

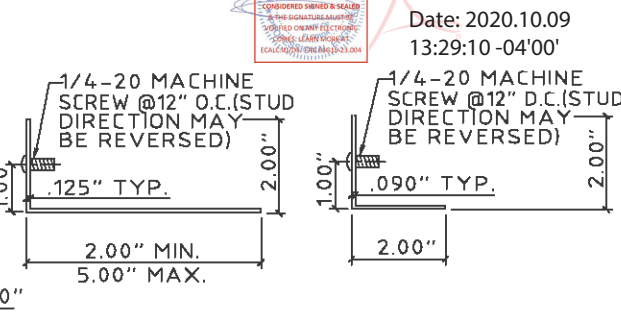
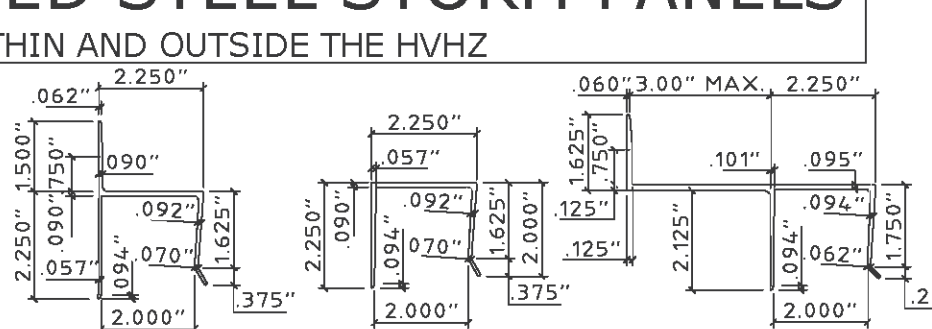
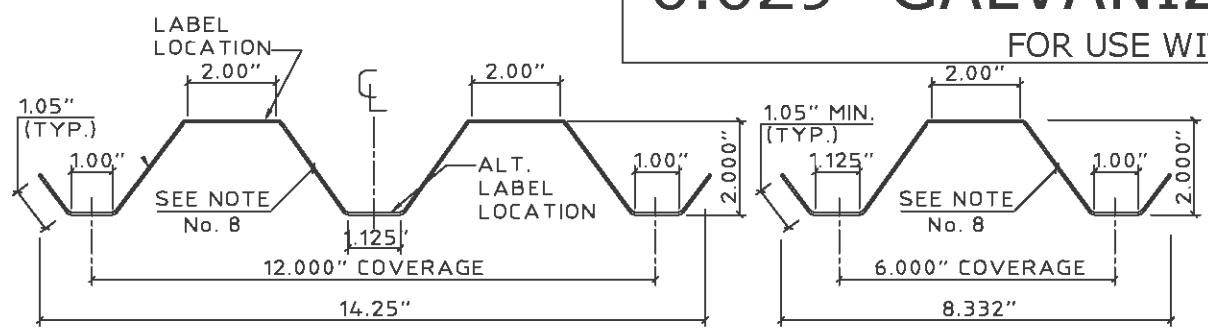
# 0.029" GALVANIZED STEEL STORM PANELS

FOR USE WITHIN AND OUTSIDE THE HVHZ



Digitally signed by  
Frank Bennardo  
Date: 2020.10.09  
13:29:10 -04'00'

FRANK BENNARDO, PE  
PE# 0046549 CA# 9885



1 STORM PANEL  
SCALE: 3" = 1'-0"

1a HALF STORM PANEL  
SCALE: 3" = 1'-0"

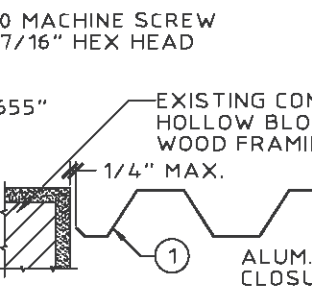
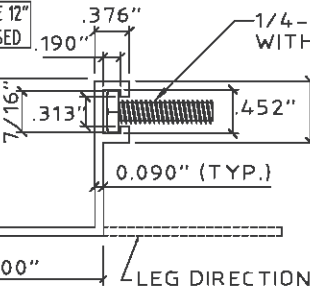
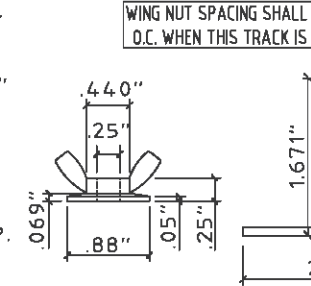
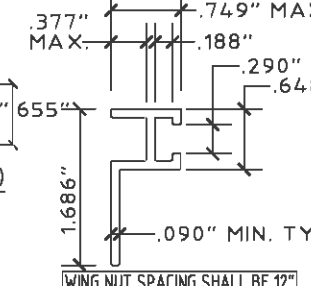
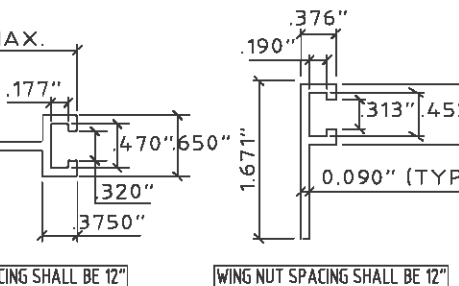
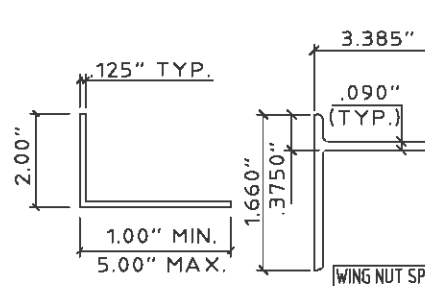
2 "h" HEADER  
SCALE: 3" = 1'-0"

3 "U" HEADER  
SCALE: 3" = 1'-0"

3a BUILD-OUT "U" HEADER  
SCALE: 3" = 1'-0"

