



Flat Cladding • Vertical Installation Guide

v1 • NL04_EN



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Important Notes

Read all of the instructions before starting

For the most up-to-date information, visit www.newtechwood.com

Before installing any composite cladding system, always check with local building codes for any special requirements or restrictions. The diagrams and instructions outlined within this guide are for illustration purposes only, and are not meant to replace, or imply a licensed professional. Any construction or use of NewTechWood products 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, always wear appropriate safety equipment to avoid risk of injury. NewTechWood recommends the following non-exhaustive list of safety equipment when handling, cutting, and installing NewTechWood products: gloves, 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

Always install NewTechWood products on a clean, smooth, flat, and strong surface. Always check local building codes before installing any type of cladding. If installation does not happen immediately, always store NewTechWood products on a flat surface at all times to prevent warping.

Planning

Plan a layout for your cladding before starting to ensure the best possible look 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. It is recommended that you draw out a site plan of your proposed project to minimize errors and attain your ideal wall cladding.

NB: Pressure-wash a scrap piece of material before using a pressure washer on the cladding to ensure that the pressure washer 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 load-bearing members. NewTechWood products must be supported by a code-compliant substructure. And whilst NewTechWood products are great for retrofitting, NewTechWood products CANNOT be installed on existing cladding boards.

Static

Static can be more prevalent in areas that are at a higher altitude because of low humidity. For these areas, be careful of using conductive objects, such as metal railings and metal chairs, as these objects may contribute to static shocks. A potential way to lower static is by applying Staticide on your deck or using anti-static mats before doorways.

Ventilation

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

Heat and Fire

Excessive heat on the surface of NewTechWood products may come 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 exceed that of normal exposure, can possibly cause NewTechWood products to melt, sag, warp or discolor; increase expansion/contraction; and accelerate weathering.

Current or potential NewTechWood customers who are concerned 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 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 on the products. An extra joist should be added if a 90-degree angle cannot be obtained. All fasteners should be on their own, independent joist. When two board ends meet each other, a sister joist is required; the end of each board must sit on its own joist.

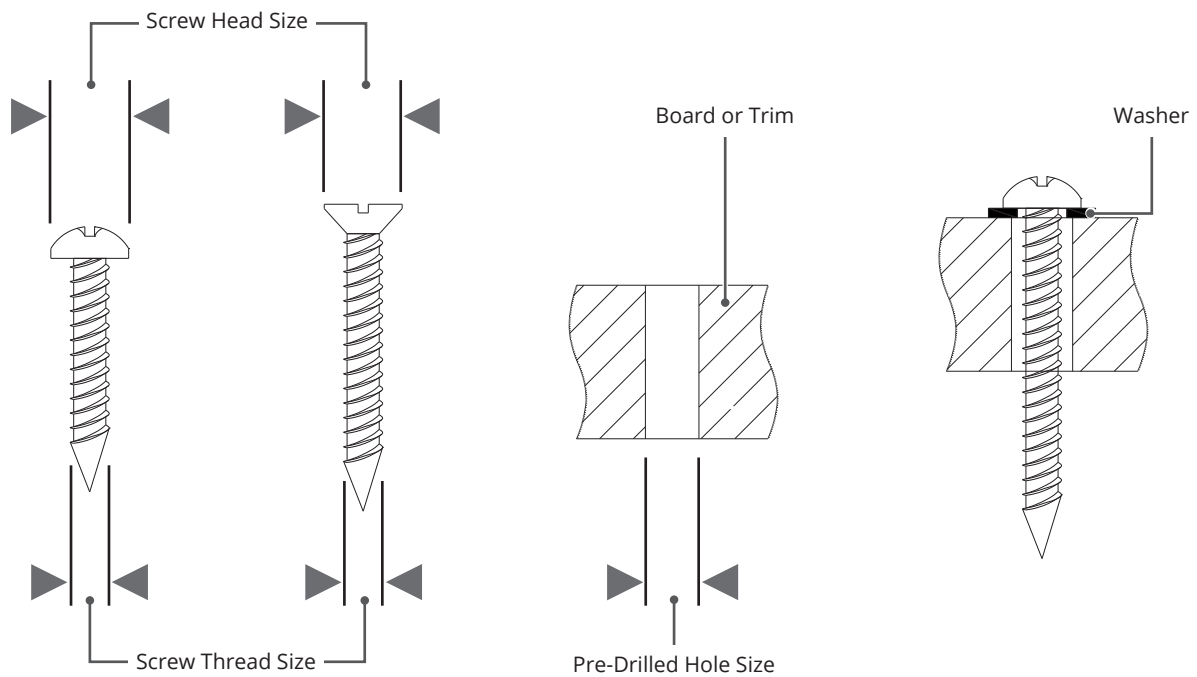
Use white chalk, straight boards, or string lines as templates or straight lines. NEVER use colored chalk. Colored chalk will permanently stain NewTechWood products and are highly not recommended.

All screws that are face-fixed should always be stainless steel. Depending on the screws used when face-fixing, bulging or mushrooming may occur. It is best to take care of these bulges/mushrooms by using a rubber mallet to pat them down to give your cladding a smoother look.

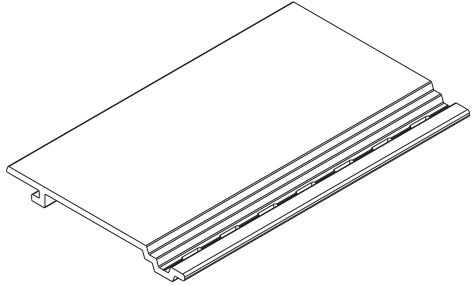
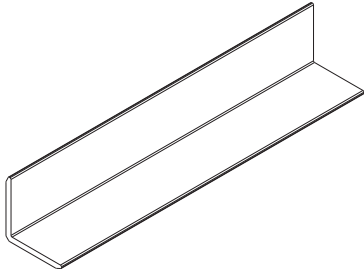
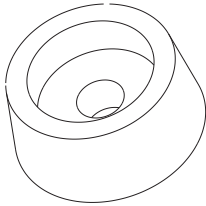
When choosing which screws to use, always check first with your local home and hardware stores to see if they have screws specifically engineered for composite wood. These screws will always work with, and give NewTechWood products the best-looking outcome. Using screws that are not recommended for composite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

Pre-drilling

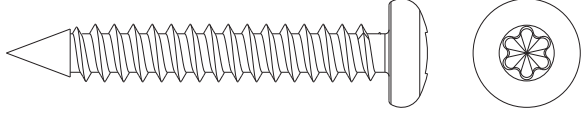
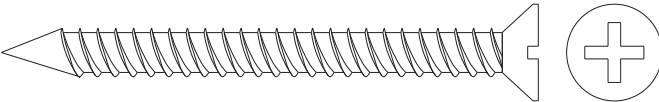
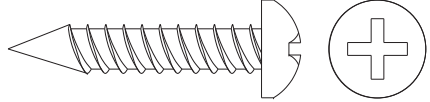
When face-fixing, it is recommended to pre-drill the holes slightly larger on the profiles and trims to allow for the expansion and contraction response to temperature change (see below diagram). The pre-drilled hole diameter should be larger than the screw thread diameter by 1.5mm to 2mm. Additionally, the pre-drilled hole diameter should be smaller than the screw head diameter by at least 2mm. A washer can be applied if the pre-drilled hole diameter is no more than 2mm smaller than the screw head diameter.



Cladding Board and Parts

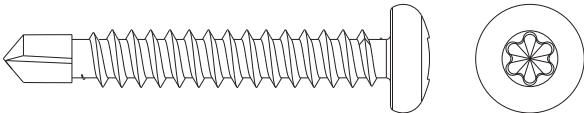
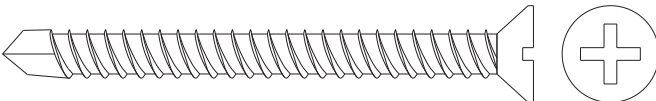
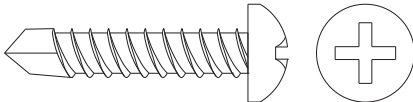
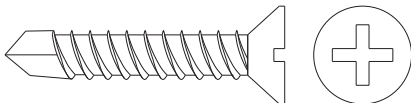
Product	Purpose	Part
US143R	Flat Cladding Board	
US154	L-Trim Used on the outermost edges and outside corners	
T-8	Rubber Stopper Used to support the cladding board	

Cladding Screws (for Wood Joists)

Product	Purpose	Part
*4.2 x 30mm SS304 (Pan Head) (Torx T20 Recessed) (Self-Tapping)	Used to fix the cladding board to the joist. (Screws not included; sourced or supplied by builder/installer.)	
*4.2 x 45mm SS304 (Flat Head) (Phillips Recessed) (Self-Tapping)	Used to face-fix the L-Trim (US154) to the cladding board and joist. (Screws not included; sourced or supplied by builder/installer.)	
*4.2 x 20mm SS304 (Pan Head) (Phillips Recessed) (Self-Tapping)	Used to fix the rubber stopper (T-8) to the joist. (Screws not included; sourced or supplied by builder/installer.)	

* Note: All screws are based on NewTechWood recommendations. If the installation requires something different than what is shown, a professional should be consulted before installing the product. This installation guide uses the above screw sizes.

