PNGF

Engineered Wood Products

CORECLAD DESIGN AND INSTALL GUIDE

March 2021

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CoreClad Introduction

CoreClad is a superior external plywood cladding that provides a sophisticated external appearance for residential and commercial buildings with superior strength, durability and reliability. Manufactured from 100% sustainable plantation pine CoreClad utilizes the veneer preservation treatment method to ensure complete protection from termites and fungal decay (rotting). Veneer treatment is the only way to ensure any unsealed cut panels will not decay.

Features and Benefits

- 100% Plantation pine
- Manufacture using hydro-electric power
- Lightweight and easy to install
- Treated to H3 with Alkaline Copper Quaternary (ACQ)
- Offers diverse design scope including curved walls
- Suitable as bracing when nailed correctly
- Interlocking shiplap joining system
- Long lasting and durable external surface.

Scope & Limitations of Use

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Design Responsibility

Design responsibility lies with the building owner and the professionals that they engage. The specifier for the project must ensure that the details in the specification for each individual projects are appropriate and of sufficient detail for the intended application. The specifier must also ensure that detailing is provided for specific design or any areas that fall outside the scope and specifications of this literature. It is the specifier’s responsibility to ensure that all products are fit for purpose, and compatible with each other.

Literature Scope

The information and details contained in this guide are intended for cavity wall construction only. CoreClad can be used for those structures which fall within the scope of the NCC 2019 Building Code of Australia Volume Two Amendment, however may not be suitable for construction of buildings in bush fire prone areas. CoreClad is recommended for a drained and ventilated cavity, where the cladding is fixed onto timber battens, frame with a highly breathable wall underlay.

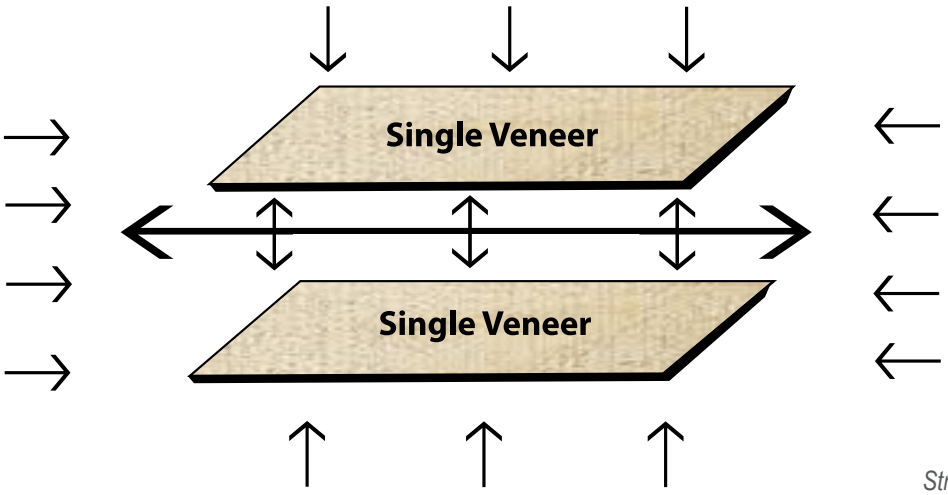
Treatment & Product Certification

ACQ Treatment - Treated to the Core

Veneer treatment method is where the individual sheets of veneer are preservative treated before being fabricated into plywood to ensure 100% penetration. ACQ is formed when the components of copper oxide and quaternary ammonium compounds are combined, becoming effective in protecting timber against fungal decay, borers, and termites. ACQ contains higher levels of copper than other preservatives, which means it can be more corrosive to metals. Stainless steel fixings and stainless steel or PVC flashings must be used to minimise the possibility of bi-metallic corrosion.

Structural Bond

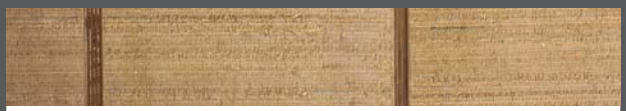
The treated veneers are then bonded with a permanent phenolic resin which is often referred to as “A” bond or Marine “A” or Structural bond. Structural “A” bonds require rigorous testing after submersion in boiling water for 72 hours or 6 hours under high pressure steam to ensure a high-quality bond.



Structural Bonding

Quality & Product Certification

PNG Forest Products Engineered Wood Products are certified by the Engineered Wood Products Association of Australasia (EWPAA) and carry the EWPAA JAS-ANZ brand. The EWPAA operates a Type 5 third party product certification scheme that is accredited by the peak accreditation body JAS-ANZ. This means that any product branded with the EWPAA JAS-ANZ brand has been manufactured under an accredited third party audited, process-based quality control program that ensures the product meets the intended design criteria.



PRODUCT CERTIFIED

paa ENGINEERED WOOD

JAS-ANZ

www.jas-anz.org/register

Specification Chart

Surface Finish	Band sawn or Band sawn with channel grooves
Channel Dimensions (Grooved panel only)	9mm wide 5mm deep at 150mm centres
Sheet Length	2440mm, 2745*mm & 3050*mm
Sheet Width / Cover	1220mm (sheet), 1200mm (cover)
Sheet Thickness	12mm
Face Back Grade	SD
Veneer Species	Hoop & Klinkii Plantation Pine
Approximate Weight	23 Kg (2440mm), 26kg (2745mm), 29Kg (3050mm)
Preservative Treatment	ACQ (Alkaline Copper Quaternary) H3 by individal veneer
Bond Type	“A” Bond (Phenol Formaldehyde)
Manufacturing Standard	AS/NZS 2269 and AS/NZS 1604.3

Scarf Joint

Scarf jointing is a standard method of joining two panels end to end, and is used to manufacture CoreClad in longer lengths. The scarf is used to join 2440mm long sheets with either a 300 or 600mm extension to produce 2745 or 3050mm length sheets.

The CoreClad scarf joint is fabricated in accordance with AS/NZS 2269 with a 1 in 8 slope join using the same bond durability and quality as the component plywood. The scarf joint has a visible glue line going across the panel and the two sections may have colour differences.

*2745mm and 3050mm long panels are Scarf jointed

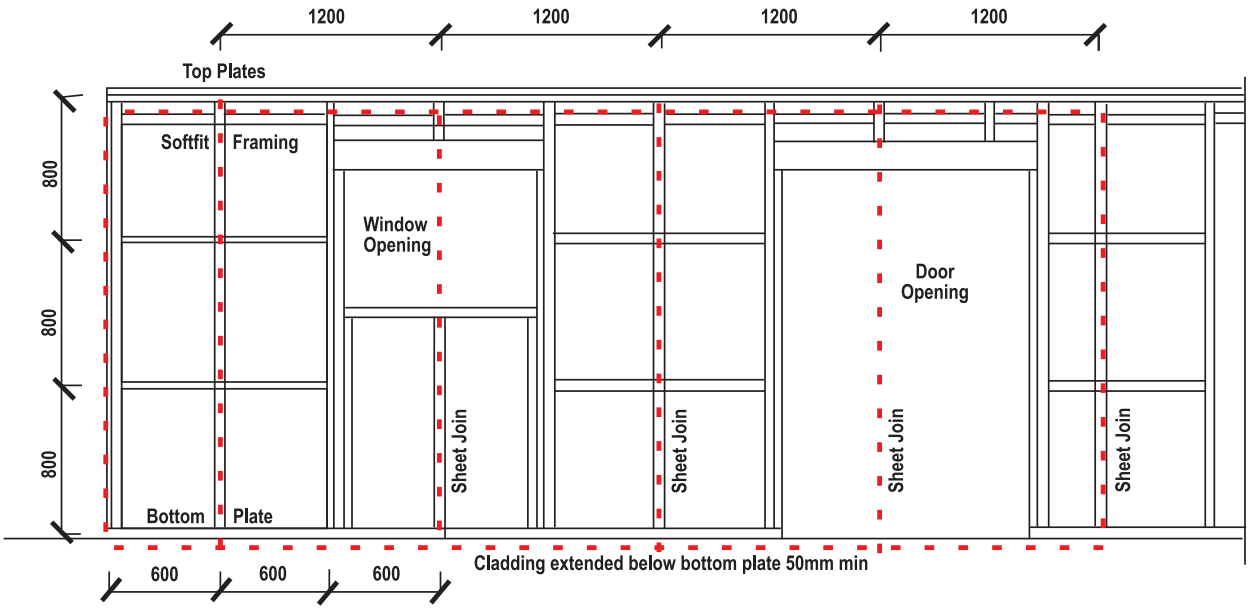
Scarf Joints

Framing

Use kiln dried framing in accordance with timber framing manufacturer's specifications. Timber frame sizes set out,stud and nog centres must comply with AS 1684.2 (or specifically designed to AS 1720.1) In particular:

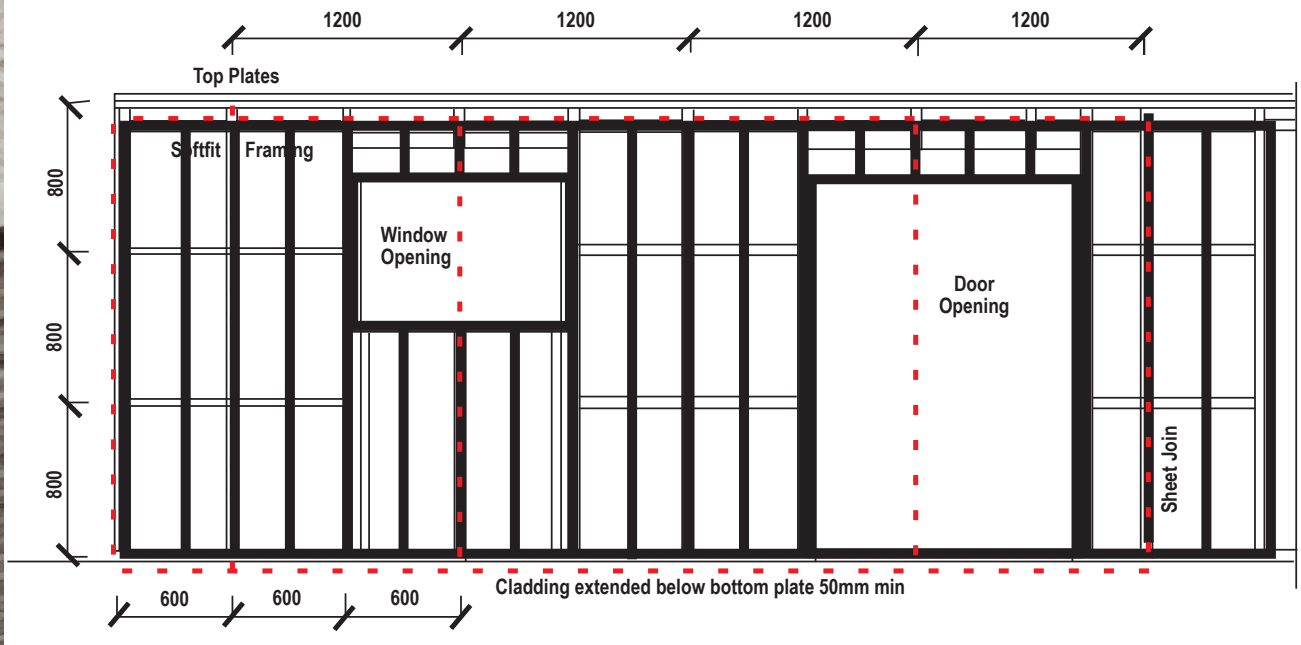
- Fully support all CoreClad edges by framing.
- Studs must not exceed 600mm centres.
- Single spans of CoreClad shall not exceed 600mm.
- Nogs must be provided at a maximum of 800mm centres.
- An extra stud is required at internal corners for ventilated cavities.
- Framing must be kept as dry as possible at all times.

Typical framing layout without battens



Studs @ 600mm max

Typical framing layout with battens

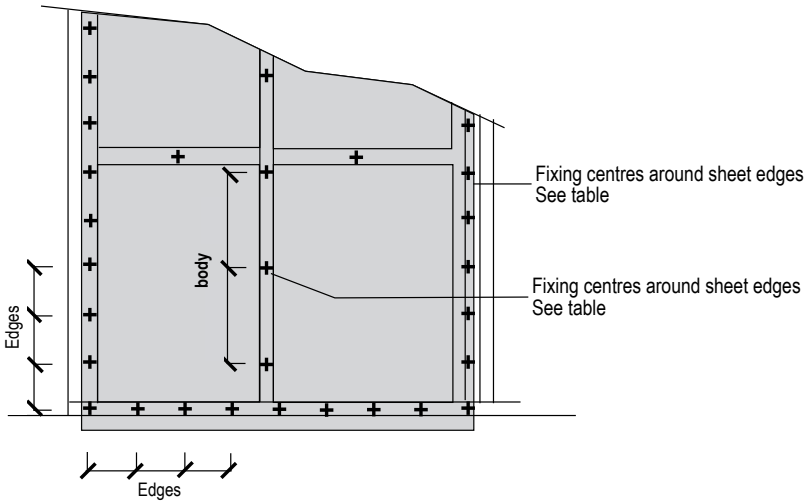


Studs @ 600mm max

Fixing

The NCC specifies fixings for plywood cladding which vary with wind speed. Cyclonic areas C1 to C3 need to be a performance solution i.e. engineer designed while areas N1 to N3 are specified in Table 3.5.4.5. (extract below)

Fixing



NCC Table 3.5.4.5 Stud and fixing spacings for plywood wall cladding equal to or greater than 6.5 mm thick

Design wind speed	Maximum stud spacing (mm)	**Maximum nail spacing within 1.2m of the external corners of the building (mm)** Note 1	**Maximum nail spacing elsewhere (mm)** Note 1
N1	600	Body: 200 Edges: 100	Body: 200 Edges: 150
N2	600	Body: 200 Edges: l00	Body: 200 Edges: 150
NS	600	Body: 150 Edges: 100	Body: 200 Edges: 150

NCC Notes to Table 3.5.4.5:

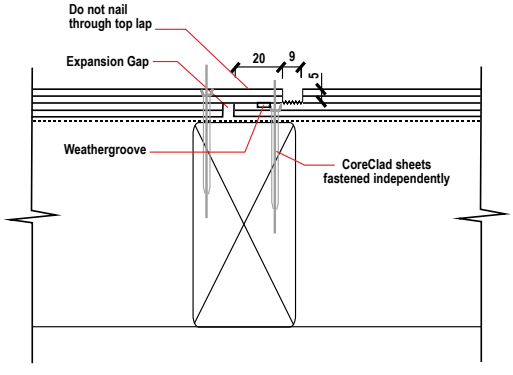
1. Maximum nail spacing using 2.8 or 3.5 mm galvanised clouts or flat head nails*.
2. Fixings must be positioned a minimum of 12 mm from the edge of the sheet and not less than 50mm from the edge of all corners.
3. Fasteners must penetrate not less than 30 mm into the timber frame.
4. Wall cladding may be fixed through timber or metal battens attached to the wall frame in accordance with AS 1684.2, AS 1634.3, AS 1684.4 or NASH standard as appropriate (see fixing required for roof battens) so long as the minimum penetration into the wall frame is achieved.

* As specified below, galvanised fixings are not permitted with CoreClad.

Fixing Notes

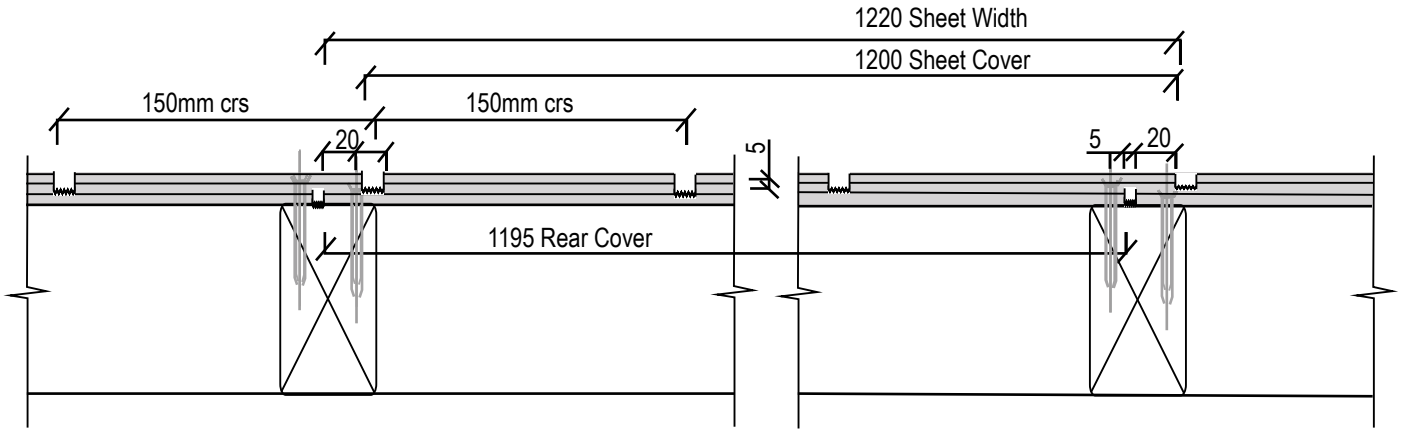
- Galvanised fixings are not permitted; all fixings must be stainless steel.
- All sheet edges must be supported by wall framing.
- CoreClad sheets must be installed vertically.
- Do not fix through the grooves.
- Fixings are to be driven flush with the surface; do not over drive fixings.
- Only fix to cavity battens that are located over wall framing to avoid damage to building wrap.
- Fixings to be no closer than 7mm to sheet edges.
- Do not fix through the top lap or weather groove of the shiplap.

Sheet Profile



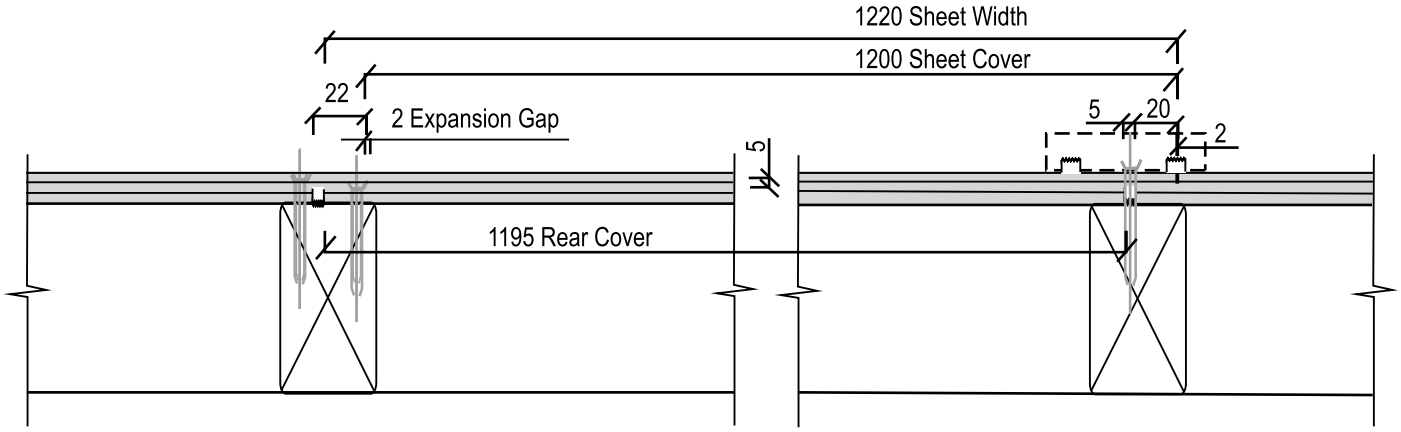
Sheet Dimensions

Grooved Sheet Dimensions



Ungrooved Sheet Dimensions

With optional batten



Building Underlay

A building underlay compliant with AS/NZS 4200.2 “Pliable Building Membranes and Underlays - Installation” or an alternative solution rigid air barrier, must be installed in accordance with the respective manufacturer’s recommendations over framing prior to cladding installation. Barriers to air flow are required for both direct and cavity construction.

