MODEK
Glassfibre Reinforced Polyester & Polycarbonate Roof Sheeting

Information & Installation Guidelines

www.modek.co.za
Ampaglas Plastics Group
The Ampaglas Plastics Group of Companies is the largest manufacturer of plastic sheeting for industrial applications in Africa, with production exceeding 15 000 tons per annum. Ampaglas has been the innovative market leader in extruded rigid plastic sheeting for 35 years, with products that have been tested and proven time and again.

MODEK is a wholly owned subsidiary of the Ampaglas Plastics Group of Companies that specialises in the manufacture and supply of translucent and chemically resistant roof sheeting.

BEE & Support Local
As the only BEE level 4 accredited manufacturer of GRP and Polycarbonate roof sheeting in the country, Modek believes in employing locally, supporting our economy and in doing so, striving to benefit all South Africans.
MODEK is Africa’s leading manufacturer of translucent roof sheeting also known as roof-light material. The two main product ranges offered are GRP (glassfibre reinforced polyester) and Polycarbonate used for both domestic & commercial roofing and cladding.

MODEK products meet the highest specification requirements and have been specifically formulated to endure the harsh African climate.

MODEK is committed to delivering quality products through ongoing technological development supported by exceptional quality and customer service.

**GENERAL PRODUCT INFORMATION**

**GRP**

MODEK GRP sheeting is manufactured using a UV stabilised unsaturated polyester resin and glassfibre reinforcement material. The weathering surface of the industrial range is covered with a highly UV stabilised gelcoat layer. The domestic ranges have a resin rich surface protection. These processes exceed general GRP manufacturing standards.

All our GRP products are specifically designed to withstand the harsh African climate conditions and gelcoated products are manufactured to SABS 1150/1984.

GRP sheets are manufactured by an automated continuous lamination process. This ensures consistently high product quality in successive consignments.

**Polycarbonate**

MODEK Polycarbonate sheeting is a high quality, virtually indestructable translucent roofing material. Polycarbonate is one of the most advanced polymers available.

All MODEK Polycarbonate sheets have a co-extruded layer of highly UV stabilised polymer on the surface to create a weather resistant surface.

The sheets have exceptional impact strength, have outstanding flame retardant characteristics and resistance to weathering. These qualities make Polycarbonate an attractive and cost effective choice.
COVER WIDTH
Cover width is defined as the measurement across the sheet using the middle of each of the outer crowns and taking the distance between these two points. This will vary in some instances depending on product choice. (see Product Specification table for details).

It is important to get correct cover width when calculating the amount of sheets required for any project.

CROWN & VALLEY
The crown by description is the highest point of the roofsheet profile. The valley or trough is the bottom or lowest area between crowns on the roofsheet. Distances between crowns and heights between crowns and valleys will vary depending on the product choice. (see Product Specification table for details).

PURLIN SPACING
Purlin spacing is the distance measured between purlins from centre to centre. This will vary in some instances depending on product choice.

SHADING COEFFICIENT
This is referred to as an indicator to how the roofsheet is thermally insulating (shading) the interior when there is direct sunlight on the roofsheet. Shading coefficient is usually a value ranging from 1.00 to 0.00, where 1.00 offers the least amount of shade and 0.00 the most. This unit of measurement is particularly important for areas that will receive a high degree of sunlight that require light but not necessarily heat. Light Transmission percentages will help you determine the amount of light desired vs amount of shade achieved from each particular colour in our roofsheet range.
# Product Specifications

