



Fire Rated Systems

Specification and installation manual

CBI5113

SEPTEMBER 2024

NATIONAL SUPPORT

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An effective fire design not only addresses life safety, but also considers personal property protection and ongoing business viability after exposure to a possible fire. The New Zealand Building Code requirements for fire safety represent the minimum allowable standard of protection to ensure the health and life safety of building occupants. The building code provisions aim to protect adjacent property but not the building itself, nor its contents, and often fall short of what people and businesses expect and find acceptable.

Most specifications in this technical literature are similar to those published in 'GIB® Fire Rated Systems, October 2018' with the following additions:

NEW SYSTEMS

- Mass timber encapsulation systems
- Fire rated boxes or bulkheads
- GBS 90a steel frame wall system
- GBTL 30 2S two-sided exposure timber frame wall system
- GBTL 60 2S two-sided exposure timber frame wall system

OTHER ADDITIONS

- Junction details for composite floor, double tee floor and Stahlton Rib & Infill
- Fire-stopping solution for services penetrating a top plate and structural member penetration
- Wingback and shower mixer penetration details
- Wider application of GIB Fire Soundseal®
- Additional wall-to-floor/ceiling junction details with and without GIB® Rondo® Metal Batten Systems
- Control joint detail for fire rated floor/ceiling with suspended grid
- Guidance on how to achieve structural adequacy of the external wall against fire exposure from inside the building



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Fire rated wall systems

Specification number	LB/ NLB	STC/ Rw	FRR	Lining requirements	Detail	Page
Smoke separation - timber or steel frame						
GBSm 10	LB		10/10/10	1 layer 10mm GIB® plasterboard		19
Timber frame						
GBTL 30	LB	33/34	30/30/30	1 layer 10mm GIB Fyrelime®		20
GBTL 30b	LB	35/35	30/30/30	1 layer 13mm GIB® Standard		21
GBTL 30c	LB	33/34	30/30/30	1 layer 10mm GIB® Standard		21
GBTL 60	LB	36/36	60/60/60	1 layer 13mm GIB Fyrelime®		22
GBTL 60b	LB	44/43	60/60/60	2 layers 10mm GIB Fyrelime®		23
GBTL 90	LB	36/37	90/90/90	1 layer 16mm GIB Fyrelime®		24
GBT 120a	NLB	46/45	-/120/120	2 layers 13mm GIB Fyrelime®		25
GBT 120b	NLB	33/37	-/120/120	1 layer 19mm GIB Fyrelime®		26
GBTL 120	LB	45/45	120/120/120	2 layers 16mm GIB Fyrelime®		27
GBT 180	NLB	45/45	-/180/180	2 layers 16mm GIB Fyrelime®		28
GBT 240	NLB	44-55/ 45-56	-/240/240	4 layers 19mm GIB Fyrelime® (Refer to specification for layout)		44
Steel frame						
GBSL 15	LB	35/35	15/15/15	1 layer 13mm GIB® Standard		30
GBS 30	NLB	35/35	-/30/30	1 layer 13mm GIB® Standard		31
GBSL 30a	LB	40/40	30/30/30	1 layer 16mm GIB Fyrelime®		32
GBSL 30b	LB	45/45	30/30/30	2 layers 10mm GIB Fyrelime®		32
GBS 60	NLB	37/37	-/60/60	1 layer 13mm GIB Fyrelime®		33
GBSL 60a	LB	40/40	60/60/60	1 layer 19mm GIB Fyrelime®		34

Fire rated wall – Two-way FRR

Fire rated wall systems

Fire rated wall – Two-way FRR	Specification number	LB/NLB	STC/Rw	FRR	Lining requirements	Detail	Page
	GBSL 60b	LB	48/48	60/60/60	2 layers 13mm GIB Fyrelite®		34
	GBS 90	NLB	40/42	-/90/90	1 layer 16mm GIB Fyrelite®		35
	GBS 90a	NLB	44-47/ 43-48	-/90/90	1 layer 13mm GIB Fyrelite® one side 2 layers 13mm GIB Fyrelite® other side		36
	GBS 90b	NLB	43-51/ 45-53	-/90/90	1 layer 13mm GIB Fyrelite® with a 13mm GIB Fyrelite® central barrier		37
	GBS 60b	NLB	42-50/ 44-52	-/60/60	1 layer 13mm GIB Fyrelite® with a 13mm GIB Fyrelite® central barrier		37
	GBSL 90	LB	47/46	90/90/90	1 layer 16mm GIB Fyrelite® and 1 layer 13mm GIB Fyrelite®		39
	GBS 120	NLB	42/42	-/120/120	1 layer 19mm GIB Fyrelite®		40
	GBS 120a	NLB	52/52	-/120/120	2 layers 16mm GIB Fyrelite®		41
	GBS 120b	NLB	48/48	-/120/120	2 layers 13mm GIB Fyrelite®		42
GBS 240	NLB	44-55/ 45-56	-/240/240	4 layers 19mm GIB Fyrelite® (Refer to specification for layout)		44	

Timber or steel frame							
Fire rated wall – One-way FRR	GBUW 15	LB/ NLB		15/15/15	1 layer 13mm GIB® Standard		46
	GBUW 30a	LB/ NLB		30/30/30	1 layer 16mm GIB Fyrelite®		47
	GBUW 30b	LB/ NLB		30/30/30	2 layers 10mm GIB Fyrelite®		47
	GBUW 60	LB/ NLB		60/60/60	2 layers 13mm GIB Fyrelite®		48
	GBUW 90	LB/ NLB		90/90/90	1 layer 16mm GIB Fyrelite® and 1 layer 19mm GIB Fyrelite®		49
	GBUW 120	LB/ NLB		120/120/120	2 layers 19mm GIB Fyrelite®		50
	GBUW 180	LB/ NLB		180/180/180	3 layers 19mm GIB Fyrelite®		51

Timber frame							
Fire rated wall – Two-sided exposure	GBTL 30 2S	LB	36/36	30/-/-	1 layer 13mm GIB Fyrelite®		52
	GBTL 60 2S	LB	46/45	60/-/-	2 layers 13mm GIB Fyrelite®		53

Fire rated floor/ceiling systems

Specification number	LB/ NLB	STC/ Rw	FRR	IIC	Lining requirements	Page
Timber joist						
GBFC 15	LB	38/38	15/15/15	31	1 layer 13mm GIB® Standard	54
GBFC 30	LB	39/40	30/30/30	32	1 layer 13mm GIB Fyrelime®	56
GBFC 45	LB	39/40	45/45/45	32	1 layer 13mm GIB Fyrelime®	58
GBFC 60	LB	39/40	60/60/60	32	1 layer 16mm GIB Fyrelime®	60
GBFC 90	LB	41/41	90/90/90	34	2 layers 16mm GIB Fyrelime®	62
Timber or steel joist						
GBFC 120	LB		120/120/120		2 layers 19mm GIB Fyrelime®	64
Composite joist						
GBCJ 30	LB	39/40	30/30/30	32	1 layer 13mm GIB Fyrelime®	66
GBCJ 45	LB	39/40	45/45/45	32	1 layer 13mm GIB Fyrelime®	66
GBCJ 60	LB	39/39	60/60/60	32	1 layer 16mm GIB Fyrelime®	67
Steel joist						
GBSJ 30	LB	34/34	30/30/30	30	1 layer 13mm GIB Fyrelime®	68
GBSJ 60	LB	39/39	60/60/60	32	1 layer 16mm GIB Fyrelime®	69
Suspended grid						
GBSC 30	LB	48/47	30/30/30	43	1 layer 13mm GIB Fyrelime® (back blocked)	70
GBSC 60a	LB	53/52	60/60/60	43	2 layers 13mm GIB Fyrelime®	71
GBSC 60b	LB	50/49	60/60/60	43	1 layer 16mm GIB Fyrelime®	72
GBSC 90	LB	53/52	90/90/90	43	1 layer 13mm GIB Fyrelime® and 1 layer 16mm GIB Fyrelime®	73

Fire rated floor/ceiling

Fire rated ceiling systems

	Specification number	LB/NLB	STC/Rw	FRR	Lining requirements	Page
Fire rated ceiling	Timber or steel frame					
	<u>GBUC 15</u>	LB/NLB		15/15/15	1 layer 13mm GIB Fyrelite®	74
	<u>GBUC 30</u>	LB/NLB		30/30/30	1 layer 16mm GIB Fyrelite®	75
	<u>GBUC 60</u>	LB/NLB		60/60/60	2 layers 13mm GIB Fyrelite®	76
	<u>GBUC 90</u>	LB/NLB		90/90/90	2 layers 19mm GIB Fyrelite®	77
	<u>GBUC 120</u>	LB/NLB		120/120/120	2 layers 19mm GIB Fyrelite®	77

Fire rated risers, shafts and ducts

Specification number	LB/NLB	Fire side	FRR	Lining requirements	Page
GIB® Fyreduct™ 900					
GBFD 900-30	NLB	Either	-/30/30	2 layers 10mm GIB Fyreliner®	78
GBFD 900-60	NLB	Either	-/60/60	2 layers 13mm GIB Fyreliner®	78
GBFD 900-90	NLB	Either	-/90/90	2 layers 16mm GIB Fyreliner®	78
GBFD 900-120	NLB	Either	-/120/120	2 layers 19mm GIB Fyreliner®	78
GIB® Fyreduct™ 600					
GBFD 600-30	NLB	Either	-/30/30	2 layers 10mm GIB Fyreliner®	80
GBFD 600-60	NLB	Either	-/60/60	2 layers 13mm GIB Fyreliner®	80
GBFD 600-90	NLB	Either	-/90/90	2 layers 16mm GIB Fyreliner®	80
GBFD 600-120	NLB	Either	-/120/120	2 layers 19mm GIB Fyreliner®	80
GIB® Ventshaft					
GVS 60	NLB	Either	-/60/60	3 layers 16mm GIB Fyreliner®	82
GIB® Shaftwall					
GBSH 30	NLB	Either	-/30/30	1 layer 13mm GIB Fyreliner® (2 layers 13mm GIB Fyreliner® on shaft side)	84
GBSH 60a	NLB	Shaft	-/60/60	1 layer 13mm GIB Fyreliner® (2 layers 13mm GIB Fyreliner® on shaft side)	84
GBSH 60b	NLB	Either	-/60/60	2 layers 13mm GIB Fyreliner® (2 layers 13mm GIB Fyreliner® on shaft side)	84
GBSH 90a	NLB	Shaft	-/90/90	2 layers 13mm GIB Fyreliner® (2 layers 13mm GIB Fyreliner® on shaft side)	84
GBSH 90b	NLB	Either	-/90/90	1 layer 16mm GIB Fyreliner® and 1 layer 13mm GIB Fyreliner® (2 layers 13mm GIB Fyreliner® on shaft side)	84
GBSH 120a	NLB	Shaft	-/120/120	1 layer 16mm GIB Fyreliner® and 1 layer 13mm GIB Fyreliner® (2 layers 13mm GIB Fyreliner® on shaft side)	84
GBSH 120b	NLB	Either	-/120/120	2 layers 19mm GIB Fyreliner® (2 layers 13mm GIB Fyreliner® on shaft side)	84

Fire rated risers, shafts and ducts

Fire rated protection of columns and beams

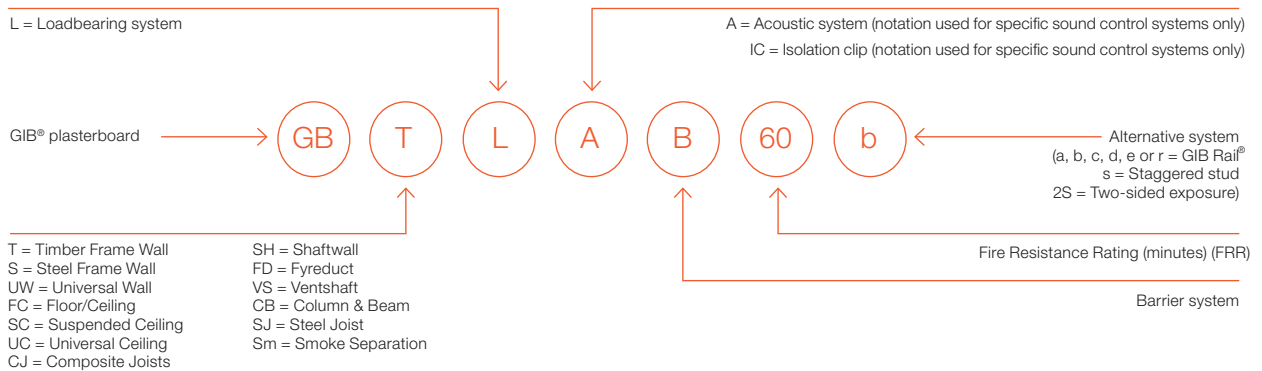
	Specification number	FRR (Structural adequacy rating)	Lining requirements	Page
Fire rated protection of columns and beams	Timber strapping			
	<u>GBCBT 15</u>	15/-/-	1 layer 13mm GIB® Standard	88
	<u>GBCBT 30a</u>	30/-/-	1 layer 16mm GIB Fyrelite®	88
	<u>GBCBT 30b</u>	30/-/-	2 layers 10mm GIB Fyrelite®	88
	<u>GBCBT 60</u>	60/-/-	2 layers 13mm GIB Fyrelite®	88
	<u>GBCBT 90</u>	90/-/-	2 layers 16mm GIB Fyrelite®	88
	<u>GBCBT 120</u>	120/-/-	2 layers 19mm GIB Fyrelite®	88
	<u>GBCBT 180</u>	180/-/-	3 layers 19mm GIB Fyrelite®	88
	Steel clip and channel			
	<u>GBCBS 15</u>	15/-/-	1 layer 13mm GIB® Standard	89
	<u>GBCBS 30a</u>	30/-/-	1 layer 16mm GIB Fyrelite®	89
	<u>GBCBS 30b</u>	30/-/-	2 layers 10mm GIB Fyrelite®	89
	<u>GBCBS 60</u>	60/-/-	2 layers 13mm GIB Fyrelite®	89
	<u>GBCBS 90</u>	90/-/-	2 layers 16mm GIB Fyrelite®	89
	<u>GBCBS 120</u>	120/-/-	2 layers 19mm GIB Fyrelite®	89
<u>GBCBS 180</u>	180/-/-	3 layers 19mm GIB Fyrelite®	89	

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Specification reference example



SPECIFICATION REFERENCE

The specification reference allows a quick and precise reference to a particular system.

SCOPE OF USE

GIB® Fire Rated Systems are designed to provide solutions for fire-resistant vertical and horizontal building elements. The systems offered include both NZBC compliant and discretionary levels of performance. The penetration and junction details in this manual are meant to assist specifiers and builders when designing and constructing buildings that incorporate GIB® Fire Rated Systems.

CUSTOMISED DESIGN SOLUTIONS

The systems detailed in this technical literature should cover most common situations where fire resistance is required. However, for special projects where specific performance is necessary, we can assist you with developing customised solutions. Simply contact us through the GIB® Helpline on 0800 100 442.

BEWARE OF SUBSTITUTION

The performance of fire rated systems is very sensitive to design detailing and construction practices. All GIB® Fire Rated Systems have been developed specifically for New Zealand conditions and independently tested or assessed to ensure the required level of performance. Therefore, it is important to use only GIB® branded components where specified and closely follow the specified design details and construction practices, so you can be confident that the required level of fire safety is achieved on site.

For further information on substitution please contact the GIB® Helpline on 0800 100 442.

FIRE RESISTANCE RATING (FRR)

FRR example:
-/30/30 (i/ii/iii)

- i) Structural adequacy — to prevent collapse of structural (primary) elements during a fire.
Dash (-) indicates a nil rating, e.g., -/30/30 is non-loadbearing
- ii) Integrity — to prevent the passage of flame or hot gases through fire separations
- iii) Insulation — to prevent the transmission of heat to other fire-cells or adjacent property, measured as an average temperature rise of 140°C or a rise of 180°C at any single point on the unexposed face of a specimen

ONE AND TWO-WAY FRRs

An FRR for a wall system generally applies in both directions unless it is a 'one-way' specification. Both the exposed and unexposed linings contribute to the performance of a conventional and symmetrical two-way FRR specification. The exposed lining mainly protects the framing and acts as a radiation shield for the unexposed lining. As cavity temperatures rise, the unexposed lining delays insulation failure on the unexposed face of the specimen.

Specifications with a one-way FRR only protect against fire from the framing side where the protective linings are attached. Cavity temperatures on the unexposed face of the linings can rise to approximately 300°C, but 90mm away the insulation criteria are met. This is why a 90mm cavity is specified with one-way systems and even claddings with poor thermal properties, such as thin steel, are permitted. One-way specifications also protect timber from char and steel from significant loss of strength, and this is why any timber or steel framing is permitted as long as it has the correct spacing and width for fixing of the linings and meets normal (cold) criteria for strength and serviceability.

STRUCTURAL ADEQUACY OF EXTERNAL WALLS

For the protection of external walls supporting a fire-rated floor/ceiling above, 'Universal' GBUW systems are often specified, unless the external wall is in proximity to the relevant boundary, in which case a two-way FRR wall system is required. However, if the external wall is not serving as a boundary fire separation wall, such walls may only be required to achieve a structural adequacy rating against fire exposure from inside the building. The lining on the exterior side helps delay the integrity and insulation failure times but is not essential to achieve the structural adequacy rating.

If an exterior wall is lined on the interior side only with GIB® plasterboard in accordance with a two-way FRR wall specification, the structural adequacy rating of that wall is maintained when fire exposure is from the GIB® plasterboard lining side.

Examples are GBTL 30 (10mm GIB Fyrelite®), GBTL 30b (13 mm GIB® Standard), and GBTL 30c (10mm GIB® Standard) to achieve a 30/-/- external wall FRR. However, it is noted that the mass of the lower unit wall lining assists with achieving required noise attenuation between levels and minimising potential impact and airborne noise flanking via the structure. On this basis, and because the effect of different insulation types is unknown, it is recommended to consider denser or thicker wall lining options.

INDEPENDENTLY TESTED

This document has been appraised by the Building Research Association of New Zealand (BRANZ), Appraisal No. 289 [2024] GIB® Fire Rated Systems, 2024.

The FRRs of specifications published in the document have been obtained by independent testing or assessment sourced from organisations with accredited quality assurance. It is of prime importance to comply with the details of design, construction and workmanship in this document.

GIB® plasterboard is manufactured to strict quality standards.

All GIB® branded accessory products are the subject of ongoing quality control to ensure consistency of supply.

To allow positive identification on site, GIB Fyreline® is printed on the board tapers and centreline and the face paper is coloured pink.

COMPLIANCE WITH THE NZ BUILDING CODE

NZBC Clause B2 — Durability

Under normal conditions of dry internal use GIB® Fire Rated Systems have a serviceable life in excess of 50 years and satisfy the requirements of NZBC Clause B2 — Durability.

NZBC Clauses C1–C6 — Protection from Fire

GIB® Fire Rated Systems can be used to provide passive fire protection in accordance with the requirements of NZBC Clauses C1–C6 — Protection from Fire.

NZBC Clause C6 — Structural Stability

In order to satisfy the requirements of this clause, designers must ensure that fire rated elements are supported by elements having at least the same Fire Resistance Rating (FRR). Collapse of elements having a lesser FRR shall not cause the consequential collapse of elements required to have a higher FRR.

Within the context of fire resistance, there is a clear distinction between 'structural adequacy' and 'stability'.

Structural Adequacy

Structural adequacy is the first number in the x/x/x FRR sequence and relates to the ability of a specimen to resist applied vertical loads during the standard test for fire resistance.

If a floor requires a column for vertical support, then the column must have a structural adequacy rating no less than the FRR of the floor or floor/ceiling system.

Similarly, a wall supporting a floor above requires a structural adequacy rating no less than the FRR of the floor. In this case simply selecting an FRR may not always be appropriate, such as when the wall is located entirely within a fire-cell and is not itself a fire separation. In a standard furnace test for fire resistance, a specimen is commonly exposed from one side only. If a wall located within a fire-cell is potentially exposed to fire from both sides simultaneously, 'universal' or 'one-way' lining protection may need to be provided to both sides. Alternatively, see specifications GBTL 30 2S and GBTL 60 2S in this manual.

Lateral Stability

Although stability can have a wider meaning, in the context of fire resistance we suggest it is referred to as lateral stability, or the ability of a building element to resist horizontal forces. Provision of lateral stability, where required, is a matter of design and is not determined by standard fire resistance testing.

Lateral stability provisions are usually required for external fire rated walls of single-storey or the top floor of multi-level buildings where support is lost when an unprotected roof structure fails in a fire. In this case external walls are designed as cantilevers capable of resisting a nominal lateral force. A cantilever design might not be required for external walls designed to be pulled inwards by a collapsing roof structure.

If a wall separates fire-cells and the non-affected fire-cell continues to provide lateral support, specific lateral stability provisions are usually not required.

NZBC Clause G6 — Airborne and Impact Sound

For many specifications in the technical literature Sound Transmission Class (STC / Rw) and Impact Insulation Class (IIC) performances are given. For higher performances, including those required by NZBC Clause G6 – Airborne and Impact Sound, consult the current version of 'GIB Noise Control® Systems'.

HANDLING AND LIMITATIONS

GIB® plasterboard must be stacked flat and protected from the weather.

GIB® plasterboard must be handled as a finishing material.

GIB® plasterboard must not be installed in situations where extended exposures to relative humidity above 90% can reasonably be expected.

Paper-faced GIB® plasterboard linings must not be exposed to liquid water.

Adhesive in GIB® Fire Rated Systems cannot be used as an alternative to specified mechanical fasteners.

In normal use, GIB® plasterboard must not be exposed to temperatures in excess of 52°C for prolonged periods.

STRUCTURAL STEEL MEMBERS IN CAVITIES

Structural steel members are sometimes located inside the cavity of a GIB® Fire Rated System, such as a column in a wall or beam in a floor/ceiling system. The FRR of a wall or floor/ceiling system applies across the entire element, from the exposed to the unexposed face. Temperatures inside the cavity can rise to a critical level for some steel members and it cannot be automatically assumed that a steel member achieves the structural adequacy rating of the cavity system within which it is contained. For guidance on the protection of structural steel members, refer to the columns and beams section of this document.

TIMBER FRAMED WALLS

Loadbearing (LB) and non-loadbearing (NLB) walls

Consult the current edition of NZS 3604 to determine framing dimensions and wall heights for LB and NLB walls. Beyond these limits, specific engineering design is required.

Framing spacing cannot be more and timber dimensions cannot be less than those specified for the relevant GIB® system.

STEEL FRAMED WALLS

Non-loadbearing (NLB) walls

Wall heights greater than the specified limit for the relevant GIB® specification are the subject of specific design for serviceability and fire design criteria. Consult the framing supplier for serviceability criteria.

Loadbearing (LB) walls

The solutions in this technical literature for loadbearing steel stud walls are conservatively based on limiting steel temperature. More accurate predictions can be made if the applied stud load (at the time of the fire) and stud capacity (at ambient temperature) are known, using the equation:

$FRR (LB) = FRR (NLB) \times (1 - \text{fire load/capacity})$, where;

- FRR (LB) is the calculated FRR of the LB wall
- FRR (NLB) is the FRR of the NLB wall with equivalent linings
- Fire load is the applied stud load at the time of the fire (kN/stud)
- Capacity is the stud capacity at ambient temperature (kN/stud)

Example:

A loadbearing steel frame has an ambient capacity of 12kN/stud and a fire design load of 4kN/stud. The linings are 13mm GIB Fyrelite® installed in accordance with NLB specification GBS 60. Estimate the FRR of the equivalent LB system as follows:

$FRR (LB) = 60 \times (1 - 4/12) = 60 \times 2/3 = 40$ minutes, or

$FRR (LB) = 40/40/40$.

TWO-SIDED SIMULTANEOUS EXPOSURE

The standard furnace test for fire resistance represents the scenario of a fire-rated element being part of a fire separation, exposed to fire risk from one side only. However, loadbearing walls not part of a fire separation can be exposed to fire on both sides simultaneously. Examples are walls supporting a mezzanine, or lower walls within an apartment supporting an upper floor. In this case, walls must be rated for structural adequacy against simultaneous exposure, and a conventional FRR does not apply.

Specifications GBTL 30 2S and GBTL 60 2S in this manual give options for timber framed walls exposed on both sides simultaneously.

For higher FRRs, and for loadbearing steel framed walls subjected to two-sided simultaneous exposure, apply universal GBUW linings on both sides.

FLOOR/CEILING SYSTEMS

Floor/ceiling systems have generally been tested for a design load of 3kPa. For span tables consult the latest version of NZS 3604 or proprietary joists supplier information.

Flooring shall be nominal 20mm oriented strand board, or 20mm particle board complying with AS/NZS 1860 Part 1:2017 Particleboard flooring – Specifications, or minimum 17mm plywood manufactured to AS/NZS 2269 Part 0:2012 Plywood – Structural – Specifications. Existing tight tongue and groove flooring in good condition and with a minimum thickness of 20mm is acceptable. Do not:

- decrease joist dimensions or increase joist or nog spacing from what has been specified
- substitute alternative type joist
- exceed the maximum permissible design stress

The protection of inclined stairs can be determined from floor/ceiling system specifications, provided the average depth of cavity is the same or greater.

SMOKE SEPARATIONS

Timber or steel stud wall lined on both faces with a minimum of 10mm GIB® plasterboard, and floor/ceiling systems lined with a minimum of 13mm GIB® plasterboard, will meet the requirement for an FRR of at least 10/10/- as required for a Smoke Separation. Lining installation, stopping and finishing must be in accordance with the requirements as published in the GIB® Site Guide. Any remaining perimeter gaps greater than 0.5mm must be sealed to inhibit the passage of smoke.

SURFACE FINISH PROPERTIES

All paper-faced GIB® plasterboard sheet materials have been tested in accordance with ISO 5660 Reaction to Fire Tests – heat release, smoke production and mass loss rate Parts 1 and 2 and achieve a Group 1-S classification.

This classification applies to the plasterboard product without paint or wallpaper finish. The supplier or manufacturer of any selected surface finish must be contacted for their particular product classification when applied over a relevant substrate.

FIRE RESISTANCE OF CLAD WALLS

Paper-faced GIB® plasterboard installed on the external face of a frame must be protected from the weather during installation and in-service. The FRR of the GIB® System is unaffected by the cladding. Exterior cladding over the GIB® plasterboard must comply with:

- NZBC Clauses C1–6 with respect to exterior surface finishes
- NZBC E2/AS1, and be installed over a flexible wall underlay and drained cavity

Where GIB® Fire Rated Systems are clad with any of the following materials, sheet joints and screw heads may be left unstopped:

- Timber or wood-based products
- Flat or profiled steel
- Fibre cement sheets or boards
- Exterior insulation and finish systems (EIFS)

STOPPING ALTERNATIVE

As an alternative to plaster stopping, sheet joints (such as in ceiling voids) can be covered with a minimum 150mm-wide strip of GIB® plasterboard, centrally placed over the sheet joint, and screw fixed to the underlying framing at no more than 300mm centres.

TOP-DOWN FIRE RESISTANCE

The New Zealand Building Code documents require floors to be rated from the underside, based on the FRR of the fire-cell below. Although often ignored, potential top-down exposure is sometimes a consequence of building design and layout.

An FRR is by definition the result against a standard furnace test, and furnaces are not designed for top-down exposure. A standard test furnace is placed vertically for wall testing or rotated horizontally for a floor or ceiling specimen. Turning the furnace upside-down to expose an element from above is not practical. Turning the specimen upside-down does not fairly characterise gravity effects and would not be representative of actual construction.

The performance of top-down fire resistance can be assessed by considering wall and floor/ceiling test results. For a given FRR, the performance specification for ceiling linings is generally higher than for walls. Compare, for example, wall specification GBTL 60 (13mm GIB Fyrelite® each side of timber studs) with specification GBFC 60 (16mm GIB Fyrelite® on timber joists).

Because gravity acts more severely on ceiling linings, a higher performance lining is usually required. However, when installed on top, gravity assists by holding linings on a floor or floor framing.

The depth of cavity shall be no less than the cavity depth for the corresponding wall specification.

Non-loadbearing floor/ceiling

A top-down or two-way FRR can be created by placing the corresponding wall lining on top of the framing and the relevant ceiling lining below. Figure 1 shows the solution using a 60-minute example.

Loadbearing floor/ceiling

When it is desirable to provide a floor with loadbearing capability, the solution is to first install structural sheet flooring, which in turn is protected against top-down exposure with the corresponding GIB Fyrelite® ceiling lining and a thin wear layer such as mdf, carpet or flooring vinyl (depending on intended use). This is illustrated in Figure 2.

For project-specific advice and further details, please contact our GIB® Helpline on 0800 100 442.

Figure 1 — Example of 60-minute NLB top-down FRR

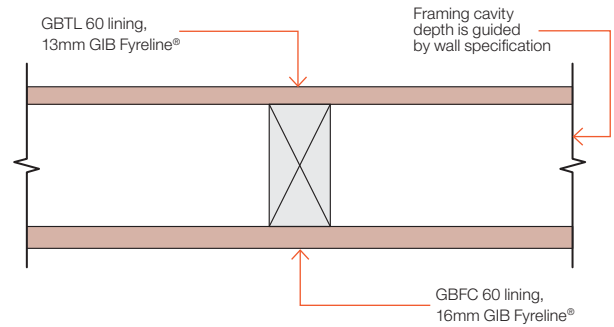
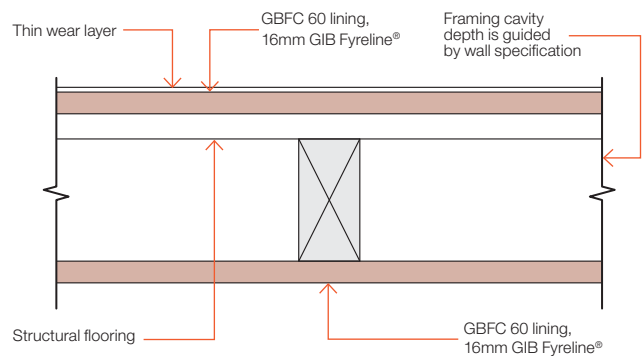


Figure 2 — Example of 60-minute LB top-down FRR



BOARD SUBSTITUTION OPTIONS

Acceptable GIB Fyreline® alternatives	
10mm GIB Fyreline® can be replaced with	10mm GIB Braceline®/Noiseline® 10mm GIB Ultraline® 10mm GIB Aqualine® 13mm GIB® Standard
13mm GIB Fyreline® can be replaced with	13mm GIB Braceline®/Noiseline® 13mm GIB Aqualine® 13mm GIB Toughline® 13mm GIB Toughline® Aqua

Achieving the FRR of GIB® Fire Rated Systems depends on closely following the detailed specifications. Installation of systems outside their stated scope of application, or substituting components, may compromise fire safety.

GIB Weatherline® specifications have different fastener types, joint treatment, and framing configurations. For GIB Weatherline® fire-rated applications, contact the GIB® Helpline on 0800 100 442.

NOISE ATTENUATION

To achieve the sound transmission class (STC/Rw) published for the various specifications in this technical literature, wall-to-wall and wall-to-ceiling junctions must be plaster filled and square stopped or protected with GIB-Cove® as outlined in the GIB® Site Guide. When wood based trims are used, apply a bead of GIB Fire Soundseal® around the perimeter of a single or inner layer. An outer layer is bedded onto the bead ensuring remaining gaps are filled.

GIB® SYSTEMS SUPPLEMENTS AND PRODUCT UPDATES

From time to time updated information will be communicated via Systems Supplements, which are available only on the GIB® website at gib.co.nz. Search 'supplements' for the latest updates. Sign up to the GIB® database to ensure you are contacted when technical updates are made.

The GIB® App gives you key GIB® technical information at your fingertips for free. To download the GIB® App, search 'GIB plasterboard' in your Apple App Store or Google Play Store.

SUPPORTING DOCUMENTS

Where reference is made in this technical literature to supporting documents without giving a specific date of release, such as NZS 3604 or the GIB® Site Guide, the latest version must be consulted. This is the version current at the time the project specification is compiled and submitted for consent.

SUSTAINABILITY AND THE ENVIRONMENT

Winstone Wallboards is committed to a holistic view of sustainability: environmental, social and economic.

- We manufacture products that have positive environmental applications
- We actively consider the full life cycle of our products and support recycling initiatives both from our manufacturing and general construction waste
- We innovate systems and solutions that keep people safe and protected in buildings
- We support jobs and growth within our communities

GIB® PLASTERBOARD – A GREEN BUILDING MATERIAL

GIB® plasterboard is a sustainable, non-toxic, compostable and infinitely recyclable product made from natural gypsum and 100% recycled paper. GIB® plasterboards do not use fly ash, a derivative of coal extraction, as a bulk filler in place of naturally occurring gypsum. Due to this, unlike many imported alternatives, a range of GIB® plasterboards are considered Red List Free, certified through Declare.

CERTIFICATIONS

Declare

Winstone Wallboards has Declare certification for a range of our plasterboards. Considered one of the most advanced sustainability certifications in the build environment, Declare is like a nutritional label for building products, offering specifiers, contractors and building users insight into the ingredients used in the manufacture of building products.

Global Greentag

A range of GIB® plasterboards have also achieved Global Greentag certification, one of the world's most robust, trusted and widely recognised eco-labels.

Environmental Product Declaration (EPD)

Winstone Wallboards has published an Environmental Product Declaration (EPD). The EPD quantifies the environmental performance of GIB® plasterboard including its carbon footprint, embodied energy and other environmental data. Projects utilising GIB® plasterboard will qualify for full Green Star points due to Winstone Wallboards holding an EPD for six or more products. The EPD for GIB® plasterboard is available on the GIB® website. Visit gib.co.nz to download these certifications.

WASTE MINIMISATION

Ever increasing pressure is being placed on waste disposal facilities. As the construction industry is a major contributor of waste material, consideration should be given to methods of waste minimisation. The use of longer sheets and horizontal fixing helps reduce on-site waste. GIB® plasterboard offcuts, if separated from other waste building materials, can be readily recycled. For larger projects, the waste can be diverted to compost manufacturers who grind up the GIB® plasterboard and utilise it in compost.

PLASTERBOARD OFFCUT RECYCLING SERVICES

GIB® plasterboard can be recycled with the gypsum core reused in a range of compost and agricultural products. This allows customers the opportunity to divert plasterboard offcut away from landfill.

A list of recycling businesses offering plasterboard offcut site collection and recycling services as well as more information on GIB® plasterboard sustainability initiatives can be found at gib.co.nz/sustainability.

LOCAL MANUFACTURE

GIB® plasterboard and compounds are manufactured in New Zealand. We have complete oversight of our factory conditions and the teams who work in our manufacturing plants. Our decision to manufacture locally supports local jobs and directly supports the country's economy.



Two-way FRR and smoke separation — timber or steel frame

Specification number	Performance	Specifications
GBSm 10	FRR 10/10/10	Lining A minimum of 1 layer of 10mm GIB® plasterboard each side

FRAMING

Timber or steel framing designed to meet relevant criteria for strength, serviceability and durability, and the minimum requirements of the GIB® Site Guide.

Stud width shall be nominally 35mm minimum.

Stud spacing at 600mm centres maximum.

LINING

Minimum 1 layer of 10mm GIB® plasterboard each side of timber or steel framing.

Installation in accordance with the GIB® Site Guide.

Vertical or horizontal fixing permitted.

Sheets shall be touch fitted.

When fixing vertically, use full height sheets where possible.

When fixing horizontally, longitudinal sheet joints do not have to be formed directly over solid framing.

PENETRATIONS

Single-sided metal or plastic plumbing services up to 65mm diameter, or electrical services up to 90 x 50mm, are permitted up to a maximum of two per stud cavity without the need for fire-stopping.

FASTENING THE LINING

As a minimum, fix in accordance with the GIB® Site Guide.

Place fasteners at 300mm centres around the sheet perimeter, 12mm from longitudinal sheet edges and 18mm from sheet ends.

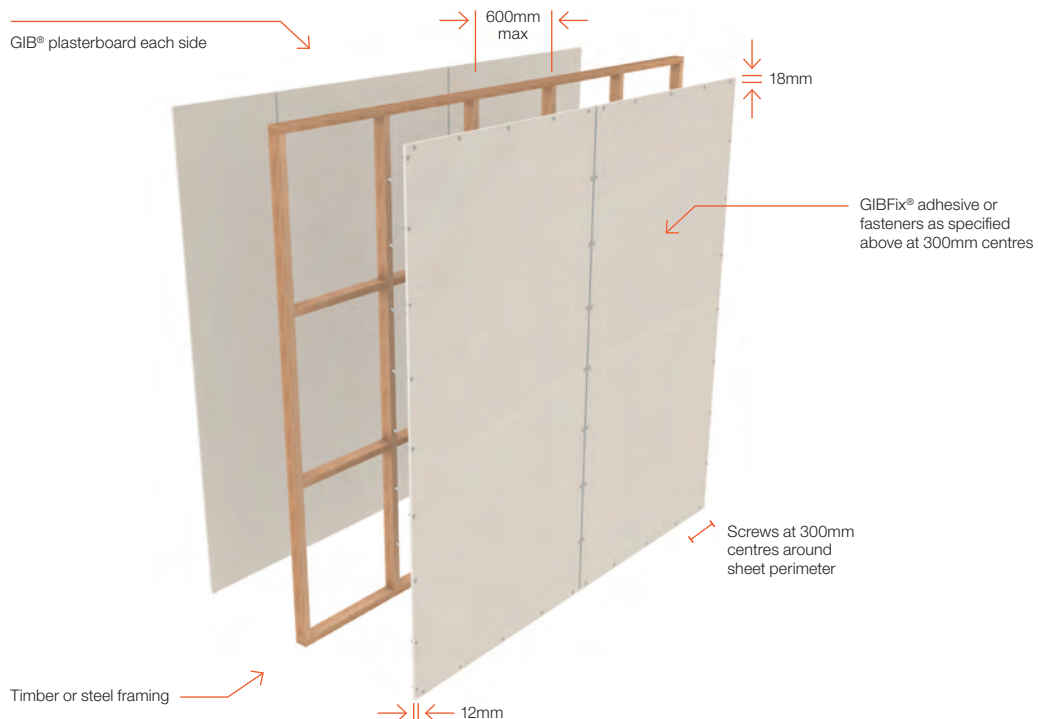
Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

Fix linings to intermediate studs with fasteners or GIBFix® adhesive at 300mm centres. When using adhesive, do not place daubs at sheet edges or within 200mm of mechanical fasteners.

Remaining perimeter gaps must be plaster stopped or sealed using either a general purpose flexible sealant or GIB Fire Soundseal® to inhibit the passage of smoke.

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the GIB® Site Guide.



Two-way FRR — timber frame

Specification number	Performance	Specifications
GBTL 30	FRR 30/30/30	Lining 1 layer 10mm GIB Fyreline® each side
	STC 33	LB/NLB Loadbearing
	Rw 34	

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Studs at 600mm centres maximum
- Nogs at 1200mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Non-loadbearing — Framing dimensions and height as determined by NZS 3604 stud tables for non-loadbearing partitions.

Loadbearing — Framing dimensions and height as determined by NZS 3604 stud and top plate tables for loadbearing walls.

LINING

1 layer of 10mm GIB Fyreline® each side of the frame.

Vertical or horizontal fixing permitted. All sheet joints must be formed over solid timber framing. Sheets shall be touch fitted.

Vertical fixing — Stagger longitudinal sheet joints on opposite sides of the wall. When sheet end butt joints are unavoidable, they shall be formed over nogs and offset on opposite sides of the frame.

Horizontal fixing — Horizontal joints on opposite sides of the wall can be formed over the same row of nogs. Sheet end butt joints shall be formed over studs and offset on opposite sides of the frame.

FASTENING THE LINING

Fasteners

41mm x 6g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 300mm centres to perimeter framing and intermediate studs.

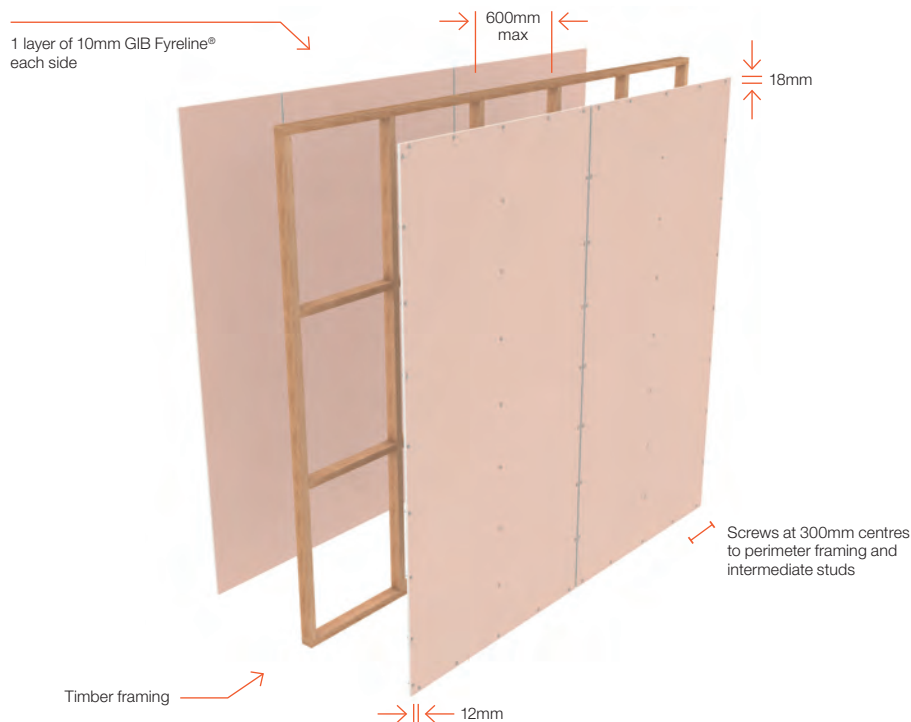
Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — timber frame

Specification number	Performance	Specifications
GBTL 30b	FRR 30/30/30 STC 35 Rw 35	Lining 1 layer 13mm GIB® Standard each side LB/NLB Loadbearing
GBTL 30c	FRR 30/30/30 STC 33 Rw 34	Lining 1 layer 10mm GIB® Standard each side LB/NLB Loadbearing Framing Minimum 90mm stud depth

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Studs at 600mm centres maximum
- Nogs at 1200mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Non-loadbearing — Framing dimensions and height as determined by NZS 3604 stud tables for non-loadbearing partitions.

Loadbearing — Framing dimensions and height as determined by NZS 3604 stud and top plate tables for loadbearing walls.

LINING

GBTL 30b — 1 layer of 13mm GIB® Standard each side of the frame.

GBTL 30c — 1 layer of 10mm GIB® Standard each side of the frame.

Vertical or horizontal fixing permitted. All sheet joints must be formed over solid timber framing. Sheets shall be touch fitted.

Vertical fixing — Stagger longitudinal sheet joints on opposite sides of the wall. When sheet end butt joints are unavoidable, they

shall be formed over nogs and offset on opposite sides of the frame.

Horizontal fixing — Horizontal joints on opposite sides of the wall can be formed over the same row of nogs. Sheet end butt joints shall be formed over studs and offset on opposite sides of the frame.

FASTENING THE LINING

Fasteners

41mm x 6g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 300mm centres to perimeter framing and intermediate studs.

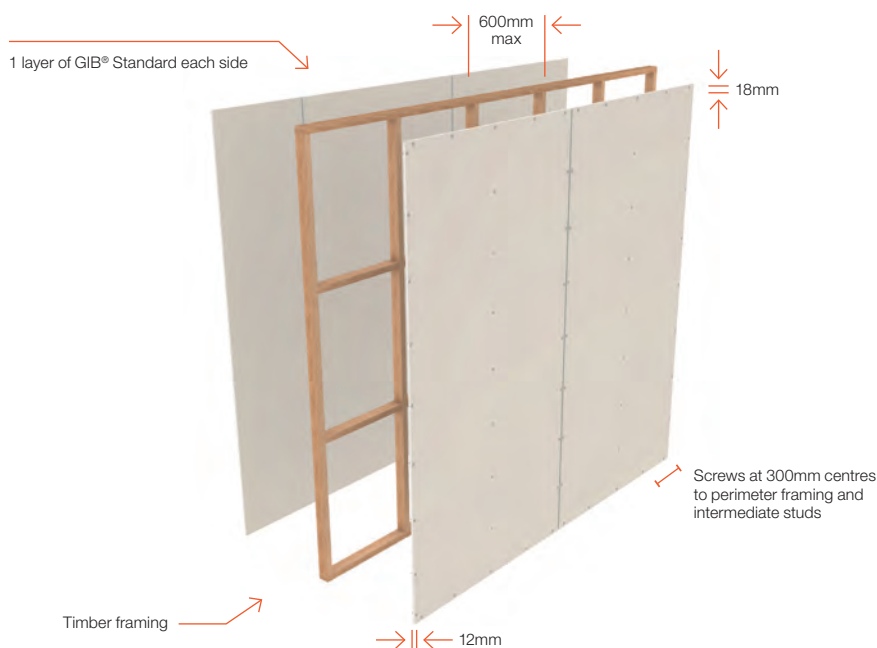
Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — timber frame

Specification number	Performance	Specifications
GBTL 60	FRR 60/60/60 STC 36 Rw 36	Lining 1 layer 13mm GIB Fyrelite® each side LB/NLB Loadbearing

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Studs at 600mm centres maximum
- Nogs at 1200mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Non-loadbearing — Framing dimensions and height as determined by NZS 3604 stud tables for non-loadbearing partitions.

Loadbearing — Framing dimensions and height as determined by NZS 3604 stud and top plate tables for loadbearing walls.

LINING

1 layer of 13mm GIB Fyrelite® each side of the frame.

Vertical or horizontal fixing permitted. All sheet joints must be formed over solid timber framing. Sheets shall be touch fitted.

Vertical fixing — Stagger longitudinal sheet joints on opposite sides of the wall. When sheet end butt joints are unavoidable, they shall be formed over nogs and offset on opposite sides of the frame.

Horizontal fixing — Horizontal joints on opposite sides of the wall can be formed over the same row of nogs. Sheet end butt joints shall be formed over studs and offset on opposite sides of the frame.

FASTENING THE LINING

Fasteners

41mm x 6g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 300mm centres to perimeter framing and intermediate studs.

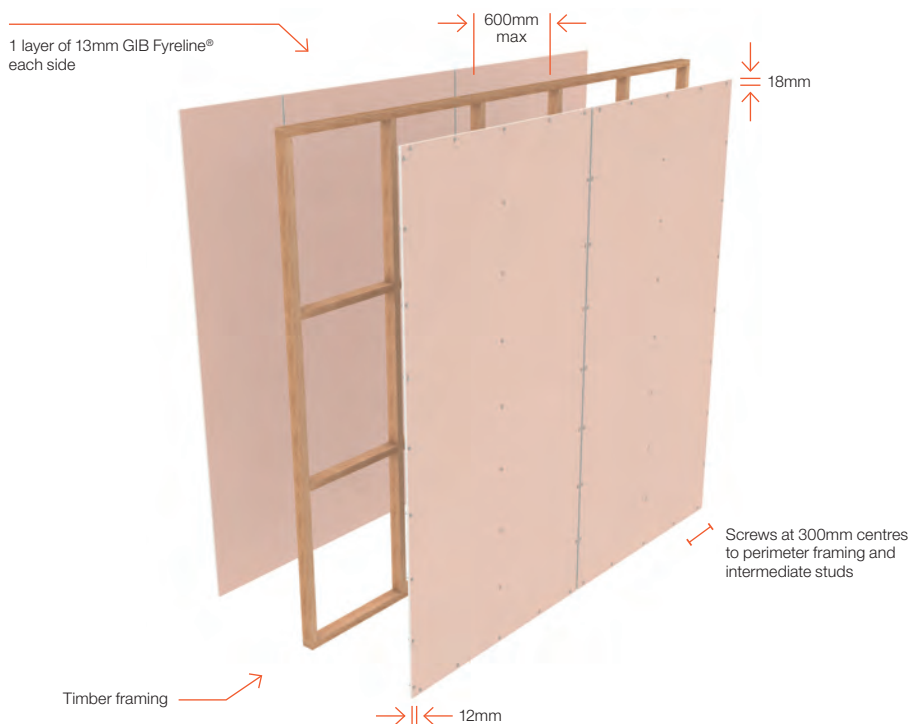
Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — timber frame

Specification number	Performance	Specifications
GBTL 60b	FRR 60/60/60	Lining 2 layers 10mm GIB Fyreline® each side
	STC 44	LB/NLB Loadbearing
	Rw 43	

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Studs at 600mm centres maximum
- Nogs at 1200mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Non-loadbearing — Framing dimensions and height as determined by NZS 3604 stud tables for non-loadbearing partitions.

Loadbearing — Framing dimensions and height as determined by NZS 3604 stud and top plate tables for loadbearing walls.

LINING

2 layers of 10mm GIB Fyreline® each side of the frame.

Vertical or horizontal fixing permitted. All sheet joints must be formed over solid timber framing. Sheets shall be touch fitted.

Vertical fixing — Stagger longitudinal sheet joints between layers and on opposite sides of the frame. When sheet end butt joints are unavoidable, they shall be formed over nogs, staggered between layers and staggered on opposite sides of the wall.

Horizontal fixing — Horizontal joints on opposite sides of the wall can be formed over the same row of nogs but must be staggered between layers. Sheet end butt joints shall be formed over studs, staggered between layers, and offset on opposite sides of the frame.

Alternatively, inner layer sheets can be fixed vertically with sheet joints offset on opposite sides of the wall and with outer layer

sheets fixed horizontally with longitudinal sheet joints on opposite sides of the wall formed over the same row of nogs. Sheet end butt joints shall be formed over framing and staggered between layers and staggered on opposite sides of the wall.

FASTENING THE LINING

Fasteners

Inner layer: 41mm x 6g GIB® Grabber® High Thread Drywall Screws.

Outer layer: 51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Inner layer: 800mm centres vertically up each stud.

Outer layer: 300mm centres to perimeter framing and intermediate studs.

Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

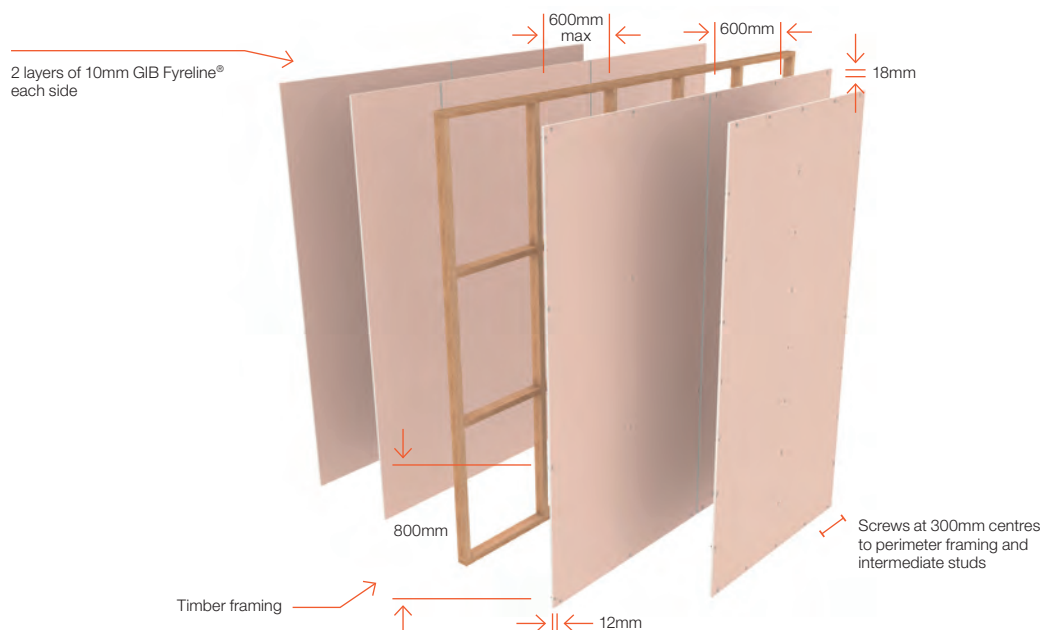
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — timber frame

Specification number	Performance	Specifications
GBTL 90	FRR 90/90/90	Lining 1 layer 16mm GIB Fyreline® each side
	STC 36	LB/NLB Loadbearing
	Rw 37	

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Studs at 600mm centres maximum
- Nogs at 1200mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Non-loadbearing — Framing dimensions and height as determined by NZS 3604 stud tables for non-loadbearing partitions.

Loadbearing — Framing dimensions and height as determined by NZS 3604 stud and top plate tables for loadbearing walls.

LINING

1 layer of 16mm GIB Fyreline® each side of the frame.

Vertical or horizontal fixing permitted. All sheet joints must be formed over solid timber framing. Sheets shall be touch fitted.

Vertical fixing — Stagger longitudinal sheet joints on opposite sides of the wall. When sheet end butt joints are unavoidable, they shall be formed over nogs and offset on opposite sides of the frame.

Horizontal fixing — Horizontal joints on opposite sides of the wall can be formed over the same row of nogs. Sheet end butt joints shall be formed over studs and offset on opposite sides of the frame.

FASTENING THE LINING

Fasteners

51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 300mm centres to perimeter framing and intermediate studs.

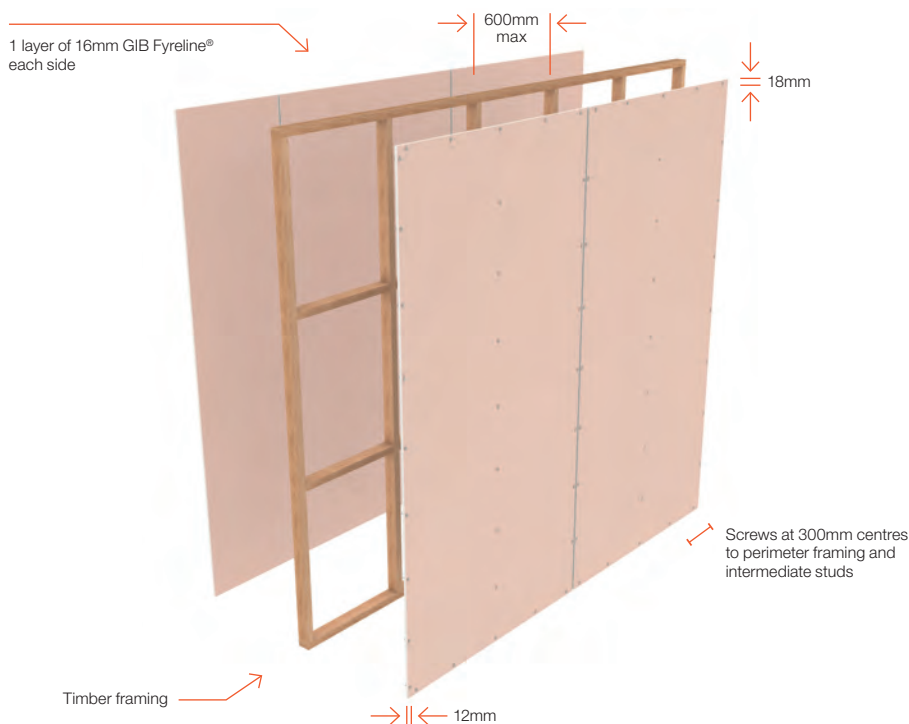
Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — timber frame

Specification number	Performance	Specifications
GBT 120a	FRR -/120/120	Lining 2 layers 13mm GIB Fyreline® each side
	STC 46	LB/NLB Non-loadbearing
	Rw 45	

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Studs at 600mm centres maximum
- Nogs at 1200mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Framing dimensions and height as determined by NZS 3604 stud tables for non-loadbearing walls.

LINING

2 layers of 13mm GIB Fyreline® each side of the frame.

Vertical fixing - All sheet joints must be formed over solid timber framing. Sheets shall be touch fitted.

Horizontal fixing of the outer layer is permitted provided the horizontal joints are backed by a solid nog and longitudinal sheet joints are fixed to that nog as detailed, at 300mm centres maximum.

FASTENING THE LINING

Fasteners

Inner layer: 51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Outer layer: 63mm x 8g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Inner layer: 800mm centres vertically up each stud.

Outer layer: 300mm centres to perimeter framing and intermediate studs.

Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

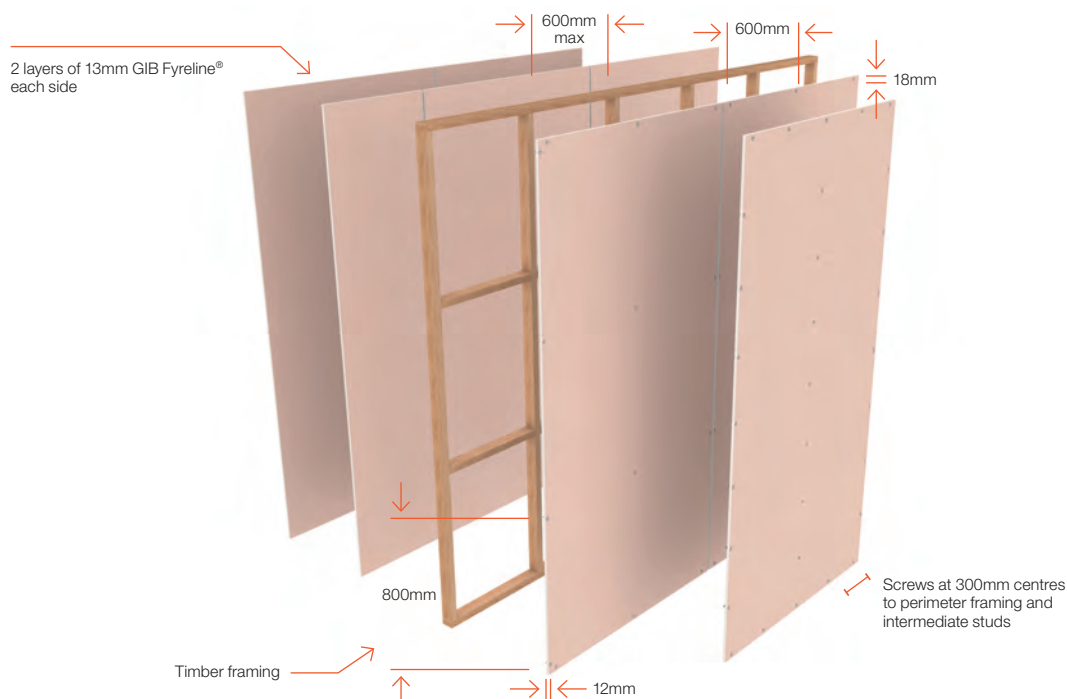
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — timber frame

Specification number	Performance	Specifications
GBT 120b	FRR -/120/120 STC 33 Rw 37	Lining 1 layer 19mm GIB Fyreline® each side LB/NLB Non-loadbearing

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Studs at 600mm centres maximum
- Nogs at 1200mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Framing dimensions and height as determined by NZS 3604 stud tables for non-loadbearing walls.

LINING

1 layer of 19mm GIB Fyreline® each side of the frame.

Vertical or horizontal fixing permitted. All sheet joints must be formed over solid timber framing. Sheets shall be touch fitted.

Vertical fixing — Stagger longitudinal sheet joints on opposite sides of the wall. When sheet end butt joints are unavoidable, they shall be formed over nogs and offset on opposite sides of the frame.

Horizontal fixing — Horizontal joints on opposite sides of the wall can be formed over the same row of nogs. Sheet end butt joints shall be formed over studs and offset on opposite sides of the frame.

FASTENING THE LINING

Fasteners

51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 300mm centres to perimeter framing and intermediate studs.

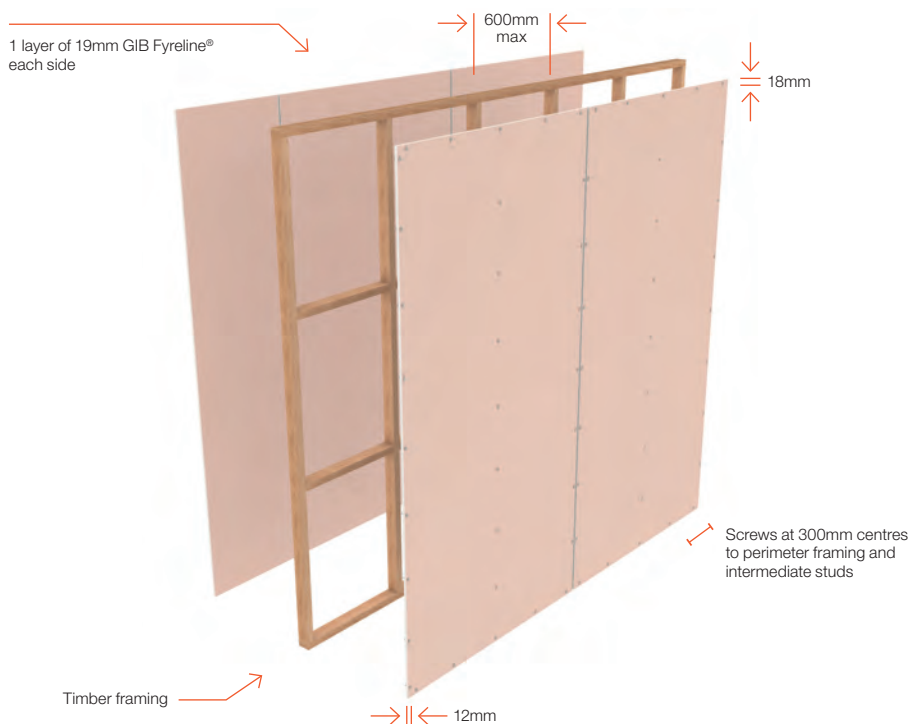
Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — timber frame

Specification number	Performance	Specifications
GBTL 120	FRR 120/120/120 STC 45 Rw 45	Lining 2 layers 16mm GIB Fyreline® each side LB/NLB Loadbearing

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Studs at 600mm centres maximum
- Nogs at 1200mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Non-loadbearing — Framing dimensions and height as determined by NZS 3604 stud tables for non-loadbearing partitions.

