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Installation Guide for Marlon CS to suit Kirby Rib Profile (D0123)

Sheeting Sequence

The sheet profiles, fastener positions, sealant positions, and side and end laps are illustrated in diagrams 1 and 2.

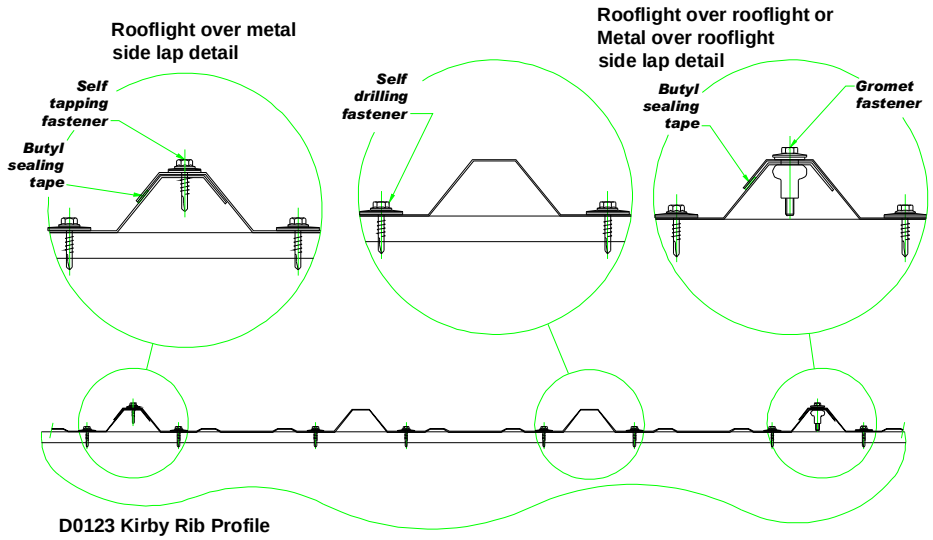


Diagram 1

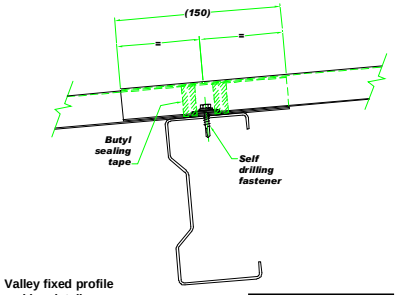


Diagram 2

The sheet fixing sequence detailed below and in the accompanying diagrams is based on fixing a Marlon CS rooflight of Icon profile valley fixed - in a double spanning rooflight configuration with metal profiled sheet all around.

The metal roof sheeting should be fixed to the roof up to the position where the first Marlon CS rooflight is to be installed. No fixings should be placed in the metal sheet on the slope below the rooflight position at the purlin where the rooflight will lap on to it. The top edge of this metal sheet should extend 75mm above the centre line of the purlin - Diagram 3

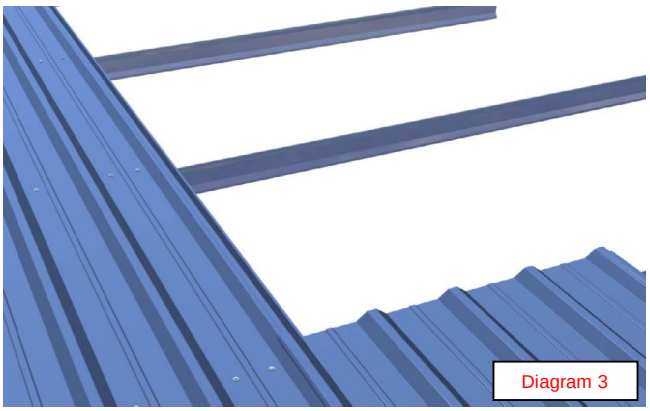


Diagram 3

Place the rooflight sheet in position, with side lap as per profile Diagram 1 or Diagram 2, and end lap of 150mm on to the metal sheet below.

