

CEMINTEL®

DESIGN AND INSTALLATION GUIDE



CEMINTEL AIR BARRIERS
Rigid Air Barriers & Soft Air Barriers – For Cemintel pressure equalised cladding systems

CSR

INTRODUCTION

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Introduction

Cemintel air barriers are designed for use with Cemintel's pressure equalised cladding systems to produce effective weather-resistant façades.

Key components of pressure equalised systems are – a cladding or rain screen; a drained and ventilated cavity; and an air barrier.

Cemintel offers a number of external wall claddings that are suitable for use as part of a pressure equalised façade system.

The cavity allows pressure equalisation to occur, with ventilation provided through openings at the base and head of the wall. This also assists to prevent moisture build up and reduces the risk of moisture penetration, allowing the building shell to dry out, creating a healthier, more breathable building.

Air barriers can take the form of a flexible wall wrap or rigid sheeting. Bradford wall wrap products can be used for low wind pressures typically associated with low rise buildings. Cemintel Rigid Air Barrier™

(RAB) fibre cement panels are suitable for higher wind pressures and for projects that are left unclad for extended periods which may require resistance to damage during construction.

This Design and Installation Guide outlines a number of products suitable for use as air barriers that form part of an overall façade system solution.

It has been prepared as a general guide and includes design considerations, system engineering and common applications. It assumes that the user has an intermediate knowledge level of building design and construction. In no way does it replace the services of the building professionals required to design projects, nor is it an exhaustive guide of all possible scenarios. It is the responsibility of the architect, designer and various engineering parties to ensure that the details in this Design and Installation Guide are appropriate for the intended application.



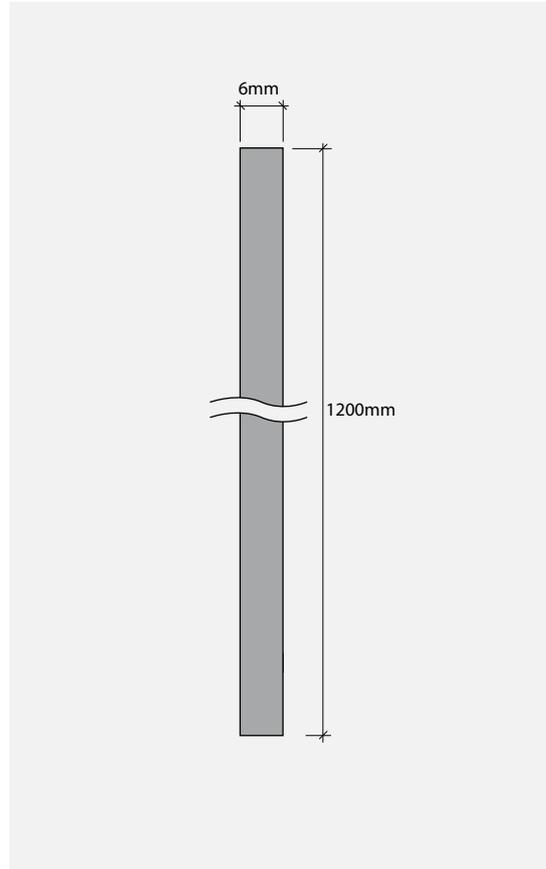
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PRODUCT OVERVIEW

Cemintel Rigid Air Barrier

- Cemintel Rigid Air Barrier is a 6mm fibre cement panel consisting primarily of Portland Cement, cellulose fibres, sand and water and is manufactured in accordance with AS2908.2: 1992 'Cellulose-cement products Part 2: Flat sheets.'
- Cemintel Rigid Air Barrier is sealed on the face and edges using Cemintel's proven Cemiseal embedded micro waterblock technology which repels water, preventing water penetrating into the panel and hence providing a durable sheet which will not rot, swell or warp when correctly installed.
- By protecting against wind and rain, it allows work to be carried on inside the building prior to the cladding being installed.
- Being fibre cement, Cemintel Rigid Air Barrier may be used where a non-combustible material is required by the BCA.
- The panels do not have sharp edges. The square edges are suitable for accepting tape to form an air seal and are available in a 1200x3000mm size (Note: custom sizes can be supplied subject to minimum order quantities – refer to Cemintel).
- Panel Mass (EMC) is 9.4kg/m²
Nominal Weight is 9.7kg/m²

Comprehensive Technical Datasheets can be downloaded from cemintel.com.au and bradford.com.au



Cemintel Rigid Air Barrier

| Product | Width (mm) | Length (mm) | Thickness (mm) | Product Code |
|----------------------------|------------|-------------|----------------|--------------|
| Cemintel Rigid Air Barrier | 1200 | 3000 | 6 | 170076 |



Wall Wraps

Wall wrap products suitable for use as an air barrier include Bradford's Enviroseal™ ProctorWrap™ CW, CW-IT, and HTR.



Enviroseal™ ProctorWrap™ CW is a light duty, triple layer spun bond vapour permeable wall wrap with a heavier weight protective fabric than ProctorWrap™ RW. It is tough, yet light, making it easy to handle during installation and is printed with a 150mm lap line to make alignment of overlaps simple.

Enviroseal™ ProctorWrap™ CW-IT is a variant of Enviroseal™ ProctorWrap™ CW which has an integrated adhesive tape with a protective release liner. This allows fast, consistent and reliable sealing of adjoining rolls of CW-IT.



Enviroseal™ ProctorWrap™ HTR is a medium duty sarking produced from a tough 3-ply spun bonded polyolefin membrane with reinforcing scrim. It offers durability and a combination of high air and water hold-out properties together with vapour permeability.



In addition to acting as an air barrier, the Bradford wall wraps detailed in this Guide:

- Help protect buildings from condensation and related problems such as mould, timber rot, corrosion and loss of thermal performance.
- Are highly vapour-permeable membranes, allowing the controlled escape of water vapour from within the building while restricting the ingress of water and air.
- Are ideal for colder climates with higher levels of insulation, as well as applications where a high water barrier / low vapour barrier product is specified.
- Note that, for warm humid coastal and tropical climates a combination of the Rigid Air Barrier and a high water barrier / high vapour barrier product is recommended.

Details as to the suitability of these wall wraps for different applications are provided in Table 3.01 and Table 4.01.



SYSTEM OVERVIEW

SYSTEM OVERVIEW



Air barriers are an integral component of a pressure equalised façade system. Pressure equalised systems consist of a cladding or rainscreen installed with a ventilated cavity, and form an effective method of weatherproofing buildings.

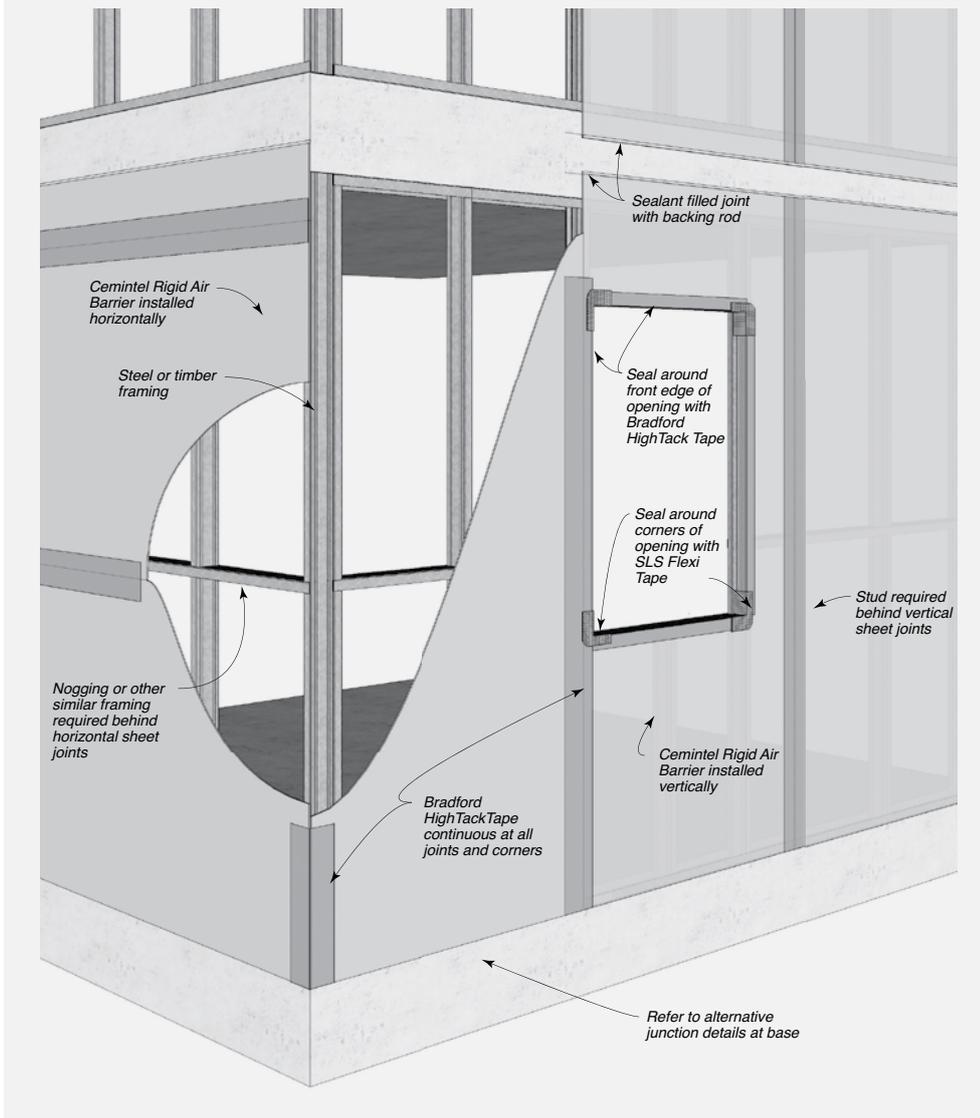
Positive air pressure within the cavity, introduced by appropriate vents, can lower the pressure differential across the cladding. This differential is a force that can drive water through an opening, so a low value means less chance of water crossing the cavity to reach other building elements. Testing carried out to AS/NZS 4284 demonstrated that water ingress is limited and present only at the back face of the cladding. The cavity then serves as a channel to return water to the outside of the building.

Cemintel provides a large range of cladding products suitable to be installed with an air barrier and an associated cavity. It is critical that the cladding and air barrier must be installed correctly as they are essential elements of a pressure equalised system. Air barriers must be effectively sealed at all perimeters, openings and joints.

Benefits of Cemintel Rigid Air Barrier

- Vapour permeable
- No additional caulking required compared to galvanised sheet back pan systems
- No sharp edges
- Easy to cut on site
- Not susceptible to corrosion

Cemintel Rigid Air Barrier



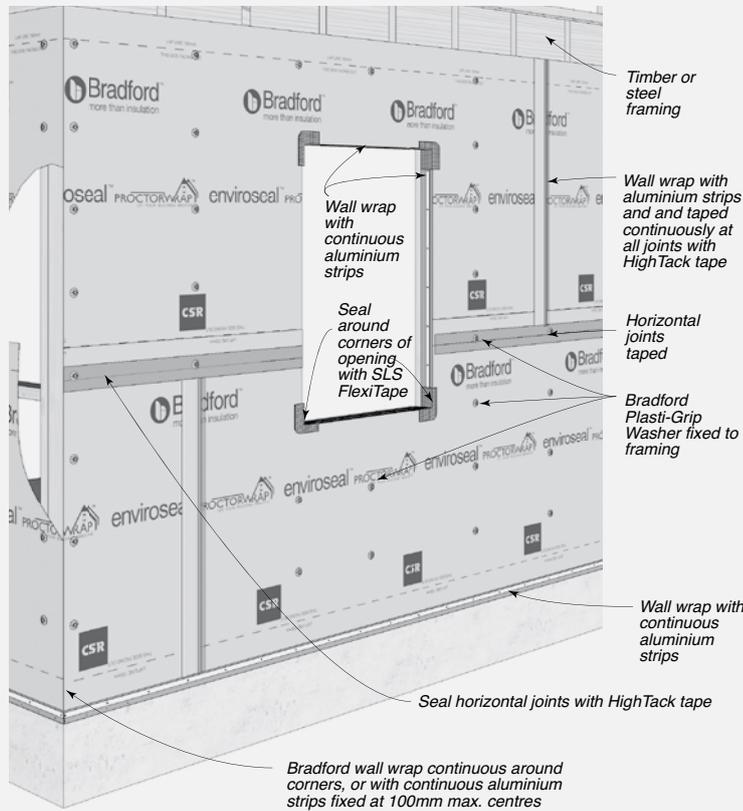
For installations with wind loads exceeding 1.5kPa, Cemintel's Rigid Air Barrier should be used.

Cemintel Rigid Air Barrier can be installed either horizontally or vertically across the frame. A flexible tape is applied continuously across joints to limit air penetration.

Any flashings should be fixed over the top of the air barrier and taped.

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SYSTEM OVERVIEW

Wall Wrap as a Soft Air Barrier

Cemintel recommends Enviroseal™ ProctorWrap™ products as an air barrier for design wind loads of up to 1.5kPa. Wall wraps are fixed to frames using screws and Bradfix washers. Metal strips are installed to restrain the wall wrap edges.

**Applications**

The air barrier systems in this Guide are suitable for use with timber or steel framing. They are not designed for fixing to masonry.

For installations with wind loads exceeding 1.5kPa, Cemintel's Rigid Air Barrier should be used.

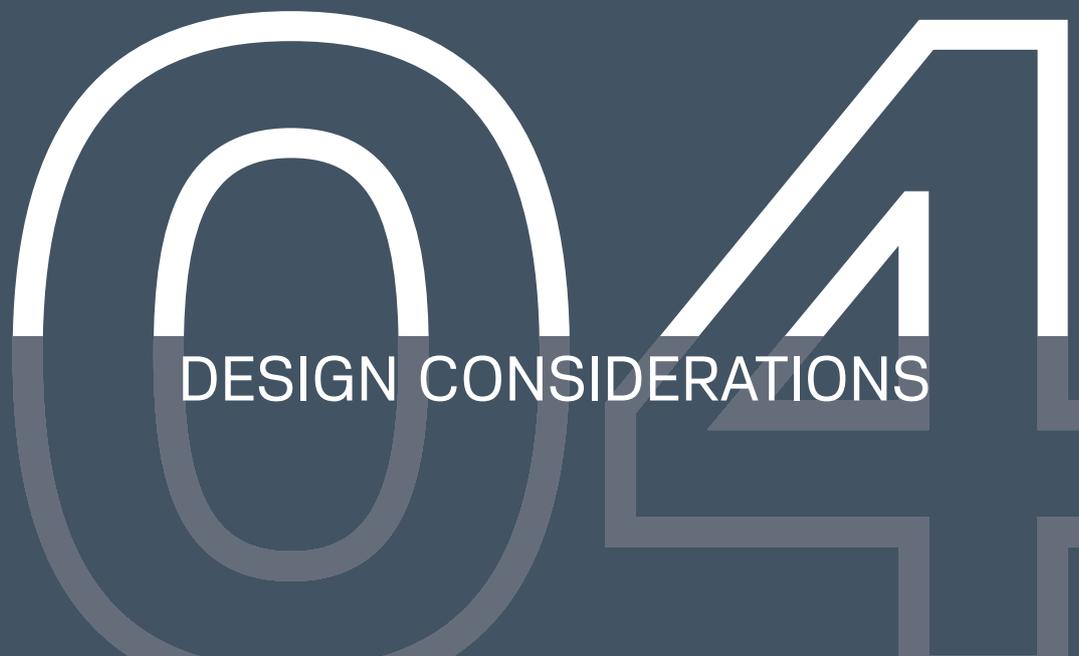
Cemintel's Rigid Air Barrier has been tested as suitable for use as part of an external cladding pressure equalised cavity system for wind pressures up to 7kPa.

Cemintel's Rigid Air Barrier can be used on walls behind a façade or exposed ceiling system (contact Cemintel for ceiling applications). The sheets may be orientated along or across the framing members.

Due to the limited durability of some system components, Cemintel's air barriers are not recommended for use with rain screens that have open joints between panels.

