



# **Installation Manual**

PREMIUM ALUMINIUM VERTICAL WEATHERBOARD CLADDING SYSTEM



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#### 1 Introduction

Performance and aesthetics combine in a contemporary aluminium cladding system. Designed in New Zealand for local conditions.

Our tough climate calls for exterior products that can perform in all weather conditions, meet the most stringent code and standards, and bring elegance and architectural integrity. Available in a multitude of colours, finishes and even woodgrain.

AliClad, designed by The Building Agency, is a premium aluminium weatherboard system that has

had every detail and feature designed, tuned and resolved. Backed by decades of local experience and international product knowledge, AliClad offers architects, builders and developers a robust and beautifully finished product, supported on an easy-to-install fixing system engineered to perform.

Designed for large-scale commercial projects with a residential application.

# 2 Compliance

The AliClad Cladding System is a verified alternative solution. When designed and installed in strict accordance with this Installation Guide and the AliClad Specification Guide, the AliClad cladding system will meet or exceed the requirements of the following clauses of the New Zealand Building Code (NZBC):

Clause B1 - Structure TB1.3.1, B1.3.2, B1.3.3(a, f, h, j), B1.3.4

Clause B2 - Durability B1.3.1, B1.3.2, B1.3.3(a, f, h, j), B1.3.4 Clause E2 - External Moisture E2.3.2, E2.3.5, E2.3.7

#### Clause C1-6: Protection from Fire

C3: Fire effecting areas beyond the Fire Service C1a, C1b, C3.1, C3.2, C3.3.

The AliClad cladding system meets the requirements of ISO 5660.1 for Type A non combustible materials.

The AliClad Cladding System has been tested to BS8414-2 for buildings in excess of 10 metres.

# 3 Intended Uses

The AliClad cladding system is intended for use as a cavity based cladding for residential and light commercial buildings.

It is intended for use on drained and ventilated cavities.

It is suitable for use in all wind zones up to and including extra high wind zones as described in NZS

3604 and for specific design applications over ULS 1.9 kPa.

Within the scope of testing, or by specific design, the AliClad system may be suitable for use in multi-story situations.



## 4 Limitations

AliClad must be installed by a Building Agency Ltd certified/approved installer or Licensed Building Practitioner (LBP).

The AliClad system must be installed in complete accordance with the most recent edition of the AliClad Installation Guide. Components of the system cannot be substituted.

The AliClad system is suitable for buildings with a maximum score of 20 on the risk matrix as per E2/AS1.

Where components and materials are not supplied

by the manufacturer of the system, they must in all cases meet the requirements of the building code and verified by that manufacturer as suitable and fit for purpose.

Use of the system is limited to wind zones up to and including extra high. Where wind speeds exceed 55 m/s and over ULS 1.9 kPa a suitably qualified professional must be engaged for a specific design.

Building or elevations scoring over 20 should consider re-design or a specific design.

# 5 Installation Considerations

It is the responsibility of the installer to ensure that the AliClad Cladding System is appropriate for the intended application.

Consideration should be given to shrinkage of framing and Thermal expansion at horizontal joints, particularly those at mid-floor junctions. Continuous cladding over the mid-floor must be avoided. Where total wall heights exceed 7 metres, the drained cavity must drain at a horizontal joint.

While the AliClad system is versatile and will accommodate most situations, installers should consider wall lengths, and window and door openings in relation to board width modules to ensure ease of installation and overall aesthetics.

Ventilation to the cavity must be provided at the at the top and bottom of walls and where drained horizontal joints occur.

Walls must include those provisions as required by the NZBC Acceptable Solution E2/AS1 'External Moisture'. In addition all wall openings, penetrations, junctions, connections, windowsills, heads and jambs must incorporate appropriate flashings for waterproofing. The other materials, components and installation methods used to manage moisture in external walls, must comply with the requirements of relevant standards and the NZBC.

# **6 Framing and Support Structures**

#### 6.1 Timber Framing

Must comply with relevant New Zealand Building Code requirements and NZ Standards.

Use Kiln dried framing treated in accordance with NZS 3604 or specifically designed to NZS 3603

Timber supporting structures must meet the requirements of NZS 3604 or be specifically engineered by a suitably qualified professional. Stud spacings are a maximum of 600mm centres and nogs/dwangs at 800mm centres. Extra studs are required at internal corners.

# 6.2 Steel Framing

Steel Thickness min 0.9 Bmt 250g Min

To conform with:

- Nash Standard -Part 1 2016 Design Criteria
   Alternative Solution.
- Nash Standard Part 2 2019 Light Steel Framed Buildings
- Nash Building Envelope Solution 2019
- Steel framing must include a suitable thermal break between the framing and the batten.

# 7 Rigid Air Barriers and Wall Underlay

### 7.1 Flexible Wall Underlay

Wall Underlay must comply with the NZBC Acceptable Solutions E2/AS1 Table 23 for breathable wall underlays.

The Underlay must be fixed in accordance with the underlay manufacturers specific fixing instructions and any special guidance noted in this publication.

#### 7.2 Rigid Air Barriers

Rigid air barriers are required for wind zones over Very High (50 M/sec. including situations that require Specific Engineered Design (SED) Rigid air barriers are commonly used in all wind zones to achieve best performance and quicker close-in.

It is recommended that a rigid air barrier is used to complete the full "system" approach to the external envelope.

Rigid air barriers must meet the requirements of the NZBC Acceptable solutions E2/AS1 Table 23 and be tested to the appropriate wind pressure zones.

# **8 Cavity Construction Options**

The AliClad system can be installed on several cladding support structures types. Constraints on these structures vary only in their suitability

and consideration of specific site conditions and requirements. The following support structures may be considered:

Batten	Material	Max Build- ing Height	Min Distance to Boundary	Corrosion Zone Suitability	Fixing the Battens	Fixing the Weatherboards	
Cavibat	18mm HDPE	10 Metres	1 Metre	All	50mm galv Brads	SS 10g x 60mm SD Tek screws	
Solid Timber 45mm x 20mm Nom	Radiata Pime Min H3.1 Treated	10 Metres	1 Metre	All	50 x 2.8 Hot dip Galv Nails	SS 10g x 60mm SD Tek screws	Walland or other transfer or o
Omega Rail	25mm Zincalume	25 Metres	No Restriction	Zones B&C only	75 x 10g CL4 hot dip galv nails	20 x 10g CL4 hot dip galv nails	
Alpha Rail ® System	Aluminium	All	All	All	SS304 10g x 75mm SD Tek Screw 9mm Hex Drive	SS 10g x 16mm SD Hextek	

**NOTE:** Where timber or plastic cavity battens are used, fixing must achieve a minimum embedment of 35mm to the structure. Horizontal Timber battens must be castellated and the top of the batten

angled away from the building wrap or RAB. Vertical Battens Must be solid. Timber Battens must be H3.1 treated.