Mark the positions for drilling holes for primary fasteners in the profile valley as indicated in the profile Diagram 1 and at the centre line position of each support on each purlin.

Mark the positions for secondary fasteners, stitching screws and rubber grommets, at 350mm centres along the centre of the crown of the side corrugations

Remove the sheet; drill through it using a 10mm diameter drill at all the hole positions for the primary fasteners and secondary fasteners. Support the sheet with a piece of timber under the hole positions when drilling. [Fasteners should always be positioned at the centres of these over-size holes to allow thermal movement]

Referring to Diagram 4, on the metal sheet down slope, place a row of 9mm x 3mm cross linked butyl tape either side of the purlin centre line, separated by about 10mm. These will seal the rooflight-to-metal end lap. Place a row of 9mm x 3mm cross-linked butyl tape on the metal sheet that will underlap the side of the rooflight. This strip should be positioned at the edge of the corrugation so that it will be beyond the line of side lap fixings as in Diagram 1.

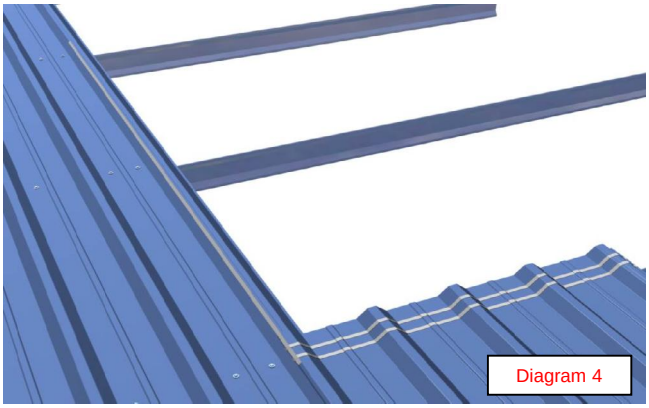
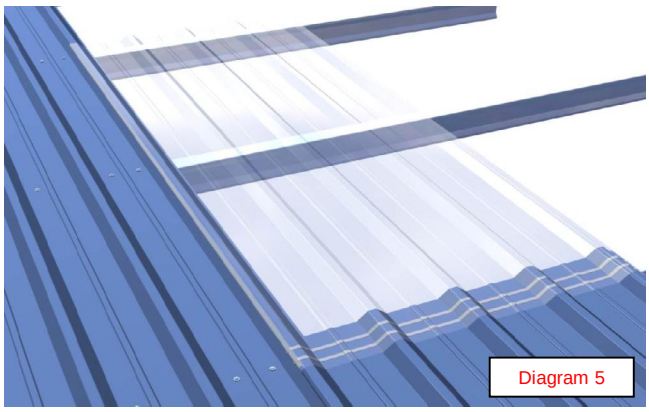
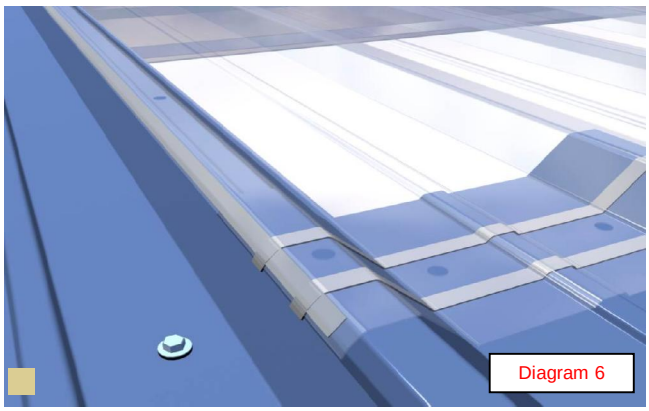


