

Reynobond® Architecture aluminium composite panels

Guidelines for handling, storage and fabrication

- **GUIDELINES:** The general instructions for the fabrication, handling and storage of our Reynobond® Architecture aluminium composite panels are presented in this manual. However, account must be taken of national, regional and local building codes and regulations.
- **DO NOT REMOVE** the protective film before installation is completed as specified below. Protective film should be peeled-off within 6 months after installation (refer to the Protective film section).
- **INSPECTION:** Any Reynobond® Architecture aluminium composite panels that show visible damage (dents, impact damage, deep scratches through the protective film, etc.) should be rejected unless the damaged section is outside of the required usable area.



BIM objects library: You can now import our 5 facade systems with our composite panels and pre-painted sheets, as well as our 140 textures in your projects to get the most realistic renderings

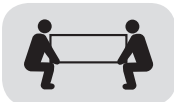
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1. Overall parcel inspection before unloading: Any defect detected should be notified to the carrier by writing on the official delivery document with a copy to Arconic Architectural Products SAS (AAP) within 24 hours.
 2. Inspection of the merchandise after unloading, when implementing: Any defect detected should be notified to the sales representative by providing precise traceability data (coil number, pallet number, etc.)
- **SAFETY:** For all handling, transformation and installation steps ensure that appropriate protective equipment is worn: eye protection, hearing protection and gloves. As a general precaution, safety boots are also recommended.



1. Handling and storage

- In order not to damage the Reynobond® Architecture aluminium composite panels, please handle them with care by supporting them at several points lengthwise according to the length and weight. Do not slide the coated surfaces against each other. Insert cardboard between the panels and the pallet.
- Always transport Reynobond® Architecture aluminium composite panels horizontally on a solid pallet that supports their entire length and on a suitable flat trolley. Ensure that the panels are carefully strapped and protected with top and bottom coversheets to prevent damage.



- Store the material in a dry, temperate place, on a flat horizontal support whose dimensions are greater than or equal to the panels.
- You will need to take into account the protective film's storage requirements (refer to the Protective film section).
- Store the panels in a temperate workshop, from 18°C to 20°C, for at least 24 hours before the transformation work begins in order to deal with dimensional changes due to weather and climate and to optimise the transformation work.
- Always make sure that the weight of the material does not affect the panels below.
- Maximum stacking height is 4.0m.

2. Protective film

The protective films used by AAP are intended to temporarily protect the surface against dirt, scratches and tool marks during the complete cycle: handling, storage, transport, transformations and mounting. However, they are not intended to protect against corrosion, humidity or chemical products. After removal, the protective films do not affect the surface of the Reynobond® Architecture aluminium composite panels and thus do not lower the quality of the digital and screen printing.

- Durability of the protective film:

Removal	Inside (storage)	Outside (UV exposure)
Durability	12 months	6 months

- **Removal:** The ambient temperature has an influence when the protective film is removed: The higher the temperature is, the easier the peel off will be.
- **Important:** Avoid stagnant water as it can create a risk of glue transfer when removing the protective film. Do NOT stick PVC tape, polyurethane and modified silicone sealant onto the protective film. Plasticizers contained in these materials penetrate the film and may cause gloss change on the coating. Do NOT use permanent markers on the protective film.
- Remove the protective film immediately after the installation of the panels.



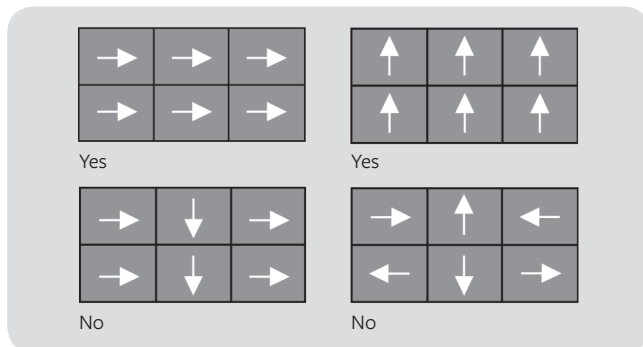
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3. Fabrication

- Thermal expansion and dimensions: Expansion and shrinkage behaviour must be considered when calculating dimensions. The expansion of a Reynobond® Architecture aluminium composite panel corresponds to the same as a solid aluminium panel or sheet and must be considered when choosing the fixing system and calculating the sizes and the joint width.

