

# CEMINTEL®



BALMORAL™ WEATHERBOARDS  
External Installation Guide

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## Introduction

Cemintel® Balmoral™ Weatherboard (“Balmoral Weatherboard”) is a modern take on the traditional weatherboard. The Balmoral Weatherboard is 16mm thick to create strong shadow lines with a clean, sharp edge and complements both traditional and contemporary residential designs.

Featuring concealed fixing with a tongue and groove profile at the panel ends, the Balmoral Weatherboards butt together to provide a flat surface finish along its length. The product can be gun nailed for quick and easy installation and can be either direct fixed to stud frames or installed with a vertical cavity. The weatherboards are pre-primed ready for painting and easily cut to different lengths to minimise waste.

Cemintel Balmoral Weatherboards are much lower maintenance compared to natural timber products. Made from fibre cement they are tough and durable, fire and termite resistant and resistant to water damage.

This installation guide has been prepared as a general guide and includes information on design and installation considerations, system engineering and construction details. It assumes that the user has an intermediate knowledge level of building design and construction. In no way does it replace the services of the building professionals required to design projects. Nor is it an exhaustive guide of all possible scenarios. It is the responsibility of the architect, designer, engineer, builder or installer to ensure that the details in this installation guide are appropriate for the intended application. For further design information this guide should be read in conjunction with the Cemintel® Facades and Cladding – Design Guide and CSR Gyprock® The Red Book™ publications.

## PRODUCT OVERVIEW

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## Applications

Balmoral Weatherboards may be fixed to timber or steel framing. For buildings and wind loads in accordance with AS 4055, the products are suitable for wind zones N1 to N5/C3 or AS/NZS 1170.2 – Wind actions.

Balmoral Weatherboards are suited to many residential and commercial external cladding applications including:

- Upper and lower storey construction;
- Over-cladding of existing walls;
- Gable ends;
- Infill panels; and
- Feature panels.



## Benefits of Cemintel® Balmoral Weatherboard Systems

- Lightweight panels are designed to be fixed to industry standard timber or steel structural frames;
- Strong shadowline and simple fixing system;
- Suited to gun and hand nailing;
- Panels are easy to cut for openings eg. around Windows, doors and power boxes
- Potential to speed up the construction process
- Durable and weather resistant
  - Provides effective protection against wind, rain and temperature extremes, mould and mildew
  - Panels will not rot, swell or warp when correctly installed and maintained
- Low maintenance
- Can be Installed as either a Direct Fix or pressure equalised ventilated Cavity system that allows for higher wind loads, minimises water ingress and allows air flow and drainage
- Fire Resistance – fibre cement sheets can be used where non-combustible material is required under the BCA provisions
- Systems are available for thermal, acoustic and fire requirements as part of an overall solution;
- Termite resistant;
- Bushfire Performance – BAL 40, for a standard wall, and BAL FZ Flame Zone when a ‘fire-rated plasterboard’ wall system is installed.



## 02

## PRODUCT OVERVIEW

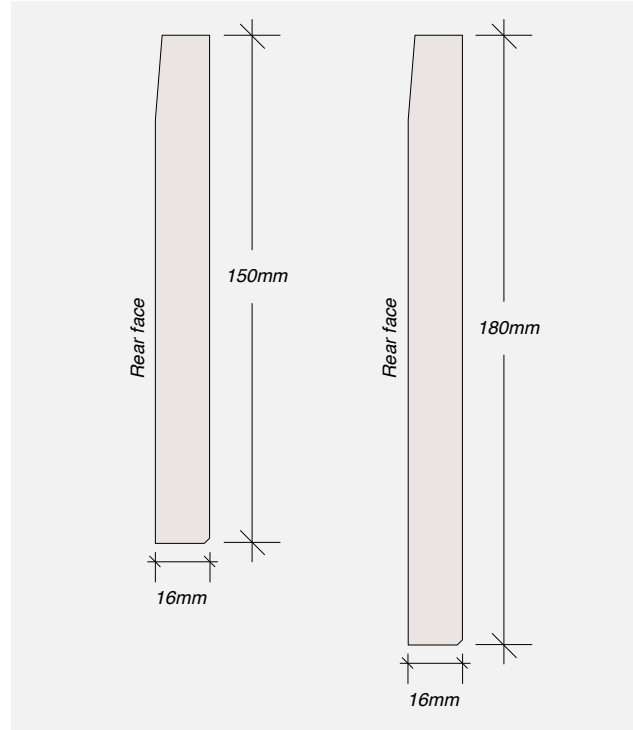
### Balmoral Weatherboard Product Information

Balmoral Weatherboard cladding is a nominal 16mm thick autoclaved, cellulose fibre reinforced cement weatherboard available in two widths. Balmoral Weatherboard has a chamfer along the top long edge at the rear of the panel and tongue or groove profiles at the ends of the panel which facilitates butt joints that maintain a flat surface finish.

Balmoral Weatherboard has a lightly textured faced and is fixed in the traditional step pattern with a nominal 30mm lap. Once installed the overlapping weatherboards provide a strong shadowline finish.

Cemintel weatherboard products conform to the requirements of AS/NZS 2908.2 'Cellulose-cement products Part 2: Flat sheets.' The weatherboards will not rot or warp when correctly installed and maintained and are resistant to fire and termite damage.

Balmoral Weatherboards are supplied with a factory applied primer and once installed, can be coated with an exterior grade paint system to provide a weatherproof, durable and low maintenance finish.



Product Code	Thickness (mm)	Width (mm)	Length (mm)	End Types	Mass (kg/Lm)	Panels per Pack	Effective Cover (mm)	Coverage per pack (m <sup>2</sup> )
454470	16	150	4200	Tongue & Groove	3.2	90	120	45
454428	16	180	4200	Tongue & Groove	3.8	75	150	47

### Product Specifications

Property	Performance	Reference/Relevant Standard
Thickness	+0.5/-0.0mm	AS 2908.2
Width	+1.0/-0.0mm	AS 2908.2
Length	+0.0/-2.0mm	AS 2908.2
EMC Panel Mass (Nominal)	21.1kg/m <sup>2</sup>	AS 2908.2
Fire Resistance Limits (FRLs)	Up to 120/120/120 in a system with Gyprock fire grade plasterboard	Refer to System Engineering section of Gyprock® The Red Book™ and Cemintel Facade & Cladding Design Guide
Bushfire Construction	BAL 40 (Construction for Bushfire Attack Level 40 for a standard external wall). Higher BAL ratings up to BAL-FZ are possible with the inclusion of fire-rated layers.	AS 3959
Weatherproofing	Assessed to pass serviceability pressure of 1.19kPa based on ventilated cavity systems	BCA Vol 1 Verification Method FV1 and BCA Vol 2 Verification Method V2.2.1
Cyclonic Conditions	Suitable for wind classification up to C3	AS 4055 (Wind loads for housing)

EMC – Equilibrium Moisture Content

## SYSTEM OVERVIEW

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## Direct Fix and Cavity Cladding Systems

Balmoral Weatherboard wall systems have overlapping weatherboards to create a strong shadowline appearance. The weatherboards are easily fixed to timber or steel frames using common fasteners. Balmoral Weatherboards can be either installed by DIRECT FIXED to the framing or installed with a ventilated and drained CAVITY, depending on the degree of weather resistance required. The cavity system provides a beneficial path for airflow, ventilation and drainage.

### Direct Fix System

In many Australian residential applications (where homes are low rise and subject to low wind pressures), cladding is fixed directly to the frame. A degree of sealing is required at joints and gaps to prevent water ingress. Direct fix systems can be an effective means of weatherproofing low risk buildings.

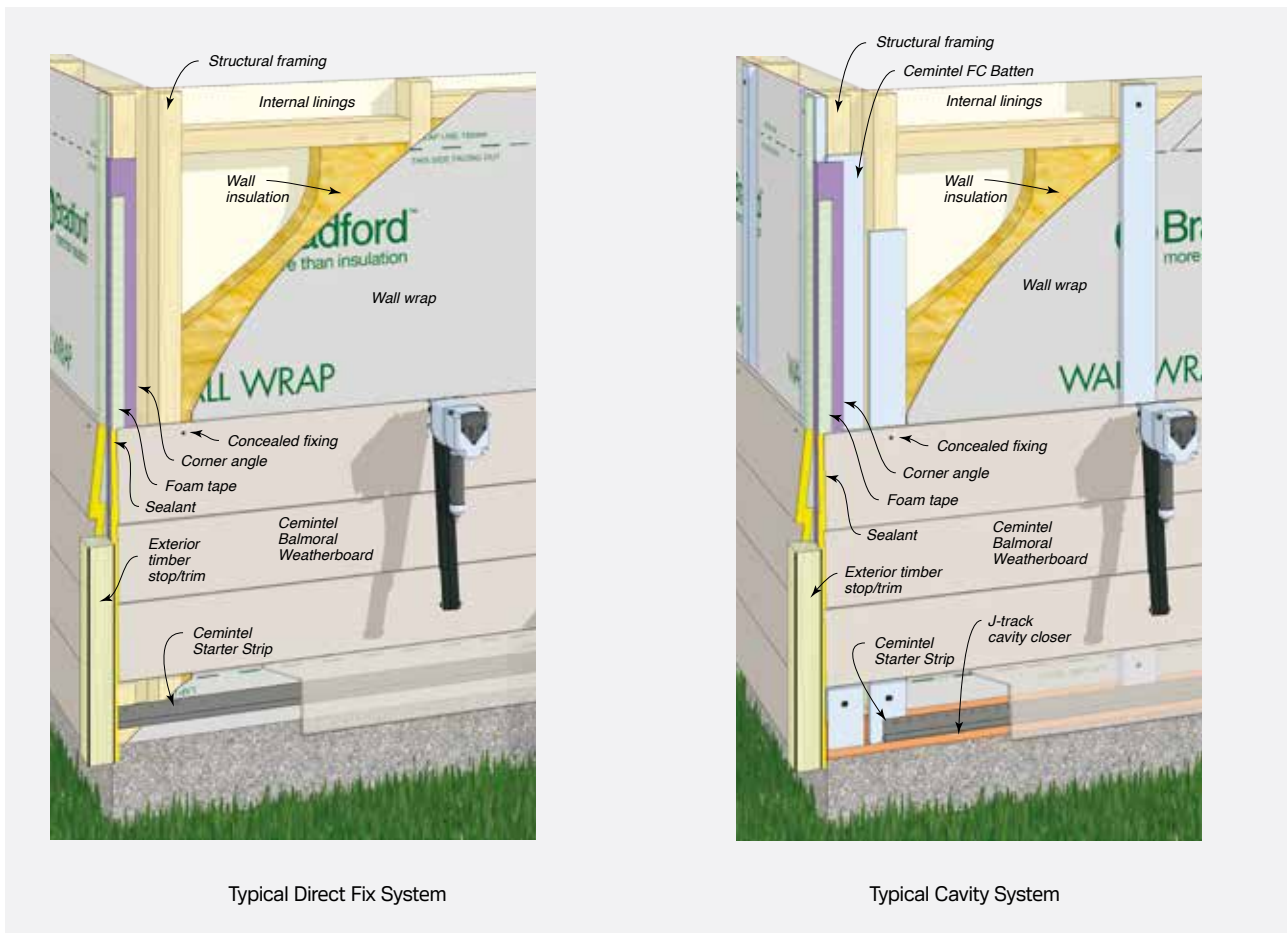
### Ventilated and Drained Cavity System

For buildings that are subject to higher wind loads or have features associated with a higher risk level for weatherproofing, a ventilated and drained cavity may be required (refer to NCC BCA Volume 1, Part F1 - Damp and weatherproofing, and Volume 2, Part 2.2 - Damp and Weatherproofing; Verification Methods Table - Risk factors and scores).

Typically, a ventilated and drained cavity or “Rainscreen” has openings at the top and bottom of the wall to provide a rear-ventilated cladding system.

To achieve a ventilated system, battens or top hats are fixed over an air barrier to the face of studs or structural framing forming a cavity that enables air flow at the base and/or head of the external cladding (via J-track at base of wall and at eaves, eg eaves trim).

FIGURE 3.01 Typical Direct Fix System and Cavity System Arrangements



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## SYSTEM OVERVIEW

Design and installation considerations are provided in this guide for both Direct Fix System and Ventilated and Drained Cavity System methods.

The weatherproofing performance of the cavity is further enhanced by allowing sufficient air flow into the cavity behind the cladding, so that the pressures on either side of the cladding are similar creating a pressure equalised cavity. This feature reduces the risk of moisture and water entering the stud framing cavity by means of pressure equalisation and provides a path for any water that does enter the cavity to effectively drain away and evaporate, leaving the building shell dry.

The weatherproofing performance of the Balmoral Weatherboard wall systems have been independently assessed and certified. For further information contact CSR DesignLINK.

### Cavity Battens and Top Hats

The cavity can be formed with non-structural 18mm to 20mm deep/thick Cemintel FC Batten, MGPI0 timber or steel battens. Non-structural Cemintel FC Batten, MGPI0 timber battens or steel top hats are fixed 'On-stud' to the structural framing and acts as a spacer with Balmoral Weatherboard direct fixed through to the framing. Timber battens will require a minimum H3 protective treatment. Refer to Figure 6.01.

Where steel top hat cavity battens are used 'On-stud' with steel framed buildings, the designer will advise on the thermal break requirements. In C4: High Corrosivity Zones, steel top hats will require a protective treatment or other appropriate alternative corrosive materials. Where any in-fill steel battens are placed horizontally, battens must have a minimum fall of 5° to the horizontal with 5mm gap to any adjoining batten to allow drainage of any moisture.

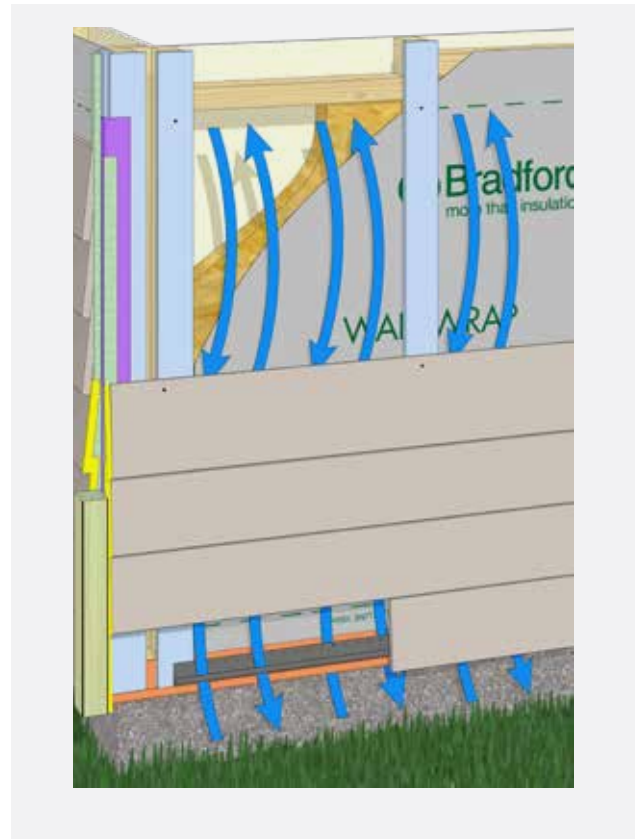
For 'Off-stud' structural timber battens and steel top hats, Balmoral Weatherboards can be direct fixed to batten or top hats, refer to the Cemintel Facades & Cladding Design Guide for further information.

### Air Barriers

An air barrier is required to reduce air leakage between the exterior and internal areas of the building and to achieve a pressure equalised self-draining cavity system. An effective 'building envelope seal' using an air barrier can assist with improving energy efficiency performance by minimising air leakages and winter heat loss or summer coolness loss

An appropriate securely fixed wall wrap, rigid air barrier, waterproofing layer, backpan or similar, of a ventilated and drained cavity can be the air barrier. For further information on air barrier requirements to achieve a pressure equalisation system are presented in Cemintel Air Barriers – Design and Installation Guide.

FIGURE 3.02 Air Flow in the Ventilated Cavity System



## DESIGN + AESTHETIC CONSIDERATIONS

04

**This guide provides detailed installation information for external wall systems clad with Balmoral Weatherboards in timber, steel and masonry construction. This section outlines some important areas for consideration in determining an appropriate design of the Balmoral Weatherboard facade. The following points are not exhaustive. It is the responsibility of the architect / building designer to ensure the design conforms to BCA requirements and other relevant building standards that may exist for that location. It is recommended that the architect/building designer assigns the responsibility for the façade design to the project engineer.**

This installation guide should be read in conjunction with the BCA, and design information presented in the CSR Cemintel® Facades & Cladding – Design Guide and CSR Gyprock The Red Book publications.

### Design Considerations – Façades and Cladding Systems

CSR recommends that a comprehensive assessment of the performance requirements for facades and external wall cladding systems be undertaken and is discussed in further detail in the 'Cemintel Facades & Cladding Design Guide' addressing areas including:

- Structural Design – framing and substrate options, direct fix and cavity fix installation requirements, earthquake loading, wind loading, stud set-out, cyclonic zones, structural bracing, internal linings and curved walls;
- Weatherproofing;
- Moisture Management – condensation risk, wall wrap/sarking selection and air barriers;
- Energy Efficiency/Thermal Design – thermal performance, thermal break requirements, building envelop sealing and thermal bridging;
- Climates Zones for Thermal Design;
- Fire Resistance Performance – fire rated external wall systems, supplementary fire zone protection, wall framing fire resistance, framing and lining, spread of fire, bushfire prone zones and roof & eaves design;
- Acoustic Performance;
- Extreme Climate Conditions – coastal areas, corrosive zones/categories and temperature extremes;
- Other Design Considerations – window selection, services, renovations, termite management, specialist profiles and product limitations.

### Preparation

Prior to fixing weatherboards, the following procedures should be completed:

- Fix timber mouldings at internal and external corners, fastened securely to the frame prior to fixing Balmoral Weatherboards;
- Wall openings, vertical joints, sills, heads and corners should be weatherproofed with flashing;
- Timber or aluminium window trims (supplied by others), should be fixed adjacent to aluminium window and door frames ensuring that window and door flashings are correctly positioned over wall wraps to prevent moisture ingress;
- Create a horizontal datum line and place temporary nails to support the first weatherboard; and
- To ensure the first row of weatherboards are at the correct angle, the Starter Strip or packer should be fixed to the bottom plate.
- Position the tongue and groove end joints to satisfy the requirements outlined in the 'Installation Considerations' section of this guide.

The number of weatherboards required for a wall can be calculated using the coverage table and the length of the wall.

**FIGURE 4.01** Balmoral Weatherboard Wall Height

BALMORAL WEATHERBOARDS		
Panel Width (mm)	150	180
Nominal Overlap (mm)	30	30
Effective Cover (mm)	120	150
Number of Rows	Wall Height (mm)	
1	150	180
2	270	330
3	390	480
4	510	630
5	630	780
6	750	930
7	870	1080
8	990	1230
9	1110	1380
10	1230	1530
15	1830	2280
20	2430	3030

## 04

## DESIGN + AESTHETIC CONSIDERATIONS

**Surface Finish & Joint Solutions**

All products should be painted within three months of delivery to site. Balmoral Weatherboards are pre-primed and must be dry before painting. All cut edges should be pre-painted with an exterior paint sealer.

Where Cemintel cladding products are exposed to the elements for more than three months from delivery, CSR recommends the application of a priming coat before applying the decorative paint coatings. Refer to the coating manufacturer's recommendations.

It is important to seek advice from the paint manufacturer to ensure you select the most appropriate products for Balmoral Weatherboard. Considerations should include:

- Prior to the application of the exterior paint, walls must be washed down with clean fresh water to remove dust or any salt spray build-up from sheets and fixings. Balmoral Weatherboards must be allowed to dry before coating. Refer to Section 10 for additional information;
- The straightness of the substrate framing;
- Weatherboard layout around openings to minimise visibility of weatherboard butt jointing;
- Movement joint systems for use with Balmoral Weatherboards are appropriate for external use, e.g., UV stabilised sealants;
- The durability of the weatherboard system can be improved by periodic inspection and maintenance. Inspections should include examination of the paint, flashings and seals;
- The durability of the system can also be increased by painting all exposed sealants to the sealant manufacturer's recommendations;
- A minimum of a two-coat paint system suitable for use with Balmoral Weatherboard systems are usually 100% acrylic, exterior grade, high performance, flexible weatherproofing coating;
- Paint finishes must be maintained in accordance with the manufacturer's recommendations. Any cracked or damaged flashings or seals that would allow water ingress must be repaired immediately. Any damaged weatherboards must be replaced;
- Colour – light colours are more forgiving. They also do not absorb as much heat so there is less stress on the jointing system; and
- Level of gloss – spectral reflectivity is lower with matt finishes than gloss finishes. Cemintel recommends low gloss or matt finishes as light is diffused and there is less chance of visual phenomena like patchiness, undulations etc.

Refer to paint manufacturer to determine suitable coatings. It is the responsibility of the applicator to use the appropriate components and compounds sufficient to eliminate cracking under normal building conditions.



## COMPONENTS + ACCESSORIES

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

Note: Codes can change from time to time. Refer to the website for the current list of components prior to ordering.

## Balmoral Weatherboards

Product Code	Thickness (mm)	Width (mm)	Length (mm)	End Types	Mass (kg/Lm)	Panels per Pack	Effective Cover (mm)	Coverage per pack (m <sup>2</sup> )
454470	16	150	4200	Tongue & Groove	3.2	90	120	45
454428	16	180	4200	Tongue & Groove	3.8	75	150	47

## Accessories




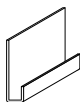


**Note: The length of the fixings will need to be increased to ensure the same or greater embedment depth is obtained when additional layers are added, such as a Rigid Air Barrier (RAB), fire-rated linings, and/or thermal break materials. Nail fixing through multiple layers can be difficult and screw fixings are the preferred method of construction.**

Product	Description	Size/Colour	Quantity	Product Code
<b>CLADDING FIXINGS</b>				
	<b>Cladding Nails for Timber Framing</b> – Manually or machine driven nails, Class 3 Hot Dipped Galvanised (HDG) or Class 4 Stainless Steel (S/S). Used for direct fixing Balmoral Weatherboard cladding to timber framing.			
	Galvanised nails (24mm min. embedment)	2.8mmø x 40mm	2kg	77258
	<ul style="list-style-type: none"> <li>• Paslode D Head HDG</li> <li>• Paslode D Head Screw HDG or S/S Dome 15°</li> <li>• Paslode D Head Ring HDG or S/S Dome 15°</li> </ul>	2.87mmø x 50mm	Supplied by others	
	<b>Cladding Nails for Timber Framing</b> – Machine driven nails, Class 3 Hot Dipped Galvanised (HDG) or Class 4 Stainless Steel (S/S). Used for direct fixing Balmoral Weatherboard cladding to timber framing or Balmoral Weatherboard cladding over 20mm maximum thickness non-structural battens to timber framing.			
	<ul style="list-style-type: none"> <li>• Paslode D Head HDG</li> <li>• Paslode D Head Screw HDG or S/S Dome 15°</li> <li>• Paslode D Head Ring HDG or S/S Dome 15°</li> </ul>	2.87mmø x 65mm	Supplied by others	
	<b>Cladding Screws for Steel Framing</b> – Used for direct fixing Balmoral Weatherboard cladding to steel framing or to steel top hat battens over a thermal break. To suit 0.55mm BMT G550 to 1.15mm BMT G2 framing.			
	• SCROOZ Fasteners FibreFix Metal FC Board screws, self-embedding, SQ2-driver, Screw Armour Ceramic finish	8gx42mm	Supplied by others	
	<b>Cladding Screws for Steel Framing and Top Hats</b> – Used for direct fixing Balmoral Weatherboard cladding to steel framing or to steel top hat battens over a thermal break. To suit 0.75mm BMT to 1.15mm BMT G2 framing.			
	• Buildex Wing Teks self-embedding CSK Rib head, Phillips drive, Climacoat finish	8-18 x 35mm	Pack of 1000 (loose)	26626
	• ProInx winged self-drilling, CSK self-embedding head, Class 3 finish	10-16 x 55mm	Pack of 500 (loose)	195881
	<b>Cladding Screws for Steel Framing</b> – Used for direct fixing Balmoral Weatherboard cladding to steel framing over 20mm maximum thickness non-structural battens and thermal break. To suit 0.75mm BMT to 1.15mm BMT G2 framing.			
	• Buildex winged self-drilling, CSK self-embedding head, Class 3 finish	10-16 x 75mm	Pack of 1000 (loose)	463653
<b>BATTENS</b>				
	<b>Cemintel FC Batten – Non-structural</b> battens are fixed to the structural framing to create a 19mm deep drained cavity system.	70mm x 19mm 2.7m lengths	1 each	125431
	<b>Timber H3 Batten – Non-structural</b> timber battens are fixed to the structural framing to create a 19mm deep drained cavity system. 35mm minimum width and greater than stud framing width. (minimum of 20mm thick batten required for R Value of 0.2 thermal break layer).	35mm min. x 18-20mm	Supplied by others	

## 05

## COMPONENTS + ACCESSORIES







Note: Codes can change from time to time. Refer to the website for the current list of components prior to ordering.

