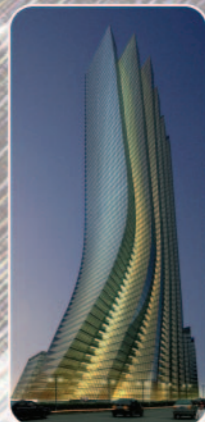
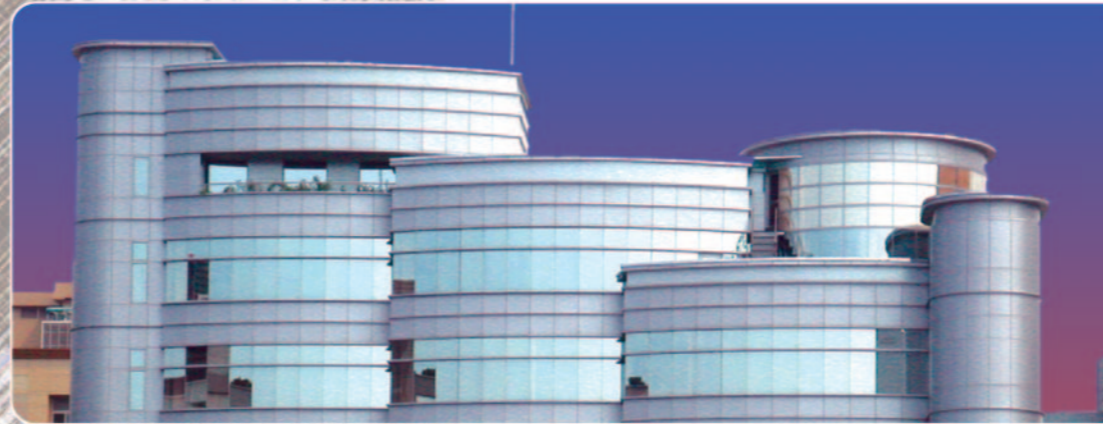


ALU SWISS BOND[®]
Aluminum Composite Panel

CATALOGUE





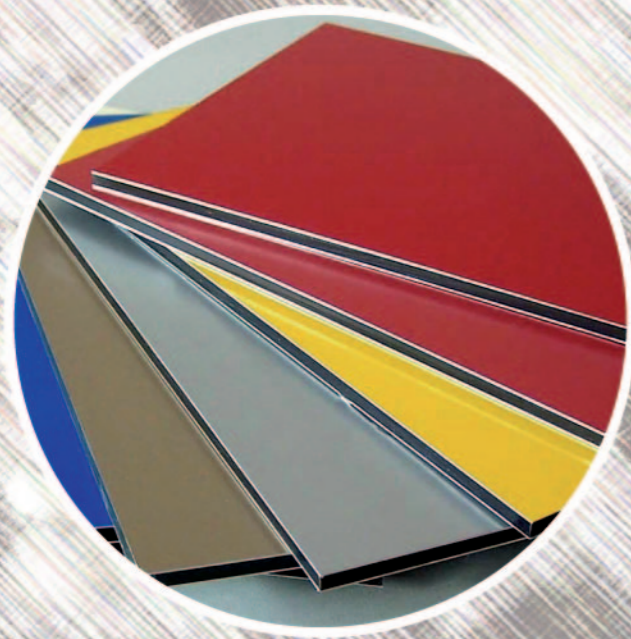
ALU SWISS BOND[®]

Aluminum Composite Panel

ALUswissBOND Aluminium Composite Panel is composed of a non combustible polyethylene core laminated and sandwiched between two high alloy fine aluminium sheets, coated with superior quality PVDF (Fluorocarbon, min 70%) resin or polyester to ensure durability, stability, corrosion and weather resistance.

As a revolutionary and versatile new decorative building material, widely used in interior and exteriors of buildings as curtain walls, paneling and cladding applications, It offers innovative, modern, beautiful, creative and practical design possibilities for a variety of applications, including panel for modern high rise buildings satisfying every need of architects, engineers, contractors and building owners.

Production Information



Material and Procedures:

ALUswissBOND brand painted aluminum coils are made of top quality aluminum coil, and the surface was coated and painted by world first great quality paint. Painting procedures include Three-Coating Three-Drying, guarantee the aluminum sheet surface shining and glazed, colour symmetrical, and the fluoro-canon resin(PVDF)roasting painting of coils weather resistances over 20 years without change of colour ALUswissBOND. is presenting the high-tech and the tendency of the future.

Coating and Painting:

Coils Dimensions:

| Aluminium | Thickness | Width | Coil | Coil |
|-------------|-------------|------------|------------|---------|
| | min Max | min Max | min Max | min Max |
| | 0.03-0.10mm | 600-1300mm | 800-1200mm | 400mm |
| 0.10-1.50mm | 600-1600mm | 800-1300mm | 400-508mm | |

Surface patterns:

ALUswissBOND supply solid colour pattern, wood and stone pattern, special patterns and as per customers desired.

Colour and sample swatch:

ALUswissBOND supply all kinds of colours for recommendation and customers samples and swatches customizing are accepted.

Production and Delivery time guarantee:

The ERP management system and experienced responsible staff ensure the through production procedures according to the right program, guarantee the peoduction and delivery goods on time.

Global Sales Network:

