SUPREME
PLASTIC ROOFING

Twinwall Polycarbonate Roofing System

High Performance Glazing That's Built To Keep You Warm.

Polygal Twinwall is a high quality, multiwall polycarbonate glazing sheet that is lightweight, strong, has outstanding light transmission and thermal insulation properties.
Polygal Twinwall offers a double-sided UV protection against our New Zealand harmful UV rays, so you can use it on covered walkways, walls, roof lights, patio covers, greenhouses, verandas and gazebos.
With a thin rectangular wall tunnel structure, it is an excellent candidate for vertical and curved applications.
Polygal Twinwall saves you money too. It's lighter than glass, so you don't need expensive structural support. Its thermal insulation properties keep you warm without the need for double glazing.
So think warmth and comfort with Polygal Twinwall Polycarbonate sheeting.

Features

Lightweight - An outstanding balance of low weight and good rigidity enables lightweight structures with greater spans to be designed and easily installed.
Excellent Energy Efficiency - The multiwall construction traps air between the layers, which ensures outstanding thermal insulation performance.
Environmental Standards - In many cases these high performance polycarbonate sheet products may be recycled.
Flexibility of Design - Polygal Twinwall sheets can be used in curved applications such as arched walkways. Polygal Twinwall must always be bent longitudinally, never across the width of the sheet.
In applications of this nature it is important not to place excessive tension on the sheet. Therefore when Polygal Twinwall is curved the maximum radius should not be more than 150 times the thickness of the sheet i.e. 1200mm.
Two Sided UV Protection - Twinwall is supplied with a protective film on both sides of the sheet.

Applications

- ***Pergolas***
- ***Pool Enclosures***
- ***Atriums***
- ***Verandas***
- ***Greenhouses***
- ***Sunrooms***
- ***Covered Walkways***
- ***Skylights***

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Product Range

Twinwall Sheet	Width (mm)	Length (mm)
Gauge: 6mm		
Clear, Bronze, Ice Opal	610, 1220	1830, 2440, 3050, 3660, 5500
Gauge: 8mm		
Clear, Bronze, Grey, Platinum	610, 1220	1830, 2440, 3050, 3660, 5500
Twinwall 2-Piece Joiners		**Length (mm)**
Polycarbonate		1830, 2440, 3050, 3660, 5500
Aluminium with Rubber		1830, 2440, 3050, 3660, 5500
End Capping		
Polycarbonate		2750, 5500
Aluminium with Rubber		3000, 6000
Aluminium F Flashing	6mm, 8mm	5000
Twinwall Accessories		
Stainless Steel Bonded Washer Sheet Fix		Packet of 50
Aluminium Joiner Fixings		Packet of 50
Polycarbonate Joiner Fixings		Packet of 50
Anti Dust Tape		52m roll or per metre
Anti Noise Tape	3mm x 25mm	25m roll

Aluminium 2-Piece Joiner

Polycarbonate 2-Piece Joiner

Installation Guide

1. Measure the distance (length) for the 2 piece joiner. Then cut them to the required size. With fixings screws, attach the bottom joiner to the rafter or purlin running in the direction of the sheet length. Rafters should be at 610mm centres, however please note that you will need to allow for joiner gain. Aluminium has a gain of 35mm on the outside and 20mm on the inside joiners. Polycarbonate has a gain 53mm on the outside and a 35mm on the inside joiner. To fix in place, drill through the bottom joiner at 400mm intervals and screw to the rafter.
2. On the rafters that do not have a joiner run the anti-noise tape along the centre to keep the sheet flat. Please ensure the sticky side goes against the rafter and the smooth side facing up.
3. Measure and cut (if required) the Polygal Twinwall sheets to length and width. If you have to cut the width of the sheet down, make sure you cut down the middle of the flute to keep the flutes sealed. (Note: Clamp the sheet to a support to cut.) Sheets can be cut with a Stanley knife.
4. Slide the Butterfly Rubber into the two side channels on the top aluminium joiner. (The Polycarbonate joiner does not need rubber) If you are a using joiner for an outside edge you do not need a Butterfly Rubber on the outer side. This will be replaced with a Butt Rubber.
5. Before placing the sheets into position, remove 50mm of the top film at each end and totally remove the bottom film. Seal both ends of the sheet with the Anti-Dust Tape to prevent the penetration of dust and insects. Place the sheets into position and place the top joiner onto the base. Please note that you must place sheets on both sides of your joiner (or Butt Rubber for outside edges) before placing the top joiner down. The aluminium top may require a tap down with a rubber mallet to secure.
6. Select between Polycarbonate or Aluminium Capping to seal the exposed edge. The Aluminium Capping fits over the sheet and joiner and the Polycarbonate fits between the joiners. Remove the top protective film from the sheet. Fix the sheet every 400mm with a Stainless Steel fixing and bonded washer down the rafters that do not have a joiner as well as along the bottom end near the gutter.
7. Now sit back and enjoy the great outdoors.

