

PSP

BUILDING BRANDS



SUNTUF[®] Industrial/fr

Profiled Polycarbonate for Skylights & Sidelights

PSP

DESIGN SOLUTIONS

SUNTUF® Industrial/fr Profiled Polycarbonate Skylights & Sidelights



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Introduction

SUNTUF Industrial/fr offers multiple advantages over alternatives. It stands up to demanding exterior applications and maintains high light transmission for very long periods. It ideally integrates as in-plane skylight and sidelight into profiled metal roofs using an advanced profile matching technology that allows Palram to adapt SUNTUF to any metal profile. SUNTUF panels form a complete shield against harmful UV rays while admitting most of the visible light. In fully exploiting natural daylight, the panels contribute to the conservation of energy and also improve the quality of the working environment. The unique "diffused" surface finish of SUNTUF Industrial/fr enables optimal specification of solar transmission and lighting, while filtering out glare. SolarSmart Infrared blocking tints can also be used to reduce heat-buildup even further.



Main Benefits of SUNTUF®

Clarity

SUNTUF Industrial/fr Diffused polycarbonate sheeting exhibits the clarity of glass, transmitting up to 85% of natural light.

Energy Saving

By transmitting natural daylight into the structure, SUNTUF Industrial/fr skylights reduce energy consumption of electric lighting.

Matching Any Profile

Palram's proprietary corrugation technology enables SUNTUF Industrial/fr to be quickly matched into any given profile, opening infinite corrugation possibilities.

Strength

SUNTUF Industrial/fr sheets, manufactured from polycarbonate are virtually unbreakable. SUNTUF Industrial/fr is extremely resistant to impact, hail and loads.

Protection from Harmful UV Radiation

SUNTUF Industrial/fr blocks over 99.9% of harmful UV radiation and completely protects from its harmful effects. A built in co-extruded layer protects SUNTUF Industrial/fr from chemical degradation, yellowing and colour loss by UV radiation.

Resistance to UV Radiation

SUNTUF Industrial/fr's resistance to UV radiation is far superior to that of fibreglass. SUNTUF Industrial/fr will not yellow, and retains its clarity for many years. Simulated UV exposure results are graphically shown on the right.



Low Weight

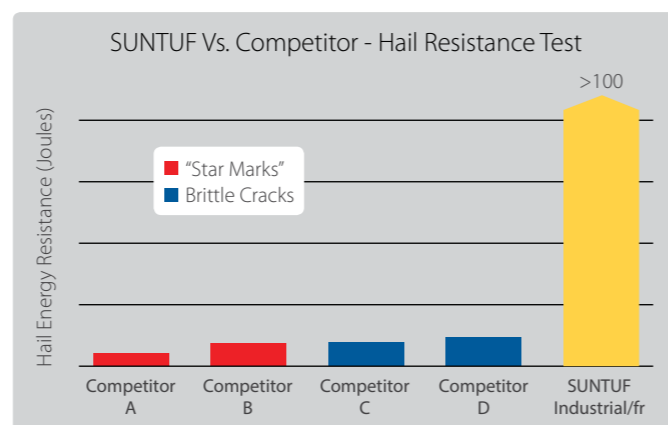
Light in weight, SUNTUF Industrial/fr sheets are easy to handle and install.

Weather Resistance

SUNTUF Industrial/fr withstands strong winds, hail and extreme temperatures from -50°C to +120°C.

Hail Resistance

SUNTUF Industrial/fr exhibits much greater resistance to high velocity impact (hail simulation tests) than a leading fibreglass panel.



Main Benefits of SUNTUF®

Fire Performance

The revised NZ building Code Clauses C1-C6 Protection from Fire took effect on 9 April 2013.

The update of this section of the NZBC requires all surface lining materials to be tested to determine how they perform in the event of a fire.

Suntuf Industrial FR is fully compliant for use in all building categories.

Suntuf Industrial/fr	Test Reference	Group Number	Smoke Production	NZBC Classification
	Branz FI5466 TT	Group 1	Less than 5.0m2/s	Group 1-S

All Surface lining materials must be assigned a Material Group Number when tested in accordance with ISO 9705 Fire Test – full scale room test for surface products. This includes all roofing materials which are installed and left exposed to building occupants.

The new verification method sets out compliance for building areas and limits on applications as follows.

Meeting these requirements will satisfy the performance criteria of NZBC C3.4 for materials used as surface linings.

