# Installation Guide

## Hardie™ Gravis™ Panel
## External & Zero Lot Walls 50 and 75mm

**EXTERIORS**

**Australia** June 2026

**Make sure your information is up to date.**
When specifying or installing Hardie™ products, ensure that you have the current technical information and guides. If in doubt, or you need more information, visit jameshardie.com.au or contact James Hardie on 13 11 03.

JamesHardie™

CodeMark Australia
Certificate CM40467

CONTENTS



## SCOPE

This guide covers the use of Hardie™ Gravis™ External & Zero Lot Walls System in a residential wall application over a seasoned timber wall frame or a light-gauge steel frame installed in a vertical upright application, in accordance the applicable requirements of the National Construction Code (NCC) 2022 (Amdt. 2) and 2025 and subject to relevant state and territory adoption periods.

## CODEMARK® CERTIFICATION

The CodeMark® Certification Scheme is a voluntary third-party building product certification scheme that authorises the use of new and innovative products in specified circumstances in order to facilitate compliance with Volume 1 and 2 of the NCC.

The Hardie™ Gravis™ System has been certified under the CodeMark® Certification Scheme (Certificate Number CM40467) and available at www.jameshardie.com.au. This certificate can be provided to building certifiers and other regulatory authorities to facilitate the assessment of the product compliance or used to verify the suitability of the product for certain applications.

# 1 Introduction

Hardie™ Gravis™ Panel brings the proven performance of autoclaved aerated concrete (AAC) to modern Australian facades and zero lot walls.

Engineered for strength and design versatility, the steel reinforced panels create a dependable exterior wall system that supports fast, consistent installation. The non-combustible AAC composition helps deliver reliable fire, thermal and acoustic performance suited to Australian conditions, while providing a solid, uniform base ready for a range of finishing systems.

Hardie™ Gravis™ Panel also integrates seamlessly with Hardie™ cladding range, enabling cohesive mixed material designs that enhance modern architectural expression. This guide outlines key installation requirements, recommended construction methods and best practice steps for delivering durable, high performing facades and compliant zero lot walls with confidence.

## 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 the James Hardie 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 Product Warranty are excluded to the fullest extent allowed by law. For the James Hardie Product Warranty information and disclaimers about the information in this guide, visit 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.

# 2 Safe Work Practice Recommendations

## DANGER - CRYSTALLINE SILICA SUBSTANCE

Hardie™ AAC products contain sand, a source of respirable crystalline silica (RCS), and are a crystalline silica substance for the purposes of Work Health and Safety (WHS) regulations. To minimise exposure to RCS when cutting, drilling, sawing or abrading Hardie™ AAC products and during cleanup, apply the hierarchy of controls and follow James Hardie's safe work practice recommendations set out below.

Additional information and guidance is available in James Hardie's Safety Data Sheets and Best Practice Guide, available at www.jameshardie.com.au and by scanning the QR code below and in the Safe Work Australia Code of Practice: Managing risks of respirable crystalline silica in the workplace.

**Failure to follow these recommendations to minimise exposure may result in serious injury or death. You should also consider any legal requirements that may apply in respect of any high-risk processing activities being performed by workers. See the SWA Code of Practice and applicable State or Territory regulations that apply where you're working for more information.**

### CUTTING / PROCESSING

- Uncontrolled cutting / processing of AAC is prohibited by law.
- You **must** use an effective **wet dust suppression** method **or** an effective **on-tool dust extraction** system.
- Always use equipment appropriate to the cutting method used, and compatible with AAC products.

### WET CUTTING

Ensure the equipment used is appropriate and fit for purpose including:

- Having an appropriate ingress protection (IP) rating to ensure it is sufficiently waterproof.
- Having a consistent water flow and adequate water pressure during operation.
- Having the water feed attached and adequately directed at the material and/or blade to prevent dust being released.
- All electrical risks are managed in line with the power tool manufacturer's recommendations.

In addition, control other risks as appropriate including:

- Control slip risks arising from surface water.
- Clean up slurry before it dries.

### DRY CUTTING

- Always connect the saw to an H or M class vacuum.
- Set blade depth 2–5 mm short of cutting through the underside of the panel to improve dust capture.

### WET AND DRY CUTTING

- Always ensure workers wear a properly fitted P2 respirator and are clean shaven or wear a powered air purifying respirator (PAPR).
- Always ensure workers wear appropriate hearing and eye protection.
- Always cut outdoors or in a well-ventilated area.
- Ideally, position the cutting station downwind and at least 3 metres away from other workers.
- Warn other workers in the area of the risk.
- Cut product on a raised work platform at waist height to ensure tooling can be held securely and minimise RCS dust exposure to the operator.
- Job rotate the cutting of panels to minimise individual RCS dust exposures.

### CLEAN UP AND GENERAL HOUSE KEEPING

- Poor housekeeping methods that disturb accumulated dust on workplace surfaces can also lead to increased RCS exposure.
- Always use an M or H class vacuum to clean up dust.
- Put full vacuum bags and/or filters in a sealed bag before disposal.
- Clean up dust slurry and put in a sealed bag before it dries.
- Always ensure workers wear a properly fitted P2 respirator and are clean shaven or wear a powered air purifying respirator (PAPR).

### DO NOT:

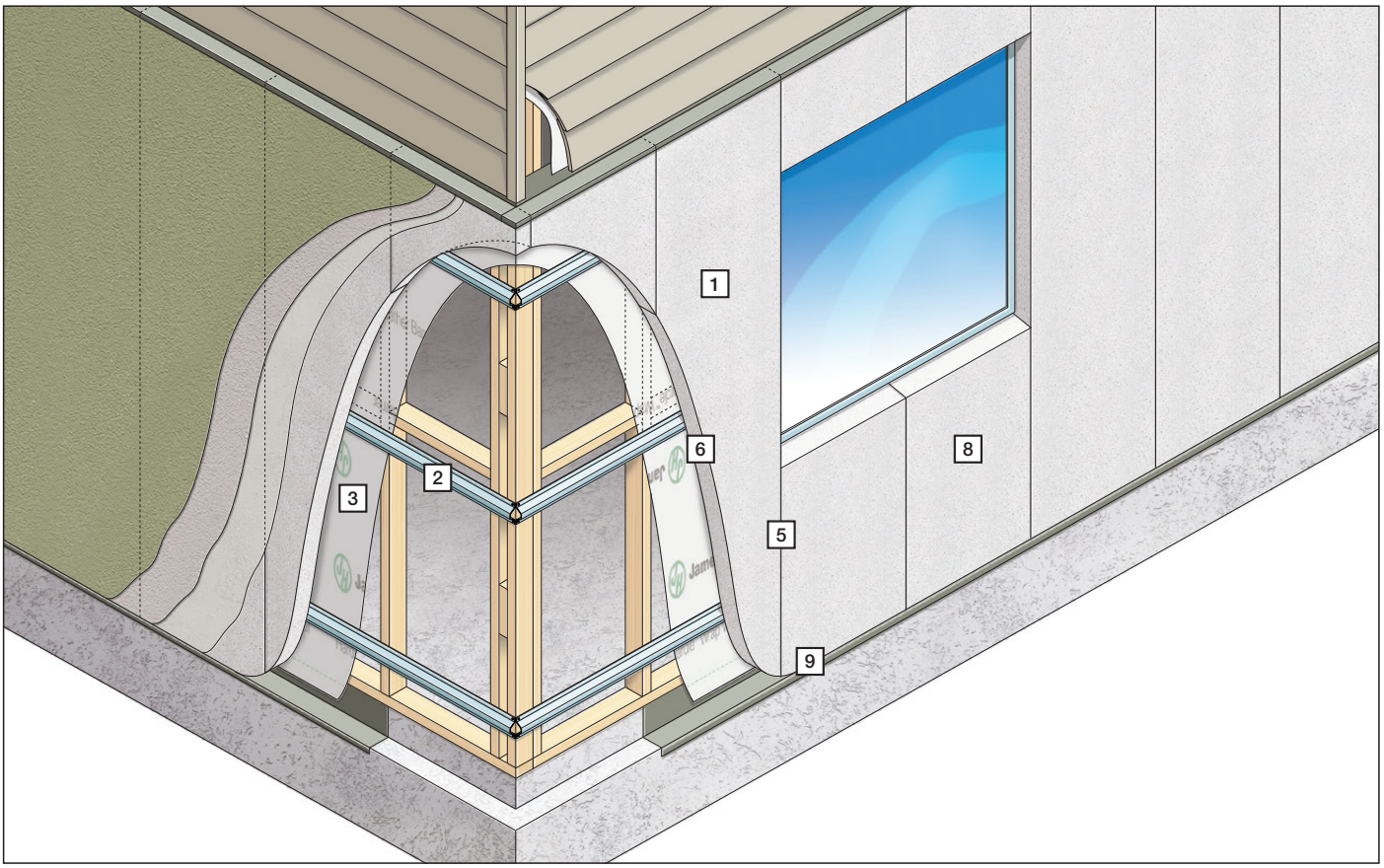
- Dry sweep – this is prohibited by relevant WHS legislation.
- Use compressed air or high-pressure water cleaners.
- Use a general-purpose vacuum cleaner not designed for use with hazardous dusts.

### HANDLING

- Whenever possible, use mechanical aids such as trolleys, cranes or forklifts to move the panels on site.
- Position the pallet as close as practicable to the working area or cutting station, reducing the distance the panels need to be transported.
- When moving a panel by hand, to avoid risk of damage to the panel, always carry the panel on its side, not flat.
- Ensure workers wear appropriate gloves when handling AAC products.
- Take care when releasing the straps on pallets. Always brace or restrap opened packs to prevent panels falling.
- Never stack pallets of AAC panels more than two high on a construction site.

**SCAN TO VIEW JAMES HARDIE'S BEST PRACTICE GUIDE**

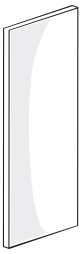
# 3 Components




## COMPONENTS

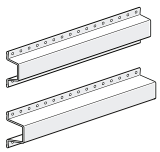
### 1 Hardie™ Gravis™ Panel

Hardie™ Gravis™ Panel is manufactured from Autoclaved Aerated Concrete (AAC), internally reinforced with a corrosion-protected steel mesh.



| Length (mm) | Width (mm) | Thickness (mm) | Weight per unit (kg)* | Weight per meter (kg/m²)* | Product Code |
|---|---|---|---|---|---|
| 2200 | 600 | 50 | 45 | 34 | 900001 |
| 2400 | 600 | 50 | 50 | 34 | 900002 |
| 2550 | 600 | 50 | 53 | 34 | 900003 |
| 2700 | 600 | 50 | 56 | 34 | 900004 |
| 2850 | 600 | 50 | 59 | 34 | 900005 |
| 3000 | 600 | 50 | 62 | 34 | 900006 |
| 2200 | 600 | 75 | 55 | 42 | 900007 |
| 2400 | 600 | 75 | 61 | 42 | 900008 |
| 2550 | 600 | 75 | 64 | 42 | 900009 |
| 2700 | 600 | 75 | 68 | 42 | 900010 |
| 2850 | 600 | 75 | 72 | 42 | 900011 |
| 3000 | 600 | 75 | 76 | 42 | 900012 |
| 3300 | 600 | 75 | 83 | 42 | 900013 |

### 2 Hardie™ Gravis™ Top Hat



Hardie™ Gravis™ Top Hats are 4,800mm long profiles, made from galvanized steel. Available in 24mm and 35mm widths, Hardie™ Gravis™ Top Hats are used to secure Hardie™ Gravis™ Panels to timber or steel framing, facilitating a cavity system in external cladding systems. Refer to table 8 on Page 12 of this guide for fastener specifications.

| Length (mm) | Width (mm) | Flange Height (mm) | BMT (mm) | Product Code |
|---|---|---|---|---|
| 4800 | 80 | 24 | 0.42 | 700005 |
| 4800 | 80 | 35 | 0.42 | 700006 |

### 3 Hardie™ Wrap Weather Barrier

Hardie™ Wrap Weather Barrier is a water barrier and vapour permeable membrane.
Unit size: 2.75 x 30m. Coverage: 82.5m² per roll. For specific weather barrier requirements, refer to the Weather Barrier section on Design Considerations in page 10.

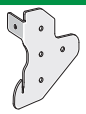
3056640

### 4 Hardie™ Joint Sealant

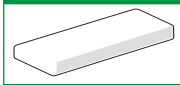
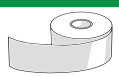

Hardie™ Joint Sealant is a general purpose polyurethane exterior grade joint sealant. Pack Size: 20/Box. Coverage: 1.0m/100mL (10mm control joint).

300mL Cartridge
305534
600mL Sausage
305672

* Panel weights are based on 35% moisture content at time of handling/install.

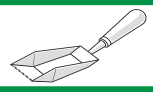
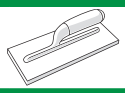
| | | |
|---|---|---|
| **5** | **Hardie™ Gravis™ Adhesive 20kg** | |
|  | Hardie™ Gravis™ Adhesive is designed for bonding Hardie™ Gravis™ Panels at both vertical and horizontal joints. Pack size 20kg. | 700001 |
| **6** | **Hardie™ Gravis™ Anti-Corrosion Sealer 0.5L** | |
|  | Hardie™ Gravis™ Anti-Corrosion Sealer is used to protect the exposed ends of reinforcement exposed during panel cutting. Bottle size 500mL. | 700003 |
| **7** | **Hardie™ Gravis™ Base Sealer 5L** | |
|  | Hardie™ Gravis™ Base Sealer is used to seal the base of Hardie™ Gravis™ Panel that may come in contact with soil. Tub size 5L. | 700004 |
| **8** | **Hardie™ Gravis™ Patch 10kg** | |
|  | Hardie™ Gravis™ Patch is used for repairing minor chips or damage to Hardie™ Gravis™ Panel. Pack size 10kg. | 700002 |
| **9** | **Hardie™ Gravis™ Mortar 20kg** | |
|  | Hardie™ Gravis™ Mortar is applied as a leveling mortar bed for accurate and secure placement of the first course of Hardie™ Gravis™ Panel | 700011 |
| **10** | **Hardie™ Gravis™ Direct Fix Clip** | |
|  | Hardie™ Gravis™ Direct Fix Clip is used to attach Hardie™ Gravis™ Top Hat directly to timber or light-gauge steel framing in Hardie™ Gravis™ Dual Zero Lot Wall systems. It provides a fast, accurate and compliant fixing method for zero lot construction. | 700025 |
| **11** | **Hardie™ Internal Lining** | |
|  | Hardie™ internal lining or selected exterior cladding products can be used on the internal side of the wall. To see our range of suitable products, visit jameshardie.com.au or contact James Hardie on 13 11 03.<br>Please note, if requiring to achieve certain Fire Resistance Level (FRL), certain minimum requirements will be applicable. Refer to the FRL Systems on Page 7 for further information. | |

## COMPONENTS NOT SUPPLIED BY JAMES HARDIE

| | |
|---|---|
| **Base and Top Coat** | |
|  | The basecoat must be an acrylic render with an applied thickness of 2-6mm. Refer to the product manufacturer for product specification, application instructions, surface preparation requirements and primer coat (if required). |
| **Foam Backing Rod** | |
|  | A 10mm diameter backing rod is to be fixed into vertical control joints. |
| **Insulation** | |
|  | Wall insulation must be included between each stud to achieve the required R-Value, acoustic performance and Fire Resistance Level (FRL) when required. Refer to the systems descriptions on Page 7 and 8 for further information. |
| **Finishing** | |
|  | The wall can be finished using the following coating systems:<br>▪ **Texture Coat:** A minimum 1mm thick cement-based, acrylic render supplied as dry powder or pre-mixed to the desired textured finished.<br>▪ **Finishing Coat:** Minimum two coats of a decorative acrylic based exterior grade elastomeric finishing paint. The product must meet the durability, performance and crack bridging properties required for the intended application. |
| **DPC** | |
|  | A DPC (Damp Proof Course) must be installed at the base of the wall to prevent moisture from rising from the ground via capillary action. |
| **Sealant or Fire Rated Sealant** | |
|  | Regular sealant or fire-rated sealants are required to seal gaps and joints. Fire-rated sealants are engineered and tested to prevent the spread of fire and smoke through these gaps and joints, while regular sealants do not offer this protection. |
| **Non-Compressible Packer** | |
|  | A Non-Compressible Packer is to be installed at horizontal joints between panels. Refer to the systems descriptions on Page 10 for further information. |

# 3 Components

## REQUIRED TOOLS

| | |
|---|---|
| **Drill fitted with Stirrer** | |
|  | Electric drill with fitted stirrer used to mix Hardie™ Gravis™ Adhesive. |
| **Notched Trowel** | |
|  | Used to apply the adhesive to the panel edges. The trowel must match the Hardie™ Gravis™ Panel thickness. |
| **Panel Lifters** | |
|  | Used to carry and handle Hardie™ Gravis™ Panel. |
| **Sand Float** | |
|  | Used to remove excess adhesive and smoothen the joints. |
| **Levelling Plane** | |
|  | Used to smoothen the Hardie™ Gravis™ Panel surface if needed. |
| **M or H Class Vacuum** | |
|  | For dust extraction when cutting Hardie™ Gravis™ Panel. |
| **Saw or suitable AAC Saw** | |
|  | For Dust extraction when cutting Hardie™ Gravis™ Panel. |

# 4 System Performance

### Non-Combustibility and Fire-Rated Walls

Hardie™ Gravis™ Panel is non-combustible and, when installed as part of a compliant wall system, can achieve a Fire Resistance Level (FRL) of up to 180/180/180, provided construction follows the specifications outlined in Tables 2 & 3 with the internal linings specified in Table 1.

Penetrations for services such as pipes, cables or ducts must be properly fire-stopped using suitable products like fire-rated sealants, wraps, or switch boxes, among other alternatives. It is recommended to consult the product manufacturer to ensure the selected solution and installation method suit the wall configuration. When using fire collars or similar fire-protection elements, the FRL of the wall may be reduced to the lowest performing component.

External coatings must meet the fire performance requirements set out in the National Construction Code (NCC). All joints and gaps must be treated to maintain fire integrity. If construction details differ from approved configurations or if a higher FRL is needed, a qualified fire engineer should be engaged to assess and confirm the system's fire performance.

A range of fire resistance level (FRL) can be achieved by combining the wall systems listed in Tables 2 & 3 with the internal linings specified in Table 1.

**TABLE 1**

| Hardie™ Gravis™ Panel Fire Resistance Level (FRL) | | |
|---|---|---|
| **Hardie™ Gravis™ Panel Thickness (mm)** | **Wall Internal Lining** | **FRL (from outside)** |
| 50 | Min. 6mm Hardie™ Fibre Cement | 90/90/90 |
| | 10mm Standard Plasterboard | 90/90/90 |
| | 13mm Fire Rated Plasterboard | 120/120/120 |
| 75 | Min. 6mm Hardie™ Fibre Cement | 90/90/90 |
| | 10mm Standard Plasterboard | 90/90/90 |
| | 13mm Fire Rated Plasterboard | 120/120/120 |
| | 2 x 16mm Fire Rated Plasterboard | - /180/180 |

### Bushfire

Hardie™ Gravis™ Panel is engineered to meet bushfire construction requirements up to BAL-FZ in compliance with Australian Standard AS 3959 Construction of Buildings in Bushfire-Prone Areas. For sites up to BAL-40, a non-fire-rated system may be used. In BAL-FZ areas, a system with a minimum Fire Resistance Level (FRL) of 30/30/30 is required. All other building components must comply with the relevant provisions of AS 3959. Building designers are responsible for ensuring full compliance with AS 3959 and the National Construction Code (NCC).

### Thermal Performance

This guide outlines certified modelled total R-Values for wall systems using Hardie™ Gravis™ Panel. This information can be used as part of the input data required in energy efficiency assessments, described in Part H6 of the NCC 2022 Vol 2.

The Total R-values for common systems are determined in accordance with AS/NZS 4859.2:2018 Thermal Insulation Materials for Buildings - Part 2: Design.

### Acoustic

Compliance with the sound insulation performance provisions of the National Construction Code (NCC) can be achieved either by construction in accordance with the Deemed to-Satisfy Provisions or on-site testing. The table below shows the acoustic performance of various wall configurations that comply with NCC acoustic insulation requirements.

