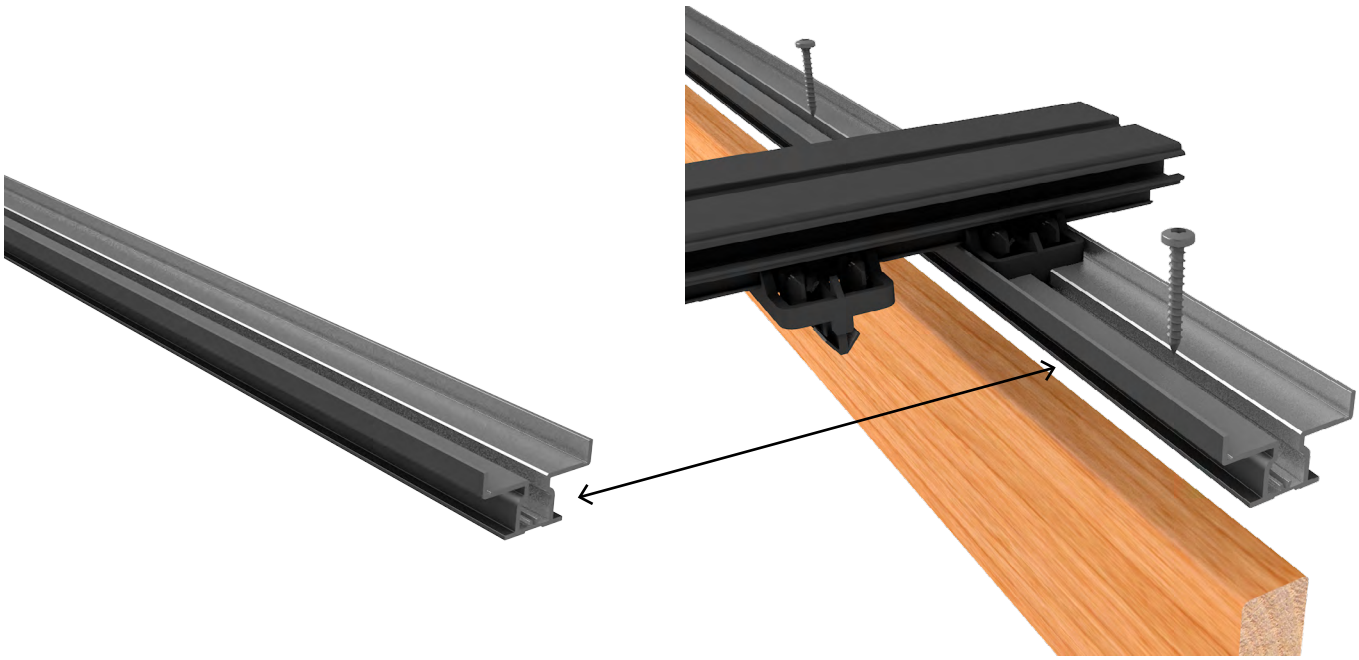
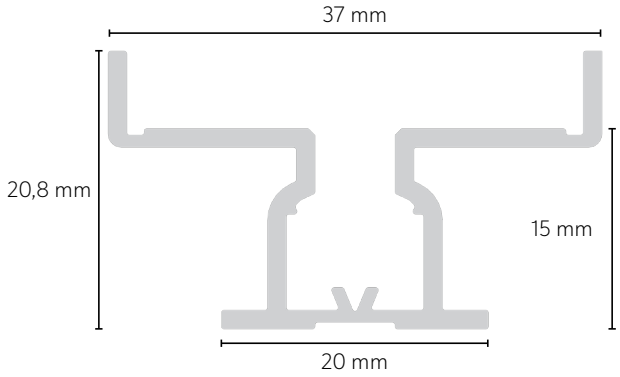
GROOVE RAIL

Groove Rail is used to quickly install edge-mounted boards or panels, while conserving the perfect alignment offered by the Grad® System.