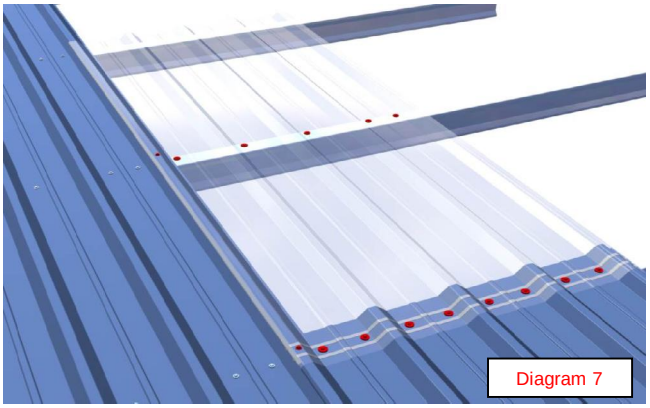
Diagram 4

Place the Marlon CS sheet in position with a 150mm end lap on to the metal sheet down slope - the predrilled holes at the lower end should be between the applied sealant strips. Diagram 5 & Diagram 6



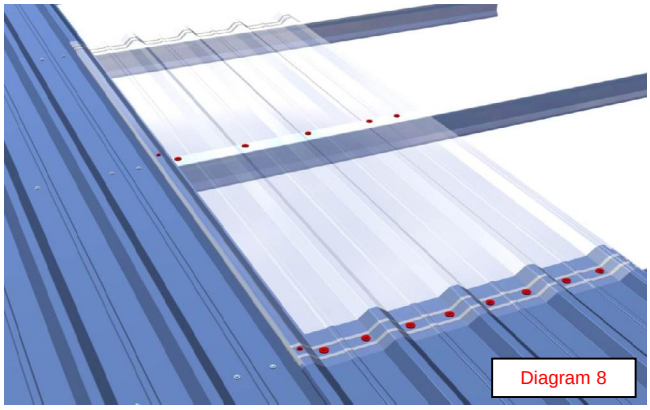


Fix the Marlon CS rooflight with primary fasteners in the valleys to the lower and centre purlins - Diagram 7. Ensure that the rooflight is pressed firmly onto the two rows of butyl sealant to seal the end lap

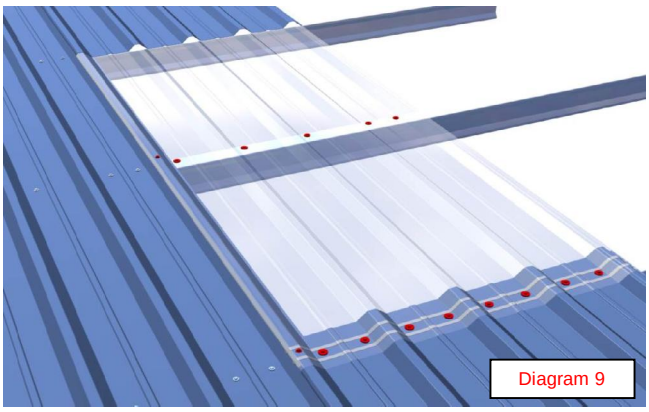


To mark the positions for primary fasteners in the end lap of the metal sheet upslope of the rooflight, position it on the roof slope, but slip the lower end of the metal sheet under the top end of the rooflight a distance of 150mm. At the centres of the holes already predrilled in the rooflight mark the centre positions for the holes in the metal sheet. Remove the metal sheet.

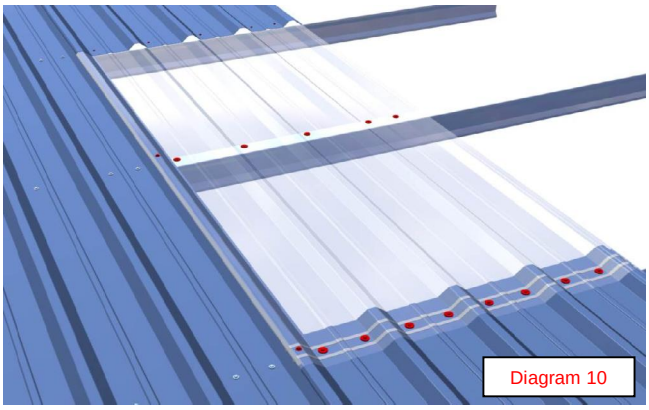
Referring to Diagram 8, on the rooflight sheet top end, where it will lap under the metal sheet up slope, place a row of 9mm x 3mm cross linked butyl tape either side of the purlin centre line, separated by about 10mm. These will seal the metal-to-rooflight end lap.