Cladding Screws (for Aluminum Joists)

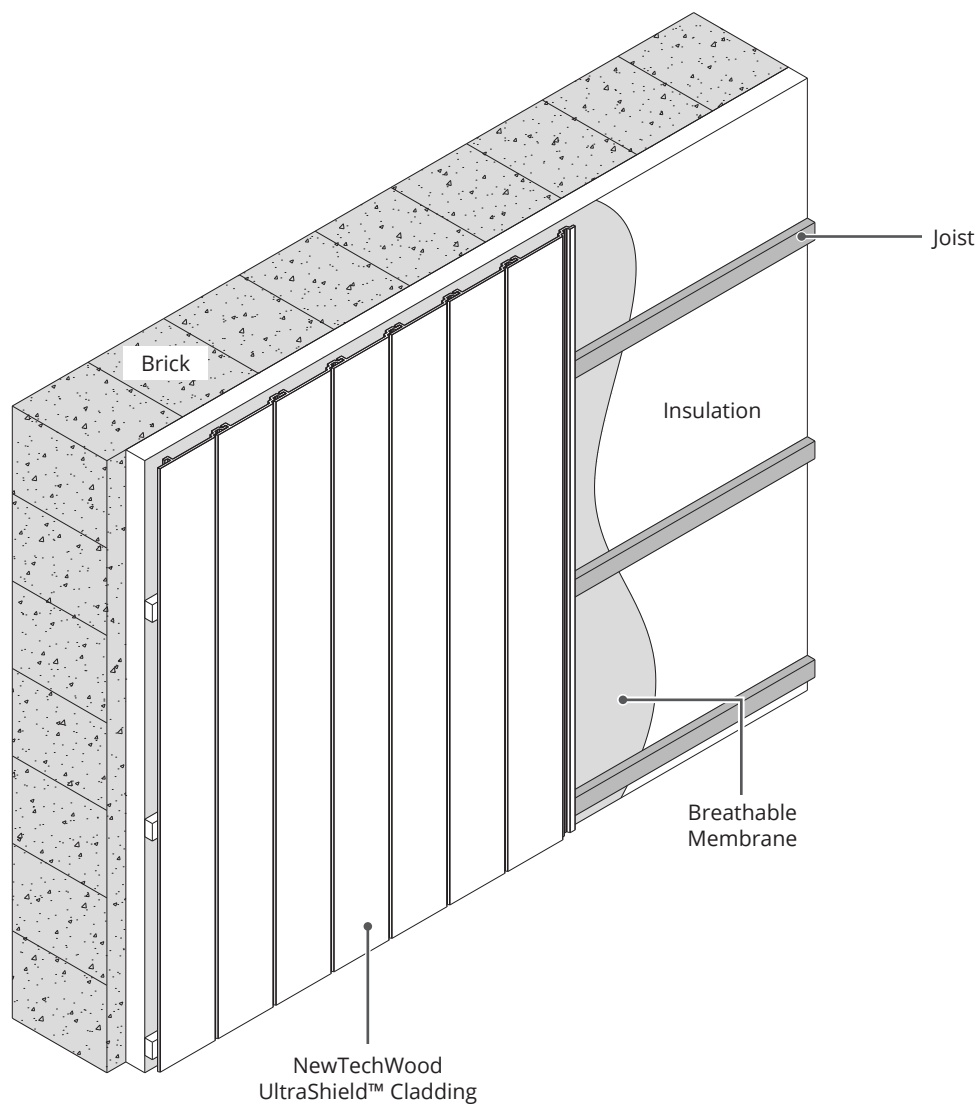
Product	Purpose	Part
*4.2 x 30mm SS410 (Pan Head) (Phillips Recessed) (Self-Drilling)	Used to fix the cladding board to the joist. (Screws not included; sourced or supplied by builder/installer.)	
*4.2 x 45mm SS410 (Pan Head) (Phillips Recessed) (Self-Drilling)	Used to face-fix the L-Trim (US154) to the cladding board and joist. (Screws not included; sourced or supplied by builder/installer.)	
*4.2 x 20mm SS410 (Flat Head) (Phillips Recessed) (Self-Drilling)	Used to fix the Stearting Clip (AW35) to the Rubber Stopper (T-8) to the joist. (Screws not included; sourced or supplied by builder/installer.)	
*4.2 x 20mm SS410 (Flat Head) (Philips Recessed) (Self-Drilling)	Used to fix the J-Trim (CA217) to the joist. (Screws not included; sourced or supplied by builder/installer.)	

* Note: All screws are based on NewTechWood recommendations. If the installation requires something different than what is shown, a professional should be consulted before installing the product. This installation guide uses the above screw sizes.

Substructure

For the substructure, it is recommended to use aluminum or treated wood joists. Each cladding board must be supported by a joist that is NO MORE than 500mm from center to center. Extra care is required to provide sufficient joisting in, and around, obstacles, such as windows, fascias, soffits, guttering, ventilation points, and so on. See the below diagram for an example of layers in a typical installation.

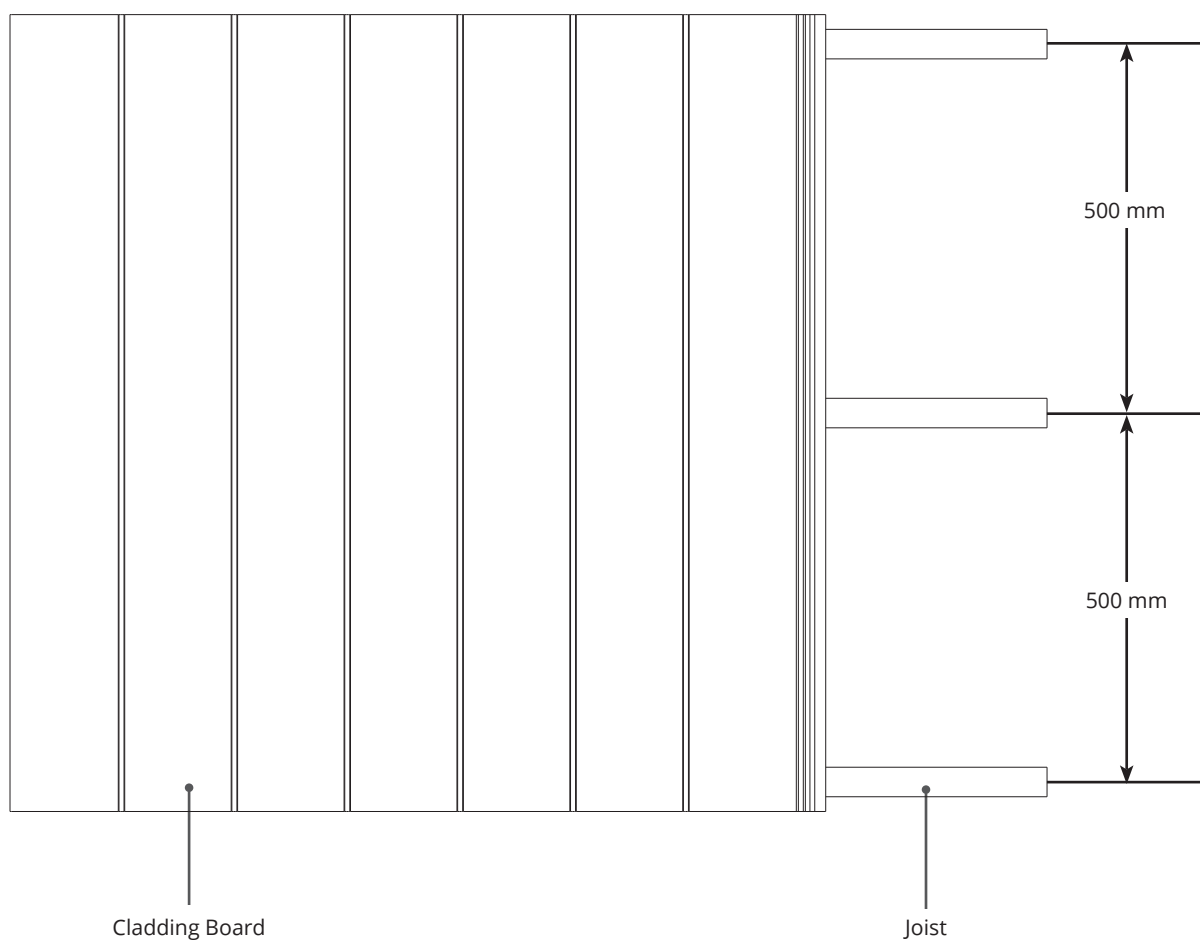
NB: Always consult a licensed professional prior to installation.



Joist Installation

Consult a building professional regarding vapor barriers and insulation for your project. Where a vapor barrier is to be used, ensure it is a breathable type and is positioned behind the joists.

- Joists must be a minimum thickness of 25mm.
- Joists should be fixed into position at a maximum of 500mm from center to center. Use suitable 8G Stainless Steel Countersunk Wood / Masonry screws.
- Make sure all joists are flat and level against the wall. Use shims if necessary.



Expansion and Contraction Values

NewTechWood cladding boards will expand and contract with changes in temperature. Expansion and contraction are most significant where extreme temperature changes occur. Fasten the cladding boards according to the gapping measurements below to accommodate this movement.

Note:

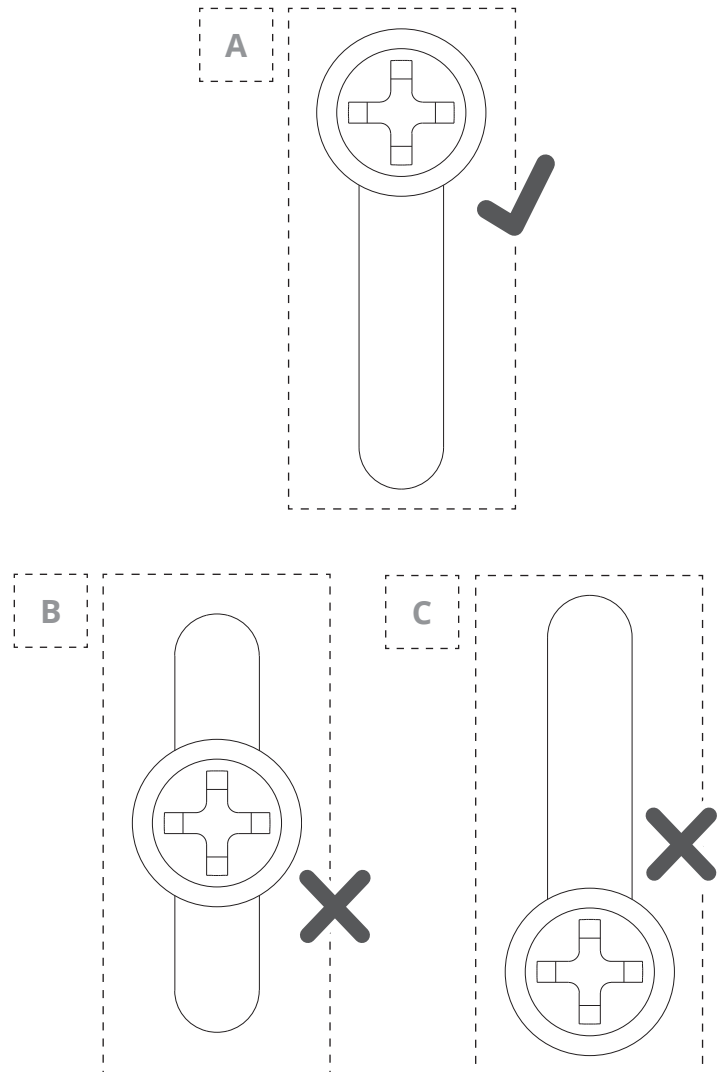
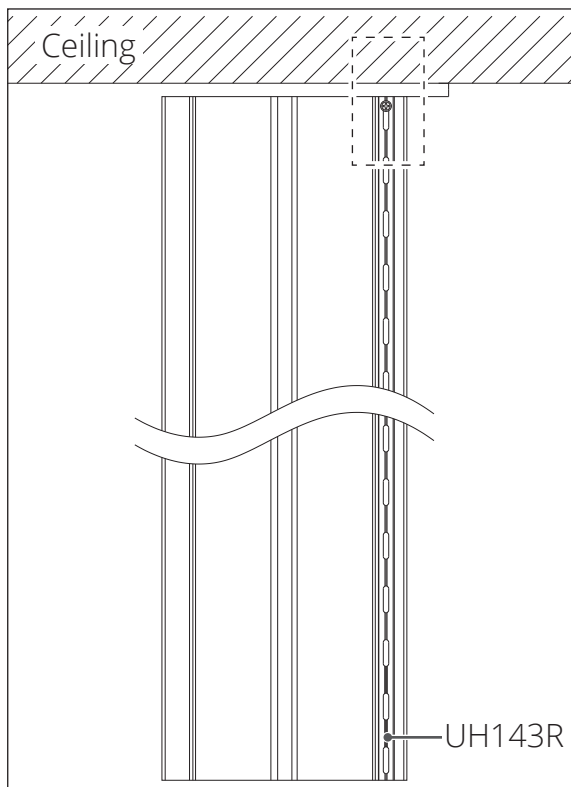
1. The table shows the overall gap required. if the boards have a gap at each end, halve the value shown.
2. If you are still unsure what gapping to use, contact the manufacturer for more information.

		Length (m)								
		1	2.44	2.8	3	3.66	4	4.88		5.4
Installation Temperature (°C)	0	1.4	3.4	3.9	4.2	5.1	5.6	6.8	7.6	Gap (mm)
	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	

Fixing the Boards for Expansion and Contraction

When fixing the boards to the joists and if starting from the ceiling, it is important to note the position of the locking screw for in the cladding board. The locking screw's position allows for the boards to expand/contract downward.

Always fasten the screw at the **top** of the hole **[A]** of the cladding board; **never** fasten it at a different position **[B]** **[C]**.



Screw Depth

When tightening the screw, always ensure the screw sits firmly on the cladding board surface [A]. Never leave a gap between the screw and the cladding board [B]. Never force the screw into the cladding board [C]. See **Diagram C**.

NB: Do NOT use a hammer drill.

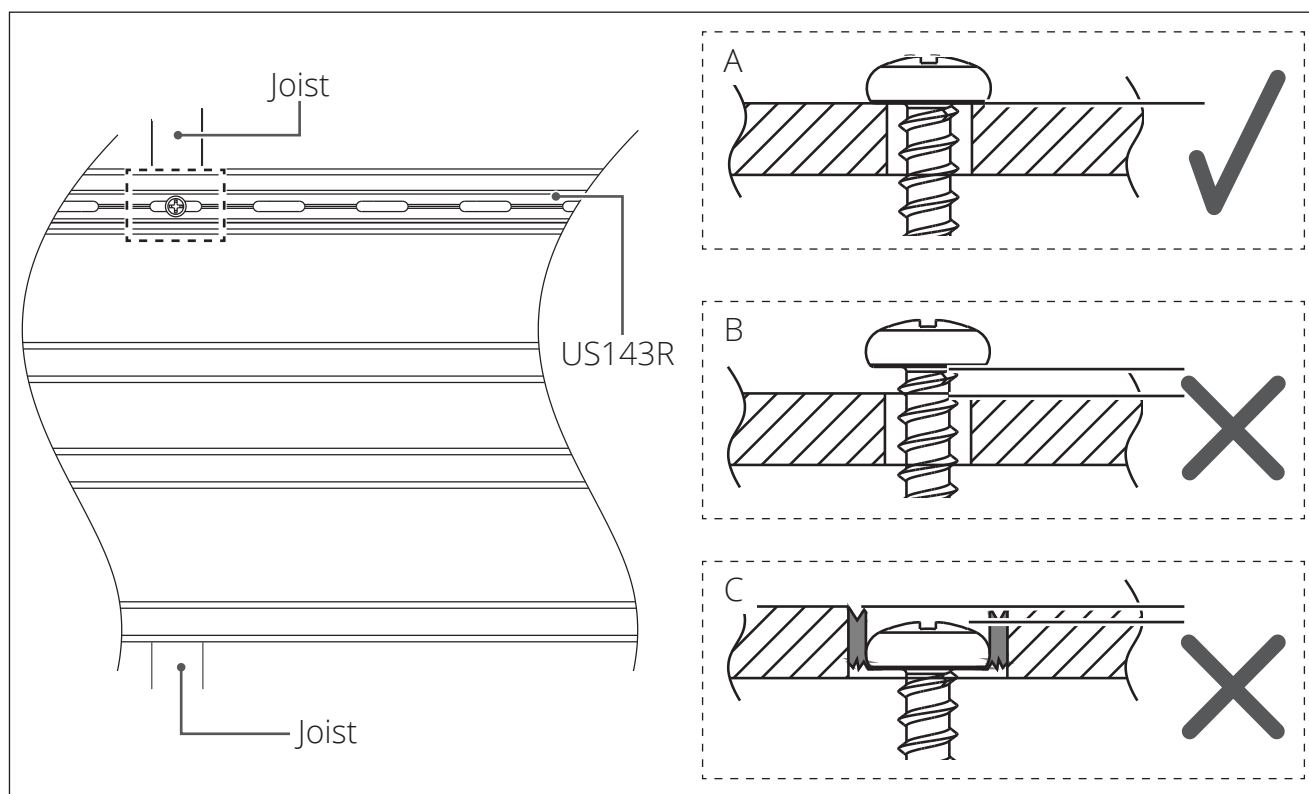


Diagram C

Connecting the Cladding Boards

Flat Cladding Boards (US143R) 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 (**Diagram A** [4]).

1. Insert the board's tongue into the groove of the previously-fixed board.
2. Make sure the entire board rests on the joist.
3. Fix the board to the joist using a Flat Head screw.
4. Overview of the connected cladding boards.