Loadbearing — Framing dimensions and height as determined by NZS 3604 stud and top plate tables for loadbearing walls.

LINING

2 layers of 16mm GIB Fyreline® each side of the frame.

Vertical fixing - All sheet joints must be formed over solid timber framing. Sheets shall be touch fitted.

Horizontal fixing of the outer layer is permitted provided the horizontal joints are backed by a solid nog and longitudinal sheet joints are fixed to that nog as detailed, at 300mm centres maximum.

FASTENING THE LINING

Fasteners

Inner layer: 51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Outer layer: 63mm x 8g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Inner layer: 600mm centres vertically up each stud and 400mm centres horizontally along top and bottom plates.

Outer layer: 300mm centres to perimeter framing and intermediate studs.

Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

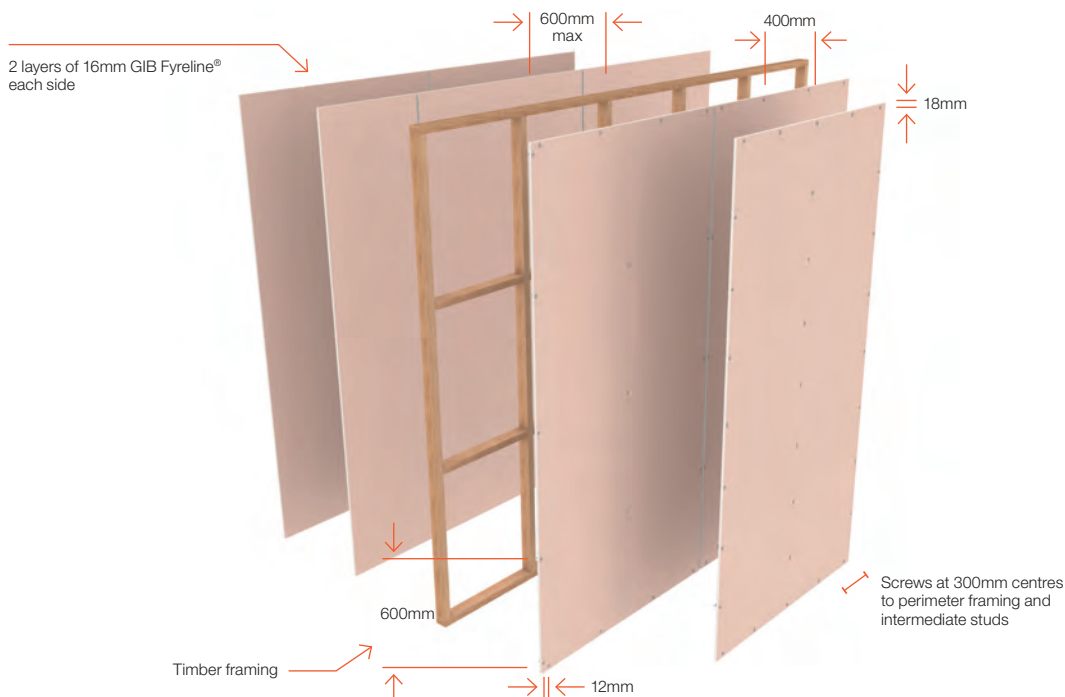
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — timber frame

Specification number	Performance	Specifications
GBT 180	FRR -/180/180 STC 45 Rw 45	Lining 2 layers 16mm GIB Fyreline® each side LB/NLB Non-loadbearing

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Studs at 600mm centres maximum
- Nogs at 800mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Framing dimensions and height as determined by NZS 3604 stud tables for non-loadbearing walls.

LINING

2 layers of 16mm GIB Fyreline® each side of the frame.

Vertical fixing permitted only. All sheet joints must be formed over solid timber framing. Sheets shall be touch fitted.

Stagger longitudinal sheet joints between layers and on opposite sides of the frame. When sheet end butt joints are unavoidable, they shall be formed over nogs, staggered between layers and staggered on opposite sides of the wall.

FASTENING THE LINING

Fasteners

Inner layer: 51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Outer layer: 63mm x 8g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Inner layer: 800mm centres vertically up each stud.

Outer layer: 150mm centres around the sheet perimeter, 300mm centres to intermediate studs and a fastener to the centre of each nog.

Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

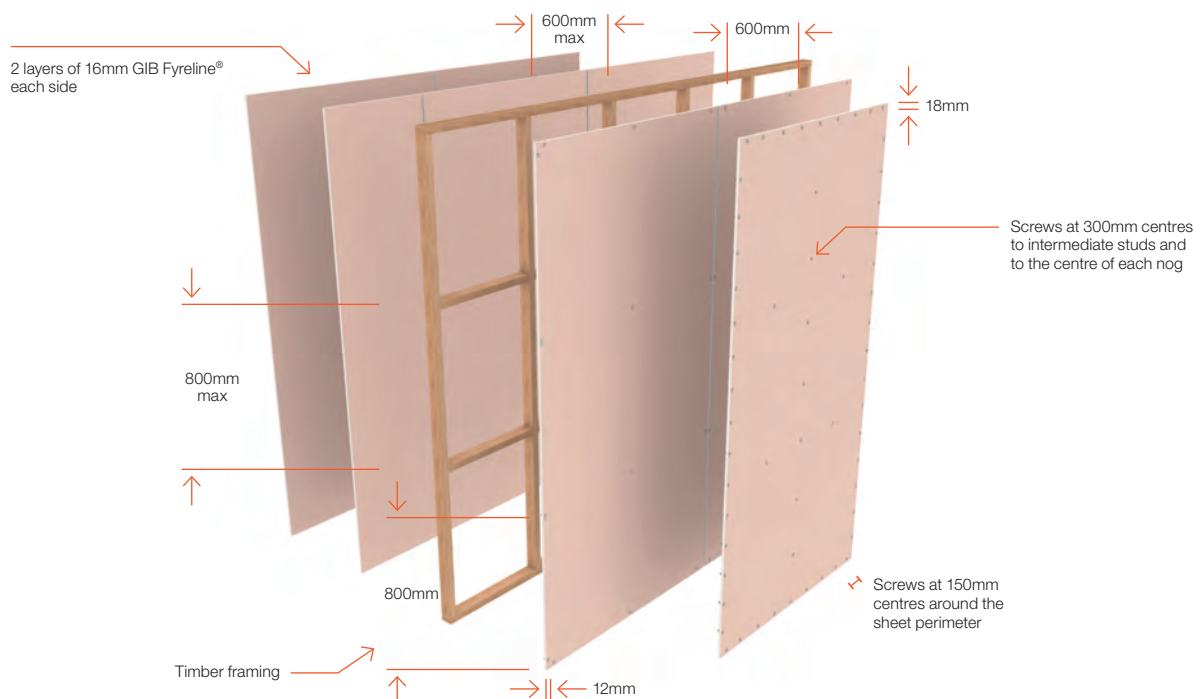
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

First layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBSL 15	FRR 15/15/15	Lining 1 layer 13mm GIB® Standard each side
	STC 35	LB/NLB Loadbearing
	Rw 35	

FRAMING AND WALL HEIGHT

Any steel frame designed to meet structural criteria for strength and serviceability under dead and live loads.

Stud width shall be nominally 35mm minimum.

Stud spacing at 600mm centres maximum. Frame height as determined by specific design.

LINING

1 layer of 13mm GIB® Standard each side of the frame.

Vertical or horizontal fixing permitted. For vertical fixing, full height sheets shall be used where possible. When fixing horizontally all longitudinal sheet joints must be formed over nogs.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints between sheets on opposite sides of the frame.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

25mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

300mm centres up each stud.

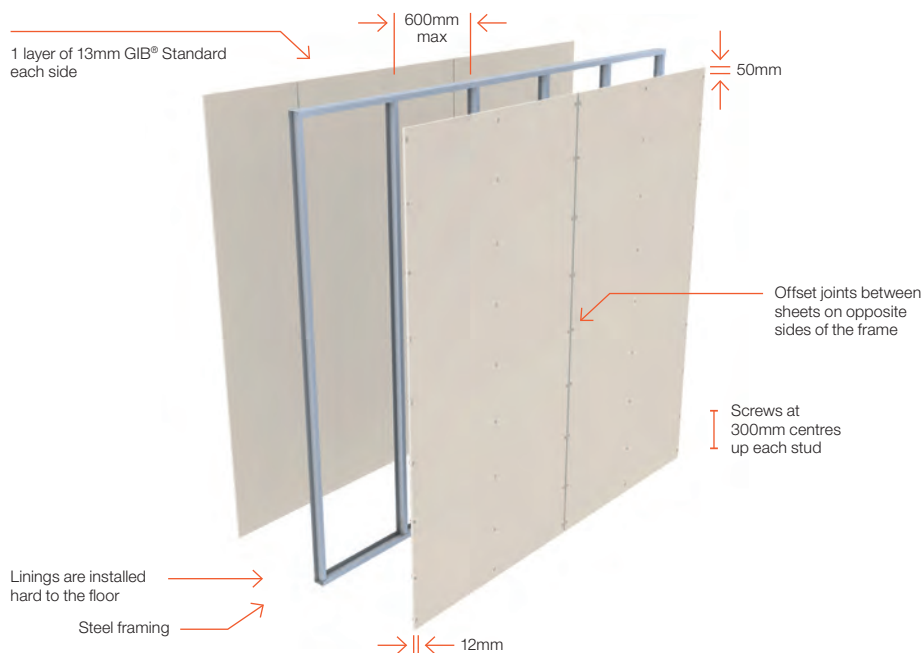
Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

Note: See also page 14, "Steel-framed Walls — Loadbearing (LB) walls".



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBS 30	FRR -/30/30	Lining 1 layer 13mm GIB® Standard each side
	STC 35	LB/NLB Non-loadbearing
	Rw 35	

FRAMING AND WALL HEIGHT

Minimum steel stud dimensions to be 64 x 34 x 0.50mm nominal with a 6mm return.

Minimum steel channel dimensions to be 64 x 30 x 0.50mm nominal.

Top and bottom channels are fixed to the floor and ceiling in true alignment.

Stud spacing at 600mm centres maximum.

Place studs to allow the nominated expansion gap at the top of the frame.

The studs are held in place by the “grip” of the channels.

Recommended maximum wall height

Note that maximum wall heights for fire rated systems can be lower than what can be achieved with non-fire rated construction.

Nominal stud dimension (mm)	BMT (mm)	Stud centres (mm)	Max wall height (mm)	Expansion at top of studs (mm)
64 x 34	0.50	600	3000	15
		400	3200	15
76 x 34	0.55	600	3200	15
		400	3800	20*
	0.75	600	3600	20*
		400	4200	20*
92 x 34	0.75	600	4200	20*
		400	4800	25*

*Use a minimum 50mm-deep top channel.

LINING

1 layer of 13mm GIB® Standard each side of the frame.

Vertical fixing only permitted. Full height sheets shall be used where possible.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints between sheets on opposite sides of the frame.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

25mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

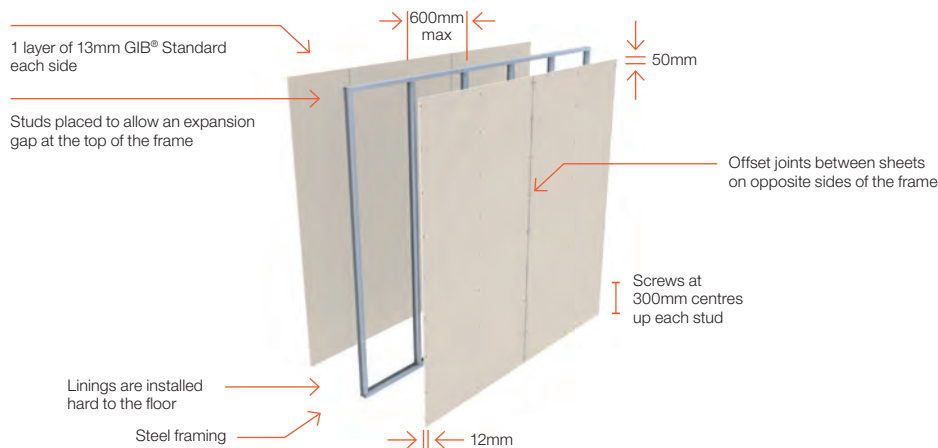
Fastening the linings at 18mm from sheet ends to top and bottom channels is permitted as long as the fasteners do not connect the studs and channels. Do not fix linings to the top track when floor deflection has to be accommodated.

SERVICES

Holes may be drilled or pre-punched in the metal studs to allow installation of electrical service lines and plumbing supply pipes.

JOINTING

All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBSL 30a	FRR 30/30/30 STC 40 Rw 40	Lining 1 layer 16mm GIB Fyrelite® each side LB/NLB Loadbearing
GBSL 30b	FRR 30/30/30 STC 45 Rw 45	Lining 2 layers 10mm GIB Fyrelite® each side LB/NLB Loadbearing

FRAMING AND WALL HEIGHT

Any steel frame designed to meet structural criteria for strength and serviceability under dead and live loads.

Stud width shall be nominally 35mm minimum.

Stud spacing at 600mm centres maximum. Frame height as determined by specific design.

LINING

GBSL 30a — 1 layer of 16mm GIB Fyrelite® each side of the frame.

GBSL 30b — 2 layers of 10mm GIB Fyrelite® each side of the frame.

Vertical or horizontal fixing permitted. For vertical fixing, full height sheets shall be used where possible. When fixing horizontally, all longitudinal sheet joints must be formed over nogs.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints on opposite sides of the frame and between sheets in double-layered systems.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

GBSL 30a — 32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

GBSL 30b inner layer — 25mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

GBSL 30b outer layer — 32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Inner layer: 600mm centres up each stud.

Outer or single layer: 300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

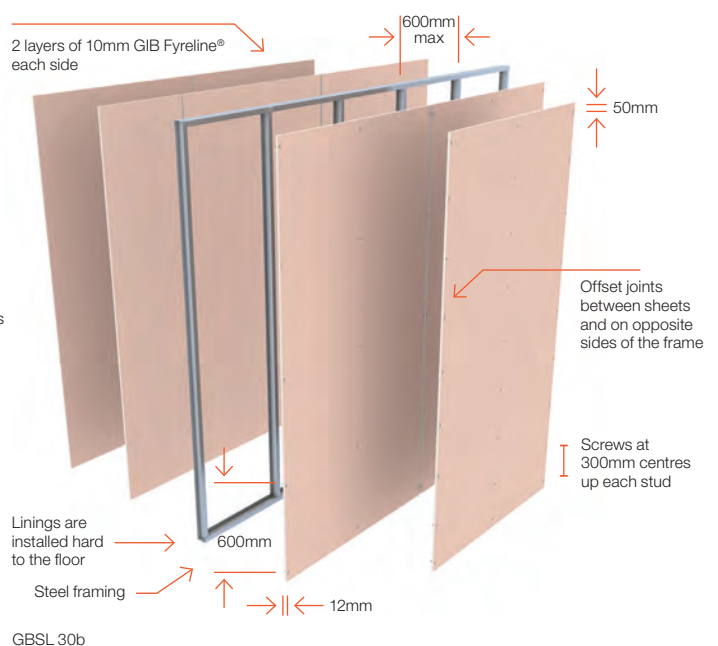
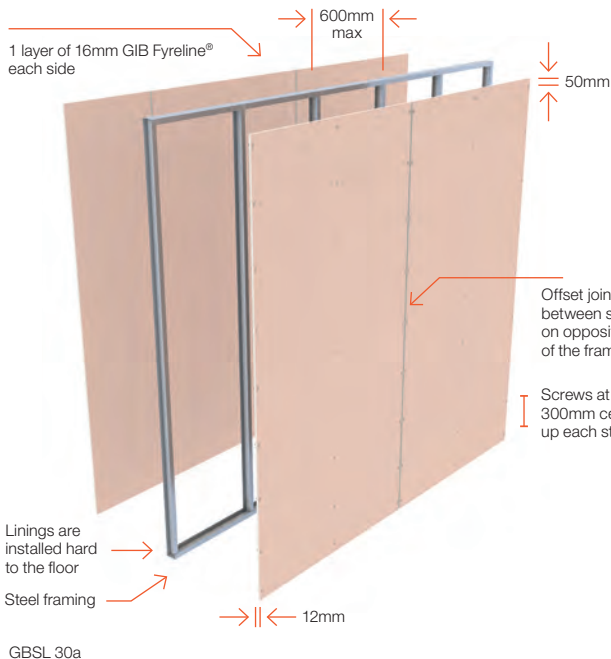
Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Single or outer layers: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.

Note: See also page 14, “Steel-framed Walls — Loadbearing (LB) walls”.



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBS 60	FRR -/60/60	Lining 1 layer 13mm GIB Fyrelite® each side
	STC 37	LB/NLB Non-loadbearing
	Rw 37	

FRAMING AND WALL HEIGHT

Minimum steel stud dimensions to be 64 x 34 x 0.50mm nominal with a 6mm return.

Minimum steel channel dimensions to be 64 x 30 x 0.50mm nominal.

Top and bottom channels are fixed to the floor and ceiling in true alignment.

Stud spacing at 600mm centres maximum.

Place studs to allow the nominated expansion gap at the top of the frame.

The studs are held in place by the “grip” of the channels.

Recommended maximum wall height

Note that maximum wall heights for fire rated systems can be lower than what can be achieved with non-fire rated construction.

Nominal stud dimension (mm)	BMT (mm)	Stud centres (mm)	Max wall height (mm)	Expansion at top of studs (mm)
64 x 34	0.50	600	3000	15
		400	3200	15
76 x 34	0.55	600	3200	15
		400	3800	20*
	0.75	600	3600	20*
		400	4200	20*
92 x 34	0.75	600	4200	20*
		400	4800	25*

*Use a minimum 50mm-deep top channel.

LINING

1 layer of 13mm GIB Fyrelite® each side of the frame.

Vertical fixing only permitted. Full height sheets shall be used where possible.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints between sheets on opposite sides of the frame.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

25mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

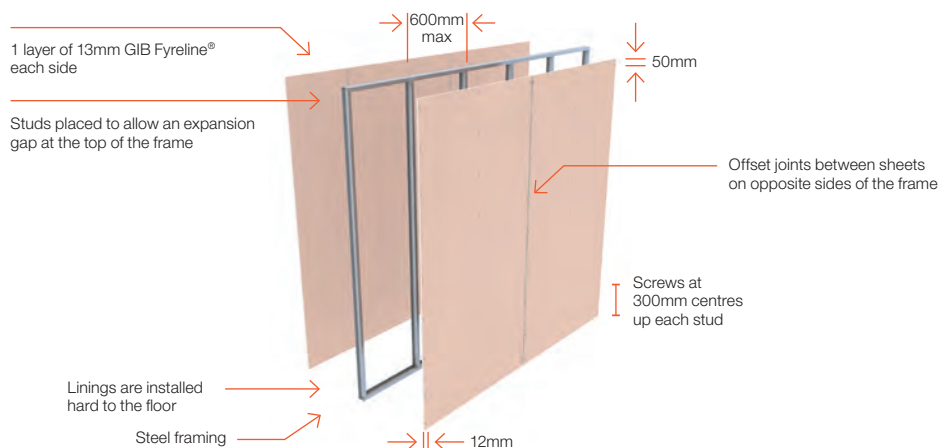
Fastening the linings at 18mm from sheet ends to top and bottom channels is permitted as long as the fasteners do not connect the studs and channels. Do not fix linings to the top track when floor deflection has to be accommodated.

SERVICES

Holes may be drilled or pre-punched in the metal studs to allow installation of electrical service lines and plumbing supply pipes.

JOINTING

All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBSL 60a	FRR 60/60/60 STC 40 Rw 40	Lining 1 layer 19mm GIB Fyrelite® each side LB/NLB Loadbearing
GBSL 60b	FRR 60/60/60 STC 48 Rw 48	Lining 2 layers 13mm GIB Fyrelite® each side LB/NLB Loadbearing

FRAMING AND WALL HEIGHT

Any steel frame designed to meet structural criteria for strength and serviceability under dead and live loads.

Stud width shall be nominally 35mm minimum.

Stud spacing at 600mm centres maximum. Frame height as determined by specific design.

LINING

GBSL 60a — 1 layer of 19mm GIB Fyrelite® each side of the frame.

GBSL 60b — 2 layers of 13mm GIB Fyrelite® each side of the frame.

Vertical or horizontal fixing permitted. For vertical fixing, full height sheets shall be used where possible. When fixing horizontally, all longitudinal sheet joints must be formed over nogs.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints on opposite sides of the frame and between sheets in double-layered systems.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

GBSL 60a — 32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

GBSL 60b inner layer — 25mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

GBSL 60b outer layer — 41mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Inner layer: 600mm centres up each stud.

Outer or single layer: 300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

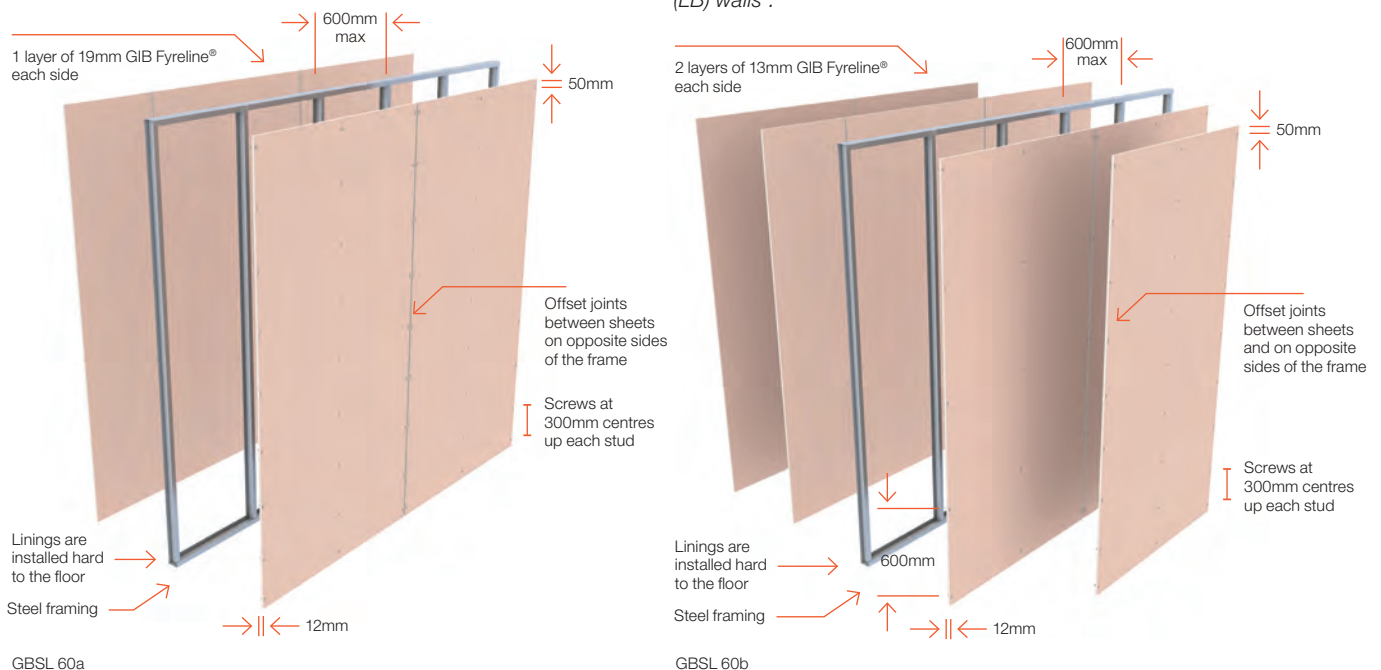
Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Single or outer layers: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.

Note: See also page 14, “Steel-framed Walls — Loadbearing (LB) walls”.



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBS 90	FRR -/90/90	Lining 1 layer 16mm GIB Fyrelite® each side
	STC 40	LB/NLB Non-loadbearing
	Rw 42	

FRAMING AND WALL HEIGHT

Minimum steel stud dimensions to be 92 x 34 x 0.75mm nominal with a 6mm return.

Minimum steel channel dimensions to be 92 x 30 x 0.75mm nominal for the bottom channel and 92 x 50 x 0.75mm nominal for the top channel.

Top and bottom channels are fixed to the floor and ceiling in true alignment.

Stud spacing at 600mm centres maximum.

Place studs to allow the nominated expansion gap at the top of the frame.

The studs are held in place by the “grip” of channels.

Recommended maximum wall height

Note that maximum wall heights for fire rated systems can be lower than what can be achieved with non-fire rated construction.

Nominal stud dimension (mm)	BMT (mm)	Stud centres (mm)	Max wall height (mm)	Expansion at top of studs (mm)
92 x 34	0.75	600	3000	15
		400	3400	15
150 x 34	0.75	600	4400	20
		400	5000	25
	1.15	600	5000	25
		400	5700	30

LINING

1 layer of 16mm GIB Fyrelite® each side of the frame.

Vertical fixing only permitted. Full height sheets shall be used where possible.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints between sheets on opposite sides of the frame.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

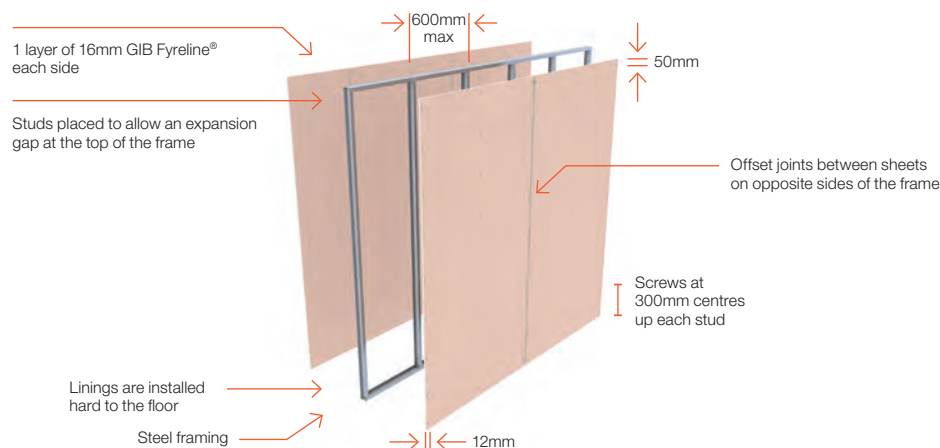
Fastening the linings at 18mm from sheet ends to top and bottom channels is permitted as long as the fasteners do not connect the studs and channels. Do not fix linings to the top track when floor deflection has to be accommodated.

SERVICES

Holes may be drilled or pre-punched in the metal studs to allow installation of electrical service lines and plumbing supply pipes.

JOINTING

All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBS 90a	FRR -/90/90	Lining 1 layer 13mm GIB Fyreline® one side 2 layers 13mm GIB Fyreline® other side
	STC 44 (47*)	
	Rw 43 (48*)	LB/NLB Non-loadbearing

*With one layer Pink® Batts® BIB R1.8 (75mm) glass wool insulation.

FRAMING AND WALL HEIGHT

Minimum steel stud dimensions to be 92 x 34 x 0.75mm nominal with a 6mm return.

Minimum steel channel dimensions to be 92 x 30 x 0.75mm nominal for the bottom channel and 92 x 50 x 0.75mm nominal for the top channel.

Top and bottom channels are fixed to the floor and ceiling in true alignment.

Stud spacing at 600mm centres maximum.

Place studs to allow the nominated expansion gap at the top of the frame.

The studs are held in place by the “grip” of the channels.

Recommended maximum wall height:

Note that maximum wall heights for fire-rated systems can be lower than what can be achieved with non-fire-rated construction.

Nominal stud dimension (mm)	BMT (mm)	Stud centres (mm)	Max wall height (mm)	Expansion at top of studs (mm)
92 x 34	0.75	600	3000	15
		400	3400	15
150 x 34	0.75	600	4400	20
		400	5000	25
	1.15	600	5000	25
		400	5700	30

LINING

1 layer 13mm GIB Fyreline® on one side and 2 layers 13mm GIB Fyreline® on the other side.

Vertical fixing only permitted. Full height sheets shall be used where possible.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

Inner and single layer: 25mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Outer layer: 41mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

300mm centres up each stud.

Place fasteners at 200mm centres along sheet end butt joints.

Fastening the linings at 18mm from sheet ends to top and bottom channels is permitted as long as the fasteners do not connect the studs and channels. Do not fix linings to the top channel when floor deflection has to be accommodated.

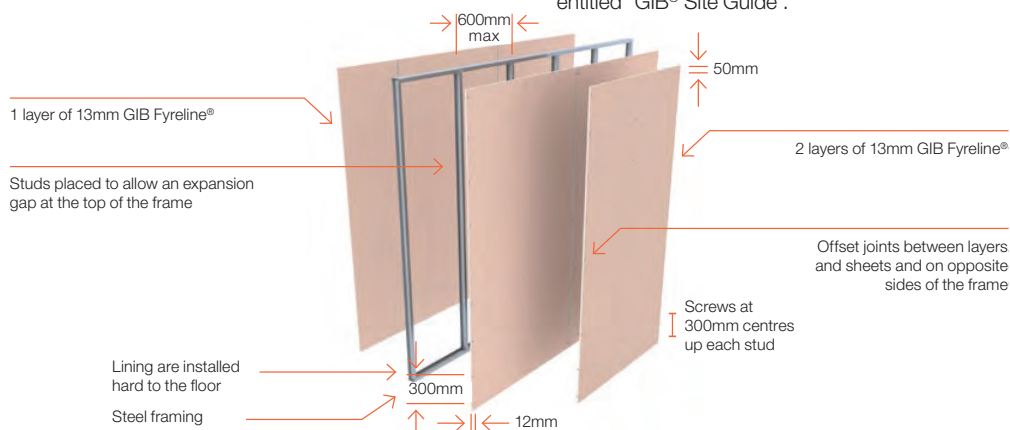
SERVICES

Holes may be drilled or pre-punched in the metal studs to allow installation of electrical service lines and plumbing supply pipes.

JOINTING

Inner layer: Unstopped.

Single or outer layer: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBS 90b	FRR –/90/90 STC 43 (51 with Pink® Batts® R1.2 (50mm) glass wool insulation in both frames) Rw 45 (53 with Pink® Batts® R1.2 (50mm) glass wool insulation in both frames)	Lining 1 layer 13mm GIB Fyreline® each side of a double-stud frame with a 13mm GIB Fyreline® central barrier LB/NLB Non-loadbearing No unsealed penetrations permitted
GBS 60b*	FRR –/60/60 STC 42 (50 with Pink® Batts® R1.2 (50mm) glass wool insulation in both frames) Rw 44 (52 with Pink® Batts® R1.2 (50mm) glass wool insulation in both frames)	Lining 1 layer 13mm GIB Fyreline® each side of a double-stud frame with a 13mm GIB Fyreline® central barrier LB/NLB Non-loadbearing Limited unsealed penetrations permitted in the outer layers*

FRAMING AND WALL HEIGHT

Minimum steel stud dimensions to be 64 x 34 x 0.50mm nominal with a 6mm return.

Minimum steel channel dimensions to be 64 x 30 x 0.50mm nominal.

Top and bottom channels are fixed to the floor and ceiling in true alignment.

Stud spacing at 600mm centres maximum.

Place studs to allow a 15mm expansion gap at the top of the frame.

The studs are held in place by the “grip” of the channels.

Recommended maximum height for studs at 600mm centres is:

- 3000mm for 64 x 34 x 0.50 BMT framing
- 3600mm for 76 x 34 x 0.75 BMT framing, and
- 4200mm for 92 x 34 x 0.75 BMT framing

For wall heights greater than 3000mm, use a minimum 50mm-deep head channel and 20mm expansion tolerance at the top of the studs.

LINING

1 layer of 13mm GIB Fyreline® (the central barrier) to one side of the first frame.

Erect the second frame against the central barrier with studs offset nominally 300mm and no less than 200mm from the first frame and fix the first layer of 13mm GIB Fyreline® (the central barrier) to the second frame.

Complete the assembly by lining the open side of both frames with a single layer of 13mm GIB Fyreline®.

Vertical fixing only permitted. Full height sheets shall be used where possible.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

Fastening the linings at 18mm from sheet ends to top and bottom channels is permitted as long as the fasteners do not connect the studs and channels. Do not fix linings to the top track when floor deflection has to be accommodated.

SERVICES

Holes may be drilled or pre-punched in the metal studs to allow installation of electrical service lines and plumbing supply pipes.

Without penetrations in the outer linings, the system achieves a –/90/90 FRR.

**The FRR is reduced to –/60/60 when the central barrier remains intact but metal or PVC plumbing services up to 90 x 50mm rectangular or 65mm in diameter penetrate the outer linings, without specialist fire stopping. Penetrations must be limited to 2 per stud bay and have neatly cut holes with 6mm maximum clearance filled with either a general purpose flexible sealant or GIB Fire Soundseal®.*

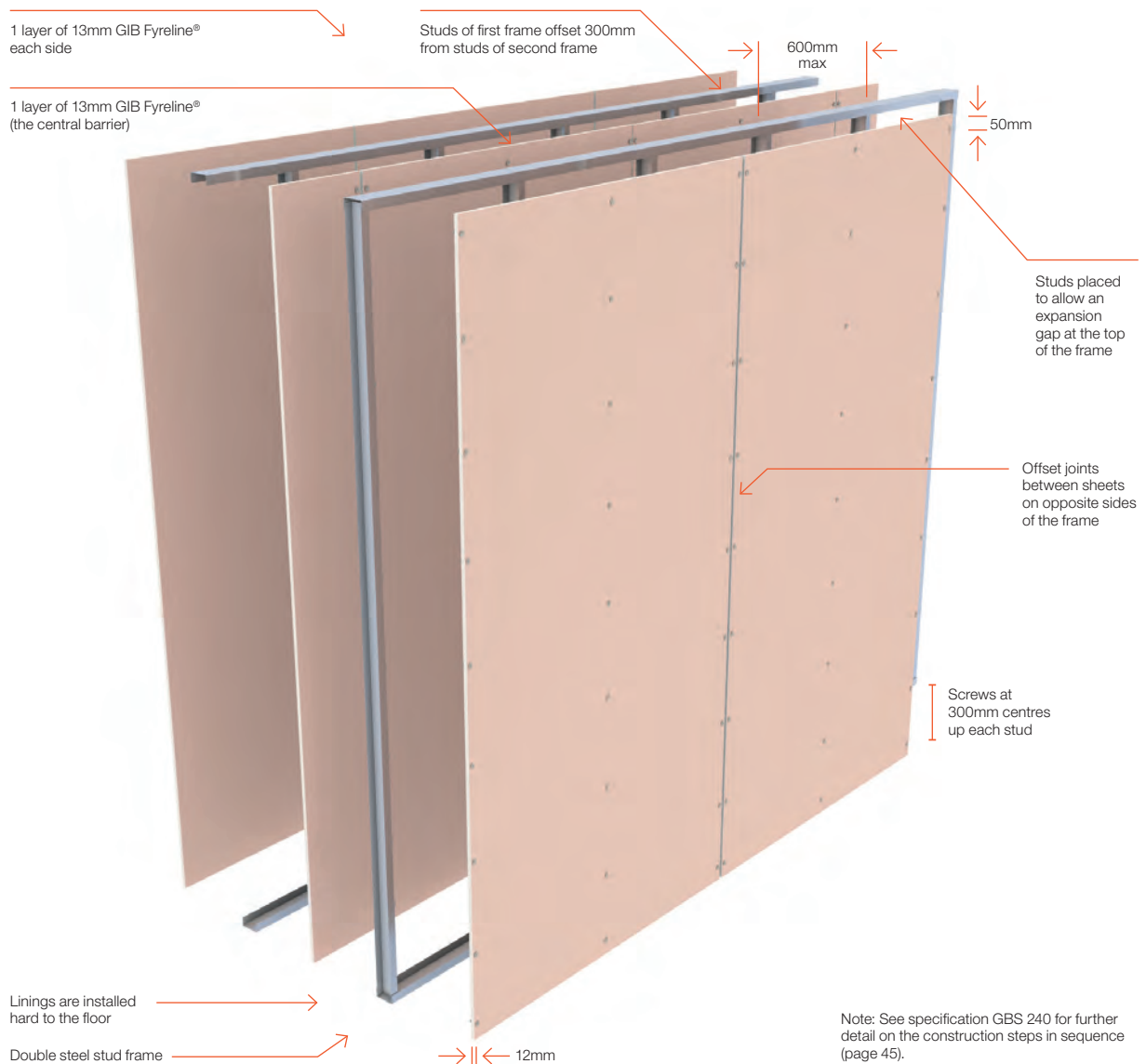
JOINTING

All screw heads of the outer layers stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.

The central barrier does not require plaster stopping.

Two-way FRR — steel frame

Specification number	Performance	Specifications
GBS 90b	FRR -/90/90 STC 43 (51 with Pink® Batts® R1.2 (50mm) glass wool insulation in both frames) Rw 45 (53 with Pink® Batts® R1.2 (50mm) glass wool insulation in both frames)	Lining 1 layer 13mm GIB Fyrelite® each side of a double-stud frame with a 13mm GIB Fyrelite® central barrier LB/NLB Non-loadbearing No unsealed penetrations permitted
GBS 60b*	FRR -/60/60 STC 42 (50 with Pink® Batts® R1.2 (50mm) glass wool insulation in both frames) Rw 44 (52 with Pink® Batts® R1.2 (50mm) glass wool insulation in both frames)	Lining 1 layer 13mm GIB Fyrelite® each side of a double-stud frame with a 13mm GIB Fyrelite® central barrier LB/NLB Non-loadbearing Limited unsealed penetrations permitted in the outer layers*



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBSL 90	FRR 90/90/90	Lining 1 layer 16mm GIB Fyreline® and 1 layer 13mm GIB Fyreline® each side
	STC 47	
	Rw 46	LB/NLB Loadbearing

FRAMING AND WALL HEIGHT

Any steel frame designed to meet structural criteria for strength and serviceability under dead and live loads.

Stud width shall be nominally 35mm minimum.

Stud spacing at 600mm centres maximum. Frame height as determined by specific design.

LINING

1 layer of 16mm GIB Fyreline® plus 1 layer of 13mm GIB Fyreline® each side of the frame.

Vertical or horizontal fixing permitted. For vertical fixing, full height sheets shall be used where possible. When fixing horizontally, all longitudinal sheet joints must be formed over nogs.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints on opposite sides of the frame and between sheets in double-layered systems.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

Inner layer: 16mm GIB Fyreline® – 32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Outer layer: 13mm GIB Fyreline® – 41mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Inner layer: 600mm centres up each stud.

Outer layer: 300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

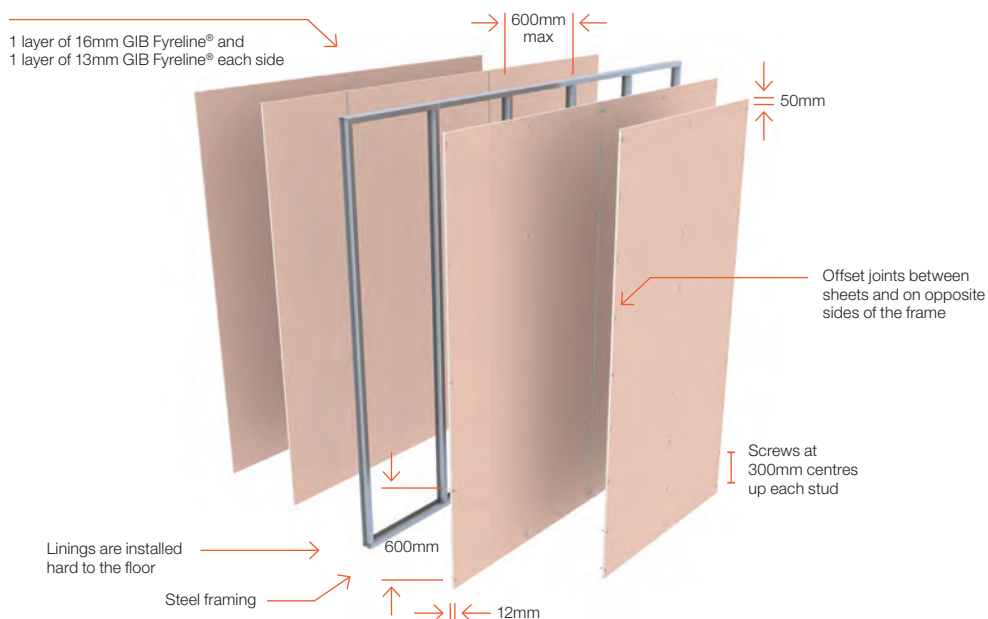
Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Outer layer: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.

Note: See also page 14, “Steel-framed Walls — Loadbearing (LB) walls”.



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBS 120	FRR -/120/120	Lining 1 layer 19mm GIB Fyrelite® each side
	STC 42	LB/NLB Non-loadbearing
	Rw 42	

FRAMING AND WALL HEIGHT

Minimum steel stud dimensions to be 92 x 34 x 0.75mm nominal with a 6mm return.

Minimum steel channel dimensions to be 92 x 30 x 0.75mm nominal for the bottom channel and 92 x 50 x 0.75mm nominal for the top channel.

Top and bottom channels are fixed to the floor and ceiling in true alignment.

Stud spacing at 600mm centres maximum.

Place studs to allow the nominated expansion gap at the top of the frame.

The studs are held in place by the “grip” of the channels.

Recommended maximum wall height

Note that maximum wall heights for fire rated systems can be lower than what can be achieved with non-fire rated construction.

Nominal stud dimension (mm)	BMT (mm)	Stud centres (mm)	Max wall height (mm)	Expansion at top of studs (mm)
92 x 34	0.75	600	3000	15
		400	3400	15
150 x 34	0.75	600	4400	20
		400	5000	25
	1.15	600	5000	25
		400	5700	30

LINING

1 layer of 19mm GIB Fyrelite® each side of the frame.

Vertical fixing only permitted. Full height sheets shall be used where possible.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints between sheets on opposite sides of the frame.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

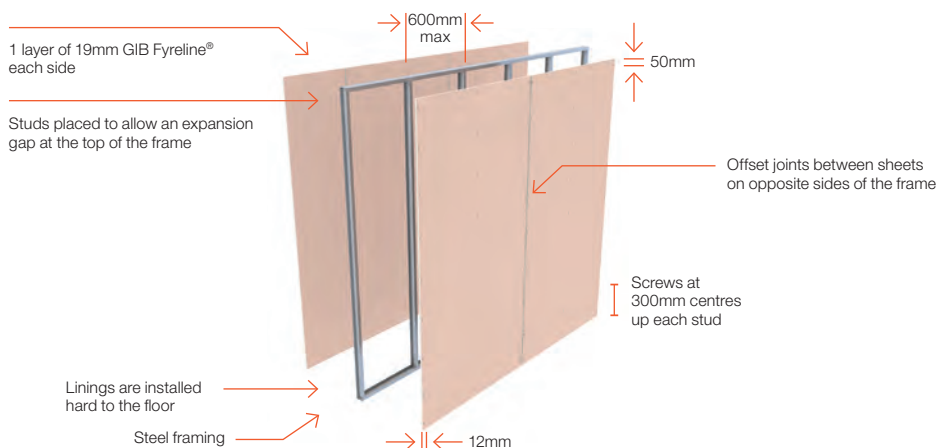
Fastening the linings at 18mm from sheet ends to top and bottom channels is permitted as long as the fasteners do not connect the studs and channels. Do not fix linings to the top track when floor deflection has to be accommodated.

SERVICES

Holes may be drilled or pre-punched in the metal studs to allow installation of electrical service lines and plumbing supply pipes.

JOINTING

All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBS 120a	FRR -/120/120 STC 52 Rw 52	Lining 2 layers 16mm GIB Fyreline® each side LB/NLB Non-loadbearing

FRAMING AND WALL HEIGHT

Minimum steel stud dimensions to be 64 x 34 x 0.50mm nominal with a 6mm return.

Minimum steel channel dimensions to be 64 x 30 x 0.50mm nominal.

Top and bottom channels are fixed to the floor and ceiling in true alignment.

Stud spacing at 600mm centres maximum.

Place studs to allow the nominated expansion gap at the top of the frame.

The studs are held in place by the “grip” of the channels.

Recommended maximum wall height

Note that maximum wall heights for fire rated systems can be lower than what can be achieved with non-fire rated construction.

Nominal stud dimension (mm)	BMT (mm)	Stud centres (mm)	Max wall height (mm)	Expansion at top of studs (mm)
64 x 34	0.50	600	3000	15
		400	3200	15
76 x 34	0.55	600	3200	15
		400	3800	20
	0.75	600	3600	20
		400	4200	20
92 x 34	0.75	600	4200	20
		400	4800	25

LINING

2 layers of 16mm GIB Fyreline® each side of the frame.

Vertical fixing only permitted. Full height sheets shall be used where possible.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints between sheets and on opposite sides of the frame.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

Inner layer: 32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Outer layer: 51mm x 7g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Inner layer: 600mm centres up each stud.

Outer layer: 300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

Fastening the linings at 18mm from sheet ends to top and bottom channels is permitted as long as the fasteners do not connect the studs and channels. Do not fix linings to the top track when floor deflection has to be accommodated.

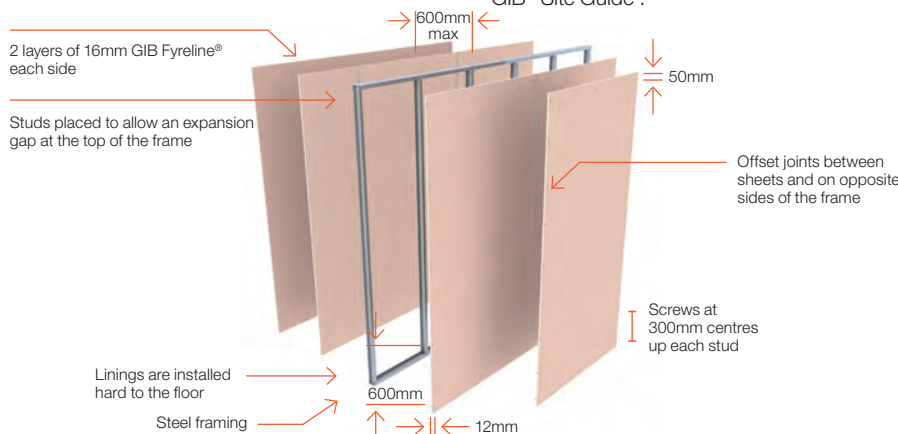
SERVICES

Holes may be drilled or pre-punched in the metal studs to allow installation of electrical service lines and plumbing supply pipes.

JOINTING

Inner layer: Unstopped.

Outer layer: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — steel frame

Specification number	Performance	Specifications
GBS 120b	FRR -/120/120	Lining 2 layers of 13mm GIB Fyreline® each side
	STC 48	LB/NLB Non-loadbearing
	Rw 48	

FRAMING AND WALL HEIGHT

Minimum steel stud dimensions to be 92 x 34 x 0.75mm nominal with a 6mm return.

Minimum steel channel dimensions to be 92 x 30 x 0.75mm nominal for the bottom channel and 92 x 50 x 0.75mm nominal for the top channel.

Top and bottom channels are fixed to the floor and ceiling in true alignment.

Stud spacing at 600mm centres maximum.

Place studs to allow the nominated expansion gap at the top of the frame.

The studs are held in place by the “grip” of the channels.

Recommended maximum wall height

Note that maximum wall heights for fire-rated systems can be lower than what can be achieved with non-fire-rated construction.

Nominal stud dimension (mm)	BMT (mm)	Stud centres (mm)	Max wall height (mm)	Expansion at top of studs (mm)
92 x 34	0.75	600	3000	15
		400	3400	15
150 x 34	0.75	600	4400	20
		400	5000	25
	1.15	600	5000	25
		400	5700	30

LINING

2 layers of 13mm GIB Fyreline® each side of the frame.

Vertical fixing only permitted. Full height sheets shall be used where possible.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints between sheets and on opposite side of frame.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING

Fasteners

Inner layer: 32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Outer layer: 41mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Inner layer: 300mm centres up each stud.

Outer layer: 300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

Fastening the linings at 18mm from sheet ends to top and bottom channels is permitted as long as the fasteners do not connect the studs and channels. Do not fix linings to the top track when floor deflection has to be accommodated.

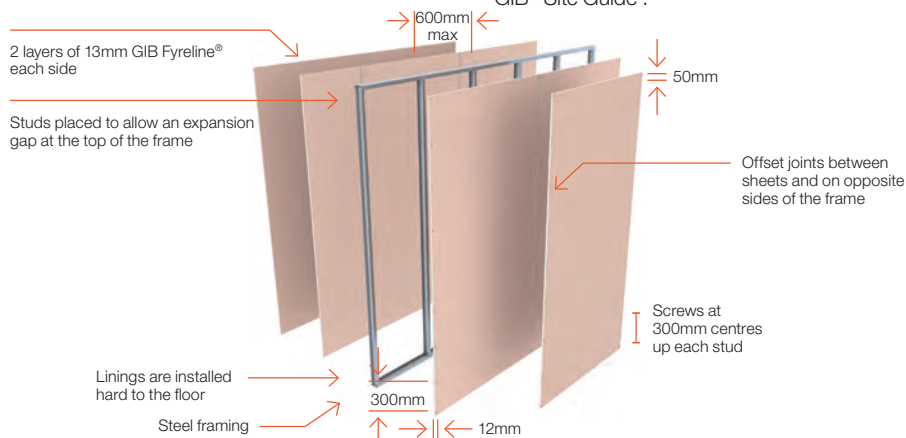
SERVICES

Holes may be drilled or pre-punched in the metal studs to allow installation of electrical service lines and plumbing supply pipes.

JOINTING

Inner layer: Unstopped.

Outer layer: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.



Two-way FRR — steel or timber frame

Specification number	Performance	Specifications
GBS 240	FRR –/240/240 STC 44 (55 with one layer Pink® Batts® BIB R1.8 (75mm) glass wool insulation)	Lining 4 layers 19mm GIB Fyrelite® on a double steel frame LB/NLB Non-loadbearing
GBT 240	Rw 45 (56 with one layer Pink® Batts® BIB R1.8 (75mm) glass wool insulation)	Lining 4 layers 19mm GIB Fyrelite® on a double timber frame LB/NLB Non-loadbearing

FRAMING AND WALL HEIGHT

Steel stud dimensions to be 64 x 34 x 0.50mm nominal with a 6mm return.

Steel channel dimensions to be 64 x 30 x 0.50mm nominal.

Channels are fixed to the floor and ceiling in true alignment.

Double frame (refer to details on next page):

- Frame 1. Studs at 600mm centres maximum
- Frame 2. Studs at 600mm centres maximum and staggered by 300mm from Frame 1
- Place studs to allow a 15mm expansion gap at the top of the frame
- The studs are held in place by the “grip” of the channels. No other fixing may be used
- Tested height of partition is 3600mm. Specific design is required for greater heights

LINING

2 layers of 19mm GIB Fyrelite® to one side of Frame 1.

1 layer of 19mm GIB Fyrelite® to the outside faces of both Frames 1 and 2.

Vertical fixing only permitted. Full height sheets shall be used where possible.

When sheet end butt joints are unavoidable, they shall be formed over nogs and staggered.

Offset joints between sheets by 300mm minimum as shown in the sheet layout.

Sheets shall be touch fitted.

All sheet joints must be formed over framing.

Linings are installed hard to floor.

FASTENING THE LINING (STEEL FRAME)

Fasteners

Inner layer frame 1: 32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Second layer frame 1: 51mm x 7g GIB® Grabber® Self Tapping Drywall Screws.

Outside faces frames 1 and 2: 32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Inner layer frame 1: 3 fasteners only fixed to each longitudinal sheet edge. One below and above the top and bottom channels respectively and one at the centre.

All other layers: 300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 50mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Double layer between frames unstopped.

Outside layers: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.

TIMBER-FRAMED ALTERNATIVE

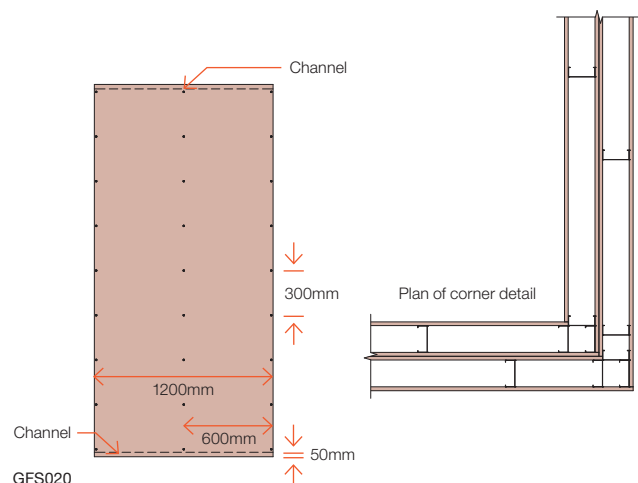
Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Framing to be set out as described for GBS 240
- Nogs are not required except where sheet end butt joints occur

FASTENING THE LINING (TIMBER FRAME)

As detailed in GBS 240 except that:

- Fasteners for the second layer on Frame 1 and for connecting Frame 2 shall be 63mm x 8g GIB® Grabber® Self Tapping Drywall Screws
- Fasteners for all other layers shall be 41mm x 6g GIB® Grabber® High Thread Drywall Screws



One-way FRR — timber or steel frame

Specification number	Performance	Specifications
GBUW 15	FRR 15/15/15	Lining 1 layer 13mm GIB® Standard one side LB/NLB Loadbearing

FRAMING AND WALL HEIGHT

Timber or steel frame designed to meet durability and structural criteria for strength and serviceability under dead and live loads.

The width of framing supporting the linings shall be nominally 35mm minimum.

The cavity depth shall be 90mm minimum.

Framing spacing shall be at 600mm centres maximum.

Timber frame height and dimensions as determined by NZS 3604 stud tables or specific design.

LINING (FIRE SIDE)

1 layer of 13mm GIB® Standard to one side of the frame.

Vertical or horizontal fixing permitted. Full height sheets shall be used where possible.

Sheets shall be touch fitted.

When sheet end butt joints are unavoidable, they shall be formed over framing.

All sheet joints must be formed over framing.

In steel-framed options, linings are installed hard to floor.

FASTENING THE LINING

Fasteners

Timber frame	Steel frame
32mm x 6g GIB® Grabber® High Thread Drywall Screws	32mm x 6g GIB® Grabber® Self Tapping Drywall Screws

Fastener centres

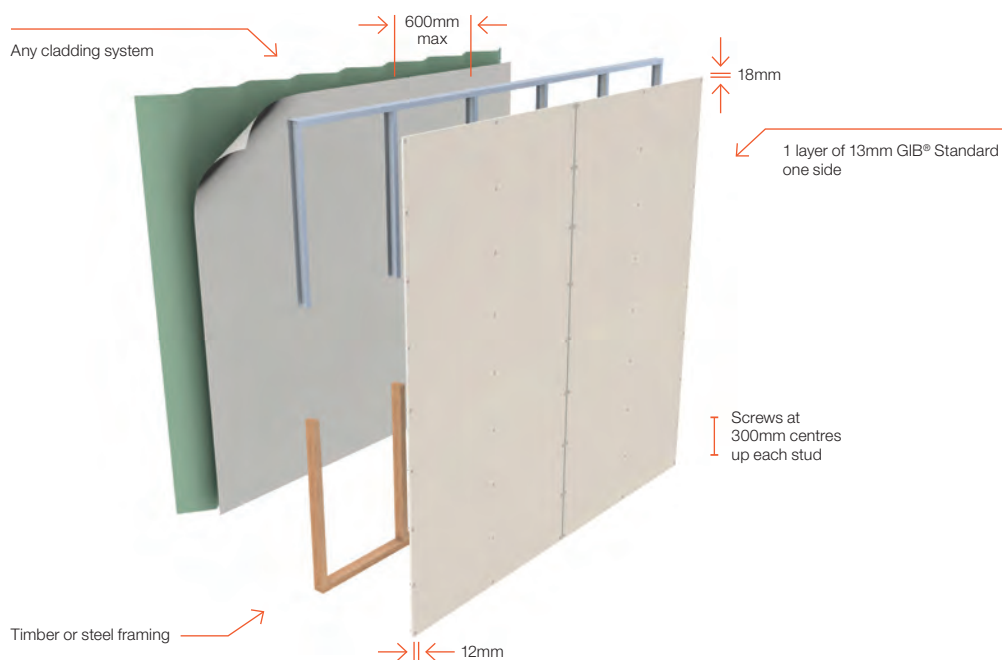
300mm centres up each stud.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



One-way FRR — timber or steel frame

Specification number	Performance	Specifications
GBUW 30a	FRR 30/30/30	Lining 1 layer 16mm GIB Fyrelite® one side LB/NLB Loadbearing
GBUW 30b	FRR 30/30/30	Lining 2 layers 10mm GIB Fyrelite® one side LB/NLB Loadbearing

FRAMING AND WALL HEIGHT

Timber or steel frame designed to meet durability and structural criteria for strength and serviceability under dead and live loads.

The width of framing supporting the linings shall be nominally 35mm minimum.

The cavity depth shall be 90mm minimum.

Framing spacing shall be at 600mm centres maximum.

Timber frame height and dimensions as determined by NZS 3604 stud tables or specific design.

LINING (FIRE SIDE)

GBUW 30a — 1 layer of 16mm GIB Fyrelite® to one side of the frame.

GBUW 30b — 2 layers of 10mm GIB Fyrelite® to one side of the frame.

Vertical or horizontal fixing permitted. For vertical fixing, full height sheets shall be used where possible.

Sheets shall be touch fitted.

All sheet joints must be formed over framing, except for longitudinal joints when the outer layer is fixed horizontally.

Offset sheet joints in double-layered systems.

When sheet end butt joints are unavoidable, they shall be formed over framing.

In steel-framed options, linings are installed hard to floor.

FASTENING THE LINING

Fasteners

System	Timber frame	Steel frame
GBUW 30a	41mm x 6g GIB® Grabber® High Thread Drywall Screws	32mm x 6g GIB® Grabber® Self Tapping Drywall Screws
GBUW 30b Inner layer	32mm x 6g GIB® Grabber® High Thread Drywall Screws	25mm x 6g GIB® Grabber® Self Tapping Drywall Screws
GBUW 30b Outer layer	41mm x 6g GIB® Grabber® High Thread Drywall Screws	32mm x 6g GIB® Grabber® Self Tapping Drywall Screws

Fastener centres

Inner layer: 600mm centres up each stud.

Outer or single layer: 300mm centres up each stud.

