PARTIWALL®
INSTALLATION MANUAL

Separating walls for Class 1a buildings Steel Framed

CONTENTS

Cover photo courtesy of Metricon Homes

GENERAL INFORMATION

Introduction

The pioneering system of its kind in Australia, Knauf 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 make PARTIWALL the system of choice for projects ranging from side-by-side duplexes to multi-unit developments.

PARTIWALL is suitable for attached dwellings Class 1a and for top storeys of Class 2 and 3 buildings (subject to Certifier's approval). Contact Knauf TecASSIST™ for advice.

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

Description

PARTIWALL is a twin stud wall system, which incorporates a 25mm SHAFTLINER™ MOULDSTOP plasterboard Fire Barrier within the wall cavity.

PARTIWALL was developed to suit the normal pattern of framed construction and follow-up trades. SHAFTLINER MOULDSTOP panels are held in position by lightweight steel H- or I-section studs attached to steel or timber framing on both sides with aluminium clips. Installation of a SHAFTLINER MOULDSTOP 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 Knauf Plasterboard Installation Manual.

Note:
This manual covers steel framed PARTIWALL systems only. For details of timber framed PARTIWALL system refer to the Knauf Timber Framed PARTIWALL brochure.

Features and Benefits

- No wet trades are required
- Panelised construction of SHAFTLINER MOULDSTOP Fire Barrier permits easy installation at framing stage, with no additional trades required
- Permits easy inclusion of services and penetrations such as switches, power points, light fittings and pipes, without the need for fire proofing
- Internal wall linings are installed at the plastering stage, as per normal construction sequence

Design Options

Knauf 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
PWS60.1	1x25mm SHAFTLINER MOULDSTOP	60/60/60
PWS90.1	1x25mm SHAFTLINER MOULDSTOP + 1x16mm FIRESTOP	90/90/90
PWS90.2^	2x25mm SHAFTLINER MOULDSTOP	90/90/90

^ System PWS90.2 is not covered in this manual. For acoustic performance refer to Knauf Systems+. For construction details contact TecASSIST.

All system types are available with a wide range of outer linings on one or both sides of the wall.

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

All construction details contained in this manual have been certified by the CSIRO assessment report number FCO-3359.

Standards

The following Australasian Standards associated with the PARTIWALL system;

- AS/NZS 2588 Gypsum plasterboard
- AS/NZS 2589 Gypsum linings – Application and finishing
- AS/NZS 1170.2 Structural Design Actions – Wind actions
- AS/NZS 1170.4 Structural Design Actions – Earthquake Actions
- AS 4055 Wind loads for housing
- AS 3999 Bulk thermal insulation – installation
- AS 1397 Steel sheet and strip – hot dipped, zinc coated or aluminium/ zinc coated
- AS 3566 Self-drilling screws for the building and construction industries
- AS/NZS 4600 Cold-formed steel structures
- AS/NZS 5216 Fastenings in concrete
- AS/NZS 1530.4 Methods for fire tests on building materials
- AS/NZS 3837 Method of test for Heat and Smoke Release Rates for Materials and Products using an Oxygen Consumption Calorimeter
- AS 1191 Acoustics – Method for Laboratory Measurement of Airborne Sound Transmission Insulation of Building Elements
- AS/NZS ISO 717.1 Acoustics – Rating of Sound Insulation in Building and of Building Elements, Part 1: Airborne Sound Insulation

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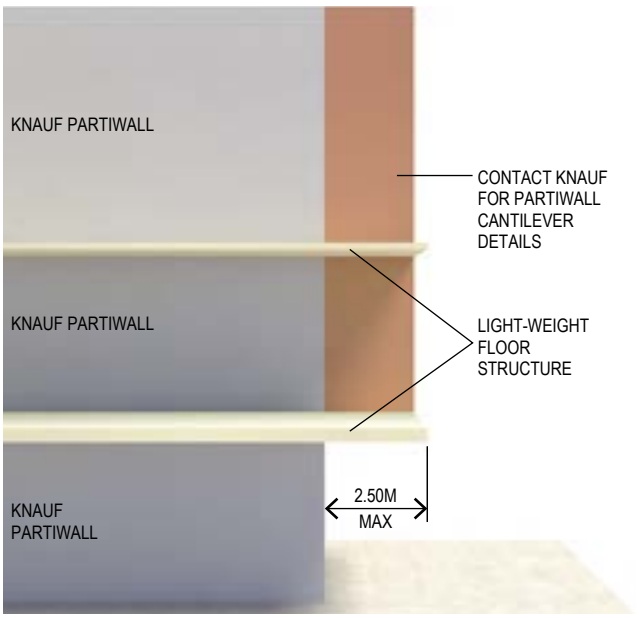
Figure 1: Cantilever PARTIWALL



A cantilever PARTIWALL option is also available for overhanging floors. Refer to Figure 40 or Contact Knauf 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™ MOULDSTOP 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 MOULDSTOP Fire Barrier is not damaged by the collapse of the structure on the fire side, aluminium clips are used to attach the Fire Barrier to the steel frames on both sides. As the clips on the fire side melt, the SHAFTLINER MOULDSTOP 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.

Note:
Steel clips must not be used in the PARTIWALL system as their use will compromise the integrity of the SHAFTLINER MOULDSTOP during the fire.

Figure 2: PARTIWALL Design Concept

Before the fire

During the fire

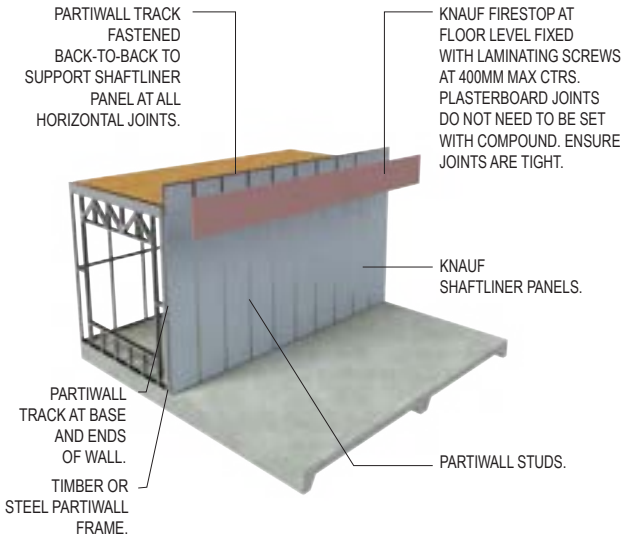
After the fire

GENERAL INFORMATION

Figure 3: PARTIWALL Construction Sequence

Stage 1

- Ground Floor frame installed on one side
- Ground Floor Fire Barrier installed and clipped
- FIRESTOP® plasterboard is fixed at 1st Floor as required

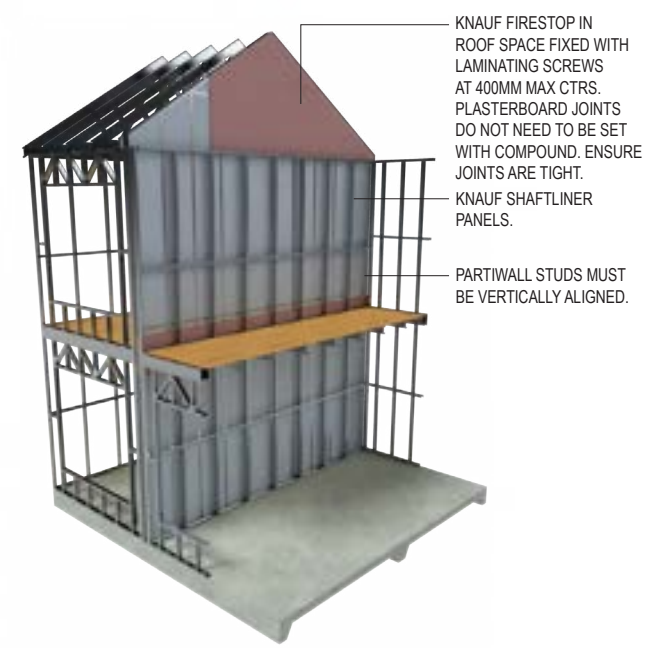


Stage 2

- 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 plasterboard 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 have been assessed in CSIRO's reports: FSV-0381 and FCO-3359 and BRANZ's report FC16905-01-1.

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 the SHAFTLINER™ MOULDSTOP Fire Barrier.

As the primary Fire Barrier (the SHAFTLINER MOULDSTOP 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 MOULDSTOP 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 Knauf TecASSIST

Fire Hazard Properties

Knauf linings have been tested to AS/NZS 3837 – 'Method of test for Heat and Smoke Release Rates for Materials and Products using an Oxygen Consumption Calorimeter', selected in accordance with AS 5637.1 to provide a Group Number Classification in accordance with NCC Specification C1.10.

The Classification and Test Report for each lining can be seen in Table 2.

Table 2: Fire Hazard Properties

Knauf Lining	Average Specific Extinction Area	Group Number	Test Report
13/16mm FIRESTOP®	< 250 m^2/kg	1	FAR 2190
25mm SHAFTLINER MOULDSTOP™	< 250 m^2/kg	1	FH3473
10/13mm SHEETROCK®	< 250 m^2/kg	1	FH 12525-001
10/13mm WETSTOP®	< 250 m^2/kg	1	FAR 2189
10/13mm SOUNDSTOP™	< 250 m^2/kg	1	FH3471

Each lining was also found to have an Average Specific Extinction Area of less than 250 m^2/kg, and hence are suitable for use in buildings not fitted with a sprinkler system.

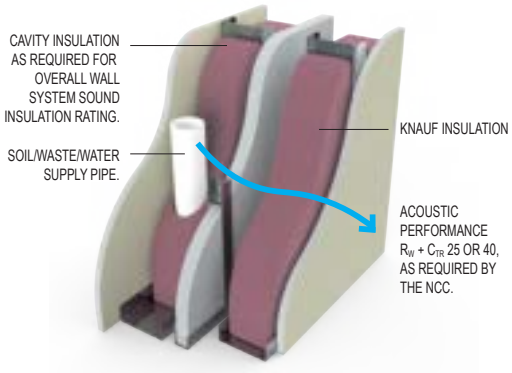
Acoustics

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 TE405-20S06(r2).

PARTIWALL satisfies NCC acoustic provisions for Class 1a buildings of $R_w + C_{tr}$ 50 for separating walls and $R_w + C_{tr}$ 25 and $R_w + C_{tr}$ 40 acoustic separation of adjoining soil and waste pipes within the cavity.

Figure 4: PARTIWALL Services Separation



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. Knauf Insulation must be used within Partiwall system to achieve specified acoustic rating. Insulation thicker than the stud framing is acceptable, but is limited to the cavity size of the system.

PARTIWALL complies with NCC requirements for 'discontinuous construction'.

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 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 of the separating wall Plasterboard Manufacture

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™
- 6mm VILLABOARD® fibre cement

For installation details of Knauf Wet Area Systems refer to the Knauf Plasterboard Installation Manual.

Knauf Wet Area Systems comply with the requirements of AS 3740 and is thus suitable for use in residential buildings and other buildings with a similar usage pattern.

DESIGN CONSIDERATIONS

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

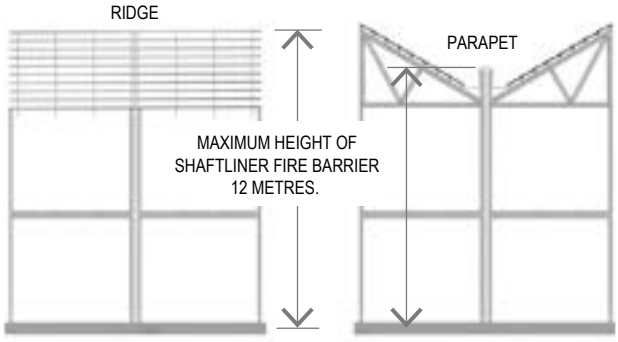
- Use only the specified PARTIWALL aluminium clips to attach the PARTIWALL H-studs to steel framing members. In the event of a fire, aluminium clips are designed to melt to allow the steel framing on the fire side to fall away leaving the SHAFTLINER MOULDSTOP Fire Barrier intact.
- Other than the clips, there should be no attachments to the SHAFTLINER MOULDSTOP Fire Barrier.
- There should be no penetrations through the SHAFTLINER MOULDSTOP Fire Barrier apart from approved penetrations in the roof space.
- SHAFTLINER MOULDSTOP Fire Barrier base must be sealed with Firesound sealant.
- To maintain acoustic performance, service pipes must not be in contact with the SHAFTLINER MOULDSTOP Fire Barrier. All services should be run through the framing.
- The clear distance between the SHAFTLINER MOULDSTOP 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 MOULDSTOP Fire Barrier should not come into contact with wall or floor framing. It is recommended that the gap between SHAFTLINER MOULDSTOP Fire Barrier and steel framing be increased to a minimum 25mm on the FIRESTOP side to ensure adequate clearance.
- Knauf Insulation must be used to achieve the specified system performance.

