

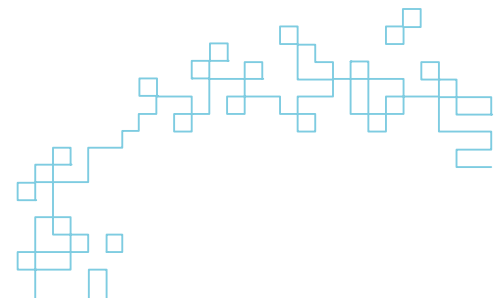
Polygal Polycarbonate Multiwall Sheets

Technical Specifications

Updated Dec. 2011

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1. Product group descriptions

1.1 Dimensions weights and colors



Polycarbonate is a unique engineering thermoplastic which combines a high level of mechanical, optical and thermal properties. The versatility of this material makes it suitable for many engineering applications. When extruded in multi-wall sheet form, its optical and impact properties in particular render this material an ideal candidate for a wide range of roofing and glazing applications.

Standard sheet length: 24/ft. & 36/ft
 Maximum length: subject to shipping constraints.

1.2 Standard sheets dimensions and weights

Standard Sheets of PCSS (*polycarbonate structured sheets*) manufactured in various colors and degrees of transparency, designed for use in most conventional roofing and glazing applications. Standard sheets are manufactured with different thicknesses, ranging from 4mm to 16mm.



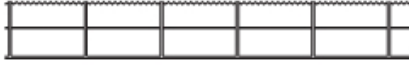
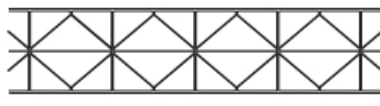
Standard sheets, dimensions and weights

Structure	Thickness (mm)	Weight (g/m ²)	Standard width (inches)
	4.5	900	48"
	6	1300	48"
	8	1500	48" & 72"
	10	1700	48" & 72"
	16	2700	48" & 72"

1.3 Special structured products

Special structured sheets - developed to emphasize different characters of multiwall sheet load resistance, thermal insulation, light transmission etc.

Special structured sheets dimensions and weights

Product	Structure	Thickness (mm)	Weight (g/m ²)	Standard width (inches)
Triple-Clear		8	1650	48" & 72"
Titan Sky		16	2500	47.25"
Selectogal (RFX)		16	3000	47.25"
Thermogal		25	3500	47.25"
		32	3800	47.25"
	35	4000		

Triple-Clear (PC3)- Specially manufactured with a clear tint appearance, provides excellent thermal insulation, high flexibility and virtually unbreakable. With its anti-fog coating, this PCSS prevents condensation build-up (*falling droplets*) and the sheet structure provides extra strength under wind and snow loads. Triple-Clear sheets are manufactured in 8mm thick sheets.

Titan Sky- With its internal cross-brace structure system, these sheets have twice the strength and rigidity of equivalent standard polycarbonate sheets. Titan Sky provides a quality solution that is both intelligent and advanced for use where withstanding heavy loads is required and for low-slope roofs. Titan Sky sheets are manufactured with a thickness of 16mm.

Selectogal (RFX)- An exclusive Polygal patent that enables the controlled penetration of heat and the transmission of pleasant daylight into buildings, while reducing heating and lighting costs. RFX's sophisticated prismatic structure enables it to reflect most of the sun's heat in the summer, yet allows increased penetration of solar heat in the winter. RFX sheets are manufactured with a thickness of 16mm.

Thermogal- Is a unique family of products from Polygal with an inner X-brace structure that provides extra-strength, rigidity and outstanding thermal insulation. Available in different widths and colors. Ideal for low-pitched roofs and for glazing in closed structures with large-span openings. Thermogal sheets are manufactured with different thicknesses ranging from 25mm to 35mm.

1.4 Special layered sheets

Special selective layers of polycarbonate PC sheets developed by Polygal are one of the most advanced achievements in this field. Such layers makes it possible to control the quality of light penetrating an enclosed space by absorbing and reflecting some part of solar radiation.

PolyShade- A special layer of polycarbonate structured sheet that produces a special metallic shading effect. The PolyShade layer contains a special pigment that adds metallic luster to the surface and provides an optimal level of solar radiation reflection to prevent overheating of a room. The PolyShade layered sheets are manufactured with different colors: silver, metallic blue and metallic green; and of different thickness, ranging from 8mm to 16mm.



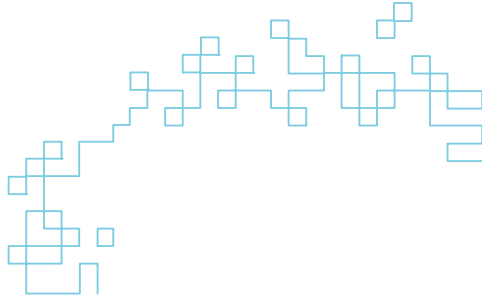
Primalite - Unique selective layer that selectively reflects a large portion of the Near Infra-Red solar radiation, while transmitting more of the visible light radiation. The Primalite layered sheets are manufactured with different thickness, ranging from 8mm to 32mm.



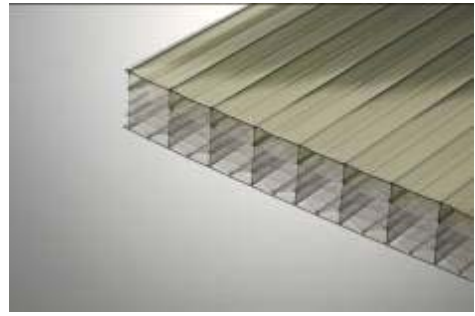
Polycoolite – Has a selective layer that is specifically designed to supply plants natural solar light needed to maximize photosynthesis. It blocks the UV rays, supplies high blue and red and reflects heat from the unused green portion of the light spectrum . It also reflects undesirable excess heat from the infrared range. Available in 8mm thick sheets.