4 STUD ANGLE  
SCALE: 3" = 1'-0"

5 STUD ANGLE  
SCALE: 3" = 1'-0"



6 ANGLE  
SCALE: 3" = 1'-0"

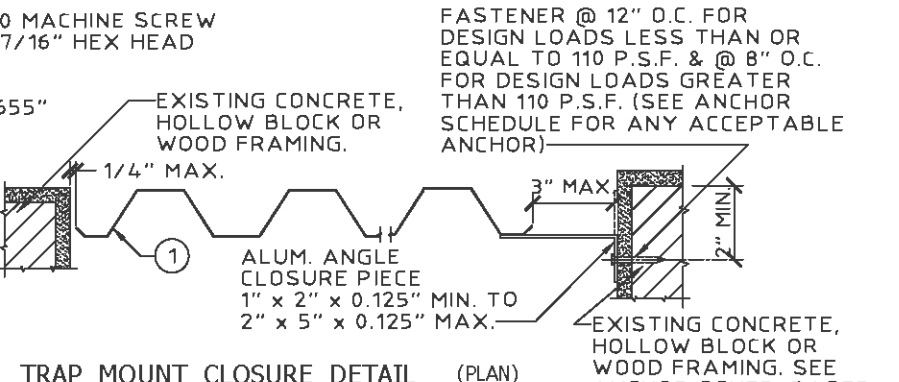
7 BUILD-OUT F-TRACK  
SCALE: HALF SIZE

8 "F" TRACK  
SCALE: HALF SIZE

8a BF-TRACK  
SCALE: HALF SIZE

9 WING NUT  
SCALE: HALF SIZE

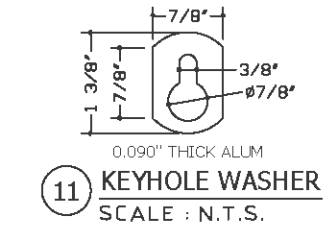
10 "F" ANGLE - TRACK  
SCALE: HALF SIZE



11 TRAP MOUNT CLOSURE DETAIL (PLAN)  
SCALE: 1-1/2" = 1'-0"

12 BUILD-OUT MOUNT CLOSURE DETAIL (PLAN)  
SCALE: 1-1/2" = 1'-0"

WALL MOUNT CLOSURE DETAIL (PLAN)  
SCALE: 1-1/2" = 1'-0"



11 KEYHOLE WASHER  
SCALE: N.T.S.

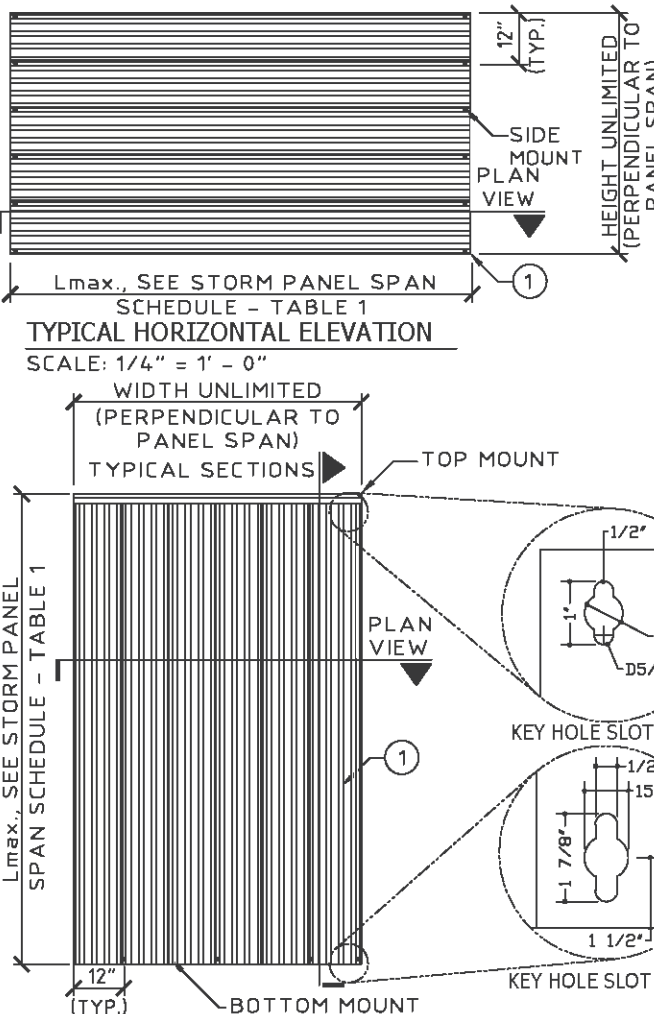
12 1/4-20 TRUSS HEAD BOLT  
SCALE: N.T.S.  
REQUIRES USE OF KEYHOLE WASHER  
IN DIRECT MOUNT APPLICATIONS