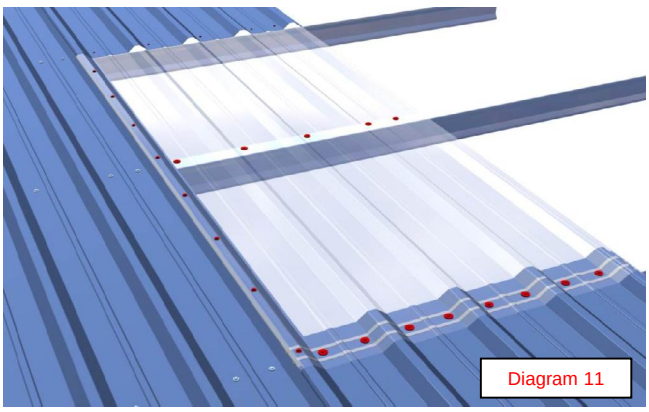
Position the metal sheet up slope, with an end lap of 150mm on to the top end of the rooflight. Diagram 9.



Fix the metal sheet with primary fasteners having appropriate size washers for metal, in the valleys or crowns of the profile. Diagram1, Diagram 2, Diagram 10.



Where the Marlon CS rooflight side laps over the metal sheet, insert side lap fasteners stitching screws to the metal through the predrilled holes in the rooflight side lap. Ensure that the rooflight is pressed firmly onto the row of butyl sealant to seal the side lap. Diagram 11



Complete fixing the metal sheet to the top of the slope, and in the next tier from the bottom of the slope up to the rooflight position. Where the metal sheet in the next tier is to side lap over the Marlon CS rooflight, first place it in position under the rooflight, with the correct end lap on to the metal sheet below. At the centres of the holes already predrilled in the rooflight mark the centre positions for the holes in the metal sheet. Remove the metal sheet.

Apply cross-linked butyl tape to the side lap corrugation of the rooflight where it will be overlapped by the metal sheet, outside the line of side lap fixings. Diagram 12

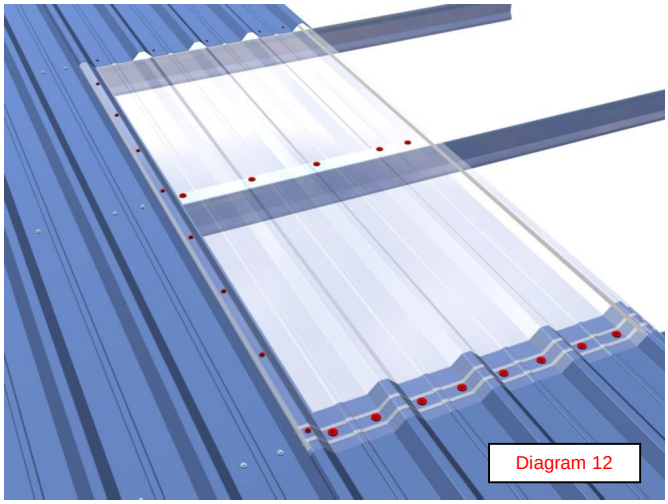


Diagram 12

Position the metal sheet beside and side lapping over the rooflight sheet and fix in position with primary fasteners. Diagram 13. Continue fixing metal sheets to the top of the roof slope.

