

## INSTALLATION AND MAINTENANCE GUIDE

# Geolam Architectural Elements

Façades, sunshades, screens and more architectural elements

*Installation options are suggestions only*

**Geolam**<sup>®</sup>

Architectural Eco-Technology

[usa.geolam.com](http://usa.geolam.com)

### Geolam<sup>®</sup>: a stunning alternative to hardwood architectural trim

Geolam's line of architectural trim is the outcome of years of research. The result is an exclusive process of co-extrusion whereby an aluminum core section is fabricated with an outer covering, or skin, of composite wood.

Geolam's hybrid aluminum/WPC products provide the look of stained wood and provide long term performance with low maintenance.

These profiles exhibit the strength, stability, and versatility of aluminum with the warmth and aesthetic of natural wood. Light and easy to install, this hybrid aluminum/WPC material is used for façades, sunshades, screens and other architectural accents.

# Cutting the profiles

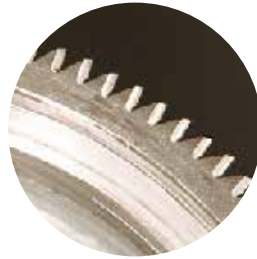
- Use motorized tools and specialized aluminum-cutting chip saws when cutting Geolam hybrid profiles.
- Do not use grinders or chainsaws for cutting.
- Not using a suitable aluminum-cutting chip saw could result in deformation, cracks and/or peeling of the product.

## Aluminum Saw Blade

Base Metal: Tool Steel

Chips: Carbide

Teeth: Minimum 2 teeth per centimeter

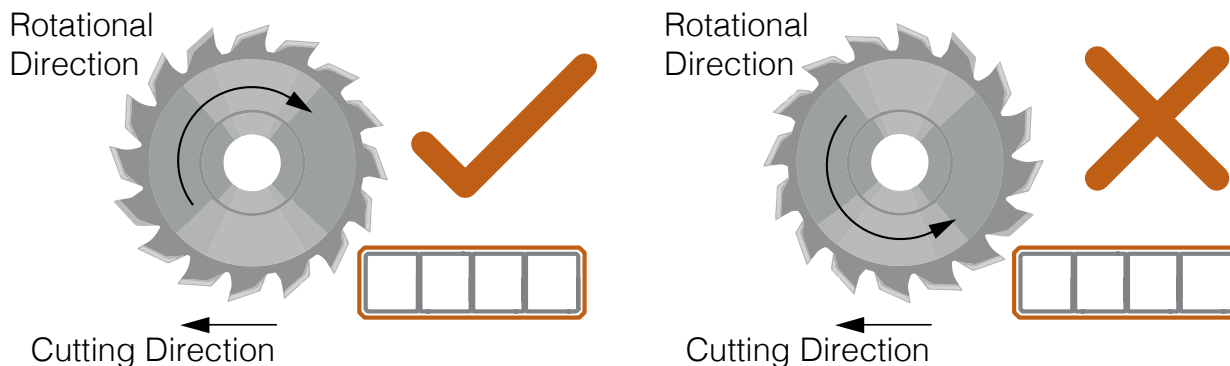


## Cutting Speed

- Maximum 2 meters per minute

## Cutting Direction

- To cut, pull the product in the same direction as the saw rotation, as shown in the illustration below.
- Cutting in the opposite direction may cause the product to move, which may produce an untidy cut in addition to being dangerous for the operator.

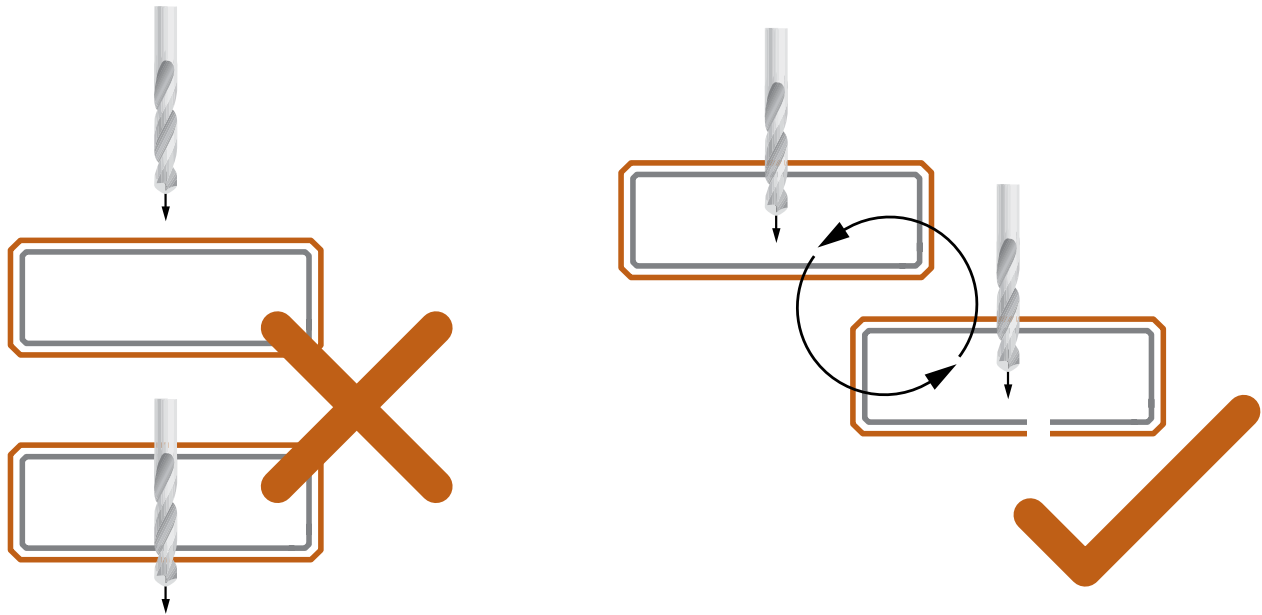


### **IMPORTANT MESSAGE FOR CUTTING PLANEBOARDS ONLY:**

Planeo boards consist of other Geolam hybrid profiles, usually Soleo, that are bolted internally to produce a larger board. The bolts are placed 2 – 4 ft apart depending on the profile and are inset approx 2" at the end of each board. The boards can be field cut with a small tooth saw but only the 2" on the ends that extend beyond the end bolts. Please do not cut these boards anywhere else. This may compromise the structural integrity of the board.

