

**GYPROCK®**

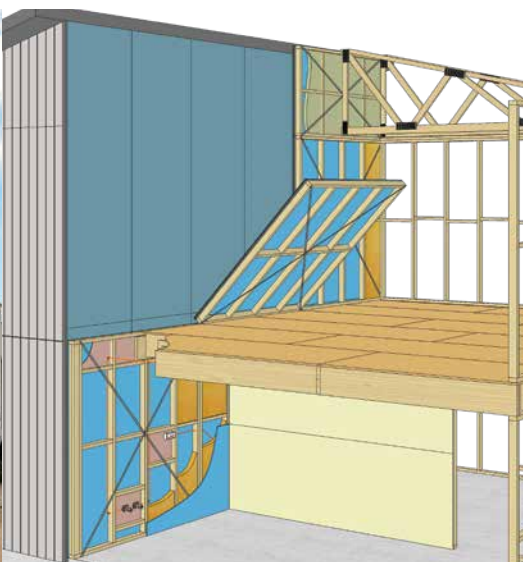
Everything else is just plasterboard

# Boundary Wall System

Design & installation guide for  
zero-lot-line construction



**PROFESSIONAL  
SOLUTIONS**



**CSR**

# Contents

Introduction	2
Applications	2
Advantages	2
Gyprock Plasterboard Selection	4
Components	6
Design Considerations	9
System Selection	12
Module Preparation	15
Installation Procedures	18
Construction Details	25
Health & Safety	28
Warranty	28
Contact Details	28

## Introduction

Gyprock Boundary Wall systems are responsive solutions that can evolve from single boundary walls into double wall systems that perform as intertenancy walls. They allow non-sequential development of adjacent buildings in zero-lot-line developments, maximise liveable space, and have the necessary fire rating and weather resistance for buildings that are close to a boundary. They also provide a high level of acoustic separation.

Gyprock Boundary Wall systems allow non-concurrent development of adjacent dwellings with the flexibility of individual financing and titles. They provide a boundary wall solution that can be built from one side where a neighbouring wall exists.

## Applications

Gyprock Boundary Walls are timber framed systems intended for use in the staged construction of adjacent Class 1 buildings. As an alternative to building row houses as a single block, a Gyprock Boundary Wall system allows individual units to be completed before the construction of adjoining units. The wall first performs as an external wall to meet fire, thermal and weatherproofing requirements, then when an adjoining tenancy is added, the combined system can act as an intertenancy wall that may be required to satisfy an acoustic separation function.

## Advantages

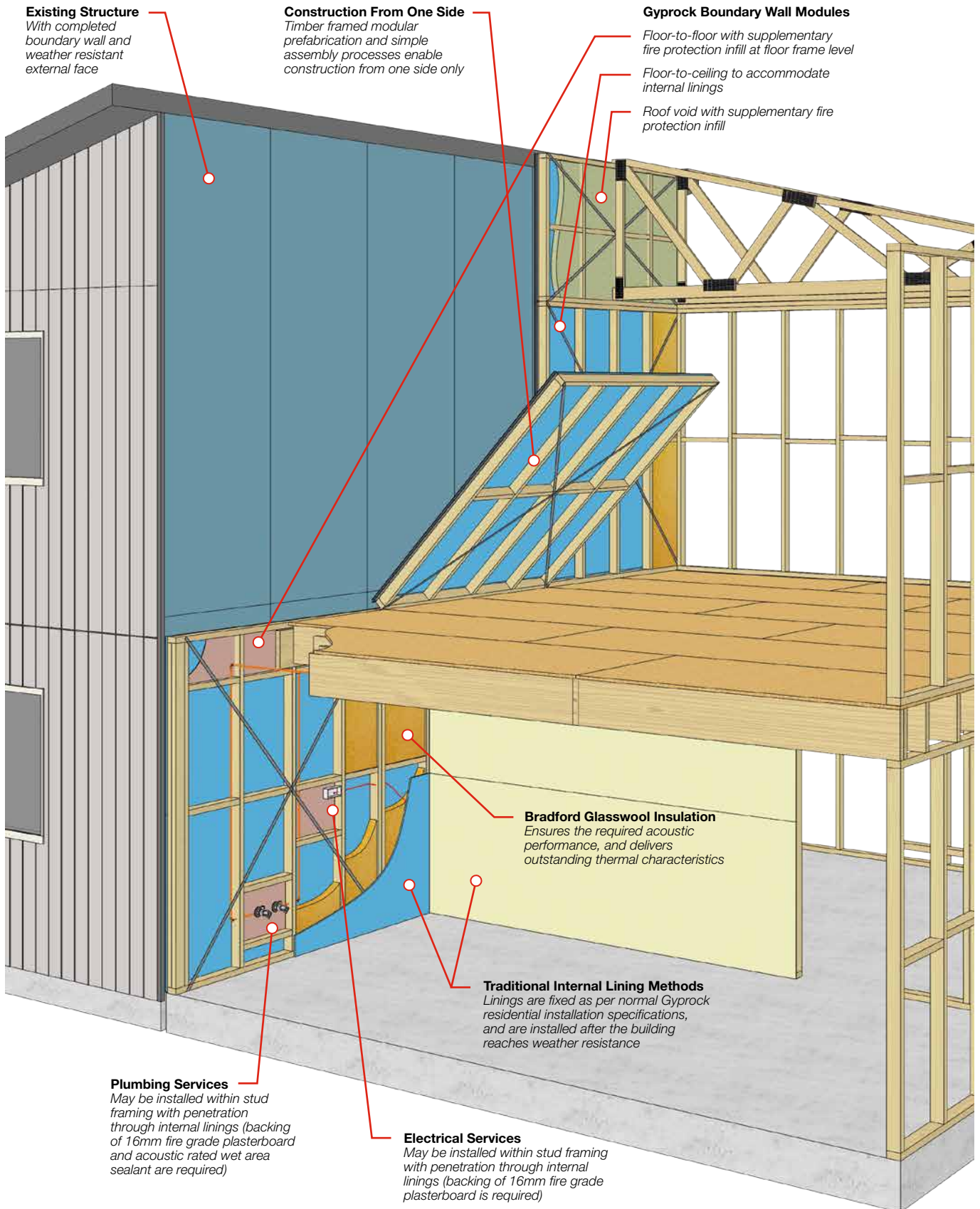
### **Specify Gyprock Boundary Wall for detached dwellings to:**

- Achieve compliance as an external wall
- Provide a narrow footprint
- Build without access from the adjoining property

### **Specify Gyprock Boundary Wall for zero-lot-line developments to:**

- Evolve boundary walls into intertenancy walls
- Stage financing and sales with individual titles
- Maximise land use

Figure 1: Typical Overview Of Gyprock Boundary Wall System Application



# Gyprock Plasterboard Selection

Gyprock plasterboard products are available in a large range of sheet lengths. Lengths vary by state, and a full list is available at [www.gyprock.com.au](http://www.gyprock.com.au). Standard width is 1200mm. Some products are also available in 900, 1350 and 1400mm widths (lead times may apply). Shaft Liner Panel is supplied in 600mm width only. Colour shading behind each product name approximates the colour of the product face liner sheet.

Table 1: Gyprock Plasterboard Features, Applications & Specifications











GYPROCK® PLASTERBOARDS	APPLICATIONS – WALLS & CEILINGS	THICK- NESS (mm)	MASS kg/m <sup>2</sup>	FIRE GRADE	MOISTURE RESISTANT	ENHANCED IMPACT RESISTANCE	ENHANCED SOUND RESISTANCE	ENHANCED SOUND ABSORPTION	MOULD RESISTANT	LOW VOC	GECA ACCREDITED
	FEATURES										
<b>Residential – Select Range</b>											
<b>Plus™</b>	<ul style="list-style-type: none"> <li>A 10mm thick sheet primarily designed for residential walls. Long edges are recessed to assist in producing a smooth, even and continuous surface once jointed.</li> <li>Made with Optimised Core technology that delivers an advanced performance-to-weight ratio, meaning greater breaking strength in a substantially lighter board that continues to exceed the performance requirements of AS/NZS2588.</li> <li>Optimised Core technology delivers improved handling and installed performance, as well as crisper score and snap.</li> </ul>	10	5.7							✓	
<b>Supaceil™</b>	<ul style="list-style-type: none"> <li>A 10mm thick sheet designed to span up to 600mm in ceiling applications. Can also be used for wall applications. Long edges are recessed to assist in producing a smooth, even and continuous surface once jointed.</li> <li>Made with Optimised Core technology that delivers an advanced performance-to-weight ratio, meaning greater breaking strength in a substantially lighter board that continues to exceed the performance requirements of AS/NZS2588.</li> <li>Optimised Core technology delivers improved handling and installed performance, as well as crisper score and snap.</li> </ul>	10	6.1 6.5 WA only							✓	
<b>Aquachek™</b>	<ul style="list-style-type: none"> <li>Both the core and linerboard facing are treated in manufacture to withstand the effects of moisture and high humidity.</li> <li>Recessed long edges allow flush jointing to other Recessed Edge plasterboards.</li> </ul>	10	7.9		✓					✓	
<b>Residential – Specialty Options</b>											
<b>Soundchek™</b>	<ul style="list-style-type: none"> <li>Designed to provide enhanced acoustic resistance.</li> <li>A machine made sheet composed of a high density gypsum core encased in a heavy duty linerboard.</li> <li>Long edges are recessed for flush jointing.</li> </ul>	10	9.3				✓			✓	
<b>Sensitive</b>	<ul style="list-style-type: none"> <li>Approved by the National Asthma Council's Sensitive Choice® program as a better choice for asthma and allergy sufferers.</li> <li>Gyprock Sensitive provides moisture and mould resistance.</li> <li>Long edges are recessed for flush jointing.</li> </ul> 	10	7.9		✓				✓	✓	
<b>Superchek™</b>	<ul style="list-style-type: none"> <li>Manufactured with a very dense core and heavy duty facing producing high impact and sound resistance, Superchek has a white paper face to assist in paint coverage.</li> <li>Will span 600mm in ceiling applications.</li> <li>Double the force to impose a discernible surface indentation compared to standard plasterboard.</li> <li>Walls lined with Superchek provide a clearly noticeable reduction in perceived loudness compared to standard plasterboard.</li> <li>Long edges are recessed for flush jointing.</li> </ul>	10	10.4			✓	✓			✓	 
<b>Commercial – Select Range</b>											
<b>Standard Plasterboard</b>	<p>RE – Recessed Edge</p> <ul style="list-style-type: none"> <li>Long edges are recessed to assist in producing a smooth, even and continuous surface once jointed.</li> </ul> <p>RE/SE – 1 Recessed Edge, 1 Square Edge</p> <ul style="list-style-type: none"> <li>Typically used on walls with a single horizontal joint. One long edge is recessed to assist in producing a smooth, even and continuous surface once jointed.</li> <li>One long edge is square to enable easy fixing of skirting and cornice at the top and bottom of walls.</li> </ul> <p>SE – 2 Square Edges</p> <ul style="list-style-type: none"> <li>Long edges are square, and can be butted together without jointing, or covered with aluminium, timber or vinyl mouldings.</li> </ul>	13	8.5							✓	

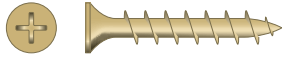
Table 1: Gyprock Plasterboard Features, Applications & Specifications

GYPROCK® PLASTERBOARDS	APPLICATIONS – WALLS & CEILINGS	THICK- NESS (mm)	MASS kg/m <sup>2</sup>	FIRE GRADE	MOISTURE RESISTANT	ENHANCED IMPACT RESISTANCE	ENHANCED SOUND RESISTANCE	ENHANCED SOUND ABSORPTION	MOULD RESISTANT	LOW VOC	GECA ACCREDITED
	FEATURES										
<b>Aquachek™</b>	<ul style="list-style-type: none"> <li>Refer to Residential Select Range for details.</li> </ul>	13	9.8		✓					✓	
<b>Soundchek™</b>	<ul style="list-style-type: none"> <li>Refer to Residential Specialty Options for details.</li> </ul>	13	13.0				✓			✓	
<b>Impactchek™</b>	<ul style="list-style-type: none"> <li>Fire grade board reinforced with a woven fibreglass mesh to produce a high strength plasterboard which resists soft body impact damage.</li> <li>Ideal for high traffic areas such as hallways, stairways, playrooms and garages.</li> <li>Long edges are recessed for flush jointing.</li> </ul>	13	10.5	✓		✓	✓			✓	
<b>Fyrchek™</b>	<ul style="list-style-type: none"> <li>Fire grade board composed of a specially processed glass fibre reinforced gypsum core encased in a heavy duty linerboard.</li> <li>Ideal for high performance fire and acoustic rated walls and ceilings.</li> <li>Long edges are recessed for flush jointing.</li> </ul>	13	10.5	✓			✓			✓	
		16	12.5								
<b>Fyrchek™ MR</b>	<ul style="list-style-type: none"> <li>Fire grade board with moisture resistant properties.</li> <li>Both the core and the liner board are treated in manufacture to withstand the effects of high humidity and moisture.</li> <li>Long edges are recessed for flush jointing.</li> </ul>	13	10.8	✓	✓		✓			✓	
		16	12.9								
<b>Commercial – Specialty Options</b>											
<b>EC08™ Impact</b>	<ul style="list-style-type: none"> <li>This product features higher levels of recycled content, making it a superior choice for Green Building projects.</li> <li>EC08 Impact is a fire grade board offering increased density for greater resistance to soft and hard body impact for high traffic areas such as hallways and stairs in education and health facilities.</li> <li>Long edges are recessed for flush jointing.</li> </ul>	13	12.1	✓		✓	✓			✓	 
<b>EC08™ Impact MR</b>	<ul style="list-style-type: none"> <li>This product features higher levels of recycled content, making it a superior choice for Green Building projects.</li> <li>A fire grade board specially treated for wet area/high humidity locations subject to increased impact risk, such as bathrooms, kitchens, laundries, walkways for hospitals, aged care, educational and commercial buildings.</li> <li>Long edges are recessed for flush jointing.</li> </ul>	13	12.4	✓	✓	✓	✓			✓	 
<b>EC08™ Complete</b>	<ul style="list-style-type: none"> <li>This product features higher levels of recycled content, making it a superior choice for Green Building projects.</li> <li>Approved by the National Asthma Council's Sensitive Choice® program as a better choice for asthma and allergy sufferers. Gyprock EC08 Complete is a premium internal lining solution which integrates an efficient mould inhibitor, scuff resistance, soft and hard body impact resistance, moisture resistance, sound resistance and fire resistance into a low VOC plasterboard.</li> <li>Long edges are recessed for flush jointing.</li> </ul> 	13	12.4	✓	✓	✓	✓		✓	✓	 
		16	14.8								
<b>Shaft Liner Panel</b>	<ul style="list-style-type: none"> <li>Fire grade board used extensively in Gyprock shaft systems, services systems, party wall and intertenancy wall applications.</li> <li>A 25mm thick sheet composed of a glass fibre reinforced gypsum core encased in a heavy duty linerboard.</li> <li>600mm wide square edge sheets.</li> </ul>	25	19.8	✓			✓			✓	
<b>Flexible</b>	<ul style="list-style-type: none"> <li>A 6.5mm thick plasterboard with an enhanced core to allow bending to small radii for curved walls and ceilings.</li> <li>Designed for installation as a two layer system.</li> <li>Long edges are recessed for flush jointing.</li> </ul>	6.5	4.3							✓	

# Components

## Fasteners & Stud Adhesive

- Type S, bugle head, needle point coarse thread screw for fixing plasterboard/wallboard linings to timber framing, and for laminating plasterboard. Fine thread screws and clouts may also be used for fixing to timber.