# **9 Window Installation Considerations**

Windows and doors may be fitted flush with the cladding or recessed into the opening. This guide gives details for both as with or without WANZ Bar. Where recessed window option is applied, WANZ bars are not required.

Where windows are flush with the outside of the cladding, a WANZ bar must be installed in

accordance with E2/AS1 where opening s exceed 600mm in width.

WANZ Bars must be installed prior to joinery installation and must be installed so that moisture can drain from the sill freely.

# 10 Storage and Handling

AliClad components are supplied as a finished product and must be treated as such to avoid damage both prior to installation and during installation.

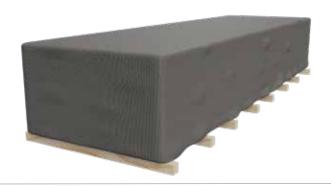
To minimise damage on site, materials should arrive on site as close to installation as possible.

The product must be inspected on delivery and any damage noted and reported immediately.

Components should be stored in a dry environment and clear of high foot and vehicle traffic or where construction work may damage the product.

The components should be stored off the floor or ground on level supports spaced at no more than 600mm apart.

Profiles are best kept in original packaging until ready to use.



# 11 Equipment Required

Generally, the AliClad cladding system can be installed using equipment and tools most builders will have on hand.

Aluminium profiles are best cut using an accurate electric mitre saw with an appropriate blade for aluminium cutting. Eg. A TCT toothed metal cutting blade.

Smaller cuts and notching can be made using a hacksaw or angle grinder with appropriate blade types.

Longer rips are best carried out using a table saw or a rail guided track saw.



# 12 Construction Sequence

The sequence of installation of the cladding system is critical to allow for correct installation of components.

The order of installation is particularly critical around window and door openings.

Regardless of whether doors and windows are fitted before or after cladding The components around openings must be installed from the sill up. Installation should be carried from bottom to top of wall faces.

Installation of individual wall elevations can be carried out with consideration and planning.

It is critical that inter-story flashings are fully installed before progressing to upper levels.

#### BEFORE YOU START INSTALLATION, CHECK THE FOLLOWING...



The support framing is compliant to NZS 3604 or to a Specific Engineered Design and is straight and true



Rigid Air Barriers are fixed and joints and penetrations are taped in strict accordance with the manufacturers installation instructions.



Correct selection of Rigid Air Barriers and Wrap to meet the requirements of design and site condition.



#### **Batten Installation**

Install all horizontal and vertical battens over underlay and fix through Butyl pad with specified fixings. See Page 5.



# Base Moulds and Flashings

Install all base moulds and flashings at corners.

See Page 10.



# Window and Door Openings - Sill

Jamb trays, J-mould Base and Sill flashings are fitted along with WANZ Bars where required. See Page 11.



### Window and Door Openings - Jambs

Jamb components are installed. See Pages 12 - 15.



### Window and Door Openings -Head

J-mould Base, head flashings and flashing tapes are fitted. See Pages 12 - 15.



### Weatherboard Installation

Weatherboards and clips are installed. See Page 16 - 19.



Trims and completion

See Page 20 - 21



# 13 Installation Considerations

Work out which end of a given wall is the best end to start.

Take into account the length of the wall as well as the positioning of windows and doors.

Weather tightness is not dependent on the direction of the lap in relation to the prevailing winds. The joints look the same regardless.

Horizontal joints must occur at the mid floor for multi story construction, either each second floor or metres, the lesser of the two.

Ground clearance minimum distances must be maintained to the bottom of cladding as described in Clause E2/AS1.

Cladding must finish a minimum of 50mm below finished floor level.

# 14 Typical Layout

Alpha Rail ® Aluminium battens are available vented or un-vented. All horizontal battens must be vented battens. All vertical battens must be unvented battens.

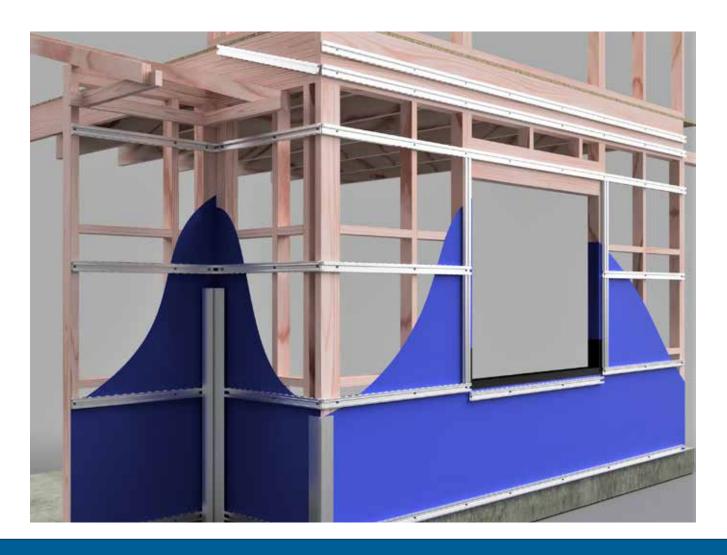
Horizontal battens are placed at centres determined by site conditions (Refer to design specification) and fixed at each stud with 10g 75mm SD Tek Screws at each stud.

Vertical battens are placed each side of door and window openings 45 mm from the opening and fixed at maximum 800mm centres.

Where timber or plastic cavity battens are used, AliClad fixings must achieve a minimum embedment of 35mm to the structure.

Horizontal Timber battens must be castellated and the top of the batten angled away from the building wrap or RAB.

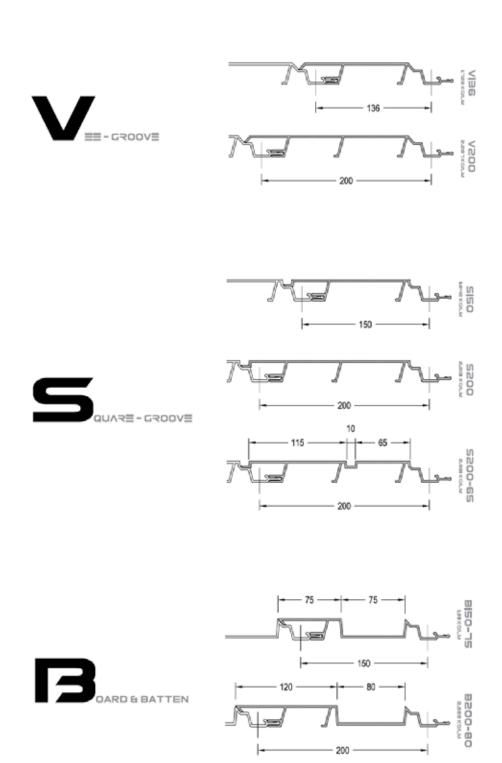
Timber battens must be H3.1 treated.