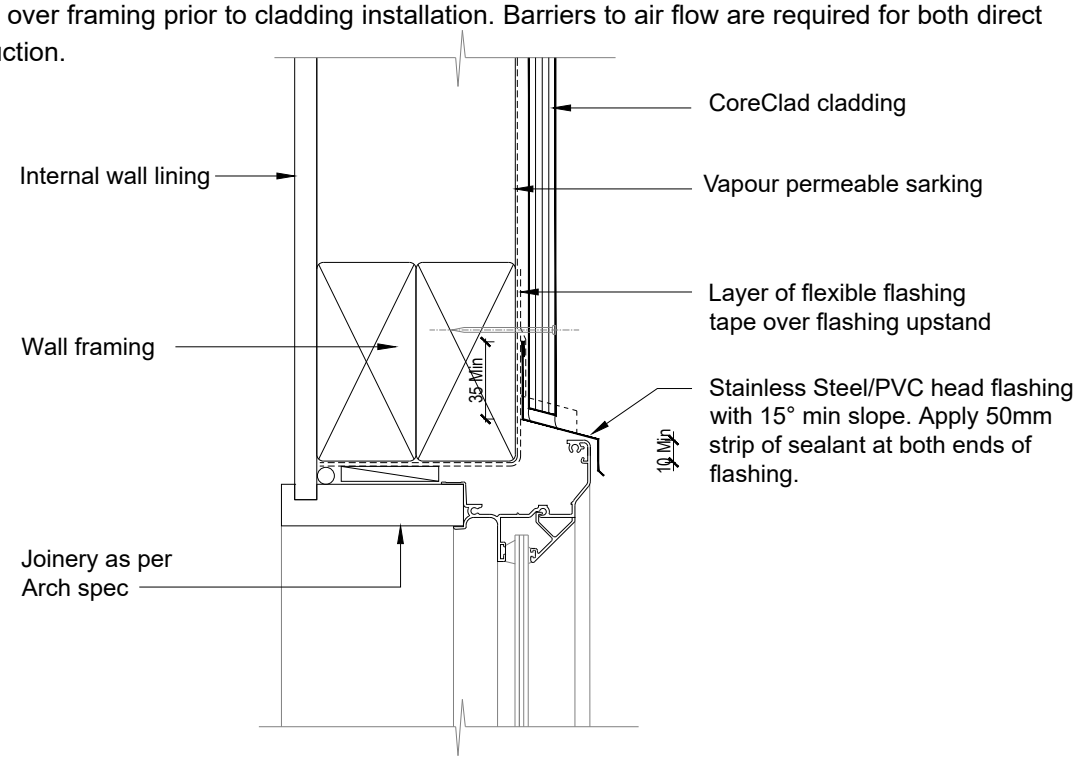
Flashings

Stainless steel or PVC flashings as a minimum, are to comply with the performance requirements of the NCC 2019, Building Code of Australia - Volume Two and be compatible for use with ACQ treated plywood. It is the Designer’s responsibility to ensure that any flashings are fit for purpose and compatible with CoreClad products and any other building materials or components of the exterior wall. Stainless steel or PVC flashings must be used with CoreClad to minimise the possibility of bi-metallic corrosion.

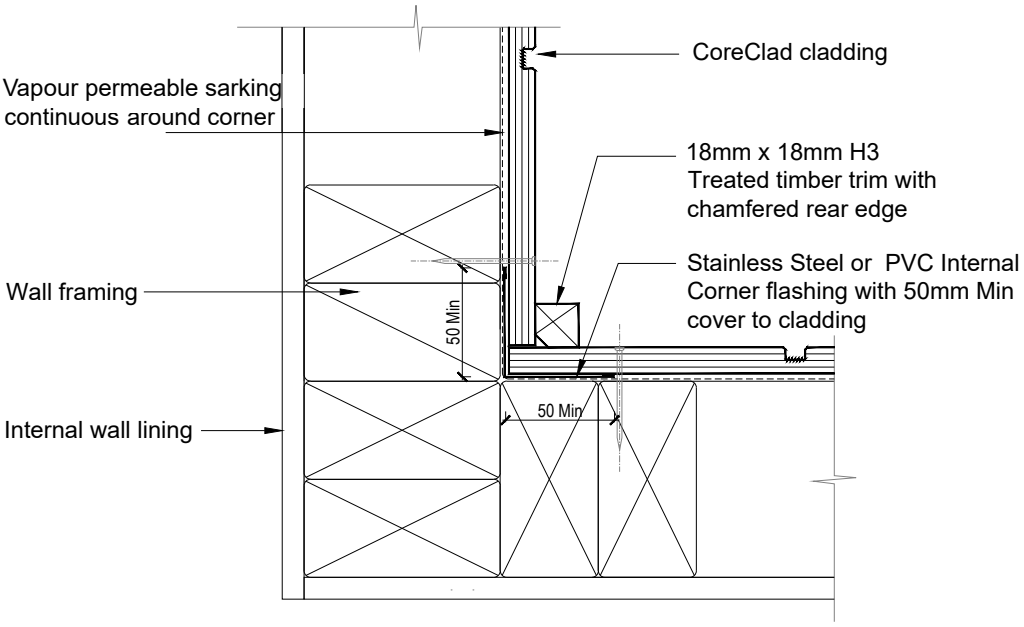
Installation Details Direct Fixed

Direct Fix

A building underlay compliant with AS/NZS 4200.2 “Pliable Building Membranes and Underlays - Installation” or an alternative solution rigid air barrier, must be installed in accordance with the respective manufacturer’s recommendations over framing prior to cladding installation. Barriers to air flow are required for both direct and cavity construction.