Product	Description	Size/Colour	Quantity	Product Code
<b>CAVITY Baffle AND CLOSER, CORNER BACKING ANGLE, STARTER STRIP</b>				
	<b>Cavity Baffle</b> – PVC profile used at base of wall to exclude vermin and moisture. To suit 35mm wide cavity.	3.0m lengths	1 each	38651
	<b>J Track (Batten closer)</b> – PVC extrusion fitted at base of battens to provide drainage, air flow and vermin proofing. To suit 18mm wide cavity.	18 x 18 x 70mm x 3000mm	1 each	134845
	<b>Corner Backing Angle</b> – metal angle flashing used at internal and external corners. Manufactured from steel galvalume AZ150 corrosion resistant coating.	50x50x3030mm	1 each	111498
	<b>Cemintel Starter Strip</b> – PVC Starter Strip for aligning the first Balmoral Weatherboard.	3m length	1 each	89098
<b>CEMINTEL RIGID AIR BARRIER/WALL WRAPS</b>				
(For Rigid Air Barrier or Wall Wrap type to best suit project and local climate conditions, refer to the Cemintel Facades and Cladding Design Guide for more information)				
	<b>Cemintel Rigid Air Barrier*</b>	1200mm x 3000mm x 6mm	Pack of 30 sheets	170076
	<b>Thermoseal™ Wall Wrap</b> Classification – Non-permeable Reflective Water Classification – High	1350mm – 30m roll	1 roll	40483
		1350mm – 60m roll	1 roll	10576
	<b>Thermoseal™ Resiwrap</b> Classification – Non-permeable Reflective Water Classification – High	1350mm – 30m roll	1 roll	108879
		1350mm – 60m roll	1 roll	108004
		1500mm – 30m roll	1 roll	120121
	<b>Enviroseal ProctorWrap™ Residential (RW)</b> Classification – Permeable High. Water Classification – High	1500mm – 50m roll	1 roll	120923
	<b>Enviroseal ProctorWrap™ Commercial (CW)</b> Classification – Permeable High. Water Classification – High	1500mm – 50m roll	1 roll	118593
	<b>Enviroseal ProctorWrap™ Commercial (CW-IT)</b>	1500mm – 50m roll	1 roll	153675
	<b>Enviroseal ProctorWrap™ High Tensile Roof (HTS)</b>	1500mm – 50m roll	1 roll	122933
	<b>Thermoseal™ 733</b> Classification – Non-permeable Reflective. Water Classification – High	1350mm – 60m roll	1 roll	86166
	<b>Enviroseal ProctorWrap Hightack Tape</b> – used to seal wall wrap/sarking at overlap joins, around openings and at flashings. Black, single sided, aggressive adhesive tape with a high initial grab and flexible carrier.	60mm x 25m	1 roll	160950
	<b>Enviroseal ProctorWrap SLS Tape</b> – used to seal wall wrap/sarking at overlap joins, around openings and at flashings. Grey, single sided, aggressive adhesive tape with a high initial grab and flexible carrier.	60mm x 25m	36 rolls	124872

## COMPONENTS + ACCESSORIES

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Note: Codes can change from time to time. Refer to the website for the current list of components prior to ordering.

Product	Description	Size/Colour	Quantity	Product Code
<b>INSULATION</b>				
	<b>Bradford Gold Wall Batts</b> – R1.5 (75mm)	1160mm x 430mm 1160mm x 580mm	22 pack 22 pack	113938 113939
	<b>Bradford Gold Wall Batts</b> – R2.0 (HP) (75mm)	1160mm x 420mm 1160mm x 570mm	12 pack 12 pack	153643 153648
	<b>Bradford Gold Wall Batts</b> – R2.5 (90mm)	1160mm x 420mm 1160mm x 570mm	9 pack 9 pack	181430 181471
	<b>Bradford Gold Wall Batts</b> – R2.7 (90mm)	1160mm x 420mm 1160mm x 570mm	5 pack 5 pack	152191 152197
	<b>Sealant</b> – polyurethane. Used to seal control joints, junctions, gaps around windows/doors/other penetrations. Can be painted over with most paints.	310mL tube (GREY)	1 each	11378
		310mL tube (BLACK)	1 each	39488
	<b>Backing Rod</b> – 10mm polyethylene foam bead for insertion to joints prior to enable correct filling of joints with sealant. Also used as an air seal at window openings and construction junctions. The diameter of backing rod must be appropriate for the width of the gap being filled.	10mm diameter x 50m roll	1 each	11177
	<b>Thermal Break</b> – Extruded polystyrene strip with R=0.22. Used with steel stud framing to achieve thermal performance	6mm x 38mm x 1250mm	360 strips	129333
	<b>Bond Breaker Tape</b> – Used behind Balmoral Sheet cladding at sealed joints.	3mm x 30mm x 25m	1 each	195703
	<b>Cemintel Edge Sealer</b> – for sealing panel edges after on-site cutting.	200ml	1 each	100166
		2ltr	1 each	180928
<b>Flashings and Cappings</b> – flashings are to be designed and installed in accordance with SAA-HB39 1997 and good building practice.			Supplied by others	

\* Cemintel Rigid Air Barrier can be made to order. Minimum order quantities and lead times apply. Refer to Cemintel for more information.

**Other Tools**

CSR recommends the use of the following tools in conjunction with appropriate dust reduction methods.

Product	Description	Size	Quantity	Product Code
	<b>Makita Plunge Saw Kit (1300W) includes 1400mm guide rail and bonus 165mm fibre cement saw blade</b> – excellent for cutting cement based sheets	165mm	1	165485
	<b>Makita 165mm Fibre Cement Saw Blade</b> – ideal for use with the Makita Plunge saw and other 165mm circular saws fitted with vacuum extraction systems	165mmx20x4T	1	165486



## SYSTEM ENGINEERING

### Design, Detailing and Performance Responsibilities

Cemintel engages independent testing laboratories to test and report on the performance of a wall in accordance with the relevant Australian Standards. Consultants use these reports as the basis for opinions (estimates of laboratory performance) they issue for variations or different arrangements to the tested system. Using their experience, the consultant will make judgement about on-site installed performance of various walls.

#### Project Consultants (Structural, Fire, Acoustic, Façade etc.)

These consultants are typically responsible for the following:

- Opinions on expected laboratory performance of wall configurations that vary from actual test configuration, such as substitution of products and components;
- Judgements about expected field performance using laboratory test reports and practical experience;
- Design, specification and certification of structural, fire, acoustic, durability, weather tightness and any other required performance criteria for individual projects.

The design and selection of building elements, such as wall and floors and their integration into the building considering the following:

- Interface of different building elements including the structure/substrate;
- Wall and floor junctions;
- Penetrations;
- Flashing issues;
- Room / building geometry; and
- Acoustic and water penetration field-testing.

#### Design Responsibility

Cladding, air barrier, battens and top hats, and structural framing are required to resist wind and earthquake loads that are specific to the building and the site. Additional 'local pressure factors' can apply to cladding and the supporting battens and top hats in accordance with the Australian Standard AS 4055 - Wind loads for housing or AS/NZS 1170.2 - Wind actions. It is recommended that the Architect/Building Designer assigns the responsibility for the façade design to the Project Engineer. Once loads have been determined, the battens and top hat spans, fastener spacing, air barrier construction details, and cladding fixing details may be selected from the appropriate tables in this guide and in the 'Cemintel Facades & Cladding Design Guide'. It is also the responsibility of the Architect / Building Designer to select the appropriate corrosivity category. Refer to appropriate details in this guide.

The performance levels of walls documented in this guide the 'Cemintel Facades & Cladding Design Guide' and CSR Gyprock® The Red Book™ are either what is reported in a test or the documented opinion of consultants. Performance in projects is typically the responsibility of:

#### Project Certifier and/or Builder

These professionals are typically responsible for:

- Identifying the performance requirements for the project in accordance with the BCA and clearly communicating this to the relevant parties;
- Applicability of any performance characteristics supplied by Cemintel including test and opinions for the project.

Cemintel does not provide consulting services. Cemintel provides technical information that has been prepared in consultation with third party subject expert consultants for the presentation of information presented in this guide. This guide may be subject to amendment or change as required or as deemed necessary. The most up to date version of this guide should be referred to and shall be available at the Cemintel website [cemintel.com.au](http://cemintel.com.au).

Any party using the information contained in this guide or supplied by Cemintel in the course of a project must satisfy themselves that it is true, current and appropriate for the application, consequently accepting responsibility for its use.

It is the responsibility of the building designer, architect, engineer and project consultants to ensure that the information and details in this guide and the performance of the Balmoral Weatherboard wall system is suitable for the intended project application.

The recommendations in this guide are formulated along the lines of good building practice but are not intended to be an exhaustive statement of all relevant data.

Cemintel is not responsible for the performance of constructed walls, including field performance, and does not interpret or make judgements about performance requirements in the BCA.

Note: It is the responsibility of the Project Engineer/ Frame Designer to specify the connection of the structural noggings to the structural framing for any off-stud battens or top hats. It is also the responsibility of the project engineer to calculate the wind loads and earthquake loads for the cladding, air barrier and support framing of the façade on a project.

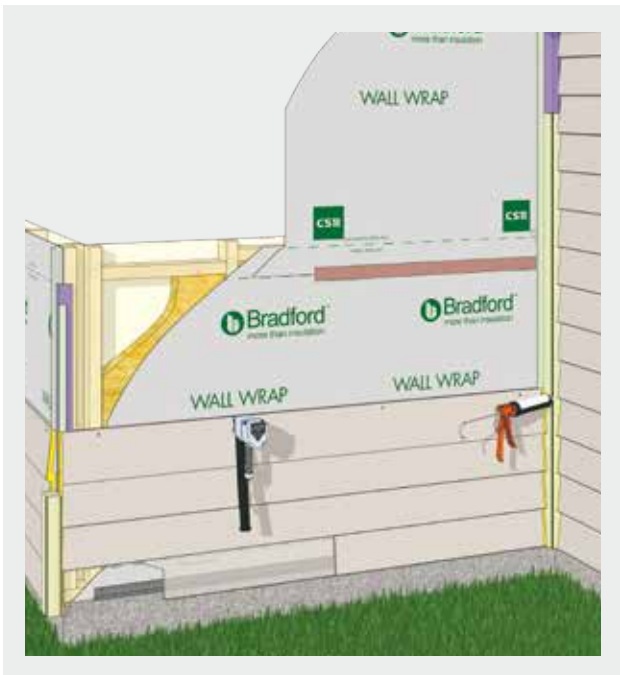
## SYSTEM ENGINEERING



## Direct Fix and Cavity System

### Fixing Balmoral Weatherboard Cladding to Framing

**FIGURE 6.01** Balmoral Direct Fix Cladding



**FIGURE 6.02** Cemintel Non-Structural Timber Batten Installation



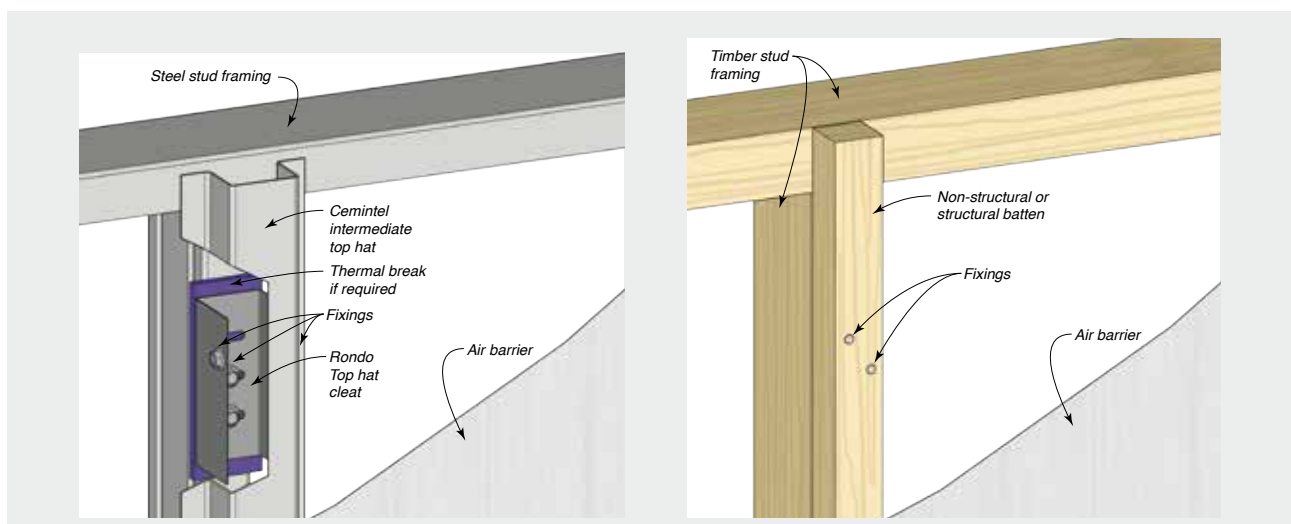
## Cavity Fix Timber Battens and Top Hat Arrangements

### Batten 'On-Stud' Fixing for Cavity construction.

Structural and non-structural timber battens and top hats may be fixed 'on-stud' to the stud of the structural wall framing designed from MGP10 or higher grade timber framing, or a minimum 0.75mm BMT steel framing. The battens and top hats should be arranged to not restrict the structural movement of the wall framing.

The stud frame walls designed to meet the structural requirements of the project, need to be designed to also support the Balmoral Weatherboard cladding and associated battens and top hats.

**FIGURE 6.03** Structural Timber Battens and Steel Top Hats Fixed to Studs of the Structural Framing – 'On-Stud' Fixing





## SYSTEM ENGINEERING

### Design Tables

**TABLE 6.01** Maximum Stud/Batten Spacing for Fixing Balmoral Weatherboard Cladding - RESIDENTIAL (Class 1 and Class 10)

NOTE: This table applies to the fasteners to direct fix the cladding to MGP10 timber or steel framing, or through the non-structural battens (Cemintel® FC Batten and MGP10 timber battens) to the framing studs, or to the structural top hats fixed to framing studs or support framing. Note, the non-structural battens only require a nominal fixing to hold in-place during the cladding installation.

Frame Type	Fastener Type	Wind Classification	Balmoral Weatherboard			
			150mm		180mm	
			General Zone ①	Corner Zone ②	General Zone ①	Corner Zone ②
Timber	A	N1	600	600	600	600
		N2	600	600	600	600
		N3/C1	600	450	600	450
		N4/C2	600	300	450	300
		N5/C3	450	N/A	300	N/A
	B	N1	600	600	600	600
		N2	600	600	600	600
		N3/C1	600	600	600	600
		N4/C2	600	450	600	450
		N5/C3	600	300	600	300
Steel	C	N1	600	600	600	600
		N2	600	600	600	600
		N3/C1	600	600	600	600
		N4/C2	600	450	600	300
		N5/C3	600	300	450	N/A

① GENERAL ZONES – Wall areas greater than 1200mm from an External Building Corner for Buildings satisfying the AS 4055 geometry limits..

② ORNER ZONES – Wall areas less than 1200mm from an External Building Corner for Buildings satisfying the AS 4055 geometry limits.

The tongue and groove end joint is NOT permitted in the Corner Zones and can be located anywhere within General Zones.

NOTE: Loads based on AS 4055 with Factored external pressure coefficient,  $k_1 C_{p,e} = -1.3$  &  $\pm 0.7$

N/A – denotes the Balmoral panel or panel fastener is governing the design and a solution is 'Not Applicable'

**TABLE 6.02** Fastener Types for Fixing Balmoral Weatherboard Cladding

NOTE: This table applies to the fasteners to direct fix the cladding to MGP10 timber or steel framing, or through the non-structural battens (Cemintel® FC Batten and MGP10 timber battens) to the framing studs, or to the structural top hats fixed to framing studs or support framing. Note, the non-structural battens only require a nominal fixing to hold in-place during the cladding installation.

Frame Type	Fastener Type	Fastener Description
Timber	A	40mm Clout/50mm Paslode - direct fixed cladding to MGP10 timber framing 65mm Paslode - cladding over 20mm maximum non-structural battens fixed to MGP10 timber framing
	B	65mm Paslode - direct fixed cladding to MGP10 timber framing
Steel	C	8g x 42mm Scrooz - direct fixed cladding to 0.55mm BMT G550 steel framing
		8g x 35mm Wingtek - direct fixed cladding to 0.75mm BMT G2 steel framing
		10g x 55mm Wingtek - direct fixed cladding to 0.75mm BMT G2 steel framing
		10g x 75mm Wingtek - cladding over 20mm maximum non-structural battens fixed to 0.75mm BMT G2 steel framing

## SYSTEM ENGINEERING

**TABLE 6.03** Maximum Stud/Batten Spacing for Fixing Balmoral Weatherboard Cladding

NOTE: This table applies to the fasteners to direct fix the cladding to MGP10 timber or steel framing, or through the non-structural battens (Cemintel® FC Batten and MGP10 timber battens) to the framing studs, or to the structural top hats fixed to framing studs or support framing. Note, the non-structural battens only require a nominal fixing to hold in-place during the cladding installation.

Frame Type	Fastener Type	Design Wind Capacity (kPa)	Balmoral Weatherboard	
			150mm	180mm
Timber	A	1.0	600	600
		1.5	600	450
		2.0	450	300
		2.5	300	300
		3.0	300	N/A
		3.5	300	N/A
		4.0	N/A	N/A
		4.5	N/A	N/A
		5.0	N/A	N/A
	B	1.0	600	600
		1.5	600	600
		2.0	600	600
		2.5	600	450
		3.0	450	450
		3.5	450	300
		4.0	300	300
		4.5	300	300
		5.0	300	N/A
Steel	C	1.0	600	600
		1.5	600	600
		2.0	600	600
		2.5	600	450
		3.0	450	300
		3.5	450	300
		4.0	300	300
		4.5	300	N/A
		5.0	300	N/A

**TABLE 6.04** Fastener Types for Fixing Balmoral Weatherboard Cladding

NOTE: This table applies to the fasteners to direct fix the cladding to MGP10 timber or steel framing, or through the non-structural battens (Cemintel® FC Batten and MGP10 timber battens) to the framing studs, or to the structural top hats fixed to framing studs or support framing. Note, the non-structural battens only require a nominal fixing to hold in-place during the cladding installation.

Frame Type	Fastener Type	Fastener Description
Timber	A	40mm Clout/50mm Paslode - direct fixed cladding to MGP10 timber framing 65mm Paslode - cladding over 20mm maximum non-structural battens fixed to MGP10 timber framing
	B	65mm Paslode - direct fixed cladding to MGP10 timber framing
Steel	C	8g x 42mm Scrooz - direct fixed cladding to 0.55mm BMT G550 steel framing
		8g x 35mm Wingtek - direct fixed cladding to 0.75mm BMT G2 steel framing
		10g x 55mm Wingtek - direct fixed cladding to 0.75mm BMT G2 steel framing
		10g x 75mm Wingtek - cladding over 20mm maximum non-structural battens fixed to 0.75mm BMT G2 steel framing

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## INSTALLATION

**CHECKLIST – Prior to Installation**

**The following pre-install checklist may assist with ensuring you have the best possible outcome when installing the Balmoral Weatherboard cladding.**

- Ensure substrate is structurally sound and square. Balmoral Weatherboards cannot compensate for excessively misaligned framing and may show an uneven surface. Cemintel recommends that alignment should be within 4mm over 3000mm (3mm over 1200mm or 2mm over 600mm when checked both horizontally and vertically). Pack frame to straighten if necessary (timber frames as per AS 1684, steel frames as per AS/NZS4600). **Check with certifier or building certifier regarding packing materials.**
- Confirm bracing is in place. Where sheet bracing is used behind weatherboards, the entire wall area needs to be braced or bracing sheet packers fixed to the frame to ensure a uniform fixing plane.
- Ensure studs and noggings are correctly located and of the appropriate width (Refer to “Design + Aesthetic Considerations” and tables in “System Engineering” section).
- Install additional studs, trimmers and noggings to support sheet edges, battens and top hats, prior to installation of the wall wrap.
- Install additional studs at control joints.
- Remove any concrete that may foul the cladding line, particularly at steps in slabs and isolated columns.
- Ensure there is adequate ground clearance to the bottom edge of the Balmoral Weatherboard, as per regulatory requirements (including for water/rain runoff and termite management). These can vary from 20-150mm depending on type of ground and termite requirements.
- Confirm your weatherboard layout to determine the location of joints and identify whether additional studs are required.
- Confirm the chosen eaves and soffit details and prepare accordingly. Ensure cavity blocking has been installed in the stud, roof and floor framing.
- Arrange for a pre-cladding inspection by the appropriate local building authority if required.
- Confirm total system wall thickness and ensure that project door / window reveals, trims and flashings have been correctly specified and detailed by the designer, builder or relevant project consultant



Check quality and quantity of weatherboards and components before installing. If there is any sign of damage or visible defects in weatherboards, or the colour/finish is not in keeping with the owners' aesthetic requirements DO NOT INSTALL. Contact Cemintel to address any issues.



## INSTALLATION

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## Installation Considerations

Balmoral Weatherboard cladding is installed using a Starter Strip or packing strip. Starter strip is installed horizontally and fixed to frame at 600mm maximum centres. Weatherboards should be fixed to steel or timber framing using the appropriate fasteners. The Starter strip is typically fixed to the base plate of stud walls fixed to concrete ground slabs, allowing the panel to overhang the slab edge.

Begin fixing first weatherboard at an external corner, ensuring the panel is flush with the corner trim, allowing a 3-10mm gap to be filled with sealant. Position the panel over the starter strip with the bottom edge 45mm below the starter strip with 150mm weatherboards and 50mm below with 180mm weatherboards. Fix the weatherboards at each stud location 25mm down from the top edge of the weatherboard. Refer to the 'Construction Drawings + Details' section.

Continue the first row of weatherboards around the perimeter of the building and use a level to maintain alignment of the first row.

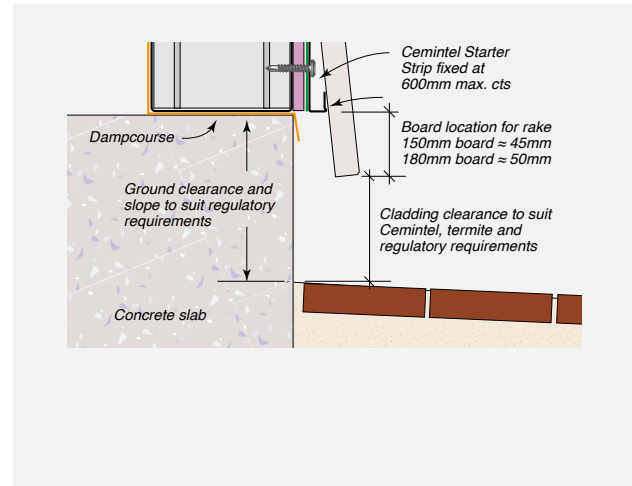
Begin the second row with an off-cut to ensure that the joints are staggered along the wall. Lap the bottom edge of the weatherboards a minimum of 30mm over the lower weatherboard. Fix the top of each weatherboard with a flush finishing nail or screw fixing and check the rows for level, or by using the Balmoral Weatherboard Set-out tool shown, see Figure 7.02.

Fasteners should be located 50mm minimum from weatherboard ends. Pre-drill fixing holes where weatherboards have been width cut to less than 100mm to suit fitting around openings.

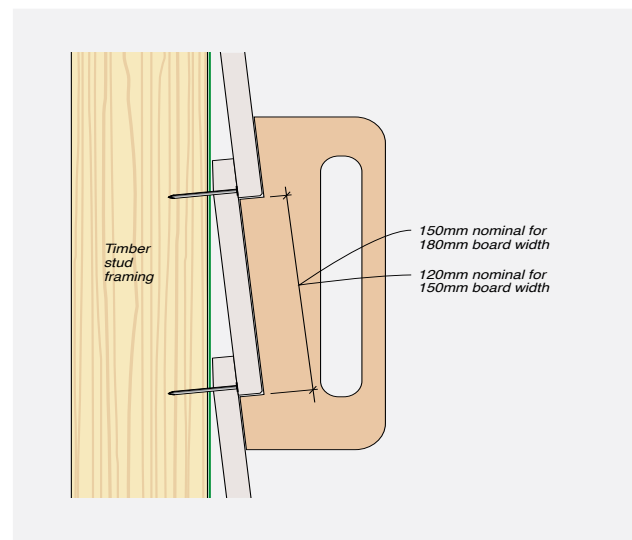
Continue fixing successive weatherboards working up the wall.

Refer to the 'Construction Drawings + Details' section of this guide for information on the joints, corners, windows and nail fixing.

**FIGURE 7.01** Typical Screw Fixing Direct to Steel Studs Over Thermal Break



**FIGURE 7.02** Balmoral Weatherboard Set-out



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## INSTALLATION

**Tongue and Groove Vertical Joints**

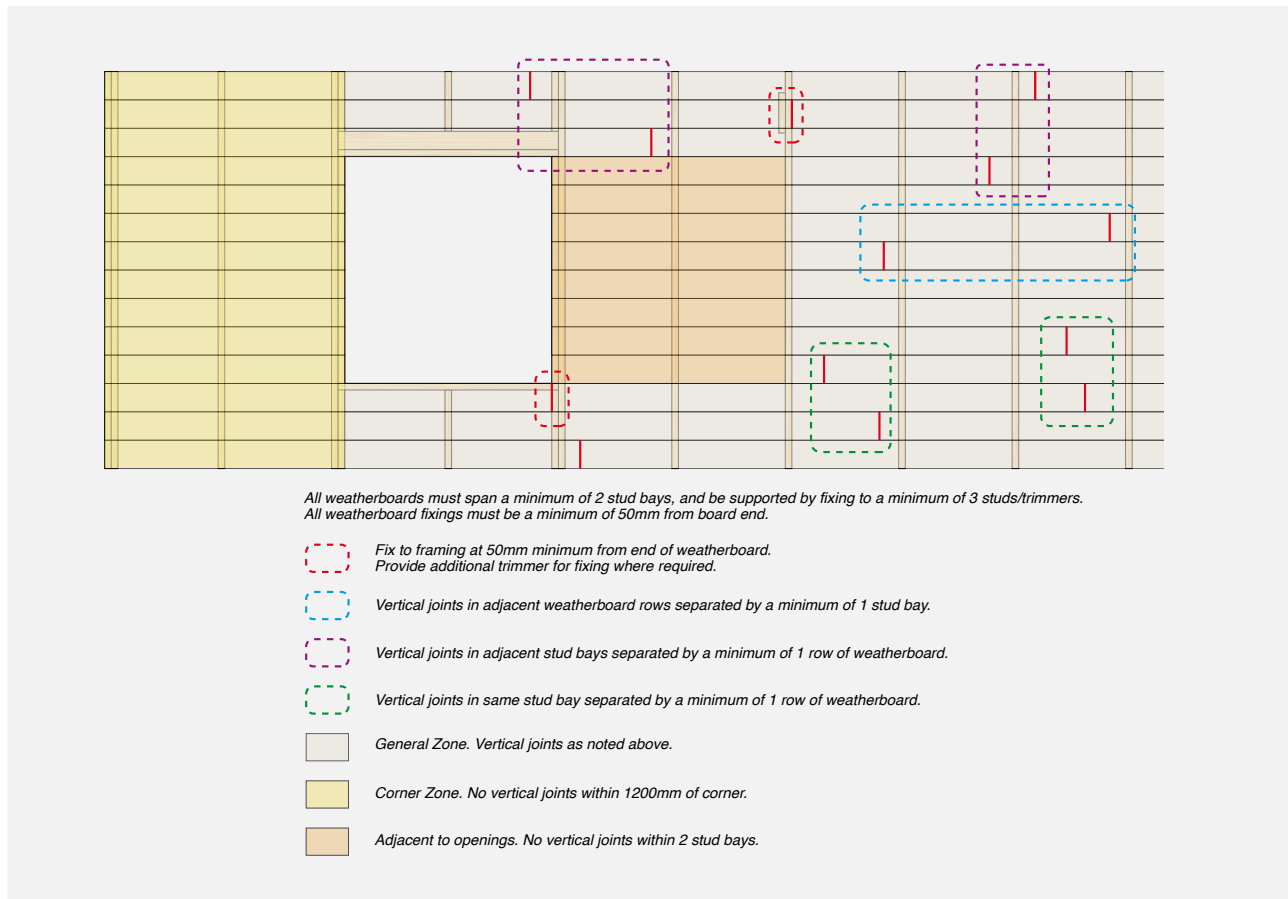
Balmoral Weatherboard ends have a tongue or groove profile at either end that joins the weatherboards, prevents differential movement and maintains a flat surface finish. The tongue and groove end joint of the Balmoral Weatherboard allows the joints to be located anywhere between studs.