Application	Size (Framing)	Pack	Qty	Order No.
1x10mm/ Laminating 16mm	6g x 25mm (softwood/ hardwood)	Loose	1000	169067
		Collated	1000	162775
1x13/16mm	6g x 32mm (softwood/ hardwood)	Loose	1000	169070
		Collated	1000	162777
2x10mm	6g x 32mm (hardwood)	Loose	1000	169070
		Collated	1000	162777
2x10mm	6g x 45mm (softwood)	Loose	500	169074
		Collated	1000	162778

- Galvanised clouts for fixing 6mm Cemintel Cladding Sheets to timber framing over 16mm plasterboard.



Pack	Size	Qty	Order No.
Loose	2.8mm x 40mm	2.5kg	159121

## Gyprock Acrylic Stud Adhesive

- Gyprock Acrylic Stud Adhesive is used in conjunction with fasteners for fixing internal linings. It is coloured blue for easy identification. It can be used in temperatures not less than 5°C.
- Contact surfaces must be free of oil, grease or other foreign materials before application. The adhesive is applied with a broad knife to form 25mm diameter by 15mm high walnuts. This product is suitable for use with pre-painted metal battens and some treated timbers. Always follow directions on packaging.

### WARNING

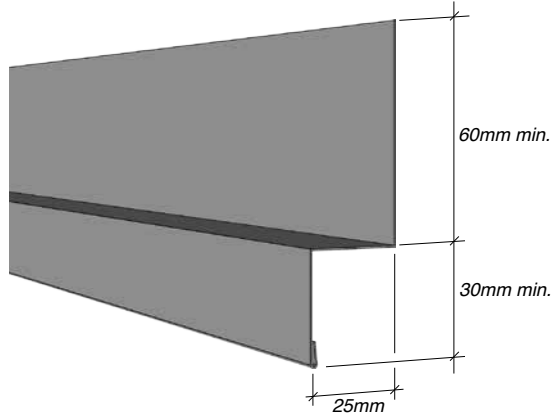
- Stud adhesive must not be relied on in fire rated systems.
- Daubs of adhesive must never coincide with fastener points.
- Stud adhesive does not constitute a fixing system on its own and it must be used in conjunction with nail or screw fasteners.



Pack	Qty	Order No.
Sausage	900g	95082
Bucket	5.5kg	10091

## Flashing

- Z-flashing for flashing the base and side of Gyprock Boundary Wall modules. Supplied by others.



- NOTE: Additional custom flashing may be required for ends of walls and ridge or parapet flashing.

## Sealants

- Gyprock Fire Mastic. Fire and acoustic rated, exterior grade sealant for use where detailed.



Pack	Qty	Order No.
Sausage	600ml	10924

- Sikaflex 11-FC. Weather resistant sealant for use where detailed.



Pack	Qty	Order No.
Tube	1 x 310ml	39378

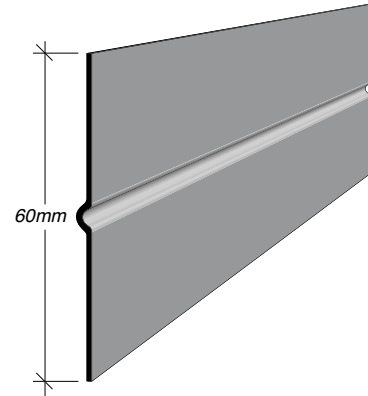
## Jointing Products

- CSR Gyprock has a wide range compounds, cements and accessories for finishing plasterboard and fibre cement installations.

For plasterboard finishing information, please refer to GYP547 Gyprock Residential Installation Guide.



- Cemintel Expresswall Backing Strip.  
Cladding Sheet vertical joints may be formed as sealed expressed joints in lieu of H-jointer. Manufactured from high tensile Colorbond steel, and black in colour. A bond-breaker tape is to be applied over the backing strip behind the sealant.



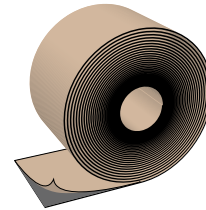
Length	Order No.
1194mm	21089
2394mm	21088
2994mm	21087

- H-mould for vertical joints in Cemintel Cladding Sheet.



Product	Qty	Order No.
6mm x 3000mm	1	11255

- Bond Breaker Tape.



Product	Qty	Order No.
48 x 3mm	25m	13172

## System Acoustic/Thermal Insulation

- CSR Bradford Gold Batts R2.0 and R2.5 for insulation of the Boundary Wall system.



Type	Size	Qty/Pack	Cover/Pack	Order No.
R2.0	1160 X 430 X 90 mm	22	11.0m <sup>2</sup>	13250
	1160 X 580 X 90 mm	18	12.2m <sup>2</sup>	12368
R2.5	1160 X 420 X 90 mm	8	3.9m <sup>2</sup>	153646
	1160 X 570 X 90 mm	8	5.3m <sup>2</sup>	153651

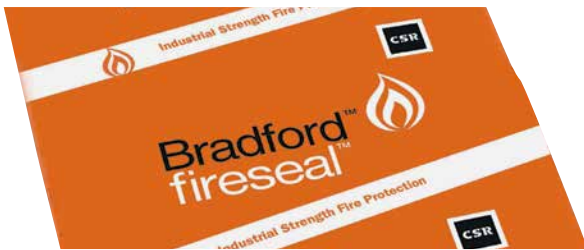
## System Fire Insulation

- CSR Bradford Fibertex 450 for use in wall areas where internal room linings are not present, such as in the roof space and in floor/ceiling spaces.



Size	Qty/Pack	Cover/Pack	Order No.
1200 x 600 x 75mm	4	2.88m <sup>2</sup>	116302

- CSR Bradford Fireseal Party Wall Sealer. Fire protection for cavities at roof and wall cladding voids.



Size	Qty/Pack	Order No.
4000 x 300 x 50mm	2	125565
4000 x 300 x 75mm	2	125566
4000 x 360 x 50mm	2	134494
4000 x 360 x 75mm	2	136571

## Wall Wrap/Sarking

- CSR Bradford Enviroseal Proctorwrap RW, used on the external side of the Fyrchek MR plasterboard for moisture and thermal performance.



Product	Roll Width	Roll Length	Cover/Roll m <sup>2</sup>	Order No.
RW light duty	1500mm	50m	75	120923

- CSR Bradford Thermoseal Wall Wrap. Alternative wall wrap products for use on the external side of the Fyrchek MR plasterboard for moisture and thermal performance. Acoustic performance values of Gyprock Boundary Wall systems may be affected.



Product	Roll Width	Roll Length	Cover/Roll m <sup>2</sup>	Order No.
Thermoseal Resiwrap	1350mm	30m	40.5	116531
Thermoseal Wall Wrap	1350mm	60m	81.0	10576
Thermoseal 733	1350mm	60m	81.0	86166

## System Ancillary Items

Typical Boundary Wall assemblies may require the following ancillary items (supplied by others):

- Dampcourse flashing for wall base to slab.
- Custom folded, corrosion resistant ridge/parapet capping and boundary cavity flashings including fixings and brackets.
- Face or groove fixed reglet flashings to suit adjacent wall types.
- Box gutter profiles with brackets, fixings and support pans.
- Cup head bolts/washers/nuts for fixing framing modules together.
- Exterior paint system.
- Lifting eyes/brackets/slings, fixings and associated lifting equipment.



# Design Considerations

## Design Responsibility

This guide represents good practice, though it is not intended as an exhaustive statement of all relevant information. It remains the responsibility of the building designer to verify that the chosen system is suitable for the requirements of the project.

CSR recommends that a comprehensive assessment of the BCA performance requirements for the external walls be undertaken prior to selection of the external wall and cladding system, including:

- Structural Design
- Weatherproofing
- Fire Resistance
- Energy Efficiency
- Acoustic Performance

It is the responsibility of the developer, builder, or owner to ensure that appropriate title arrangements such as easements (where required) are in place to allow for the installation of wall capping to seal the boundary cavity.

It is the builders' responsibility to ensure that BCA termite protection and resistance to damp requirements are addressed.

Additional design considerations relating to exterior claddings are included in the Cemintel Cladding Systems Design and Installation manual.

## Structural Design

All walls must be designed for the applied loads. Loadbearing walls and walls subject to wind pressures shall be appropriately designed to meet the relevant Australian Standards or construction manuals. Boundary Wall stud framing must be timber of at least 45 x 90mm in section to meet requirements of the Fire Resistance Level.

## Lifting

Safe handling, erection and temporary bracing of wall modules must be considered by the builder, including the provision of safe lifting and crane attachment methods for the modules prior to erection.

The approximate weight of wall modules with external linings in place is provided in Table 2.

**Table 2: Approximate Weight Of Wall Modules**

Wall Height	Length of Wall Module		
	2.4m	3.6m	6.0m
2.4m	175kg	260kg	440kg
2.7m	195kg	290kg	490kg
3.0m	220kg	330kg	540kg

## Wind Loading

Cemintel™ Cladding Sheet is suitable for buildings within the geometric limits of AS4055 – Wind Loads for Housing. These limits include a roof height less than 8.5m, eaves height less than 6m, and a building width less than 16m.

Stud spacing and board fixing specifications are provided for wind classifications up to N4 and C2 for timber framing. It is the responsibility of the building designer to determine the wind class of the building and the suitability of the system. Stud spacing and board fixing is to be in accordance with the appropriate specifications detailed in this guide.

## Internal Linings

Internal linings are to be designed for the applicable wind pressures calculated in accordance with AS1170 or AS4055. For Gyprock plasterboard linings, the sheet fixing details are to be in accordance with this guide and GYP547 Gyprock Residential Installation Guide. For other lining materials, consult the manufacturer.

## Structural Bracing

Boundary Wall systems are not intended to provide wall bracing. Bracing must be provided in the structural framing in the normal manner by using methods such as sheet or strap bracing.

## Fire Resistance

The Gyprock Boundary Wall systems in this manual have been assessed by BRANZ in accordance with the general principles of AS1530.4.

Gyprock Boundary Wall Systems are suitable for FRL 60/60/60 applications when designed in accordance with the building and structural considerations above, and installed in accordance with the details in this manual.

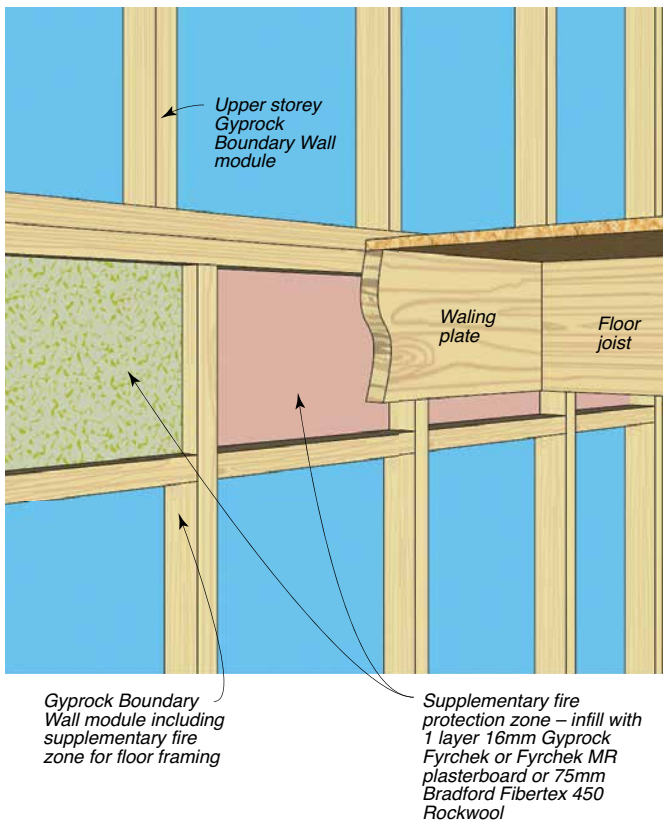
Neatly formed penetrations may be made in internal wall linings provided approved wall cavity supplementary fire protection is installed. Refer to Figure 2, Figure 8 and Figure 9.

Where indicated, additional blocking must be of structural grade timber, 90 x 45mm minimum, and shall be mechanically fixed to the structural framing.

CSR Bradford Fireseal Party Wall Sealer Strips may also be used to maintain fire protection continuity in specific areas such as voids between non-combustible roof cladding and framing, and wall end details where a cavity wall cladding system has been installed.

Supplementary fire protection for wall areas where internal wall linings are not present can be achieved via the alternative methods detailed in Figure 2.

**Figure 2: Supplementary Fire Zone Protection**



## Acoustic Performance

Acoustic performance values are provided for Boundary Wall systems individually and as pairs. Although there are no requirements for external walls to have a sound rating in the acceptable construction practices of the BCA, systems with values  $R_w + C_{tr}$  of 50 or higher are proposed as suitable to meet the performance requirements for the sound insulation of walls separating dwellings.

Boundary Wall systems have been assessed by PKA Acoustic Consulting based on laboratory testing, and the ratings refer to expected laboratory performance. The site performance of the systems may be affected by sound flanking, the effectiveness of workmanship, the reduction of framing centres and the inclusion of structural elements and bridging items. The building designer must pay special attention to airborne and structural flanking paths to minimise the difference between laboratory and field performance.

At junctions of floors and roof to the Boundary Wall, interior wall linings are absent. For flanking sound control, it is required that each storey ceiling consists of Gyprock 10mm Supaceil or Gyprock plasterboard of greater mass, and has insulation over the ceiling that extends to 1200mm minimum from the wall. The insulation is to be 8kg/m<sup>3</sup> minimum density and 75mm or thicker, such as Bradford R1.5 Gold batts. There must be no penetration to the ceiling in rooms adjacent to the Boundary Wall within 1200mm of the wall.

It is assumed no rating is required between the two adjoining roof spaces and that the spaces are not able to be occupied. It is proposed that these details represent an alternative solution and its acceptance is to be confirmed by the certifier.

Penetrations to the interior wall linings for GPOs require no acoustic treatment. Services for wet areas can be located within the cavity with penetrations to the interior wall linings made in close cut holes and then sealed with acoustic rated sealant such as Gyprock Fire Mastic.

