



# Installation Guide and Technical Specification

RAB™ Board

COMMERCIAL

**Australia** December 2019

**Make sure your information is up to date.**

When specifying or installing James Hardie™ products, ensure that you have the current technical information and guides. If in doubt, or you need more information, visit [www.jameshardie.com.au](http://www.jameshardie.com.au) or Ask James Hardie™ on 13 11 03.

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# 1 INTRODUCTION

Finding a balance between water and condensation management, air-tightness and non-combustibility can be challenging - particularly when it comes to designing taller and more complex facades.

This is why a solution that offers protection and peace of mind is the only way to overcome poor building performance and reduced comfort levels for occupants.

Introducing RAB™ board, the rigid air barrier by James Hardie.

Designed to meet the building industry's changing requirements for high-performance weather barriers, this unique green panel is sealed with James Hardie's innovative CoreShield™ penetrating sealer technology, keeping water, air and wind out, while allowing moisture vapour to easily escape - enabling the framing cavity to drain and dry.

Installed beneath external cladding or rainscreens, RAB™ board delivers superior water resistance, long-term durability and strength - and is also suitable for use in non-combustible construction.

The result of James Hardie's extensive innovation and research into durable and resilient façade design, RAB™ board provides a fully-certified solution that offers superior defence against wind and moisture.

The RAB™ board supplied by James Hardie is warranted for a period of 10 years.

Please refer to the terms and conditions stated in the warranty document available at [JamesHardie.com.au](http://JamesHardie.com.au)

### If you are a specifier...

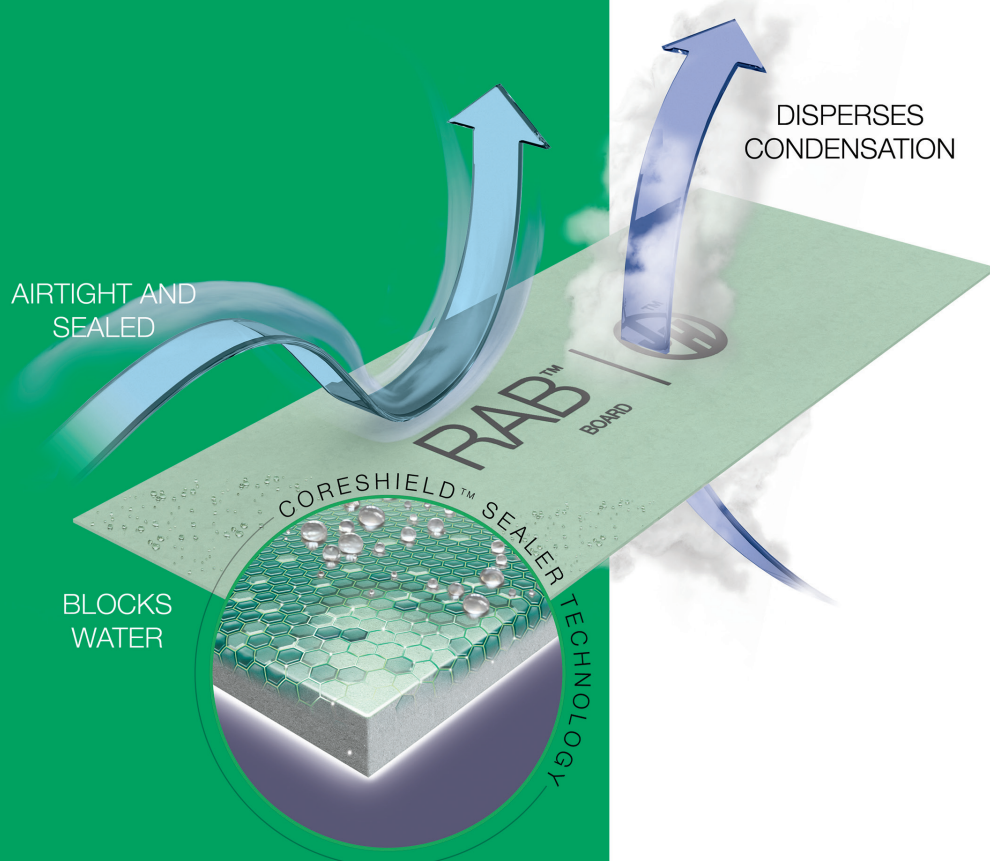
or other responsible party for a project, ensure the information in these specifications is appropriate for the application you are planning and that you undertake specific design and detailing for areas which fall outside the scope of these specifications.

### If you are an installer...

Ensure that you follow the design, moisture management and associated details and material selection provided by the designer and the RAB™ board Installation Guide.

### IMPORTANT NOTES

1. Failure to install, finish or maintain this product in accordance with applicable building codes, regulations, standards and James Hardie's written application instructions may lead to personal injury, affect system performance, violate local building codes, and void James Hardie's product warranty.
2. All warranties, conditions, liabilities (direct, indirect or consequential) and obligations whether arising in contract, tort or otherwise other than those specified in James Hardie's product warranty are excluded to the fullest extent allowed by law. For James Hardie's product warranty information and disclaimers about the information in this guide, visit [www.jameshardie.com.au](http://www.jameshardie.com.au).
3. The builder must ensure the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying aesthetic surface variations following installation.



