

INNOVA

by etex

February 2026

Nuline®

Weatherboards

Design and installation guide

Australia



Nuline®



Backed by Etex, the global leader in fibre cement, Innova is bringing the change the industry needs. So now architects, builders, and homeowners can make the changes they want.

We'll never stop innovating our stylish fibre cement range. We'll never stop finding efficiencies and passing on the savings.

Change is what defines us and propels us forward. Change is the foundation we're built on.

Innova. Built on change.

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Disclaimer

Innova products and systems designed by Etex Australia Pty Ltd are produced in accordance with the Building Code of Australia and relevant Australian Standards at the time of publication. Information in this document is to be used as a guide and is subject to project approval as many aspects of construction are not comprehensively covered. It is the responsibility of the designer to confirm Innova products and systems are suitable and meet the requirements for the intended application. Etex Australia Pty Ltd will not be held responsible for any claims resulting from installation not in accordance with the manufacturer's technical literature or relevant Standards.

Innova regularly updates technical literature; to ensure this document is current with the latest information, visit innovafibreceiment.com.au.

Warranty

Nuline® is warranted for a period of 25 years.

Please refer to innovafibreceiment.com.au for detailed warranty information.

About Innova

Innova is a commercial brand of Etex, a global building material manufacturer and pioneer in lightweight construction. Etex wants to inspire people around the world to build living spaces that are ever more safe, sustainable, smart, and beautiful. Founded in 1905 in Belgium, Etex are a family-owned company with more than 13,500 employees across 160 sites and 45 countries.

Innova are the fibre cement specialists, and distribute external cladding systems, interior lining and flooring substrate products specifically designed for the residential and commercial markets in Australia and New Zealand

With a deep understanding of the local market needs, the Innova range of fibre cement products provide architects, designers, builders and homeowners with a range of traditional and contemporary solutions to create spaces that work for their project.

Innova are constantly looking for ways to evolve and innovate their product offering, adapting to changes in the market.

Innova - built on change, backed by Etex.

1. Working Safely

1.1 Working Safely with Innova Fibre Cement

WARNING: P2 OR HIGHER-GRADE RESPIRATOR MUST BE WORN AND PRODUCT CUT OUTDOORS.

Innova fibre cement is manufactured from finely ground sand (silica), cellulose fibres, Portland cement and additives. In the product's manufactured state, it does not release airborne dust. Inhalation of Respirable Crystalline Silica (RCS) is hazardous and can cause damage to lungs, respiratory system, and cancer when users are exposed to dust over prolonged periods without adequate controls in place.

The risks associated with RCS inhalation arise during installation activities where mechanical methods are used for cutting, rebating, drilling, routing, crushing, sanding and cleaning up, disposing of, or relocating dust.

Before, during and after installation, it is important to be aware of activities that generate and lead to dust becoming airborne. Innova recommends following the Innova Working Safely Guidelines listed below in addition to site-specific safety procedures, Safe Work Australia guidelines and state or territory guidelines.









USERS ARE RESPONSIBLE FOR ADHERING TO GUIDELINES, RECOMMENDATIONS, SAFETY DATA SHEETS, INSTALLATION GUIDES, FEDERAL AND LOCAL REGULATIONS TO AVOID SERIOUS HEALTH IMPACTS.

Control the risks by utilising engineering controls (i.e. tools/equipment), administrative controls (i.e. workspace/safe work method statement) and correct PPE (i.e. respirator/eye wear).

1.2 Innova Working Safely Guidelines

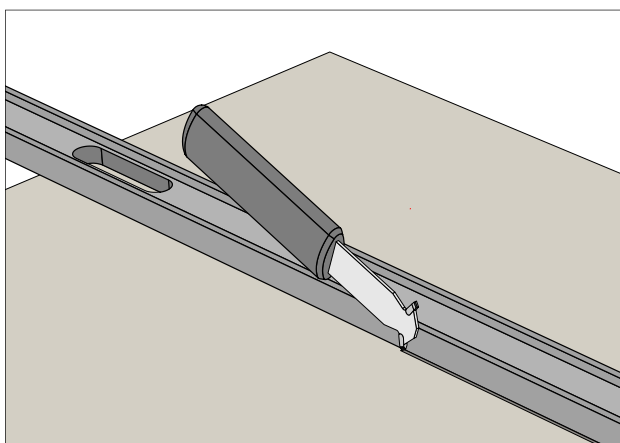
Documentation

Read the current Safety Data Sheet and Working Safely documents available at innovafibrecement.com.au.

 <p>ALWAYS wear a properly fitted P2 or higher-grade respirator when cutting, drilling, rebating, sanding.</p>	 <p>ALWAYS use on-tool dust extraction when using power tools; M or H-Class vacuum fitted with a HEPA filter.</p>
 <p>ALWAYS alternate cutting activities with others to reduce exposure time.</p>	 <p>ALWAYS follow the tool manufacturer's guidelines for correct and safe operation.</p>
 <p>AVOID using power tools to cut or shape fibre cement products indoors.</p>	 <p>DO NOT dry sweep. Use wet suppression then sweep or H or M-Class vacuum.</p>
 <p>NEVER use a saw blade that is not designed to cut fibre cement.</p>	 <p>DO NOT continue activities if you are concerned about exposure levels or cannot comply with the above guidelines.</p>

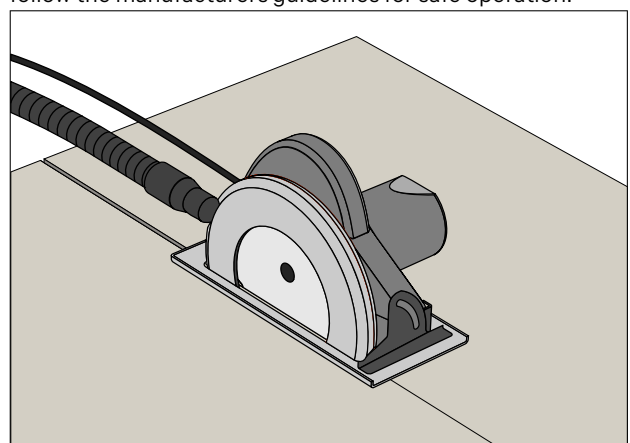
Score and Snap Knife

Score the face of the product using a straight edge and repeat until adequate depth is achieved for a clean break when pulling upwards. Smooth rough edges with a rasp.



Power Saw

Circular, compound mitre and track saws with dust extraction provide accurate and clean cuts. Ensure saw is fitted with a PCD 4 or 6 tooth fibre cement blade. Always follow the manufacturers guidelines for safe operation.



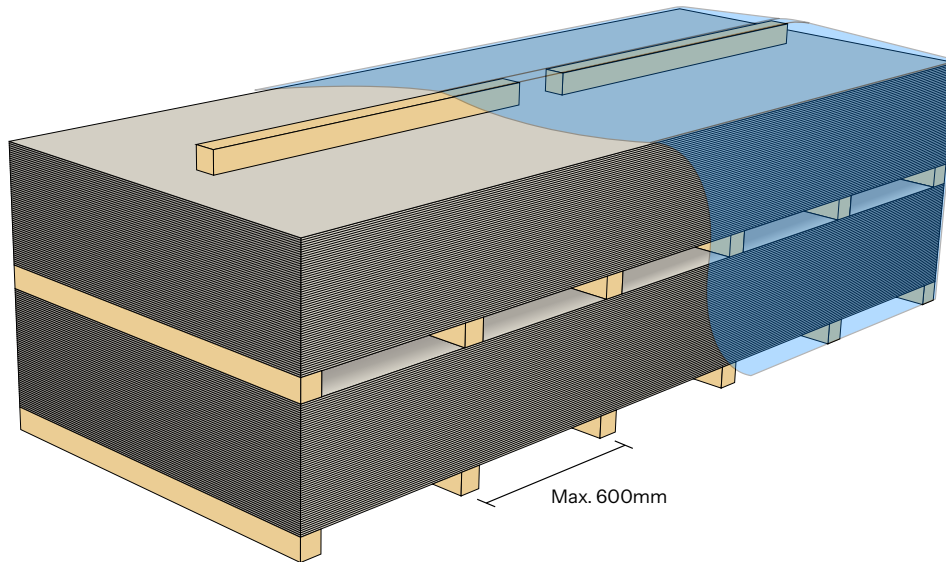
2. Storage and Handling

2.1 Storage

Nuline® must be stored flat on pallets or level gluts at a maximum of 600mm, inside and undercover in dry conditions, protected from weather and potential influence of other trades.

If outdoor storage is unavoidable, extra care and attention is needed to protect the product from rain and direct sun.

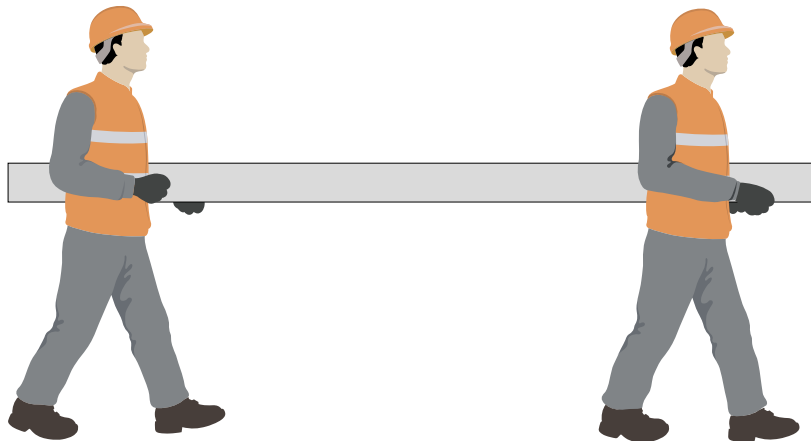
Protect the packs with a solid color waterproof cover such as a tarpaulin. This cover must be pitched in the center to allow for moisture to run off and avoid water pooling.



2.2 Handling

Nuline® must be dry prior to fixing or finishing. Care should be taken to avoid damage to the ends, edges and surfaces.

Weatherboards must be carried on edge to avoid excessive bending. Coordination of installation is important to avoid damage from adjacent trades or activities. Damaged Nuline® weatherboards must be replaced.



2.3 Inspection

Check weatherboards and components before starting installation, if there are signs of damage or defects, do not install and contact Innova for guidance.

3. Design and Construction

3.1 Considerations

It is recommended for project specific designs be undertaken by a qualified consultant.

All aspects of design and construction are required to align with all relevant provisions of the National Construction Code, state or territory regulations and applicable Australian Standards.

The designer should determine the wind pressure for the project and specify the cladding layout, spacing and fixing of the battens or top hats to the structure.

In all areas, care should be taken in the design detailing, especially around all openings, corners and other junctions, to ensure weather resistance of the total system.

Before cladding and the supporting substructure are installed and fixed, take care that all flashing and waterproofing elements are complete, including all wall wrap and damp-proof coursing.

3.2 General Framing

Frames must be straight and plumb within 3mm in any given 3000mm length of framing, Nuline® will not straighten the primary frame.

Buildings in high wind zones will require specific design to be undertaken.

The deflection of the supporting structure should be limited span/250 for Serviceability Wind Load or as limited by AS/NZS 1170.2 Structural design actions Wind actions.

3.3 Timber Framing

Use of a timber frame must be in accordance with AS 1684 – residential timber-framed construction or AS 1720.1 Timber structures, and the framing manufacturers' specifications.

Timber framing must be dry prior to installation. If weatherboards are fixed to framing containing above 20% moisture content, problems may occur later due to excessive timber shrinkage. It is strongly recommended that kiln dried framing is used.

3.4 Steel Framing

Use of a steel frame must be in accordance with NASH Standard Residential and Low-rise Steel Framing Part 1: Design Criteria; and the framing manufacturer's specifications.

Framing members must have a Base Metal Thickness (BMT) between 0.55 to 1.6mm. The steel framing must have the appropriate level of durability required to prevent corrosion.

3.5 Thermal Break

NCC Vol. 1 Section J3D6 and Vol. 2 Section 13.2.5 for both residential and commercial buildings require a minimum R0.2 thermal break be installed behind external cladding where the cladding and internal lining are fixed directly to the same steel frame. Thermal breaks are not required when using a cavity cladding system.

3.6 Control Joints

It is recommended that the designer consider the need for control joints in the following cases:

- Mid floor joint.

- Where Nuline® crosses a building control joint.
- Where there is a likelihood of movement within the sub frame.
- At a change in the structural substrate; e.g. masonry to steel.

For walls exceeding 12 metres in length, it is recommended to include control joints to account for movements caused by shrinkage or deflections due to loadings and other factors.

Control joints in the primary frame must be reflected through Nuline®.

3.7 Moisture Management

Designers, specifiers and builders are responsible for managing moisture related risks through all phases of the construction project from design to completion.

The wall design and components must be appropriate for the intended application. The designer must consider any unique project requirements, considering both the interior and exterior sides of the wall. Special consideration should be given to buildings that are in extreme climates, proximity to bodies of water or at risk of wind-driven rain.

To reduce the risk of moisture related issues, Nuline® must be installed after windows, doors, meter boxes and pipe penetrations.

In addition, all wall openings, including penetrations, junctions, connections, windows and doors, must incorporate appropriate flashing for weatherproofing. All other components and associated installation methods must be designed to manage moisture in walls and should comply with the relevant standards and the NCC.

3.8 Flashings

NCC Vol.1 F3V1 and Vol.2 H2V1 require the installation of flashings to building elements and critical junctions.

3.9 Alpine Regions

Nuline® should not be used in environments where it will be in direct contact with snow or ice for prolonged periods. External walls in alpine regions must be protected where snow drifts over winter are expected.

When used in freeze/thaw conditions, Nuline® must be painted immediately after installation.

3.10 Ground Clearances

Nuline® must be installed so that it meets the requirements of NCC Housing Provisions Standard, Part 7.5.7. Nuline® must not come into contact with standing water.

3.11 Termite Protection

NCC Vol. 2, Table 3.4.2 prescribes acceptable termite management systems and components for termite barriers. Where the exposed slab edge is used as part of the termite management system, a minimum of 75mm of the exposed slab edge must be visible to allow early detection of termite entry.

3.12 Slabs and Footings

The building's foundation and slab must meet the standards outlined in AS 2870 'Residential slabs and footings - Construction' and the requirements of the NCC.

4. Product Information

4.1 Introduction

Nuline® is a horizontal cladding system that delivers a clean, modern weatherboard look with deep shadow lines for strong visual impact. Square and bullnose-edged profiles create a contemporary finish that complements both traditional and architectural designs. When installed over timber or steel framing, Nuline® provides a durable, low-maintenance exterior suitable for residential and commercial applications, combining timeless appeal with long-term performance.

The material properties of Nuline® provides tangible benefits and is suitable for:

- All building classes.
- All climate zones.
- Withstanding high wind pressures.
- Coastal areas.
- Non-combustible.

4.2 Durability

Innova Fibre Cement products have proven their resistance to heat and moisture exposure by complying with AS/NZS 2908.2 Cellulose-cement products Part 2: Flat sheets:

- Water permeability (Clause 6.2).
- Warm water (Clause 6.4).
- Heat rain (Clause 6.5).
- Soak dry (Clause 6.6).

4.3 Quality

Nuline® is produced under ISO9001:2015 Certification for Quality Management Systems.

4.4 Product Conformance

Nuline® is manufactured from Portland cement, finely ground sand, cellulose fibres and water. The weatherboards are cured in a high-pressure steam autoclave to create a durable, dimensionally stable product.

Innova fibre cement products are manufactured to conform to the requirements of AS/NZS 2908 Cellulose-Cement Products, Part 2: Flat Sheets.

Nuline® is classified as Type A, Category 4.

4.5 Compliance

Codemark

The CodeMark Certification Scheme, administered by the Australian Building Codes Board, is a voluntary third-party certification program that validates compliance of new or innovative building products with the National Construction Code (NCC) requirements for specified applications in Australia.



Nuline® is CodeMark certified (CM40432), meeting all relevant Building Code of Australia (BCA) requirements. The certificate is available at innovafibreceMENT.com.au.

Deemed to Comply

The NT Deemed to Comply Manual (DTCM) is referenced in the NCC Volume 2 Part H7D1 - Deemed to Satisfy Provisions as an acceptable construction manual for high wind areas. Nuline® is suitable for use in high wind environments and is Deemed to Comply - M/370/01.

For a complete list of products that are 'Deemed to Comply' please refer to www.ntlis.nt.gov.au/deemedtocomply.

4.6 Fire Resistance

Non-Combustibility

Nuline® has been tested to AS 1530.1 Methods for fire tests on building materials, components and structures, Part 1: Combustibility and is deemed non-combustible.

Nuline® is suitable for use where non-combustible materials are required in accordance with the National Construction Code (NCC) Vol 1 Clause C2D10 and Vol 2 Clause H3D2.

The project specifier or certifier is responsible for ensuring that the materials, accessories and components are suitable and compliant for the specific building.

Fire Hazard Properties

Innova fibre cement products have been tested in accordance with AS/NZS 1530.3 Methods for fire tests on building materials, components and structures, Part 3: Simultaneous determination of ignitability, flame propagation, heat release and smoke release.

The indices for Fire Hazard Properties are as follows:

- Ignitability Index: 0
- Spread of Flame Index: 0
- Heat Evolved Index: 0
- Smoke Developed Index: 0 – 1

Heat and Smoke Release

Innova fibre cement products, tested to AS/NZS 3837 for heat and smoke release rates using an oxygen consumption calorimeter, have achieved a Group 1 classification under AS 5637.1 Determination of Fire Hazard Properties, Part 1: Wall and Ceiling Linings.

Boundary Walls

Nuline®, in conjunction with Siniat external wall systems, are suitable for use on external walls with an FRL requirement of 60/60/60 and 90/90/90 on timber and steel framed walls.

Bushfire Applications

Nuline® may be used as an external wall cladding to achieve up to BAL 40 when installed in accordance with this guide.

When Nuline® is installed in conjunction with Siniat external wall systems achieving an FRL of 30/30/30, the requirements of AS 3959 and AS 1530.4 for BAL FZ rating are met.

For further guidance on boundary wall and bushfire applications, refer to Siniat Blueprint, Section 4.1 - External Steel Stud Walls and 4.3 - External Timber Framed Walls at siniat.com.au/en-au/downloads.

4.7 Energy Efficiency

Thermal Conductivity

Thermal heat transfer into and out of the building envelope will affect the running cost of the building. Careful consideration of thermal heat transfer needs to be considered by the designer.

At equilibrium moisture content, the approximate thermal conductivity of Nuline® is 0.41W/mK.

Insulation

Nuline® will require insulation to be installed in some regions that have thermal loss regulations. Insulation should be installed in accordance with the manufacturer's instructions.

Table 1: Nuline® Total R-Values

Frame Type	System	Added Insulation	Season	
			Summer	Winter
Timber	Direct Fix		2.50	2.62
	19mm Timber Batten	R2.7, 90mm	2.91	3.07
	35mm timber batten		2.95	3.12
	19 & 35mm Metal Top hat		2.68	2.83
Steel	Direct Fix	R0.2 + R2.7	2.04	2.11
	19mm Timber Batten		2.43	2.54
	35mm timber batten	R2.7, 90mm	2.61	2.74
	19 & 35mm Metal Top hat		2.05	2.17

Total R-Values (m²K/W) incorporate thermal bridging in accordance with AS/NZ 4859.1 Materials for the thermal insulation of buildings.

4.8 Weather Resistance

Nuline® has been tested for weatherproofing performance to the requirements of NCC Verification Methods H2V1 and F3V1 in accordance with the test methods of AS/NZS 4284 Testing of Building Facades.

4.9 Weather Barrier

Wall Wrap

To weatherproof external walls, select a wall wrap compliant with AS 4200.1 and tailored to the NCC's eight climate zones: high vapour permeable wraps (Class 3 or 4) for humid, high-rainfall zones (1-2, e.g., Darwin, Brisbane); low vapor-permeable wraps (Class 1 or 2) for drier, temperate zones (5-7, e.g. Sydney, Melbourne); and high water resistant wraps for alpine Zone 8 (e.g. Thredbo). Install to AS 4200.2 including taping of all joints, edges and penetrations, and the manufacturer's guidelines.

Table 2: Wall Wrap Classification and Climate Zones

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

Rigid Air Barrier

For higher SLS wind pressures up to 2.5kPa, Durabarrier® is a 6mm thick vapour permeable rigid air barrier, capable of withstanding high wind pressures - refer to Durabarrier® Design & Installation Guide for more information.

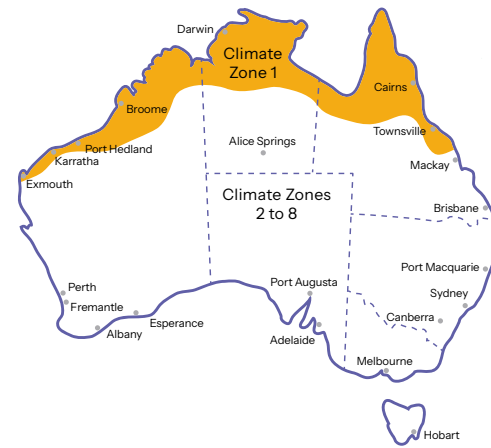


Figure 1 Climate Zone Map

4.10 Construction Options

Nuline® can be installed using either a direct fix system or a drained cavity system, depending on design requirements, climate zone, frame type and regulatory compliance. Both options require correct detailing to manage moisture and maintain thermal performance.

