

# 2017 Approved Hurricane Products

FBC (Non-HVHZ)	FBC (HVHZ)	TDI Evaluation	IBC/IRC	Miami-Dade NOA#		
• Panels - Aluminum, Steel, Polycarbonate & Fabric:						
FL 11964 DWG#: 15-045		SHU-124 DWG#: 06-171	DWG#: 13-056			
FL 11964 DWG#: 15-041		SHU-109 DWG#: 08-006	DWG#: 13-057			
TPS: FL 6417 DWG: 15-2494 EMS: FL 15094 DWG#: 15-040	TPS: FL6416 DWG#: 14-1509	SHU-116 DWG#: 03-155-1343b	DWG#: 09-123			
FL 11968 DWG#: 15-042			DWG#: 13-062			
FL 11968 DWG#: 15-044	FL 11969 DWG#: 15-049	SHU-47 DWG#: 05-012	DWG#: 07-285			
FL 11968 DWG#: 15-043			DWG#: 13-060			
	FL 11969 DWG#: 15-048					
FL 11968 DWG#: 15-046		SHU-168 DWG#: 13-048	DWG#: 07-230			
FL 13271 DWG#: 12-0222	HurricaneFabric.com FL 17661 DWG#: 15-3452	HurricaneFabric.com SHU-204 DWG#: 11-0915		NOA 15-0316.09 DWG#: 14-2202		
	(Non-HVHZ)  m, Steel, Polycarhol  FL 11964 DWG#: 15-045  FL 11964 DWG#: 15-041  TPS: FL 6417 DWG: 15-2494 EMS: FL 15094 DWG#: 15-040  FL 11968 DWG#: 15-042  FL 11968 DWG#: 15-044  FL 11968 DWG#: 15-044  FL 11968 DWG#: 15-044	(Non-HVHZ) (HVHZ)  m, Steel, Polycarbonate & Fabric:  FL 11964 DWG#: 15-045  FL 11964 DWG#: 15-041  TPS: FL 6417 DWG: 15-2494 EMS: FL 15094 DWG#: 15-040  FL 11968 DWG#: 15-042  FL 11968 DWG#: 15-044  FL 11968 DWG#: 15-043  FL 11968 DWG#: 15-043  FL 11968 DWG#: 15-043  FL 11968 DWG#: 15-043  FL 11969 DWG#: 15-048  FL 11968 DWG#: 15-046  FL 11968 DWG#: 15-046	(Non-HVHZ) (HVHZ) Evaluation  m, Steel, Polycarbonate & Fabric:  FL 11964 DWG#: 15-045  FL 11964 DWG#: 15-041  TPS: FL 6417 DWG: 15-2494 EMS: FL 15094 DWG#: 15-040  FL 11968 DWG#: 15-042  FL 11968 DWG#: 15-044  FL 11968 DWG#: 15-044  FL 11968 DWG#: 15-043  FL 11969 DWG#: 15-048  FL 11968 DWG#: 15-048  HurricaneFabric.com FL 17661  HurricaneFabric.com SHU-204	Non-HVHZ  (HVHZ)   Evaluation   IBC/IRC		

#### Non-ASSA Bahama & Colonial Shutters; Supreme Impact System:

BERTHA™ Board & Batten Shutter	FL 11967 DWG# 15-047	SHU-161 DWG# 13-052	DWG# 07-254	
Aluminum Bahama Shutter (FPC)	FL 14452-R1 DWG# 15-167			
Aluminum Colonial Shutter (FPC)	FL 14451-R1 DWG# 15-168			
Brickhouse Low Profile Colonial Shutter		Single: SHU-210 Bifold: SHU-212		
Supreme Hurricane Impact System				NOA#12-0829.07

FBC (Non-HVHZ): Meets Florida Building Code for Non-High Velocity Hurricane Zones

FBC (HVHZ): Meets Florida Building Code for High Velocity Hurricane Zones

TDI: Meets Texas Department of Insurance Standards

IBC: Meets International Building Code IRC: Meets International Residential Code

Miami-Dade NOA: Meets Florida Building Code for High

Velocity Hurricane Zones (Dade County)

For specific product approvals and code standards contact your EMS Sales Representative.