TABLE 3.01 Product Performance

| Product | Wind Pressure (ultimate) | Water Barrier AS/NZS 4201.4 | Vapour Permeance ASTM E96 | Weather exposure limit prior to cladding |
|---|--------------------------|-----------------------------|---------------------------|--|
| Cemintel Rigid Air Barrier | +7.0kPa and -7.0kPa | N/A | 0.25 µg/N.s | 6 months (panel) 2 months (tape) |
| Bradford Enviroseal™ ProctorWrap™ CW/ CW-IT | + 1.2kPa and - 1.2kPa | High | 4.2 µg/N.s | 2 months |
| Bradford Enviroseal™ ProctorWrap™ HTR | + 1.5kPa and - 1.5kPa | High | 4.0 µg/N.s | 2 months |

A large, stylized graphic of the number '04' in white, set against a dark blue background. The '0' is a simple oval shape, and the '4' is composed of several geometric lines. The number is positioned in the lower half of the page, with the text 'DESIGN CONSIDERATIONS' overlaid on it.

04

DESIGN CONSIDERATIONS

This section outlines some important areas for consideration in determining whether Cemintel air barriers are suitable for the required application. The following points are not exhaustive. It is the responsibility of the Architect / building designer to ensure the design conforms to BCA requirements and other relevant building standards that may exist for that location. This guide should be read in conjunction with the BCA.

Air barrier, fasteners and structural framing are required to resist wind loads that are specific to the building site. Additional local pressure factors may apply to the panels in accordance with AS1170.2 Structural Design Actions Part 2: Wind Actions.

Control Joints

Cemintel Rigid Air Barrier

Vertical Control Joints

When installing a rigid air barrier, vertical control joints should be aligned with vertical movement control joints provided in the framing and at junctions of different framing materials.

Horizontal Control Joints

When installing a rigid air barrier, a horizontal control joint is required at every floor junction to accommodate deflection. The magnitude of the deflection must be verified by the project engineer. Refer to 'Construction Drawings and Details' section.

Wall Wraps

Wall wraps must be terminated at all building control joints and at junctions of different framing materials. Refer to 'Construction Drawings and Details' section.

Panel Layout for Cemintel Rigid Air Barrier

Panel layout can be in a vertical or horizontal orientation. Span tables for both vertical and horizontal installations are provided in the 'System Engineering Details' section. All sheet joints must be backed by framing.

The thickness of the Rigid Air Barrier, as well as the depth of the cavity between the external façade must be considered when determining the depth of window and door reveals.

Structural

Framing and Substrate Options

For timber and steel framing, design shall be in accordance with the following standards:

- AS1684 – Residential Timber-Framed Construction
- AS/NZS4600 – Cold-Formed Steel Structures

When installing Cemintel Rigid Air Barrier, the vertical joints between panels must be supported by framing and the horizontal panel joints backed by noggings. Refer to 'Installation Section' for details.

It is recommended that the architect/building designer assigns the responsibility for the façade design to the project engineer.

Once wind loads have been determined, fastener spacings, and wall wrap/panel fixing details, may be selected from the appropriate Span tables in the 'System Engineering Section' of this manual.

It is also the responsibility of the architect/building designer to select the appropriate corrosivity category as per AS4312, assess the amount and type of exposure to UV, wind, rain etc that the air barrier will encounter prior to the external cladding being installed, the likelihood of damage by trades etc.

AS/NZS1170.0 Table C1 suggests that support framing be designed for a maximum deflection of span/250.

Structural Bracing

Cemintel Rigid Air Barrier may be used as wall bracing. Contact Cemintel for further information. Areas of sheet bracing that have been assessed as suitable to perform as a rigid air barrier may be used in conjunction with Cemintel Rigid Air Barrier, taking care to ensure an effective seal is applied across the different materials.

Termite Management

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.

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.

Durability

Cemintel Rigid Air Barrier

Cemintel Rigid Air Barrier is strong and durable, making it an excellent choice for applications subject to relatively higher wind loads and for projects that are left unclad for extended periods that may require resistance to prevent degradation / damage during construction.

The panels, and other components selected with regards to corrosion zone information, may be exposed to the weather for up to six months before being enclosed with the façade system. The tape should not be exposed to UV for more than 2 months.

Wall wraps

Ensure that Enviroseal™ ProctorWrap™ products are covered by the primary cladding material as soon as possible, and not left exposed to UV for longer than 2 months before being enclosed within the façade system.

While they can be used as temporary weather protection to internal areas during construction, products may be

DESIGN CONSIDERATIONS



damaged by careless handling, high winds or vandalism, so should not be left uncovered for longer than is necessary. Any damaged areas should be replaced or repaired before completion.

Enviroseal™ ProctorWrap™ products are not to be used in open joint rain screen cladding installations where they could be exposed to long term UV radiation.

Wall Wraps for Moisture Management

To ensure occupant comfort and protection of the building frame, the following factors should be considered during the selection of the correct air barrier.

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 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.

Careful selection of a wall wrap with the appropriate level of vapour permeability or vapour resistance is one key factor in reducing condensation risk.

Key selection characteristics for a suitable wall wrap to manage condensation are as follows:

- The wall wrap must have a “high” water barrier classification – an “unclassified” rating is not suitable.
- Wall wrap must meet the requirements of AS/NZ4200.1 Pliable building membranes and underlays – Installation requirements.

The external wall wrap must be sealed to maintain vapour performance and draught proofing effectiveness, as well as to ensure air 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 selection as part of the building design. Additional literature on this subject is available from CSIRO/BRANZ/ASHRAE/ABC and Cemintel can help with this assessment.

TABLE 4.01 Recommended Air Barriers for Moisture Management

| Climate | Guidance on wall wrap/sarking to be used behind 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 Permeance >2.5µg/N.s | Cemintel Rigid Air Barrier™ or Enviroseal™ ProctorWrap™ CW or CW-IT or HTR |
| 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 Permeance >2.5µg/N.s | Cemintel Rigid Air Barrier™ or Enviroseal™ ProctorWrap™ CW or CW-IT or HTR |
| 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 Permeance <=0.1429 µg/N.s | Thermoseal Resiwrap or Wall Wrap, Wall Wrap XP or 733 – used in combination with Cemintel Rigid Air Barrier™ |

Extreme Climate Conditions

Corrosive Zones

Consideration needs to be made regarding the impact of climate conditions on system components such as fasteners and metal components.

Corrosivity zones are detailed in AS4312. In C4 corrosivity zones, fixings must be Class 4 or stainless steel.

The building designer is responsible for assessing the site in accordance with the standard and local conditions. Responsibility for the choice of fasteners in corrosive environments lies with the building designer.

Other Design Considerations

Services

Any penetrations formed must be considered in the framing design and effectively sealed to maintain the pressure equalisation of the cavity. Methods of sealing penetrations are given in the ‘Construction Drawings and Details’ section.

Renovations

When undertaking building renovations, remove all cladding, wall wrap and insulation from the original wall framing. Ensure the condition of the framing is in accordance with current requirements and is as true and as plumb as possible (within accepted industry tolerances of 5mm over 3000mm).

05

COMPONENTS + ACCESSORIES

COMPONENTS + ACCESSORIES

05

*From time to time codes may change – refer to current list of components on website under the latest Selection Guide prior to ordering.

Cemintel Rigid Air Barrier

| Product | Width (mm) | Length (mm) | Thickness (mm) | Product Code |
|----------------------------|------------|-------------|----------------|--------------|
| Cemintel Rigid Air Barrier | 1200 | 3000 | 6 | 170076 |

Product/Accessories/Tools for Installing Cemintel Rigid Air Barrier

| Other Accessories | Description | Size | Quantity | Product Code |
|---|---|--|--------------------|--------------|
| NAILS (FOR TIMBER) | | | | |
|  | Machine driven nails for fixing Cemintel Rigid Air Barrier to timber framing 2.5 x 50 Ring HDG – Gal (C3) 2.5 x 50 Ring SS – Stainless Steel (C4) 2.5 x 50 Screw SS – Stainless Steel (C4) | 2.5 x 50mm 2.5 x 50mm 2.5 x 50mm | Supplied by others | |
| SCREWS (FOR STEEL) | | | | |
|  | Screws for fixing Cemintel Rigid Air Barrier to steel framing Buildex Fibretek 25mm – Self drilling, CSK self-embedding head, phillips drive Class 4 (C4) | 10-18 x 25mm | 1000 per box | 125651 |
|  | Enviroseal ProctorWrap Hightack Tape – used to seal vertical and horizontal joints around openings, corners and flashing. Black, single sided, aggressive adhesive tape with a high initial grab and flexible carrier. | 60mm x 25m | 1 roll | 160950 |
| | Enviroseal ProctorWrap SLS Flexi Tape – used to tape corners of openings | 60mm x 25m | 1 roll | 124872 |
|  | Sealant – Sealant is used to seal the Rigid Air Barrier to the framing and parts of the structure to form an air seal. This sealant is compatible with many materials; including steel, concrete and fibre cement. Also used to seal control joints, junctions, penetrations etc. | Sikaflex Pro 310ml tube (GREY) | 1 each | 11378 |
|  | Sealant Bond Breaker tape – used behind sealant to prevent 3-sided bonding | 48mm x 3mm x 25m | 1 each | 13172 |
|  | Backing Rod – for sealant backing – used to enable correct filling of joints with sealant. Also used as an air seal at window openings and construction junctions. The diameter of backing rod must be appropriate for the width of the gap being filled. 10mm polyethylene foam bead for use with sealants | 10mm diameter x 50m roll | 1 each | 11177 |
| | Flashings and Cappings – flashings are to be designed and installed in accordance with SAA-HB39 1997 and good building practice. | | Supplied by others | |

Tools

| Product | Description | Size | Quantity | Product Code |
|---|---|-------------|----------|--------------|
|  | Makita Plunge Saw Kit (1300W) includes 1400mm guide rail and bonus 165mm fibre cement saw blade – excellent for cutting cement based sheets | 165mm | 1 | 165485 |
|  | Makita 165mm Fibre Cement Saw Blade – ideal for use with the Makita Plunge saw and other 165mm circular saws fitted with vacuum extraction systems | 165mmx20x4T | 1 | 165486 |
|  | FESTOOL DSC-AGP 125 – Diamond Blade Cutting and Grinding Tool. Used to provide neat and accurate bevelled edges | 125mm | 1 | 107207 |
|  | FESTOOL TS 55 EBQ Plunge Cut Saw – with 1400mm Guide Rail. Precise plunge cuts in materials up to 55mm thick. | 160mm | 1 | 121400 |
| | FESTOOL Diamond Tipped Blade for TS 55 – for cutting all fibre cement sheet products | 160mm | 1 | 112647 |

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COMPONENTS + ACCESSORIES

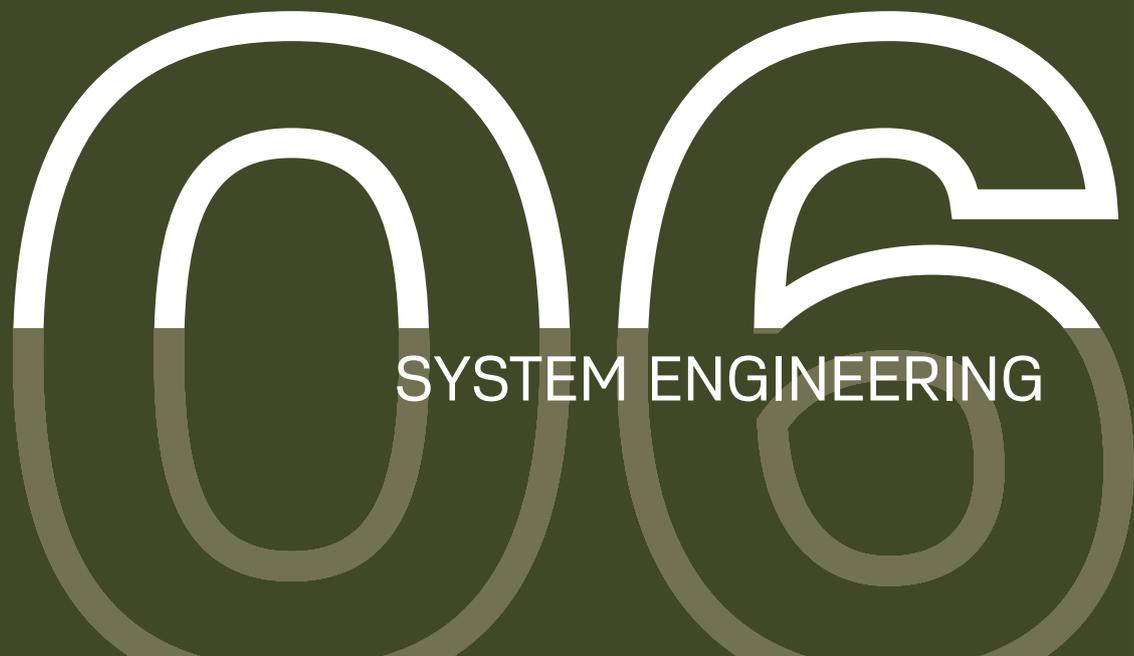
*From time to time codes may change – refer to current list of components on website under the latest Selection Guide prior to ordering.

Wall Wraps suitable for use as Soft Air Barriers

| Product | Width (mm) | Roll Length (m) | M2 per Roll | Rolls per Pallet | Product Code |
|--------------------------------------|------------|-----------------|-------------|------------------|--------------|
| Bradford Enviroseal™ ProctorWrap™ CW | 1500 | 50 | 75 | 35 | 118593 |
| Enviroseal™ ProctorWrap™ CW-IT | 1500 | 50 | 75 | 35 | 153675 |
| Enviroseal™ ProctorWrap™ HTR | 1500 | 50 | 75 | 16 | 122933 |

Product/Accessories/Tools for Installing the above Wall Wraps

| Accessories | Description | Size | Quantity | Product Code |
|---|--|--------------------------|--------------------|--------------|
| SCREWS (FOR TIMBER) | | | | |
|  | Button Head Needle Point – Phillips drive – Class 3 (C3) Used for fixing Bradford Plasti-Grip Washer to timber framing: | 8-15 x 20mm | 100 per box | 170236 |
| SCREWS (FOR STEEL) | | | | |
|  | Button Head Drill Point – Self Drilling, Phillips drive – Class 3 (C3). Used for fixing Bradford Plasti-Grip Washer to steel framing: | 8-18 x 20mm | 1000 per box | 113604 |
|  | Bradfix Plasti-Grip Washer (Diameter 45mm) - used for fixing to steel and timber framed walls. The combination of screw and washer provides a more evenly distributed load on the membrane | 45 x 5mm | 1000 per carton | 136770 |
|  | Enviroseal ProctorWrap Hightack Tape – used to seal wall wrap/sarking at overlap joins, around openings and at flashings. Black, single sided, aggressive adhesive tape with a high initial grab and flexible carrier. | 60mm x 25m | 1 roll | 160950 |
| | Enviroseal ProctorWrap SLS Flexi Tape – used to tape corners of openings | 60mm x 25m | 1 roll | 124872 |
|  | Flat Aluminium strip 20mm wide x 3mm thick used to fix and seal ends of building wrap to the frame. | | Supplied by others | |
|  | Backing Rod – for sealant backing – used to enable correct filling of joints with sealant. Also used as an air seal at window openings and construction junctions. The diameter of backing rod must be appropriate for the width of the gap being filled. | 10mm diameter x 50m roll | 1 each | 11177 |
| | Flashings and Cappings – flashings are to be designed and installed in accordance with SAA-HB39 1997 and good building practice. | | Supplied by others | |



SYSTEM ENGINEERING



SYSTEM ENGINEERING

Design, Detailing And Performance Responsibilities

The wall wraps and rigid air barriers detailed in this guide are designed to act as one component of an exterior wall system. The functional requirements of exterior walls may include weather resistance, sound rating, fire rating, spread of fire, thermal insulation, loading resistance, amongst others, that are not considered in this guide. Compliance with these items are within the role of various project design specialists.

Project Consultants (Structure, Fire, Acoustics, etc.)

These consultants are typically responsible for the following:

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

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

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

Project Certifier and/or Builder

These professionals are typically responsible for:

- Identifying the performance requirements for the project in accordance with the BCA and clearly communicating this to the relevant parties.
- Applicability of any performance characteristics supplied by Cemintel including test and opinions for the project.
- The project consultant's responsibilities detailed above if they are not appointed.

Cemintel does not provide consulting services.

Cemintel only provides information that has been prepared by others and therefore shall not be considered experts in the field. Any party using the information contained in this guide or supplied by Cemintel in the course of a project must satisfy themselves that it is true, current and appropriate for the application, consequently accepting responsibility for its use.