Plan Balmoral Weatherboard horizontal layout so that wherever possible, full length weatherboards are used. Ensure vertical end joints are formed with the tongue and groove profiles and sealant is provided at the rear of the joint. See Figure 7.11.

Weatherboard vertical end joints should be located randomly throughout the wall to reduce visual impact. When located in the same stud bay or adjoining stud bay, shall be separated by at least 1 row of weatherboards. Vertical joints in adjacent weatherboard rows must be separated by 1 stud bay. See Figure 7.03.

All weatherboards must span across minimum two stud bays supported by fixings to 3 studs. Refer to Figure 7.03.

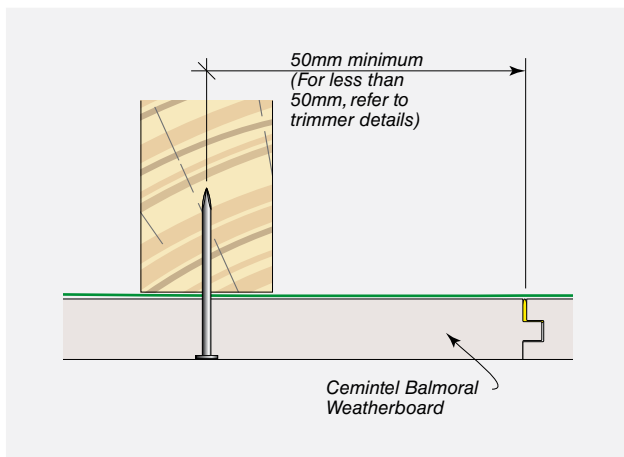
**FIGURE 7.03** Acceptable Arrangements for Vertical Joint Locations



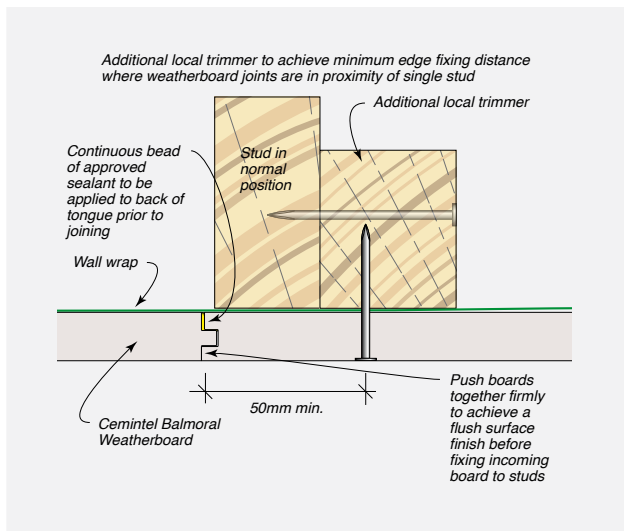
### Edge Distance Fixing Details

Where joints are located near a stud, ensure minimum 50mm edge distances are maintained. Joints formed on a stud may require additional framing to allow sufficient edge distances for fixings. See Figures 7.04, 7.05 & 7.06.

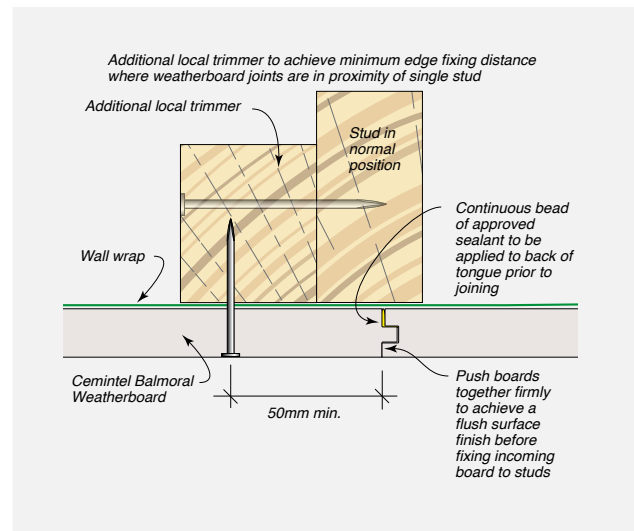
**FIGURE 7.04** Typical Vertical Joint Between Studs



**FIGURE 7.05** Typical Vertical Joint Aligned to Timber Stud with Local Trimmer



**FIGURE 7.06** Typical Vertical Joint Aligned to Timber Stud with Local Trimmer



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## INSTALLATION

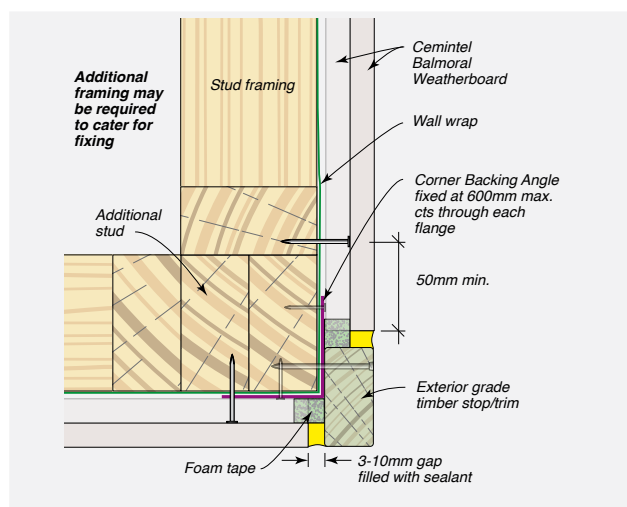
**Corner Detail**

Angle flashing must be used at all internal and external corners over wall wrap to ensure good weatherproofing performance and for high wind load locations.

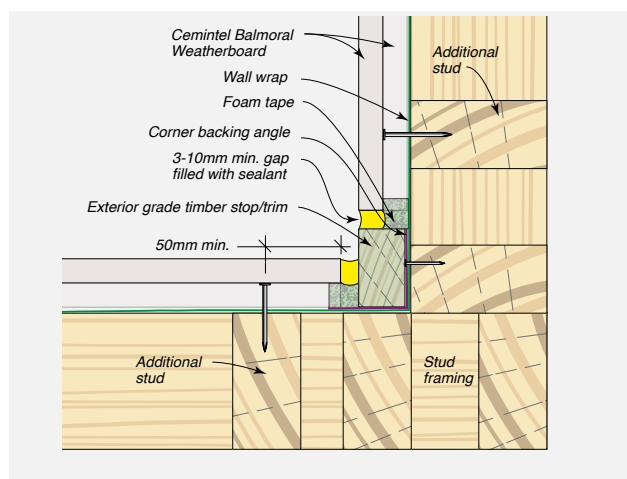
Timber mouldings must be installed prior to the fixing of weatherboards. Internal and external corners can be finished by butting weatherboards to timber mouldings.

Allow a 3 to 10mm gap between ends of weatherboards and timber trims and fill gap with foam backing strip and sealant.

**FIGURE 7.07** Typical External Corner with Timber Stop



**FIGURE 7.08** Typical Internal Corner with Timber Stop

**Windows**

Plan weatherboard layout so that, where possible, a full width weatherboard occurs above and/or below openings. If a weatherboard has been reduced in width, provide a cut joint to at least one side of the opening or either side of opening where weatherboard width is reduced below 100mm. Fill joint with approved sealant. Refer to Figure 7.09.

When a window or door opening exceeds 1800mm width, it is necessary to have a joint above and below the opening for both full and reduced width weatherboards to allow for movement. Refer to Figure 7.09.

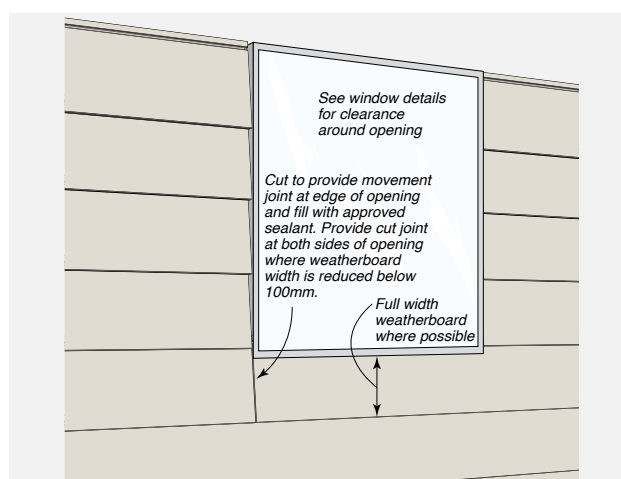
Balmoral Weatherboards (lap projection of approximately 35mm) are generally too thick to fit into the external flange of most residential aluminium window suites.

An aluminium window trim accessory should be fitted to the window perimeter prior to fitting the weatherboards and trim covers at the ends of weatherboards that butt to the window frame will provide a neat finish. The window trim should be screwed to the window reveal.

Windows can be “trimmed” with a timber moulding, such as, H3 primed LOSP. The timber moulding is fitted to the window perimeter first, and weatherboards butted to the moulding. This provides a flush detail without unsightly spider holes. Double stud arrangement adjacent to the opening is required.

These trim options are also suited to other openings for hinged, sliding and garage doors. All openings should be suitably flashed prior to the fixing of Balmoral Weatherboard cladding. Allow a 3 to 10mm gap between ends of weatherboards and timber trims and fill gap with foam backing strip and sealant.

**FIGURE 7.09** Typical Weatherboard Joint at Window Opening



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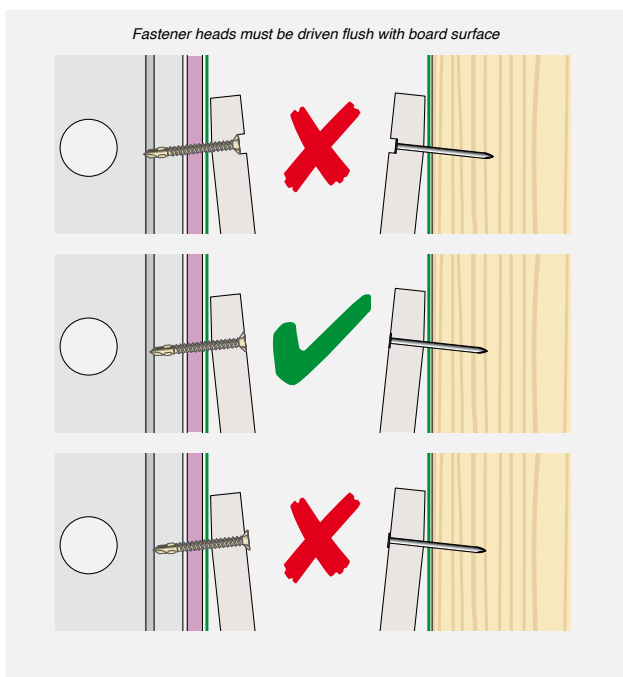
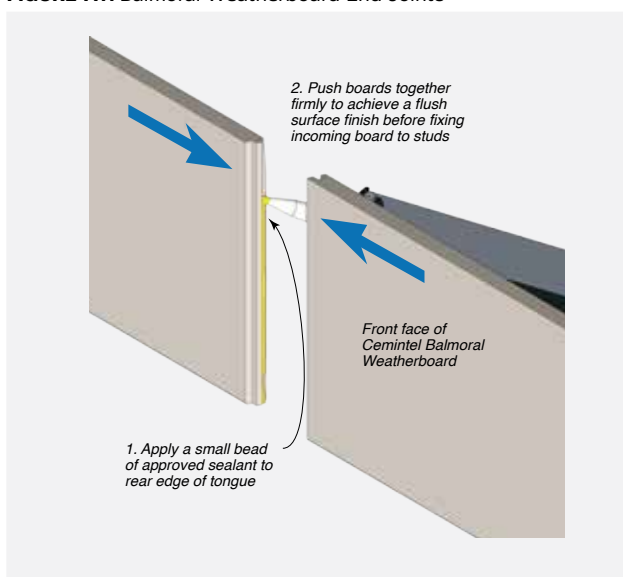
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**Nail Fixing**

Balmoral Weatherboard cladding is intended to have a concealed fixing system. This is achieved via installing the fixing nominally 25mm from the top long edge of the weatherboard. Weatherboards may be fixed via either hand nailing or nail gun.

For gun nailing use nails of 50mm minimum length and 2.87mm minimum diameter. Ensure nails meet the durability requirements for the application.

Where framing irregularities cause a gap between weatherboards at the lap, additional face nailing with a bullet head nail may be a useful option for affected areas.

**FIGURE 7.10** Fastener Embedment**FIGURE 7.11** Balmoral Weatherboard End Joints**Base Details**

Balmoral Weatherboards must overlap slab edges and footings and must be kept clear of the ground. Refer to base details in “Construction Drawings + Details”.

In addition to regulatory requirements (i.e., termite risk management, surface water drainage, etc.), CeminTel requires cladding clearances of:

- 20mm minimum to a paved surface;
- 100mm minimum to an unpaved surface.

**Cavity Flashing / J-track Cavity Closer**

The cavity flashing and J-track provide a barrier to vermin and drafts from the cavity, while allowing moisture to freely escape. Provide vermin proof any gaps formed between Starter strip, J-track, cavity flashing, packing or wall wrap components. At corners of the building, the flashing must be mitred and/or sealed to prevent wind and water from being driven behind the sheeting. When building in bushfire prone areas the installation of corrosion resistant steel or bronze mesh screening may also be required as per AS 3959.

**Structural Framing – Direct Fix and Cavity Systems**

Timber or steel stud framing is to be designed in accordance with the relevant standards, and maximum stud spacing is to be as shown in the design tables in ‘Systems Engineering’ section.

Double studs are required at the sides of openings and additional studs should be installed at internal corners to maintain minimum edge distance fixing requirements. Battens must also be provided at the sides of openings for support and fixing of head reveals. Refer to the ‘Construction Drawings + Details’ section.

For Cavity Fix installation, 18-20mm vertical battens are to be fixed to each stud with screws or nails spaced to temporarily hold battens in position. Where screws are used to fix timber

or CeminTel FC battens, it may be helpful to predrill and countersink battens so that screw heads don’t impact with the weatherboards.

Fixing of Balmoral Weatherboards shall be provided through the batten and into the stud frame with appropriate length fixings as notes in the ‘Systems Engineering’ section of this guide.

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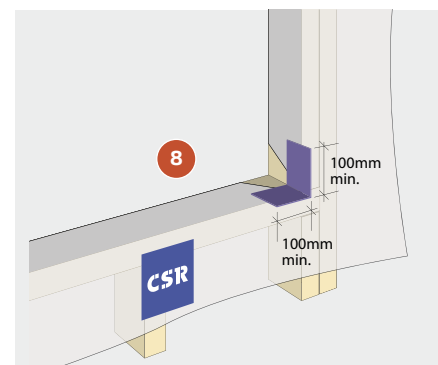
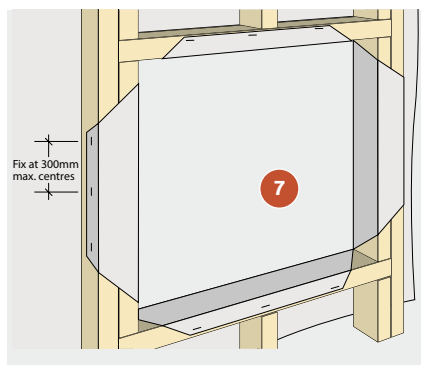
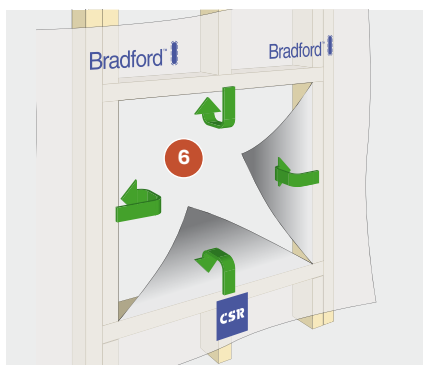
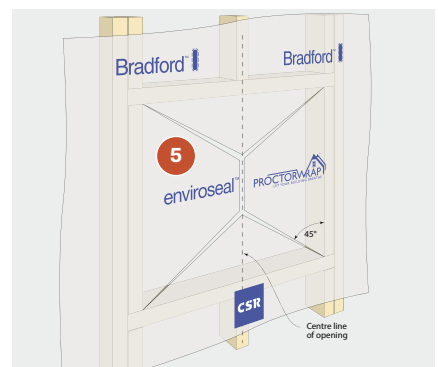
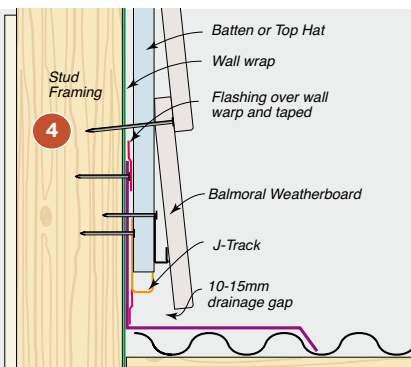
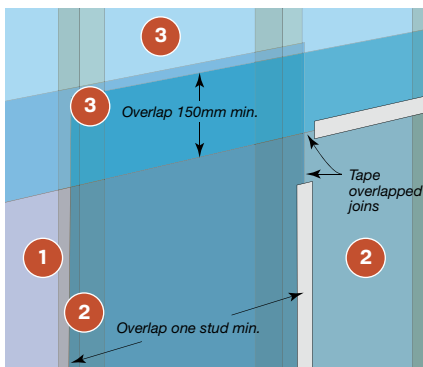
## INSTALLATION

### Installation of Wall Wrap

Whilst the requirement to seal joins and penetrations of the wall wrap may vary depending upon BCA and/or state requirements, CSR recommends sealing the external wall wrap/sarking to maintain vapour performance and draught proofing effectiveness, as well as to ensure water barrier

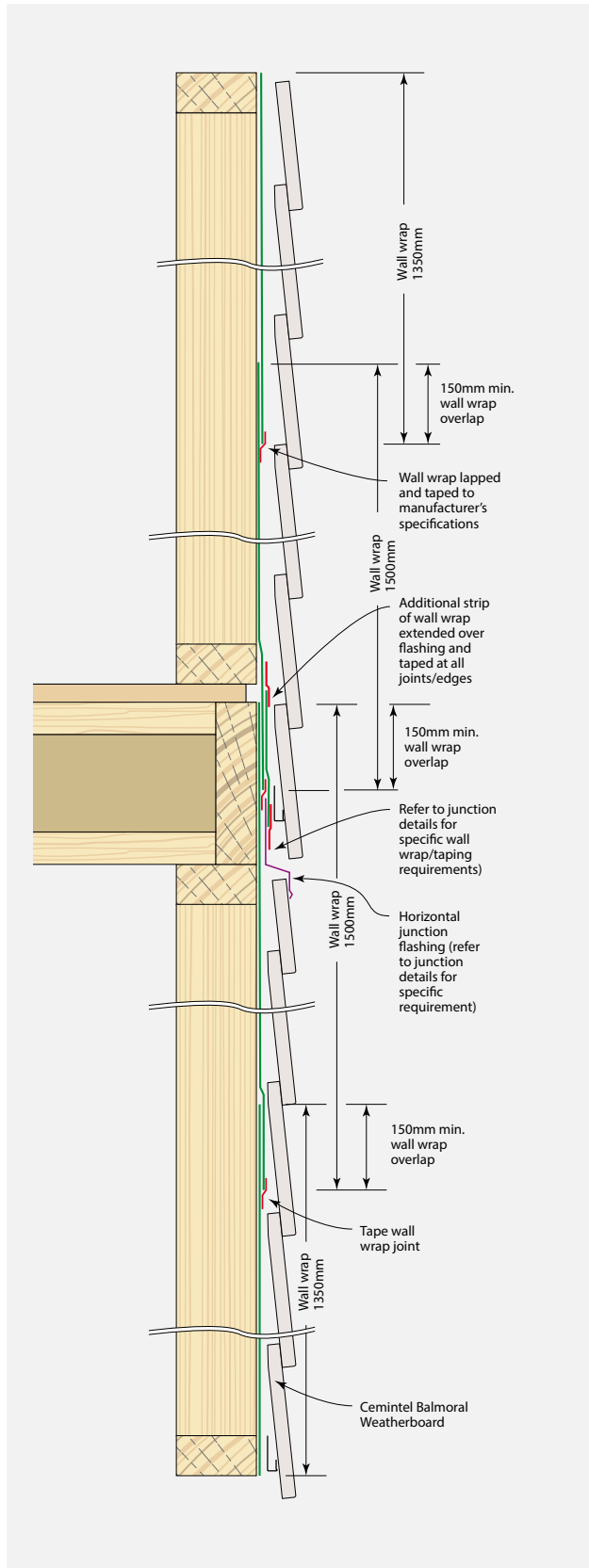
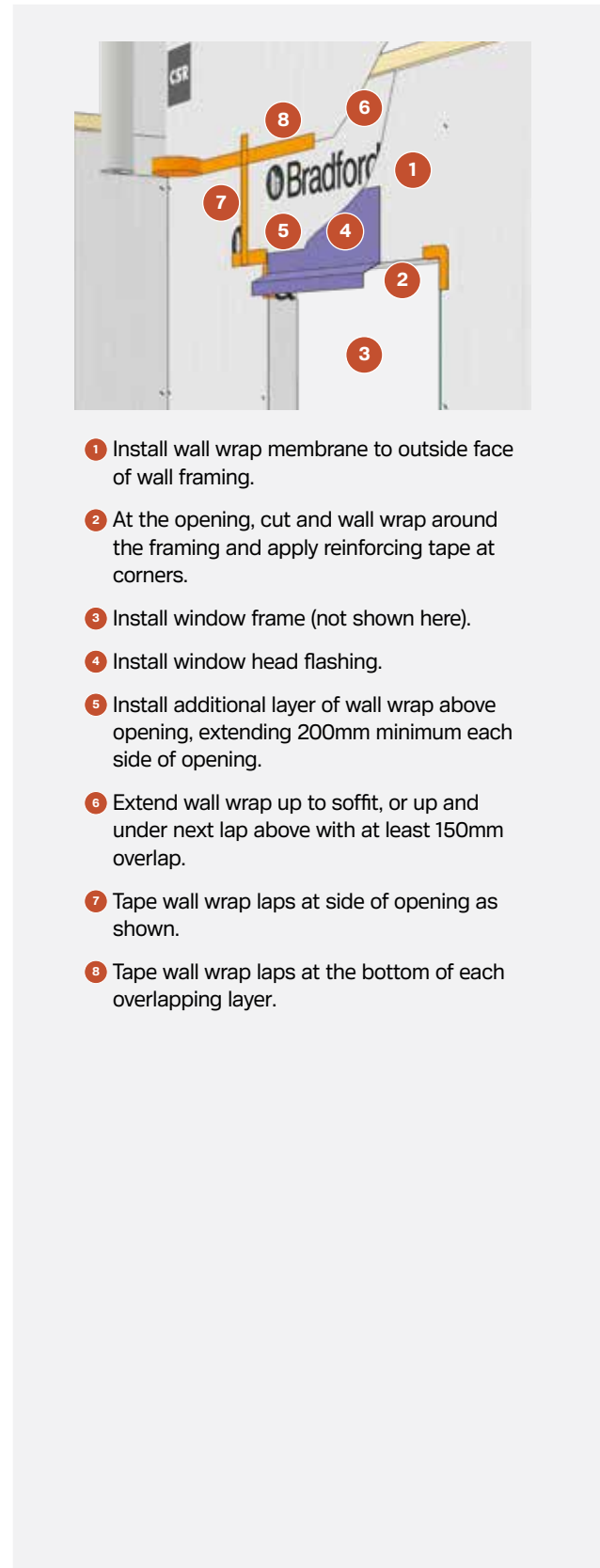
integrity. If the wall wrap membrane is used to provide a continuous air tight layer, all overlaps should be sealed, and the membrane installed in accordance with the construction detailing in the Cemintel Air Barriers – Design and Installation Guide.

- 1 Install wall wrap/sarking membrane to outside face of wall framing. Temporary fixing of wall wrap to framing may be by double sided tapes or other approved methods. Refer to the wall wrap manufacturer's specifications.
- 2 Vertical laps (including corners) should overlap by one stud spacing minimum and should be staggered between adjacent layers.
- 3 Upper layers should overlap lower layers by 150mm minimum to ensure that water is always shed towards the outside of the membrane and building.
- 4 Horizontal flashings such as at the head of doors and windows, horizontal storey junctions and at the wall base (when used) require special treatment to ensure water is always shed towards the outside. Refer to appropriate junction details for specific requirements.
- 5 At openings, slit the wall wrap at 45 degrees from each corner to the centreline. Slit the centreline to open the wrap.
- 6 Wrap the tabs around the framing.
- 7 Fix wall wrap to the rear of the framing with staples at 300mm maximum centres.
- 8 Apply Enviroseal ProctorWrap tape to the corners of openings.
- 9 Wipe tape over the frame edge onto the face of the wall wrap.



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**FIGURE 7.12** Typical Wall Wrap Layout for Two-Storey Framing**FIGURE 7.13** Typical Double Layer Wall Wrap Over Openings – Direct Fix System

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## INSTALLATION

**Installation – Direct Fix System****Installation CHECKLIST – Framing – Direct Fix System**

- All non-tongue and groove joints must be supported by a framing member, and all ends must be supported at openings and perimeters. Add extra framing members as required.
- Balmoral Weatherboard cladding to be orientated horizontally.
- Plan weatherboard layout so that wherever possible, full length weatherboards are used. Ensure vertical end joints are formed with the tongue and groove profiles and the vertical joints are offset and separated by at least 1 row of weatherboards when located in the same stud bay or where they are fixed in adjoining stud bays. Vertical joints in adjacent weatherboard rows separated by a minimum of 1 stud bay. See Figure 7.03.
- For stud locations that do not allow the minimum edge distances of the fasteners at cladding joints provide an additional stud or trimmer to achieve the minimum support width.
- For steel framing, add a thermal break between all framing and battens that support the cladding as required.
- Continue with Balmoral Weatherboard installation as for direct fix system details for fixing the Balmoral Weatherboard cladding.
- Refer to the “Systems Engineering” section for fixing requirements.