NZBC Verification Method C/VM2

Walls, Ceiling Linings	Limits on Application	
Area of Building	Performance determined under conditions described in ISO9705:1993	
	Buildings not protected with an automatic sprinkler system	Buildings protected with an automatic fire sprinkler system
Wall/ceiling materials in sleeping areas where care and detention is provided. Wall/ceiling materials in all occupied spaces in importance level 4 buildings.	Material Group Number 1-S (The new classifications allow Suntuf Industrial FR into all these areas)	Material Group Number 1,2
Ceiling/materials in crowd and sleeping uses but not household units or where care or detention is provided.	Material Group Number 1-S, 2-S	Material Group Number 1,2
Wall materials in crowd and sleeping uses except household units or where care or detention is provided.	Material Group Number 1-S,2-S	Material Group Number 1,2,3
Wall/Ceiling Materials in occupied spaces in all other locations in buildings, including household units	Material Group Number 1,2,3	Material Group Number 1,2,3

From New Zealand Building Code C/VM2

4.7 Design scenario (IS): Rapid fire spread involving internal surface linings.

The performance criteria of C3.4 for materials used as internal surface linings in the relevant building areas, as also specified in C3.4

Benefits of Natural Daylight

Daylight is an essential natural asset with numerous benefits:

Health

Natural daylight helps people feel better by triggering the release of serotonin. Studies have proven that recovery rate of hospital patients is accelerated where levels of natural light are increased. Seasonal Affective Disorder (or SAD) is a clinically diagnosed condition in which the lack of sunlight in winter makes people feel ill; increased exposure to daylight will reduce the risk of SAD and also aid the healing process. Natural Ultraviolet light creates Vitamin D through our skin, which produces calcium for healthier bones & teeth.

Education

Research demonstrates a clear correlation between classrooms with good natural light and improved student performance and even attendance. This is because in natural light children concentrate better so are more focused and less easily distracted. Some studies suggest that better health helps to explain the improved attendance.

Workplace

Daylight improves concentration so that working environments tend to achieve increased productivity. Research in retail areas suggests that many sales outcomes tend to improve in naturally lit locations. Colours are more vivid and true, making goods appear attractive and encouraging customers to spend more time in these areas. Leading retail organizations include large areas of skylights in specifications for all new building projects to ensure a high percentage of evenly distributed natural daylight within the interior.

Energy Saving

Skylights can be extremely effective in reducing energy consumption in any given structure. Since lighting represents a significant and controllable part of a structure's expense, energy saving has an undeniable economical benefit. This will also help the environment by reducing the structure's carbon footprint. Specially tinted skylights with Near-Infrared blocking can reduce heat gain and consequently air conditioning requirements



Effective Lighting Comparison

White diffuser SUNTUF Rooflights were installed in a 26,000sqm warehouse in Mexico. As the photos show, the abundance of natural daylight admitted through a mere 5% of the roof's surface provides all the lighting necessary for the structure. The Diffuser Rooflights also creates a pleasant working environment by softening the transmitted light.

Without Skylights



SUNTUF® Skylights Installed



Standard Profiles

Profiles

Property	Corrugated	TrimSpan (6 Rib)	TrimSpan (5 Rib)
Drawing			
Standard length	7.2m	7.2m	7.2m
Overall width	860mm	795mm	835mm
Cover width	760mm	735mm	760mm
Thickness	1.2mm	1.2mm	1.2mm
Profile height	17mm	28mm	28mm
Minimum Curving radius	4000mm	12000mm	11000mm
Maximum overhang	150mm	150mm	150mm
Maximum end spans	700mm	1350mm*	1350mm*
Maximum mid spans	850mm	1800mm*	1800mm*

*SAND BAG Test Compliance (based on medium wind zone)

For more detailed information refer to PSP technical data sheets & installation guidelines.

Unlimited Profile Matching

PSP's unique corrugation technology allows SUNTUF to be quickly matched to virtually any given profile.

- Maintaining an even and consistent roof assembly
- Simple and convenient installation
- Special fitting accessories become redundant
- Reducing installation time and cost
- Maximum impermeability
- Maximum flexibility with new or when used in an existing roof design

We Match Any Profile!

- SUNTUF® can be matched into any corrugation shape!
- No additional costs!
- Matching in no time!

How to order a custom profile:

- Submit a detailed drawing or a full width sample.
- PSP will return a profile drawing for approval.



Clear vs Diffused Comparison Chart

Clear

Optimum for low light regions or where high clarity is essential



90% Light Transmission
0% Diffusion



Diffused

Combines even light spread with high light transmission



85% Light Transmission
100% Diffusion



SUNTUF® Product Range (Indent only - Contact PSP for more information)

Product	Description
SUNTUF®	Profiled polycarbonate sheet with integrated UV protective layer on one side.
SUNTUF® Plus*	UV protective layer on the exterior side and anti-condensation treatment applied to the interior side.
SUNTUF® Solar Control*	Transmits selected percentages of daylight (20%, 35%, or 50%) while reflecting and absorbing some of the heat-generating Infra-Red radiation.
SUNTUF® Embossed*	Embossed or Hair Cell finish on one side.
SUNTUF® Smart	Advanced heat blocking combined with low haze.