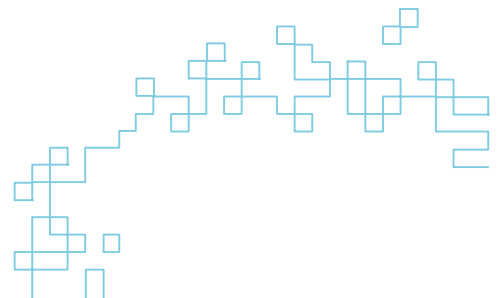
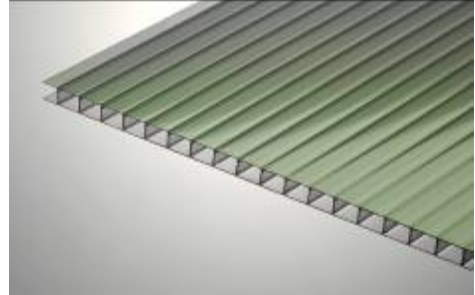
Silhouette- With it's sophisticated and lustrous exterior surface it radiates elegance and great looks. Available in a variety of formats, the Silhouette sheet features an outstanding reflective quality and selectivity making it an excellent choice and suitable for all daylight coverings. The Silhouette layered sheets are manufactured with different thickness ranging from 8mm to 32mm.



Spring - A transparent sheet with a special co-extrusion layer on the external side of the sheet under the UV protective layer. "Spring" blocks the invisible IR solar radiation & heat. Result - Lower temperatures (less heat enters the structure), but still allow maximum light to enter the structure. The Spring layered sheets are manufactured with different colors: blue and green, and different thickness, ranging from 8mm to 32mm



Rainbow – A special optical affects sheet that combines with the angle of the light to change the sheet color (e.g. from purple to green). Ultimately, the Rainbow sheets by Polygal presents a unique harmony that is both dynamic and captivating.



2. Thermal properties

2.1 Service temperature and Thermal expansion

Service Temperature

Polygal multiwall polycarbonate can be installed in a diversity of applications, with varying temperatures. However, the material's mechanical performance is known to remain stable in prolonged service in temperatures ranging from -40°F to +240°F. PVC has a maximum service temperature of 140°F while acrylic is 176°F.

Thermal Expansion

The coefficient of linear expansion of polycarbonate material is $6.7 \times 10^{-5} \text{m/m} \cdot ^\circ\text{C}$. This is high relative to that of most other materials in conjunction with which it is normally used. As a consequence careful allowance must be made for the thermal expansion of Polygal polycarbonate multi wall sheets, both longitudinally and laterally. In practical terms it is necessary to allow ~1/4" per 4' length or width for thermal expansion.

2.2 Thermal Insulation and the U-Value

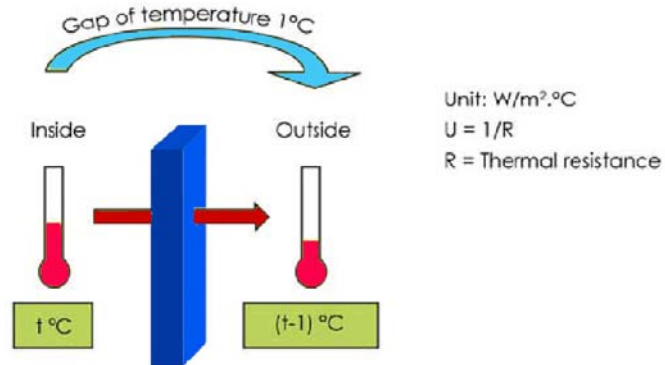
Thermal Insulation definition is the resistance to heat transfer as a result of temperature differences between two material bodies.

In the case of MWPC (*multi-wall polycarbonate*) the Thermal insulation is important in application in which there is a difference between the outside to the inside air temperature.

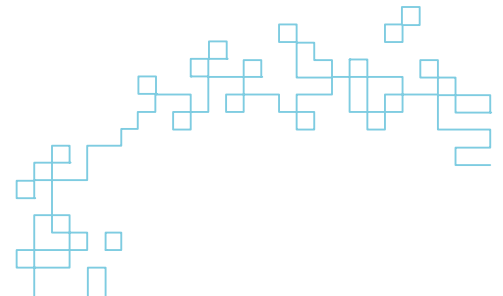
Examples for of thermal insulation can be seen in applications with closed structures such as sunrooms and indoor swimming pools. Whereas in roofing for open structures, such as bus shelters and/or a canopies... the thermal insulation has no meaning.


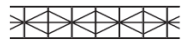

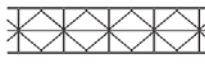
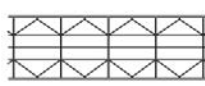
U or R-Value is the coefficient which determines heat loss in the glazing walls of a building. As the U-Value decreases... the thermal insulation increases.

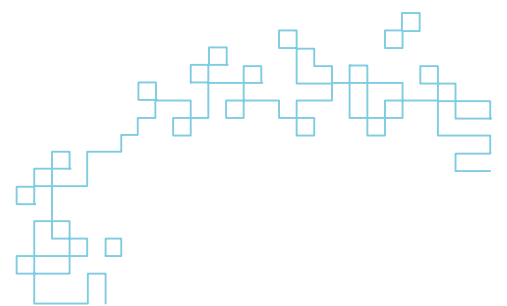
Definition: Heat will flow through a wall of 1 square meter at a temperature difference of one degree Celsius between the two environments.