MADE IN AUSTRALIA



# 2 SAFE WORKING PRACTICES

## WARNING - DO NOT BREATHE DUST AND CUT ONLY IN WELL VENTILATED AREA

James Hardie products contain sand, a source of respirable crystalline silica which is considered by some international authorities to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) minimise dust when cutting by using either 'score and snap' knife, fibre cement shears or, where not feasible, use a HardieBlade™ Saw Blade (or equivalent) and dust-reducing circular saw attached to an appropriate, well maintained, M-class vacuum or greater with appropriate filter; (3) warn others in the immediate area to avoid breathing dust; (4) wear a properly-fitted, approved dust mask or respirator (minimum P1) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures. During clean-up use a M-class vacuum or greater with appropriate filter, both of which are well maintained and appropriate for capturing fine (respirable) dust. Alternatively, use wet clean-up methods - never dry sweep. For further information, refer to our installation instructions and Safety Data Sheets available at [www.jameshardie.com.au](http://www.jameshardie.com.au). FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

### JAMES HARDIE RECOMMENDED SAFE WORKING PRACTICES

#### CUTTING OUTDOORS

- Position cutting station so wind will blow dust away from the user or others in working area.
- Use one of the following methods based on the required cutting rate:
  - Best** ▪ Villaboard™ knife ▪ Hand guillotine ▪ Fibreshear
  - Better** ▪ Position the cutting station in a well-ventilated area. Use a dust reducing circular saw equipped with HardieBlade™ Saw Blade or comparable fibre cement blade and well maintained M-class vacuum or greater with appropriate filter for capturing fine (respirable) dust. Wear a properly-fitted, approved dust mask or respirator (minimum P1).

#### CUTTING INDOORS

- Cut only using Villaboard™ knife, hand guillotine or fibreshears (manual, electric or pneumatic).
- Position cutting station in a well-ventilated area

#### DRILLING / OTHER MACHINING

When drilling or machining you should always wear a P1 dust mask and warn others in the immediate area.

#### IMPORTANT NOTES

- For maximum protection (lowest respirable dust production) James Hardie recommends always using best practice cutting methods where feasible.
- NEVER use a power saw indoors.
- ALWAYS use a circular saw blade that carries the HardieBlade™ logo or is of at least comparable performance.
- NEVER dry sweep - Use wet suppression, or an M class vacuum or greater with appropriate filter.
- NEVER use grinders.
- ALWAYS follow tool manufacturers' safety recommendations.

#### DUST MASKS AND RESPIRATORS

As a minimum, an AS/NZS1716 P1 respirator must be used when doing any activity that may create dust. For more extensive guidance and options for selecting respirators for workplaces please refer to Australian/New Zealand Standard 1715:2009 "Selection, Use and Maintenance of Respiratory Protective Equipment".

P1 respirators should be used in conjunction with the above cutting practices to minimise dust exposure.

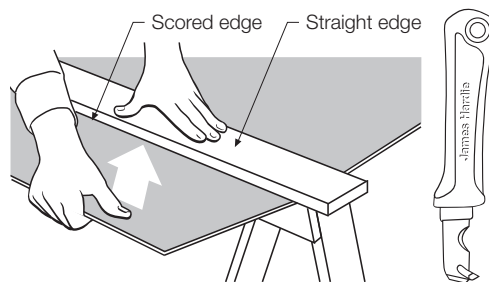
For further information, refer to Safety Data Sheet (SDS) available at [www.jameshardie.com.au](http://www.jameshardie.com.au). If concern still exists about exposure levels or you do not comply with the above practices, you should always consult a qualified industrial hygienist or contact James Hardie for further information.

## 2.1 WORKING INSTRUCTIONS

Refer to recommended safe working practices before starting any cutting or machining of product.

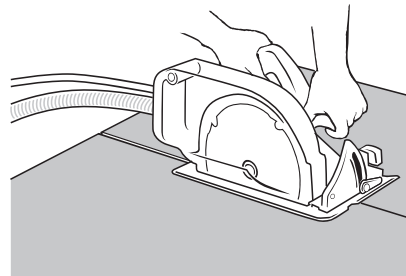
### Villaboard™ Knife - Score and snap

Score and snap is a fast and efficient method of cutting James Hardie™ building products using James Hardie's Villaboard™ knife. Preferably score on the face side of the product. Score against a straight edge and repeat the action to obtain adequate depth for clean break – normally one third of sheet thickness. Snap upwards to achieve break. Smooth any rough edges with a rasp.



### HardieBlade™ Saw Blade

The HardieBlade™ Saw Blade used with a dust-reducing saw is ideal for fast, clean cutting of James Hardie™ fibre cement products. When sawing, clamp a straight-edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.




## 2.2 STORAGE AND HANDLING

To avoid damage, all James Hardie™ building products should be stored with edges and corners of the product protected from chipping. James Hardie™ building products must be installed in a dry state and protected from weather during transport and storage. The product must be laid flat under cover on a smooth level surface clear of the ground to avoid exposure to water, moisture, etc.