## Termite Protection

As there is a wide variety of methods for managing termite entry to buildings, and selecting the appropriate method for any structure depends on specific risk factors and the form of construction, measures for termite management have not been addressed in this guide.

Refer to your local pest management service, the BCA, AS3660 : Termite management, and your local building authorities for more information about the requirements for the design of a suitable termite management system.

## Weather Resistance

The Boundary Wall system has been assessed by AECOM Australia as suitable for use with serviceability wind loads of up to 1.19kPa. This relates to AS4055 Wind Classifications up to and including N4/C2. The assessment is based on weather testing at the CSR Research facility based on the procedures of AS4284 Testing of Building Facades.

The system features a horizontal Z-flashing at storey junctions and vertically at adjoining wall modules. Intermediate cladding joints are formed using either traditional H-moulds or as sealed joints over a backing strip.

All framing, sarking, flashings, damp proof courses and sealants must be installed in accordance with the relevant product manufacturer's instructions, applicable standards and building codes.

## Insulation And Energy Efficiency

Compliance with thermal performance requirements can be achieved by meeting the minimum system R-values for the appropriate climate zones. The level of insulation provided in a wall is described by its R-value. The higher the R-value, the greater the insulation provided.

R-values for Boundary Wall systems are given in the system selection tables. Additional information can be obtained by contacting CSR DesignLINK.

## Condensation Management

This is a complex problem and can occur under a variety of conditions (not just in cold and tropical climates). Selection of the right wall wrap/sarking needs to consider the local climate, building use and orientation, material R-value of the insulation, as well as the degree and location of ventilation.

Gyprock Boundary Wall systems include Bradford Enviroseal ProctorWrap RW in accordance with testing for acoustic performance. This wrap is vapour permeable and recommended for buildings in Climate Zones 3 to 8. For other Climate Zones a vapour impermeable wrap may be required. Note that wraps other than Enviroseal ProctorWrap RW may affect the published acoustic performance of the Boundary Wall.

## Substitution

To achieve system fire and acoustic compliance, plasterboard and fibre cement linings must be as specified in this manual. Additional systems are available, contact CSR DesignLINK for details.

Substitution of insulation materials, (excluding rockwool supplementary fire protection and cavity seal), is permissible however no statement of acoustic performance will be provided by CSR where other suppliers' materials are used.

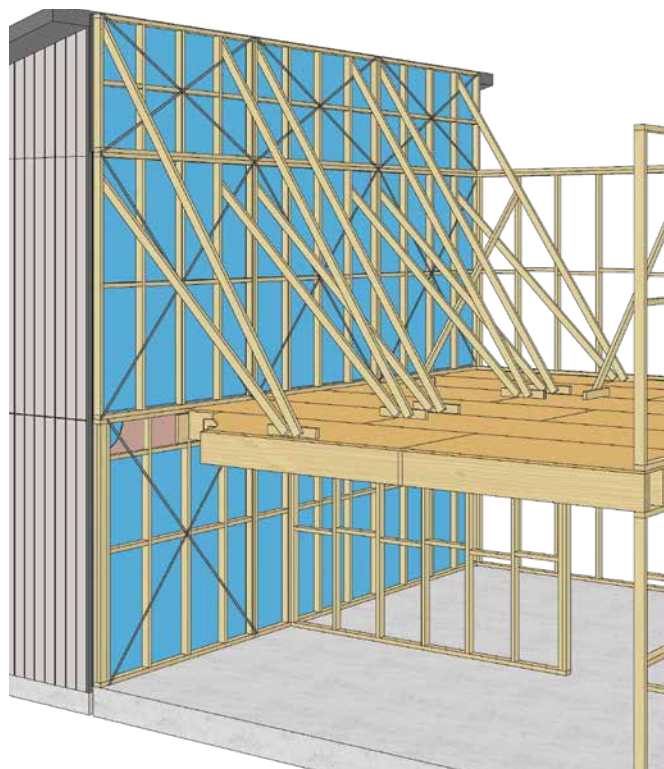
## Painting

Cemintel Cladding Sheet must be painted where it is exposed to the weather. Painting of the sheets is recommended in all cases, as future demolition of adjacent buildings may leave the wall exposed. CSR recommends the application of a priming coat and a minimum of two coats of exterior grade acrylic paint applied to the manufacturer's specifications.

## Flashings & Capping

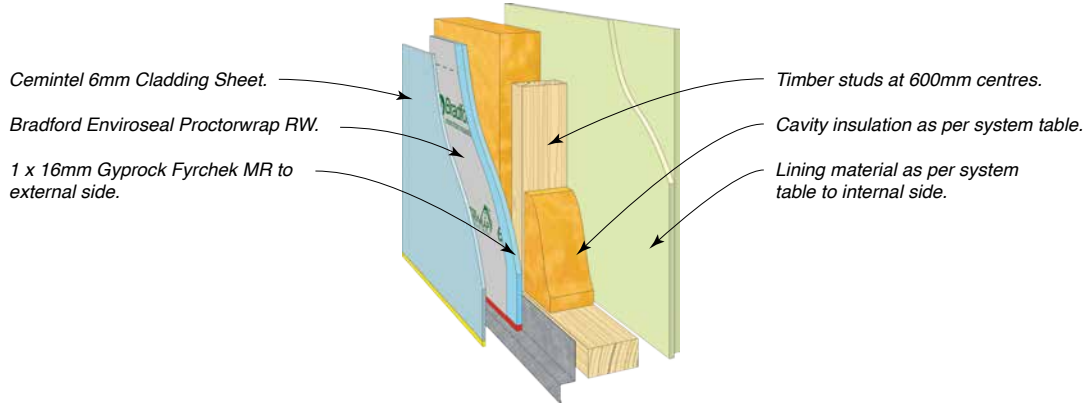
In general, flashings shall be designed and installed in accordance with SAA-HB39 1997 - Installation code for metal roofing and wall cladding. All flashings are supplied by others.

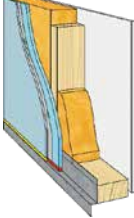
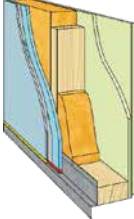
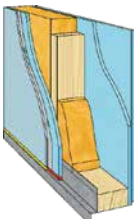
Figure 3: Typical Gyprock Boundary Wall Temporary Bracing Method



# System Selection

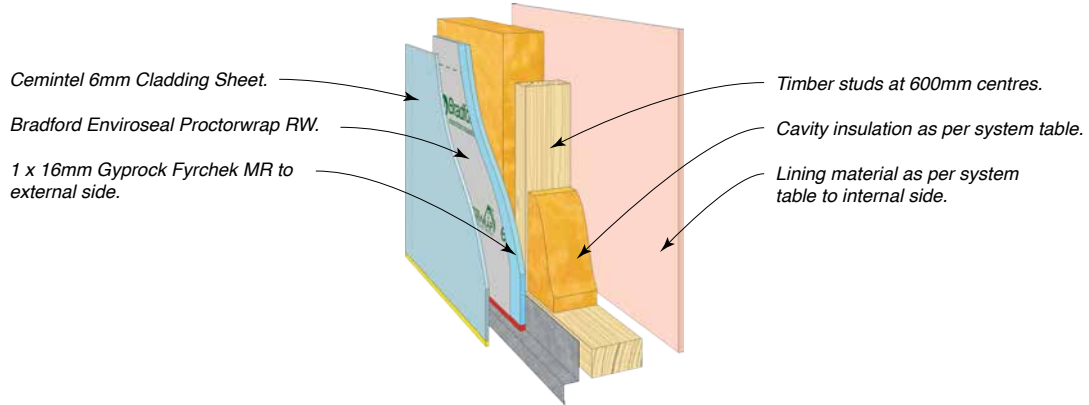
## SYSTEM SPECIFICATIONS Gyprock Boundary Wall System – Timber Frame – Single Wall


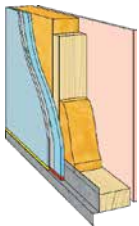
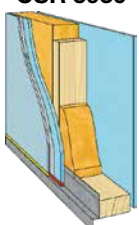


SYSTEM SPECIFICATION			ACOUSTIC OPINION: PKA-100CSR Ⓢ Test CSIRO TL623			
FRL Report/Opinion	SYSTEM N°	WALL LININGS	STUD DEPTH mm	90	THERMAL	
			CAVITY INFILL	R <sub>w</sub> / R <sub>w</sub> +C <sub>tr</sub>	R <sub>t</sub> (SUM)	R <sub>t</sub> (WIN)
60/60/60 (from outside)  FAR 2303	<b>CSR 5905</b> 	<b>EXTERNAL WALL SIDE</b> • 1 x 16mm Gyprock Fyrchek MR Plasterboard (against studs) • 1 x 6mm Cemintel Cladding Sheet.  <b>INTERNAL WALL SIDE</b> • 1 x 10mm Gyprock Superchek Plasterboard.	(a) 90 Gold Batts 2.0	51/43	2.2	2.4
			(b) 90 Gold Batts 2.5	52/45 Ⓢ	2.7	2.9
			Wall Thickness mm	122		
60/60/60 (from outside)  FAR 2303	<b>CSR 5910</b> 	<b>EXTERNAL WALL SIDE</b> • 1 x 16mm Gyprock Fyrchek MR Plasterboard (against studs) • 1 x 6mm Cemintel Cladding Sheet.  <b>INTERNAL WALL SIDE</b> • 2 x 10mm Gyprock Sensitive Plasterboard.	(a) 90 Gold Batts 2.0	53/46	2.3	2.5
			(b) 90 Gold Batts 2.5	54/48	2.7	3.0
			Wall Thickness mm	132		
60/60/60 (from outside)  FAR 2303	<b>CSR 5915</b> 	<b>EXTERNAL WALL SIDE</b> • 1 x 16mm Gyprock Fyrchek MR Plasterboard (against studs) • 1 x 6mm Cemintel Cladding Sheet.  <b>INTERNAL WALL SIDE</b> • 2 x 10mm Gyprock Aquachek Plasterboard.	(a) 90 Gold Batts 2.0	53/46	2.3	2.5
			(b) 90 Gold Batts 2.5	54/48	2.7	3.0
			Wall Thickness mm	132		

**SYSTEM SPECIFICATIONS**

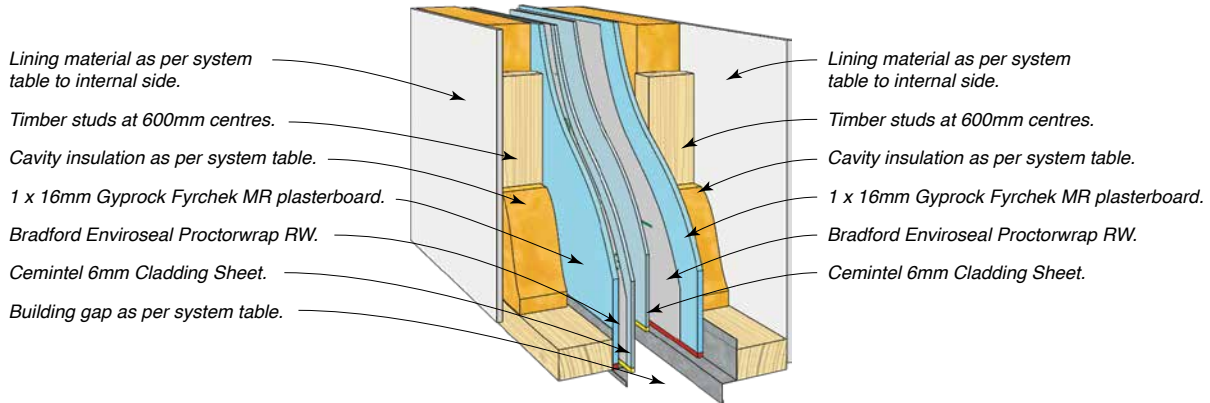
**Gyprock Boundary Wall System – Timber Frame – Single Wall**

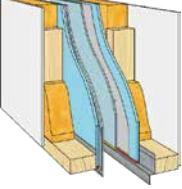
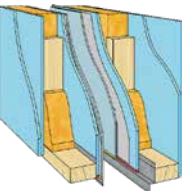
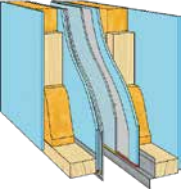
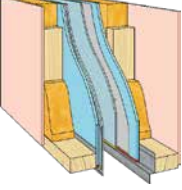


SYSTEM SPECIFICATION			ACOUSTIC OPINION: PKA-100CSR ① Test CSIRO TL623			
FRL Report/Opinion	SYSTEM N°	WALL LININGS	STUD DEPTH mm	90	THERMAL	
			CAVITY INFILL	R <sub>w</sub> / R <sub>w</sub> +C <sub>tr</sub>	R <sub>t</sub> (SUM)	R <sub>t</sub> (WIN)
60/60/60 (from outside)  FAR 2303	<b>CSR 5920</b> 	<b>EXTERNAL WALL SIDE</b> • 1 x 16mm Gyprock Fyrchek MR Plasterboard (against studs) • 1 x 6mm Cemintel Cladding Sheet.  <b>INTERNAL WALL SIDE</b> • 1 x 13mm Gyprock Aquachek Plasterboard.	(a) 90 Gold Batts 2.0	50/42	2.2	2.4
			(b) 90 Gold Batts 2.5	51/44	2.7	2.9
			Wall Thickness mm	125		
60/60/60 (from outside)  FAR 2303	<b>CSR 5925</b> 	<b>EXTERNAL WALL SIDE</b> • 1 x 16mm Gyprock Fyrchek MR Plasterboard (against studs) • 1 x 6mm Cemintel Cladding Sheet.  <b>INTERNAL WALL SIDE</b> • 1 x 13mm Gyprock Fyrchek Plasterboard.	(a) 90 Gold Batts 2.0	50/43	2.2	2.4
			(b) 90 Gold Batts 2.5	51/45	2.7	3.0
			Wall Thickness mm	125		
60/60/60 (from outside)  FAR 2303	<b>CSR 5930</b> 	<b>EXTERNAL WALL SIDE</b> • 1 x 16mm Gyprock Fyrchek MR Plasterboard (against studs) • 1 x 6mm Cemintel Cladding Sheet.  <b>INTERNAL WALL SIDE</b> • 1 x 13mm Gyprock Fyrchek MR Plasterboard.	(a) 90 Gold Batts 2.0	50/43	2.2	2.4
			(b) 90 Gold Batts 2.5	51/45	2.7	2.9
			Wall Thickness mm	125		

## SYSTEM SPECIFICATIONS

## Gyprock Boundary Wall System – Timber Frame - Double Wall



SYSTEM SPECIFICATION			ACOUSTIC OPINION: PKA-100CSR Discontinuous Construction ① Test CSIRO TL623				
FRL Report/Opinion	SYSTEM N°	WALL LININGS	STUD DEPTH mm	90			
			BUILDING GAP mm	20	40	60	80
			CAVITY INFILL	R <sub>w</sub> / R <sub>w</sub> +C <sub>tr</sub>			
60/60/60* (from outside only) FAR4840	<b>CSR 5935</b> 	EXTERNAL WALL SIDE	(a) 90 Gold Batts 2.0	66/49	69/51	69/52	69/53
		INTERNAL WALL SIDE	(b) 90 Gold Batts 2.5	70/54	73/56 ①	73/57	76/58 ①
		Wall Thickness mm	264	284	304	324	
60/60/60* (from outside only) FAR4840	<b>CSR 5940</b> 	EXTERNAL WALL SIDE	(a) 90 Gold Batts 2.0	69/53	69/53	69/53	69/53
		INTERNAL WALL SIDE	(b) 90 Gold Batts 2.5	73/58	73/58	73/58	73/58
		Wall Thickness mm	284	304	324	344	
60/60/60* (from outside only) FAR4840	<b>CSR 5945</b> 	EXTERNAL WALL SIDE	(a) 90 Gold Batts 2.0	64/43	65/44	67/48	68/49
		INTERNAL WALL SIDE	(b) 90 Gold Batts 2.5	68/48	69/49	71/53	71/54
		Wall Thickness mm	270	290	310	330	
60/60/60* (from outside only) FAR4840	<b>CSR 5950</b> 	EXTERNAL WALL SIDE	(a) 90 Gold Batts 2.0	66/49	67/51	68/52	69/53
		INTERNAL WALL SIDE	(b) 90 Gold Batts 2.5	70/54	71/56	72/57	73/58
		Wall Thickness mm	270	290	310	330	

# Module Preparation

- Framing modules can be prepared on-site or prefabricated off-site in a controlled manufacturing environment. Modules can also be pre-fabricated by truss/framing manufacturers, transported and then lined externally on-site prior to erection.
- Modules have been designed with simplified junctions that allow relatively easy assembly, with the ability to accommodate minor framing deviations and construction tolerances.
- Internal wall linings are installed in the traditional manner once the building has been enclosed.
- Internal wall system linings are non-fire grade, simplifying installation and ongoing maintenance.