Structure	Thickness	R-Factor- BTU (h/ft2/F)
	4	1.449
	6	1.587
	8	1.667
	10	1.887
	16	2.439



Product	Structure	Thickness (mm)	R-Factor- BTU (h/ft ² /F)
Triple-Clear		8	2.000
Titan Sky			
		16	2.778
Selectogal-RFX		16	2.439
Thermogal		25	3.226
		32	4.000
		35	4.167

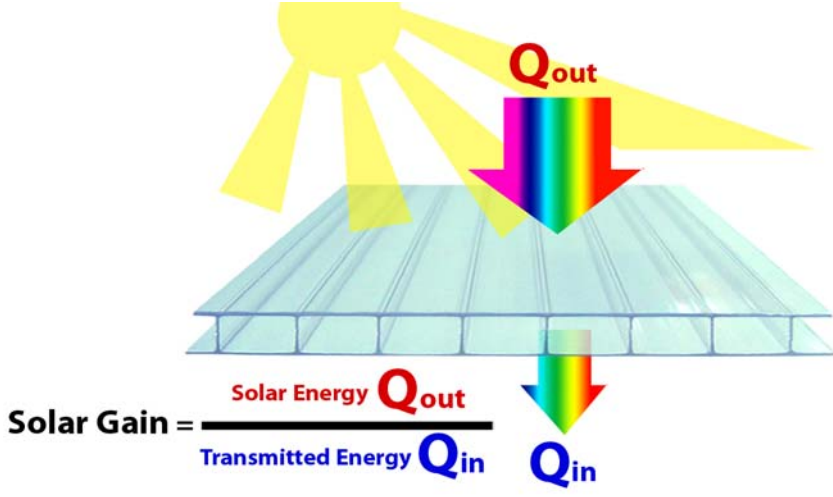


3. Optical properties

3.1 Solar gain:

The most common misconception in translucent materials is that in order to reduce the sun's heat we must reduce the light transmission whereas the value which determines the amount of solar heat is SHGC (solar heat gain coefficient or solar gain).

SHGC indicates how much of the sun's energy striking the sheet is transmitted as heat. As the SHGC increases, the solar gain potential through a given sheet increases.



A sheet with a SHGC of 0.6 will admit twice as much solar heat gain as one with a SHGC of 0.3.

The importance of the SHGC can be seen in the following table which compares two colors:

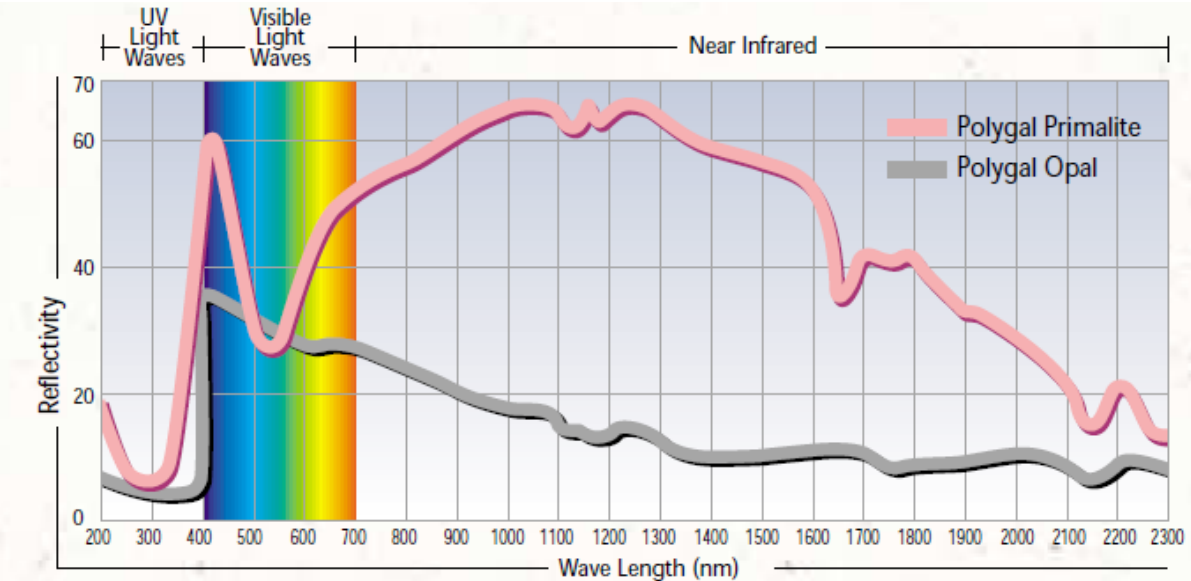
Sheet Color	LT [by ASTM D 1003]	SHGC
10mm Primalite	45 %	0.38
10mm ICE	32 %	0.48

It can be seen in the table that although the special color Primalite brings more light than the Ice color... it ultimately transfers less solar heat. This fact does not fit with the common sense which tells us that the Primalite will bring more heat than the Ice since it brings more light.

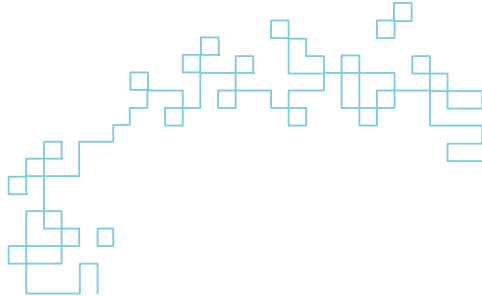
The explanation for this extraordinary property of the Primalite is in the ability of a special pigment in the coextruded layer to filter (*via reflection*) the solar heat in the invisible part as can be seen in the graph below.

The special layer colors group and their optical properties in 3.3.

Comparison of light reflection of Primalite layered and Opal colored sheets



The area under the graph lines represent the amount of light and heat that are allowed into the building by the roof. Primalite sheets reflect much more heat in the infrared region that Ice colored sheets will not.



