



Wave Profile Installation Guide

American Patio Covers Plus Proudly Builds With **ACRYLITE®**



Tools & Hardware

- Tape Measure
- Square
- Level
- Felt tipped Marker and/or grease pencil
- 3/8" Nut driver, and a step drill bit or 'uni-bit'
- Electric drill with 3/16" diameter drill bit or cordless drill
- 5/16" Nut driver
- Plumb line
- Chalk line
- Step or Extension ladder - Two (2) if more than one installer (suitable to reach beyond highest intended height)

The following items may be required; depending on the amount of altering you will be doing to the supplied products

- Circular saw with blades suitable for cutting aluminum and plastics
- Hacksaw and/or Miter saw
- Metal roof flashing (no less than .029 gauge)

Layout And Planning

ACRYLITE® Wave Profile acrylic sheets are installed with an overlap, whenever the opening is greater than the width of the sheet (approx. 41") or the length is greater than 13 feet (approx. 4000 mm). To determine the correct number of sheets required for a specific project, keep in mind that the coverage (b) is less than the actual width (B) of the sheet. The lateral overlap (s) is about 2.83" (72 mm). Similarly the horizontal overlap (h) is to be considered for openings longer than the delivered sheet length. The horizontal overlap should be about 7.75" (200 mm) for roof slopes less than 17° (3.5:12 pitch) and about 6" (150 mm) for roof slopes greater than 17°. For vertical applications, the horizontal overlap should be about 4" (100 mm). The maximum installed sheet length should not be more than 16 feet (4870 mm).

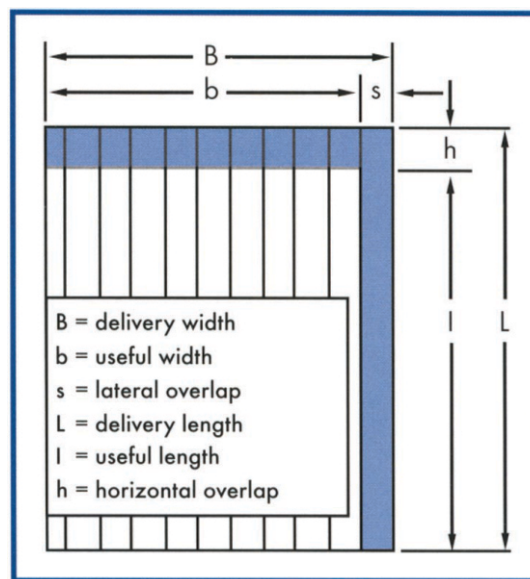


Fig. 1: Overlap of ACRYLITE® Wave Profile acrylic sheet.

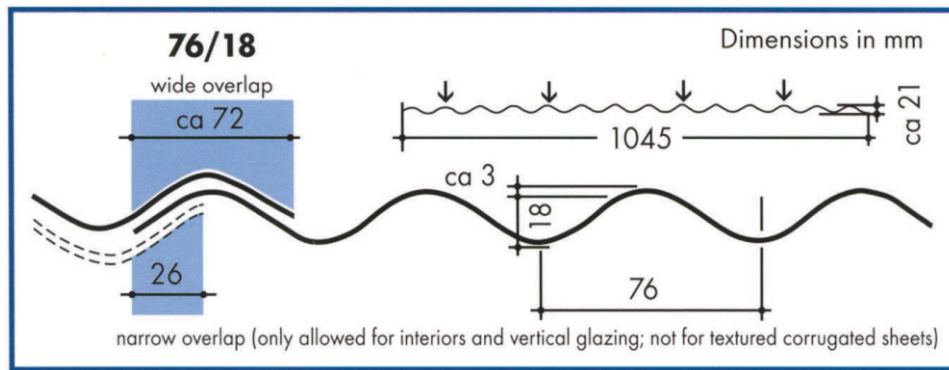


Fig. 2: Cross Section of ACRYLITE® Wave Profile acrylic sheet. The downward pointing arrow (↓) depicts the fastening points at the crest of corrugation.