# 15 AliClad Components

15.1 Weatherboard System Profiles







# 15.2 Accessories Pairing

Windows and Openings									
	Base Extrusions	Description	Face / Associated Extrusions	Description					
J-mould Standard Base [4.1a] J-mould Face [4.1a]	PRODUCT CODE: ACJMDB	For use for all vertical Jambs and openings and top of walls at soffits.	PRODUCT CODE: ACJMDF	For finishing to all J-mould base situations					
J-mould Base of Cladding [4.2]  J-mould Face [4.1b]	PRODUCT CODE: ACJMDBC	For use at the bottom of walls and window heads where drainage and ventilation is required such as inter-story horizontal joints	PRODUCT CODE: ACJMDF	For finishing to all J-mould base situations					
Jamb Clip [4.6] Jamb Flashing [4.13]	PRODUCT CODE: ACJMC	Used as a vertical flashing attached to the window studs at doors and windows.	PRODUCT CODE: ACJMF	Flashes between the Jamb clip and J-mould vertically at opening jambs.					
Window Sill Face [4.7] Window Sill Face [4.9]	PRODUCT CODE: ACWNS	Sill Face for use where WANZ Support Bars are necessary. For achieving flush windows.	PRODUCT CODE: ACWSP	Sill Face where WANZ Support Bars are not used. For rebated windows					
Starting and Ending									
Clamp Channel [2.4] Clamp Zed [4.8]	PRODUCT CODE: ACCLC	For use where walls end at vertical openings or corners. The clamp Channel is supplied 100mm long and is attached to the Clamp Z	PRODUCT CODE: ACCLZ	For use in conjunction with the clamp channel to clamp ripped boards at wall ends and openings.					
Starter Profile [2.2a]	PRODUCT CODE: ACSTR	For use as the starter board at corners or openings							

#### **Vertical Jointing** Base Description Face Description External Corner Base For use on vertical [4.4a] External corners attached Vertical External Corner Face to cavity battens and used used in conjunction with the External in conjuction with the External Corner Base only Corner External Face. Face [4.4b] PRODUCT CODE: ACEXTB PRODUCT CODE: ACEXTF **Internal Corner** For use on vertical internal Bace corners attached to cavity [4.3a] Vertical External Corner battens and used in con-Face used in conjuction with juction with the Internal the Internal corner Base only Internal Corner Face. Face [4.3b] PRODUCT CODE: ACINTB PRODUCT CODE: ACINTF H Mould Bace For use on vertical flat joints attached to cavity Vertical flat jointer face used [4.5a] battens and used in in conjunction with the H H Mould Face conjunction with the H Mould Face only. Mould Face [4.5b]

PRODUCT CODE: ACHMDF

PRODUCT CODE: ACHMDB

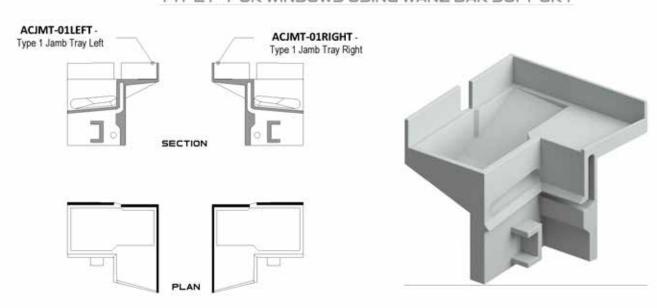


# 15.3 Mechanical Drainage

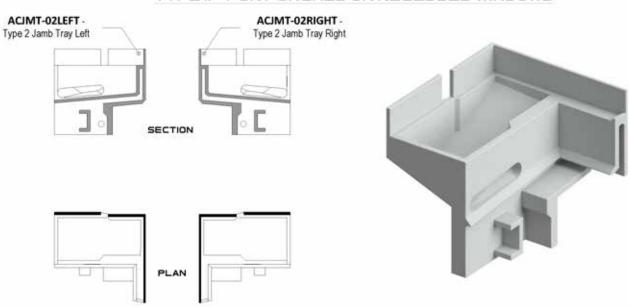
# MECHANICAL DRAINAGE

PROPRIETARY JAMB-TO-SILL DRAINAGE CLIPS

#### TYPE I - FOR WINDOWS USING WANZ BAR SUPPORT



#### TYPE II - FOR PUNCHED OR RECESSED WINDOWS



# 15.4 Alpha Rail® Batten System Profiles



ПДП

ALPHA CLIP IOMM Order Code: AR-Clip100

✓ LPHA CLIP 5MM Order Code: AR-Clip50

✓ LPHA CLIP 3MM Order Code: AR-Clip30



✓ LPHA CLIP I.6MM Order Code: AR-Clip16



✓ LPHA RAIL 20MM - 5.8LM Order Code: AR-Rail20

✓ LPHA RAIL 20MM - 5.8LM Order Code: AR-Rail20-Drained



# 16 Fixing the System

Fixings must be as prescribed in this document (page 5) and to a minimum durability requirement of the relevant documents of the NZBC and the supporting NZ Standards.

Fastening are as listed in the accessories schedule on page 8 and as set out in the Typical Details.

Fixings of battens and cladding must adhere to E2/AS2 Tables 20, 21, and/or BRANZ BU519 for material compatibility and regional durability selections.

The minimum fastener durability requirement for fasteners is for CL4 HDG.

Where hole drilling or occurs, care should be taken to clear swarf accumulating on and in components to maintain good moisture drainage paths.

Where fastenings penetrate through the underlay or rigid air barrier a 50mm x 50mm butyl rubber or Nydek pad must be placed immediately behind the batten.

Alpha Rail® battens are pre-punched with fixing slots to allow for thermal movement and fastener tolerance. Where fixing locations are needed and not punched a 6.5mm hole must be drilled.

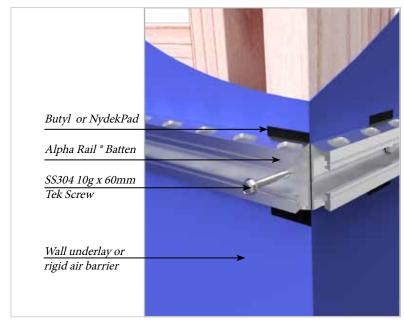


Figure 1

#### 16.1 Wall Construction

Framing must comply with NZS 3604 2011 or specific design.

Wall underlay must be Certified and meet the requirements of table 23 of E2/AS1 and installed in accordance with the manufacturers specific installation requirements.