**Installation SEQUENCE – Balmoral Weatherboards – Direct Fix System**

- 1 Ensure framing is installed and aligned to system specifications.
- 2 Install wall wrap. Refer to flashing requirements.
- 3 Install tape to ALL joints in the wall wrap membrane.
- 4 Install starter strip at the base of the wall.
- 5 Prepare corner details to chosen specification.
- 6 Prepare head and base details to chosen specification.
- 7 Fix Balmoral Weatherboard cladding to system specifications. Pre-drill weatherboards for fixings as required.
- 8 Install additional weatherboards, following the installation sequence.
- 9 Prepare and apply external finish as per specification requirements.





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**Installation – Cavity System****Installation CHECKLIST – Framing – Cavity System**

- All non-tongue and groove joints must be supported by a framing member, and all ends must be supported at openings and perimeters. Add extra framing members as required.
- Balmoral Weatherboard cladding to be orientated horizontally.
- Plan weatherboard layout so that wherever possible, full length weatherboards are used. Ensure vertical end joints are formed with the tongue and groove profiles and the vertical joints are offset and separated by at least 1 row of weatherboards when located in the same stud bay or where they are fixed in adjoining stud bays. Vertical joints in adjacent weatherboard rows separated by a minimum of 1 stud bay. See Figure 7.03..
- Install vertical timber or fibre cement battens, or steel top hats to structural stud framing.
- Battens to be fixed on-stud with the temporary fasteners. For off-stud batten/top hat locations suitably designed framing supports must be provided behind each fixing point of the batten. Refer to Cemintel Facades and Cladding Design Guide for further information of off-stud battens fixing requirements.
- Ensure adequate drainage is provided at horizontal surfaces to prevent moisture ponding.
- Continue with Balmoral Weatherboard installation as for direct fix system details for fixing the Balmoral Weatherboard cladding.
- Refer to “System Engineering” section for fixing requirements.

**Installation SEQUENCE – Balmoral Weatherboards – Cavity System**

- 1 Ensure framing is installed and aligned to system specifications and appropriate framing is in-place to accept on-stud and/or off-stud battens.
- 2 Install wall wrap. Refer to flashing requirements.
- 3 Install tape to ALL joints in the wall wrap membrane.
- 4 Install starter strip at the base of the cavity.
- 5 Install non-structural battens to the face of studs, or structural battens/top hats to structural framing.
- 6 Prepare corner details to chosen specification.
- 7 Prepare head detail to chosen specification.
- 8 Fix Balmoral Weatherboard cladding to system specifications. Predrill weatherboards for fixings as required.
- 9 Install additional weatherboards, following the installation sequence.
- 10 Complete corner, head and soffit details as required.
- 11 Prepare and apply external finish as per specification requirements.





## CONSTRUCTION DRAWINGS AND DETAILS

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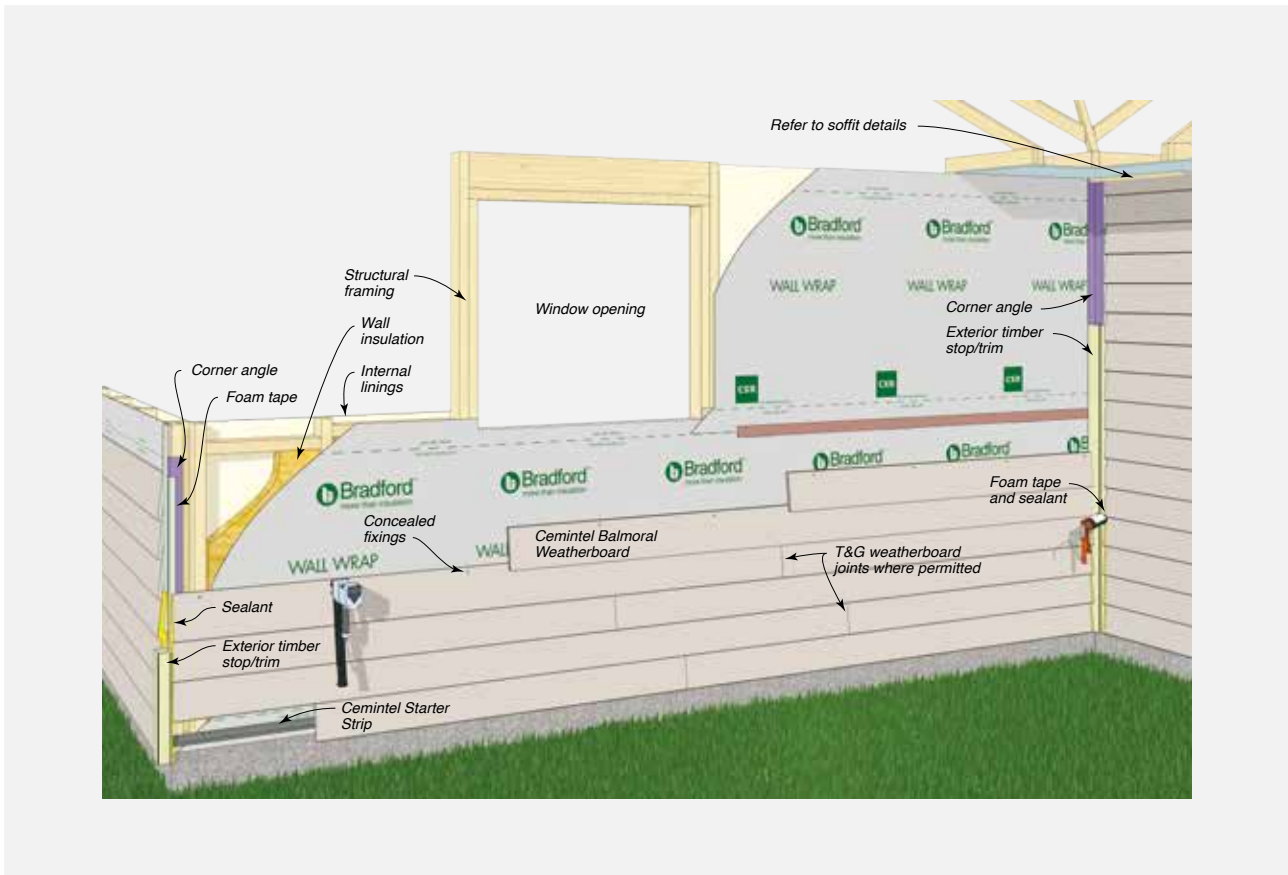
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	Typical Nail Fixing Direct to Timber Studs – On-Slab	8.04	28
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## CONSTRUCTION DRAWINGS AND DETAILS



## Direct Fix

FIGURE 8.01 Typical Balmoral Weatherboard Installation – Direct Fixed to Framing

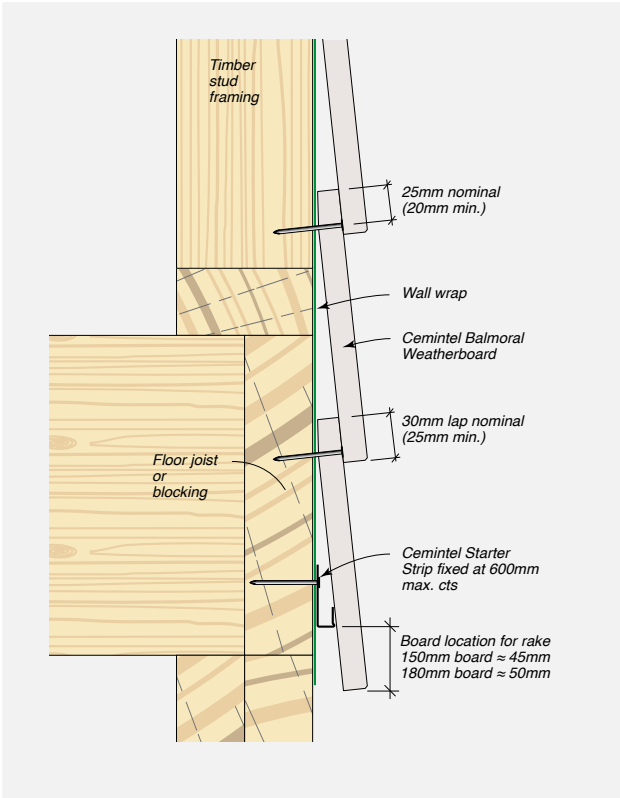




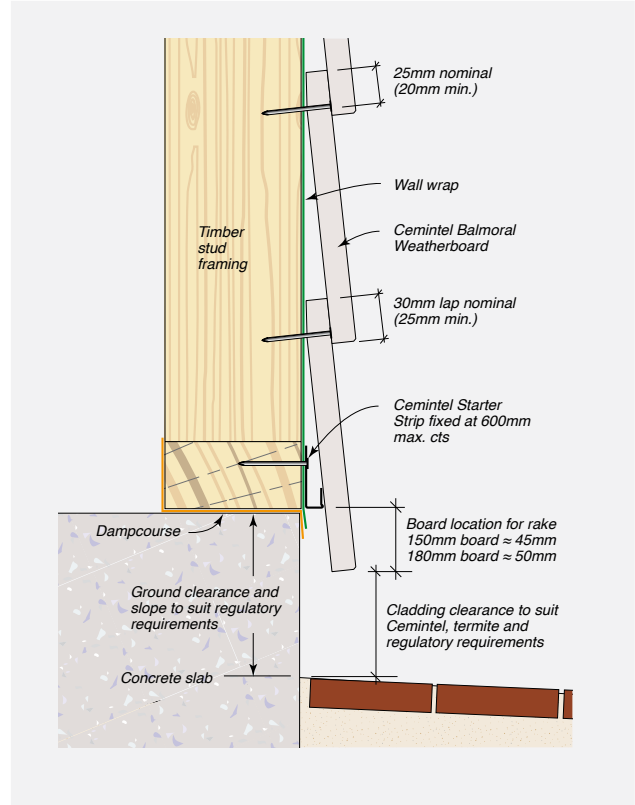
## CONSTRUCTION DRAWINGS AND DETAILS

### Direct Fix

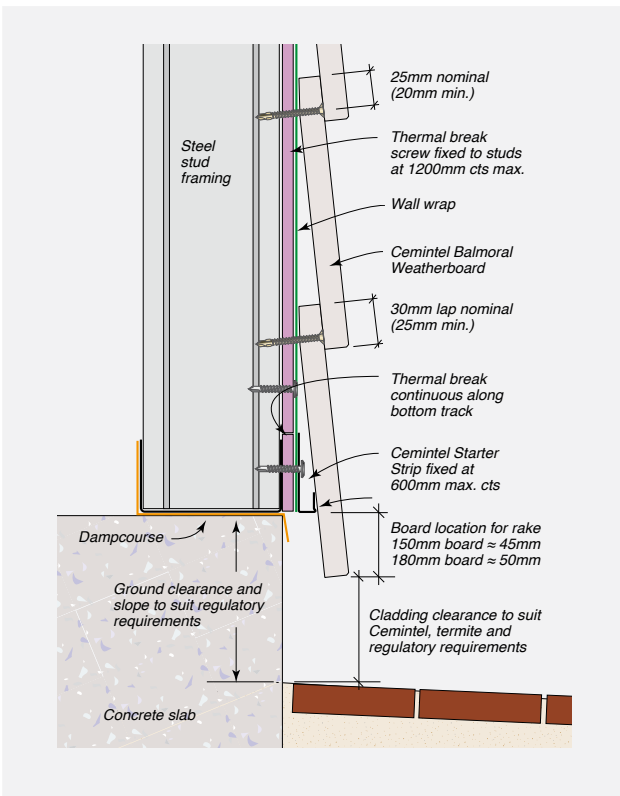
**FIGURE 8.02** Typical Nail Fixing Direct to Timber Studs



**FIGURE 8.04** Typical Nail Fixing Direct to Timber Studs – On-Slab



**FIGURE 8.03** Typical Screw Fixing Direct to Steel Studs Over Thermal Break

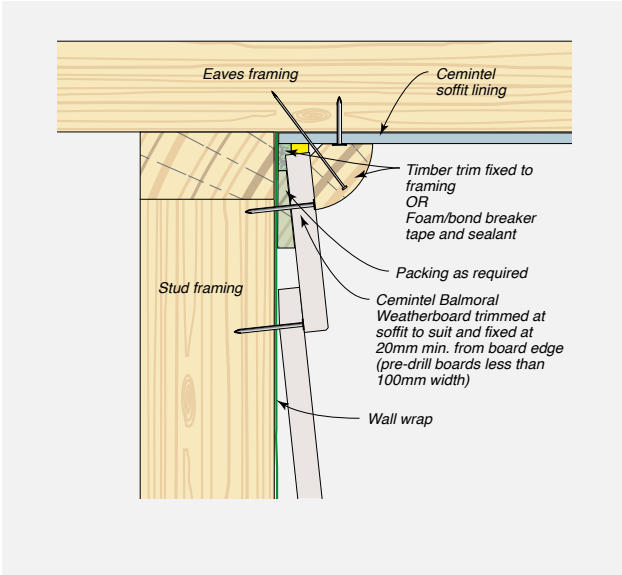


CONSTRUCTION DRAWINGS AND DETAILS

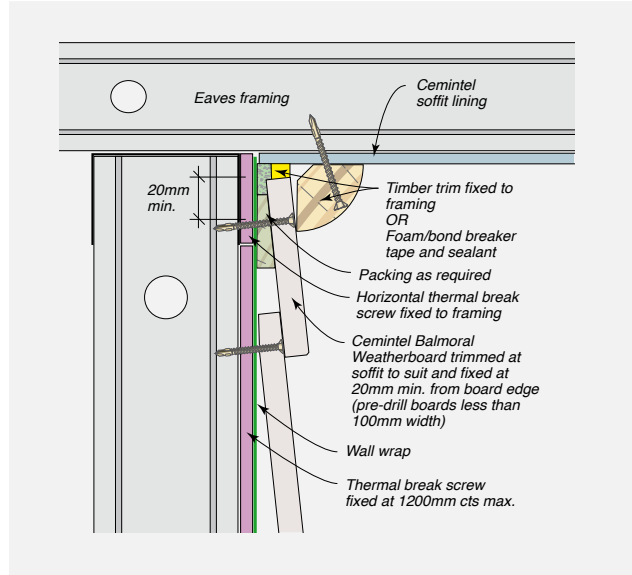


Direct Fix

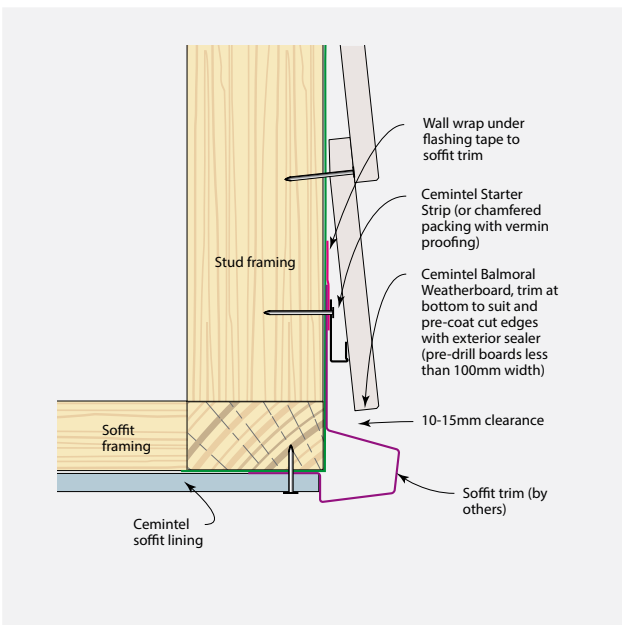
**FIGURE 8.05** Typical Head/Eaves with Timber Trim or Sealant – Timber Framing



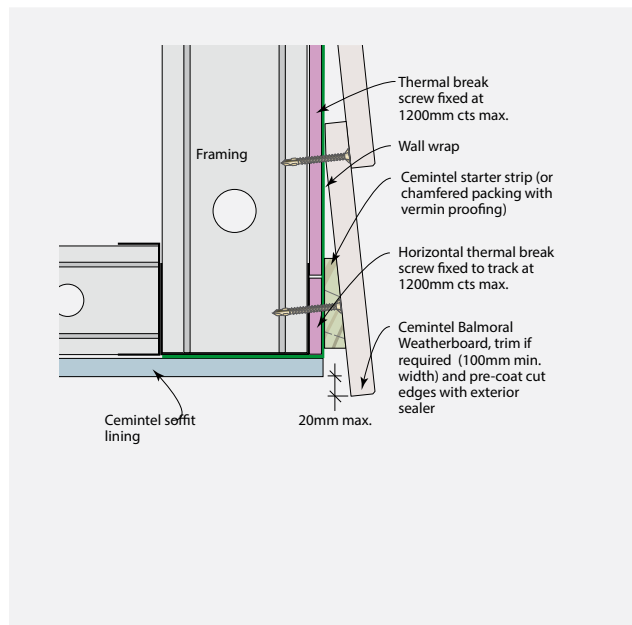
**FIGURE 8.06** Typical Head/Eaves with Timber Trim or Sealant – Steel Framing



**FIGURE 8.07** Typical Soffit With Metal Trim



**FIGURE 8.08** Typical Soffit Without Trim

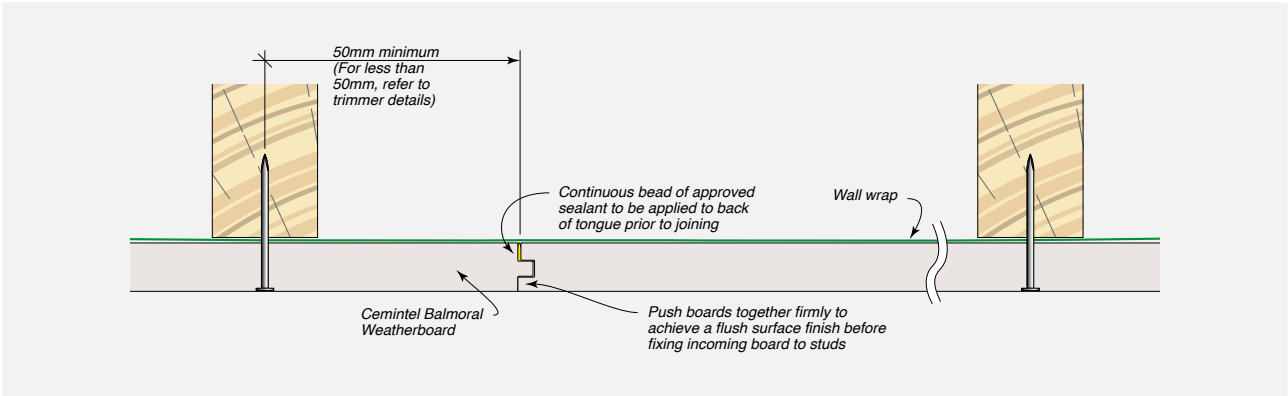




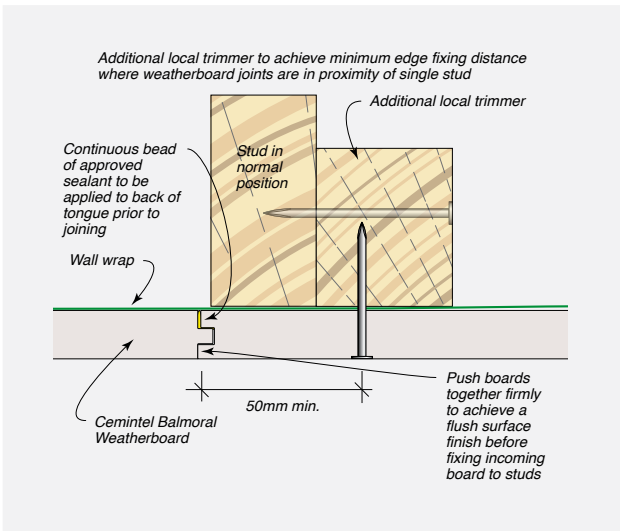
## CONSTRUCTION DRAWINGS AND DETAILS

### Direct Fix

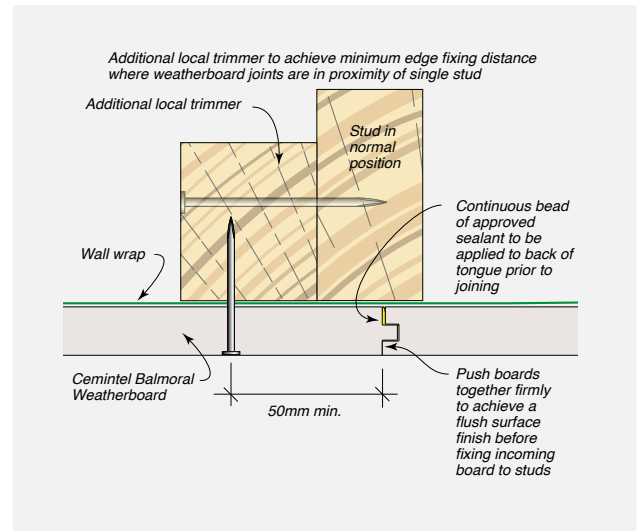
**FIGURE 8.09** Typical Vertical Joint Between Studs



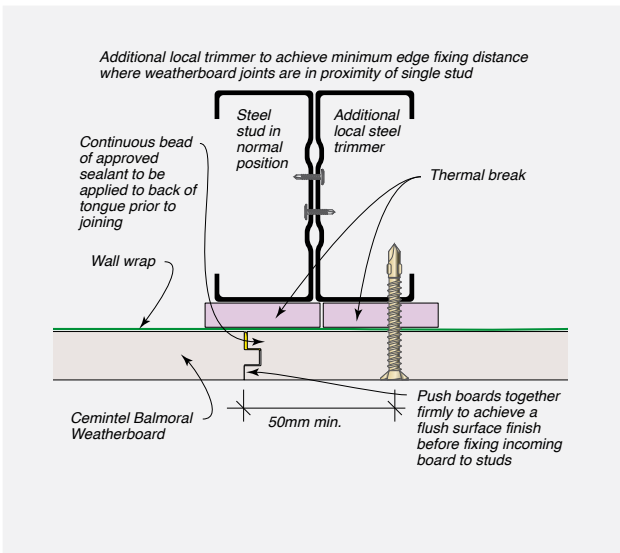
**FIGURE 8.10** Typical Vertical Joint Aligned to Timber Stud with Local Trimmer



**FIGURE 8.11** Typical Vertical Joint Aligned to Timber Stud with Local Trimmer



**FIGURE 8.12** Typical Vertical Joint Aligned to Steel Stud with Local Trimmer



CONSTRUCTION DRAWINGS AND DETAILS



Direct Fix

FIGURE 8.13 Typical External Corner with Timber Stop

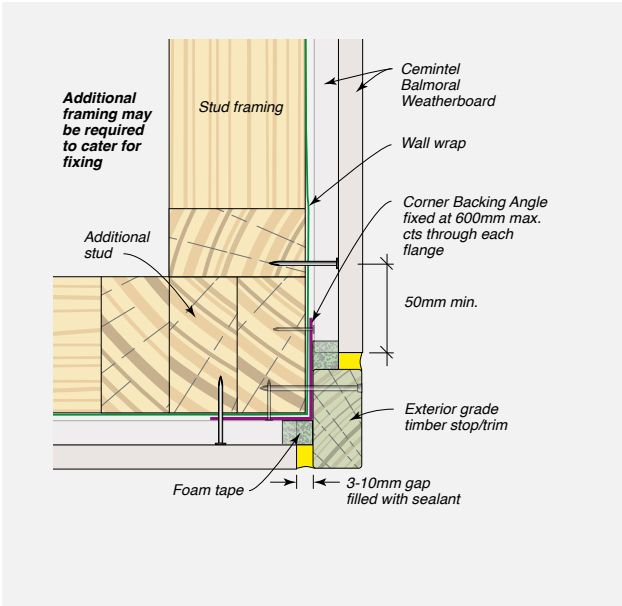


FIGURE 8.15 Typical Internal Corner with Timber Stop

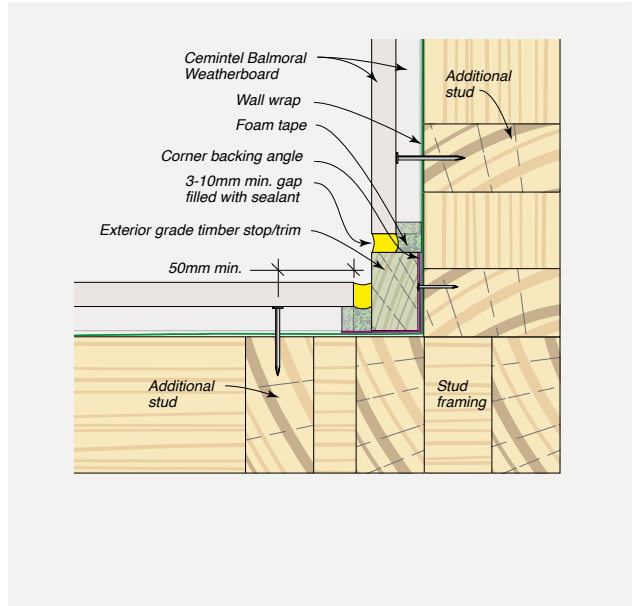


FIGURE 8.14 Typical Obtuse Angle Corner

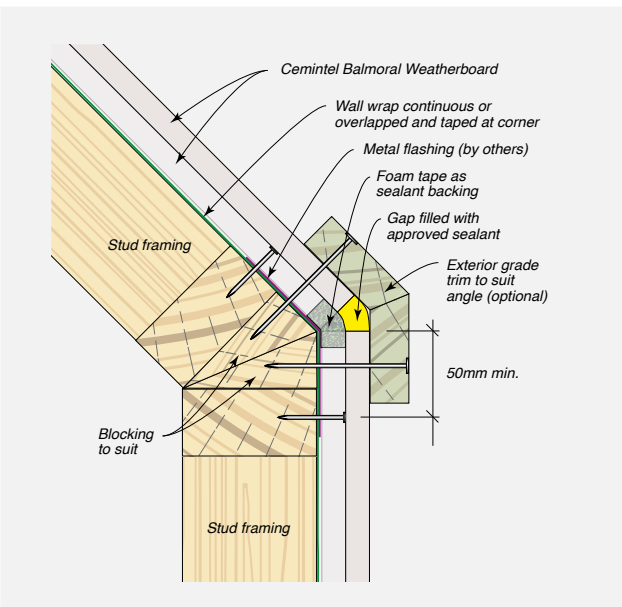
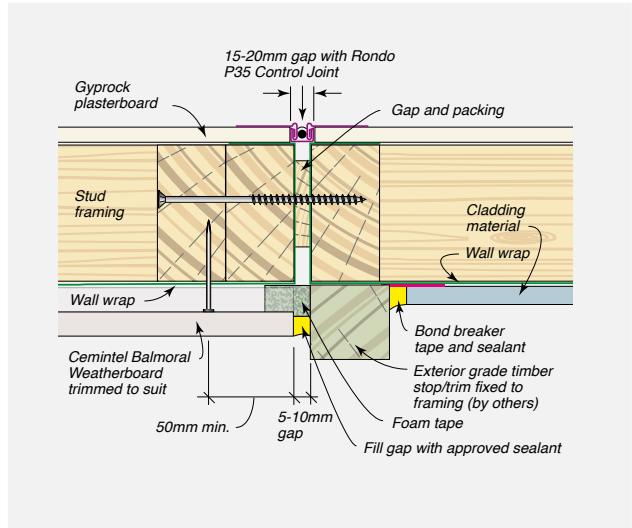


