

Secret Clip System

Installation guide for vertical and horizontal cladding with Flat Rails



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Rain-screen cladding attached to the secret clip system

Before you start

The Secret Clip System is made up from grooved timber boards, black coated aluminium rails with factory-installed, pre-spaced clips and a host of accessories.

This screw-free system ensures a seamless timber finish, whilst the factory-mounted clips are perfectly placed to ensure consistent alignment between the boards.

It is the ideal base for vertical, horizontal or diagonal cladding, where it can be attached directly to walls and flat surfaces including soffits, ceilings and interior facings.

Millworks clip profile timber boards are firmly fastened to the clips and rails using a precision-shaped groove, creating a secure and reliable connection between the structure and the timber. Fixing from the reverse reduces moisture ingress, keeping the board face intact and fixing free.

Our profiles are specifically designed to accommodate the natural movement of timber while the clips allow boards to expand and contract with seasonal changes, keeping the expansion gap intact at all times.

Only Millworks clip profile timber boards should be used with the secret clip system.

Transportation and storage

When transported, the rails should be secured in their original packaging and stored indoors before installation. They can be stored outside for short periods of time before being used, but avoid long exposure to sunlight.

No heavy objects should be stored on top of the rails to avoid possible damage or distortion of the rails and clips.

Timber cladding boards should be stored flat to avoid contact with the ground, and covered so that air can circulate. Wrapping should be used as delivered by Millworks – especially with factory coated products which have been packaged for extra protection.

Wall types and preparation

The secret clip system can be attached to many different wall types including brick, block, timber frame and stud – both externally and internally.

Installers must make sure that flashing and UV weather barriers are in place and installed in compliance with building regulations and manufacturer requirements, especially in the following locations:

- openings (doors and windows);
- wall and ceiling junctions;
- chimneys;
- transitions between other types of cladding surface.

Protect the wall

Before attaching any cladding, external walls must be protected with a UV resistant weather proof barrier. The product should be highly durable and tear resistant with water vapour resistance that is $>0.25\text{MN.s/g}$ and $<0.6\text{MN.s/g}$.

What type of rain-screen?

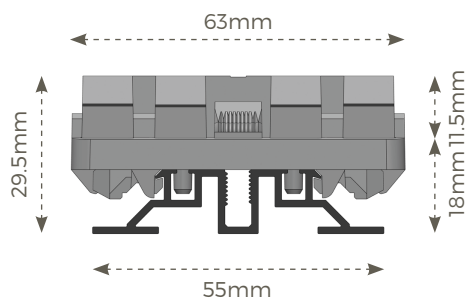
Open joint cladding:

- Resistance to water penetration W1 when new and after weathering (5000 hour UV test - EN 13859-2).

Closed joint cladding:

- Resistance to water penetration W2 when new and after weathering (test 336 hours UV - EN 13859-2).

Internal walls and ceilings do not need a moisture barrier.



Flat rail with factory-fitted clip

Flat rails and accessories

Flat rails are non-load bearing rails which can be fixed directly to any hard, flat surface or timber frame using stainless steel screws or nails.

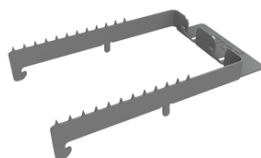
Specifications:

- 6060 aluminium grade
- Black coated finish
- Rail length 1953mm
- 31 factory-fitted clips (made from POM - recycled plastic)
- Rail weight with clips 0.63kg/lm
- Clip breakout resistance force 150 to 270kg

Rails and accessories



Top Link



Clip Grip



Half Clip



Dismantling Keys

Ref	Description	Packing
3459	Flat Rail – non-load bearing rail with clip spacing of 63mm centres	1pc/1953mm
HDPTL	Top Link – to suit 63mm clip centres	20 pcs/bag
3142	Grip Clip	50 pcs/box
1483	Removable Clip – for replacing damaged clips	20 pcs/bag
1485	Half Clip	20 pcs/bag
3308	Sliding Clip – incl M5x12 countersunk screw	20 pcs/bag
968	Dismantling Keys 120 – for up to 120mm board widths	1 pair
1221	Elastomer Rubber – 4 x 2000mm	1 pc
2993	Drip Edge 65 – for cladding with counter battens	1 pc
2994	Drip Edge 45 – for cladding without counter battens	1 pc
2995	T-Section Profile 36 – for cladding without counter battens	1 pc
2996	T-Section Profile 56 – for cladding with counter battens	1 pc
2997	Aluminium Corner Profile	1 pc
2298	Corner Mounting Bracket	1 pc
2999	Aluminium Mounting Plate	1 pc