Sill tape must be Certified and meet the requirements of E2/AS1 and installed in accordance with the manufacturers specific instructions prior to fixing joinery.

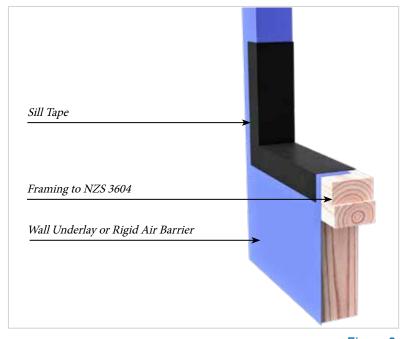


Figure 2

### 16.2 Alpha Rail® Clips and Packers

Alpha Rail ® Clip packers are supplied in 50mm lengths and in four thicknesses to suit the thickness of build-up of components:

1.6mm, 3mm, 5mm and 10mm to suit general tolerances.

Clips self locate into place on the face of the battens at weatherboard profile fixing points.

If additional packing is required, it is placed on the face of an Alpha Rail® Clip.

Where timber battens are used castellations must be packed out flush if weatherboard fixing points land over castellation.

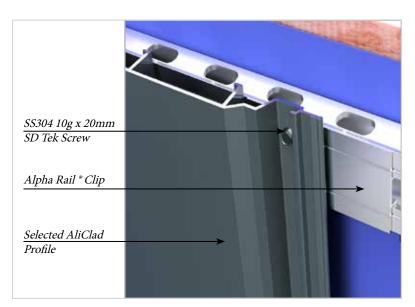


Figure 3

# 16.3 Construction at Openings

#### Window Sill Battens

Ventilated Alpha Rail ® battens must be installed in all horizontal applications.

Non-ventilatedAlpha Rail ® battens Should be Installed in all vertical applications unless otherwise called for.

Where recessed window option is applied, WANZ bars are not required.

Where windows are flush with the outside of the cladding, a WANZ bar must be installed in accordance with E2/AS1 where openings exceed 600mm in width.

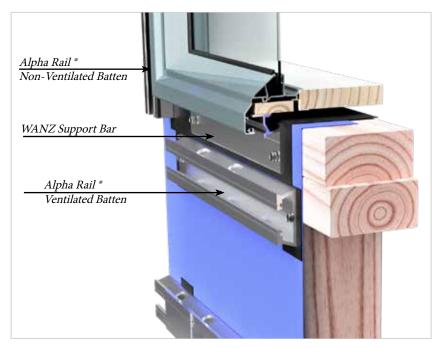


Figure 4



#### Window Sill Cross Section

Joinery is best fitted prior to cladding. However, joinery can be fitted after cladding with consideration and planning.

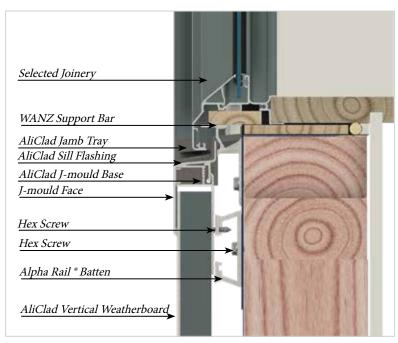


Figure 5

#### Window Surround Installation

Assembly and fixing of window and door components should be carried out from the bottom up.

Once the Battens, WANZ Bar and windows are in place, the window surround is assembled.



Care must be taken to ensure base clips are installed square and plumb to achieve easy and clean trim installation.

#### Sill Assembly

Cut to length and assemble the J-mould, sill flashing and jamb tray flashing at each end, using the hole provided. The J-mould and sill flash should be cut 10mm longer than the window width over the outer flanges.

The assembly is fixed into place by screwing the J-mould to the bottom batten at the correct height, to allow the window system adequate drainage and protection. The J-mould is screwed to the sill flashing through the back of the J-mould.

When the sill assembly has been fixed in place the jamb components can be cut to length and fixed in position hard down to the jamb tray.

See window details (page 30) for component lengths and positioning.

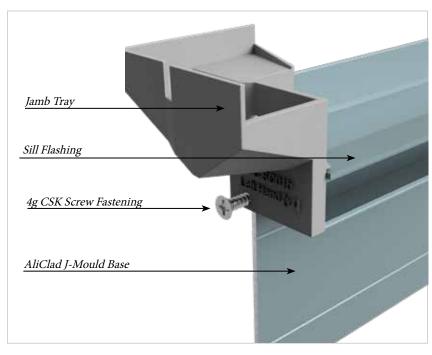


Figure 6

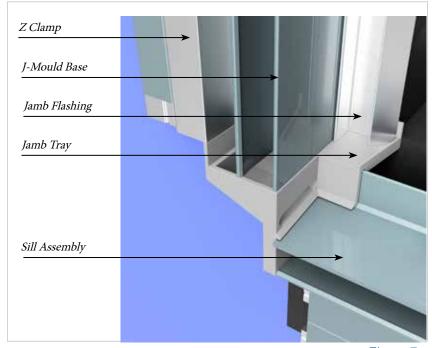


Figure 7



#### Face Trim Installation at Sill

Trims are mitred at the corners and clipped firmly into place

Before clipping into place the bottom and side facings have the back clip legs trimmed to allow the facing to pass over the jamb Tray.

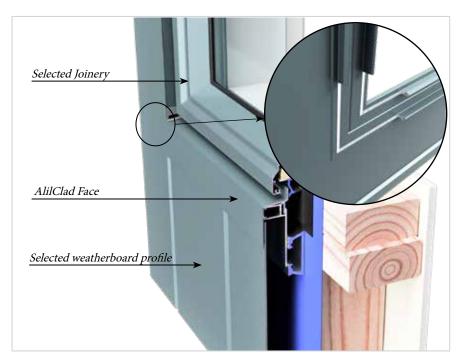


Figure 8

#### Window and Door Jambs

The jamb flashing is cut to length and the Jamb clips trimmed down to accommodate the flexible flashing going all the way across the jamb flashing after the head flashing is installed.

Likewise the angled return on the jamb flashing is trimmed to accommodate the head flashing to extend across the rear flange and but into the J-mould base and jamb clips.

These are best trimmed with an angle grinder.

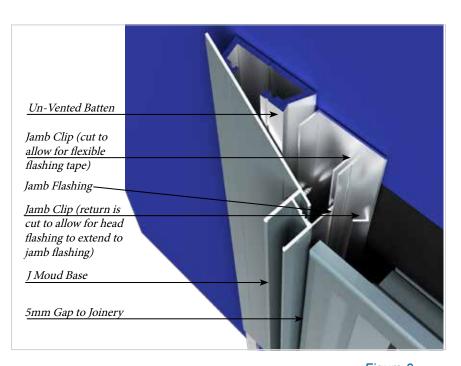


Figure 9

#### Head Cross Section

Window head components must be assembled in strict sequence to achieve correct installation.

