



STORMLITE™ 

MULTI-WALL POLYCARBONATE STORM SHUTTER

Technical and Installation Guide

Additional information and updates
to this Guide may be available at:
www.PalramAmericas.com

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This handbook is an abbreviated version of the detailed Installation Instructions found in the FBC's Product Evaluation Document FL# 8947.1. For all specific required details for various installation methods and applications, please refer to the Product Evaluation Document (P.E.D.) FL# 8947.1, available at the Florida Building Code website or Palram America's website. Miami-Dade County Notice of Acceptance (N.O.A.) can be downloaded at www.miamidade.gov/buildingcode/ (NOA#17-0830.09).

Florida Building Code Website
www.FloridaBuilding.org

Miami-Dade County Website
www.miamidade.gov/buildingcode/

Palram America's Website
www.PalramAmericas.com/Hurricanes shutters.htm

A OVERVIEW

Palram's STORMLITE Hurricane Shutters are an attractive—and truly re-usable—alternative to plywood or corrugated steel for protecting property during hurricane season. STORMLITE hurricane shutters provide glass-like clarity, superior protection, and much better appearance.

STORMLITE Hurricane Shutters provide substantial benefits to users, compared to plywood or corrugated steel. Plywood is heavy, has splinters, can warp after getting wet, and has limited life. Steel is heavy, has sharp edges, and is difficult to cut.

Plywood and steel completely block light and make it impossible to see outside or get an idea of what the local weather situation is. STORMLITE Hurricane Shutters offer excellent light transmission and provide enough transparency to see out. If desired, panels can be installed and left in place during the entire hurricane season. The system is easy to assemble, extremely durable, and provides superior protection compared to both products. Unlike Plywood and Steel, STORMLITE panels are also easy to remove and store during the off season.

B FEATURES AT A GLANCE

- “Clear as glass, strong as steel”
- High impact resistance
- 10 year warranty
- Will not de-laminate, rot or decay like plywood
- 75% light transmission allows natural light transmission into your home or business
- 7 times lighter than similar size plywood panels
- Virtually unbreakable
- Easy to install and store off season
- Blocks virtually 100% of harmful UV rays
- Lasts decades with minimal yellowing or loss of light transmission

C APPLICATIONS

- Residential homes
- Commercial buildings
- Seasonal or year-round protection

D PALRAM HURRICANE SHUTTER PRODUCTS

- STORMTUF® Corrugated polycarbonate Hurricane Shutter.
- STORMLITE® Multi-wall Polycarbonate Hurricane Shutter.

E CODE APPROVALS

Florida Building Code FL#	8947.1
Model	STORMLITE Hurricane Panels
Description	Large missile impact resistant polycarbonate storm panel.
Limits of Use	
Approved for use in HVHZ	Yes
Approved for use outside HVHZ	Yes
Impact Resistant	Yes
Design Pressure	+60 /-60
Other	Consult P. E.D. FL#8947.1, available at: www.FloridaBuilding.org . See Table 1 on drawing 07-153 for design load x panel size.

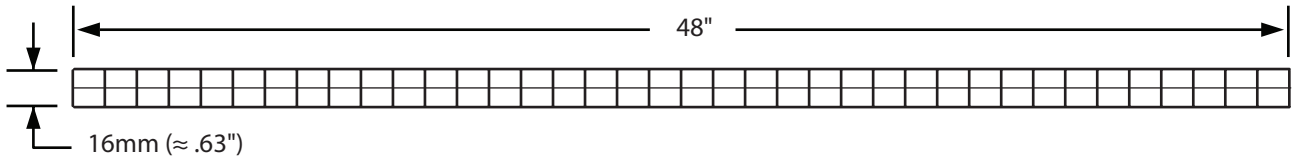
Miami-Dade Co. Florida NOA #	17-0830.09
Model	STORMLITE Hurricane Panels
Description	Polycarbonate Storm Panel Shutter
Tests	Uniform Static Pressure TAS 202-94 Cyclic Wind Pressure Loading TAS 203-94 Large Missile Impact Test TAS 201-94
HVHZ Approved	Yes
Missile Impact Rating	Large and Small Missile Impact
Design Pressure	+60/-60
Other	All information is available at: www.miamidade.gov/buildingcode/ (Approved Product Search NOA # 17-0830.09)

F SIZES*


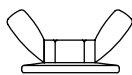

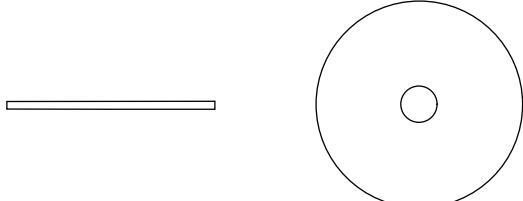
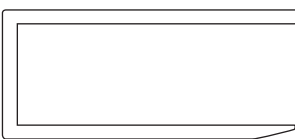
Thickness	Width	Length
16-mm	48"	96"

* Other sizes may be available from Stormlite Distributors.

