

Hawaii Prep Energy Lab
- A LEED® Platinum project
featuring SunSky® PC panels

SUNSKY®

Corrugated Polycarbonate Skylight & Sidelight Panels



DAYLIGHT

100% natural. 100% free.

A well-lit factory thrives. A warehouse that's bright and full of light makes it easier to pick, pull, package and ship. Agricultural buildings and livestock shelters seem more in-tune with Mother Nature when you let all the sun's goodness shine through. The benefits of natural daylight for human and animal productivity are well documented. However, the much more obvious benefit is lighting and energy costs savings. How can you gain these benefits? At Palram, have the largest catalog of corrugated polycarbonate profiles in the world. And if we don't have yours we'll use our proprietary MetalMatch® Technology to match virtually any profile you bring us.



Soft White SUNSKY Roof lights were installed in a 279,862 sq. ft. warehouse. As the photos show, the abundance of natural daylight transmitted through a mere 5% of the roof's surface provides all the lighting necessary for the structure during the day. Soft White SUNSKY provides very high light transmission and 100% light diffusion, resulting in a bright, pleasant environment.



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Description

SunSky has been designed specifically to match up to the most popular metal panel profiles, making it a perfect choice for seamless skylights, roof lights, and sidelights. Durability is a hallmark of SunSky and has not had any mechanical failures or cracks at the end of any test to measure ultimate load when tested to ICBO Evaluation Service Acceptance Criteria, AC 16 Plastic Skylights. SunSky features a high performance glazing that stands up to punishing exterior applications. SunSky Corrugated Polycarbonate Panels offer multiple advantages over traditional fiberglass corrugated panels: up to 20 times greater impact resistance, the highest light transmission rates, the lowest yellowing index, the highest load rating, and the highest resistance to wind uplift-outstanding properties confirmed in accredited laboratory testing and in installations worldwide since 1984.

SunSky Features:

- Virtually unbreakable
- Self extinguishing
- Resistant to yellowing
- Retains optical clarity
- Can handle extreme climates (-40°F to 212°F)
- Easily and safely installed

SunSky Available Colors

- Clear - 90% Light Transmission
- Soft White - 85% "Glare Free" Light Transmission
- White Opal - 45% Light Transmission
- Solar Gray - 35% Light Transmission

In addition to our standard line of SunSky, we have a range of enhanced SunSky for specific applications. See the following pages for details on Soft White and MetalMatch® Technology.

Stock Profiles and Availability*

Profile Name	Basic Profile Dimensions†	Thicknesses (mm)			Standard Lengths (Ft.)						Colors			
		0.8	1.0	1.20	8'	10'	10½'	12'	16'	Clear	Soft White	White	Solar Gray	
SunSky 9"		★	★		★	★		★	★	★	★	★	★	
SunSky 12"		★	★		★	★		★	★	★	★			
SunSky Ridge Caps			★ ^a	★ ^b			★			★	★	★		

Common Specialty Profiles* (Minimal stock available on hand, most subject to minimum order requirements. Other profiles available.)

9" Classic Rib		★			★	★		★	★	★		★	
9" ProPanel II		★			★	★		★		★		★	
9" Frontier (a.k.a. SUNTUF 6010)		★						★		★			
7.2 MegaRib			★					★		★			
2.67" LP			★					★		★		★	
2.67" SP			★					★				★	
5V Crimp			★			★		★		★		★	
Sunsky Mini		★						★		★		★	
9600 (U-Panel)		★						★				★	

* Special dimensions and colors are available, subject to minimum order.

† For detailed profile drawings see the technical addendums at PalamAmericas.com/Sunsky

Increase Productivity while Reducing Energy Costs with SunSky Soft White.

SunSky Soft White is available in all of our standard or custom profiles. All of the features of our SunSky Clear panels... Without the Glare!

Let the beauty of natural sunlight in, without the harsh glare of direct sunlight. Translucent SunSky Soft White panels transmit 85% of the sun's light with 100% diffusion, so light fills the room without unpleasant glare or stark, hard-edged shadows.

Soft White SunSky's diffused, omnidirectional ambient light, creates a more comfortable, worker-friendly environment for enhanced productivity. SunSky is perfect for skylights, ridge lighting and vertical sidelights, all of which can decrease energy costs by reducing the need for daytime electric lighting. And the Soft White coloration is co-extruded within the panel, so it will never peel or wear off.