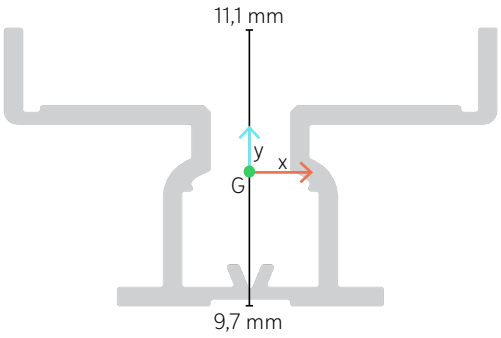


GROOVE RAIL DIMENSIONS



Ref	Description	Packing
3425	Groove Rail	4 m profile

POSITION OF THE CENTRE OF GRAVITY (G)



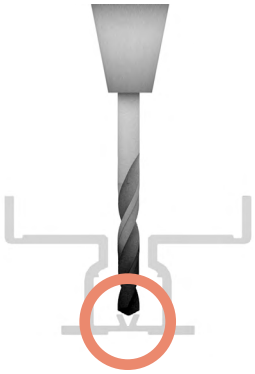
MOMENT OF INERTIA:
Ixx = 4792 mm^4
Iyy = 12497 mm^4
Ixx/v = 432 mm^3

TECHNICAL CHARACTERISTICS

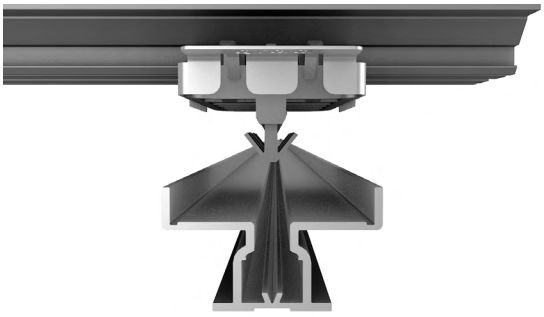
Material	Aluminium EN AW-6060
Mass per metre, without clips	0,34 kg
Color	Black paint
Thermal treatment	T6
Tensile strength (MPa)	190
Tensile stress at yield (MPa)	150
Minimum elongation (%)	6
Tensile modulus (MPa)	70000
Linear expansion coefficient (10^{-6}/K)	24
Fusion temperature (°C)	585-655
Thermal conductivity coefficient (W/mK)	160

FUNCTIONAL DESIGN

The Groove Rail has a V-groove on the inside to guide the drill bit or self-tapping screw.

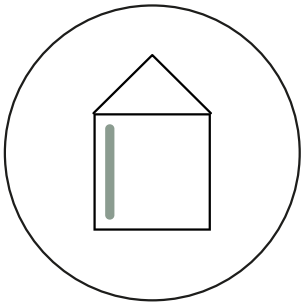


The Groove Rail is designed to be used with Clip Grips. We recommend using Clip Grips to ensure the boards and panels are securely held in position.

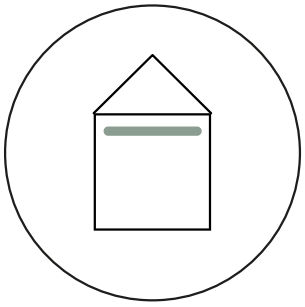


INSTALLATION CHARACTERISTICS

Interior Application



Interior cladding

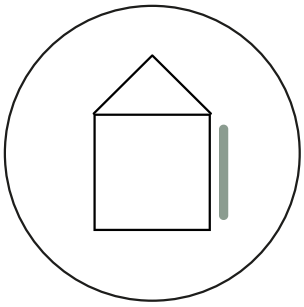


Ceiling cladding

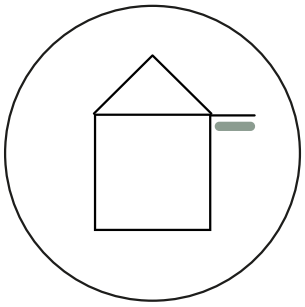
All types of wood and panels can be used under the following conditions:

At the time of installation, the recommended moisture content of the boards or panels should be between 8 and 14%.
This value should be adjusted according to the ambient humidity of the room (see French norms: DTU 36.2).

