


CEMINTEL®



INSTALL  VERTICALLY
External Wall (EW) Classification to AS 5113

TERRITORY™ SERIES
External Vertical Installation

INTRODUCTION

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Introduction

Cemintel Territory is a prefinished cladding system that simulates materials such as stone, timber, concrete, metal, and smooth render.

Territory cladding is a 16mm thick cement bonded fibrous wood particle panel that is pressed with surface textures and finished with a high quality paint and UV coating. Panels are 3030mm in length, with an effective cover width of 455mm, and connect seamlessly into each other via a tongue and groove profile.

Territory cladding panels are supported by a proprietary concealed fixing system that enables the panels to be installed on masonry, timber and steel frames, either horizontally or vertically, externally or internally, on both residential and commercial buildings.

This Design and Installation Guide recommends good building practice methodology and has been prepared as a general guide of design considerations,

system engineering information and installation procedures for common external vertical installations.

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.

This guide refers to **external vertical installations** only as components differ depending on the installation.

Refer to the 'Design and Installation Guide for Cemintel® Territory External Horizontal Installation' or the 'Design and Installation Guide for Cemintel Territory Internal Installation' for instructions regarding these applications.

02

PRODUCT OVERVIEW

Panel Information

Cemintel Territory cladding is a 16mm thick cement-bonded fibrous wood particle panel that’s pressed with surface textures and finished with a high-quality paint and UV coating. The panels are 3030mm in length with an effective cover width of 455mm and connect seamlessly into each other via a tongue and groove profile.

The Territory cladding panels are supported by a proprietary concealed fixing system that enables the panels to be installed either horizontally or vertically, externally or internally, on both residential and commercial buildings.

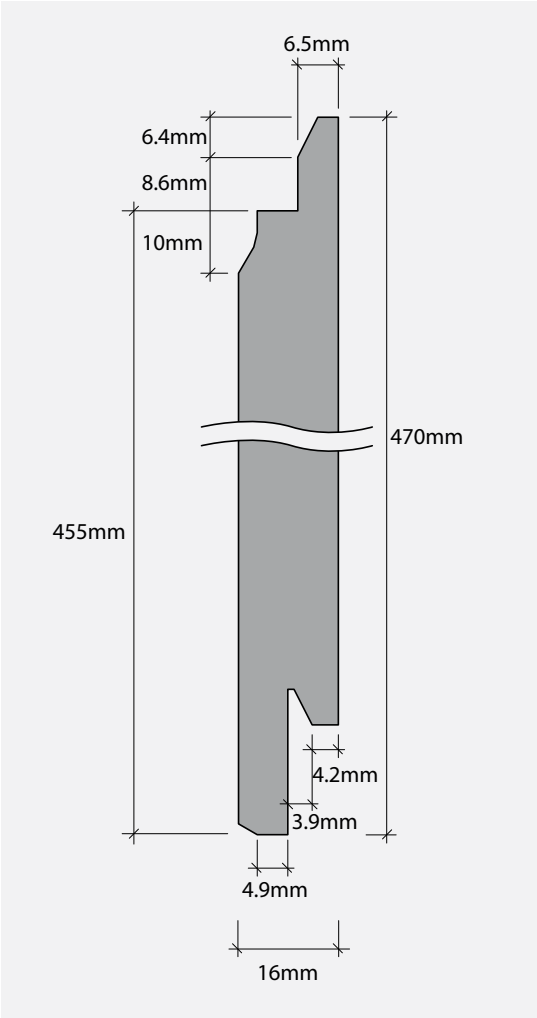
Panels have a special NichiGuard® self cleaning coating* applied during the manufacturing process to Japanese standards. Panels include Platinum Coating technology to protect against UV damage and colour fade.

There is a range of colour matched accessories including pre-formed external corner profiles, joint sealants and touch up paint kits to speed installation and enhance the project finish and appearance.

An alternative aluminium corner can also be used for a more contemporary aesthetic.

Cemintel Territory cladding conforms to the requirements of BS EN 12467:2012 – Fibre-cement flat sheets - Product specification and test methods, Category A, Class 2. The BS EN 12467 bending strength testing demonstrates the Cemintel Territory cladding conforms to the requirements of AS/NZS 2908.2 – Cellulose-cement products, Part: 2 – Flat sheets, Category 3, Type A.

*Note: not all panels have NichiGuard self cleaning coating – check Technical Data Sheet.



Product Specifications

Property	Specification	Tolerance	Reference
Panel Width	470mm (overall width) 455mm (effective coverage)	+ / - 1mm	JIS A 5422
Panel Length	3030mm	+ / - 1mm	JIS A 5422
Panel Thickness	16mm	+ / - 1.2mm	JIS A 5422
Panel Weight (EMC)	24.6kg to 30kg per panel. Weight varies depending on finish. (Note: 2 panels per pack)		



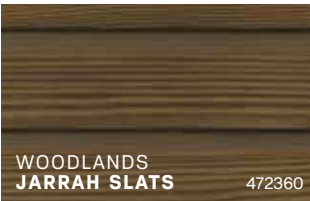
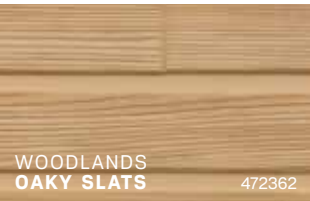
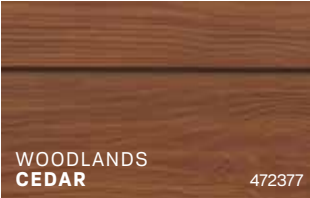
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PRODUCT OVERVIEW

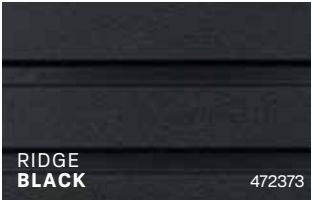


Colour Palette

WOODLANDS



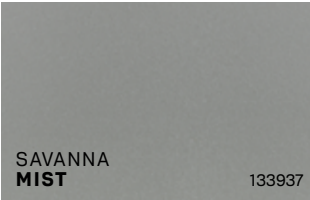
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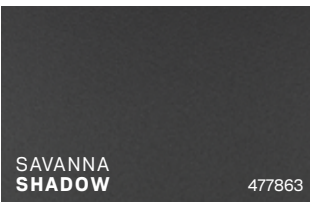
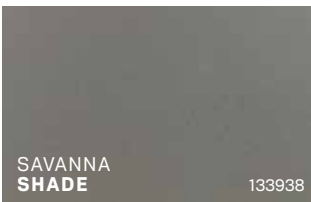
CANYON



SAVANNA



QUARRY



As Territory is a prefinished product, these images may vary from the actual product in regard to colour and surface finish. Panels should be inspected by the owner prior to installation to ensure they meet aesthetic requirements.

AS 5113 EW (External Wall) Classification

Cemintel's Territory is the first fibre cement product in Australia to achieve the AS 5113 EW (External Wall) classification.

The images below illustrate the AS 5113 test for Territory. Territory is a unique product in that it satisfies the DTS requirements of the BCA, and additionally has passed the AS 5113 test with an EW (External Wall) classification.

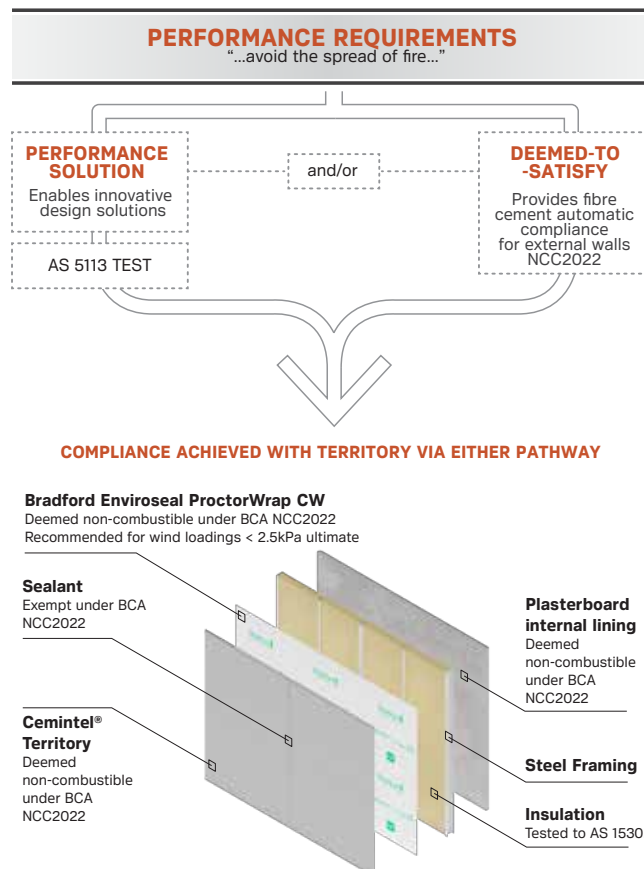
Use this link to view the test: www.youtube.com/watch?v=nR88ZZQSLeo



Intensive flames and heat during fire test.



Territory panels intact following removal of fire crib.



SYSTEM OVERVIEW

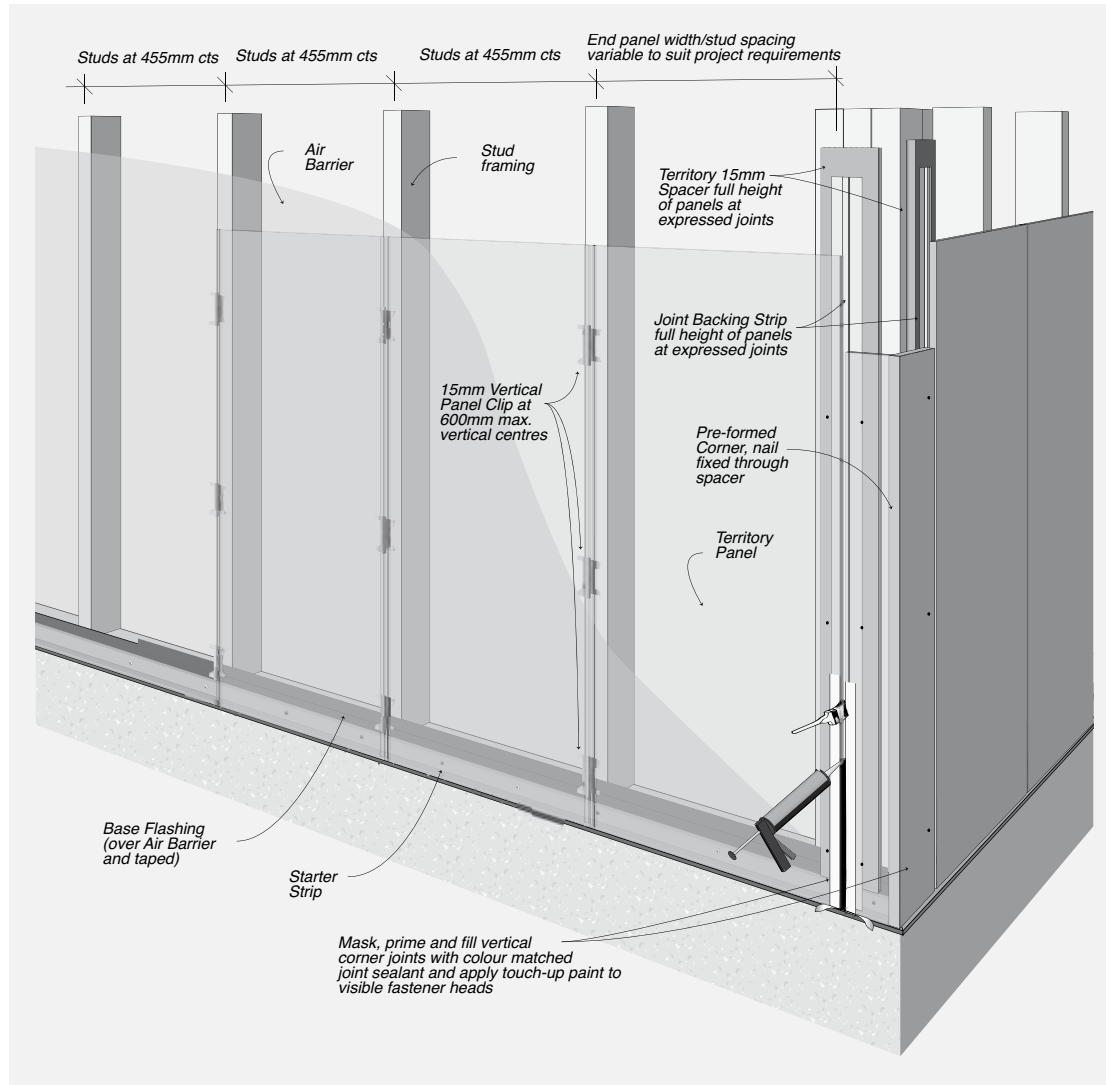


SYSTEM OVERVIEW

03

SYSTEM OVERVIEW

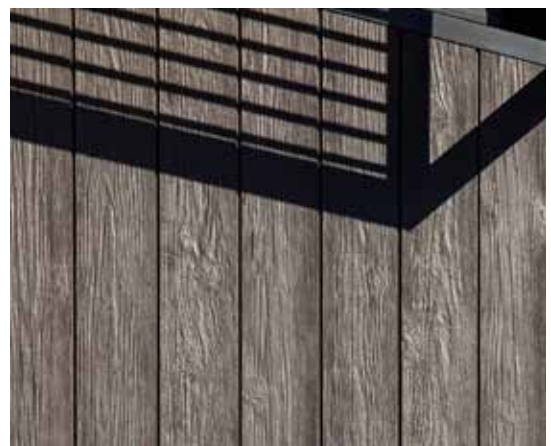
Cemintel Territory panels are installed with a unique clip system – providing a ventilated cavity.



Cemintel Territory is installed largely as a concealed fixing system, using clips that are fixed to the frame. Territory panel clips, together with spacer strips, base starter strips and head vents/eaves trims, create a 15mm cavity behind the Territory panels which allow air flow, ventilation and drainage. This prevents moisture build up and reduces the risk of moisture penetration, allowing the building shell to dry out, creating a healthier, more breathable building.

Aluminium corners can be used as an alternative to the pre-formed corners shown above.

Note: For framing other than 455mm centres, horizontal structure members can be used (eg. top hats and additional timber framing). Contact DesignLink for further information.



SYSTEM OVERVIEW



Applications

Cemintel Territory is suitable for all building classes, however, site environmental factors such as wind pressures and corrosivity zones must be considered to determine its suitability for a particular application.

CodeMark Certificate of Conformity No. GM-CM 30048 has been obtained for installation to timber, steel and masonry frames. The Certificate confirms compliance with BCA clauses relating to structure, weather resistance, bushfire construction, thermal resistance and non-combustibility, and also confirms the achievement of EW (External Wall) classification to AS 5113.

When installed vertically, the panels and system have been tested to withstand wind pressures up to 6kPa and cyclonic regions up to 4.5kPa (with long clips).



CODEMARK®
Australia
Certificate GM-CM 30048

Benefits of the Cemintel Territory System

- CodeMark Certified CM30048.
- Tested to AS5113 achieving a reaction-to-fire performance 'EW' (External Wall) classification.
- Able to be used wherever a non-combustible material is required by NCC2022.
- Resistant to bushfire attack level 40 (BAL 40) for external walls tested accordance with AS1530.8.1.
- Group Number 1 for internal lining in accordance with AS5637.1/ISO9705.
- Prefinished and available in a variety of colours and textures.
- Minimal ongoing maintenance and long lasting protection against UV damage and colour fade.
- Proprietary concealed fixing system provides a ventilated cavity for effective moisture management.
- Compatible with other Cemintel prefinished cladding systems including Surround and Barestone (refer to pages 24 & 25).
- Integrates easily into mixed façade systems that use concrete, brick, or AAC such as Hebel.
- Complete cladding system including preformed corners and colour-match sealants.

Product Specifications/System Solutions

Property	Specification	Reference
Façade Spread of Fire	EW classification	AS 5113
Combustibility	Panels are assessed as suitable for use in applications where non-combustible materials are specified by the Deemed to Satisfy Provisions of the BCA	BCA Volume 1 Section C
Fire Resistance Limits (FRLs)	Up to 90/90/90 Refer to System Engineering section or Gyprock® The Red Book™	AS 1530.4
Bushfire Construction	Bushfire Attack Level 40 (BAL 40) for an external wall	AS 1530.8.1
Weatherproofing	Has passed testing at a serviceability wind pressure of +1.6kPa and -2.2kPa based on rigid air barrier being used. Wall wraps can be used for serviceability pressures up to 1.5kPa	AS 4284
Wind resistance	Suitable for ultimate wind pressure of +2.6kPa and -3.3kPa based on rigid air barrier being used (Rigid air barrier recommended for pressures above 2.5kPa)	AS 1170.2

A technical Data Sheet can be downloaded from cemintel.com.au

04

DESIGN + AESTHETIC CONSIDERATIONS



DESIGN + AESTHETIC
CONSIDERATIONS

DESIGN + AESTHETIC CONSIDERATIONS

04

This section outlines some important areas for consideration in determining whether Cemintel Territory is 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 the location. This guide should be read in conjunction with the BCA.

Control Joints

Movement Control Joints

Control joints provided in the panel layout should be aligned with movement control joints provided in the framing. For example, a horizontal control joint of approximately 20-30mm is required at every slab junction (Refer to Fig. 4.01).

When undertaking building additions, a movement control joint must be installed at the junction of the current framing and new framing. The current and new framing and cladding systems must be discontinuous at this control joint. Refer to 'Construction Drawings & Details' section.

When setting out panels, design consideration should be given to the location of joints to ensure that minimum panel lengths and widths are observed.

Horizontal Control Joints

Where frame shrinkage may be a concern, Cemintel recommends creating a horizontal break in the panelling at the first floor level, or by incorporating

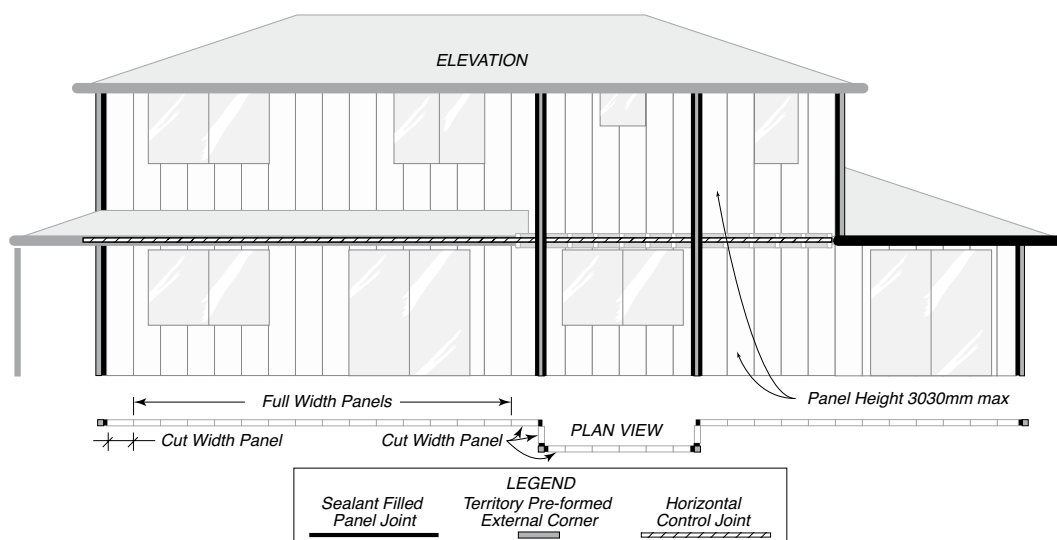
a verandah or awning or other design element to create discontinuous panelling. The use of full height windows may assist with aesthetics.

Vertical Control Joints

Vertical sealant filled control joints are required at junctions with the pre-formed corner, and at locations where the Territory wall adjoins another wall type to allow for differential movement. Movement joints provided in framing should be aligned to control joints in the panels. Vertical control joints in panels must extend for the full height of continuous panelling. Refer to 'Construction Drawings & Details' section.

Additional joints may be placed over openings for ease of installation. As the joints are expressed and sealant filled, consideration to the positioning of joints is important for aesthetic reasons. Placing joints at sides or above openings, or the use of full height windows can reduce the visual impact of joints.

FIGURE 4.01 Typical layout of vertical and horizontal panel joints.



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DESIGN + AESTHETIC CONSIDERATIONS

Coverage

A Cemintel Territory panel has a nominal width coverage of 455mm.

Note that the recommended minimum cut panel size is 100mm in length and 200mm in width. Anything under this will most likely result in cracking. **All cut panels must have edges sealed to protect against moisture penetration.**

Panel Coverage Calculator

Territory Panel = 455mm nominal width coverage.

Territory Panel Rows (Width)	Coverage for Full Panels (mm nominal)
19	8645
18	8490
17	7735
16	7280
15	6825
14	6370
13	5915
12	5460
11	5005
10	4550
9	4095
8	3640
7	3185
6	2730
5	2275
4	1820
3	1365
2	910
1	455

NOTE: For vertical panels, the panels at external corners and wall junctions must be trimmed to form a square edge joint. This will reduce the coverage of the first and last panels in a wall.

Window & Door Openings

Cemintel Territory is compatible with industry standard aluminium and timber framed windows. Aluminium windows MUST NOT have sill drain holes that can direct water into the wall cavity.

With the cavity created by the clip system, particular attention needs to be given to the set out of windows and doors.

The depth of the window needs to be taken into account in the design of the building frame so that the front face of the panel is properly aligned with the window and that the flashing is installed correctly.

A nominal space of 31mm needs to be allowed for a flush finish – taking into account the 15mm cavity (created through the use of the starter strip, clips and spacers) and 16mm panel thickness. This needs to be included in drawings for any project.

If using a rigid air barrier, sheet bracing or fire grade plasterboard, the thickness of this also needs to be accounted for to achieve a flush finish when determining window set out and reveal depths.

Refer to window detail drawing options in 'Construction Drawings and Details' section of this guide.

Eaves Junction

Options are provided to ensure air circulation through the cavity. A proprietary foam 'L Form Vent' can be concealed behind a traditional timber trim. Alternatively, a coloured metal Eave Trim is available with matching internal and external corner pieces. It is not recommended that air be vented into the roof space.

Corners

The system offers the choice of either pre-formed matching corners or metal corners. In many cases the metal corners are considered easier to install. Note that metal corners are recommended when installing onto masonry.

Not all panels are available with vertical pre-formed corners. Refer to 'Components & Accessories' section for details.

Face Fixings

Cemintel Territory is installed largely as a concealed fixing system. The panels are held in place by clips that are screwed to the frame. However, in some places, for example, around openings and corners where clips cannot be fixed, face fixed nails or screws are used. A colour matched touch up paint is available to cover the nails or screws in this instance.

DESIGN + AESTHETIC CONSIDERATIONS

Structural

Framing and Substrate Options

Cemintel Territory can be fixed to timber or steel framing as well as to masonry substrates.

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

- AS 1684 – Residential Timber-Framed Construction.
- AS/NZS 4600 – Cold-Formed Steel Structures.

The Territory vertical installation has been evaluated for use in all Australian wind zones up to and including N4 and C2 in accordance with AS 4055, and for wind pressures up to +2.6kPa and -3.3kPa under AS 1170.2.

In highly corrosive environments, appropriate measures should be taken to protect the frame from corrosion. Refer to Corrosive Zones table in 'System Engineering' section.

It is critical that the frame is true and plumb. Industry best practice for frame tolerance is 5mm misalignment over 3000mm.

Note: depending on the chosen panel layout, double studs may be required in some locations. Refer to 'System Engineering' section.

Masonry Installation

Masonry structures are potentially more likely to be out of plumb. This guide provides a fixing solution for masonry however, the top hat has limited ability to allow for variation in the surface plane. Careful assessment should be undertaken to determine if this solution is appropriate for the specific situation.

Span tables are located in 'System Engineering' section.

Structural Bracing

Cemintel Territory panels are indirectly attached to the structural framing using clips and spacers. As a consequence, they are not designed to provide wall bracing.

Bracing must be provided in the structural framing with methods such as sheet or strap bracing. Where sheet bracing is used, the entire wall framing to be clad with Territory panels must be sheathed to maintain a uniform fixing plane. Note: window setout will be affected.

If the building requires a rigid air barrier for weatherproofing purposes (ie higher wind load areas), it is possible to use 6mm fibre cement sheeting as part of the bracing system. Contact Cemintel for options.

Weatherproofing

The Territory facade system has been certified to meet the performance requirements of NCC Volume 1, FP1.4 and NCC Volume 2, P2.2.2. The building designer should ensure that the published details are suitable as part of the weather resistance solution for the external building envelope.

Drained Cavity Construction

The Territory wall system acts as a drained cavity wall and has been tested to satisfy the requirements of the NCC. The cavity behind the cladding can be pressure equalised reducing the pressure differential between the cavity and external surface, reducing the risk of water entering the cavity.

A specific air barrier is required and options are available with wall wraps and with a rigid air barrier.

Territory façade wall system using Cemintel Rigid Air Barrier

The design ultimate limit state wind pressure of the Territory façade wall system using Cemintel Rigid Air Barrier (RAB) system is +2.6kPa and -3.3kPa (e.g. N4/C2).

The weatherproofing performance of Territory façade wall system using RAB has been successfully tested against water ingress in accordance with the water penetration test requirements of AS 4284 for the serviceability limit state wind loads of up to +1.6kPa and -2.2kPa (e.g. N4/C2).

Cemintel Rigid Air Barrier with the joins and perimeter effectively sealed can be used to create an air barrier system, reducing the wind pressure loading on the internal linings. Refer to Cemintel's 'Design and Installation Guide for Air Barriers' for further information on pressure equalisation and construction details of the Rigid Air Barrier systems.

04

DESIGN + AESTHETIC CONSIDERATIONS

Territory façade wall system using Wall Wraps

NCC Volume 1 FV1 and NCC Volume 2 V2.2.1, outline the weatherproofing performance verification method requirements for external walls of typical buildings falling within the following conditions:

- Maximum design ultimate limit state wind pressure of 2.5kPa (e.g. N3/C1);
- Risk score of 20 or less; and
- Uses only windows complying with AS 2047.

The design ultimate limit state wind pressure of the Territory façade wall system using wall wraps has been determined in accordance with the NCC Verification Method.

The weatherproofing performance of Territory façade wall systems using wall wrap has been successfully tested against water ingress for the serviceability limit state wind loads of up to 1.5kPa (e.g. N3/C1).

Structurally compliant wall wraps are presented in Table 4.04. It is recommended that wall wraps have an air resistance greater than 0.1 MNs/m³ when tested to ISO5636-5.

The wall wrap shall be installed in accordance with the details included in this manual. An interior wall lining is required for this system, and must be designed to resist the building interior wind pressures. Details for Gyprock plasterboard and Cemintel Wallboard installation are available in the relevant manuals.

Low Air Infiltration Requirements using Wall Wraps

Where there is a requirement for low air infiltration in the wall cavity behind the wall wrap, the joins and perimeter junctions of the wall wrap must be effectively sealed to achieve a barrier with low air infiltration, reducing the wind pressure loading on the internal linings.

Refer to the installation guidelines of the wall wrap manufacturer.



DESIGN + AESTHETIC CONSIDERATIONS

Condensation

To ensure occupant health, safety and comfort and to protect the building frame from damage, a moisture strategy with the following objectives is required

- Prevent external moisture entering the building
- Prevent the accumulation of internal moisture in a building
- Allow airflow for cavity ventilation and drying of wet assemblies and surfaces.

The BCA covers requirements for weatherproofing, ventilation, air tightness and thermal performance which help resist ingress of weather and groundwater into a building. However, it does not address the complex problem of condensation.

Condensation occurs as air cools and contacts cold surfaces that are below the air's dew point. Absorptive materials such as brick, cement sheet and timber are permeable and act as a buffering material until they become saturated, whilst non-absorptive materials such as steel and glass reach saturation quickly. Water can then accumulate and must be allowed to dry or drain away. Moist surfaces can result in health issues for occupants and lead to degradation of building materials and loss of structural integrity.

The likelihood and severity of condensation is largely a function of:

- Climate (primarily temperature and humidity including seasonal and diurnal variations)
- Occupancy and building use
- Material properties of the building envelope (including insulation material type & R-Value)
- Passive and mechanical ventilation
- Air tightness
- The building envelope's ability to allow or prevent the movement of vapour.
- The building envelope's ability to act as a water barrier behind the primary cladding element.

CSR recommends that designers undertake a condensation risk analysis prior to selecting vapour control membranes. A rigid air barrier may be required where buildings are subject to higher wind loads, and may require the incorporation of a vapour barrier membrane in addition to the rigid air barrier.

Greater use of insulation, better sealing to restrict air movement, and increased use of air conditioning leads to larger differences between the temperature and water vapour content of indoor environments adjacent to outdoor areas and greatly increases the risk of condensation forming at surfaces and within interstitial spaces.

The ABCB "Condensation in Buildings Handbook 2014" provides guidance on managing Condensation. This guidance includes review of Bureau of Meteorology climate statistics (max and min average monthly temperatures together with average monthly dew point temperatures). This highlights the likelihood of condensation, which occurs when minimum temperature falls below the dew point, and identifies the daytime drying potential.

Wall Wraps/Rigid Air Barriers

The fabric of the building separates the interior and exterior environments and is subject to the movement of heat, air, water, and water vapour. Multiple materials are usually required to form effective control layers in the interstitial spaces between the exterior cladding and interior lining of a building.

The appropriate membrane (i.e. vapour permeable or vapour barrier wall wrap) for an application will depend on the local climate, building type, service wind pressure, use and orientation, material R-Value of the insulation, as well as the degree and location of ventilation.

Vapour barriers restrict the transmission of water vapour, while vapour permeable membranes allow the transmission of water vapour.

The wall wrap must have a water barrier classification to AS/NZ 4201.4. A non-water barrier classification is not suitable. Wraps included in this manual, and Cemintel Rigid Air Barrier, have achieved the classification water barrier. Wall wraps 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.

CSR provides several product options for use as air barriers and moisture barriers, and the designer is responsible for determining what is appropriate for the application.

04

DESIGN + AESTHETIC CONSIDERATIONS

TABLE 4.01 Recommended Products for Moisture Management of Walls

Climate (BCA Zone)	Guidance on Vapour Control	Performance and Category	Recommended CSR Products (Refer to Table 4.02)
Warm-Humid, or Tropical climates (Zone 1)	Where vapour flow is typically inward, such as where the building is air-conditioned for cooling, the membrane should function as a vapour barrier.	Vapour Barrier – Class 1 or 2	<ul style="list-style-type: none"> • Bradford Thermoseal membranes • Bradford Thermoseal Firespec • Cemintel Rigid Air Barrier with a Vapour Barrier Membrane
Temperate or Hot-Dry (inland) climates (Zones 2, 3, 4, 5)	These climates have varying diurnal and seasonal temperature changes that can affect the direction of the water vapour flow. In most cases a vapour permeable membrane outside the insulation is recommended to avoid creating a moisture trap, allowing drying in either direction. Where a high level of thermal insulation is used, a high degree of permeability may be required, and in some locations a vapour barrier is required. Expert guidance based on local experience should be sought.	Vapour Permeable or Vapour Barrier – Class 2, 3 or 4 as required	<ul style="list-style-type: none"> • Bradford Enviroseal membranes • Bradford Thermoseal membranes • Bradford Thermoseal Firespec • Cemintel Rigid Air Barrier • Cemintel Rigid Air Barrier with a Vapour Barrier Membrane
Cold climates (Zones 6, 7, 8)	Where there is a strong tendency for outward migration of vapour and a high risk of condensation, vapour permeable membranes should be installed on the cold, external side of the insulation. ¹	Vapour Permeable – Class 3 or 4	<ul style="list-style-type: none"> • Bradford Enviroseal membranes. • Cemintel Rigid Air Barrier

¹ The use of a Class 3 membrane such as Cemintel Rigid Air Barrier may not be sufficient in some cold climates. If a Class 4 membrane cannot be used, a solution may include the use of a material to the interior side of the insulation that acts as a vapour barrier, e.g. a Class 1 or 2 membrane or a vapour sealed plasterboard lining. Seek expert advice prior specifying systems for these regions.

TABLE 4.02 Recommended CSR Products for Moisture Management of Walls

Product	Vapour Permeance Class AS/NZS 4200.1	Vapour Permeance ASTM E96 µg/N.s	Weather exposure limit prior to cladding
Thermoseal Wall Wrap/XP	Class 1	<=0.0022	4 weeks
Thermoseal Firespec	Class 2	0.0022 to 0.1429	4 weeks
Thermoseal Wall Wrap	Class 2	0.0022 to 0.1429	4 weeks
Cemintel Rigid Air Barrier	Class 3	0.25	6 months (panel) 2 months (tape)
Enviroseal CW, Enviroseal CW-IT	Class 4	>1.1403	6 weeks
Enviroseal RW	Class 4	>1.1403	6 weeks

DESIGN + AESTHETIC CONSIDERATIONS

Thermal Performance Tables

The wall system contributes towards the total wall U or R value, which is to be determined in accordance with the BCA Vol 1 J1.5 or Vol 2 3.12.1.4 as appropriate. The values presented may be used for comparative purposes. They are calculated through the wall with no thermal bridging path and assume:

- Studs at 600mm maximum centres. (Minimum depth to suit insulation thickness)
- 1 layer x 10mm Gyprock Standard Plasterboard to the inside of framing
- Cavities are closed.

TABLE 4.04

Insulation	Wall Wrap/Sarking	Winter Total Wall R-Value	Summer Total Wall R-Value
(a) Bradford 75mm Gold Wall Batts R2.0	Bradford Thermoseal Wall Wrap or Enviroseal RW, CW/CW-IT or HTS	2.6	2.3
(b) BRADFORD 90mm Gold Wall Batts R2.5	Bradford Thermoseal Wall Wrap or Enviroseal RW, CW/CW-IT or HTS	3.1	2.8
(c) Bradford 90mm Gold Wall Batts R2.7HP	Bradford Enviroseal RW, CW/CW-IT or HTS	3.3	3.0
(d) Bradford 90mm Gold Wall Batts R2.7HP	Bradford Thermoseal Wall Wrap or Resiwrap	3.3	3.0
(e) NIL	Bradford Thermoseal 733*	1.5	1.3

Notes:

* 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.

- Values calculated in accordance with AS 4859.1, and are based on an un-ventilated cavity and using Bradford Thermal Calculator v1.2.
- All Bradford wall wrap/sarking products detailed above have a Flamability Index of ≤ 5 to AS/NZS1532 Part 2, making them suitable for Bushfire and Fire Rated wall systems.
- FRL/Thermal/Acoustic Systems information courtesy of Gyprock The Red Book.

Insulation and Energy Efficiency

Thermal and acoustic performance can be achieved by installing appropriate insulation in the wall cavity.

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 the Thermal Performance Selection (see 'System Engineering' section & Gyprock® The Red Book™).

Cemintel recommends CSR Bradford and CSR Gyprock products to achieve the required performance.

Solar Reflectance/Absorptance

In some states, it is a requirement to provide solar values for coloured product.

Cemintel Territory has been tested by the University of New South Wales to determine Solar Absorption and Reflectance as required by the BCA. The products have been tested to ASTM E 903-96 'Standard Test Method for Solar Absorptance, Reflectance and Transmittance of Materials Using Integrating Spheres'.