It is the responsibility of the architectural designer and engineering parties to ensure that the details in this design guide are appropriate for the intended application.

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

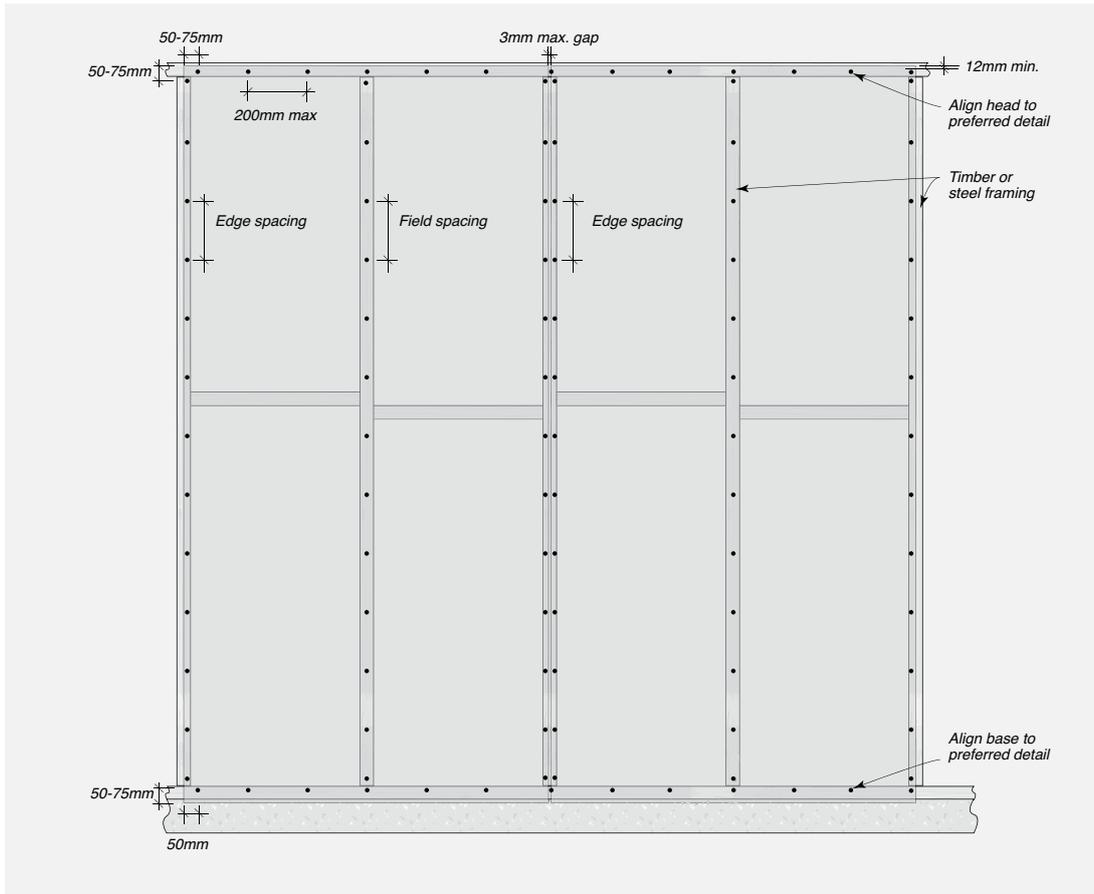
Cemintel is not responsible for the performance of constructed walls, including field performance, and does not interpret or make judgements about performance requirements in the BCA.



Span Tables / Wind Loads & Fastener Spacings

Span Tables / Wind Loads & Fastener Spacings for Cemintel Rigid Air Barrier – Vertical

FIGURE 6.01 Sheet Fixing – Vertical Sheeting – Timber or Steel Framing



**Timber and Steel Framing – COMMERCIAL
– BCA Classes 2 to 9**

TABLE 6.01 Vertical Span Table

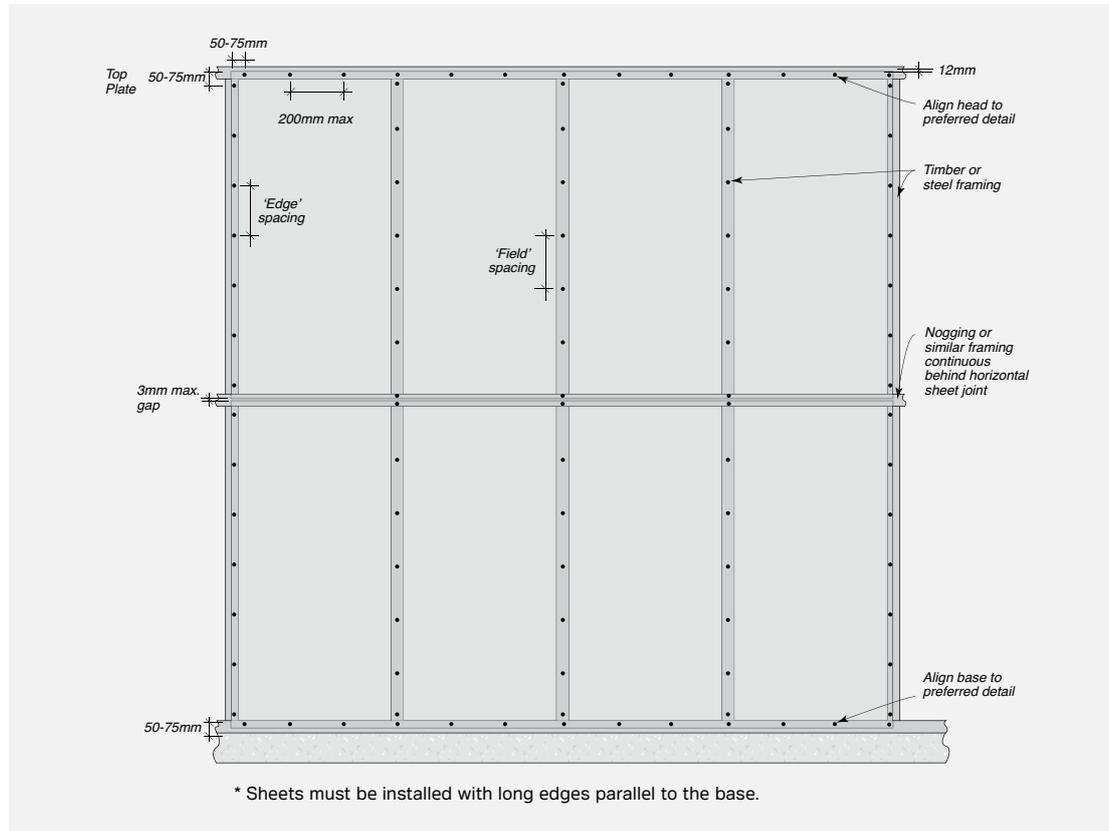
| Wind Pressure (kPa) | Stud Centres (mm) | Fixing Centres (mm) | |
|---------------------|-------------------|---------------------|------|
| | | Field | Edge |
| 1 | 600 | 300 | 400 |
| 2 | 400 | 250 | 400 |
| 3 | 400 | 150 | 400 |
| 4 | 300 | 150 | 400 |
| 5 | 300 | 125 | 300 |
| 5.5 | 300 | 100 | 300 |



SYSTEM ENGINEERING

Span Tables / Wind Loads & Fastener Spacings for Cemintel Rigid Air Barrier

FIGURE 6.02 Sheet Fixing – Horizontal Sheeting* – Timber or Steel Framing



Timber and Steel Framing – COMMERCIAL – BCA Classes 2 to 9

TABLE 6.02 Horizontal Span Table

| Wind Pressure (kPa) | Stud Centres (mm) | Fixing Centres (mm) | |
|---------------------|-------------------|---------------------|------|
| | | Field | Edge |
| 1 | 600 | 300 | 400 |
| 2 | 600 | 150 | 400 |
| 3 | 400 | 150 | 400 |
| 4 | 400 | 125 | 300 |
| 5 | 400 | 100 | 250 |
| 6 | 300 | 100 | 275 |
| 7 | 300 | 100 | 225 |

SYSTEM ENGINEERING



Timber and Steel Framing – RESIDENTIAL – BCA Classes 1 and 10 – Vertical

TABLE 6.03 Vertical Span Table

| Wind Classification (AS4055) | PANEL ZONE (Wall areas > 1200mm from external building corner) | | | CORNER ZONE (Wall areas < 1200mm from external building corner) | | |
|------------------------------|---|---------------------|------|--|---------------------|------|
| | Stud Centres (mm) | Fixing Centres (mm) | | Stud Centres (mm) | Fixing Centres (mm) | |
| | | Field | Edge | | Field | Edge |
| N1 | 600 | 300 | 300 | 600 | 300 | 300 |
| N2 | 600 | 300 | 300 | 600 | 250 | 300 |
| N3/C1 | 600 | 300 | 300 | 400 | 250 | 300 |
| N4/C2 | 400 | 300 | 300 | 400 | 150 | 300 |
| N5/C3 | 400 | 200 | 300 | 300 | 250 | 300 |
| N6/C4 | 400 | 150 | 300 | 300 | 115 | 275 |

Timber and Steel Framing – RESIDENTIAL – BCA Classes 1 and 10 – Horizontal

TABLE 6.04 Horizontal Span Table

| Wind Classification (AS4055) | PANEL ZONE (Wall areas > 1200mm from external building corner) | | | CORNER ZONE (Wall areas < 1200mm from external building corner) | | |
|------------------------------|---|---------------------|------|--|---------------------|------|
| | Stud Centres (mm) | Fixing Centres (mm) | | Stud Centres (mm) | Fixing Centres (mm) | |
| | | Field | Edge | | Field | Edge |
| N1 | 600 | 300 | 300 | 600 | 300 | 300 |
| N2 | 600 | 300 | 300 | 600 | 250 | 300 |
| N3/C1 | 600 | 300 | 300 | 600 | 150 | 300 |
| N4/C2 | 600 | 200 | 300 | 400 | 150 | 300 |
| N5/C3 | 400 | 200 | 300 | 400 | 115 | 275 |
| N6/C4 | 400 | 150 | 300 | 300 | 115 | 275 |

Span Tables / Wind Loads & Fastener Spacings for Bradford Enviroseal™ ProctorWrap™ Wall Wraps

TABLE 6.05

| PRODUCT | Wind Load (Ultimate) kPa | Maximum Framing Centres (mm) | Maximum Fastener Centres Field (mm) |
|---|--------------------------|------------------------------|-------------------------------------|
| Bradford Enviroseal™ ProctorWrap™ CW or CW-IT | 1.2 | 600 | 300 |
| Bradford Enviroseal™ ProctorWrap™ HTR | 1.5 | 600 | 300 |

CHECKLIST – Prior to Installation

The following pre-install checklist may assist with ensuring you have the best possible outcome when installing air barriers.

- Ensure substrate is structurally sound and square. Pack to straighten if necessary (timber frames as per AS1684, steel frames as per AS/NZS4600). Check with certifier regarding packing materials.
- Confirm bracing is in place, if required. Bracing may have an impact on cladding alignment that should be considered.
- Ensure studs and noggings are correctly located and of the appropriate thickness.
- Remove any excess concrete that may foul the Rigid Air Barrier line, particularly at steps in slabs.
- Ensure there is adequate ground clearance to the bottom edge of the Cemintel Rigid Air Barrier panels as per regulatory requirements (including for water/rain runoff and termite management). These can vary from 50-150mm depending on type of ground and termite requirements.



07
INSTALLATION

INSTALLATION

07

Procedure for Installation of Cemintel Rigid Air Barrier™

The Cemintel Rigid Air Barrier may be installed horizontally or vertically across the frame. An appropriate panel fixing layout should be selected for the project design wind pressure and frame spacing. Panels must be fixed in accordance with the tables set out in the 'System Engineering' Section.

Panels are fixed to timber framing using nails to steel framing using screws. A small joint (maximum 3mm) is acceptable. Joints are taped using HighTack tape to form an air barrier. Similarly, all corners, penetrations and junctions are sealed with HighTack tape or with flexible sealant.

All flashings should be fixed over the top of the Rigid Air Barrier and taped with HighTack tape.

Procedure for horizontal or vertical sheet application

- 1 Cut sheets to ensure vertical joints are supported by studs and horizontal joints are backed by noggings
- 2 Position sheets (refer to Head & Base details in 'Construction Drawings & Details' section). Screw fix (to steel frame) or nail (to timber frame) at the detailed fastener centres. (Refer to Tables 6.02 to 6.05 in 'System Engineering Section').
- 3 Install adjacent sheets.
- 4 Seal vertical joints, horizontal joints, and corners with ProctorWrap™ HighTack tape. Seal junctions and penetrations with Sikaflex Pro flexible sealant.
- 5 Seal any openings in head, sill and jamb framing with ProctorWrap™ HighTack tape.
- 6 Apply ProctorWrap™ SLS FlexiTape to corners of window and door openings.



Check quality and quantity of panels and components before installing. If there is any sign of damage or visible defects in panels **DO NOT INSTALL**. Contact Cemintel to address any issues.

