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CSR CEMINTEL™

EDGE™ & SIMPLELINE™ CLADDING SYSTEMS



FC:150



FAÇADE SYSTEMS

OCTOBER 2015

Cemintel Edge™ and Cemintel SimpleLine™ panels combine modern sharp-edge expressed groove architectural styling with a choice of easy installation systems to satisfy both visual and construction criteria for building designers, building professionals and their customers.

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## DESCRIPTION

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Cemintel Edge™ and SimpleLine™ cladding panels are fibre cement panels featuring a choice of smooth or modern sharp-edge vertical expressed groove designs. These panels incorporate mating vertical edges and are suitable for gun-nailing for fast and efficient installation.

Edge™ panels feature vertical grooves at 150mm centres to accentuate a regular linear design and provide a modern alternative to the traditional weatherboard patterns.

SimpleLine™ panels have expressed grooves at panel edges only to provide a simple, smooth and expansive modern aesthetic.

Cemintel Edge™ cladding is manufactured from an advanced lightweight fibre cement. Cemintel SimpleLine™ Cladding is manufactured from fibre cement. Both conform to conform to the requirements of AS2908.2 – Cellulose-cement products, Part: 2 - Flat sheets, Category 3 Type A.

## APPLICATIONS

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Cemintel Edge™ and SimpleLine™ claddings are designed for residential projects, and can be used in many external applications including:

- New homes
- Upper and lower storey additions
- Composite construction
- Gable ends
- Infill panels around windows and doors
- Outbuildings including garages and tool-sheds
- Over-cladding of existing walls

Cemintel Edge™ and SimpleLine™ cladding may be installed to timber or steel framing built in accordance with the relevant Australian Standards, and is suitable for wind zones N1 to N5/C3 in accordance with AS4055: Wind loads for housing.

## ADVANTAGES

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- Simple and quick to install using standard building methods.
- Direct fixed option, where the cladding is direct fixed to studs over wall wrap/sarking.
- Drained and ventilated cavity option where the cladding is fixed to battens over wall wrap/sarking delivers superior weatherproofing by more effectively managing moisture.
- Nail-gun fixing to timber framing or screw fixing to steel framing.
- Manufactured from highly durable and robust fibre cement.
- Immune to permanent water damage.
- Will not rot.
- Low maintenance.
- Termite resistant.
- Resistant to cracking, swelling and warping.

### Edge™ Cladding

- Vertically grooved Edge™ panels provide a modern aesthetic and an alternative to the traditional weatherboard.
- Edge™ panels supplied with factory primed face ready for paint finishing.

### SimpleLine™ Cladding

- Smooth, flat panels complemented with a discrete ship-lapped joints make SimpleLine™ a cost effective alternative to render.
- SimpleLine™ panels are pre-sealed to easily accept all types of exterior paint finish.

# SYSTEM OVERVIEW

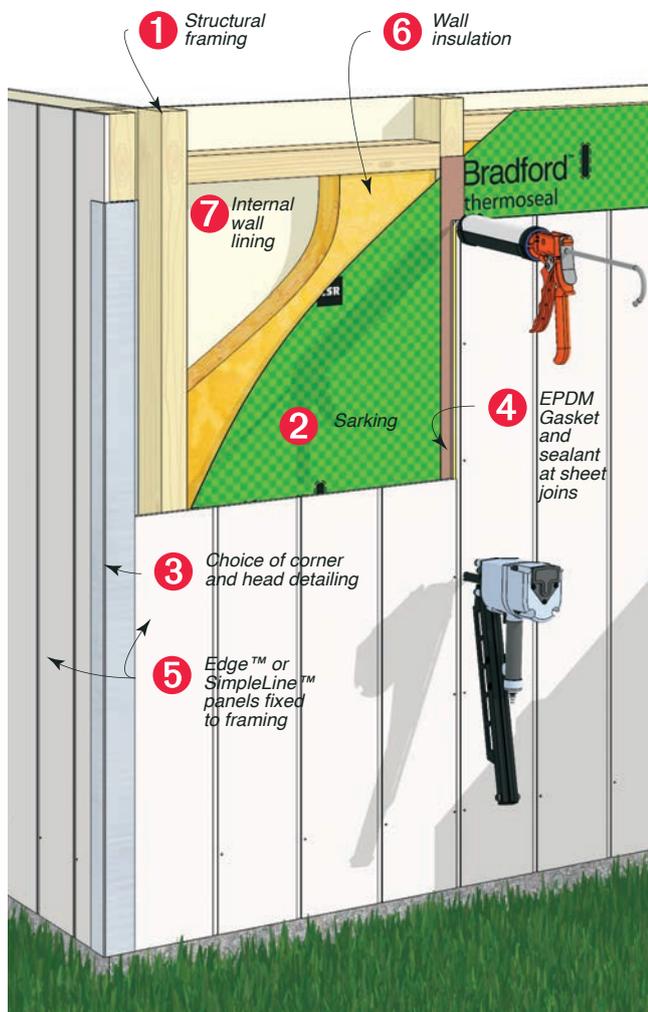
## DIRECT FIX INSTALLATION SYSTEM

- Structural stud framing is constructed to industry standard format in either timber or steel.
- Sarking/wall wrap is installed over framing.
- At vertical sheet joints, self adhesive backed EPDM tape is installed to the sarking at stud locations.
- Cladding is fixed directly to structural framing using fast gun-nailing or screw fixing methods.
- Sealant is required at openings and junctions for weatherproofing.
- Corners, joints, junctions, flashings and penetrations (window and door openings), etc., require various treatments to ensure appropriate weatherproofing. Typical details are provided in this guide.

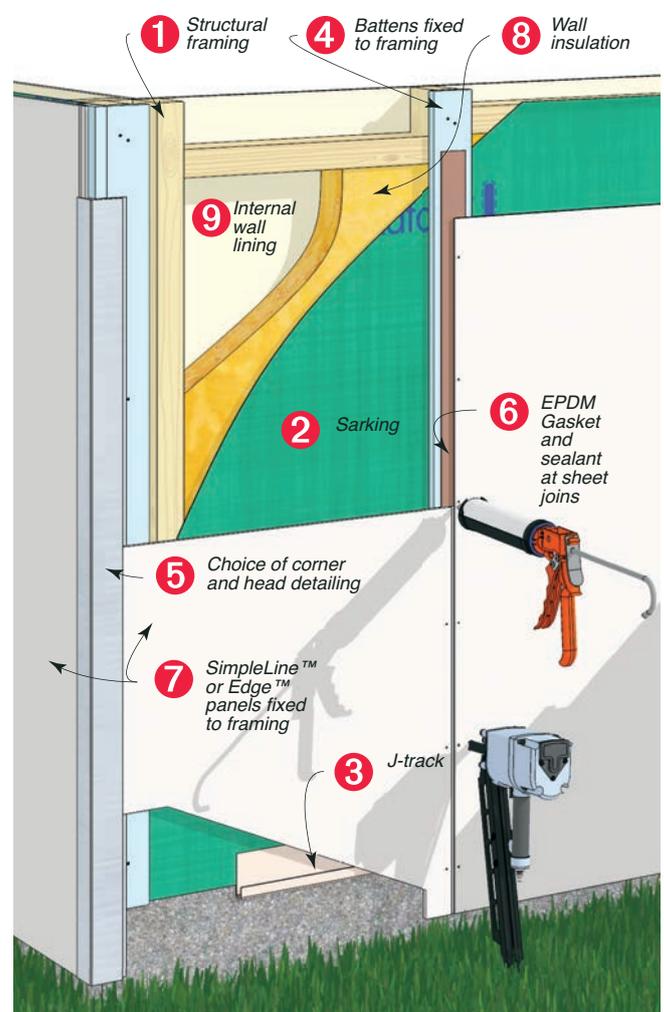
## CAVITY INSTALLATION SYSTEM

- Structural stud framing is constructed to industry standard format in timber.
- Sarking/wall wrap is installed over framing.
- A J-track is fitted at the base of the wall to provide air flow, drainage and vermin protection.
- Cemintel™ FC structural grade battens are fixed to the face of the framing. Self adhesive backed EPDM tape is installed to battens at vertical sheet joints. Edge™ or SimpleLine™ cladding is gun-nail fixed to the battens.
- Alternatively, non-structural grade battens (such as 18-20mm H3 timber) are fixed to the face of studs, and cladding panels are gun-nail or screw fixed through the battens to the studs.
- Ventilation is also required at the top of walls, and this is achieved using various system alternatives.
- Corners, joints, junctions, flashings and penetrations (window and door openings), etc., require various treatments to ensure appropriate weatherproofing. Typical details are provided in this guide.

Typical Direct Fix System



Typical Cavity System



# DESIGN CONSIDERATIONS

## SYSTEM DESIGN

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 Cemintel™ Cladding System is suitable for the particular requirements of any given project.

CSR Cemintel™ recommends that a comprehensive risk assessment of the building weatherproofing be conducted prior to selection of the installation system. Assessment should be based on current NCC Weatherproofing Verification methods.

## NCC/BCA COMPLIANCE

Clause P2.2.2 of the 2015 National Construction Code (NCC) includes a test method to verify that a cladding system meets stipulated weatherproofing requirements. Cavity and direct fixed systems using Cemintel Edge™ and SimpleLine™ claddings have been independently certified by AECOM that they meet the performance requirements of the NCC based on tests carried out to the NCC method, in Wind Categories up to N5/C3 (max. 2.96kPa).

Refer to "WEATHERPROOFING" in this guide and BCA requirements for detailed information.

## CLADDING SYSTEM TYPES

A cladding system essentially covers the exterior walls of a building and is a key component in providing weather resistance, acoustic, thermal and fire resisting properties. A fundamental requirement of a cladding system is that water does not leak through it and into the building, and there are a number of system options available to achieve this:

### Direct Fix System with Face Sealing

In many Australian residential applications, cladding is fixed directly to the frame. A high degree of sealing is required at joints and gaps to prevent water ingress. Although not as effective as ventilated and drained cavity systems, direct fix systems can be a suitable means of weatherproofing low risk buildings, i.e., in low rise buildings in low wind pressure areas.

### Drained & Ventilated Cavity

A ventilated and drained cavity or "Rainscreen" is a relatively open jointed, rear-ventilated cladding system (vented primarily at the head and base). These systems reduce the risk of moisture entering the cavity by means of pressure equalisation. Any water which does enter will be effectively drained away, or evaporate due to the constant airflow throughout the cavity.

## WEATHERPROOFING

The control of water ingress to a building is the responsibility of the building designer. All framing, sarking, flashings, damp proof courses and sealants must be installed in accordance with this manual, the relevant product manufacturer's instructions, applicable standards and building codes.

The selection of the appropriate installation system is based on many factors, but particular attention must be paid to weatherproofing to ensure adequate long-term performance. Therefore an assessment based on NCC Weatherproofing Risk Factors should be undertaken prior to selection of the installation system. Refer to Table 1.

Cavity systems are the best method for weather proofing walls and should be considered for high risk designs. Table 1 is a method used by the BCA to determine a buildings risk. A score of 13 – 20 is considered to be a high risk design.

## FRAMING

Cemintel cladding products can be fixed to timber or steel framing with studs at 600mm maximum centres and a minimum face width of 35mm.

Studs at vertical sheet/board joints often require a wider minimum face fixing width to provide adequate edge distances for fixings. In these cases, double studs, trimmers and/or wider battens must be provided behind vertical sheet joints. Refer to appropriate construction details for your chosen product.

As a minimum requirement, framing shall be in accordance with the following applicable standards:

- AS1684 – Residential timber-framed construction.
- AS/NZS4600 – Cold-formed steel structures.
- AS3623 – Domestic metal framing.
- AS4055 – Wind loads for housing.
- The Building Code of Australia (BCA).

### Timber Framing

Timber shall be seasoned or have reached an equilibrium moisture content of 16% or less at the time of framing. Unseasoned timber is not recommended.

### Steel Framing

The design and construction of the steel frames should be considered in conjunction with the advice from the manufacturer. In highly corrosive environments, appropriate measures should be taken to protect the frame from corrosion. Steel framing must be a minimum 0.55mm BMT to a maximum 1.6mm BMT. Do not fix Cemintel cladding to thicker cold rolled members or to hot rolled steel.

**Table 1: Weatherproofing Risk Factors (NCC 2015 BCA Vol 2, Table V2.2.1)**

Risk Factor	Category	Risk Severity	Risk Score	My Score
Wind Region	Region A (AS/NZS 1170.2)	Low to Medium	0	
	Region B (AS/NZS 1170.2)			
	Region C (AS/NZS 1170.2)	High		
	Region D (AS/NZS 1170.2)	Very High		
Number Of Storeys	One storey	Low	0	
	Two storeys in part	Medium	1	
	Two storeys	High	2	
	More than two storeys	Very High	4	
Roof/Wall Junctions	Roof-to-wall junctions fully protected	Low	0	
	Roof-to-wall junctions partially exposed	Medium	1	
	Roof-to-wall junctions fully exposed	High	3	
	Roof elements finishing within the boundaries formed by the external walls	Very High	5	
Eaves Width	Greater than 600 mm for single storey	Low	0	
	451-600 mm for single storey; or greater than 600 mm for two storey	Medium	1	
	101-450 mm for single storey; or 451-600 mm for two storey; or greater than 600 mm for above two storey			
	0-100 mm for single storey; or 0-450 mm for two storey; or less than 600 mm for above two storey	High	2	
		Very High	5	
Envelope Complexity	Simple shape with single cladding type	Low	0	
	Complex shape with no more than two cladding types	Medium	1	
	Complex shape with more than two cladding types	High	3	
	As for high risk but with fully exposed roof-to-wall junctions	Very High	6	
Decks, Porches And Balconies	None; or timber slat deck or porch at ground level	Low	0	
	Fully covered in plan view by roof; or timber slat deck attached at first or second floor level			
	Balcony exposed in plan view at first floor level; or balcony cantilevered at first floor level	Medium	2	
	Balcony exposed in plan view at second floor level or above; or balcony cantilevered at second floor level or above			
		High	4	
		Very High	6	
BUILDING TOTAL RISK SCORE				
<b>A score of 13 – 20 is considered to be a high risk design, and a cavity system is recommended.</b>				

Notes:

1. Eaves width is measured horizontally from the external face of any wall cladding to the outer edge of any overhang, including fascia and external gutters.
2. Barriers to prevent falling and parapets are considered as 0 mm eaves.

## DRAINED CAVITY BATTENS

Cemintel™ drained cavity systems have been designed to suit battens 18 to 20mm thick with a minimum 35mm face width. They are to be fixed to the structural stud framing at appropriate centres.

Wider battens or side-by-side battens may be required behind vertical sheet/board joints in some cases. Refer to appropriate construction details.

The Cemintel™ Fibre Cement cavity batten (70 x 19mm) should be used where a structural grade batten is required, i.e., where the batten is fixed to the framing to system specifications (refer to Table 8 on page 30), and the cladding is fixed to the batten, or wherever additional durability is preferred.

Battens are to be fixed vertically to stud framing and may be fixed on-stud, or off-stud with the addition of support framing such as noggings at each fixing point.

Timber battens with a minimum H3 protective treatment and 18-20mm thickness may be used in non-structural applications, (i.e., where the battens are on studs and the cladding is fixed through the batten into the stud).

Where additional backing is required for flashings etc, a short trimmer batten may be used and must be fixed with a minimum fall of 5° to the horizontal to allow drainage of any moisture.

## THERMAL BREAK – STEEL FRAMING

A thermal break is required where Cemintel™ cladding is fixed directly to steel framing of walls enclosing habitable or usable spaces. For detailed information refer to the BCA.

The thermal break is applied to the face of the frame to meet the deemed to satisfy requirements of the BCA. The thermal break is used to ensure that the thermal performance of the wall is comparable to that of a timber framed wall.

## WIND LOADING

Cemintel™ claddings in this guide are 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. Cemintel™ cladding is also suitable for buildings outside this code in non-cyclone areas.

For appropriate stud spacing and board fixing specifications, refer to the relevant Cemintel installation guide for your chosen product. It is the responsibility of the building designer to determine the wind classifications of the building and the suitability of the system.

## LIMITATIONS

Cemintel™ claddings in this guide are unsuitable for the following applications: non-vertical framing (e.g. parapet capping); water features; chimney cladding; exposure to temperatures over 50°C; contact with standing snow or ice. Also refer to Corrosivity Categories/Coastal Areas and Cold Climates in this guide.

## BUSHFIRE PRONE AREAS

In accordance with AS3959, Cemintel Edge™ and SimpleLine™ cladding installed with recommended wall wrap/sarking are suitable as an external wall cladding for buildings assessed to be in a Bushfire zone. Refer to 'FIRE RATED EXTERNAL WALL SYSTEMS' on page 10 of this guide.

## STRUCTURAL BRACING

Cemintel™ cladding is not designed to provide wall bracing. Bracing must be provided in the structural framing in the normal manner by using methods such as strap bracing or sheet bracing. Where sheet bracing is used, the entire wall framing to be clad with Cemintel™ cladding must be sheeted to maintain a uniform fixing plane. Note that window set-out will be affected.

## CONTROL JOINTS

A control joint must be installed when a masonry wall adjoins framed construction, and at the junction of framed additions or existing buildings, to allow for differential movement. The current and new framing and cladding systems must be discontinuous at this control joint. Refer to 'Installation Details'.

Movement joints provided in framing should be carried through the cladding.

For two storey construction, a horizontal control joint should be provided at the upper floor level. Frame shrinkage also requires consideration by the building designer in all cases.

## 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.

## SERVICES

Cemintel™ cladding systems in this guide will accommodate services that are run through the framing. Any notches or holes formed must be considered in the framing design

## PENETRATIONS

Penetrations in the Cemintel™ cladding must be neatly cut using appropriate tools such as a saw, drill or hole saw. Penetrations should be prepared with a clearance of 5mm all around and the gap must be fully sealed with Sealant

## WALL WRAP/SARKING SELECTION

To ensure occupant comfort and protection of the building frame, the following factors should be considered during the selection of the correct wall wrap/sarking.

- **Condensation Risk:** This is a complex problem and can occur under a variety of conditions (not just in cold and tropical climates) so 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.
- **Weather Barrier:** Wind loads can produce lower air pressures within buildings than on the outside, forcing water through small gaps in the building envelope around penetrations and joints, even at low wind speeds.

Careful selection of a wall wrap/sarking with the appropriate level of vapour permeability or vapour resistance is one key factor in reducing condensation risk. Table 2 provides guidance on recommended wall wrap/sarking selection. Key selection characteristics for a suitable wall wrap/sarking are as follows:

- The wall wrap/sarking must have a 'high' water barrier classification – an 'unclassified' rating is not suitable.

- Wall wrap/sarking must meet the requirements of AS/NZS4200.1: Pliable building membranes and underlays – Materials, and be installed in accordance with AS/NZS4200.2: Pliable building membranes and underlays – Installation requirements.

Whilst the requirement to seal joints and penetrations 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. As there are a number of factors that need to be considered in assessing and managing condensation risk, it is recommended that designers undertake a condensation risk analysis prior to wall wrap/sarking selection as part of the building design. Additional literature on this subject is available from CSIRO/BRANZ/ASHRAE/ABCB and CSR DesignLINK can help with this assessment.

## INSULATION

Energy efficiency requirements for buildings are set out in the BCA as performance requirements and acceptable construction practices, and are dependant on geographical climate zones. To meet the requirements, it is recommended

that CSR Bradford insulation be installed in the wall framing. Check with local building authorities for minimum insulation requirements.

It is recommended that insulation values above the minimum be chosen for energy conservation and occupant comfort. Insulation also improves the acoustic performance of the wall against outside noise.

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 some systems are given in Table 3.

Refer to 'Components' for product information.

## COLD CLIMATES

In cold climates where condensation in the wall cavity is possible, a vapour barrier is also recommended between any internal linings and the framing.

Cemintel™ cladding is not designed to be in contact with snow or ice build-up, such as is experienced in alpine areas subject to snowdrifts. When used in freeze/thaw conditions, Cemintel™ cladding must be painted prior to exposure to freezing conditions.

**Table 2: Guidance on Wall Wrap/Sarking**

Climate	Guidance on wall wrap/sarking to be used behind the cladding	Performance Criteria	Recommended Product
Cold Climates*	In cold climates where the risk of condensation is high, vapour permeable membranes should always be installed on the cold external side of the insulation.	Vapour Permeability > 2.5µg/N.s	Enviroseal ProctorWrap RW or CW
Temperate and inland climate zones	It is recommended to use vapour permeable membranes to avoid creating a seasonal moisture trap and to allow drying in either direction – interior or exterior.	Vapour Permeability > 2.5µg/N.s	Enviroseal ProctorWrap RW or CW
Warm humid coastal and tropical climates	Where vapour flow is typically inward, such as where the building is air-conditioned, membrane should be non-permeable.	Vapour Resistance > 7MN/g	Thermoseal Resiwrap or Thermoseal Wall Wrap or Thermoseal 733

\* For alpine areas and buildings that have high internal levels of humidity (such as indoor swimming pool areas), please contact CSR Bradford for project specific technical advice.

**Table 3: Thermal Performance Selection – Cladding Direct Fixed or Fixed to Battens**

Cemintel Edge™/Simpleline™ Cladding						
<ul style="list-style-type: none"> <li>• 1 layer Cemintel Edge™ or SimpleLine™ cladding to the outside of wall framing or battens.</li> <li>• Timber or Steel* studs at 600mm maximum centres. (For Cavity System, battens fixed to framing to project specifications)</li> <li>• Sarking and insulation as per table below.</li> <li>• 1 layer x 10mm GYPROCK™ Standard Plasterboard to the inside of framing.</li> </ul>						
Wall Frame	Insulation	Wall Wrap/Sarking	Direct Fixed System		Cavity System	
			Winter Total Wall R-Value	Summer Total Wall R-Value	Winter Total Wall R-Value	Summer Total Wall R-Value
70mm	(a) Bradford 70mm Gold Wall Batts R2.1	Bradford Thermoseal Wall Wrap or Enviroseal ProctorWrap RW	2.5	2.2	2.6	2.4
90mm	(b) Bradford 90mm Gold Wall Batts R2.5	Bradford Thermoseal Wall Wrap or Enviroseal ProctorWrap RW	2.9	2.6	3.1	2.8
90mm	(c) Bradford 90mm Gold Wall Batts R2.7HP	Bradford Enviroseal Proctorwrap RW or CW	3.1	2.8	3.3	3.0
90mm	(d) Bradford 90mm Gold Wall Batts R2.7HP	Bradford Thermoseal Wall Wrap or Resiwrap	3.1	2.8	3.3	3.3
70mm	(e) NIL	Bradford Thermoseal 733*	1.0	0.8	1.5	1.4

NOTES: Values calculated in accordance with AS4859.1, and are based on an un-ventilated cavity and using Bradford Thermal Calculator v1.6.

\* Bright side of foil facing stud cavity. Bradford Thermofoil 733 is wall wrap/sarking with reflective finish both sides. Using an alternative product with anti-glare finish will REDUCE the stated R-value performance.

\* Steel studs require a thermal break of minimum R0.2

• All Bradford wall wrap/sarking products detailed above have a Flamability Index of ≤ 5 to AS/NZS1532 Part 2.

## INTERNAL LININGS

Internal linings are to be designed for the applicable pressures calculated in accordance with AS4055. For Gyprock Plasterboard linings, the arrangements in Table 4 may be used. Sheet fixing details are to be in accordance with GYP547 Gyprock Residential Installation Guide. For other lining materials, consult the manufacturer.

**Table 4: Internal Lining Design**

Wind Category	Stud Spacing mm max.	Lining	Sheet Orientation
N1, N2, N3	600	1 x 10mm Gyprock Standard Plasterboard	Horizontal or Vertical
N4, N5, N6 C1	600	1 x 13mm Gyprock Standard Plasterboard	Horizontal
C2, C3	600	2 x 13mm Gyprock Standard Plasterboard or 1 x 13mm Gyprock Soundchek	Horizontal
	450	1 x 13mm Gyprock Standard Plasterboard	Horizontal
C4	600	1 x 13mm Gyprock Soundchek	Horizontal
	450	1 x 13mm Gyprock Standard Plasterboard	Horizontal

## CORROSIVITY CATEGORIES/COASTAL AREAS

Corrosivity categories are as described in AS4312 - Atmospheric corrosivity zones in Australia. The code has methods for determining categories as well as maps and tables of major population centres. It is recommended that the building designer assess the site in accordance with the standard and local conditions.

Cemintel Edge™ and SimpleLine™ cladding may be installed in accordance with Table 5.

**Table 5: Requirements for Corrosive Environments**

Corrosivity Category (AS4312)	Fixings (minimum)
C1 : Very Low C2 : Low	Class 3 or Class 4 stainless steel fixings
C3 : Medium	Class 3 or Class 4 stainless steel fixings
C4 : High	Class 4 countersunk head screws filled and finished level with Cemintel External Joint Compound or Class 4 stainless steel fixings
C5 : Very High	Not Suitable

The following is a summary of the BCA description for corrosivity categories.

### C1: Very Low

Generally inside buildings, semi-sheltered locations away from marine or industrial influence, and some alpine regions.

### C2: Low

Dry, rural areas, away from the coast or sources of pollution. Most areas of Australia at least 50 kilometres from the coast, which can extend to within one kilometre from quiet, sheltered seas. Most inland towns, such as Canberra, Ballarat, Toowoomba and Alice Springs, and suburbs of cities on sheltered bays (Brisbane, Melbourne, Hobart) that are more than one kilometre from the sea. Adelaide suburbs more than 6 kilometres from the coast in the southern suburbs, through to 3 kilometres from the coast in the northern suburbs.

