

OCTOBER NEWSLETTER 2011

We receive questions on a regular basis from customers regarding the use of profiles with polycarbonate sheets. Below is information on the difference between "Polycarbonate Profiles" and "Aluminum Base & Cap Profiles" and when to use them in an application.

The polycarbonate sheets, when installed outside (windows, green-houses, canopies, skylights etc) are exposed to two forces: positive load and negative load. Positive is usually described as "snow load" and negative as "wind load"

Snow (and self-weight) are always "positive load" (i.e. goes in the direction of gravity)

Wind can be "positive" (for example: when blowing against the window) or "negative" (when blowing under the canopy trying to push the sheets off of its structure).

Another force is "lift force"; this is the force that helps airplanes to fly! When the wind blows along the sheets, and the "wind speed" above the surface is faster than the speed under the surface, a "sucking" force is created and tries to pull the sheets away from the structure.

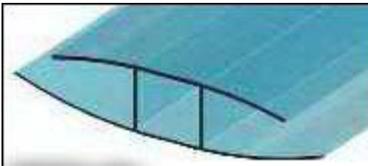
When considering "how to connect the sheets to the structure?" we take all these forces in consideration, and together with the sheet strength (depending on panel thickness and it's inside structure) we decide on the rafter/purlin distance.

When "negative load" is applied, we need to "hold" the sheets to the structure.

We can do it by using screws (and washers) or by using pressure plates (Base and Cap)

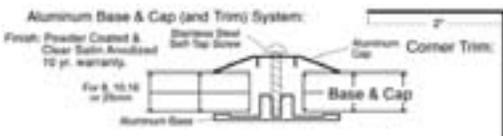
The advantage of screws (and washers) isthe low price and simple installation.

The disadvantage of screws is the fear of "over tightening" as the PC sheets are relatively soft, and because of thermal expansion. PC in a 24' long and 100 degree temperature difference between summer and winter will "grow / shrink" by 1". So now we have 1" "empty hole" around the screw as the thermal force is stronger than the plastic sheets.



When using screws (and washers) we use the plastic (polycarbonate) "H" profile to trim the edges and block dust / water to go in-between the panels. The PC profiles ("H") are not structural part of the installation. We do not screw the H profiles to the structure as we need the structure under the panels.

When a more aesthetic look is needed, or better strength, or when the structure (purling / rafters) are the same



distance as the sheet width (for example: 4' wide) we are using the Aluminum Base & Cap. At this point – the Aluminum profiles are connected to the structure, and they become part of the structure (the purlin goes perpendicular to the panels or horizontal) and the aluminum

profiles go along the sheets. The pressure (of the "Cap" over the "Base" when the pc sheets is in-between them) is what creates the strength of the structure.

When the temperature changes and creates thermal-expansion, the sheets "grow" or "shrink" between these pressure plates. The sheets are very (very) limited in their expansion on the width so the strength of the structure is not compromised.

Feel free to contact us if you have any questions. As always, "the customer is our top priority."

AmeriLux International

P: 888-602-4441

F: 920-336-9301

E: tech.service@ameriluxinternational.com