Exterior Application



Exterior Cladding



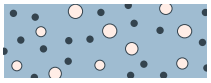
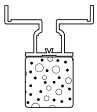
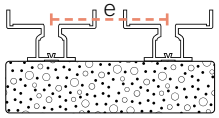
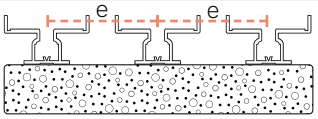
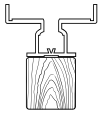
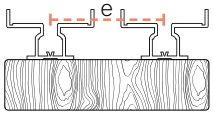
Exterior ceilings and soffits

Products that can be used on exterior cladding and soffits must meet the following criteria:

- Use class 3 or better.
- Durability class 2 or better.
- Tangential shrinkage or variation in width less than 6%.

At the time of installation, the recommended moisture content of a batch of boards should be between 10 and 19%.
This value should be adjusted according to the ambient humidity of the site (see French norms: DTU 41.2).

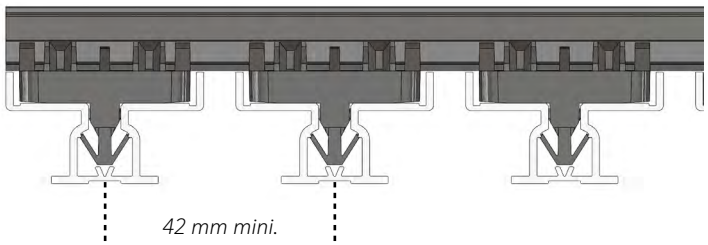
NUMBER OF GROOVE RAILS BASED ON WIDTH AND TYPE OF MATERIAL

Material	Width (mm)	Number of Groove Rails	Diagram
Isotropic material (3-ply panel, HPL, etc.) 	20 < ℓ < 67	1	
	68 < ℓ < 650	2*	
	651 < ℓ < 1200	3*	
Anisotropic material (natural and treated wood, etc.) 	20 < ℓ < 67	1	
	68 < ℓ < 200	2*	
	ℓ > 201	By design office request	

**Maximum centre distance (e) between Groove Rails: 550 mm*
Refer to the material manufacturer's mechanical characteristics.

INSTALLATION CHARACTERISTICS

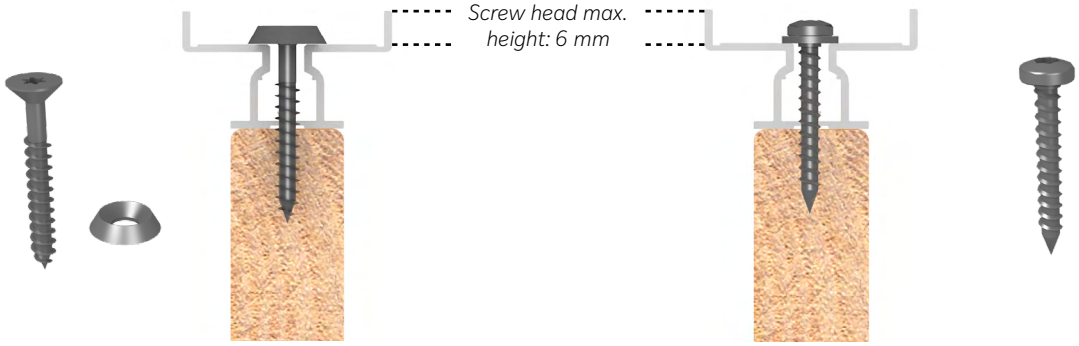
Groove Rails are attached to the boards or panels using screws adapted to the material (e.g. wood screws).
The Groove Rail consists of two vertical sections. Using countersunk screws directly on the aluminium could push the two halves of the Groove Rail apart, compromising the hold and mechanical strength of the system.