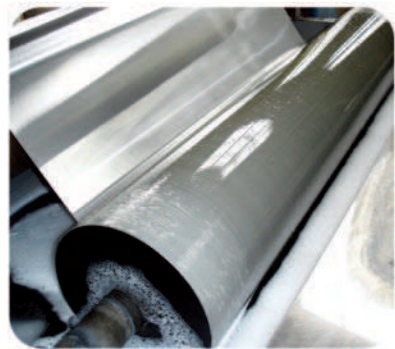
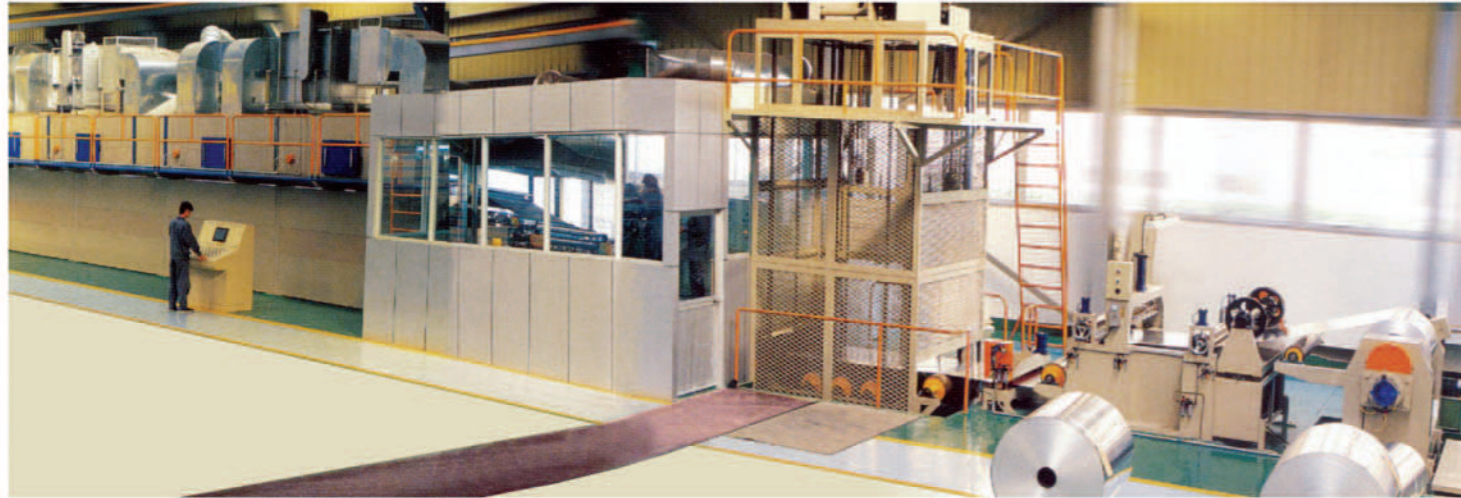
ALUswissBOND has built a perfect global sales network to supply best service for you.



Production line

ALUswissBOND Pre-treatment Porcedure

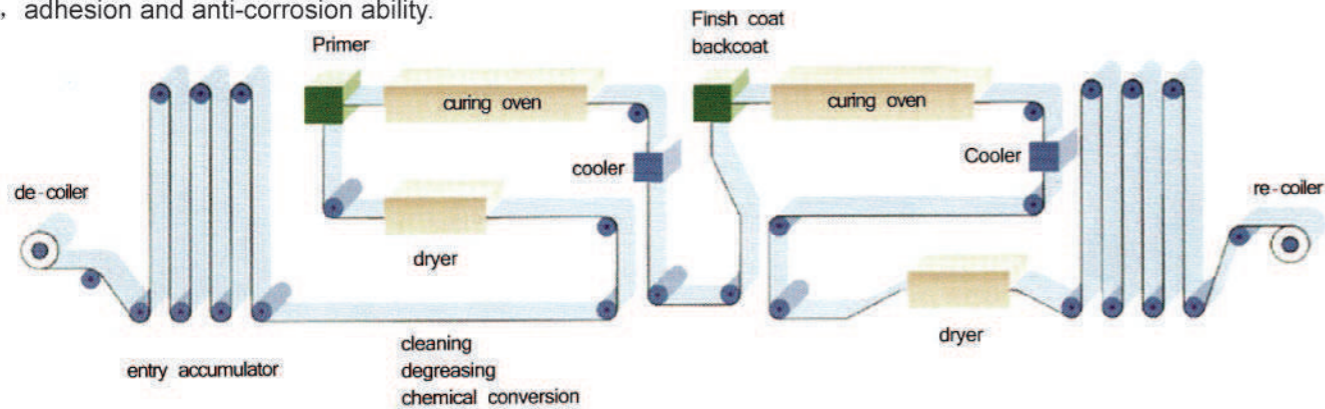
This is the first stage Ofthe pre-painting process, the aluminum substrate is cleaneddegreased and given chromate coating.This enhances Corrosion resistance and adhesion of the subsequently painting coat,the procedure is rigorously controlled and monitored to ensure precise uniformity of thO coating.he entire system quality is based on this procedure



With mirror steel roller and the all through PLC controlling system. ALUswissBOND is capable to finish pre-coating within one operation either two coating or three Coating paint systems.

ALUswissBOND can provide the Pre-coated aluminium coils with thickness 0.03-1.5mm and width 600-2000mm, with annual output capability 3,000,000m2 ACP in 2 production lines. Chemical Conversion line make the substrates aluminium coils degreased and cleaned off the lubricating oil, anti-oxidation oil and stains, as well as the clean out of impurities like silicon, magnesium-iron, copper etc from the surface, Applying of Henkel technology, a honeycomb oxidation films formed on the surface of aluminium substrates which enhances the adhesion between the paint and the coil in precision coating line.

The chosen paint is coated on the surface of coil according to the customers requirements. In the dustless coating cabinet, with advanced three roller reverse coater, the thickness and appearance of coat are well controlled at there temperature zone in the curing oven, which prefects the coat performance of anti-solvent, hardness, flexibility and remains the good gloss. adhesion and anti-corrosion ability.



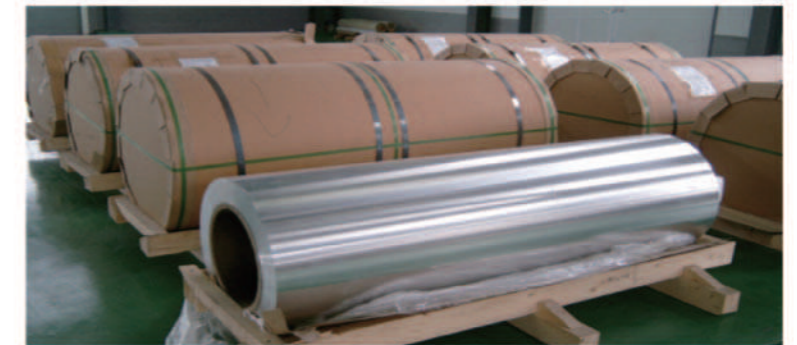
ALUswissBOND Aluminum Coil Coating and Painting System



Substrate Coil

Alloy series

- 1000-Aluminium of 99.00% purity and higher
- 2000-Copper
- 3000-Manganese
- 4000-Silicon
- 5000-Magnesium
- 6000-Magnesium and silicon
- 7000-Zinc
- 8000-Other elements such as Lithium&Iron
- 9000-Unallocated



Aluminium temper designations

- Hardness scale based upon 0-8
- 0-Fullysoft
- 2-1/4Hard
- 4 -1/2Hard
- 6-3/4Hard
- 8-FullyHard

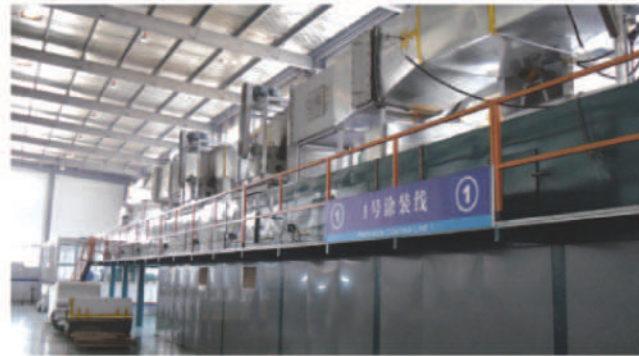


Paint System:

PVDF(PVDF, Polyvinylidene Fluoride)

This comprise a 70%PVDF resin. This is the flagship of paint systems. It is durable, excellent flexihility and chemical resistance combined with highest possible performance regarding gloss retention, chalking and color change with some roll forming equipment and construction techniques.

