

Polygal Multiwalled Polycarbonate Sheets

Turning Bright Ideas Into Reality

• Design • Glazing • Installation • Storage

Polygal develops and manufactures a full range of Polycarbonate multiwalled sheets which offer superior solutions for an entire spectrum of light-transmitting, heat-controlling applications. Polygal sheets are ideally suited for light-transmitting walls and roofing, skylights, pool enclosures, greenhouses and an endless variety of glazing solutions.

Polygal sheets are creatively used by architects and builders around the world, who appreciate their attractive appearance, versatility, light weight, durability, protection from UV damage and simplicity of installation.

Polygal's Technical Support Department offers architects and builders a wide range of services, including computerized drawings of building details, and assistance in designing with Polygal products, including computing bending and load data.

Polygal Product Range

RFX An exclusive Polygal patent that controls penetration of heat into buildings - more heat in the winter and less in the summer - while allowing transmission of daylight - effectively reduces energy and lighting costs.

PolyShade PolyShade sheets combine effective solar heating control with a highly attractive, metallic look, available in a number of modern color options.

Primalite These new, technically advanced sheets selectively decrease penetration of heat-bearing near-infra-red solar energy, while allowing the visible light wavelengths to penetrate the sheet - more light, less heat!

Titan Twice as strong as standard Polycarbonate sheets, Titan is particularly suited for withstanding heavy loads. Provides solutions in places where others fail.

Standard Sheets Multiwalled Polycarbonate sheets manufactured in a variety of colors and transparency levels - designed for most conventional roofing and glazing applications.

Glazing Systems with Aluminum Profiles Polygal's 6-16mm glazing systems use Polycarbonate sheets, aluminum profiles, and specially fitted screws and EPDM gaskets for easy to install, well-sealed roofing surfaces.

Glazing Systems with Polycarbonate Profiles Polycarbonate profiles and attachment details especially designed for glazing with Polygal's Polycarbonate sheets - ideal for do-it-yourself and greenhouse applications.

TripleClip TripleClip 5/8" system is an advanced and simple do-it-yourself solution for large, flat roofs. TripleClip's modular design, combining Polygal Polycarbonate sheets and aluminum profiles, ensures well-sealed, easy to assemble roof surfaces.



Installation Instructions for Polygal Multiwalled Polycarbonate Sheets

Designing a Structure using Polygal Sheets

The instructions apply to standard Polygal sheets of all widths, as well as the following Polygal specialized sheets: RFX, Titan, PolyShade, Primalite and the TripleClip Glazing System.

1. Avoid flat roofs. Roofs should have a minimum slope of 1:12.
2. Sheets must always be mounted with ribs running vertically on all outdoor applications (see Illustration 1).
3. The length of Polygal sheets is defined as the measure of the sheets in the parallel direction of the ribs, and the width of the sheet as the measure perpendicular to the ribs (see Illustration 2).
4. In order to prevent deflection in the roof, the purlins in the structure should be positioned at a distance recommended by Polygal. This information is available from Polygal's official distributors and Polygal's Technical Support Department.

Cutting the Sheets

Polygal sheets can be cut using any carpentry saw, including a handsaw, circular saw, jigsaw (see Illustration 3) or a sturdy razor knife. All saw blades should have fine teeth with a saw kerf of 0.08"-0.13". Circular saw blades should be two sided with an alternate bevel of 10° and 45°. For thicknesses up to 3/8", a sharp knife can be used. Cuts should be made on both sheet surfaces for a clean cut. Clamp the sheet to the worktable to avoid vibration and rough cutting. All safety precautions should be observed in order to prevent injuries and/or damage to the sheets. Dust can be removed from flutes by applying air pressure from a compressor and/or vacuum cleaner, or ideally by ionized air.

Sawing Recommendations

	Hook Angle	Kerf	Alternate Bevel	Upper Tooth Angle	Cutting Speed	Tooth Spacing
Circular Saw Blades	+5°-+12°	0.08"-0/13"	Two sided 10° and 45°	20°- 40°	590-820 ft/min	1/8"-3/16"
Bandsaw					660-820 ft/min	1/16"-1/8"

*See manufacturer's information online for tooling specifications

Cold Bending

Polygal sheets can be easily sprung into arches with a minimum radius in accordance with the sheet thickness (see Illustration 5.) Arches should always be formed parallel to the sheet ribs. For proper cold bending, sheet length must always be greater than sheet width.