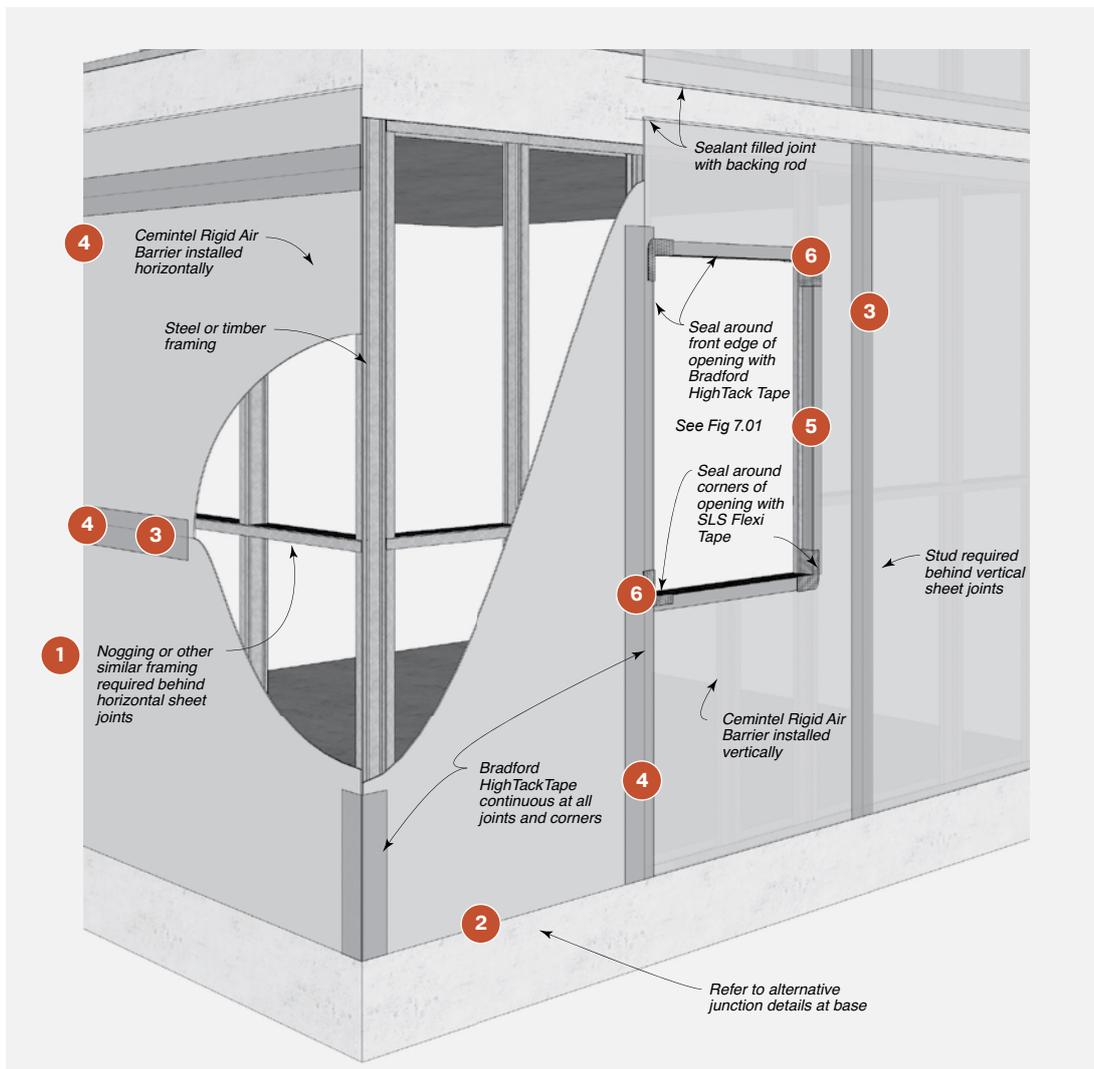
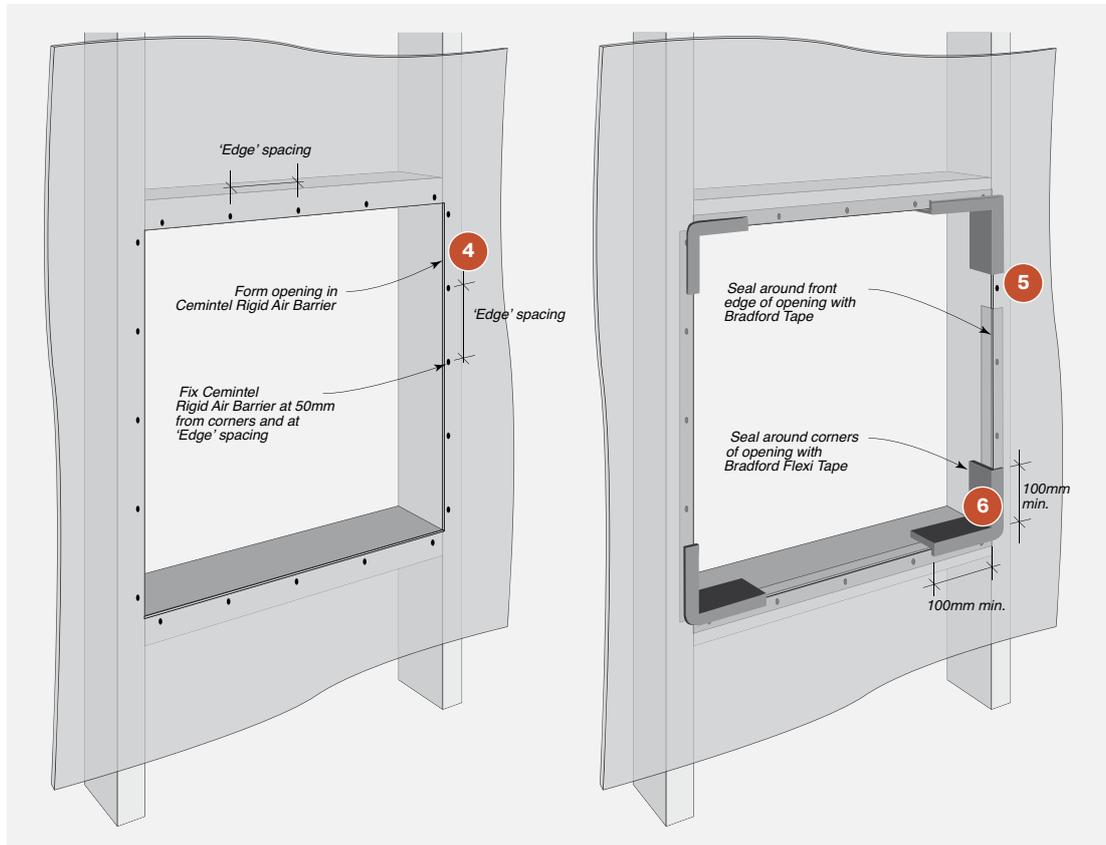


FIGURE 7.01 Treatment at Window/Door Openings – Rigid Air Barrier

INSTALLATION



Installation of Soft Air Barriers

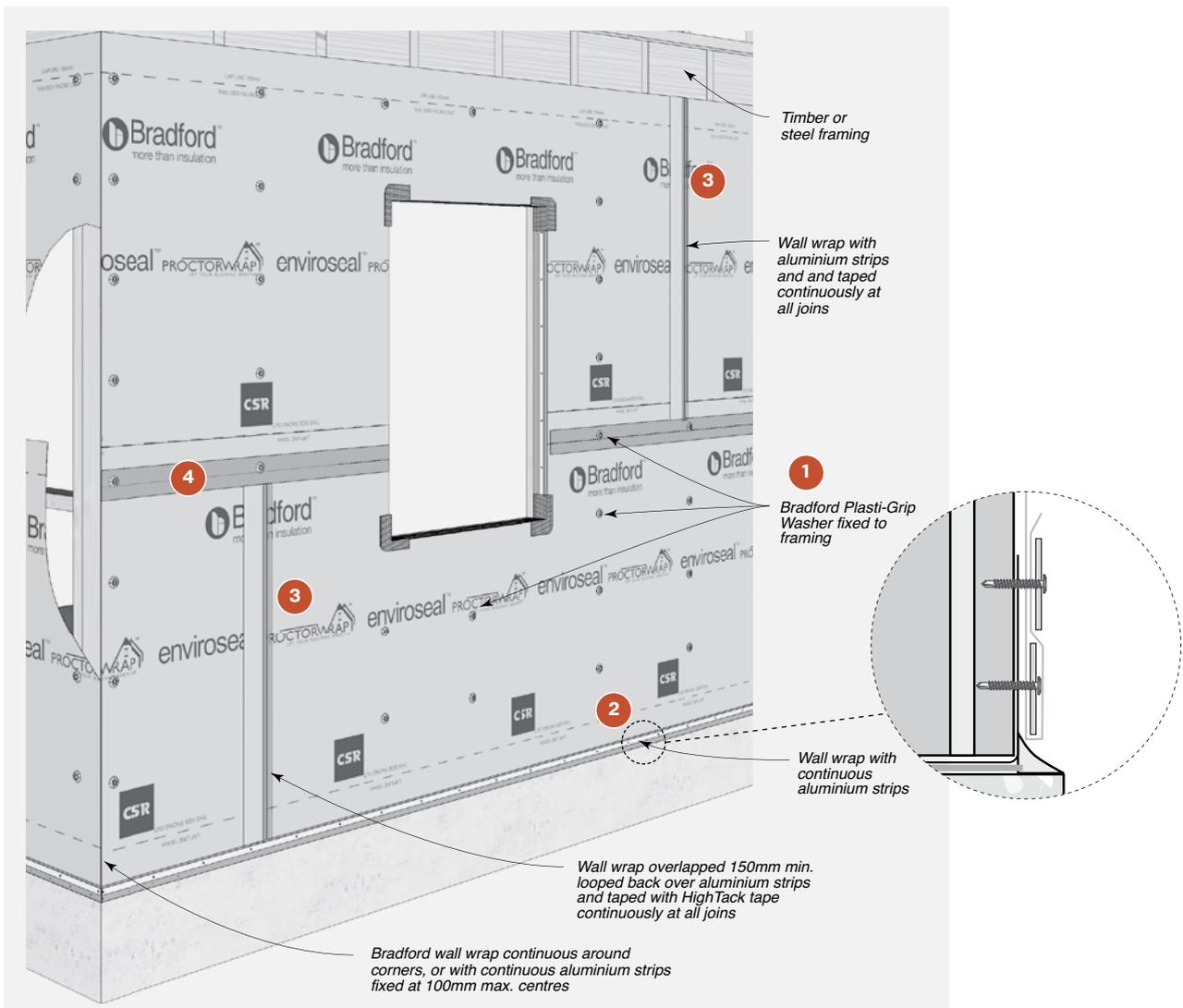
Wall wraps intended to be used as air barriers are fixed to timber or steel. In the case of Enviroseal™ ProctorWrap™ CW & HTR, ends must be overlapped by at least 150mm and taped continuously across horizontal and vertical joints to maintain an air seal. Enviroseal™ ProctorWrap™ CW-IT has an inbuilt adhesive strip which allows fast, consistent and reliable sealing to adjoining rolls of CW-IT.

At internal corners, vertical joints, penetrations and perimeters of areas with wall wrap, a pair of metal strips are used to restrain the wall wrap edges.

All flashings should be fixed over the top of the wall wrap and taped.

Procedure for installation of Soft Air Barriers

- 1 Install wall wrap/sarking to outside face of timber or steel wall framing using Bradford Plasti-Grip Washers at 300mm maximum centres. Horizontal laps must be overlapped by 150mm. Note that Enviroseal™ ProctorWrap™ CW-IT has an inbuilt adhesive strip which allows fast, consistent and reliable sealing to adjoining rolls of CW-IT.
- 2 Install aluminium strips horizontally at head and base of wall. Pass wall wrap under aluminium strip and fix strip at 100mm max. cts. Then fold wall wrap back over strip and fix under second metal strip at 100mm max. cts

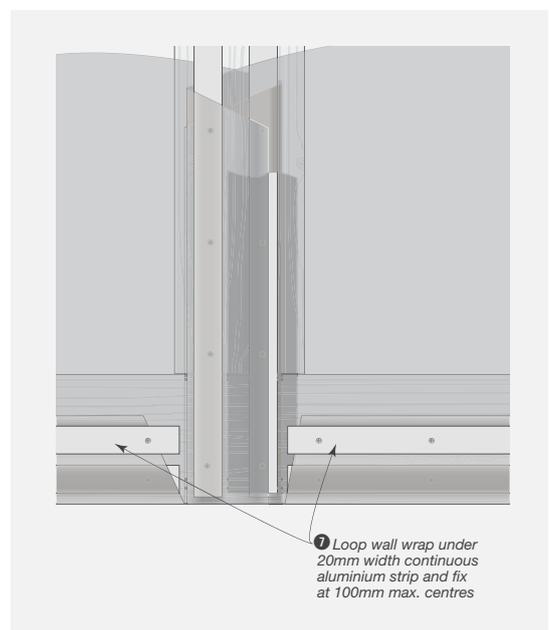
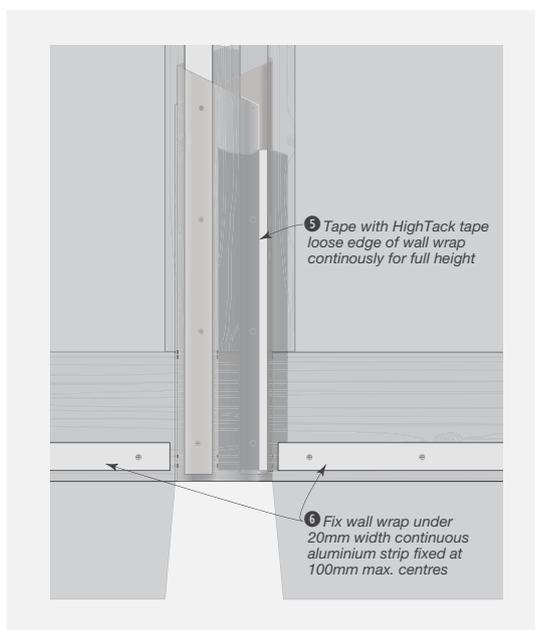
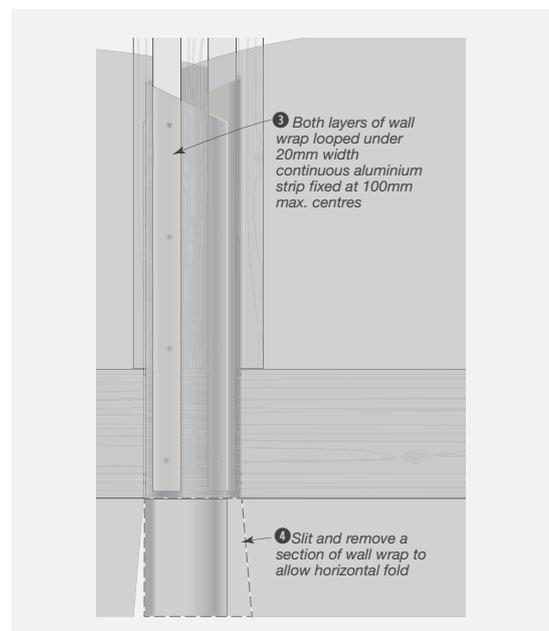
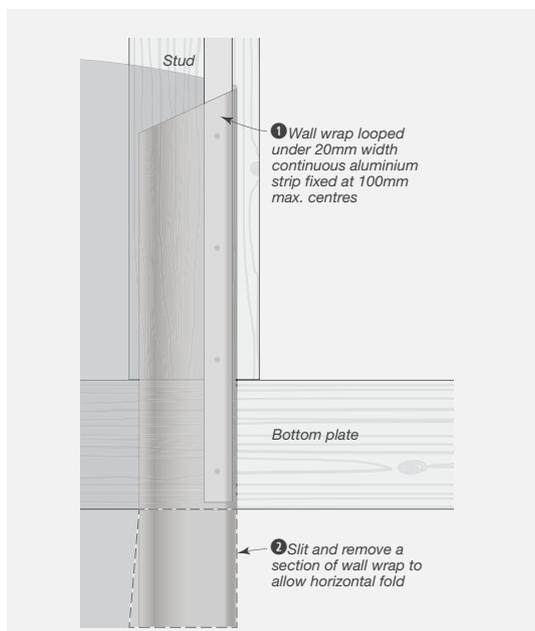


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INSTALLATION

- 3 Install aluminium strips at vertical joints/ends/ corners (where required). Pass wall wrap under aluminium strip and fix at 100mm max cts. Fold wall wrap back over strip and fix under second metal strip at 100mm max. cts. To allow the fold, wall wrap must be cut at intersections of horizontal strips then sealed with tape.
- 4 All horizontal joints must be taped continuously using HighTack Tape to maintain an air seal.

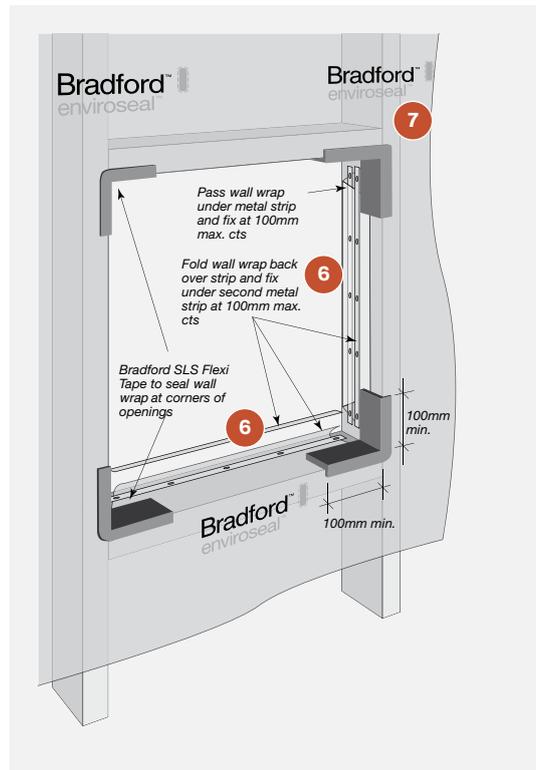
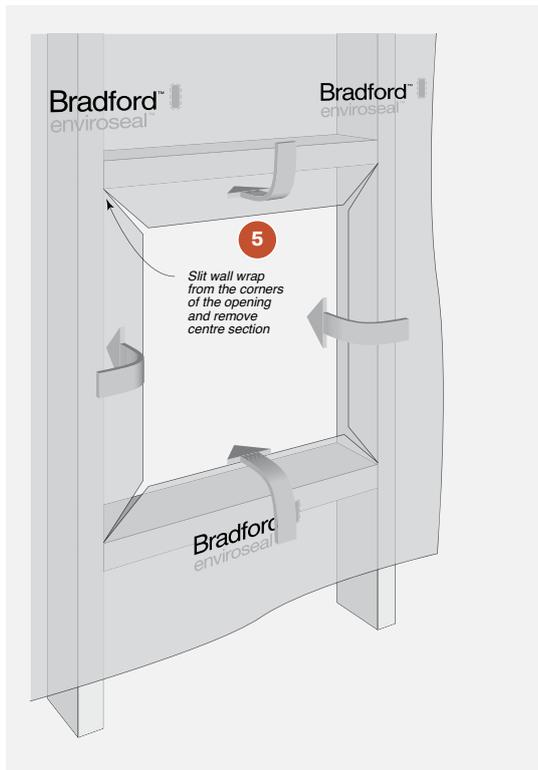
Where vertical and horizontal strips meet, wall wrap must be cut to allow folding.