# 3 PRODUCT PERFORMANCE AND INFORMATION

## 3.1 – SIZES AND PROFILES

| RAB™ BOARD  |                                      |  |                                    |
|---|--------------------------------------|--|------------------------------------|
| PRODUCT   | DESCRIPTION                          | SHEET SIZES                                |                                    |
|  | Thickness: 6mm<br>Density: 1330kg/m³ | <b>Vertical install over 600mm framing</b> |                                    |
|   |                                      | Product Codes                              | Width (mm) Length (mm) Weight (kg) |
|   |                                      | 405127                                     | 1200 2700 26.0                     |
|   |                                      | 405126                                     | 1200 3000 29.0                     |
|   |                                      | <b>Vertical install over 450mm framing</b> |                                    |
|   |                                      | Product Codes                              | Width (mm) Length (mm) Weight (kg) |
|   |                                      | 405128                                     | 1350 2700 29.2                     |
|   |                                      | 405117                                     | 1350 3000 32.6                     |

### SPECIFICATION NOTES

When specifying state the following:




Product: James Hardie RAB™ board 6mm


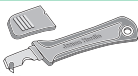

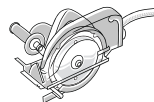
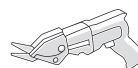
Use: Weather barrier under external cladding and facade systems.

## 3.2 – PHYSICAL PROPERTIES

| RAB™ BOARD                   |   |  |
|------------------------------|---|--|
| Physical Property            |   | STANDARD   |
| Air Barrier                  | <0.6cm²/cm² Sec                                       | (ISO 9237-1995)  |
| Combustibility               | Suitable where non-combustible materials are required | Deemed to comply with NCC Vol 1 according to C1.9(e)(iv) |
| Early Fire Hazard Properties | (Lower Values Are Better)                             | AS 1530.3  |
| - Ignitability Index         | 0   |  |
| - Spread of Flame Index      | 0   |  |
| - Heat Evolved Index         | 0   |  |
| - Smoke Developed Index      | 0-1   |  |
| Vapour Control category      | Vapour Permeable (1.1 MN s/g)                         | AS/NZS 4200.1 (ASTM E96 B)                               |
| Water Barrier                | Passes  | AS/NZS 4201.4  |
| Watertightness               | Passes  | AS/NZS 2908.2  |
| Thermal Conductivity         | 0.23W/m K   | ASTM C 518   |
| R-Value                      | 0.026m²K/W  |  |
| Minimum Bending Strength     | >7.0Mpa   | AS/NZS 2908.2  |
| Category                     | 3   |  |
| Type                         | A   |  |

## 3.3 – ACCESSORIES

| FASTENERS  |   |   |
|--|---|---|
| Fasteners must have the appropriate level of durability required for the intended project. This is of particular importance in coastal areas, areas subject to salt spray and other corrosive environments. Fasteners must be fully compatible with all other materials that they are in contact with to ensure the durability and integrity of the assembly. Contact fastener manufacturers for more information. |   |   |
|    | <b>HardieDrive™ Screw 25mm</b><br>A Class 3 self-tapping wing tipped screw for fastening 0.5mm to 1.6mm BMT light gauges steel frames. 1000 per box. <b>Part No. 305979</b> |    |
|    | <b>Fibre Cement Nail</b><br>2.8 x 30mm fibre-cement nail for timber frames  | <b>HardieDrive™ Collated Screw 25mm</b><br>A Class 3 self-tapping wing tipped screw for fastening 0.5mm to 1.6mm BMT light gauges steel frames. Suitable for use in most auto feed screw guns. <b>Part No. 305980</b> |

| ACCESSORIES   |   | TOOLS   |  |
|---|---|---|--|
| ACCESSORIES   | DESCRIPTION   | ACCESSORIES   | DESCRIPTION  |
|  | <b>James Hardie™ PVC Flashing Mould</b><br>A PVC extrusion for multicourse fixing of 6mm thick sheets. <b>Part No. 305552</b>   |  | <b>Villaboard™ Knife</b><br>A score and snap knife designed to efficiently cut through fibre cement sheets. <b>Part No. 305915</b>   |
|   | <b>Sealing Tape</b><br>Tape used to seal vertical joints and flash around window, door and pipe penetrations.<br>Recommended Tapes:<br>- 3M All Weather Flashing 8067 (for joints and windows)<br>- Pro Clima TESCON EXTORA (for joints)<br>- Pro Clima TESCON EXTOSSEAL (for windows)<br><b>Please contact James Hardie for alternative tape specifications.</b> |  | <b>Dust reducing saw with a HardieBlade™ saw blade and HEPA M class vacuum or greater extraction</b><br>Used to cut James Hardie™ fibre cement and also can be used to cut enroled HardieWrap™ weather barrier roll on site to a shorter roll length. 1 per pack. <b>Part No. 305571</b> |
|   |   |  | <b>James Hardie™ Fibreshear</b><br>Electric tool for cutting fibre cement sheets. <b>Part No. 305653</b>   |

# 4 DESIGN CONSIDERATIONS

## 4.1 WATER MANAGEMENT

### 4.1.1 Water Barrier

RAB™ board is classified as a Water Barrier in accordance with the equivalent water barrier classifications within AS/NZS 4200.1.

James Hardie RAB™ board is factory sealed on the front face with a hydrophobic penetrating sealer, CoreShield™ Technology which repels moisture rapidly and resists moisture penetration, therefore no additional water barrier is required to provide a continuous seal.

