HURRICANE STORM PANEL MANUFACTURING HVHZ IMPACT STORM PANEL INSTALLATION ANCHORAGE DETAILS

GENERAL NOTES:

- THIS PRODUCT HAS BEEN TESTED AND IS DESIGNED TO COMPLY WITH THE FOLLOWING AT THE DESIGN PRESSURE(S) STATED HEREIN.
 2010 FLORIDA BUILDING CODE (FBC) REQUIREMENTS, WIND ZONE 4, MISSILE LEVEL D AS MODIFIED BY SECTION 1609.1.2.4 OF THE 2010 FLORIDA BUILDING CODE.
- 1.2. 2010 FLORIDA BUILDING CODE REQUIREMENTS FOR THE HIGH VELOCITY HURRICANE ZONE, LARGE MISSILE IMPACT.
- 1.3. THE PRODUCT DETAILS CONTAINED HEREIN ARE BASED UPON SIGNED AND SEALED TEST REPORT # ATLNC 0428.01-04 AND ATLNC 0428.03-04 DATED 05/28/04, AND ATLNC 0224.01-09 AND ATLNC 0224.02-09 DATED 02/25/09 AND ASSOCIATED LABORATORY STAMPED DRAWINGS.
- 2. ADEQUACY OF THE EXISTING STRUCTURAL CONCRETE / MASONRY AND 2X FRAMING AS A MAIN WIND FORCE RESISTING SYSTEM CAPABLE OF WITHSTANDING AND TRANSFERRING APPLIED PRODUCT LOADS TO THE STRUCTURE IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD.
- 3. PANEL MATERIAL: 0.050 3105-H14 ALUMINUM ALLOY OR 24 GA. (0.023" MIN.) STEEL WITH Fy = 53 KSI AFTER ROLLING, CONFORMING TO ASTM A-446 STRUCTURAL QUALITY STEEL, CRADE C MIN. WITH A G60 MIN. COATING OF GALVANIZED STEEL.
- 4. ALL BOLTS AND WASHERS SHALL BE GALVANIZED OR STAINLESS STEEL WITH A MINIMUM TENSILE STRENGTH OF 60 K.S.I.
- 5. AT LEAST ONE WARNING NOTE PER OPENING MAY BE PLACED IN A CONSPICUOUS LOCATION ON THE PANEL SYSTEM ADVISING THE HOMEOWNER OR TENANT THAT THE PANELS WILL NOT OFFER HURRICANE PROTECTION UNLESS ALL PANELS AND FASTENERS ARE INSTALLED AS SHOWN HEREIN AND WARN INSTALLER IN THE SAME MANNER THAT HANDLING PANEL WITHOUT PROTECTIVE GLOVES COULD CAUSE INJURY.
- 6. THE IMPACT PROTECTIVE SYSTEM SHALL BE INSTALLED IN A MANNER TO COMPLETELY COVER THE ENTIRE FENESTRATION (WALL OPENING) IN ALL DIRECTIONS.
- 7. WHEN INSTALLED AS INDICATED, THE PRODUCT HEREIN IS CONSIDERED A NON-POROUS IMPACT PROTECTIVE SYSTEM.
- 7.1. WHEN USED OUTSIDE THE HIGH VELOCITY HURRICANE ZONE (HVHZ), NO MINIMUM SEPARATION FROM THE PROTECTED FENESTRATION ASSEMBLY IS REQUIRED. HOWEVER, THE MANUFACTURER SUGGESTS A MINIMUM SEPARATION OF 1 INCH. HOWEVER, THE SEPARATION TABLE SHOWN ON SHEET 6 CAN BE USED TO PROVIDE A SEPARATION DISTANCE IF DESIRED BY THE USER.
- 7.2. WHEN INSTALLED IN THE HIGH VELOCITY HURRICANE ZONE (HVHZ), A MINIMUM SEPARATION DISTANCE AS SHOWN IN THE SEPARATION TABLE ON SHEET 6 MEETING THE REQUIREMENTS OF SECTION 2413.2 OF THE 2010 FLORIDA BUILDING CODE SHALL BE MAINTAINED.
- 8. THE PRODUCT DESCRIBED HEREIN IS DESIGNED FOR USE AS A IMPACT RESISTANT COVERING DURING PERIODS OF HIGH WINDS. THE STORM PANEL IS TEMPORARY AND REMOVABLE AND NOT INTENDED TO BE A PERMANENT PART OF THE STRUCTURE (ALTHOUGH THE INSTALLATION ANCHORS SHALL REMAIN A PERMANENT PART OF THE STRUCTURE).
- 9. MAXIMUM PANEL SIZE: SEE CHARTS ON SHEET 6.
- 10. PANELS MAY BE MOUNTED HORIZONTALLY WHERE APPLICABLE.
- 11. THE DRAWING SECTIONS HEREIN DEPICT TYPICAL CONCRETE / MASONRY AND WOOD INSTALLATION ANCHORAGE CONNECTIONS. THESE DETAILS MAY BE USED INTERCHANGEABLY AS FIELD CONDITIONS DICTATE.
- 12. IN ACCORDANCE WITH SECTION 1715.8 OF THE 2010 FBC AND SECTIONS R615.2 AND R615.3 OF THE 2010 FRC:
- 12.1. A PERMANENT LABEL SHALL BE SPACED NOT MORE THAN EVERY THREE (3) LINEAL FEET ON EACH PANEL. THAT LABEL SHALL FACE THE EXTERIOR OR OUTSIDE.
- 12.2. THE LABEL SHALL INCLUDE THE FOLLOWING INFORMATION.
- 12.2.1. PRODUCT APPROVAL HOLDER NAME AND ADDRESS.
- 12.2.2. ALL APPLICABLE METHODS OF APPROVAL.
- 12.2.3. THE TEST STANDARD(S) USED TO DEMONSTRATE COMPLIANCE.
- 12.2.4. FLORIDA PRODUCT APPROVAL NUMBER(S).