### C3: Medium

Coastal areas with low salinity, extended by factors such as wind, topography and vegetation. Sheltered areas such as Port Philip Bay 50 metres from the shoreline to about one kilometre inland. Around less sheltered bays such as Adelaide to about 3 to 6 kilometres inland. Along ocean front areas with breaking surf and significant salt spray extending from about one kilometre inland to between 10 and 50 kilometres inland, depending on the strength of prevailing winds and topography. Includes much of the metropolitan areas of Wollongong, Sydney, Newcastle and the Gold Coast, most of the Yorke Peninsula South Australia, and from Victor Harbour to the Victorian border, extending between 30 and 70 kilometres inland. Urban and industrial areas with low pollution levels, and for several kilometres around large industries such as steelworks and smelters.

### C4: High

Around sheltered bays up to 50 metres inland from the shoreline. Areas with rough seas and surf, extending from several hundred metres inland to about one kilometre inland and depends on winds, wave action and topography. Up to 1.5 kilometres downwind of large industrial plants.

### C5: Very High

Offshore and on the beach front in regions of rough seas and surf beaches, and inland for several hundred metres, e.g. around Newcastle extending over half a kilometre from the coast. Aggressive industrial areas where the environment may be acidic with a pH of less than 5.

## WASH-DOWN

Walls must be washed down twice per year, to remove salt/corrosive build-up. When Cleaning cladding, use no more than 700psi (50kg/cm<sup>2</sup>) of water pressure at 3m to 3.5m distance from the face. Water pressure should be applied downward to avoid forcing water into openings.

## FLASHINGS & CAPPINGS

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.

## WINDOW SELECTION

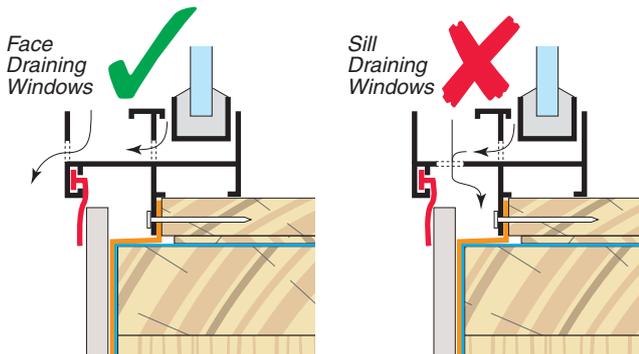
The Cemintel™ cladding systems are designed to accept standard aluminium or timber framed windows and doors that comply with AS2047. Aluminium windows **MUST NOT** have sill drain holes which can direct water behind the cladding.

Consideration must be given to the total depth of the wall to ensure the required clearance is provided at the window jamb to accommodate the cladding. As per normal industry practice, reveal depth is usually varied to adjust the window location.

Elements that affect window/door installations include the depth of the stud framing, the thickness of internal linings, the depth and design of the chosen window frame, the depth of the timber reveal and the total depth of the cladding system. Refer to typical window installation details later in this guide.

Jamb flashing is required in all cases, and for ease of installation, these should be included when ordering windows.

### Window Drainage



## BUILDING RENOVATIONS

When undertaking building renovations, remove all cladding and wall wrap/sarking from the original wall framing. Ensure the condition of the framing is in accordance with current applicable requirements. Install additional studs where required and prepare framing, wall wrap/sarking and flashings as per details in this publication.

## PAINTING

All products should be painted within three months of delivery to site. CSR recommends a minimum of two coats of exterior grade acrylic paint be applied to the manufacturer's specifications. A priming coat may also be required when coating SimpleLine™. Refer to paint manufacturer's recommendations.

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 coatings.

All cut edges should be pre-painted with an exterior sealer (preferably prior to installation) and then finished as for the face.

Prior to the application of the external coating, wash down all walls with clean fresh water to remove salt spray build-up from boards and fixings. Boards must be allowed to dry before coating.

## DURABILITY & MAINTENANCE

The durability of the Cemintel™ cladding systems can be enhanced by periodic inspection and maintenance. Inspections should include examination of the coatings, flashings, gaskets and sealants. Paint finishes must be maintained in accordance with the manufacturer's recommendations. Any cracked or damaged finish or sealants which would allow water ingress, must be repaired immediately by recoating or resealing the effected area, or by removing the panel and replacing gaskets and sealants. Any damaged flashings, panels or gaskets must be replaced as for new work.

Regularly inspect board surfaces and follow wash-down procedures as described in this guide.

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

The durability of the system can also be increased by the additional treatment of steelwork, and by painting all exposed sealants to the sealant manufacturer's recommendations.

# FIRE RATED EXTERNAL WALL SYSTEMS

Cemintel™ fibre cement cladding products are suitable for use in bushfire zones in accordance with AS3959, and for fire rated external walls in accordance with the Building Code of Australia (BCA).

## WALL SYSTEMS FOR BUSHFIRE ZONES BAL-12.5 TO BAL-40

In accordance with AS3959, Cemintel™ fibre cement cladding products are suitable as an external wall lining for buildings in bushfire zones. Refer to Table 6 for product suitability and performance.

Cemintel™ wall systems for BAL-12.5 to BAL-40 require little variation from the standard installation practices and can be either direct fix or cavity/batten fix systems. Refer to Weatherproofing for additional selection criteria.

In order to achieve the stated bushfire rating, the Cemintel™ wall system must include sarking/wall wrap with a flammability index of not more than 5 (AS1530.2) to the outside of framing; internal linings of 1 layer x 10mm Gyprock plasterboard or 1 x 6mm Cemintel™ Wallboard.

Refer to Table 6 and FIG 1. Also refer to Treatment of Gaps in the following section. Refer to the BCA and AS3959 for additional requirements and further details.

## WALL SYSTEMS FOR BUSHFIRE ZONE BAL-FZ

Cemintel™ wall systems that achieve BAL-FZ are based on standard construction methods, and can be either direct fix or cavity/batten fix systems. Refer to Weatherproofing for additional selection criteria.

In order to achieve BAL-FZ requirements, the Cemintel™ wall system must include 1 layer x 16mm Gyprock Fyrchek MR plasterboard to the outside of framing; sarking/wall wrap with a flammability index of not more than 5 (AS1530.2) to the outside of plasterboard; internal linings of 1 layer x 10mm Gyprock plasterboard or 1 x 6mm Cemintel™ Wallboard.

Refer to Table 6 and FIG 1. Also refer to Treatment of Gaps in the following section. Refer to the BCA and AS3959 for additional requirements and further details.

## TREATMENT OF GAPS – FOR ALL BUSHFIRE ZONES

In accordance with AS3959, all joints in the external surface material of walls shall be covered, sealed, overlapped, backed or butt-jointed to prevent gaps greater than 3mm. Vents in external walls shall be screened with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel or bronze, except where they are less than 3mm.

When using cavity/batten fix systems, it is important to maintain the ventilation at the head and base of walls, but also to reduce the risk of ember penetration.

Refer to AS3959 for additional details.

## FRL RATED EXTERNAL WALL SYSTEMS

In accordance with the fire safety requirements of the Building Code of Australia (BCA), walls within close proximity to the property boundary or when exposed to a fire source are required to have a Fire Rating Level (FRL from outside only). Walls may include:

- External walls in a Bushfire Flame Zone (BAL-FZ),
- External walls to Class 1 buildings within 900mm of the boundary including Zero-Lot walls,
- External walls adjacent an external fire source (such as an Electrical Sub-Station).

In accordance with the BCA, Vol 2, Part 3.7.1.2, Cemintel™ fibre cement sheets can be used wherever non-combustible material is required by the code, and Cemintel™ offers wall systems to achieve various FRLs. Refer to Table 6 and FIG 1 and Gyprock publication, GYP500 – The Red Book™ Fire & Acoustic Design Guide. For additional assistance, contact CSR DesignLINK. Refer to the BCA for additional requirements and details.

## FRL RATED WALL INSTALLATION

Cemintel™ wall systems that achieve FRL ratings are based on standard construction methods, and can be either direct fix or cavity/batten fix systems. Refer to Weatherproofing requirements for additional selection criteria.

In order to achieve FRL ratings as detailed in Table 6, Cemintel™ FRL compliant wall systems must incorporate 1 or 2 layers of Gyprock Fyrchek MR plasterboard to the outside of framing (in accordance with the system specification); sarking/wall wrap with a flammability index of not more than 5 (AS1530.2) to the outside of plasterboard; and internal lining (in accordance with the system specification). Refer to FIG 1 for typical installation details.

For alternative systems and additional information, refer to Gyprock publication, GYP500 – The Red Book™ Fire & Acoustic Design Guide. For additional assistance, contact CSR DesignLINK.

## ROOF & EAVES DESIGN

Refer to the Cemintel™ Construction Guide for Fire Rated External Walls (FC978), available at [www.cemintel.com.au](http://www.cemintel.com.au) and the Bradford Bushfire Roofing Systems Design Guide, available at [www.bradfordinsulation.com.au](http://www.bradfordinsulation.com.au).

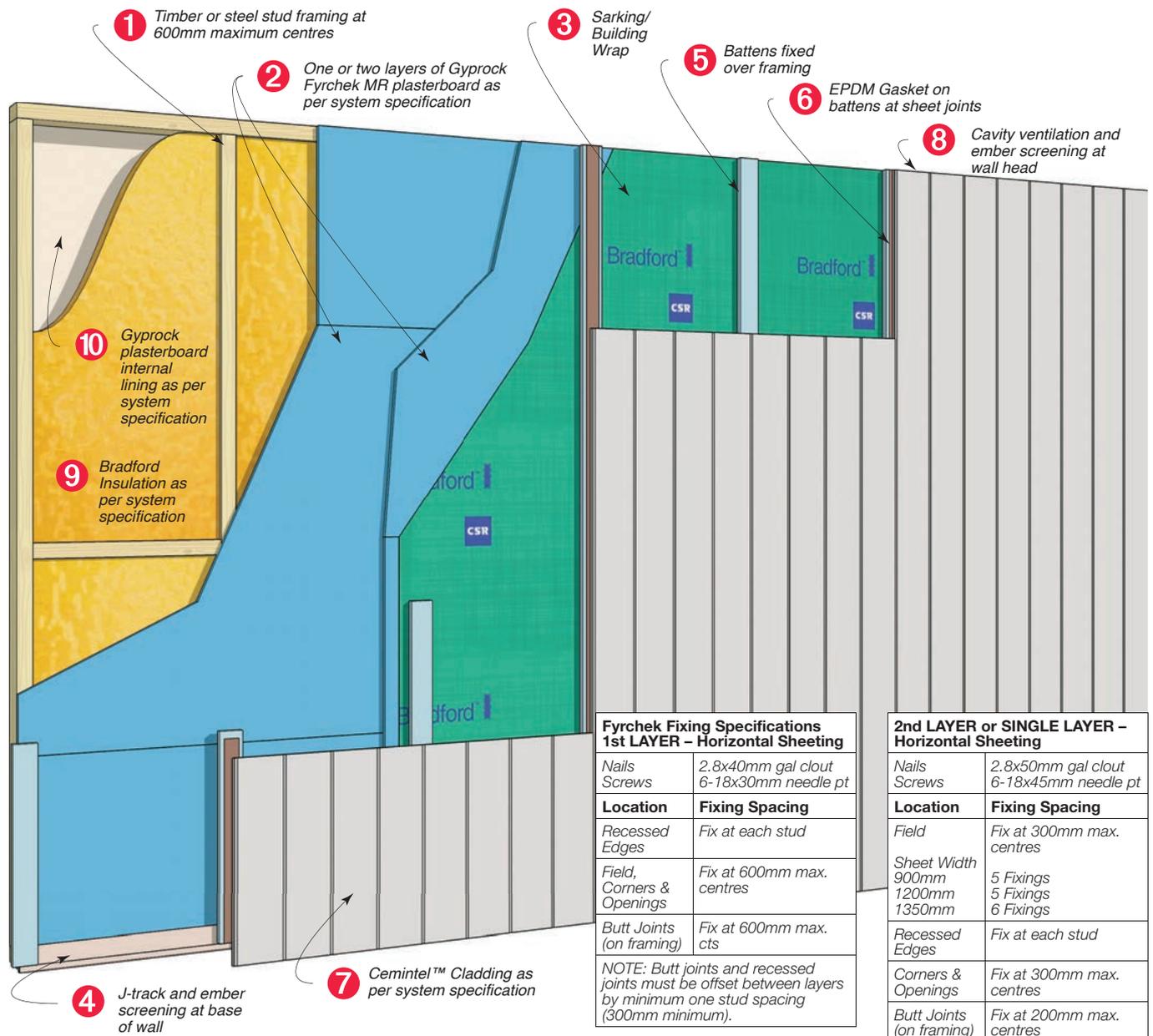
Table 6: Cemintel™ Bushfire & Fire Rated External Wall Systems Specifications

Cemintel™ Product	Product Specifications		Bushfire Zone Walls System Specifications		Fire Rated External Wall Systems System Specifications	
			Cemintel™ Cladding System (+ Battens optional) + Sarking to outside of framing + 1 x 10mm Gyprock Plasterboard or 1 x 6mm Cemintel Wallboard to inside of framing	Cemintel™ Cladding System (+ Battens optional) + Sarking + 1 x 16mm Gyprock Fyrchek MR Plasterboard to outside of framing + 1 x 10mm Gyprock Plasterboard or 1 x 6mm Cemintel Wallboard to inside of framing Refer to FIG 1	Refer to The Gyprock Red Book for specifications and additional systems Refer to FIG 1	Refer to The Gyprock Red Book for specifications and additional systems Refer to FIG 1
	Thickness (mm nominal)	Thickness (mm minimum)	Bushfire Attack Level (BAL max.)		FRL	
Edge™	9	7.2	BAL-29	<b>BAL-FZ</b> ①	<b>60/60/60</b> (from outside only)	<b>90/90/90</b> (from outside only)
SimpleLine™	8.5	8.5	BAL-29	<b>30/30/30</b> (from outside only)		

NOTE: • Sarking/Building Wrap must have a flammability index of ≤ 5 (AS1530.2).

① BAL-FZ walls must have a minimum setback distance of 10 m from classified vegetation. Also refer to local building regulations.

FIG 1: Typical Cemintel Edge™/SimpleLine™ Fire Rated External Wall System – Cavity/Batten Fix Shown



# INSTALLATION METHODS

## HANDLING & STORAGE

Cemintel cladding must be treated with care. During handling, avoid damage to edges, ends and surfaces.

Panels must be stacked flat, clear of the ground, and supported at 450mm maximum centres on a level platform. Panels must be carried on edge.

Material must be kept dry, preferably by being stored inside the building. Panels exposed to moisture prior to installation may be subject to shrinkage, and voiding of warranty. Protect from contaminants such as silicone spray. Where it is necessary to store panels outside, they must be protected from the weather.

Sheets must be dry prior to fixing, joint sealing and coating.

## TOOLS

All saws, drill/drivers, cutting blades, drill bits and hand tools must be maintained in good and clean condition to ensure appropriate cutting and drilling.

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

## PANEL CUTTING

Panels should be cut from the back using a power saw. CSR recommends using the FESTO TS 55 EBQ Plunge Cut Saw with guide rail and appropriate blade.

All exposed cut edges such as at the window heads and roof junctions must be coated with approved paint.

## PENETRATIONS

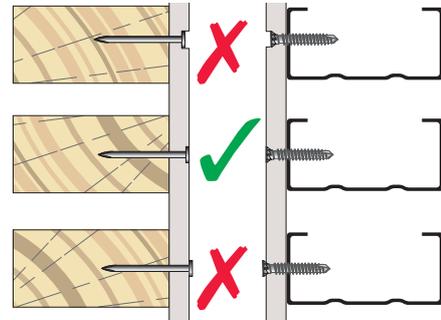
Penetrations in cladding panels may be cut or drilled prior to installation. Cut from the back or drill from the front. Cut penetrations oversize by 6 –8mm all around. Mask, prime and fill gaps with sealant in accordance with recommended methods and products.

## DRILLING

Use high speed masonry drills. Do not use the hammer action.

## FASTENER DRIVING

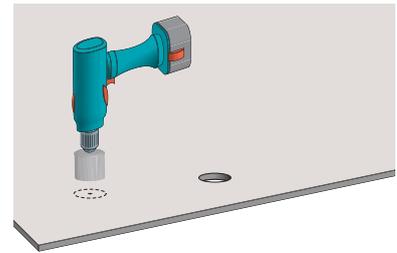
Fastener head must be driven flush with sheet surface (except where countersunk and covered screws are required).



## HOLE FORMING

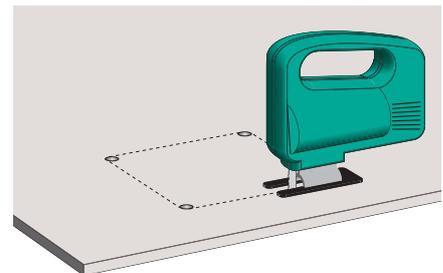
**Small holes are formed by using a Hole Saw:**

1. Locate the centre of the hole.
2. Form hole with appropriate sized hole saw.



**Large holes or openings are formed by using a Jig Saw fitted with masonry blade:**

1. Mark the required opening.
2. Drill holes in all corners.
3. Cut along marked lines.



## SAFETY



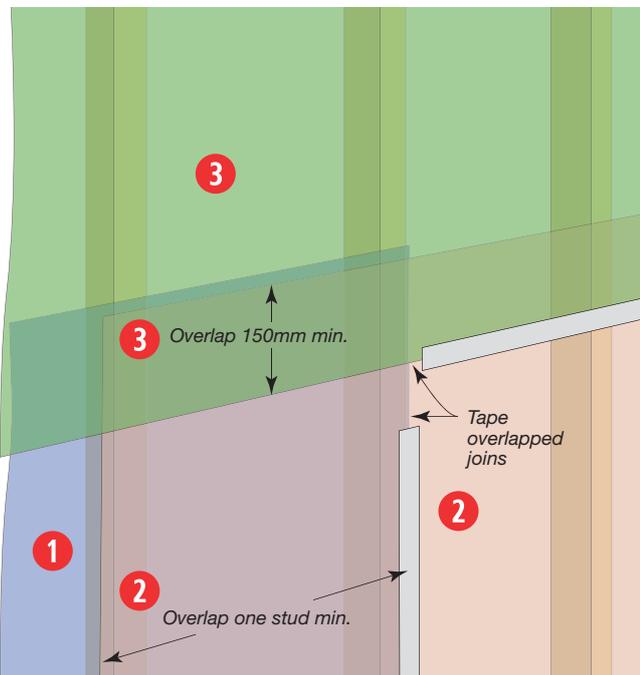
When cutting, drilling or grinding cladding panels using power tools, always ensure the work area is well ventilated. An approved dust mask (AS1715 and AS1716) and safety glasses (AS1337) must be worn. CSR recommends that hearing protection be worn.

### INSTALLATION OF SARKING

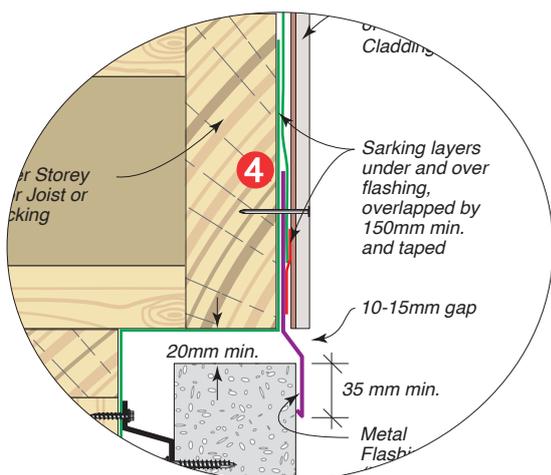
- 1 Install wall wrap/sarking to outside face of wall framing. Temporary fixing or sarking to framing may be by double sided tapes or other approved methods. Refer to the sarking manufacturer's specifications.

If the membrane is used to provide a continuous air tight layer, all overlaps should be sealed with tape.

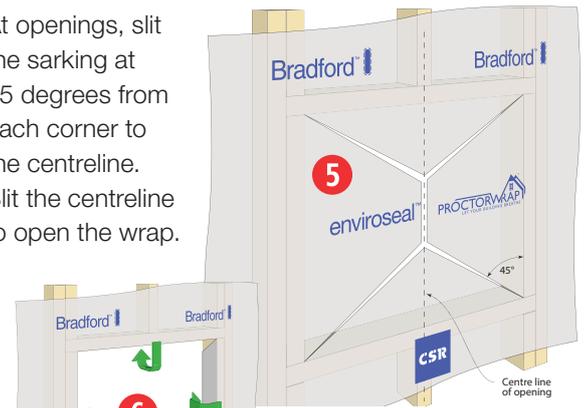
- 2 Vertical laps (including corners) should overlap by one stud spacing minimum and should be staggered between adjacent layers.
- 3 Upper layers should overlap lower layers by 150mm minimum to ensure that water is always shed towards the outside of the membrane and building.



- 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.

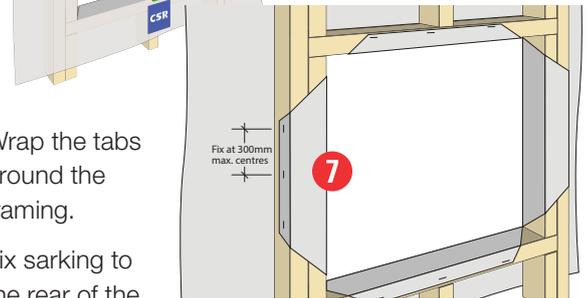


- 5 At openings, slit the sarking at 45 degrees from each corner to the centreline. Slit the centreline to open the wrap.



- 6 Wrap the tabs around the framing.

- 7 Fix sarking 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.

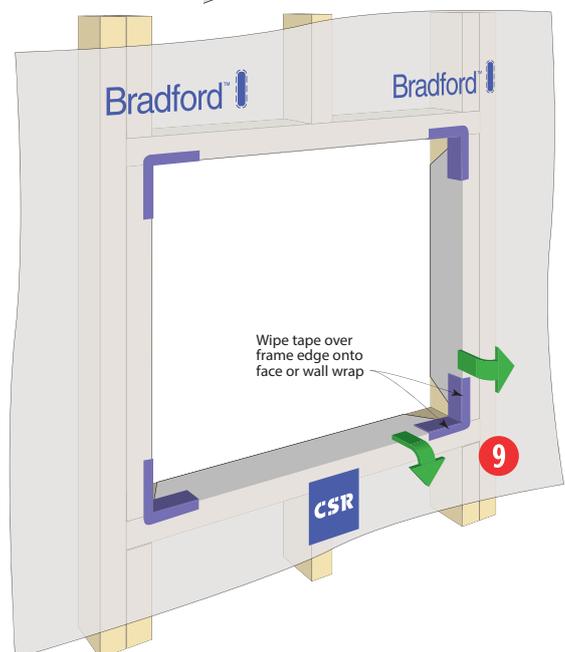
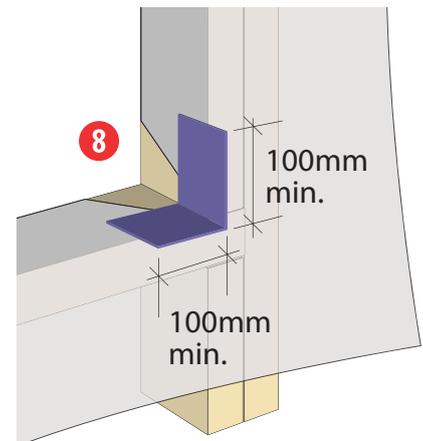


FIG 2: Typical Sarking Layout for Two-storey Framing

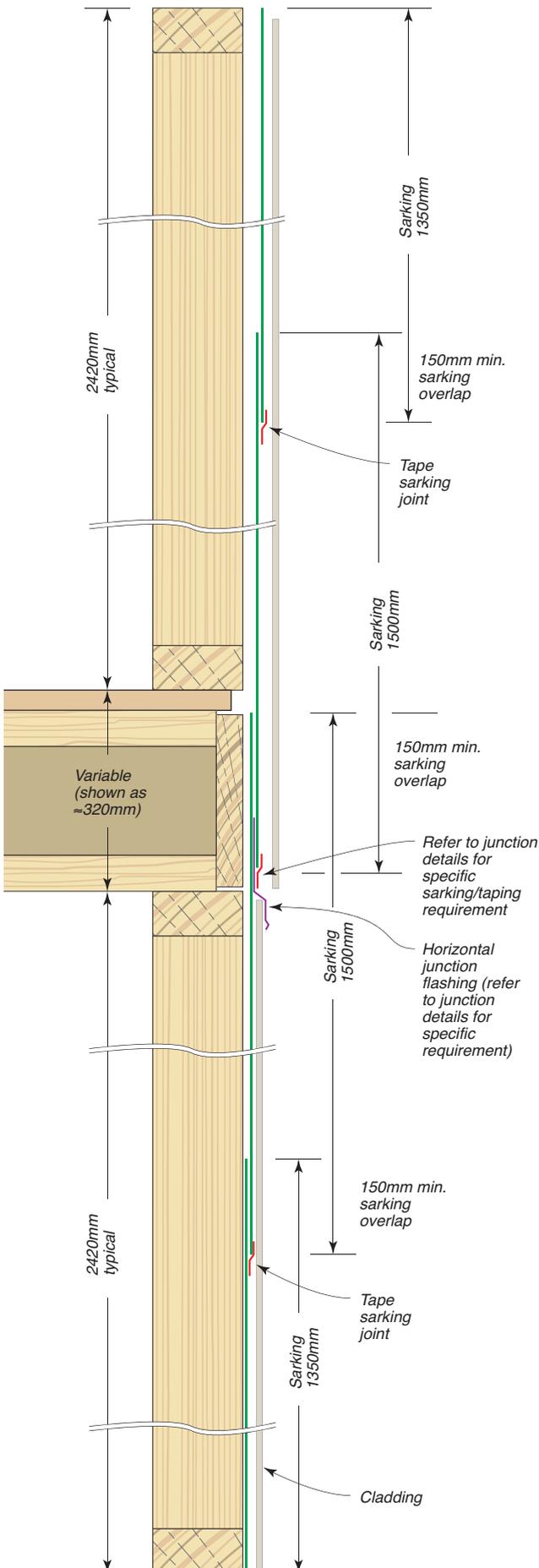
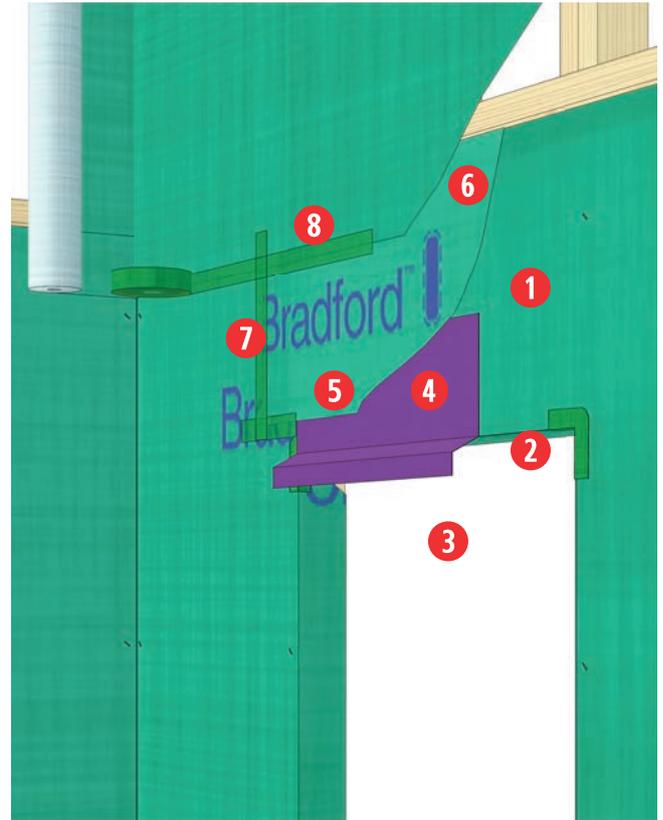


FIG 3: Typical Double Layer Sarking Over Openings – Direct Fix System



- 1 Install wall wrap/sarking to outside face of wall framing.
- 2 At the opening, cut and wrap sarking around the framing and apply reinforcing tape at corners.
- 3 Install window frame (not shown here).
- 4 Install window head flashing.
- 5 Install additional layer of sarking above opening, extending 200mm minimum each side of opening.
- 6 Extend sarking up to soffit, or up and under next lap above with at least 150mm overlap.
- 7 Tape sarking laps at side of opening as shown.
- 8 Tape sarking laps at the bottom of each overlapping layer.

