

ShaftWall

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Shaft and riser
encasement system
and linings within
confined spaces

Jumeirah Al Naseem
Madinat Jumeirah
Dubai



ShaftWall

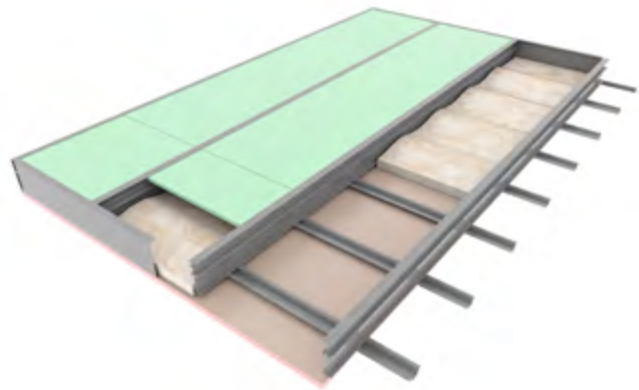
ShaftWall provides a lightweight, fire-resistant structure to protect elements in confined spaces wherever access is limited to one side only. The system provides a protective structure which can be incorporated at an early stage of the construction without the need for scaffolding. The system can also be built horizontally to provide a fire-rated membrane.



 **60 - 120** mins

 **42 - 50** R_w dB

 **43 - 51** STC dB



Key Benefits



Used where access is limited to one side only



Horizontal membranes built entirely from below



Lightweight and fast-track construction results in an earlier project delivery



Minimal wall thickness of 87mm



Higher certainty of installed acoustic performance due to laboratory tests incorporating deflection heads



Satisfies deflection and air pressure requirements of lift shafts, risers and pressurised ducts



Eligible for the SpecSure warranty from Gyproc.

System components

Gypframe metal components



Gypframe 'I' Studs

(70 I 70, 100 I 80, 150 I 90)

Enhanced strength stud that allows for greater partition height, without increasing partition width. Designed to receive fixing of board to one side (face fixed) and to accommodate Gyproc CoreBoard within its flange.



Gypframe Starter Channels

(70 SC 70, 100 SC 80, 150 SC 90)

Vertical stud used at abutments and openings to receive fixing of board.



Gypframe Standard Floor & Ceiling Channels

(72 C 50, 102 C 50, 152 C 50)

Standard floor channels for retaining Gypframe studs at floor junctions up to heights not exceeding 4200mm. Also used around openings.



Gypframe Deep Flange Floor & Ceiling Channels

(72 DC 60, 102 DC 60, 152 DC 60)

Floor and ceiling channels with deep flanges for retaining Gypframe studs at the head and base of partitions, 4200mm to 8000mm high. Also used at the head of partitions up to 4200mm, in deflection heads (maximum 30mm deflection) and around openings.



Gypframe Extra Deep Flange Floor & Ceiling Channels

(72 EDC 80, 102 EDC 80, 152 EDC 80)

Floor and ceiling channels with extra deep flanges for retaining Gypframe studs at the head and base of partitions over 8000mm high. Also used in deflection heads (maximum 50mm deflection) and around openings.



Gypframe Retaining Channel

(RC 70, RC 100, RC 150)

Retaining channel to provide support for Gyproc CoreBoard located within Gypframe 'I' studs.



Gypframe 103 FC 50

Fixing Channel

A versatile metal fixing channel used to support medium weight fixtures on walls



Gypframe 103 FC 90

Fixing Channel

A versatile metal fixing channel used to support heavy weight fixtures on walls



Gypframe GFS1 Fixing Strap

Used to support horizontal board joints.



Gypframe GA1 Steel Angle

Perimeter angle to support Gypframe MF5 ceiling section and facilitate fixing of boards in horizontal ShaftWall system



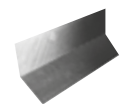
Gypframe GA3 Steel Angle

Used at horizontal joints of Gyproc CoreBoard.



Gypframe GA4 Steel Angle

Widely used in framed construction to provide support, fixing and additional strength to wall ceiling and encasement framing. Also used as an angle to improve the fire performance at deflection heads.



Gypframe GA6 Splayed Angle

Steel angle providing framing stability and board support.

System components (continued)

Board products



Gyproc FireStop^{1, 2, 3}
(12.5mm, 15mm)
Gypsum plasterboard with fire resistant additives



Glasroc X²
(12.5mm)
Glasroc X is a high performance board with a glass-mat liner on both surfaces and a mold & moisture resistant (M2TECH) gypsum core



Gyproc CoreBoard^{2, 3}
(19mm)
Gypsum plasterboard with fire and moisture resistant additives. Retained within studs and to form deflection head.

¹ Moisture resistant (MR) versions of the above boards are specified in intermittent wet use areas, e.g. shower cubicles

² Available with Activ'Air technology

³ Available with M2TECH technology



Fixing products



Gyproc Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing boards to Gypframe metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Waferhead Jack-Point Screws
Corrosion resistant self-drilling steel screws for fixing metal to metal framing 0.8mm thick or greater and all 'I' studs



Gyproc Wedge Anchor
Corrosion resistant anchor used for fixing fire rated partition and ceiling systems into masonry

Plasterboard accessories



Gyproc Jointing Compound
Air-drying, asbestos free, ready mixed compound for filling and finishing plasterboard joints and corner beads



Gyproc Sealant
Used for sealing air paths to reduce air-leakage and optimise sound insulation performance



Gyproc FireStrip
Soft extruded linear gap seal for use within fire rated Gyproc system deflection head details



Gyproc Fibre Tape
Suitable for flat joint reinforcement



Gyproc Paper Tape
Designed for reinforcing flat joints when finishing plasterboard joints providing improved resistance against cracking



Glasroc X Tape
Suitable for internal and semi-exposed applications when used in conjunction with Glasroc X, MR and M2TECH range of boards

System components (continued)

Corners



Gyproc Drywall Corner Bead
Provides corner reinforcement and protection to plasterboards and plasters



Gyproc Drywall Metal Edge Bead
A galvanised steel channel used to protect plasterboard edges and to form a defined edge commonly used around window reveals

Insulation products



**ISOVER Eco
Acoustic Partition Roll (APR)**
(25, 50, 75 and 100mm)*
Non-combustible glass mineral wool roll for sound insulation in partitions, linings and ceiling systems

Minimum density: 16 kg/m³

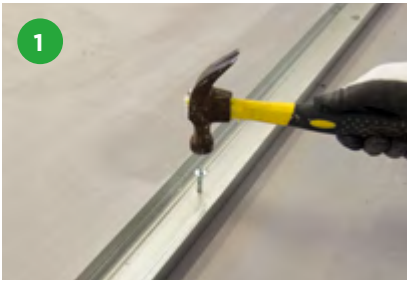


**KIMMCO ISOVER
Stone mineral wool**
(50 and 70mm)*
For fire stopping, where required

Minimum density: 33 kg/m³

* Available in other thickness and density

Installation overview



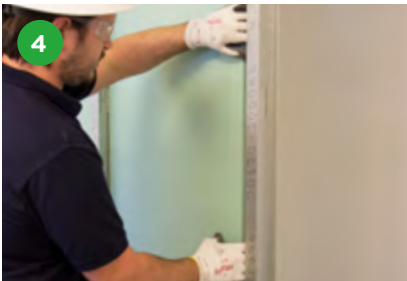
Gypframe Floor & Ceiling channels are fixed to the concrete substrate using Gyproc Wedge Anchors



Gypframe Starter Channels are suitably fixed to abutments



Gypframe 'I' studs are fitted vertically to a friction fit within the channel sections to form the framework.



Gyproc CoreBoard is fitted between the studs on the shaft side. For sealed ShaftWall systems, apply sealant to the inside face of the rear flanges of Gypframe 'I' Studs, head channel, floor channel and Gypframe Starter Channels.



Gyproc CoreBoard is held in place and secured using Gypframe Retaining Channels.



Horizontal joints in the Gyproc CoreBoard are fire stopped using Gypframe GA3 Angle and strips of Gyproc CoreBoard from the nonshaft side.



The perimeter of the ShaftWall is sealed with Gyproc Sealant, in order to enhance the acoustic performance of the system



ISOVER Eco APR is added to the ShaftWall cavity for increased acoustic performance

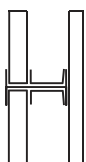


Screw fix inner and outer layers of Gyproc FireStop board to the non-shaft side using Gyproc Jack-Point Screws at 300mm centres around the perimeter and in the field of the board to all Gypframe 'I' studs. Reduce screws to 200mm centres at external angles and stagger board joints between layers.

Table 1 – ShaftWall (vertical elements)

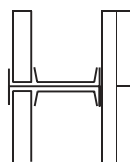
Solutions to satisfy the requirements of BS 476: Part 22: 1987, ASTM E119 and ANSI / UL 263

1



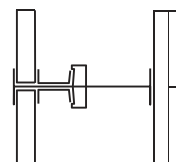
Gypframe 70 or 100mm 'I' Stud framework at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. Lining boards, to the non-shaft side, and ISOVER Eco APR as per the listings in the table below.