Copyright@ 2017 Eastern Metal Supply, Inc. HV, Bertha are all trademarks of Eastern Metal Supply, Inc. All rights reserved.

# Eastern Metal Supply

FL: 800-432-2204 NC: 800-343-8154 TX: 800-996-6061 MO: 888-822-6061 www.EasternMetal.com info@EasternMetal.com

+ See www.hurricanefabric.com for more information

02/02/17 Hurricane 01

# BERTHA™ ROLL FORM STORM PANEL SYSTEM



Before Installation

After Installation

2" Panels	<u>Hemmed</u>	<u>Knurled</u>
.050 Aluminum	NC Only	FL, NC
.050 Aluminum - 1/2 panel	N/A	FL, NC
24 Gauge Galv Steel	N/A	FL, NC
24 Gauge Galv Steel - 1/2	N/A	FL



Any item manufactured in FL is available via shuttle to the other branches. Any item manufactured in NC is available via shuttle to TX.

FL • NC • TX maintain inventory of 20' panels that can be offline punched and cut to size.

# 2" .050 BERTHA™ **Aluminum Storm Panel**

Mill Finish - 1/2 panel available



Code Approved: FBC (Non-HVHZ), TDI, IBC/IRC

# 2" 24-Gauge BERTHA™ **Galvanized Steel Panel**

1/2 panel available



Code Approved: FBC (Non-HVHZ), TDI, IBC/IRC

2" BERTHA™ Clear Panel 1/2 panel available



Code Approved: FBC (Non-HVHZ), FBC (HVHZ), TDI, IBC/IRC, Miami-Dade

# \*\*All panels are available cut-to-length

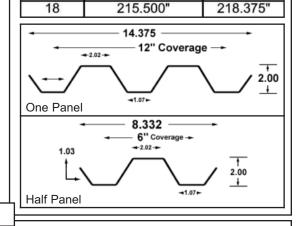


Scan QR Code to View Hurricane Section Online.

Copyright 2007-2013 Eastern Metal Supply. Inc. HV™, BERTHA HV®, BERTHA®, DACROSHIELD® are all trademarks of Eastern Metal Supply, Inc. ASSA® is a trademark of the American Shutter Systems Association. All rights reserved.

# Hurricane 03

#### 2" Coverage Chart 2" Total **Cut Mounting** # of Track At: Panel Coverage **Panels** 14.375" 1 13.375" 1.5 19.250" 20.375" 25.375" 26.375" 2 2.5 31,250" 32.375" 3 37.250" 38.375" 3.5 43.125" 44.375" 4 49.375" 50.375" 55.250" 4.5 56.375" 5 61.000" 62.375" 5.5 67.000" 68.375" 72.750" 74.375" 6 6.5 78.625" 80.375" 84.625" 86.375" 90.500" 92.375" 7.5 96.500" 98.375" 8 8.5 102.375 104.375 108.250' 110.375 9 9.5 114.250' 116.375" 10 120,125 122.375" 126.000" 10.5 128.375" 132.000" 134.375" 11 11.5 137.875" 140.375" 143,750" 146.375" 12 149.625 152.375" 12.5 13 155.750' 158.375" 13.5 161.500" 164.375" 14 167.375" 170.375" 14.5 173.250' 176.375" 179.625 182.375" 15 15.5 185.500" 188.375" 16 191.500" 194.375" 197.375" 200.375" 16.5 17 203.625' 206.375"



209.500"

# Quality Shapes In Aluminum

**EMS FL** 1-800-432-2204 (561) 588-4780 - fax **EMS NC** 

1-800-343-8154

**EMS TX** 1-800-996-6061

17.5

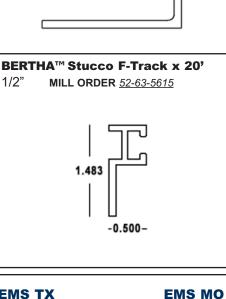
**EMS MO** 1-888-822-6061

212.375"

