

Technical Manual

Multi-Storey External Walls

July 2018. Version 5.0



FASTER.
BETTER.
STRONGER.

Pronto Panel™



Pronto Panel™ Technical Manual Contents

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FASTER. BETTER. STRONGER.



Introduction

Building with Pronto Panel

Pronto Panel is a lightweight concrete composite panel suitable for use as external cladding system. The non-load bearing panel system has been designed and tested to Australian conditions and satisfies Australian Standards and the National Construction Code. Pronto Panel is durable, lightweight and simple to assemble, making it perfect for multi-storey projects.

System Information

Compliance and Quality

Peace of mind

To provide peace of mind when using Pronto Panels, extensive testing has been undertaken and strict quality control measures have been put in place to ensure the panels meet the design and construction requirements for the Australian market.

CodeMark™ Certification

CodeMark is a building product certification scheme. The CodeMark scheme supports the use of new and innovative building products by providing a nationally and internationally accepted process for products to be assessed for compliance with the requirements of the building codes of Australia and New Zealand. The scheme provides confidence and certainty to regulatory authorities and the market through the issuing of a Certificate of Conformity.



National Construction Code

Pronto Panel meets the provisions of the NCC Performance Requirements. It has been tested for structural adequacy, fire resistance, acoustic performance and weathertightness. Thorough testing has been conducted to verify these requirements using registered testing authorities and expert judgement by professional engineers.

Quality

Pronto Panel is manufactured under licence by a company with full ISO 9001 accreditation. This ensures that all materials, processes, quality control and quality assurance are rigorously checked and verified.

Pronto Panel has achieved CodeMark Certification, an independent accreditation to further ensure the quality and consistency of the product.

Pronto Panel has numerous quality checks, both during manufacture and before dispatch, to ensure only the highest quality product reaches the market.

Each batch of Pronto Panel can be traced and verified by its batch number to its original raw materials.

Intention

This manual is intended to be used by experienced and qualified builders, engineers and architects. No responsibility is taken for inappropriate, incomplete and incorrect use of the information in this manual.

Scope and Applications

Pronto Panel is an external façade system designed for framed structures, ranging from single storey to multi-storey construction. Pronto Panel thermal properties, as well as details for fire resistance for wall system combinations, are outlined in this manual. Details of support and fixing for various wind conditions have also been provided.

This manual contains various construction details, as well as guidance on installation of Pronto Panels. Pronto Panel installation must be carried out by qualified panel installers. No responsibility is taken for incorrect installations of Pronto Panels.



Product Range

Pronto Panel

Pronto Panel comes in various lengths.



Panel size (mm) (L x W x T)	Dimensional Tolerance (mm)	Mass (kg)	Mass Tolerance (kg)
2,440 x 610 x 60	±5	77	±5
2,700 x 610 x 60	±5	85	±5
2,850 x 610 x 60	±5	90	±5
3,000 x 610 x 60	±5	95	±5

Pronto Panel Adhesive

Pronto Panel Adhesive comes in 20kg bags.



Pronto Panel consists of a composite of lightweight aggregates bonded into a cementitious matrix. The panels are sheeted with a Calcium Silicate board. The panels have been designed in such a way that they can be cut to size on site as required, without compromising its structural capacity.

Pronto Panel Material Properties

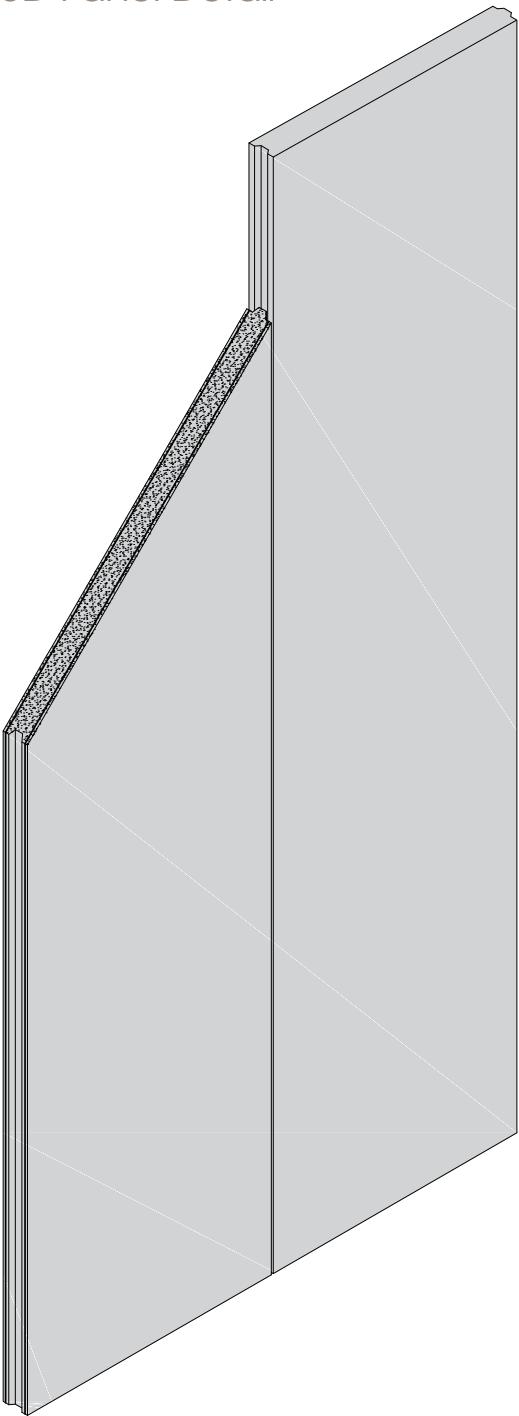
Properties	Value
Weight	52kg/m ²
Dry Density	770kg/m ³
Water Absorption	<5 %
*R-Value	0.253m ² .K/W

*The panel is tested in accordance with the Australian and New Zealand Standard AS/NZS 4859.1.

See *Thermal Properties*’ section for system R value.

Material Properties

3D Panel Detail



Structural Properties

Pronto Panel can be used as a non load-bearing façade where by vertical Pronto Panels are fastened onto horizontal lightweight structural top hats. As a façade, Pronto Panel would come in contact with various environmental factors. These factors include imposed wind action, wet weather, bush fire and heat transference. Extensive testing has been undertaken to ensure that the façade constructed using Pronto Panels performs in accordance with National Construction Code.

1. Weathertightness

The weathertightness of façade systems has become a vital part of construction in recent years. Pronto Panel has undergone a full scale water penetration test in accordance with NCC V2.2.1 at CSIRO. It was found that the system, with the prescribed construction details, could maintain watertightness up to the serviceability requirements for a category 2 cyclone.

Pronto Panel acts as an excellent rain screen as the panel itself is not water permeable. Also when external wind pressure acts upon the Pronto Panel façade, the weep holes in the façade system reduce the pressure differential between the cavity of the panel and the external environment, thus prevent the ingress of water into the cavity.



Structural Properties

2. Fixtures

When correctly installed, 8g screws embedded 50mm into the Pronto Panel would have a capacity to hold 120kg of weight per screw.

3. Mechanical Properties

Pronto Panel was subject to a 4 point bending test, pull out test and shear test at the University of Newcastle. The test results have been used to determine the batten and screw requirements of the

Pronto Panel System in different wind categories. It is assumed that the internal plasterboard linings do not contribute to the strength of the system.



Structural Properties

4. Wind Load

Pronto Panel can be used as a non-load bearing facade when it is installed correctly onto lightweight structural steel frames. The following table is a guide for designers in the selection of steel stud and top hat spacings. In all cases the strength of the supporting structure must be independently confirmed as sufficient to support the Pronto Panel System. Engineers are to be consulted if facade configurations are different to the parameters provided in this manual.

Design Parameters

Wind loads:
Calculated in accordance with AS1170.2:2002

Pronto Panel deflection limit:
SPAN/250

Note: this deflection limit is met by serviceability pressure equivalent to ultimate wind pressure in the table below. The serviceability to ultimate wind pressure is assumed to be 1.5.