Optional accessories

Ref	Description	Packing
1487	Adjustable Clip – for angle cuts	50 pcs/bag
1486	Wedge Clip – with screw	20 pcs/bag

Preparing and cutting the rails

Wherever possible, use full-length rails. If you need to cut a rail, try and cut between two clips. If there is a clip where a cut is required, remove the clip using Dismantling Keys.

Support the rails on a stable surface any make sure any cuts are clean and square.

Attaching the rail structure

Millworks cladding boards can be installed vertically or horizontally. The rails must be attached to the wall perpendicular to the cladding direction. For vertical cladding, attach the rails horizontally and for horizontal cladding, the rails should be attached vertically.

Note: if you are installing Aluminium Corner or T-Section Profiles (edging for windows and openings), please read the Corners and edging section on pages 8 to 11 as these should be installed before the rails.

Attach the first rail

Pre-drill the rails at approximately 500mm centres before attaching to the wall.

Vertical cladding – Position the first rail so that the ends of the boards are at least 200mm from the ground, whilst ensuring they do not extend more than 100mm beyond the rail.

Horizontal cladding – Position the first rail so that the edge of the first board is at least 200mm from the ground. The first rail must be no more than 100mm from the edge of the wall.

All cladding – Use a level to ensure that the first rail is accurately positioned on the wall then fasten with the appropriate fixings.

With the first rails in place, use a laser level or a string to draw a reference line along the wall. Use this line to ensure the clips of the other rails are aligned.

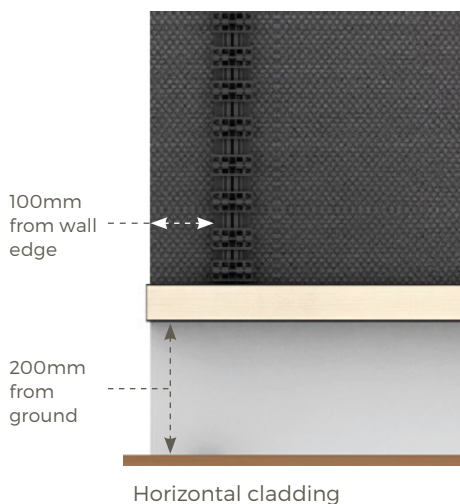
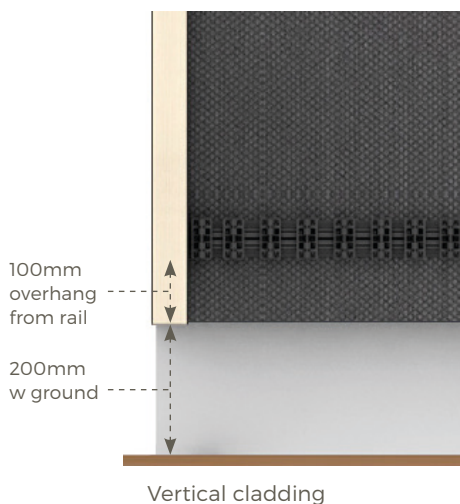
Mark the rail centres

The **maximum recommended distance between rails is 650mm**.

This distance can be adjusted on site to match the dimensions of the wall and to optimize the trimming of the cladding boards.

Attach the other rails

All rails should be parallel to the first rail and follow the reference line to ensure that the clips are aligned across all of the rails.





Connect rails with a Top Link
(Part No. HDPTL)

Connecting two rails

If rails need to be connected, a Top Link rail connector allows the rails to be quickly aligned and butt-jointed with the correct spacing for any aluminium expansion..