2



Gypframe 70 or 100mm 'I' Stud framework at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. ISOVER Eco APR in the cavity. Lining boards, to the non-shaft side, and ISOVER Eco APR as per the listings in the table below.

3



Gypframe 150 I 90 'I' Stud framework at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. ISOVER Eco APR in the cavity. Lining boards, to the non-shaft side, and ISOVER Eco APR as per the listings in the table below.

Detail	Partition thickness	Lining boards to non-shaft side ¹		Maximum partition heights ¹	Stud size	ISOVER Eco APR	Sound insulation ² (sealed structure)		Duty rating ⁴	Approx. weight
	mm	Board type	Lining thickness	mm	mm	mm	R _w dB	STC dB		kg/m ²

60 minutes fire resistance⁵

1	87	FireStop	1 x 15	4200	70	50	42	43	Heavy	30
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120 minutes fire resistance⁵

2	102	FireStop	2 x 15	4500	70	50	45	46	Severe	43
2	132	FireStop	2 x 15	6700	100	50	49	50	Severe	44
2	132	FireStop	2 x 15	6700	100	75	50	51	Severe	44
3	182	FireStop	2 x 15	7900	150	25	48	48	Severe	46
3	182	FireStop	2 x 15	7900	150	100	50	50	Severe	46

¹ For improved durability and impact resistance, the outer layer of Gyproc FireStop can be replaced with a layer of Gyproc DuraLine or equivalent thickness Gyproc Habito (also for increased fixing capability). On single layer linings this will improve duty rating to Severe Duty.

² Based on a limiting deflection of L/240 at 200 Pa.

³ The acoustic performance figures quoted are for sealed structures. In addition to sealing of the perimeter framing with Gyproc Sealant, Gyproc CoreBoards are bedded into sealant as well as the fire stops within the head channel. The acoustic performance figures quoted include ShaftWall partitions with deflection heads with a ceiling element to one side. Where a ceiling is not present, then 50mm wide strips of Gyproc CoreBoard, or FireStop, are bedded in Gyproc Sealant and fixed at 600mm centres to the soffit to the non-shaft side, closely fitted against the deflection head ensuring a minimum overlap of 4mm with the lining boards.

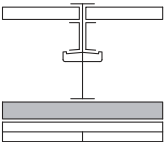
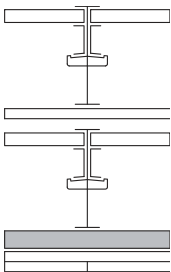
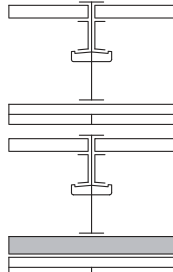
⁴ Duty rating is estimated from non-shaft side only

⁵ When exposed to fire from the non-shaft side, the fire integrity of the partition is maintained as per the classification, however the temperature of exposed metal exceeds the requirements of ASTM E119 & BS 476: Part 22: 1987 within the fire test period. Therefore, relaxation should be sought from the approving authority on the basis that no combustible materials are likely to be stored on the shaft side adjacent to the structure. In situations where the full period of fire insulation is required, contact the Gyproc Technical Team for further guidance.

NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB For heights up to 4200mm, Gypframe Standard Channel should be used at the base and Gypframe Deep Channel at the head. For heights between 4200mm and 8000mm Gypframe Deep Channel should be used at the head and base. For heights in excess of 8000mm Gypframe Extra Deep Channel should be used at the base and at the head (subject to deflection head criteria).

Table 2 – ShaftWall (horizontal elements)
Solutions to satisfy the requirements of BS 476: Part 22: 1987.

<p>1</p>  <p>Gypframe 70 or 100mm 'I' Stud or Gypframe 150 I 90 tabbed 'I' Stud frames at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. 25mm ISOVER Eco APR in cavity (optional). Gypframe MF5 Ceiling Sections fixed to ceiling side at 400mm centres. Lining boards to ceiling side, see table.</p>	<p>2</p>  <p>Two Gypframe 150 I 90 tabbed 'I' Stud frames at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. 25mm ISOVER Eco APR in cavity (optional). On the lower framework only, Gypframe MF5 Ceiling Sections fixed to ceiling side at 400mm centres. Lining boards to ceiling side, see table.</p>	<p>3</p>  <p>Two Gypframe 150 I 90 tabbed 'I' Stud frames at 600mm centres with Gyproc CoreBoard between studs, secured by Gypframe Retaining Channel. 25mm ISOVER Eco APR in cavity (optional). On the lower framework only, Gypframe MF5 Ceiling Sections fixed to ceiling side at 400mm centres. Lining boards to ceiling side, see table.</p>
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Detail	Membrane thickness	Lining boards to ceilings		Maximum span ¹	Stud size	Sound insulation R _w		Approx. weight
	mm	Board type	Lining thickness			No Insulation	Sealed structure plus 25mm ISOVER Eco APR	
			mm	mm	mm	dB	dB	kg/m ²

60 minutes fire resistance

1	124	FireStop	2 x 15	2800	70	42	45	39
1	154	FireStop	2 x 15	3700	100	44	46	39
2	204	FireStop	2 x 15	5100	150	48	50	39

90 minutes fire resistance

2	391	<div> <div>FireStop upper frame</div> <div>FireStop lower frame</div> </div>		1 x 15 2 x 15	5100	150	48	50	77
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120 minutes fire resistance

3	406	<div> <div>FireStop upper frame</div> <div>FireStop lower frame</div> </div>		2 x 15 2 x 15	5100	150	48	50	88
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¹ Based on a limiting deflection of L/400. Additional weight applied to the ceiling will reduce the span. Please contact the Gyproc Technical Team for guidance.

² Gyproc CoreBoard and CoreBoard fire stops within the head channel, are bedded onto Gyproc Sealant, as required for sealed air shafts, in addition to normal sealing of the perimeter.

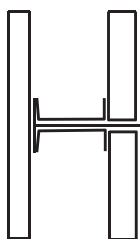
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled according to Gyproc recommendations. The quoted performances are achieved only if Gyproc components are used throughout and the company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with the Gyproc Technical Team.

NB ShaftWall used horizontally should not be used for materials storage or access for personnel, or to provide support to services.

NB Gypframe Extra Deep Channel should be used at perimeter.

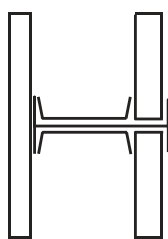
Table 3 - ShaftWall (vertical elements) - limiting heights at various air pressures and allowable deflections

1



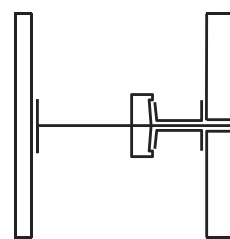
Gyproframe 70 I 70 'I' Stud framework at 600mm centres with one layer of 15mm Gyproc FireStop¹.

2



Gyproframe 100 I 80 'I' Stud framework at 600mm centres with one layer of 15mm Gyproc FireStop¹.

3



Gyproframe 150 I 90 tabbed 'I' Stud framework at 600mm centres with one layer of 15mm Gyproc FireStop¹.

Detail	Allowable deflection	Limiting height (mm) at stated air pressure (Pa)								
		200	240	300	360	400	480	500	600	650

60 minute solutions

1	L/125	5000	4700	4400	4100	4000	3800	3700	3500	3400
	L/240	4200	4000	3700	3500	3300	3200	3100	2900	2800
	L/360	3700	3500	3300	3100	2900	2800	2700	2600	2500
2	L/125	7500	7100	6600	6200	6000	5700	5500	5200	5100
	L/240	6000	5700	5300	5000	4800	4600	4400	4200	4100
	L/360	5200	4900	4600	4300	4200	4000	3900	3600	3500
3	L/125	9600	9000	8400	7900	7600	7200	7100	6700	6500
	L/240	7700	7300	6700	6400	6100	5800	5700	5400	5200
	L/360	6700	6400	5900	5500	5400	5000	5000	4700	4600

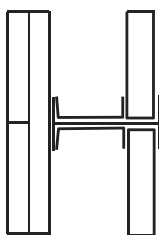
Table 3 gives the limiting heights for ShaftWall systems when subjected to air pressures ranging from 200 Pa through to 650 Pa and at three allowable deflection levels - L/125, L/240, L/360. Partition heights are normally quoted for air pressures of 200 Pa at an allowable deflection of L/240. Refer to Limiting heights at different air pressures, in Design section.

¹For improved durability and impact resistance, the outer layer of Gyproc FireStop can be replaced with a layer of Gyproc DuraLine or equivalent thickness Gyproc Habito (also for increased fixing capability). On single layer linings this will improve duty rating to Severe Duty.