Direct fix construction key requirements:

- Frame must be straight, plumb, and NCC compliant.
- Install wall wrap compliant to AS 4200.1.
- Tape all joints, edges, and penetrations to AS 4200.2.

A cavity system improves moisture management and thermal performance by allowing water to drain and promoting airflow to reduce the likelihood of condensation.

Cavity construction key requirements:

- Minimum cavity depth: 19mm
- Wall wrap must comply with AS 4200.1 and act as a drainage plane and air barrier.
- Install to AS 4200.2 and manufacturer guidelines.
- Tape all joints, edges, and penetrations.
- Maintain unobstructed drainage holes and ventilation openings.

4.11 Cavity Batten Layout

Overview

Nuline® can be fixed through non-structural cavity battens into studs, or into structural cavity battens. All cavity battens shall be installed vertically and as detailed in Tables 3-5.

Non-structural timber battens (19 mm Durabatten or similar) or structural battens with a minimum size of 70 × 35 mm MGP10 shall be fixed directly to the studs and installed at spacing equivalent to the stud spacing for the application.

Metal top hats shall be fixed off-stud.

Where Durabarrier® is used, batten and top hat fastener lengths must be increased by at least 6mm.

Refer to Section 4.14 for detailed information on fastener spacing requirements.

Layout

At the base of the battens, an Innova 19mm or 35mm PVC cavity closer is installed to facilitate airflow, drainage and vermin protection.

Depending on the design and wind load, Nuline® is attached either through the 19mm batten to the structural frame or fixed directly to the structural batten or top hat - refer to Tables 2-5.

Cavity battens must be discontinuous across horizontal construction joints.

Corners, joints, junctions, and penetrations such as window and door openings, require specific treatments with typical details outlined in this guide.

Where additional support is needed for flashings or similar components, a short spacer batten can be used. Install with a minimum 5° slope from the horizontal to ensure adequate moisture drainage.

4.12 Fasteners

Fasteners must have the appropriate level of durability and be compatible with all other materials required for the intended project. Contact the fastener manufacturer for further information.

All fasteners used externally shall be minimum Class 3.

The durability of galvanised nails and screws used for exterior cladding in coastal or similar corrosive environments can be as low as 10 years.

For this reason Innova recommends the use of Stainless Steel or Class 4 fasteners within 2km of the coast or other large expanses of salt water.

Countersinking refers to screw fixing only. Nails shall be driven flush with the surface, except for brad and bullet head nails which shall be driven a maximum 1mm below the surface and finished appropriately.

Screw countersinking depth for Nuline® - maximum 1mm below the surface.

Countersunk screws should be filled with an appropriate filler and sanded smooth. Patch priming and sanding may be required prior to finishing and must be carried out in accordance with coating manufacturer's specifications.

When using screws to fasten fibre cement, use a cordless drill driver with torque settings only.

Fasteners must not be under, or overdriven.

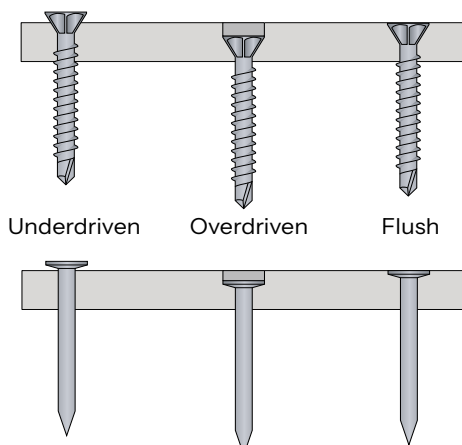


Figure 2: Fastener Positioning

4.13 Joining

Nuline® has a tongue and groove end joining system designed for off-stud installation - refer to Figure 14.

A bead of sealant is applied to the back of the tongue join - refer to Installation step 13.

Joins must be staggered and positioned centrally between studs/battens.

For wind loads up to N3, off-stud joins must be located at least 100 mm away from any stud.

For wind loads N4 and above, joins must be positioned mid-span. Do not place joins within 1200mm of corners.

4.14 Structural Design

Frame, Batten and Fastener Requirements

- Non-structural timber battens (19mm) must be installed vertically on studs at maximum 600mm centres. See Table 4.
- Structural timber battens (minimum 35mm) must be installed vertically on stud at maximum 600mm centres and be structurally secured to the primary frame. See Table 4.
- Metal top hats must be installed vertically at maximum 600mm centres and be fixed to the structural frame at their nominated maximum span. See Table 5.

Nuline® Fastener Requirements

- Concealed fasteners: Position fastener minimum 25mm down from the top of the weatherboard and drive flush with the surface - do not overdrive or countersink.
- Exposed fasteners: Position fastener minimum 35mm up from the base of the weatherboard.
- Exposed fastener flat head nails: Drive flush with the surface - do not overdrive.
- Exposed fastener screws: Pre-drill and countersink maximum 1mm below the surface.
- Bullet head nails: Punch maximum 2mm below the surface.
- Fasteners must not be placed closer than 20mm from the weatherboard edge or 50mm from the weatherboard ends (this can be reduced to 20mm with pre-drilling).
- When screw fixing, Nuline® weatherboards must be pre-drilled and countersunk with the Innova countersinking tool.

4.14 Structural Design

The figures below illustrate direct fix fastener positioning in relation to Nuline® weatherboards for timber framing. Apply these principles consistently to both steel frame and cavity fix installations.

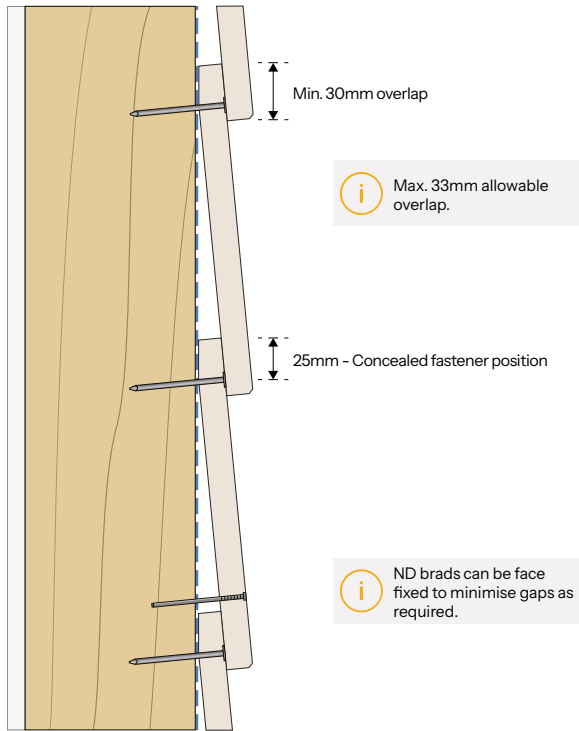


Figure 3 Concealed fixing detail Section

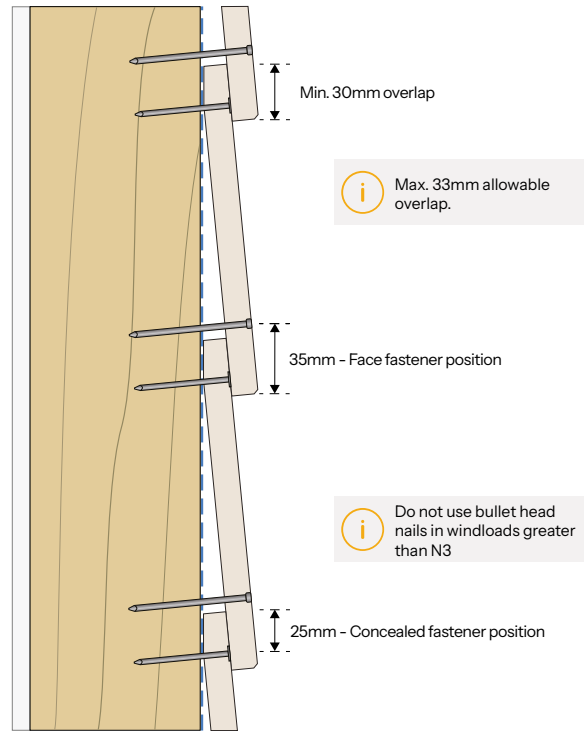


Figure 5 Concealed fixing in BAL zone detail Section

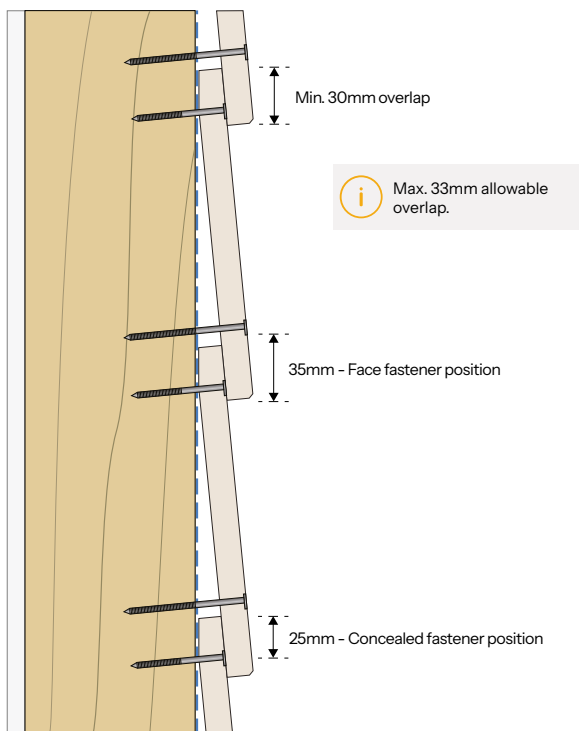


Figure 4 Face and concealed fixing detail Section

4.14 Structural Design

The figures below illustrate fastener options for both direct fix and cavity fix applications on timber and steel frames, using timber battens and metal top hats.

Apply the principles of structural fixity and weathertightness illustrated here to all relevant details in Section 8 of this document.

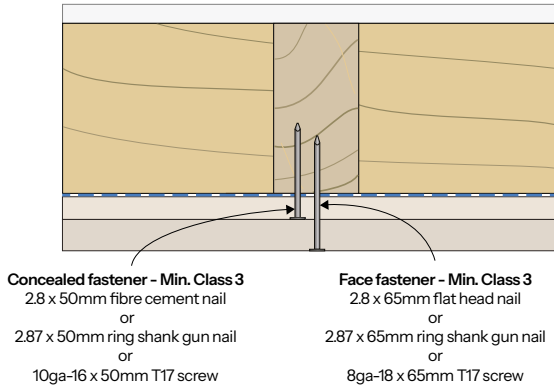


Figure 6 Timber frame - direct fix fastener detail Plan

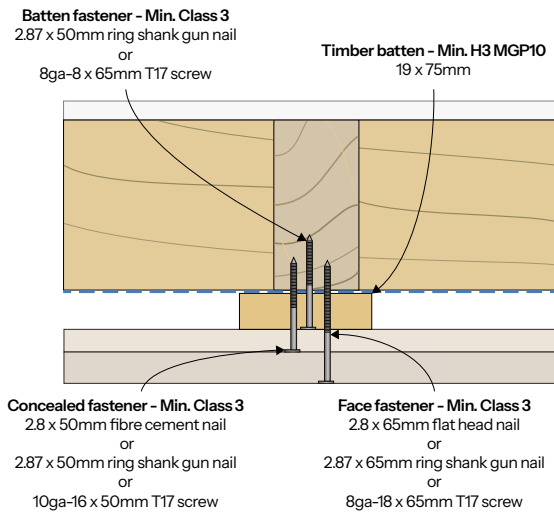


Figure 7 Timber frame - cavity fix (19mm) fastener detail Plan

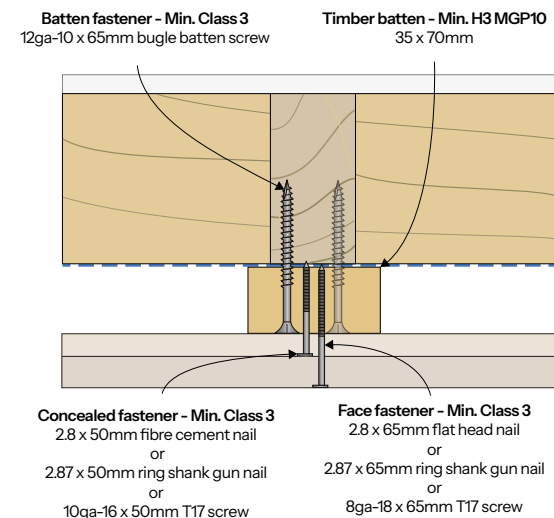
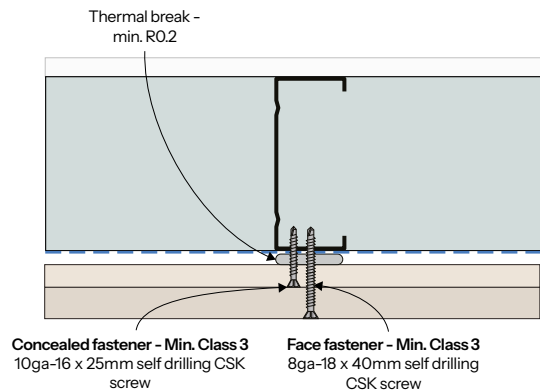


Figure 8 Timber frame - cavity fix (35mm) fastener detail Plan




 Increase fastener lengths to accommodate selected thermal break

Figure 9 Steel frame - direct fix fastener detail Plan

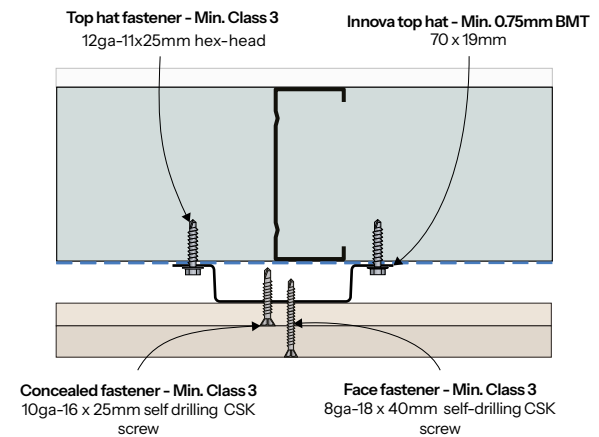


Figure 10 Steel frame - cavity fix (19mm) fastener detail Plan

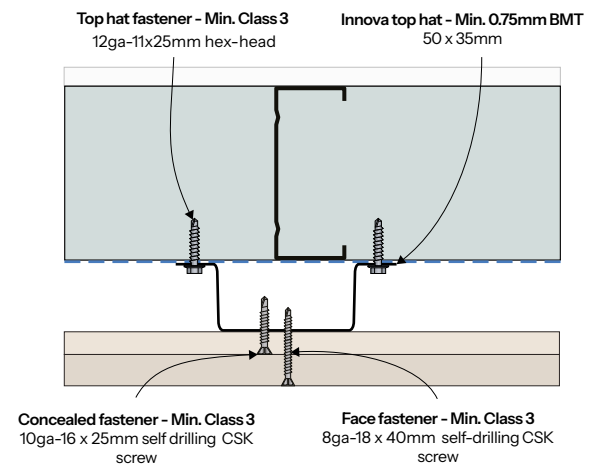


Figure 11 Steel frame - cavity fix (35mm) fastener detail Plan

4.14 Structural Design

Table 3: Direct Fix Wind Load Table

Wind Classification AS4055	Max. Design Ultimate Limit State (ULS) Wind pressure AS/NZS 1170.2 (kPa)		Stud spacing (mm)		Fixing method	Timber Frame - AS1684 or AS 1720.1 Min. MGP10	Steel Frame - NASH Standard
	Within 1200mm of corners	General wall area	Within 1200mm of corners	General Areas of Walls		Fastener Type	Stud Framing
N1w	-0.94	-0.53, +0.62					
N2w	-1.30	-0.74, +0.86					
N3w	-2.03	-1.16, +1.35					
N4w	-3.01	-1.72, +2.01					
N5w	-4.44	-2.53, +2.96	450				
N6w	-5.99	-3.42, +3.99	300			Screw fix only ⁽⁶⁾	
C1w	-2.70	-1.80, +1.80		450	Face AND Concealed	Nail or screw	Min. 0.75mm BMT, G550 ⁽⁸⁾
C2w	-4.02	-2.68, +2.68	450				
C3w	-5.91	-3.94, +3.94				Screw fix only ⁽⁶⁾	

Notes:

- For Weatherproofing in N1, N2, N3, N4, C1, C2, use either vapour permeable moisture barrier conforming with AS 4200.1 or Durabarrier® Rigid Air Barrier System.
- For Weatherproofing in N5, N6, C3, use Durabarrier® Rigid Air Barrier System.
- All fixing lengths shall be increased by min. 6mm when used in conjunction with Durabarrier® Rigid Air Barrier System.
- All screws shall be pre-drilled and countersunk with Countersinking Tool.
- Timber stud concealed nail shall be min. 2.8 x 50mm fibre cement nail. Face nail shall be min. 2.8 x 65mm flat head.
- Timber stud concealed screw shall be 10ga-16 x 50mm T17 CSK. Face screw shall be 8ga-18 x 65mm T17 CSK.
- Steel stud min. 0.55mm BMT concealed screw shall be 8ga-18 x 30mm self-drilling CSK. Face screw shall be 10ga-16 x 30mm self-drilling CSK.
- Steel stud min. 0.75mm BMT concealed screw shall be 10ga-16x30mm self-drilling CSK wing tip. Face screw shall be 8ga-18x52 self-drilling CSK wing tip.
- Off-stud jointing: For N1-N3, weatherboard joining is permitted at min. 100mm from any stud. For N4-N6 & C1-C3, off-stud weatherboard joins must be positioned at mid-span and not within 1200mm of corners.

Table 4: Cavity Fix Wind Load Table - 19 x 75mm OR 70 x 35mm MGP10 Timber Batten - On Stud

Wind Classification AS4055	Max. Design Ultimate Limit State (ULS) Wind pressure AS/NZS 1170.2 (kPa)		Max Stud/Batten spacing (mm) ^{(8),(9),(10),(11)}	Fixing method	Timber Frame - AS1684 or AS 1720.1 Min. MGP10	Steel Frame - NASH Standard
	Within 1200mm of corners	General wall area			Fastener Type	Stud Framing
N1w	-0.94	-0.53, +0.62				
N2w	-1.30	-0.74, +0.86				
N3w	-2.03	-1.16, +1.35	600	Concealed	Nail or Screw	Min. 0.55mm BMT, G300
N4w	-3.01	-1.72, +2.01				
N5w	-4.44	-2.53, +2.96	450			
N6w	-5.99	-3.42, +3.99	300			
C1w	-2.70	-1.80, +1.80		Face AND Concealed	Nail or Screw	Min. 0.75mm BMT, G550
C2w	-4.02	-2.68, +2.68	450			
C3w	-5.91	-3.94, +3.94			Screw fix only ⁽⁹⁾	

Notes:

- For Weatherproofing in N1, N2, N3, N4, C1, C2, use either vapour permeable moisture barrier conforming with AS 4200.1 or Durabarrier® Rigid Air Barrier System.
- For Weatherproofing in N5, N6, C3, use Durabarrier® Rigid Air Barrier System. For soft air barrier solutions contact Innova.
- All fixing lengths shall be increased by min. 6mm when used in conjunction with Durabarrier® Rigid Air Barrier System.
- 19mm Timber batten to steel stud, 0.55mm to 0.75mm BMT: concealed screw 10ga-16x50mm self-drilling flower head. Face screw 8ga-18x65mm self-drilling CSK.
- 19mm Timber batten to steel stud, 0.75mm to 1.6mm BMT: concealed screw 10ga-16x50mm self-drilling CSK wing tip. Face screw 10ga-16x60mm self-drilling CSK wing tip.
- 35mm timber batten to timber stud: fastener shall be 12ga-10 x 65mm bugle battens, at spacing equivalent to stud spacing for the application.
- 35mm timber batten to steel stud min. 0.55mm BMT, G300: fastener shall be 12ga-11x50mm self-drilling CSK at max. 300mm spacing. 35mm timber batten to steel stud min. 0.75mm BMT G550: fastener shall be 12ga-11x50mm self-drilling CSK at max. spacing equal to stud spacing.
- Concealed nail shall be 50 x 2.87 mm Ringshank Dekfast. Face nail shall be 65 x 2.87 mm Ringshank Dekfast.
- Concealed screw shall be 10ga-16 x 50mm T17 CSK. Face screw shall be 8ga-18 x 65mm T17 CSK.
- All cladding screws shall be pre-drilled and countersunk with Countersinking Tool.
- Off-stud jointing: For N1-N3, weatherboard joining is permitted at min. 100mm from any stud. For N4-N6 & C1-C3, off-stud weatherboard joins must be positioned at mid-span and not within 1200mm of corners.