Studs:
92 x 1.15 BMT steel studs

Fixings:
Minimum 3 fixings per top hat

Top hat:
Tapered roofing top hats

- Minimum 0.75BMT
- Minimum 4 top hats per panel

- Top and bottom top hats positioned 250mm from the ends of Pronto Panel
- Remaining top hats are to be evenly spaced between the top and bottom top hat

Pronto Panel wall system design table for 92 x 1.15BMT steel stud

Panel Supported At Base

Wall System Height	Ultimate Design Pressure (kPa) – 1 Noggin			
	Stud Spacing (mm)			
	300	400	450	600
2,700	2.19*	1.84*	1.73*	1.49
2,800	2.04*	1.72*	1.61	1.39
2,900	1.90*	1.60	1.50	1.30
3,000	1.78*	1.50	1.41	1.22

Notes: * Indicates four screws per panel per top hat are required

Pronto Panel wall system design table for 92 x 1.15BMT steel stud

Panel Suspended From Studs

Wall System Height	Ultimate Design Pressure (kPa) – 1 Noggin			
	Stud Spacing (mm)			
	300	400	450	600
2,700	2.19	1.84	1.73	1.49
2,800	2.04	1.72	1.61	1.39
2,900	1.90	1.60	1.50	1.30
3,000	1.78	1.50	1.41	1.22

Notes: Four screws per panel per top hat are required.

Structural Properties

5. Fire resistance

When used as a façade, Pronto Panel has shown to be able to satisfy all six Bush Fire Attack Levels including BAL-FZ (Flame Zone) for external cladding in accordance with AS3959. Pronto Panel has under gone a full-scale fire test in accordance with AS1530.4

where by it achieved a FRL of -/60/60. During the test, a 3m x 3m wall built from Pronto Panels was exposed to a temperature over 1000°C.

Pronto Panel is also deemed as a non-combustible material

as determined by testing in accordance with AS1530.1 for combustibility of material. In the test, Pronto Panel was exposed to heat flux in a controlled chamber, during which no flame was observed.

BAL	Description	Requirement for External Walls	Pronto Panel
Low	Minimum attack from radiant heat and flame. Some attack by burning debris is possible.	No special construction requirements.	✓
12.5	Attack by burning debris is significant with radiant heat not greater than 12.5kW/m². Specific construction requirements for ember protection and accumulation of debris are warranted.	Non-combustible material required to base of external walls up to 400mm above ground or decks.	✓
19	Attack by burning debris is significant with radiant heat not greater than 19kW/m². Specific construction requirements for embers and radiant heat are warranted.	Non-combustible material required to base of external walls up to 400mm above ground or decks.	✓
29	Attack by burning debris is significant with radiant heat not greater than 29kW/m². Specific construction requirements for ember and higher radiant heat are warranted. Some flame contact is possible.	Non-combustible material	✓
40	Radiant heat levels and flame contact is likely to significantly threaten building integrity.	Non-combustible material or tested for bushfire resistance to AS 1530.8.1	✓
FZ (Flame Zone)	Significant radiant heat and significant higher likelihood of flame contact from the fire front will threaten building integrity.	Non-combustible material with a minimum thickness of 90mm or an FRL of -/30/30 when tested from outside or to be tested for bushfire resistance to AS 1530.8.2	✓

6. Thermal Properties

Pronto Panel have been designed to provide excellent thermal performance when used as a system with wall wrap, insulation and plasterboard.

The following systems are based on 60mm Pronto Panels with 90mm studs, single sided reflective wall wrap, 10mm plasterboards and 24mm top hats.

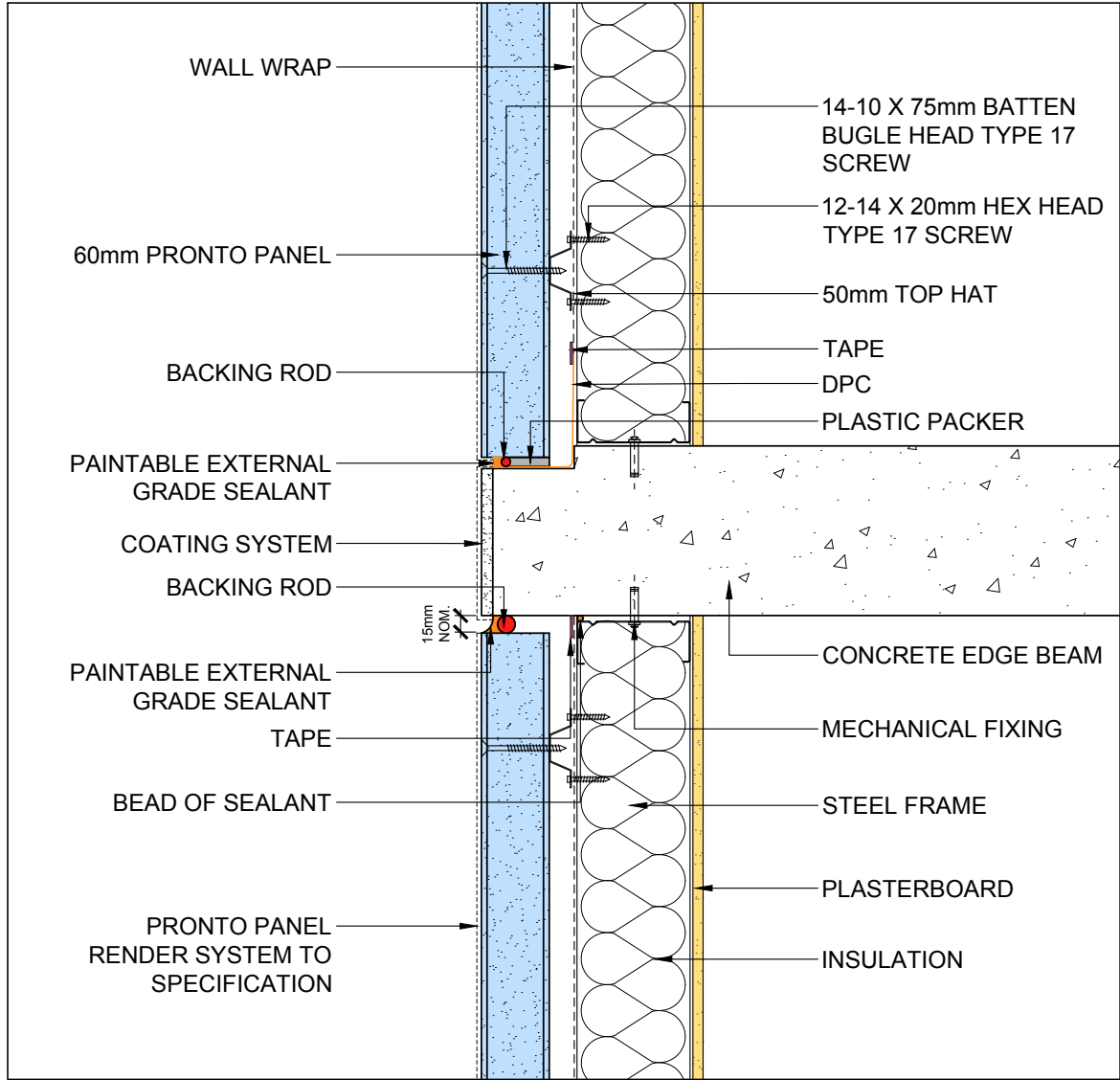
System	Components	R value (m².K/W)	
		Winter	Summer
1	Pronto Panel + Top hat + Wall Wrap + R2.5 Wall Batts + plasterboard	3.285	3.015
2	Pronto Panel + Top hat + R2.5 Wall Batts + plasterboard	3.081	2.828
3	Pronto Panel + Top hat + Wall Wrap + R1.5 Wall Batts + plasterboard	2.234	2.065
4	Pronto Panel + Top hat + R1.5 Wall Batts + plasterboard	2.030	1.878
5	Pronto Panel + Top hat + Wall Wrap + plasterboard	0.658	0.641

System Details

The details in the following sections show the common junctions of the Pronto Panel walls with other building elements, such as concrete floors and soffits, and intersections of walls.

The details in this manual are for illustration only. Refer to installation section for specification of components labelled in the details.