Support Spacing

ACRYLITE® Wave Profile acrylic sheets are installed on structurally sound support members that are positioned at right angles to the direction of slope or water flow. These purlins or cross members are spaced (A) as per the chart (Fig. 3) below to correspond to the design snow and/or wind load pressures.

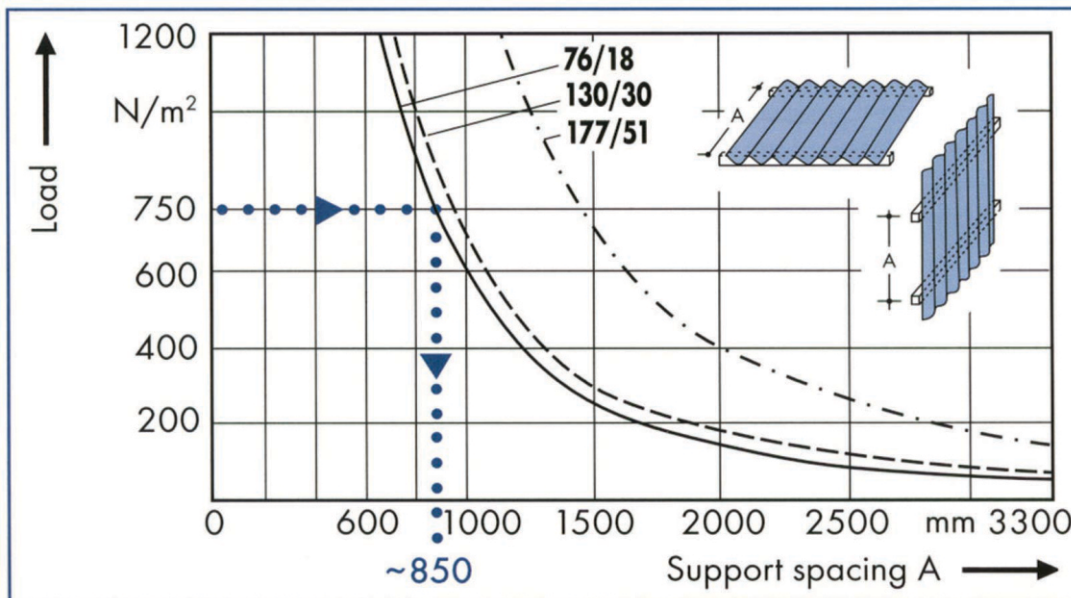


Fig. 3: Recommended Support Spacing for ACRYLITE® Wave Profile acrylic sheets. Example: for a load of 750 N/m (15.7 psf) the recommended support spacing is about 850 mm (about 33") for the ACRYLITE® Wave Profile acrylic sheet.

The wood structure should be designed to meet local snow and wind loads and designed for proper fastening of the ACRYLITE® Wave Profile acrylic sheet. Consult your local Building Department, Home Center and/or appropriate professional regarding the design and construction of this wood structure. This design and construction is NOT covered in this guide and no representation is given to the suitability of any structure to meet any design or load bearing capabilities. We shall assume no responsibility regarding the wood structure and its ability to meet any criteria whatsoever.

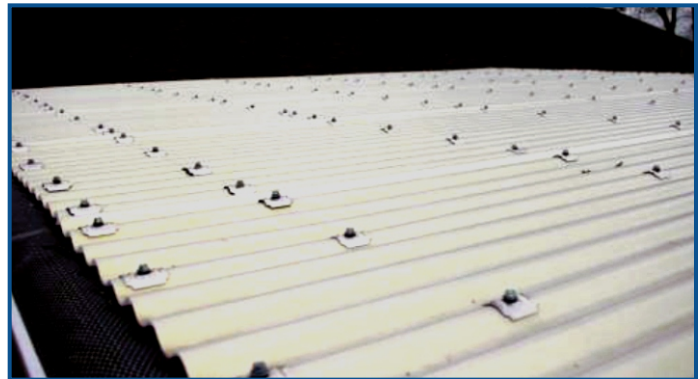
Roof Pitch

ACRYLITE® Wave Profile acrylic sheets are to be installed at a roof pitch of at least 5° (1:12 pitch). The steeper the slope, the better the self-cleaning effect during rainfall.

