JamesHardie™

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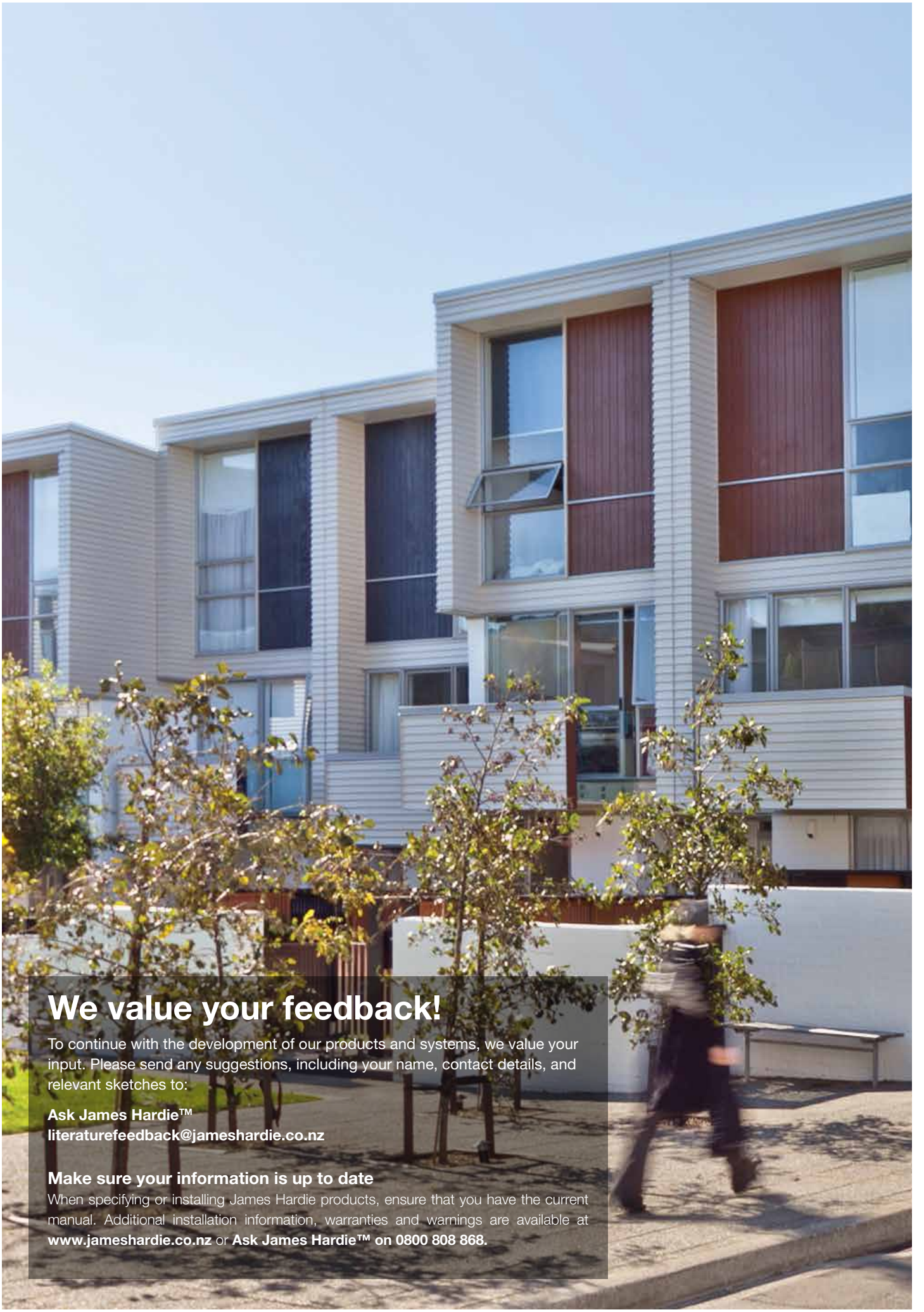
Fire & Acoustic Design Manual

November 2022 New Zealand



We value your feedback!

To continue with the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

Ask James Hardie™
literaturefeedback@jameshardie.co.nz

Make sure your information is up to date

When specifying or installing James Hardie products, ensure that you have the current manual. Additional installation information, warranties and warnings are available at **www.jameshardie.co.nz** or **Ask James Hardie™ on 0800 808 868.**

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1 Introduction

This manual provides information about **James Hardie's two way fire and acoustic systems** using timber or steel frames in internal or external wall applications.

In terms of the New Zealand Building Code (NZBC) requirements, fire rating performance is referred to as FRR (Fire Resistance Rating) and is measured in minutes e.g. a FRR 30/30/30 means a fire rating for 30 minutes. Further explanation in this matter is provided in section 4.14 of this design manual.

1.1 James Hardie's Fire And Acoustic System Description

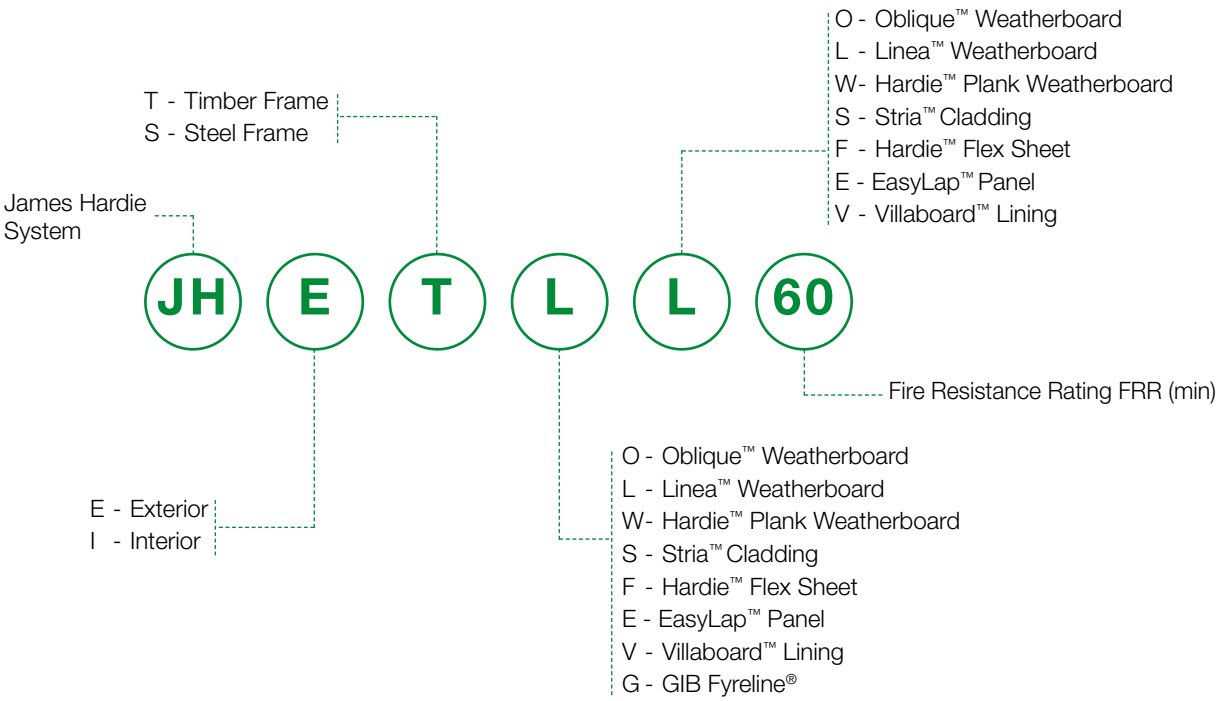
Each FRR system is identified by a unique specification number (e.g.JHETLL60) to identify it as one of James Hardie's fire resistance rated wall systems.

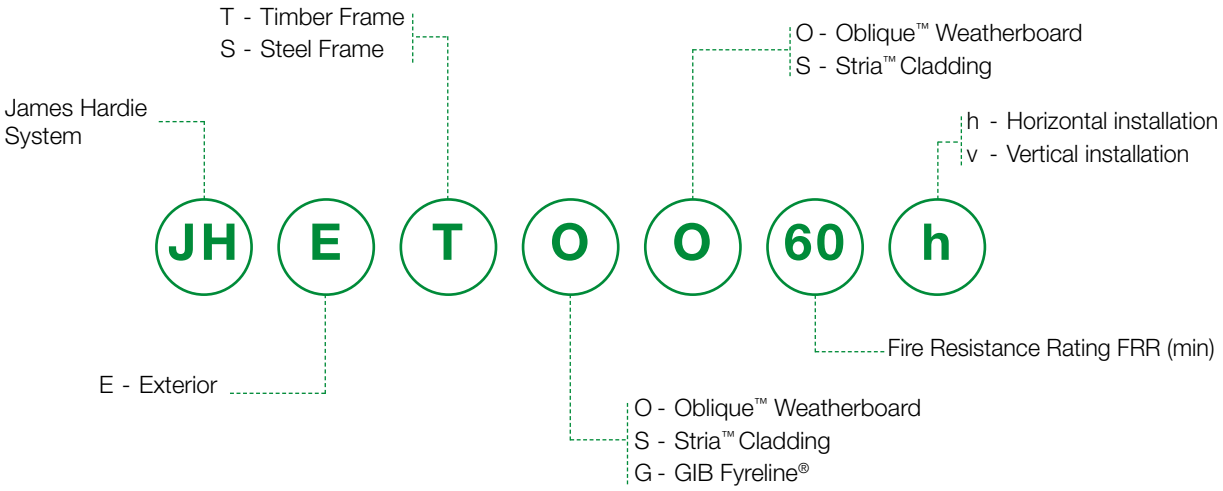
The explanation of specification numbers used are as follows:

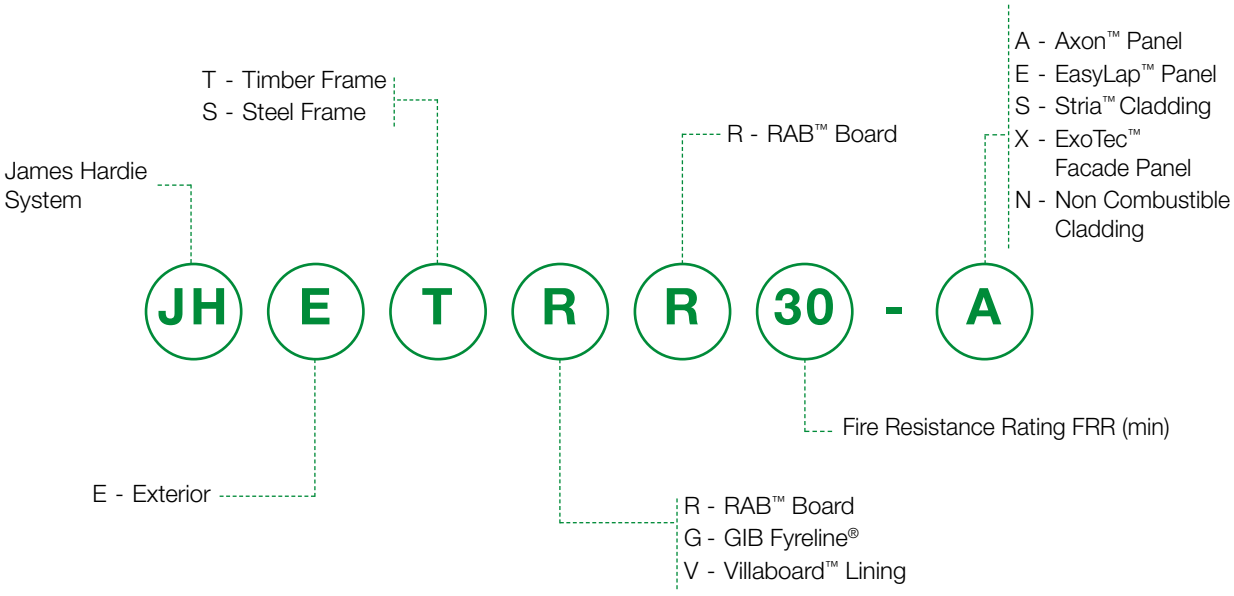
JHETLL60

JHETOO60h

JHETRR30-A




T - Timber Frame
S - Steel Frame
O - Oblique™ Weatherboard
S - Stria™ Cladding
James Hardie System
h - Horizontal installation
v - Vertical installation
JH E T O O 60 h
Fire Resistance Rating FRR (min)
E - Exterior
O - Oblique™ Weatherboard
S - Stria™ Cladding
G - GIB Fyreline®


A - Axon™ Panel
E - EasyLap™ Panel
S - Stria™ Cladding
X - ExoTec™ Facade Panel
N - Non Combustible Cladding
T - Timber Frame
S - Steel Frame
R - RAB™ Board
James Hardie System
JH E T R R 30 - A
Fire Resistance Rating FRR (min)
E - Exterior
R - RAB™ Board
G - GIB Fyreline®
V - Villaboard™ Lining

2 Application and scope

2.1 Application

The fire and acoustic rated walls and floor systems described in this design manual can be used in a wide range of applications as indicated in this section.

This manual is intended to assist designers in selecting a suitable Hardie™ fibre cement product and choose a system which will meet their performance requirements.

Various sections in this manual have been arranged to ensure quick familiarisation with James Hardie's fire and acoustic systems. Readers must also familiarise themselves with the relevant Hardie™ cladding and lining product literature.

2.2 Scope

The fire and acoustic systems provided in this design manual are suitable for vertical or horizontal fire separation applications. The fire rated systems published are suitable for load bearing walls within the scope of the NZS 3604. Beyond the scope of the NZS 3604, a specific engineering design (SED) must be followed. Ask James Hardie™ on 0800 808 868 for further assistance.

2.3 Compliance

NZBC Clause C 'Protection From Fire'
The fire resistance rating (FRR) of James Hardie's fire rated systems have been verified through full scale testing and technical assessments. The systems published in this design manual are suitable to achieve passive fire protection requirements of the NZBC Clause C/AS1 - C/AS2 'Protection From Fire'.

NZBC Clause B2 'Durability'
Hardie™ fibre cement products meet the serviceable life of 50 years and satisfy the performance requirements of the NZBC Clause B2 'Durability'. It must be ensured the Hardie™ fibre cement products are installed and maintained in accordance to their published technical specifications.

NZBC Clause G6 'Airborne & Impact Sound'
The STC and IIC ratings for the systems published in this design manual have either been established through testing or acoustic modelling.

Designers/specifiers must ensure that the ratings published in this manual are suitable for the intended applications. In case higher ratings are required, ask James Hardie on 0800 808 868 for assistance.

Sound
For compliance with clause G6 of the NZBC (STC > 55) James Hardie's fire and acoustic systems have either been tested at the Acoustic Testing Service, University of Auckland, or have been conservatively derived by technical opinions from acoustic consultant Marshall Day Acoustics. Data values published here have an expected accuracy of ± 3 STC points.

2.4 Responsibility

Specifier
If you are a designer/specifier ensure that you are familiar with the approved document for Fire Safety, Clause C of the NZBC and check its requirements. Ensure that the information in this document is appropriate for the intended application and that you undertake specific design and detailing for areas which fall outside the scope of this manual.

Installers
If you are an installer ensure that you follow the complete system requirements as mentioned in this manual to achieve the required performance levels. Follow the design, associated details and material selection provided by the designer. The systems provided in this manual must be read and installed in conjunction with the project specifications. Any material specified for a fire rated system, when substituted, will affect the system performance. All Hardie™ fibre cement products shall be installed as per the relevant product technical literature.

Make sure your information is up to date
When specifying or installing products by James Hardie, ensure that you have the current manual. Additional installation information, warranties and warnings are available at www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

2.5 Safe Working Practices

We understand the importance of creating a safe and healthy work environment when using Hardie™ fibre cement products. Refer to recommended safe working practices in each specific product technical specification or installation manual before starting any cutting or machining of Hardie™ fibre cement products.

3 Systems Summary Table

3.1 External Walls - Timber Frame

30 minute fire rated system					
System #	**Description**	**Insulation**	**FRR**	**STC**	**Page**
JHETGL30	Linea™ Weatherboard 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	46	20
JHETGO30h	Oblique™ Weatherboard horizontal 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	46	21
JHETGO30v	Oblique™ Weatherboard vertical 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	46	22
JHETGW30	Hardie™ Plank Weatherboard 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	45	23
JHETGS30h	Stria™ Cladding horizontal 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	46	24
JHETGS30v	Stria™ Cladding vertical 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	46	25
JHETGF30	Hardie™ Flex Sheet 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	42	26
JHETGE30	EasyLap™ Panel 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	42	27
JHETGA30	Axon™ Panel 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	41	28
JHETGR30-A	Axon™ Panel - Hardie™ CLD™ Structural Cavity Batten RAB™ Board 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	45	29
JHETGR30-S	Stria™ Cladding - Hardie™ CLD™ Structural Cavity Batten RAB™ Board 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	46	30
JHETGR30-E	EasyLap™ Panel - Hardie™ CLD™ Structural Cavity Batten RAB™ Board 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	46	31
JHETGR30-X	ExoTec™ Facade Panel - Top hat system RAB™ Board 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	47	32
JHETGR30-N	Non-combustible/limited combustible cladding complying with C/AS1 or C/AS2 RAB™ Board 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	42	33

60 minute fire rated system						
System #	**Description**	**Insulation**	**FRR**	**STC**	**Under 10m**	**Over 10m or EH Wind Zone**
JHETGL60	Linea™ Weatherboard 13mm GIB Fyreline®	R2.2 glass wool	60/60/60	46	Page 34	Page 35
JHETGO60h	Oblique™ Weatherboard horizontal 13mm GIB Fyreline®	R2.2 glass wool	60/60/60	46	Page 36	Page 37
JHETGO60v	Oblique™ Weatherboard vertical 13mm GIB Fyreline®	R2.2 glass wool	60/60/60	46	Page 38	Page 39
JHETGW60	Hardie™ Plank Weatherboard 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	45	Page 40	
JHETGS60h	Stria™ Cladding horizontal 13mm GIB Fyreline®	R2.2 glass wool	60/60/60	46	Page 41	Page 42
JHETGS60v	Stria™ Cladding vertical 13mm GIB Fyreline®	R2.2 glass wool	60/60/60	46	Page 43	Page 44
JHETGF60	Hardie™ Flex Sheet 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	42	Page 45	
JHETGE60	EasyLap™ Panel 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	42	Page 46	Page 47
JHETGA60	Axon™ Panel 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	42	Page 48	Page 49
JHETGR60-A	Axon™ Panel - Hardie™ CLD™ Structural Cavity Batten RAB™ Board 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	45	Page 50	
JHETGR60-S	Stria™ Cladding - Hardie™ CLD™ Structural Cavity Batten RAB™ Board 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	46	Page 51	
JHETGR60-E	EasyLap™ Panel - Hardie™ CLD™ Structural Cavity Batten RAB™ Board 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	46	Page 52	
JHETGR60-X	ExoTec™ Facade Panel top hat system RAB™ Board 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	47	Page 53	
JHETGR60-N	Non-combustible/limited combustible cladding complying with C/AS1 or C/AS2 RAB™ Board 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	42	Page 54	

60 minute fire rated system						
System #	**Description**	**Insulation**	**FRR**	**STC**	**Under 10m**	**Over 10m or EH Wind Zone**
JHETVR60-N	Non-combustible/limited combustible cladding complying with C/AS1 or C/AS2 RAB™ Board Villaboard™ Lining 6mm or 9mm	Hardie™ Mineral	60/60/60	55*	Page 55	

*STC value for IT wall

120 minute fire rated system					
System #	**Description**	**Insulation**	**FRR**	**STC**	**Page**
JHETVR120-N	Villaboard™ Lining 9mm RAB™ Board 9mm Non-combustible/limited combustible cladding complying with C/AS1 or C/AS2	2 x layers Hardie™ Mineral	120/120/120	56	56

3.2 External Walls - Steel Frame

30 minute fire rated system					
System #	**Description**	**Insulation**	**FRR**	**STC**	**Page**
JHESGR30-N	Non-combustible/limited combustible cladding complying with C/AS1 or C/AS2 RAB™ Board over thermal fire batten 2 x layers 10mm GIB Fyreline®	Hardie™ Mineral	30/30/30	47	58

60 minute fire rated system					
System #	**Description**	**Insulation**	**FRR**	**STC**	**Page**
JHESGR60-N	Non-combustible/limited combustible cladding complying with C/AS1 or C/AS2 RAB™ Board over thermal fire batten 2 x layers 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	48	59

3.3 Parapet & Wing Walls - Timber Frame

60 minute fire rated system					
System #	**Description**	**Insulation**	**FRR**	**Under 10m**	**Over 10m or EH Wind Zone**
JHETLL60	Linea™ Weatherboard each side	Hardie™ Mineral	60/60/60	Page 61	Page 62
JHETOO60h	Oblique™ Weatherboard horizontal each side	Hardie™ Mineral	60/60/60	Page 63	Page 64
JHETOO60v	Oblique™ Weatherboard vertical each side	Hardie™ Mineral	60/60/60	Page 65	Page 66
JHETWW60	Hardie™ Plank Weatherboard each side	Hardie™ Mineral	60/60/60	Page 67	
JHETSS60h	Stria™ Cladding horizontal each side	Hardie™ Mineral	60/60/60	Page 68	Page 69
JHETSS60v	Stria™ Cladding vertical each side	Hardie™ Mineral	60/60/60	Page 70	Page 71
JHETFF60	Hardie™ Flex Sheet each side	Hardie™ Mineral	60/60/60	Page 72	
JHETEE60	EasyLap™ Panel each side	Hardie™ Mineral	60/60/60	Page 73	Page 74
JHETAA60	Axon™ Panel each side	Hardie™ Mineral	60/60/60	Page 75	Page 76
JHETRR60-A	Axon™ Panel - Hardie™ CLD™ Structural Cavity Battens each side RAB™ Board each side	Hardie™ Mineral	60/60/60	Page 77	
JHETRR60-S	Stria™ Cladding - Hardie™ CLD™ Structural Cavity Battens each side RAB™ Board each side	Hardie™ Mineral	60/60/60	Page 78	
JHETRR60-E	EasyLap™ Panel - Hardie™ CLD™ Structural Cavity Battens each side RAB™ Board each side	Hardie™ Mineral	60/60/60	Page 79	
JHETRR60-X	ExoTec™ Facade Panel top hat system each side RAB™ Board each side	Hardie™ Mineral	60/60/60	Page 80	
JHETRR60-N	Non-combustible/limited combustible cladding complying with C/AS1 or C/AS2 each side RAB™ Board each side	Hardie™ Mineral	60/60/60	Page 81	

Cladding options for Parapet & Wing Walls

Claddings specified in the fire rated systems under Section 3.3 on timber cavity battens can be replaced with any Hardie™ cladding 6mm or thicker.

3.4 Internal Walls - Timber Frame

30 minute fire rated system					
System #	**Description**	**Insulation**	**FRR**	**STC**	**Page**
JHITGV30	Villaboard™ Lining 6 or 9mm 10mm GIB Fyreline®	R2.2 glass wool	30/30/30	42	83

60 minute fire rated system					
System #	**Description**	**Insulation**	**FRR**	**STC**	**Page**
JHITGV60	Villaboard™ Lining 6 or 9mm 13mm GIB Fyreline®	Hardie™ Mineral	60/60/60	42	84
JHITVV60	Villaboard™ Lining 6 or 9mm each face	Hardie™ Mineral	60/60/60	55*	85
JHITVR60	Villaboard™ Lining 6 or 9mm RAB™ Board 6 or 9mm	Hardie™ Mineral	60/60/60	55*	86

*STC value for IT wall

3.5 Internal Floors / Ceilings - Timber Frame

60 minute fire rated system					
System #	**Description**	**FRR**	**STC**	**IIC**	**Page**
JHFTGS60	Secura™ Interior Flooring 16mm GIB Fyreline®	60/60/60	46	33	88
JHFTGSS60	2 x layers Secura™ Interior Flooring 2 x layers 13mm GIB Fyreline®	60/60/60	67	57	89

4 Design guidelines

To achieve the performance levels as described in each system, all materials as specified in the system must be used. The basic information regarding the materials to be used can be found in the individual system specification. Refer to James Hardie's product technical specification/installation manuals for further information about their installation.

4.1 Boundary Wall – Post Fire Stability

The fire rated walls built close to boundary are required to achieve post fire stability as per section 2.2.4 of B1/VM1 of the NZBC. James Hardie has developed a few design solutions for concrete slab and timber foundations/floors.

The bottom plate of these walls can be fixed in accordance with post fire stability details published in this design manual using **Pryda® Brace Anchor or GIB HandiBrac®** on both sides of the stud. If the published solutions are not suitable for the project, contact the project structural engineer for an alternate design to achieve post fire stability.

Post fire stability for steel framing must be as per SED.

4.2 Acoustic Performance

Hardie™ fibre cement products are suitable to achieve superior acoustic ratings. The STC ratings published in this manual are specific to the wall build-up as described within each FRR system. To achieve higher acoustic ratings, Ask James Hardie on 0800 808 868.

The Impact Insulation Class (IIC) criteria as per Clause G6 of the NZBC is applicable to intertenancy floors.

Secura™ Interior Flooring is commonly used in floors by acoustic engineers for an improved impact sound performance which is measured in IIC. The sound attenuation performance of ceilings is measured in STC. The IIC and STC ratings for floor/ceiling systems have been tested and are published in the system specification.

4.3 Framing

The frame sizes and their spacing mentioned in this manual are a minimum requirement. Bigger framing sections required to suit a proprietary cladding system, or to suit higher wind pressures or higher loading, does not affect the FRR published.

4.4 Timber

Timber framing must either be in accordance with the NZS 3604 or in accordance with SED. The stud, nogs/dwangs and floor joist spacing, timber size must meet the following minimum requirements:

For walls:

- Framing size 90 x 45mm minimum
- Stud spacing 600mm maximum
- Nogs/dwangs spacing 800mm maximum
- For post fire stability design, framing size and hold down anchors, refer to the construction details

For floors:

- Minimum 45mm wide floor joists shall be used
- Strutting of floor joists is required as per the NZS 3604
- Bottom plate fixing in timber floors must penetrate through floor into joists or solid blocking
- Secura™ Interior Flooring systems are suitable for 3kPa floor loads

4.5 Steel

Steel framing for fire rated walls must be in accordance with the NASH standard for residential and low rise buildings. The framing shall also meet the following requirements:

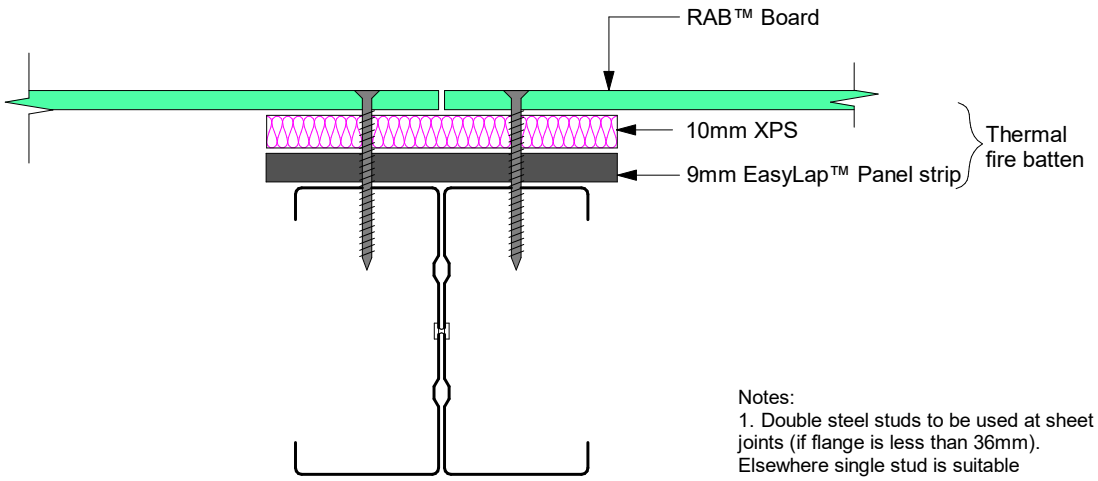
- Steel sections shall have a base metal thickness (BMT) of 0.55mm minimum for non-load bearing walls and 0.75-1.6mm for load bearing walls
- Steel stud for use in external walls shall be 92mm deep x 36mm wide minimum
- Stud spacing 400mm centres maximum for load bearing walls
- Nogs/dwangs spacing 800mm centres maximum

4.6 Thermal Fire Batten

Fire battens are used on all FRR steel systems and must be used between Hardie™ cladding and steel framing members. For steel framing in interior/exterior applications the NZBC also requires additional external insulation to achieve adequate thermal resistance. These insulated battens are assembled on site by cutting a 100mm wide strip from 9mm thick EasyLap™ Panel and adhering a 10mm thick x 100mm wide XPS (extruded polystyrene) on its face.

All fire battens are fixed horizontally and vertically to all steel members. All battens must be neatly cut and tightly fitted covering all steel members. All thermal fire battens must be fitted with the polystyrene to the exterior face. The batten is tacked to the steel framing as shown in the following detail.

Thermal Fire Batten Fixing



4.7 Structural Steel Members

When structural steel members are located inside the fire rated wall cavity such as columns, or beams in a floor/ceiling cavity, these structural members must be independently fire rated.

4.8 Insulation

4.8.1 Hardie™ Mineral Insulation

Hardie™ Mineral Insulation is used in James Hardie's fire rated systems in accordance with the system specification. Hardie™ Mineral Insulation has been tested with James Hardie's fire rated systems and cannot be substituted with any other insulation material.

Also refer to clause H1 of the NZBC for further information on construction R-value requirements.

Hardie™ Mineral Insulation has the following properties:

- Size: 600 x 800 x 90mm - 2.4m^2 per bale
- R-Value: 2.74m^2K/W
- Density: 80kg/m^3

Fit the Hardie™ Mineral Insulation tightly in all framing cavities. Hardie™ Mineral Insulation is pre-cut 50mm bigger in length and width than the cavity size to ensure a tight friction fit in the cavity. If the cavity to be insulated is smaller than the size of insulation supplied, the insulation may be cut on site to fit to size. Ensure that insulation is at least 50mm bigger in each direction than the size of frame cavity to be filled so that a tight friction fit is achieved.

4.8.2 GLASS WOOL Insulation

Where R2.2 glass wool insulation is specified in a system, any brand of R2.2 glass wool insulation which weighs 12–18kg/m^3 may be used. A higher R-value glass wool insulation can be used to achieve higher insulation requirements.

4.9 Flexible Underlay

In a FRR system, any flexible underlay that complies with Table 23 of E2/AS1 and has a Flammability Index not exceeding 5, when tested to AS 1530.2 may be used.

4.10 RAB™ Board

RAB™ Board by James Hardie can be used to achieve fire ratings up to 120 minutes. Flexible underlay is not required when using RAB™ Board.

4.11 Cavity Construction

The fire ratings are not affected when the Hardie™ cladding is fixed using a timber cavity batten (18-25mm) construction method. Follow the cavity construction specification developed for each cladding material supplied by James Hardie.

4.12 Control Joints

The cladding must be separated at the vertical joint between claddings at tenancy junctions. Refer to figures 8 and 9.

4.13 Coatings and Finishes

All Hardie™ cladding systems require protective coatings to meet the NZBC requirements. Refer to relevant technical literature by James Hardie for the product selected. All claddings must be maintained in accordance with product literature. Also refer to coating manufacturer's recommendations.

For FRR systems with surface finishes over 1mm thick, designers must ensure that the finishes comply with the requirements of Section 5.8 clause C/AS1 - C/AS2 of the NZBC.

4.14 Bracing

The bracing systems specified in the Bracing Design Manual by James Hardie can be combined with the fire and acoustic systems by adhering to the details outlined for the relevant bracing and fire and acoustic systems.

When fire rated systems are combined with bracing systems then the durability of the components used in the system must meet a 50 years durability requirement of Clause B2 of the NZBC.

Bracing cannot be achieved when Hardie™ claddings/pre-cladding are fixed with screws or when steel framing is used.

4.15 Fire Resistance Rating

Working through the approved documents will determine the fire resistance rating required for walls that separates the fire cells. These ratings are expressed as Fire Resistance Rating (FRR) of a wall in minutes. The fire engineers may occasionally need to use the actual value in some applications. If this information is required, Ask James Hardie™ on 0800 808 868.

If the project requires a wall to achieve a FRR of 60/60/60 (i.e. Stability/Integrity/Insulation) the wall will have the following characteristics:

- The first 60 figure describes the wall's structural stability requirement for 60 minutes. Within this period the wall must support the structure and other fire rated elements within the same or other fire cells. A dash here indicates the wall is not a structural wall (this is typical for non-load bearing systems such as partition walls).
- The second 60 figure describes the wall's integrity requirement for 60 minutes. During this period the hot gases or flames can not pass through the wall to either side. After this period a failure has occurred as the wall system under test develops cracks or openings through which hot gases and smoke can pass.
- The third 60 figure describes the wall's insulation requirement for 60 minutes. After this period a failure has occurred in the wall system under test, when:
    a) the average temperature of the unexposed surface of the test specimen increases by more than 140°C above the initial temperature, or
    b) the temperature at any point on the unexposed surface increases by more than 180°C above the initial temperature.

James Hardie's Fire and Acoustic Systems allow a wide range of framing methods and architectural systems to achieve FRR from 30/30/30 to 120/120/120. When specific fire safety design is required for a specialist application, fire engineers may Ask James Hardie™ on 0800 808 868 for further information.

4.16 Internal Linings Group Numbers

The internal lining materials are required to be tested as per ISO 9705 or ISO 5660 in order to identify their 'Group Number.'

All Hardie™ internal linings such as Villaboard™ Lining and Hardie™ Groove Lining have been tested/assessed by BRANZ and they have a 'Group Number 1-S'. Note that this classification only applies to Hardie™ fibre cement lining products without paint or wet finish. Contact the surface finishes supplier for Group Number information about their finishing products.

Our prefinished linings such as Hardie™ Glaze Lining have also been tested/assessed and they have a 'Group Number 1-S'. This means Hardie™ internal lining products are suitable for use as internal linings in exitways and all occupied spaces in schools, hospitals, detention centres, offices, hotels, motels and apartments type buildings etc.

'Group Number 1-S' is the highest performance expectation as per Clause C/AS1 - C/AS2.

4.17 Control Of External Fire Spread

Safety requirements for external fire spread protection are:

As per Clause C3.5 of the NZBC, building must be designed & constructed so that fire does not spread more than 3.5m vertically from the fire source over the external cladding of multi-level buildings.

External walls of buildings that are within 1m from the boundary must meet the requirements as per Clause C3.7 of the NZBC.

Refer to Table 5.1 of Section 5.4 of C/AS1 and Table C1.3 of C/AS2 for the information about the various external wall cladding material requirements.

Cladding products by James Hardie have been tested to AS/NZS 3837 and are classified as Type-A cladding material. The James Hardie's fire safety systems have either been tested or assessed at BRANZ. The systems are suitable to achieve the vertical or horizontal fire spread safety requirements as mentioned above, when installed as per the system specification and the details published in this design manual.

When using fire rated systems by James Hardie for buildings over 10m in height, RAB™ Board must be used and the external wall cavity must be blocked off at each floor level or at heights no more than 3.5m to prevent fire spread within the cavity. Refer to Figure 7 for the horizontal joint detail for an inter-storey fire separation in conjunction with our fire rated systems and Hardie™ claddings.

For construction details of Hardie™ claddings with RAB™ Board, Ask James Hardie on 0800 808 868.

4.18 Product Substitution

The fire and acoustic performance, durability and maintenance requirements of alternative proprietary products cannot be assured by James Hardie. Many apparently identical products were tested and rejected before selection of materials used in the FRR systems published in this manual. When a product specified in a system is substituted, the performance of the system will be compromised. Therefore the materials specified in the system must not be substituted.

For substituting a Hardie™ product with another Hardie™ product in a specified system Ask James Hardie™ 0800 808 868.

4.19 Plasterboard

Plasterboard lining must be fixed and stopped in accordance with the plasterboard manufacturer's recommendations. Regarding the use of GIB® plasterboard lining products, the following substitutions are allowed.

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

Other plasterboard suppliers e.g. USG Boral® and Elephant Plasterboard® have also developed various fire rated systems in conjunction with Hardie™ claddings. Refer to these plasterboard manufacturer's for information on their fire rated systems.

5 Product Warranty

Fire & Acoustic components supplied by James Hardie are backed by a warranty. The warranty period will vary based on the specific system component. For warranty terms & conditions refer to www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

External Walls
Timber Frame

30 Minute Fire Rated System

60 Minute Fire Rated System

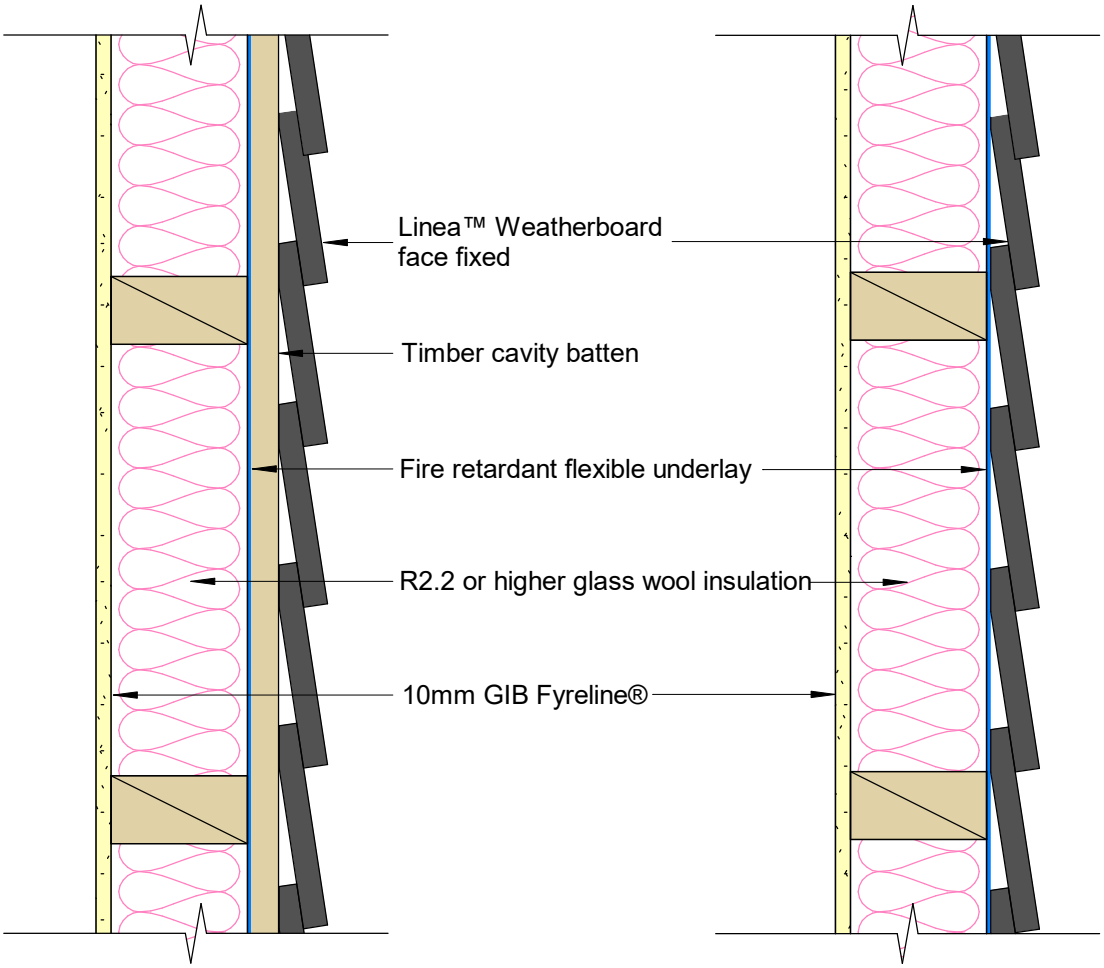
120 Minute Fire Rated System

JHETGL30

Fire Resistance 30/30/30 **STC** 46

Cladding	Linea™ Weatherboard	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm.	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Direct Fix:** Face fixed with 60 x 2.87mm jolt head nails to studs **Cavity Fix:** Face fixed with 75 x 3.15mm jolt head nails to studs	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Linea™ Weatherboard cavity fix or direct fix technical specifications.