### Bracing

Use steel cross bracing to fix Hardie™ Gravis™ Panel without extra packing. If walls are too short for steel bracing, use ply or sheet bracing (refer to AS 1684). Sheeting the full wall length prevents misalignment. Alternatively, fix strips of sheeting to intermediate studs to maintain alignment. All fixing is from the outside, except on zero lot walls.
The frame designer or project engineer should determine bracing extent.

**TABLE 2**

| Hardie™ Gravis™ Panel Wall50 Performance Systems | | | | | | | |
|---|---|---|---|---|---|---|---|
| **System** | **Frame** | | | | **Acoustic (Rw / Rw + Ctr)** | **Total Wall R-Value (M².K/W)** | |
| | Material | Stud Depth (mm) | Top Hat Depth (mm) | Insulation | | Winter | Summer |
| **JH-B01** | Timber | 70 | 24 | R1.5 | 48 / 37 | 2.22 | 2.21 |
| **JH-B02** | | | | R2.0 | 48 / 37 | 2.67 | 2.66 |
| **JH-B03** | Timber | 70 | 35 | R1.5 | 49 / 38 | 2.22 | 2.21 |
| **JH-B04** | | | | R2.0 | 49 / 38 | 2.67 | 2.66 |
| **JH-B05** | Timber | 90 | 24 | R1.5 | 49 / 38 | 2.21 | 2.20 |
| **JH-B06** | | | | R2.0 | 49 / 38 | 2.64 | 2.63 |
| **JH-B07** | | | | R2.5 | 49 / 38 | 3.07 | 3.06 |
| **JH-B08** | | | | R2.7 | 49 / 38 | 3.24 | 3.23 |
| **JH-B09** | Timber | 90 | 35 | R1.5 | 49 / 39 | 2.21 | 2.20 |
| **JH-B10** | | | | R2.0 | 49 / 39 | 2.64 | 2.63 |
| **JH-B11** | | | | R2.5 | 49 / 39 | 3.07 | 3.06 |
| **JH-B12** | | | | R2.7 | 49 / 39 | 3.24 | 3.23 |
| **JH-B13** | Steel | 64 | 24 | R1.5 | 51 / 39 | 2.19 | 2.18 |
| **JH-B14** | | | | R2.0 | 51 / 39 | 2.64 | 2.63 |
| **JH-B15** | Steel | 64 | 35 | R1.5 | 52 / 40 | 2.19 | 2.18 |
| **JH-B16** | | | | R2.0 | 52 / 40 | 2.64 | 2.63 |
| **JH-B17** | Steel | 92 | 24 | R1.5 | 53 / 42 | 2.16 | 2.15 |
| **JH-B18** | | | | R2.0 | 53 / 42 | 2.59 | 2.58 |
| **JH-B19** | | | | R2.5 | 53 / 42 | 3.02 | 3.01 |
| **JH-B20** | | | | R2.7 | 53 / 42 | 3.19 | 3.18 |
| **JH-B21** | Steel | 92 | 35 | R1.5 | 54 / 43 | 2.16 | 2.15 |
| **JH-B22** | | | | R2.0 | 54 / 43 | 2.59 | 2.58 |
| **JH-B23** | | | | R2.5 | 54 / 43 | 3.02 | 3.01 |
| **JH-B24** | | | | R2.7 | 54 / 43 | 3.19 | 3.18 |

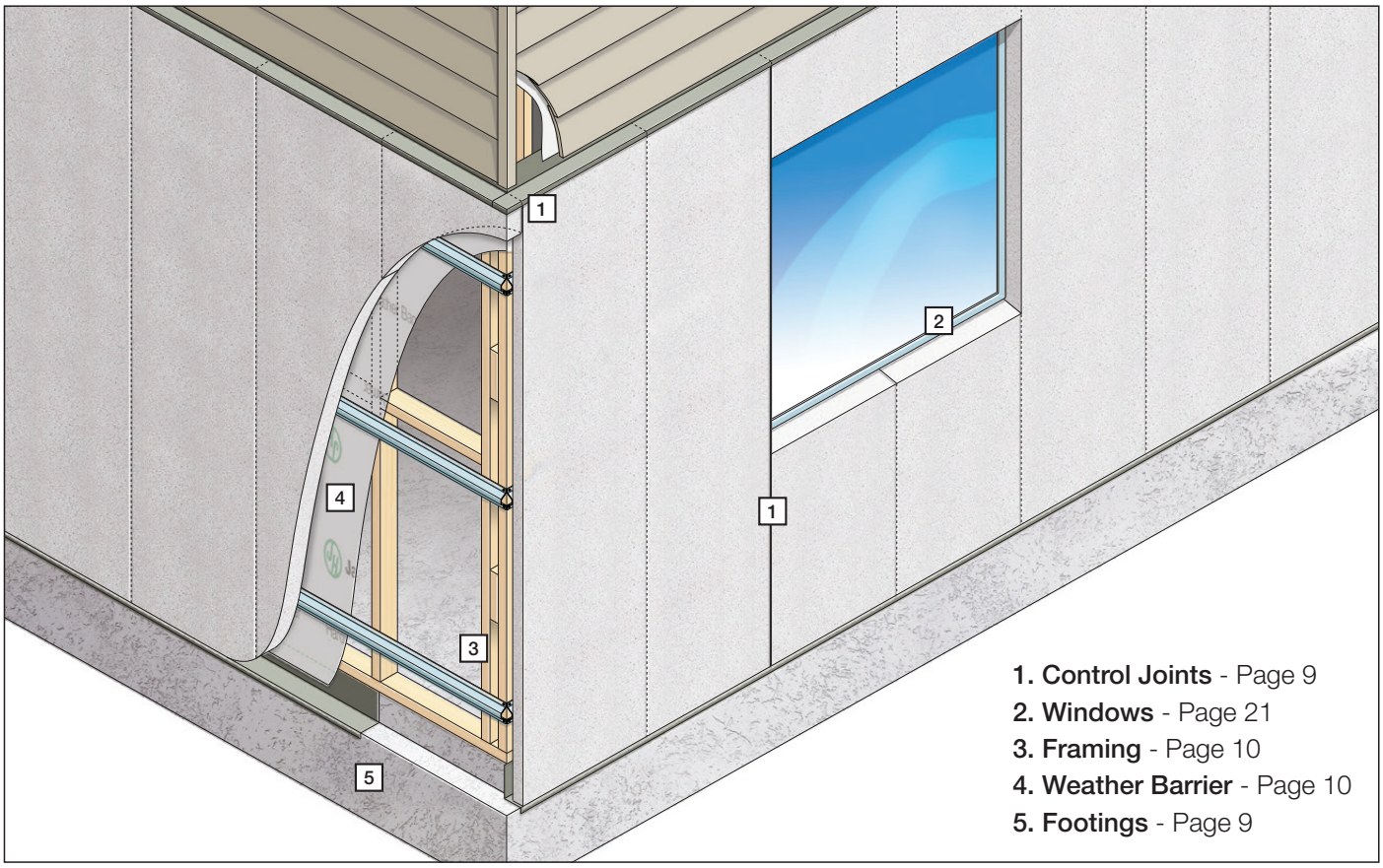
TABLE 3

| Hardie™ Gravis™ Panel Wall75 Performance Systems | | | | | | | |
|---|---|---|---|---|---|---|---|
| System | Frame | | | | Acoustic (Rw / Rw + Ctr) | Total Wall R-Value ($M^2$.K/W) | |
| | Material | Stud Depth (mm) | Top Hat depth (mm) | Insulation | | Winter | Summer |
| **JH-B25** | Timber | 70 | 24 | R1.5 | 46 / 38 | 2.52 | 2.51 |
| **JH-B26** | | | | R2.0 | 46 / 38 | 2.97 | 2.96 |
| **JH-B27** | Timber | 70 | 35 | R1.5 | 47 / 39 | 2.52 | 2.51 |
| **JH-B28** | | | | R2.0 | 47 / 39 | 2.97 | 2.96 |
| **JH-B29** | Timber | 90 | 24 | R1.5 | 47 / 39 | 2.52 | 2.51 |
| **JH-B30** | | | | R2.0 | 47 / 39 | 2.95 | 2.94 |
| **JH-B31** | | | | R2.5 | 47 / 39 | 3.38 | 3.37 |
| **JH-B32** | | | | R2.7 | 47 / 39 | 3.55 | 3.54 |
| **JH-B33** | Timber | 90 | 35 | R1.5 | 47 / 40 | 2.52 | 2.51 |
| **JH-B34** | | | | R2.0 | 47 / 40 | 2.95 | 2.94 |
| **JH-B35** | | | | R2.5 | 47 / 40 | 3.38 | 3.37 |
| **JH-B36** | | | | R2.7 | 47 / 40 | 3.55 | 3.54 |
| **JH-B37** | Steel | 64 | 24 | R1.5 | 50 / 41 | 2.50 | 2.49 |
| **JH-B38** | | | | R2.0 | 50 / 41 | 2.94 | 2.93 |
| **JH-B39** | Steel | 64 | 35 | R1.5 | 50 / 42 | 2.50 | 2.49 |
| **JH-B40** | | | | R2.0 | 50 / 42 | 2.94 | 2.93 |
| **JH-B41** | Steel | 92 | 24 | R1.5 | 51 / 43 | 2.46 | 2.45 |
| **JH-B42** | | | | R2.0 | 51 / 43 | 2.89 | 2.88 |
| **JH-B43** | | | | R2.5 | 51 / 43 | 3.32 | 3.31 |
| **JH-B44** | | | | R2.7 | 51 / 43 | 3.49 | 3.48 |
| **JH-B45** | Steel | 92 | 35 | R1.5 | 51 / 44 | 2.46 | 2.45 |
| **JH-B46** | | | | R2.0 | 51 / 44 | 2.89 | 2.88 |
| **JH-B47** | | | | R2.5 | 51 / 44 | 3.32 | 3.31 |
| **JH-B48** | | | | R2.7 | 51 / 44 | 3.49 | 3.48 |

NOTES:
All steel frames require minimum 0.55bmt.
On all systems, 10mm standard plasterboard is considered as internal lining, with a minimum density of 5.7kg/$m^2$.
- If using 6mm Hardie™ fibre cement, subtract R0.029 out of the total wall R-Values.
- If using 6mm Hardie™ fibre cement in wet areas with mortar and ceramic tiles, no change to total wall R-values.

All systems use top hats spaced at 900mm centres.
All systems include Hardie™ Wrap Weather Barrier.
All systems consider a stud spacing at 450mm centres.
All wall insulation must have a minimum density [kg/$m^3$] of:
- 70mm R1.5 - 16 kg/$m^3$
- 70mm R2.0 - 24 kg/$m^3$
- 90mm R2.5 - 24 kg/$m^3$
- 90mm R2.7 - 32 kg/$m^3$

# 5 Design Considerations




## SLAB AND FOOTINGS

The slab and footings on which the building is situated must comply with articulated masonry veneer construction as per AS 2870 'Residential slabs and footings – Construction' or AS3600 Concrete Structures, and the requirements of the NCC.

Panels can either bear on rebated slab edge or can be hung from the load-bearing framing. Please note, some minimum requirements and exclusions may apply for FRL or Bushfire applications. Seek local engineering advice, especially in areas with reactive ground conditions.

## TERMITE MANAGEMENT

The NCC specifies the requirements for termite barriers. Where the exposed slab edge is used as part of the termite barrier system, a minimum of 75mm of the exposed slab edge must be visible to permit ready detection of termite entry.

When the minimum inspection zone cannot be achieved, an alternative physical or chemical termite management system must be implemented in accordance with the requirements outlined in AS 3660 – Termite Management.

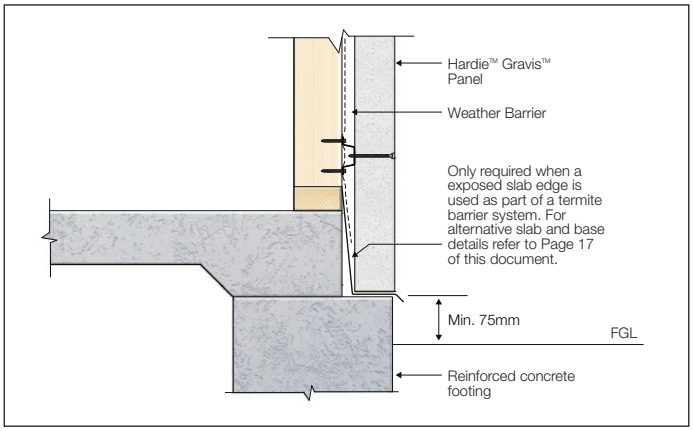



FIGURE 1 EXPOSED SLAB EDGE TO HELP DETECT TERMITE ENTRY

## VERTICAL CONTROL JOINTS

Buildings and materials move due to various factors like support structure movement, thermal expansion, and differential movements, these movements must be accommodated. Both the Hardie™ Gravis™ Panel and Hardie™ Gravis™ Top Hats must be discontinued at vertical control joints. Framing elements must also be discontinued at structural joints, in accordance with the project's structural specifications.

All control joints must follow the maximum spacing as described on Table 4, and additional joints may be required in areas where significant movement is expected, such as large openings. Refer to AS 2870 – Residential Slabs and Footings for more information on site classifications. All control joints must be designed and built in accordance with Figure 2.

**TABLE 4**

| Control Joint Distances | |
|---|---|
| Site Class | Distance (m) |
| A,S | 6.0 |
| M,M-D | 5.5 |
| H1, H1-D | 5.0 |
| H2, H2-D | 4.5 |
| P | To be specified by Structural Engineer |
| E | To be specified by Structural Engineer |

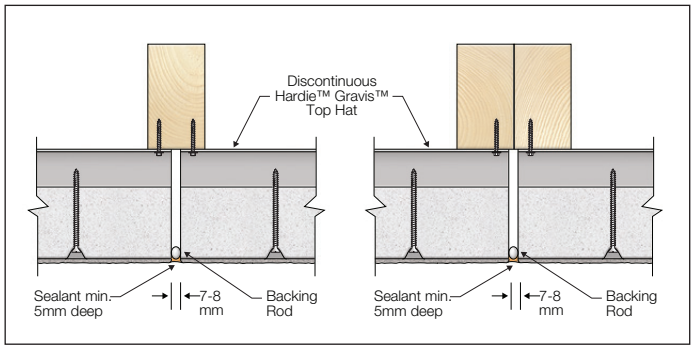



FIGURE 2 VERTICAL CONTROL JOINT - SINGLE & DOUBLE STUDS

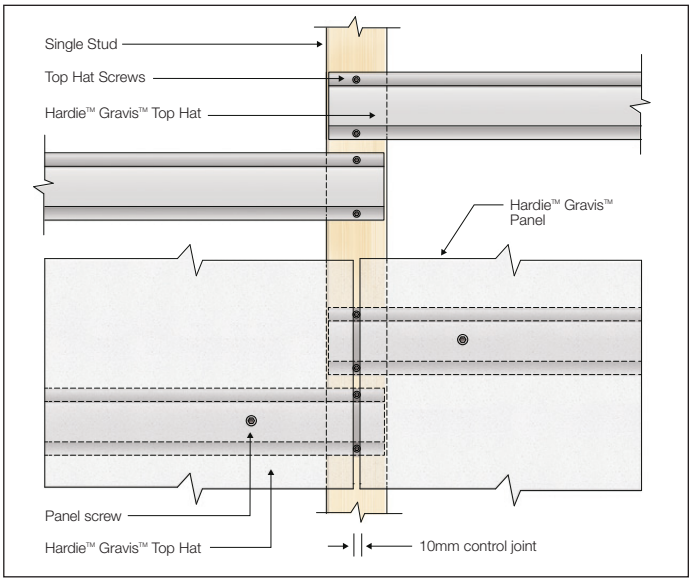



FIGURE 3 VERTICAL CONTROL JOINT WITH SINGLE STUDS

When a vertical control joint is located within 1200 mm of a corner, the corner control joint may be omitted by sealing the corner and joints between the corner and the control joint with Hardie™ Gravis™ Adhesive and installing mesh at least 200 mm onto each adjoining face. This must be done in accordance with Figure 4 below.

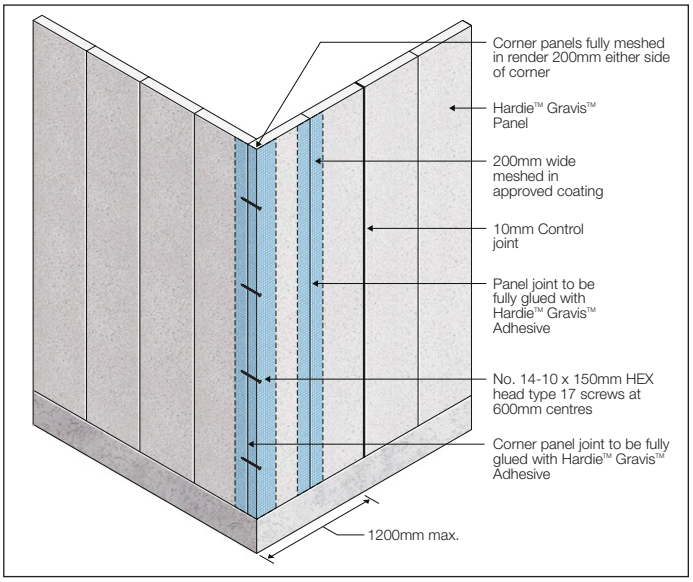



FIGURE 4 VERTICAL CONTROL JOINTS WITHIN 1200MM OF CORNER

## HORIZONTAL JOINTS

Control joints must be installed at horizontal junctions, between the upper and lower Hardie™ Gravis™ Panel. This joint must be constructed in accordance with Figures 5 and 6 and use standard or fire rated sealant as required, based on the project's performance requirements.

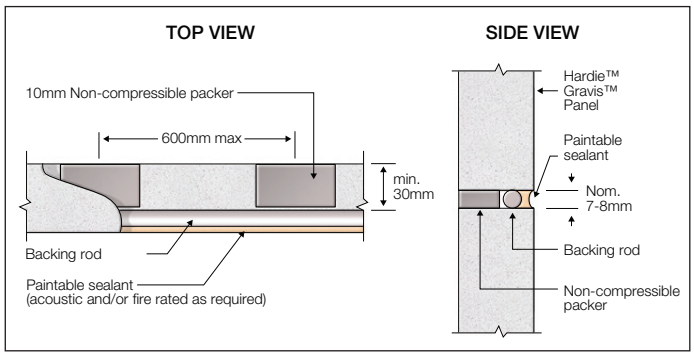



FIGURE 5 HORIZONTAL CONTROL JOINT - OPTION 1

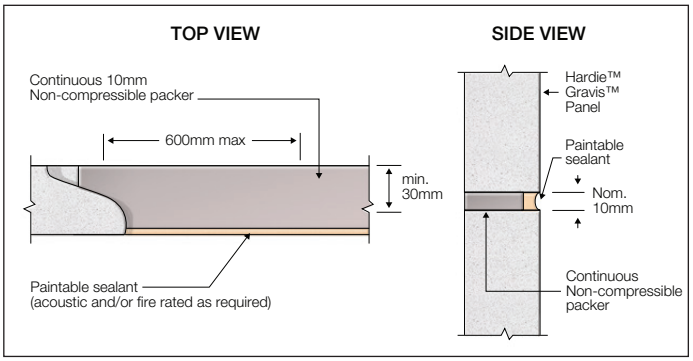



FIGURE 6 HORIZONTAL CONTROL JOINT - OPTION 2

## FRAMING REQUIREMENTS

Hardie™ Gravis™ Panel can be installed over either timber or light gauge domestic type steel framing. The framing used must comply with the relevant building regulations, framing manufacturer's specifications, requirements outlined on this guide and the relevant standards, which are:

- Timber: AS1684 - Residential Timber-framed Construction
- Steel: NASH standard for Residential and Low-Rise Steel Framing Part 1: Design Criteria.

In addition, the framing materials used must have the level of durability appropriate for the relevant climate and expected service life. Refer to Table 5 for further information about the minimum framing specifications required.