The J-mould at the head must be a drained and vented bottom cladding base mould (BOC Base).

The head flashings width is cut to suit, supplied by the joinery supplier.

See window details for component location and sizing.



Where flashings Cover the Alpha Rail ® fixing Tracks, it is advised to scribe or mark fixing locations for easy identification later.

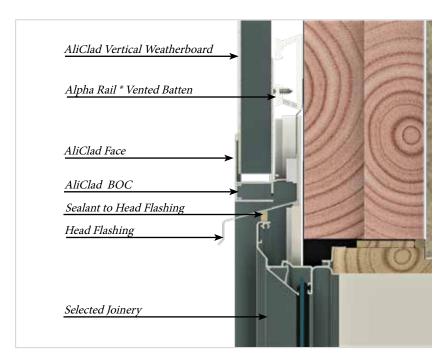


Figure 10

#### Head Flashings

Jamb components are cut to the height of the top of the U-section of the J-mould so that the J-mould will butt into the jamb J-Mould. See Fig S10

The flashing Tape must extend all the way across the Jamb Flashing

The Jamb Flashing extends above the rest of the jamb assembly to the height of the top flange of the head flashing.

The head flashing is cut 15mm long at each end and cut and bent to form an end dam 15mm high and 20 mm deep.

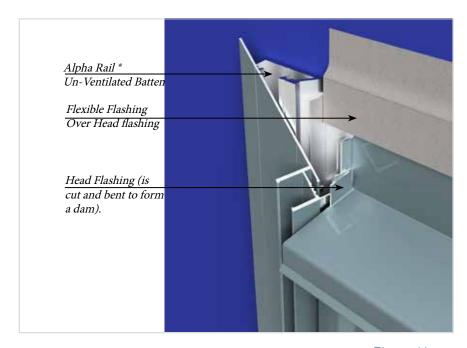


Figure 11



#### Drained J-mould at Head

The Head drained J-mould is cut between the jamb J-moulds and fastened to the batten above the opening.

Fastenings are SS 8g x 20mm Countersunk screws.

The Jamb J-mould base and head J-mould base are mitred at 45° to accurately fit.



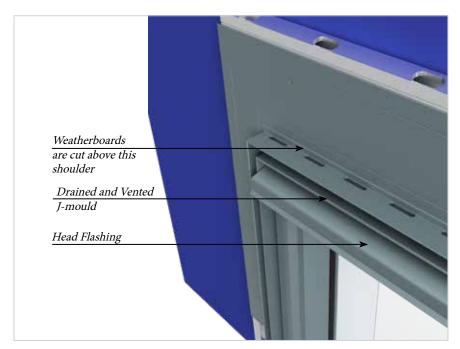


Figure 12



Figure 13

# Face Trim Installation at Head

Facings are mitred at the corners and clipped firmly into place.



Figure 14



#### 16.4 Board Terminations

#### Ripped Weatherboard Termination

#### METHOD 1

Where cut weatherboards occur, 100mm long clamp channels are attached to the Clamp Zed with two 4mm pop rivets.

The Clamps are placed at the same centres as the horizontal battens.

The back legs of the weatherboard will need to be removed where they interfere with clamps.



Figure 15

## METHOD 2

100mm long clamp channels are predrlled with 10mm clearance holes to allow screwing of clamps to the J-mould flange 12mm away from the J-mould return. One clamp channel fixed to each fixing location.

When weatherboards are fixed in place the Clamp Z is cut to length and screwed in place clamping the weatherboard in place hard against the clamp channels.

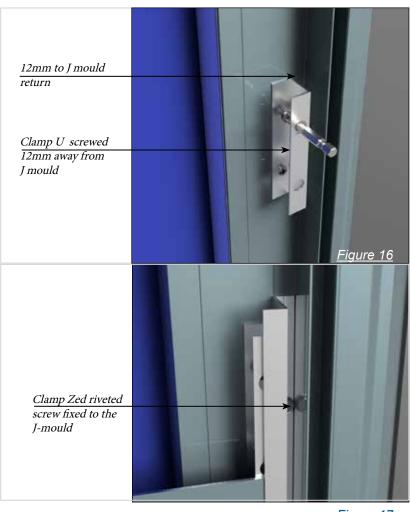


Figure 17

#### 16.5 External Corner

#### Fitting the Base Flashing

External Corner Base and Bottom of Cladding Base are fitted and screwed to the battens with SS 8g x 16mm countersunk screws at 1000mm centres.

Before fitting, the Bottom Base is cut to fit around the External Corner Base flange so that the flanges of both are flush.

The cladding Base is mitred at the corner with a square cut from the outer corner to allow the External cover mould to run past



Figure 18

#### Ending a wall

Either method 1 or 2 for Ripped Weatherboard Termination is applicable as referenced on page 17/18.

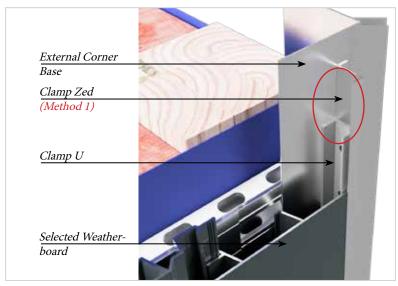


Figure 19



#### Starting an External Corner

Walls panels are started with a starter placed hard to the external corner base and fixed in the same manner as a weatherboard fixed to the battens.

The bottom of the weatherboards are placed 6mm off the Cladding Base Mould sitting above the shoulder provided.



Starting at external corners is easiest, but careful attention should be paid to openings and internal corner locations to determin best start point.

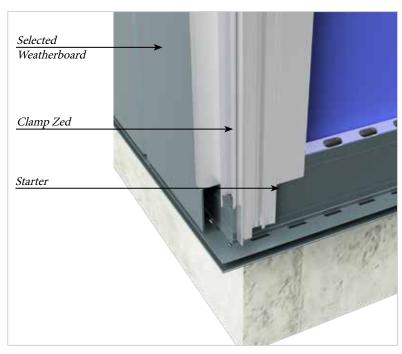


Figure 20

#### Fitting the Face Trims

When the weatherboard installation is complete, the external corner trim is cut to length and clipped into position.

The ends of the bottom trims are cut to a 45° angle to fit together benefit the corner facing and clipped into position.



Figure 21

#### 16.6 Internal Corners

#### Fitting the Base Flashings

Internal Bottom of Cladding Base are fitted and screwed to the battens with 8g x 16mm countersunk screws and 1000mm centred.