Figure 4: Gyprock Boundary Wall Module Assembly Overview

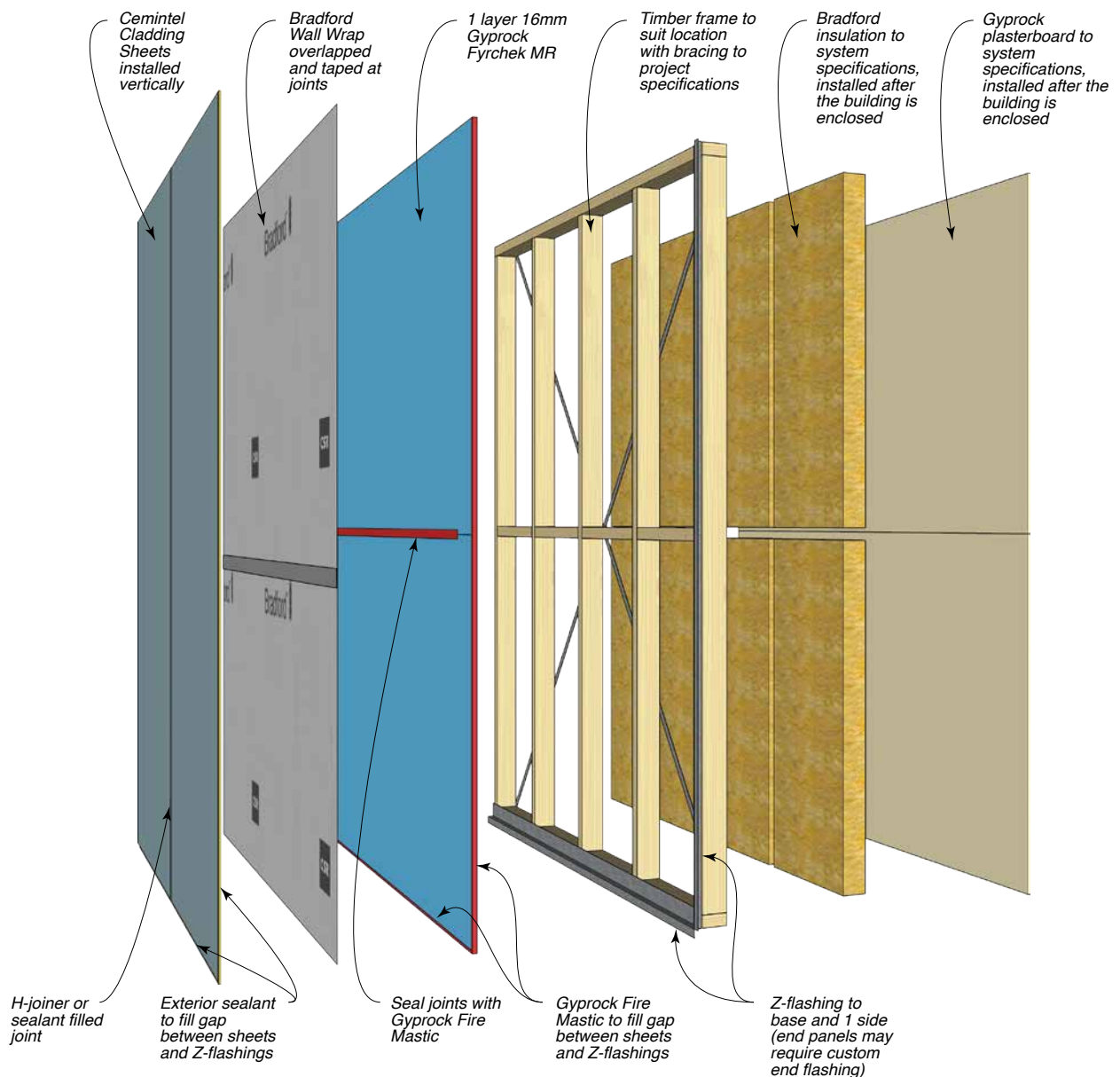


Figure 5: Gyprock Boundary Wall Module – Shown From Outside With Framing To Accommodate Floor Connection

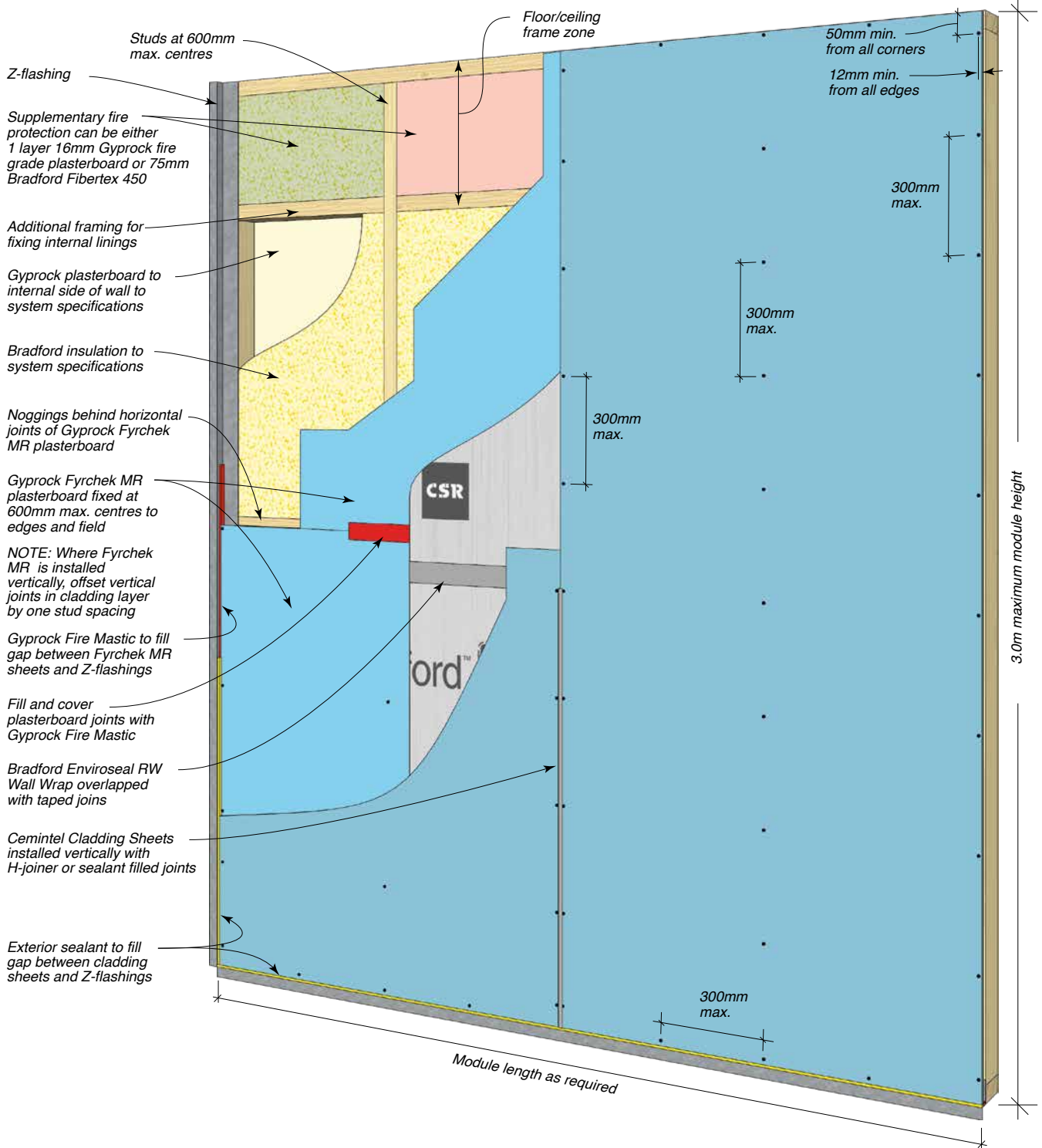
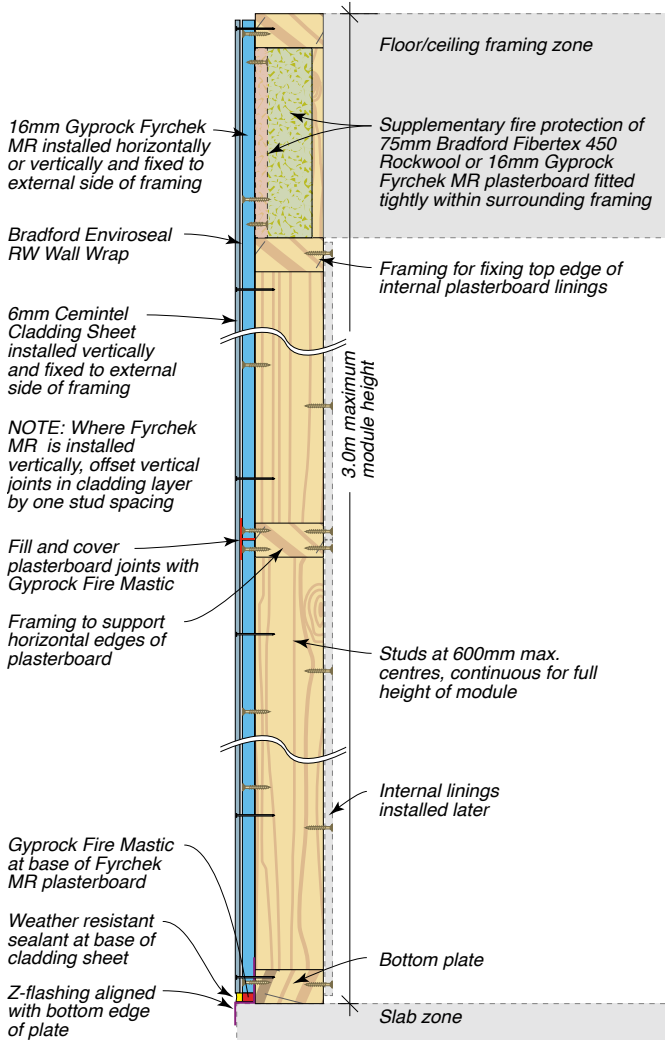


Table 3: Stud & Fastener Spacing – Gyprock Boundary Wall System

Wind Classification	Stud Spacing (mm)	Fastener Spacing for Gyprock Fyrchek MR Plasterboard	Fastener Spacing for 6mm Cemintel Cladding Sheet
N1	600	600mm max. to edges and field 10-16mm from sheet edges	300mm max. to edges and field 12mm min. from sheet edges 50mm min. from sheet corners
N2	600		
N3/C1	450		
N4/C2	300		



Figure 6: Boundary Wall Module With Supplementary Fire Zone – Side Elevation



## Supplementary Fire Zone Protection

The internal (room) wall linings form part of the system fire rating. In areas where linings are omitted, additional treatment is necessary. These areas may occur at the junction with floor framing and with roof framing, in the roof space, and at service penetrations. Treatment options are:

1. Addition of 75mm Bradford Fibertex 450 rockwool within the supplementary fire zone. Fit the batts tightly within surrounding framing.
2. Addition of a 16mm Fyrchek or Fyrchek MR plasterboard layer, laminated to the module Fyrchek MR lining within the supplementary fire zone. Fit closely to surrounding frame and fill any gaps between 3mm and 10mm with Gyprock Fire Mastic. Fix strips with 25mm coarse thread screws at 400mm maximum centres at the perimeter and field of each strip. Minimum 4 screws per strip.

Refer to Figure 7 and Figure 8 for details.