For maximum light transmission.



For softer and more diffused light.

SunSky Soft White isn't just white PC with less white tint.

It's advanced technology, proven to provide 100% diffusion and 85% light transmission. Soft White spreads light and reduces harsh shadows and glare.

Benefits of SunSky Soft White

- 85% Light Transmission vs. 90% for Clear
- Soft/Diffused Light for a More Productive Environment
- Virtually Unbreakable
- Blocks 100% of Harmful UV Rays
- Service Temperature Range for All Climates
- Light Weight
- Easy to Install

Ask for SUNSKY

SoftWhite™



Custom profiles just became a breeze with SunSky.



Match virtually any profile with MetalMatch®

In addition to the SunSky profiles shown on page 1, literally hundreds more profiles are currently available for production. Furthermore, if we don't have a profile to meet your needs, there's a very high likelihood that we can custom-match your profile using our MetalMatch® Technology. The service is free of charge and does not delay supply schedules, in most cases.

It is easy to get your perfect match in a simple two-step process; either submit a detailed drawing or full width sample, then approve the drawing that Palram will return to you. It's that simple.



Download our catalog of available profiles at PalramAmericas.com/Profiles.

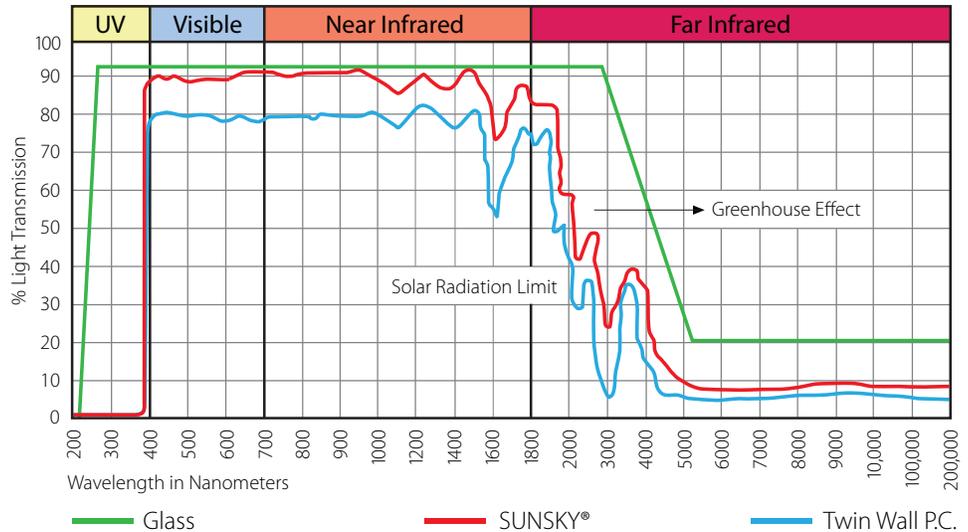
Benefits of SunSky Profile Matching

- Maintain an even and consistent roof assembly
- Simple and easy installation
- Rooflight implementation with no additional fittings
- Reduce duration and cost of the installation
- Maximum impermeability
- Maximum flexibility in new roof designs
- Maximum flexibility when matched to existing roof



Radiation Filtering

SunSky Panels transmit radiation selectively. They form a complete shield against harmful ultraviolet rays, while admitting most of the visible light, essential to healthy livestock and work environments. By completely blocking the far infrared rays, SunSky prevents heat loss at night. SunSky blocks both UV-A and UV-B, which prevents damage to items located underneath the panels due to UV exposure.



Climatic Performance

SunSky Panels perform flawlessly under extremely harsh climatic conditions. Service temperature range -40° to 212°F, enabling unlimited use throughout the world.



Thermal Insulation

SunSky's heat conductivity is lower than fiberglass (FRP) sheets, which can result in considerable heating cost savings, compared to fiberglass.