Avoiding Heat Buildup

The coating (paint or stain, etc.) applied to the supporting structure must be thoroughly dry before the sheets are installed.

When installing the ACRYLITE® Wave Profile acrylic sheets, it is recommended that the top surfaces of the structural members be either a light-color or have a reflective coating applied to them. Coating the top surface of the members with a weatherable white emulsion paint will avoid harmful heat buildup on that surface due to sunlight.

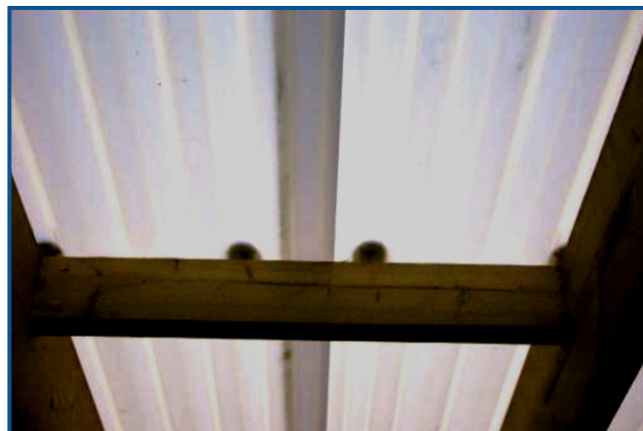


NOTE: Fasteners MUST be screwed into the supports that run 90 degrees to the sheet length and not into the roof rafters. If you only put fasteners in to the rafters it can cause your sheet to crack and may VOID YOUR WARRANTY.

Installation

Installing ACRYLITE® Wave Profile acrylic sheets

ACRYLITE® Wave Profile acrylic sheets are always installed so as to overlap, similar to roof tiles. The outer lateral) overlap should be to the leeward side (away from the prevailing wind direction) when placing the sheets side by side. When placing the sheets end to end, the upper sheet overlaps the lower sheet. This applies to either a sloped roof or vertical wall application.



ACRYLITE® Wave Profile acrylic sheets may be walked over, but only after planking capable of supporting a man's weight are safely in place.



Ladders and scaffolding may be necessary depending on the slope of the roof and height from the ground. Do NOT walk directly on the sheet, both from a safety and a breakage or damage aspect. The sheets are slippery.

Surface-textured sheets (prismatic, honeycomb, etc) are to be installed with the textured side facing downward. The ACRYLITE® Wave Profile HEATSTOP acrylic sheets are always installed with the solar heat-reflecting matte finish facing upwards.

Overhang on each side should not be more than 1 or 1½ corrugations and the end should not be more than 8" past the last support. If it is possible it is recommended to extend the ACRYLITE® Wave Profile acrylic sheet past the wood by at least 1" to protect the wood from weathering.



Maximum Installed Lengths

ACRYLITE® Wave Profile acrylic sheets should be installed in lengths no greater than 16 feet (4870 mm). Acrylic sheets expand and contract due to thermal fluctuations. Point fastening the corrugated sheet restricts that movement, so it is necessary to limit the installed sheet length to no more than 16 feet (4870 mm).



For greater glazed heights or roof slopes, refer to the overlap recommendations (Fig. 1 and Fig. 2 above and Fig. 4 below) and details in this guide. The following will illustrate four (4) sheet overlap connection details.