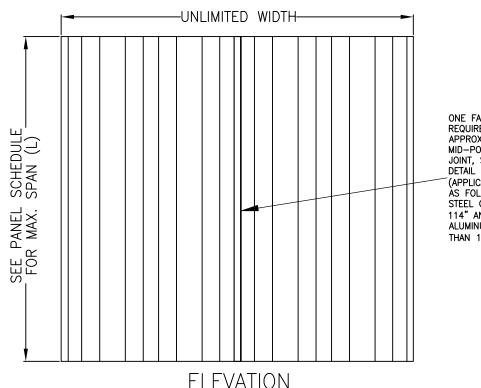
TABLE OF CONTENTS							
SHEET	REV.	SHEET DESCRIPTION					
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2 -	_	VERTICAL SECTIONS					
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4	_	VERTICAL & HORIZONTAL SECTIONS					
5	_	COMPONENTS					
6	_	PANEL DP SCHEDULE & SEPARATION SCHEDULE					
7	_	ANCHOR SCHEDULE & EGRESS SHUTTER ASSEMBLY					

DESIGN PRESSURE RATING (PSF)

SEE CHARTS ON SHEET 6

INSTALLATION NOTES:

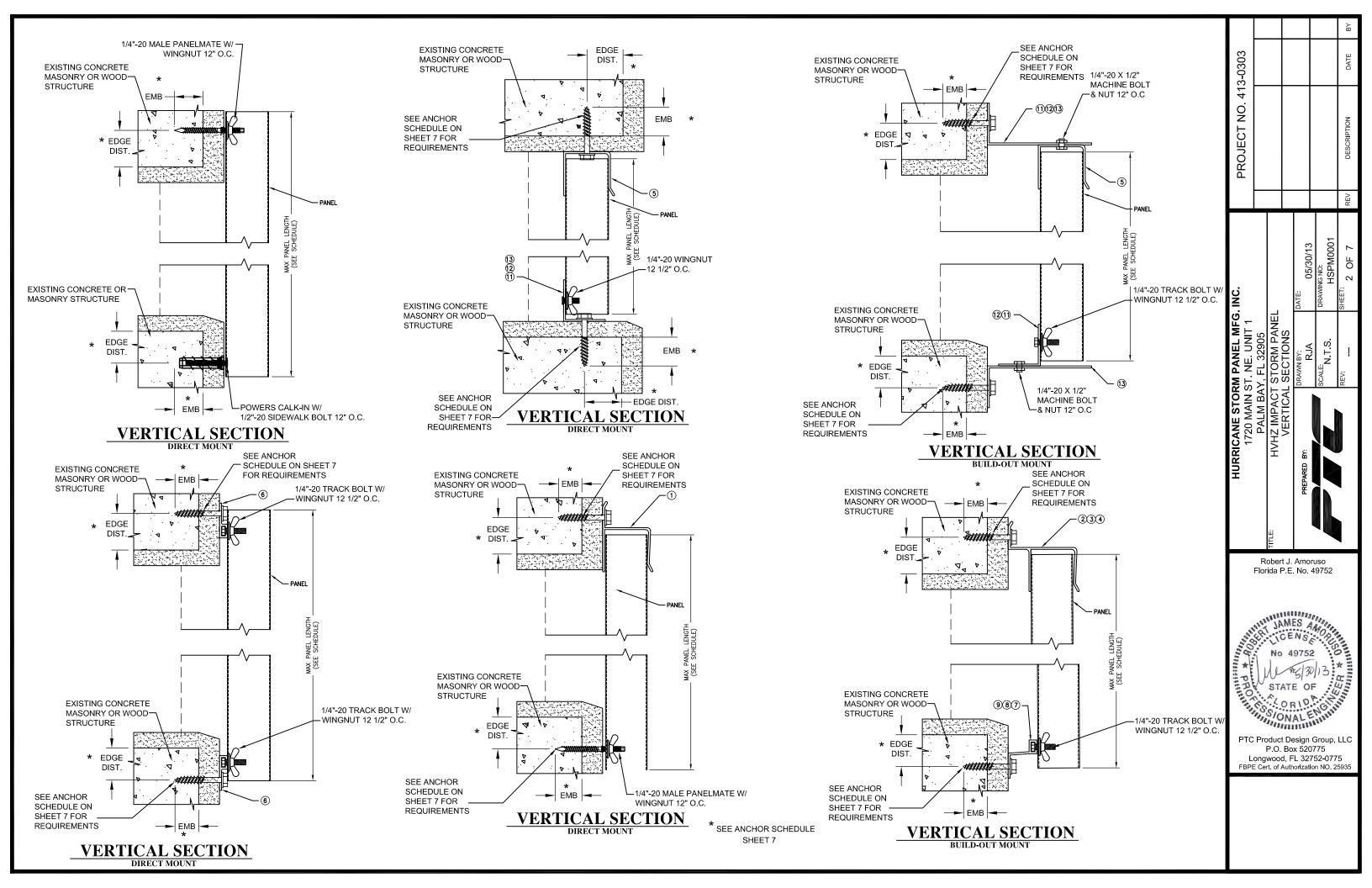
- 1. SEE ANCHOR SCHEDULE ON SHEET 7 OF 7 FOR ALLOWED FASTENERS, MINIMUM EMBEDMENT, MINIMUM EDGE DISTANCE AND REQUIRED ON CENTER (O.C.) ANCHOR SPACING.
- 2. INSTALLATION ANCHORS SHALL BE 3 INCHES FROM TRACK EDGE, 12 INCHES OR 8 INCHES MAXIMUM ON CENTER AS REQUIRED BY THE ANCHOR SCHEDULE ON SHEET 7 OF 7.
- 3. MINIMUM EDGE DISTANCE AND EMBEDMENT EXCLUDE WALL FINISHES (INCLUDING BUT NOT LIMITED TO STUCCO, FOAM, BRICK VENEER AND SIDING).
- 4. FOR CONCRETE BLOCK APPLICATIONS, DO NOT INSTALL INSTALLATION ANCHORS INTO MORTAR JOINTS.