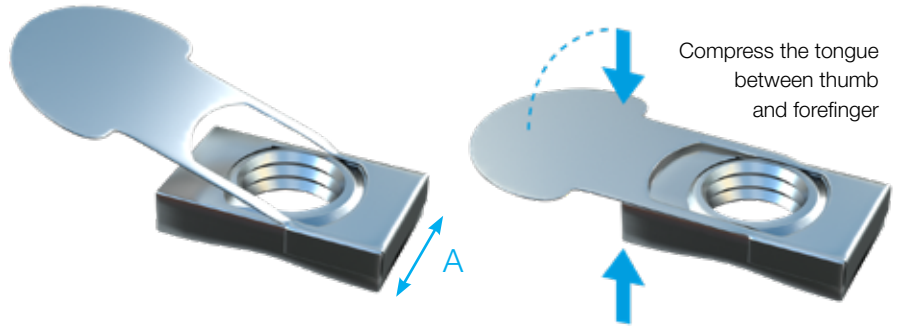
# Drilling holes in profiles

- Use drills for use with metal or timber and make the holes with a tabletop drilling machine or a motorized screwdriver.
- Drilling holes through both sides of the material may result in the formation of burrs or chips when the drill exits the rear side.
- Therefore, test the machine on scrap material before starting work.
- If burrs do appear, drill through from both sides independently.
- Depending on how the burrs are formed, the surface layer could be chipped to reveal the aluminum core beneath.

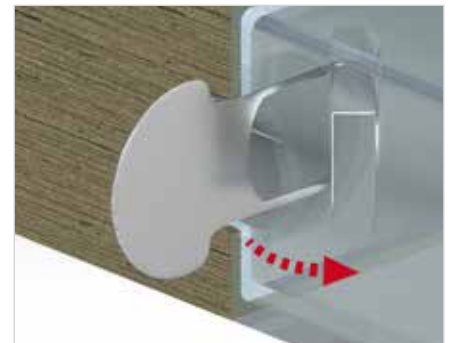
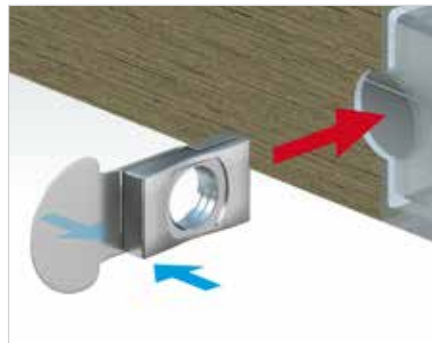


**INSTALLATION OPTIONS**

# Fastening profiles using InPull nut

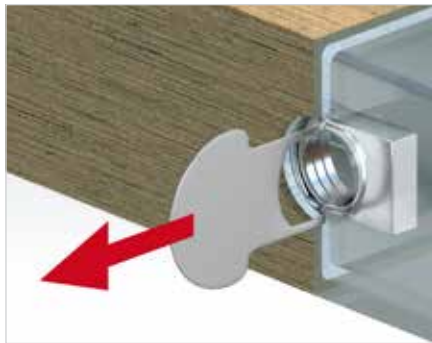


Bolt Size	Prehole Diameter (mm)	Nut Width A (mm)	Max Torque (Nm)	Max Tension Load (kN)
M6	10.2	9.5	10.0	7.8
M8	12.7	12.0	24.5	14.7
M10	15.7	14.3	39.2	19.6
M12	18.0	16.9	58.8	29.4

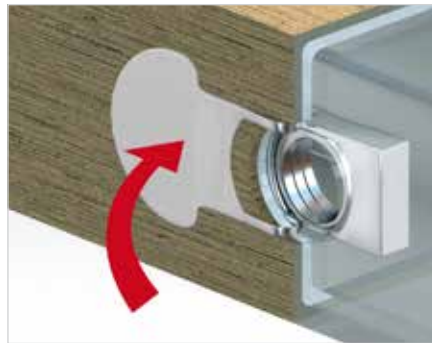


Pre-drill as shown (see above table for diameter). Select the correct InPull nut (M6 to M12) according to your fastening requirements.

Insert the InPull nut as shown. Squeeze the tongue as you insert the nut and release once the nut is in place. Once released the nut will rest at an angle to the inside of the board.



Pull out the tongue so as to secure the nut along the inside of the board.



Lay the tongue along the exterior of the board, if necessary fasten with tape to hold it.



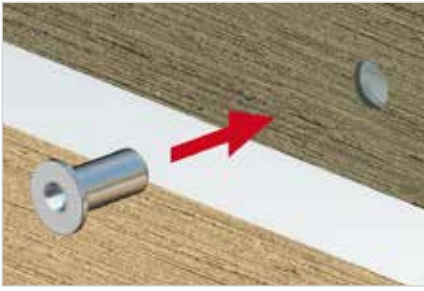
**Installation of the supporting structure**



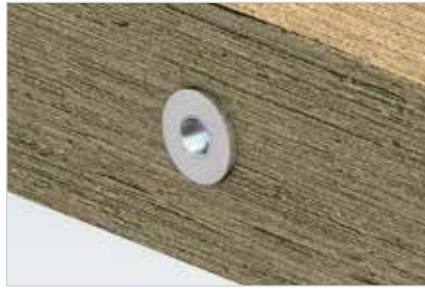
Example of assembly brackets attached with bolts and anaerobic glue e.g. "thread locker". The pre-drilled holes are wider than the bolt shaft (2 to 4 mm) to allow for expansion of the board. Washers are required as shown.