Structural

Maximum Permissible Height

Height of the standard SHAFTLINER™ MOULDSTOP Fire Barrier should not exceed 12 metres:

Figure 5: SHAFTLINER MOULDSTOP Maximum Height



Note:
Heights of up to 15m can be achieved with special detailing. Contact Knauf TecASSIST for further information.

Framing

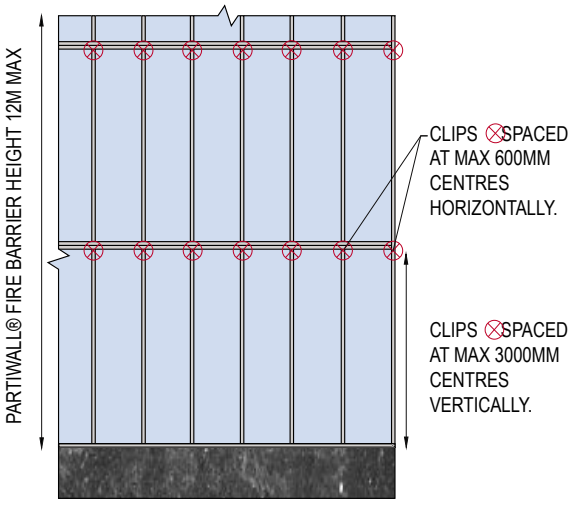
Steel framing must be designed by a suitably qualified Structural Engineer to meet NCC requirements, and in accordance with AS 4600 Cold-formed steel structures and other relevant Australian Standards. Stud spacings must not exceed 600mm centres.

PARTIWALL Clip® Arrangement

Every PARTIWALL stud and end track must be fixed on both sides of the Fire Barrier to the steel framing with PARTIWALL aluminium clips, as per the installation details.

Clips on each side of the SHAFTLINER MOULDSTOP Fire Barrier must be spaced at no more than 3000mm vertically and 600mm horizontally.

Figure 6: Clip arrangement for maximum 12m Fire Barrier Height



3m Shaftliner Mouldstop panels shown in figure.

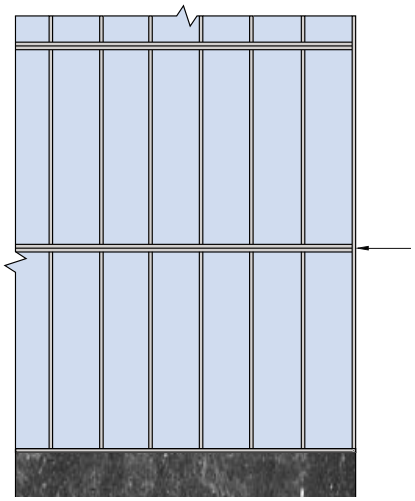
Note:
Where the maximum height of the Shaftliner fire barrier is less than 7.5m a reduction in Partiwall aluminium clips is possible. For clip reduction details and project compliance please contact Knauf TecASSIST.

DESIGN CONSIDERATIONS

PARTIWALL® H-Stud Alignment & Back-To-Back Tracks
Continuous PARTIWALL J tracks must be fixed back-to-back with 10g x 16mm drill point wafer head Type 'D' screws at all SHAFTLINER™ MOULDSTOP horizontal joints.

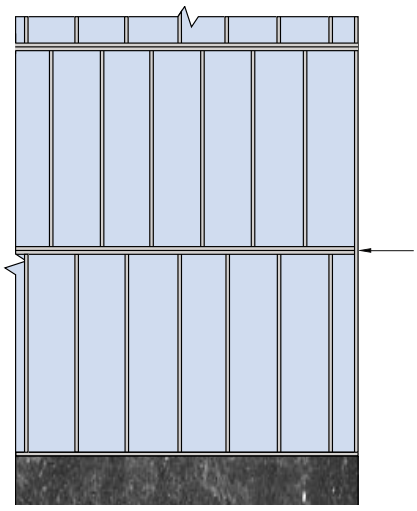
It is recommended that when installing SHAFTLINER MOULDSTOP panels and PARTIWALL studs, that studs above align with studs below. In this case back-to-back J tracks can be fixed at max 600mm centres.

Figure 7: PARTIWALL H-Studs Aligned



If SHAFTLINER MOULDSTOP panels and PARTIWALL studs do not align with the studs below, back-to-back J tracks must be fixed at max 300mm centres.

Figure 8: PARTIWALL H-Studs Staggered



Note:
Partiwall clips must be spaced at no more than 3000mm vertically and 600mm horizontally on both sides of fire barrier regardless of H-stud alignment.

Construction Joints
Where construction joints are necessary in PARTIWALL, contact Knauf 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, Knauf recommends temporary propping of the SHAFTLINER MOULDSTOP Fire Barrier during construction until the building is enclosed.

Propping details are to be designed by a suitably qualified Structural Engineer. When PARTIWALL is proposed in cyclonic areas, contact Knauf for advice.

Seismic
PARTIWALL has been seismically assessed by Lapish Enterprises Ltd report number EL9111C4, in accordance with AS1170.4. It is suitable for use in earthquake zones where the Earthquake Hazard Factor (Z) is 0.12 or less, only if the aluminium support clips are adequately spaced on both sides of the SHAFTLINER MOULDSTOP Fire Barrier as indicated in the details, and when the adjacent framing members have been adequately designed to withstand the project's specific design seismic forces.

The load bearing steel stud framing must be designed by a qualified Structural Engineer and in accordance with AS4600 Cold-formed steel structures, AS1170.4 Earthquake actions in Australia and other relevant Australian Standards.

Concrete Fasteners
Concrete fasteners to be spaced at 600mm max centres. Fasteners must be designed by the Project Engineer in accordance with AS5216 and all other relevant Australian Standards and provisions of the National Construction Code. Fastener manufacturer/supplier to provide compliance documentation to ensure design intent is satisfied.

Note:
- Nylon anchors and drive pins are not acceptable fasteners.
- Suitable fasteners include Rondo CERT-R-FIX or equivalent. Refer Rondo for details.

MATERIALS

SHAFTLINER™ MOULDSTOP Fire Barrier

Materials used in construction of SHAFTLINER™ MOULDSTOP Fire Barrier are listed in the following table:

Table 3: SHAFTLINER MOULDSTOP Fire Barrier Components

Product Image	Item Description	Knauf Item Codes
	25mm SHAFTLINER MOULDSTOP 600 x 3000mm	30000257
	25mm SHAFTLINER MOULDSTOP 600 x 3600mm	30000258
	16mm FIRESTOP 1200 x 2400mm	30000101
PARTIWALL stud 	25mm H-Stud x 3000mm	40001146
	25mm H-Stud x 3600mm	40001147
PARTIWALL track 	25mm J-track x 3000mm	40000054
	25mm J-track x 3600mm	40000055
PARTIWALL clip 	Aluminium clip	40000363
PARTIWALL flat clip 	Flat aluminium clip	40006750

Product Image	Item Description	Knauf Item Codes
	6g x 25mm Type 'S' Steel Screws	40002416
	10g x 40mm Type 'L' Laminating Screws Pkt 1000	40003045
	10g x 16mm Type 'D' Drill Point Wafer Head Screws	40002498
	10g x 30mm Type 'D' Drill Point Wafer Head Screws	40002499
	Knauf Firepack mineral wool packer 5m x 200 x 50mm, Pkt 3	40001857
	Firesound mastic, 450g tube	40002543
	Firesound mastic, 600ml sausage	40002544
	90mm Glasswool Knauf Insulation 11kg/m³ Density	Refer to Knauf
	90mm Glasswool Knauf Insulation 24kg/m³ Density	Refer to Knauf

Note:
PARTIWALL® performance values stated in this manual are based on the use of materials and components listed herein. Material substitution is not permitted and may affect the performance of the PARTIWALL systems.

Occupancy Linings

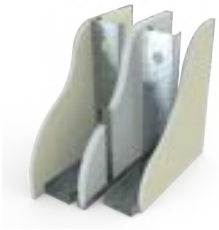
The following linings are typically used in occupancy areas;

- 10mm SHEETROCK® ONE
- 13mm SHEETROCK HD
- 10mm/13mm SOUNDSTOP™
- 10mm/13mm WETSTOP™
- 6mm VILLABOARD® fibre cement

PARTIWALL® SYSTEMS

PWS60.1

FRL
LB **60/60/60**
From both sides



SYSTEM DESCRIPTION

Side 1:
- Non fire resistant lining (refer to table)
- Steel framing
- 20mm min gap between steel frame and Fire Barrier
- Insulation (refer to table)

Fire Barrier:
- 1x25mm SHAFTLINER MOULDSTOP between 25mm H-studs @ 600mm centres

Side 2:
- Non fire resistant lining (refer to table)
- Steel framing
- 20mm min gap between steel framing and Fire Barrier
- Insulation (refer to table).

FRL Basis: FCO-3359				**Acoustic Ratings** RT&A TE405-20S06(r2)		
System	**Lining Side 1**	**Lining Side 2**	**Min Wall Width mm**	**Stud Size (GAP) mm**	**Insulation***	**R_w ($R_w + C_{tr}$)**
PWS60.1A	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	265	70 (40) or 90 (20)	KI 90G11 (both cavities)	63 (50)
PWS60.1B	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	231	70 (20)	KI 90G11 (both cavities)	62 (52)
			271	70 (40) or 90 (20)	KI 90G11 (one cavity only)	58 (50)
PWS60.1C	1x13mm WETSTOP	1x13mm WETSTOP	271	70 (40) or 90 (20)	KI 90G11 (both cavities)	62 (50)
PWS60.1D	1x10mm SOUNDSTOP	1x10mm WETSTOP	265	70 (40) or 90 (20)	KI 90G11 (both cavities)	62 (50)
PWS60.1E	1x13mm SOUNDSTOP	1x10mm WETSTOP	228	70 (20)	KI 90G24 (both cavities)	60 (50)
			268	70 (40) or 90 (20)	KI 90G11 (both cavities)	62 (53)
PWS60.1M	2x10mm WETSTOP	2x10mm WETSTOP	245	70 (20)	KI 90G11 (both cavities)	66 (54)
			285	70 (40) or 90 (20)	KI 90G11 (one cavity only)	62 (52)
PWS60.1X	2x10mm SHEETROCK ONE	2x10mm SHEETROCK ONE	245	70 (20)	KI 90G11 (both cavities)	62 (51)
			285	70 (40) or 90 (20)	KI 90G11 (both cavities)	64 (54)

* KI 90G11 – 90mm glasswool Knauf insulation 11kg/m^3 density.
* KI 90G24 - 90mm glasswool Knauf insulation 24kg/m^3 density

PARTIWALL® SYSTEMS

PWS90.1

FRL
LB **90/90/90**
From both sides

SYSTEM DESCRIPTION

Side 1:
- Non fire-resistant lining (refer to table)
- Steel framing
- 20mm min gap between steel frame and Fire Barrier
- Insulation (refer to table)

Fire Barrier:
- 1x25mm SHAFTLINER™ MOULDSTOP between 25mm H-studs @ 600mm centres + 1x16mm FIRESTOP® laminated to SHAFTLINER MOULDSTOP @ 400mm centres

Side 2:
- Non fire-resistant lining (refer to table)
- Steel framing
- 20mm min gap between steel frame and Fire Barrier
- Insulation (refer to table)

FRL Basis: FC16905-01-1				**Acoustic Ratings** RT&A TE405-20S06(r2)		
System	**Lining Side 1**	**Lining Side 2**	**Min Wall Width mm**	**Stud Size (GAP) mm**	**Insulation***	**R_W ($R_W + C_{tr}$)**
PWS90.1AA	1x13mm SHEETROCK HD	1x13mm SHEETROCK HD	287	70 (40) or 90 (20)	KI 90G11 (both cavities)	69 (55)
PWS90.1AB	1x13mm SHEETROCK HD	1x13mm WETSTOP	287	70 (40) or 90 (20)	KI 90G11 (both cavities)	70 (57)
PWS90.1B	1x10mm SOUNDSTOP	1x10mm SOUNDSTOP	241	70 (20)	KI 90G11 (both cavities)	64 (52)
			281	70 (40) or 90 (20)	KI 90G11 (both cavities)	67 (55)
PWS90.1C	1x13mm SOUNDSTOP	1x13mm SOUNDSTOP	287	70 (20)	KI 90G11 (both cavities)	66 (54)
PWS90.1D	1x10mm WETSTOP	1x10mm WETSTOP	281	70 (40) or 90 (20)	KI 90G11 (both cavities)	64 (51)
PWS90.1F	1x10mm SOUNDSTOP	1x10mm WETSTOP	281	70 (40) or 90 (20)	KI 90G11 (both cavities)	64 (51)
PWS90.1G	1x13mm SOUNDSTOP	1x10mm WETSTOP	244	70 (20)	KI 90G11 (both cavities)	63 (53)
			284	70 (40) or 90 (20)	KI 90G11 (one cavity only)	59 (50)
PWS90.1L	1x6mm VILLABOARD	1x6mm VILLABOARD	273	70 (40) or 90 (20)	KI 90G11 (both cavities)	66 (53)

* KI 90G11 – 90mm glasswool Knauf insulation 11kg/m^3 density.