- 5. INSTALLATION ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS AND ANCHORS SHALL NOT BE USED IN SUBSTRATES WITH STRENGTHS LESS THAN THE MINIMUM STRENGTH SPECIFIED BY THE ANCHOR MANUFACTURER.
- 6. INSTALLATION ANCHOR COMPACITIES FOR PRODUCTS HEREIN ARE BASED ON SUBSTRATE MATERIALS WITH THE FOLLOWING PROPERTIES:
- 6.1. WOOD MINIMUM SPECIFIC GRAVITY IS 0.42.
- 2. CONCRETE MINIMUM COMPRESSIVE STRENGTH SHALL BE AS SHOWN IN ANCHOR SCHEDULE ON SHEET 7.
- 6.3. MASONRY STRENGTH COMFORMANCE TO ASTM C-90.
- 7. STORM SHUTTER END CLOSURE:
- 7.1. NON-HIGH VELOCITY HURRICANE ZONE (HVHZ) INSTALLATIONS.
- 7.1.1. END CLOSURE IS OPTIONAL.
- 7.2. HIGH VELOCITY HURRICANE ZONE (HVHZ) INSTALLATIONS.
- 7.2.1. STORM SHUTTERS MUST COMPLETELY COVER AN OPENING IN ALL DIRECTIONS.
- 7.2.2. ON ANY SIDE OF AN OPENING, THE MAXIMUM SIDE CLEARANCE BETWEEN THE SHUTTER AND A WALL OR INSET SURFACE SHALL BE 1/4 INCH. ANY DISTANCE IN EXCESS OF 1/4 INCH SHALL REQUIRE END CLOSURE OR SHUTTER OVERLAP, WHERE APPLICABLE.
- 7.2.3. SHUTTER OVERLAP SHALL BE A MINIMUM OF 1.5 TIMES THE SIDE CLEARANCE BETWEEN THE SHUTTER AND WALL.