Special Instruction Notes:

- All sheets must be installed with the flutes running vertically
- Ensure that the roof has a minimum pitch of 5 degrees (87mm per metre)
- All glazing systems, sealants, gaskets and other materials must be fully compatible with Polycarbonate
- It is imperative that at least one rib of the sheet is engaged and clamped in the glazing system
- A frame of approximately 15mm is normally required when glazing. It is also important to add extra space for thermal expansion
- When drilling holes, thermal expansion must be taken into account (ensure holes are 2mm larger than shaft of screws)
- When installing the sheets allow 2mm thermal expansion gap between the side of the joiner and side of the sheets
- Polygal Twinwall sheets should normally be fixed to rafters, purlins or studs erected at a maximum of 610mm centres. In areas exposed to high wind, spacings should be reduced to 400mm centres
- Do not remove the protective film from the sheet prior to installation, as this may result in unnecessary scratching
- Do not walk on the Polygal Twinwall sheets
- Prior to construction, Building Regulations should be checked and followed where applicable
- Sheets must not be fixed or clamped too tightly as this will prevent thermal expansion and contraction and will adversely affect the installation

Cleaning

We recommend that the Polygal Twinwall Polycarbonate sheets are cleaned twice a year. To clean the sheets, we recommend using a solution of lukewarm water and an ordinary household detergent. A soft sponge or cloth should be used to remove any dirt and grime from the sheet. Do not scrub the sheet with brushes or sharp instruments and avoid abrasive cleaners of a high alkaline composition.

Twinwall Polycarbonate Roofing System - Technical Guide

Twinwall Solar Grade Data						
Features	Size (mm)	Clear	Bronze Tint	Ice (Opal)	Grey Tint	Polyshade
Light Transmission	6mm	80%	42%	32%	30%	n/a
	8mm	80%	42%	32%	30%	18%
Shading Co-Efficient Mean Average*	All	0.91	0.68	0.27	0.55	0.31
Solar Heat Gain w/m² Mean Average**	All	0.74	0.58	0.48	0.38	0.26
Service Temperature	All	-40°C to 100°C	-40°C to 100°C	-40°C to 100°C	-40°C to 100°C	-40°C to 100°C
Thermal Insulation (R Value)	6mm	0.278	0.278	0.278	0.278	0.278
	8mm	0.303	0.303	0.303	0.303	0.303
Thermal Expansion per metre	All	3.5mm	3.5mm	3.5mm	3.5mm	3.5mm
U-Factor w/m2 °C***	6mm	3.6	3.6	3.6	2.5	n/a
	8mm	3.3	3.3	3.3	2.5	3.3
Minimum Radius for Arches in metres	6mm	1.05	1.05	1.05	1.05	n/a
	8mm	1.4	1.4	1.4	1.4	1.4
Weight kg per m²	6mm	1.3	1.3	1.3	1.3	n/a
	8mm	1.5	1.5	1.5	1.5	1.5

Fire Ratings: AS1530.3/1999

Twinwall sheets have been tested in accordance with the Australian Standard 1530.3/1999. The test standard for the early fire hazard properties of materials and covers four categories.

Test	Ingitability Test index 0-20	Spread of Flame Test Index 0-10	Heat Evolved Test Index 0-10	Smoke Developed Test Index 0-10
Twinwall Results	0	0	0	3

* Solar Co-Efficient: The ratio of solar heat gain through Twinwall sheet to the solar heat gain of clear glass in a specific set conditions.
** Solar Heat Gain: The amount of heat in w/m² transmitted through the Twinwall sheet. Results are determined by the incidence of solar radiation.
*** U-Factor: The rate of heat transferred through the Twinwall sheet in w/m² °C. The overall heat transfer co-efficient.

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