FIGURE 8.16 Typical Junction of Balmoral Weatherboard with Alternative Lightweight Cladding

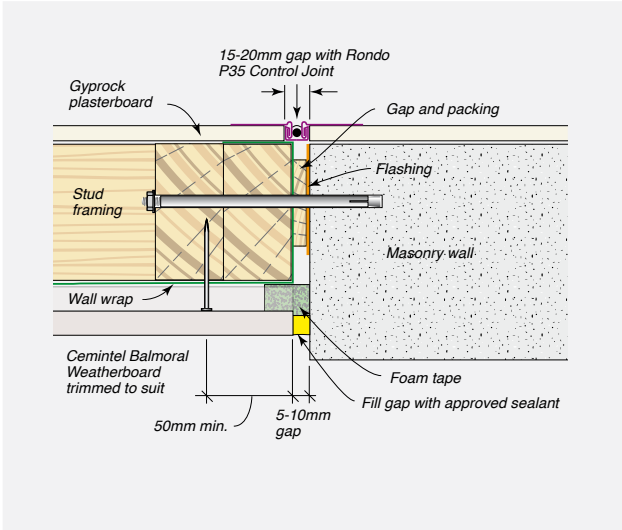




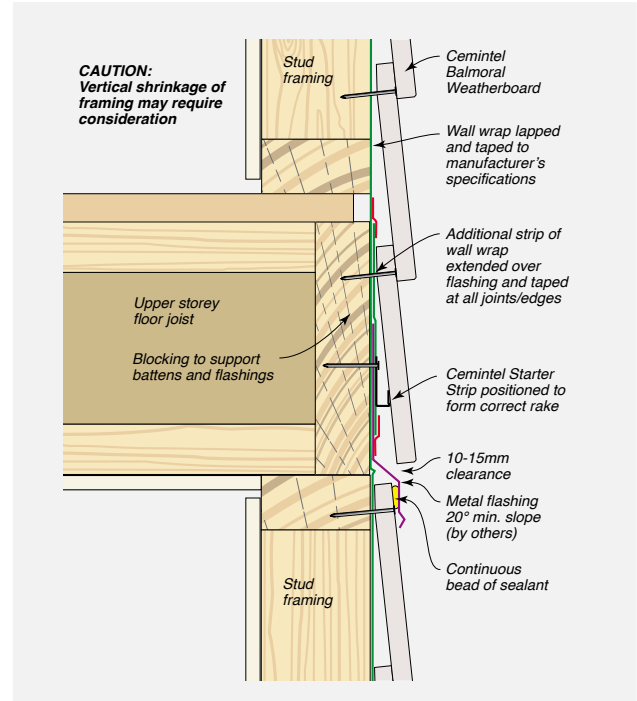
CONSTRUCTION DRAWINGS AND DETAILS

Direct Fix

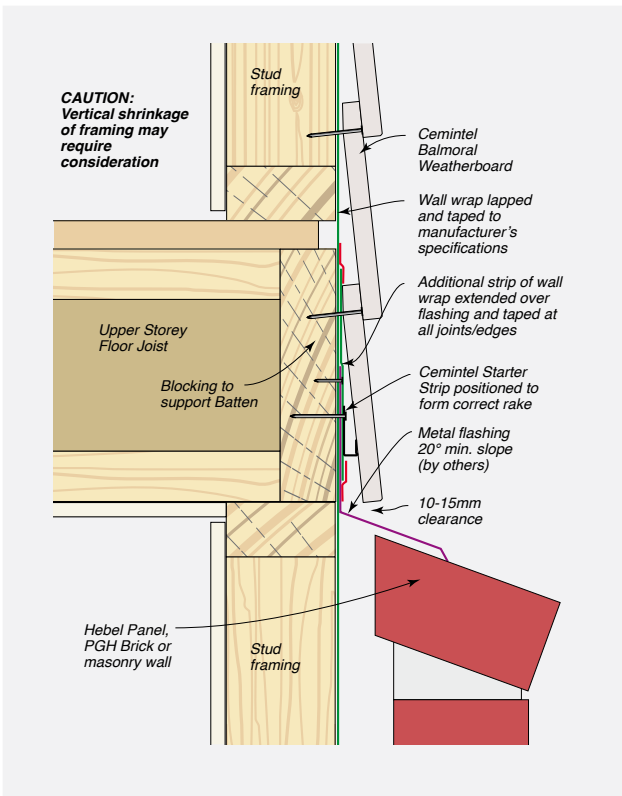
**FIGURE 8.17** Typical Junction of Balmoral Weatherboard with Offset or In-line Masonry Wall



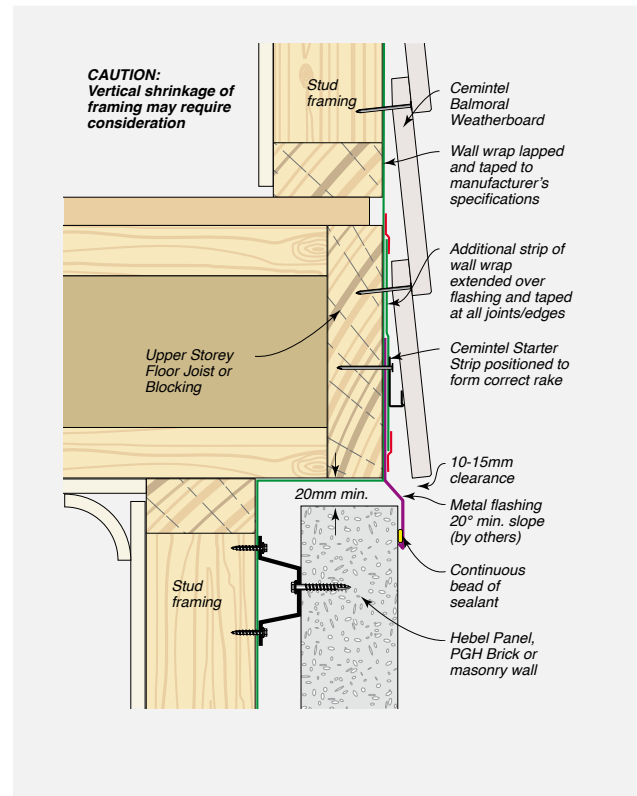
**FIGURE 8.18** Typical Second Storey Junction



**FIGURE 8.19** Typical Second Storey Junction with Masonry, Brick Veneer or Hebel Panels



**FIGURE 8.20** Typical Second Storey Junction with Hebel Panels, Brick Veneer or Masonry Wall – Cantilevered Framing





CONSTRUCTION DRAWINGS AND DETAILS



Direct Fix

FIGURE 8.21 Typical Junction of Cladding with External Roofing

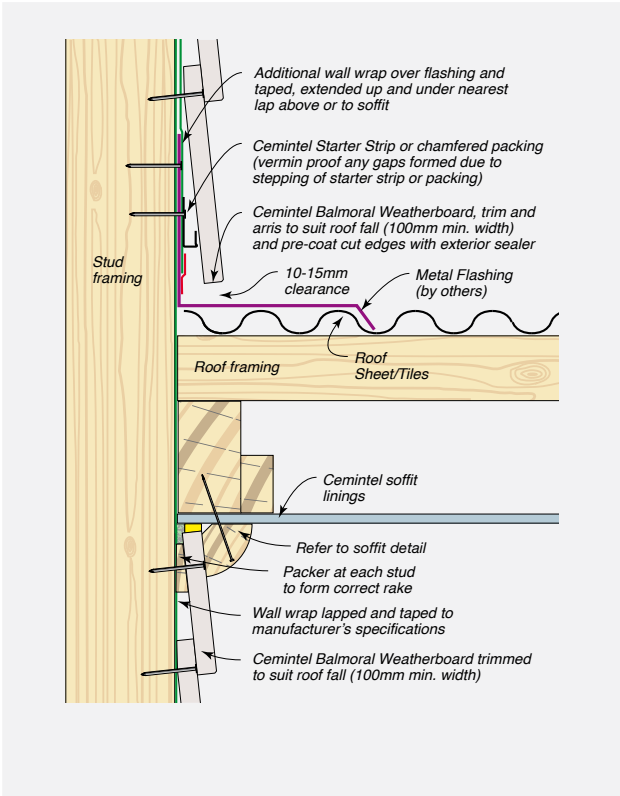


FIGURE 8.22 Typical Junction of Cladding with External Roofing

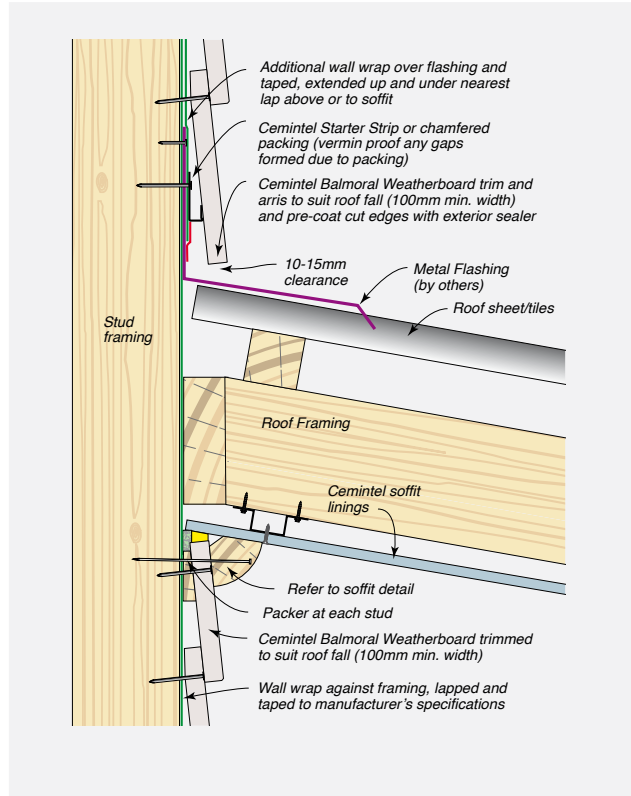
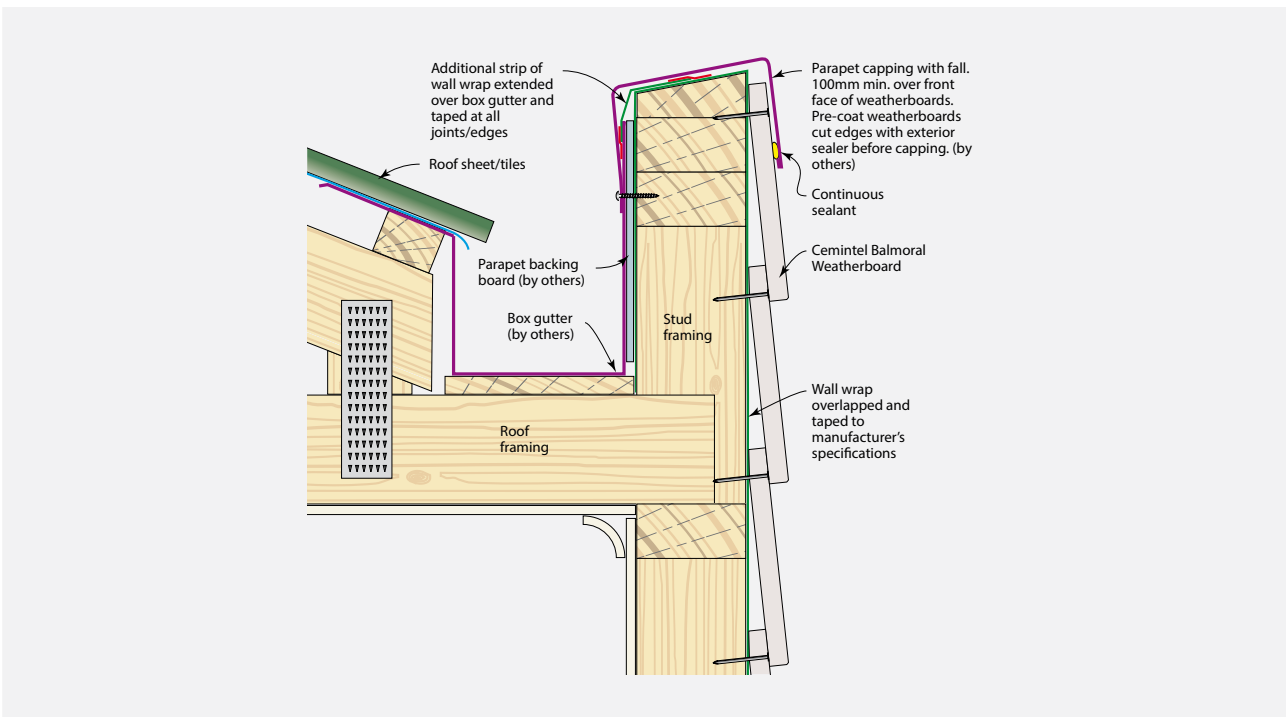