NB For heights up to 4200mm Gyproframe Standard Channel should be used at the base and Gyproframe Deep Channel at the head. For heights between 4200mm and 8000mm Gyproframe Deep Channel should be used at the head and base. For heights in excess of 8000mm Gyproframe Extra Deep Channel should be used at the base and at the head (subject to deflection head criteria).

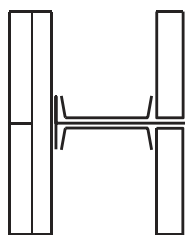
Table 4 - ShaftWall (vertical elements) - limiting heights at various air pressures and allowable deflections

4



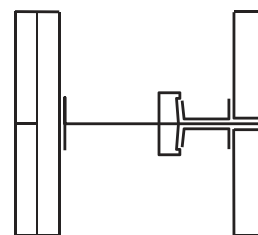
Gypframe 70 I 70 'I' Stud framework at 600mm centres with two layers of 15mm Gyproc FireStop¹.

5



Gypframe 100 I 80 'I' Stud framework at 600mm centres with two layers of 15mm Gyproc FireStop¹.

6



Gypframe 150 I 90 tabbed 'I' Stud framework at 600mm centres with two layers of 15mm Gyproc FireStop¹.

Detail	Allowable deflection	Limiting height (mm) at stated air pressure (Pa)								
		200	240	300	360	400	480	500	600	650

120 minute solutions

4	L/125	5200	4900	4600	4300	4100	4000	3800	3600	3500
	L/240	4500	4200	3900	3700	3500	3400	3300	3100	3000
	L/360	3900	3700	3400	3200	3100	3000	2900	2700	2600
5	L/125	8400	7900	7300	6900	6600	6400	6200	5800	5600
	L/240	6700	6300	5900	5500	5300	5100	5000	4700	4500
	L/360	5600	5300	4900	4600	4500	4300	4100	3900	3800
6	L/125	9900	9300	8600	8100	7800	7500	7200	6800	6600
	L/240	7900	7400	6900	6500	6300	6000	5800	5500	5300
	L/360	6900	6500	6000	5700	5500	5300	5100	4800	4700

Table 4 gives the limiting heights for ShaftWall systems when subjected to air pressures ranging from 200 Pa through to 650 Pa and at three allowable deflection levels - L/125, L/240, L/360. Partition heights are normally quoted for air pressures of 200 Pa at an allowable deflection of L/240. Refer to Limiting heights at different air pressures, in Design section.

¹ For improved durability and impact resistance, the outer layer of Gyproc FireStop can be replaced with a layer of Gyproc DuraLine or equivalent thickness Gyproc Habito (also for increased fixing capability). On single layer linings this will improve duty rating to Severe Duty.

NB For heights up to 4200mm Gypframe Standard Channel should be used at the base and Gypframe Deep Channel at the head. For heights between 4200mm and 8000mm Gypframe Deep Channel should be used at the head and base. For heights in excess of 8000mm Gypframe Extra Deep Channel should be used at the base and at the head (subject to deflection head criteria).

Design

Planning – key factors

GypWall ShaftWall comprises Gypframe 'I' Studs and Gypframe Starter Channels within Gypframe Floor & Ceiling Channels. The shaft-side boards (Gyproc CoreBoard) are placed between the Gypframe 'I' studs and secured in place with Gypframe Retaining Channels; which enables construction from one side only.

The position of services and heavy fixtures should be pre-determined and their installation planned into the frame erection stage.

GypWall ShaftWall systems are normally incorporated at an early stage within the project, and as such it is important that a good standard of control is exercised on site to ensure that the adoption of drylining techniques at such an early stage of construction is fully integrated into the site planning programme. If the building envelope is left unsealed while ShaftWall is under construction where excessive humidity or where excessive amounts of water for construction use could lead to accidental water damage, Gyproc FireStop MR, Gyproc DuraLine MR, Gyproc Habito MR or Glasroc X should be used for the lining. All penetrations will need to be adequately fire-stopped.

Fire Performance

When exposed to fire from the corridor or 'non-shaft' side, the fire integrity of the partition is maintained as per the classification, however the temperature of exposed metal exceeds the requirements of ASTM E119 & BS 476: Part 22: 1987 within the fire test period. Therefore, relaxation should be sought from the relevant approving authority on the basis that no combustible materials, are likely to be stored on the shaft side adjacent to the structure. In situations, where the full period of fire integrity plus fire insulation is required, specify the next level of fire classification, for example of 60 minutes is required, use a 90 minute specification. Where 120 minutes is required, replace the inner layer of 15mm Gyproc FireStop (corridor side) with 19mm Gyproc CoreBoard, fixed horizontally. Contact the Gyproc Technical Team for further guidance.

Acoustic performance

The quoted sound insulation performances of ShaftWall, detailed in the preceding performance tables are for sealed structures. In addition to sealing of the perimeter framing with Gyproc Sealant, Gyproc CoreBoards are bedded into sealant as well as the fire stops within the head channel. The acoustic performance figures quoted include ShaftWall partitions with deflection heads with a ceiling element to one side. Where a ceiling is not present, then 50mm wide strips of Gyproc CoreBoard, or FireStop, are bedded in Gyproc Sealant and fixed at 600mm centres to the soffit to the non-shaft side, closely fitted against the deflection head ensuring a minimum overlap of 4mm with the lining boards.

Further sound insulation improvement can be achieved by substituting Gyproc DuraLine or Gyproc Habito of equivalent thickness in lieu of Gyproc FireStop, providing 1-2dB improvement. The installation of a Gypframe RB1 Resilient Bar may further improve performance, contact the Gyproc Technical Team for further guidance.

Fixing floor and ceiling channels

Gypframe Floor Channels must be securely fixed with a row of fixings at 600mm maximum centres. For 94mm and above, two rows of staggered fixings are required, each row at 600mm centres and each fixing 25mm in from the flange. Gypframe Ceiling Channels must be securely fixed with a row of fixings at 300mm maximum centres. For 94mm and above, again two rows of staggered fixings are required, each row at 300mm centres and each fixing 25mm in from the flange.

The channel must have continuous support along its length to maintain specified performance levels. If continuous support is not provided by the structure, e.g. Z-sections running transverse to a steel beam, the designer should detail the installation of a rigid non-combustible material between the Z-sections. Z-sections need to be protected and remain in-situ in the event of a fire, taking into account any loads they are supporting.

In situations where the floor channel is fixed inline to diagonal structural steel, the studs should be accurately scribed to the rake of the channel to maintain the full bearing surface.

If the floor is uneven, a 38mm thick timber sole plate equal to the width of the channel should be used. If the concrete or screeded floor is new and still damp, consideration should be given to the installation of a damp-proof membrane between the floor surface and the channel or sole plate.

Splicing

Splicing details vary dependent upon which stud system is used. Refer to construction details 14 & 15 on page 191.

Fixing to metal decking

Where ShaftWall is to be located transverse to the profiles of the decking, all slots or perforations above the head channel should be sealed using a proprietary fire barrier or fire spray. Fire-stopping material can be applied prior to the head channel being positioned, providing that any surplus is removed flush with the steel decking.

Fixing to structural steel encasements

Where ShaftWall abuts a column or beam encasement, the framing will generally require fixing through to the structural steelwork or through to the structural framing of the encasement. Where ShaftWall abuts the web of the steelwork a Z-section can be located to provide a fixing point level with the flanges of the steelwork.

Connection to the structure

Structural steelwork and its associated connections often result in complex junctions around shafts. If ShaftWall is built on the same line as the beamwork framing the shaft, problems may arise in trying to seal the wall up to the steelwork. It is recommended that, wherever possible, the wall should be located to one side of the beams, and fixed from structural floor to structural soffit.

Design (continued)

Partition to structural steelwork junctions

When designing the layout of rooms requiring separation by sound insulating walls abutting structural steelwork, consideration should be given to the potential loss of sound insulation performance through the steelwork. Refer to Building acoustics for guidance.

Door openings

In the case of both normal access doors and lift doors, the door and frame assembly must have been shown by a fire resistance test to achieve the required standard of performance in this form of construction.

Lift doors must be substantiated in conjunction with ShaftWall complete with their framing members and transom panels. To achieve a satisfactory level of compatibility, a suitable starter channel should be mechanically fixed to the door frame at 300mm centres. Refer to construction detail 25 within this section.

Pressurised airshafts and service ducts

The use of pressure conditions in various types of shaft / duct requires that the boards should be sealed into the framing members using Gyproc Sealant in addition to the normal sealing of the framing to adjoining structures. It is essential that these areas are identified at a very early stage of the contract, and that other trades are instructed to recognise the need for the application of sealant and its replacement if subsequently damaged or removed. In order that the integrity of the pressurised system can be maintained, Gyproc Sealant should be specified for all board-to-metal applications, and the sealing of Gyproc CoreBoard to the framing. Refer to construction details 16 - 19 within this section.