PVDF is not available as high gloss product, the standard product is 30%+/-5



FEVE(4F)

This new paint system is based on trafluorethylene rosin, with good durability and excellent chemical corrosion resistance high performance regarding gloss retention chalking and color change; Generally FEVE is superior to PVDF in allesspects with gloss up to 80%, and seldom limitation in color range

Polyester

This is remnended for interior decoration as its excellent flexibility, sound insulation and other features. With high quality polyester lacquering system, it can be produced a wide rage of gloss reach to 80% at most.

Supper polyester

This product keep good durable and chemical corrosion resistance with good flexibility and adhesion. It gives wide range of color choice with mediurn price between PVDF and polyester.

This system contain a polyurethane of polyester resin mixed with polyamide. The durability of a polyester gives the system a textured finish which can be varied slightly in degrees of coarseness, the system gives a surface highly resistant to a brasion in general environments as the main benefit.

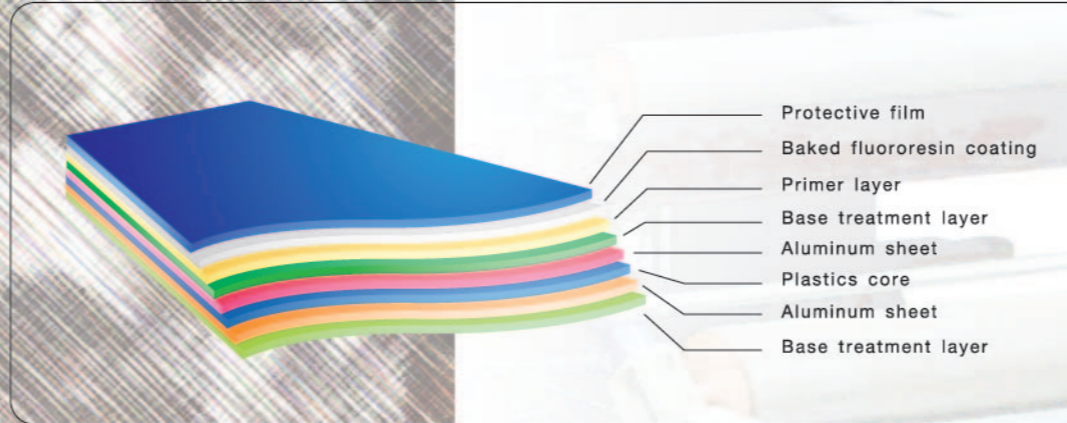
Continuous Combination Production Line



The Continuous combination production Line is the key equipment for the formation of the aluminium-plastic composite panel; the completely process make aluminlum materials, pecore and the adhesive polymer film combined tightly together in one time under the effect of continuous high temperature and high pressure to form the smooth panel.

With the advanced equipment, perfect technology and strict quality control, ensure us to produce the stable and high quality superior peel strength can meet GB/T17748-1999 and ASTM Standard.





Features of the Product



Durable and Light Weight
Two layers of anti-rust processed aluminium sheets with high density polyethylene give the panel excellent torsion and bend strength. The above functionality makes it suitable to withstand heavy load conditions as well as excellent wind resistance. Due to the inherent material used, it reduces the overall weight of the composite panel; hereby helping both the fabricator.



Smooth Finish
With a strict adherence to quality control as well as usage of a state of the art production line, the ALUswissBOND aluminium composite panel has excellent accuracy on dimensions, flatness and the thickness of the panel.



Excellent Color Stability
Due to the advanced color coating equipment, ALUswissBOND aluminium composite panel, offers an excellent color uniformity all through a sheet and a batch.



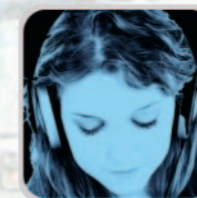
Optimum thermal Insulation
Due to the configuration of the ALUswissBOND aluminium composite panel, it offers optimum thermal resistance, so as to reduce the energy wastage especially in case of airconditioning.



Maintenance Free
As the ALUswissBOND aluminium composite panel uses Fluoro-carbon (Kynar 500) resin, as a coating material, the same has excellent ultraviolet characteristic, retain color after long exposure, corrosive resistance, as well as weather resistance.



Good Fireproof Characteristics
With the usage of a specially modified polyvinyl plastic interlayer, which has additives to reduce its toxicity, and as an additional safeguard has a specialized covering of inflammable aluminium layer on top and bottom.



Sound Resistance
The ALUswissBOND aluminium composite panel has various components, which absorb the sound energy, thereby giving adequate soundproof effect.



Excellent forming capability
ALUswissBOND aluminium composite panel, can be easily shaped by using tools into various concave, convex, reverse corners, and sharp edges, according to the requirements of the building design, thereby giving the architect excellent flexibility to provide unique designs.



Simple and easy to Install
ALUswissBOND aluminium composite panel are very versatile, and easy to fabricate, the below operations like milling, Slotting grooving, side Folding and curving can be done by using easily available tools.

