



# PARTIWALL®

Separating walls for Class 1a buildings  
Timber framed

**USG BORAL**   
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Interior Linings

Ceilings

Cornice

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Systems Solutions

# TABLE OF CONTENTS

<b>GENERAL</b>	<b>1</b>
Preface	1
Introduction	1
Description	1
Features and Benefits	1
Design Options	1
Partiwall® Design Concept	2
Partiwall® Construction Sequence	3
<b>DESIGN CONSIDERATIONS</b>	<b>4</b>
Fire Resistance	4
Acoustics	4
Structural	5
<b>MATERIALS</b>	<b>6</b>
SHAFTLINER™ Fire Barrier	6
Occupancy Linings	6
<b>PARTIWALL® SYSTEMS</b>	<b>7</b>
PWT60.1	7
PWT90.1	8
<b>INSTALLATION OF SHAFTLINER™ FIRE BARRIER</b>	<b>9</b>
Set Out and Fixing	9
Protection from Weather	9
Dos and Don'ts	9
Installation Procedure	10
<b>INSTALLATION DETAILS</b>	<b>12</b>

# GENERAL

## Preface

USG Boral is a plasterboard and ceilings Joint Venture between USG Corporation and Boral Limited, and is one of the leading players in this field.

Operating throughout Asia, Australasia and in the Middle East, USG Boral combines USG's innovative building products technologies with Boral's extensive plasterboard manufacturing and distribution footprint in Asia and Australasia.

In Australia USG Boral operates plasterboard manufacturing plants in Queensland, New South Wales and Victoria; a specialty plasters and jointing compounds plant in Victoria and cornice plants in New South Wales and Victoria. The company's products are supplied through a nation-wide distribution network of around 100 company-owned stores and specialised resellers as well as hundreds of hardware stores.

For more information on USG Boral refer to [usgboral.com](http://usgboral.com)

## Introduction

The Pioneering system of its kind in Australia, USG Boral Partiwall® has become one of the most widely used separating wall systems in attached villa units and townhouse construction.

Excellent acoustic performance, ease of construction and design flexibility makes Partiwall a system of choice on projects ranging from side-by-side duplexes to multi-unit developments.

**Partiwall separating wall system is suitable for attached dwellings Class 1a and for top storeys of Class 2 and 3 buildings (subject to Certifier's approval). Contact USG Boral TecASSIST™ for advice.**

For multi-residential buildings Class 2, 3 and 9C USG Boral recommends Multiframe™ timber framed construction system (subject to NCC limitations) or IntRwall® separating wall system.

## Description

Partiwall is essentially a twin stud wall system, which incorporates a single or double layer 25mm SHAFTLINER™ plasterboard fire barrier within the wall cavity.

Partiwall was developed to suit the normal pattern of framed construction and follow-up trades. SHAFTLINER panels are held in position by lightweight steel H- or I-section studs attached to timber or steel framing on both sides with

aluminium clips. Installation of SHAFTLINER fire barrier is carried out during the framing stage and does not require plasterboard screw fixing, jointing or finishing. The internal wall linings are installed at the plastering stage using conventional installation methods as outlined in the USG Boral Plasterboard Installation Manual.

### Note:

This manual covers timber framed Partiwall systems only. For details of steel framed Partiwall system refer to USG Boral Steel Framed Partiwall brochure.

## Features and Benefits

- No wet trades are required.
- Panelised construction of SHAFTLINER fire barrier permits easy installation at framing stage - no additional trades are required.
- Permits easy inclusion of services and penetrations, such as switches, power points, light fittings and pipes within the wall.
- Internal wall linings are installed at the plastering stage as per normal construction sequence.

## Design Options

USG Boral Partiwall has been tested and certified to meet Fire Resistance Levels (FRL) of 60/60/60 and 90/90/90 and acoustic performance equal to or exceeding  $R_w + C_{tr} = 50$  as required by the National Construction Code (NCC).

Partiwall systems are available in three basic types:

**Table 1: Partiwall system types**

System Type	Fire Barrier	FRL
PWT60.1	1x25mm SHAFTLINER	60/60/60
PWT90.1	1x25mm SHAFTLINER + 1x16mm FIRESTOP	90/90/90
PWT90.2 <sup>^</sup>	2x25mm SHAFTLINER	90/90/90

<sup>^</sup> System PWT90.2 is not covered in this manual. For acoustic performance refer to USG Boral Systems+. For construction details contact TecASSIST.

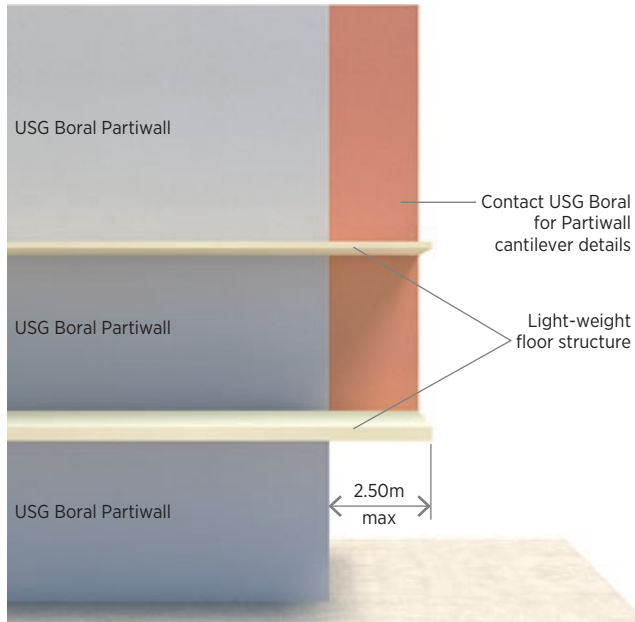
All system types are available with a wide range of outer linings, including water and impact resistant linings on one or both sides of the wall.

Construction details are provided for aligned and offset floor configurations, internal-to-external wall transitions and various roof types.

All construction details contained in this manual have been certified by Exova.

# GENERAL

Figure 1: Cantilever Partiwall



A cantilever Partiwall option is also available for overhanging floors. Contact USG Boral for further information.

## PARTIWALL® Design Concept

While in a conventional fire-rated wall system fire resistant outer linings provide protection to the wall substrate, in the Partiwall system the main fire barrier is located within the wall cavity and is designed to protect the structure on the side opposite to the fire. At the same time, the SHAFTLINER™ fire barrier relies on this structure for the support as the structure on the fire side loses stability or collapses.

In order to ensure that the SHAFTLINER fire barrier is not damaged by the collapse of the structure on the fire side, aluminium clips are utilised to attach the fire barrier to the timber frames on both sides. As the clips on the fire side melt, the SHAFTLINER fire barrier is disconnected from the collapsing structure and is supported by the clips and the structure on the protected side for the specified fire rating period.

Steel clips must not be used in the Partiwall system as their use will compromise the integrity of the SHAFTLINER fire barrier during the fire.

Figure 2: Partiwall Design Concept

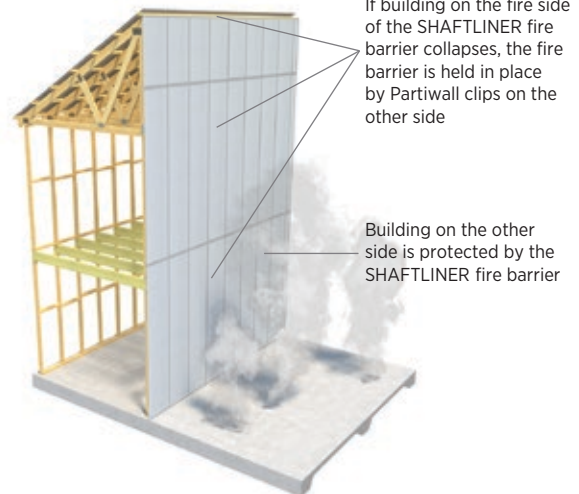
Before the fire



During the fire



After the fire



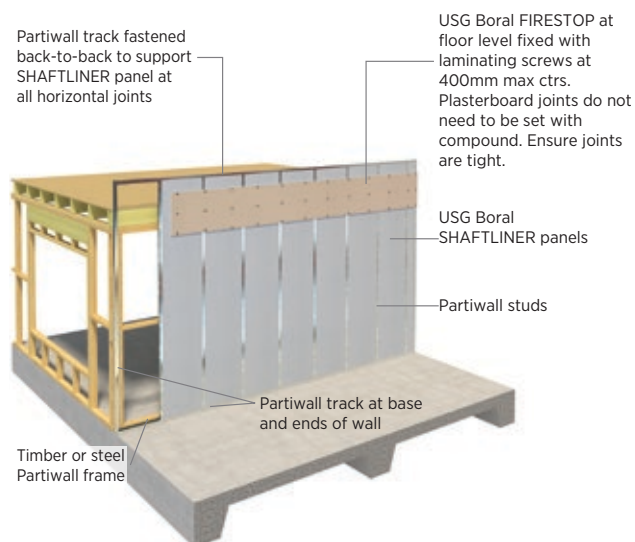


## PARTIWALL® Construction Sequence

Figure 3: Partiwall Construction Sequence

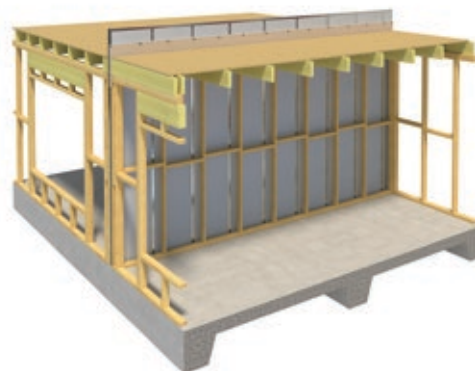
### Stage 1

- Ground Floor frame installed on one side
- Ground Floor fire barrier installed and clipped
- FIRESTOP® pbd is fixed at 1st Floor as required



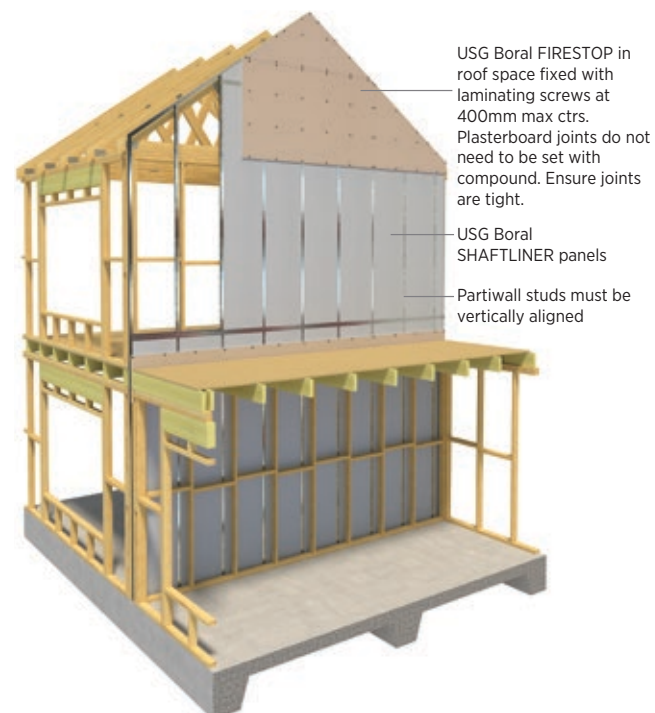
### Stage 2

- Ground Floor frame installed on opposite side
- Ground Floor fire barrier clipped on opposite side



### Stage 3

- 1st Floor and Roof frame installed on one side
- 1st Floor and Roof fire barrier installed and clipped
- FIRESTOP pbd is fixed within the roof space



### Stage 4

- 1st Floor and Roof frame installed on opposite side
- 1st Floor and Roof fire barrier clipped on opposite side



# DESIGN CONSIDERATIONS

## Fire Resistance

The Partiwall® system has been fire tested at CSIRO's laboratory at North Ryde in Sydney. The performance of various system configurations has been assessed in CSIRO's assessment number FSV 0381, FCO-2256, FCO-2713, FCO-1446 and FCO-2016.

The Partiwall system provides Fire Resistance Levels (FRL) of 60/60/60 and 90/90/90. In the case of a fire, the structural adequacy and load bearing capacity is provided by the wall frame on the other side of SHAFTLINER™ fire barrier.

As the primary fire barrier (the SHAFTLINER panels) is located in the cavity between the frames, the system permits easy inclusion of services such as water and waste pipes, electrical and communications cables, as long as the primary barrier is not penetrated. Service penetrations are allowed through SHAFTLINER fire barrier in the roof space subject to Certifier's approval (refer Installation Details).

The following penetrations, individually or in combinations, or back-to-back, are allowed in the outer linings and are not required to be fire rated:

- Normal residential electrical switches and power points
- Data, communications or electrical cables passing through the linings into the cavity
- Copper, galvanized steel, or plastic water or wastewater pipes of up to 50mm nominal diameter passing through the linings into the cavity
- Cabinets, baths, shower bases or vanities
- For other penetrations contact USG Boral TecASSIST® 1800 811 222

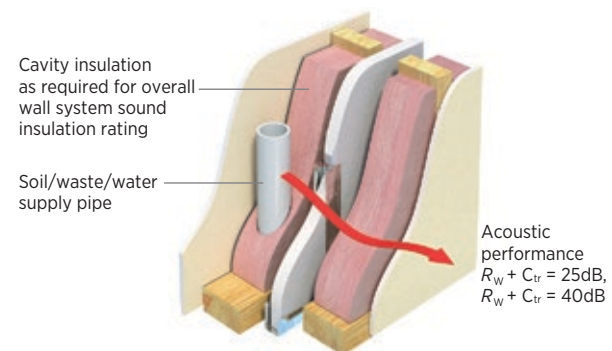
## Acoustics

The Partiwall system has been the subject of extensive laboratory testing at the CSIRO Acoustic Laboratory at Highett, Victoria.

Acoustical opinions have been determined by Renzo Tonin and Associates Pty Ltd in opinion number RT&A TE405-05F19.

Partiwall satisfies NCC acoustic provisions for Class 1a buildings of  $R_w + C_{tr} = 50\text{dB}$  for separating walls and  $R_w + C_{tr} = 25\text{dB}$  and  $R_w + C_{tr} = 40\text{dB}$  acoustic separation of adjoining soil and waste pipes within the cavity:

Figure 4: Partiwall Services Separation



**Note:** To achieve  $R_w + C_{tr} 40$  separation, insulation is required in the wall cavity on the opposite side of the pipe.

Small penetrations of linings in occupancy areas i.e. switches, power points, light fittings and pipes do not need to be fire or acoustically sealed.

Insulation thicker than the stud framing is allowed.

Partiwall complies with NCC requirements for 'discontinuous construction'.