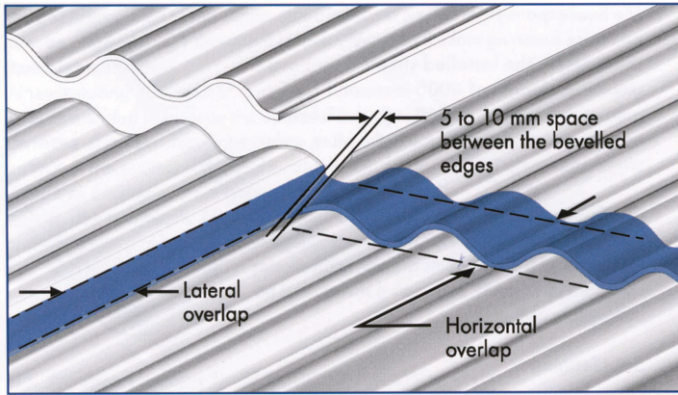
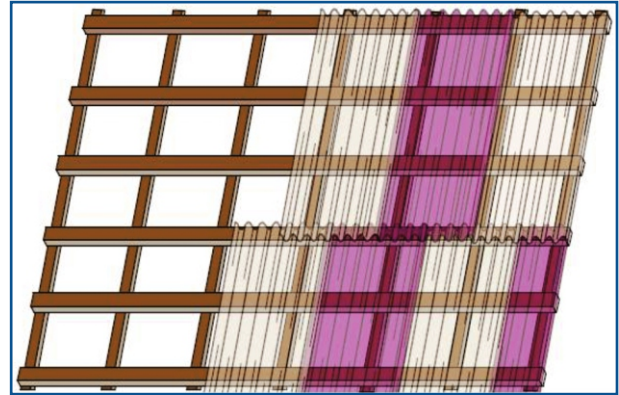
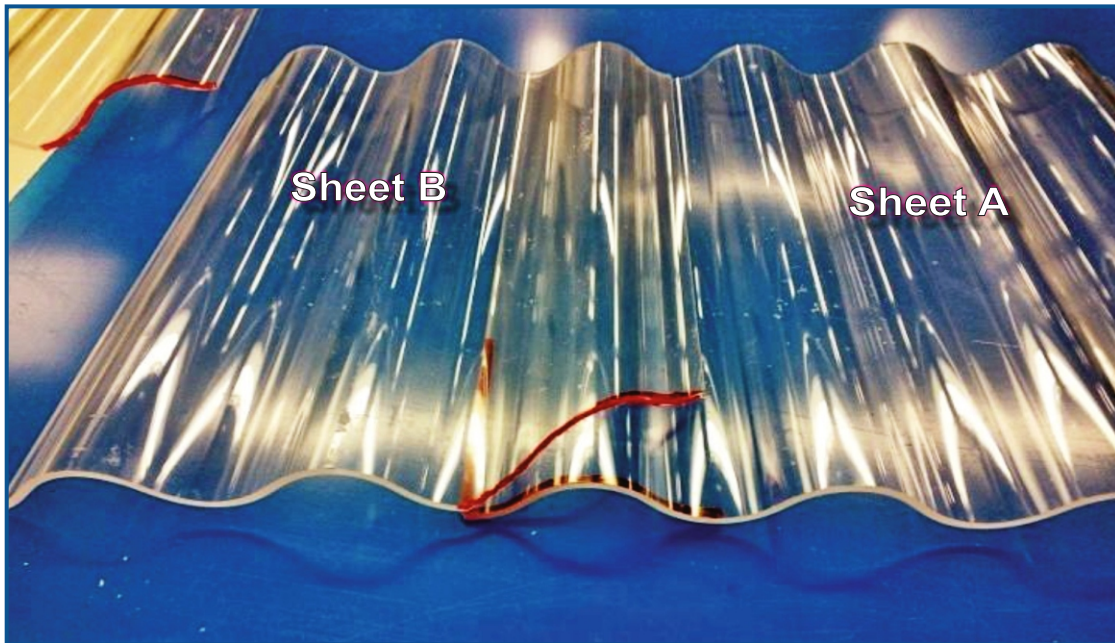