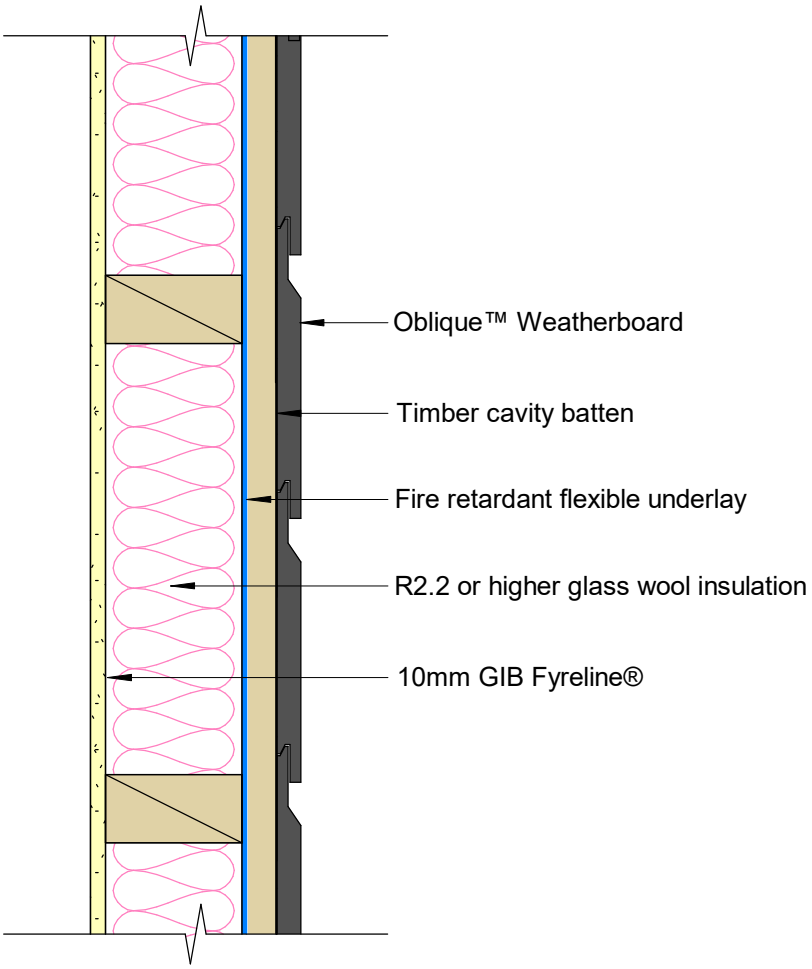


JHETGO30h

Fire Resistance 30/30/30 **STC** 46

Cladding	Oblique™ Weatherboard - Horizontal	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**200mm wide weatherboard:** 65 x 2.87mm D-Head or round head nail to stud **300mm wide weatherboard:** Two nails per stud, 65 x 2.87mm D-Head or round head nail	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Oblique™ Weatherboard horizontal installation technical specification

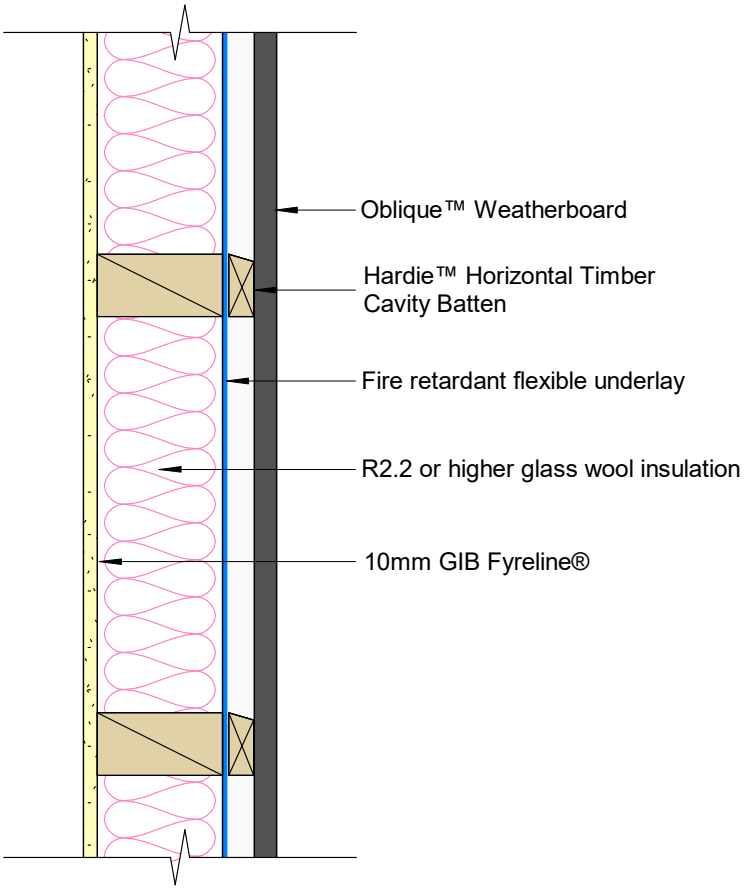


JHETGO30v

Fire Resistance 30/30/30 **STC** 46

Cladding	Oblique™ Weatherboard - Vertical	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 600mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Hardie™ horizontal timber cavity batten 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**200mm wide weatherboard:** 65 x 2.87mm D-Head or round head nail to nog **300mm wide weatherboard:** Two nails per nog, 65 x 2.87mm D-Head or round head nail	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Oblique™ Weatherboard vertical installation technical specification

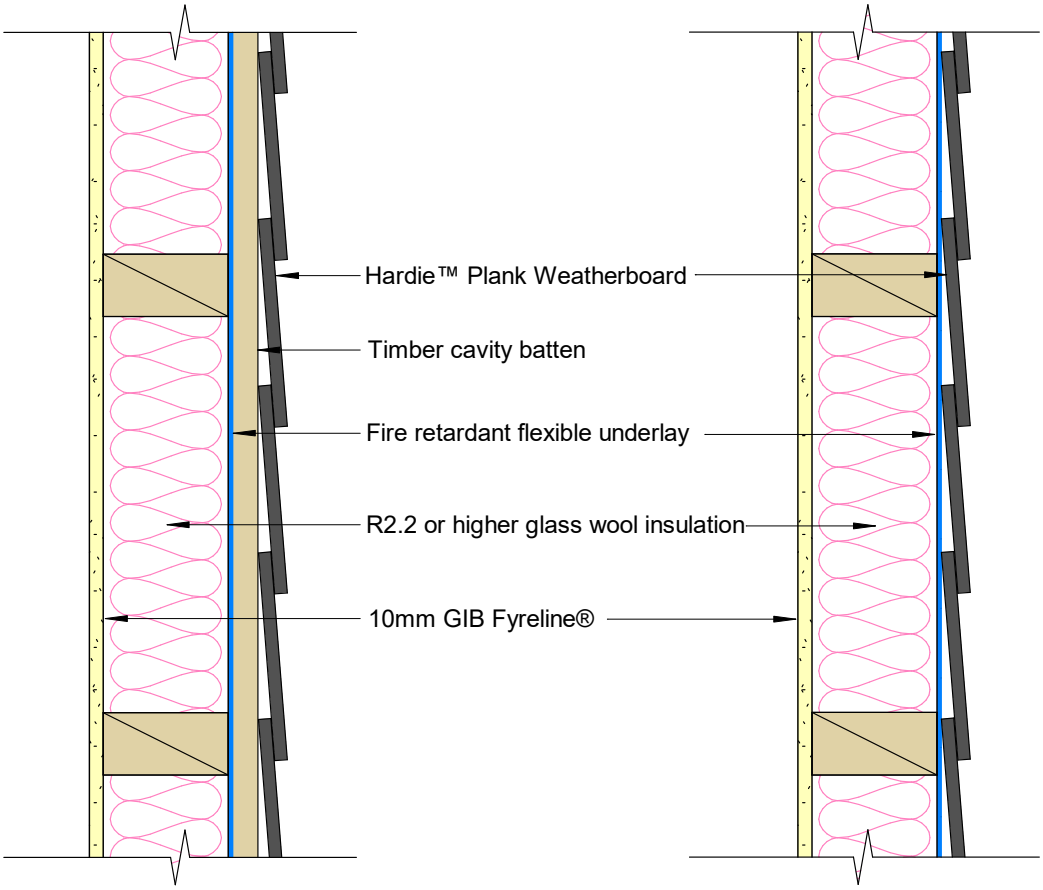


JHETGW30

Fire Resistance 30/30/30 **STC** 45

Cladding	Hardie™ Plank Weatherboard	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Direct Fix:** Face fixed with 50 x 2.8mm fibre cement nail to stud **Cavity Fix:** Face fixed with 75 x 3.15mm fibre cement nail to stud	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Hardie™ Plank Weatherboard technical specification

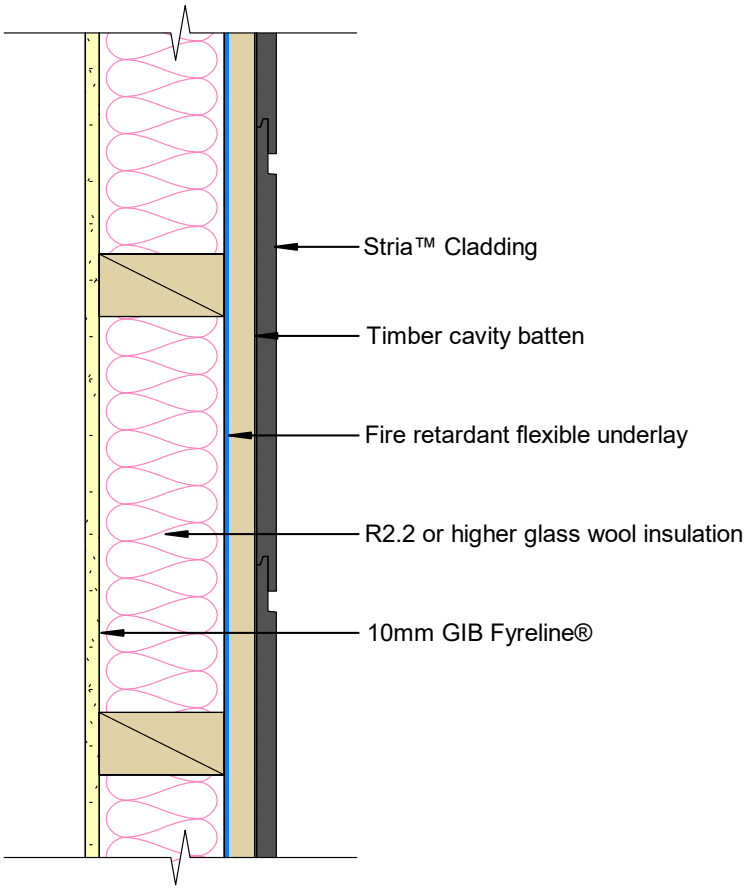


JHETGS30h

Fire Resistance 30/30/30 **STC** 46

Cladding	Stria™ Cladding - Horizontal	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	65 x 2.87mm D-Head or round head nail to stud	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Stria™ Cladding timber cavity batten installation technical specification

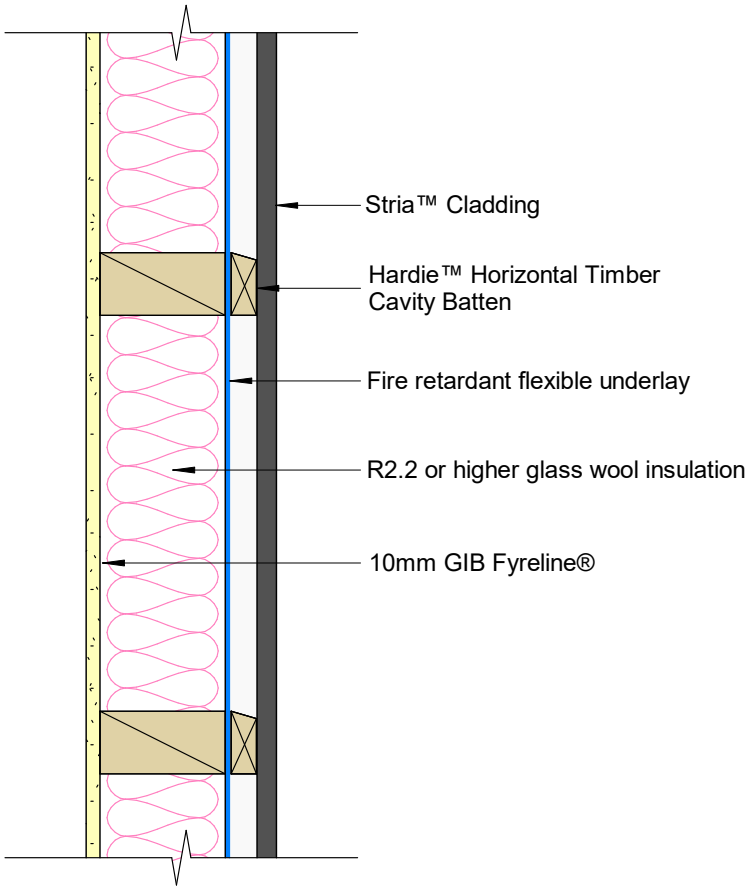


JHETGS30v

Fire Resistance 30/30/30 **STC** 46

Cladding	Stria™ Cladding - Vertical	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 600mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Hardie™ horizontal timber cavity batten 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	65 x 2.87mm D-Head or round head nail to nog	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Stria™ Cladding vertical installation technical specification

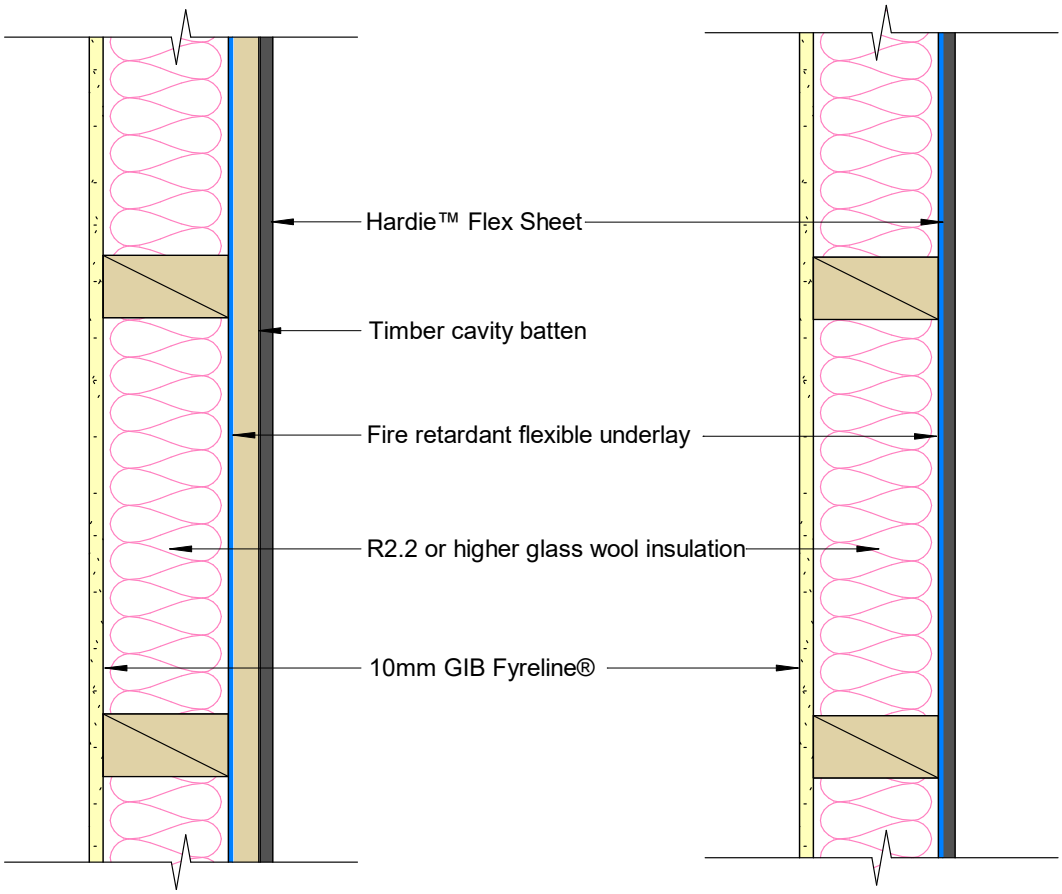


JHETGF30

Fire Resistance 30/30/30 **STC** 42

Cladding	Hardie™ Flex Sheet	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Direct Fix:** 40 x 2.8mm fibre cement nail at 150mm centres to entire frame **Cavity Fix:** 60 x 3.15mm fibre cement nail at 150mm centres to entire frame	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Hardie™ Flex Sheet technical specification

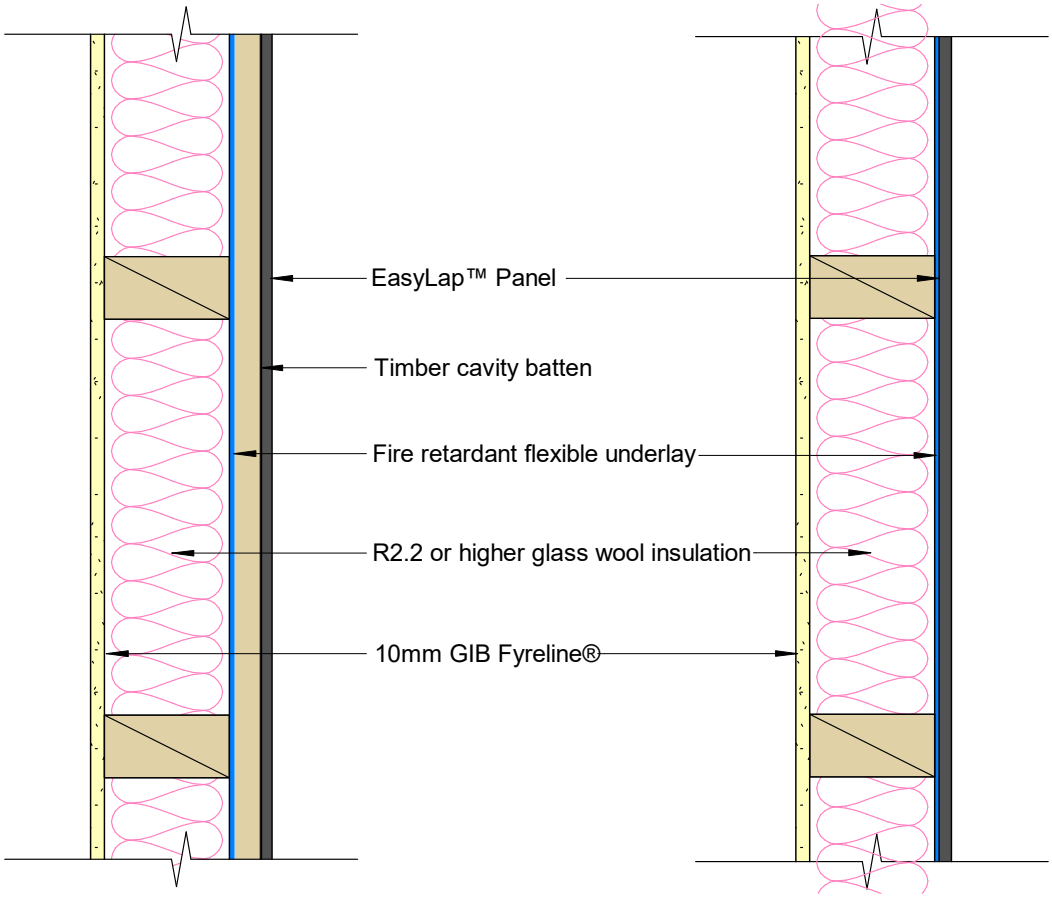


JHETGE30

Fire Resistance 30/30/30 **STC** 42

Cladding	EasyLap™ Panel	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	60 x 3.15mm fibre cement nail at 150mm centres to entire frame	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Axon™ Panel and EasyLap™ Panel Timber Cavity Batten technical specification

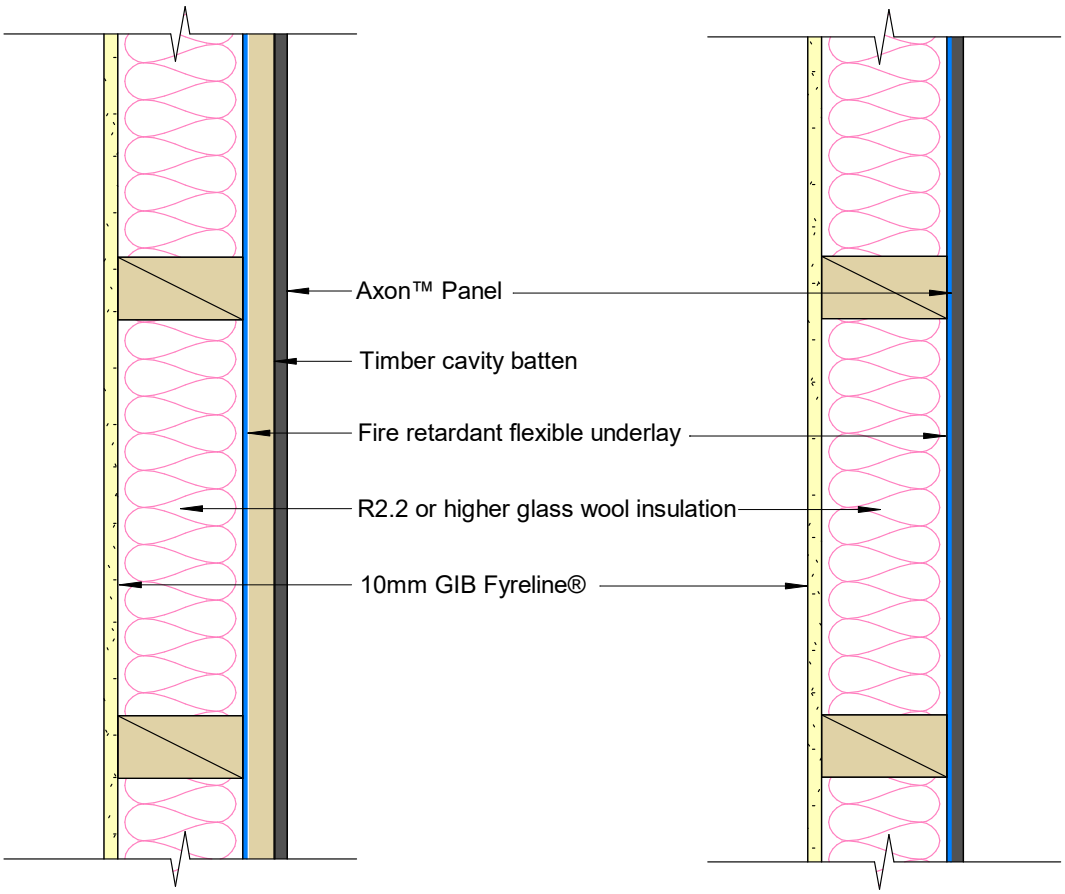


JHETGA30

Fire Resistance 30/30/30 **STC** 41

Cladding	Axon™ Panel	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Direct Fix:** 40 x 2.8mm round head nail at 150mm centres to entire frame **Cavity Fix:** 60 x 3.15mm round head nail at 150mm centres to entire frame	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Axon™ Panel and EasyLap™ Panel Timber Cavity Batten technical specification



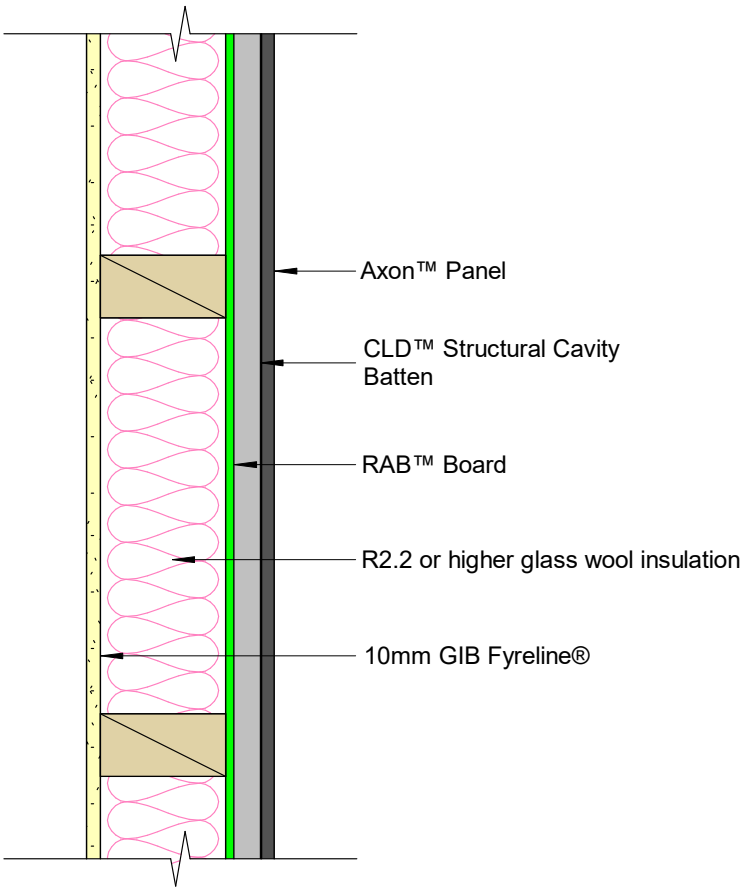
JHETGR30-A

Fire Resistance 30/30/30 **STC** 45

Cladding	Axon™ Panel	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum.	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	70 x 19mm Hardie™ CLD™ Structural Cavity Batten	**Underlay**	RAB™ Board
Cladding Fixing	As per Axon™ Panel and EasyLap™ Panel Direct Fix and Fixed to CLD™ Structural Cavity Batten technical specification	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space.

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



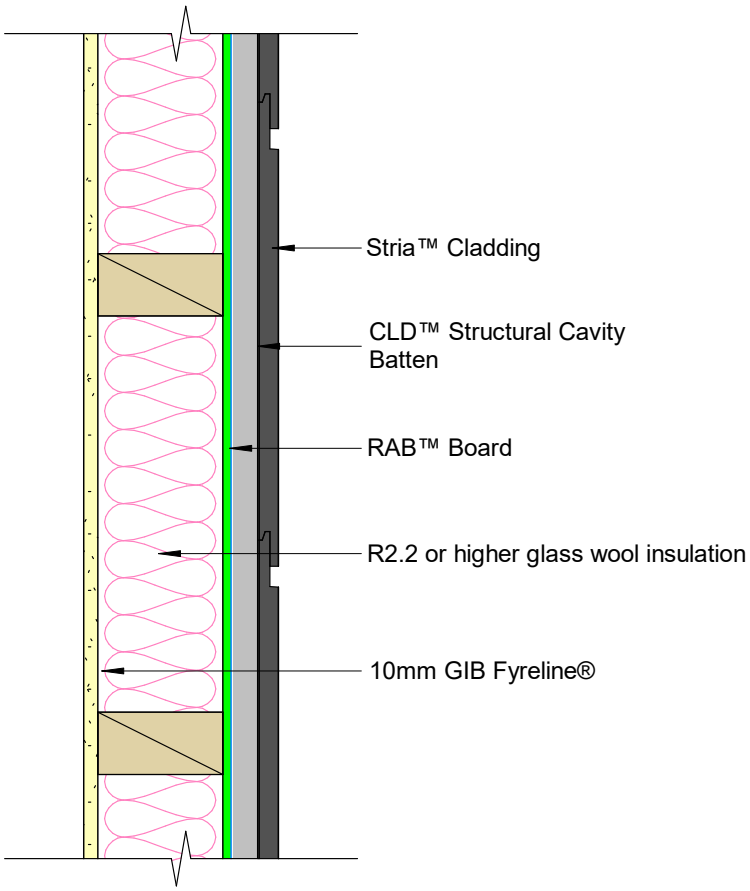
JHETGR30-S

Fire Resistance 30/30/30 **STC** 46

Cladding	Stria™ Cladding	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum.	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	70 x 19mm Hardie™ CLD™ Structural Cavity Batten	**Underlay**	RAB™ Board
Cladding Fixing	As per Stria™ Cladding Hardie™ CLD™ Structural Cavity Batten technical specification	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



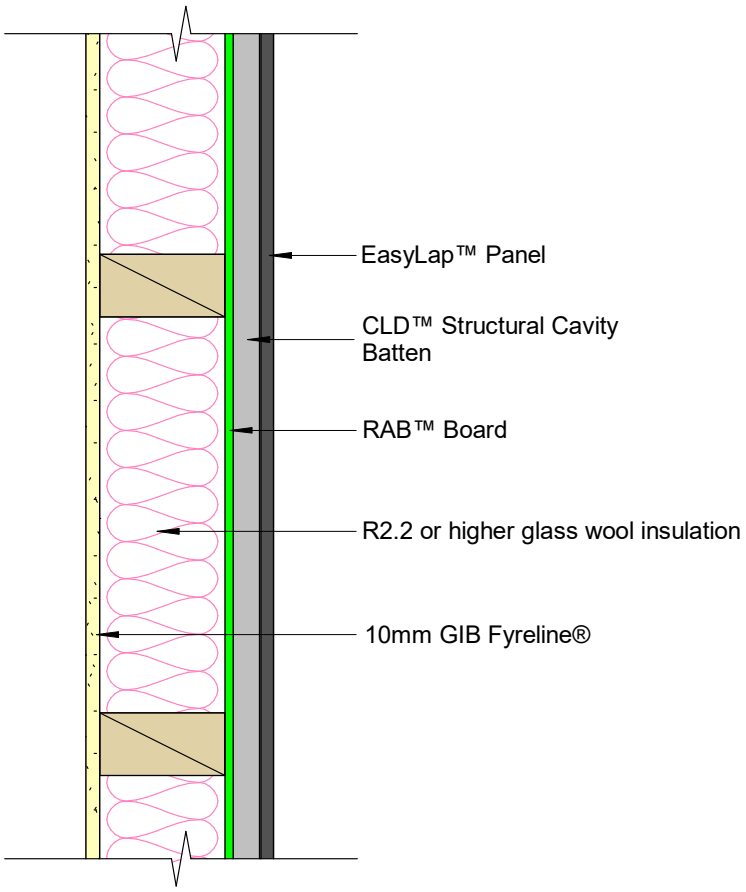
JHETGR30-E

Fire Resistance 30/30/30 **STC** 46

Cladding	EasyLap™ Panel	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum.	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	70 x 19mm Hardie™ CLD™ Structural Cavity Batten	**Underlay**	RAB™ Board
Cladding Fixing	As per Axon™ Panel and EasyLap™ Panel Direct Fix and Fixed to CLD™ Structural Cavity Batten technical specification	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



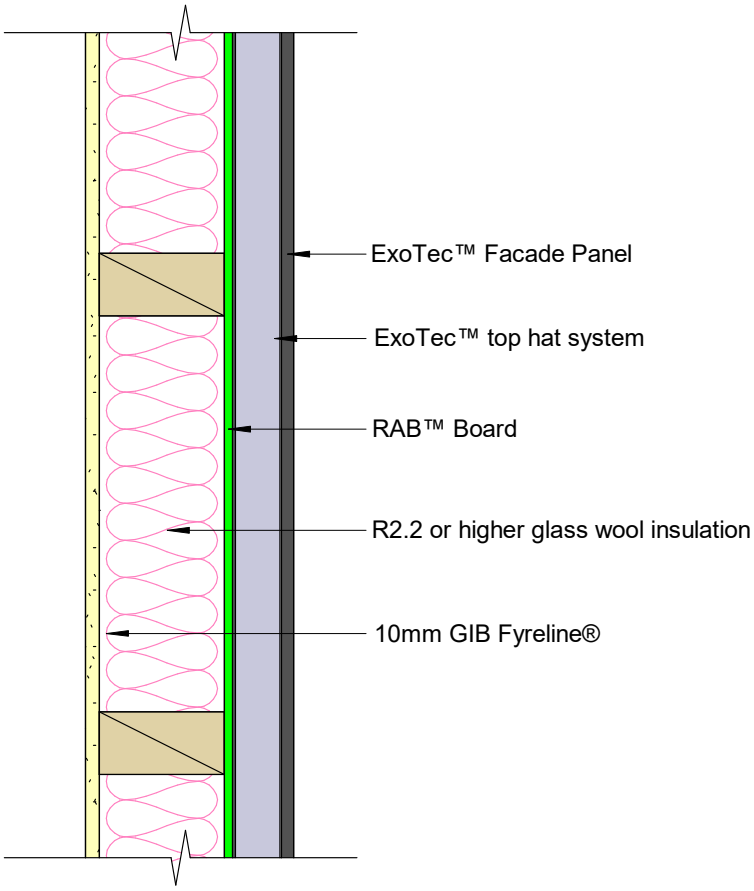
JHETGR30-X

Fire Resistance 30/30/30 **STC** 47

Cladding	ExoTec™ Facade Panel	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum.	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher
Cavity Batten	ExoTec™ top hat system	**Underlay**	RAB™ Board
Cladding Fixing	As per ExoTec™ Facade Panel top hat technical specification	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



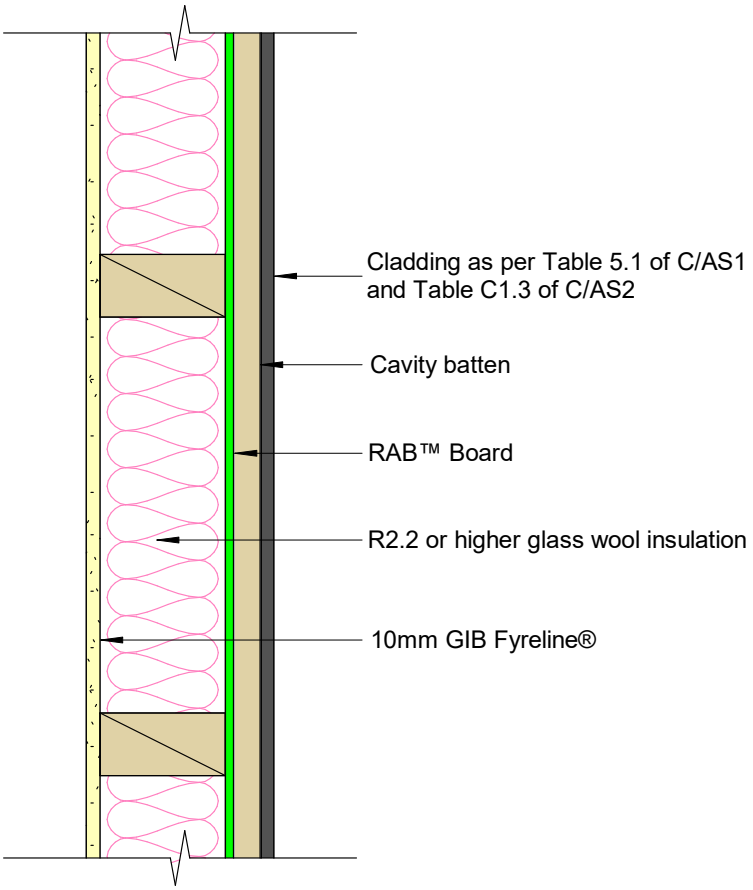
JHETGR30-N

Fire Resistance 30/30/30 **STC** 42

Cladding	Cladding system as per Table 5.1 of C/AS1 and Table C1.3 of C/AS2	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	As per cladding manufacturer technical specification	**Underlay**	RAB™ Board
Cladding Fixing	As per cladding manufacturer technical specification	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual

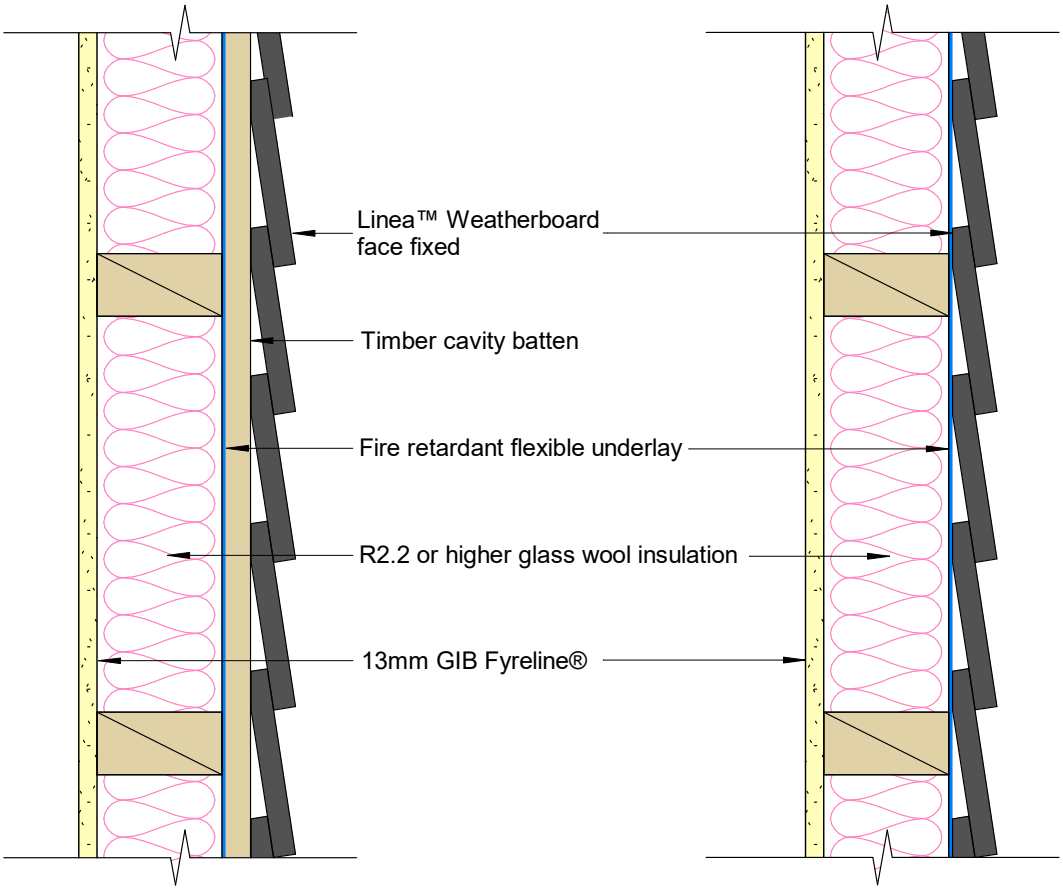


JHETGL60

Fire Resistance 60/60/60 **STC** 46 **Under 10m**

Cladding	Linea™ Weatherboard	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Direct Fix:** Face fixed with 60 x 2.87mm jolt head nails to studs **Cavity Fix:** Face fixed with 75 x 3.15mm jolt head nails to studs	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

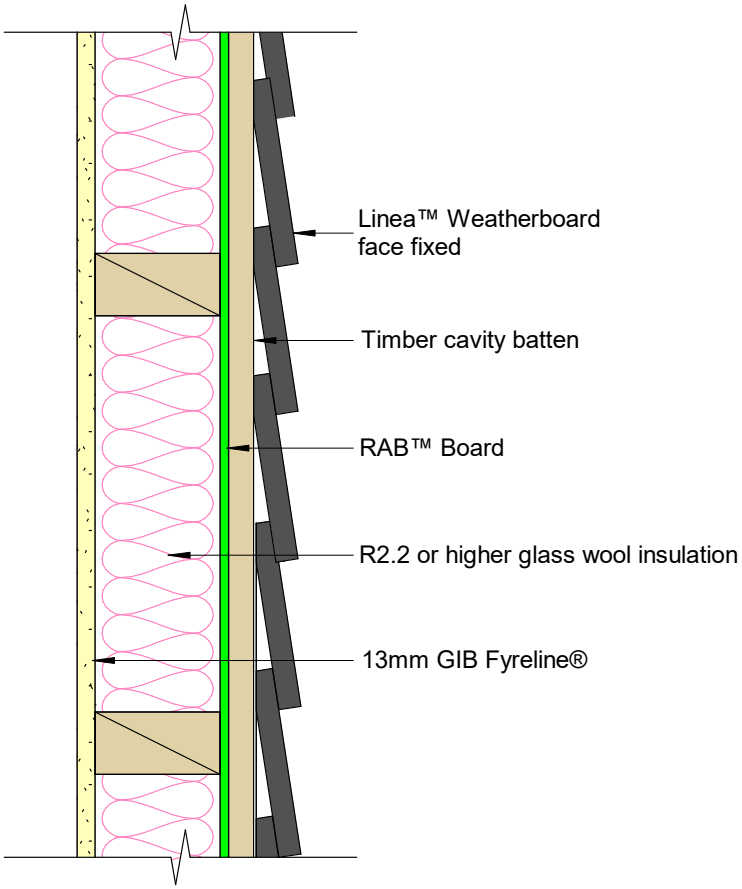
For further information refer to Linea™ Weatherboard cavity fix or direct fix technical specifications.