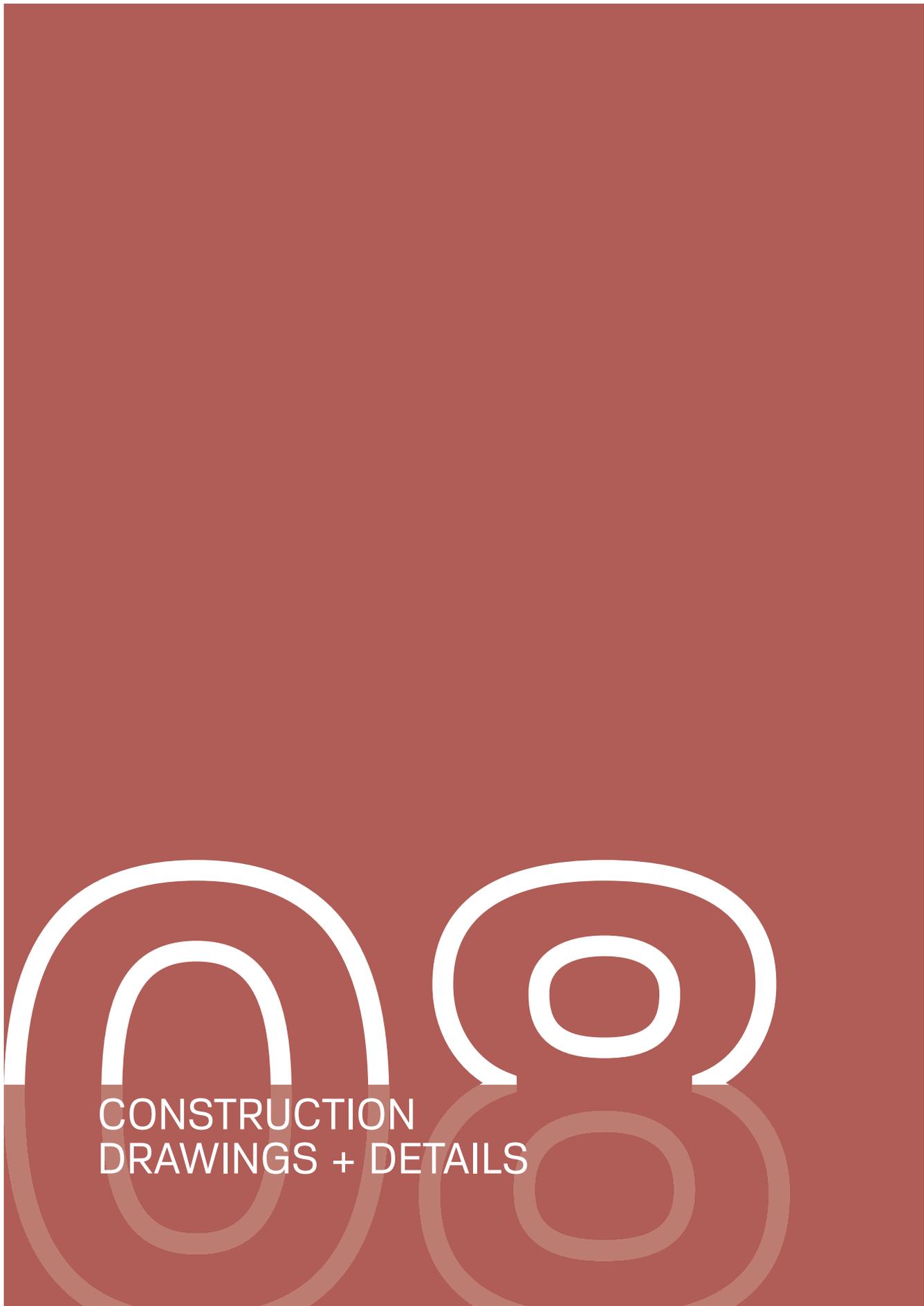


INSTALLATION

07

- 5 At openings, cut the wrap at 45 degrees from each corner to the centre.
- 6 Pass wall wrap under aluminium strip and fix at 100mm max. cts. Then fold wall wrap back over strip and fix under second metal strip at 100mm max. cts. Cut away excess wall wrap.
- 7 Apply SLS Flexi Tape to the corners of window and door openings. Press tape over the frame edge onto the face of the wall wrap.





CONSTRUCTION
DRAWINGS + DETAILS

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CONSTRUCTION DRAWINGS AND DETAILS

Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

RIGID AIR BARRIER

Overview

FIGURE 8.01 Typical Installation Overview – Rigid Air Barrier

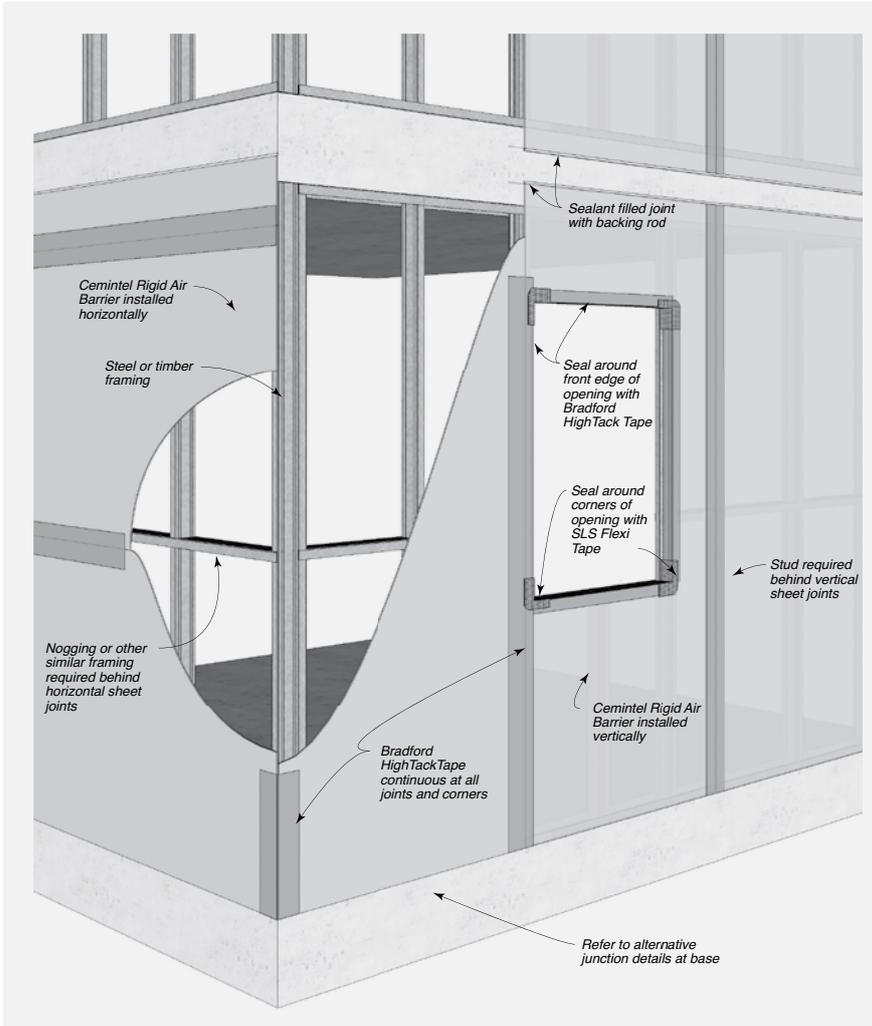
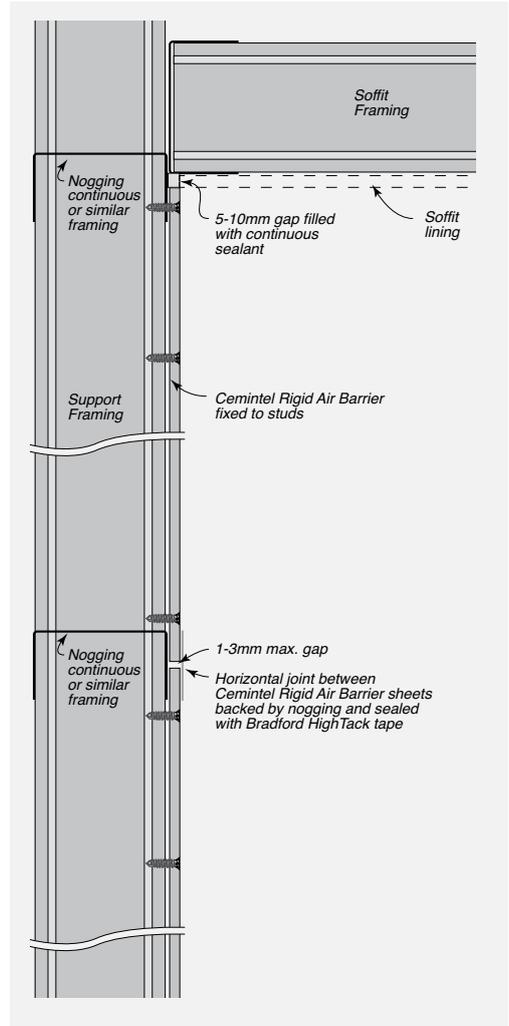


FIGURE 8.02 Junctions at Soffit, Base and Horizontal Sheet Joint – Rigid Air Barrier



CONSTRUCTION DRAWINGS AND DETAILS



Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

Head Detail

FIGURE 8.03 Inline Slab – Junction at Soffit Overhanging Framing

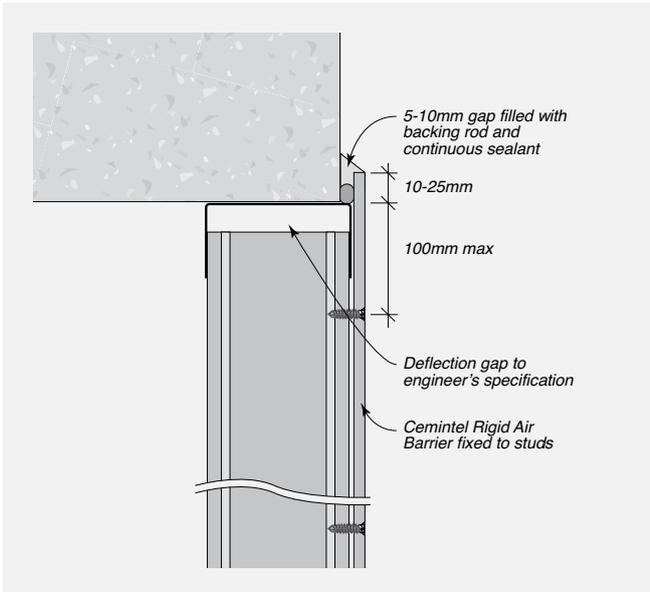
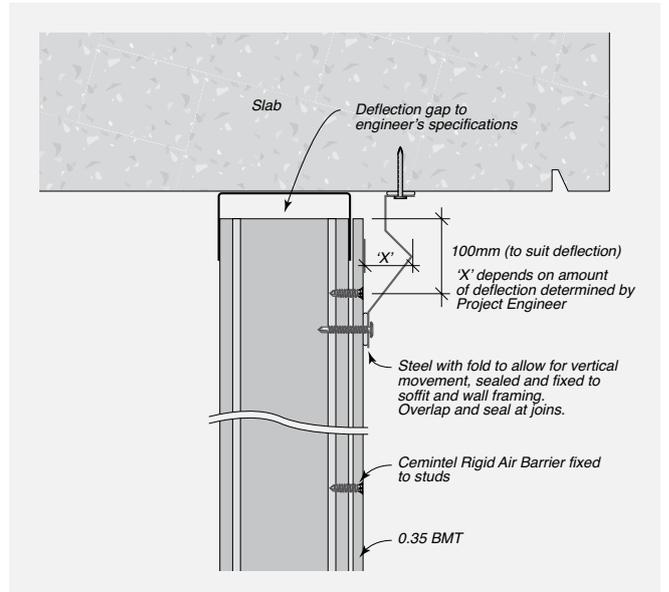


FIGURE 8.04 Recessed – Junction at Soffit with Deformable Flashing – Rigid Air Barrier



Base Detail

FIGURE 8.05 Junction at Base – Overhanging Framing – Rigid Air Barrier

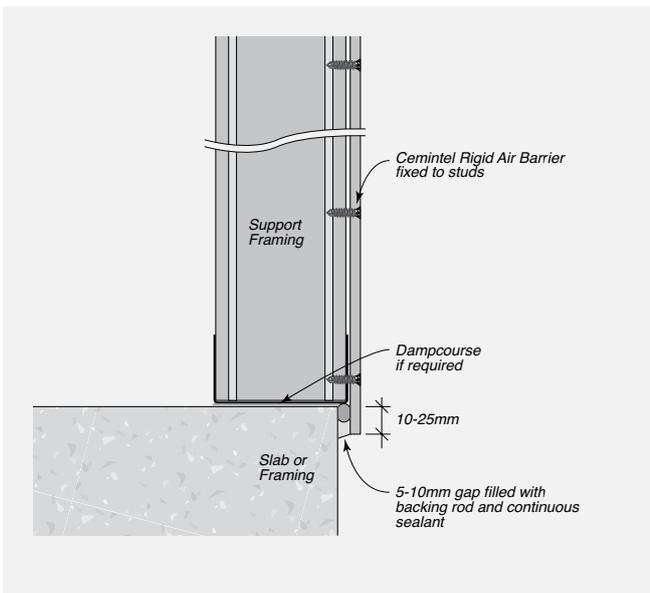
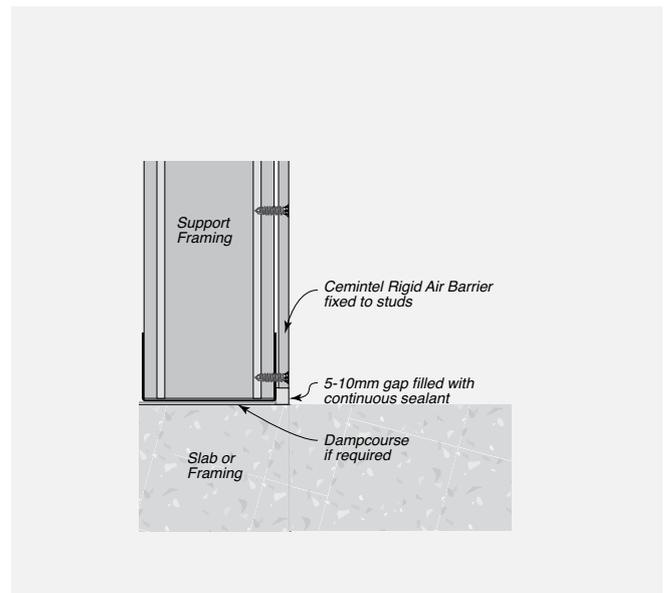