3.2 Volume colored sheets optical properties

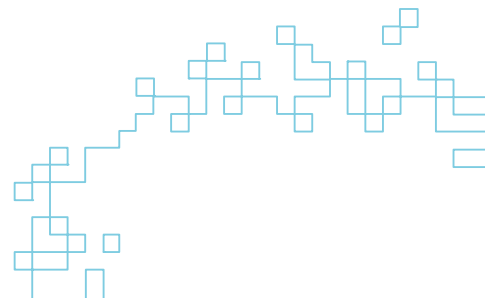
Thickness (mm)	Color	Structure	SHGC	LT (Light Transmission % by ASTM D 1003)
4	clear	Standard	0.77	82
6	clear	Standard	0.75	80
8	clear	Standard	0.74	79
8	clear	PC3	0.69	77
10	clear	Standard	0.73	78
16	clear	Standard	0.68	74 (86*)
25	clear	Thermogal	0.59	55 (79*)
32	clear	Thermogal	0.51	50
10	clear	Titan Sky		62 (79*)
6	bronze	Standard	0.58	42
8	bronze	Standard	0.58	42
10	bronze	Standard	0.59	42
16	bronze	Standard	0.56	42 (45*)
16	bronze	Titan Sky	0.46	42
25	bronze	Thermogal	0.38	20
32	bronze	Thermogal	0.33	15
6	turquoise	Standard	0.59	52
8	turquoise	Standard	0.61	52
10	turquoise	Standard	0.61	52
16	turquoise	Standard	0.56	52
25	turquoise	Thermogal	0.44	27
6	blue	Standard	0.64	30
8	blue	Standard	0.67	30
10	blue	Standard	0.67	30
16	blue	Standard	0.6	30
25	blue	Thermogal	0.44	20
32	blue	Thermogal	0.45	15
6	green	Standard	0.53	30
8	green	Standard	0.57	42
10	green	Standard	0.58	42
16	green	Standard	0.55	42
6	Ice	Standard	0.47	32
8	Ice	Standard	0.49	32
10	Ice	Standard	0.48	32
10	MILK	Standard	0.14	4
10	HWT	Standard	0.17	6
16	Ice	Standard	0.48	32 (57*)
25	Ice	Thermogal	0.36	20 (54*)
25	NGL	Thermogal	0.38	20 (51*)
32	NGL	Thermogal	0.38	15 (47*)
16	clear	Selectogal	0.35	75
16	bronze	Selectogal	0.32	47
16	blue	Selectogal	0.36	30
16	NGL	Selectogal	0.28	32

* Light Transmission by ASTM D 1494

3.4 Special layered sheets optical properties

Thickness (mm)	Pigment name (color)	Structure	SHGC	LT (Light Transmission % by ASTM D 1003)
6	PSD silver	Standard	0.3	18
8	PSD silver (volume)	Standard	0.32	18
8	PSD silver	Standard	0.29	18 (24*)
10	PSD silver	Standard	0.3	18 (24*)
16	PSD silver	Standard	0.23	18 (20*)
10	PSD silver + HW	Titan Sky	0.14	2 (6*)
16	PSD silver + HW	Titan Sky	0.1	2 (5*)
32	PSD silver	Thermogal	0.33	25
10	PSD blue	Standard	0.41	18
8	PSB (Volume)	Standard	0.45	18
10	PSG	Standard	0.32	18
8	Rainbow	Standard	0.43	15
8	IRG green	Standard	0.52	70
8	IRB blue	Standard	0.48	50
6	IRB blue (volume)	Standard	0.6	55
8	IRB blue (volume)	Standard	0.54	48
8	IRG green (volume)	Standard	0.64	70
32	IRG green	Thermogal	0.36	44 (47*)
32	IRB blue	Thermogal	0.29	24
16	IRG green	Titan Sky	0.27	48 (55*)
16	IRB blue	Titan Sky	0.42	48
8	Primalite	Standard	0.39	45 (68*)
10	Primalite	Standard	0.38	45 (66*)
16	Primalite	Standard	0.27	32
16	PRL	Titan Sky	0.19	18
16	PNL	Titan Sky	0.32	20
25	Primalite	Thermogal	0.29	18
32	Primalite	Thermogal	0.24	15
8	Polycoolite	Standard	0.53	45 (63*)
10	Polycoolite	Standard	0.48	45
16	Polycoolite	Standard	0.43	32
16	Polycoolite	Titan Sky	0.27	18 (54*)
8	Silhouette PRL	Standard	0.5	40
32	Silhouette PRL	Thermogal	0.34	10 (45*)
8	Silhouette Gold	Standard	0.37	35 (63*)
6	Silhouette Gold (volume)	Standard	0.44	42
8	Silhouette Gold (volume)	Standard	0.4	32
10	Silhouette Gold	Standard	0.36	35 (61*)
32	Silhouette Gold	Thermogal	0.27	10 (43*)
6	PNL (Volume)	Standard	0.42	35
8	PNL (Volume)	Standard	0.45	32
10	PNL (Volume)	Standard	0.47	35
8	PMT (Polymatte)	Standard	0.73	77

* Light Transmission by ASTM D 1494



4. Technical information

4.1 Acoustic

Accordance with DIN 52210-75, the maximum obtainable sound transmission class for a particular thickness is listed below.

Sheet Thickness (mm)	Sound reduction Values (dB)
4	15
6 - 8	18
10	19
16	21
20	22
25 - 32	23

4.2 Chemical resistance

Polygal sheets have been successfully used in combination with building materials and glazing components. The chemical stability depends on many factors such as concentration of the chemical agents and on exposure temperatures. Considering the complexity of chemical compatibility, all chemicals which come into contact with polycarbonate should always be tested.

Polygal offers lab service for testing chemical stability and gaskets and sealants which have been approved. In general, polycarbonate is not compatible with PVC (*polyvinyl chloride*).

4.3 Fire performance

Polygal has received high ratings in several major American & European 3rd Party Laboratories. More detailed information and official test reports are available from your local Service Center or authorized dealer. Much of this information can also be found on our website (www.polygal-northamerica.com).