JHETGL60	Fire Resistance 60/60/60	STC 47	Over 10m or EH Wind Zone

Cladding	Linea™ Weatherboard	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	RAB™ Board
Cladding Fixing	Face fixed with 90 x 3.55mm jolt head nails to studs	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

For further information refer to Linea™ Weatherboard cavity fix or direct fix technical specification.

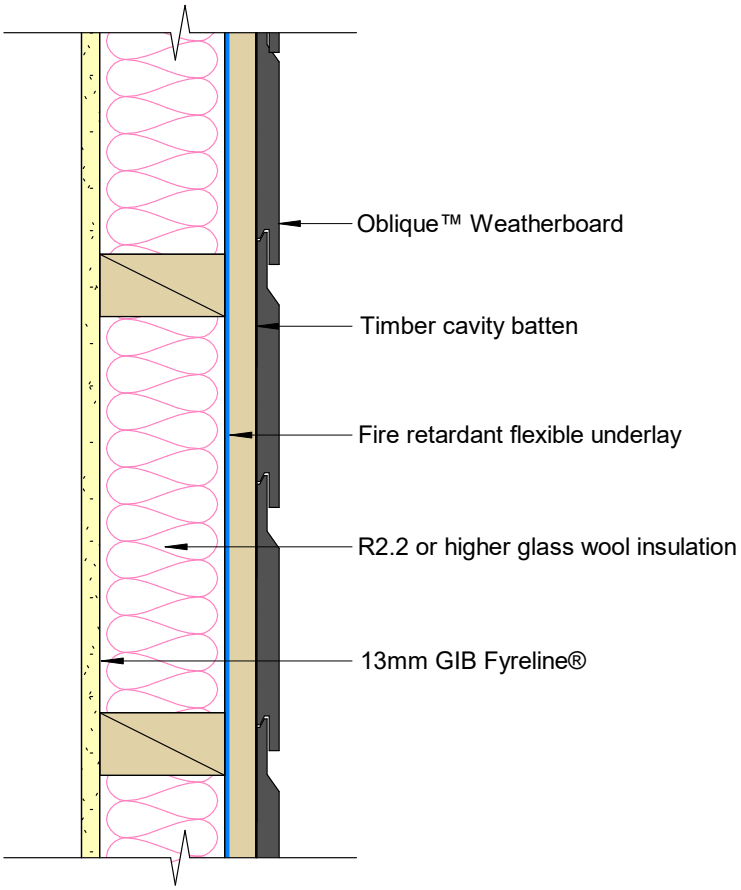


JHETGO60h

Fire Resistance 60/60/60 | **STC** 46 | **Under 10m**

Cladding	Oblique™ Weatherboard - Horizontal	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**200mm wide weatherboard:** 65 x 2.87mm D-Head or round head nail to stud **300mm wide weatherboard:** Two nails per stud, 65 x 2.87mm D-Head or round head nail	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Oblique™ Weatherboard horizontal installation technical specification

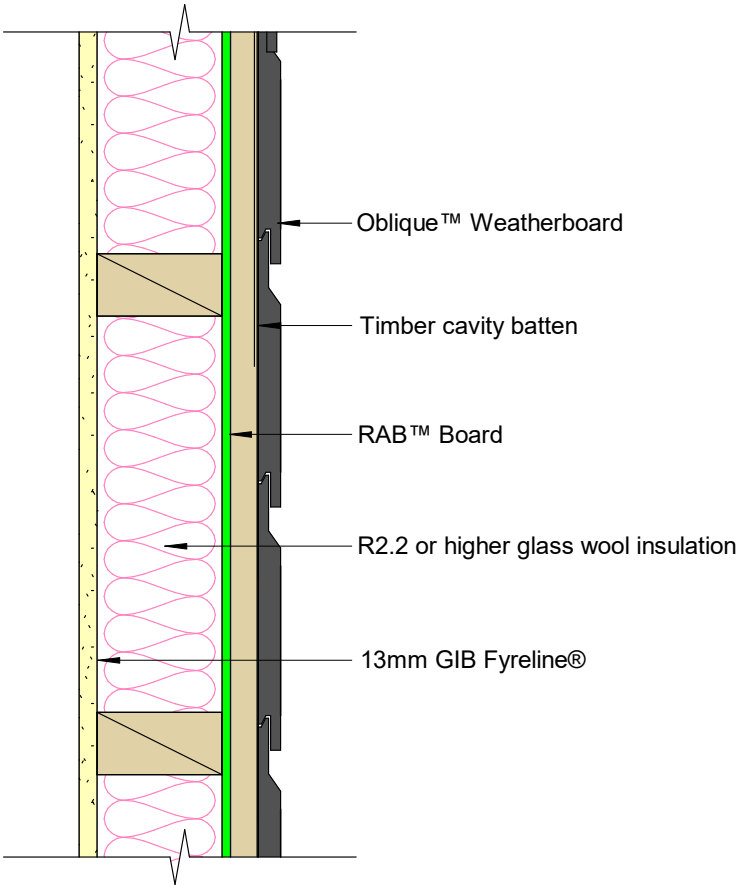


JHETGO60h

Fire Resistance 60/60/60 | **STC** 47 | **Over 10m or EH Wind Zone**

Cladding	Oblique™ Weatherboard - Horizontal	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	RAB™ Board
Cladding Fixing	**200mm wide weatherboard:** 75 x 3.06mm D-Head or round head nail to stud **300mm wide weatherboard:** Two nails per stud, 75 x 3.06mm D-Head or round head nail	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

Oblique™ Weatherboard on Hardie™ 40mm horizontal cavity batten can also be used in this fire rated system.
For further information refer to Oblique™ Weatherboard horizontal installation technical specification

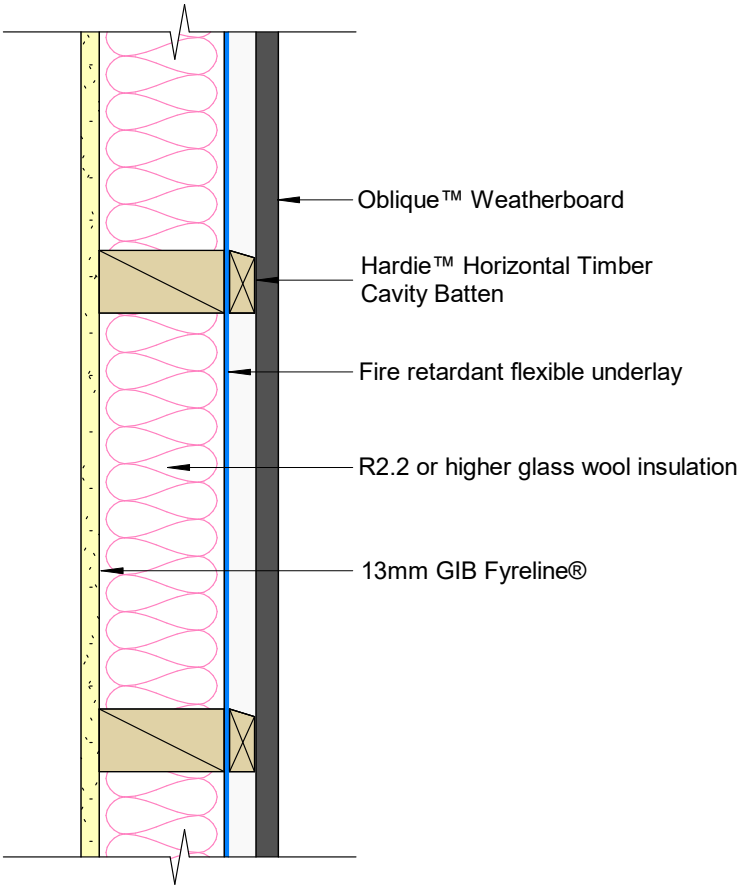


JHETGO60v

Fire Resistance 60/60/60 **STC** 46 **Under 10m**

Cladding	Oblique™ Weatherboard - Vertical	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 600mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Hardie™ horizontal timber cavity batten 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**200mm wide weatherboard:** 65 x 2.87mm D-Head or round head nail to nog **300mm wide weatherboard:** Two nails per nog, 65 x 2.87mm D-Head or round head nail	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

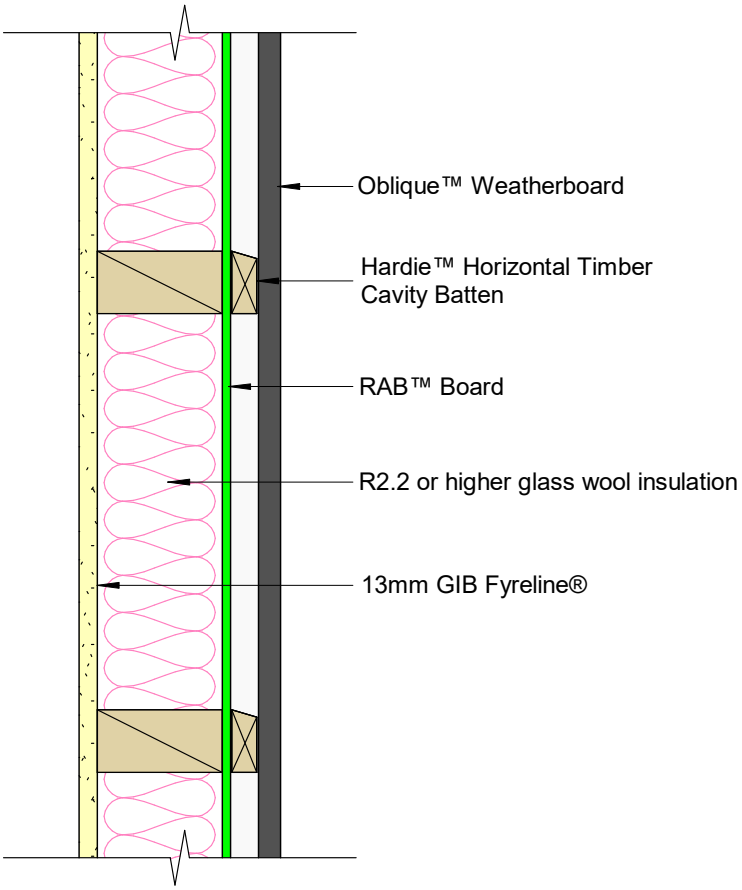
For further information refer to Oblique™ Weatherboard vertical installation technical specification



JHETGO60v	Fire Resistance 60/60/60	STC 47	Over 10m or EH Wind Zone

Cladding	Oblique™ Weatherboard - Vertical	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 600mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Hardie™ horizontal timber cavity batten 20mm	**Underlay**	RAB™ Board
Cladding Fixing	**200mm wide weatherboard:** 75 x 3.06mm D-Head or round head nail to nog **300mm wide weatherboard:** Two nails per nog, 75 x 3.06mm D-Head or round head nail	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

Oblique™ Weatherboard on Hardie™ 40mm horizontal cavity batten can also be used in this fire rated system
For further information refer to Oblique™ Weatherboard vertical installation technical specification

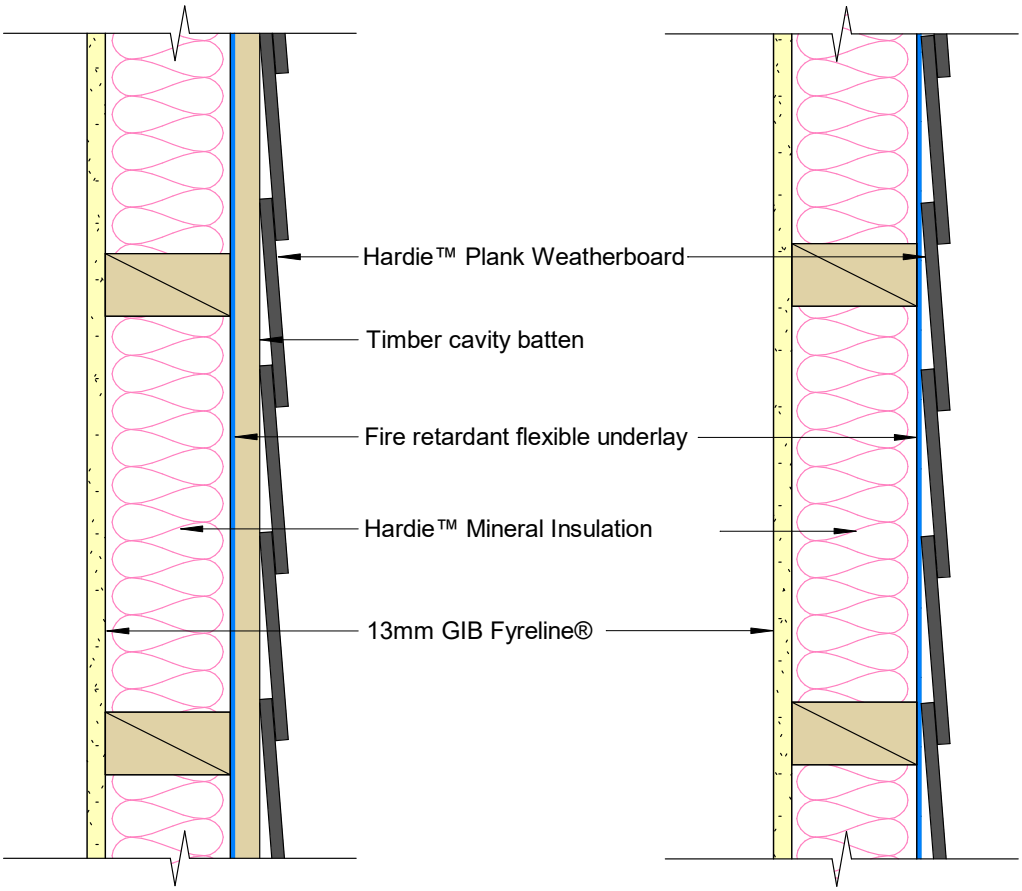


JHETGW60

Fire Resistance 60/60/60 **STC** 45 **Under 10m**

Cladding	Hardie™ Plank Weatherboard	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Direct Fix:** 50 x 2.8mm fibre cement nail to stud **Cavity Fix:** Face fixed with 75 x 3.15mm fibre cement nail to stud	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

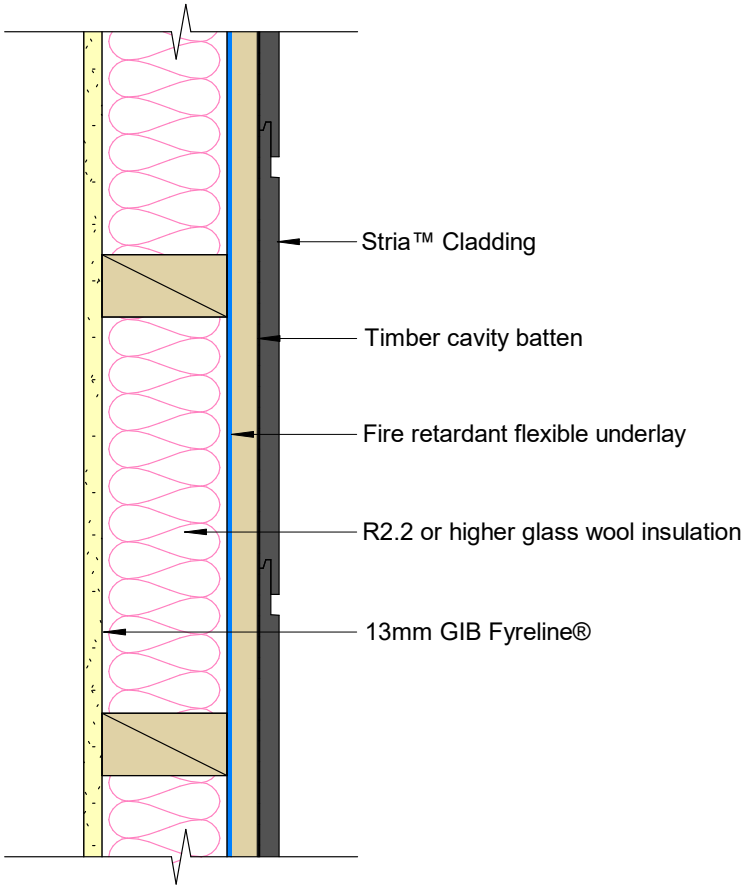
For further information refer to Hardie™ Plank Weatherboard technical specification



JHETGS60h	Fire Resistance 60/60/60	STC 46	Under 10m

Cladding	Stria™ Cladding - Horizontal	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	65 x 2.87mm D-Head or round head nail to stud	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Stria™ Cladding timber cavity batten horizontal installation technical specification

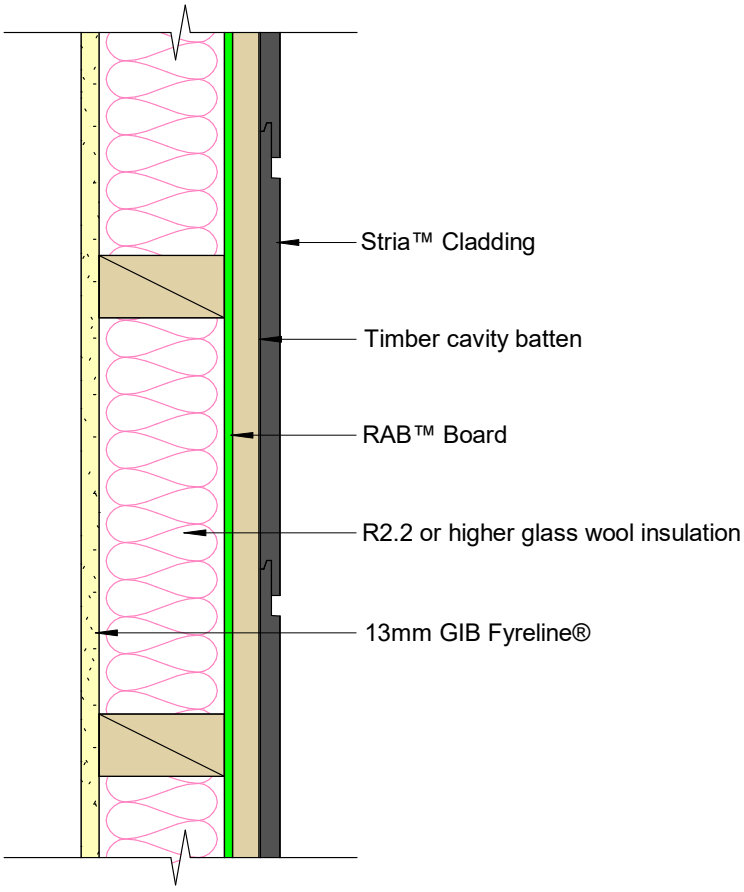


JHETGS60h

Fire Resistance 60/60/60 | **STC** 47 | **Over 10m or EH Wind Zone**

Cladding	Stria™ Cladding - Horizontal	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	RAB™ Board
Cladding Fixing	75 x 3.06mm D-Head or round head nail to stud	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

For further information refer to Stria™ Cladding timber cavity batten horizontal installation technical specification

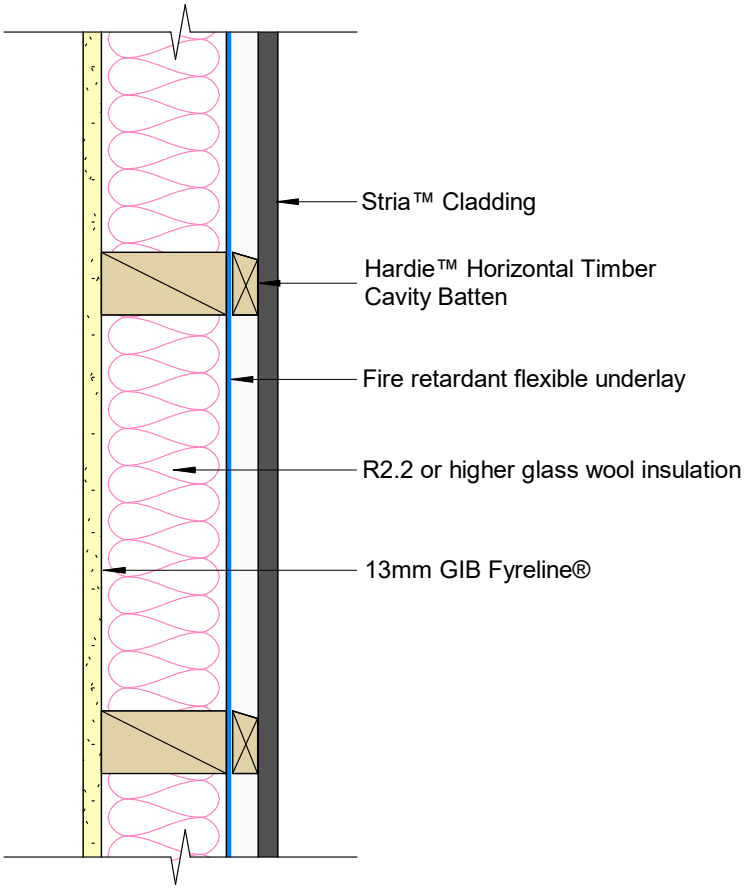


JHETGS60v

Fire Resistance 60/60/60 **STC** 46 **Under 10m**

Cladding	Stria™ Cladding - Vertical	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 600mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Hardie™ horizontal timber cavity batten 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	65 x 2.87mm D-Head or round head nail to nog	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

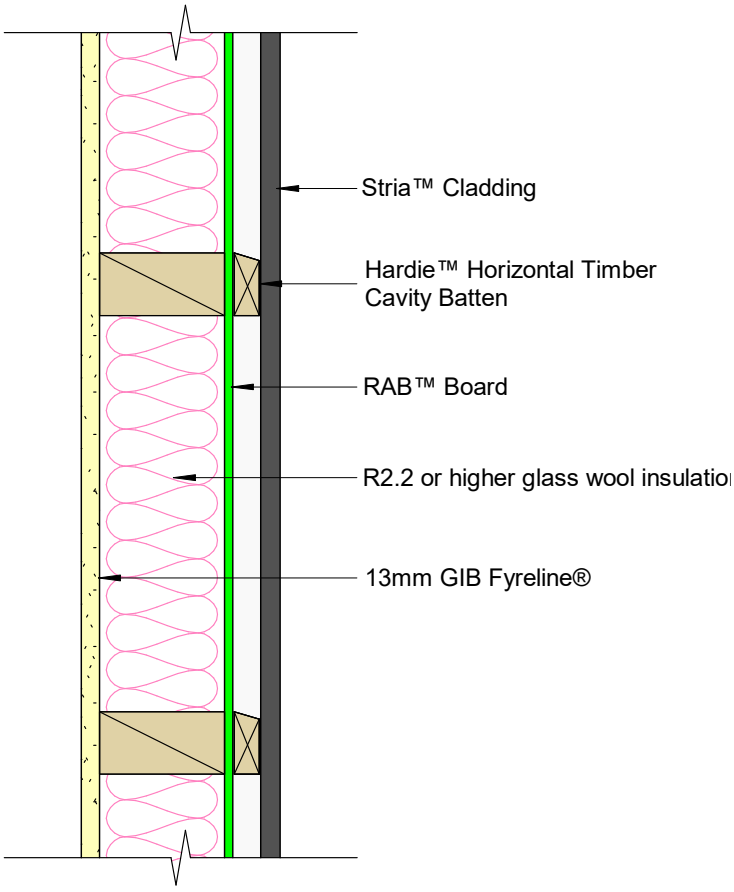
For further information refer to Stria™ Cladding vertical installation technical specification



JHETGS60v	Fire Resistance 60/60/60	STC 47	Over 10m or EH Wind Zone

Cladding	Stria™ Cladding - Vertical	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 600mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Cavity Batten	Hardie™ horizontal timber cavity batten 20mm	**Underlay**	RAB™ Board
Cladding Fixing	75 x 3.06mm D-Head or round head nail to nog	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

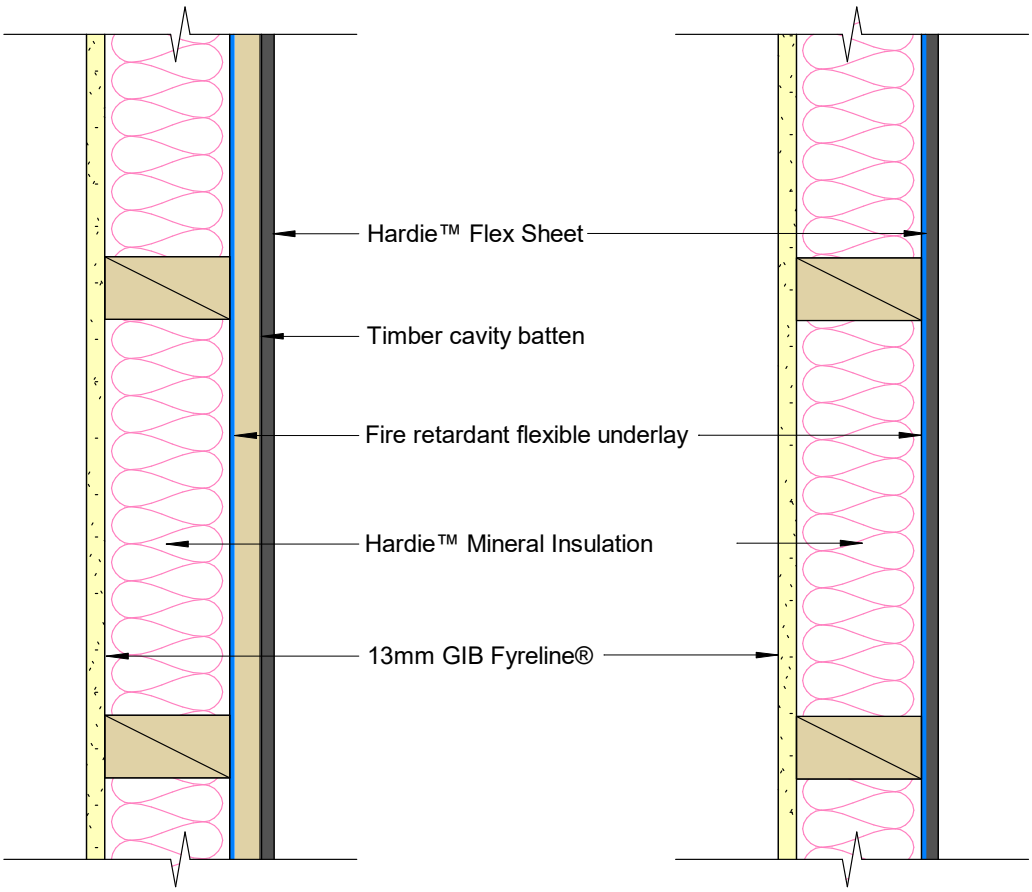
For further information refer to Stria™ Cladding vertical installation technical specification



JHETGF60	Fire Resistance 60/60/60	STC 42	Under 10m

Cladding	Hardie™ Flex Sheet	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Direct Fix:** 40 x 2.8mm fibre cement nail at 150mm centres to entire frame **Cavity Fix:** 60 x 3.15mm fibre cement nail at 150mm centres to entire frame	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Hardie™ Flex Sheet technical specification

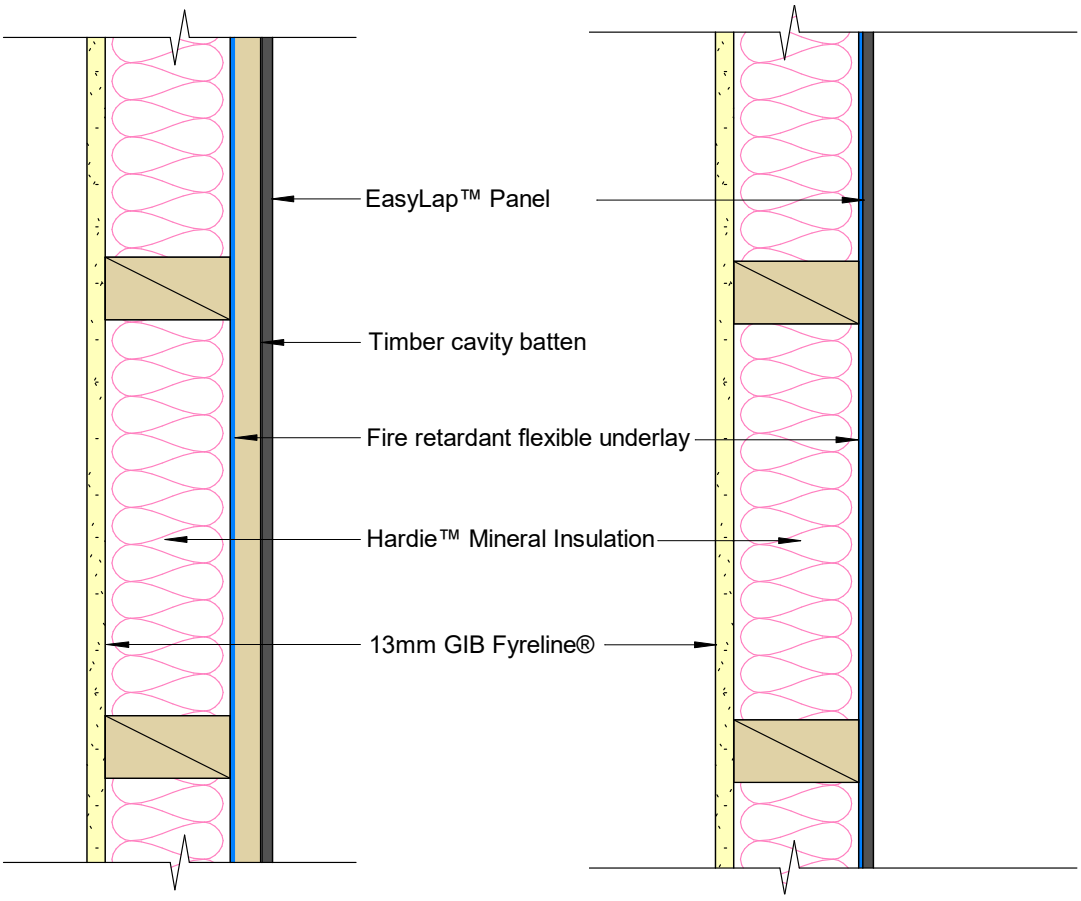


JHETGE60

Fire Resistance 60/60/60 **STC** 42 **Under 10m**

Cladding	EasyLap™ Panel	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	60 x 3.15mm fibre cement nail at 150mm centres to entire frame	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

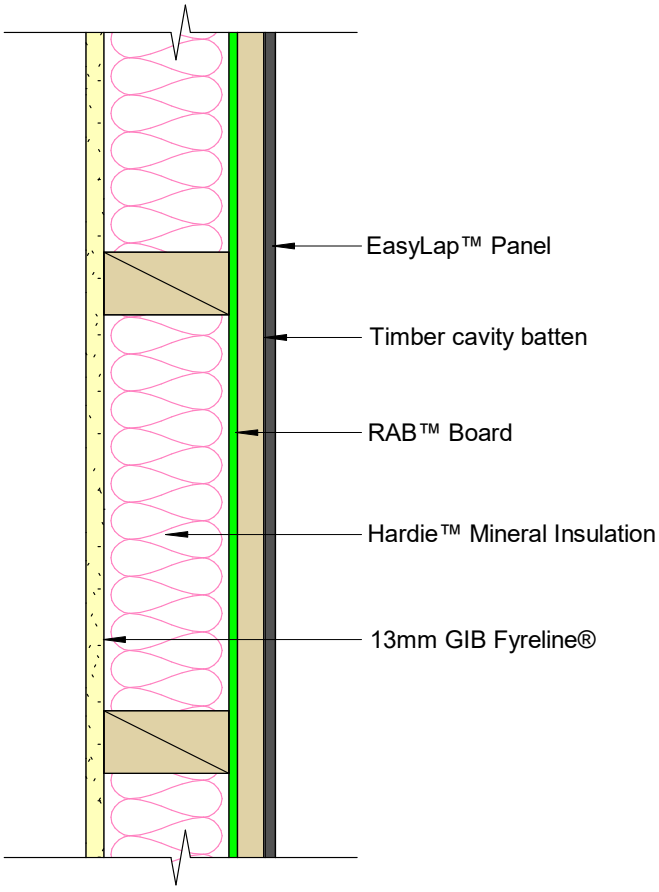
For further information refer to Axon™ Panel and EasyLap™ Panel Timber Cavity Batten technical specification



JHETGE60	Fire Resistance 60/60/60	STC 44	Over 10m or EH Wind Zone

Cladding	EasyLap™ Panel	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	RAB™ Board
Cladding Fixing	75 x 3.15mm fibre cement nail at 150mm centres to entire frame	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

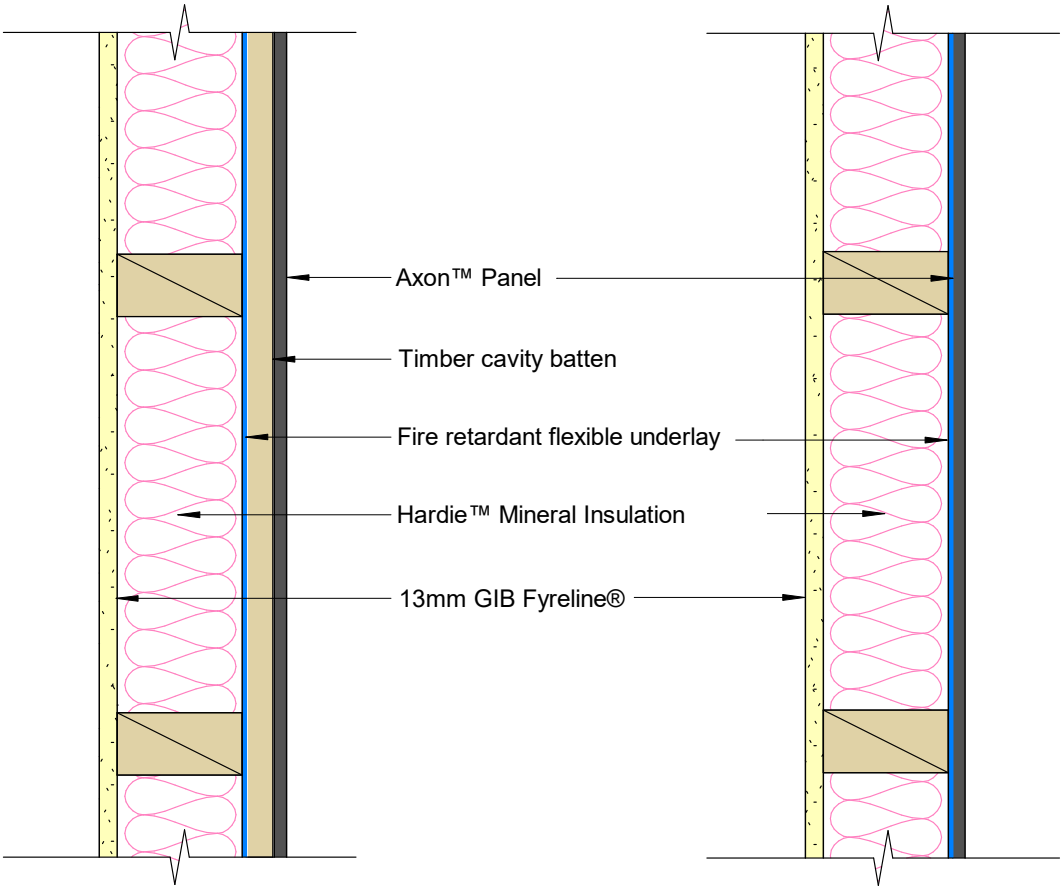
For further information refer to Axon™ Panel and EasyLap™ Panel Timber Cavity Batten technical specification



JHETGA60	Fire Resistance 60/60/60	STC 42	Under 10m

Cladding	Axon™ Panel	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Direct Fix:** 40 x 2.8mm round head nail at 150mm centres to entire frame **Cavity Fix:** 60 x 3.15mm round head nail at 150mm centres to entire frame	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

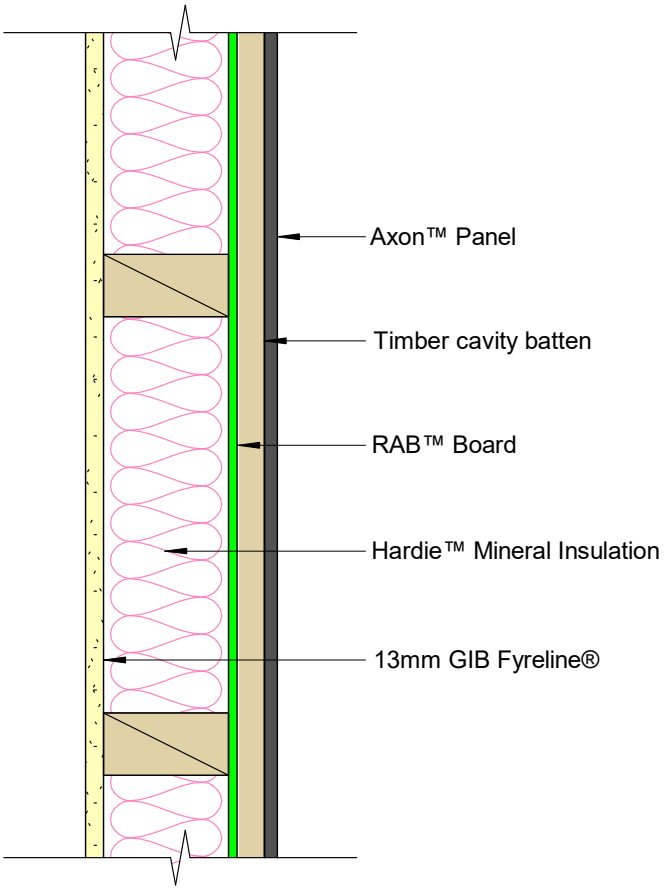
For further information refer to Axon™ Panel and EasyLap™ Panel Timber Cavity Batten technical specification



JHETGA60	Fire Resistance 60/60/60	STC 43	Over 10m or EH Wind Zone

Cladding	Axon™ Panel	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	RAB™ Board
Cladding Fixing	75 x 3.06mm round head nail at 150mm centres to entire frame	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

For further information refer to Axon™ Panel and EasyLap™ Panel Timber Cavity Batten technical specification



