



SUNTUF[®] Plus

Greenhouse Applications



SUNTUF® Plus Greenhouse Applications



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Introduction

SUNTUF Plus provide the best nurturing conditions possible for plants and workers. It was the first corrugated polycarbonate sheet introduced to the commercial greenhouse market with proven results over twenty years ago. Since then, SUNTUF Plus has become an industry standard which all other corrugated polycarbonate products for the agricultural market are compared to. The SUNTUF Plus product range includes various types and features, which were specifically designed for commercial greenhouse roofing.





SUNTUF® Plus Main Benefits



Clarity and Condensation Control

Natural, clear SUNTUF® Plus sheet exhibits the clarity of glass, transmitting up to 90% of natural PAR light. SUNTUF® Plus also reduces condensation & drip and their related effects due to an integrated feature that assists in maintaining its high light transmission.

Impact Strength

Manufactured from polycarbonate, SUNTUF is virtually unbreakable and is extremely resistant to impact, hailstones and loads.

Low Weight

Light in weight, SUNTUF® Plus sheets are easy to handle and install.

Weather Resistance

SUNTUF® Plus sheets resist wind, hail and extreme temperatures from -50°C to +120°C. An integrated UV protective layer allows SUNTUF® Plus to retain its transparency without yellowing over the course of its extended service lifetime.

10 Year Warranty

SUNTUF® Plus is warranted to retain its clarity over its long lifetime with minimum maintenance.

Protection

SUNTUF does not allow harmful UV radiation to penetrate, and meets the highest flammability standards in its field.

SUNTUF® Plus Product Range

Product	Description
SUNTUF® Plus	Corrugated polycarbonate sheet with integrated UV protective layer on the exterior side WITH condensation & drip control treatment applied to the interior side.
SUNTUF® Plus UV2	Corrugated polycarbonate sheet with integrated UV protective layer on both sides and condensation & drip treatment applied to the interior side.
SUNTUF® Plus Embossed*	Corrugated polycarbonate sheet that diffuses the light at 20% diffusion.
SUNTUF® Plus Diffused*	Corrugated polycarbonate sheets transmitting 85% of the light energy while exhibiting 100% diffusion of the light.