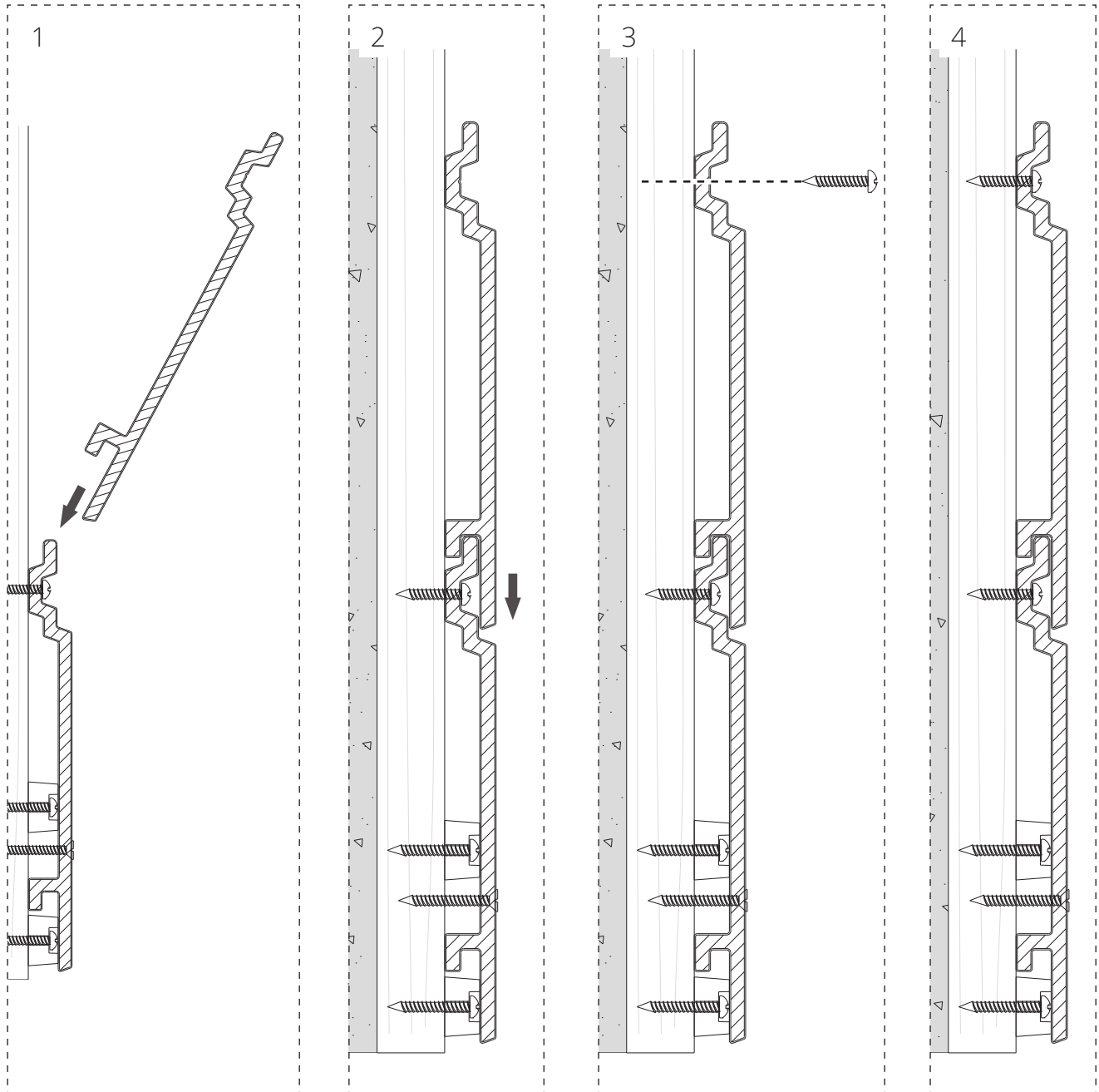


Diagram A

Flat Cladding Board Vertical Installation

Installation Procedure

Step 1: Framing

- Measuring and Marking the Joists
- Installing the Joists

Step 2: Installing the First Cladding Board

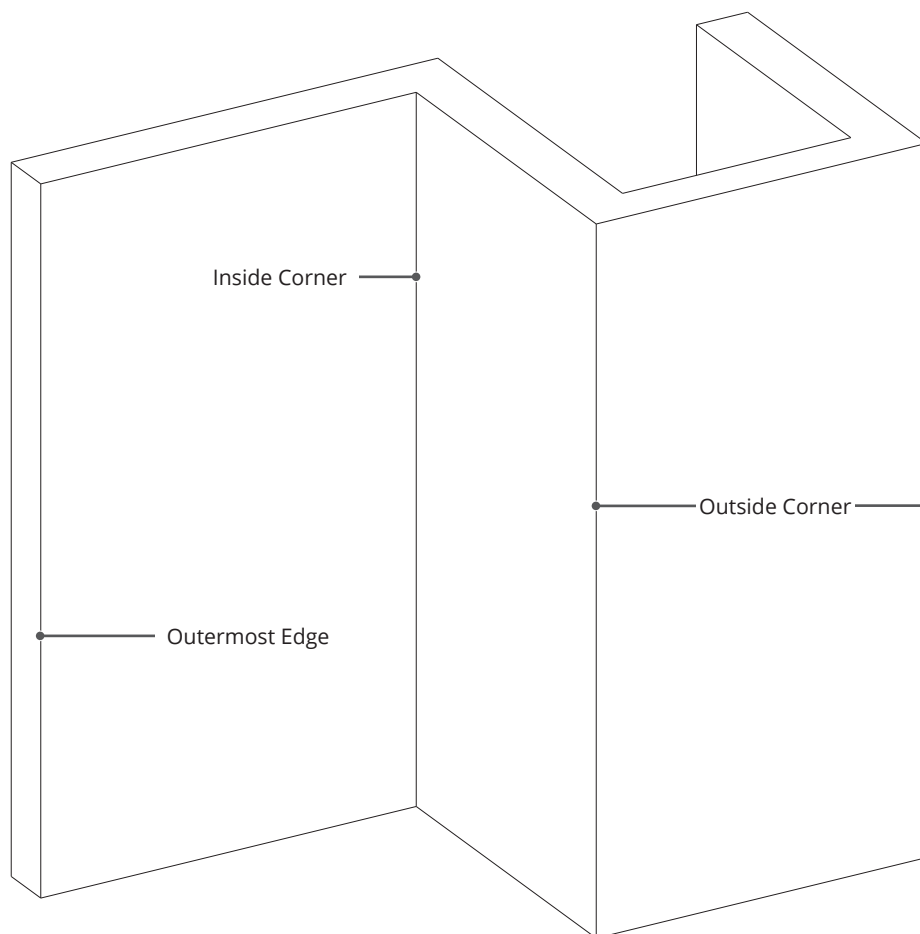
Step 3: Installing the Next Cladding Board

Step 4: Installing the Last Cladding Board

Step 5: Installing the L-Trim (US154)

1 Framing

Make sure the frame is level and firm before installing the cladding boards. The below diagram shows a wall replicating different potential scenarios occurring when installing the cladding boards.



- 1.1** Measure and chalk lines for the joists according to the span data on Page 11, as shown in **Diagram 1.1**.

Make sure there is a 500mm span between joists for a horizontal installation so as to keep the cladding boards from bowing (see Page 10).

Note:

For this illustration, wooden joists are used. Refer to Page 8 for the recommended screws when using aluminum joists.

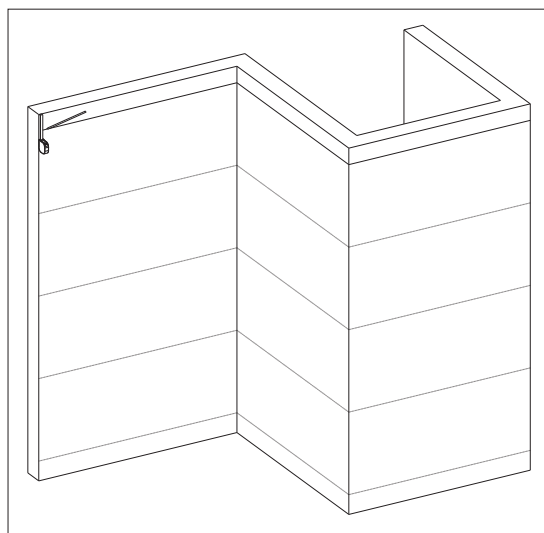


Diagram 1.1

- 1.2** Secure the joists to the wall with screws every 500mm as shown in **Diagram 1.2**.

Note:

Always allow for a minimum gap of 20mm between the joist and the floor (**Detail 1.2.1**).

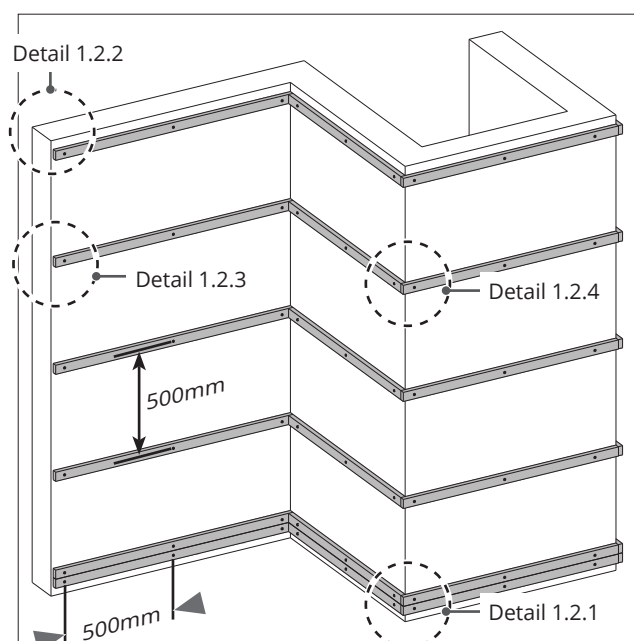
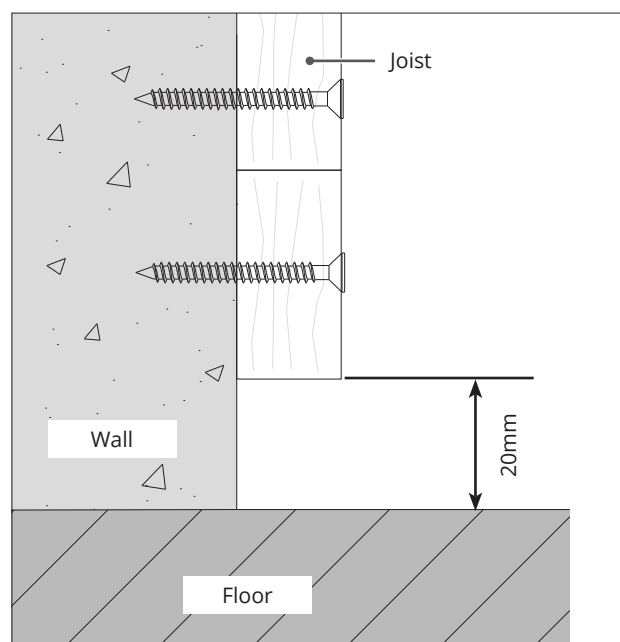
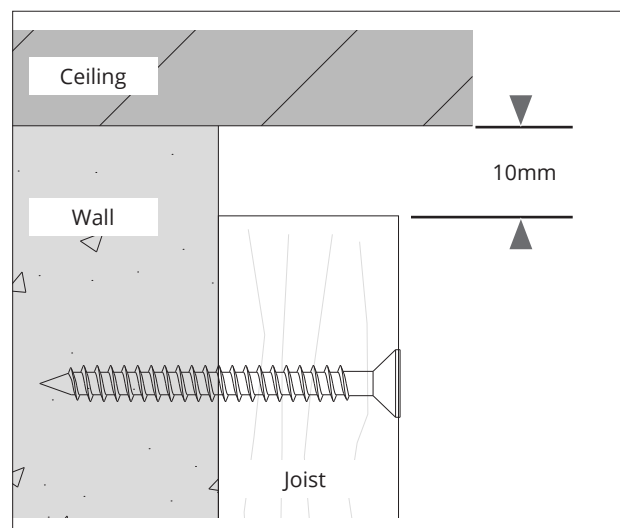


Diagram 1.2



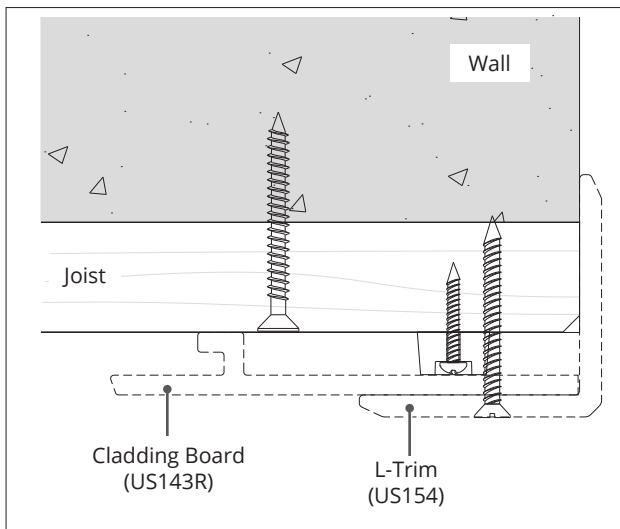
Detail 1.2.1

Always allow for a minimum gap of 10mm between the ceiling and the joist (**Detail 1.2.2**).