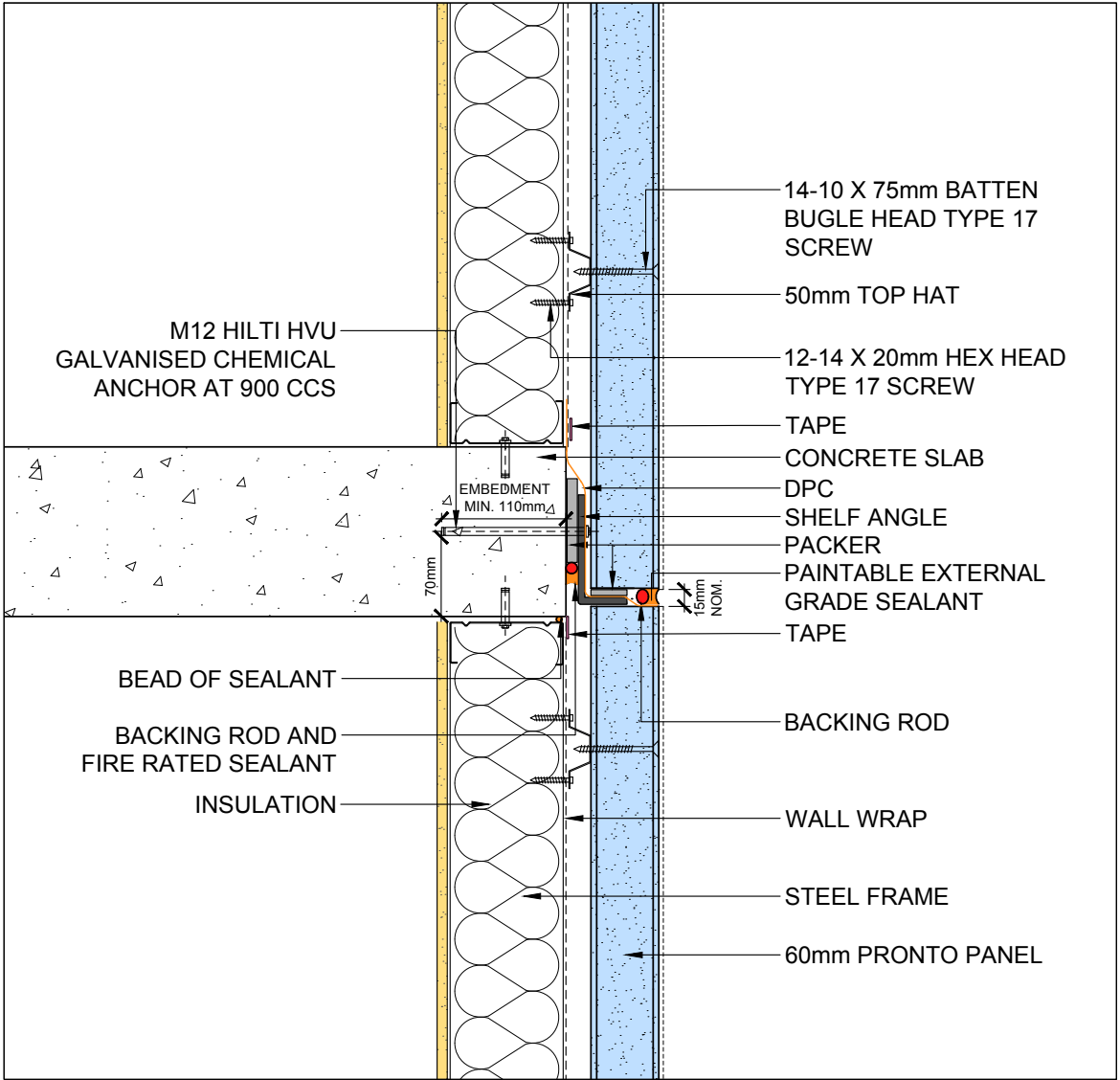
1. Slab Detail



Exposed Slab Detail.

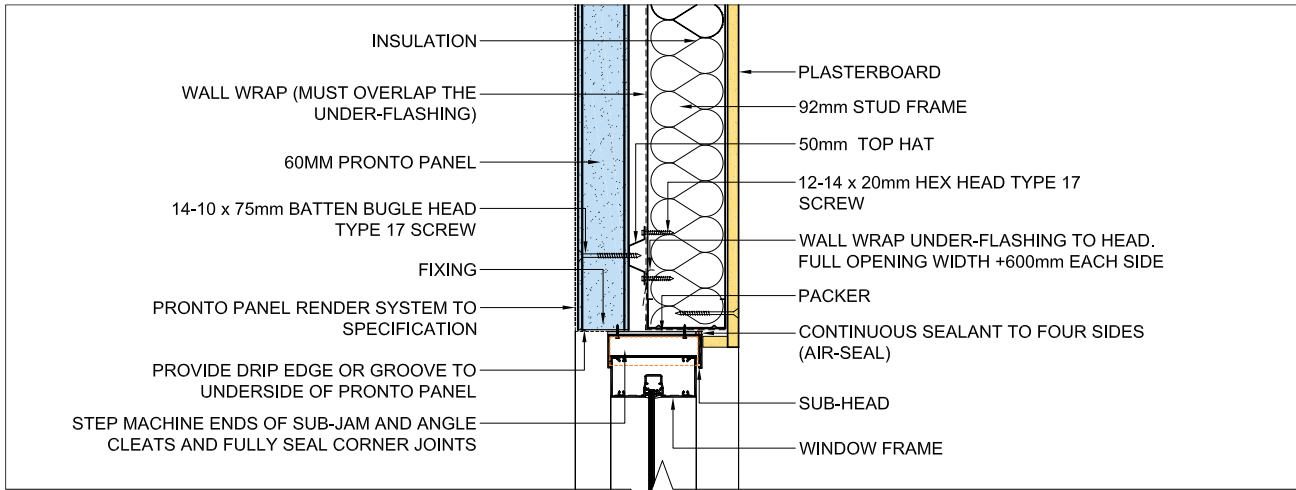
System Details

1. Slab Detail

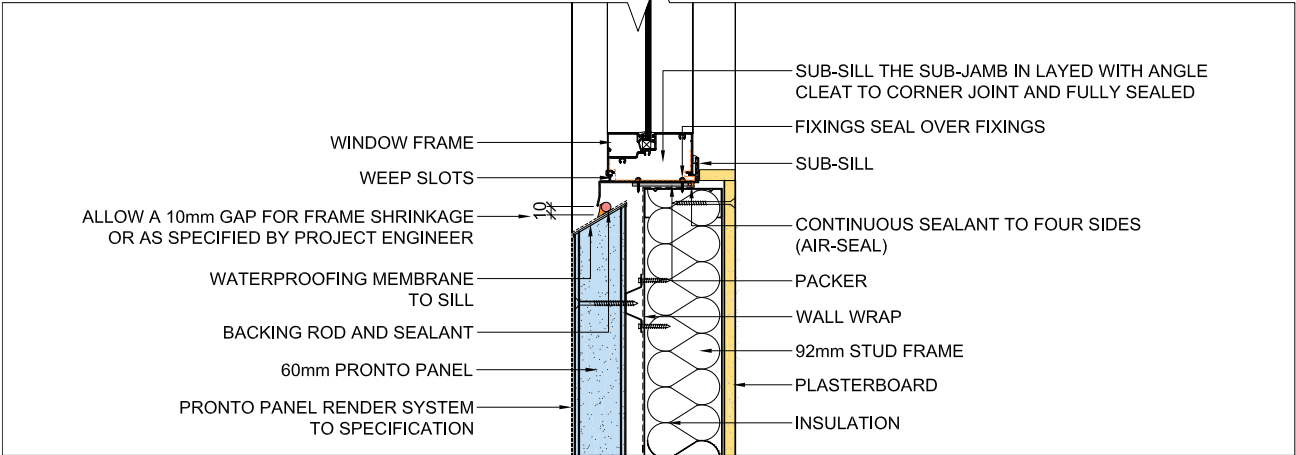


Unexposed Slab Detail. For buildings that have sprinklers.