FIGURE 8.23 Typical Horizontal Parapet

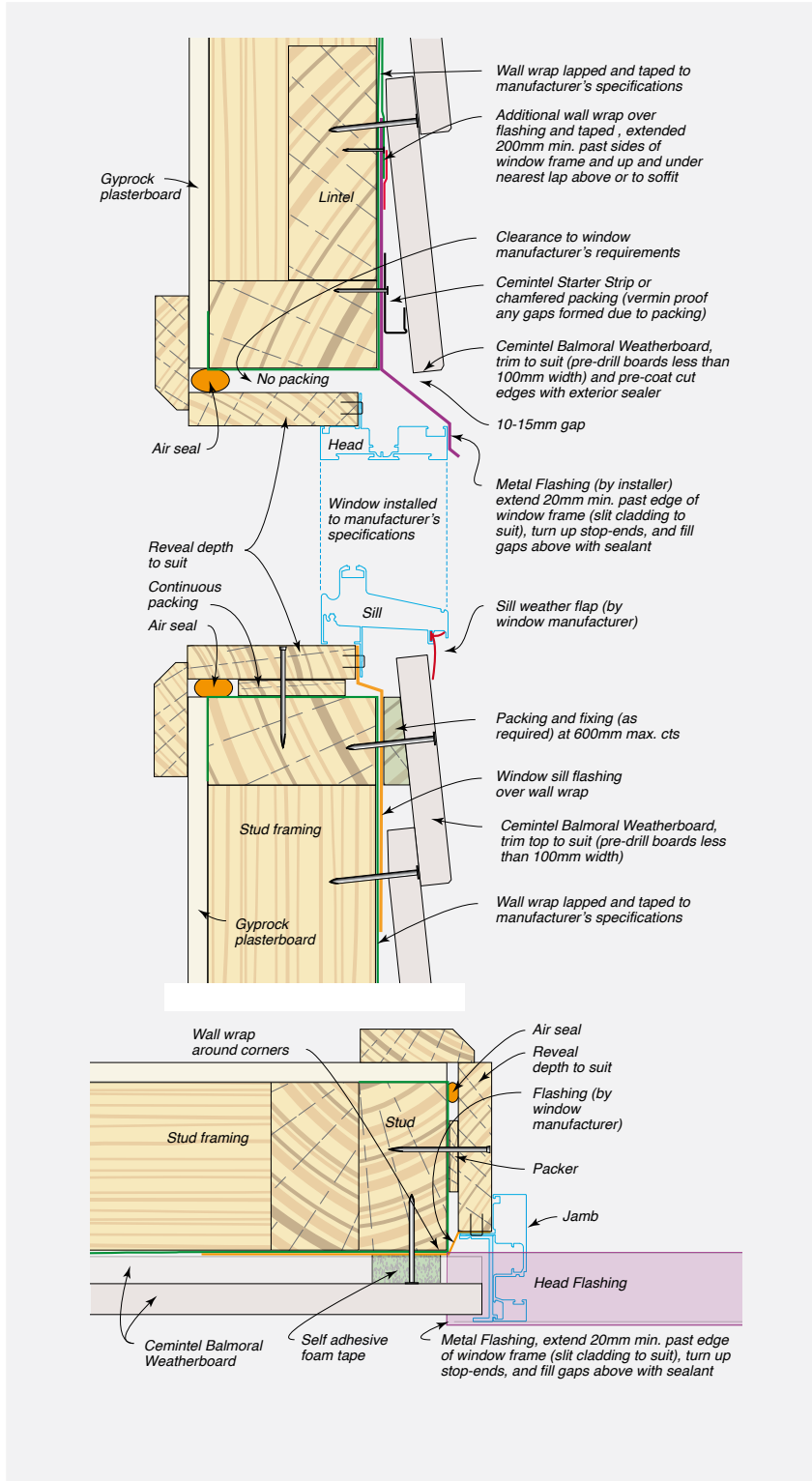




CONSTRUCTION DRAWINGS AND DETAILS

Direct Fix

FIGURE 8.24 Typical Sliding Window Installation

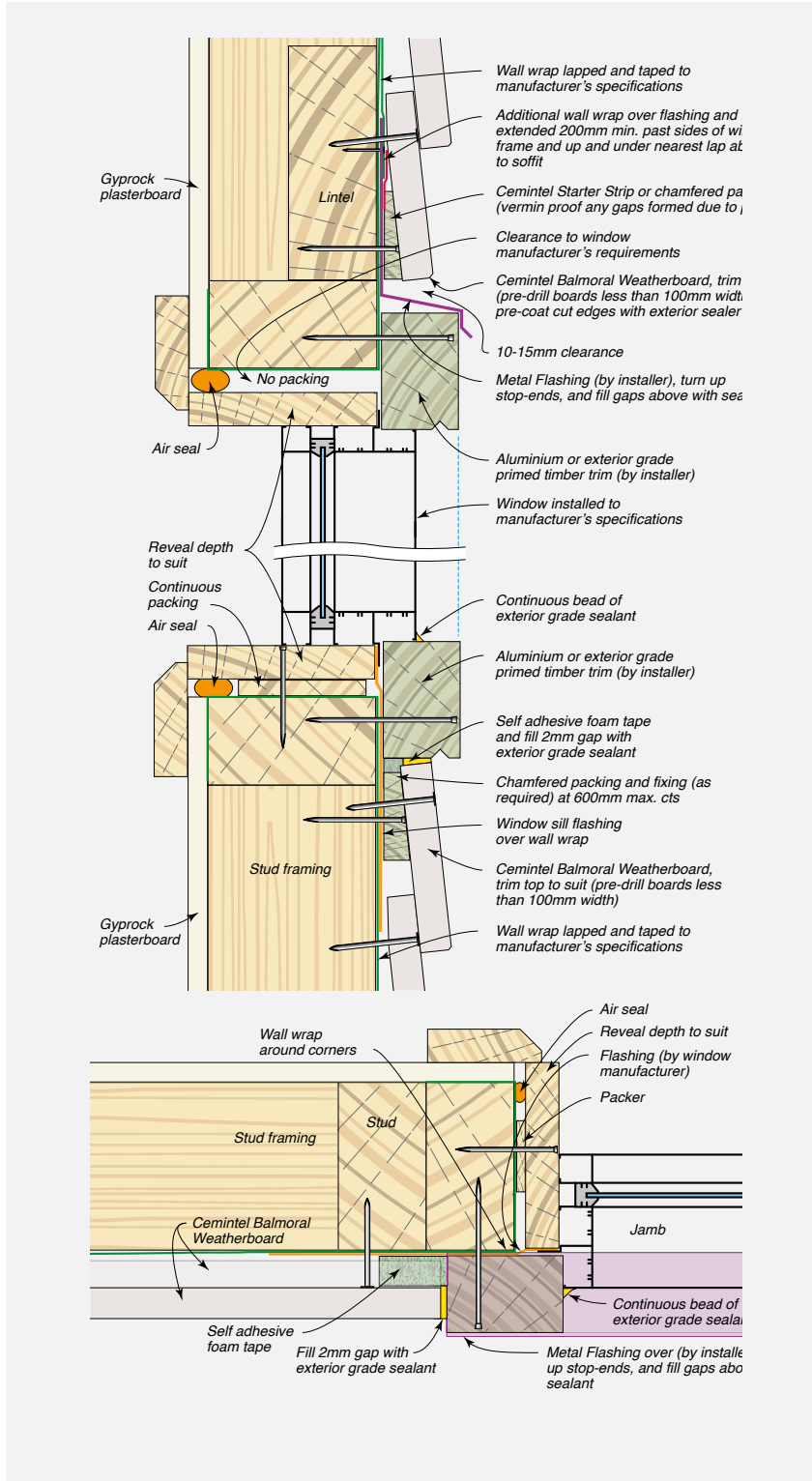


CONSTRUCTION DRAWINGS AND DETAILS



Direct Fix

FIGURE 8.25 Typical Window Installation – With Timber Trims

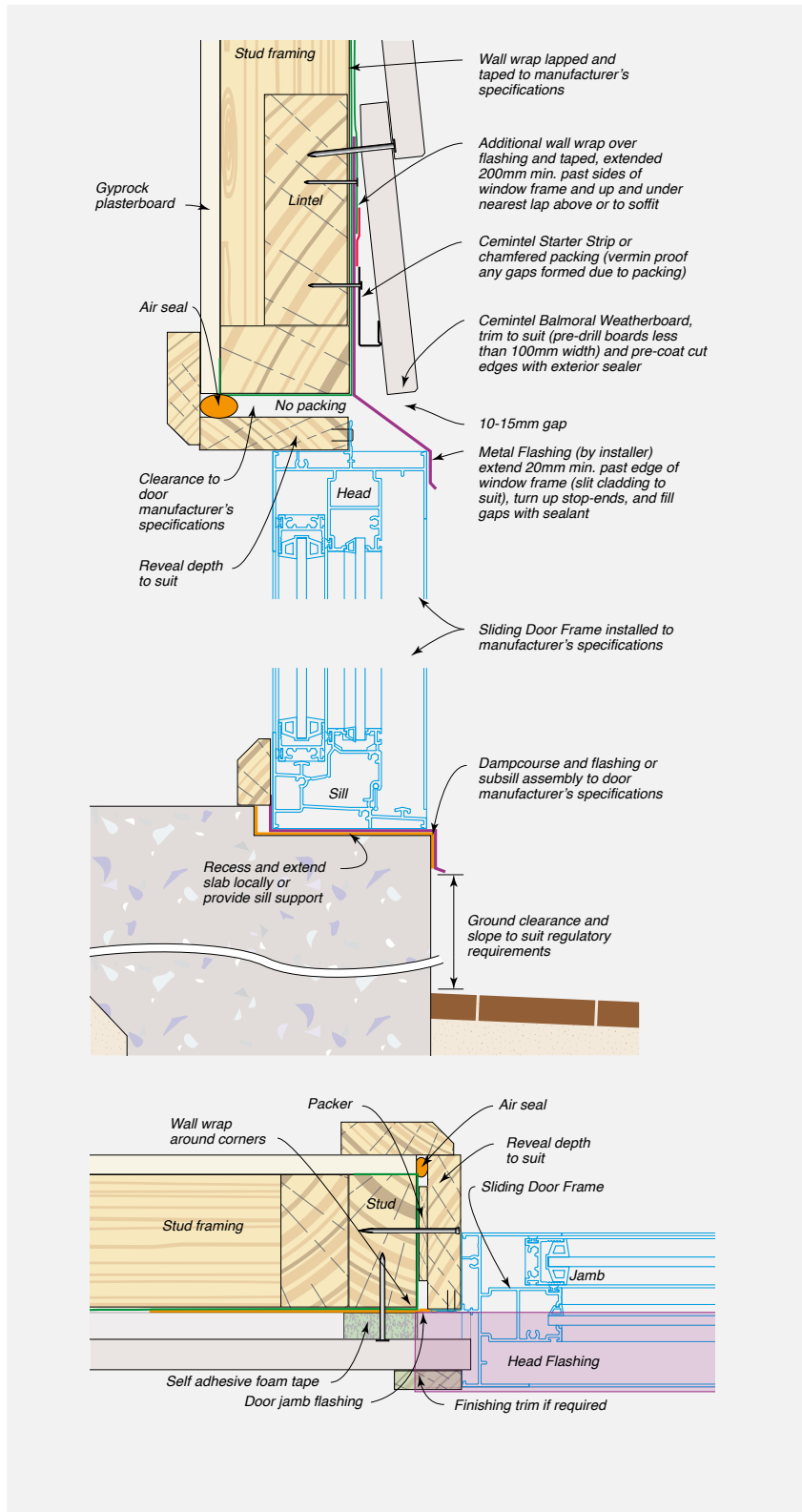




# CONSTRUCTION DRAWINGS AND DETAILS

## Direct Fix

FIGURE 8.26 Typical Sliding Door Installation

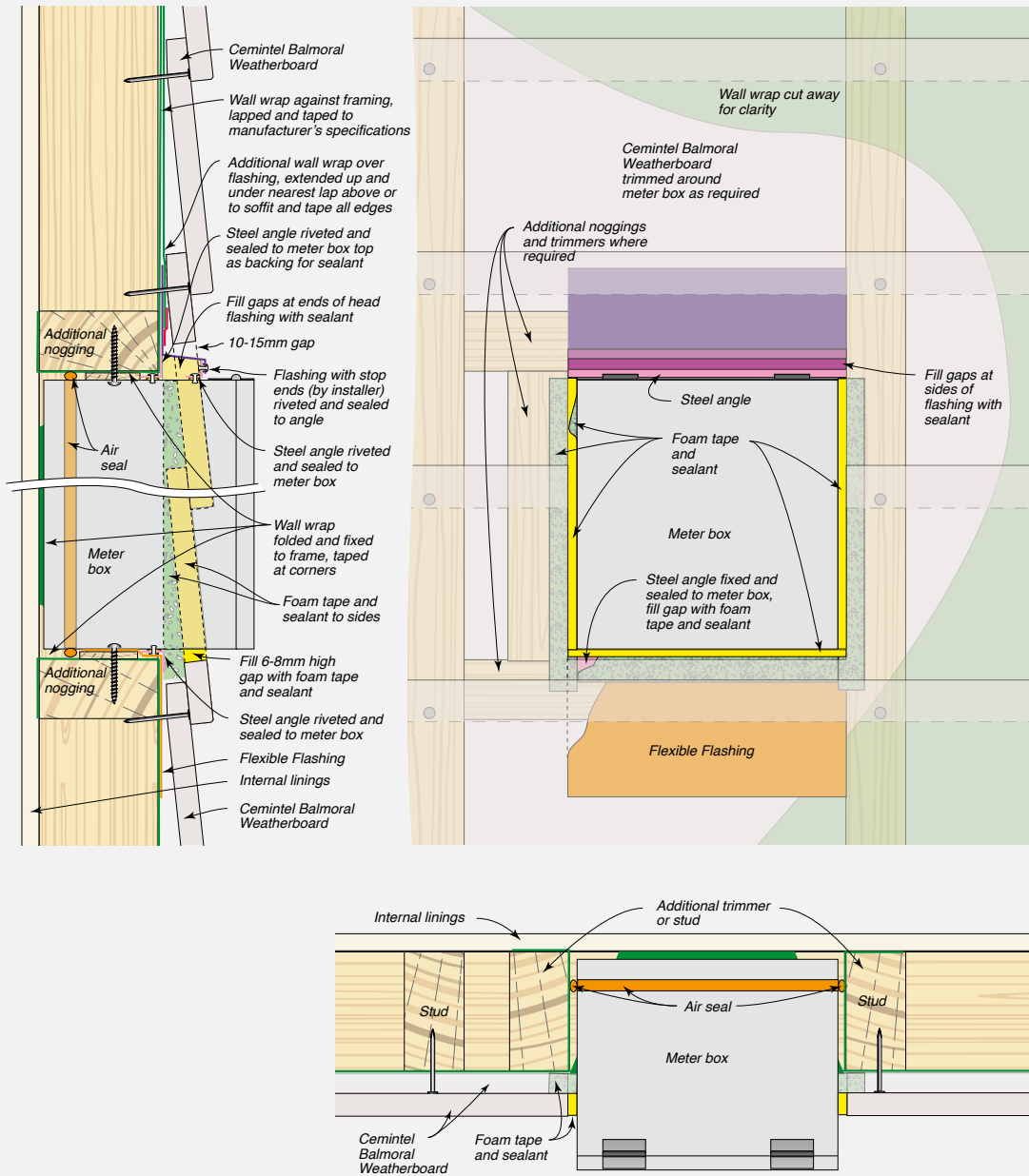


CONSTRUCTION DRAWINGS AND DETAILS



Direct Fix

FIGURE 8.27 Typical Electrical Meter Box – Recessed Installation

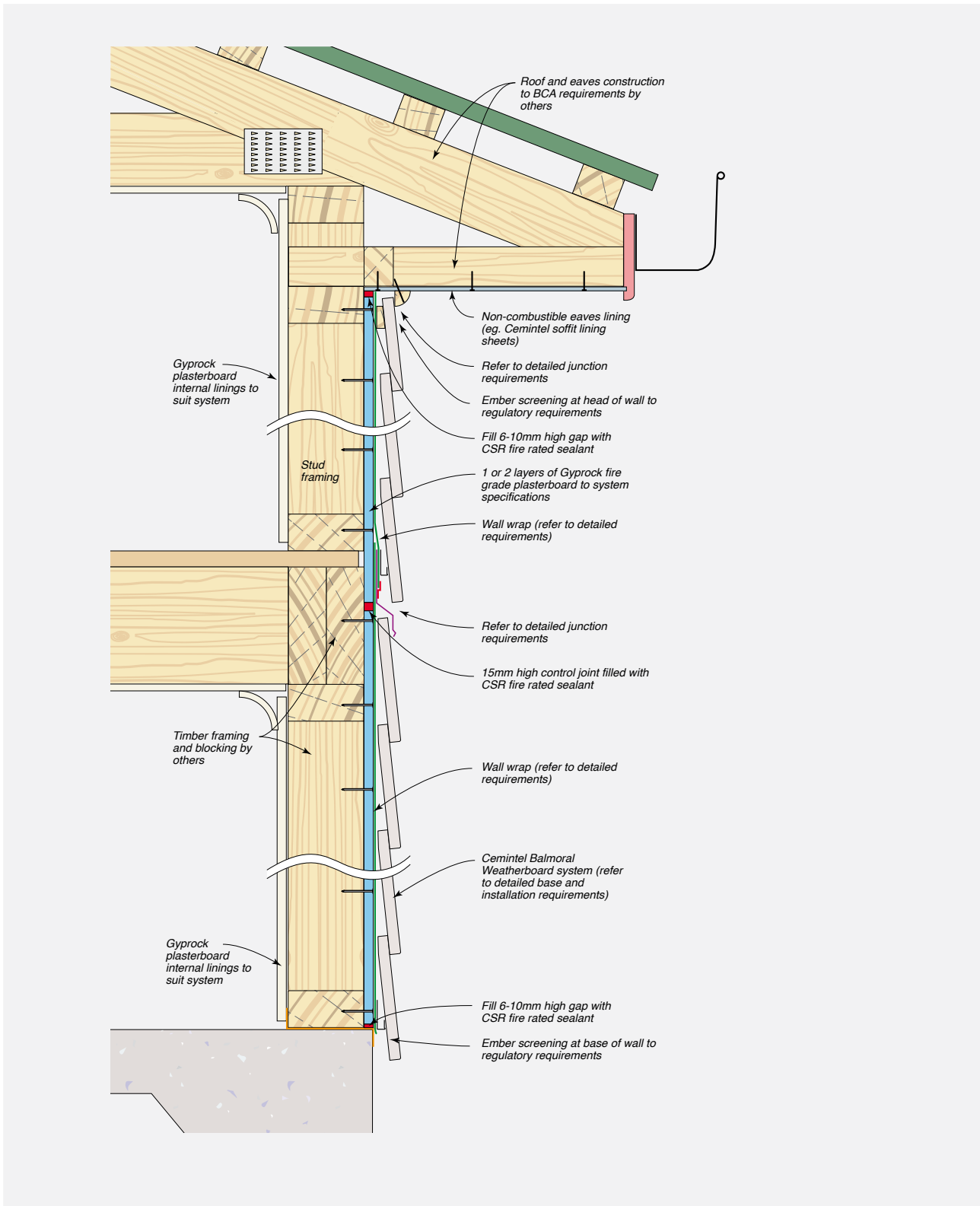




## CONSTRUCTION DRAWINGS AND DETAILS

### Direct Fix

FIGURE 8.28 Typical Balmoral Fire Rated Wall System – Direct Fixed



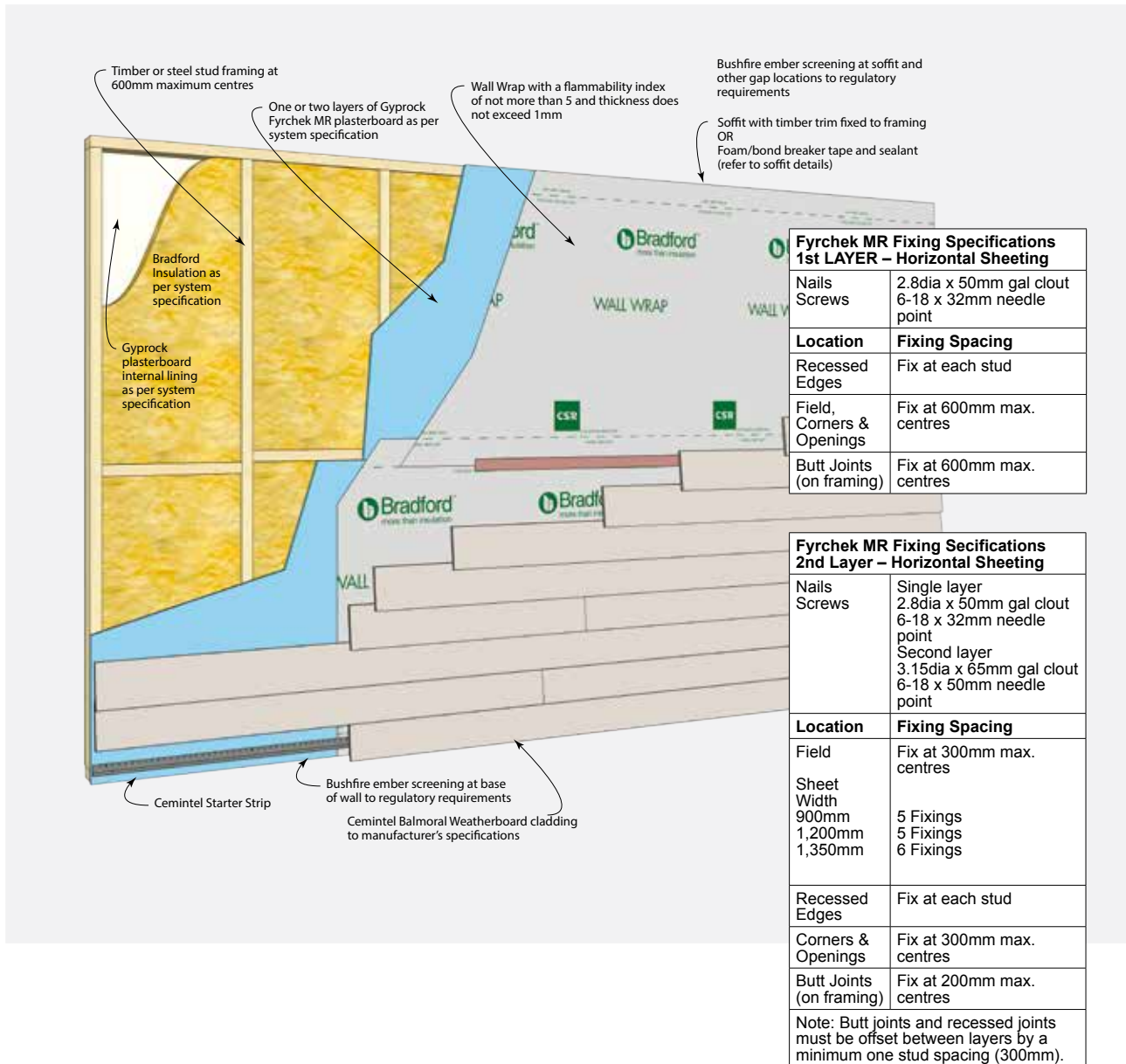
Note: The length of the fixings will need to be increased to ensure the same or greater embedment depth for single and double layered fire-rated linings. Nail fixing through multiple layers can be difficult and screw fixings are the preferred method of construction.

CONSTRUCTION DRAWINGS AND DETAILS



Direct Fix

FIGURE 8.29 Typical Balmoral Fire Rated Wall System Layout



Note: The length of the fixings will need to be increased to ensure the same or greater embedment depth for single and double layered fire-rated linings. Nail fixing through multiple layers can be difficult and screw fixings are the preferred method of construction.



## CONSTRUCTION DRAWINGS AND DETAILS

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	Typical Balmoral Fire Rated Wall System Layout	8.57	53

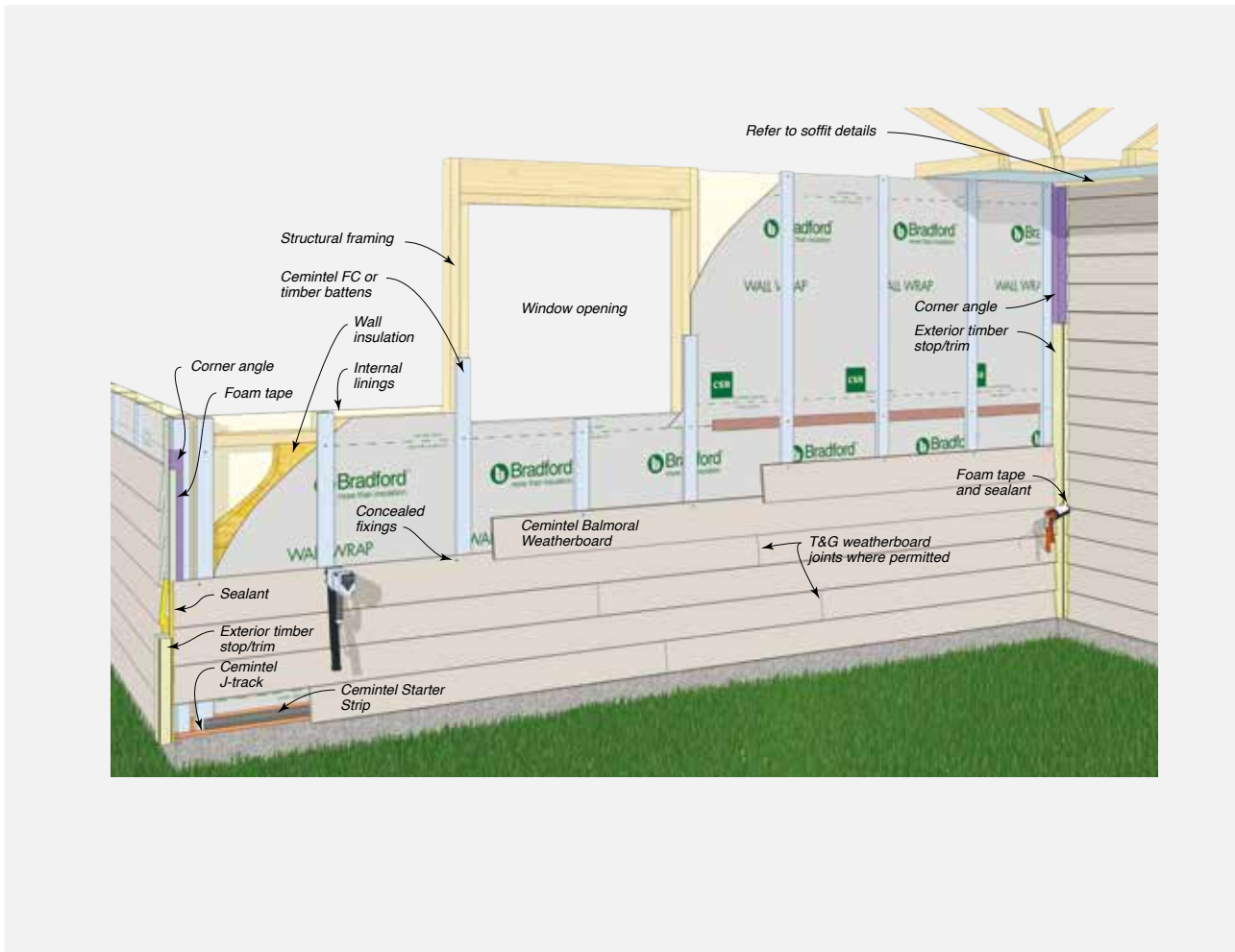


## CONSTRUCTION DRAWINGS AND DETAILS



## Cavity Fix

FIGURE 8.30 Typical Balmoral Weatherboard Installation – Cavity Fixed System

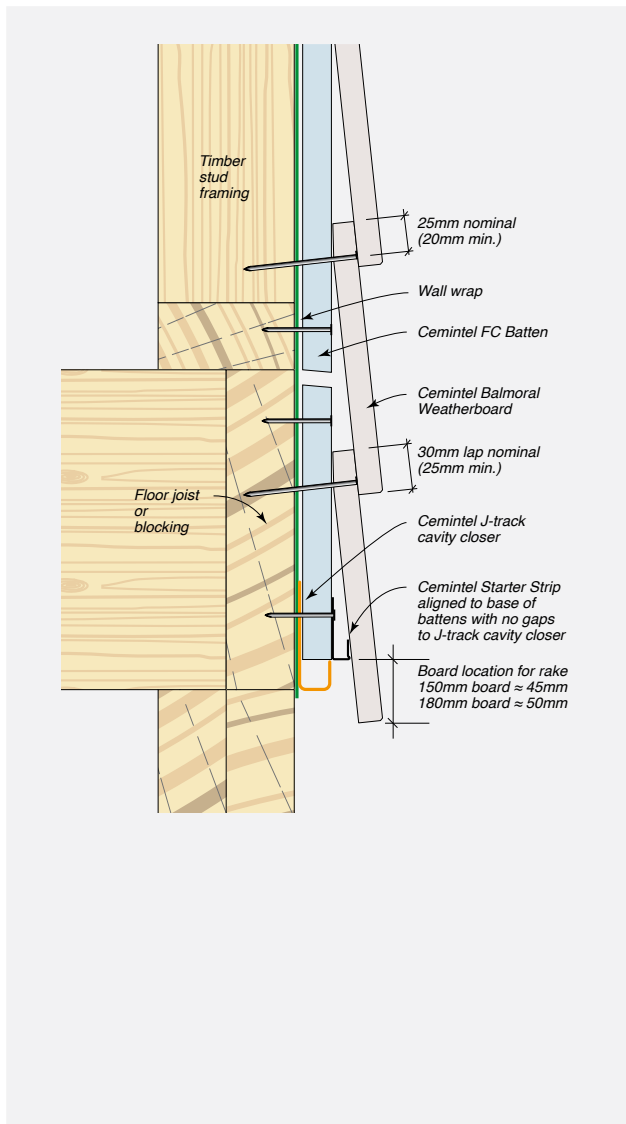




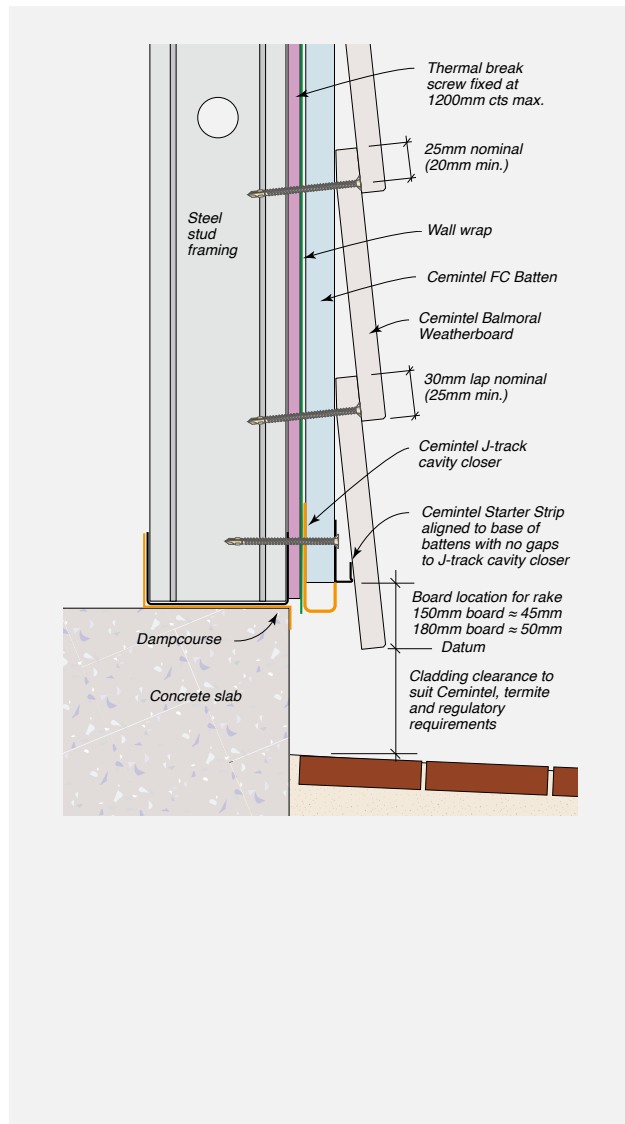
## CONSTRUCTION DRAWINGS AND DETAILS

### Cavity Fix

**FIGURE 8.31** Typical Nail Fixing to Timber Studs Over Battens



**FIGURE 8.32** Typical Screw Fixing to Steel Studs Over Thermal Break and Battens



CONSTRUCTION DRAWINGS AND DETAILS



Cavity Fix

FIGURE 8.33 Typical Nail Fixing to Timber Studs Over Battens

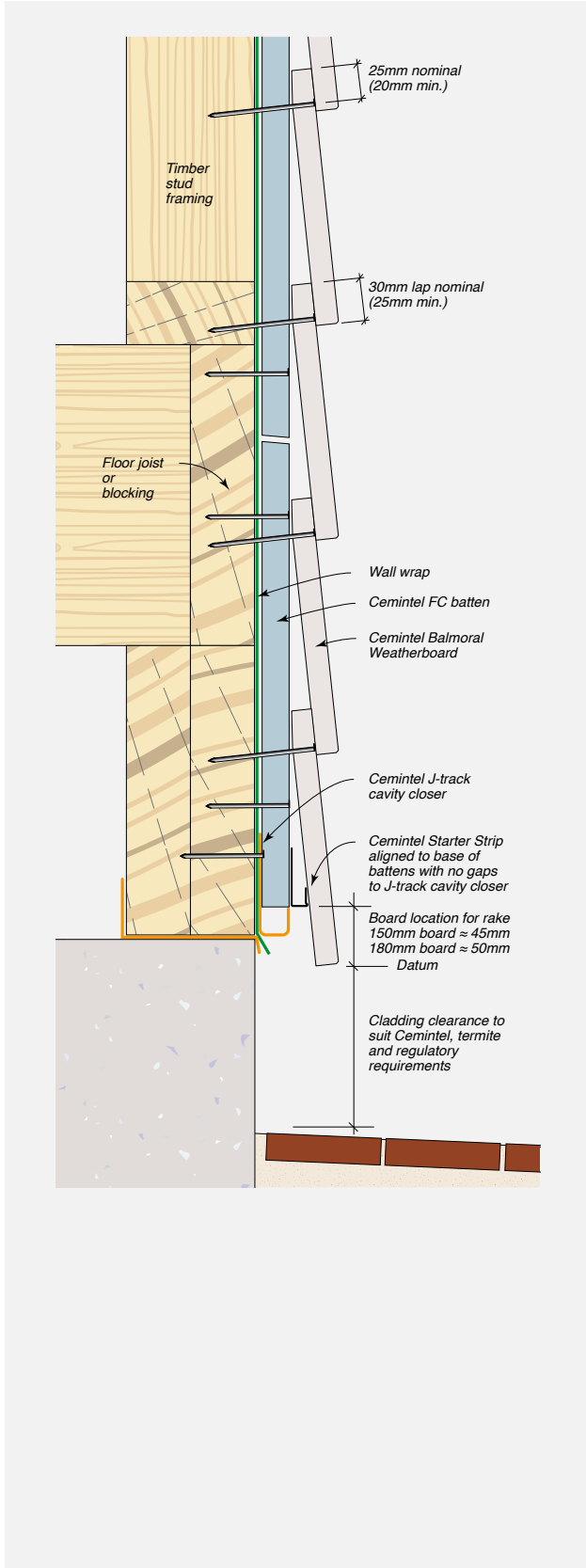


FIGURE 8.34 Typical Head/Eaves with Timber Trim – Timber Framing

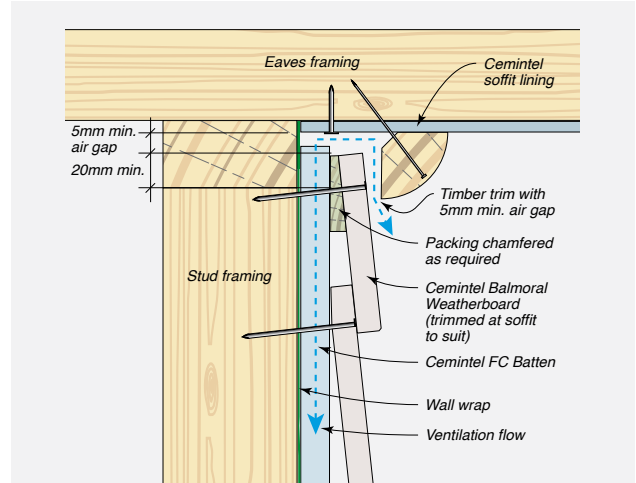


FIGURE 8.35 Typical Head/Eaves with Timber Trim – Steel Framing

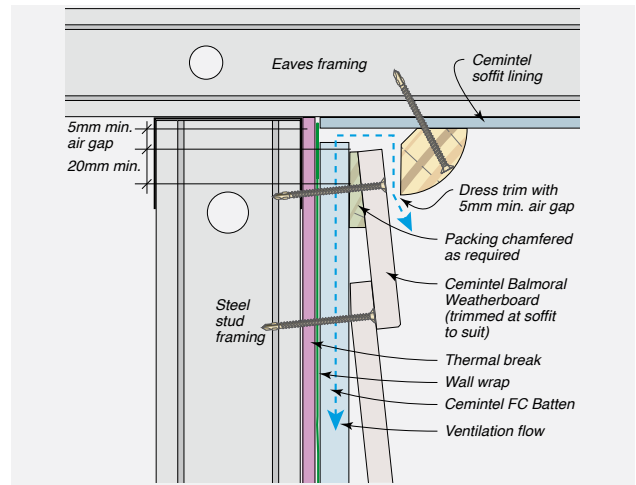
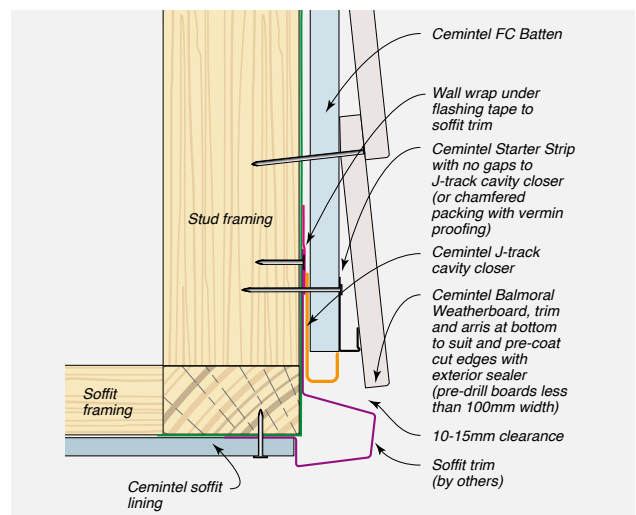