SunSky Solar Optical Properties

SunSky Color	Light Transmission	Solar Heat Gain Coefficient (SHGC)	Shading Coefficient (SC)	Diffusion
Clear	90%	0.9	1.04	N/A
White Opal	45%	0.51	0.59	100%
Soft White	85%	0.85	0.98	100%
Solar Gray	35%	0.56	0.64	N/A

Weathering

Due to its built-in co-extruded UV blocking layer, SunSky maintains its light transmission and physical properties and is resistant to yellowing: Arizona climatic exposure tests and accelerated QUV tests indicate a significant advantage of SunSky over competitive products such as fiberglass.

QUV 1000 Hour Yellowing Test

(roughly equivalent to 10 year actual exposure)

Material	0 Hrs.	1000 Hrs.
Clear SunSky Polycarbonate	Clear	Clear
White SunSky Polycarbonate	White	White
Clear FRP Brand B	Clear	Yellowed
White FRP Brand A	White	Yellowed

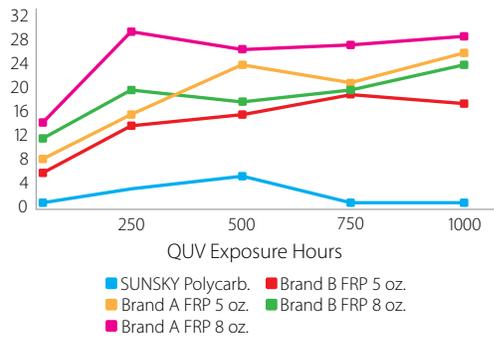
Weathering Properties

SunSky Corrugated Polycarbonate Panels demonstrate greater resistance to yellowing, and transmit more light, than fiberglass panels. The results from QUV testing depicted below demonstrates the superior performance of SunSky compared to competing products. 100 hours of QUV exposure is roughly equivalent to 1 year of actual outdoor exposure in Arizona.

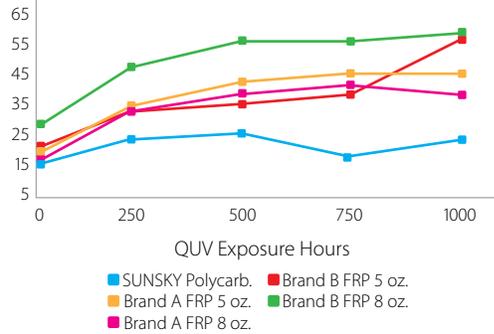
Yellowness Index

Note: Each 100 hours of weathering test roughly equivalent to one year actual weathering.

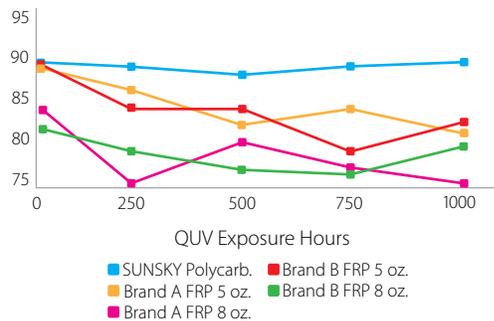
Yellowness Index after Weathering (Clear sheets)



Yellowness Index after Weathering (Opal-White sheets)



Light Transmission



Clear Materials	Exp. Hrs.	% of LT Light Exposure	% of Δ LT Light Exposure	YI Yellowing Index	ΔYI Yellowing Index
SUNSKY Polycarbonate	0	91.2	0	1.26	0
	250	90.7	-0.5	4.27	3.01
	500	89.7	-1.5	6.69	5.43
	750	90.9	-0.3	3.78	2.52
	1000	91.2	0	3.70	2.44
Brand A FRP 5 oz.	0	90.3	0	9.89	0
	250	88.0	-2.3	18.25	8.36
	500	83.7	-6.6	24.43	14.54
	750	86.4	-3.9	22.43	12.54
	1000	83.3	-7.0	27.88	17.99
Brand A FRP 8 oz.	0	85.8	0	15.10	0
	250	75.4	-10.4	31.98	16.88
	500	82.7	-3.1	27.42	13.32
	750	79.3	-6.3	29.89	14.79
	1000	76.6	-9.2	30.45	15.35
Brand B FRP 5 oz.	0	90.5	0	7.17	0
	250	85.5	-5.0	14.83	7.66
	500	84.0	-6.5	16.74	9.57
	750	81.5	-9.0	20.68	13.51
	1000	83.8	-6.7	19.47	12.30
Brand B FRP 8 oz.	0	83.5	0	12.61	0
	250	81.7	-1.8	22.56	9.95
	500	79.2	-4.3	19.61	7.00
	750	78.2	-5.3	21.62	9.01
	1000	80.1	-3.4	26.97	14.36

Uniform Load

SunSky Corrugated Polycarbonate Panels did not have any mechanical failures or cracks at the end of any test to measure ultimate load when tested to "ICBO Evaluation Service Acceptance Criteria, AC 16 Plastic Skylights".