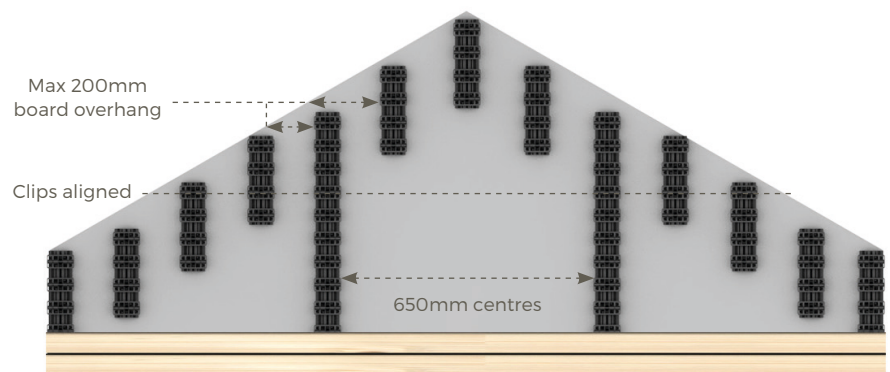
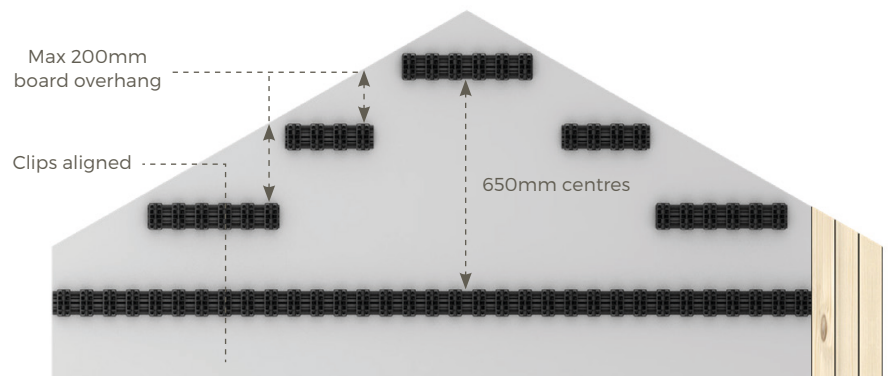
- Make sure the first rail is secured to the wall.
- Place the second rail against the first and position the Top Link as shown in the picture on the left.
- Use a level to make sure the second rail is properly aligned, and secure it to the wall.

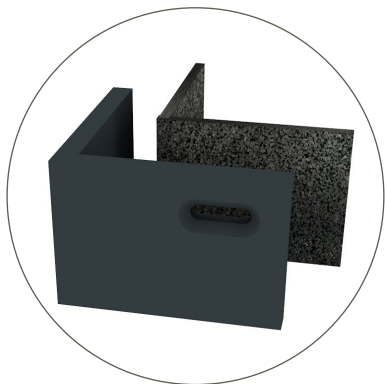
Sometimes, it may not be possible to install a Top Link. If this is the case, place a rail beside the two rails to be butt-jointed and use it as a guide to ensure that the clips are spaced correctly.

Roof gables

When attaching cladding to slanted gable end walls, short sections of rail should be attached to the wall at intervals along the slope of the roof as shown in the illustrations below. These should be positioned to ensure that the cladding boards are secure and have no more than a 200mm overhang from a rail.

Make sure that the clips of all rails are aligned.





Corner Mounting Bracket and Elastomer Rubber (Part Nos. 2993 and 1221)



