Castellation Pro Cladding Horizontal Installation Guide

v20231227 INT

NewTechWood®

CONTENTS

IMPORTANT:

Read All Sections Before You Start

For the most up to date information, please visit our website @ www.newtechwood.com

Prior to installing any composite cladding system, it is recommended that you check with local building codes for any special requirements or restrictions. The diagrams and instructions outlined in this guide are for illustration purposes only and are not meant or implied to replace a licensed professional. Any construction or use of NewTechWood must be in accordance with all local zoning and/or building codes. The consumer assumes all risks and liability associated with the construction and use of this product.

Safety

When dealing with any type of construction project, it is necessary to wear appropriate safety equipment to avoid any risk of injuries. NewTechWood recommends, but is not limited to the following safety equipment, when handling, cutting, and installing NewTechWood: gloves, a respiratory protection, long sleeves, pants, and safety glasses.

Tools

Standard woodworking tools may be used. It is recommended that all blades have a carbide tip. Standard stainless steel or acceptable coated deck screws and nails are recommended.

Environment

A clean, smooth, flat, and strong surface is needed to install NewTechWood's products correctly. Please check with local building codes before ever installing any type of cladding. If installation does not occur immediately, NewTechWood's products need to be put on a flat surface at all times. It should NEVER be put on a surface that is NOT flat.

Planning

Plan a layout for your cladding before starting it to ensure the best possible looking cladding for your project. Building codes and zoning ordinances generally apply to permanent structures, meaning anything that is anchored to the ground or attached to the house. So nearly every kind of cladding requires permits and inspections from a local building department. We recommend drawing out a site plan of your proposed project that you intend to do to minimize errors and make your perfect wall cladding.

Pressure washing on a scrap piece of material before using a pressure washer on the wall cladding to ensure that your settings will not damage the UltraShield coating.

Construction

NewTechWood UltraShield is NOT intended for use as columns, support posts, beams, joist stringers, support against a force, or other primary load-bearing members. NewTechWood must be supported by a code-compliant substructure. While NewTechWood products are great for retrofits, NewTechWood's products CANNOT be installed on existing cladding boards.

Static

Static can also be more prevalent in areas that are of higher altitude because the humidity is lower. For these areas, be careful of using conducive objects such as metal railing and chairs as static shocks might occur more often. A potential way to lower the amount of static shocks occurring is to apply Staticide (www.aclstaticide.com) on your deck or use anti-static mats before doorways.

Ventilation

NewTechWood products CANNOT be directly installed onto a flat surface. It must be installed onto a substructure, so there is adequate and unobstructed air flow under the cladding to prevent excessive water absorption. A minimum of 25 mm of continuous net free area under the cladding surface is required for adequate ventilation on all cladding, so air can circulate between adjacent members to promote drainage and drying.

Heat and Fire

Excessive heat on the surface of NewTechWood products from external sources such as but not limited to fire or reflection of sunlight from energy efficient window products. Low-emissivity (Low-E) glass can potentially harm NewTechWood products. Low-E glass is designed to prevent passive heat gain within a structure and can cause unusual heat build-up on exterior surfaces. This extreme elevation of surface temperatures, which exceeds that of normal exposure, can possibly cause NewTechWood products to melt, sag, warp, discolor, increase expansion/ contraction, and accelerate weathering.

Current or potential NewTechWood customers that have concerns about possible damage by Low-E glass should contact the manufacturer of the product, which contains Low-E glass for a solution to reduce or eliminate the effects of reflected sunlight.

Fasteners

When fastening NewTechWood's products all screws that are face fastened should always be driven in at a 90 degree angle to the cladding surface. Toe screwing should never be done to the products. An extra joist should be added if a 90 degree angle cannot be driven into the board. All fasteners should be on their own independent joists, when two boards ends meet each other there must be a sister joist. The end of each board must sit on its own joist.

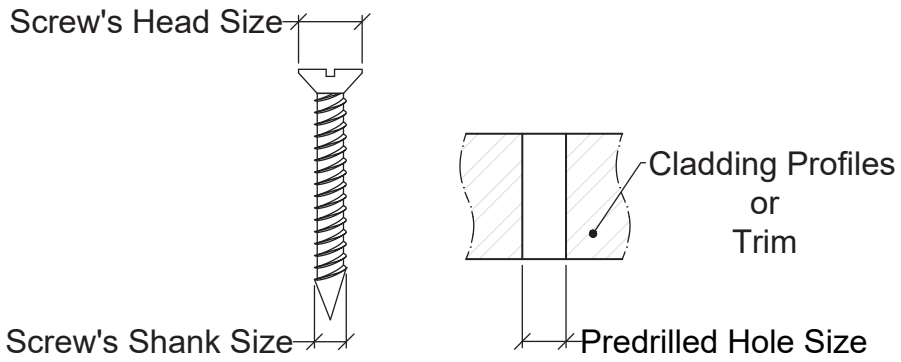
Use white chalk, straight boards, or string lines as templates for straight lines. NEVER USE COLORED CHALK. Colored chalk will permanently stain NewTechWood's products and are highly not recommended.

All screws that are face fixed should always be stainless steel. Depending on the screws that you use when face fixing, there could be potential bulging or mushrooming. It is recommended to take care of these mushrooms/bulges by taking a rubber mallet and patting them down to give your cladding a better look.

When choosing which screws to use always check first with your local home centers and hardware stores to see if they have screws that are engineered specifically for composite wood. These screws will always work and give NewTechWood's products the best looking outcome, using other screws that are not recommended for composite could potentially damage/harm the cladding. If you are unsure which screw to use, contact your manufacturer for more information.

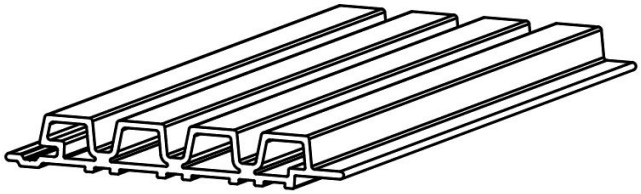
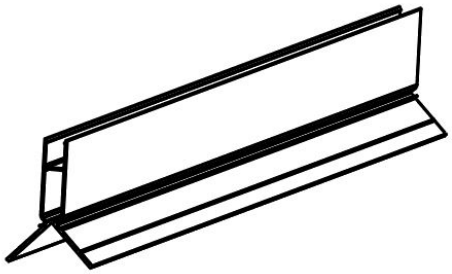
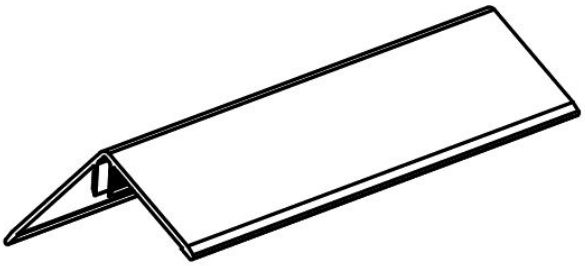
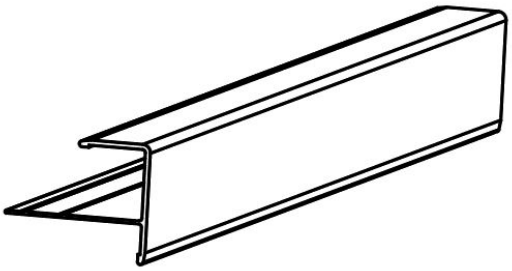
Predrill

When face fixing, it is recommended to predrill the holes slightly larger than the screw's shank size on the cladding profiles and the trims to allow for expansion and contraction response to themperature change, as shown in below diagram,

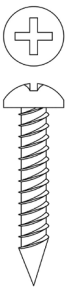
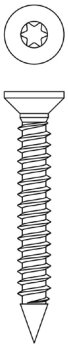
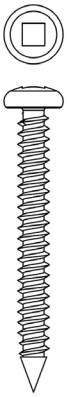


Moreover, the predrilled hole size should also be smaller than the screw head size.

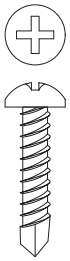
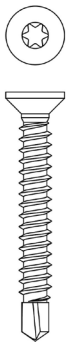
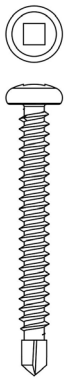
Cladding Parts

Product	Purpose	Part
UH108	Castellation Pro Cladding Board	
AT05B	Outside Corner Trim Base Used on the Outside Corners	
CAT05C	Outside Corner Trim Cover Used on the Outside Corners	
CAT06	F-Trim Used on the Outermost Edges	

Cladding Screws
(For Wood Joists)

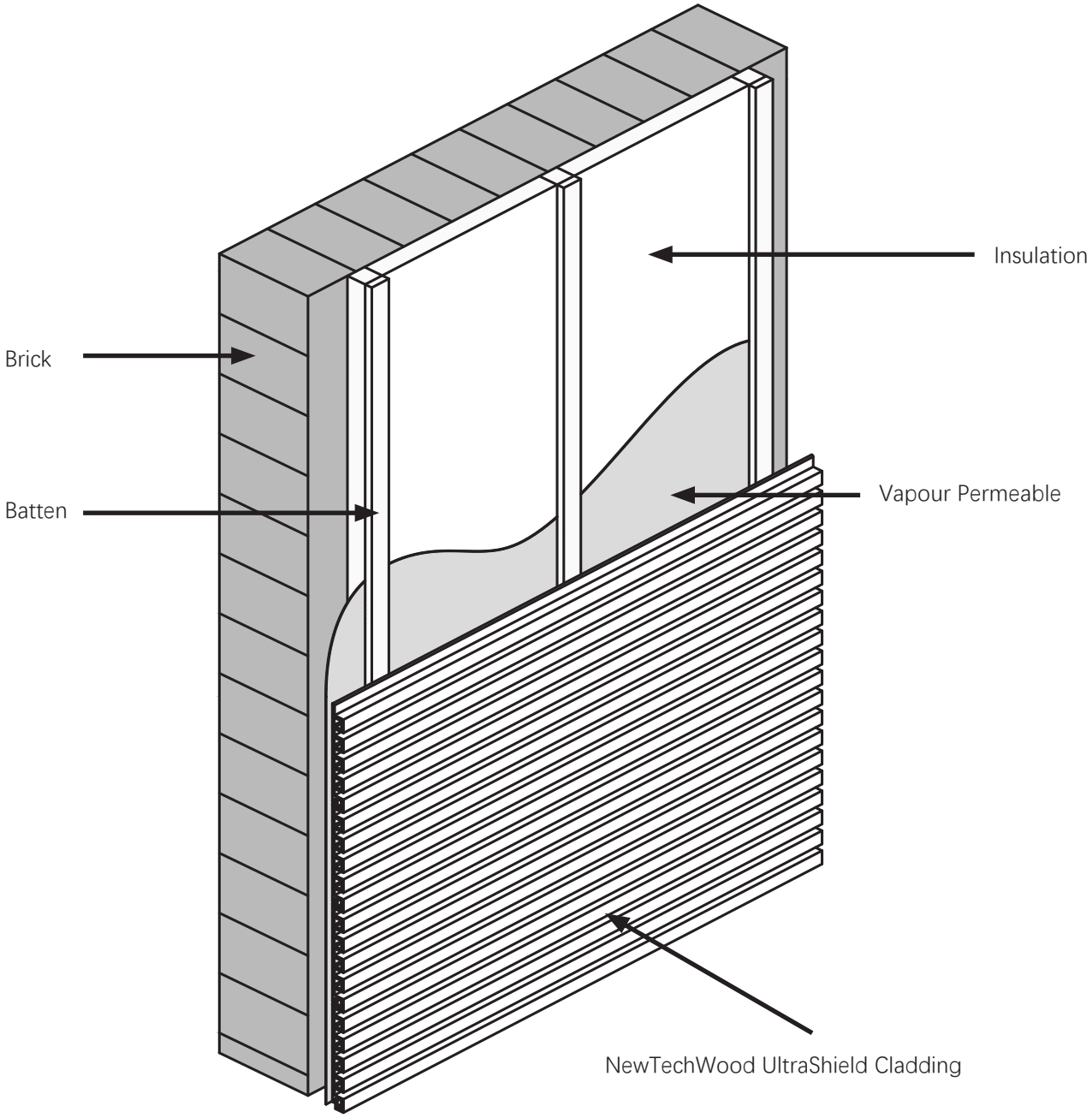
Product	Purpose	Part
*8G x 20 SS304 (Pan Head) (Phillips Recess) (Self-Tapping)	Used when fixing the trims AT05B and CAT06 onto the joists.	
*8G x 32 SS304 (Flat Head) (Torx T15 Recess) (Self-Tapping)	Used when fastening the Cladding Boards onto the joists.	
*8G x 38 SS304 (Pan Head) (Square SR2 Recess) (Self -Tapping)	Used when face fixing the Cladding Boards onto the joists.	