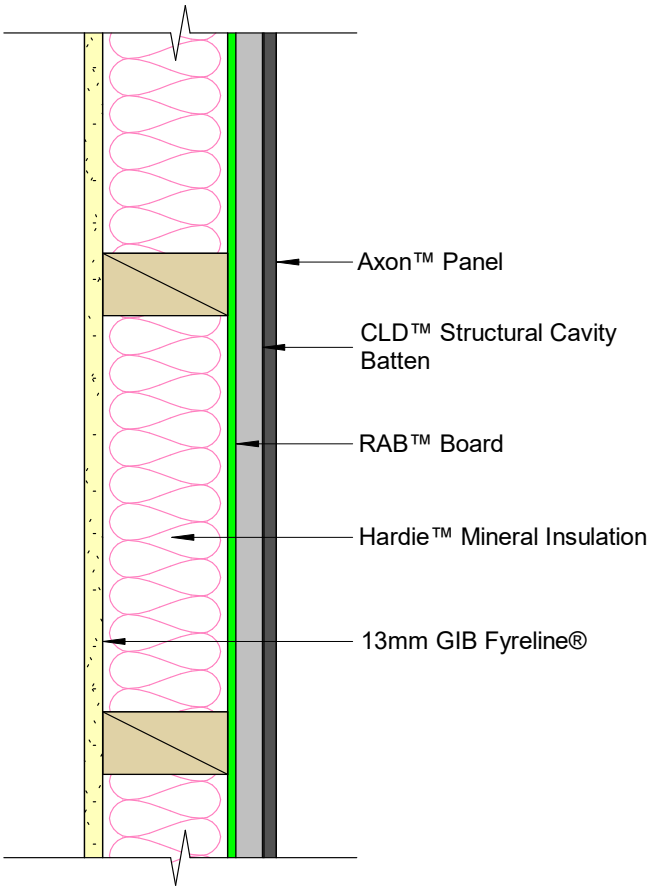
JHETGR60-A

Fire Resistance 60/60/60 **STC** 45

Cladding	Axon™ Panel	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	70 x 19mm Hardie™ CLD™ Structural Cavity Batten	**Underlay**	RAB™ Board
Cladding Fixing	As per Axon™ Panel and EasyLap™ Panel Direct Fix and Fixed to CLD™ Structural Cavity Batten technical specification	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



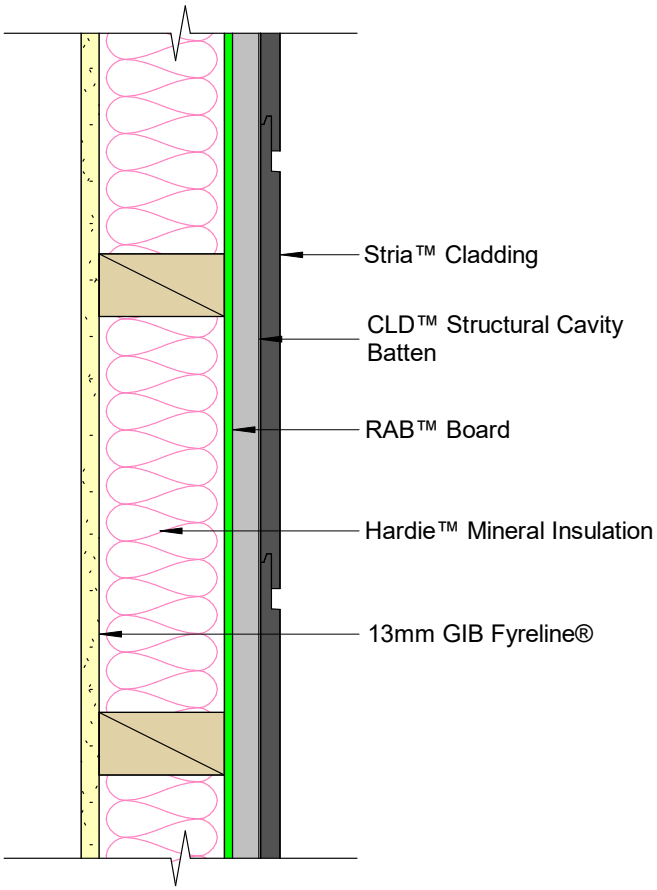
JHETGR60-S

Fire Resistance 60/60/60 **STC** 46

Cladding	Stria™ Cladding	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	70 x 19mm Hardie™ CLD™ Structural Cavity Batten	**Underlay**	RAB™ Board
Cladding Fixing	As per Stria™ Cladding Hardie™ CLD™ Structural Cavity Batten technical specification	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



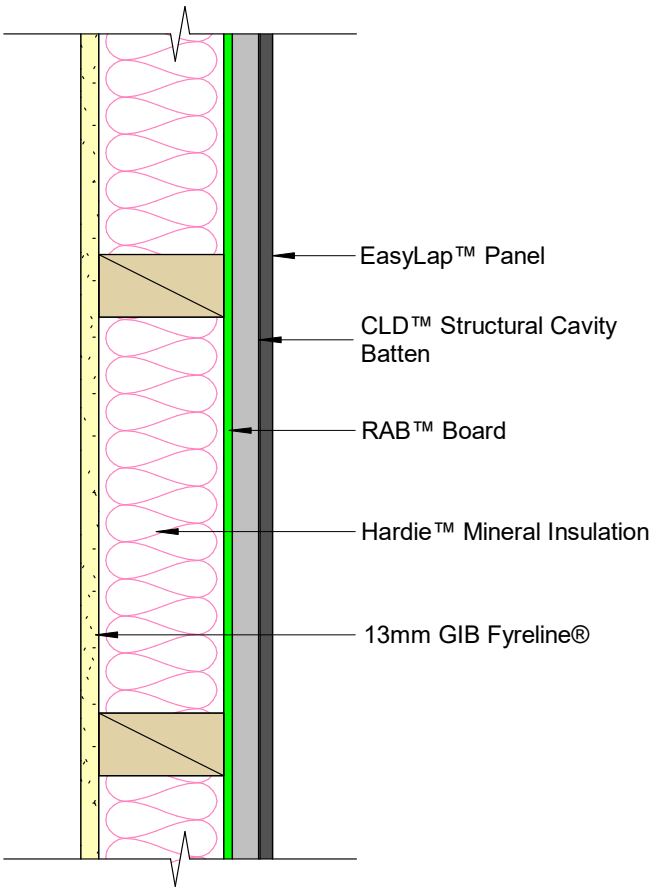
JHETGR60-E

Fire Resistance 60/60/60 **STC** 46

Cladding	EasyLap™ Panel	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	70 x 19mm Hardie™ CLD™ Structural Cavity Batten	**Underlay**	RAB™ Board
Cladding Fixing	As per Axon Panel™ and EasyLap™ Panel Direct Fix and Fixed to CLD™ Structural Cavity Batten technical specification	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



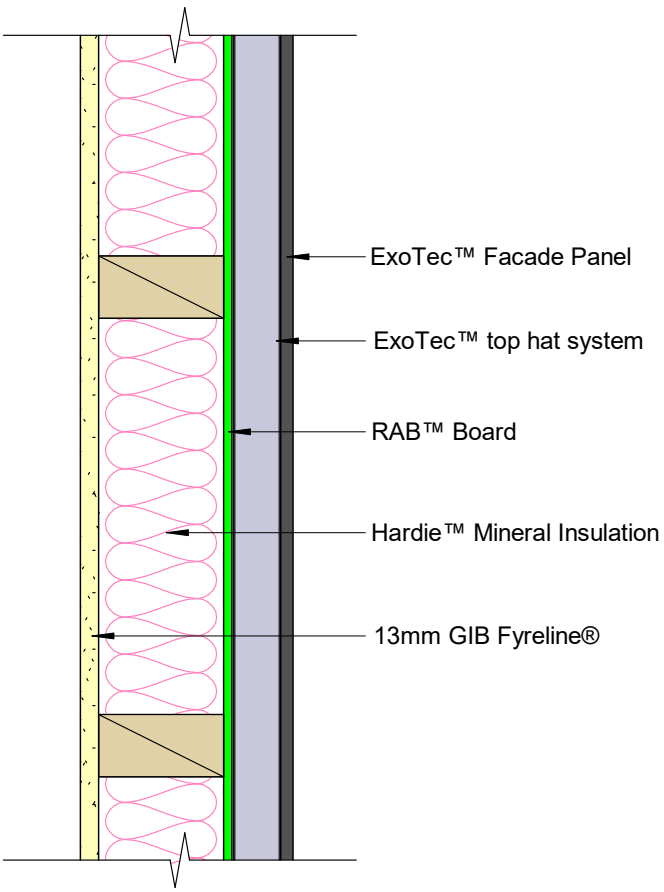
JHETGR60-X

Fire Resistance 60/60/60 **STC** 47

Cladding	ExoTec™ Facade Panel	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	ExoTec™ top hat system	**Underlay**	RAB™ Board
Cladding Fixing	As per ExoTec™ Facade Panel top hat technical specification	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



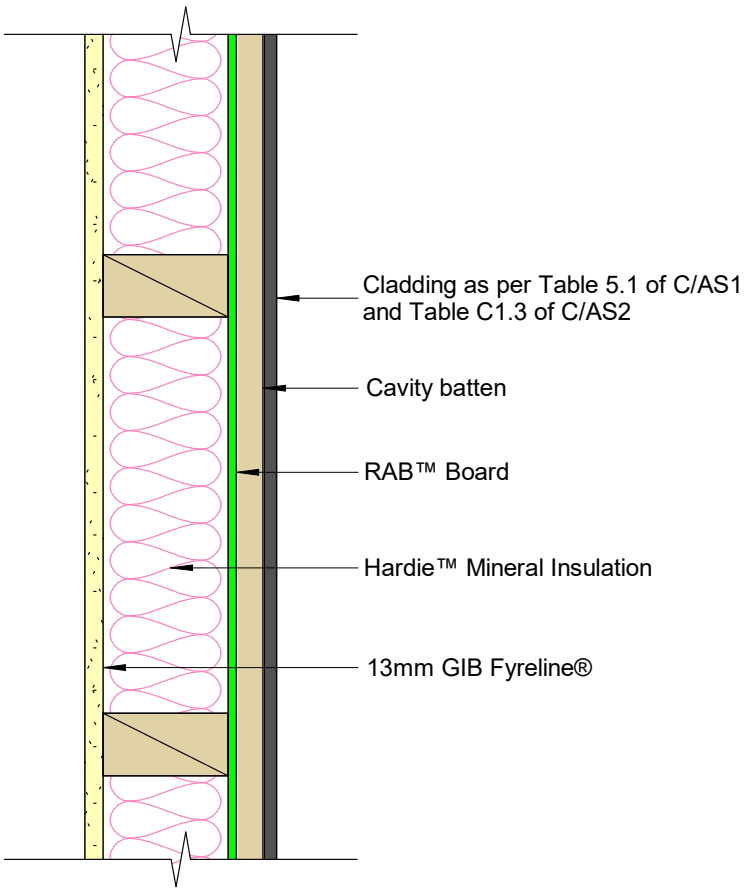
JHETGR60-N

Fire Resistance 60/60/60 **STC** 42

Cladding	Cladding system as per Table 5.1 of C/AS1 and Table C1.3 of C/AS2	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	As per cladding manufacturer technical specification	**Underlay**	RAB™ Board
Cladding Fixing	As per cladding manufacturer technical specification	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



JHETVR60-N

Fire Resistance 60/60/60 **STC** 55*

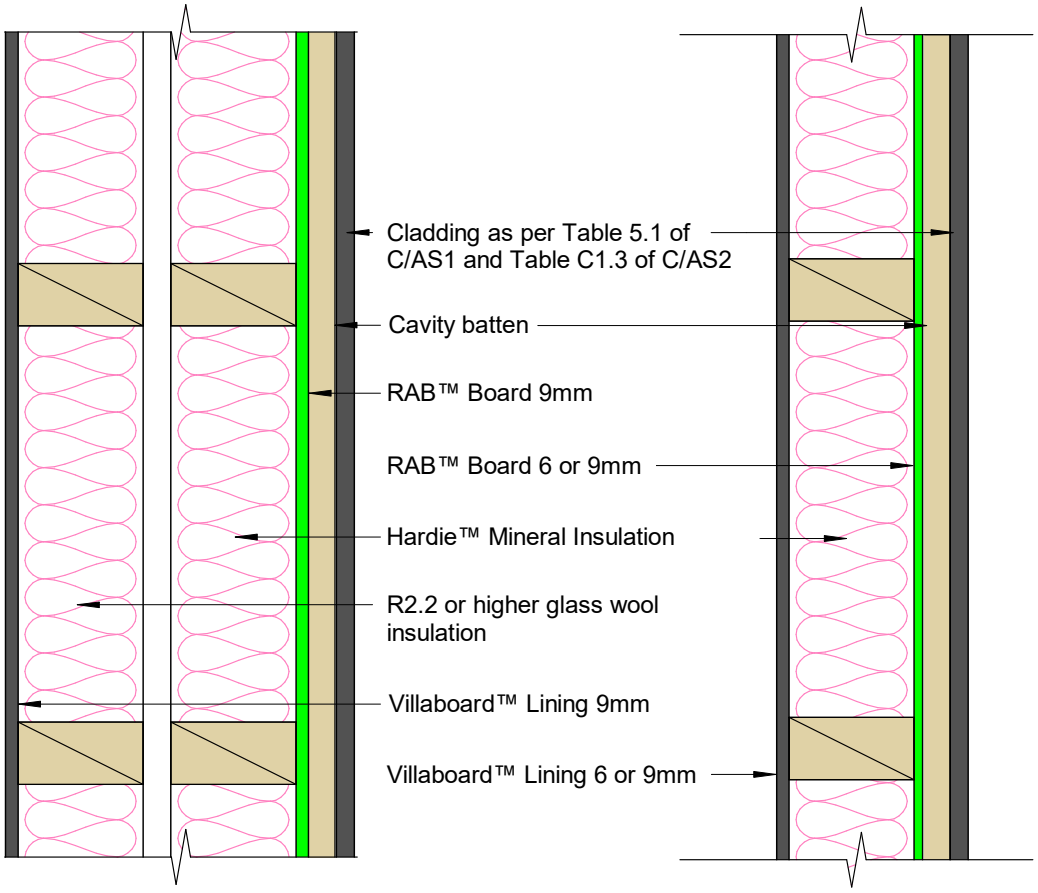
Cladding	Cladding system as per Table 5.1 of C/AS1 and Table C1.3 of C/AS2	**Lining**	Villaboard™ Lining
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum For intertenancy walls double frame with 25mm gap between frames.	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	As per cladding manufacturer technical specification.	**Underlay**	RAB™ Board
Cladding Fixing	As per cladding manufacturer technical specification	**Lining Fixing**	Villaboard™ : 30mm x 6g Villadrive™ screws or 40 x 2.8mm round head nails at 150mm centres
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

*STC value for IT wall

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual.

Intertenancy wall

External wall

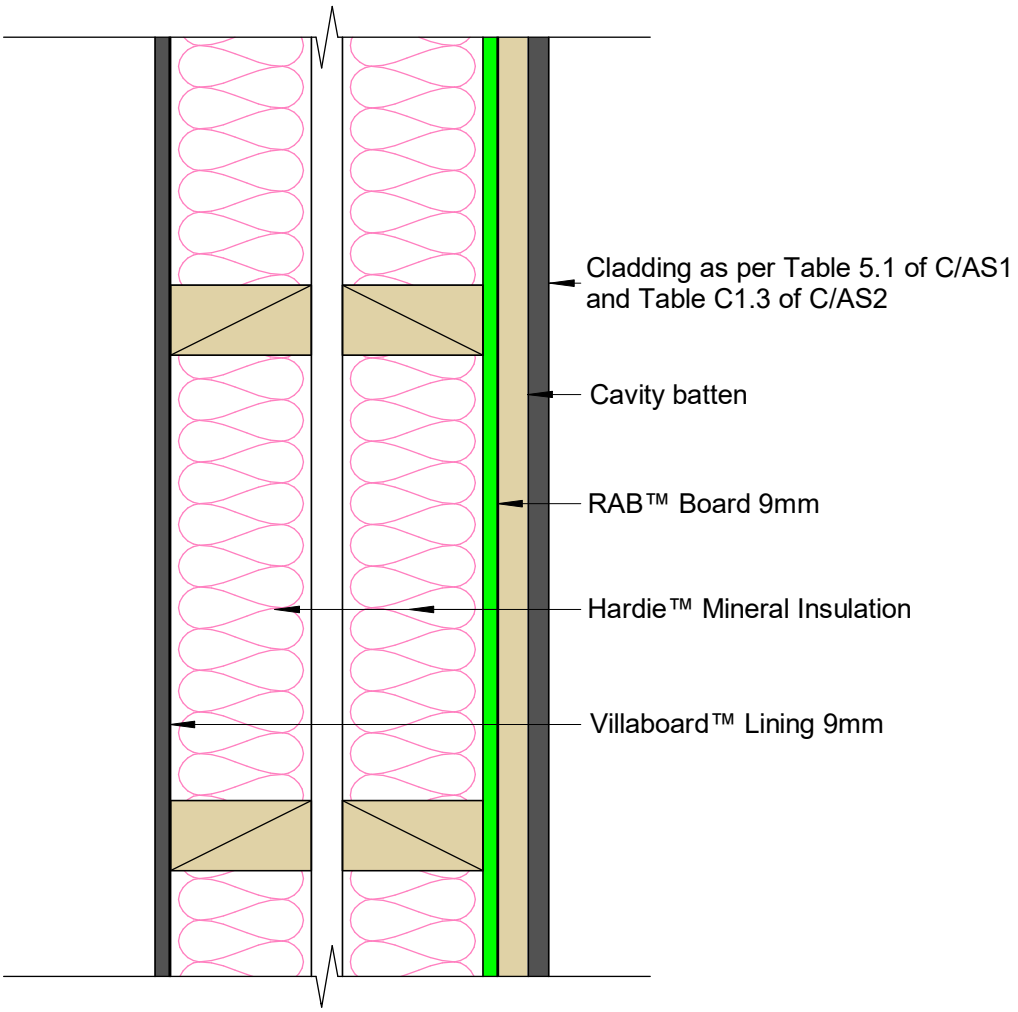


JHETVR120-N

Fire Resistance 120/120/120 **STC** 56

Cladding	Cladding system as per Table 5.1 of C/AS1 and Table C1.3 of C/AS2	**Lining**	Villaboard™ Lining 9mm
Framing	Timber framing to be in accordance with the NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum Double frame with 25mm gap between frames	**Insulation**	2 x Hardie™ Mineral Insulation
Cavity Batten	As per cladding manufacturer technical specification.	**Underlay**	RAB™ Board 9mm
Cladding Fixing	As per cladding manufacturer technical specification	**Lining Fixing**	30mm x 6g Villadrive™ screws at 150mm to entire framing Fixing to be 12mm from sheet edges
RAB™ Board Fixing	50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



External Walls
Steel Frame

30 Minute Fire Rated System

60 Minute Fire Rated System

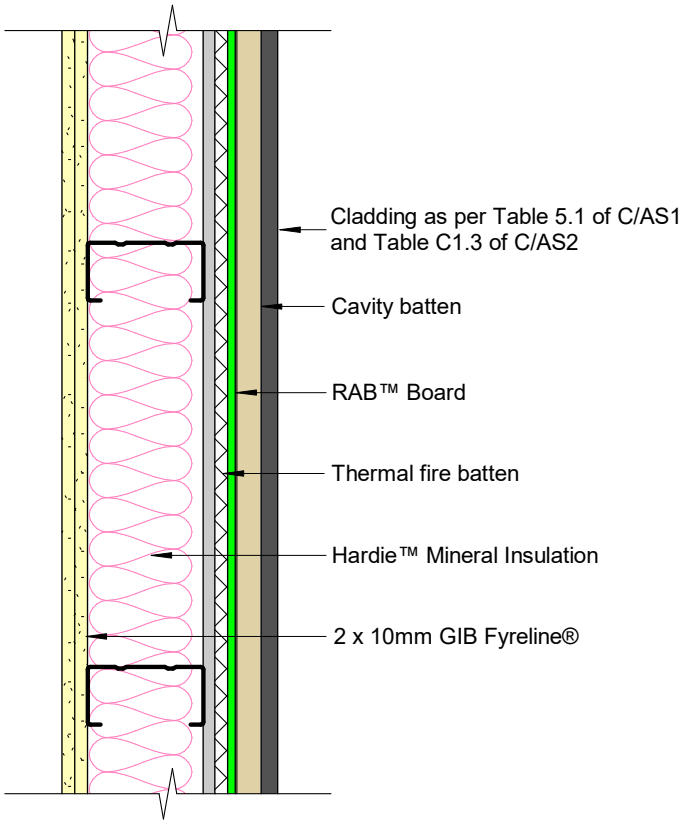
JHESGR30-N

Fire Resistance 30/30/30 **STC** 47

Cladding	Cladding system as per Table 5.1 of C/AS1 and Table C1.3 of C/AS2 of the NZBC.	**Lining**	2 x 10mm GIB Fyreline®
Framing	Steel framing to be in accordance with NASH Standard 'Light Steel Framed Buildings'. Framing size 92 x 35 x 0.75mm. Studs at 400mm centres and nogs at 800mm centres maximum.	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	As per cladding manufacturer technical specification	**Underlay**	RAB™ Board over thermal fire batten (refer to page 15)
Cladding Fixing	As per cladding manufacturer technical specification	**Lining Fixing**	Inner layer: 25mm x 6g GIB® Grabber® Drywall Self Tapping Screws Outer layer: 32mm x 6g GIB® Grabber® Drywall Self Tapping Screws Inner layer: 600mm centres up each stud Outer layer: 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 50mm from sheet ends
RAB™ Board Fixing	50mm x 10g steel self embedding steel screws at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



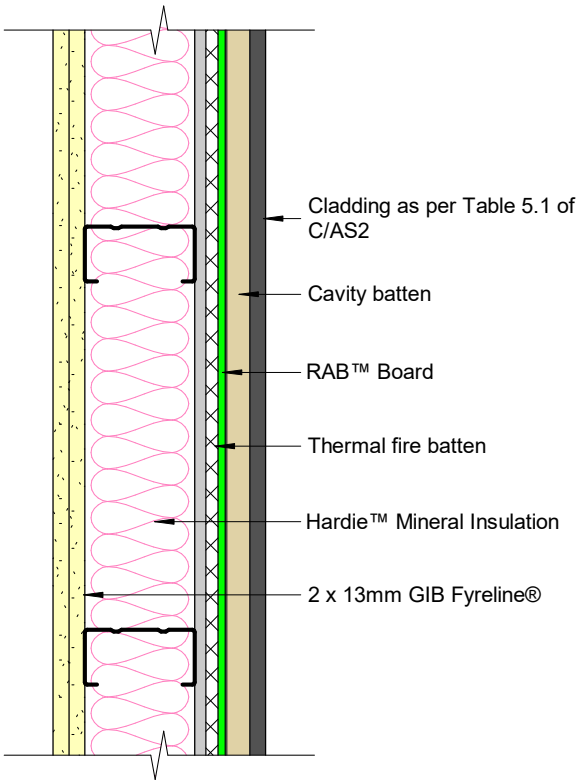
JHESGR60-N

Fire Resistance 60/60/60 **STC** 48

Cladding	Cladding system as per Table 5.1 of C/AS1 and Table C1.3 of C/AS2 of the NZBC.	**Lining**	2 x 13mm GIB Fyreline®
Framing	Steel framing to be in accordance with NASH Standard 'Light Steel Framed Buildings'. Framing size 92 x 35 x 0.75mm. Studs at 400mm centres and nogs at 800mm centres maximum.	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	As per cladding manufacturer technical specification	**Underlay**	RAB™ Board over thermal fire batten (refer to page 15)
Cladding Fixing	As per cladding manufacturer technical specification	**Lining Fixing**	Inner layer: 25mm x 6g GIB® Grabber® Drywall Self Tapping Screws Outer layer: 41mm x 6g GIB® Grabber® Drywall Self Tapping Screws Inner layer: 600mm centres up each stud Outer layer: 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 50mm from sheet ends
RAB™ Board Fixing	50mm x 10g steel self embedding steel screws at 150mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



Parapet & Wing Walls Timber Frame

30 Minute Fire Rated System

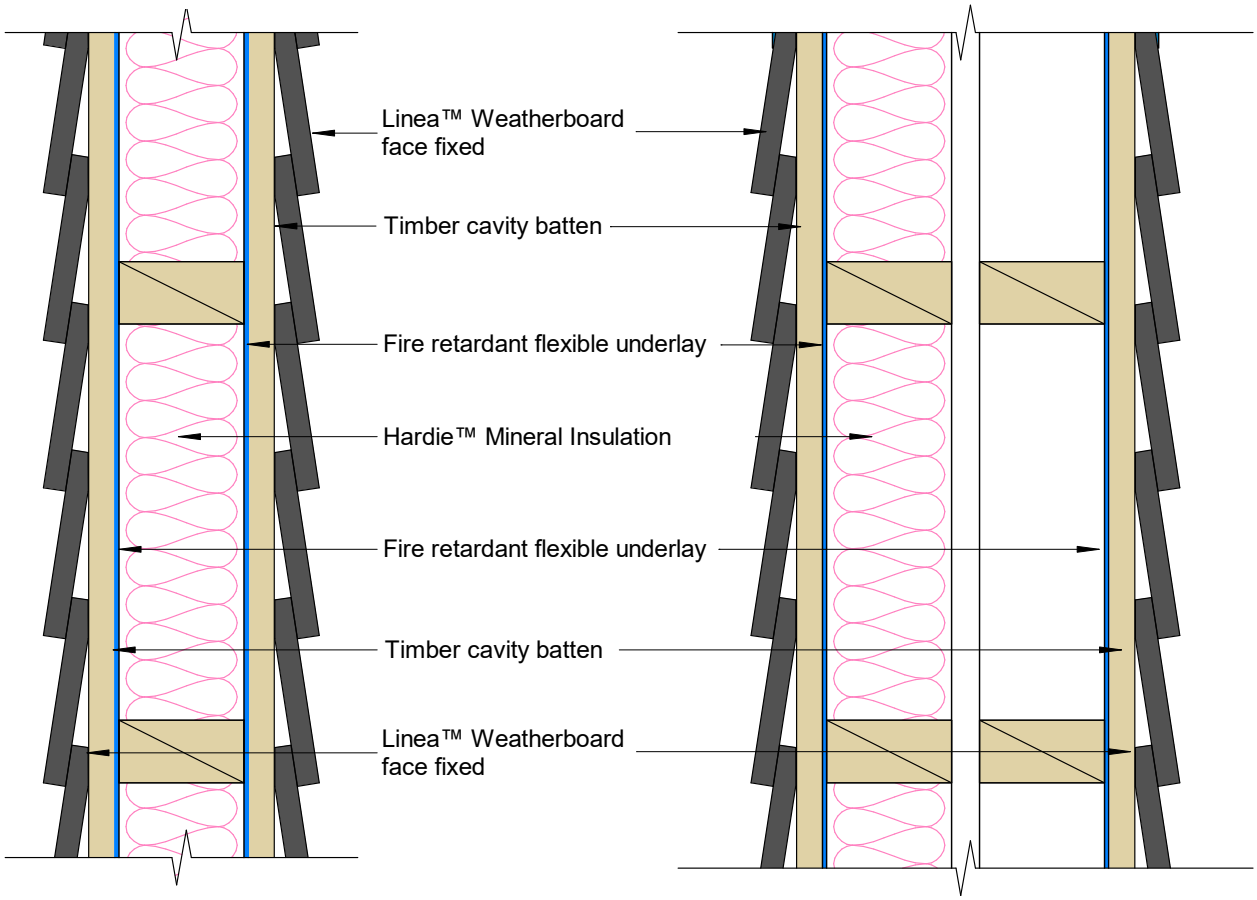
60 Minute Fire Rated System

JHETLL60

Fire Resistance 60/60/60 | **Under 10m**

Cladding	Linea™ Weatherboard		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Cavity Fix:** Face fixed with 75 x 3.15mm jolt head nails to studs		

For further information refer to Linea™ Weatherboard cavity fix technical specification



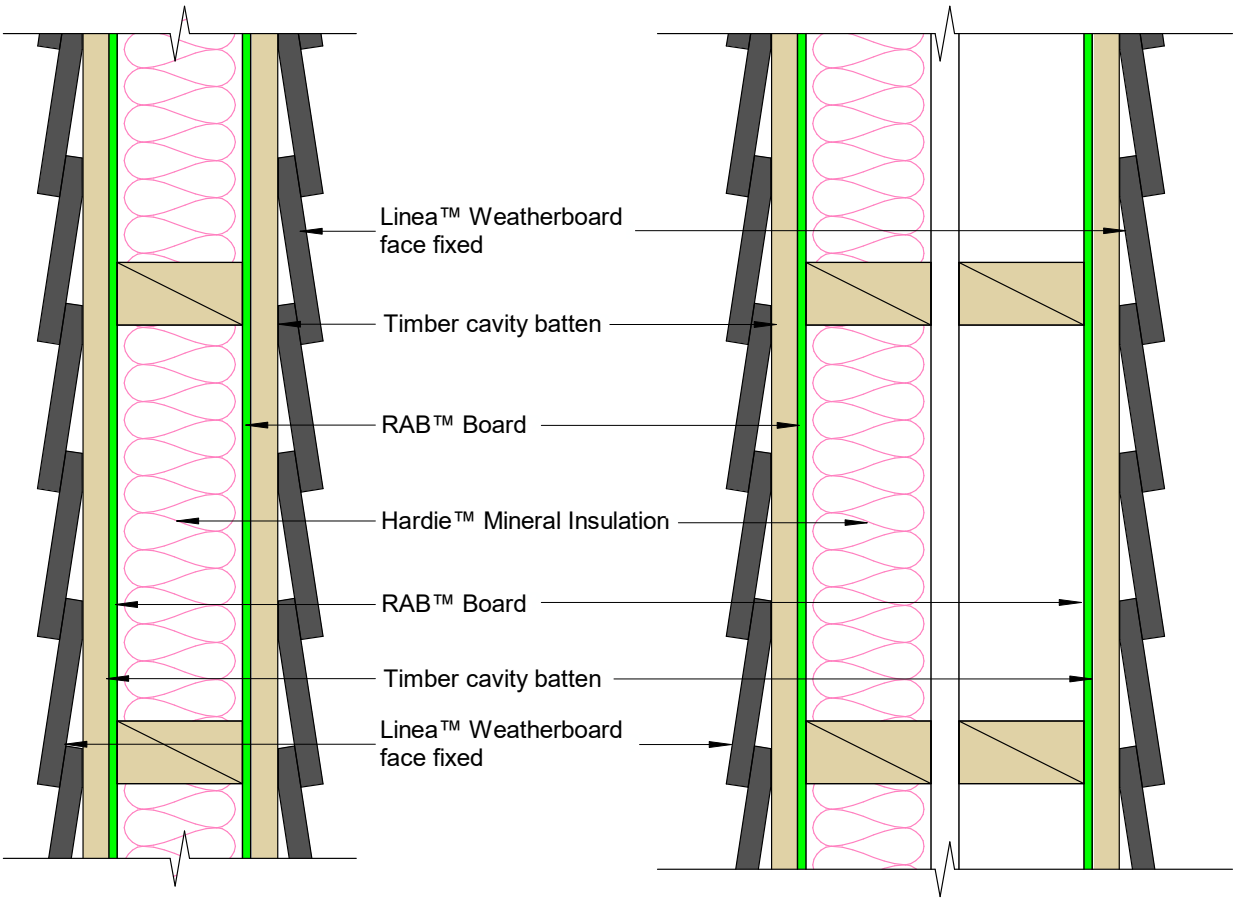
JHETLL60

Fire Resistance 60/60/60 **Over 10m or EH Wind Zone**

Cladding	Linea™ Weatherboard		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	RAB™ Board - Both sides of framing
Cladding Fixing	Face fixed with 90 x 3.55mm jolt head nails to studs		
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

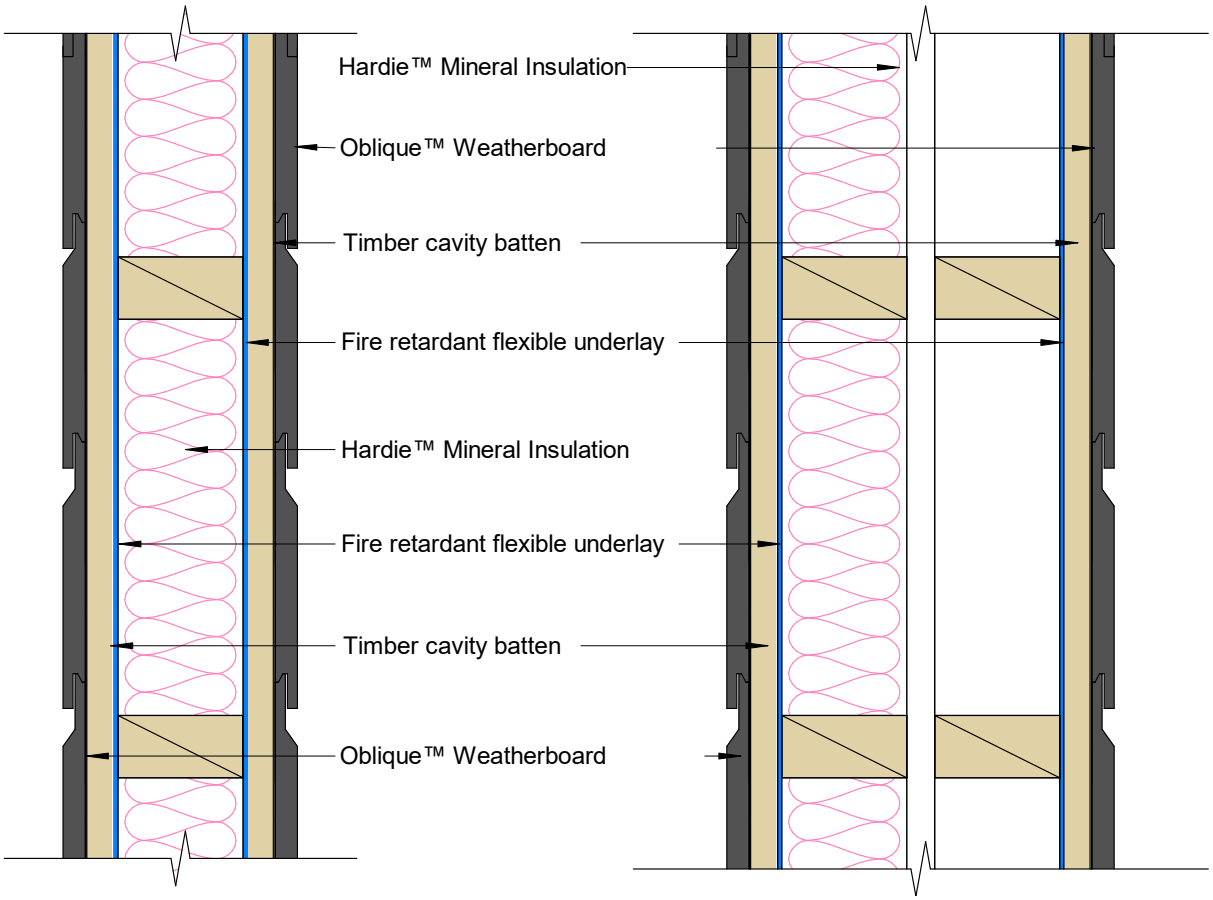
For further information refer to Linea™ Weatherboard cavity fix technical specification



JHETOO60h | Fire Resistance 60/60/60 | Under 10m

Cladding	Oblique™ Weatherboard - Horizontal		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**200mm wide weatherboard:** 65 x 2.87mm D-Head or round head nail to stud **300mm wide weatherboard:** Two nails per stud, 65 x 2.87mm D-Head or round head nail		

For further information refer to Oblique™ Weatherboard horizontal installation technical specification

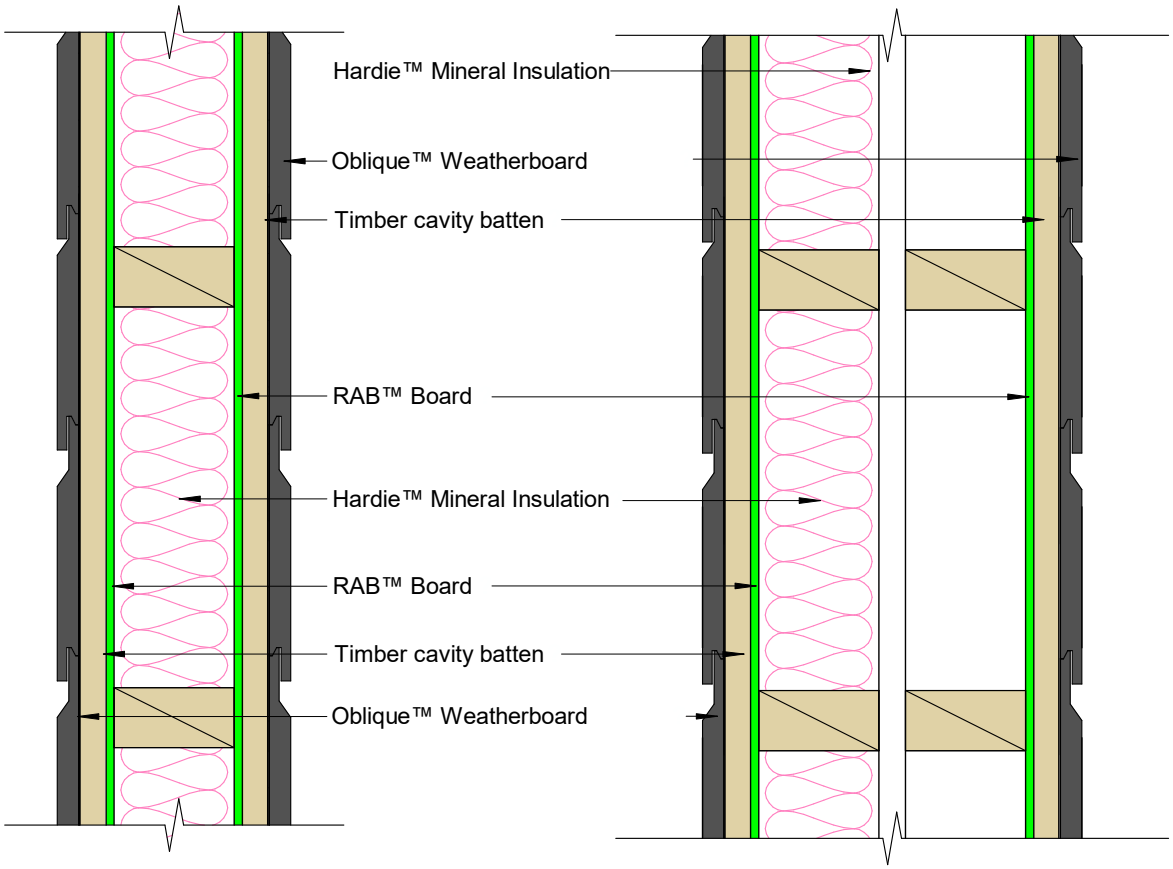


JHETOO60h | Fire Resistance 60/60/60 | Over 10m or EH Wind Zone

Cladding	Oblique™ Weatherboard - Horizontal		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	RAB™ Board - Both sides of framing
Cladding Fixing	**200mm wide weatherboard:** 75 x 3.06mm D-Head or round head nail to stud **300mm wide weatherboard:** Two nails per stud, 75 x 3.06mm D-Head or round head nail		
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to Oblique™ Weatherboard horizontal installation technical specification