TABLE 5

| Framing Requirements | | |
|---|---|---|
| Type | Timber | Steel |
| BMT | N/A | 0.75 to 1.6 |
| Grade | MPG10 | G550 |
| Min. Stud Width | 35mm* | 32mm |
| Min. Stud Depth | 70mm | 64mm |
| Nogging Spacing | 1350mm | 1350mm |

Hardie™ Gravis™ Panel must be installed onto horizontal Hardie™ Gravis™ Top Hats in accordance with the relevant fixing tables shown on page 14 of this installation guide. Alternative top hats, with equivalent or superior steel grading to Hardie™ Gravis™ Top Hats, may only be used when installed in strict compliance with the relevant top hat manufacturer's specifications, including but not limited to maximum top hat spacings, spans and fixing requirements, and must be approved by the project engineer.

## WEATHER BARRIER

A suitable water control membrane must be installed under Hardie™ cladding products in accordance with the AS/NZS 4200.2 'Pliable building membranes and underlays – Installation' and NCC requirements. James Hardie has tested and certified the use of Hardie™ Wrap Weather Barrier for Climate Zones 2-8 within Australia. Please note that this requirement is not applicable to zero lot applications where a weather barrier installation is not possible, due to the installation sequence.

Hardie™ Wrap Weather Barrier is a Class 4 vapour-permeable membrane that delivers a tripleshield of protection to help against external weather penetration, internal condensation management and external heat penetration through its safeglare reflective layer.

If using an alternate product in lieu of Hardie™ Wrap Weather Barrier or the project is located in a hot, humid area (Climate Zone 1), the designer must ensure that the product is fit for purpose and it has the following classification in accordance with AS/NZS 4200.1:2017 'Pliable building membranes'.

TABLE 6

| Weather Barrier Classification | | |
|---|---|---|
| Climate Zone | Water Control Classification | Vapour Control Category |
| 2-8 | Water Barrier | Vapour Permeable (Class 3 or 4) |
| 1 | | Vapour Barrier (Class 1 or 2) |

## MOISTURE MANAGEMENT

It is the responsibility of designer or specifier to identify moisture related risks associated with any particular building design. Wall construction design must effectively manage moisture, accounting for both the interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration or that are artificially heated or cooled.

In addition, all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashing and waterproofing. Materials, components and their installation that are used to manage moisture in framed wall construction must, at a minimum, comply with the requirements of relevant standards and the NCC.

## HARDIE™ EXTERIOR HOME SOLUTIONS

Combining Hardie™ Gravis™ Panel (AAC) with Hardie™ fibre cement cladding enables modern mixed-material façades using a coordinated, buildable solution from one trusted brand. As part of the Hardie™ Product portfolio, these products are designed to work seamlessly together, making mixed-material designs simpler to specify and more efficient to install, while helping reduce uncertainty.

James Hardie provides the joint and junction details needed to confidently integrate Hardie™ Gravis™ Panel with Hardie™ fibre cement cladding, so transitions and connections can be completed using James Hardie's approved details and supported by technical and installation guidance (Available on page 23 and 24 of this document). The result is contemporary design versatility with streamlined delivery, backed by a Hardie's 25-year product warranty, giving total exterior confidence from the ground up.

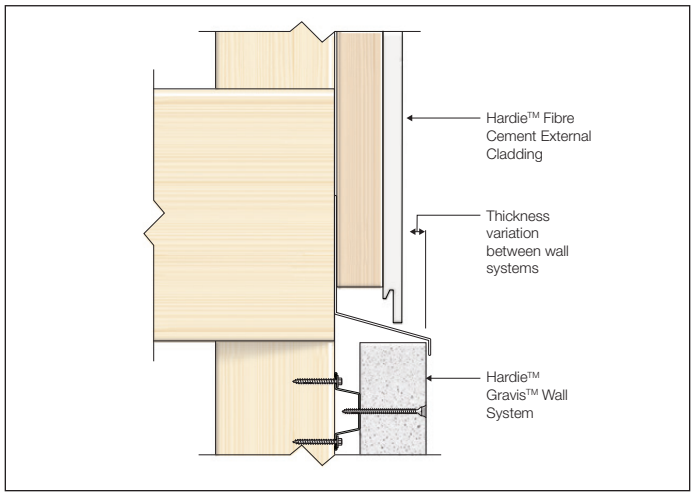



FIGURE 7 THICKNESS VARIATION BETWEEN HARDIE™ SYSTEMS

TABLE 7

| Thickness variation between Hardie™ fibre cement products and Hardie™ Gravis™ Panel Systems (mm) | | | | |
|---|---|---|---|---|
| | Hardie™ Gravis™ Panel Wall 50 | | Hardie™ Gravis™ Panel Wall 75 | |
| | 24mm Top Hat | 35mm Top Hat | 24mm Top Hat | 35mm Top Hat |
| 19mm Hardie™ Cavity Battens | 46 | 57 | 71 | 82 |
| 35mm Timber Battens | 30 | 41 | 55 | 66 |

NOTES:
-The thickness variation shown considers 9mm Hardie™ fibre cement products used as the external cladding
-If using 14mm Hardie™ fibre cement products (e.g. Hardie™ Oblique™ Cladding or Stria™ Cladding), reduce the thickness variation by 5mm.
-If using 16mm Hardie™ fibre cement products (e.g. Linea™ Weatherboard), reduce the thickness variation by 7mm.

# 6 Installation Requirements

## PANEL LAYOUT

Hardie™ Gravis™ Panel are to be installed in a vertical upright orientation over a seasoned timber or steel frame (Refer to Page 10 for framing requirements). Horizontal install is only permitted over windows or door openings, as shown in Figure 8, and limited to a single panel (i.e., two or more panels must not be stacked). The panel must have a minimum width of 270mm. If a narrower panel is required, it must be installed between two full width panels, have a minimum width of 100 mm, and include a fibreglass mesh embedded over the panel, extending over each vertical joint on both sides.

When planning the wall layout, it is important to consider the location of vertical and horizontal joints, ensuring the correct panel sizes are used. Additionally, any openings, such as windows or doors, must be planned to determine the required panel widths and heights. Refer to Figure 8 for the minimum distances between vertical and horizontal joints.

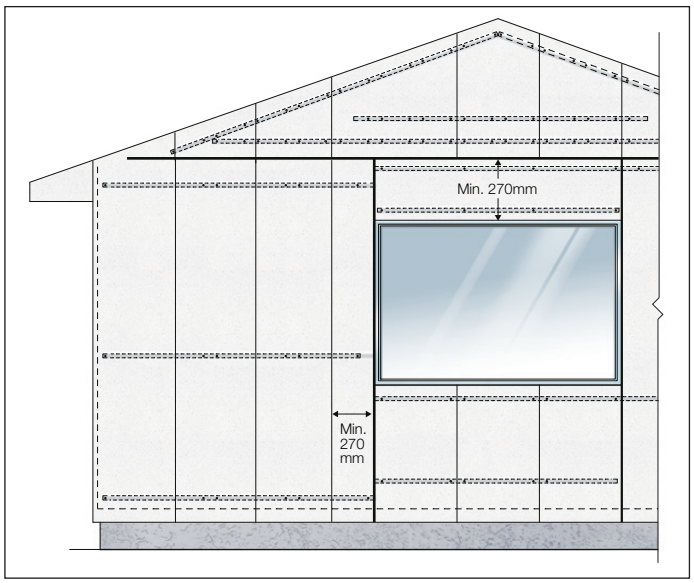



FIGURE 8 TYPICAL SINGLE STOREY PANEL LAYOUT

## FASTENERS

### General

All screws must be secured through the Hardie™ Gravis™ Top Hats. **Ensure the aesthetic finish of Hardie™ Gravis™ Panel is of acceptable quality prior to installation, see Important Note 3 on page 2 of this guide**.

For more information and advice, Ask James Hardie on 13 11 03.

### Fastener Durability (Including Coastal Areas)

Fasteners must have the appropriate level of durability and be fully compatible with all other materials required for the intended project. In areas within 1km of a coastal area, areas subject to salt spray and other corrosive environments, Class 4 fasteners must be used.

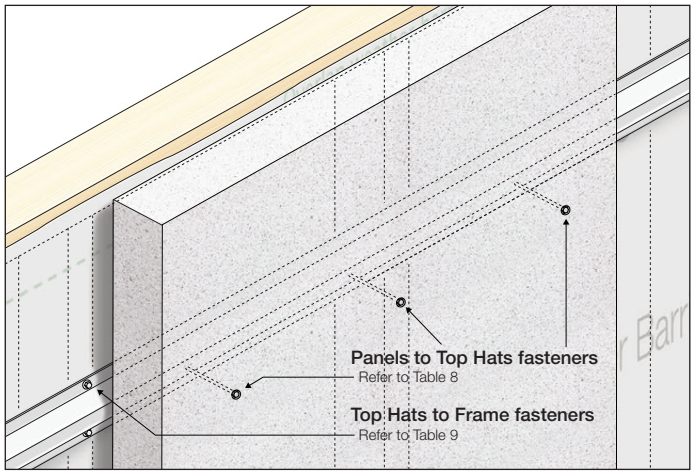



FIGURE 9 FASTENING OF TOP HATS AND PANELS

TABLE 8

| Fastener Requirements for fixing Top Hats to Frame | | |
|---|---|---|
| Timber Stud Frame | Steel Frame (1.2mm BMT max.) | Socket Type |
| 12-11x35mm hex head type 17 screw | 10-16x16mm hex head self drilling screw | 5/16" hex mag. socket |

NOTE:
In zero lot applications, the Hardie™ Gravis™ Direct Fix Clip must be fixed to the frame using x2 fasteners as specified in the table above, based on the frame material. The top hats must be fixed to the clips using a 10-16 x 16 mm hex head self drilling screw.

TABLE 9

| Fastener Requirements for fixing Hardie™ Gravis™ Panel to Top Hats | | | | |
|---|---|---|---|---|
| Application | Hardie™ Gravis™ Panel Thickness | Screw Length (mm) | Screw Type | Socket Type |
| Panels Fixed from the Outside | 50 | 65 | 14-10 Bugle Head or Hex Type 17 Screws (Class 3 or 4)* | 3/8" Hex Mag. Socket |
| | 75 | 90 | | |
| Panels Fixed from the Inside | 50 | 40 | 14-10 Hex Head Type 17 Screws (Class 3 or 4) | 3/8" Hex Mag. Socket |
| | 75 | 65 | | |

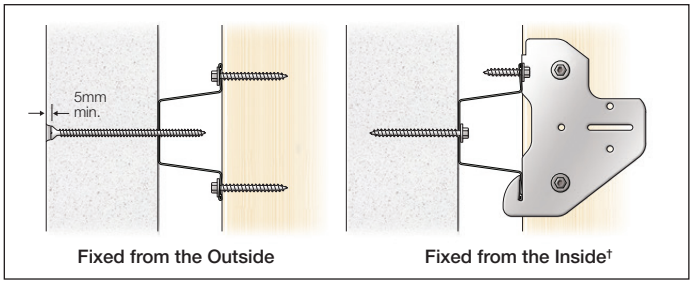



FIGURE 10 CORRECT FASTENER EMBEDMENT

NOTE:
* When fixing the panels from the inside extra care must be taken to avoid over torquing of the screw fixings. The screw threads may strip the AAC material and render the fixing point ineffective.

† The screws fixing the Hardie™ Gravis™ Panel to top hats are countersunk min. 5mm into the panel and filled with Hardie™ Gravis™ Patch. Only on the last stud of the wall, the clips may be installed upside down.

Avoid damage to the top hat and fastener threads by only tightening fasteners until the fastener head is snug against the surface.

## CURVED WALLS

A faceting method can be used to create concave or convex walls using Hardie™ Gravis™ Panel. Panels must be installed vertically in trapezoidal sections, with a minimum width of 270 mm at the narrowest side. Each panel must be fixed to top hat sections, which should be installed according to the fixing tables on this page and secured to at least two studs per top hat section. The curved wall section must be designed and constructed in accordance with Figure 11 of this document.

Render thickness can be adjusted to suit different curve radii. Please refer to the render manufacturer for details on minimum and maximum thickness, as well as system suitability for the intended application.

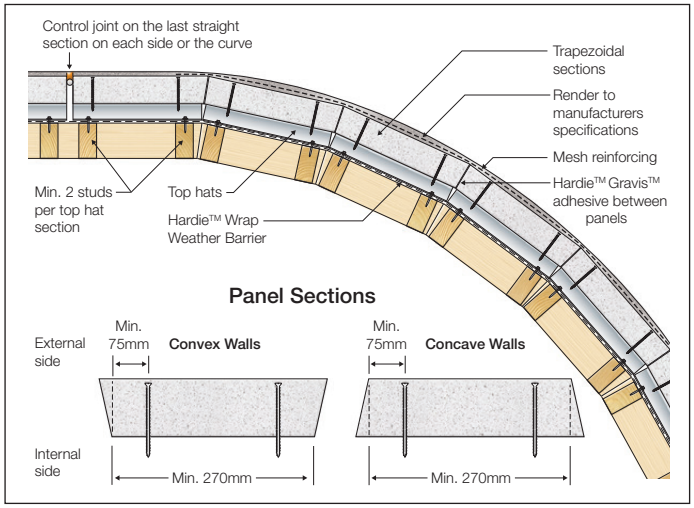


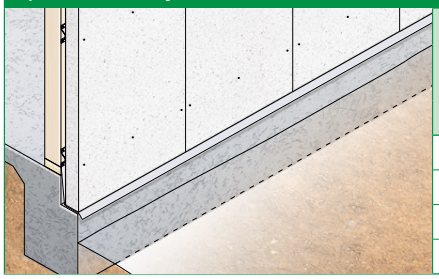

FIGURE 11 CURVED WALL USING FACETING METHOD

## STUDS, TOP HATS AND FASTENER SPACING

The maximum spacing of the studs, top hats and fasteners will depend on how the Hardie™ Gravis™ Panel are supported and the projects wind category, based on AS4055 Wind Loads for Housing. The following tables provide designs based on different panel support configurations and applications:

### TABLE 10

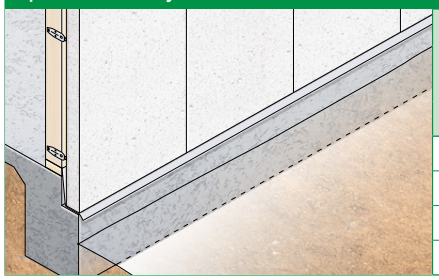
**Span of vertically oriented Hardie™ Gravis™ Panel supported at base fixed from outside the building (Such as slab edge or shelf angle)**



| AS4055 Wind category | Max. Stud Spacing (mm) | 50mm Panel | | | | 75mm Panel | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Max. Top Hat Spacing (mm) | | Screw per panel to Top Hat Intersection | | Max. Top Hat Spacing (mm) | | Screw per panel to Top Hat Intersection | |
| | | General | Corner* | General | Corner* | General | Corner* | General | Corner* |
| N1 / N2 | 600 | 1200 | 1200 | 2 | 2 | 1200 | 1050 | 2 | 2 |
| N3 / C1 | 450 | 1200 | 950 | 3 | 3 | 1200 | 900 | 3 | 3 |
| N4 / C2 | 450 | 1050 | 750 | 3 | 4 | 1050 | 700 | 3 | 4 |
| N5 / C3 | 450 | 850 | 600 | 3 | 4 | 800 | 600 | 3 | 4 |

### TABLE 11

**Span of vertically oriented Hardie™ Gravis™ Panel supported at base fixed from inside the building (Such as slab edge or shelf angle)**

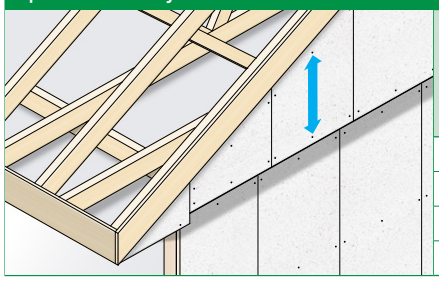


| AS4055 Wind category | Max. Stud Spacing (mm) | 50mm Panel | | | | 75mm Panel | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Max. Top Hat Spacing (mm) | | Screw per panel to Top Hat Intersection | | Max. Top Hat Spacing (mm) | | Screw per panel to Top Hat Intersection | |
| | | General | Corner* | General | Corner* | General | Corner* | General | Corner* |
| N1 / N2 | 600 | 1200 | 1200 | 3 | 6 | 1200 | 1050 | 3 | 3 |
| N3 / C1 | 450 | 1200 | 950 | 5 | 7 | 1200 | 900 | 3 | 3 |
| N4 / C2 | 450 | 700* | 480* | 3* | 4* | 1050 | 700 | 3 | 4 |
| N5 / C3 | 450 | - | - | - | - | 800 | 600 | 4 | 5 |

* Based on calculations performed in accordance with AS/NZS 1170.2 Structural design actions, Part 2: Wind actions

### TABLE 12

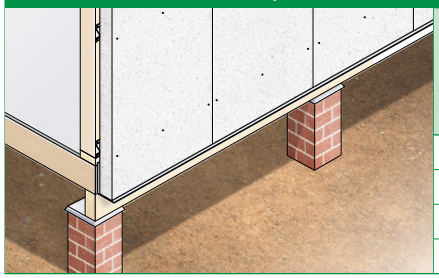
**Span of vertically oriented Hardie™ Gravis™ Panel suspended at gable ends and fixed from the outside**



| AS4055 Wind category | Max. Stud Spacing (mm) | 50mm Panel | | | | 75mm Panel | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Max. Top Hat Spacing (mm) | | Screw per panel to Top Hat Intersection | | Max. Top Hat Spacing (mm) | | Screw per panel to Top Hat Intersection | |
| | | General | Corner* | General | Corner* | General | Corner* | General | Corner* |
| N1 / N2 | 600 | 800 | 750 | 2 | 3 | 800 | 750 | 2 | 3 |
| N3 / C1 | 450 | 800 | 650 | 3 | 4 | 800 | 650 | 3 | 4 |
| N4 / C2 | 450 | 800 | 450 | 4 | 4 | 800 | 450 | 4 | 4 |
| N5 / C3 | 450 | 800 | 350 | 4 | 4 | 600 | 350 | 4 | 4 |

### TABLE 13

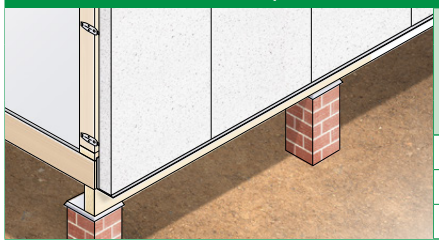
**Hardie™ Gravis™ Panel suspended from framing fixed from the outside (e.g., External walls on second or third storeys)**



| AS4055 Wind category | Max. Stud Spacing (mm) | 50mm Panel | | | | 75mm Panel | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Max. Top Hat Spacing (mm) | | Screw per panel to Top Hat Intersection | | Max. Top Hat Spacing (mm) | | Screw per panel to Top Hat Intersection | |
| | | General | Corner* | General | Corner* | General | Corner* | General | Corner* |
| N1 / N2 | 600 | 1000 | 1000 | 2 | 3 | 1000 | 1000 | 2 | 3 |
| N3 / C1 | 450 | 1000 | 950 | 3 | 4 | 1000 | 900 | 3 | 4 |
| N4 / C2 | 450 | 1000 | 750 | 4 | 4 | 1000 | 750 | 4 | 4 |
| N5 / C3 | 450 | 750 | 600 | 4 | 4 | 750 | 600 | 4 | 4 |

### TABLE 14

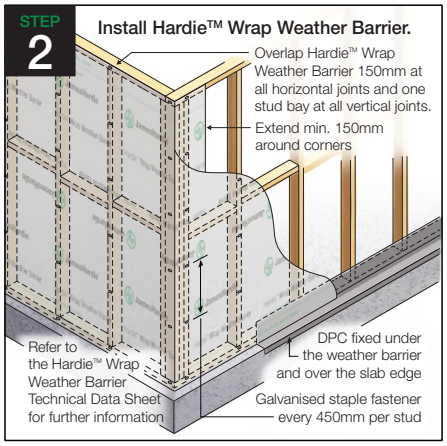
**Hardie™ Gravis™ Panel suspended from framing fixed from the inside (e.g., External walls on second or third storeys)**

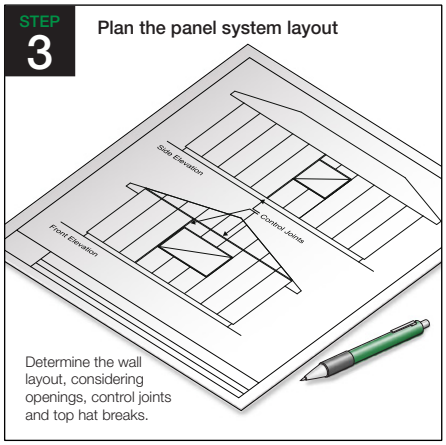


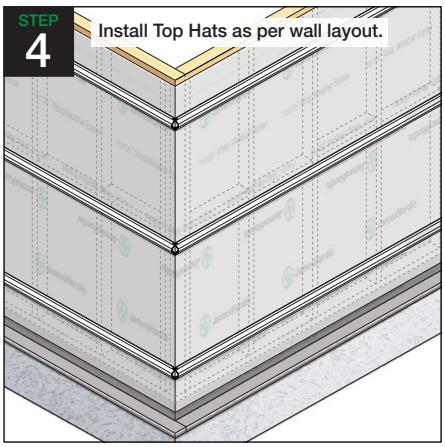
| AS4055 Wind category | Max. Stud Spacing (mm) | 50mm Panel | | | | 75mm Panel | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Max. Top Hat Spacing (mm) | | Screw per panel to Top Hat Intersection | | Max. Top Hat Spacing (mm) | | Screw per panel to Top Hat Intersection | |
| | | General | Corner* | General | Corner* | General | Corner* | General | Corner* |
| N1 / N2 | 600 | - | - | - | - | 1000 | 1000 | 3 | 3 |
| N3 / C1 | 450 | - | - | - | - | 1000 | 900 | 3 | 4 |
| N4 / C2 | 450 | - | - | - | - | 1000 | 750 | 4 | 5 |

* Corner zones refer to all areas within 1200 mm of the building edges.