Values are included in the Technical Data Sheet.

DESIGN + AESTHETIC CONSIDERATIONS

Fire Performance

– Class 2 to 9 Buildings

With regards to compliance with BCA requirements to avoid the spread of fire via the facade, two approaches are considered:

Deemed to Satisfy Provisions specify that construction for fire resistance must comply with the clauses listed in Section C. In particular, Clause C1.9 requires that all components of external walls of buildings of Type A and Type B construction are non-combustible.

Cemintel Territory facade panels can therefore be used as cladding in these external walls since they are considered to be non-combustible in accordance with C1.9(e), which states that fibre reinforced cement sheeting may be used wherever a non-combustible material is required. Cemintel Territory panels have been assessed as suitable for use in these applications. (BCA Assessment Report 2013/277.3R1.0).

Verification Method CV3(b) addresses the spread of fire via the facade as part of compliance with Performance Requirement CP2. Australian Standard AS 5113:2016 provides procedures for fire propagation testing and classification of external walls of buildings according to their tendency to limit the spread of fire via the external wall and between adjacent buildings. A classification EW is required for consideration as part of the Verification Method to obtain compliance. Cemintel Territory has been tested to AS 5113 and achieved a classification of EW.

A range of typical construction details included in the Installation and Construction Drawings section of this guide have been assessed as being compatible with the EW classification. The assessment also allows alternative materials to be used, including the full range of Territory panels, a range of Bradford glasswool batts, Tenmat and Firefly cavity barriers, and various Gyprock™ plasterboard interior linings.

Extreme Climate Conditions

Bushfire Zones

Territory has been independently assessed as a “non-combustible material” under the BCA deemed to satisfy provisions. However, protection against bushfire attack requires a comprehensive and systematic approach that includes the specification of fire resistant internal linings, external walls and insulation materials.

Territory panels installed in a vertical application have been assessed to achieve ‘Construction of Bushfire Attack Level 40 (BAL-40) for an external wall’ (AS 1530.8.1). For additional bushfire requirements, refer to the BCA.

Cemintel also offers wall systems that enable Cemintel Territory cladding to be used as part of external fire rated wall systems. Refer to ‘Systems Engineering’ section for:

- External walls in Bushfire Attack Level BAL-FZ (requires minimum FRL30/30/30);
- External walls to Class 1 buildings within 900mm of the boundary including Zero-Lot walls; and
- External walls adjacent to an external fire source (such as an Electrical Sub-Station).

DESIGN + AESTHETIC CONSIDERATIONS

Corrosive Zones

Consideration of corrosivity zones should be taken into account. While Territory panels are not susceptible to corrosion, consideration needs to be made regarding the impact of climate conditions on system components such as fasteners, clips and metal framing, for example.

Corrosivity zones are detailed in AS 4312 and set out in the 'System Engineering' section.

The Territory components may be used in zones up to and including C4. When used in Category C3 and above, all walls which are protected by soffits must be washed down twice per year to remove salt and debris build up, particularly around window/door openings. In C4 corrosivity zones, face 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.

Cemintel Territory is not suitable for Corrosivity Zone C5 – Very High. This includes the beachfront in regions of rough seas and surf beaches, and inland for several hundred metres, eg. around Newcastle extending over half a kilometre from the coast. It also includes aggressive industrial areas where the environment may be acidic with a pH of less than 5.

Responsibility for the choice of fasteners in corrosive environments lies with the building designer. Note that white residue or tea staining is often a side effect of exposed fasteners in these environments. Painting and coating can offer some added protection.

Temperature Extremes

Territory panels are not warranted for use in freezing conditions in which panels are in contact with snow or extremely hot temperatures (above 50°C).

Cyclonic Zones

The Territory vertical installation has been evaluated for use in all Australian wind zones up to and including N4 and C2 in accordance with AS 4055, and for wind pressures up to +2.6kPa and -3.3kPa under AS 1170.2.

Territory vertical has not been tested for the cyclic pressure sequences of BCA Volume 1, Class 2 to Class 9 Buildings. Territory horizontal has been successfully tested for cyclonic wind conditions (refer to 'Territory External Horizontal Design and Installation Guide').

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 local pest management services, the BCA, AS 3660: Termite Management and local building authorities for more information about the requirements for the design of a suitable termite management system.

Corrosivity Categories

ISO 9223 has suggested five corrosion zones based on the first year corrosion rate of mild steel. Refer to AS 4312 – 2008 for details regarding Australian Atmospheric Corrosivity Categories (the below highlights some general statements from this document).

TABLE 4.05

ISO 9223 category	Corrosivity	Steel Corrosion rate $\mu\text{m/y}$	Typical environment
C1	Very low	<1.3	Dry indoors
C2	Low (most areas of Australia at least 50km from the coast or at least 1km from sheltered bays would be in this category)	1.3-25	Arid/urban inland
C3	Medium (from 1km to 10-50km from breaking surf – much of metropolitan Wollongong, Sydney, Newcastle and Gold Coast are in this category)	25-50	Coastal or industrial
C4	High (primarily coastal areas - from several hundred metres to about 1km inland from breaking surf or from the shoreline to around 50m for sheltered bays)	50-80	Sea shore (calm)
C5	Very high (industrial or marine) – common offshore and on the beachfront in regions of rough seas and surf beaches – can extend inland for several hundred metres (in some areas of Newcastle extends around 500m)	80-200	Sea shore (surf)

DESIGN + AESTHETIC CONSIDERATIONS

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Other Design Considerations**Services**

The Territory system will accommodate services that are run through the framing. Any notches or holes formed must be considered in the framing design.

Renovations

When undertaking building renovations, remove all cladding and wall wrap/sarking 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 tolerance of 5mm misalignment over 3000mm).

Install additional framing as required, insulation, wall air barrier and flashing.

Limitations

Territory is not recommended and not warranted for the following applications:

- Panels with non-vertical face (eg. parapet capping).
- Wet areas such as bathrooms.
- Chimney cladding.
- Exposure to temperatures greater than 50°C.
- Non vented parapet cladding.
- Contact with standing snow or ice.
- Fixing of tiles or other materials to the face of the panel.
- The face is painted.

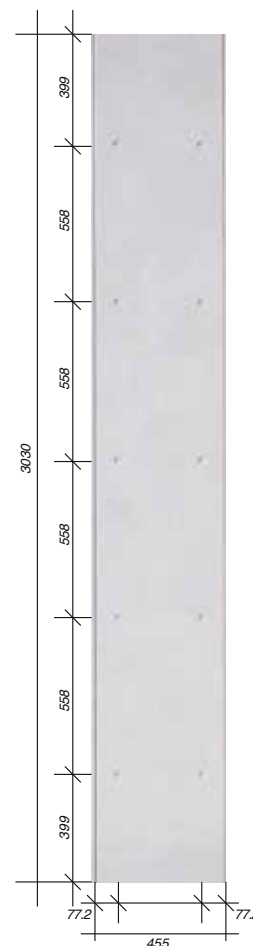
The above listing is not intended to be comprehensive. If in doubt, please contact Cemintel.

Territory QUARRY Urban Grey

Note that the Territory QUARRY Urban Grey panel has “dimples” across the surface to replicate the look of formwork and these need to be considered in the design phase. Extra product may need to be ordered accordingly. The Territory QUARRY Concrete has the same colour/finish but has a flat profile (ie no “dimples”).

Touch-Up Paint

Use for nail heads, cut edges at window heads and other visible blemishes. If 304 nail heads require coating, use a primer for bare steel such as Dulux All Metal Primer prior to coating with the appropriate colour matched paint.



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COMPONENTS + ACCESSORIES

COMPONENTS + ACCESSORIES

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

Cemintel Territory Panels and Colour Matched Accessories





Product Name	Panel (2 Pk)	Touch-Up Paint	Primer	Colour Matched Joint Sealant Sausages 500mL	Pre-formed External Corner Vertical#
WOODLANDS Smoked	133976	165354	111616	178928	134415
WOODLANDS Cedar	472377	478268	163172	472306	472345
WOODLANDS Teak	133975	165355	111616	178923	140713
WOODLANDS Grey Gum	472376	478226	111616	178921	472344
WOODLANDS Ebony	163108	165356	163172	178924	163110
WOODLANDS Birch	472366	478227	163172	472268	472346
WOODLANDS Limed	163175	165358	111616	178927	163247
WOODLANDS Oaky Slats	472362	478228	111616	472311	472349
WOODLANDS Kwilla Slats	472361	478229	163172	472310	472348
WOODLANDS Jarrah Slats	472360	478300	111616	472269	472347
QUARRY Urban Grey	133977	165372	111616	178922	134416
QUARRY Concrete	134702	165372	111616	178922	134416
RIDGE Black	472373	478301	163172	472317	472351
RIDGE White	472374	478302	111616	178848	472352
CANYON Carnarvon	472365	478315	111616	472321	472355
CANYON Kings	472363	478314	111616	472319	472353
SAVANNA Cloud	133935	165368	111616	178848	134392
SAVANNA Mist	133937	165370	111616	178850	140717
SAVANNA Shade	133938	165371	111616	178921	140715
SAVANNA Shadow	477863	478303	111616	477867	477865

#Pre-formed External Corners are manufactured to match panels. Internal measurement – 70mm x 70mm. Coverage nominal 86mm x 86mm x 3030mm.

Cemintel Rigid Air Barrier

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


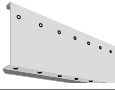



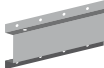
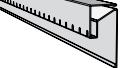
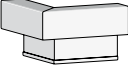
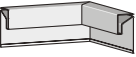
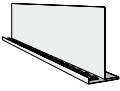
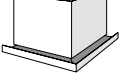
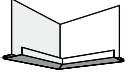
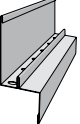
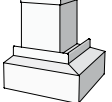
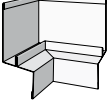


Other Accessories/Tools

Accessories	Description	Size	Quantity	Product Code
	Screws for timber framing – used to fix starter strip, clips and other components. Stainless steel 410 grade and clear coated.	35mm	500 per pack	105366
	Screws for timber framing – for fixing components over materials such as bracing sheet or Gyprock Fyrchek. Galvanised steel, Class 3.	57mm	100 per pack	117839
	Nails for timber framing – for fixing Territory panels at soffit line and other locations where required. Ribbed shank, flat head, stainless steel 304 grade. Pre-drill panels for all nails.	75mm	230 per pack	105298
	Screws for steel framing – for fixing start strip, clips and other components. Class 3, 8g, self-drilling, button head, Phillips drive	20mm	1000 per pack	113604
	Screws for steel framing – for face fixing panels at soffit line and other locations where required onto Rondo H515 Top Hats. Class 3, self-drilling, CSK self-embedding head, Square drive.	10g x 55mm	500 per pack	113603
	Screws for masonry framing – for fixing start strip, clips and other components onto Rondo H515 Top Hats. Class 3, 8g, self-drilling, wafer head, Phillips drive	12mm	1000 per pack	162931
	Screws for masonry framing – for face fixing panels at soffit line and other locations where required onto Rondo H515 Top Hats. Class 3, self-drilling, CSK self-embedding head, Phillips drive. Also used for fixing panel to metal corner.	10g x 45mm	1000 per pack	165665
	Fasteners – to fix backing strip and other components to framing. <ul style="list-style-type: none"> For fixing to timber framing – galvanised clout, 40 x 1.6mm For fixing to steel framing – button head screws, class 3, 6g x 40mm self-drilling, Phillips drive For fixing to H515 Top Hat – button head screws 8g, self-drilling, Phillips drive, 12mm for fixing starter strip and clip Fixing over Gyprock Fyrchek linings – Galvanised 65mm steel class 3 		Supplied by others	
	Vertical Panel Starter Strip – steel profile used at the base to locate the first row of panels. Provides 15mm offset from face of studs. Manufactured from 1.2BMT steel with Galvalume AZ150 corrosion resistant coating	23 x 40 x 3030mm	1 each	136825

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COMPONENTS + ACCESSORIES


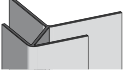

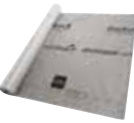






Note: Codes can change from time to time. Refer to the website for the current list of components prior to ordering.

	15mm Vertical Panel Clip – fixed to the framing to retain the tongue and groove edges of panels. Manufactured from SuperDyma corrosion resistant coated steel.	62mm x 45mm x 15mm	50 per pack	123594
	Vertical Extended Starter Strip for masonry framing – Steel profile used at the base to locate the first row of panels. Provides 15mm offset from face of studs. Manufactured from 1.2BMT steel with Galvalume AZ150 corrosion resistant coating.	23mm x 95mm x 3000mm	1 each	165811
	15 x 90mm Vertical Spacer – for use with metal corners.	15mm x 90mm x 2000mm	1 each	123595
	15 x 50mm Horizontal Spacer – for packing between framing and panels at eaves and other locations wherever face fixing is required. Manufactured in extruded plastic.	15mm x 50mm x 1200mm	1 each	111502
	Steel Top Hat for framing on masonry substrate Rondo H515. Manufactured from galvanised (Z275) 1.15mm BMT steel. Requires screws 8G, self-drilling, button head, Phillips drive 12mm for fixing starter strip and short clips to H515 Top Hat	80mm x 15mm with 50mm face 0.91 kg/m	1 each – 3.6m 1 each – 7.2m	12884 100896
	Steel Top Hat – 1.2mm thick ZAM steel suitable for C4 applications.	75mm x 15mm with 45mm face	1 each – 2.99m	194877
	Eaves Trim – provides joint at eaves trim corner. Powder coated finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.	60 x 26 x 3030mm	1 each Charcoal Pearl Silver White	471393 471413 471414 471412
	Eaves Trim External Corner – provides joint at eaves trim corner. Powder coated finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.	100mm x 100mm	1 each Charcoal Pearl Silver White	471411 471395 471396 471397
	Eaves Trim Internal Corner – provides joint at eaves trim corner. Powder coated finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.	150mm x 150mm	1 each Charcoal Pearl Silver White	471394 471398 471399 471410
	Soffit Trim – provides finish at soffit edge as well as cavity ventilation and cavity closure below battens. Powder coated finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.	60mm x 3030mm (for 15mm cavity)	1 each White	134448
	Soffit Trim External Corner – provides joint at soffit trim corner. Powder coated finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.	100mm x 100mm	Pack of 2 White	134396
	Soffit Trim Internal Corner – provides joint at soffit trim corner. Powder coated finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.	100mm x 100mm	Pack of 2 White	134430
	Control Joint Flashing – Provides an attractive finish at horizontal control joints and provides cavity ventilation where more than one panel high is installed. Powder coat finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.	35 x 90.5mm x 3030mmL	1 each Charcoal White Pearl Silver	137047 137048 137049 137050
	Control Joint External Corner – Provides attractive corner junction where more than one panel high is installed. Powder coat finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating.	85 x 85mm	1 each Charcoal White Pearl Silver	137071 137072 137073 137074
	Control Joint Internal Corner – Provides attractive corner junction where more than one panel high is installed. Powder coat finish on 0.35mm BMT steel with Galvalume AZ150 corrosion resistant coating. 85 x 85mm	85 x 85mm	1 each Charcoal White Pearl Silver	137075 137076 137077 137078
	Joint Backing Strip Double Flange – used at vertical joint where preformed corner is installed to fill cavity and provide a backing for sealant. Manufactured in 0.3mm BMT steel with Galvalume AZ150 corrosion resistant and bond breaker coating. Forms 10mm wide express joint.	20/10/20 x 5 x 3030mm	1 each	123596
	Joint Backing Strip Single Flange – used at vertical internal corner joints and at openings to fill cavity and provide a backing for sealant. Manufactured in 0.3mm BMT steel with Galvalume AZ150 corrosion resistant and bond breaker coating.	10/45 x 5 x 2000mm	1 each	123597






COMPONENTS + ACCESSORIES

05

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

	Corner Backing Angle – metal angle flashing used in some corners. Manufactured from steel with Galvalume AZ150 corrosion resistant coating.	50mm x 50mm x 3030mm	1 each	111498
	External Metal Trim – anodised aluminium extrusion used to dress and finish external corners.	60mm x 65mm x 3030mm	1 each Charcoal Pearl Silver	126961 135040 135041
	L-Form Cavity Vent – used at parapet and horizontal control joints to provide air flow while maintaining vermin proofing. Has self-adhesive EPDM tape for fixing into flashing/capping and compressible foam filler attached internally.	1200mm	1 each	129750
	Enviroseal™ RW Classification – Class 4 Vapour Permeable	1500mm x 25m	1 roll	141306
		1500mm x 30m	1 roll	192726
		1500mm x 50m	1 roll	120923
	Enviroseal™ CW Classification – Class 4 Vapour Permeable	1500mm x 50m	1 roll	118593
	Enviroseal™ CW-IT Classification – Class 4 Vapour Permeable	1500mm x 50m	2 rolls	153675
	Thermoseal™ Wall Wrap Classification – Non-permeable reflective Water Barrier	1350mm x 30m 1350mm x 60m	1 roll 1 roll	40483 10576
	Thermoseal™ Firespec Classification – Non-permeable reflective Water Barrier	1500mm x 30m	1 roll	164674
	Enviroseal 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 SLS Flexi Tape – used to tape corners of openings	60mm x 5m	1 roll	124872
	Bradford Gold Wall Batts – R2.0 (HP) (75mm)	1160mm x 420mm 1160mm x 570mm	12 pack 12 pack	153643 153648
	Bradford Gold Wall Batts – R2.5 (90mm)	1160mm x 430mm 1160mm x 580mm	8 pack 8 pack	105203 105202
	Bradford Gold Wall Batts – R2.7 (90mm)	1160mm x 430mm 1160mm x 580mm	5 pack 5 pack	105205 105204
	Intumescent Barrier – used at slab edges in AS 5113 construction. Tenmat FF 102/50	6mm x 75mm x 1m	Supplied by others	
	Backing Rod – 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
	Sealant Bond Breaker tape – used behind sealant to prevent 3-sided bonding	48mm x 3mm x 25m	1 each	13172
	Cemintel Edge Sealer – for sealing panel edges after on-site cutting	200ml 2Ltr	1 each 1 each	100166 180928

Tools

	Makita Plunge Saw Kit (1300W) includes 1400mm guide rail and bonus 165mm fibre cement saw blade – excellent for cutting cement based sheets	165mm		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	165mm x 20x4T		165486
	FESTOOL DSC-AGP 125 – Diamond Blade Cutting and Grinding Tool. Used to provide neat and accurate bevelled edges	125mm		107207
	FESTOOL TS 55 EBQ Plunge Cut Saw – with 1400mm Guide Rail. Precise plunge cuts in materials up to 55mm thick.	160mm		121400
	FESTOOL Diamond Tipped Blade for TS 55 – for cutting all fibre cement sheet products	160mm		112647
	Cemintel Power Saw Blade – 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		134449



SYSTEM ENGINEERING

SYSTEM ENGINEERING



Design, Detailing And Performance Responsibilities

Territory External Wall System

Cemintel engages independent testing laboratories to test and report on the performance of a wall in accordance with the relevant Australian Standards. Consultants with relevant experience will use these test reports to provide opinions and assessments that extend the tested arrangement to include various on-site installation configurations and details that meet appropriate criteria performance.

Project Consultants (Structural, Fire, Acoustic, 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 issues.
- Room / building geometry.
- Acoustic and water penetration field-testing.

Design Responsibility

Panels, top hats and structural framing are required to resist wind loads that are specific to the building site. Additional 'local pressure factors' can apply to the panels and top hats in accordance with the wind code AS/NZS 1170.2. It is recommended that the Architect/Building Designer assigns the responsibility for the facade design to the Project Engineer. Once wind loads have been determined, top hat spans, fastener spacings, and sheet fixing details may be selected from the appropriate tables in this manual.

It is also the responsibility of the Architect/Building Designer to select the appropriate corrosivity category. Refer to appropriate details in this guide.

The performance levels of walls documented in this guide are either what is reported in a test or the documented opinion of consultants. Performance in projects is typically the responsibility of:

Project Certifier and/or Builder

These professionals are typically responsible for:

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

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 Architect/Building 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 in a specific project application.

Note: it is the responsibility of the Project Engineer to specify the connection of the top hats to the support structure. It is also the responsibility of the Project Engineer to calculate the wind loads for the cladding of a project.



SYSTEM ENGINEERING

Span Tables / Wind Loads

Timber Framing – RESIDENTIAL – BCA Class 1 and Class 10

TABLE 6.01 Fixing Requirements for Territory Vertical Panels – based on wind classification – studs at 455mm centres maximum centres

Wind Classification (AS 4055)	PANEL ZONE Minimum Fixing Requirements for areas greater than 1200mm from an External Building Corner	CORNER ZONE Minimum Fixing Requirements for areas less than 1200mm from an External Building Corner
N1	Clips @ 600 cts	Clips @ 600 cts
N2	Clips @ 600 cts	Clips @ 600 cts
N3	Clips @ 600 cts	Clips @ 450 cts
N4	Clips @ 450 cts	Clips @ 300 cts
C1	Clips @ 600 cts	Clips @ 450 cts
C2	Clips @ 450 cts	Clips @ 300 cts

Note: Where Rigid Air Barrier is used, closer stud centres may apply. Refer to Tables 6.07 and 6.08.

Timber Framing – COMMERCIAL & OTHER – BCA Class 2 to Class 9

TABLE 6.02 Territory Fixing Requirements for timber framing – based on wind pressures.

Design Wind Pressure (Ultimate) (kPa)	Minimum Fixing Requirements
0 - 1	Clips @ 600mm cts
1 - 1.5	Clips @ 450mm cts
1.5 - 3.0	Clips @ 300mm cts

Note: Design wind pressures apply to both negative and positive pressures.

Where Rigid Air Barrier is used, closer stud centres may apply. Refer to Tables 6.09 and 6.10.

SYSTEM ENGINEERING



Steel Framing – RESIDENTIAL – BCA Class 1 and Class 10

TABLE 6.03 Fixing Requirements for Territory Vertical Panels – Steel Framing – Studs at 455mm centres max.

Wind Classification (AS 4055)	PANEL ZONE – Minimum Fixing Requirements for areas greater than 1200mm from an External Building Corner		
	Steel Frame Metal Thickness		
	0.55mm	0.75mm	1.15mm
N1	Clips @ 600 cts	Clips @ 600 cts	Clips @ 600 cts
N2	Clips @ 600 cts	Clips @ 600 cts	Clips @ 600 cts
N3/C1	Clips @ 600 cts	Clips @ 600 cts	Clips @ 600 cts
N4/C2	Clips @ 450 cts	Clips @ 600 cts	Clips @ 600 cts

Wind Classification (AS 4055)	CORNER ZONE – Minimum Fixing Requirements for areas greater than 1200mm from an External Building Corner		
	Steel Frame Metal Thickness		
	0.55mm	0.75mm	1.15mm
N1	Clips @ 600 cts	Clips @ 600 cts	Clips @ 600 cts
N2	Clips @ 450 cts	Clips @ 600 cts	Clips @ 600 cts
N3/C1	N/A	Clips @ 600 cts	Clips @ 600 cts
N4/C2	N/A	N/A	Clips @ 450 cts

Note: System performance relies on the use of Territory approved fasteners. Table based on external pressures only, with internal linings designed to resist internal pressures.

Where Rigid Air Barrier is used, closer stud centres may apply. Refer to Tables 6.07 and 6.08.

Steel Framing – COMMERCIAL & OTHER – BCA Class 2 to Class 9

TABLE 6.04 Territory Fixing Requirements for steel framing – based on wind pressures.

Design Wind Pressure (Ultimate) (kPa)	Minimum Fixing Requirements		
	Steel Frame Metal Thickness		
	0.55mm	0.75mm	1.15mm
1	Clips @ 600mm cts	Clips @ 600mm cts	Clips @ 600mm cts
1.5	Clips @ 450mm cts	Clips @ 600mm cts	Clips @ 600mm cts
2	Clips @ 300mm cts	Clips @ 600mm cts	Clips @ 600mm cts
2.5	NA	Clips @ 450mm cts	Clips @ 600mm cts
3	NA	Clips @ 300mm cts	Clips @ 450mm cts
3.3	NA	Clips @ 300mm cts	Clips @ 300mm cts

Note: Where Rigid Air Barrier is used, closer stud centres may apply. Refer to Tables 6.09 and 6.10.



SYSTEM ENGINEERING

Masonry Substrates

Masonry wall must be structural and constructed from brick, concrete or concrete block in accordance with the relevant building codes. It is important the wall is plumb and true. Note the H515 Top Hat will not cater for much variation across the plane of the surface. Masonry fasteners must be designed by the project engineer.

Masonry – Residential – BCA Class 1 and Class 10

TABLE 6.05

Wind Classification (AS 4055)	PANEL ZONE Minimum Fixing Requirements for areas greater than 1200mm from an external building corner	CORNER ZONE Minimum Fixing Requirements for areas less than 1200mm from an external building corner
N1	Clips @ 600mm cts	Clips @ 600mm cts
N2	Clips @ 600mm cts	Clips @ 600mm cts
N3/C1	Clips @ 600mm cts	Clips @ 600mm cts
N4/C2	Clips @ 600mm cts	Clips @ 450mm cts

Maximum H515 Top Hat spacing as per clip fixing centres.

Masonry – COMMERCIAL – BCA Class 2 to Class 9

TABLE 6.06

Design Wind Pressure (Ultimate) (kPa)	Minimum Fixing Requirements (Top Hats & Clip)
1	Clips @ 600mm cts
1.5	Clips @ 600mm cts
2	Clips @ 600mm cts
2.5	Clips @ 600mm cts
3	Clips @ 450mm cts
3.3	Clips @ 300mm cts

Maximum H515 Top Hat spacing as per clip fixing centres.

SYSTEM ENGINEERING



Rigid Air Barrier Design

Rigid air barrier sheet installed in the vertical direction

TABLE 6.07

Wind Classification	Stud Centres (mm)	
	Panel Zone	Corner Zone
N1	600	600
N2	600	600
N3/C1	600	450
N4/C2	600	400
N5/C3	450	300
N6/C4	450	300

Note: for specific installation information, refer to the Cemintel Air Barrier Design and Installation Guide

Rigid air barrier sheet installed in the horizontal direction

TABLE 6.08

Wind Classification	Stud Centres (mm)	
	Panel Zone	Corner Zone
N1	600	600
N2	600	600
N3/C1	600	600
N4/C2	600	450
N5/C3	450	400
N6/C4	450	300

Note: for specific installation information, refer to the Cemintel Air Barrier Design and Installation Guide

Rigid air barrier sheet installed in the vertical direction

TABLE 6.09

Stud Centres (mm)	Wind Loading (Ultimate) (kPa)
600	1.61
450	2.86
400	3.62
300	6.0

Note: for specific installation information, refer to the Cemintel Air Barrier Design and Installation Guide

Rigid air barrier sheet installed in the horizontal direction

TABLE 6.10

Stud Centres (mm)	Wind Loading (Ultimate) (kPa)
600	1.97
450	3.51
400	4.94
300	7.0

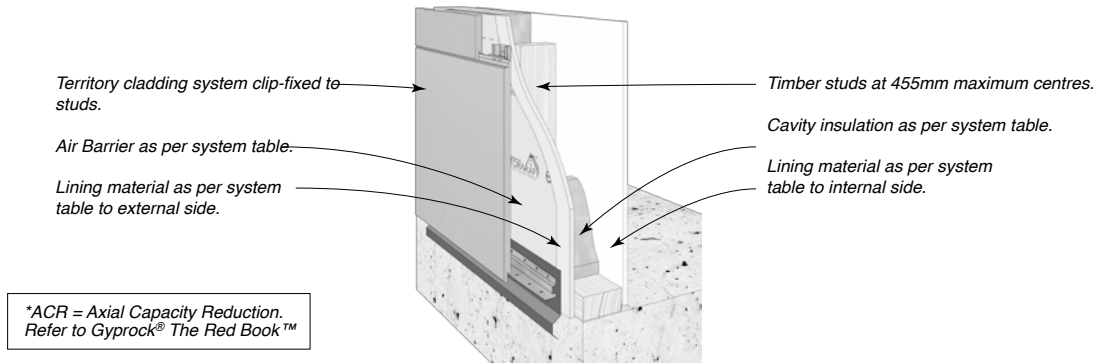
Note: for specific installation information, refer to the Cemintel Air Barrier Design and Installation Guide

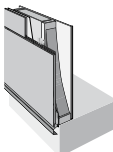
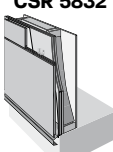





SYSTEM ENGINEERING

Fire & Thermal Solutions

TABLE 6.11 Timber Frame Wall



SYSTEM SPECIFICATION								
FRL Report/ Opinion	SYSTEM NO	WALL LININGS	STUD DEPTH mm	90	THERMAL*			
			CAVITY INFILL (Refer to Section B)	Enviroseal		Wall Wrap XP		
				Rt(SUM)	Rt(WIN)	Rt(SUM)	Rt(WIN)	
- / - / -	CSR 5828 	EXTERNAL WALL SIDE • Nil INTERNAL WALL SIDE • 1 x 10mm Gyprock Plus Plasterboard.	(a) 75 Gold Batts R1.5		1.8	1.9	1.8	1.9
			(b) 90 Gold Batts R2.0		2.1	2.3	2.1	2.3
			(c) 90 Gold Batts R2.5		2.6	2.8	2.6	2.8
			Wall Thickness mm	131				
90/90/90 (from outside only) FAR2303	CSR 5832 	EXTERNAL WALL SIDE • 2 x 13mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 10mm CeminSeal Wallboard.	(a) 75 Gold Batts R1.5		1.9	2.1	1.9	2.1
			(b) 90 Gold Batts R2.0		2.3	2.5	2.3	2.5
			(c) 90 Gold Batts R2.5		2.7	3.0	2.7	3.0
			Wall Thickness mm	157				
30/30/30 (from outside only) FAR2303	CSR 5835 	EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 6mm CeminSeal Wallboard.	(a) 75 Gold Batts R1.5		1.8	2.0	1.8	2.0
			(b) 90 Gold Batts R2.0		2.2	2.3	2.2	2.3
			(c) 90 Gold Batts R2.5		2.6	2.9	2.6	2.9
			Wall Thickness mm	143				
30/30/30 60/60/60* (from outside only) *ACR Group 2 FAR2303	CSR 5837 	EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 10mm Gyprock Plus Plasterboard.	(a) 75 Gold Batts R1.5		1.9	2.0	1.9	2.0
			(b) 90 Gold Batts R2.0		2.2	2.4	2.2	2.4
			(c) 90 Gold Batts R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	147				
30/30/30 60/60/60* (from outside only) *ACR Group 2 FAR2303	CSR 5838 	EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 10mm Gyprock Sensitive Plasterboard.	(a) 75 Gold Batts R1.5		1.9	2.0	1.9	2.0
			(b) 90 Gold Batts R2.0		2.2	2.4	2.2	2.4
			(c) 90 Gold Batts R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	147				

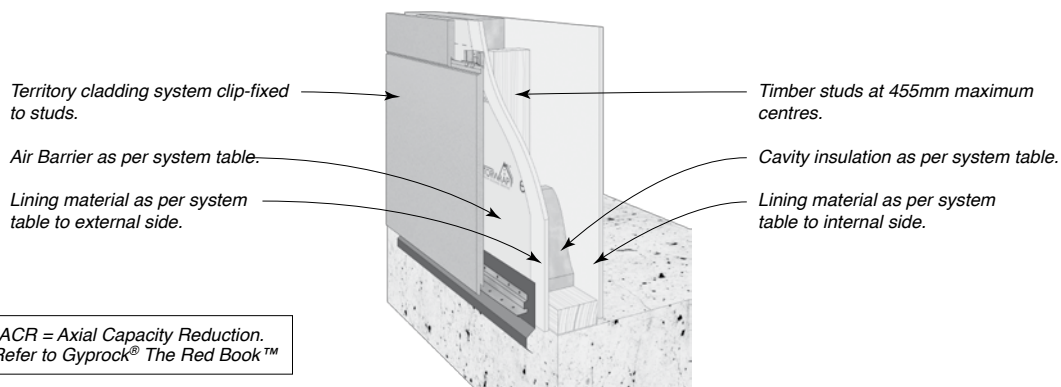
* The values presented are calculated through the wall with no thermal bridging paths. They may be used for comparative purposes only.



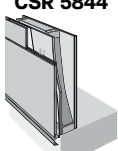

SYSTEM ENGINEERING



Fire & Thermal Solutions

TABLE 6.12 Timber Frame Wall



SYSTEM SPECIFICATION			STUD DEPTH mm		THERMAL*			
FRL Report/Opinion	SYSTEM NO	WALL LININGS	CAVITY INFILL (Refer to Section B)	90	Enviroseal		Wall Wrap XP	
					Rt(SUM)	Rt(WIN)	Rt(SUM)	Rt(WIN)
30/30/30 60/60/60* (from outside only) *ACR Group 2 FAR2303	CSR 5839 	EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 10mm Gyprock Aquacheck Plasterboard.	(a) 75 Gold Batts R1.5		1.9	2.0	1.9	2.0
			(b) 90 Gold Batts R2.0		2.2	2.4	2.2	2.4
			(c) 90 Gold Batts R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	147				
30/30/30 60/60/60* (from both sides) *ACR Group 2 FAR2303	CSR 5840 	EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 16mm Gyprock Soundcheck Plasterboard.	(a) 75 Acoustigard R1.7		1.9	2.0	1.9	2.0
			(b) 90 Acoustigard R2.2		2.2	2.4	2.2	2.4
			(c) 90 Acoustigard R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	147				
60/60/60 (from outside only) FAR2303	CSR 5844 	EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 6mm CeminSeal Wallboard (against frame)	(a) 75 Acoustigard R1.7		1.9	2.0	1.9	2.0
			(b) 90 Acoustigard R2.2		2.2	2.4	2.2	2.4
			(c) 90 Acoustigard R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	153				
60/60/60 90/90/90* (from both sides) *ACR Group 3 FAR2303	CSR 5848 	EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. • 1 x 6mm CeminSeal Wallboard. (against frame) INTERNAL WALL SIDE • 2 x 13mm Gyprock Fyrchek Plasterboard.	(a) 75 Acoustigard R1.7		2.0	2.1	2.0	2.1
			(b) 90 Acoustigard R2.2		2.3	2.5	2.3	2.5
			(c) 90 Acoustigard R2.5		2.8	3.0	2.8	3.0
			Wall Thickness mm	169				

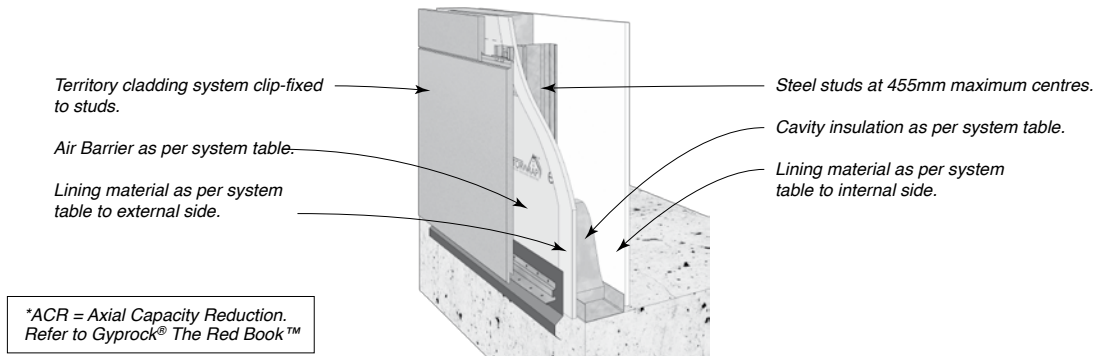
* The values presented are calculated through the wall with no thermal bridging paths. They may be used for comparative purposes only.