The Reynobond® Architecture aluminium composite panels may only be used at temperatures between -40°C and +80°C

- Panel inspection: Inspect Reynobond® Architecture aluminium composite panels for obvious signs of damage during transport or handling. Do not fabricate damaged panels unless the damaged section can be eliminated.
- Batch: Always use Reynobond® Architecture aluminium composite panels from the same batch for one project, this will avoid any minor colour variations.
- Product traceability: Retain information all through the transformation process in order to facilitate future information research. Check that all panels of the same colour are from the same batch code. Please note, the batch code is printed onto the back of the panel. The first six numbers refer to the date and the last four refer to the time.
- Direction of coil-coating: Panels can be fabricated to enable the grain direction to be both horizontal or vertical. Metallic coatings have a reflective or pearlescent finish, which is oriented in the longitudinal direction during the coil-coating process. This gives the panel “active colour” behaviour, depending on the angle from which it is viewed. The same applies to the design coatings (wood, stone...). Directional arrows are printed onto the protective film and should be used to maintain the same orientation for all panels and avoid shading differences between adjacent panels. This orientation must be taken into account when making panel optimisation calculations. Note the direction of the coating on any cut pieces left without arrows.



- Do not bring the Reynobond® Architecture aluminium composite panels into direct contact with metals such as copper, brass, bronze or iron. In the case of a contact with a material other than aluminium, the contact surface should be protected by an impermeable coating in order to avoid the risk of interference.
- It's absolutely obligatory to square the panels on the 4 sides. To obtain this squareness, it's necessary to cut the panel only with a sawing (circular saw, CNC...) or milling solution and to consider a cutting width of minimum 5mm on the 4 sides of the panels.
- When temporarily storing panels between different phases of fabrication, use polystyrene or foam wedges.

A) FABRICATION GUIDELINES

Reynobond® Architecture aluminium composite panels can be fabricated using extremely simple techniques and machinery. Standard or complex elements can be made with minimum investment.

The Reynobond® Architecture aluminium composite panels must be routed before any bending operation.

We recommend fabrication takes place in a workshop.

Some shaping techniques with our recommendations are set out below, however, it is highly recommended that you conduct preliminary tests, and read the technical information for the machines used.

B) EQUIPMENT

The tools necessary for processing Reynobond® Architecture aluminium composite panels may be chosen according to the criteria and conditions detailed in the table below:

	Large scale cutting	Small scale cutting	Occasional cutting	Milling	Drilling	Punching	Riveting	Boring	Tapping
Panel saw	•	•		•					
Circular saw		•							
Jigsaw			•						
Hydraulic shearing machine	•	•							
Milling machine				•		•			
CNC flat milling machine	•	•		•	•	•		•	•
Punching machine						•			
Drilling machine					•			•	•
Rivet gun							•		

C) SAWING

- Saw:
 - Before any cutting is undertaken, it is necessary to calculate the flat size of the elements taking into account the folding parameters. It is also preferable to carry out preliminary tests.
 - We also recommend that, as a precaution, you first check with a blade and with a rule.
 - If the Reynobond® Architecture aluminium composite panel has burrs, it can be trimmed with appropriate conventional tools.

- Circular saw:

Three basic precautions need to be taken to avoid the risk of scratches:

- Keep the work area clean
- Use an exhaust system
- Work on the reverse side of the panel

We recommend the use of guides whose length exceed the one of the panel by 200mm at each end.

To guarantee the longevity of the equipment, we do not recommend to superpose the Reynobond® Architecture aluminium composite panels.

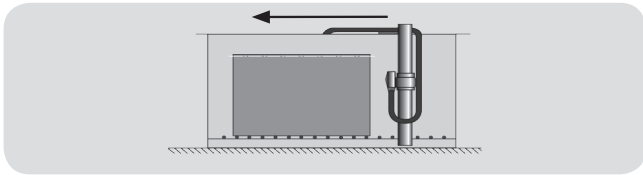
- Panel saw:

As for cutting with a circular saw, you must work on the reverse side of the panels (the side with the strippable protective film against the saw frame).