Note: The tables below are provided only as a guideline. Information was obtained from tests using SunSky polycarbonate panels as roofing and siding. To avoid premature failure, all proposed spans should be tested in actual tests. In addition, a licensed engineer must verify the application.

Profile	Panel Thickness		Span Between Supports			
	Inch	mm	2 feet	3 feet	4 feet	5 feet
SunSky 9"	0.031	0.8	50 psf	25 psf	10 psf	--
	0.039	1	50 psf	30 psf	12.5 psf	--
	0.047	1.2	50 psf	35 psf	15 psf	--
SunSky 12"	0.031	0.8	50 psf	50 psf	35 psf	20 psf
	0.039	1	50 psf	50 psf	45 psf	25 psf
	0.063	1.5	50 psf	50 psf	50 psf	35 psf
SunSky Greca 3"	0.031	0.8	50 psf	30 psf	10 psf	--
	0.039	1	50 psf	35 psf	15 psf	--
SunSky 7.2"	0.031	0.8	50 psf	50 psf	50 psf	30 psf
	0.039	1	50 psf	50 psf	50 psf	40 psf
	0.063	1.5	50 psf	50 psf	50 psf	50 psf
5V Crimp	0.039	1	10 psf	--	--	--
Suntuf Class Rib	0.031	0.8	50 psf	25 psf	10 psf	--
2.67" SP	0.039	1	50 psf	40 psf	15 psf	--
2.67" LP	0.039	1	20 psf	7 psf	--	--
9" Frontier	0.031	0.8	50 psf	25 psf	10 psf	--
9" ProPanel 2	0.031	0.8	50 psf	15 psf	7.5 psf	--

Notes: The values are valid for mid spans only The values are indicative of a roof light application and are not valid for a whole roof installation.



For detailed Installation Instructions, fastener and fastening pattern information as well as sealant information, Contact Palram Americas and request the SunSky Installation Guide. You can also quickly download this as a PDF document along with other SunSky documentation at: www.palramamericas.com/sunsky

SunSky 12 is Approved for Higher Loads and Wider Purlin Spans

1mm and 1.5mm thick SunSky 12 for applications that require better loading capabilities, FBC approval, or greater spans between purlins.



Code Approvals

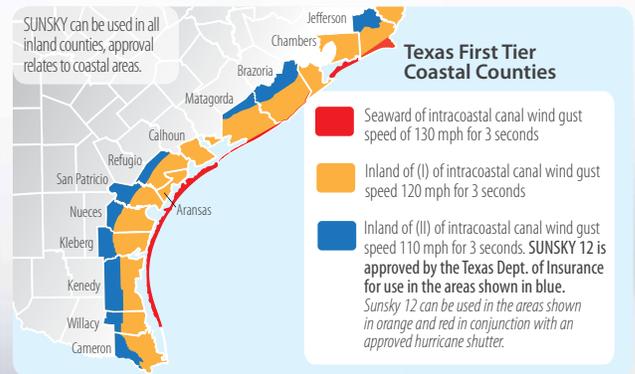
- FBC Approved 2010 Code
(SunSky 12 in 1mm or 1.5mm required):
 - FL11238 Roof Deck
 - FL11240 Structural Wall Applications
- Miami - Dade County Product Control*
 - Approved Acceptance No. 13-0418.05
 - * Most rigorous code standard in USA
- City of Los Angeles - Research Report RR25298
- Texas Department of Insurance (SunSky 12 in 1mm or 1.5mm required) Evaluation ID: RWA-04

Typical Physical Properties

For detailed physical property information, please visit www.PalramAmericas.com/SunSky.