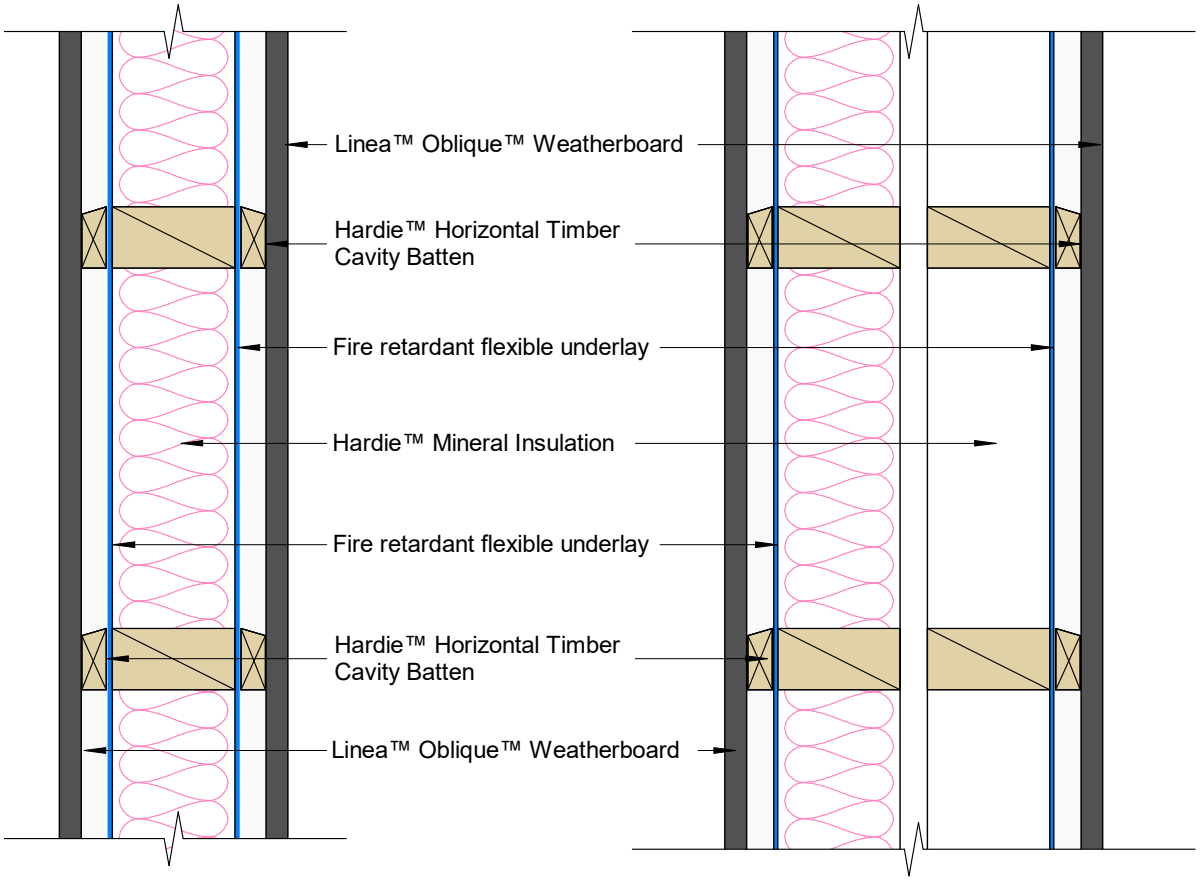


JHETOO60v

Fire Resistance 60/60/60 | **Under 10m**

Cladding	Oblique™ Weatherboard - Vertical		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 600mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Hardie™ horizontal timber cavity batten 20mmm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**200mm wide weatherboard:** 65 x 2.87mm D-Head or round head nail to nog **300mm wide weatherboard:** Two nails per nog, 65 x 2.87mm D-Head or round head nail		

For further information refer to Oblique™ Weatherboard vertical installation technical specification

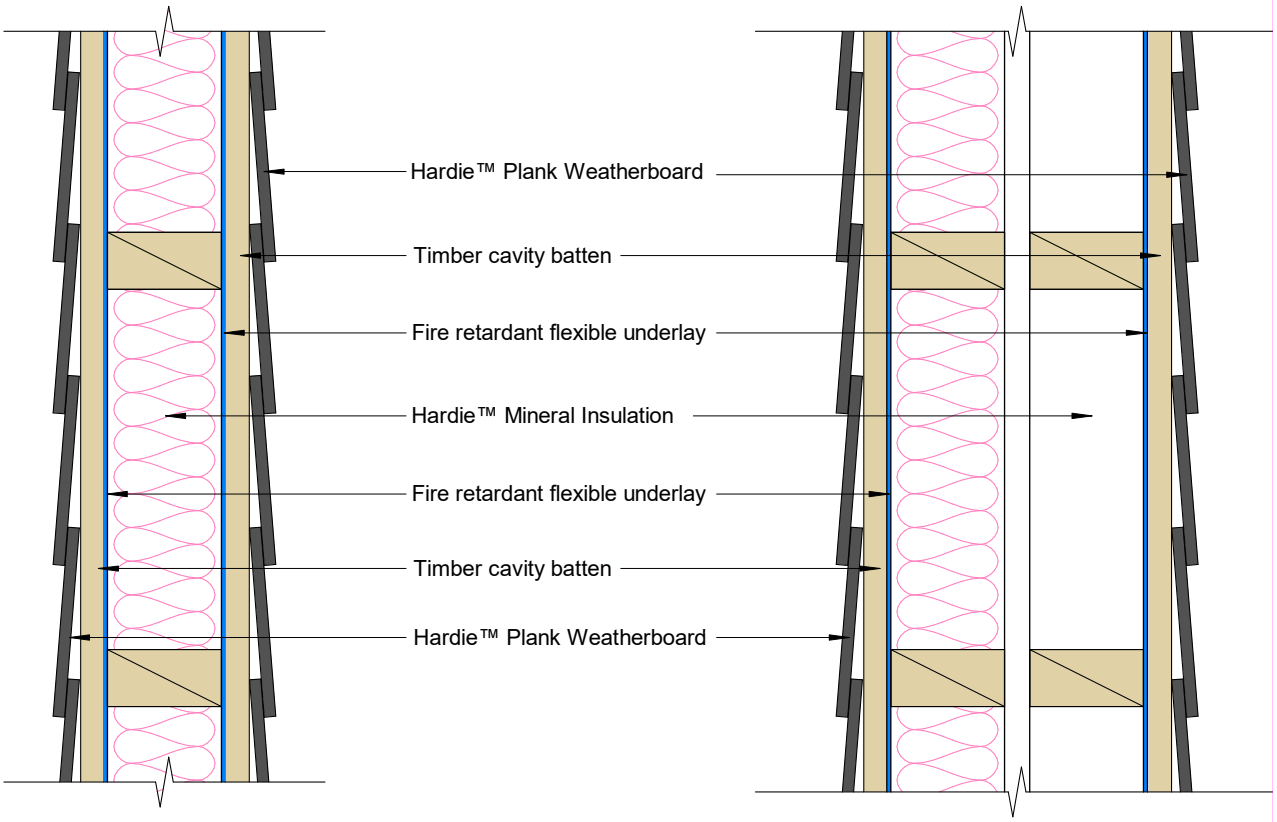


JHETOO60v	Fire Resistance	60/60/60	Over 10m or EH Wind Zone

Cladding	Oblique™ Weatherboard - Vertical		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 600mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Hardie™ horizontal timber cavity batten 20mmm	**Underlay**	RAB™ Board - Both sides of framing
Cladding Fixing	**200mm wide weatherboard:** 75 x 3.06mm D-Head or round head nail to nog **300mm wide weatherboard:** Two nails per nog, 75 x 3.06mm D-Head or round head nail		
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to Oblique™ Weatherboard vertical installation technical specification

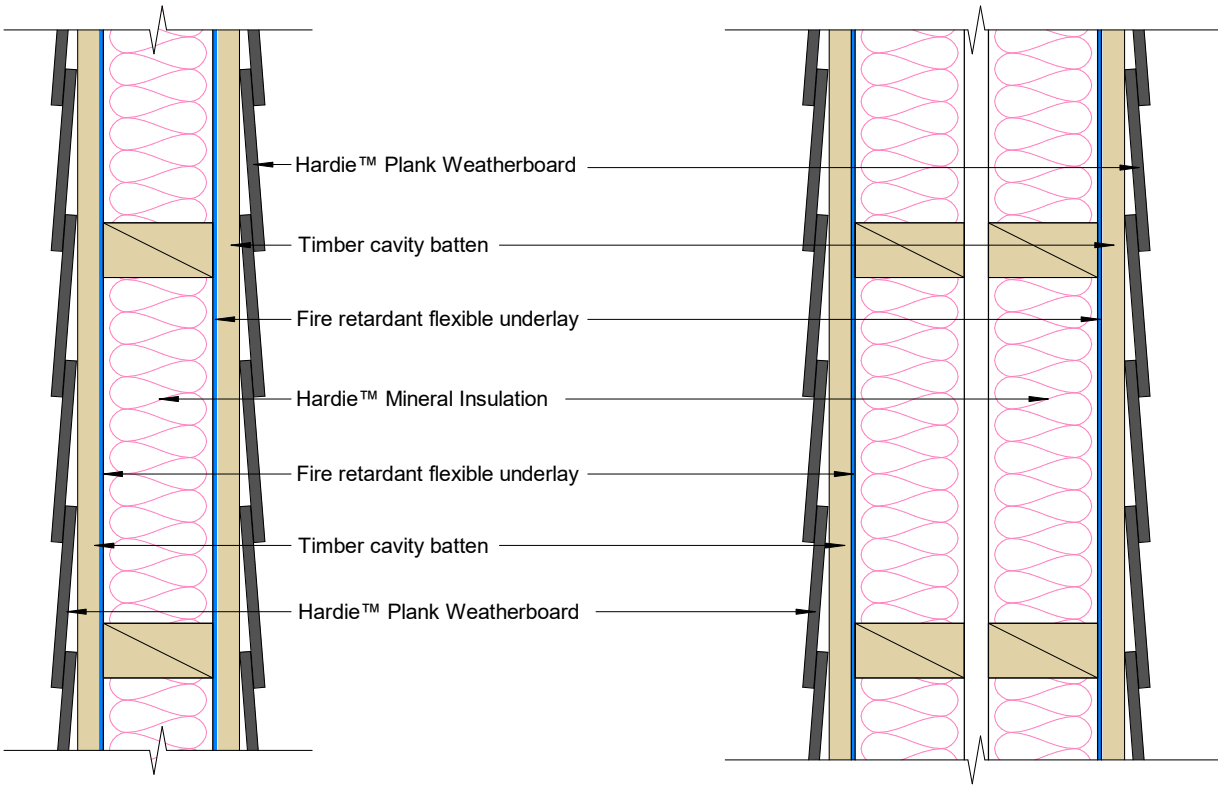


JHETWW60

Fire Resistance 60/60/60 | **Under 10m**

Cladding	Hardie™ Plank Weatherboard		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Cavity Fix:** Face fixed with 75 x 3.15mm fibre cement nail to stud		

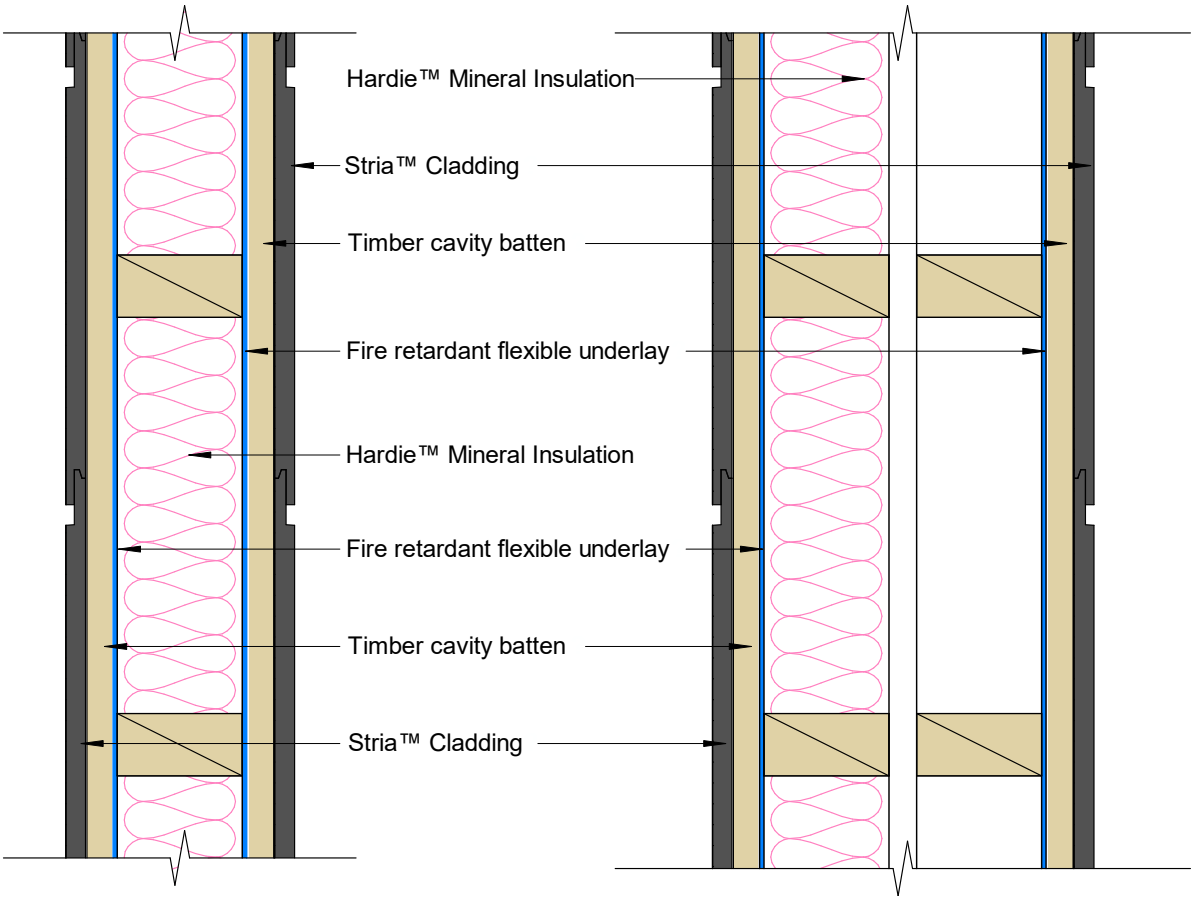
For further information refer to Hardie™ Plank Weatherboard technical specification



JHETSS60h	Fire Resistance	60/60/60	Under 10m

Cladding	Stria™ Cladding - Horizontal		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	65 x 2.87mm D-Head or round head nail to stud		

For further information refer to Stria™ Cladding timber cavity batten installation technical specification



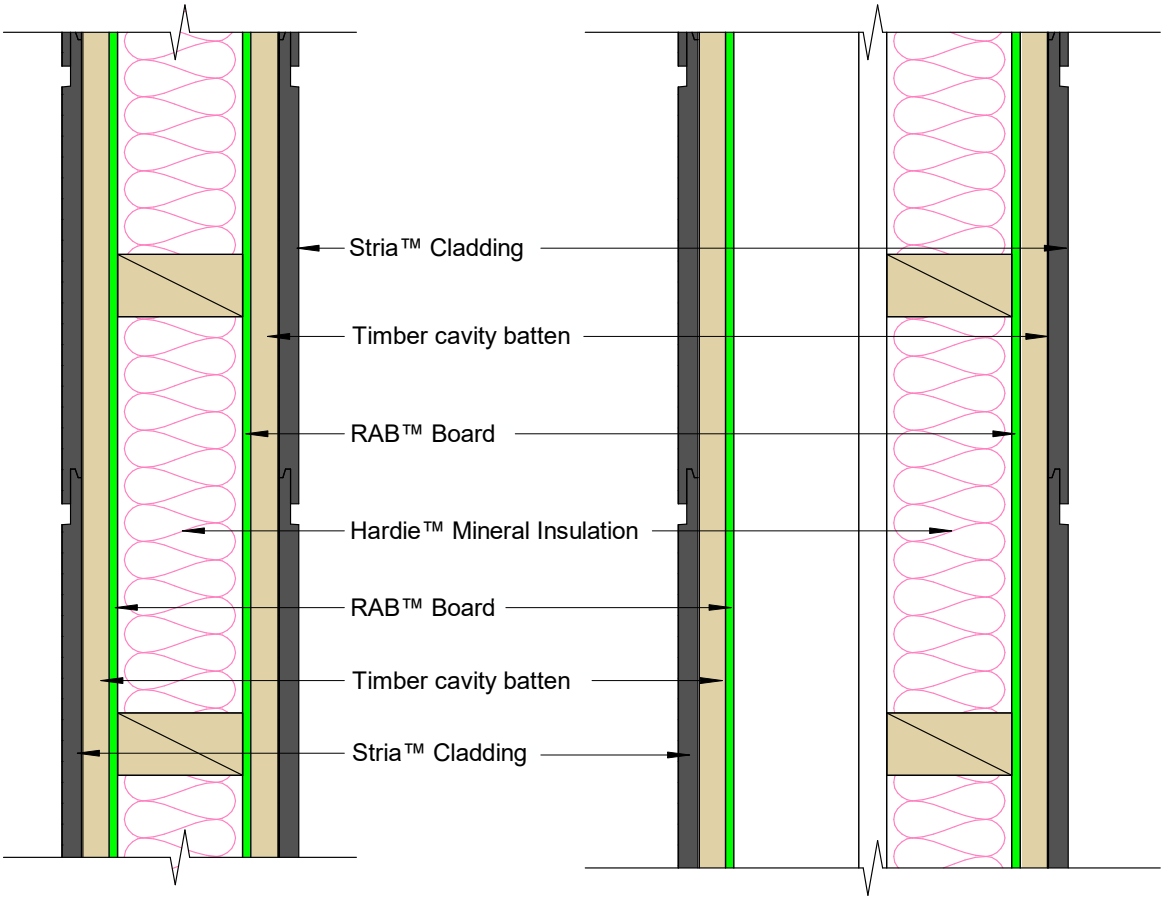
JHETSS60h

Fire Resistance 60/60/60 **Over 10m or EH Wind Zone**

Cladding	Stria™ Cladding - Horizontal		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	RAB™ Board - Both sides of framing
Cladding Fixing	75 x 3.06mm D-Head or round head nail to stud		
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

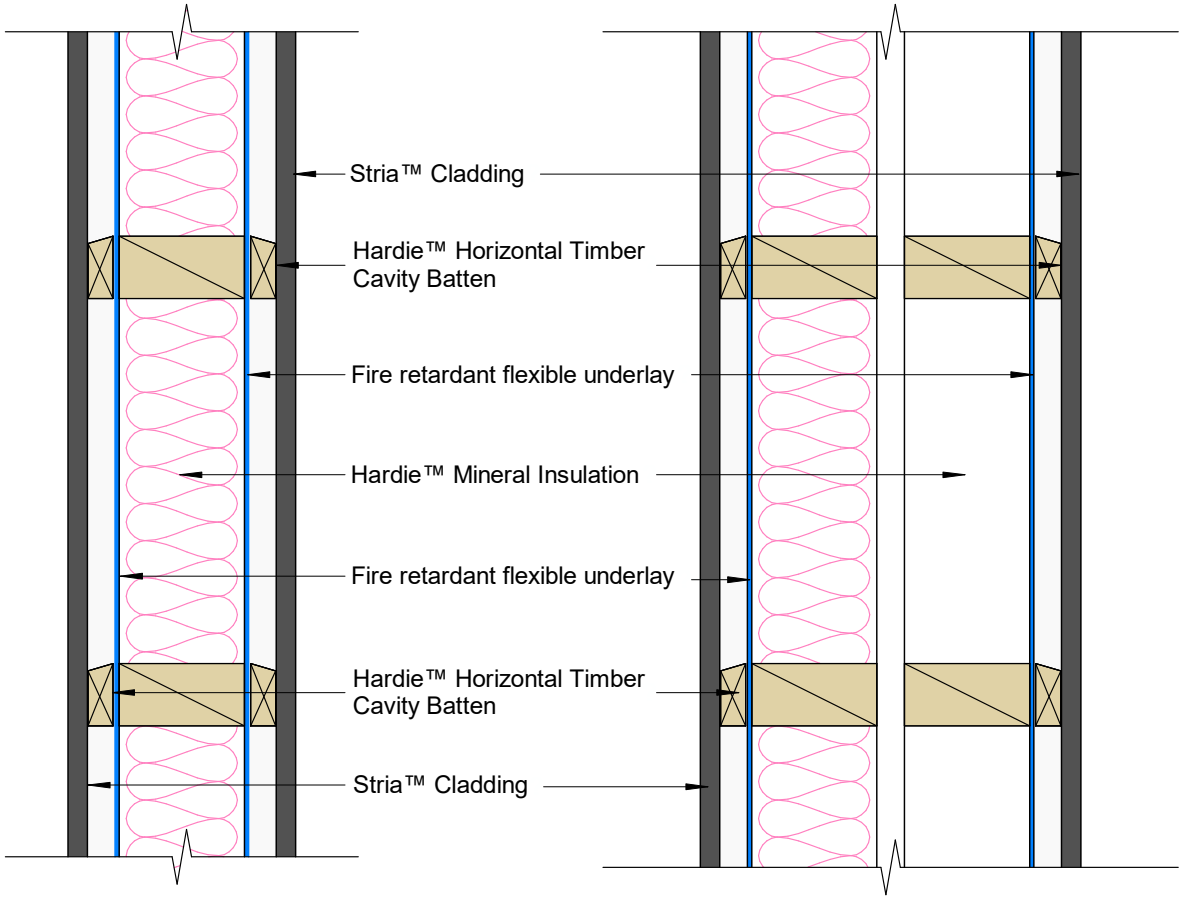
For further information refer to Stria™ Cladding timber cavity batten installation technical specification



JHETSS60v	Fire Resistance	60/60/60	Under 10m

Cladding	Stria™ Cladding - Vertical		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 600mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Hardie™ horizontal timber cavity batten 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	65 x 2.87mm D-Head or round head nail to nog		

For further information refer to Stria™ Cladding vertical installation technical specification



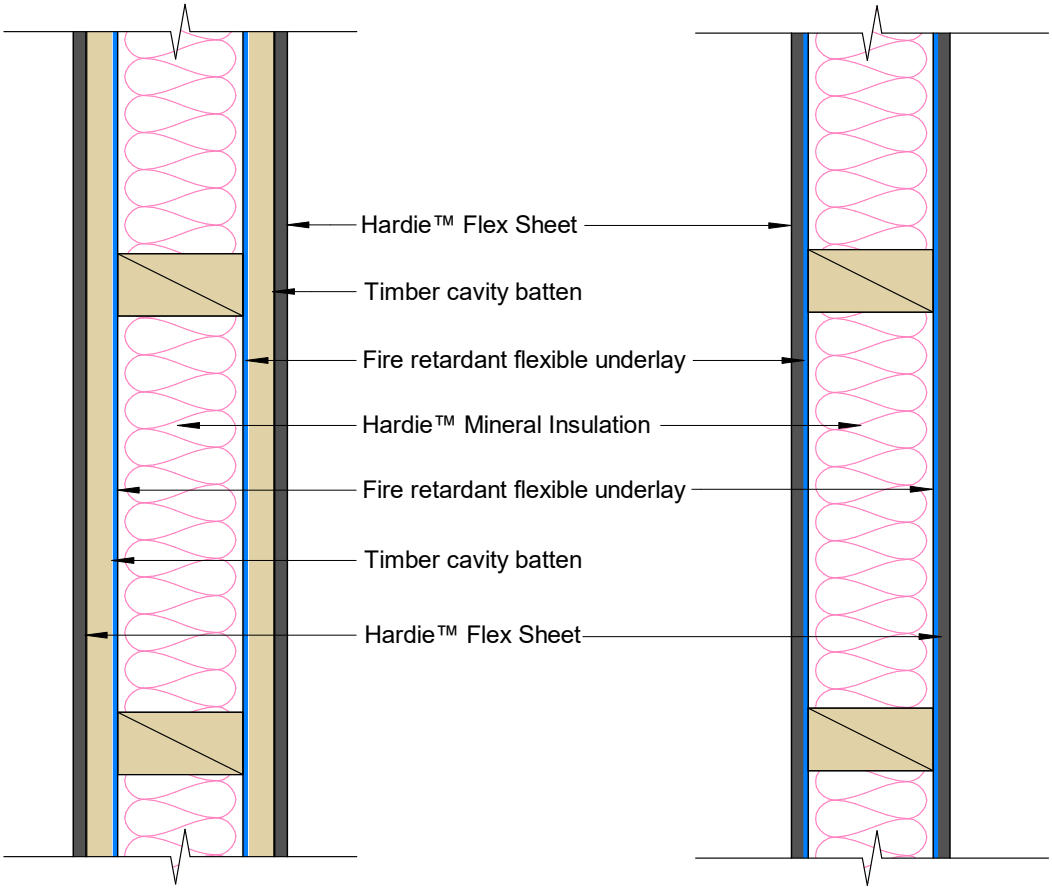
JHETSS60v

Fire Resistance 60/60/60 — **Over 10m or EH Wind Zone**

Cladding	Stria™ Cladding - Vertical		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 600mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Hardie™ horizontal timber cavity batten 20mm	**Underlay**	RAB™ Board - Both sides of framing
Cladding Fixing	75 x 3.06mm D-Head or round head nail to nog		
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

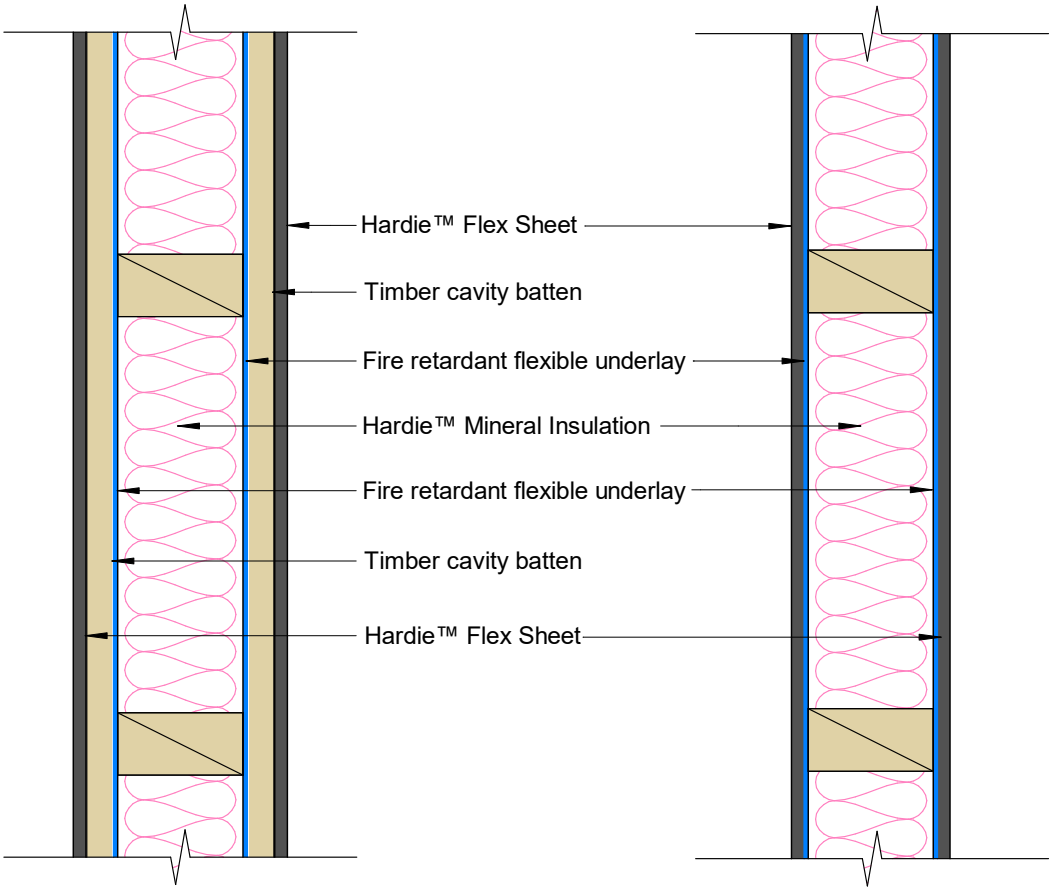
For further information refer to Stria™ Cladding vertical installation technical specification



JHETFF60	Fire Resistance	60/60/60	Under 10m

Cladding	Hardie™ Flex Sheet		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Direct Fix:** 40 x 2.8mm fibre cement nail to stud at 150mm centres to entire frame **Cavity Fix:** 60 x 2.8mm fibre cement nail to stud at 150mm centres to entire frame		

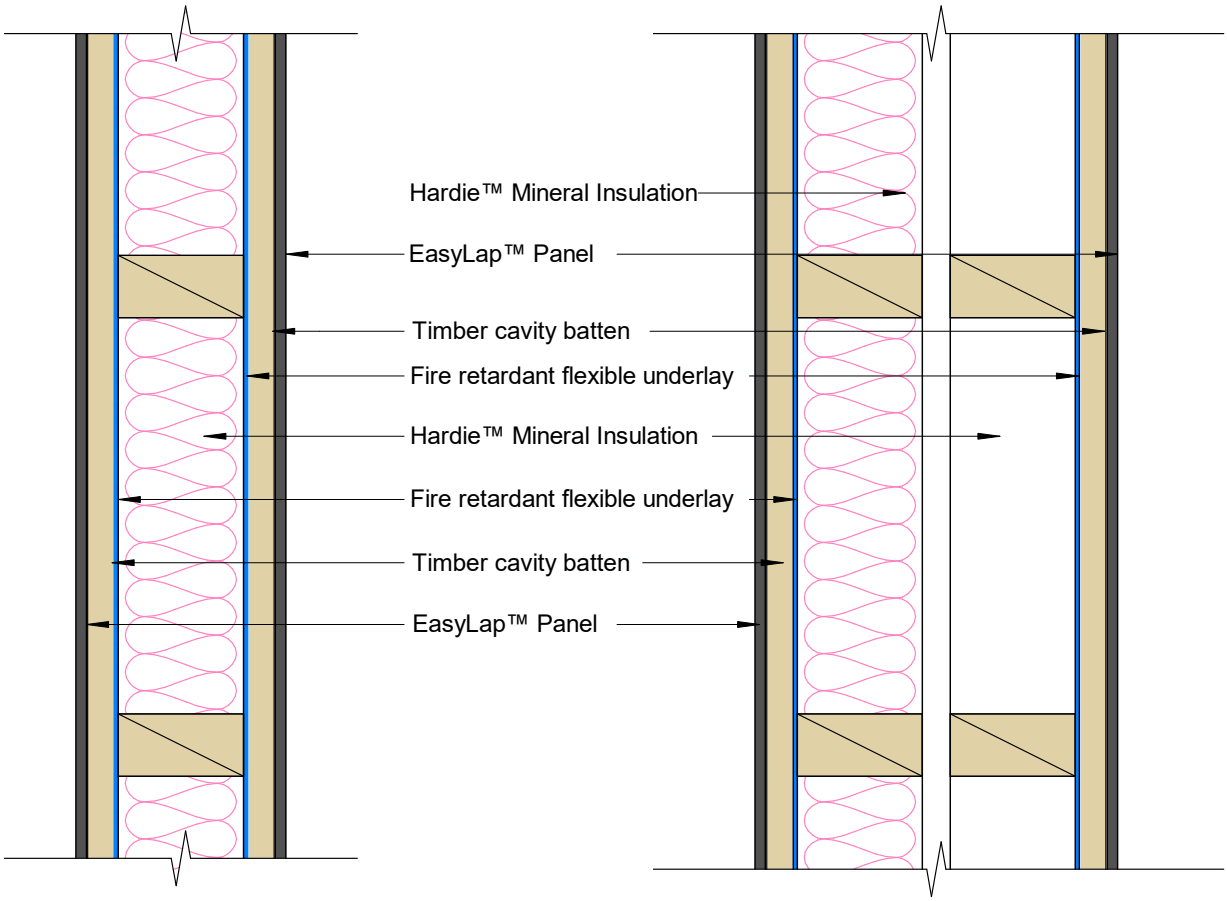
For further information refer to Hardie™ Flex Sheet technical specification



JHETEE60	Fire Resistance 60/60/60	Under 10m

Cladding	EasyLap™ Panel		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	60 x 2.8mm round head nail at 150mm centres to entire frame		

For further information refer to Axon™ Panel and EasyLap™ Panel Timber Cavity Batten technical specification



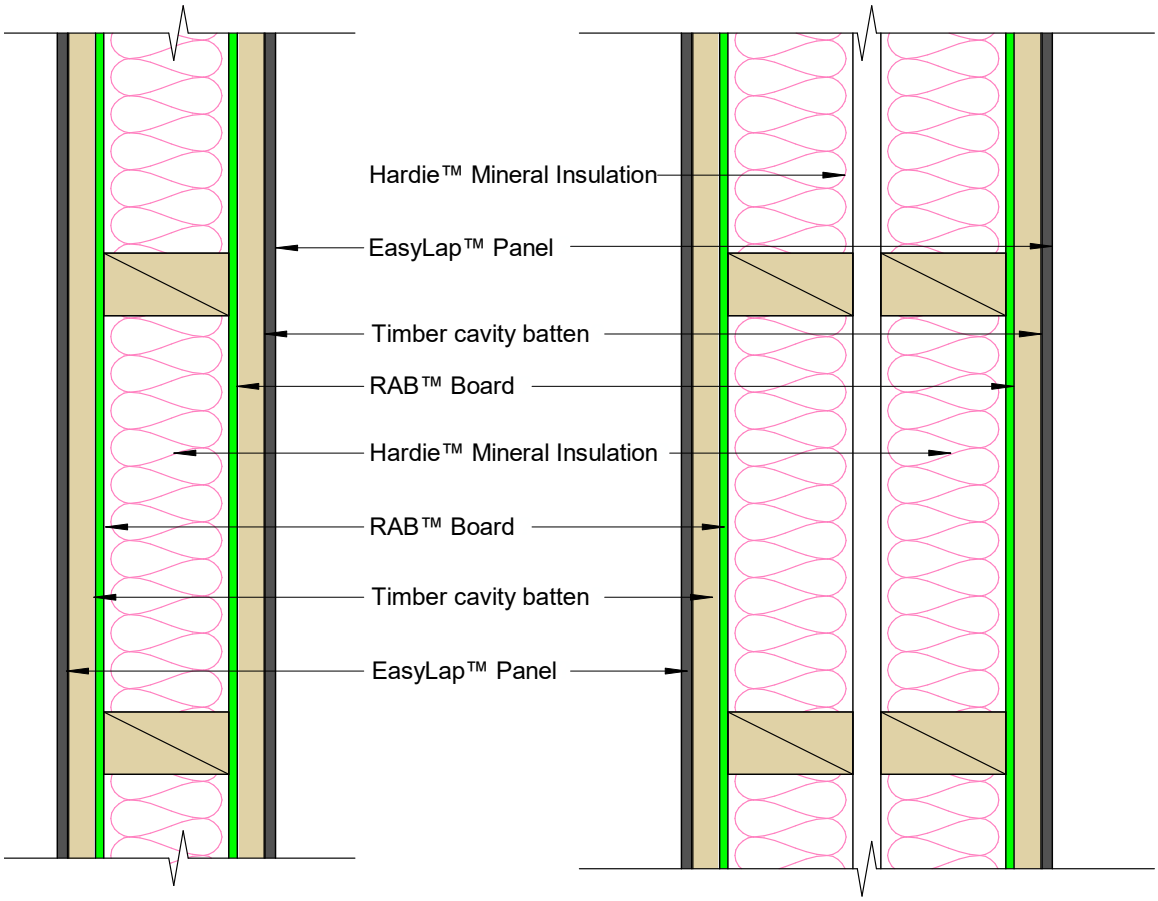
JHETEE60

Fire Resistance 60/60/60 **Over 10m or EH Wind Zone**

Cladding	EasyLap™ Panel		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	RAB™ Board - Both sides of framing
Cladding Fixing	75 x 3.06mm round head nail at 150mm centres to entire frame		
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to Axon™ Panel and EasyLap™ Panel Timber Cavity Batten technical specification

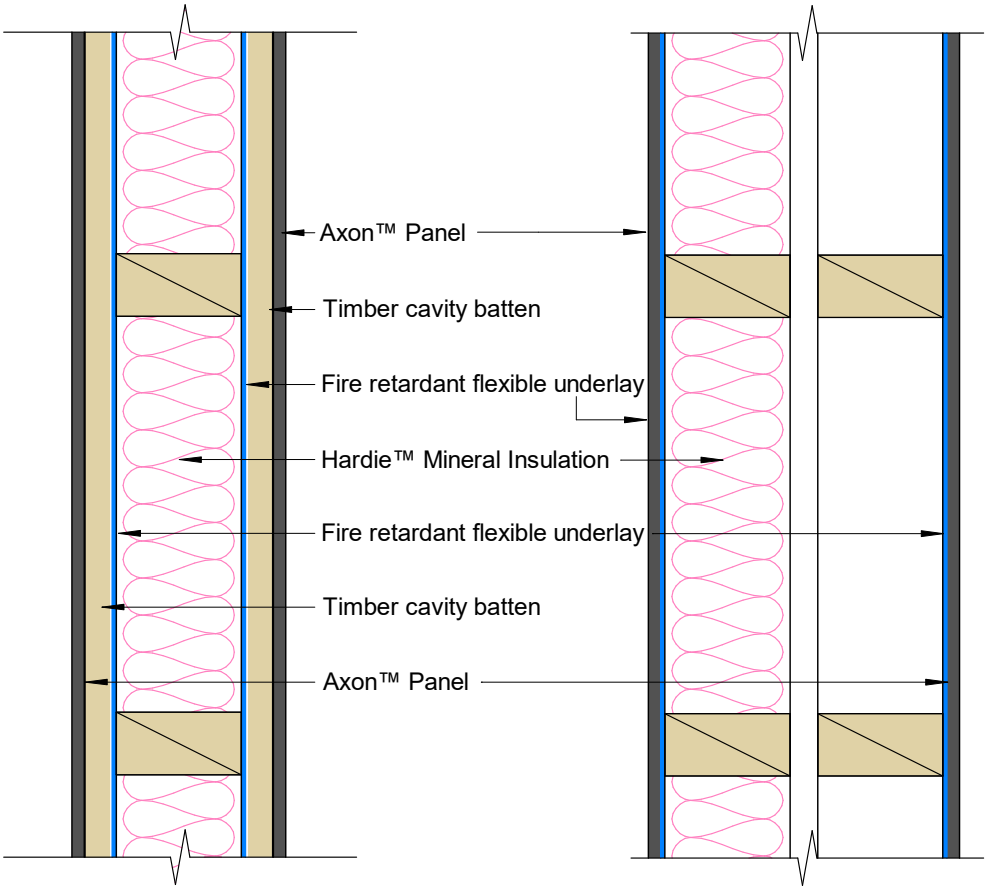


JHETAA60

Fire Resistance 60/60/60 | **Under 10m**

Cladding	Axon™ Panel		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	A flexible underlay that complies with Table 23 of E2/AS1 and has a 'flammability index' not exceeding 5 can be used
Cladding Fixing	**Direct Fix:** 40 x 2.8mm round head nail at 150mm centres to entire frame **Cavity Fix:** 60 x 3.15mm round head nail at 150mm centres to entire frame		

For further information refer to Axon™ Panel and EasyLap™ Panel Timber Cavity Batten technical specification