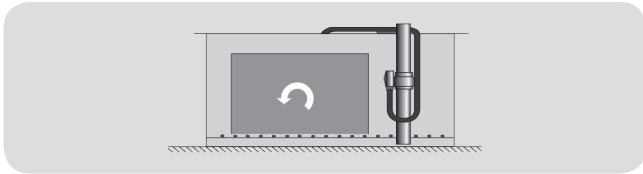
The stops will be placed to the left of the sawing column so that the operator can hold the sawn pieces.

Operation description:

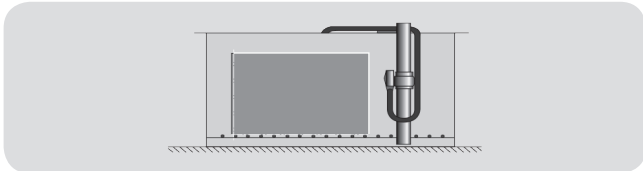
1. The first cut is made horizontally, at the upper edge, to get a straight edge.



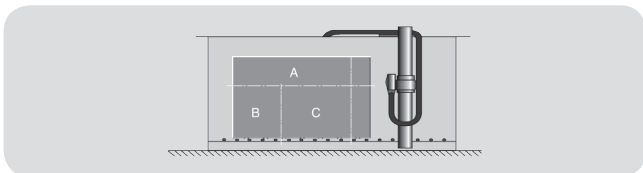
2. Then turn the panel so that the reference edge is resting on the carrying rollers.



3. Make a vertical cut on the left edge of the panel.



4. You now have a panel with straight edges, a straight base and right angles.



Remember, all four sides of each part must be squared.

D) FOLDING THROUGH MILLING OR GROOVE CUTTING

- Preparation for machining – Calculation of design dimensions

The flat size of the panels to be cut and milled must be calculated and marked out before any machining work is begun. This will allow fabrication within the best possible tolerances. In all cases, a test run should be performed beforehand, to work out the adjustments to be made to the dimensions.

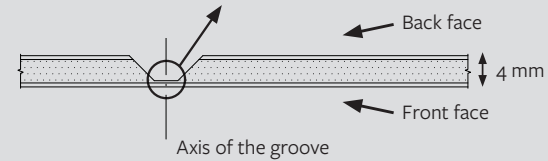
When milling for a fold, a thickness of 0.3mm±0.1mm of core should be left in the bottom of the groove.

For a fold milled with a cutter with a flat surface of 3mm, the fold axis will be in the middle of the milled groove flat, therefore 0.8 mm from the visible face. This, in the case of a closed 90° fold, leads to an oversize of 0.8mm per angle.

- Closed 90° fold – milling cutter with 3mm flat surface: subtract 0.8mm from the termination side for each fold.
- Open 90° fold: the calculation of the development is done with the termination side.

The dimensional tolerances generally accepted on fabricated elements are ±1mm, when using a milling cutter with a 3mm flat surface.

Keep a thickness of 0.3mm core in routed channel

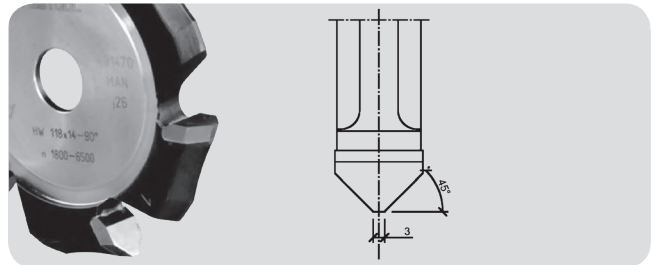


- Machining:

Good results were obtained on a CNC with a groove cutter disc, 180mm diameter (or more) with a rotational speed of 7,000rpm and a feed rate of 8m/min. The use of an end mill is also recommended with a rotational speed of 24,000 rpm and a feed rate of 20 m/min according to the type of mill.

However, these parameters are different for every set of tools, so preliminary testing is recommended.