(704) 391-2267 - fax (281) 656-2297 - fax (314) 344-3349 - fax Additional Locations: West Palm Beach & Lakeland, FL; Newark, DE and Birmingham, AL

website: www.easternmetal.com e-mail: info@easternmetal.com version: 08/13/13

#### CODE APPROVED BERTHA™ HEADERS: 2" X .094 BERTHA™ U-Header **BERTHA™ H-Header** 1" Build-Out BERTHA™ Header 2" x .094" x 20' 2" x .094" x 20' 2" x .094" x 20' 40-WH-4500 40-WH-3500 40-WH-3550 White White White 40-MB-3550 Bronze 40-MB-4500 **Bronze** 40-MB-3500 Bronze .062 White Non-Approved .062 White Non-Approved 40-WH-450 40-WH-350 40-MB-450 .062 Bronze Non-Approved 40-MB-350 .062 Bronze Non-Approved 3" Build-Out BERTHA™ Header 2" Build-Out BERTHA™ Header BERTHA™ 1" Studiess Track x 20' 2" x .094" x 20' 2" x .094" x 20' 40-WH-630 White 40-WH-3560 White 40-WH-3570 White 40-MB-630 **Bronze** 40-MB-3560 Bronze 40-MB-3570 Bronze BERTHA™ Studiess Flat Track x 20' BERTHA™ 2" Studless Track x 20' BERTHA™ Reverse "F" Track x 20' 40-WH-620 40-63-615 (TX) M/F 40-WH-632 White White 40-WH-615 White 40-MB-632 Bronze 40-MB-615 Bronze BERTHA™ 3" Studiess **BERTHA™ Studiess Angle** Track x 20' Track x 20' 1/2" 40-WH-610 40-WH-635 White White 40-MB-610 Bronze





**EMS FL** 1-800-432-2204 (561) 588-4780 - fax

**EMS NC** 1-800-343-8154

Hurricane 04

**EMS TX** 1-800-996-6061

1-888-822-6061 (704) 391-2267 - fax (281) 656-2297 - fax (314) 344-3349 - fax

Additional Locations: West Palm Beach & Lakeland, FL; Newark, DE and Birmingham, AL

Quality Shapes In Aluminum website: www.easternmetal.com

e-mail: info@easternmetal.com

version: 12/01/16

# 2-1/4" BERTHA™ ROLL FORM STORM PANEL SYSTEM

# \*\*All panels are available cut-to-length

2-1/4" Panels	<u>Hemmed</u>	<u>Knurled</u>
.040 Aluminum	N/A	FL
.050 Aluminum	FL	FL
.050 Aluminum - 1/2 panel	N/A	FL
24 Gauge Galv Steel	FL	FL
24 Gauge Galv Steel - 1/2	N/A	FL
.030 Miami Dade Galv Steel	N/A	FL



Any item manufactured in FL is available via Shuttle to the other branches.

# 2-1/4" .040 BERTHA™ Aluminum Storm Panel

Mill Finish



Code Approved: FBC (Non-HVHZ), IBC/IRC

## 2-1/4" 24-Gauge BERTHA™ Galvanized Steel Panel

1/2 panel available



Code Approved: FBC (Non-HVHZ), IBC/IRC

## 2-1/4" .050 BERTHA™ Aluminum Storm Panel

Mill Finish\*/White \*1/2 panel available



Code Approved: FBC (Non-HVHZ), FBC (HVHZ), TDI, IBC/IRC, Miami-Dade

# 2-1/4 " .030 BERTHA™ Galvanized Steel Panel

1/2 panel available



Code Approved: FBC (HVHZ)

# 2-1/4" BERTHA™ Clear Panel



Code Approved: FBC (Non-HVHZ), TDI, IBC/IRC

# 2-1/4" ValueGuard Panel x 240"

103-06-240 (NC/TX) White Translucent



Code Approved: FBC (Non-HVHZ), TDI, IBC/IRC

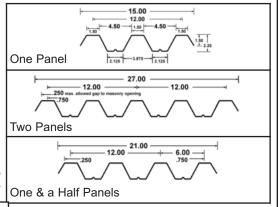
# Pre-Cut 2-1/4" Storm Panels

FL: In Stock; NC: Mfg lead time less than 1 week

.040 Aluminum <u>Mill Finish</u>		.050 Aluminum <u>Mill Finish</u>		Clear Panel Polycarbonate		
	80-40-33	x 33"	77-52-33	x 33"	79-06-33	x 33"
	80-40-47	x 47"	77-52-47	x 47"	79-06-47	x 47"
	80-40-57	x 57"	77-52-57	x 57"	79-06-57	x 57"
	80-40-70	x 70"	77-52-70	x 70"	79-06-70	x 70"
	80-40-88	x 88"	77-52-88	x 88"	79-06-88	x 88"
	80-40-102	x 102"	77-52-102	x 102"	79-06-102	x 102"