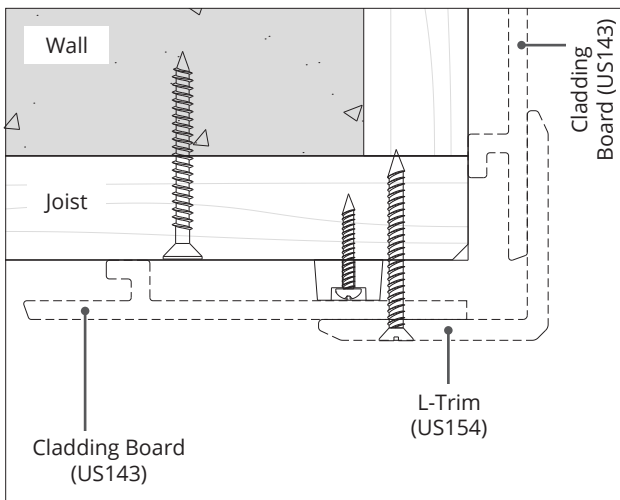
Detail 1.2.2

For the Outermost Edge, install the joists according to **Detail 1.2.3**.



Detail 1.2.3

For the Outside Corner, install the joists according to **Detail 1.2.4**.



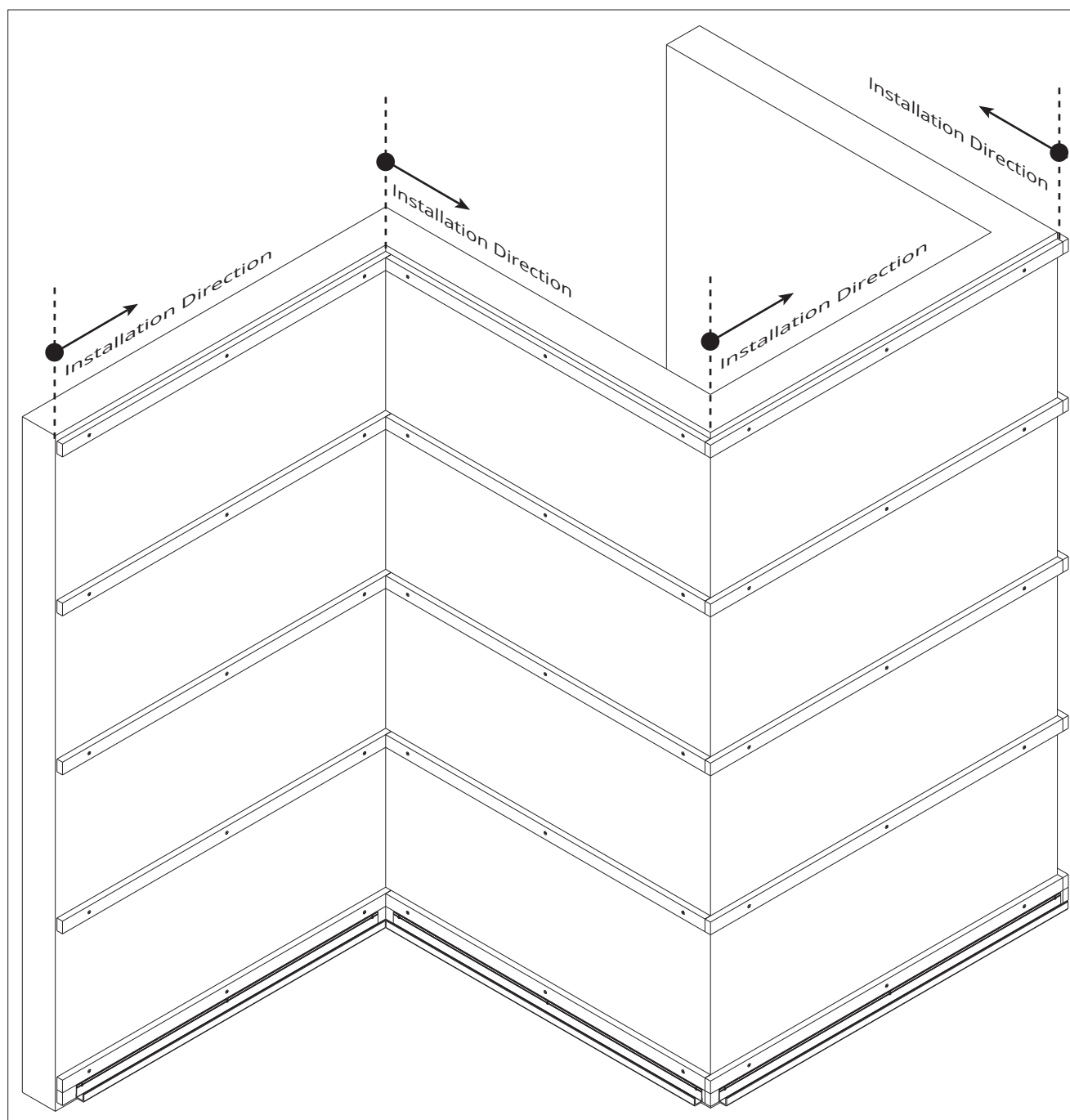
Detail 1.2.4

2 Installing the First Cladding Board

Install the cladding boards in the direction shown in the diagram below.

Pro Tips:

1. Pre-drill the screw holes before face-fixing the cladding boards to the joist. See *Pre-drill* on Page 5 for details.
2. It is recommended to start the cladding board installation from the outermost edge.



- 2.1** Install the first cladding board at the Outermost Edge, as shown in **Diagram 3.1**.

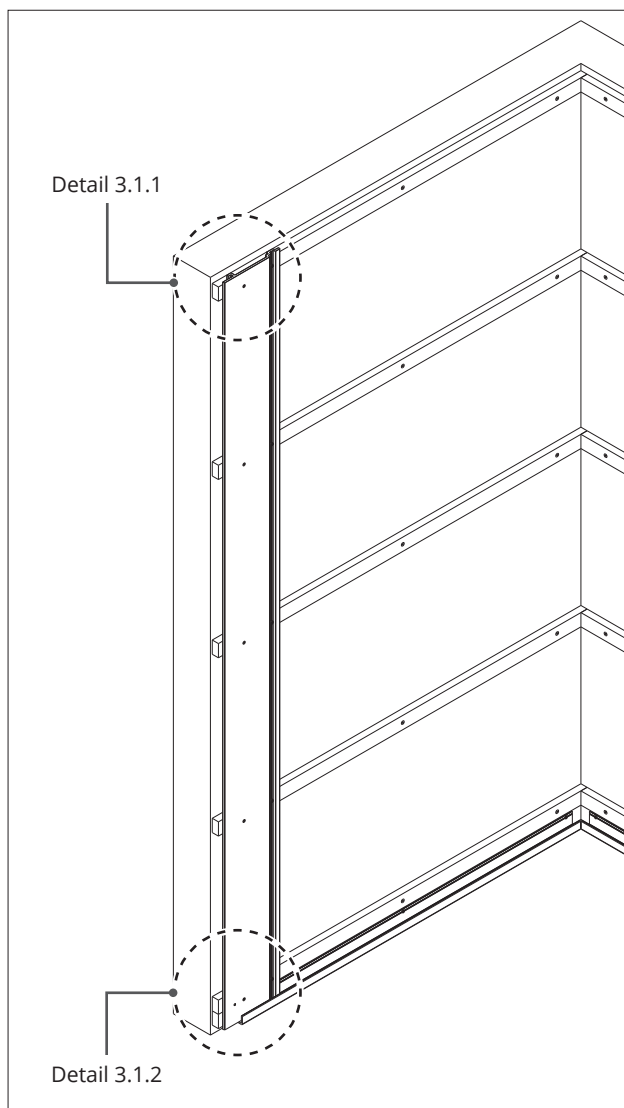
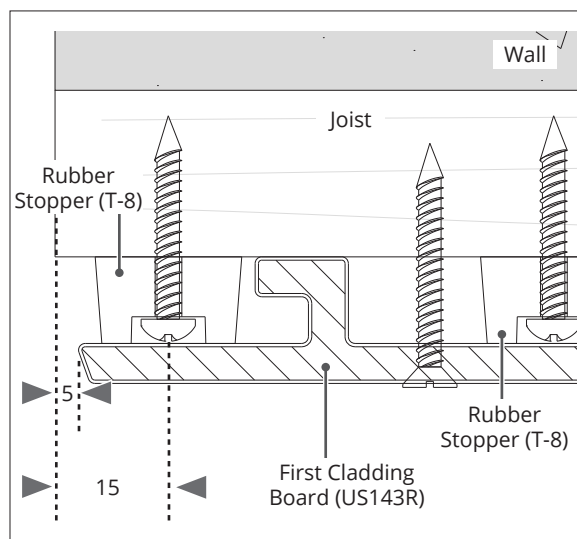


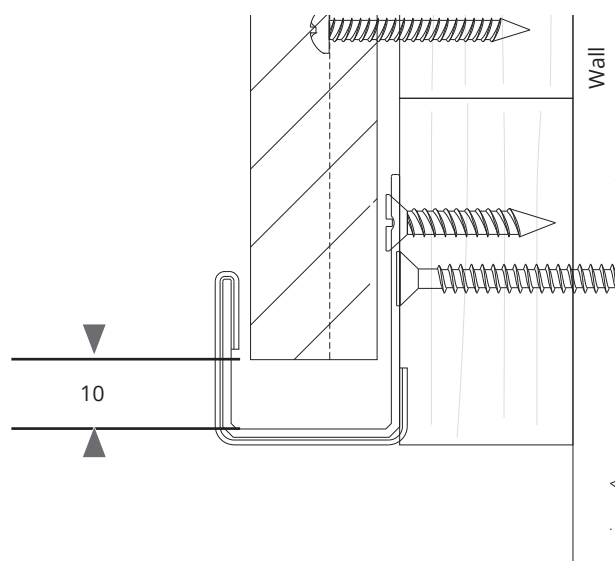
Diagram 2.1

Note:

Make sure there is a minimum 10mm gap between the cladding board and the end of the joist to allow water to drain (**Detail 2.1.2**).