G SECTION DRAWING



H HARDWARE†

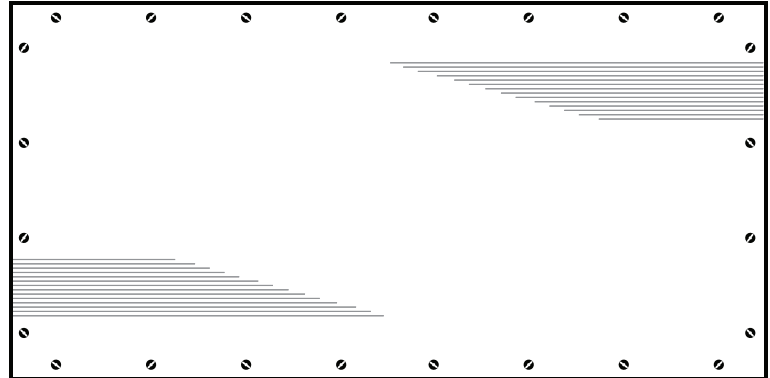
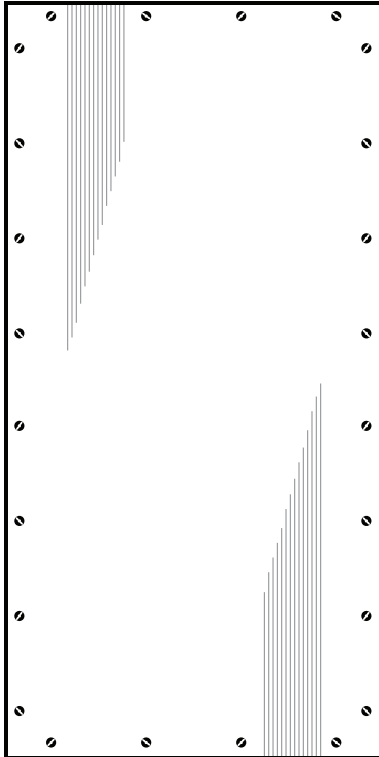
#	Name	Drawing
1	1/4" Panelmate	
2	1/4" Washered Wing Nut	
3	1" Bonded Rubber (EPDM) Sealing Washer	
4	2" Fender Washer <i>(Required for FBC approved installation only)</i>	
5	Aluminum Channel <i>(Required for Miami-Dade approved installation only)</i>	

† The hardware shown in the table above is typically used for direct-mount applications. Other optional fasteners are available for direct-mount and other applications. Consult the Product Evaluation document (P.E.D.) FL# 8947.1 or Miami-Dade NOA #17-0830.09 for specific requirements, details, and sizes for each type of application. P.E.D. FL# 8947.1 can be downloaded at www.FloridaBuilding.org. Miami-Dade NOA # 17-0830.09 can be downloaded at www.miami-dade.gov/building/code/.

I GENERAL INSTALLATION INFORMATION

TYPICAL ELEVATION

STORMLITE may be installed as single panel, vertically or horizontally. (*Miami-Dade approved installation requires aluminum channel. See NOA #17-0830.09, available at www.miamidade.gov/buildingcode/*)



J DESIGN PRESSURE TABLE

Maximum Panel Size (inches)	Designed Pressure (PSF)		Glass Separation (GS) (See Note 9 on FL 8947.1 for exceptions)
	HVHZ	NON HVHZ	
48" x 96"	+31 / -60	+60 / -60	2- 1/4"
48" x 96"	+60 / -60	+60 / -60	2- 1/4"
ASTM E1996 Impact Rated "Level D" TAS 201 Impact Rated "Large and Small Missile"			

Refer to the FBC Product Evaluation Document (P.E.D.)FL# 8947.1 or Miami-Dade Notice of Acceptance (NOA) # 17-0830.09