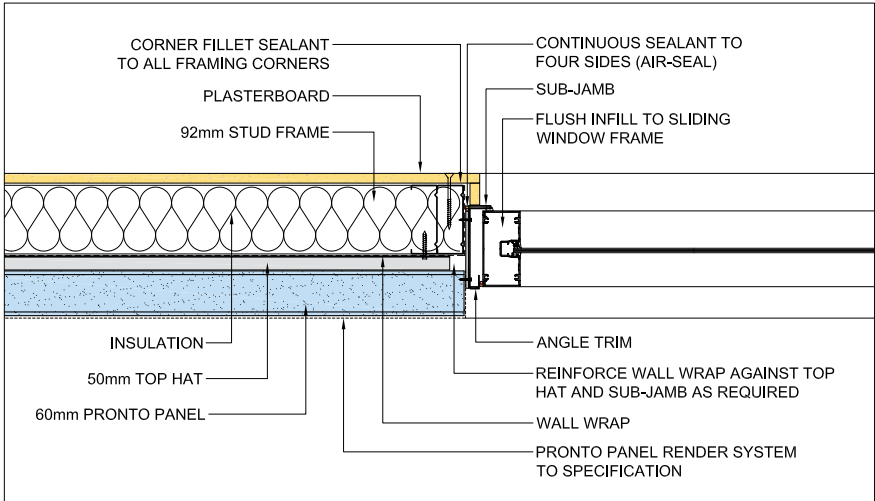
2. Window



Head Detail.

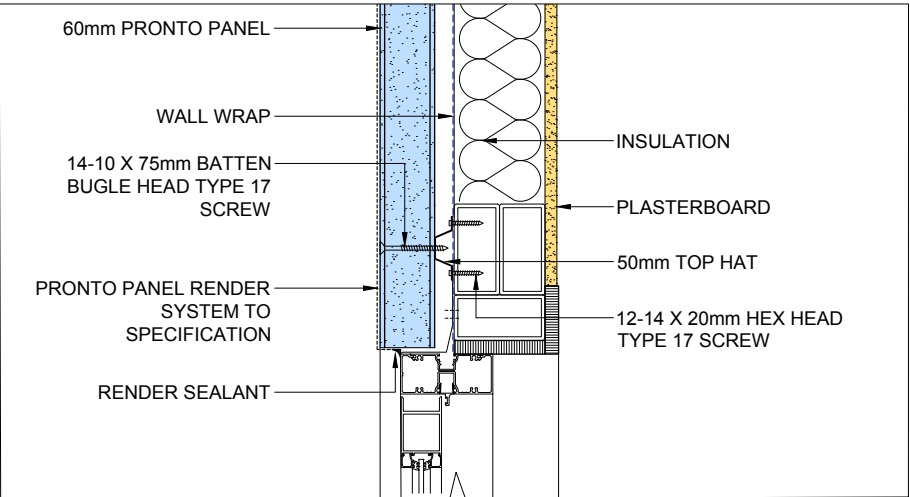


Sill Detail.

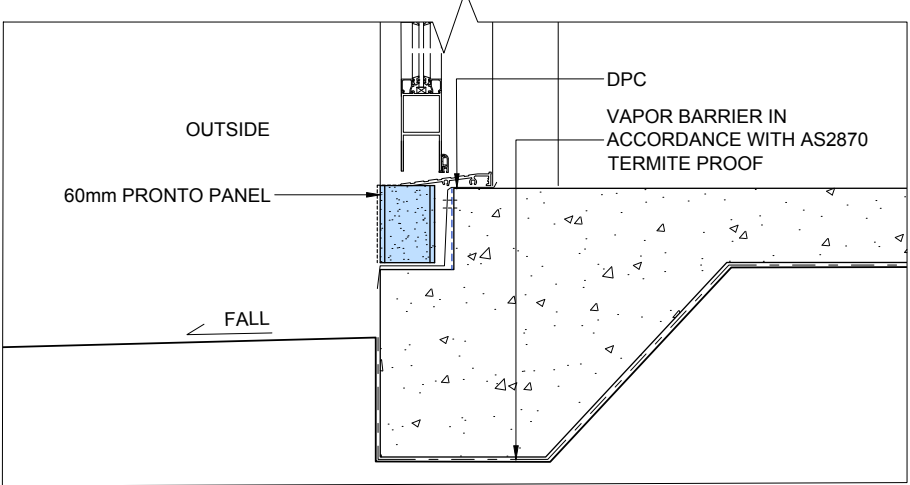


Jamb Detail.