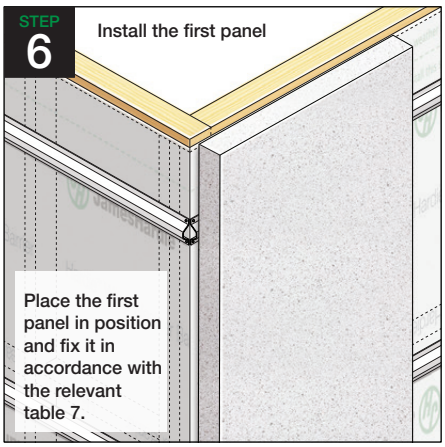
# 7 External Wall Installation Steps

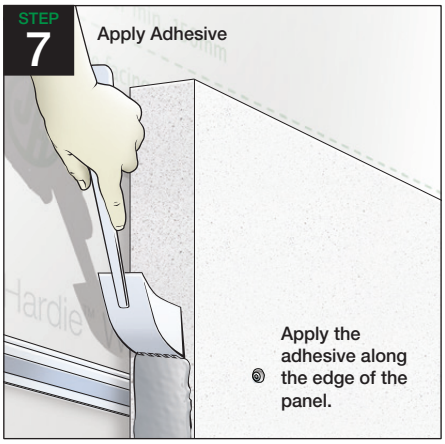



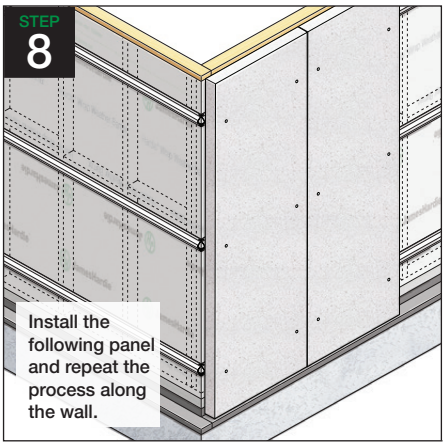



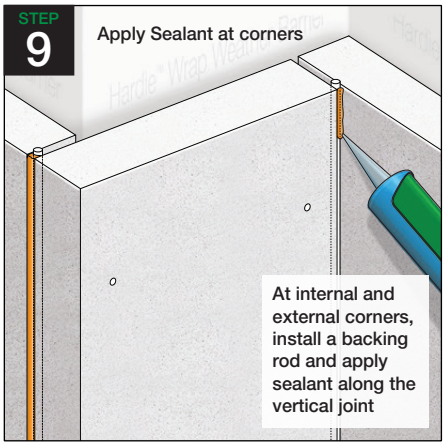



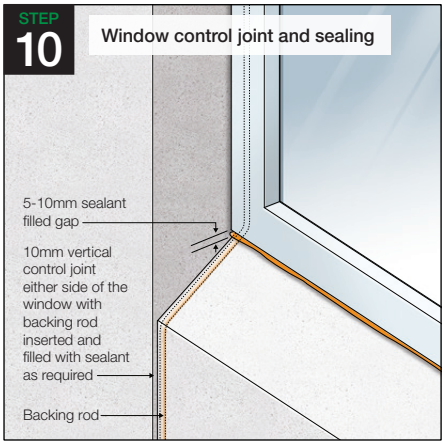


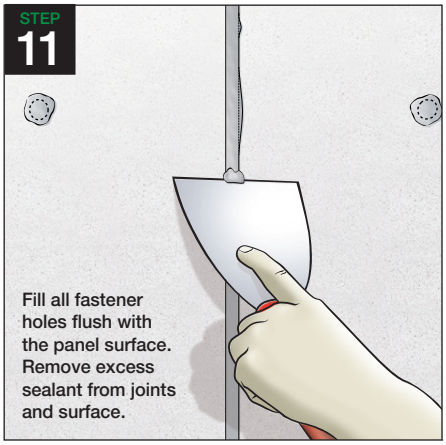


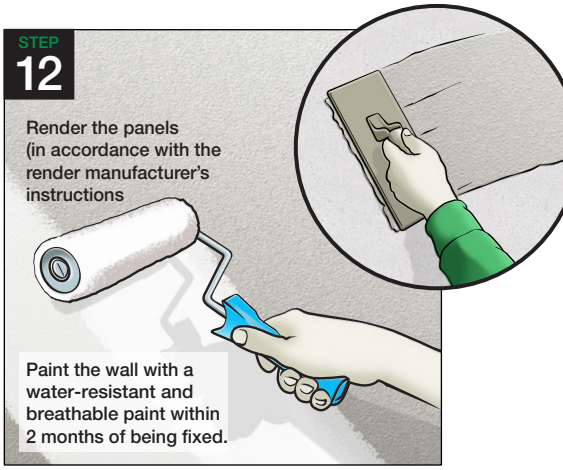



# 8 External Walls Details

## FACADE LAYOUTS

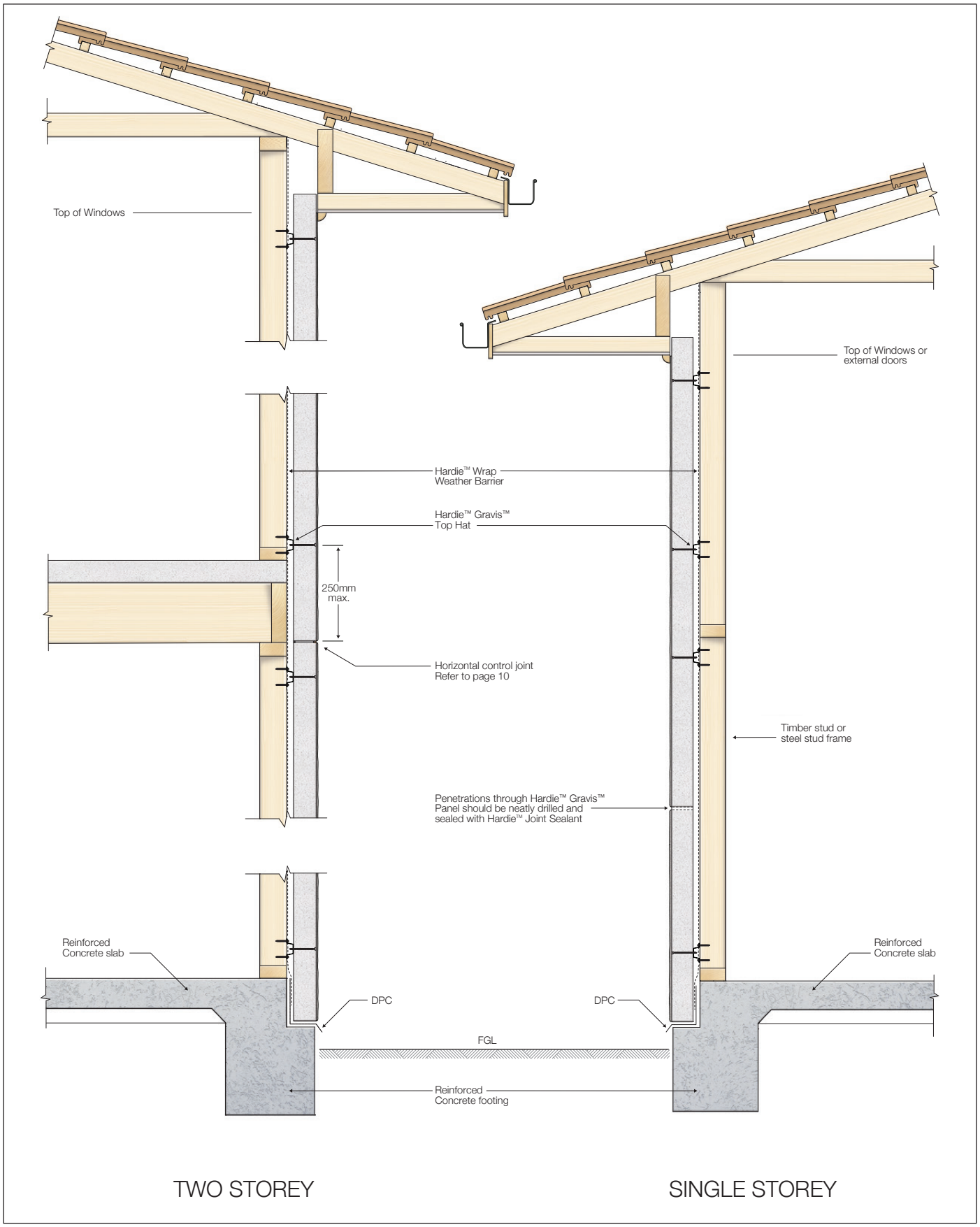



**FIGURE 1** SINGLE & TWO STOREY LAYOUT - HIP ROOF ELEVATION

**Notes:**

1. These drawings are provided for indicative purposes only to illustrate the wall configuration. Refer to Table 10 for the correct top hat and fastener spacing requirements.
2. These details have not shown the set-out of top hats to accommodate control joint locations.
3. The maximum that the panel shall overhang the slab edge is 1/3 of the panel thickness.

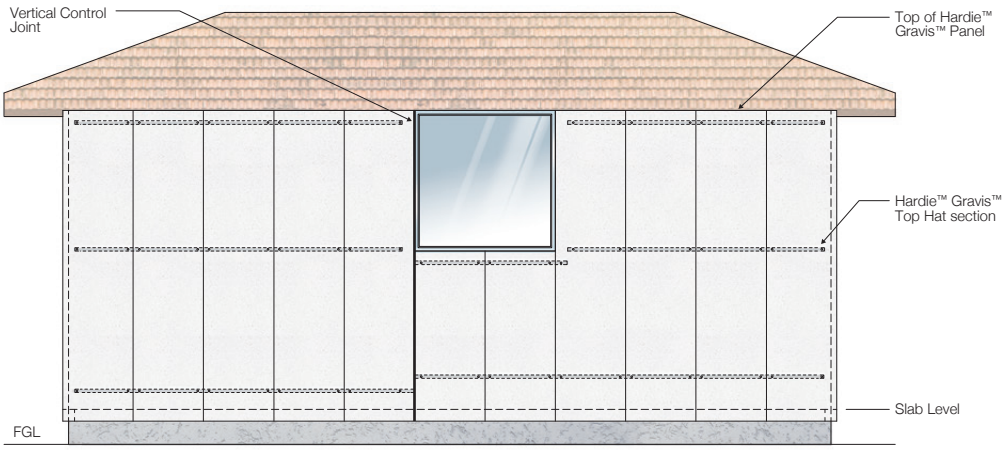



**FIGURE 2** SINGLE STOREY LAYOUT - HIP ROOF ELEVATION

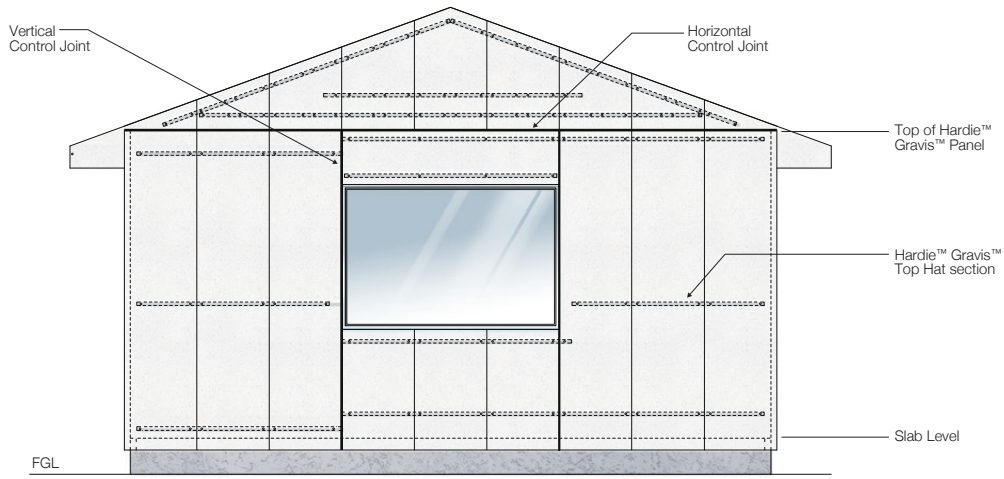



**FIGURE 3** SINGLE STOREY LAYOUT - GABLE ROOF ELEVATION

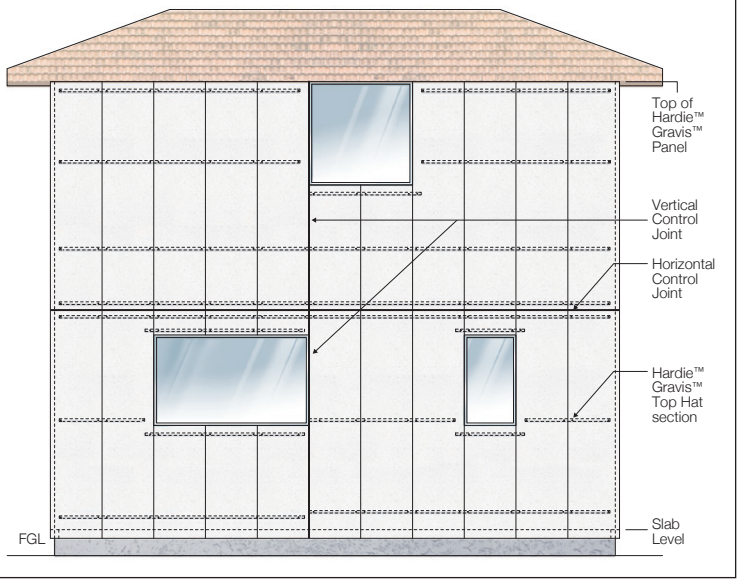



**FIGURE 4** TWO STOREY LAYOUT - HIP ROOF ELEVATION

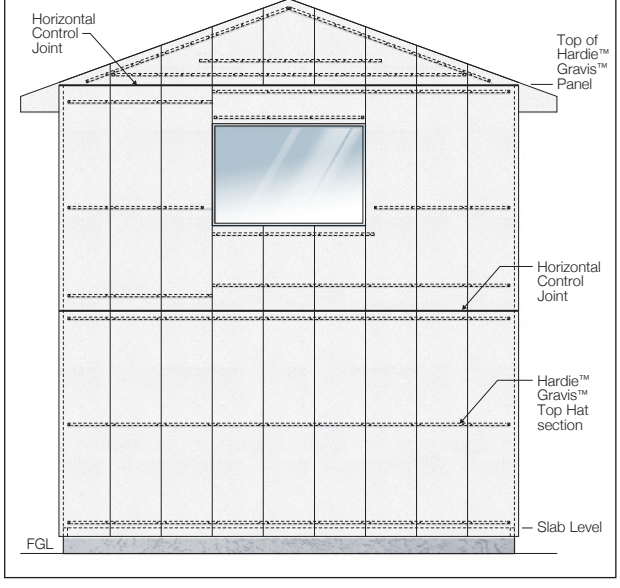



**FIGURE 5** TWO STOREY LAYOUT - GABLE ROOF ELEVATION

**Notes:**

1. These drawings are provided for indicative purposes only to illustrate the wall configuration. Refer to Tables on page 13 for the correct top hat and fastener spacing requirements.
2. These details have not shown the set-out of top hats to accommodate control joint locations.