4.14 Structural Design

Table 5: Cavity Fix Wind Load Table - Innova Top Hat - Off-stud

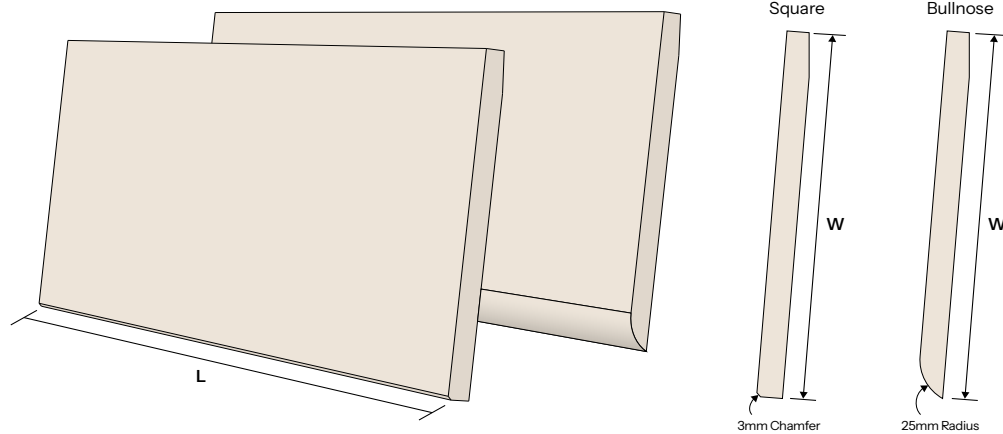
Wind Classification AS4055	Max. Design Ultimate Limit State (ULS) Wind pressure AS/NZS 1170.2 (kPa)		Max Stud/Batten spacing (mm)	Fixing method	Steel Frame - NASH Standard	Max Top hat Span (mm) ⁽⁷⁾	
	Within 1200mm of corners	General wall area			Stud Framing	70 x 19 x 0.75mm BMT	50 x 35 x 0.75mm BMT
N1w	-0.94	-0.53, +0.62	600	Concealed	Min. 0.55mm BMT G300	1000	1250
N2w	-1.30	-0.74, +0.86			Min. 0.55mm BMT G550	900	1150
N3w	-2.03	-1.16, +1.35			800	1000	
N4w	-3.01	-1.72, +2.01	450	Face AND Concealed	Min. 0.75mm BMT, G550	650	900
N5w	-4.44	-2.53, +2.96				600	850
N6w	-5.99	-3.42, +3.99				300	650
C1w	-2.70	-1.80, +1.80	450			750	1000
C2w	-4.02	-2.68, +2.68				750	900
C3w	-5.91	-3.94, +3.94				500	650

Notes:

1. For Weatherproofing in N1, N2, N3, N4, C1, C2, use either vapour permeable moisture barrier conforming with AS 4200.1 or DurabARRIER® Rigid Air Barrier System.
2. For Weatherproofing in N5, N6, C3, use DurabARRIER® Rigid Air Barrier System. For soft air barrier solutions contact Innova.
3. All fixing lengths shall be increased by min. 6mm when used in conjunction with DurabARRIER® Rigid Air Barrier System.
5. Steel stud min. 0.55mm BMT G300 for N1 and G550 for N2 & N3; min. 0.75mm BMT G550 for N4-N6 & C1-C3.
6. Top hat screw shall be 2x 12ga-11x25mm self-drilling hex-head per connection.
7. Top hats in N1 to N4 may be single-span. Top hats in N5, N6, C1-C3, must be minimum double-span.
8. Concealed screw 10ga -16x25mm self-drilling CSK. Face screw 8ga -18x40mm self-drilling CSK.
4. All cladding screws shall be pre-drilled and countersunk with Countersinking Tool.
9. Off-stud jointing: For N1-N3, weatherboard joining is permitted at min. 100mm from any stud. For N4-N6 & C1-C3, off-stud weatherboard joints must be positioned at mid-span and not within 1200mm of corners.


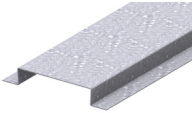

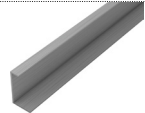
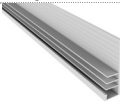



5. Products and Accessories

5.1 Nuline®



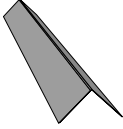
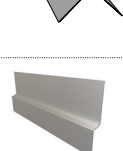





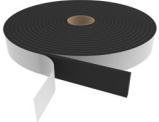
Thickness	Profile	Width (W)	Length (L)	Effective cover	Mass	Weight	Pack Size	Product Code
14mm	Square	175mm	4200mm	145mm (0.609m ²)	3.4kg/lin.m	14.28kg	120	4092767
		205mm		175mm (0.735m ²)	4kg/lin.m	16.8kg		4092768
	Bullnose	175mm		145mm (0.609m ²)	3.4kg/lin.m	14.28kg		4092762
		205mm		175mm (0.735m ²)	4kg/lin.m	16.8kg		4092763

5.2 Accessories Supplied by Innova













Product	Description	Size	Product Code
	Timber Durabatten H5 treated ply	19 x 75 x 2700mm	4092848
	Cladding Top Hat 0.75BMT top hat	19 x 70 x 3000mm	311584
		35 x 70 x 3000mm	311655
	uPVC Cavity Closer	19 x 2700mm	4092846
		35 x 3000mm	4094331
	Aluminium 'J' mould	2700mm	4092811
	uPVC Starter strip	3000mm	4093794
	Aluminium external corner soaker	175mm	4094306
		205mm	4094307
	Aluminium internal corner	36 x 3000mm	4092823
	Aluminium external corner	36 x 3000mm	4092819

5. Products and Accessories

5.2 Accessories Supplied by Innova

Product	Description	Size	Product Code
	External corner flashing	60 x 60 x 3000mm	311580
	Internal corner flashing	60 x 60 x 3000mm	311579
	Effects® base trim	3950mm	4094245
	Effects® straight joiner	57mm	4094246
	Effects® external corner	50 x 50mm	4094247
	Effects® internal corner	50 x 50mm	4094248
	Sikaflex® 11FC+ sealant adhesive	300g	4094941
	Thermal break (R0.2)	12.5m x 8mm	4092824

5.3 Accessories by Others

Product	Description	Min. size
Concealed fasteners - min. class 3		
	Flat head nail- <i>For use with timber frame</i>	2.8 x 50mm
	Ring shank gun nail- <i>For use with timber frame</i>	2.87 x 50mm
	Type 17 (T17) screw - <i>For use with timber frame</i>	10ga-16 x 50mm
	Self-drilling countersunk screw - <i>For use with steel frame</i>	10ga-16 x 25mm
	Self-drilling countersunk wing tip screw - <i>For use with steel frame</i>	10ga-16x50mm
Face fasteners - min. class 3		
	Flat head nail- <i>For use with timber frame</i>	2.8 x 65mm
	Ring shank gun nail- <i>For use with timber frame</i>	2.87 x 65mm
	Bullet head nail - <i>For use with timber frame in BAL zones up to N3</i>	2.8 x 65mm
	Type 17 (T17) screw - <i>For use with timber frame</i>	8ga-18 x 65mm
	Self-drilling countersunk screw - <i>For use with steel frame</i>	8ga-18 x 40mm
	Self-drilling countersunk wing tip screw - <i>For use with steel frame</i>	10ga-16x60mm
Timber batten fasteners - min. class 3		
	Ring shank gun nail - <i>(19mm batten only) For use with timber frame</i>	2.87 x 50mm
	Bugle batten screw - <i>For use with timber frame</i>	12ga-10 x 75mm
	Type 17 (T17) screw - <i>(19mm batten only) For use with timber frame</i>	8ga-8 x 65mm
Top hat fasteners - min. class 3		
	Hex head screw - <i>For use with steel frame</i>	12ga-11 x 25mm

Power Tools



4T or 6T PCD fibre cement blade

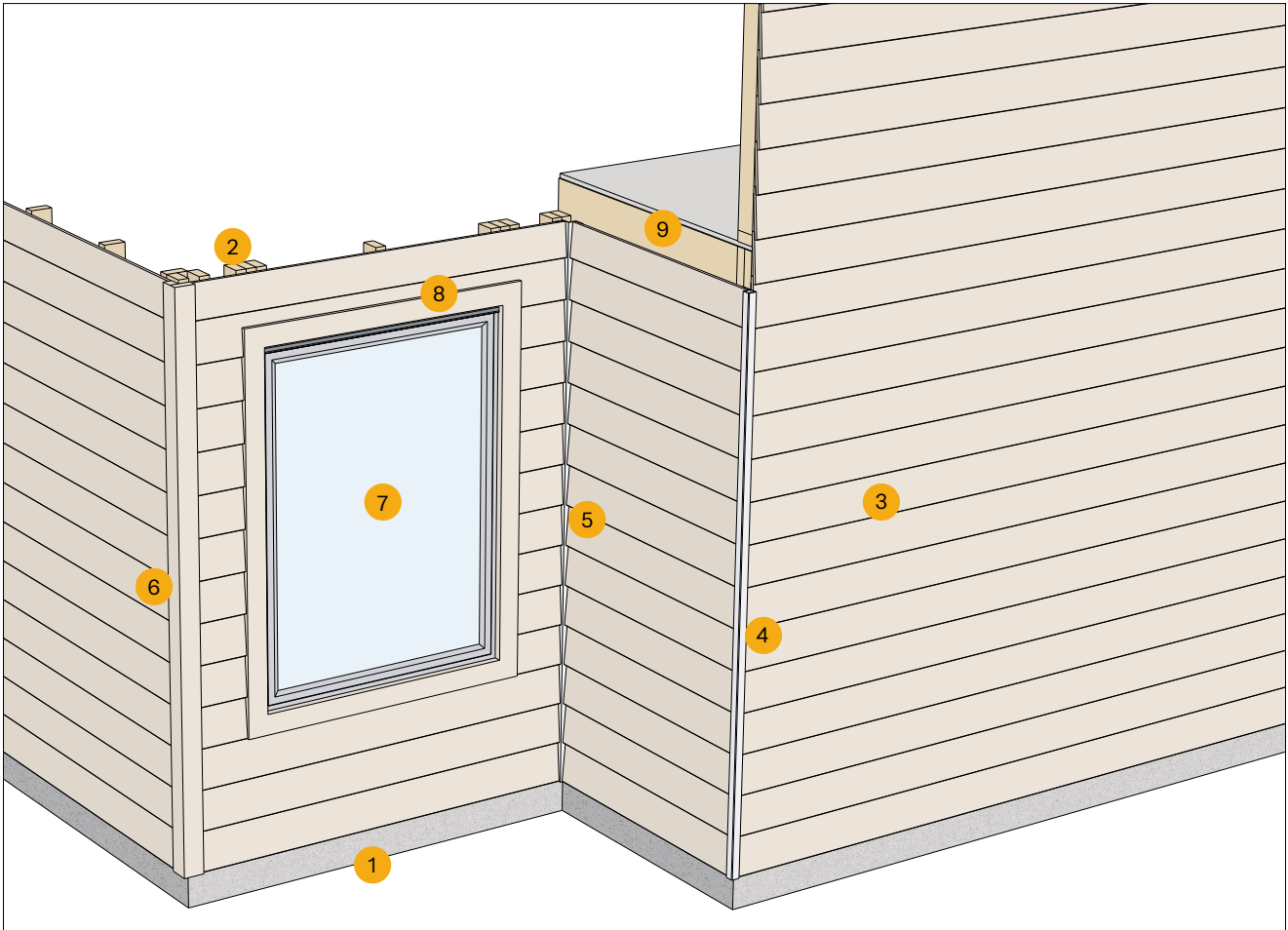


Plunge/track saw, circular saw fitted with dust extraction port



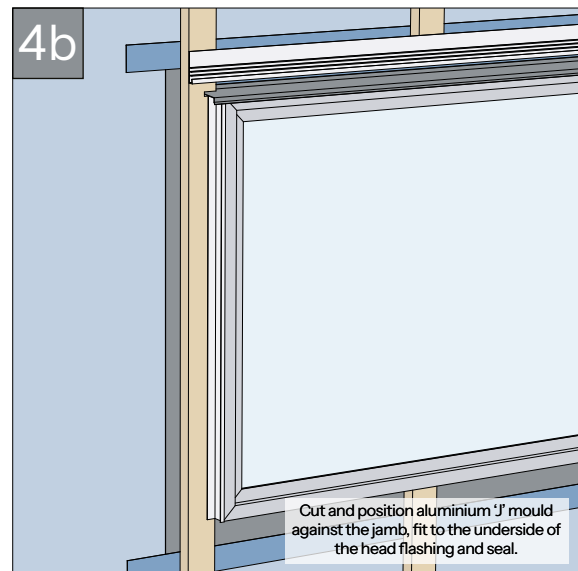
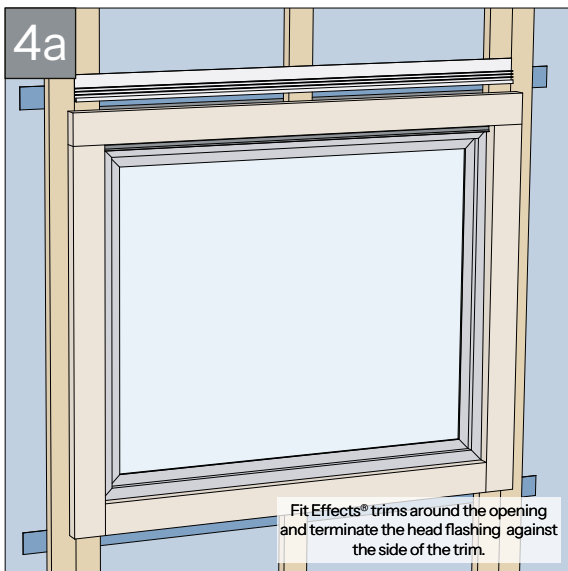
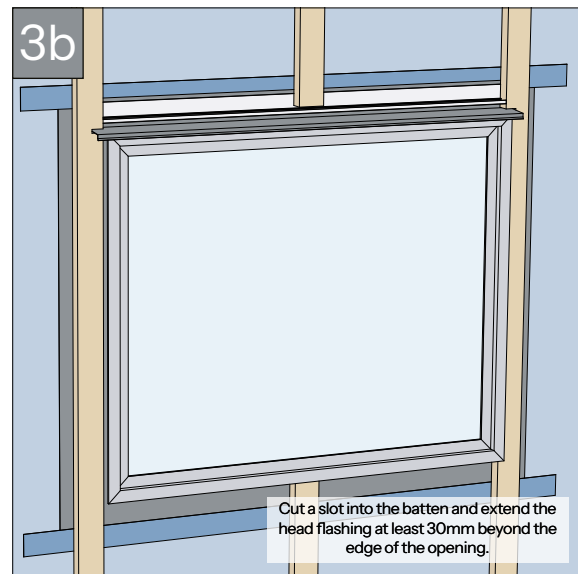
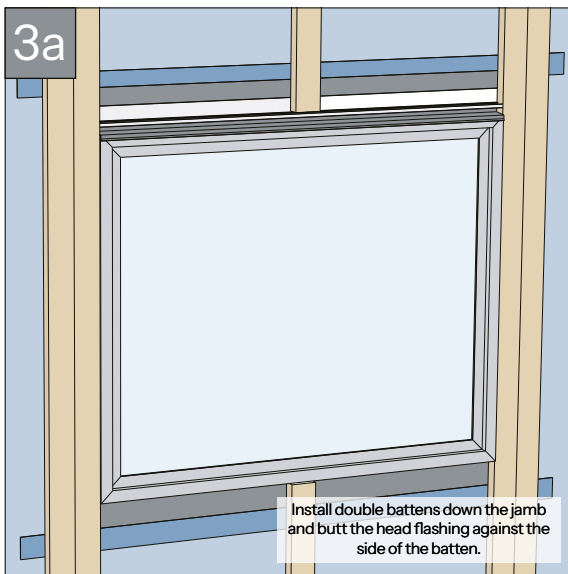
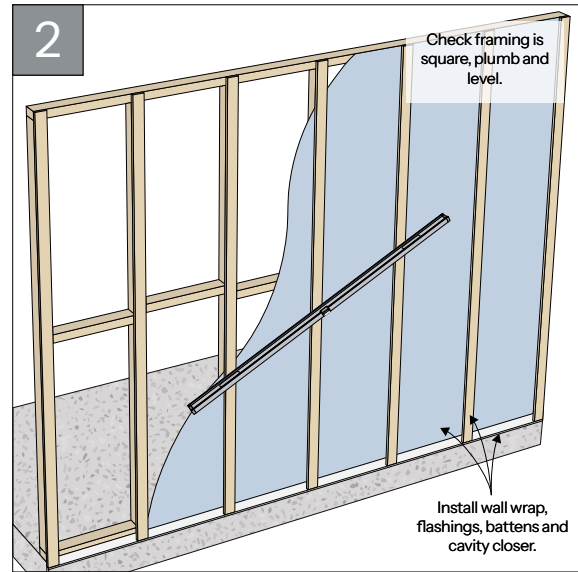
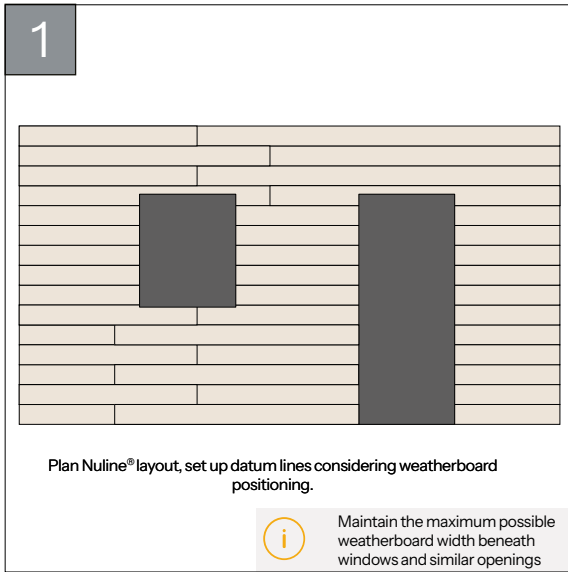
Class M or H vacuum