### The following requirements are essential to maintaining the fire-rating integrity and acoustic performance of the Partiwall system:

- Use only the specified Partiwall aluminium clips to attach the Partiwall H-studs to timber framing members. In the event of a fire, aluminium clips are designed to melt to allow the timber framing on the fire side to fall away leaving the SHAFTLINER fire barrier intact.
- Other than the clips, there should be no attachments to the SHAFTLINER fire barrier.
- There should be no penetrations through the SHAFTLINER fire barrier apart from approved penetrations in the roof space.
- SHAFTLINER fire barrier base must be sealed with an approved fire acoustic sealant.
- To maintain acoustic performance, service pipes must not be in contact with the SHAFTLINER fire barrier. All services should be run through the framing.
- The clear distance between the SHAFTLINER fire barrier and wall framing on both sides should not be less than 20mm nor more than 40mm.
- The 16mm FIRESTOP® plasterboard laminated to the SHAFTLINER fire barrier should not come into contact with wall or floor framing. It is recommended that the gap between SHAFTLINER fire barrier and timber framing be increased to a minimum 25mm on the FIRESTOP side to ensure adequate clearance.

## Isolated Support for Stairs

In order to reduce the likelihood of stair footfall noise passing through the wall into the attached dwelling, it is recommended that stairs should be isolated from the separating wall as follows:

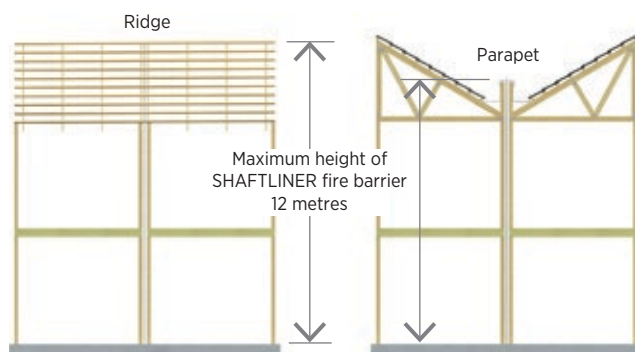
- Using the stringers to support the stairs, at each floor level, without intermediate support from the separating wall in between (i.e. free standing), or alternatively
- Using newel posts rather than the separating wall to support the stair structure
- Keeping the treads clear off the separating wall

## Structural

### Maximum Permissible Height

Height of the standard SHAFTLINER™ fire barrier should not exceed 12 metres:

Figure 5: **SHAFTLINER Maximum Height**



**Note:**

Heights of up to 15m can be achieved with special detailing. Contact USG Boral TecASSIST for further information.

## Support Clip Separation

Clips on each side of the SHAFTLINER™ fire barrier must be spaced at no more than 3000mm vertically and 600mm horizontally unless noted otherwise.

Every Partiwall® stud and end track is to be fixed to timber frame on both sides with Partiwall aluminium clips.

## Construction Joints

Where construction joints are necessary in Partiwall, contact USG Boral TecASSIST™ 1800 811 222 for construction details.

## Wind Speed

Partiwall is suitable for wind classification N1 and N2 as determined by AS 4055 Wind loads for housing. For higher wind classifications USG Boral recommends temporary propping of SHAFTLINER fire barrier during construction until the building is enclosed. Propping details are to be designed by a suitably qualified Structural Engineer. Where Partiwall is proposed in cyclonic areas contact USG Boral for advice.

## Framing

Timber framing to be designed by a suitably qualified Structural Engineer to meet NCC requirements, and in accordance with AS 1684 *Timber Framed Construction* and other relevant Australian Standards.

**Note:**

Stud spacing not to exceed 600mm centres.

## Wet Areas

Water resistant wall linings must be used in areas classified as Wet Areas in accordance with the NCC.

Partiwall systems are available with the following water resistant linings on one or both sides:

- 10mm and 13mm WETSTOP™ plasterboard
- 6mm Villaboard® fibre cement
- 10mm FIBEROCK® Aqua-Tough™ gypsum fibre board





For installation details of USG Boral Wet Area System refer to the USG Boral Plasterboard Installation Manual.

# MATERIALS

## SHAFTLINER™ Fire Barrier

Materials used in construction of SHAFTLINER™ fire barrier are listed in the following table:

**Table 2:** SHAFTLINER Fire Barrier Components

Product Image	Item Description	USG Boral Item Codes
	25mm SHAFTLINER 600 x 3000mm	25SW0630
	25mm SHAFTLINER 600 x 3600mm	25SW0636
	16mm FIRESTOP 1200 x 2400mm	16FS1224
	25mm H-Stud x 3000mm	R25HS3055
	25mm H-Stud x 3600mm	R25HS3655
	25mm J-track x 3000mm	RO14030
	25mm J-track x 3600mm	RO14036
	Aluminium wall clip	RPWALLCLIP
	Firesound® mastic, 450g tube	FBSOUND450
	Firesound mastic, 600ml sausage	FBSOUND900

Product Image	Item Description	USG Boral Item Codes
	6g x 25mm Type 'W' Timber Screws	S625WB
	10g x 40mm Type 'L' Laminating Screws Pkt 1000	S1040LB
	10g x 16mm Type 'D' Drill Point Wafer Head Screws	S1016DBB
	10g x 30mm Type 'D' Drill Point Wafer Head Screws	S1030DB
	30mm Galvanized Nails	NC3028PO
	USG Boral Firepack mineral wool packer 5m x 200 x 50mm, Pkt 3	IIPWBATT
	Powers Track-It® pins for hard concrete or other suitable all-steel masonry anchors	55322HC-PWR

## Occupancy Linings

The following linings can be used in occupancy areas:

- 10mm SHEETROCK® Wall Board
- 13mm SHEETROCK Standard
- 10mm STANDARD plasterboard
- 10mm FIBEROCK®
- 10mm/13mm SOUNDSTOP™ plasterboard
- 10mm/13mm WETSTOP™ plasterboard
- 6mm Villaboard fibre cement

**Note:**

Partiwall® performance values stated in this manual are based on the use of materials and components listed herein. Material substitution may affect the performance of Partiwall systems.



# PARTIWALL® SYSTEMS

## PWT60.1

### FIRE RESISTANCE LEVEL

LB 60/60/60

FROM BOTH SIDES

FRL Basis: FCO-2256



### SYSTEM DESCRIPTION

#### Side 1:

- Non fire resistant lining (refer to table)
- Timber framing
- 20mm min gap between timber frame and fire barrier
- Insulation (refer to table)

#### Fire Barrier:

- 1x25mm SHAFTLINER between 25mm H-studs @ 600mm ctrs

#### Side 2:

- Non fire resistant lining (refer to table)
- Timber framing
- 20mm min gap between timber frame and fire barrier
- Insulation (refer to table)

### Acoustic Ratings BASIS: RT&A TE405-05F19

System	Lining Side 1	Lining Side 2	Nom Width mm	STUD Size (Gap) mm	70 (20)		70 (40) or 90 (20)	
				Insulation*	R <sub>w</sub>	R <sub>w</sub> +C <sub>tr</sub>	R <sub>w</sub>	R <sub>w</sub> +C <sub>tr</sub>
PWT60.1A	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	265	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT60.1B	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	231	R2.0 GW Wall Batts (both cavities)	62	52	NA	NA
			271	R2.0 GW Wall Batts (both cavities)	NA	NA	64	55
				110mm USG Boral PARTIWALL Acoustic Batt (one cavity only)	NA	NA	59	51
PWT60.1C	1x13mm WETSTOP	1x13mm WETSTOP	271	110mm USG Boral PARTIWALL Acoustic Batt (both cavities)	NA	NA	63	51
PWT60.1D	1x10mm SOUNDSTOP	1x10mm WETSTOP	265	110mm USG Boral PARTIWALL Acoustic Batt (both cavities)	NA	NA	63	51
PWT60.1E	1x13mm SOUNDSTOP	1x10mm WETSTOP	228	90G24 (both cavities)	60	50	NA	NA
			268	R2.0 GW Wall Batts (both cavities)	NA	NA	62	53
PWT60.1F	1x10mm FIBEROCK	1x10mm FIBEROCK	265	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT60.1G	1x10mm SOUNDSTOP	1x10mm FIBEROCK	265	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT60.1H	1x13mm SOUNDSTOP	1x10mm FIBEROCK	228	R2.0 GW Wall Batts (both cavities)	60	50	NA	NA
			268	R2.0 GW Wall Batts (both cavities)	NA	NA	64	55
				110mm USG Boral PARTIWALL Acoustic Batt (one cavity only)	NA	NA	58	50
PWT60.1L	2x10mm STANDARD	2x10mm STANDARD	245	R2.0 GW Wall Batts (both cavities)	63	51	NA	NA
			285	110mm USG Boral PARTIWALL Acoustic Batt (one cavity only)	NA	NA	61	51
PWT60.1M	2x10mm WETSTOP	2x10mm WETSTOP	245	R2.0 GW Wall Batts (both cavities)	66	54	NA	NA
			285	110mm USG Boral PARTIWALL Acoustic Batts (one cavity only)	NA	NA	63	53
PWT60.1W	2x10mm SHEETROCK Wall Board	2x10mm SHEETROCK Wall Board	245	R2.0 GW Wall Batts (both cavities)	61	50	NA	NA
			285	R2.0 GW Wall Batts (both cavities)	NA	NA	63	53

\* R2.0 GW Wall Batts – R2.0 Wall Batts 90mm glasswool insulation.  
90G24 – 90mm glasswool insulation 24kg/m<sup>3</sup> density.

■ Blue text indicates moisture resistant lining.

# PARTIWALL® SYSTEMS

## PWT90.1

**FIRE RESISTANCE LEVEL**  
**LB 90/90/90**  
 FROM BOTH SIDES

FRL Basis: FCO-2713



### SYSTEM DESCRIPTION

#### Side 1:

- Non fire resistant lining (refer to table)
- Timber framing
- 20mm min gap between timber frame and fire barrier
- Insulation (refer to table)

#### Fire Barrier:

- 1x25mm SHAFTLINER™ between 25mm H-studs @ 600mm ctrs + 1x16mm FIRESTOP® direct laminated to SHAFTLINER

#### Side 2:

- Non fire resistant lining (refer to table)
- Timber framing
- 20mm min gap between timber frame and fire barrier
- Insulation (refer to table)

### Acoustic Ratings BASIS: RT&A TE405-05F19

System	Lining Side 1	Lining Side 2	Nom Width mm	Stud Size (Gap) mm	70 (20)		70 (40) or 90 (20)	
				Insulation*	R <sub>w</sub>	R <sub>w</sub> +C <sub>tr</sub>	R <sub>w</sub>	R <sub>w</sub> +C <sub>tr</sub>
PWT90.1A	1x10mm STANDARD	1x10mm STANDARD	285	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT90.1B	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	245	R2.0 GW Wall Batts (both cavities)	64	52	NA	NA
			285	R2.0 GW Wall Batts (both cavities)	NA	NA	67	55
PWT90.1C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	290	R2.0 GW Wall Batts (one cavity only)	NA	NA	62	50
PWT90.1D	1x10mm WETSTOP	1x10mm WETSTOP	285	R2.0 GW Wall Batts (both cavities)	NA	NA	64	51
PWT90.1E	1x10mm STANDARD	1x10mm WETSTOP	285	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT90.1F	1x10mm SOUNDSTOP	1x10mm WETSTOP	285	R2.0 GW Wall Batts (both cavities)	NA	NA	64	51
PWT90.1G	1x13mm SOUNDSTOP	1x10mm WETSTOP	245	R2.0 GW Wall Batts (both cavities)	63	53	NA	NA
			285	R2.0 GW Wall Batts (one cavity only)	NA	NA	59	50
PWT90.1H	1x10mm FIBEROCK	1x10mm FIBEROCK	245	R2.0 GW Wall Batts (both cavities)	64	52	NA	NA
			285	R2.0 GW Wall Batts (both cavities)	NA	NA	67	55
PWT90.1I	1x10mm STANDARD	1x10mm FIBEROCK	285	R2.0 GW Wall Batts (both cavities)	NA	NA	64	51
PWT90.1J	1x10mm SOUNDSTOP	1x10mm FIBEROCK	245	R2.0 GW Wall Batts (both cavities)	64	52	NA	NA
			285	R2.0 GW Wall Batts (both cavities)	NA	NA	67	55
PWT90.1K	1x13mm SOUNDSTOP	1x10mm FIBEROCK	285	R2.0 GW Wall Batts (one cavity only)	NA	NA	61	52
PWT90.1L	1x6mm VILLABOARD	1x6mm VILLABOARD	275	R2.0 GW Wall Batts (both cavities)	NA	NA	66	53
PWT90.1M	1x10mm STANDARD	1x6mm VILLABOARD	280	R2.0 GW Wall Batts (both cavities)	NA	NA	63	50
PWT90.1AA	1x13mm SHEETROCK	1x13mm SHEETROCK	290	R2.0 GW Wall Batts (both cavities)	NA	NA	65	52
PWT90.1AB	1x13mm SHEETROCK	1x13mm WETSTOP	290	R2.0 GW Wall Batts (both cavities)	NA	NA	67	54

\* R2.0 GW Wall Batts - R2.0 Wall Batts 90mm glasswool insulation.

■ Blue text indicates moisture resistant lining.

# INSTALLATION OF SHAFTLINER™ FIRE BARRIER

## Set Out and Fixing

Installation of the SHAFTLINER™ fire barrier requires the attachment of the Partiwall® H-studs and end tracks to timber framing members using aluminium clips. Set out timber framing to allow for the required clearances on both sides of the SHAFTLINER fire barrier and later fixing of the Partiwall clips to wall plates and roof frame.

After the timber framing on one side has been completed, the SHAFTLINER fire barrier is installed and attached to the completed frame with Partiwall aluminium clips. When framing on the other side is completed, the SHAFTLINER fire barrier is attached with Partiwall aluminium clips to that side.

The sequence of construction should be planned to accommodate progressive erection of the SHAFTLINER fire barrier.

### Note:

The base track of the SHAFTLINER fire barrier must be fixed with approved steel only anchors spaced at 600mm max centres. Plastic sleeved fasteners are not permitted.

## Protection from Weather

To prevent damage from the weather, all materials must be suitably protected during construction.

USG Boral recommends that exposure of the SHAFTLINER fire barrier to the elements should be minimised, and that it should be protected if exposure is likely to exceed one month or when periods of intense inclement weather, such as heavy rain or high winds, are expected. Allow SHAFTLINER panels to dry out before lining the occupancy areas.

Temporary exposure of SHAFTLINER panels to moisture should not downgrade their fire resisting properties as long as there is no physical damage to the panels in a wet state.

USG Boral also recommends that concrete slabs on which the SHAFTLINER fire barrier is erected should be level, free draining and free of depressions where water can collect, removing the possibility of the panel standing in the water for any length of time. The specified 6mm gap between the adjacent bottom track sections will facilitate drainage of water from the track.