*Also available with co-extruded UV protective layer on both sides

Clear or Diffused: SUNTUF® Plus for Every Plant or Crop

Clear

Optimum for low light regions or where high clarity is essential



90% light transmission
0% Diffusion



Embossed

Offers high light transmission and good diffusion for excellent flexibility



90% light transmission
20% Diffusion



Diffuser

Combines uniform light spread with high light transmission

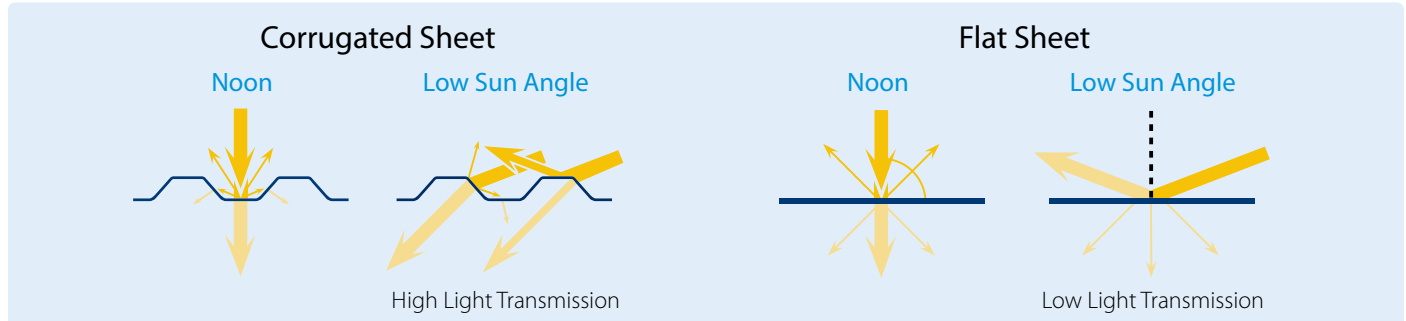


85% light transmission
100% Diffusion



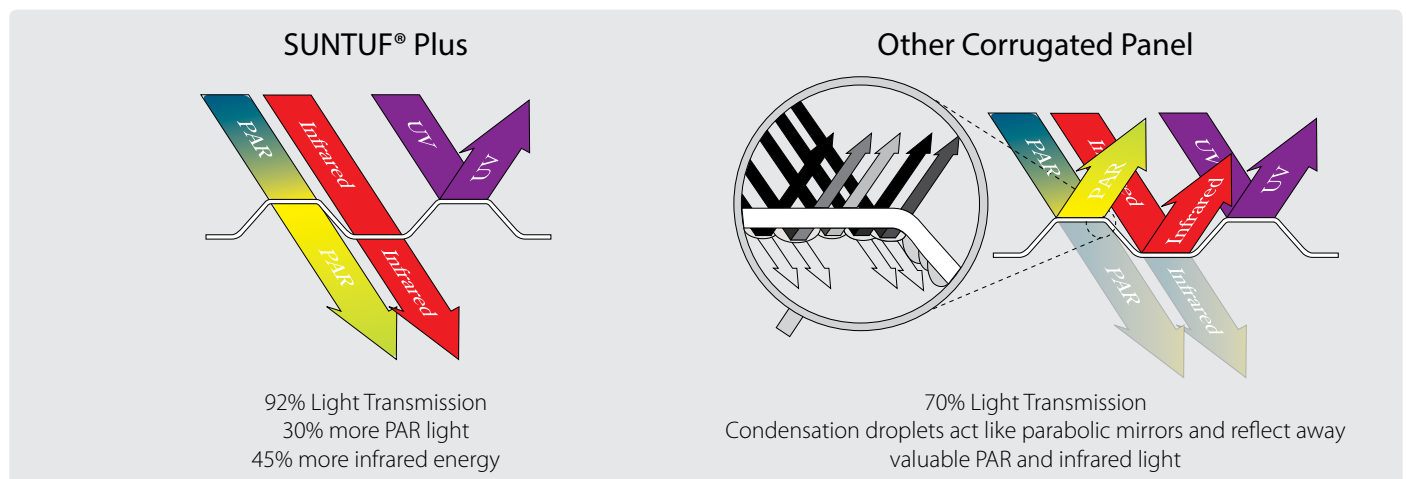
Better Light Transmission than Flat Panel Glazing

In the critical hours of early morning and late afternoon SUNTUF Plus' corrugated shape allows better light transmission than flat glazing such as glass panels, as indicated below.



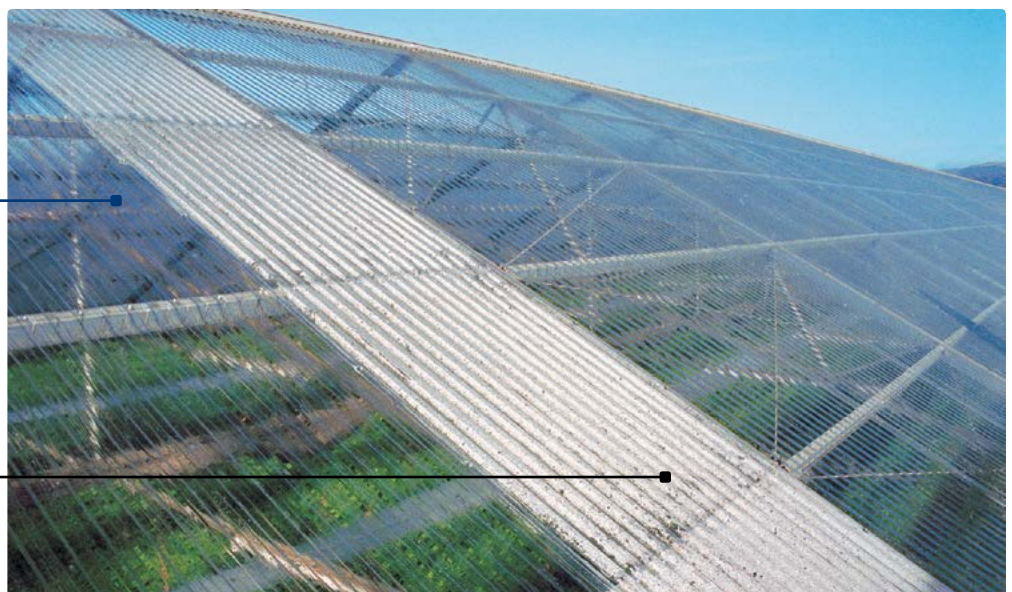
Guaranteed Condensation Control (Fog & Drip reduction)

SUNTUF® Plus, with its unique built-in condensation control feature, allows up to 30% more light transmission during peak condensation periods. SUNTUF Plus also assist in reducing the effect of plant diseases associated with condensation dripping. For greenhouses with retractable roofs, SUNTUF® Plus is offered with condensation control treatment on both sides.