Protective Films

Remove the protective film from the bottom side of the sheet (non-printed film). On the top side, peel the film back at all four edges of the sheet, at a width of about 4" from each side. When the installation is complete, remove the protective film from the top of the sheet. Do not leave any protective film on the sheet after installation is complete!

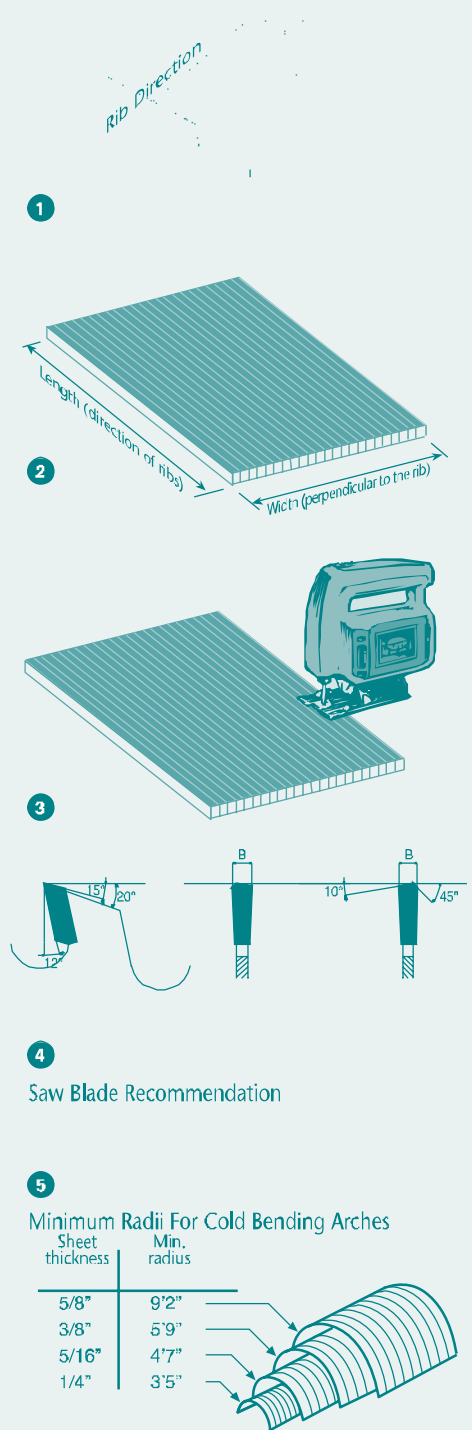
Sealing

The use of silicone is recommended only for sealing points connecting to the building walls. Proper installation of roofs made of Polygal sheets and profiles does not require use of silicone sealer. To prevent damage to sheets, only use original Polygal Silicone sealer, available from authorized Polygal distributors.

Sheets should be sealed at their upper edge using special, solid anti-dust tape, and at the lower edge using vented tape; sealing tapes are available from authorized Polygal distributors.

Always ensure:

- A minimum roof slope of at least 1:12
- Sheets are installed with the exterior side facing outwards
- Aluminum profiles are carefully attached across their entire length.



Glazing Using Polygal Sheets and Aluminum Profiles

When using Polygal sheets for glazing applications, it is recommended to use Polygal aluminum profiles and EPDM gaskets in order to achieve a sturdy, sealed and quiet surface. Care should be taken with the building details when connecting to walls, as well as gutters and roof corners. The aluminum profiles are attached to the structure using special screws which are attached every 10", eliminating the need for piercing the sheets. Aluminum profiles are sold in 19'8" long pieces, with an anodized or paint coating.

Installation Instructions using Aluminum Profiles

1. Connect the Angle (303) Brackets to the construction using Self Drilling Screws (403) placed 3' apart from each other, at both surfaces of the Angle.
2. Insert the End Profile (302, 325, 326) into the Angle Bracket (303).
3. Attach the Base Profile (316) to the End Profile using machine M5 screws and the appropriate nut. Drill slot holes in the bottom of the End Profile every 10".
4. Drill holes in the center of the Cap Profile (315) every 10", using a 3/16" drill bit (this should be done when the Cap Profile is positioned flat on the work surface and not on the construction!).
5. Insert the EPDM gaskets into the proper tracks of the Base and Cap Profiles (315, 316).
6. Insert the sheet into the End Profile and onto the Base Profile, and attach a second Base Profile to the other edge of the sheet.
7. Attach the Cap Profile (315) using stainless steel screws (441, 442, 443).
8. Repeat steps 6 and 7 until the surface is covered.

