

Secret Clip System

Installation guide for decking with PR39 Rails



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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.

Millworks clip profile decking 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 decking 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 on a project, 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 decking 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.

Ground types

Millworks decking can be installed in many different locations, including hard or uneven ground, balconies, rooftops and self-supported structures.

Hard ground

Paving, concrete or other solid surfaces. It is important that the decking structure is isolated from the ground to allow rainwater to drain properly. PR39 Rails can be fixed directly onto the hard surface.

When used with 20mm thick boards, a decking height of 70mm is possible.

Stable ground

As long as the ground is reasonably stable, it is possible to distribute the weight of the decking structure using PR39 rails with Top Lift Adjustable Pedestals. Distributed evenly, these pedestals eliminate risk of sinking.

Combined with a 20mm decking board, it is possible to achieve a decking height of between 101mm and 391mm.

Waterproof floor/rooftop

To protect the waterproofing membrane, PR39 Rails rest on Top Lift Adjustable Pedestals, specially designed for this purpose. These pedestals when distributed evenly, can support furniture and planters without risk of puncturing the membrane. For technical access, the boards can be removed using Dismantling Keys.

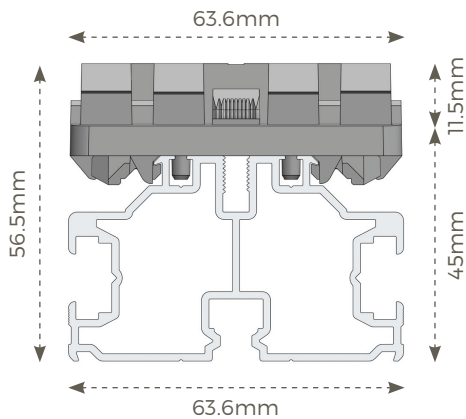
Combined with a 20mm decking board, it is possible to achieve a decking height of between 101mm and 391mm.

Rails and accessories

PR39 rails are load-bearing rails for situations where the surface is stable or sealed with a waterproof membrane (such as a rooftop or balcony).

Specifications:

- 6060 aluminium grade
- Black coated finish
- Rail length 1953mm
- 31 factory fitted clips (made from POM - recycled plastic)
- Rail weight with clips 1.4kg/lm
- Clip breakout resistance force 150 to 270kg



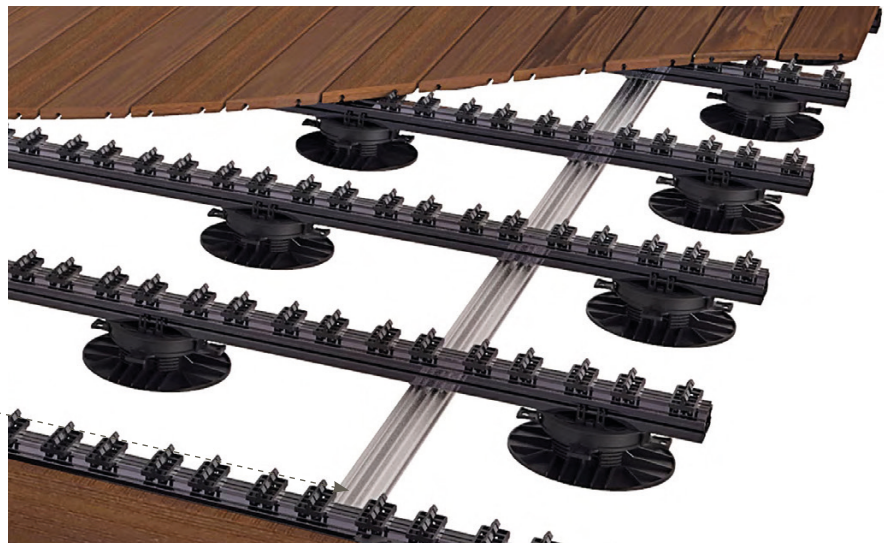
PR39 rail with factory-fitted clip

Span rails

When using PR39 rails you will also need to install Span Rails to securely hold the PR39 rail structure in place.



Span rail with sliding clips



Span rails come with five sliding clips installed at 500mm spacing. These clip into the underside of the PR39 rails to hold them in place and prevent any distortion to the deck's rail structure.