Cladding Screws
(For Aluminum Joists)

Product	Purpose	Part
*8G x 20 SS304 (Pan Head) (Phillips Recess) (Self-Drilling)	Used when fixing the trims, AT05B and CAT06 onto the joists.	
*8G x 32 SS304 (Flat Head) (Torx T15 Recess) (Self-Drilling)	Used when fastening the Cladding Boards onto the joists.	
*8G x 38 SS304 (Pan Head) (Square SR2 Recess) (Self -Drilling)	Used when face fixing the Cladding Boards onto the joists.	

Under Construction

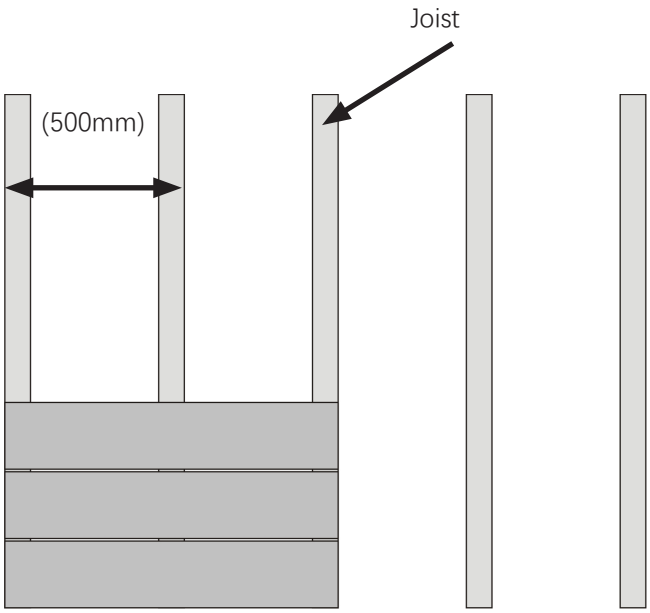
We recommend for the under construction Aluminum or pressure treated wood joists. Each cladding board needs to be supported by a joist NO MORE than 500 mm on centers. Extra care is required in order to provide sufficient joisting in and around obstacles such as windows, fascia's, soffits, guttering, ventilation points etc. Below is an example of the layers that would occur in a typical installation, but a licensed professional should always be consulted prior to any installation.



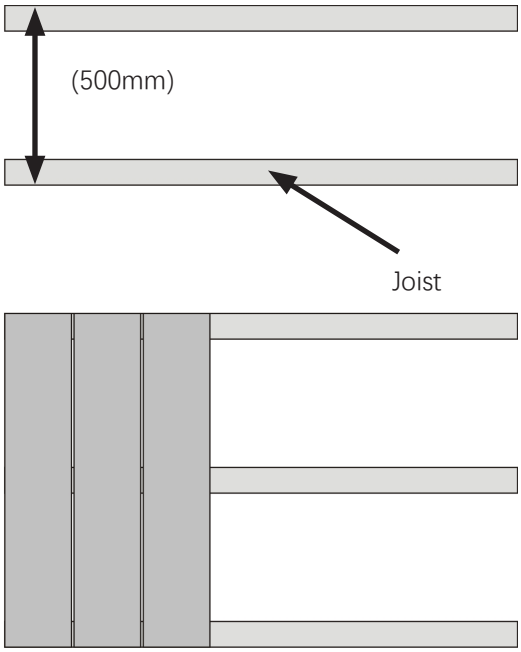
Joists Installation

A building professional should be consulted regarding vapor barriers and insulation for your project. Where a vapor barrier is to be used, it should be a breathable type and must be positioned behind the joists. The joist needs to have a minimum thickness of 25 mm.

Joist should be fixed into position at a maximum of 500 mm on centers using a suitable 8G Stainless Steel Countersunk Wood/Masonry screw. All joists need to be flat and leveled against the wall surface use shims if necessary.



Horizontal Installation



Vertical Installation

Expansion and Contraction Values

NewTechWood cladding boards will experience expansion and contraction with changes in temperature. Expansion and contraction are most significant where extreme temperature changes occur. Fastening the cladding boards according to the gapping requirements noted in the following table accommodates for this movement.

Length (Meters)

Installation Temperature (° C)	1	2.44	2.8	3	3.66	4	4.88	5.4	Gap (mm)
0	1.4	3.4	3.9	4.2	5.1	5.6	6.8	7.6	
5	1.2	2.9	3.4	3.6	4.4	4.8	5.9	6.5	
10	1.0	2.4	2.8	3.0	3.7	4.0	4.9	5.4	
15	0.8	2.0	2.2	2.4	2.9	3.2	3.9	4.3	
20	0.6	1.5	1.7	1.8	2.2	2.4	2.9	3.2	
25	0.4	1.0	1.1	1.2	1.5	1.6	2.0	2.2	
30	0.2	0.5	0.6	0.6	0.7	0.8	1.0	1.1	

Please Note:

1. The above table shows the overall gap required. If boards have a gap at each end, then halve the value shown.
2. If you are still unsure of what gapping to use, contact the manufacturer and they will give you the correct gapping requirements based on your environment and area.

How to Connect the Castellation Pro Cladding Boards on a Horizontal Installation

Castellation Pro cladding boards are connected using a tongue and groove design for simplified installation and weather resistance. The groove channel is designed with a countersink slot to hide the screw head, as shown in **Diagram A**.

-Step 1: Insert the tongue part into the groove of the previous fixed cladding board.
-Step 2: Put the entire cladding board onto the joists.
-Step 3: Use a Flat Head screw to fix the cladding board onto the joist.

Please Note:

1. Put the Groove part upwards.
2. Must pre-drill the screw holes according to the instructions on page 13, Locking the Wall Cladding Board.

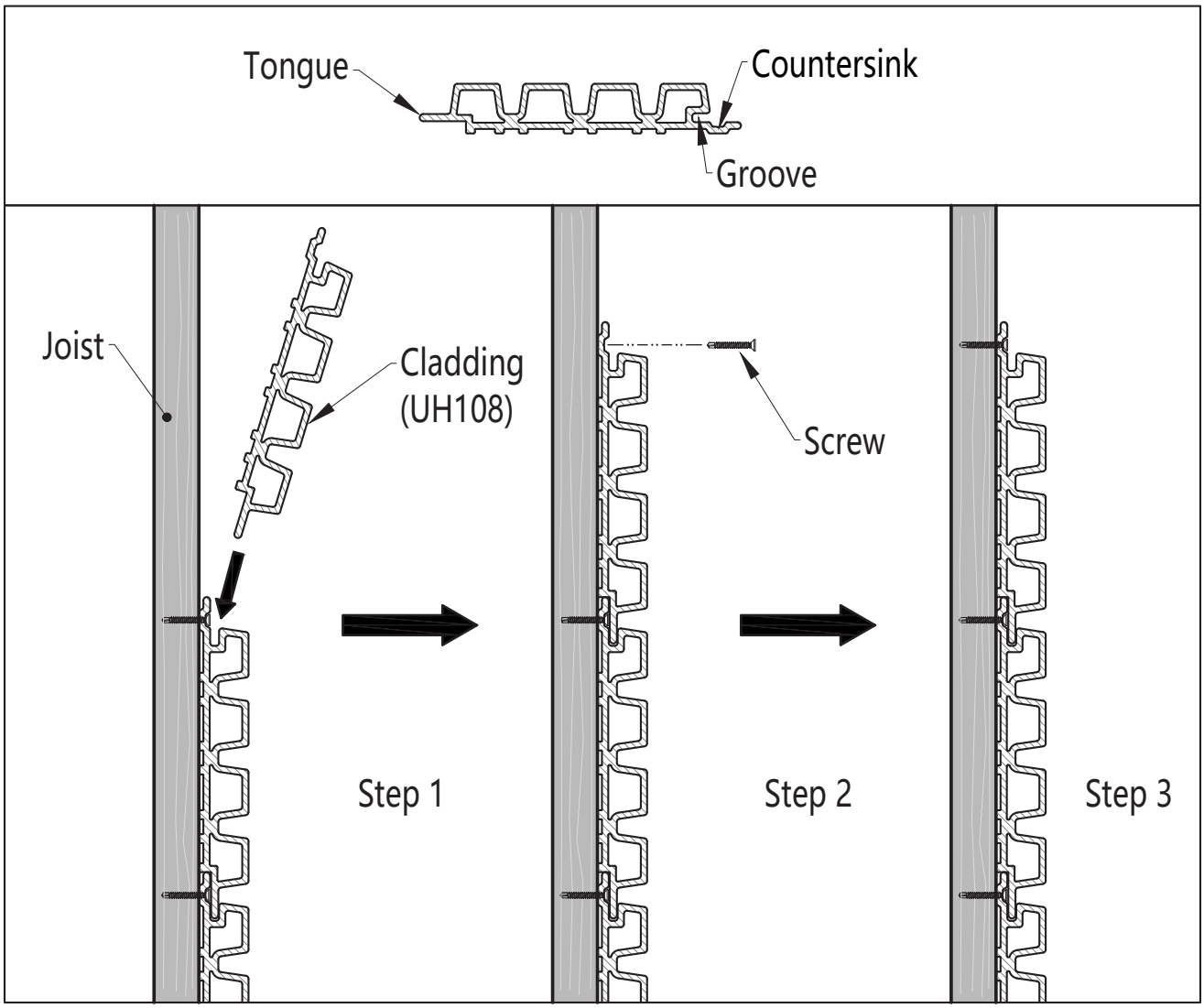


Diagram A

Locking the Wall Cladding Board

Since the composite wood must allow for expansion and contraction due to temperature change, the cladding board must be locked at one fixed point but only one point. The remaining screw holes must be pre-drilled with a larger drill bit to allow the resting board to move freely.
When installed horizontally, the cladding board must be locked in the **Middle** to allow its expansion and contraction towards both sides, as shown in **Diagram B** (The First or the Last cladding board) and **Diagram C** (The remaining cladding boards).

Please Note:
DO NOT LOCK EVERY Screw Hole. General rule of thumb is every board will only need one locking/fixation point.