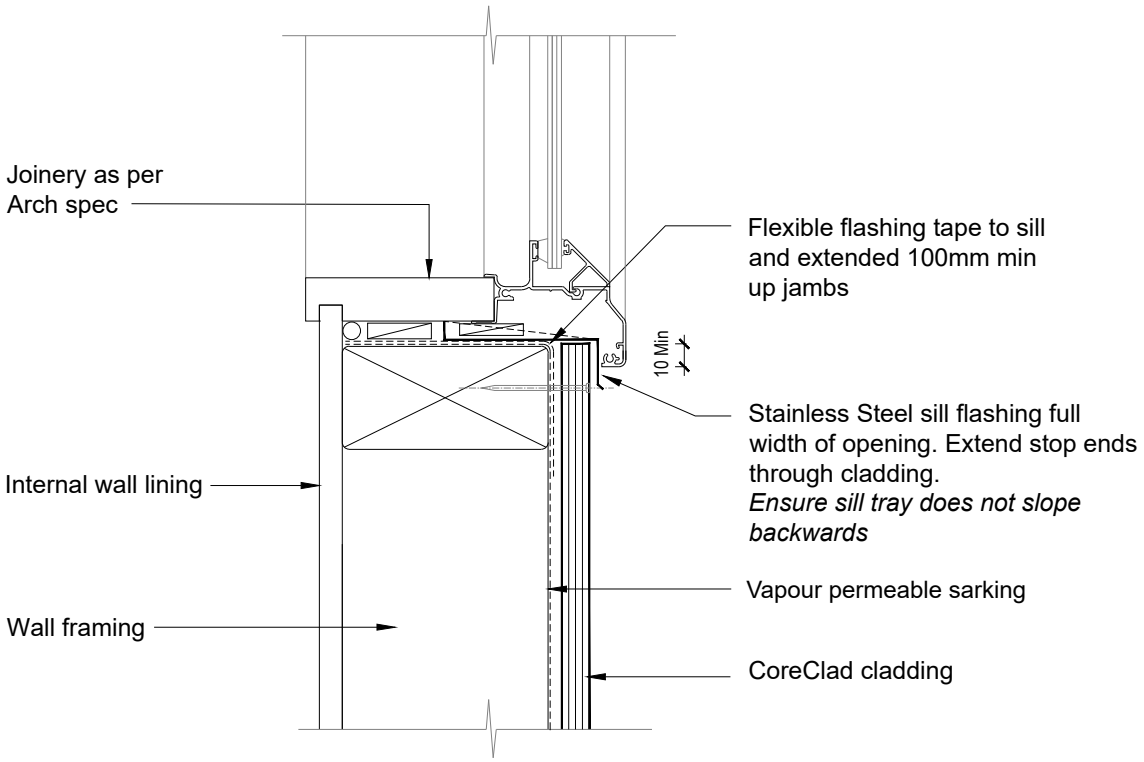


CoreClad Internal Corner

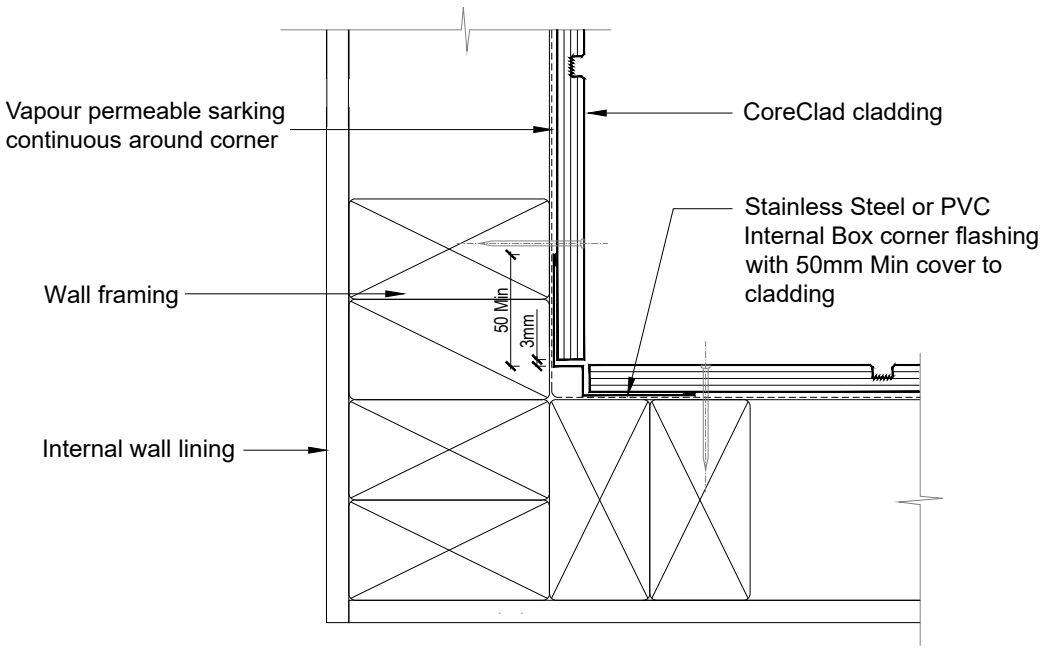


Installation Details - Direct Fixed - Cont.

CoreClad Window Sill Detail

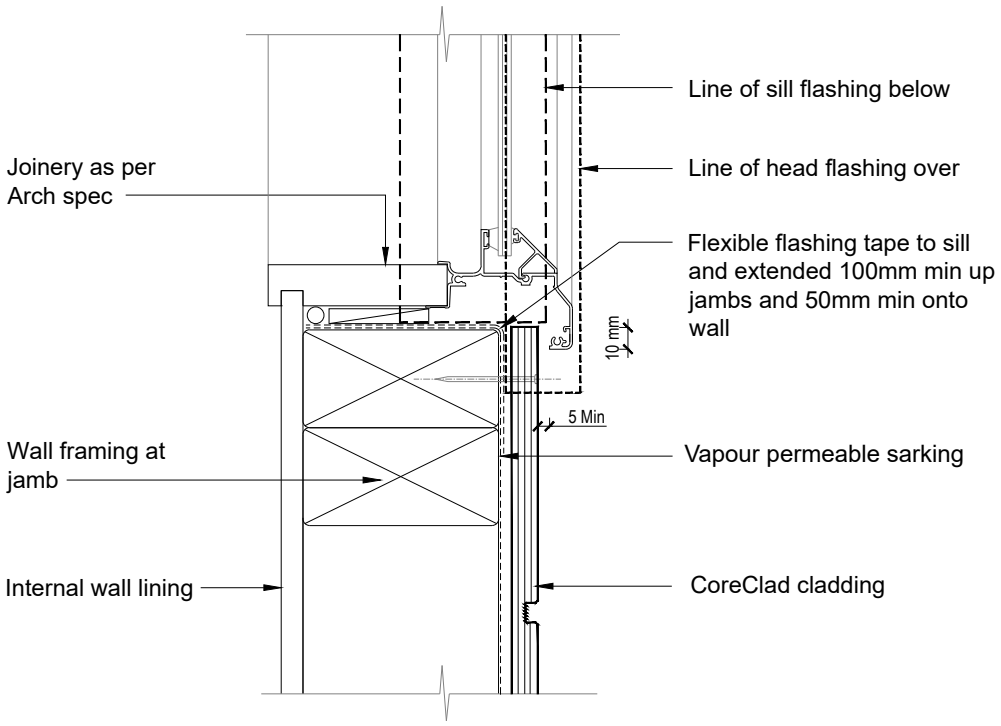


CoreClad Internal Corner -"W"Flashing

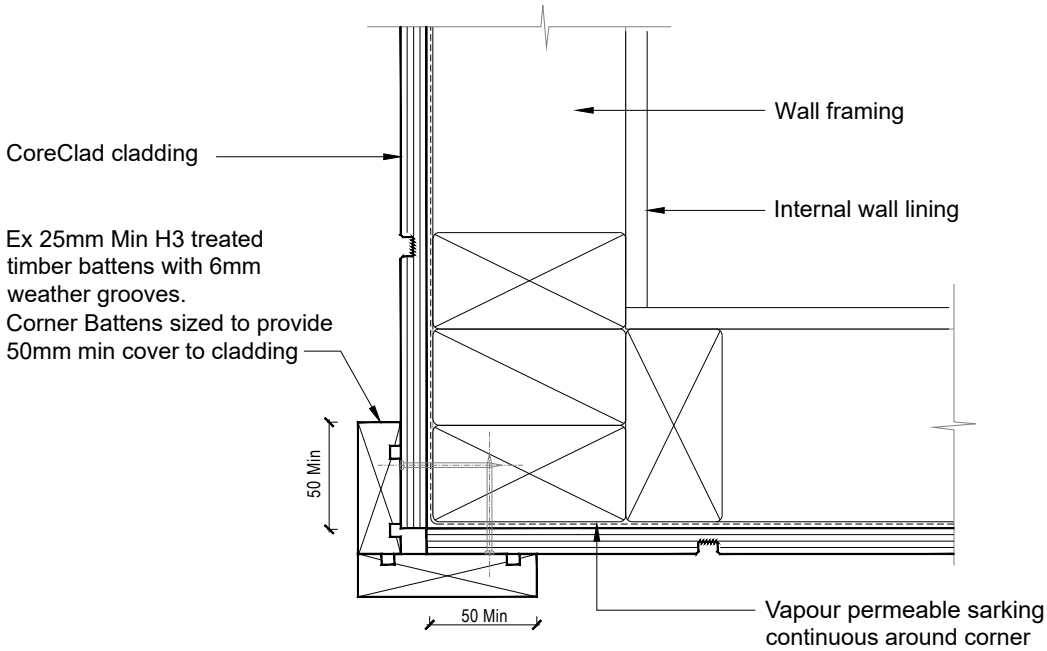


Installation Details - Direct Fixed - Cont.