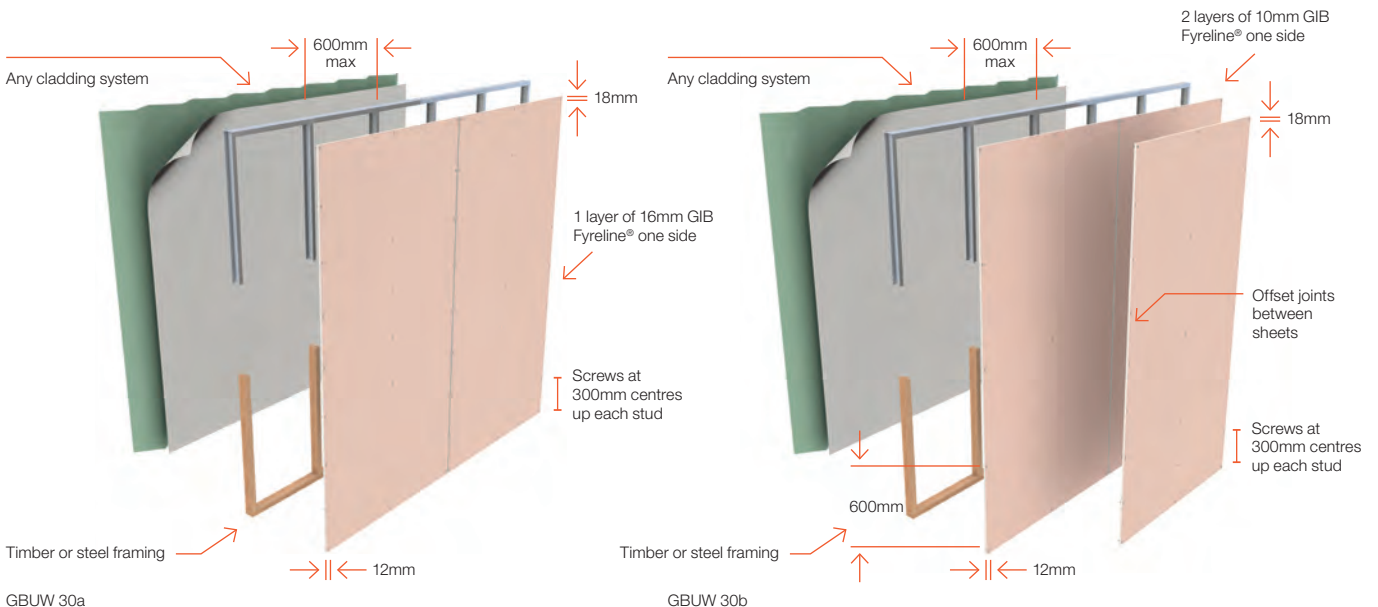
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Outer or single layer: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



One-way FRR — timber or steel frame

Specification number	Performance	Specifications
GBUW 60	FRR 60/60/60	Lining 2 layers 13mm GIB Fyreline® one side LB/NLB Loadbearing

FRAMING AND WALL HEIGHT

Timber or steel frame designed to meet durability and structural criteria for strength and serviceability under dead and live loads.

The width of framing supporting the linings shall be nominally 35mm minimum.

The cavity depth shall be 90mm minimum.

Framing spacing shall be at 600mm centres maximum.

Timber frame height and dimensions as determined by NZS 3604 stud tables or specific design.

LINING (FIRE SIDE)

2 layers of 13mm GIB Fyreline® to one side of the frame.

Vertical or horizontal fixing permitted. For vertical fixing, full height sheets shall be used where possible.

Sheets shall be touch fitted.

All sheet joints must be formed over framing, except for longitudinal joints when the outer layer is fixed horizontally.

When sheet end butt joints are unavoidable, they shall be formed over framing.

Offset sheet joints between layers.

In steel-framed options, linings are installed hard to floor.

FASTENING THE LINING

Fasteners

Layer	Timber frame	Steel frame
Inner layer	32mm x 6g GIB® Grabber® High Thread Drywall Screws	25mm x 6g GIB® Grabber® Drywall Self Tapping Screws
Outer layer	51mm x 6g GIB® Grabber® High Thread Drywall Screws	41mm x 6g GIB® Grabber® Drywall Self Tapping Screws

Fastener centres

Inner layer: 600mm centres up each stud.

Outer layer: 300mm centres up each stud.

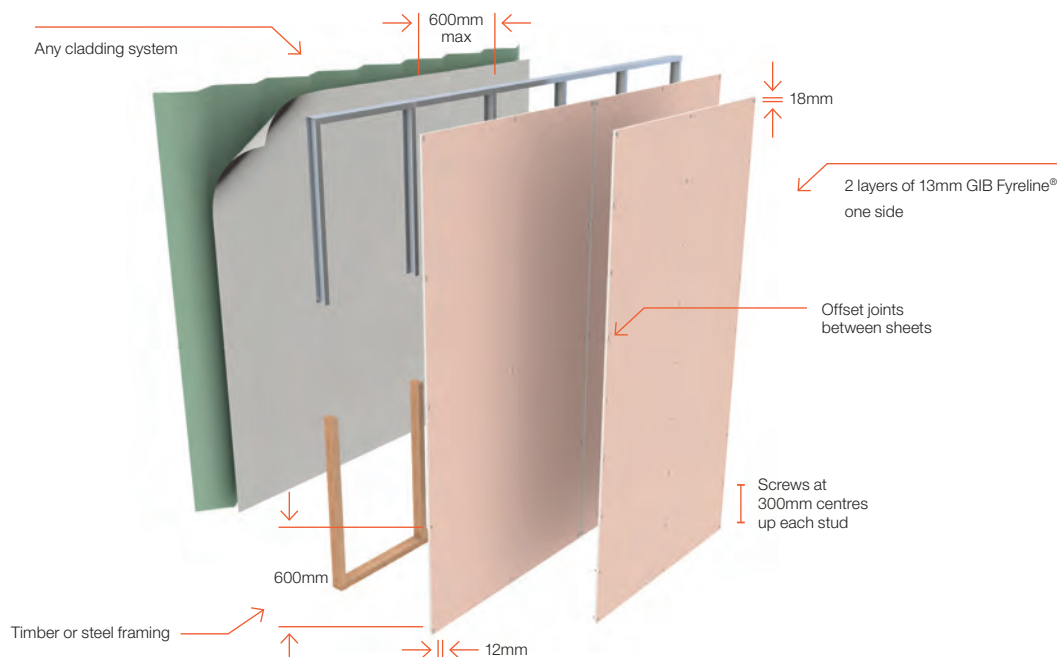
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Outer layer: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



One-way FRR — timber or steel frame

Specification number	Performance	Specifications
GBUW 90	FRR 90/90/90	Lining 1 layer 16mm GIB Fyreline® and 1 layer 19mm GIB Fyreline® one side LB/NLB Loadbearing

FRAMING AND WALL HEIGHT

Timber or steel frame designed to meet durability and structural criteria for strength and serviceability under dead and live loads.

The width of framing supporting the linings shall be nominally 35mm minimum.

The cavity depth shall be 90mm minimum.

Framing spacing shall be at 600mm centres maximum.

Timber frame height and dimensions as determined by NZS 3604 stud tables or specific design.

LINING (FIRE SIDE)

1 layer of 16mm GIB Fyreline® plus 1 layer of 19mm GIB Fyreline® to one side of the frame.

Vertical or horizontal fixing permitted. For vertical fixing, full height sheets shall be used where possible.

Sheets shall be touch fitted.

All sheet joints must be formed over framing, except for longitudinal joints when the outer layer is fixed horizontally.

When sheet end butt joints are unavoidable, they shall be formed over framing.

Offset sheet joints between layers.

In steel-framed options, linings are installed hard to floor.

FASTENING THE LINING

Fasteners

Layer	Timber frame	Steel frame
Inner layer (16mm GIB Fyreline®)	41mm x 6g GIB® Grabber® High Thread Drywall Screws	32mm x 6g GIB® Grabber® Self Tapping Drywall Screws
Outer layer (19mm GIB Fyreline®)	57mm x 7g GIB® Grabber® High Thread Drywall Screws	51mm x 7g GIB® Grabber® Self Tapping Drywall Screws

Fastener centres

Inner layer: 600mm centres up each stud.

Outer layer: 300mm centres up each stud.

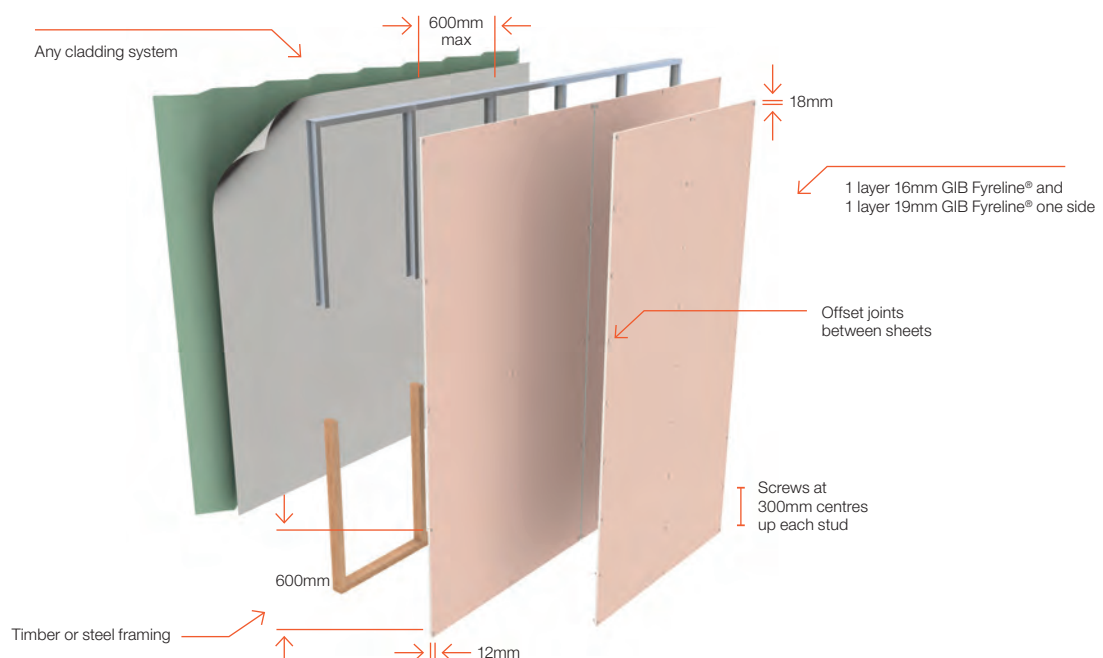
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Outer layer: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



One-way FRR — timber or steel frame

Specification number	Performance	Specifications
GBUW 120	FRR 120/120/120	Lining 2 layers 19mm GIB Fyreline® one side LB/NLB Loadbearing

FRAMING AND WALL HEIGHT

Timber or steel frame designed to meet durability and structural criteria for strength and serviceability under dead and live loads.

The width of framing supporting the linings shall be nominally 35mm minimum.

The cavity depth shall be 90mm minimum.

Framing spacing shall be at 600mm centres maximum.

Timber frame height and dimensions as determined by NZS 3604 stud tables or specific design.

LINING (FIRE SIDE)

2 layers of 19mm GIB Fyreline® to one side of the frame.

Vertical or horizontal fixing permitted. For vertical fixing, full height sheets shall be used where possible.

Sheets shall be touch fitted.

All sheet joints must be formed over framing, except for longitudinal joints when the outer layer is fixed horizontally.

When sheet end butt joints are unavoidable, they shall be formed over nogs.

Offset sheet joints between layers.

In steel-framed options, linings are installed hard to floor.

FASTENING THE LINING

Fasteners

Layer	Timber frame	Steel frame
Inner layer	41mm x 6g GIB® Grabber® High Thread Drywall Screws	32mm x 6g GIB® Grabber® Self Tapping Drywall Screws
Outer layer	57mm x 7g GIB® Grabber® High Thread Drywall Screws	51mm x 7g GIB® Grabber® Self Tapping Drywall Screws

Fastener centres

Inner layer: 600mm centres up each stud.

Outer layer: 300mm centres up each stud.

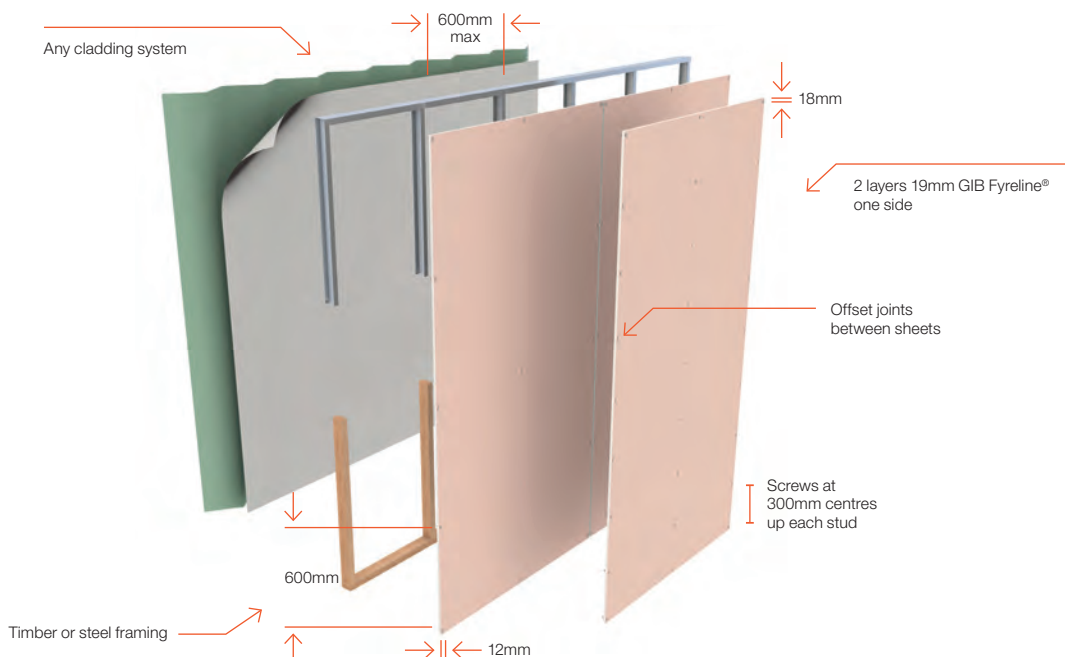
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Outer layer: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



One-way FRR — timber or steel frame

Specification number	Performance	Specifications
GBUW 180	FRR 180/180/180	Lining 3 layers 19mm GIB Fyrelite® one side LB/NLB Loadbearing

FRAMING AND WALL HEIGHT

Timber or steel frame designed to meet durability and structural criteria for strength and serviceability under dead and live loads.

The width of framing supporting the linings shall be nominally 35mm minimum.

The cavity depth shall be 90mm minimum.

Framing spacing shall be at 600mm centres maximum.

Timber frame height and dimensions as determined by NZS 3604 stud tables or specific design.

LINING (FIRE SIDE)

3 layers of 19mm GIB Fyrelite® to one side of the frame.

Vertical or horizontal fixing permitted. For vertical fixing, full height sheets shall be used where possible.

Sheets shall be touch fitted.

All sheet joints must be formed over framing, except for longitudinal joints when the outer layer is fixed horizontally.

When sheet end butt joints are unavoidable, they shall be formed over nogs.

Offset sheet joints between layers.

In steel-framed options, linings are installed hard to floor.

FASTENING THE LINING

Fasteners

Layer	Timber frame	Steel frame
Inner layer	41mm x 6g GIB® Grabber® High Thread Drywall Screws	32mm x 6g GIB® Grabber® Self Tapping Drywall Screws
Second layer	57mm x 7g GIB® Grabber® High Thread Drywall Screws	51mm x 7g GIB® Grabber® Self Tapping Drywall Screws
Third layer	76mm x 8g GIB® Grabber® Self Tapping Drywall Screws	76mm x 8g GIB® Grabber® Self Tapping Drywall Screws

Fastener centres

Inner layer: 600mm centres up each stud.

Second and third layers: 300mm centres up each stud.

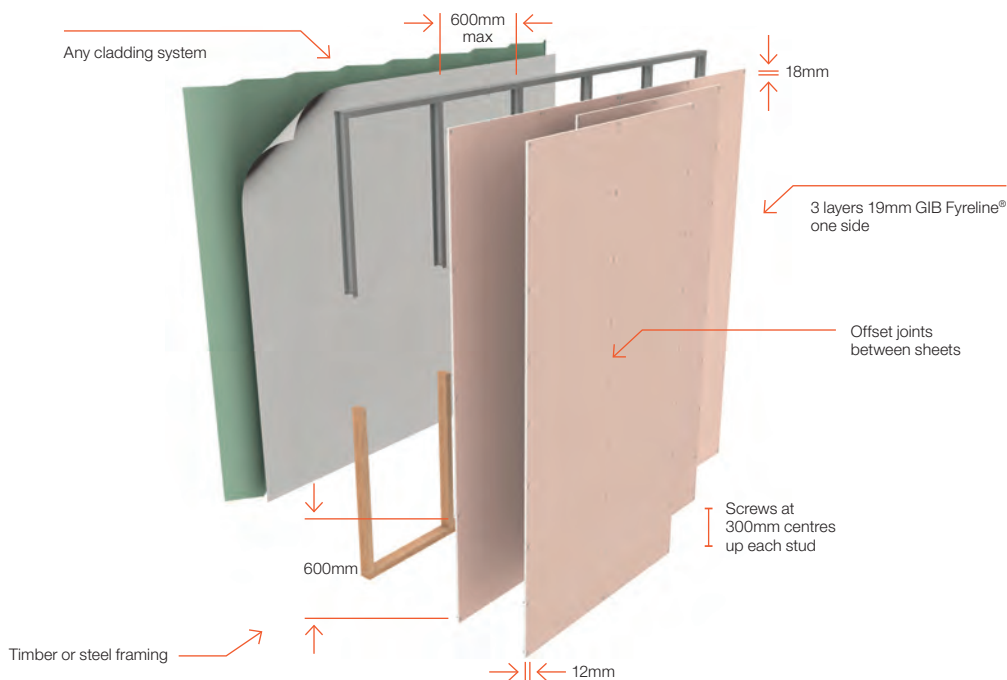
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

Inner layer: Unstopped.

Outer layer: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Simultaneous two-sided fire exposure — timber frame

Specification number	Performance	Specifications
GBTL 30 2S	FRR 30/-/ STC 36 Rw 36	Lining 1 layer 13mm GIB Fyreline® each side LB/NLB Loadbearing

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Minimum 90 x 45mm studs at 600mm centres maximum
- Nogs at 1000mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Loadbearing — Framing dimensions and height as determined by NZS 3604 stud and top plate tables for loadbearing walls.

LINING

1 layer of 13mm GIB Fyreline® each side of the frame.

Vertical or horizontal fixing permitted. All sheet joints must be formed over solid timber framing. Sheets shall be touch fitted.

Vertical fixing — Stagger longitudinal sheet joints on opposite sides of the wall. When sheet end butt joints are unavoidable, they shall be formed over nogs and offset on opposite sides of the frame.

Horizontal fixing — Horizontal joints on opposite sides of the wall can be formed over the same row of nogs. Sheet end butt joints shall be formed over studs and offset on opposite sides of the frame.

FASTENING THE LINING

Fasteners

41mm x 6g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 300mm centres to perimeter framing and intermediate studs.

Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

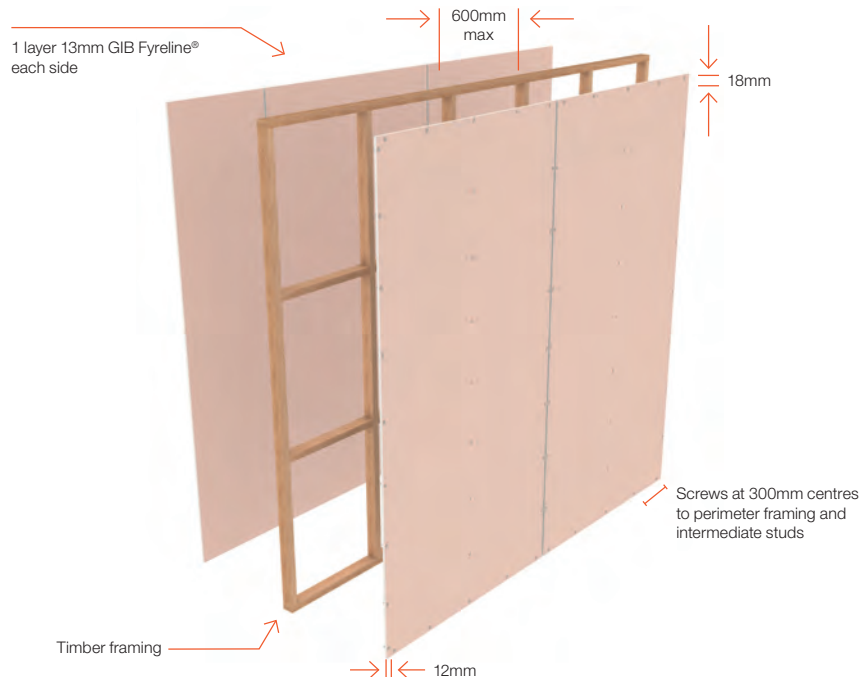
Place fasteners at 200mm centres along sheet end butt joints.

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.

PENETRATIONS

As an alternative to fire-stopping service penetrations, they can be ducted through the wall by framing an aperture around the service and lining the cavity faces with either two layers of 13mm GIB Fyreline®, or by installing additional 45mm timber blocking. Doors and windows with extra trimming studs do not require additional GIB Fyreline® strips.



Simultaneous two-sided fire exposure — timber frame

Specification number	Performance	Specifications
GBTL 60 2S	FRR 60/-/ STC 46 Rw 45	Lining 2 layers 13mm GIB Fyreline® each side LB/NLB Loadbearing

FRAMING

Framing to comply with:

- NZBC B1 — Structure: AS1 Clause 3 — Timber (NZS 3604) or VM1 Clause 6 — Timber (NZS 3603)
- NZBC B2 — Durability: AS1 Clause 3.2 — Timber (NZS 3602)
- Minimum 90 x 45mm studs at 600mm centres maximum
- Nogs at 1000mm centres maximum

WALL HEIGHTS AND FRAMING DIMENSIONS

Loadbearing — Framing dimensions and height as determined by NZS 3604 stud and top plate tables for loadbearing walls.

LINING

2 layers of 13mm GIB Fyreline® each side of the frame.

Vertical or horizontal fixing permitted. For vertical fixing, full height sheets shall be used where possible. Sheets shall be touch fitted.

All sheet joints must be formed over solid timber framing, except for longitudinal joints when the outer layer is fixed horizontally

Stagger longitudinal sheet joints between layers and on opposite sides of the frame. When sheet end butt joints are unavoidable, they shall be formed over nogs, staggered between layers and staggered on opposite sides of the wall.

FASTENING THE LINING

Fasteners

Inner layer: 32mm x 6g GIB® Grabber® High Thread Drywall Screws.

Outer layer: 51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Inner layer: 600mm centres up each stud.

Outer layer: 300mm centres up each stud.

Place fasteners 50mm from sheet corners along plates. At wall corners place an additional fastener 50–60mm vertically, no closer than 10mm from plate-to-stud joints.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

Place fasteners at 200mm centres along sheet end butt joints.

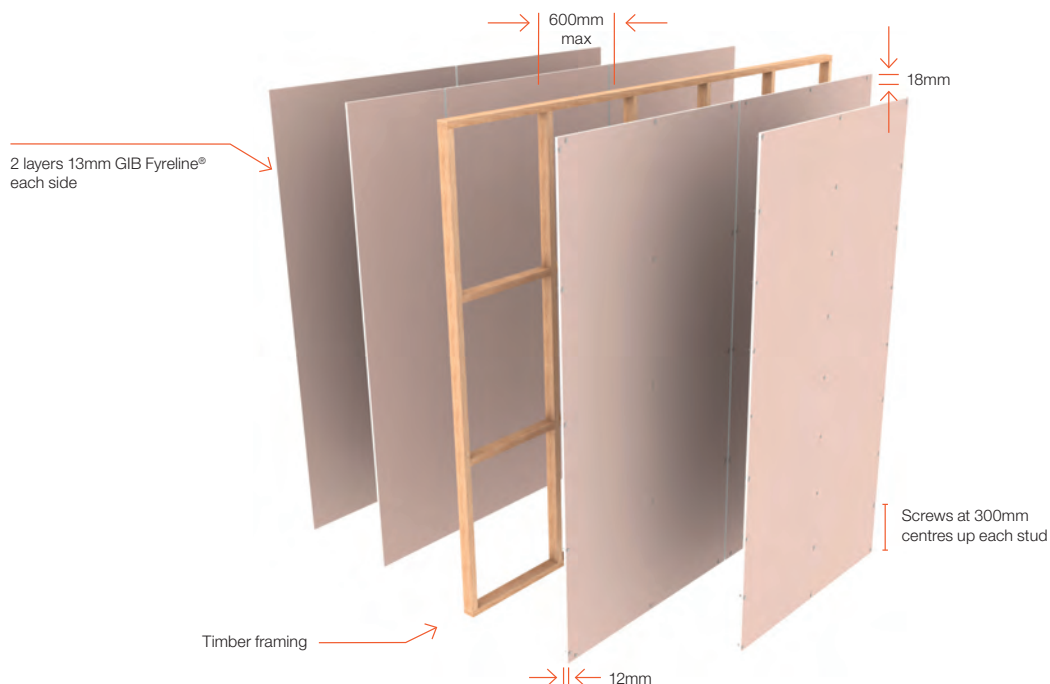
JOINTING

Inner layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.

PENETRATIONS

As an alternative to fire-stopping service penetrations, they can be ducted through the wall by framing an aperture around the service and lining the cavity faces with either two layers of 13mm GIB Fyreline®, or by installing additional 45mm timber blocking. Doors and windows with extra trimming studs do not require additional GIB Fyreline® strips.



Timber joist

Specification number	Performance	Specifications
GBFC 15	FRR 15/15/15 STC 38 Rw 38 IIC 31	Lining 1 layer 13mm GIB® Standard LB/NLB Loadbearing

FLOOR FRAMING

Floor joists must comply with NZS 3604 and be a minimum of 140mm x 45mm spaced at 600mm maximum. Solid strutting is required in accordance with NZS 3604.

Nogs fixed on the flat to receive the ends of flooring material shall be 90mm x 45mm minimum.

Nogs fixed on the flat to receive GIB® linings shall be 70mm x 45mm minimum spaced at 600mm for joists at 600mm, or at 1200mm for joists at 400mm or 450mm. Nogs/framing is required at the perimeter of the fire rated ceiling.

ALTERNATIVE FLOOR FRAMING

hySPAN® or hyJOIST® may be used as an alternative. Joists must be covered by specific engineering design for strength and serviceability and spaced at no more than 600mm centres.

Requirements for nogs are the same as for NZS 3604 floor framing above.

Consult the beam manufacturer for details of the solid blocking contained in floor/ceiling to wall junctions.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

CEILING LINING

1 layer of 13mm GIB® Standard shall be fixed at right angles to the underside of the floor joists.

All sheet joints must occur on joists, solid strutting or nogs.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

32mm x 6g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 150mm centres around the perimeter of each sheet and at 200mm centres along each joist and at the centre of each nog.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

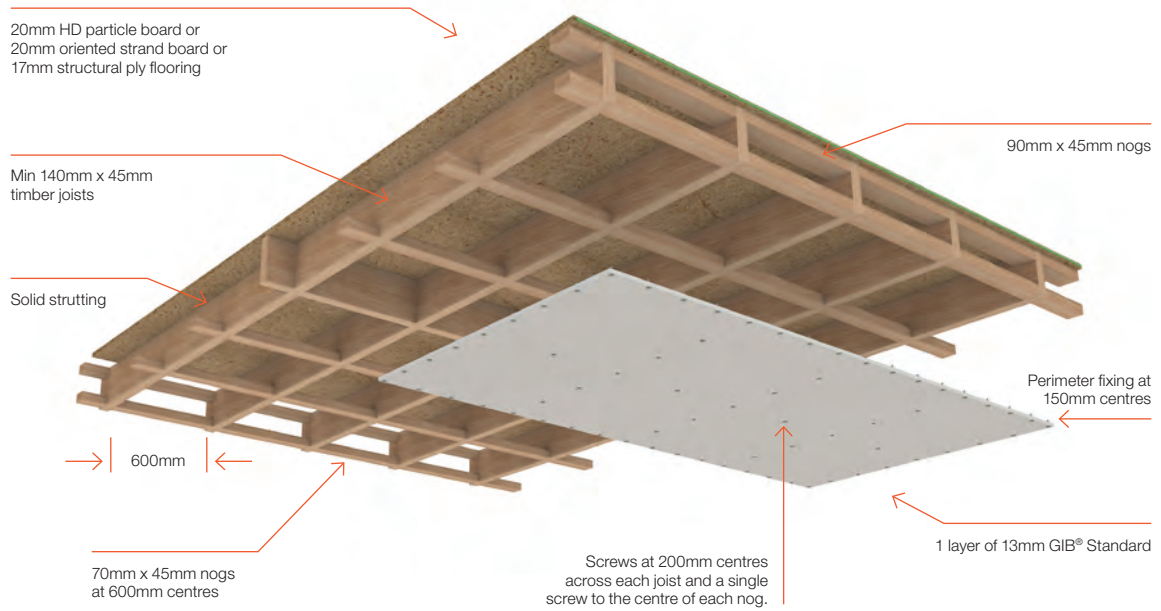
JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

hySPAN® and hyJOIST® are manufactured and supplied by Carter Holt Harvey Futurebuild, 0800 808 131. Check with the supplier for construction details and independent verification.

Timber joist

Specification number	Performance	Specifications
GBFC 15	FRR 15/15/15 STC 38 Rw 38 IIC 31	Lining 1 layer 13mm GIB® Standard LB/NLB Loadbearing



Timber joist

Specification number	Performance	Specifications
GBFC 30	FRR 30/30/30 STC 39 Rw 40 IIC 32	Lining 1 layer 13mm GIB Fyreline® LB/NLB Loadbearing

FLOOR FRAMING

Floor joists must comply with NZS 3604 and be a minimum of 140mm x 45mm. Joists are spaced at 600mm maximum. Solid strutting is required in accordance with NZS 3604.

Nogs fixed on the flat to receive the ends of flooring material shall be 90mm x 45mm minimum.

Nogs fixed on the flat to receive GIB® linings shall be 70mm x 45mm minimum spaced at 600mm for joists at 600mm, or at 1200mm for joists at 400mm or 450mm.

Nogs/framing is required at the perimeter of the fire rated ceiling.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

CEILING LINING

1 layer of 13mm GIB Fyreline® shall be fixed at right angles to the underside of the floor joists.

All sheet joints must occur on joists, solid strutting or nogs.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

41mm x 6g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 150mm centres around the perimeter of each sheet and at 200mm centres along each joist and at the centre of each nog.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

CEILING BATTEN ALTERNATIVE

Use continuous 70mm x 35mm ceiling battens at 600mm centres, running across the joists (battens may also be used to level the ceiling in renovation work). Linings are installed perpendicular to the battens.

When joists are spaced at 600mm, minimum 45mm x 35mm blocking between the ceiling battens is required under all joists.

When joists are spaced at 400mm, blocking on joists is required behind longitudinal sheet joints at 1200mm centres only.

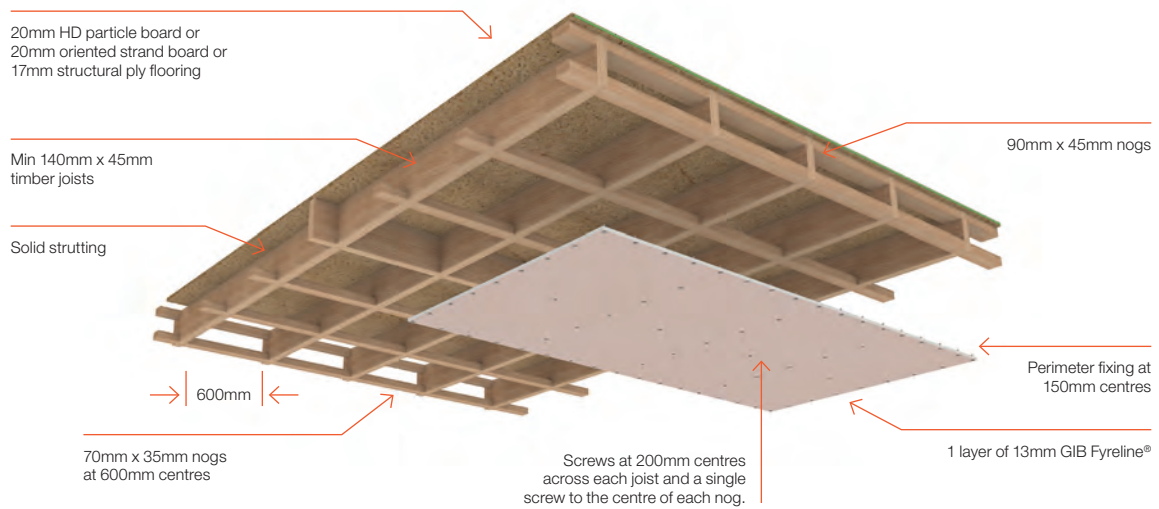
When joists are spaced at 450mm, blocking is required between the battens at 600mm centres to support the board centre and behind longitudinal sheet joints. When battens are spaced at 450mm or less, blocking only needs to be installed behind longitudinal sheet joint.

Nogs/framing is required at the perimeter of the fire rated ceiling.

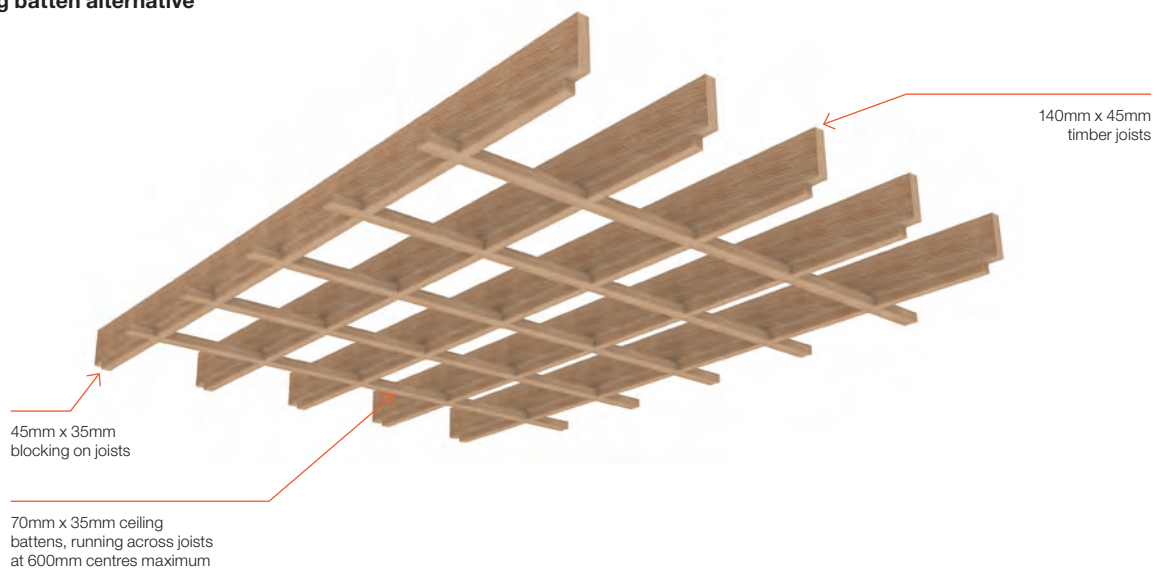
Alternatively metal battens can be used provided construction is otherwise in accordance with specification GBSC 30.

Timber joist

Specification number	Performance	Specifications
GBFC 30	FRR 30/30/30 STC 39 Rw 40 IIC 32	Lining 1 layer 13mm GIB Fyreline® LB/NLB Loadbearing



Ceiling batten alternative



Timber joist

Specification number	Performance	Specifications
GBFC 45	FRR 45/45/45 STC 39 Rw 40 IIC 32	Lining 1 layer 13mm GIB Fyreline® LB/NLB Loadbearing

FLOOR FRAMING

Floor joists must comply with NZS 3604 and be a minimum of 190mm x 45mm or 140mm x 45mm when using the ceiling batten alternative. Joists are spaced at 600mm maximum. Solid strutting is required in accordance with NZS 3604.

Nogs fixed on the flat to receive the ends of flooring material shall be 90mm x 45mm minimum.

Nogs fixed on the flat to receive GIB® linings shall be 70mm x 45mm minimum spaced at 600mm for joists at 600mm, or at 1200mm for joists at 400mm or 450mm.

Nogs/framing is required at the perimeter of the fire rated ceiling.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

CEILING LINING

1 layer of 13mm GIB Fyreline® shall be fixed at right angles to the underside of the floor joists.

All sheet joints must occur on joists, solid strutting or nogs.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 150mm centres around the perimeter of each sheet and at 200mm centres along each joist and at the centre of each nog.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

CEILING BATTEN ALTERNATIVE

Where NZS 3604 permits 140mm joists, these may be used with continuous 70mm x 45mm ceiling battens at 600mm centres, running across the joists (battens may also be used to level the ceiling in renovation work). Linings are installed perpendicular to the battens.

When joists are spaced at 600mm, 45mm x 45mm blocking between the ceiling battens is required under all joists.

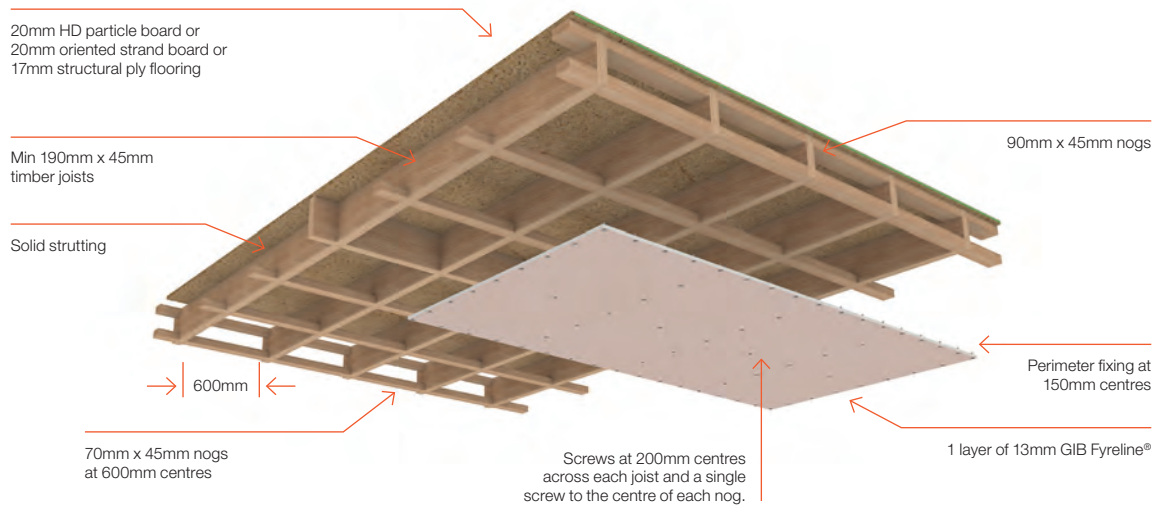
When joists are spaced at 400mm, blocking on joists is required behind longitudinal sheet joints at 1200mm centres only.

When joists are spaced at 450mm, blocking is required between the battens at 600mm centres to support the board centre and behind longitudinal sheet joints. When battens are spaced at 450mm or less, blocking only needs to be installed behind longitudinal sheet joint.

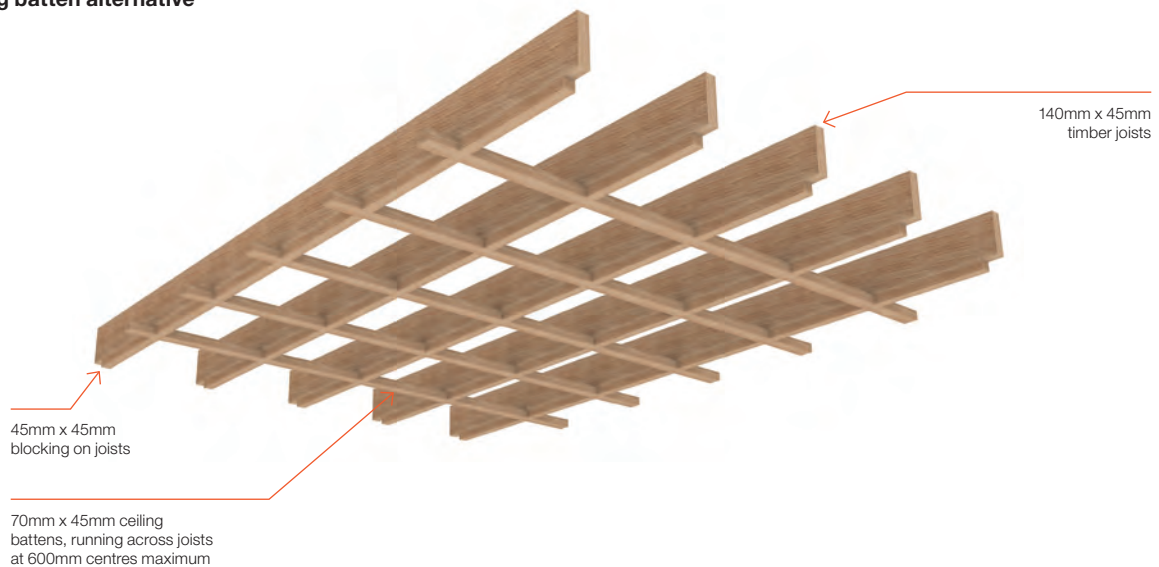
Nogs/framing is required at the perimeter of the fire rated ceiling.

Timber joist

Specification number	Performance	Specifications
GBFC 45	FRR 45/45/45 STC 39 Rw 40 IIC 32	Lining 1 layer 13mm GIB Fyrelite® LB/NLB Loadbearing



Ceiling batten alternative



Timber joist

Specification number	Performance	Specifications
GBFC 60	FRR 60/60/60 STC 39 Rw 40 IIC 32	Lining 1 layer 16mm GIB Fyrelite® LB/NLB Loadbearing

FLOOR FRAMING

Floor joists must comply with NZS 3604 and be a minimum of 190mm x 45mm or 140mm x 45mm when using the ceiling batten alternative. Joists are spaced at 600mm maximum. Solid strutting is required in accordance with NZS 3604.

Nogs fixed on the flat to receive the ends of flooring material shall be 90mm x 45mm minimum.

Nogs fixed on the flat to receive GIB® linings shall be 70mm x 45mm minimum spaced at 600mm for joists at 600mm, or at 1200mm for joists at 400mm or 450mm.

Nogs/framing is required at the perimeter of the fire rated ceiling.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

CEILING LINING

1 layer of 16mm GIB Fyrelite® shall be fixed at right angles to the underside of the floor joists.

All sheet joints must occur on joists or nogs.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

150mm centres around the perimeter of each sheet.

Place fasteners at 200mm centres along each joist and at the centre of each nog.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

CEILING BATTEN ALTERNATIVE

Where NZS 3604 permits 140mm joists, these may be used with continuous 70mm x 45mm ceiling battens at 600mm centres, running across the joists (battens may also be used to level the ceiling in renovation work).

When joists are spaced at 600mm, 45mm x 45mm blocking between the ceiling battens is required under all joists.

When joists are spaced at 400mm, blocking on joists is required behind longitudinal sheet joints at 1200mm centres only.

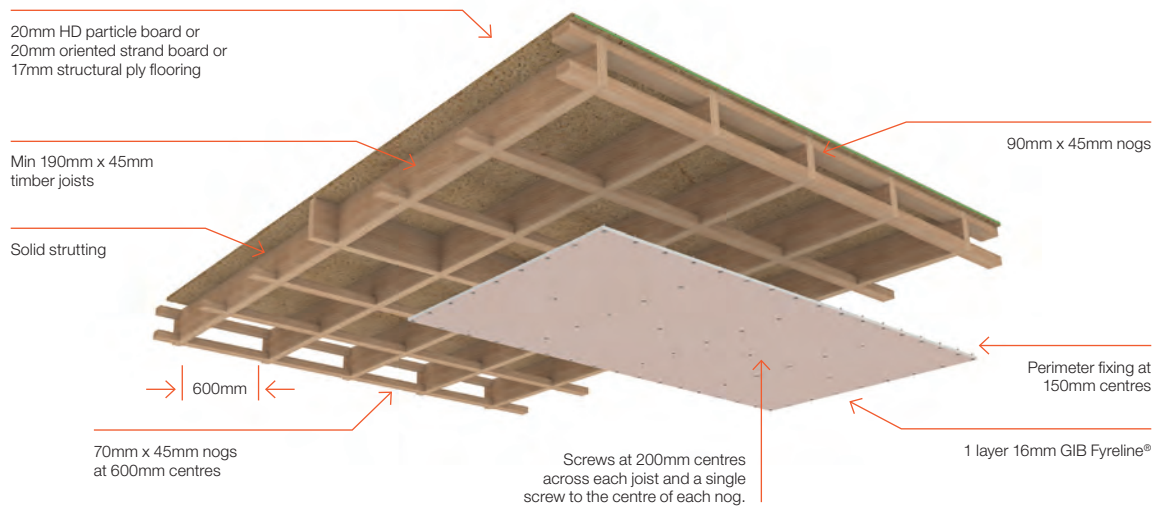
When joists are spaced at 450mm, blocking is required between the battens at 600mm centres to support the board centre and behind longitudinal sheet joints. When battens are spaced at 450mm or less, blocking only needs to be installed behind longitudinal sheet joint.

Nogs/framing is required at the perimeter of the fire rated ceiling.

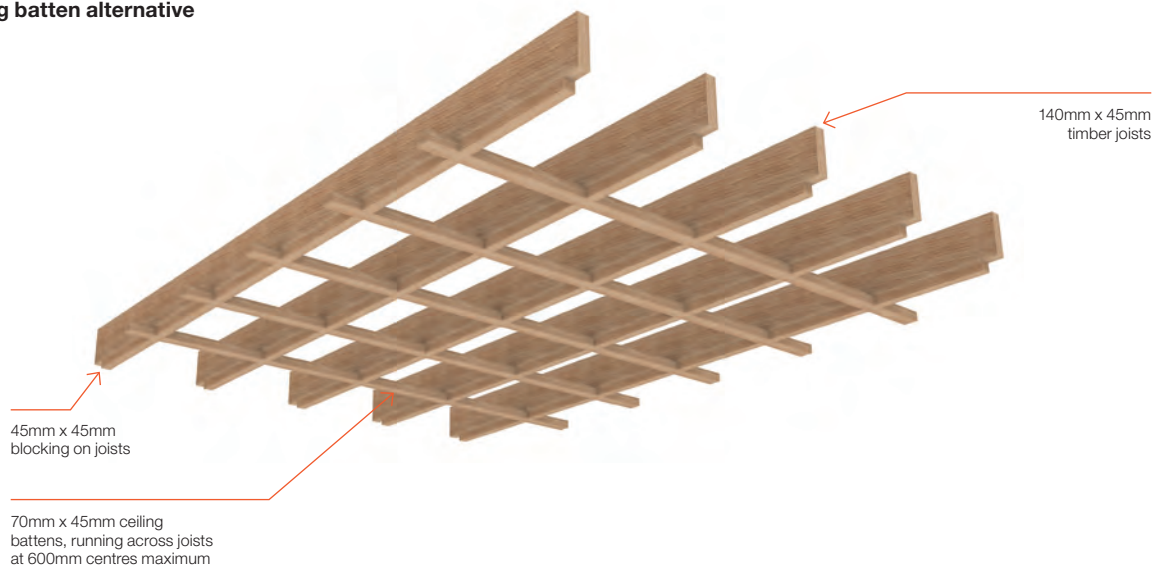
The lining shall be fixed at right angles to the underside of the battens.

Timber joist

Specification number	Performance	Specifications
GBFC 60	FRR 60/60/60 STC 39 Rw 40 IIC 32	Lining 1 layer 16mm GIB Fyrelite® LB/NLB Loadbearing



Ceiling batten alternative



Timber joist

Specification number	Performance	Specifications
GBFC 90	FRR 90/90/90 STC 41 Rw 41 IIC 34	Lining 2 layers 16mm GIB Fyrelite® LB/NLB Loadbearing

FLOOR FRAMING

Floor joists must comply with NZS 3604 and be a minimum of 190mm x 45mm spaced at 600mm maximum. Solid strutting is required at 1800mm centres.

Nogs fixed on the flat to receive the ends of flooring material shall be 90mm x 45mm minimum.

Nogs fixed on the flat to receive GIB® linings shall be 70mm x 45mm minimum spaced at 600mm centres.

Nogs/framing is required at the perimeter of the fire rated ceiling.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

CEILING LINING

2 layers of 16mm GIB Fyrelite® shall be fixed at right angles to the underside of the floor joists. The sheet joints of the second layer are to be offset from those of the first layer.

All sheet joints must occur on joists, solid strutting or nogs.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

Inner layer: 51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Outer layer: 76mm x 8g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Inner layer: Place fasteners at 150mm centres around the perimeter of each sheet, across each joist and at the centre of each nog.

Outer layer: Place fasteners at 150mm centres around the perimeter of each sheet, across each joist and at the centre of each nog.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

Inner layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

CEILING BATTEN ALTERNATIVE

Where NZS 3604 permits 140mm joists, these may be used with continuous 70mm x 45mm ceiling battens at 600mm centres, running across the joists (battens may also be used to level the ceiling in renovation work).

45mm x 45mm blocking between the ceiling battens is required under all joists.

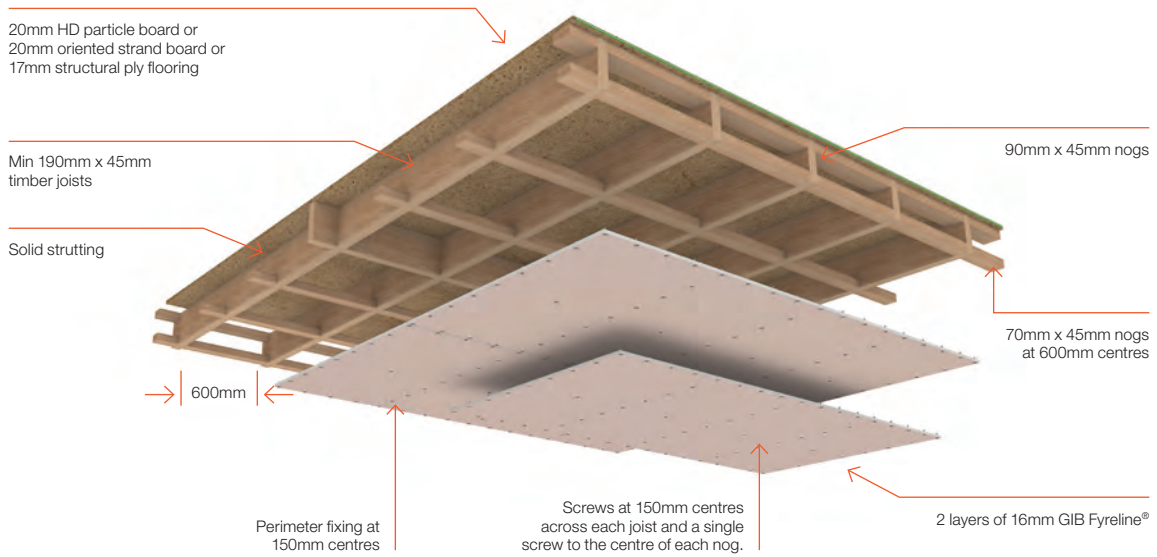
Nogs/framing is required at the perimeter of the fire rated ceiling.

The lining shall be fixed at right angles to the underside of the battens.

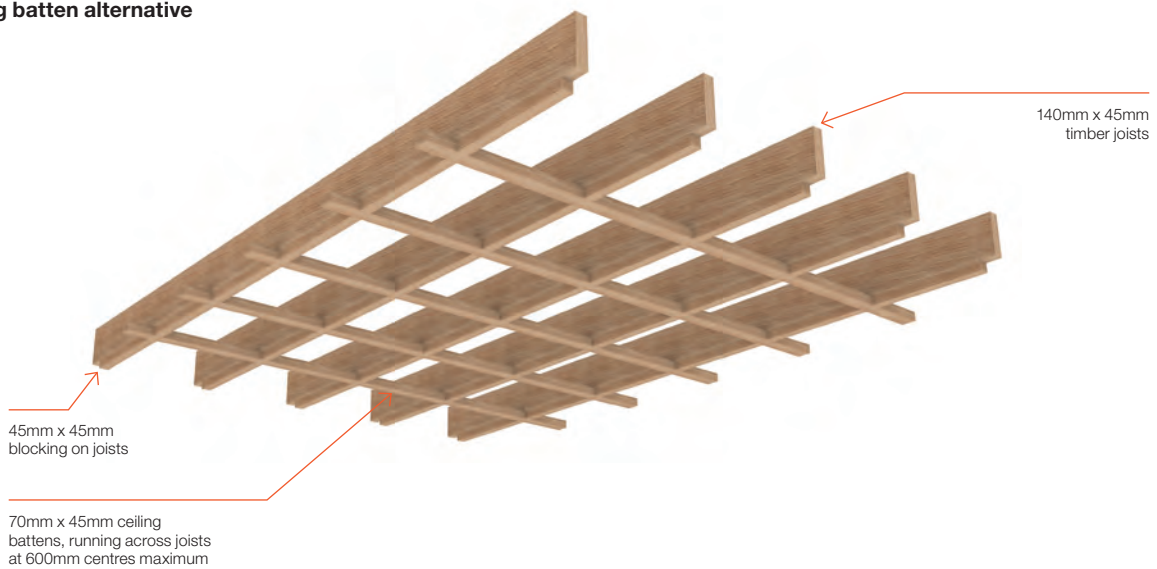
The joints of the outer layer are to be offset from those of the inner layer.

Timber joist

Specification number	Performance	Specifications
GBFC 90	FRR 90/90/90 STC 41 Rw 41 IIC 34	Lining 2 layers 16mm GIB Fyrelite® LB/NLB Loadbearing



Ceiling batten alternative



Timber or steel joist

Specification number	Performance	Specifications
GBFC 120	FRR 120/120/120	Lining 2 layers 19mm GIB Fyreline® LB/NLB Loadbearing

FLOOR FRAMING

Timber or steel floor joists designed to meet structural criteria for strength and serviceability under dead and live loads.

Joists at 600mm centres maximum.

The separation distance between the ceiling lining and the flooring shall be 90mm minimum.

Linings shall be supported by framing members with a minimum width of 35mm.

Nogs fixed on the flat to receive the ends of the particle board shall be 90mm x 45mm minimum.

Note: In respect of the FRR for this particular system, nogs are required only at the perimeter of the fire rated ceiling. If timber-framed construction applies, the nogs shall be 70mm x 35mm minimum.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

CEILING LINING

2 layers of 19mm GIB Fyreline® shall be fixed at right angles to the underside of the floor framing.

The sheet joints of the second layer are to be offset from those of the first layer.

All sheet end butt joints must occur over solid framing.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

Layer	Timber frame	Steel frame
Inner layer	41mm x 6g GIB® Grabber® High Thread Drywall Screws	41mm x 6g GIB® Grabber® Self Tapping Drywall Screws
Outer layer	63mm x 8g GIB® Grabber® Self Tapping Drywall Screws	51mm x 7g GIB® Grabber® Self Tapping Drywall Screws

Fastener centres (both layers)

Place fasteners at 200mm centres around the ceiling perimeter, along each framing member and where sheet end butt joints occur.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

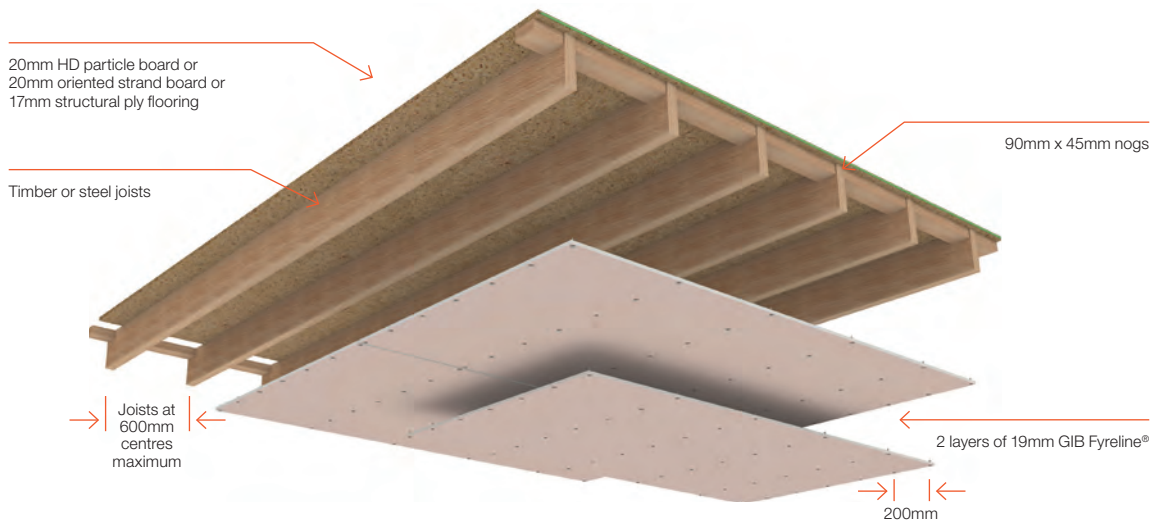
WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

Inner layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Composite joist

Specification number	Performance	Specifications
GBCJ 45	FRR 45/45/45 STC 39 Rw 40 IIC 32	Lining 1 layer 13mm GIB Fyreline® LB/NLB Loadbearing
GBCJ 30*	FRR 30/30/30 STC 39 Rw 40 IIC 32	Lining 1 layer 13mm GIB Fyreline® LB/NLB Loadbearing

FLOOR FRAMING FASTENING THE LINING

Floor joists may be either hySPAN® or hyJOIST®.

Joists shall be covered by specific engineering design for strength and serviceability, have a depth no less than 190mm and spacing no more than 600mm.

Nogs fixed on the flat to receive the ends of flooring material shall be 90mm x 45mm minimum.

Nogs fixed on the flat to receive GIB® linings shall be 70mm x 45mm minimum spaced at 600mm for joists at 600mm, or at 1200mm for joists at 400mm or 450mm.

Nogs/framing is required at the perimeter of the fire rated ceiling.

Consult the beam manufacturer for the solid blocking contained in floor/ceiling to wall junctions.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

CEILING LINING

1 layer of 13mm GIB Fyreline® shall be fixed at right angles to the underside of the floor joists.

All sheet joints must occur on joists or nogs.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 150mm centres around the perimeter of each sheet and at 200mm centres along each joist and at the centre of each nog.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

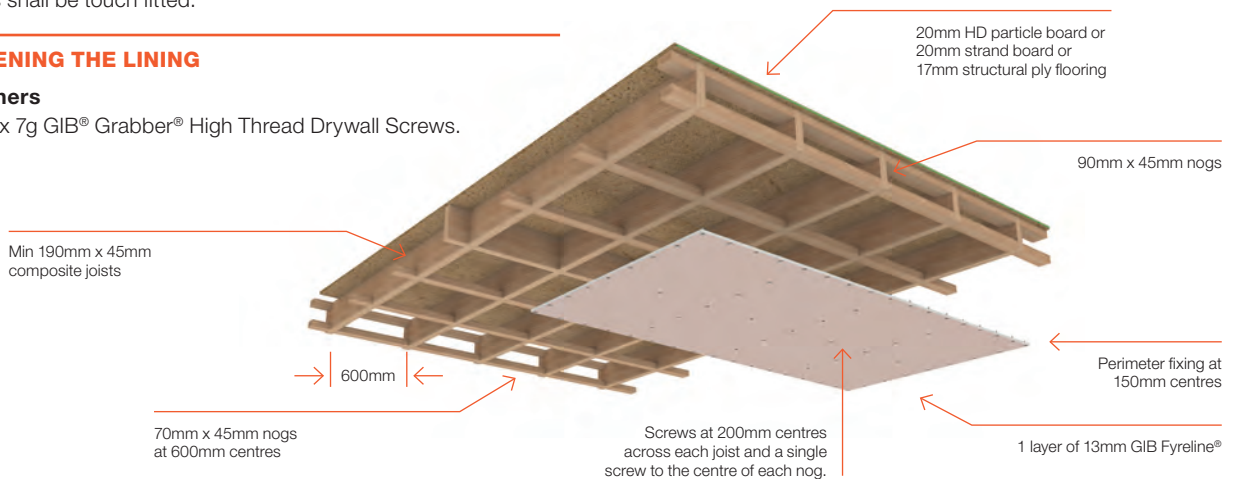
JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

hySPAN® and hyJOIST® are manufactured and supplied by Carter Holt Harvey Futurebuild, 0800 808 131. Check with the supplier for construction details and independent verification.

CEILING BATTENS

**If only a 30/30/30 FRR is required, the use of nominally 70mm x 35mm timber battens is permitted or alternatively metal battens can be used provided construction is otherwise in accordance with specification GBSC 30.*



Composite joist

Specification number	Performance	Specifications
GBCJ 60	FRR 60/60/60	Lining 1 layer 16mm GIB Fyreline® LB/NLB Loadbearing
	STC 39	
	Rw 39	
	IIC 32	

FLOOR FRAMING

Floor joists may be either hySPAN® or hyJOIST®. Joists shall be covered by specific engineering design for strength and serviceability, have a depth no less than 190mm and spacing no more than 600mm.

Nogs fixed on the flat to receive the ends of flooring material shall be 90mm x 45mm minimum.

Nogs fixed on the flat to receive GIB® linings shall be 70mm x 45mm minimum spaced at 600mm for joists at 600mm, or at 1200mm for joists at 400mm or 450mm.

