ✓ | ✓ |

# 7.5 Painting Plasterboard

## Australian Standard Requirements

Painting systems and methods are detailed in Australian Standard AS/NZS 2311, Guide to the painting of buildings.

If painting plasterboard, a **Three Coat Paint System** must be applied to achieve the best finish. This consists of a sealer undercoat followed by two top coats. Both the quality of the paint and how it is applied have a large effect on the finished appearance of the plasterboard.

Two coat paint systems are not nominated by AS/NZS 2311 as they often do not meet the customer's expectations by showing up joints through texture and sheen variations.

## Sealer Undercoat Application

### Recommendations

- Ensure surfaces are set and dry
- Lightly sand any minor surface defects and brush down surfaces to remove dust
- Apply a sealer undercoat suitable for plasterboard, preferably with a roller. Plasterboard that has been exposed to sunlight and/or is discoloured will require a stain sealer undercoat
- Ensure the quality sealer undercoat is rolled so all plasterboard paper fibres are flat
- Check for any unsuitable surface imperfections and repair
- Lightly sand with fine to medium grade paper before applying top coats

## Paint Application

### Recommendations

- Ensure surfaces are dry
- Lightly sand any minor surface defects and brush down surfaces to remove dust
- Apply paint to the broad areas with an appropriate 10-14 mm nap synthetic roller. The roller nap gives a slight texture that improves the overall evenness of finish
- Ensure each paint film is dry and manufacturer's recoat times are followed before applying the next coat.

If plasterboard is to be spray painted, the paint must not be diluted more than the manufacturer recommends. While the sealer undercoat is still wet, the surface should be back rolled to leave a 'roller finish'. This helps to equalise the surface texture between the plasterboard and the set joints. For best results also back roll 2nd and 3rd coats. Any minor paint touch-ups can then be done with a roller rather than having to re-spray.

### Inspection

The final inspection of a plasterboard wall or ceiling occurs after painting. AS/NZS 2589 and AS/NZS 2311 recommend that visual inspection of finished surfaces of plasterboard be carried out in ordinary lighting, sighting from a distance of at least 1.5 metres from the surface. If differences of appearance are not clearly discernible the finish is usually considered acceptable.

To achieve a good quality painted finish, the following recommendations in addition to the three coat paint system should be followed:

- Apply paint according to the manufacturer's recommendations
- Avoid spraying or brushing which require advanced application techniques
- Choose white or light colours, flats for ceilings and matt or low sheen paints for walls
- Select a Level 5 Finish when using medium to high gloss or dark coloured paints, or in areas of glancing light in accordance with AS2589. These paints highlight any minor imperfections in the plasterboard and make the joints more visible.

For more information on glancing light, painting and other subjects affecting the appearance of plasterboard walls and ceilings, refer to:

- www.awci.org.au (Association of Wall and Ceiling Industries – Australia and New Zealand)
- www.apmf.asn.au (Australian Paint Manufacturers Association).

### OnBoard - Painting Plasterboard

# 7.6 Glancing Light

Glancing Light refers to natural or artificial light being cast along the face of a surface showing any minute undulation. As a result of this light being cast, a shadow is produced on the other side of the undulation. This draws attention to surface texture variations, such as plasterboard joints and patches, which under more diffused light would not be visible.

The glancing light condition can occur even when the wall or ceiling has been built according to AS/NZS 2589. Glancing light effects are directly linked to the type and placement of light sources relative to ceilings and walls.

Glancing light can highlight the following surface conditions:

- Sheet joints
- Surface irregularities
- Patches
- Variations in paint application technique.

Attention can also be drawn to minor deviations inherent in the manufacture and installation of plasterboard.

## Minimising Glancing Light

### Interior Design

The following are recommendations to reduce the effect of glancing light:

- Avoid full length windows in direct sunlight
- Avoid locating windows close to perpendicular wall and ceiling surfaces during design phase
- Diffuse light entering a room by using curtains, blinds or other window treatments
- Introduce curtains or blinds where windows are close to wall and ceiling surfaces
- Use low gloss, light coloured paints applied with a brush or roller.

### Framing

Framing members should be straight and aligned.

### Sheet Orientation

Plasterboard sheets should be fixed parallel to the light source. Also arrange the sheets to minimise the number of joints.

### Lighting

Glancing light caused by artificial lighting can be addressed by changing the type and/or positioning of the light fittings. Natural lighting problems are normally caused by building geometry. An example is running windows right to the edge of the ceiling or wall line.

The following are recommendations for design of light fittings:

- Use recessed downlights and fluorescent tubes with a diffuser
- Shade batten-fixed bulbs on the ceiling and table lamps
- Avoid designs that will create glancing light conditions where possible
- Position downlights so that they do not shine down the surface of a wall.

For a premium Level 4 Finish use **opal**.

### Level 5 Finish

A Level 5 Finish is the highest level of finish possible and can assist in reducing the effect of glancing light. By covering the entire surface, the skim coat of a Level 5 Finish fills any slight impressions in the surface, and removes the difference in texture and paint absorption between plasterboard and the joints. The framer, plasterer and painter all need to cooperate and contribute to providing a Level 5 Finish. Even when applied correctly, a Level 5 Finish is no guarantee that all surface deviations will be invisible, only minimised [Refer to Section 7.1 for details on Level 5 Finish].

### OnBoard - Glancing Light

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