CoreClad IWindow Jamb

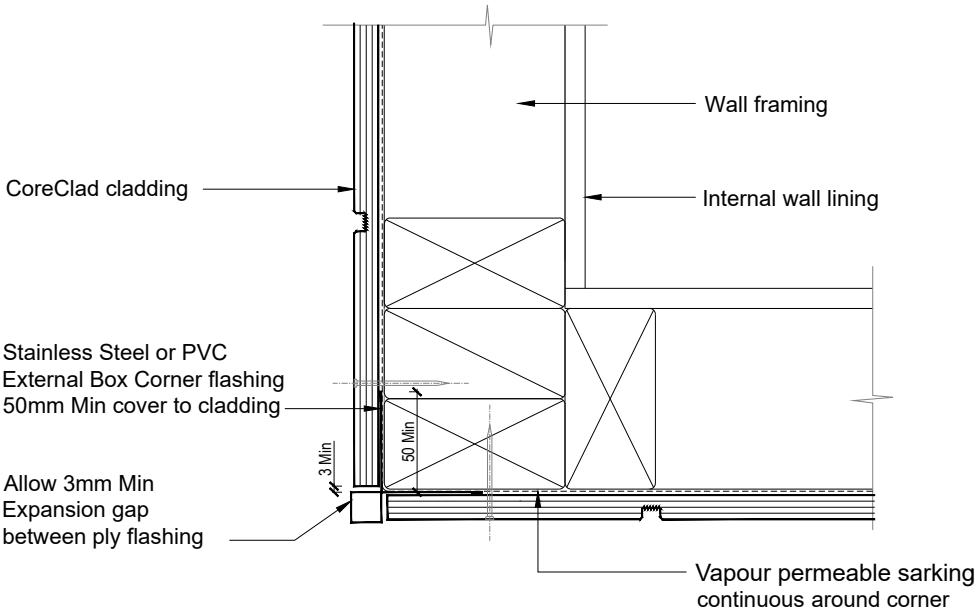


CoreClad External Corner - Battened

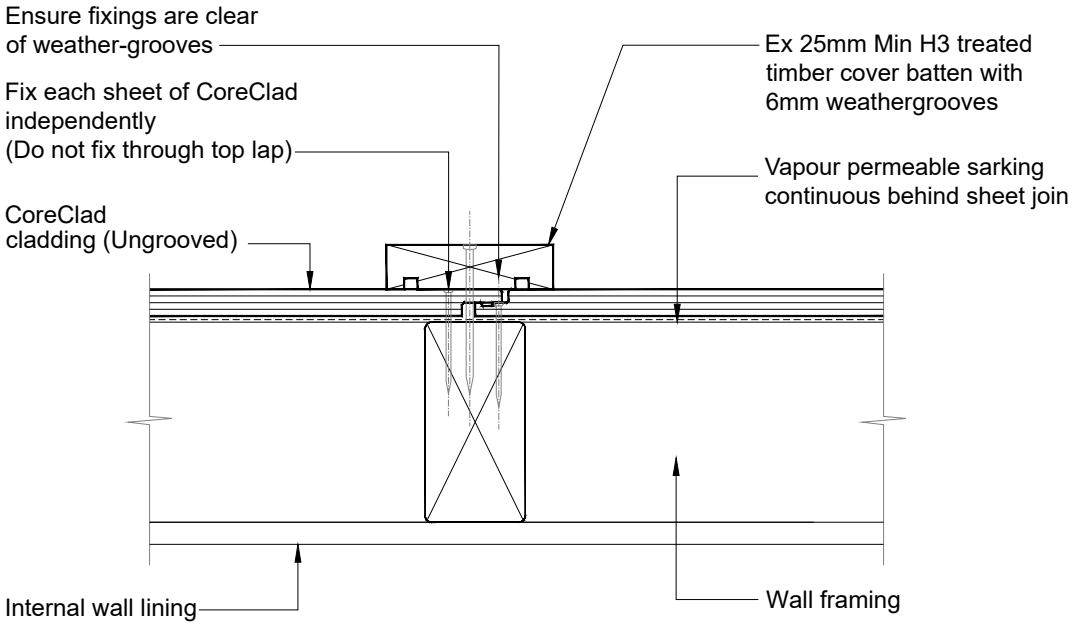


Installation Details - Direct Fixed - Cont.

CoreClad External Corner - Box Flashing

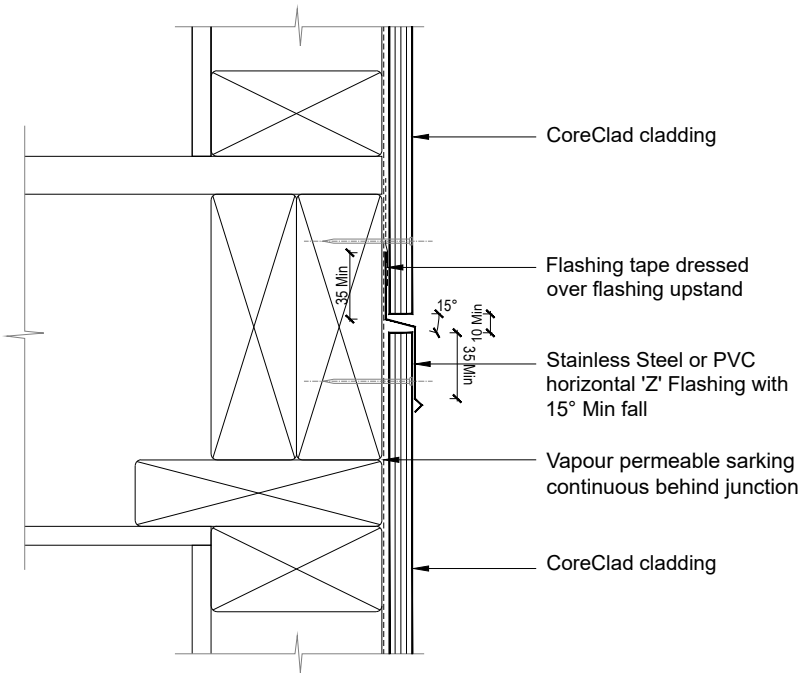


CoreClad Verrtical Sheet joint - Battened

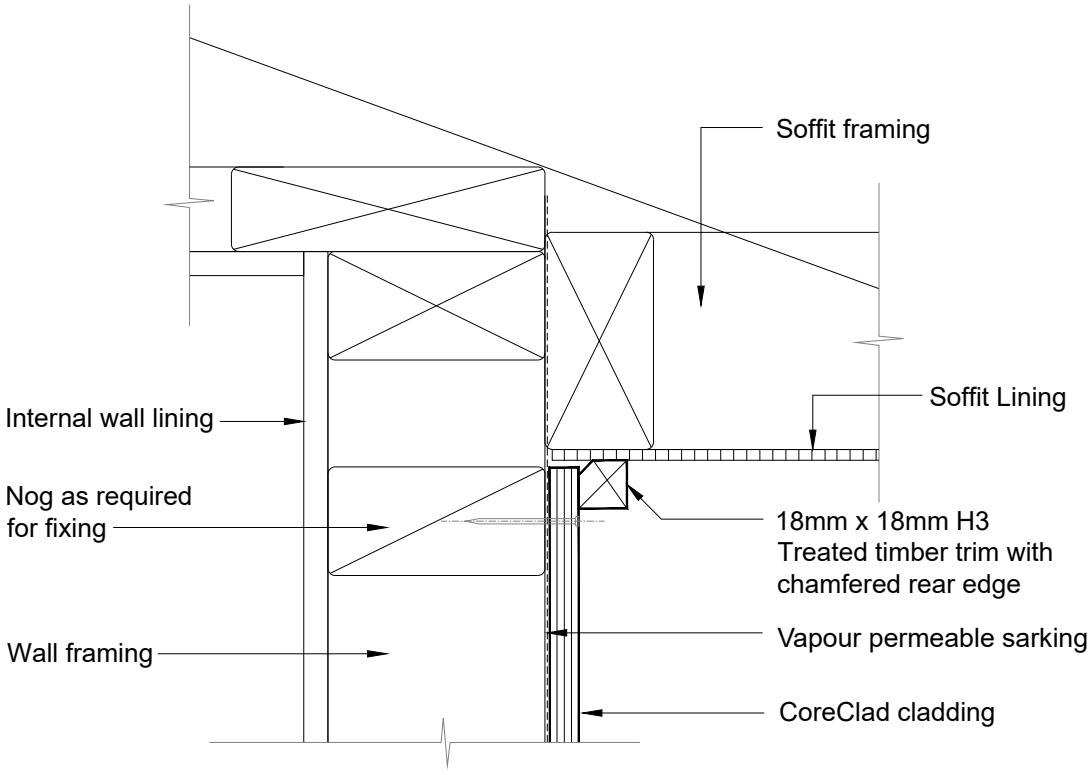


Installation Details - Direct Fixed - Cont.