Before fitting, the Bottom Base is cut to fit around the External Corner Base flange so that the flanges of both are flush and fixing is provided for both the corner base and the J-mould base.

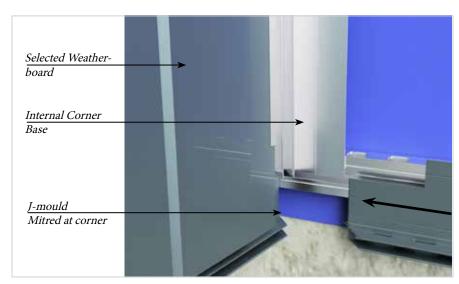


Figure 22

# Ending a wall on an Internal Corner

See Ripped with Beads pages 17/18. It is recommended to use Method 2 for finishing an internal corner.

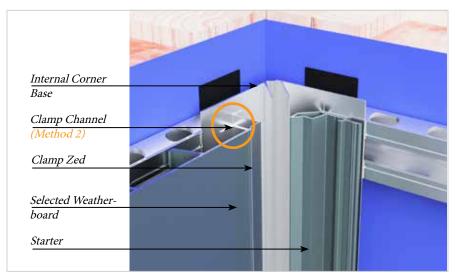


Figure 23

# Fitting the Face Trims

When the weatherboard installation is complete, the Internal Corner Face is cut to length and clipped into position.

The ends of the bottom facings are cut to a 45° angle to fit together beneath the corner facing and clipped into position.

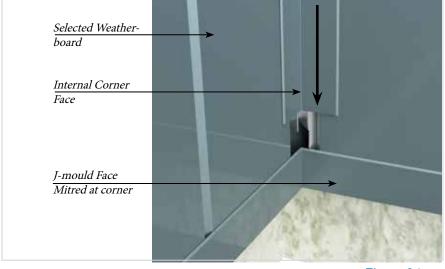


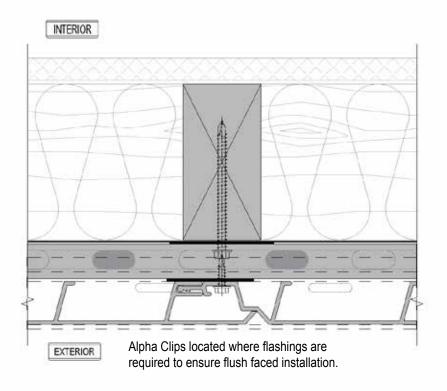
Figure 24



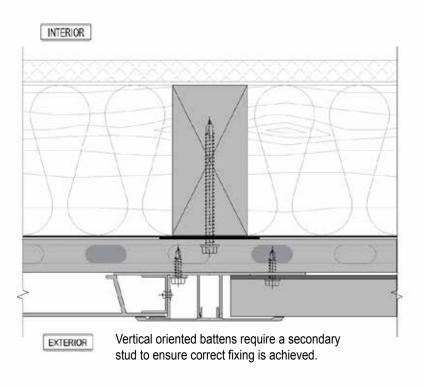
# 17 Simplified Typical Detail

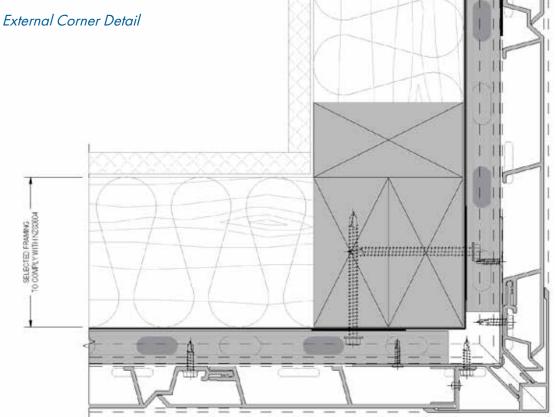
(See website for comprehensive typical details downloads)

#### Vertical Wall Join



#### Vertical Break



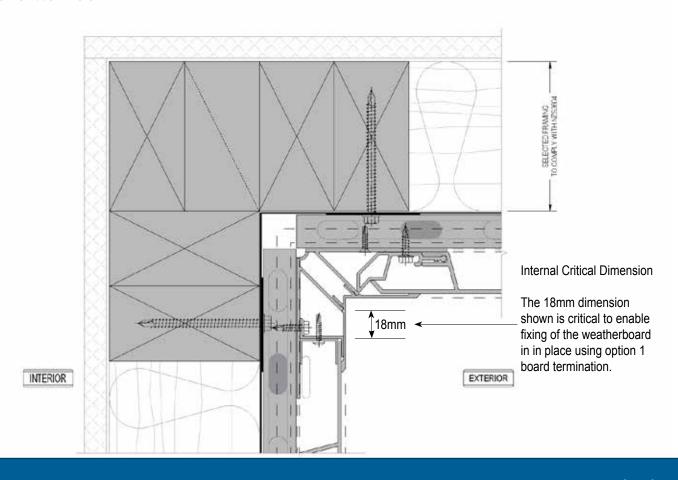


The starter sets the run lines

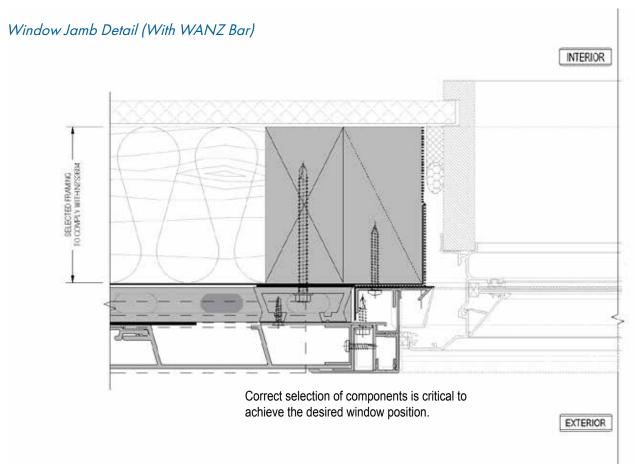
Extra care should be given to ensure this is plumb and straight.

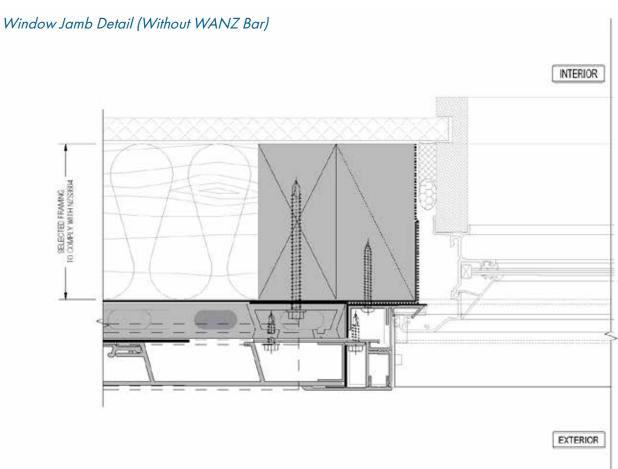
Location within the corner has 5mm tolerance.