Aluminium Corner Profile and Corner Mounting Bracket attached to wall



Half Clip installed at end of rail

Corners and edges

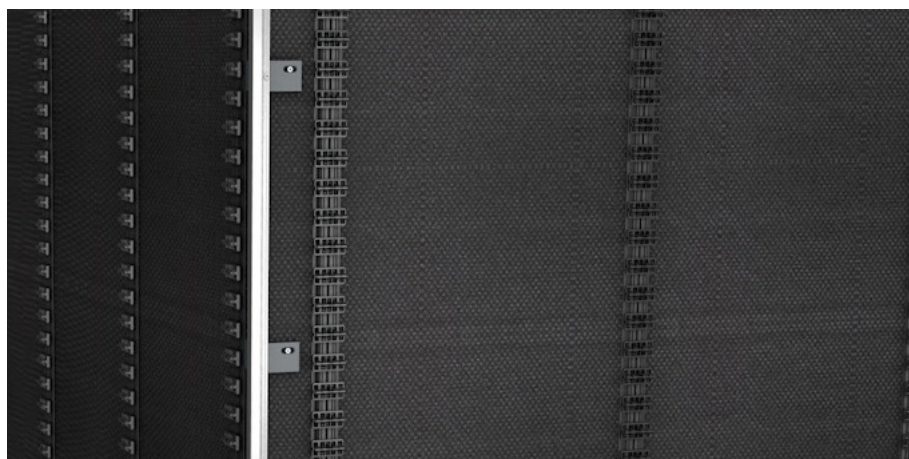
Attaching an Aluminium Corner Profile

Before attaching an Aluminium Corner Profile, you'll need to attach Corner Mounting Brackets with a section of Elastomer Rubber. Place the first corner mounting bracket 300mm from the ground and attach to the wall using an appropriate screw. Continue attaching brackets at 500mm centres.

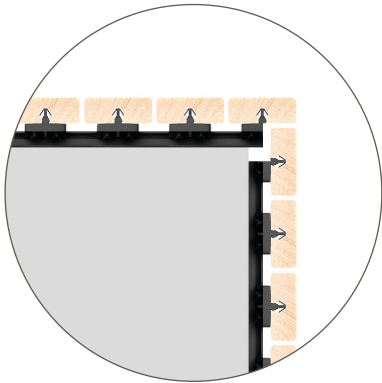
Place the Aluminium Corner Profile against the brackets and drill a 3mm hole through the corner profile and into each bracket. Attach the corner profile to the brackets using appropriate flat-head screws.

Important note for vertical cladding: before attaching any rails, replace the first clip on the each rail (i.e. the one nearest the corner profile) with a Half Clip to prevent interference between the clip and the corner profile.

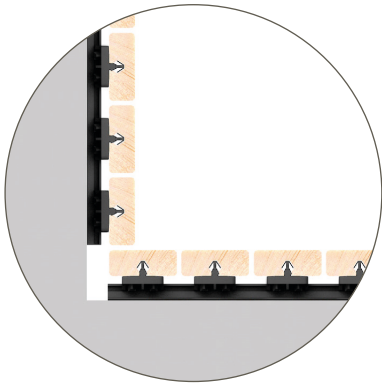
With the Aluminium Corner profiles in place, attach the rails following the instructions on page 6. If you are installing T-Section profiles around openings, please read the section on page 11 as these also need installing before the rails.



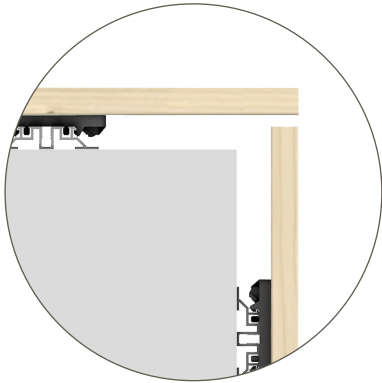
Aluminium Corner Profile attached to wall with rails fixed and ready for horizontal cladding.



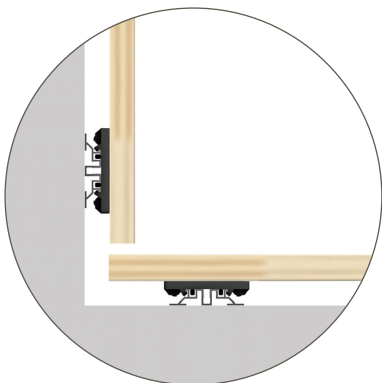
Vertical cladding outward butt joint



Vertical cladding inset butt joint



Horizontal cladding outward butt joint



Horizontal cladding inset butt joint

Finishing a corner with timber boards

Vertical cladding – Both outward facing and inset corners can be finished neatly, using a 3-5mm butt-joint.

