



THE POLYCARBONATE
STORE



TECHNICAL AND INSTALLATION ADVICE

**POLYCARBONATE
TWINWALL AND MULTIWALL ROOFING SHEETS**

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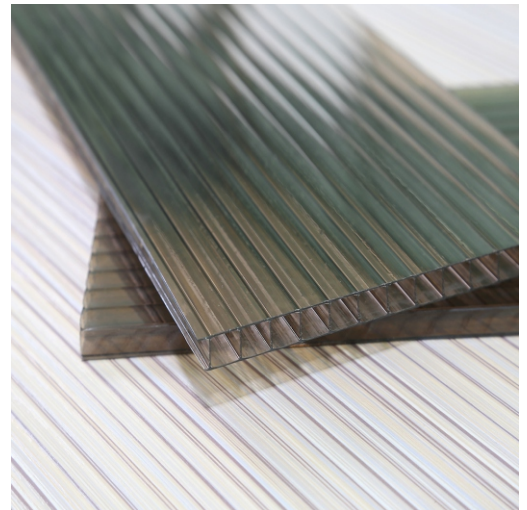


Overview

Polycarbonate twinwall and multiwall sheets are a lightweight insulating glazing material manufactured from damage resistant polycarbonate. Added Longlife protection provides resistance against the effects of UV weathering. Twinwall and multiwall sheets are available in a range of thicknesses, structures and options for a wide range of roofing, cladding and glazing applications.

Main Benefits

- High thermal insulation
- Lightweight and impact resistant
- High light transmission
- Excellent structural durability
- Weather and UV resistance
- Blocks virtually all UV radiation
- Easy to handle and install
- High fire performance rating



Typical Applications

- Architectural roofing and glazing
- Skylights and sidelights
- Conservatories
- Covered walkways
- Displays, signage and decorations
- Industrial roofing and glazing
- Residential roofing and glazing
- Covered swimming pools
- Agricultural greenhouses

TECHNICAL INFORMATION

4mm Twinwall Polycarbonate

| | |
|--------------------|-----------------------|
| Colour | Clear |
| Weight | 0.8Kg/m ² |
| Light Transmission | 82% |
| U Value | 3.8W/m ² k |
| Hail Impact Test | >21m/sec |

6mm Twinwall Polycarbonate

| | |
|---|-----------------------|
| Colour | Clear |
| Weight | 1.3Kg/m ² |
| Light Transmission | 79% |
| U Value | 3.7W/m ² k |
| Hail Impact Test | >21m/sec |
| Weight Sound Reduction Index | 17dB |
| Minium Permissible Cold Bending Radius* | 900mm |

*cold bending must be parallel to the ribs of the sheet

10mm Twinwall Polycarbonate

| | | | |
|---|-----------------------|-----------------------|-----------------------|
| Colour | Clear | Opal | Bronze |
| Weight | 1.7Kg/m ² | 1.7Kg/m ² | 1.7Kg/m ² |
| Light Transmission | 80% | 70% | 41% |
| U Value | 3.1W/m ² k | 3.1W/m ² k | 3.1W/m ² k |
| Energy Transmission | 75% | 69% | O/A |
| Hail Impact Test | >21m/sec | >21m/sec | >21m/sec |
| Weight Sound Reduction Index | 16dB | 16dB | 16dB |
| Minium Permissible Cold Bending Radius* | 1500mm | 1500mm | 1500mm |

*cold bending must be parallel to the ribs of the sheet

16mm Multiwall Polycarbonate

| | | | |
|------------------------------|-----------------------|-----------------------|-----------------------|
| Colour | Clear | Opal | Bronze |
| Weight | 2.6Kg/m ² | 2.6Kg/m ² | 2.6Kg/m ² |
| Light Transmission | 74% | 62% | 30% |
| U Value | 2.2W/m ² k | 2.2W/m ² k | 2.2W/m ² k |
| Energy Transmission | 69% | 61% | 48% |
| Hail Impact Test | >21m/sec | >21m/sec | >21m/sec |
| Weight Sound Reduction Index | 18dB | 18dB | 18dB |

TECHNICAL INFORMATION

16mm Multiwall Polycarbonate

| Colour | Clear | Opal | Bronze |
|------------------------------|-----------------------|-----------------------|-----------------------|
| Weight | 2.6Kg/m ² | 2.6Kg/m ² | 2.6Kg/m ² |
| Light Transmission | 74% | 62% | 30% |
| U Value | 2.2W/m ² k | 2.2W/m ² k | 2.2W/m ² k |
| Energy Transmission | 69% | 61% | 48% |
| Hail Impact Test | >21m/sec | >21m/sec | >21m/sec |
| Weight Sound Reduction Index | 18dB | 18dB | 18dB |