For Vaulted Roofs, at both ends of the vault, a steel supporting arch should be installed. In addition, every change in vault direction requires a steel supporting arch, to strengthen the roof against horizontal forces. The supporting arches should be positioned at distances of about 20' underneath one of the aluminum bases. The base should be attached using self-drilling screws (403) to the arch itself. A decorative profile (317) can be applied to conceal the screws.

Aluminum Profiles - 6-16 System (See Polygal brochures)



317
Cap Profile Cover



325
End Profile (5/16" sheet)



303
Angle Bracket



315
Cap Profile



302
End Profile (3/8" sheet)



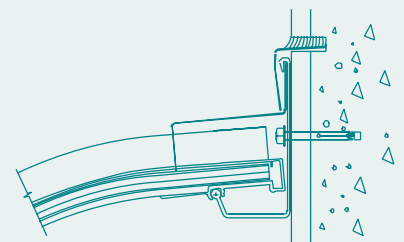
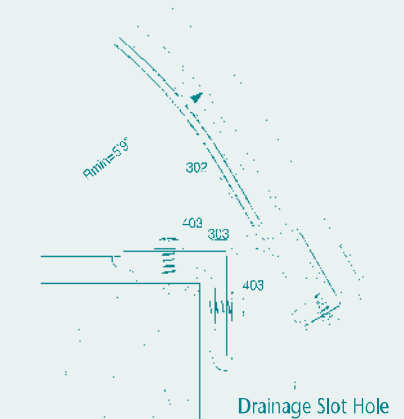
316
Base Profile



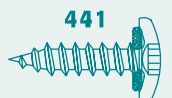
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End Profile (5/8" sheet)



304
Wall Bracket Profile



403



441



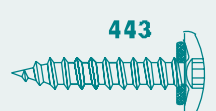
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442