Copyright 2007-2013 Eastern Metal Supply, Inc.
HV<sup>M</sup>, BERTHA HV®,
BERTHA®, DACROSHIELD® and
trademarks of Eastern Metal Supply, Inc.
ASSA® is a trademark of the American Shutter
Systems Association. All rights reserved.

#### 2-1/4" Coverage Chart TOTAL PANEL CUT # OF **PANELS** COVERAGE TRACK AT: 13.375" 15" 1-1/2 19.250" 21" 2 25.375" 27" 2-1/2 31.250" 33" 3 37.250" 39" 3-1/2 43.125" 45" 49.375" 51" 4 4-1/2 55.250" 57" 63" 5 61.000" 5-1/2 67.000" 69" 6 72.750" 75" 6-1/2 78.625" 81" 84.625 87" 7 7-1/2 90.500" 93" 8 96.500" 99" 8-1/2 102.375" 105" 9 108.250" 111" 9-1/2 114.250" 117" 10 120.125 123" 10-1/2 126.000" 129" 11 132.000" 135" 141" 11-1/2 137.875" 147" 143.750" 12 12-1/2 149.625" 153" 13 155.750" 159" 13-1/2 165" 161.500" 14 167.375" 171" 177" 14-1/2 173.250" 15 179.625" 183" 15-1/2 185.500" 189" 191.500" 195" 16 16-1/2 197.375" 201" 17 203.625" 207" 17-1/2 209.500" 213" 219" 18 215.500"



Hurricane 05



## EMS FL 1-800-432-2204 (561) 588-4780 - fax

EMS NC 1-800-343-8154 **EMS TX** 1-800-996-6061

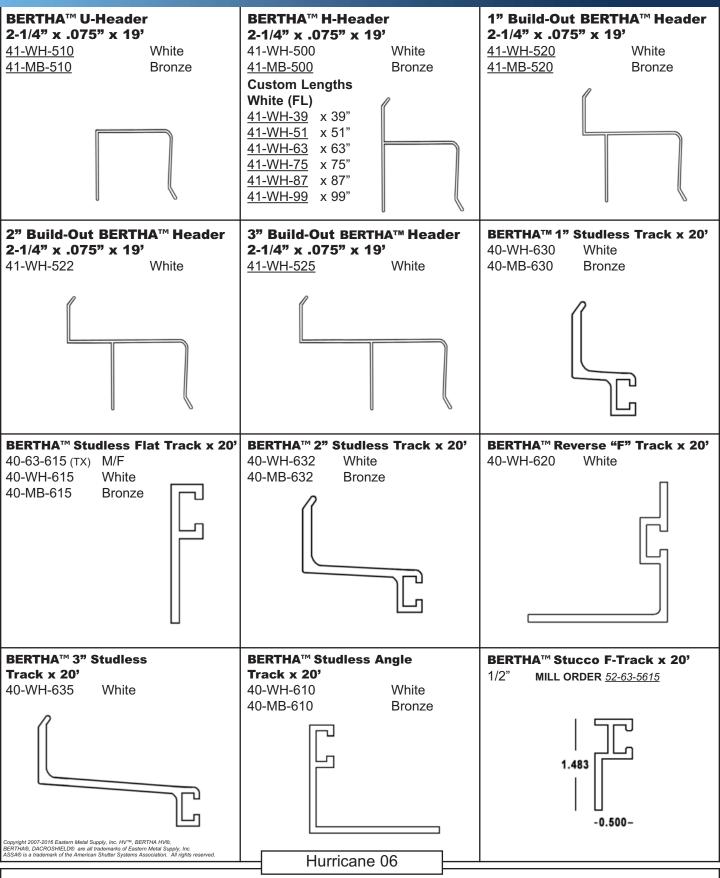
1-888-822-6061

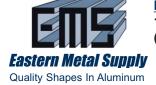
**EMS MO** 

1) 588-4780 - fax (704) 391-2267 - fax (281) 656-2297 - fax (314) 344-3349 - fax Additional Locations: West Palm Beach & Lakeland, FL; Newark, DE; Birmingham, AL and Akron, OH