Flammability

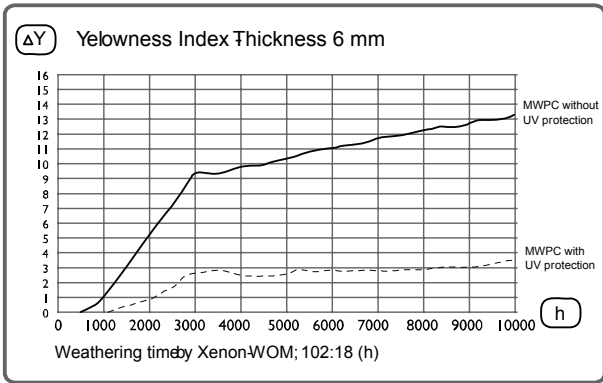
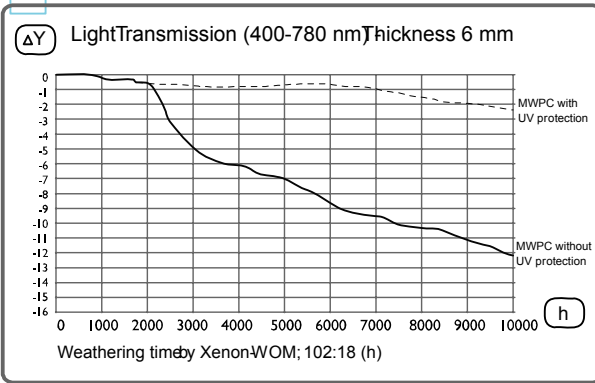
Method	Classification*
BS 476/7	Class 1
DIN 4102	B-1 (10&16 mm)
NSP 92501	M-1, M-2
ASTM D-635	CC-1
ASTM-E-84	Class A
EN 13501	B, s1, d0

*Classifications depend on sheet type and thickness.

4.4 UV protection

Solar radiation has a harmful component by UV rays which initiate degradation of many polymeric materials including polycarbonate. This depends on geographic locations, seasons, etc.

Polygal's polycarbonate sheets feature a specially coextruded UV absorption and protection layer, which provides long-lasting high stability against damaging UV radiation, protects against outdoor weathering and retains its original color and light transmission as shown in the accelerated weathering tests illustrated in the graph below.



Polygal's warranty is a 10 year (*non-prorated*) warranty that covers the following: discoloration, loss of light transmission and loss of strength due to hail damage (up to 3/4" size hail). However, proper installation and good maintenance will ensure an even longer period of product life.

The UV-protected side of the sheet is shown by the printed film. In case the protective film is removed before installation, it is still possible to identify the UV-protected side: In order to ensure the full traceability of our production and the follow-up of quality issues, sheets are ink-printed every meter. This marking is shown on the UV-protected side.

Visual control: On clear sheets the edge of the upper skin has a bluish tint. On colored sheets, the partition lines are more visible on the UV protected side.

4.5 Impact strength – Hail Resistance:

Loss of "impact strength in the event of hail" shall be determined by an impact test according to ASTM D 5628-95 geometry FE (tap diameter 20mm). (In this test, failure is determined when the upper wall of the sheet is penetrated by the tap. The sheet does not reach the required standard if the Mean Failure Energy obtained in the test is less than 0.831 Joules. This energy is equal to the energy generated by a 20 mm (~3/4") diameter ice ball at a speed of 21 m/s.)

4.6 Bending the sheet

Polygal sheet can be successfully cold bent over curved support glazing profiles, to suit many glazing applications to include domes, roof-lights, etc. Providing the radius is not below the minimum recommended value, then the introduced stress by cold-bending will not have any adverse effect upon the mechanical performance of the sheet. Sheets must always be bent longitudinally, never across the width of the sheet.

Table : minimum radius values

Sheet Thickness (mm)	Min. cold bending radius (inches)
4	27.5"
6	41"
8	55"
10	69"
16	110"
20	138"
25	172"
32	220.5"
35	240"

5. User guide information

5.1 Packaging

Polygal products are generally delivered in 20' and 40' box containers, protected on both sides by polyethylene film against scratching, and secured to prevent damage from movement within the container.

The sheet ends are sealed with masking tape to prevent dust, debris and insects from entering into the fluting of the sheets.

The maximum sheet length is 228" (inches) for a 20' container and 468" (inches) for a 40' container. Shipping of sheets of different lengths should be coordinated in advance with your local Service Center. It is recommended to unload the containers by hand using a slanted roller conveyor with adjustable height.

Sheets must be stored away from exposure to sunlight and according to the company's storage guidelines.

5.2 Storage

Store sheets in dry, dark & well ventilated area with NO EXPOSURE to sunlight, wind, dirt or hard objects to prevent damage.

Store on a flat clean raised surface, and on a soft material (i.e. cardboard) to prevent damage.

Supported, sloped stacking is recommended. If stacked flat, stack to a maximum height of 3 feet.

Outdoors, sheets should be covered with an opaque material (cardboard, wood, EPDM sheet etc.) that provides protection from the sun. Do not use PVC based material to cover sheets.

Outdoors, storage of sheets exposed to sun light will cause the protective polyethylene film to bake onto the sheet, and it **WILL NOT BE ABLE TO BE REMOVED**.

Outdoors, DO NOT store sheets under flexible PVC coverings.

5.3 Cleaning

Polygal Sheets – standard and specialized – will give longer and better service life with simple cleaning:

- Rinse sheet with water
- Use warm soapy (mild liquid dish soap) water to clean sheets. If any dirt remains, gently wipe off with a soft cloth.
- Apply final rinse and dry with soft cloth, if possible, to prevent water spotting.

DO NOT use sponges, squeegees, brushes or sharp instruments as they may damage the UV protective coating.

5.4 Cutting and drilling

Cutting - Polygal multiwall sheets can be cut easily and accurately with standard woodworking equipment. This includes standard circular, jig, or table saw with a circular blade having 8-12 teeth per inch (fine toothed blade). Saw dust should be blown out (or) vacuumed out of the flutes. If using compressed air, insure that there is a moisture separator on the compressor to insure moisture is not introduced into the flutes. Thinner gauges can be cut with a box knife. It is important that the knife is sharp.