Figure 8: Supplementary Fire Zone At Junction With Floor Framing

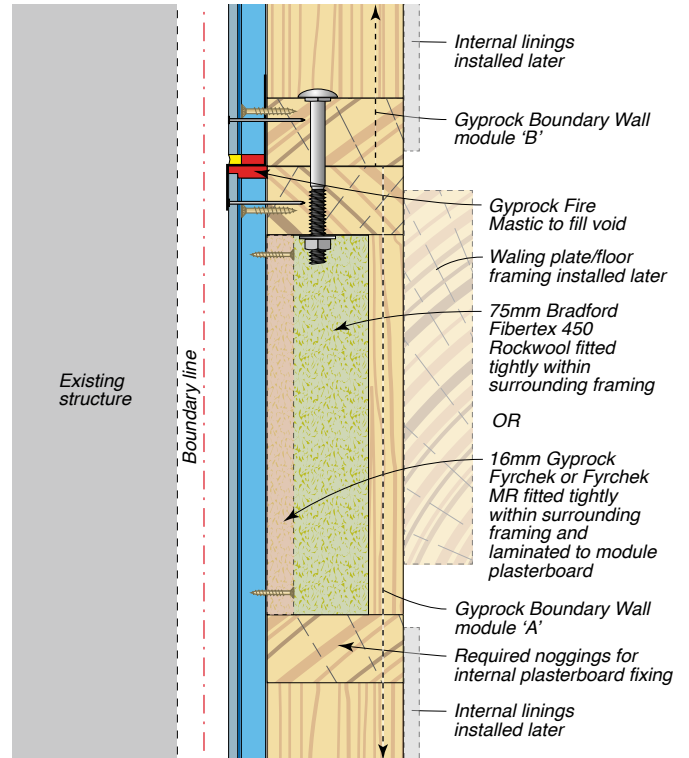
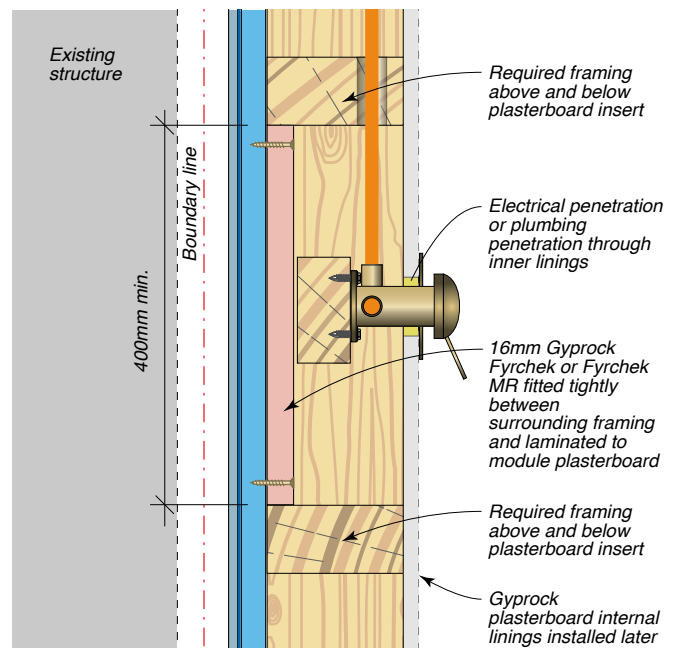


Figure 7: Supplementary Fire Zone At Service Penetration



# Installation Procedures

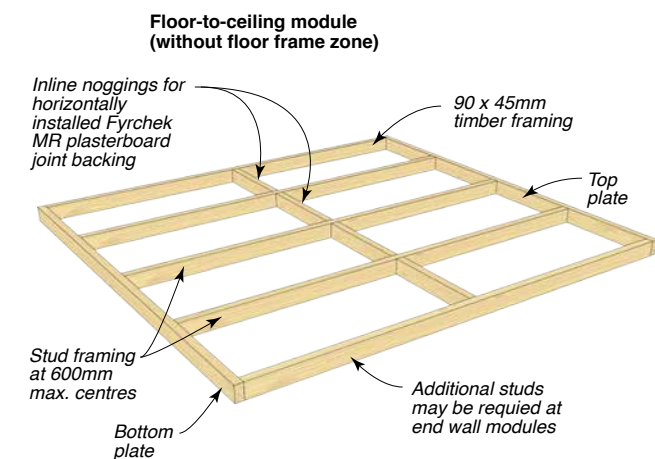
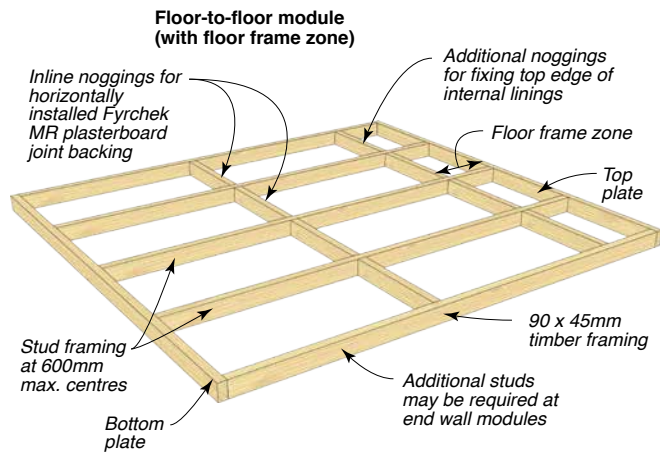
## Constuction Of The Wall Module

### Step 1: Frame Fabrication

Wall frame modules can be built on-site or be prefabricated and delivered to site. They can be built to any length to suit lifting or tilting into position. Modules should be designed based on the project stud centres and available Cemintel Cladding Sheet lengths. Studs are to be at 600mm max. centres.

Where Fyrchek MR is installed horizontally, noggings must be installed in-line and to align with the horizontal Fyrchek MR plasterboard sheet joint.

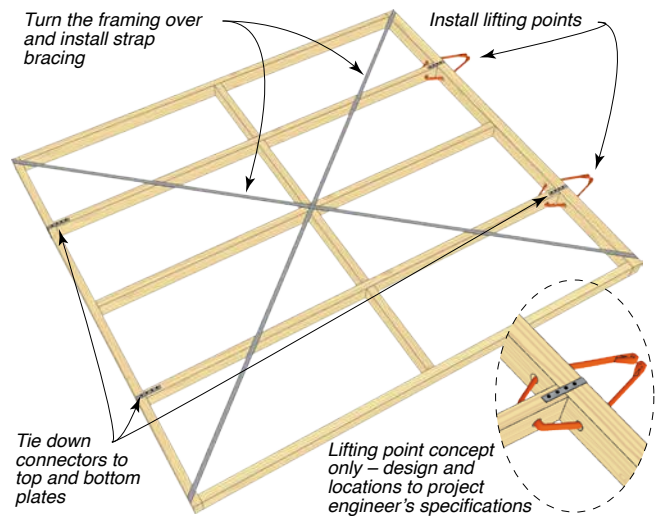
Where floor framing is to be accommodated, an additional row of in-line noggings is to be positioned behind the top edge of the internal linings.



### Step 2: Bracing Straps & Lifting Points

Install diagonal bracing straps to the inside face of the frame when required by project specifications.

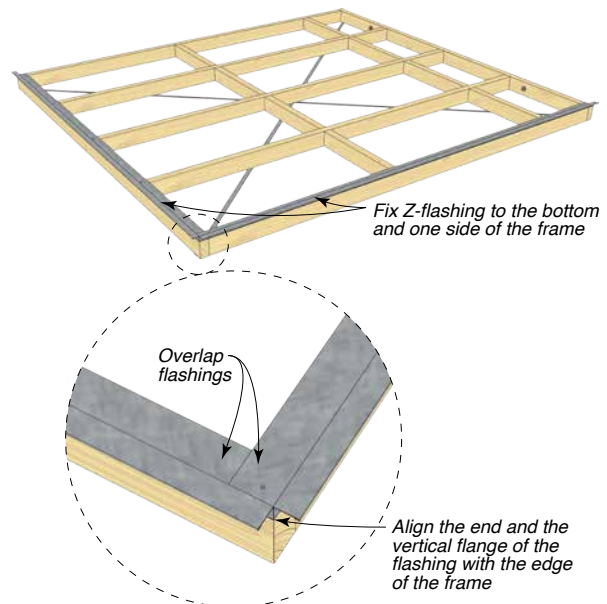
Install lifting points or similar to the top plate where lifting equipment is to be used. These must not interfere with any module components, and should be removable after the module is erected.



### Step 3: Install Z-Flashing

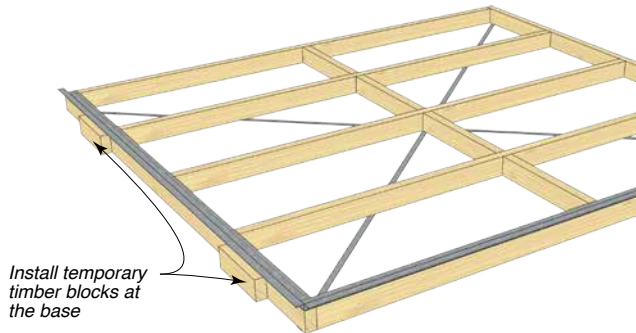
Cut Z-flashings to the overall width and height of the framing. Turn the framing over and fix Z-flashings to outside of the framing at the bottom plate and to one side. Overlap the Z-flashings at the junction, and align the end of the flashing, and the vertical flange of the flashing, with the edge of the framing. Fix with 40mm clouts at 600mm centres.

A custom flashing may be required at each end of a wall.



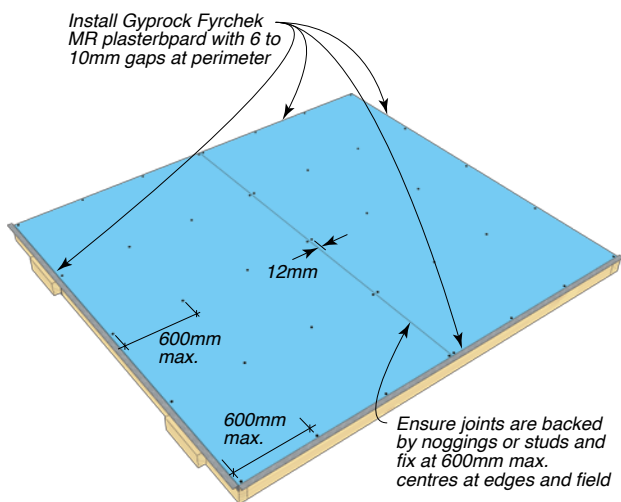
#### Step 4: Temporary Base Block Installation

Install temporary timber blocks to protect base Z-flashing during module handling/lifting.



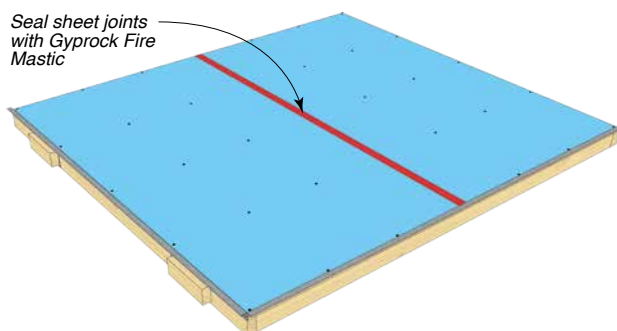
#### Step 5: Install Fyrchek MR Plasterboard

Cut Fyrchek MR lining to size allowing for a gap at the module perimeter edges of 6 – 10mm. Install a single layer of 16mm Fyrchek MR and fix with nails or screws at 600 x 600mm max. centres to perimeter and field. Fix any butt joints with screws at 200mm maximum centres. Joints must be fully backed by studs or noggings.



#### Step 6: Seal Fyrchek MR Plasterboard Joints

Using Gyprock Fire Mastic, fill any gap (maximum 3mm width) and cover joint to at least 2mm thickness and 30mm width.

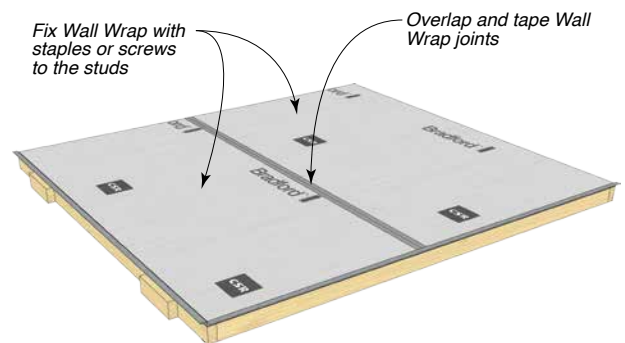


#### Step 7: Install Wall Wrap

Trim wall wrap to the extent of the framing and fix with screws or staples to the frame. Fasteners to be at 600mm maximum centres to studs and perimeters.

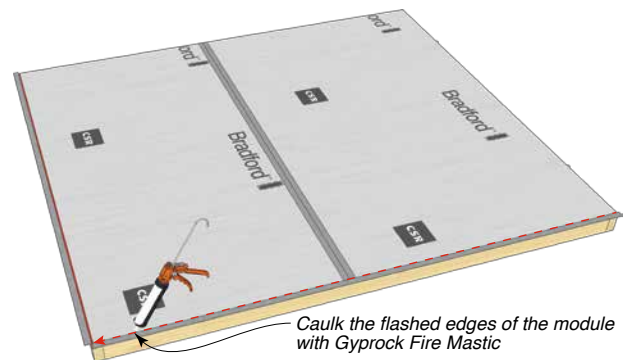
Overlap sheets and tape at joints.

**Note:** Temporary tape may be used to hold wall wrap in place whilst trimming to size and fixing.



#### Step 8: Caulk Fyrchek MR Plasterboard

Fold the excess wall wrap inwards and caulk between the Gyprock Fyrchek MR and the Z-flashings with Gyprock Fire Mastic. Fill to the depth of plasterboard but do not overfill.



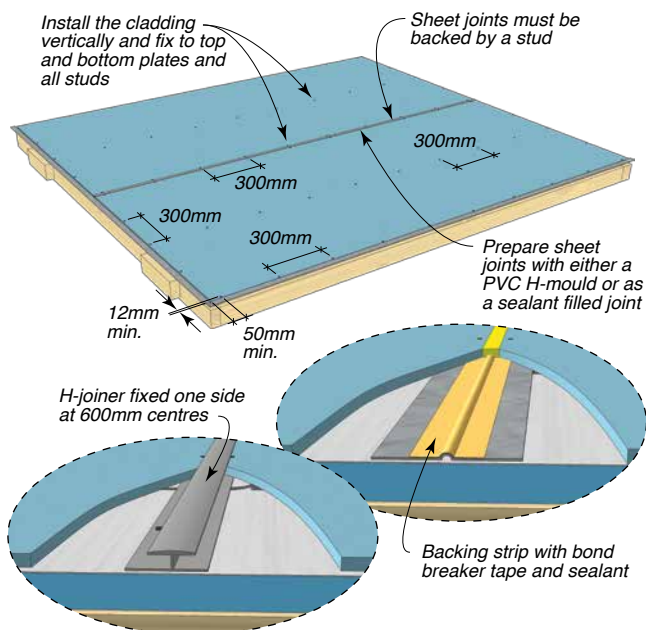
### Step 9: Install Cladding Sheet

6mm Cemintel Cladding Sheets are to be installed with vertical joints. Trim the sheets so as to leave a nominal 6 – 8mm gap at module perimeter edges. Packers may assist in maintaining the perimeter gap.

All sheet joints must coincide with studs. Sheet joints may be finished with a PVC H-mould or as a 6-10mm width sealant filled joint. For sealed sheet joints, use Expresswall Backing Strip with bond-breaker tape behind the joint.

Where Fyrchek MR is installed vertically, sheet joints in the Cemintel Cladding Sheets must be offset from the plasterboard joints by one stud spacing.

Fix sheets with 40mm clouts to top and bottom plates and all studs at 300mm max. centres, 50mm min. from corners and 12mm min. from sheet edges.