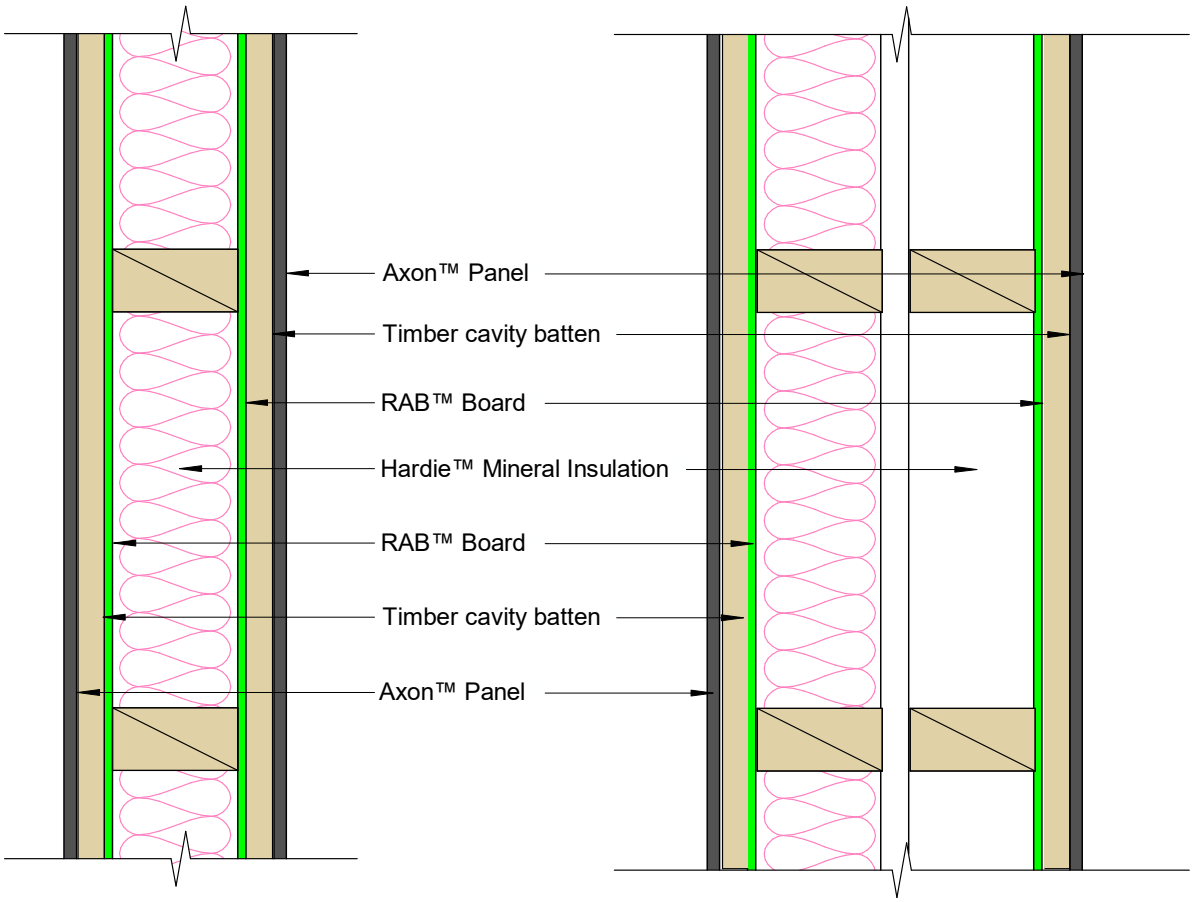
JHETAA60

Fire Resistance 60/60/60 **Over 10m or EH Wind Zone**

Cladding	Axon™ Panel		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Timber cavity batten nominal 20mm	**Underlay**	RAB™ Board - Both sides of framing
Cladding Fixing	5 x 3.06mm round head nail to 150mm centres to entire frame		
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 200mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 200mm centres to entire framing Fixing to be 12mm from sheet edges		

No cladding required for wall applications enclosed within the roof space

For further information refer to Axon™ Panel and EasyLap Panel™ Timber Cavity Batten technical specification



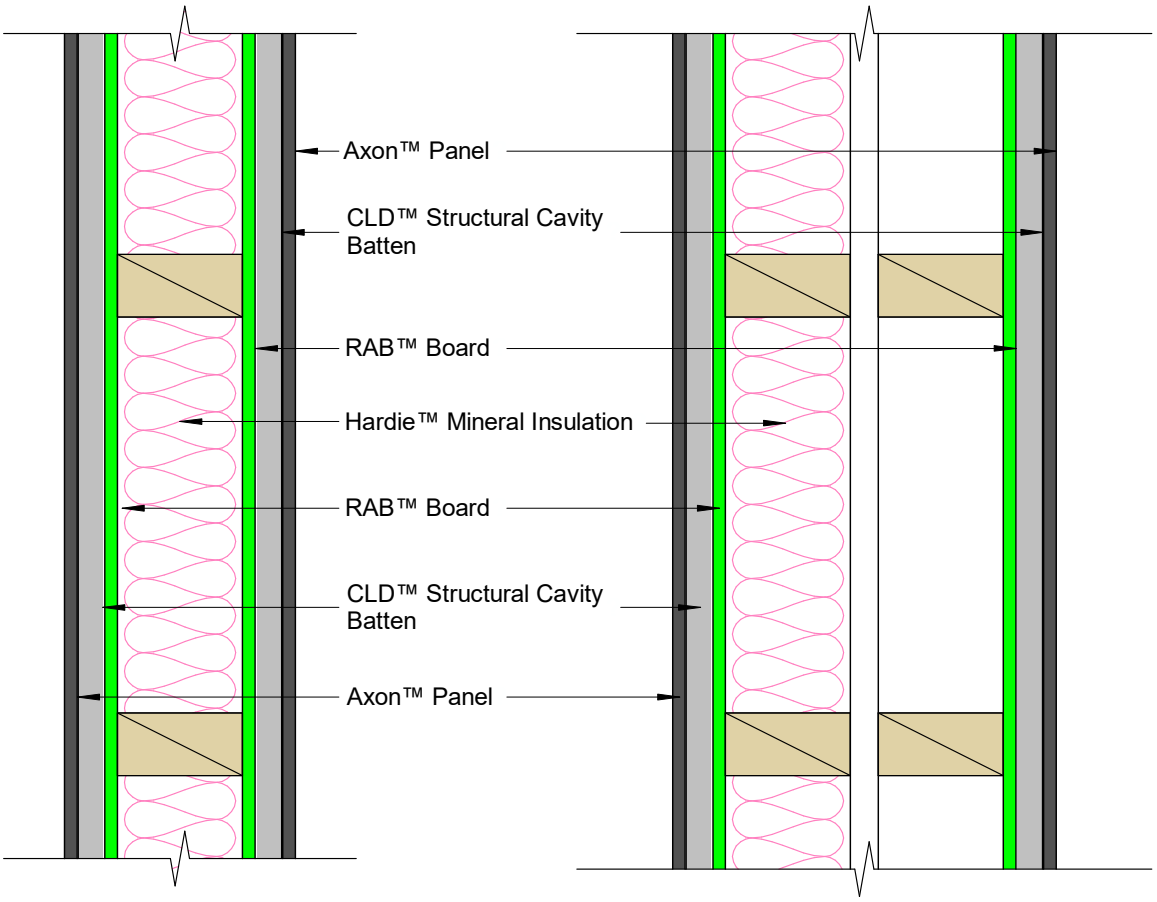
JHETRR60-A

Fire Resistance 60/60/60

Cladding	Axon™ Panel		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	70 x 19mm Hardie™ CLD™ Structural Cavity Batten	**Underlay**	RAB™ Board - Both sides of framing
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		
Cladding Fixing	As per Axon™ Panel and EasyLap™ Panel Direct Fix and Fixed to CLD™ Structural Cavity Batten technical specification		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



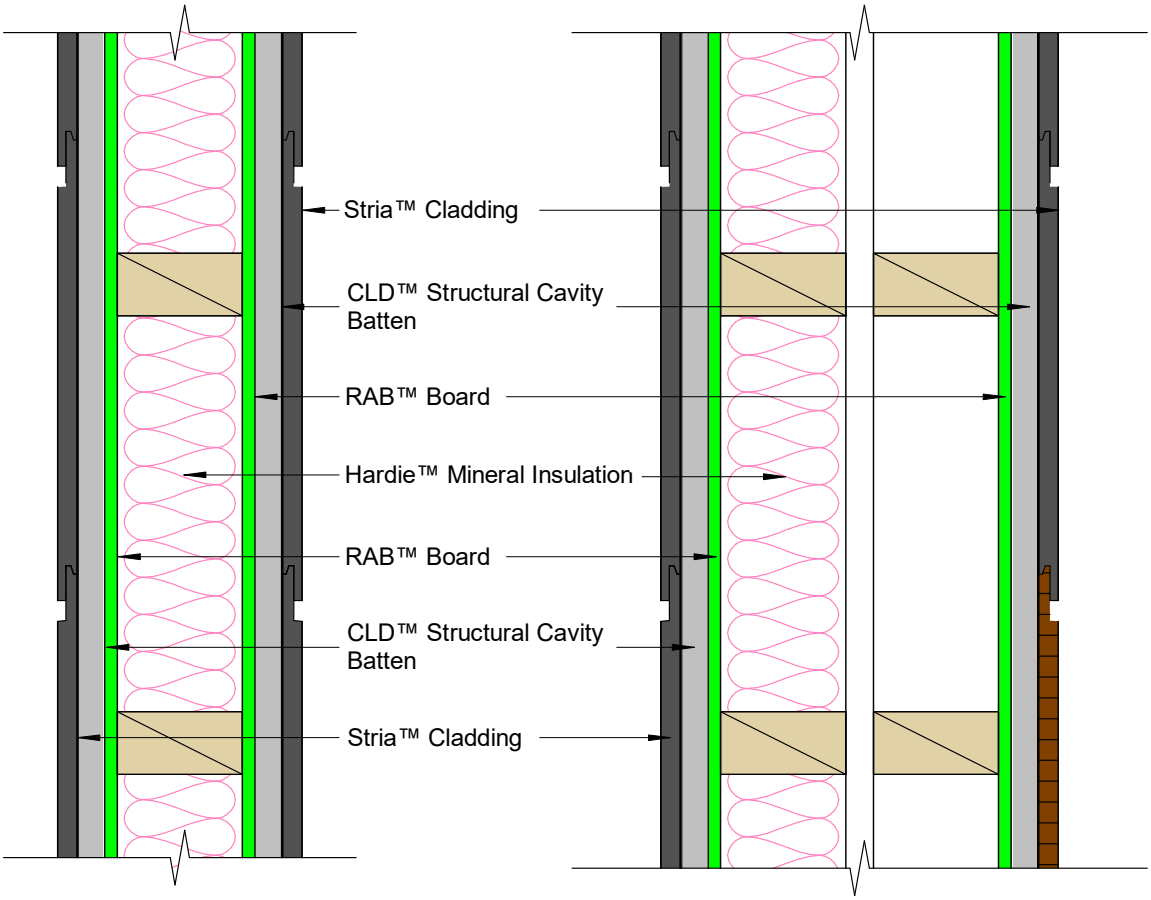
JHETRR60-S

Fire Resistance 30/30/30

Cladding	Stria™ Cladding		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	70 x 19mm Hardie™ CLD™ Structural Cavity Batten	**Underlay**	RAB™ Board - Both sides of framing
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		
Cladding Fixing	As per Stria™ Cladding Hardie™ CLD™ Structural Cavity Batten technical specification		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



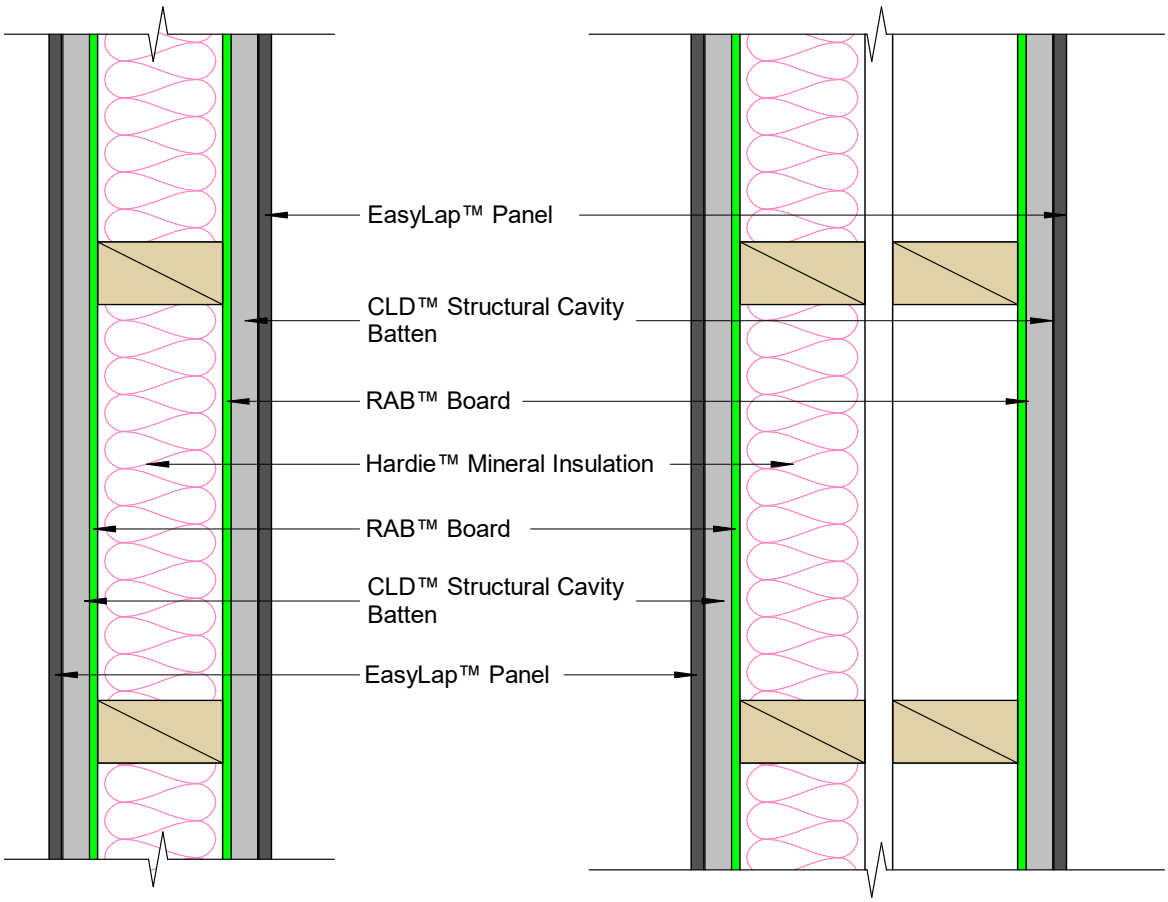
JHETRR60-E

Fire Resistance 60/60/60

Cladding	EasyLap™ Panel		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	Hardie™ CLD™ Structural Cavity Batten	**Underlay**	RAB™ Board - Both sides of framing
RAB™ Board Fixing	6mm RAB™ Board: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing 9mm RAB™ Board: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		
Cladding Fixing	As per Axon™ Panel and EasyLap™ Panel Direct Fix and Fixed to CLD™ Structural Cavity Batten technical specification		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual

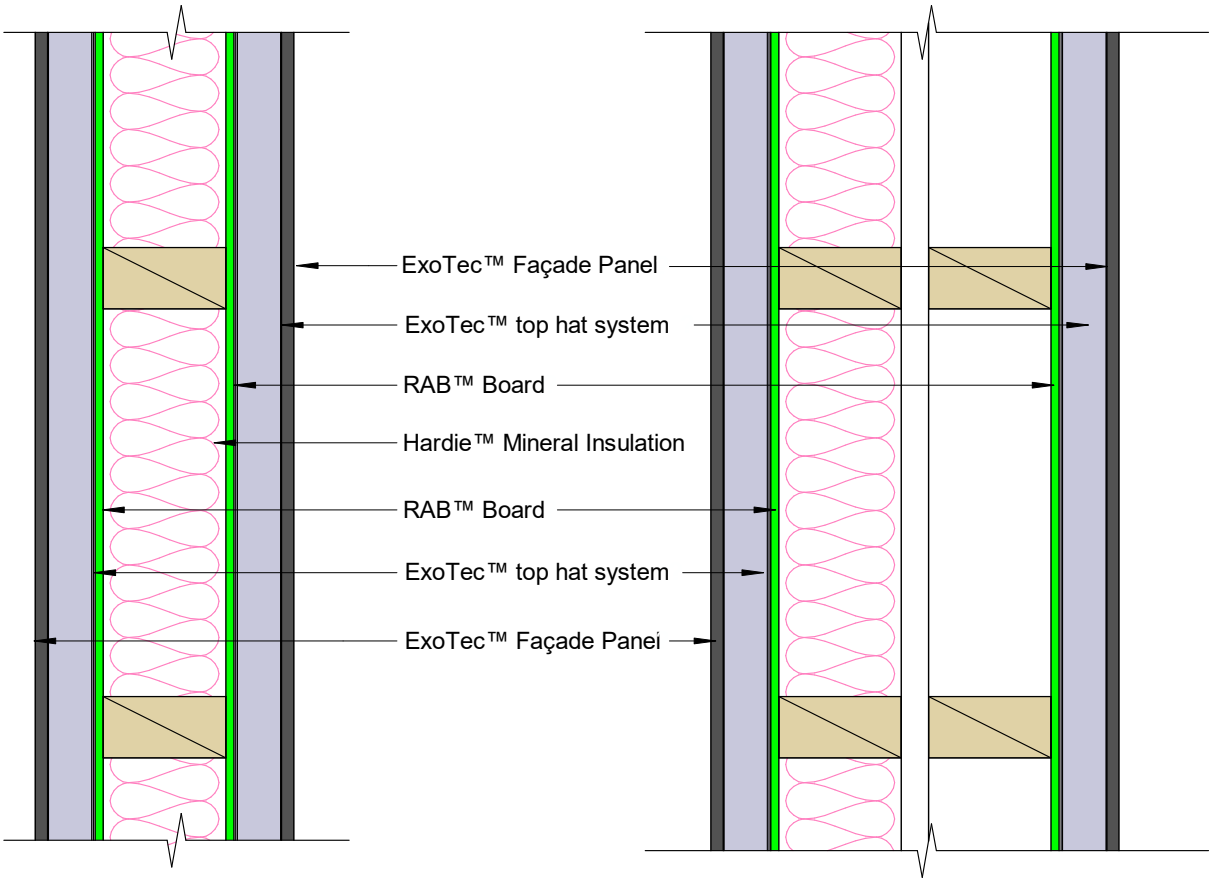


JHETRR60-X

Fire Resistance 60/60/60

Cladding	ExoTec™ Facade Panel - Top hat system		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	ExoTec™ top hat system	**Underlay**	RAB™ Board - Both sides of framing
RAB™ Board Fixing	6mm RAB™ Board: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing 9mm RAB™ Board: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		
Cladding Fixing	As per ExoTec™ Facade Panel top hat technical specification		

No cladding required for wall applications enclosed within the roof space
For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



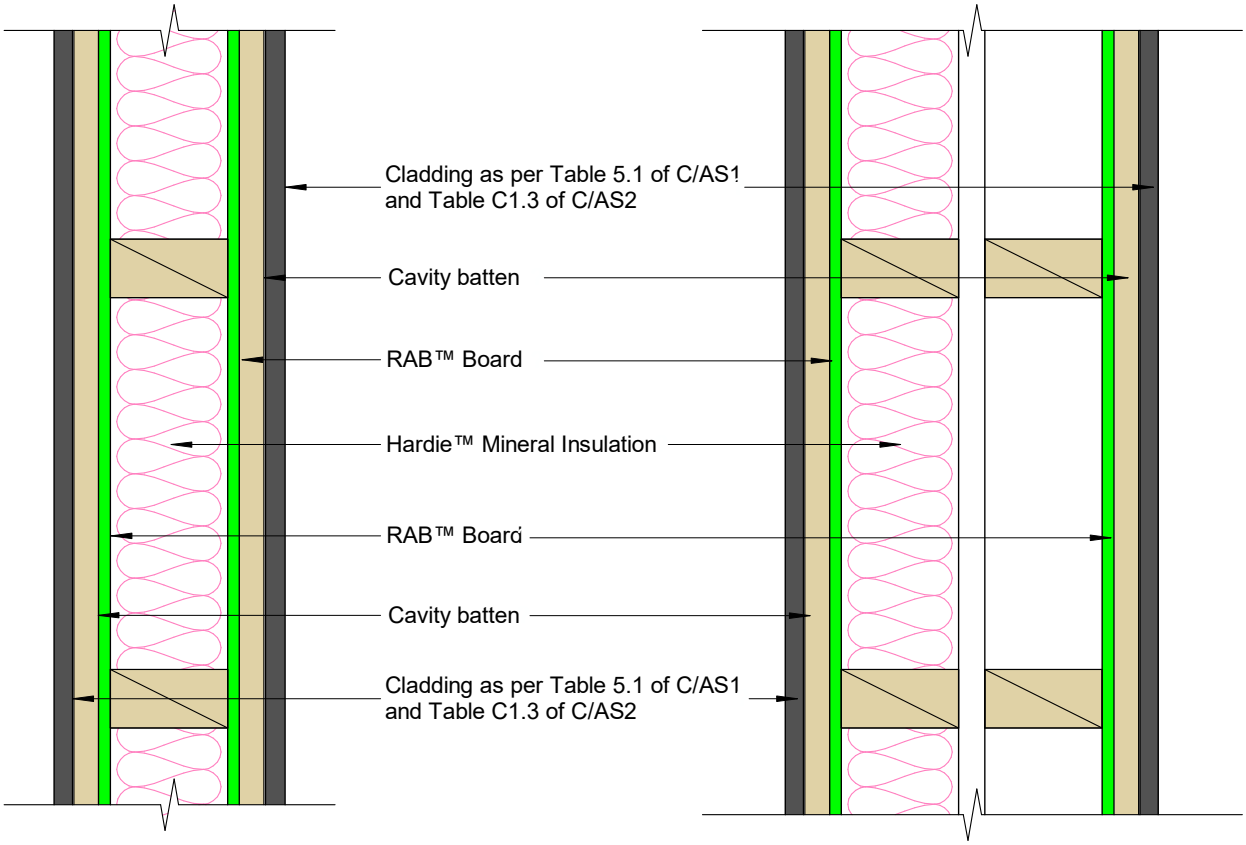
JHETRR60-N

Fire Resistance 60/60/60

Cladding	Cladding system as per Table 5.1 of C/AS1 and Table C1.3 of C/AS2		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Cavity Batten	As per cladding manufacturer technical specification	**Underlay**	RAB™ Board - Both sides of framing
RAB™ Board Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges		
Cladding Fixing	As per cladding manufacturer technical specification		

No cladding required for wall applications enclosed within the roof space

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual



Internal Walls
Timber Frame

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30 Minute Fire Rated System

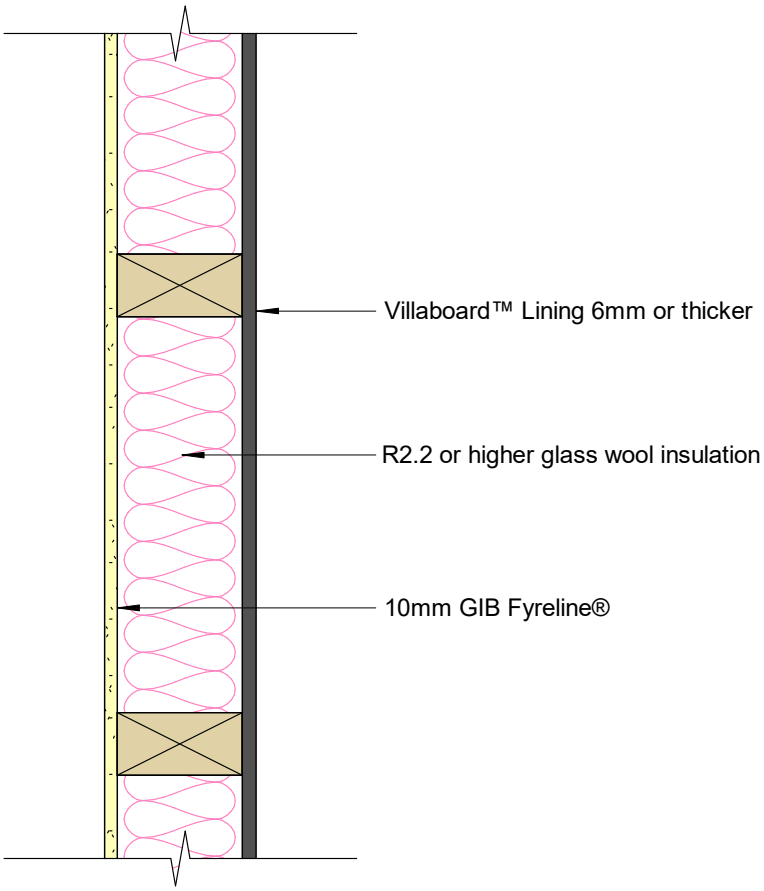
60 Minute Fire Rated System

JHITGV30

Fire Resistance 30/30/30 **STC** 42

Lining	Villaboard™ Lining 6 or 9mm	**Lining**	10mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Glass wool insulation 90mm thick, R2.2 or higher.
Lining Fixing	Fix Villaboard™ Lining with: 30mm x 6g Villadrive™ screws or 40 x 2.8mm fibre cement nails at 150mm centres	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

For further information refer to Villaboard™ Lining technical specification

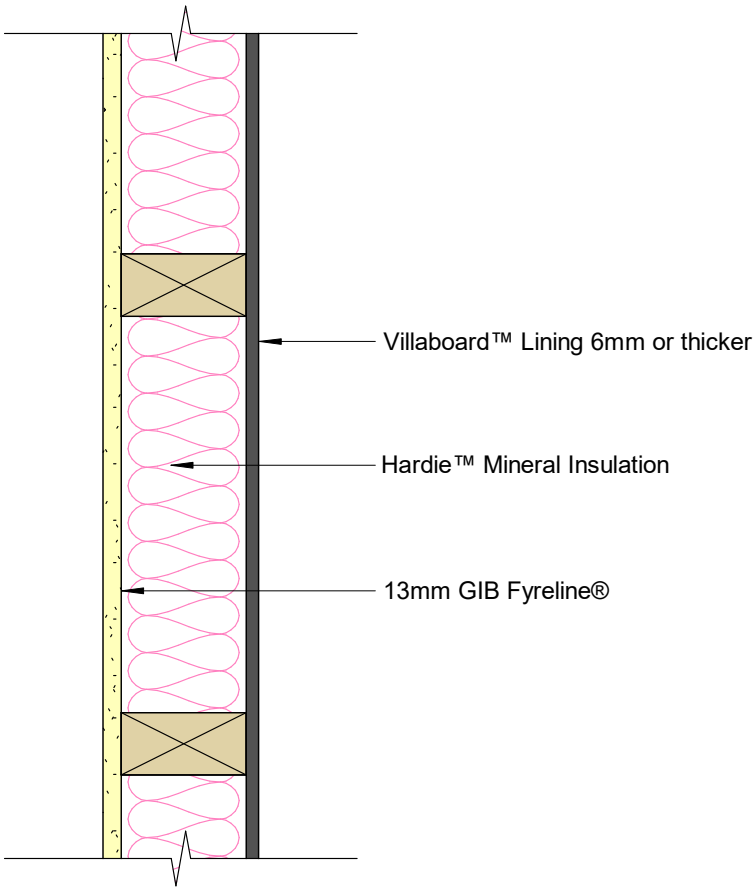


JHITGV60

Fire Resistance 60/60/60 **STC** 42

Lining	Villaboard™ Lining 6 or 9mm	**Lining**	13mm GIB Fyreline®
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum	**Insulation**	Hardie™ Mineral Insulation
Lining Fixing	Fix Villaboard™ Lining with: 30mm x 6g Villadrive™ screws or 40 x 2.8mm fibre cement nails at 150mm centres	**Lining Fixing**	Fix GIB Fyreline® with 41mm x 6g GIB® Grabber® High Thread Drywall Screws 300mm centre around the sheet perimeter and intermediate studs Fixing to be 12mm from bound sheet edges and 18mm from sheet ends

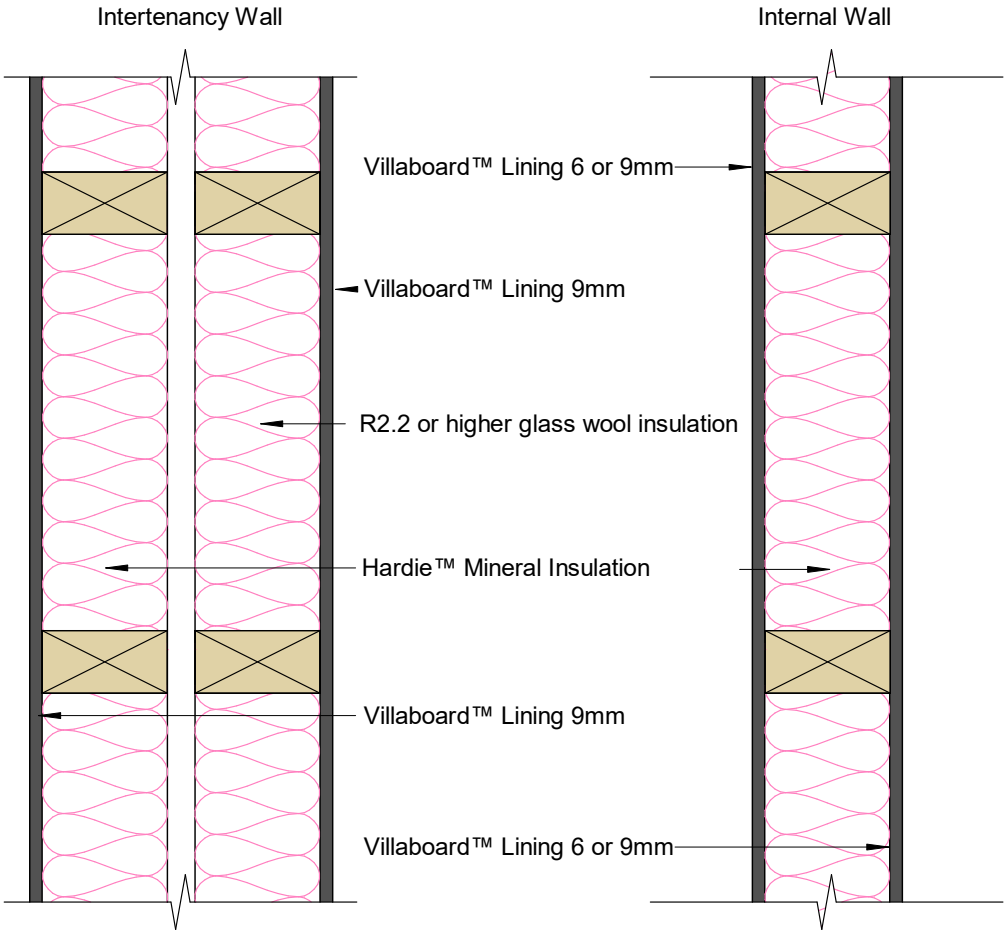
For further information refer to Villaboard™ Lining technical specification



JHITVV60	Fire Resistance 60/60/60	STC 55*	
Lining	Villaboard™ Lining 6 and 9mm		
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum For intertenancy walls double frame with 25mm gap between frames.	**Insulation**	1 layer of Hardie™ Mineral Insulation 1 layer of Glass wool insulation 90mm thick, R2.2 or higher
Lining Fixing	Fix Villaboard™ Lining with: 30mm x 6g Villadrive™ screws or 40 x 2.8mm fibre cement nails at 150mm centres		

*STC value for IT wall

For further information refer to Villaboard™ Lining technical specification



JHITVR60

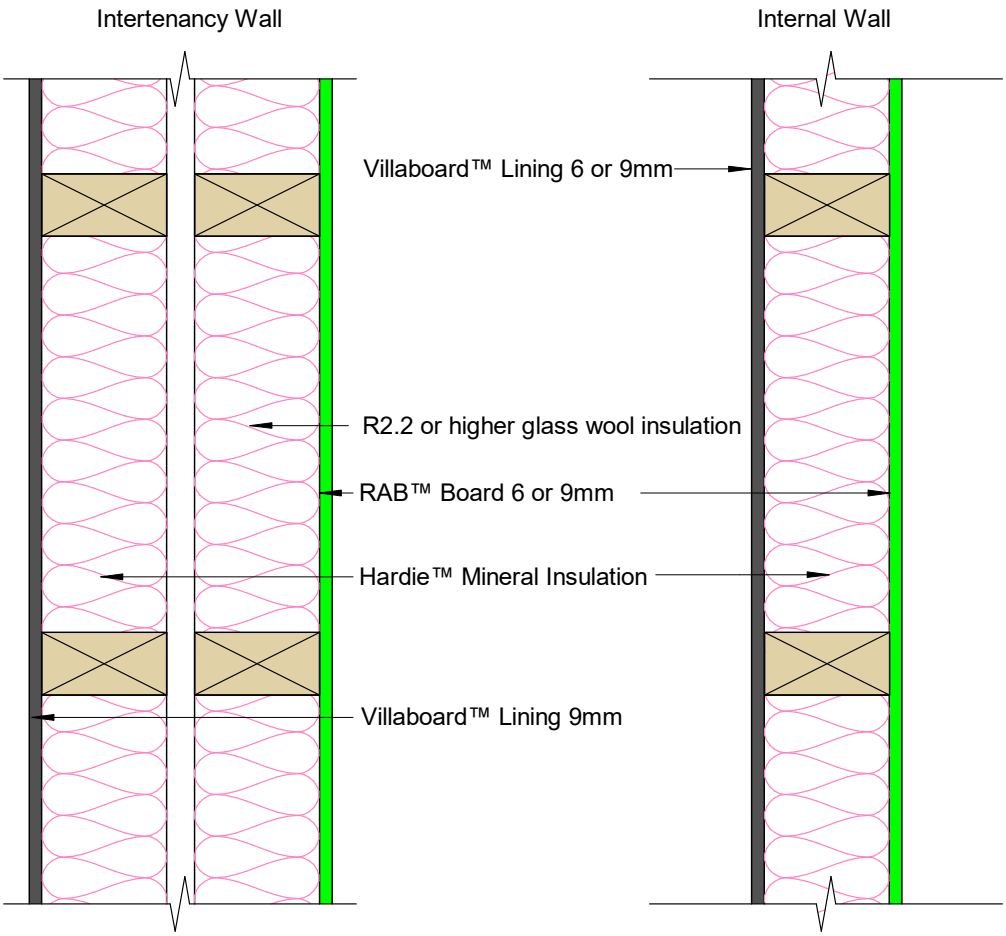
Fire Resistance 60/60/60 **STC** 55*

Lining	Villaboard™ Lining 6 and 9mm
Framing	Timber framing to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Framing size 90 x 45mm minimum. Studs at 600mm centres and nogs at 800mm centres maximum For intertenancy walls double frame with 25mm gap between frames.
Underlay	RAB™ Board
Lining Fixing	Villaboard™ : 30mm x 6g Villadrive™ screws or 40 x 2.8mm round head nails at 150mm centres
RAB™ Fixing	RAB™ Board 6mm: 40 x 2.8mm fibre cement nail at 150mm centres to entire framing RAB™ Board 9mm: 50 x 2.8mm fibre cement nail at 150mm centres to entire framing Fixing to be 12mm from sheet edges

*STC value for IT wall

For further information refer to Villaboard™ Lining technical specification

For further information refer to HomeRAB™ Pre-Cladding and RAB™ Board installation manual.