## SLAB AND BASE DETAILS

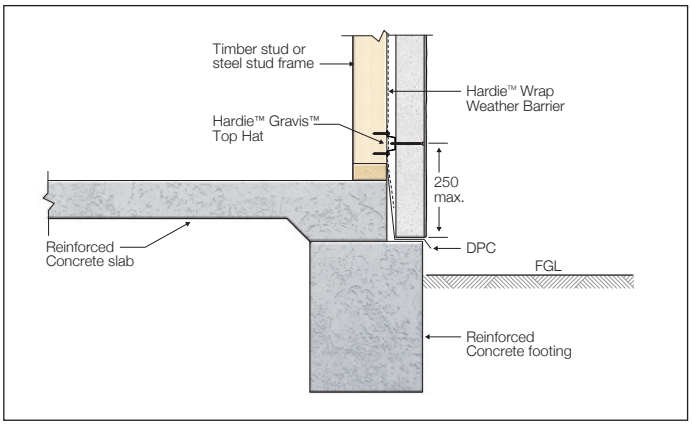



FIGURE 6 JUNCTION TO SHALLOW CONCRETE EDGE BEAM

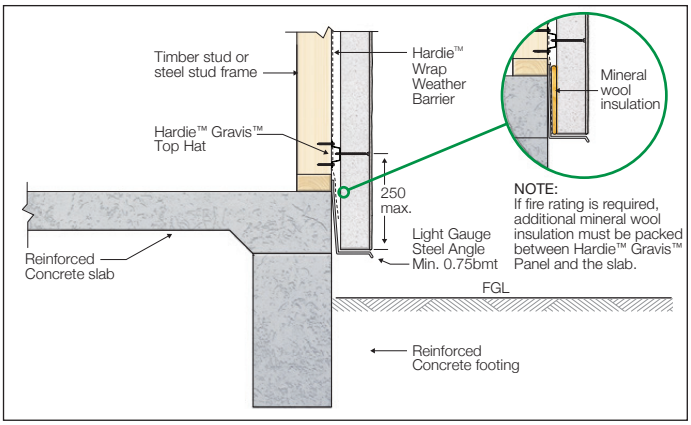



FIGURE 7 SUSPENDED PANEL DETAIL

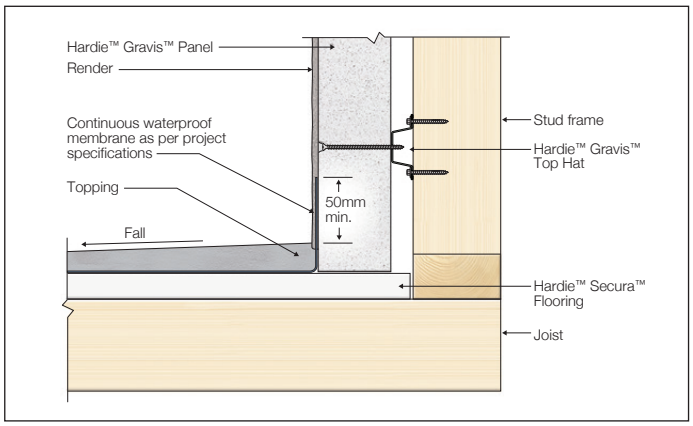



FIGURE 8 BALCONY DETAIL

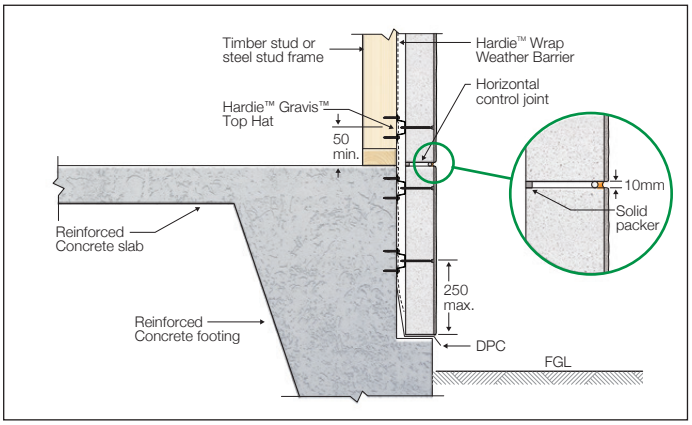



FIGURE 9 JUNCTION TO DEEP CONCRETE EDGE BEAM

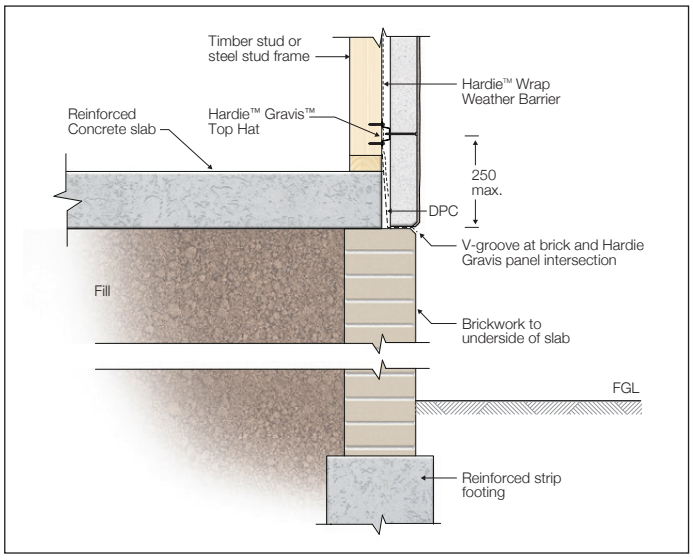



FIGURE 10 JUNCTION TO MASONRY EARTH RETAINING WALL

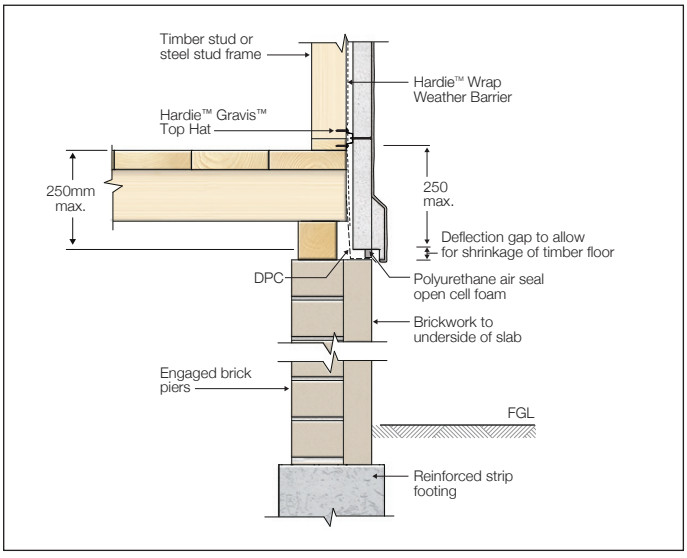



FIGURE 11 JUNCTION TO MASONRY DWARF WALL

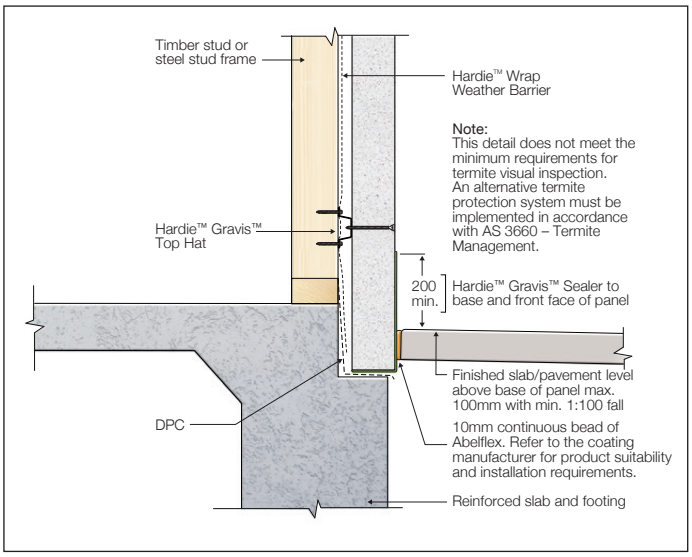



FIGURE 12 JUNCTION TO HARDIE™ GRAVIS™ PANEL BELOW PAVEMENT SLAB

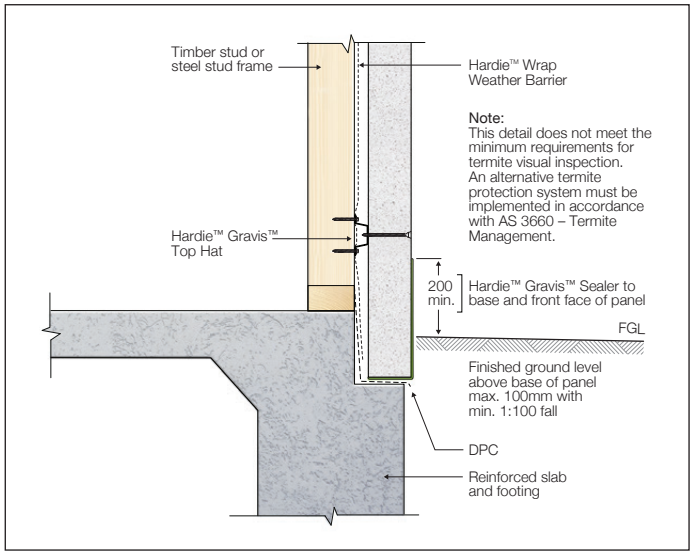



FIGURE 13 JUNCTION TO HARDIE™ GRAVIS™ PANEL BELOW GROUND

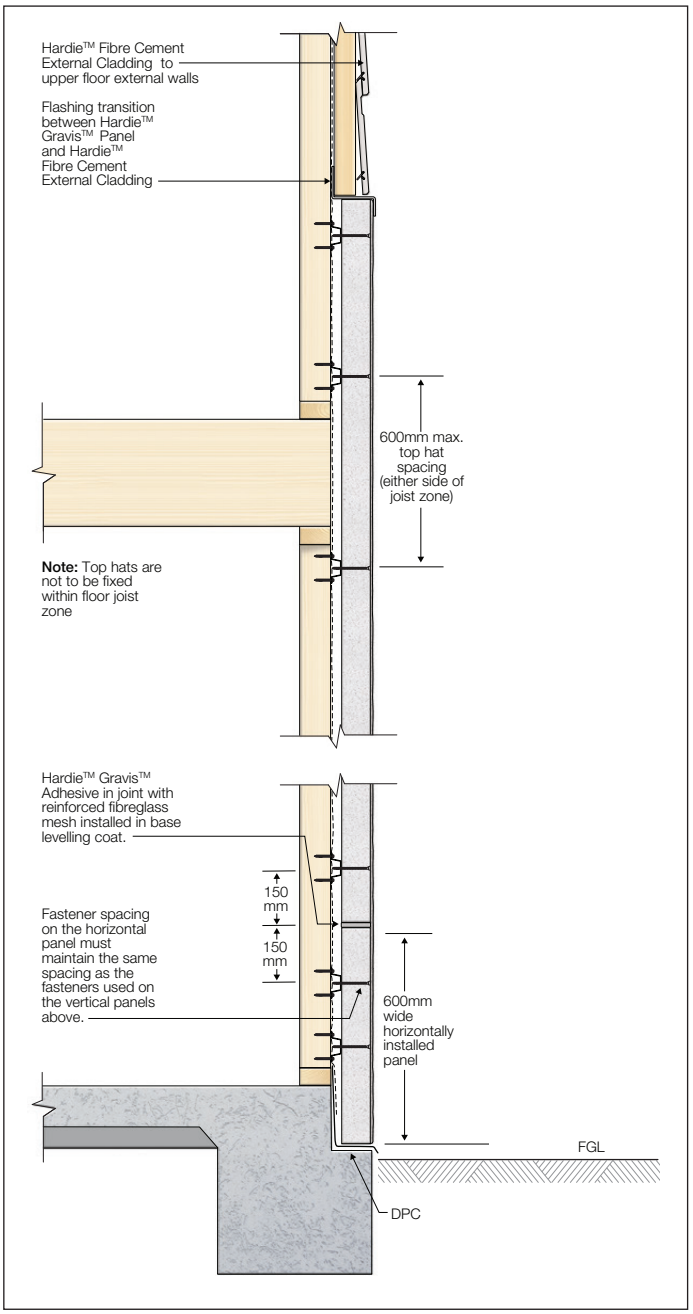



FIGURE 14 HARDIE™ GRAVIS™ PANEL EXTENDING ABOVE FIRST FLOOR

## EAVES AND ROOF DETAILS

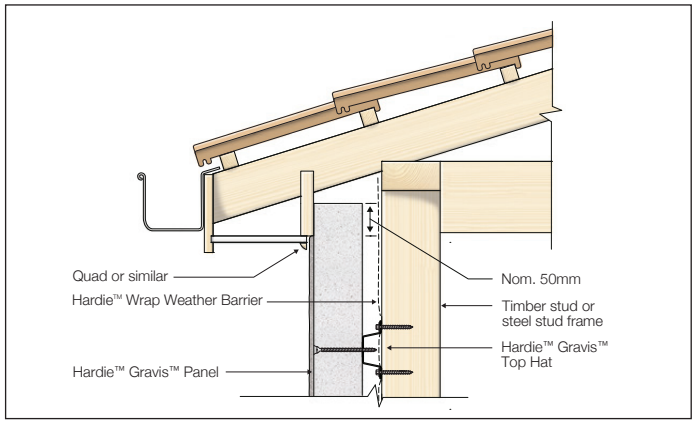



FIGURE 15 EAVE DETAIL - PANELS FINISHING ABOVE SOFFIT

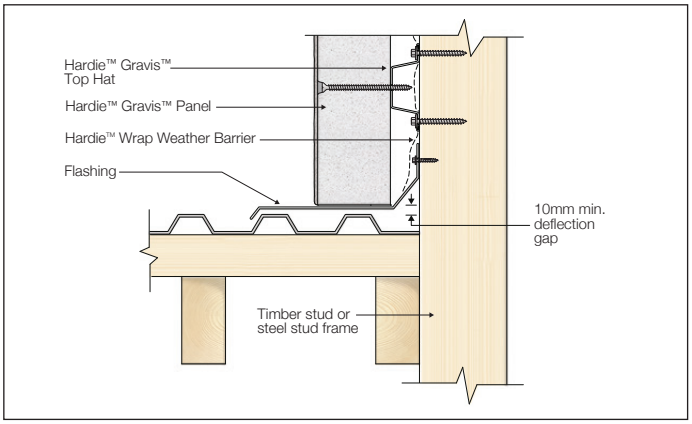



FIGURE 16 ROOF DETAIL WITH FLASHING UNDER PANEL

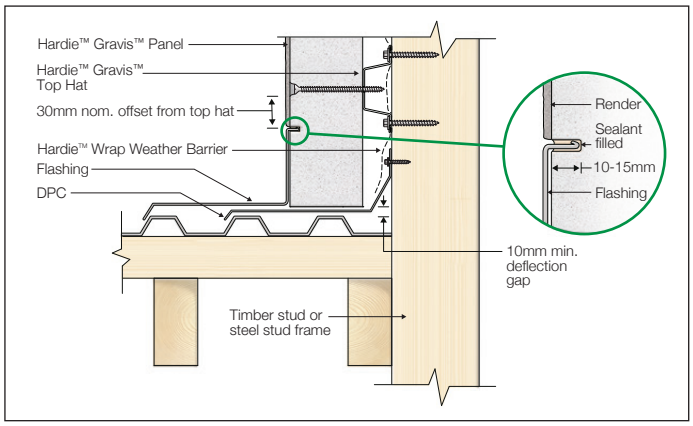



FIGURE 17 ROOF DETAIL WITH FLASHING SET INTO PANEL

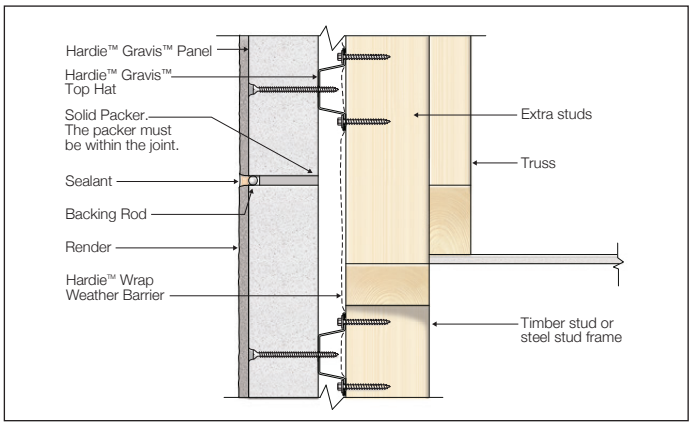



FIGURE 18 GABLE END DETAIL

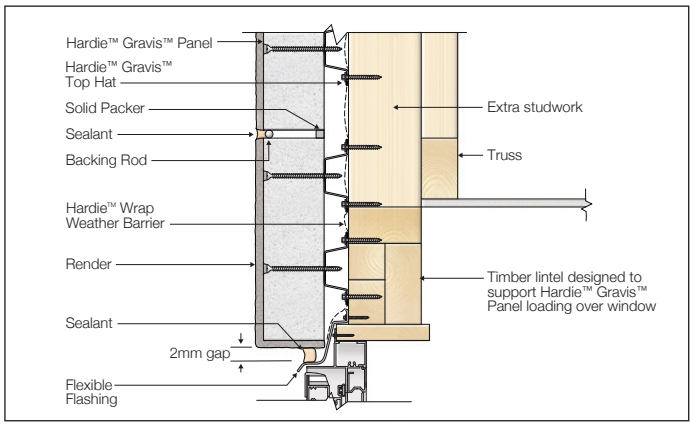



FIGURE 19 GABLE END WITH LINTEL OVER WINDOW DETAIL

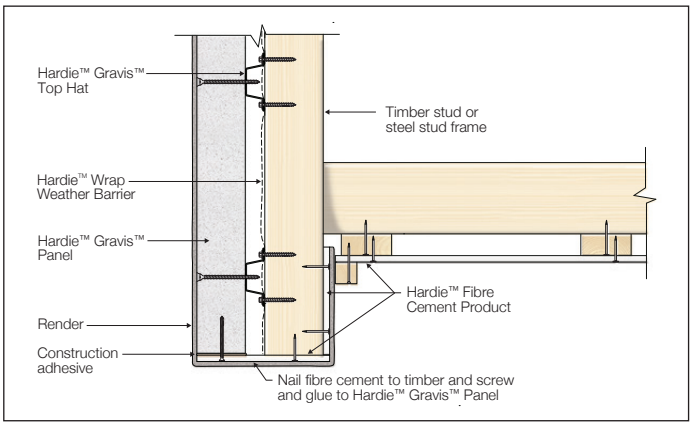



FIGURE 20 BULKHEAD DETAIL

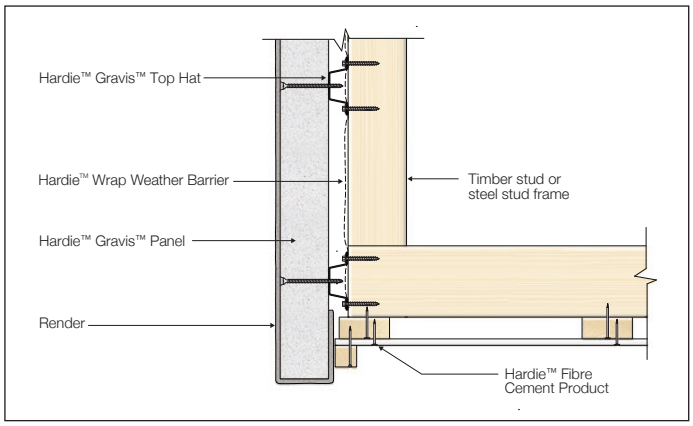



FIGURE 21 SOFFIT JUNCTION DETAIL

## CORNER DETAILS

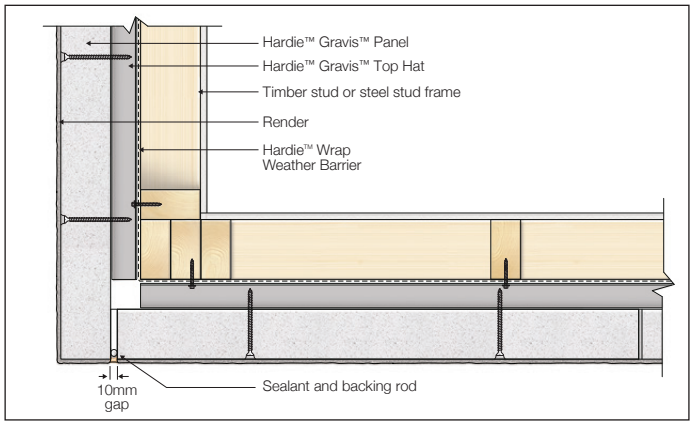



FIGURE 22 CONTROL JOINT AT EXTERNAL CORNER

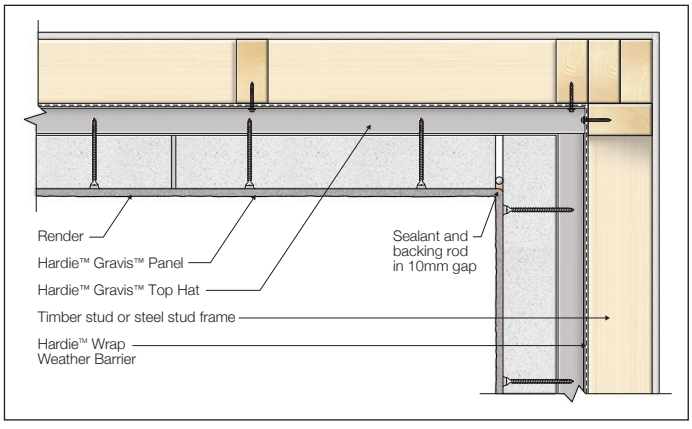



FIGURE 23 CONTROL JOINT AT INTERNAL CORNER

## WALL ENDS AND COLUMNS

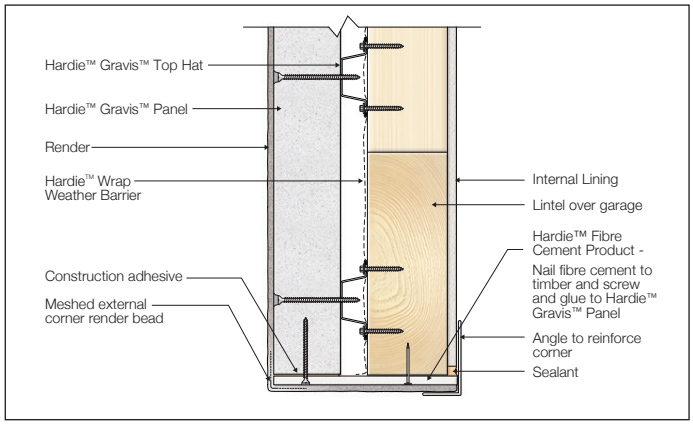



FIGURE 24 GARAGE DOOR HEAD DETAIL

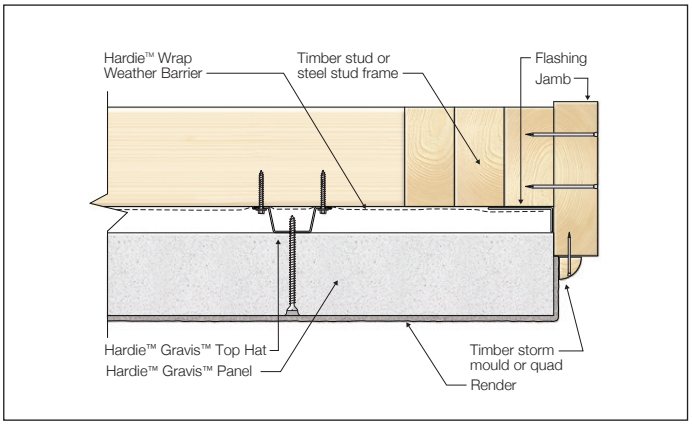



FIGURE 25 GARAGE DOOR JAMB DETAIL - OPTION 1

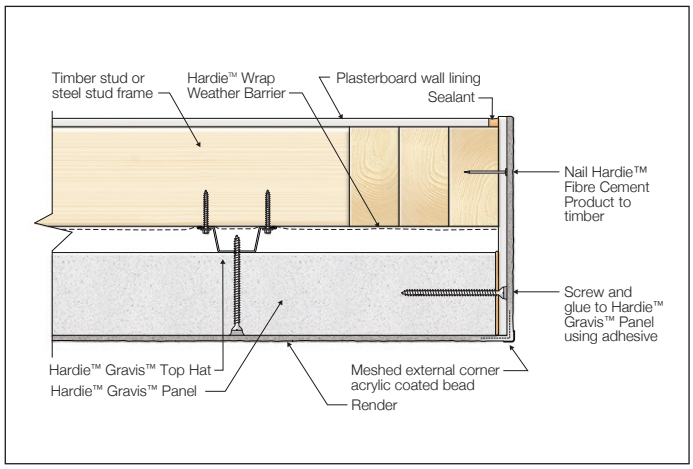



FIGURE 26 GARAGE DOOR JAMB DETAIL - OPTION 2

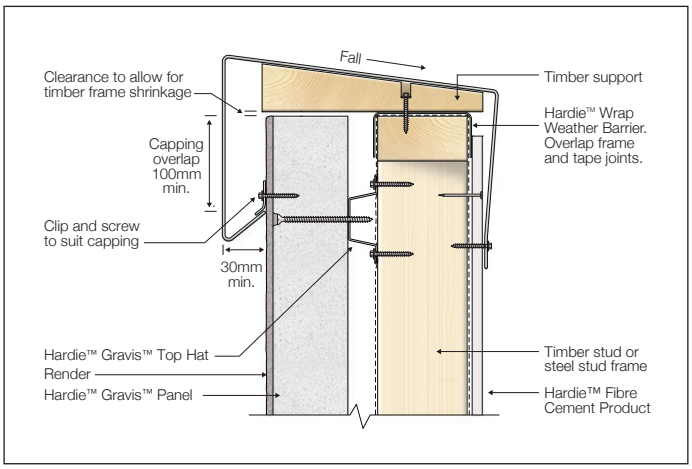



FIGURE 27 PARAPET CAPPING DETAIL

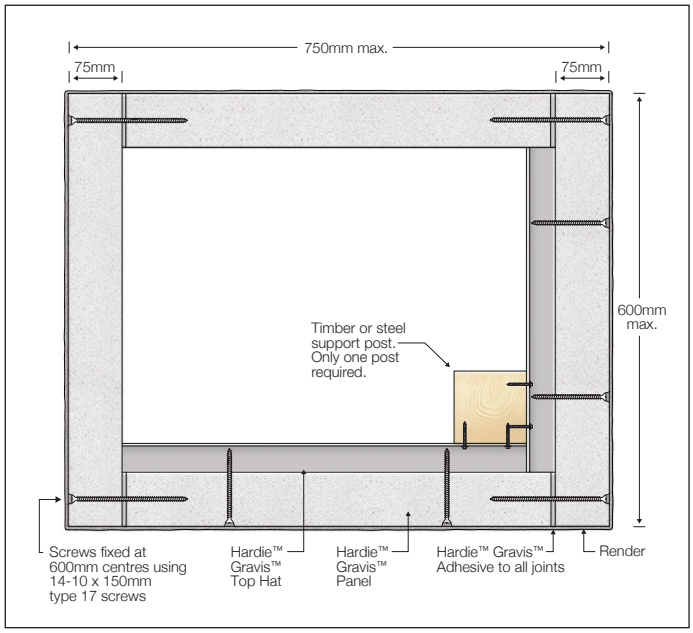



FIGURE 28 COLUMN DETAIL - GLUED AND SCREWED

## WINDOW AND SLIDING DOOR DETAILS

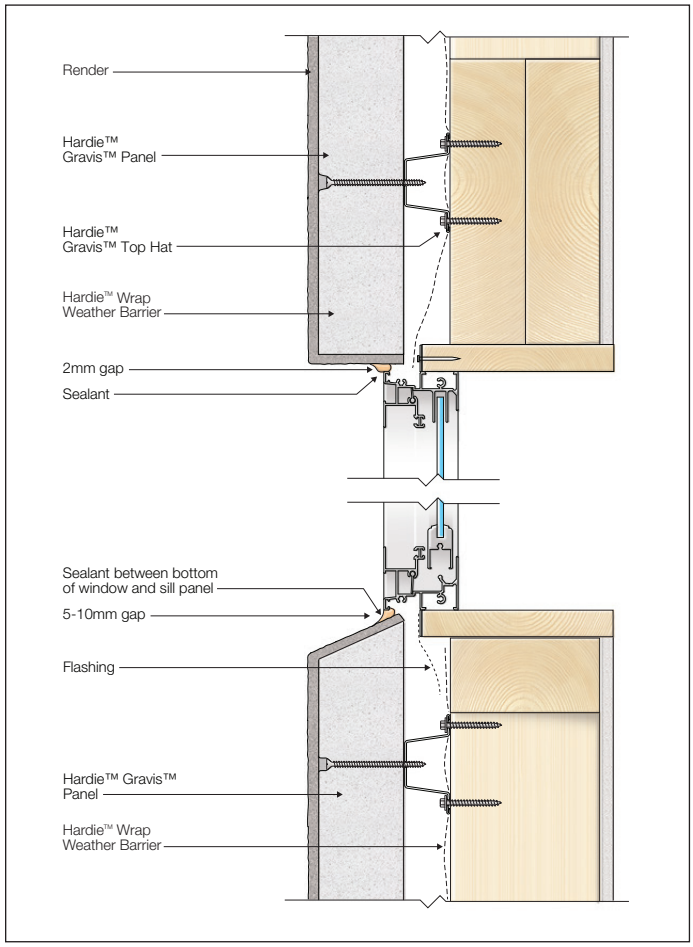



FIGURE 29 WINDOW HEAD AND SILL DETAIL

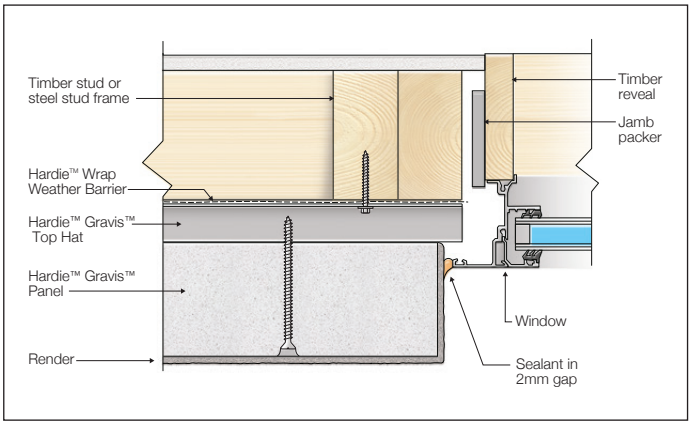



