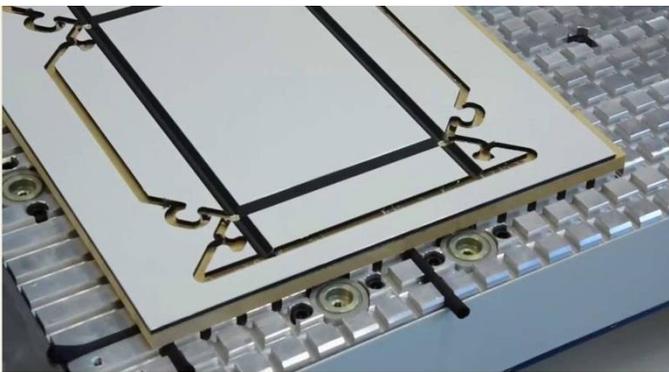




## ACM Processing Guidelines

A Detailed Processing Procedure of Aluminum composite Panel

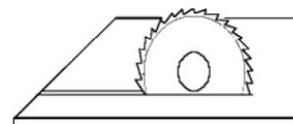


## 1. Processing method

Aluminum composite panels can be shaped with ordinary aluminum processing and woodworking machines and tools:

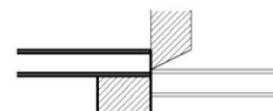
### (1) Saw cutting

Running saws and panel saws for woodworking can cut Composite panels easily. We recommend the carbide tip blade made for aluminum and plastic.



### (2) Shear cutting

A square shear is the most efficient method for sizing a large quantity of panels. Some shear droop may occur at the cut edge. The appropriate clearance and rake angle is:

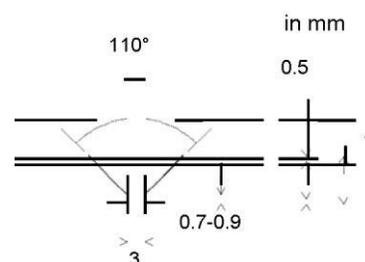


Panel Thickness	Clearance	Rake Angle
3 mm	0.04mm (0.002")	1°
4mm	0.04mm (0.002")	1°30'
6mm	0.2mm (0.008")	2°30'

### (3) Grooving

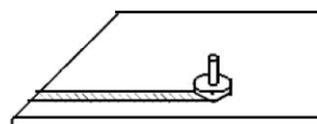
It is important to leave 0.2 to 0.4mm (0.008" to 0.016") of core material in U-grooving; namely, the remaining thickness becomes 0.7 to 0.9mm (0.028" to 0.035"). We recommend 110° of a grooving angle for 90° bends.

Panel saw or NC router is suitable for mass grooving production



#### Router and trimmer:

NC router, handy router and trimmer can be used for grooving. Use the above-shaped router bit.

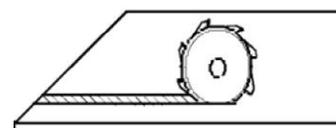


[Example of router bit]

Number of teeth: 2-4  
 Number of rotations: 20,000-30,000 rpm  
 Feeding speed: 8-12 m/min (26'-39'/min)  
 Material: Solid carbide or carbide tip

#### Groove Cutter:

Panel saw or circular saw equipped with a groove cutter can be used for grooving. Handy grooving cutter can be used as well..

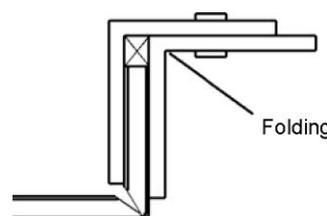


[Example of groove cutter]

Material: Carbide tips  
 Outside diameter: 220mm (8.66") in diameter  
 Number of teeth: 18  
 Number of rotations: 3,000 to 5,000rpm  
 Feeding speed: 10-15m/min (33'-49'/min)

### (4) Folding

After grooving, fold the panel with a folding jig, press brake or plate punch.