Fig. 4: Lateral and Horizontal Overlap Details



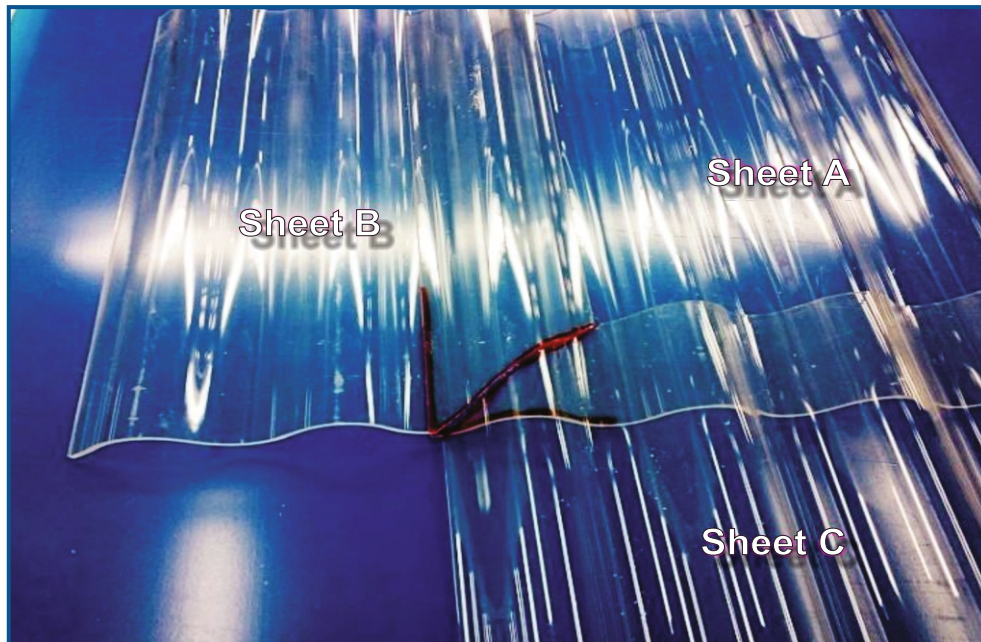
For longer roof sheets should be 'staggered'.

Four (4) Sheet Overlap Connection Details

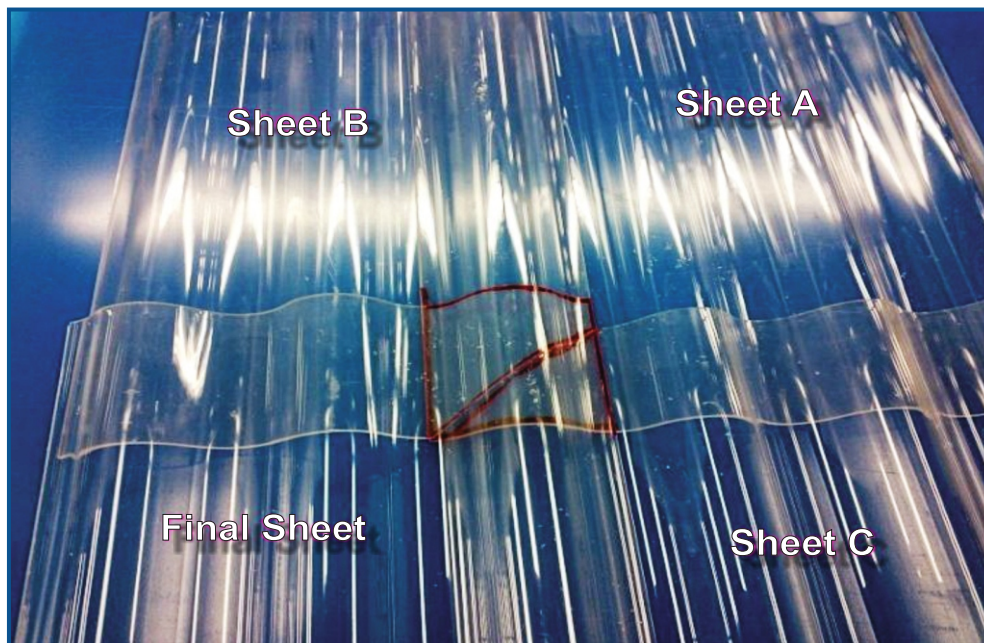


Sheet **A** and Sheet **B** are the lower or bottom sheets, Sheet **A** is left square (no angle cut), On Sheet **B** the last corrugation is cut at a 45° corner to the center of the 1st valley (edges are marked in red for clarity).