K TOOLS REQUIRED

Power Drill or Screwdriver	5/16" Drill Bit	3/16" Hex Nut Driver	Measuring Tape

L DIRECT MOUNT APPLICATION

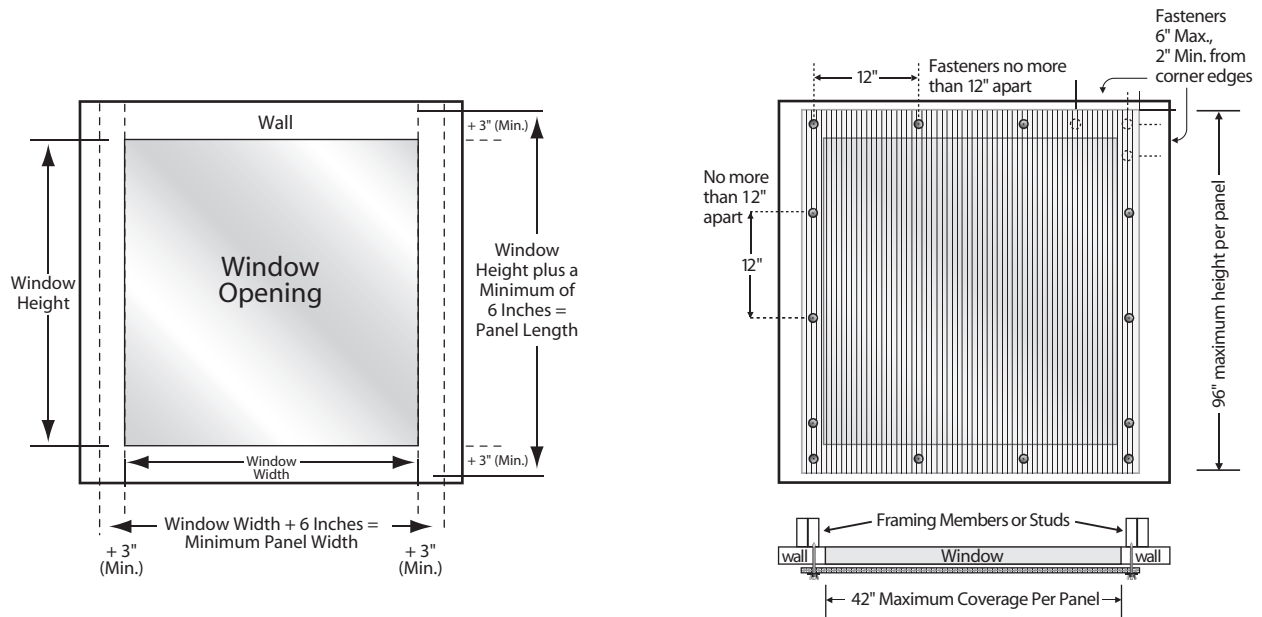
General Installation Overview

This booklet is intended to give a general overview of the most common FBC approved installation method.

Installations requiring Dade County approval require additional hardware.

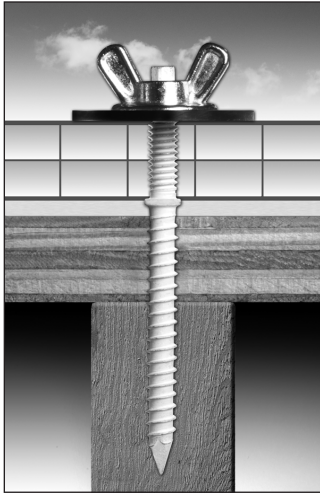
Determine Panel Size

STORMLITE Hurricane Shutter size should be at least 3" wider and longer per each side. Measure window and add at least 6" at width and 6" at length of the panel as total size. Calculate final total width and length of the shutter and cut the STORMLITE panel accordingly. **Important Note:** This system is not intended for window openings larger than 42" x 90".



General Fastening Information

STORMLITE panels are fastened directly to the structure using the Panelmate fastening system. Panelmate screws are designed with a special hex-head on the end for easy installation. Fastener placement and spacing is first laid out on the wall, making sure to align fasteners with framing members behind the outer wall.