Rails and accessories

Ref	Description	Packing
3472	PR39 rail – Load-bearing rail for decking, Millworks clip spacing of 63mm centres	1pc/1953mm
1522	Span rail – 2060 x 50 x 26mm with five sliding clips at 500mm centres	1pc/2020mm
1503	Fixing bracket (for PR39 rail) – 47 x 30 x 16mm incl M8 hammerhead screws	4 pcs/box
1661	Top lift adjustable pedestal – 35 to 55mm adjustable height	40 pcs/box
1495	Up booster – add 45mm height	40 pairs/box
1496	Slope corrector – for offsetting an incline by up to 4%	250 pcs/box
1499	Top+ straightener – to stabilise pedestals when more than up boosters are used	80 pcs/box
1498	Top cube – for attaching skirting to PR39 rail	4 pcs/bag
1473	Skirting support flat 120 B1 – attaches onto Top Cube, for one board up to 120mm wide	25 pcs/box
1474	Skirting support flat 120 B2 – attaches onto Top Cube, for two boards up to 120mm wide	25 pcs/box
HDPTL	Top link – to suit 63mm clip centres	20pcs/bag
3142	Grip clip	50 pcs/box
1483	Removable clip – for replacing damaged clips	20 pcs/bag
1485	Half clip – for skirting or narrow boards	20 pcs/bag
1487	Adjustable clip – for angled cuts	50 pcs/bag
968	Dismantling keys 120 – for up to 120mm board widths	1 pair
1486	Wedge clip – incl fastening screw	20 pcs/bag
3308	Sliding clip – incl M5x12 countersunk screw	20 pcs/bag

Optional accessories

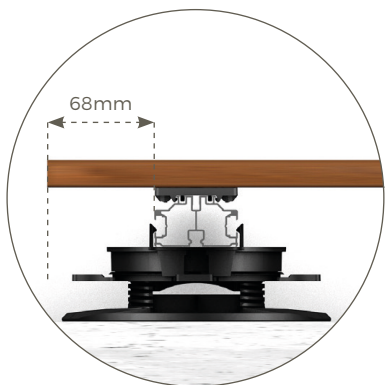
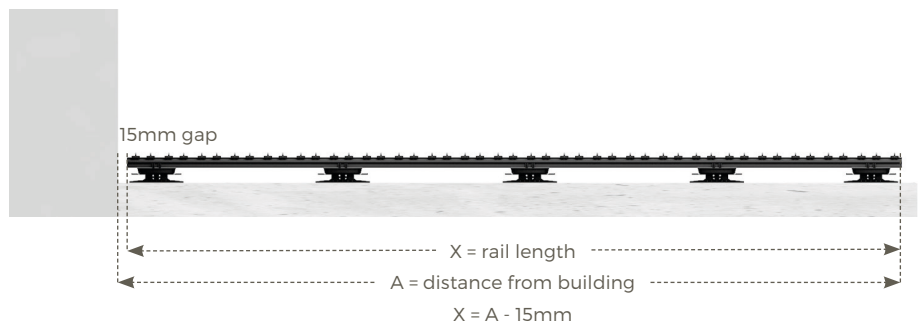
Ref	Description	Packing
3459	Flat rail – non-load bearing rail for cladding, Millworks clip spacing of 63mm centres	1pc/1953mm
1116	Elastomer rubber – 4 x 2000mm	1pc
2876	Aluminium joint bars – 15 x 13 x 200mm	20pcs/box
1504	Adjustable Skirting Brackets – for variable angles, stainless steel 120 x 30 1.5mm	20pcs/bag

Defining the dimensions of the deck

Check the proposed dimensions of the deck before cutting any rails.

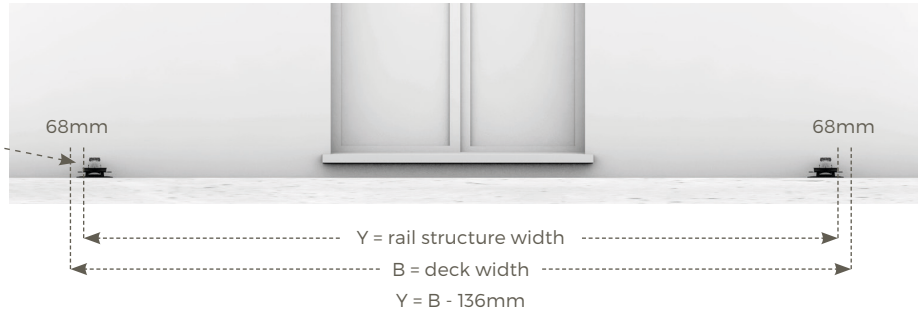
Always leave a 15mm gap between the end of the rail and any abutting building.