Control joints

Control joints may need to be considered in conditions where excessive movement is likely to occur, or to coincide with constructional expansion joints. In order that the deflection criteria can be maintained throughout the building, it is necessary to introduce horizontal movement joints in the lining where this would normally be required to extend through the height of the building, e.g. stairwells. The horizontal movement joint can be accommodated adjacent to the floor slab. Refer to construction detail 29 within this section.

Deflection heads

Deflection heads, by definition, must be able to move and, therefore, achieving an airtight seal is difficult. Inevitably, this will have a detrimental effect on the acoustic performance of any wall that incorporates deflection at the head. In most cases, a suspended ceiling will assist in minimising loss of performance. Refer to construction details 12 - 13 for standard head details.

Gyproc FireStrip must be applied as a continuous seal where the soffit shows signs of undulation or where small gaps, cracks or holes are apparent to maintain fire performance. Also, board fixings must not be inserted above the uppermost line depicted by the red arrow in each drawing. Where greater deflection needs to be accommodated, contact the Gyproc Technical Team for further guidance.

Limiting heights at different air pressures

The maximum heights quoted in the performance tables for vertical elements are based on a limiting deflection of L/240 at 200 Pa. In practice, deflection from L/125 to L/360 may be allowed and pressure conditions between 200 Pa and 650 Pa may be encountered. These variations will affect the maximum wall height. Refer to table 3 and 4.

Deflection criteria

Partitions built to a maximum height based on L/125 at 200 Pa will exhibit greater deflection compared to partitions built to a maximum height based on L/240 at 200 Pa. Partitions with deflection characteristics outside the standard L/240 criteria will exhibit more flex during installation and in general use, and therefore we recommend you verify the acceptability of the deflections with the relevant interested parties before specifying / installing partitions based on L/125 criteria.

Services

Penetrations

Penetrations of fire-resistant constructions for services should be minimised, however if essential, careful consideration should be given to ensure that the integrity of the element is not impaired, and that the services themselves do not act as the mechanism of fire spread. Refer to Service installations for further information.

Independent support

When designing for the installation of services such as fire dampers and associated ductwork through ShaftWall, consideration should be given to the size and weight of the damper - this will determine whether it can be supported directly from the partition or needs to be independently supported from the structure. Refer to GypWall CLASSIC - construction details 33-35 on pages 91-92.

Openings bridging studs

Openings should be constructed using channels for the trimming members. The web of the channel should be rebated to allow the flanges to oversail the stud. The flanges are secured with two fixings. Channels are cut and inserted to maintain the 25mm gap surround and fixed to the trimming channels. Refer to construction detail 20 within this section.

Openings between studs

The opening is constructed using channels for the trimming members. The web should be rebated and the flanges allowed to oversail the studs. The stud is secured with two fixings. Channels are cut and inserted with the webs folded to provide fixings. A plasterboard packer is inserted adjacent to the stud. Refer to construction detail 21 within this section.

Electrical

The installation of electrical services should be carried out in accordance with BS 7671. The positions for light switches and other electrical outlets should be pre-determined in order that provision can be made for support, and also for the fire integrity of the system.

Design (continued)

Gypframe 103 FC 50 Fixing Channel should be cut to bridge adjoining studs, with the edges flattened to permit fixing. The fixing channel should be backed with stone mineral wool. Gyproc FireStop linings should be cut to allow a close fitting entry of the switch box which can be secured to the fixing channel. Refer to construction detail 7 within this section.

Access for maintenance

For access doors, openings should be framed to avoid impairing the structural or fire-resistant properties of ShaftWall. To provide an opening ready to receive a door set, the jambs to storey height should be capped with Gypframe Extra Deep Channel incorporating a plasterboard packer. A pre-formed spandrel panel assembled between starter channels should be inserted between jambs and engaged into the head channel, retaining the 15mm gap for deflection at the head. Refer to construction detail 22, 23 and 25 within this section.

Support is provided by a Gypframe Channel transom. The door frame is secured to both Gypframe 'I' Stud and Gypframe Extra Deep Channel jambs and also to the transom member.

Fixtures

Lightweight fixtures can be made directly to the partition board linings. Medium weight fixtures can be made to Gypframe 103 FC 50 Fixing Channel. Heavyweight fixtures (to BS 5234: Part 2) such as wash basins and wall cupboards, can be fixed using plywood secured by Gypframe Service Support Plates. Refer to Service installations for further information.

Where it is not possible to predetermine the exact location of fixtures, or where additional fixtures may be added or moved around the room in the future, Gyproc Habito board should be considered as the lining board where medium and/or heavy weight fixtures are to be included. Refer to GypWall HABITO on page 118 for further information.

Board finishing

Refer to Finishing systems on page 298.

Tiling

Tiles up to 32 kg/m² can be applied to the surface of Gyproc plasterboard systems. Tiles up to 60 kg/m² can be applied when using Glasroc X or Aquaroc FC board. Refer to Tiling on page 304 for further information.

Mold & moisture protection

Where additional protection against moisture is required, for example in a bathroom, kitchen or other area subject to intermittent humidity, then the moisture resistant grade of the required board type should be specified – for example Gyproc FireStop MR. Similarly, if protection against mold spores forming is required then M2TECH (mold & moisture technology) versions of the boards should be specified – for example Gyproc FireStop or Gyproc CoreBoard M2TECH.

Using MR or M2TECH versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Air quality

Consideration should be given to specifying plasterboard linings that, in addition to the performances listed in the preceding tables from page 182-183 (covering fire, acoustic, duty rating etc), actively absorb harmful volatile organic compounds (VOC's) such as formaldehyde, from the atmosphere. Where additional protection against VOC's is required, then Activ'Air versions of the boards listed in these pages should be specified – for example Gyproc FireStop or Gyproc CoreBoard Activ'Air.

Using Activ'Air versions of any of the plasterboard linings listed in the performance tables, will not affect the fire, acoustic, height or robustness performances listed.

Horizontal ShaftWall

ShaftWall can be specified for horizontal applications as a free-spanning membrane with no support from the soffit. The membrane can be constructed entirely from below and can achieve spans up to 5100mm and fire resistance up to 120 minutes. A typical application is for fire escape corridors. Services should be independently supported from the building structure.

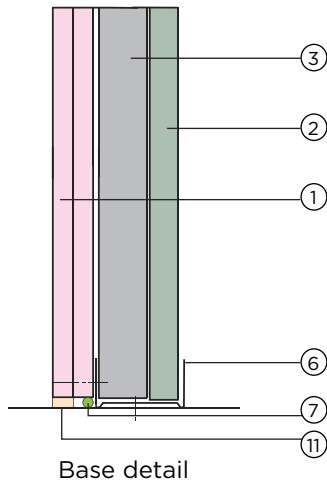
Supporting partitions should be of a greater fire resistance period than that of the horizontal ShaftWall. Contact the Gyproc Technical Team for further guidance.

Construction details

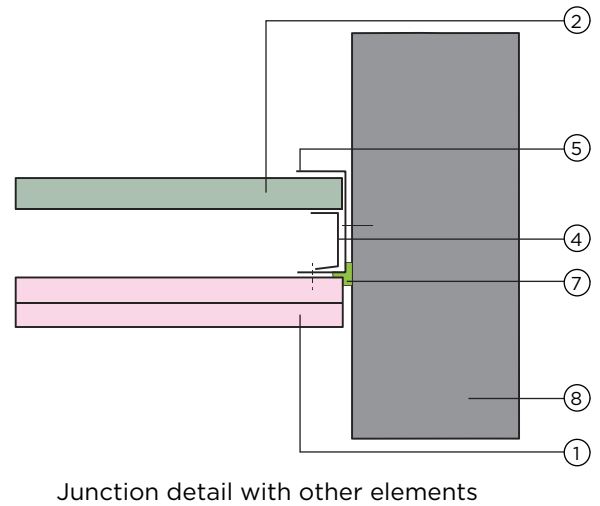
For ShaftWall construction details, refer to the construction details shown on pages 189 to 197. For more typical or example details, please contact the Gyproc Technical Team.