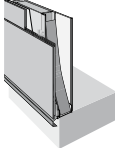



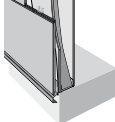


SYSTEM ENGINEERING

Fire & Thermal Solutions

TABLE 6.13 External Steel Frame Wall



SYSTEM SPECIFICATION								
FRL Report/ Opinion	SYSTEM No	WALL LININGS	STUD DEPTH mm	90	THERMAL*			
			CAVITY INFILL (Refer to Section B)	Enviroseal		Wall Wrap XP		
				Rt(SUM)	Rt(WIN)	Rt(SUM)	Rt(WIN)	
- / - / -	CSR 5302 	EXTERNAL WALL SIDE • Nil INTERNAL WALL SIDE • 1 x 10mm Gyprock Plus Plasterboard.	(a) 75 Acoustigard R1.7		2.0	2.1	2.0	2.1
			(b) 90 Acoustigard R2.2		2.3	2.5	2.3	2.5
			(c) 90 Acoustigard R2.5		2.6	2.8	2.6	2.8
			Wall Thickness mm	131				
30/30/30 (from outside only) FAR2357	CSR 5305 	EXTERNAL WALL SIDE • 1 x 13mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 10mm Gyprock Plus Plasterboard.	(a) 75 Acoustigard R1.7		2.1	2.2	2.1	2.2
			(b) 90 Acoustigard R2.2		2.4	2.6	2.4	2.6
			(c) 90 Acoustigard R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	144				
30/30/30 60/60/60* (from both sides) *ACR 15% FAR2357	CSR 5308 	EXTERNAL WALL SIDE • 1 x 13mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 13mm Gyprock Fyrchek Plasterboard.	(a) 75 Acoustigard R1.7		2.1	2.2	2.1	2.2
			(b) 90 Acoustigard R2.2		2.4	2.6	2.4	2.6
			(c) 90 Acoustigard R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	147				
30/30/30 60/60/60* (from outside only) *ACR 5% FAR2357	CSR 5315 	EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 10mm Gyprock Plus Plasterboard.	(a) 75 Acoustigard R1.7		2.1	2.2	2.1	2.2
			(b) 90 Acoustigard R2.2		2.4	2.6	2.4	2.6
			(c) 90 Acoustigard R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	147				
30/30/30 60/60/60* (from outside only) *ACR 5% FAR2357	CSR 5316 	EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 10mm Gyprock Sensitive Plasterboard.	(a) 75 Acoustigard R1.7		2.1	2.2	2.1	2.2
			(b) 90 Acoustigard R2.2		2.4	2.6	2.4	2.6
			(c) 90 Acoustigard R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	147				

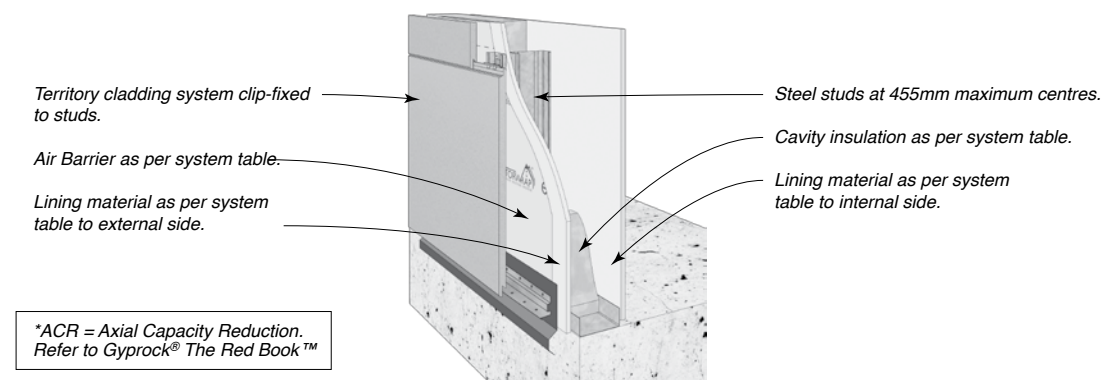
* The values presented are calculated through the wall with no thermal bridging paths. They may be used for comparative purposes only.

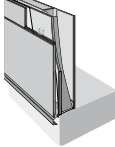
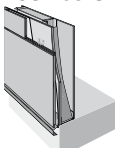
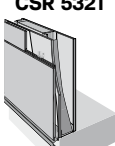

SYSTEM ENGINEERING



Fire & Thermal Solutions

TABLE 6.14 External Steel Frame Wall



SYSTEM SPECIFICATION								
FRL Report/ Opinion	SYSTEM No	WALL LININGS	STUD DEPTH mm	90	THERMAL*			
			CAVITY INFILL (Refer to Section B)	Enviroseal		Wall Wrap XP		
				Rt(SUM)	Rt(WIN)	Rt(SUM)	Rt(WIN)	
30/30/30 60/60/60* (from outside only) *ACR 5% FAR2357		EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 10mm Gyprock Aquacheck Plasterboard.	(a) 75 Acoustigard R1.7		2.1	2.2	2.1	2.2
			(b) 90 Acoustigard R2.2		2.4	2.6	2.4	2.6
			(c) 90 Acoustigard R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	147				
30/30/30 60/60/60* (from outside only) *ACR 5% FAR2357		EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 10mm Gyprock Soundchek Plasterboard.	(a) 75 Acoustigard R1.7		2.1	2.2	2.1	2.2
			(b) 90 Acoustigard R2.2		2.4	2.6	2.4	2.6
			(c) 90 Acoustigard R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	147				
60/60/60 90/90/90* (from both sides) *ACR 15% FAR2357		EXTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 16mm Gyprock Fyrchek Plasterboard.	(a) 75 Acoustigard R1.7		2.1	2.2	2.1	2.2
			(b) 90 Acoustigard R2.2		2.4	2.6	2.4	2.6
			(c) 90 Acoustigard R2.5		2.7	2.9	2.7	2.9
			Wall Thickness mm	153				
90/90/90 (from outside only) FAR2357		EXTERNAL WALL SIDE • 2 x 13mm Gyprock Fyrchek MR Plasterboard. INTERNAL WALL SIDE • 1 x 10mm Gyprock Plus Plasterboard.	(a) 75 Acoustigard R1.7		2.1	2.3	2.1	2.3
			(b) 90 Acoustigard R2.2		2.5	2.7	2.5	2.7
			(c) 90 Acoustigard R2.5		2.7	3.0	2.7	3.0
			Wall Thickness mm	157				

In Class 2 to 9 buildings, it may be a requirement to contain the spread of fire through a cavity. Cemintel recommends installing horizontal cavity barriers to reduce the risk of fire spread via the façade. Cavity barriers must not block water drainage or air flow paths.

It is the responsibility of the building designer to meet these requirements.

* The values presented are calculated through the wall with no thermal bridging paths. They may be used for comparative purposes only.



INSTALLATION

07

CHECKLIST – Prior to Installation

The following pre-install checklist may assist to ensure you have the best possible outcome when using Cemintel Territory.

- ☐ Ensure substrate is straight and plumb. Pack studs to straighten if necessary (timber frames as per AS 1684, steel frames as per AS/NZS 4600) industry best practice for frame tolerance is 5mm misalignment over 3000mm.
- ☐ Ensure studs are correctly located and of the appropriate thickness.
- ☐ Confirm bracing is in place. Where sheet bracing is used behind panels, the entire wall area needs to be braced or bracing sheet packers fixed to the frame to ensure a uniform fixing plane.
- ☐ Remove any concrete that may foul the cladding line, particularly at steps in slabs and isolated columns.
- ☐ Ensure there is adequate ground clearance to the bottom edge of the Territory 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.
- ☐ Confirm your panel layout to determine the location of joints and identify where additional studs are required.
 - If using pre-formed corners, studs need to be located to allow face fixing to support the corners.
 - Additional studs or blocking may be required for support and fixing of Territory joint backing strips at corners and junctions.
- ☐ Flashings, membranes and air barrier should be correctly installed, overlapped and taped at joints, prior to fixing panels. In the case of fixing to masonry, the top hats should be installed correctly. (Wall wrap/sarking is not required.)
- ☐ Install windows so that the back of the front face of the window (or any other protrusions including doors or meter boxes) will be flush with the face of the panels.
- ☐ Where there is no space to use a mounting clip along the bottom and top edge of the window, tack a horizontal green spacer to provide a firm surface for the cladding panel to maintain its position.
- ☐ Fit Head flashings over windows, doors and other penetrations.
- ☐ Confirm the chosen eaves/soffit details and prepare accordingly.
- ☐ Consider the need for structural support for fixtures such as pergolas and decking. No loads may be carried by the cladding.
- ☐ Confirm membranes and flashings for deck areas have been installed in accordance with manufacturers' specifications.
- ☐ Arrange for a pre-cladding inspection by the appropriate local building authority if required.



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



Installation Set-Out

Timber Framing

Vertical panel installation requires a square vertical edge to the panel at junctions with a Territory pre-formed corner or metal corner trim, at internal corners and at junctions with masonry or other wall systems. This requires removal of the tongue or groove from one edge of the end panels. These panels can be trimmed to between 200mm and 430mm nominal cover. These panel widths should be considered when panel joint location is important for aesthetics. See Fig. 7.01 and 7.02.

Panel Fixing

All face fixings must be backed and supported by the Territory 15mm spacer.

Panels must be fixed to the structural framing along trimmed panel edges with Territory 75mm nails at 20-35mm from the panel edge for timber framing or with Territory 55mm screws at 30-40mm from the panel edge for steel framing. Fasteners are to be placed at the same maximum spacings as specified for clips.

FIGURE 7.01 Non-symmetrical Panel Set-Out

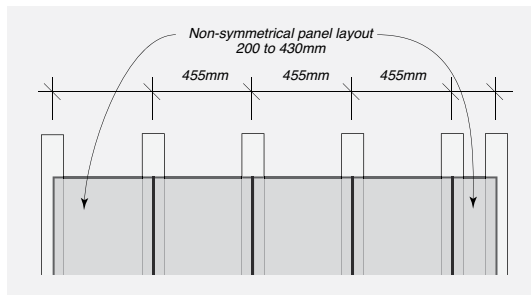
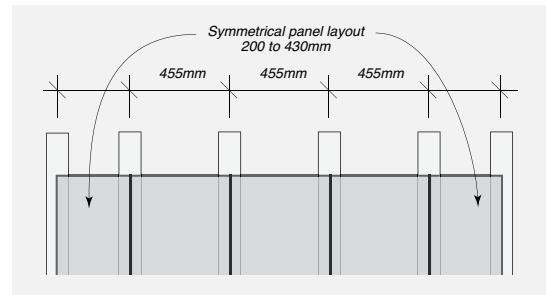


FIGURE 7.02 Symmetrical Panel Set-Out



Note: For framing other than 455mm centres, horizontal structure members can be used (eg. top hats and additional timber framing). Contact DesignLink for further information.

INSTALLATION

07

Timber Framing

All framing must be in accordance with the following AS 1684 – Residential Timber-Framed Construction.

Standard framing techniques are appropriate for the vertical panel system.

FIGURE 7.03 Typical Framing Set-Out with 90mm Timber Framing and Territory Pre-formed Corners – Plan View

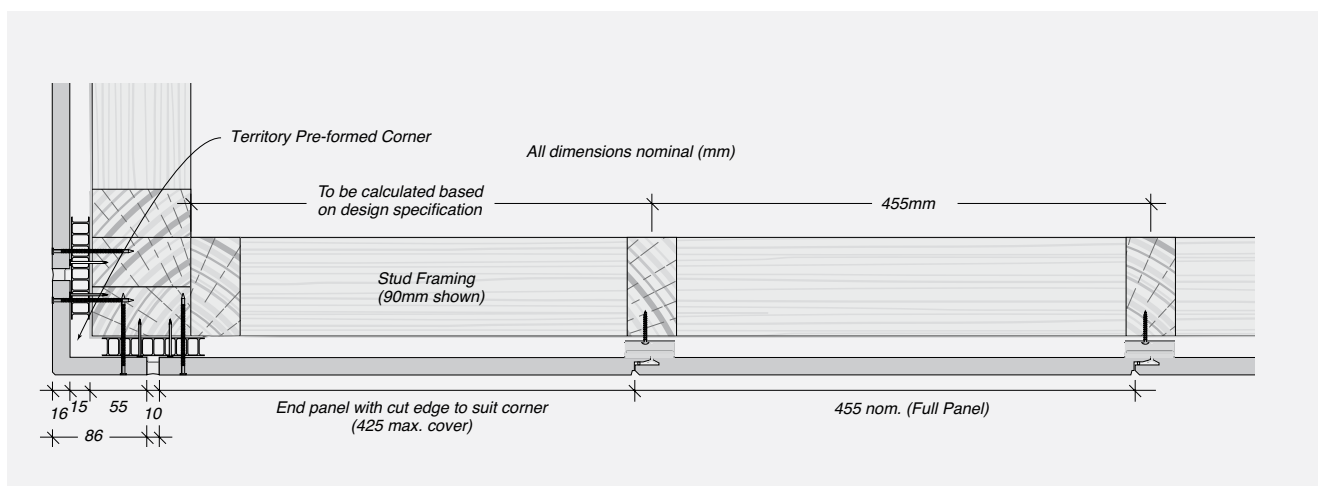


FIGURE 7.04 Typical Framing Set-Out with 70mm Timber Framing and Territory Pre-formed Corners – Plan View

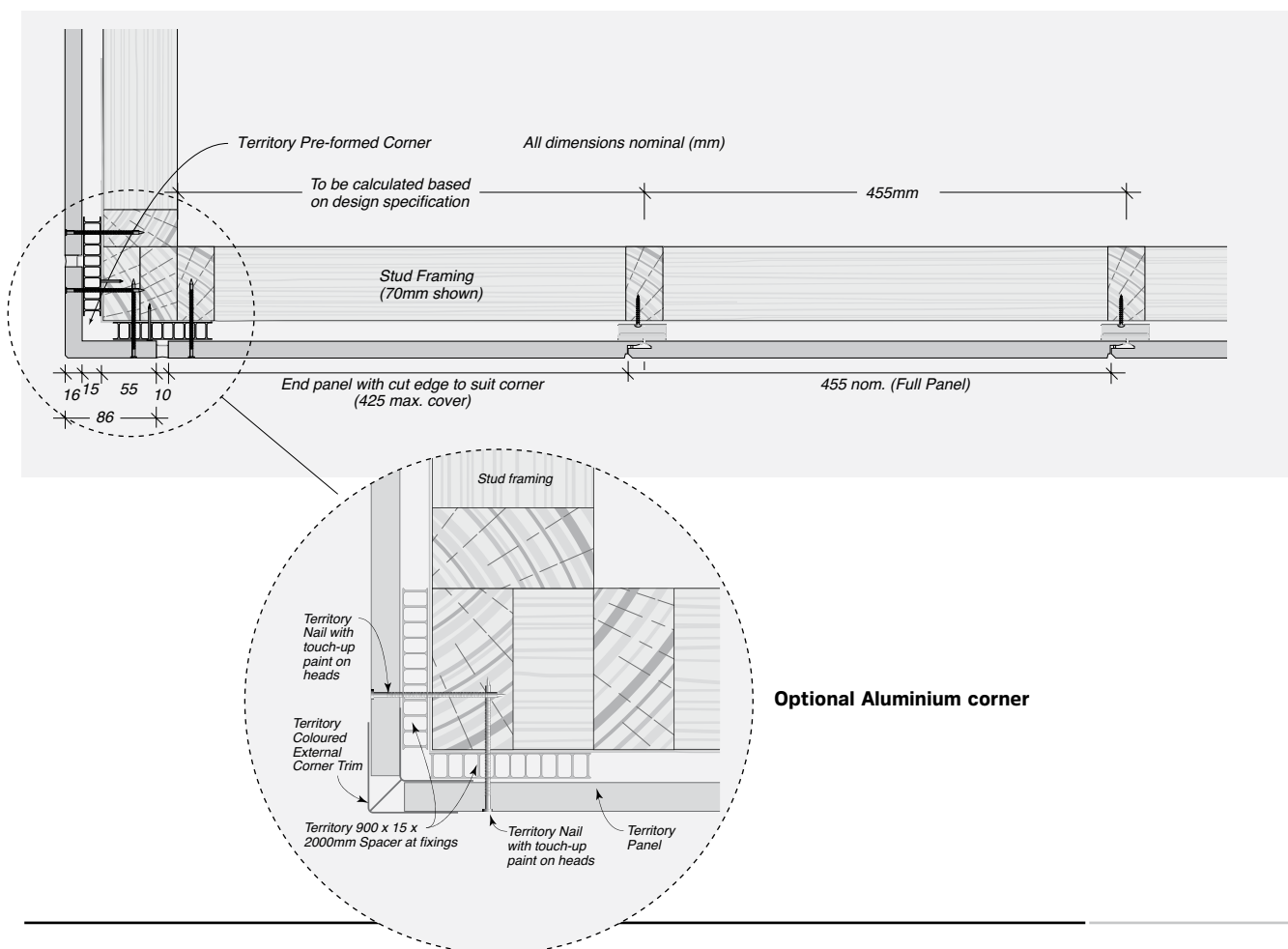


FIGURE 7.05 Typical Territory System Cross Section - Elevation

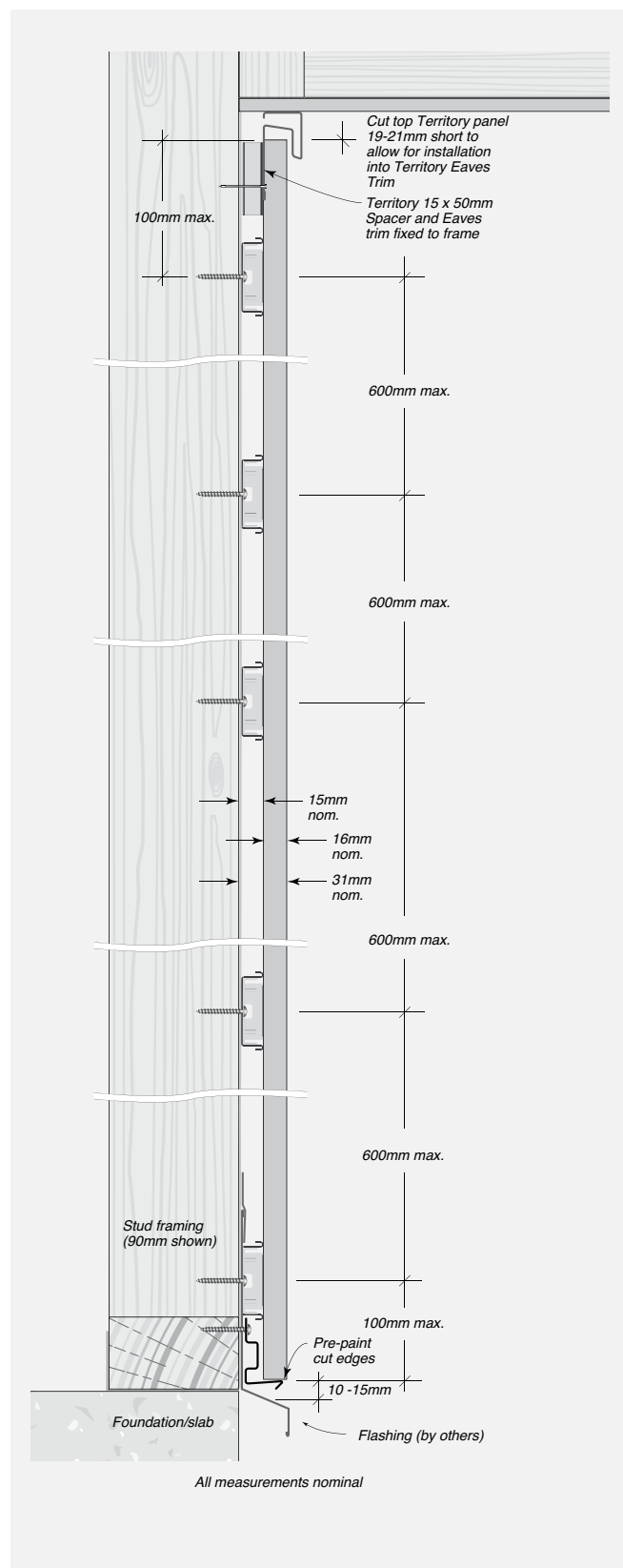
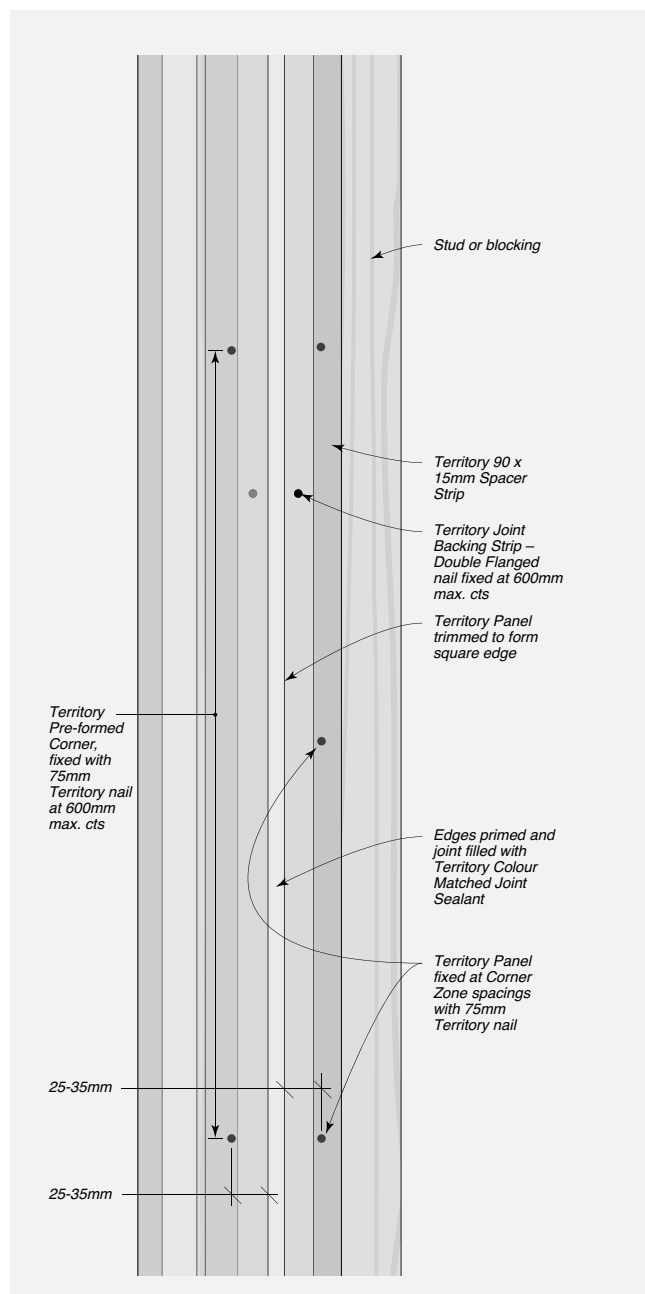


FIGURE 7.06 Typical Face Nailing at Square Edge Joint - Elevation



INSTALLATION

07

Steel Framing

Steel framing must be in accordance with AS/NZS4600 – Cold-Formed Steel Structures.

FIGURE 7.07 Typical Framing Set-Out with 90mm Steel Framing and Territory Pre-formed Corners – Plan View

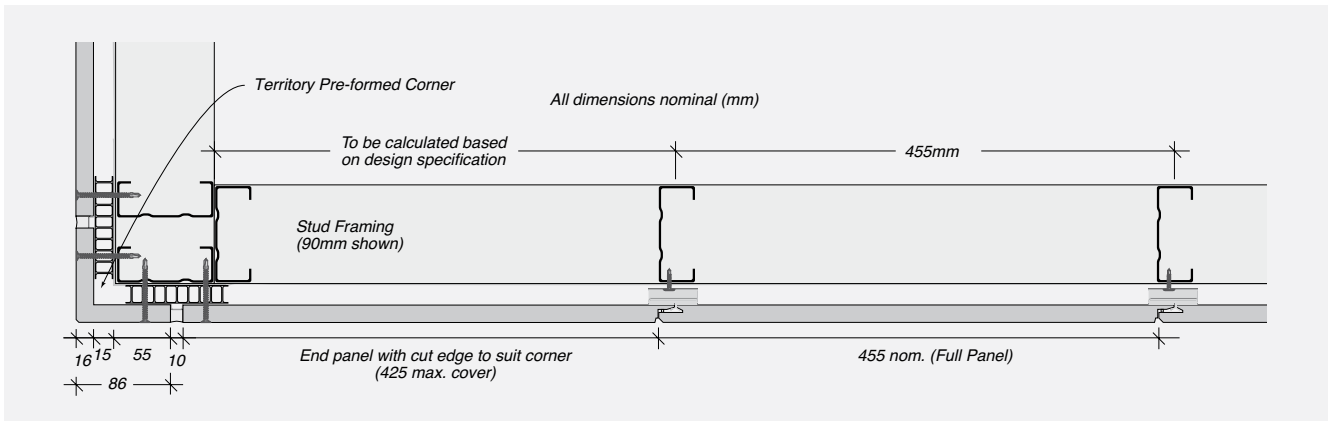


FIGURE 7.08 Typical Framing Set-Out with 75mm Steel Framing and Territory Pre-formed Corners – Plan View

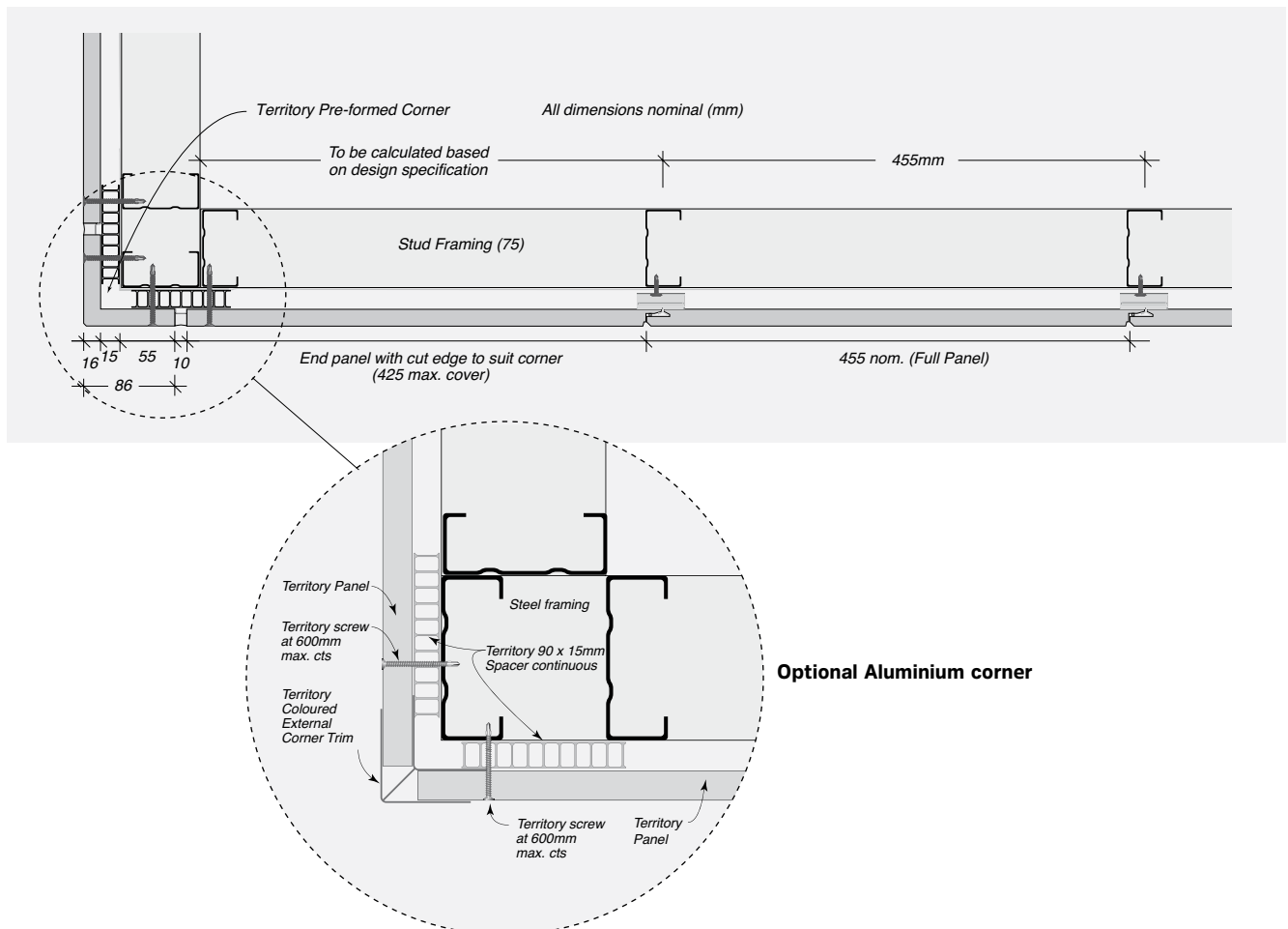


FIGURE 7.09 Typical Territory System Cross Section for Steel Framing – Elevation

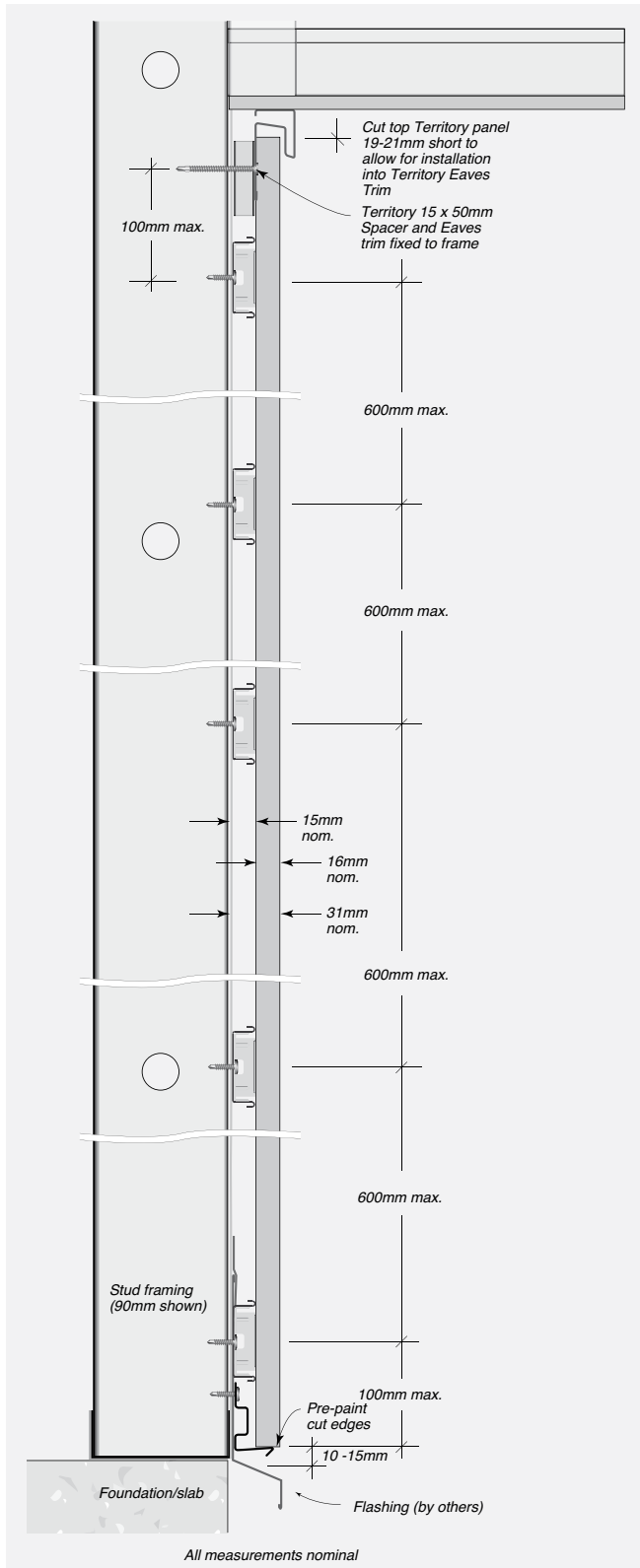
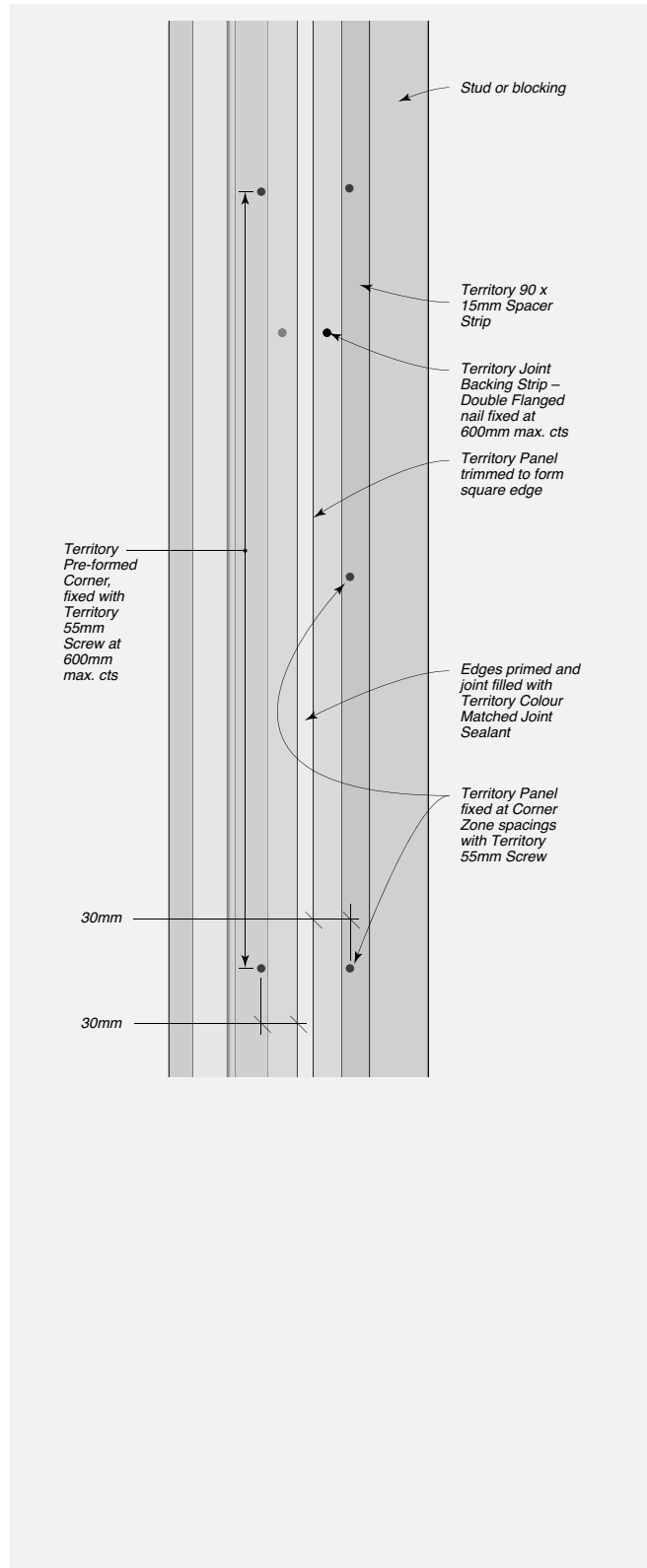