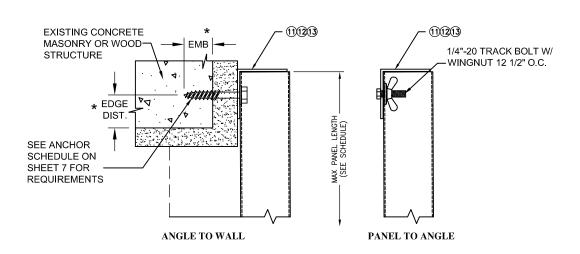


ONE FASTENER
REQUIRED AT
APPROXIMATE
MID-POINT OF LAP
JOINT, SEE PANEL LAP
DETAIL ON SHEET 3

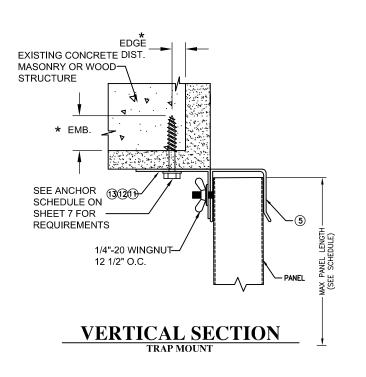
(APPLICABLE LENGTHS
AS FOLLOWS: 24 GA.
STEEL GREATER THAN
114" AND 0.050"
ALUMINUM GREATER
THAN 120"

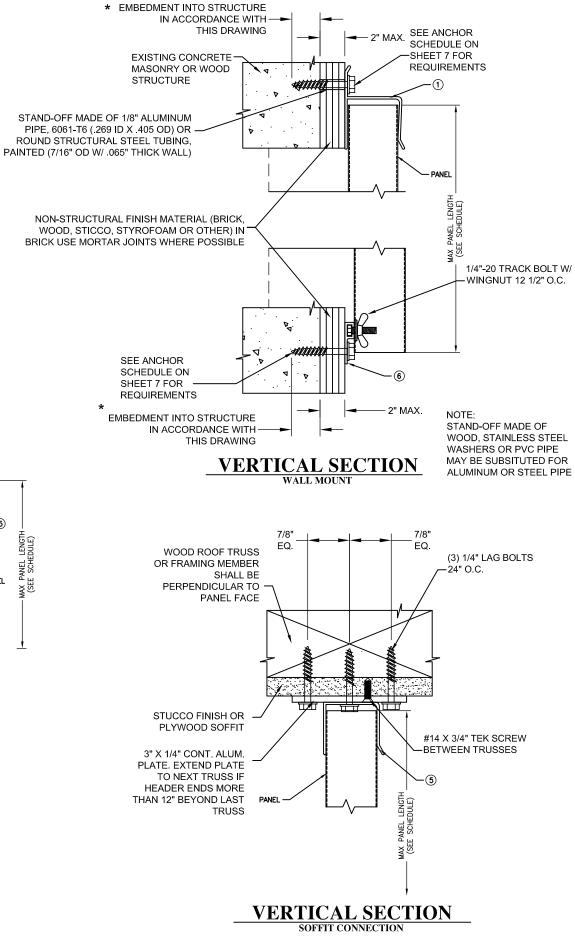
413-0303 9 **PROJECT** ᆸᆸ ORM PA N⊤S HVHZ GENERAL, INST Robert J. Amoruso Florida P.F. No. 49752 STATE OF PTC Product Design Group, LLC P.O. Box 520775 Longwood, FL 32752-0775 FBPE Cert. of Authorization NO. 25935

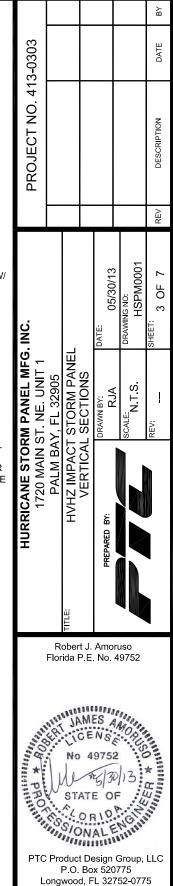




VERTICAL SECTION

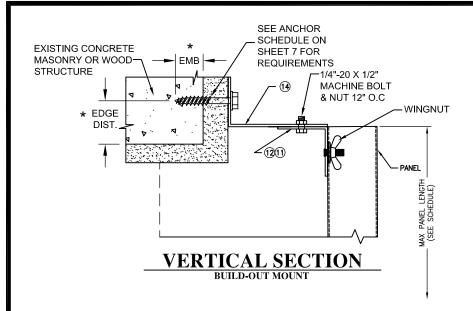


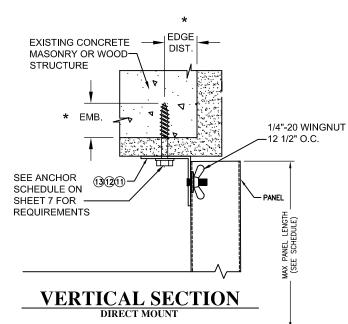


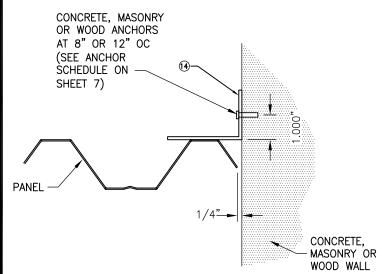


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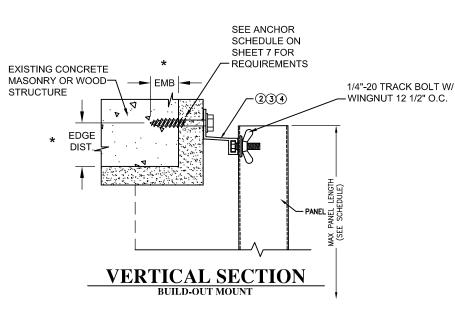
* SEE ANCHOR SCHEDULE SHEET 7