FIGURE 8.06 Junction at Base – Overhanging Slab





CONSTRUCTION DRAWINGS AND DETAILS

Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

Corner

FIGURE 8.07 External Corner – Rigid Air Barrier

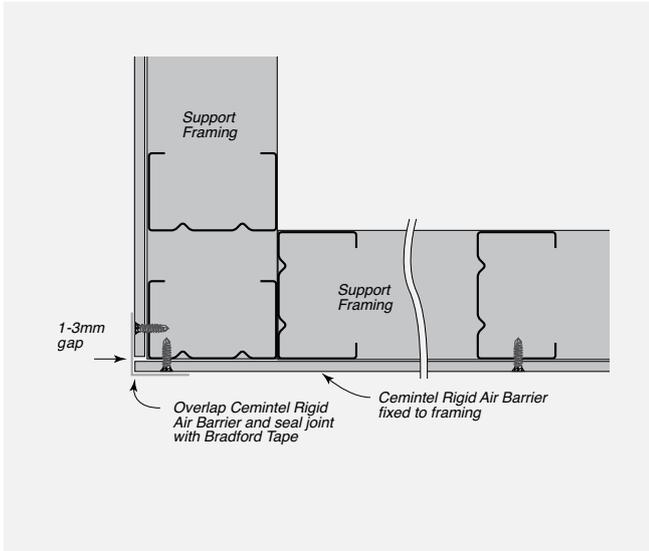
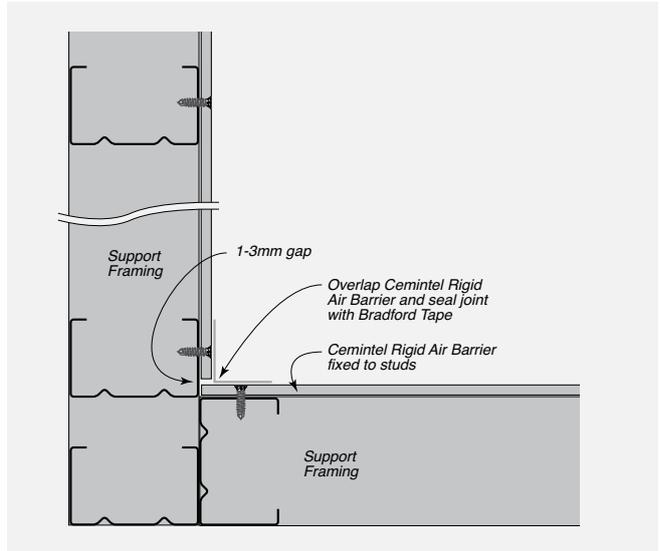
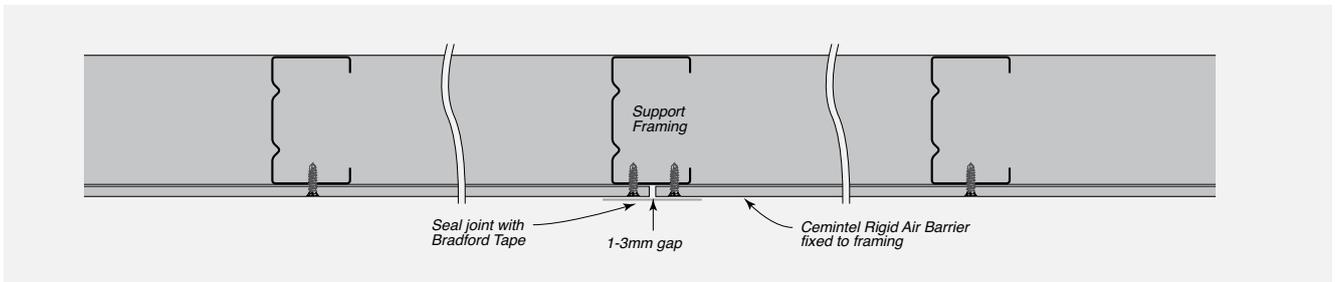


FIGURE 8.08 Internal Corner – Rigid Air Barrier



Junction

FIGURE 8.09 Vertical Junction – Rigid Air Barrier



CONSTRUCTION DRAWINGS AND DETAILS



Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

FIGURE 8.10 Junction at Intermediate Level
– Steel Framing – Rigid Air Barrier

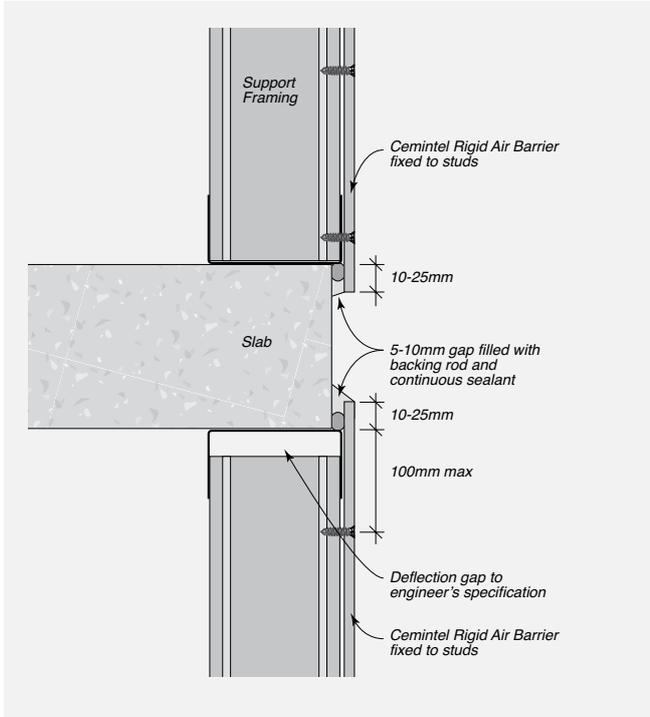


FIGURE 8.11 Junctions at Intermediate Level
– Timber Framing – Rigid Air Barrier

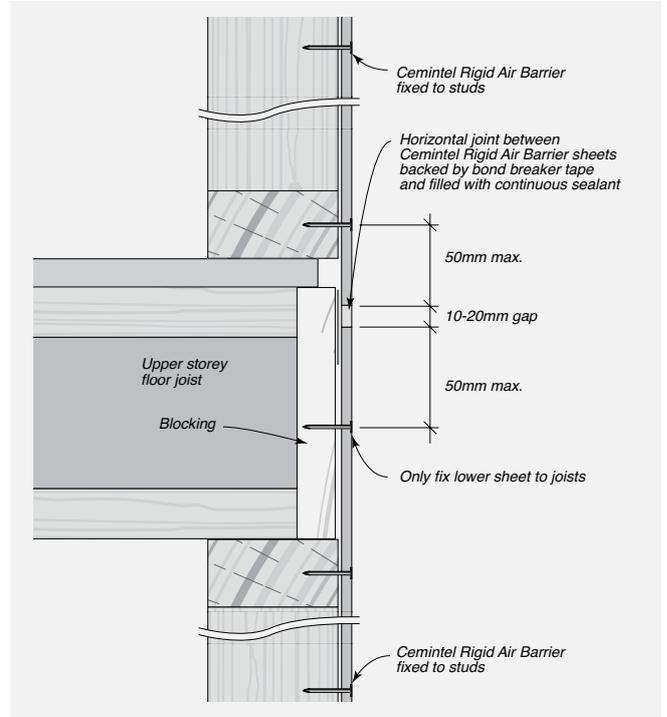
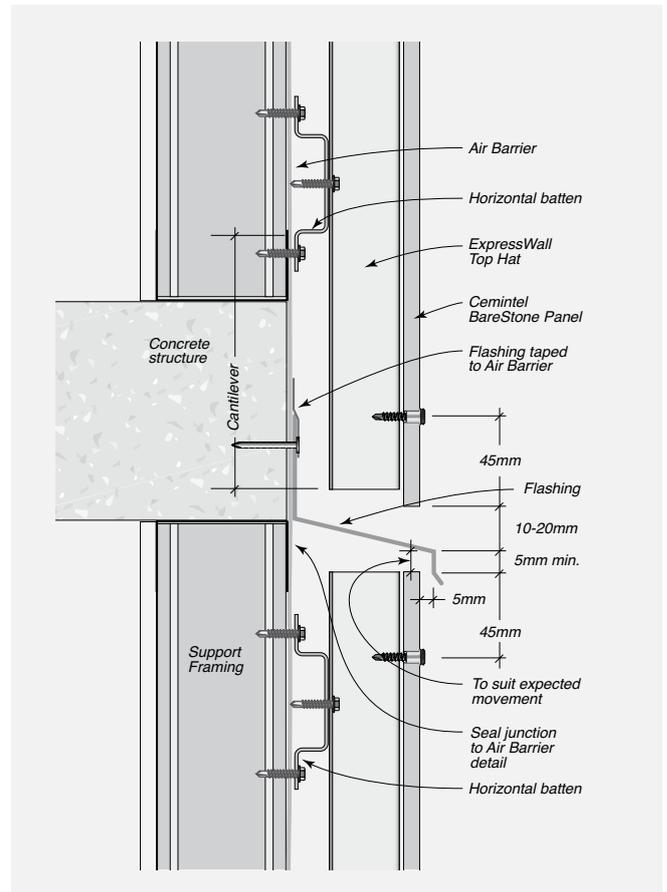
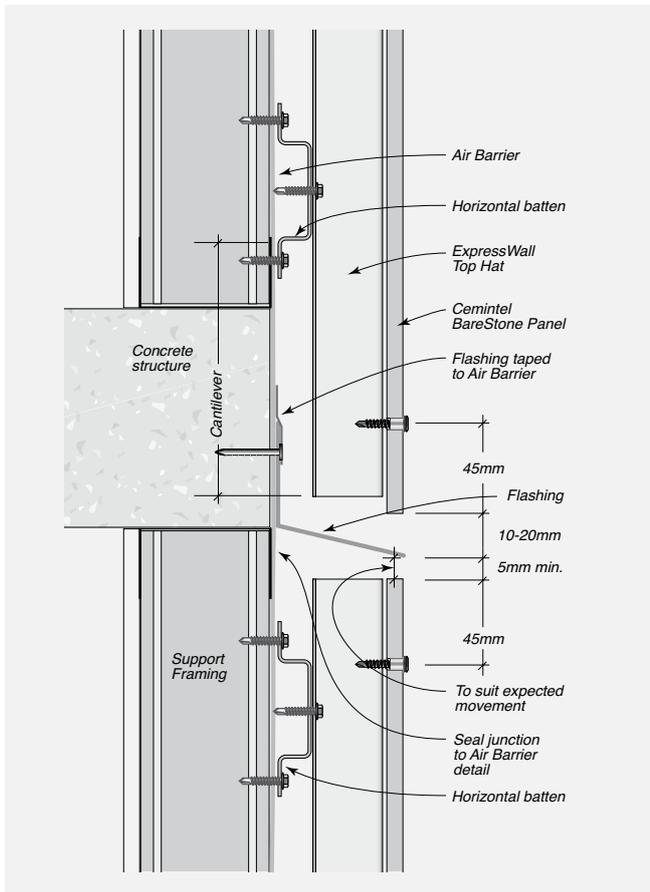


FIGURE 8.12 Control Joint Options – Horizontal



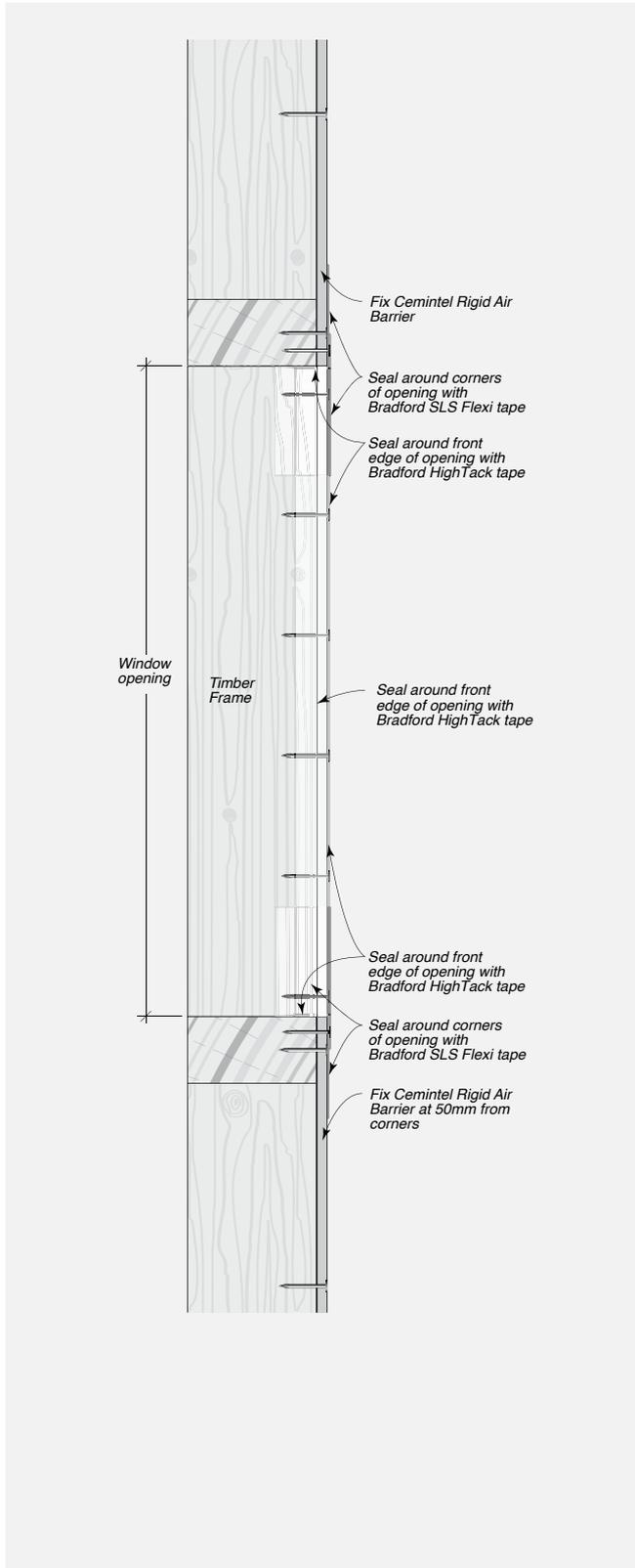


CONSTRUCTION DRAWINGS AND DETAILS

Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

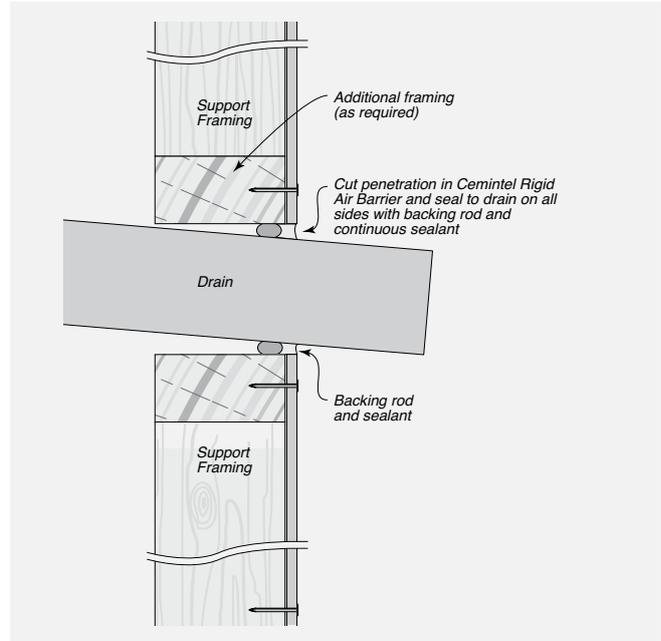
Window Details

FIGURE 8.13 Treatment at Window/Door Openings – Rigid Air Barrier



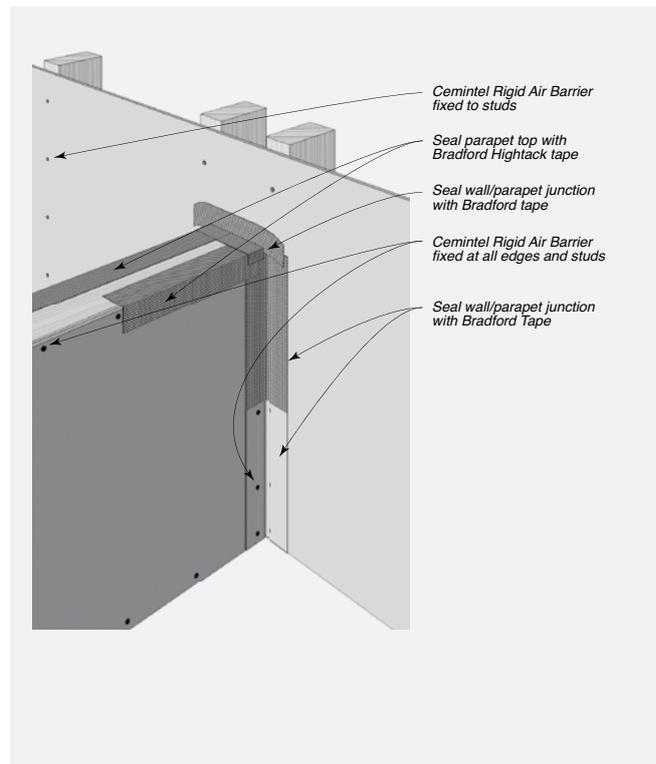
Drain Details

FIGURE 8.14 Junctions at Drain Penetration – Rigid Air Barrier – Timber or Steel Framing



Parapet Details

FIGURE 8.15 Installation at Parapet Junctions – Rigid Air Barrier – Timber or Steel Framing