FIGURE 7.10 Typical Territory System Cross Sectional Detail for Steel Framing where Face Fixing is required – Elevation

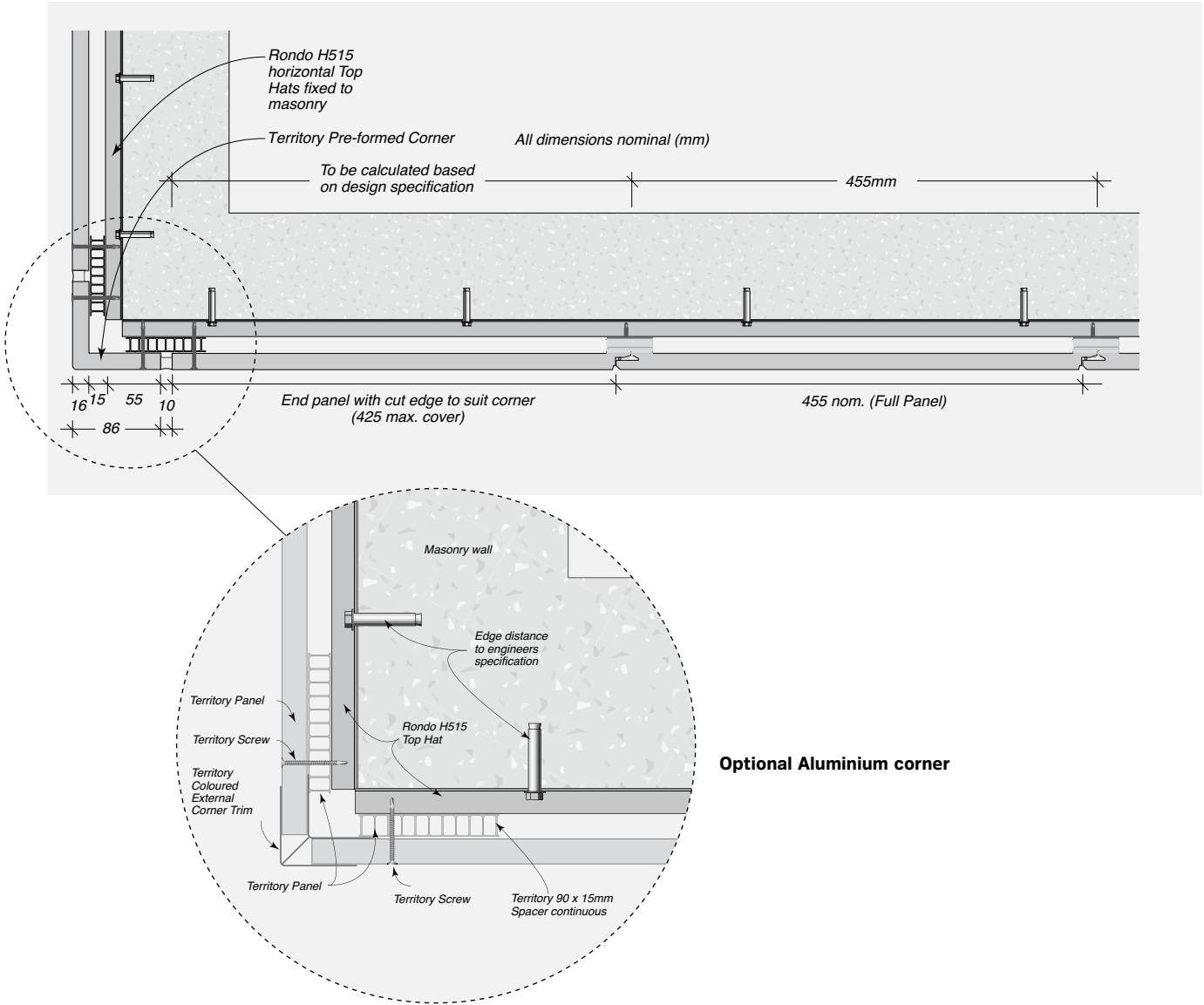


INSTALLATION

07

Masonry Framing

FIGURE 7.11 Typical Set-Out with H515 Top Hat Framing and Territory Pre-Formed Corners – Plan View



07

INSTALLATION

Masonry Framing

FIGURE 7.12 Typical Masonry Territory System Cross Section – Elevation

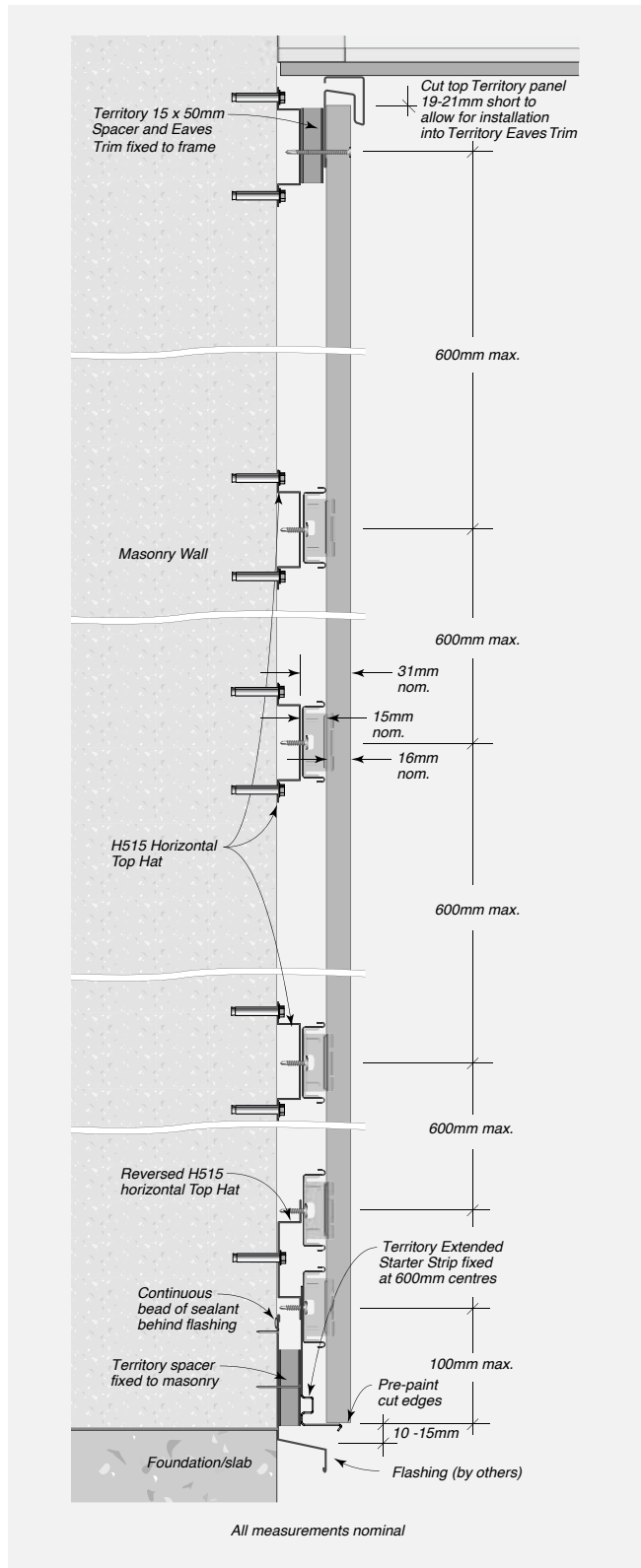


FIGURE 7.13 Typical Face Fastening at Square Edge Joint – Elevation

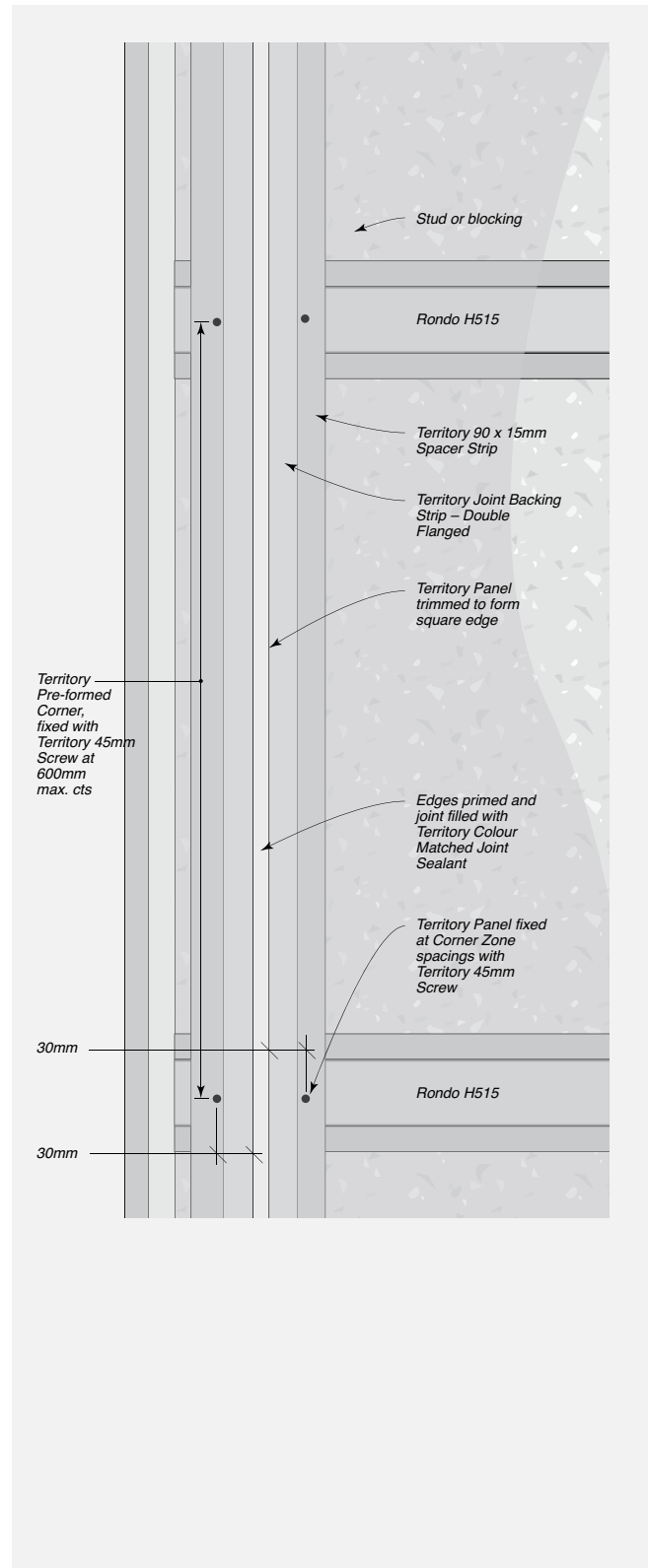
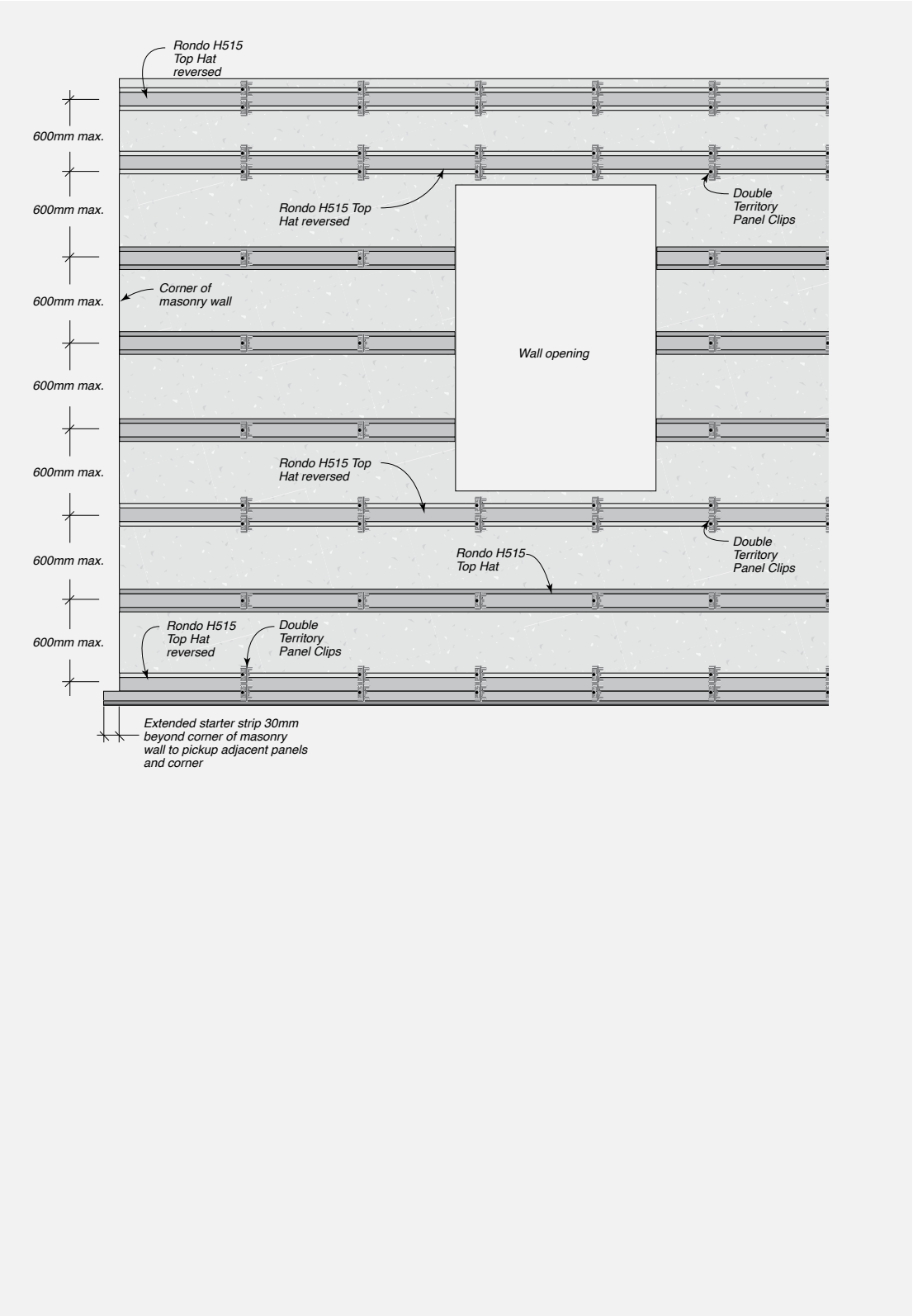


FIGURE 7.14 Masonry Overview – Detail



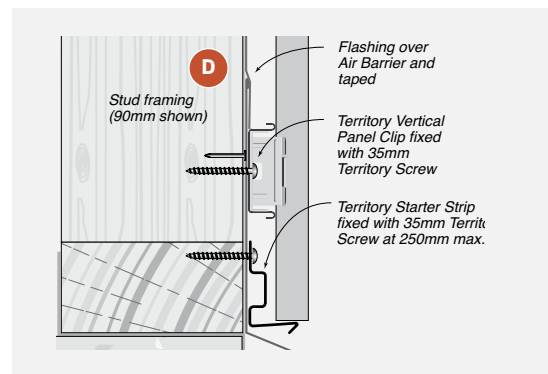
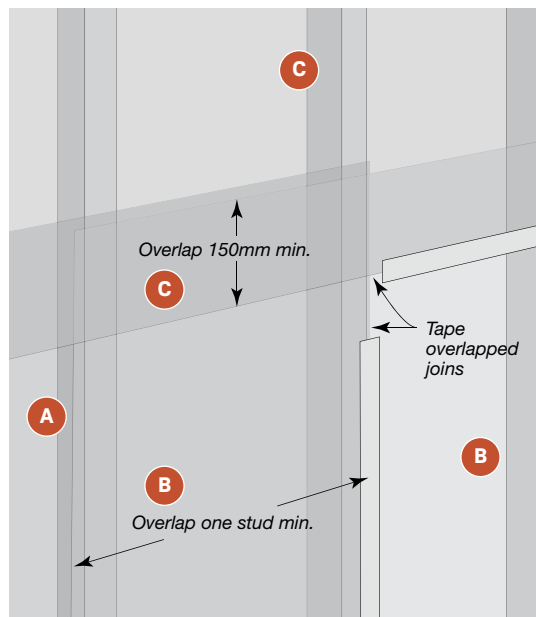
Installation for Timber and Steel Framing

Refer to 'System Engineering' and 'Construction Drawings and Details' sections for specific fixing information.

Installation of Wall Wrap

(Note – where installing Rigid Air Barrier, refer to Cemintel's Air Barrier Design and Installation Guide for installation details)

- A** Fix wall wrap to outside face of wall framing using double sided tape, staples or other approved methods (refer to manufacturer's instructions). If the membrane is used to provide a continuous air tight layer, all overlaps and penetrations should be sealed with tape.
- B** Vertical laps (including corners) should overlap by one stud spacing minimum and should be staggered between adjacent layers.
- C** Upper layers should overlap lower layers by 150mm minimum to ensure that water is always shed towards the outside of the membrane and building.
- D** Horizontal flashings such as at the head of doors and windows, horizontal storey junctions and at the wall base (when used) must be taped to the wall wrap to ensure water is always shed towards the outside.



INSTALLATION

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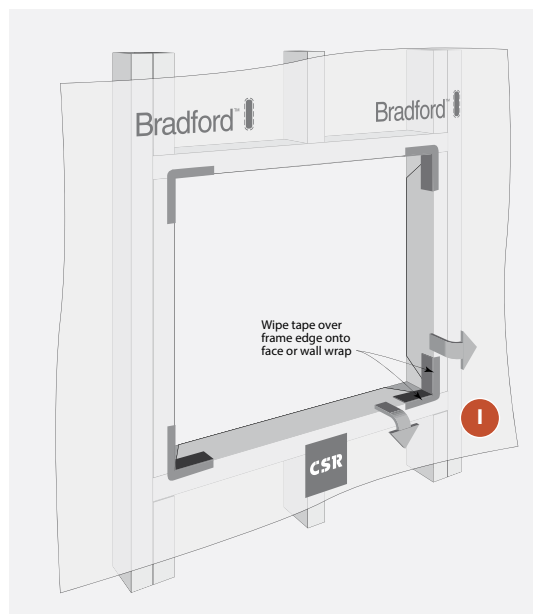
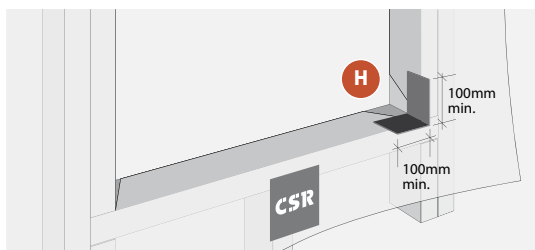
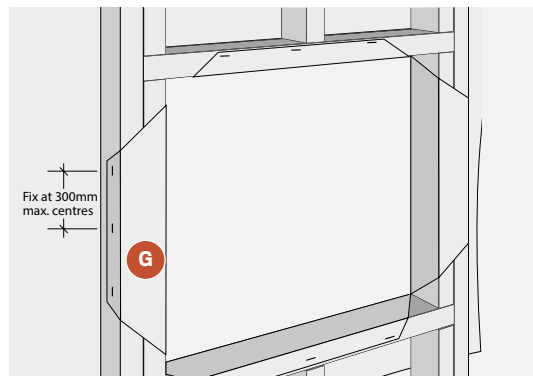
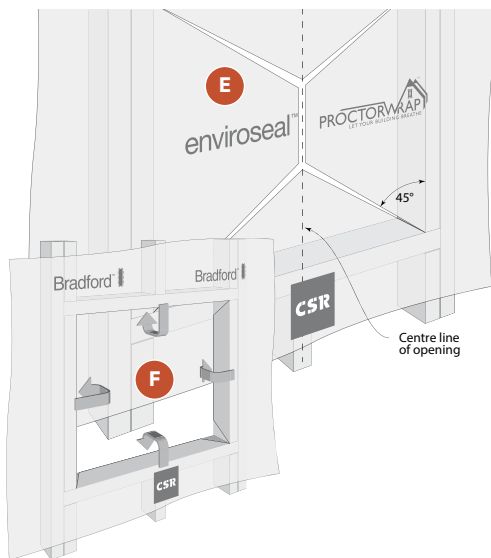
E At openings, slit the sarking at 45 degrees from each corner to the centreline. Slit the centreline to open the wrap.

F Wrap the tabs around the framing.

G Fix sarking to the rear of the framing with staples at 300mm maximum centres.

H Apply Wall Wrap tape to the corners of openings.

I Wipe tape over the frame edge onto the face of the wall wrap.



Installation of Territory Panels

Refer to 'System Engineering' and 'Construction Drawings and Details' sections for specific fixing information.

Step 1 – Fix base flashing to base of wall over air barrier (wrap/sarking or Rigid Air Barrier), taping top edge of flashing to Air Barrier.

Step 2 – Install vertical starter strip to the base of the wall. The panels need to be positioned to clear the flashings by 10-15mm (or in the case of working from ground level, to the minimum height the local building regulations specify).

Fasten the starter strip level along the whole length of the strip to the base plate/studs. It is critical to ensure the starter strip is fitted level.

Step 3 – Install spacers and joint backing strips.

Install vertical spacers and joint backing strips at all vertical joint locations (this includes where panel meets pre-formed corners and at internal corners).

Step 4 – Prepare soffit. Fix a strip of horizontal spacer (or cut to a minimum length of 200mm at each stud) below the eaves to maintain the 15mm cavity. Allow a small amount of space at the top to allow for ventilation. Fix the eaves corner piece. Slide the eaves trim into the eaves corner piece. Install the eaves trim hard against the eaves or soffit and fix through the spacer onto each stud.

In the case of a backing strip being located on a stud, notch the back of the eaves trim so as to fit over the backing strip.

Step 5 – Install corners.

A. If installing prefinished corners, face fixing is required. The prefinished corner will need to be cut 5-10mm shorter than the height of the eaves trim to allow lifting and positioning onto starter strip. Predrill nail holes through the prefinished corner. Fasteners should be located 20-35mm from panel edges for timber frames or 30-40mm for steel frames. Slide the corner piece down the corner and over the starter strip and fix. It is important to ensure that corner piece is square on both sides. If the corner is not square, pack out.

B. If installing aluminium corners, cut to length remembering to deduct the height measurement of the eaves trim. Notch out to extend over the starter strip. Allow a small amount of space at the top to allow for ventilation. Fix the eaves corner piece. Then, ensuring the aluminium corner trim is level, nail or screw it through the spacer to the frame. The wall panel should fit into the corner trim channel and slide down onto starter strip.

Step 6 – Install wall panels. When cutting panels it is important that any cut edges are sealed with Cemintel's recommended edge sealant to protect against moisture entering the panels. Panels will need to be cut 5-10mm shorter than the height of the eaves trim to allow lifting and positioning onto the starter strip. Place the first wall panel over the starter bar and slide into place. Face fixing is required at corners. Position vertical panel clip firmly over tongue and groove edge of panels at every stud, tap into place and screw to stud. Pack out the clips if necessary to ensure a uniform fixing plane. We recommend consulting a local building surveyor regarding appropriate materials for packing. Continue to install panels, positioning onto starter strip, sliding onto secured clip and repeat. Where face fixing may be required, a strip of Spacer (cut to a minimum length of 200mm) should be positioned between the panel and the frame, thus maintaining the 15mm cavity.

Step 7 – Caulk all expansion joints. Apply masking tape to each side of the vertical joints and at the base. Paint the edges of the panels with the primer. This helps the sealant adhere to the panels. Wait at least 30 minutes but no more than 6 hours to apply the sealant. Smooth off the finish removing excess sealant. Carefully remove masking tape in accordance with manufacturer's instructions.

CARE NEEDS TO BE TAKEN NOT TO GET SEALANT ON PANELS as this can result in marks and stains.

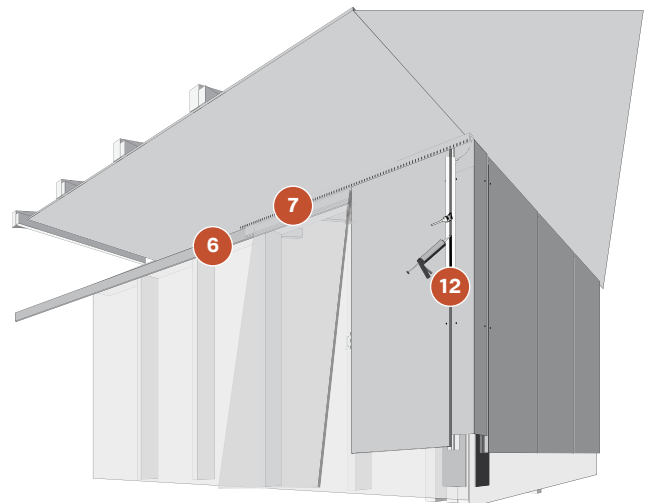
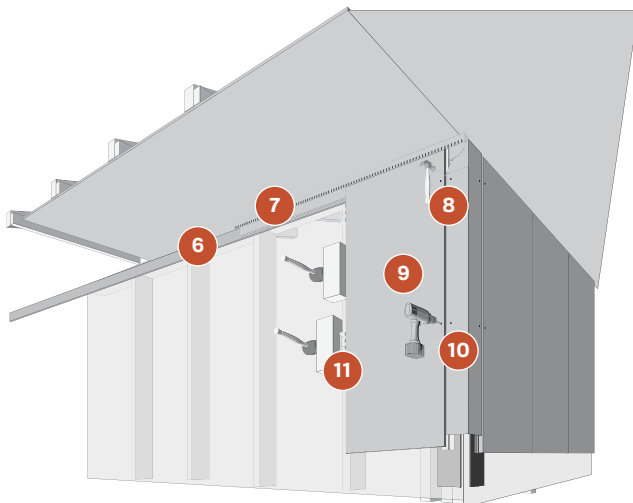
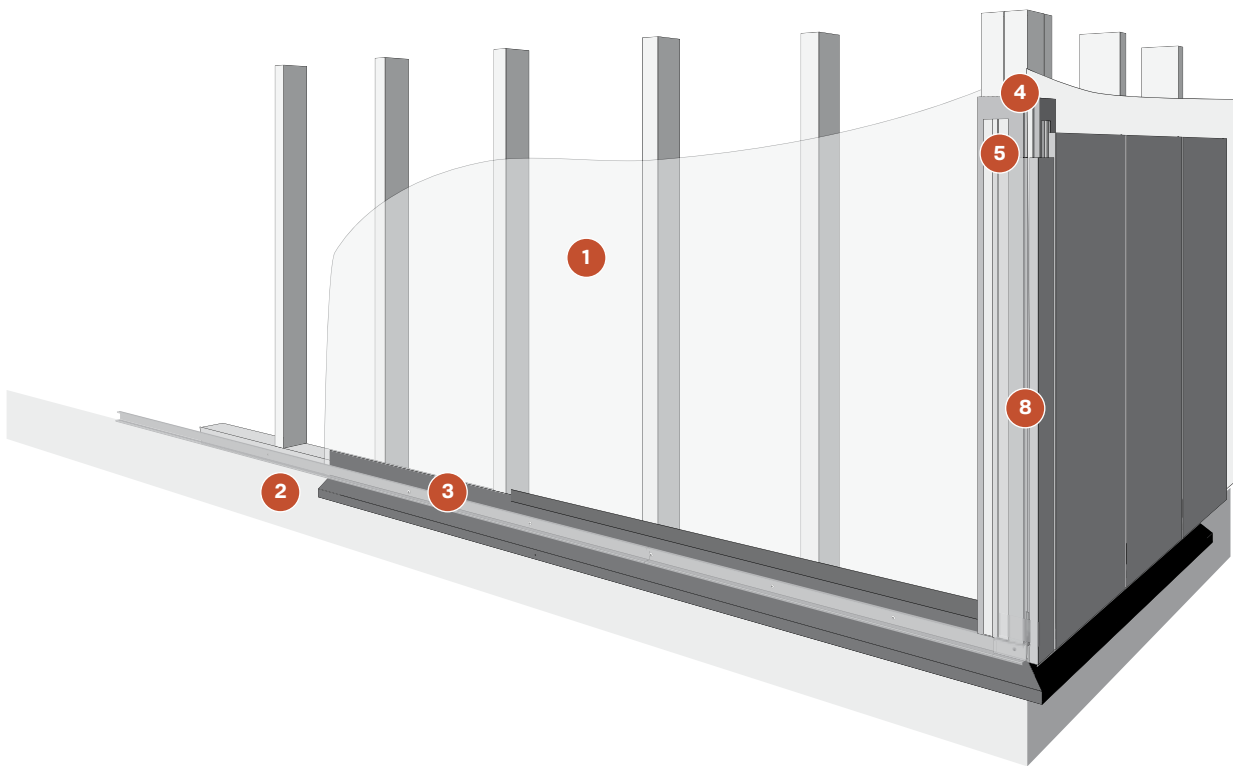
Install sealant to gaps at windows and other penetrations.

Step 8 – Touch up any exposed fasteners. Wipe panels down with a damp cloth and touch up any exposed nail or screw heads with matching touch up paint.

INSTALLATION

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- 1 Air barrier
- 2 Base flashing
- 3 Vertical starter strip
- 4 Vertical spacer
- 5 Joint backing strip (double flange)
- 6 Horizontal spacer
- 7 Eaves trim
- 8 Preformed vertical corner (face fixed)
- 9 Vertical panel
- 10 Face fixing
- 11 Vertical panel clip
- 12 Mask and prime edges



Installation for Masonry

Refer to 'System Engineering' and 'Construction Drawings and Details' sections for specific fixing information.

Note that Masonry structures are potentially more likely to be out of plumb. The Top Hat installation detailed in this Guide only allows for a small variation in the surface plane and industry best practice for frame tolerances of 5mm misalignment over 3000mm should be followed. Careful assessment should be undertaken to determine if this solution is appropriate for the specific situation.

Step 1 – Fix base flashing to base of wall with a continuous bead of sealant behind the flashing. Note: other flashings must also be installed prior to installation of H515 Top Hats.

Step 2 – Install H515 Top Hats horizontally at maximum 600mm centres. To account for minimum edge distance of masonry fixings, install Top Hats in reverse at base, head and openings.

Step 3 – Install extended starter strip. Install continuous horizontal spacer directly to the base of the masonry wall. Install the extended starter strip to the base of the wall by fastening into the bottom leg of the reversed H515 Top Hat. Screw x at 600mm centres. Ensure 10-15mm clearance between base flashing and bottom edge of panel. If the wall has external corners, starter strip needs to be extended 30mm beyond the end of the wall to accommodate the cavity (H515 and clips) of the adjacent wall. Note: all extended starter strips are required to be backed by continuous horizontal spacers. Other locations include window heads and horizontal control joints.

Step 4 – Install joint backing strips. Install joint backing strips at all vertical joint locations.

Step 5 – Prepare soffit. Fix a continuous strip of horizontal spacer across the head of the wall on the H515 Top Hat below the eaves or soffit to maintain the 15mm cavity. Allow a small amount of space at the top to allow for ventilation. Fix the eaves corner piece. Slide the eaves trim into the eaves corner piece. Install the eaves trim hard against the eaves or soffit and fix through the spacer into Top Hat. In the case of a backing strip, notch the back of the eaves trim so as to fit over the backing strip.

Step 6 – Install corners.

A. If installing prefinished corners, face fixing is required. Corner will need to be cut 5-10mm shorter than the height of the eaves trim to allow lifting and positioning onto starter strip. Predrill nail holes through the prefinished corner. Fasteners should be located 30-40mm from edge of prefinished corners. Slide the corner piece down the corner and over the starter strip and fix. It is important to ensure that the corner piece is square on both sides. If the corner is not square, pack out.

B. If installing aluminium corners, cut to length remembering to deduct the height measurement of the eaves trim. Notch out to extend over the starter strip. Allow a small amount of space at the top to allow for ventilation. Fix the eaves corner piece. Then, ensuring the aluminium corner trim is level, screw it through the spacer to the frame.

The wall panel should fit into the corner trim channel and slide down onto starter strip.

Step 7 – Install wall panels. When cutting panels it is important that any cur edges are sealed with Cemintel's edge sealer to protect against moisture entering the panels. Panels will need to be cut 5-10mm shorter than the height of the eaves trim to allow lifting and positioning onto the starter strip. Place the first wall panel over the starter strip and slide into place. Face fixing is required at corners and at eaves. Position vertical panel clip firmly over tongue and groove of edge panel, tap into place and screw to H515 Top Hat with 12mm Territory screw. Pack out the clips if necessary to ensure a uniform fixing plane. We recommend consulting the local builder surveyor regarding the appropriate materials for packing.

Continue to install panels, positioning onto starter strip, sliding onto secured clip and repeat. Where face fixing maybe required, a strip of spacer (cut to a minimum length of 200mm) should be positioned between the panel and the frame, thus maintaining the 15mm cavity.

Step 8 – Caulk all expansion joints. Apply masking tape to each side of the vertical joints and at the base. Paint the edges of the panels with the primer. This helps the sealant adhere to the panels. Wait at least 30 minutes but no more than 6 hours to apply the colour matched sealant. Smooth off the finish removing excess sealant. Carefully remove masking tape in accordance with manufacturer's instructions. CARE NEEDS TO BE TAKEN NOT TO GET SEALANT ON PANELS as this can result in marks and stains.

Install sealant to gaps at windows and other penetrations.

Step 9 – Touch up any exposed fasteners. Wipe panels down with a damp cloth and touch up any exposed nail or screw heads with matching touch up paint.