Detail 2.1.1



Detail 2.1.2

2.2 Install the first cladding board at the Inside Corner, as shown in **Diagram 3.2**.

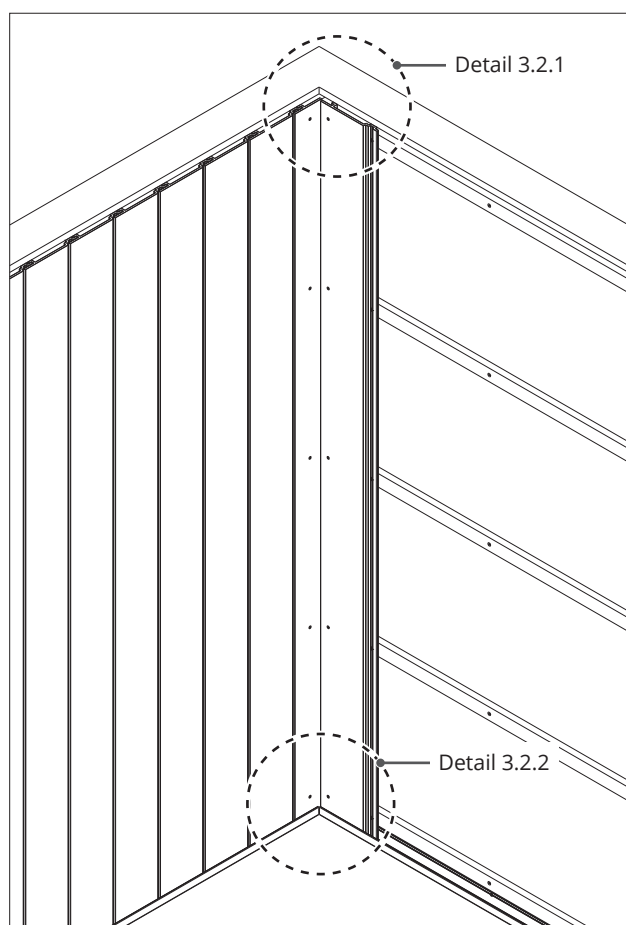
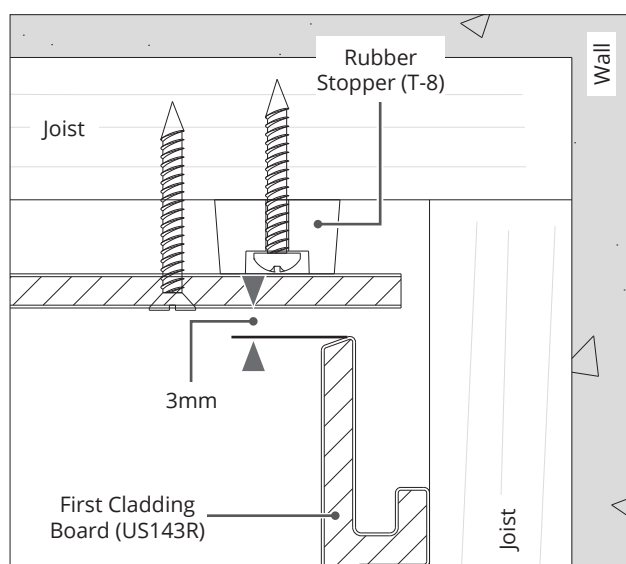
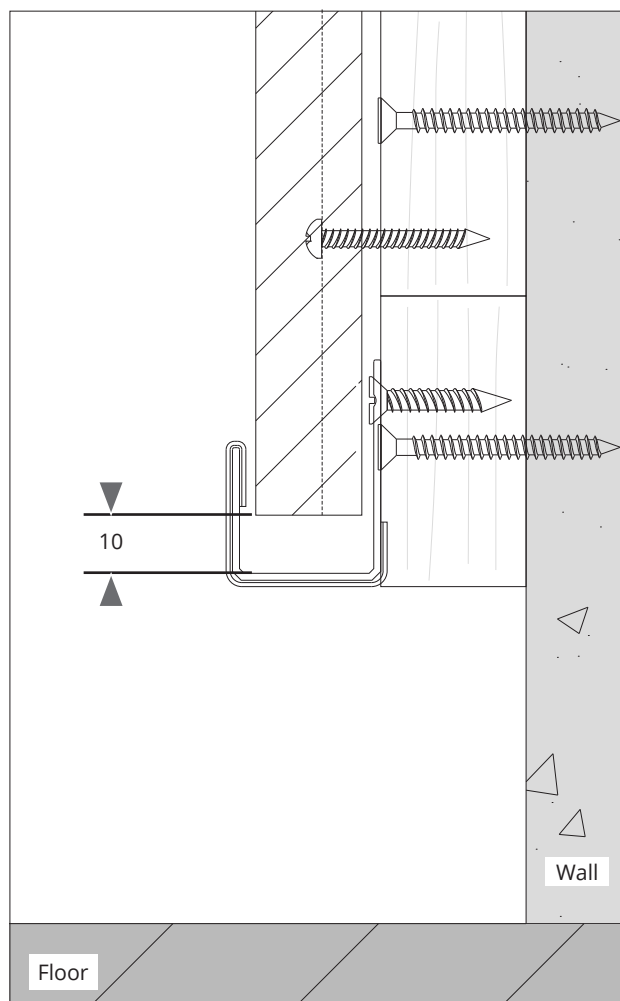


Diagram 2.2



Detail 2.2.1



Detail 2.2.2

- 2.3** Install the first cladding board at the Outside Corner, as shown in **Diagram 3.3**.

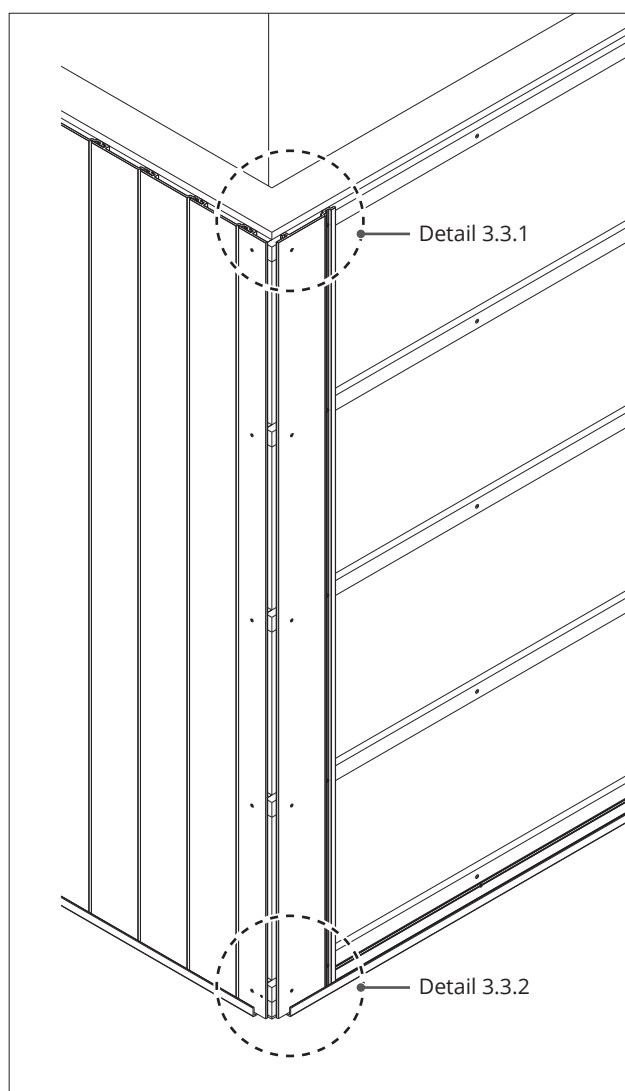
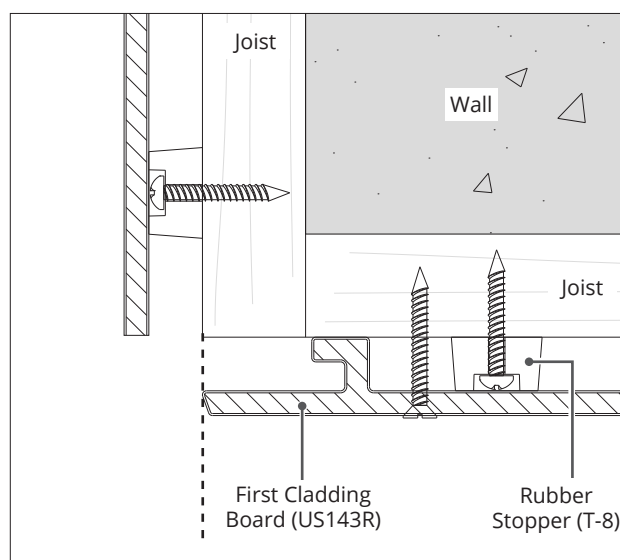
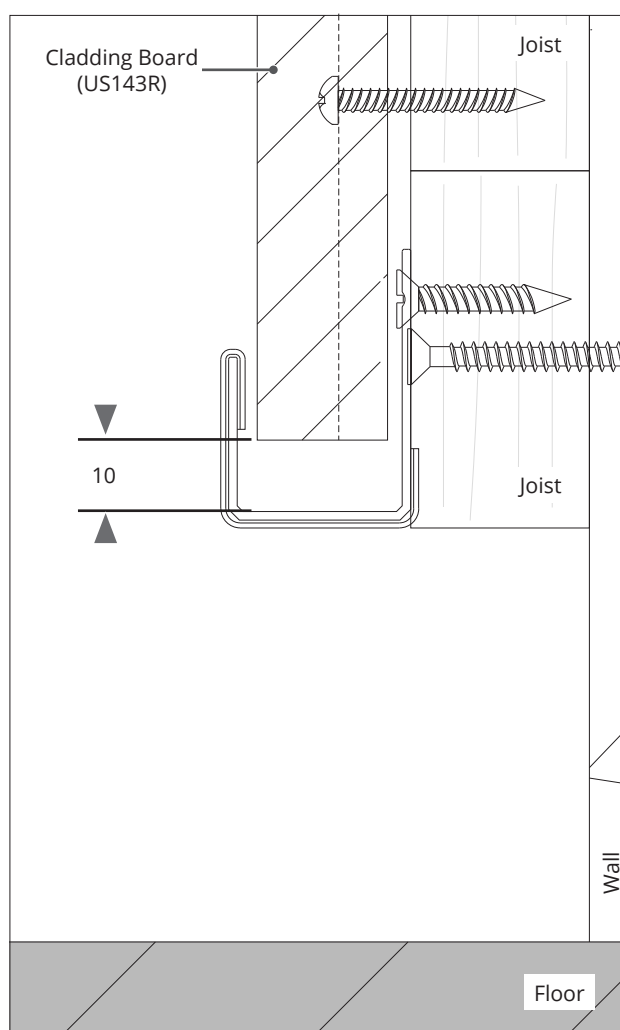


Diagram 2.3



Detail 3.3.1



Detail 2.3.2

3 Installing the Next Cladding Board

- 3.1 Insert the tongue of the board into the groove of the previously-fixed board, as shown in **Diagram 3.1**.