25mm Multiwall Polycarbonate

| Colour | Clear | Opal | Bronze |
|------------------------------|-----------------------|-----------------------|-----------------------|
| Weight | 3.4Kg/m ² | 3.4Kg/m ² | 3.4Kg/m ² |
| Light Transmission | 49% | 40% | 13% |
| U Value | 1.3W/m ² k | 1.3W/m ² k | 1.3W/m ² k |
| Energy Transmission | 48% | 42% | 32% |
| Hail Impact Test | >21m/sec | >21m/sec | >21m/sec |
| Weight Sound Reduction Index | 18dB | 18dB | 18dB |

32mm Multiwall Polycarbonate

| Colour | Clear | Opal | Bronze |
|------------------------------|-----------------------|-----------------------|-----------------------|
| Weight | 3.7Kg/m ² | 3.7Kg/m ² | 3.7Kg/m ² |
| Light Transmission | 48% | 38% | 12% |
| U Value | 1.1W/m ² k | 1.1W/m ² k | 1.1W/m ² k |
| Energy Transmission | 47% | 41% | 31% |
| Hail Impact Test | >21m/sec | >21m/sec | >21m/sec |
| Weight Sound Reduction Index | 18db | 18db | 18db |

35mm Multiwall Polycarbonate

| Colour | Clear | Opal | Bronze |
|------------------------------|-----------------------|-----------------------|-----------------------|
| Weight | 3.4Kg/m ² | 3.4Kg/m ² | 3.4Kg/m ² |
| Light Transmission | 51% | 25% | 20% |
| U Value | 1.3W/m ² k | 1.3W/m ² k | 1.3W/m ² k |
| Hail Impact Test | >21m/sec | >21m/sec | >21m/sec |
| Weight Sound Reduction Index | 22b | 22b | 22b |



INSTALLATION ADVICE

POLYCARBONATE ROOFING SHEETS

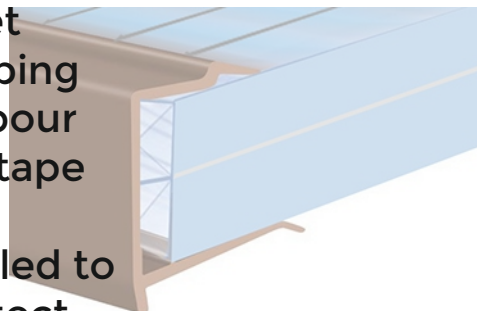
Roofs should always be designed with a minimum slope of 5° to allow adequate rainwater run-off.

Ensure that the UV protected surface (marked on protective film) of the Polycarbonate sheet is to the outside. 50mm of protective film should be peeled back from the edges of the sheet before installation and the residual film removed after installation is complete. If the project is likely to take time to complete, regularly check that the film does not bond on to the sheet, particularly in sunny weather.



Always ensure that sealants, gaskets and other materials used with Polycarbonate do not have a detrimental effect on the material. Low-modulus neutral silicone **MUST** be used with Polycarbonate sheet.

A sealing (blanking) tape is applied at the top of the sheet to prevent ingress of moisture, dust and insects. A breather tape applied to the bottom end of the sheet allows air to move freely in and out of the sheet, helping minimise condensation by equalisation of the air vapour pressure inside and outside the sheet. The breather tape also prevents dust or insects entering the sheet. The breather tape must be covered with a 'U' profile, sealed to the top face of the sheet with a silicone bead to protect both the tape and the lower end of the sheet from rainwater run-off.



Polycarbonate sheets should be installed with its ribs running in the direction of the slope.

To ensure optimum security under load it is important that at least one vertical rib of the sheet is securely clamped in the glazing system.



Polycarbonate can be cut with a fine tooth circular saw or a hand saw held at a shallow angle. Dust should then be removed from the sheet using a vacuum cleaner or dry compressed air. It is necessary to support the sheet close to the cut and to hold it firmly to prevent stress and vibration. Sheets must not be fixed or clamped too tightly as this will prevent thermal expansion and contraction and will adversely affect the installation.



At the eaves purlin additional fixing is necessary to prevent wind uplift and downslope slippage due to repeated thermal movement. One button per sheet width, centrally located between glazing bars should be sufficient.



The sheet must be supported firmly underneath when drilling. Holes should not be drilled any less than 40mm from the edges of the sheet.





INSTALLATION ADVICE

POLYCARBONATE GREENHOUSE

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POLYCARBONATE GREENHOUSE

Make sure that the UV protected surface of the sheet (marked on the film of the sheet) is facing the outside of the greenhouse. 50mm of protective film should be peeled back from the edges of the sheet before you begin to install.



It is essential to prevent the ingress of moisture, dust and insects by applying the appropriate tapes, closure and sealants. Blanking tape should be applied to the top and a breather tape should be applied to the bottom end of the sheet to allow air to move through freely, reducing the chance of condensation.



All holes on the wooden panels should be drilled prior to polycarbonate sheet installation. The sheets can then be cut using a fine tooth circular saw or a hand saw.