## INSTALLATION OPTIONS

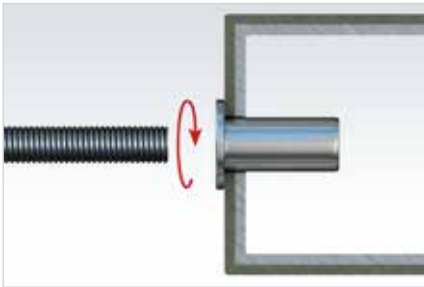
# Fastening profiles using blind nut



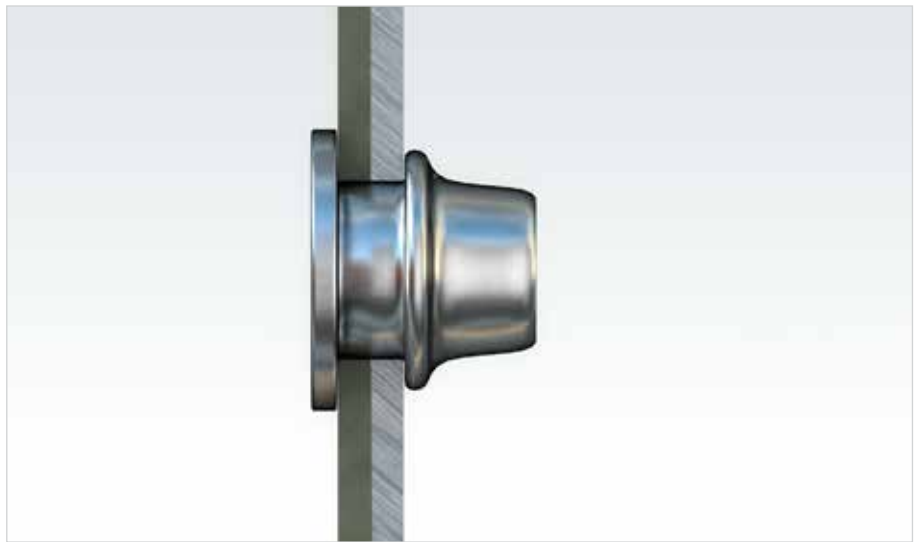
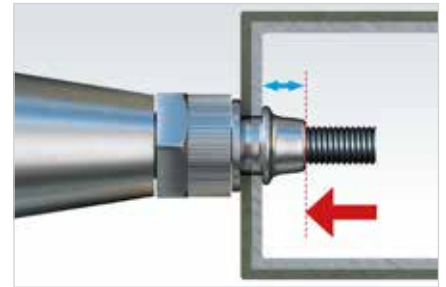
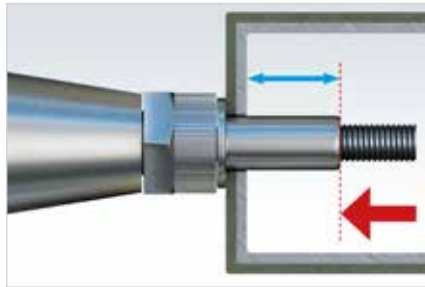
Pre-drill as shown.



Select the correct blind nut according to your fastening requirements.



Setting the blind nuts  
(manual or pneumatic tool).

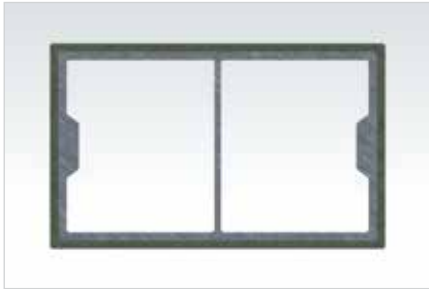


Installation of the supporting structure. The pre-drilled holes are wider (2 to 4 mm) than the bolt shaft to allow for expansion of the board. Washers are required as shown.



## INSTALLATION OPTIONS

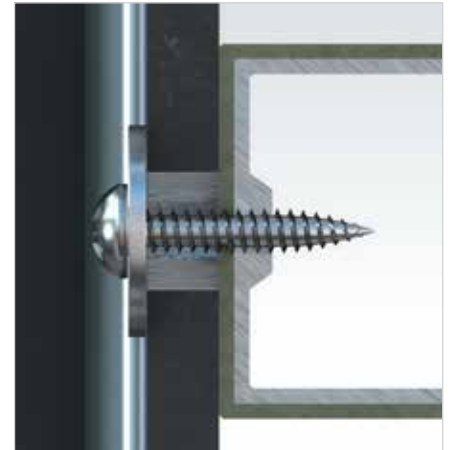
# Fastening profiles using self-tapping screw



For profiles with oversized aluminum wall, a direct fastening of the profile is possible (example : Soleo 6008 installed sideways).



Installation of the supporting structure. The pre-drilled holes are wider (2 to 4 mm) than the bolt shaft to allow for expansion of the board. Washers are required as shown.

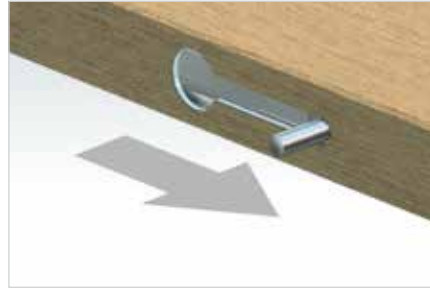
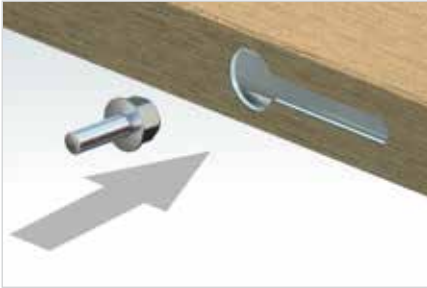


Example of assembled brackets.



## INSTALLATION OPTIONS

# Fastening profiles using flange bolt



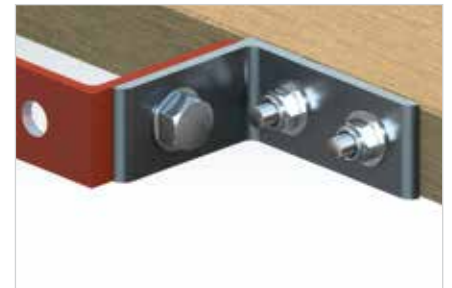
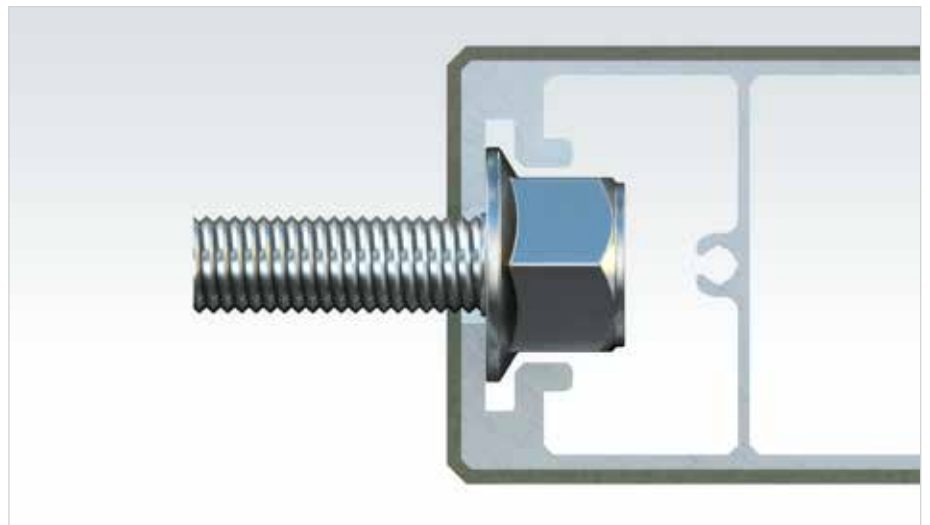
Setting up the first flange bolt.