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

**Minimum quantities may apply.

Project Gallery

SUNTUF® Industrial/fr is installed in numerous projects around the globe; a few of which are presented in the following pages.



Hangar - Odessa, Ukraine

SUNTUF Industrial/fr Skylights are installed across the entire slope with PALRUF roofing in a huge hangar on the shores of the Black Sea.



Storage Shed - USA



William Cox - Ireland

Industrial warehouse of a major Irish roofing materials distributor.



Central Bus Station - Argentina

BRANZ Type Test Summary

This is to certify that the specimen described below has been tested by BRANZ Ltd on behalf of

PSP Limited
320 Rosedale Road
Albany
Auckland 0632
New Zealand

Test standard: ISO 9705:1993.
Specimen name: Polycarbonate profile cladding.
Specimen description: 1.2 mm thick polycarbonate profile cladding with peaks 25 mm high at 150 mm pitch, with a weight of approximately 1.46 kg/m².
Orientation: UV protection facing outward.

A full description of the test specimen and the test results are given in BRANZ Test Report:

Fire Test FI 5466 – Test date 14th May 2014

Regulatory authorities are advised to examine test reports before approving any product.

The test results were the basis for the following:

Building Code Document	Group Number Classification
NZBC Verification Method C/M2 Appendix A	1-S Smoke Production Rate not more than 5 m ² /s

Issue Date: 16 May 2014
Expiry Date: 16 May 2019



All tests and procedures reported herein, unless indicated, have been performed in accordance with the laboratory's scope of accreditation.



REPORT NUMBER: FI 5466 ISSUE DATE: 16 May 2014 EXPIRY DATE: 16 May 2019 PAGE: 18 of 25



THIS REPORT IS ONLY VALID WHEN A TYPE TEST SUMMARY APPEARS ON THE BRANZ LTD WEBSITE WWW.BRANZ.CO.NZ. EXTRACTS OR ABBREVIATIONS OF THIS REPORT SHALL NOT BE PUBLISHED WITHOUT PERMISSION FROM BRANZ LTD.

Warranty

Light Transmission – 25 years

Suntuf Industrial Fr is warranted for 25 years against loss of light transmission (23% reduction). In addition to any rights and remedies under NZ consumer law, PSP Limited warrants (subject to the conditions set out below) that the product shall not lose more than 7% of its light-transmitting capability (hereinafter "decrease" for a period of 10 years from the commencement date and shall not lose more than 1% per year from the end of the period of 10 years from the commencement date, as defined below, as a direct and exclusive result of solar radiation impact (as measure pursuant to the procedures specified in STM E-313-05).

Breakage – 15 year warranty

The product shall not break due to loss of impact strength as a direct and exclusive result of weathering and/or, shall not break as a direct and exclusive result of the impact of hail, measuring up to 25mm (1") diameter, attaining a velocity of up to 20m/s (44.7mph). (Loss of above capability shall be hereinafter referred to as "breakage". Excessive loss of impact strength will be determined by test according to ISO 6603/1-1985(E) and/or ASTM D-5628-95 method F, to be applied on a sample of the broken sheet. This warranty applies only if the sample will be brittle broken in this test into separate pieces (shatter).

Commencement Date

The commencement date shall be the date of the Products manufacture or – if such date does not appear on the product – the date upon which the product was purchased from PSP Limited.

Limitations

This warranty shall be valid only if the product is handled, stored, cleaned, installed and maintained in accordance with PSP Limited's written instructions. This warranty shall be read in conjunction with PSP Limited's standard terms and conditions of sale, and shall be subject to the same in all instances.

Claims and Notifications

If PSP Limited is duly notified of decrease or breakage within 3 (three) years of the commencement date, and a claim upon such decrease or breakage is properly made and approved, then PSP Limited may either provide free substitute product or, at its exclusive option, refund the original purchase price.

If PSP Limited is duly notified of decrease or breakage after more than 3 (three) years from the commencement date, and claim upon such decrease or breakage is properly made and approved, then PSP Limited may either sell substitute product at a discounted replacement price or, at its exclusive option, may refund the difference between PSP Limited's effective price at the time of replacement and the discounted replacement price. The discounted replacement price to be paid by the purchaser will be 10% of PSP Limited's effective price at the time of replacement, multiplied by the number of years from commencement date to replacement time, but not exceeding 90% of PSP Limited's then effective price.

PSP Limited may at its exclusive option refund the difference between the effective price and the replacement price as above, instead of providing substitute product. PSP Limited's liability does not include any costs of removal and installation of sheets and PSP will not be liable under this limited warranty for any other claim for direct or indirect damage or loss or for consequential loss arising from failure.

Our goods come with guarantees that cannot be excluded under the Consumer Guarantees Act. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if goods fail to be of acceptable quality and the failure does not amount to a major failure.