504



443

Glazing EPDM

Sheet Glazing of Different Thicknesses using 6-16 mm Aluminum Profiles System

1/4" Sheet



Drainage Hole

5/16" Sheet



Drainage Hole

3/8" Sheet

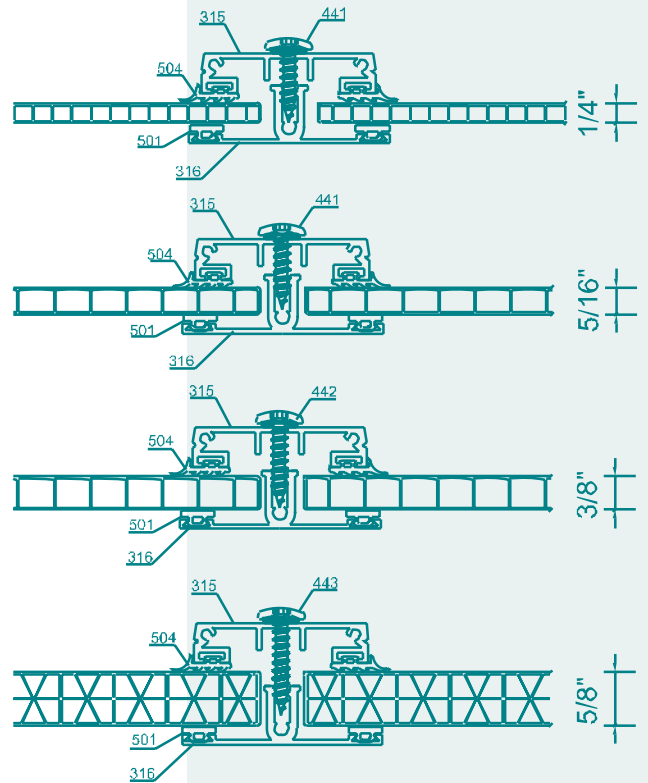


Drainage Hole

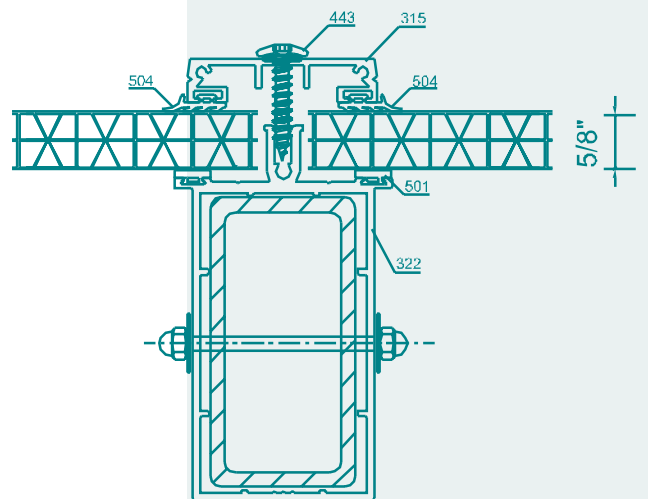
5/8" Sheet



Drainage Hole



Note: The Base Profile must be joined to the roof purlin of the construction with stainless screws as needed.
The Drainage hole must be drilled by the installer at 6" to 12" intervals.



Glazing using Polygal Sheets and Polycarbonate Profiles

A Polygal sheet is positioned on a roof and then screwed down. A Polycarbonate base profile is placed under the attached sheet; the next sheet is placed and screwed down. Then the Polycarbonate cap profile is snapped into the base profile (a rubber mallet can be used to snap the cap into the base; temporary support may be needed below the base). One screw should be placed through the cap and base to prevent movement due to thermal expansion and contraction. Always make sure to use original Polygal screws and gaskets to prevent leakage. For outdoor structures, it is recommended to use 3/8"-5/8" thick sheets. For optimal performance in all applications, it is not recommended to use sheets of less than 5/16" thickness. Using the correct sheet thickness will prevent damage and ensure a long service life.

Point Fastening

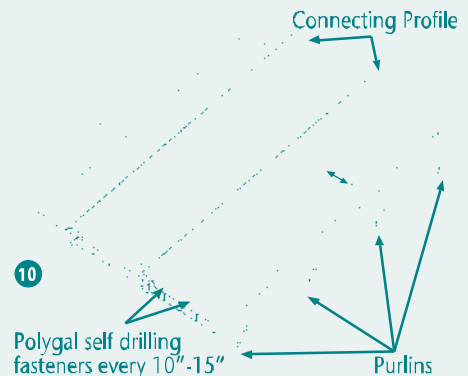
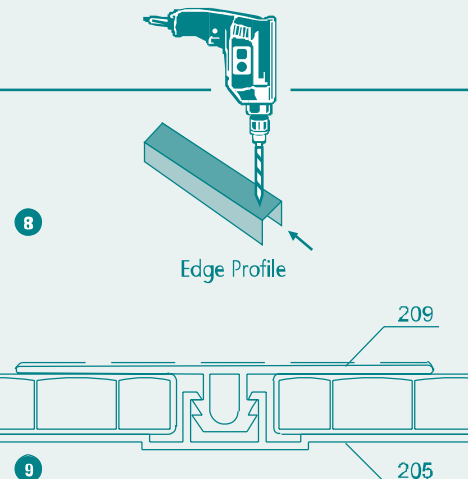
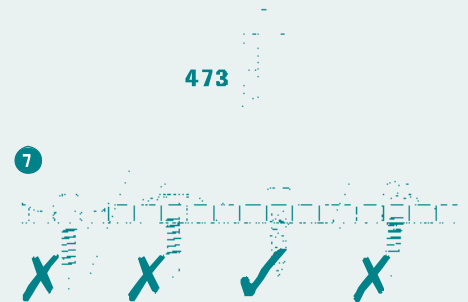
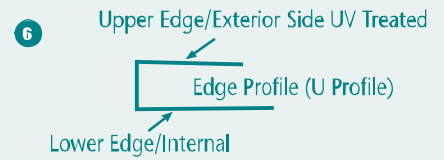
- Do not over-tighten screws, which could impair the strength of the sheet and cause it to detach from the structure.
- The screw is properly fastened when the sealing disk is flush with the top surface of the sheet and cannot be moved, but is not depressed into the sheet (see Illustration 7.)
- All holes for screws should be drilled at least 1.5"-2" from the edge of the sheet and not more than 4" from the edge of the sheet.