SUNTUF® Plus with guaranteed condensation control.

Alternative roofing product laden with thousands of light-reflecting condensate droplets on the underside of the panel.



Project Gallery

Over a million square meters of SUNTUF Plus sheets have been installed during the past 25 years in numerous projects around the globe. A few of them are presented in the following pages.



Vegetable production greenhouse farm - Astana, Kazakhstan



Potted plant nursery - Israel



Fresh herbs -The Jordan River Valley



Gothic Roof Greenhouse - China

Project Gallery (Continued)



Hydroponic greenhouse - The Middle East



Arched roof ,Garden Center - Israel





Hydroponic greenhouse - The Middle East

Project Gallery (Continued)



Xinjiang, western China

Reduced snow accumulation on the SUNTUF® Plus roof enables more daylight in the greenhouse



Xinjiang, western China

Quick, safe and easy installation of SUNTUF Plus sheets.



Vegetable production greenhouse farm - Krasnodar, Russian Federation.

SUNTUF® Plus Standard Profiles

Profile	Thickness mm	Depth mm	Overlap	Trimmed Width	Net Coverage
76/15 (Omega)	0.8	15	1 Corr.	1260	1210
76/15 (Omega)	0.8	15	1 Corr.	1870	1820
76/18 (Greca/Trapeze)	0.8	16	1 Corr.	1260	1210
76/18 (Greca/Trapeze)	0.8	16	1 Corr.	1870	1820
76/18 (Iron/Sinus)	0.8	16	1 Corr.	1260	1210

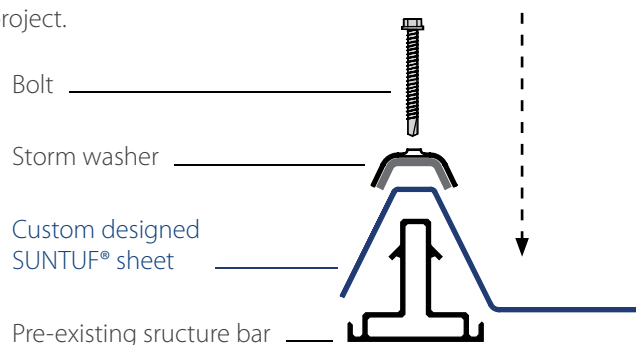
Custom SUNTUF® Plus Profile for Glass Replacement - Case Study

Since SUNTUF's unique profile matching technology was introduced in 2004, Palram looked for new ways to implement it for the customer's benefit. Two Italian greenhouse owners turned to Palram in search of long term roofing solution after heavy hail storms shattered 5000 sqm of their greenhouses glass glazing panels: Albani E. Ruggieri (located north-west of Rome, project executed in 2007) and De Fillipo (located south of Naples, project executed in 2010).

Both customers required a fast, reliable and cost-effective roofing solution that would resist high wind and impact caused by hail and debris. SUNTUF profile matching technology was used to tailor specific corrugation profiles for each project. The sheets were designed to fit preexisting aluminum glazing bars, which resulted in a very simple re-installation for both customers. Technical support for the projects included profile-specific installation guides, project-specific accessories and on-site support.

Glass Replacement - Installation Concept

Fitting of the profile made for the Albani E. Ruggieri greenhouse project.





Glass Replacement (Continued)



Custom Made SUNTUF Plus for Glass Replacement Project - Southern Italy

View from the outside during installation. Upper row still fitted with glass, middle row fitted with custom made SUNTUF Plus panels.



Custom Made SUNTUF Plus for Glass Replacement Project - Southern Italy

View from the outside after project completion.



Custom Made SUNTUF Plus for Glass Replacement Project - Southern Italy

View from the outside.



Custom Made SUNTUF Plus for Glass Replacement Project - Southern Italy

View from the inside.

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