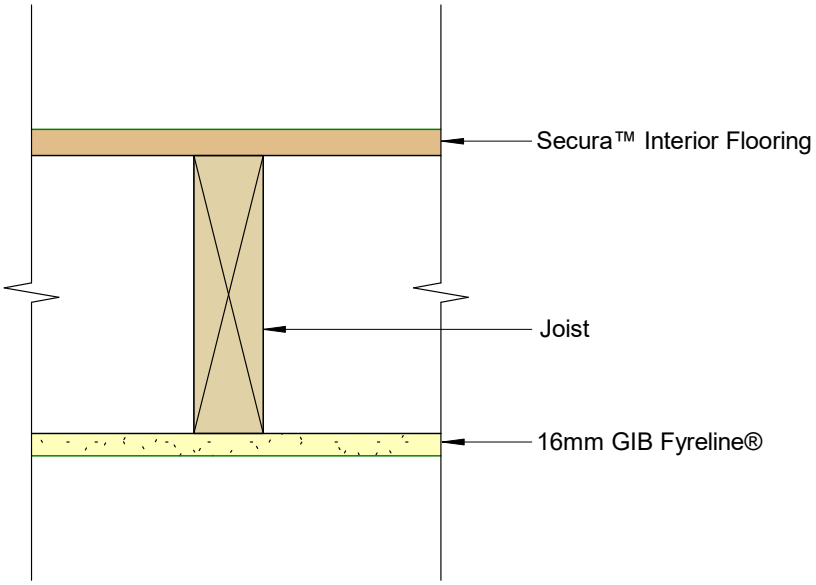
Internal Floors/Ceilings Timber Frame

60 Minute Fire Rated System

JHFTGS60	Fire Resistance 60/60/60	IIC 33	STC 46

Ceiling	16mm GIB Fyreline®		
Joist	Joist to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Joist size 190 x 45mm minimum. Joist spacing 450mm centres maximum. HySPAN and hyJOIST series joists can also be used in accordance with SED, meeting the requirements of AS/NZS 1170.	**Insulation**	None
Flooring	Secura™ Interior Flooring		
Secura™ Interior Flooring	50 x 2.8mm round head nails at 200mm centres 25mm minimum distance from tongue and groove 12mm minimum edge distance		
Ceiling	Fix GIB Fyreline® with 51mm x 7g GIB® Grabber® High Thread Drywall Screws 150mm centres around the perimeter of each sheet 200mm centres along each joist and at the centre of each nog Fixing to be 12mm from bound sheet edges and 18mm from sheet ends		

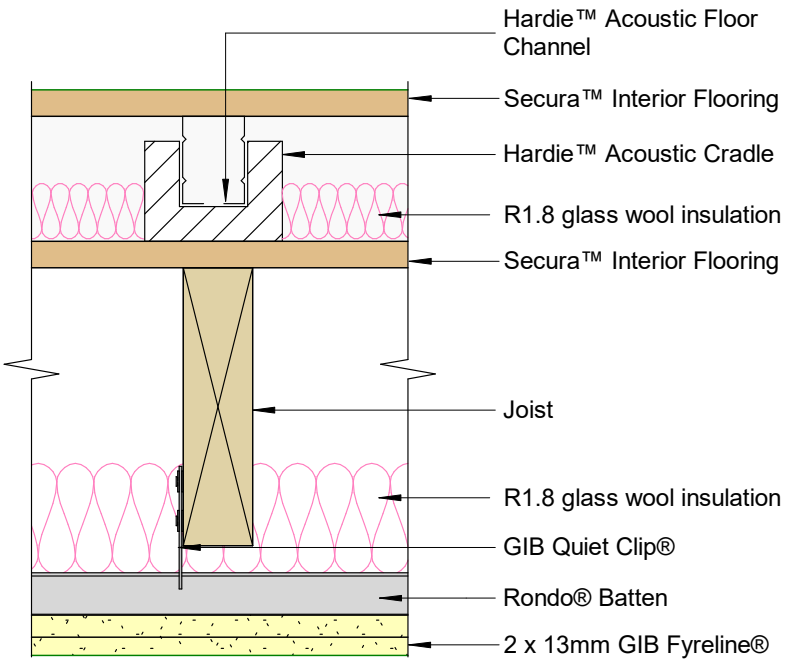
For further information refer to Secura™ Interior Flooring Fire Acoustic Floor System Installation Manual



JHFTGSS60	Fire Resistance 60/60/60	IIC 57	STC 67

Ceiling	2 x 13mm GIB Fyreline®		
Joist	Joist to be in accordance with NZS 3604 or SED complying with AS/NZS 1170 and NZS 3603. Joist size 190 x 45mm minimum. Joist spacing 450mm centres maximum. HySPAN and hyJOIST series joists can also be used in accordance with SED, meeting the requirements of AS/NZS 1170.	**Insulation**	Glass wool insulation 75mm thick minimum
Flooring	Secura™ Interior Flooring		
Secura™ Interior Flooring	**First Layer:** 50 x 2.8mm round head nails at 200mm centres 25mm minimum distance from tongue and groove 12mm minimum edge distance **Second Layer:** Hardie™ Acoustic Cradles at 450mm centres. Hardie™ Acoustic Floor Channels at 450mm centres placed over acoustic cradles Second layer of Secura™ Interior Flooring fitted with 40-45mm x 8-10g self embedding steel screws at 200mm centres into Hardie™ Acoustic Floor Channel 25mm minimum distance from tongue and groove 12mm minimum edge distance at short panel edges		
Ceiling	**Inner layer:** 32mm x 6g GIB® Grabber® Drywall Self Tapping Screws **Outer layer:** 41mm x 6g GIB® Grabber® Drywall Self Tapping Screws 200mm centres along each batten and at 100mm centres along sheet end butt joints Place fasteners no closer than 12mm to the sheet edges		

For further information refer to Secura™ Interior Flooring Fire Acoustic Floor System Installation Manual



6 Construction details

Construction details are available for download at www.jameshardie.co.nz

Table 1

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Figure 1: Post fire stability – Slab on ground foundation	93
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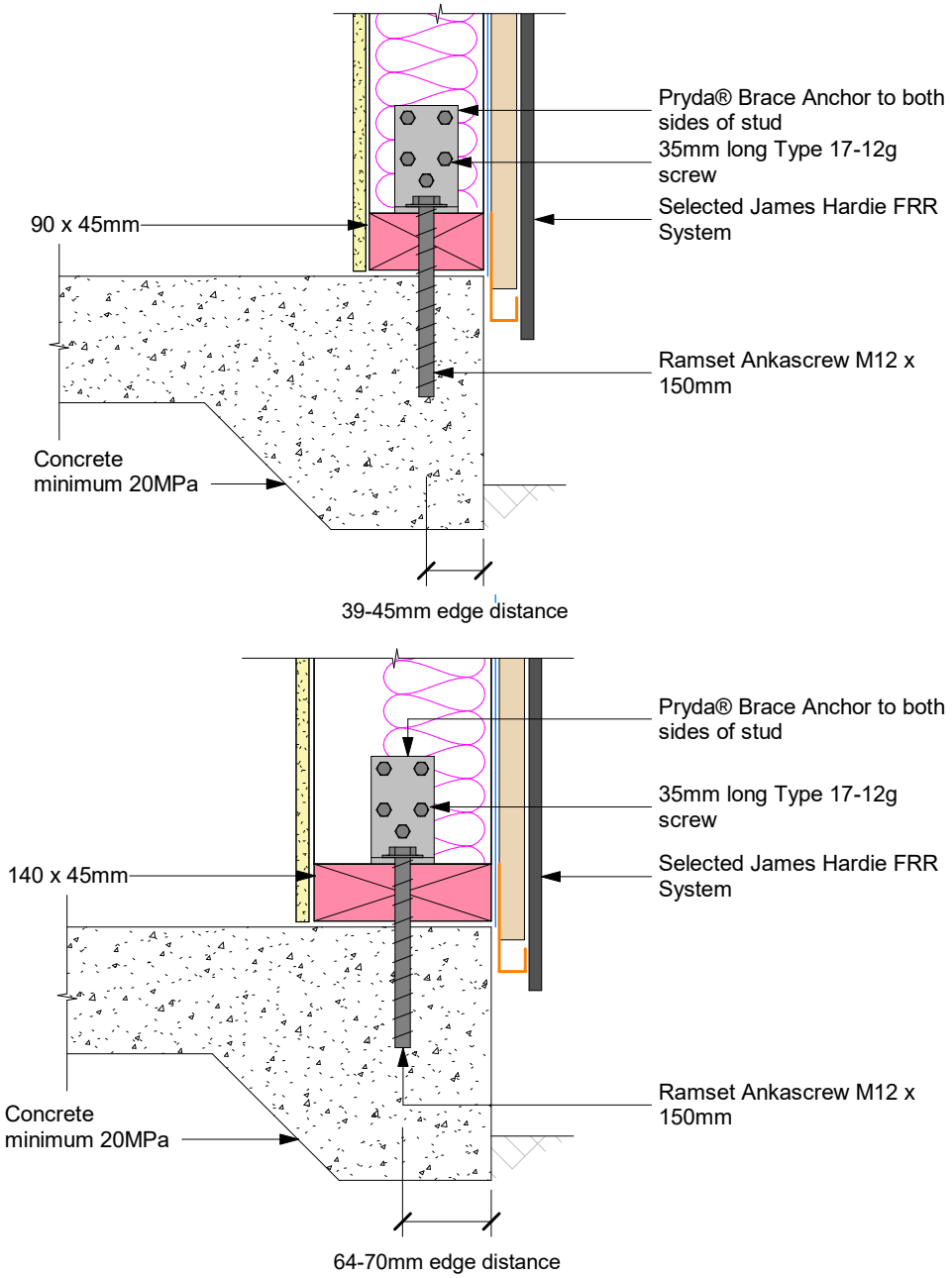
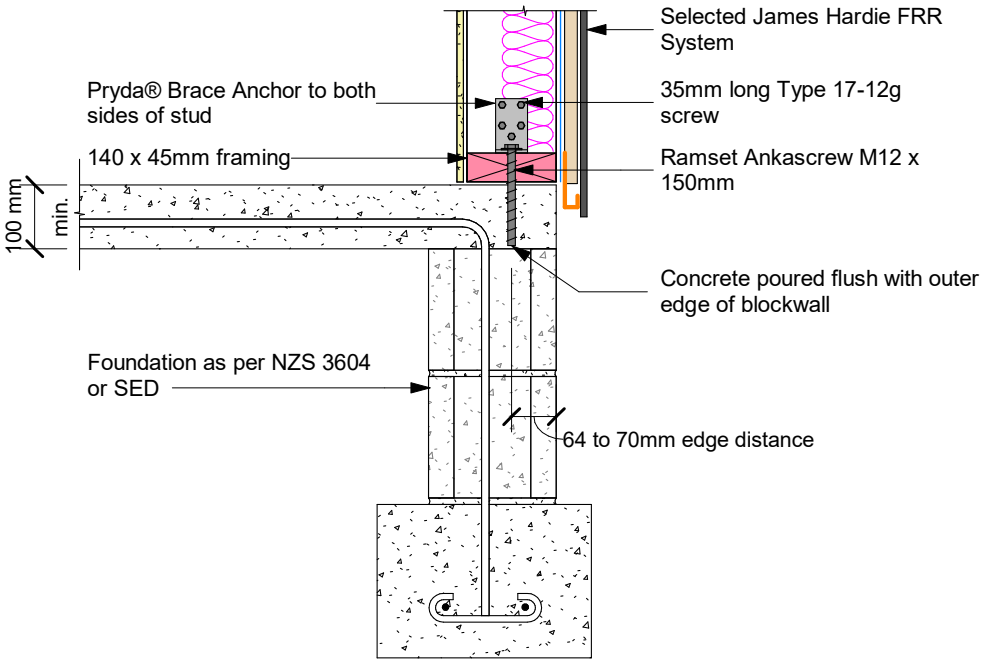
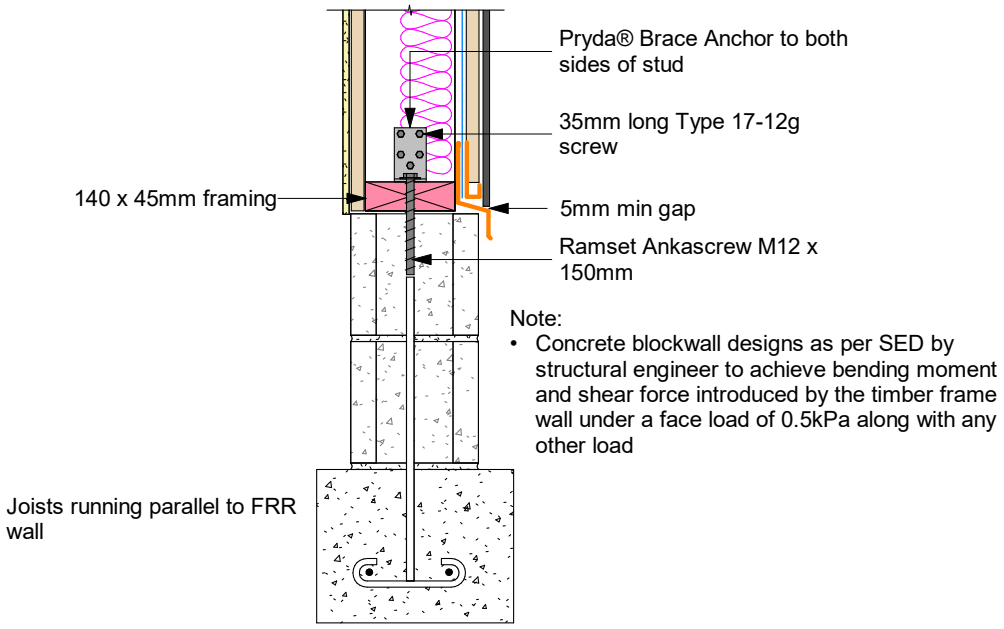
Figure 1: Post fire stability – Slab on ground foundation



Wall height max (mm)	2400	3000	3000	3700
Stud bottom plate (mm)	90 x 45	90 x 45	140 x 45	140 x 45
Stud spacing max (mm)	400	300	600	400
Nog spacing max (mm)	800	800	800	800
Hold down brackets	Pryda® Brace / GIB Handibrac® Anchor both sides of stud			
For higher stud heights, please refer to James Hardie				

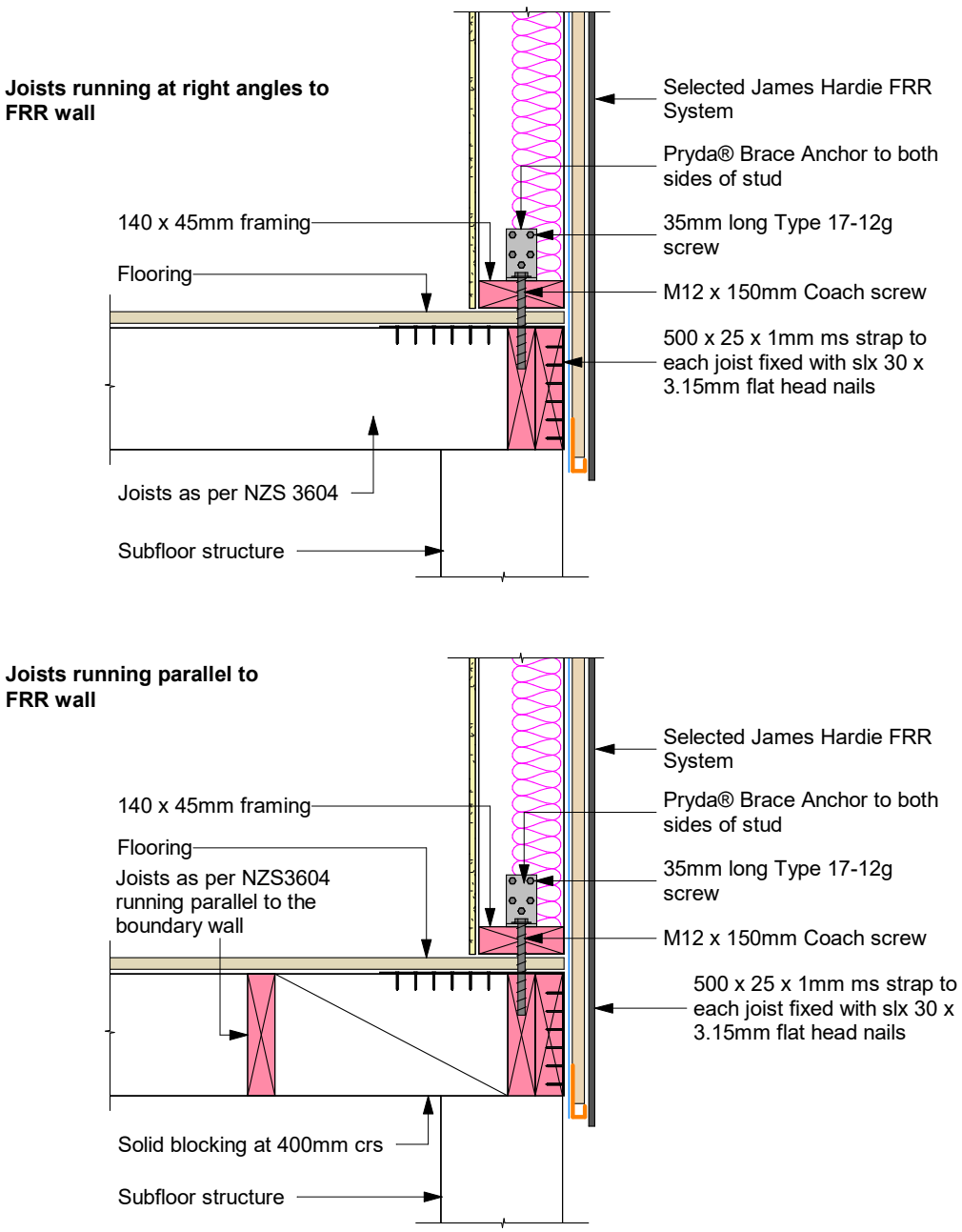
Figure 2: Post fire stability – Blockwall foundation





Wall height max (mm)	3000	3700
Stud bottom plate (mm)	140 x 45	140 x 45
Stud spacing max (mm)	600	400
Nog spacing max (mm)	800	800
Hold down brackets	Pryda® Brace / GIB Handibrac® Anchor both sides of stud	
For higher stud heights, please refer to James Hardie		

Figure 3: Post fire stability – Timber foundation



	Joist parallel to boundary joist	Joist at right angle to boundary joist		
Stud bottom plate size (mm)	140 x 45	140 x 45	140 x 45	140 x 45
Stud spacing max (mm)	600	600	400	300
Nog spacing max (mm)	800	800	800	800
Hold down brackets	Pryda® Brace / GIB Handibrac® Anchor both sides of stud			
Wall height max (mm)	2700	2700	3000	3700
Joist min (mm)	190	190	190	190