<u>website</u>: www.easternmetal.com <u>e-mail</u>: info@easternmetal.com <u>version</u>: 10/11/17

# 2-1/4" X .075 BERTHA™ CODE APPROVED HEADERS & STUDLESS TRACKS





**EMS FL EMS NC** 

1-800-343-8154

**EMS TX** 1-800-996-6061

**EMS MO** 1-888-822-6061

1-800-432-2204 (561) 588-4780 - fax

(704) 391-2267 - fax (281) 656-2297 - fax (314) 344-3349 - fax

Additional Locations: West Palm Beach & Lakeland, FL; Newark, DE and Birmingham, AL

website: www.easternmetal.com e-mail: info@easternmetal.com version: 12/01/16

# BERTHA™ STUDDED TRACKS

### **BERTHA™ Studded Angle**

2 x 2 x .093 x 24' 3" 6" on center

Standard: Finish: Reverse: 11-MF-500 M/F N/A

11-WH-500 White 11-WH-500RS 11-MB-500 Bronze 11-MB-500RS

# **BERTHA™ Studded Angle**

2 x 2 x .093 x 24' 3" 12" on center

White: Standard

11-WH-39 x 39" 11-WH-51 x 51"

11-WH-63 x 63"

x 75" 11-WH-75 11-WH-87 x 87" 11-WH-99 x 99" Standard THE STATE

# Standard



Reverse *9777777* 

## **BERTHA™ Studded Angle**

2 x 2 x .093 x 24' 3" 12" on center

Standard: Finish: Reverse:

M/F SPECIAL ORDER 11-MF-510RS White 11-WH-510 SPECIAL ORDER 11-WH-510RS 11-MB-510

Bronze N/A

# **BERTHA™ Low Profile Studded Angle**

1.75 x 5/8 x 24' 3"

6" on center

11-WH-455 White

12" on center

White 11-WH-460



#### Standard



Reverse VIII 1111

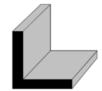
# **BERTHA™ Standard Angle x 20'**

2 x 2 x .093"

51-63-544 (TX) White 51-63-543 Bronze 52-63-013 Ivory

# BERTHA™ Snap Cap x 20' 3"

52-63-8292





Mates with Studded Plate (below)

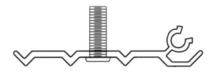
# **BERTHA™ Standard Angle x 20'**

2 x 2 x 1/8"

M/F 11-63-315 White 11-WH-376 11-MB-376 **Bronze** 11-IV-376 Ivorv 11-BG-376 Beige

# BERTHA™ Studded Plate x 20' 3"

52-63-8291 non studded 52-WH-8291 6" on center MILL ORDER 52-WH-8295 (FL) 12" on center



Mates with Snap Cap (above)

Hurricane 07

Copyright 2007-2016 Eastern Metal Supply, Inc. HV™, BERTHA HV BERTHA®, DACROSHIELD® are all trademarks of Eastern Metal Supply. I



## **EMS FL**

1-800-432-2204 (561) 588-4780 - fax

### **EMS NC**

1-800-343-8154

# **EMS TX**

1-800-996-6061

## **EMS MO** 1-888-822-6061

(704) 391-2267 - fax (281) 656-2297 - fax (314) 344-3349 - fax

Additional Locations: West Palm Beach & Lakeland, FL; Newark, DE and Birmingham, AL

website: www.easternmetal.com

e-mail: info@easternmetal.com

version: 08/15/16

# Important Notes:

- 1. The following instructions are intended for openings with standard "H" header and studded angle mounted flush to the wall. If you have obstructions (raised stucco bands, sills, etc.) that will prevent mounting flush contact your retailer for alternative mounting tracks
- 2. Use the guide below for your type of construction.
- 3. Always wear gloves and safety goggles while cutting, drilling or handling storm panels.