## CEMINTEL EDGE™

Cemintel Edge™ cladding sheet is 9mm thick, has a nominal cover of 1200mm and is available in a range of lengths. Sheets are manufactured with ship-lap profiled long edges for joining. Sheets have a repeating pattern of 1.8mm depth x 8.6mm width grooves at 150mm centres on the external face. Cemintel Edge™ sheets are supplied with a factory sealed face ready for paint finishing.

Nominal Sheet Size (mm)	Qty	Order Code
1200 x 2450	30	115654
1200 x 2750	30	115655
1200 x 3000	30	115656

### MANUFACTURING TOLERANCES

Cladding Sheet 9mm thickness (nominal)	12.0kg/m <sup>2</sup>
Sheet Width	-1 /+0mm
Sheet Length	-3/+0mm
Sheet Thickness	-0/+0.3mm
Diagonal Difference	3mm



## CEMINTEL SIMPLELINE™

Cemintel SimpleLine™ cladding sheet is 8.5mm thick, has a nominal cover of either 900 or 1200mm and is available in a range of lengths. Sheets are manufactured with ship-lap profiled long edges for joining. Sheets have a repeating pattern of 3.5mm depth x 6mm width grooves at sheet joints on the external face. Cemintel SimpleLine™ has a pre-sealed face that easily accepts all types of exterior paint finish.

Nominal Sheet Size (mm)	Qty	Order Code
1200x 3000mm	30	136861
1200 x 2400mm	30	136820
900 x 3000mm	30	136719

### MANUFACTURING TOLERANCES

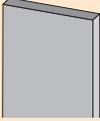
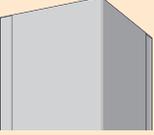
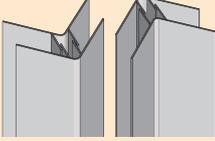
Cladding Sheet 8.5mm thickness (nominal)	12.5kg/m <sup>2</sup>
Sheet Width	-1 /+0mm
Sheet Length	-3/+0mm
Sheet Thickness	-0/+0.3mm
Diagonal Difference	3mm



# COMPONENTS

Components listed here are required for the Direct Fix System. Additional components required for the Cavity System are listed in 'COMPONENTS' on page 32

NOTE: In high corrosion zones (C4), Class 4 or Stainless Steel fasteners are required. Refer to "Coastal Areas". Supplied by others.

Product	Description	Size	Qty	Order Code
	<ul style="list-style-type: none"> <li>• <b>Cladding Nails</b> – Used for direct fixing Cemintel™ cladding to timber stud framing. Machine Driven Nails, Class 3 Hot Dipped Galvanised (HDG) or Class 4 Stainless Steel (S/S).               <ul style="list-style-type: none"> <li>• Paslode 50 x 2.5 Plain or Ring Shank HDG</li> <li>• Paslode 50 x 2.5 Ring or Screw Shank S/S</li> <li>• Paslode ND50 Brad Nails S/S</li> </ul> </li> </ul>	50mm	Supplied by others	
	<ul style="list-style-type: none"> <li>• <b>Cladding Screws</b> – Used for direct fixing Cemintel™ cladding to steel stud framing over thermal break. FibreTEKS™ CSK rib head, Phillips drive, Class 4 finish. To suit 0.5 to 1.0mm BMT framing.</li> </ul>	10G-18 x 30mm	1000 (loose)	125614
			1000 (collated)	118224
	<ul style="list-style-type: none"> <li>• <b>Thermal Break</b> – Extruded polystyrene strip with R = 0.22. Used with steel stud framing to achieve thermal performance.</li> </ul>	6.4mm x 38mm x 15.3m	3 bundles x 10 strips in each	129333
	<ul style="list-style-type: none"> <li>• <b>Metal Corner Flashing</b> – Used at internal and external corners.</li> </ul>	50 x 50 x 3030mm	1	111498
	<ul style="list-style-type: none"> <li>• <b>Two Piece Corner</b> – Snap together paintable aluminium corner. Can be used at internal and external corners to cover board ends</li> </ul>	3000mm	1	108451
	<ul style="list-style-type: none"> <li>• <b>EPDM Gasket tape</b> – A self-adhesive closed cell flexible foam tape for water tightness across ship-lapped joints. It is applied under sheet joints to the sarking (at stud locations) or to the face of the battens.</li> </ul>	3.2 x 48mm x 25m roll	1	116135
	<ul style="list-style-type: none"> <li>• <b>Backing Rod</b> – Used to enable correct filling of some 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.</li> </ul>	10mm dia. x 50m roll	1	11177
	<ul style="list-style-type: none"> <li>• <b>Sealant Bond Breaker Tape</b> – Used behind board joints made on framing. Tape is applied to the face of sarking or batten and joints are filled with sealant. Tesa Multiform Tape N°7492, polyethylene closed cell foam tape. Self adhesive back.</li> </ul>	48 x 3mm x 25m	1	13172
	<ul style="list-style-type: none"> <li>• <b>Flexible Sealant</b> – Sikaflex®-PRO polyurethane sealant for gaps around windows, doors and other penetrations. Paintable. Apply to manufacturer's specifications.</li> </ul>	310 ml tube	1 x Grey	11378
			1 x Black	39488
	<ul style="list-style-type: none"> <li>• <b>Thermoseal™ Wall Wrap</b> – Classification – Non-permeable Reflective Water Classification – High</li> </ul>	1350mm	20m roll	13462
		1350mm	60m roll	10576
	<ul style="list-style-type: none"> <li>• <b>Thermoseal™ Resiwrap</b> – Classification – Non-permeable Reflective Water Classification – High</li> </ul>	1350mm	30m roll	108879
		1350mm	60m roll	108004
		1500mm	30m roll	120121
	<ul style="list-style-type: none"> <li>• <b>Enviroseal ProctorWrap™ Residential (RW)</b> – Classification – Permeability High Water Classification – High</li> </ul>	1500mm	50m roll	120923
<ul style="list-style-type: none"> <li>• <b>Enviroseal ProctorWrap™ Commercial (CW)</b> Classification – Permeability High Water Classification – High</li> </ul>	1500mm	50m roll	118593	
<ul style="list-style-type: none"> <li>• <b>Thermoseal™ 733</b> – Classification – Non-permeable Reflective Water Classification – High</li> </ul>	1350mm	60m roll	81333	
	<ul style="list-style-type: none"> <li>• <b>Enviroseal ProctorWrap SLS Tape</b> – Used to seal wall wrap/sarking at overlap joints, around openings and at flashings. Grey, single sided aggressive adhesive tape with a high initial grab and flexible carrier.</li> </ul>	50mm x 25m	36 rolls	122927
		60mm x 25m	36 rolls	124872

Product	Description	Size	Qty	Order Code
	• <b>Bradford Gold Wall Batts</b> – R2.1 (70mm)	1160 x 430mm	6	105209
	• <b>Bradford Gold Wall Batts</b> – R2.1 (70mm)	1160 x 580mm	6	105206
	• <b>Bradford Gold Wall Batts</b> – R2.5 (90mm)	1160 x 430mm	8	105203
	• <b>Bradford Gold Wall Batts</b> – R2.5 (90mm)	1160 x 580mm	8	105202
	• <b>Bradford Gold Wall Batts</b> – R2.7 (90mm)	1160 x 430mm	5	105205
	• <b>Bradford Gold Wall Batts</b> – R2.7 (90mm)	1160 x 580mm	5	105204

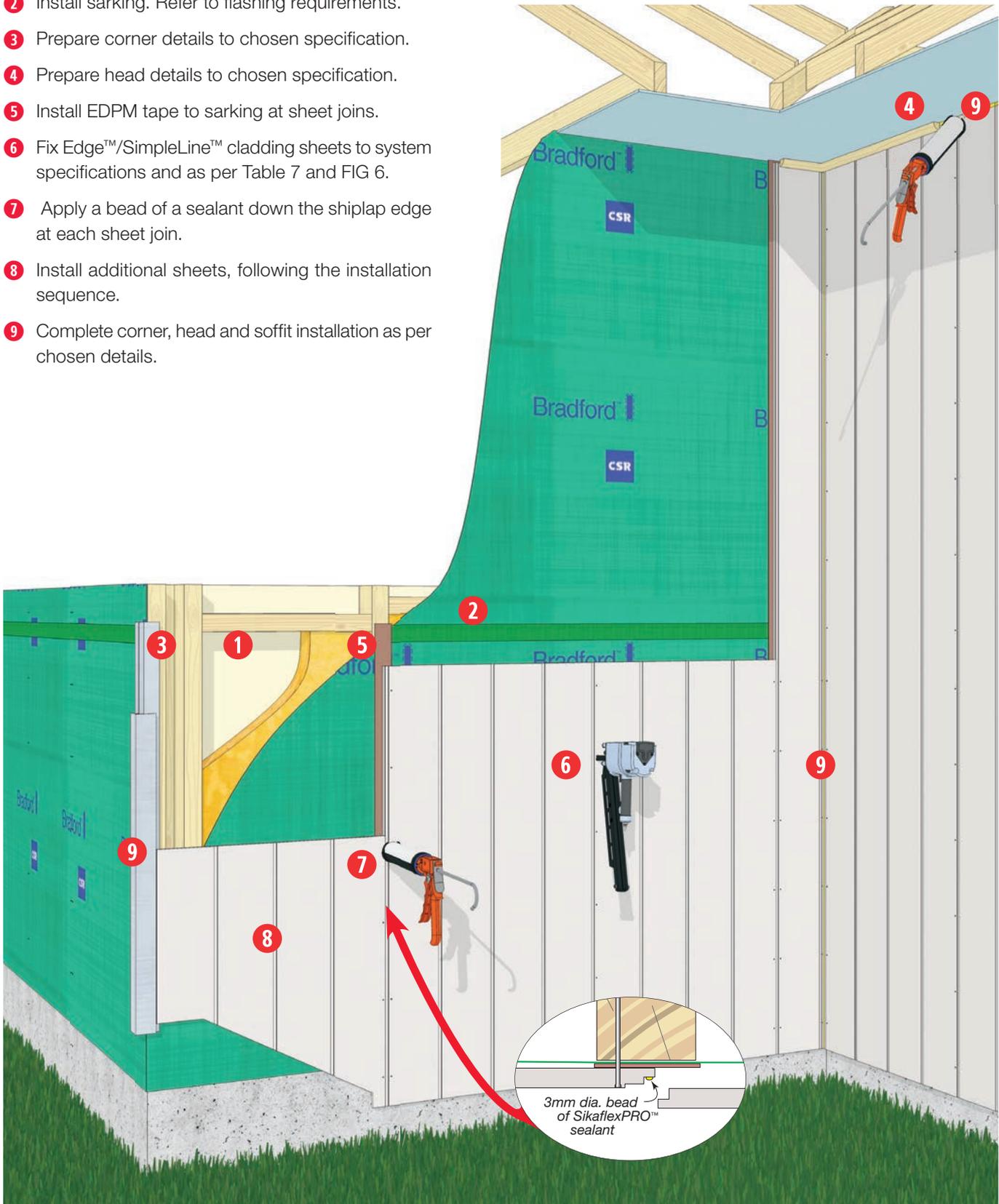
## TOOLS

Product	Description	Size	Qty	Order Code
	• <b>Hitachi C7YA Dustless Circular Saw</b> – Excellent for cutting cement based sheets.	185mm	1	10836
	• <b>Hitachi Dust Extraction System</b> – Ideal for use with the Hitachi C7YA dustless circular saw and other saws.	–	1	10833
	• <b>Hitachi Fibre Cement Power Saw Blade</b> – Ideal for use with the Hitachi C7YA dustless circular saw and other 185mm circular saws fitted with vacuum extraction systems.	185mm	1	10837
	• <b>FESTO DSC-AGP 125</b> – Diamond Blade Cutting & Grinding Tool	125mm	1	107207
	• <b>Cemintel™ Power Saw Blade</b> – Specifically designed for cutting pre-finished cement based sheets. Ideal for use with dustless circular saws fitted with vacuum extraction systems. 15000 RPM max.	125mm	1	134449
	• <b>FESTO TS 55 EBQ Plunge Cut Saw</b> – with 1400mm Guide Rail. Precise plunge cuts in materials up to 55 mm thick.	160mm	1	121400
	• <b>FESTO Diamond Tipped Blade for TS 55</b> – For cutting all fibre cement sheet products.	160mm	1	112647

# INSTALLATION – DIRECT FIX SYSTEM

## INSTALLATION PROCEDURE

- 1 Ensure framing is installed and aligned to system specifications. Refer to Table 7.
- 2 Install sarking. Refer to flashing requirements.
- 3 Prepare corner details to chosen specification.
- 4 Prepare head details to chosen specification.
- 5 Install EDPM tape to sarking at sheet joins.
- 6 Fix Edge™/SimpleLine™ cladding sheets to system specifications and as per Table 7 and FIG 6.
- 7 Apply a bead of a sealant down the shiplap edge at each sheet joint.
- 8 Install additional sheets, following the installation sequence.
- 9 Complete corner, head and soffit installation as per chosen details.



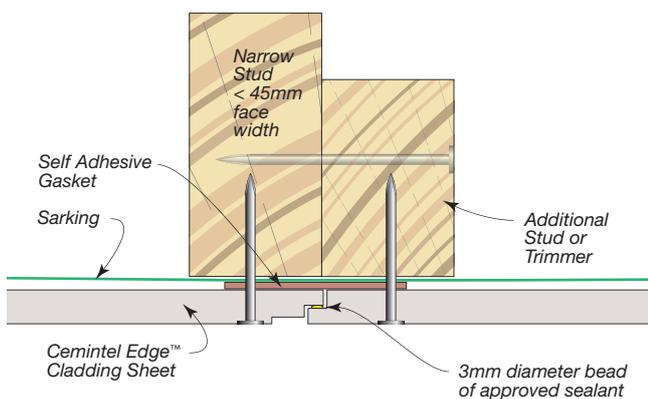
### FRAMING PREPARATION

Inspect the frame carefully for bowed, warped, or twisted studs, and for alignment of all framing members, including noggings. Check alignment of all framing with a long straight-edge. The maximum misalignment should not exceed 4mm over 3,000mm, or 3mm over 1,200mm, or 2mm over 600mm, when checked both horizontally and vertically. Ensure all noggings are flush.

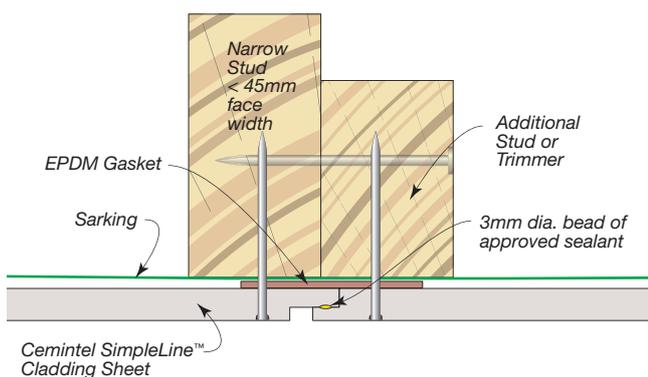
Studs must have a minimum fixing face width of 45mm to provide sufficient support for nailing. Otherwise, an additional stud or trimmer may be used to ensure fasteners have suitable edge distances. Refer to FIG 4 and FIG 5.

Studs are to be spaced at maximum 600mm centres and to coincide with sheet edges. Note that in Corner Zones, closer stud spacings may be required than in General Zones. Refer to Table 7.

**FIG 4: Installation of Edge™ for Narrow Stud Application**



**FIG 5: Installation of SimpleLine™ for Narrow Stud Application**



### CLADDING INSTALLATION

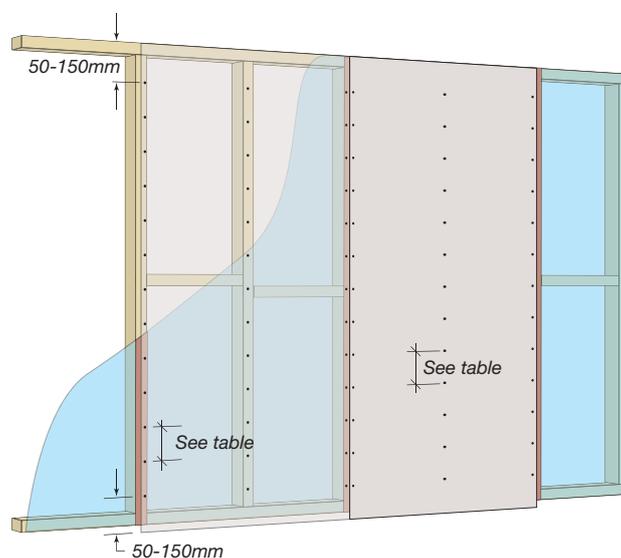
Sheets must be installed vertically, and horizontal sheet joints are not permitted.

Joints between sheets must always coincide with a supporting frame member, and all edges must be supported at openings and perimeters. Add extra framing members

as required. Correct set-out of the framework can minimise the number of joints, and will contribute to the long term performance of the wall. Additional framing may also be required in long walls if sheets are not tightly butted at joints.

Fasteners are to be positioned as detailed in Table 7. Fasteners must be positioned at 50-150mm from sheet corners and in the full sheet thickness only, not in a groove. Refer to FIG 6 and 'Installation Details – Direct Fix System' for appropriate fixing information for the chosen fasteners. Fastener heads must be driven flush with the sheet surface (except where countersunk and covered screws are required).

**FIG 6: Fixing of Edge™/SimpleLine™ Cladding Sheets to Framing**



**Table 7: Maximum Stud & Fastener Spacing – Timber or Steel Studs**

Stud Spacing	Wind Category	Maximum Fastener Spacing			
		Panel Fixed to Two Supports		Panel Fixed to Three or More Supports	
		General Zone	Corner Zone	General Zone	Corner Zone
600	N1, N2	-	-	300	300
	N3/C1	-	-	300	-
450	N1, N2	300	300	300	300
	N3/C1	300	-	300	275
	N4/C2	300	-	300	175
	N5/C3	-	-	225	-
300	N6/C4	-	-	175	-
	N1, N2	300	300	300	300
	N3/C1	300	300	300	300
	N4/C2	300	300	300	275
	N5/C3	300	300	300	175
	N6/C4	300	300	250	125

GENERAL ZONE – Wall areas greater than 1200mm from an External Building Corner.

CORNER ZONE – Wall areas less than 1200mm from an External Building Corner.

# BUILDER'S INSTALLATION CHECKLIST

The following builder's checklist can assist in making the Cemintel Edge™/SimpleLine™ installation process run smoothly.

ACTION	COMPLETED
<b>PRE-CLADDING CHECKLIST</b>	
1	Confirm that studs are located in accordance with project specifications.
2	Confirm that double studs/trimmers are appropriately located at sheet joins for board fixing where narrow studs or screw fixings are used.
3	Confirm timber framing alignment is in accordance with AS1684, or steel framing is in accordance with AS/NZS4600, and correct if necessary.
4	Confirm bracing is in place.
5	Confirm ground clearance to the bottom of the Edge™ or SimpleLine™ sheets will be accordance with Australian Standards and Cemintel™ requirements of minimum 25mm to paved surface or 75mm to unpaved surface.
6	Confirm that the wall wrap/sarking has been fully and correctly installed, and overlapped and taped at joints and flashings.
7	Confirm windows are front draining type.
8	Confirm all window and door flashings are correctly installed and taped where appropriate.
9	Confirm that window placement/reveal depth provides the appropriate clearance for board installation.
10	Confirm adequate structural support for fixtures such as pergolas and decks has been provided. No loads may be carried by the cladding.
11	Confirm membranes and flashings for deck areas have been installed in accordance with manufacturer's specifications.
12	Arrange for a pre-cladding inspection by the appropriate local building authority.

ACTION	COMPLETED
<b>POST-CLADDING CHECKLIST</b>	
1	Confirm all appropriate joints have been neatly filled with recommended sealant.
2	Confirm all fastener heads have been finished flush with the surface.
3	Confirm sealant has been applied to gaps at openings (where appropriate).
5	Confirm all trims at corners and soffit have been completed correctly.
6	Confirm appropriate painting of cladding and all exposed edges.