Note:
PWS90.1 requires additional 16mm FIRESTOP to be laminated at the floor plenum and roof void on the opposite side of the SHAFTLINER MOULDSTOP Fire Barrier, as per the installation procedure.

INSTALLATION OF SHAFTLINER™ MOULDSTOP FIRE BARRIER

Set Out and Fixing

Installation of the SHAFTLINER™ MOULDSTOP Fire Barrier requires the attachment of PARTIWALL® H-studs and end tracks to steel framing members using aluminium clips. Set out the steel framing to allow for the required clearances on both sides of the SHAFTLINER MOULDSTOP Fire Barrier and later fixing of the PARTIWALL clips to wall tracks and roof frame.

After one side of the steel framing has been completed, install the SHAFTLINER MOULDSTOP Fire Barrier and attach it to the completed frame with PARTIWALL aluminium clips. When framing on the other side is completed, attach the SHAFTLINER MOULDSTOP Fire Barrier with PARTIWALL aluminium clips to that side.

The sequence of construction should be planned to accommodate progressive erection of the SHAFTLINER MOULDSTOP Fire Barrier.

Protection from Weather

To prevent damage from the weather, all materials must be suitably protected during construction. Knauf recommends that exposure of the SHAFTLINER MOULDSTOP 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 MOULDSTOP panels to dry out before lining the occupancy areas.

Temporary exposure of SHAFTLINER MOULDSTOP 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.

Knauf also recommends that concrete slabs on which the SHAFTLINER MOULDSTOP 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 water for any length of time. The specified 6mm gap between the adjacent bottom track sections will facilitate drainage of water from the track.

Mould Resistance

All SHAFTLINER panels are now manufactured as SHAFTLINER MOULDSTOP. SHAFTLINER MOULDSTOP contains the added advantage of mould resistance and showed zero signs of mould growth when tested in accordance with ASTM D3273 and ASTM G21.

Do

- Do provide min 20mm clearance between SHAFTLINER MOULDSTOP Fire Barrier and steel framing on both sides.
- Do fix down PARTIWALL bottom track with approved concrete fasteners.
- Do use aluminium clips at every PARTIWALL H-stud and end track and not more than 3000mm above lower clip line or base track.
- Do seal at PARTIWALL bottom track.
- Do install Knauf Firepack at wall ends and top, as specified.
- Do cut PARTIWALL studs and SHAFTLINER MOULDSTOP panels to the same length.
- Do align PARTIWALL studs above and below horizontal joint in SHAFTLINER MOULDSTOP Fire Barrier.
- Do insert PARTIWALL studs and SHAFTLINER MOULDSTOP panels fully into the PARTIWALL base track.
- Do insert SHAFTLINER MOULDSTOP panels fully into the PARTIWALL H-studs.
- Do use the specified fasteners for aluminium PARTIWALL clips.
- Do use the specified Knauf Insulation to achieve the specified system performance.

Don'ts

- Don’t use damaged materials.
- Don’t penetrate the SHAFTLINER MOULDSTOP other than in the roof space as per Knauf’s specifications.
- 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 joints in the SHAFTLINER MOULDSTOP Fire Barrier.
- Don’t cut tracks between PARTIWALL studs. Tracks should be used in full lengths.
- Don’t run services in the gap between the SHAFTLINER MOULDSTOP Fire Barrier and framework.

INSTALLATION OF SHAFTLINER™ MOULDSTOP FIRE BARRIER

Installation Procedure (PWS60.1)

- Ensure that SHAFTLINER™ MOULDSTOP panels, PARTIWALL® studs and end tracks are the same length. Cut to length if required.
- In a multi-level SHAFTLINER MOULDSTOP Fire Barrier, PARTIWALL studs at upper levels are recommended to align with the studs below.
- PARTIWALL aluminium clips must be installed progressively as the SHAFTLINER MOULDSTOP 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, unless noted otherwise.
- For offset floors, PARTIWALL aluminium clips can be staggered in line with floors on each side of the wall.
- 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 steel frame with 2 x 6g x 25mm Type 'S' steel screws.
- SHAFTLINER MOULDSTOP Fire Barrier must be adequately braced against wind forces until the building is enclosed.
- When laminating 16mm FIRESTOP to Fire Barrier ensure butt joints fall centrally between PARTIWALL studs.

Step 1: Install base track

- Use full track lengths, spaced 6mm apart.
- Position PARTIWALL track at min 20mm clearance along full length of the steel frame, starting and ending in line with the steel frame.
- Fix each track length to slab/foundation with approved concrete fasteners at 600mm maximum spacing and at 150mm maximum both ends.

Step 2: Install first SHAFTLINER MOULDSTOP panel

- To enable fixing of aluminium clip, cut the first SHAFTLINER MOULDSTOP panel to width so that its edge falls not less than 50mm from steel stud.
- Fit SHAFTLINER MOULDSTOP panel fully down into the PARTIWALL base track and align with end of track.
- Fit PARTIWALL end track tightly over SHAFTLINER MOULDSTOP panel and into the base track. Screw fix end and base track junction with 10g x 16mm Type ‘D’ drill point wafer head screws.
- Fix PARTIWALL end track to steel 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 MOULDSTOP panel. Tap lightly to give a snug fit.
- Fit second SHAFTLINER MOULDSTOP panel into PARTIWALL base track and push tight into the PARTIWALL stud.
- Fix PARTIWALL stud to steel frame top plate with PARTIWALL aluminium clip.

Step 4: Continue installing SHAFTLINER MOULDSTOP panels and PARTIWALL studs

- Continue to install SHAFTLINER MOULDSTOP panels and PARTIWALL studs until reaching end of wall.
- As framing progresses, fix PARTIWALL studs to steel framing with PARTIWALL aluminium clips.
- Cut the last SHAFTLINER MOULDSTOP 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 steel frame with PARTIWALL aluminium clip.

INSTALLATION OF SHAFTLINER™ MOULDSTOP FIRE BARRIER

Step 5: Seal base track

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

Step 6: At mid-floors

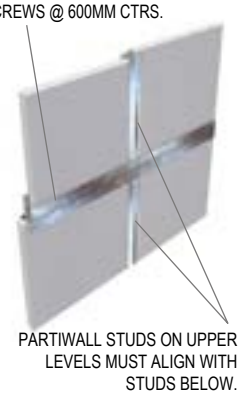
- Screw laminate 16mm FIRESTOP® to one side of SHAFTLINER™ MOULDSTOP Fire Barrier with 10g x 40mm Type 'L' laminating screws at max 400mm centres (both directions) and nom 10mm from the edges. Ensure minimum 150mm overlap above floor and below ceiling level. Plasterboard joints do not need to be set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

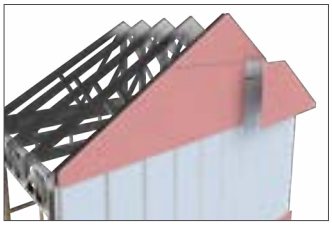
Step 7: Install top track

- Using full track lengths, fit PARTIWALL top track over the installed SHAFTLINER MOULDSTOP 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.

Step 8: Next level of SHAFTLINER MOULDSTOP Fire Barrier

- Using full track lengths, install PARTIWALL bottom track for the upper level of SHAFTLINER MOULDSTOP 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 Type 'D' drill point wafer head screws at 600mm maximum centres and at each end.
- Install SHAFTLINER MOULDSTOP panels, PARTIWALL studs and clips as per level below. PARTIWALL studs must align with studs below. **If PARTIWALL studs are not aligned with studs below, fix back-to-back tracks at max 300mm centres.**





Step 9: At roof

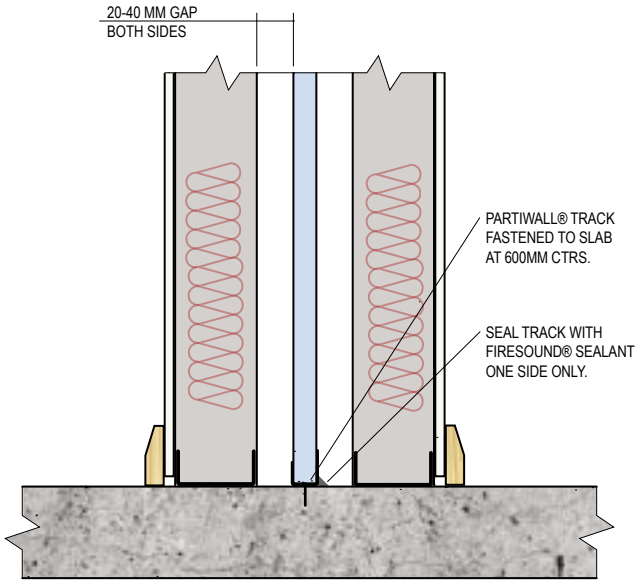
- Measure and cut SHAFTLINER MOULDSTOP panels and PARTIWALL studs to pitch of roof.
- Allow 25mm gap at top of SHAFTLINER MOULDSTOP panels for frame shrinkage and roof movement in pitched roof, flat metal roof, parapet and box gutter applications.
- Fix PARTIWALL track on rake and fix PARTIWALL studs 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 MOULDSTOP with 10g x 40mm Type 'L' laminating screws at 400mm max centres (both directions) and nom 10mm from edges. Ensure minimum 150mm overlap below ceiling level. Plasterboard joints do not need to be set with compounds. Ensure joints are tight. **Butt joints must fall centrally between PARTIWALL studs.**
- Ensure minimum 150mm overlap below ceiling level.
- Screw fix PARTIWALL aluminium clips through 16mm FIRESTOP into PARTIWALL studs and end tracks and fix PARTIWALL aluminium clips to steel frame.

Step 10: Seal for fire

- Install continuous Knauf Firepack® mineral fibre packer at external wall junctions and under roofing.
- Fill cavities between roof battens with compressed Knauf Firepack mineral fibre packer.

INSTALLATION DETAILS

Figure 9: Concrete Slab Base



Notes:
The base track of the SHAFTLINER™ MOULDSTOP Fire Barrier must be fixed with approved concrete fasteners spaced at 600mm max ctrs. Plastic-sleeved fasteners are not permitted.

Figure 10: Masonry Base

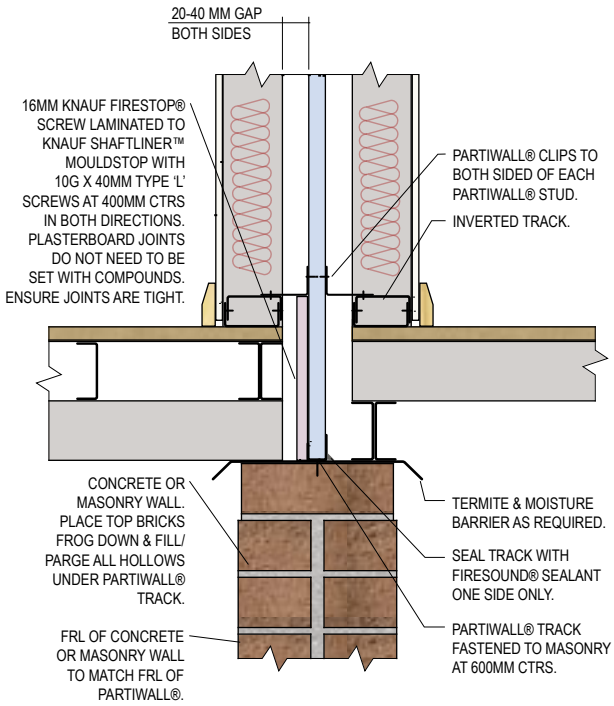


Figure 11: Step in Slab - Parallel 1

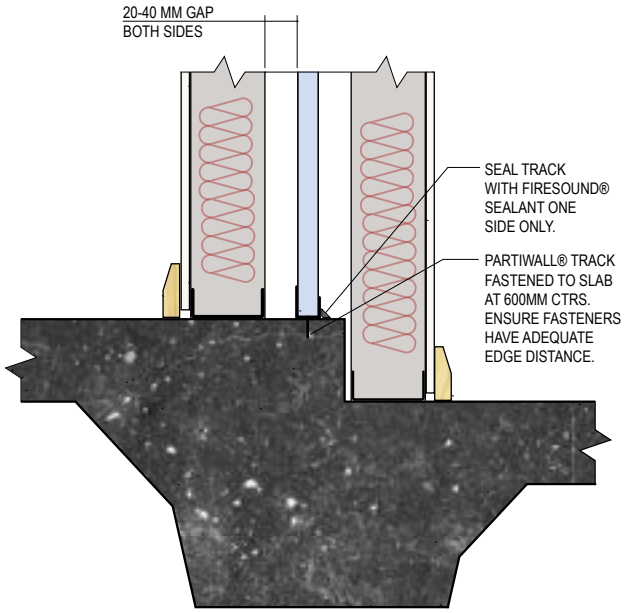
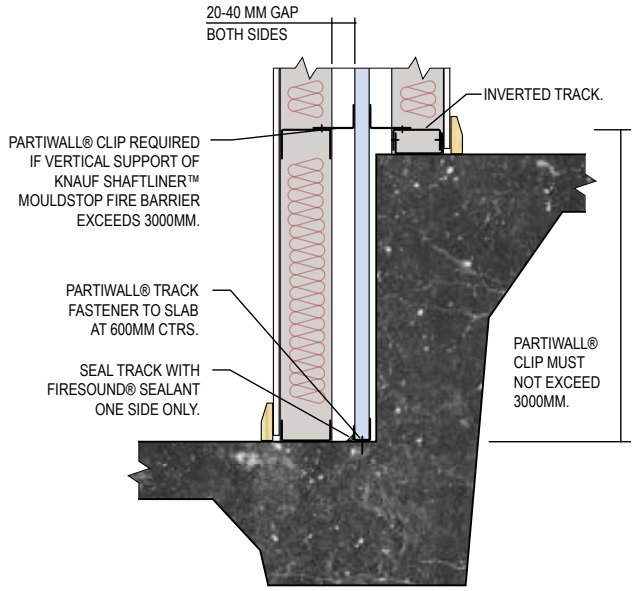