6. System Overview

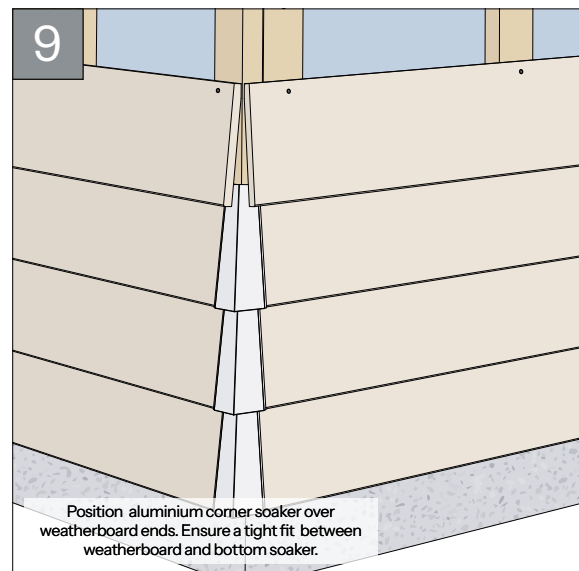
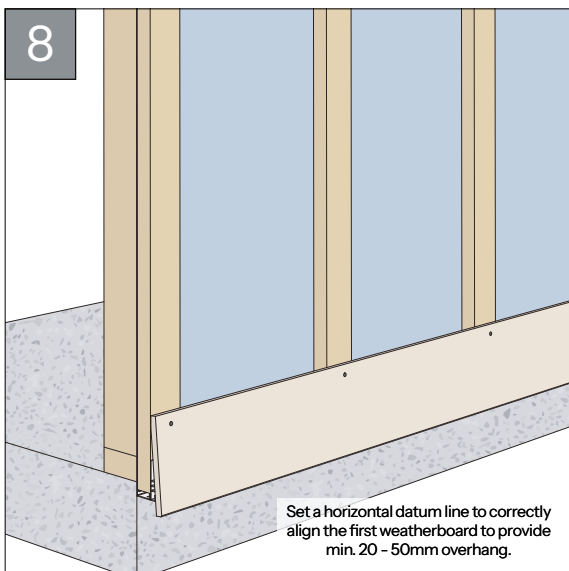
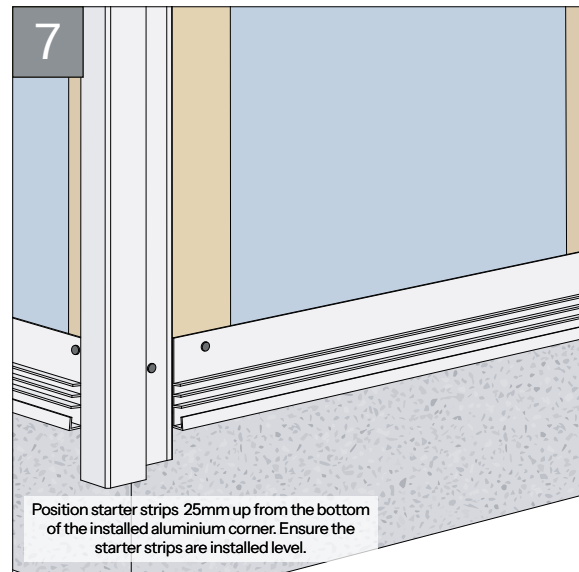
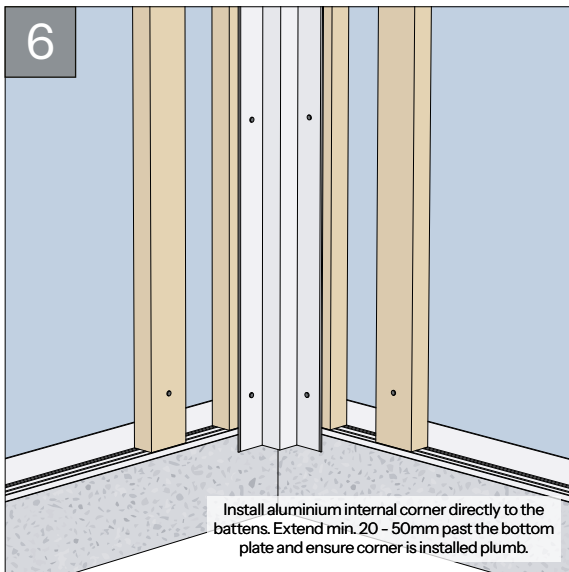
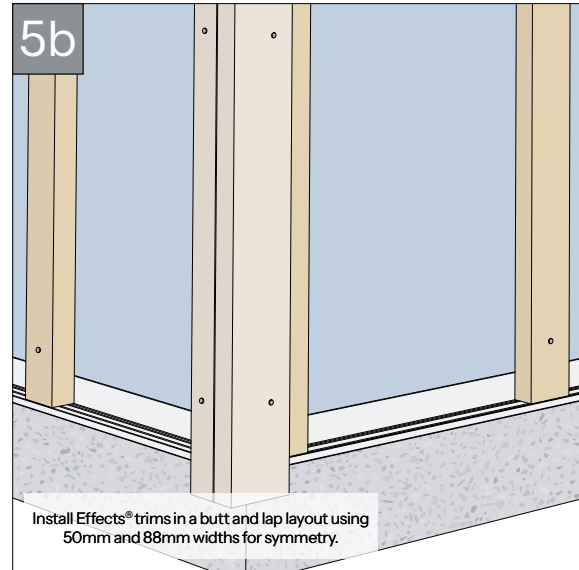
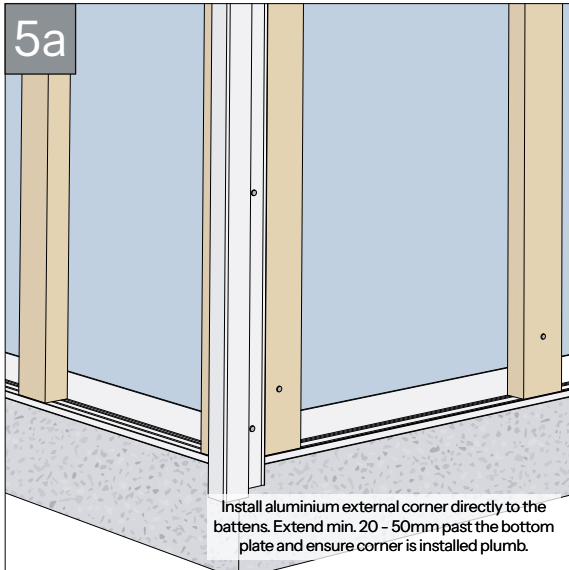


- | | | |
|--|-------------------------------------|---------------------------------|
| 1 Foundation (concrete, steel or timber) | 4 Aluminium external corner | 7 Opening |
| 2 Primary frame (timber or steel) | 5 Aluminium internal Corner | 8 Effects® trims around opening |
| 3 Nuline® | 6 Effects® trims on external corner | 9 Floor framing |

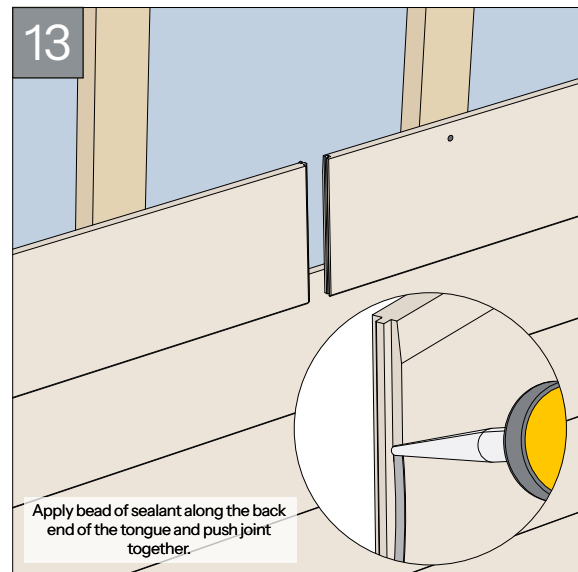
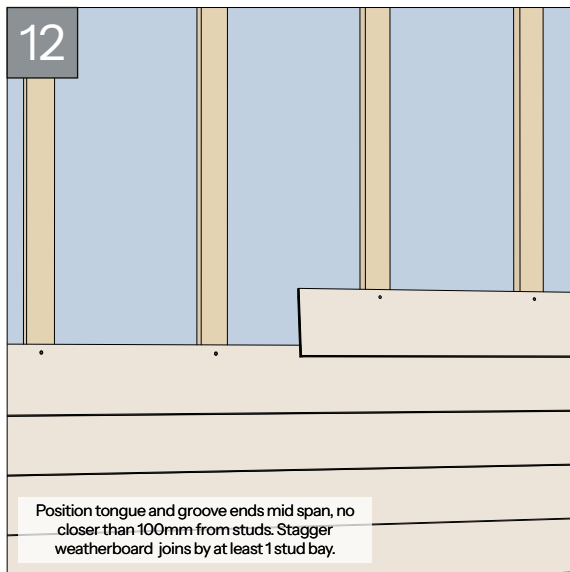
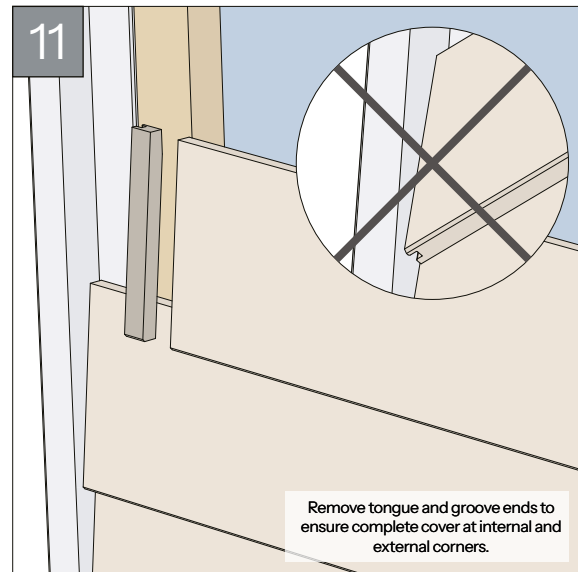
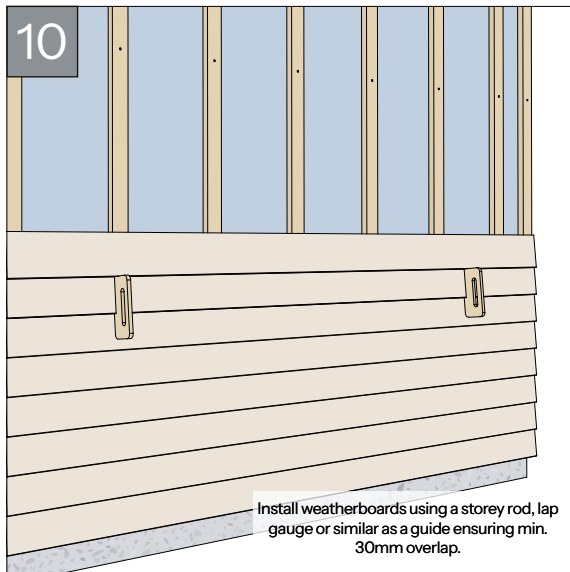
7. Installation



7. Installation



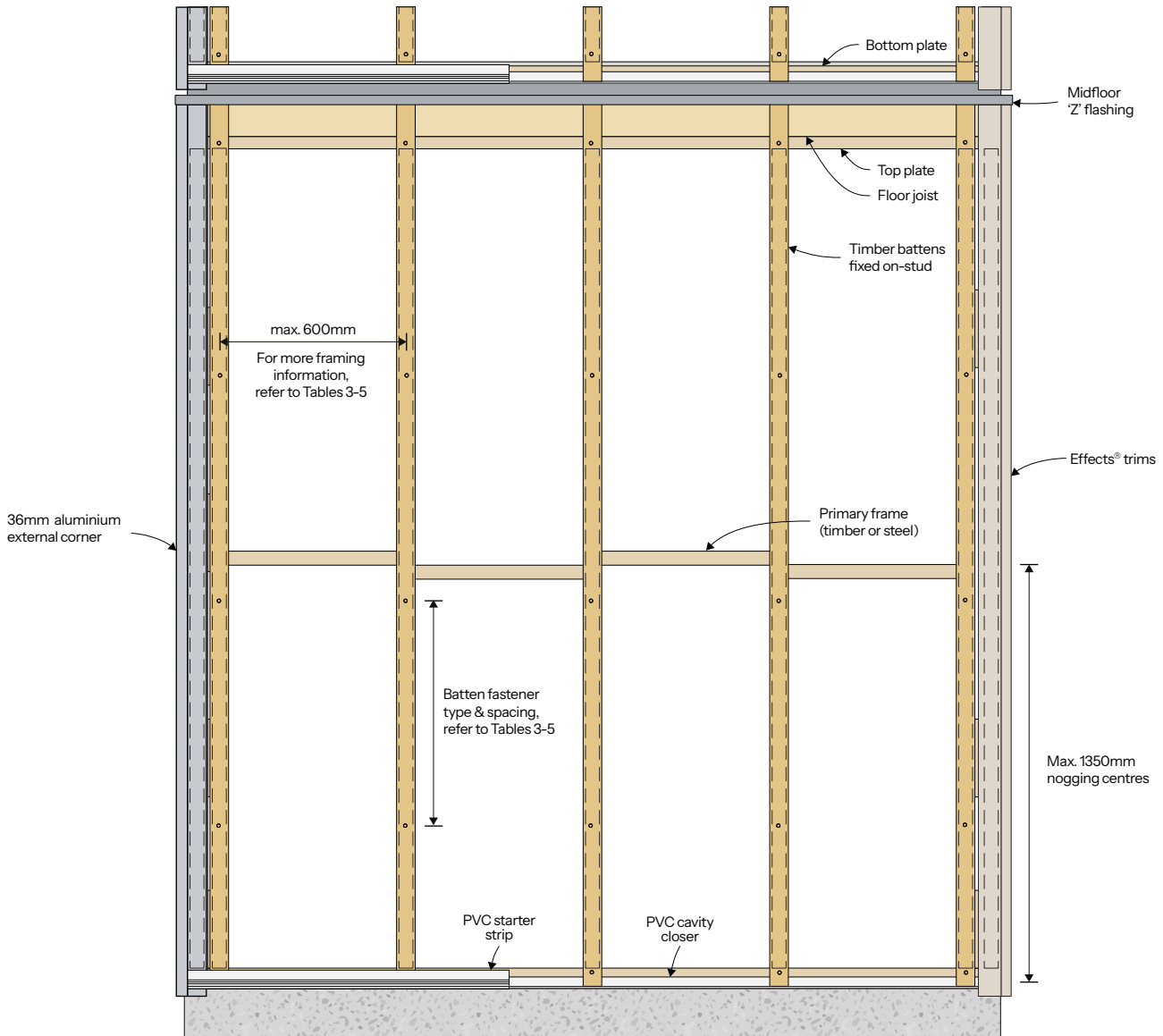
7. Installation




8. Construction Details

8.1 Frame and Batten Layout

Below shows typical layout of the frame and accessories prior to Nuline® installation.



 Z-Flashing required max. 2 storeys.


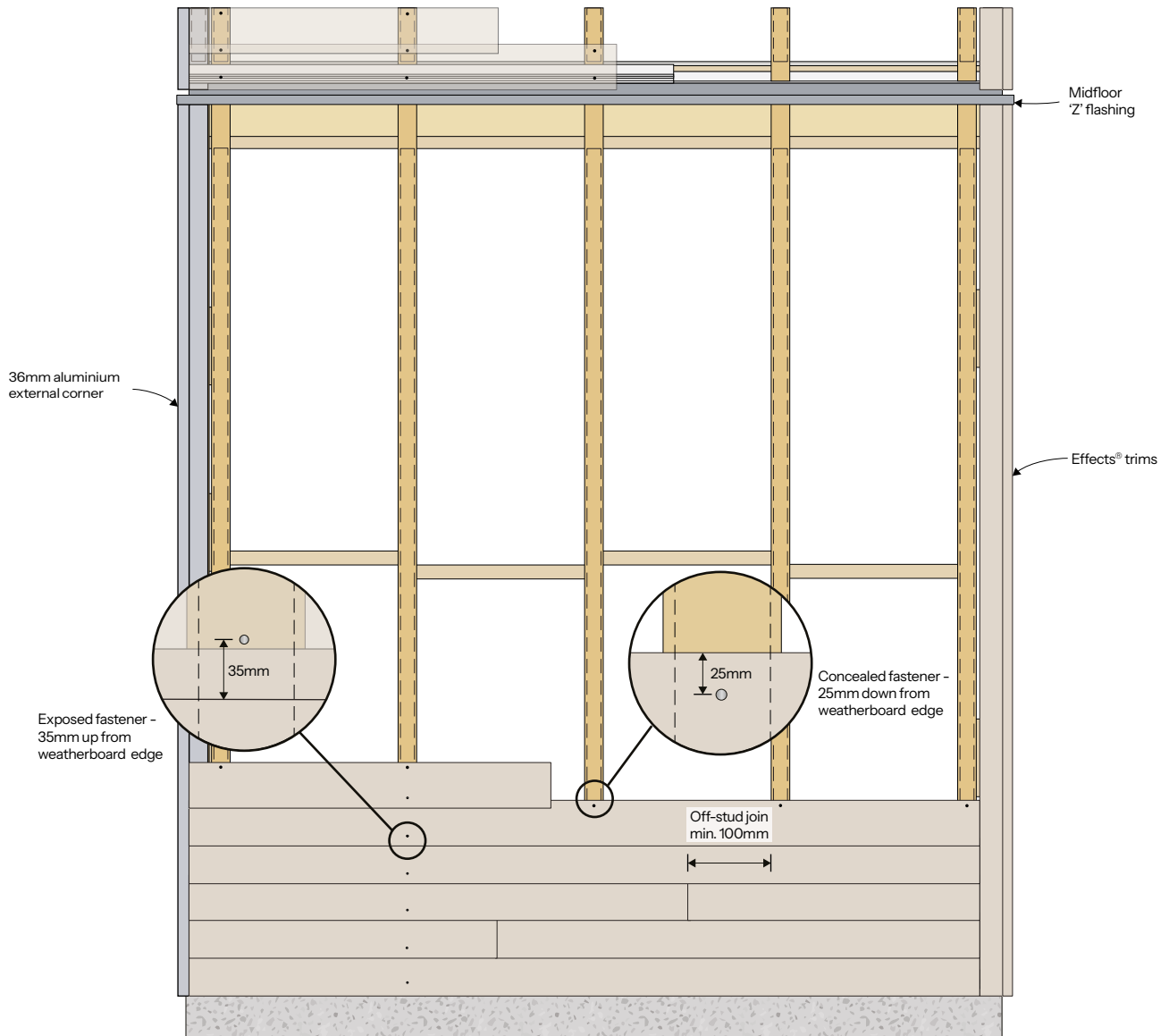
 Wall wrap omitted for clarity.


Figure 12 Frame and accessories Elevation

8. Construction Details

8.2 Weatherboard and Fastener Positioning

Below shows typical layout of the Nuline® weatherboard, concealed and exposed fastener positioning as well as off-stud join layout.



 Z-Flashing required max. 2 storeys.


 Wall wrap omitted for clarity.

Figure 13 Nuline® weatherboard installation and fastener layout Elevation

8. Construction Details

8.3 Details

The following construction details illustrate typical configurations for timber or steel framed walls, including direct fix and timber batten systems with concealed fasteners. Section 4.14 provides alternate fixing options for timber battens or steel top hats on timber or steel framing.