<table>
<thead>
<tr>
<th>Profile</th>
<th>Colours available</th>
<th>Sheet/Cover width</th>
<th>Guarantee</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Econospan</strong></td>
<td>Clear, White, Green, Blue, Grey, Bronze &amp; Ice</td>
<td>76mm, COVER WIDTH 610mm, OVERALL WIDTH 700mm</td>
<td>5 YEAR</td>
</tr>
<tr>
<td>1.0 Kg</td>
<td>Resin Rich Surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Superdek</strong></td>
<td>Clear, White, Green, Blue, Grey, Bronze &amp; Ice</td>
<td>76mm, COVER WIDTH 686mm, OVERALL WIDTH 737mm</td>
<td>5 YEAR</td>
</tr>
<tr>
<td>1.1 Kg</td>
<td>Resin Rich Surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IBR</strong></td>
<td>Clear, White, Green, Blue, Grey, Bronze &amp; Ice</td>
<td>76mm, COVER WIDTH 762mm, OVERALL WIDTH 852mm</td>
<td>15 YEAR</td>
</tr>
<tr>
<td>1.4 Kg</td>
<td>Gelcoat Surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corrugated 8.5</strong></td>
<td>Clear, White, Green, Blue, Grey, Bronze &amp; Ice</td>
<td>76mm, COVER WIDTH 610mm, OVERALL WIDTH 700mm</td>
<td>15 YEAR</td>
</tr>
<tr>
<td>1.4 Kg</td>
<td>Gelcoat Surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corrugated 10.5</strong></td>
<td>Clear, White, Green, Blue, Grey, Bronze &amp; Ice</td>
<td>76mm, COVER WIDTH 762mm, OVERALL WIDTH 852mm</td>
<td>15 YEAR</td>
</tr>
<tr>
<td>1.4 Kg</td>
<td>Gelcoat Surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Big 6</strong></td>
<td>Opal 050, Clear</td>
<td>51mm, COVER WIDTH 875mm, OVERALL WIDTH 920mm</td>
<td>10 YEAR</td>
</tr>
<tr>
<td>1.2mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corrugated 8.5</strong></td>
<td>Clear, White, Green, Blue, Grey, Bronze</td>
<td>76mm, COVER WIDTH 610mm, OVERALL WIDTH 700mm</td>
<td>10 YEAR</td>
</tr>
<tr>
<td>0.8mm, 1mm &amp; 1.25mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corrugated 10.5</strong></td>
<td>Clear, White, Green, Blue, Grey, Bronze</td>
<td>76mm, COVER WIDTH 762mm, OVERALL WIDTH 852mm</td>
<td>10 YEAR</td>
</tr>
<tr>
<td>0.8mm, 1mm &amp; 1.25mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grecca</strong></td>
<td>Clear, Opal50, Bronze, Green, Blue &amp; Heatstop</td>
<td>75mm, COVER WIDTH 530mm, OVERALL WIDTH 585mm</td>
<td>10 YEAR</td>
</tr>
<tr>
<td>1mm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please refer to our website [www.modek.co.za](http://www.modek.co.za) for guarantee details.
Selecting the correct sheet is important. Take time to examine the weather conditions vs. the desired end result before making a final decision on which product, profile and colour you are about to purchase and install. If you are unsure seek the advice of a professional, or visit www.modek.co.za for assistance.

Q: Does it matter which profile I use?
A: No, unless:
- you need to match an existing profile
- there is a specific water run-off requirement
- particular physical requirements are needed (e.g. rigidity)

Below are a few factors to consider prior to your purchase:

1. In which direction will my roof structure be facing?
   - Clear & Opal sheets are perfectly FINE for plantlife.
   - Blue & Green sheets NOT suitable for plantlife.

2. How much water will my roof need to cope with?
   - HIGH RUN OFF
   - MED RUN OFF

GRP & Polycarbonate roofsheets come in a wide range of profiles & colours designed to suit specific lighting requirements. For more info visit www.modek.co.za.
**LIGHT TRANSMISSION**

Light transmission is the amount of visible light that passes through the translucent roof sheet.

<table>
<thead>
<tr>
<th>Glass Fibre sheet</th>
<th>Clear</th>
<th>Ice</th>
<th>Green</th>
<th>Opal 50</th>
<th>Grey</th>
<th>Blue</th>
<th>Bronze</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission</td>
<td>85%</td>
<td>75%</td>
<td>50%</td>
<td>50%</td>
<td>45%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Shade Coefficient</td>
<td>0.97</td>
<td>0.88</td>
<td>0.76</td>
<td>0.67</td>
<td>0.66</td>
<td>0.69</td>
<td>0.58</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Polycarb sheet</th>
<th>Clear</th>
<th>Blue</th>
<th>Opal 50</th>
<th>Grey</th>
<th>Green</th>
<th>Bronze</th>
<th>Opal 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission</td>
<td>90%</td>
<td>65%</td>
<td>50%</td>
<td>45%</td>
<td>40%</td>
<td>40%</td>
<td>25%</td>
</tr>
<tr>
<td>Shade Coefficient</td>
<td>1.00</td>
<td>0.86</td>
<td>0.68</td>
<td>0.46</td>
<td>0.68</td>
<td>0.69</td>
<td>0.37</td>
</tr>
</tbody>
</table>