Dimension X – rail length without skirting board



Leave 68mm decking board overhang

Dimension Y – rail structure width without skirting board

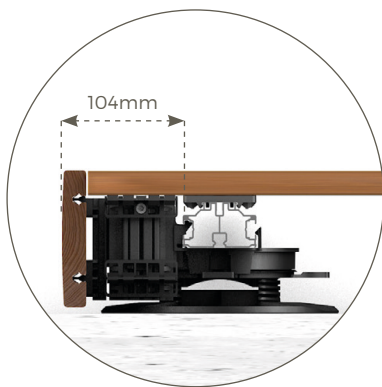
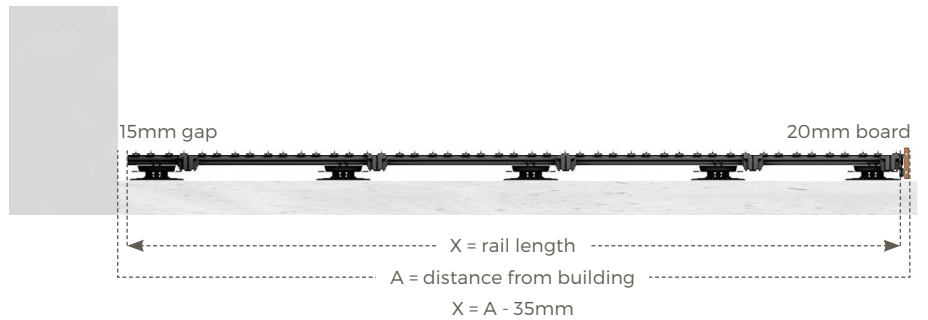


Leave 68mm at each side of the structure to allow for the decking board overhang once it is clipped into place.

Dimension X – rail length with 20mm skirting board

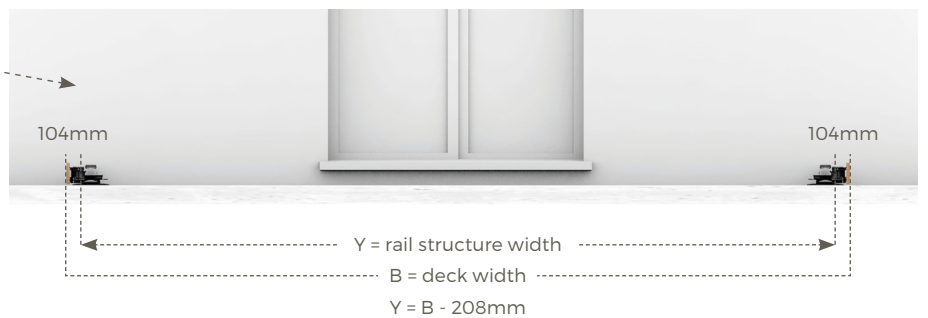
If your decking features a skirting board, you will need to attach Top Cubes to the rails, in which case **shorten the rail length by 20mm to allow for the thickness of the skirting**.

Skirting is not required along any side that is against a building.



Allow for 104mm decking and skirting board overhang

Dimension Y – rail structure width with 20mm skirting board



Leave 104mm at each side of the structure to allow for the decking board overhang once it is clipped into place.

Preparing the rail structure

Cutting the rails

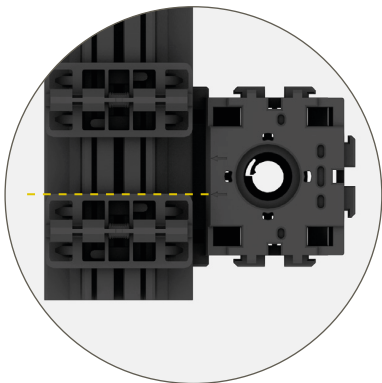
Wherever possible, use full-length rails. If you need to cut a rail, try and cut between two clips. If there is a clip where a cut is required, remove the clip using Dismantling Keys.

Support the PR39 rails on a stable surface and make sure any cuts are clean and square.

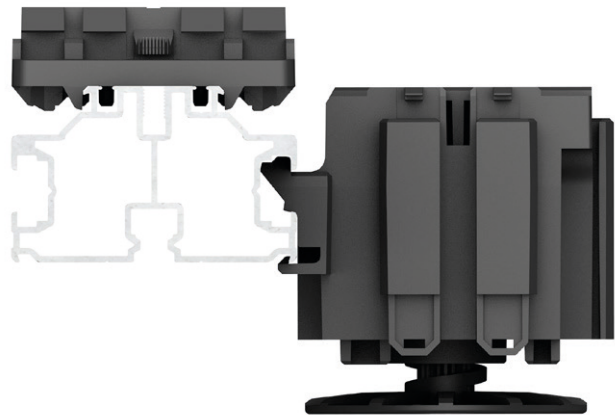
Attaching Top Cubes

If your decking features a skirting board, you will need to attach Top Cubes to the rails. The integrated mini-pedestal within the top cube can be removed if it is not required.

Attach Top Cubes to the PR39 rails by clicking into place along the rail at a maximum of 600mm centres.