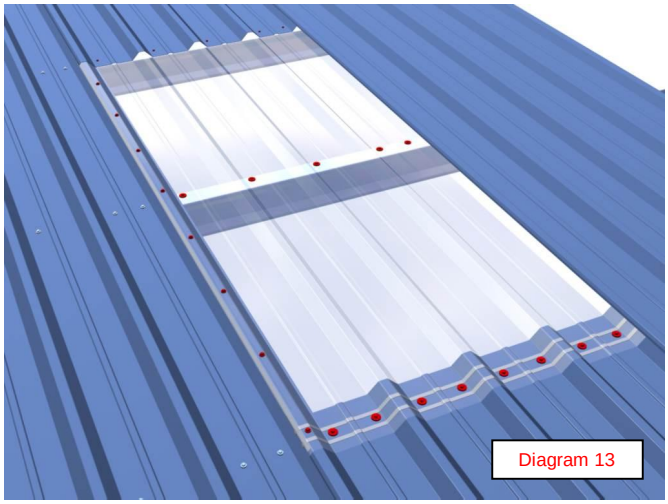


Diagram 13

Drill 10mm diameter holes in the metal sheet side lap at the marked positions, to correspond with those predrilled in the rooflight sheet side lap, Diagram 14, and insert rubber grommet fasteners to these holes, and tighten correctly. Ensure that the metal is pressed firmly onto the row of butyl sealant to seal the side lap. Diagram 15

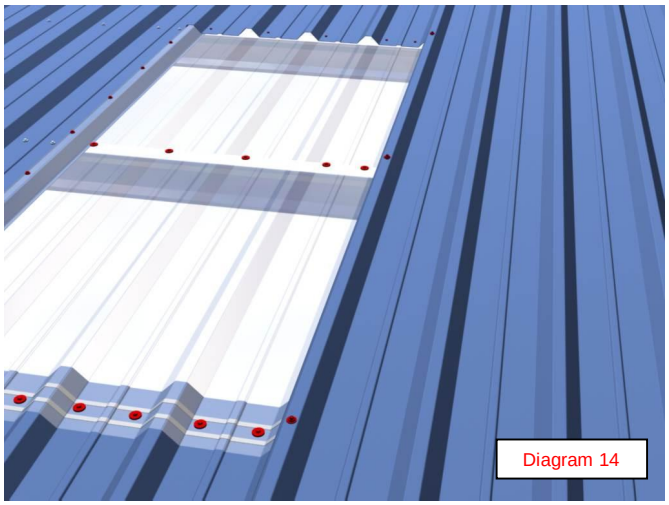


Diagram 14

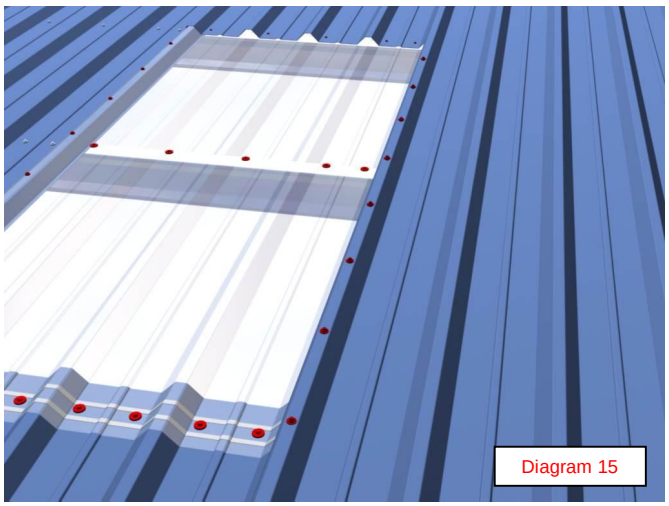


Diagram 15

The completed rooflight installation is illustrated in Diagram 16.

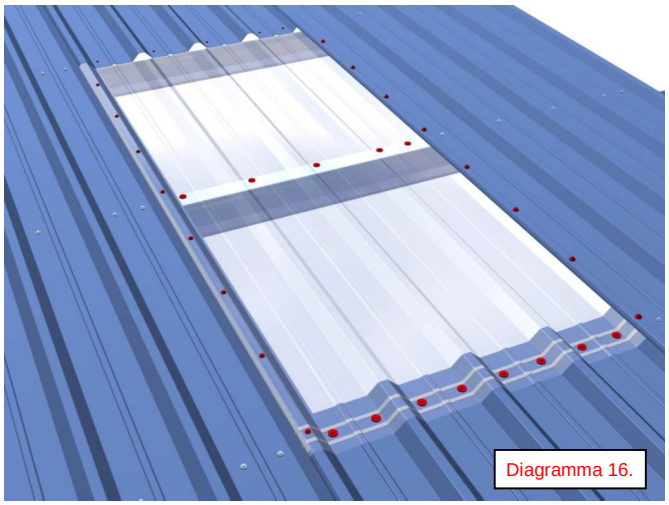


Diagramma 16.