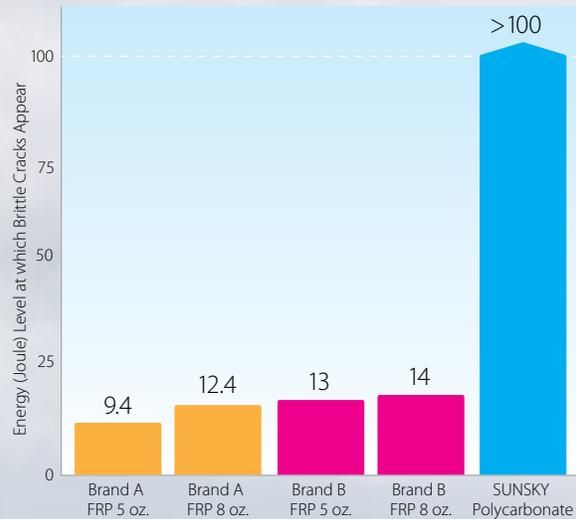
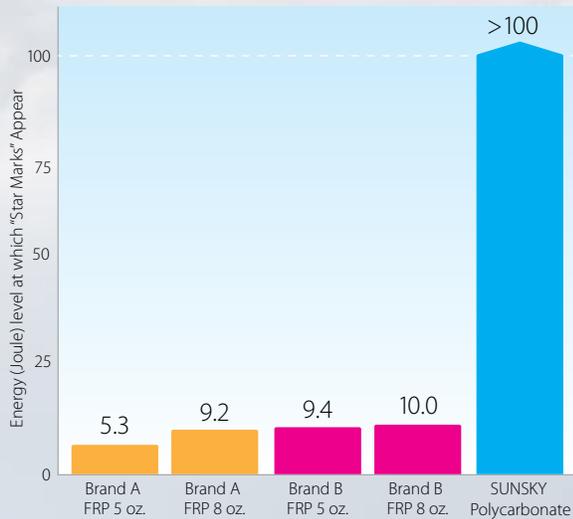
Wind Speed Maps

The maps below represent wind speeds for Florida and the east coast of Texas, both of which can be very challenging environments. SunSky 12 is approved for use in all of Florida except in Miami Dade, Palm Beach and Broward Counties. On the east coast of Texas, SunSky 12 is approved for use in the Inland II zone, indicated in blue on the lower map.



Hail Velocity

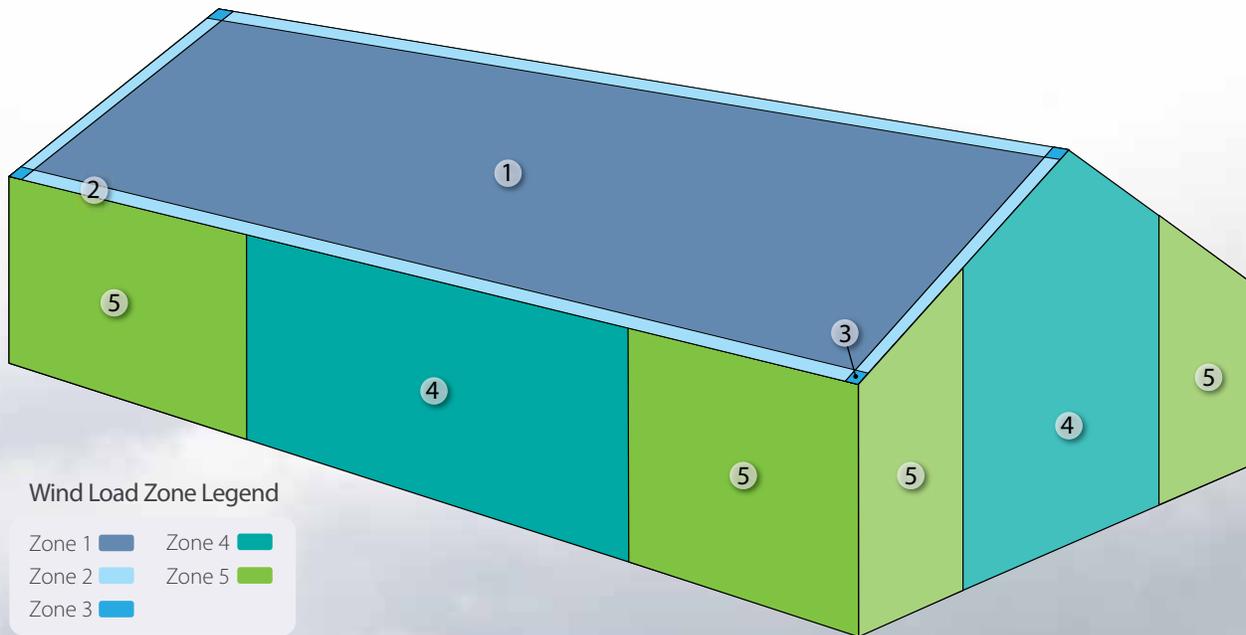
SunSky Corrugated Polycarbonate Panels demonstrate greater resistance to high-velocity impact (hail simulation test versus fiberglass panels.)