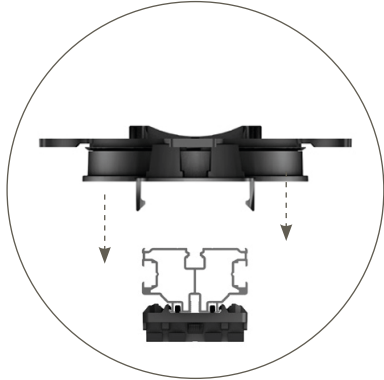


Top cube arrow and clip alignment



Make sure the arrow on top of the Top Cube is aligned with the edge of the clip.

Fasten the top cubes to the rails using the screw provided.

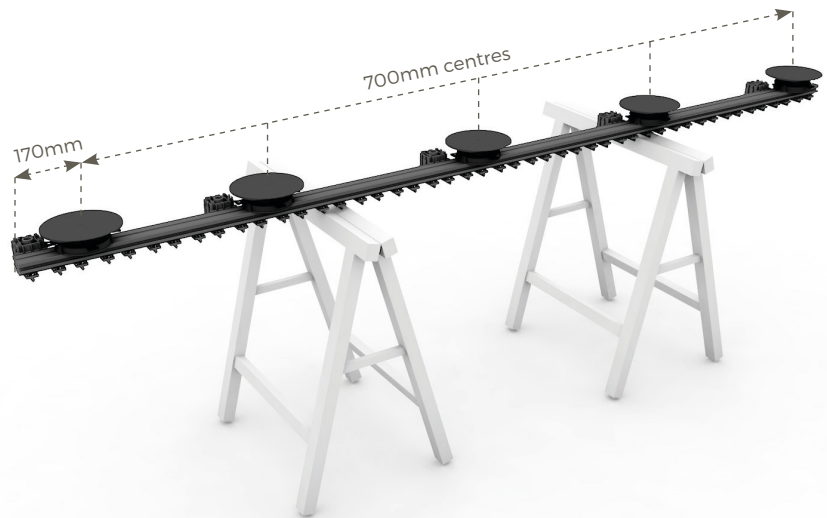


Attaching top section of pedestal to PR39 rail

Attaching Top Lift Adjustable Pedestals

If you are adding height adjustable pedestals to your deck, it is easier to remove the top part of the pedestal and attach it to the rail, then re-assemble the pedestal when they are in place.

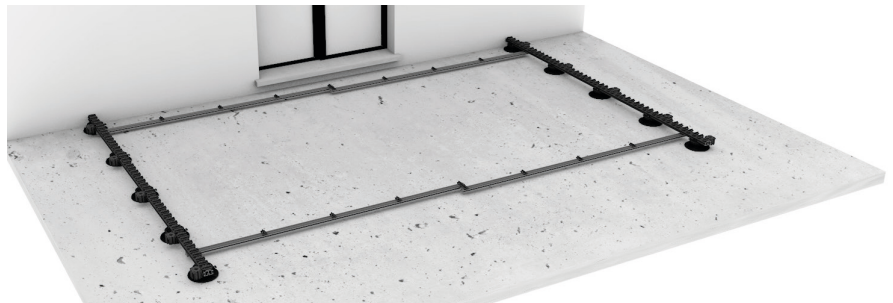
Turn the PR39 rail over and clip the pedestals to the underside of the rail. If Top Cubes are attached for skirting, position the first pedestal 170mm from the end and subsequent pedestals at 700mm centres.



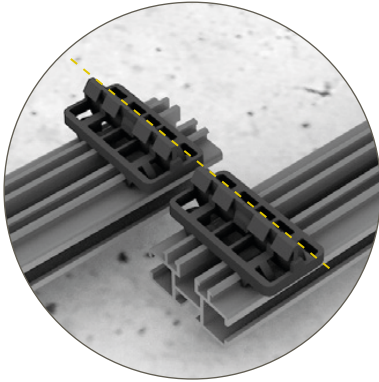
Positioning and securing the rail structure

Span rails

Span rails are supplied in 2060mm lengths with five, factory-installed sliding clips at 500mm centres. These rails clip into the underside of the PR39 rails to hold the structure in place.



Start by laying out the perimeter PR39 rails and then position the span rails, making sure that their first clip aligns with one of the perimeter PR39 rails. Place span rails across the total width of the area to be decked until reaching the PR39 rail on the opposite side.



Staggered span rails with clips aligned

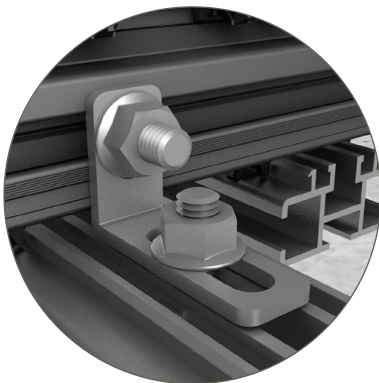
If a span rail joint is required, stagger the rails so that the end clips are perfectly aligned. It may also be necessary to cut span rails to size in which case, removable clips can be added onto the span rail to adapt to all possible dimensions.