# INSTALLATION DETAILS

FIG 7: Base – Concrete Slab

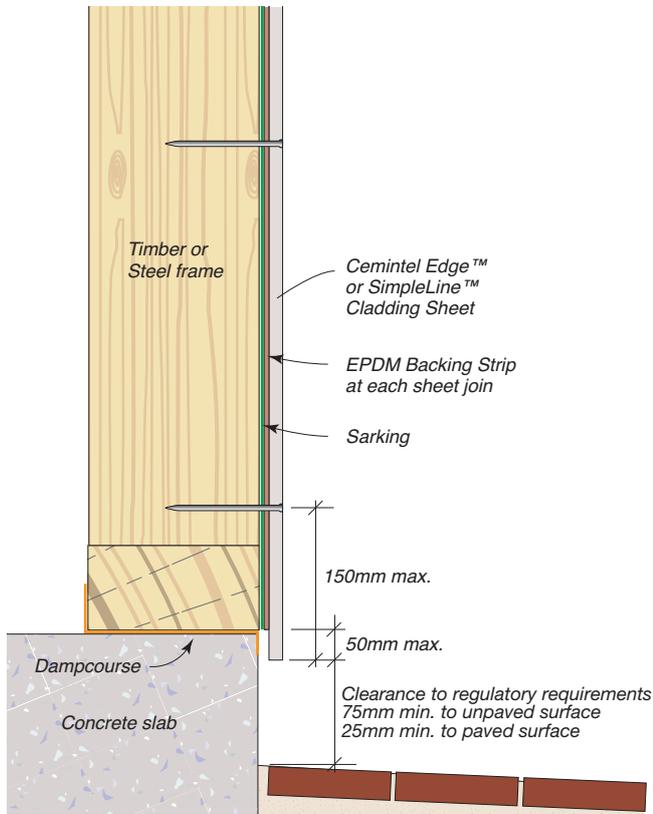


FIG 9: Typical Second Storey Junction with Hebel Panels, Brick Veneer or Masonry Wall – Cantilevered Framing

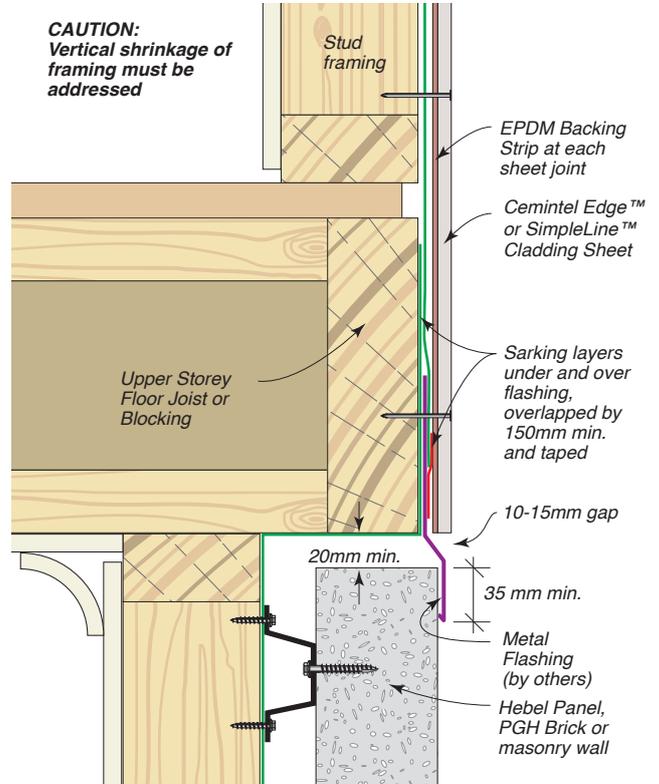


FIG 8: Base – Pier or Stub Wall

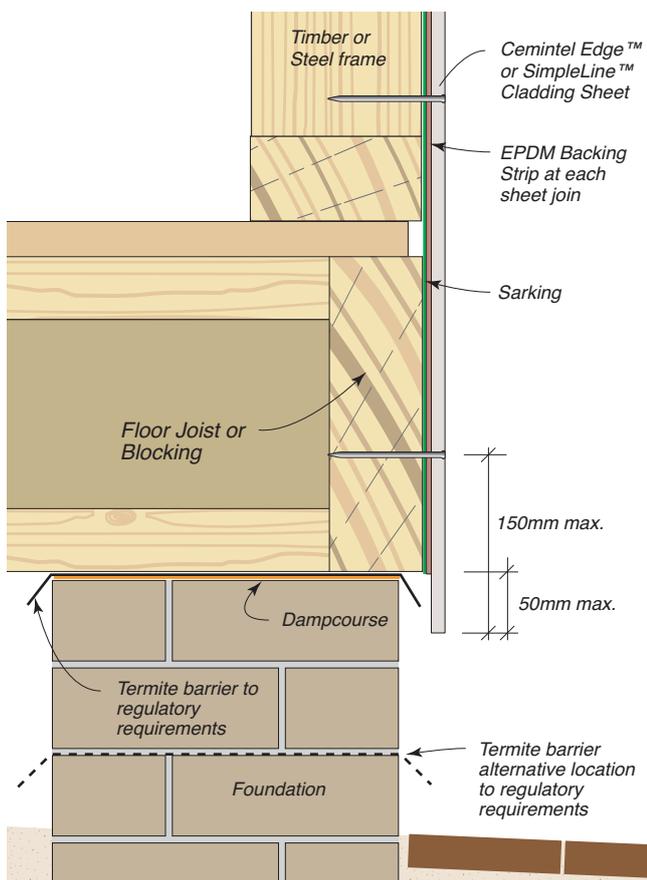


FIG 10: Typical Second Storey Junction with Masonry, Brick Veneer or Hebel Panels – In-line Framing

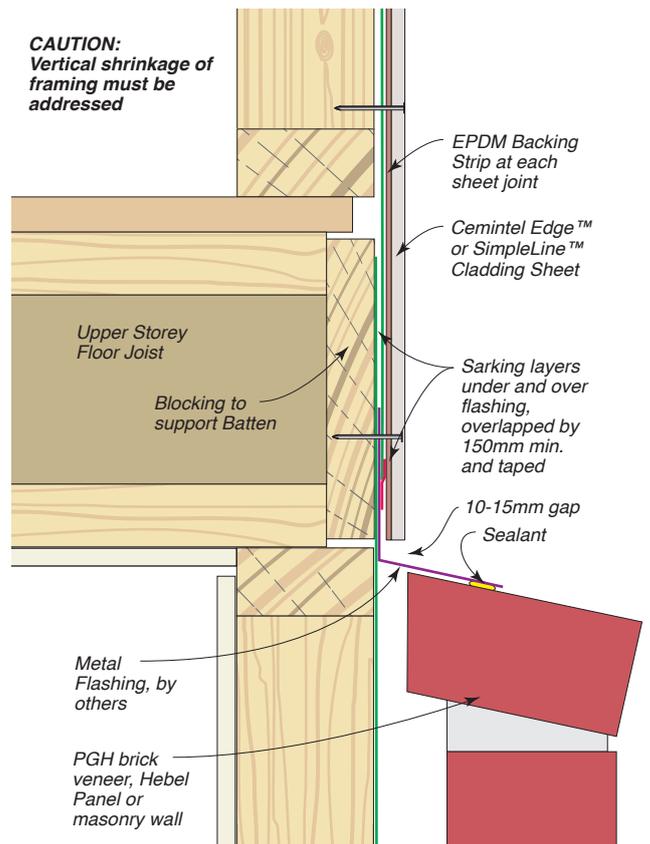


FIG 11: Second Storey Horizontal Junction

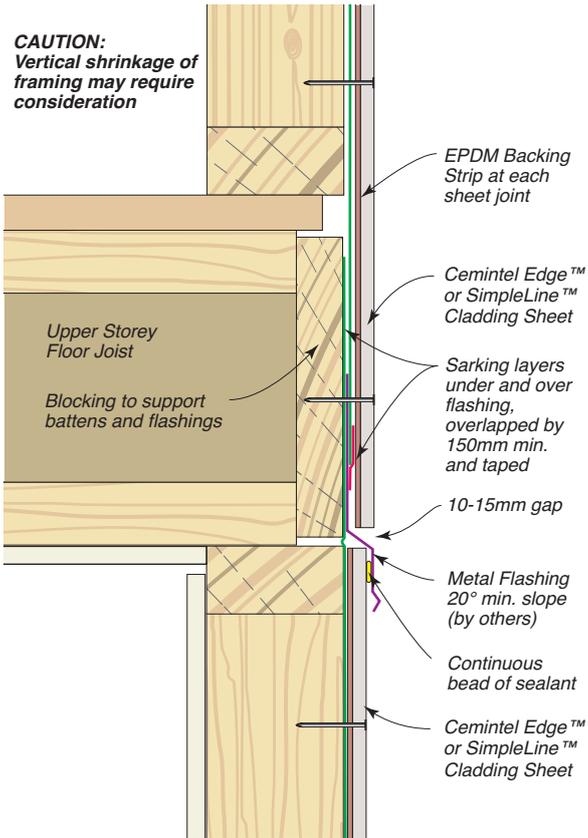


FIG 13: Junction of Cladding with External Roofing

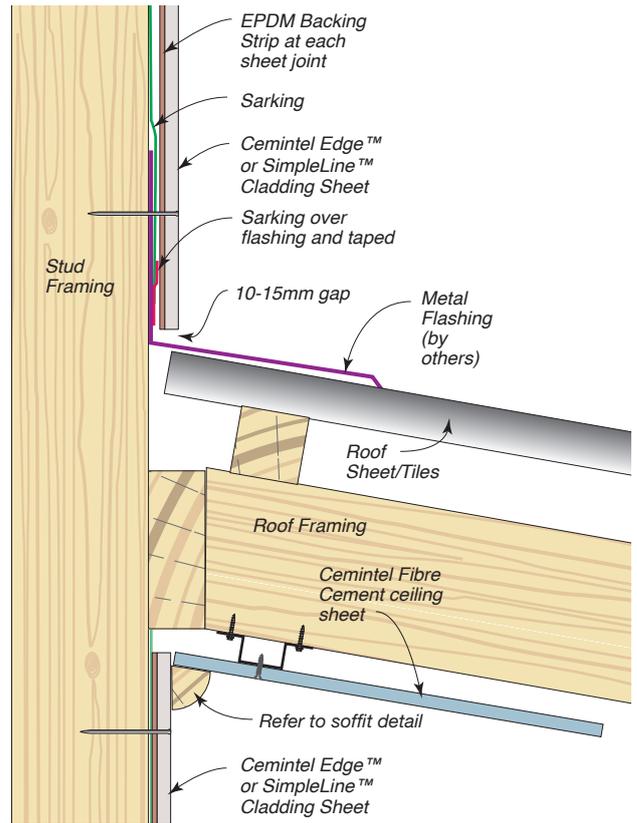


FIG 12: Junction of Cladding with External Roofing

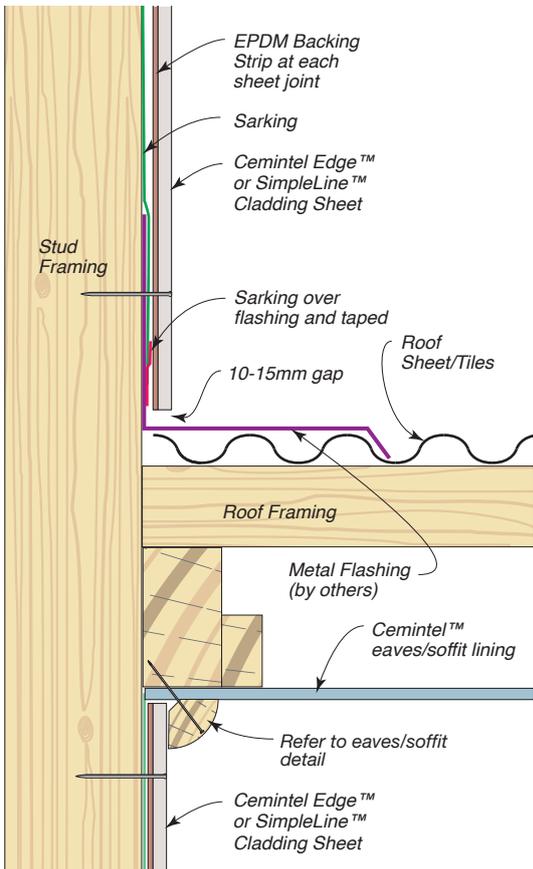


FIG 14: Horizontal Parapet – Elevation

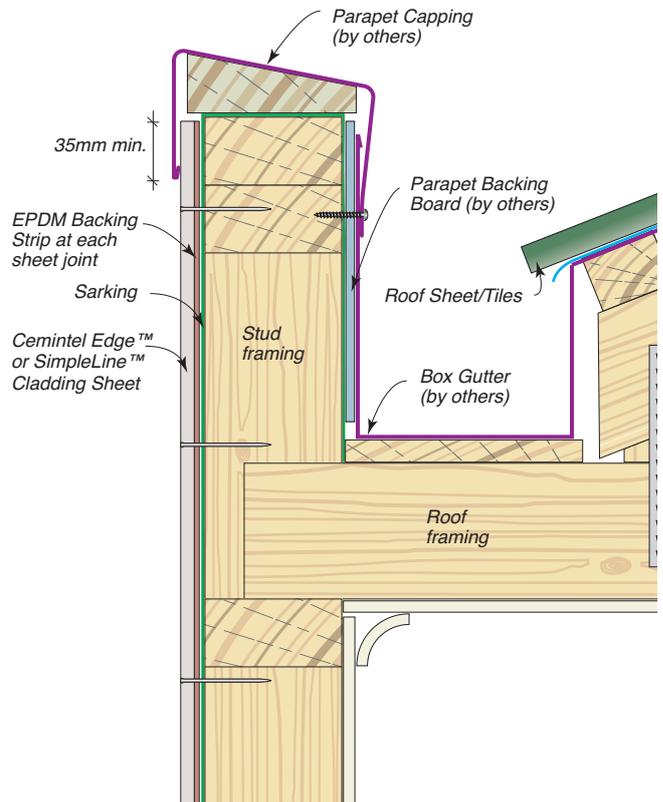


FIG 15: Head Detail – Eaves

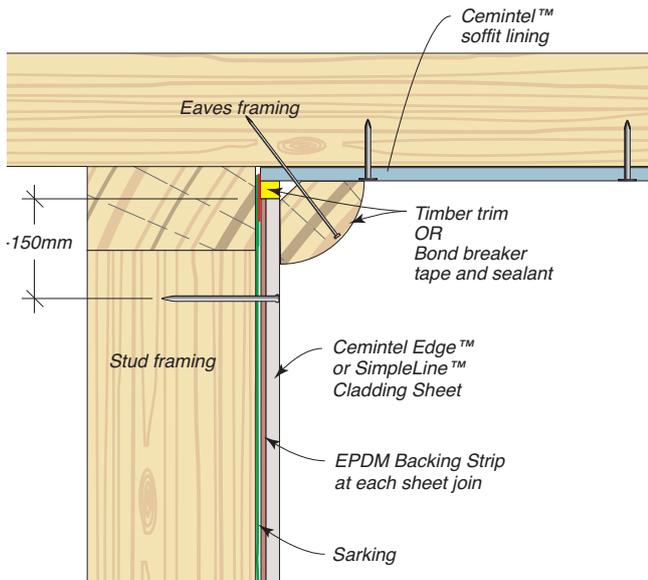


FIG 16: Soffit Detail

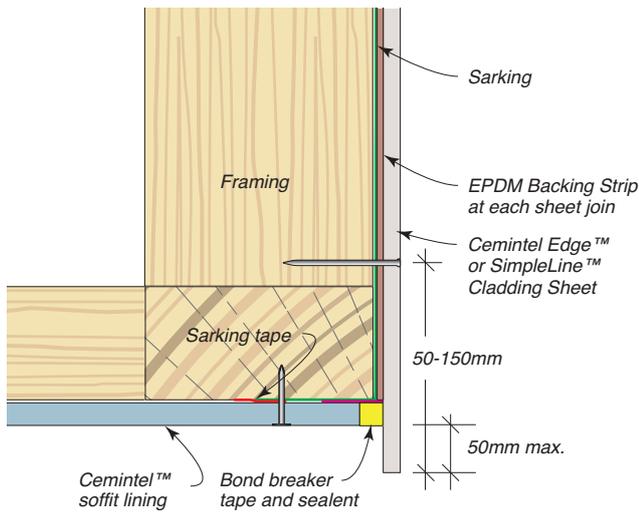


FIG 17: Edge™ Vertical Joint with Narrow Stud and Trimmer or Double Studs – Timber Framing

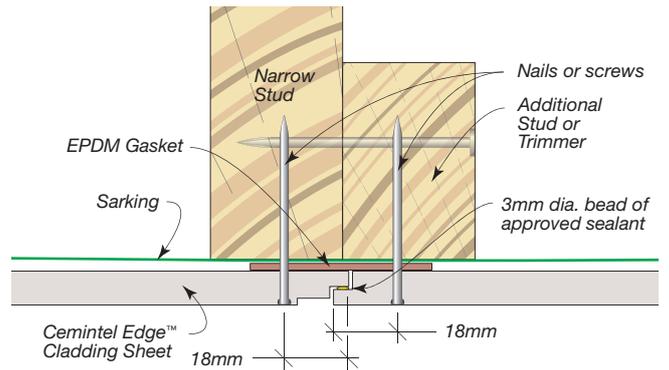


FIG 18: Edge™ Vertical Joint with 45mm min. Timber Stud Framing

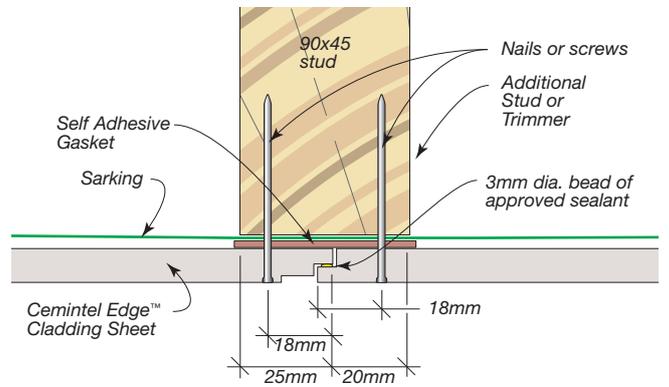


FIG 19: SimpleLine™ Vertical Joint with Narrow Stud and Trimmer or Double Studs – Timber Framing

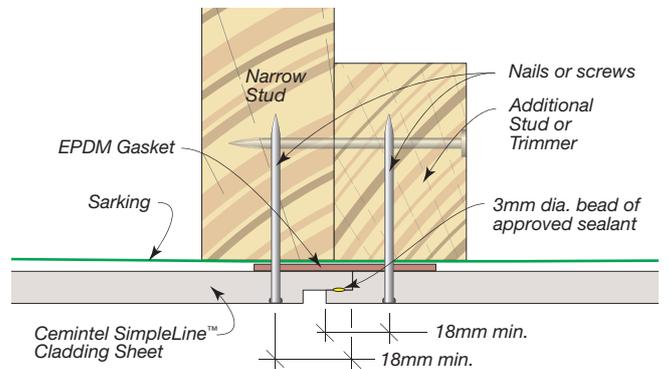
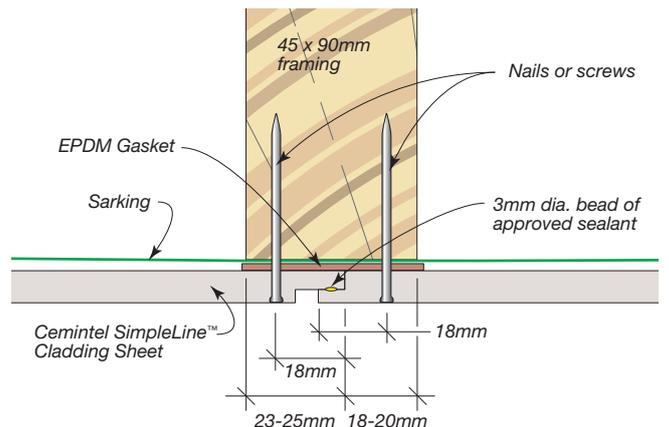
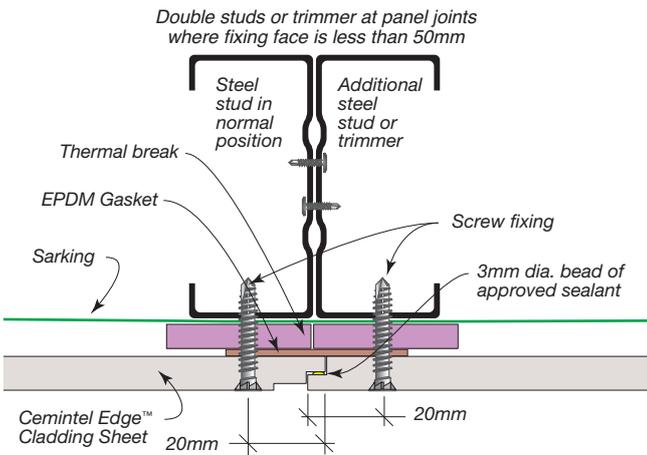


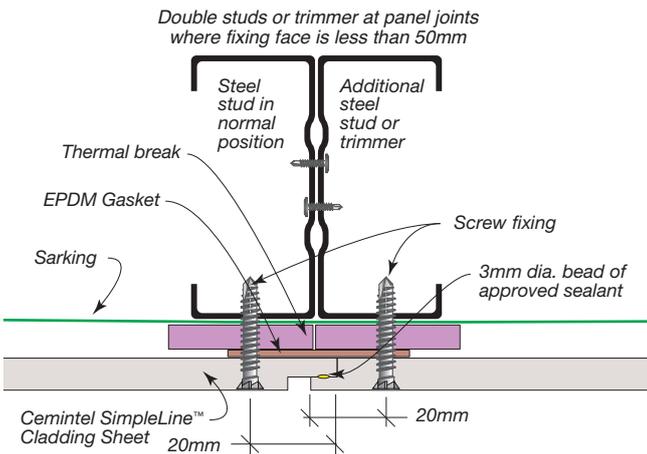
FIG 20: SimpleLine™ Vertical Joint with Narrow Stud and Trimmer or Double Studs – Timber Framing



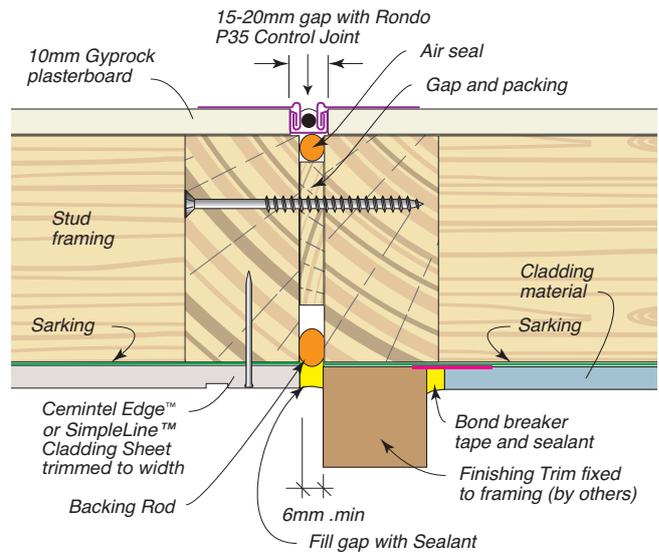
**FIG 24: Edge™ Vertical Joint with Double Studs or Trimmer – Steel Framing**



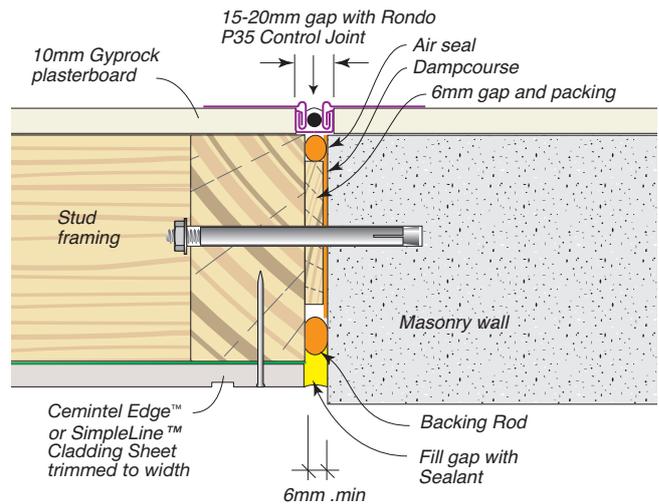
**FIG 25: SimpleLine™ Vertical Joint with Double Studs or Trimmer – Steel Framing**