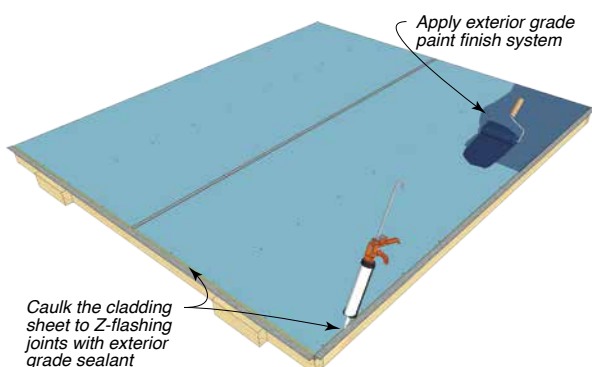


### Step 10: Caulk Cladding Sheet & Apply Paint Finish

Caulk between the Cemintel Cladding Sheets and the Z-flashing with exterior grade sealant for the full depth of the sheet.

When applicable, fill the sheet joints with exterior grade sealant, and allow to dry.

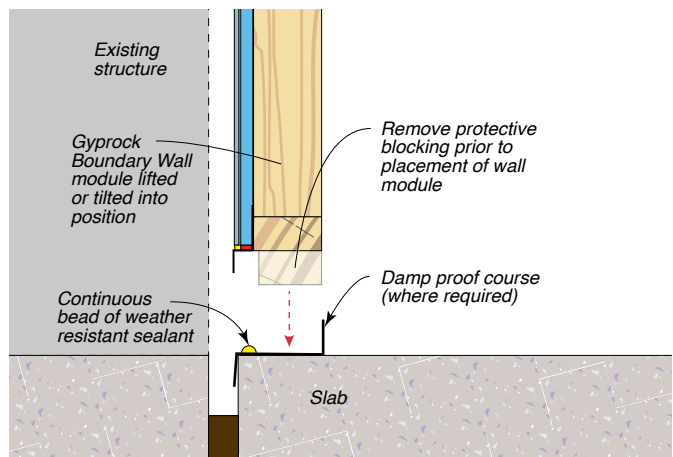
Apply appropriate exterior grade paint finish, and allow to dry.



### Step 11: Installation Of Boundary Wall End Module

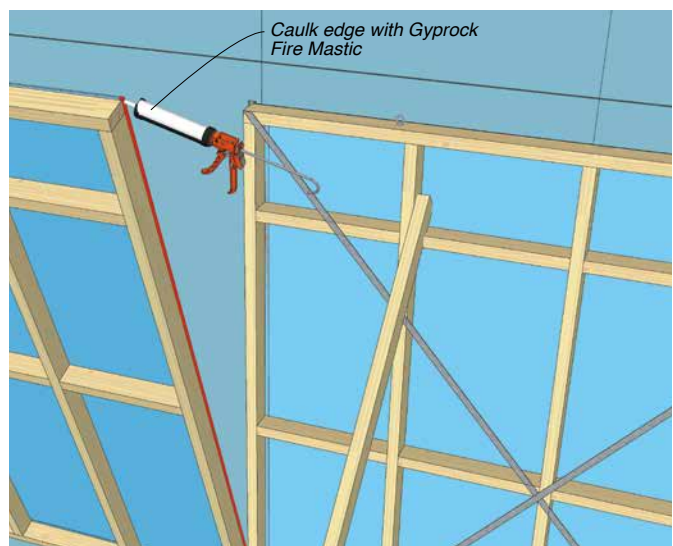
Remove any protective blocking from the base and side of the module at an appropriate time during the installation procedure.

- Ensure any custom flashings that may be required at the end of the wall have been fitted (where appropriate).
- Apply a continuous bead of sealant to the slab or top surface of the wall plate, about 5mm from the outer edge.
- Lift or tilt the panel onto the slab/plate and sealant so that the bottom Z-flashing flange aligns closely with the vertical slab edge or outer edge of top plate. Modules with exterior linings installed weigh approximately 30kg/m<sup>2</sup>.
- Align and plumb the module, then fix the bottom plate to the slab or framing below to project specifications.
- Install appropriate temporary bracing to project specifications.

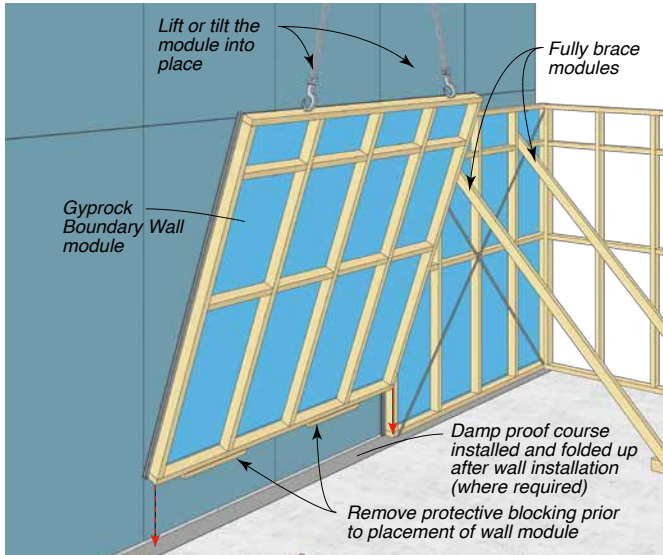


### Step 12: Placement of Subsequent Boundary Wall Modules

- Where the module is to be butted up to an adjacent module, apply a bead of Gyprock Fire Mastic to the vertical edge of the plasterboard on the incoming module. The bead should be sufficient to fill the joint when modules are tightly butted together.

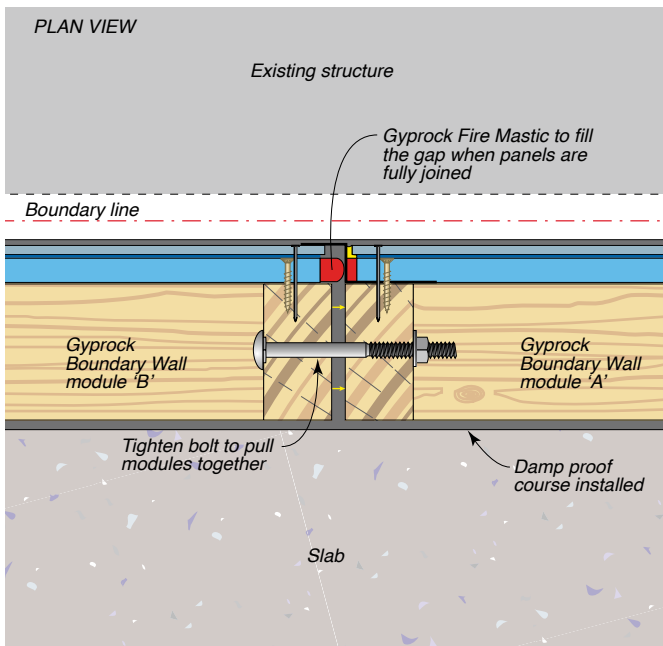


- Allowing 10 – 20mm clearance to adjacent panel and Z-flashing, lift or tilt the panel onto the slab/plate and sealant as described previously.



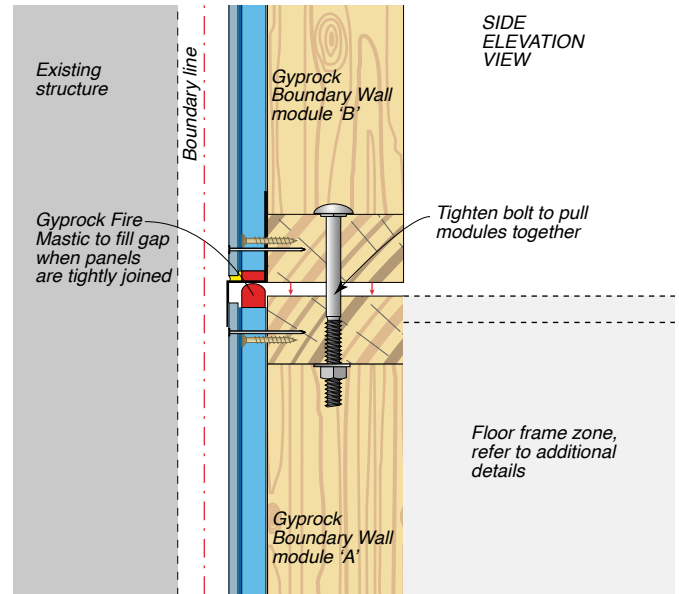
### Step 13: Vertical Joint Between Modules (Plan View)

- Align and plumb the module, then drill and fit bolts through the adjoining module studs at 600mm max. from top and bottom of the module. Use the joining bolts or clamps to draw the panel into position.
- Fix the bottom plate to the slab or framing below to project specifications.
- Install appropriate temporary bracing to project specifications.



### Step 14: Installation Of Upper Storey Modules (Horizontal Joint Side Elevation View)

- On completion of a lower storey, install upper level modules as per ground floor methods.
- Prior to landing the upper module, apply a continuous bead of Gyprock Fire Mastic to the top edge of the lower module plasterboard. Apply sufficient sealant to fill the gap when the modules are butted closely together.



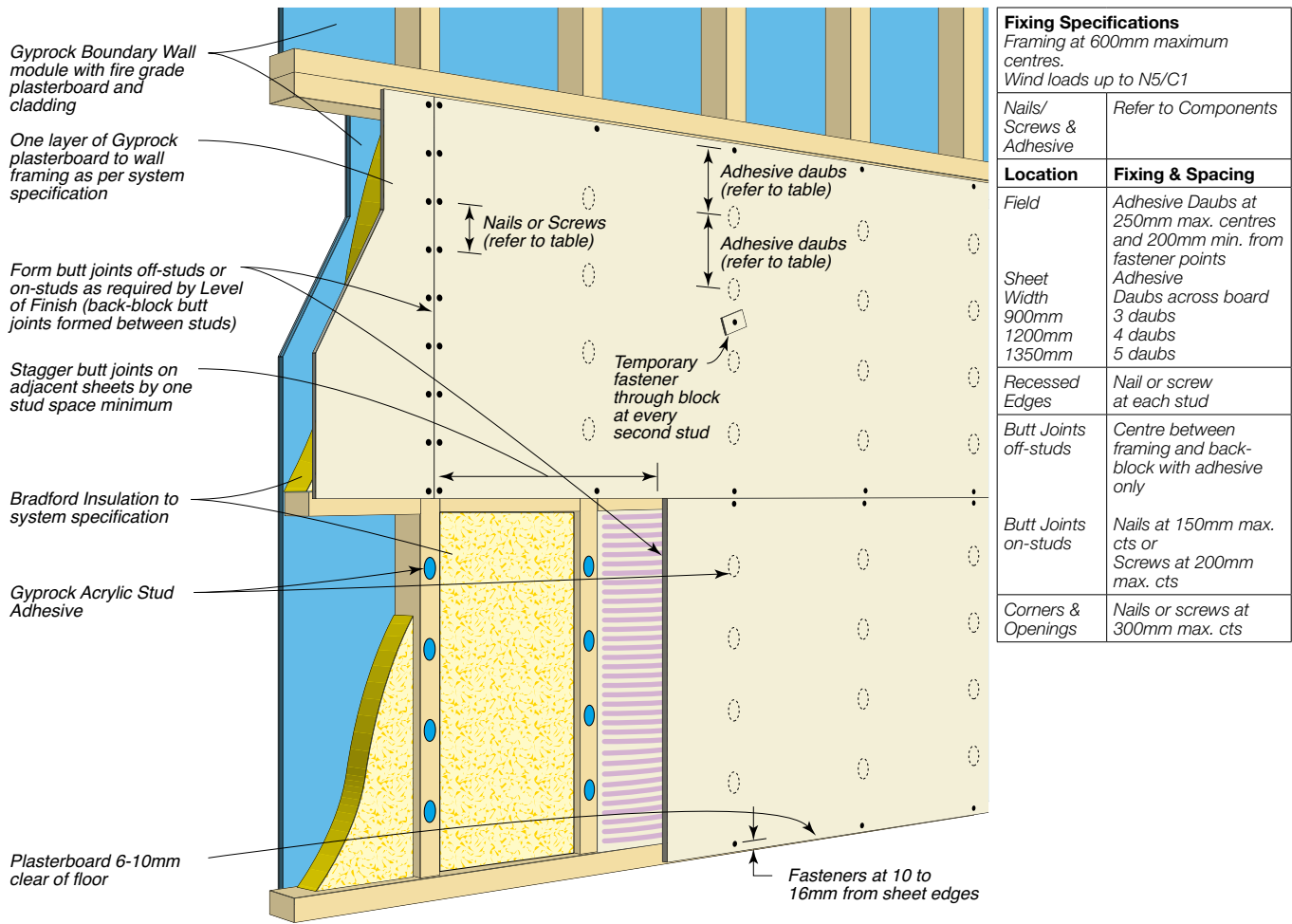
### Step 15: Installation Of Supplementary Fire Protection

Installation of fire grade plasterboard or rockwool to supplementary fire zones must be completed before accessibility is lost. This could occur where floor and roof framing is connected to the Boundary Wall. Refer to Figure 7 and Figure 8.

### Step 16: Installation Of Interior Linings

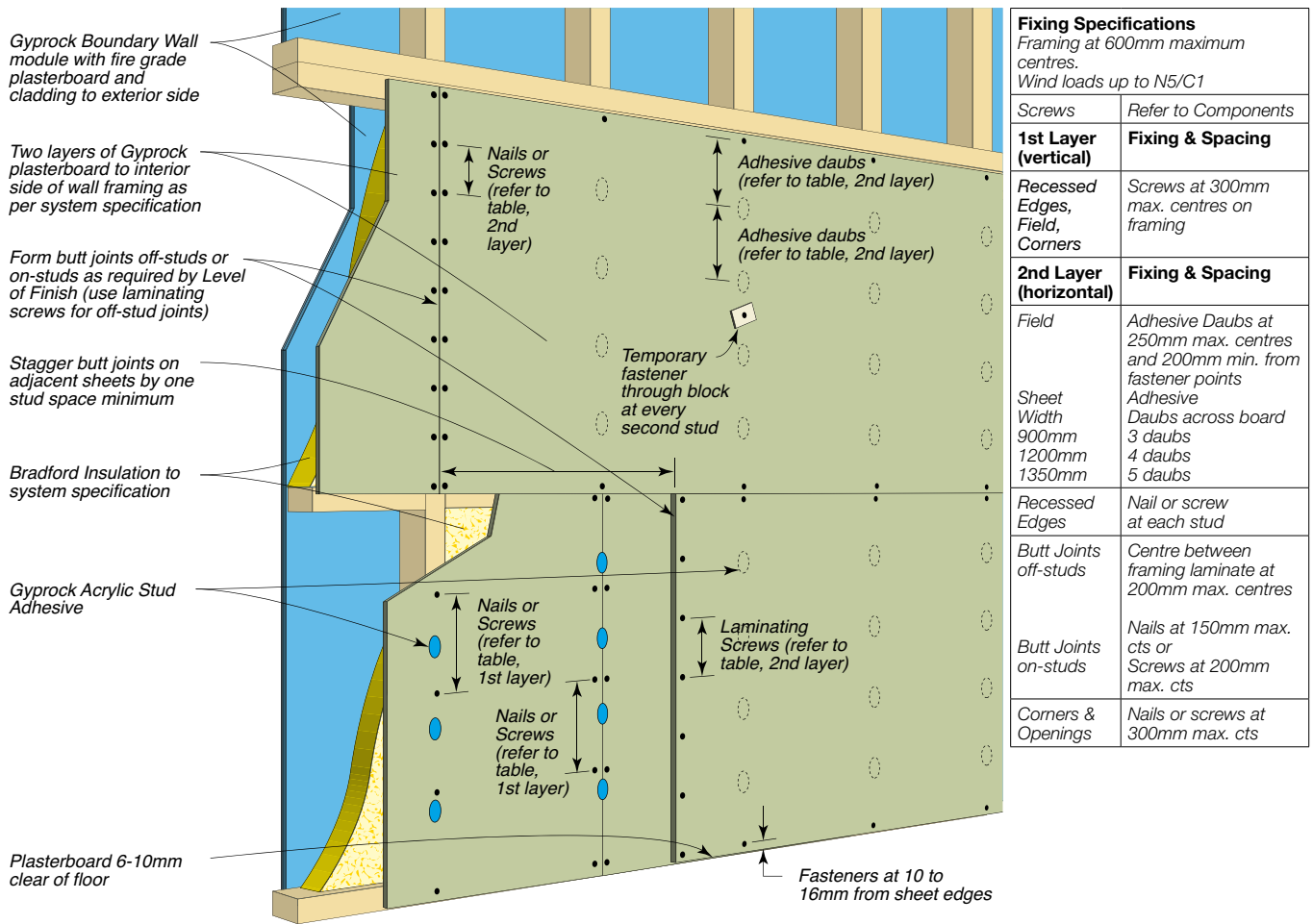
Interior wall linings for the Boundary Wall system should be installed after the building is substantially enclosed and protected from the weather. Refer to Figure 9, Figure 10 and Figure 11.