Figure 12: Step in Slab - Parallel 2



INSTALLATION DETAILS

Figure 13: Step in Slab – Perpendicular

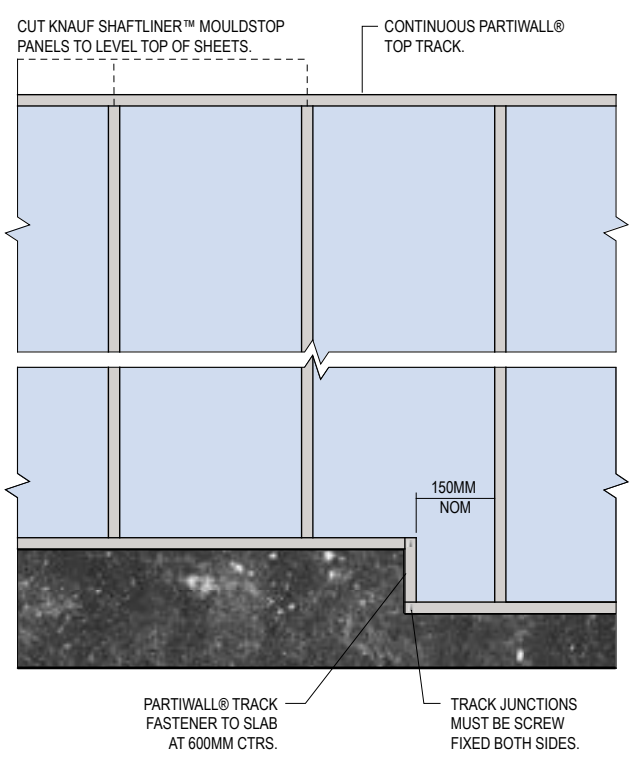


Figure 14: Floor/Wall Junction

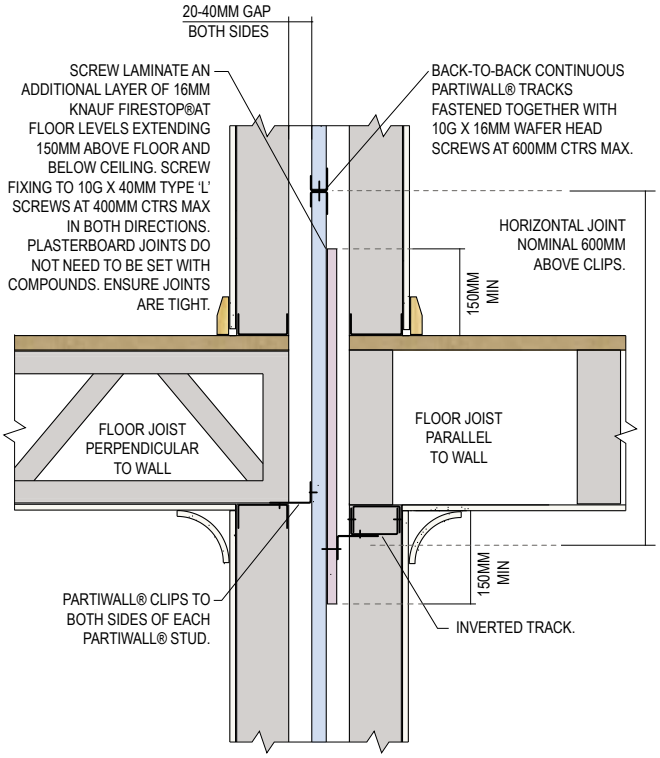
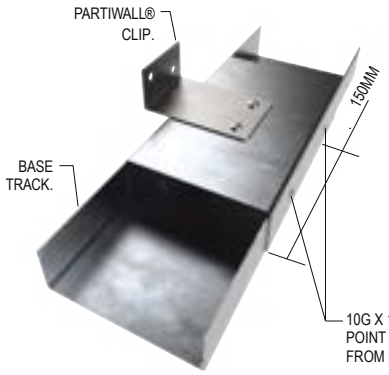
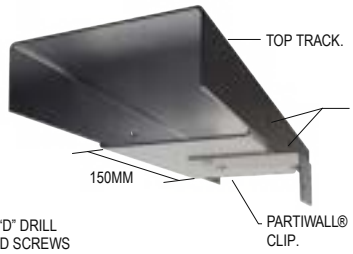


Figure 15: Aluminium Clip Fixing – Inverted Track

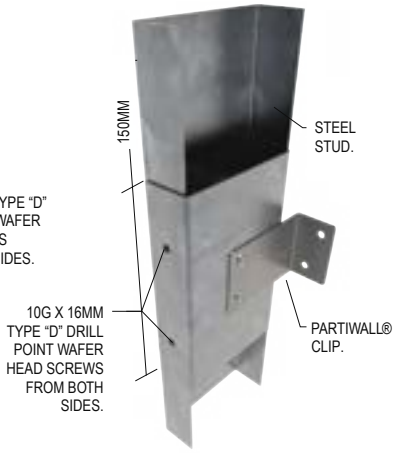
Base track detail



Top track detail



Stud detail



Notes:
- Sequence of construction must be considered when using inverted track detail to ensure fixings of both sides is possible.
- Contact Knauf TecASSIST for further information.

INSTALLATION DETAILS

Figure 16: Pitched Roof Junction

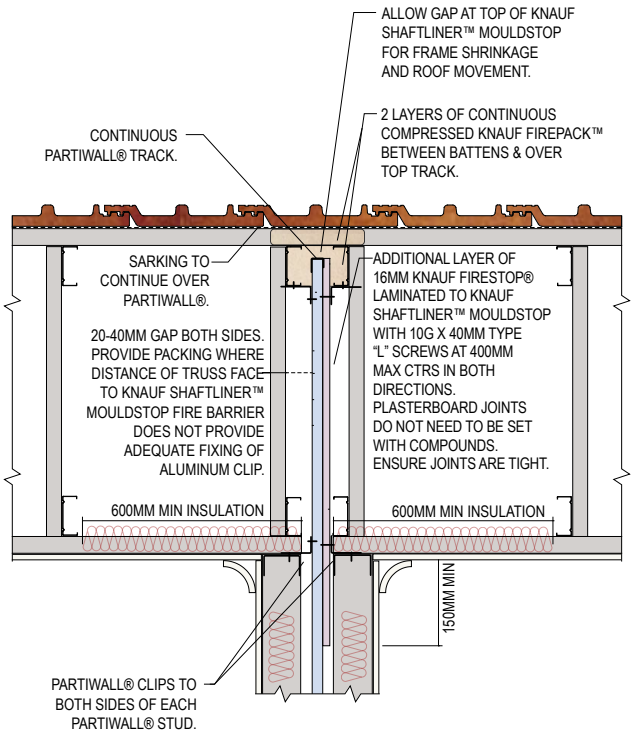
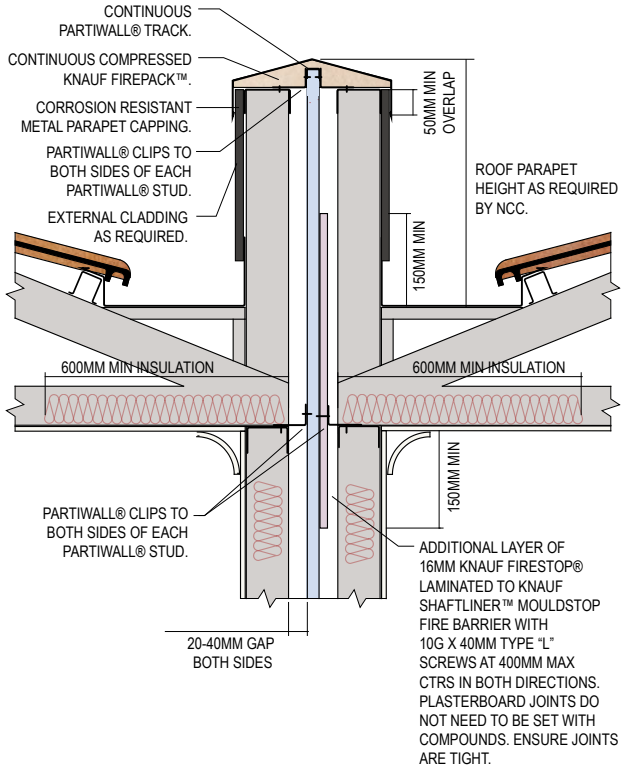


Figure 17: Parapet Roof Junction



Notes:
- Ceiling insulation must extend min 600mm both sides of the PARTIWALL and must satisfy thermal requirements.
- If no thermal insulation is required use insulation specified for PARTIWALL system.

Figure 18: Flat Metal Roof

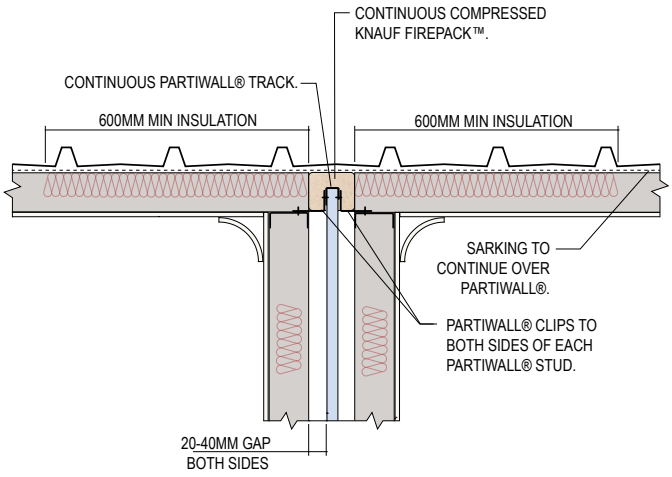
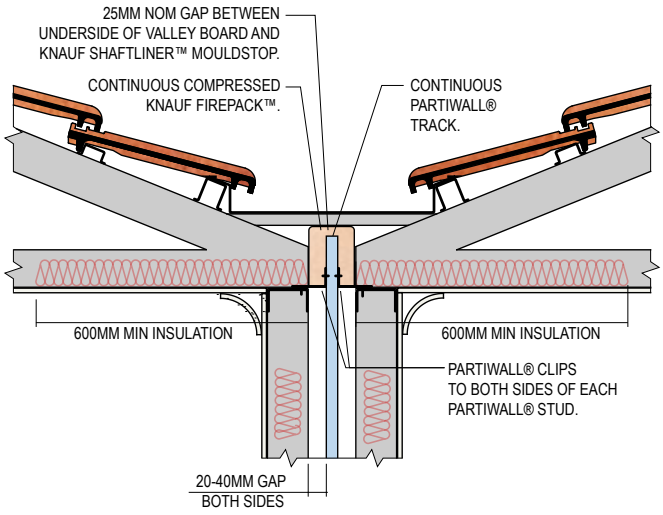


Figure 19: Roof Box Gutter



Notes:
- Ceiling insulation must extend min 600mm both sides of the PARTIWALL and must satisfy thermal requirements.
- If no thermal insulation is required use insulation specified for PARTIWALL system.