Setting up the second flange bolt.

For specific profile only, use flange bolts allows a strong fixation (example: Soleo 6032 installed sideways).

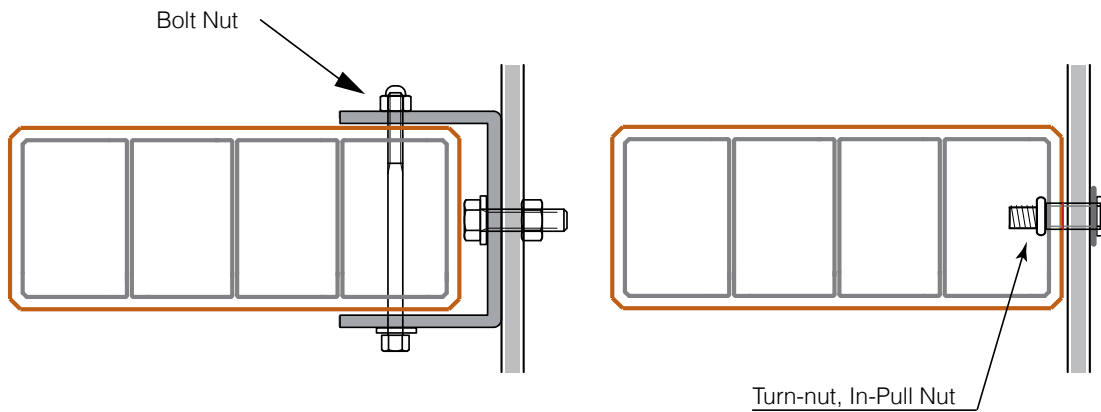
According to the picture, drill a specific oblong hole using a numerically controlled milling machine.



Example of fixation on assembly brackets using braked nuts.

## INSTALLATION OPTIONS

# Bolt nuts, in-pull nuts and turn nuts



- Fix bolt-nuts, in-pull nuts, and turn-nuts firmly in place (recommended at 3.5Nm).
- Over-tightening may result in deformities, cracks and/or peeling appearing on the surface layer.
- Consult a local building code for joint span and bolt size requirement.
- Fixing the product in place with tapping screws or drill screws is not recommended.
- Nails must also not be used for fixing.
- Check the strength requirement prior to fixing to joint.

[Click here to watch Soleo 6010 Installation video](#)

[Click here to watch suggested louver assembly/installation video](#)

[Click here to download a pdf on Sample Ways to Fasten Architectural Elements](#)



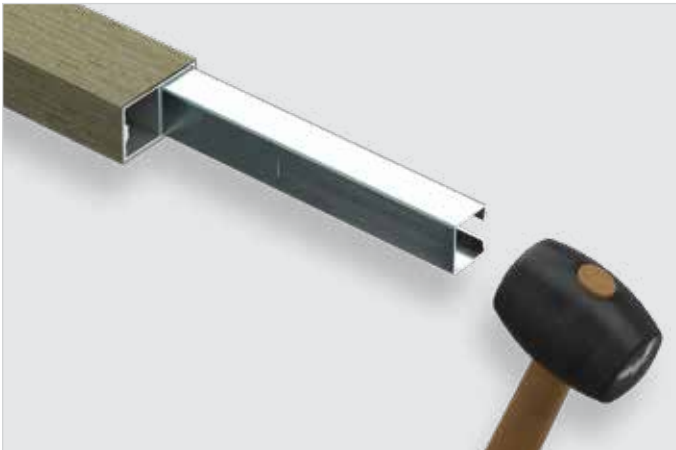
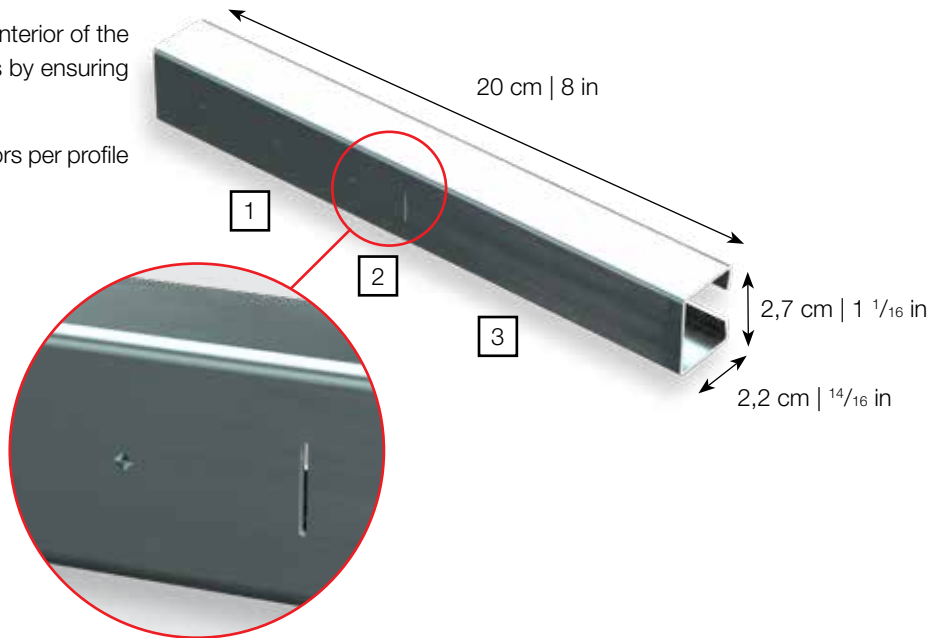
## INSTALLATION OPTIONS

# Straight Connector

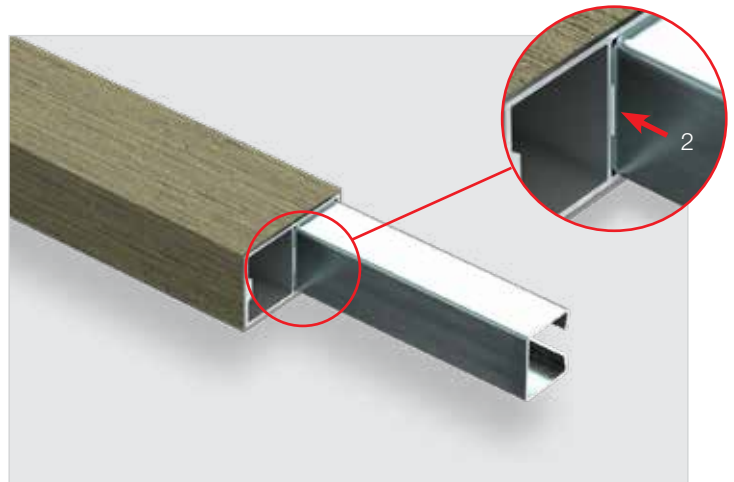
These cleverly designed splices are inserted into the interior of the hybrid profiles. They allow for the assembly of profiles by ensuring proper alignment at butt ends for a straight run.