**FIG 22: Junction of Edge™ Cladding System with Alternative Fibre Cement Cladding – Plan View**



**FIG 23: Junction of Edge™ Cladding System with Offset or In-line Masonry Wall – Plan View**



**FIG 21: Obtuse Angle Corner Detail – With Metal Flashing – Direct Fixed Boards**

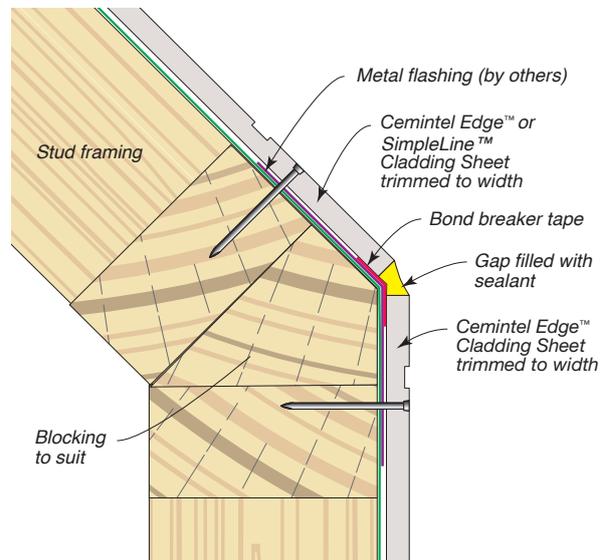


FIG 29: External Corner with Sealant

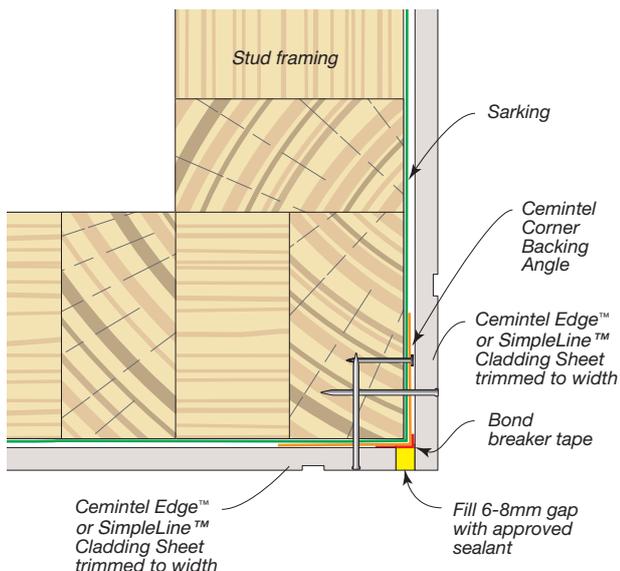


FIG 26: Internal Corner with Sealant

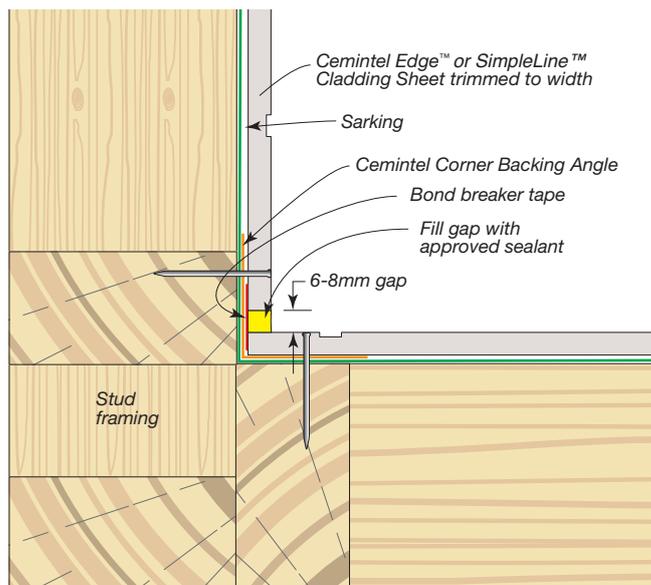


FIG 30: External Corner with Two-piece Aluminium Corner

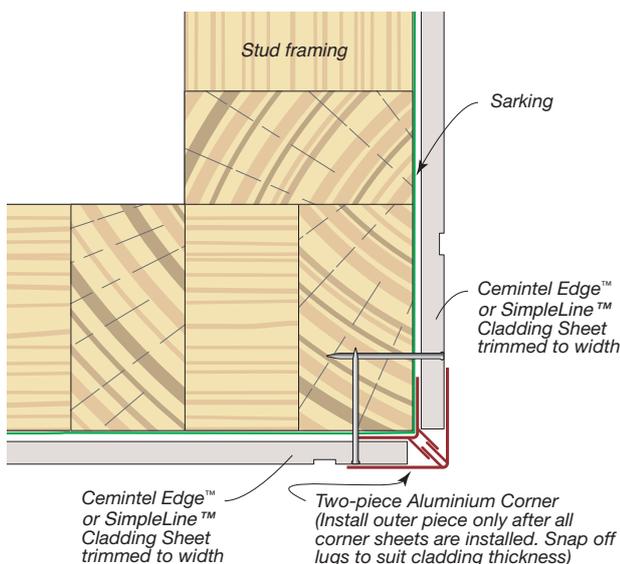


FIG 27: Internal Corner with Two-piece Aluminium Corner

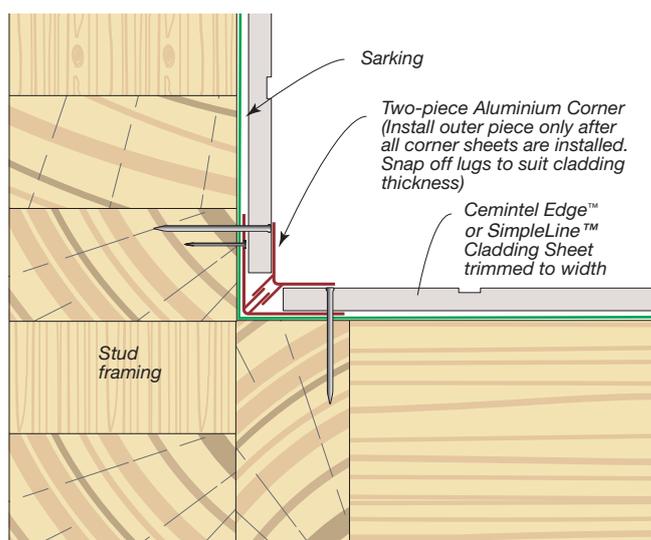


FIG 31: External Corner with Timber Trim

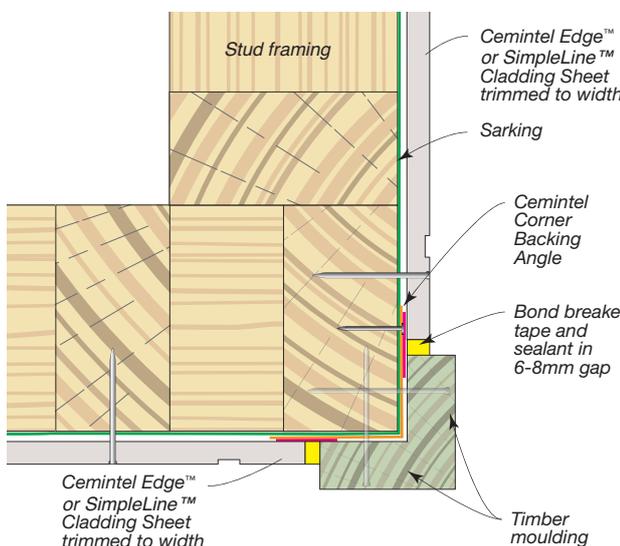


FIG 28: Internal Corner with Timber Trim

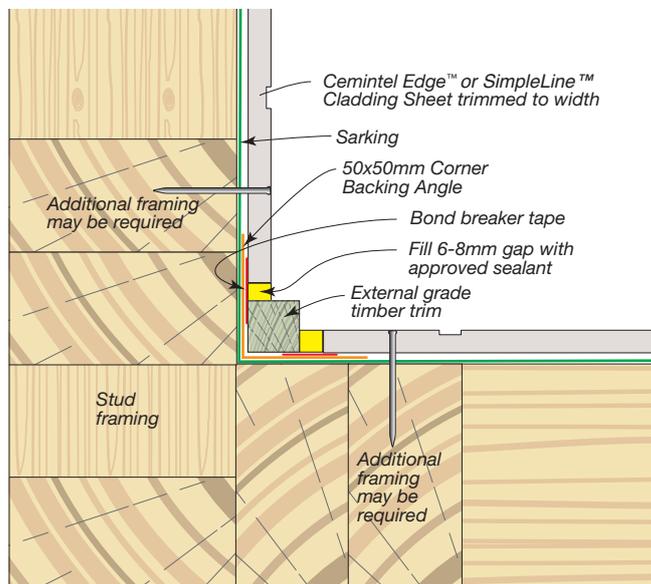


FIG 32: Window Detail – Trend Quantum XP Aluminium Sliding Window with Weatherboard Reveal Clip E482

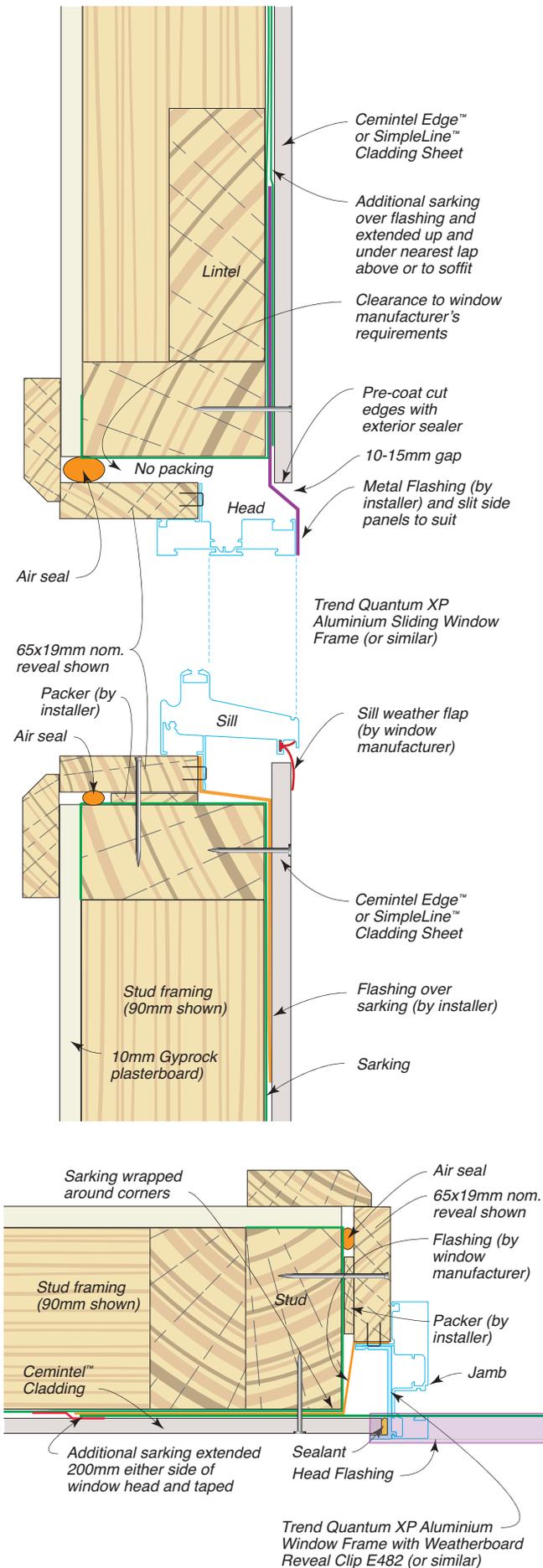


FIG 33: Bradnams Essential Sliding Door Installation – 70mm Framing Shown

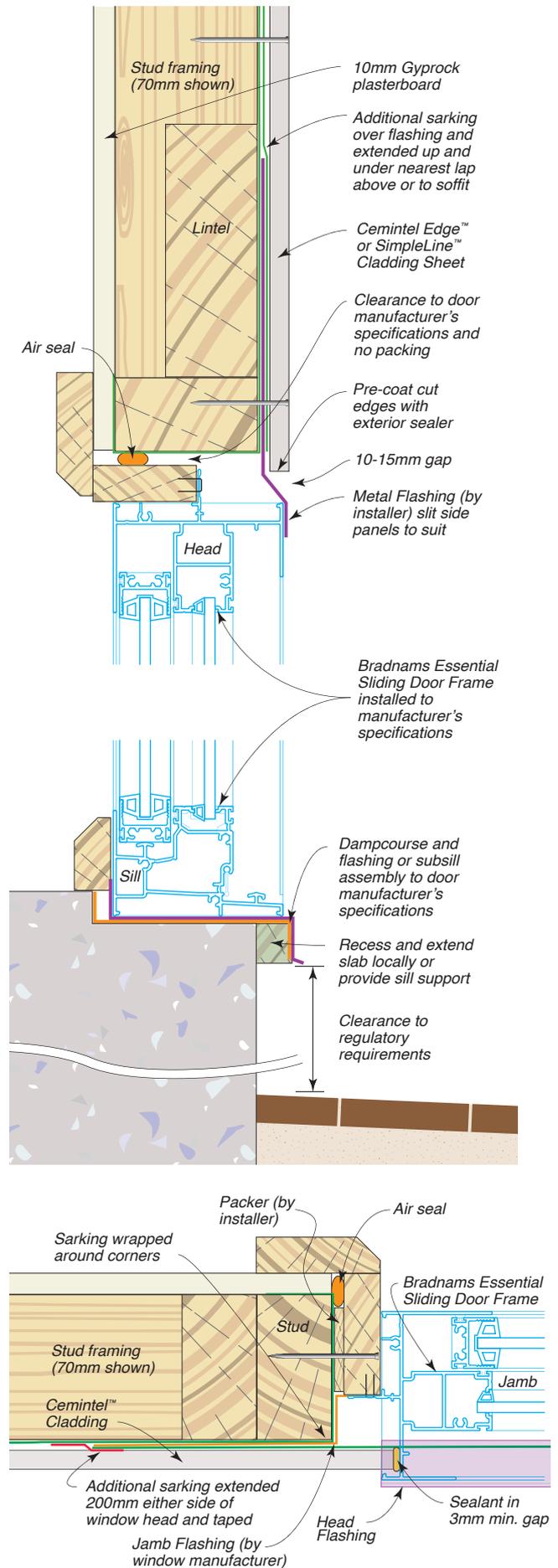


FIG 34: Typical Power Meter Box – Recessed Installation

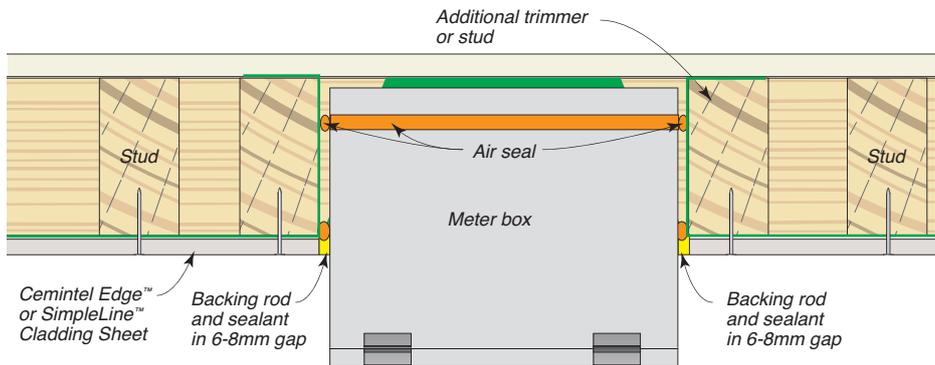
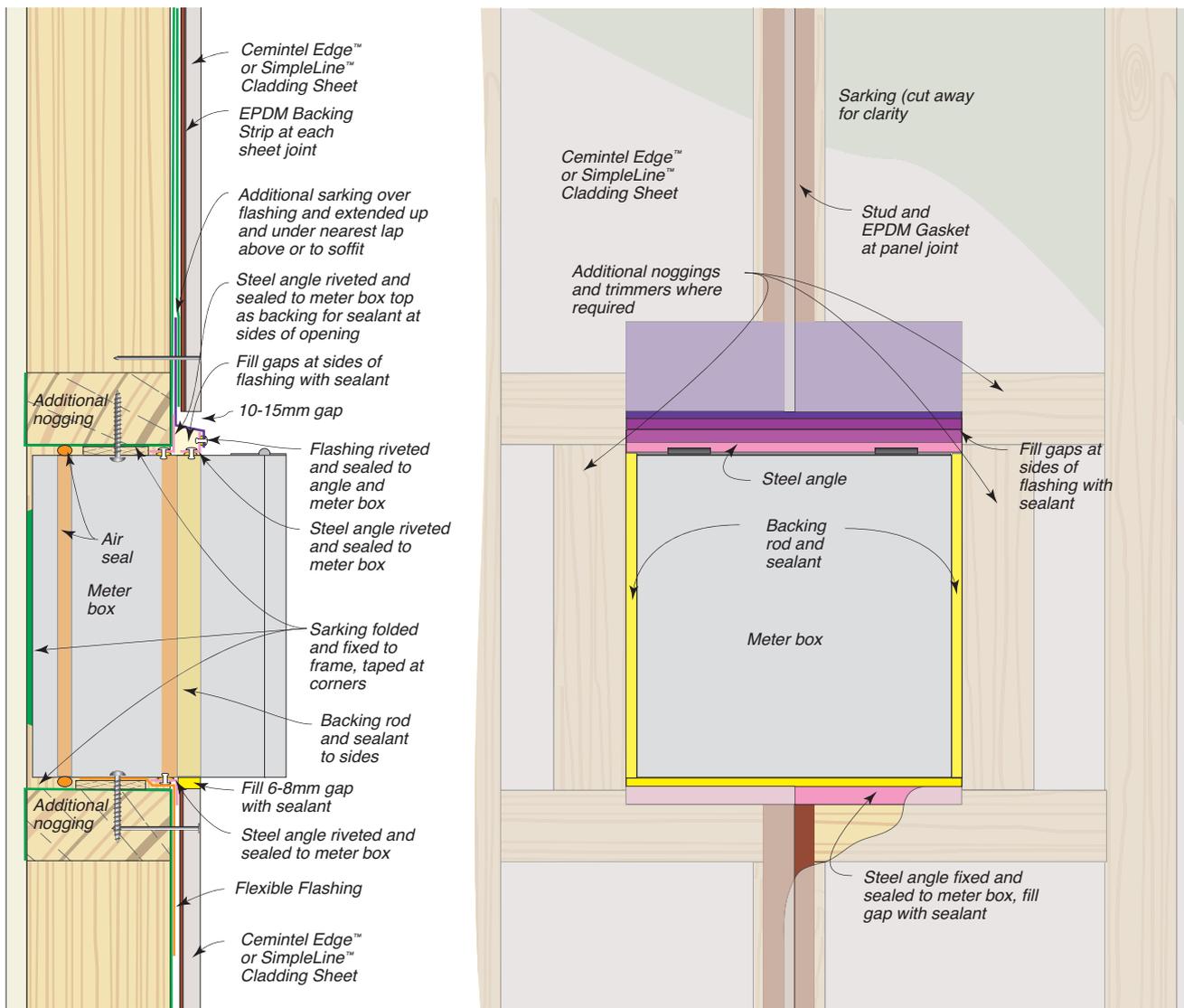
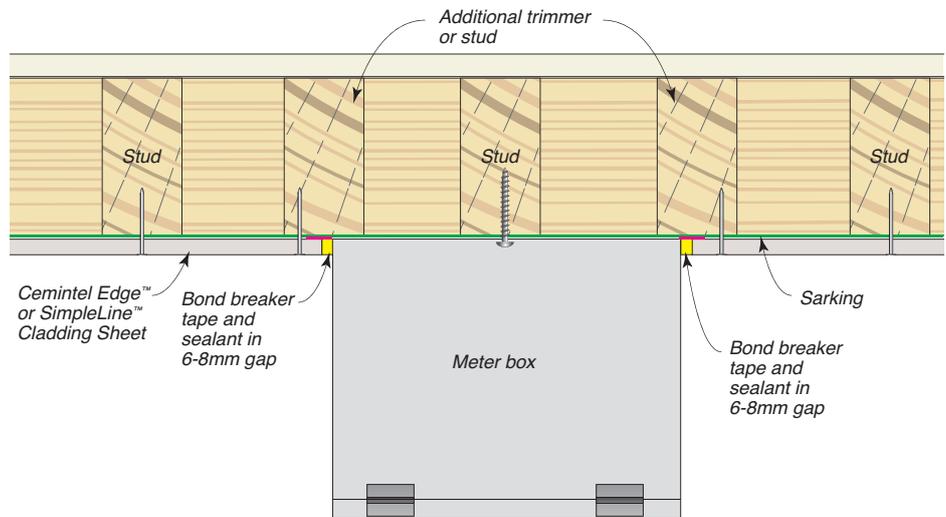
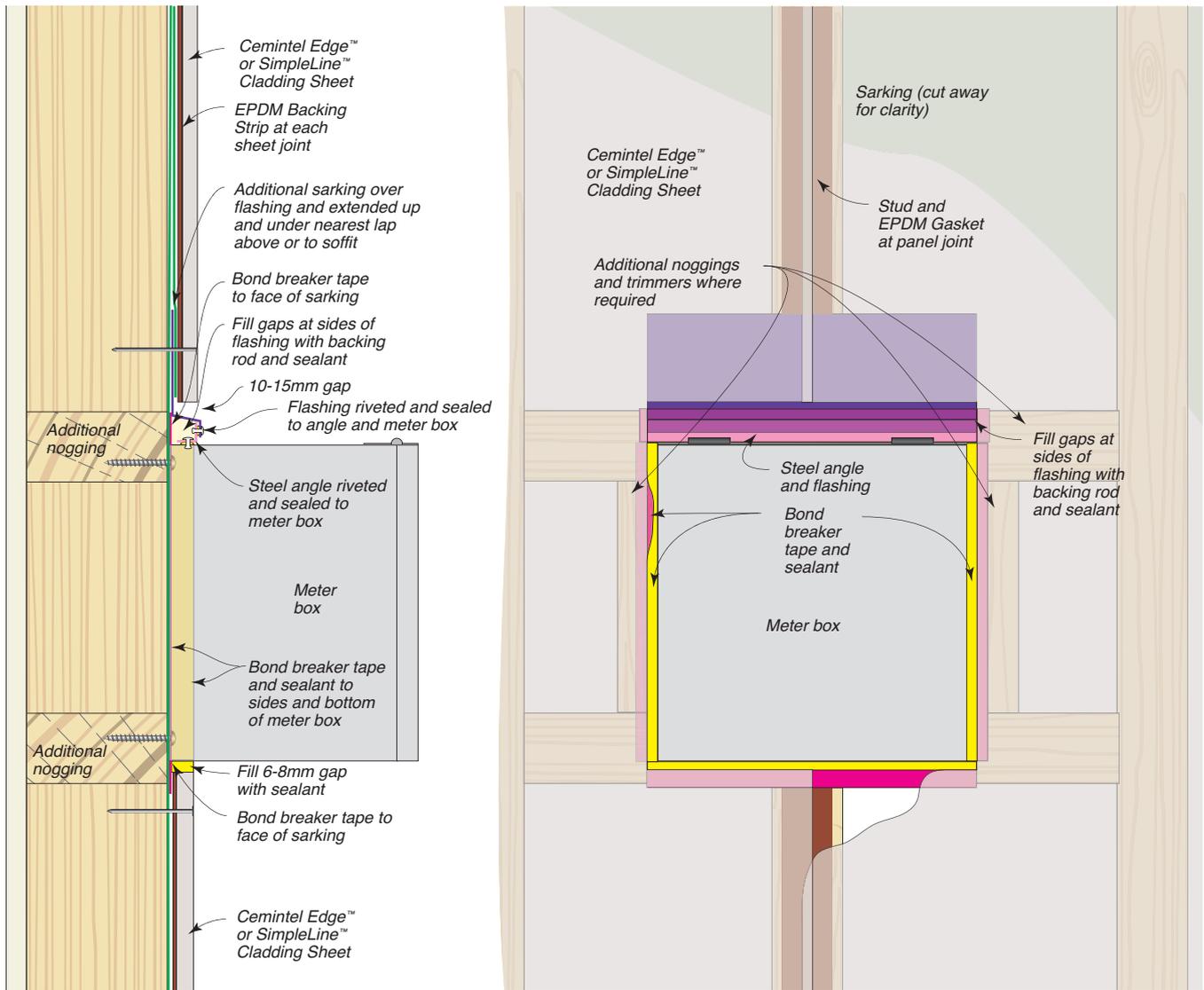


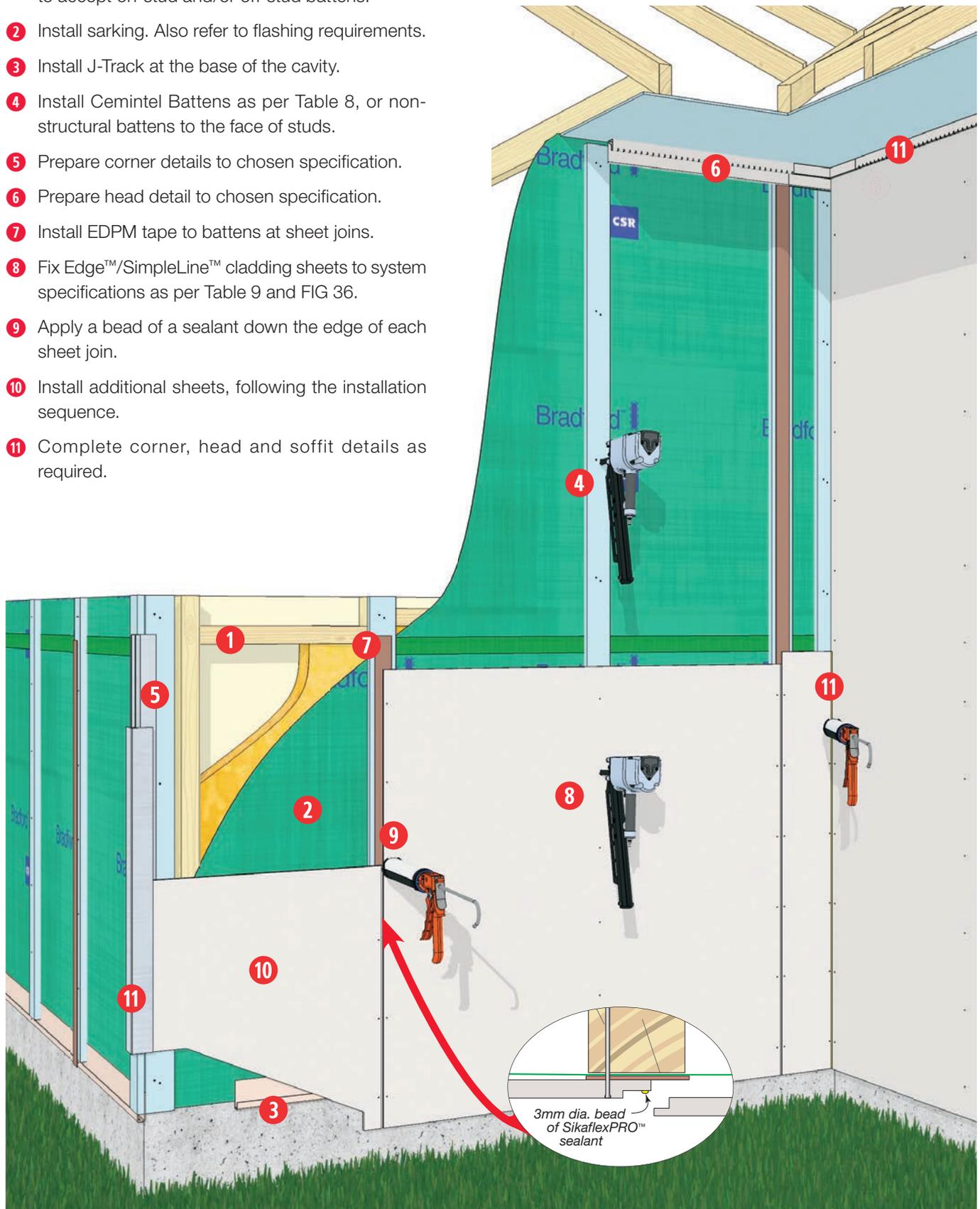
FIG 35: Typical Power Meter Box – Face Mounted Installation



# INSTALLATION – CAVITY SYSTEM

## INSTALLATION PROCEDURE

- 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 sarking. Also refer to flashing requirements.
- 3 Install J-Track at the base of the cavity.
- 4 Install Cemintel Battens as per Table 8, or non-structural battens to the face of studs.
- 5 Prepare corner details to chosen specification.
- 6 Prepare head detail to chosen specification.
- 7 Install EDPM tape to battens at sheet joins.
- 8 Fix Edge™/SimpleLine™ cladding sheets to system specifications as per Table 9 and FIG 36.
- 9 Apply a bead of a sealant down the edge of each sheet join.
- 10 Install additional sheets, following the installation sequence.
- 11 Complete corner, head and soffit details as required.



### FRAMING PREPARATION

Inspect the frame carefully for bowed, warped, or twisted studs, and for alignment of all framing members, including noggings. Check alignment of all framing with a long straight-edge. The maximum misalignment should not exceed 4mm over 3,000mm, or 3mm over 1,200mm, or 2mm over 600mm, when checked both horizontally and vertically. Ensure all noggings are flush.

Studs must have a minimum fixing face width of 35mm to provide sufficient support for the battens.