Bending radius of between 2 and 10mm inclusive can be obtained depending on the choice of milling technique and the geometry of the groove.



- Folding after milling:

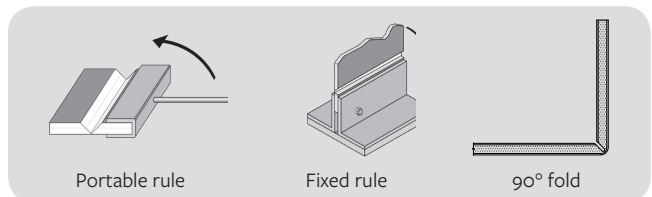
The rout and return technique consists of using shaped milling cutters to make V-shaped grooves on the back of the Reynobond® Architecture aluminium composite panels. This allows, in most cases, the hand folding of the panels without any need for a folding bench.

Generally speaking, it is essential to:

- Fold the return leg back in one movement.
- Close the fold a few degrees more than the desired angle before making the exact angle.

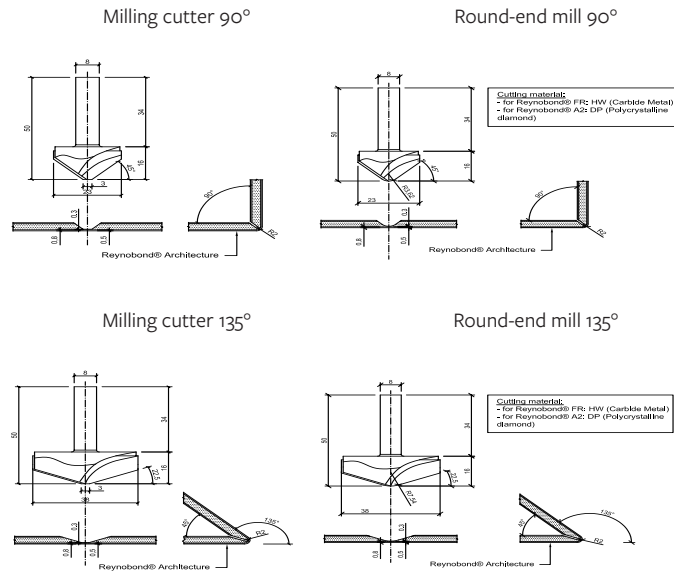
Depending on the folds, the following techniques may be used:

- Small formats: Folding with a folding rule (fixed or portable) consisting of a U or H-shaped profile with a lever.



- Large formats: Folding with a folding bench – particularly suited to the folding of returns, especially for long lengths or small folding widths.

We do not recommend folding without a folding tool or folding bench.



E) TRADITIONAL FOLDING (WITHOUT MILLING)

Today, traditional folding without previous routing is not recommended. Please contact us.

F) PERFORATION

The Reynobond® Architecture aluminium composite panel can be perforated. Please contact our Technical department for more information.

G) BENDING

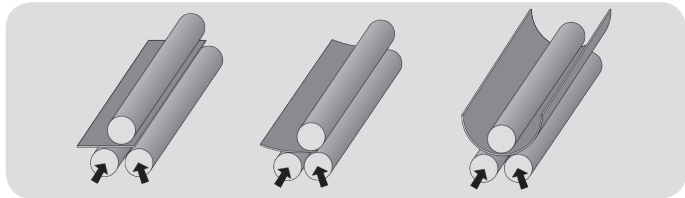
The techniques used for bending Reynobond® Architecture aluminium composite panels are those generally used for working steel or aluminium panels.

When bending the panel, the original protective film on the top surface must be left on.

Depending on the conditions in the workshop, it is advised that the protection is reinforced with another self-adhesive film or the insertion of polyethylene or PVC strips 1mm to 2mm thick.

These essential precautions should avoid marking and scratching.

We recommend a bending radius of not less than 33 times the thickness of the panel.