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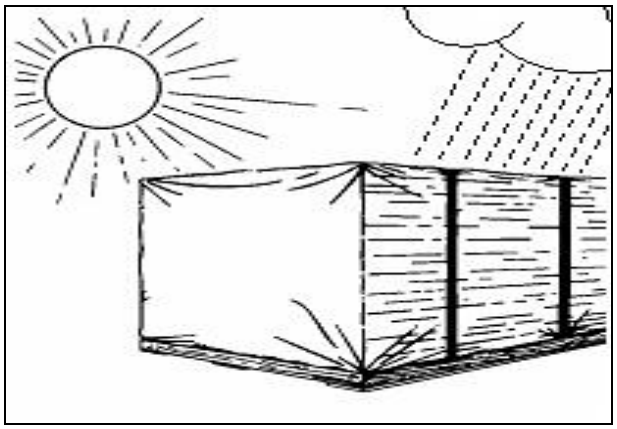
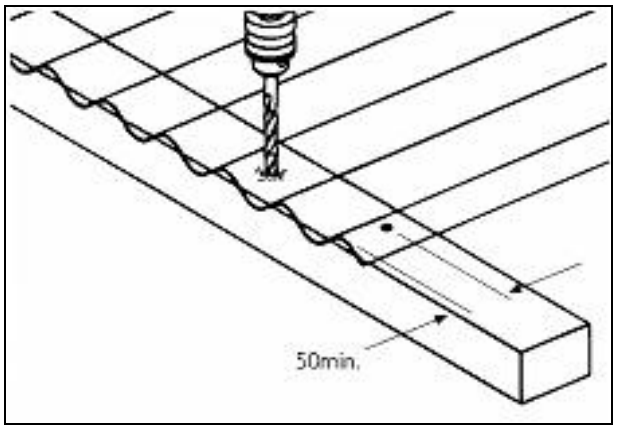
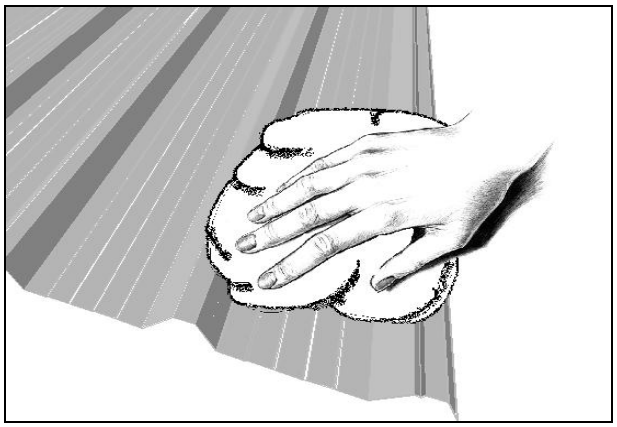


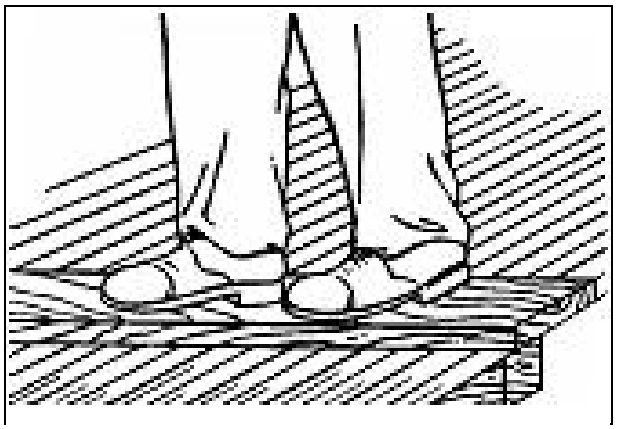
Protect pallets from sun, rain and wind.