Nogs/framing is required at the perimeter of the fire rated ceiling.

Consult the beam manufacturer for the solid blocking contained in floor/ceiling to wall junctions.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

CEILING LINING

1 layer of 16mm GIB Fyreline® shall be fixed at right angles to the underside of the floor joists.

All sheet joints must occur on joists or nogs.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

51mm x 7g GIB® Grabber® High Thread Drywall Screws.

Fastener centres

Place fasteners at 150mm centres around the perimeter of each sheet and at 200mm centres along each joist and at the centre of each nog.

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

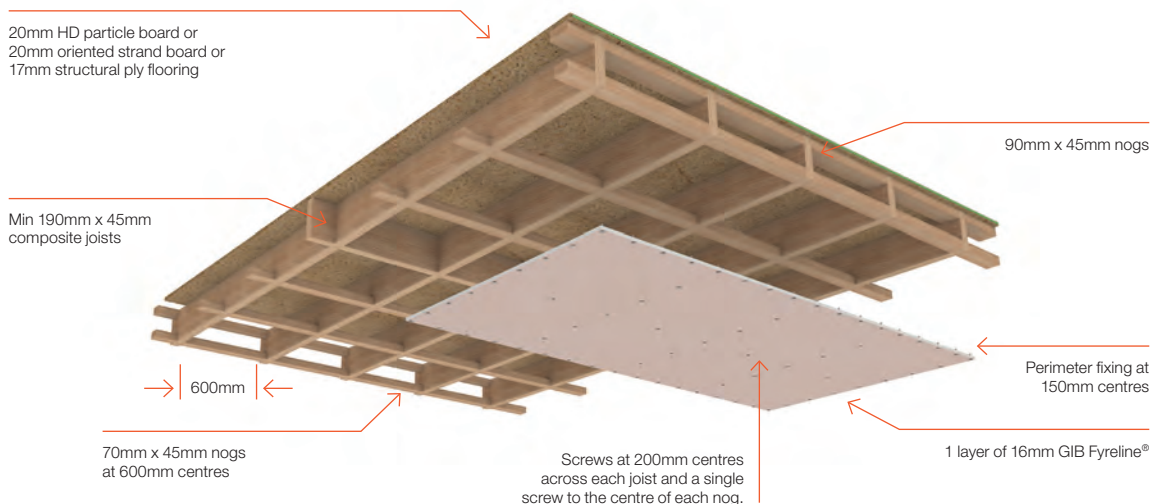
WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

hySPAN® and hyJOIST® are manufactured and supplied by Carter Holt Harvey Futurebuild, 0800 808 131. Check with the supplier for construction details and independent verification.



Steel joist

Specification number	Performance	Specifications
GBSJ 30	FRR 30/30/30	Lining 1 layer 13mm GIB Fyreline® LB/NLB Loadbearing
	STC 34	
	Rw 34	
	IIC 30	

FLOOR FRAMING

The steel floor structure shall be specifically designed and have minimum 190mm-deep C-section joists with 45mm flanges and a thickness of 1.55mm, spaced at no more than 600mm centres.

Framing is required at the perimeter of the ceiling lining and at longitudinal sheet joints. Suitable perimeter framing includes a minimum 35mm x 35mm x 0.55mm steel perimeter angle or steel nogs.

Longitudinal sheet joints are supported on 0.55mm-thick C-section steel nogs connected to the joists. The nogs have a minimum width of 50mm with 25mm vertical legs.

The use of nominally 70 x 35mm timber battens installed in accordance with specification GBFC 30 is permitted. Alternatively, metal battens can be used provided construction is otherwise in accordance with specification GBSC 30.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

CEILING LINING

1 layer of 13mm GIB Fyreline® fixed at right angles to the underside of the floor joists.

All sheet joints must occur on joists or nogs.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

32mm x 8g GIB® Grabber® Drill Point Fine Thread Screws.

Fastener centres

Place fasteners at 150mm centres around the perimeter of each sheet and at 200mm centres along each joist.

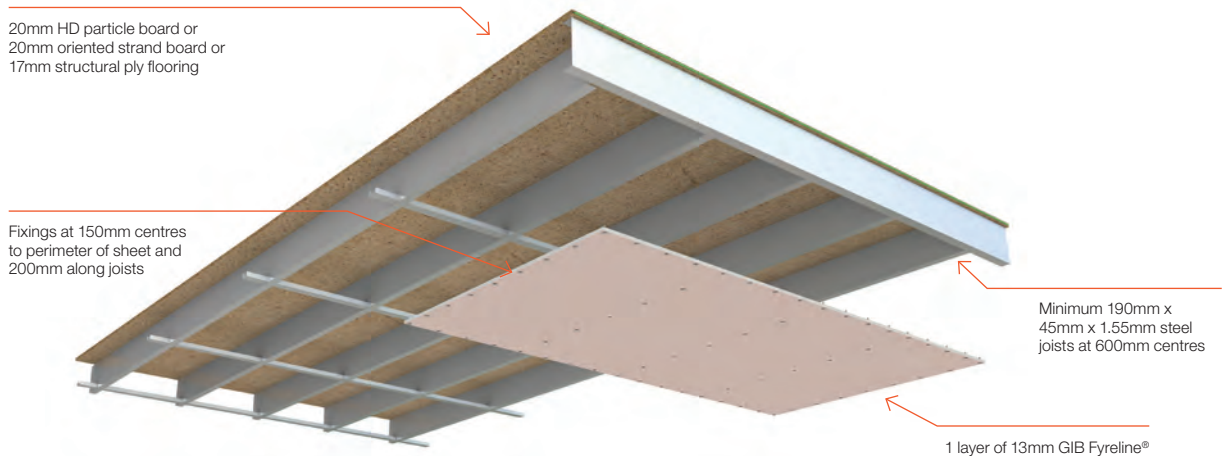
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Steel joist

Specification number	Performance	Specifications
GBSJ 60	FRR 60/60/60	Lining 1 layer 16mm GIB Fyreline® LB/NLB Loadbearing
	STC 39	
	Rw 39	
	IIC 32	

FLOOR FRAMING

The steel floor structure shall be specifically designed and have minimum 190mm-deep C-section joists with 45mm flanges and a thickness of 1.55mm, spaced at no more than 600mm centres.

Framing is required at the perimeter of the ceiling lining and at longitudinal sheet joints. Suitable perimeter framing includes a minimum 35mm x 35mm x 0.55mm steel perimeter angle or steel nogs.

Longitudinal sheet joints are supported on 0.55mm-thick C-section steel nogs connected to the joists. The nogs have a minimum width of 50mm with 25mm vertical legs.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

Flooring sheet joints without a jointer must have a bead of GIB Fire Soundseal® applied before sheets are locked together. Where tongue and groove jointers or sealant are not used, the fire rating will reduce to 60/60/45.

CEILING LINING

1 layer of 16mm GIB Fyreline® fixed at right angles to the underside of the floor joists.

All sheet joints must occur on joists or nogs.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

32mm x 8g GIB® Grabber® Drill Point Fine Thread Screws.

Fastener centres

Place fasteners at 150mm centres around the perimeter of each sheet and at 200mm centres along each joist.

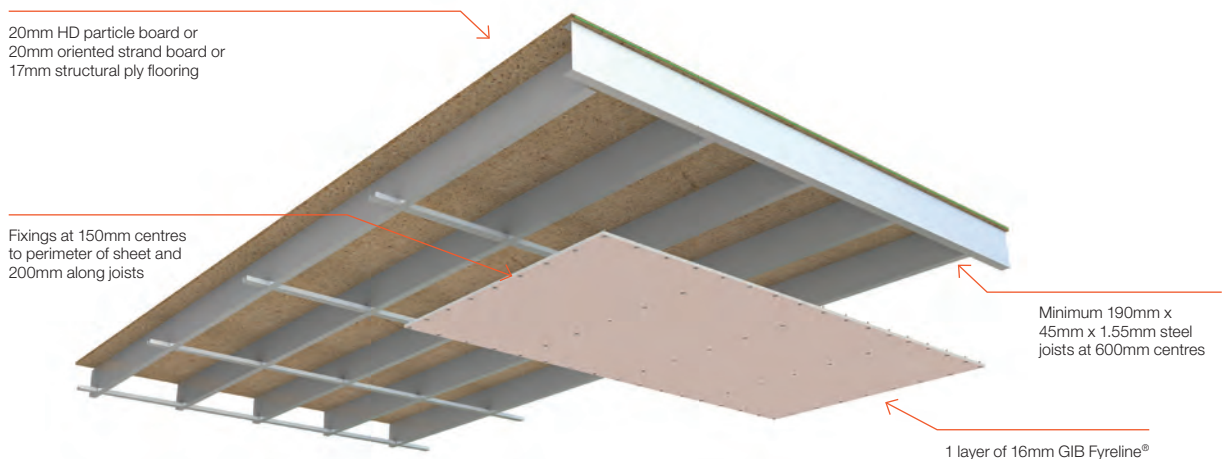
Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Suspended grid

Specification number	Performance	Specifications
GBSC 30	FRR 30/30/30 STC 48 Rw 47 IIC 43	Lining 1 layer 13mm GIB Fyreline® (back-blocked) LB/NLB Loadbearing

FLOOR FRAMING

Timber floor joists complying with NZS 3604 spaced at 600mm centres maximum.

Alternatively, a proprietary I-joist system may be used subject to specific structural design and approval by the normal building consent process.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

SUSPENSION SYSTEM

Rondo® KEY-LOCK™ steel frame suspension system comprising 2.5mm wire hangers at 1200mm centres supporting top cross rails (part 128) spaced at 1200mm centres and furring channels (part 129) spaced at 600mm centres maximum.

Rondo Donn® ScrewFix™ steel frame suspension system comprising 2.5mm wire hangers at 1200mm centres supporting F38 strongback channels spaced at 1200mm centres and F37 furring channels spaced at 600mm centres maximum.

Direct or clip fixed GIB® Rondo® Ceiling Batten system with full perimeter channel supports.

Note: Suspension system must be installed in accordance with manufacturer's specification.

CEILING LINING

1 layer of 13mm GIB Fyreline® shall be fixed at right angles to the underside of the furring channels.

All sheet end butt joints must occur on the furring channels.

Sheets shall be touch fitted.

Joints formed by sheet edges shall be back-blocked between the furring channels with strips of 13mm GIB Fyreline®.

The width of the back-blocks shall be 300mm minimum and shall be adhered with GIB-Cove® Bond.

FASTENING THE LINING

Fasteners

25mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on furring channels.

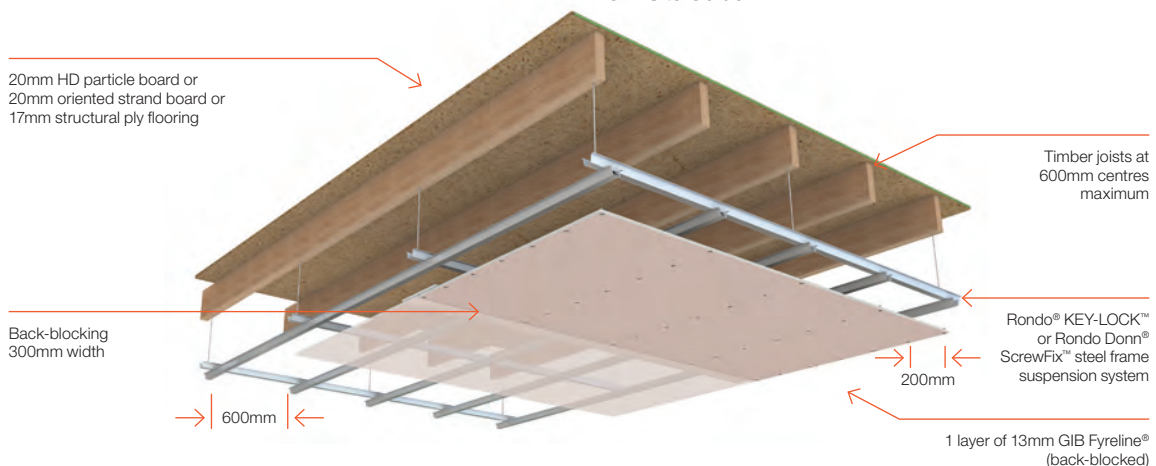
Place fasteners at 200mm centres along each intermediate furring channel, around the ceiling perimeter and where sheet end butt joints occur.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB Site Guide".



Suspended grid

Specification number	Performance	Specifications
GBSC 60a	FRR 60/60/60 STC 53 Rw 52 IIC 43	Lining 2 layers 13mm GIB Fyreline® LB/NLB Loadbearing

FLOOR FRAMING

Timber floor joists complying with NZS 3604 spaced at 600mm centres maximum.

Alternatively, a proprietary I-joist system may be used subject to specific structural design and approval by the normal building consent process.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

SUSPENSION SYSTEM

Rondo® KEY-LOCK™ steel frame suspension system comprising 2.5mm wire hangers at 1200mm centres supporting top cross rails (part 128) spaced at 1200mm centres and furring channels (part 129) spaced at 600mm centres maximum.

Rondo Donn® ScrewFix™ steel frame suspension system comprising 2.5mm wire hangers at 1200mm centres supporting F38 strongback channels spaced at 1200mm centres and F37 furring channels spaced at 600mm centres maximum.

Direct or clip fixed GIB® Rondo® Ceiling Batten system with full perimeter channel supports.

CEILING LINING

2 layers of 13mm GIB Fyreline® shall be fixed at right angles to the underside of the furring channels.

The joints of the second layer are to be offset from those of the first layer.

All sheet end butt joints must occur on the furring channels.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

Inner layer: 25mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Outer layer: 41mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on furring channels.

Place fasteners at 200mm centres along each intermediate furring channel, around the ceiling perimeter and where sheet end butt joints occur.

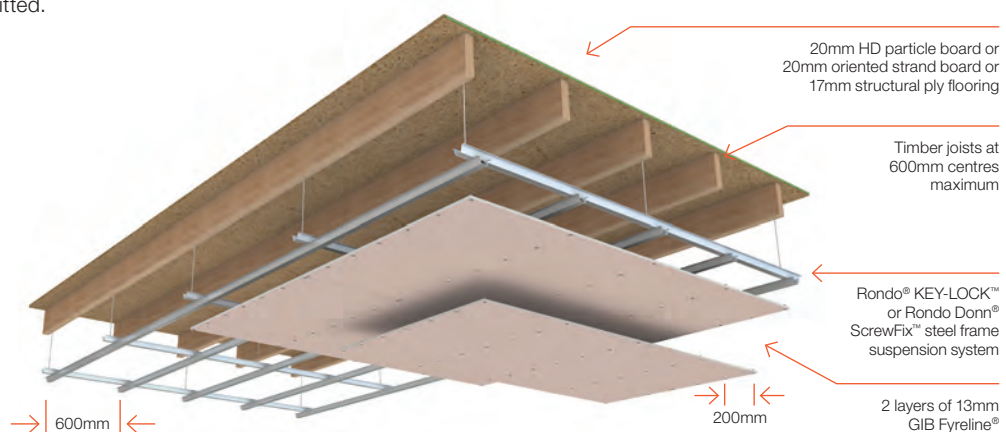
WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

Inner layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Suspended grid

Specification number	Performance	Specifications
GBSC 60b	FRR 60/60/60 STC 50 Rw 49 IIC 43	Lining 1 layer 16mm GIB Fyreline® LB/NLB Loadbearing

FLOOR FRAMING

Timber floor joists complying with NZS 3604 spaced at 600mm centres maximum.

Alternatively, a proprietary I-joist system may be used subject to specific structural design and approval by the normal building consent process.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm-thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

SUSPENSION SYSTEM

Rondo Xpress® Drywall Grid Ceiling System comprising 2.5mm wire hangers or XD50 wall angles at 1200mm centres maximum. Hangers support XD24 main tee at 1200mm centres maximum. XD21200 cross tees installed at 600mm centres. Install XD20600 cross tees at 1200mm centres, parallel with the main tee.

The distance between the underside of the flooring and the top of the ceiling linings shall be a minimum of 450mm.

Note: Suspension system must be installed in accordance with manufacturer's specification.

CEILING LINING

1 layer of 16mm GIB Fyreline® shall be fixed parallel to the main tees and positioned so tapered edges are located on cross tees.

All sheet end butt joints must occur on the suspension system.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

32mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Fastener centres

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on cross tees.

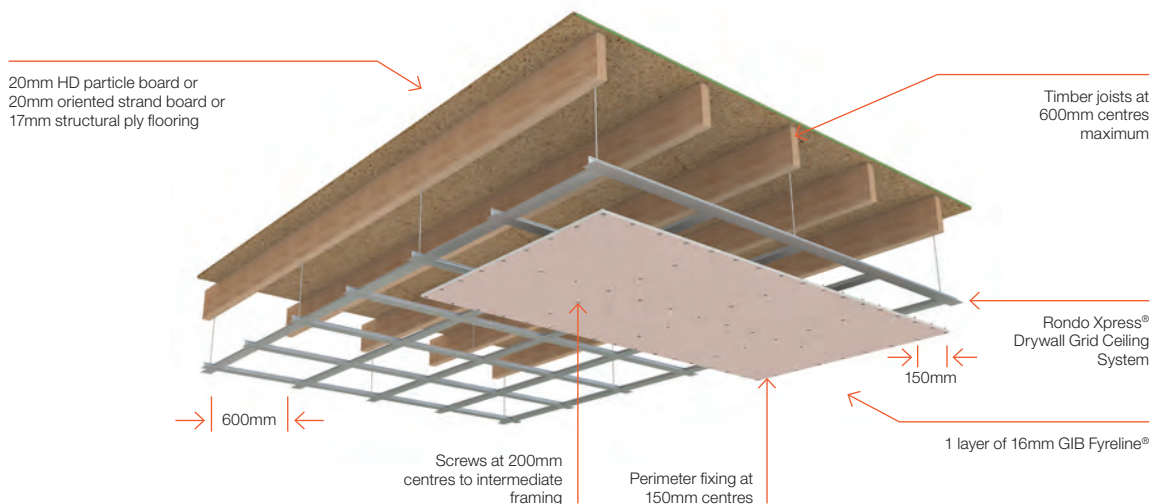
Place fasteners at 150mm centres around the perimeter of each sheet and at 200mm centres to intermediate framing.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Suspended grid

Specification number	Performance	Specifications
GBSC 90	FRR 90/90/90 STC 53 Rw 52 IIC 43	Lining 1 layer 13mm GIB Fyreline® and 16mm GIB Fyreline® LB/NLB Loadbearing

FLOOR FRAMING

Timber floor joists complying with NZS 3604 spaced at 600mm centres maximum.

Alternatively, a proprietary I-joint system may be used subject to specific structural design and approval by the normal building consent process.

FLOORING

Minimum flooring shall be nominal 20mm oriented strand board or particle board, or minimum 17mm thick structural plywood fixed to the joists in accordance with the manufacturers' specifications.

Flooring sheet joints must have a polypropylene tongue and groove jointer or be formed over framing.

SUSPENSION SYSTEM

Rondo Xpress® Drywall Grid Ceiling System comprising 2.5mm wire hangers or XD50 wall angles at 1200mm centres maximum. Hangers support XDH1 main tee at 1200mm centres maximum. Install XD21200 cross tees at 600mm centres.

The distance between the underside of the flooring and the top of the ceiling linings shall be a minimum of 450mm.

Note 1: Additional XD21200 cross tees are required 200mm both sides of sheet end butt joints.

Note 2: Suspension system must be installed in accordance with manufacturer's specification.

CEILING LINING

1 layer of 13mm GIB Fyreline® shall be fixed parallel to the main tees and positioned so tapered edges are located on the main tee. Sheet end butt joints must occur on cross tees.

1 layer of 16mm GIB Fyreline® shall be fixed parallel to main tees but offset by 600mm in both directions.

Sheet end butt joints must occur on cross tees.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

Inner layer: 25mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Outer layer: 41mm x 6g GIB® Grabber® Self Tapping Drywall Screws and 38mm x 10g GIB® Grabber® Laminator Screws.

Fastener centres

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on cross tees.

Inner layer: Place fasteners at 150mm centres around the sheet perimeter to main and cross tees. Place fasteners at 200mm centres along intermediate cross tees.

Outer layer: Place fasteners at 150mm centres along cross tees at sheet ends and at 200mm centres along intermediate framing members. Use GIB® Grabber® Laminator Screws at 150mm centres along longitudinal sheet edges where they do not coincide with framing.

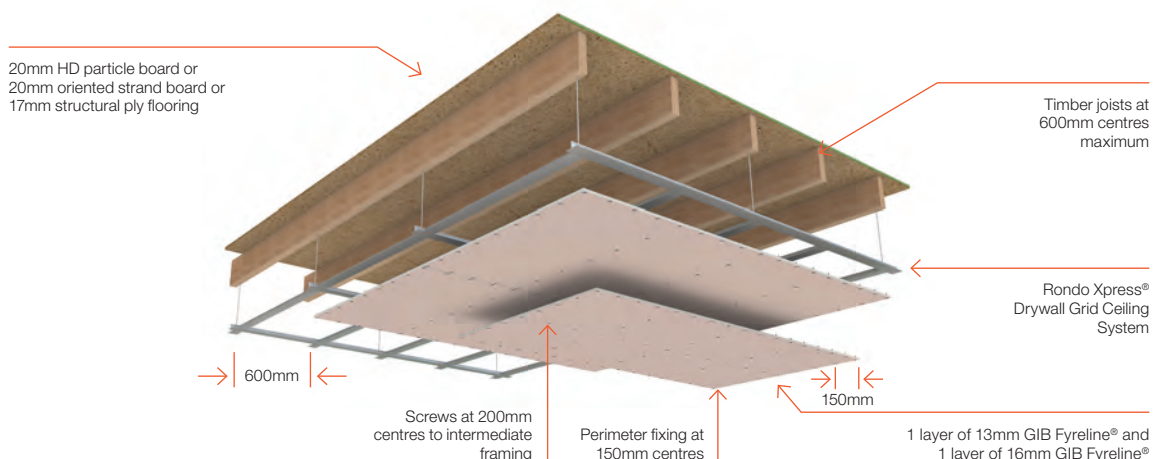
WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

Inner layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Universal ceiling systems

Specification number	Performance	Specifications
GBUC 15	FRR 15/15/15	Lining 1 layer 13mm GIB Fyreline® LB/NLB Loadbearing

FRAMING

Timber or steel roof or floor/ceiling framing designed to meet structural criteria for strength and serviceability under dead and live loads.

The separation distance between the ceiling linings and any flooring or roofing material shall be 90mm minimum.

The width of framing members supporting the linings shall be nominally 35mm minimum. Framing spacing shall be at 600mm centres maximum.

Solid nogs shall be provided at 1200mm centres maximum and to the perimeter of the fire rated ceiling, unless longitudinal sheet edges are back-blocked.

If timber-framed construction applies, the nogs shall be 70mm x 35mm minimum.

CEILING LINING

1 layer of 13mm GIB Fyreline® shall be fixed at right angles to the underside of the framing members.

Sheets shall be touch fitted.

All sheet joints must occur over solid framing, alternatively longitudinal sheet edges may be back-blocked using a 300mm wide strip of 13mm GIB Fyreline® adhered with GIB-Cove® Bond in accordance with the procedure outlined in the current GIB® Site Guide.

FASTENING THE LINING

Fasteners

Timber frame	Steel frame
41mm x 6g GIB® Grabber® High Thread Drywall Screws	25mm x 6g GIB® Grabber® Self Tapping Drywall Screws

Fastener centres

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on furring channels.

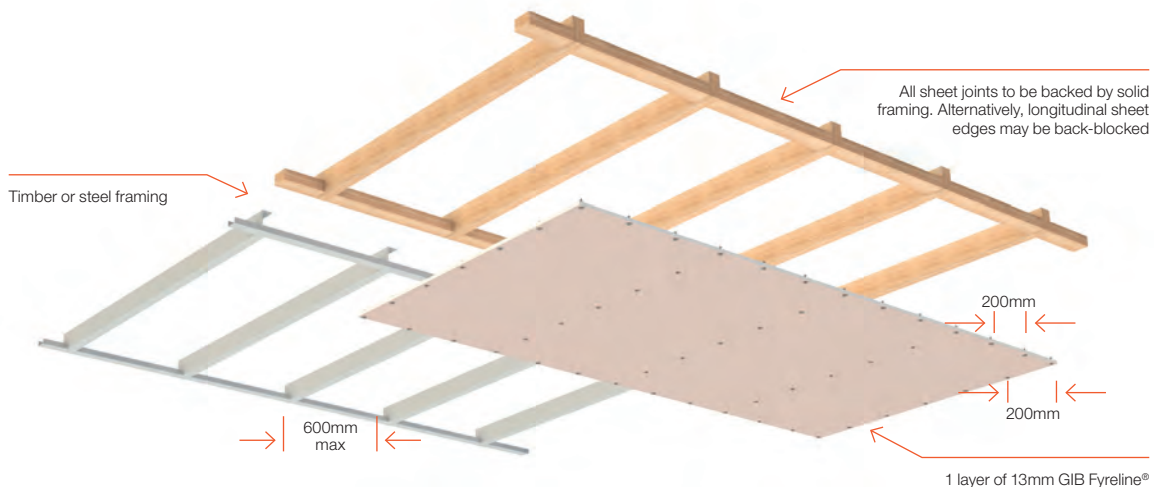
Place fasteners at 200mm centres around the sheet perimeters, along each intermediate framing member and where sheet end butt joints occur.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Universal ceiling systems

Specification number	Performance	Specifications
GBUC 30	FRR 30/30/30	Lining 1 layer 16mm GIB Fyreline® LB/NLB Loadbearing

FRAMING

Timber or steel roof or floor/ceiling framing designed to meet structural criteria for strength and serviceability under dead and live loads.

The separation distance between the ceiling linings and any flooring or roofing material shall be 90mm minimum.

The width of framing members supporting the linings shall be nominally 35mm minimum. Framing spacing shall be at 600mm centres maximum.

Solid noggs shall be provided at 1200mm centres maximum and to the perimeter of the fire rated ceiling, unless longitudinal sheet edges are back-blocked.

If timber-framed construction applies, the noggs shall be 70mm x 35mm minimum.

CEILING LINING

1 layer of 16mm GIB Fyreline® shall be fixed at right angles to the underside of the framing members.

All sheet joints must occur over solid framing.

Sheets shall be touch fitted.

Alternatively, longitudinal sheet edges may be back-blocked using a 300mm-wide strip of 16mm GIB Fyreline® adhered with GIB-Cove® Bond in accordance with the procedure outlined in the current "GIB® Site Guide".

FASTENING THE LINING

Fasteners

Timber frame	Steel frame
41mm x 6g GIB® Grabber® High Thread Drywall Screws	32mm x 6g GIB® Grabber® Self Tapping Drywall Screws

Fastener centres

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on furring channels.

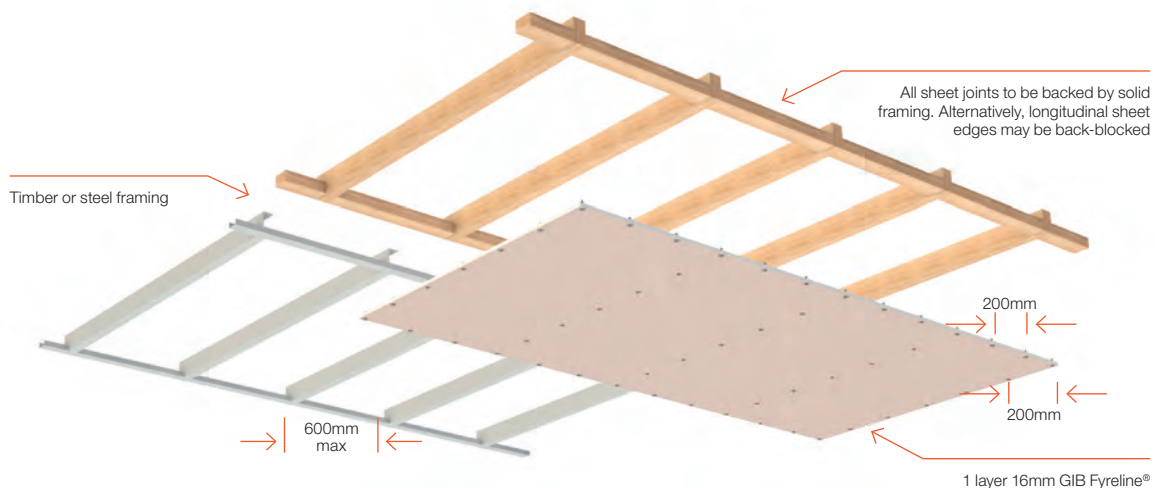
Place fasteners at 200mm centres around the sheet perimeters, along each intermediate framing member and where sheet end butt joints occur.

WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Universal ceiling systems

Specification number	Performance	Specifications
GBUC 60	FRR 60/60/60	Lining 2 layers 13mm GIB Fyreline® LB/NLB Loadbearing

FRAMING

Timber or steel roof or floor/ceiling framing designed to meet structural criteria for strength and serviceability under dead and live loads.

The separation distance between the ceiling linings and any flooring or roofing material shall be 90mm minimum.

The width of framing members supporting the linings shall be nominally 35mm minimum. Framing spacing shall be at 600mm centres maximum.

In respect of the FRR for this particular system, nogs are required only at the perimeter of the fire rated ceiling.

If timber-framed construction applies, the nogs shall be 70mm x 35mm minimum.

CEILING LINING

2 layers of 13mm GIB Fyreline® shall be fixed at right angles to the underside of the framing members.

The joints of the second layer are offset 600mm from those in the first layer.

All sheet end butt joints must occur over solid framing.

Sheets shall be touch fitted.

FASTENING THE LINING

Fasteners

Layer	Timber frame	Steel frame
Inner layer	41mm x 6g GIB® Grabber® High Thread Drywall Screws	25mm x 6g GIB® Grabber® Self Tapping Drywall Screws
Outer layer	51mm x 7g GIB® Grabber® High Thread Drywall Screws	41mm x 6g GIB® Grabber® Self Tapping Drywall Screws

Fastener centres (both layers)

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on furring channels.

Place fasteners at 200mm centres around the ceiling perimeter, along each intermediate framing member and where sheet end butt joints occur.

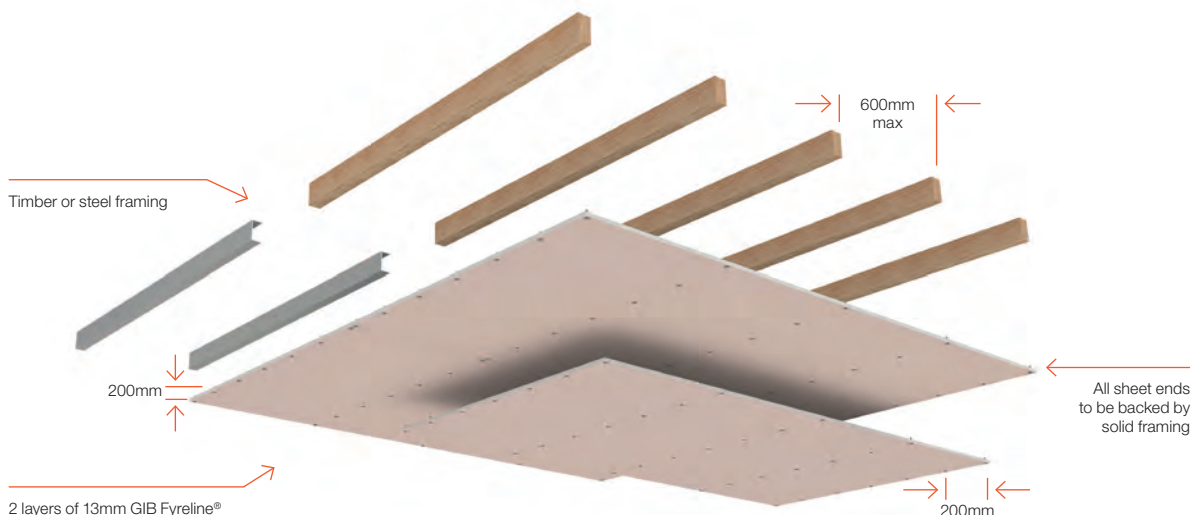
WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

Inner layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Universal ceiling systems

Specification number	Performance	Specifications
GBUC 90	FRR 90/90/90	Lining 2 layers 19mm GIB Fyreline® LB/NLB Loadbearing
GBUC 120*	FRR 120/120/120	Lining 2 layers 19mm GIB Fyreline® LB/NLB Loadbearing

FRAMING

Timber or steel roof or floor/ceiling framing designed to meet structural criteria for strength and serviceability under dead and live loads.

The separation distance between the ceiling linings and any flooring or roofing material shall be 90mm minimum.

The width of framing members supporting the linings shall be nominally 35mm minimum. Framing spacing shall be at 600mm centres maximum.

Nogs are required only at the perimeter of the fire rated ceiling.

If timber-framed construction applies, the nogs shall be 70mm x 35mm minimum.

CEILING LINING

2 layers of 19mm GIB Fyreline® shall be fixed at right angles to the underside of the framing members.

The joints of the second layer are offset 600mm from those in the first layer.

All sheet end butt joints must occur over solid framing.

Sheets shall be touch fitted.

**Note: A 120-minute FRR (GBUC 120) is achieved with a minimum 200mm separation distance between the ceiling linings and any flooring or roofing material, or with the addition of Pink® Batts® BIB R1.8 (75mm) glass wool insulation installed between the framing.*

FASTENING THE LINING

Fasteners

Layer	Timber frame	Steel frame
Inner layer	41mm x 6g GIB® Grabber® High Thread Drywall Screws	32mm x 6g GIB® Grabber® Self Tapping Drywall Screws
Outer layer	57mm x 7g GIB® Grabber® High Thread Drywall Screws	51mm x 7g GIB® Grabber® Self Tapping Drywall Screws

Fastener centres (both layers)

Place fasteners 12mm from longitudinal sheet edges and 18mm from sheet ends. This distance may be reduced to 12mm from sheet ends at butt joints on furring channels.

Place fasteners at 200mm centres around the ceiling perimeter, along each intermediate framing member and where sheet end butt joints occur.

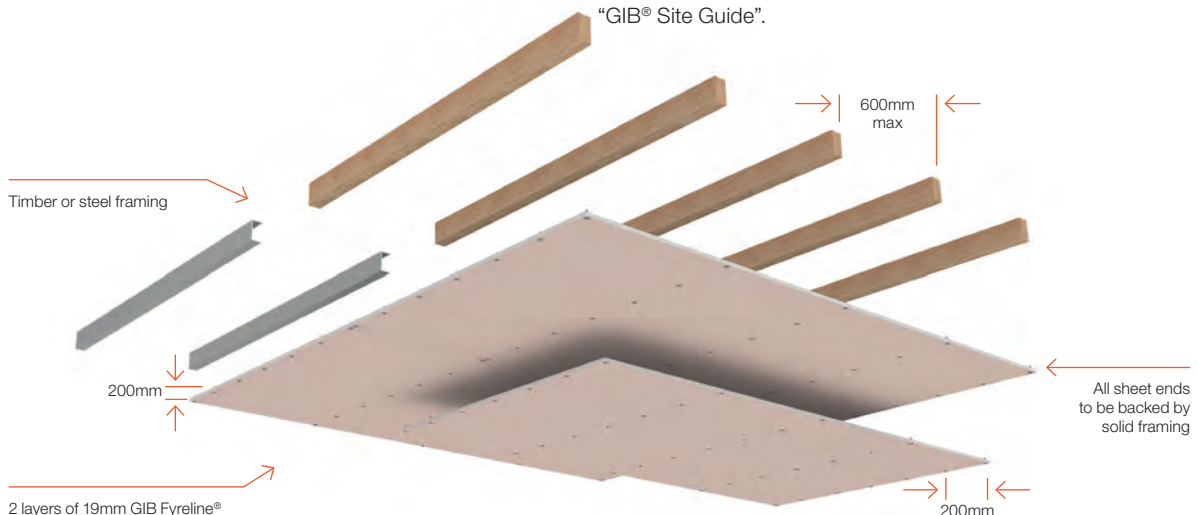
WALL/CEILING JUNCTIONS

The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped, or sealed and protected by timber scotia in accordance with the publication entitled "GIB® Site Guide".

JOINTING

Inner layer: Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

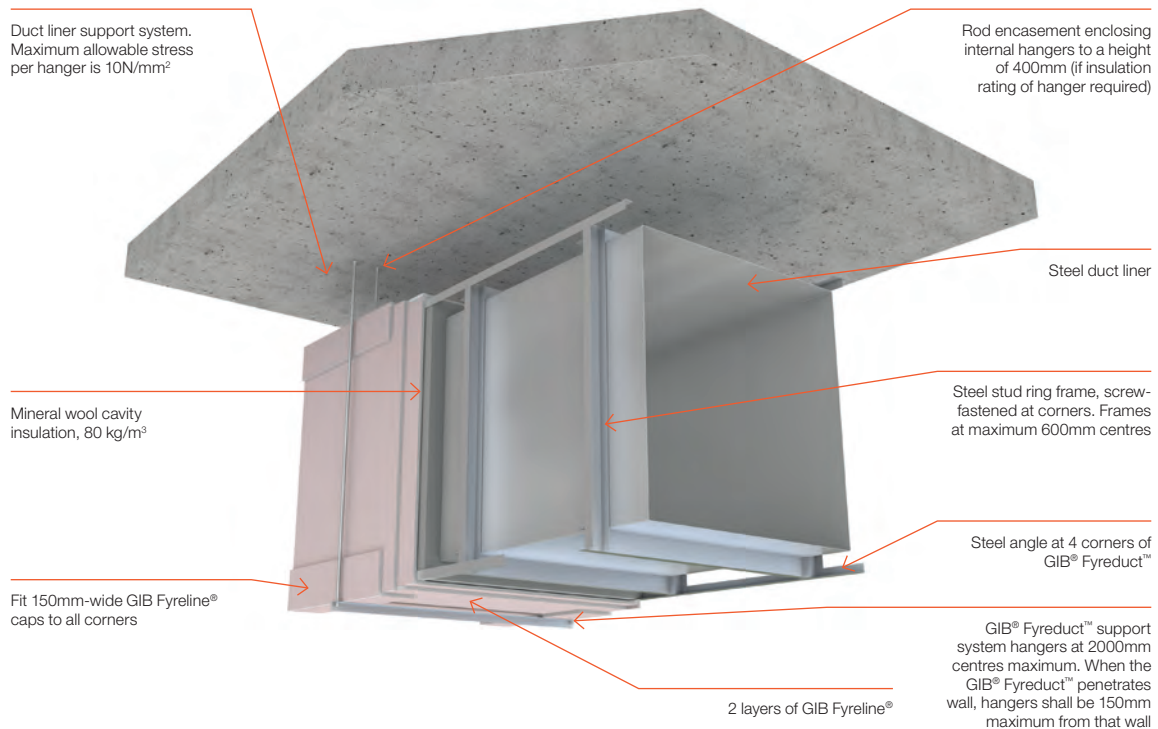


GIB® Fyreduct™ 900

Specification number	Performance	Specifications
GBFD 900—30	FRR -/30/30	Lining 2 layers 10mm GIB Fyreline® LB/NLB Non-loadbearing
GBFD 900—60	FRR -/60/60	Lining 2 layers 13mm GIB Fyreline® LB/NLB Non-loadbearing
GBFD 900—90	FRR -/90/90	Lining 2 layers 16mm GIB Fyreline® LB/NLB Non-loadbearing
GBFD 900—120	FRR -/120/120	Lining 2 layers 19mm GIB Fyreline® LB/NLB Non-loadbearing

DUCT COMPONENTS

- GIB Fyreline®
- 64 x 34 x 0.5mm C-section galvanised steel stud
- 32 x 32 x 0.5mm galvanised steel angle
- GIB® Grabber® Self Tapping Drywall Screws
- 38mm x 10g GIB® Grabber® Laminator Screws or 40mm x 8g Chipboard Screws
- Mineral wool cavity insulation, 80kg/m³
- Steel duct liner
- Duct support system



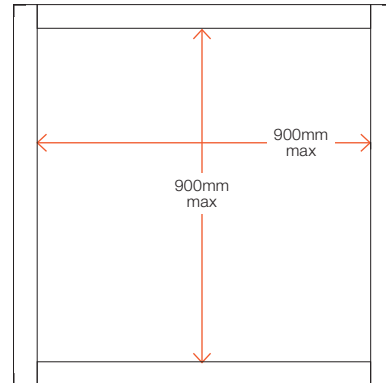
GIB® Fyreduct™ 900

BUILDING THE DUCT

Step 1

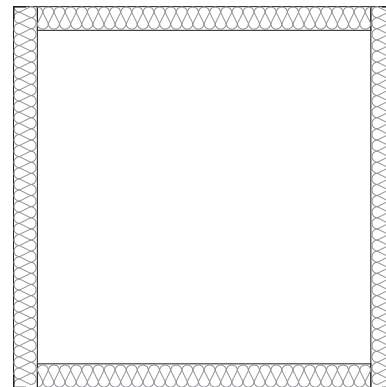
Cut C-section studs and screw together at the corners to form ring frames around the steel duct liner.

Fit angles to all corners of the steel frames. Space frames at 600mm centres maximum.



Step 2

Insert the mineral wool cavity insulation in between the ring frames around all four sides of the duct.



Step 3

Line the frames with the appropriate lining(s) depending on the required FRR.

Sheets shall be touch fitted.

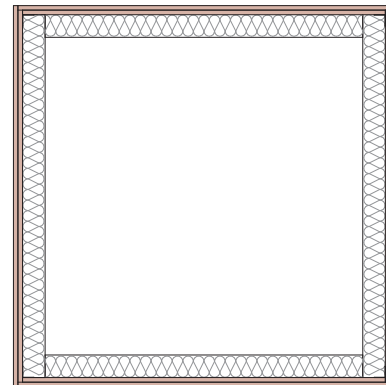
Offset joints between layers by a minimum of 300mm.

All sheet joints must be formed over framing.

Inner layer: GIB® Grabber® Self Tapping Drywall Screws at 300mm centres to sheet perimeter and intermediate framing.

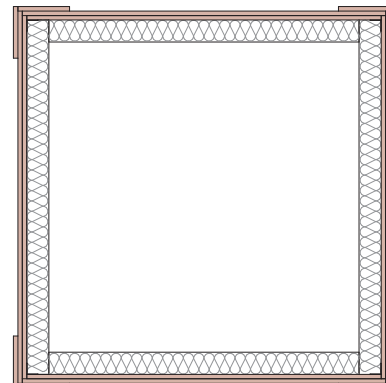
Outer layer: GIB® Grabber® Self Tapping Drywall Screws at 300mm centres to sheet perimeter and intermediate framing.

Screw length must ensure 12mm penetration through the steel.



Step 4

Fit 150mm-wide GIB Fyreline® caps to all corners using GIB® Grabber® Self Tapping Drywall Screws into the steel framing or laminate using 38mm x 10g GIB® Grabber® Laminator Screws.



JOINTING

Inner layer: Unstopped.

Outer layer: All screw heads stopped and sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide". Capped external corners can be left unstopped.

GFS040

GIB® Fyreduct™ 600

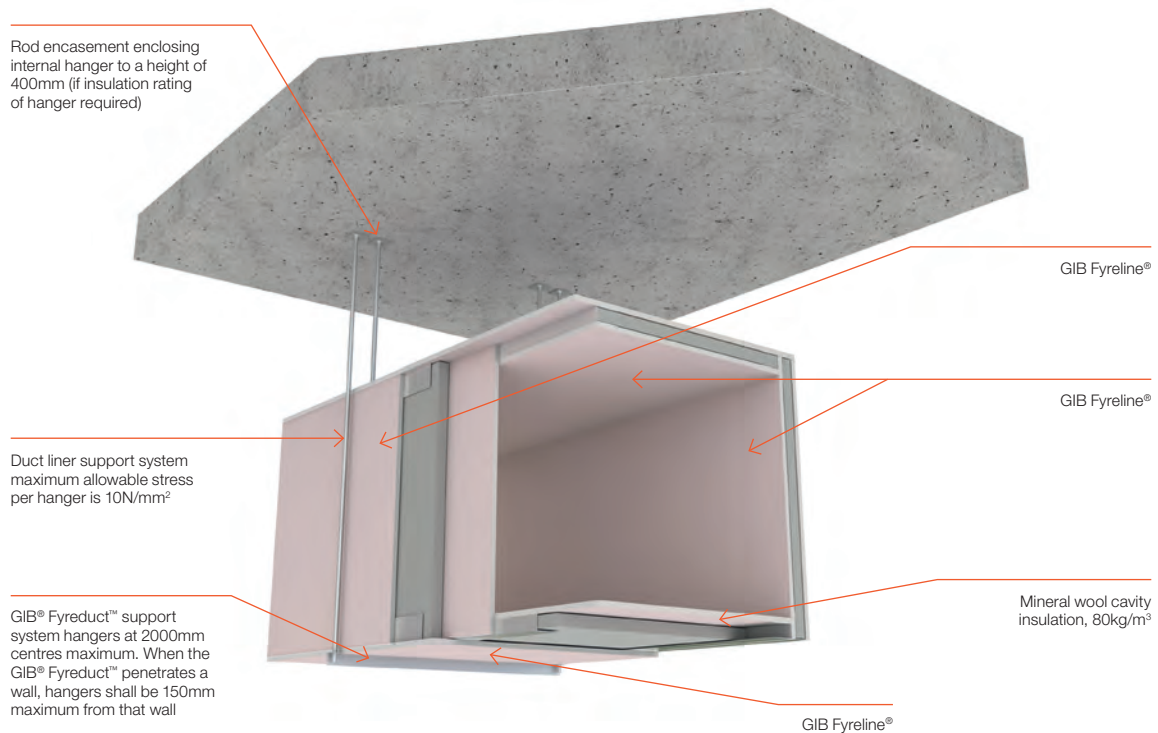
Specification number	Performance	Specifications
GBFD 600—30	FRR -/30/30	Lining 2 layers 10mm GIB Fyrelite® LB/NLB Non-loadbearing
GBFD 600—60	FRR -/60/60	Lining 2 layers 13mm GIB Fyrelite® LB/NLB Non-loadbearing
GBFD 600—90	FRR -/90/90	Lining 2 layers 16mm GIB Fyrelite® LB/NLB Non-loadbearing
GBFD 600—120	FRR -/120/120	Lining 2 layers 19mm GIB Fyrelite® LB/NLB Non-loadbearing

DUCT COMPONENTS

- GIB Fyrelite®
- GIB Rondo® 340 Perimeter Channel
- GIB® Grabber® Self Tapping Drywall Screws
- 38mm x 10g GIB® Grabber® Laminator Screws or 40mm x 8g Chipboard Screws for single-layer back-blocking

- Mineral wool cavity insulation, 80kg/m³
- Duct support system

Note: All sheet end butt joints are to be back-blocked with a 300mm-wide strip of GIB Fyrelite®.



GIB® Fyreduct™ 600

BUILDING THE DUCT

Step 1

Cut maximum 600mm-wide strips of GIB Fyreline® to form the bottom and top of the duct and attach GIB Rondo® 340 Perimeter Channel to sheet edges with GIB® Grabber® Self Tapping Drywall Screws at 300mm centres. Screw length depends on lining thickness and penetrates the steel by approximately 12mm.

Cut strips of GIB Fyreline® to form the sides of the duct and attach channels as above to sheet edges with GIB® Grabber® Self Tapping Drywall Screws at 300mm centres.

Step 2

Fabricate the duct by connecting the GIB Rondo® 340 Perimeter Channels at duct corners with GIB® Grabber® Self Tapping Drywall Screws at 300mm centres.

Step 3

Insert the mineral wool cavity insulation around all four sides of the duct. Cut strips of GIB Fyreline® to form the outer layer of the duct.

Step 4

Complete the duct by lining the outside with GIB Fyreline® fixed with GIB® Grabber® Self Tapping Drywall Screws at 300mm centres along all external corners.

Sheets shall be touch fitted.

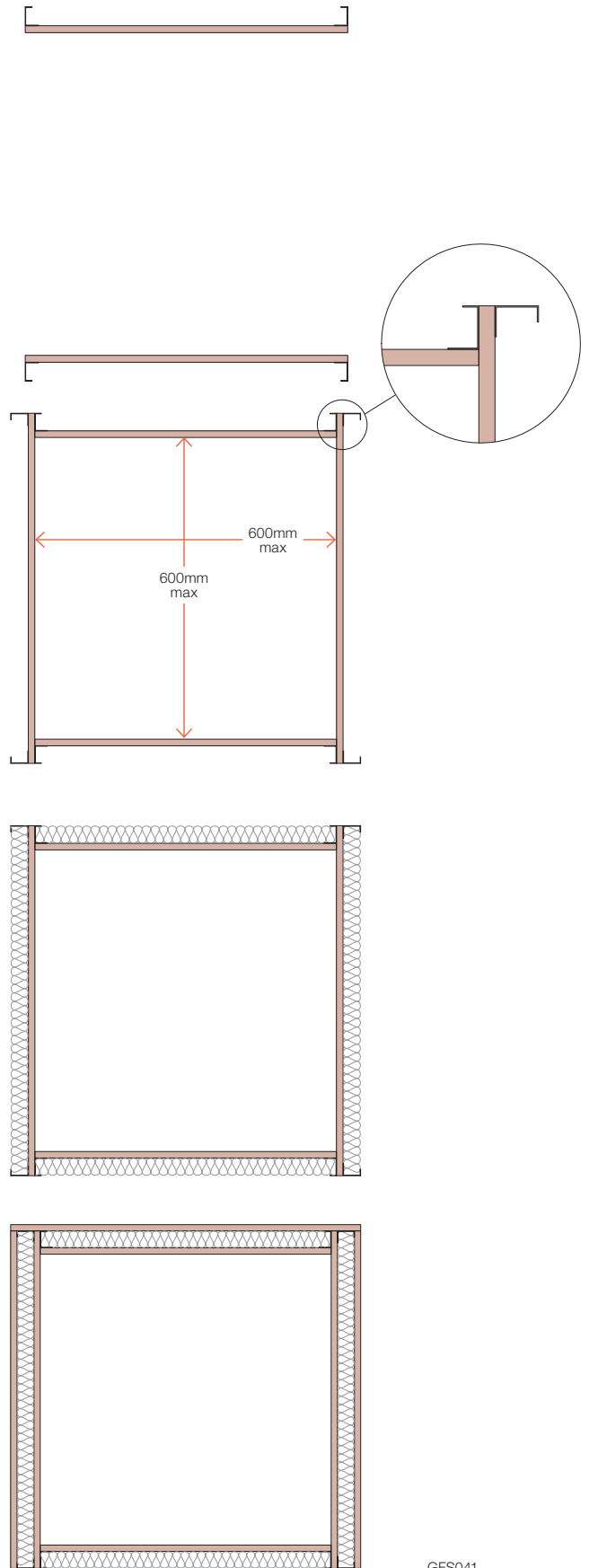
Offset joints between layers by a minimum of 300mm.

All sheet end joints in single layers must be back-blocked with a 300mm-wide strip of GIB Fyreline® fixed using 38mm x 10g GIB® Grabber® Laminator Screws at 200mm centres.

JOINTING

Inner layer: Unstopped.

Outer layer: All screw heads stopped and all sheet joints and corners tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



GFS041

GIB® Ventshaft

Specification number	Performance	Specifications
GVS 60	FRR -/60/60	Lining 3 x 16mm GIB Fyreline® LB/NLB Non-loadbearing

GIB® Ventshaft is constructed from the landing side of the shaft.

FRAMING

Primary horizontal angles

50 x 25mm (0.75BMT) metal angles fixed to floor slab and slab soffit on all sides. Ensure a good fit of the angle at the corners. Fix with steel masonry anchors at 400mm centres.

Mark the position of the anchors to ensure an offset with the secondary angle fixings.

Primary vertical angles

50 x 25mm (0.75BMT) metal angles to all corners full height in one continuous straight length ensuring good fit slab to slab. Fix with 16mm panhead self-tapping screws.

Secondary angles

After the first layer of 16mm GIB Fyreline® has been fixed, fix 50 x 25mm (0.75BMT) metal angles to the base and head positions on all sides ensuring a good fit at all corners. Fix with metal anchors at 400mm centres. Stagger anchors 200mm from primary anchors.

WALL HEIGHT

The wall height is limited to 3000mm.

LINING AND FASTENING

First layer

Fix the first layer of 16mm GIB Fyreline® to the top and bottom metal angles at 600mm centres horizontally commencing from one end or corner progressively attaching around the shaft using 32mm x 6g GIB® Grabber® Self Tapping Drywall Screws. Fix the 16mm GIB Fyreline® to the metal angles at the corners and walls at 400mm centres commencing 200mm up from the base angle using 32mm x 6g GIB® Grabber® Self Tapping Drywall Screws. Fix plasterboard hard to floor slab and slab soffit.

Second layer lamination

Cut sheets to provide a good fit slab to slab and at intersecting walls. Mark the face of the sheet 12mm from the tapered edges, 18mm from sheet ends, and with vertical lines at 400mm centres.

Mark fasteners at 400mm centres along these lines, starting at 18mm and then 200mm from the bottom.

Stagger/overlap sheets by no less than 300mm. Fix second layer of 16mm GIB Fyreline® to metal angles around the perimeter using 41mm x 6g GIB® Grabber® Self Tapping Drywall Screws.

Laminate the second layer to the first sheet using 38mm x 10g GIB® Grabber® Laminator Screws or 40mm x 8g Chipboard Screws. The tapered joint in the previous layer must be supported by an additional double line of GIB® Grabber® Laminator Screws.

Third layer lamination

Cut sheets to provide a good fit slab to slab and at intersecting walls. Mark the face of the sheet 12mm from the tapered edges, 18mm from sheet ends, and with vertical lines at 400mm centres. Mark fasteners at 400mm centres along these lines, starting at 18mm and then 400mm from the bottom.

Apply GIB Fire Soundseal® to the perimeter of the second layer before installing the third layer.

Stagger/overlap sheets by no less than 300mm. Screw fix at the perimeter to the metal angles using 63mm x 8g GIB® Grabber® Self Tapping Drywall screws.

Laminate the third layer to the second sheet using 38mm x 10g GIB® Grabber® Laminator Screws or 40mm x 8g Chipboard Screws.

Ensure boards overlap at corners.

JOINTING

Inner layers: Unstopped.

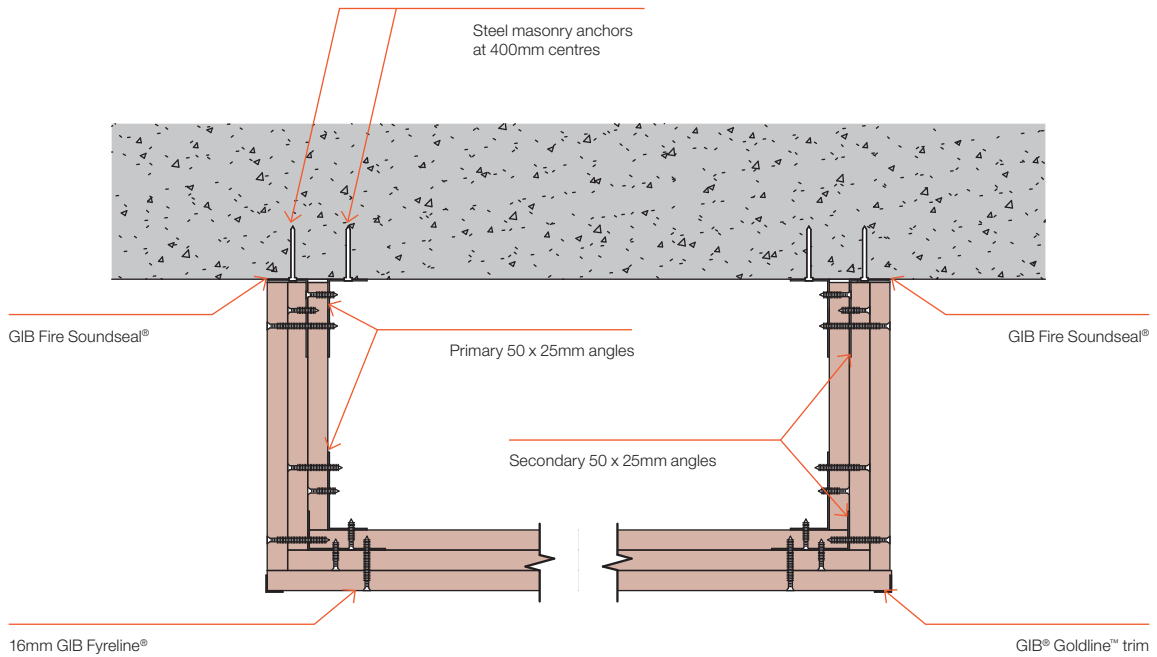
Outer layer: All screw heads stopped and all sheet joints and corners tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

GIB® Ventshaft

Specification number	Performance	Specifications
GVS 60	FRR -/60/60	Lining 3 x 16mm GIB Fyreline® LB/NLB Non-loadbearing



Plan view (wall applications only)



GFS042

GIB® Shaftwall

Specification number	FRR	Fire side	Landing side lining	Sound Transmission Class (STC)*			
			(Note: Shaft side lining is 2 x 13mm GIB Fyreline® in all cases.)	64mm stud		102mm stud	
				No fill	Fill	No fill	Fill**
GBSH 30	-/30/30	Either	1 x 13mm GIB Fyreline®	38	44	41	46
GBSH 60a	-/60/60	Shaft					
GBSH 60b	-/60/60	Either	2 x 13mm GIB Fyreline®	42	48	45	49
GBSH 90a	-/90/90	Shaft					
GBSH 90b	-/90/90	Either	Inner layer: 16mm GIB Fyreline® Outer layer: 13mm GIB Fyreline®	43	49	45	50
GBSH 120a	-/120/120	Shaft					
GBSH 120b	-/120/120	Either	2 x 19mm GIB Fyreline®	45	45	47	50

*To achieve STC ratings, GIB Fire Soundseal® must be used around the perimeter of the landing linings (between sheets for double-layered systems).

**Fill is a minimum 50mm-thick glass fibre insulation with a density of 9.6 kg/m³ or greater.

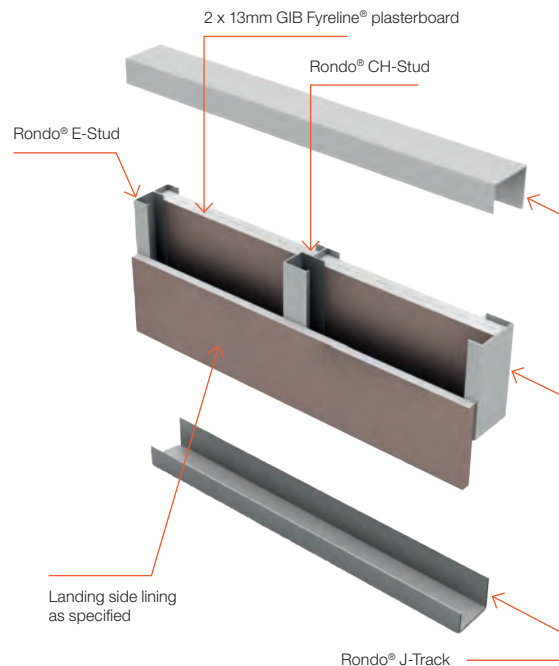
FRAMING AND WALL HEIGHT

GIB® Shaftwall Framing consists of Rondo® CH-Stud, Rondo® E-Stud and Rondo® J-Track. GIB® Shaftwall is constructed from the landing side of the shaft. All specifications are non-loadbearing.

Rondo® J-Track is used as top and bottom channel. Installation starts using a Rondo® E-Stud, progresses using Rondo® CH-Studs, and Rondo® J-Track is used as the final stud. Other than fixings to the surrounding structure, the GIB® Shaftwall Framing system uses no mechanical fixing.

When connecting to structural steel, install GIB® Shaftwall Framing prior to any fireproofing spray application.

Stud depth	Stud thickness	Maximum allowable wall height
64mm	0.55mm	3600mm
102mm	0.55mm	4250mm (with lift car)
102mm	0.55mm	4350mm (without lift car)
102mm	0.9mm	5500mm



INSTALLATION

Top and bottom tracks

Cut Rondo® J-Tracks to length and mechanically fix at both ends and at a maximum of 600mm centres to the floor and upper structural support. Place the long leg of the Rondo® J-Track towards the shaft.

End studs

Cut Rondo® E-Stud 15mm short of full height and mechanically fix at a maximum of 600mm centres to the adjacent structure. A Rondo® J-Track is fixed at the opposite end of the wall in the same manner placing the long leg towards the shaft.

CH-Studs

Rondo® CH-Studs are cut 15mm short of full height and placed vertically into the top and bottom Rondo® J-Tracks with the H side of the stud towards the shaft. Studs are friction fitted into the top and bottom tracks and spaced at 600mm centres maximum, located so that the shaft side GIB® lining slips into the H profile.