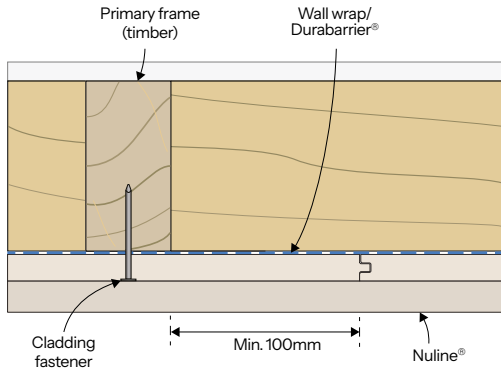


Figure 14 Nuline® timber frame off-stud join detail Plan

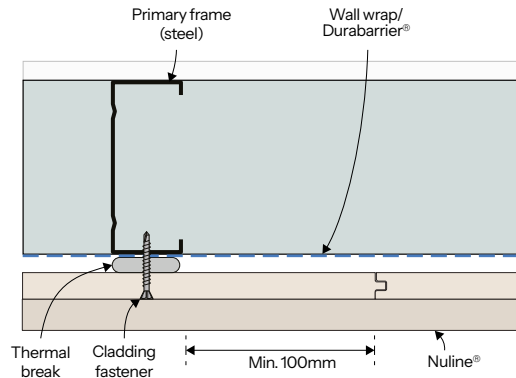


Figure 17 Nuline® steel frame off-stud join detail Plan

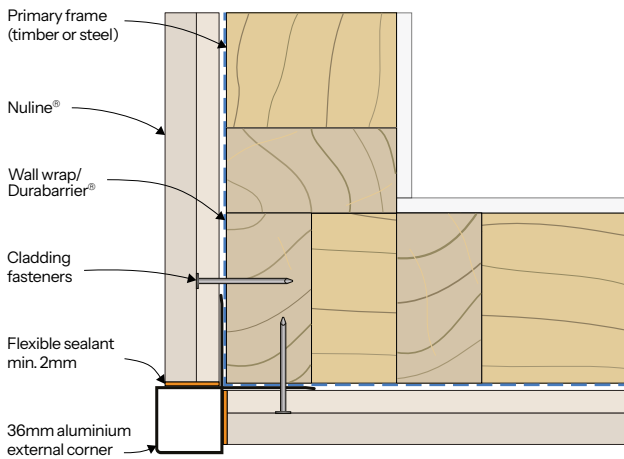


Figure 15 Aluminium external corner detail Plan

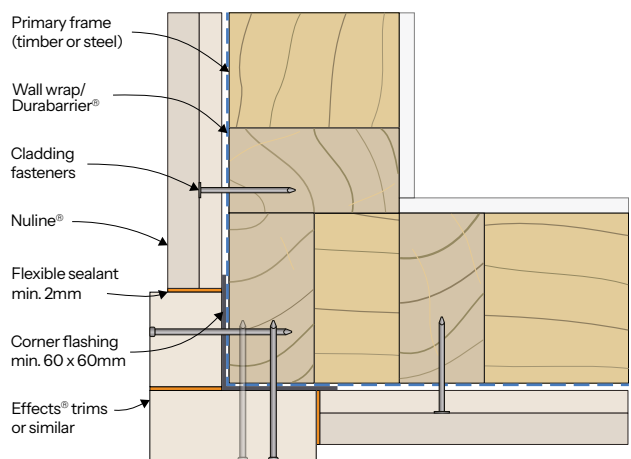


Figure 18 Effects® trims external corner detail Plan

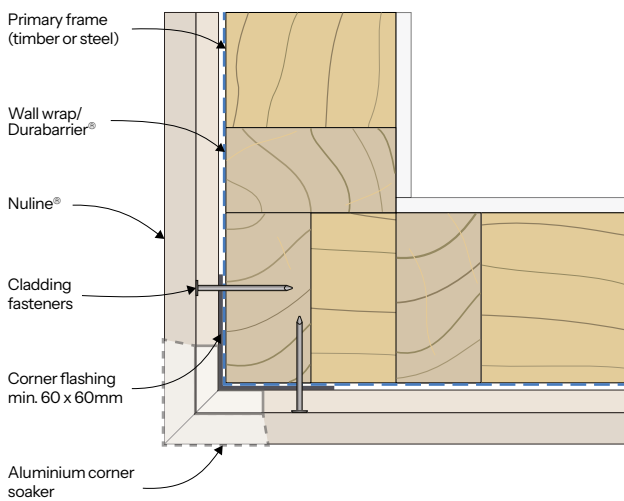


Figure 16 Aluminium external corner soaker detail Plan

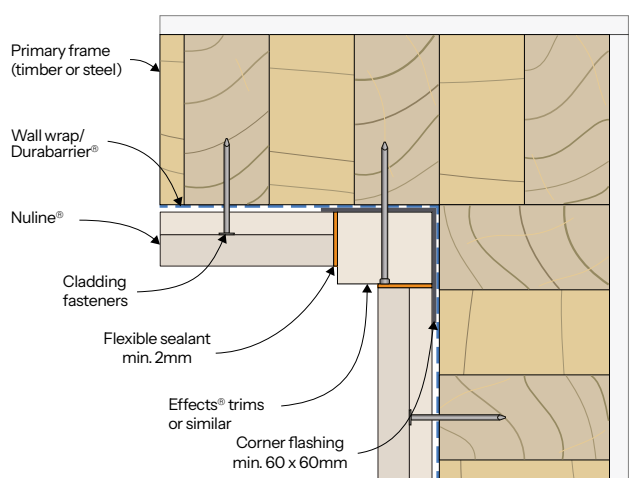


Figure 19 Effects® trims internal corner detail Plan

8. Construction Details

8.3 Details

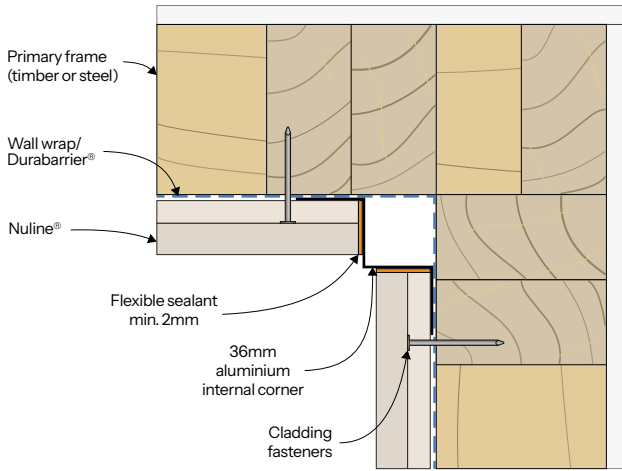


Figure 20 Aluminium internal corner detail Plan

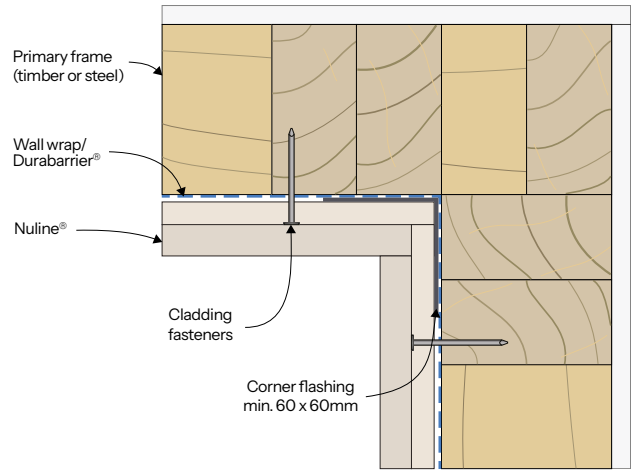


Figure 23 Notch & scribe internal corner detail Plan

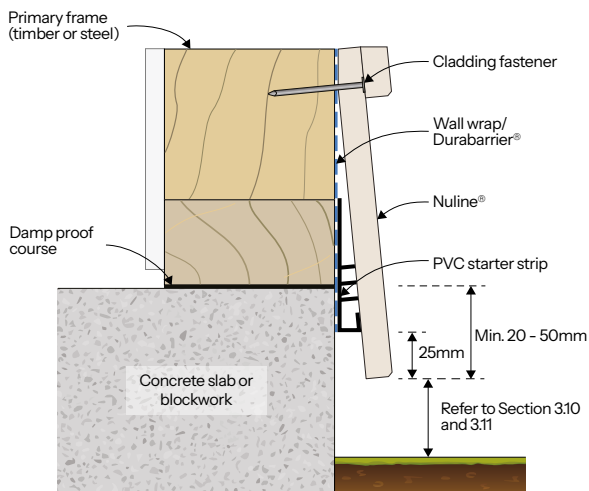


Figure 21 Slab edge detail Section

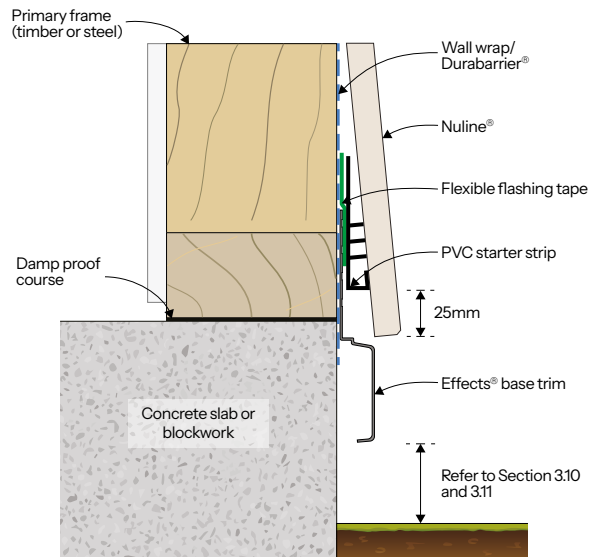


Figure 24 Slab edge Effects® base trim detail Section

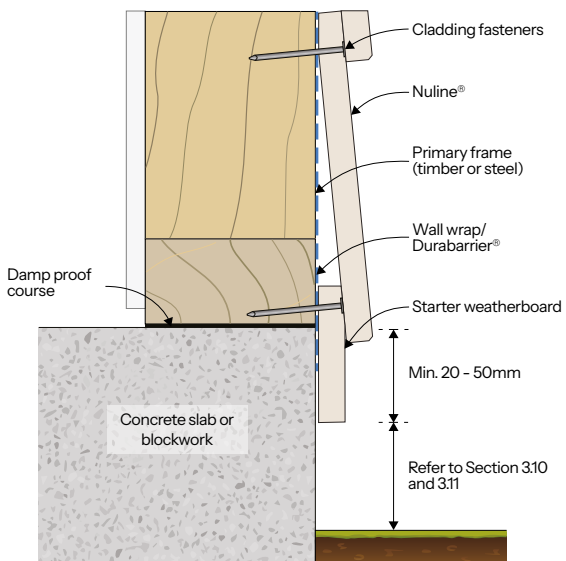


Figure 22 Slab edge starter weatherboard detail Section

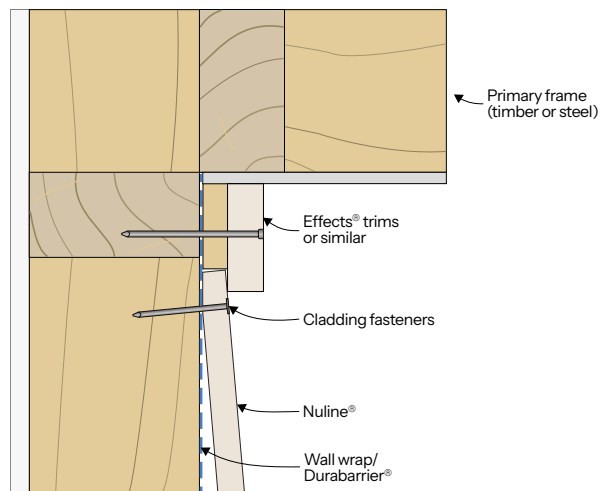


Figure 25 Effects® trims soffit/wall junction detail Section

8. Construction Details

8.3 Details

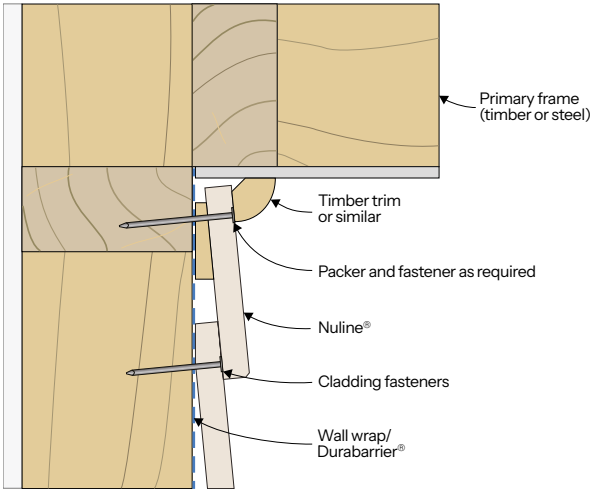


Figure 26 Timber trim soffit/wall junction detail Section

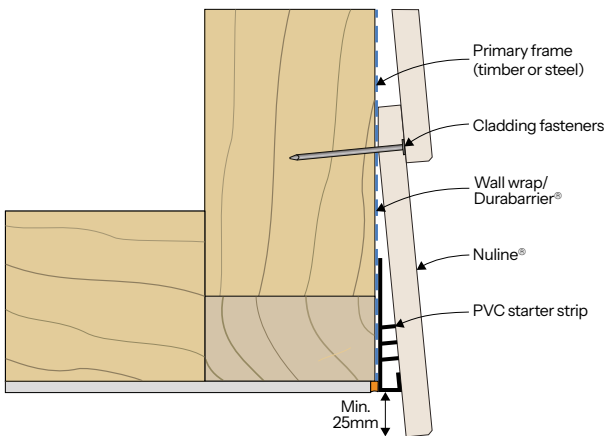


Figure 27 Cantilever wall/soffit junction detail Section

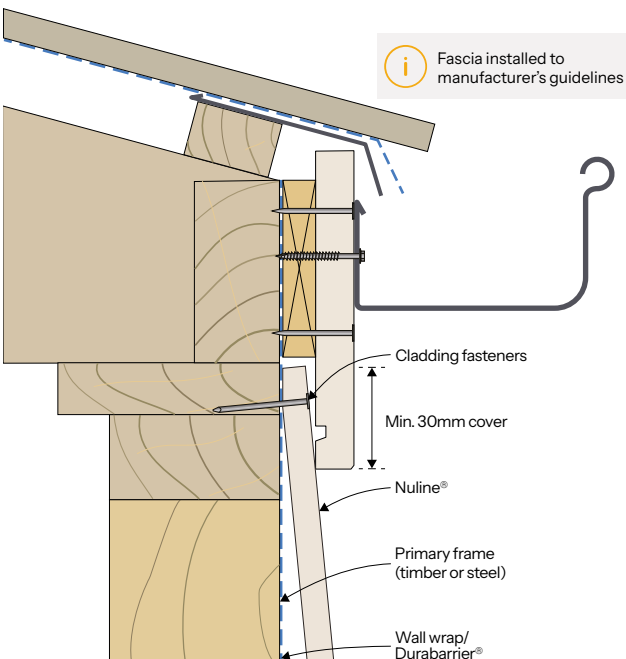


Figure 28 Wall/fascia junction detail Section

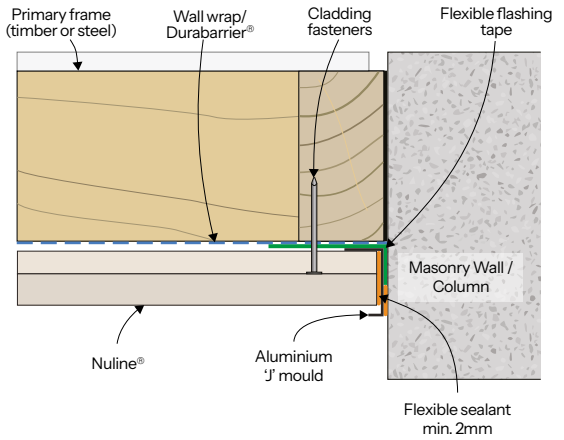
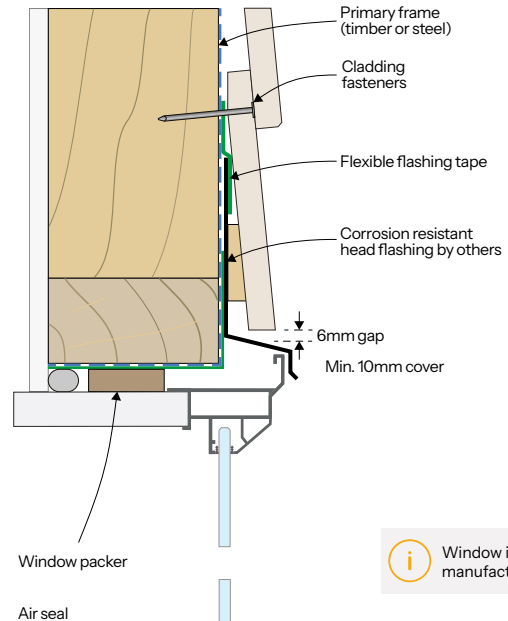


Figure 29 Wall/column abutment detail Plan



i Window installed to manufacturer's guidelines

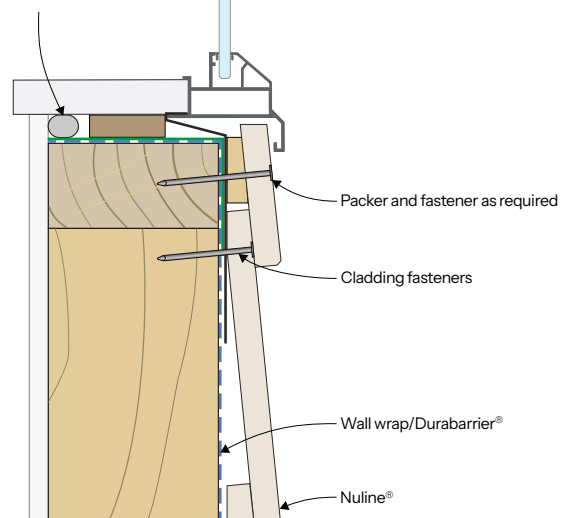


Figure 30 Window head & sill detail Section

8. Construction Details

8.3 Details

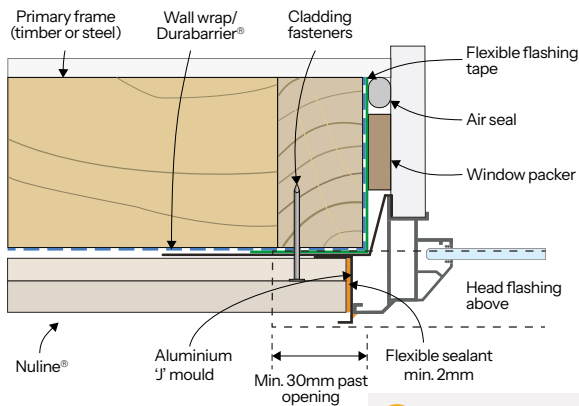


Figure 31 Window jamb detail Plan

Window installed to manufacturer's guidelines

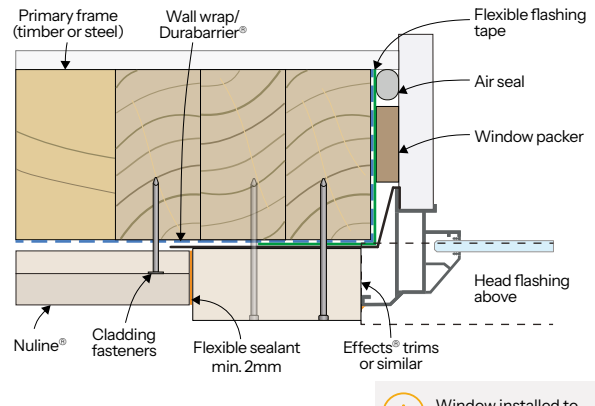


Figure 33 Effects® trims window jamb detail Plan

Window installed to manufacturer's guidelines

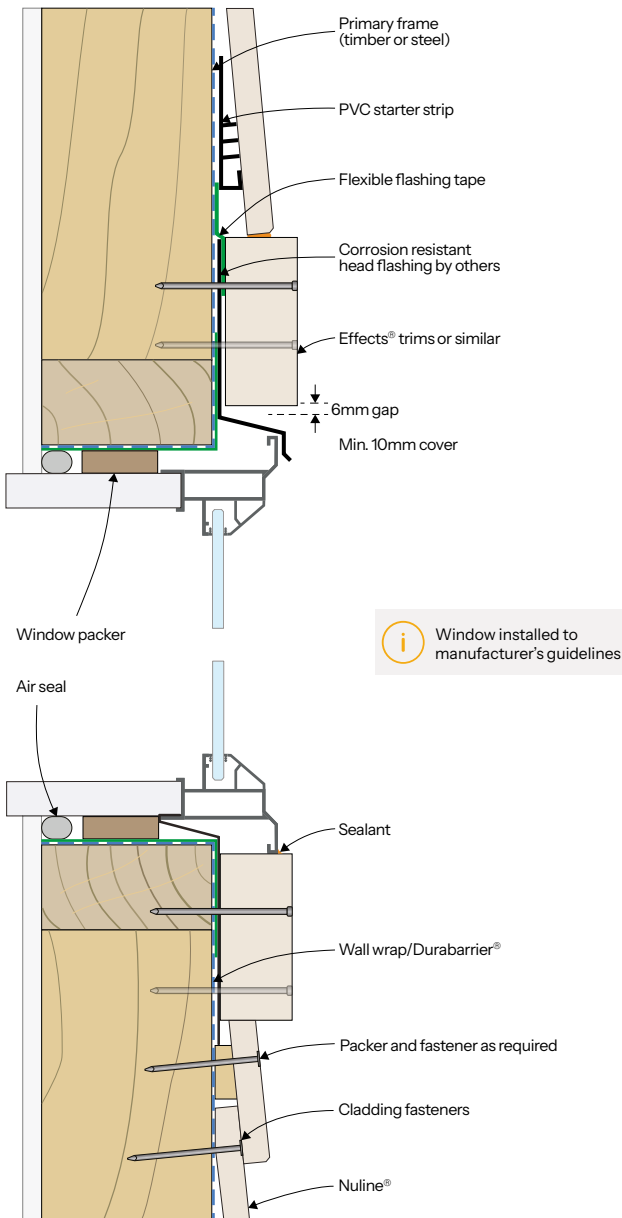


Figure 32 Effects® trims window head & sill detail Section

Window installed to manufacturer's guidelines

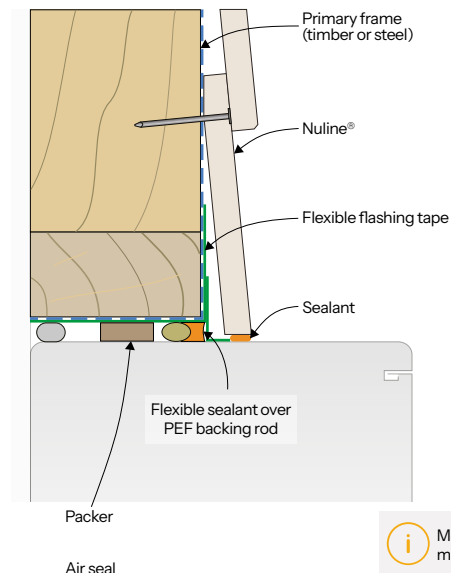
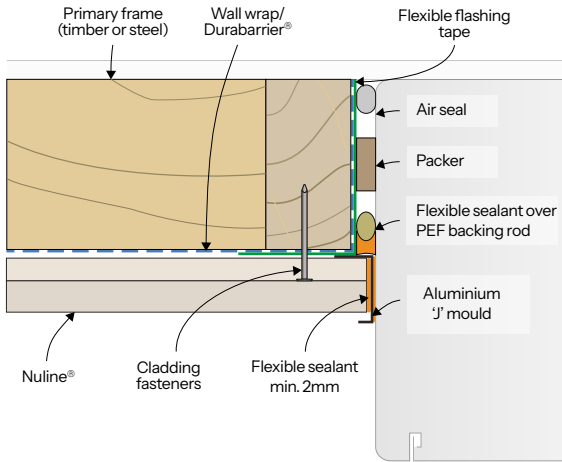


Figure 34 Meterbox head & sill detail Section

Meterbox installed to manufacturer's guidelines

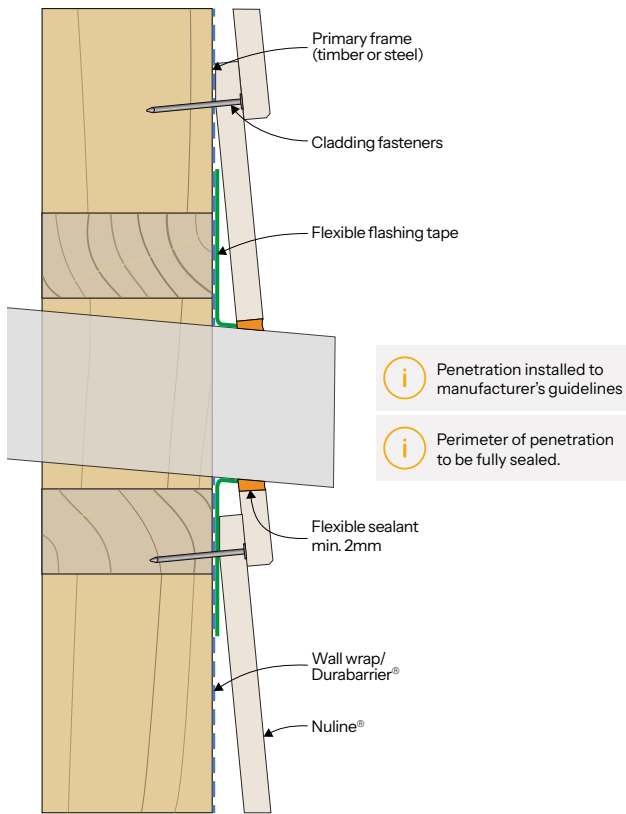
8. Construction Details

8.3 Details



i Meterbox installed to manufacturer's guidelines

Figure 35 Meterbox jamb detail Plan



i Penetration installed to manufacturer's guidelines

i Perimeter of penetration to be fully sealed.