Figure 4: Soffit detail

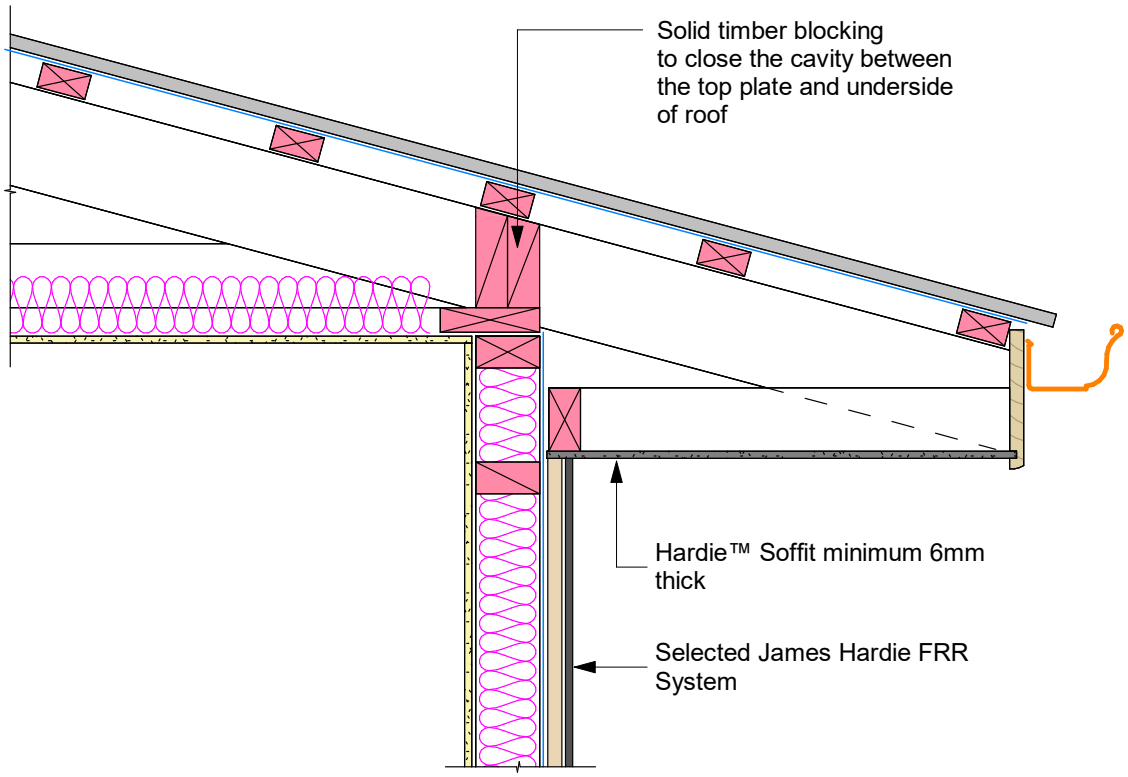


Figure 5: NIL soffit detail

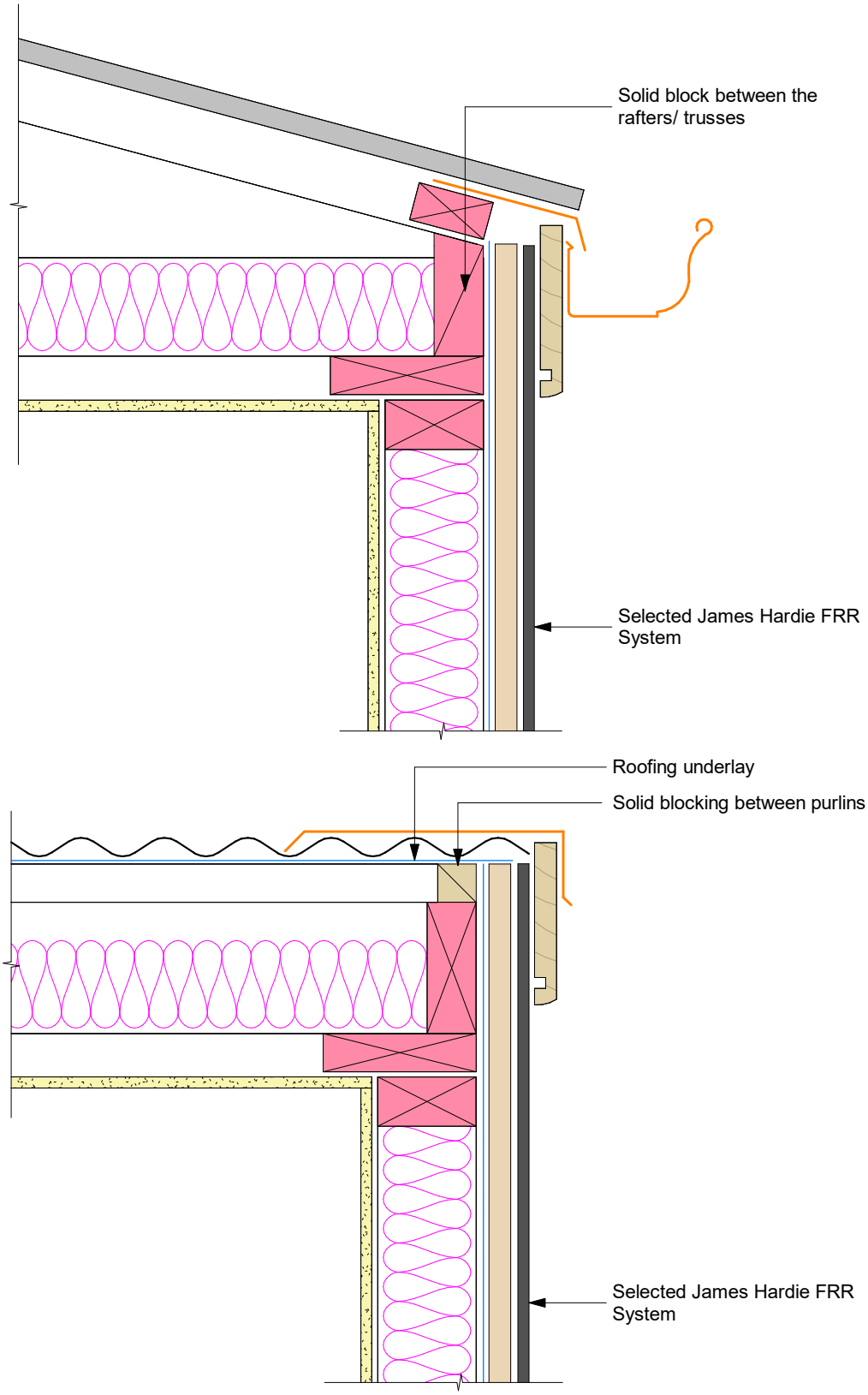


Figure 6: Sub-floor FRR

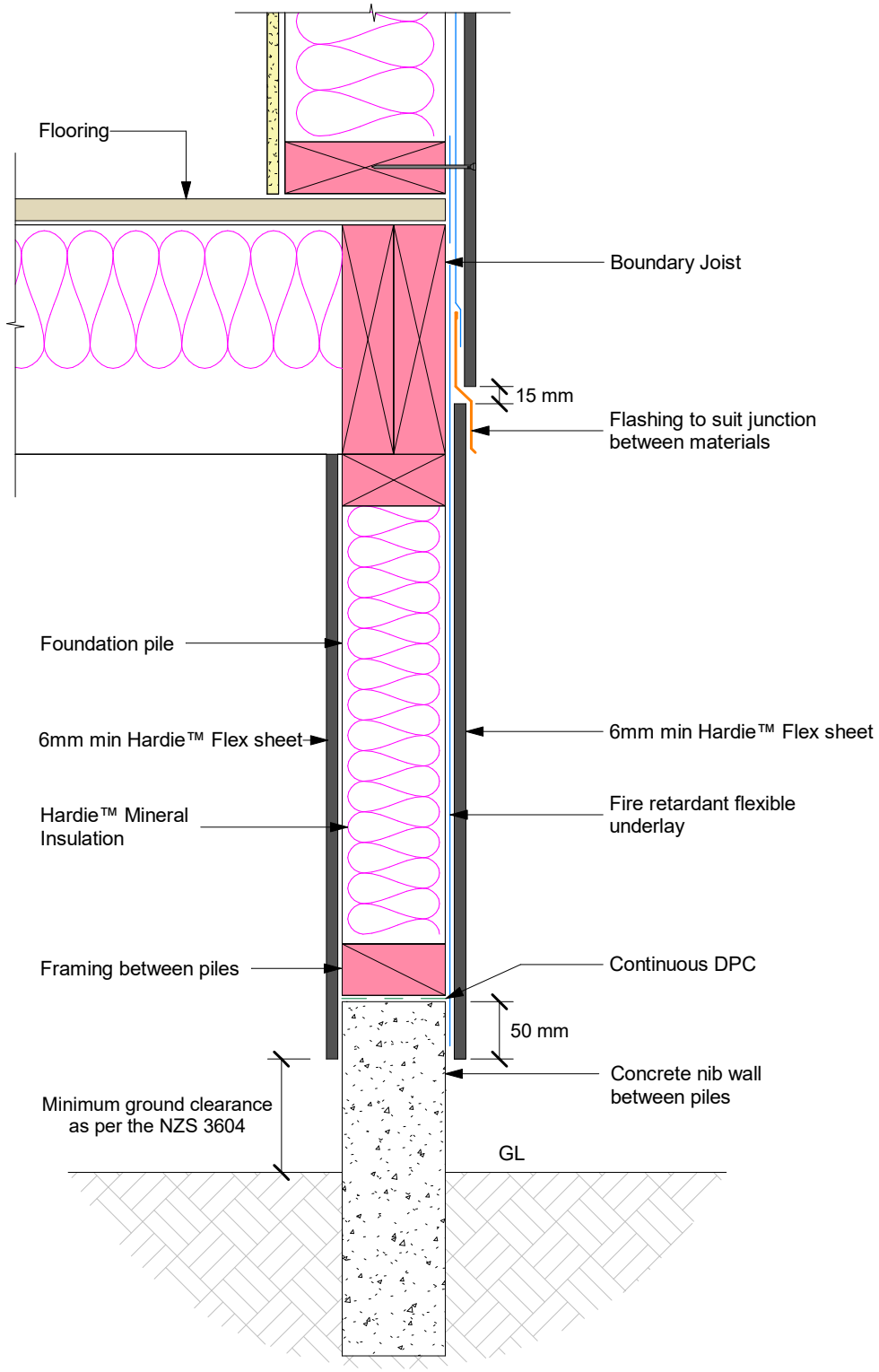


Figure 7: Intertenancy fire separation

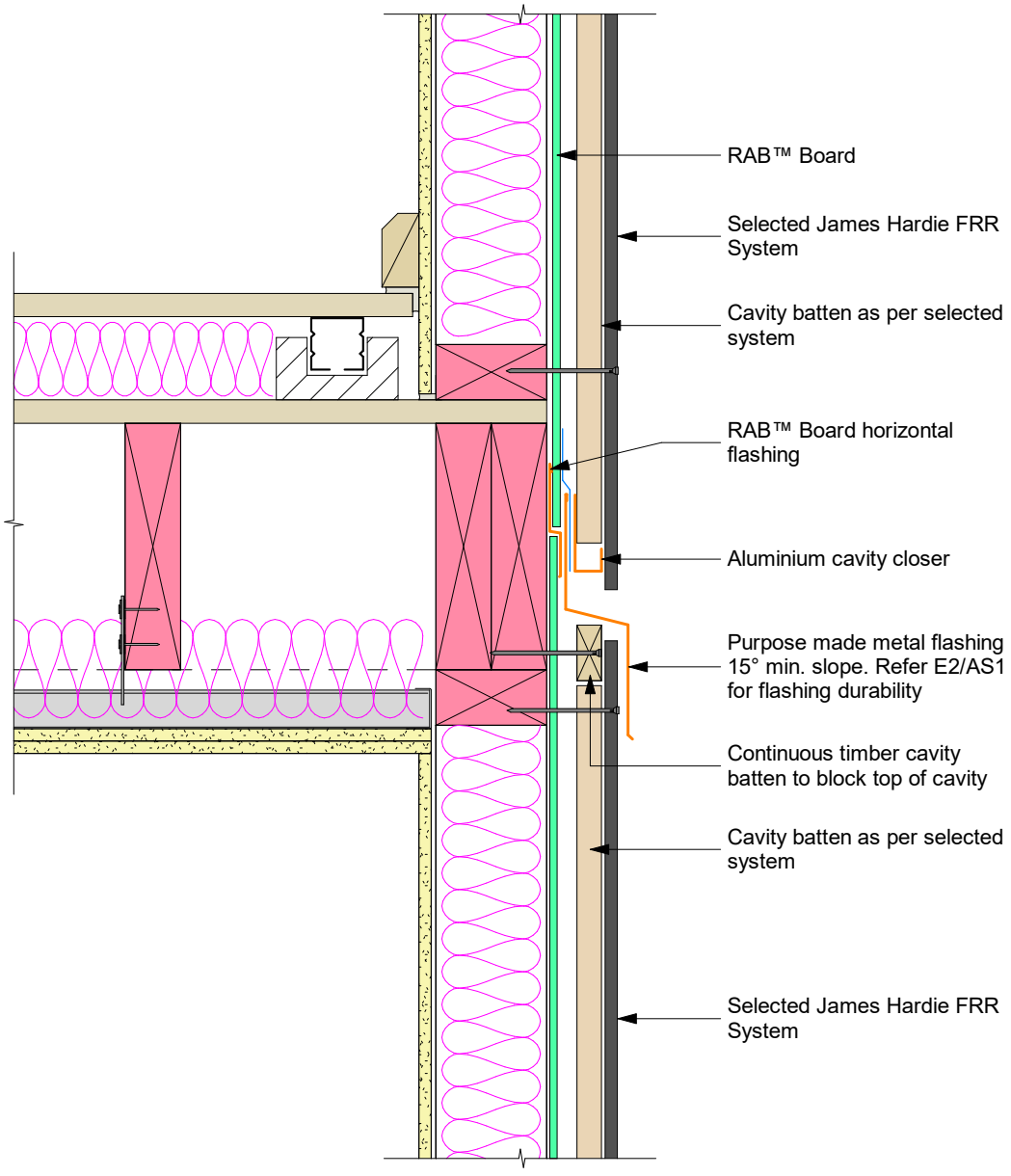


Figure 8: Control joint detail – Linea™ Weatherboard

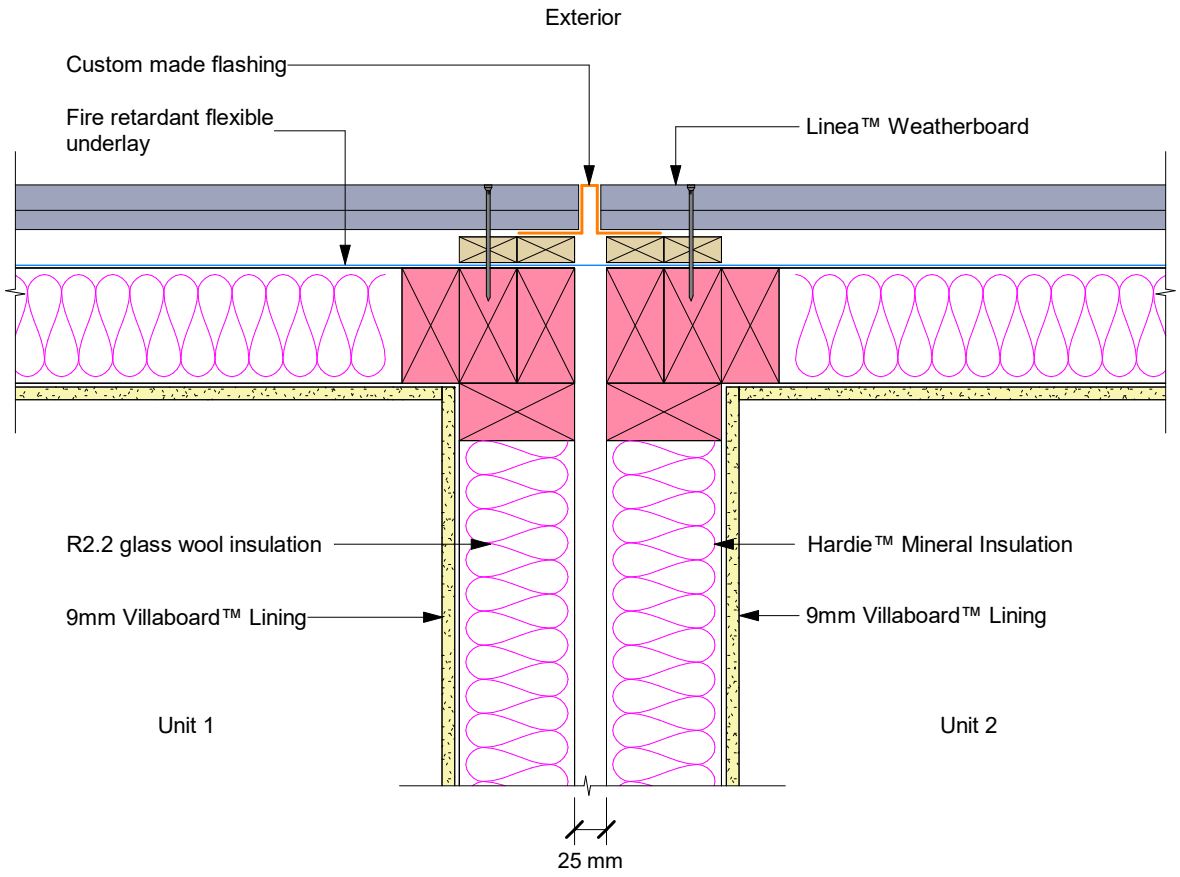


Figure 9: Vertical central joint detail

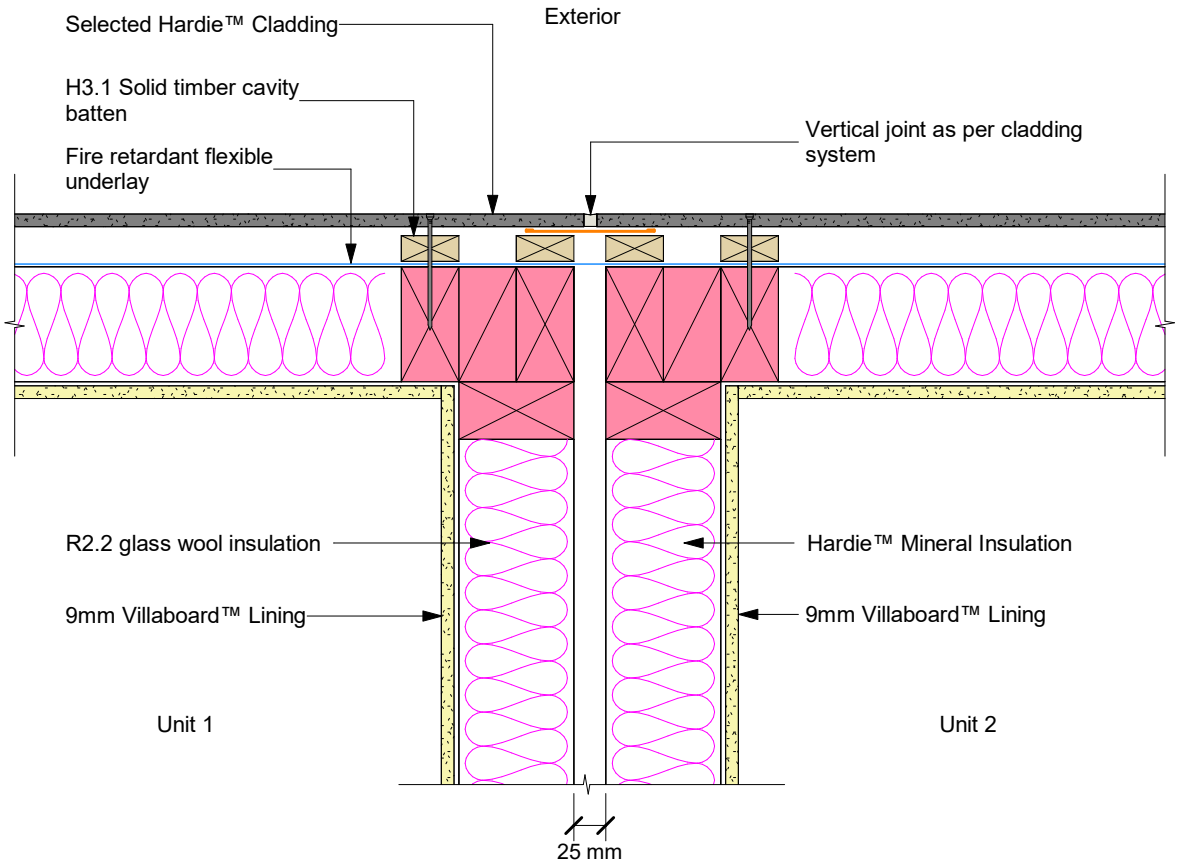


Figure 10: Timber floor to floor intertenancy wall junction

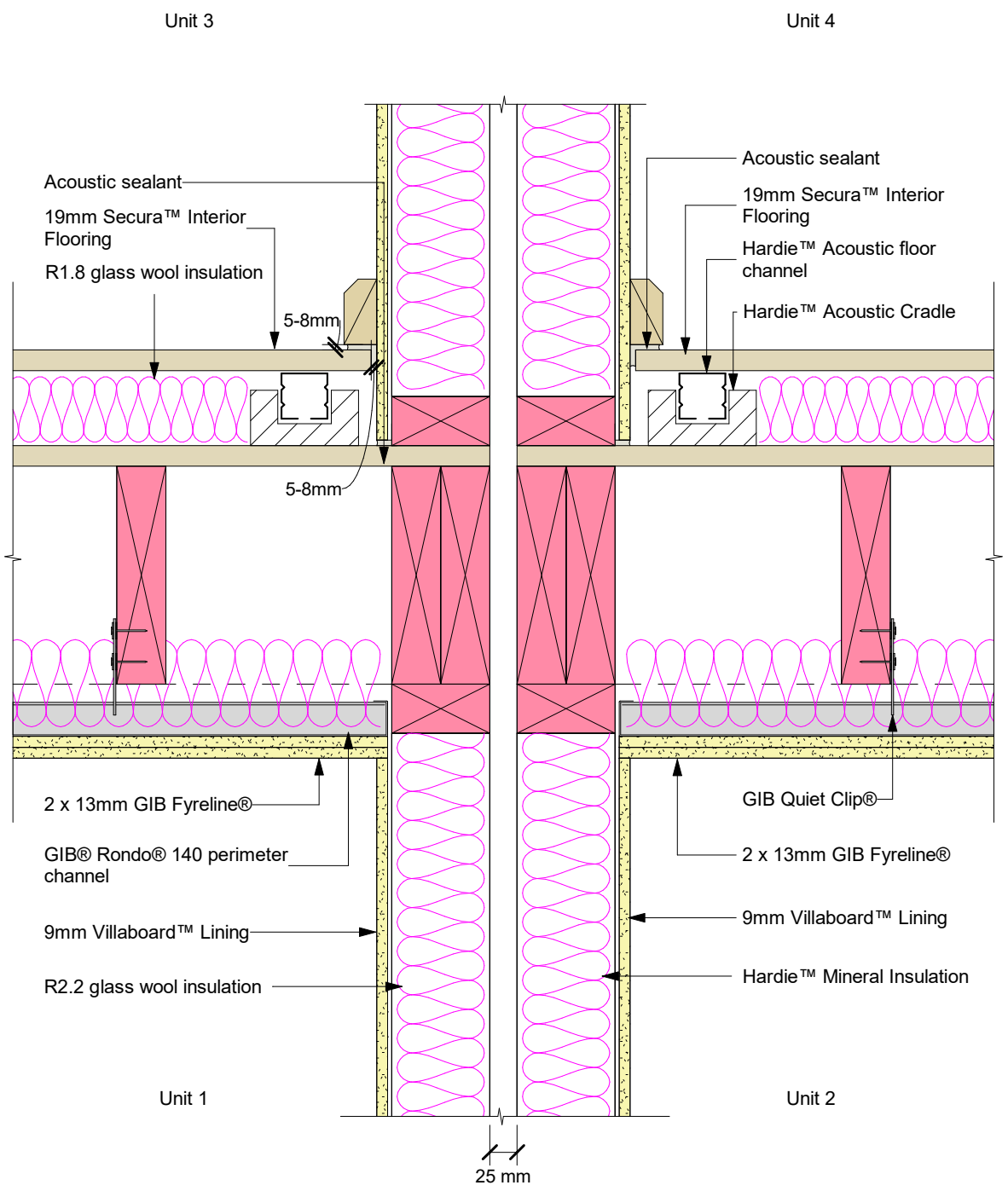


Figure 11: Concrete floor to floor intertenancy wall junction

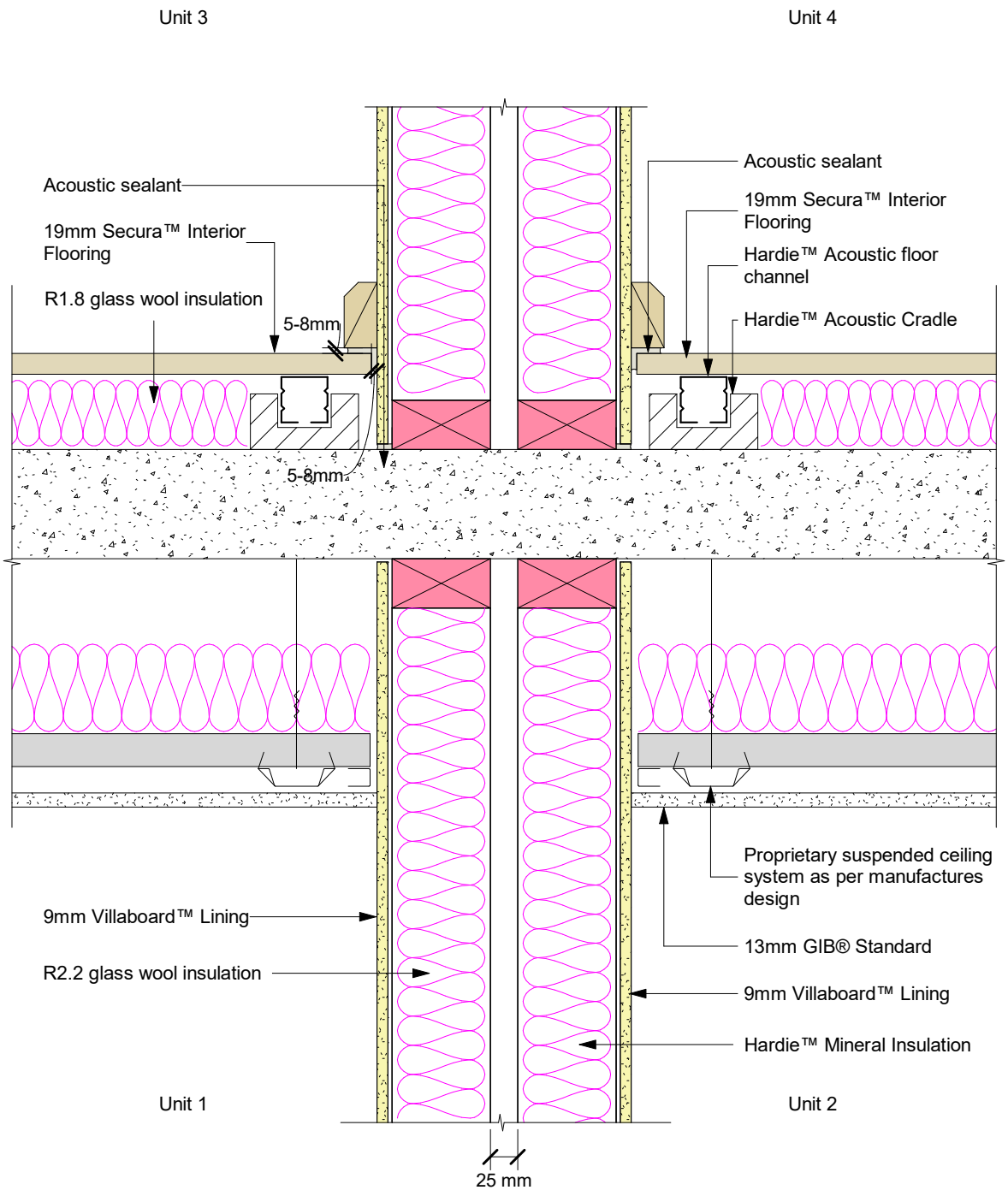


Figure 12: Fire cell extension

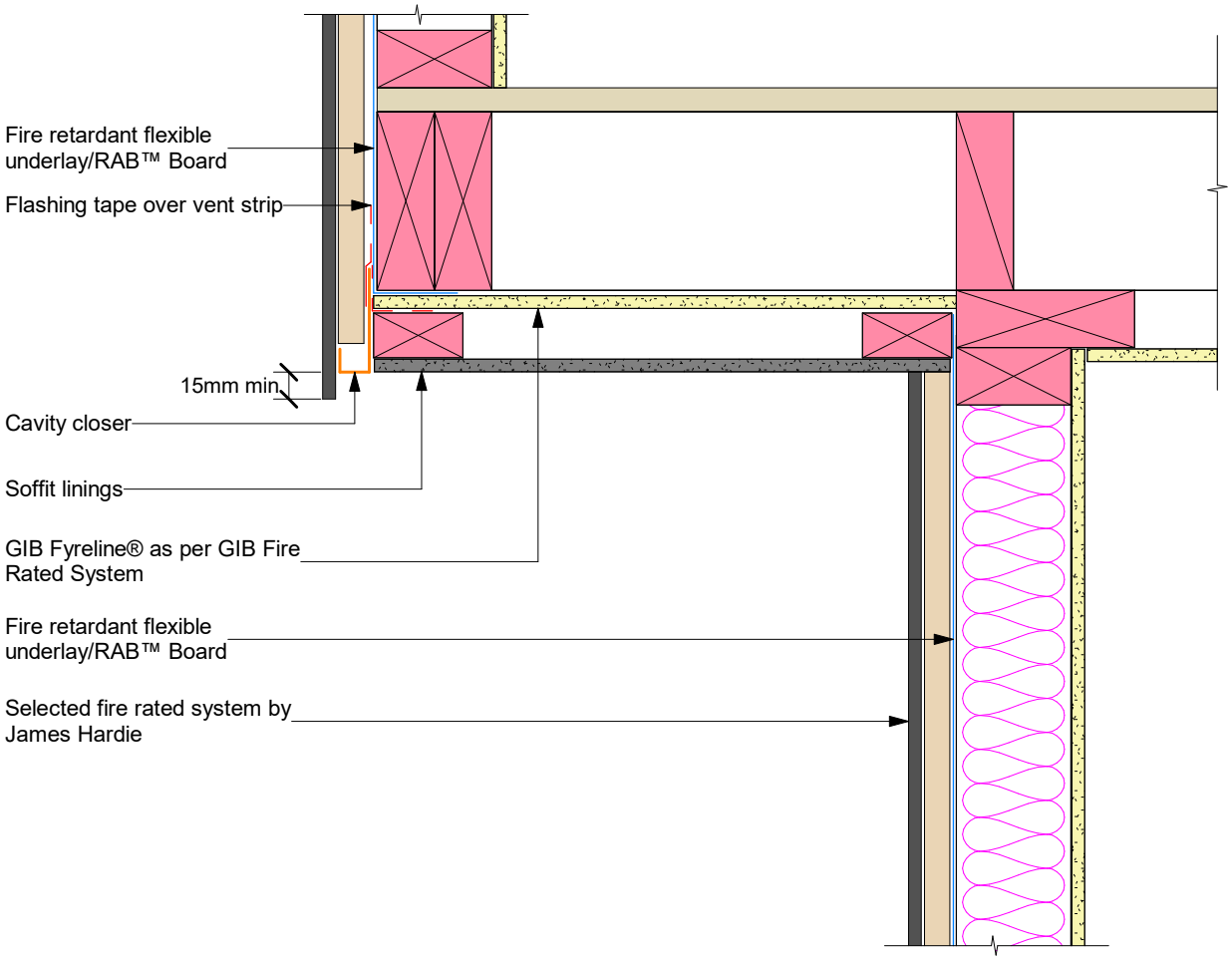


Figure 13: Wing wall – Linea™ Weatherboard

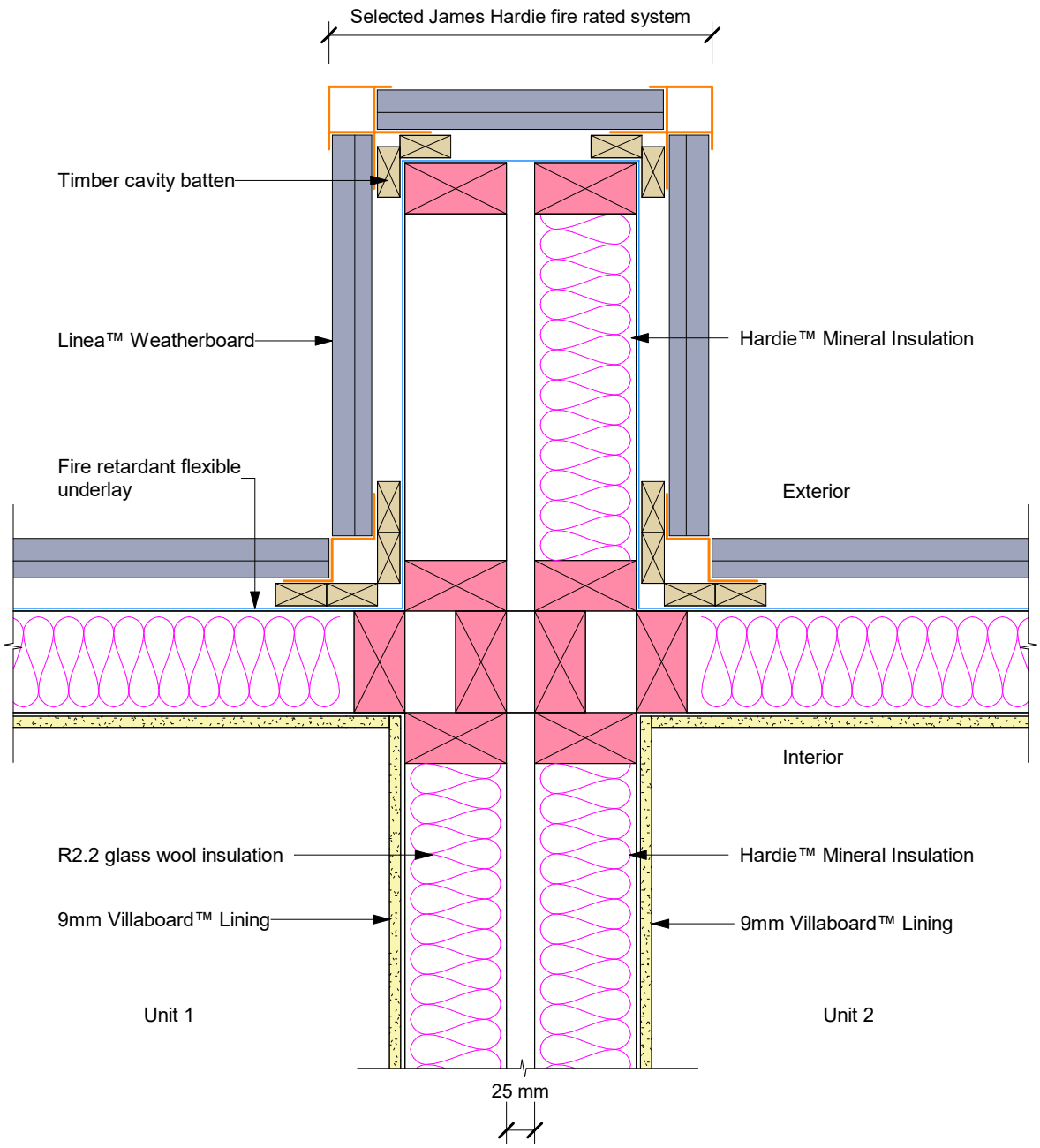
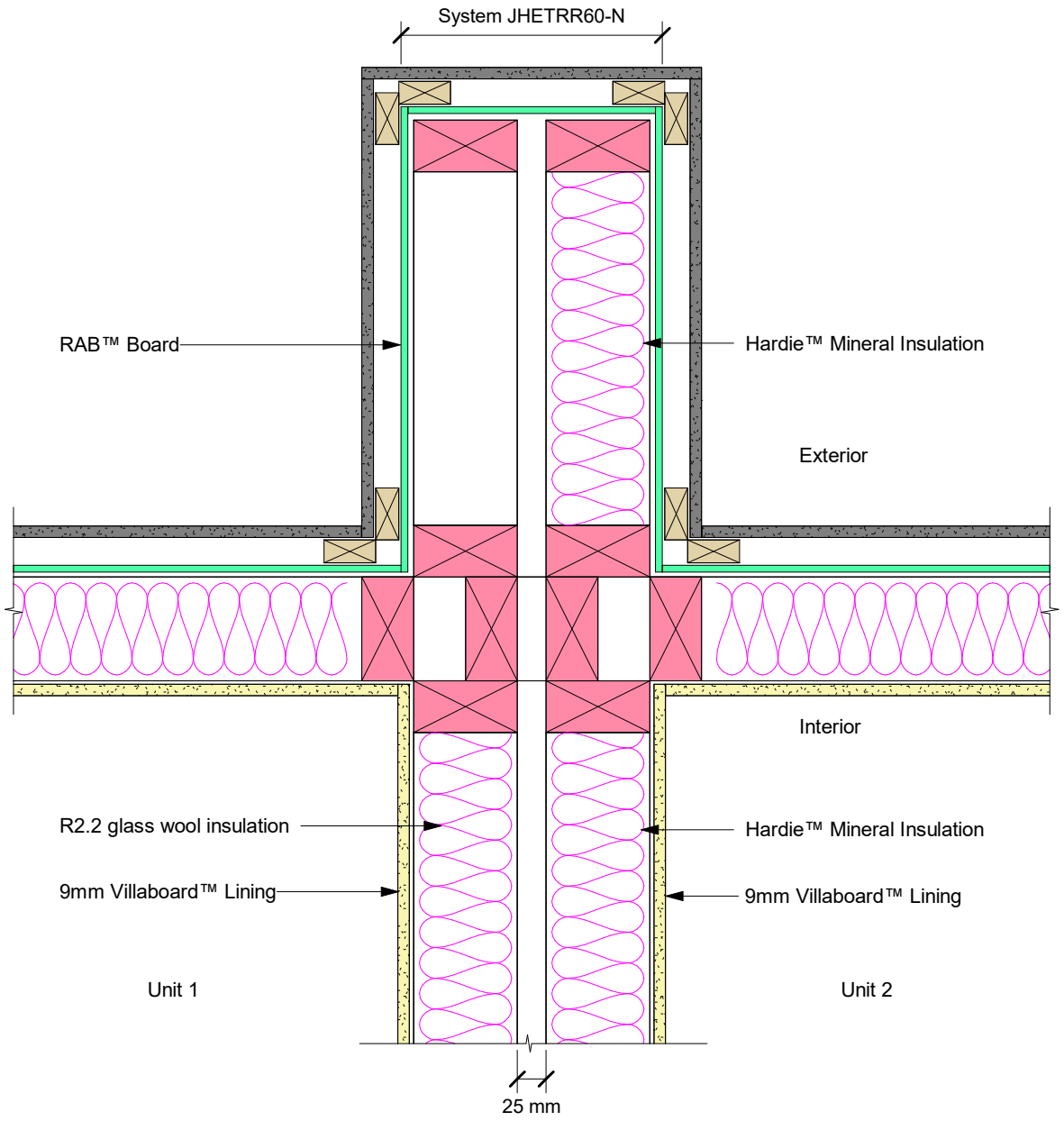


Figure 14: Wing wall – RAB™ Board



6.1 Penetrations

Penetrations through fire rated walls must be carefully considered by the designer at the design stage and suitable penetration details shall be selected for construction. Unconsidered or poorly planned penetrations through fire rated walls risk compromising the performance of James Hardie's fire rated systems. It is recommended where possible to centralise the penetrations of cable and piped services into fire-rated 'service ducts' or shafts - thus eliminating the need for a large number of individual penetrations.

Various penetration details published in this design manual such as those given for metallic and non-metallic pipes, cable trays and switch boxes etc. have been developed based on fire testing and assessments completed by BRANZ. These penetrations, when constructed in accordance with the details included in this design manual will not be detrimental to fire performance of 30 or 60 minute James Hardie fire rated walls. A minimum edge distance of 200mm has been tested and must be maintained. Holes/penetrations positioned no closer than 200mm to another penetration, are allowed for services. Maximum of two service penetrations are recommended per sheet.

NZBC Acceptable Solution C/AS2 contains allowances for small unprotected areas within external fire rated walls as outlined in C/AS2 Sections 5.4 and 5.5. The designer must ensure that the total area of penetrations and other allowable openings within James Hardie's external fire rated walls does not exceed these allowances. James Hardie's external fire rated walls that have unprotected areas that exceed the allowances given in C/AS2 are outside the scope of this design manual and shall be specifically designed in all instances.

Figure 15: Penetration detail – Switch box

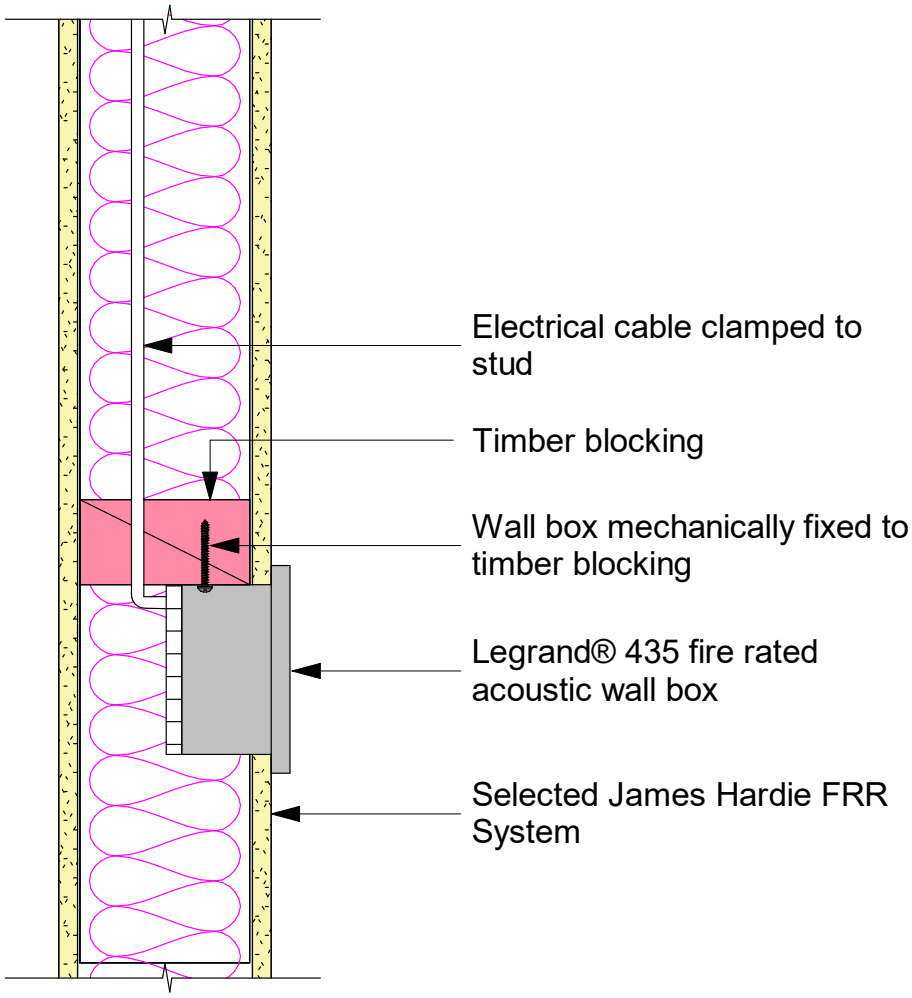


Figure 16: Penetration detail – HDPE/PEX pipe, flexible underlay

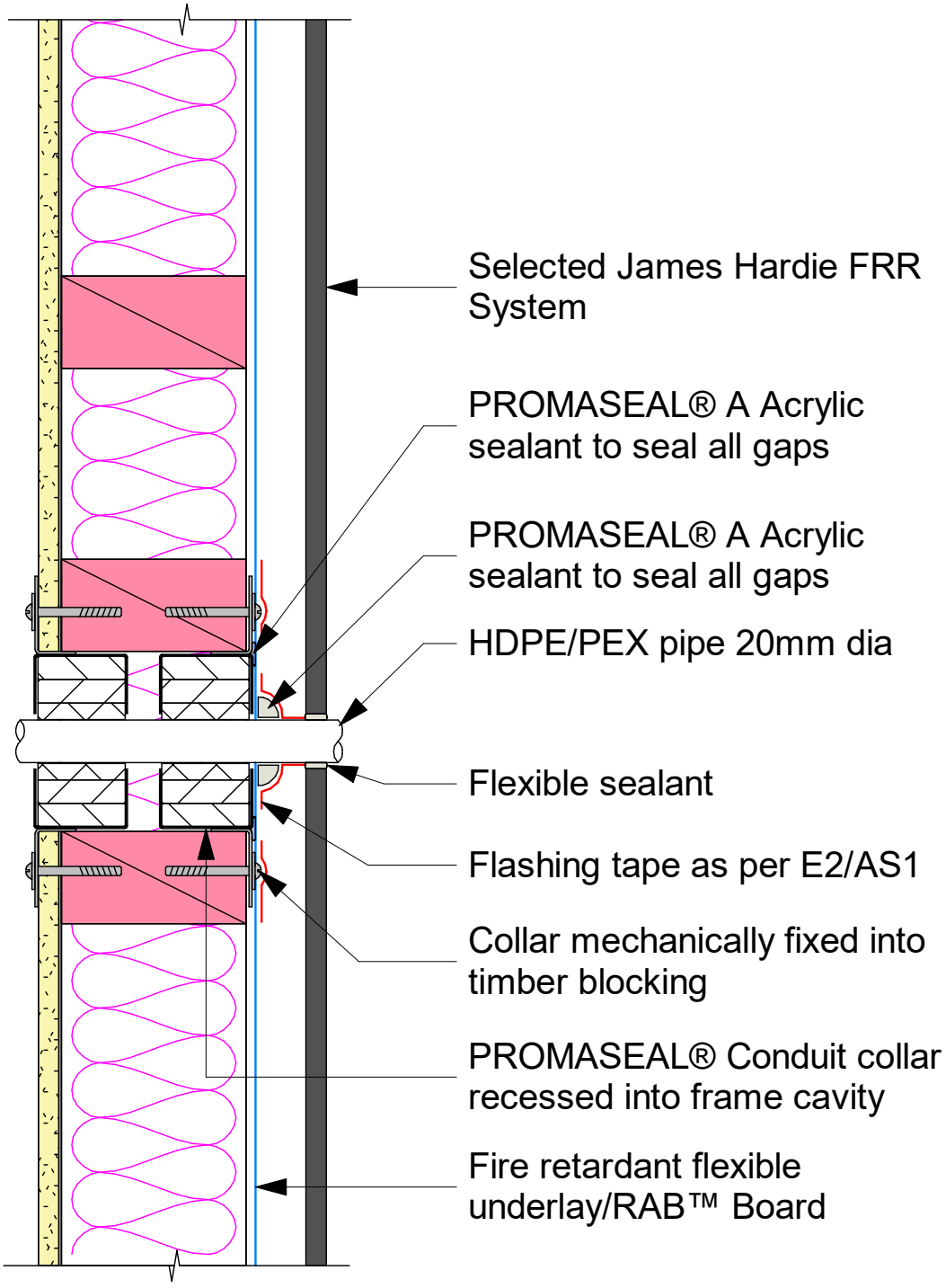


Figure 17: Penetration detail – uPVC pipe, flexible underlay

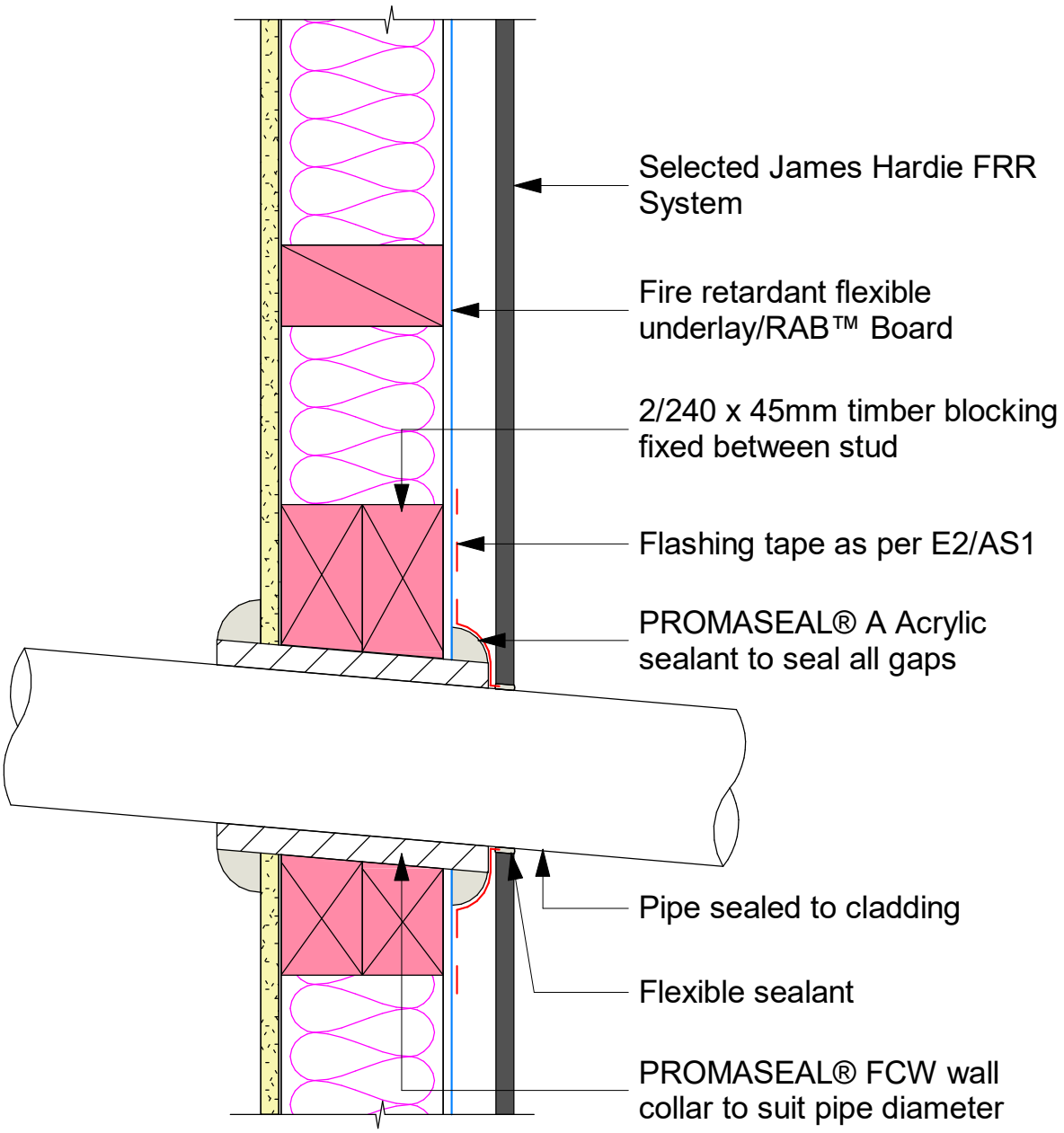


Figure 18: Penetration detail – uPVC pipe, RAB™ Board

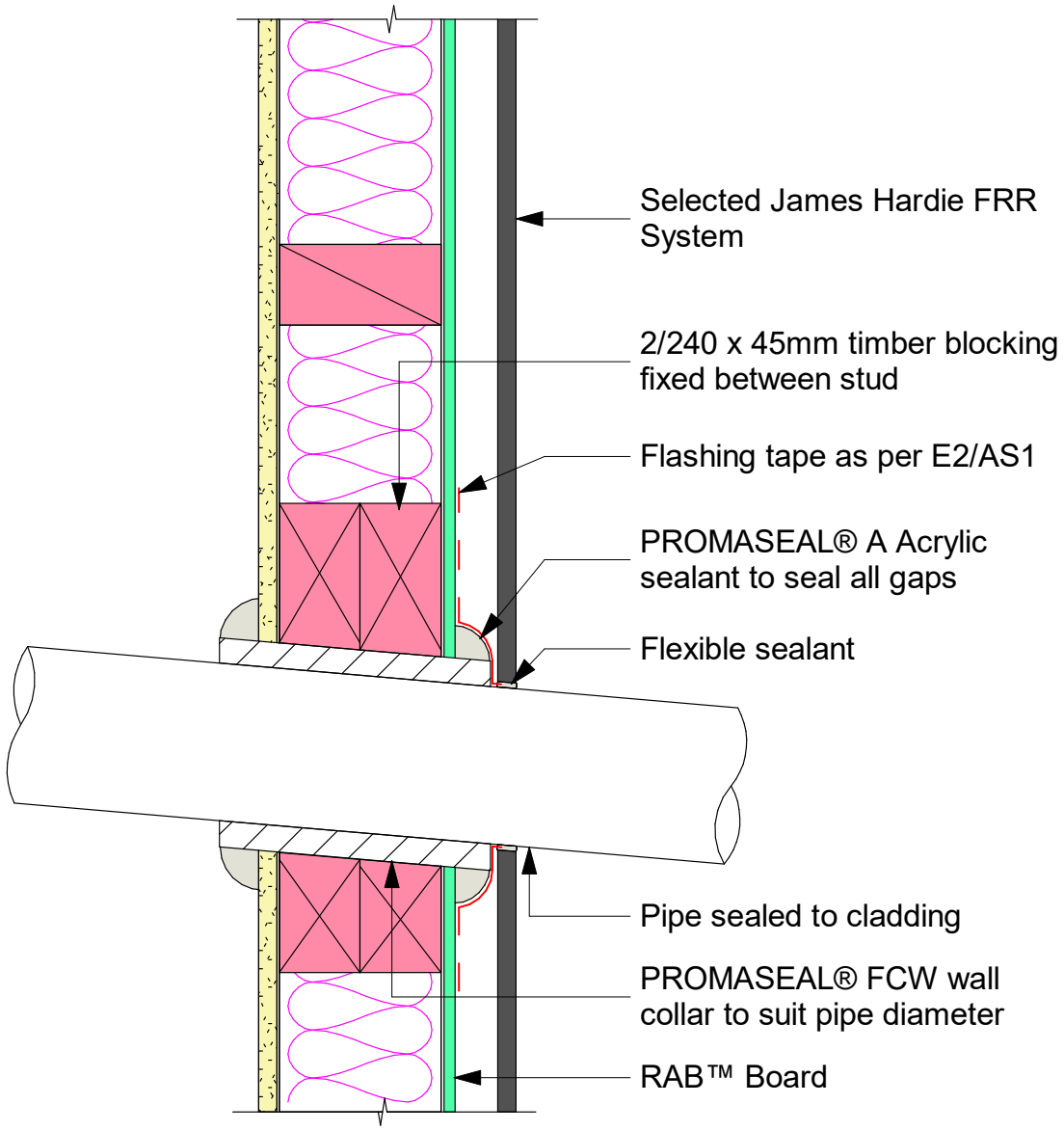


Figure 19: Penetration detail – Electrical cable

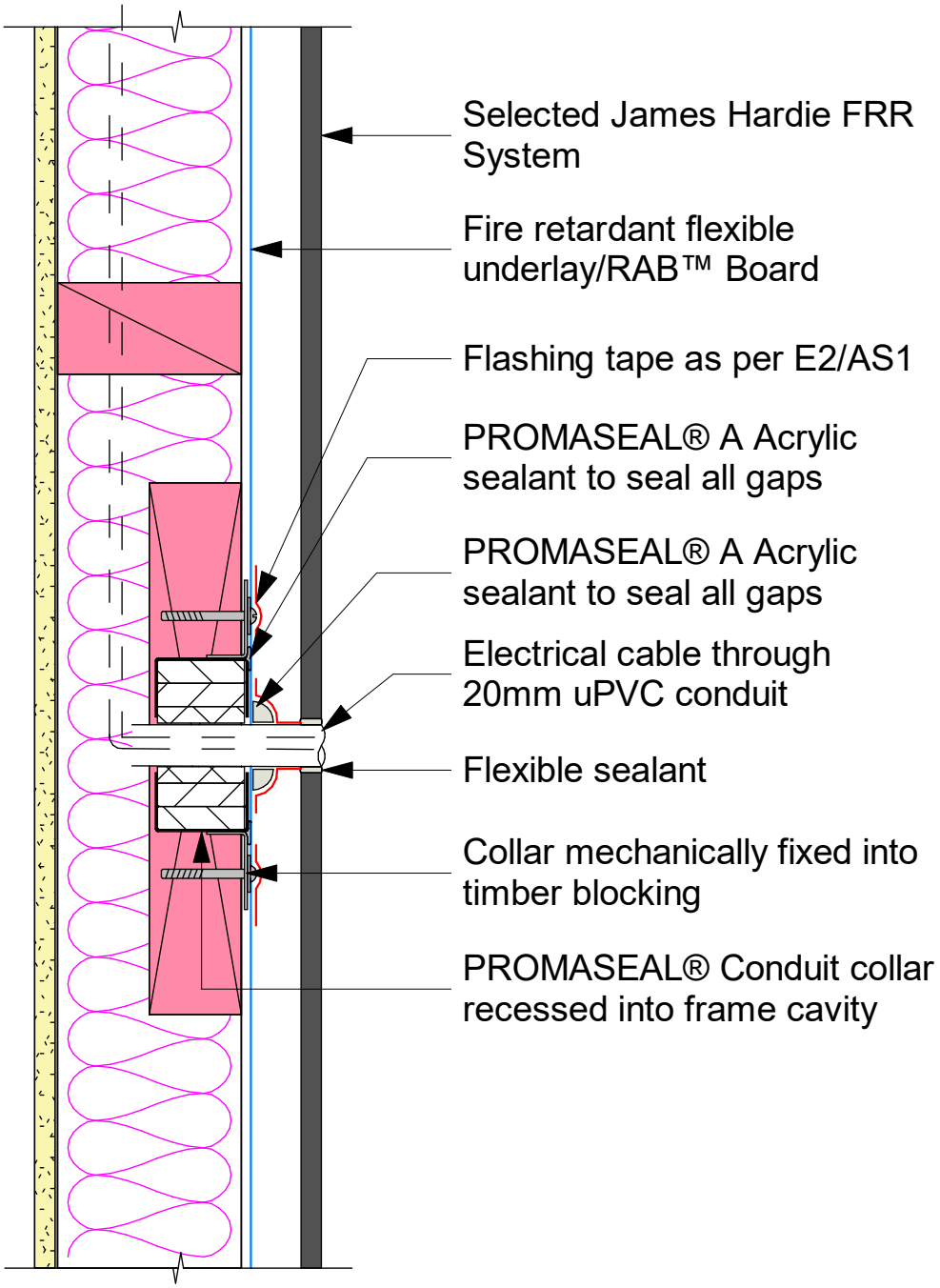
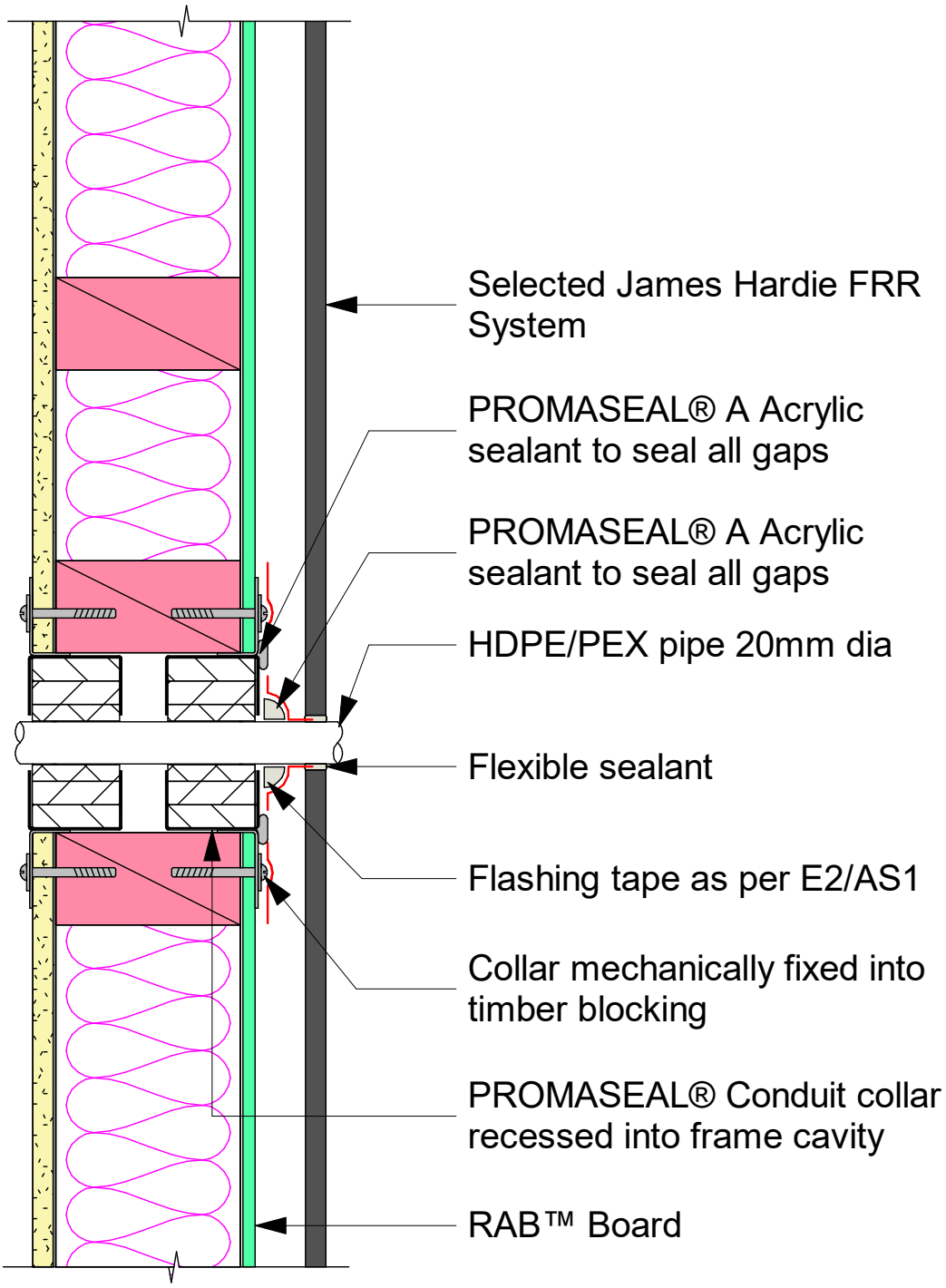


Figure 20: Penetration detail – HDPE/PEX pipe, RAB™ Board



7 Hardie™ Mineral Insulation

Hardie™ Mineral Insulation	Quantity/size (approx)
	800 x 600 x 90mm thick 2.4m² per bale 5 pieces per bale **Code: 304904**

7.1 Safe Working Practices

Storage
Hardie™ Mineral Insulation should be stored in the packaging provided in a clean dry space where it will not get wet, knocked or damaged.

Handling and safety
Protective clothing must be worn when handling this product.

Engineering Controls
In industrial situations, it is expected that employee exposure to hazardous substances will be controlled to a level as far below the WES as practicable by applying the hierarchy of control required by the Health and Safety at work Act (2015) and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016. Exposure can be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe air borne concentrations of mists, dusts or vapours are high you are advised to modify processes or increase ventilation. Follow the Health and Safety Guidelines for the Selection and Safe Handling of Synthetic Mineral Fibres, published by WorkSafe.

Personal Protective Equipment
Eyes: Avoid contact with eyes. Use safety glasses or goggles if irritant levels of fibres and dusts are present. Protective gloves and clothing should be worn when handling mineral insulation.

Skin: To prevent irritation which occurs by contact of the loose fibres with the skin, it is advisable to wear either disposable or single-use overalls or light weight nylon overalls complete with hoods when handling the insulation material. The overalls should be close fitting at the neck, wrists and ankles to prevent problems of skin irritation. When overalls are to be laundered, they should be laundered in separate laundry facilities and not in the home.

Respiratory: In general use, a respirator is not likely to be required. A respirator should be used when airborne concentrations approach the WES, if there is airborne dust or fibres. It is recommended to use a half face air purifying respirator with a minimum of a P1 particulate filter. If using a respirator, ensure that the cartridges are correct for the potential air contamination and are in good working order.

WES Additional Information
Formaldehyde is included in the above information, as traces of formaldehyde may be emitted from the product, especially immediately after removing the plastic packaging. The concentration of formaldehyde emissions have been tested by James Hardie New Zealand Limited and were found to be below the 8 hour workplace exposure standard.

Work Safe New Zealand Health and Safety Guidelines for the Selection and Safe Handling of Synthetic Mineral Fibres requires lightweight nylon overalls, gloves, appropriate eye protection and a respirator with a minimum of a class P1 filter. Handling the product as if it is fragile will greatly reduce the potential dust creation and loose fibres. A SDS is available by visiting www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

Cutting
A straight edge and stiff blade knife or similar will neatly cut this product with the minimum of dust creation. Cut the insulation 50mm over the size of the framing cavity to achieve the tight friction fit.

Notes

Notes

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PRINTED PAPER DOCUMENT STOCK
The stock used is produced from EFC (Elemental Chlorine Free) pulp sourced from farmed Eucalyptus trees and is manufactured under the strict ISO14001 Environmental Management System

JamesHardie™