FIGURE 30 WINDOW JAMB DETAIL

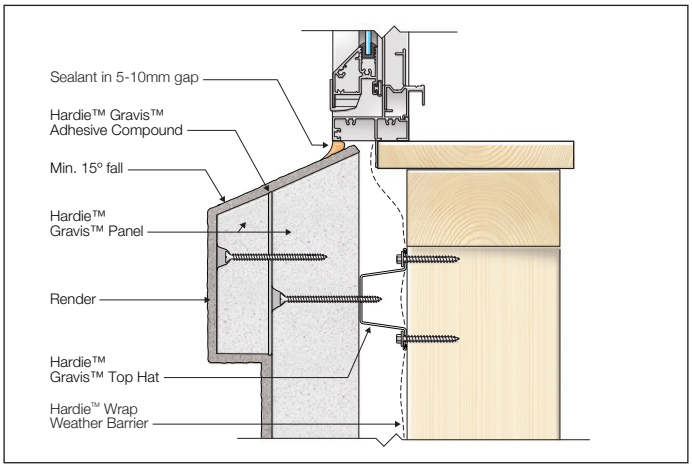



FIGURE 31 ALTERNATIVE SILL TREATMENT DETAIL

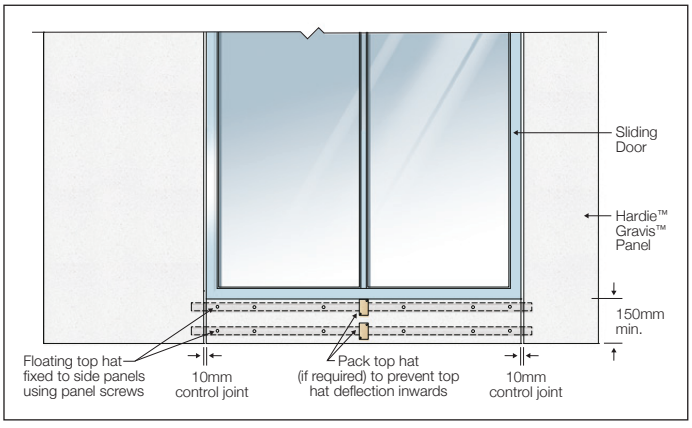



FIGURE 32 SLIDING DOOR SILL DETAIL

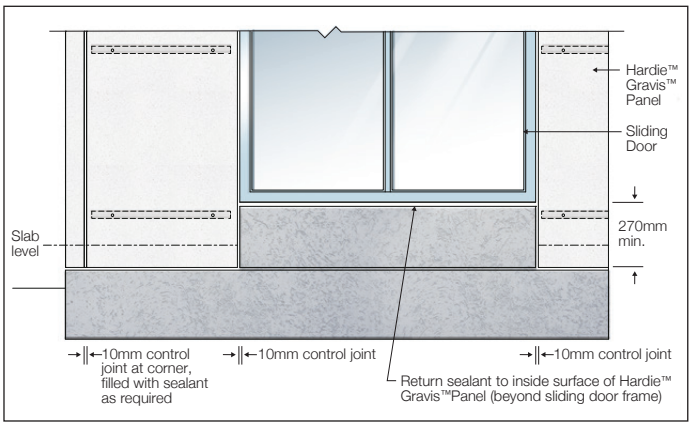



FIGURE 33 SLIDING DOOR FOR CONCRETE SILL DETAIL

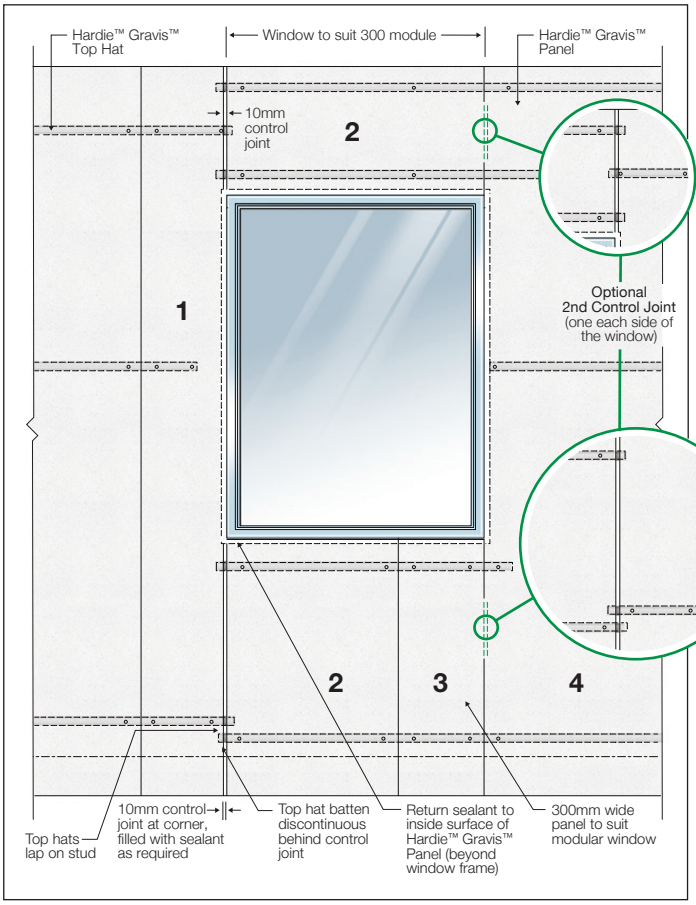
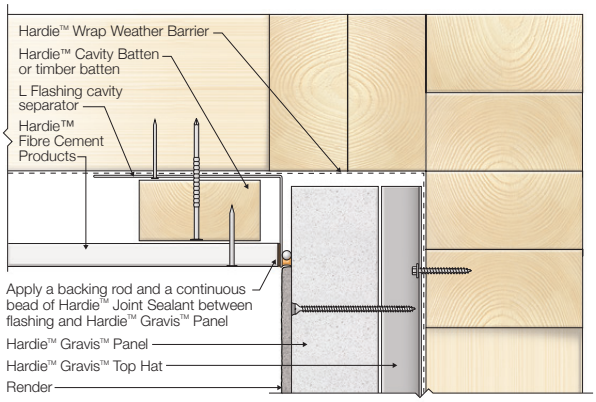


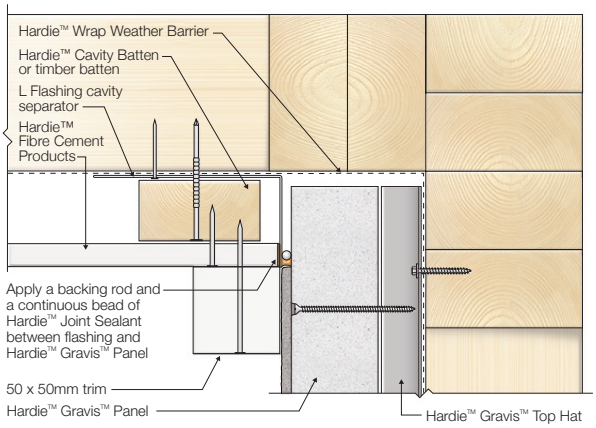

FIGURE 34 VERTICAL WINDOW CONTROL JOINT WITH LINTEL

## HARDIE™ GRAVIS™ PANEL TO HARDIE™ FIBRE CEMENT PRODUCTS



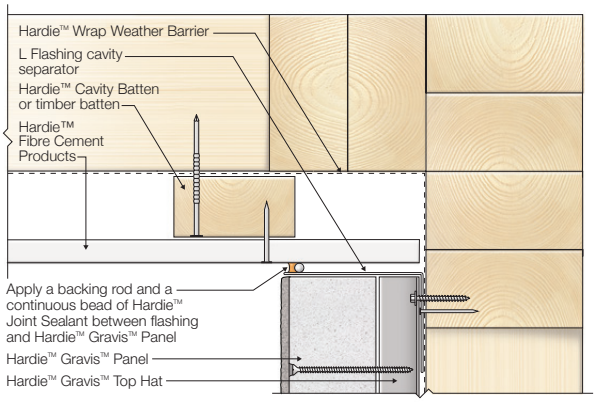

NOTE: The sections of the wall using Hardie™ Fibre Cement are not fire rated. If this is required, a fire rated system (Such as Hardie™ Smart Wall System) must be used.

FIGURE 35 INTERNAL CORNER HARDIE™ FIBRE CEMENT INTO HARDIE™ GRAVIS™ PANEL - OPTION 1



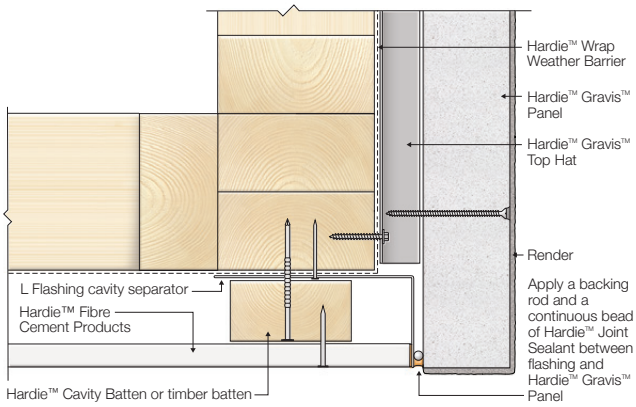

NOTE: The sections of the wall using Hardie™ Fibre Cement are not fire rated. If this is required, a fire rated system (Such as Hardie™ Smart Wall System) must be used.

FIGURE 36 INTERNAL CORNER HARDIE™ FIBRE CEMENT INTO HARDIE™ GRAVIS™ PANEL - OPTION 2



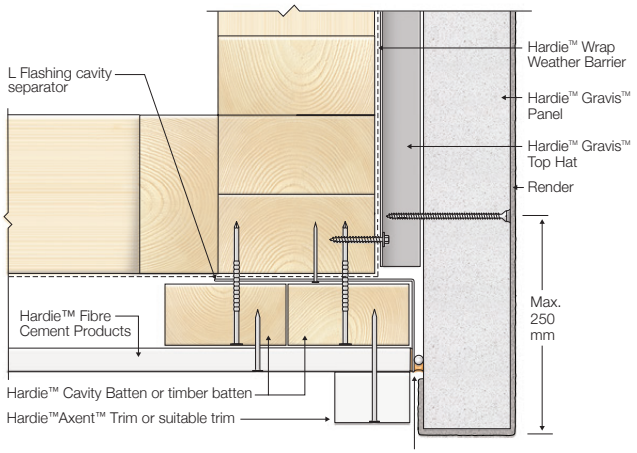

NOTE: The sections of the wall using Hardie™ Fibre Cement are not fire rated. If this is required, a fire rated system (Such as Hardie™ Smart Wall System) must be used.

FIGURE 37 INTERNAL CORNER HARDIE™ GRAVIS™ PANEL INTO HARDIE™ FIBRE CEMENT




NOTE: The sections of the wall using Hardie™ Fibre Cement are not fire rated. If this is required, a fire rated system (Such as Hardie™ Smart Wall System) must be used.

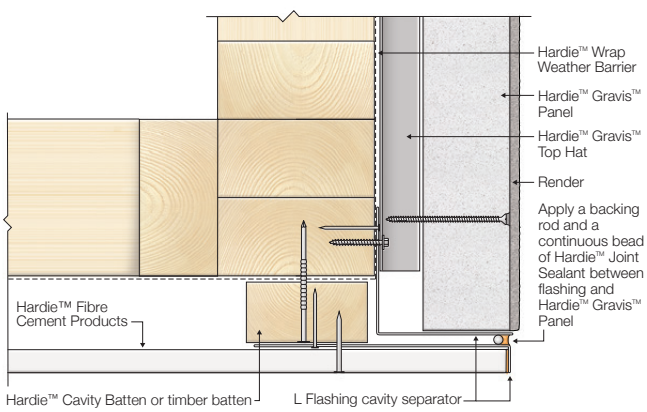
FIGURE 38 EXTERNAL CORNER HARDIE™ FIBRE CEMENT INTO HARDIE™ GRAVIS™ PANEL - OPTION 1




NOTE: The sections of the wall using Hardie™ Fibre Cement are not fire rated. If this is required, a fire rated system (Such as Hardie™ Smart wall system) must be used.

Apply a backing rod and a continuous bead of Hardie™ Joint Sealant between flashing and Hardie™ Gravis™ Panel

FIGURE 39 EXTERNAL CORNER HARDIE™ FIBRE CEMENT INTO HARDIE™ GRAVIS™ PANEL - OPTION 2




NOTE: The sections of the wall using Hardie™ Fibre Cement are not fire rated. If this is required, a fire rated system (Such as Hardie™ Smart wall system) must be used.