Figure 36 Penetration detail Section

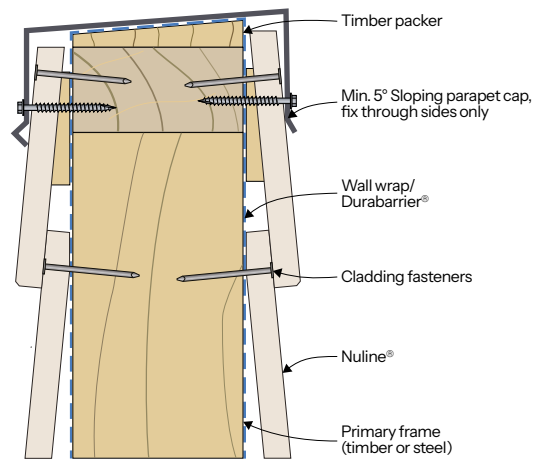
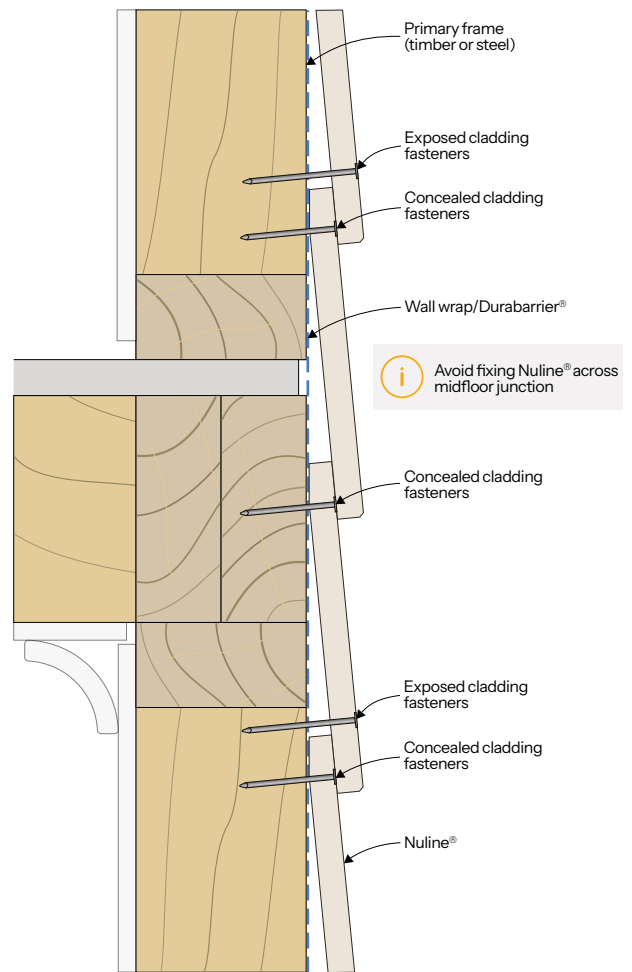


Figure 37 Parapet detail Section



i Avoid fixing Nuline® across midfloor junction

i Suitable up to max. 2 storeys.