**GENERAL NOTES:**

- THE SYSTEM DESCRIBED HEREIN HAS BEEN DESIGNED AND TESTED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE SEVENTH EDITION (2020) FOR USE WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE. SEE PRODUCT EVALUATION REPORT FOR MORE INFORMATION.
- NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM. WIND LOAD DURATION FACTOR  $C_d=1.6$  HAS BEEN USED FOR WOOD ANCHOR DESIGN.
- POSITIVE AND NEGATIVE DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED PER SEPARATE ENGINEERING IN ACCORDANCE WITH THE GOVERNING CODE. PRESSURE REQUIREMENTS AS DETERMINED IN ACCORDANCE WITH ASCE 7 AND CHAPTER 1609 OF THE FLORIDA BUILDING CODE SEVENTH EDITION (2020) SHALL BE LESS THAN OR EQUAL TO THE POSITIVE OR NEGATIVE DESIGN PRESSURE CAPACITY VALUES LISTED HEREIN FOR ANY ASSEMBLY AS SHOWN.
- INSTALLATIONS SHALL NOT EXCEED THE MAXIMUM ALLOWABLE STRESS DESIGN (ASD) DESIGN RATINGS AND MAXIMUM SPAN LIMITS. ULTIMATE DESIGN WIND LOADS DETERMINED BY THE FBC AND ASCE 7 SHALL BE REDUCED TO ASD BY MULTIPLYING BY 0.6 (SEE FBC SECTION 1609).
- DESIGN PRESSURES NOTED HEREIN ARE BASED ON MAXIMUM TESTED PRESSURES DIVIDED BY A 1.5 SAFETY FACTOR.
- THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.
- THESE INSTALLATION INSTRUCTIONS ARE PART OF A PRODUCT APPROVAL EVALUATION AND SHALL ONLY BE USED IN CONJUNCTION WITH THE EVALUATION REPORT SUBMITTED FOR THE SAME PRODUCT APPROVAL. USE OF THESE APPROVAL DOCUMENTS SHALL COMPLY WITH CHAPTER 61G20-3.005 OF THE FLORIDA ADMINISTRATIVE CODE.
- PERMIT HOLDER SHALL VERIFY THE ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS. BRICK VENEER PER ASTM C62 (BY OTHERS) SHALL BE ANCHORED PROPERLY TO TRANSFER ANY APPLICABLE LOADS TO THE EXISTING HOST STRUCTURE.
- STORM PANELS SHALL BE 22 GAUGE STEEL WITH  $t=0.029"$  MINIMUM WITH GALVANIC COATING ( $t=0.028"$  BARE MIN. THICKNESS) CONFORMING TO ASTM A653, STRUCTURAL QUALITY, GRADE 80 WITH  $F_y = 86$  KSI MINIMUM, G60 GALVANIZED COATING.
- ALL EXTRUSIONS SHALL BE 6063-T6 ALUMINUM ALLOY, UNLESS NOTED OTHERWISE. ALL TOLERANCES SHALL BE IN ACCORDANCE WITH ADM 2015.
- TOP & BOTTOM DETAILS SHOWN MAY BE INTERCHANGED AS FIELD CONDITIONS DICTATE. PANELS MAY BE MOUNTED VERTICALLY OR HORIZONTALLY AS APPLICABLE.
- PANELS SHALL BE PERMANENTLY LABELED WITH LABELS SPACED NOT MORE THAN EVERY THREE LINEAL FEET PER PANEL AND SHALL FACE THE EXTERIOR AND CONTAIN AT LEAST THE FOLLOWING:

**ATLANTIC SHUTTERS, INC.**  
NORTH MIAMI BEACH, FL  
TAS 201, 202, & 203  
FL21070.1

VISIT [ECALC.IO/31017](http://ECALC.IO/31017)  
FOR SITE SPECIFIC DEVIATIONS  
& MORE INFORMATION ABOUT THIS DOCUMENT  
OR SCAN THIS QR CODE  
VISIT [ENGINEERINGEXPRESS.COM/STORE](http://ENGINEERINGEXPRESS.COM/STORE)  
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TYPICAL HORIZONTAL ELEVATION  
SCALE: 1/4" = 1'-0"

TYPICAL VERTICAL ELEVATION  
SCALE: 1/4" = 1'-0"

NOTE: TOP MAY BE SLOPED OR RADIUS TO MATCH GEOMETRY OF OPENING. MOUNTING HARDWARE MUST BE ROLL-FORMED TO THE RADIUS; NO NOTCHING OF MOUNTING HARDWARE TO ACHIEVE SHAPES IS ALLOWED.

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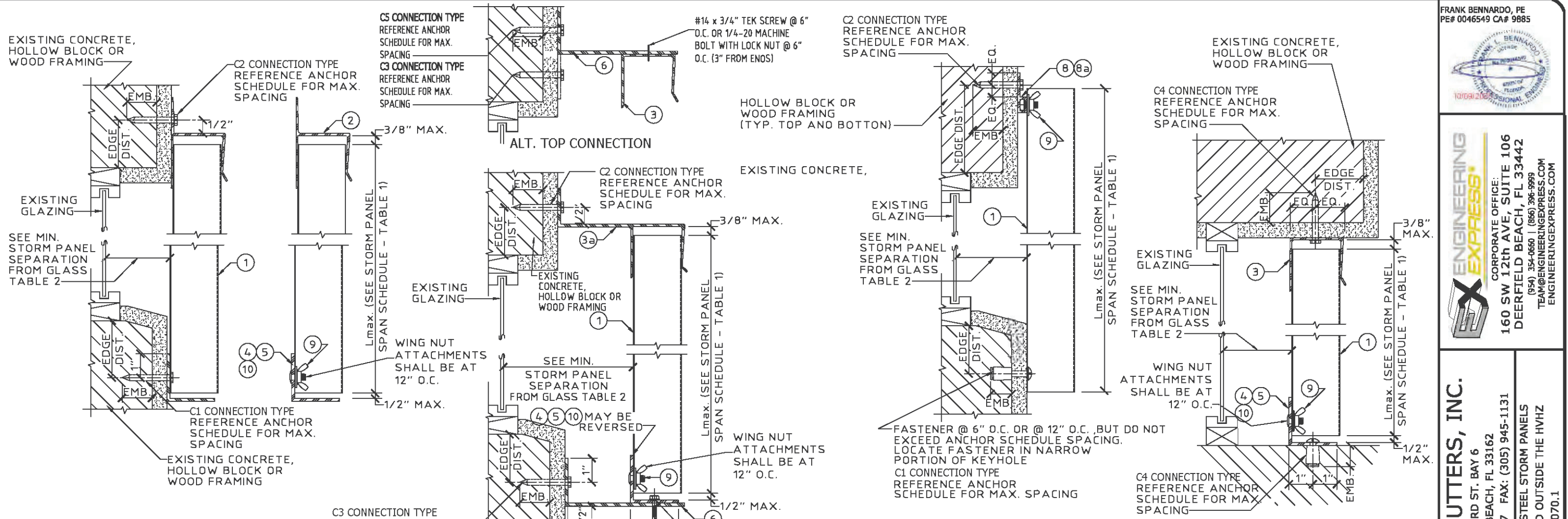
**ATLANTIC SHUTTERS, INC.**  
1970 NE 153RD ST. BAY 6  
NORTH MIAMI BEACH, FL 33162  
PHONE: (305) 945-7277 FAX: (305) 945-1131  
0.029" GALVANIZED STEEL STORM PANELS  
FOR USE WITHIN AND OUTSIDE THE HVHZ  
FL21070.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	ZAR	FLB	09/23/16
REV (ADD ANCHORS & NEW BAY)	FLB	FLB	12/15/16
REV 2017 FBC	RWN	FLB	10/31/17
2020 FBC	CCB	RWN	9/26/20

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20-31017a  
SCALE: N.T.S. U.N.O.