### 4.1.2 Condensation Management

RAB™ board is classified as Vapour Permeable when assessed using the Vapour Permeance classifications of AS/NZS 4200.1 based on testing in accordance with ASTM E96, and appraisal from BRANZ.

James Hardie recommends the use of a vapour permeable membrane in accordance with AS/NZS 4200.1 and AS/NZS 4200.2 or equivalent to meet the weathertightness requirements mandated by P2.2.2 and FP1.4 of the National Construction Code (NCC) in all external cladding in climate zones 2-8 (marked as green):



## 4.2 STRUCTURAL DESIGN PRESSURES

### 4.2.1 Design Wind Pressure & Framing

RAB™ board is suitable to withstand high wind pressures in conjunction with cladding and commercial façade systems. In these applications, RAB™ board must be fixed directly to appropriate steel or timber framing members in accordance with the instructions within this technical data sheet.

Where Design Wind Pressure exceeds 7.0kPa please contact James Hardie for more information.

Steel Framing members must have the appropriate level of durability required to prevent corrosion and BMT between 0.55mm to 1.66mm. The framing used must comply with the relevant building regulations and standards. It is the installer's responsibility to assess the suitability of the substructure.

### 4.2.2 Structural Bracing

RAB™ board is suitable for bracing applications when installed in accordance with the James Hardie Structural Bracing Application Guide.

**NOTE:** When using RAB™ Board as a bracing member, it must be affixed to the bottom stud track, and affixed to an inline row of noggings at the top of the stud track (not the deflection head).

## 4.3 FIRE SAFETY

RAB™ board is suitable for use where non-combustible materials are required in accordance with C1.9 of the National Construction Code (NCC). James Hardie building products have been tested by CSIRO in accordance with AS/NZS 3837 and are classified as conforming to Group 1 material (highest and best result possible), with an average specific extinction area far lower than the permissible 250m<sup>2</sup>/kg, as referenced in Specification C1.10a of the National Construction Code (NCC).

Both one and two way fire rated wall systems are available with the RAB™ board when used as part of an external wall system. This will depend on the wall configuration and internal materials used. For more information refer to the James Hardie Fire and Acoustic Rated Walls Application Guide.

When RAB™ board is installed in conjunction with fire rated plasterboard, the fire rated plasterboard should be installed direct to the stud framing system, and RAB™ board installed over the top. Increase the length of the specified screw by the thickness of the plasterboard to ensure adequate embedment.

## 4.4 ENERGY EFFICIENCY

### 4.4.1 Airtightness

RAB™ board is classified as an Air barrier in accordance with ISO 9237-1995 and may contribute to achieve energy efficiency requirements, due to reduced air-leakage of conditioned air, which is supplemented with sufficient mechanical ventilation to achieve occupant comfort air-change rates.

James Hardie recommends utilising the NCC specified blower door test during and after construction to validate the airtightness of the envelope, and incorporate ventilation where required, or increase the building seal.

### 4.4.2 Thermal Efficiency

When a vented or ventilated cavity system is installed in conjunction (such as vertical top hats with open weep holes, vents or flashings) with RAB™ board, the primary wall structure is physically separated from external heat sources. RAB™ board ensures that the warm air within the cavity does not enter the building, and is instead drawn upwards and out by convection while cool air is drawn in.

## 4.5 COASTAL AREAS

Fasteners must have the appropriate level of durability required for the intended project. James Hardie recommends a minimum Class 3 galvanised fastener. This is of particular importance in coastal areas, areas subject to salt spray and other corrosive environments.

## 4.6 MAINTENANCE

The selected cladding system must be installed and finished within 180 days after the installation of James Hardie RAB™ board.

The ground clearances required for the James Hardie RAB™ board and the cladding must always be maintained. Please refer to construction details.

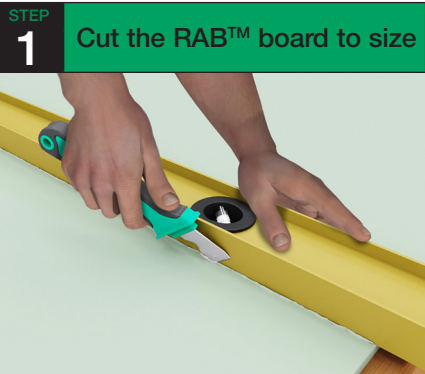
# 5 INSTALLATION

## 5.1 Wall System Overview



FIGURE 1 OVERVIEW OF THE WALL SYSTEM

## 5.2 RAB™ board - 3 Step Install Process



RAB™ board must be installed vertically direct to stud frame with the green side facing outwards.



Affix to frame with HardieDrive™ screws leaving a 2mm gap between each sheet and 100mm clearance from the board top and bottom edges. Fasten to the frame at fixing centres in Table 1.



Tape all joints, from the bottom up: first the bottom edge, second the vertical joints and then the top edge. The external cladding must be installed within 6 months.