CoreClad Horizontal Junction

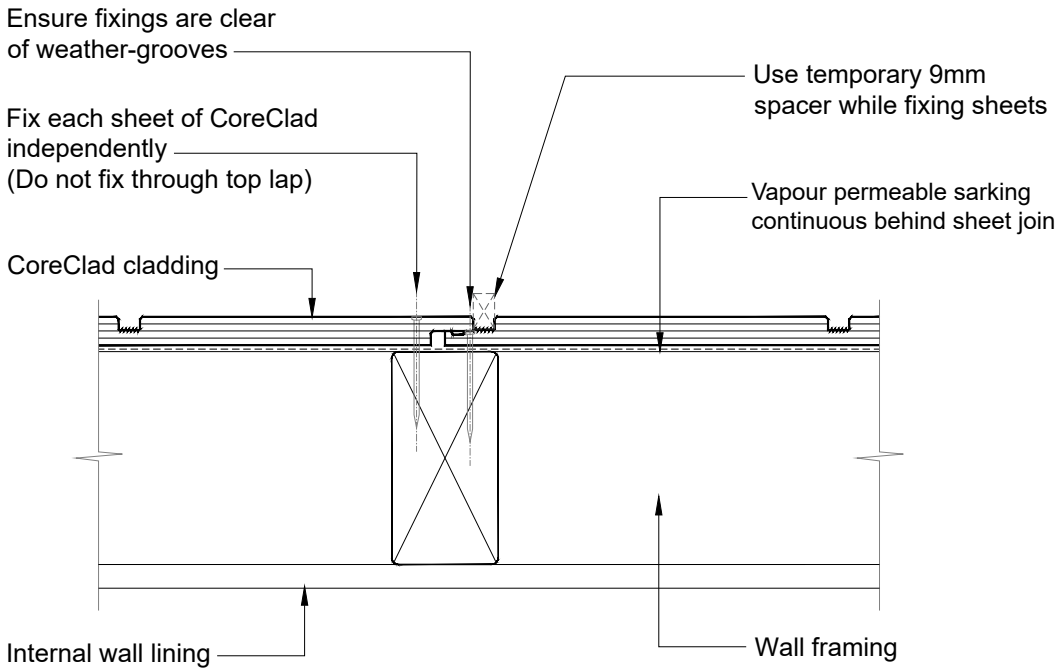


CoreClad Soffit Junction

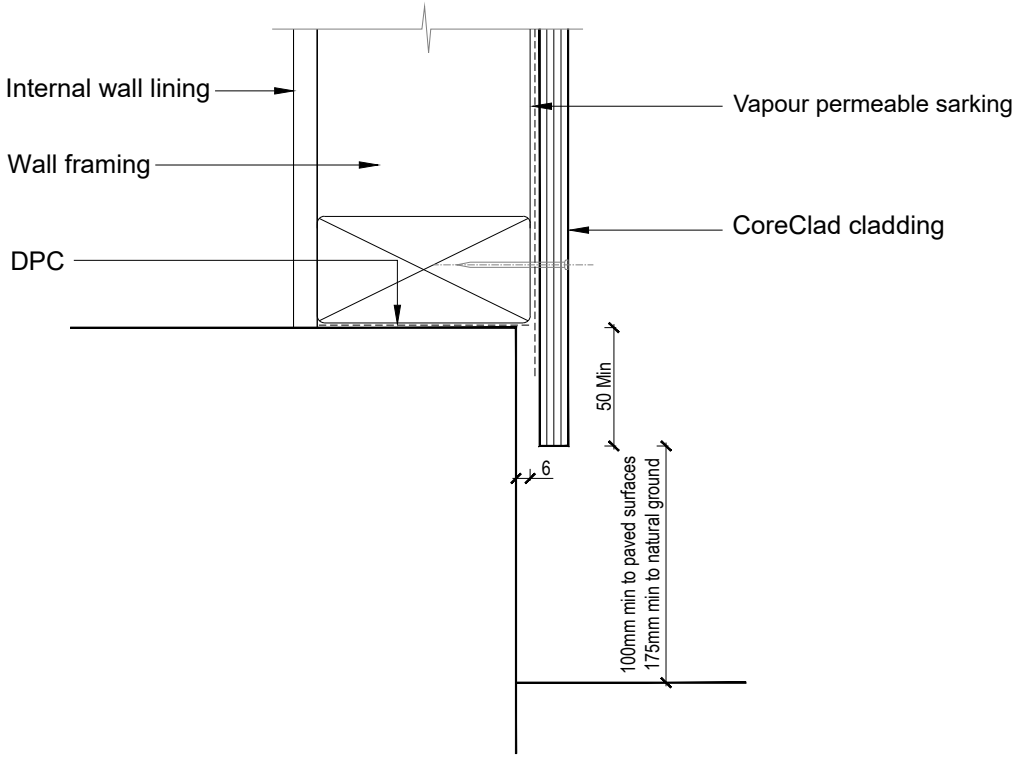


Installation Details - Direct Fixed - Cont.

CoreClad Vertical Sheet Joint

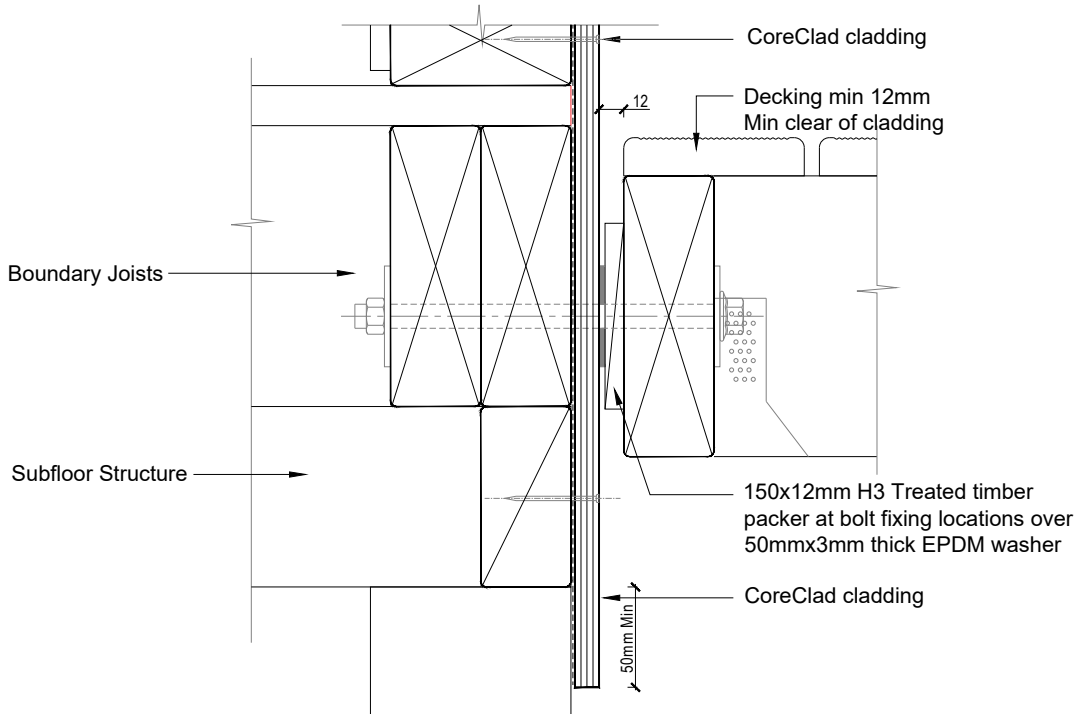


CoreClad Cladding Base of Wall

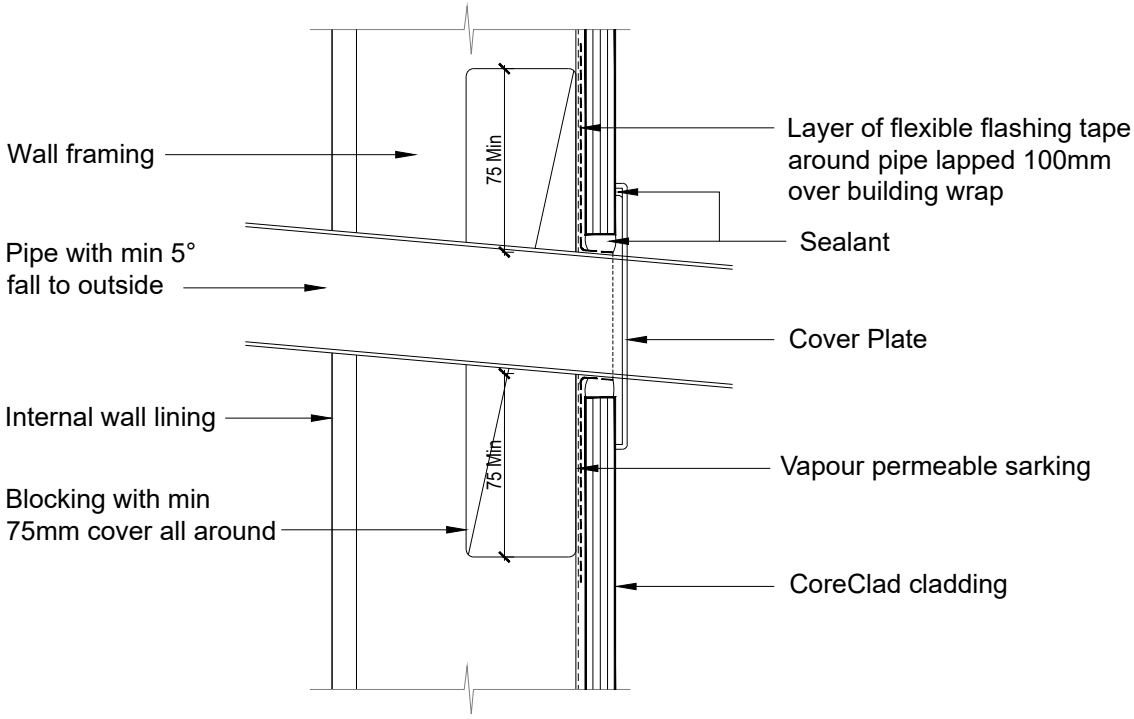


Installation Details - Direct Fixed - Cont.