INSTALLATION DETAILS

Figure 20: Staggered Metal Roof

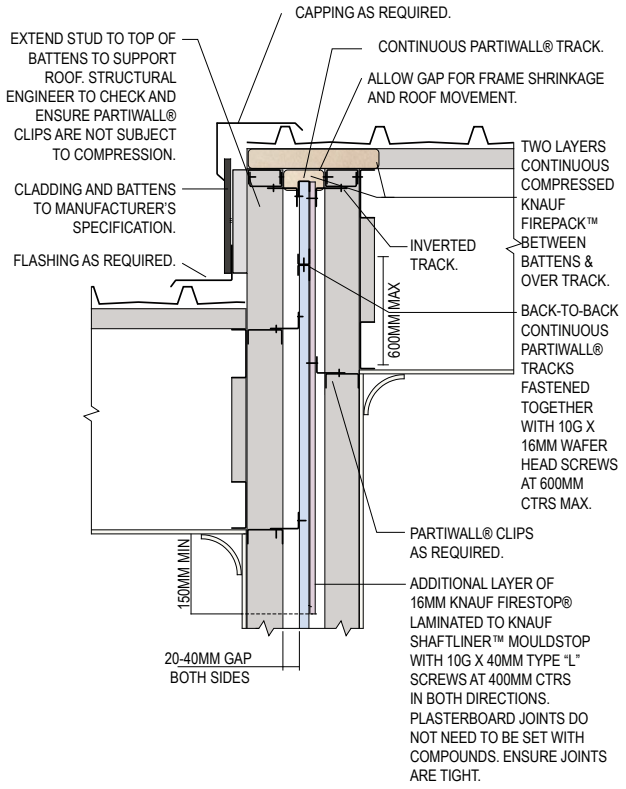
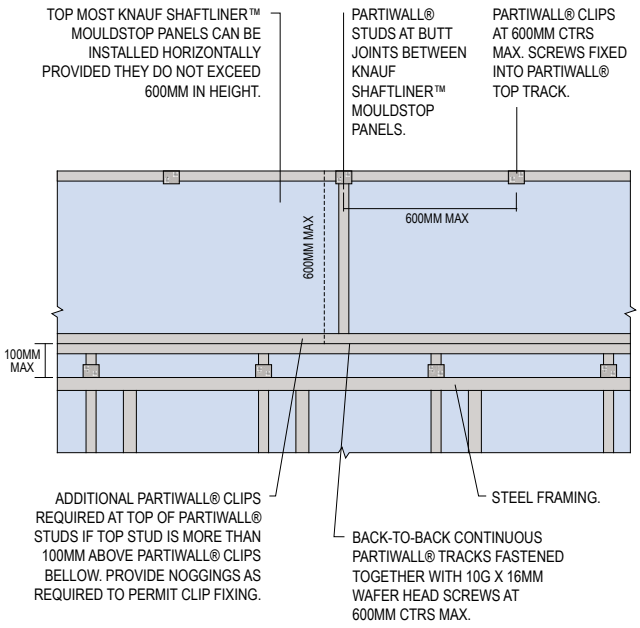
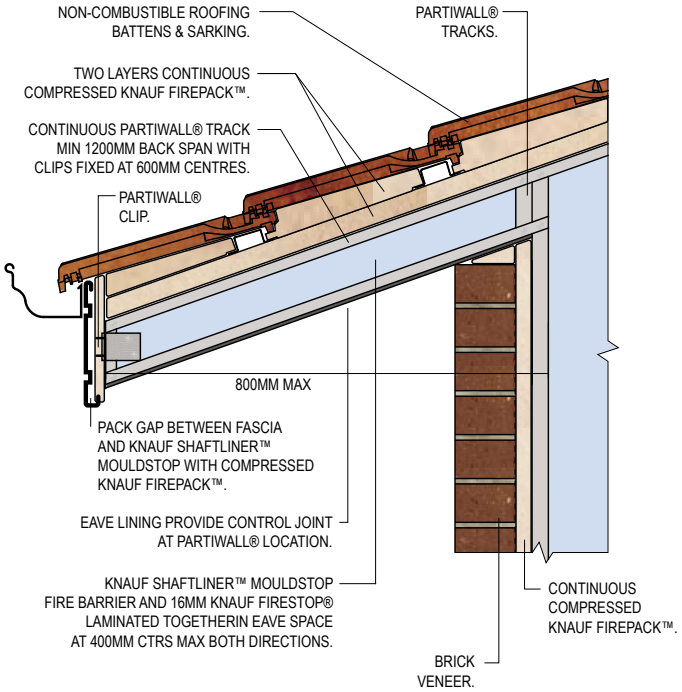


Figure 21: Horizontal SHAFTLINER™ MOULDSTOP Under Roof



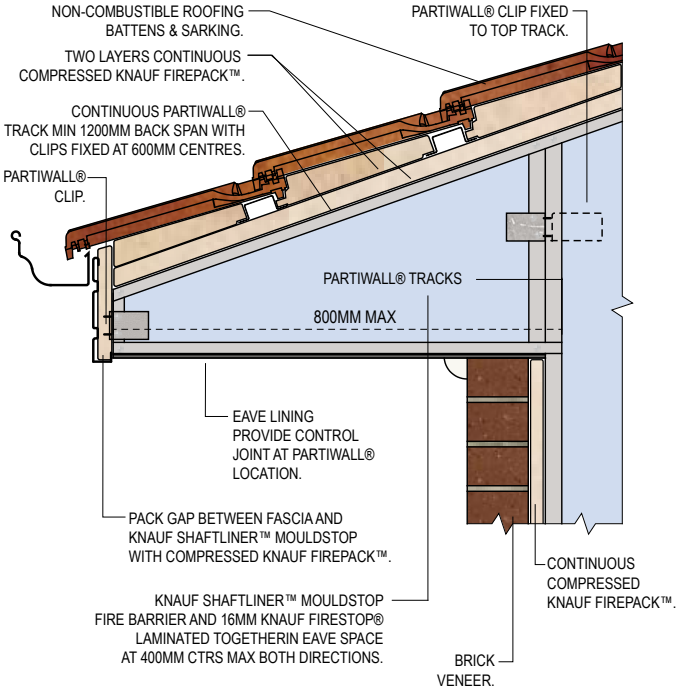
Notes:
- 16mm FIRESTOP not shown for clarity.
- Refer to roof cross-sections for extent of additional layer of 16mm FIRESTOP in roof space.

Figure 22: Rafter Closure – Section View



Notes:
- Laminated 16mm FIRESTOP not shown for clarity.
- Wall framing not shown for clarity.

Figure 23: Eave Closure – Section View



Notes:
- Laminated 16mm FIRESTOP not shown for clarity.
- Wall framing not shown for clarity.

INSTALLATION DETAILS

Figure 24: OUTRWALL Vertical Transition – JH Cladding

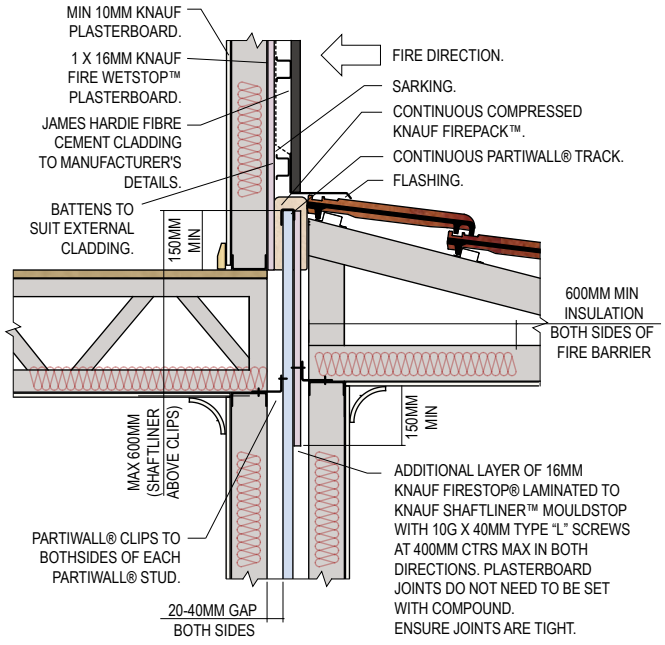
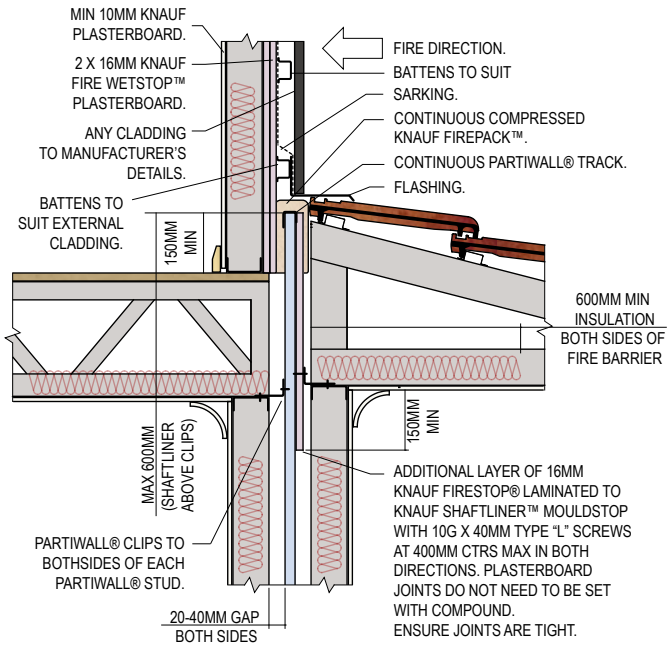


Figure 25: OUTRWALL Vertical Transition – Any Cladding



Notes:
- For external wall transitions, Knauf OUTRWALL combined with James Hardie Fibre Cement residential cladding will result in a reduction from two layers to one layer of 16mm FIRE WETSTOP on the external side to maintain FRL 60/60/60 from outside only.
- Refer Knauf for any load reduction requirements.

Figure 26: OUTRWALL Vertical Transition – JH Cladding

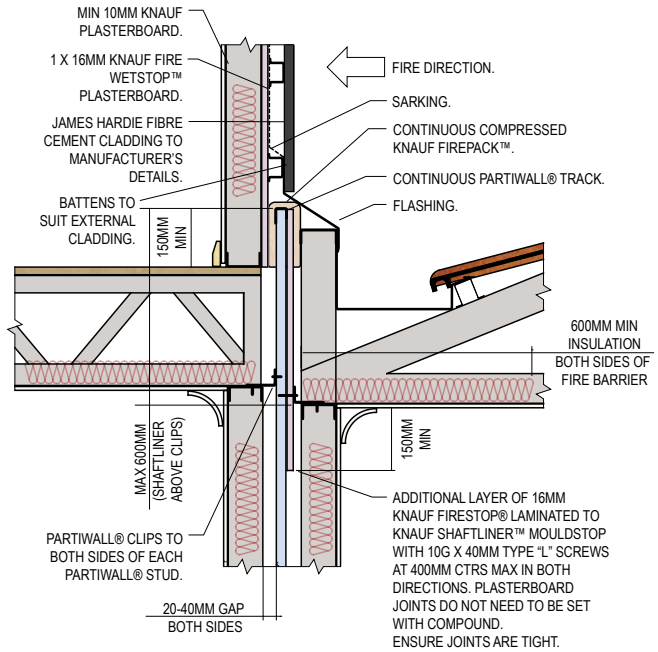
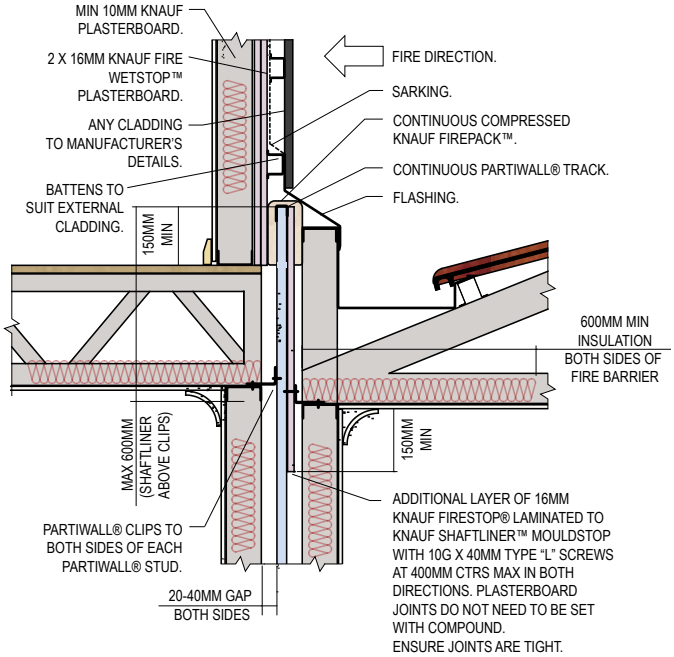


Figure 27: OUTRWALL Vertical Transition – Any Cladding



Notes:
- For external wall transitions, Knauf Outrwall combined with James Hardie Fibre Cement residential cladding will result in a reduction from two layers to one layer of 16mm FIRE WETSTOP on the external side to maintain FRL 60/60/60 from outside only.
- Refer Knauf for any load reduction requirements.