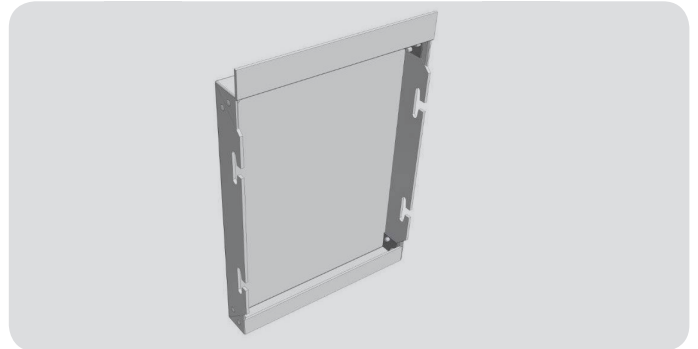
5. Disclaimer

As our customer, you are solely responsible for selecting the proper materials (AAP's products) based on your customer's demand, the intended utilization, the technical characteristics of the product integration in the project, the compatibility with other utilized material, and if applicable, how these products are incorporated into other products. Laws and building and safety codes governing the design and use of AAP's products, and specifically aluminium composite materials, vary widely. AAP does not control how AAP products are transformed or otherwise configured or used, nor how AAP's products are combined with other materials. AAP assumes no responsibility for any of the foregoing. It is the responsibility of the owner, the architect, the general contractor, the installer and the transformer, consistent with their roles, to make these determinations in strict conformity to all applicable national, regional and local building codes and regulations. AAP is dependent upon Customer to provide true, accurate and complete information relating to product purchases. Reynobond is combustible; it could catch fire and burn. Any laboratory testing information provided by AAP applies only to the particular product or assembly tested and does not necessarily represent how products will actually perform in use. Reports and test data corresponding to a particular tested product sample or assembly are not a guarantee that the same product or assembly would always achieve the same test result. As Reynobond's reaction to fire varies according to its core, please ensure the product is used in a system that complies with applicable fire safety regulation.

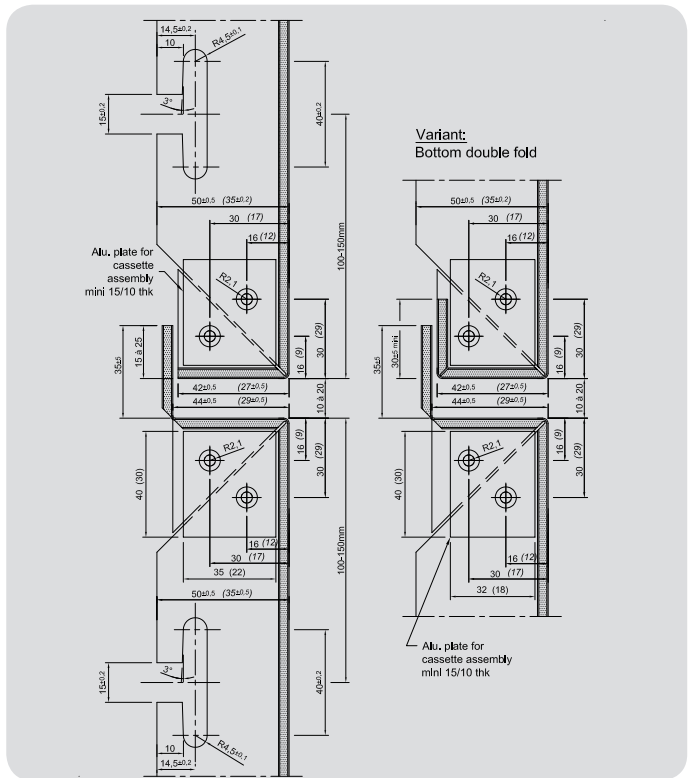
H) FABRICATION AND INSTALLATION OF CASSETTES

Reynobond® Architecture aluminium composite panels can be installed in different cassette systems (KU35VA, KU50VA, KU50NVA...), screwed or riveted systems. Please contact our Technical department for more information.

For more information, ask for the Reynobond® Architecture aluminium composite panels technical datasheet



Reynobond® Architecture aluminium composite panels - KU 50 VA



Cassette dimensions KU 50 VA (and KU 35 VA) with a single bottom fold and the variant with double bottom fold

4. Cleaning and maintenance

Please refer to the document "Maintenance guidelines for Reynolux® coil-coated aluminium".