10/09/2020 - 11:49am colby C:\Users\colby\Engineering\Express\Production - Documents\Projects\20-31017 - FL21070.1 - 0.029in Galvanized Steel Storm Panels HVHZ & Non-HVHZ\WP2020\FBC20-31017b - FL21070.1 - DWG1.dwg



**A WALL MOUNT SECTION**  
SCALE: 3" = 1' - 0"

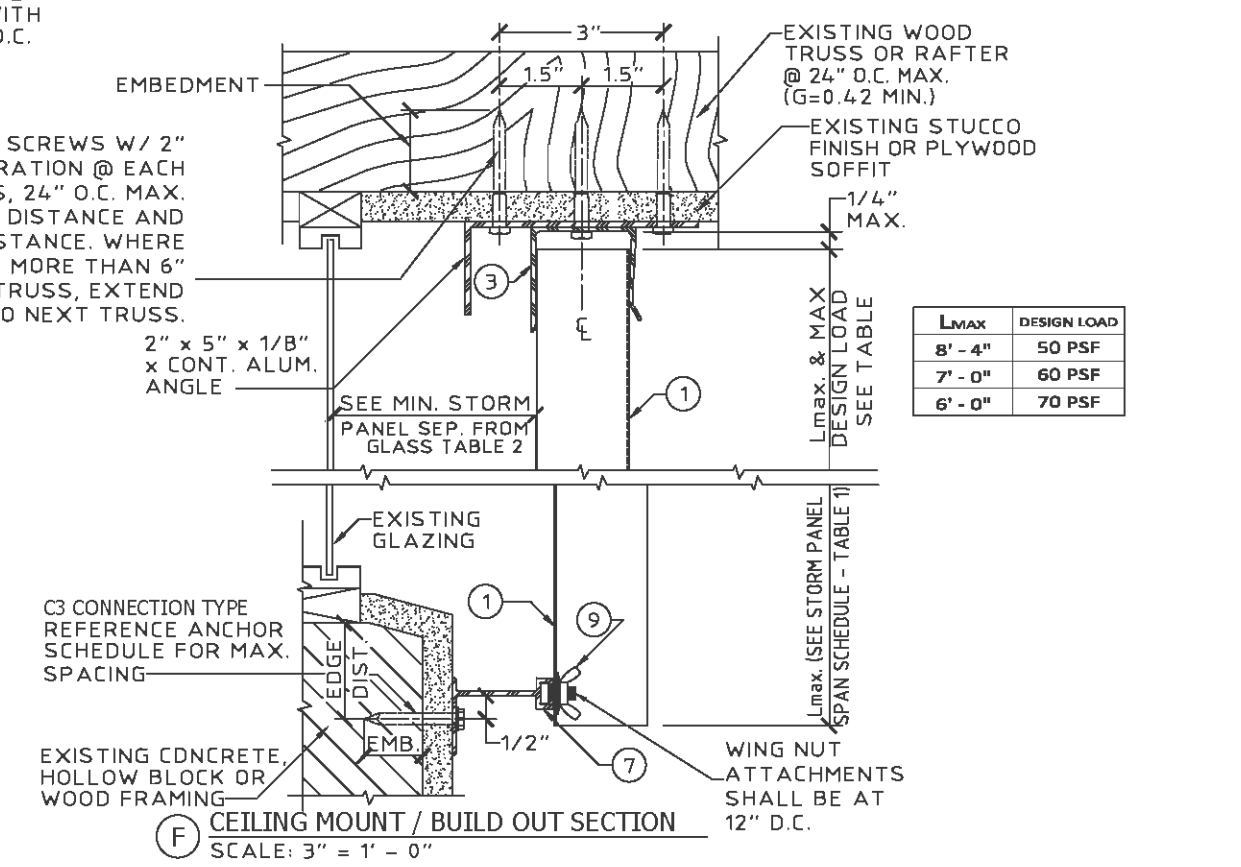
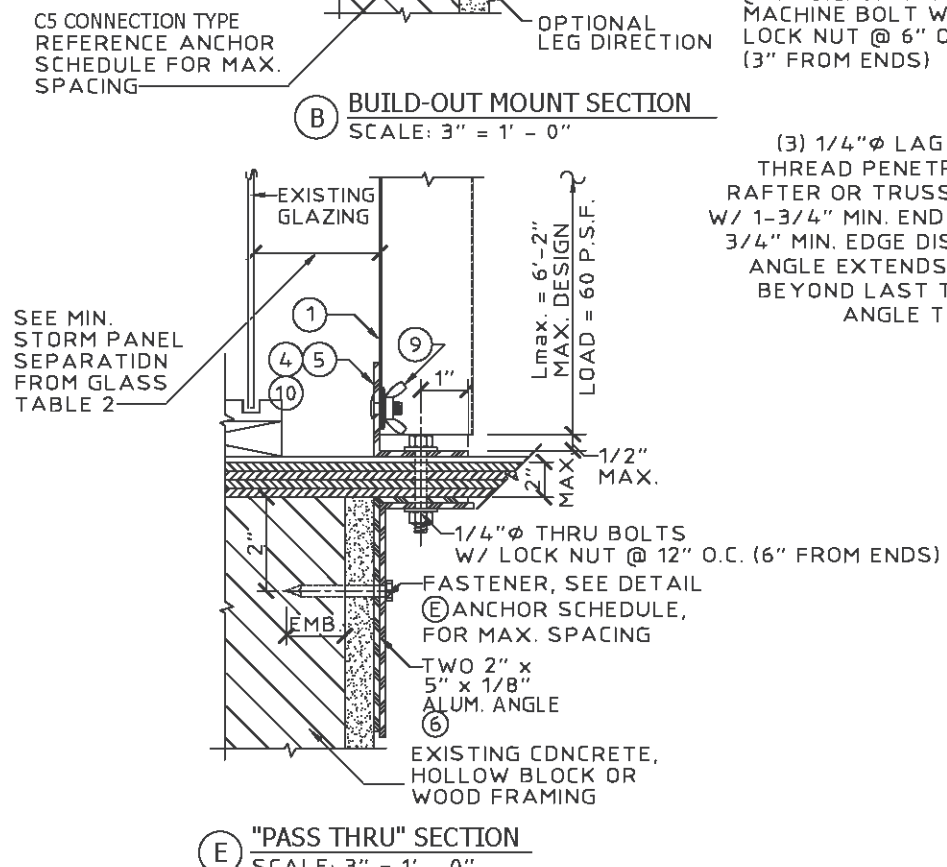
**B BUILD-OUT MOUNT SECTION**  
SCALE: 3" = 1' - 0"