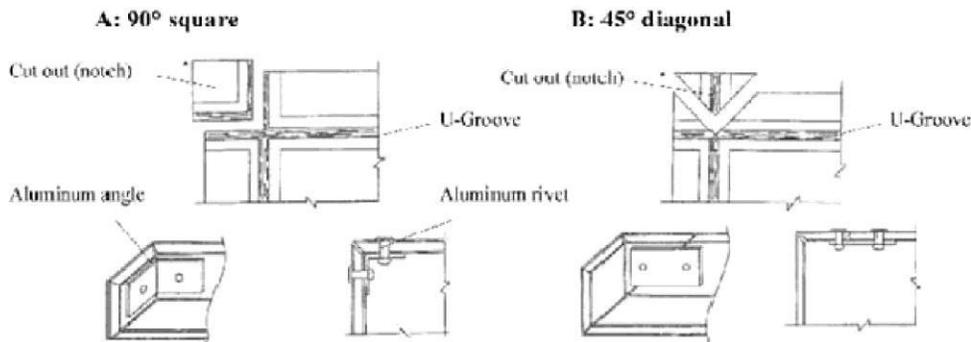


To ensure the Straight line on the folded corners fold the Grooved Panel on a flat table.  
 To prevent the coating from cracking, ambient and material temperature should not be below 15°C during folding.

**(1) Route &Return System:**

Locate the Route (Groove Center) 25-50mm from the sheet Edge and fold it to form a tray type panel.

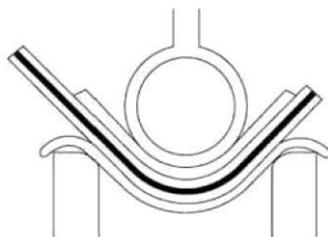
Generally the corner details are selected from two types. 90°Square /45°Diagonal as shown below. After assembling, seal the corner with sealant to prevent water leakage.



**(2) Bending with Press Brake:**

In case of Bending Composite Panels with Press brake use the top Die with desired radius.  
 The Minimum Internal bending Radius is:

ACM thickness	Minimum Bendable Radius (mm)	
	Traverse	Parallel
4 mm	80	100
6 mm	100	140



**(3) Bending with Three Roller Bender:**

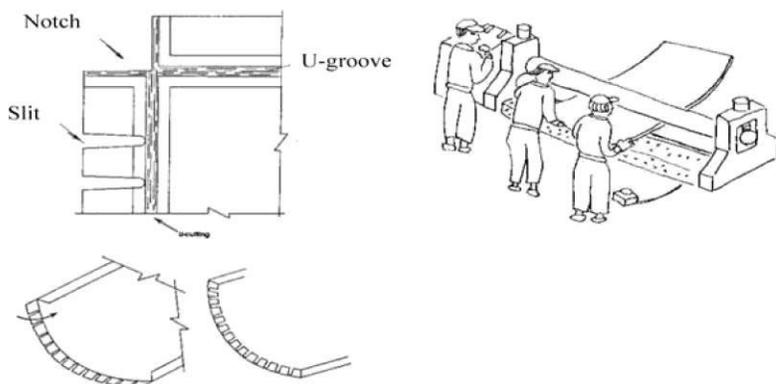
For a larger bending radius, use a three roller bender. Groove & slit the Curving edge before bending as shown in sketch.

**(4) Rivet and Bolt:**

Use Aluminum Blind Rivet or Stainless steel bolt /Nut for your junction. With Blind rivet ,You can work from the same direction.

When the panels are connected with junction hole, make sure the distance from the hole center to the panel end is larger than twice the holes diameter.

To ensure the sufficient tensile strength of the hole



**(5) Welding of core material**

The core contains only small content of thermoplastic, and accordingly, it is difficult to weld the core with the same manner as Standard Core comprising of polyethylene core. Even if it looks welded, the adhesion power is not enough in fire Rated panels . Therefore, when you weld the core of Fire Rated , use a hot-melt adhesive instead of polyethylene rod. Pre-heating of core is essential to get a good adhesion. Please inquire to our office for details.