FIGURE 8.36 Typical Soffit With Metal Trim

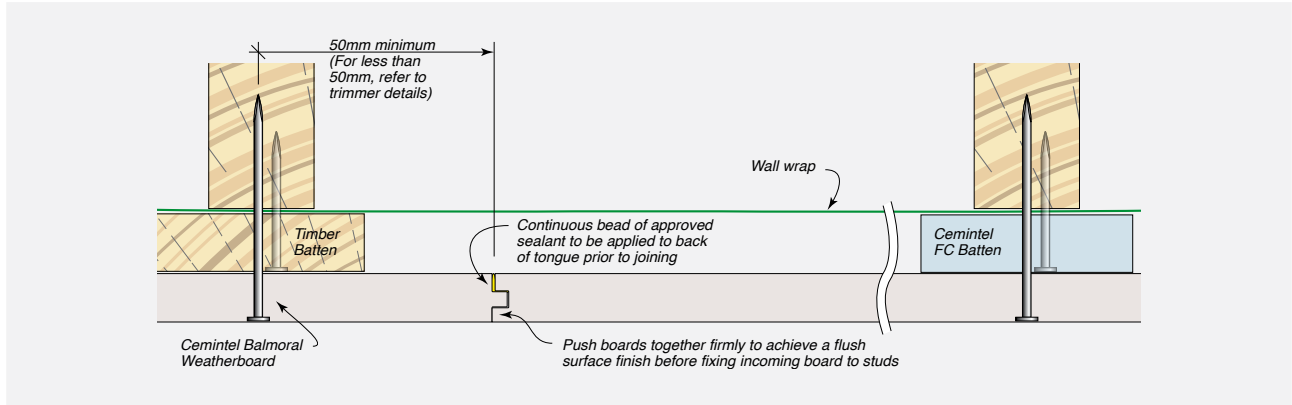




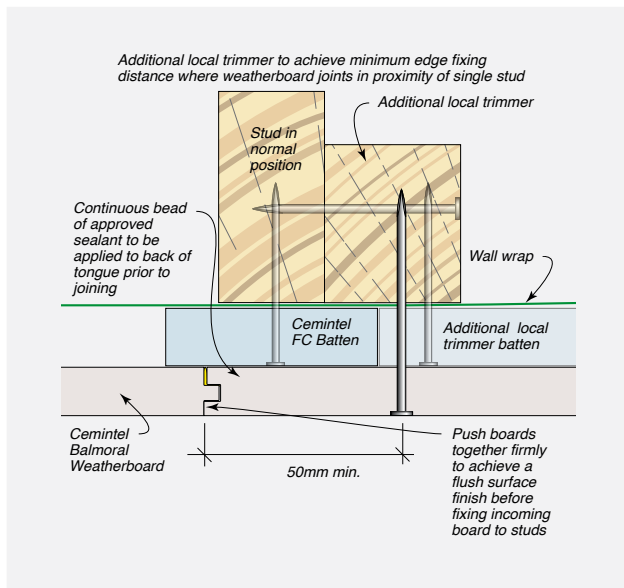
## CONSTRUCTION DRAWINGS AND DETAILS

### Cavity Fix

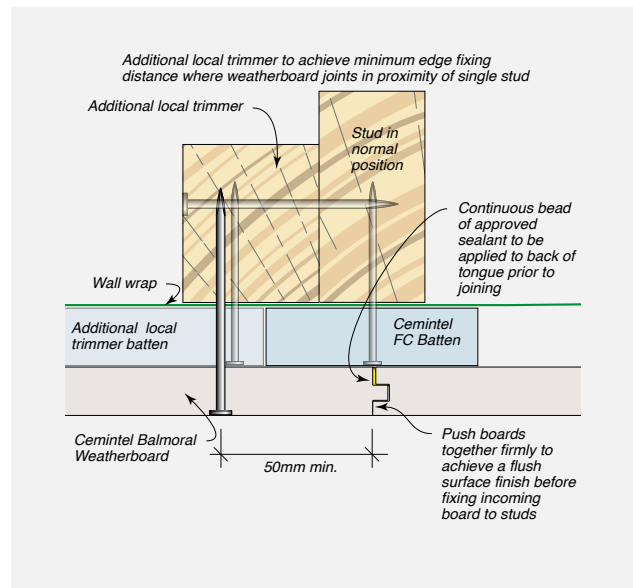
**FIGURE 8.37** Typical Vertical Joint Between Studs



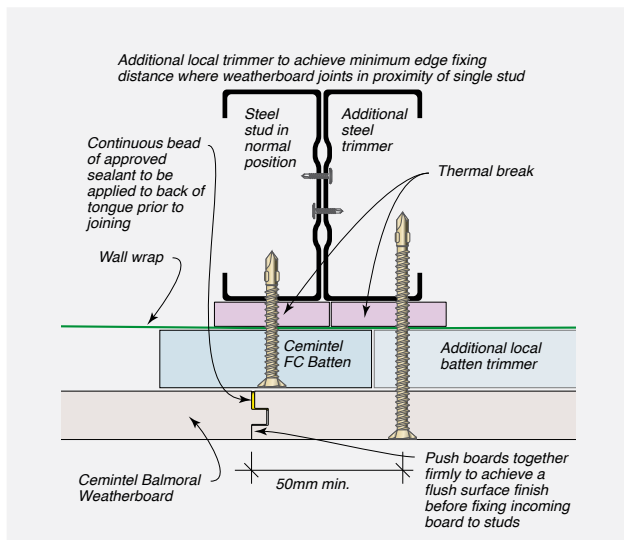
**FIGURE 8.38** Typical Vertical Joint Aligned to Timber Stud with Local Trimmer



**FIGURE 8.39** Typical Vertical Joint Aligned to Timber Stud with Local Trimmer



**FIGURE 8.40** Typical Vertical Joint Aligned to Steel Stud with Local Trimmer



CONSTRUCTION DRAWINGS AND DETAILS



Cavity Fix

FIGURE 8.41 Typical External Corner with Timber Stop

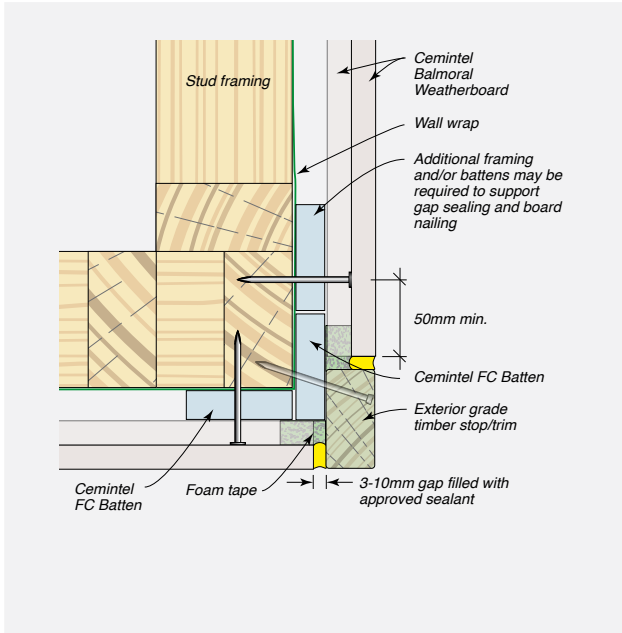


FIGURE 8.42 Typical Internal Corner with Timber Stop

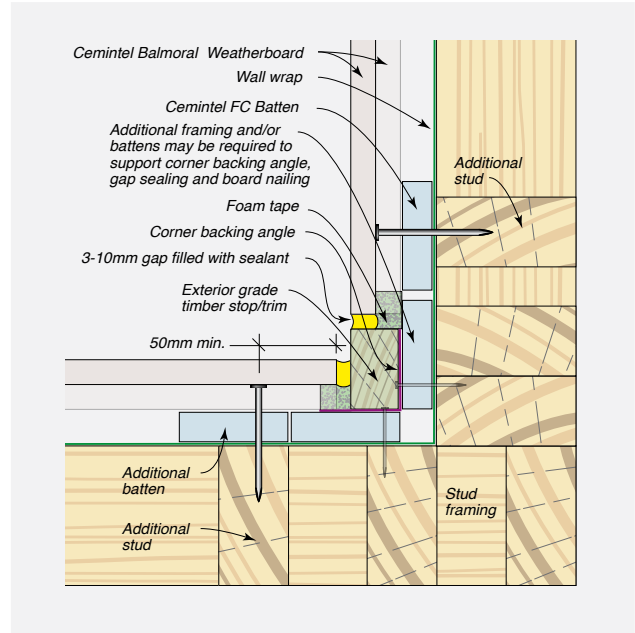


FIGURE 8.43 Typical Obtuse Angle Corner

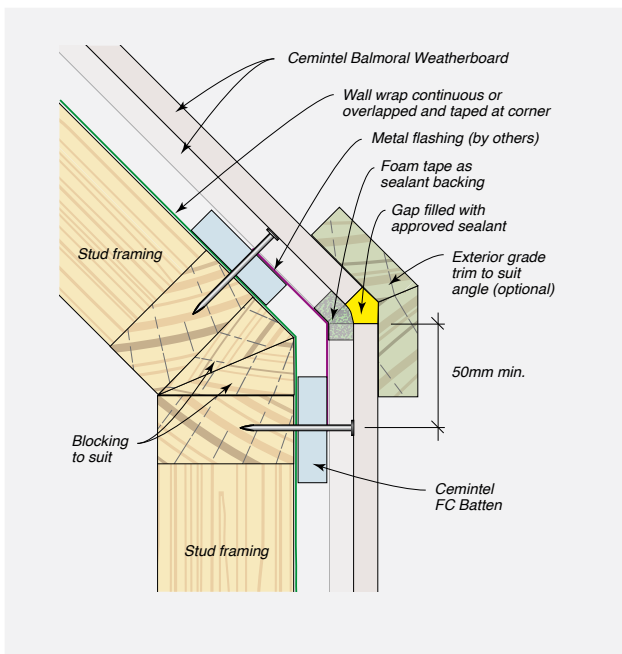
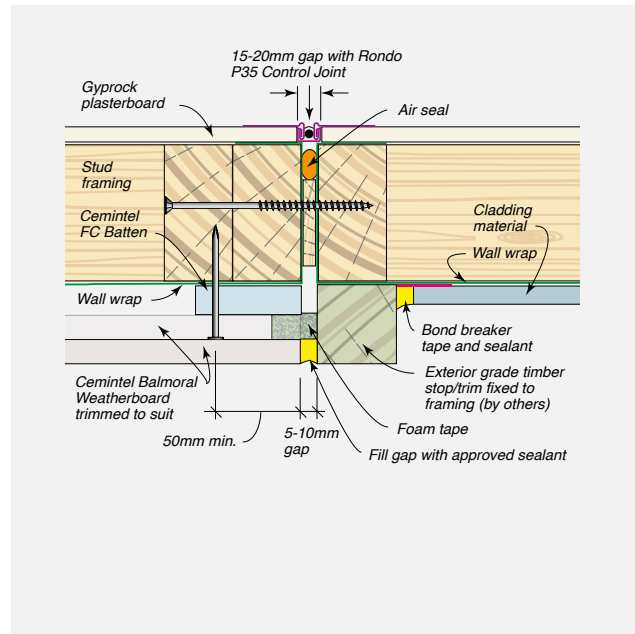


FIGURE 8.44 Typical Junction of Balmoral Weatherboard with Alternative Lightweight Cladding

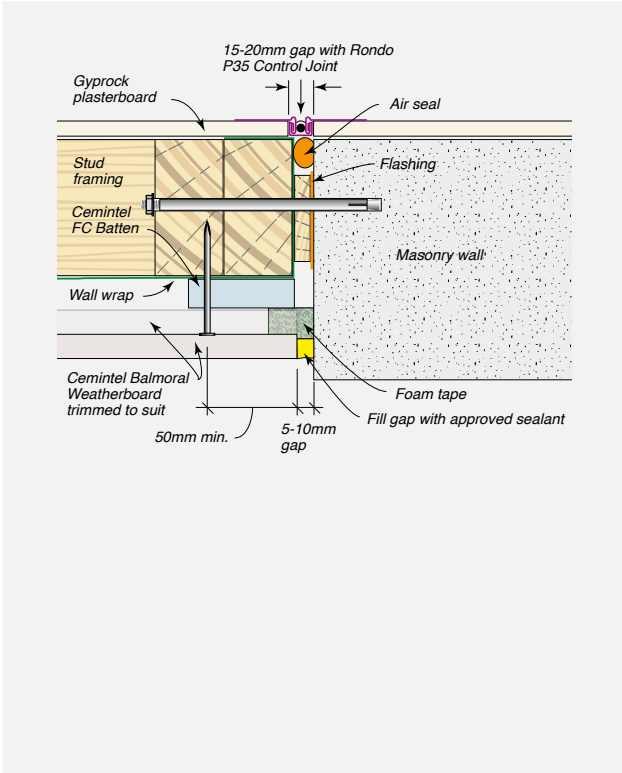




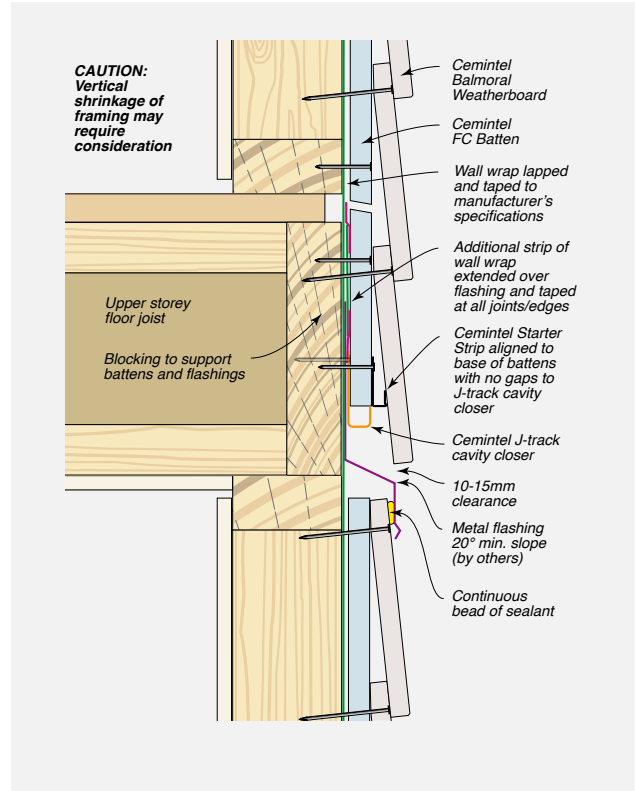
CONSTRUCTION DRAWINGS AND DETAILS

Cavity Fix

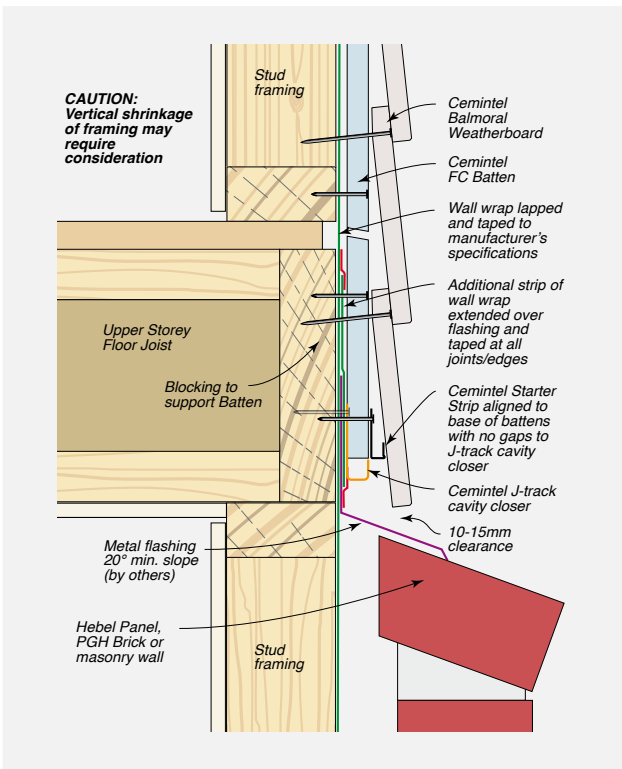
**FIGURE 8.45** Typical Junction of Balmoral Weatherboard with Offset or In-line Masonry Wall



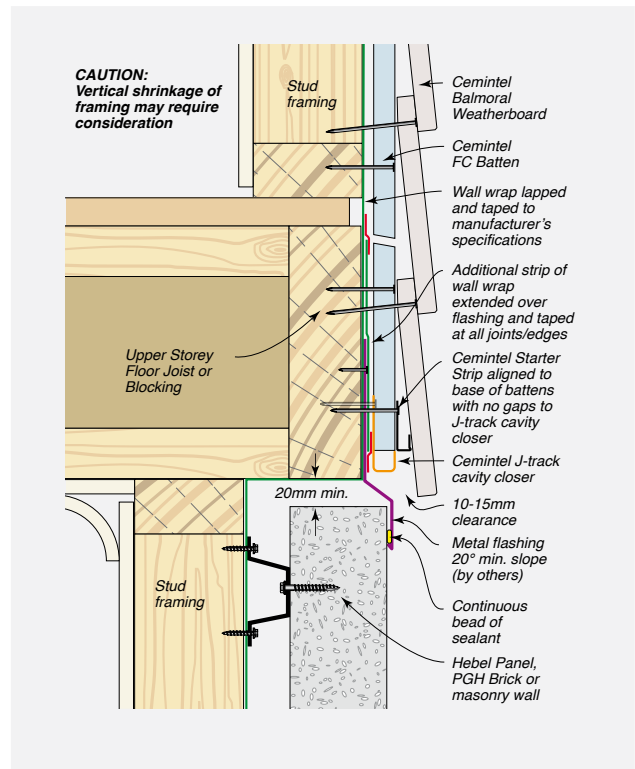
**FIGURE 8.46** Typical Second Storey Horizontal Junction



**FIGURE 8.47** Typical Second Storey Junction over Masonry, Brick Veneer or Hebel Panels



**FIGURE 8.48** Typical Second Storey Junction over Hebel Panels, Brick Veneer or Masonry Wall – Cantilevered Framing



CONSTRUCTION DRAWINGS AND DETAILS



Cavity Fix

FIGURE 8.49 Typical Junction of Cladding with External Roofing

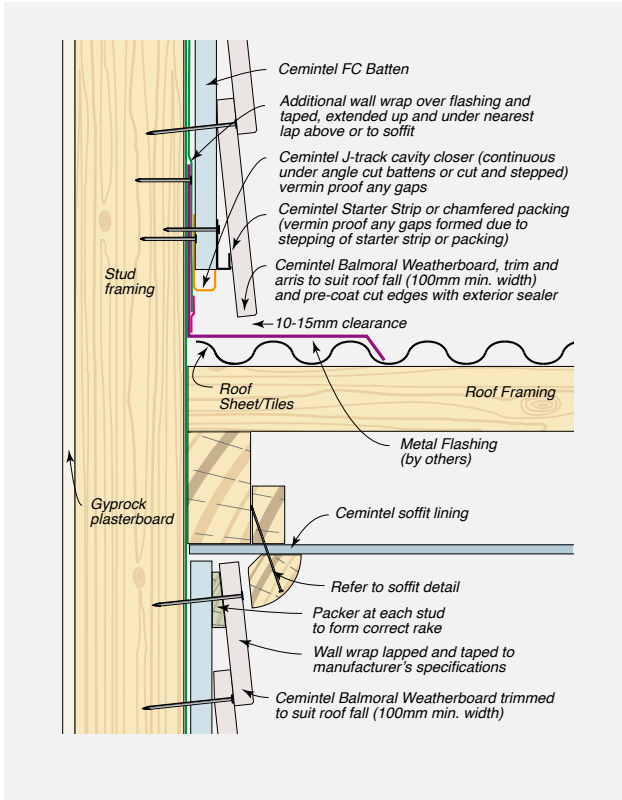


FIGURE 8.50 Typical Junction of Cladding with External Roofing

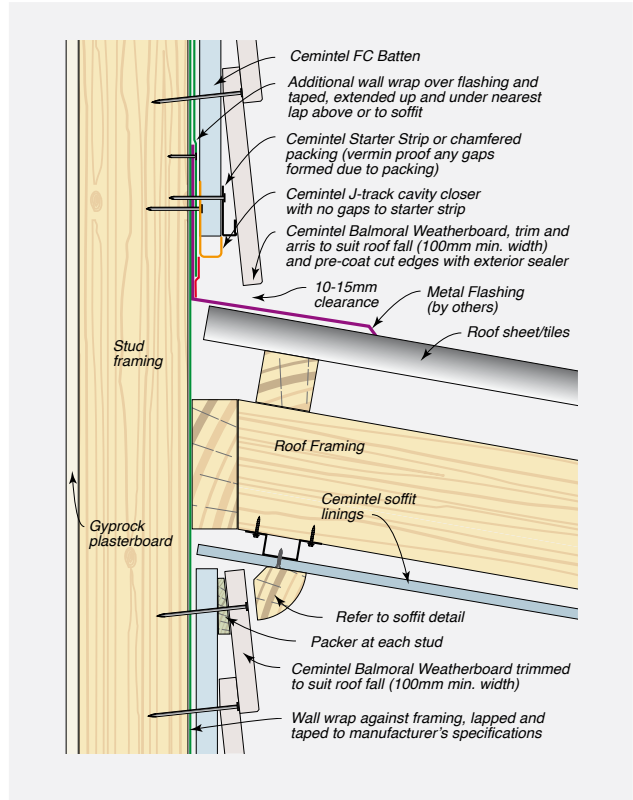
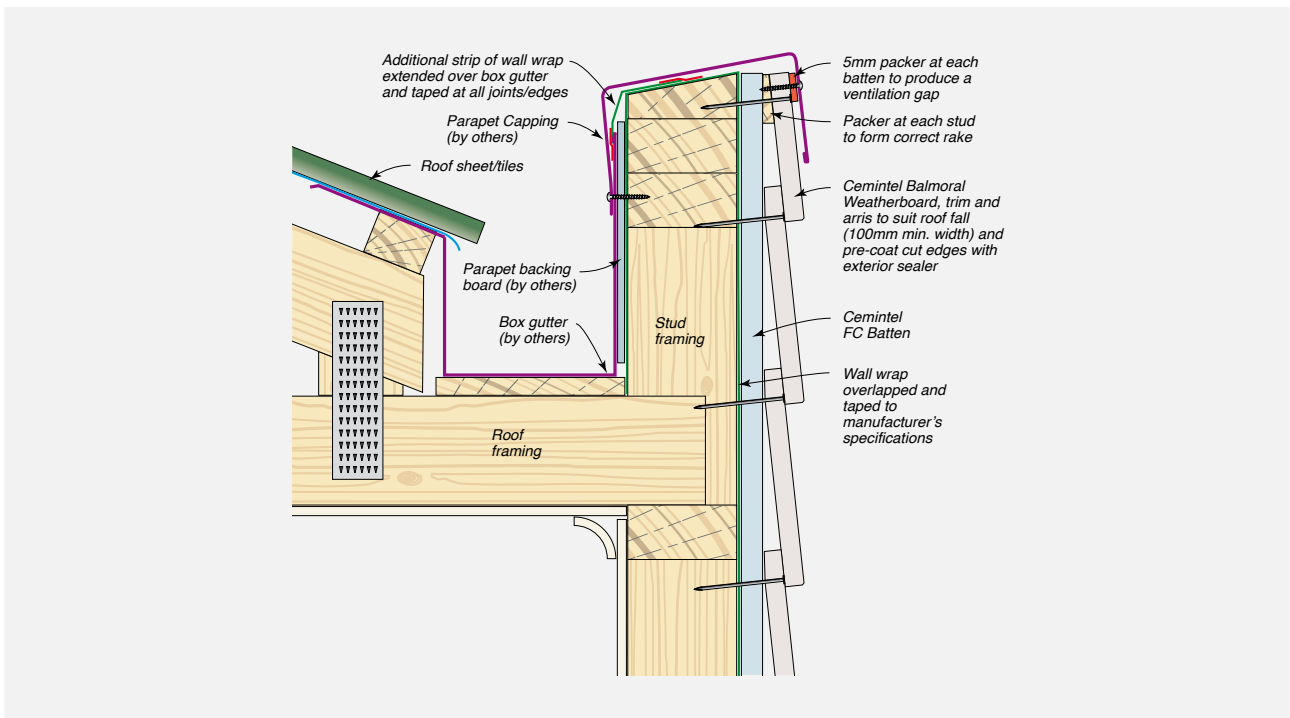