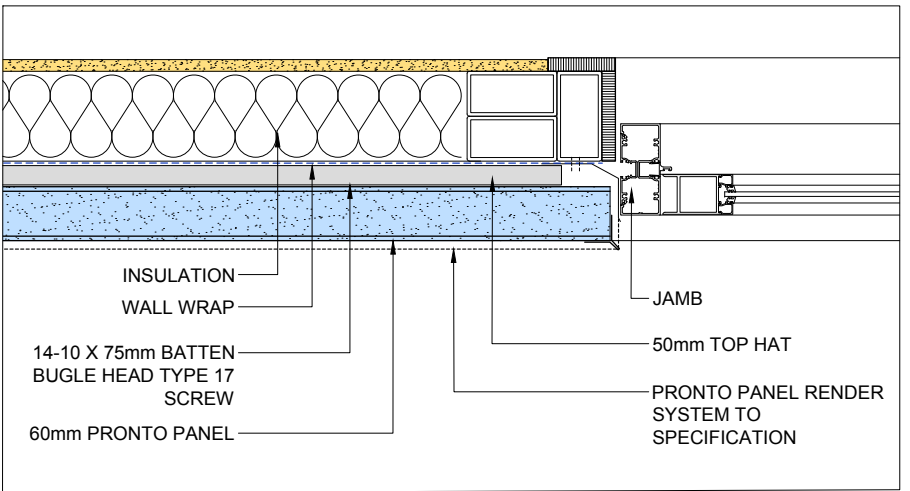
3. Sliding Door



Head Detail

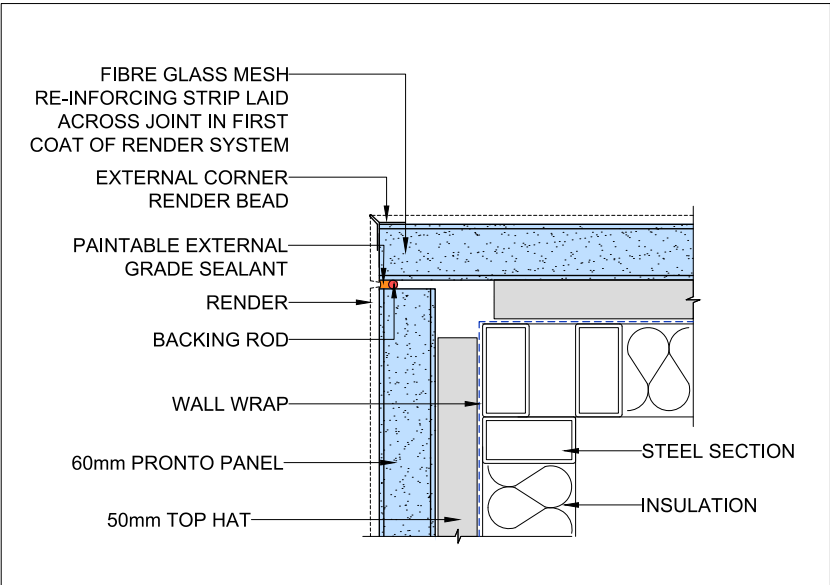


Sill Detail

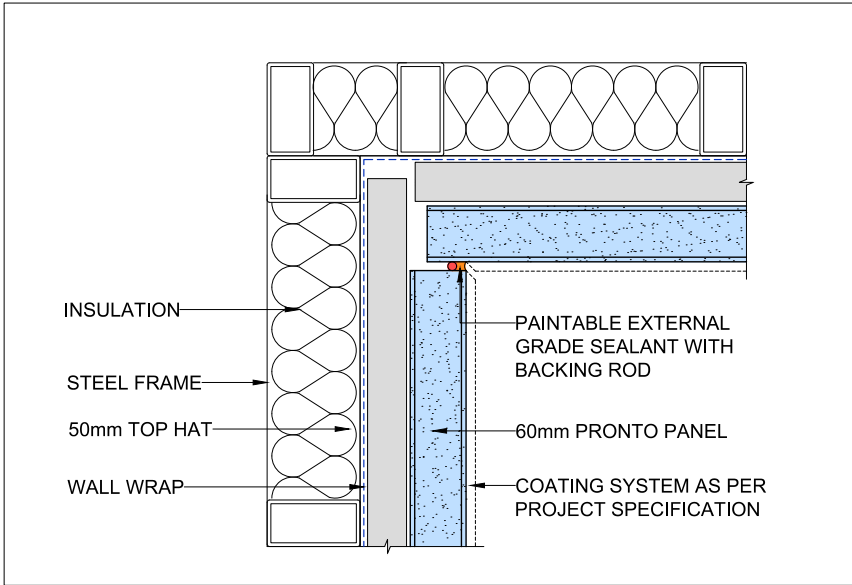


Jamb Detail

4. Corners

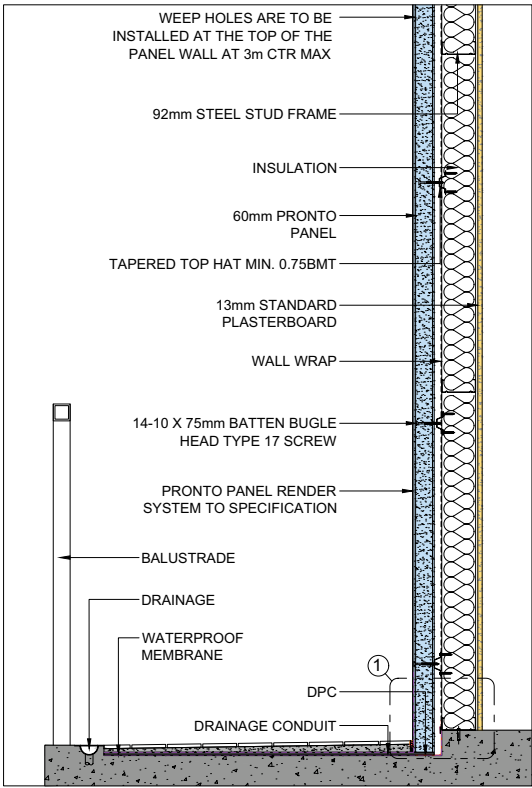


External Corner Detail.

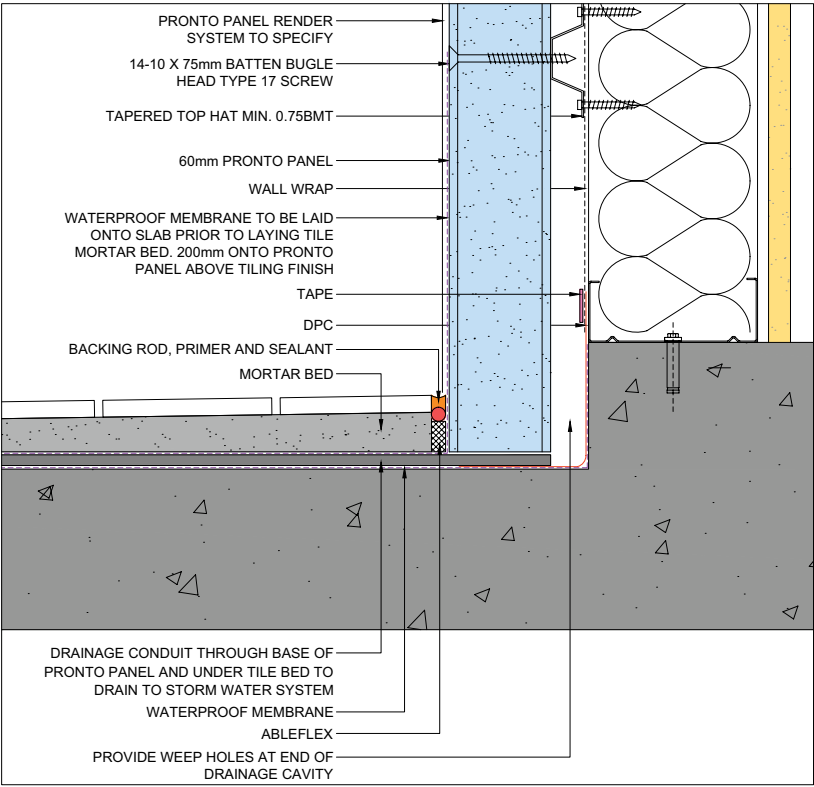


Internal Corner Detail.

5. Balcony

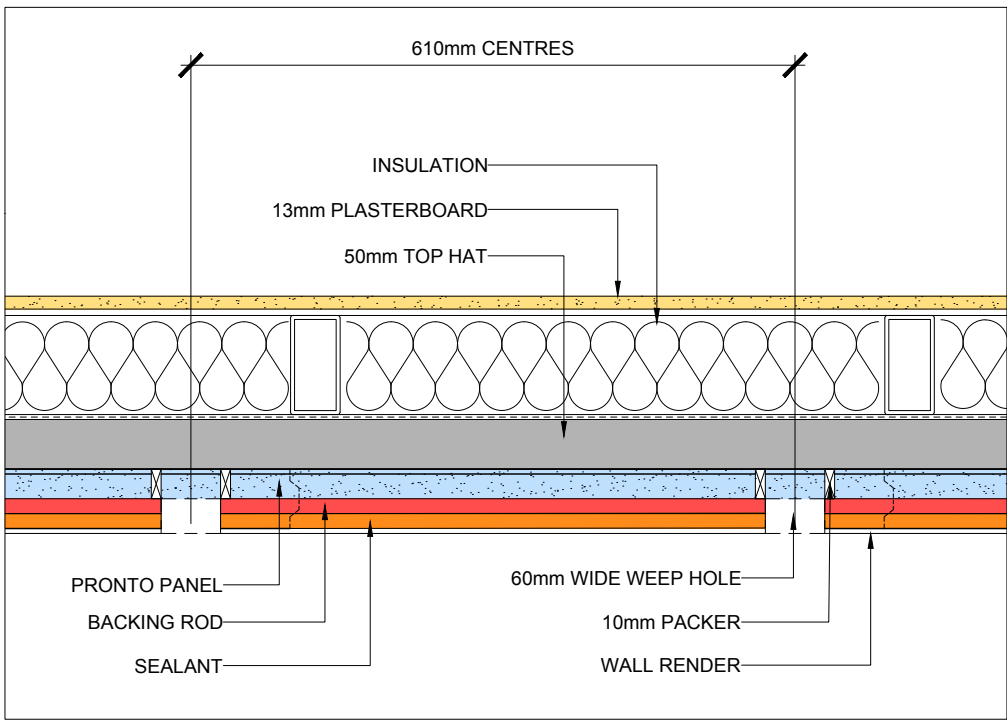
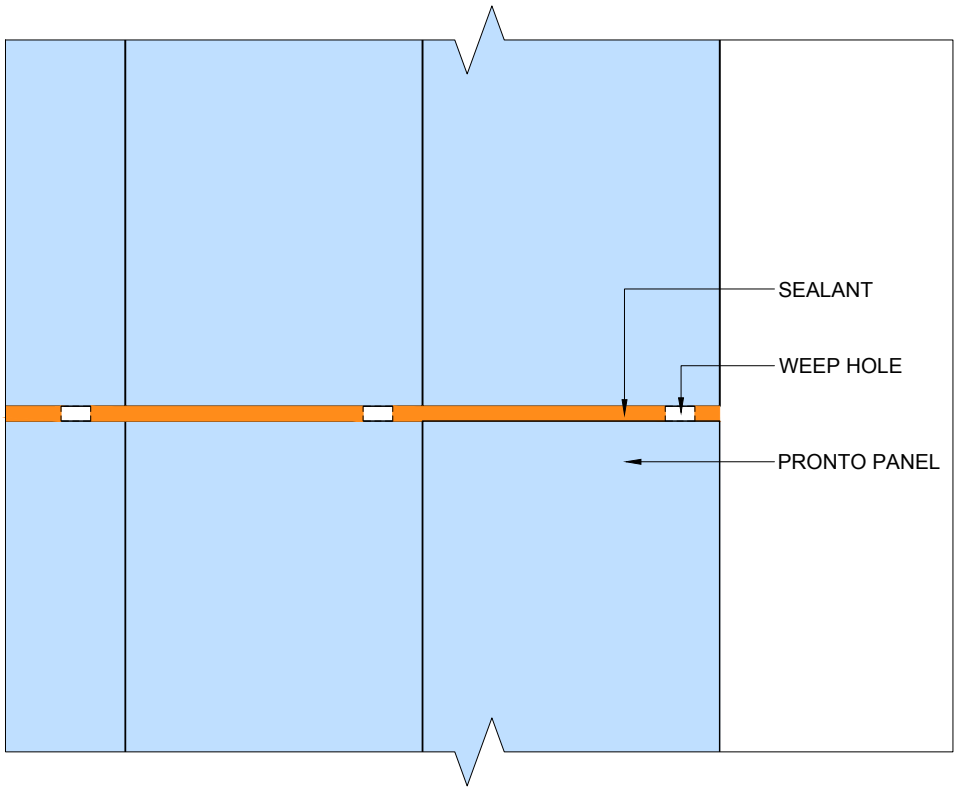