CONSTRUCTION DRAWINGS AND DETAILS



Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

WALL WRAP/SOFT AIR BARRIER

Overview

FIGURE 8.16 Typical Installation Overview Detail – Wall Wrap Soft Air Barrier

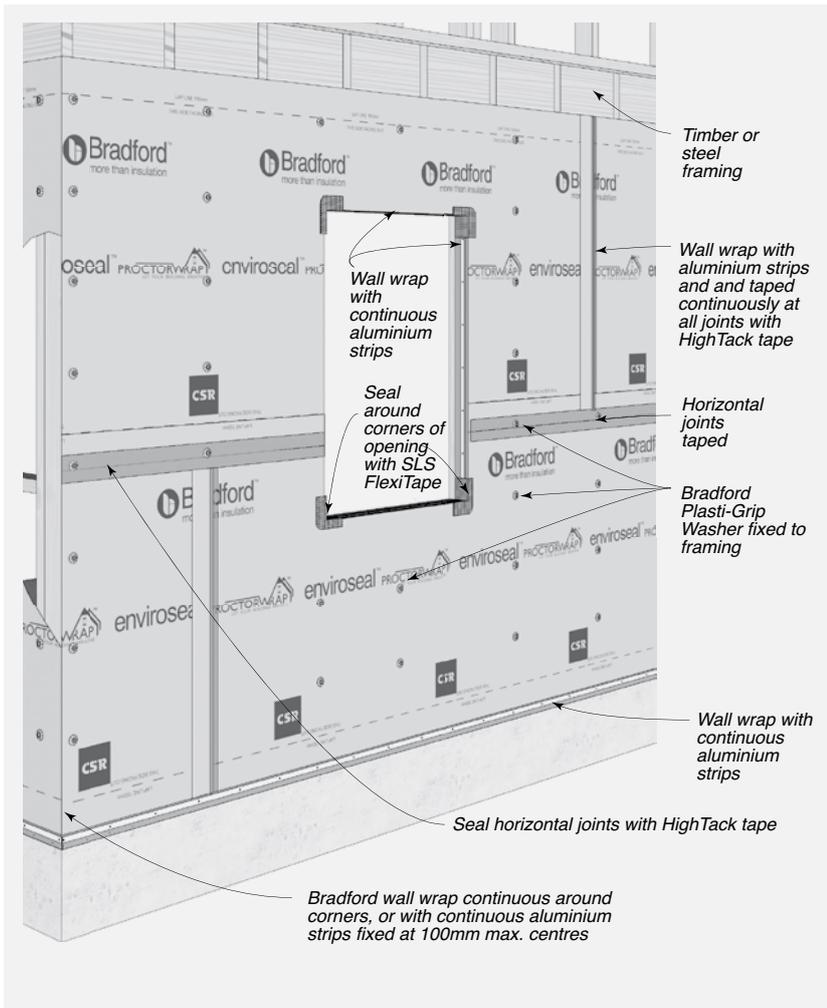
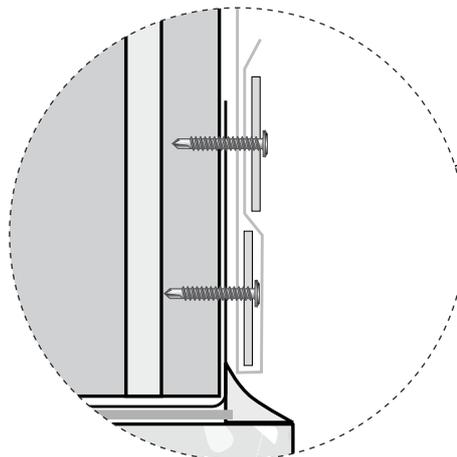
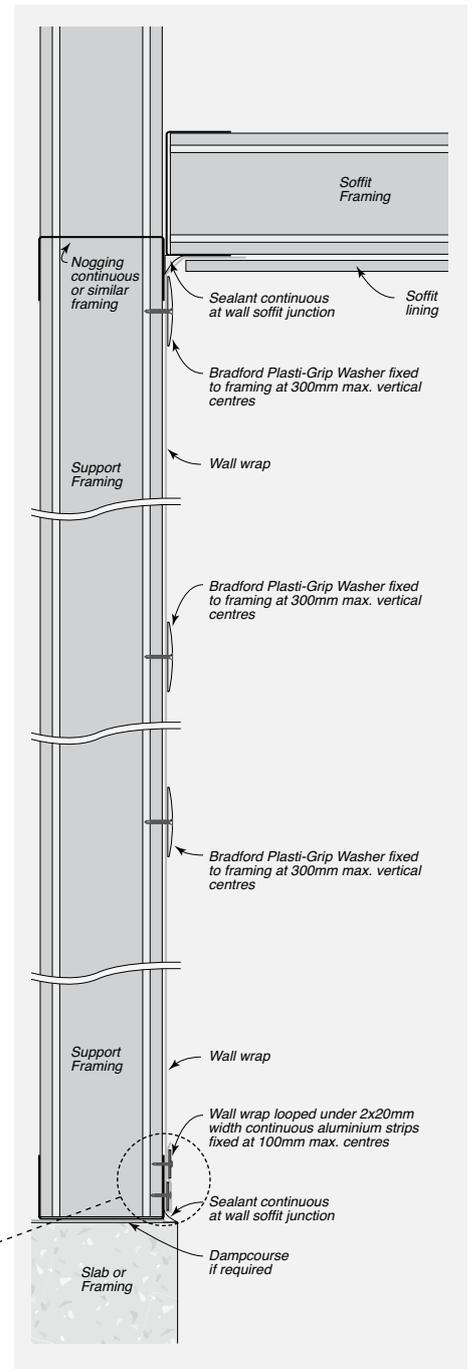


FIGURE 8.17 Wall Wrap Installation to Wall, Soffit and Base





CONSTRUCTION DRAWINGS AND DETAILS

Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

Corner Details

FIGURE 8.18 External Corner – Wall Wrap Continuous

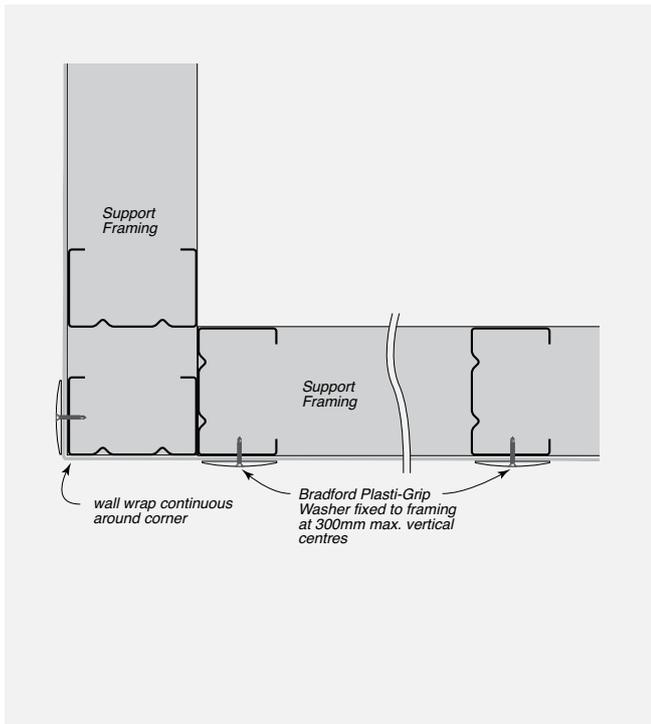


FIGURE 8.19 External Corner – Wall Wrap Overlapped

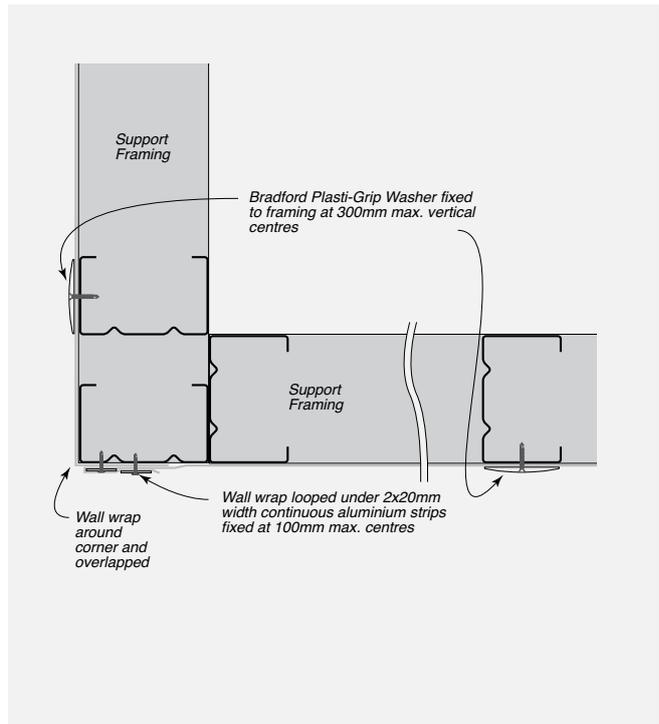


FIGURE 8.20 Internal Corner – Wall Wrap Continuous

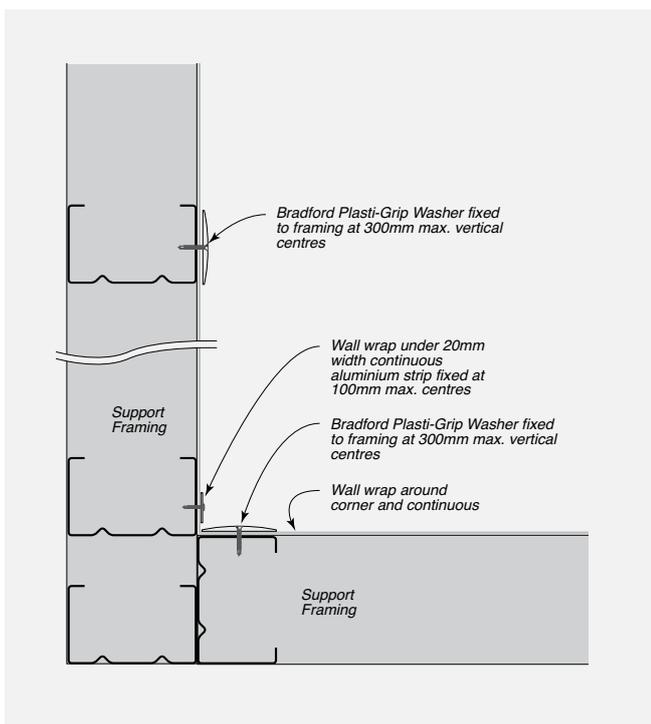
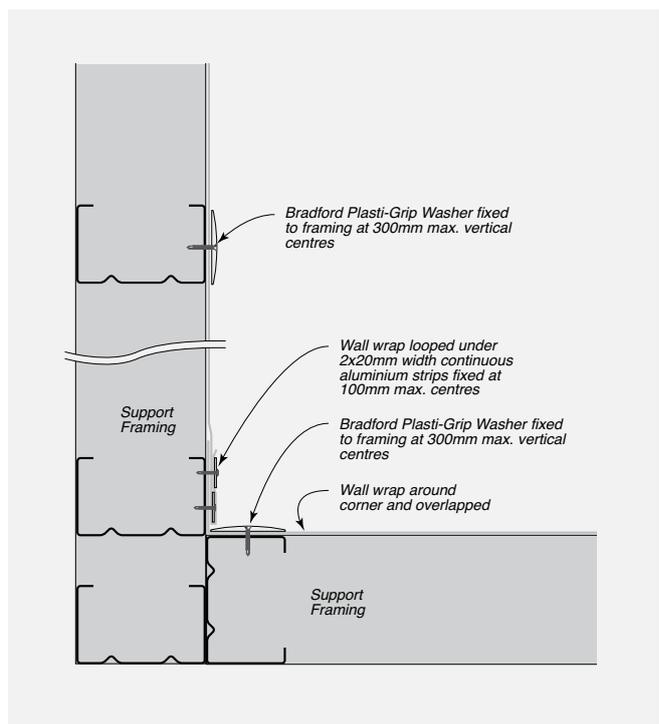


FIGURE 8.21 Internal Corner – Wall Wrap Overlapped



CONSTRUCTION DRAWINGS AND DETAILS



Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

Junction Details

FIGURE 8.22 Vertical Wall Wrap Junction – Overlapped

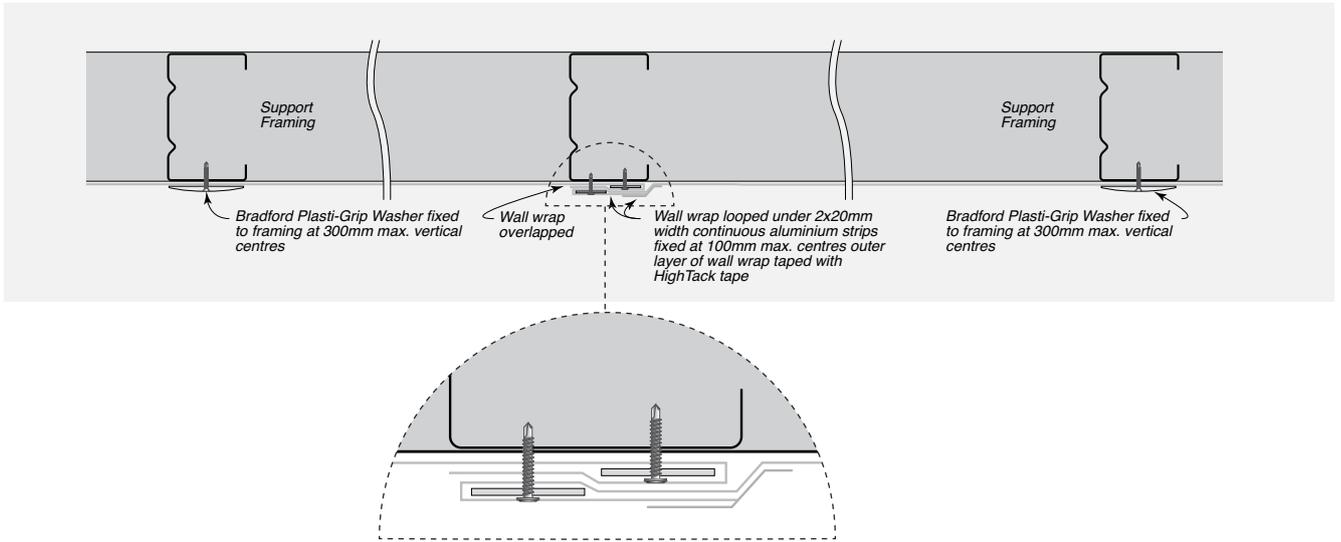


FIGURE 8.23 Vertical Wall Wrap Junction – At Control joint

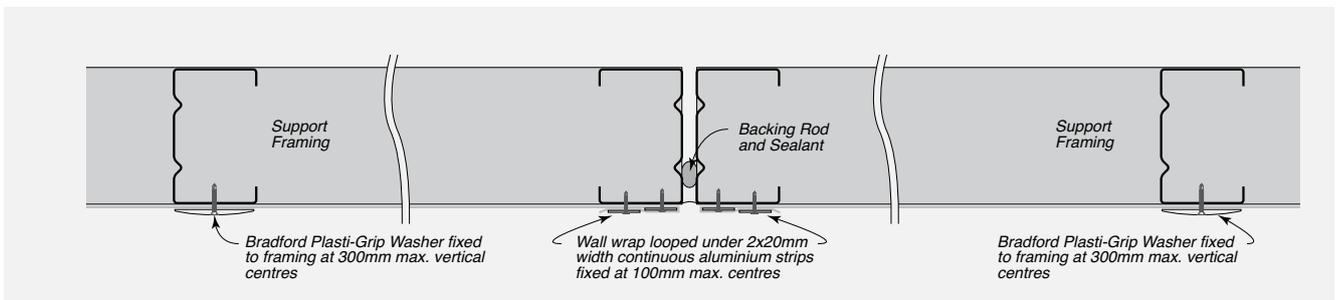
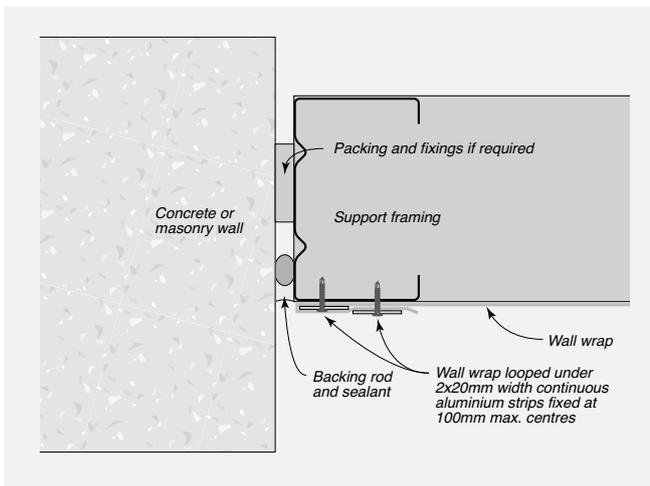