#### Internal Wall Detail

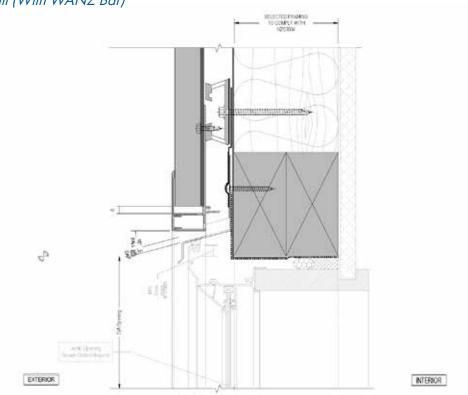




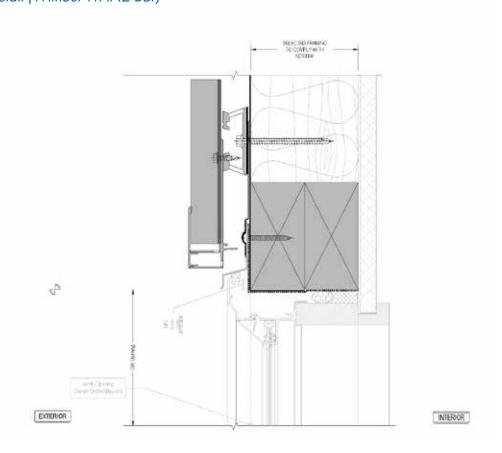




## Window Head Detail (With WANZ Bar)

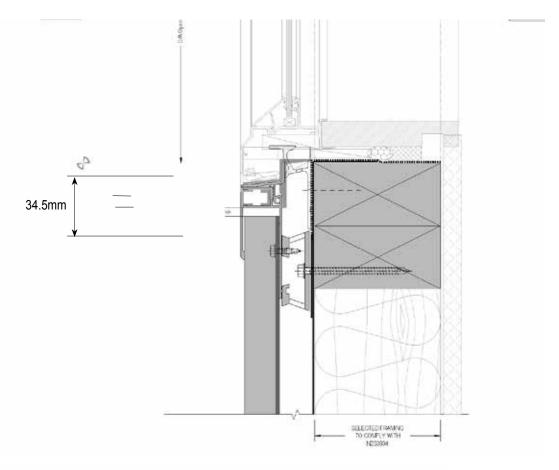


## Window Head Detail (Without WANZ Bar)

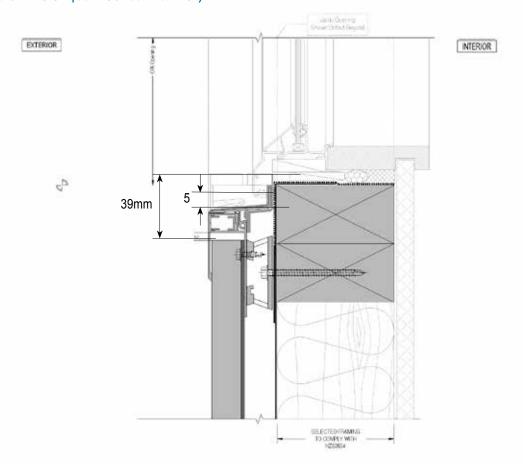




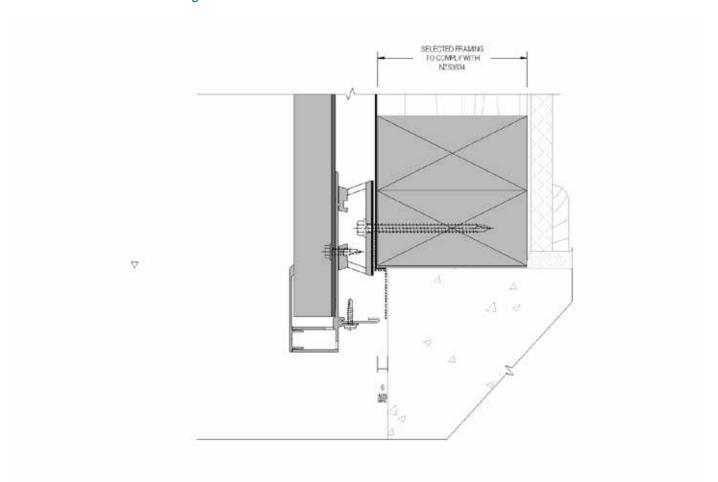
## Window Sill Detail (With WANZ Bar)



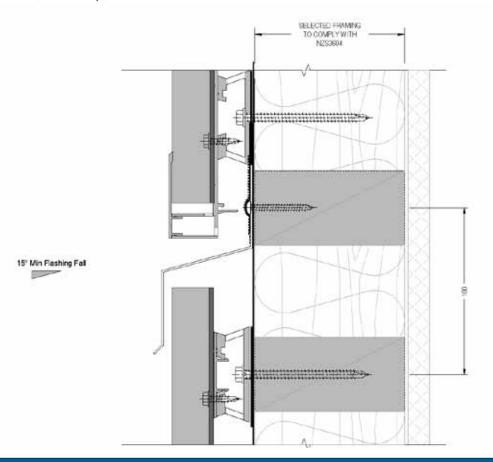
# Window Sill Detail (Without WANZ Bar)