Drilling - Holes can be drilled by a power drill using standard high speed steel twist drills or drills with an angular wedged bit. When drilling, support should be given immediately beneath the drill to avoid vibration. Very clean holes are easily obtained. The use of liquid cooling media is not recommended.

Trimming – standard box cutting knife.

Appendix 1: Load bearing capacity – wind and snow load

In order to choose the suitable sheet to stand the local standards of wind and snow loads one should consider several factors:

- The sheet type (e.g., structure and weight): 8mm twin wall 1500 gr/m² will deflect more than Titan sky 16mm 2500 gr/m².
- The sheet width: 600mm (~23.6”) width will deflect less than 1200mm (~47.24”) width under the same load.
- Distance between supports – Obviously shorter distance between supports improves the resistance to positive loads.
- Type of connectors –Aluminum or Polycarbonate
- Supports conditions (four sides, two sides, two sides with purlins)
- Flat or curve structure
- Positive or negative wind load
- Permitted deflection – the standard in MWPC is 5% from the sheet width

The following tables simplify the complex problem of choosing the suitable design configurations.

The simple distinguish is between flat and curve structure.

For flat structure:

The table below gives the permitted distance (feet) between purlins for sheets 48” wide with a maximum deflection of 5% on the width (2.4”).

Sheet	Load (PSF)						
	17	21	25	29	33	37	41
6 mm Standard	3.61	3.28	2.95	2.62	x	x	x
8 mm Standard	5.58	4.27	3.61	3.28	2.95	2.62	2.30
10 mm Standard	6.23	5.58	5.25	4.92	4.59	4.27	3.94
10 mm Titan Sky	6.56	5.91	5.58	5.25	4.92	4.59	4.27
16 mm Standard	7.55	6.56	5.91	5.58	5.25	4.92	4.59
16 mm Selectogal	8.86	8.53	6.89	6.23	5.58	5.25	3.94
16 mm Titan Sky	9.19	8.86	7.22	6.56	5.91	5.58	5.25
25 mm Thermogal	∞	∞	7.55	6.89	6.23	5.91	5.58
32 mm Thermogal	∞	∞	9.19	7.87	6.89	6.56	6.23

* The infinity sign (∞) represents two sides supported for a negative wind load.

For curved structure:

The tables give the permitted width (feet) according to sheet type, wind load and radius.

The max permitted sheet width for 6mm Standard sheets

Radius (inches)	Load (PSF)					
	17	21	25	29	33	37
41”	6.89	5.91	5.25	4.43	3.94	3.61
47”	6.23	4.92	4.27	3.94	3.44	2.95
59”	4.59	3.94	3.44	2.95	2.62	2.46
71”	3.94	3.44	2.79	2.46	2.30	1.97
78”	3.44	2.95	2.62	2.30	1.97	x
98”	2.79	2.30	1.97	x	x	x

The max permitted sheet width for 8mm Standard sheets

Radius (inches)	Load (PSF)					
	17	21	25	29	33	37
55"	6.89	6.89	5.58	4.92	4.59	3.94
70"	5.91	4.92	4.27	3.94	3.44	2.95
86"	4.92	3.94	3.44	3.44	2.95	2.62
102"	3.94	3.44	2.95	2.62	2.30	2.30
118"	3.44	2.95	2.62	2.30	2.30	1.97

The max permitted sheet width for 10mm Standard sheets

Radius (inches)	Load (PSF)					
	17	21	25	29	33	37
69"	6.89	6.89	6.23	5.58	4.92	4.59
78"	6.89	5.91	5.25	4.59	4.27	3.94
86"	6.89	5.58	4.59	4.27	3.94	3.61
98"	5.58	4.92	4.27	3.94	3.44	3.44
118"	4.92	3.94	3.61	3.44	2.95	2.79
157"	3.94	3.44	2.95	2.62	2.62	2.30

The max permitted sheet width for 16mm Standard sheets

Radius (inches)	Load (PSF)					
	17	21	25	29	33	37
110"- 122"	6.89	6.89	6.89	6.89	6.89	6.89
122"- 137"	6.89	6.89	6.89	6.89	6.23	6.23
157"	6.89	6.89	6.89	6.23	5.58	4.92
197"	6.89	6.23	5.58	4.92	4.59	4.59

The max permitted sheet width for 16mm Titan Sky sheets

Radius (inches)	Load (PSF)					
	17	21	25	29	33	37
110"- 141"	6.16	6.16	6.16	6.16	6.16	6.16
149"- 177"	6.16	6.16	6.16	6.16	5.58	5.28
177"- 197"	6.16	6.16	5.58	4.99	4.69	4.40
216"- 315"	5.28	4.69	4.11	3.81	3.52	3.23
110"- 141"	6.16	6.16	6.16	6.16	6.16	6.16
149"- 177"	6.16	6.16	6.16	6.16	5.58	5.28

The max permitted sheet width for 25mm Thermogal sheets

Radius (inches)	Load (PSF)					
	17	21	25	29	33	37
173"- 216"	6.89	6.89	6.89	6.89	6.89	6.89
236"- 275"	6.89	6.89	6.89	6.89	5.91	5.91
354"	6.89	6.89	6.23	5.58	5.25	5.25
433"	6.89	6.23	5.58	4.92	4.92	4.59

The max permitted sheet width for 32mm Thermogal sheets

Radius (inches)	Load (PSF)					
	17	21	25	29	33	37
220"	6.89	6.89	6.89	6.89	6.23	5.91
236"	6.89	6.89	6.89	6.23	5.91	5.25
256"	6.89	6.89	6.56	5.91	5.25	4.92
275"	6.89	6.56	6.23	5.58	5.25	4.92
295"	6.89	6.56	5.58	5.25	4.92	4.59
393"	6.23	5.58	4.92	4.59	4.27	3.94

Appendix 2: Installation Instructions

Planning the Supporting Structure

- Install the sheets with the ribs parallel to rain flow and with a slope of at least 10° (1:12 pitch). In wall and gable applications... always ensure that the ribs are positioned vertically.
- Supporting beams must be at least 30 mm (1.2") wide to ensure good anchorage of sheets and fastening accessories.
- In case of arched structure, check the smallest permissible cold bending radius (R) according to the sheets thickness.
- Ensure that a qualified professional checks and approves the structure before execution.