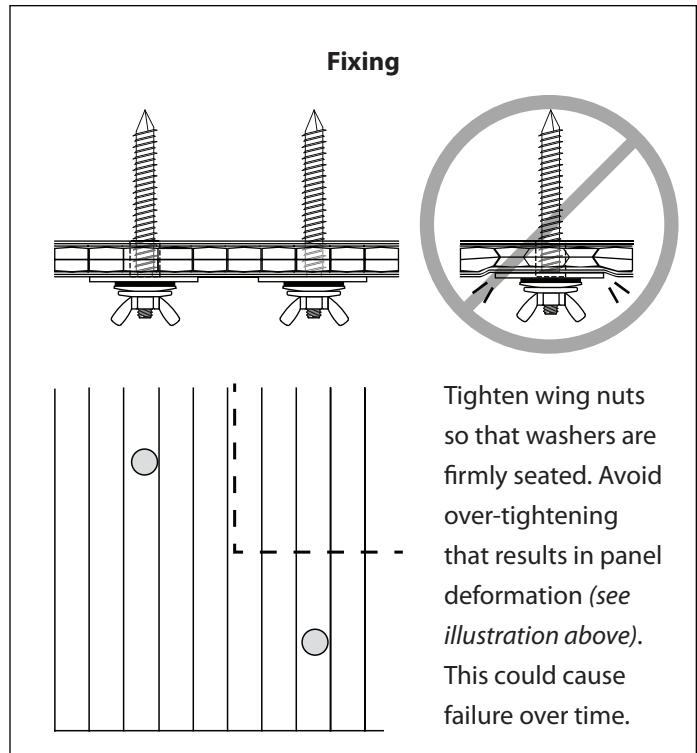
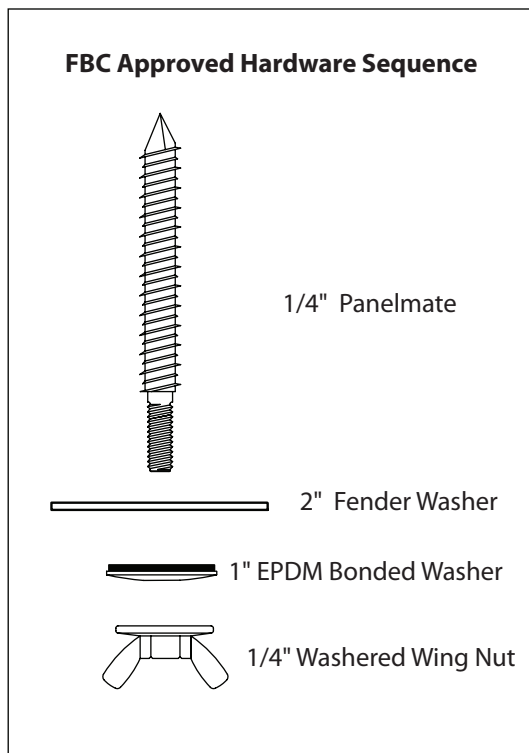


Fasteners should be spaced no further than 12" apart around the perimeter of the panel (see illustration at bottom of previous page). Fasteners placed in corners should be a minimum of 2" to a maximum of 6" from each edge of the corner of the panel. With fastener placement marked on the wall, the sheet should then be positioned and held in place as the panel is marked to match the marks on the wall that indicate fastener spacing. This prepares the panel for pre-drilling. Remove the panel from the wall and drill a 5/16" hole at each fastener mark. Be sure the placement of the Panelmate fastener will be in the hollow flute area of the panel and not damage the interior flute walls (see illustration at left).

Panelmate screws should be installed in the wall using a hex-head socket and power screw gun. After all fasteners are in place, position the sheet onto the wall so that the Panelmate screws protrude through the pre-drilled holes in the panel. The panel is secured with a rubber bonded galvanized washer and 1/4" wing nut as shown.

M TYPICAL MOUNTING ILLUSTRATIONS

The illustrations below are abbreviated versions of the detailed drawings that you will find in the Product Evaluation Document (P.E.D.) FL# 8947.1 or Miami-Dade NOA # 17-0830.09. The Product Evaluation Document calls out specific details such as dimensions, building materials, fastener types, and what should be used in which combination. P.E.D. FL# 8947.1 or Miami-Dade NOA # 17-0830.09 is available for download at www.FloridaBuilding.org, or www.miamidade.gov respectively.



(Miami-Dade approved installation requires aluminum channel. See NOA #17-0830.09, available at www.miamidade.gov/buildingcode/)

N IDENTIFICATION OF UV PROTECTED SIDE

STORMLITE Sheets are UV-protected on one side only. A protective film on the panel indicates which is the UV protected side. Before removing the film, the installer should mark the panels to indicate UV-protected side.

O MAINTENANCE

CLEANING

Most normal dirt & dust accumulation is washed off by rain. Regular hosing of the panels with water is sufficient. In polluted, oily environments, a mild household dishwashing detergent may be used as needed together with a soft rag or brush.