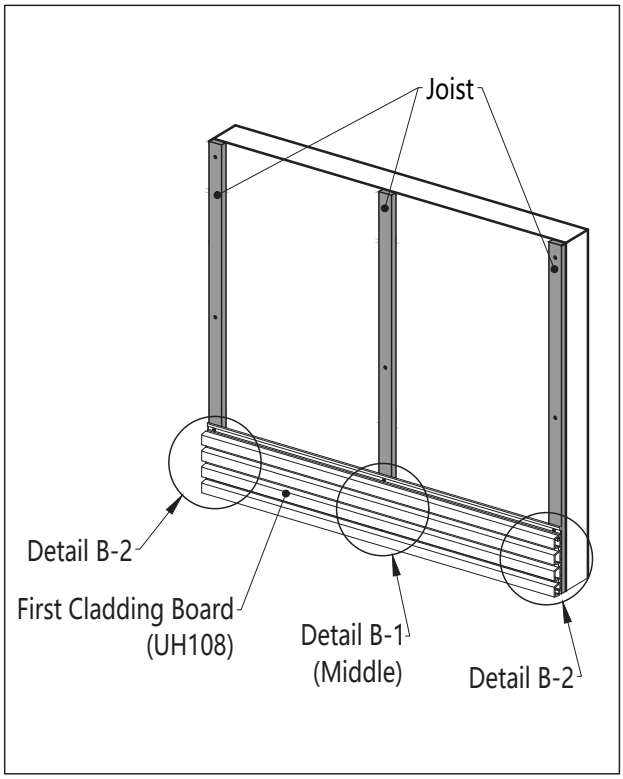


Diagram B

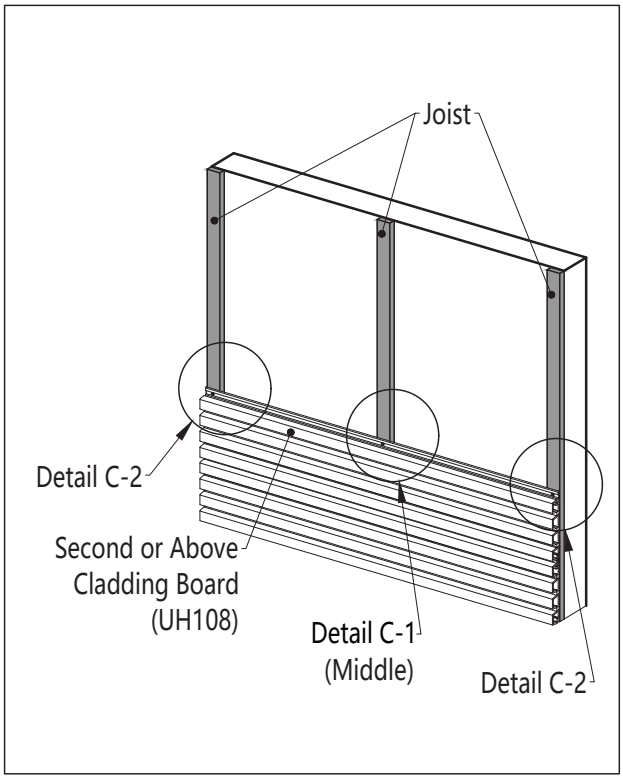
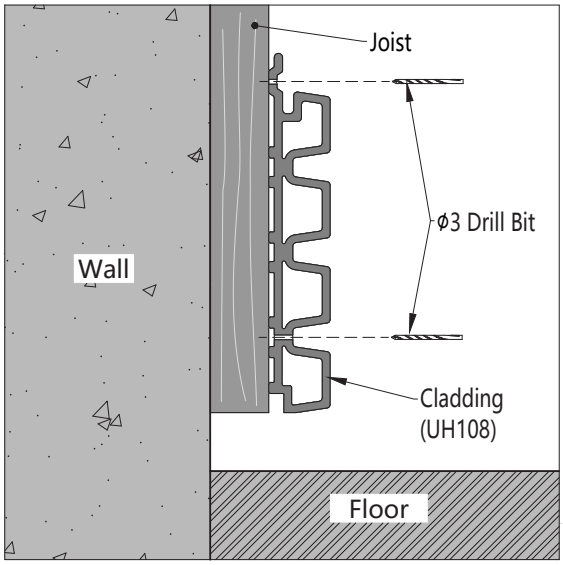


Diagram C

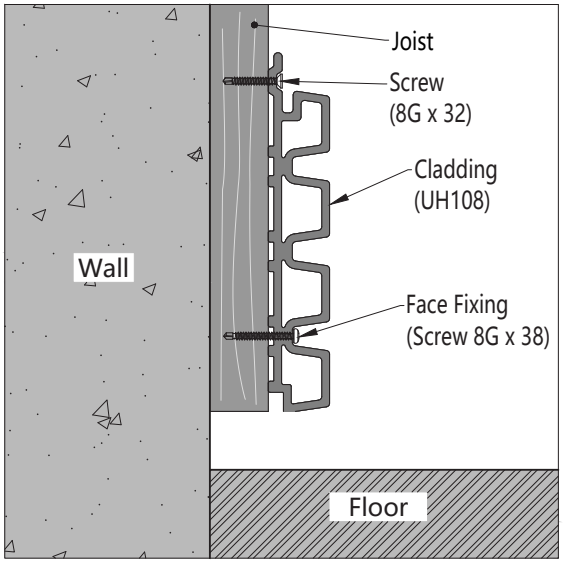
Pre-drill the screw holes for the First Board & the Last Board

Use a 3mm drill bit to pre-drill the screw holes, including the face fixing for the first cladding board, as shown in **Detail B-1a**.



Detail B-1a

It's recommended to use 8G screw to fix the cladding board on the joist, as shown in **Detail B-1b**.

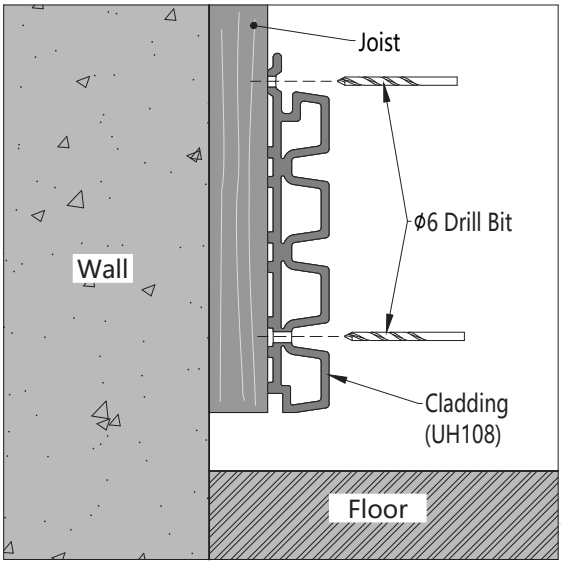


Detail B-1b

Please Note:

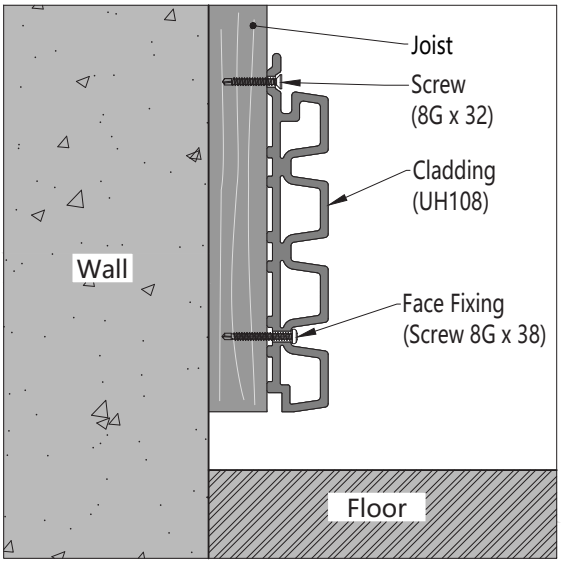
Select the screw type and size according to pages 7-8, Cladding Screws, of this installation guide.

Use a 6mm drill bit to pre-drill the resting screw holes, including the face fixing for the first cladding board, as shown in **Detail B-2a**.



Detail B-2a

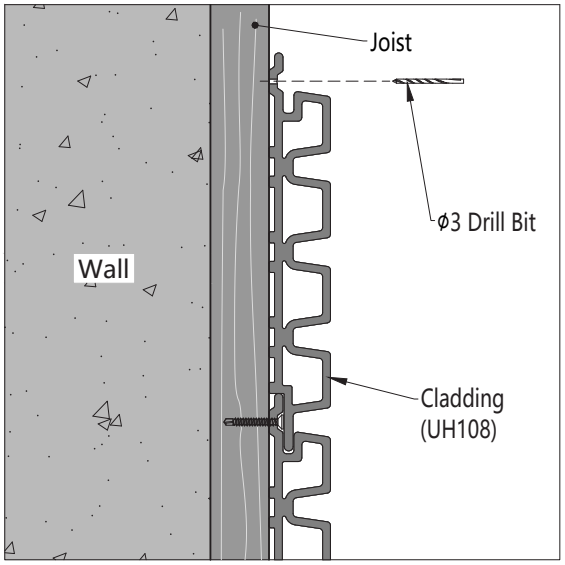
It's recommended to use 8G screw to fix the cladding board on the joist, as shown in **Detail B-2b**.



Detail B-2b

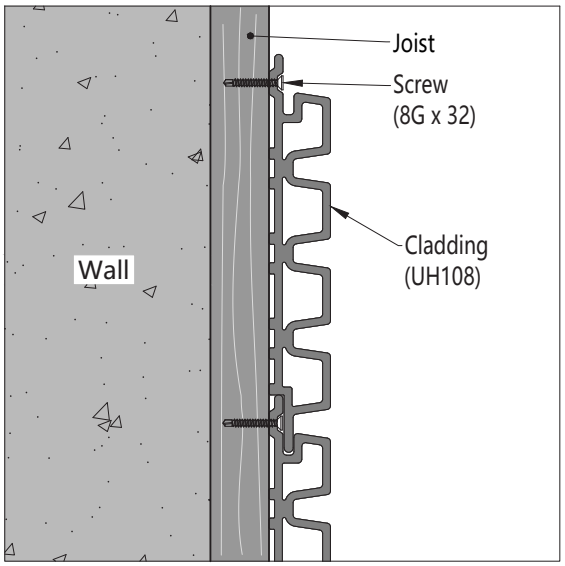
Pre-drill the screw holes for the Remaining Cladding Boards

Use a 3mm drill bit to pre-drill the screw hole, as shown in **Detail C-1a**.



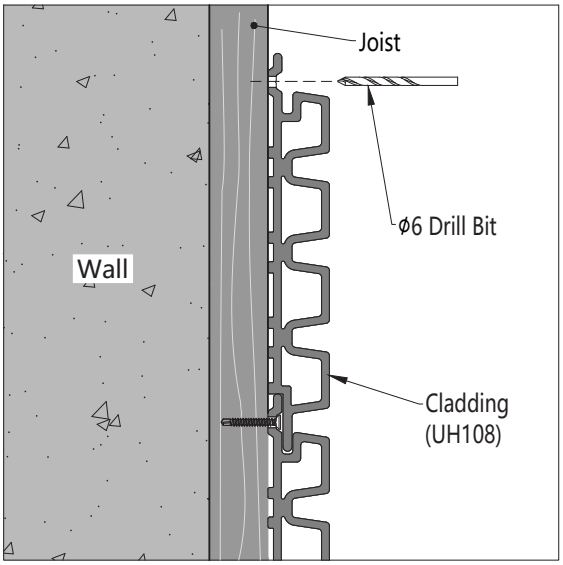
Detail C-1a

It is recommended to use 8G screw to fix the cladding board on the joist, as shown in **Detail C-1b.**



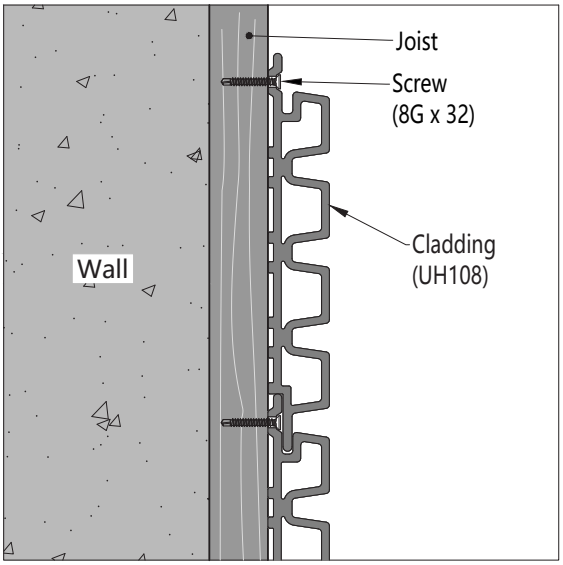
Detail C-1b

Use a 6mm drill bit to pre-drill the resting screw holes, as shown in **Detail C-2a**.