CONSTRUCTION
DRAWINGS + DETAILS



CONSTRUCTION DRAWINGS AND DETAILS

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

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CONSTRUCTION DRAWINGS AND DETAILS



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

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CONSTRUCTION DRAWINGS AND DETAILS

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

GENERAL – Base Details

FIGURE 8.01 Base Detail – 90mm Framing

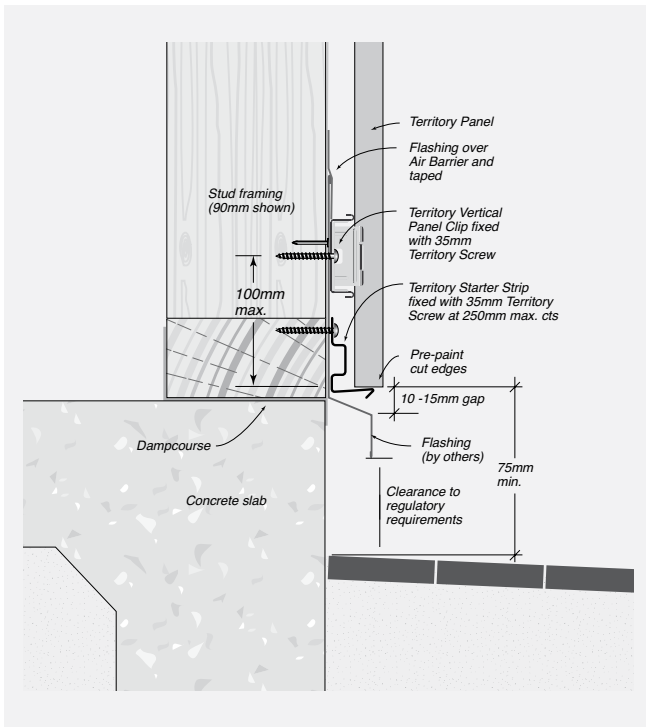


FIGURE 8.02 Base Detail – 70mm Framing

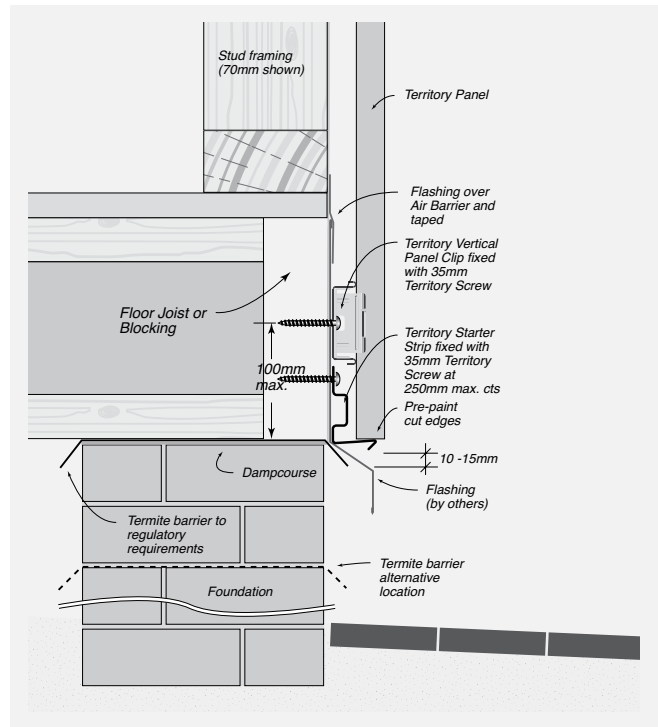


FIGURE 8.03 Second Storey Junction with Masonry, Brick Veneer or Hebel Panels – Cantilevered Framing

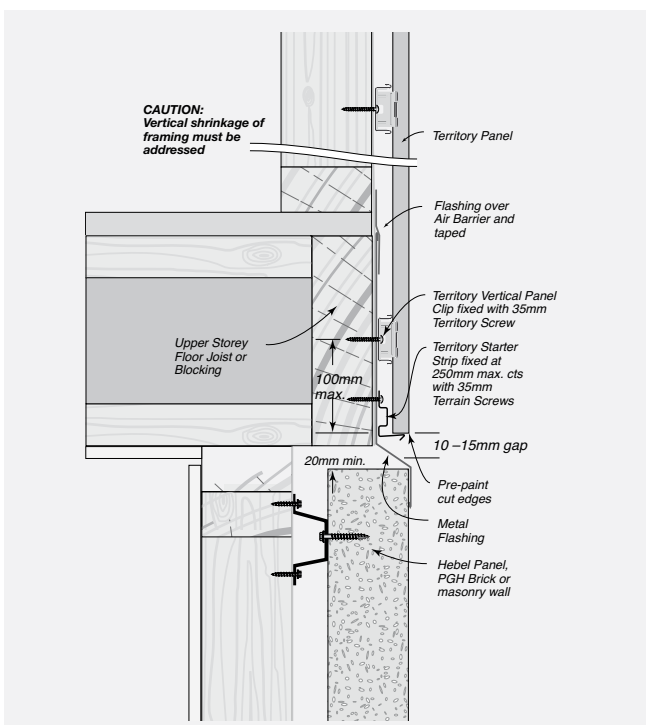
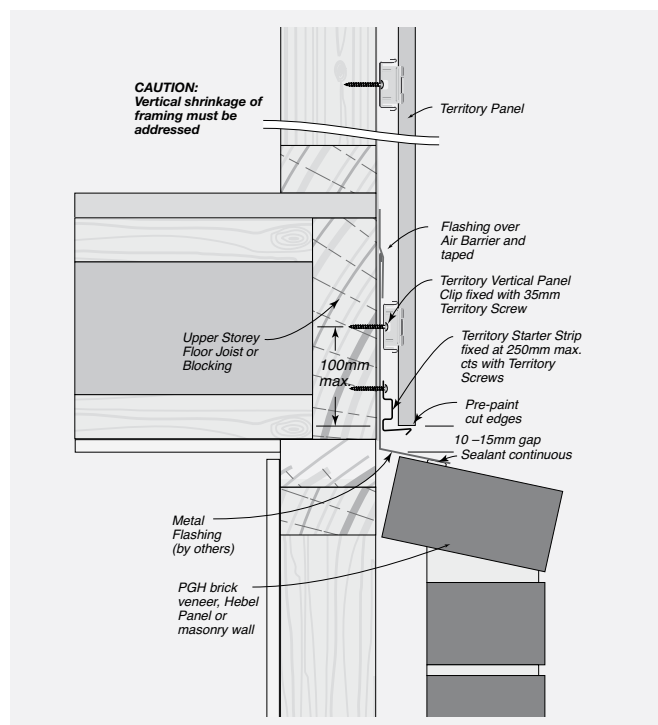


FIGURE 8.04 Second Storey Junction with Masonry, Brick Veneer or Hebel Panels – In-line Framing



CONSTRUCTION DRAWINGS AND DETAILS



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

GENERAL – Corner Details

FIGURE 8.05 External Corner Detail – With Preformed Corner

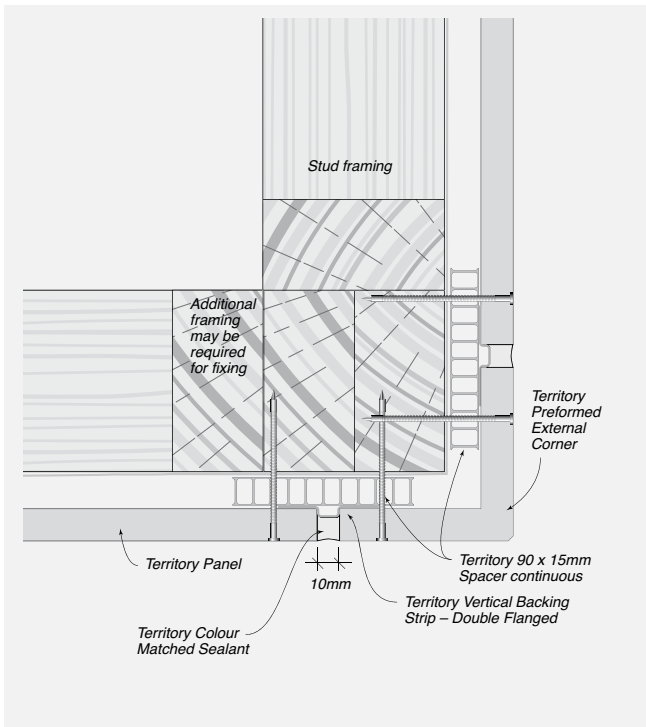


FIGURE 8.06 External Corner Detail – with Aluminium External Corner

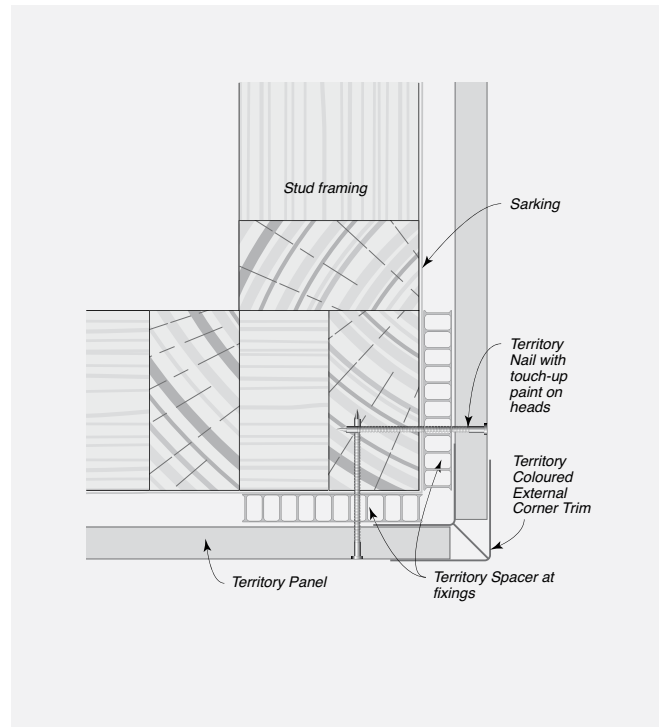


FIGURE 8.07 Internal Corner Detail – with Backing Strip and Colour Matched Sealant

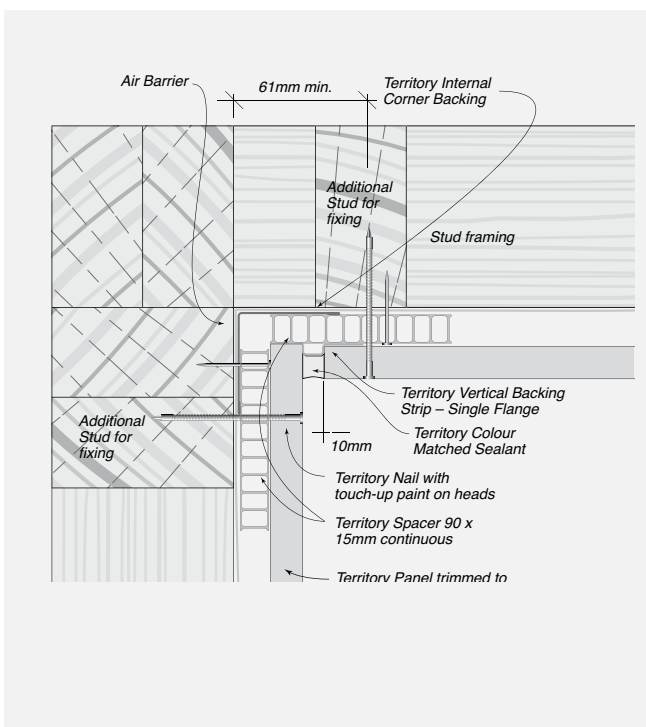
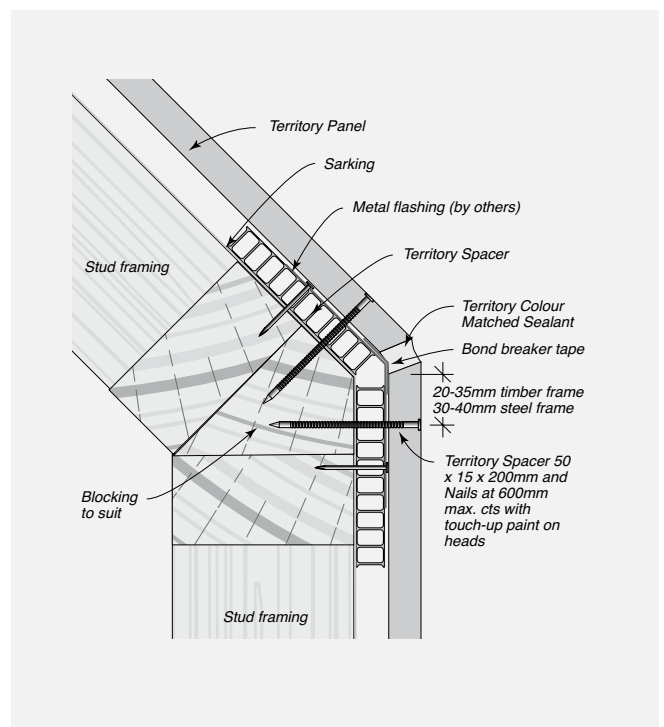


FIGURE 8.08 Obtuse Angle Corner Detail – with Metal Flashing and Colour Matched Sealant





CONSTRUCTION DRAWINGS AND DETAILS

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

GENERAL – Junction Details

FIGURE 8.09 Soffit Detail – with Coloured Eaves Trim

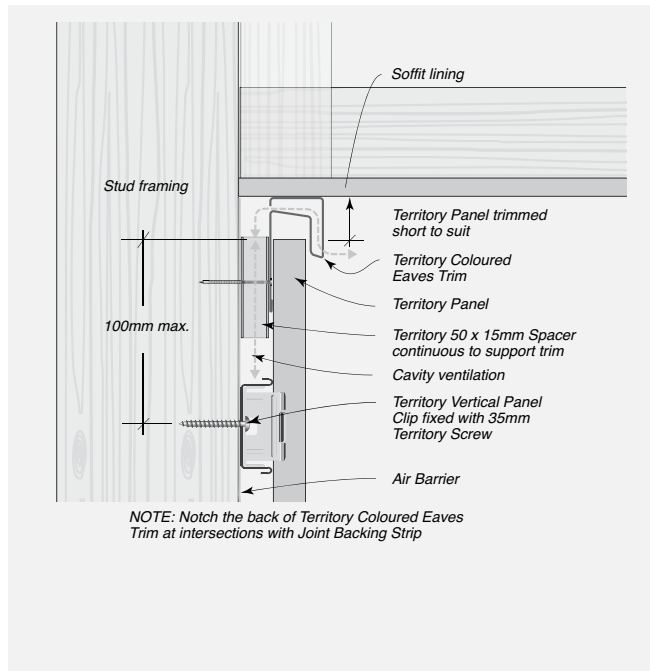


FIGURE 8.10 Soffit Detail – with L-form Cavity Vent and Timber Trim

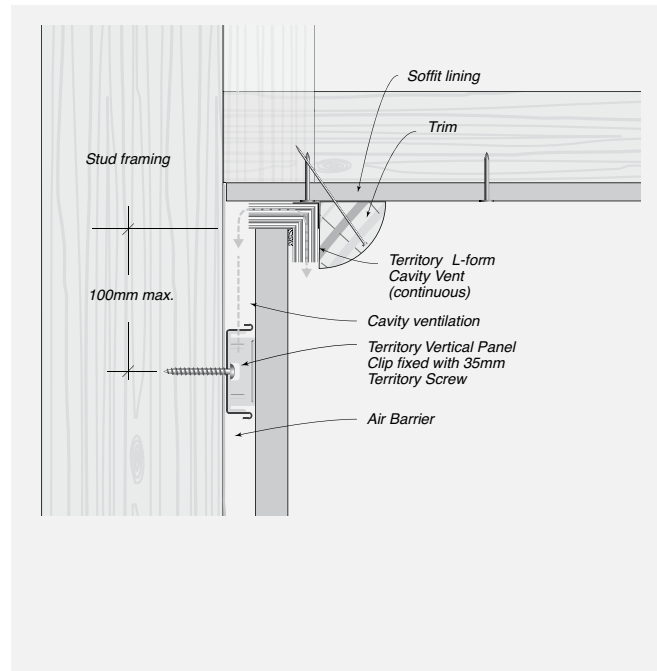


FIGURE 8.11 Soffit Detail – with Soffit Trim

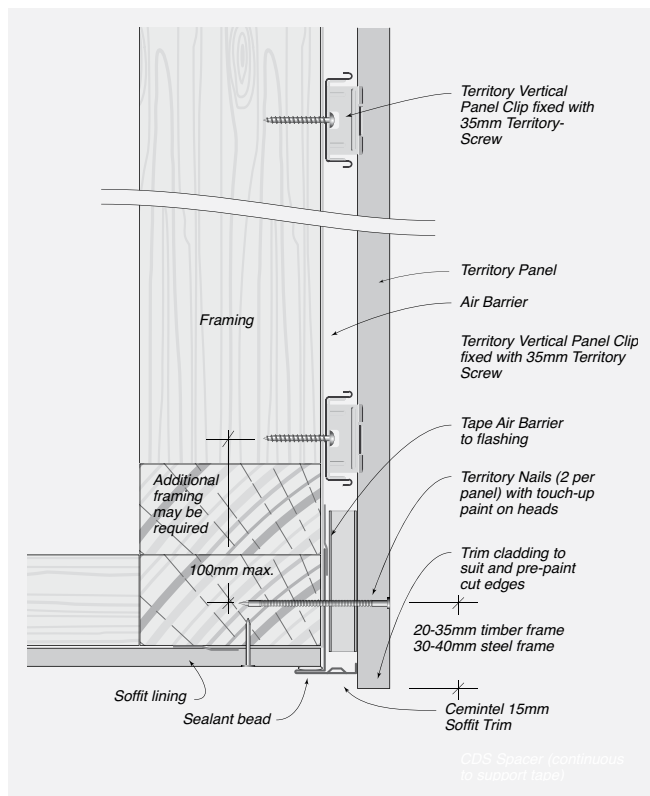
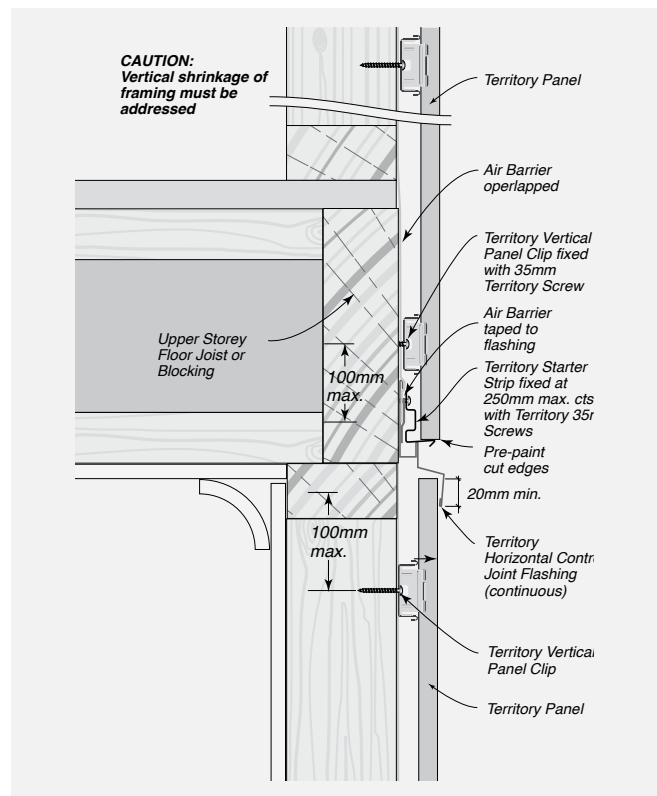


FIGURE 8.12 Horizontal Control Joint – Second Storey Junction



CONSTRUCTION DRAWINGS AND DETAILS



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

GENERAL – Junction Details

FIGURE 8.13 Edge Beam Detail – Vertical TopHat 2

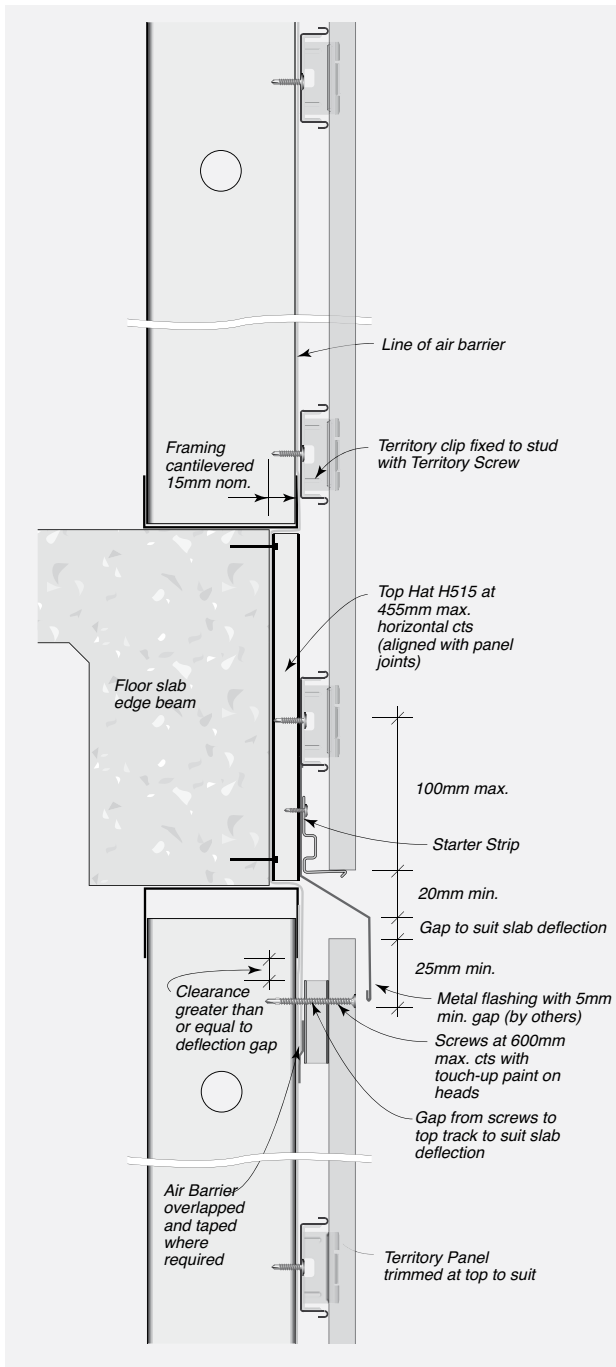
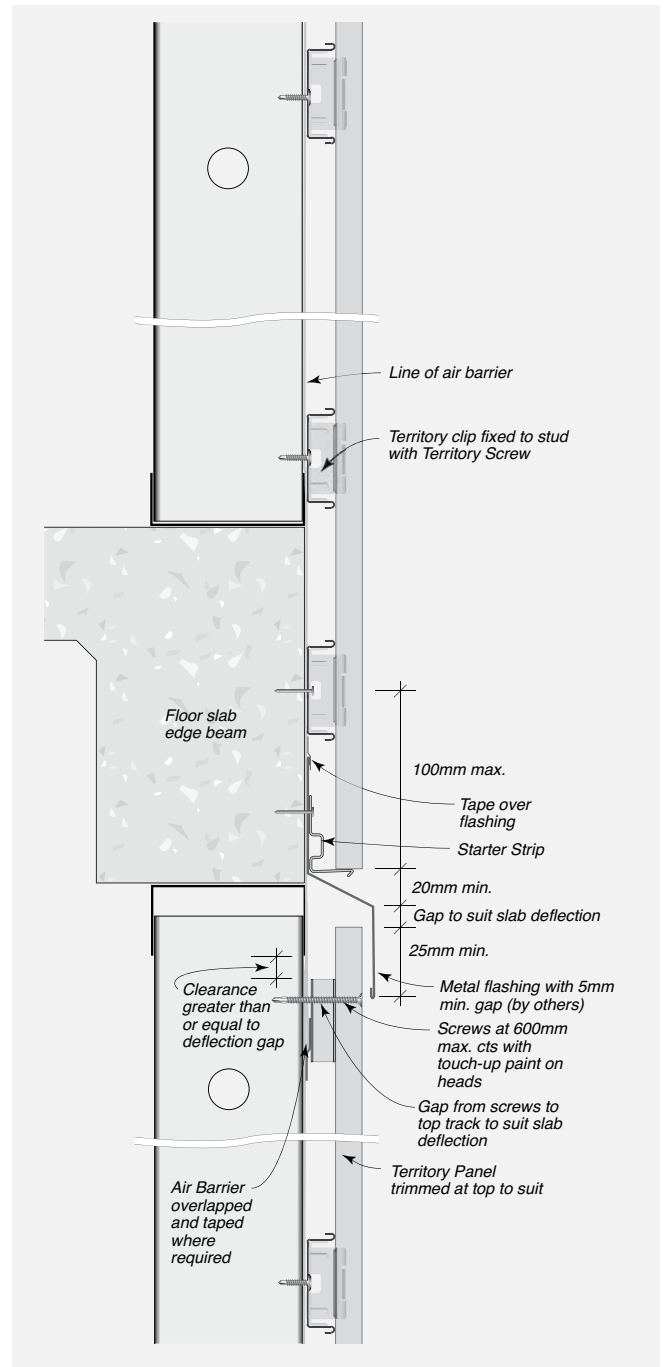


FIGURE 8.14 Edge Beam Detail – Vertical TopHat





CONSTRUCTION DRAWINGS AND DETAILS

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

GENERAL – Junction Details

FIGURE 8.15 Horizontal Control Joint between Panels

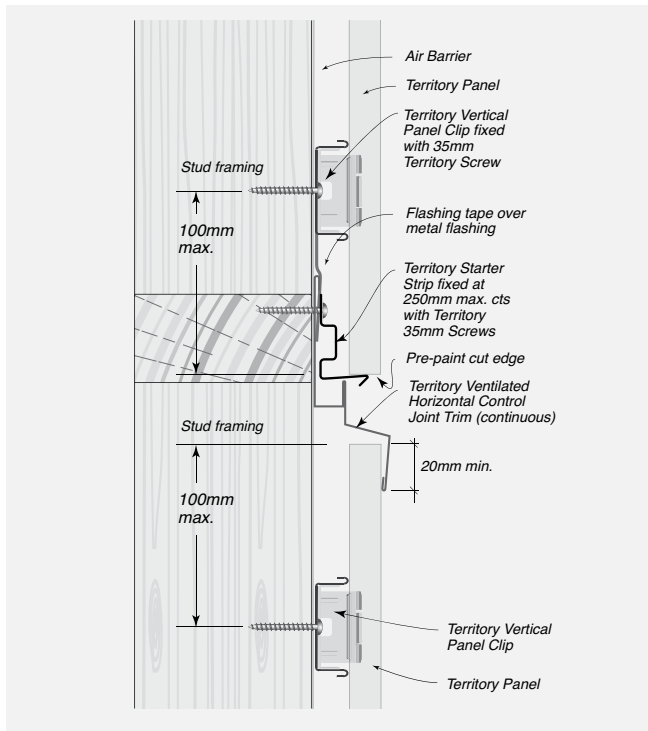


FIGURE 8.16 Junction with External Roofing (pitched roof sheet/tiles)

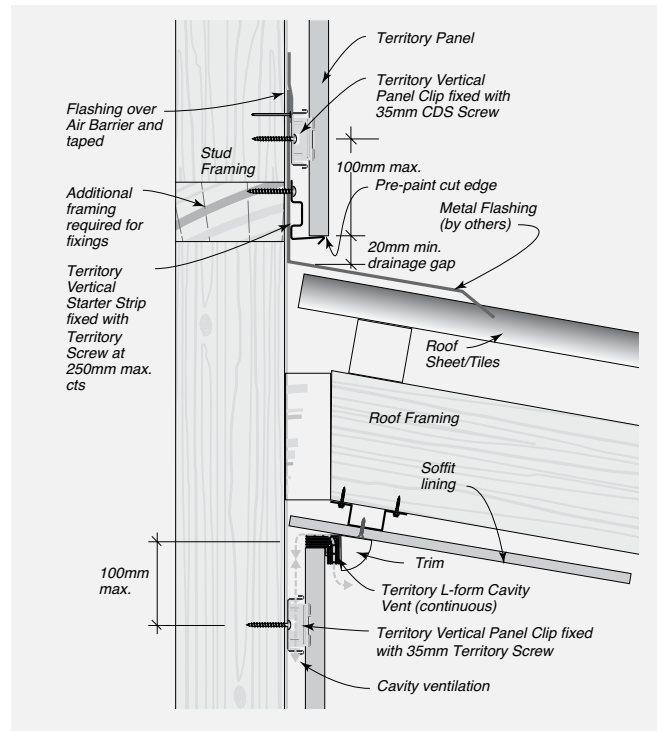


FIGURE 8.17 Junction with External Roofing (Flat Roof Corrugate)

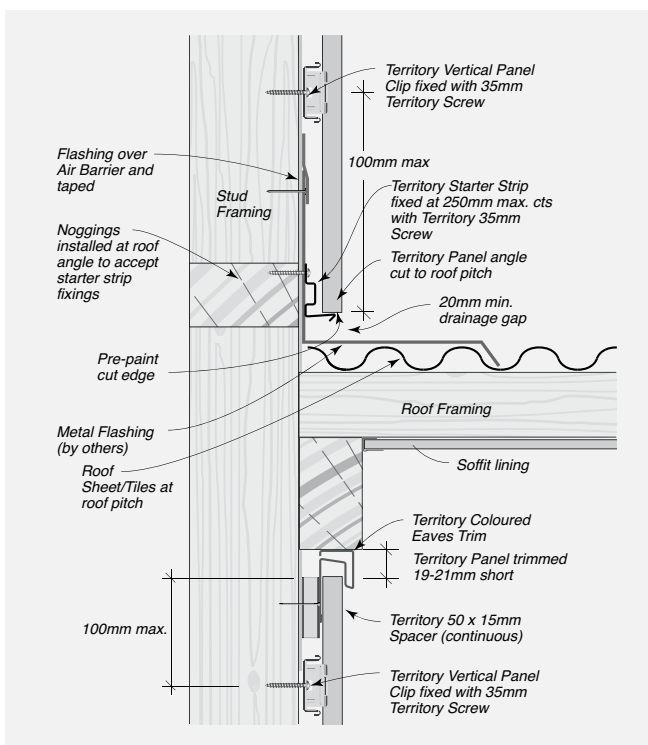
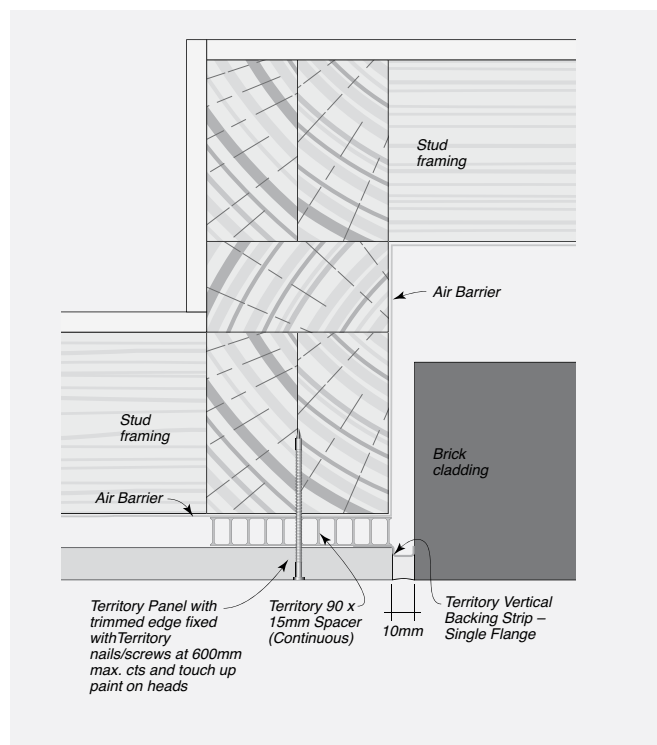


FIGURE 8.18 Junction flushed with Brick Veneer



CONSTRUCTION DRAWINGS AND DETAILS



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

GENERAL – Junction Details

FIGURE 8.19 Junction recessed with Brick Veneer

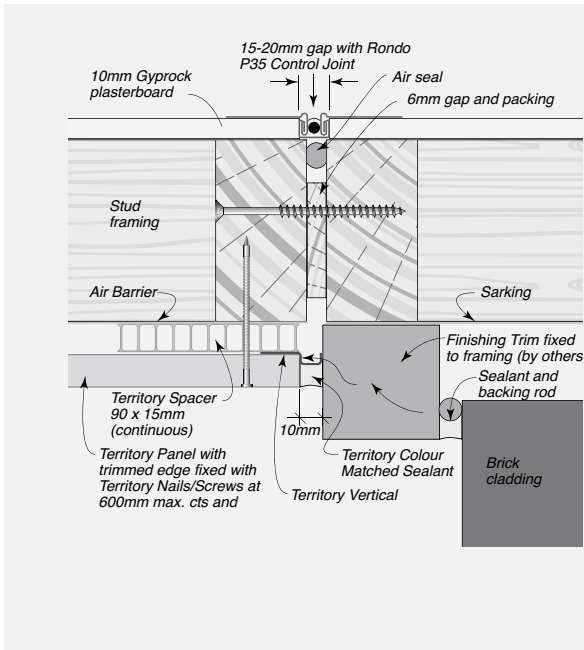


FIGURE 8.20 Junction with In-line Masonry Wall

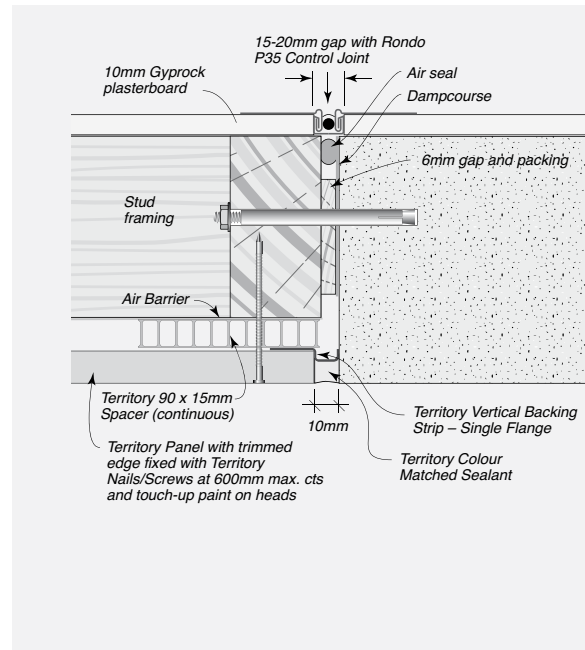


FIGURE 8.21 Junction with Offset Masonry Wall

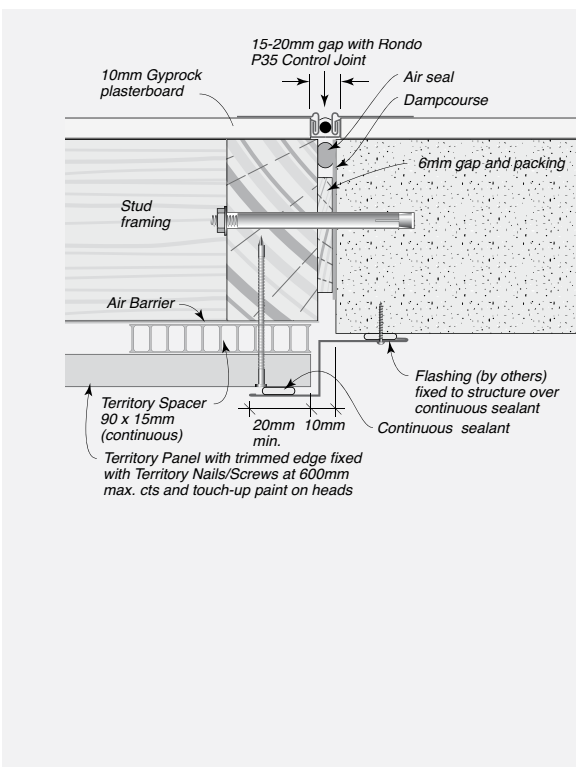
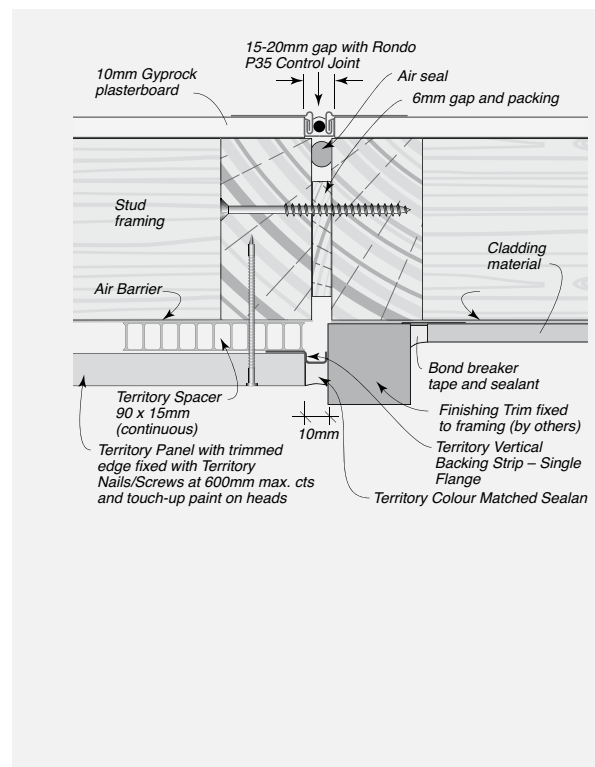