**C "F" TRACK/DIRECT MOUNT SECTION**  
SCALE: 3" = 1' - 0"

**D CEILING/FLOOR MOUNT SECTION**  
SCALE: 3" = 1' - 0"

**DETAIL (E) ("PASS THRU" SEC.) ANCHOR SCHEDULE**

FASTENER TYPE	CONC.	BLOCK	WOOD
1/4" $\phi$ ITW TAPCON WITH 1-3/4" MIN. EMBEDMENT AND 2-1/2" MINIMUM EDGE DISTANCE	12"	4"	N/A
1/4" $\phi$ DEWALT ULTRACON W/ 1-1/2" MIN. EMBED. IN CONC. OR 1-1/4" EMBED. IN BLOCK AND 2" MIN. EDGE DISTANCE	7"	4"	N/A
1/4" $\phi$ ITW MAXI SET TAPCON WITH 1-1/4" MIN. EMBEDMENT AND 2" MINIMUM EDGE DISTANCE	5"	3"	N/A
1/4" $\phi$ x MIN. 2-1/2" LONG WOOD LAG SCREW WITH MIN. 1-3/4" EMBED. SHEAR PARALLEL OR PERP. TO WOOD GRAIN	N/A	N/A	12"



**E "PASS THRU" SECTION**  
SCALE: 3" = 1' - 0"

**F CEILING MOUNT / BUILD OUT SECTION**  
SCALE: 3" = 1' - 0"



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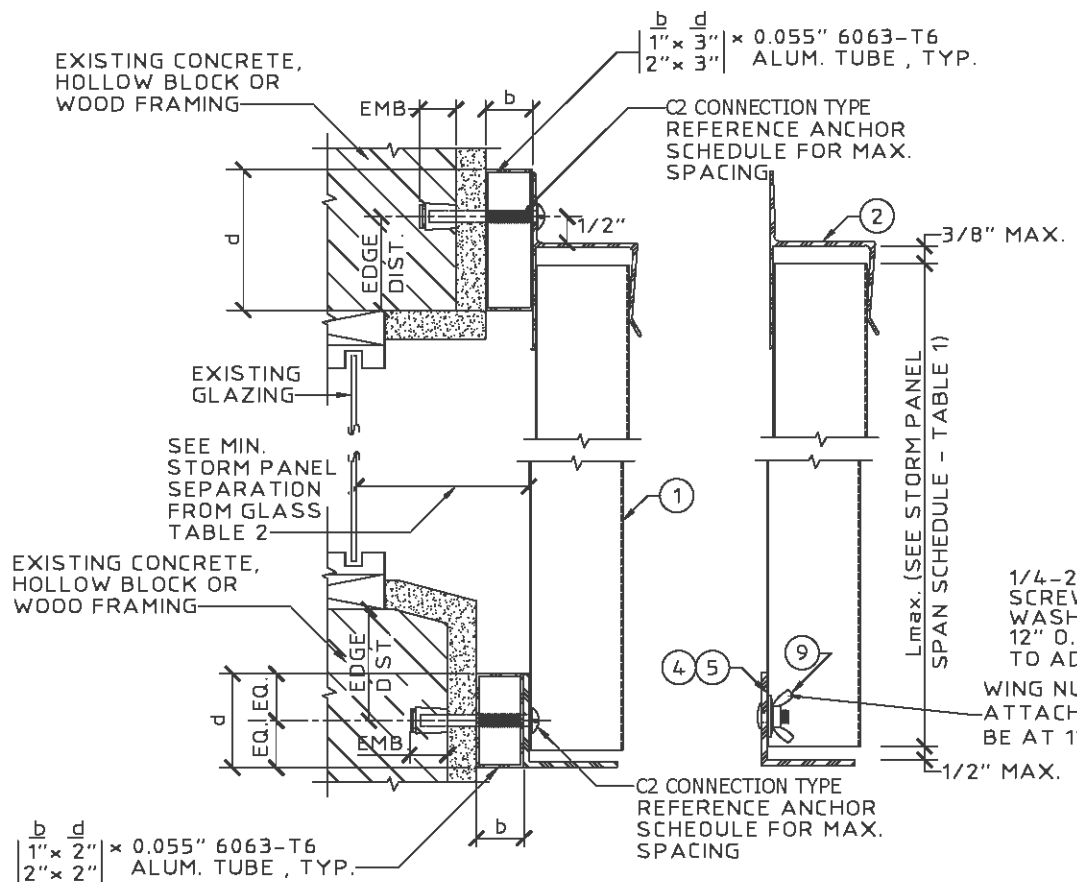
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FL21070.1

DRWN	CHKD	DATE
ZAR	FLB	09/23/16
REV (ADD ANCHORS & NEW DETAIL)	FLB	12/15/16
REV 2017 FBC	FLB	10/31/17
2020 FBC	CCB	9/26/20