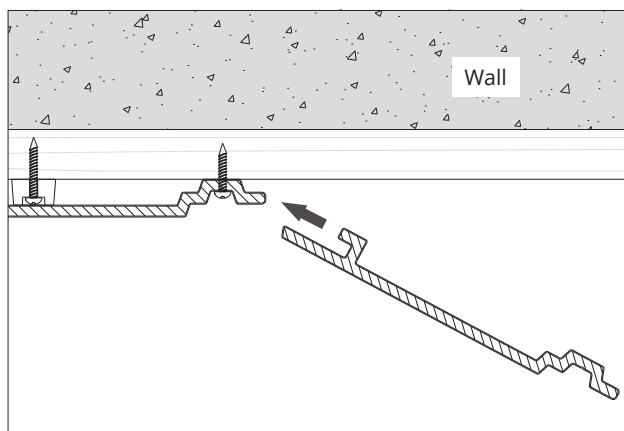


Diagram 3.1

- 3.2 Use force to push the cladding board in close to the previously-fixed board, as shown in **Diagram 3.2**.

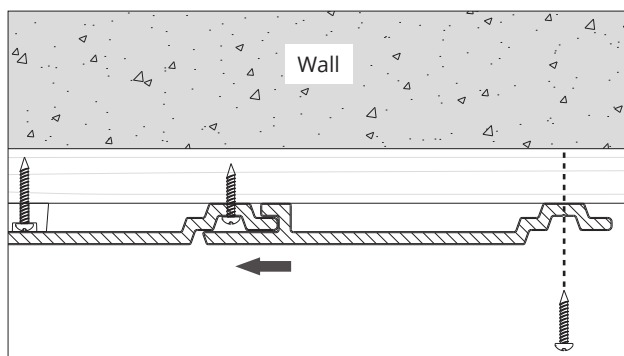


Diagram 3.2

- 3.3 Secure the cladding board with screws to the joist, as shown in **Diagram 3.2**.

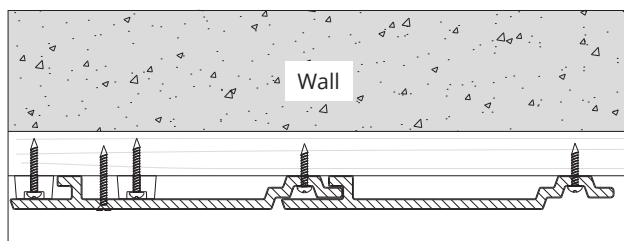


Diagram 3.3

4 Installing the Last Cladding Board

- 4.1 Install the last cladding board at the inside corner, as shown in **Diagram 4.1**.

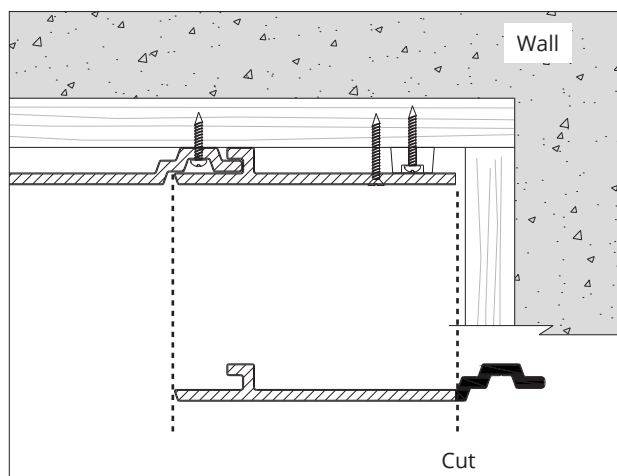


Diagram 4.1

- 4.2 Install the last cladding board at the outside corner, as shown in **Diagram 4.2**.

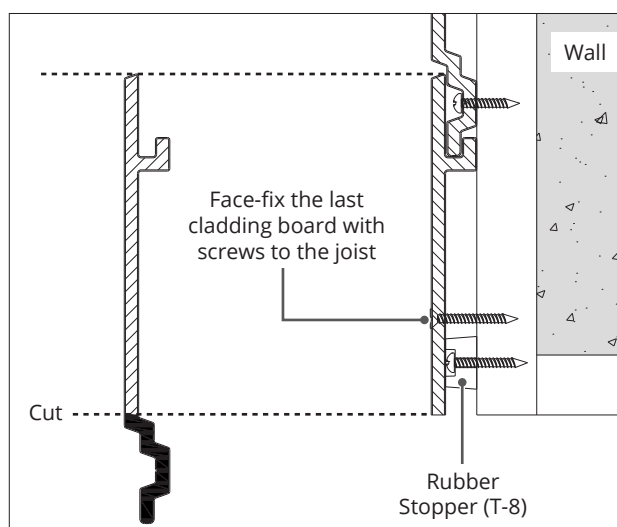


Diagram 4.2

- 4.3 Install the last cladding board at the outermost edge, as shown in **Diagram 5.3**.

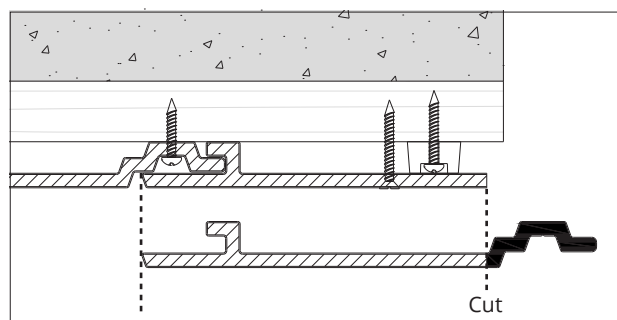


Diagram 4.3

5 Installing the L-Trim (US154)

- 5.1 Install the L-Trim (US154) at the Outside Corner, as shown in **Diagram 5.1**.

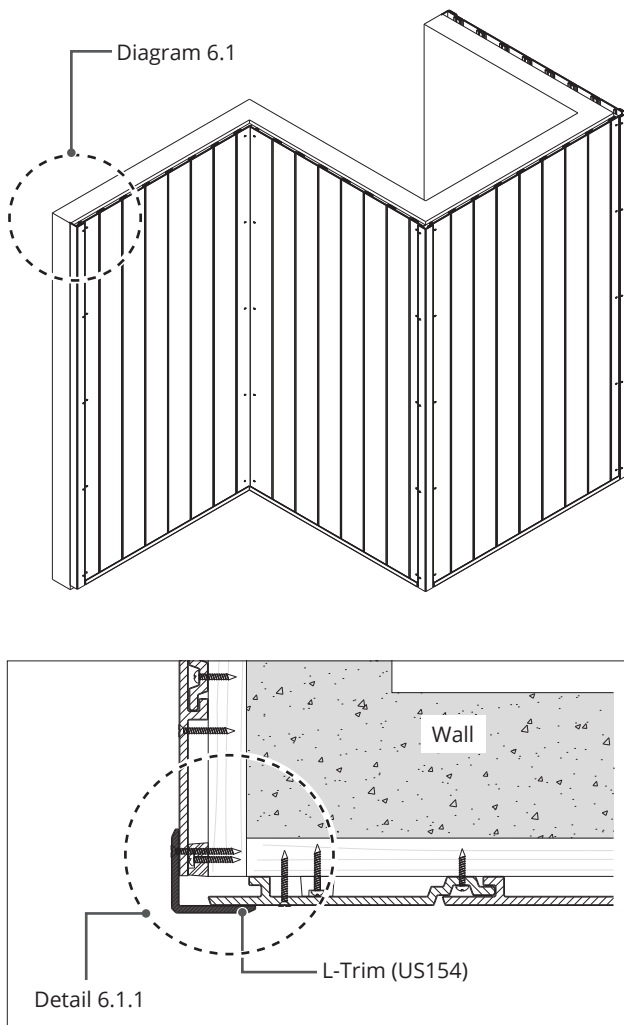
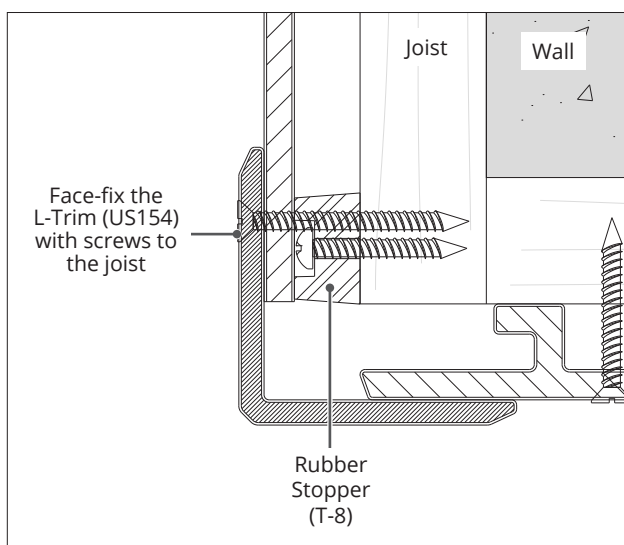


Diagram 5.1



Detail 5.1.1

- 5.2 Install the L-Trim (US154) at the Outermost Edge, as shown in **Diagram 5.2**.