**OUR PRODUCT LIFECYCLE**

<table>
<thead>
<tr>
<th>Product</th>
<th>Lifespan in years</th>
<th>Weather</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fibreglass</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Econospan 1.0 Kg</td>
<td>4 5 6 7 8 9 10 11 12 13 14 15 16</td>
<td></td>
</tr>
<tr>
<td>Superdek 1.1 Kg</td>
<td>4 5 6 7 8 9 10 11 12 13 14 15 16</td>
<td></td>
</tr>
<tr>
<td>IBR 1.8 Kg</td>
<td>4 5 6 7 8 9 10 11 12 13 14 15 16</td>
<td></td>
</tr>
<tr>
<td><strong>Polycarbonate - UV Stabilised</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBR 0.8mm Domestic</td>
<td>4 5 6 7 8 9 10 11 12 13 14 15 16</td>
<td></td>
</tr>
<tr>
<td>IBR 1mm Light Industrial</td>
<td>4 5 6 7 8 9 10 11 12 13 14 15 16</td>
<td></td>
</tr>
<tr>
<td>IBR 1.25mm Industrial</td>
<td>4 5 6 7 8 9 10 11 12 13 14 15 16</td>
<td></td>
</tr>
<tr>
<td>Corrugated 1mm</td>
<td>4 5 6 7 8 9 10 11 12 13 14 15 16</td>
<td></td>
</tr>
<tr>
<td>Grecca</td>
<td>4 5 6 7 8 9 10 11 12 13 14 15 16</td>
<td></td>
</tr>
</tbody>
</table>
MEASURING UP & QUANTITIES

Once you have selected your roof sheet profile & colour refer to the Product Specification table for the correct cover width. This is important as it will help determine how many roof sheets you will need for your project.

**Width of structure ÷ cover width of roof sheet = number of sheets required**

Example: 3000mm ÷ 686mm = 4.4 sheets x required length

*(In this instance you will round off to 5 sheets, the last sheet will need to be trimmed down to fit.)*

<table>
<thead>
<tr>
<th>Profile</th>
<th>Number of sheets required per structure width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.0m</td>
</tr>
<tr>
<td>Econospan</td>
<td>7</td>
</tr>
<tr>
<td>Superdek</td>
<td>5</td>
</tr>
<tr>
<td>IBR</td>
<td>5</td>
</tr>
<tr>
<td>Grecca</td>
<td>6</td>
</tr>
<tr>
<td>Corrugated 10.5</td>
<td>4</td>
</tr>
<tr>
<td>Corrugated 8.5</td>
<td>5</td>
</tr>
</tbody>
</table>

HANDLING & TRANSPORTATION OF ROOF SHEETS

- Please tie your sheets down well when transporting on a rack or trailer. Ensure that the front of the sheets are well secured, as wind can lift the sheets and cause damage.
- It is advisable to use lengths of timber (your purlins) on top of the sheets when tying down for transportation. This can also prevent sheets lifting and bending in the wind. It is common practice to roll sheets into tight bundles. (Polycarbonate only)
- When loading and unloading be extra careful in windy conditions. A gust of wind can easily lift a sheet out of your hands or blow a sheet way, if left unsecured.
- Edges of sheets are sharp and it is advisable to wear gloves to avoid possible cuts and grazes whilst handling sheets.
- Avoid standing, or walking on sheets; they are not designed to carry the weight of a person and could be damaged.
- If you have long lengths (longer than 3,600m), support the sheets in the middle when carrying to avoid kinking.
- If you need to store your sheets, pack them on pallets (off the ground), under cover, and avoid stacking higher than 700mm.
- Polycarbonate sheets are not scratch resistant and extra care should be taken when handling.

For more information on available profiles please visit www.modek.co.za.
Square and rectangular structures must be accurately set out ensuring 90 degree angles to avoid unnecessary complications when fitting your roof sheets.

Below are some points to assist you with the design your structure.

The diagrams provided in this booklet and on our website are for your reference. We recommend professionally drawn plans to suit your specific property or requirements prior to final construction. Submission will usually consist of a site plan which indicates boundary lines, existing buildings, elevations and sections of the structure in relation to adjacent levels. Your Local Authority can answer any specific queries you may have.

Single carports normally measure 3m X 6m, whereas double carports should be a minimum of 6m X 6m - length might vary slightly depending on the length your vehicle.

The recommended minimum height for a carport is 2.4 metres from the finished floor to the underside of the crossbeams. No structure should be less than 2.1 metres in height unless used as a decorative feature.

Timber is the most commonly used roof structure material. Local selection is commonly a choice between SA Pine or Meranti. Ask your supplier which type of timber will best suit your local weather conditions as well as the type of structure you intend building.

To avoid sagging or warping please confirm recommended maximum lengths for the timber you intend using. In some instances laminated beams are required to span longer distances.

With your supporting structure erected please remember to space the purlins not wider than 900 mm apart. Ensure there is a minimum 5° fall for water run off. If any preparation is to be done to the supporting structure, eg: painting, varnishing, etc do it before you fix your sheets.

Please note: Polycarbonate is not compatible with Creosote.

Sizes provided above are for un-planed timber. Planed timber will lose approx 5mm per measurement.
INSTALLING YOUR ROOF SHEETS: Preparation

Make sure you have all the necessary tools and equipment.