Figure 38 Midfloor continuous cladding detail Section

8. Construction Details

8.3 Details

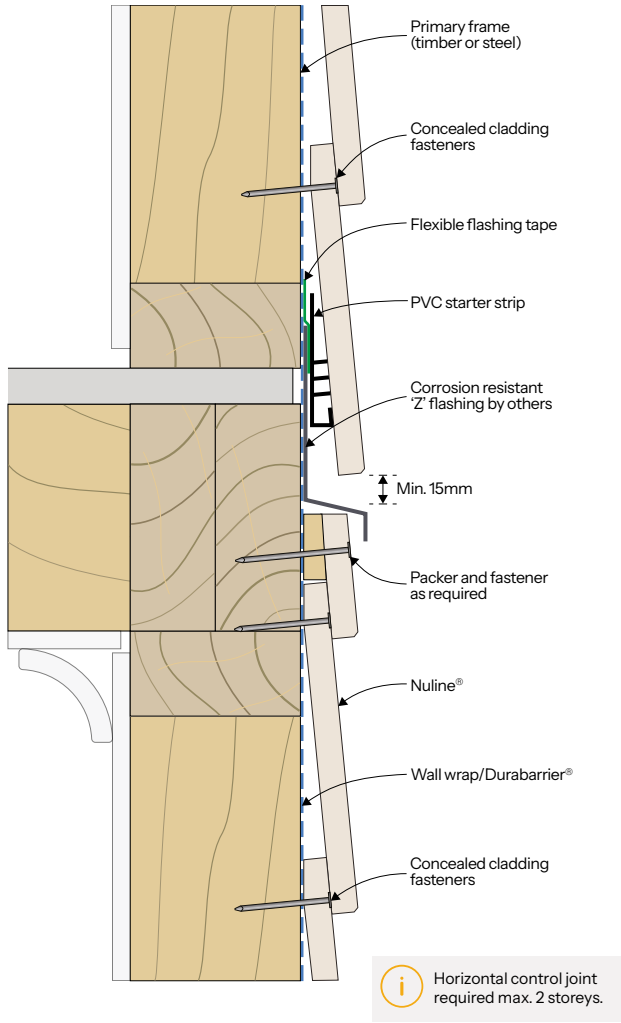


Figure 39 Midfloor control joint detail Section

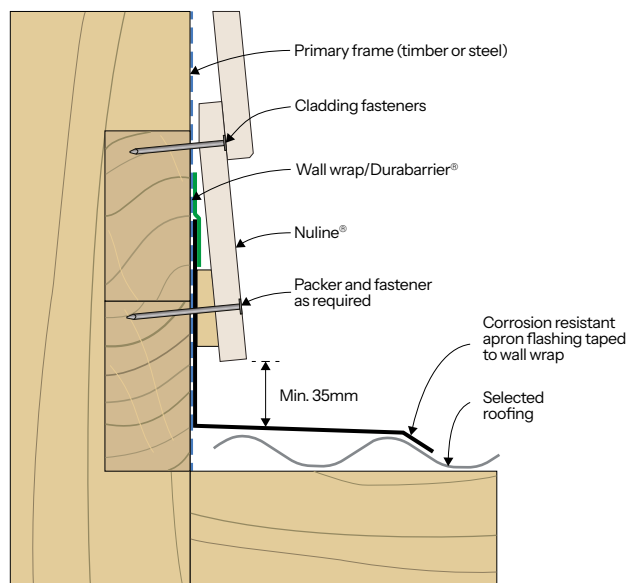


Figure 40 Parallel apron flashing detail Section

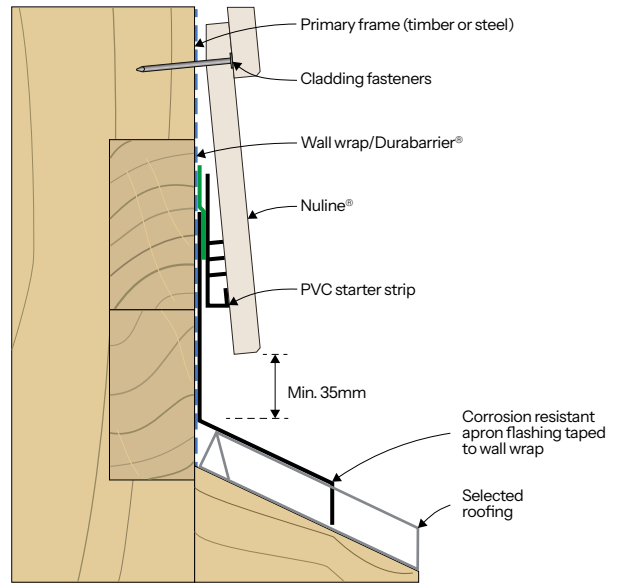


Figure 41 Transverse apron flashing detail Section

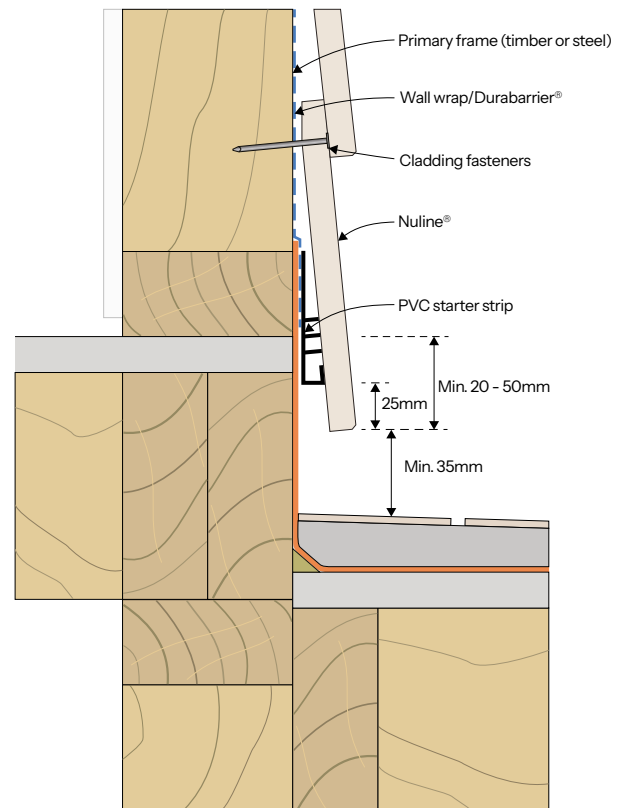


Figure 42 Enclosed balcony Detail Section

8. Construction Details

8.3 Details

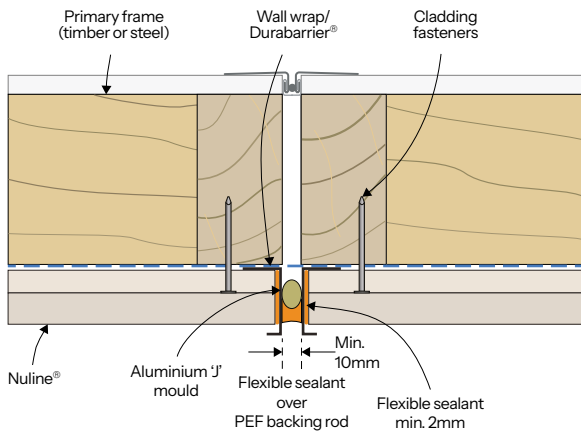


Figure 43 Vertical control joint detail Plan

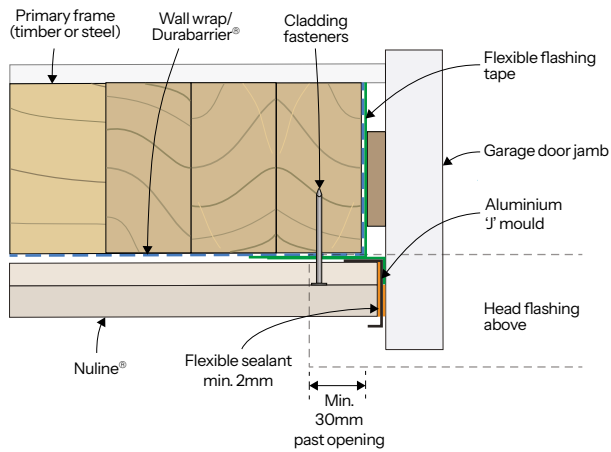


Figure 44 Garage door jamb detail Plan

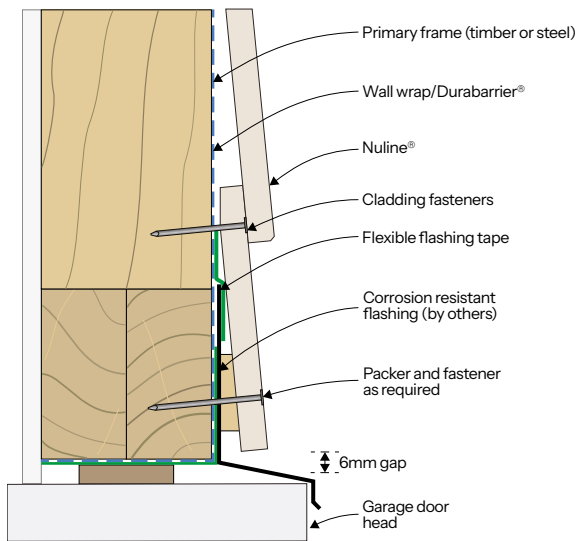


Figure 45 Garage door head detail Section

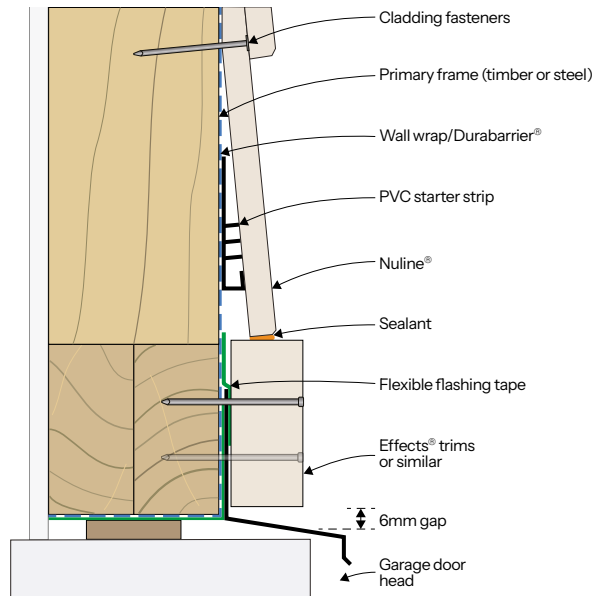


Figure 46 Effects® trims garage door head detail Section

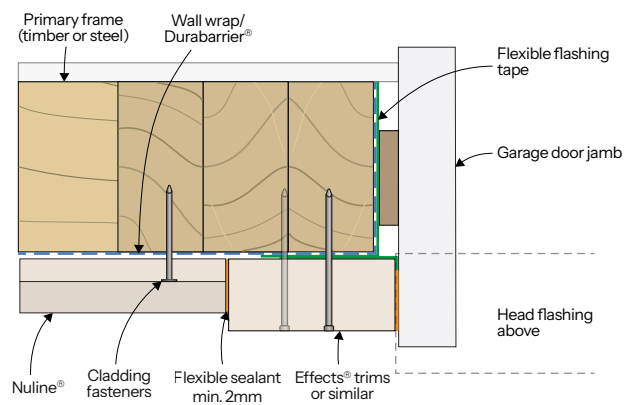


Figure 47 Effects® trims garage door jamb detail Plan

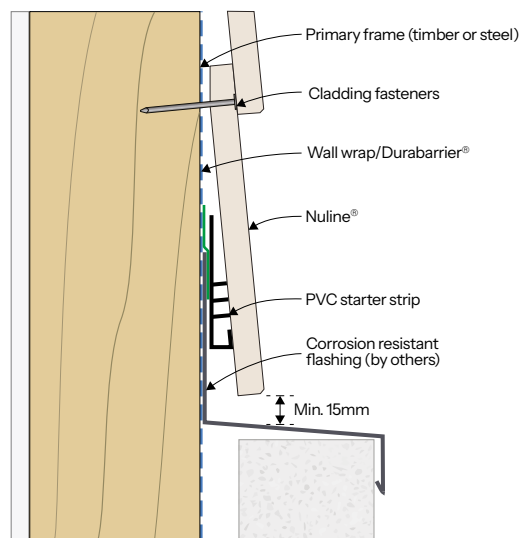



Figure 48 Horizontal junction detail Section

 Lower wall system by others

8. Construction Details

8.3 Details

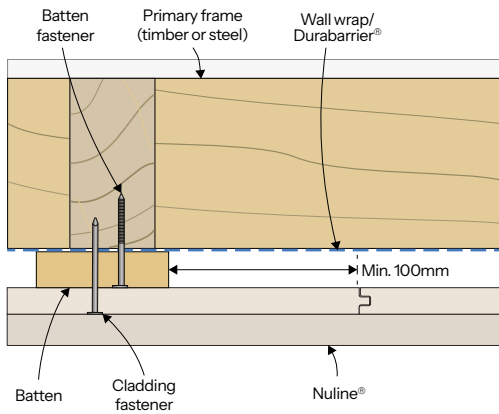


Figure 49 Nuline® timber frame off-stud join detail Plan

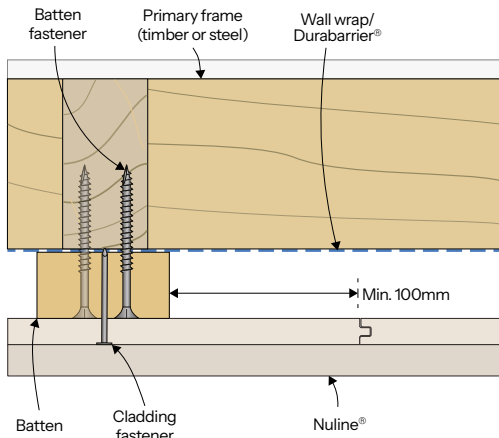


Figure 50 Nuline® timber frame off-stud join detail Plan

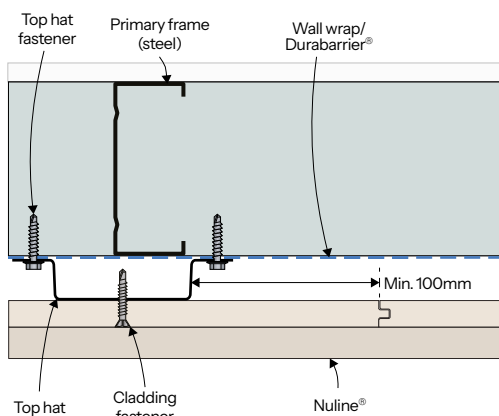


Figure 51 Nuline® steel frame off-stud join detail Plan

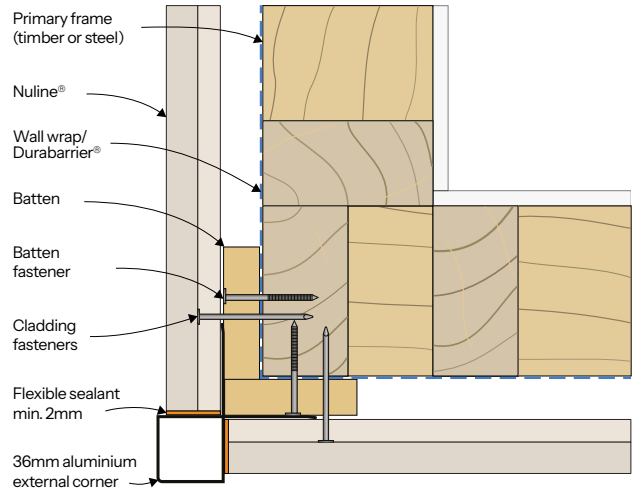


Figure 52 Aluminium external corner detail Plan

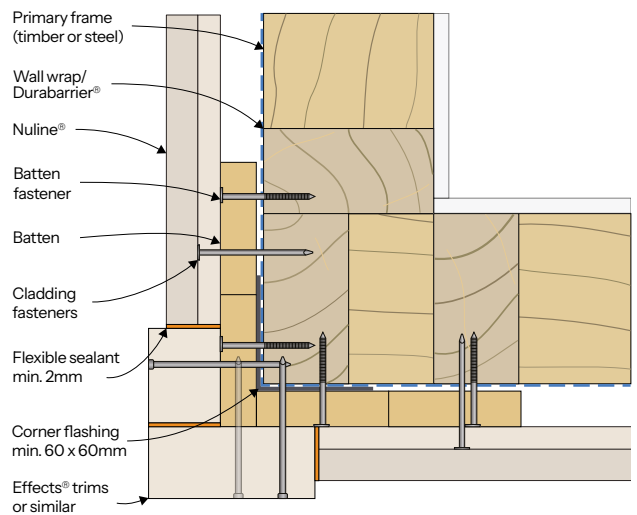


Figure 53 Effects® trims external corner detail Plan

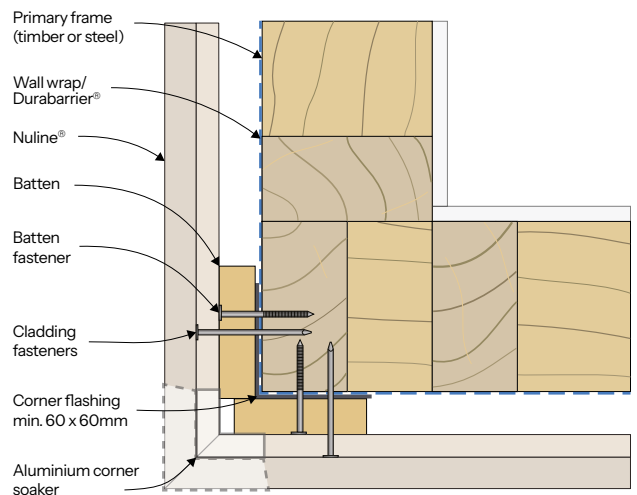


Figure 54 Aluminium external corner soaker detail Plan

8. Construction Details

8.3 Details

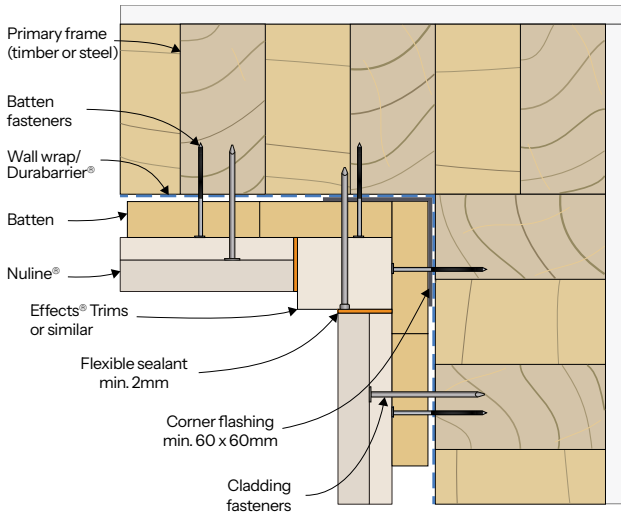


Figure 55 Effects® trims internal corner detail Plan

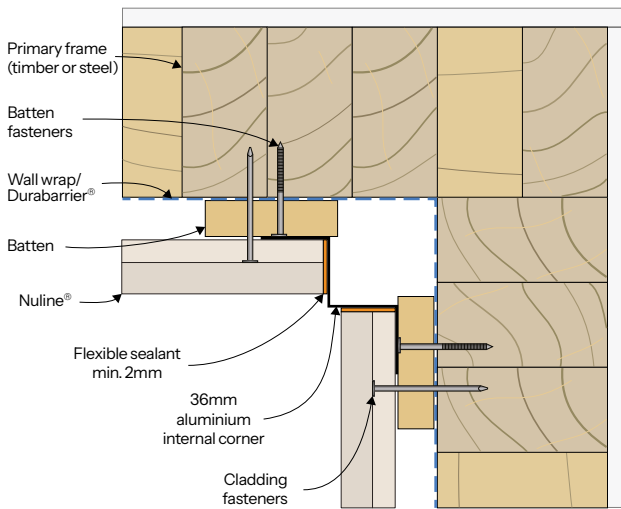


Figure 56 Aluminium internal corner detail Plan

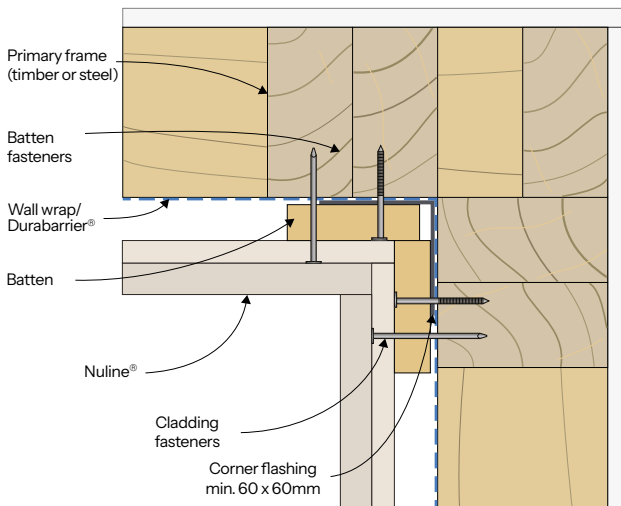


Figure 57 Notch & scribe internal corner detail Plan

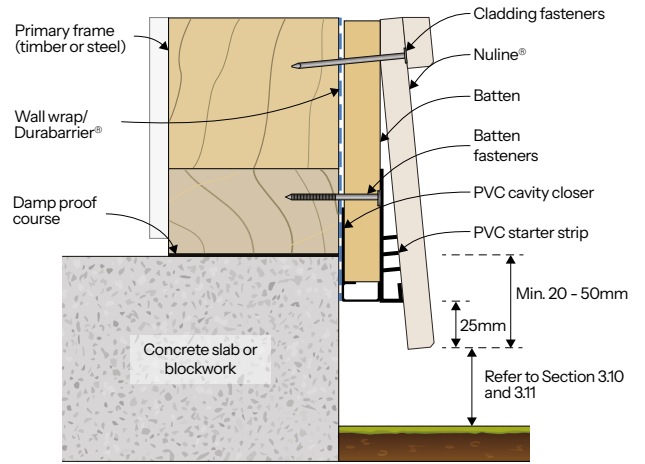


Figure 58 Starter strip slab edge detail Section

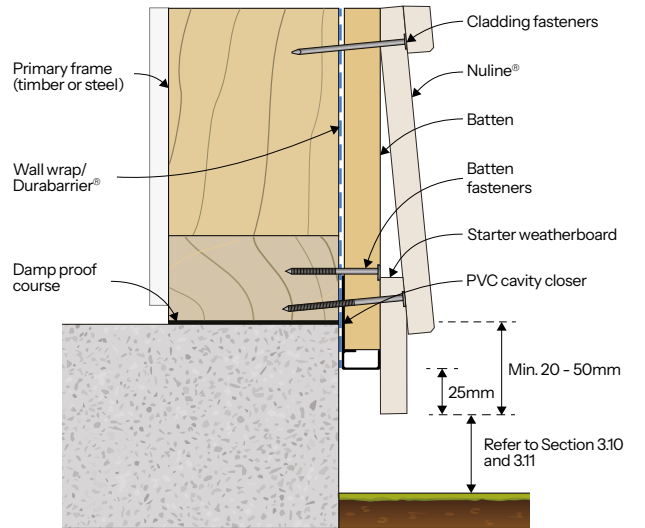


Figure 59 Starter plank slab edge detail Section

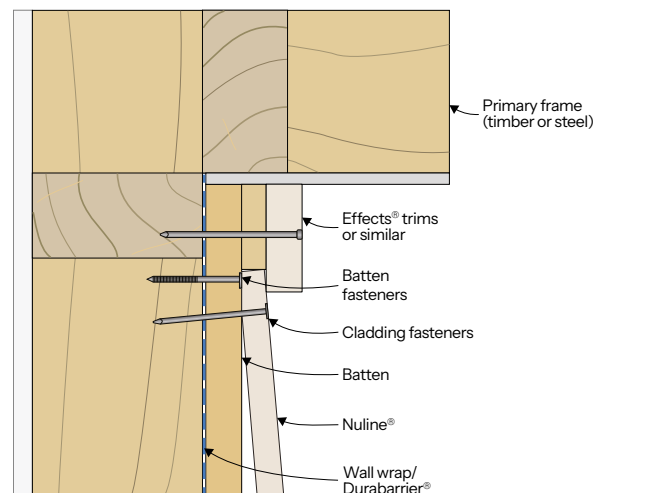


Figure 60 Effects® trims wall/soffit junction detail Section

8. Construction Details

8.3 Details

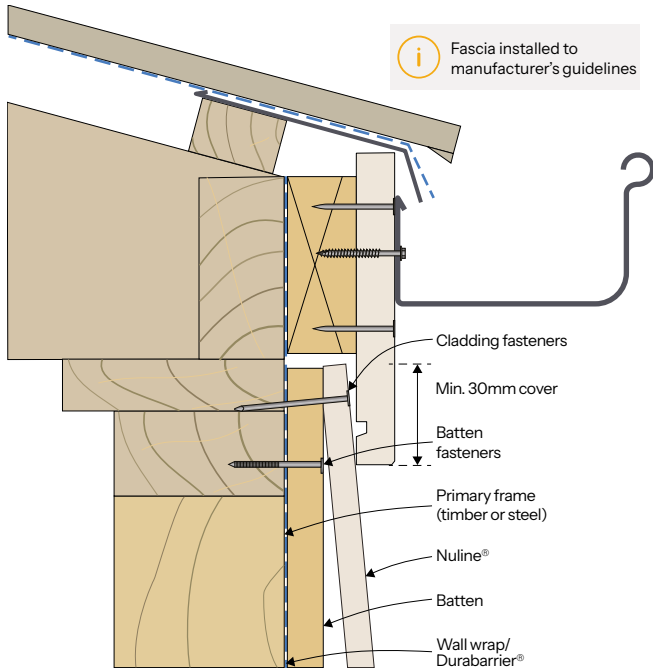


Figure 61 Wall/fascia junction detail Section

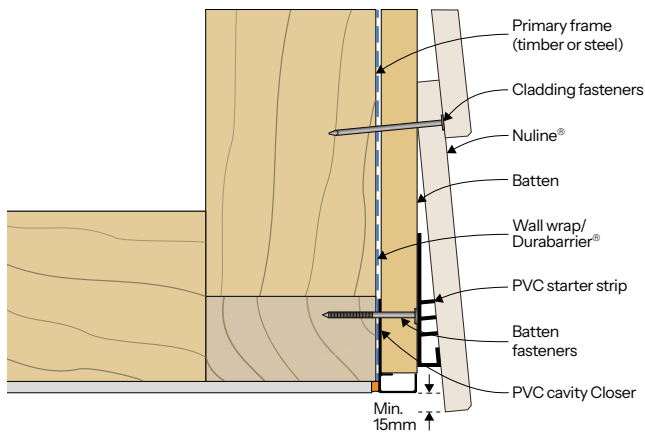


Figure 62 Cantilever wall/soffit junction detail Section

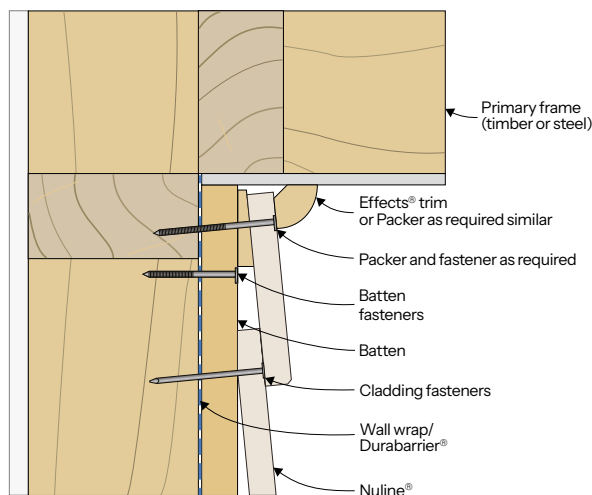


Figure 63 Timber trim wall/soffit junction detail Section

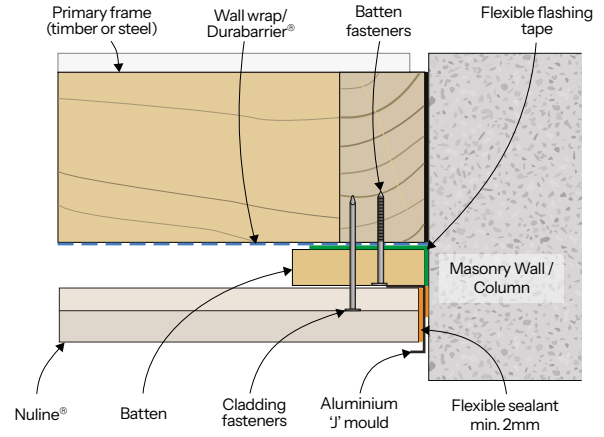


Figure 64 Wall abutment detail Plan

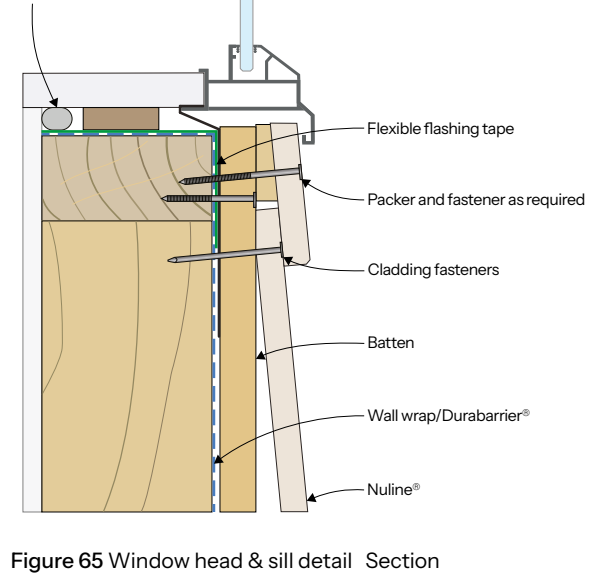
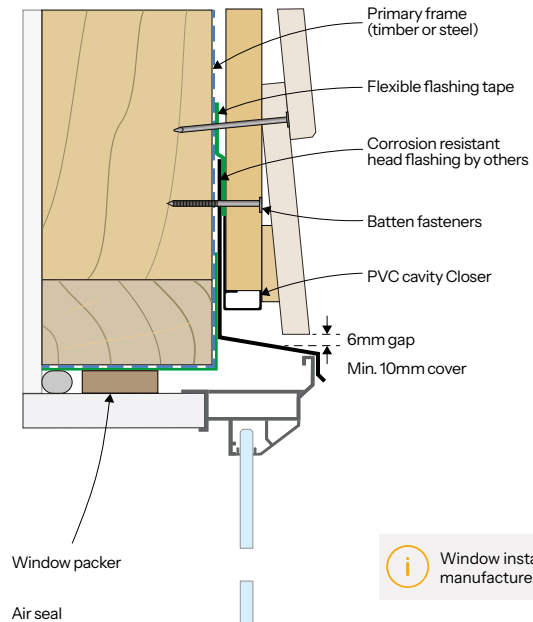


Figure 65 Window head & sill detail Section

8. Construction Details

8.3 Details

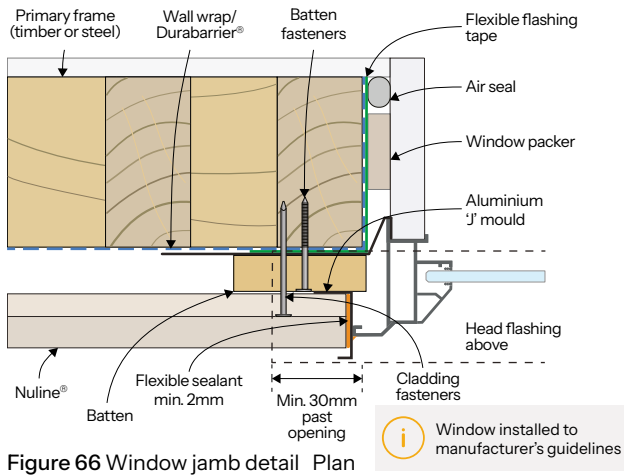


Figure 66 Window jamb detail Plan

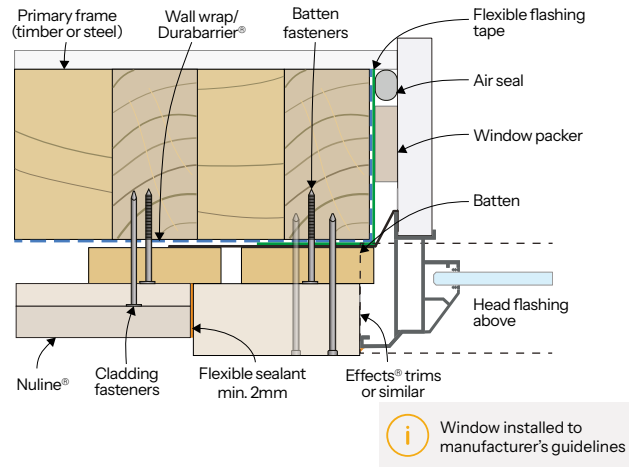
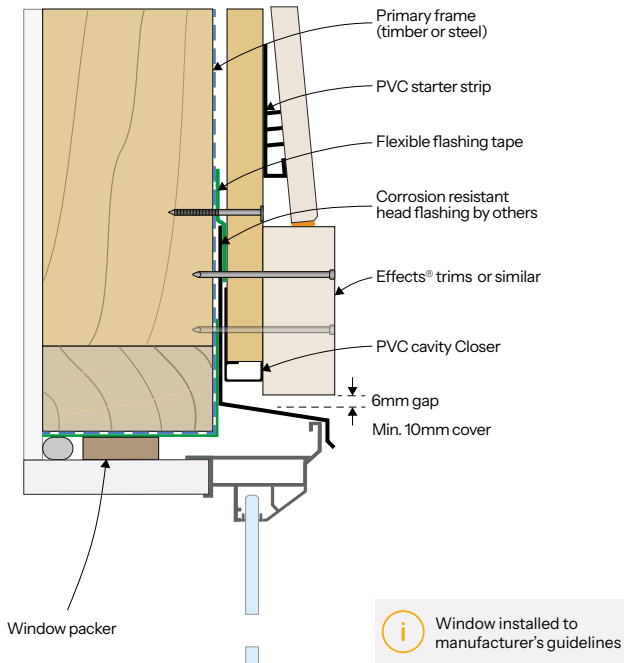


Figure 68 Effects® trims window jamb detail Plan



Window packer

Air seal

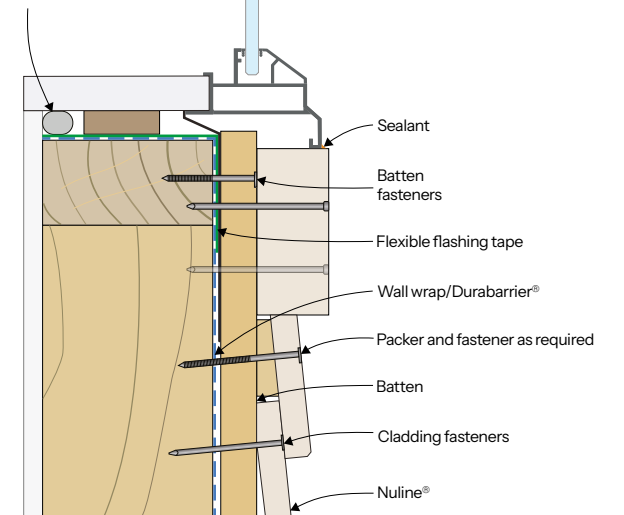
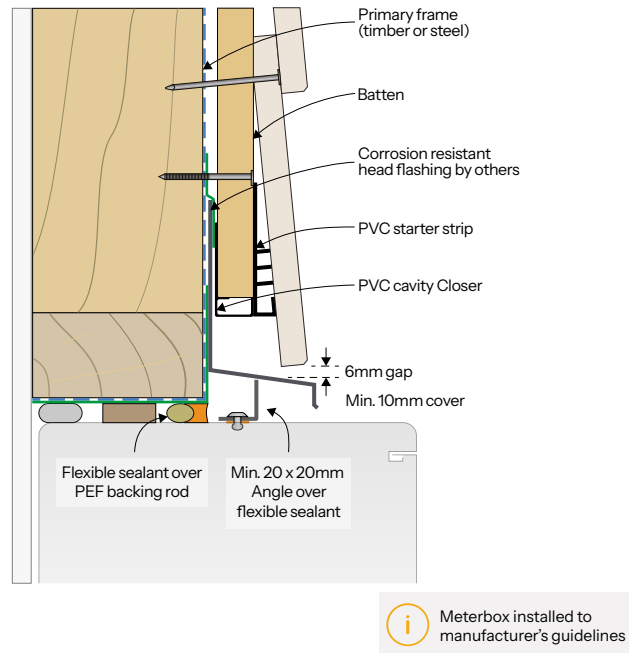