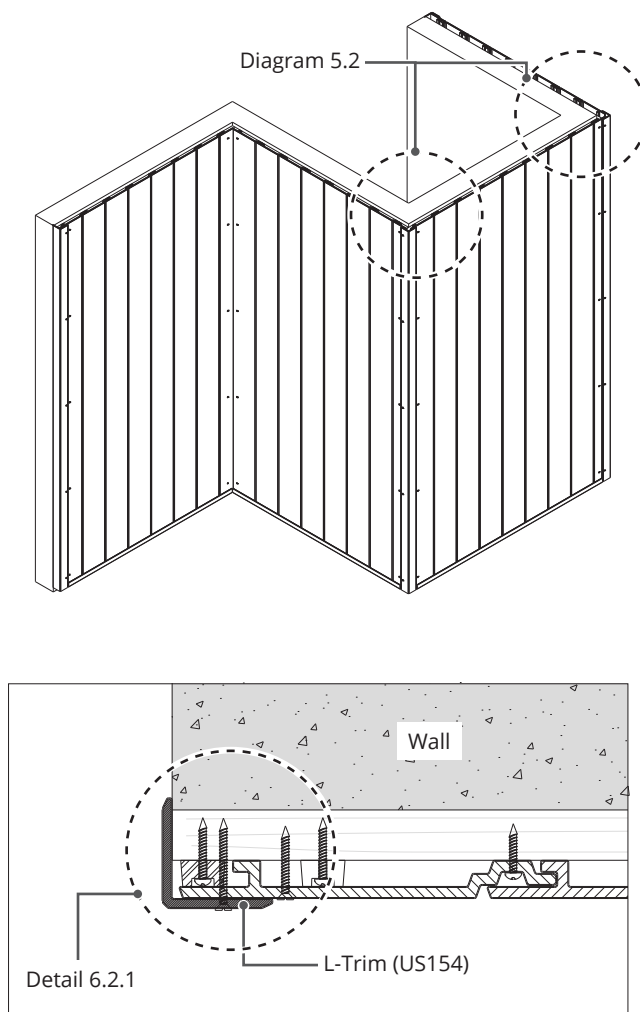
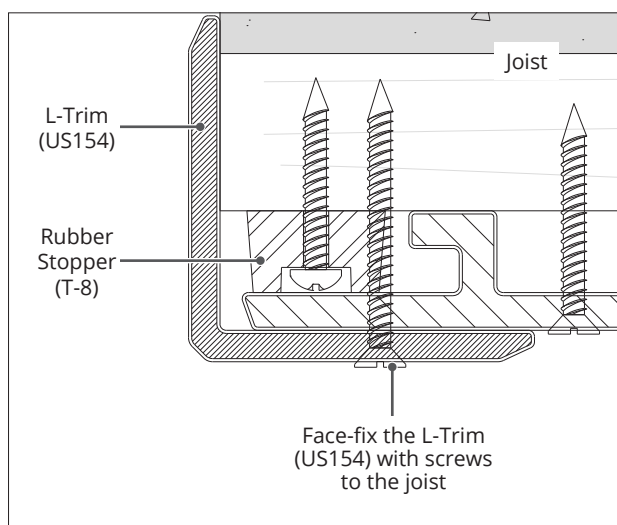


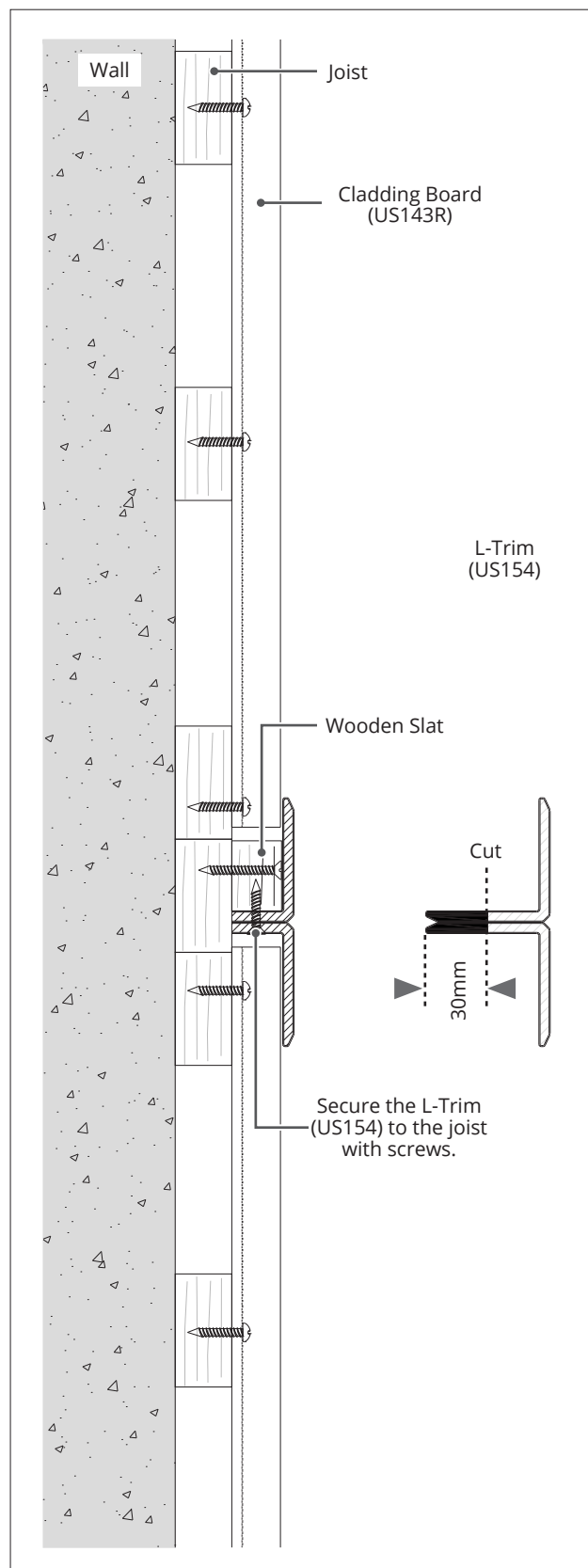
Diagram 5.2

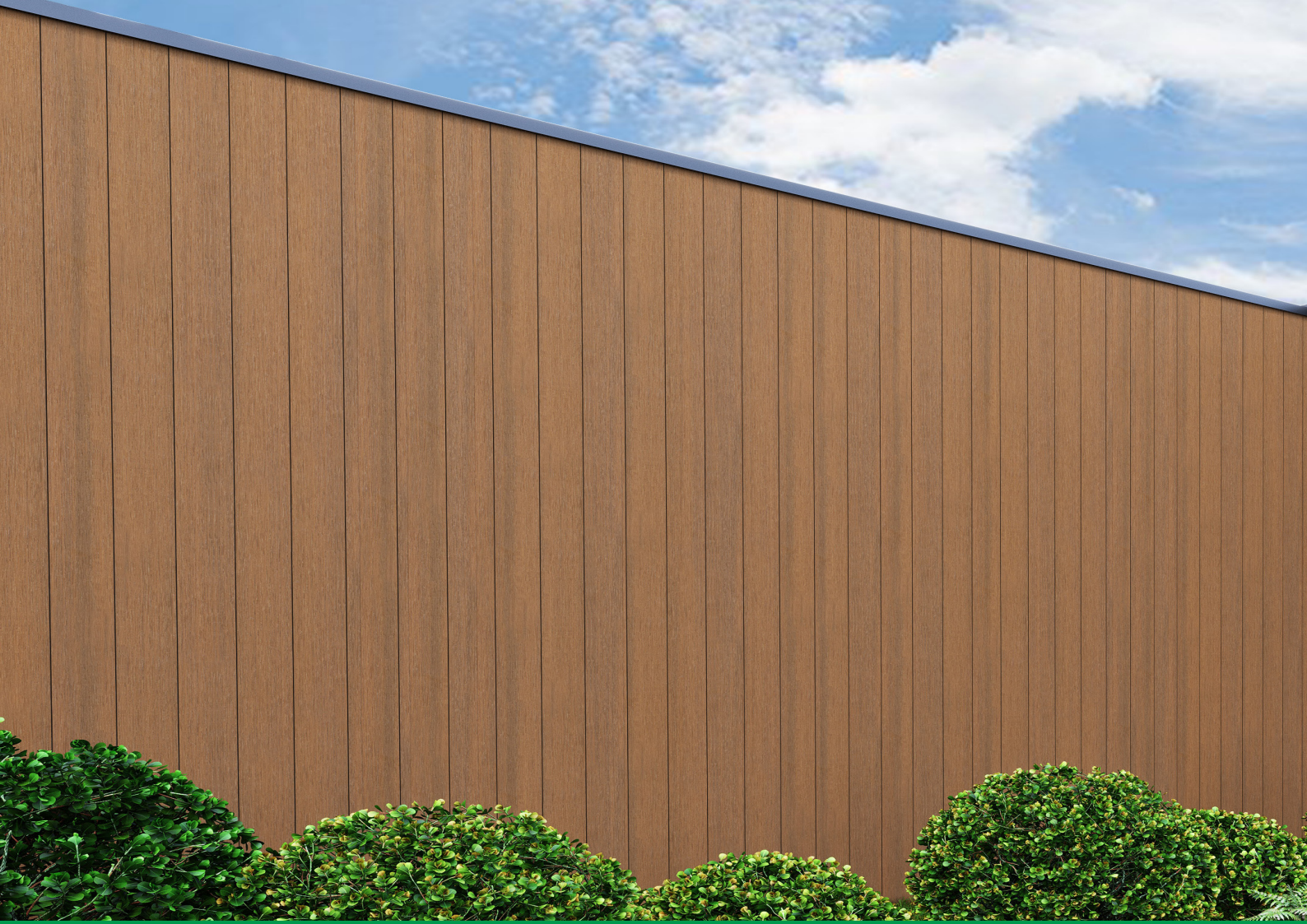


Detail 5.2.1

Supplement: Butt Join Installation

1. Cut 30mm off one of the legs of two L-Trim (US154) pieces.
2. Fix a wooden slat with screws onto the joist of the butt join.
3. Place the cut L-Trim (US154) pieces against the wooden slat and secure with screws to the joist, as shown in the diagram below.





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