Qualifications & Honors

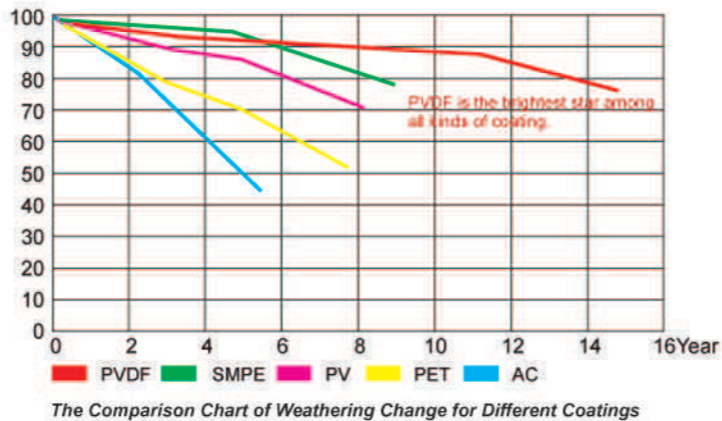
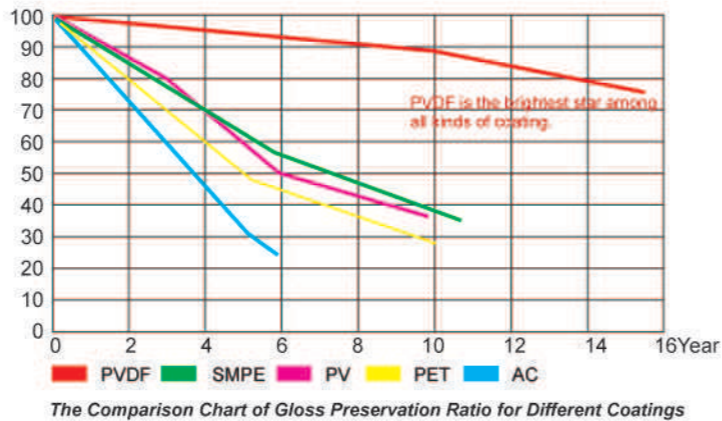
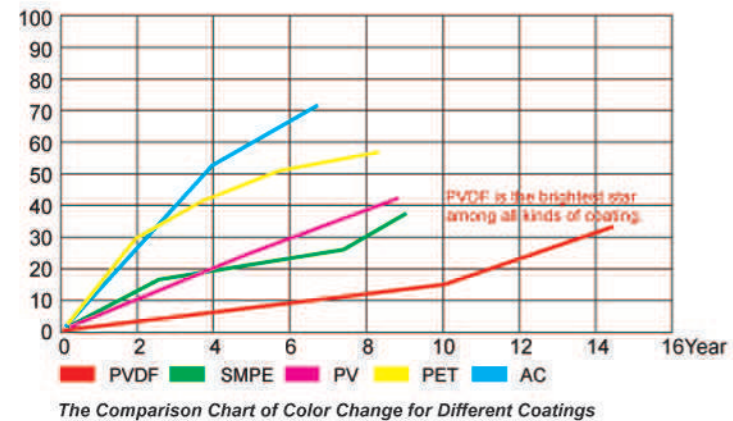


The Decorative Layer of Panel Surface

Nowadays the decorative layer for metal substrate mainly includes all kinds of coating, film, surface transformation etc.

1) Paint Coating

Types: Acryloyl (AC) Silicon Modified Polyester (SMPE)
 Polyester (PET) Polyester Amide (PA) SDPE
 Epoxide Urethane (PV) PVDF



Why does PVDF coating possess such excellent performances?

The structure of fluorine-carbon short bond combined with hydrogen bond is the steadiest and firmest structure among all kinds of chemical bond structure. As one of the criteria of judging stability and tightness of chemical structure, the electronegative atom index of PVDF coating could achieve 105 KJ/mole. However, for the normal coating, it is only 83.2 KJ/mole.

Also, there is an inorganic material whose molecular structure is SiO₂, which is created by certain chemical method and made of pure inorganic resin. Because the energy of composing Silicon and Oxide is 101KJ/mole, this kind of molecular structure will not be destroyed easily by ultraviolet radiation.

Moreover, the other properties of PVDF coating, such as self-cleaning, Incombustibility, environmental protection etc., are still remarkable.



Protective Film

The protective film could protect panel when it is cut, grooved, folded and transported, in attempt to avoid physical damage and dirty surface. When installation finishes, the protective film will be peeled off.

ALUswissBOND panels adopt the first-class quality protective film.

Basic film material: Double PE

Its performance of retardation is pretty good, and the weathering resistance is better than that of PVC.

Structure type: Inner with black, outer with white

High cost, with excellent weathering resistance and stable bond performance. The glue is rarely remain on the panel surface.

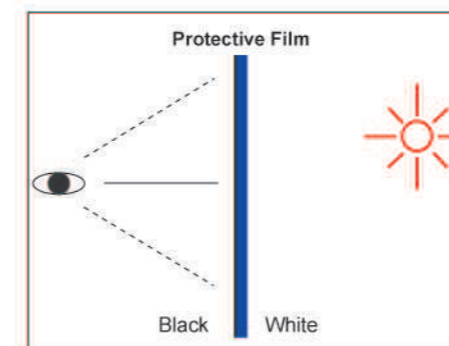
Glue type: Rubber

White outside and black inside. Because the color of black could prevent ultraviolation and the color of white could reflect ultraviolation, thus, the performance of retardation and protection of glue film is excellent.



Examining the quality of protective films:

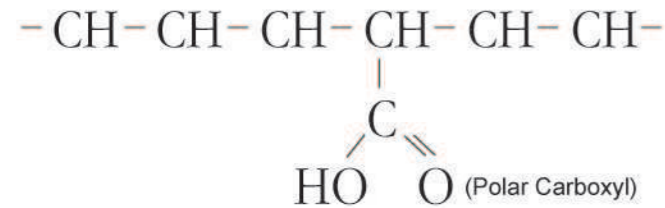
Film thickness > 0.08mm, black inside and milky white outside



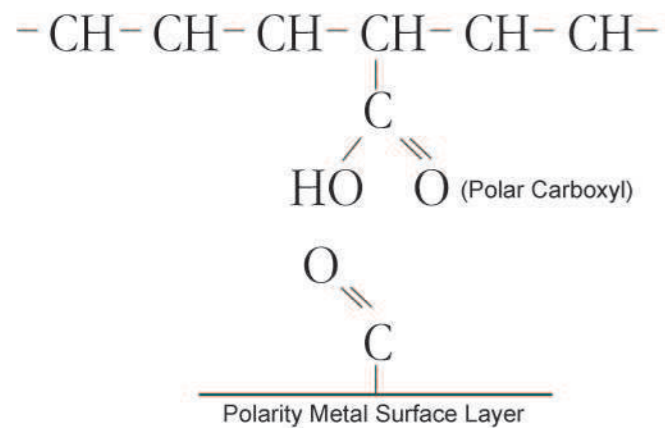
According to the picture shown left, the degree of transparency of protective film should be very low. Also, when the film is being torn from rubber layer, the sound is usually low, the gloss of rubber layer is low, and the string is usually long and white; whereas, when the film is being torn from the acryloyl layer, the sound is generally high, the gloss of rubber layer is high, and the string is very short. Surely, what mentioned above is only used for reference, and could not be the final judgment, which must be tested by the specific devices.