Span rails should be spaced a maximum of 3600mm apart.

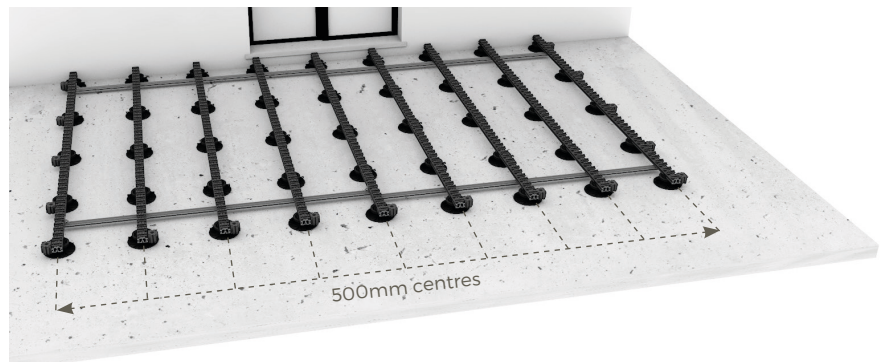
PR39 rails

Once you have the span rails in place and all of your PR39 rails ready, you can start to assemble the rail structure.

Position the PR39 rails at a maximum of 500mm centres, making sure that the clips are aligned across every rail and that the rails are perpendicular to the direction of the decking boards.



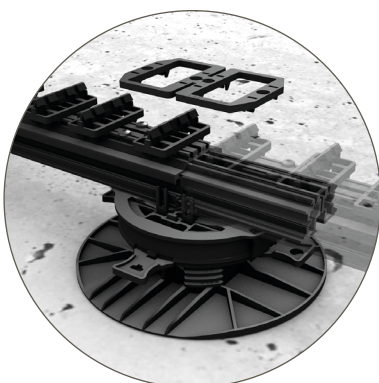
Fixing bracket securing span rail and PR39 rail in place



When all the rails are in place, attach Fixing Brackets to hold the structure together but **do not tighten these until all levelling and adjustments have been made.**

Connecting two rails

If PR39 rails need to be connected, Top Link rail connectors allow the rails to be quickly aligned and butt-jointed with the correct spacing to allow for potential aluminium expansion. **Butt-joints should always be made over a pedestal.**

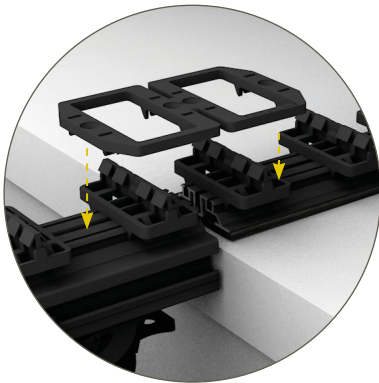


Butt-joint with top link and aluminium joint bar can be inserted into PR39 rail

NOTE: For decks in public spaces, butt-joints can be reinforced with Aluminium Joint Bars. These short bars slide into the PR39 rails where they are screwed into place to stiffen the joint.

Door reveals and thresholds

Occasionally decking may need to extend straight from a doorway, in which case, adding sections of Flat rails (with their reduced height) to the structure can help to achieve a level transition.



Connect rails with a Top Link
(Part No. 3460)

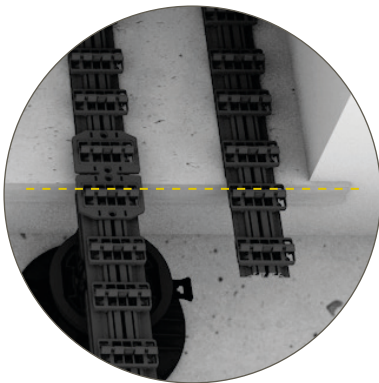


Adding Flat rails

Flat rail sections can be butt-jointed to PR39 rails using a top link connector. Measure the length of flat rail required, making sure to leave a 15mm gap between the end of the rails and the threshold.

Attach elastomer rubber strip to the underside of all flat rail sections to provide some cushioning and reduce noise.