Detail C-2a

It is recommended to use 8G screw to fix the cladding board on the joist, as shown in **Detail C-2b.**



Detail C-2b

Castellation Pro Cladding Horizontal Installation

Installation Procedure

Step 1: Framing
- **Measure and Chalk the Josit**
- **Joists Installation**

Step 2: Installing the Trims

Step 3: Cladding Board Installation
- **Install the First board**
- **Install the Last board**
- **Cover the Outside Corner Trims**

1 Framing

The frame needs to be level before installing the cladding boards. **Diagram 1A** & **Diagram 1B** shows the wall replicating different scenarios potentially occuring when installing the cladding boards.

Wall Side A: Presented from the Outermost Edge to the Inside Corner.
Use the F-Trim (CAT06) for the Outermost Edge and No trim for the Inside Corner.

Wall Side B: Presented from the Inside Corner to the the Outside Corner.
No trim for the Inside Corner and use Outside Corner Trim (CAT05C with AT05B) for the Outside Corner.

Wall Side C: Presented between two Outside Corners.
Use the Outside Corner Trim (CAT05C with AT05B) for the Outside Corner.

Wall Side D: Presented betweem two Inside Cornes.
No trim for the Inside Corner.

Wall Side E: Presented from the Outside Corner to the Outermost Edge.
Use the Outside Corner Trim (CAT05C with AT05B) for the Outside Corner and use F-Trim (CAT06) for the Outermost Edge.

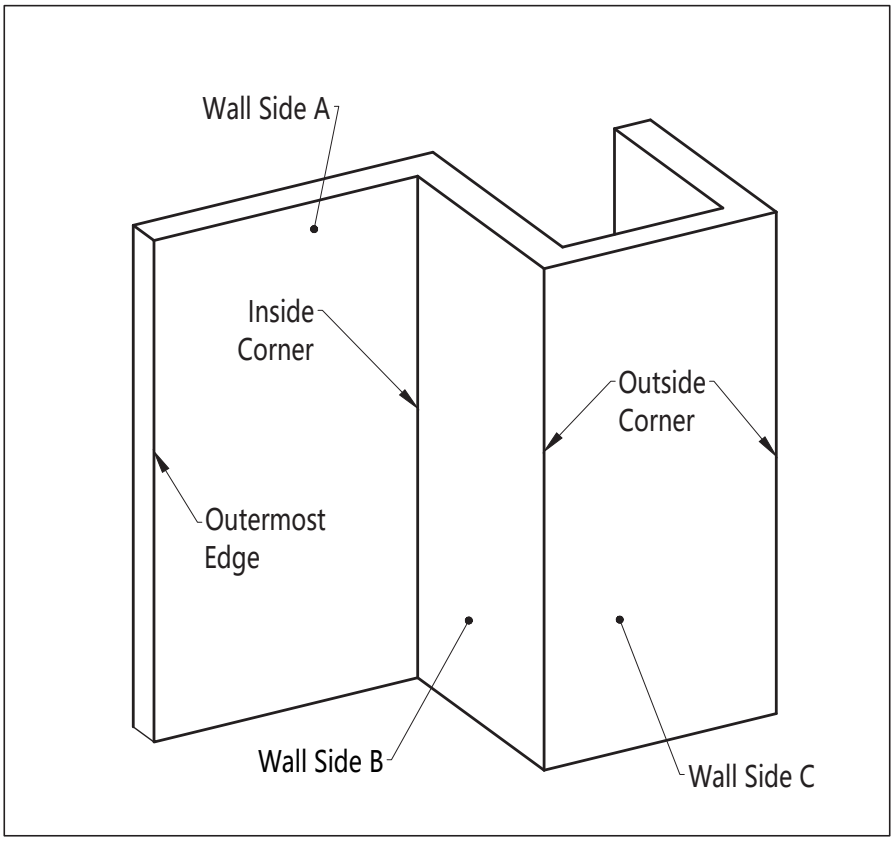


Diagram 1A

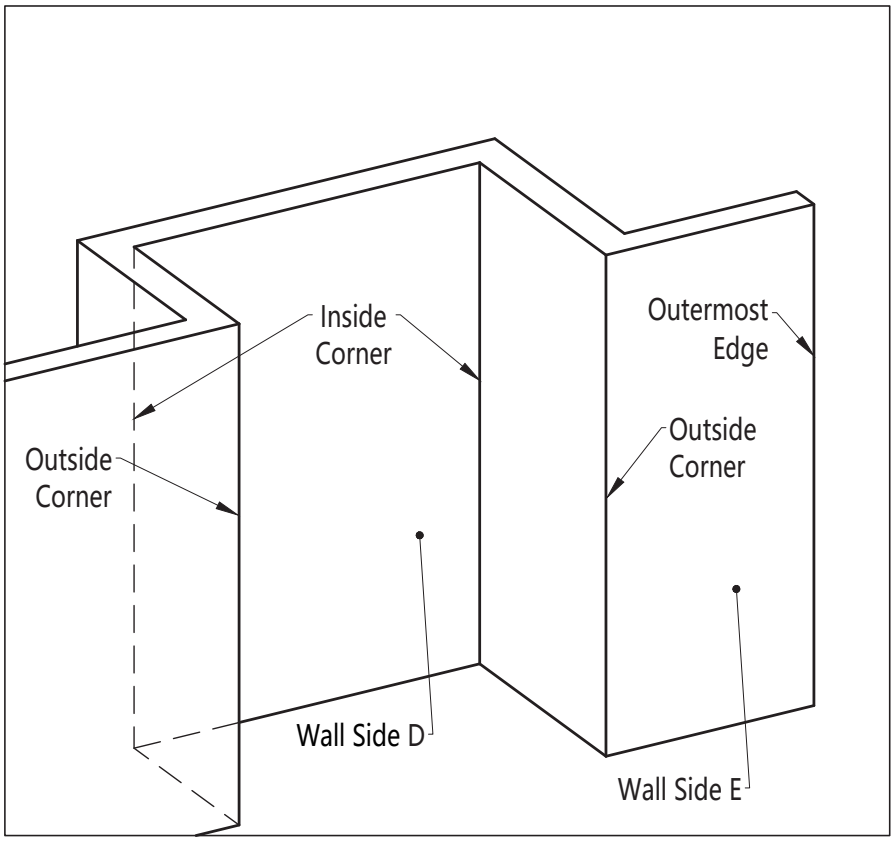


Diagram 1B

2 Measure and chalk the joists according to the span data specified on **page 10** of this installation guide, as shown in **Diagram 2A** & **Diagram 2B.**

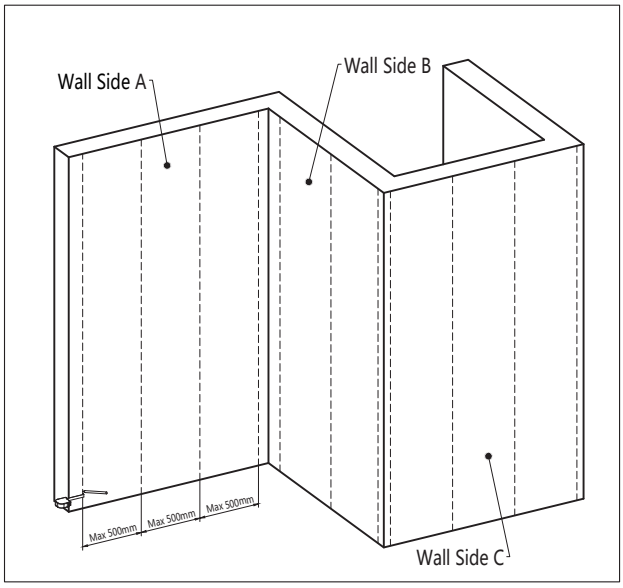


Diagram 2A

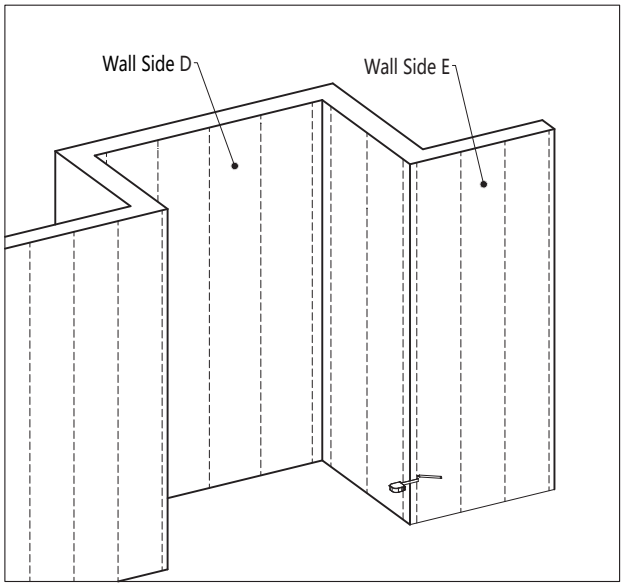


Diagram 2B

Please Note:

An adequate span between the joists is required to keep the boards from bending. Please review *page 10* of this installation guide to see what span is needed

3 Fix the joists onto the wall with screws. Please read the **page 10** to see what span is needed, as shown in **Diagram 3A** & **Diagram 3B**.

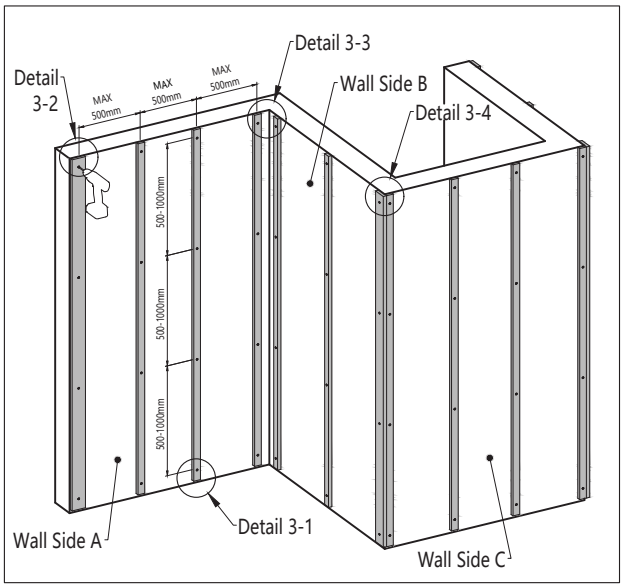


Diagram 3A

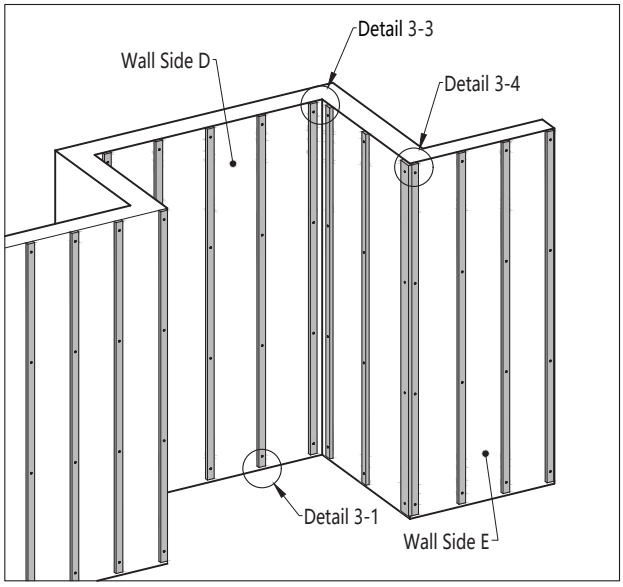
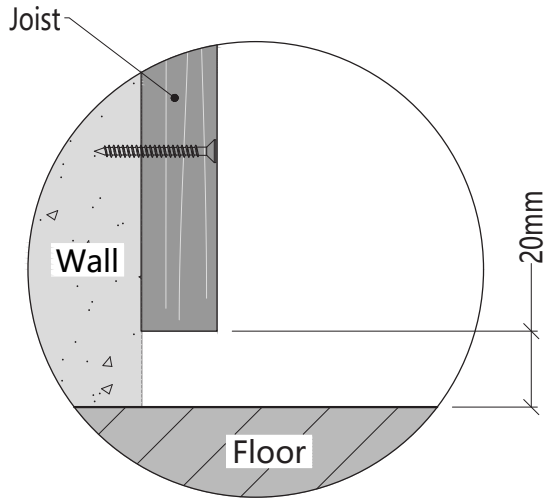