#### **Wood Construction**

#### **Concrete Construction**

Drill Size:	Fastener Type:	Drill Hole:
1/8"	Lagscrew	1"
1/8"	Male Panel Mate	1"
1/8"	Female Panel Mate	1"

Drill Size:	Fastener Type:	Drill Hole:
3/16"	Tapcom	1-3/4"
3/16"	M & FM Panel Mate	1-3/4"
3/16"	Lead Anchor	1"

# Start Here:

On paper, draw a layout of your home, noting the location of each opening. Then number each opening with your front door as #1 then move counter clockwise and number each opening.

Measure both width and height of each opening to be protected, from the outside of your house.

Figure the total number of panels needed along with their height by using the corresponding chart in the brochure.

Panels can also be mounted horizontally by using (2) studded angles installed vertically on each side of your opening.

	Material Order Form						
Opening Number	Opening Size: W x H	Aluminum Panel	Clear Panel	Panel Height	H-Header Size	Studded Angle Size	CPW Sidewalk Bolt & Wingnut =Stitching
1	36" x 51"	2	1	57"	39"	39"	7 each

# Installation Instructions:

#### Step 1: Mounting "H" Header and Studded Angle

- 1. Drill  $\mathcal{U}$ " holes into "H" header and studded angle not more than 6" on center (oc) and within a maximum of 3" from each end (see Diagram A)
- 2. Mark the horizontal and vertical centers of your opening and the center of your mounting tracks ( see Diagram B).
- 3. From the center mark on each side of opening measure half the distance of panel length to the top and to the bottom of the opening and make a mark. Make sure the distance between your two marks equals the total panel length.



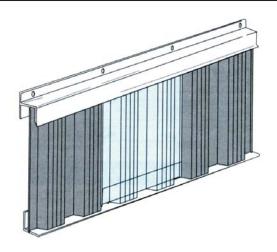
- 4. Beginning with the bottom, use a level, now draw a vertical line below the entire opening (must be a minimum of 3 ½" below the edge of opening).
- 5. Place the studded angle over the bottom line so the holes are centered on the line and with the opening. Mark all holes to drill (make sure anchor centers are a minimum of 3 ½" below the edge of the opening).
- 6. Drill holes using the type and size of drill bit required for your type of construction. For concrete, blow out all holes to remove cement dust. See chart for drill sizes, fastener type, and hole size.
- 7. Attach studded angle to the bottom of the opening.
- 8. For "H" header installation first place a panel on the left side and one on the right side of the studded angle and fasten with wingnuts. Using a level on top of the panels, make sure the tops are horizontal and tighten wingnuts.
- 9. Place the "H" header on the panels and fully seat it. Make sure the system is centered horizontally with the opening. Now gently raise the "H" header up until there is a maximum of  $\frac{1}{4}$ " space between the top of the mounting holes, then drill and mount the header. The job is complete.

#### Step 2 Mounting Panels

- 1. It is recommended that gloves be worn while installing panels. Always start left to right and overlap each panel.
- 2. Slide the top of each panel into the "H" header then push in the bottom over the Studs and install wingnut at the bottom.
- 3. When installing clear panel first skip that location and install the next aluminum panel first and attach only one wingnut at the bottom right of the panel.
- 4. Install the clear panel in the opening between the aluminum panels, making sure it rests on top of aluminum panel at the overlaps.
- 5. For the clear panel to fit you can gently squeeze each riser to place keyhole over studded angle. Polycarbonate has memory and will retain some flatness (wider than aluminum panel until installed.
- 6. To reinforce the clear panel installation, install and tighten 1" sidewalk bolt with a clear panel washer and wingnut by first drilling a ¼" hole 3" from top of panel below "H" header and at the midspan of overlaps as in Diagram A. Each clear panel requires 7 clear panel washers.
- 7. Complete the panel installation on one window at a time. Making sure to tighten all fasteners. Using a permanent marker number each panel in the sequence they were installed and identify each opening. Record number on your layout and save for later applications.