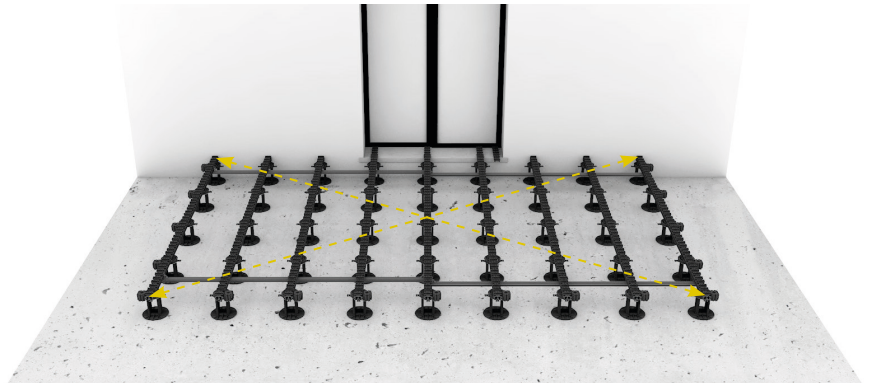
To ensure that the decking within the reveal is stable, **rails should be positioned a maximum of 100mm from the edges of each wall**. If this is not possible, due to the way the overall rail structure aligns, add a separate, slightly longer section of flat rail, making sure that the clips are aligned with the other rails.



Separate section of Flat rail added 100mm
from wall edge, all clips aligned

Aligning and levelling the structure

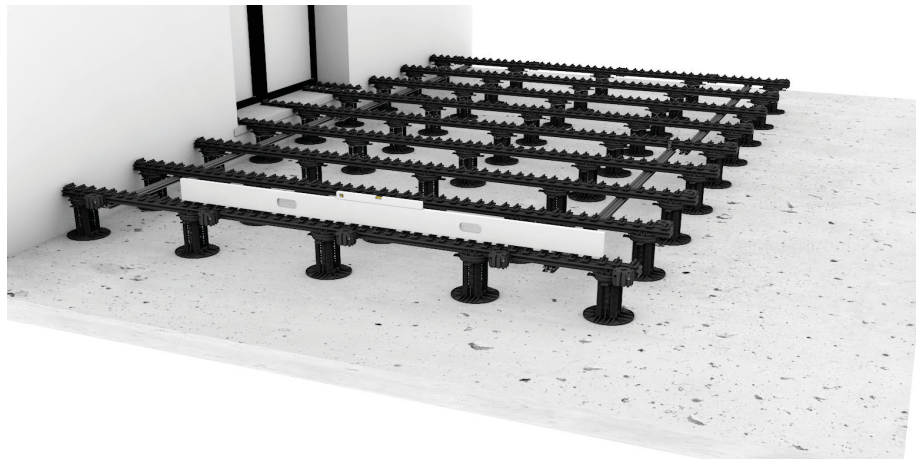
Measure the diagonals from corner to corner and if diagonal one is equal to diagonal two, then your structure is perfectly aligned.



Then check if the rails are parallel to the supporting ground. If changes need to be made, start with the corner pedestals and adjust to level the structure. Then adjust all the other pedestals so they are in contact with the ground.



Tighten all Fixing Brackets to secure rail structure



To allow water to drain off the structure, it should have a 2% slope away from any buildings.

When all checks have been made, tighten the Fixing Brackets to secure the structure.

Attaching Skirting Support rails

Mounting the Skirting Support rails

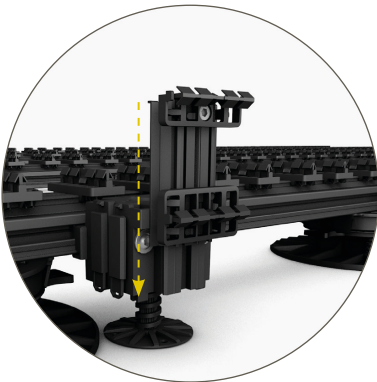
Millworks decking boards are 118mm wide by 20mm thick.

Depending on the skirting height required, we have two skirting supports available:

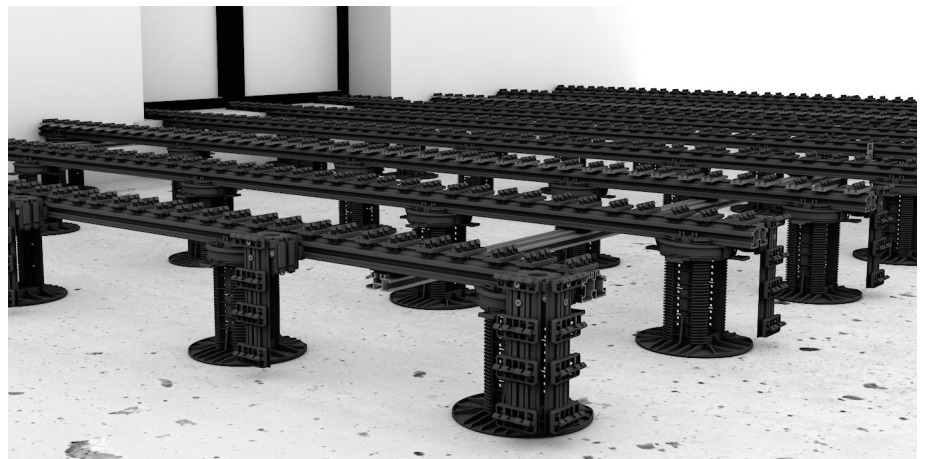
- Skirting Support flat 120 B1, for one board up to 120mm wide.
- Skirting Support flat 120 B2, for two boards up to 120mm wide.