CoreClad Deck Connection Detail



CoreClad Pipe Penetration Detail

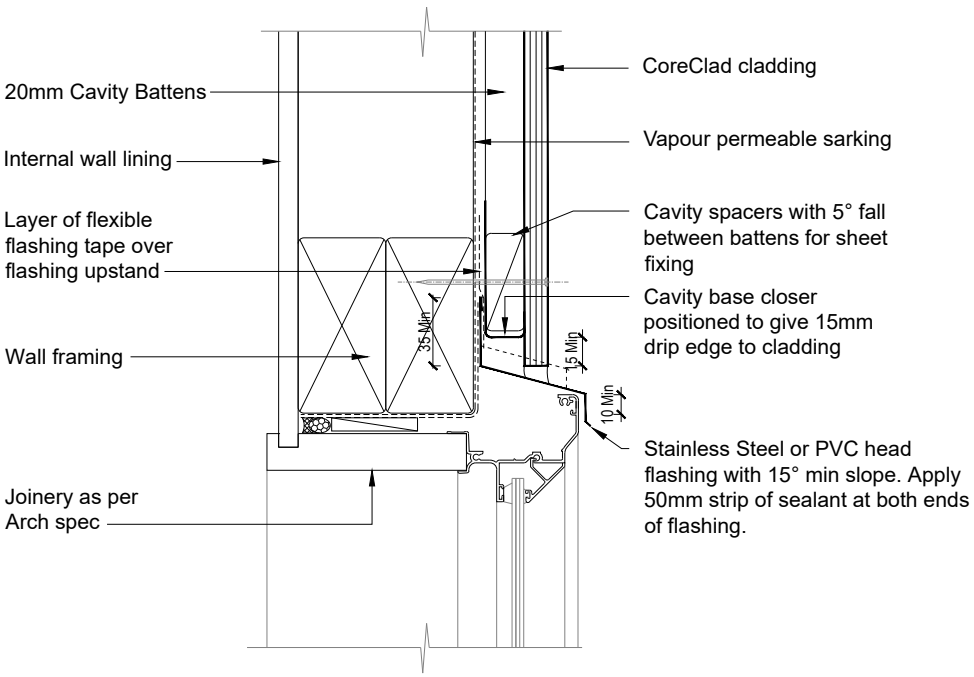


Installation Details - Cavity Construction

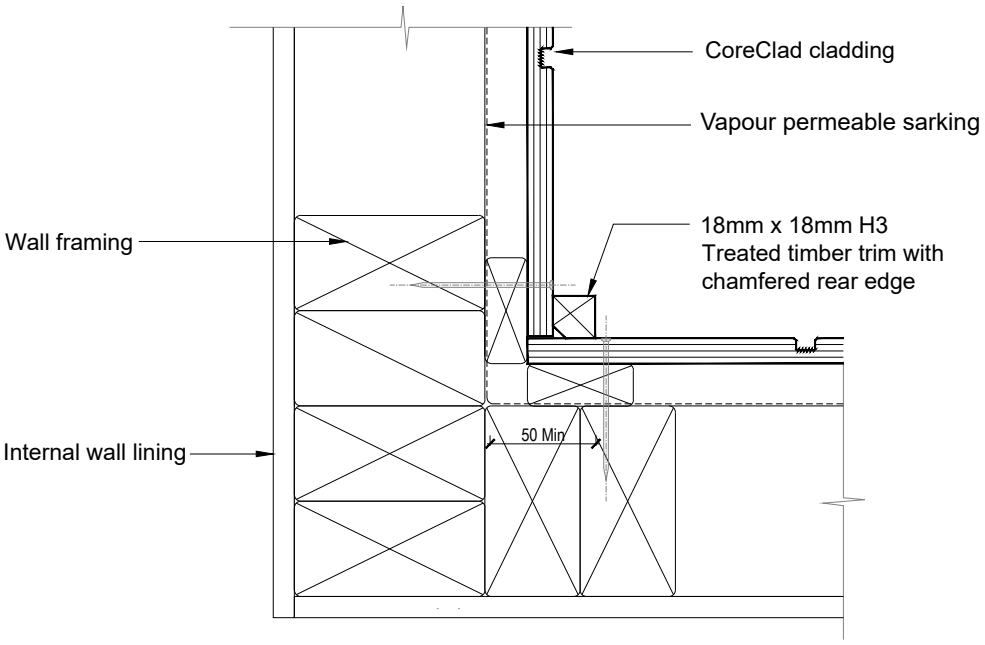
Cavity Construction

A building underlay compliant with AS/WAS 4200.1 and “Pliable Building Membranes and Underlays - Installation” or an alternative solution rigid air barrier, must be installed in accordance with the respective manufacturer’s recommendations over framing prior to cladding installation. Barriers to air flow are required for both direct and cavity construction.