Construction details

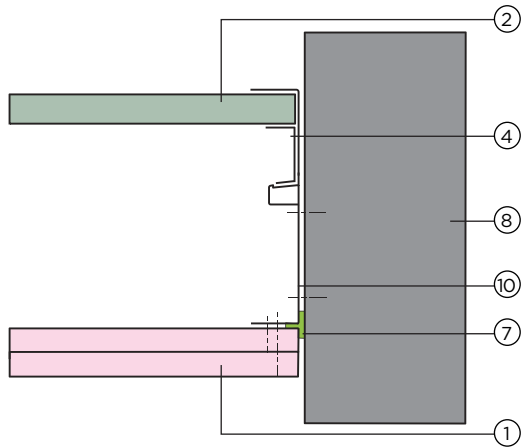
1



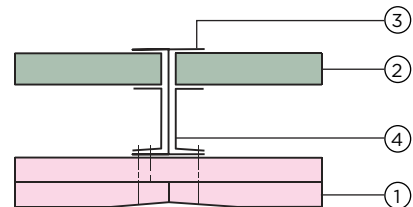
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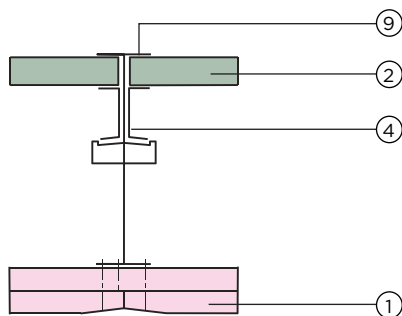
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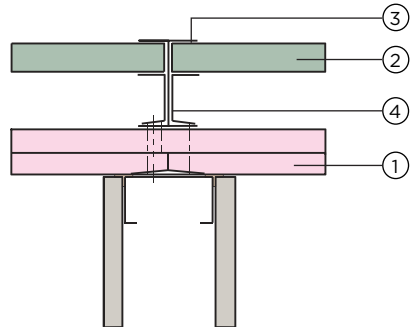
4



5



6

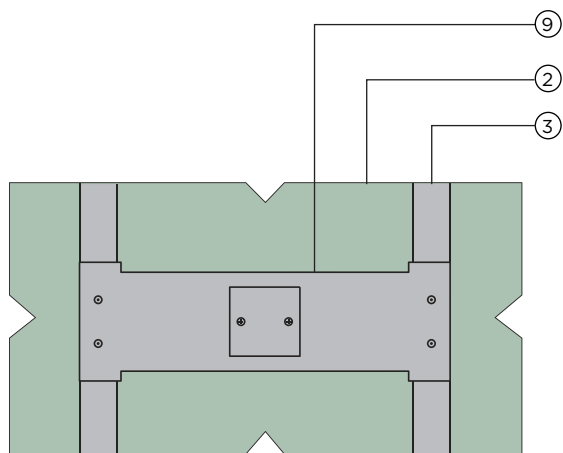
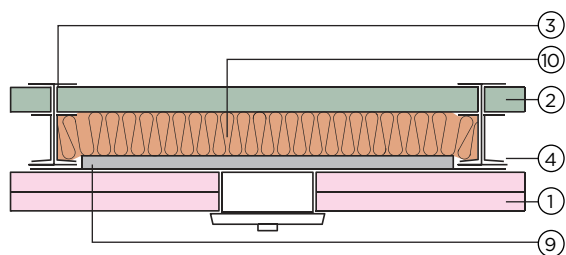


1. Gyproc FireStop
2. Gyproc CoreBoard
3. Gypframe 'I' Stud
4. Gypframe Retaining Channel
5. Gypframe Starter Channel
6. Gypframe Deep Channel

7. Gyproc Sealant
8. Structure
9. Gypframe 150 I 90 tabbed 'I' Stud
10. Gypframe 150 SC 90 tabbed Starter Channel
11. Bulk fill with Gyproc Jointing Compound (where gap exceeds 5mm)

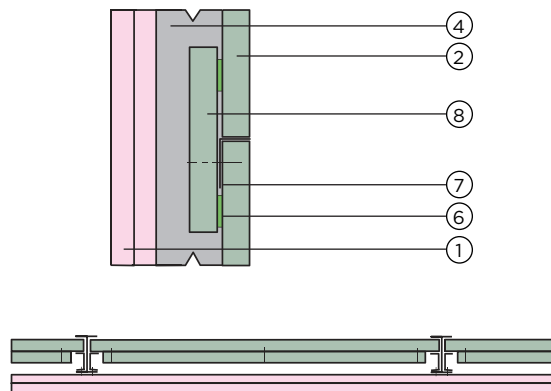
Construction details (continued)

7



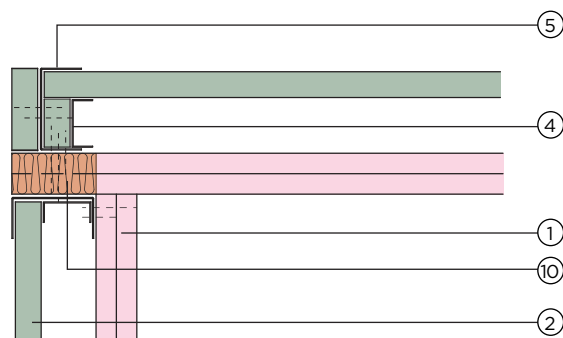
Socket box detail

8



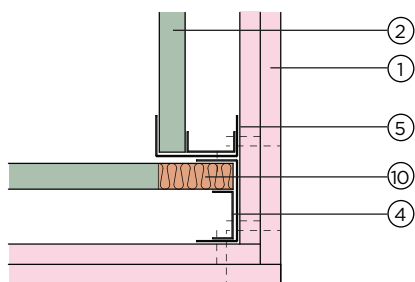
Gyproc CoreBoard horizontal joint detail

9



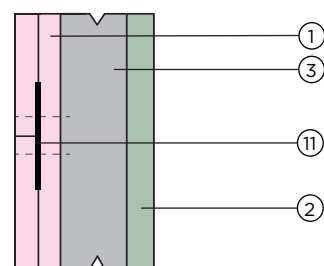
Internal corner detail

10



External corner detail

11



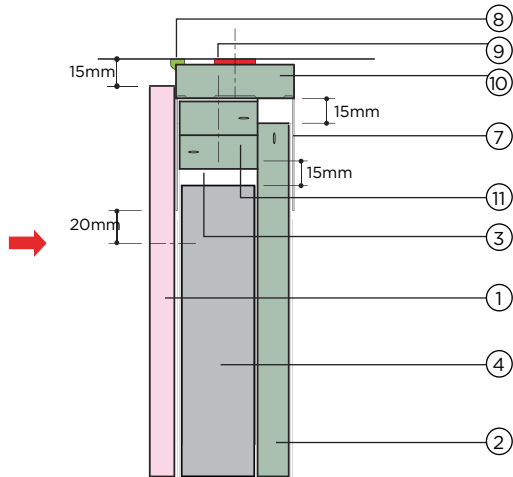
Horizontal board joint detail

1. Gyproc FireStop
2. Gyproc CoreBoard
3. Gypframe 'I' Stud
4. Gypframe Retaining Channel
5. Gypframe Starter Channel
6. Gyproc Sealant

7. Gypframe GA3 CoreBoard Joint Angle
8. 122mm Gyproc CoreBoard strip (cut on site)
9. Gypframe 103 FC 50 Fixing Channel
10. KIMMCO ISOVER stone mineral wool
11. Gypframe GFS1 Fixing Strap

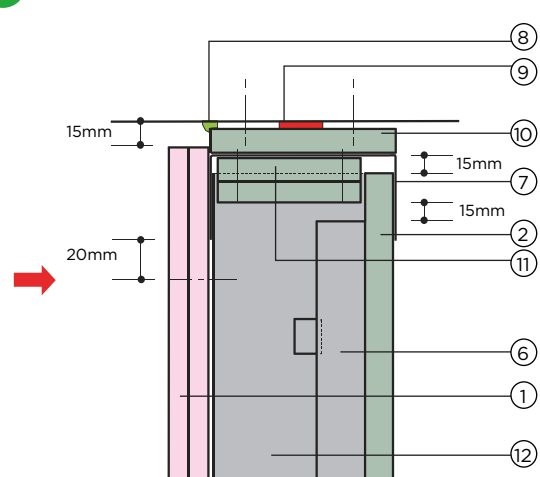
Construction details (continued)

12



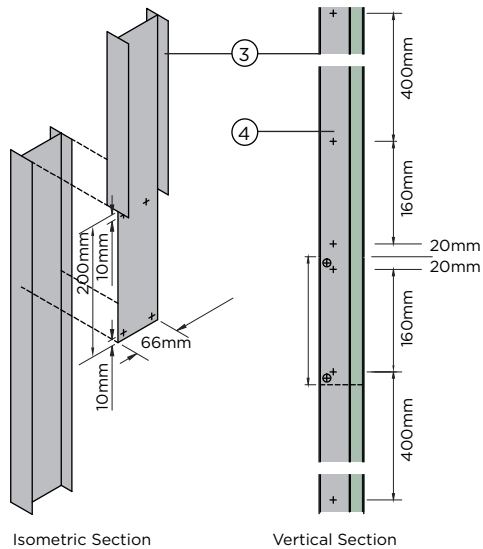
15mm deflection head detail -
applicable to 70mm and 100mm 'I' Studs