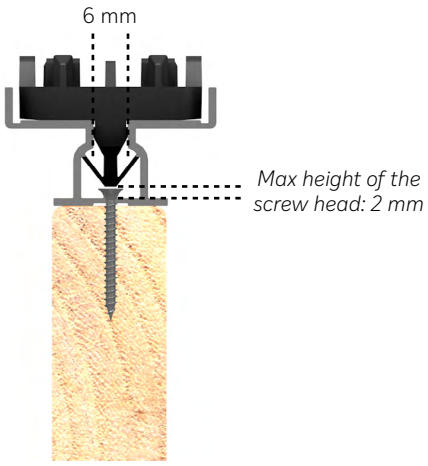
To avoid this problem, there are three recommended possible solutions:

1. Use a cup washer with the countersunk screw to distribute the pressure more evenly and prevent the walls from spreading.

2. Use a button head screw, which will press flat against the surface of the profile without spreading it.



3. Use a screw with a head diameter <6 mm and a lower head height <2 mm.
This makes it possible to remove the Groove Rail clips without removing the screws.
Use a long screw bit.



INSTALLATION CHARACTERISTICS

CHOICE OF FASTNERS

Application Type	Fastner Quality
Interior	Galvanized screw
Exterior	Stainless steel A2 screw
Public	ETA certified screw (contact our design office)

The choice of fasteners must be adapted to the constraints of the project to guarantee a durable and safe installation.

SCREW SIZING FOR EDGE-MOUNTED BOARDS

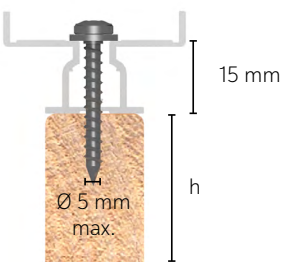
Underhead gap (mm)	Board height (mm)	Screw penetration length in the board (mm)
15	10 < h < 20	⅔ h
	21 < h < 50	½ h
	51 < h < 200	35

SCREW SIZING FOR PANELS

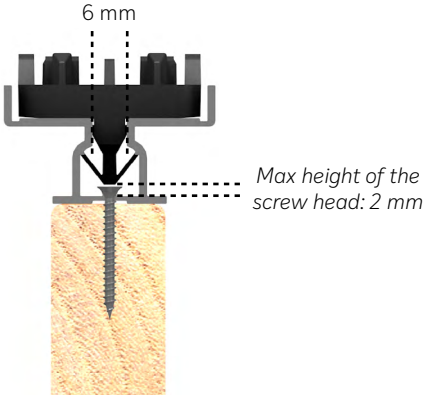
Underhead gap (mm)	Panel thickness (mm)	Min. screw length (mm)
15	8 < h < 30	15 + (⅔)h

Examples :
Board height: h=25 mm

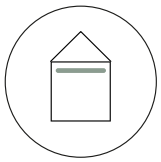
Domed head screw:
Screw length: 15 + (½) x 25 = 28 mm
Recommended screw: 4x30 mm



Countersunk head screw:
Screw head diameter <6 mm
Screw length = 1/2 x 25 = 12,5 mm
Recommended screw 3 x 15 mm

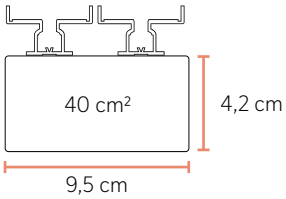


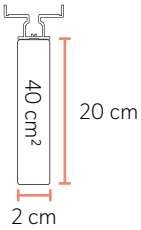
INSTALLATION CHARACTERISTICS



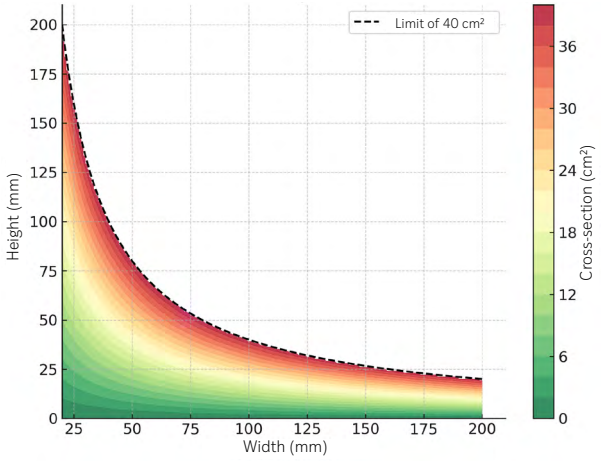
For ceiling applications, the maximum cross-section of the boards must not exceed 40 cm² with a minimum thickness of 2 cm and a maximum height of 20 cm.