# Foundation Bottom of Cladding

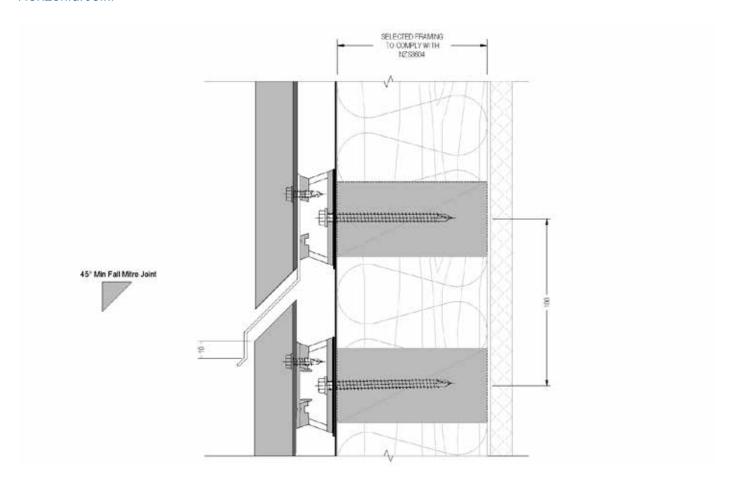


## Horizontal Joint (Intertstory)

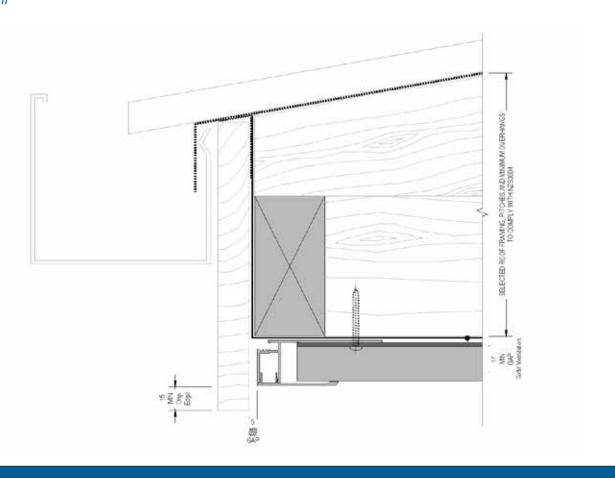




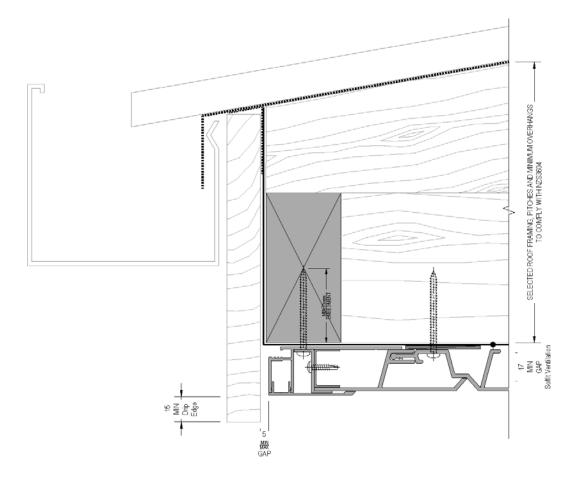
#### Horizontal Joint



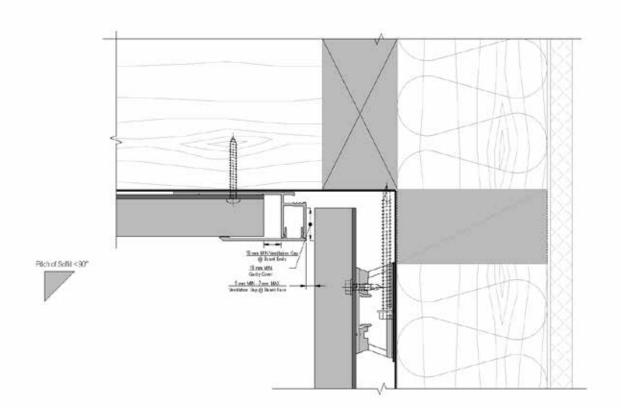
Fascia to Soffit



Fascia to Soffit - Parallel Aligned

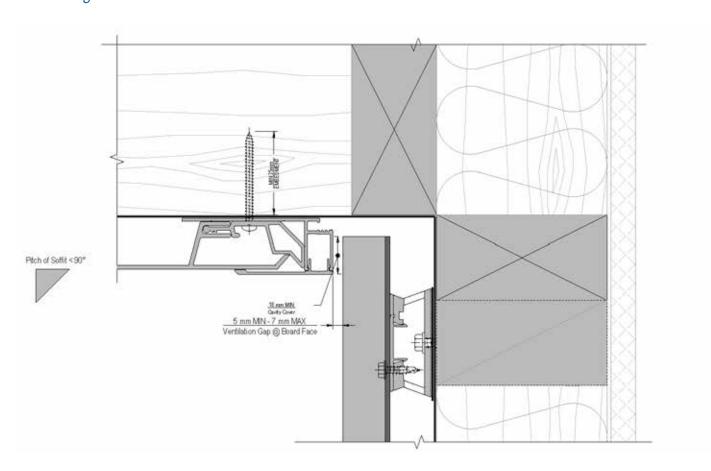


Soffit to Wall

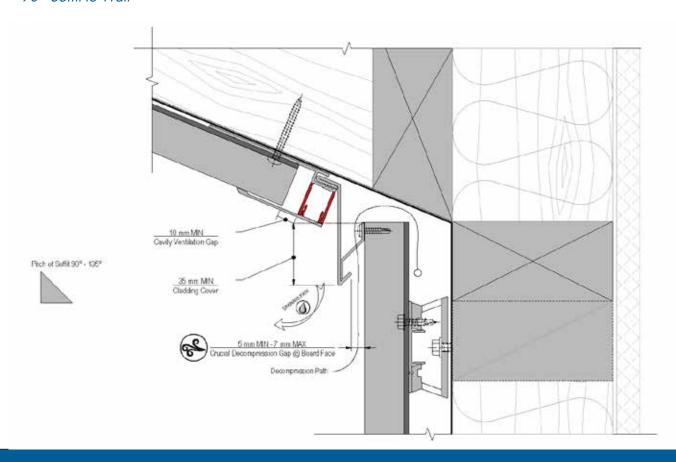




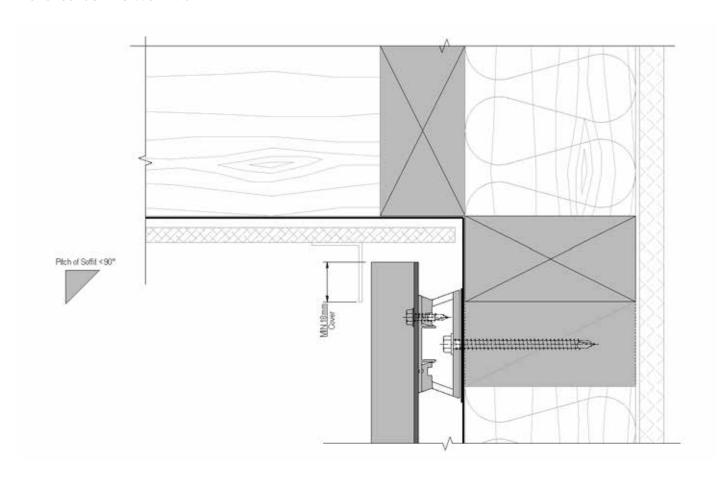
# Parallel Aligned Soffit to Wall



## > 90° Soffit to Wall



Flat Sheet Soffit to Wall <90°



Flat Sheet Soffit to Wall >90°