Shaft side lining

A sheet of 13mm GIB Fyreline® is cut lengthwise and placed as a 26mm-thick, 600mm-wide double layer vertically in the Rondo® E- and CH-Studs. To facilitate easy installation, rotate the cut sheet so that it has a taper and cut edge both sides. If required, ensure sheet end joints are tight butted and staggered by a minimum of 300mm.

Cut further 600mm-wide panels and locate them into Rondo® CH-Studs until the final wall gap is 600mm or less.

As an alternative, and for wall heights 3000mm or less, full height sheets of 25mm thick GIB Barrierline® can be used as the shaft side lining.

The final panel is cut so that it can be angled into the last Rondo® CH-Stud and rotated into the Rondo® J-Track already fixed to the structure. To allow entry, cut the vertical leg of the bottom track, bend down and return to vertical once the panel has been fitted. Fix the last panel to the Rondo® J-Track using 41mm x 6g GIB® Grabber® Self Tapping Drywall Screws at 300mm centres.

Linings sit hard to floor and a 15mm gap is left at the top of the frame. This gap and remaining side gaps are filled with GIB Fire Soundseal® prior to fixing the landing side lining(s). To minimise the use of sealant, side gaps can be packed with GIB Fyreline®.

Landing side lining

Lining layers and type depends on the required FRR as detailed in the specification table. Linings are fixed vertically and hard to floor, using full height sheets where possible. All sheet joints are formed over framing. Where sheet end butt joints are unavoidable, they shall be formed over nogs.

Fix linings to studs with GIB® Grabber® Self Tapping Drywall Screws at 300mm centres, using the following dimensions:

Single or inner layer

- 13mm or 16mm GIB Fyreline® — 32mm x 6g
- 19mm GIB Fyreline® — 41mm x 6g

Outer layer

- 13mm GIB Fyreline® — 41mm x 6g
- 19mm GIB Fyreline® — 51mm x 7g

Fill gaps left at the top of the linings with GIB Fire Soundseal®.

JOINTING

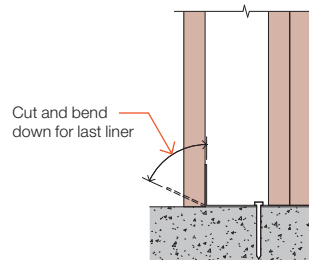
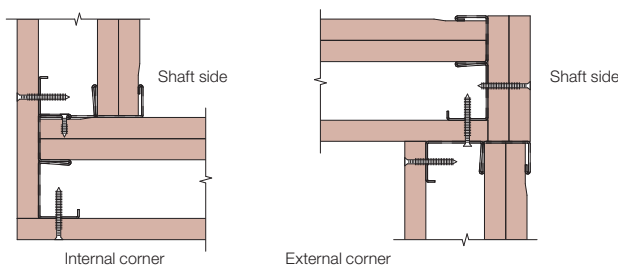
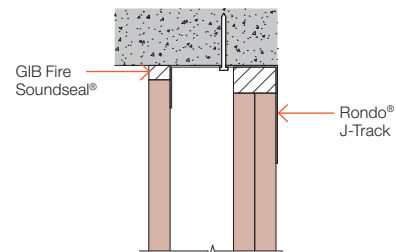
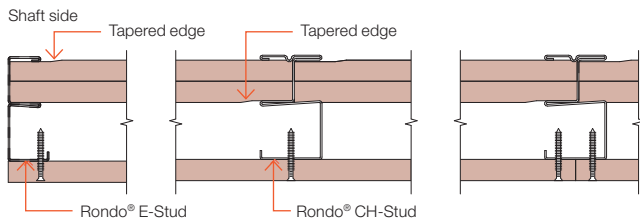
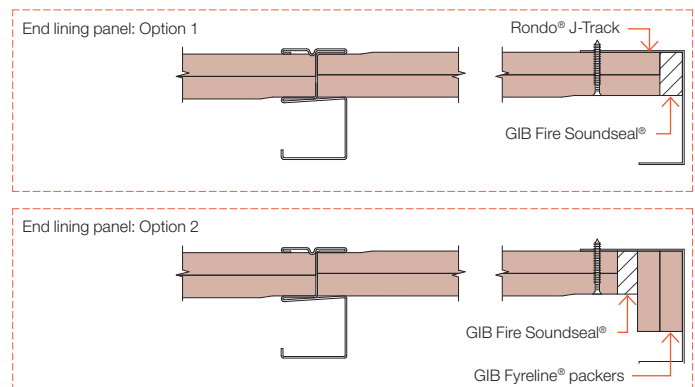
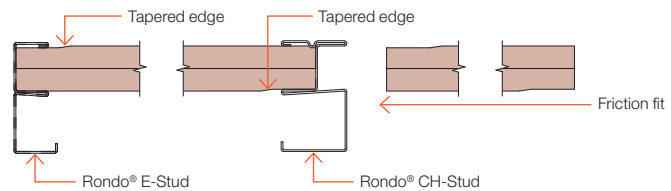
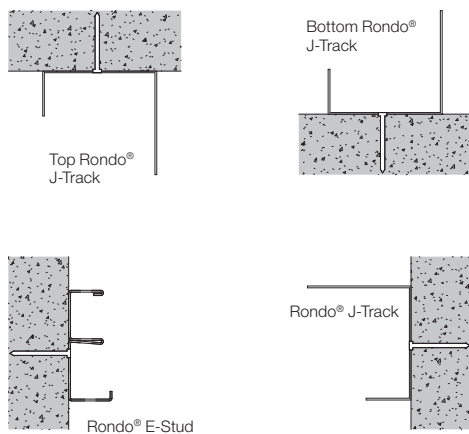
Shaft side

Unstopped.

Landing side

Inner layer: Unstopped.

Outer layer: All screw heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled “GIB® Site Guide”.

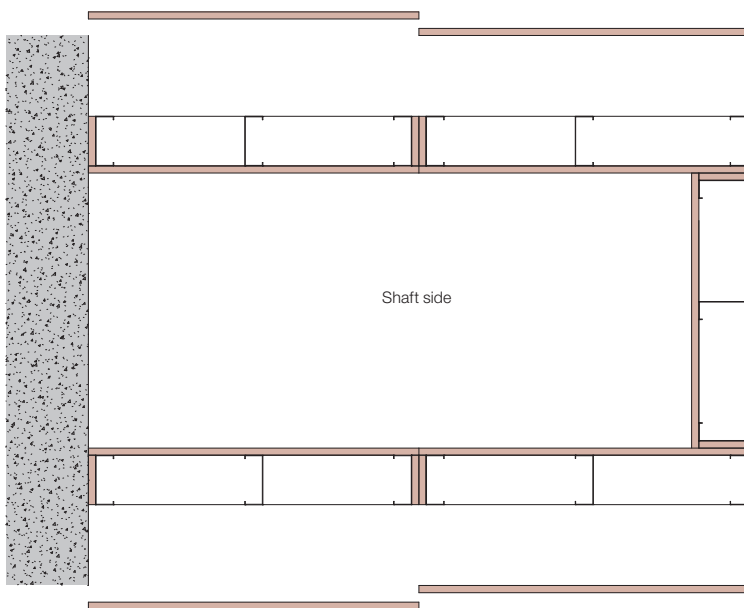


GIB® Panel Shaft

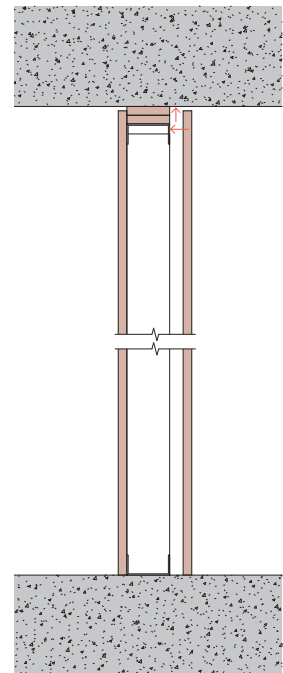
Shaft walls can be constructed by fabricating short panel lengths on site, erecting them from the landing side and connecting them together before lining the final open side. GIB® plasterboard packers are installed at the panel perimeters to ensure the FRR is maintained when connecting panels to each other and to the surrounding structure.

GIB® Panel Shaft uses conventional framing and lining materials and does not need plaster stopping of sheet joints on the shaft side. For FRR and lining specification, refer to the conventional timber or steel framing systems published in this technical literature.

Plan view



Section view



GFS044

INSTALLATION

Step 1

Construct the frame using metal top and bottom channels and friction-fitted metal or timber studs. The top and bottom channels are discontinuous.

Step 2

Incorporate continuous plasterboard 'packer strips' at the panel ends and the head. The thickness or number of packers at the head may depend on floor deflections that need to be accommodated.

Step 3

Fix linings to the shaft side of the panels by screw-fixing to studs. Fixing to bottom channels is optional. Do not fix to top channels.

Step 4

Move the panel into position, secure the bottom channel to the floor and secure the top channel by lifting it and fastening to the structure above while making sure the specified stud deflection tolerance is achieved and a minimum 6mm wall lining overlap with the packers is maintained.

Step 5

Construct the next panel similarly, slide into position and secure against the structure and first panel through the end stud packers.

Step 6

Once all panels have been connected and the shaft is closed in, check for remaining minor gaps, fill these with GIB Fire Soundseal® and line the open landing side conventionally.

For full fixing details, follow the selected specification details.

Chase walls

Services may be reticulated within the cavity space between double-stud chase walls. Fire protection of fire compartments either side of the chase wall will be achieved when using timber- or steel-framed vertical fire separations.

The following conditions apply:

- The FRR applies from outside to outside of the chase wall system and not from inside to outside
- Service penetrations must be made in the chase wall as described in this publication or in accordance with the requirements for proprietary tested penetration seals

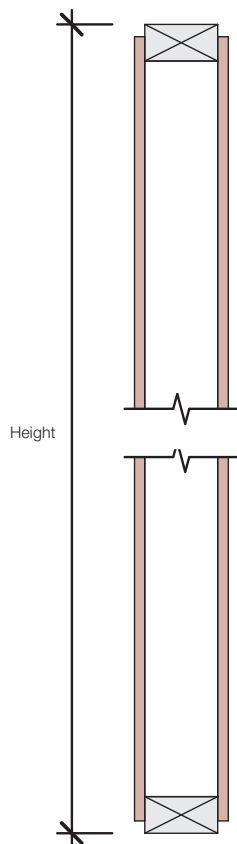
– Non-loadbearing wall constructions only may be used

– Approved variations are:

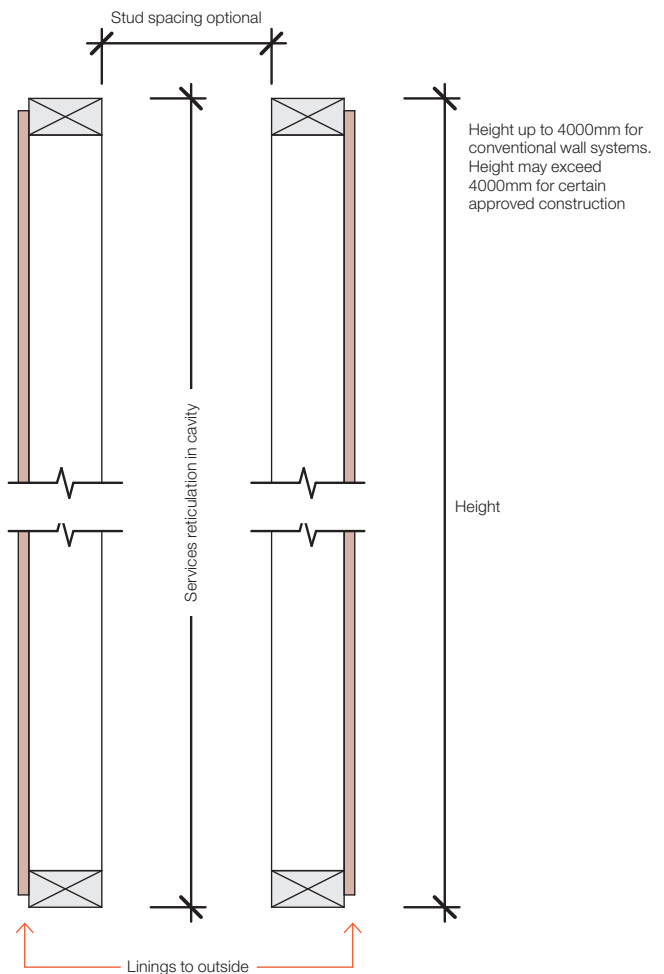
- i) Chase wall systems may be stiffened using cross-bracing between opposite framing members comprising either stud sections fastened at intervals to opposing studs or rectangular pieces of GIB® fastened by perimeter fixings to opposing studs
- ii) Stud spacing between walls in the double-stud construction is optional

Section view

Example of conventional single-stud wall construction for two-way FRR. Framing may be timber or steel



Example of chase wall construction



GFS045

Fire rated protection of columns and beams — timber strapping

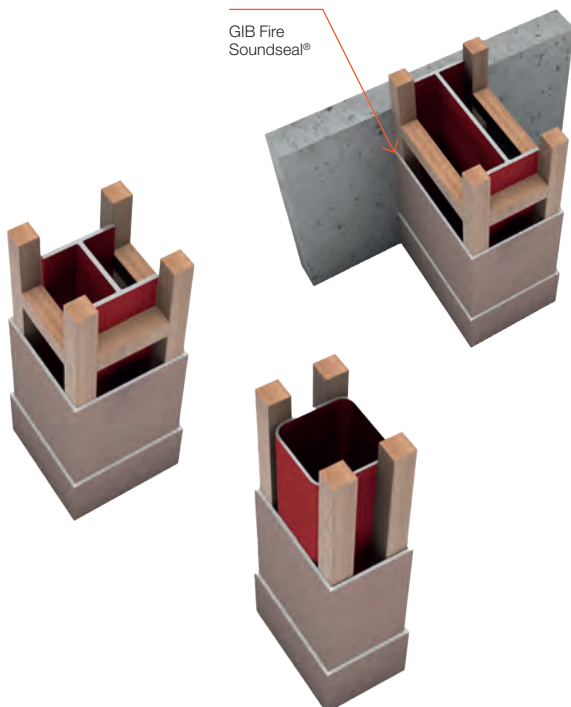
SCOPE OF USE

The options offered in this section provide conservative solutions for the fire protection of structural steel, timber and concrete columns and beams. The illustrations below show steel members.

For engineered solutions, tailored to meet specific column and beam types, sizes and loading conditions, specific fire engineering design is required.

Specification number	FRR (structural adequacy rating*)	Lining requirement steel, timber, concrete columns and beams
GBCBT 15	15/-/-	1 x 13mm GIB® Standard
GBCBT 30a	30/-/-	1 x 16mm GIB Fyreline®
GBCBT 30b	30/-/-	2 x 10mm GIB Fyreline®
GBCBT 60	60/-/-	2 x 13mm GIB Fyreline®
GBCBT 90	90/-/-	2 x 16mm GIB Fyreline®
GBCBT 120	120/-/-	2 x 19mm GIB Fyreline®
GBCBT 180	180/-/-	3 x 19mm GIB Fyreline®

*The FRR comprises values for structural adequacy/integrity/insulation. For loadbearing structural steel members (primary elements), the structural adequacy rating is usually the only requirement and prevents failure under vertical gravity loads during a fire.



STRAPPING

Strap column and beams with a timber cradle frame with a minimum nominal thickness of 35mm, ensuring that linings are supported at 600mm centres maximum. An air gap all sides of the structural steel member is not essential to achieve the stated FRR.

The protective linings can be direct fixed to timber columns and beams.

LINING

For steel members encapsulated by a Universal system specification, follow the GBUW or GBUC instructions for fixing the linings. For steel members covered by GBCBT specifications, form single or inner layer joints on framing. Should single or inner layer joints fall directly over the steel member, form a 5 to 10mm linear gap filled with GIB Fire Soundseal®. Otherwise, all sheet joints are touch fitted.

In multiple-layer systems, outer layer joints spanning no more than 600mm do not need to fall on framing provided joints between layers are offset by 300mm minimum.

FASTENING THE LINING

Fasteners

GIB® Grabber® High Thread Drywall Screws.

The fastener length must ensure a 20mm minimum penetration into timber.

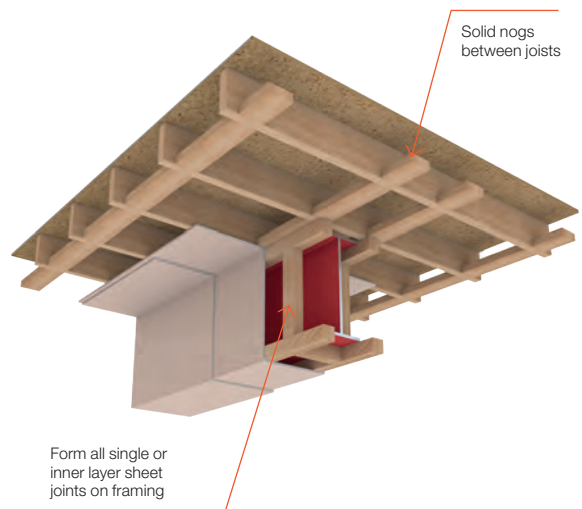
Fastener centres

Single or outer layers must be fixed at 300mm centres maximum to framing spaced at 600mm centres maximum. Inner layers can be fixed at 600mm centres maximum to framing spaced at 600mm centres maximum.

JOINTING

Inner layer(s): Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



Fire rated protection of steel columns and beams — steel clip and channel

SCOPE OF USE

The options offered in this section provide conservative solutions for the fire protection of structural steel columns and beams.

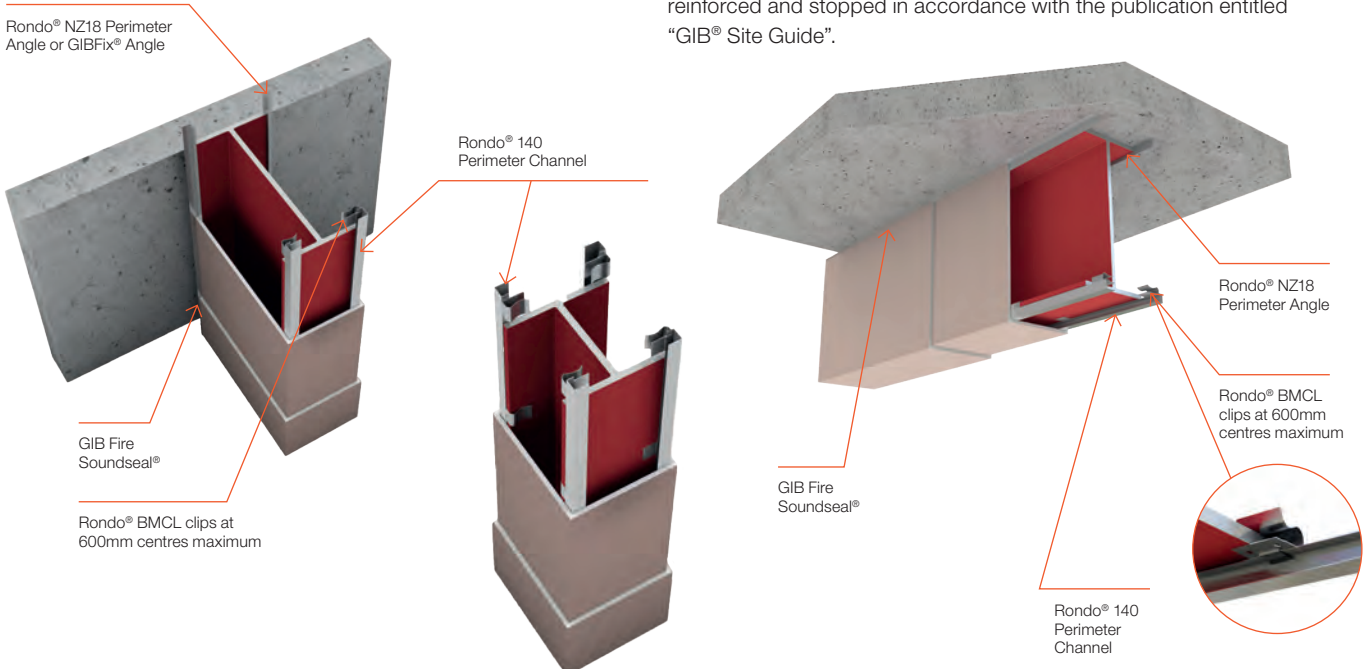
For engineered solutions, tailored to meet specific column and beam sizes and loading conditions, specific fire engineering design is required.

Specification number	FRR (structural adequacy rating*)	Lining requirement steel columns and beams
GBCBS 15	15/-/-	1 x 13mm GIB® Standard
GBCBS 30a	30/-/-	1 x 16mm GIB Fyreline®
GBCBS 30b	30/-/-	2 x 10mm GIB Fyreline®
GBCBS 60	60/-/-	2 x 13mm GIB Fyreline®
GBCBS 90	90/-/-	2 x 16mm GIB Fyreline®
GBCBS 120	120/-/-	2 x 19mm GIB Fyreline®
GBCBS 180	180/-/-	3 x 19mm GIB Fyreline®

*The FRR comprises values for structural adequacy/integrity/insulation. For loadbearing structural steel members (primary elements), the structural adequacy rating is usually the only requirement and prevents failure under vertical gravity loads during a fire.

CLIP AND CHANNEL

Attach Rondo® Clip (part no. BMCL) to column or beam at 600mm centres maximum. Insert Rondo® 140 Perimeter Channel (part no. 140) into clips. Ensure that the linings are supported by framing members at 600mm centres maximum.



For beams exposed on three sides, Rondo® Perimeter Angle (part no. NZ18) is to be secured to provide fixing for the linings.

The Rondo® angle must be fixed to the underside of the floor at 600mm centres maximum. The Rondo® angles are to be fixed at a maximum of 100mm centres in from each end.

LINING

For steel members encapsulated by a Universal system specification, follow the GBUW or GBUC instructions for fixing the linings. For steel members covered by GBCBS specifications, form single or inner layer joints on minimum 35mm thick timber blocking or a profiled metal ceiling batten. Alternatively, back-block using GIB-Cove® Bond adhesive and a backing strip of 300mm wide GIB® plasterboard. Should single or inner layer joints fall directly over the steel member, form a 5 to 10mm linear gap filled with GIB Fire Soundseal®. Otherwise, all sheet joints are touch fitted.

In multiple-layer systems, outer layer joints spanning no more than 600mm do not need to fall on framing provided joints between layers are offset by 300mm minimum.

FASTENING THE LINING

Fasteners

Use GIB® Grabber® Self Tapping Drywall Screws.

The fastener length must ensure a 12mm minimum penetration into the steel framing.

Fastener centres

Single or outer layers must be fixed at 300mm centres maximum to framing spaced at 600mm centres maximum. Inner layers can be fixed at 600mm centres maximum to framing spaced at 600mm centres maximum.

JOINTING

Inner layer(s): Unstopped.

Outer layer: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

Control joints

The control joints illustrated here are designed to accommodate small building movements likely to result from the relative movement of different building materials exposed to variations in temperature and humidity.

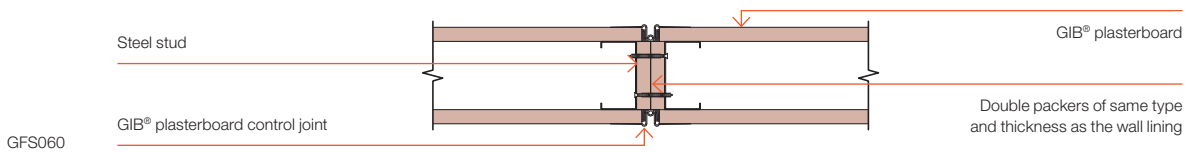
Control joints at a maximum of 12m intervals are intended to eliminate random cracking of gypsum plasterboard joints and must be used in conjunction with our recommendations for installation, fixing, jointing and finishing GIB® plasterboard.

The control joints illustrated below are not designed to accommodate structural movement such as that resulting from roof or floor deflections or seismic activity. These movement joints must be specifically designed.

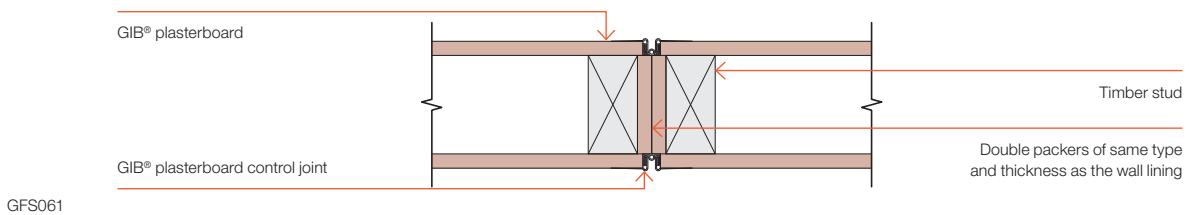
Details below show the principle of creating control joints in GIB® Fire Rated Systems. Note that the control joints are only required in the outer layer of multiple-layer systems. A gap can be finished with a conventional control joint, linear gap seal, or unstopped joint.

For assistance with the design of control joints in specific GIB® Systems, call GIB® Helpline 0800 100 442.

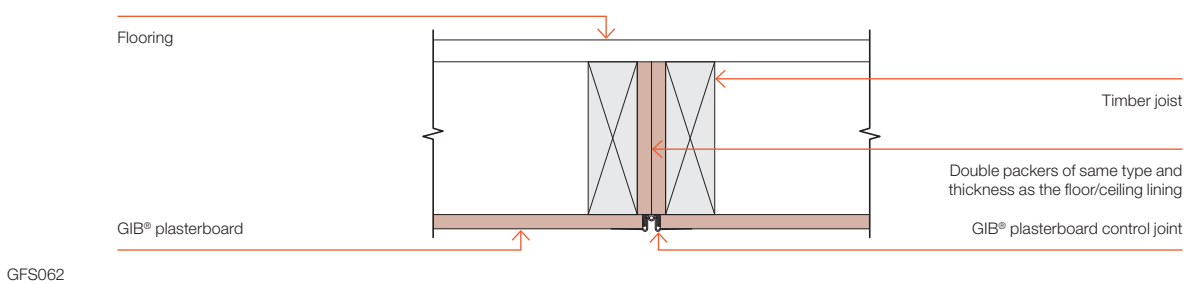
FIRE RATED WALLS – STEEL FRAME (PLAN VIEW)



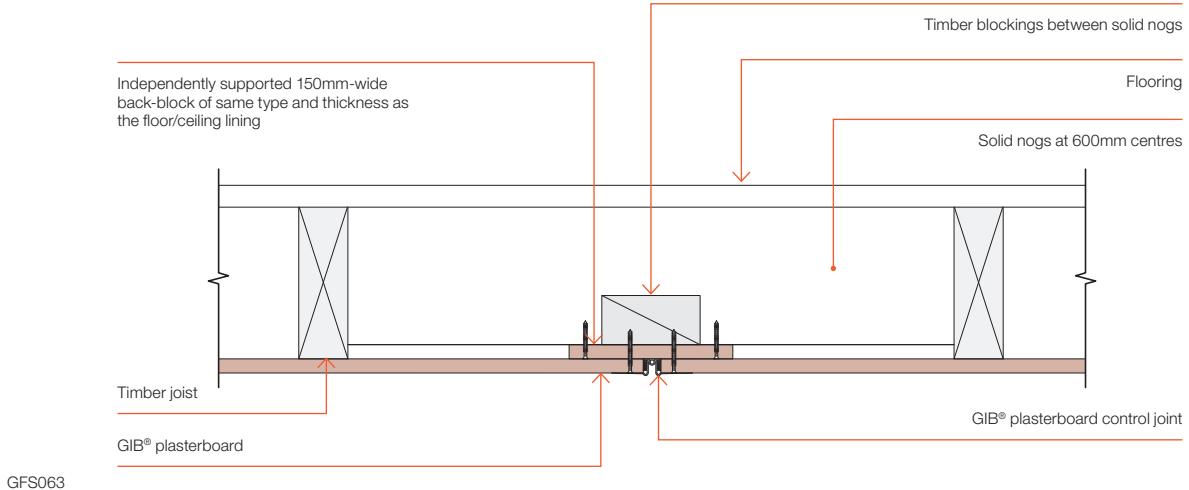
FIRE RATED WALLS – TIMBER FRAME (PLAN VIEW)



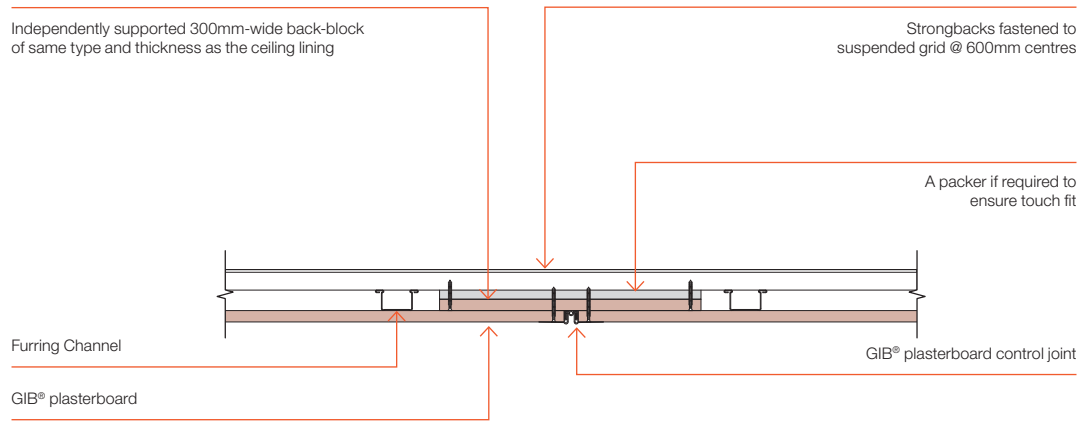
FIRE RATED FLOOR/CEILING (SECTION VIEW)



FIRE RATED FLOOR/CEILING (SECTION VIEW)



FIRE RATED FLOOR/CEILING WITH SUSPENDED GRID (SECTION VIEW)



Note: When control joints are required perpendicular to the furring channels, leave linear gaps between the ceiling linings and fill with GIB Fire Soundseal® at a width-to-depth ratio between 1:1 and 1:2. The linear gaps are limited to a maximum width of 10mm. Packers and back-blocks are required between the furring channels.

GFS064

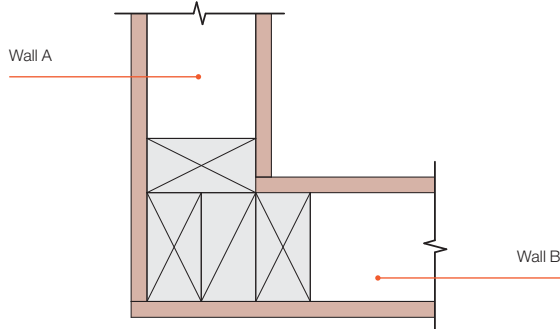
Wall junctions

Unless otherwise noted, the following junction details are intended for intersecting walls with equivalent Fire Resistance Rating (FRR) and preserve the FRR of the GIB® Fire Rated System to which they are applied.

These junction details may also be used in smoke separations provided any perimeter gaps greater than 0.5mm wide are sealed.

TIMBER FRAME (PLAN VIEW)

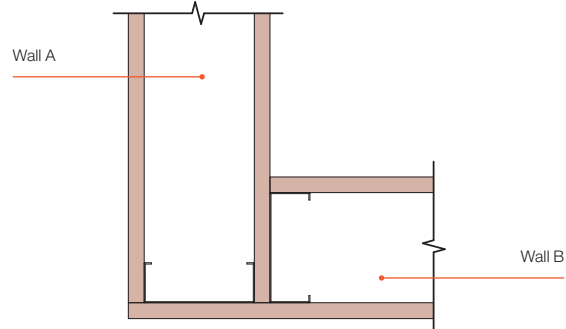
Walls A and B have equal FRR



GFS080

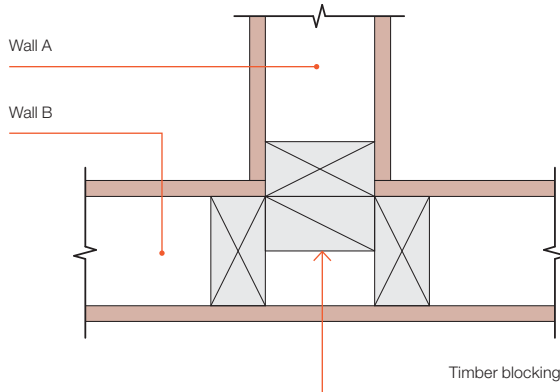
STEEL FRAME (PLAN VIEW)

Walls A and B have equal FRR



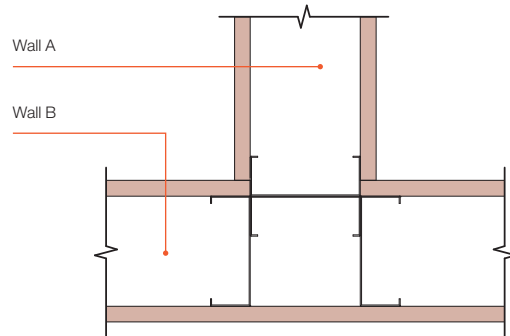
GFS081

If the difference in FRR between walls A and B is 30 minutes or less, framing at the junction is conventional



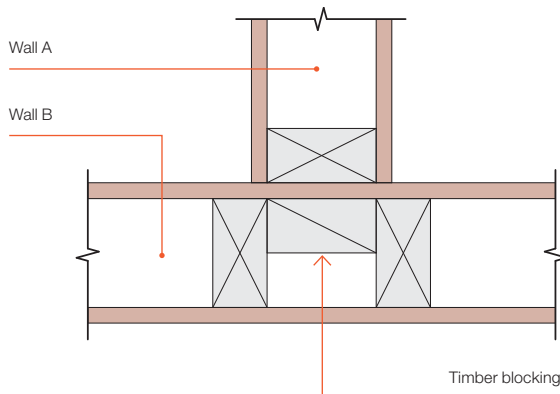
GFS082

If walls A and B have equal FRR, framing at the junction is conventional



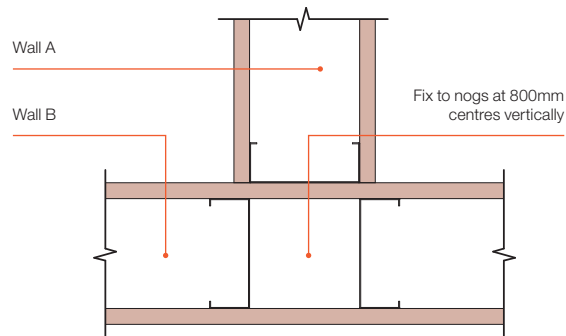
GFS083

If the difference in FRR between walls A and B is greater than 30 minutes, the lining of the higher rated wall (in this case wall B) is continuous through the intersection



GFS084

If walls A and B have a different FRR, the lining of the higher rated wall (in this case wall B) is continuous through the intersection

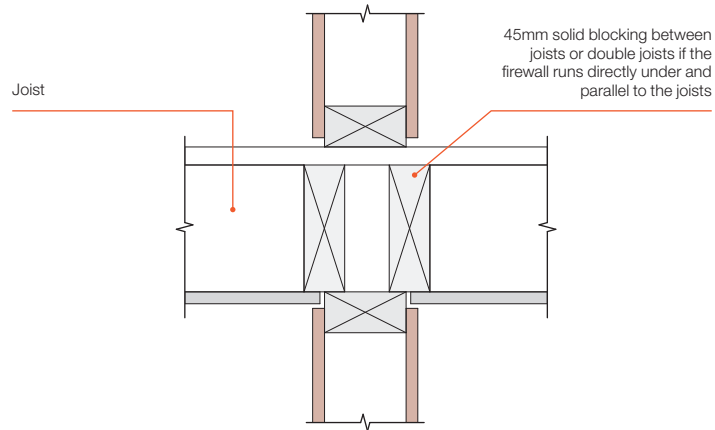


GFS085

Wall — floor/ceiling junctions

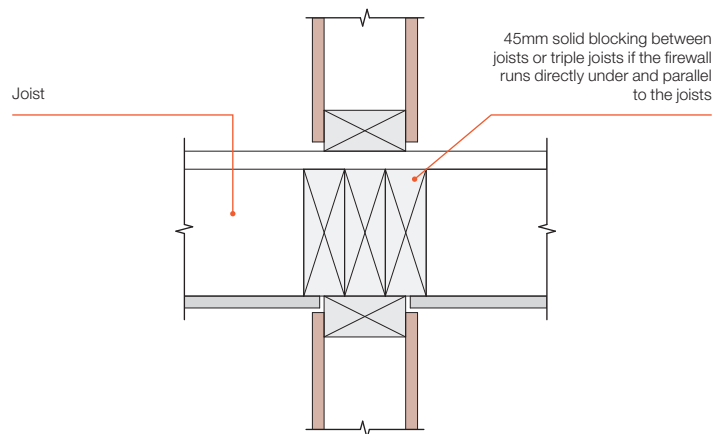
These details show in principle where blocking is required, specific framing layout can vary on-site.

DETAILS WHERE THE FRR OF THE WALL IS CONTINUOUS (SECTION VIEW)



GFS100

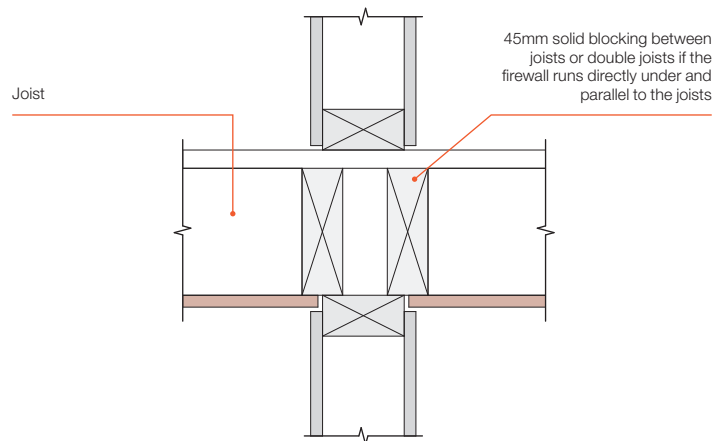
- The floor/ceiling has an FRR up to 30 minutes less than the wall, or
- The wall and floor/ceiling have the same FRR, or
- The wall has an FRR less than or equal to 60 minutes



GFS101

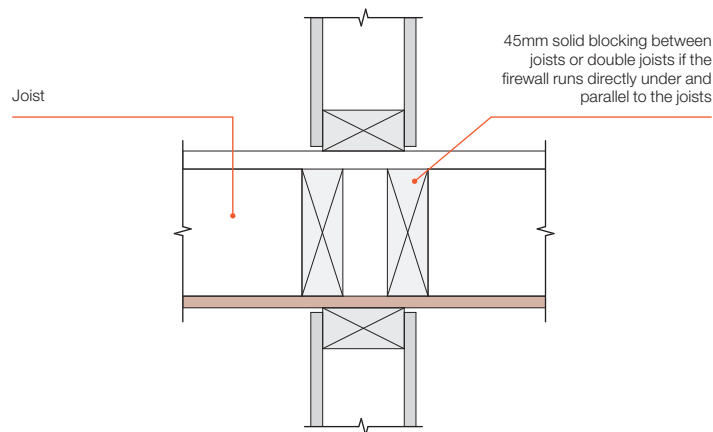
- The wall FRR exceeds 60 minutes, and
- The floor/ceiling has an FRR up to 60 minutes less than the wall

DETAILS WHERE THE FRR OF THE FLOOR/CEILING IS CONTINUOUS (SECTION VIEW)



GFS102

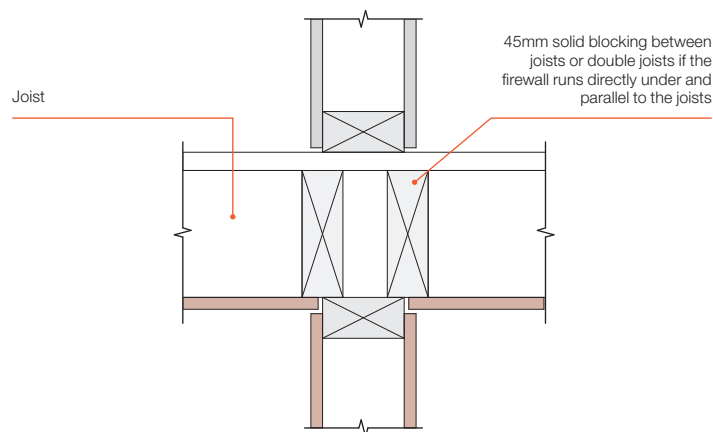
- The FRR of the floor/ceiling is more than that of the wall, and
- The difference in FRR is no more than 30 minutes, and
- The wall is non-loadbearing



GFS103

- The FRR of the floor/ceiling is more than that of the wall, and
- The difference in FRR is more than 30 minutes, and
- The wall is non-loadbearing

DETAIL WHERE THE FRR OF THE FLOOR/CEILING AND WALL ARE THE SAME (SECTION VIEW)



GFS104

- The FRR of the floor/ceiling and wall are the same
- The wall is non-loadbearing or loadbearing
- If the wall is loadbearing and itself not a fire separation, then structural adequacy must be determined by specific design, or universal (UW) one-way fire protection must be applied to both sides

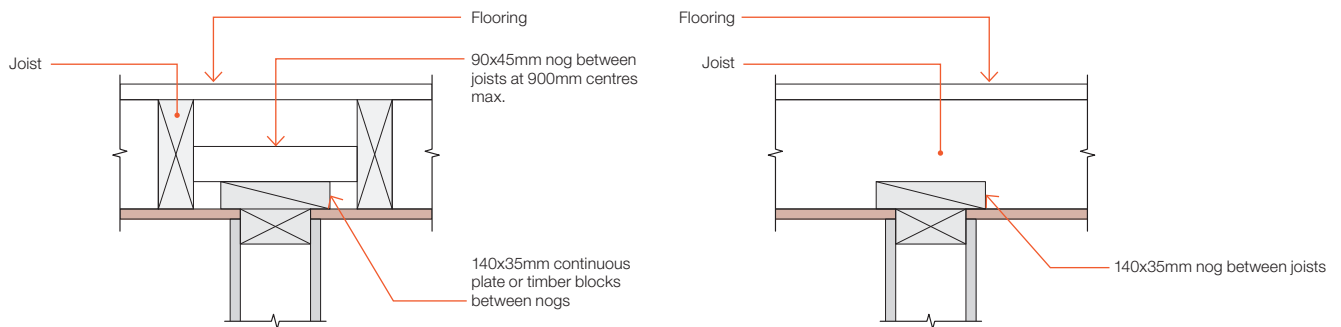
Wall — floor/ceiling junctions

Details GFS105 to 110 show a number of wall-to-floor/ceiling junction details with and without GIB® Rondo® Metal Batten Systems where an FRR of the floor/ceiling is continuous.

Each figure includes two details, one showing the wall running along the joist, and the other showing the wall running across the joist.

Solid connections such as timber blocking, as illustrated in details GFS105 to 108, can reduce the published STC and IIC noise control performance of intertenancy floor/ceiling systems. It is suggested to consider details GFS109 and 110 to retain the published noise control ratings of the floor/ceiling systems.

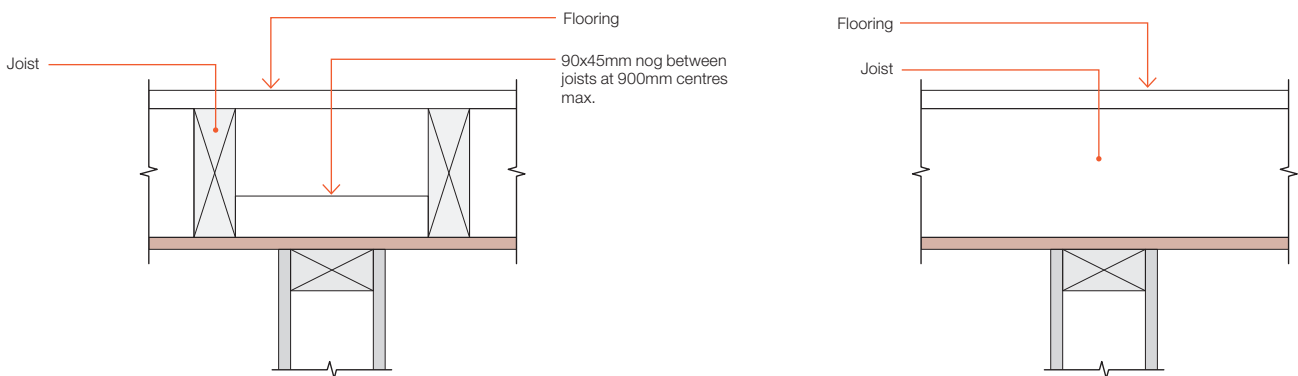
DIRECT FIXED CEILING LINING TO TIMBER JOISTS (SECTION VIEW) - OPTION 1



GFS105

- The FRR of the floor/ceiling is more than that of the wall, and
- The difference in FRR is no more than 30 minutes, and
- The wall is non-loadbearing

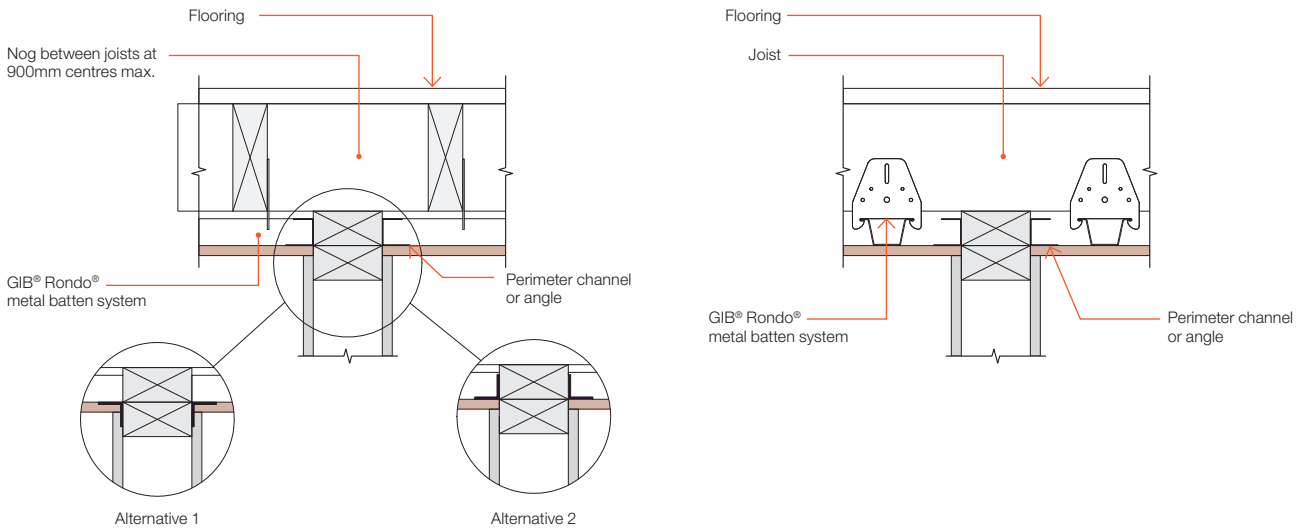
DIRECT FIXED CEILING LINING TO TIMBER JOISTS (SECTION VIEW) - OPTION 2



GFS106

- The FRR of the floor/ceiling is more than that of the wall, and
- The wall is non-loadbearing

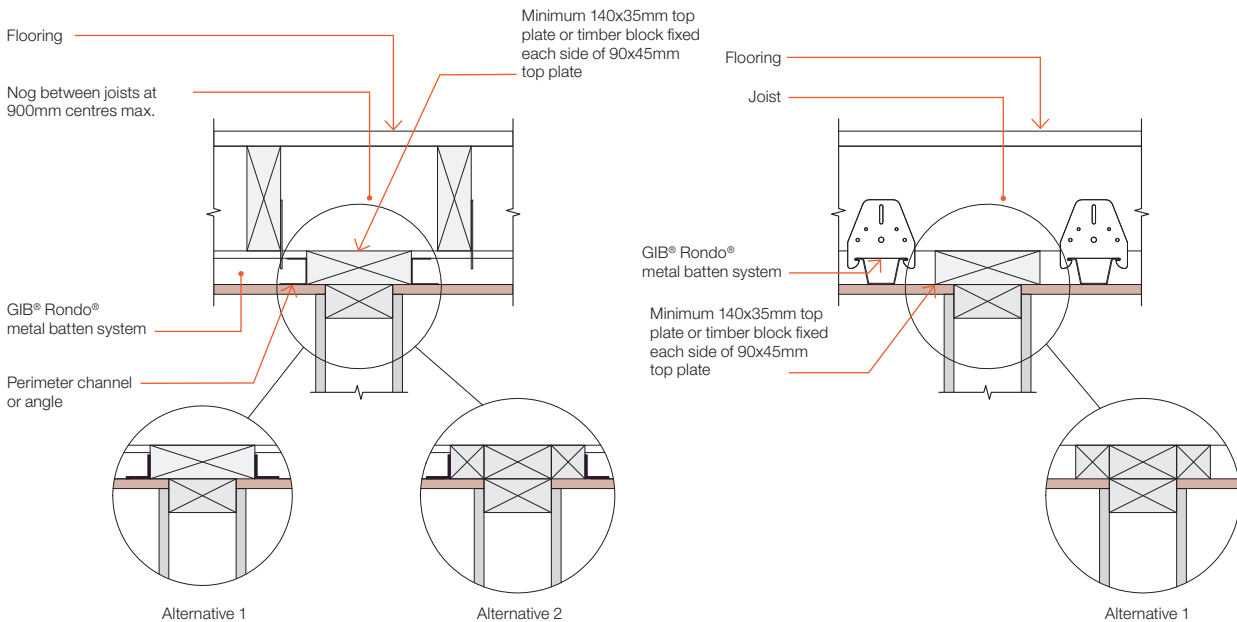
GIB® RONDO® METAL BATTEN SYSTEMS (SECTION VIEW) - OPTION 1



GFS107

- The FRR of the floor/ceiling is more than that of the wall, and
- The difference in FRR is no more than 30 minutes, and
- The wall is non-loadbearing

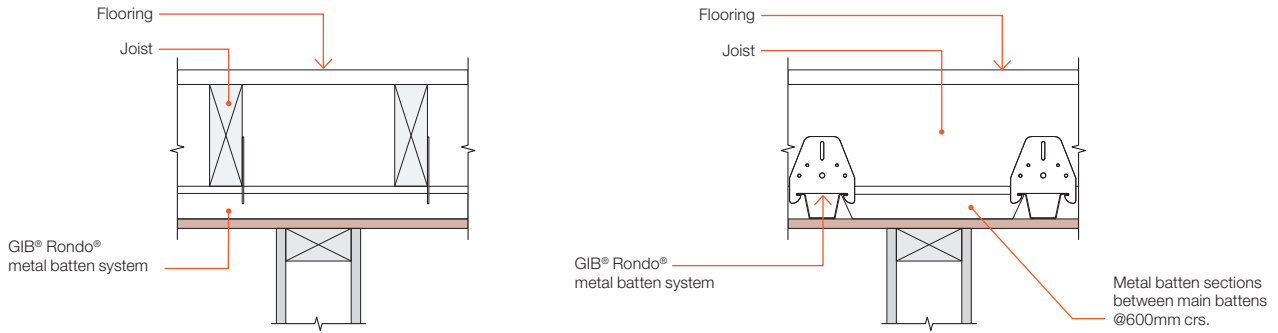
GIB® RONDO® METAL BATTEN SYSTEMS (SECTION VIEW) - OPTION 2



GFS108

- The FRR of the floor/ceiling is more than that of the wall, and
- The difference in FRR is no more than 30 minutes, and
- The wall is non-loadbearing

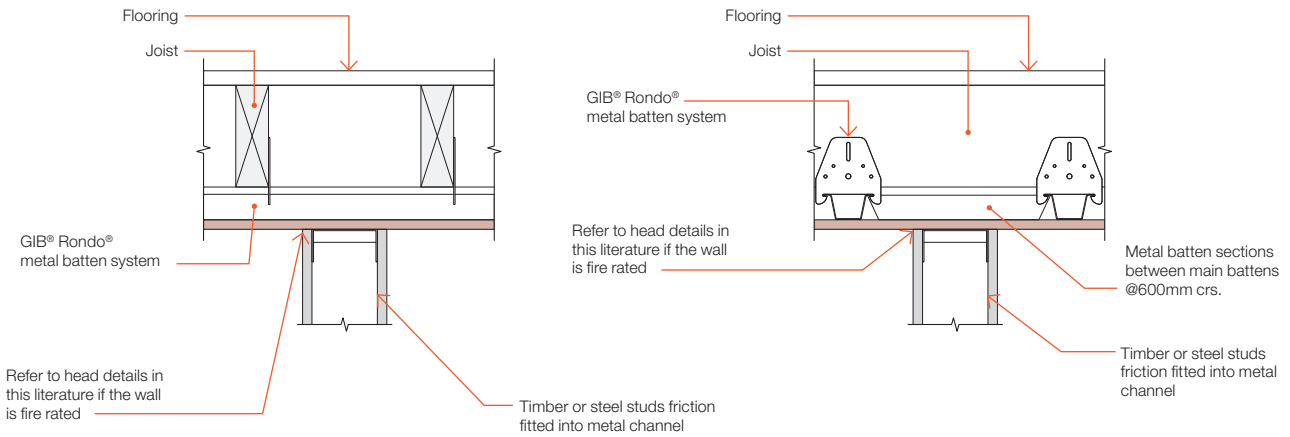
GIB® RONDO® METAL BATTEN SYSTEMS (SECTION VIEW) - OPTION 3



GFS109

- The FRR of the floor/ceiling is more than that of the wall, and
- The wall is non-loadbearing

GIB® RONDO® METAL BATTEN SYSTEMS (SECTION VIEW) - OPTION 4



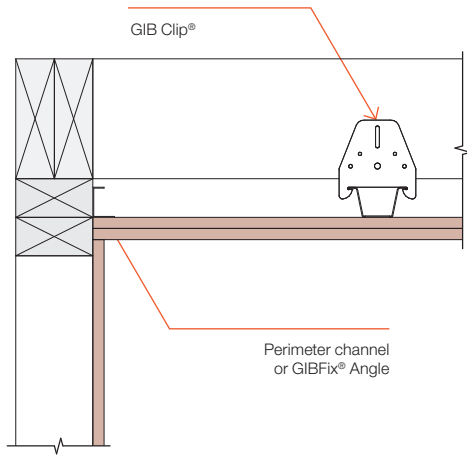
GFS110

- The FRR of the floor/ceiling is more than that of the wall, and
- The wall is non-loadbearing

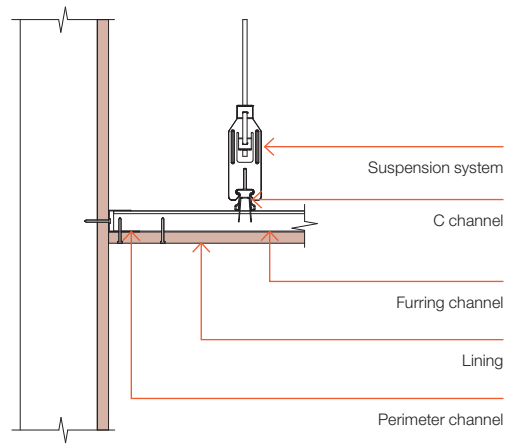
Suspended ceiling to wall junctions

The junctions below join vertical fire separations to fire rated suspended ceiling systems, such as suspended grid and the GIB Clip® systems shown below.

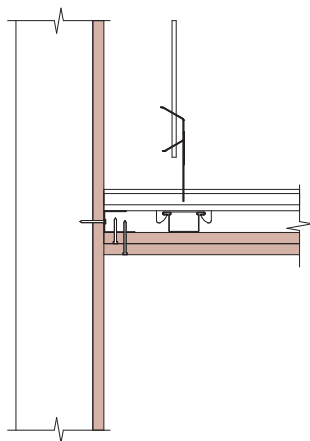
Firewalls may extend from floor to floor or to the ceiling junction as shown. Wall-ceiling junctions without cavity barriers in the concealed space are alternative solutions requiring specific fire engineering justification.



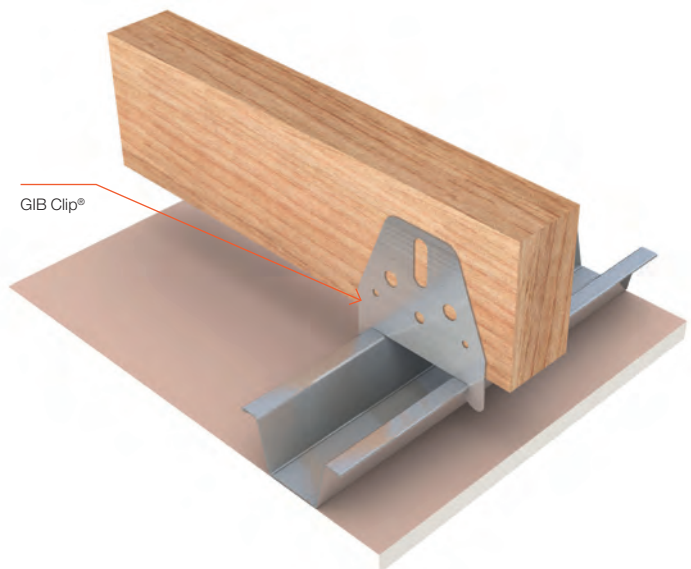
GFS120



GFS121



GFS122

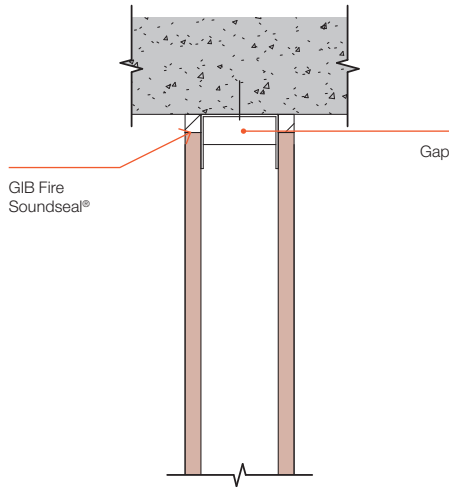


Drywall to concrete or concrete masonry junctions

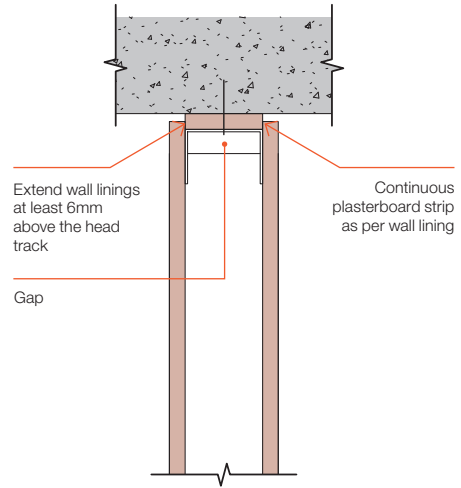
The details below illustrate joints between GIB® Fire Rated Systems and concrete or concrete masonry.