13



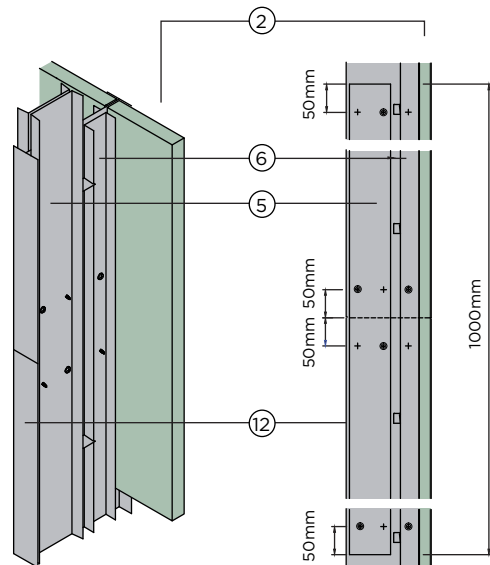
15mm deflection head detail -
applicable to 150mm 'I' Studs

14



70mm and 100mm 'I' Stud splicing detail

15



150mm 'I' Stud splicing detail

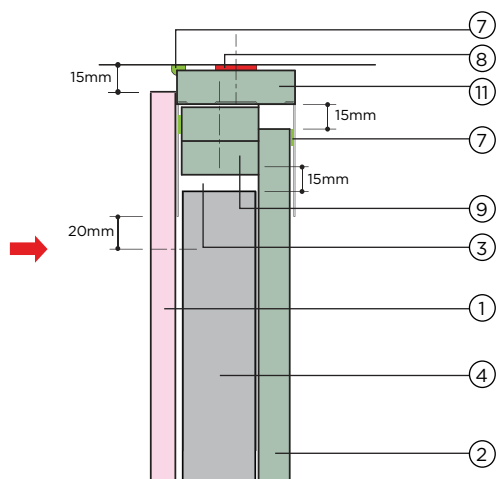
1. Gyproc FireStop
2. Gyproc CoreBoard
3. Gypframe 'I' Stud
4. Gypframe Retaining Channel RC 70 / RC 100
5. Gypframe Retaining Channel RC 100
6. Gypframe Retaining Channel RC 150

7. Gypframe Extra Deep Channel
8. Gyproc Sealant
9. Gyproc FireStrip
10. Gyproc CoreBoard as dropped soffit
11. Gyproc CoreBoard fire-stop
12. Gypframe 150 | 90 tabbed 'I' Stud

NB No fixings should be made through the boards into the flanges of the head channel. The arrow (➡) denotes the position of the uppermost board fixing.

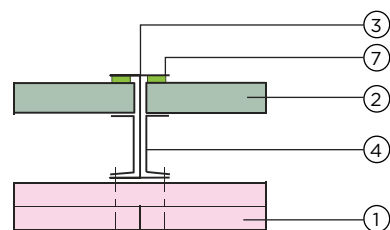
Construction details (continued)

16



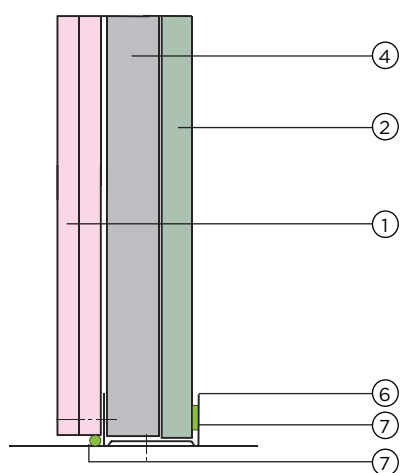
Head detail (sealed structure)

17



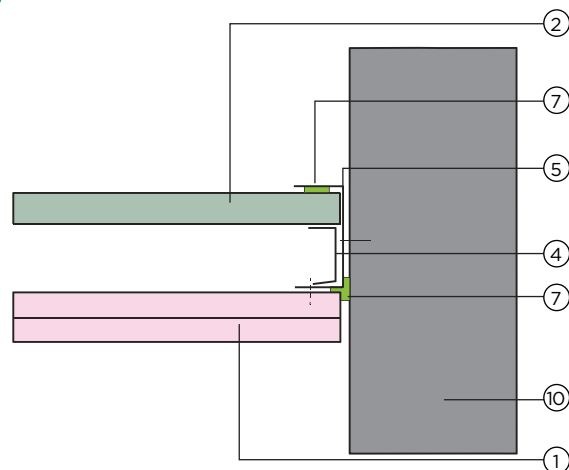
Intermediate stud detail (sealed structure)

18



Base detail (sealed structure)

19

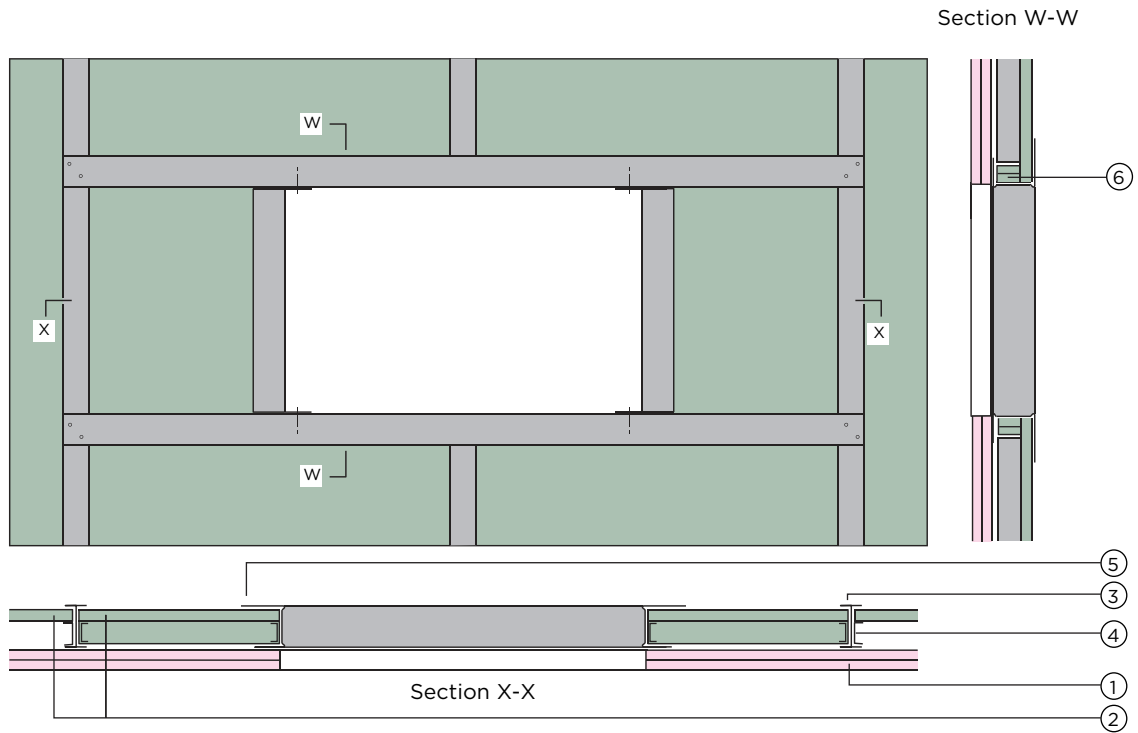
Junction detail with other elements
(sealed structure)

1. Gyproc FireStop
2. Gyproc CoreBoard
3. Gypframe 'I' Stud
4. Gypframe Retaining Channel
5. Gypframe Starter Channel
6. Gypframe Standard Floor & Ceiling Channel

7. Gyproc Sealant
8. Gyproc FireStrip
9. Gyproc CoreBoard fire-stop (cut on site)
10. Structure
11. Gyproc CoreBoard as dropped soffit