High Molecular Binding Film

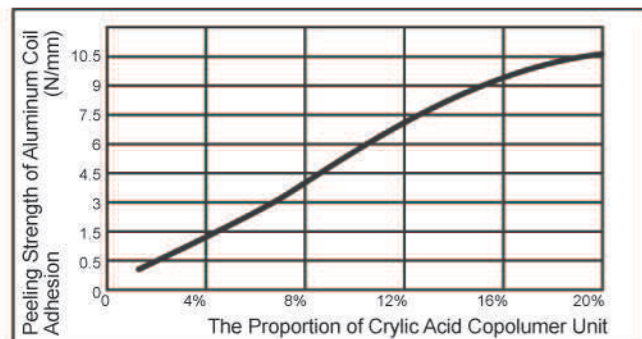
Molecular structure of high molecular adhesive film
EAA* (ethylene-crylic acid copolymer)



Adhesion's principle of high molecular adhesive film
(crylic acid polar branch can combine with polar metal surface to create hydrogen bond)
EAA* (ethylene-crylic acid copolymer)

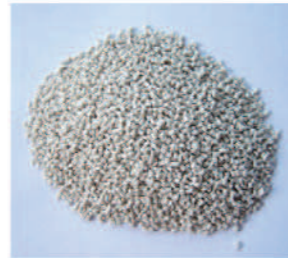


According to the test, the adhesive force will change with the different proportion of crylic acid copolymer unit in high-performance molecular binding film for Aluminum skin with thickness of 0.5mm, as shown by the following chart.



The production methods of high-performance molecular binding film: glue-spraying method, glue-spreading method, radioactive combination method, blow mold and two-layer co-extrusion method etc.

ALUswissBOND Nano Rubber Fire-Resistance Aluminum Composite Panel and Aluminum Composite Panel both adopt two-layer high-performance molecular binding film, with one



side dull and the other side slick. Also, the dull face should be towards metal aluminum and the slick face should be towards core material.

ALUswissBOND Metal Composite Panel adopts high-strength binding film because of combination between aluminum and aluminum.

Both sides should be dull and the proportion of crylic acid is very high.



Peeling Strength of ALUswissBOND Products (GB/T2790)

| | Test Result | ALUswissBOND Standard | China National Standard |
|----------------------|-------------|-----------------------|-------------------------|
| 0.21mm Aluminum coil | 6.6 | > 6.0 | > 5.0 |
| 0.50mm Aluminum coil | 12 | > 8.0 | > 7.0 |

Core Materials

There are mainly three kinds of core material for ALUswissBOND Composite Panel: Polyethylene core for Aluminum Composite Panel, un-flammable Nano rubber-plastic core for Fire-Resistance Aluminum Composite Panel and holey aluminum core material for Metal Composite Panel.

There are two kinds of familiar core materials for Aluminum Composite Panel: PVC and PE, PVC are hardly used at present stage because of its inherent weaknesses, however, it is still being used in some low-quality panels for the purpose of cost-saving.

PE: LDPE, MDPE, HDPE, L-LDPE, UHMWPE, Cross-Linking PE and Low-Molecular Weight PE

LDPE and L-LDPE are used for core materials of aluminum composite panel.

LDPE: LDPE has the lightest weight among all kinds of PE materials with excellent electronic characteristics, chemical resistance, and good flexibility, impact resistance, tension strength and environmental-stress resistance.

L-LDPE: The shearing resistance, penetrating resistance, tension strength and environmental stress resistance of L-LDPE are better than those of LDPE, but the facility of processing of L-LDPE is not as good as that of LDPE.

MDPE, HDPE: Although the mechanic performance is good, the facility of processing of MDPE and HDPE is worse than that of LDPE because of their hardness, which leads to the difficulty of rolling. Panels, which use MDPE and HDPE as core material, will be very difficult to fabricate.

UHMWPE: Although the strength and toughness of UHMWPE are very good, but it is very difficult to process. This material is mainly used for martial industry or other special fields instead of aluminum composite panel.



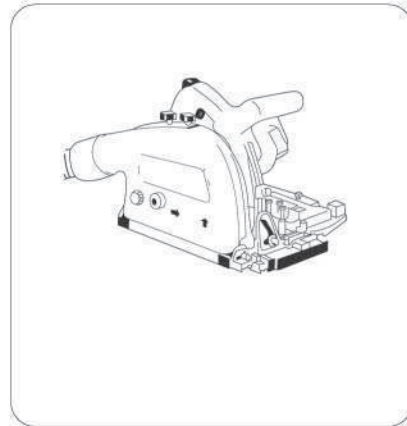
1) Core Material of ALUswissBOND Aluminum Composite Panel

ALUswissBOND Aluminum Composite Panel adopts polyethylene core material, which is mixed with high-quality LDPE and L-LDPE. As a result, it possesses some excellent properties in aspects such as chemical resistance and mechanic performance, and avoids the weakness to the maximum. So ALUswissBOND ACP could be guaranteed to keep the original even in extremely worst weather condition.

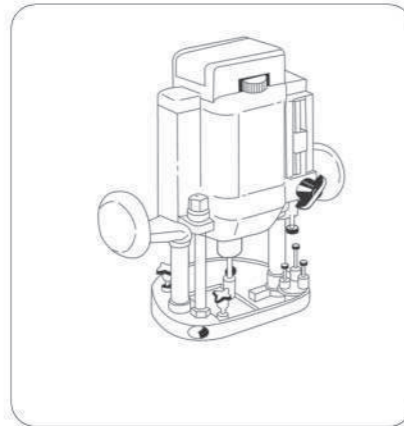
2) Core Material of ALUswissBOND Fire-Resistance Aluminum Composite Panel

It is a new type core material which is developed by our company independently, and is an alloy outcome of inorganic nano material and many kinds of high-performance molecular materials, also, its oxygen index is very high. It has excellent weathering-resistance and mechanic performance. Moreover, it not only solves the problem of low fire-resistance of ACP, but also greatly improves the dynamics performance of folding position, which is the weakness of normal ACP. In addition, its application scope is vast just because of its improvements in the aspects of dynamic strength, fatigue property and corrosion-resistance of folding position.

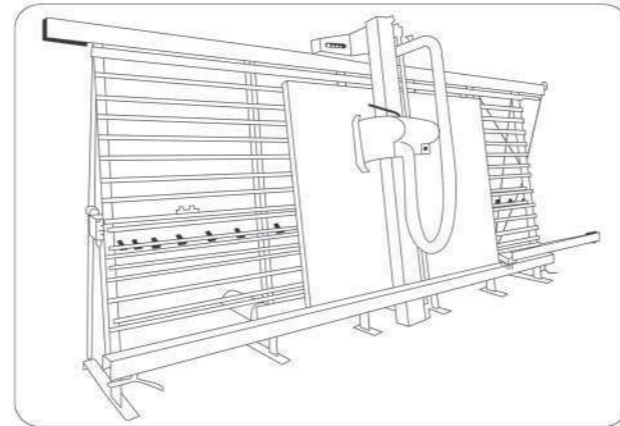
Fabrication Method



Sheet Milling Machine



Hand Routing Machine



Panel Saws

Rear peeling off method

Portaying with an art designing knife deep into the aluminium layer on the rear of an ACP, arraying as the distance as 4-6 cm.