## Dos

- Do provide adequate clearance between SHAFTLINER fire barrier and timber framing on both sides.
- Do fix down Partiwall bottom track with approved steel only anchors.
- Do use aluminium clips at every Partiwall stud and end track and not more than 3000mm above lower clip line or base track.
- Do seal at Partiwall bottom track.
- Do install USG Boral Firepack at wall ends and top, as specified.
- Do cut Partiwall studs and SHAFTLINER panels to the same length.
- **Do align Partiwall studs above and below horizontal joint in SHAFTLINER fire barrier.**
- Do insert Partiwall studs and SHAFTLINER panels fully into the Partiwall base track.
- Do insert SHAFTLINER panels fully into the Partiwall studs.
- Do use the specified fasteners for aluminium Partiwall clips.

## Don'ts

- Don't use damaged materials.
- Don't penetrate the SHAFTLINER other than in the roof space as per Boral's details.
- Don't exceed specified clip spacing.
- Don't use steel clips.
- **Don't use Partiwall H-studs in lieu of Partiwall track as edge tracks nor at horizontal joint in SHAFTLINER fire barrier.**
- Don't cut tracks between Partiwall studs. Tracks should be used in full lengths.
- Don't run services in the gap between SHAFTLINER fire barrier and framework.

# INSTALLATION OF SHAFTLINER™ FIRE BARRIER

## Installation Procedure (PW60.1)

- Ensure that SHAFTLINER™ panels, Partiwall® studs and end tracks are the same length. Cut to length if required.
- In a multi-level SHAFTLINER fire barrier, Partiwall studs at upper levels must align with the studs below.
- Partiwall aluminium clips must be installed progressively as SHAFTLINER fire barrier is erected.
- Partiwall aluminium clips must be spaced at maximum 600mm horizontally and 3000mm vertically.
- For aligned floors Partiwall aluminium clips must be directly opposite on both sides of the Partiwall studs.
- For offset floors Partiwall aluminium clips can be staggered in line with floors on each side of the wall (refer Figure 7).
- Fix Partiwall aluminium clips to Partiwall studs with 2 x 10g x 16mm Type 'D' drill point wafer head screws (2 x 10g x 30mm Type 'D' drill point wafer head screws if fixing through 16mm FIRESTOP® plasterboard).
- Fix Partiwall aluminium clip to timber frame with 2 x 6g x 25mm Type 'W' timber screws or 2 x 2mm x 30mm galvanised nails.
- SHAFTLINER fire barrier must be adequately braced against wind forces until the building is enclosed.



### Step 1: Install base track

- Use full track lengths, spaced 6mm apart.
- Position Partiwall track at min 20mm clearance along full length of the timber frame, starting and ending in line with the timber frame.
- Fix each track length to foundation with approved all-steel fasteners at 600mm maximum spacing and at both ends.



### Step 2: Install first SHAFTLINER panel

- To enable fixing of aluminium clip, cut the first SHAFTLINER panel to width so that its edge falls not less than 50mm from timber stud.
- Fit SHAFTLINER panel fully down into the Partiwall base track and align with end of track.
- Fit Partiwall end track tightly over outer edge of SHAFTLINER panel and screw fix end and base tracks junction with 10g x 16mm Type 'D' drill point wafer head screws.
- Fix Partiwall end track to timber frame with Partiwall aluminium clip.



### Step 3: Install first Partiwall stud and clip

- Fit Partiwall stud fully down into the Partiwall base track and move tight over the edge of SHAFTLINER panel. Tap lightly to give a snug fit.
- Fit second SHAFTLINER panel into Partiwall base track and push tight into the Partiwall stud.
- Fix Partiwall stud to timber frame top plate with Partiwall aluminium clip.



### Step 4: Continue installing SHAFTLINER panels and Partiwall studs

- Continue to install SHAFTLINER panels and Partiwall studs until reaching end of wall.
- As framing progresses fix Partiwall studs to timber framing with Partiwall aluminium clips.
- Cut the last SHAFTLINER panel in line with the end of Partiwall base track. Fit Partiwall end track tightly over the edge of the panel and screw fix end and base tracks junction with 10g x 16mm drill point wafer head screws both sides.
- Fix end track to timber frame with Partiwall aluminium clip.



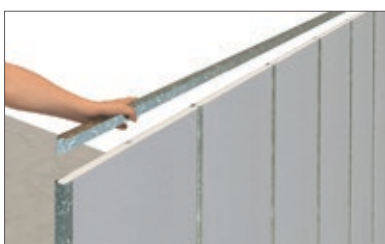
### Step 5: Seal base track

- Apply continuous Firesound™ sealant along Partiwall® base track/floor junction on one side only



### Step 6: At mid-floors

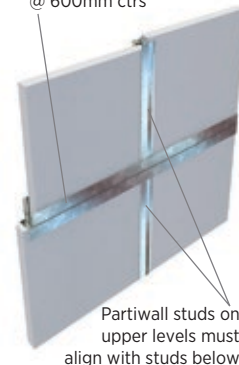
- Screw laminate 16mm FIRESTOP® to one side of SHAFTLINER™ fire barrier with 10g x 40mm Type 'L' laminating screws at max 400mm centres (both directions) and nom 10mm from the edges. Ensure minimum 150mm overlap above floor and below ceiling level. Plasterboard joints do not need to be set with compounds. Ensure joints are tight.
- Screw fix Partiwall aluminium clips through 16mm FIRESTOP into Partiwall studs and end tracks and fix Partiwall aluminium clips to timber frame.



### Step 7: Install top rail

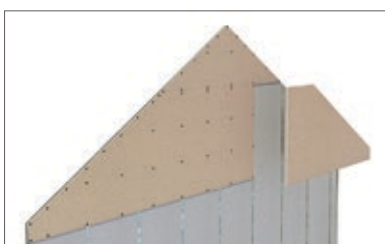
- Using full track lengths, fit Partiwall top track over the installed SHAFTLINER panels and Partiwall studs.
- Push top track fully down over the top of Partiwall studs.
- Screw fix top and end track junctions with 10g x 16mm Type 'D' drill point wafer head screws.

Continuous Partiwall tracks fixed back-to-back with 10g x 16mm drill point wafer head Type 'D' screws @ 600mm ctrs



### Step 8: Next level of SHAFTLINER fire barrier

- Using full track lengths, install Partiwall bottom track for the upper level of SHAFTLINER fire barrier back-to-back with the top track below and leaving 6mm gap between track lengths. Screw fix each track length with 10g x 16mm wafer head screws at 600mm maximum centres and at each end.
- Install SHAFTLINER panels, Partiwall studs and clips as per level below. **Partiwall studs must align with studs below.**



### Step 9: At roof

- Measure and cut SHAFTLINER panels and Partiwall studs to pitch of roof.
- Allow 25mm gap at top of SHAFTLINER panels for frame shrinkage and roof movement in pitched roof, flat metal roof, parapet and box gutter applications.
- Fix Partiwall track on rake and fix Partiwall studs to roof frame on one side with Partiwall aluminium clips.
- Screw fix top and end track junctions with 10g x 16mm Type 'D' drill point wafer head screws.
- Screw-laminate 16mm FIRESTOP to one side of SHAFTLINER with 10g x 40mm Type 'L' laminating screws at 400mm max centres (both directions) and nom 10mm from edges. Plasterboard joints do not need to be set with compounds. Ensure joints are tight.
- Screw fix Partiwall aluminium clips through 16mm FIRESTOP into Partiwall studs and end tracks and fix Partiwall aluminium clips to timber frame.



### Step 10: Seal for fire

- Install continuous USG Boral Firepack® mineral fibre packer at external wall junctions (brick veneer construction only) and under roofing.
- Fill cavities between roof battens with compressed USG Boral Firepack mineral fibre packer.



# INSTALLATION DETAILS

Figure 6: Concrete/Masonry Base Details - FRL 60/60/60

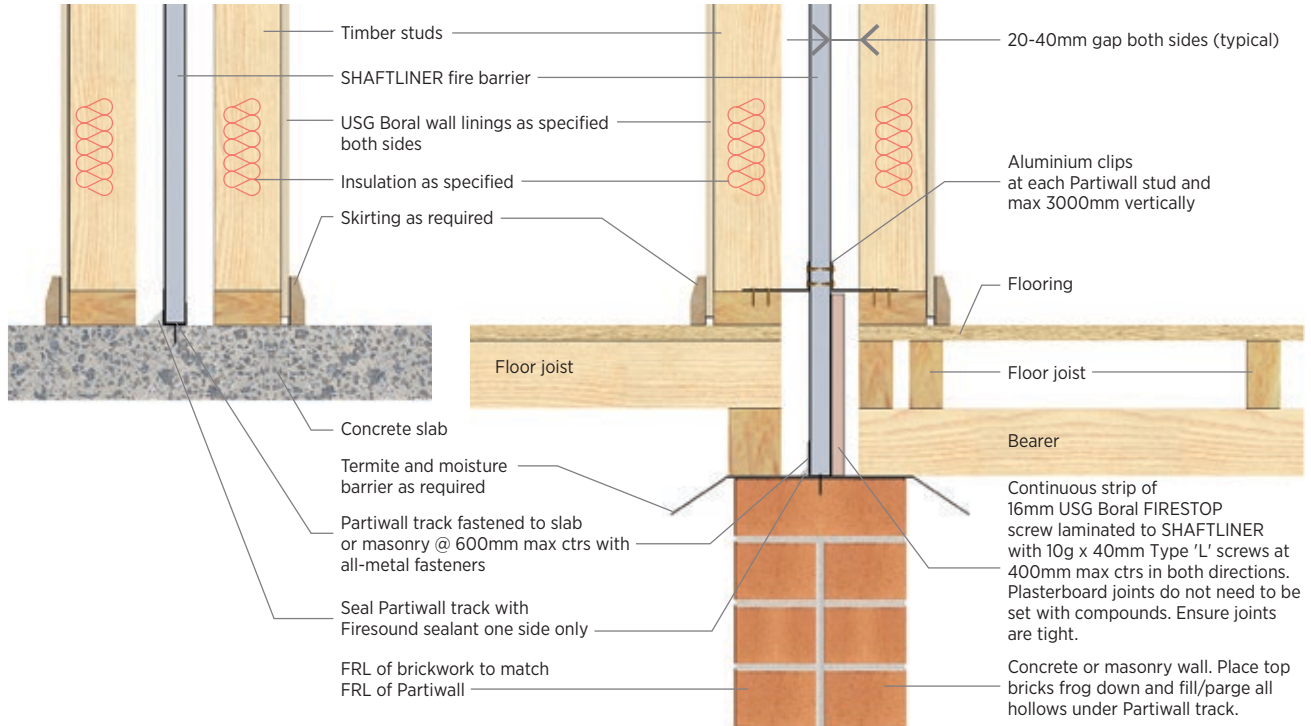
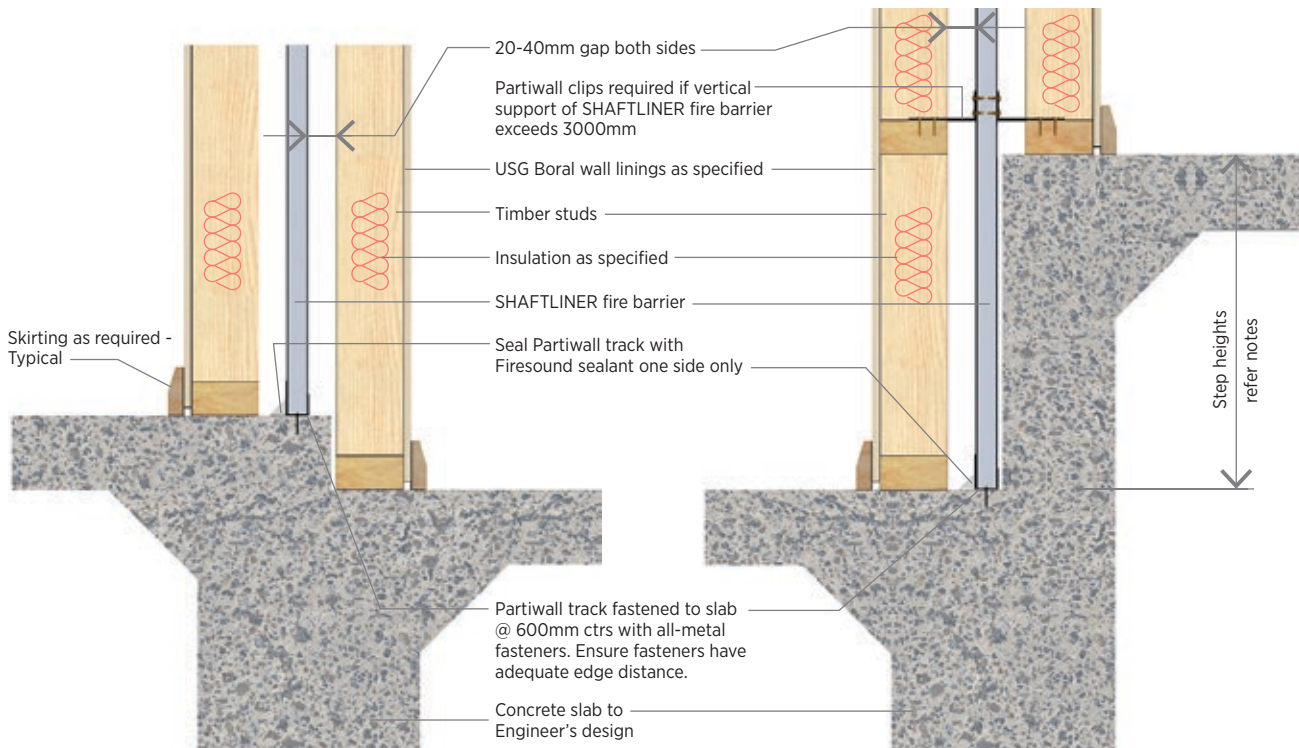