CoreClad External Window Head Detail

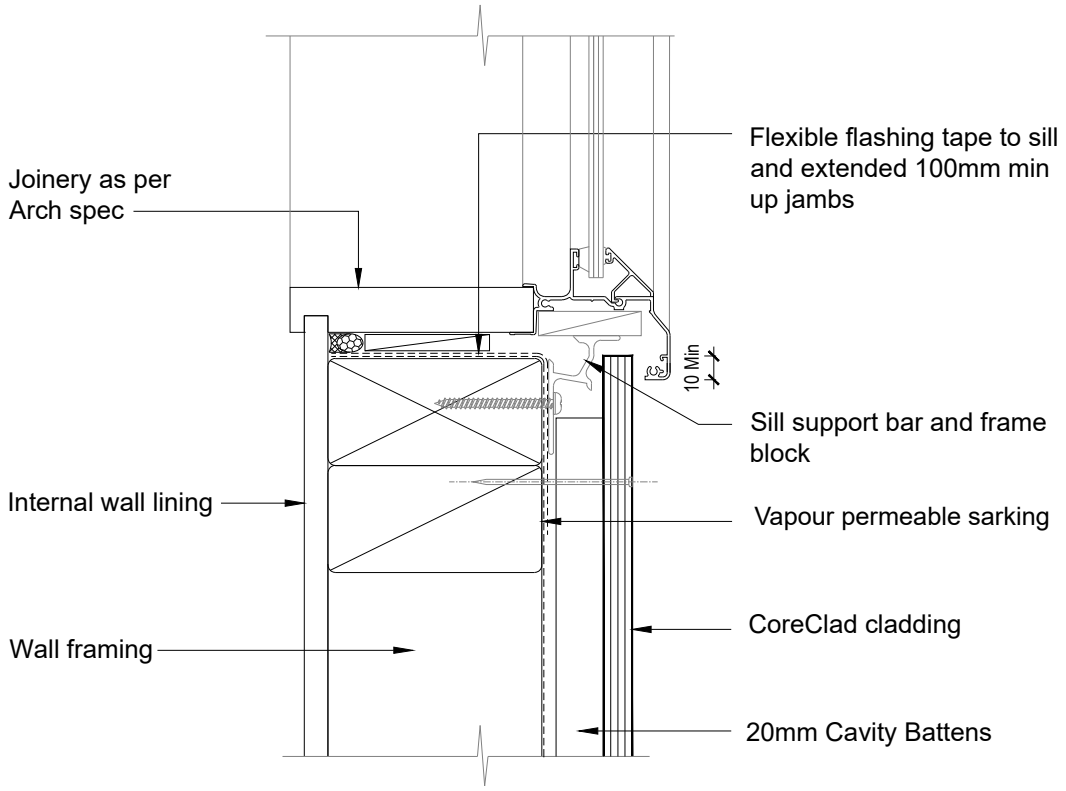


CoreClad Internal Corner

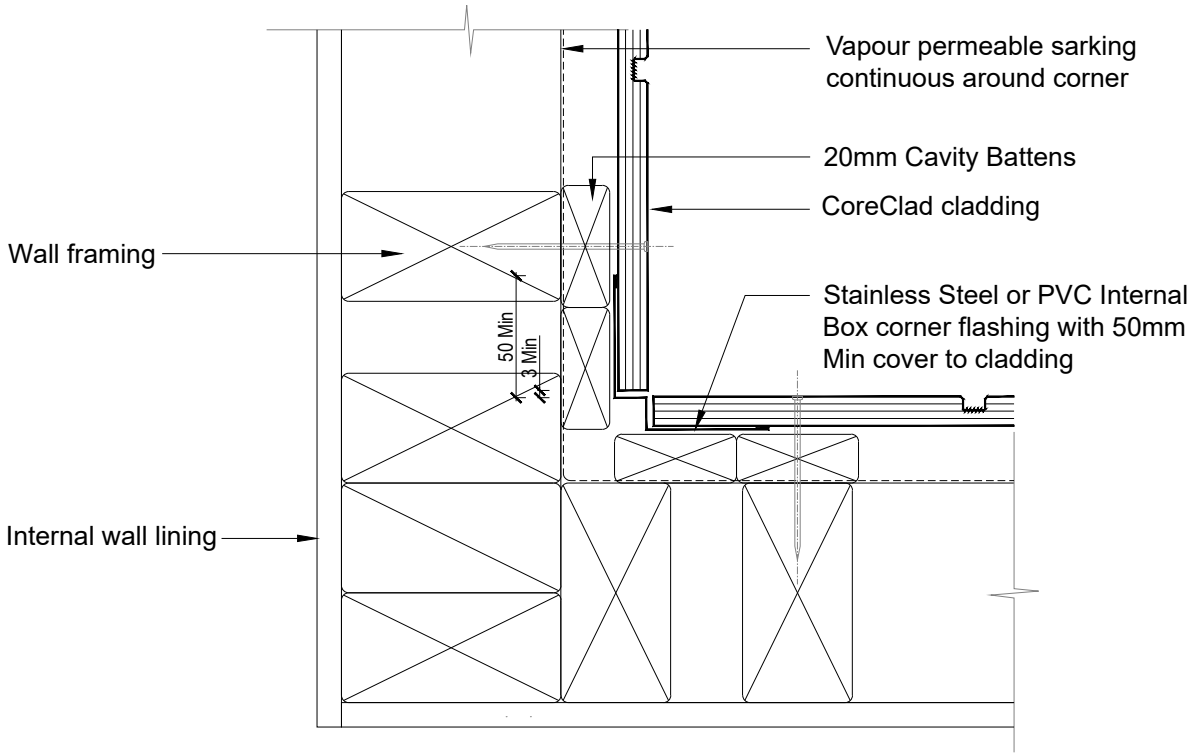


Installation Details - Cavity Construction

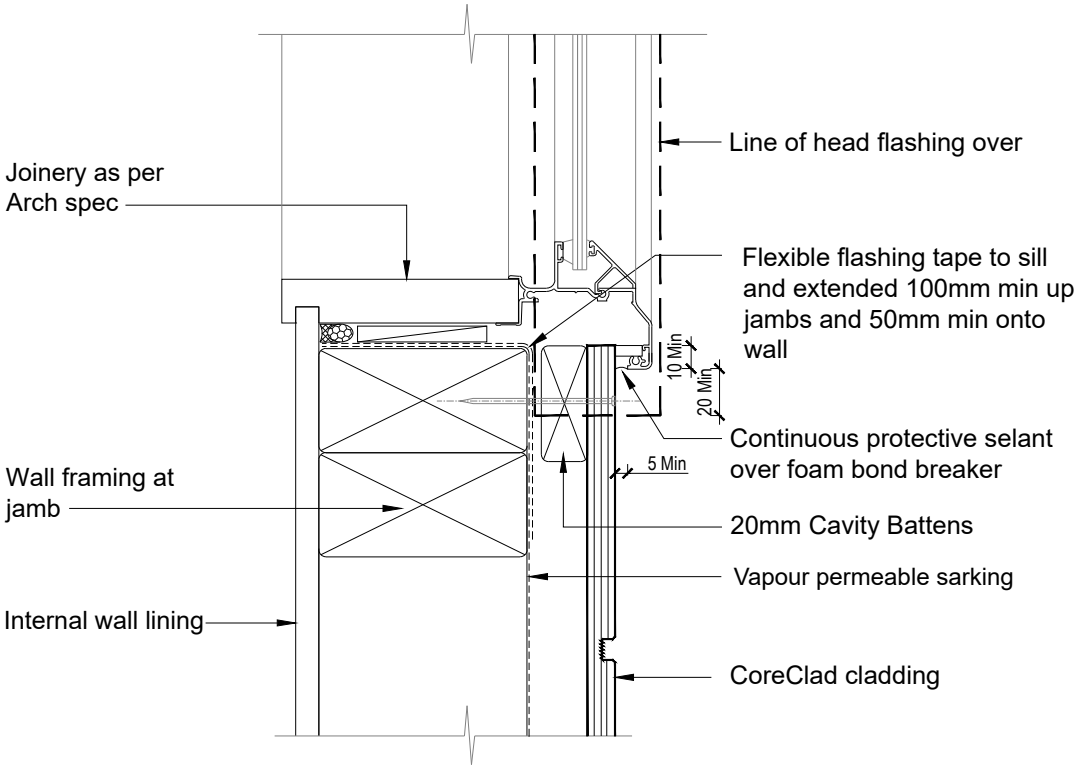
CoreClad Window Sill Detail



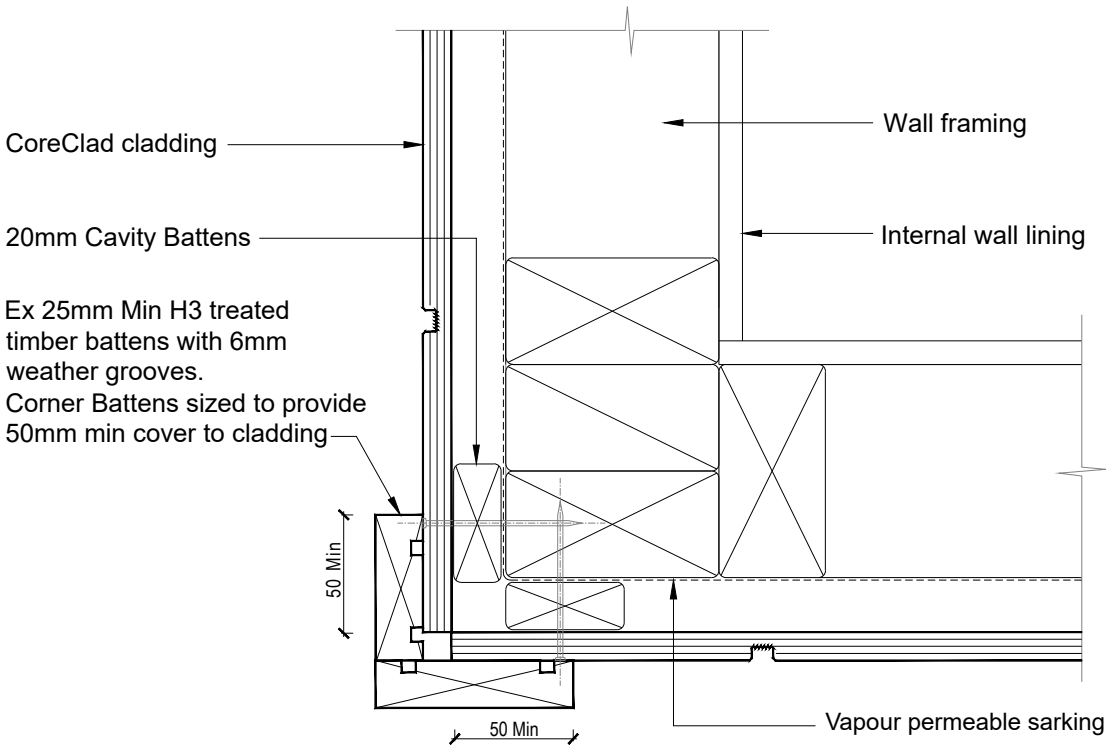
CoreClad Internal Corner - W Flashing



CoreClad External Window Jamb Detail



CoreClad External Corner- Battens



Durability & Coating

Durability

The durability level of CoreClad is dependent upon the application and coating applied. PNGFP does not recommend CoreClad be left uncoated when used as an exterior cladding. The Australian Building Codes Board (ABCB) guideline document, Durability in Building, requires cladding to achieve a minimum structural durability level of 15 years. Detailing, treatment and installation methods need careful consideration to satisfy these requirements contained on the ABCB guidelines document, Durability in Building.

CoreClad coated with stains or paints *(regardless of colour choice)* will meet this requirement.

Coating

The selection of the right coating is important and needs to take a number of factors such as the level of protection, durability and the frequency of maintenance into consideration. It is important to note that specifically with CoreClad 2745mm and 3050mm length sheets, the scarf joint has a visible dark line going across the panel and the two sections may have colour differences.

An important part of selecting a colour is understanding the colour's Light Reflectance Value (LRV). LRV refers to how light or dark a paint colour will look on a scale of 0 (black) to 100 (white). The higher the LRV number is, the lighter the colour is. The lower the LRV number, the darker the colour. The LRV recommended for CoreClad is greater than 40.

Any colour with an LRV less than 40 is not recommend for CoreClad and runs the risk of reducing the durability and lifespan of the panel.

- Using colours with an LRV of less than 40 i.e. dark colours, homeowners can expect an increased level of coating maintenance over the life of the cladding when compared to using lighter colours.
- In addition, using darker colours increases the risk of issues such as face checking.

Coating Options

Paint (Recommended) To provide the highest level of protection and durability for CoreClad the recommended coating system by paint manufacturers is three coats (1 undercoat, 2 top coats) of a premium, 100% acrylic paint system in a light colour (LRV greater than 40) combined with a regular maintenance programme. This system is likely to require the least amount of coating maintenance (repainting) over the life of the cladding.

It can also help hide the scarf joint on 2745mm and 3050mm length sheets. Paint offers more protection than stain against mechanical and UV degradation. Full pigment paints perform better than stains. The more pigment in the paint the more resistance to UV degradation and resultant breakdown of the face veneer. UV degradation is the process whereby ultra violet light (UV) breaks down components of the wood.

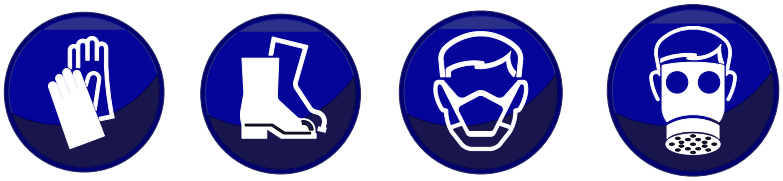
Penetrating stains Penetrating type stains offer less protection than paint from exterior weathering that leads to mechanical and UV degradation. Stains require more regular maintenance during the panel's life. If staining, a batten can be used to hide the scarf joint on 2745mm and 3050mm length sheets.

Face Checking

Face checking are fine splits that run in the direction of the grain in the face veneer of plywood and can sometimes be seen on panels that have been exposed to the weather. The splits are the result of natural cyclic expansion and contraction of the timber due to changing moisture content, which can be associated with changing temperature i.e. when exposed to heat and cold. The results of expansion and contraction can be amplified further by painting in darker colours.

The initial face checking is superficial and does not alter the structural integrity of the plywood, however if allowed to continue can cause a breakdown of the face veneer. The addition of a 3rd top coat after 4-6 months can help offer additional protection to any checks or splits that have appeared.

Health & Safety



Take all necessary steps to ensure your safety and the safety of others:

- Ensure adequate ventilation or mechanical dust extraction when cutting or drilling.
- Ensure the timber is well supported when cutting and nailing.
- Wear appropriate safety equipment, clothing and footwear.
- Use all tools in accordance with relevant instruction manuals.
- Plan and monitor a safe approach for working at height; select and use the right equipment.
- Clear the work area of any obstructions before work starts.

Storage & Handling

Correct handling and storage of CoreClad is critical for best performance, ease of use and warranty adherence. CoreClad should be delivered dry, unmarked and undamaged from freight and handling. All panels should be inspected upon the delivery. CoreClad should be lifted off the truck by hoist or individual sheets by hand.

The storage area should be ventilated and protected from sun, rain and wind. These conditions could bring about rapid changes to temperature and humidity. Correct storage avoids the potential for staining, fading or surface checking prior to installation.

Stack panels horizontally, dry and clear off the ground by 100 mm and supported on dry, clean timber bearers at maximum of 900 mm centres and at both ends of the panels to avoid distortion. Keep panels dry at all times; either by storing within an enclosed building or use an additional weatherproof cover as a secondary to packaging wrap if stored outside, but also ensure that there is sufficient air flow to avoid condensation.

Avoid storing over standing water or vegetation. Delivery should be timed to allow minimum time sitting on site, especially when panels are in unfinished, damp buildings or in an uncovered building allowing the chance of moisture uptake.

Extra care must be taken to avoid damage to panels edges and surfaces, especially during installation.

NOTE: When coating CoreClad prior to installation, some coatings may require the sheets to be separated when in storage.

Care & Maintenance

As with any external cladding, to get the best performance CoreClad external cladding requires regular cleaning and maintenance:

- Regular washing - PNGFP recommends that at least once a year the exterior panels are washed down with a mild detergent and a fine brush to remove dirt, mould, lichen, and salt deposits.

The southern side of the building is likely to be the dampest, so make sure you do carry out a check and remove mould and lichen deposits.

- Regular checks -Mandatory check of the following:
  - fixings and flashings
  - damage to components
  - adequate ground clearances
  - surrounding vegetation is not encroaching on the cladding

- Recoating - CoreClad requires re-staining or repainting periodically to protect the timber surface from the effects of weathering and fading. This is likely to be more pronounced the sides exposed to the northern and western afternoon sun.

Re-staining or repainting should be carried out in accordance with the recommendations of the paint or stain supplier, taking into account site-specific conditions e.g. atmospheric and ultraviolet conditions.

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