Using electronic plane to plan 5 x 1.5 cm on the face of the ACP from the both-vertical edges.

Peel off the aluminium layer of the ACP, and then the panel become little bending.

Bending the panel, then using the U bolts fix the panel on the column, and then use silica gel fill up the seam.



Churn Drill (electrical drill)



Portable Cutter



Portable Grinder



Pistol Drill



Nail Puller

Tools

Advice

Groove method

A right-angle model with $r = 5 \text{ mm}$ 90° internal angle could be grooved by a straight angle groove cutter.

An acute-angle model with $r = 2 \text{ mm}$ 45° internal could be grooved by a 135° groove cutter.

A right-angle model with $r = 2 \text{ mm}$ 90° internal could be grooved by a 90° angle groove cutter.

Column bending manufacturing method

1. Milling Groove

2. Roolling

3. Sawtooth

The Center Line of Groove

4. Modeling

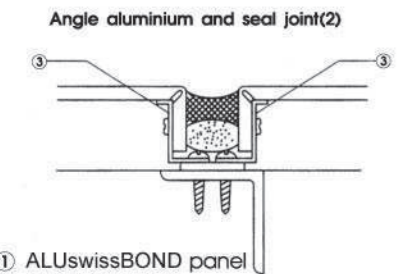
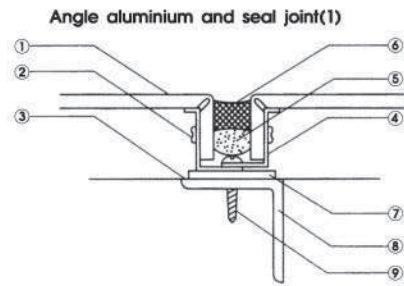
Installing Seam

Rolling & Compressing

1. The groove should be milled according to the design requirements.
2. Rolling to be a torus.
3. The deepness of the sawtooth from the center line of groove could be 0.5-1 mm, decided by the dimension of the column.
4. Bending to be the model.

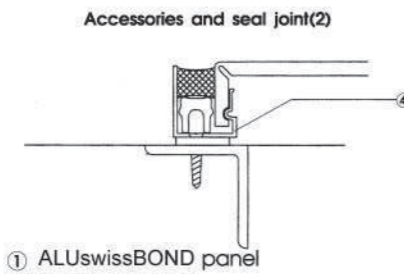
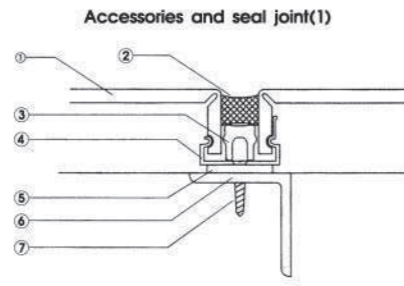
Installation

Joint Design(A)



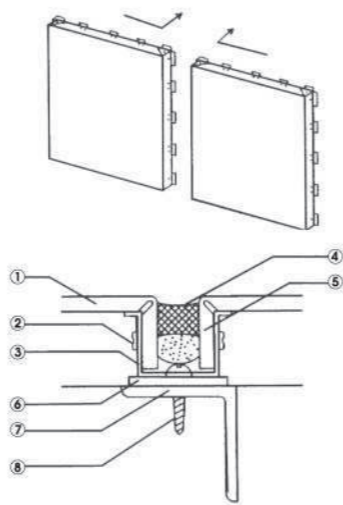
- ① ALUswissBOND panel
- ② Aluminium rivet
- ③ Angle aluminium(big)
- ④ Angle aluminium(small)
- ⑤ Sealing material
- ⑥ Back spacer
- ⑦ Spacer
- ⑧ Angle bar
- ⑨ Bullen screw

Joint Design(B)



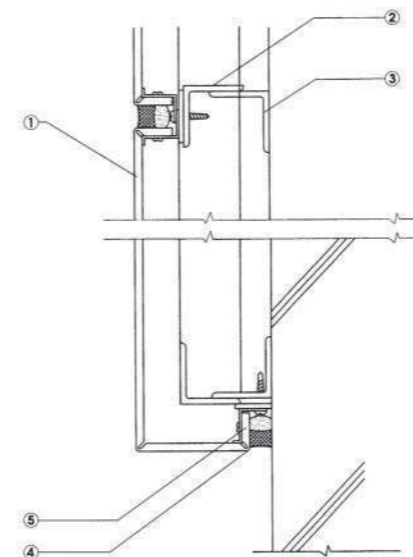
- ① ALUswissBOND panel
- ② Sealing material
- ③ Plastic lining bar
- ④ Accessories
- ⑤ Spacer
- ⑥ Angle bar
- ⑦ Bullen screw
- ⑧ Above mentioned accessories are used for low buildings
- ⑨ are used for low buildings

Joint Design(C)



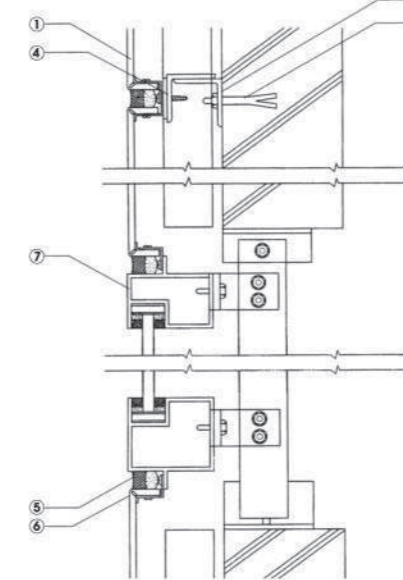
- ① ALUswissBOND panel
- ② Aluminum rivet
- ③ Angle aluminum
- ④ Sealing material
- ⑤ Back spacer
- ⑥ Spacer
- ⑦ Angle bar
- ⑧ Bullen screw

Foundation Installation



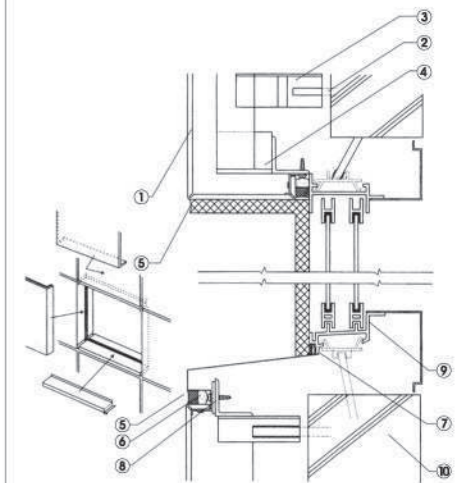
- ① ALUswissBOND panel
- ② Angle bar
- ③ Angle support
- ④ Sealing material
- ⑤ Lining material