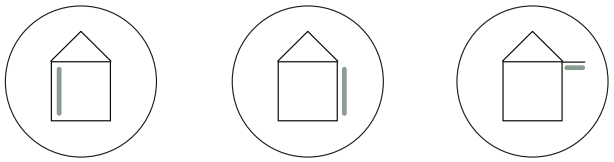
For larger cross-sections, please consult our design office.





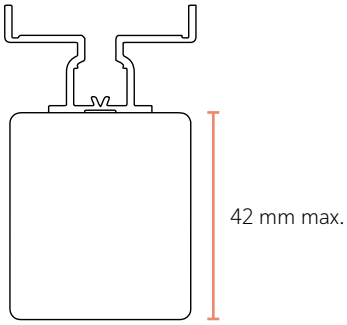
Possible cross-sectional areas for edge-mounted boards

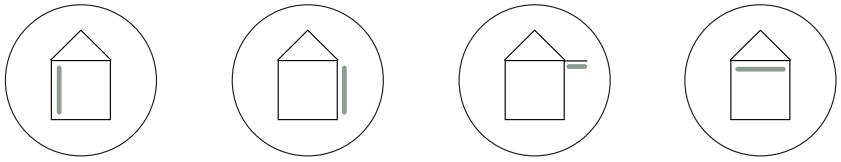




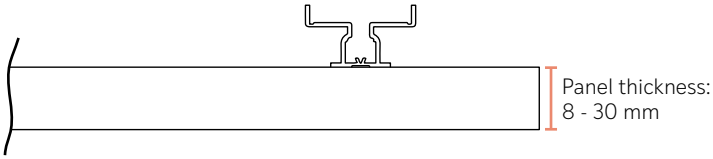
For interior cladding, exterior cladding, and sofits, the maximum height of edge-mounted boards is 42 mm.

For taller boards, please consult our design office.

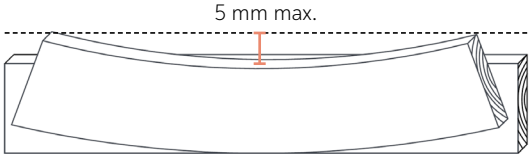




In all applications, panels must be between 8 and 30 mm thick.



The maximum tolerated longitudinal deformation is 5 mm.



MAXIMUM DISTANCES BETWEEN FASTENERS AND RAILS

INTERIOR CEILING APPLICATION
Edge-mounted boards and panels

Rail	Max. distance between fastners	Max. distance between rails
Flat Rail	0,6 m	0,65 m
PR24	1,0 m	0,65 m
PR39	1,35 m	0,65 m

The fastener spacing indicated in the table is valid for a maximum distributed load of 30 kg/m².
For higher loads, please consult our Design Office.

EXTERIOR CEILING OR SOFFIT APPLICATION*
*Edge-mounted boards** and panels*

Rail	Max. distance between fastners	Max. distance between rails
Flat Rail	0,65 m	0,65 m
PR24	1,35 m	0,65 m
PR39	1,35 m	0,65 m

The fastener spacing indicated in the table is valid for a maximum distributed load of 23 kg/m².
For higher loads, please consult our Design Office.