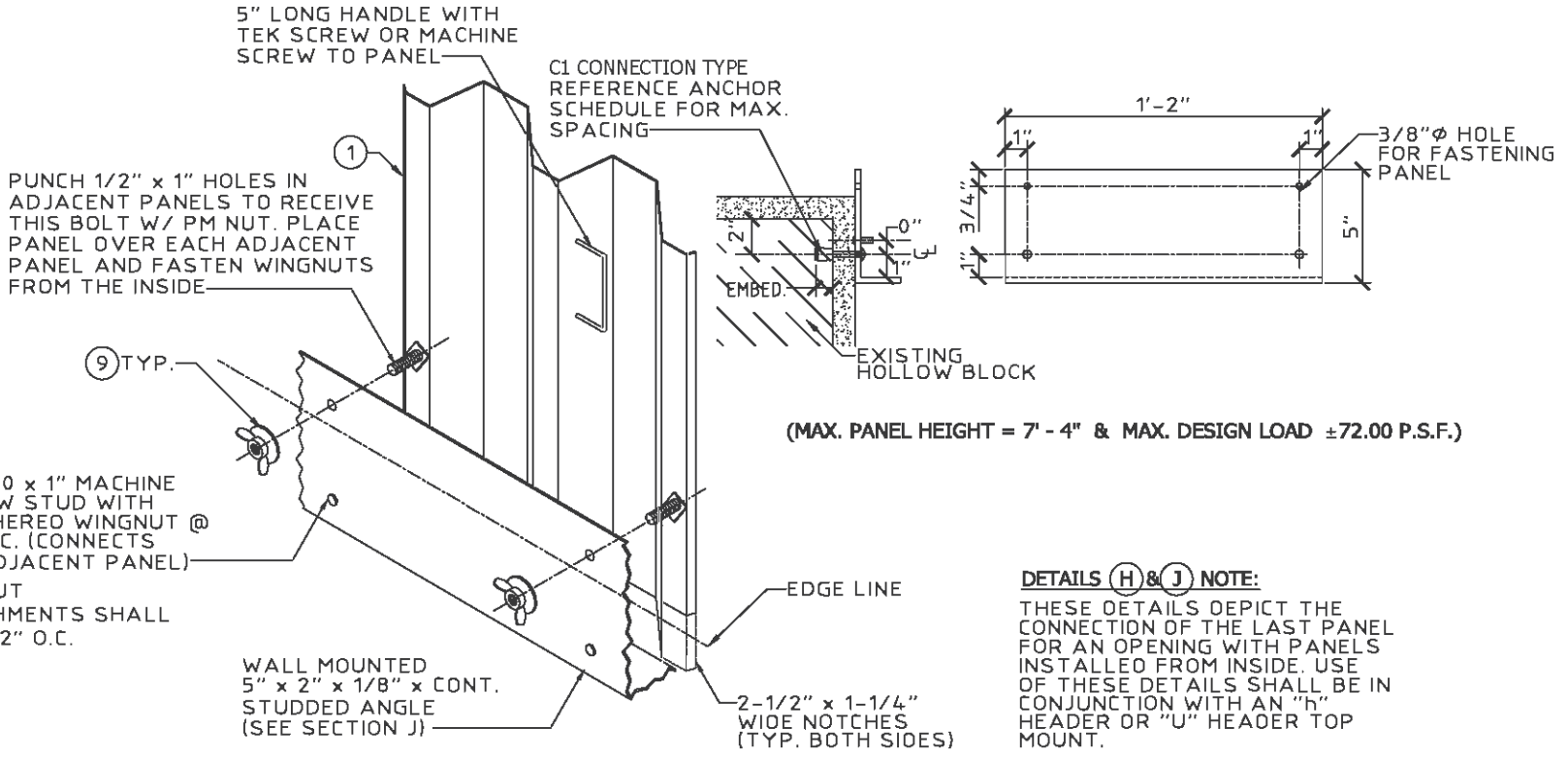
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SCALE: N.T.S./U.N.O.

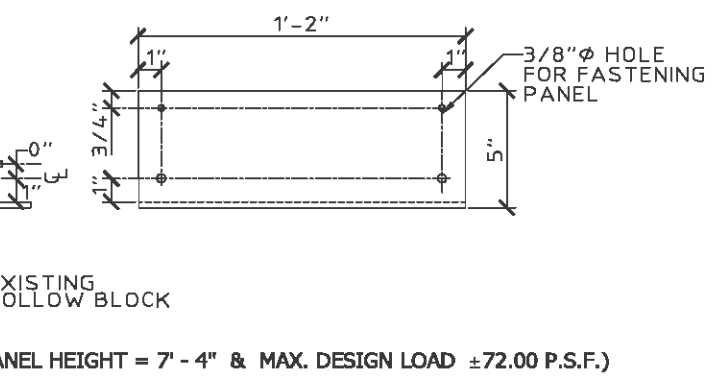
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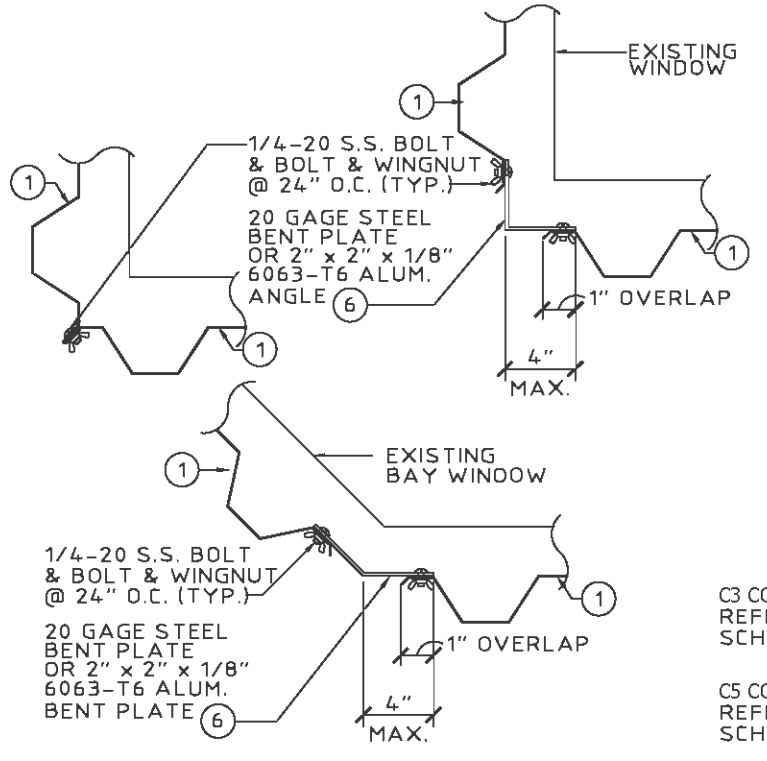
**G** WALL MOUNT SECTION  
SCALE: 3" = 1' - 0"