Window Frame Installation



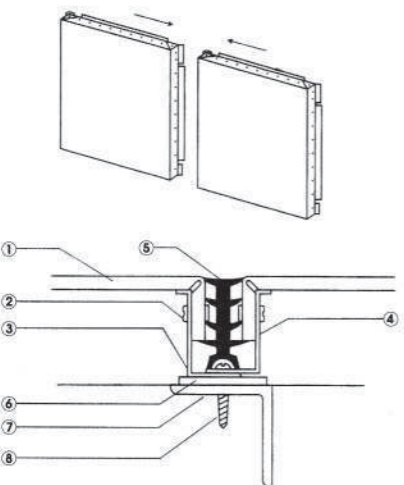
- ① ALUswissBOND panel
- ② Built-in anchoring or expanding bolt
- ③ Angle support
- ④ Angle bar
- ⑤ Sealing material
- ⑥ Lining material
- ⑦ External window frame

Repaired Building Window Frame Installation



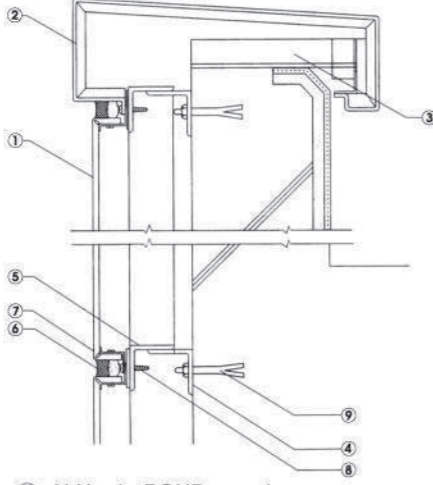
- ① ALUswissBOND panel
- ② Built-in anchoring or expanding bolt
- ③ Angle support
- ④ Angle bar
- ⑤ Sealing material
- ⑥ Lining material
- ⑦ Damper
- ⑧ Bullen screw
- ⑨ window frame
- ⑩ The former bearing wall

Joint Design(D)



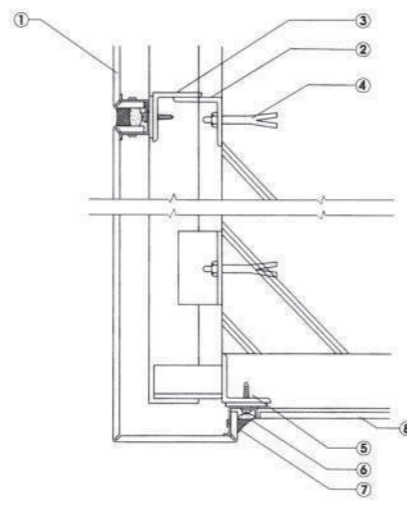
- ① ALUswissBOND panel
- ② Aluminium rivet
- ③ Angle aluminium(big)
- ④ Angle aluminium(small)
- ⑤ Gasket
- ⑥ Spacer
- ⑦ Angle bar
- ⑧ Bullen screw

Building top Installation



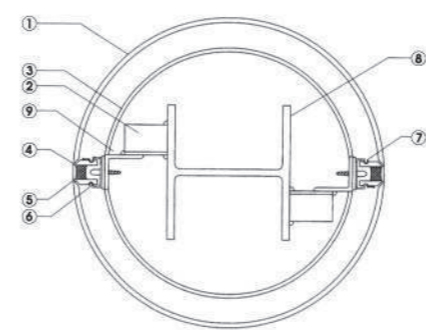
- ① ALUswissBOND panel
- ② Building top
- ③ Angle support
- ④ Angle support
- ⑤ Angle bar
- ⑥ Sealing material
- ⑦ Lining material
- ⑧ Bullen screw
- ⑨ Built-in anchoring or expanding bolt

Eaves Installation



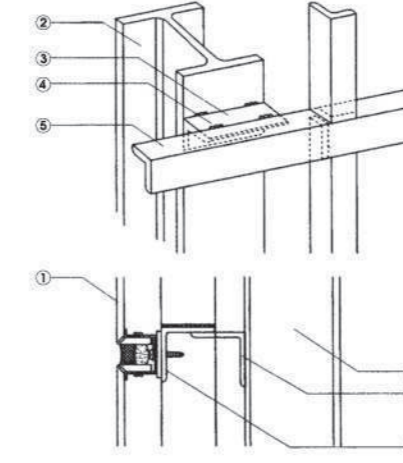
- ① ALUswissBOND panel
- ② Angle support
- ③ Angle bar
- ④ Built-in anchoring or expanding bolt
- ⑤ Sealing material
- ⑥ Lining material
- ⑦ Bullen screw
- ⑧ Ceiling

Column Covering



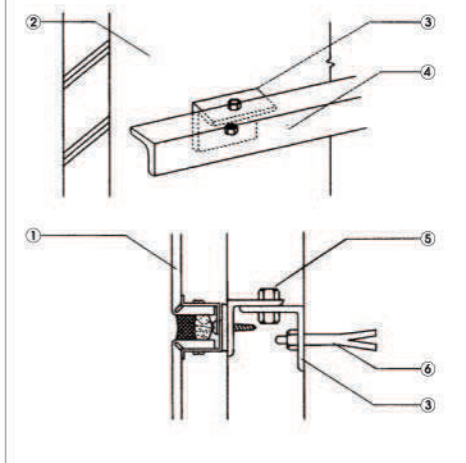
- ① ALUswissBOND panel
- ② Angle support
- ③ Steel plate strip
- ④ Sealing material
- ⑤ Plastic lining bar
- ⑥ Accessories
- ⑦ Bullen screw
- ⑧ Bearing strut
- ⑨ Angle bar
- Above mentioned accessories are used for low building

Keel Structure(A)



- ① ALUswissBOND panel
- ② Bearing strut
- ③ Angle support
- ④ Welding
- ⑤ Angle bar

Keel Structure(B)



- ① ALUswissBOND panel
- ② Bearing strut(wall)
- ③ Angle support
- ④ Angle aluminium
- ⑤ Tapping screw
- ⑥ Embedded part