Diagram 3A

Detail 3-1

Please Note:

1. A minimum clearance of 20mm needs to be left between the floor and the joists, as shown in Detail 3-1.



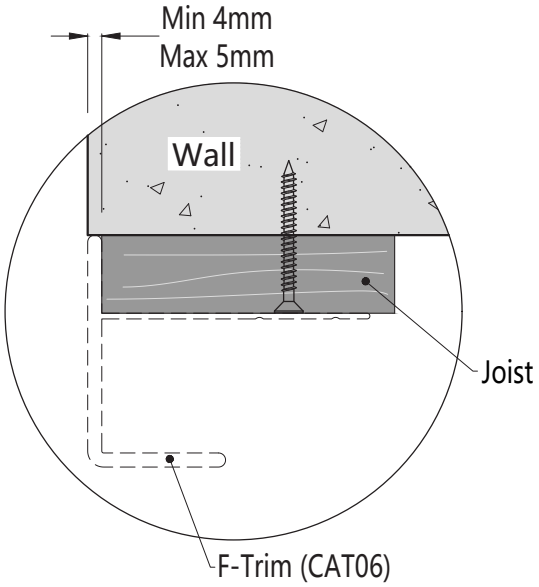
Detail 3-1

Please Note:

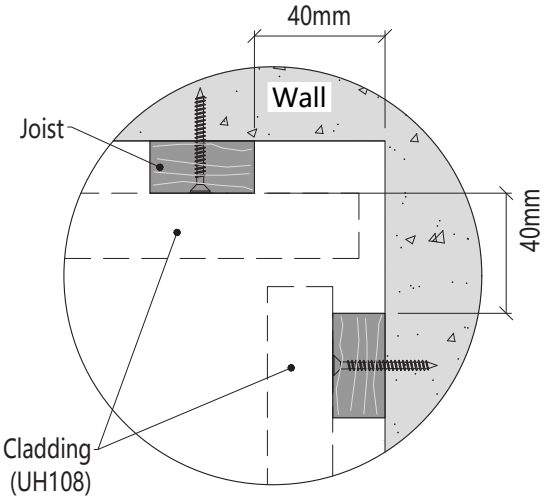
3. Outermost Edge (Use F-Trim CAT06), please install the joists according to Detail 3-2.

4. Inside Corner (No trim is needed), please install the joists according to Detail 3-3.

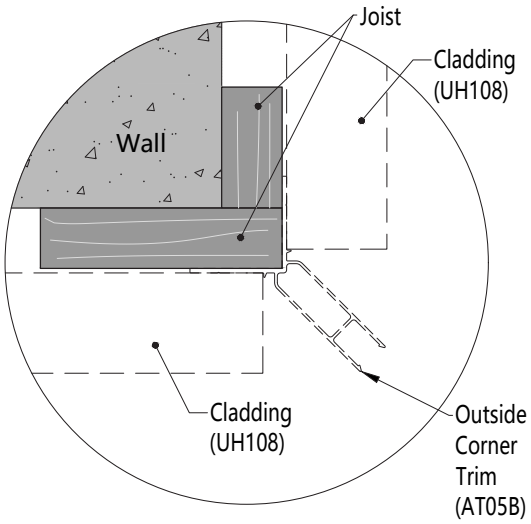
5. Outside Corner (Outside Corner Trim CAT05C with AT05B), please install the joists according to Detail 3-4.



Detail 3-2



Detail 3-3



Detail 3-4

4 Install the Trims

Fasten the F-Trim (CAT06) onto the outermost edges and the Outside Corner Trim (AT05B) onto the outside corners with screws, as shown in **Diagram 4, Detail 4-1** and **Detail 4-2**.

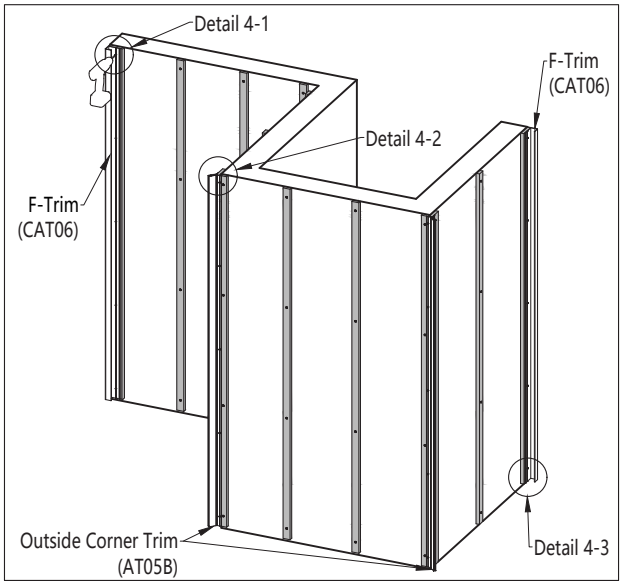
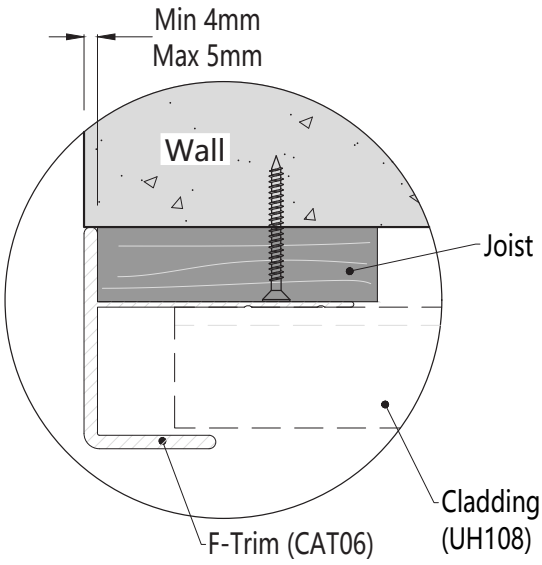
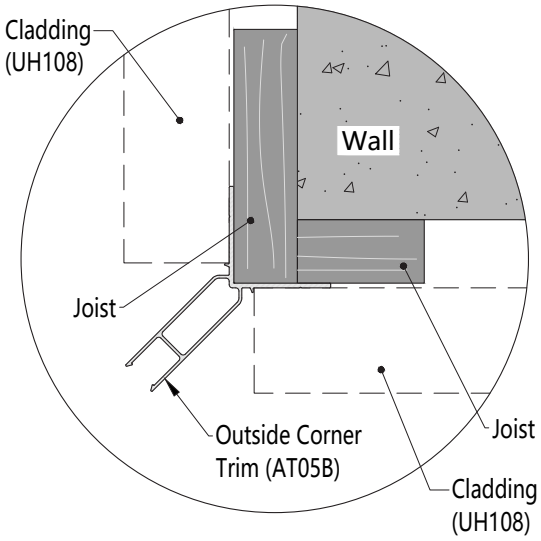


Diagram 4



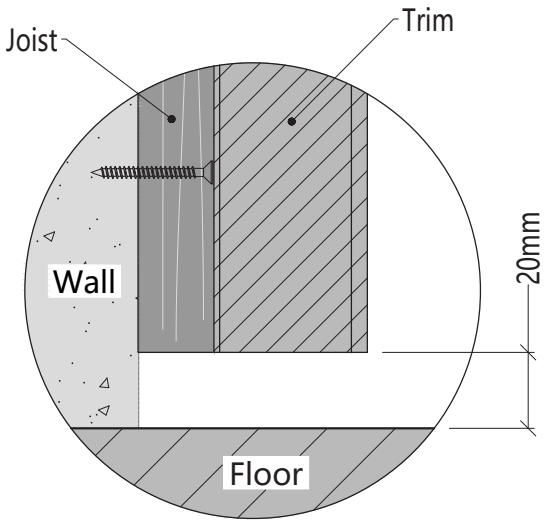
Detail 4-1



Detail 4-2

Please Note:

1. A minimum clearance of 20mm needs to be left between the trims and the floor, as shown in Detail 4-3.



Detail 4-3

5 Cladding Board Installation

Install the First Board

Measure the length of the cladding board for each wall, as shown in **Diagram 5**.

For the Outermost Edge, as shown in **Detail 5-1**.
For the Inside Corner, as shown in **Detail 5-2**.
For the Outside Corner, as shown in **Detail 5-3**.

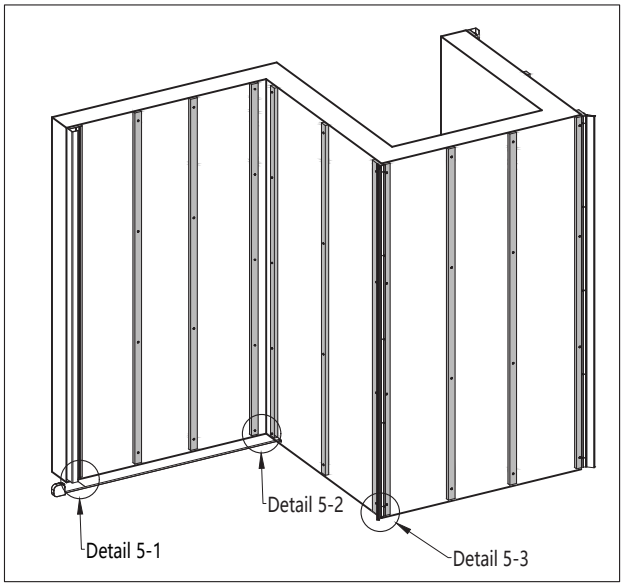
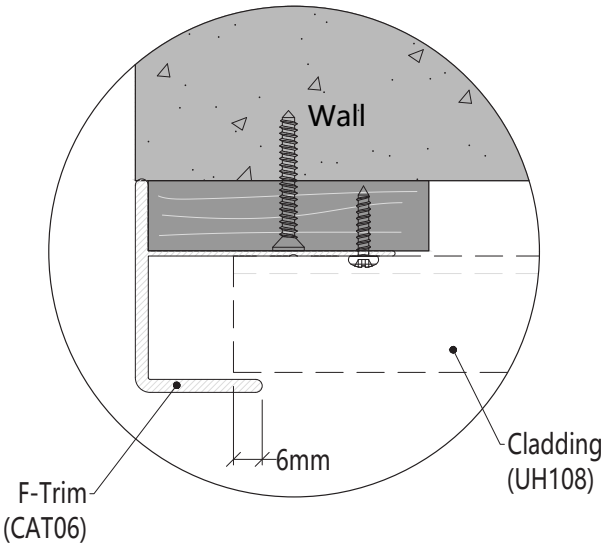
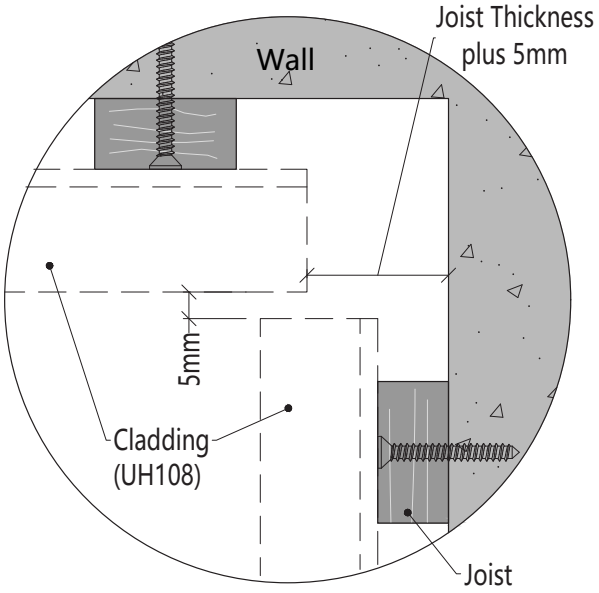