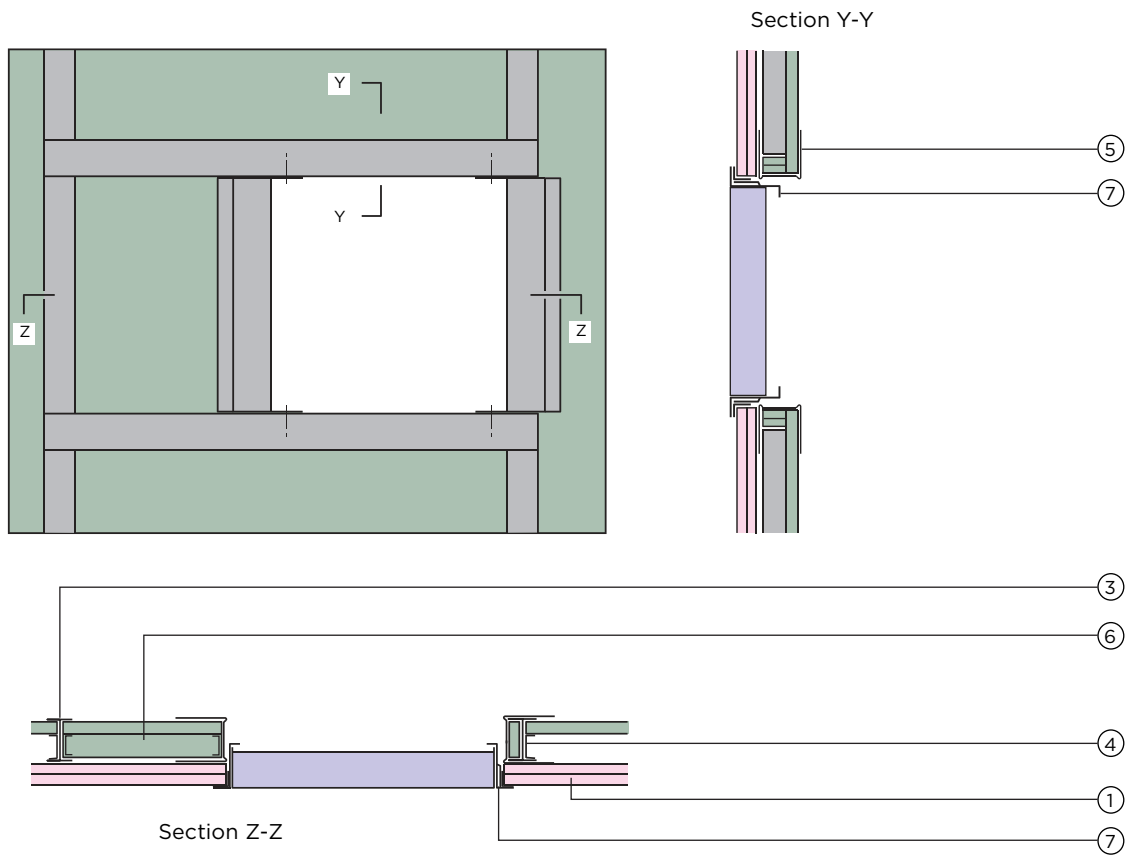
Construction details (continued)

20



Opening bridging studs detail

21

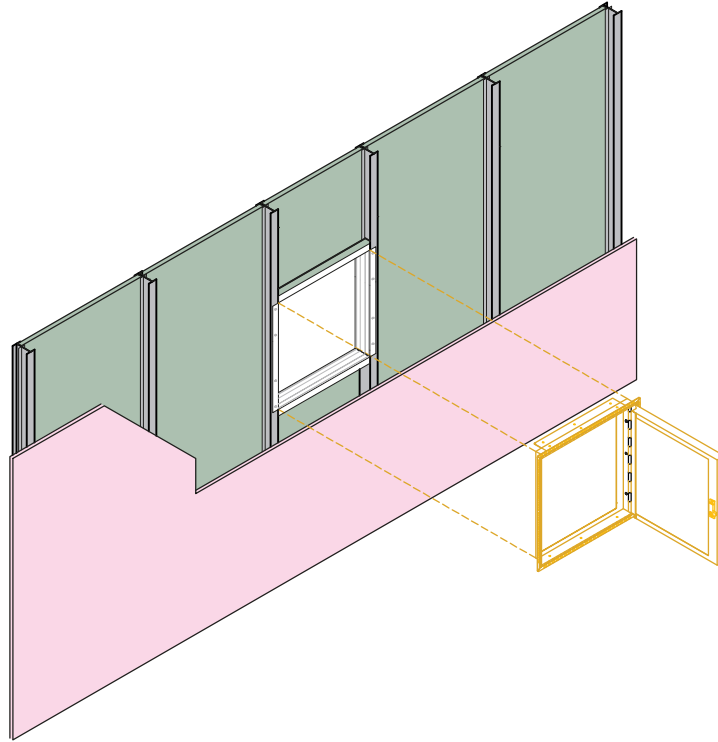


Opening between studs detail

- | | |
|-------------------------------|---|
| 1. Gyproc FireStop | 5. Gypframe Extra Deep Channel (to frame the opening) |
| 2. Gyproc CoreBoard | 6. Gyproc CoreBoard fire-stop (cut on site) |
| 3. Gypframe 'I' Studs | 7. Access panel frame |
| 4. Gypframe Retaining Channel | |

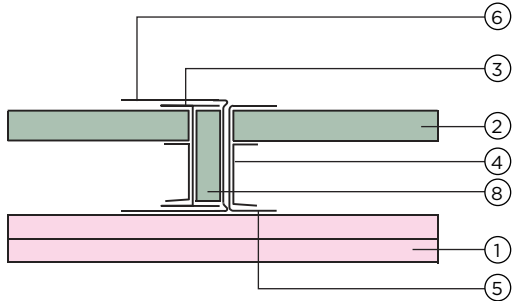
Construction details (continued)

22



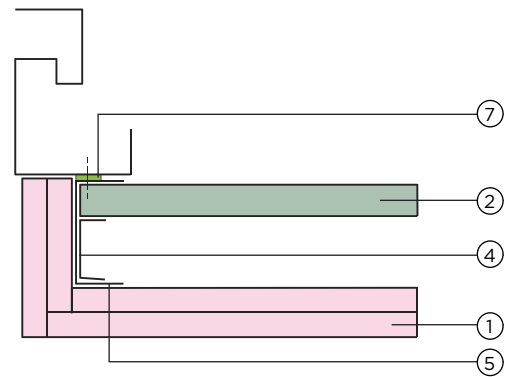
Access Panel on 'I' Stud - Isometric detail

23



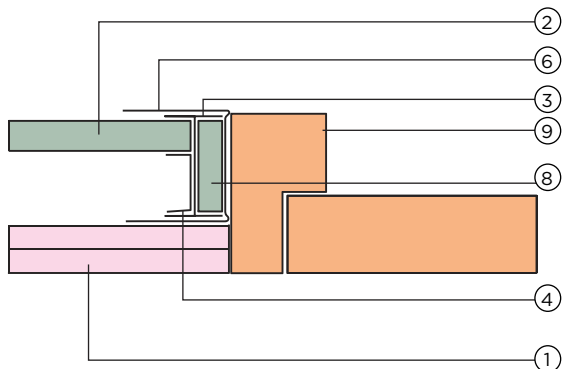
Access door detail - spandrel panel

24



Lift door detail (Gypframe Starter Channel mechanically fixed to frame)

25

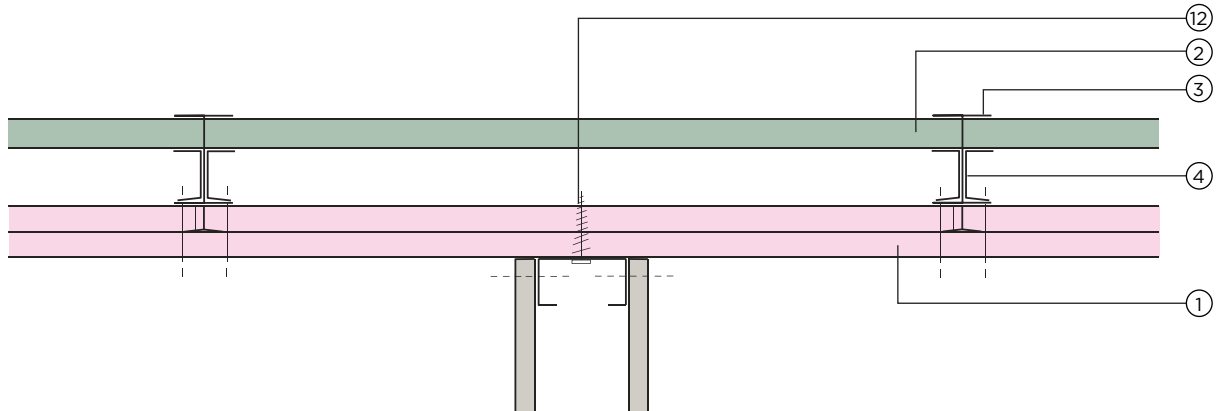


Access door jamb detail

1. Gyproc FireStop
2. Gyproc CoreBoard
3. Gypframe 'I' Studs
4. Gypframe Retaining Channel
5. Gypframe Starter Channel
6. Gypframe Extra Deep Channel
7. Gyproc Sealant
8. Gyproc CoreBoard packer (cut on site)
9. Door frame

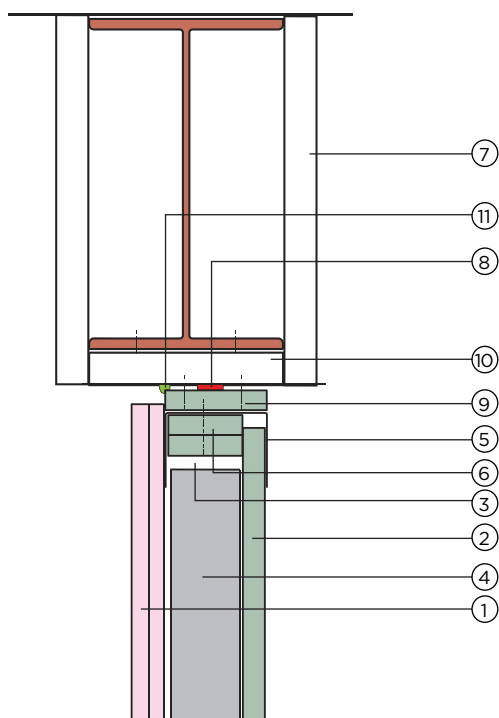
Construction details (continued)