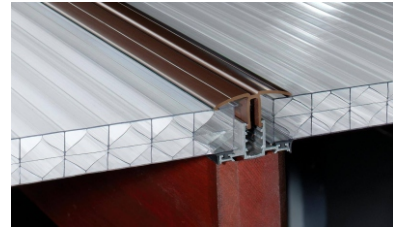
The roof panel should be installed on every timber support. You should fix these two components using stainless steel screws.



INSTALLATION GUIDE

POLYCARBONATE GREENHOUSE

Polycarbonate sheets should be installed with the ribs running in the direction of the slope and it is recommended that at least one of the ribs is securely clamped in the glazing system.



At the eaves purlin additional fixing is necessary to prevent wind uplift and downslope slippage due to repeated thermal movement. One button per sheet width, centrally located between glazing bars should be sufficient.



When drilling the sheet, make sure it is supported firmly underneath and do not drill within 4mm of the edge of the sheet.



**USAGE OF
MULTIWALL
POLYCARBONATE SHEETS**



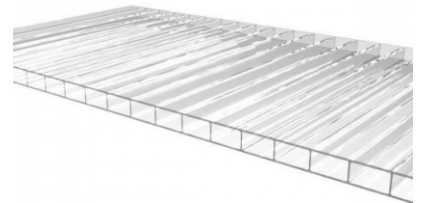
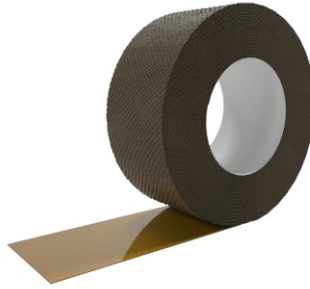


INSTALLATION ADVICE

POLYCARBONATE LEAN TO

Preparation For a lean-to installation you will need these materials.

- Polycarbonate Sheet
- Glazing Bar
- Side Flashing
- End Caps
- Super Fixing Buttons
- Breather Tape
- Aluminium Sealing Tape
- Flashing Tape
- Wood Screws
- Silicon Lubricant Spray
- Low Modulus Neutral Cure Silicon Sealant



Begin the project by installing the flashing tape to provide a watertight seal between the wall and roof.

Glazing Bar Preparation

Glazing bars are installed on each of the rafters. Before installing the glazing bars, you will first need to insert the seals either side of the bar base. The use of silicone lubricant can make the installation of the seals easier. Install the seals and avoid stretching.



Installing on Rafters

You will need to pre-drill the glazing bar in preparation for fixing to the rafters - at approximately 400mm centers staggered on alternate sides.

Installing on Purlins

Screw the bottom half of the glazing bar to every purlin. Ensure the purlin spacing is not greater than 1,500mm. Screws should be sealed in waterproof silicone sealant, wiping off any surplus after driving the screws.



Use the 'F profile' upside down so that it forms an up stand which can be sealed to the wall with flashing tape.

Sheet Preparation

If you need to size the polycarbonate sheets to suit the structure, Multiwall can be easily cut to size and will not crack or shatter.

When cutting parallel to the flutes a sharp knife can be used but when cutting across the flutes a fine toothed saw is required. For cutting curves use a fine-toothed jigsaw.

Set the correctly sized sheet into position allowing a sufficient expansion gap at the top end of the sheet and mark a hole centrally at the lower end of the sheet for a fixing button. This fixing will prevent the sheet from moving once installed.

Remove the sheet to the bench to drill where you have marked. Remember all multiwall sheets must have an expansion allowance of 3mm around all fixings.

Any swarf from cutting or drilling should be removed by vacuuming.

Next peel back the protective film from all edges of the multiwall sheet on both sides

Fix the sealing tape at the top end of each piece of multiwall and the perforated breather tape at the bottom making sure tapes are not creased or torn.

Installation of the Sheet

With the silver sealing tape at the top of the slope and the breather tape at the bottom, push the sheet into position between the glazing bars. Ensure that the printed film is facing upwards. At least one vertical rib of each Corotherm sheet should engage with the glazing bar at each side, again leaving a 3mm expansion gap.

Flashing tape forms a completely watertight seal at the top of the sheet.

With the sheet now in the correct position, secure into place using the Fixing Button in the pre-drilled hole.

Starting at the downslope end, line up the ends of the cap and base and tap home with a rubber mallet until the edge seals have flattened against the sheet.

Over driving the glazing bar cap may cause damage to sheets over time as they expand and contract with temperature changes.

Continue laying sheets and glazing bar caps in this way.

Fitting the F-Profile

Finish the edge of the roof with an F-profile which can be secured to the rafter or barge board with screws.

Fit the final glazing bar cap and complete the run of flashing.

Fitting End Caps U-Profiles

To protect the breather tape, fit end caps or U-Profiles to the end of the sheet.

The U-Profile should be cut into sections to fit between rafters. Run a bead of sealant along the top edge of the end cap to prevent water penetration. Fit U-Profile into place with the drip detail leading into the gutter. Wipe off any excess sealant.

Once the U-Profiles are in place, fit the glazing bar end caps.

Finally, remove all protective film.





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