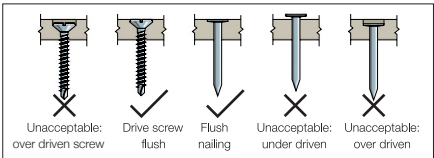
## 5.3 FASTENER SPACING

| TABLE 1 - STUD AND FASTENER SPACING |                   |                       |
|-------------------------------------|-------------------|-----------------------|
| Design Wind Pressure (kPa)          | Stud Spacing (mm) | Fastener Spacing (mm) |
| 1.0                                 | 600               | 300                   |
| 1.5                                 | 600               | 300                   |
| 2.0                                 | 600               | 300                   |
| 2.5                                 | 450               | 300                   |
| 3.0                                 | 450               | 250                   |
| 3.5                                 | 450               | 225                   |
| 4.0                                 | 400               | 225                   |
| 4.5                                 | 400               | 225                   |
| 5.0                                 | 400               | 200                   |
| 5.5                                 | 300               | 200                   |
| 6.0                                 | 300               | 200                   |
| 6.5                                 | 300               | 200                   |
| 7.0                                 | 300               | 175                   |

Select the fastener suitable for the required framing from the appropriate product section depending on the type of framing, either timber or metal.

Note: because RAB™ board is sealed with the CoreShield™ sealer technology, the fasteners are not required to be patched, sealed or otherwise treated.

**NOTE:** Fasteners must NOT be overdriven. Fasteners should be screwed as close as possible to the stud corners to avoid deflection of the stud flange.





# 6 CONSTRUCTION DETAILS

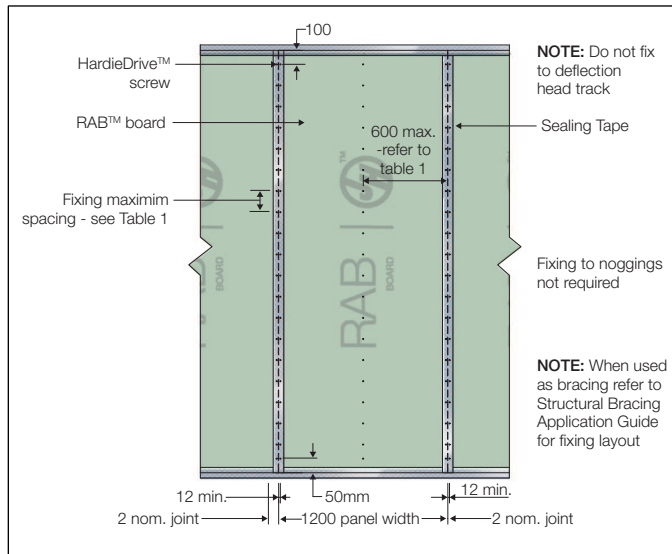


FIGURE 2 FIXING LAYOUT

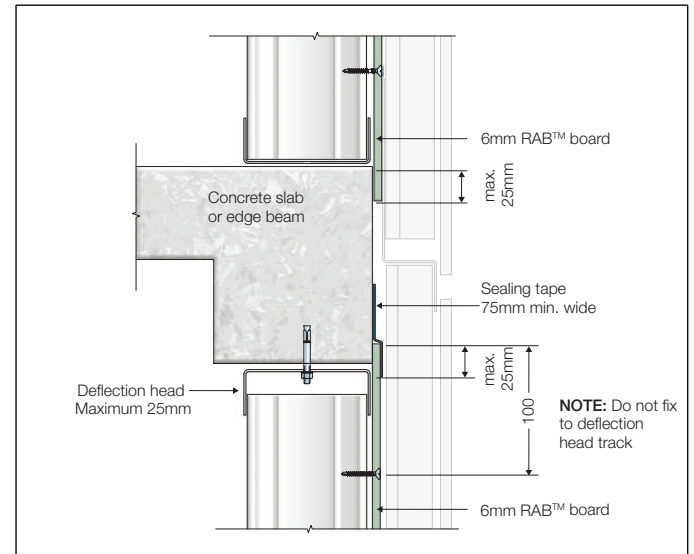


FIGURE 3 HORIZONTAL SLAB JUNCTION (OPTION 1)

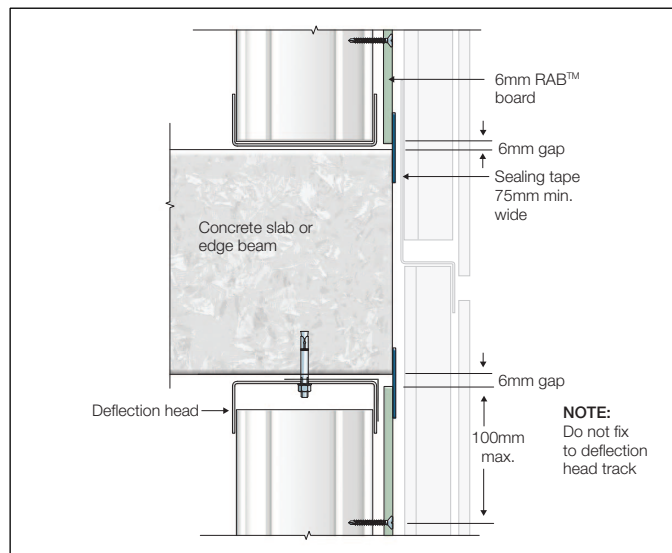


FIGURE 4 HORIZONTAL SLAB JUNCTION (OPTION 2)