Balcony Detail.



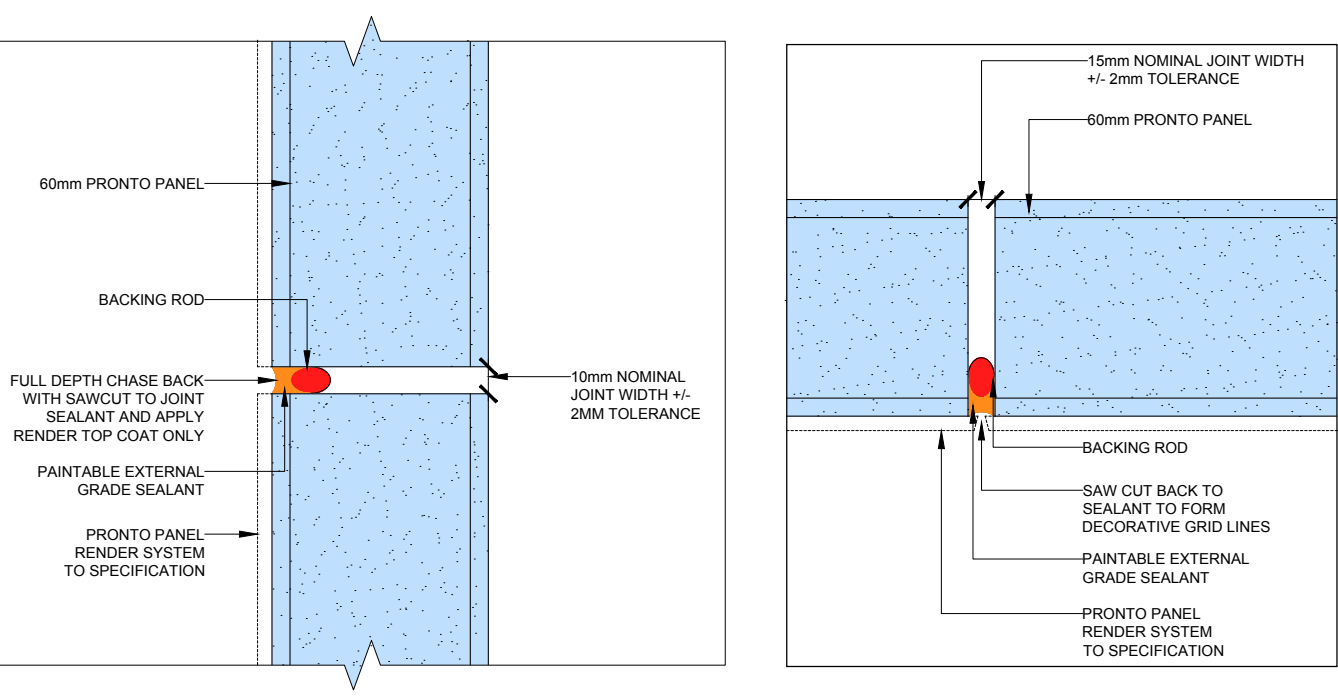
Flashing Detail.

6. Weep Holes



Weep Hole Details

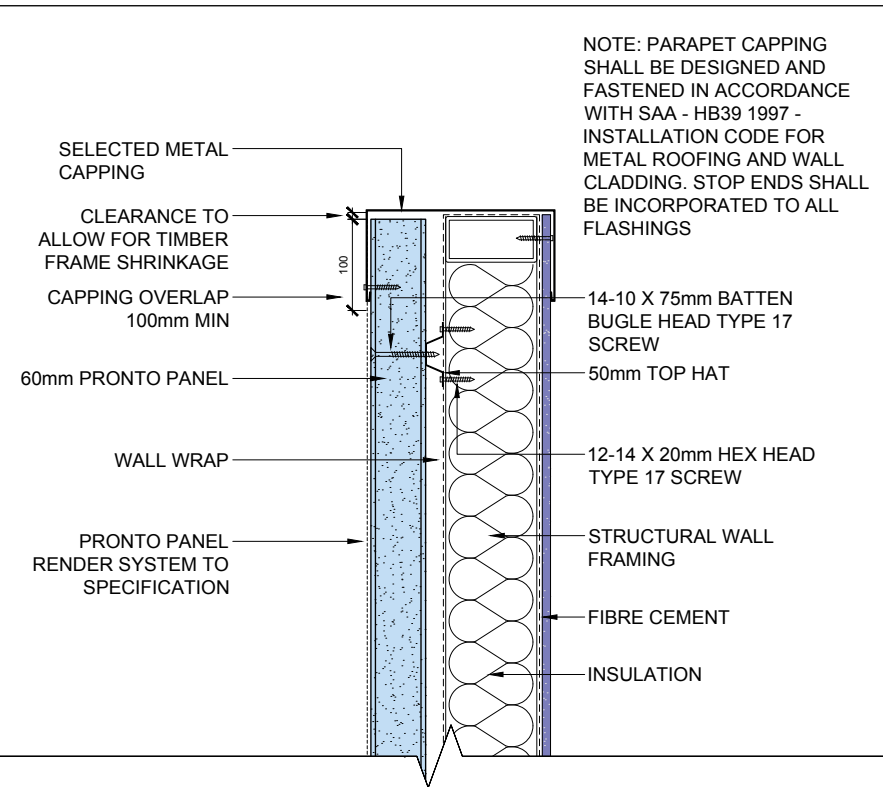
7. Control Joint



Horizontal Render Cut

Vertical V-Groove

8. Parapet



Parapet Detail



Delivery on Site

Pronto Panels are wrapped and strapped on pallets for delivery to site. Each pallet, containing 12 panels, is loaded by forklift onto trucks for delivery.

Pronto Panel can be unloaded either by forklift or a boom crane. The panels must be stored on site in areas where they will not be immersed in pooled water and clear of possible damage that could be caused by site movement and construction. The packs of Pronto Panels come wrapped with plastic sheeting and should remain covered during site storage.

Pronto Panel Adhesive bags are plastic wrapped and packaged on a pallet and must be stored in dry conditions. Shelf-life of Pronto Panel Adhesive is 12 months.



Pronto Panel Safety

1. Panel Content

Pronto Panel contains no toxic or volatile components. While the product contains polystyrene aggregates, they are coated with sufficient cement based matrix that they do not burn or emit dangerous volatile compounds in a fire situation.

2. Cutting/Drilling

Cutting or drilling the panels will liberate dust which must be controlled by suitable means. A suitable saw is a Makita 5057KB 1400W 185mm (7-1/4") Fibre Cement Dustless Circular Saw. It should be attached to an appropriate dust extraction system for minimal dust generation whilst cutting.