Figure 67 Effects® trims window head & sill detail Section



Meterbox installed to manufacturer's guidelines

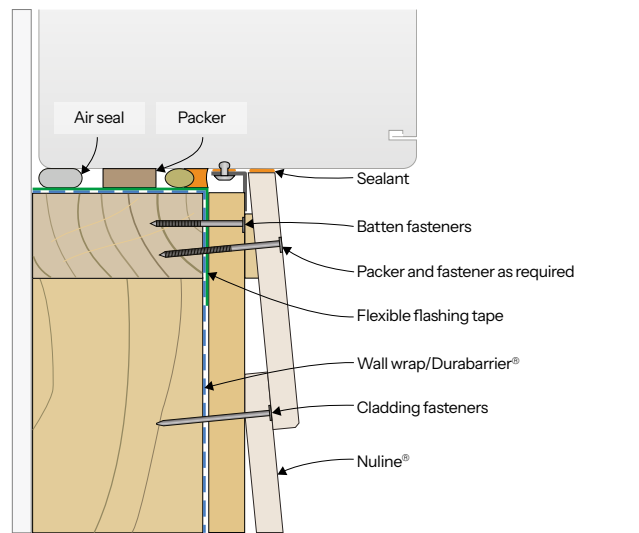
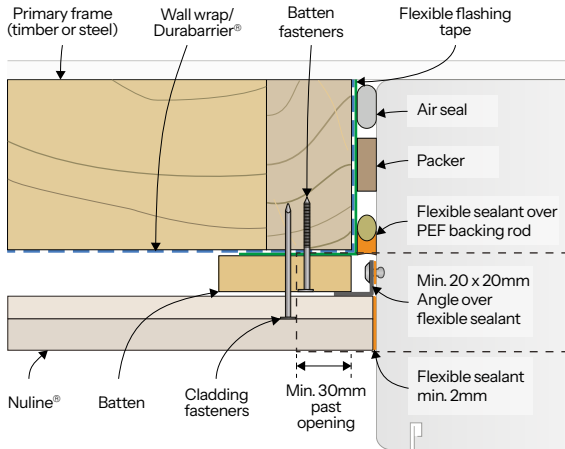


Figure 69 Meterbox head & sill detail Section

8. Construction Details

8.3 Details



i Meterbox installed to manufacturer's guidelines

Figure 70 Meterbox jamb detail Plan

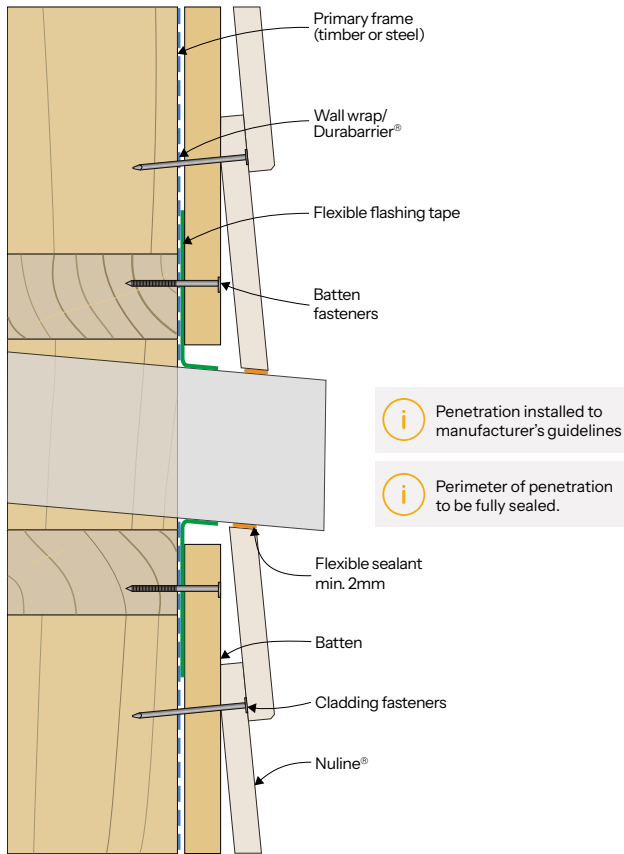


Figure 71 Penetration Detail Section

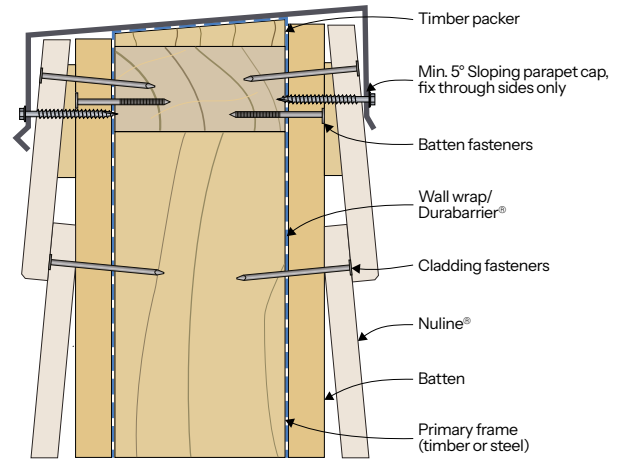
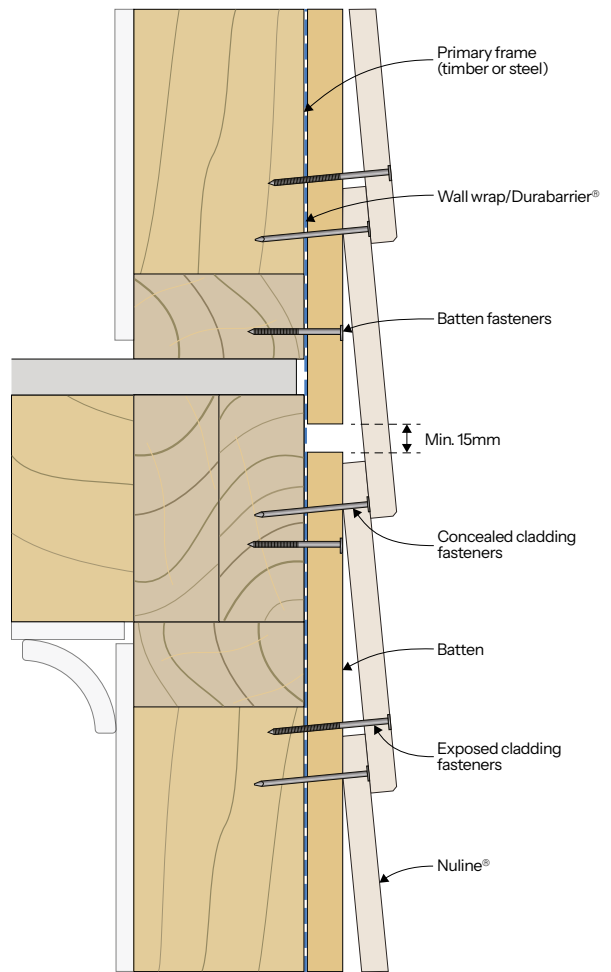


Figure 72 Parapet detail Section



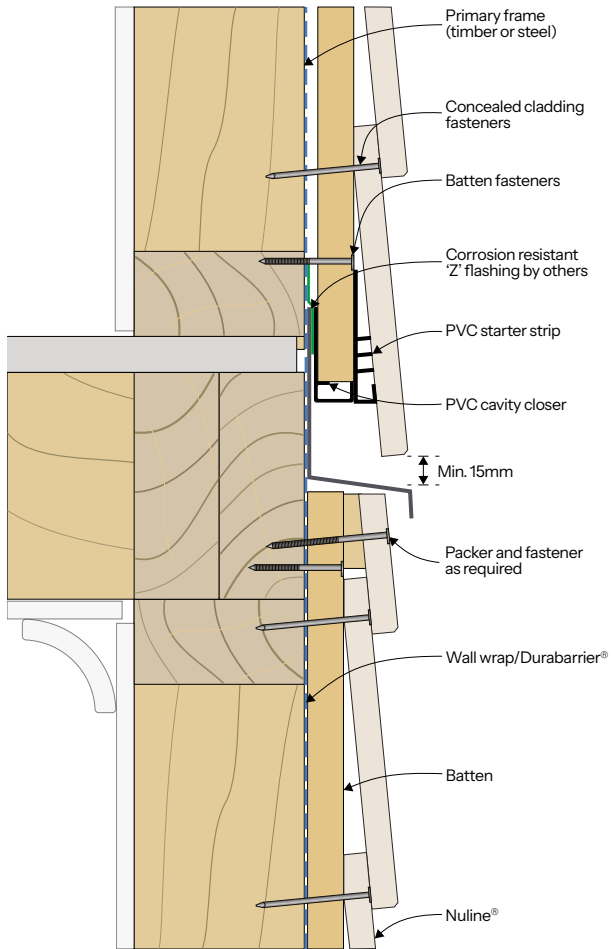
i Avoid fixing Nuline® across midfloor junction

i Suitable up to max. 2 storeys.

Figure 73 Midfloor continuous cladding detail Section

8. Construction Details

8.3 Details



i Horizontal control joint required max. 2 storeys.

Figure 74 Midfloor control joint - drained detail Section

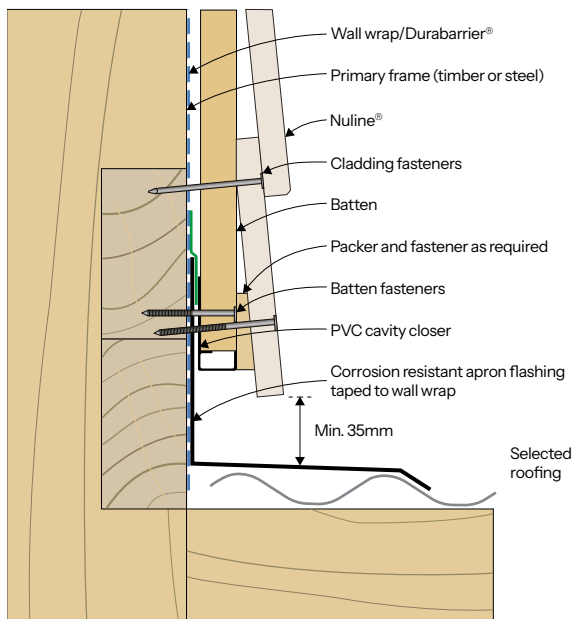


Figure 75 Parallel apron flashing detail Section

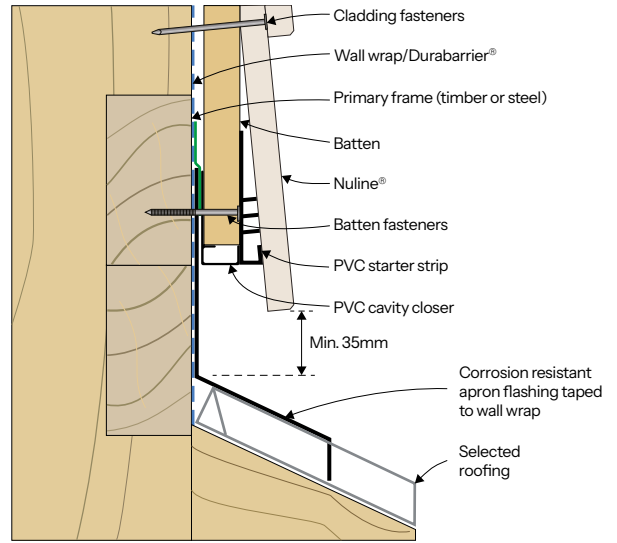


Figure 76 Transverse apron flashing detail Section

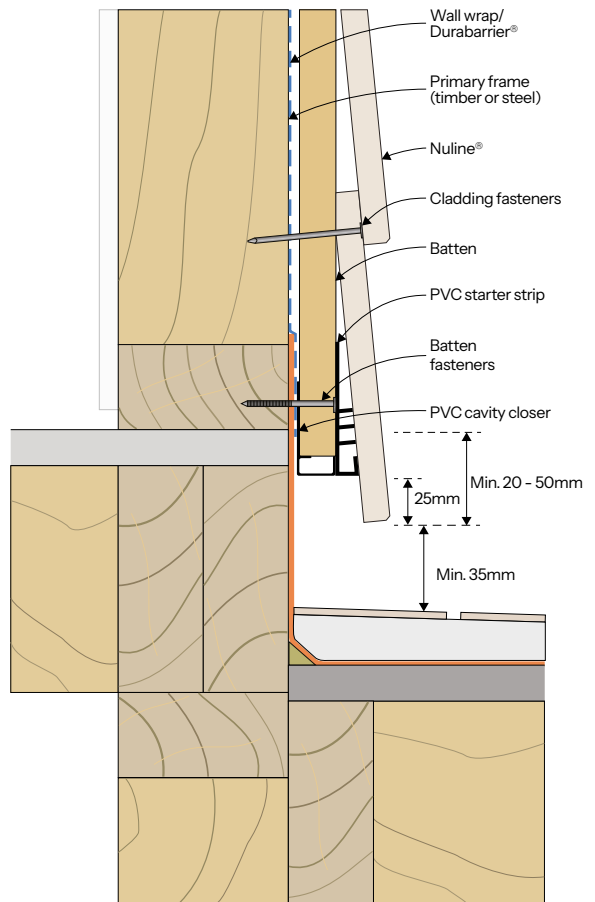


Figure 77 Enclosed Balcony Detail Section

8. Construction Details

8.3 Details

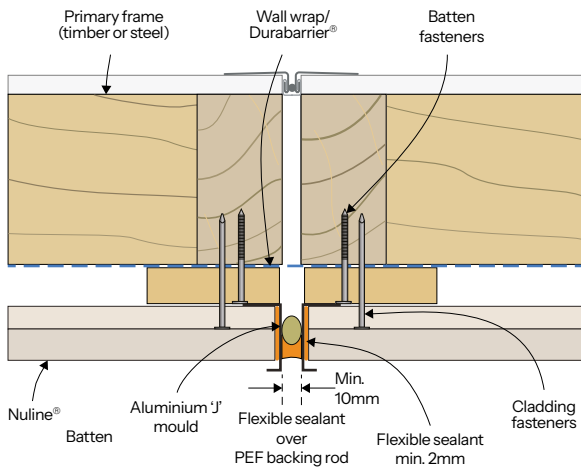


Figure 78 Vertical control joint detail Plan

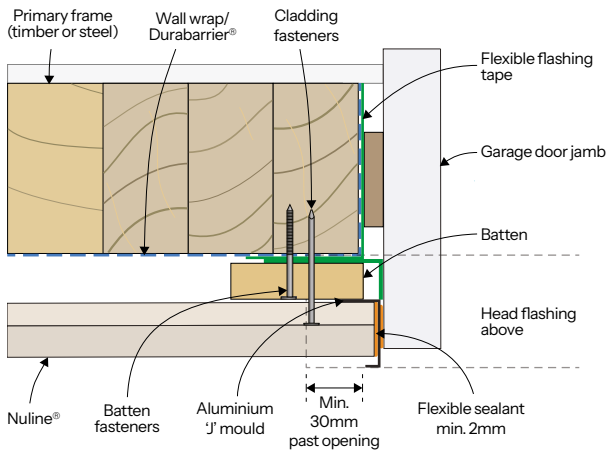


Figure 79 Garage door jamb detail Plan

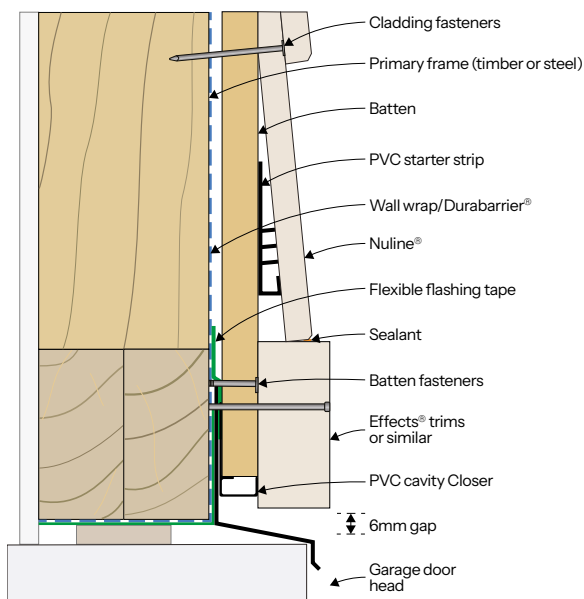


Figure 80 Effects® trims garage door head detail Section

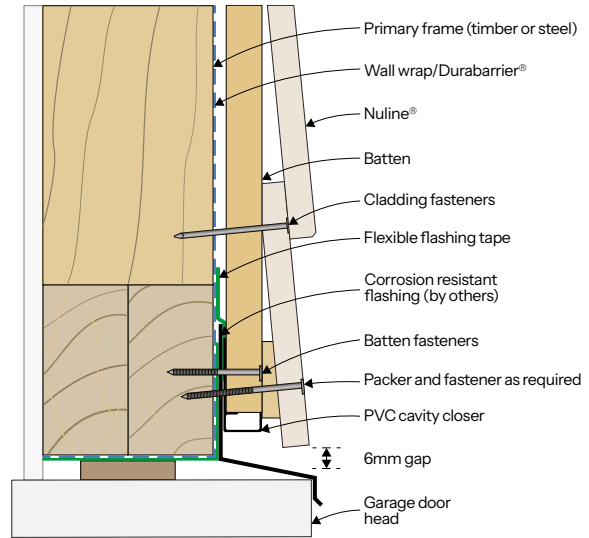


Figure 81 Garage door head detail Section

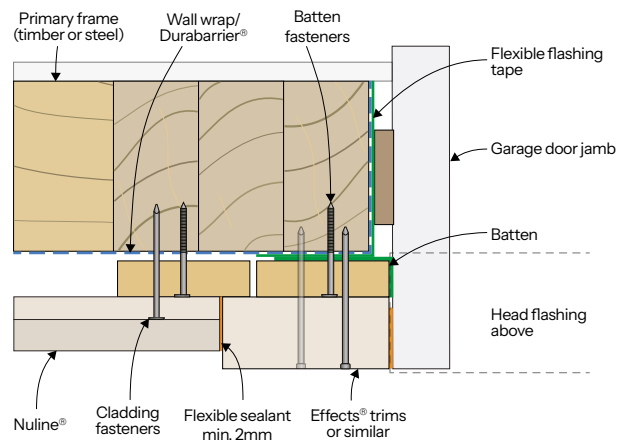


Figure 82 Effects® trims garage door jamb detail Plan

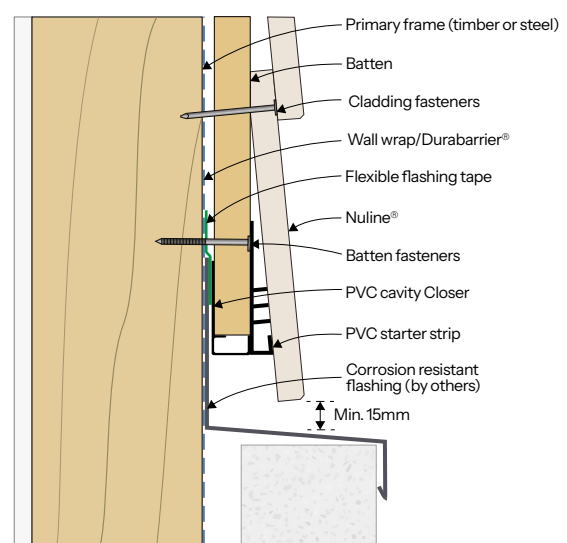



Figure 83 Horizontal junction detail Section

 Lower wall system by others

9. Finishing

9.1 General

Ensure that Nuline® is clean, sound and dry prior to applying the selected coating system.

Innova recommends the application of two coats of a quality acrylic paint over a primer in accordance with the coating manufacturer's instructions within three months following delivery to site. In coastal or corrosive environments, Nuline® must be finished immediately after installation to minimise contamination build up on the surface.

Refer to the coating manufacturer for further information regarding specification, performance and warranty.

Low sheen paint finishes are less reflective than gloss finishes, effectively diffusing light to minimize visible surface imperfections. Select low sheen coatings for optimal results and consult the coating manufacturer to confirm suitable finish options

Nuline® can be painted using dark colours, however, in certain scenarios, this may result in excessive thermal movement within the wall frame that can affect internal and external linings.

Lighter shades are more effective at concealing surface imperfections and absorb less heat, thereby reducing thermal stress on the cladding and wall system.

9.2 Lighting

Unless specifically outlined in the contract specifications, imperfections that are only visible under critical light do not indicate defective materials or workmanship.

Critical lighting, also known as glancing light, occurs when sunlight or intense artificial light strikes a surface at a low angle, typically 15° or less. This low-angle illumination casts shadows from minor surface variations, highlighting imperfections that are less noticeable under diffused lighting.

Externally, critical light is common during early morning or late afternoon when the sun is low on the horizon, typically lasting 30 to 60 minutes. Internally, it may result from intense or angled artificial lighting, which accentuates imperfections on reflective surfaces.

Variations in color, texture, and finish of surfaces, including walls, ceilings, and floors, should be assessed from a standard viewing position. Follow your local state and territories 'Guide to Standards and Tolerances' for the correct viewing position for internal and external walls.

Minor discrepancies in colour and finishing of materials are not considered defects.

9.3 Maintenance

When installed as specified in this guide, Nuline® requires no direct maintenance. To ensure long-term performance, conduct annual inspections to verify surface and structural integrity.

The designer must determine specific maintenance needs based on the project's location, climate, and environmental conditions.

The following outlines recommended routine maintenance tasks to ensure the longevity and performance of the system:

- Clean exterior surfaces every 6 to 12 months using water, mild detergent, a garden hose at low pressure, and a soft sponge.
- Conduct regular inspections to verify that fasteners securely anchor the cladding to the structure.
- Inspect flashings and sealant joints to confirm they continue to function as intended.
- Maintain guttering, downpipes, and overflows, ensuring they remain clear of debris.
- Check ground clearances are maintained.
- Trim vegetation in close proximity to or in contact with the building.
- Follow the coating manufacturer's recommendations on cleaning and recoating procedures.

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