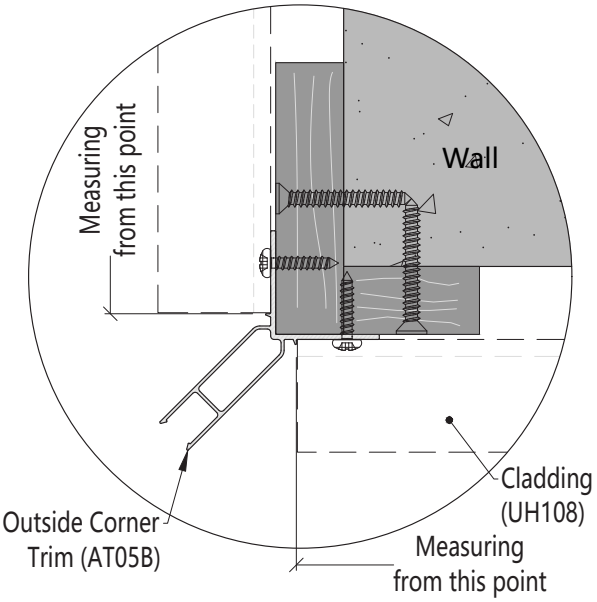
Diagram 5



Detail 5-1



Detail 5-2



Detail 5-3

6 Rip the cladding board according to the measurement, as shown in **Diagram 6**.

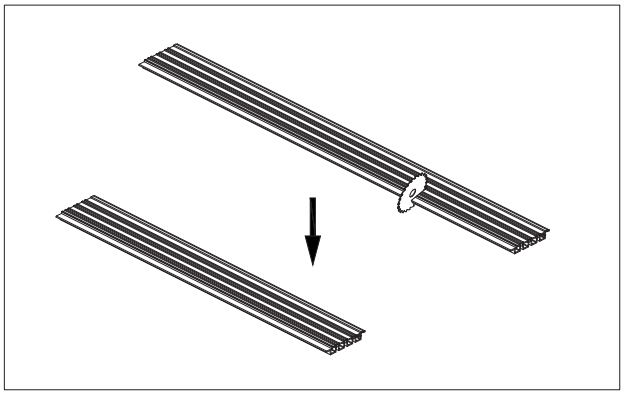


Diagram 6

7 It is recomended to cut the tongue part for the First Board, as shown in **Diagram 7** and **Detail 7-1**.

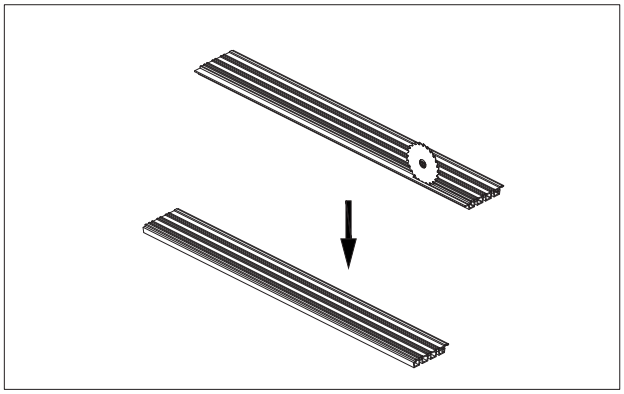
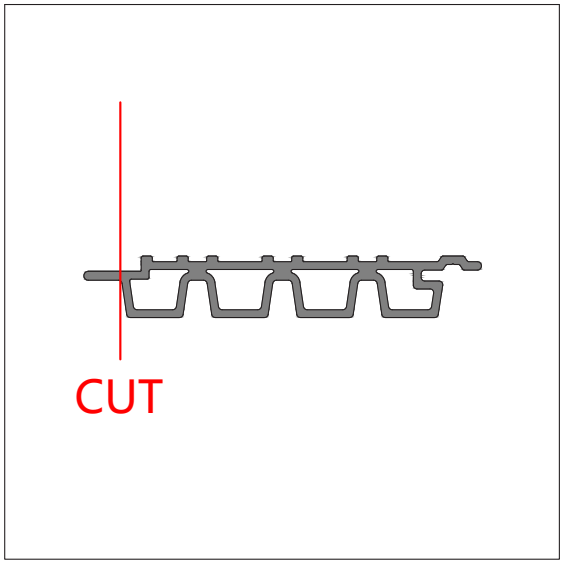


Diagram 7



Detail 7-1

8 Put the First Board in place and fasten it to the joist with screws, as shown in **Diagram 8** and **Detail 8-1**.

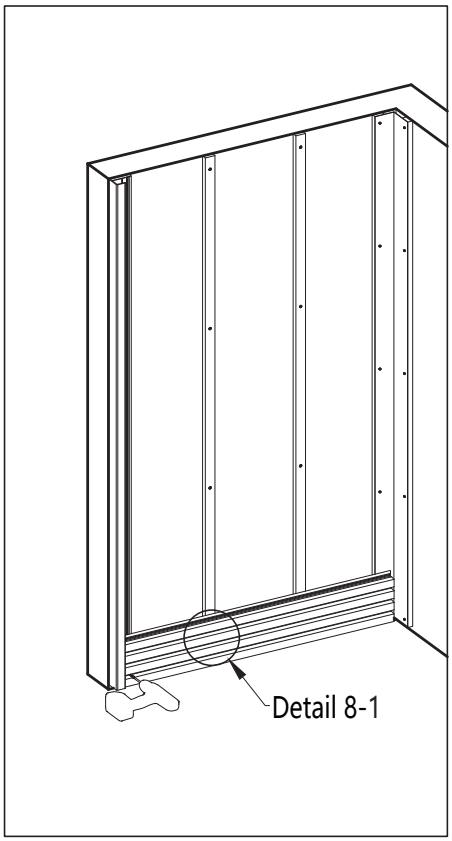
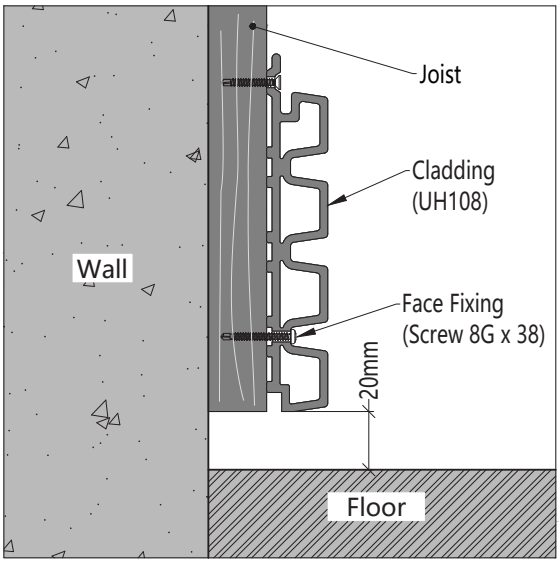


Diagram 8

A minimum clearance of 20mm must be left between the floor and the First Board, as shown in **Detail 8-1**.



Detail 8-1

9 Leave an adequate gap distance for the boards to prevent warping or buckling, as shown in **Diagram 9,**
Detail 9-1, presented for the Outermost Edge,
Detail 9-2, presented for the Inside Corner,
Detail 9-3, presented for the Outside Corner.

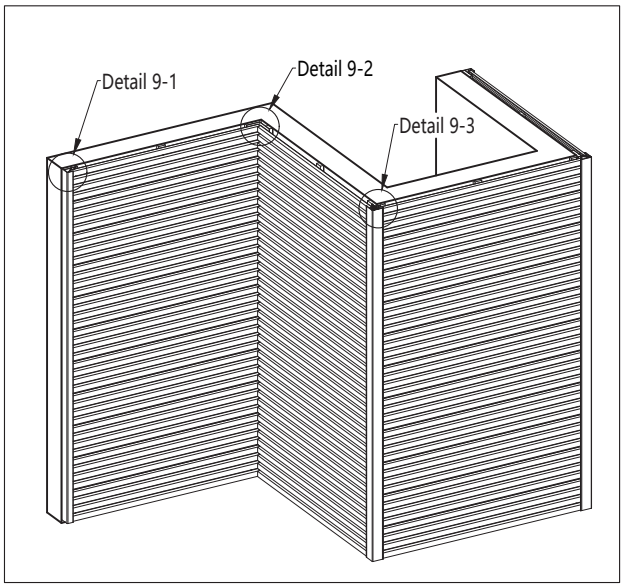
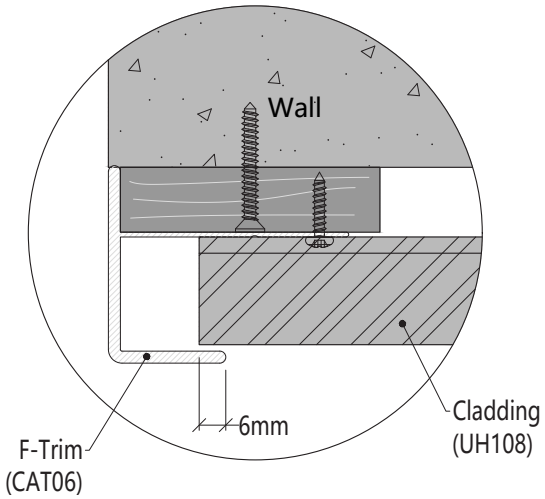
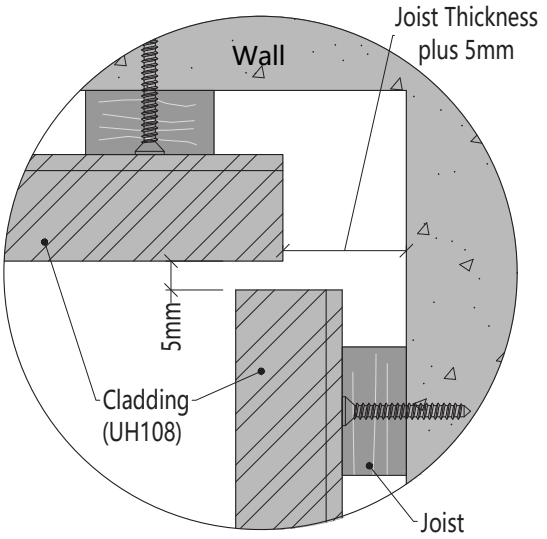


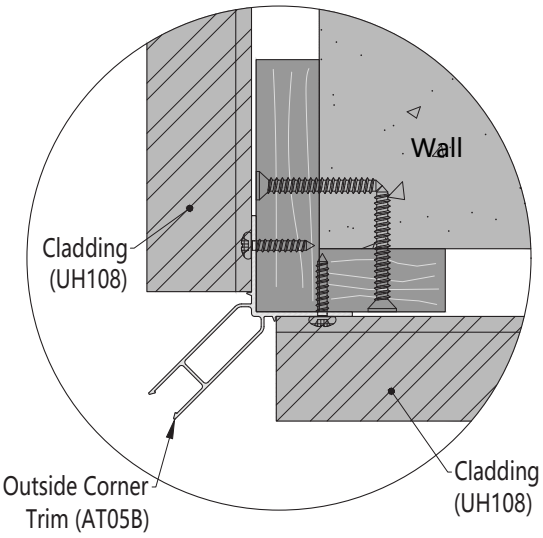
Diagram 9



Detail 9-1



Detail 9-2



Detail 9-3

10 Install the Last Board

When you reach the last board, measure the distance between the cladding board and the ceiling, as shown, as shown in **Diagram 10** and **Detail 10-1**.