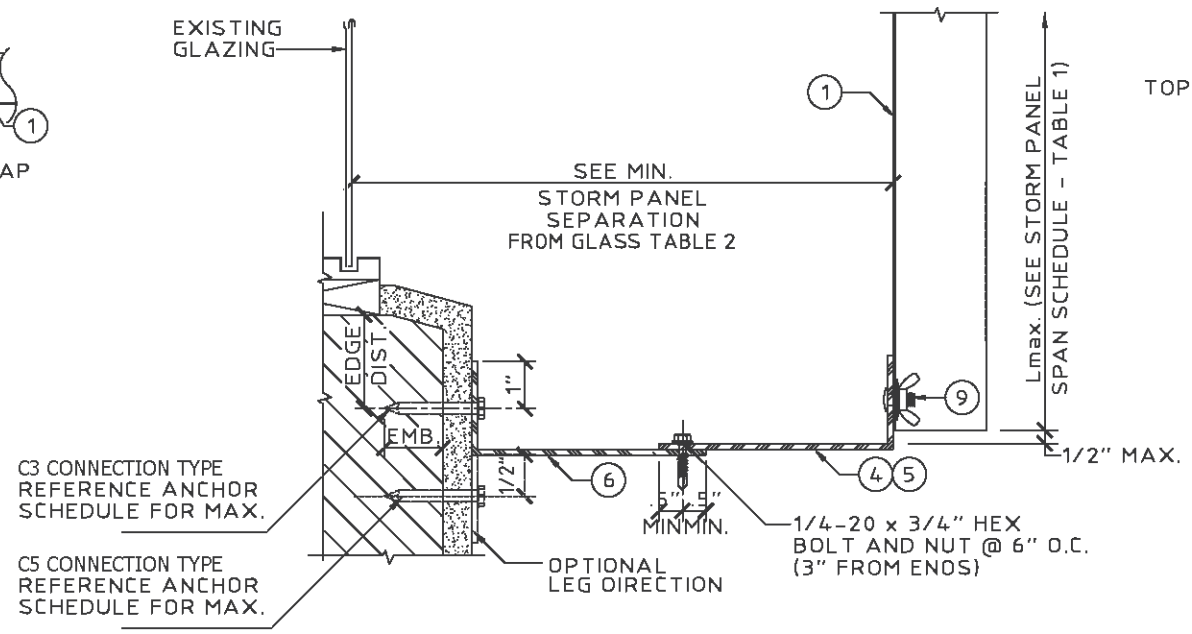
**H** OPTIONAL INTERIOR FASTENING DETAIL (ISOMETRIC)  
N.T.S.



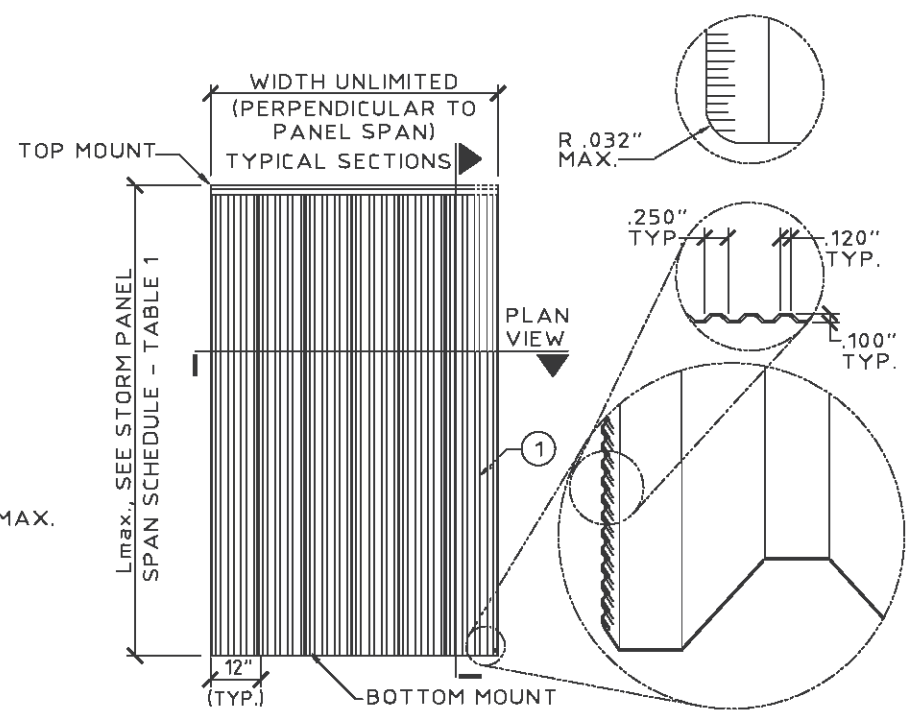
**J** INTERIOR FASTENING ANGLE ASSEMBLY  
SCALE: 1-1/2" = 1' - 0"



**K** TYPICAL CORNER CLOSURE DETAILS (PLAN)  
SCALE: 1-1/2" = 1' - 0"



**L** 9" MAX. BUILD-OUT MOUNT SECTION  
SCALE: 3" = 1' - 0"



TYPICAL VERTICAL ELEVATION  
SCALE: 1/4" = 1' - 0"

**DETAILS H & J NOTE:**  
THESE DETAILS DEPICT THE CONNECTION OF THE LAST PANEL FOR AN OPENING WITH PANELS INSTALLED FROM INSIDE. USE OF THESE DETAILS SHALL BE IN CONJUNCTION WITH AN "H" HEADER OR "U" HEADER TOP MOUNT.