Figure 7: Step in Slab Details - FRL 60/60/60



**Note:**  
Vertical support of SHAFTLINER™ fire barrier must not exceed 3000mm in any case.

Figure 8: Pitched Roof - Wall/Roof Junction Detail - FRL 60/60/60

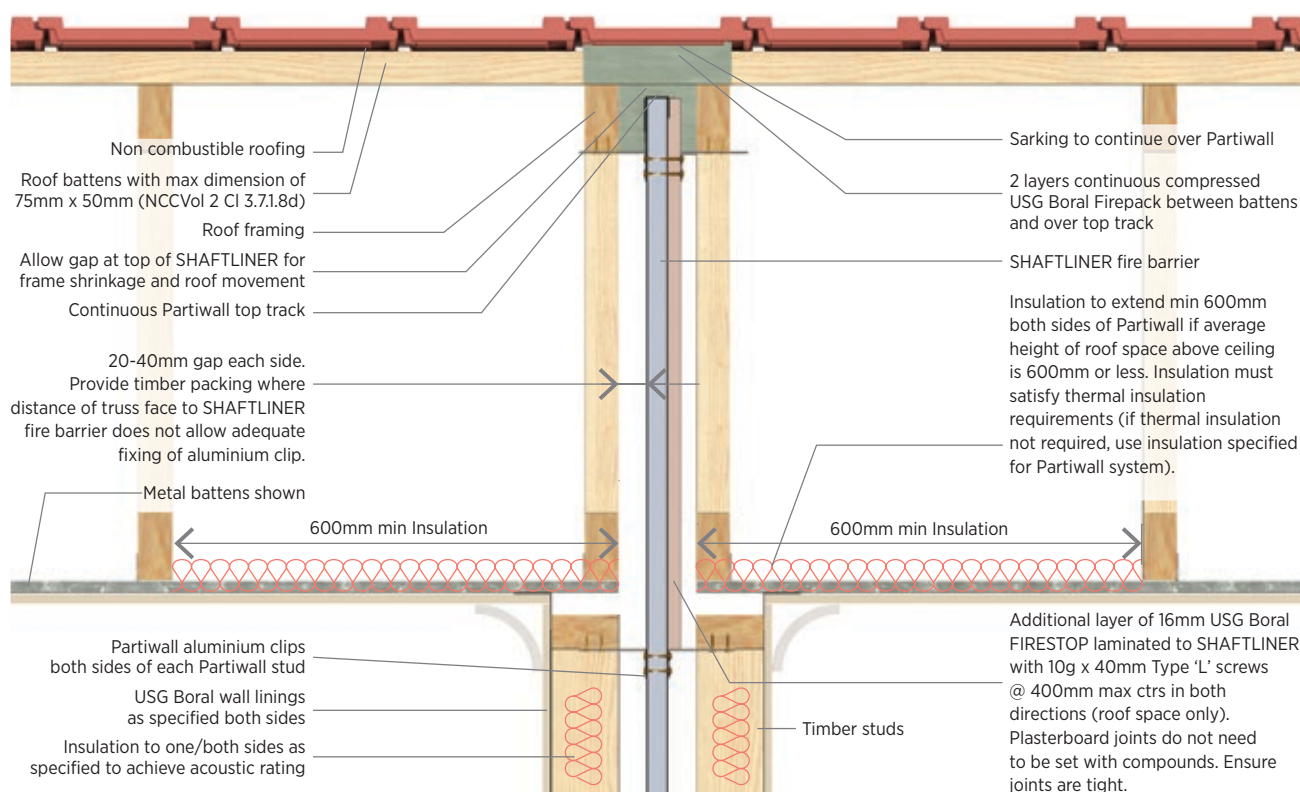
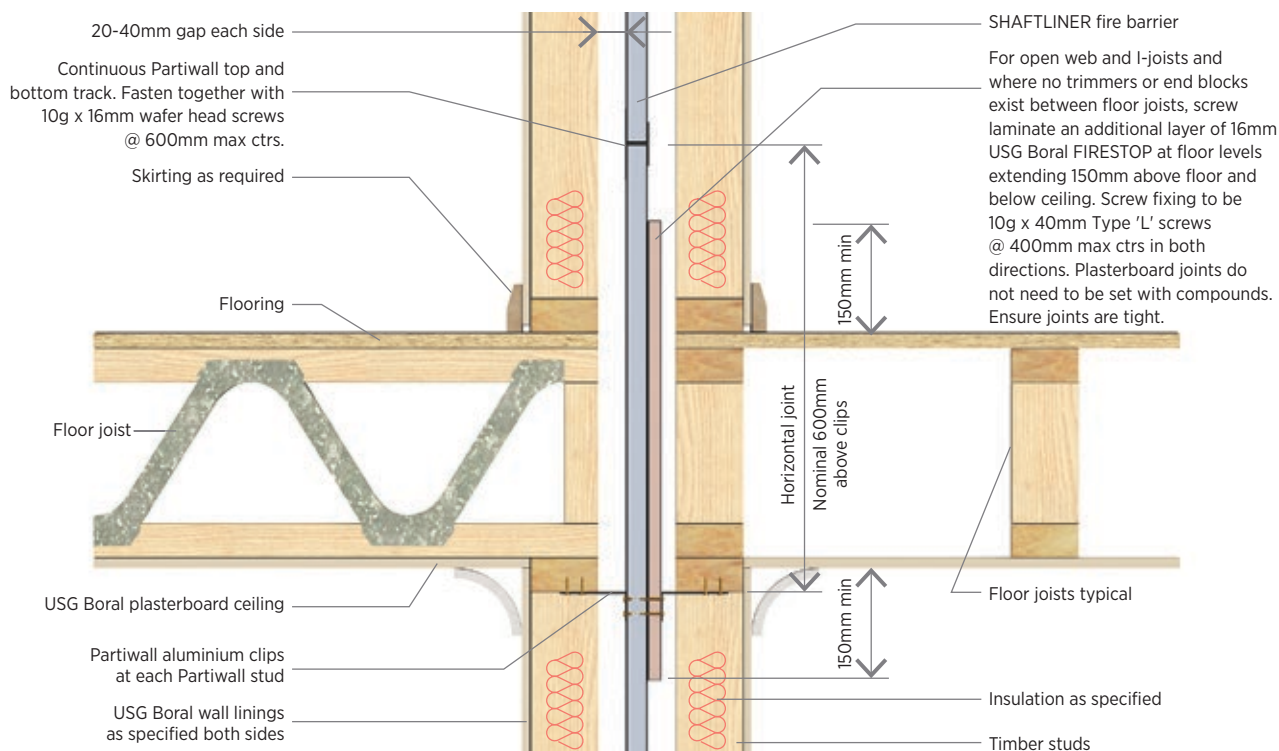


Figure 9: Floor/Wall Junction Detail 1 - FRL 60/60/60



**Note:**

1. Floors may be staggered to meet design requirements (refer Figure 10 for details).
2. Floor joists can be of any type and can run parallel or perpendicular to SHAFTLINER™ fire barrier.

# INSTALLATION DETAILS

Figure 10: **Staggered Floors - SHAFTLINER™ Horizontal Joint Treatment - FRL 60/60/60**

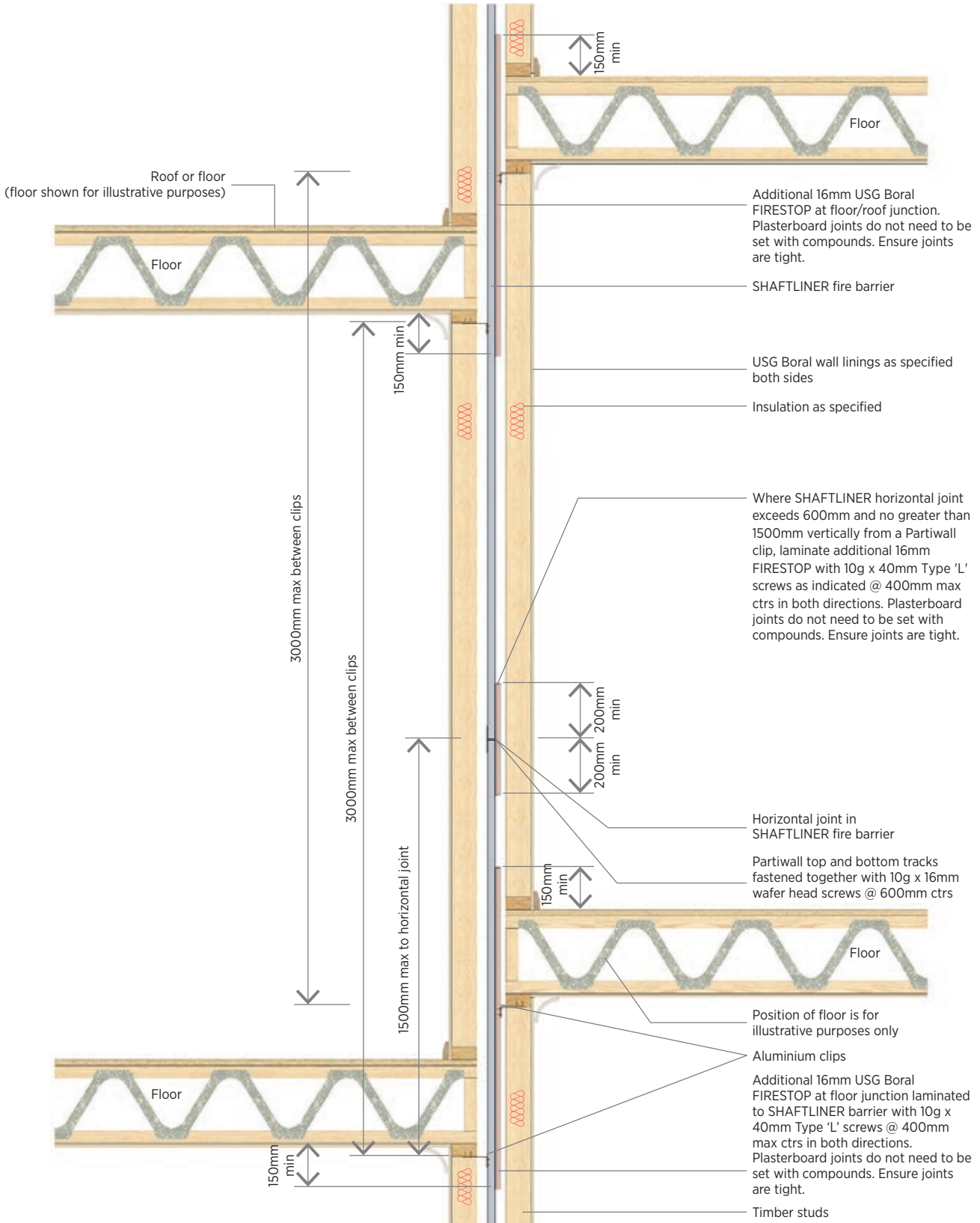




Figure 11: Roof Parapet Junction Detail - FRL 60/60/60

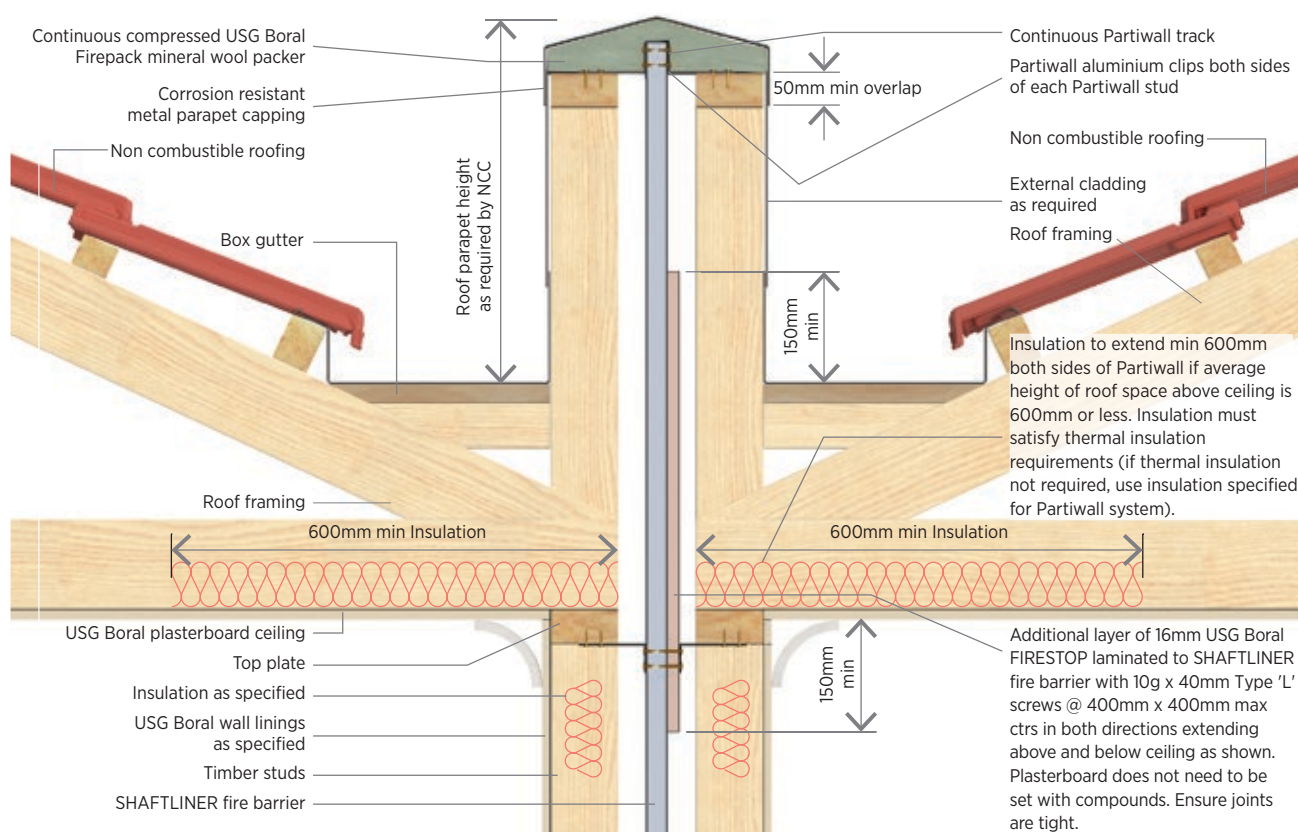
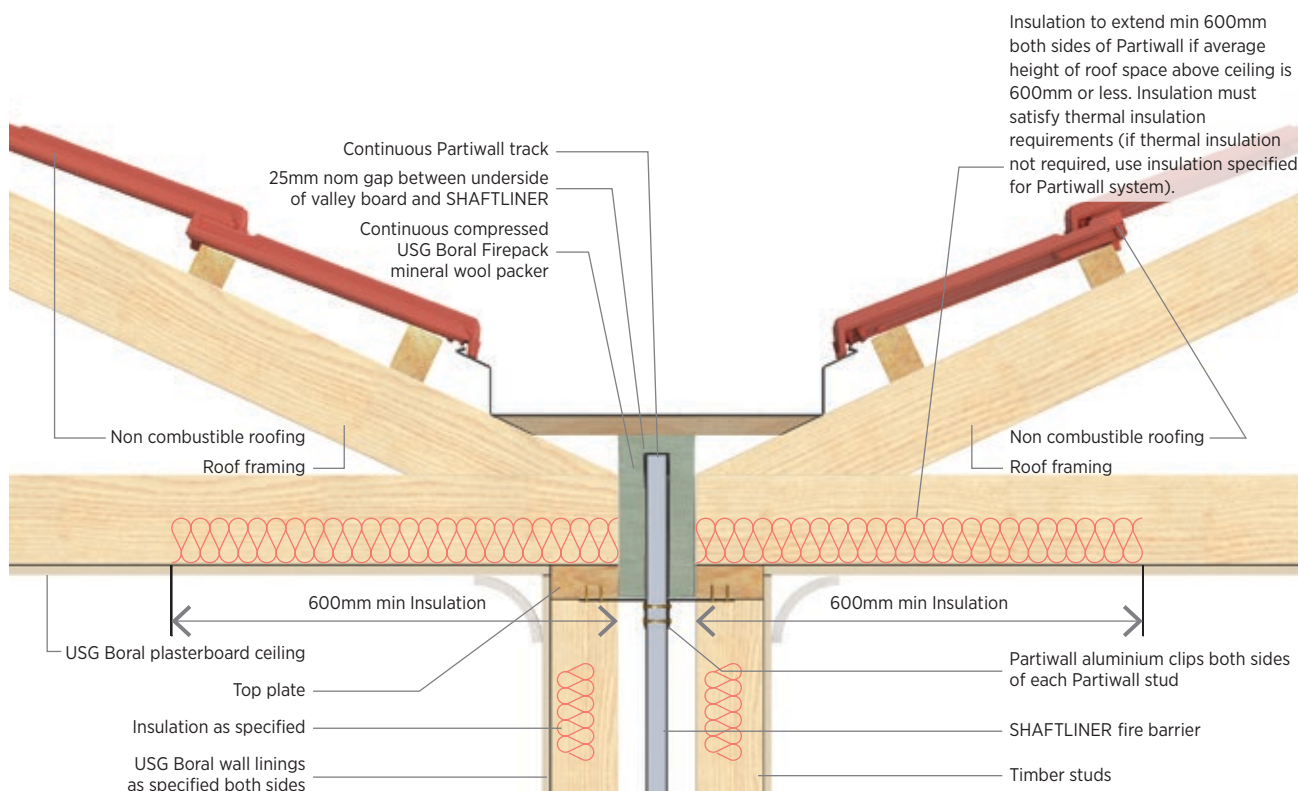