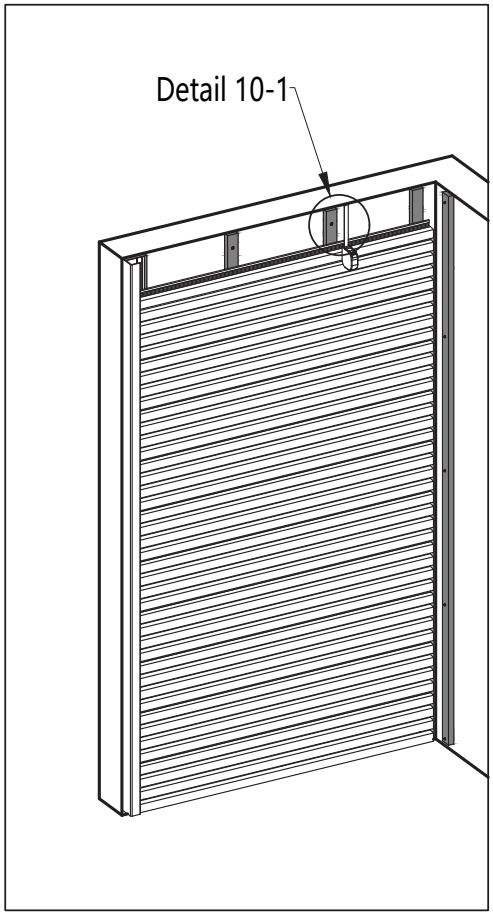
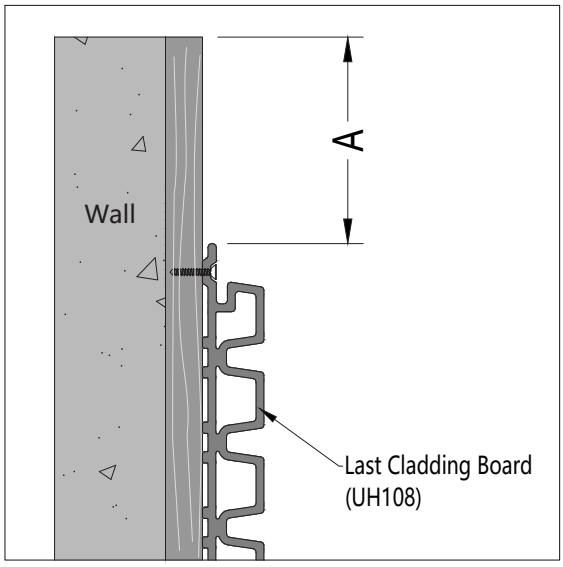


Diagram 10



Detail 10-1

11 Rip the cladding board accroding to the measurement, as shown in **Diagram 11**, and **Detail 11-1**

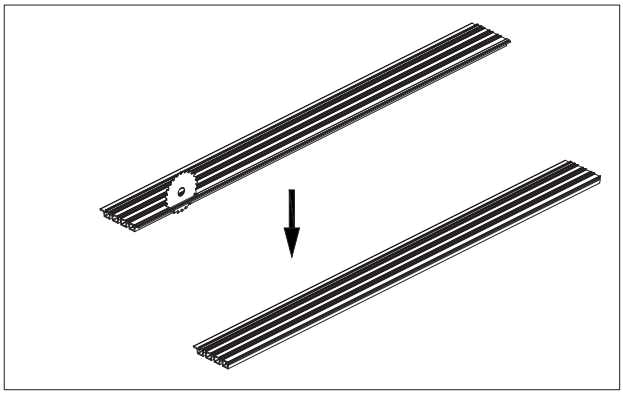
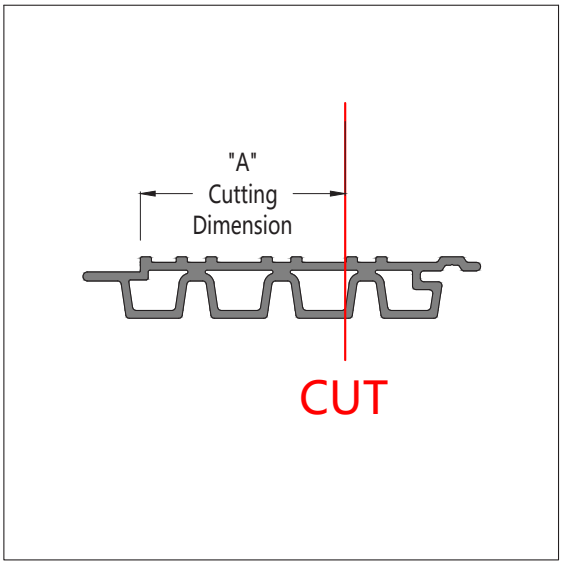


Diagram 11



Detail 11-1

12 Put the cut cladding board in place and face fix it onto the joist along the length of the cladding board, as shown in **Diagram 12** and **Detail 12-1**.

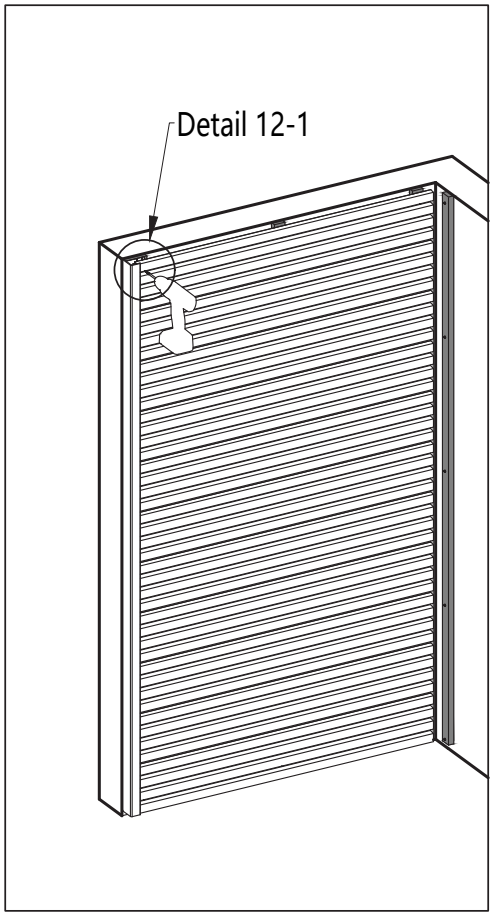
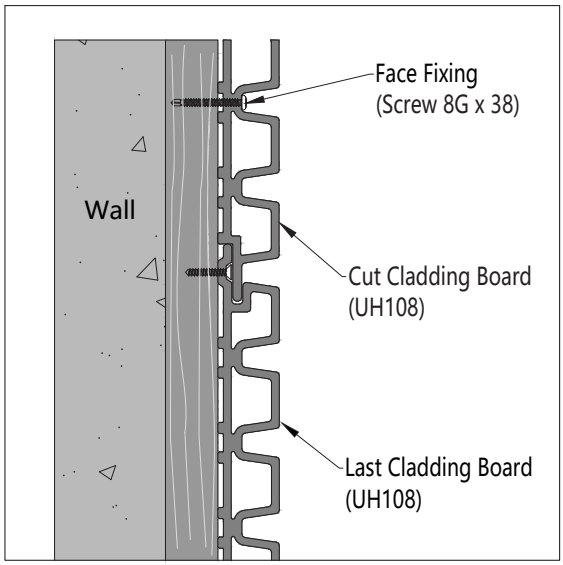


Diagram 12



Detail 12-1

13 Cover the Outside Corner Trim Base (AT05B) with the Outside Corner Trim Cover (CAT05C) when complete the cladding boards installation, as shown in **Diagram 13** and **Detail 13-1**.

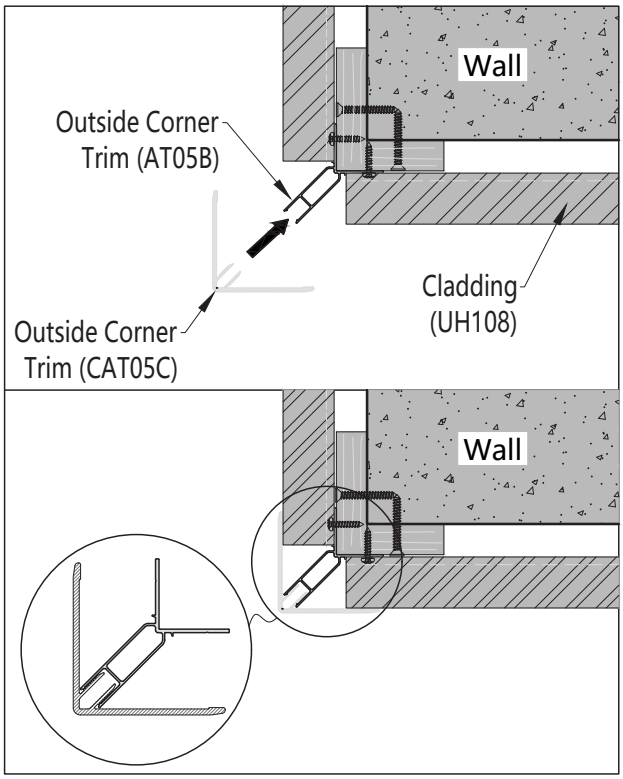


Diagram 13

14 **Diagram 14** presents the apperance after installation complete.

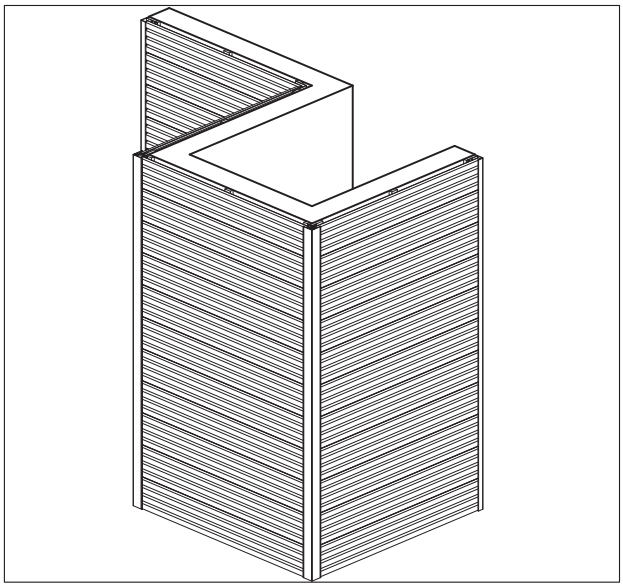


Diagram 14

15 Window Head and Sill

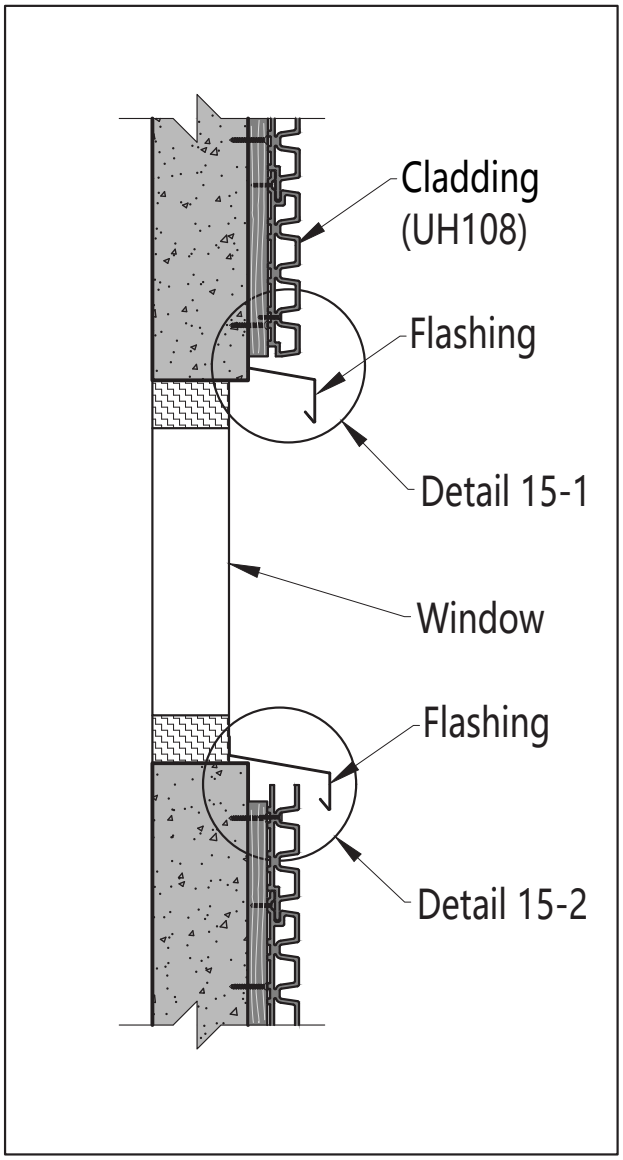
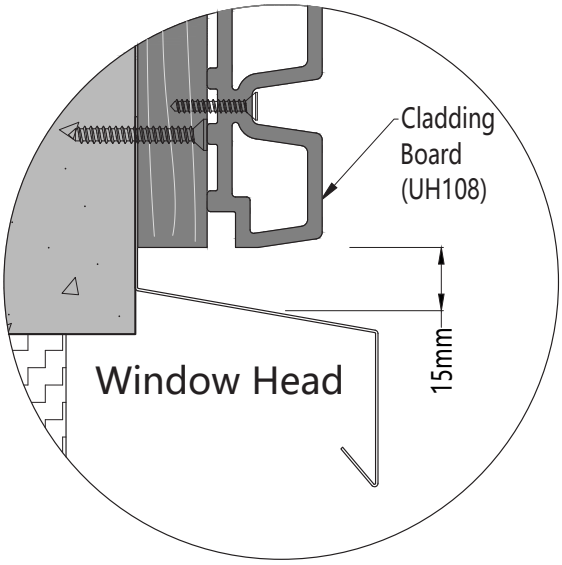
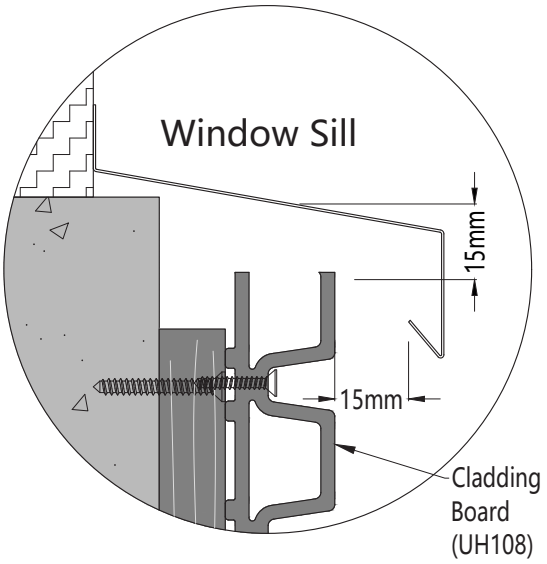