FIGURE 8.24 Wall Wrap Abutment to Concrete or Masonry Wall





CONSTRUCTION DRAWINGS AND DETAILS

Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

FIGURE 8.25 Wall Wrap Installation at inter storey Junction
– Horizontal Overlapped and Taped Junction

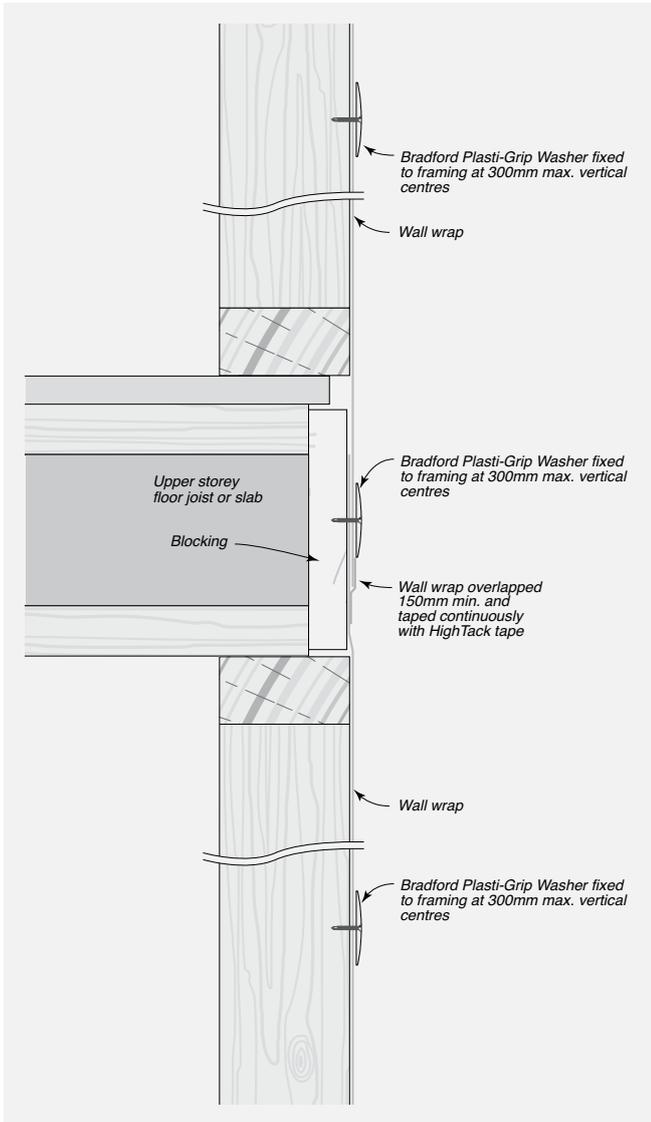
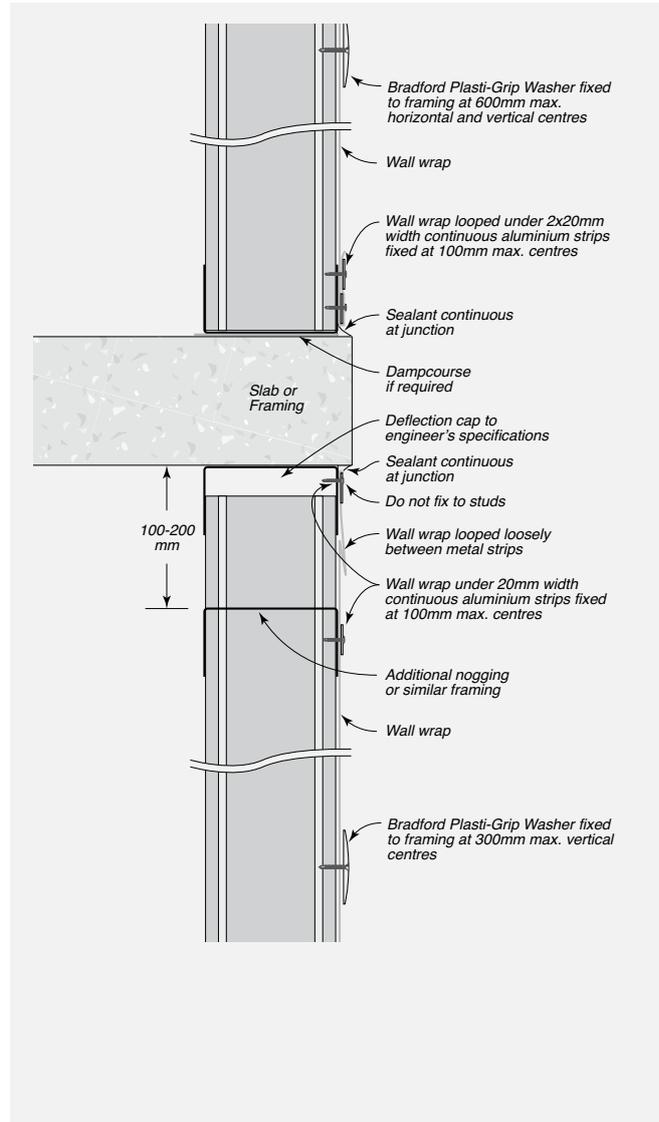


FIGURE 8.26 Wall Wrap Installation at Intermediate Level Junction
– Steel Framing with Deflection Head



CONSTRUCTION DRAWINGS AND DETAILS



Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

Window Details

FIGURE 8.27 Wall Wrap Installation at Intermediate Level Junction – Timber Framing

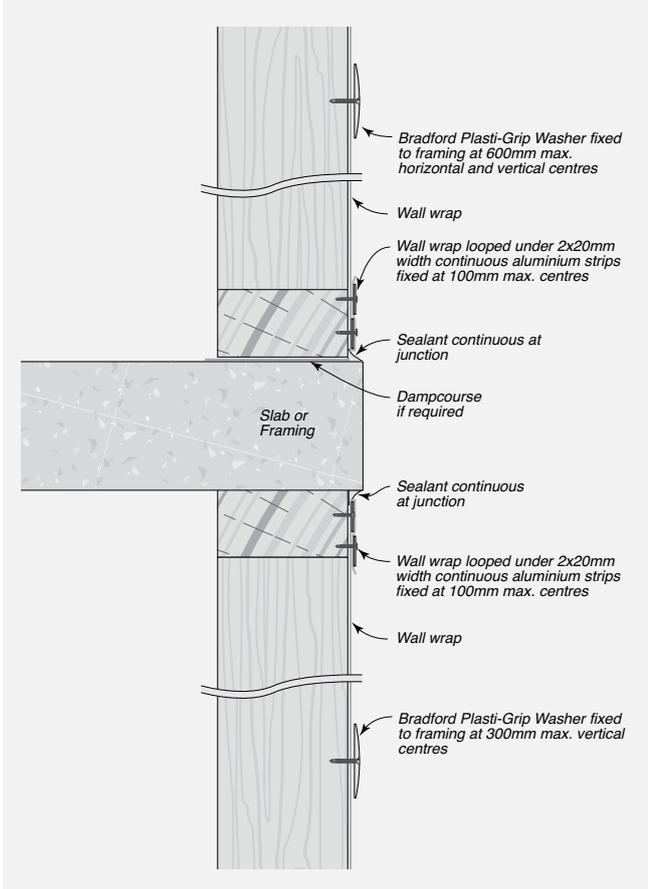
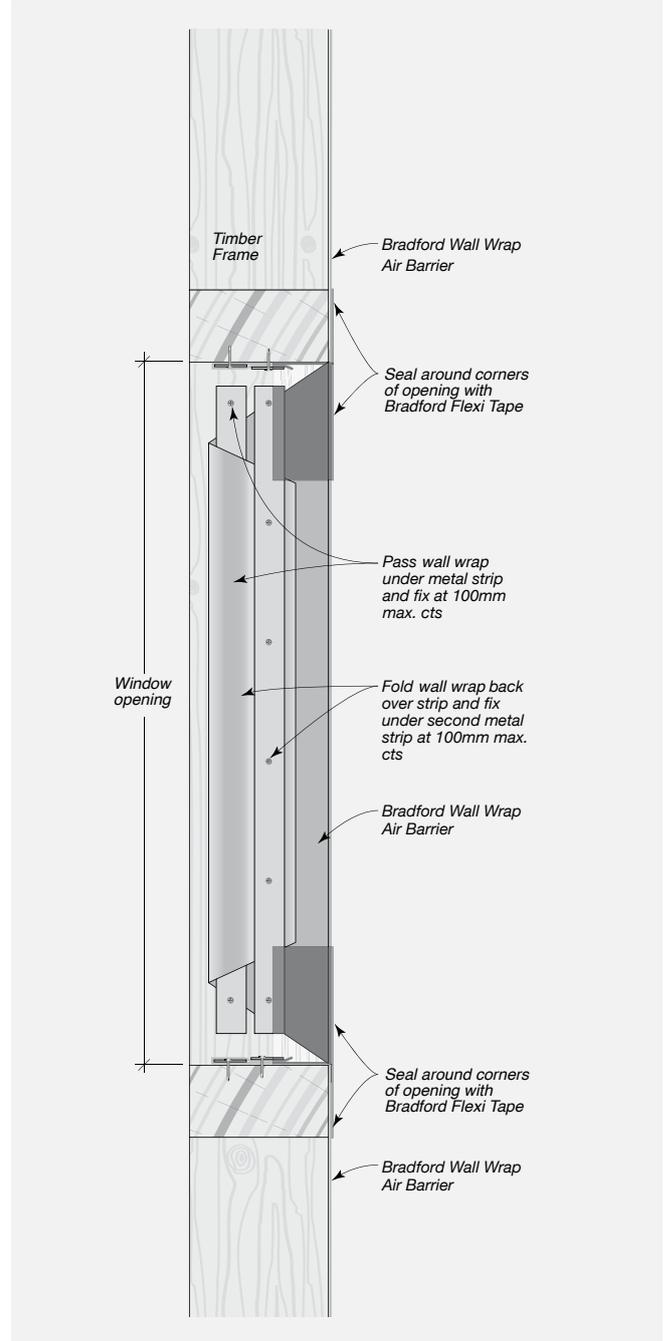


FIGURE 8.28 Wall Wrap Installation at Window/Door Opening



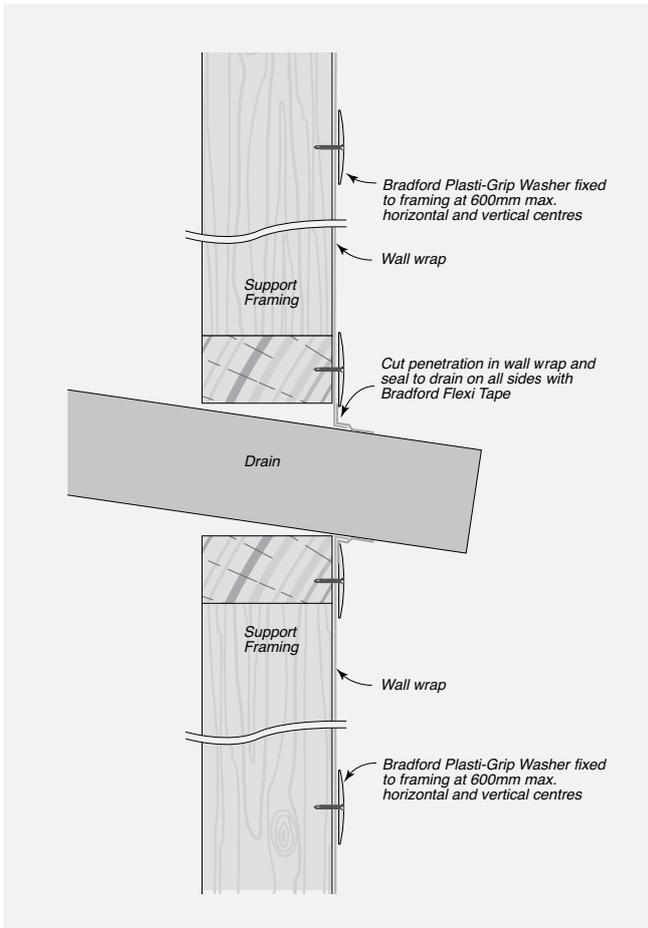


CONSTRUCTION DRAWINGS AND DETAILS

Note: Drawings are interchangeable for timber or steel substrates with the exception of the fasteners.

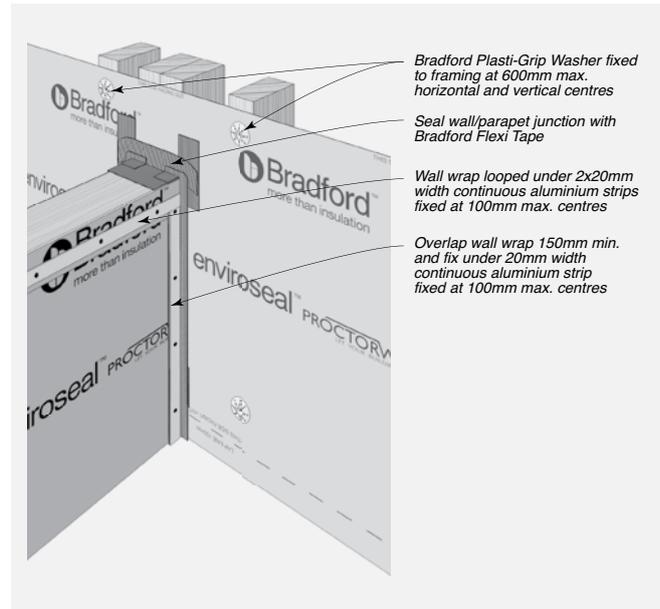
Junction Details

FIGURE 8.29 Wall Wrap Installation at Drain Penetration
– Timber or Steel Framing



Parapet Details

FIGURE 8.30 Wall Wrap Installation at Parapet Junction
– Timber or Steel Framing



SAFETY, HANDLING + GENERAL CARE



Health, Safety and Personal Protection Equipment (PPE)

Panels contain silicas that are harmful if inhaled. Protective clothing and breathing equipment should be worn when cutting products.

When cutting, drilling or grinding Cemintel Rigid Air Barrier panels using power tools, always ensure the work area is properly ventilated.

An approved dust mask (AS1715 and AS1716) and safety glass (AS1337) must be worn. Cemintel recommends that hearing protection also be worn.

Safety Data Sheet information is available at cemintel.com.au



Recommended Safe Working Practices

| | |
|----------------------------------|---|
| Cutting Outdoors | <ol style="list-style-type: none"> 1. Position cutting station so wind will blow dust away from the user or others in the working area. 2. Use a dust reducing plunge saw equipped with a dust extraction system. |
| Sanding/Drilling/Other Machining | When sanding, drilling or machining, you should always wear a P1 or P2 dust mask and warn others in the immediate area. |
| Important Reminders | <ol style="list-style-type: none"> 1. NEVER use a power saw indoors. 2. NEVER use a saw blade that is not purpose-made for cutting fibre cement products. 3. NEVER dry sweep. 4. ALWAYS follow tool manufacturers' safety recommendations. 5. ALWAYS maintain tools in a clean condition. |

Handling & General Care

Storage

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

Handling

Cemintel Rigid Air Barrier panels must be treated with care during handling so as to avoid damage to edges. Panels should be carried horizontally on edge by two people.

Cutting

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

Penetrations

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

Warranty

The Cemintel Rigid Air Barrier panels have a product warranty of 10 years.

The full Cemintel product warranty is available for download at cemintel.com.au



Our Offices

Brisbane

768 Boundary Road
Coopers Plains QLD 4108

Sydney

376 Victoria Street
Wetherill Park NSW 2164

Melbourne

277 Whitehall Street
Yarraville VIC 3013

Adelaide

Lot 100 Sharp Court
Mawson Lakes SA 5095

Perth

19 Sheffield Road
Welshpool WA 6106

Hobart

11 Farley Street
Derwent Park TAS 7009

Darwin

Cnr Stuart Highway & Angliss
Street
Berrimah NT 0828

cemintel.com.au
1300 236 468

For Design and Technical Support:
DesignLink – 1800 621 117

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