(MAX. PANEL HEIGHT = 7' - 4" & MAX. DESIGN LOAD ±72.00 P.S.F.)



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REMARKS	DRWN	CHKD	DATE
INIT ISSUE	ZAR	FLB	09/23/16
REV (ADD ANCHORS & NEW BENT PLATE)	FLB	FLB	12/15/16
REV 2017 FBC	RWN	FLB	10/31/17
2020 FBC	CCB	RWN	9/28/20

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ANCHOR SCHEDULES:

(SEE SHEET 6 FOR ANCHOR NOTES)

Table with 4 main sections: 3" MIN. EDGE DISTANCE for Concrete and Hollow Concrete Block. Each section has columns for Host Structure, Anchor, Load (psf), and Spans Up To 4'-0", 8'-0", and 12'-0" with various Conn Types (C1-C5).

Table with 4 main sections: 2" MIN. EDGE DISTANCE for Concrete and Hollow Concrete Block. Each section has columns for Host Structure, Anchor, Load (psf), and Spans Up To 4'-0", 8'-0", and 12'-0" with various Conn Types (C1-C5).

Table for 4" MIN. EDGE DISTANCE in Hollow Concrete Block. Columns include Host Structure, Anchor, Load (psf), and Spans Up To 4'-0", 8'-0", and 12'-0" with various Conn Types (C1-C5).

Table for 3" MIN. EDGE DISTANCE in Hollow Concrete Block. Columns include Host Structure, Anchor, Load (psf), and Spans Up To 4'-0", 8'-0", and 12'-0" with various Conn Types (C1-C5).

Table for 2" MIN. EDGE DISTANCE in Hollow Concrete Block. Columns include Host Structure, Anchor, Load (psf), and Spans Up To 4'-0", 8'-0", and 12'-0" with various Conn Types (C1-C5).

FRANK BENNARDO, PE  
PE# 0046549 CA# 9885



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0.029" GALVANIZED STEEL STORM PANELS  
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Table with columns: REMARKS, DRWN/CHKD, DATE, IZAR, FLB, 09/23/16, REV (ADD ANCHORS & NEW BAY), FLB, 12/15/16, REV2017, FLB, 10/5/17, 2020, FLB, 9/26/20.

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SCALE: N.T.S.U.N.O.





## ENGINEERING EXPRESS® PRODUCT EVALUATION REPORT

September 28, 2020

Application Number: FL21070.1-R3  
EX Project Number: 20-31017

Product Manufacturer: Atlantic Shutters, Inc.  
Manufacturer Address: 1970 NE 153<sup>rd</sup> St., Bay 6  
North Miami Beach, FL 33162

Product Name & Description: 0.029" Galvanized Steel Storm Panels  
HVHZ and Non-HVHZ Compliant

### ***Scope of Evaluation:***

This Product Evaluation Report is being issued in accordance with the requirements of the Florida Department of Business and Professional Regulation (Florida Building Commission) Rule Chapter 61G20-3.005, F.A.C., for statewide acceptance per Method 1(d). The product noted above has been tested and/or evaluated as summarized herein to show compliance with the Florida Building Code Seventh Edition (2020) and is, for the purpose intended, at least equivalent to that required by the Code. Re-evaluation of this product shall be required following pertinent Florida Building Code modifications or revisions.

### ***Substantiating Data:***

- **PRODUCT EVALUATION DOCUMENTS**

EX drawing #20-31017a titled "0.029" Galvanized Steel Storm Panels", sheets 1-5, prepared by Engineering Express, signed & sealed by Frank Bennardo, PE is an integral part of this Evaluation Report.

- **TEST REPORTS**

Uniform static structural performance has been tested in accordance with TAS 202 test standards per test report #16-6667 (signed by Idalmis Ortega, PE) by Fenestration Testing Laboratory, Inc.

Large missile impact resistance and cyclic loading performance have been tested in accordance with TAS 201 and TAS 203 per test report #16-6667 (signed by Idalmis Ortega, PE) by Fenestration Testing Laboratory, Inc.

- **STRUCTURAL ENGINEERING CALCULATIONS**

Structural engineering calculations have been prepared which evaluate the product based on comparative and/or rational analysis to qualify the following design criteria:

1. Maximum Allowable Spans
2. Anchor Spacing
3. Maximum Allowable Size/Pressure Combinations
4. Anchor Capacity

No 33% increase in allowable stress has been used in the design of this product.

Atlantic Shutters, Inc. — 0.029” Galvanized Steel Storm Panels

### ***Impact Resistance:***

Large Missile Impact Resistance has been demonstrated as evidenced in previously listed test reports, and is accounted for in the engineering design of this product.

### ***Wind Load Resistance***

This product has been designed to resist wind loads as indicated in the span schedule(s) on the Product Evaluation Document (i.e. engineering drawing).

### ***Installation***

The product listed above shall be installed in strict compliance with the Product Evaluation Document (i.e. engineering drawing), along with all components noted therein.

The product components shall be of the material specified in the Product Evaluation Document (i.e. engineering drawing).

### ***Limitations & Conditions of Use:***

Use of this product shall be in strict accordance with the Product Evaluation Document (i.e. engineering drawing) as noted herein.

All supporting host structures shall be designed to resist all superimposed loads and shall be of a material listed in this product’s respective anchor schedule. Host structure conditions which are not accounted for in this product’s respective anchor schedule shall be designed for on a site-specific basis by a registered professional engineer.

All components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times.

This product has been designed for use within and outside the High Velocity Hurricane Zone (HVHZ).

Respectfully,



---

Frank Bennardo, PE  
**ENGINEERING EXPRESS®**  
#PE0046549 | Cert. Auth. 9885