Only 1 connector needed but you may use 2 connectors per profile for a stronger assembly.

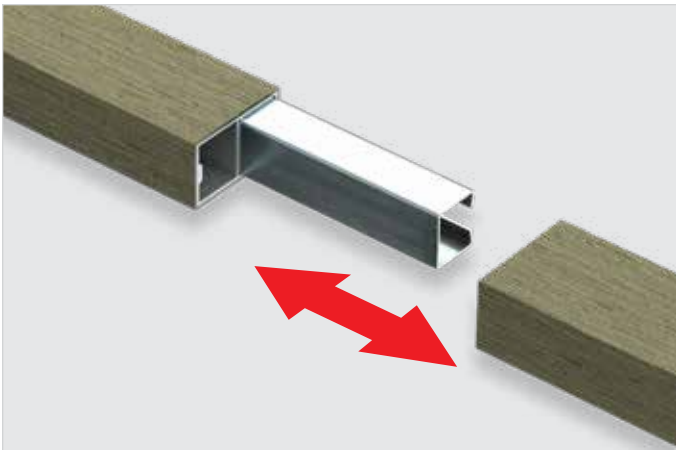
1. Embossing to maintain the connector in place
2. Center line of connector
3. Smooth surface for sliding in and out the module



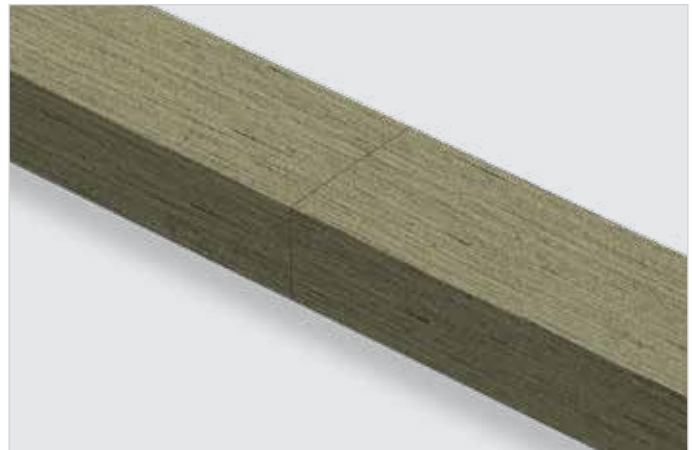
Install the connector using a mallet.



Insert the connector as far as the center line.



The right-hand profile slides easily in and out.



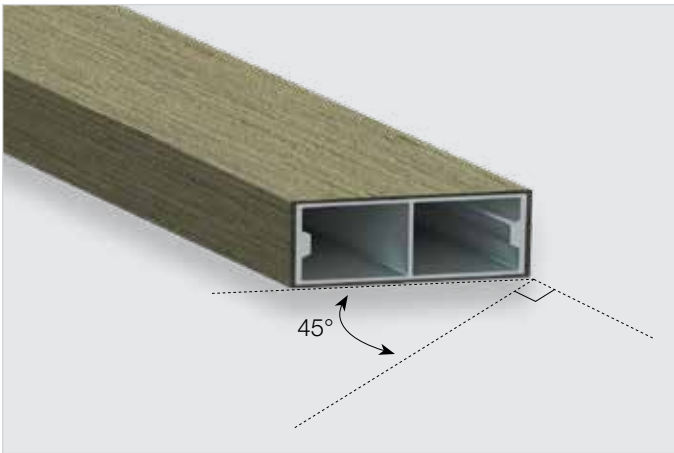
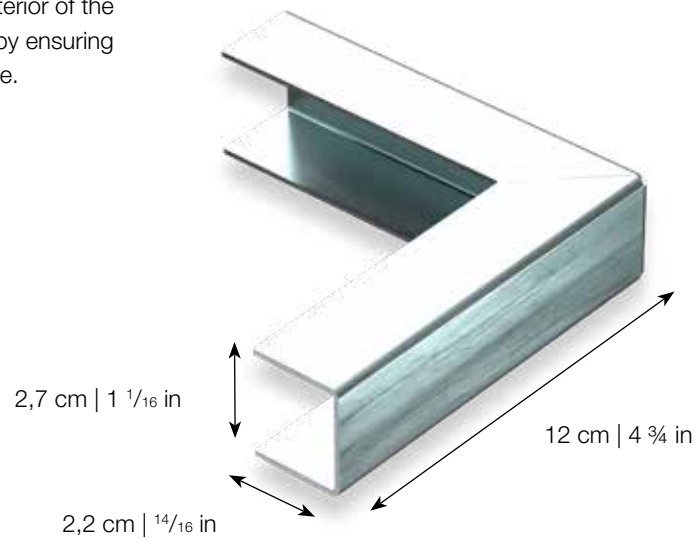
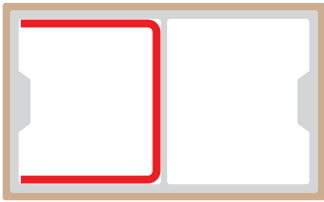
Joint is almost invisible.

## INSTALLATION OPTIONS

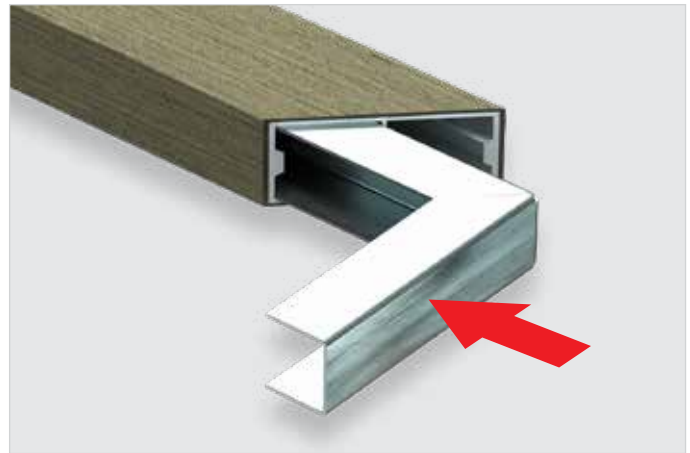
# Corner Connector (Lying down)

These cleverly designed splices are inserted into the interior of the hybrid profiles. They allow for the assembly of profiles by ensuring proper alignment to create a perfectly finished 90° angle.