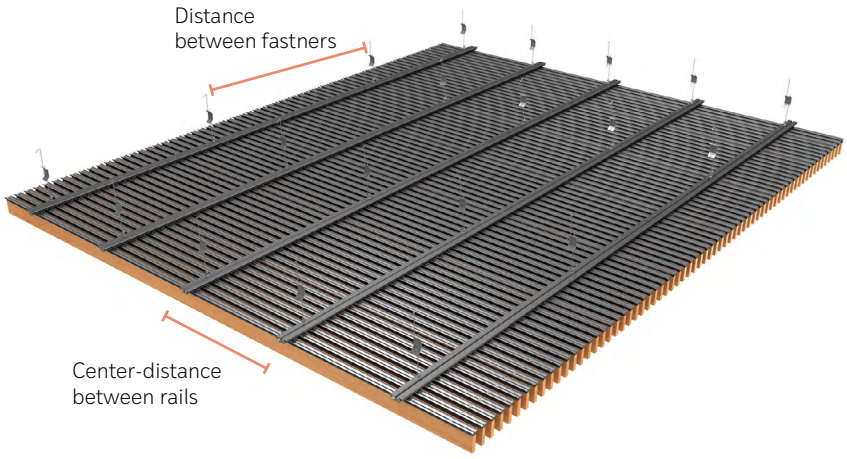
INTERIOR CLADDING APPLICATION
*Edge-mounted boards** and panels*

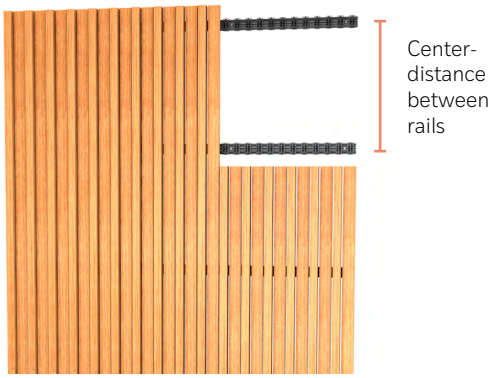
Rail	Max. distance between fastners	Max. distance between rails
Flat Rail	0,6 m	0,65 m
PR24	1,0 m	0,65 m
PR39	1,35 m	0,65 m

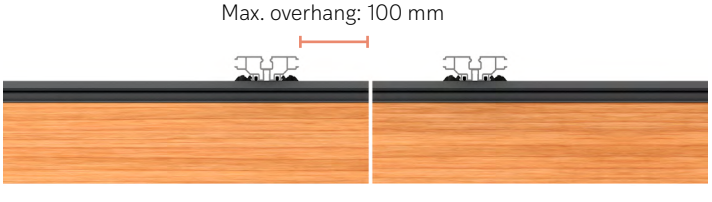
EXTERIOR FAÇADE APPLICATION*
*Edge-mounted boards** and panels*

Rail	Max. distance between fastners	Max. distance between rails
Flat Rail	0,65 m	0,65 m
PR24	1,35 m	0,65 m
PR39	1,35 m	0,65 m

** Please refer to the calculation notice and the technical data sheet of each rail, taking into account the geographical zone of the project.*
(cf. FT133 FLATRAIL, FT136 PR24, FT137 PR39)
*** Edge-mounted boards max height: 42 mm*