INSTALLATION DETAILS

Figure 28: Typical Corner – Plan View

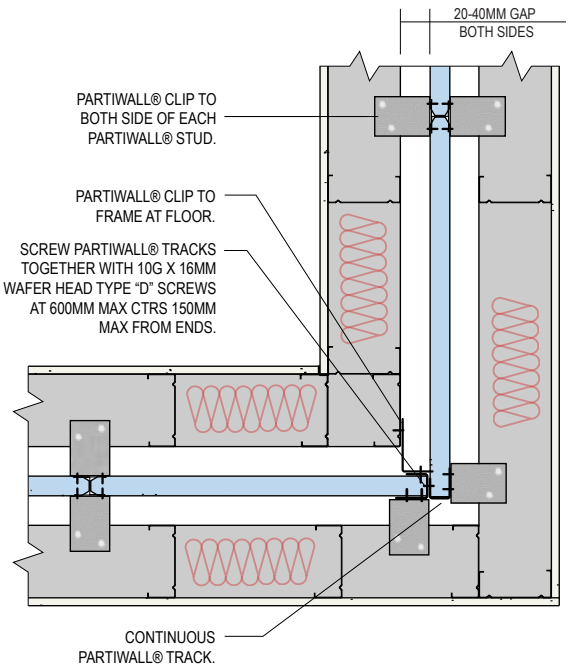


Figure 29: Internal Wall Junction – Plan View

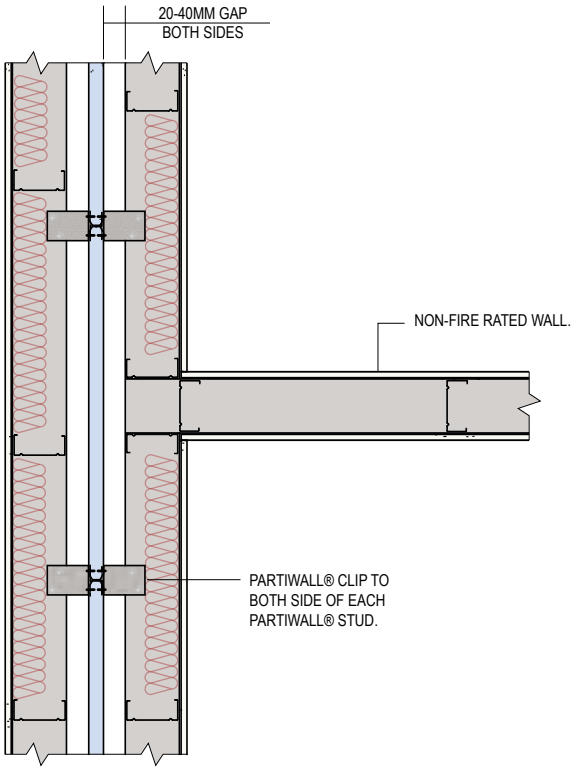


Figure 30: 4 Way Intersecting Wall – Plan View

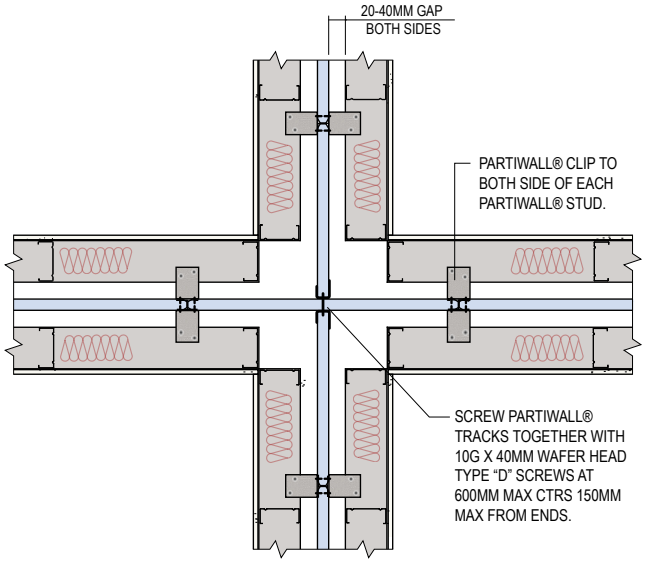
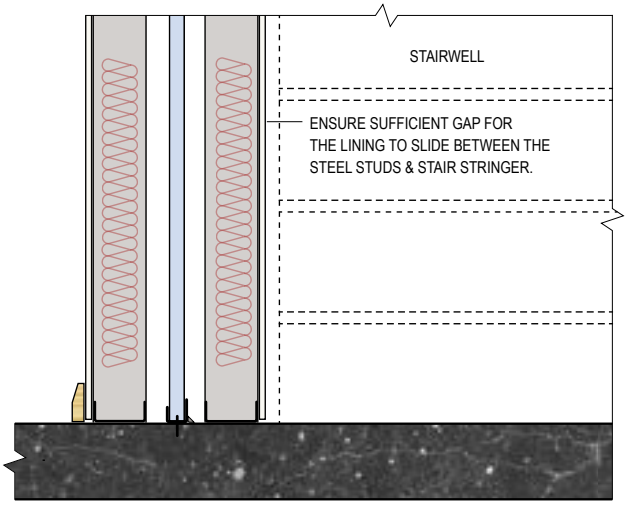
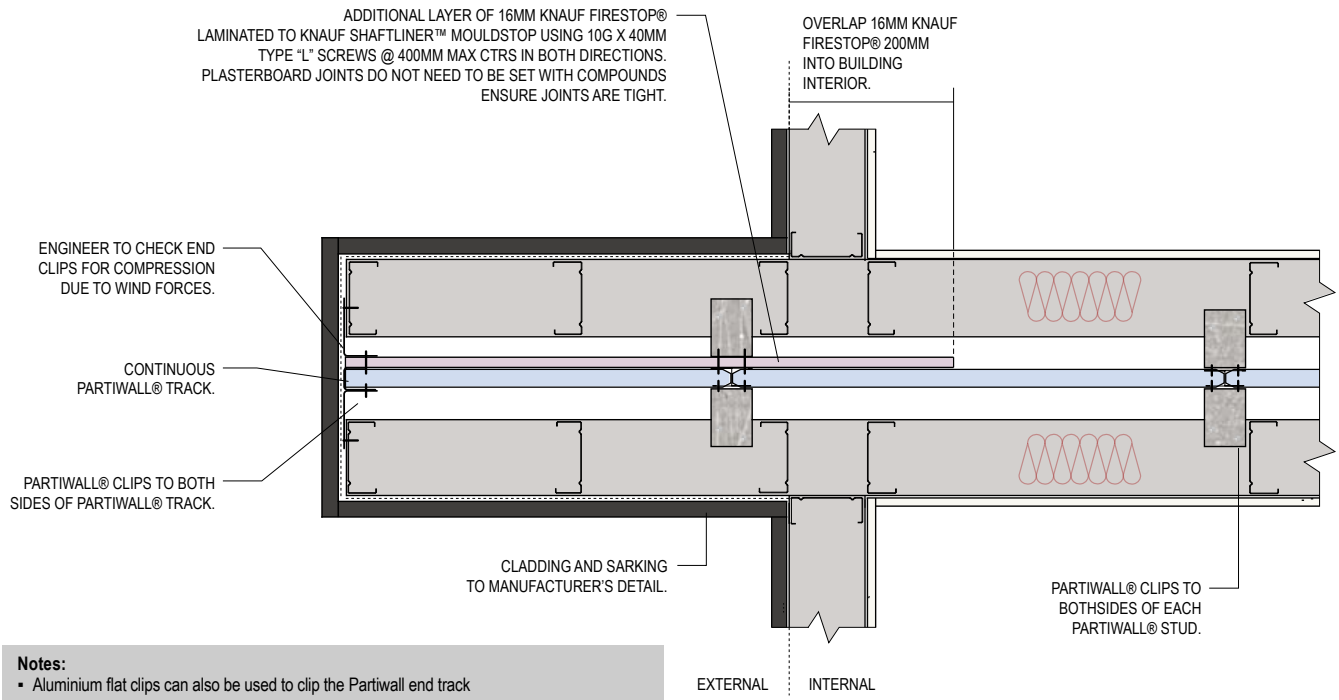


Figure 31: Adjacent Stairwell – Section View



INSTALLATION DETAILS

Figure 32: External to Internal PARTIWALL – Plan View



Notes:
- Aluminium flat clips can also be used to clip the Partiwall end track

Figure 33: OUTRWALL Horizontal Transition – JH Cladding

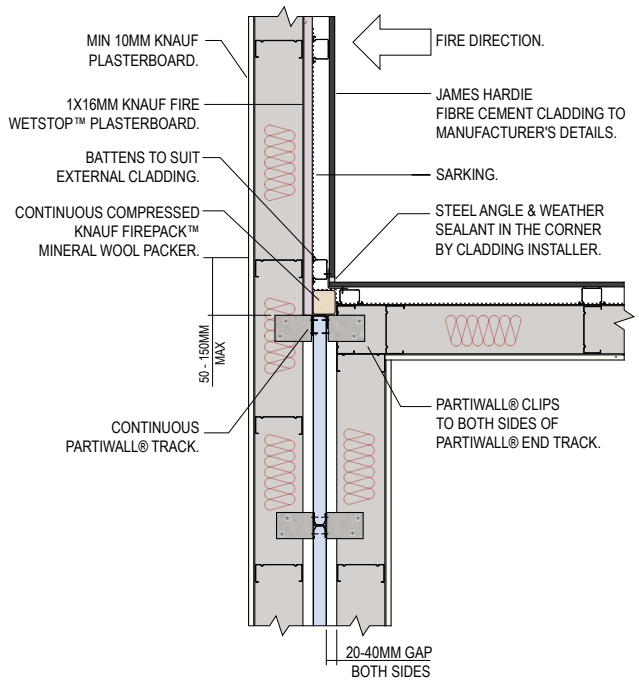
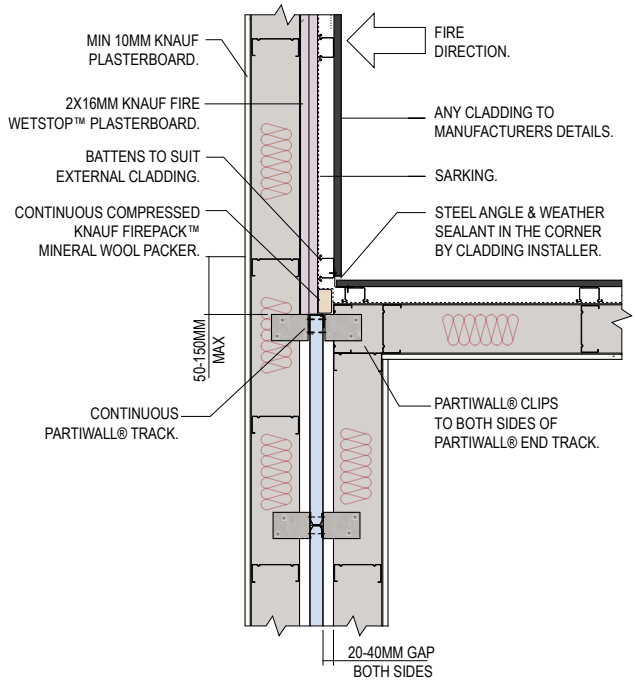


Figure 34: OUTRWALL Horizontal Transition – Any Cladding



Notes:
- For external wall transitions, Knauf OUTRWALL combined with James Hardie Fibre Cement residential cladding will result in a reduction from two layers to one layer of 16mm FIRE WETSTOP on the external side to maintain FRL 60/60/60 from outside only.
- Refer Knauf for any load reduction requirements.