Studs are to be spaced at maximum 600mm centres. Refer to Table 8 and Table 9.

### BATTEN INSTALLATION

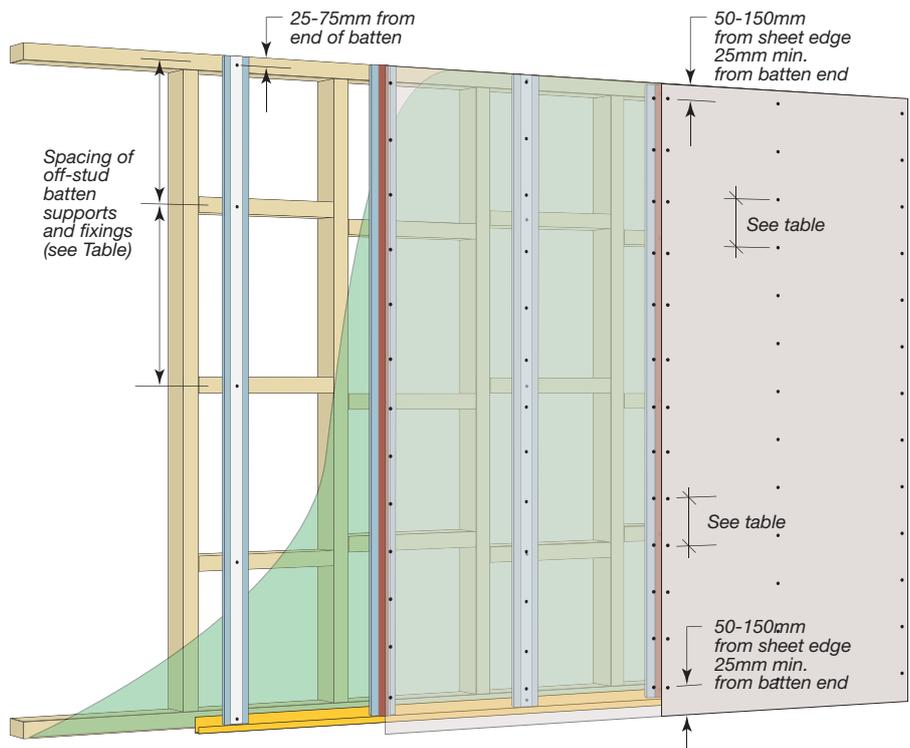
Cemintel™ battens may be fixed on-stud or off-stud, provided suitably designed framing supports are installed behind each fixing point in accordance with Table 8. Refer to FIG 36.

Cemintel™ battens are to be fixed vertically with the specified nails or screws in accordance with Table 8. Nails are to be used in pairs, spaced 30 to 100mm apart. For screw fixing, battens must be pre-drilled and countersunk. Refer to FIG 37.

Note that in Corner Zones, closer stud spacings may be required than in General Zones. Refer to Table 9.

Where non-structural battens are used, they must be of exterior grade material, such as H3 timber, and be aligned with studs and coincide with sheet edges. They may be held in place with nominal fixings until the cladding is fixed through the battens to the studs.

**FIG 36: Batten & Cladding Fixing – Off-stud battens shown**

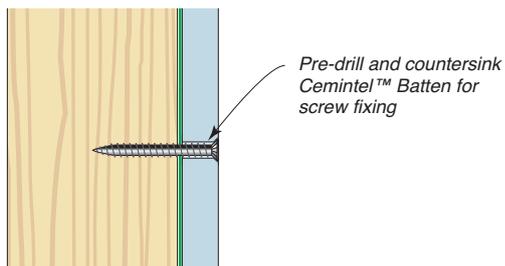


**Table 8: Maximum Fastener Spacing for Fixing Cemintel™ FC Battens to Timber or Steel Framing – On-stud and Off-stud Fixing to suit Cladding C25 Brad Nailed to Battens**

NOTE: This table applies to the Cemintel™ FC Batten when used for fixing cladding to the batten. When cladding is fixed through the battens and into the structural framing, then battens only require nominal fixing to hold in-place during cladding installation.

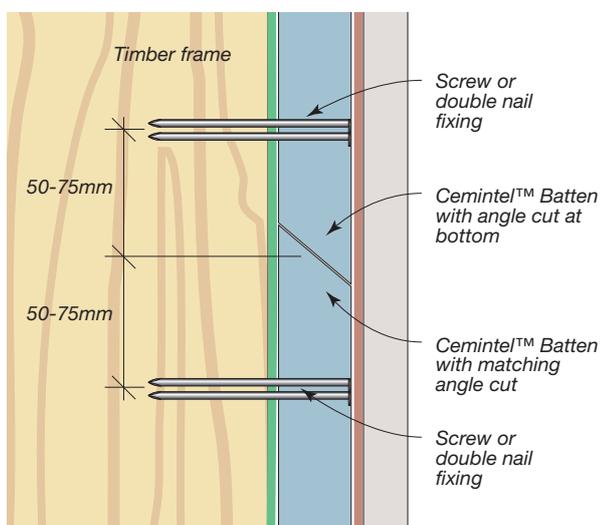
Batten Spacing (mm)	Wind Category	Cemintel™ Batten (Fibre Cement)			
		Timber Framing		Steel Framing	
		Nails (2 x 2.8x50)	Screw (1 x 8G-10x50)	0.5 BMT	0.75 BMT
				Screw FibreTEKS® (10G-18x30)	Screw FibreTEKS® (10G-18x30)
Maximum Fixing Centres					
600	N1	650	650	650	650
	N2	550	550	550	550
	N3/C1	400	450	450	450
	N4/C2	250	350	300	350
	N5/C3	180	300	200	300
450	N1	700	700	700	700
	N2	650	650	650	650
	N3/C1	500	500	500	500
	N4/C2	350	400	400	400
	N5/C3	200	350	250	350
300	N1	800	800	800	800
	N2	800	800	800	800
	N3/C1	600	600	600	600
	N4/C2	500	500	500	500
	N5/C3	350	400	400	400

FIG 37: Pre-drill Batten for Screw Fixing



CeminTEL™ Battens can be joined on-stud, refer to FIG 38.

FIG 38: Batten Joining – On-stud Only



### CLADDING INSTALLATION

Sheets must be fixed vertically, and horizontal sheet joints are not permitted.

Joints between sheets must always coincide with a supporting batten, and all edges must be supported at openings and perimeters. Add extra framing members and battens as required. Correct set-out of the framework can minimise the number of joints, and will contribute to the long term performance of the wall. Additional framing may also be required in long walls if sheets are not tightly butted at joins.

Fasteners are to be positioned as detailed in Table 9. Fasteners must be positioned at a minimum 12mm from sheet edges, 50-150mm from sheet corners, 25mm minimum from batten ends and in the full sheet thickness only, not in a groove. Refer to FIG 36 and 'Installation Details – Cavity System' for appropriate fixing information for the chosen fasteners. Fastener heads must be driven flush with the sheet surface (except where countersunk and covered screws are required).

Table 9: Maximum Stud & Fastener Spacing – Timber or Steel Studs

Stud/ Batten Spacing	Wind Category	Maximum Fastener Spacing			
		Panel Fixed to Two Supports		Panel Fixed to Three or More Supports	
		General Zone	Corner Zone	General Zone	Corner Zone
600	N1, N2	-	-	300	300
	N3/C1	-	-	300	-
450	N1, N2	300	300	300	300
	N3/C1	300	-	300	275
	N4/C2	300	-	300	175
	N5/C3	-	-	225	-
300	N6/C4	-	-	175	-
	N1, N2	300	300	300	300
	N3/C1	300	300	300	300
	N4/C2	300	300	300	275
	N5/C3	300	300	300	175
	N6/C4	300	300	250	125

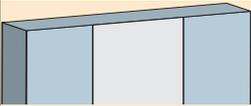
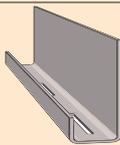
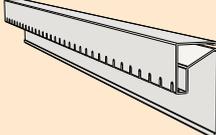
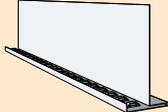
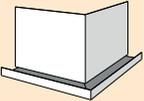
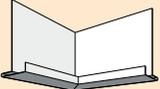
GENERAL ZONE – Wall areas greater than 1200mm from an External Building Corner.

CORNER ZONE – Wall areas less than 1200mm from an External Building Corner.

# COMPONENTS

Components listed here are specifically for the Cavity Installation System. Please refer to 'COMPONENTS' on page 16 for other products required for installation.

NOTE: In high corrosion zones (C4), Class 4 or Stainless Steel fasteners are required. Refer to "Coastal Areas". Supplied by others.

Product	Description	Size	Qty	Order Code
	<ul style="list-style-type: none"> <li>• <b>Cemintel™ FC Batten</b> – Advanced lightweight fibre cement structural grade batten. Battens are fixed to structural framing to create a 19mm deep drained cavity system.</li> </ul>	19 x 70mm x 2700mm	1	125431
	<ul style="list-style-type: none"> <li>• <b>Batten Nails</b> – Used for fixing battens to timber framing. Machine driven D-head, Class 3. HDG.</li> </ul>	2.80 x 50mm	3000	127799
	<ul style="list-style-type: none"> <li>• <b>Batten Screws</b> – Used to fix battens to timber framing. Class 3, countersunk ribbed head, Phillips drive, treated pine screw.</li> </ul>	8G-10 x 50mm	1000	127801
	<ul style="list-style-type: none"> <li>• <b>Cladding Nails</b> – Used for fixing Cemintel™ cladding to Cemintel™ FC Batten. C25 machine driven Brad nails, Class 3 or Stainless Steel.</li> </ul>	16G x 25mm	Supplied by others	
	<ul style="list-style-type: none"> <li>• <b>Cladding Nails</b> – Used for fixing Cemintel™ cladding through timber battens into timber framing. Machine Driven Nails, Class 3 Hot Dipped Galvanised (HDG) or Class 4 Stainless Steel (S/S).               <ul style="list-style-type: none"> <li>• Paslode 60 x 2.5 Smooth Shank HDG</li> <li>• Paslode 60 x 2.7 Ring or Screw Shank HDG Dome 15°</li> <li>• Paslode 60 x 2.7 Ring or Screw Shank S/S Dome 15°</li> <li>• Paslode ND50 Brad Nails S/S</li> </ul> </li> </ul>	50/60mm	Supplied by others	
	<ul style="list-style-type: none"> <li>• <b>J-Track (Batten Closer)</b> – PVC extrusion fitted at base of battens to provide drainage, air flow and vermin proofing.</li> </ul>	19 x 19 x 70mm x 3000mm	1	134845
	<ul style="list-style-type: none"> <li>• <b>Cemintel™ Eaves Trim</b> – Provides an attractive finish at eaves junction and provides cavity ventilation. Powder coat finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating. Suits all products up to 16mm thickness.</li> </ul>	60 x 26mm x 3030mm	1	White 134451
	<ul style="list-style-type: none"> <li>• <b>Cemintel™ Eaves Trim External Corner</b> – Provides an attractive joint at eaves trim corner. Powder coat finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.</li> </ul>	100 x 100mm	1	White 134426
	<ul style="list-style-type: none"> <li>• <b>Cemintel™ Eaves Trim Internal Corner</b> – Provides an attractive joint at eaves trim corner. Powder coat finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.</li> </ul>	150 x 150mm	1	White 134429
	<ul style="list-style-type: none"> <li>• <b>Cemintel™ Soffit Trim</b> – Provides an attractive finish at soffit edge as well as cavity ventilation and cavity closure below battens. Powder coat finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.</li> </ul>	60 x 3030mm (for 19mm cavity)	1	White 134452
	<ul style="list-style-type: none"> <li>• <b>Cemintel™ Soffit Trim External Corner</b> – Provides an attractive joint at soffit trim corner. Powder coat finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.</li> </ul>	100 x 100mm	1	White 134426
	<ul style="list-style-type: none"> <li>• <b>Cemintel™ Soffit Trim Internal Corner</b> – Provides an attractive joint at soffit trim corner. Powder coat finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.</li> </ul>	100 x 100mm	1	White 134429

# BUILDER'S INSTALLATION CHECKLIST

The following builder's checklist can assist in making the Cemintel Edge™/SimpleLine™ installation process run smoothly.

ACTION	COMPLETED
<b>PRE-CLADDING CHECKLIST</b>	
1 Confirm that studs are located in accordance with project specifications. Refer to Table 8 and Table 9.	
2 Confirm additional framing is appropriately located for fixing of off-stud battens when used.	
3 Confirm timber framing alignment is in accordance with AS1684, or steel framing is in accordance with AS/NZS4600, and correct if necessary.	
4 Confirm bracing is in place.	
5 Confirm ground clearance to the bottom of the Edge™ or SimpleLine™ sheets will be accordance with Australian Standards and Cemintel™ requirements of minimum 25mm to paved surface or 75mm to unpaved surface.	
6 Confirm that the wall wrap/sarking has been fully and correctly installed, and overlapped and taped at joints and flashings.	
7 Confirm windows are front draining type.	
8 Confirm all window and door flashings are correctly installed and taped where appropriate.	
9 Confirm that window placement/reveal depth provides the appropriate clearance for board installation.	
10 Confirm adequate structural support for fixtures such as pergolas and decks has been provided. No loads may be carried by the cladding.	
11 Confirm membranes and flashings for deck areas have been installed in accordance with manufacturer's specifications.	
12 Confirm batten spacing and fixing methods.	
13 Arrange for a pre-cladding inspection by the appropriate local building authority.	

ACTION	COMPLETED
<b>POST-CLADDING CHECKLIST</b>	
1 Confirm all appropriate joints have been neatly filled with recommended sealant.	
2 Confirm all fastener heads have been finished flush with the surface.	
3 Confirm sealant has been applied to gaps at openings (where appropriate).	
5 Confirm all trims at corners and soffit have been completed correctly.	
6 Confirm appropriate painting of cladding and all exposed edges.	

# INSTALLATION DETAILS

FIG 39: Base – Concrete Slab Foundation

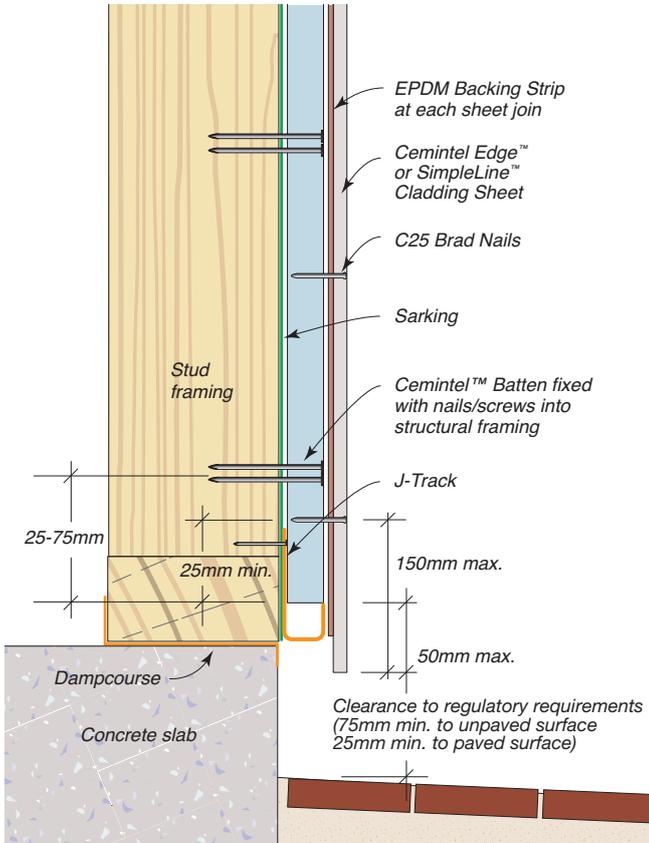


FIG 40: Base – Pier or Stub Wall Foundation

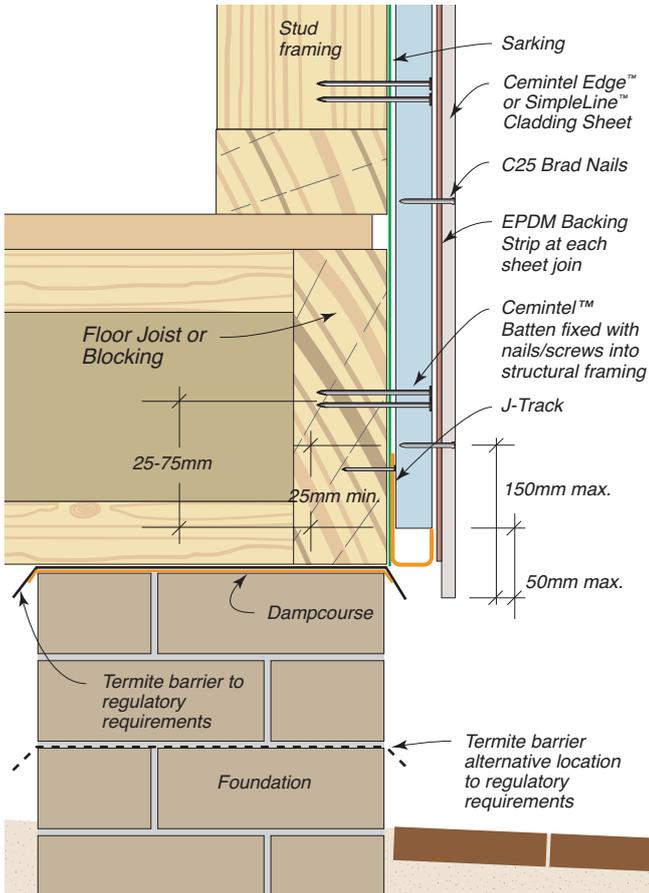


FIG 41: Second Storey Junction with Hebel Panels, Brick Veneer or Masonry Wall – Cantilevered Framing

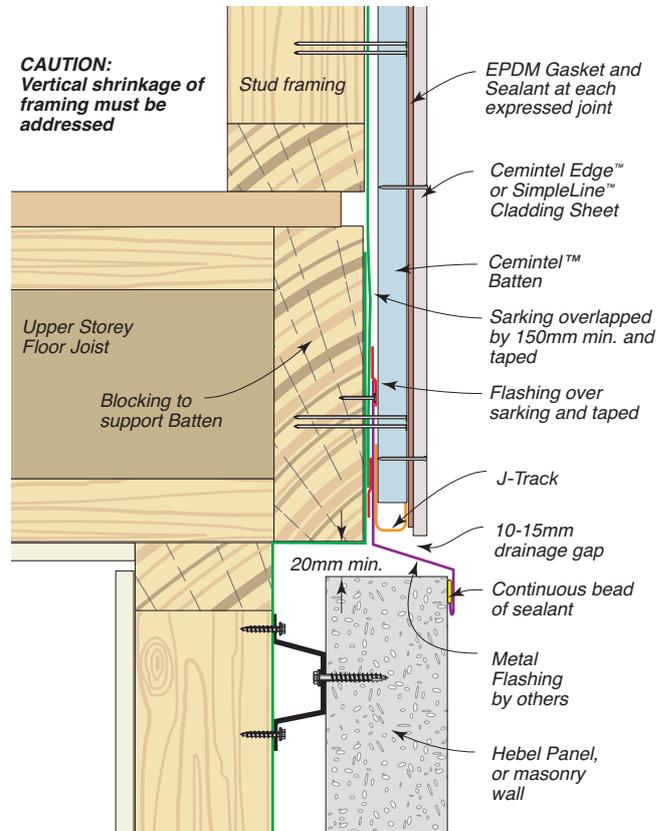


FIG 42: Second Storey Junction with Masonry, Brick Veneer or Hebel Panels In-line Framing