FIGURE 8.22 Typical Junction Detail with Fibre Cement Cladding System





CONSTRUCTION DRAWINGS AND DETAILS

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

GENERAL – Window Details

FIGURE 8.23 A&L Aluminium Awning Window with Weatherboard Trim

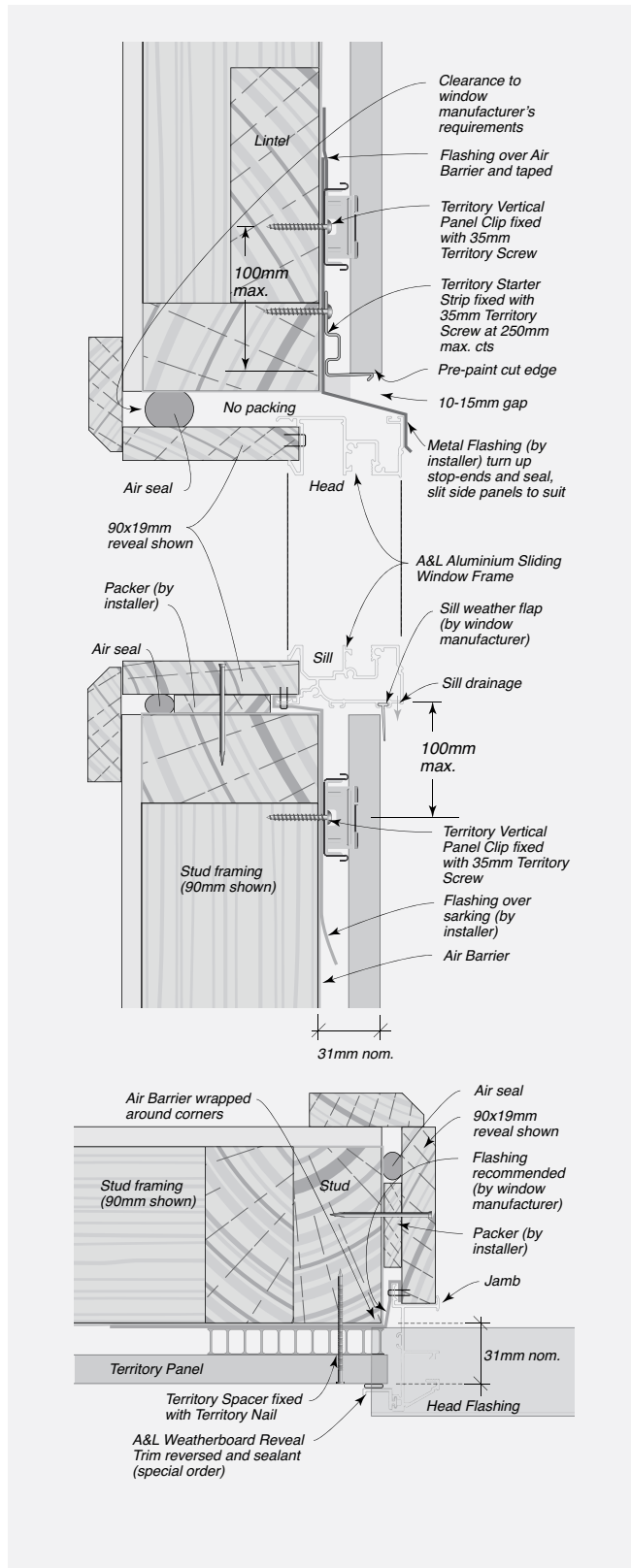
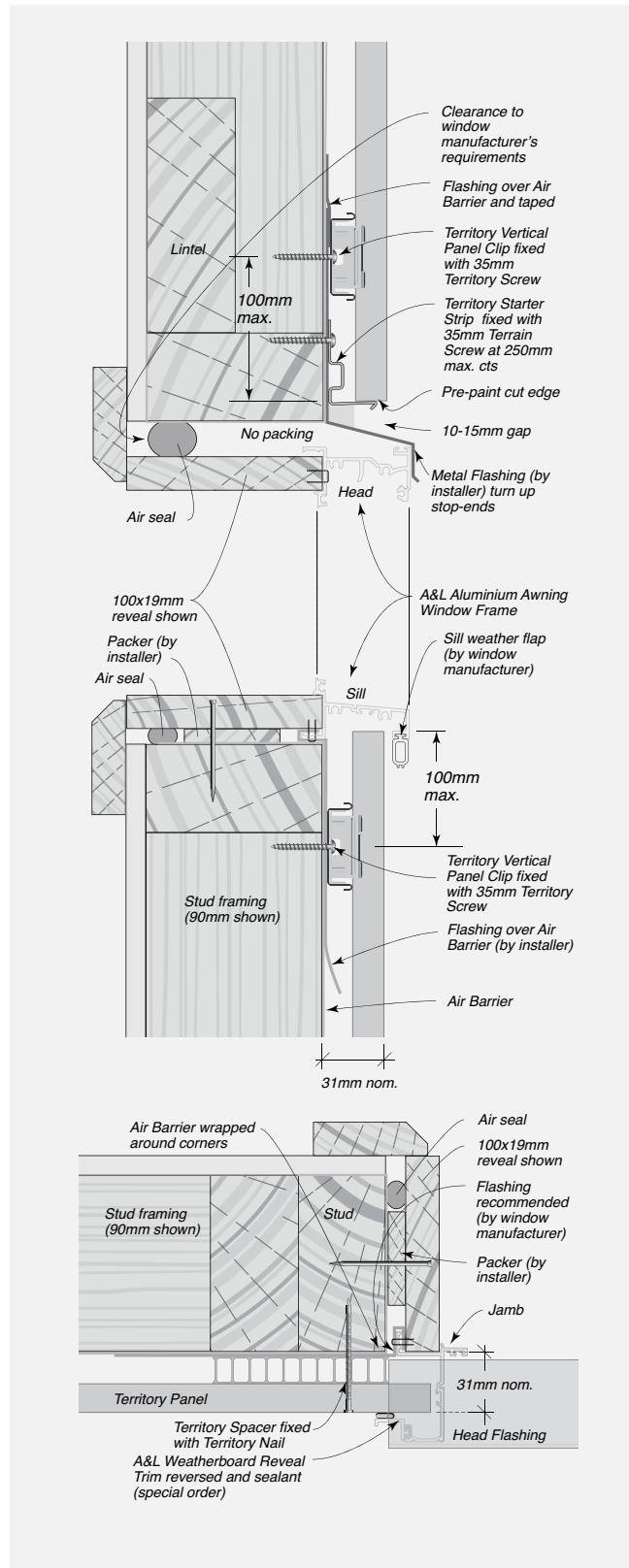


FIGURE 8.24 A&L Aluminium Siding Window with Weatherboard Trim



CONSTRUCTION DRAWINGS AND DETAILS



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

GENERAL – Window Details

FIGURE 8.25 Trend Quantum XP Aluminium Sliding Window with Weatherboard Reveal Clip E482

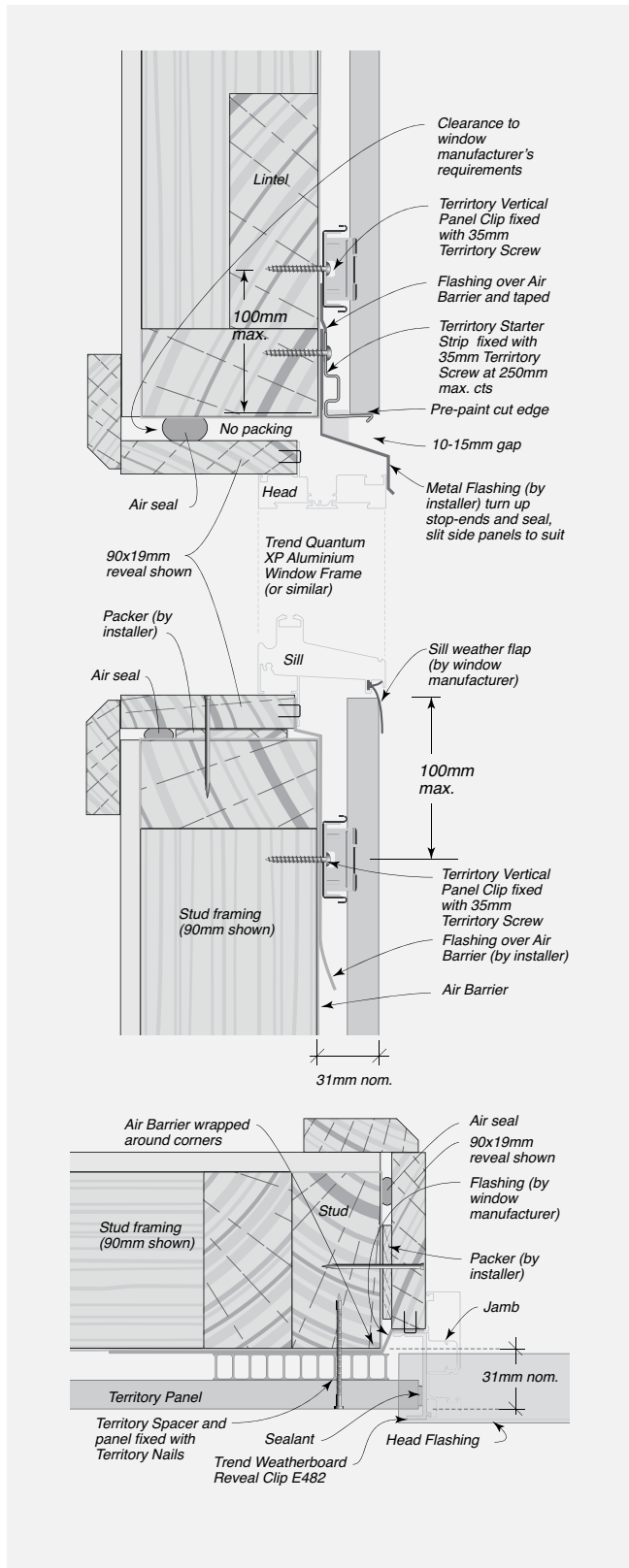
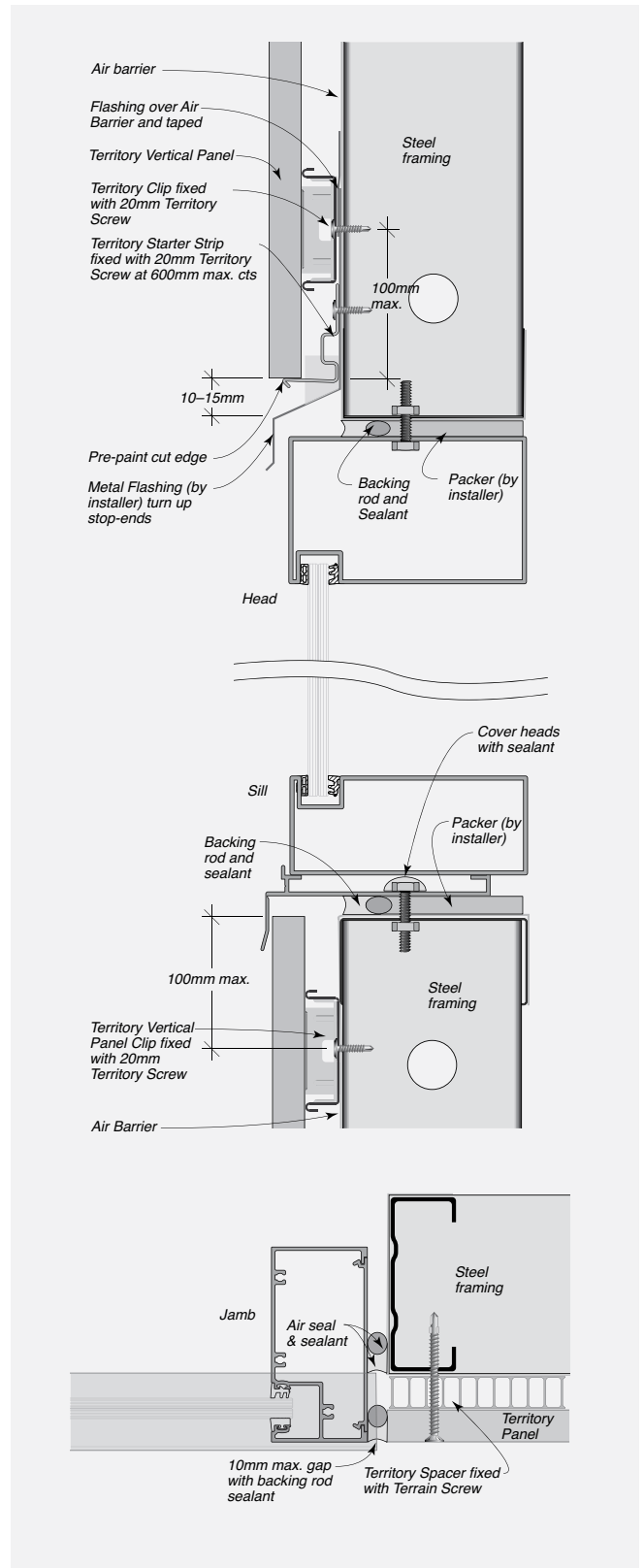


FIGURE 8.26 Commercial Window





CONSTRUCTION DRAWINGS AND DETAILS

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

GENERAL – Window Details

FIGURE 8.27 Window with Mitre Corners

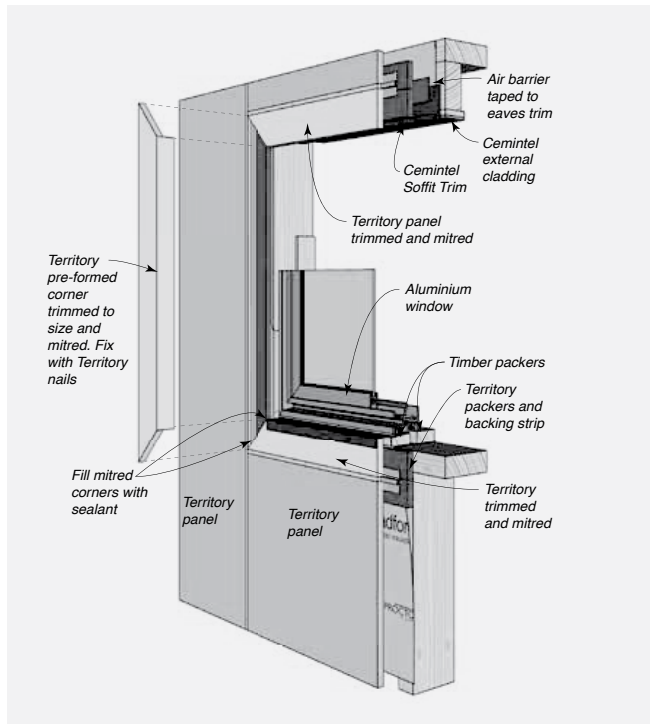
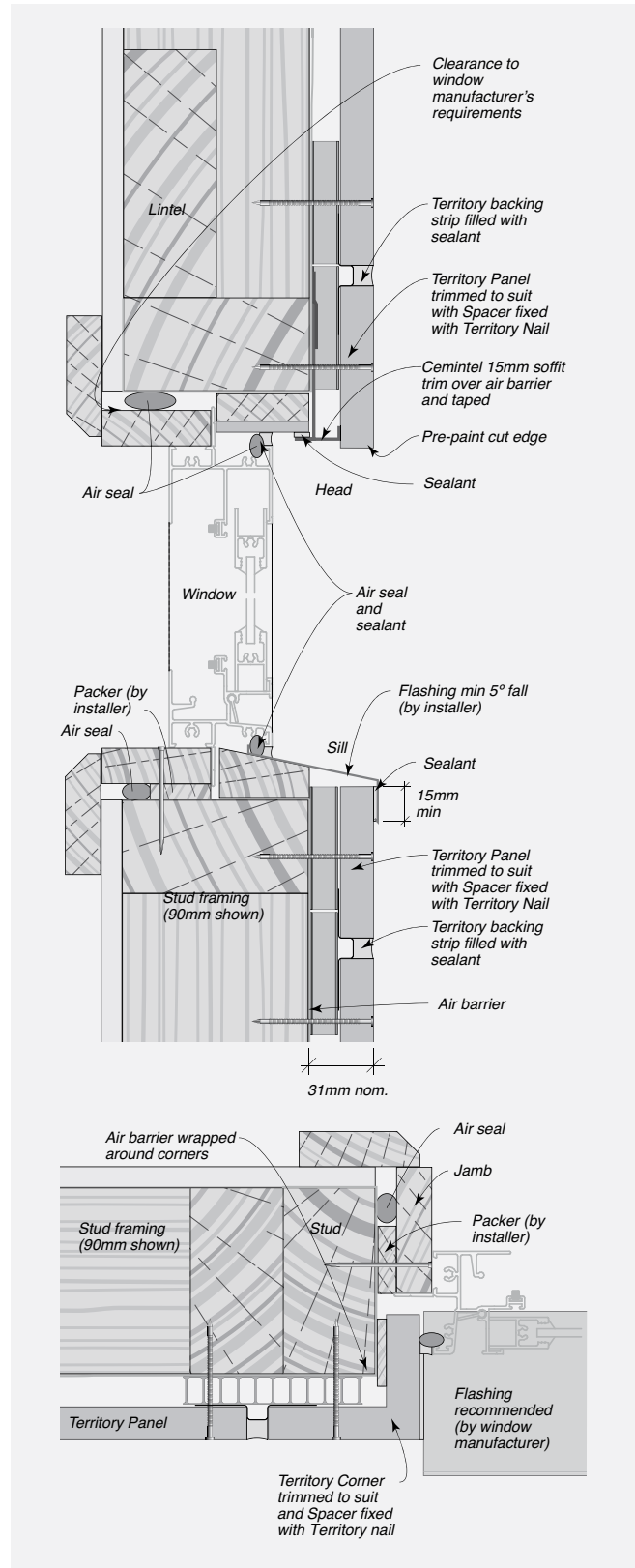


FIGURE 8.28 Window Reveal

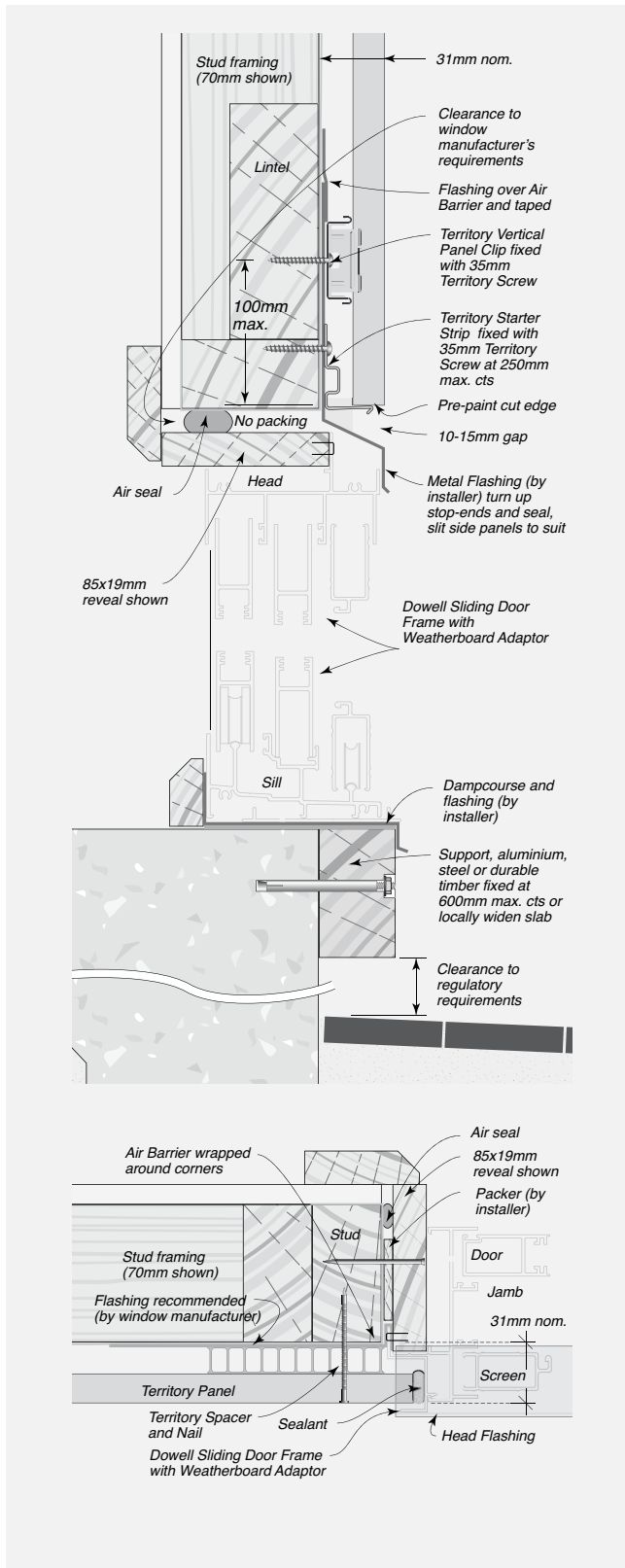


CONSTRUCTION DRAWINGS AND DETAILS

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

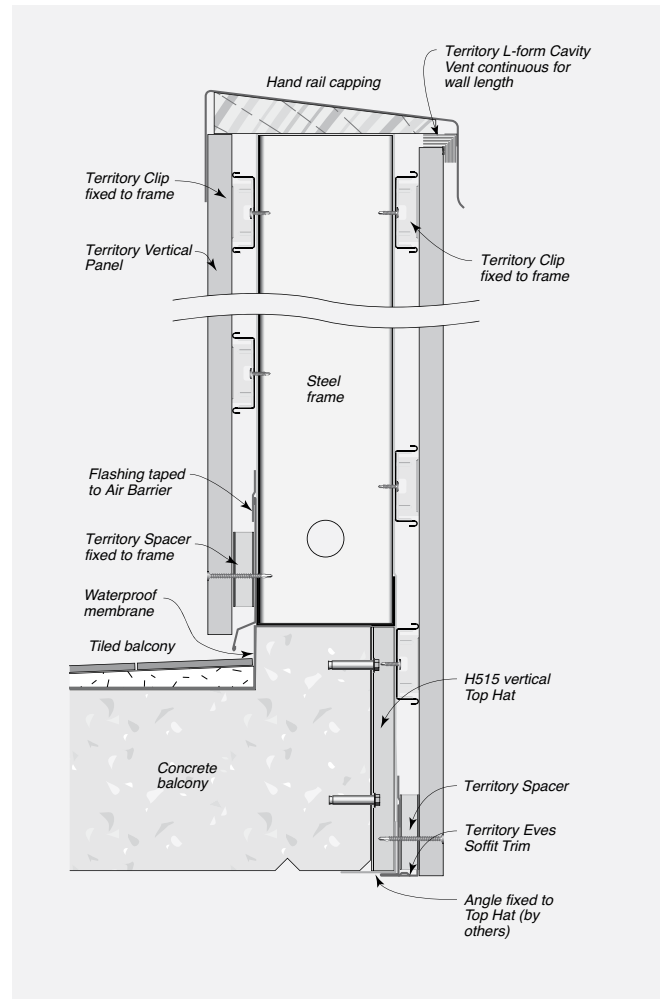
GENERAL – Door Details

FIGURE 8.29 Dowell Sliding Door Installation – 70mm Framing and 85mm Reveal



GENERAL – Balcony Details

FIGURE 8.30 Typical Balcony Detail





CONSTRUCTION DRAWINGS AND DETAILS

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

GENERAL – Parapet Details

FIGURE 8.31 Typical Parapet Wall

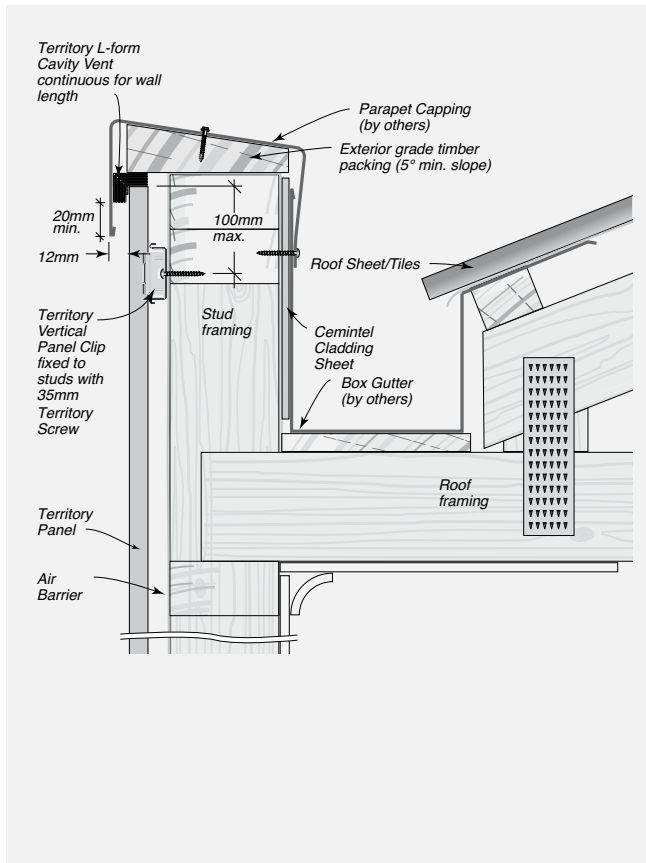


FIGURE 8.32 Parapet Wall Junction – Plan

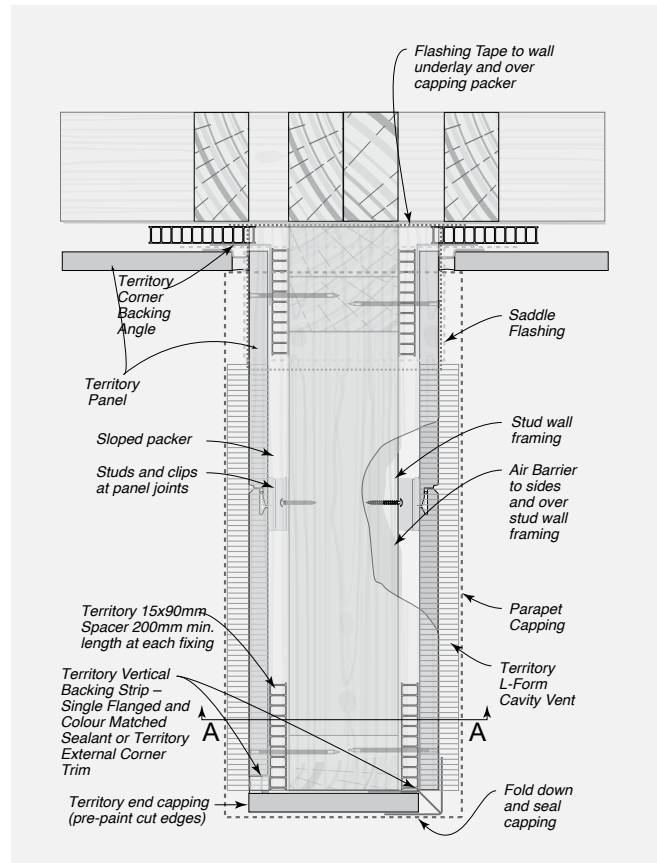
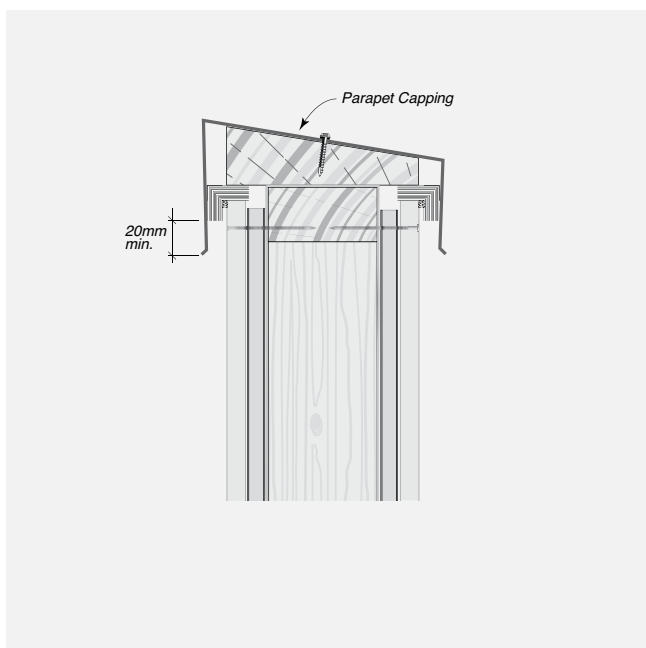


FIGURE 8.33 Parapet Wall – Elevation A-A



CONSTRUCTION DRAWINGS AND DETAILS



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

GENERAL – Parapet Details

FIGURE 8.34 Parapet Wall Junction – Stage 1

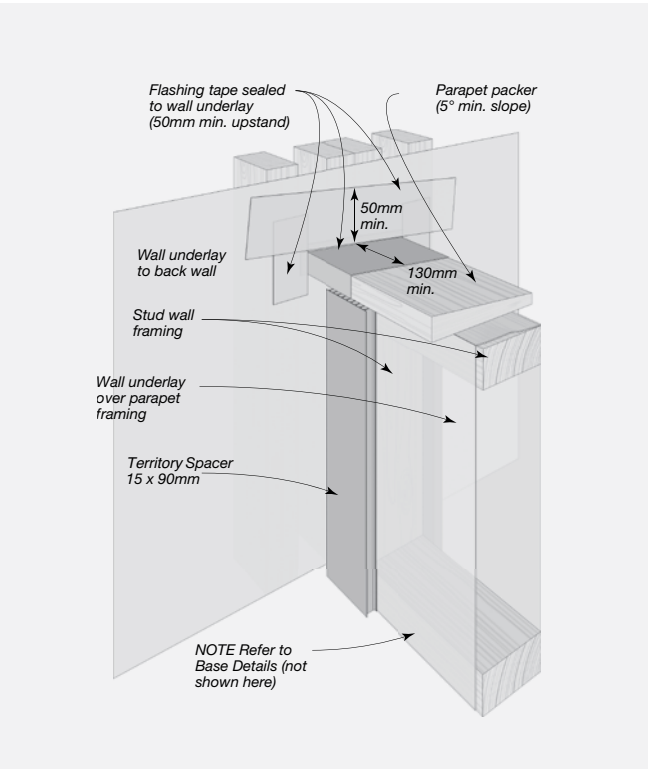


FIGURE 8.35 Parapet Wall Junction – Stage 2

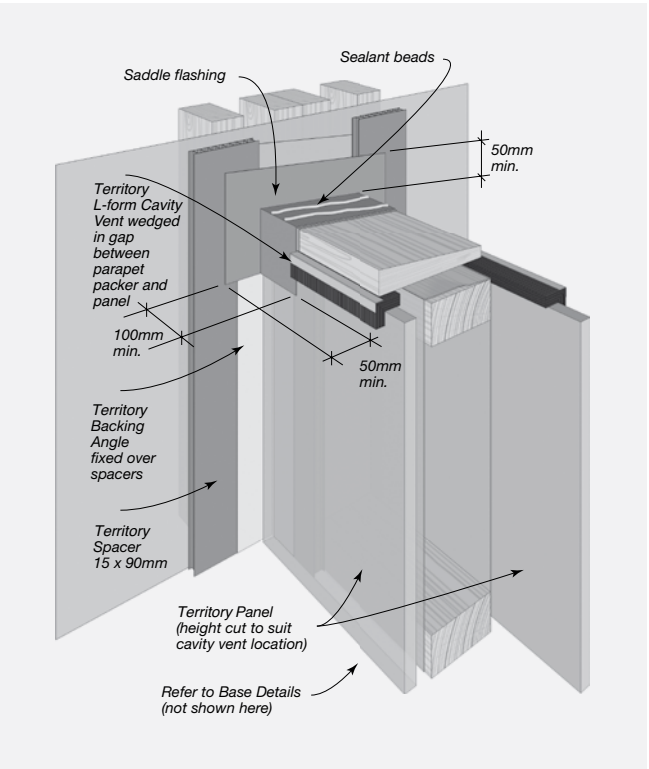
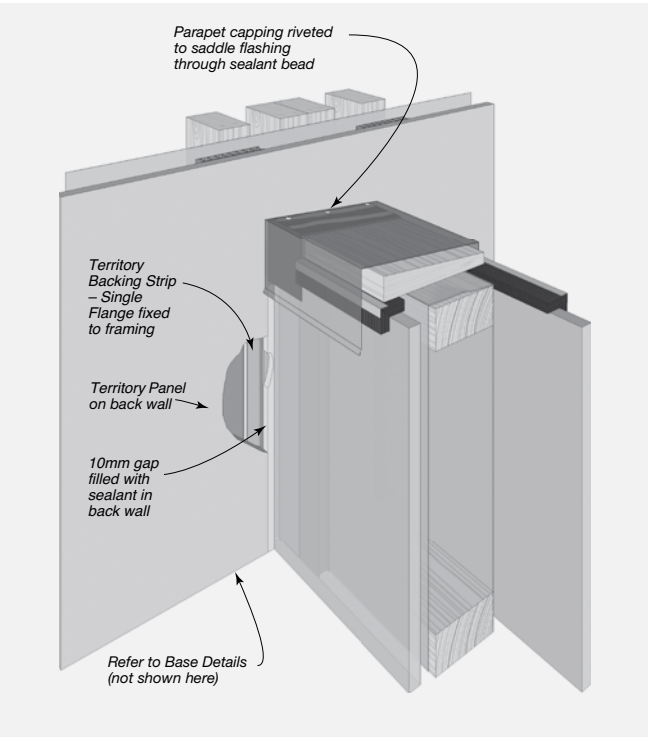


FIGURE 8.36 Parapet Wall Junction – Stage 3





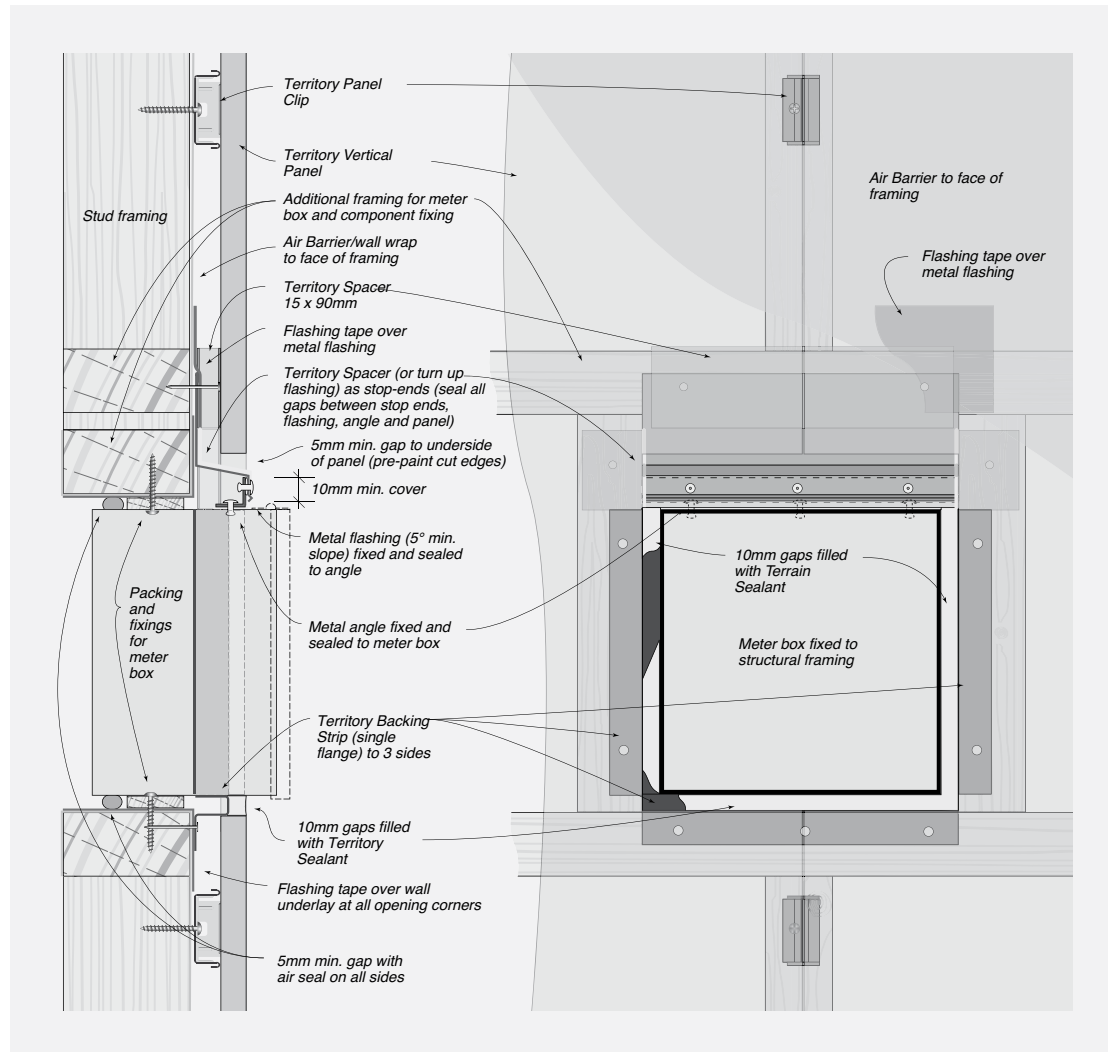
CONSTRUCTION DRAWINGS AND DETAILS

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

GENERAL – Power/Meter Box Details

FIGURE 8.37 Typical Power/Meter Box – Recessed into Framing – Elevation

Note: Refer to local authority for specific meter box installation requirements.