INSTALLATION DETAILS

Figure 35: Clad Wall Junction – Plan View

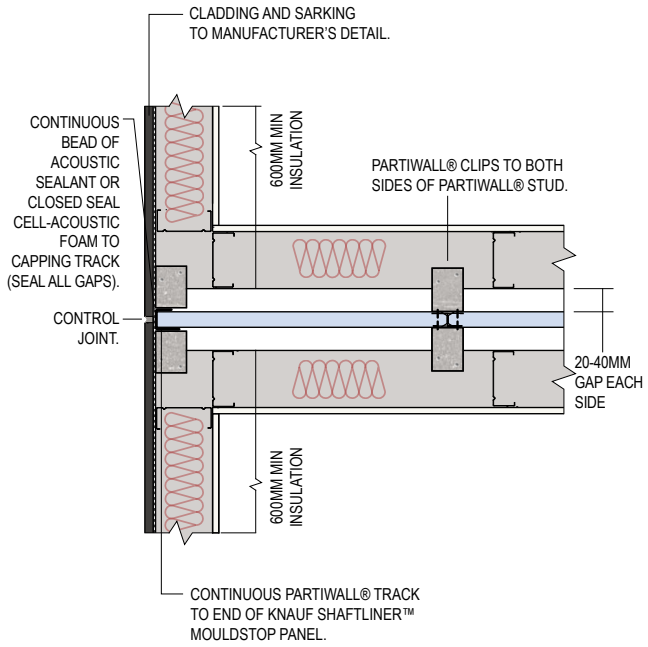
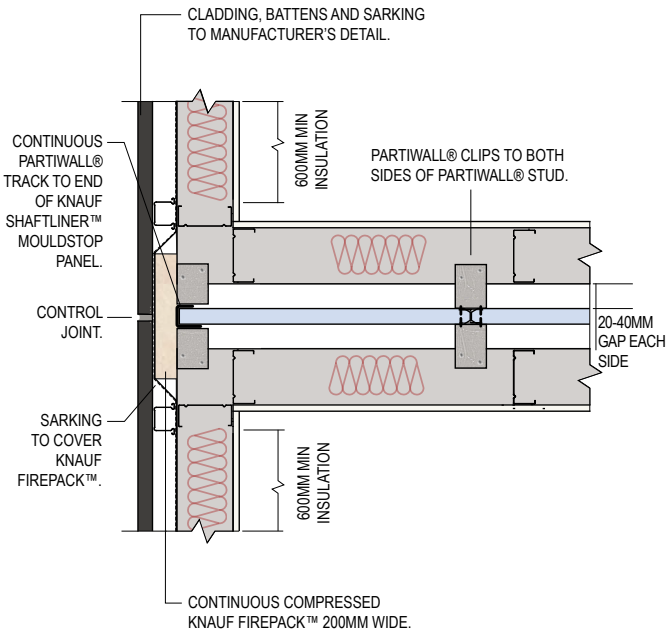


Figure 36: Clad Wall Junction with Thermal Break – Plan View



Notes:
- External insulation must extend min 600mm both sides of the PARTIWALL and must satisfy thermal requirements. If no thermal insulation is required use insulation specified for PARTIWALL system.
- Dependent on the framing layout, aluminium flat clips can also be used to clip the Partiwall end track

Figure 37: Brick Veneer Wall Junction 1 – Plan View

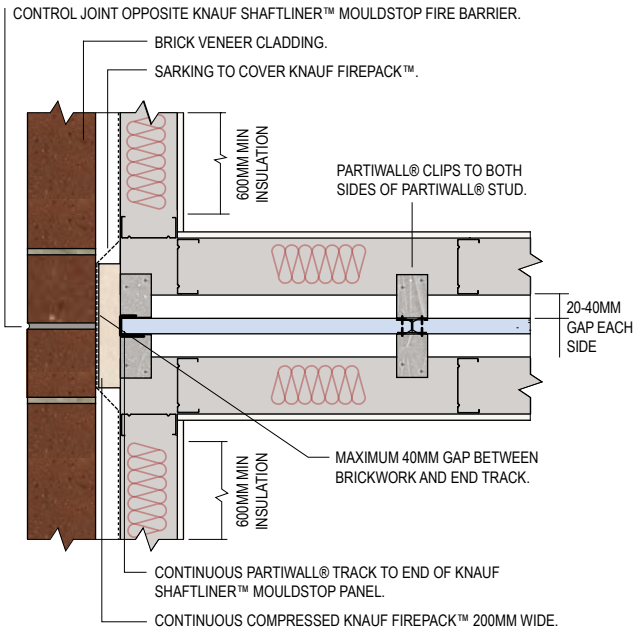
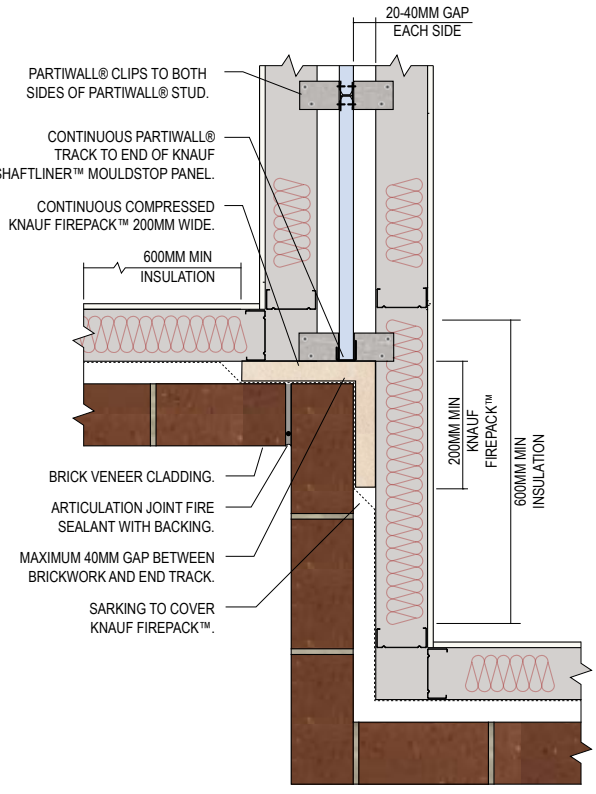


Figure 38: Brick Veneer Wall Junction 2 – Plan View

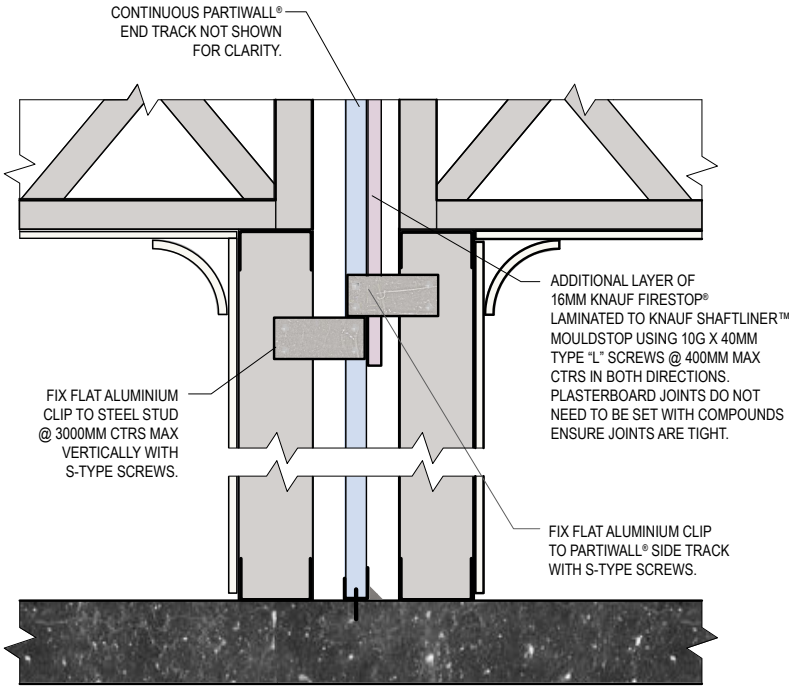


Notes:
- External insulation must extend min 600mm both sides of the PARTIWALL and must satisfy thermal requirements. If no thermal insulation is required use insulation specified for PARTIWALL system.
- Dependent on the framing layout, aluminium flat clips can also be used to clip the Partiwall end track

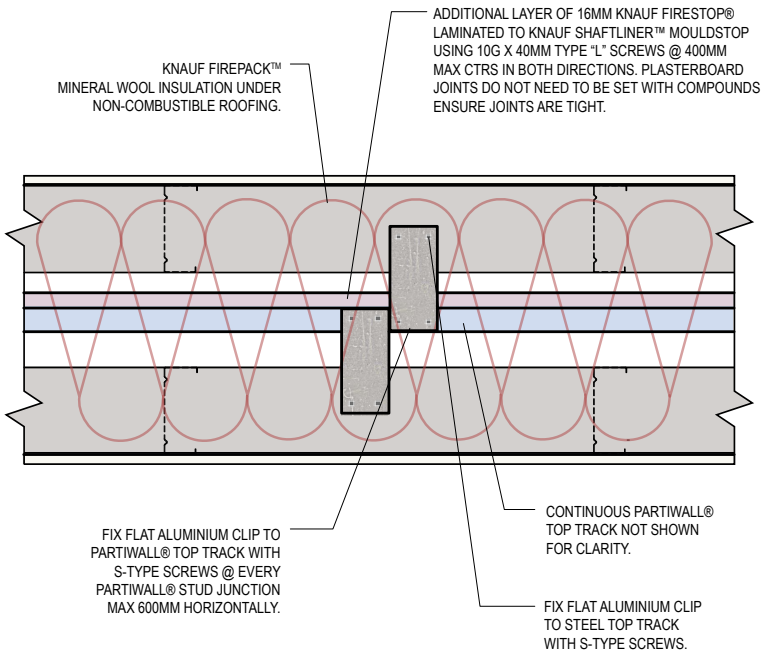
INSTALLATION DETAILS

Figure 39: Flat Aluminium Clip Detail

End track



Top track

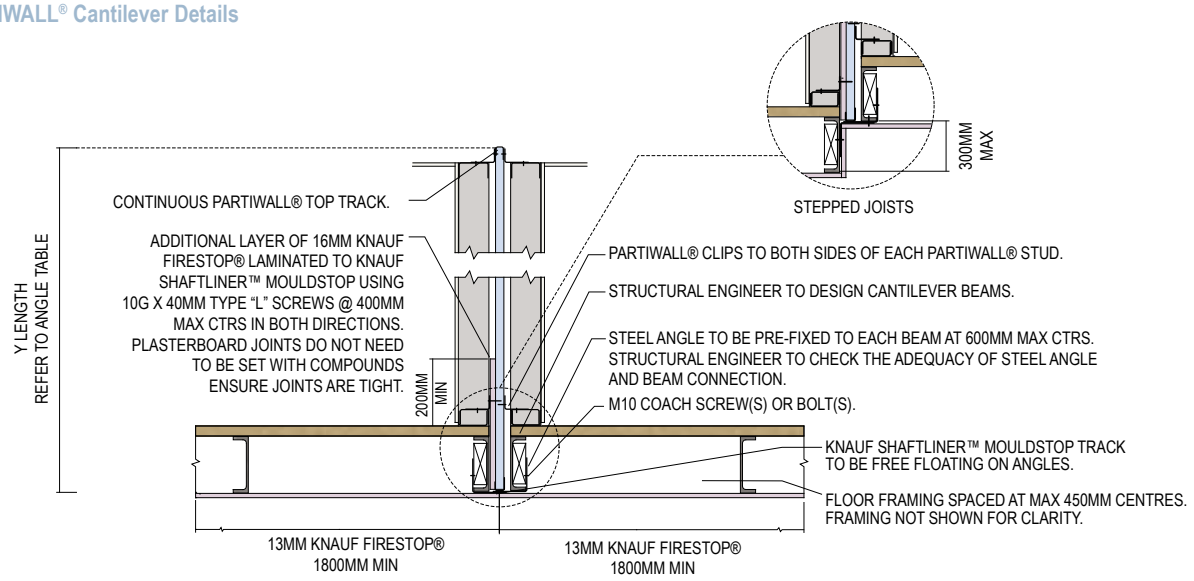


Notes:
- PARTIWALL flat clips can be used around the perimeter of the Fire Barrier, spaced at max 3000mm vertically on side tracks and 600mm horizontally on top track.
- PARTIWALL angle clips cannot be flattened and used as flat clips.