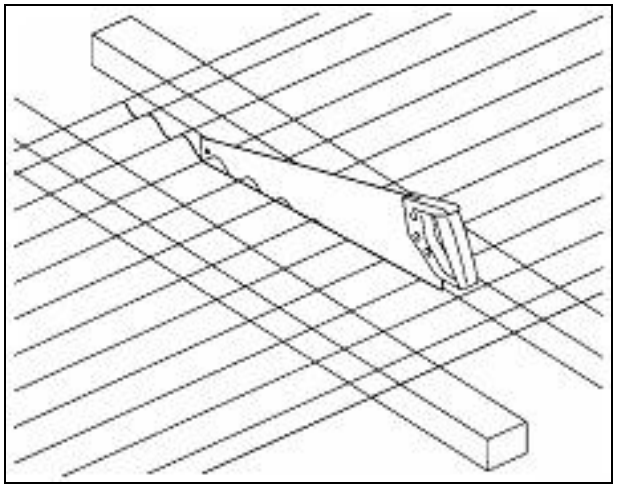


Pre-drill screw holes oversize 3-4mm larger than the screws.

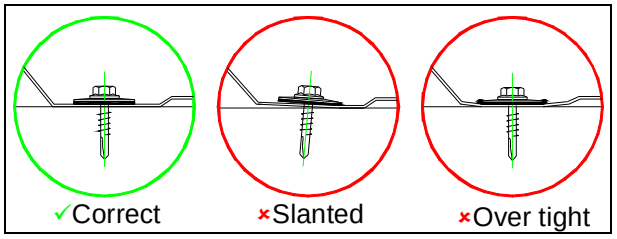


Clean metal sheets to remove all traces of lubricant.

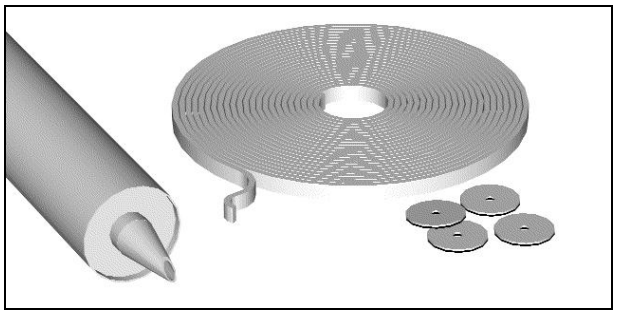




Support sheets when cutting and avoid vibration.



Do not over-tighten fixings.



Use only compatible sealants and washers.

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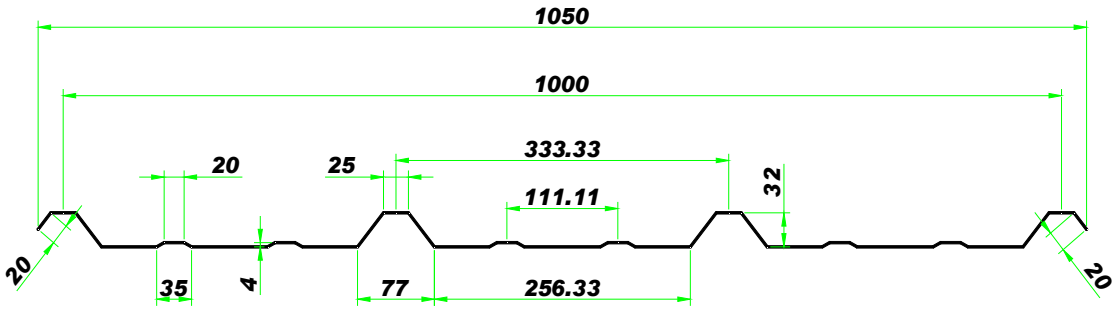
	SPAN (m)		
LOAD kN/m2	0.8mm	1.0mm	1.2mm
0.5	1.05	1.13	1.20
0.6	0.99	1.06	1.13
0.7	0.94	1.01	1.07
0.8	0.90	0.97	1.03
0.9	0.86	0.93	0.99
1.0	0.83	0.90	0.95
1.1	0.81	0.87	0.92
1.2	0.78	0.84	0.90
1.3	0.76	0.82	0.87
1.4	0.74	0.80	0.85
1.5	0.73	0.78	0.83
1.6	0.71	0.77	0.81
1.7	0.70	0.75	0.80
1.8	0.68	0.74	0.78
1.9	0.67	0.72	0.77
2.0	0.66	0.71	0.76
2.1	0.65	0.70	0.74
2.2	0.64	0.69	0.73
2.3	0.63	0.68	0.72
2.4	0.62	0.67	0.71
2.5	0.61	0.66	0.70