FIGURE 40 EXTERNAL CORNER HARDIE™ GRAVIS™ PANEL INTO HARDIE™ FIBRE CEMENT

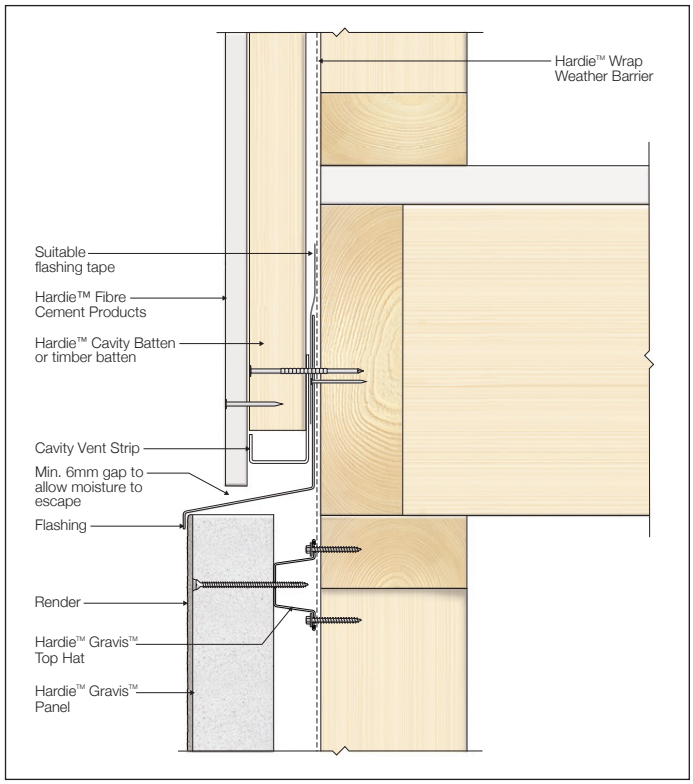



FIGURE 41 HORIZONTAL JUNCTION RECESSED

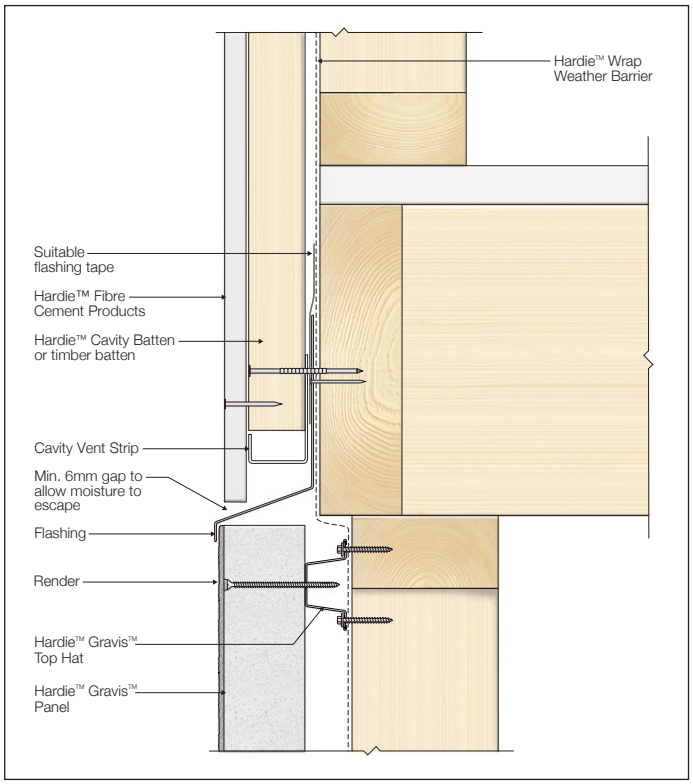



FIGURE 42 HORIZONTAL JUNCTION FLUSH

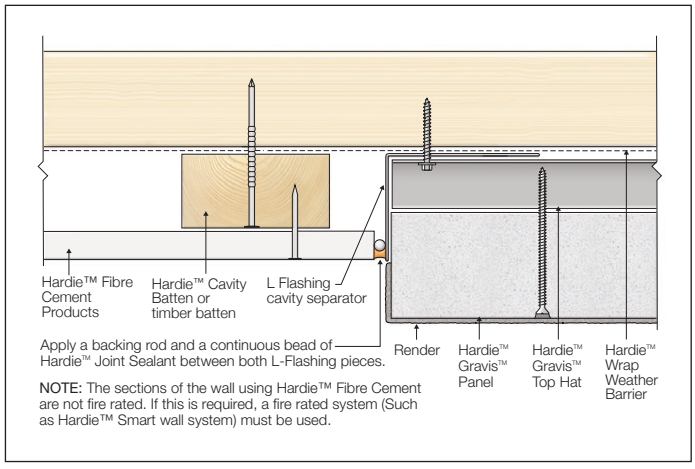



FIGURE 43 VERTICAL JOINT - SEALANT

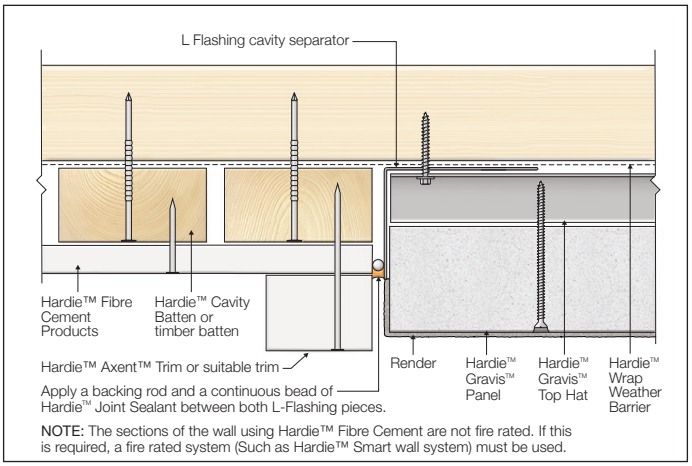
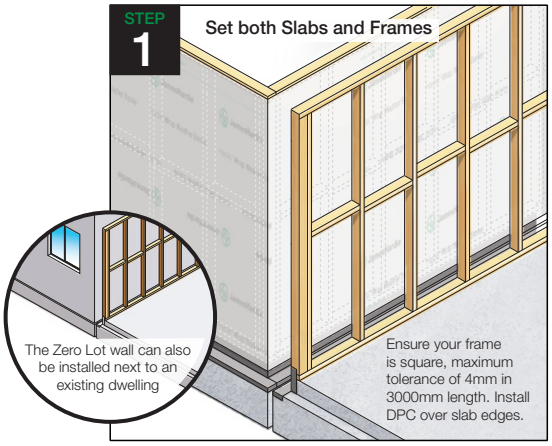
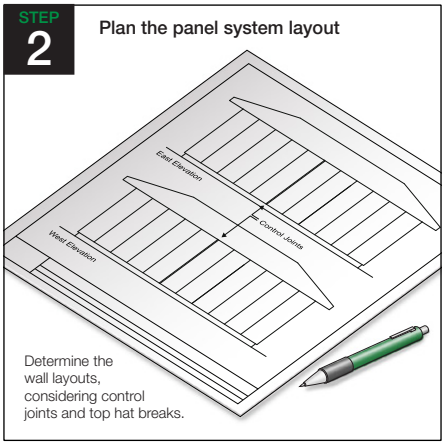
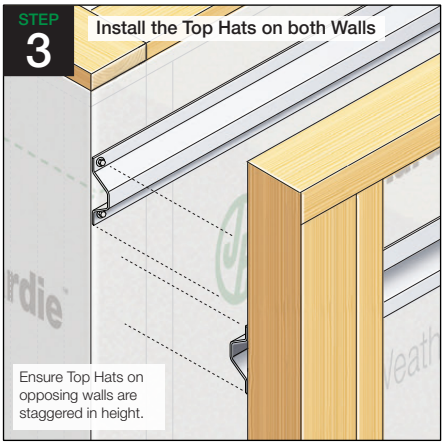


