

SUNLITE® and SUNTUF® Polycarbonate Products

TECH BRIEF: 5004

Cold Bending Recommendations for SUNLITE® and SUNTUF®

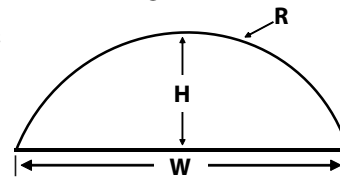
When installing polycarbonate products in a curved application, we have manufacturer's recommendations in order to facilitate a successful installation.

Definition:

Minimum Bending Radius = The smallest radius to which a material can be cold formed without jeopardizing the long term integrity of the material. The formula for the calculation of a radius is universal for all materials and is as follows:

All units of measure must be the same throughout the calculation.

$$R = \frac{(W/2)^2 + H^2}{2H} \quad \text{or} \quad R = \frac{H}{2} + \frac{W^2}{8H}$$





R = Radius of Arc
W = Width of Structure
H = Height of Arc

Sample Calculation: W = 240 inches H = 72 inches

1. $R = \frac{(240/2)^2 + (72)^2}{2 \cdot 72}$
2. $R = \frac{14400 + 5184}{144}$
3. $R = \frac{19584}{144}$
4. R = 136 inches or 11.33 feet

SUNLITE® Minimum Bending Radii

| Product | Profile | Panel Thickness | Minimum Bending Radii | | |
|-------------|---|-----------------|-----------------------|------|-------|
| | | | mm | ft. | in. |
| Twin Wall |  | 6 mm | 1,050 | 3.44 | 41.3 |
| | | 8 mm | 1,400 | 4.59 | 55.1 |
| | | 10 mm | 1,750 | 5.74 | 68.9 |
| Triple Wall |  | 8 mm | 1,400 | 4.59 | 55.1 |
| | | 10 mm | 1,750 | 5.74 | 68.9 |
| | | 16 mm | 2,800 | 9.18 | 110.2 |

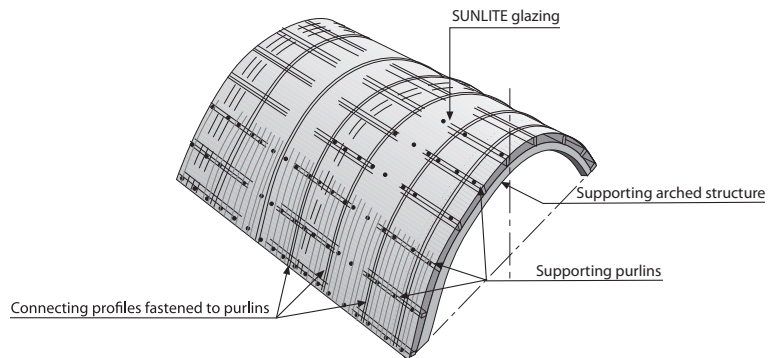
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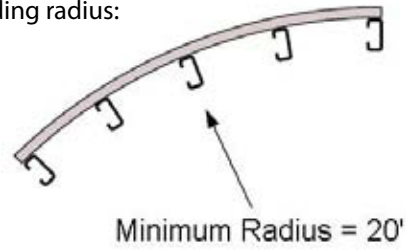
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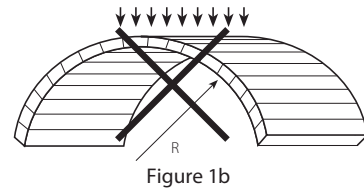
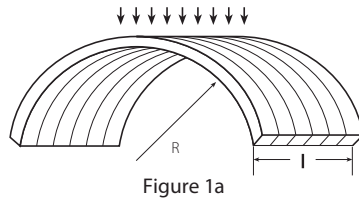
SUNTUF minimum bending radius:



Placing corrugations on a flat sheet increases the rigidity of the material. This allows for a thinner material to become much more rigid. Because of this increased rigidity .8mm SUNTUF has a minimum bend radius which is much larger than that of a 16mm SUNLITE sheet which is more than 16 times the thickness.

Example: 16mm Triple Wall = 9.18 ft
vs.
.8mm SUNTUF = 20 ft

The correct method to curve both SUNTUF and SUNLITE is to have the “flutes” or corrugations parallel to the arch (Fig. A). The sheets are not meant to be bent with the flutes or corrugations perpendicular to the arch because excessive buildup of dirt and moisture will occur (Fig. B).



SUNLITE



SUNTUF