For deeper skirting, Flat rail can be used.

Note: timber skirting boards should never be in contact with the ground, so allow 20mm clearance in your calculations.



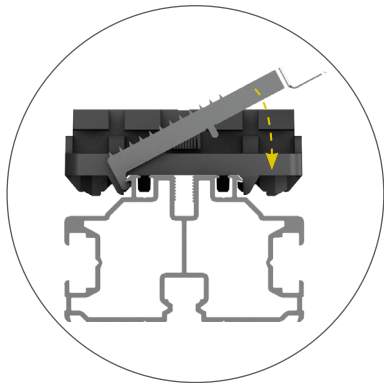
Slide the Skirting Support rail onto the Top Cube



To ensure perfect alignment between the decking and skirting boards, slide the Skirting Support rail onto the Top Cube, ensuring that the Half Clip is aligned with the top of the Top Cube.



When it is positioned correctly, secure the Skirting Support rail to the Top Cube with a screw.



Attaching a Grip Clip to a PR39 rail

Attaching Clip Grips

When the structure is securely fixed in place, attach a Clip Grip to each rail, ideally in the middle of the rail.

Clip grips are used to prevent the decking 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.

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:

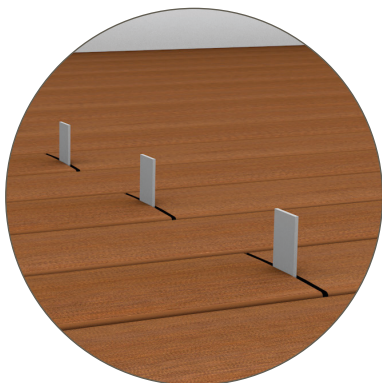
- installation on a half-clip;
- installation on a removable clip fitted with a top link.

Installing the decking boards

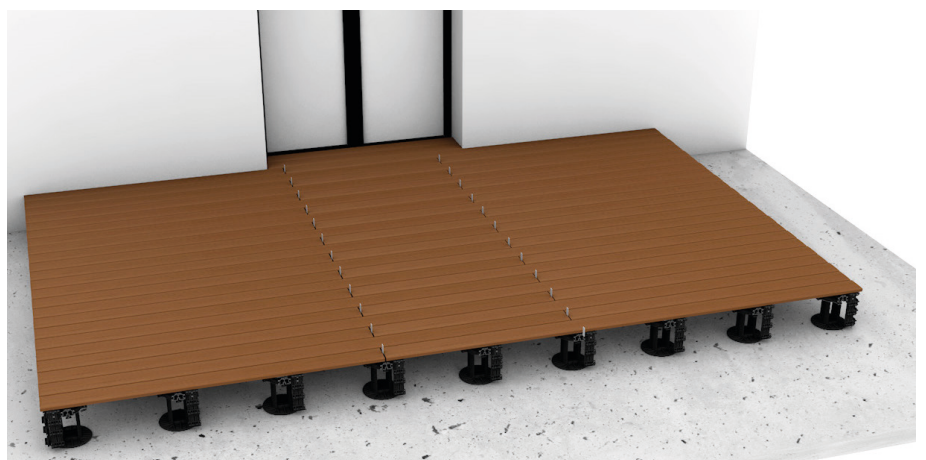
Measure and cut the boards

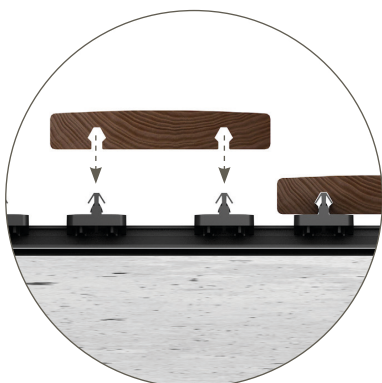
Cut your decking boards to the lengths required then lay the boards on top of the rail structure. Check the edges are good and square.