Recommendations for Installing Polygal Sheets Using Polycarbonate Profiles

1. Before assembling the Edge (U) Profile (see Illustrations 6 and 8), drill 5/16" slot holes into the profile at 6"-12" intervals to allow water drainage. The holes should be drilled according to illustration 8 in order to prevent drilled particles from penetrating into the sheet. Place the drilled Edge (U) Profile on the bottom edge of the sloping or vertical sheet. The short side of the profile should be positioned facing outwards. The upper part of the sloping or vertical sheet should be sealed with an Edge (U) Profile, without drainage holes.
2. Place the sheet on the purlin (at the outside edge of the structure) so that the sheet ribs are perpendicular to sea level (see Illustration 10). Always ensure that the UV-protected side of the sheet (indicated by the protective film) is facing outwards.
3. For a Single or Dual Sloping Roof, place the Base Profile on the bottom side of the installed sheet. After placing the next sheet, take the Cap Profile, place it at the edge of the Base Profile, and using soft taps with a rubber mallet, attach the profiles down their entire length. Attach the sheets to the supporting purlins using self drilling fasteners (No 473).

Important: Ensure that the Cap Profile is well connected across the entire length of the Base Profile. Provide counter pressure under the Base Profile while connecting between the two sides.

4. For a Vaulted Roof, attach the sheet at both ends using Polygal fasteners so that the distance between the fasteners is about 10"-15".
 5. Only use screws that are suitable for the type of construction: self-drilling screws for steel purlins, wood screws for wood purlins. Ensure that the screws have a high quality coating.
- * It is highly recommended to seal the bottom edge of the sheet with vented tape.



Care and Storage

Polygal sheets, when properly installed, are resistant to extreme weather conditions and prevent damage from UV rays. To protect their weather-resistant qualities before installation, the sheets must be stored properly, according to the following guidelines:

Protective Films

Polygal sheets are delivered with different types of protective films on each side of the sheet. The top (exterior) side with the UV protective coating is covered with a printed film and the bottom (interior) side is covered with a plain (colored) film.

Always remove the films before thermo-forming, and after installation is complete.

Storage

Polygal sheets should be stored in dry, dark and well-ventilated areas, with absolutely no exposure to sunlight, wind, dirt or hard objects, to prevent any adverse effects that might occur. Sheets should be stored on a flat, clean raised surface, and placed on a soft material (like cardboard) to prevent damage. Sheets can be stacked to a maximum height of 3' on a flat even surface, with support. Supported, sloped stacking is recommended.

If stored outdoors, sheets should be covered with an opaque material (cardboard, wood, etc.) that provides protection from the sun. Ensure that the wind will not blow off the top sheet by placing a weight on the sheet, or tying the sheets together. Under no circumstances should sheets be stored under flexible PVC coverings.

Polygal sheets are delivered with a polyethylene film to protect them from dust and scratches during transport and storage. Always leave the top film on the sheet until installation is complete.

Cleaning the Sheets

Polygal sheets - standard and specialized - will give you longer and better service by following these simple cleaning instructions

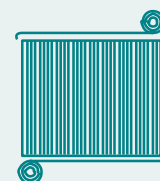
1. Rinse sheet with warm water
2. Use warm soapy water to clean sheets. If any dirt remains, gently wipe off with a soft cloth.
3. Do not scrub or scrape with sharp instruments.
4. Apply a final rinse and dry with a soft cloth to prevent water spotting.

Note: Never use a knife or other sharp object when cleaning the sheets.

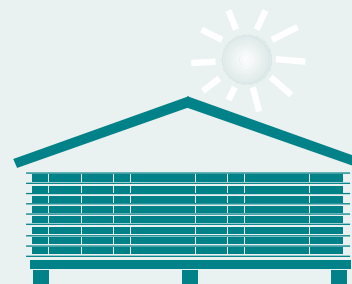
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Prevent stepping on the sheets.
Beware of danger from falling and slipping.



Seal the sheet ends with special
anti-dust tape, especially after cutting.



Ensure that the sheets are stored under an
opaque cover and according to instructions.



Prevent exposure of the sheet to chemicals.

For over 25 years, Polygal has been developing and manufacturing a wide range of multiwalled Polycarbonate sheets which are proudly installed in structures worldwide. A leader in its field, Polygal was the first in the world to produce Polycarbonate multiwalled sheets for building applications, and is known around the world for the quality of its products.

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