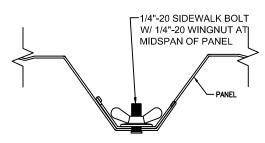




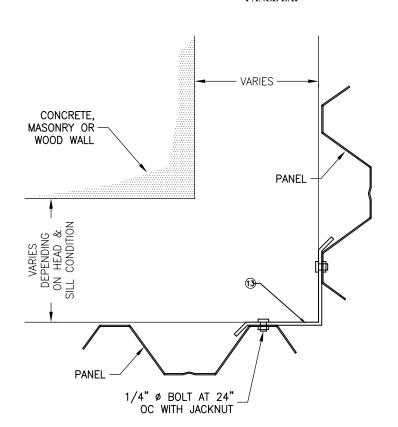


HORIZONTAL SECTION END CLOSURE (SEE INSTALLATION NOTE 7 ON SHEET 1)

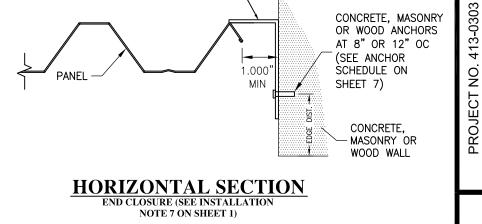


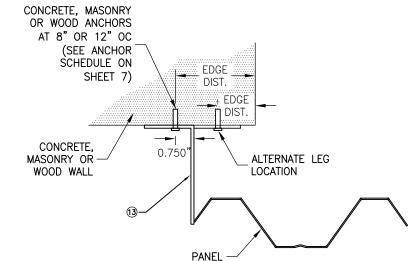


$\frac{\textbf{HORIZONTAL SECTION}}{\text{PANEL LAP}}$

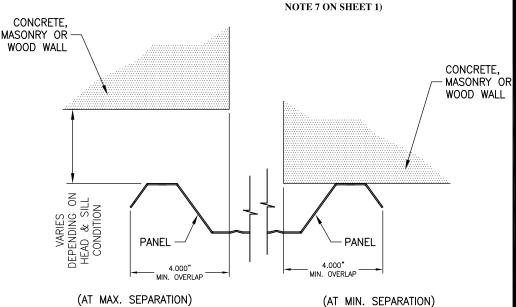


HORIZONTAL SECTION END CLOSURE (SEE INSTALLATION NOTE 7 ON SHEET 1)





HORIZONTAL SECTION END CLOSURE (SEE INSTALLATION



HORIZONTAL SECTION END CLOSURE (SEE INSTALLATION NOTE 7 ON SHEET 1)

* SEE ANCHOR SCHEDULE SHEET 7 HURRICANE STORM PANEL MFG. INC.

1720 MAIN ST. NE. UNIT 1
PALM BAY, FL 32905
HVHZ IMPACT STORM PANEL

VERTICAL & HORIZONTAL SECTIONS

VERTICAL & HORIZONTAL SECTIONS

SCALE:

RJA

SCALE:

REV.
SHEET:

SHEET:

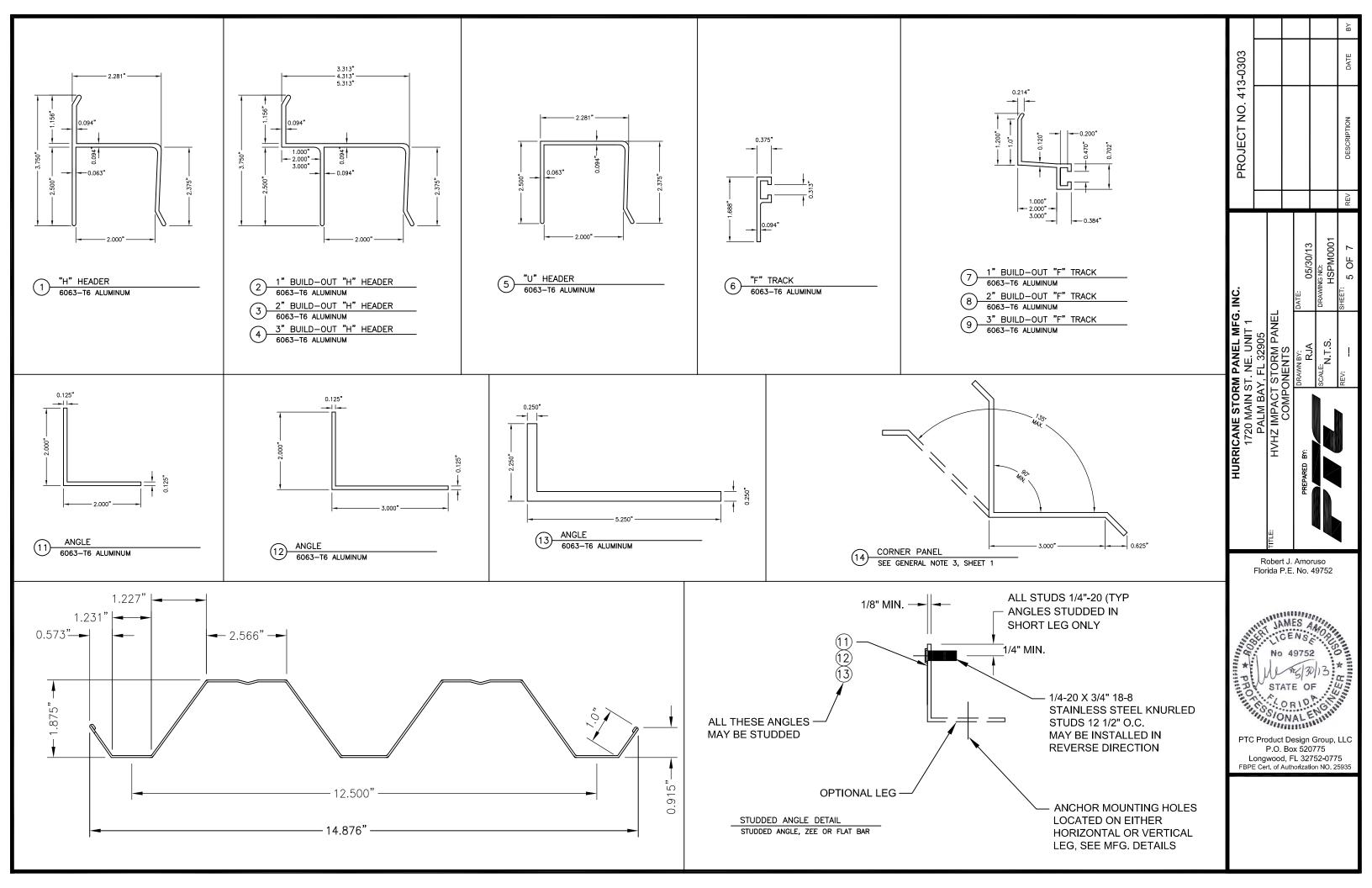
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PTC Product Design Group, LLC P.O. Box 520775 Longwood, FL 32752-0775 FBPE Cert. of Authorization NO. 25935



PANEL DP TABLE

PANEL DP TABLE NOTES:

- 1. ENTER PANEL DP TABLE WITH POSITIVE AND NEGATIVE DESIGN LOAD TO DETERMINE MAX. LENGTH. POSITIVE LOADS LESS THAN NEGATIVE LOADS ARE ACCEPTABLE.
- 2. FOR DESIGN LOADS BETWEEN TABULATED VALUES, USE NEXT HIGHER LOAD OR LINEAR INTERPOLATION TO DETERMINE ALLOWABLE DESIGN PRESSURE BASED ON INSTALLED PANEL LENGTH.

0.050" Aluminum								
Design I	Pressure	Max. Panel		Mid-Point				
Positive Negative		Length (L) (in)	Panel Length Range (L) (in)	Fastener Required per Elevation				
28	28	144	from 138 to 144	yes				
31	31	138	from 132 to 138	yes				
34	34	132	from 126 to 132	yes				
37	37	126	from 120 to 126	yes				
40	40	120	from 114 to 120	no				
43	43	114	from 108 to 114	no				
46	46	108	from 106 to 108	no				
47	47	106	from 102 to 106	no				
49	49	102	from 96 to 102	no				
52	52	96	from 90 to 96	no				
55	55	90	from 84 to 90	no				
58 58		84	from 78 to 84	no				
61 61		78	from 72 to 78	no				
64	64	72	from 56 to 72	no				
72	72	56	from 43 to 56	no				
79 79		43	0 to 43	no				

24 Ga. Galvanized Steel								
· .	Pressure sf)	Max. Panel	Panel Length	Mid-Point Fastener				
Positive Negative		Length (L) (in)	Range (L) (in)	Required per Elevation				
25	28	144	from 138 to 144	yes				
27	29	138	from 132 to 138	yes				
29	31	132	from 126 to 132	yes				
31	32	126	from 120 to 126	yes				
33	34	120	from 114 to 120	yes				
35 35		114	from 108 to 114	no				
37 38		108	from 106 to 108	no				
38 39		106	from 102 to 106	no				
39 41		102	from 96 to 102	no				
41 44		96	from 90 to 96	no				
43	47	90	from 84 to 90	no				
45 50		84	from 78 to 84	no				
47 53		78	from 72 to 78	no				
49 56		72	from 56 to 72	no				
54	64	56	from 43 to 56	no				
59	71	43	0 to 43	no				