Sheet **C** is placed on top of Sheet **A**. Sheet **C** also has the last corrugation cut on a 45° angle and Sheet **C** and Sheet **B** have the corners cut so that they 'nestle' with a 5 to 10 mm gap for expansion on top of sheet **A**.



The **Final Sheet** can be now be installed. It will be placed **OVER** top the angled connection of Sheet C and Sheet B that you just completed, fully covering the angled corners and keeping the joint clean and waterproof. **NEVER** screw down the sheet on the overlaps.



Drilling

ACRYLITE® Wave Profile acrylic sheets that are to be point fastened need to be pre-drilled with the proper tool. A stepped drill bit (fig. 5a) or a conical bit (fig. 5b) is recommended. The hole should be 0.50" (13 mm) in diameter for a #14 [about 1/4" dia. (6.3 mm)] wood screw. Corrugated sheets that overlap horizontally are drilled together. Lift the top sheet up and enlarge the lower sheet hole another 1/16" to 1/8" (2 to 3 mm), to accommodate expansion differences.



Fig. 5 Drilling bits for corrugated sheet

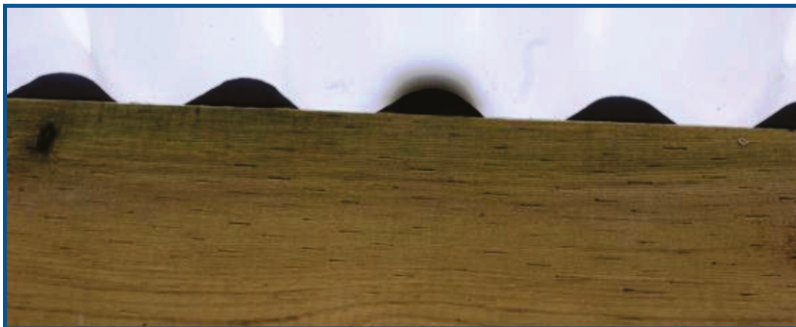
Place Sheet on roof and pre-drill 1/2" holes

NOTE: Fasteners MUST be screwed into the supports that run 90 degrees to the sheet length and not into the roof rafters. If you only put fasteners in to the rafters it can cause your sheet to crack and may VOID YOUR WARRANTY.

Fastening

Fastening Recommendations

The ACRYLITE® Wave Profile acrylic sheets are point fastened to the supporting structure using the appropriate fasteners. On roof applications, the fastener location is always on the crest of the corrugation (Fig. 6a & 6b). The ACRYLITE® Wave Profile acrylic sheet is very rigid, thus no shims are needed beneath the crest of the corrugation. Competitive corrugated sheets are not as rigid or thick and must have stand-off shims or spacers placed between the sheet and the support member at the fastening point. Foam closures are available when closing the underside of the ends of the sheet is required.



Fasteners

The most common way to fasten corrugated sheets is to drive in a screw into the center of the upper side of the support purlin. Screws for wood (#14) or metal (#14 self-drilling and tapping) with sealing bonded washers are commercially available. The curved metal washer (calotte) with bonded sealing washer is placed between the screw washer and the corrugated sheet (Fig. 6b). It seals the drill hole below and evenly distributes the screw pressure.