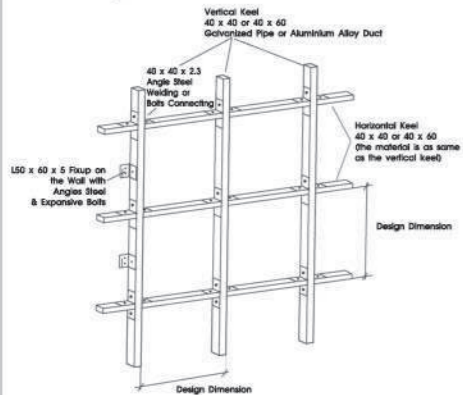
Remarks

Wall Installation

Wall surfacing

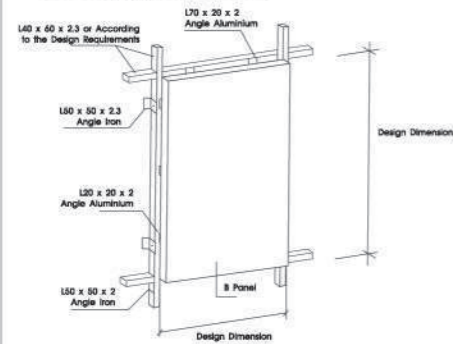
1. Paint 156 mm 1:3 cement grout on the surface of the wall, keep the surface smooth. (keep) the pre-bury fittings at the same level)
2. Paint one asphaltum anticorrosive layer on the surface of the wall

Installing the frame keel



1. According to the design requirements, one steel pipe (40) should be installed as a vertical keel on the wall, connected by welding or bolts, all materials should be anticorrosive treatment. A theodolite should be used to corrected if it is on a multi-layer building.
2. One galvanized steel duct (40) horizontal keel on the top of the vertical keel, if the galvanized pipe more than 1.5m, it should be fixed by 50

Installing the ACP



1. According to the design requirements, the ACP should be milled grooves and hemed on site or on factory.
2. Use aluminium rivet to fix the L203. Fixup the pre-manufactured ACP on the Keels, filling up the seams with plastic filling packaging, then paint one layer of seamless glue.

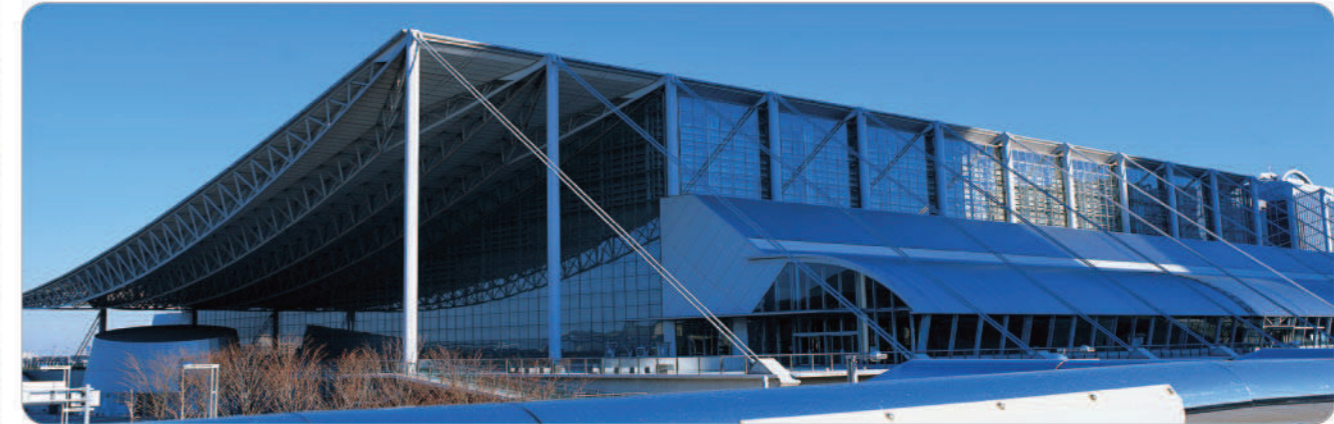
- 1). Care must be taken during charging and discharging of goods as well as transport to avoid imparing and scraping the coating on the surface of the panels.
- 2). ALUswissBOND Aluminium Composite panel should be laid even during transport or on-the-spot storage. If sidelaid needed, they should be perpendicular to the plane with two sides leaning closely. Don't place the panel in moisture and corrosive gas.
- 3). ALUswissBOND Aluminium Composite panel is slotted with a slotting machine. The end of the head of the cutter is a plane, the bottom width of the slot sotted is 2.2-3.5mm. If it is not wide enough, it is easy to crack and crack off the coating when bending. The plastic interlayer with thickness of 0.2-4mm left is bent together with surface board so as to increase the strength and toughness. Don't impair the surface board when cutting.
- 4). When ALUswissBOND Aluminium Composite panel is bent with bending equipment, the curve required should be reached step by step with a gently adding force, don't get it done at one time.
- 5). Don't fill gum when it rains.
- 6). Resin or hardening adhesive is prohibited for installing Interior Aluminium Composite panel, otherwise the Interior Aluminium Composite panel will be uneven.
- 7). It's more suitable to use plywood or other lining as bottom board of interior aluminium Composite panel, Don't directly adhere bottom board to cement wall as far as possible.
- 8). Don't tear off protective film on the surface of ALUswissBOND Aluminium Composite panel before completion of the work in order to avoid scraping off coating. We suggest tearing off the protective film should be done 45 days after the projects finished.
- 9). Exterior ALUswissBOND Aluminium Composite panel can be used in an interior environments. But Interior ALUswissBOND Aluminium Composite panel must not be used in outside.
- 10). Cleaning with a piece of soft cloth by mild detergent or water. Strong acid, alkali or solvent is prohibited so as not to impair the surface. Please use high-pressure sprayers when cleaning heavy curtain wall.

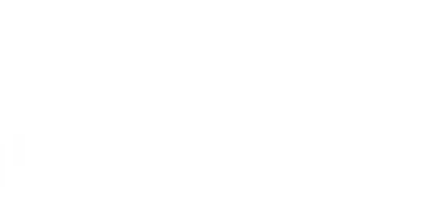
Specifications

| | |
|-----------------------|---|
| Panel Thickness: | 2mm, 3mm, 4mm, 5mm, 6mm. |
| Alu. Alloy Thickness: | 0.21mm, 0.30mm, 0.40mm, 0.45mm, 0.50mm. |
| Width: | 1220mm (as standard), 1250mm, 1500mm, 1550mm, 1570mm. |
| Length: | 2440mm (as standard), the max is 9000mm. |
| Coating: | PVDF & PE coating is available. |
| Color: | 30 kinds of standard colors are available. |



ALU SWISS BOND[®]
Aluminum Composite Panel





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