PANEL SEPARATION TABLE

SEPARATION REQUIREMENTS - WIND ZONES 1, 2, 3 AND 4 NOT INCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVHZ)

- 1. REQUIRED (MANDATORY) SEPARATION REQUIREMENTS:
- 1.1. PER ASTM E1996-02 UNDER WHICH THIS PRODUCT WAS TESTED AND APPROVED IN THIS PRODUCT APPROVAL DOCUMENT AND IN ACCORDANCE WITH THE 2010 FLORIDA BUILDING CODE, ONLY POROUS SHUTTER ASSEMBLIES REQUIRE SEPARATION OF THE SHUTTER ASSEMBLY FROM THE FENESTRATION UNIT.
- 1.2. THIS PRODUCT IS A NON-POROUS SHUTTER ASSEMBLY. THEREFORE SEPARATION IS NOT REQUIRED BY ASTM E1996-02 AS ADOPTED BY THE 2010 FLORIDA BUILDING CODE.
- 1.3. THE MANUFACTURER RECOMMENDS THE USER MAINTAIN A NON-MANDATORY MINIMUM 1 INCH SEPARATION.
- 4. SEE ITEM 2 BELOW FOR NON-MANDATORY SEPARATION REQUIREMENTS THAT MAY BE EMPLOYED FOR WIND ZONES 1, 2, 3 AND 4 NOT INCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVHZ).
- 2. NON-MANDATORY SEPARATION REQUIREMENTS DERIVED FROM ASTM E1996-09:
- 2.1. THIS PRODUCT IS NOT TESTED OR APPROVED FOR ASTM E1996-09, THEREFORE THE FOLLOWING IS FOR GUIDANCE ONLY AND IS NON-MANDATORY TO THIS APPROVAL.
- 2.1.1. THIS PRODUCT WAS TESTED FOR WIND ZONES 1 THROUGH 4, MISSILE LEVEL D.
- 2.1.2. FOR NON ESSENTIAL FACILITIES (I.E. BASIC PROTECTION), SEPARATION OF THE SHUTTER ASSEMBLY FROM THE FENESTRATION UNIT IS NOT REQUIRED.
- 2.1.2.1. THE MANUFACTURER RECOMMENDS THE USER MAINTAIN A NON-MANDATORY MINIMUM 1 INCH SEPARATION.
- 2.1.3. FOR ESSENTIAL FACILITIES, SEPARATION OF THE SHUTTER ASSEMBLY FROM THE FENESTRATION UNIT IS REQUIRED FOR THE FOLLOWING.
- 2.1.3.1. FOR ASSEMBLY HEIGHTS < 30 FT. IN WIND ZONES 1 AND 2, THE SEPARATION TABLE BELOW CAN BE USED.
- 2.1.3.2. FOR ASSEMBLY HEIGHTS < 30 FT. IN WIND ZONES 3 AND 4, THIS PRODUCT DOES NOT MEET ASTM E1996-09 REQUIREMENTS.
- 2.1.3.3. FOR ASSEMBLY HEIGHTS > 30 FT. IN WIND ZONES 1 THROUGH 4. THE SEPARATION TABLE BELOW CAN BE USED.
- 2.2. SEE SEPARATION TABLE BELOW FOR NON-MANDATORY SEPARATION REQUIREMENTS THAT MAY BE EMPLOYED.

SEPARATION REQUIREMENTS - HIGH VELOCITY HURRICANE ZONE (HVHZ)

- 1. PER THE 2010 FLORIDA BUILDING CODE, SECTION 2413.2 AND THE 2010 FLORIDA RESIDENTIAL CODE, SECTION R4410.4.2, THE STORM SHUTTER SHALL BE DESIGNED AND CONSTRUCTED TO INSURE A MINIMUM OF 1 INCH (25 MM) SEPARATION AT MAXIMUM DEFLECTION.
- 2. THE SEPARATION TABLE BELOW SHALL BE USED TO ASCERTAIN MINIMUM SEPARATION IS MAINTAINED MEETING THESE REQUIREMENTS.