DO NOT USE A STIFF BRUSH, STRONG OR ABRASIVE CLEANING AGENTS, OR GLASS WINDOW CLEANERS TO CLEAN STORMTUF PANELS AS THEY MAY SCRATCH OR CHEMICALLY ATTACK THE PANEL. USE OF INCOMPATIBLE CLEANING TOOLS OR CLEANING AGENTS CAN VOID THE WARRANTY!

P FLAMMABILITY AND OTHER TEST QUALIFICATIONS

Palram polycarbonate panels offer good fire resistance. Their rating when tested according to a variety of international fire rating standards is summarized in the tables below. For additional information please contact your Palram distributor. Photocopies of certification will be provided upon request.

Test Designation	Test Parameter	Material Classification
ASTM E 84-04	Flame Spread Index	10
ASTM E 84-04	Smoke Developed Value	130
ASTM D 635-03	Classification	CC2

Note: ASTM E 84-04 test procedure is similar to UL-723, ANSI No. 2.5, NFPA No. 255, and UBC 42-1.

MIAMI DADE	NOA# 15-1207.07
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Q EFFECTS OF CHEMICALS ON STORMLITE POLYCARBONATE

The effect of aggressive chemicals on STORMLITE differs significantly from that of chemicals on most metals. Chemical corrosion of metals results in a gradual loss of surface material as a result of electrolytic reaction between the chemicals and the metal.

Chemical attack on polycarbonate coverings occur, all or a portion of a range of effects can be observed. These include dissolution, swelling, color change, and whitening. These effects may not always lead to product failure, especially for non-loaded sheets. Nevertheless, mechanical properties of the panel will be adversely affected. The most critical effect of chemical attack is stress cracking or crazing, which may range in size from being visible to the naked eye to being only observable under a microscope. Stress cracks will always result in sheet failure and will emanate from areas under the greatest amount of stress (screw fastening points, fixings, bends and arches, etc.).

The greatest danger is from the use of incompatible cleaning agents, or vapors within the facility or neighboring facilities. For a detailed list of chemical compatibility, contact Palram Americas. Use of chemicals not on the list without the expressed written consent of Palram may render all warranties null and void.

CORROSION RESISTANCE

Palram STORMLITE polycarbonate panels are corrosion free.

R TYPICAL PROPERTIES OF POLYCARBONATE PANELS

Property	ASTM	Value	Units	Conditions
Density Physical	D-1505	1.2	g/cm ³	
Water Absorption	D-570	0.15	%	24hr.@23°C
Tensile strength at yield	D-638	62	MPa	10 mm/min
Tensile strength at break	D-638	65	MPa	10 mm/min
Elongation at yield	D-638	7	%	10 mm/min
Elongation at break	D-638	>80	%	10 mm/min
Tensile Modulus of Elasticity	D-638	2300	MPa	1 mm/min
Flexural Strength Mechanical	D-790	93	MPa	1 mm/min
Flexural Modulus	D-790	1890	MPa	1.3 mm/min
Rockwell Hardness	D-785	118	R Scale	–
Long Term Service Temperature	–	-50 to +100	°C	–
Short Term Service Temperature	–	-50 to +120	°C	
Heat Deflection Temperature	D-648	135	°C	1.82 Mpa
Vicat Softening Temperature	D-1525	150	°C	Load: 1 kg
Coefficient of Linear Thermal Expansion	D-696	6.5	10-5/°C	–
U-Value	–	2.3	W/m ² °K	–
Optical Light Transmission	D-1003	75	%	–

PROUD MEMBER



Information herein is offered without charge or obligation, and is accepted at recipient's sole risk. Because installation and use conditions may vary, Palram relinquishes responsibility and liability regarding post-installation performance, toxicology effects and industrial hygiene. It is recommended that customers inspect and test products before use. Nothing herein shall constitute a warranty. All patent rights are reserved.



PALRAM AMERICAS

9735 Commerce Circle
Kutztown, PA 19530
Tel. (800) 999-9459
Fax: 1-610-285-9928
palramamericas@palram.com

PALRAM INDUSTRIES

World Headquarters
Kibbutz Ramat Yohanan
30035, Israel
Tel. (972) 4-845-9900
Fax: (972) 4-844-4012
palram@palram.com

PALRAM EUROPE, LTD.

Unit 2, Doncaster Carr Industrial Estate
White Rose Way, Doncaster DN4 5JH
United Kingdom
Tel. (44) 1302-380777
Fax: (44) 1302-380788
palram@palram.co.uk