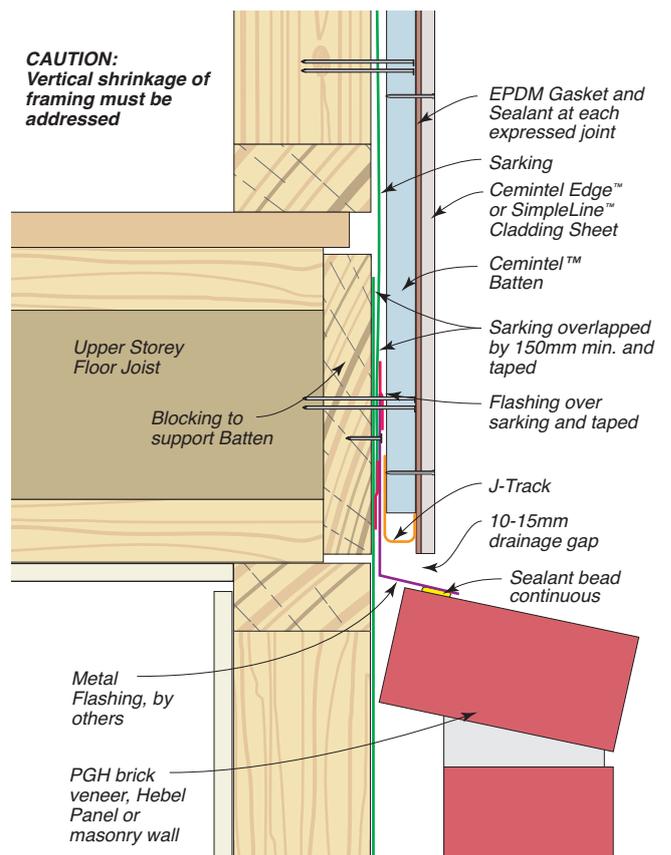


FIG 43: Second Storey Horizontal Junction

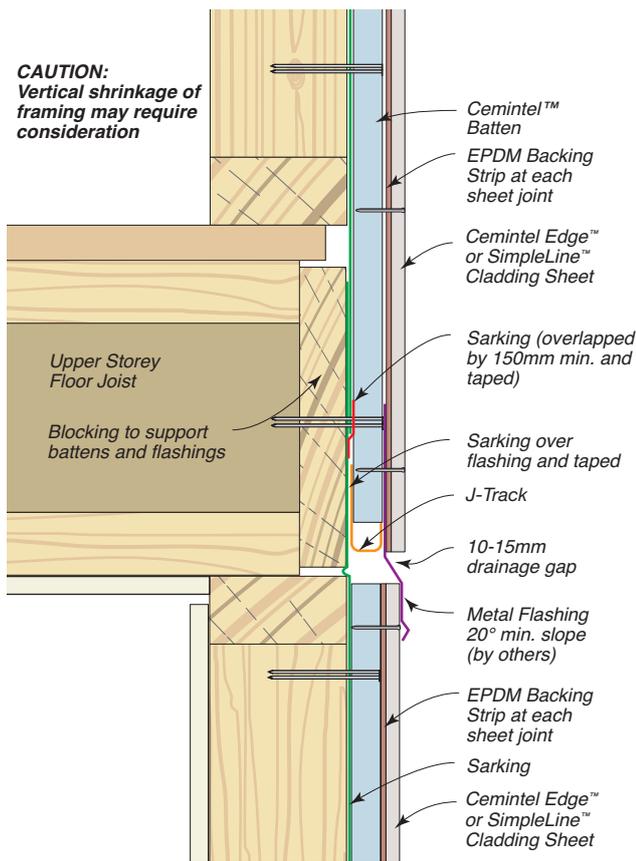


FIG 45: Junction of Edge™ Cladding with External Roofing

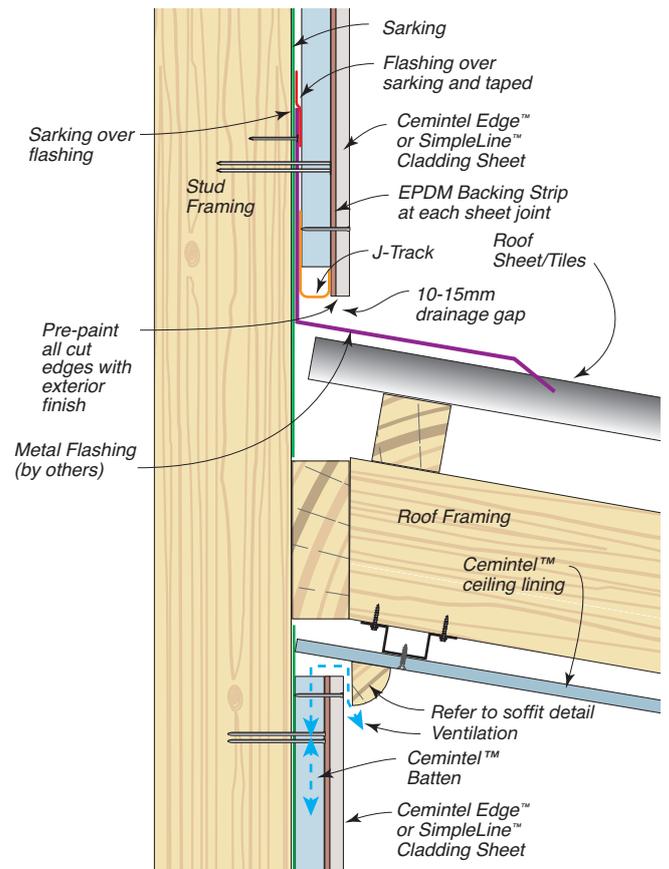


FIG 44: Junction of Edge™ Cladding with External Roofing

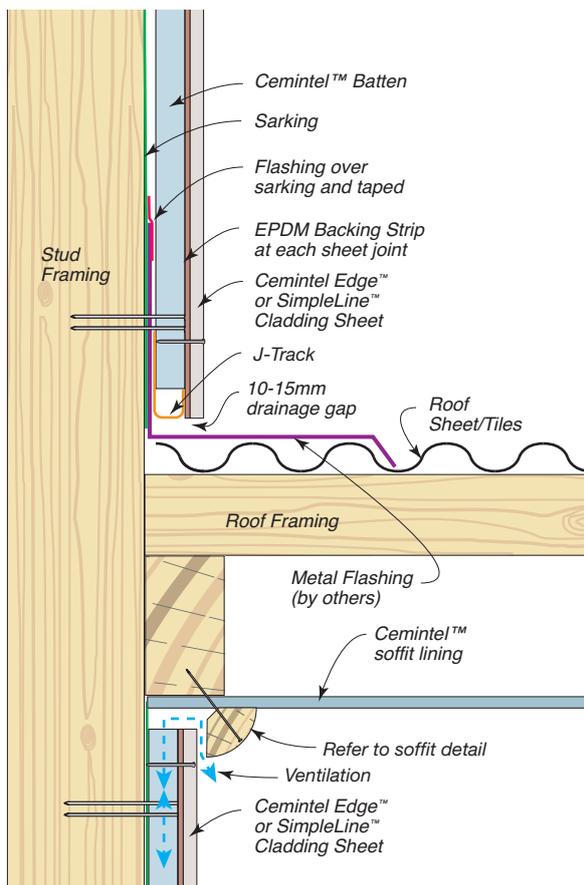


FIG 46: Horizontal Parapet Wall

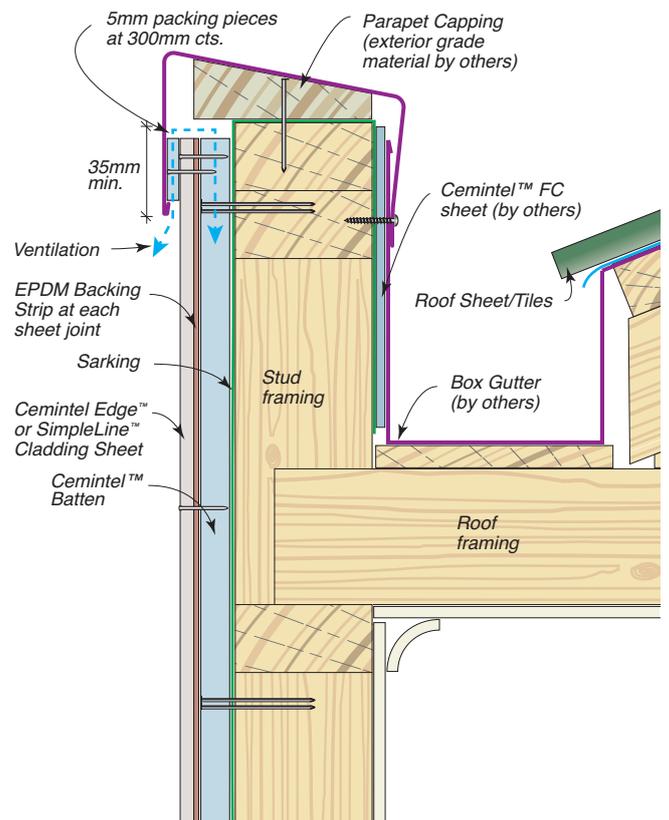


FIG 47: Head – Eaves with Cemintel Trim

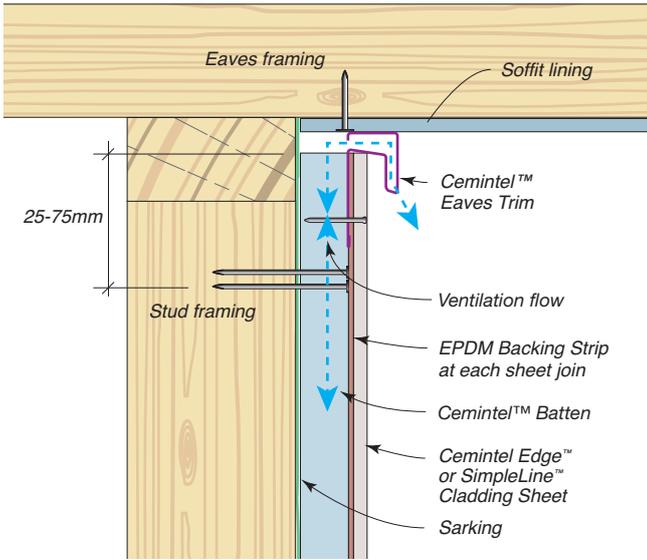


FIG 48: Head – Eaves with Timber Trim

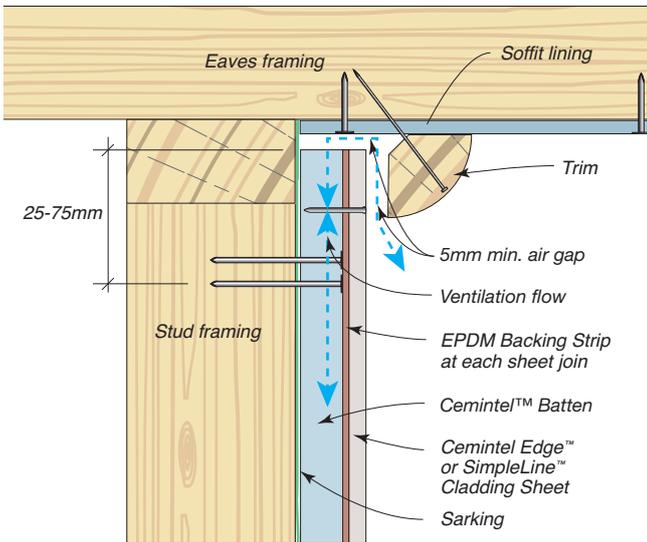


FIG 49: Soffit – With Soffit Trim

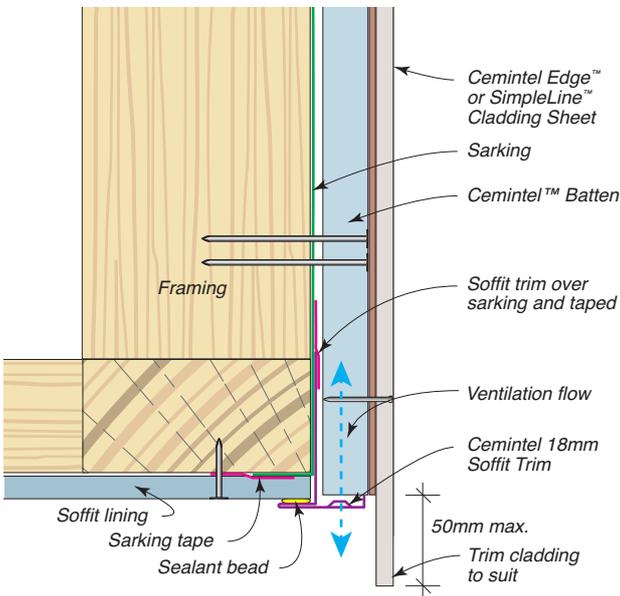


FIG 50: Vertical Joint – Edge™ Cladding Fixed to Cemintel™ Batten

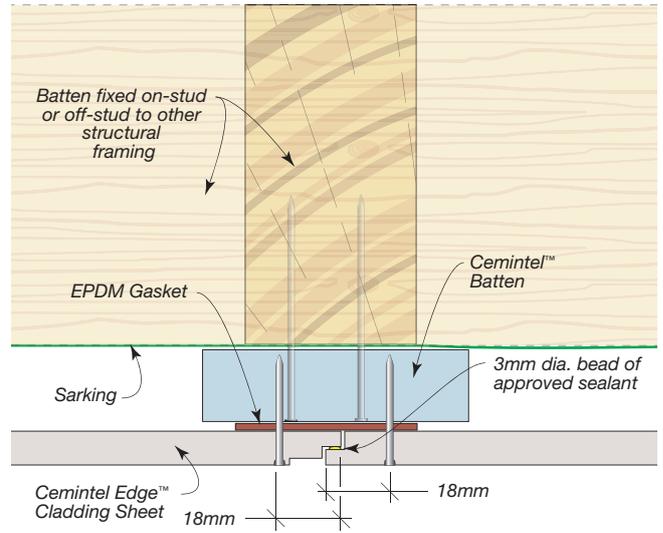


FIG 51: Vertical Joint – Edge™ Cladding Fixed Through Non-structural Batten to Framing

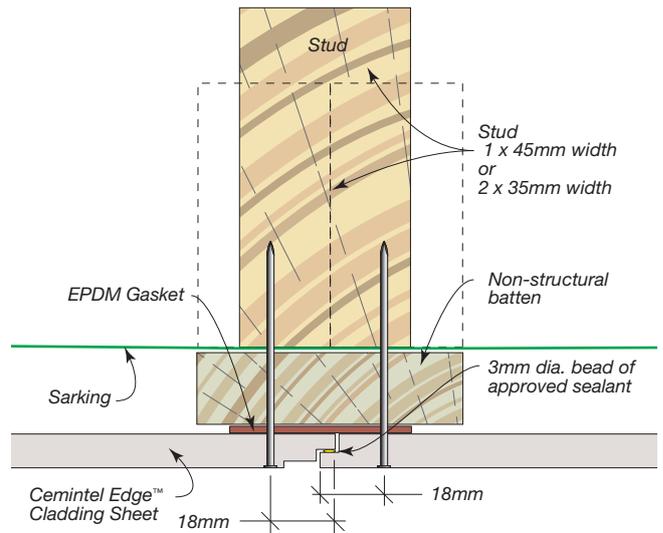
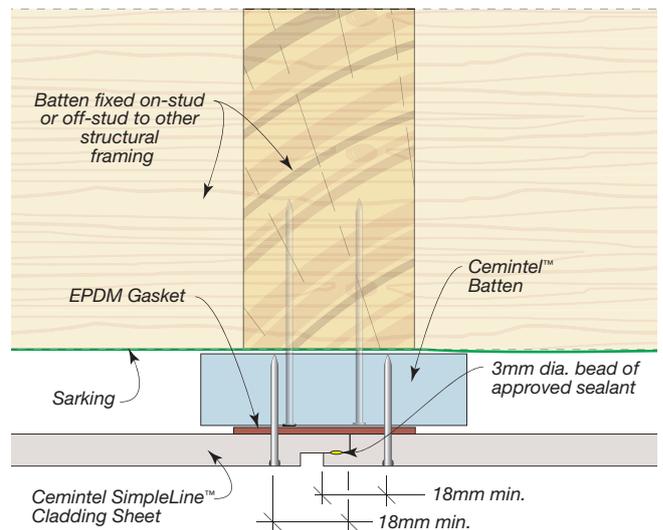
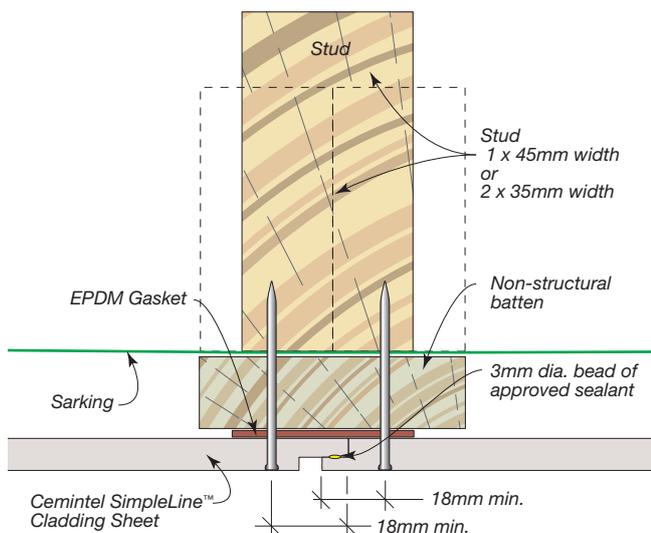


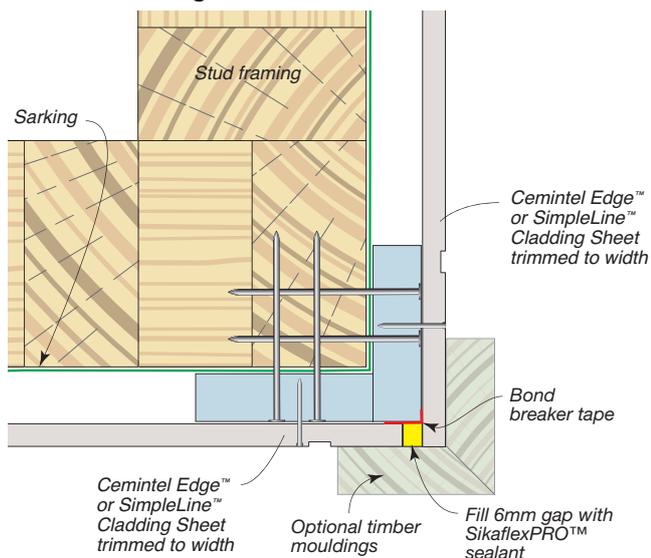
FIG 52: Vertical Joint – SimpleLine™ Cladding Fixed to Cemintel™ Batten



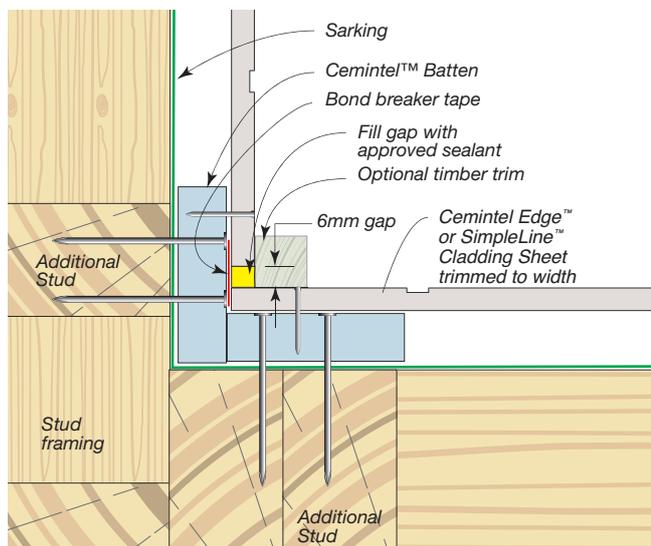
**FIG 53: Vertical Joint – SimpleLine™ Cladding Fixed Through Non-structural Batten to Framing**



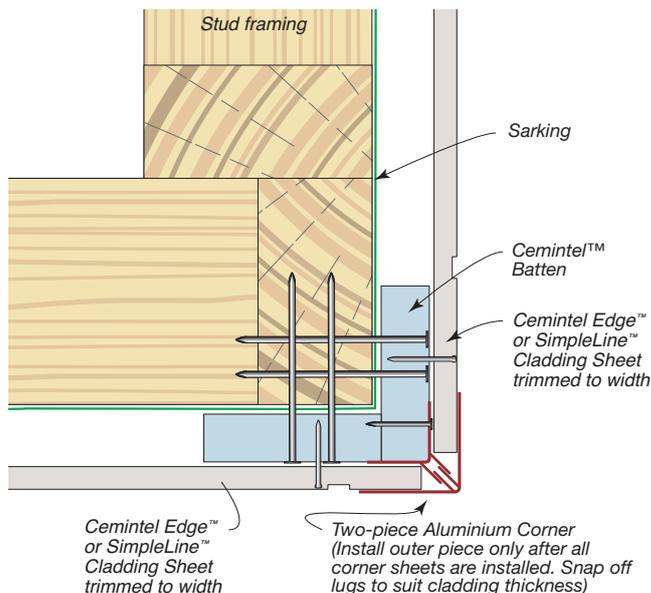
**FIG 54: External Corner with Sealant and Optional Timber Moulding**



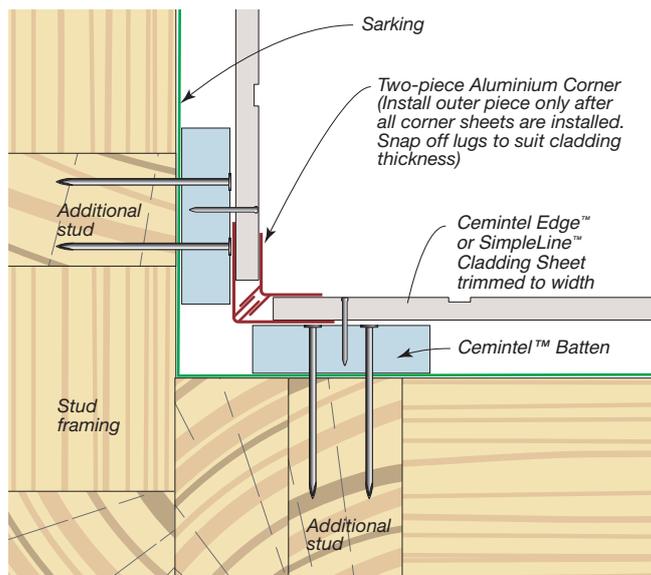
**FIG 55: Internal Corner with Sealant and Optional Timber Moulding**



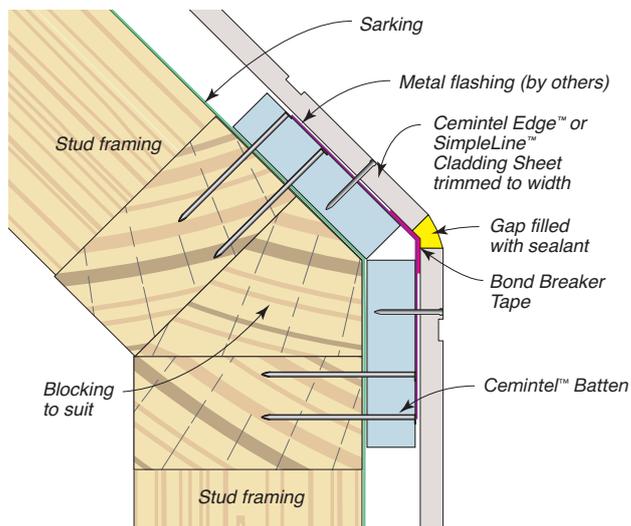
**FIG 56: External Corner with Two-piece Aluminium Corner – Edge™**



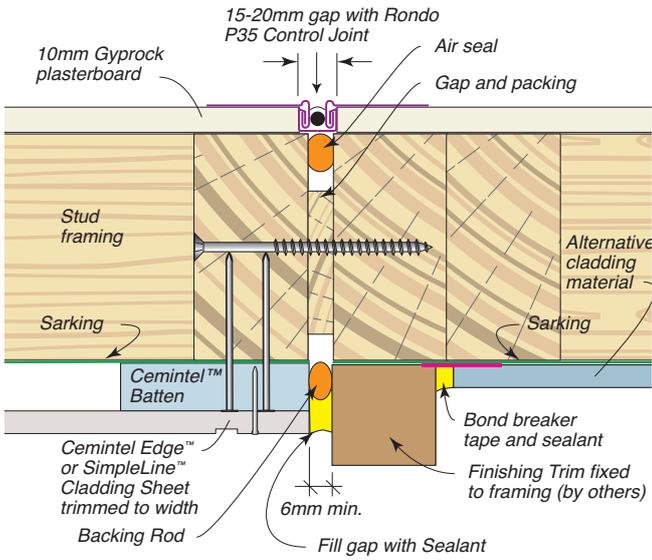
**FIG 57: Internal Corner with Two-piece Aluminium Corner – Edge™**



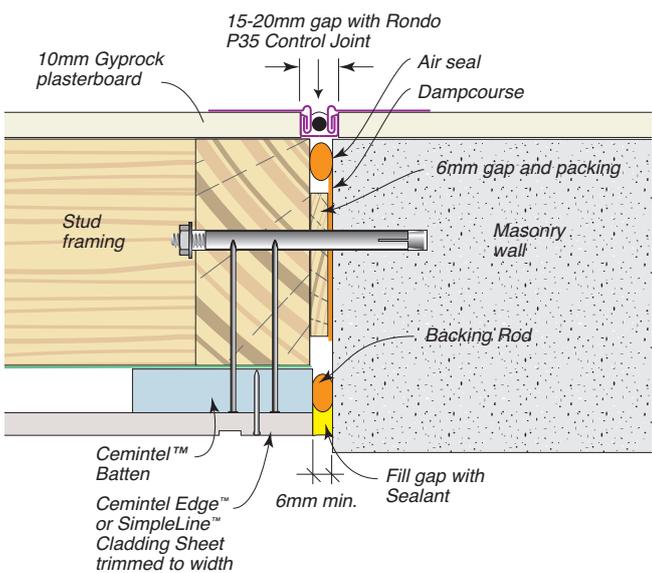
**FIG 58: Obtuse Angle Corner Detail – Edge™**



**FIG 59: Junction of Cemintel™ Cladding with Alternative Cladding**



**FIG 60: Junction of Cemintel™ Cladding with Masonry Wall**



**FIG 61: Window Detail – Trend Quantum XP Aluminium Sliding Window with Weatherboard Reveal Clip E482**

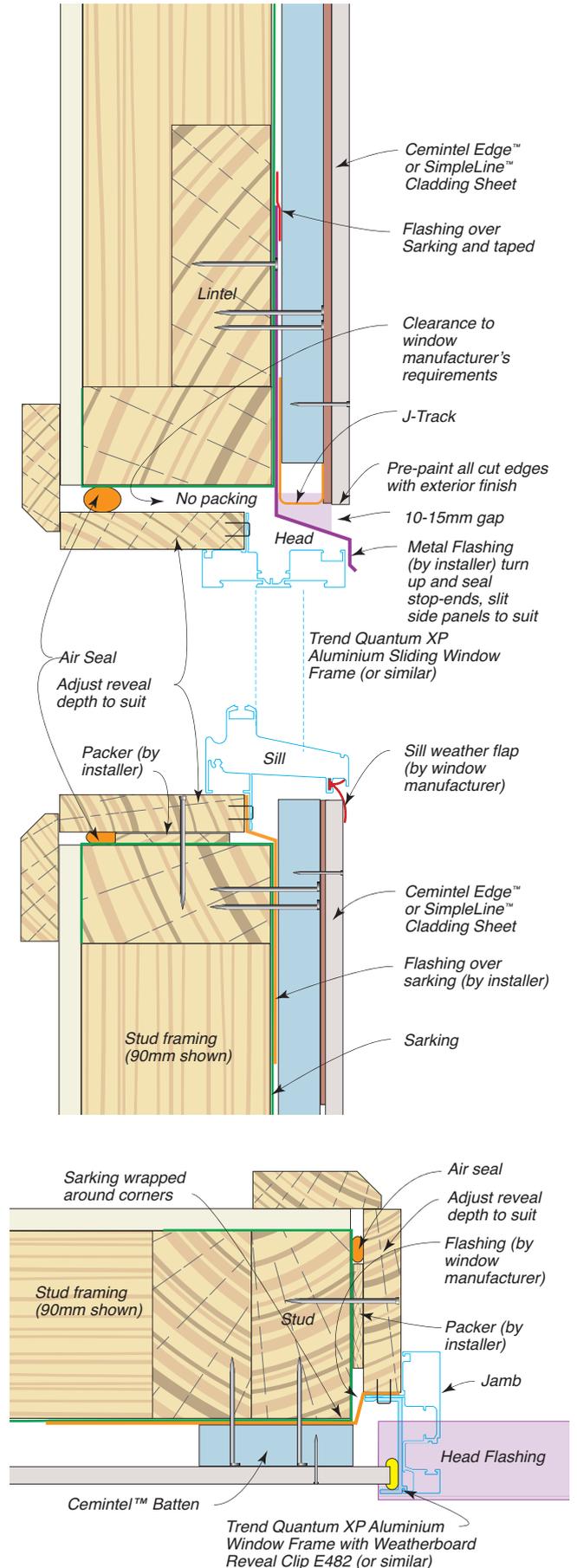


FIG 62: Window Detail – A&L Aluminium Sliding Window with Cladding Trim

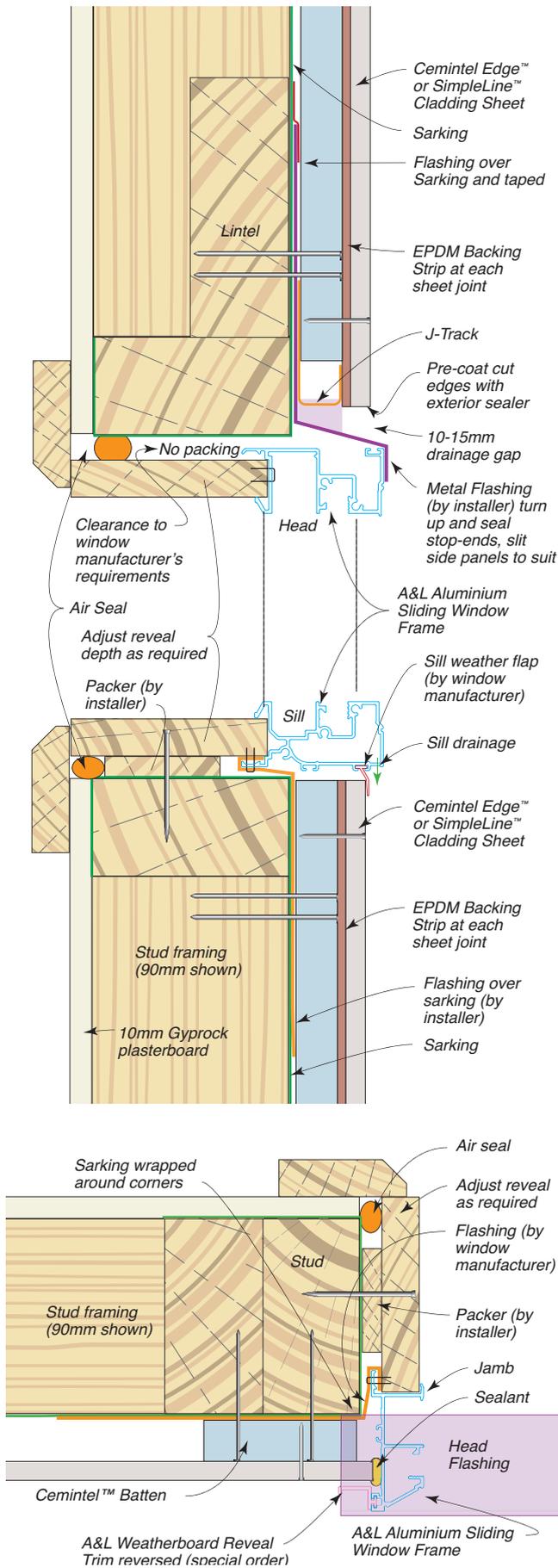
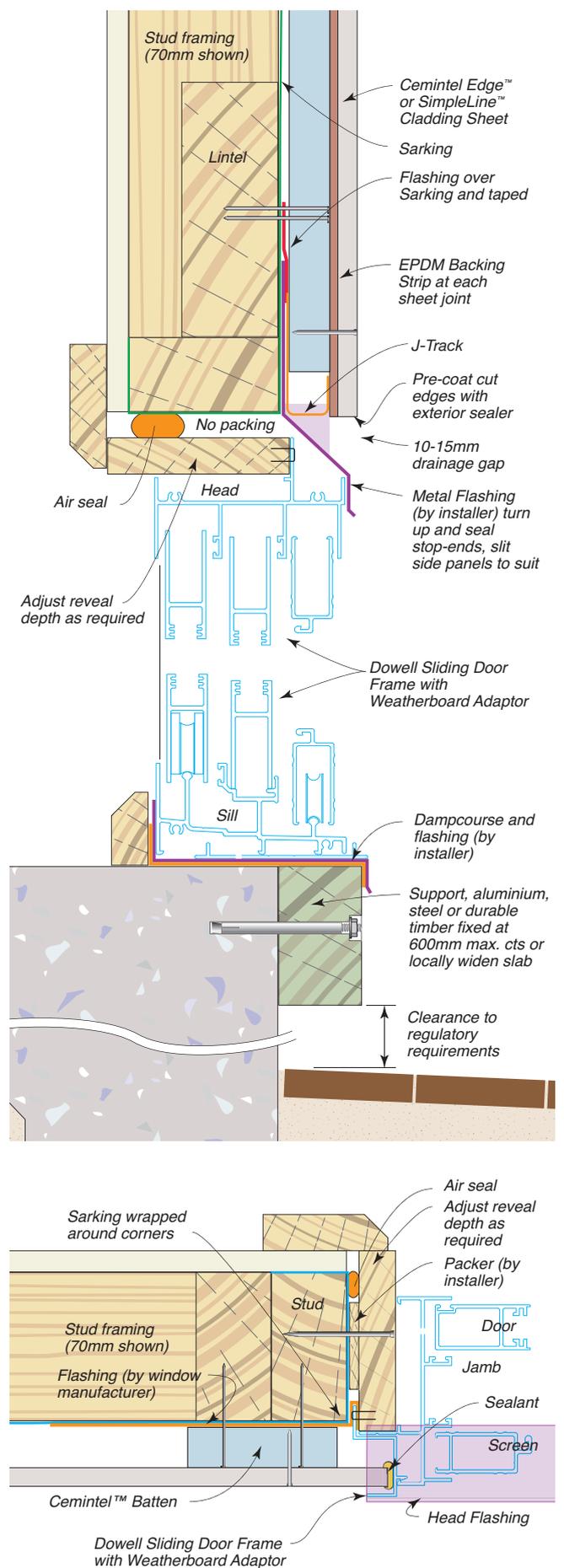