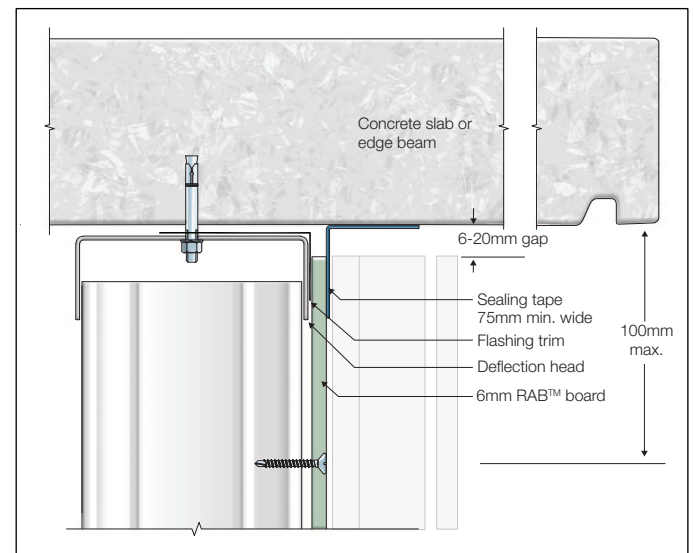


FIGURE 5 UNDER SLAB JUNCTION

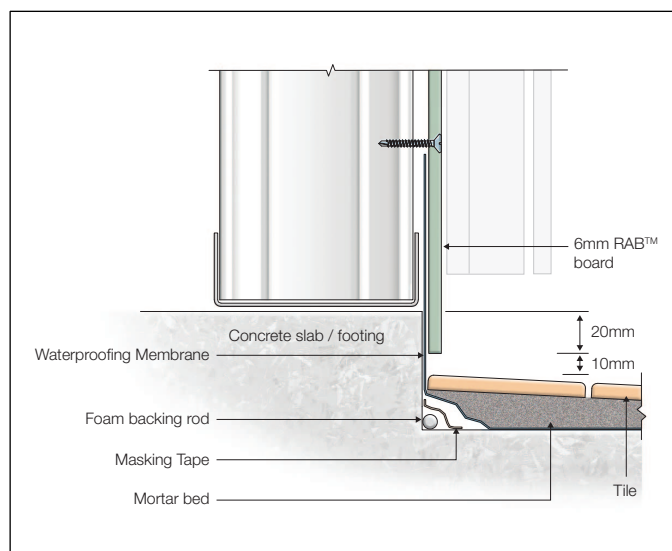


FIGURE 6 BASE DETAIL BALCONY

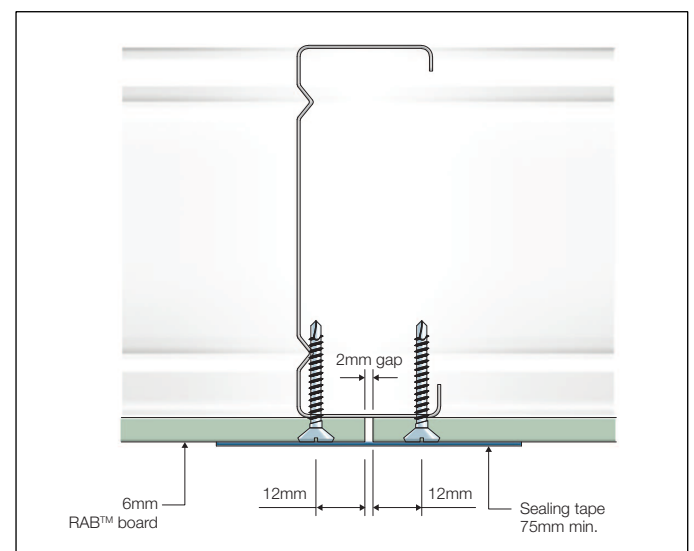


FIGURE 7 VERTICAL JOINT

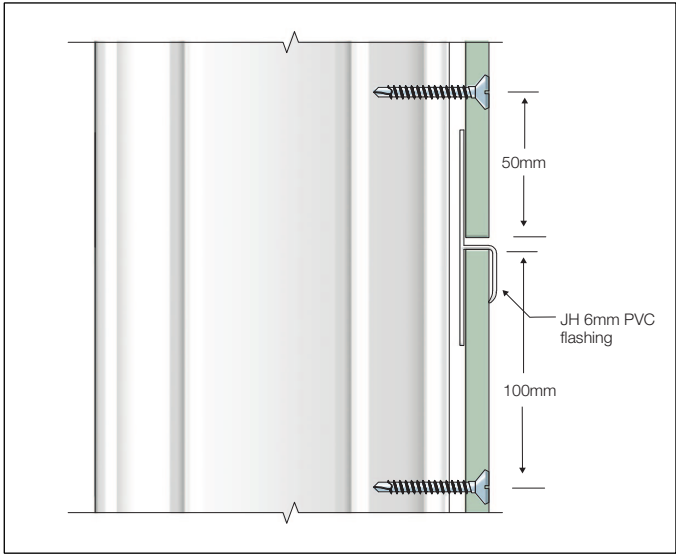


FIGURE 8 HORIZONTAL JOINT

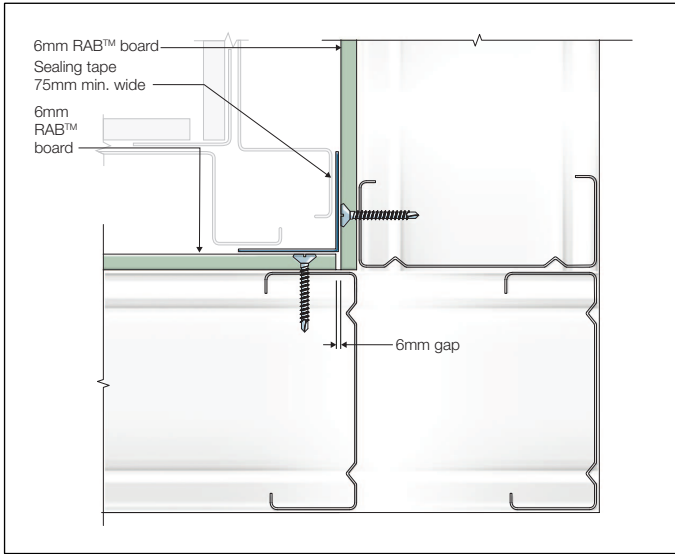


FIGURE 9 INTERNAL CORNER

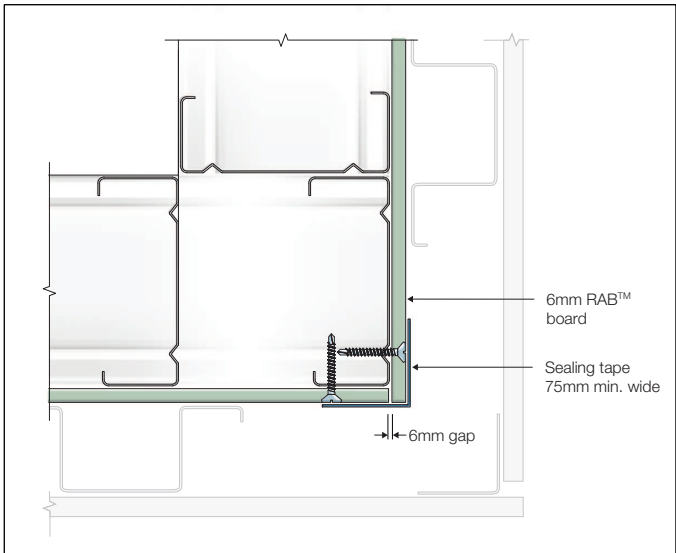