CONSTRUCTION DRAWINGS AND DETAILS



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

GENERAL – Masonry Details

FIGURE 8.38 Typical Base

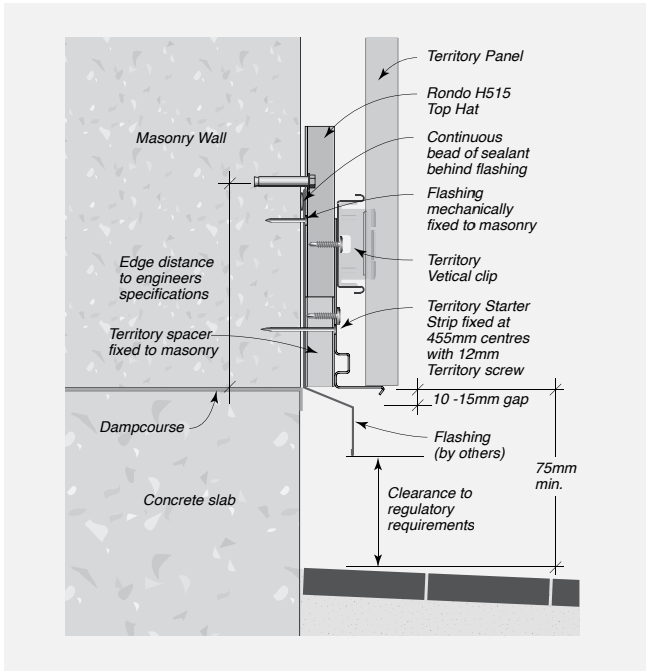


FIGURE 8.39 External Corner Detail – with Pre-Formed Corner

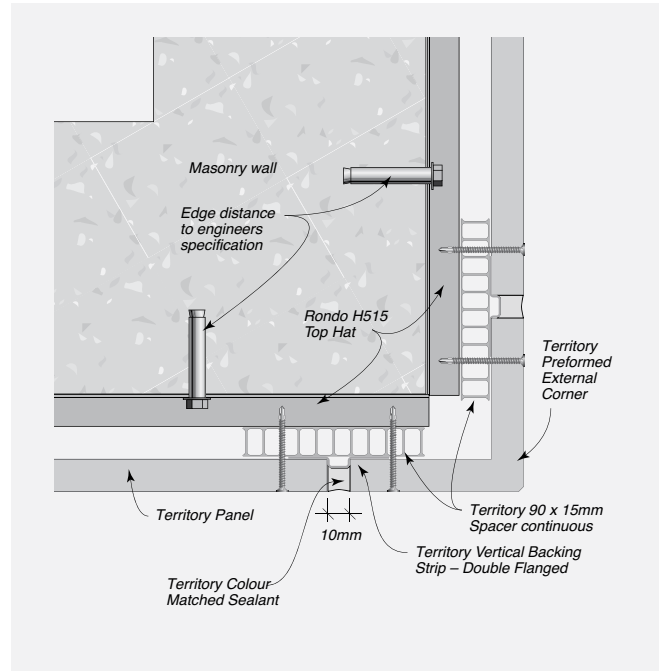


FIGURE 8.40 External Corner Detail – with Aluminium External Corner

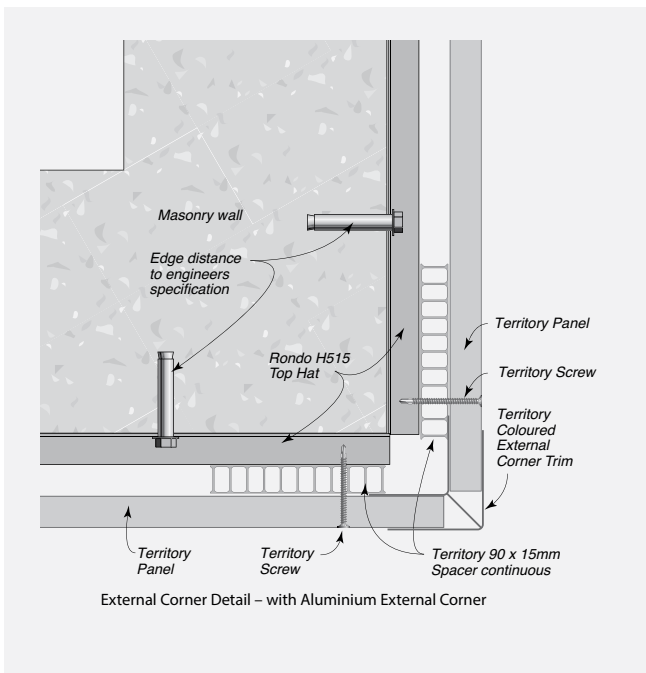
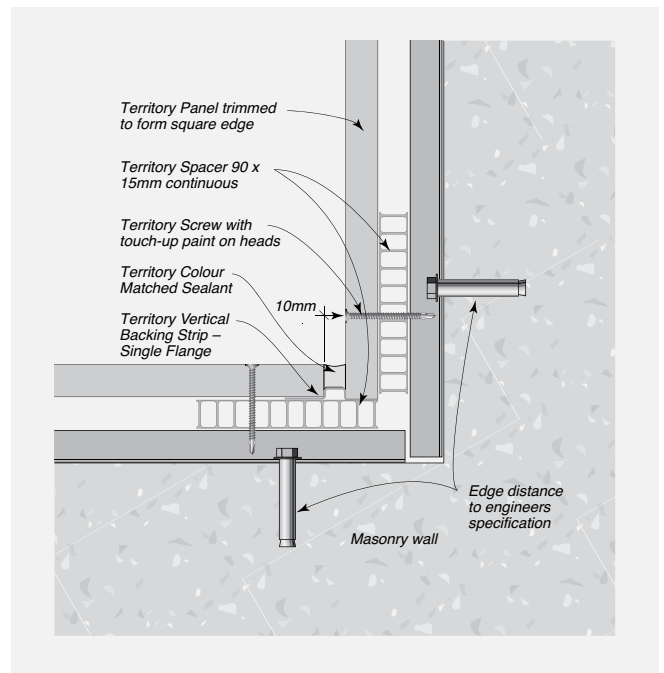


FIGURE 8.41 Internal Corner Detail – with Backing Strip and Colour Matched Sealant





CONSTRUCTION DRAWINGS AND DETAILS

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

GENERAL – Masonry Details

FIGURE 8.42 Soffit Detail – with Coloured Eaves Trim

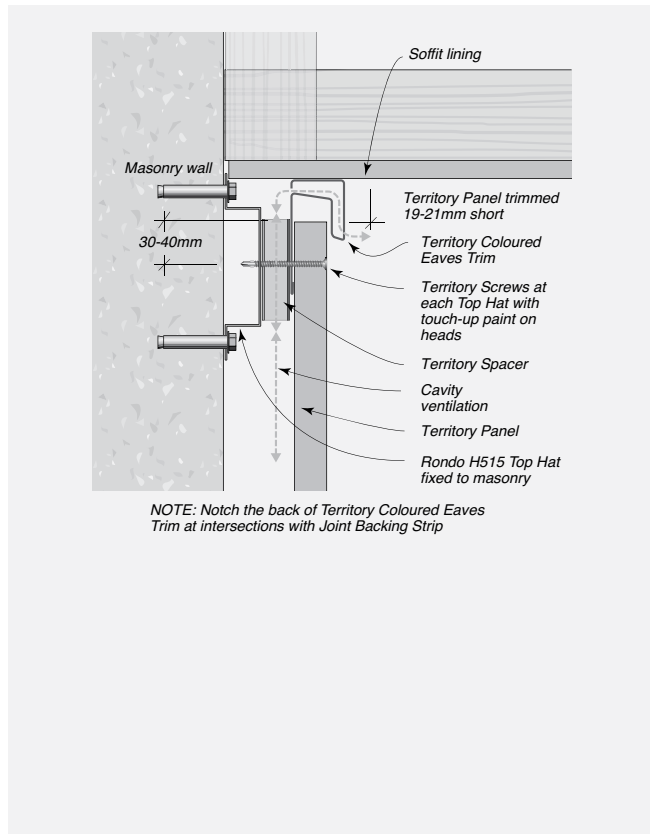
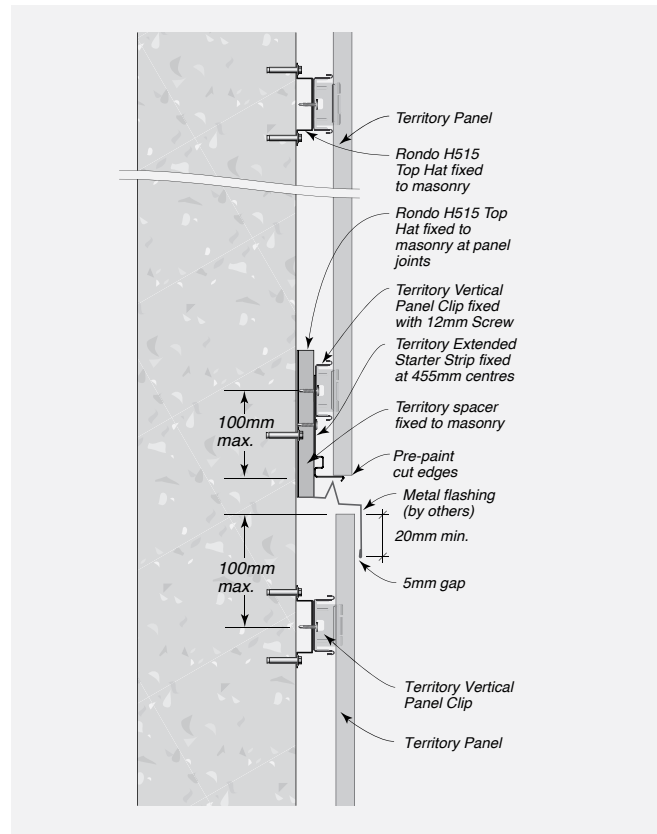


FIGURE 8.43 Horizontal Control Joint



CONSTRUCTION DRAWINGS AND DETAILS



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

GENERAL – Masonry Details

FIGURE 8.44 Vertical Panel Joint (Option 1)

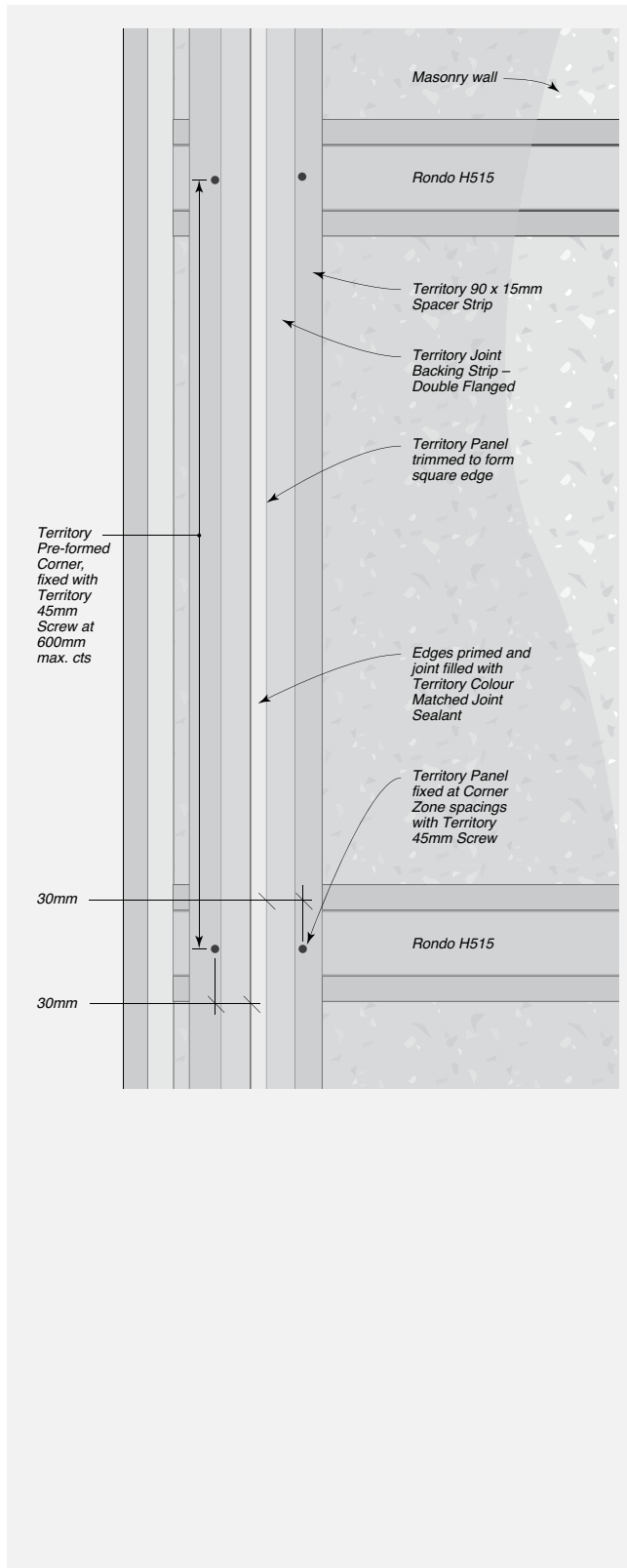
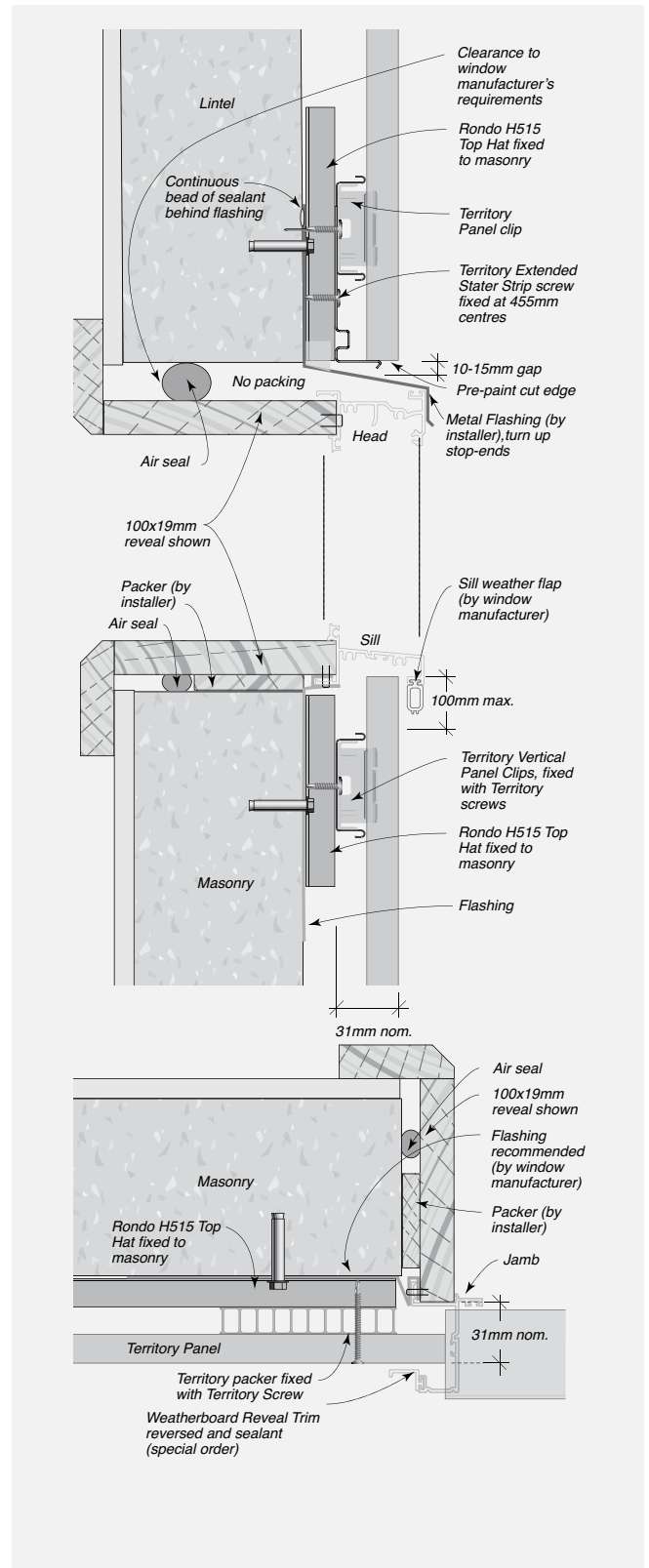


FIGURE 8.45 Window Detail – A&L Aluminium Awning Window with Weatherboard Trim



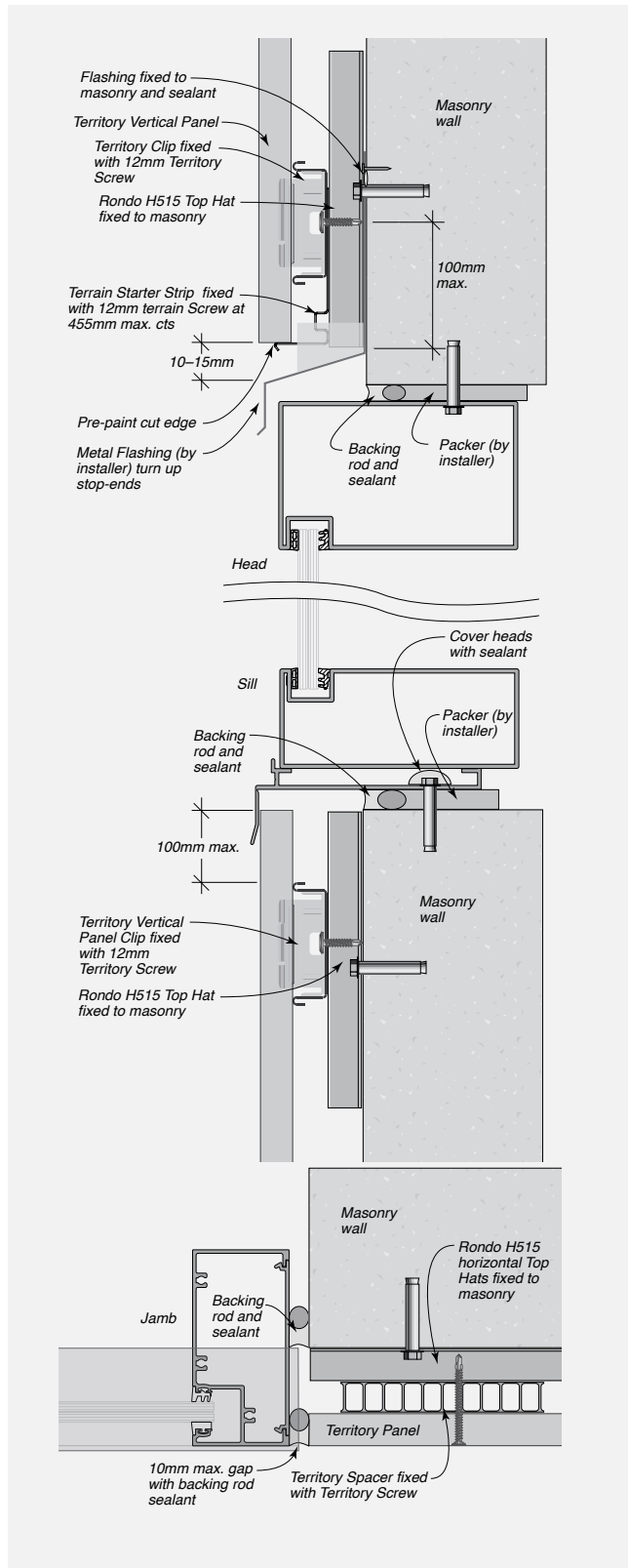


CONSTRUCTION DRAWINGS AND DETAILS

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

GENERAL – Masonry Details

FIGURE 8.46 Window Detail – Commercial Window



CONSTRUCTION DRAWINGS AND DETAILS



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

GENERAL – Masonry Details

FIGURE 8.47 Typical Parapet/Roof Junction

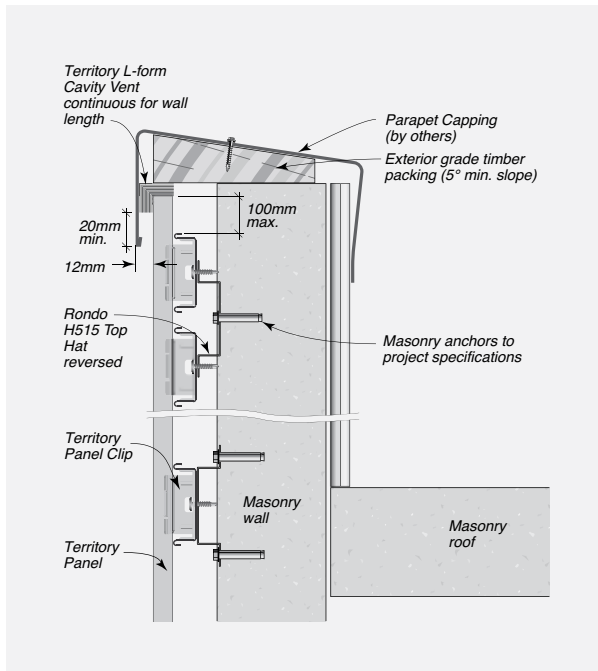
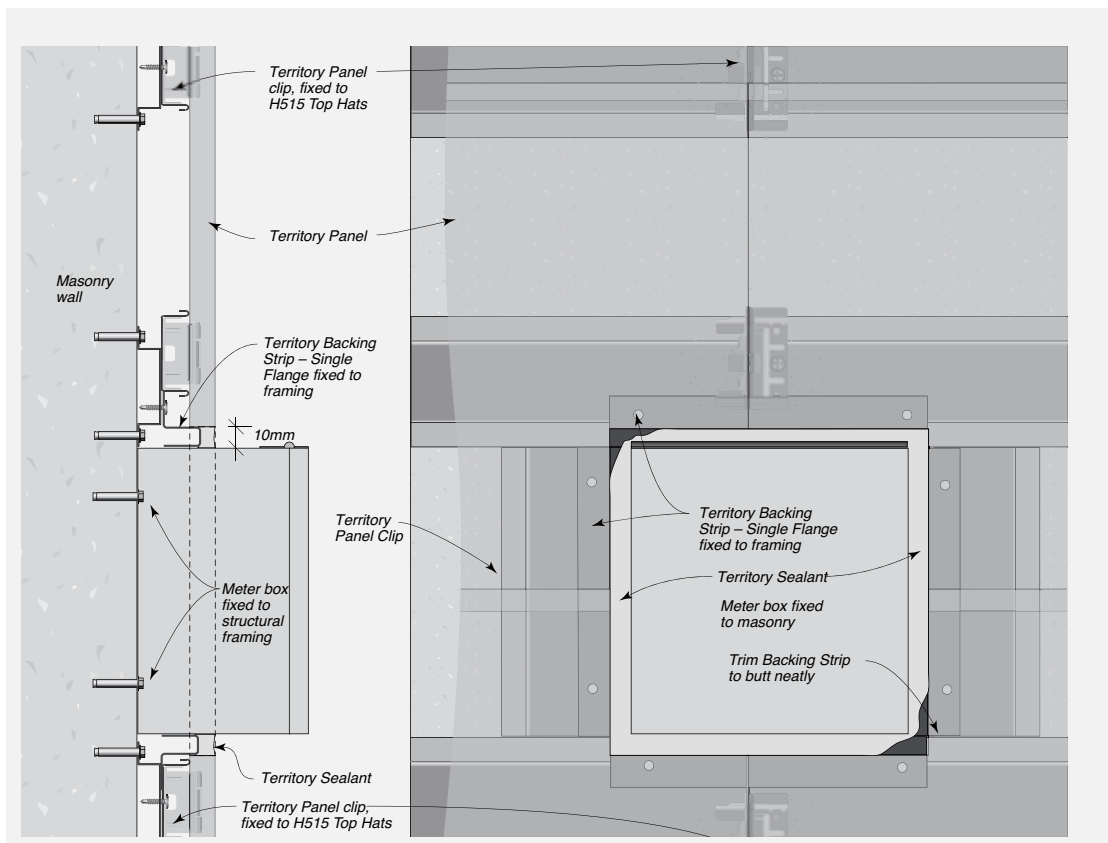


FIGURE 8.48 Typical Power/Meter Box – Mounted to Face of Framing

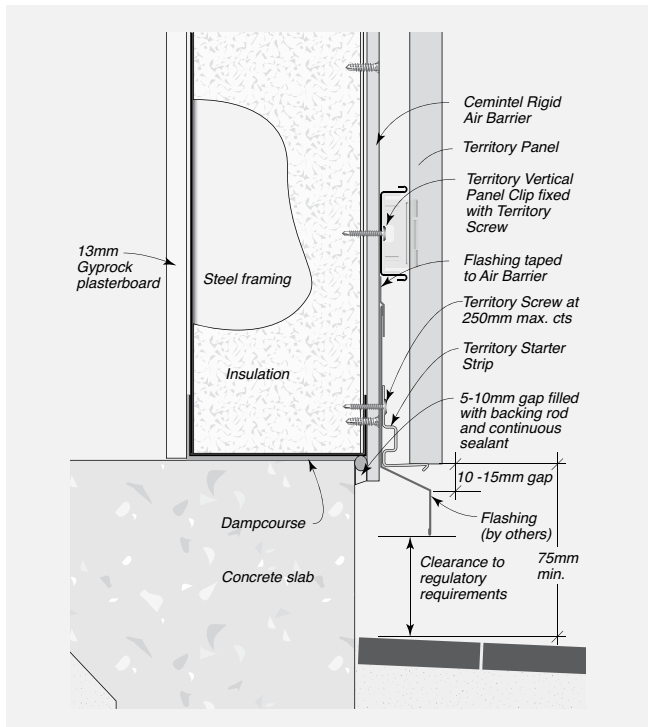




CONSTRUCTION DRAWINGS AND DETAILS

AS 5113 – Base Details

FIGURE 8.49 Base Detail



AS 5113 – Corner Details

FIGURE 8.50 External Corner Detail – with Preformed Corner

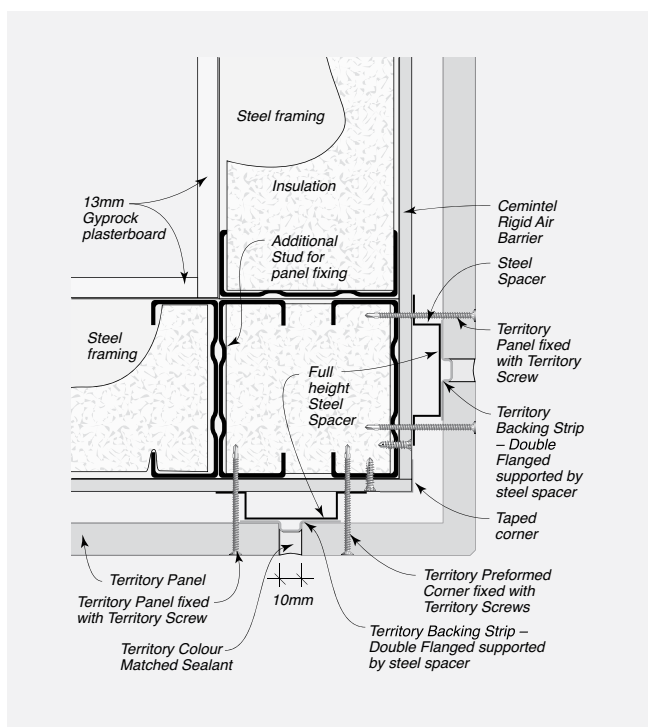
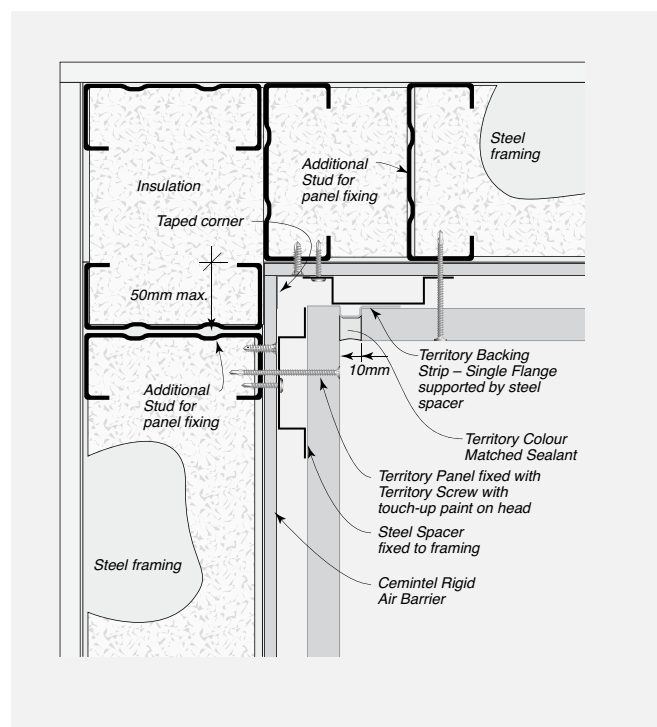


FIGURE 8.51 Internal Corner Detail



CONSTRUCTION DRAWINGS AND DETAILS



AS 5113 – Junction Details

FIGURE 8.52 Junction with Masonry Offset

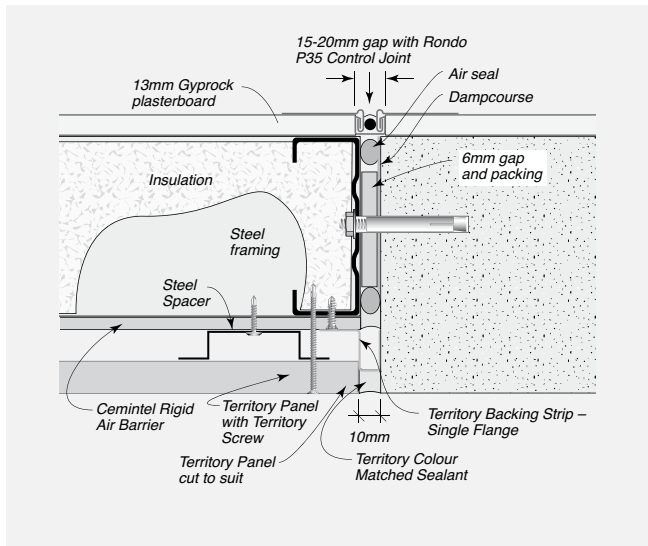


FIGURE 8.53 Junction with Masonry

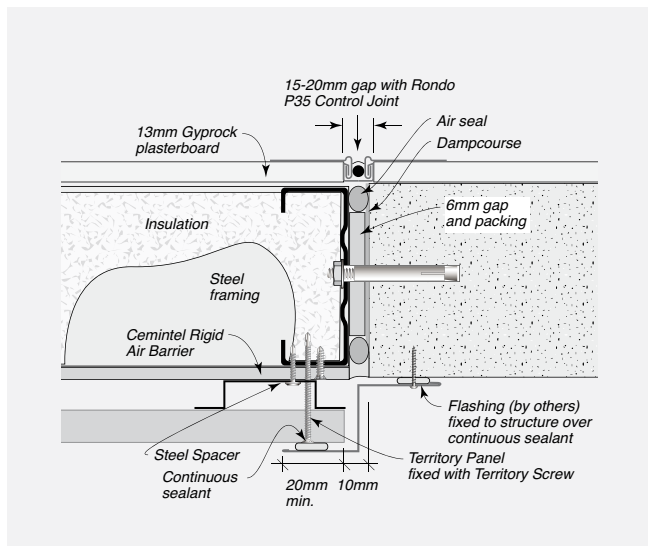
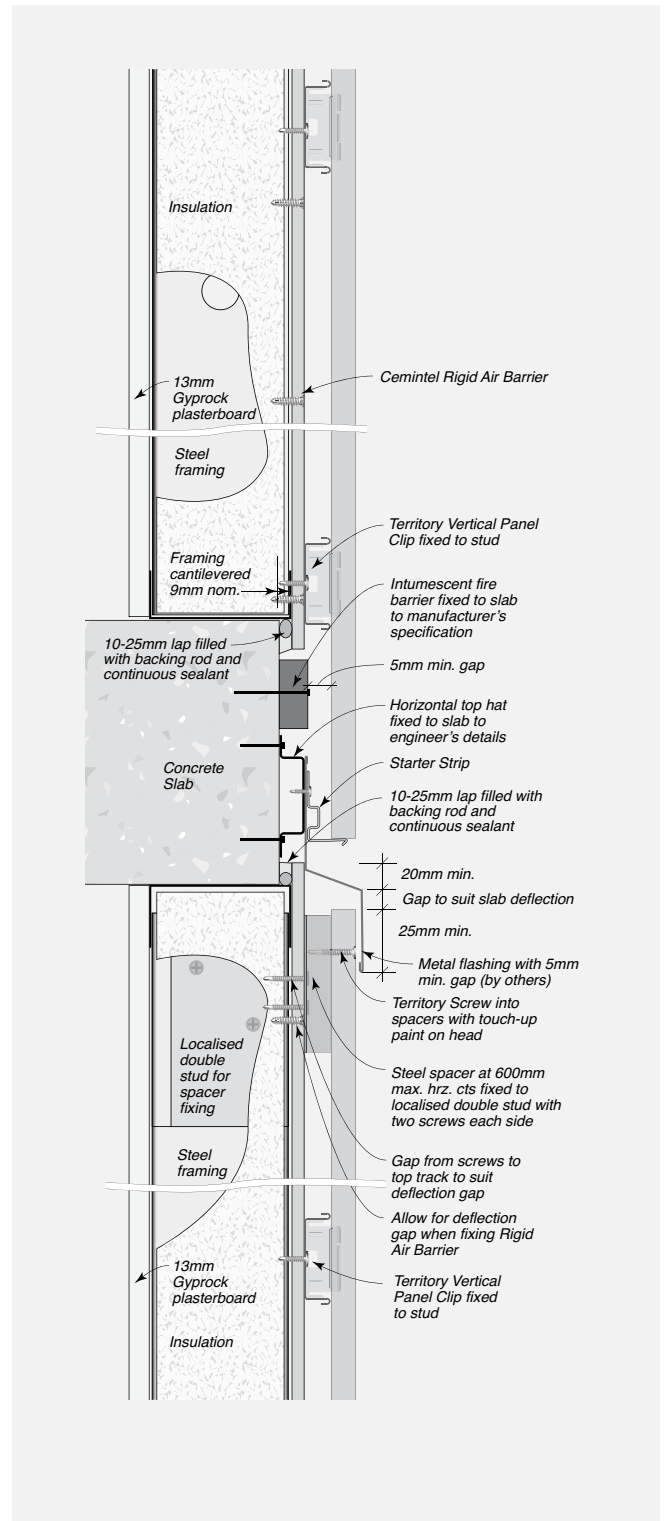