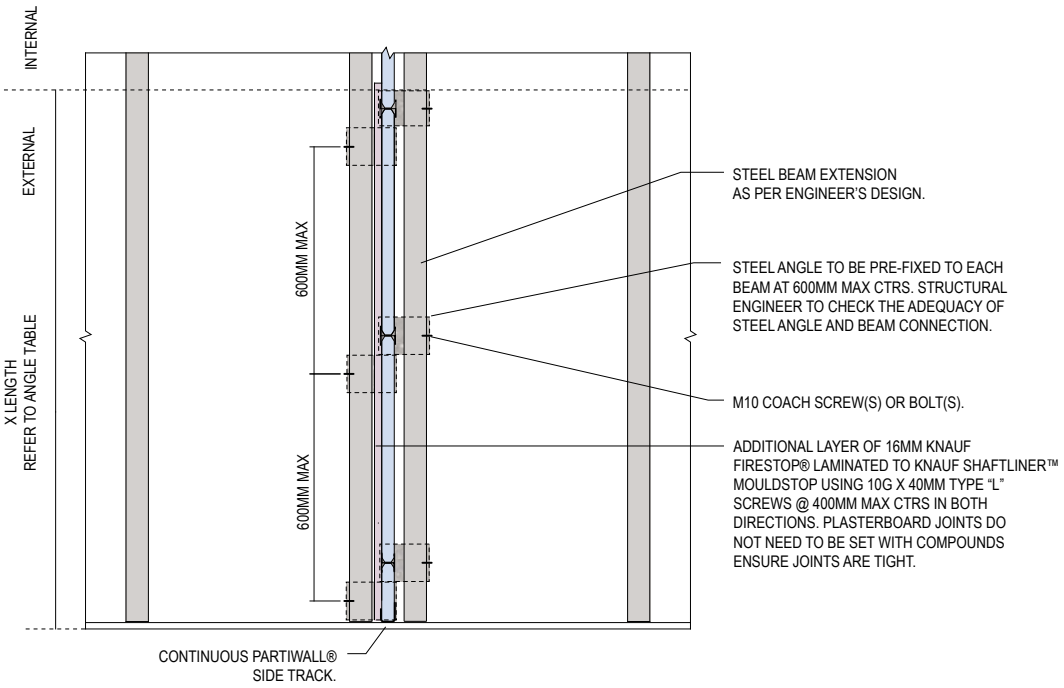
INSTALLATION DETAILS

Figure 40: PARTIWALL® Cantilever Details

Section view



Plan view



Steel angle requirements

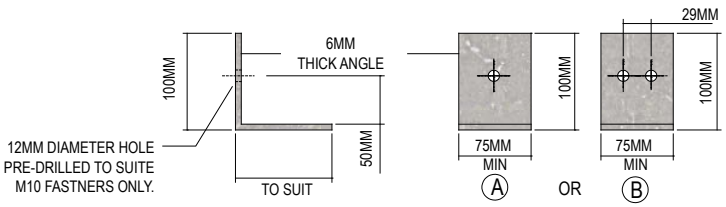


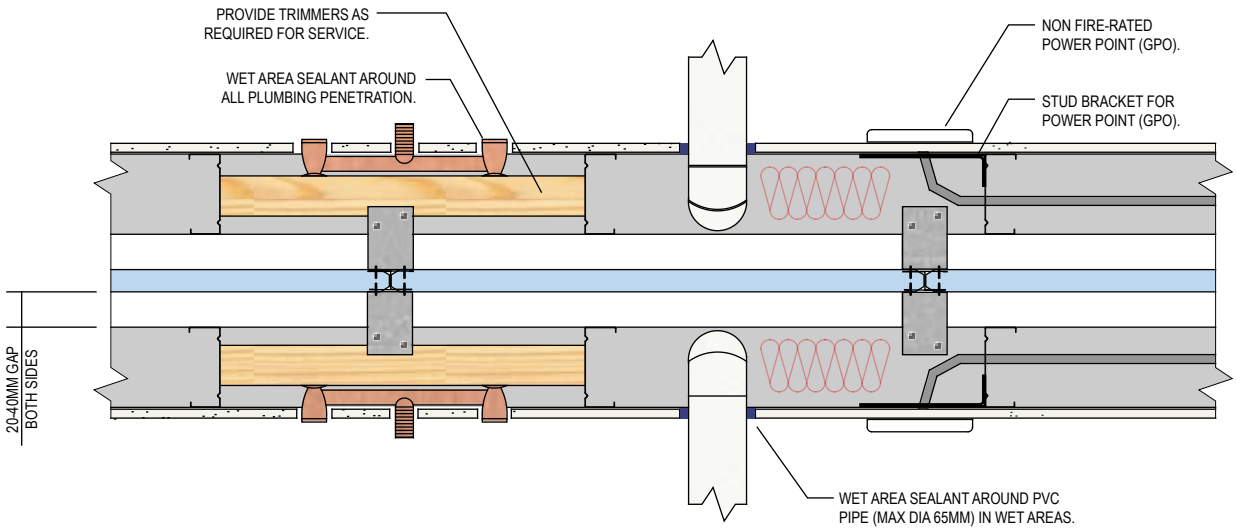
Table 3: Angle Type Table

Cantilever [X] (mm)	Wall HT [Y] (mm)	Angle
<1500	<6000	A
<1500	<9000	B
1501-2000	<6000	B
1501-2000	<9000	B
2001-2500	<6000	B

Notes:
- Steel angles can be either screwed, bolted or welded to the steel beam extension.
- Structural Engineer to check the adequacy of the steel beams, steel angles and beam connections.

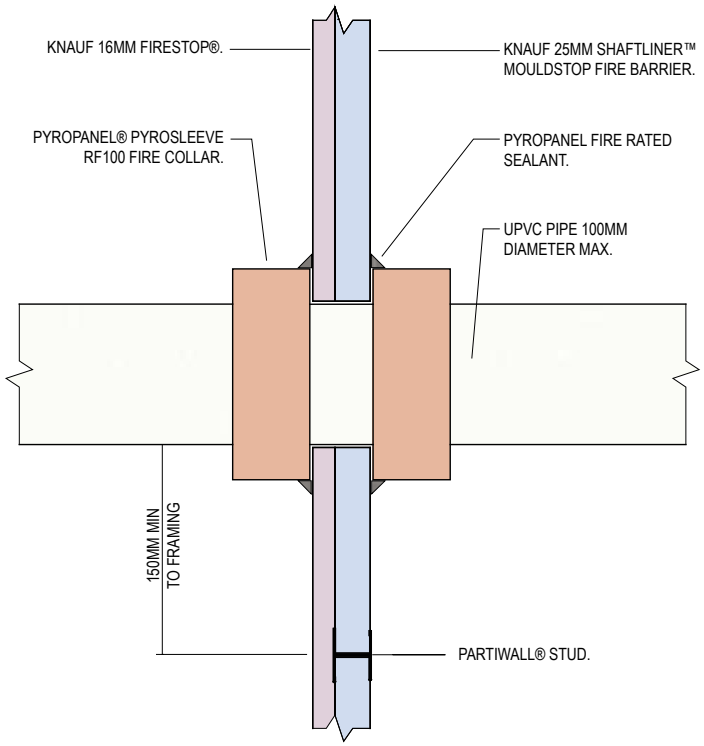
INSTALLATION DETAILS

Figure 41: Back to Back Wall Penetrations – Plan Details – FRL 60/60/60



Notes:
- All penetrations can be back-to-back.
- 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 42: uPVC Pipe Penetration at Roof Space – FRL -/60/60



INSTALLATION DETAILS

Figure 43: Power Cable Penetration at Roof Space – FRL -/60/60

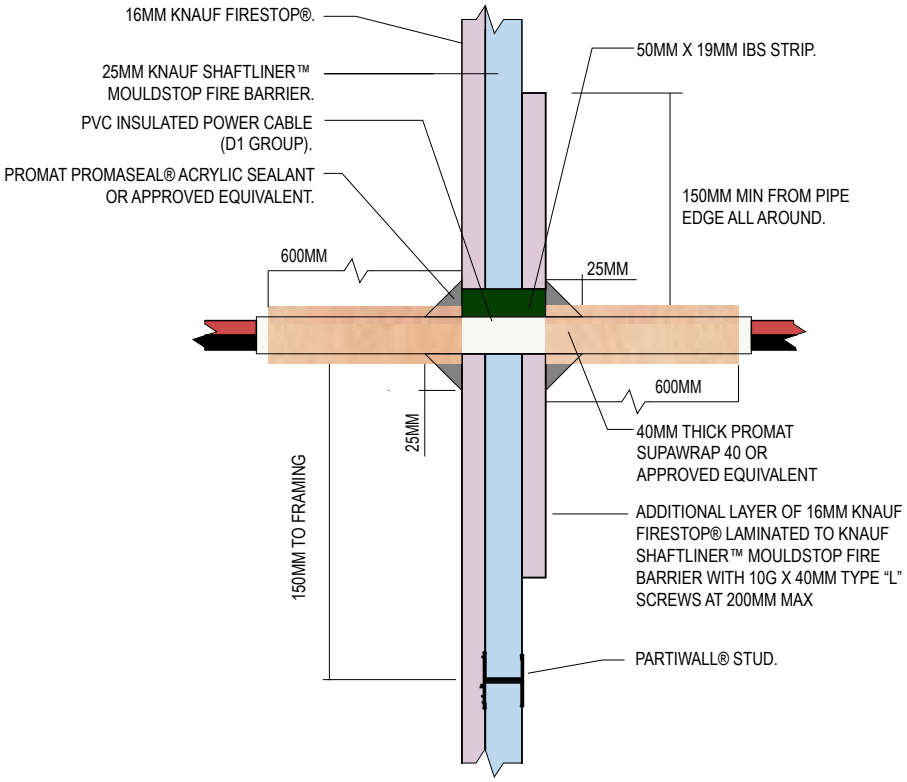
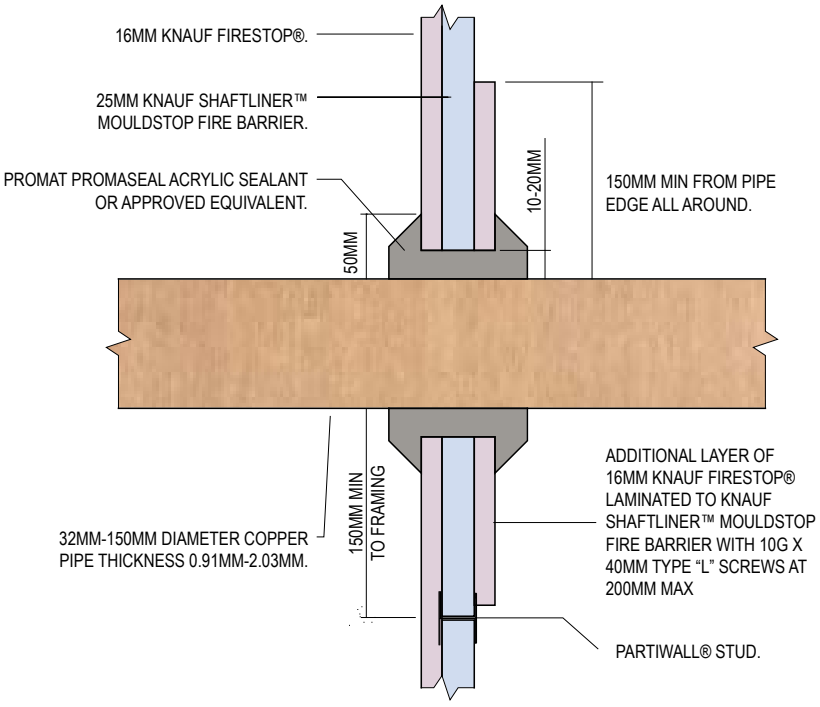


Figure 44: Copper Pipe Penetrations at Roof Space – FRL -/60-



Notes:
Services penetrations through SHAFTLINER MOULDSTOP Fire Barrier should be approved by Building Surveyor/Certifier prior to installation.

PARTIWALL® CHECKLIST

Date ..... PARTIWALL Ref .....

Unit Number/Street Address .....

Suburb/Town ..... State ..... Postcode .....

Builder ..... Installer .....

Please **tick** the relevant box for each item:

Item	Confirmed	Rectification required
Cavity between H-studs and frames on both sides is 20mm–40mm	☐	☐
PARTIWALL® bottom tracks are fixed to the slab with approved all steel fasteners 150mm maximum from each end and at 600mm maximum centres	☐	☐
6mm gap has been provided between adjacent PARTIWALL bottom tracks	☐	☐
Firesound sealant has been applied along the PARTIWALL bottom track at least on one side (NOT underneath)	☐	☐
PARTIWALL tracks have been fitted to SHAFTLINER MOULDSTOP panels around perimeter and screw fixed to PARTIWALL top and bottom tracks at each level	☐	☐
PARTIWALL studs (not SHAFTLINER MOULDSTOP panels) are attached to framing on both sides with PARTIWALL aluminium clips at maximum 3000mm vertically and 600mm horizontally	☐	☐
PARTIWALL studs in roof cavity are attached to roof framing with PARTIWALL aluminium clips as indicated in PARTIWALL technical manual	☐	☐
PARTIWALL studs on upper levels are aligned with PARTIWALL studs below	☐	☐
PARTIWALL eave details have been constructed in accordance with PARTIWALL technical manual	☐	☐
Back-to-back PARTIWALL tracks (NOT PARTIWALL H-studs) are installed at horizontal joints between SHAFTLINER MOULDSTOP panels	☐	☐
There are no penetrations through SHAFTLINER MOULDSTOP panels apart from any approved penetrations in the roof space	☐	☐
No bridging occurs due to services between framing and SHAFTLINER™ MOULDSTOP panels	☐	☐
SHAFTLINER MOULDSTOP panels or other PARTIWALL components are not damaged	☐	☐
16mm FIRESTOP® plasterboard is laminated to SHAFTLINER MOULDSTOP panels at 400mm centres in both directions at floor-ceiling junctions and in the roof space and butt joints to fall centrally between PARTIWALL studs	☐	☐
Compressed Firepack™ mineral wool packer has been installed between the top PARTIWALL track and roofing and between the end PARTIWALL tracks and external cladding	☐	☐
PARTIWALL system has been installed in accordance with installation specification and details contained in Knauf PARTIWALL technical manual and any project specific instructions provided by Knauf	☐	☐

Comments .....

.....

.....

Builder's Supervisor

Name .....

Signature .....

PARTIWALL Installer

Name .....

Signature .....

KNAUF SERVICES

TECHNICAL ASSISTANCE

TecASSIST™ – 1800 811 222

Our National TecASSIST™ helpline is available to answer technical questions and provide free advice to builders, contractors, architects, engineers and home owners throughout Australia.

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, Knauf recommends you review the latest building information available on the Knauf website.

For further information, contact TecASSIST™ or your nearest Knauf sales office.

WHERE TO BUY

1800 003 377

If you are wondering where to buy plasterboard and other building materials such as cornice, compounds, ceilings and plastering tools, you can be confident that wherever you are located in Australia, you will be able to find a convenient Knauf store or stockist near you using our store finder.

DOCUMENT FINDER

knaufapac.com/au/resources

Find a Knauf product brochure, installation manual, Product Data Sheet or Whitepaper with the new document finder tool.

To view the full range of system CAD details, scan QR code below or head to https://www.knaufapac.com/au/cad-finder.

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

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