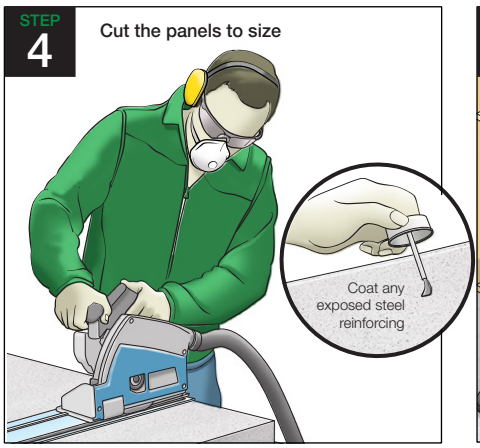

FIGURE 44 VERTICAL JOINT - TRIM

# 9 Zero Lot Wall Installation Steps

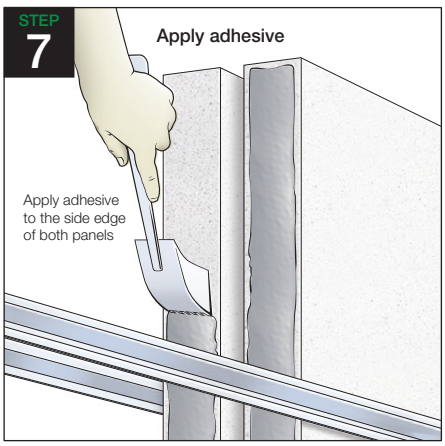


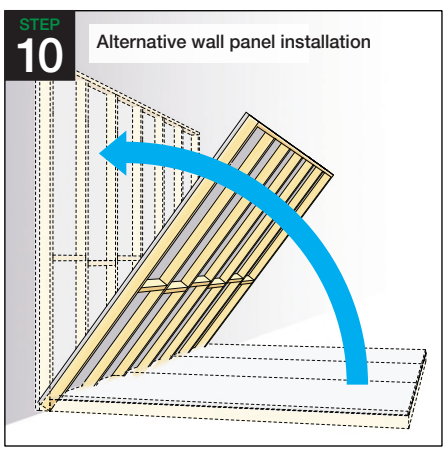



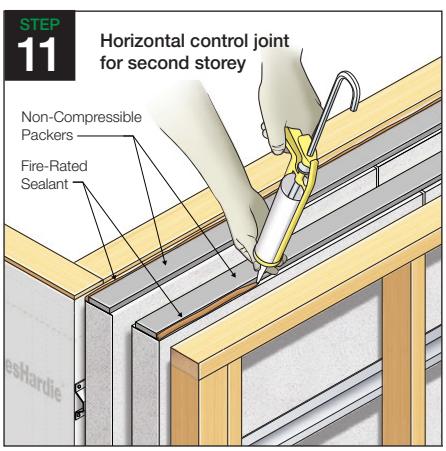



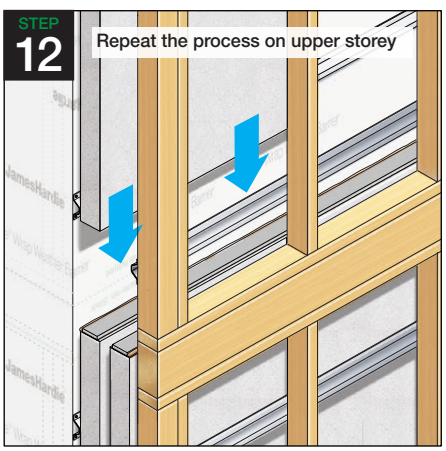




# 10 Zero Lot Wall Details

## ZERO LOT WALL FIXING DETAILS

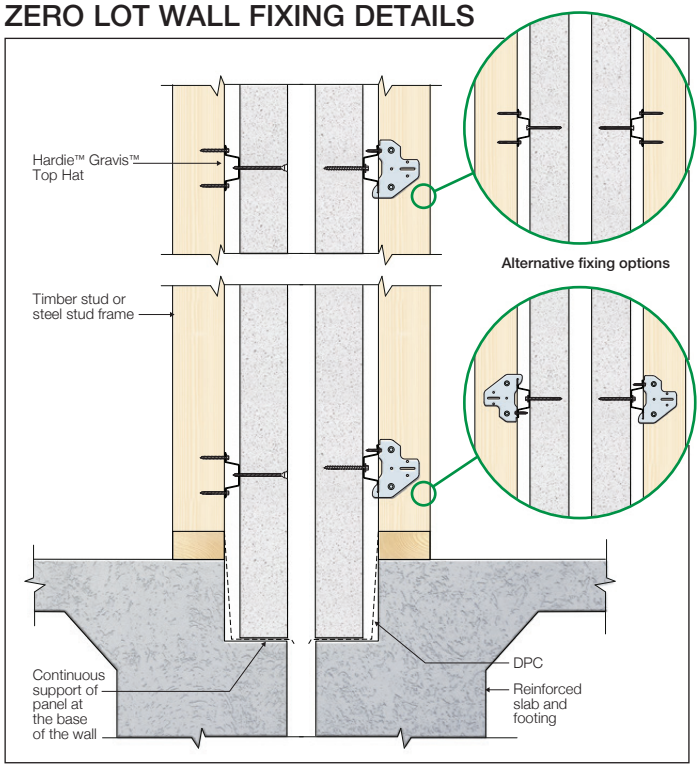



FIGURE 43 ZERO LOT WALL FIXING DETAIL

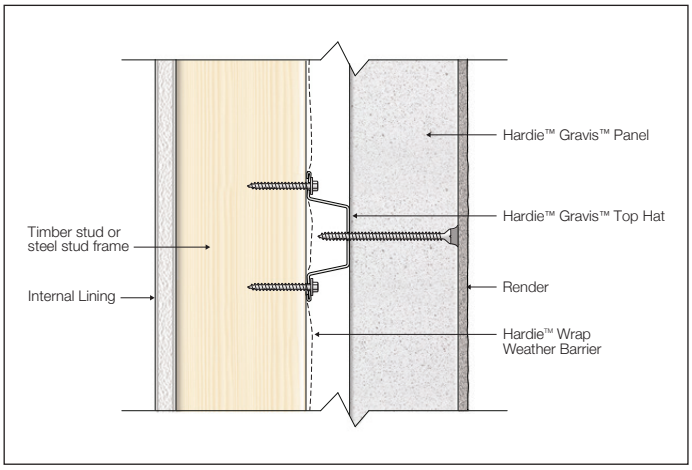



FIGURE 44 ZERO LOT WALL EXTERNALLY FIXED DETAIL

## ZERO LOT WALL JUNCTION DETAILS

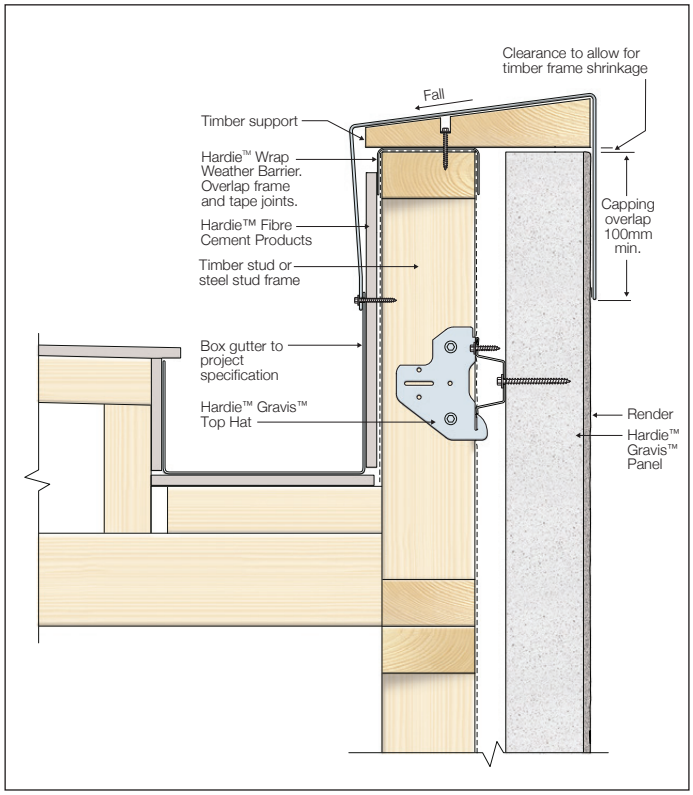



FIGURE 45 ZERO LOT WALL ROOF EAVE DETAIL

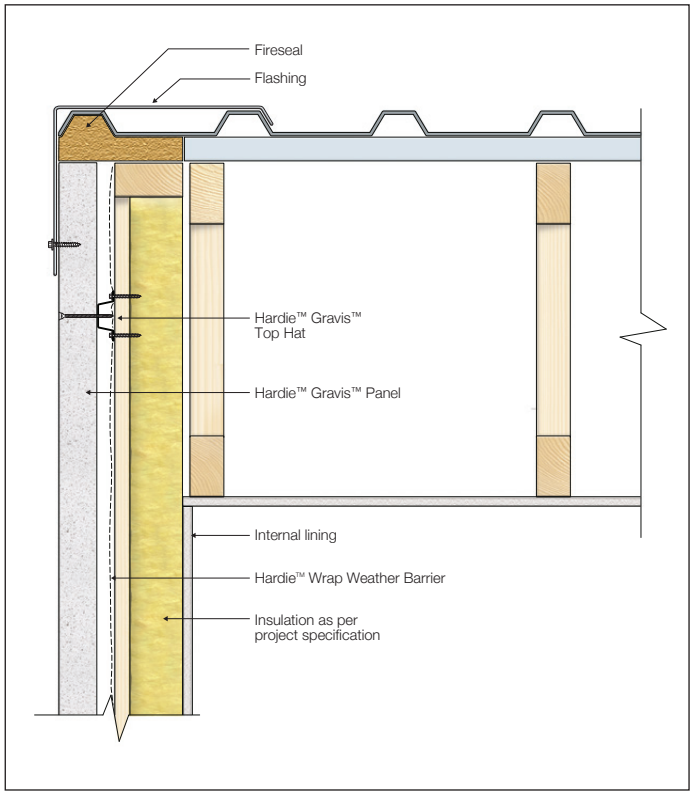



FIGURE 46 ZERO LOT WALL TO ROOF DETAIL

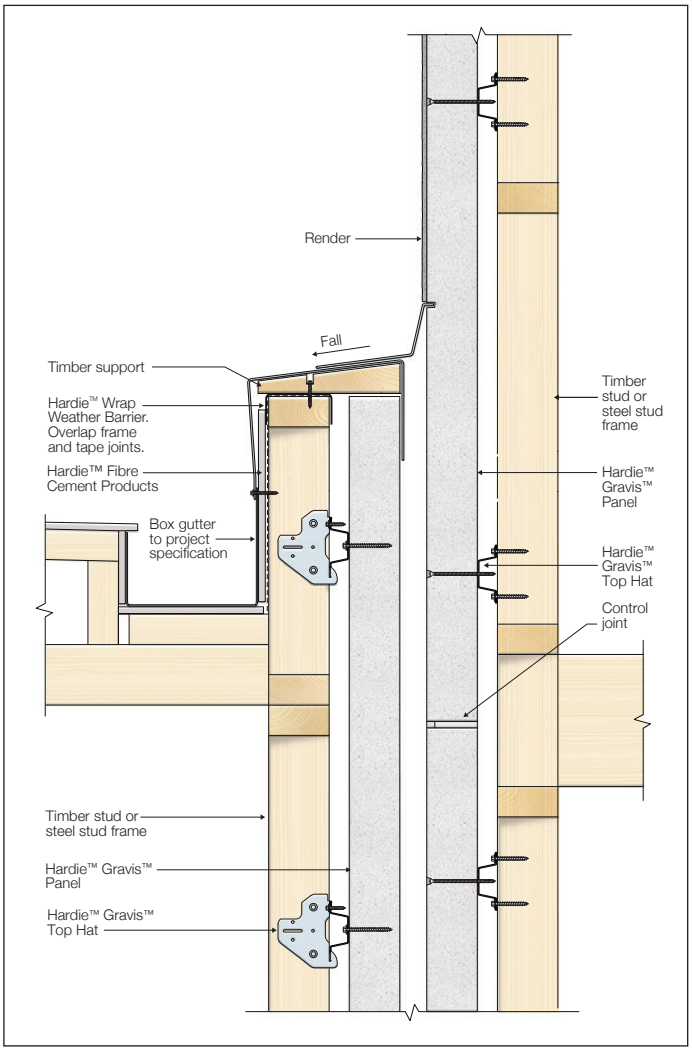



FIGURE 47 ZERO LOT WALL TO EXTERNAL WALL DETAIL

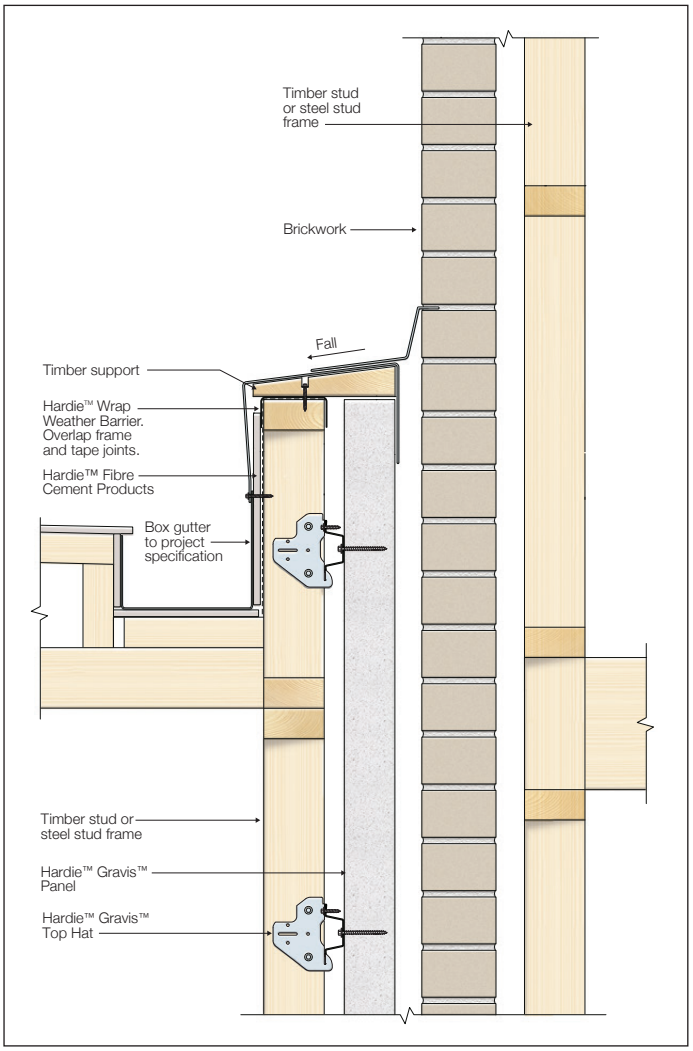



FIGURE 48 ZERO LOT WALL TO BRICK VENEER DETAIL

## ZERO LOT WALL CONTROL JOINT DETAILS

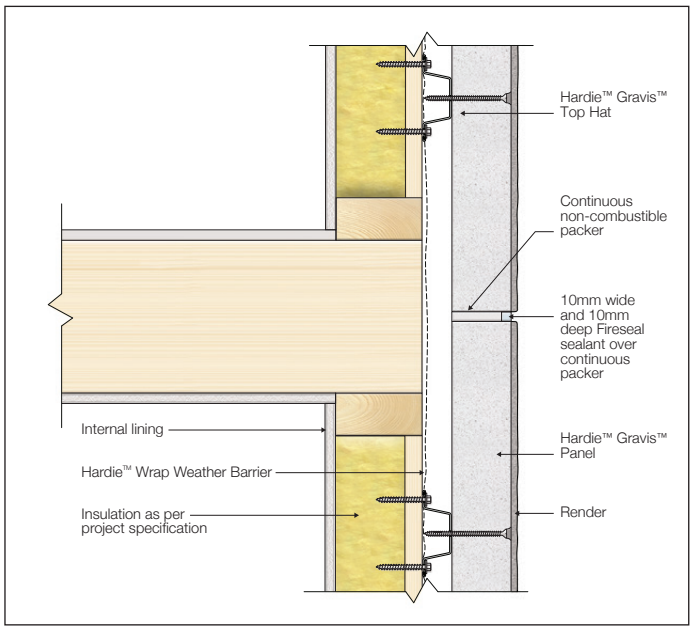



FIGURE 49 ZERO LOT WALL HORIZONTAL CONTROL JOINT DETAIL

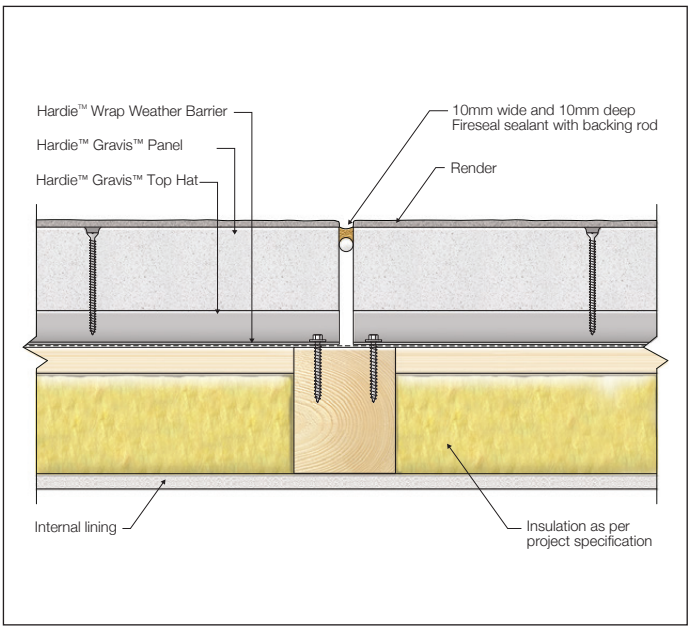



FIGURE 50 ZERO LOT WALL VERTICAL CONTROL JOINT DETAIL

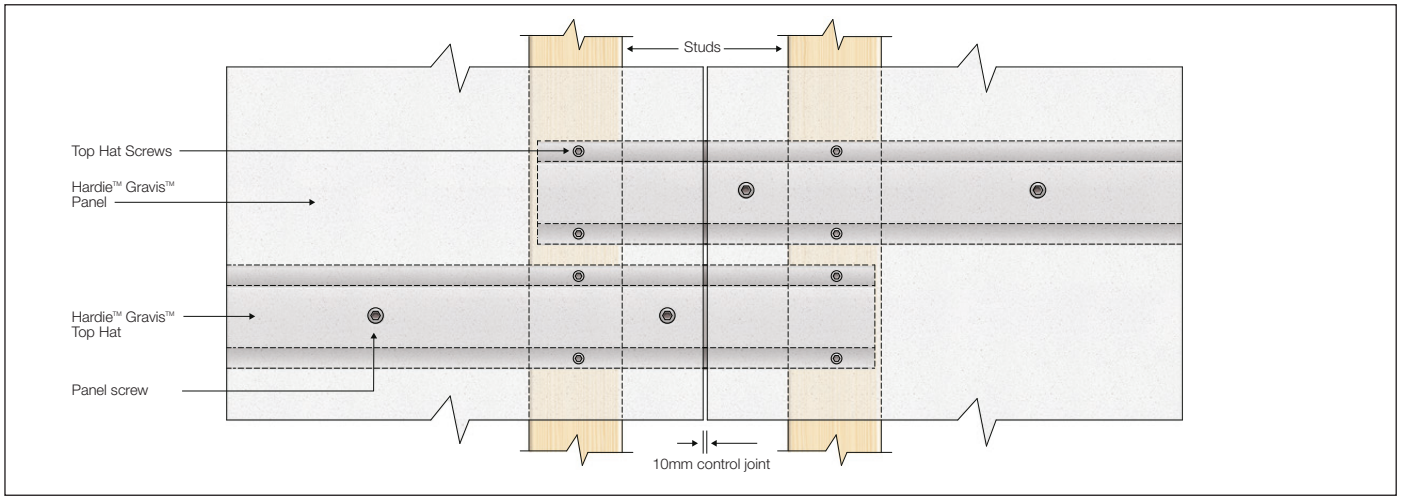



FIGURE 51 ZERO LOT WALL TYPICAL VERTICAL CONTROL JOINT - OPTION A

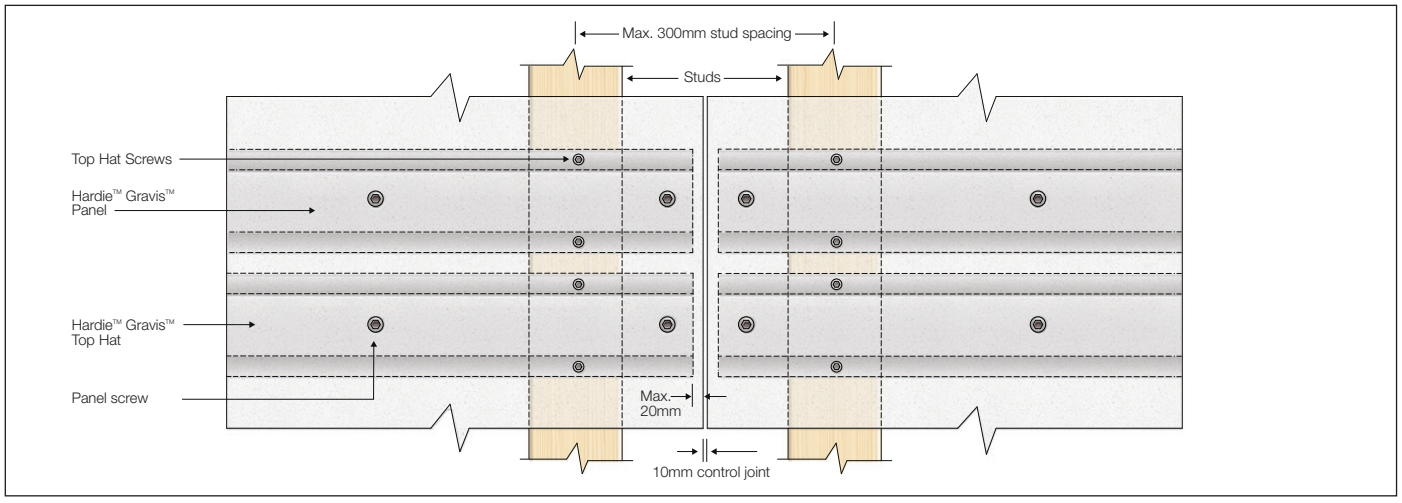



FIGURE 52 ZERO LOT WALL TYPICAL VERTICAL CONTROL JOINT - OPTION B

# 11 Finishes and Maintenance

## COATING

To ensure Hardie™ Gravis™ Panel remains durable and an effective weather barrier, a premium external coating system, combined with correct sealant detailing, is essential. This coating system is designed to protect the AAC from the elements and provide an effective weather barrier while allowing vapour to escape, resulting in a breathable yet weathertight building facade.

The coating system typically consists of a high-build levelling compound and an acrylic finishing system, applied strictly in accordance with the manufacturer's instructions. When installing Hardie™ Gravis™ Panel 50, or as required by this guide or the coating manufacturer's recommendations, a fibreglass reinforcing mesh with a maximum mesh size of 10mm x 10mm and minimum weight of 145g/m² must be embedded within the levelling system, centred over the adhesive joints. James Hardie recommends coating Hardie™ Gravis™ Panel with a three-layer system, noting that two-layer systems may be acceptable when recommended and approved by the coating manufacturer.

Apply the coating within 60 days of panel installation to maintain warranty coverage and ensure long-term performance.

Before coating begins:

- Confirm panels are completely dry.
- Clean surfaces thoroughly, removing dust, contaminants, and any imperfections that may affect adhesion.
- Read and follow all coating manufacturer instructions for surface preparation and coating application appropriate to local environmental conditions.

TABLE 15

| Performance Requirements Table | |
|---|---|
| **Criteria** | **Requirement** |
| Compatibility | Ensure the coating system bonds to the AAC and related components (Refer to the manufacturer's specifications for surface preparation).<br>**Note:** Coating adhesion may be compromised if applied over silicone, sealants, or mastics used during installation. |
| Durability | Must withstand UV and weather exposure for the full warranty period (as per the coating system warranty supplied by the product manufacturer). |
| Surface Adhesion | Ensure the surface is clean and free of residue, that may affect coating adhesion. In coastal areas, it is recommended to wash Hardie™ Gravis™ Panel with fresh water to remove salt residue (Refer to the manufacturer's specifications). |
| Water Resistance | The nominated coating system must have a water transmission rate of less than 10 g/m²/24 hr at the nominated minimum dry film thickness. |
| Vapour Permeability | Sd ≤ 4 m (equivalent air layer thickness) to enable vapour escape (e.g., vapour-permeable coating). |
| Elasticity | Capable of bridging cracks equal or greater than 1 mm as a minimum. The coating manufacturer must define the minimum thickness required to achieve the intended service life and ensure correct performance. |
| Maintenance | Regular cleaning and upkeep of coatings and sealants, as per the manufacturer's guidelines. |

**IMPORTANT:** These performance requirements show that a specialised coating system is needed for aesthetics and long-term performance and durability. Any changes to the coating system must be approved and backed by the manufacturer or their authorised representative.

## WEATHERPROOFING

### Sealants

Using the correct sealant is critical for ensuring long-term weather resistance. For all control joints, only external-grade acoustic and/or fire-rated paintable sealants should be used. These types of sealants are formulated to maintain flexibility, adhere well to exterior substrates, and withstand temperature variations.

When installing Hardie™ Gravis™ Panel, make sure to seal the gaps between the panels and any window or door frames with a suitable external-grade sealant. Caulking should always be applied before the base coat, ensuring it remains intact and undamaged when subsequent render or coating layers are applied. Avoid cutting or disturbing the caulking during the finishing process.

Always refer to the sealant manufacturer's installation specifications for correct application techniques, curing times, and compatibility requirements.

### Wall Flashings

Wall flashings must be designed and installed in accordance with SAA-HB39:2015 – Installation Code for Metal Roofing and Wall Cladding. Proper flashing helps minimise the risk of water ingress at wall junctions, penetrations, and changes of materials.

### Wall Wrap

Wall wrap serves several important functions:

- It improves thermal insulation performance.
- It assists with condensation control by allowing internal moisture to escape.
- It helps protect CCA treated timber framing from pre-mature decay.

In climatic zones 6, 7, and 8, NCC 2022 Vol.2 H4D9 requires wall wraps to be vapour permeable.
Design and installation must comply with AS 4200 Part 1 (materials requirements) and Part 2 (installation guidelines). Proper installation ensures the wrap performs effectively as part of the building's weatherproofing system.

## ZERO LOT WALL SYSTEM

The zero lot wall system is designed for use where external access is restricted or not available, such as walls built directly on or near a property boundary. In these situations:

- The top of the wall must be flashed to the adjacent structure or property to prevent water entry.
- If the Hardie™ Gravis™ Panel wall extends higher than the neighbouring property, the exposed portion must be treated as an external wall, meaning it requires appropriate external coatings and treatments to guard against the weather.

The above requirements are essential particularly if the wall is not accessible from the outside for future maintenance.

## HARDIE™ GRAVIS™ EXTERNAL WALL SYSTEM

Hardie™ Gravis™ Panel has been tested and certified to meet NCC 2022 performance requirements for Wind Categories N2 and N3, making them suitable for many residential construction environments.
At all panel joints, an approved adhesive must be used to improve structural integrity and stability. A suitable acrylic coating system should be applied to the exterior surface to ensure adequate weather resistance, durability, and aesthetic finish.

## FACE-SEALED SYSTEM

The face-sealed system operates as a closed, un-drained cavity wall system, meaning it does not rely on weepholes to remove water. Instead, the external surface itself acts as the primary barrier to weather.
Weather tightness is achieved through:

- High-performance external acrylic coatings.
- Correctly applied sealants at control joints and around all openings.

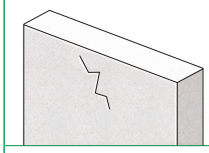
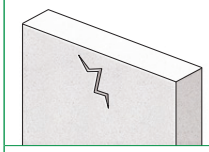
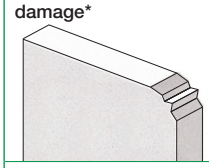
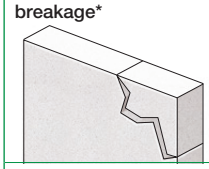
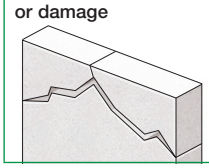
Having regard to the above, the coating and sealing systems used must be fit-for-purpose, compatible with the substrate, and installed exactly as specified by their manufacturers. Regular maintenance is required to preserve long-term performance.

# 12 Product Information

## Managing Panel Damage

Where a product shows any level of damage, the installer must assess its suitability in accordance with Table 16 of this guide. Take all required measures to ensure the product is fit for purpose and that system integrity, performance, and durability are maintained.

**TABLE 16**

| Managing Panel Damage | | |
|---|---|---|
| **Damage Type** | **Typical description** | **Recommended best-practice action** |
| **Dints and chips**  | Up to 3 mm wide surface damage, with shallow depth and no product separation | Remove loose material; fill the affected are with Hardie™ Gravis™ Patch or Hardie™ Gravis™ Adhesive |
| **Deep crack (localised)***  | Crack > 3 mm wide or deep, panel remains stable | Fill the affected area with Hardie™ Gravis™ Patch or Hardie™ Gravis™ Adhesive, or cut out damaged portion to full panel depth, ensuring the remaining panel is at least 270mm wide. |
| **Minor corner or edge damage***  | Small chips or edge loss (≤ 20 mm depth) | Remove loose AAC; rebuild with Hardie™ Gravis™ Adhesive; reform original edge |
| **Moderate localised breakage***  | Partial core loss or impact damage in a defined area | Cut out damaged zone to sound AAC; retain remaining panel only if ≥ 270 mm wide and undamaged. This can also be used in areas requiring smaller panels (e.g. above windows or other wall openings). |
| **Extensive material loss or damage**  | Large broken area across panel width or height | Replace with an undamaged panel |

NOTE:
* It is recommended to apply reinforcement mesh over any areas that have been patched or repaired to minimise the risk of cracking in the future

## Material

Hardie™ Gravis™ Panel is a **reinforced autoclaved aerated concrete (AAC)**, a form of lightweight concrete.
AAC is made from a mix of cement, sand, lime, gypsum, water, and an expanding agent. The mix is poured into molds, then **autoclaved** for increased performance. Hardie™ Gravis™ Panel conforms to the Australian Standard for Reinforced Autoclaved Concrete (AAC), AS 5146.

## Durability

The overall durability of the system can be improved by adopting Class 4 corrosion-resistant fixings, applying supplementary protective coatings to steel elements, and ensuring all exposed sealants receive the appropriate finishing coats per the manufacturer's instructions.

It is the designer's responsibility to specify corrosion-resistant screws, top-hat battens, and other steel fittings that can withstand the environmental conditions and maintain structural performance throughout the project's design life.

Guidance for durability considerations may be drawn from the **ABCB Durability Guideline (2003), AS/NZS 2312:2002** for protective steel coatings, the AS 2331 corrosion-testing series, **AS 3566:2002** relating to corrosion-resistant fasteners, and **ISO 9223:1992**, which classifies atmospheric corrosivity for metallic materials.

### Resistance to Fire

Hardie™ Gravis™ Panel can be exposed to fire loading originating from either external fire sources—such as adjacent structures, boundary fires, or bushfire conditions—or internal fire sources within the building itself. In situations where the wall assembly is required to achieve a specific Fire Resistance Level (FRL), the wall must be designed, detailed, and constructed using the appropriate system components and installation methods to ensure compliance with the nominated FRL rating.

This includes verifying that all elements of the system—such as framing, lining materials, fixings, penetrations, joints, and sealants—are compatible with the certified fire-tested configuration and are installed in accordance with the manufacturer's requirements and relevant fire engineering principles. Ensuring full alignment with the tested system is essential to maintain the wall's structural adequacy, integrity, and insulation performance under fire conditions.

### Resistance to Termite Attack

Termite protection requirements differ across states and territories, and as such, the construction details provided in this guide do not attempt to address all possible scenarios. It is the builder's responsibility to ensure that the design and construction of the house comply with all relevant council requirements and the National Construction Code (NCC) for termite risk management. NCC Volume 2 outlines the applicable termite management provisions and references AS 3660 as the governing standard. Because Hardie™ Gravis™ Panel is resistant to damage from termites, they are well suited to use as part of a termite management system subject to that system being suitable for the specific project and compliant with the relevant requirements of the NCC.

## Storage and Handling

To avoid damage, all Hardie™ products should be stored with edges and corners of the product protected from chipping. Hardie™ products and accessories 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.

All design and construction must comply with the appropriate requirements of the current National Construction Code (NCC) and other applicable regulations and standards.

## For information and advice call 13 11 03 | jameshardie.com.au

**Australia** June 2026