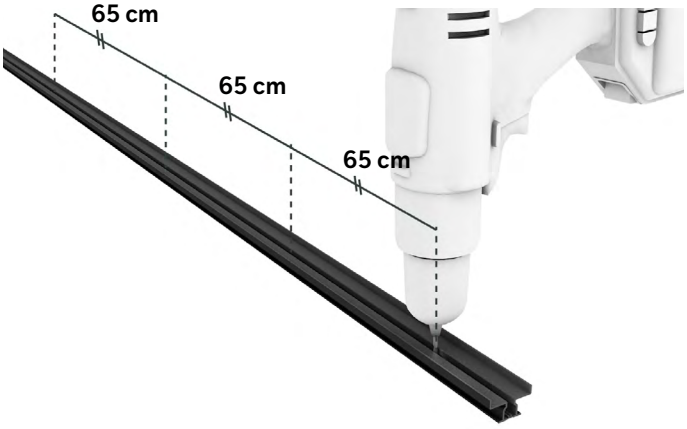


3 mm gap between joints

INSTALLING GOOVE RAILS WITH EDGE-MOUNTED BOARDS

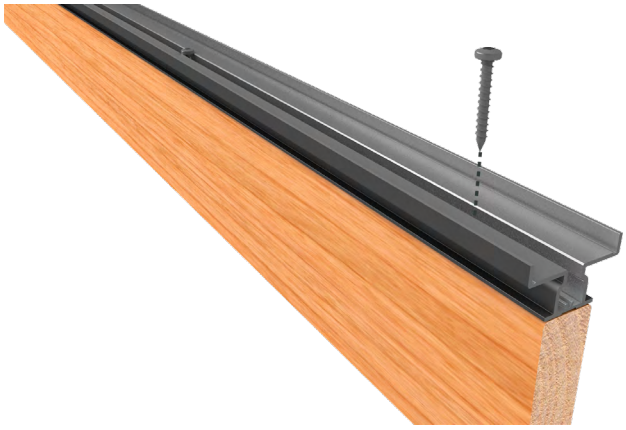
The system consists of an aluminium profile (Groove Rail) edge-mounted to a board with screws.
Once assembled, the whole unit is clipped onto a rail, providing a stable and aesthetic result.

1 Pre-installation prep

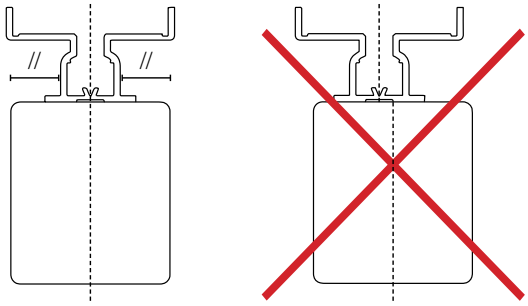


1. Check that all surfaces are aligned and flat.
2. Pre-drill the aluminium profile where the screws will be located.
   → *Ensure the screws are evenly spaced to ensure consistent fastening.*
   → *Make sure that the screws will not collide with the clips when installed to ensure a secure installation.*
3. Position the Groove Rail on the edge of the board.
   → *It may be necessary to pre-drill the board to avoid splintering the wood.*

2 Mount the Groove Rail to the boards



1. Ensure the board and Groove Rail are properly aligned.
2. Secure the Groove Rail to the board edge using the appropriate fasteners.



3 Clip the profile to the rails

1. Position the assembled piece against the rail.
2. Apply uniform pressure along the length of the board to ensure it correctly clips onto the rail.
3. Check that the everything is securly attached to the rail.