Figure 12: Box Gutter Detail - FRL 60/60/60



# INSTALLATION DETAILS

Figure 13: **Outerwall Vertical Transition Detail - FRL 60/60/60**

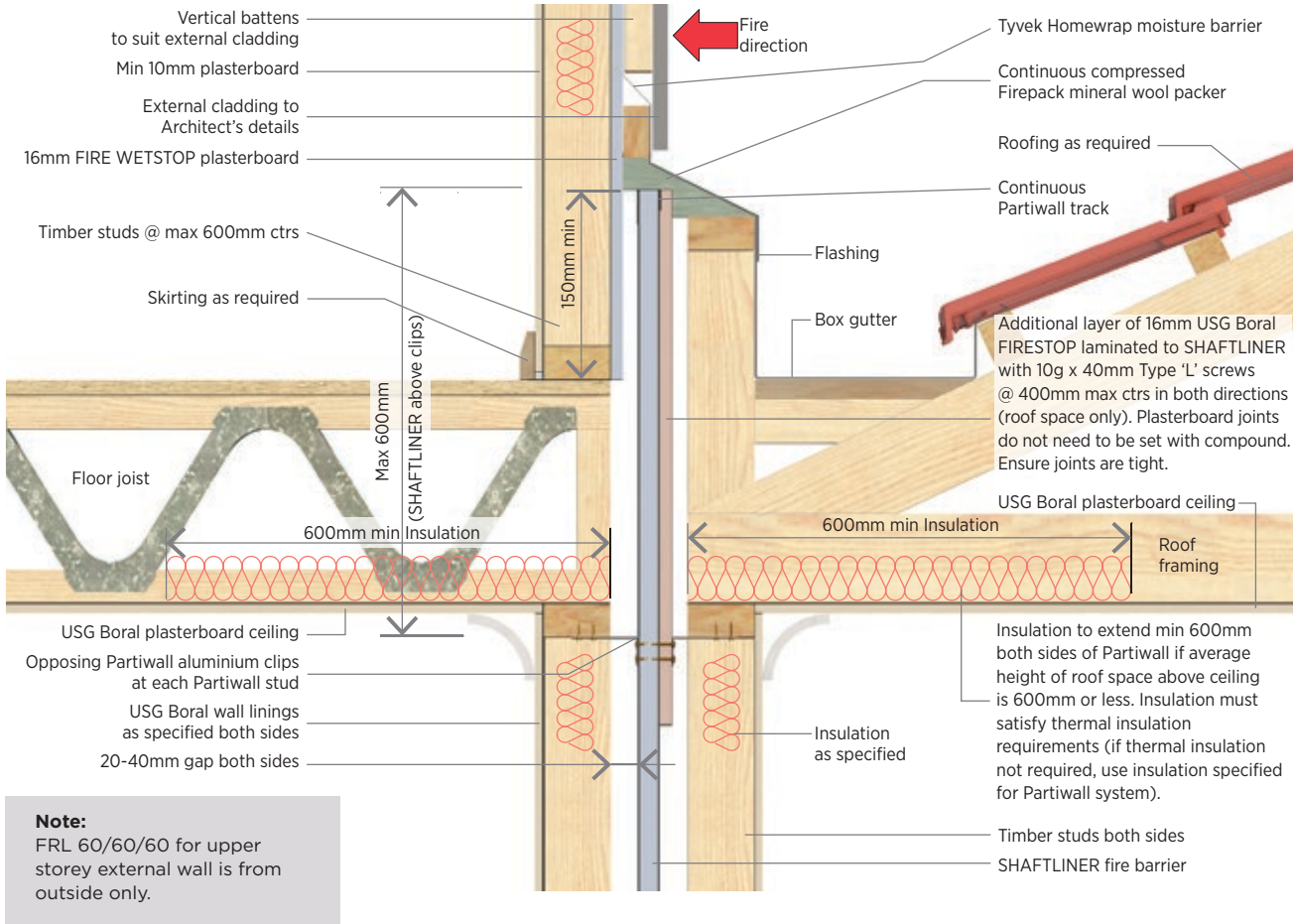


Figure 14: **Flat Roof - Wall/Roof Junction Detail - FRL 60/60/60**

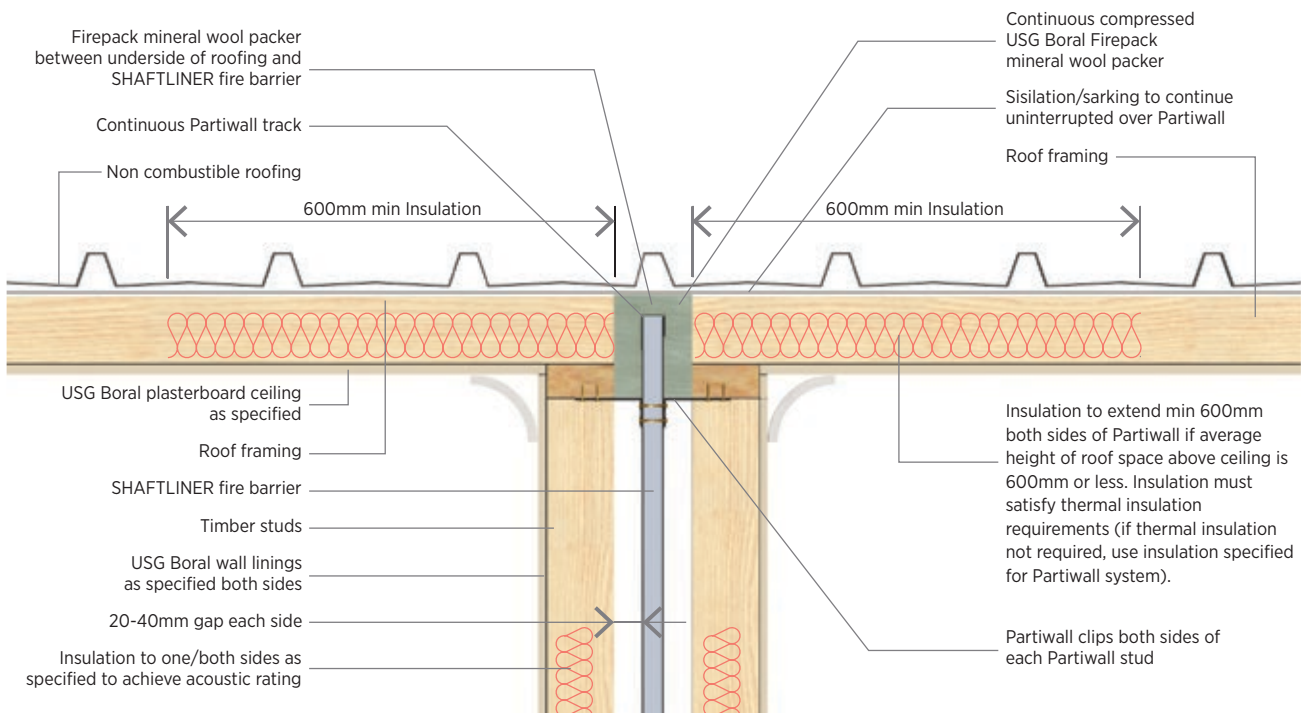
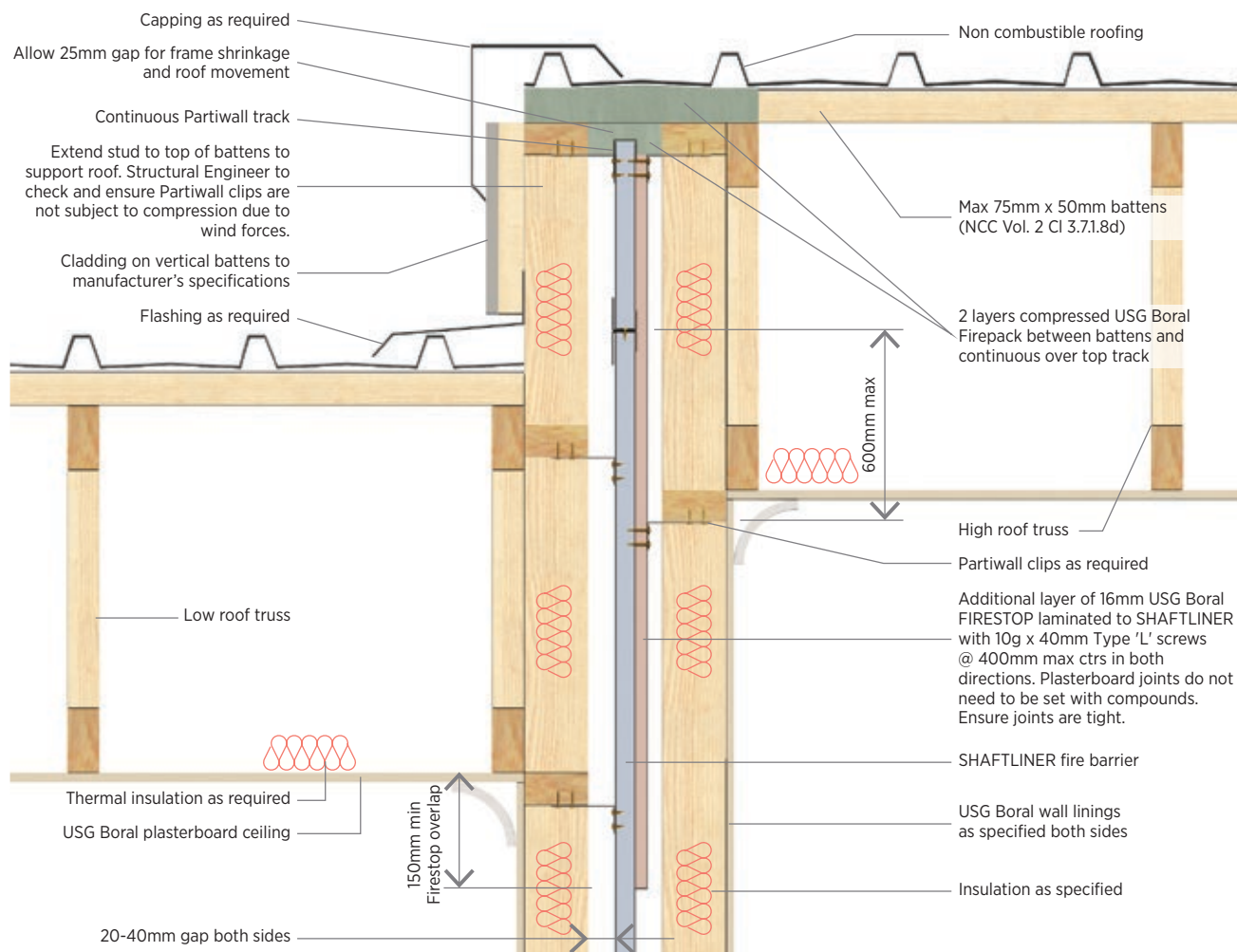