Cut the rails back to the edge of the clip. If necessary, a Half Clip can be added for better alignment.

If the boards do not align with the corner, a Sliding Clip can be used instead of the factory-fitted clip. This will enable you to stagger the gaps between timber boards and achieve a seamless corner.

When you are happy with spacing, fix the sliding clips into place using the screws provided. **The sliding clip cannot be removed with dismantling keys once fitted.**

Horizontal cladding – Both outward facing and inset corners can be finished neatly with a butt-joint.

Make sure the overhang from the nearest clip is no more than 100mm and leaves a 3-5mm gap between the ends.

If the boards do not align with the corner, a Sliding Clip can be used instead of the factory-fitted clip. This will enable you to stagger the gaps between timber boards and achieve a seamless corner.



Aluminium Drip Edge profile
(Part Nos. 2993 and 2994)

Attaching an Drip Edge profile

If there's an opening in the wall such as a window, we recommend installing a Drip Edge profile to encourage water to drain away from the building.

Measure and cut the profile squarely to length, then position it along the top edge of the opening, using a spirit level to make sure it is horizontal. Drill 3mm holes through the profile and into the wall substrate and secure using appropriate screws.



Note: if rainscreen cladding is used, it must cover the top of the drip edge profile when attached.





Aluminium Mounting Plate
(Part No. 2999)



T-Section Profile and Aluminium
Mounting Plate attached to wall

Attaching a T-Section Profile

Sections of wall that end without a corner, or the sides around windows and openings can be finished using a T-Section Profile.

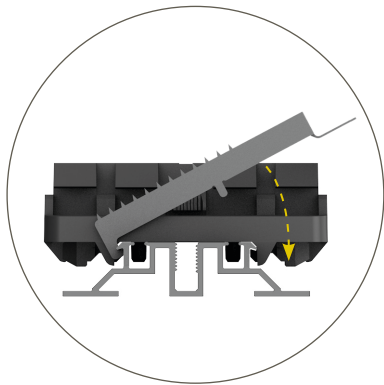
Before attaching a T-Section Profile, you'll need to attach Aluminium Mounting Plates with a section of Elastomer Rubber. If the T-section profile starts at ground level, make sure the first mounting plate is 300mm from the ground then continue attaching mounting plates at 500mm centres.

Place the T-Section Profile against the mounting plates and drill a 3mm hole through the profile and into each plate. Attach the profile to the plates using appropriate flat-head screws.

Important note for vertical cladding: before attaching any rails, replace the first clip on the each rail (i.e. the one nearest the corner profile) with a Half Clip to prevent interference between the clip and the T-Section profile.

With the T-Section profiles in place, attach the rails following the instructions on page 6.





Attaching a Grip Clip to a flat rail
(Part No. 3142)

Assembling the cladding

Adding Clip Grips

Before mounting any boards you'll need to attach Clip Grips to the rails. Clip grips are used to prevent the boards from moving along the clips.

To install a clip grip, insert the hooks into the grooves on the side of the rail, then lower the clip grip until it locks into place. Every board length should be mounted onto at least one Clip Grip.

Note that once the teeth of the Clip Grip are embedded in a board, it is no longer possible to slide the board along the clips.

Clip Grips are not suitable for:

- installation on a half-clip;
- installation on a removable clip fitted with a Top Link.

Attaching the cladding boards

Do not use a hammer or other tools that could damage the board.

Vertical cladding – Attach the first vertical board onto the first clip or clips of the rail closest to the ground and then firmly press it onto the clips by hand, securing it to the rail.

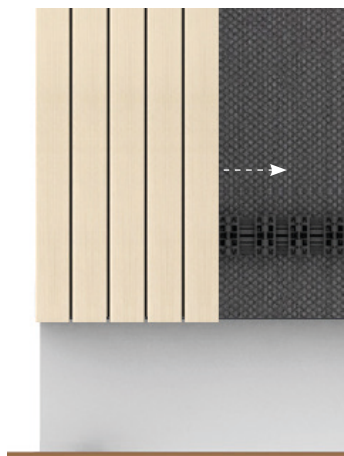
Add a second board next to the first and continue attaching boards until you reach the other end of the wall. Make sure the bottom edges of the boards are aligned.