HEAD DETAILS (SECTION VIEW)

Timber or metal stud in metal track (negligible floor deflection)

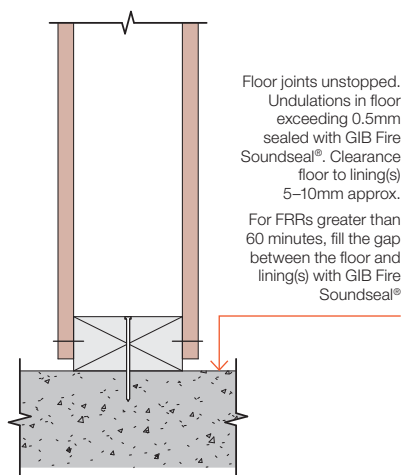


GFS140

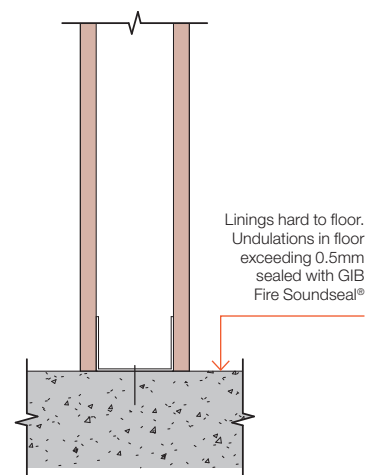


GFS141

FLOOR DETAILS (SECTION VIEW)



GFS142

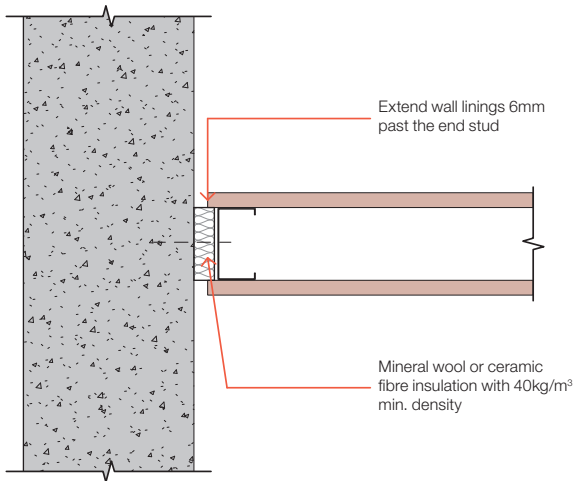


GFS143

WALL-TO-WALL DETAILS (PLAN VIEW)

Mineral fibre packing

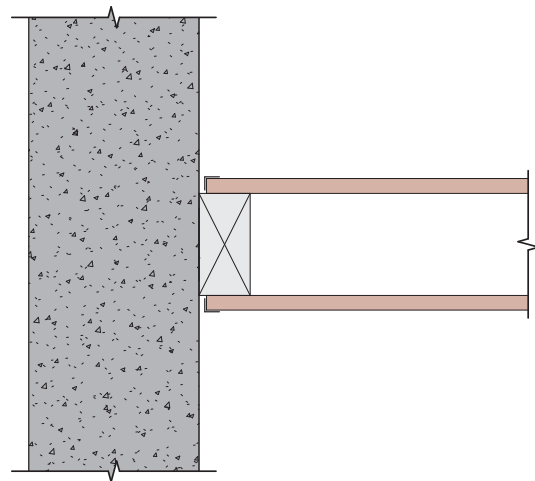
Packing mineral wool or ceramic fibre to the full depth of the stud. Fibre may be capped with sealant.



GFS160

Conventional detail

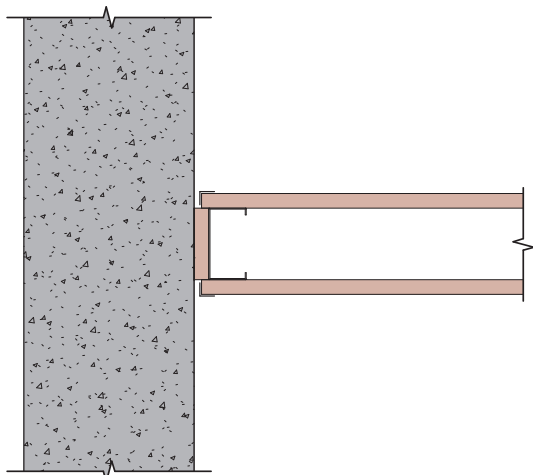
Conventional GIB® compound stopping or GIB® Goldline™ trims can be used for timber stud walls with an FRR up to and including 60 minutes. For higher ratings, include a GIB® plasterboard strip or mineral fibre packing.



GFS161

GIB® plasterboard strip

Fit a continuous GIB® plasterboard strip of same type and thickness as the wall lining between the end stud and masonry. Linings may be finished with GIB® Goldline™ trims.



GFS162

GIB® Goldline™ L-Trim

This product is used extensively as a trim for plasterboard that abuts suspended ceilings, beams, plaster, masonry and concrete surfaces as well as door and window jambs.



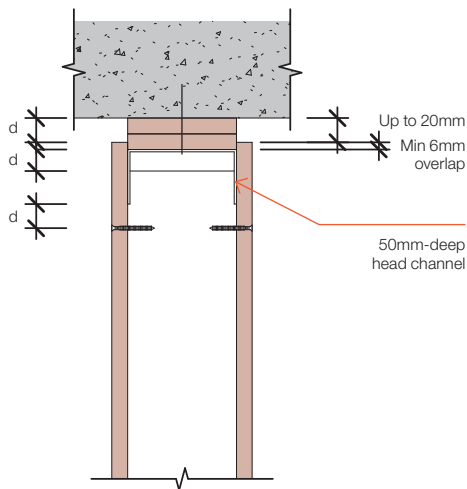
Deflection head details

Dead and live loads can cause significant deflection in some long-span floor systems. These deflection head details have been designed to avoid the transfer of floor loads onto non-loadbearing fire separations. Examples below are shown for 13mm GIB® plasterboard.

For proprietary floor system details, please visit gib.co.nz.

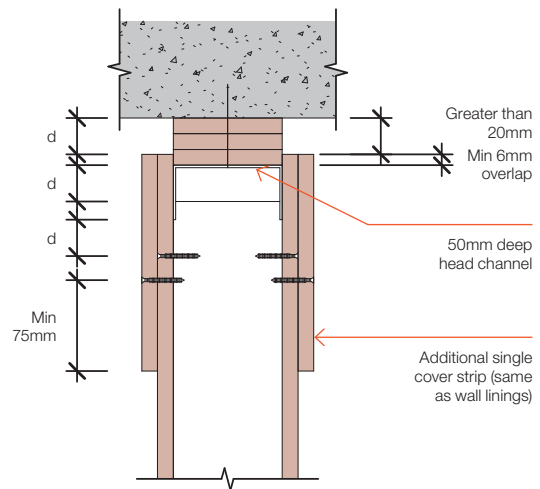
TIMBER OR STEEL STUDS IN METAL TRACK (SECTION VIEW)

Deflection (d) up to 20mm



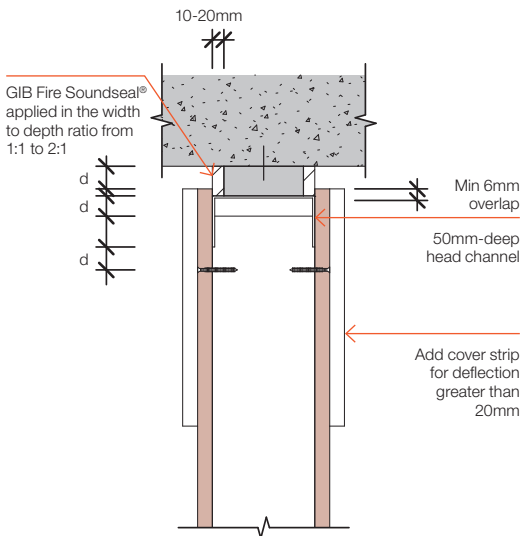
GFS180

Deflection (d) greater than 20mm



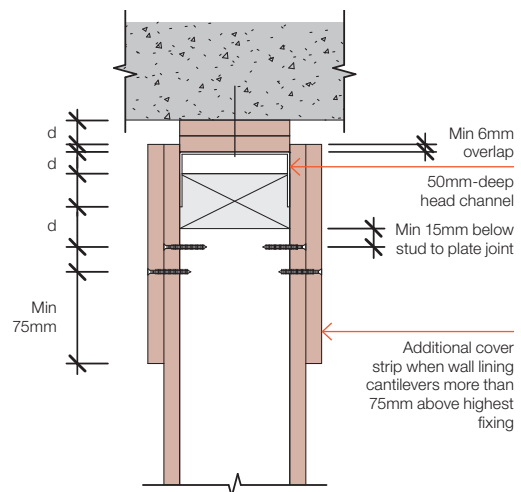
GFS181

TIMBER BLOCK OR FIBRE CEMENT ALTERNATIVE (SECTION VIEW)



GFS182

FULL TIMBER FRAME (SECTION VIEW)



GFS183

- Fix wall linings no higher than a distance 'd' below the vertical leg of the head channel
- Do not fix wall linings to the head channel

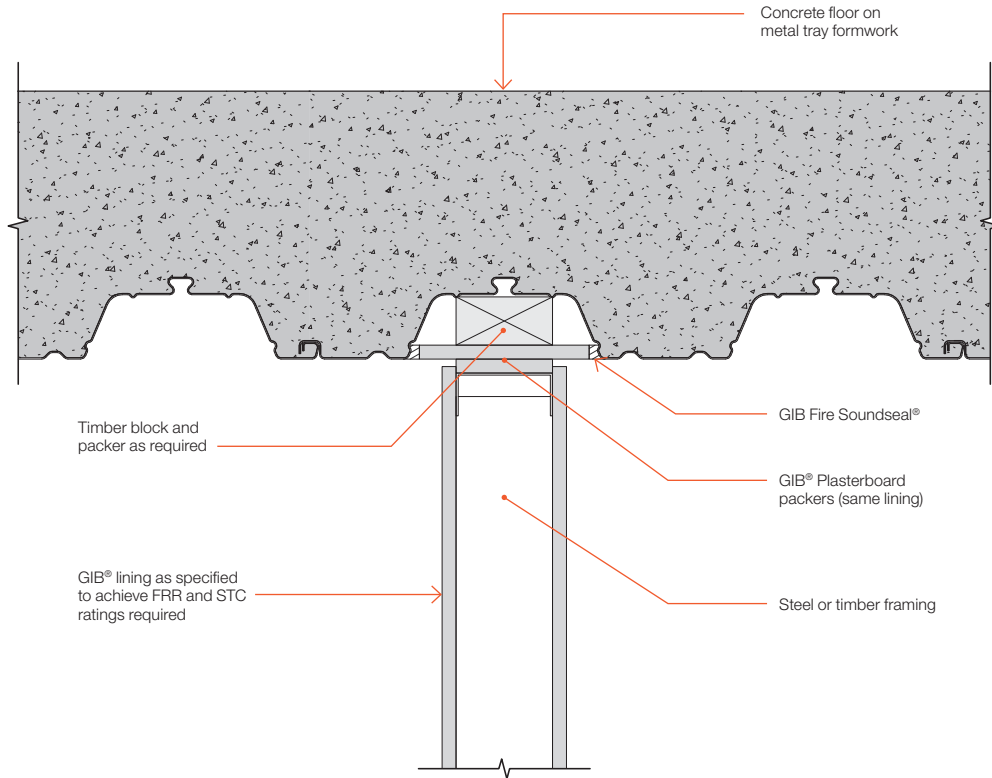
- Extend wall linings at least 6mm above the head channel

Composite floor details

Composite concrete floor systems are in common use in commercial and residential applications. The following details show junctions between GIB® plasterboard wall systems and composite floors.

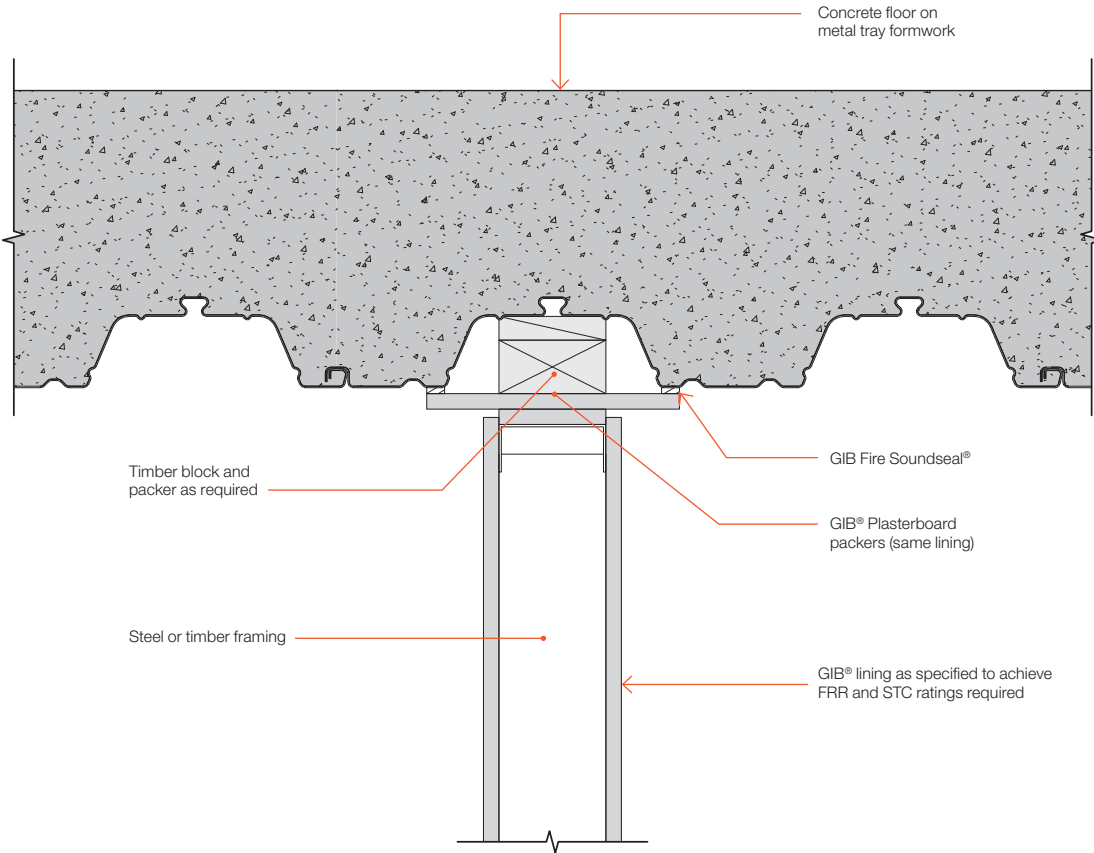
The idea is to create a level surface below the profiled floor to enable a conventional partition head detail or deflection head detail to be constructed. See page 102 for further deflection head details.

COMFLOR® DETAIL FOR WALL WITH PROFILE – OPTION 1



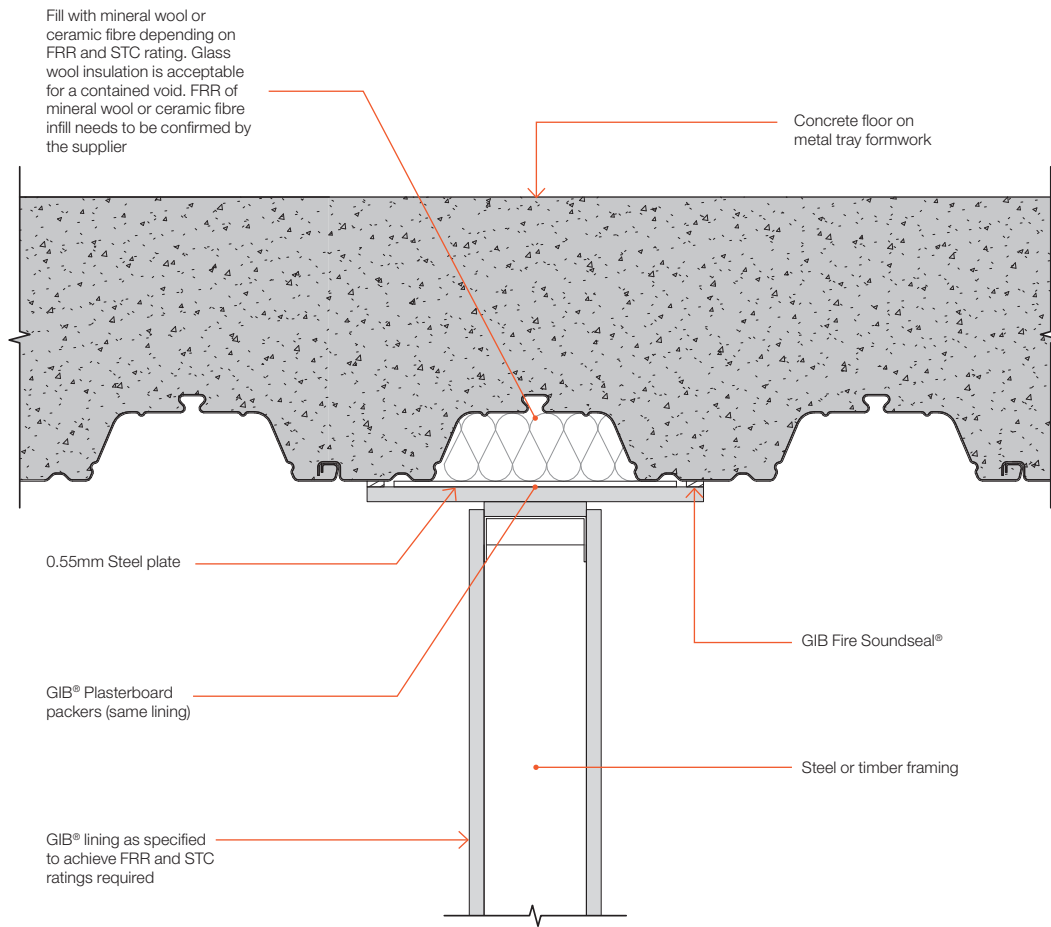
GFS400

COMFLOR® DETAIL FOR WALL WITH PROFILE – OPTION 2



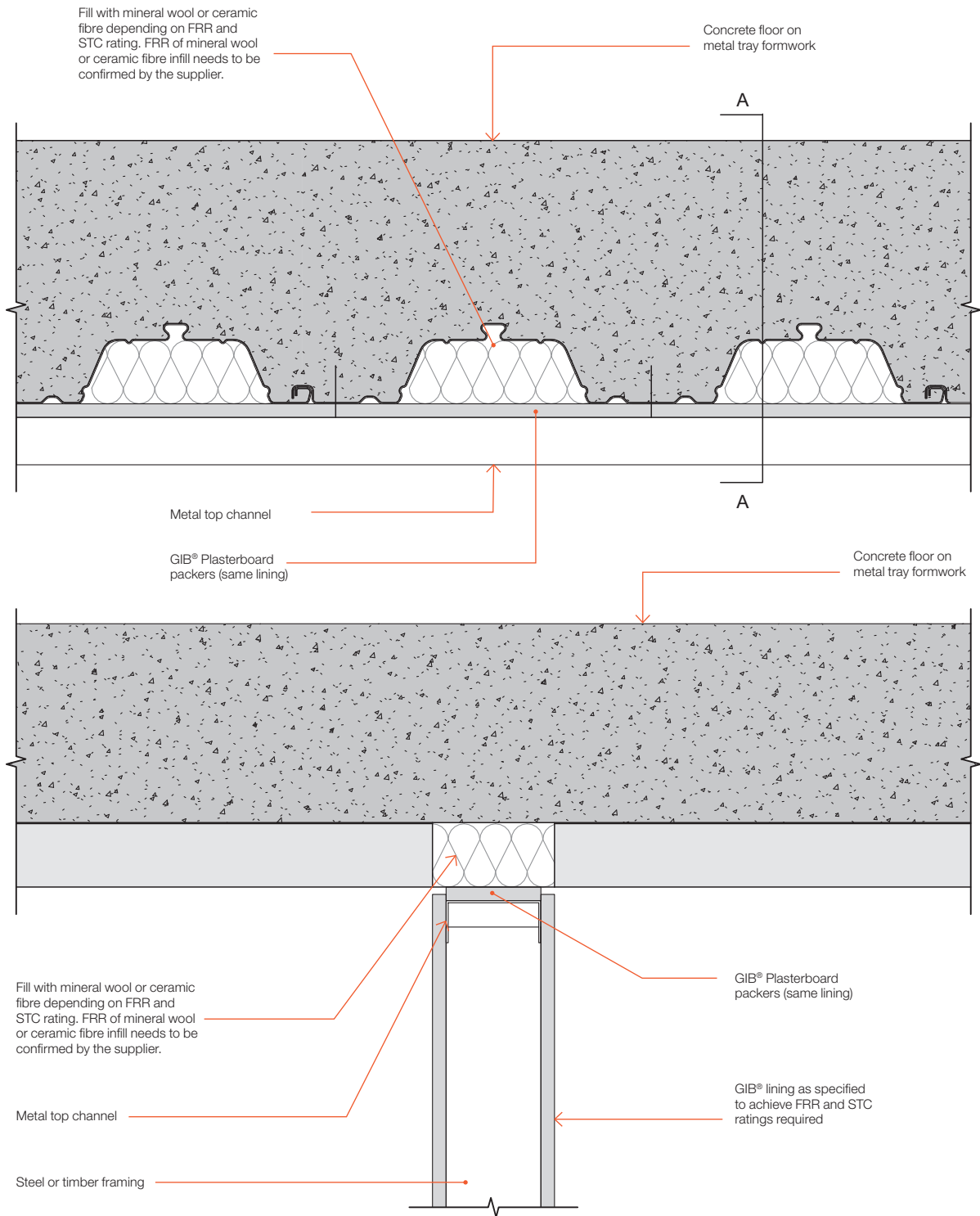
GFS401

COMFLOR® DETAIL FOR WALL WITH PROFILE – OPTION 3



GFS402

COMFLOR® DETAIL FOR WALL ACROSS OR DIAGONAL TO PROFILE



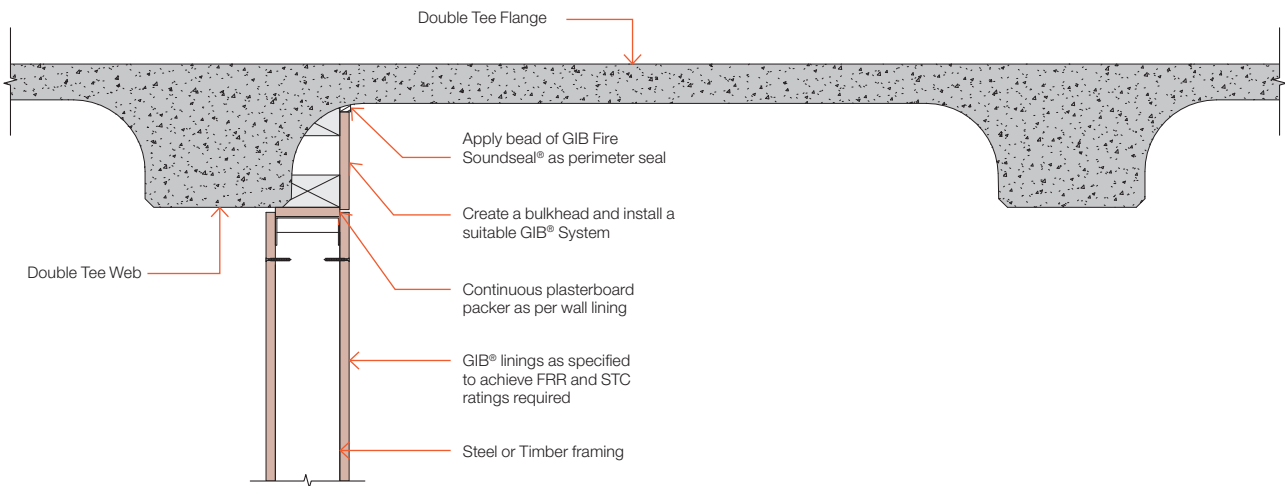
GFS403

Double Tee floor details

Figures below show a number of options for partitions running along and across the Double Tee webs.

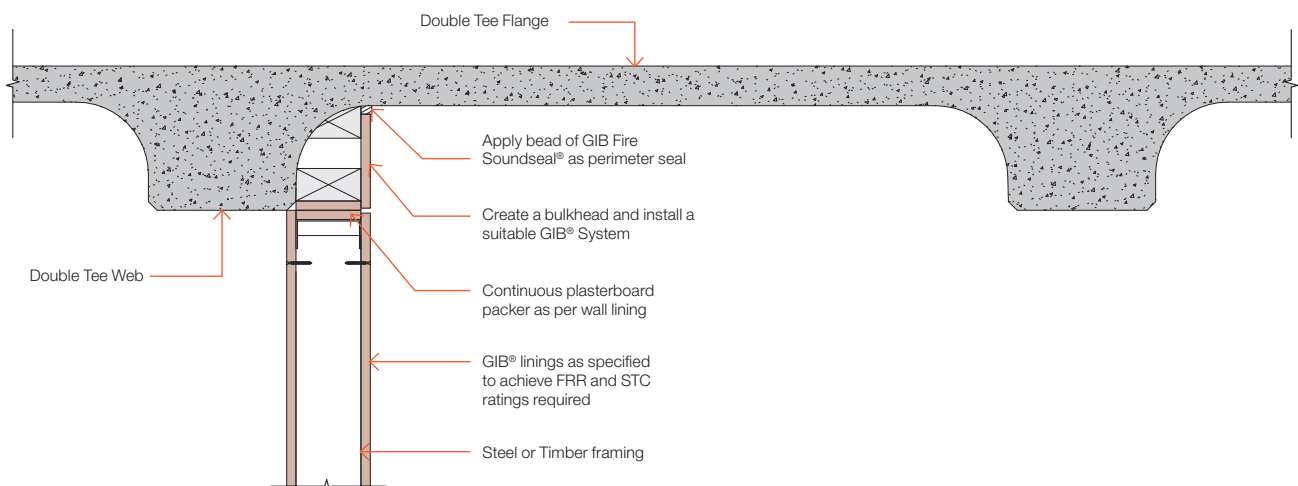
Prior to any works being carried out it is important to liaise with the Double Tee supplier and check where framing fasteners can be installed. See page 102 for further deflection head details.

JUNCTION TO THE UNDERSIDE OF BOTH DOUBLE TEE FLANGE AND WEB



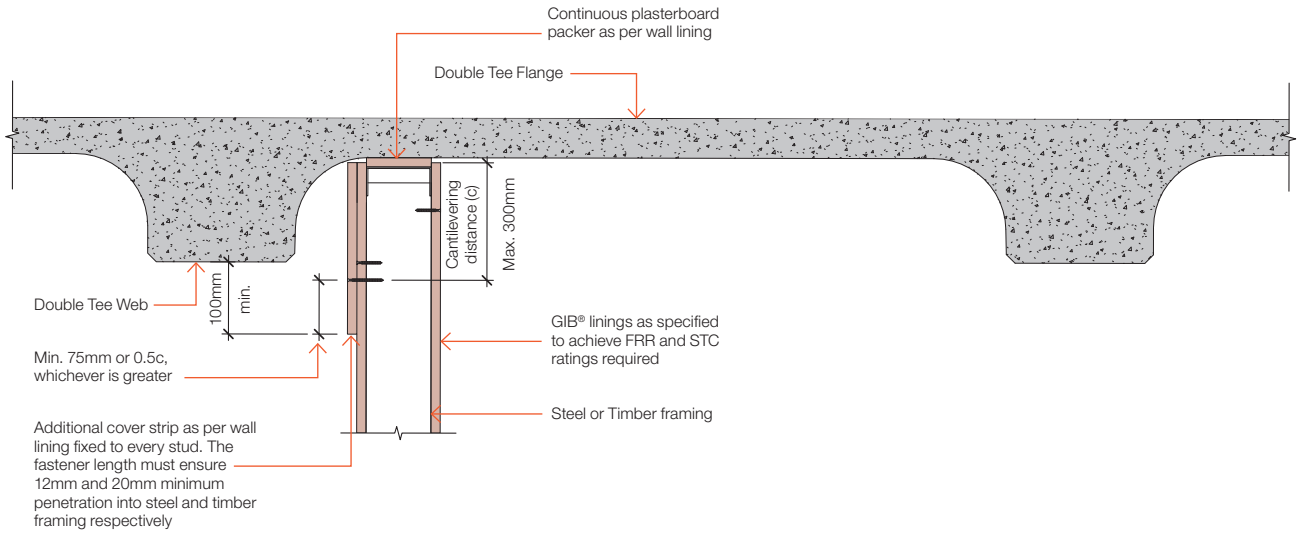
GFS440

JUNCTION TO THE UNDERSIDE OF THE DOUBLE TEE FLANGE



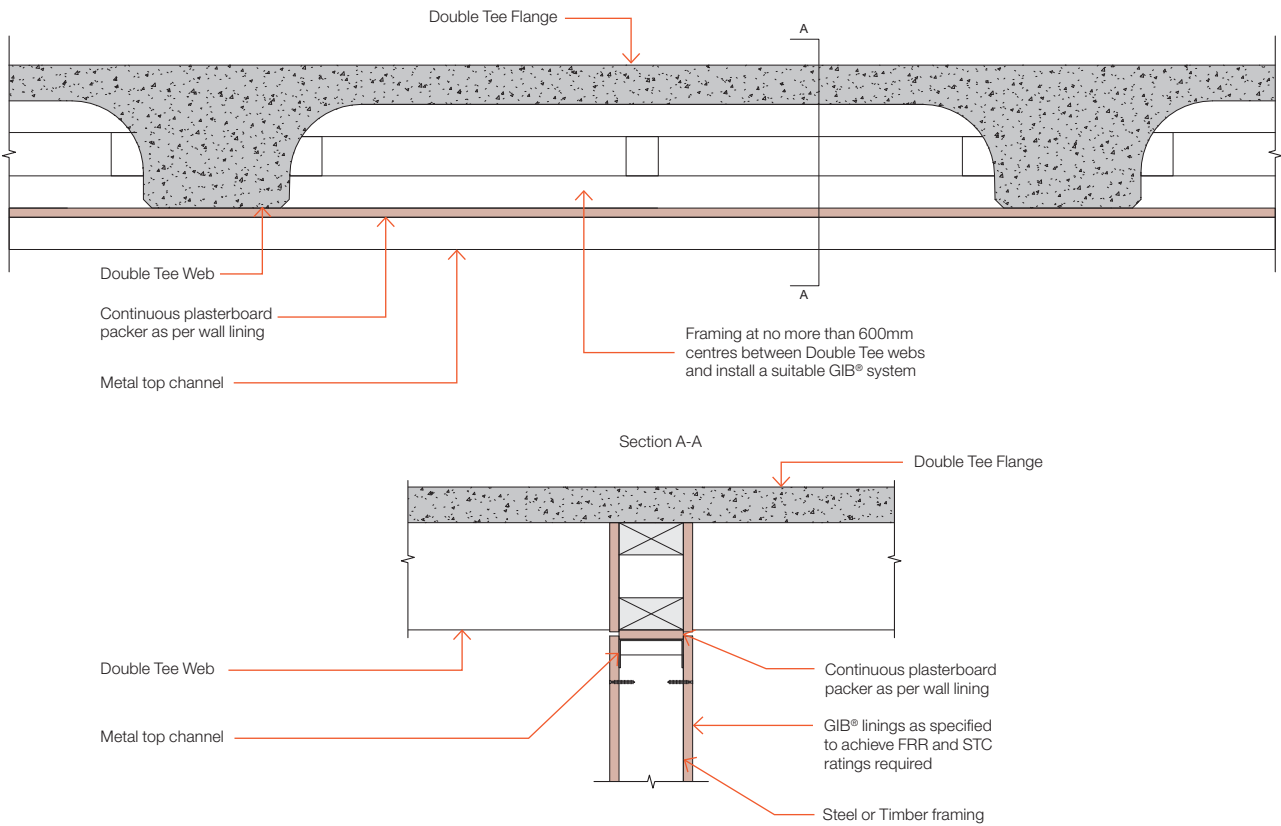
GFS441

JUNCTION TO THE UNDERSIDE OF THE DOUBLE TEE FLANGE, WHERE ACCESS IS LIMITED FOR THE HIGHEST FIXING



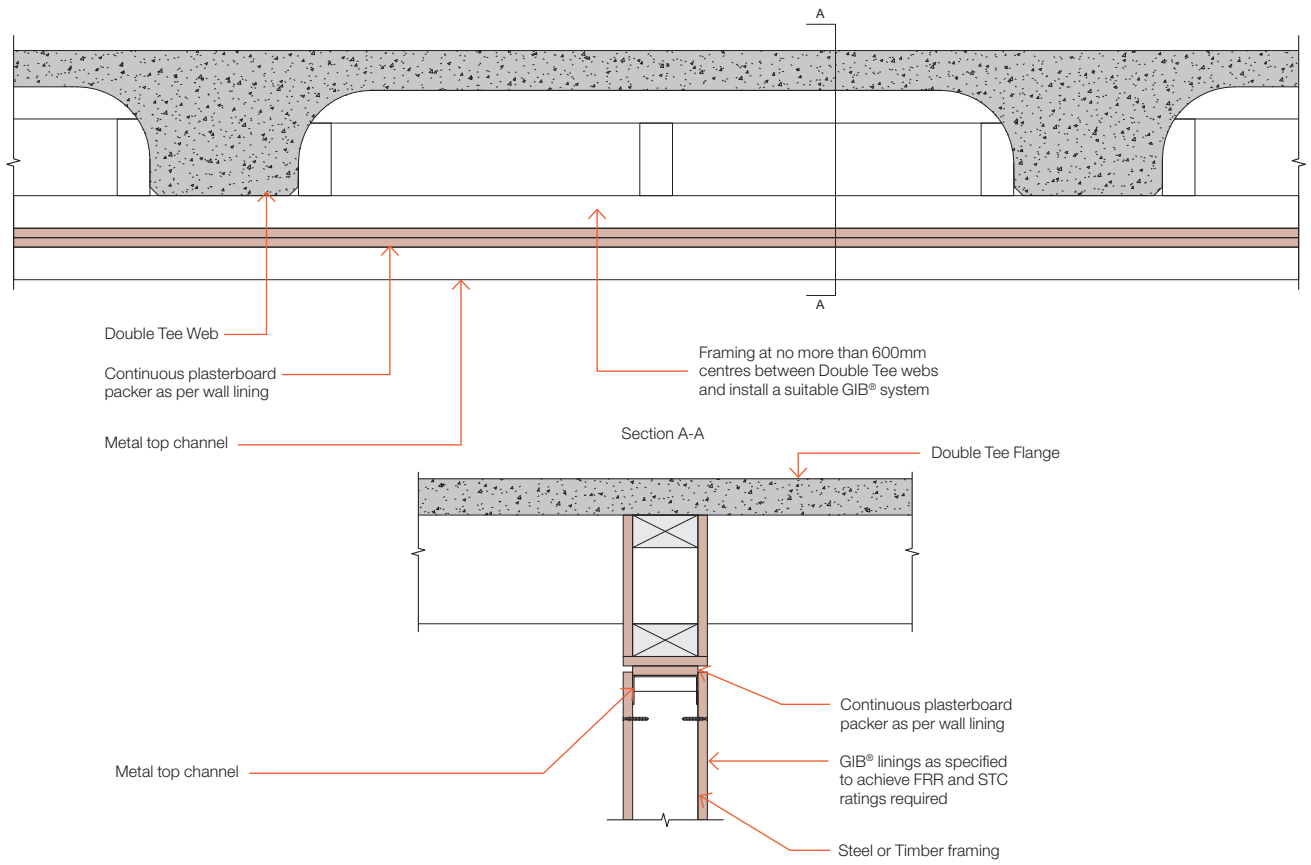
GFS442

DETAIL FOR WALL ACROSS DOUBLE TEE WEB - OPTION 1



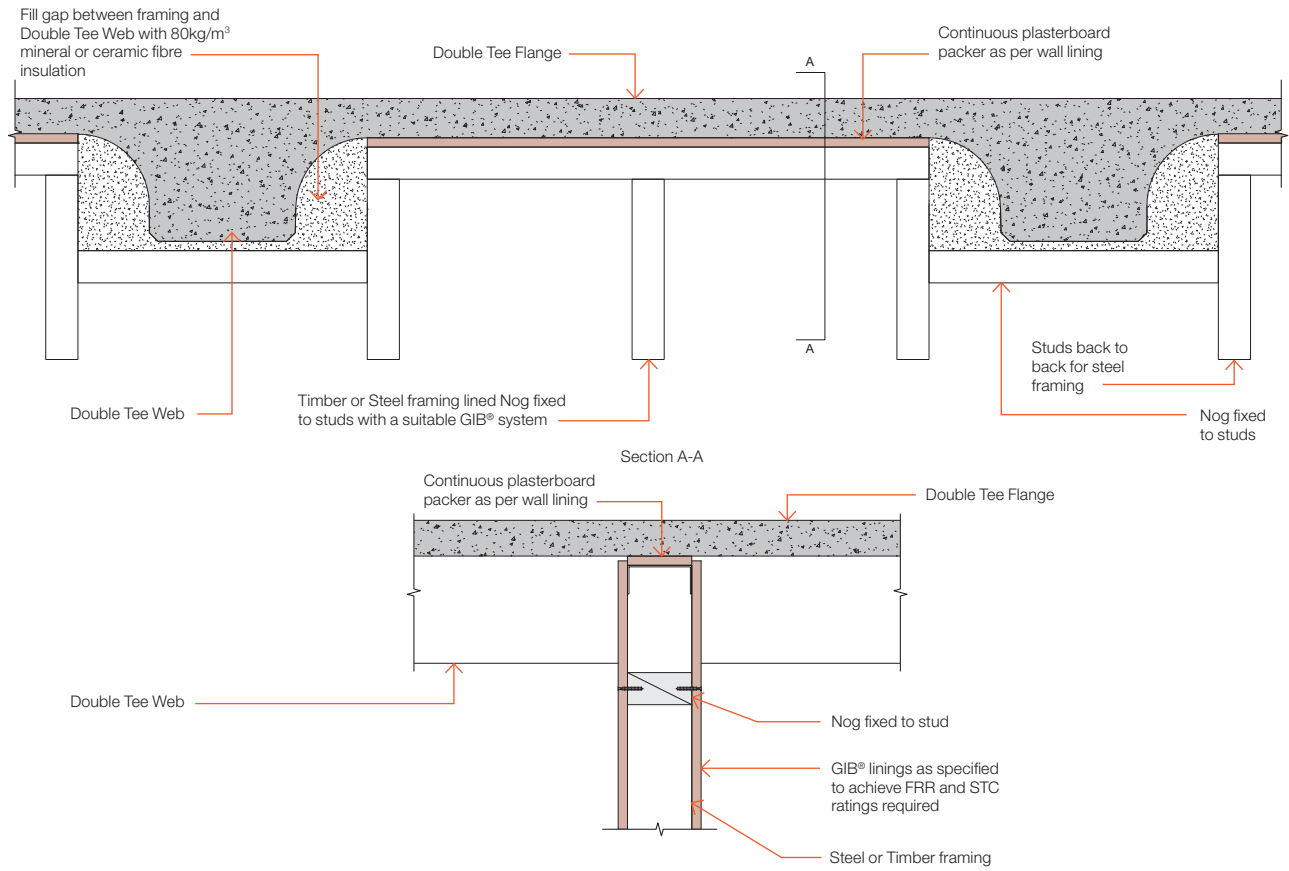
GFS443

DETAIL FOR WALL ACROSS DOUBLE TEE WEB - OPTION 2



GFS444

DETAIL FOR WALL ACROSS DOUBLE TEE WEB - OPTION 3



GFS445

Stahlton Rib and Infill details

Figures below show a number of options for partitions running along and across the Stahlton Ribs.

Where the partition abuts the underside of the timber infill additional protection as per the table below is required between the Stahlton Ribs to minimise timber char and cover possible shrinkage gaps between the timber planks which can permit sound transmission as well as the passage of flame and hot gases.

Required FRR	Minimum timber infill protection
30 min	1 layer 13mm GIB® Standard
60 min	1 layer 13mm GIB Fyrelite® or 2 layers 10mm GIB Fyrelite®
90 min	1 layer 16mm GIB Fyrelite® or 2 layers 13mm GIB Fyrelite®
120 min	1 layer 19mm GIB Fyrelite® or 2 layers 13mm GIB Fyrelite®

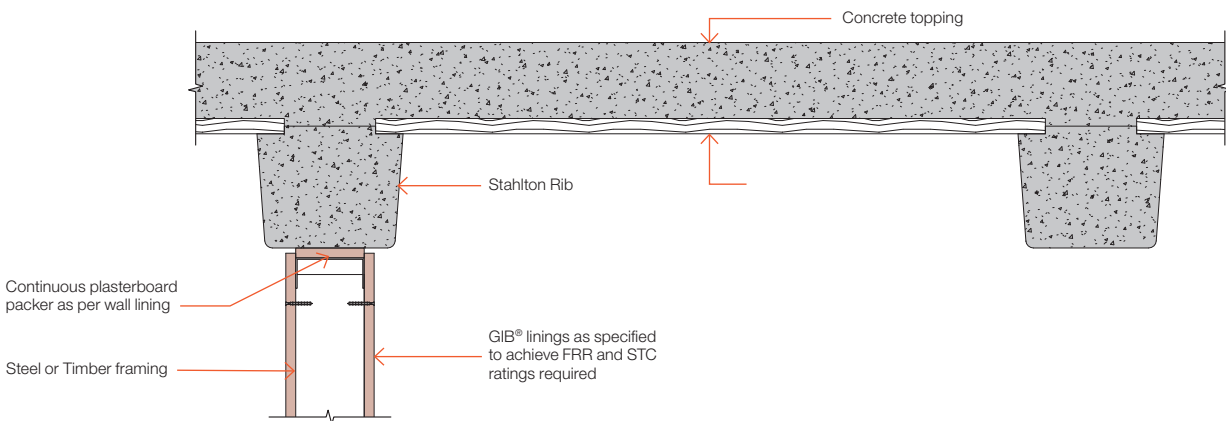
Alternatively, a design engineer may assist with assessing char of the timber infill for the required time of the FRR. This is often acceptable as there is a substantial depth of timber infill and the concrete slab provides a heat sink. However, shrinkage gaps between the timber planks must still be addressed.

Note that timber shrinkage occurs over time and that gaps between the timber planks may not reach their full width until the building has been in service for some time.

Alternatively, cut the timber infill partially and extend the partition to the underside of the concrete topping, provided the Stahlton supplier verifies this method.

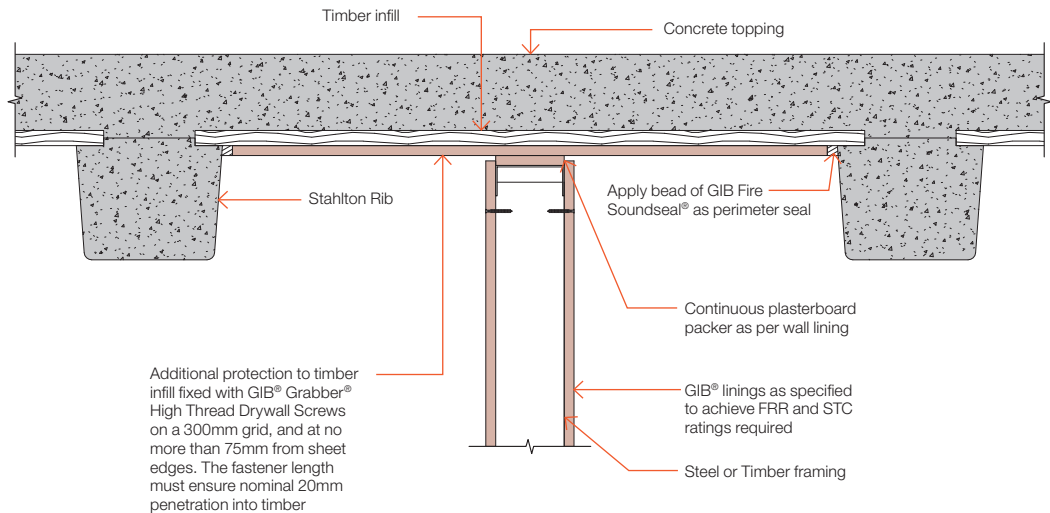
Note that the partition head must be revised to align with generic deflection head details if floor deflection has to be accommodated. Refer to page 102 for more details.

JUNCTION TO THE UNDERSIDE OF STAHLTON RIB



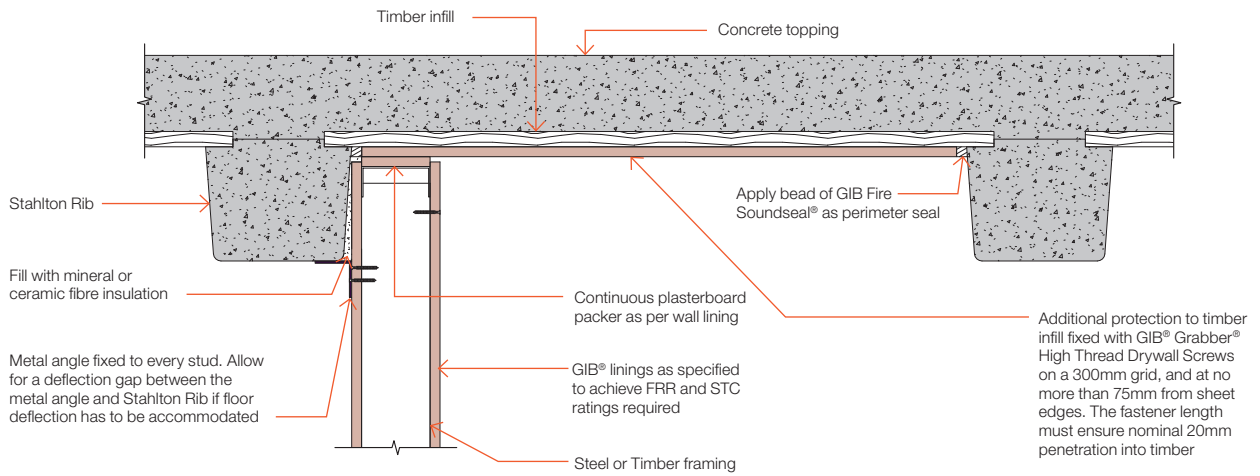
GFS420

JUNCTION TO THE UNDERSIDE OF TIMBER INFILL



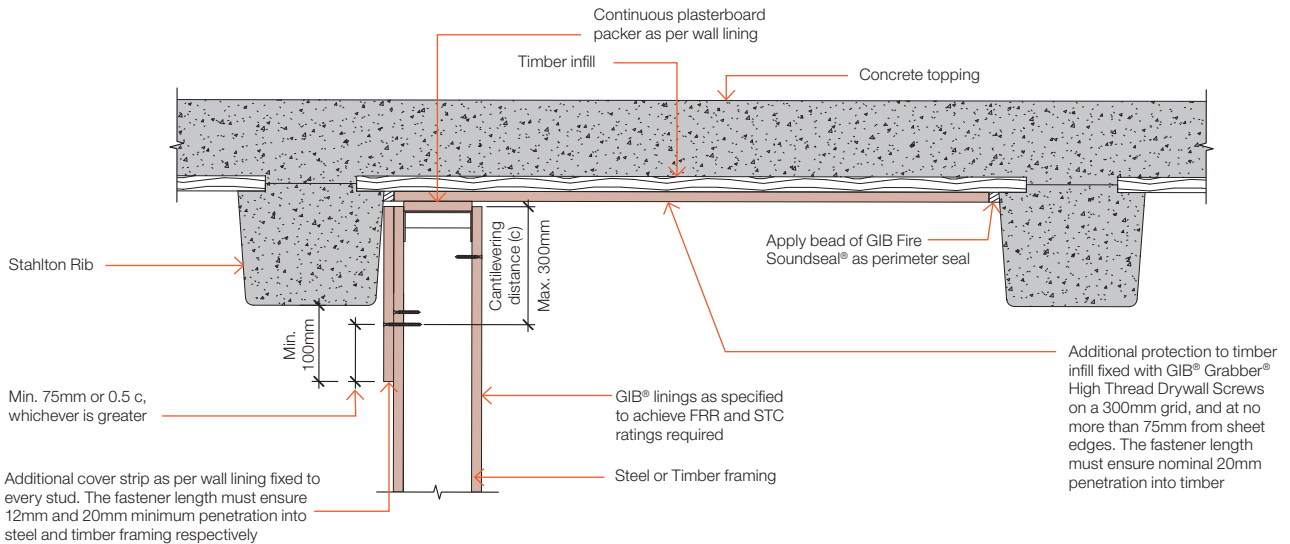
GFS421

LIMITED ACCESS FOR THE HIGHEST FIXING – OPTION 1



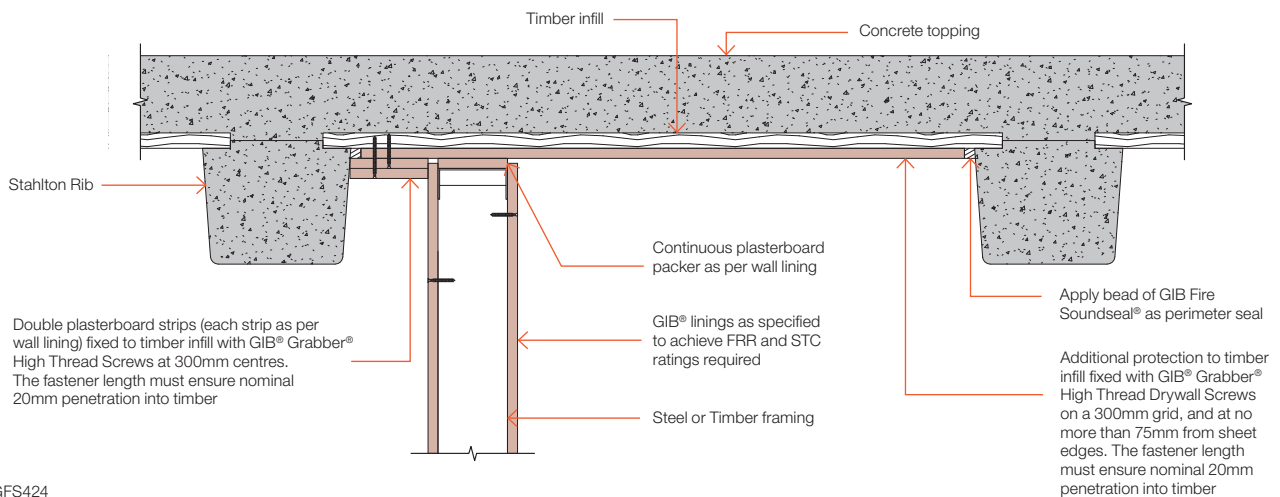
GFS422

LIMITED ACCESS FOR THE HIGHEST FIXING – OPTION 2



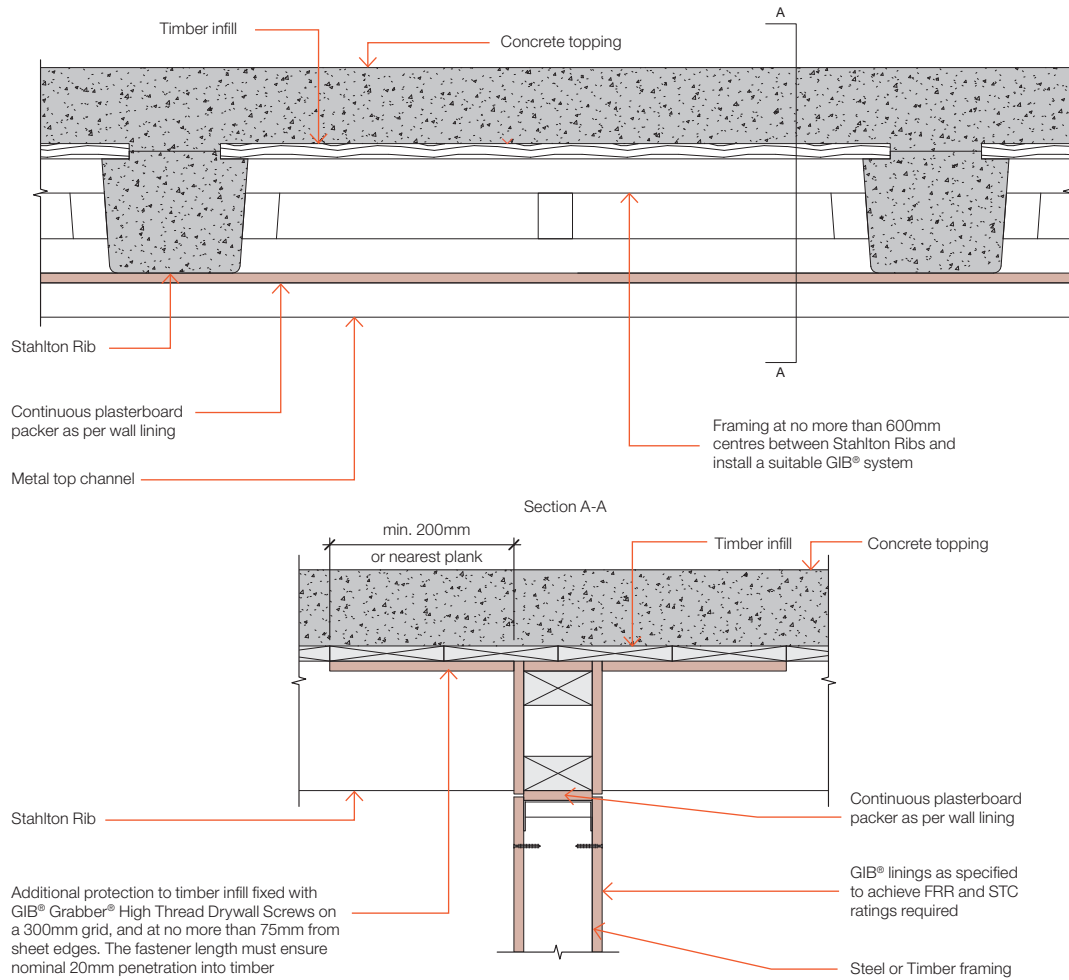
GFS423

LIMITED ACCESS FOR THE HIGHEST FIXING – OPTION 3



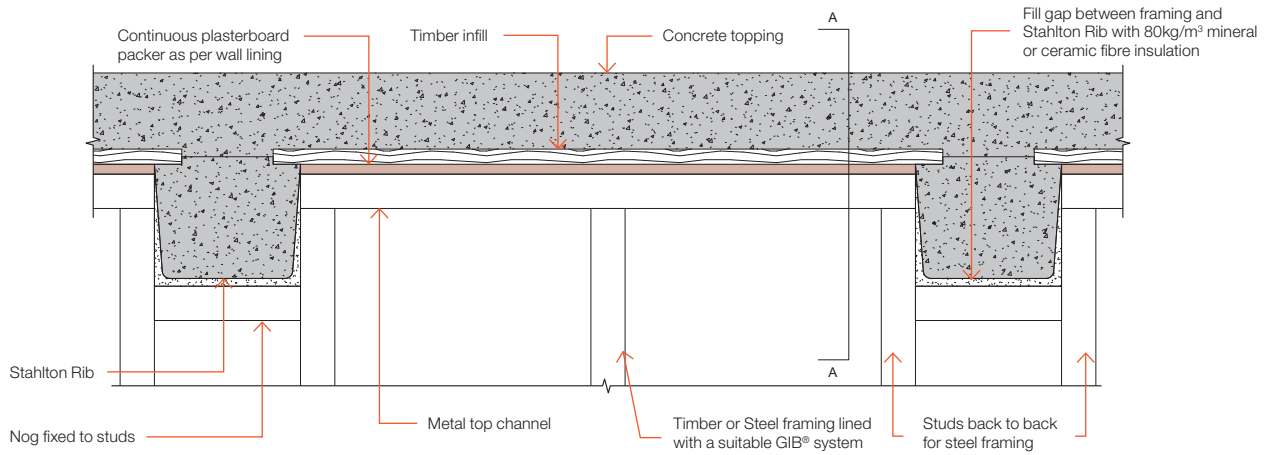
GFS424

DETAIL FOR WALL ACROSS STAHLTON RIB - OPTION 1

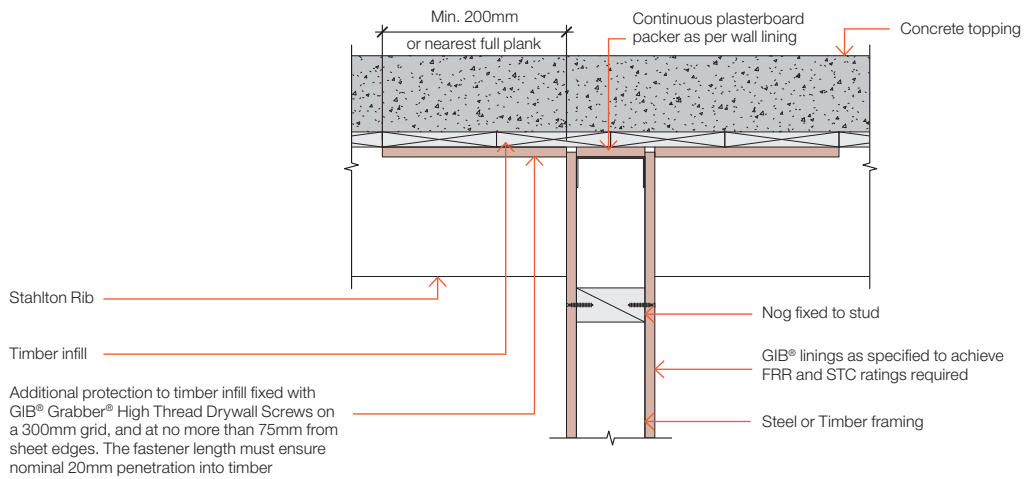


GFS425

DETAIL FOR WALL ACROSS STAHLTON RIB - OPTION 2



Section A-A



GFS426

Steel stud nogging and roof detail

STEEL STUD NOGGING DETAIL

When sheet end joints in steel stud systems are unavoidable, they are best formed over channels, placed on edge and face-fitted over studs with the legs removed. The example below shows 64mm x 30mm channel over steel studs.

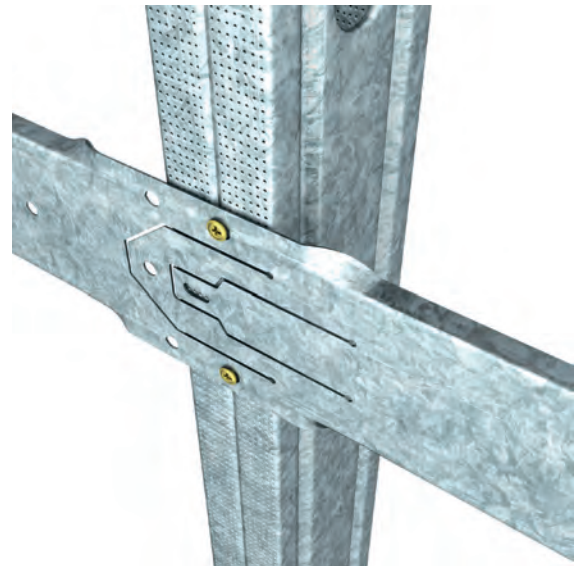
Alternatively, use the Rondo FAST-FIX Nogging® system shown.

Nog detail using face-fixed metal channel



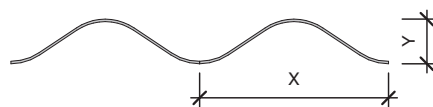
Nog on edge from ex 64mm x 30mm BMT track. Stagger nogs by at least 400mm on opposite sides of the wall.

Rondo FAST-FIX Nogging® installed using face-fix x 2-screw method

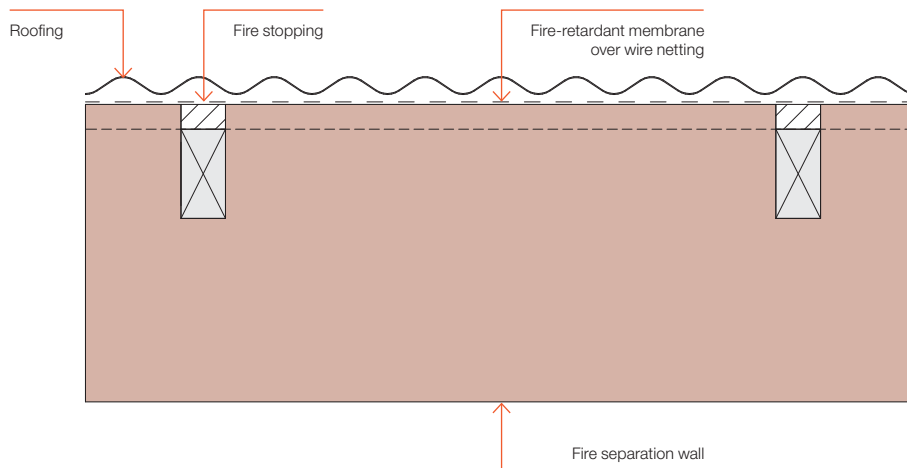


ROOF DETAIL (SECTION VIEW)

The linings are taken to the roof underlay or wire netting. Where the roofing fits within the stated limitations, no fire stopping is required in the profile of the roofing material.



Where roofing profile dimension 'x' is less than 80mm or 'y' is less than 40mm, the fire separation is permitted to stop at the roof line



Introduction

Penetrations in fire rated construction can allow spread of fire and smoke from one fire-cell to another if they are not correctly tested, specified or installed. Penetrations can compromise the FRR and in turn the health and safety of building occupants.

DETAILS FOR ONE-SIDED PENETRATIONS

The following pages give details for the installation of one-sided penetrations and show general principles of forming simple penetrations through the linings of a GIB® Fire Rated System.

Many of the details shown rely on plasterboard baffles to retain the system's FRR. The penetration solutions shown are suitable for an FRR up to 120/120/120 unless otherwise noted.

LINEAR GAP SEALS

Linear gaps between the linings which are backed by the wall framing can be filled with GIB Fire Soundseal®. The linear gaps can be nominally half the lining thickness but are limited to a maximum width of 10mm. The full depth of the lining is filled with GIB Fire Soundseal® at a width-to-depth ratio between 1:1 to 1:2. This application is suitable for maintaining the fire resistance of wall systems with an FRR up to and including 120 minutes.

When using double layer systems, install the first layer of GIB® plasterboard and seal the linear gap, then repeat for the second layer.