If you need to join boards, leave a gap of 3mm minimum between the ends to allow for timber expansion (use spacers for consistency). Joints can be aligned or staggered, depending on the preferred design. **Decking boards must be butt-jointed over a clip for support.**



Use spacers for consistent joint gaps





Attaching a board to the clip

Attaching the boards

Starting at one side, gently step onto the decking boards and walk along the length of the board, using your weight to clip them to the rails. Do not use a hammer or other tools that could damage the surface of the board.

Attach each board in this manner until all boards are securely fixed into place.

Cutting and mounting skirting boards

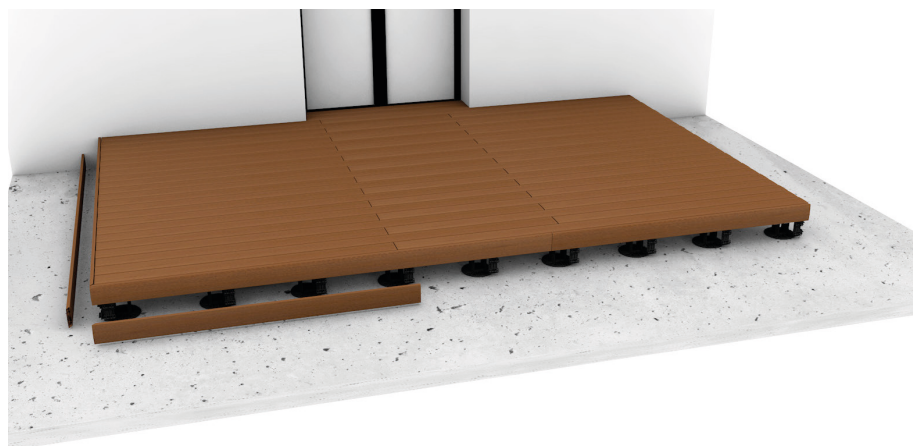
Cut the skirting boards cleanly at 45° to form a neat 90° corner. If your deck has an angle greater than 90°, cut the boards accordingly and use Adjustable Skirting Brackets to secure them.

If you need to join skirting boards, leave a gap of 3mm minimum between the ends to allow for timber expansion (use spacers for consistency).

Timber skirting boards should never be in contact with the ground, so allow 20mm clearance in your calculations.



Cut skirting boards at 45° to form a neat 90° corner



Attach the skirting by gently pressing the boards onto the clips of the support rails.

Skirting is not required along any side that is against a building.

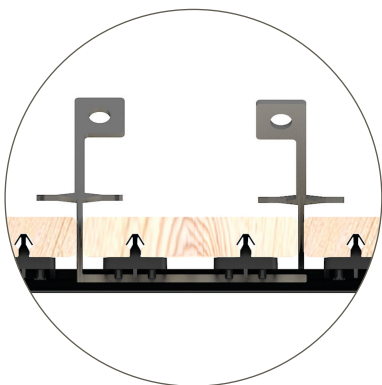
NOTE: if you want to install anything heavy on your deck (such as a spa or jacuzzi), these must rest on a specific support that is separate from the structure of the deck, NEVER directly on the deck.

Removing a decking board

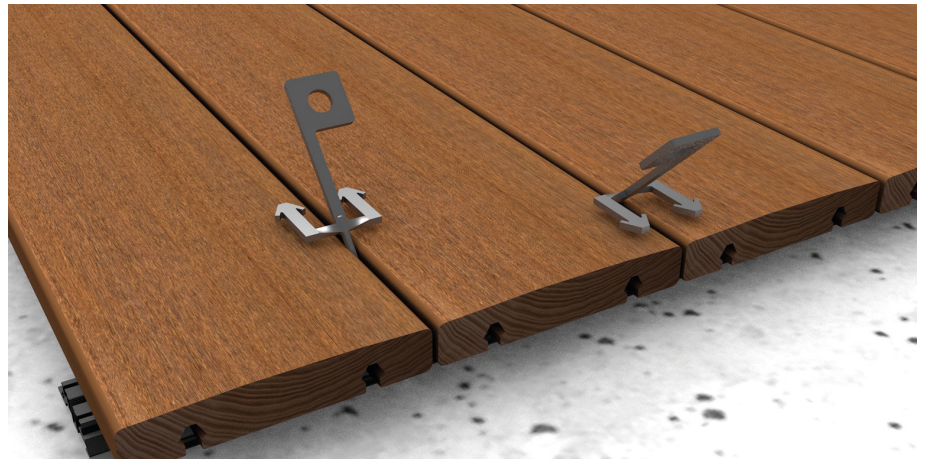
Boards can be removed quickly and easily from the deck using Dismantling Keys.

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 .

If skirting is attached, you may need to remove this before removing a board.



Dismantling keys engaged with rail



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 decking, 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.