0.050" Aluminum						
Max. Panel	Minimum Separation					
Length (L) (in)	Distance (in)					
144	5.703					
138	5.625					
132	5.547					
126	5.469					
120	5.391					
114	5.328					
108	5.266					
106	5.245					
102	5.203					
96	5.141					
90	5.078					
84	5.016					
78	4.963					
72	4.913					
56	4.779					
43	4.671					

24 Ga. Galvanized Steel						
Max. Panel	Minimum Separation					
Length (L) (in)	Distance (in)					
144	5.625					
138	5.594					
132	5.563					
126	5.531					
120	5.500					
114	5.469					
108	5.438					
106	5.427					
102	5.406					
96	5.375					
90	5.344					
84	5.313					
78	5.281					
72	5.250					
56	5.167					
43	5.099					

NOTE FOR SEPARATION TABLE:

1. THIS TABLE'S SEPARATION DISTANCE REQUIREMENTS ENVELOPE THAT REQUIRED BY ASTM E1996 AND SECTIONS 2413.2 AND R4410.4.2 OF THE 2010 FLORIDA BUILDING CODE AND 2010 FLORIDA RESIDENTIAL CODE RESPECTIVELY.

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3-0303								DATE
PROJECT NO. 413-0303								DESCRIPTION
								REV
INC.			N SCHEDULE	DATE: 05/30/13	03/20/13	DRAWING NO:	HSPM0001	SHEET: 6 OF 7
CANE STORM PANEL MFG 1720 MAIN ST. NE. UNIT 1	PALM BAY, FL 32905	HVHZ IMPACT STORM PANEL	ND SEPARATION	DRAWN BY:	ACA.	SCALE	N.T.S.	REV:
HURRICANE STORM PANEL MFG. INC. 1720 MAIN ST. NE. UNIT 1	PALM BA	HVHZ IMPACT	PANEL DP SCHEDULE AND SEPARATION SCHEDULE	PREPARED BY:				
		TITLE						<u> </u>
			P.E	Amo	4	97	52	
A O See	SER!	AL NO	ĊĒ	NS 975	5	MO.	00000	28.88.88



PTC Product Design Group, LLC P.O. Box 520775 Longwood, FL 32752-0775 FBPE Cert. of Authorization NO. 25935

1/4"DIA. ANCHOR SCHEDULE

FASTENER TYPE	SUBSTRATE		MINIMUM EMBEDMENT	MINIMUM EDGE DIST.	MIN. SPACING BETWEEN	DIAMETER	ON CENTER (O.C.)	
TAGIENENTITE	TYPE	STRENGTH	(in.)	(in.)	FASTENERS (in.)	(in.)	SPACING (in.)	
	1/	4" DIA. W	OOD SCREV	V				
LAG SCREW	S-P-F	SG = 0.42	1 7/8	1	1 1/4	1/4	12	
TAPCON SG	S-P-F	SG = 0.42	1 1/2	3/4	1 1/4	1/4	12	
SAMMYS SHUTTER SCREWS	S-P-F	SG = 0.42	1 1/2	3/4	1 1/4	1/4	12	
FEMALE ELCO PANELMATE	S-P-F	SG = 0.42	1 7/8	3/4	1 1/4	1/4	12	
ELCO PANELMATE PLUS	S-P-F	SG = 0.42	1 7/8	3/4	1	1/4	12	
1/4" DIA. CONCRETE SCREW IN CONCRETE / MASONRY								
ELCO CRETE-FLEX SS4	CONCRETE	3350 PSI	1 3/4	1 3/4	2 1/4	1/4	12	
ITW TAPCON (CS)	CONCRETE	2000 PSI	1 3/4	3	3	1/4	12	
ITW TAPCON (SS) (SCOTS)	CONCRETE	3000 PSI	1 3/4	2 1/2	3	1/4	12	
ELCO TAPCON	CONCRETE	2700 PSI	1 3/4	1	4	1/4	12	
POWERS TAPPER	CONCRETE	2000 PSI	1 3/4	4	2 1/2	1/4	12	
ELCO PANELMATE PLUS	CONCRETE	3350 PSI	1 3/4	2 1/2	Ω	1/4	12	
POWERS CALK-IN	CONCRETE	2000 PSI	7/8	2	1 1/4	1/4	12	
TAPCON SG	CONCRETE	3295 PSI	1 3/4	1 1/4	3	1/4	12	
SAMMYS SHUTTER SCREWS	CONCRETE	3295 PSI	2 1/4	1 1/4	3	1/4	12	
1/	4" DIA. COI	NCRETE S	CREW IN C	MU HOLLOV	V			
TAPCON SG	CMU HOLLOW	1500	1 1/4	2 1/2	3	1/4	12	
SAMMYS SHUTTER SCREWS	CMU HOLLOW	1500	1 1/4	2 1/2	3	1/4	8	
POWERS CALK-IN	1500	C90	7/8	3	2 1/2	1/4	8	
1/4" DIA. CONCRETE SCREW IN CMU GROUT FILLED								
SAMMYS SHUTTER SCREWS	CMU GROUT FILLED	2000	2 1/2	1 1/4	3	1/4	12	
TAPCON SG	CMU GROUT FILLED	2000	1 3/4	1 1/4	3	1/4	12	