3. Pronto Panel Adhesive

The Pronto Panel Adhesive contains both cement powder and fine sand. This may constitute a hazard during use. Suitable respiratory protection, eye protection and hand protection must be worn when using this product.

4. Safe Handling of Pronto Panel

Pronto Panel weighs between 85 and 95kg, depending on length. We recommend the use of a cradle trolley to transport the panels from the pallet to the worksite. If a Pronto cradle trolley is not available the panels may be transported flat on a pallet jack or similar.

The panels do not have to be completely lifted into place for installation. The panels are to be placed with the base on the floor and the top end raised to meet the slotted angle. This reduces the load to be lifted and allows two operators to rotate the panels into position.

Safety Data Sheets for these products are available from the Pronto Panel website www.prontopanel.com.au or by contacting **13 PANELS (13 726 357)**

Please see the installation section for full details of installation.

1. System Components

Pronto Panel

Pronto Panel comes in various lengths.

Panel size (mm) (L x W x T)	Dimensional Tolerance (mm)	Mass (kg)	Mass Tolerance (kg)
2440 x 610 x 60	±5	77	±5
2,700 x 610 x 60	±5	85	±5
2,850 x 610 x 60	±5	90	±5
3,000 x 610 x 60	±5	95	±5



Pronto Panel Adhesive

Pronto Panel Adhesive (supplied in 20kg bags) is used to fill in the cavity between adjacent Pronto Panels.



2. Fixings (not supplied by Brickworks)

Pronto Panel to building frame

24mm or 50mm tapered top hats are fixed to the building frame. Pronto Panel is then fixed to the top hats.

The top hats are to be G550, Z275 grade steel with tapered leg such as: 24mm DEEP STUDCO M304 (0.75 BMT), or 50mm DEEP STUDCO TH50 (0.75 BMT)



Battens to building frame fixings

Galvanised 12-14 x 20mm Type 17 screws or equivalent are used to fix top hats to the building frame.

All screws used shall be in accordance with AS3566.1 and AS3566.2



Pronto Panel to top hat

14-10 x 75mm Type 17 Bugle Batten Screw with countersunk ribbed head or equivalent are used to fix Pronto Panel to top hats. Do not use impact driver to fix screws to panels.

All screws used shall be in accordance with AS3566.1 and AS3566.2



3. Tools Required for Installation of the Pronto Panel System

- Chalklines for marking out wall element locations
- Electric drill mixer (recommended)
- Mixing buckets
- Trowel
- Grinder/steel cutting saw
- Electric screw gun
- Sealant gun and fire resistant acrylic sealant
- Davco Tile and Grout Cleaner
- Metal mechanical fasteners
- Electric power saw with diamond blade



4. Installer

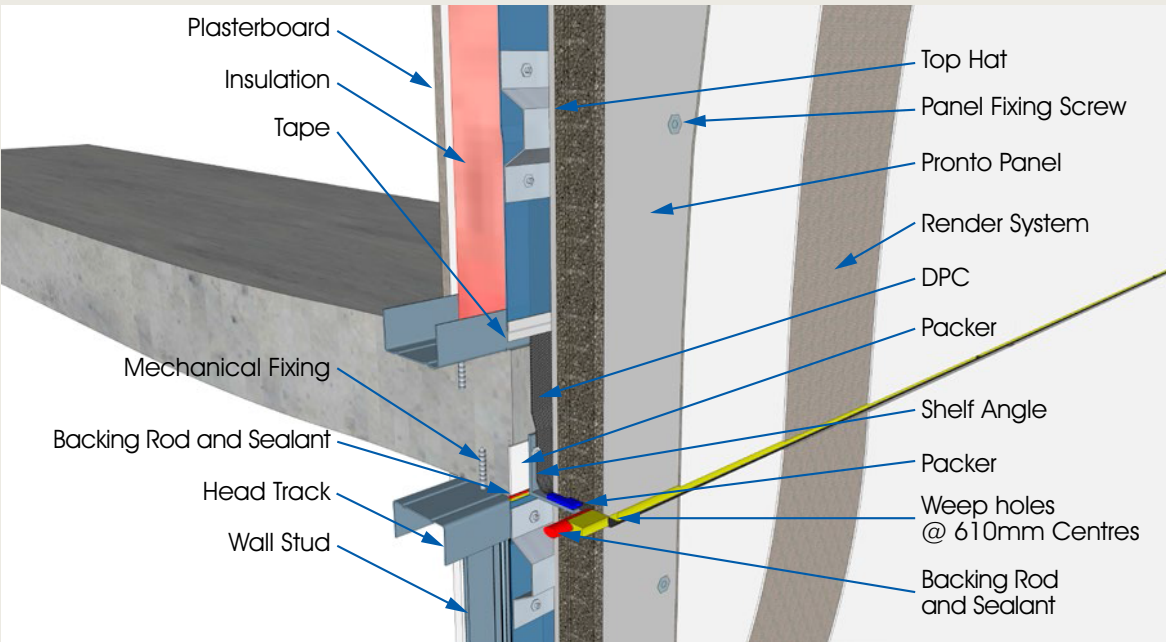
Pronto Panel installation must be carried out by qualified panel installers.

No responsibility is taken for incorrect installations of Pronto Panel.

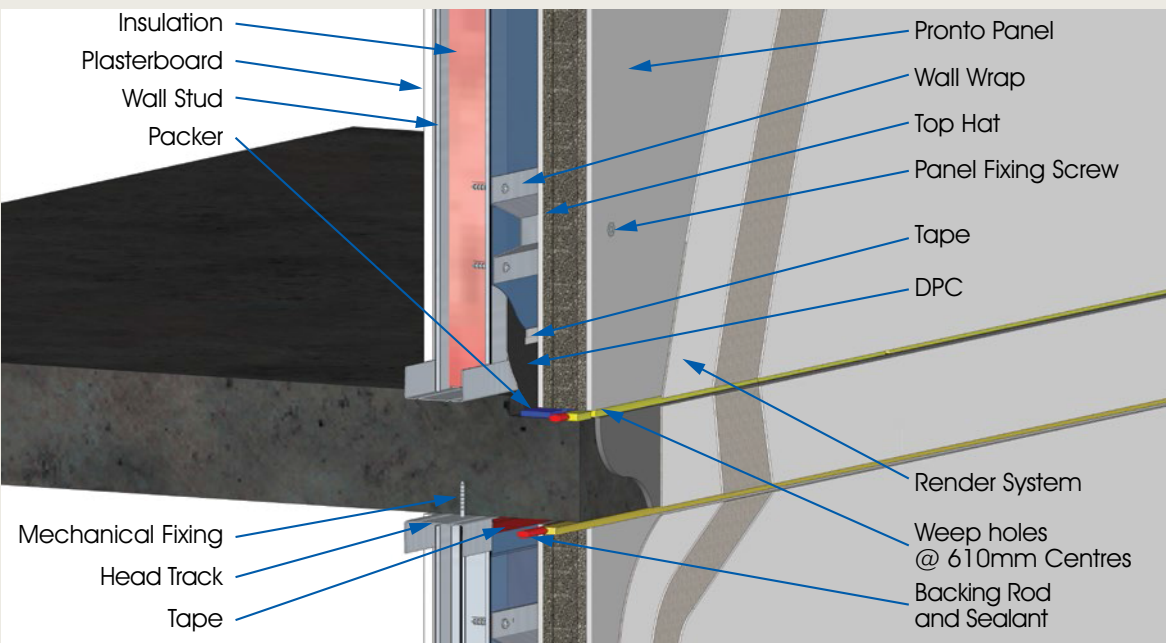


5. Installation Procedures

Unexposed slab



Exposed slab



5. Installation Procedures

Shelf angle

When Pronto Panels are installed to cover floor slab, metal shelf angle is used to provide support during installation. The project engineer is responsible for determining the dimensions and durability of the shelf angle as well the connection systems associated with the shelf angle.

Wall Wrap

Fix wall wrap onto frame using appropriate fasteners. Overlap and tape wrap as per manufacturers specifications.
The wall wrap shall be in accordance with AS/NZS 4200.1 and installed in accordance with AS/NZS 4200.2 as a vapour control barrier.