Figure 9: Internal Plasterboard Fixing – 1 Layer Horizontal Sheeting – Adhesive/Fastener Fixing – Non-Tiled Areas

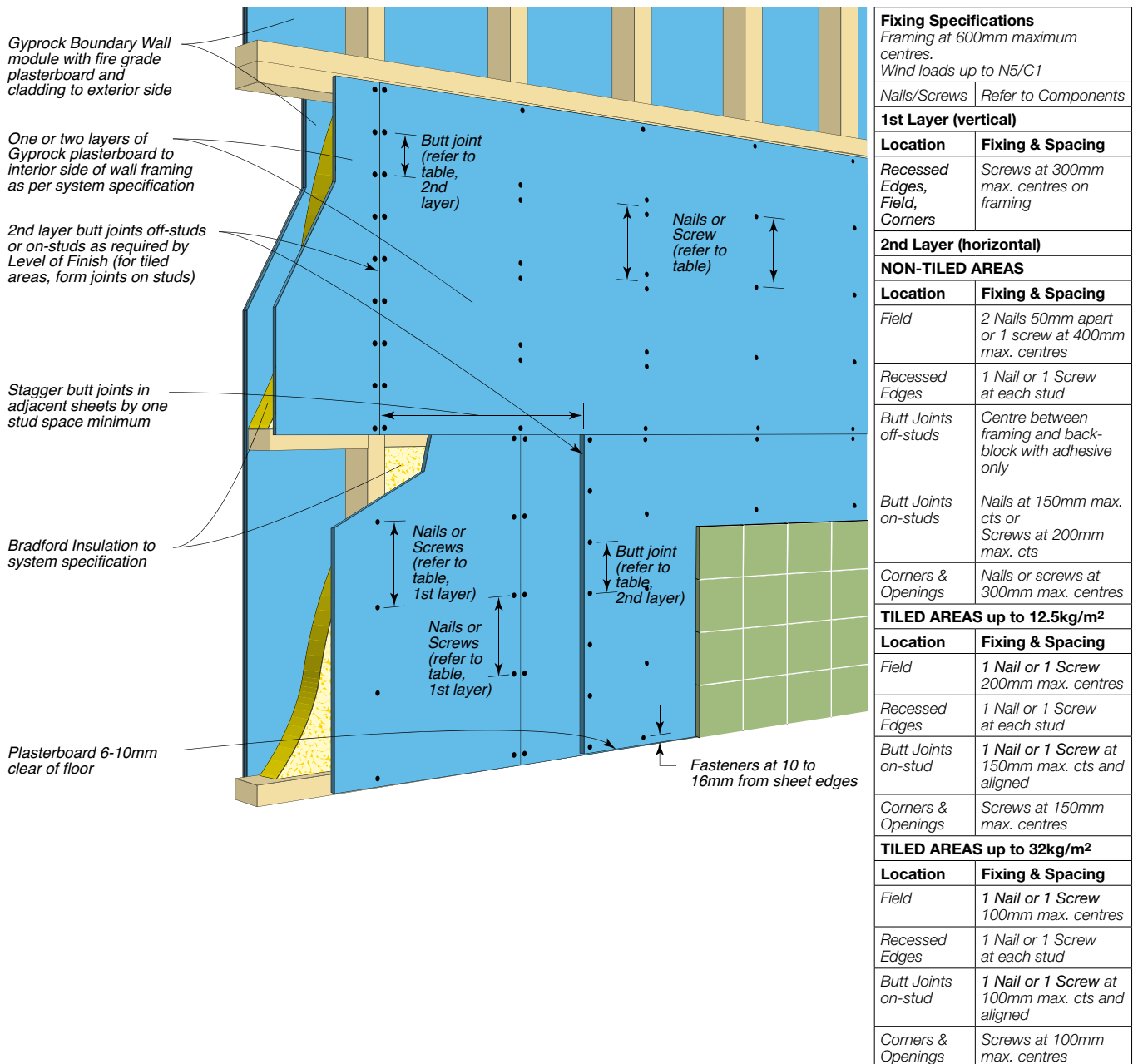


Fixing Specifications	
Framing at 600mm maximum centres. Wind loads up to N5/C1	
Nails/ Screws & Adhesive	Refer to Components
Location	Fixing & Spacing
Field	Adhesive Daubs at 250mm max. centres and 200mm min. from fastener points
Sheet Width	Adhesive Daubs across board
900mm	3 daubs
1200mm	4 daubs
1350mm	5 daubs
Recessed Edges	Nail or screw at each stud
Butt Joints off-studs	Centre between framing and back-block with adhesive only
Butt Joints on-studs	Nails at 150mm max. cts or Screws at 200mm max. cts
Corners & Openings	Nails or screws at 300mm max. cts

Figure 10: Internal Plasterboard Fixing – 2 Layer – Horizontal & Vertical Sheeting – Fastener/Adhesive+Fastener Fixing – Non-Tiled Areas



**Figure 11: Internal Plasterboard Fixing – 1 Or 2 Layer – Horizontal & Vertical Sheeting – Fastener Fixing – Tiled Or Non-Tiled Areas – NOTE: For single layer plasterboard, use 2nd layer fixing specifications**





# Construction Details

Connection details for supported floor and roof framing is indicative only. Alternative methods of attachment may also be used