Start the next row of boards above the first. All boards must be clipped onto at least two rails to ensure they are securely installed. Board joints can be aligned or staggered, depending on the desired aesthetic.

Leave a 3-5mm gap between the ends of each board (and any corner or edging profiles) to prevent water stagnation and allow the wood to expand. **When installing vertical cladding, trim the ends of each board at a 15-30° angle to promote water run-off.**

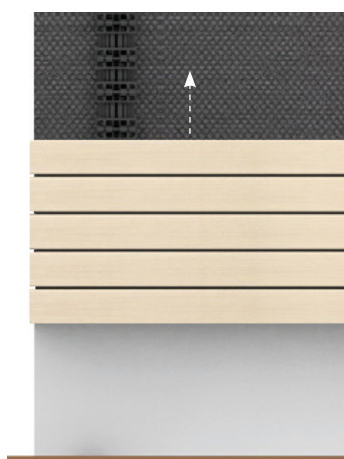
Horizontal cladding – Attach the first horizontal board onto the first clips at the bottom of the rails. With your hands, firmly push the board onto the clips to secure it to the rail.

Attach to
first clip
closest to
ground



Vertical cladding

Attach to
first clip
closest to
ground



Horizontal cladding

Complete the bottom row, attaching more boards if necessary to reach the other end of the wall. Leave a 3-5mm gap between the boards (and any corner or edging profiles) to prevent water stagnation and to allow the wood to expand.

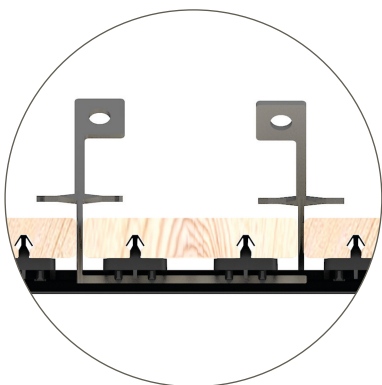
Continue by attaching the next boards to the next row of clips above the first board and so on until all of the boards are secured.

Boards must be butt-jointed over a rail and must be clipped to at least two rails to guarantee they are properly secured. Board joints can be aligned or staggered, depending on the desired aesthetic.

Removing a board

Boards can be removed quickly and easily using Dismantling Keys.

There must be a gap of at least 4mm between the boards in order for the keys to be inserted. All Millworks profiles have been designed to allow for this .



Dismantling keys engaged with rail
(Part No. 968)

It is not possible to unclip a board from the middle, so start at one end and insert a key into the gap either side of the board. Rotate each key 90° counter-clockwise and slide them along the board in the direction of the arrows until they are wedged between a clip and the rail. You should end up with one key engaged either side of the clip.

Push the keys away from each other (in the opposite direction of the arrows of each key) to detach the clip from the rail and lift the board. Work your way along the board from clip to clip until it is detached.

With the board fully detached, slide the clips out of board and re-attach them to their positions on the rail, clicking them into place.

Safety Guidelines

- Wear protective clothing and safety equipment, particularly when cutting aluminium.
- The installer is responsible for identifying and following all building codes and construction safety practices.
- Millworks Ltd and Grad® accept no liability or responsibility for the improper installation of this product.

Disclaimer

Although this guide was designed with as much precision as possible, in accordance with current practices for installing timber cladding, we are not liable for any errors or omissions that may arise from the use of this guide. All users of this guide fully assume all risks and responsibilities associated with it.

This guide presents the best installation practices for the secret clip decking system. It supplements the codes and standards and manufacturer installation guides, but is not a replacement or substitute for these. As such, it is the installer's duty and responsibility to take all available documentation into account prior to completing work to ensure the validity of manufacturer warranties.

The pictures in this guide are for reference only.

Finally, should you have any queries relating to this guide, please do not hesitate to contact us.