Fixing top hats to frame

Check the number of top hats required. Install the top hats above and below openings. Top and bottom top hats are to be installed maximum 250mm from the end of Pronto Panel. Ensure top hats are discontinuous at control joints.

Install Pronto Panel

To minimise cutting on site, plan out panel layouts, take into account openings and penetrations.
It is good practice to start the installation of the panel from the corner of the building.
Check the number of screws required. Fix Pronto Panels to top hats using 14-10x75mm Type 17 Bugle Batten Screw with countersunk ribbed head.
Ensure screws are countersunk into panel and are covered by adhesive. Apply Pronto Panel Adhesive to vertical joints. Install next panel.
Check control joint layout.
Care should be taken in selecting the correct grade of screws for various corrosion environment. All screws used shall be in accordance with AS3566.1 and AS3566.2.

Damp Proof Course

The damp proof course (DPC) material shall be in accordance with AS/NZS 2904.
Note: To comply with NCC SA variation the DPC shall be in accordance with AS/NZS 2904 using either embossed black polyethylene film or polyethylene coated aluminium or bitumen impregnated materials not less than 2.5mm thickness when used in walls greater than 7.8m above the level of the DPC.

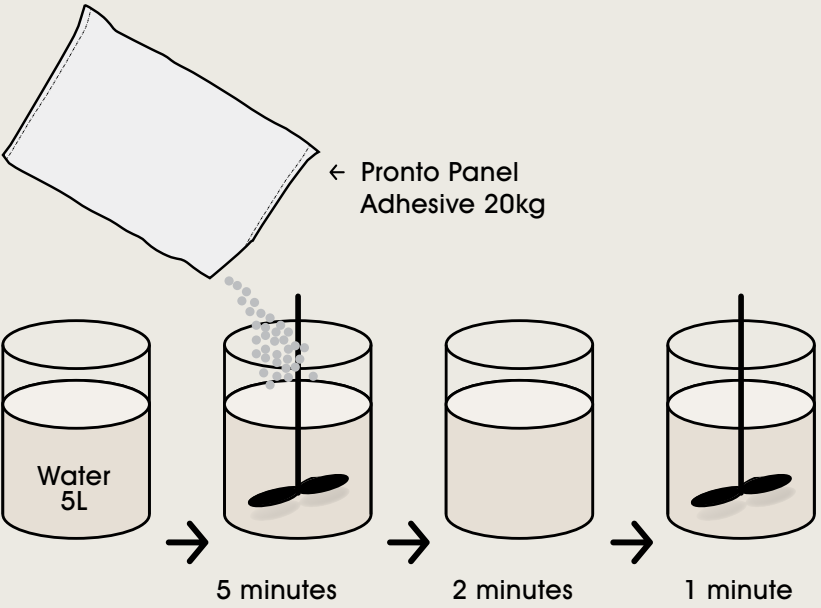
Weep holes

Weep holes allow any moisture that does enter the cavity of the Pronto Panel system to be able to exit. Weep holes are created either by drilling a 75mm x10mm wide hole at the base of every second panel or by leaving 75mm wide breaks in the line of sealant and backing rod. Ensure that weep holes are no more than 1.2m apart. See system details on weep holes.

5. Installation Procedures

Adhesive

Mix a 20kg bag of Pronto Panel adhesive with an electric mixer in a 20L bucket with 5L of water. Adhesive coverage is approximately 40m² / 20kg bag.



Slowly add the contents of the 20kg bag of adhesive to 5 litres of water while stirring continuously. Continue stirring until the consistency is smooth. Leave mixture for 2 minutes to allow for hydration before mixing again for another minute. The adhesive has a pot life of 2 hours at 25°C.



CAUTION: For handling of adhesives, personal protection such as safety glasses to AS1337 and chemical gloves must be worn. P1 or P2 dust mask is also recommended. Please refer to the SDS for more details.

5. Installation Procedures

Sealant

Where a fire rated sealant is required it shall be TBA Intumastic Sealant, Promat Acrylic AN, Bostick Fireban One or Sika Fireate Acrylic Sealant.

Control Joints

Control joints shall be located in walls of Pronto Panels to accommodate building movement including, but not limited to, foundation settlement and deflections of supporting structure, e.g. suspended slab deflection.

Control joints should be placed at points of stress concentration. Examples of these locations are listed below:

- At changes in height or thickness of wall
- Near door and window openings
- Near corners and intersecting walls

To accommodate thermal expansion of the Pronto Panels, vertical control joints in walls shall be spaced at no more than 5.5m centres in continuous runs of wall. Horizontal control joints shall be placed at no more than 3.5m centres.

Control joints must be filled with appropriate sealant and backing rod. See system details on control joints.

It is vital to consult engineer and architect to determine the width and locations of all control joints.

Penetrations

Where possible all penetrations through Pronto Panel walls should be treated as per window detail, incorporating flashing tape and polyurethane sealant. This is particularly important for electrical meter boxes and the like. Extra mesh tape is required around the penetration for added reinforcing during the render process.

Coating System

A number of rendering systems have been specifically engineered to be used with Pronto Panel. Depending on the project, aesthetic requirements and budget, specifications are available from select coating system manufacturers to suit Pronto Panel.

All systems must be applied in accordance with guidelines as outlined by the coating system manufacturer and as per the relevant Product Data Sheets and specification.

All costing systems are required to have meshing between Pronto Panel joints unless coating supplier permits otherwise.

Details of the preferred coating systems can be found on www.prontopanel.com.au

Warranty

Our tradition, experience and financial strength have made Brickworks Building Products the first choice for many architects, builders and designers. Brickworks Building Products continued commitment to quality and innovation ensures that our products will remain the benchmark for excellence for many years to come. Pronto Panel has a warranty of 15 years as per Brickworks Building Products’ Warranty.

Pronto Panel
has a Warranty
of **15 years**

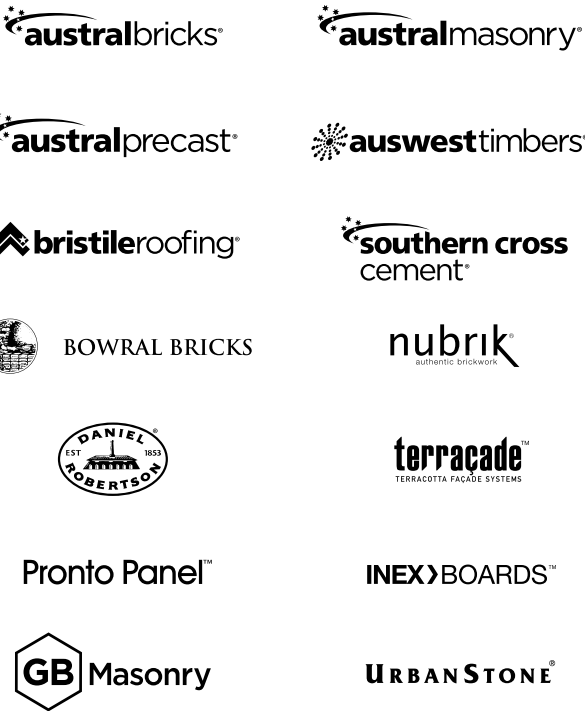


WE ARE *Brickworks*

Brickworks Building Products is one of Australia’s largest and most diverse building material manufacturers. Under the Brickworks Building Products umbrella are some of Australia’s best known building materials brands. Our products include bricks, pavers, masonry blocks, retaining wall systems, precast concrete panels, concrete and terracotta roof tiles, timber products, terracotta façades and specialised building systems.

With a broad product portfolio and manufacturing and sales facilities across Australia, Brickworks Building Products is uniquely placed to service the demands of the building industry.

With over 1,200 staff across Australia and New Zealand, we pride ourselves on our commitment to product, service excellence and our leadership position.



Pronto Panel Head Office National

62 Belmore Road
Punchbowl NSW 2196

Trading hours

For trading hours please call
13 PANELS (13 726 357)

Pronto Panel™

13 PANELS (13 726 357)

Email: sales@prontopanel.com.au

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