Preparing the Supporting Structure

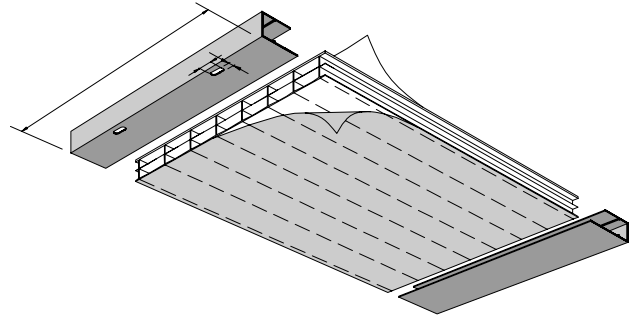
- Complete all the metalwork and painting before beginning sheet installation work.
- Check the dimensions on site, and plan the roofing requirements before ordering Polygal products for the project.

Preparing the Sheets

- Remove the grey protective film.
- Fold back the printed sheet protection film 4" (inches) on each side.
- Attach Perforated Edge Tape to the upper and lower edges of the sheet.

Preparing the Edge Profiles

- Use an Aluminum or Polycarbonate Edge Profiles to protect the lower edge of the sheets. For the upper edges protection also a Polycarbonate Edge Profiles can be used.
- Use a metal saw to cut the Aluminum Edge Profiles into pieces matching the width of sheets to which they will be attached.
- Drill drainage channels to allow for the flow of condensed water along the profiles used for the bottom section of the building's roof. Drill holes 6"- 12" apart using a 5/16" drill bit.
- Attach the edge profile to the sheet with the short side on top of the sheet.



Sheets Installation

Step 1- Place the sheets with the side protected by the printed film upwards.

Step 2- Slide the base connecting profile underneath the sheet flank and use self drilling screws to anchor them to the structure.

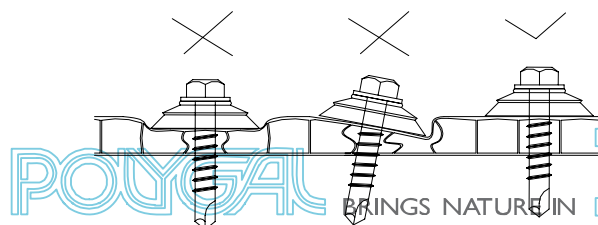
Step 3- Position the connecting profile cap in place. For a Polycarbonate Connection Profiles with a shock-absorbing support under the sheet, use a rubber mallet to connect it to the base. For Aluminum Glazing Systems, anchor the Cap Profile to the Base Profile with applicable screws (see Polygal Accessories Catalog).

Step 4- Continue to add sheets, and profiles until reaching the end of the building. After completing installation, **remove all the protective film from the sheets as soon as possible.**

Finish and Fixing Reinforcements

- Place fixing screws with fixing gaskets only in the support frame lines.
- **Do not over-tighten screws.**

For best results always use Polygal screws and accessories, designed specifically for use with Polygal sheets.



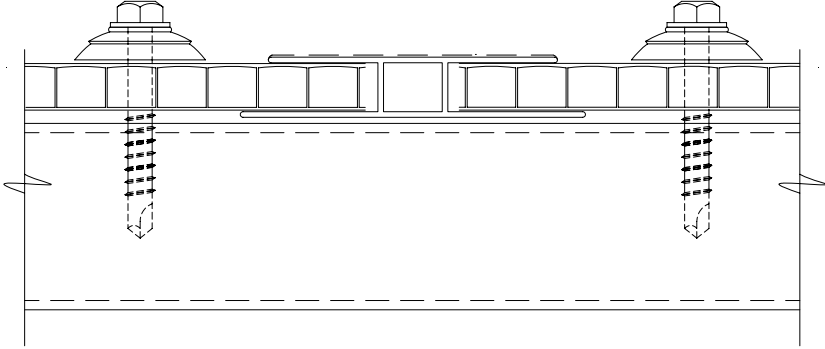
Appendix 3: Drawing Details

- Polycarbonate connection profiles (ECP connection detail)
- Aluminum Glazing System (MGL connection detail)
- Side gable connection (ECP profiles)
- Upper edge wall Connection
- Upper edge cladding connection
- Lower edge gutter connection
- Lower edge cladding connection
- Ridge connection

Appendix 4: Connection Systems

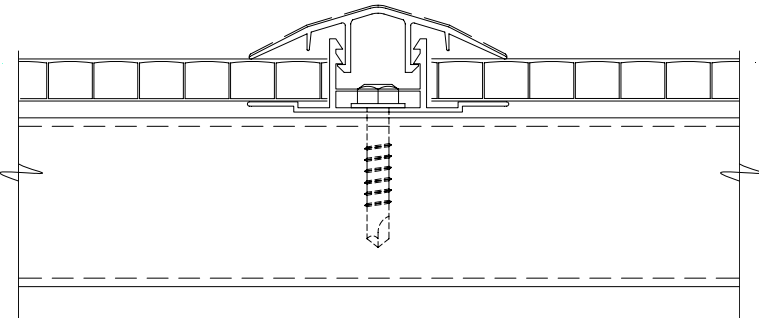
Polycarbonate connection profiles

HP connector – 4mm to 16 mm sheets connection. For vertical (cladding) light structures.