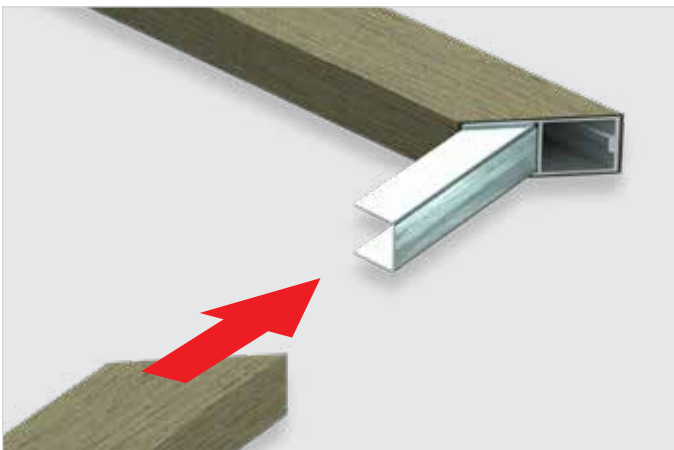
Only 1 connector is used in this orientation.



45° cut.



Insert the connector.



Insert profile.



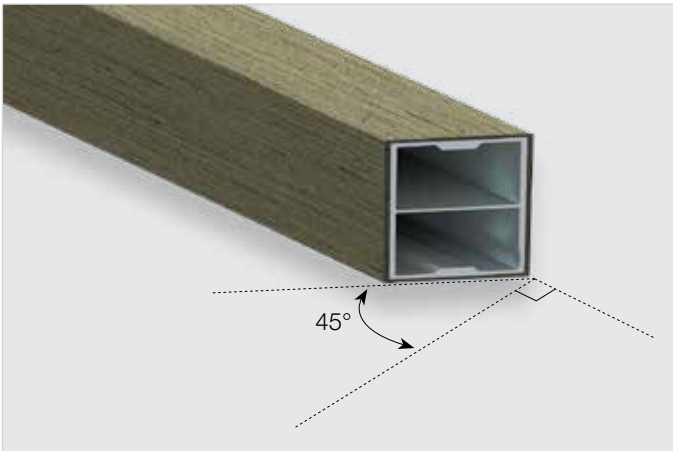
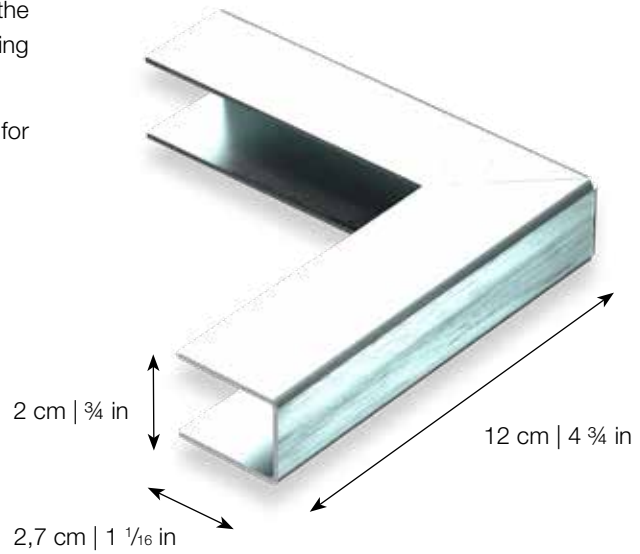
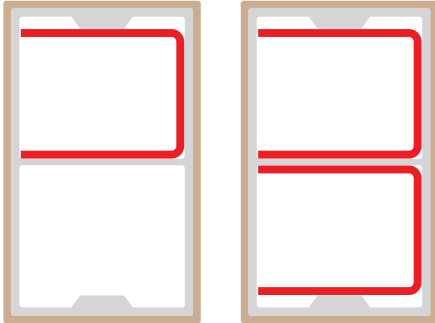
Joint is almost invisible.

## INSTALLATION OPTIONS

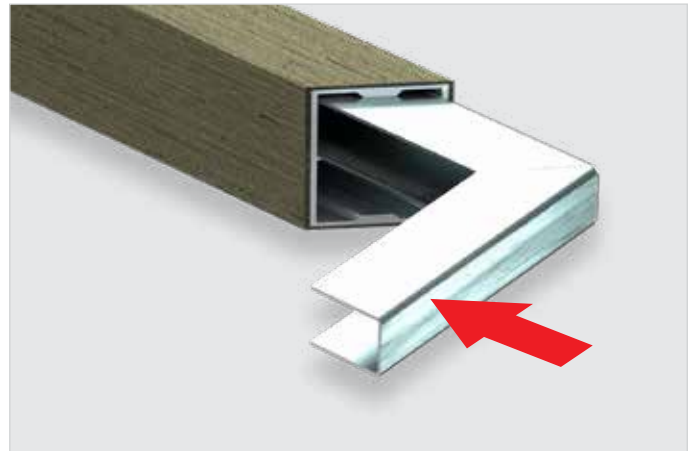
# Corner Connector (Standing up)

These cleverly designed splices are inserted into the interior of the hybrid profiles. They allow for the assembly of profiles by ensuring proper alignment to create a perfectly finished 90° angle.

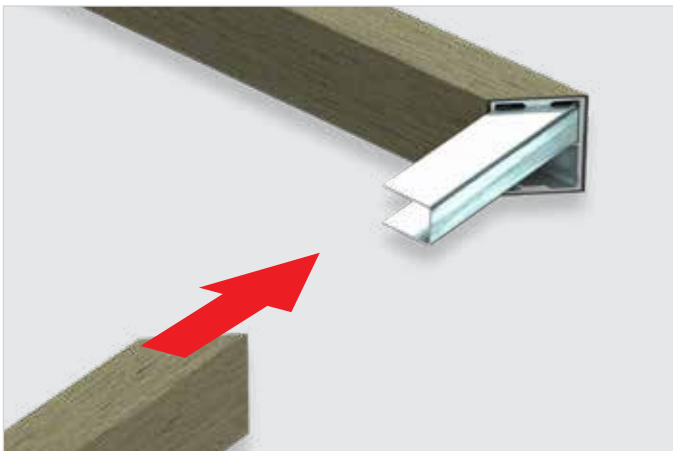
Only 1 connector is needed but use 2 connectors per profile for a stronger assembly.