- Ladder
- Hammer
- Hand Drill and Drill Bits
- Fixing Nails
- Tape Measure
- Straight Edge (Timber)
- Pencil
- Duck Boards (flat sheet of timber)
- Sealant (Non PVC for Polycarbonate)
- Sondor Polybutton to match profile
- Safety goggles for cutting

**Cutting GRP Fibreglass:**
Use a fine tooth saw (hacksaw or angle grinder)

**Cutting Polycarbonate:**
Use a circular saw. Blades should be tungsten carbide tipped and firmly supported during cutting.

**Safety tips while cutting:**
- Always wear safety goggles.
- The use of gloves is recommended.
- Ensure the sheet you are cutting is well secured & prevent movement.

**IMPORTANT:** Your roof structure should have a minimum of 5 - 10° fall to allow for water run off.

\[
\text{\underline{- - - - - - -}} = 10° - 25° \\
\text{\underline{--- - ---}} = 5° - 20°
\]

**If there is a normal direction of weather in your area (eg: rain from the North-West in the Cape), ensure that the side laps of your sheets are installed away from the prevailing conditions. This means you always start fixing towards the prevailing wind.**

**NOTE: OVERLAP DIRECTION**

For tips on how to submit plans, calculate levels and getting started please visit the D.I.Y. section on our website at www.modek.co.za.
1. Taking your time on the first sheet, ensure that it is placed square to the purlins and to the structure in general.

2. Mark the crowns to be fastened. You will fasten every crown at both ends of the sheet, and alternative crowns on intermediate purlins.

- The outer crowns are only fastened once adjacent sheet is in place.

- Double check all angles before you drill holes.

If there are end laps (overlapping sheets generally required when covering large areas), these will be fixed at every crown. (Note: Do not fasten through the valley of the profile).

- Fixing on every crown could enhance the aesthetic aspect of the roof.
Drill the sheet at these points, allowing a 1mm - 2mm clearance for the fixing nail for GRP (Fibreglass) and 2mm - 6mm oversized for Polycarbonate to accommodate expansion and contraction. If a hard wood purlin (e.g. Meranti) is used you may find it necessary to drill a pilot hole in the wood for the nail.

Use a fixing nail which has a polyethelene (or similar) soft washer backed with a steel cup washer. The length of a nail will be determined by the sheet profile used. All MODEK domestic sheets use a 50 mm, 63 mm or 75 mm roof nail.

Ensure that your drill stays perpendicular to the roof sheet while drilling.

Remember:
No PVC with Polycarbonate.

For tips on how to construct a lean to or pergola please visit the D.I.Y. section on our website at www.modek.co.za.
5. Use a duck board (piece of flat timber - to straddle purlin to purlin) on the roof to distribute your weight evenly when working.

6. Nail the starter sheet down, leaving the side laps (and end laps if using more than one sheet in length) to be nailed when the next sheet is in place. (Note: end overlaps should not be less than 300 mm)

7. When fastening the sheet, take care not to accidentally hit the sheet, and do not overtighten. Hammer the nail down until the soft washer just takes up on the crown sheet. The crown will now be held slightly in tension.

- A Wear a hardhat when working at height.
- B Safety goggles must be worn while cutting.
- C Gloves guard against sharp or rough edges.
- D Safety boots to be worn when working with heavy materials.
- E A duck board will disperse your bodyweight.

Battens exert pressure on the purlins rather than the crown of the roofsheet.
8. Side stitch at 300 mm intervals in windy areas using roof bolts.

9. The overhang at the last purlin should not exceed 200mm.

Check with retailer for correct roofbolts.

10. If waterproofing is a necessity, we advise to seal end laps on roof sheets which have a pitch of less than 20 degrees. Use a PVC or Mastic sealant for Fibreglass. Polybuttons are available for IBR, corrugates and Grecca profiles.

11. PVC washers and sealants must NOT be used with Polycarbonate roof sheets, only Sealing strips and Silicone sealer are suitable.

Place sealant or strips both sides of crown. (Not manufactured or sold by Modek).

Insert Polybuttons prior to final fixing. (Not manufactured or sold by Modek).

For tips on how to plan and construct a carport please visit the D.I.Y. section on our website at www.modek.co.za.
MAINTENANCE

CLEANING FIBREGLASS SHEETING

Sheets may be washed down once or twice annually with a non-abrasive detergent i.e. a solution of water and dishwashing liquid to avoid a build up of grime. Occasional hosing down will help to keep your roof looking clean.

CLEANING POLYCARBONATE SHEETING

Sheets may be washed using a mild soap solution with a soft cloth. Do not use abrasive cleaners such as thinners and acetone.

PAINT

Paint is NOT recommended.