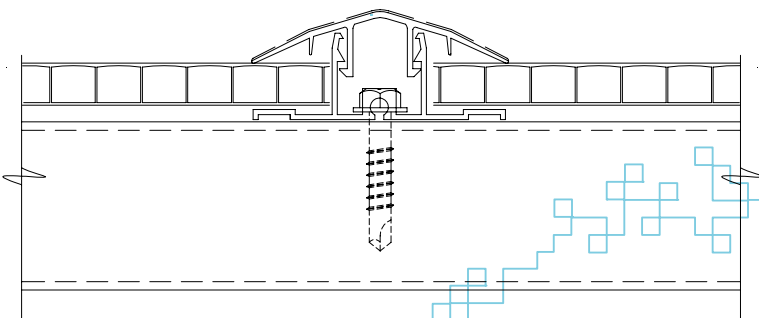


HCP connection profiles – 4mm to 16 mm sheets connection. Polycarbonate Cap Profile and Aluminum or Polycarbonate base profile. Used in a wide range of architectural applications.

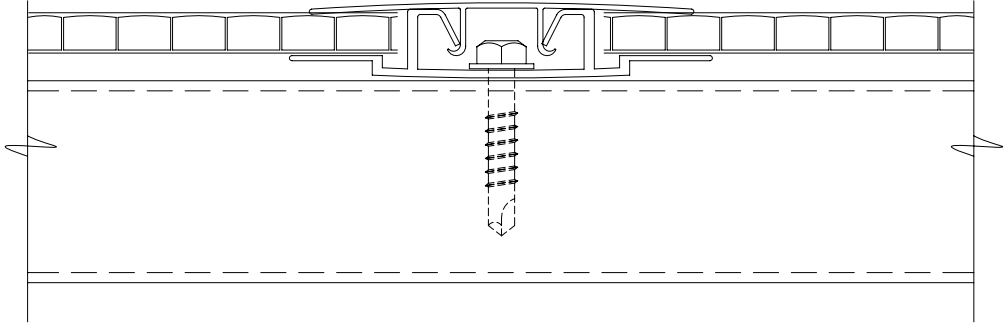
HCP with *Polycarbonate* Base profile



HCP with *Aluminum* Base profile



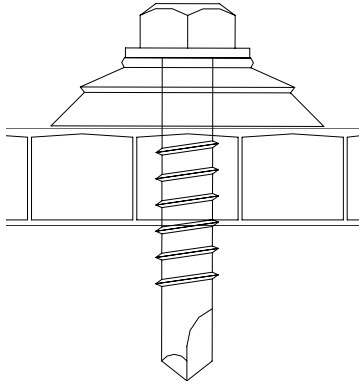
Easy Clip (ECP-G2) connection profiles – 4mm to 10 mm sheets connection. Used in a wide range of architectural applications (*Horizontal and Vertical*).



Finishing Accessories

EPDM Fixing Dome

EPDM dome gasket and metal washer together with self drilling screws provide a high-performance, trouble free fastening system with highly effective dual- point sealing between the EPDM gasket and the screw and between screw head and metal washer. It is strongly recommended to use self drilling, special coated corrosion resistant screws.



Sealing Tapes

AntiDUST tape is a non-woven tape system used for sealing the top and bottom edges of multiwall polycarbonate sheets.

AntiDUST tape is specifically designed to stop mold, algae, insects and dust from accumulating within the walls/ flutes of multiwall polycarbonate sheets.

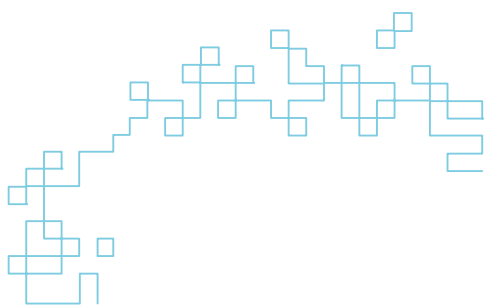
Advantages of AntiDUST tape over other products include:

- Ease of application
- Proper drainage of condensation
- Maintains clarity of multiwall polycarbonate sheets
- Extra durable construction and long life of tape materials

AntiDUST tape is made of a strong non-woven material which is designed to adapt without difficulty to the expansion and contraction of multiwall sheets

U-shape edge profiles

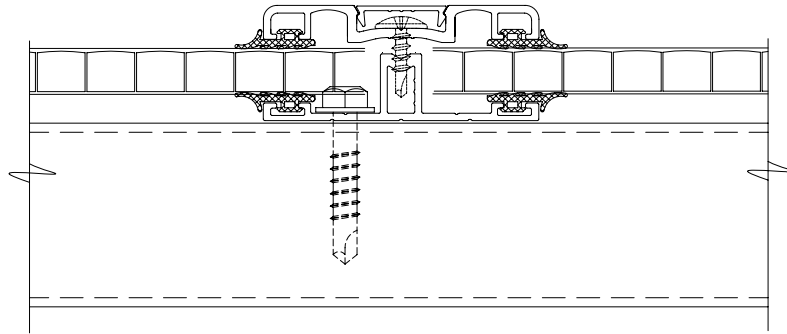
For trimming the sheets upper and lower edges U-shape aluminum or polycarbonate profiles should be used. (See drawing of edge detail in Appendix 3)



Aluminum Glazing Systems

Mega-Lock glazing system –Specifically designed for use in glazing with 6mm to 16mm polycarbonate multiwall sheets. The system has a rabbet depth of 20 mm (~3/4”), which enhances its fastening properties and prevents glazing failures due to wind and snow loads or thermal expansion.

Wide range of architectural projects.



6-35 Glazing System- Is a large span clamping system specially developed for glazing applications using 25mm to 35mm polycarbonate multi wall sheets. Sheets are mounted on the system's load-bearing elements during construction of transparent and semi-transparent roofing. The system's large rabbet depth 30mm (~1.2”) overlap makes sheets fastening easier, and helps prevent glazing failures due to wind and snow loads or thermal expansion.

Wide range of architectural projects.