Note:
Safe span figures are based on deflection limit of span / 30 (BS5427), plus a safety factor of 1.2.
It is assumed that the profile is valley fixed with at least six fixings, at all purlins, including metal end lap on to roof light.



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General Considerations

It is our recommendation, to ensure that the Marlon CS sheet is not damaged or pulled off the roof by wind suction loads, that there are primary fasteners in the profile valleys or on the crowns as illustrated in the individual profile diagrams at all support purlins. Holes for all fasteners should be predrilled 10mm diameter.

The recommended washer diameter on primary fasteners for this profile is 29mm. Some flat 29mm diameter washers do not give a good seal. Washers which have a convex shape should be used as they give a much better seal, particularly if the fastener has not been applied perpendicular to the roof surface. (Where the crown or valley width is too narrow to accommodate a 29mm diameter washer, the largest washer that can be accommodated and still permit water drainage down the valleys, or sit within the width of the crown, should be used.)

It is important that fasteners are not over tightened. This can be seen, for example, where the surface of the rooflight material is forced down by the washer.

It is necessary when tightening the fastener to get a balance between making it watertight and allowing thermal movement of the sheet. This is achieved when the fastener is just tight enough that the washer underneath can be just turned with finger and thumb. (Note 1)

To avoid the problems which can arise from thermal movement of long polycarbonate sheets, Brett Martin recommend that sheet length is limited to approximately 4m, i.e. a double span rooflight spanning between three purlins.

The Marlon CS sheet should normally be overlapped a distance of 150mm by the metal sheet above on the roof slope. The Marlon CS sheet should normally overlap the metal sheet below on the roof slope by 150mm. (Note 2)

The side laps between the metal sheets and the Marlon CS sheets should be as illustrated in the profile diagrams. (Note 3)

Before fitting some types of metal roof sheets, protective oils which prevent corrosion of the metal during storage and transport must be thoroughly removed from the sheet surfaces. These oils can attack polycarbonate.

The surfaces of support sections should be light in colour: dark coloured surfaces can lead to heat ageing of the sheet due to solar heat build up at these positions.

Where timber supports are used, if these have been treated with wood preservatives, the wood preservative must have been thoroughly dried out for several days. Most wood preservatives contain some solvent, which can attack polycarbonate.

If support surfaces have been painted, or if the steel sheet with which the Marlon CS is being used has a plastisol coating, the paint and the plastisol must be isolated from the polycarbonate at all areas of the supports, and sheet side and end lap positions by applying an aluminium barrier tape to those surface areas.

(Note 1) When fixing through the top of the corrugation, a very high level of care is required to tighten the fixings precisely so that the fixing is watertight and the profile is not compressed or distorted due to over-tightening. Fixings correctly applied in the profile valleys are preferable as they most effective in avoiding profile distortion.

(Note 2) The lower the roof angle or in windy building locations achieving a water-tight lap becomes more difficult. It can require using an end lap length of approximately 400mm. Alternatively, a 150mm end lap with butyl sealants applied to prevent water penetration of the roof structure, as per diagram, is recommended.

(Note 3) For best weather integrity of the roof installation, application of butyl sealant and the use of secondary fasteners to stitch the side lap together, as per diagram, is recommended.

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