Figure 15: Staggered Roof Detail - Metal Roof - FRL 60/60/60



# INSTALLATION DETAILS

Figure 16: Eave Closure Detail - FRL 60/60/60

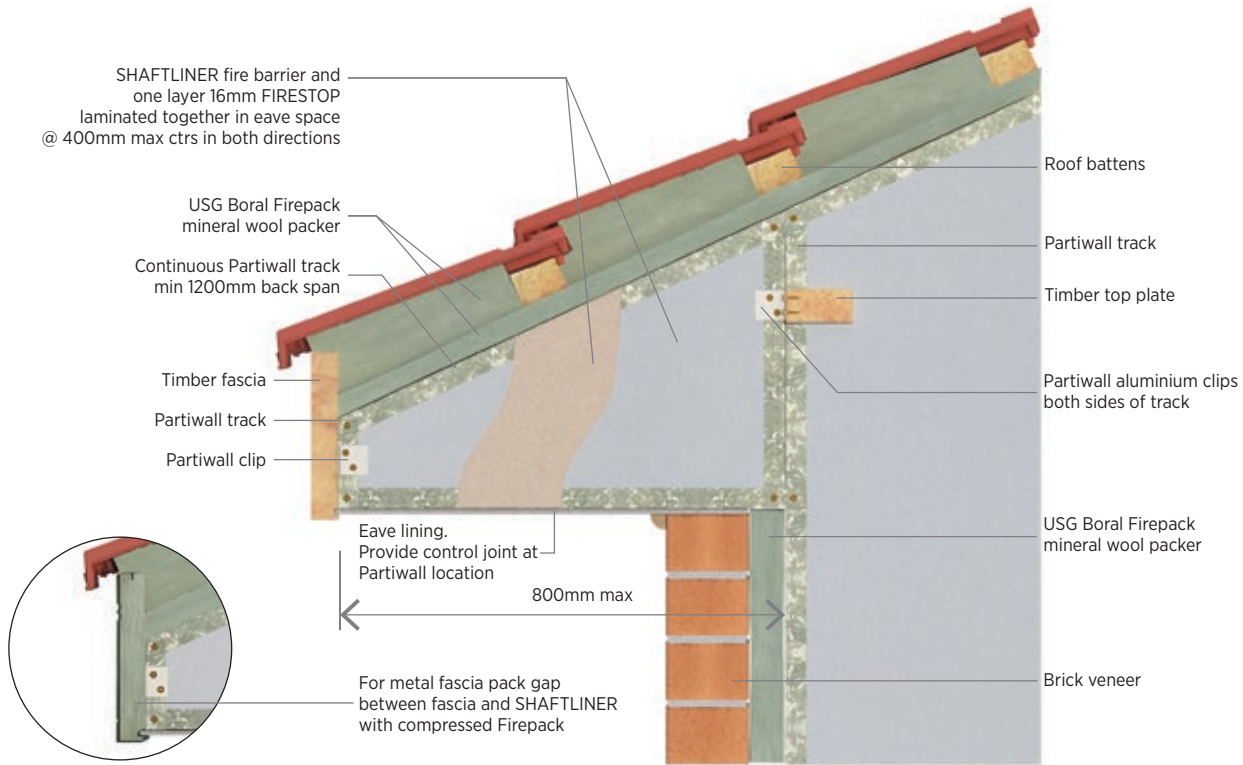


Figure 17: Horizontal SHAFTLINER™ Under Roof

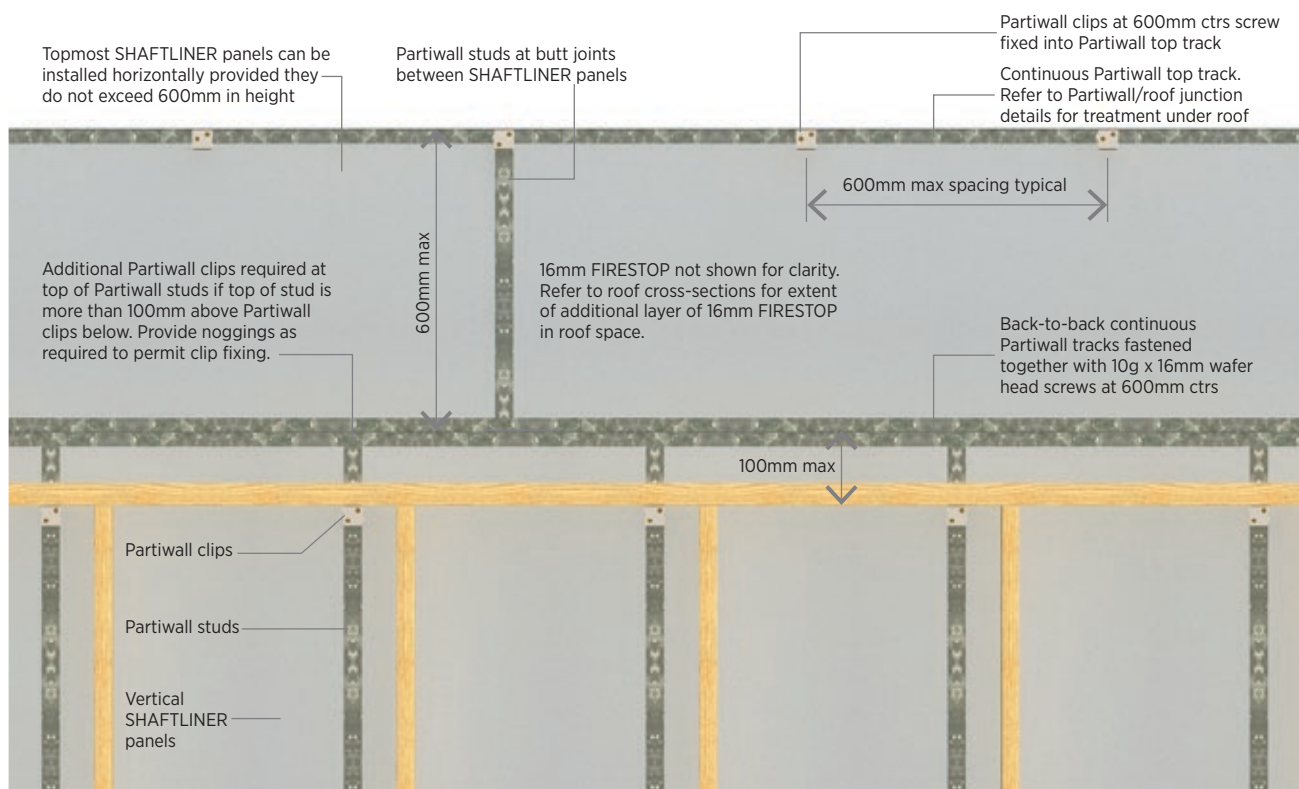


Figure 18: Typical Corner - Plan Detail - FRL 60/60/60

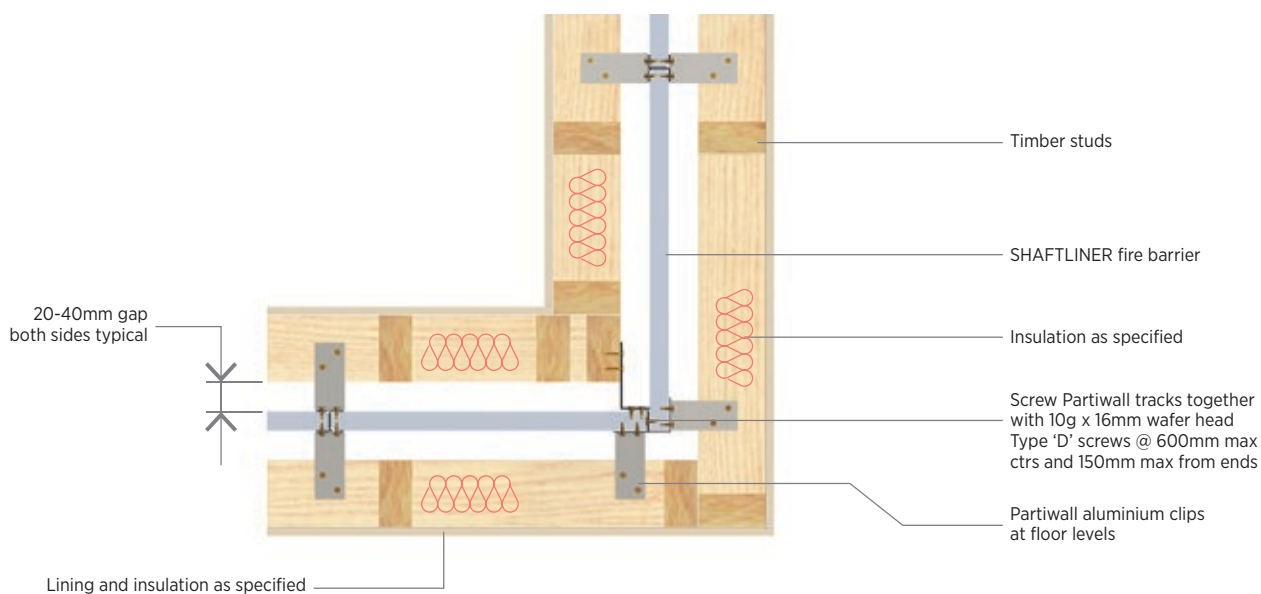
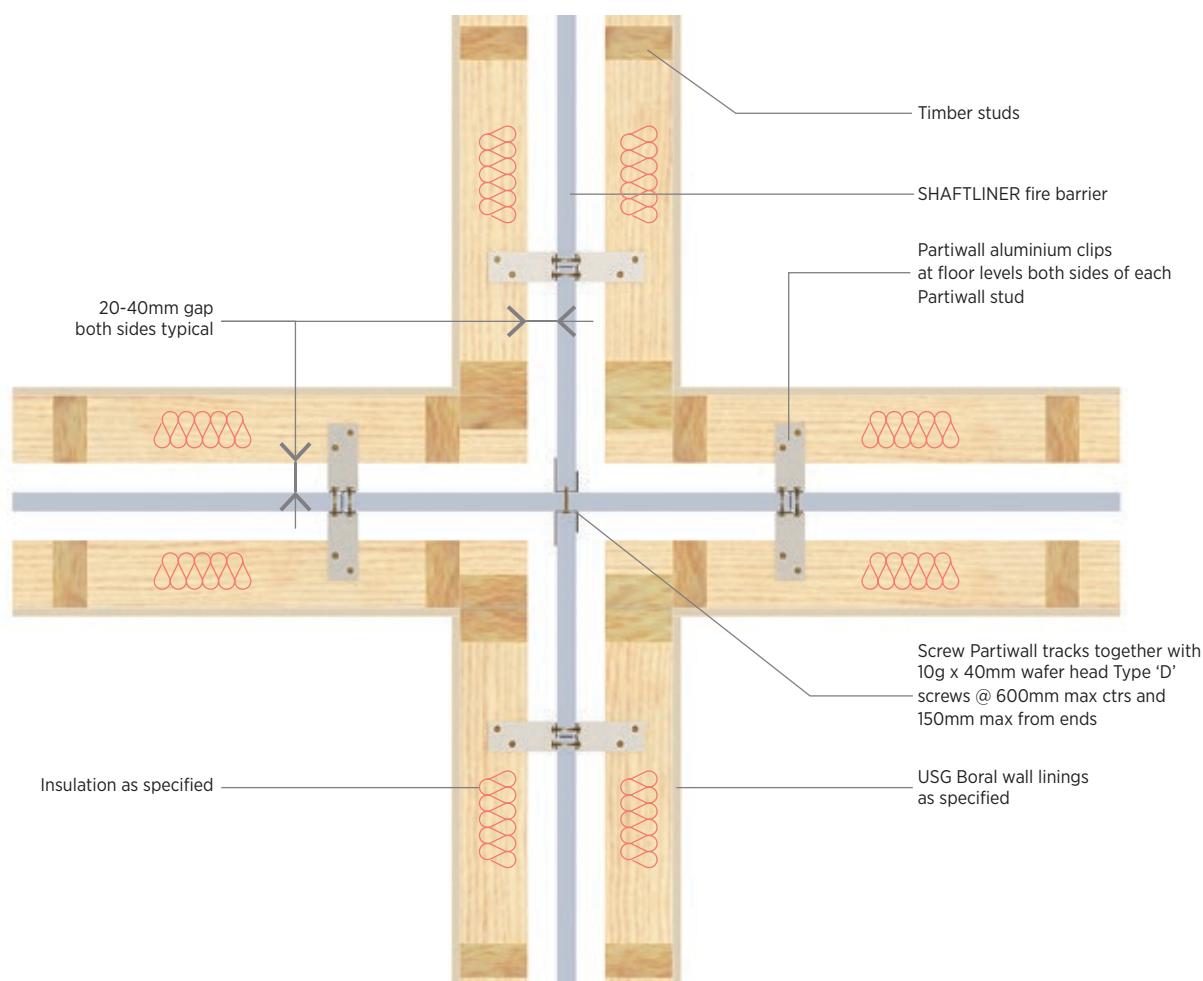