Figure 12: Supplementary Fire Protection At Floor Zone

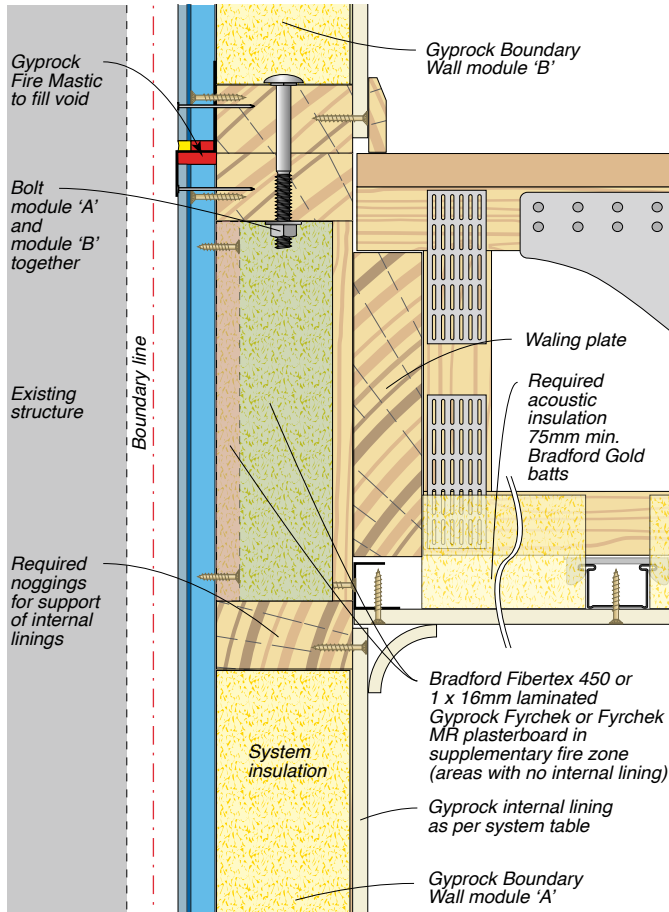


Figure 13: Base Construction At Stepped Slab

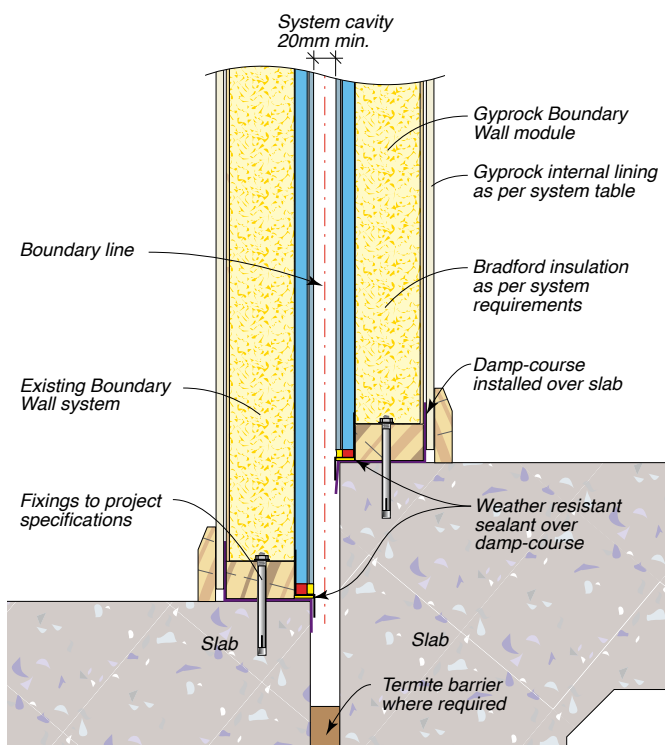


Figure 14: Dwarf Wall Base

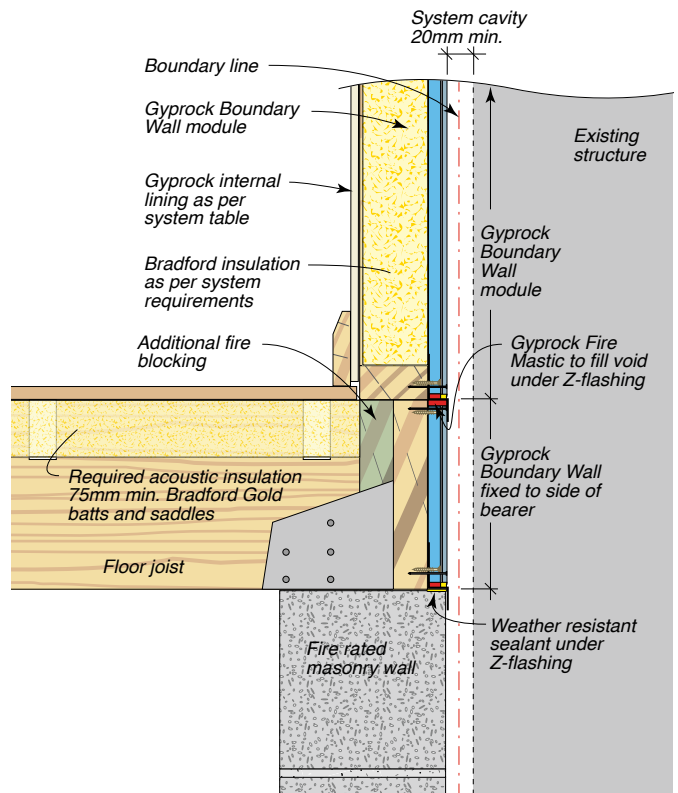


Figure 15: Stub Wall Base

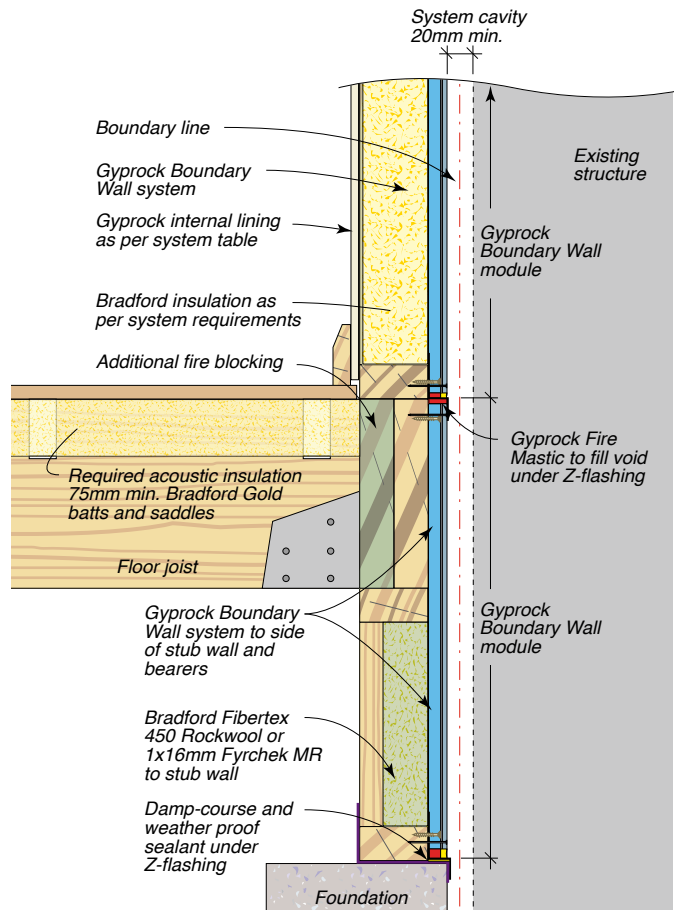


Figure 16: Supplementary Fire Protection At Parapet

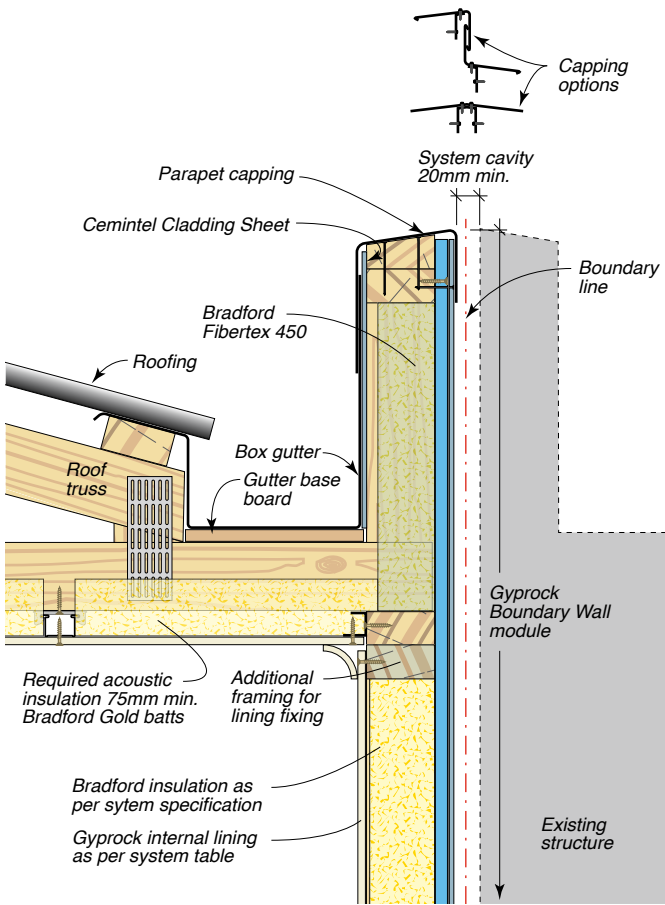


Figure 18: Supplementary Fire Protection At Parapet

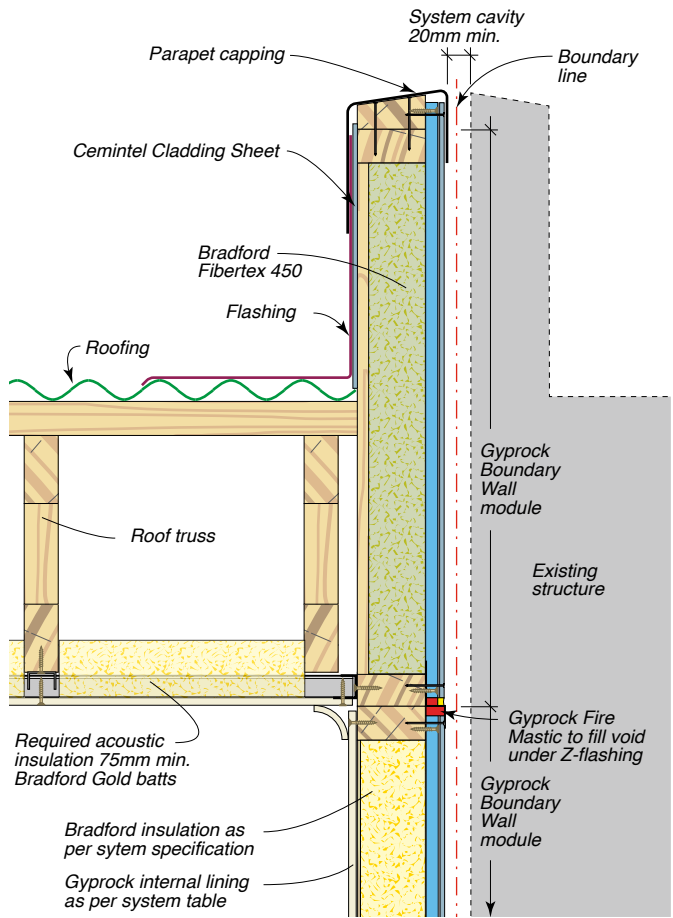


Figure 17: Supplementary Fire Protection At Roof Line

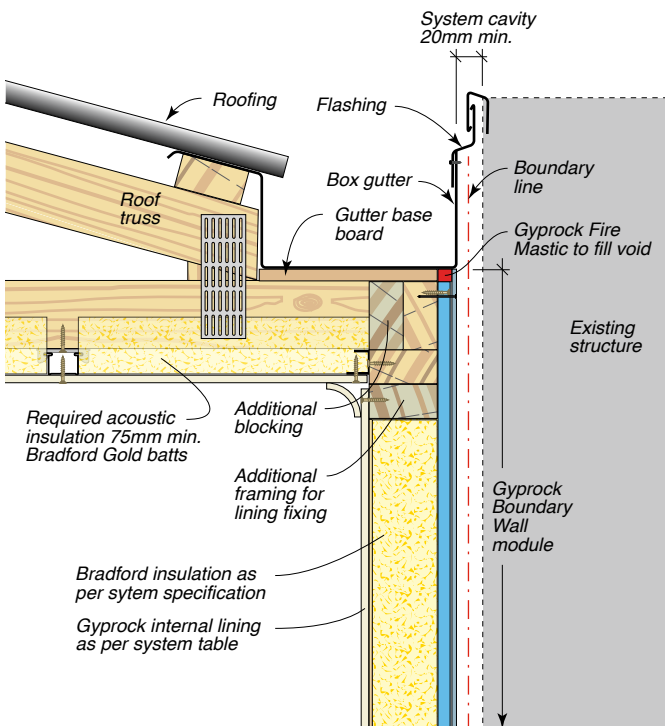


Figure 19: Supplementary Fire Protection At Transition From Single Storey To Two Storey

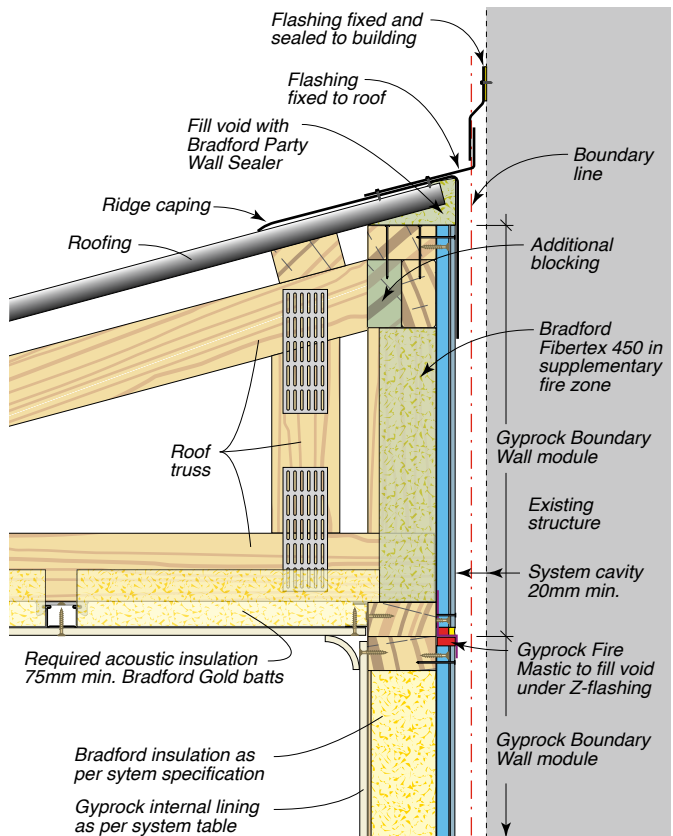


Figure 20: Nib Wall Construction In Boundary Wall – Plan View

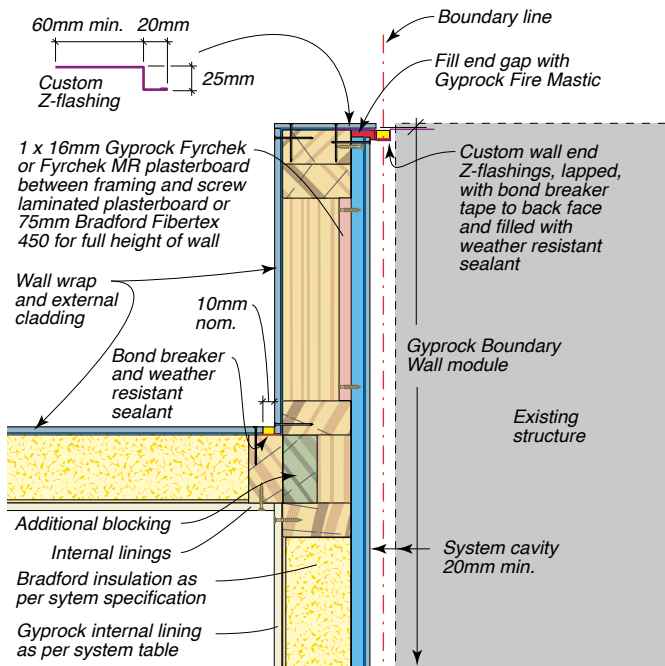


Figure 21: Encapsulated Column In Boundary Wall – Plan And Elevation View

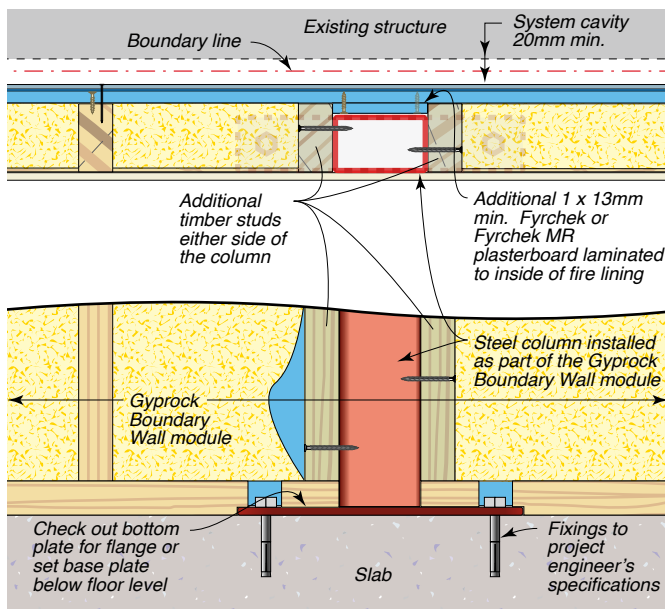


Figure 22: T-junction At Boundary Wall And Internal Wall – Plan View

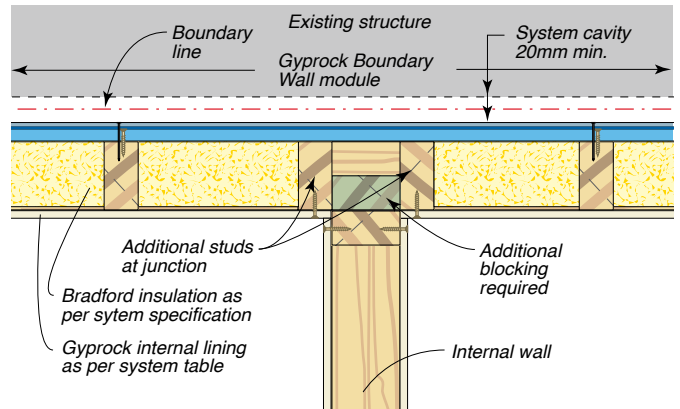


Figure 23: Boundary Wall End Framing And Flashing – Plan View

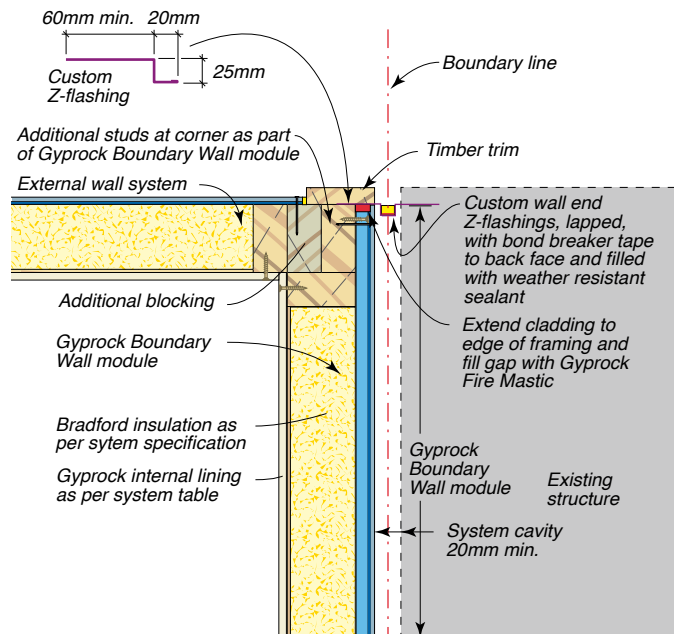
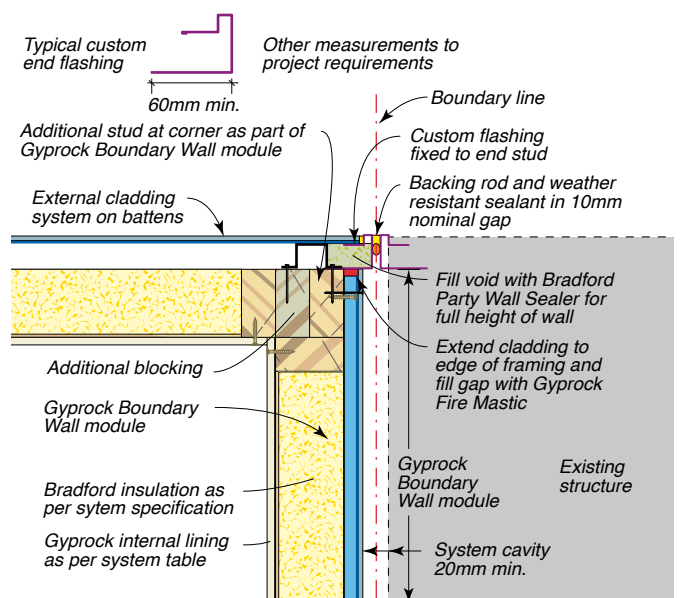


Figure 24: Boundary Wall End Framing And Flashing – Plan View



## Health & Safety

Information on any known health risks of our products and how to handle them safely is on their package and/or the documentation accompanying them.

Additional information is listed in the Safety Data sheet.

To obtain a copy, telephone 1300 306 556 or visit [www.gyprock.com.au](http://www.gyprock.com.au).

## Warranty

Gyprock products are designed to achieve optimal performance when part of a CSR integrated system.

CSR Building Products Limited warrants its Australian made Gyprock products to remain free of defects in material and manufacture for the usual lifetime of the product (25 years).

CSR warrants its International Alliance Gyprock products to remain free of defects in material and manufacture for 7 years.

For details on our product warranty, please visit [www.gyprock.com.au](http://www.gyprock.com.au), or contact us on 1300 306 556.

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CSR Building Products ABN 55 008 631 356



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