45° cut.



Insert the connector(s).



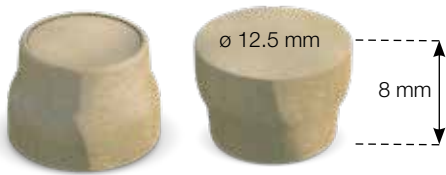
Insert profile.



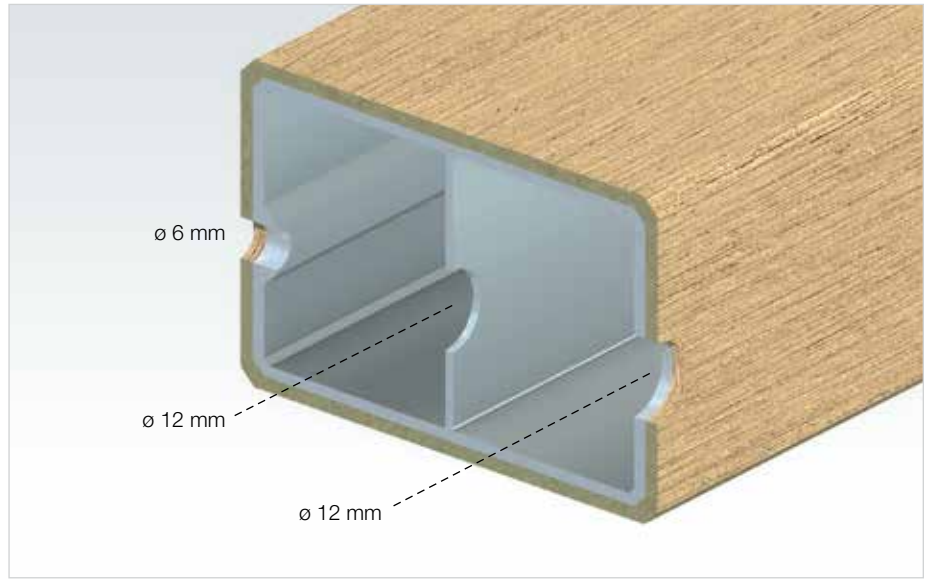
Joint is almost invisible.

INSTALLATION OPTIONS

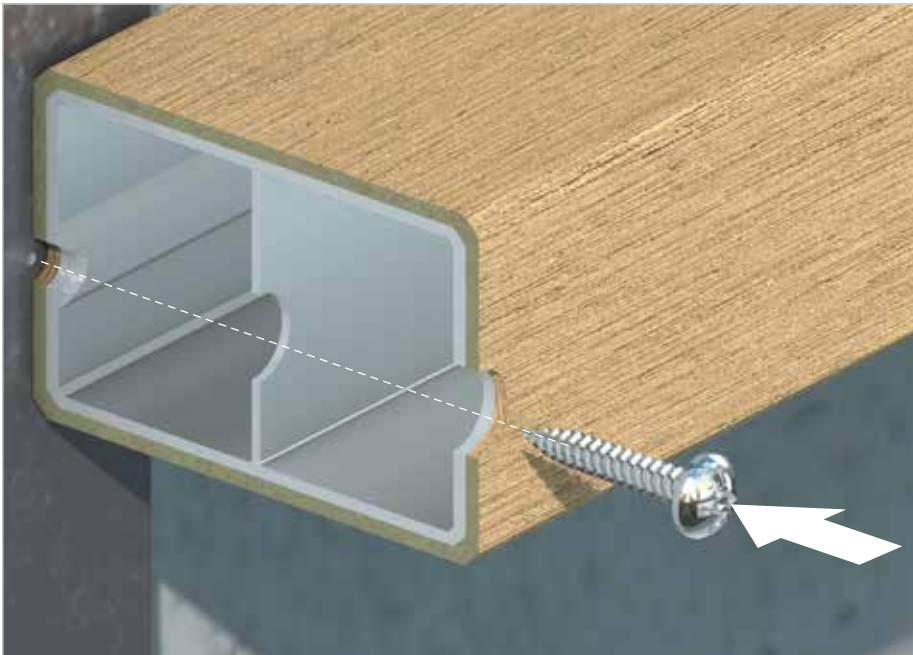
# Using plugs



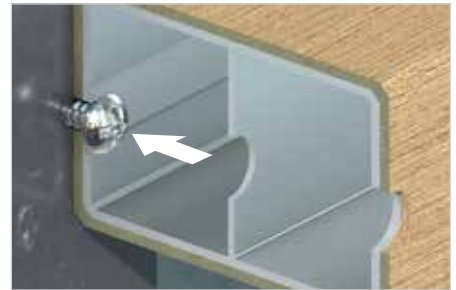
Drilling the profile



Drill a 6 mm hole, then re-drill a 12 mm hole as far as the inside of the fastening surface



Setting up the screw in the profile



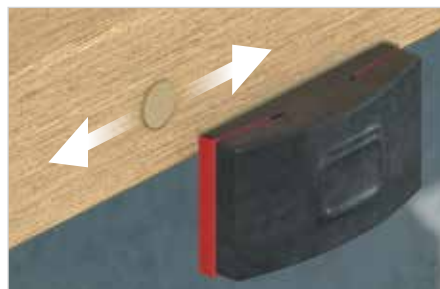
Fasten the screw - stainless steel



Insert the plug



Hammer in plug with rubber mallet



Sand lengthwise with #24 grain sandpaper



Finished profile

INSTALLATION OPTIONS

# Using plugs (photos)



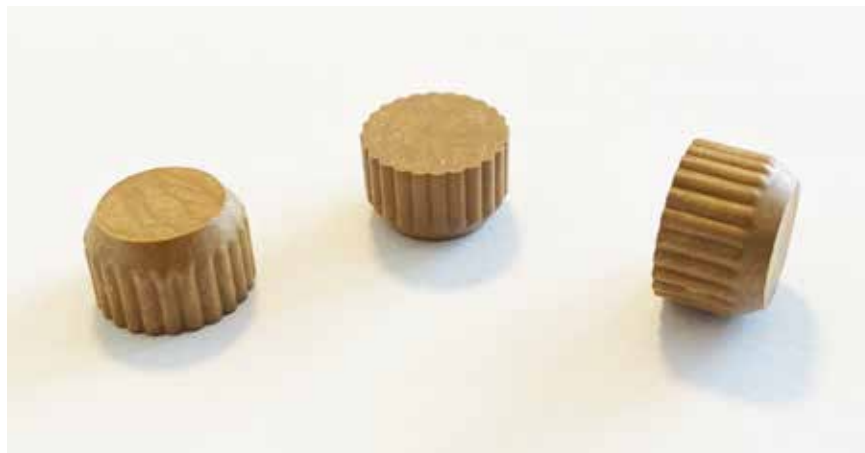
Drill the profile



Insert the plug



Sand the profile



## INSTALLATION OPTIONS

# WPC and ASA end caps installation

The end caps have to be glued to the profile. The end caps have four openings to allow for weeping of condensation – these must not be blocked or closed up. For a perfect aesthetic, wood composite end caps (WPC) can be adapted in size to the profile or showcased by an appropriate additional sanding by hand.