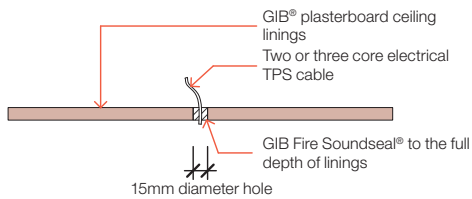
PROPRIETARY PENETRATION SEALS

More elegant proprietary penetration seals exist such as metal switch boxes with intumescent pads. Similarly, through penetrations such as for metal or plastic pipes, cable trays, ducts, etc. are not shown in this literature and rely on proprietary products and penetration seals.

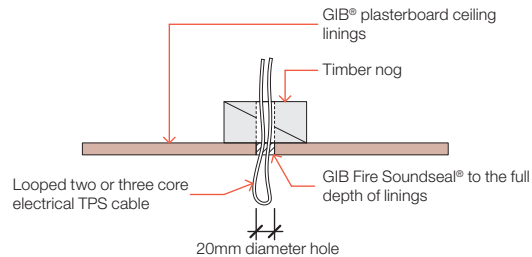
- The continuity and effectiveness of fire separations must be maintained around penetrations. Where a difference exists between the FRR of the penetration seal or closure and the FRR of the GIB® Fire Rated System, the lower FRR determines the performance of the element.
- For proprietary systems, contact the relevant penetration seal supplier.

SINGLE AND LOOPED CABLE PENETRATION FOR SURFACE-MOUNTED ELECTRICAL FIXTURES

Section view

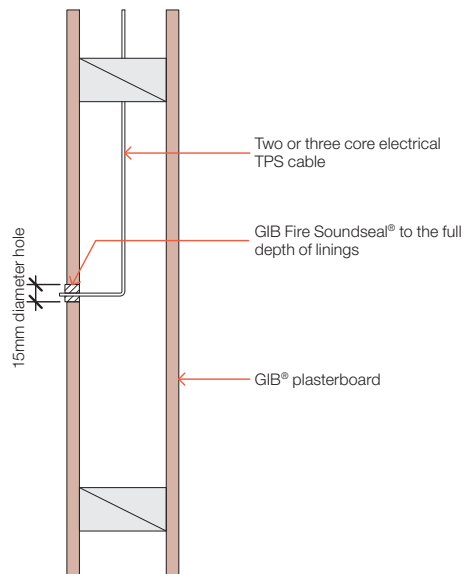


GFS240

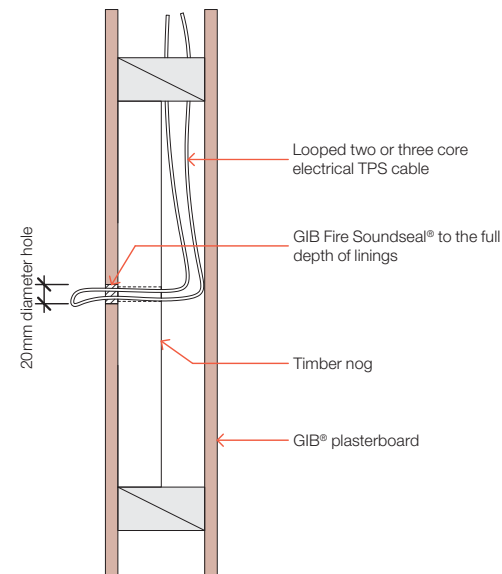


GFS243

Section view



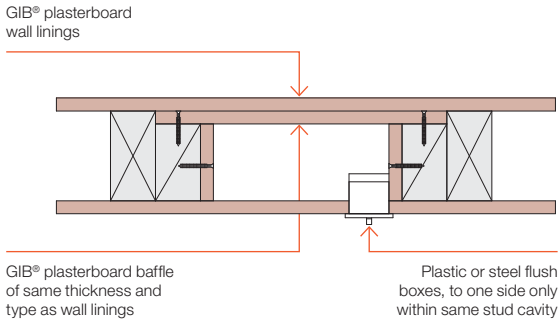
GFS241



GFS244

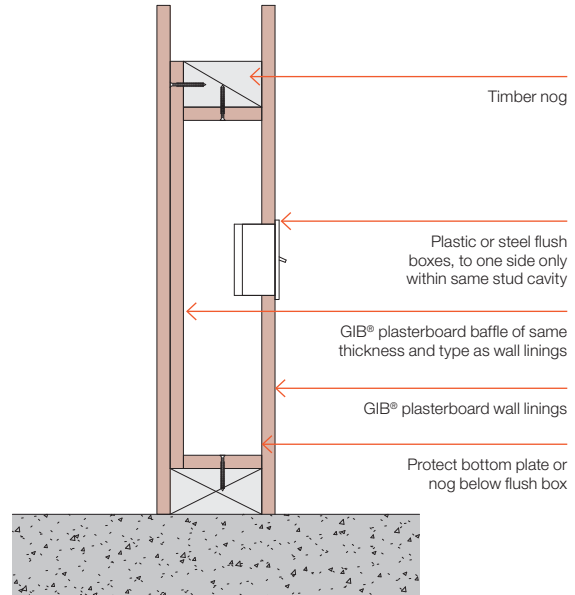
FLUSH BOXES IN TIMBER STUD WALLS

Plan view



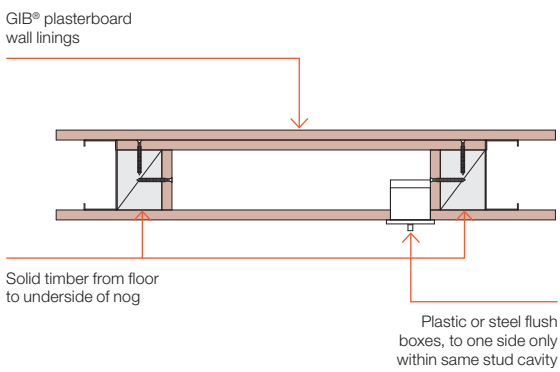
GFS260

Section view



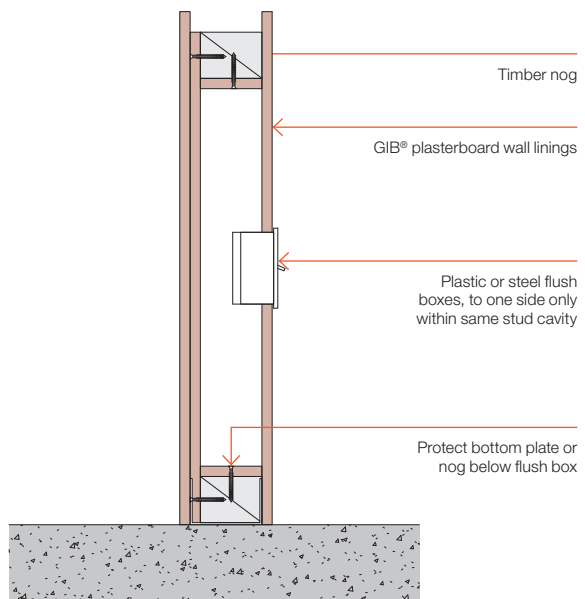
FLUSH BOXES IN METAL STUD WALLS

Plan view



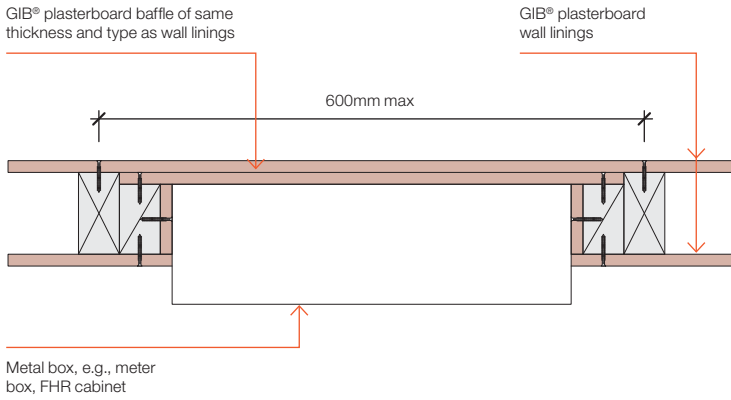
GFS261

Section view



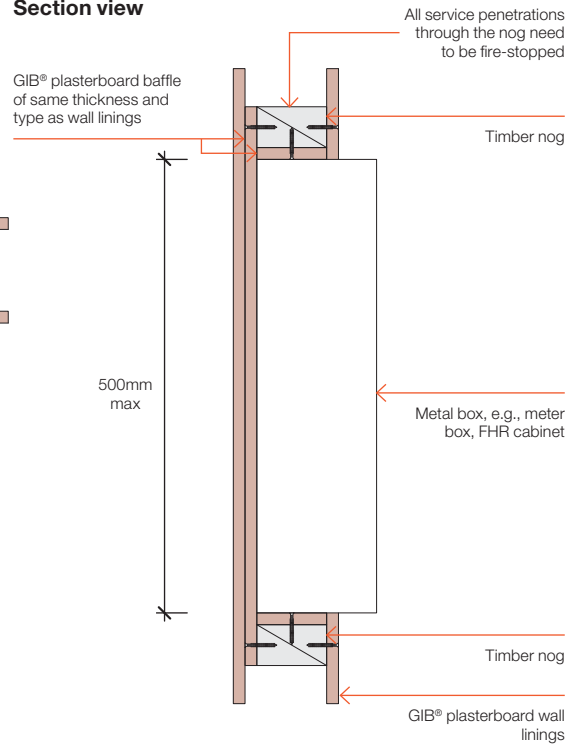
LARGER RECESSES IN TIMBER WALLS

Plan view



GFS262

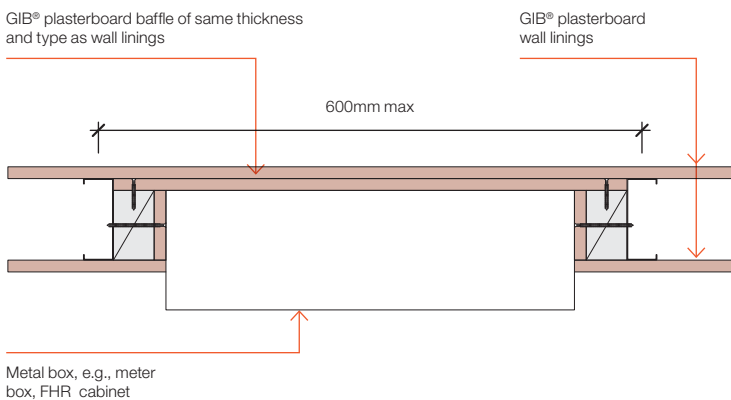
Section view



Note: This detail applies to metal box only. For plastic box, install an additional baffle lining.

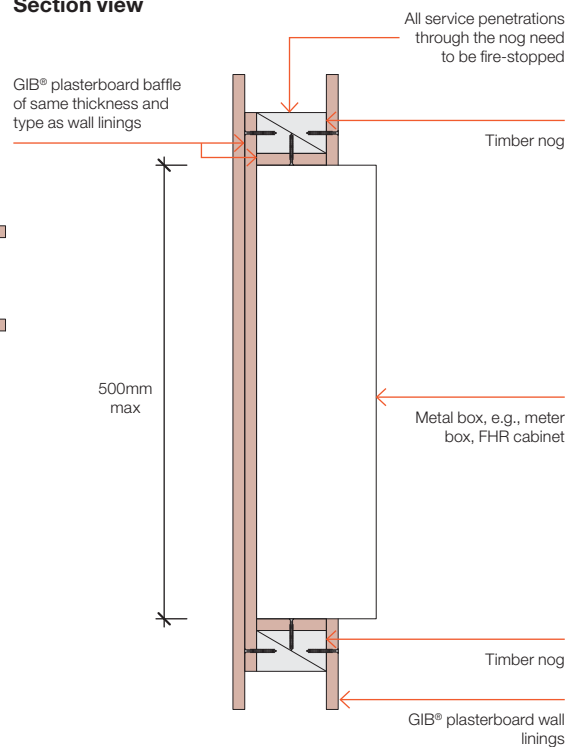
LARGER RECESSES IN STEEL WALLS

Plan view



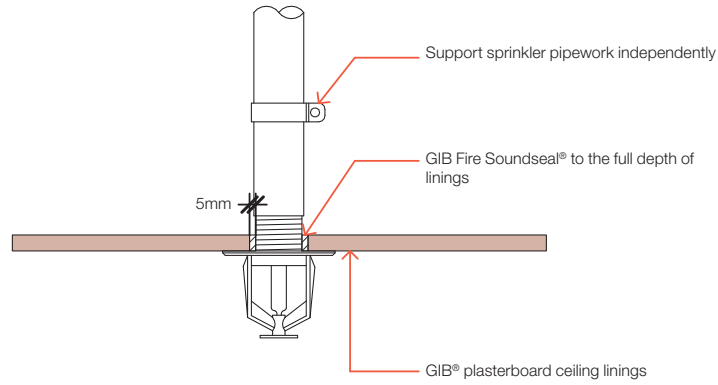
GFS263

Section view



Note: This detail applies to metal box only. For plastic box, install an additional baffle lining.

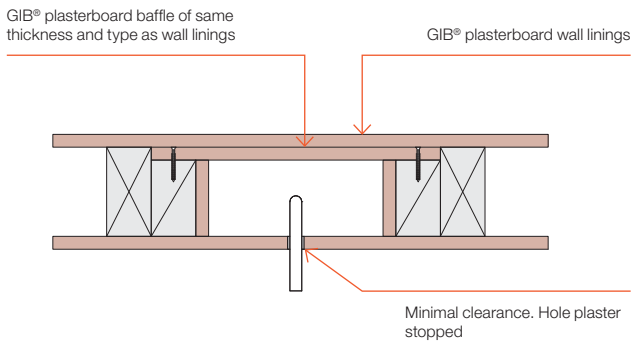
METAL SPRINKLER PIPE PENETRATION (CEILING)



GFS242

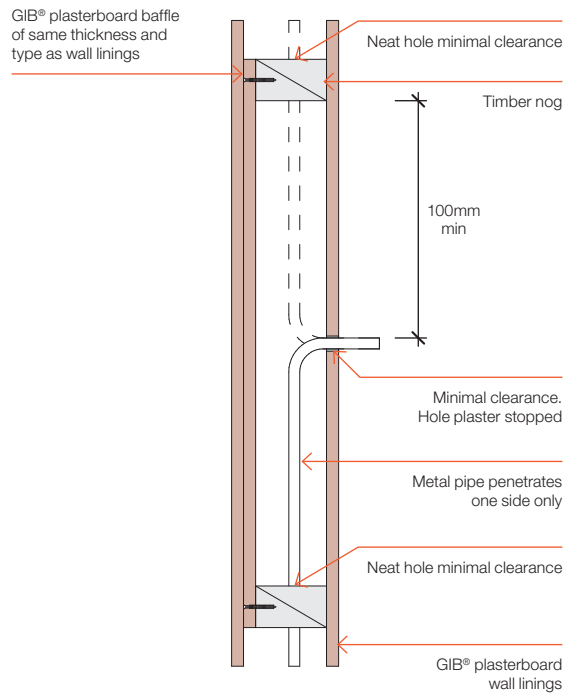
METAL PIPE IN TIMBER STUD WALL

Plan view



GFS264

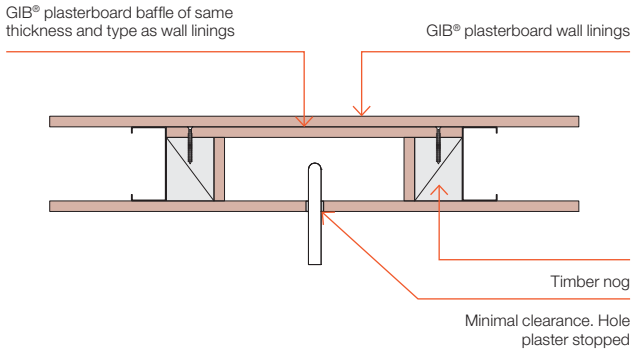
Section view



Note: This detail applies to metal pipe only.

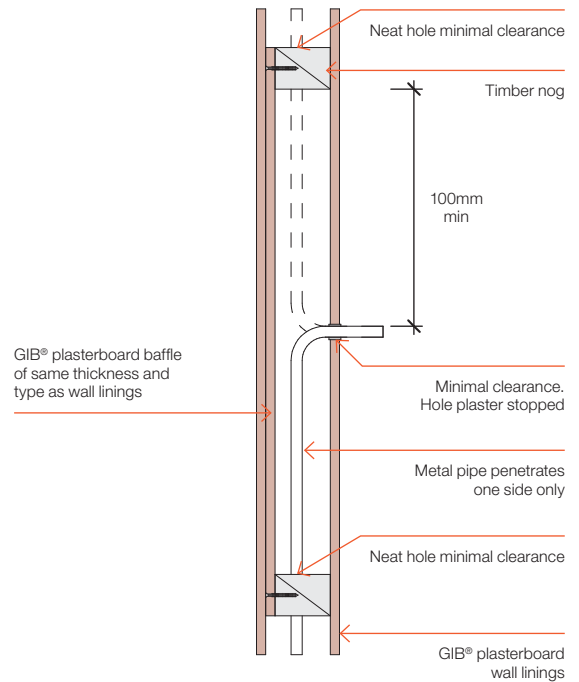
METAL PIPE IN STEEL STUD WALL

Plan view



GFS265

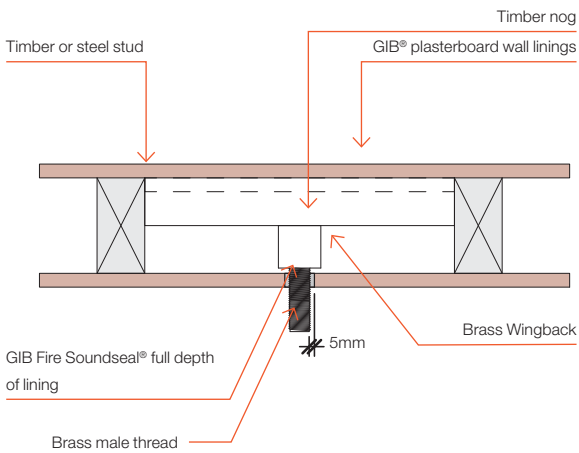
Section view



Note: This detail applies to metal pipe only.

WINGBACK IN TIMBER / STEEL STUD WALL

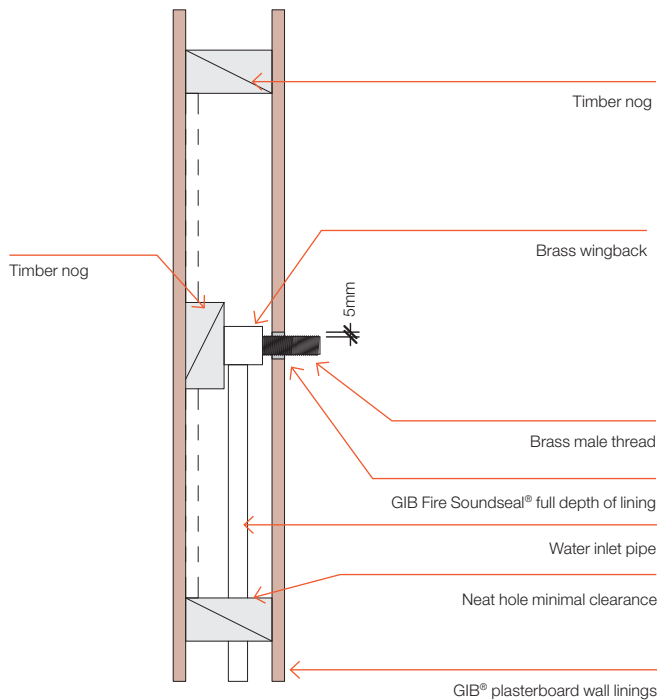
Plan view



Note: For metal plumbing pipes or an FRR exceeding 90 minutes, install a single layer GIB® plasterboard baffle of the same thickness and type as the wall linings (shown dotted). Secure the baffle with GIB® Grabber® Laminator screws at no more than 300mm centres installed from the wall lining side

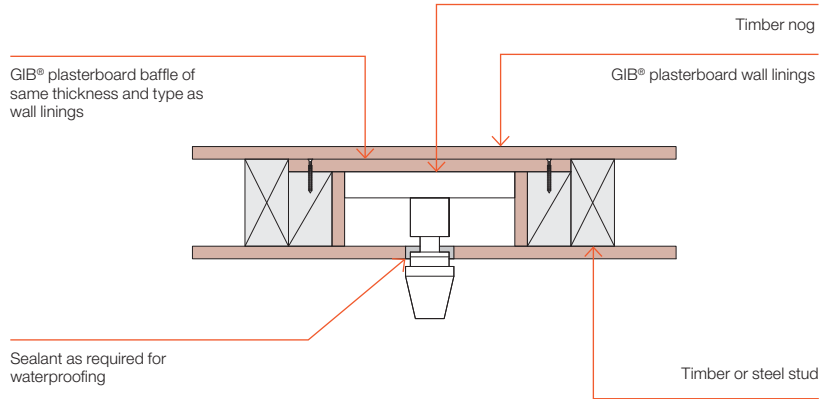
GFS266

Section view

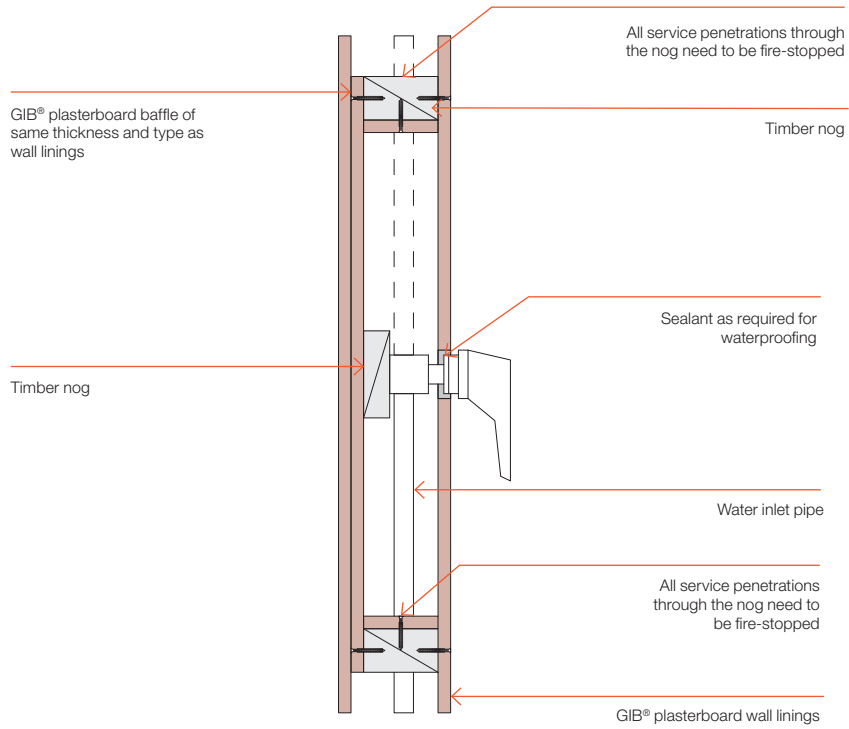


SHOWER MIXER IN TIMBER / STEEL STUD WALL

Plan view



Section view

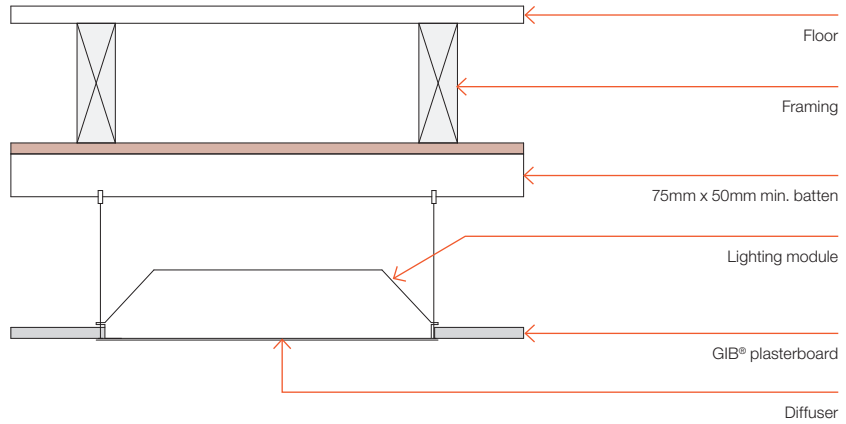


GFS267

SUSPENDED CEILING (SECTION VIEW)

GIB® Fire Rated System Types
GBFC, GBCJ or GBUC

Any suspended ceiling system with ties to fixed battens. Recessed light fittings may be installed conventionally including troffer pack modules (shown), recessed downlights or other light fittings as required



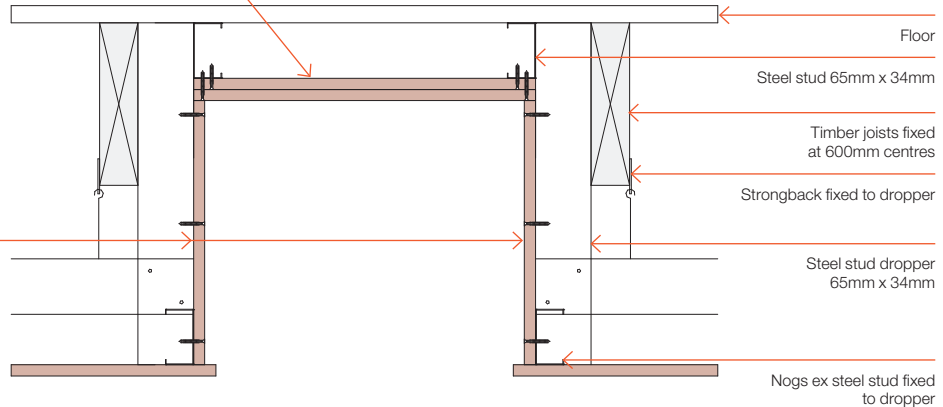
GFS280

SPRING OR CLIP FIXED LIGHT FITTING (SECTION VIEW)

Floor/ceiling systems require one extra layer of GIB® plasterboard of same type and thickness as the ceiling lining. Universal systems are lined as per ceiling

GIB® plasterboard as per ceiling linings

Board fixing centres: vertical sheets at 300mm centres, horizontal sheets at 150mm centres

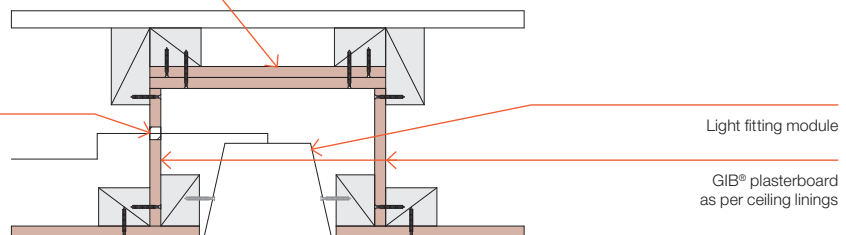


GFS281

FRAME FIXED LIGHT FITTING (SECTION VIEW)

Floor/ceiling systems require one extra layer of GIB® plasterboard of same type and thickness as the ceiling lining. Universal systems are lined as per ceiling

Cable penetration fire stopped (see detail GFS241, page 117)



GFS282

Services penetrating a top plate

A service hole is often drilled through a top plate to allow services such as cables and pipes to pass through.

NON-LOADBEARING WALLS

Non-loadbearing partitions, although not designed to support gravity loads, often penetrate ceiling linings of fire-rated floor/ceiling systems. Although not a desirable practice, this might be detailed to achieve lateral bracing resistance. In this case the partition FRR cannot be more than 30 minutes less than the floor/ceiling FRR as shown in details GFS105, 107 and 108 in this document.

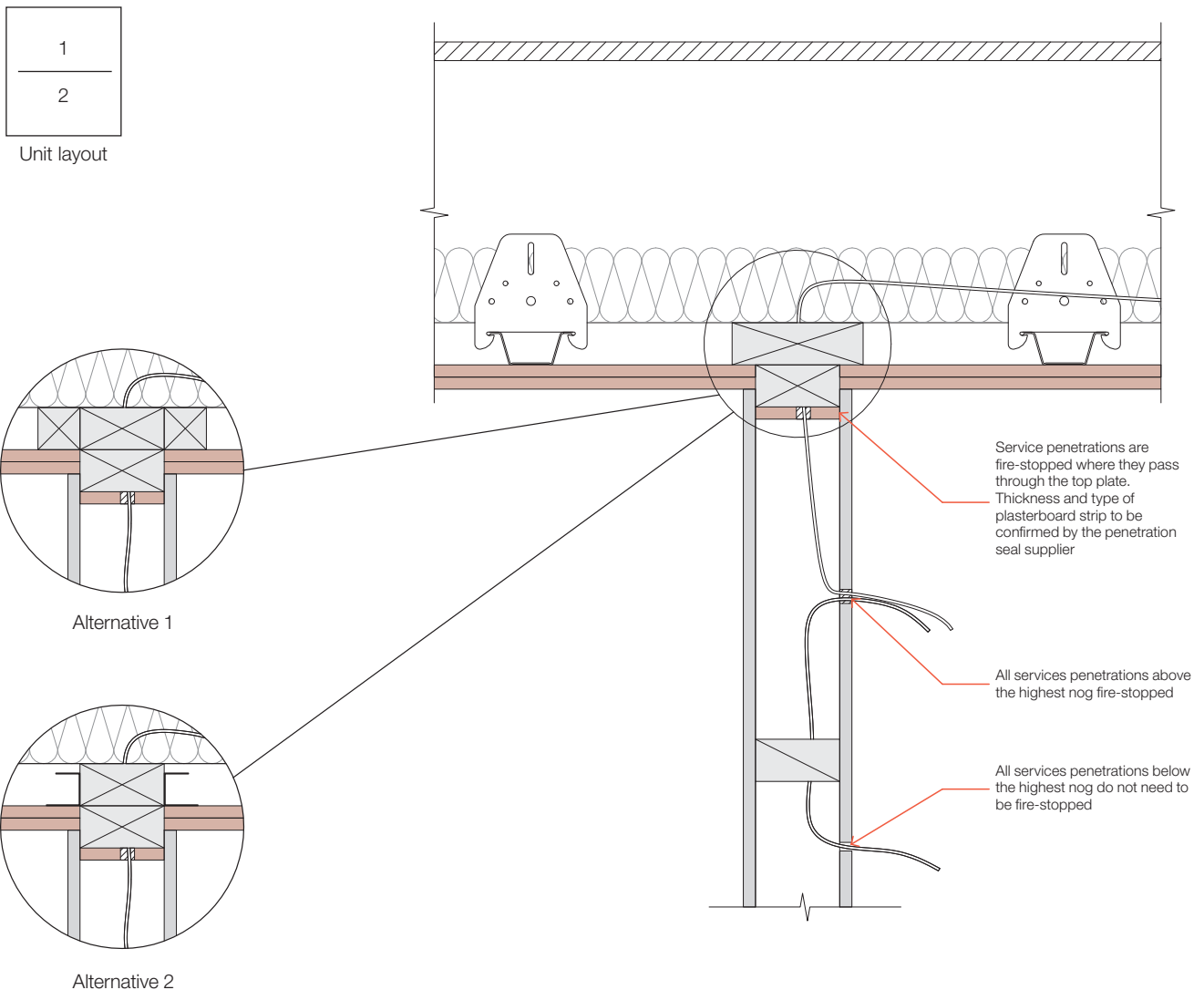
Details GFS520 and GFS521 show partition to fire rated floor/ceiling junctions with services passing through the top plate. Penetration seals can be installed where services pass through the top plate, provided they achieve the same FRR as the floor/ceiling and are installed as per the penetration seal supplier's instructions. Service holes are drilled centrally through the top plate leaving a minimum 20mm of timber each side.

Unless fire-stopped to the same FRR as the partition, no wall lining service penetrations are permitted above the highest nog. Below this level, wall lining penetrations do not need to be fire-stopped.

LOADBEARING WALLS

Loadbearing walls providing support to the fire-rated floor/ceiling must be protected with appropriate linings that provide the same FRR as the floor/ceiling system to ensure that structural adequacy is maintained. In this case, service penetrations are fire-stopped where they pass through the wall linings as shown in detail GFS522.

SERVICES WITHIN PARTITION PASSING THROUGH THE TOP PLATE AT CEILING LEVEL



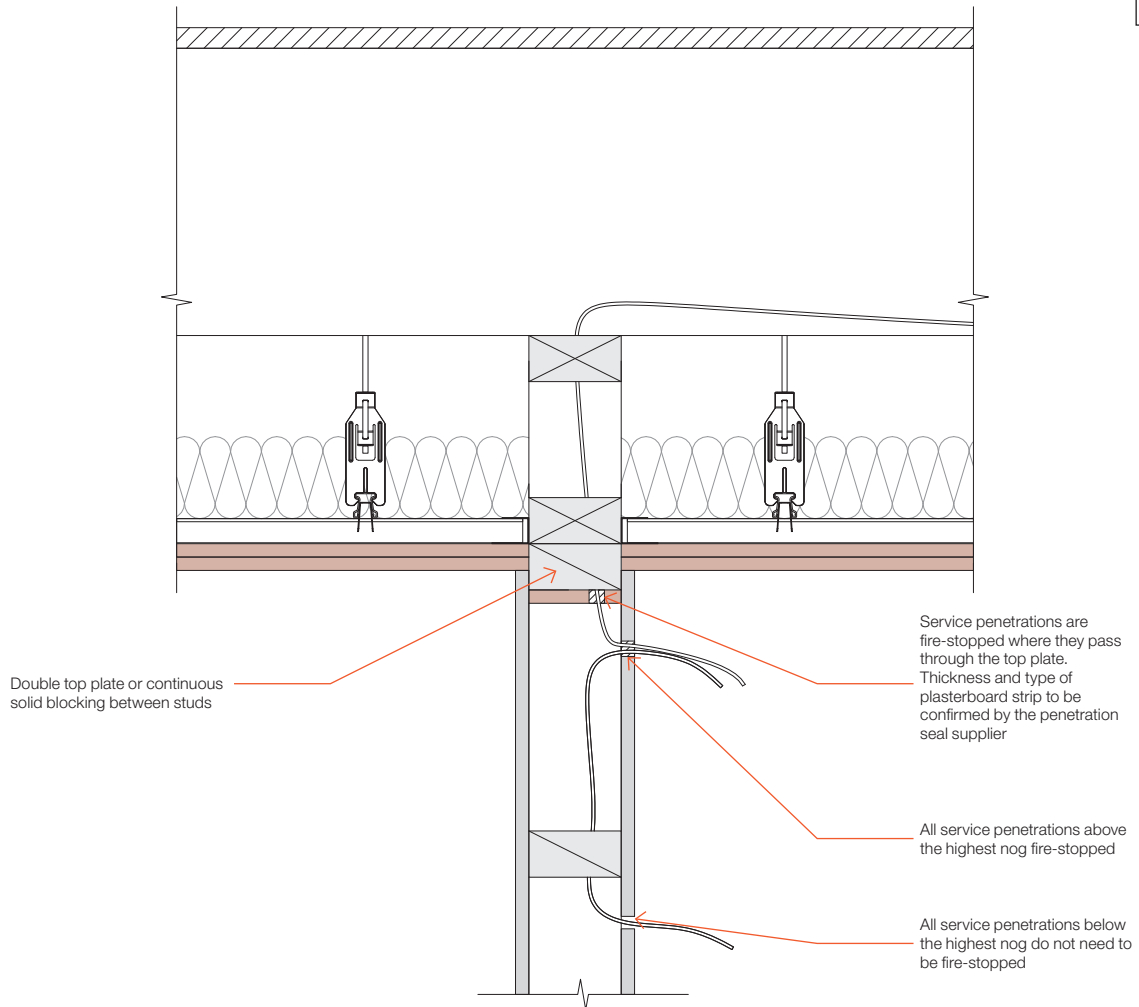
GFS520

- The FRR of the floor/ceiling is no more than 60 minutes, and
- The FRR of the partition can be 30 minutes less, and
- The wall is non-loadbearing

SERVICES WITHIN PARTITION PASSING THROUGH THE TOP PLATE AT LOWERED CEILING LEVEL

1
2

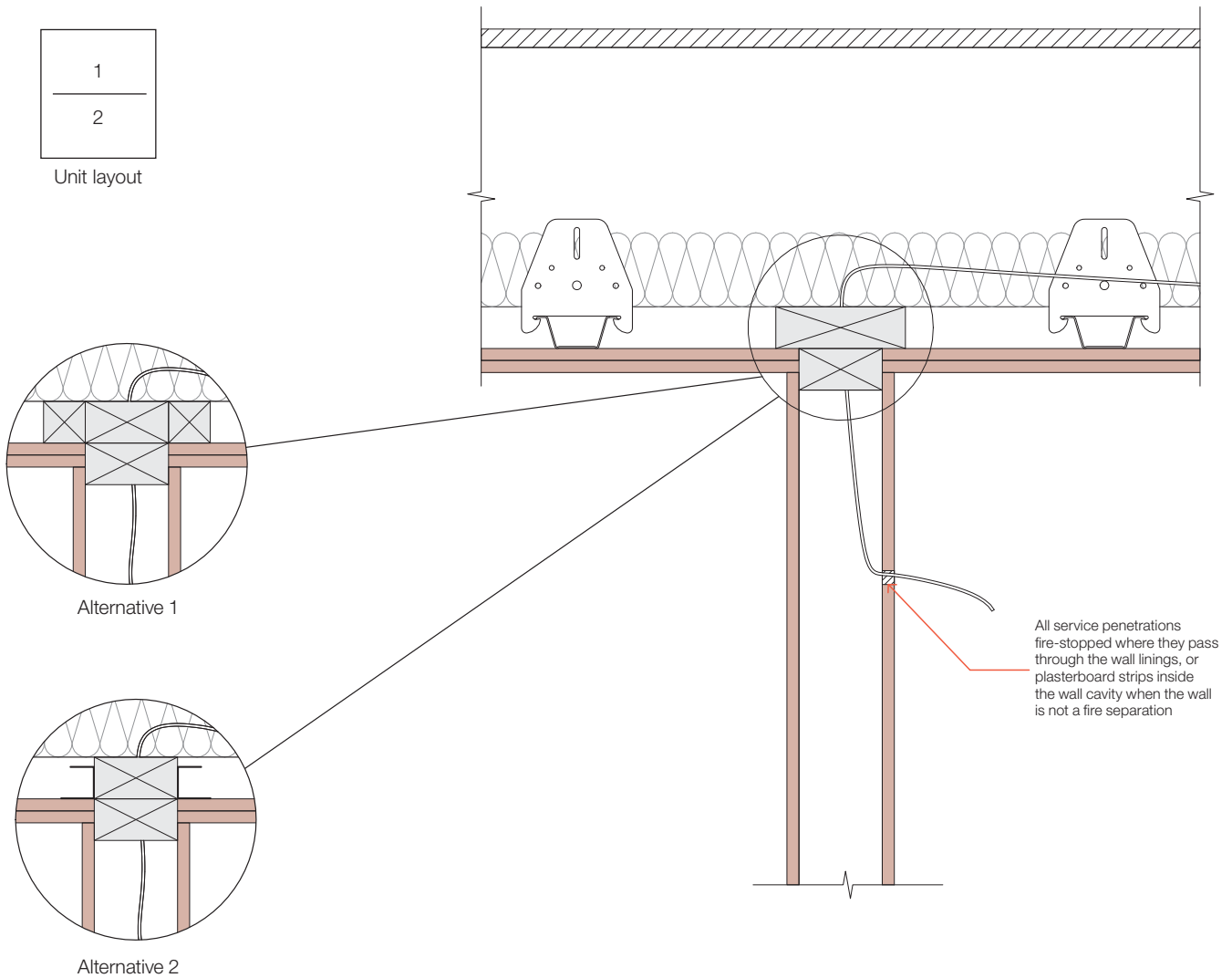
Unit layout



GFS521

- The FRR of the floor/ceiling is no more than 60 minutes, and
- The FRR of the partition is no less than 30 minutes, and
- The wall is non-loadbearing

SERVICES WITHIN LOADBEARING WALL PASSING THROUGH THE TOP PLATE AT CEILING LEVEL



GFS522

- The FRR of the floor/ceiling and wall are the same, and
- The wall is loadbearing
- If the wall is subjected to simultaneous two-sided fire exposure, GBTL 30 2S, GBTL 60 2S, or GBUW one-way protection to both sides can be specified unless structural adequacy is determined by specific design

Structural timber and steel penetration protection

Structural members penetrating a fire rated wall system must be treated the same as any other service penetration and must be adequately sealed to retain the fire resistance rating of the wall.

TIMBER PENETRATION PROTECTION

Details GFS500 and GFS501 show how to seal nominally 90 x 45mm or larger timber member penetrations through wall systems having a 30-minute FRR, and wall systems with an FRR of 60 minutes or higher. These details are suitable for application in GIB® Fire Rated Systems, GIB Noise Control® Systems, and GIB Weatherline® Rigid Air Barrier Systems having an FRR up to and including 120 minutes.

For wall systems having a 30-minute FRR, solid timber blocking is required around the timber member penetration to support plasterboard edges. Then, a bead of GIB Fire Soundseal® is applied around the timber penetration as shown in detail GFS500.

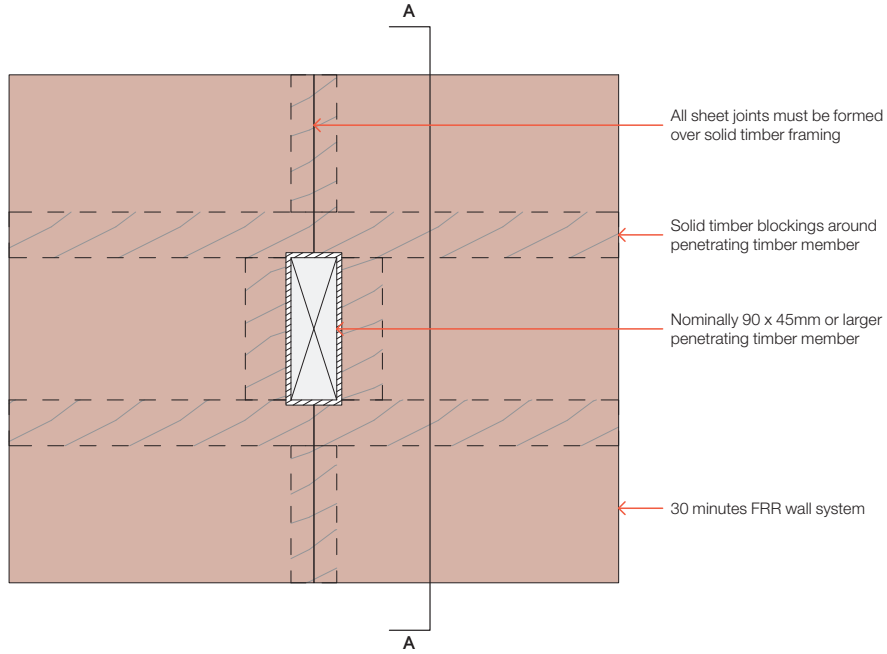
For wall systems having a FRR equal to or more than 60 minutes, the timber penetration needs to be protected with plasterboard of the same type and thickness of the wall lining for at least 300mm from the wall, as shown in detail GFS501. These plasterboard strips are fixed with GIB® Grabber® High Thread Drywall Screws (or GIB® Grabber® Ceramic Coated High Thread Screws for GIB Weatherline®) at 300mm centres max. and 18mm from any cut edge. The fastener length must ensure a minimum 20mm penetration into the timber member.

STEEL PENETRATION PROTECTION

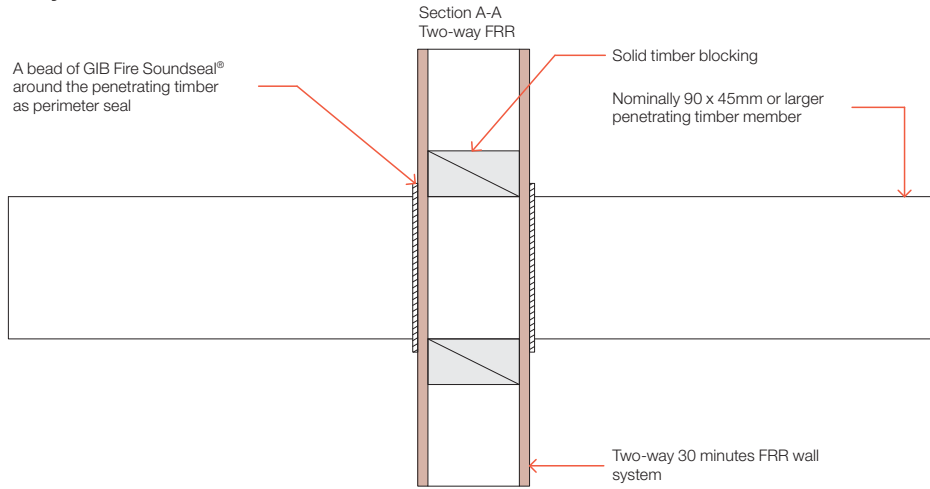
Details GFS502 and GFS503 show how to seal nominally 64 x 34 x 0.5mm or larger steel member penetrations through fire rated timber and steel framed walls. Steel penetrations are protected with plasterboard of the same type and thickness as the wall lining for at least 300mm from a two-way wall with an FRR up to a maximum of 120 minutes, or 600mm from a one-way wall with an FRR up to a maximum of 60 minutes. Detail GFS504 shows how a steel member penetration through a minimum 90mm thick concrete/masonry wall with an inherent FRR up to 120 minutes is protected. The plasterboard strips are fixed with specified fasteners at 300mm centres max. and 18mm from any cut edge. The fastener length must ensure a minimum 12mm penetration.

The maximum steel member thickness shall not exceed 20mm for an FRR up to and including 60 minutes, and 10mm for FRRs of 90 and 120 minutes. This solution does not apply to hollow sections with a continuous void that cannot be filled (e.g., RHS). The penetration design must ensure that the beam does not transfer fire-induced loads onto the wall system.

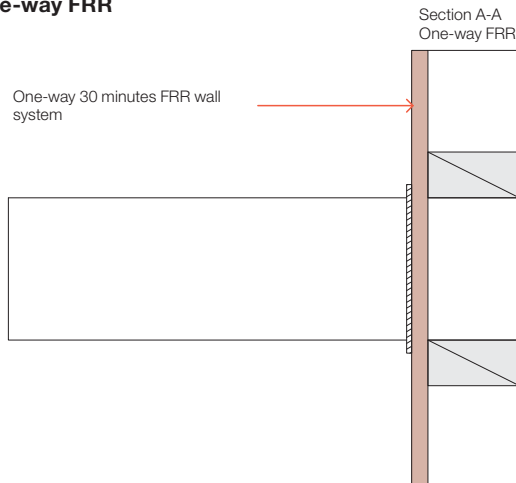
30 MINUTES FRR WALL SYSTEMS TIMBER PENETRATION DETAILS



Section A-A – Two-way FRR

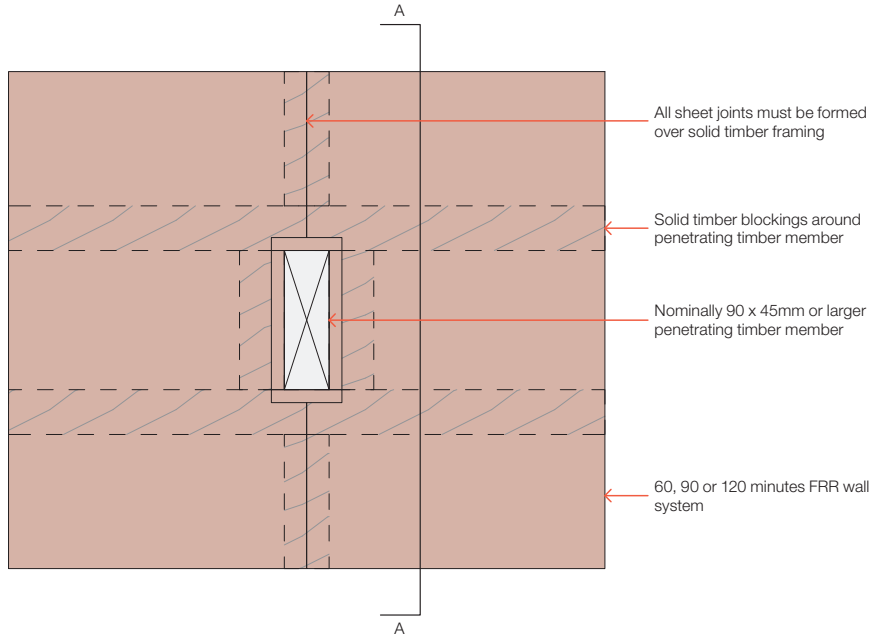


Section A-A – One-way FRR

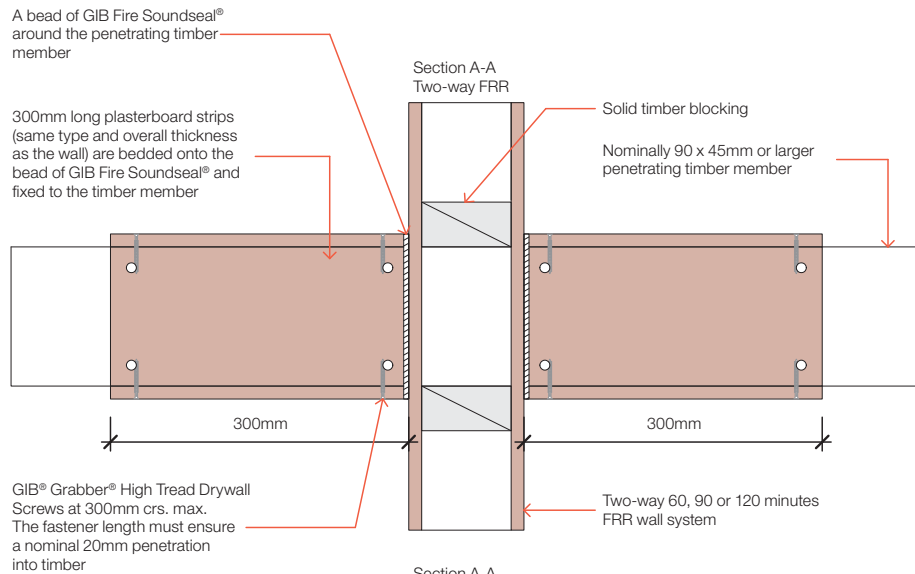


GFS500

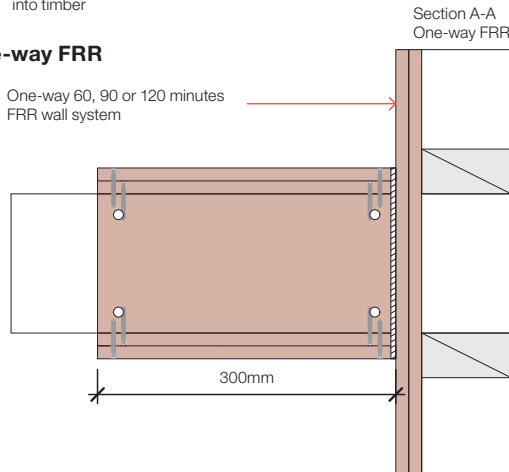
60 MINUTES OR HIGHER FRR WALL SYSTEMS TIMBER PENETRATION DETAILS



Section A-A – Two-way FRR

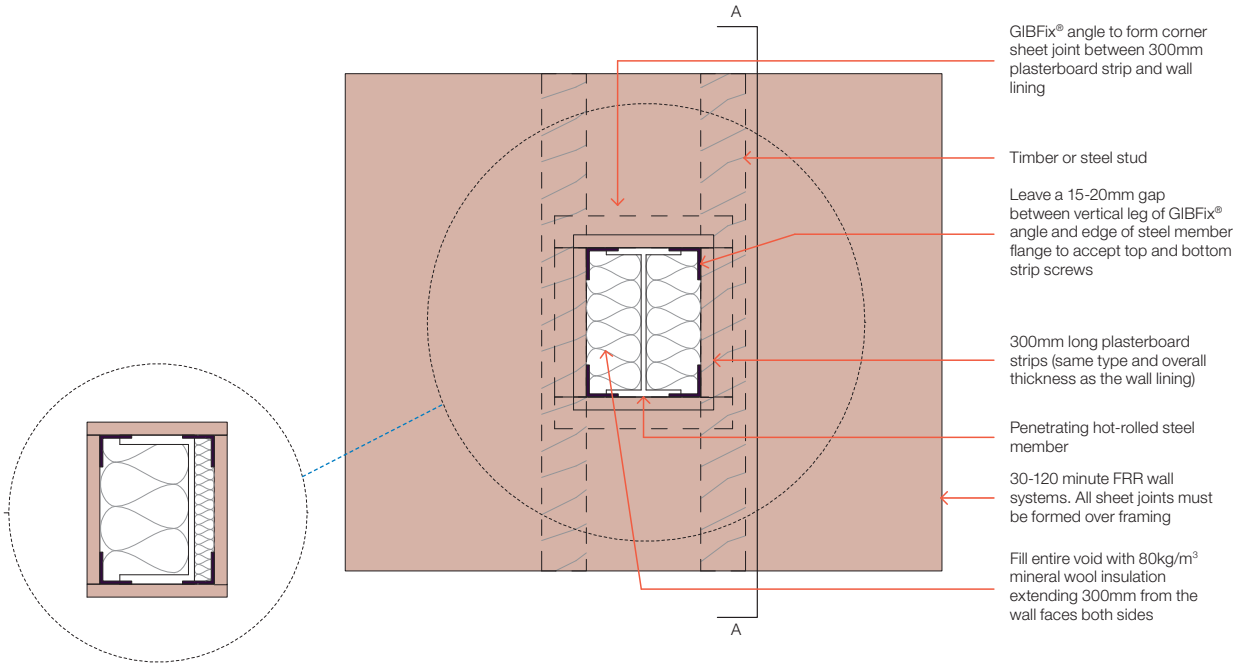


Section A-A – One-way FRR

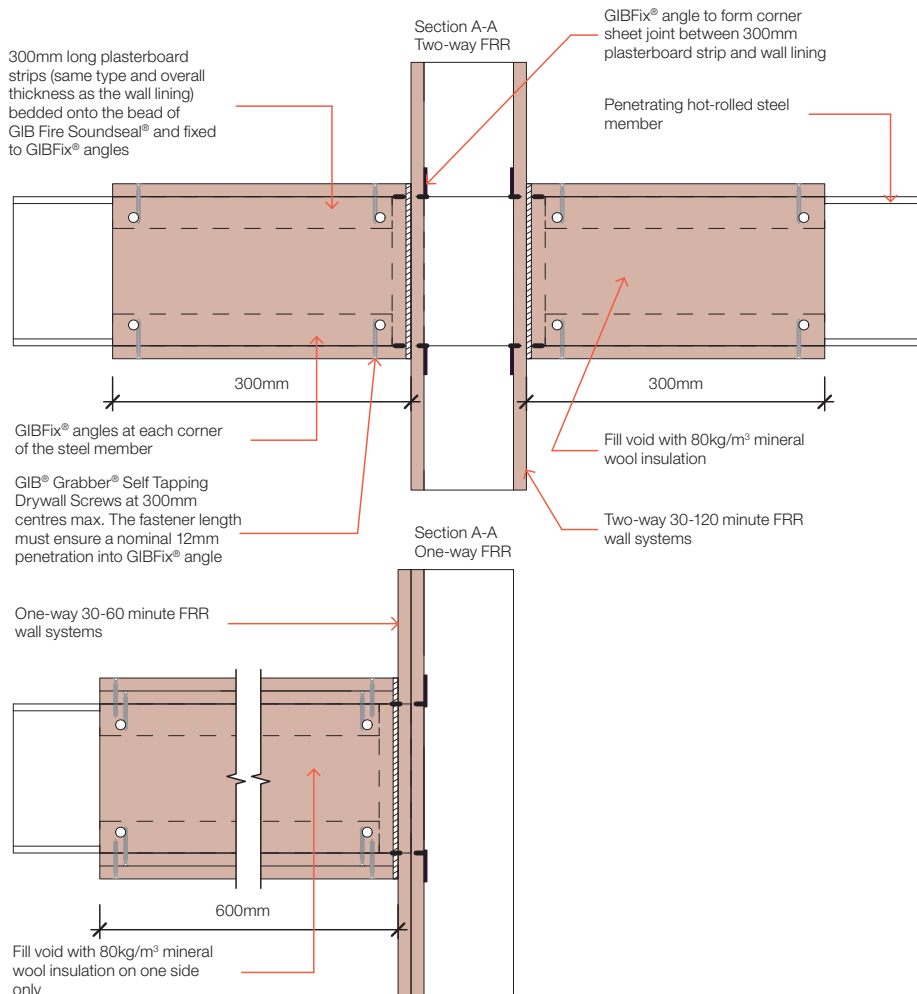


GFS501

HOT-ROLLED STRUCTURAL STEEL PENETRATING 30 - 120-MINUTE FRR TIMBER/STEEL FRAME WALL SYSTEMS

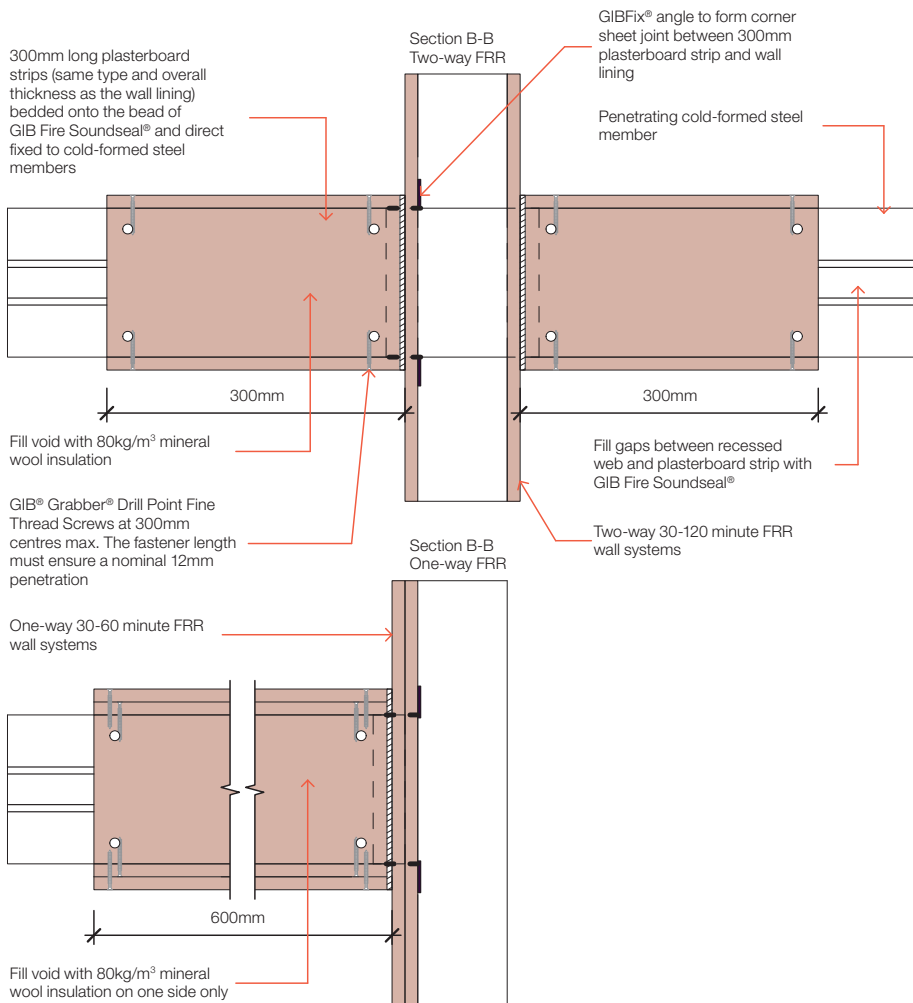
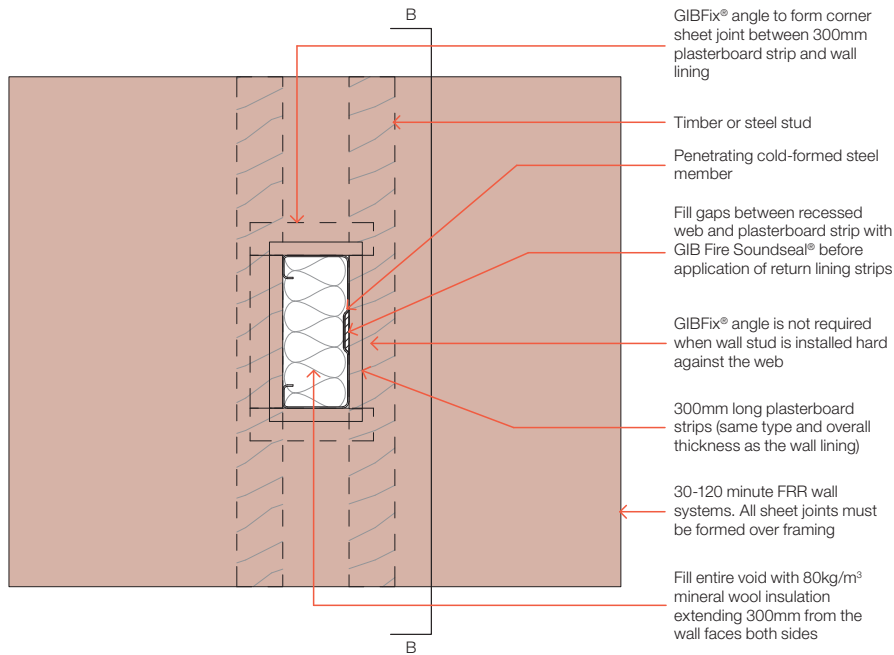