Figure 19: 4-Way Intersecting Wall - Plan Detail - FRL 60/60/60



# INSTALLATION DETAILS

Figure 20: Internal Wall/Partition Junction Detail - FRL 60/60/60

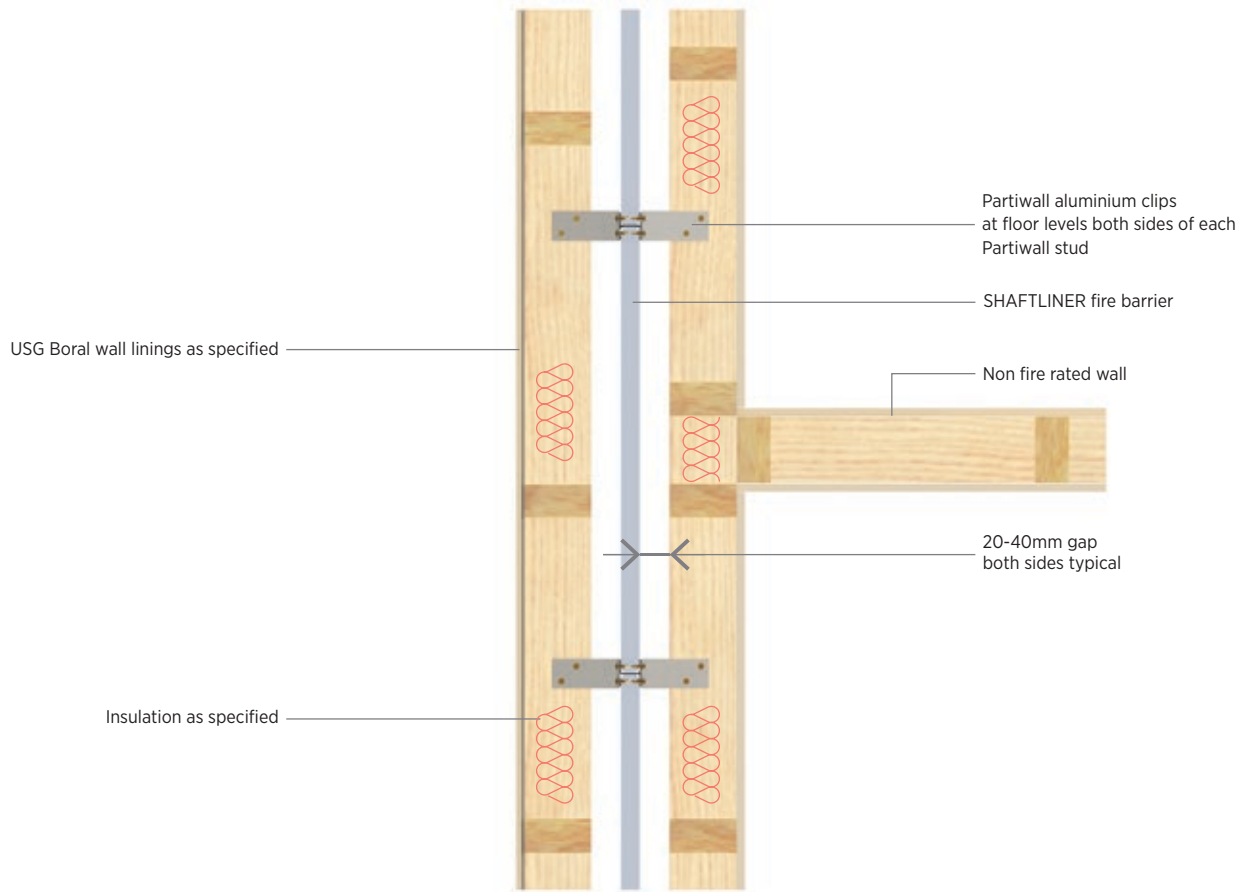


Figure 21: External to Internal Partiwall® Detail - FRL 60/60/60

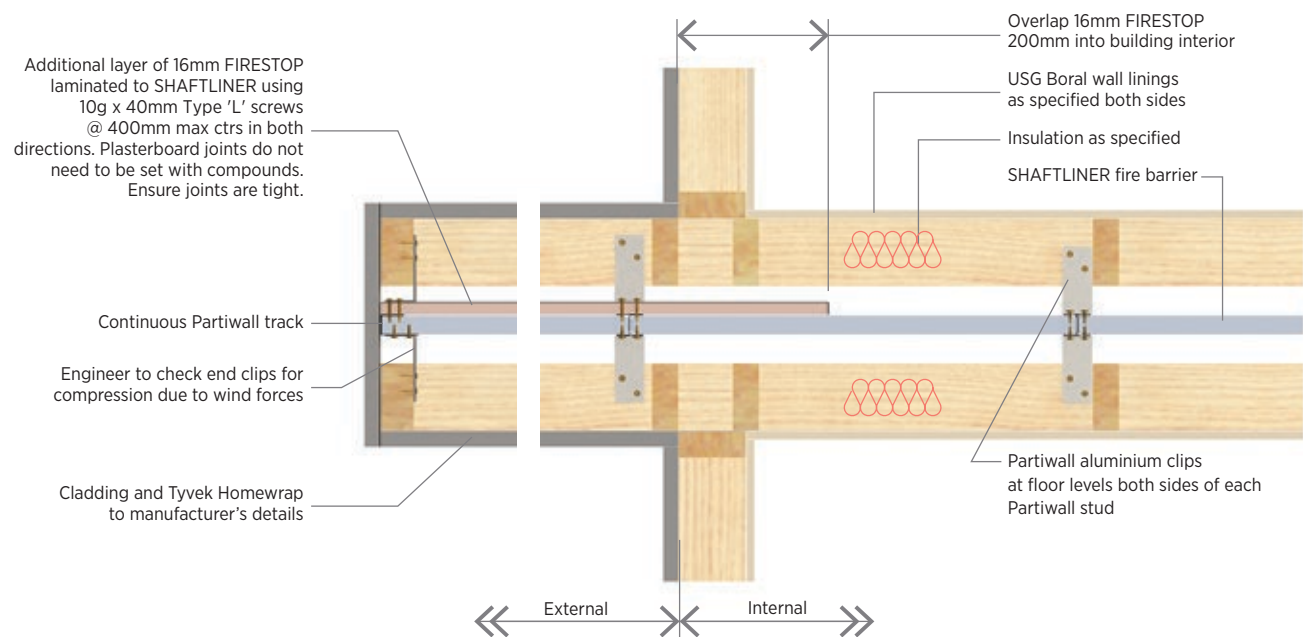


Figure 22: Clad Wall Junction Detail - FRL 60/60/60

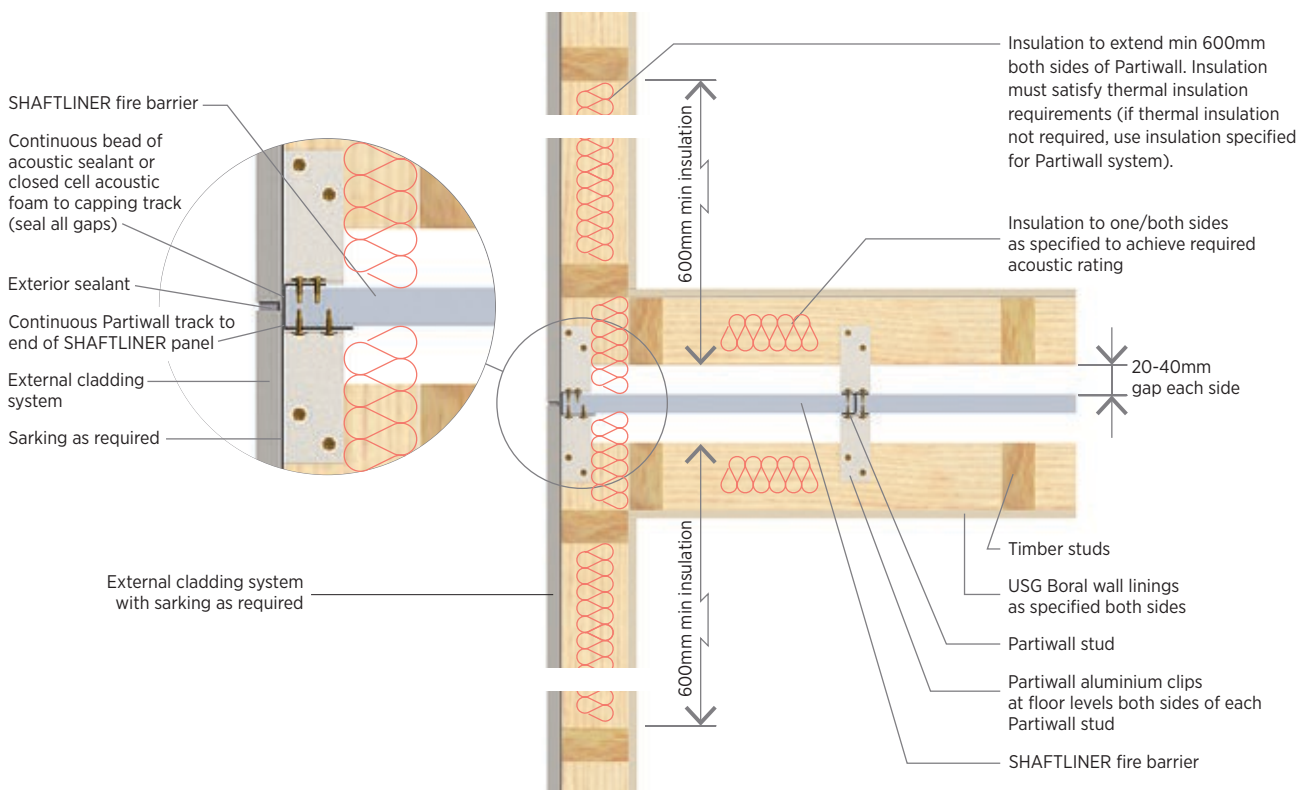
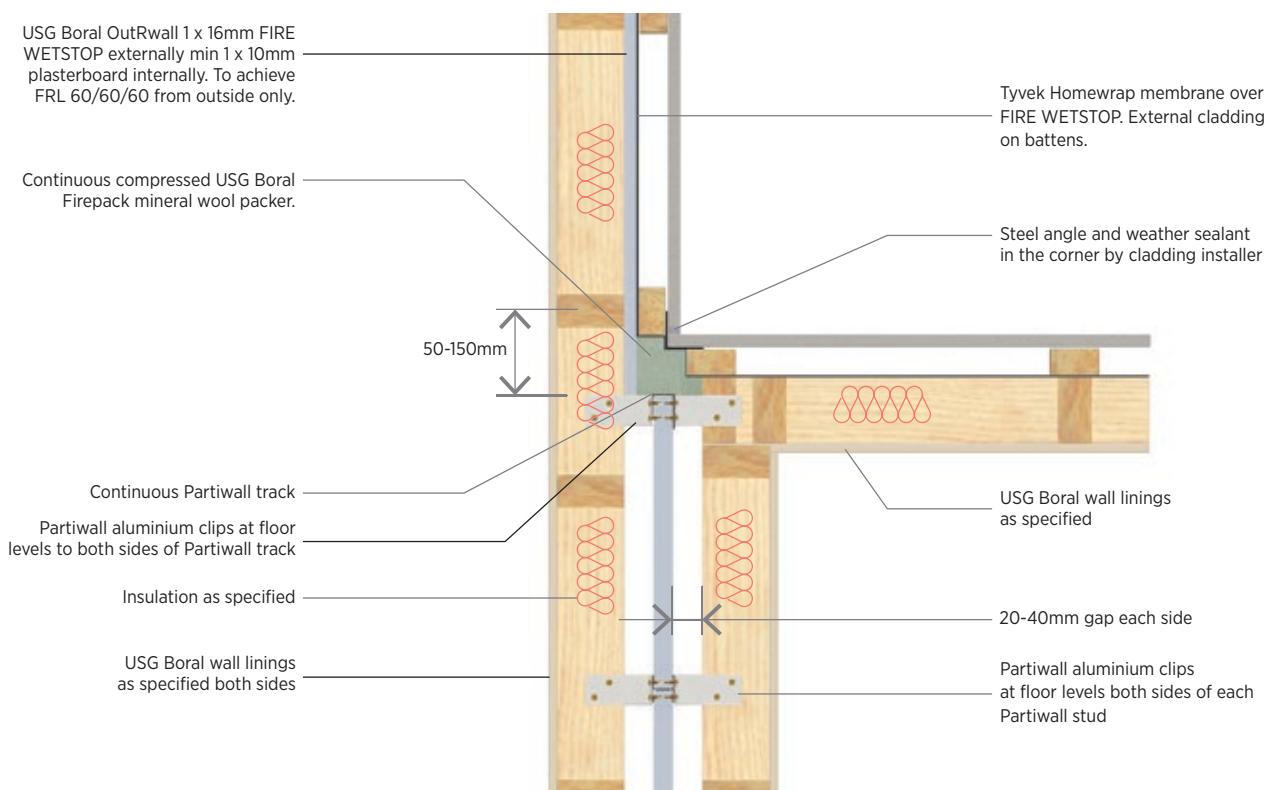


Figure 23: Partiwall® to OutRwall® Plan Detail - FRL 60/60/60





# INSTALLATION DETAILS

Figure 24: Brick Veneer Wall Junction Detail 1 – FRL 60/60/60

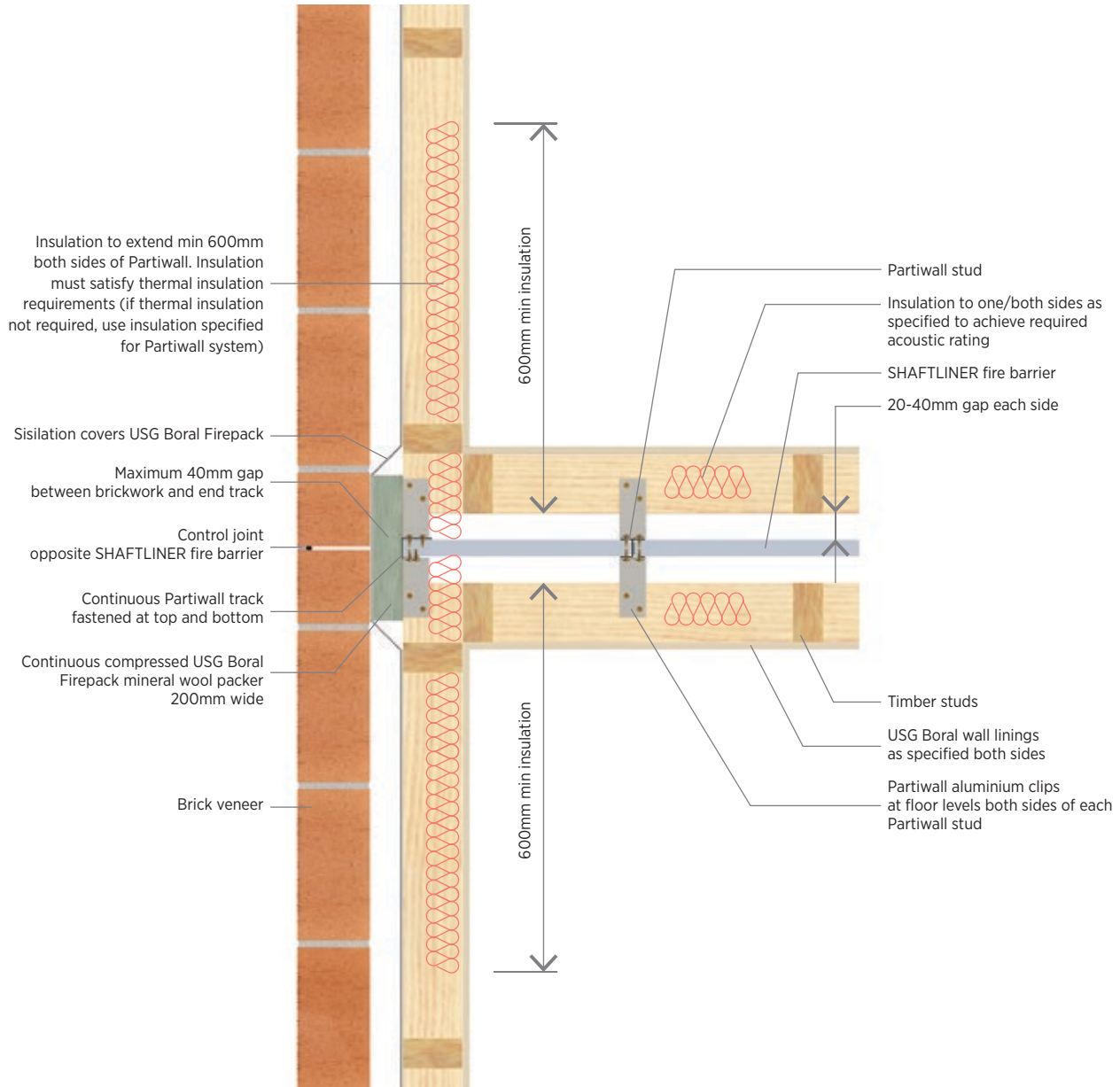
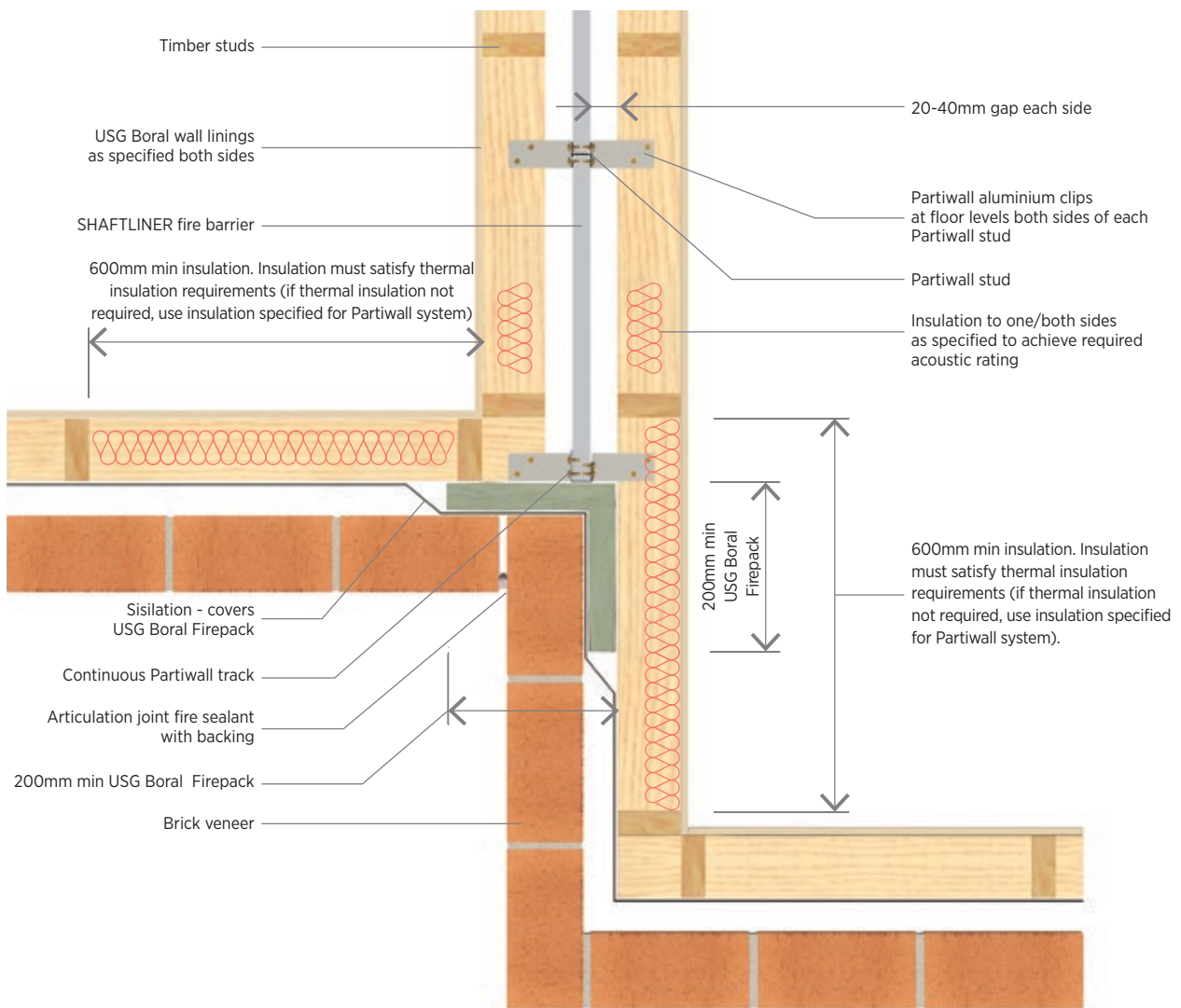
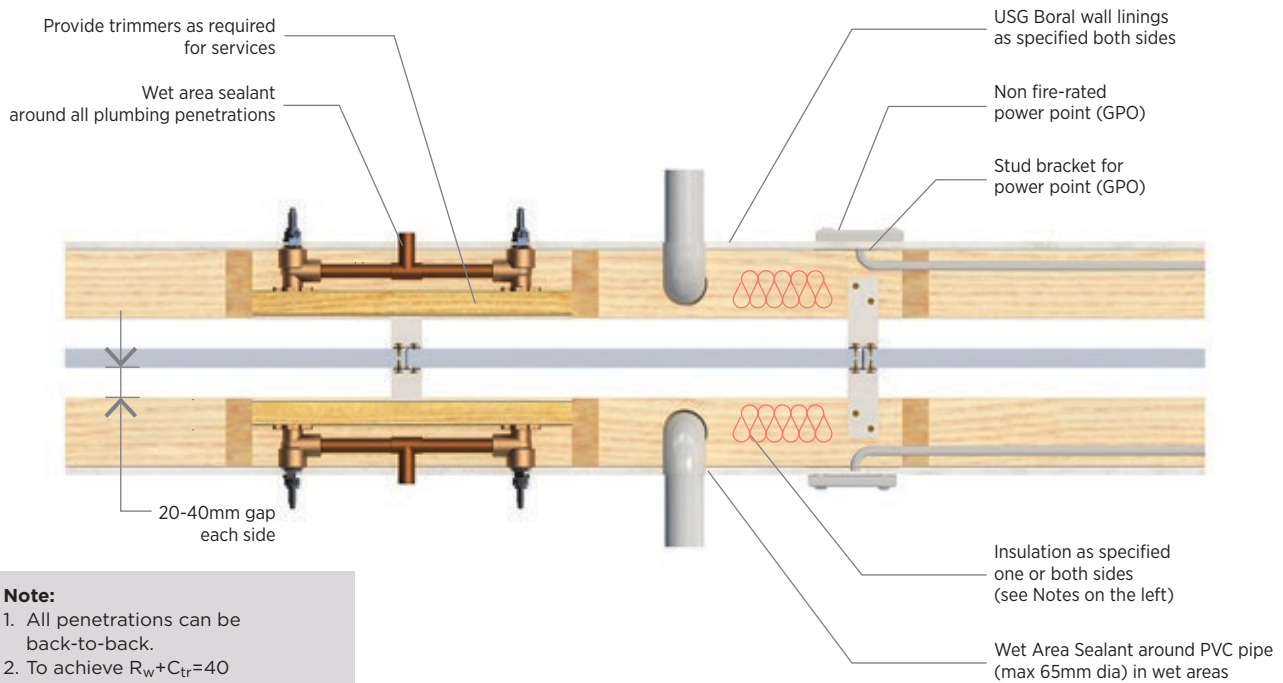