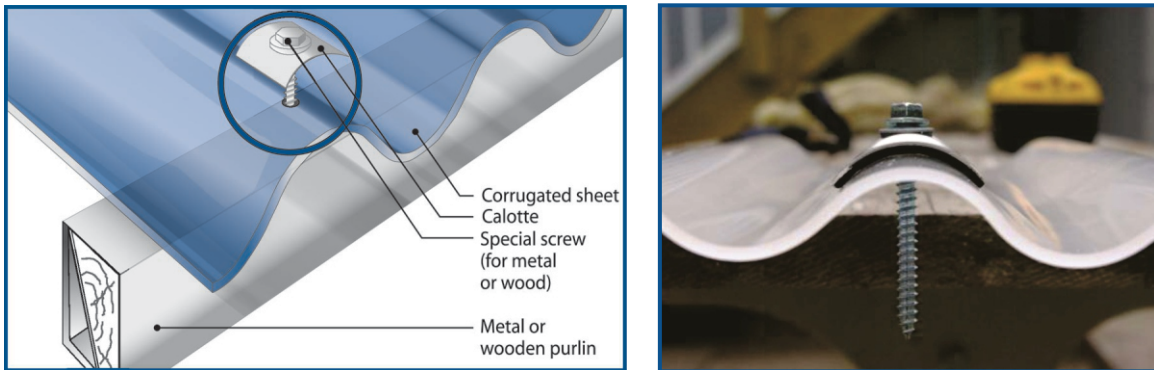


Fig. 6a Point Fastening of Corrugated Sheet to Cross Member

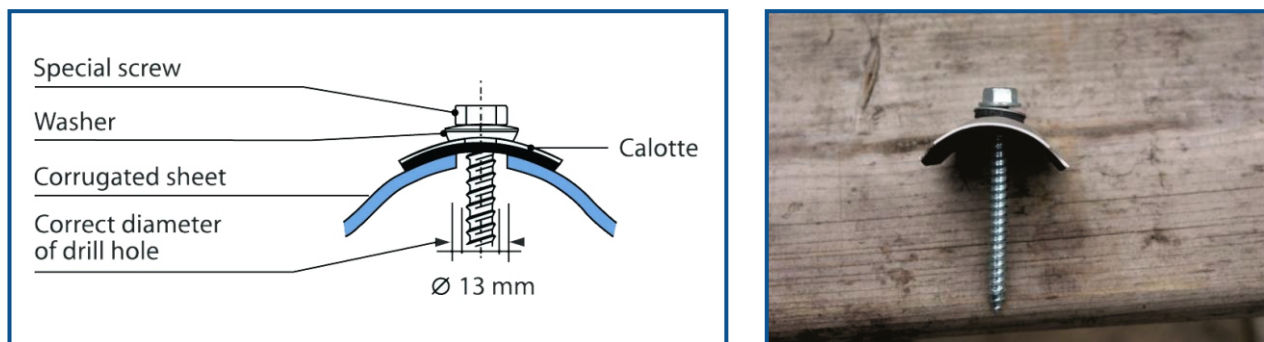


Fig. 6b Detail of curved washer (calotte) and screw.

Cutting To Size

ACRYLITE® Wave Profile acrylic sheets are best cut to size using high-speed portable circular saws with hollow ground, multi-tooth carbide-tipped saw blades. A 7 to 8" diameter saw blade should have 40 to 60 teeth, commonly referred to as TCB (triple chip blade). Tooth design should have a clearance angle of between 10 to 15° and a rake angle of 0 to 5°. Do not use abrasive disks or saw blades with offset teeth. The sheet should be firmly clamped to avoid vibration. Use a stop or guide to get a clean, straight cut and to prevent the saw blade from jamming and either melting or chipping the sheet. Corner Cutting: Fig. 4 depicts how the corners of the corrugated sheets have to be cut back (beveled) when lateral and horizontal overlap situations arise.

Compatibility

All sealants, gaskets, weatherseal washers, cleaning agents and other materials coming in contact with the corrugated sheet must be compatible with acrylic. Contact your distributor or us for recommendations.



Cleaning

The self-cleaning effect from rain will wash off normal accumulations of dust and or dirt. There is little need to clean the sheets installed in a vertical wall or on an adequately sloped roof. Should cleaning be required, rinse the sheet thoroughly with a garden hose or wash with a solution of mild soap or detergent and lukewarm water. Do not use cleaning sprays, kitchen scouring compounds or solvents such as acetone, benzene, alcohol, carbon tetrachloride, or lacquer thinners. These can scratch the sheet's surface and/or weaken the sheet causing small surface cracks called "crazing".



... Enjoy!