27



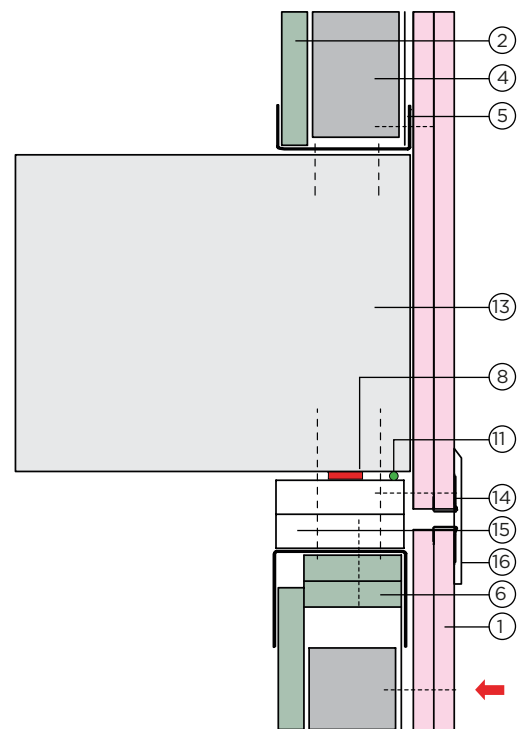
Retro-fit non-performance partition junction detail

28



Fixing head channel detail to Z-section at underside of beams

29



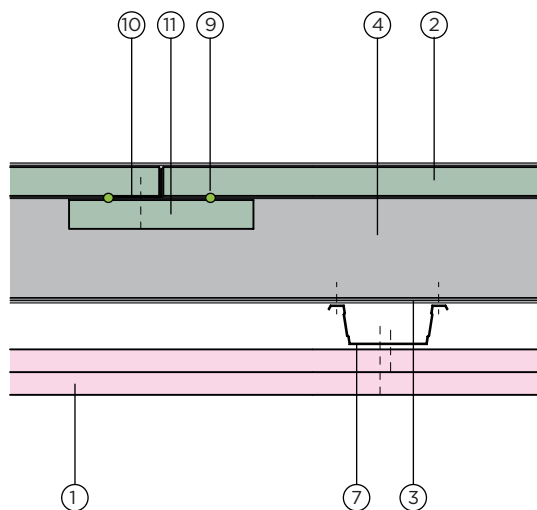
Control joint detail at floor slab junction where lining boards continue

1. Gyproc FireStop
2. Gyproc CoreBoard
3. Gypframe 'I' Studs
4. Gypframe Retaining Channel
5. Gypframe Extra Deep Channel
6. Gyproc CoreBoard fire-stops
7. Beam encasement
8. Gyproc FireStrip

9. Gyproc CoreBoard as dropped soffit
10. Z-section
11. Gyproc Sealant
12. Suitable metal self-drive fixing (by others)
13. Structure
14. Gyproc Edge Bead - if no cover strip is used
15. Glasroc X
16. Cover strip (by others)

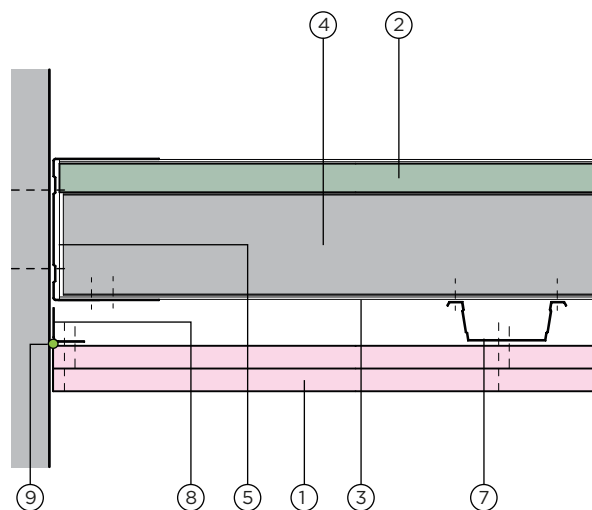
Construction details (continued)

30



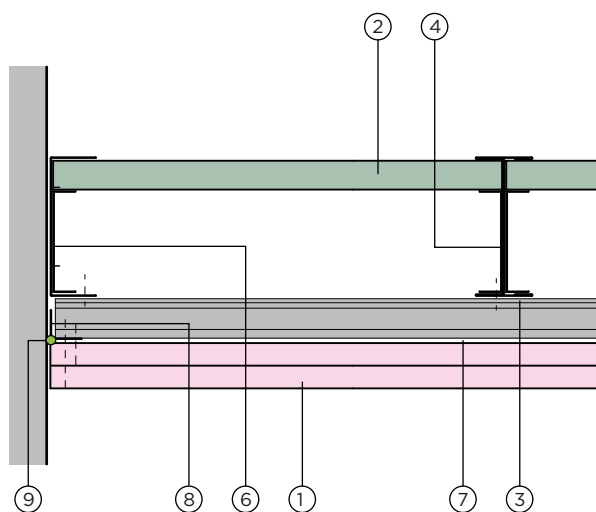
Gyproc CoreBoard joint detail

31



Perimeter detail 1

32

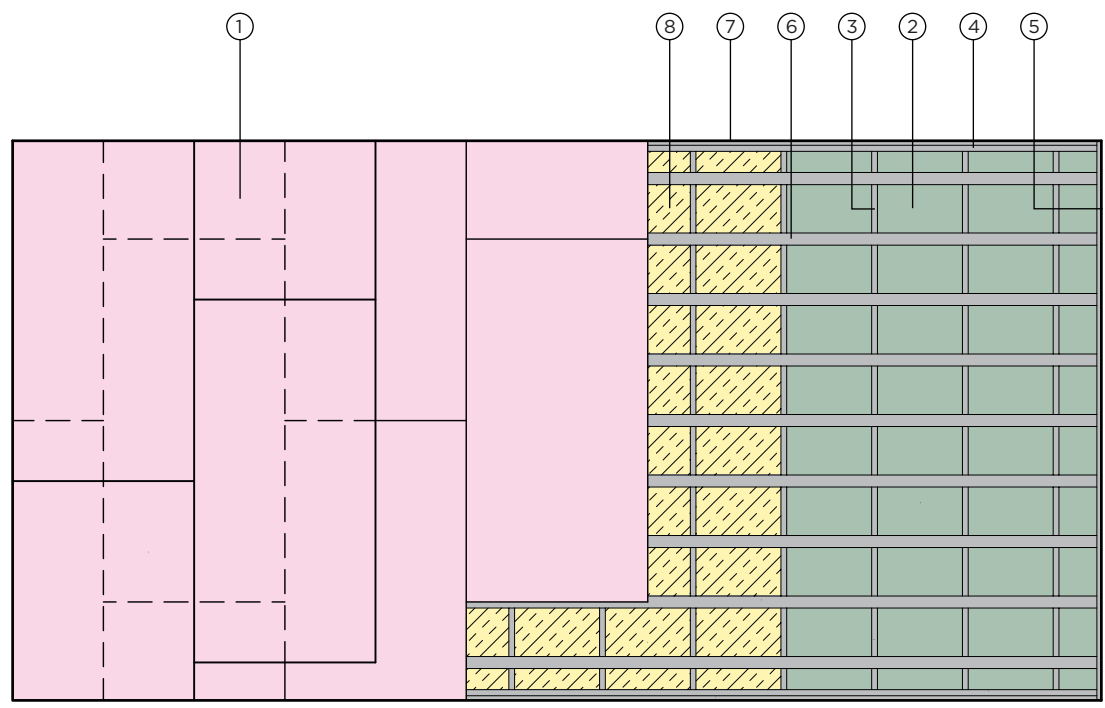


Perimeter detail 2

- | | |
|---|---|
| 1. Gyproc FireStop | 7. Gypframe MF5 Ceiling Section |
| 2. Gyproc CoreBoard | 8. Gypframe GA1 Steel Angle |
| 3. Gypframe 'I' Stud | 9. Gyproc Sealant |
| 4. Gypframe Retaining Channel | 10. Gypframe GA3 Steel Angle |
| 5. Gypframe Extra Deep Flange Floor & Ceiling Channel | 11. 122mm wide strip of 19mm Gyproc CoreBoard |
| 6. Gypframe Starter Channel | |

Construction details (continued)

33



Reflected ceiling plan

- | | |
|---|---------------------------------|
| 1. Gyproc FireStop | 5. Gypframe Starter Channel |
| 2. Gyproc CoreBoard | 6. Gypframe MF5 Ceiling Section |
| 3. Gypframe 'I' Studs | 7. Gypframe GA1 Steel Angle |
| 4. Gypframe Extra Deep Flange Floor & Ceiling Channel | 8. ISOVER Eco APR |