# ERTHA® Storm Panel Installation and Specification Guide

Metal Panels Manufactured by: **Eastern Metal Supply** 



**Distributed By:** 

# Also Available:

- Accordion Shutters
   Roll Shutters
  - Bahama & Colonial Shutters

	Parts List:	
1	.050 Aluminum Panel or 24 gauge Galvanized Steel Panel	
2	Polycarbonate Clear Panel	
3	H-Header Top Track	É
4	Studded Angle- Bottom Sill	0
5	Lagscrew- Permanent Mount in Wood	-шиший)
6	Tapcon- Permanent Mount in Concrete	
7	Male Panel Mate- Permanent Mount in Wood or Concrete	<=====================================
8	Female Panel Mate- For Removable Mount for Wood or Concrete	
9	Lead Anchor- For Removable Mount in Concrete	
10	Sidewalk Bolt- 1 1/2" For Removable Mount 1" Used in CPW	annung
11	Clear Panel Washer- (CPW) Reinforces Clear Panel	0
12	Wingnut- Secures Panel to Sill used with CPW also	•
13	Wingnut Driver- Secures Wingnut	<b>—</b>
14	Lead Anchor Set Tool- Taps in Lead Anchor	——————————————————————————————————————
15	5/16" Nut Driver- Secures Tapcon	
16	1/4" Steel Drillbit- Mounting Holes in Tracks and Panels	ammun
17	3/16" Masonry Bit- Drills Holes for Tapcon into Concrete	(Talaman Land
18	Combination Drillbit- Drills Hole for Lead Anchor into Concrete	on All Marie

# Tools Required:

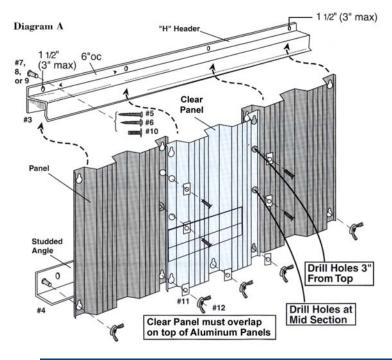
Pencil • Tape Measure • Level • Hammer • Electric Drill/ Hammer Drill • Straight Screw Driver • ¼" Steel Drill Bit • 3/16" Masonry Bit
 • Blower/Turkey Baster-a Tool\* for removing Cement Dust • 5/16" Nut Driver • Lead Anchor Set Tool • Wingnut Driver • Electrical Extension Cord • Black or Red Permanent Marker •

Required tools for direct mount and removable tracks with lead anchors



Metal Panels Manufactured by:

# Eastern Metal Supply



While the storm panel is installed, the openings blocked cannot be used as escape exits.

Number of Panels:					
Opening Width:	# of Aluminum Panels	# of Clear Panels	"H" Header	Studded Angle	
20" - 37"	2	1	39	39	
38" - 49"	3	1	51	51	
50" - 61"	4	1	63/75	63/75	
62" - 73"	4	2	75	75	
74" - 84"	5	2	87/99	87/99	
85" - 96"	6	2	99	99	

Panel Height				
Opening Height:	Panel Height:			
23" - 26"	33"			
26" - 41"	47"			
40" - 51"	57"			
52" - 64"	70"			
63" - 82"	88"			

# Warning:

The homeowner or tenant is advised that this storm panel system will not offer hurricane protection unless all reinforcing bolts and clear panel washers are properly installed. Clear Panel must overlap on top of Aluminum Panels. Clear Panels are to be installed only for the duration of a hurricane warning period and are not intended for permanent use, with prolonged exposure to the sun.

# Storage & Maintenance:

Protective gloves should always be worn when handling panels. Panels should be stored flat to prevent a tipping hazard, but should be elevated off of the floor with several pieces of 2 x 4 lumber to prevent moisture from contacting metal. Make sure panels are clear and dry and stored in an area with good air circulation. Do not wrap panels in plastic or other moisture trapping material. If moisture discoloration occurs (gray or black stain) this does not effect your structural strength.

Lexan is an extremely strong material, however, it can be scratched. When moving the panels (putting up, taking down, or storing), be sure to avoid contact with abrasive surfaces such as concrete walls, stucco, and sharp metal corners. Also, be sure to wash away abrasive particles and granuals of sand before storing in the nesting position.

If panels need cleaning, use ONLY SOAPY WATER and a clean sponge or rag. Dishwashing detergent and water is recommended. DO NOT use ammonia, chlorine bleach, or any product containing solvent based ingredients. DO NOT use abrasive cleaners. DO NOT use steel wool pads, scrubber sponges, or a used sponge or rag that may have sand particles embedded in it.