Figure 25: Brick Veneer Wall Junction Detail 2 - FRL 60/60/60



# INSTALLATION DETAILS

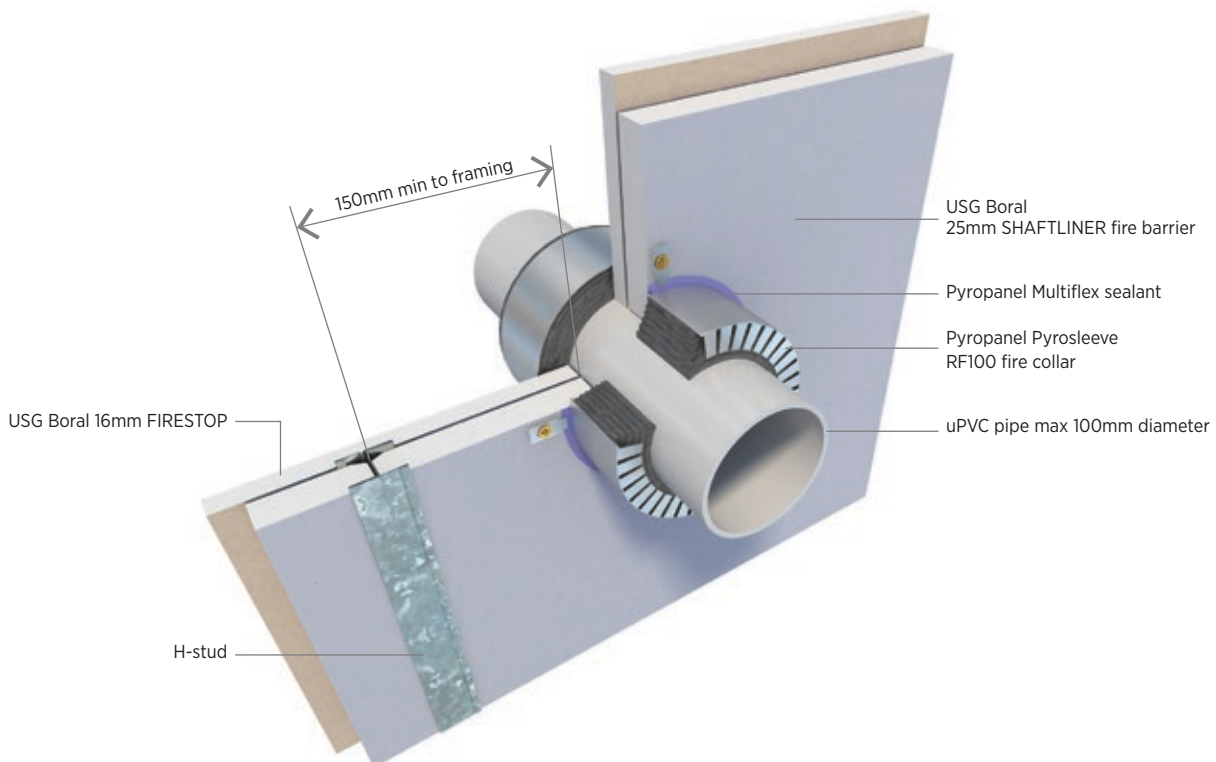
Figure 26: Wall Penetrations - Plan Detail - FRL 60/60/60



**Note:**

1. All penetrations can be back-to-back.
2. To achieve  $R_w + C_{tr} = 40$  services separation insulation is required in the wall cavity on the opposite side of the soil/waste/water supply pipe.

Figure 27: uPVC Pipe Penetration at Roof Space - FRL 60/60/60



**Note:**

Services penetrations through SHAFTLINER fire barrier should be approved by Building Surveyor/Certifier prior to installation.

Figure 28: Copper Pipe Penetrations at Roof Space - FRL 60/60/60

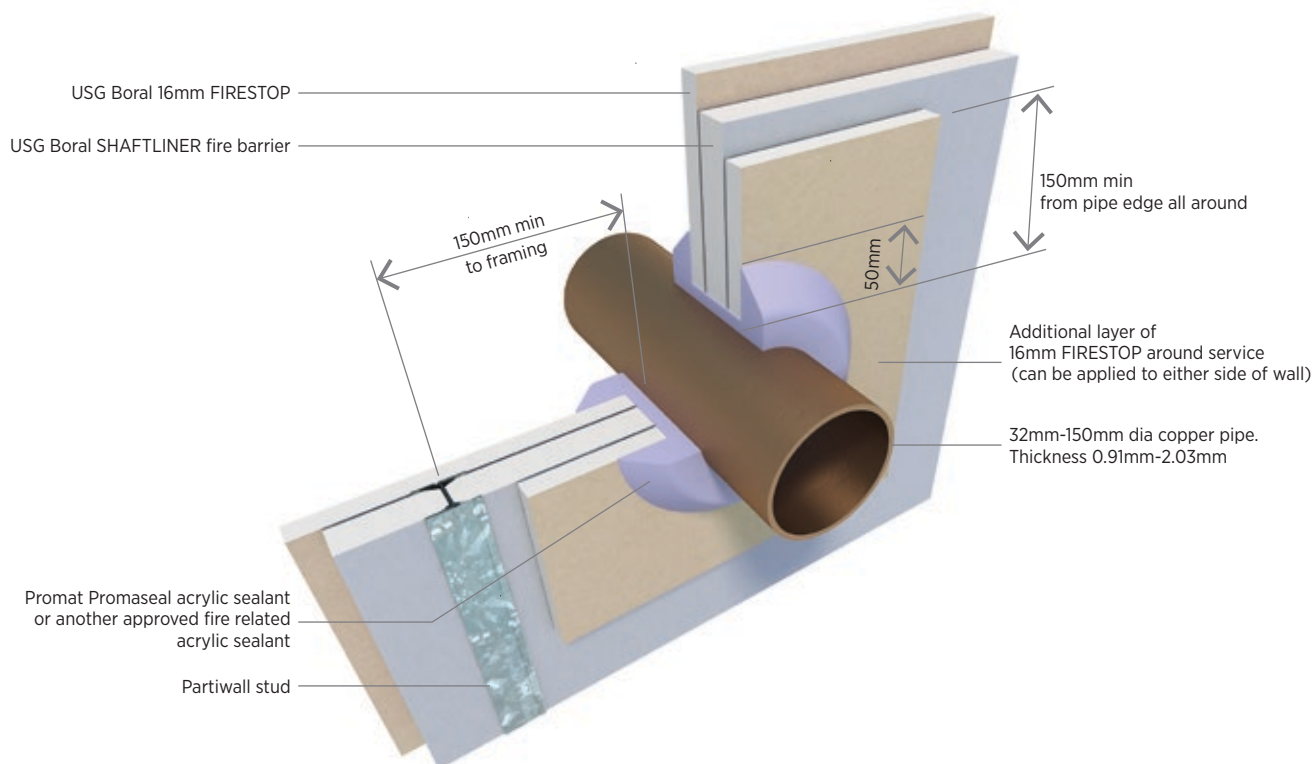
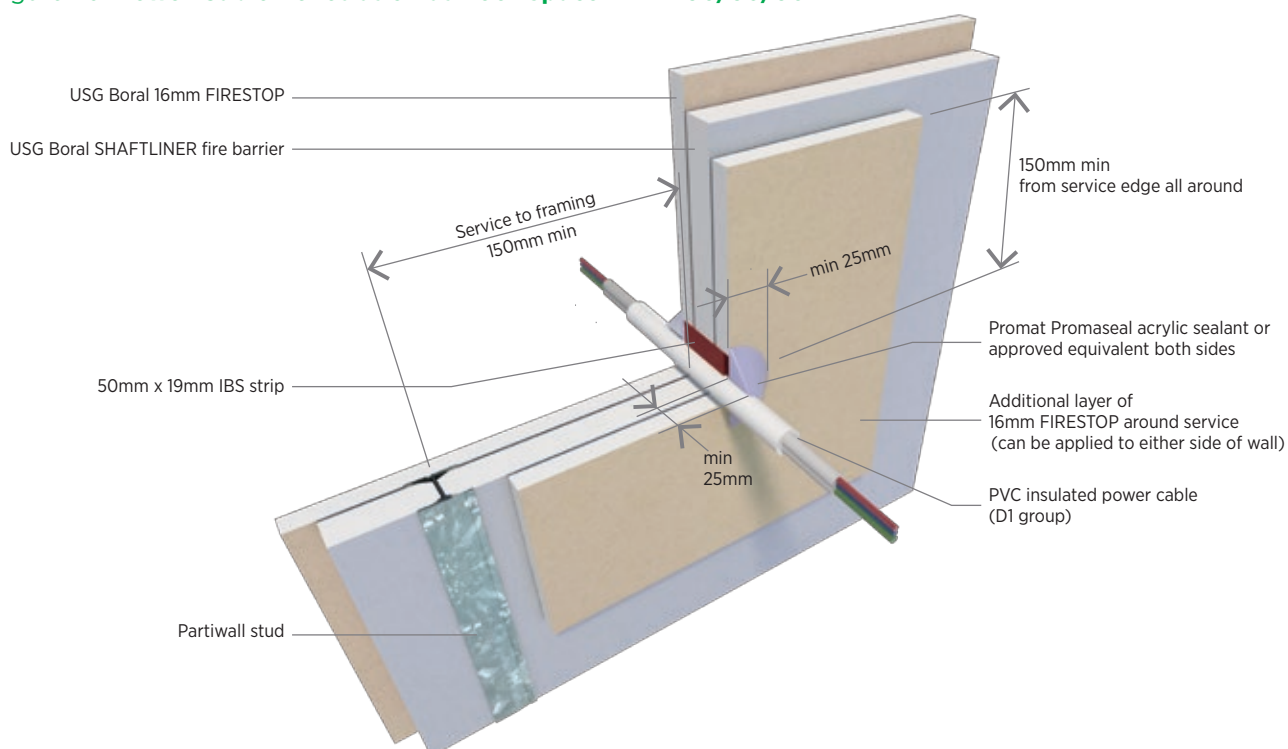


Figure 29: Power Cable Penetration at Roof Space - FRL 60/60/60

**Note:**

Services penetrations through SHAFTLINER fire barrier should be approved by Building Surveyor/Certifier prior to installation.

## PRODUCT INFORMATION

See USGBoral.com for the most up-to-date product information.

## SALES ENQUIRIES

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There are many variables that can influence construction projects, which affect whether a particular construction technique is appropriate. Before proceeding with any project, we recommend you obtain professional advice to ascertain the appropriate construction techniques to suit the particular circumstances of your project. We recommend you use qualified tradespersons to install this system.

The technical information contained in this manual was correct at the time of printing. Building systems, details and product availability are, however, subject to change. To ensure the information you are using is current, USG Boral recommends you review the latest building information available on the USG Boral website.

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