2010 FBC (Florida Building Code) Wind Load Tables

Roofing / Skylight Applications

Roof Zone*	Panel Thickness	1.0mm SunSky 12" Windspeed Zone (mph)						
		120	130	140	150	160	170	180
Zone 1	.040" (1.0mm)	5'	5'	5'	N/A	N/A	N/A	N/A
		1.5mm SunSky 12" Windspeed Zone (mph)						
		120	130	140	150	160	170	180
Zone 1		5'	5'	5'	5'	5'	5'	5'
Zone 2	.060" (1.5mm)	5'	5'	5'	2'6"	2'6"	2'6"	2'6"
Zone 3		5'	2'6"	2'6"	2'6"	2'6"	2'6"	2'6"



Wind Load Zone Legend

Zone 1	Zone 4
Zone 2	Zone 5
Zone 3	

Note: Dimension (a) is defined as 10% of the minimum width of the building or 40% of the mean height of the roof, whichever is smaller, however, (a) cannot be less than either 4% of the minimum width of the building or 3 feet.

Side Wall / Side Lighting Applications

Wall Zone**	Panel Thickness	1.0mm SunSky 12" Windspeed Zone (mph)						
		115	120	130	150	160	170	180
Zone 4	.040" (1.0mm)	5'	5'	5'	N/A	N/A	N/A	N/A
Zone 5		5'	5'	N/A	N/A	N/A	N/A	N/A
		1.5mm SunSky 12" Windspeed Zone (mph)						
		120	130	140	150	160	170	180
Zone 4	.060" (1.5mm)	5'	5'	5'	5'	5'	5'	2'6"
Zone 5		5'	5'	5'	5'	2'6"	2'6"	2'6"

Notes: Buildings having a Roof Mean Height $\leq 20'-0"$; 0.5:12.5 Roof Slope $< 2:12$, Gable Roof. Wind Speeds 120-180 mph, Exp C, Risk Factor 1-4, Enclosed Building, based on FBC 2010. Load table based on wind pressures calculated per ASCE 7-10 ($K_d=0.85$) multiplied by 0.6 per FBC 2010 Section 1609.1. Not for use in HVHZ zones. Not rated for missile impact.

10-Year Limited Light Transmission Warranty*

It is warranted that for a period of 10 years, SunSky polycarbonate panels shall not lose more than 10% of their light transmitting capability, as a direct and exclusive result of the impact of solar radiation (as measured pursuant to the procedures specified in ASTM D-1003-77. See warranty for complete details: www.palramamericas.com/sunsky_docs

* This brochure contains statements of general company policy concerning customer satisfaction. There are no warranties which extend beyond that which are specifically set forth in the two limited warranties above. Palram Americas reserves the right to change product specifications and/or information contained in this brochure.

10-Year Limited Hail Damage Warranty*

It is warranted that for a period of 10 years, SunSky polycarbonate panels shall not break as a direct and exclusive result of the impact of hail measuring up to one inch diameter in size, and attaining up to 20 meters/sec. in velocity. See warranty for complete details: www.palramamericas.com/sunsky_docs

Also Available:

Suntuf® Corrugated Polycarbonate Panels,
SunLite® Multi-Wall Polycarbonate Panels, and
Ag-Tuf® PVC Panels for residential, agricultural and commercial applications.

Palsun® Flat Polycarbonate Sheet

For detailed installation instructions visit www.PalramAmericas.com/SunSky and download the SunSky Installation Guide, or call Palram Americas at (800) 999-9459 to request a printed copy.

Authorized Distributor:

Gideon Steel Panel Company, LLC
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www.gideonsteel.com
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