FIGURE 8.51 Typical Horizontal Parapet

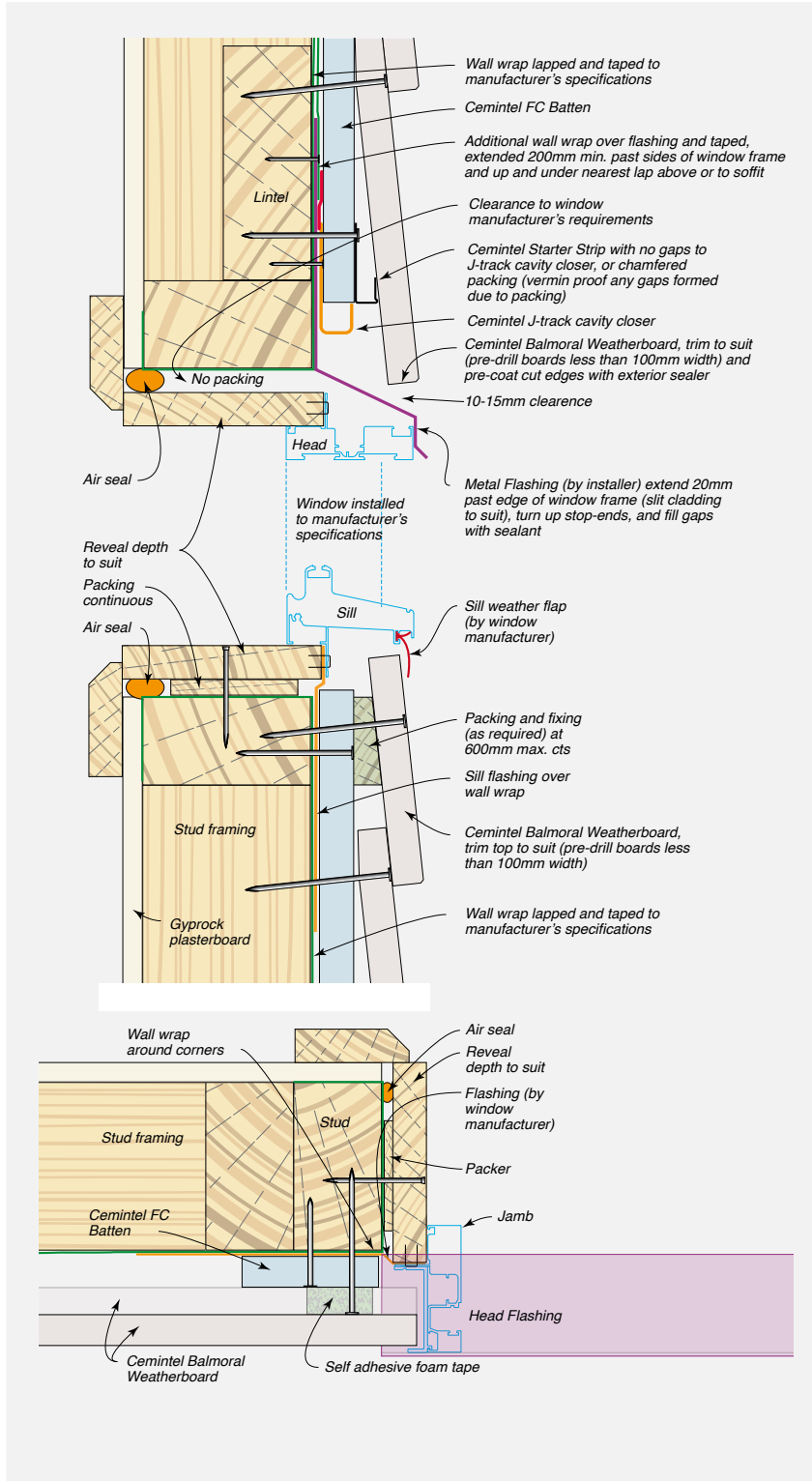




# CONSTRUCTION DRAWINGS AND DETAILS

## Cavity Fix

FIGURE 8.52 Typical Window Installation



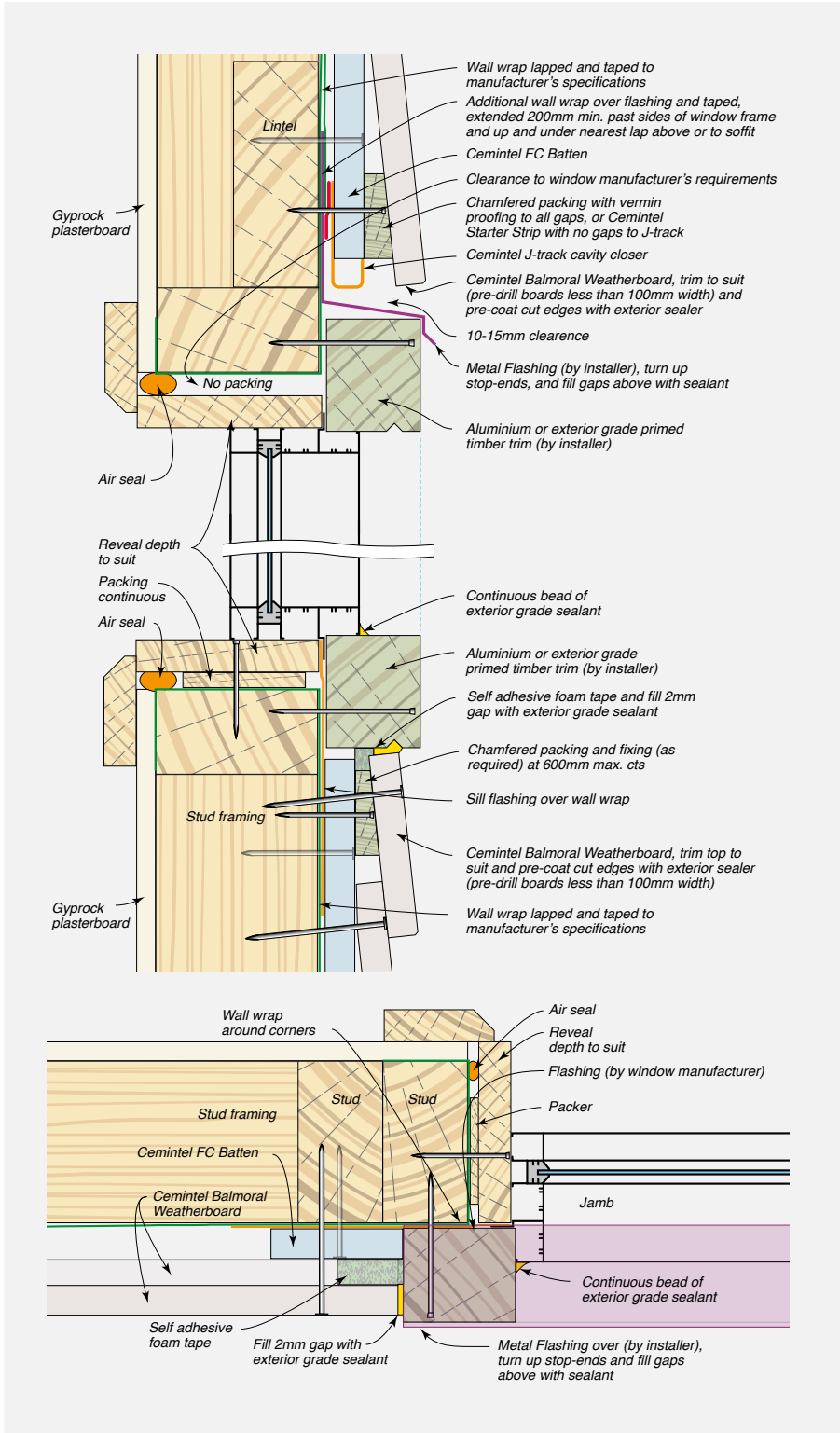


CONSTRUCTION DRAWINGS AND DETAILS



Cavity Fix

FIGURE 8.53 Typical Window Installation – With Timber Trims

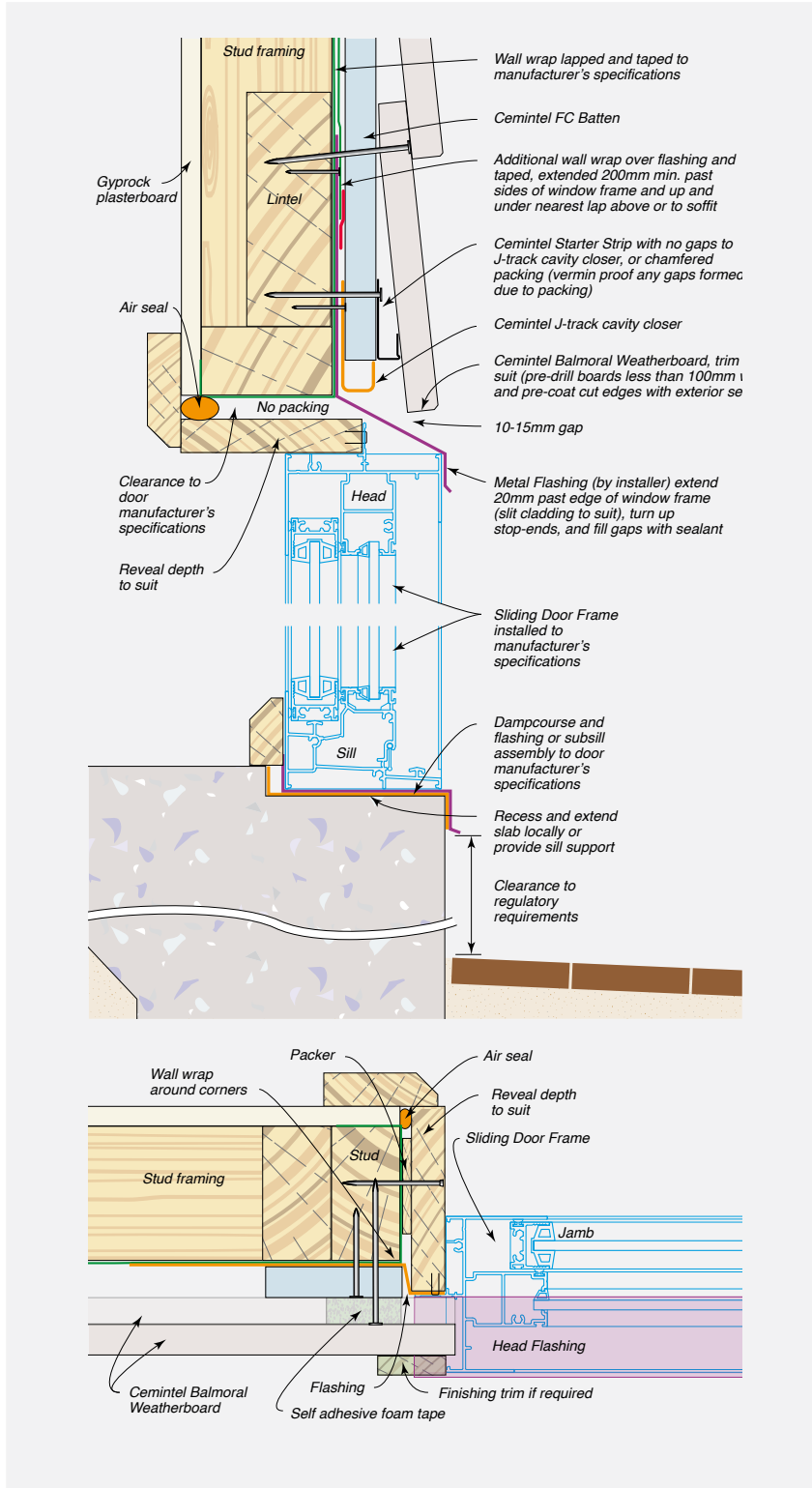




# CONSTRUCTION DRAWINGS AND DETAILS

## Cavity Fix

FIGURE 8.54 Typical Sliding Door Installation

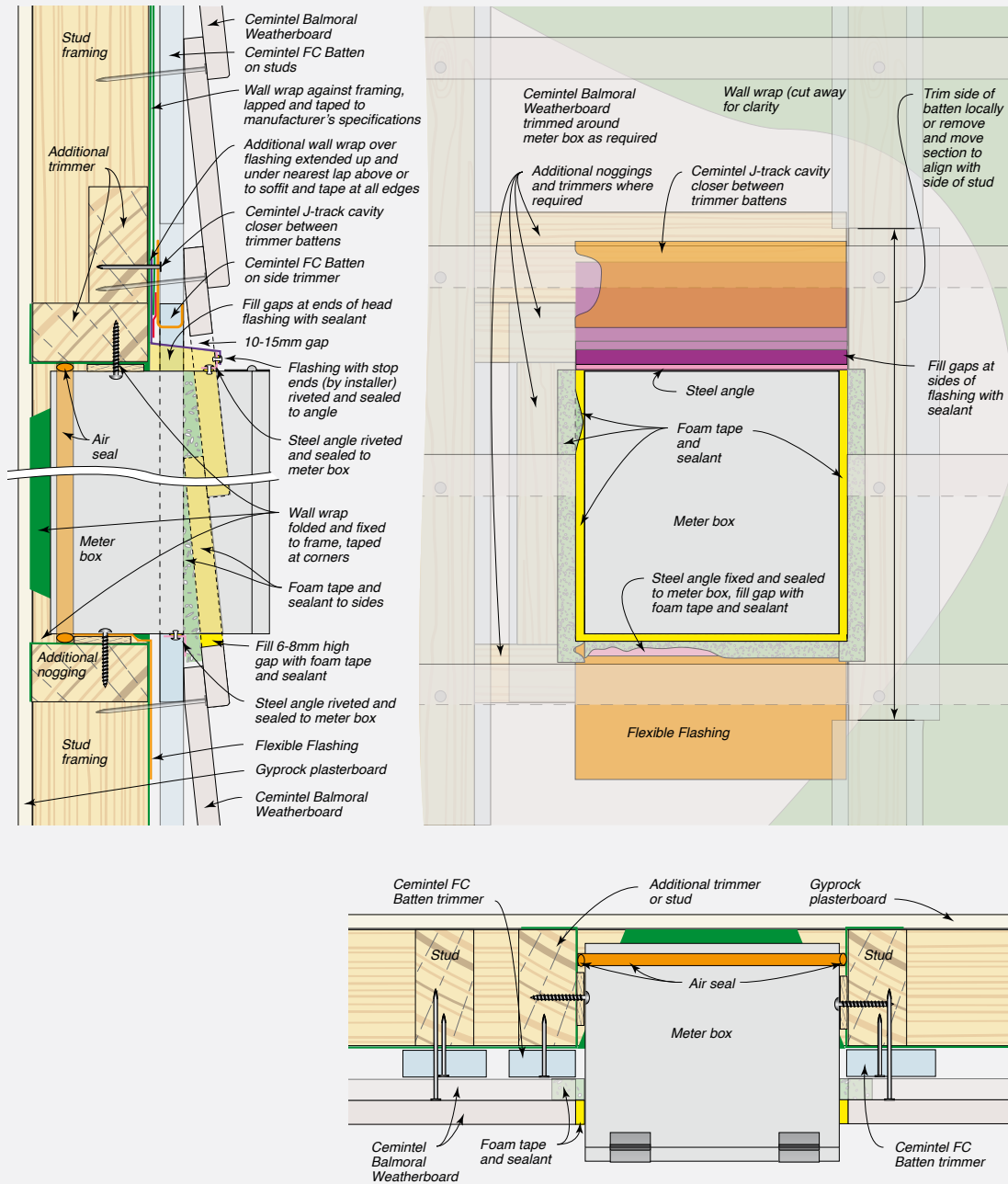


CONSTRUCTION DRAWINGS AND DETAILS



Cavity Fix

FIGURE 8.55 Typical Electrical Meter Box – Recessed Installation

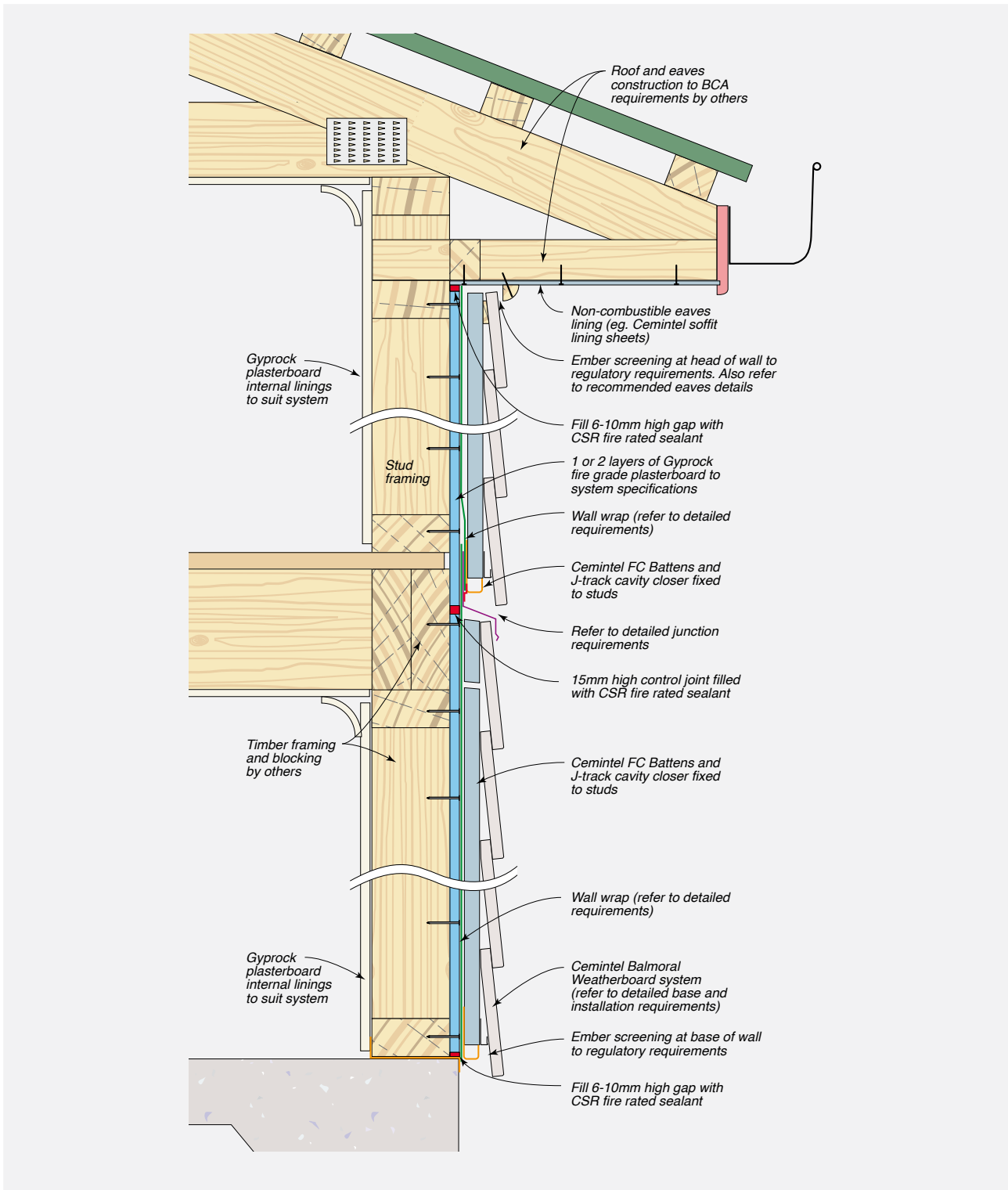




## CONSTRUCTION DRAWINGS AND DETAILS

### Cavity Fix

FIGURE 8.56 Typical Balmoral Fire Rated Wall System – Cavity Fix



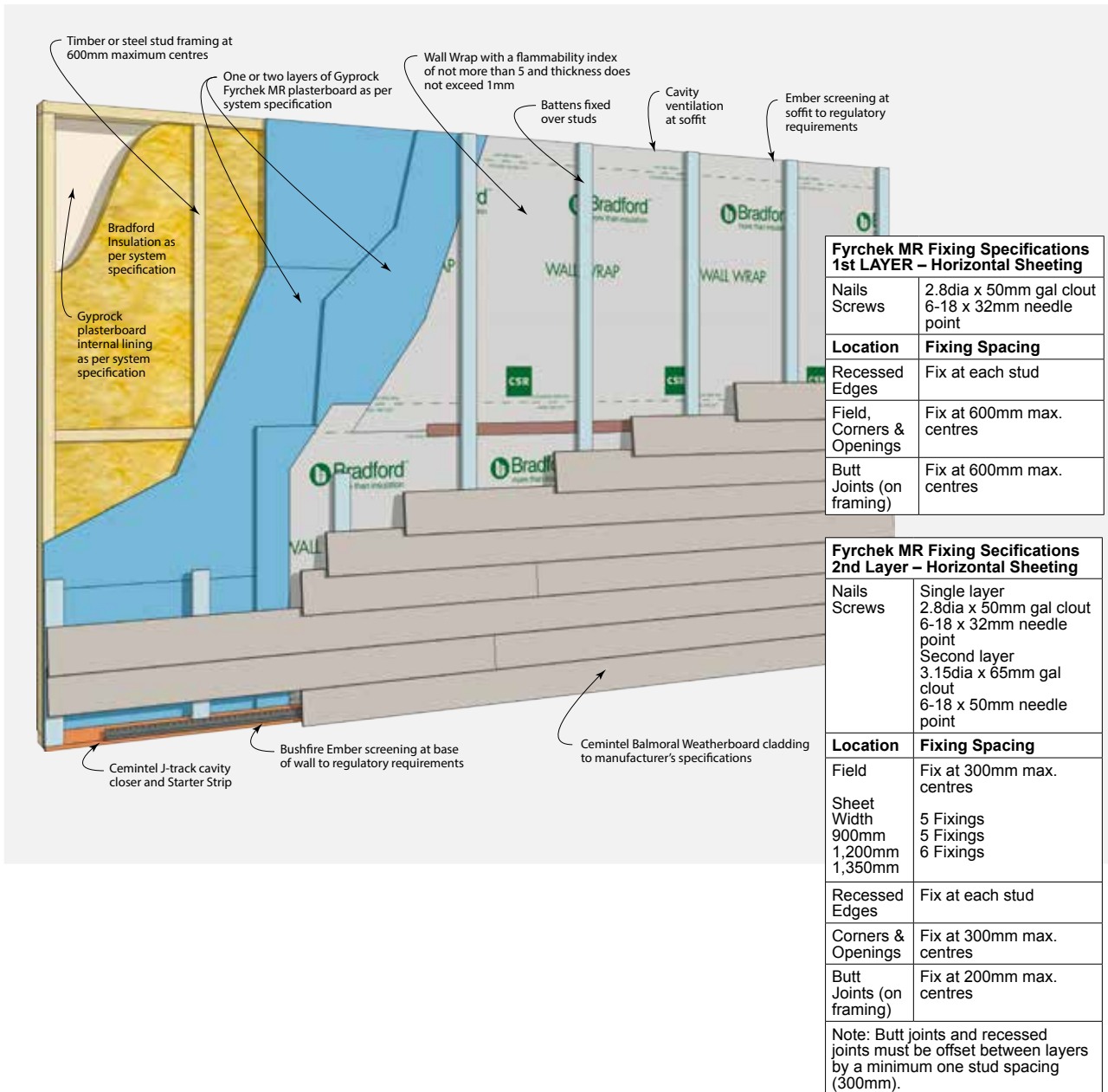
Note: The length of the fixings will need to be increased to ensure the same or greater embedment depth for single and double layered fire-rated linings. Nail fixing through multiple layers can be difficult and screw fixings are the preferred method of construction.

CONSTRUCTION DRAWINGS AND DETAILS



Cavity Fix

FIGURE 8.57 Typical Balmoral Fire Rated Wall System Layout



Note: The length of the fixings will need to be increased to ensure the same or greater embedment depth for single and double layered fire-rated linings. Nail fixing through multiple layers can be difficult and screw fixings are the preferred method of construction.



## SAFETY, HANDLING + GENERAL CARE

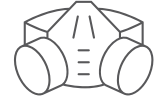
### Health, Safety and Personal Protection Equipment (PPE)

**Fibre Cement weatherboards contain silicas that are harmful if inhaled. Protective clothing and breathing equipment should be worn when cutting products.**

When cutting, drilling or grinding Balmoral Weatherboards using power tools, always ensure the work area is properly ventilated.

An approved dust mask (AS 1715 and AS 1716) and safety glass (AS 1337) must be worn. Cemintel recommends that hearing protection also be worn.

Safety Data Sheet information is available at [www.cemintel.com.au](http://www.cemintel.com.au)



### Managing Respirable Crystalline Silica dust

Crystalline Silica is everywhere. It is found naturally in stone, rocks, sand, gravel and clay. Sand is one of the raw materials in Fibre Cement. Respirable Crystalline Silica dust is the fine dust that's created when you use power tools to cut, drill, grind, chip or sand materials and products that contain crystalline

silica. This dust is of concern due to its size as it gets caught deep in your lungs and can cause long term damage.

**IF YOU USE THE CORRECT EQUIPMENT FIBRE CEMENT IS SAFE TO USE.**



### Cemintel Safety Requirements

1 - Cut Outdoors*	The ventilation outdoors is greater than that indoors, and therefore should reduce exposure.
2 - Use On-Tool Dust Extraction	Use on-tool dust extraction when using power tools to drill and cut Fibre Cement, with a vacuum that contains a HEPA M Class filter.
3 - Correct Equipment	Use a plunge saw with a specifically designed Fibre Cement blade
4 - Don't Sweep, Vacuum instead	When completing your work vacuum with a HEPA M Class filter, rather than a broom as sweeping creates more dust.
5 - Use a Respirator	Use a half face P1 or P2 respirator. It is essential that the respirators are Fit Tested and workers are cleanly shaven to obtain a good seal

\* Even though not recommended, indoor cutting can be completed when using an onsite cutting room with exhaust ventilation and a M class filter at a minimum, on-tool dust extraction with a vacuum with a HEPA M Class filter, a Full Face P2 respirator and conducting local occupational and static air monitoring to validate effectiveness of control measures.

## Handling & General Care

### Storage

All Balmoral Weatherboards must be stacked flat, clear of the ground and supported at 300mm maximum centres on a level platform. Weatherboards must be kept dry, preferably stored inside the building. Weatherboards must be dry prior to fixing, hence if it is necessary to store outside, the product must be protected from the weather.

### Handling

Balmoral Weatherboards and corners are treated products and must be handled with care during handling so as to avoid damage to edges and ends. Weatherboards should be carried horizontally on edge by at least two people.

### Cutting

Weatherboards should be cut from the back using a power saw. Cemintel recommends using the Makita Plunge Saw Kit (1300kW) with guide rail and appropriate blade and vacuum extraction system.

All exposed cut edges **MUST BE SEALED TO PREVENT MOISTURE ABSORPTION** using a suitable exterior paint sealer prior to installation.

### Penetrations

Penetrations in weatherboards may be cut or drilled prior to installation. Cut from the back or drill from the front. Cut penetrations oversize by 8-10mm all around. Mask, prime and fill gaps with sealant in accordance with recommended methods and products.

## WARRANTY, CLEANING + MAINTENANCE

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### Warranty

The Balmoral Weatherboards has a product warranty of 10 years.

The full product warranty is available for download at [www.cemintel.com.au](http://www.cemintel.com.au)

### Wash Down Process

An external coating system must be applied and maintenance of the coating system shall be in accordance with coating manufacturer's recommendation. The following is recommended as a minimum maintenance regime:

- Where sufficiently exposed, rain can perform a natural wash down of the wall and ongoing maintenance should be limited to occasional rinse down or using a soft cloth or soft brush (like a dust pan brush).
- Walls which are protected by soffits above must be washed down twice per year to remove salt and debris build up particularly at joints.
- Normal dirt can be removed with a soft brush and warm water up to 50 degrees, to which a small amount of dishwashing liquid or soap has been added. The weatherboard should be rinsed with clear water before they dry.
- Calcifications should be removed with a 5% sulfamic acid solution or with a commercial lime remover. The façade should be rinsed with clear water after cleaning.
- Weatherboards discoloured by algal growth should be treated with an algicide without bleaching agents. This application should be allowed to take effect for several days. Afterwards, clean the weatherboards using the 'normal dirt' procedure above.
- When rinsing down weatherboards, use no more than 700 psi (50kg/cm<sup>2</sup>) of water pressure at a minimum of 3m to 3.5m distance from the face of the wall. Water pressure should be applied downward to avoid forcing water into joints and gaps.
- Use neutral detergent with a soft cloth or soft brush when removing dirty spots from a weatherboard. When diluting the neutral detergent, follow the manufacturer's instructions and use the weakest solution possible.

### Inspection, Repair and Maintenance

The durability of the Balmoral Weatherboard wall system can be enhanced by periodic inspection and maintenance. Inspections should include examination of the coatings, flashings and seals. Any cracked or damaged finish or seals which would allow water ingress must be repaired immediately by resealing the affected area, or by removing the weatherboard and replacing sealant. Any damaged flashings, sheets or sealant must be replaced as for new work.

Regularly inspect weatherboard surfaces and follow washdown procedures when required.

Ensure ventilation and drainage gaps between weatherboard and flashings are clear of any debris.

It is recommended storing additional weatherboards in case any weatherboards are damaged in the future.



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