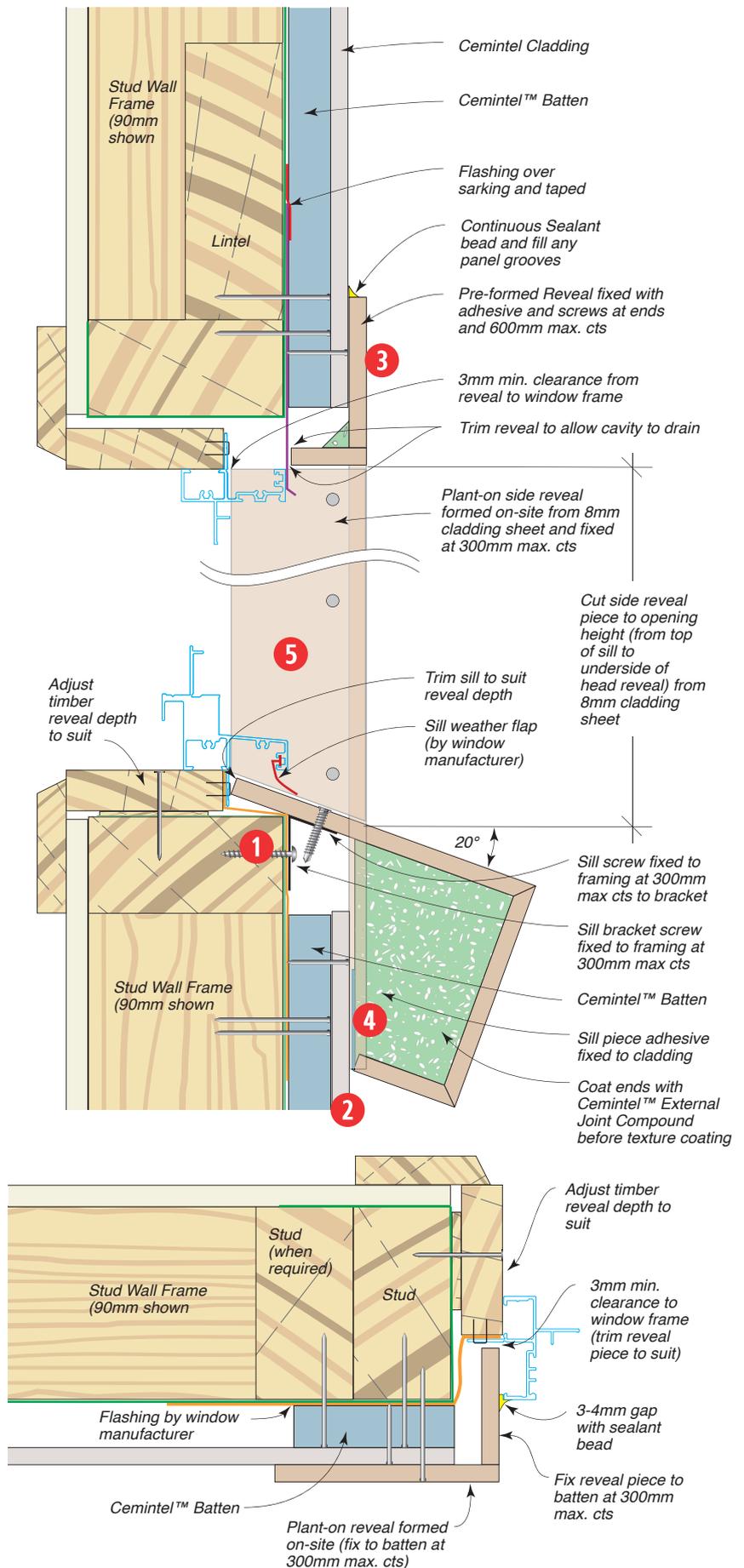
FIG 63: Dowell Sliding Door Installation – 70mm Framing and 85mm Reveal Shown



## TRADITIONAL SILL & REVEAL INSTALLATION

- 1 Where a Cemintel™ Traditional Sill profile is used, a sill bracket is required. Cut the sill bracket to the opening width less 40mm. Bracket may be installed in two pieces where necessary. Position the sill bracket to support the top flange of the sill profile. Fix the bracket to the framing at the ends and at 300mm maximum centres between.
- 2 Install and fix the panel below the sill.
- 3 Cut and fix the Cemintel™ Preformed Head Reveal neatly between the side battens.
- 4 Cut the Cemintel™ Sill Profile to fit neatly between the side battens. Apply a 30mm wide continuous film of recommended adhesive to the back of the sill. Screw fix the top flange of the sill to the sill bracket at the ends and at 300mm maximum centres between. Remove any excess adhesive.
- 5 Cut, install and fix the side reveal pieces.

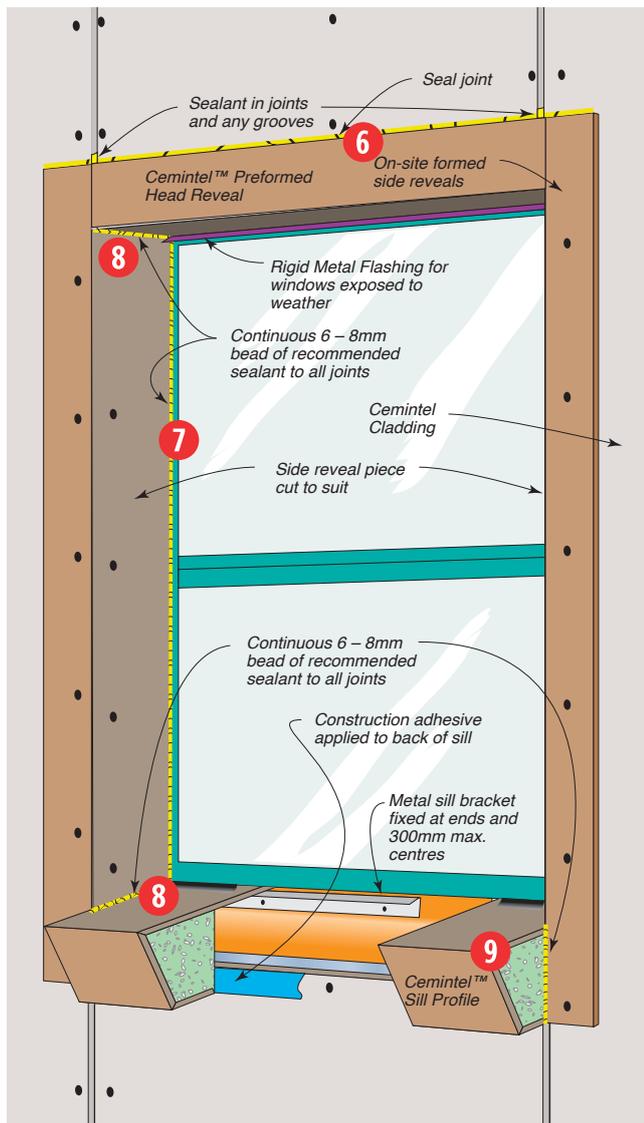
FIG 64: Installation of Cemintel™ Traditional Sill, Head and Side Reveals



## CAULKING (Refer to FIG 65)

- 6 Seal the top of the head reveal to the panel, filling all grooves.
- 7 Completely seal the junctions of window/door frames with side reveals.
- 8 Seal the joints between reveals and between the sill and adjoining panels.

FIG 65: Caulking Window Installation



## FINISHING

- 9 The traditional sill and reveal sections should be finished with a high-build coating such as Cemintel™ Texture Coating. Refer to data sheet Cemintel Texture Coating System.

FIG 66: Power Meter Box Installation – Recessed Installation

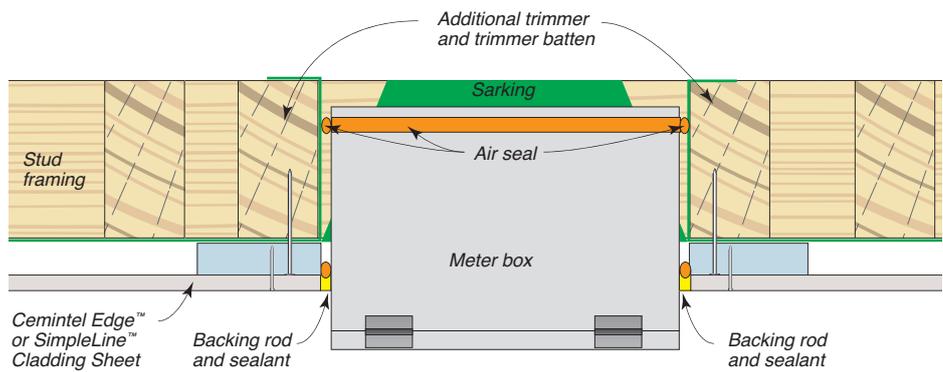
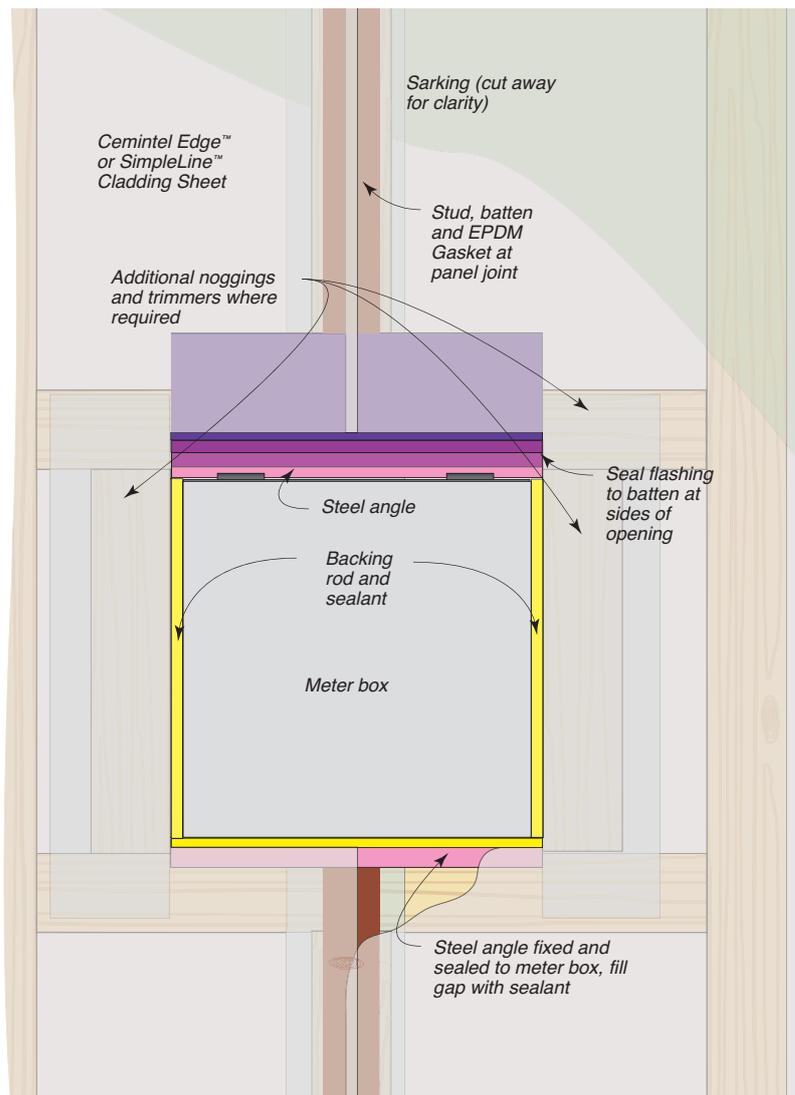
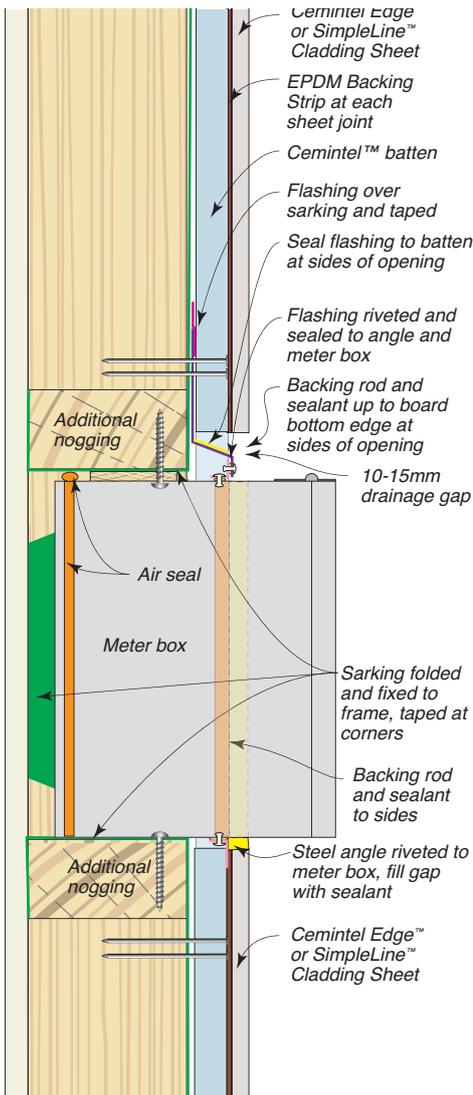
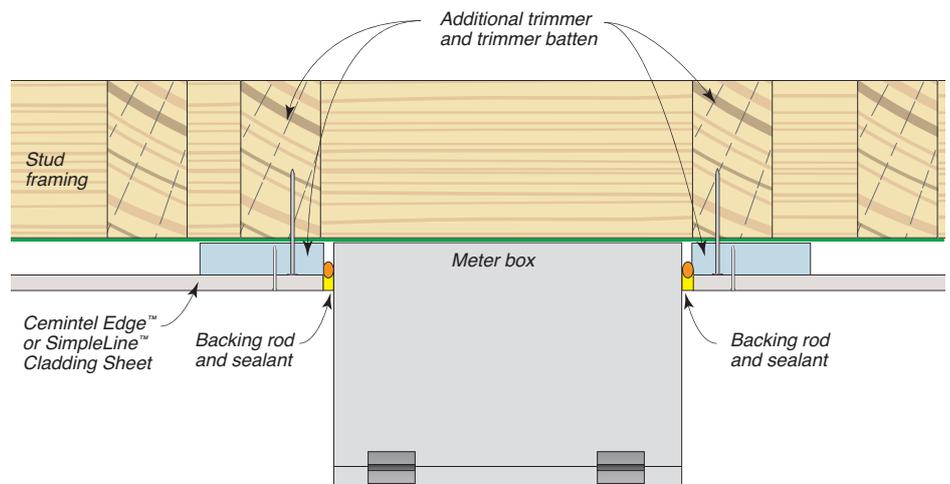
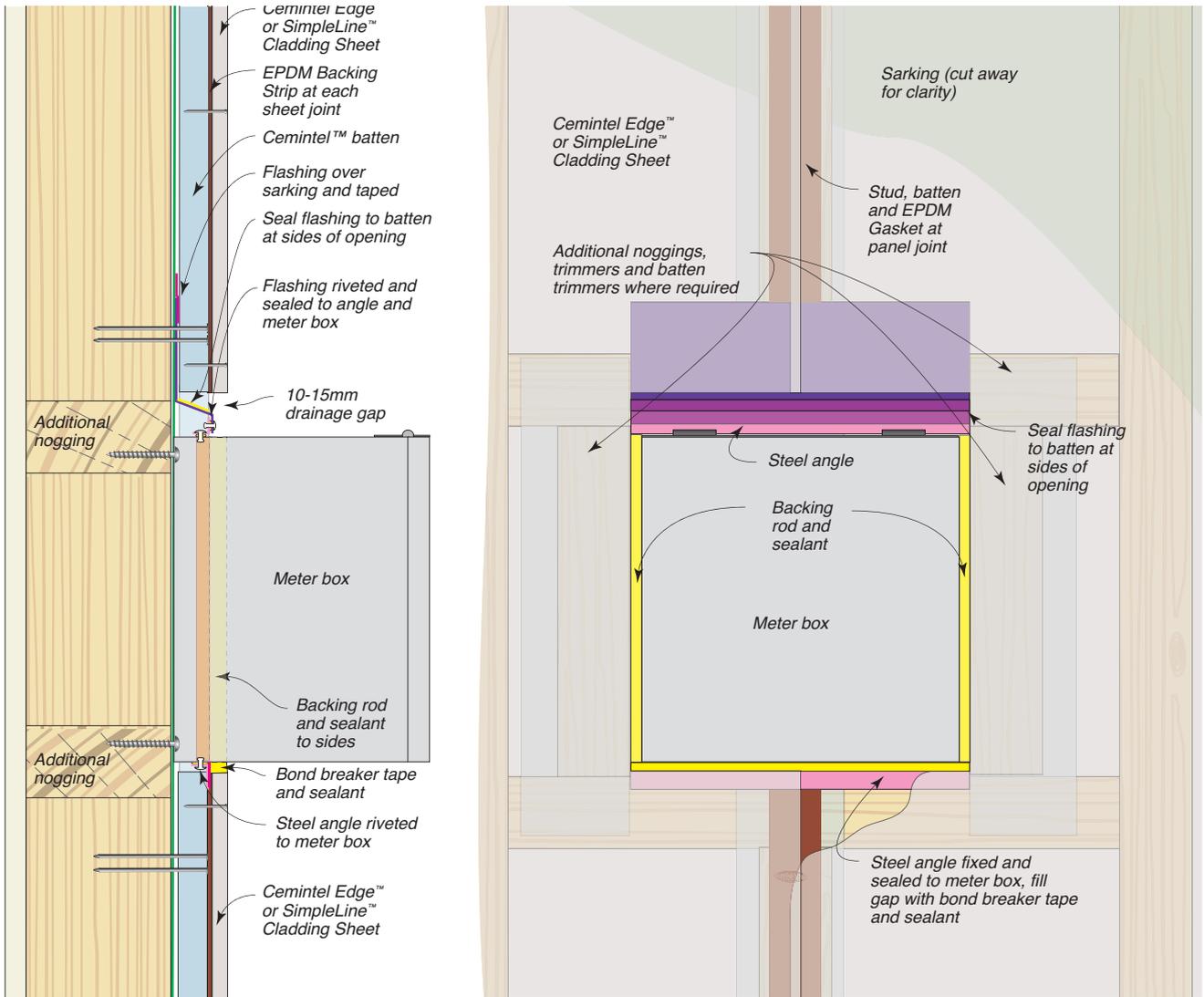


FIG 67: Power Meter Box Installation – Face Fix Installation





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## EDGE<sup>™</sup> & SIMPLELINE<sup>™</sup> CLADDING SYSTEMS

### HEALTH & SAFETY

#### WARNING

Fibre Cement products contain crystalline silica. Repeated inhalation of fibre cement dust may cause lung scarring (silicosis) or cancer. Do not breathe the dust. When cutting sheets, use the methods recommended in this brochure to minimise dust generation. If power tools are used, wear an approved dust mask (respirator). These precautions are not necessary when stacking, unloading or handling fibre cement products.

For further information and for a Material Safety Data Sheet, phone 1800 678 068.

#### WARRANTY

CSR Building Products Limited ("CSR") warrants its Cemintel Edge<sup>™</sup> and Cemintel SimpleLine<sup>™</sup> cladding ("Product") to remain free of defects in material and manufacture for the usual lifetime of the Product (up to 10 years).

In the event of any failure of the Product caused by the direct result of a defect in the material or manufacture of the Product, CSR will at its option replace or repair, supply an equivalent product, or pay for doing one of these.

This warranty does not apply where the Product has been used in any manner not in accordance with the manufacturer's instructions, nor the reuse of the Product after its initial installation. This includes installation and maintenance in accordance with the relevant Cemintel technical manual, current copies are available at [cemintel.com.au/installation](http://cemintel.com.au/installation) or by contacting 1300 CEMINTEL. CSR recommends that only those products, components and systems recommended by it be used and the project must be designed and constructed in strict compliance with all relevant provisions of the current Building Code of Australia, regulations and standards. All other products, including coating systems, applied to or used in conjunction with the Product must be applied or installed and maintained in accordance with the relevant manufacturer's instructions and good trade practice. CSR will need to be satisfied that any defect in its Product is attributable to material or manufacture defect (and not another cause) before this warranty applies.

Without limiting the foregoing, CSR will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement

and/or movement of materials to which the Product is attached, incorrect design of the structure, high levels of pollution, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces).

Other than as expressly set out in this warranty, and the guarantees that can not be excluded under The Australian Consumer Law (Schedule 2 of the Competition and Consumer Act 2010 (Cth)) (and any other law), CSR excludes all other warranties and guarantees with regard to the Product including all guarantees and warranties that may apply at law.

To the extent that it is able to do so, CSR excludes all liability for loss and damage (including consequential loss) in connection with the Product. This exclusion does not apply where the Product is sold to a consumer and is a good of a kind ordinarily acquired for personal, domestic or household use or consumption.

The following statement is provided where the Product is supplied to a buyer who is a "consumer" under the Australian Consumer Law: *Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.* The benefits of this warranty are in addition to other rights or remedies of the consumer under law in relation to the goods or services to which the warranty relates.

Notification of a warranty claim must be made to CSR prior to any return of the Product. Failure to allow CSR to examine an alleged faulty Product in-situ may result in the voiding of this warranty.

To make a claim under this warranty, you must contact CSR on **1300 CEMINTEL**, or write to one of our state offices, [www.cemintel.com.au/contact-us](http://www.cemintel.com.au/contact-us). All expense of claiming the warranty will be borne by the person making the claim. CSR may require documentation supporting the claim to be provided.

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### CONTACT DETAILS

OCTOBER 2015

#### CSR Cemintel<sup>™</sup> Sales Support

Tel: 13 17 44 Fax: 1800 646 364

#### CSR designLINK<sup>®</sup>

#### Technical Support Service

Tel: 1800 621 117

Email: [designlink@csr.com.au](mailto:designlink@csr.com.au)

#### New South Wales and ACT

376 Victoria Street,  
Wetherill Park NSW 2164

#### Queensland

768 Boundary Road,  
Coopers Plains QLD 4108

#### Victoria

277 Whitehall Street,  
Yarraville VIC 3013

#### South Australia

Lot 100 Sharp Court,  
Mawson Lakes SA 5095

#### Western Australia

19 Sheffield Road,  
Welshpool WA 6106

#### Tasmania

11 Farley St,  
Derwent Park, TAS 7009

#### Northern Territory

Cnr Stuart Hwy & Angliss St,  
Berrimah NT 0828