Diagram 15

Maintain min. 15mm clearance between the flashing and the cladding boards to have an appropriate ventilation underneath the cladding boards, as shown in **Detail 15-1** and **Detail 15-2**.



Detail 15-1



Detail 15-2

16 Meter Box

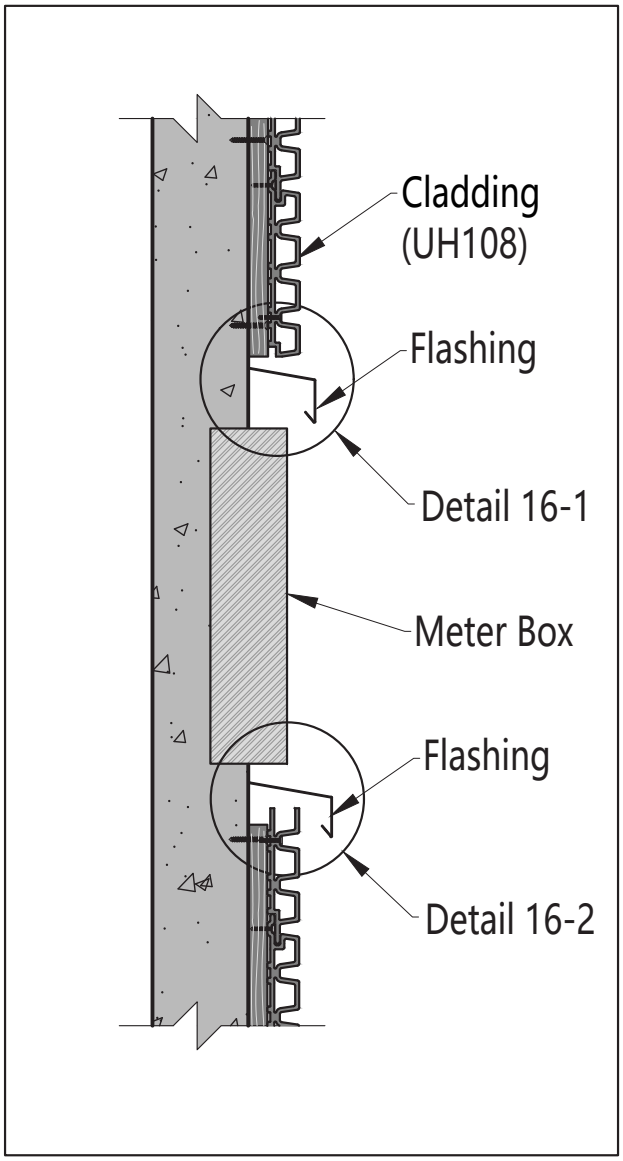
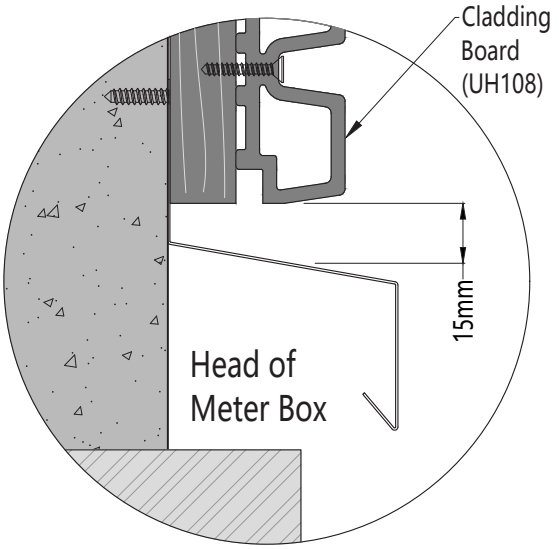
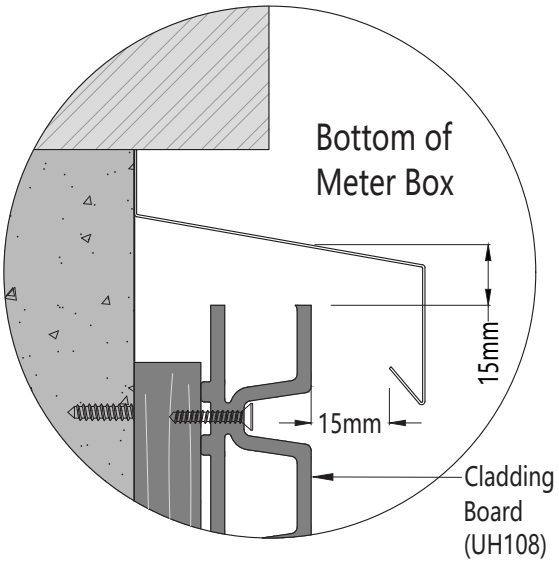


Diagram 16

Maintain min. 15mm clearance between the flashing and the Meter Box to have an appropriate ventilation underneath the cladding boards, as shown in **Detail 16-1** and **Detail 16-2**.



Detail 16-1



Detail 16-2

17 Parapet

Finish the top of the parapet with metal flashing. Maintain min. 15mm clearance between the flashing and the cladding boards to have an appropriate ventilation underneath the cladding boards, as shown in **Diagram 17**

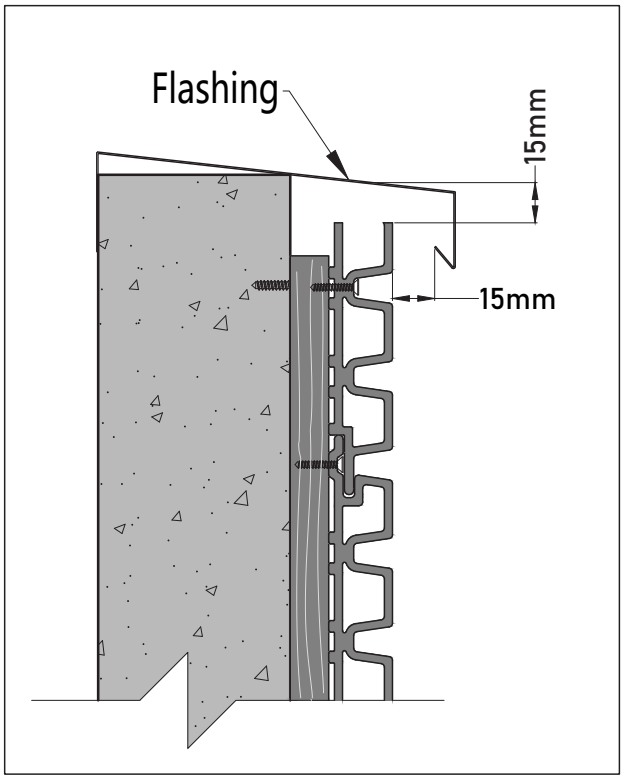


Diagram 17

18 Joint

Leave a 5mm gap for the vertical joint to allow it for expansion and contraction, as shown in **Diagram 18** and **Detail 18-1**

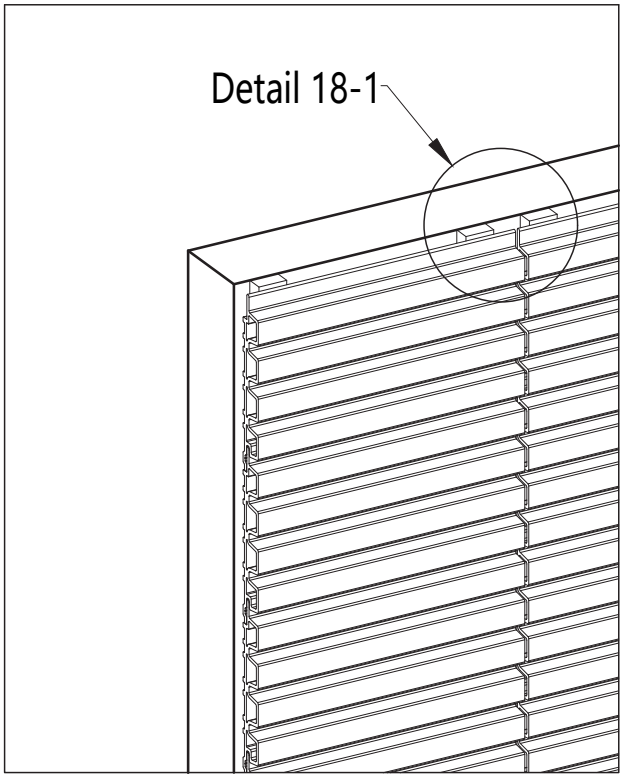
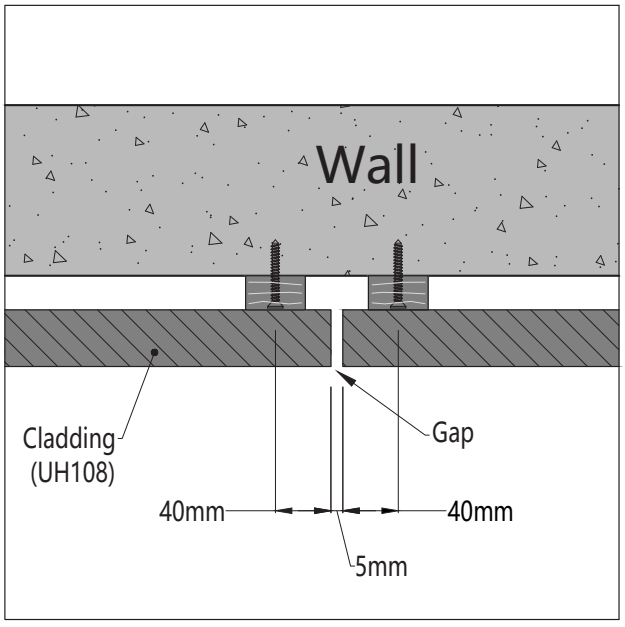


Diagram 18



Detail 18-1

Castellation Pro Cladding
Horizontal Installation Guide

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