FIGURE 8.54 Edge Beam Detail





CONSTRUCTION DRAWINGS AND DETAILS

AS 5113 – Window Details

FIGURE 8.55 Commercial Window Frame

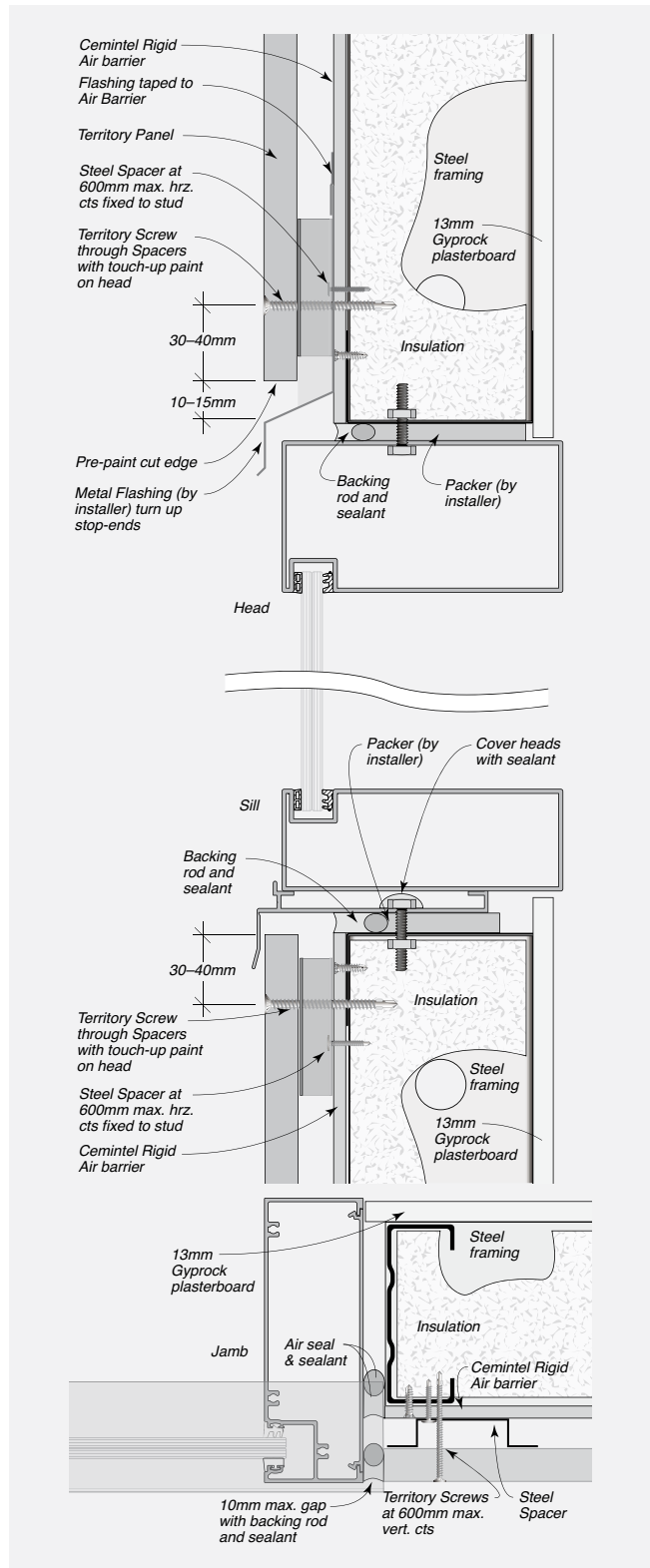
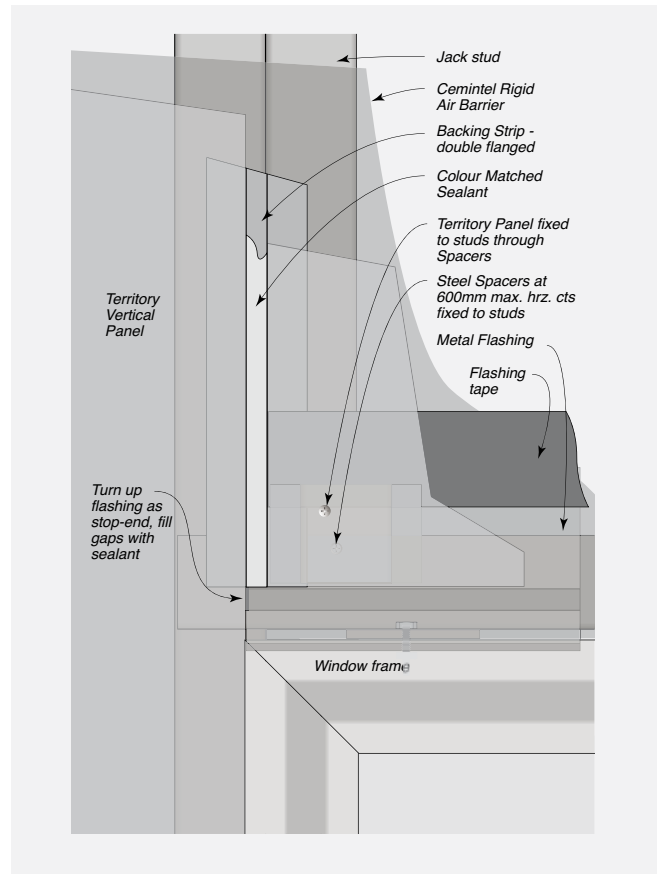


FIGURE 8.56 Window Front Elevation



CONSTRUCTION DRAWINGS AND DETAILS



AS 5113 – Soffit Details

FIGURE 8.57 Interstorey Junction with Territory Ceiling

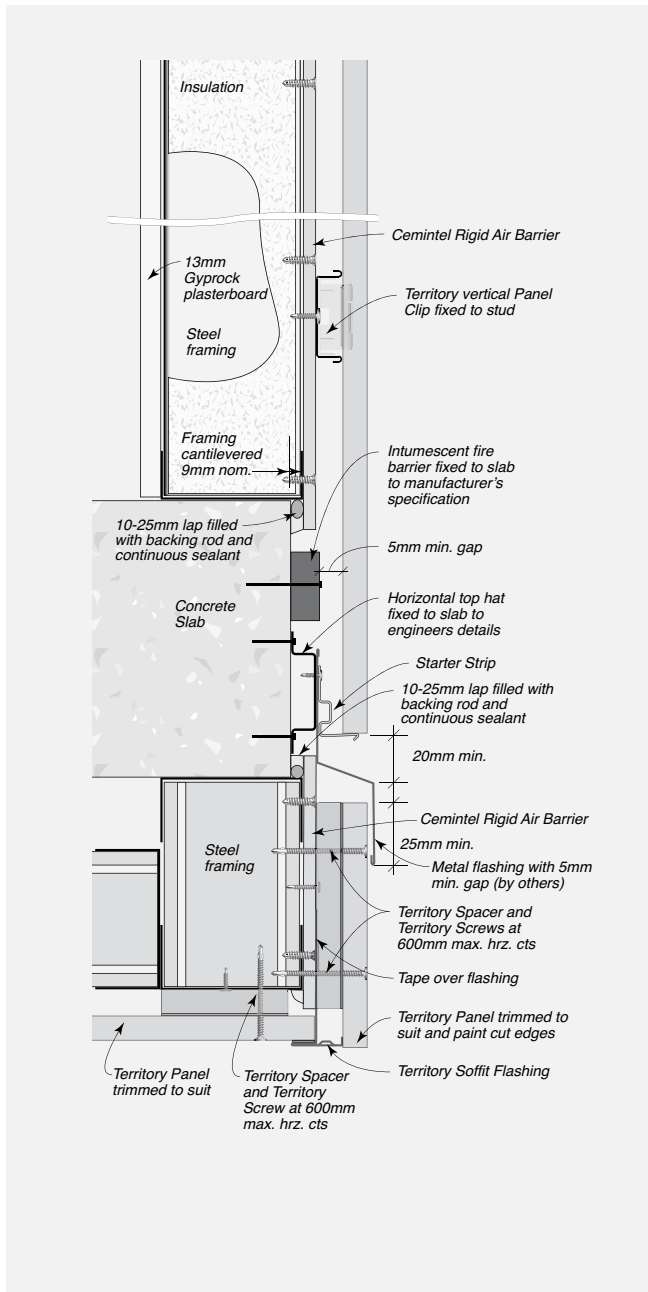
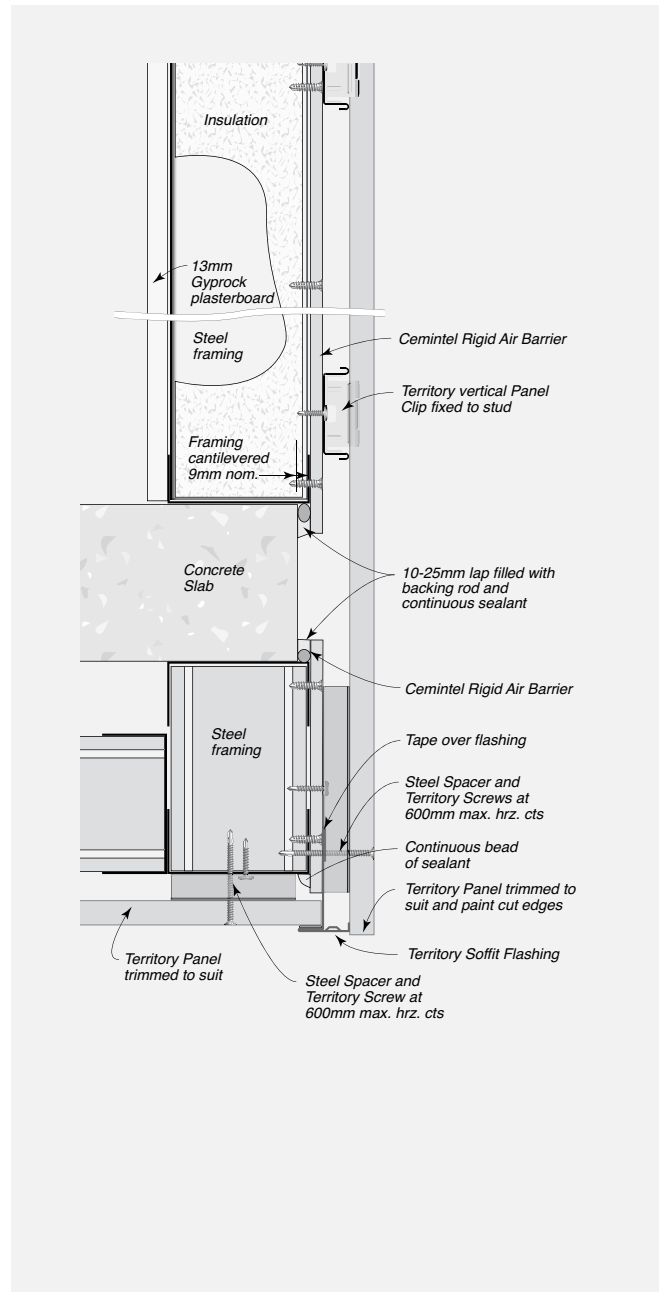


FIGURE 8.58 Territory Ceiling





CONSTRUCTION DRAWINGS AND DETAILS

AS 5113 – Soffit Details

FIGURE 8.59 Interstorey Junction with Metal Ceiling

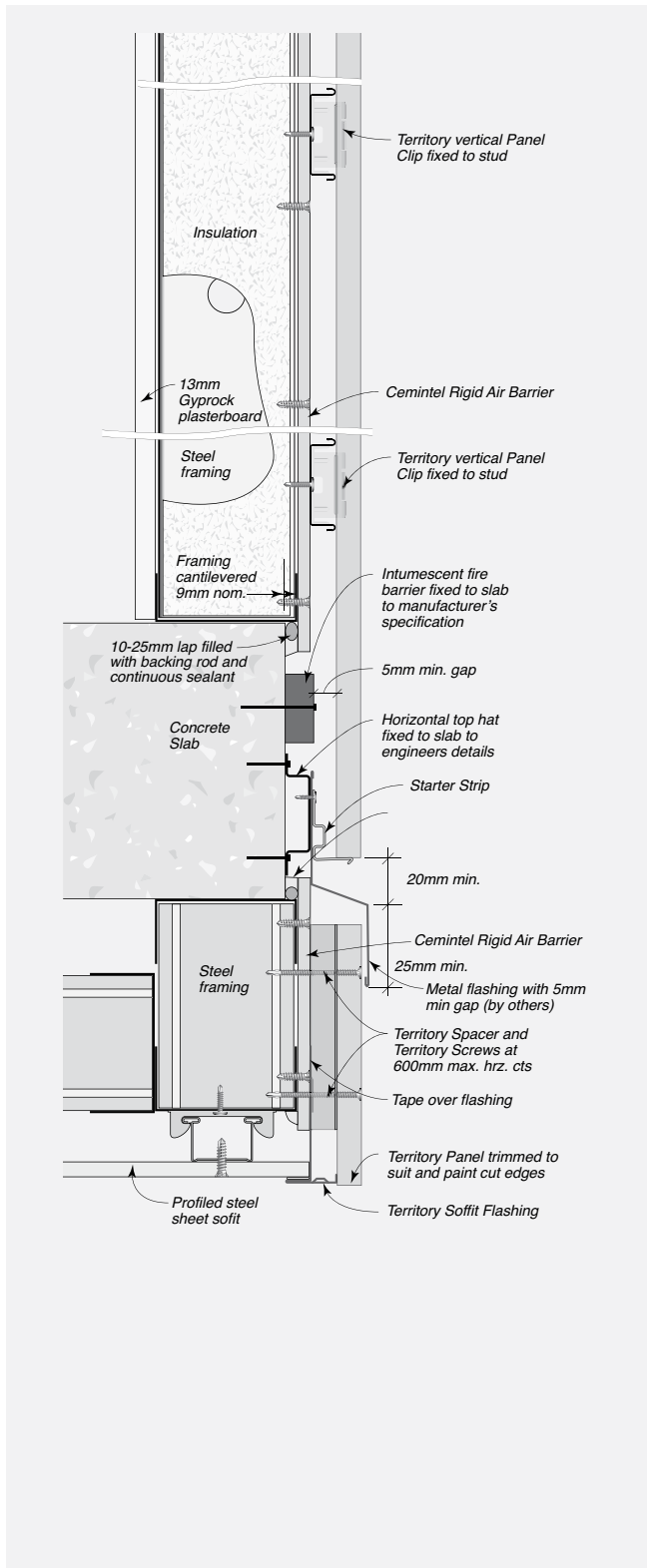
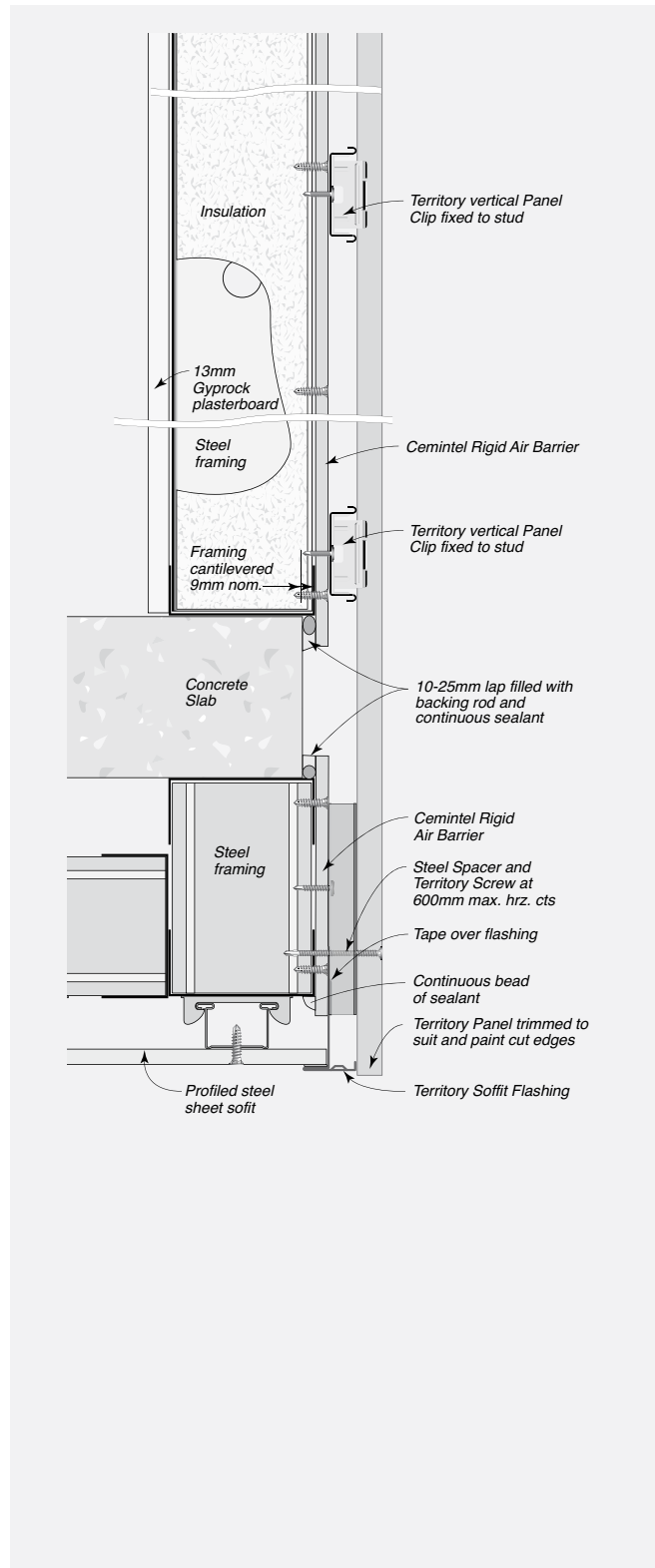


FIGURE 8.60 Metal Ceiling



CONSTRUCTION DRAWINGS AND DETAILS



AS 5113 – Soffit Details

FIGURE 8.61 Interstorey Junction with Composite Ceiling

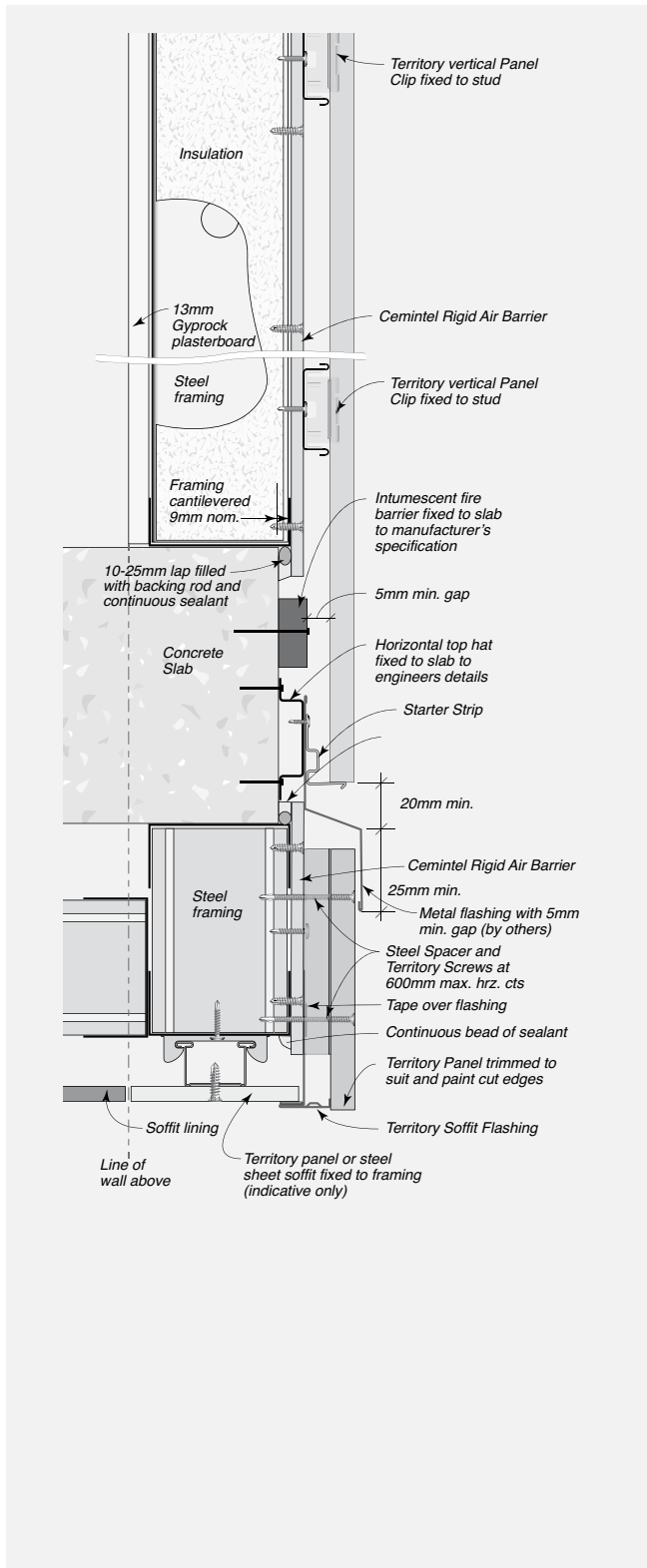
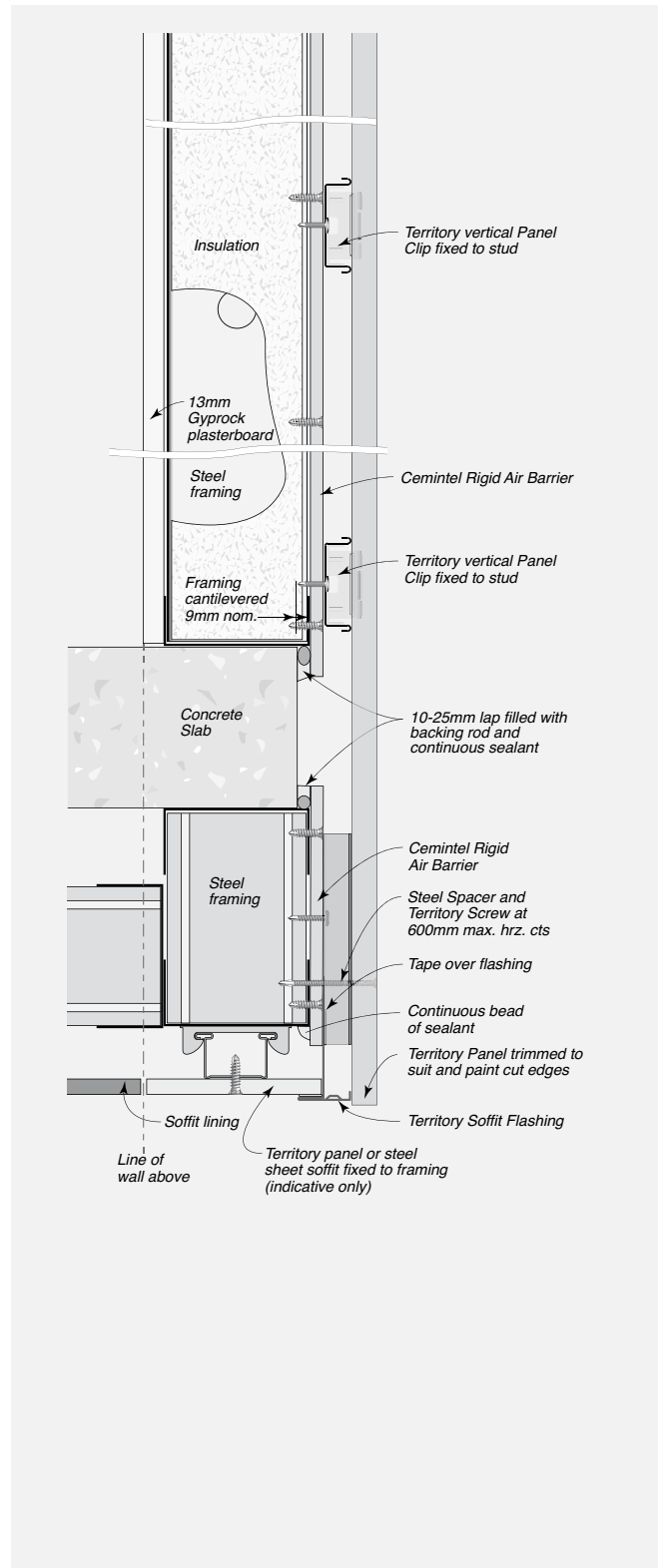


FIGURE 8.62 Composite Ceiling

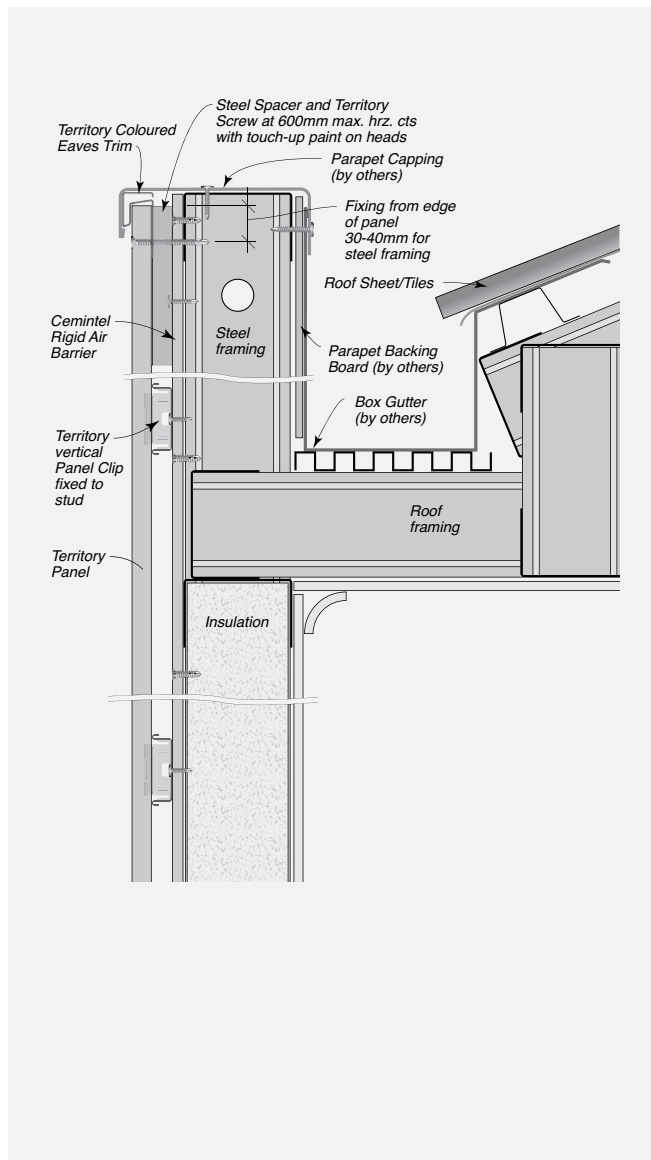




CONSTRUCTION DRAWINGS AND DETAILS

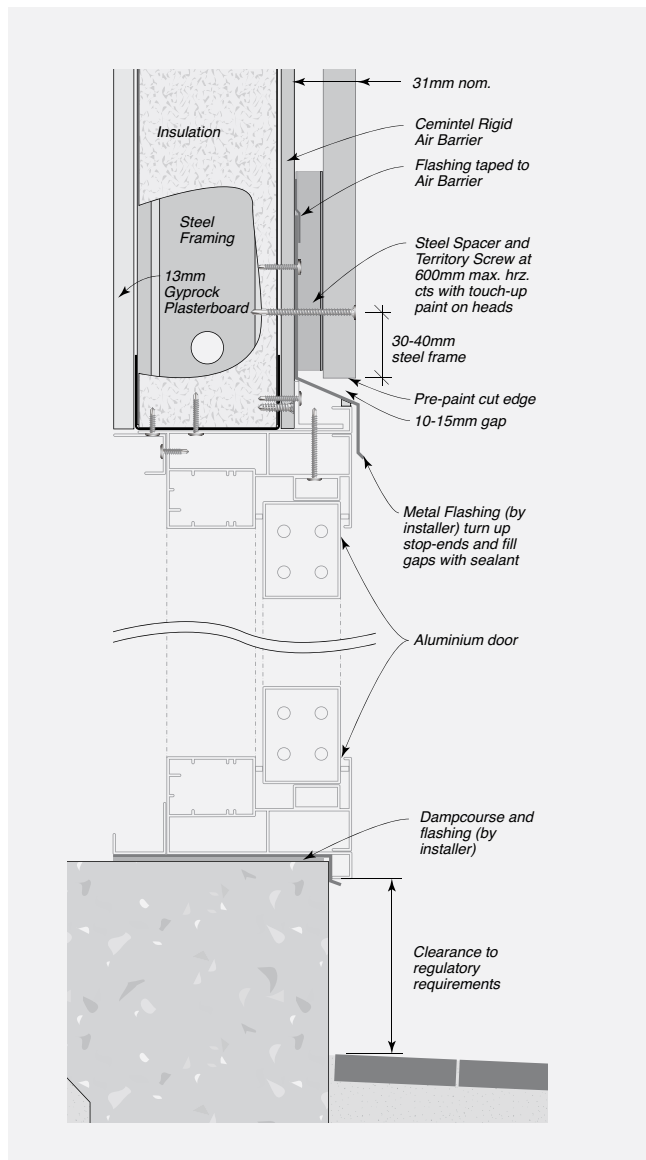
AS 5113 – Parapet Details

FIGURE 8.63 Parapet Details – Steel Framing



AS 5113 – Door Details

FIGURE 8.64 Dowell Sliding Door – Steel Framing



SAFETY, HANDLING + GENERAL CARE



SAFETY, HANDLING
+ GENERAL CARE



SAFETY, HANDLING + GENERAL CARE

Health, Safety and Personal Protection Equipment (PPE)

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

When cutting, drilling or grinding fibre cement panels using power tools, always ensure the work area is properly ventilated.

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

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

Managing Respirable Crystalline Silica dust

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

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

IF YOU USE THE CORRECT SAFETY EQUIPMENT AND PPE, FIBRE CEMENT IS SAFE TO USE.

Cemintel Safety Requirements

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

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

Handling & General Care

Storage

All Territory 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

Territory panels and corners are pre-finished products and must be treated with care during handling so as to avoid damage to edges, ends and pre-finished surface. Panels should be carried horizontally on edge by two people.

As the Territory range is a pre-finished product, consideration should be given to the activity of other tradespeople, in particular, a brick cleaner. It is highly recommended that installation of Territory should always be held off until the process of brick cleaning has been completed so as to avoid damage.

Cutting

Panels should be cut from the back using a power saw. Cemintel recommends using the FESTOOL TS 55 EBQ Plunge Cut Saw or Makita Plunge Saw with guide rail and appropriate blade. All exposed cut edges such as the window heads and roof junctions must be sealed with Cemintel edge sealer. Refer to 'Components' table for appropriate materials.

Mitreing of Panels

It is not recommended to mitre panels as this can cause delamination of the face.

Face Fixing of Panels

At face fixing points, all panels must be supported by a Spacer Strip of 200mm minimum length. Panels must be pre-drilled to accept nails. Use a 2.5mm drill bit and drill from the front. Nail/screw heads should finish flush with the panel surface. All visible nail/screw heads should be neatly covered with primer and colour-matched painted used sparingly. Do NOT use sealant on nail heads.

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.

Bevelled Edges

The top edge of panels at window sill level may require bevelling. Cemintel recommends using the FESTOOL DSC-AGP 125 Diamond Blade Cutting & Grinding Tool.

WARRANTY, CLEANING + MAINTENANCE

10

10
WARRANTY, CLEANING
+ MAINTENANCE

WARRANTY, CLEANING + MAINTENANCE

Warranty

The Cemintel Territory panels have a product warranty of 10 years.

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

Wash Down Process

Panels have been coated with a Nichiguard factory finish which has 'self cleaning' properties when exposed to rain water.

Consequently, ongoing maintenance should be limited to occasional rinse down.

When rinsing down panels, use no more than 700 psi (50kh/cm²) of water pressure at a minimum of 3m distance from the face of the wall. Water pressure should be applied downward to avoid forcing water into tongue and groove joints.

Territory panels should be washed with water only. Do not use detergents or scrub with a brush as this may damage the Nichiguard surface coating.

Inspection, Repair and Maintenance

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

Regularly inspect panel surfaces and follow wash-down procedures when required. Small blemishes can be repaired using touch-up paint or other approved paint.

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

It is recommended storing additional panels in case any panels are damaged in the future. Any small chips can be painted over with touch up paint which both hides the underlying panel colour and seals the panel to prevent moisture ingress.

If a whole panel needs to be replaced, the panels which sit above it will need to be removed one by one from the heading, and then reassembled with joints resealed.







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