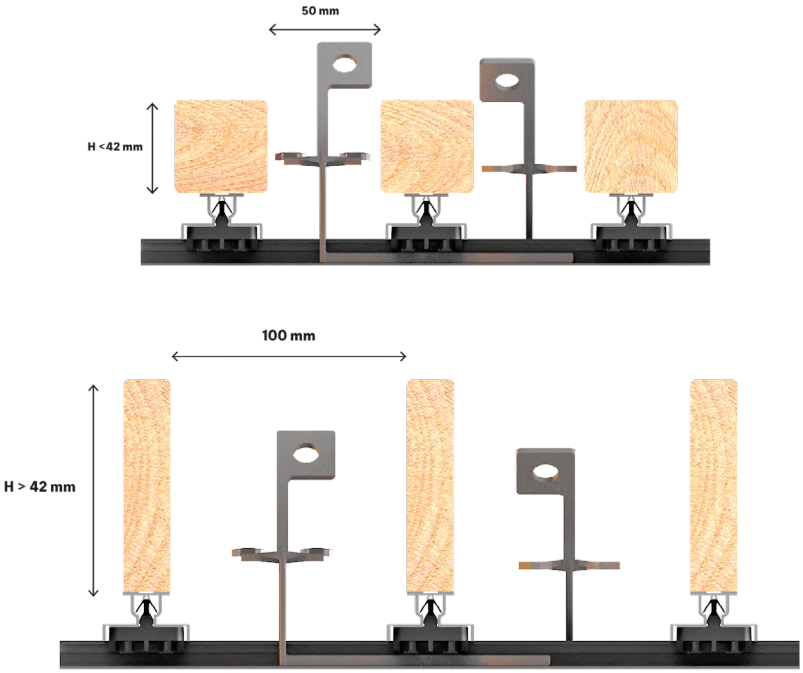
4 Inspection and adjustments

1. Check the stability of each component.
2. Make sure there are no screws blocking the clips.
3. If necessary, adjust, reposition, or change the spacing of the screws.

GROOVE RAIL REMOVAL - EDGE-MOUNTED BOARDS

The Groove Rail can be removed using Grad Dismantling Keys.

To ensure optimum access for the dismantling keys, we recommend that you follow the spacing guidelines below:



When these spacings cannot be respected, the keys can be modified by removing their lateral protrusions (arrows), so that they can be inserted in configurations with reduced centre-to-centre distances.

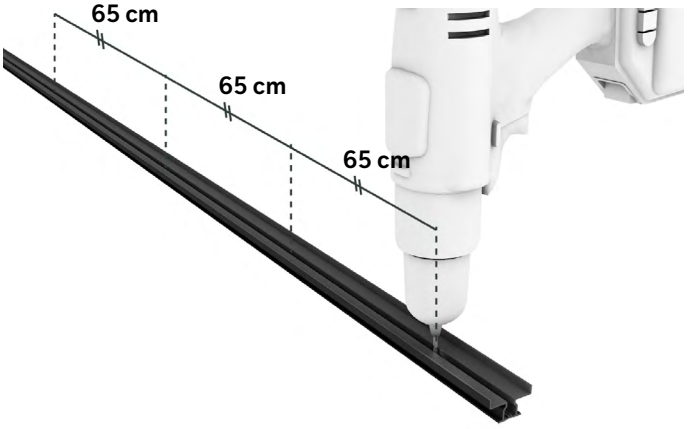
Note: To dismantle, the board + Groove Rail assembly must be disconnected from the support rail. The clip remains attached to the Groove Rail.

After unclipping, the clips must be slid back into the groove before replacing the assembly.
Care must be taken to avoid damaging the clips and profiles.

INSTALLING GROOVE RAIL WITH PANELS

The system consists of an aluminium profile (Groove Rail) mounted to a panel with screws.
Once assembled, the whole unit is clipped onto a rail, providing a stable and aesthetic result.

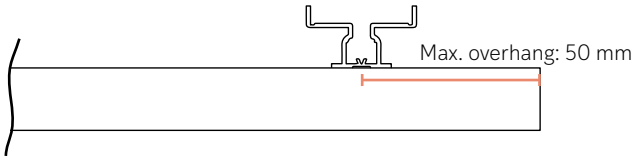
1 Pre-installation prep



1. Check that all surfaces are aligned and flat.
2. Pre-drill the aluminium profile where the screws will be located.
   → *Ensure the screws are evenly spaced to ensure consistent fastening.*
   → *Make sure that the screws will not collide with the clips when installed to ensure a secure installation.*
3. Position the rail along the panel.
   → *It may be necessary to pre-drill the panel to prevent the material from splitting or splintering.*
4. Install at least one Groove Rail along the each long side of the panel.
   → *If the panel is large, plan to use a suitable number of Groove Rails to endure the panel is securely attached.*

2 Mount the Groove Rail to the panels

1. Ensure the Groove Rail is properly aligned against the panel.
2. Secure the Groove Rail to the panel using the appropriate fasteners for the material.



3 Clip the profile to the rails

1. Position the assembled piece against the rail.
2. Apply uniform pressure along the length of the panel to ensure it correctly clips onto the rail.
3. Check that the everything is securly attached to the rail.

4 Inspection and adjustments

1. Check the stability of each component.
2. Make sure there are no screws blocking the clips.
3. If necessary, adjust, reposition, or change the spacing of the screws.