End caps must be glued to the WHS profile.

Use glue like Sikaflex®: Crystal Clear or 3M®: DP- 8010 :

- Designed to glue plastic (PP and PE) with Aluminum
- Moisture resistant
- Made for extreme temperature fluctuations (-30°C to + 75°C)
- Transparent

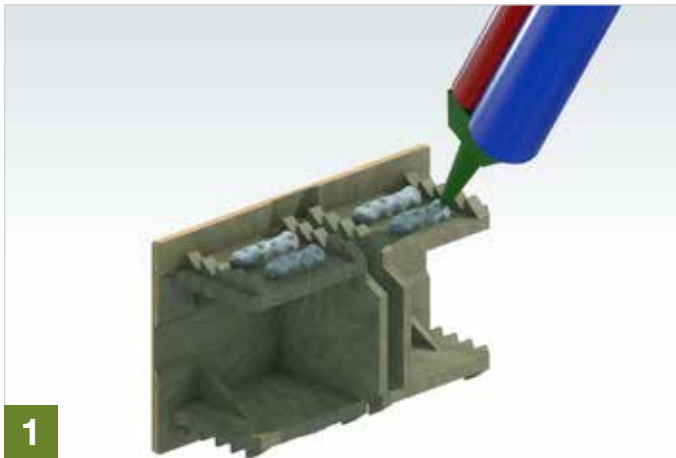


WPC end cap



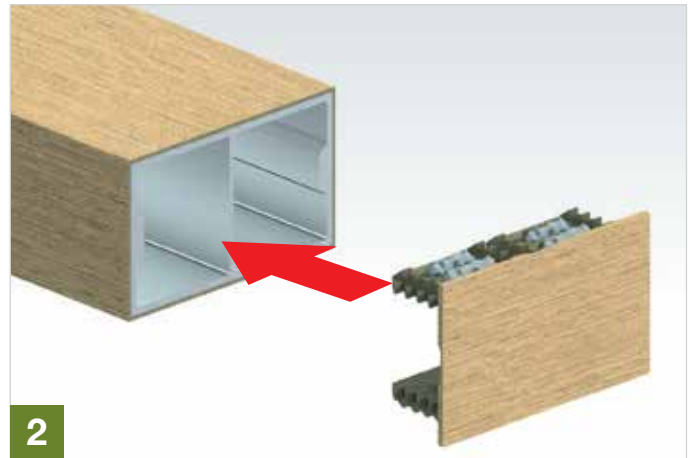
ASA end cap

## Fix the end cap by following the 4 steps below



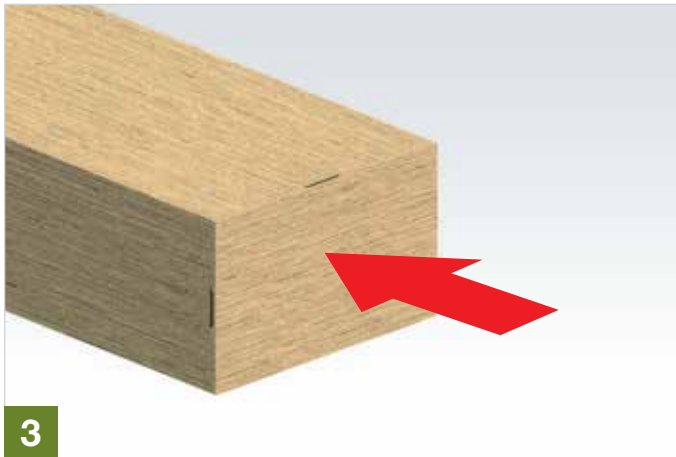
1

Ensure that the surfaces of the clip and the aluminum are clean. Apply one drop of quick-drying glue to each side of the end cap.



2

Insert the cap into the end of the WHS profile and make sure that NO adhesive has come out on the sides. If so, clean quickly.



3

Press on the end cap with fingers and hold for about 5 seconds. Make sure that there is no gap between the WHS profile and the end cap.



4

The end cap is fixed.

# Bending the profiles

- Do not bend the product in environments of 20 degrees Celsius or lower.
- Do not allow the product to reach a temperature exceeding 60 degrees Celsius.
- Do not allow oil, water or other liquids to come into contact with the work.
- Thoroughly wipe away all soiling from the bending machine before starting work.
- Do not use material that has been bent and then re-straightened.

# Sanding the profiles

- All profiles are delivered facing the same direction they were sanded in.
- Mount the profiles facing the same direction in order to keep an identical aspect across all profiles.
- Or, mount profiles facing different directions in order to achieve different shades caused by sun beams reflecting from different angles.
- Refer to the marks inside the profiles that indicate the direction of sanding.

# Post installation maintenance

- Clear away all cutting dust with an air blower, and make sure the dust does not get caught between products when they are stacked.
- Remove all post-processing burrs with sandpaper.
- Remove all soiling with a neutral detergent such as soap water.
- If a neutral detergent does not successfully remove the soiling, or when differences in luster caused by rubbing exist, use #24 to #40 sandpaper.
- Rub in a single direction (lengthwise) and finish it so that it looks the same as other surfaces.

# The Linear Thermal Expansion Coefficient

- The linear thermal expansion coefficient for Geolam profiles is the same as for aluminium:  $2.3 \times 10^{-5}$  mm (20-100°C).
- Geolam profile expansion (per meter) = expansion coefficient x temperature difference (°C) x product length (mm).
- Thus, for a temperature difference of 40°C a Geolam profile expands by 0.92 mm per meter.

# Storage

- Do not position the product in an upright position but store it indoors on a flat area.
- Cover the product with a protective sheet if it must be stored outdoors to prevent contact with water.
- However, the product must not be completely sealed-in when covered with a protective sheet.

## **Geolam, Inc.**

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