FIGURE 10 EXTERNAL CORNER

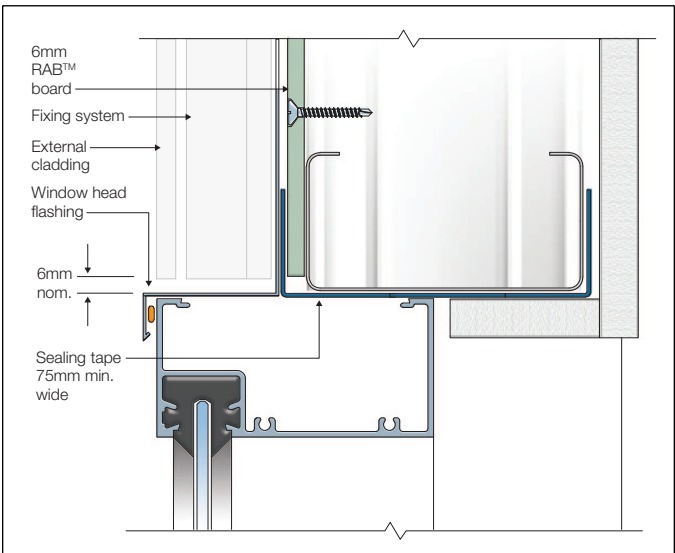


FIGURE 11 WINDOW HEAD

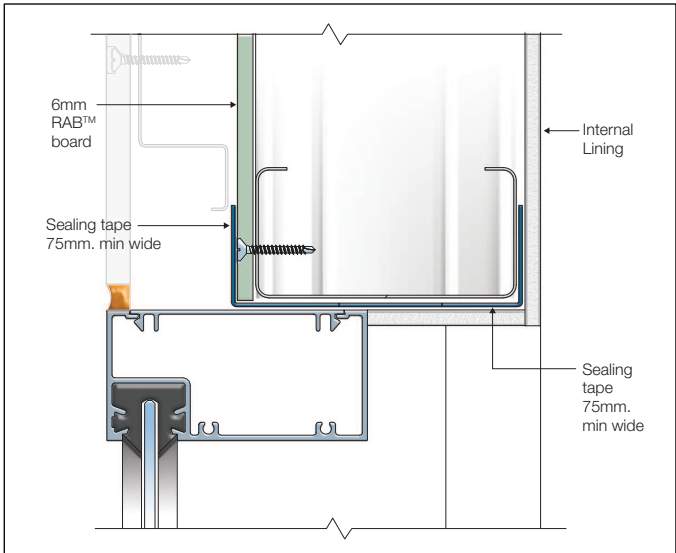


FIGURE 12 WINDOW JAMB

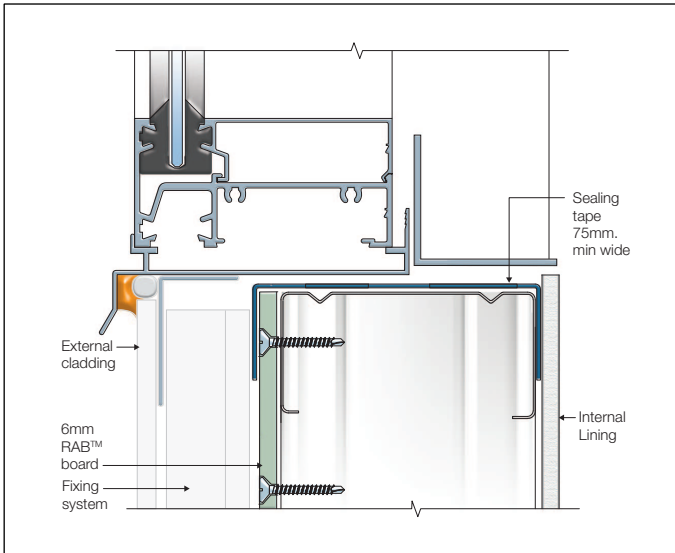
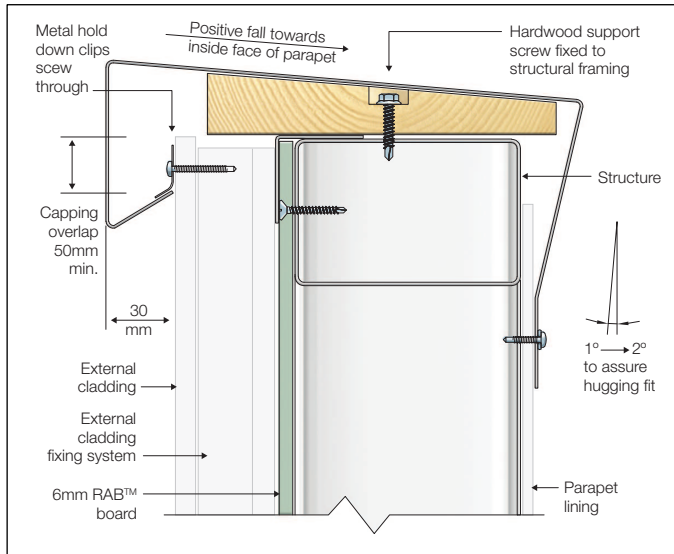
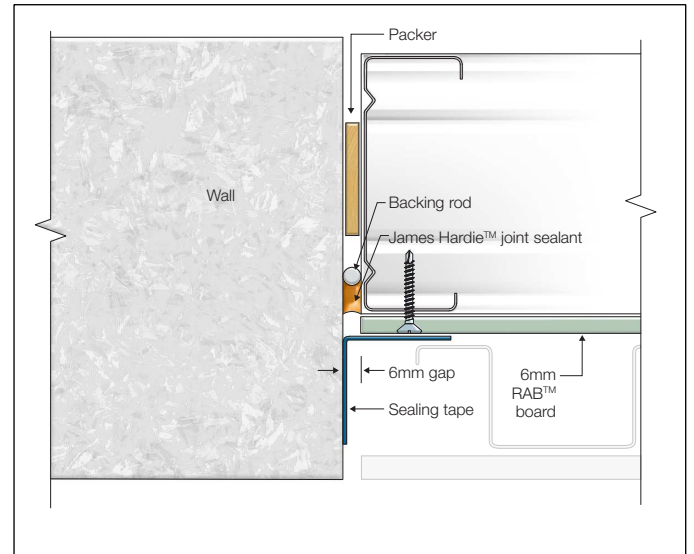


FIGURE 13 WINDOW SILL

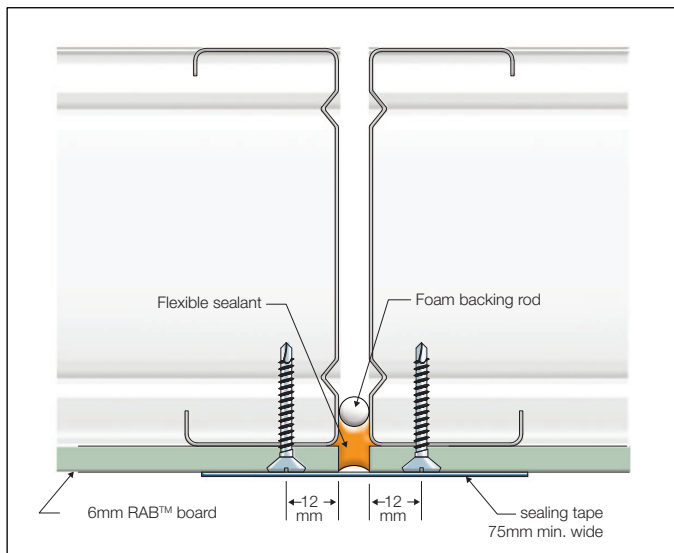




**FIGURE 14 PARAPET DETAIL**



**FIGURE 15 ABUTMENT TO MASONRY WALL**



**FIGURE 16 VERTICAL CONTROL JOINT**

# NOTES

**For inspiration,  
specification details  
& downloads visit...**

[www.adxarchitectural.com.au](http://www.adxarchitectural.com.au)



(08) 8292 5000 [solutions@adxdepot.com.au](mailto:solutions@adxdepot.com.au)

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