Universal Beam (UB) example



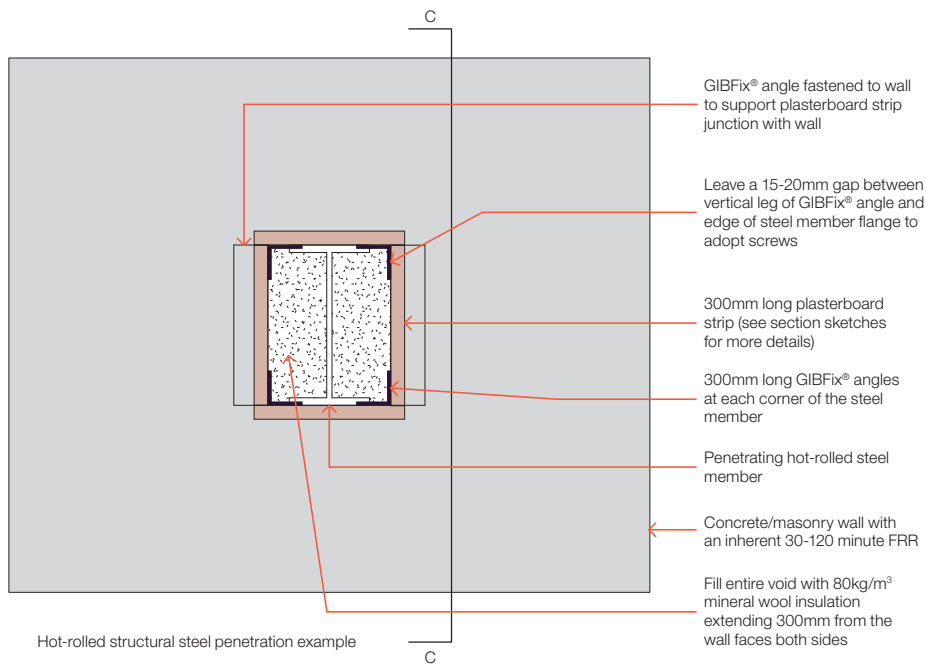
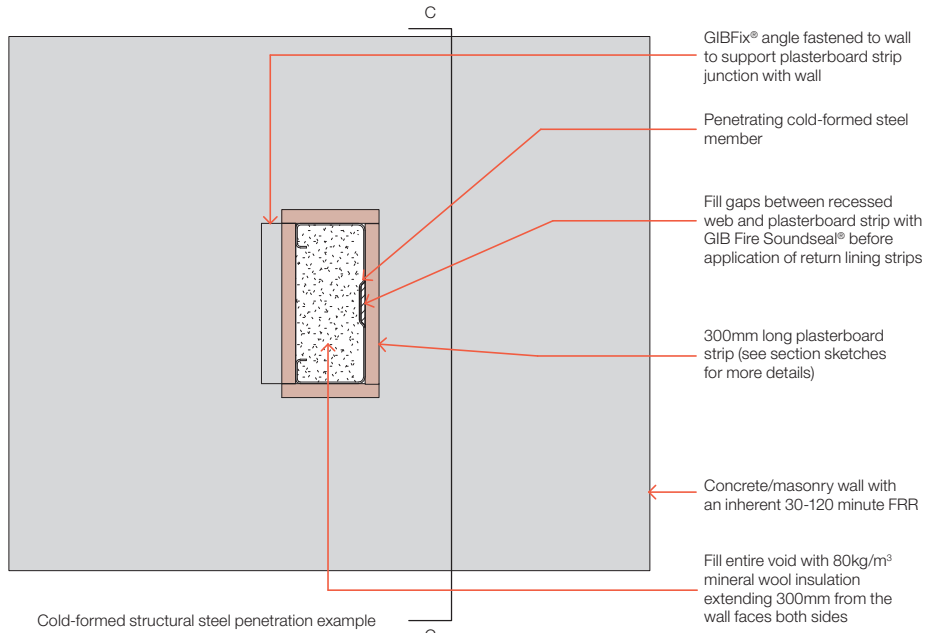
GFS502

COLD-FORMED STRUCTURAL STEEL PENETRATING 30 - 120-MINUTE FRR TIMBER/STEEL FRAME WALL SYSTEMS

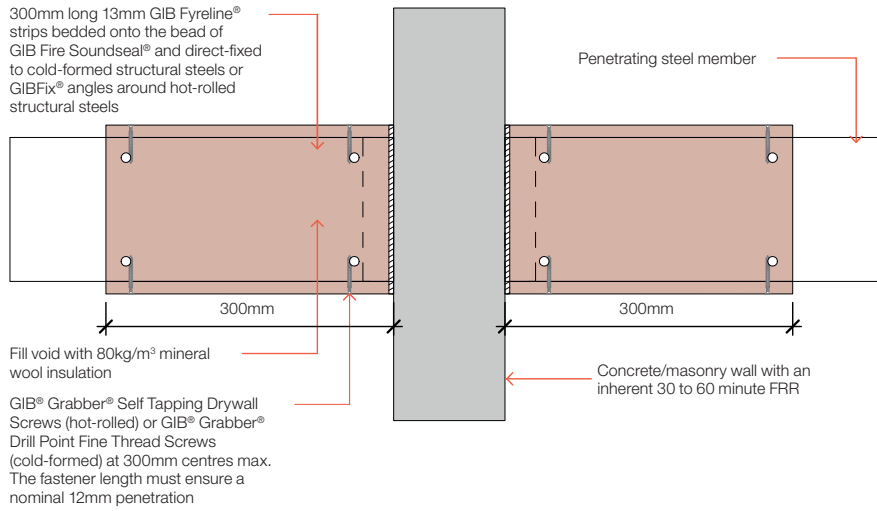


GFS503

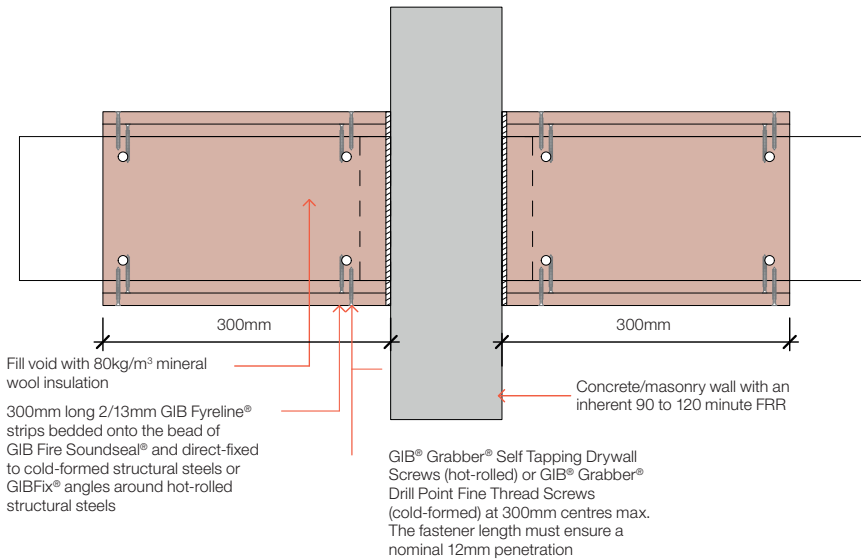
HOT-ROLLED OR COLD-FORMED STRUCTURAL STEEL PENETRATING CONCRETE/MASONRY WALL WITH AN INHERENT 30 TO 120-MINUTE FRR



Section C-C - 30 or 60-minute FRR



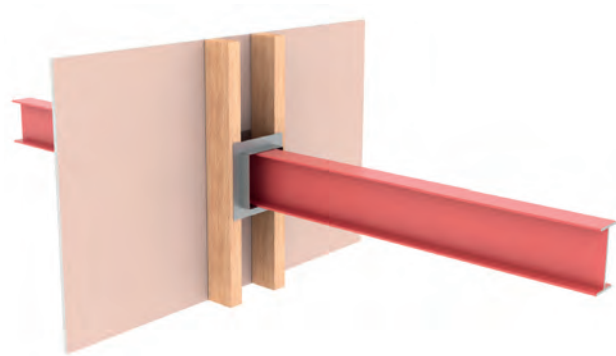
Section C-C – 90 or 120-minute FRR



GFS504

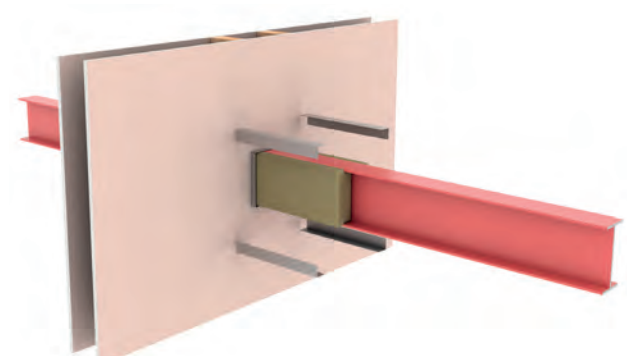
EXAMPLE OF CONSTRUCTION STEPS FOR UB PENETRATING TWO-WAY FRR TIMBER FRAME WALL

Step 1



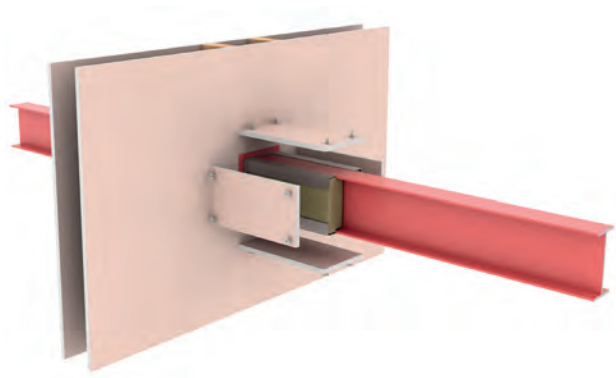
- Install GIBFix® angles around the steel to form corner sheet joints between plasterboard strip and wall lining
- Leave a 15–20mm gap between the steel and GIBFix® angles on two-sides

Step 2



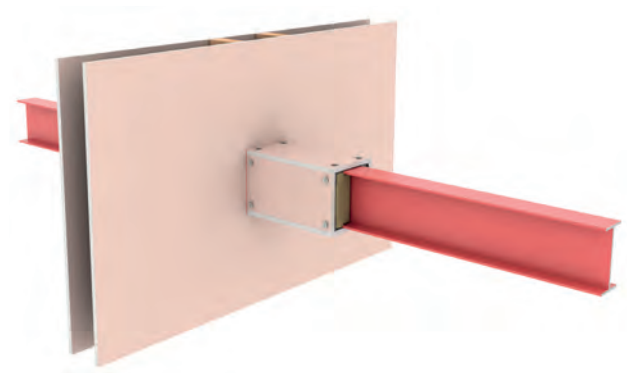
- Line the wall with all sheet joints formed over framing
- Fill entire void with mineral wool insulation extending 300mm from the wall faces both sides
- Install GIBFix® angles at each corner of the steel

Step 3



- Leave a 15–20mm gap between vertical leg of GIBFix® angle and edge of steel member flange to accept top and bottom strip screws
- 300mm long plasterboard strips bedded onto the bead of GIB Fire Soundseal® applied to the wall surface, and then fixed to GIBFix® angles

Step 4



- Fix plasterboard strips to GIBFix® angles using GIB® Grabber® Self Tapping Drywall Screws at 300mm centres max. The fastener length must ensure a nominal 12mm penetration
- Apply a bead of GIB Fire Soundseal® to board edges before joining strips

DESIGN STRATEGY

Resolve and specify fire rated service penetrations in the design office rather than on-site. Combine services as much as possible in 'services highways' or shafts which can themselves be fire rated, eliminating the need for many different and individual penetrations.

BETTER CONSTRUCTION SEQUENCING

Coordination and planning are key to ensuring construction work is carried out in the most efficient way, and good communication between all relevant parties is essential to ensure fire separations and penetration seals are installed as tested. The ideal construction sequencing depends on whether services are in place before or after construction of the fire separations. Consider and select service penetration seals at design stage rather than during construction, so that compliant penetration seals can be installed correctly at the right time.

Services installed before fire separations

In commercial projects, building services are commonly installed before internal partitions. This means that fire separations need to be constructed around installed services. It is important to separate services so that available and tested penetrations seals can be installed. In other words, make sure cable trays, cable bundles, plastic pipes, metal pipes, etc. run with sufficient distance between them.

- Identify and separate service penetrations that can be fire-stopped individually or as a group
- Erect studs and nogs making sure lining joints can be formed over framing around service penetrations
- Ensure studs and nogs are positioned to provide support for the penetration seal product (e.g., a collar) and do not leave plasterboard unsupported for more than 75mm
- Install plasterboard linings making sure penetration seal requirements are complied with
- Install the tested penetration seal and label accordingly

Fire separations installed before services

Given how penetration seals are commonly tested, this is a preferred but less common scenario. However, with adequate planning, discrete sections of framing can be erected and lined before services are installed.

- Consult with the service contractor and identify where services will be running
- Create discrete framed and lined sections where multiple penetrations can be accommodated by installation of a full patch
- Separate service penetrations that can be fire-stopped individually or as a group
- Consult with penetration seal suppliers and installers and prepare service openings ensuring required spacing requirements
- Run services, install the tested penetration seals and label accordingly

ENSURE FITNESS FOR PURPOSE

Fire test results for penetration seals, such as plastic pipe collars that have been tested in concrete, cannot be simply transferred to other types of construction such as framed construction lined with gypsum plasterboard.

Sometimes suppliers of penetration seals rely on overseas or local tests carried out on gypsum plasterboard assemblies with significantly greater fire resistance than what is claimed for the penetration seal. A penetration seal must be suitable for the construction type it is installed in. Check test reports and manufacturer's information carefully.

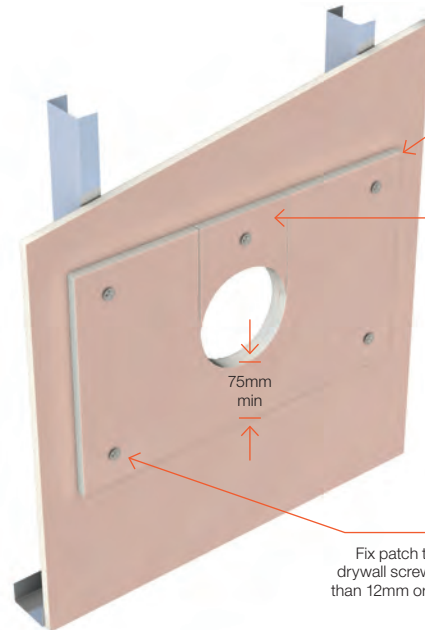
To erase doubt, ensure penetration seals are supported by framing around the aperture and not directly by gypsum plasterboard linings. Installation of additional framing members may be required.

Alternatively, an additional strip of plasterboard can be installed over the existing lining and supported by adjacent framing members. This option is suitable for penetration seals such as cable bundles, small metal pipes and plastic pipe collars.

When multiple services penetrate a fire rated wall above ceiling level, it is best practice to install a continuous strip of GIB® plasterboard at that location over the wall linings as illustrated below, providing local strengthening.

Penetration patches are not required when penetration seals are installed in one-way universal (UW and UC) systems.

Heavy penetrating items such as cable trays and ducts must have separate supports, such as hangers to the floor above.

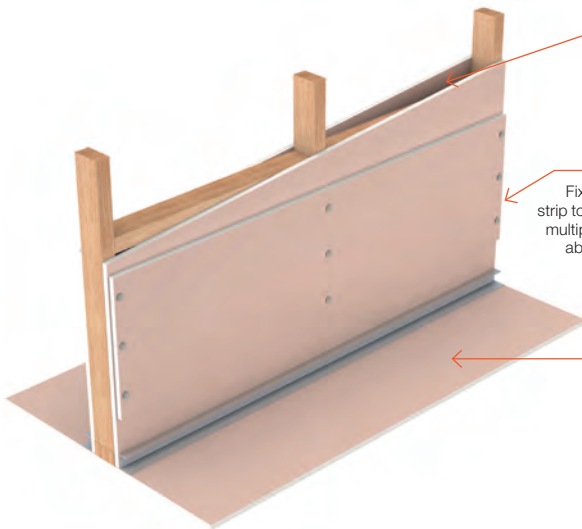


GIB® plasterboard patch to be same type as wall lining

Laminate cut-out to wall lining using 38mm x 10g GIB® Grabber® Laminator Screw for fitting patch around existing services

75mm
min

Fix patch to framing with GIB® Grabber® drywall screws penetrating steel by no less than 12mm or timber by no less than 20mm



Firewall

Fix a second layer strip to accommodate multiple penetrations above ceiling level

Ceiling

Fire rated plasterboard boxes and/or bulkheads are often specified to accommodate service penetrations below concrete slabs. However, design and construction methods are not well understood. Risky assumptions, and a poorly designed and constructed box or bulkhead, can lead to premature failure. It is important to get the detailing and installation right.

Winstone Wallboards recommends GBUC universal lining systems for fire rated plasterboard boxes and/or bulkheads. These linings must be applied to a structurally adequate box or bulkhead frame. Universal lining systems are designed to limit cavity temperature rise to approx. 300 degree C, to protect timber framing from char and light gauge steel from substantial strength loss.

Specifications GBUC 15 to 120 ensure the specified FRR of a well-constructed box or bulkhead can be achieved. Details GFS030 and GFS031 show the principles of constructing a fire rated box or bulkhead based on GBUC universal specifications. Specific box or bulkhead framing layout can vary on-site depending on required dimensions.

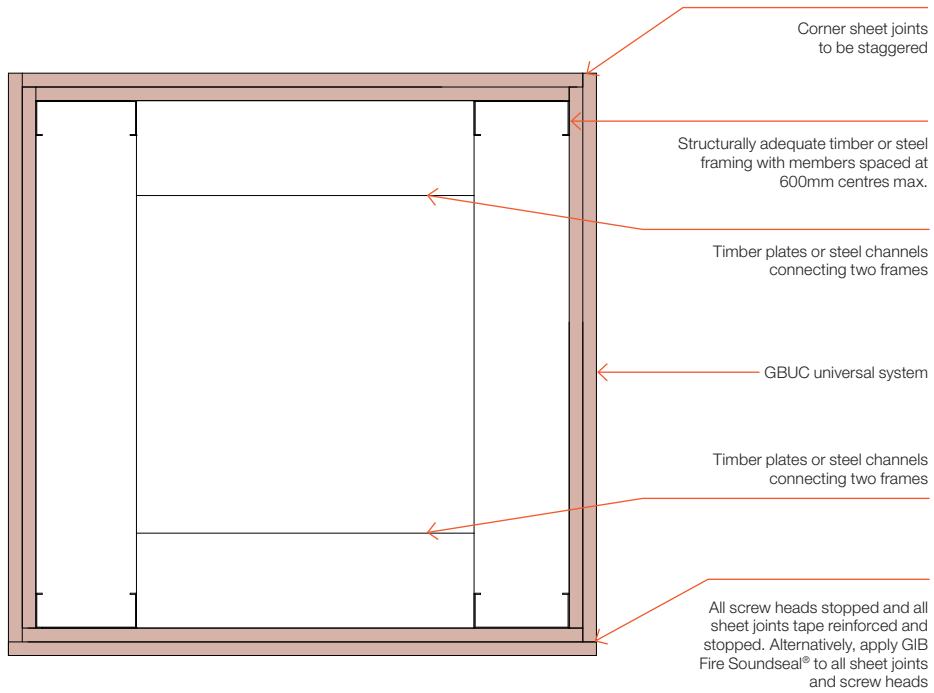
Fire rated boxes or bulkheads can be constructed under a concrete slab with a minimum topping thickness of 50mm, or under a framed roof structure which contains a minimum of 75mm glass wool insulation. When installed under a framed floor/ceiling, the minimum cavity depth to flooring is 90mm for specifications GBUC 15 to 90, and 200mm for GBUC 120. The minimum cavity depth for GBUC 120 can be reduced to 90mm with the addition of 75mm glass wool insulation.

Fire rated boxes or bulkheads can be constructed with their horizontal lower surface and all 4 vertical faces exposed, or one or more vertical faces can join a fire rated wall. The FRR of the box or bulkhead must not be less than the higher required FRR of the wall(s) or floor.

It is important to ensure all sheet joints and edges are formed over the framing. The box or bulkhead framing must be structurally adequate to accept the weight of the linings under ambient conditions, and meet framing requirements outlined in the relevant GBUC universal system specification. At the junction with the structural floor, the vertical linings are installed hard against it with GIB Fire Soundseal® applied as perimeter seal.

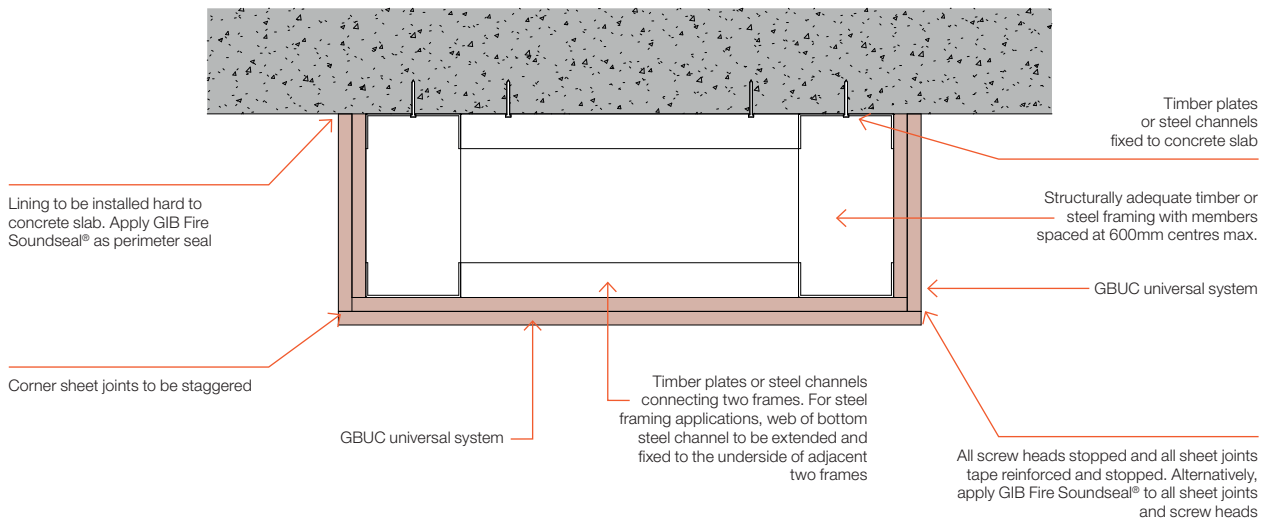
Given how proprietary penetrations seals are commonly tested, the fire rated box or bulkhead is ideally constructed before building services are installed. However, services are often in place and linings need to be constructed around them. Detail GFS283 shows an installation method using plasterboard 'cut-outs'. The performance of proprietary penetration seals must be assessed separately based on relevant test data.

FIRE RATED BOX OR BULKHEAD (PLAN VIEW)



GFS030

FIRE RATED BOX OR BULKHEAD (SECTION VIEW)

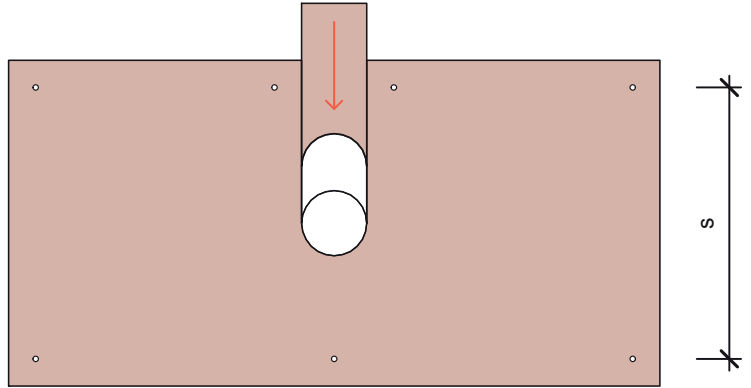


GFS031

GBUC UNIVERSAL SYSTEM INSTALLATION AROUND BUILDING SERVICES

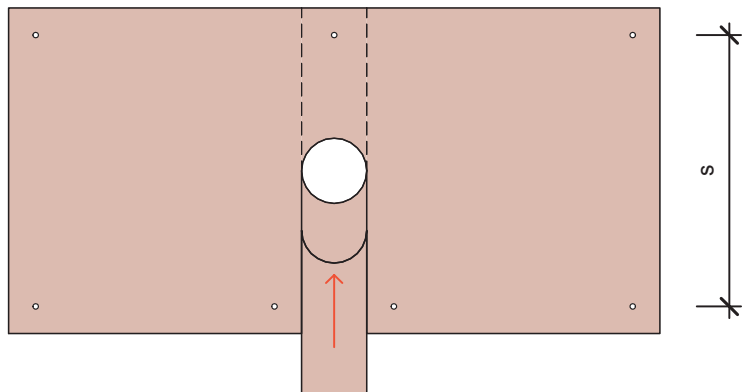
Step 1 - Inner or single layer

Inner or single layer fixed to framing as per GBUC universal system. Plasterboard 'cut-out' fixed to top timber plate or steel channel once fitted around building service. The single-layered system will require local reinforcing using plasterboard patches.



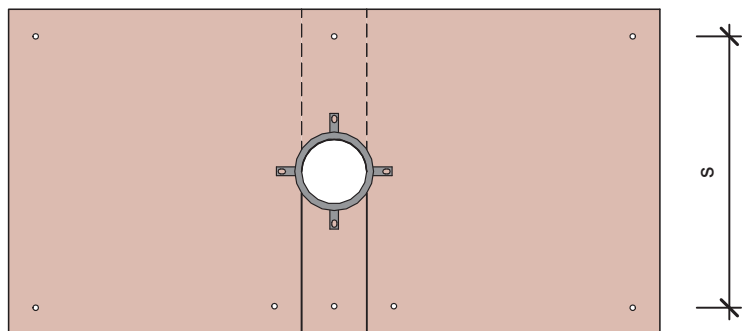
Step 2 - Outer layer

Outer layer fixed to framing as per GBUC universal system. Plasterboard 'cut-out' fixed to bottom timber plate or steel channel once fitted around building service.



Step 3 - Penetration seal installation

A suitable penetration seal installed as per manufacturer's instructions.



GFS283

Note: Maximum fastener spacing is 200mm. Insert additional fasteners if 's' exceeds 200mm.

EXAMPLE OF THE FIRE RATED PLASTERBOARD BOX CONSTRUCTION STEPS

Step 1

Install the structurally adequate framing that can accept the weight of the linings under ambient conditions, and meets framing requirements outlined in the relevant GBUC universal system specification.



Step 2

Install the relevant GBUC universal lining systems. Ensure all sheet joints and edges are formed over the framing, and corner sheet joints are staggered. Refer to Detail GFS283 for GBUC universal lining system installation around building services.



Step 3

Install the linings hard against the floor system and apply GIB Fire Soundseal® as perimeter seal. Install suitable penetration seals as per manufacturer's instructions. All screw heads to be stopped and all sheet joints to be tape reinforced and stopped in accordance with the publication entitled "GIB Site Guide". Alternatively, apply GIB Fire Soundseal® to all sheet joints and screw heads.



Note: The performance of proprietary penetration seals must be assessed separately based on relevant test data.

Mass timber construction is becoming more common due to its environmental benefit and as an aesthetic design choice. However, mass timber also poses some fire safety challenges as the exposed timber contributes to the fuel load inside the compartment.

Current New Zealand Building Code C/VM Verification Method and C/AS Acceptable Solution documents do not adequately address the additional fuel load contributed by the exposed mass timber. One way to mitigate this risk and avoid the need for separate fire severity calculation is to encapsulate mass timber with plasterboard.

Winstone Wallboards recommends 'universal' lining systems such as GBUW and GBUC specifications for mass timber wall and floor applications respectively. 'Universal' lining systems are designed to limit back of lining temperature and protect mass timber from char, and are suitable for mass timber encapsulation. Recent fire resistance testing has also shown that additional encapsulation systems are possible with an open or insulated cavity, and some systems are allowed to have limited unsealed service penetrations through battened wall linings or suspended ceiling linings.

All outer layer fastener heads stopped and sheet joints tape reinforced in accordance with the publication entitled "GIB® Site Guide". Inner layer can be left unstopped.

The following table summarises mass timber GIB® encapsulation systems for mass timber walls and floors.

Figures 3 to 10 provide generic construction details for intertenancy mass timber walls and floors obtained from the following documents:

- NZ Wood Design Guides, Chapter 13.5: Acoustics, May 2020
- Red Stag CLT Design Guide, V1.3, Sep 2022

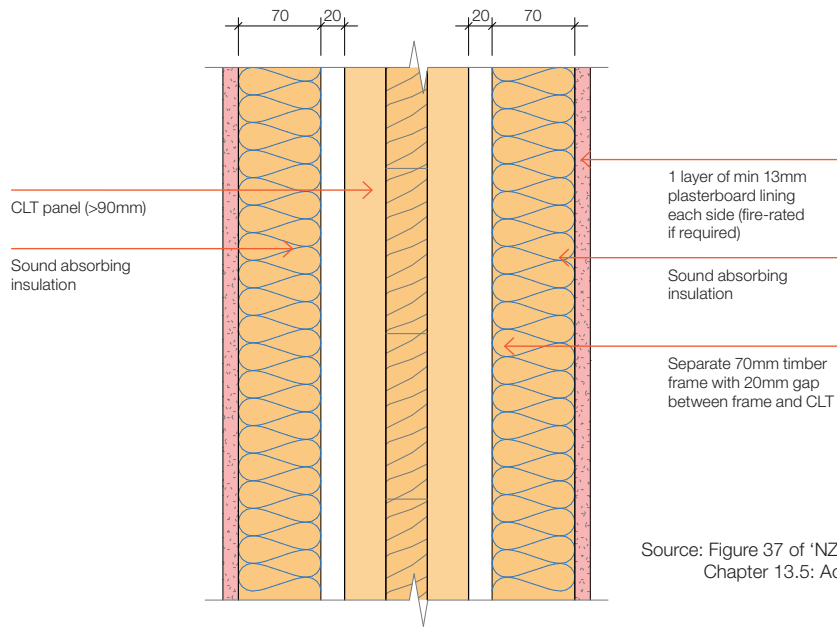
Encapsulation times for each construction detail are given based on mass timber GIB® encapsulation systems.

Mass timber GIB® encapsulation systems summary table

	Encapsulation time	Lining requirements	Installation guide	Detail
Wall	Direct fixed or battened			
	30 minutes	1 layer 16mm GIB Fyrelime®	GBUW 30a	
	30 minutes	2 layers 10mm GIB Fyrelime®	GBUW 30b	
	60 minutes	2 layers 13mm GIB Fyrelime®	GBUW 60	
	Battened			
	30 minutes	1 layer 13mm GIB Fyrelime® on minimum 45mm open or insulated cavity	GBTL 60 (or GBS 60)	
	Direct fixed and battened			
	30 minutes	1 layer 13mm GIB Fyrelime® and 1 layer 13mm GIB® Standard on minimum 45mm open or insulated cavity (unsealed penetrations through battened lining)*	GBTL 60 and GBTL 30b (or GBS 30)	
	60 minutes	1 layer 13mm GIB Fyrelime® and 1 layer of 13mm GIB Fyrelime® on minimum 45mm open or insulated cavity (unsealed penetrations through battened lining)*	GBTL 60 and GBTL 60 (or GBS 60)	
	Floor	Direct fixed or suspended ceiling		
30 minutes		1 layer 16mm GIB Fyrelime®	GBUC 30	
60 minutes		2 layers 13mm GIB Fyrelime®	GBUC 60	
Suspended ceiling				
30 minutes		1 layer 13mm GIB Fyrelime® on minimum 90mm open or insulated cavity	GBSC 30	
Direct fixed and suspended ceiling				
30 minutes		1 layer 13mm GIB Fyrelime® and 1 layer 13mm GIB® Standard on minimum 90mm open or insulated cavity (unsealed penetrations through suspended lining)*	GBFC 30 and GBSC 30	
60 minutes		1 layer 13mm GIB Fyrelime® and 1 layer 13mm GIB Fyrelime® on minimum 90mm open or insulated cavity (unsealed penetrations through suspended lining)*	GBFC 30 and GBSC 30	

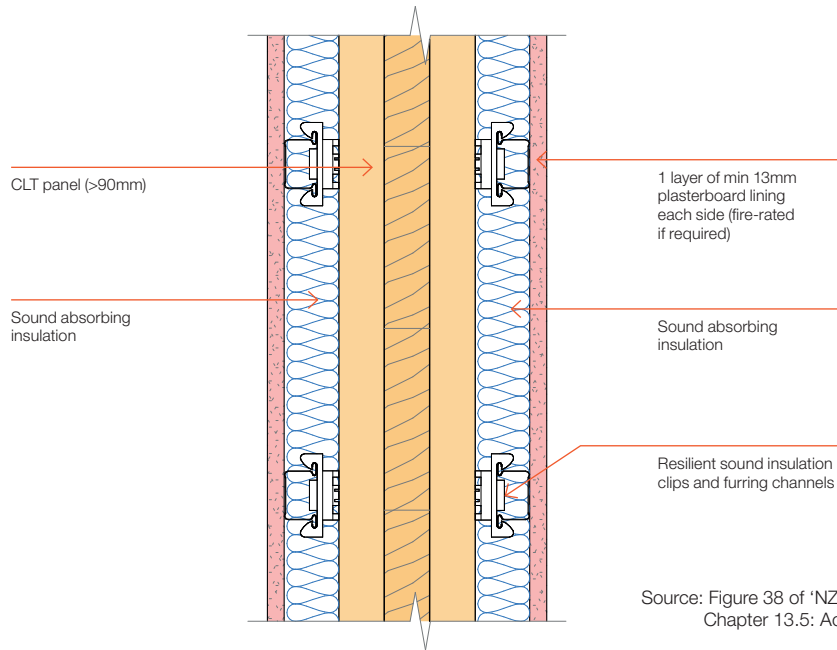
* No more than 4 evenly distributed unsealed penetrations per m², each not exceeding 100 mm in diameter or equivalent area

Figure 3: Mass timber wall panel with fire rated wall linings mounted on separate timber frames (plan view)



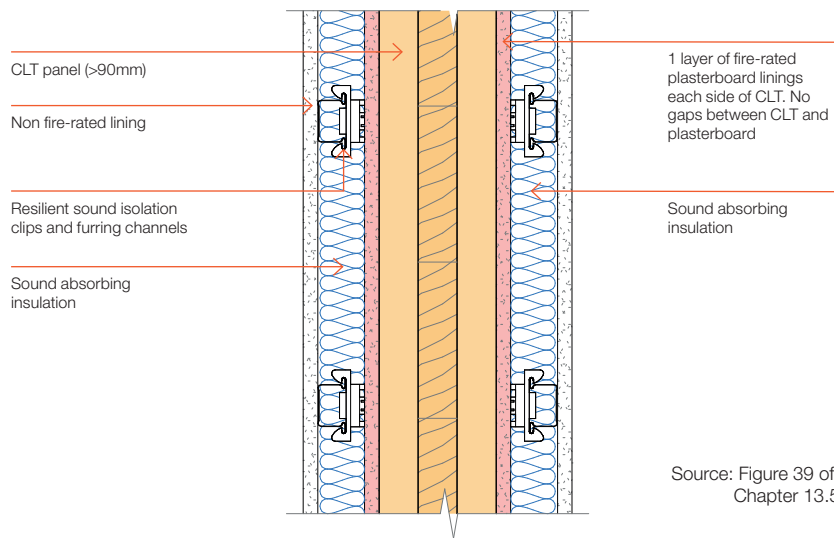
- 30-minutes Encapsulation is achieved when 13mm GIB Fyrelite® is installed in accordance with GBTL 60

Figure 4: Mass timber wall panel with fire rated wall linings mounted on resilient acoustic clips and furring channels (plan view)



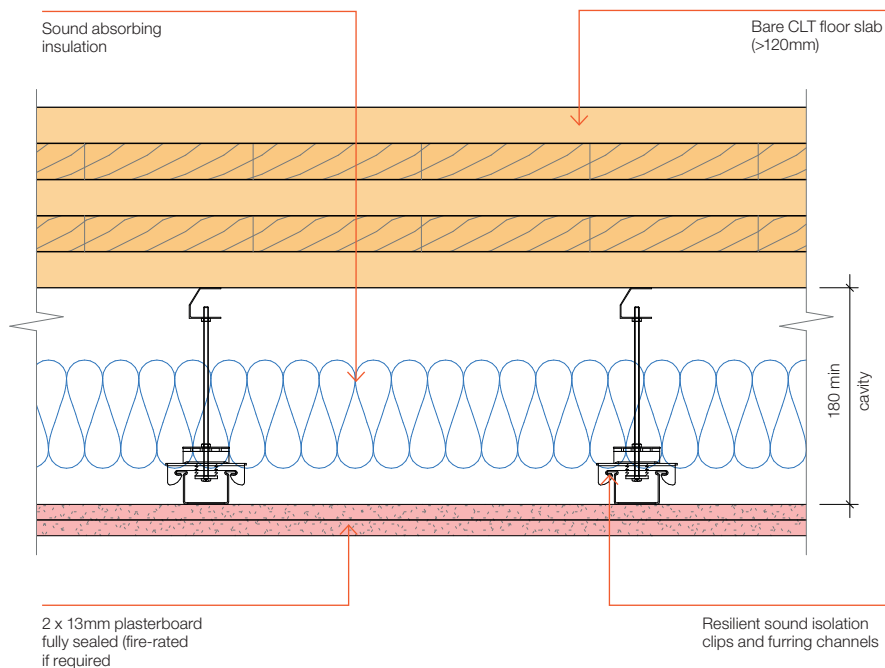
- 30-minutes Encapsulation is achieved when 13mm GIB Fyrelite® is installed in accordance with GBS 60
- Sheet orientation and furring channels run vertically with all sheet joints over framing

Figure 5: Mass timber wall panel with fire rated wall linings mounted directly on mass timber. Standard wall lining mounted on resilient acoustic clips and furring channels (plan view)



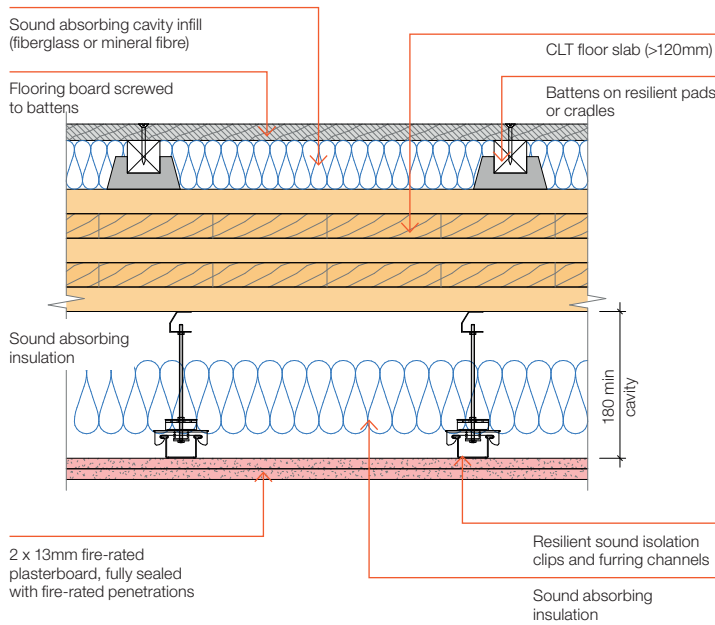
- 30-minutes Encapsulation is achieved when 13mm GIB Fyrelite® is direct fixed in accordance with GBTL 60 and 13mm GIB® Standard is fixed in accordance with GBS 30 with sheet orientation and furring channels running vertically in accordance with Figure 4
- 60-minutes Encapsulation is achieved when 13mm GIB Fyrelite® is fixed in accordance with GBS 60 with sheet orientation and furring channels running vertically in accordance with Figure 4
- Unsealed service penetrations through the outer lining on the furring channels are permitted within limitations (refer to page 143)

Figure 6: Mass timber floor with resiliently attached suspended ceiling (section view)



- 60-minutes Encapsulation is achieved when 2 layers of 13mm GIB Fyrelite® are installed in accordance with GBUC 60

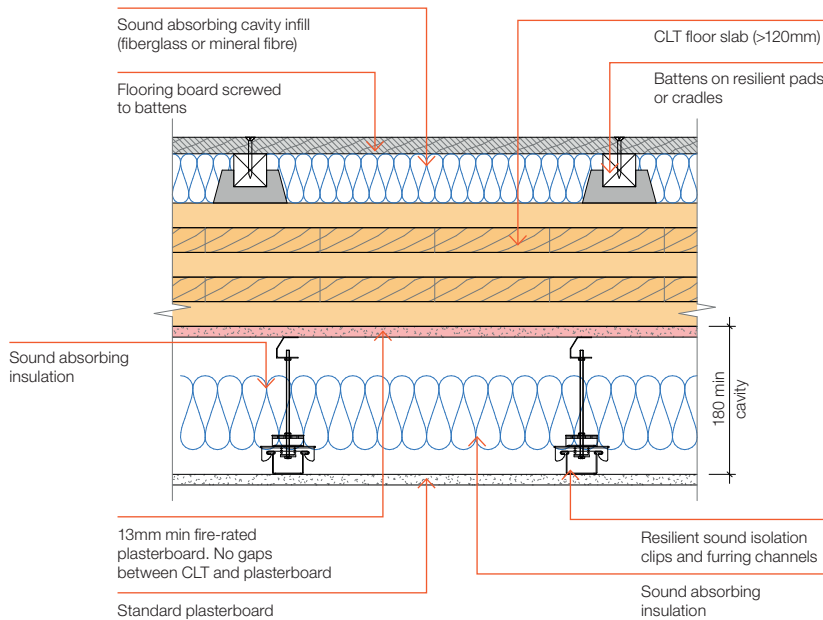
Figure 7: Mass timber floor with a generic lightweight floating floor system – Option 1 (section view)



Source: Figure 42 of 'NZ Wood Design Guides, Chapter 13.5: Acoustics, May 2020'

- 60-minutes Encapsulation is achieved when 2 layers of 13mm GIB Fyreline® are installed in accordance with GBUC 60

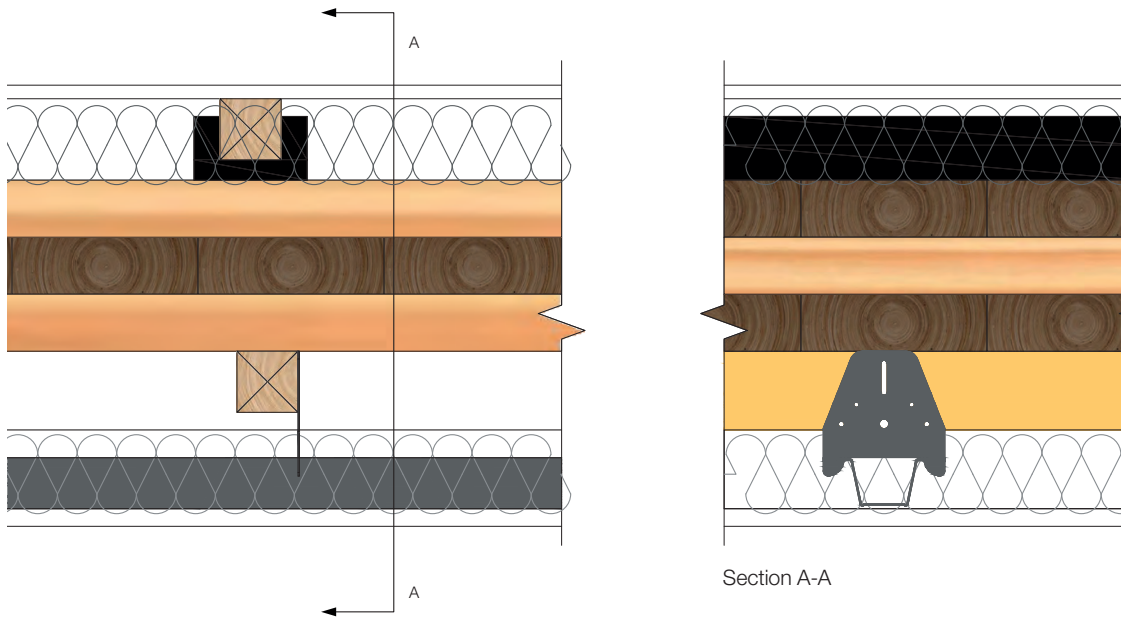
Figure 8: Mass timber floor with a generic lightweight floating floor system – Option 2 (section view)



Source: Figure 43 of 'NZ Wood Design Guides, Chapter 13.5: Acoustics, May 2020'

- 13mm GIB Fyreline® is direct fixed in accordance with GBFC 30
- 30-minutes Encapsulation is achieved with a suspended 13mm GIB® Standard ceiling (fixed in accordance with GBSC 30)
- 60-minutes Encapsulation is achieved with a suspended 13mm GIB Fyreline® ceiling (fixed in accordance with GBSC 30)
- Unsealed service penetrations through the suspended ceiling linings are permitted within limitations (refer to page 143)

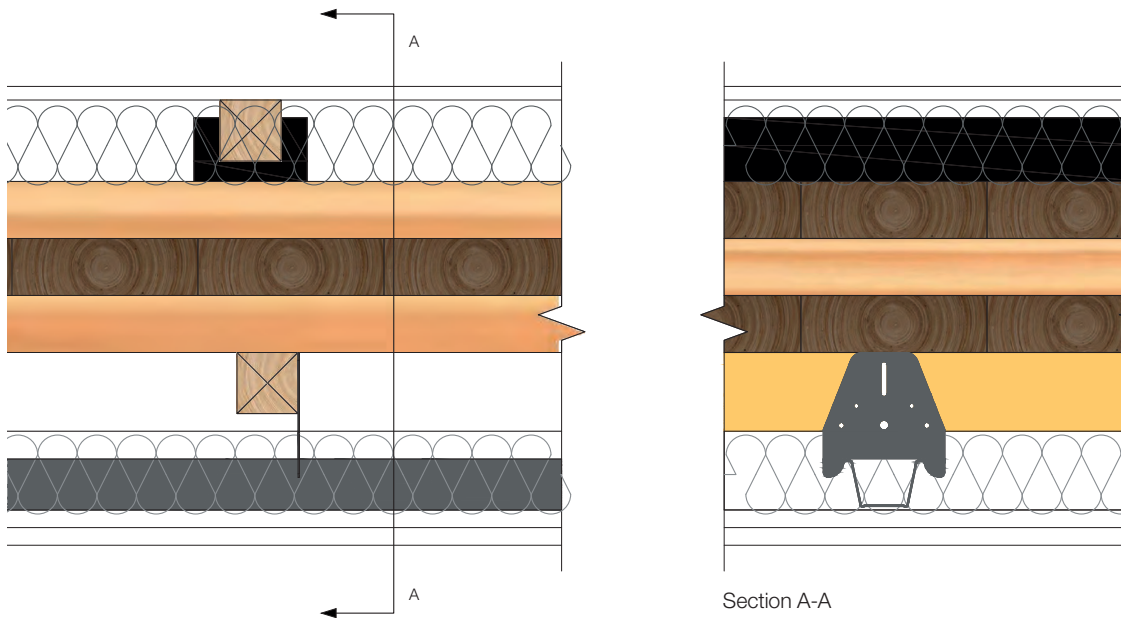
Figure 9: Mass timber floor with a single layer of suspended ceiling lining mounted on timber, resilient acoustic clips and furring channels (section view)



Source: Red Stag CLT Design Guide
 (Website: <https://redstag.co.nz/>)

- 30-minutes Encapsulation is achieved when 13mm GIB Fyrelite® is installed in accordance with GBSC 30

Figure 10: Mass timber floor with two layers of suspended ceiling lining mounted on timber, resilient acoustic clips and furring channels (section view)



Source: Red Stag CLT Design Guide
 (Website: <https://redstag.co.nz/>)

- 60-minutes Encapsulation is achieved when 2 layers of 13mm GIB Fyrelite® are installed in accordance with GBUC 60

STRUCTURAL STABILITY

In order to satisfy the requirements of NZBC Clause C6 – Structural Stability, designers must ensure that fire rated elements are supported by elements having at least the same FRR. Collapse of elements having a lesser FRR shall not cause the consequential collapse of elements required to have a higher FRR.

For example, a column must have at least the same structural adequacy rating as the floor it is supporting, and the same applies to a section of wall providing lateral support to a fire-cell boundary.

Note also that an FRR represents the result against a standard furnace test for fire resistance where a specimen is exposed from one side. A supporting element located entirely within a fire-cell will potentially be exposed to fire from multiple sides simultaneously. In this case, ‘universal’ or ‘one-way’ lining protection needs to be provided to all relevant sides. If such an element provides lateral support, then the bracing element must be protected with a ‘universal’ or ‘one-way’ lining system.

STABILITY OF BOUNDARY WALLS

When a building is located sufficiently close to a property boundary, an FRR is often required to manage the risk of fire spread to adjacent property. NZBC Clause B1 – Verification Method B1/VM1 provides guidelines for checking the lateral stability of fire rated boundary walls. The simplest and most commonly applied criterion is the ability to resist ‘a uniformly distributed face load of 0.5kPa in any direction’.

Buildings complying with Acceptable Solutions that do not mention post-fire stability do not need separate assessment for compliance with B1/VM1.

This means that low-risk single and small multi-unit dwellings and residential garages designed and constructed in accordance with Acceptable Solutions B1/AS1 and C/AS1 are exempt from separate B1/VM1 analysis.

For higher risk or more complex structures, such as public facilities, multi-storey buildings or portal frame industrial structures, specific design is required. The building designer must ensure that structural stability is maintained for the specified time of fire resistance in accordance with the provisions of B1/VM1. The solution will often require project-specific considerations and could involve fire rated return walls, a fire rated ceiling or cantilever external wall details.

SINGLE-STOREY, LIGHT TIMBER-FRAMED BOUNDARY FIREWALL

The following details have been developed for simple single-storey, light timber-framed structures that require design for structural stability as a consequence of fire.

The detail relies on bottom plate fixing and cantilever action of the wall to resist an imposed 0.5kPa face load in any direction.

The minimum requirements for concrete slab and timber-framing details, grade and treatment, are in accordance with the latest versions of NZS 3604 and NZS 3602.

- Walls with a height of 2.4m require a minimum stud size of nominally 140 x 45mm at 600mm centres
- Walls with a height of 3.0m require a minimum stud size of nominally 140 x 45mm at 400mm centres
- With the GIB HandiBrac®, use a proprietary concrete anchor with a minimum characteristic uplift capacity of 8kN, as verified by the supplier

The required FRR is determined in accordance with NZBC Clause C Acceptable Solutions or Verification Method. If located more than 1m from the relevant boundary, check to see if a one-way protection is permitted.

Select the relevant one-way or two-way FRR system and GIB® specification from this literature or “GIB Weatherline® Rigid Air Barrier Systems” literature.

If a two-way FRR is required, note that sheet joints and fastener heads in the GIB® plasterboard under the external cladding do not require stopping.

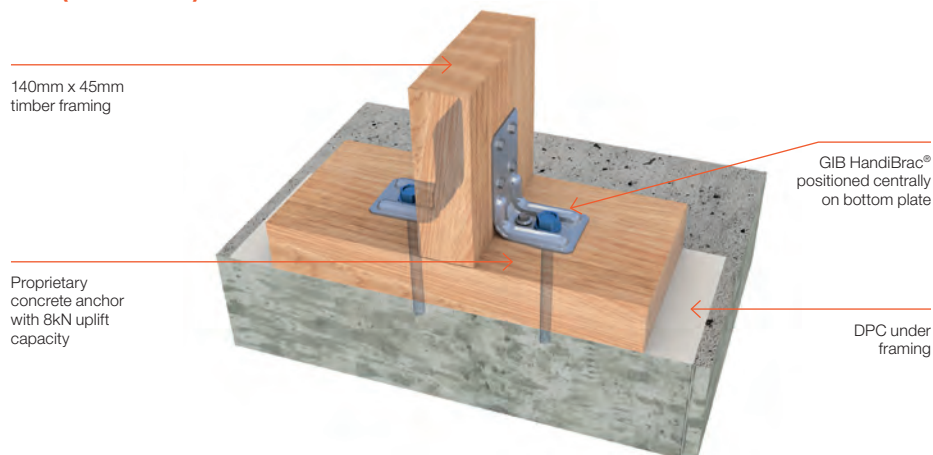
All cladding system types, including vertical profile metal cladding, must be separated from GIB® plasterboard by means of a flexible underlay and drained cavity system. Cladding details must otherwise comply with NZBC Clause E2.

Keep the GIB® plasterboard dry during installation and maintain the cladding system to ensure that the GIB® plasterboard remains dry in-service. Alternatively, GIB Weatherline® can be installed on the exterior of a building, providing temporary weather protection for up to 180 days.

GIB® plasterboard behind an NZBC E2/AS1 compliant cladding system, drained cavity and flexible underlay, has a serviceable life in excess of 15 years and satisfies the requirements of NZBC Clause B2 – Durability for an external wall cladding.

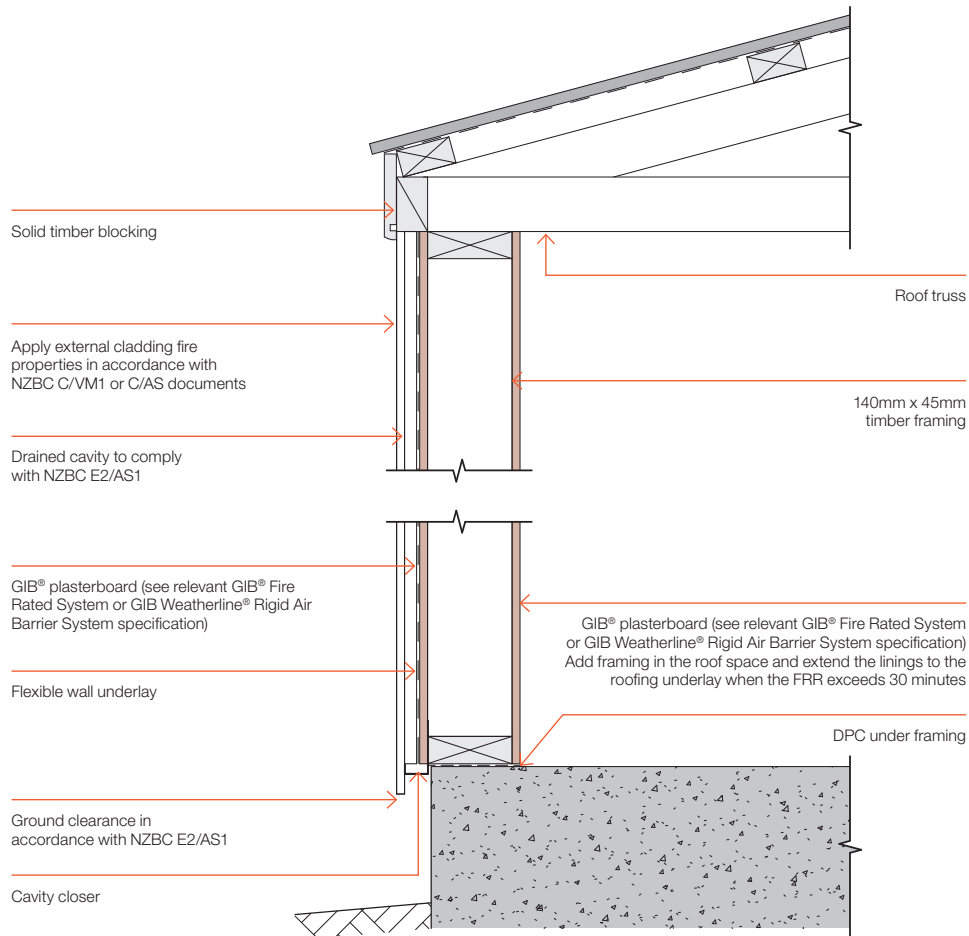
Use claddings with exterior surface finish properties that fall within the limits set by NZBC Clause C Verification Method or Acceptable Solutions.

HOLD DOWN DETAIL (ALL STUDS)



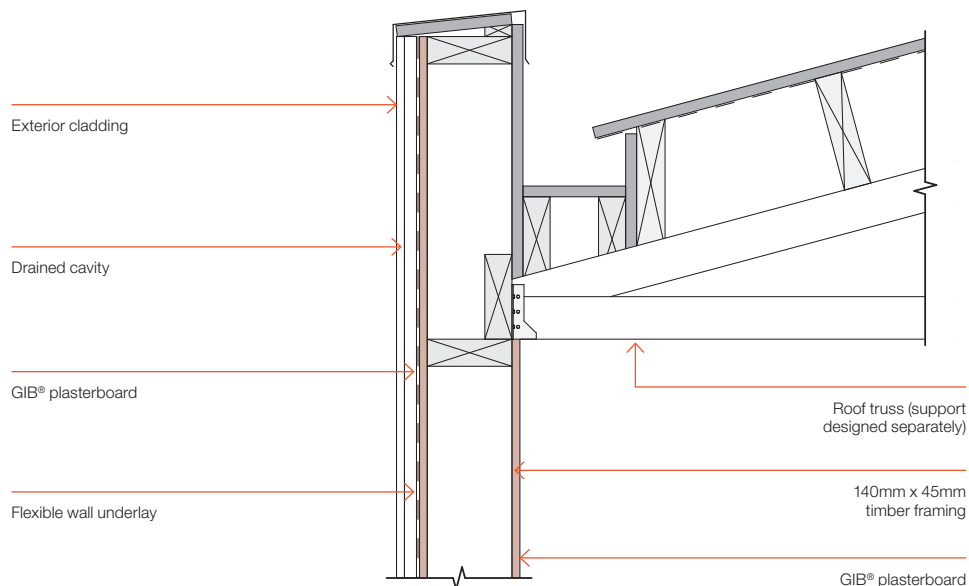
CROSS SECTION

These drawings are schematic and full construction and cladding details must comply with NZS 3604 and NZBC E2/AS1 and incorporate a drained cavity for all cladding types.



GFS300

BOX GUTTER DETAIL



GFS301

GIB® Fire Rated Systems, September 2024

Winstone Wallboards Ltd accepts no liability if the GIB® Fire Rated Systems and junction details are not installed in strict accordance with instructions contained in this publication.

USE ONLY THE CURRENT SPECIFICATION

This publication may be superseded by a new publication. Winstone Wallboards accepts no liability for reliance upon publications that have been superseded. You should check the GIB® website to ensure you are using the current publication. If you are unsure whether this is the current publication, simply call the GIB® Helpline on 0800 100 442.

SUBSTITUTION

GIB® Fire Rated Systems have been specifically designed and tested to achieve the listed FRR, STC and Rw stated for each system. To maintain the GIB® Product and System Warranty, all system components detailed in this publication must be used when specifying and installing GIB® Fire Rated Systems. You should check the GIB® website to ensure you are using the current publication.

TRADEMARKS

The names GIB®, GIB Fyreline®, GIB Ultraline®, GIB Toughline®, GIB Braceline®/GIB Noiseline®, GIB Aqualine®, GIB Nail®, GIB Tradeset®, GIB Plus 4®, GIB-Cove®, GIB Lite Blue®, GIB Fix®, GIB Quiet Stud®, GIB Rail®, GIB Barrierline®, GIB Fire Soundseal®, GIB Clip®, GIB HandiBrac®, GIB Weatherline®, the colour mauve for GIB Toughline®, the colour blue for GIB Braceline®, the colour pink for GIB Fyreline®, the colour green for GIB Aqualine®, and the shield device are registered trademarks of Fletcher Building Holdings Limited.

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COUNTRY OF ORIGIN

We make GIB® plasterboard in New Zealand, for New Zealand conditions, giving you 100% certainty.

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gib.co.nz

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0800 100 442