GENERAL NOTES:

1. STORM PANEL SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) HAS BEEN VERIFIED FOR COMPLIANCE IN ACCORDANCE WITH THE 2017 (6th EDITION) OF THE FLORIDA BUILDING CODE.
   THIS STORM PANEL SYSTEM SHALL NOT BE INSTALLED AT HIGH VELOCITY HURRICANE ZONES (MIAMI–DADE / BROWARD COUNTY).

   DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTION 1609 OF THE ABOVE MENTIONED CODE, FOR A WIND SPEED AS REQUIRED BY THE JURISDICTION WHERE THESE SHUTTERS WILL BE INSTALLED AND FOR A DIRECTIONALITY FACTOR Kd=0.85. USING ASCE 7–10 FOR INSTALLATIONS UNDER 2017 FBC AND SHALL NOT EXCEED THE MAXIMUM (A.S.D.) DESIGN PRESSURE RATINGS INDICATED ON SHEETS 4 & 5.

   IN ORDER TO VERIFY THE ABOVE CONDITION, ULTIMATE DESIGN WIND LOADS DETERMINED PER ASCE 7–10 SHALL BE FIRST REDUCED TO A.S.D. DESIGN WIND LOADS BY MULTIPLYING THEM BY 0.6 IN ORDER TO TO COMPARE THESE W/ MAX. (A.S.D) DESIGN PRESSURE RATINGS INDICATED ON SHEETS 4 & 5.

   STORM PANEL'S ADEQUACY FOR IMPACT AND WIND RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1609.1.2 OF THE ABOVE MENTIONED CODE AS PER ATL REPORT #0130.01–01 AND #0703.01–07, PER IMPACT TESTING EQUIVALENT TO ASTM E–1996 STANDARD & ASTM E 330–02 STANDARD, LIMITED TO INSTALLATIONS WITHIN WIND ZONES 1, 2 & 3 AS DEFINED BY ASTM E–1996 STANDARD.

2. CLEAR BERTHA STORM PANEL SHALL BE EXTRUDED USING ANY OF THE FOLLOWING POLYCARBONATE SOURCES WITH THEIR CORRESPONDING MODEL NUMBER:

GENERAL ELECTRIC PLASTICS	LEXAN 103
DOWN CHEMICAL	CALIBRE 302 V–6
CAVESTRO, LLC.	MAKROLON POLYCARBONATE SHEETS

MINIMUM PROPERTIES FOR ALL OF THE ABOVE POLYCARBONATES ARE AS FOLLOWS:

TYPICAL PROPERTIES	APPLICABLE STANDARD REFERENCE	RESULT
PHYSICAL:		
SPECIFIC GRAVITY	ASTM D792	1.20 G/CC
MECHANICAL:		
TENSILE YIELD STRENGTH	ASTM D638	8,700 p.s.i.
FLEXURAL STRENGTH AT YIELD	ASTM D790	12,500 p.s.i.
FLEXURAL MODULUS	ASTM D790	340,000 p.s.i.
IMPACT:		
NOTCHED IZOD	ASTM D256	18 FT–lb/in
FIRE BURNING CHARACTERISTICS:		
SMOKE DENSITY	ASTM D2843	75 (MAX)
RATE OF BURNING	ASTM D635	C–1 CLASS (MAX)
SELF IGNITION	ASTM D1929	650 °F

3. ALL ALUMINUM EXTRUSIONS SHALL BE ALUMINUM ASSOCIATION 6063–T6 ALLOY & TEMPER.

4. ALL SCREWS TO BE STAINLESS STEEL 304 OR 316 AISI SERIES OR CORROSION RESISTANT COATED CARBON STEEL AS PER DIN 50018 W/ 50 KSI YIELD STRENGTH AND 90 KSI TENSILE STRENGTH & SHALL COMPLY W/ FLORIDA BUILDING CODE SECTION 2411.3.3.4.

5. BOLTS TO BE ASTM A 307, GALVANIZED OR AISI 304 SERIES STAINLESS STEEL, WITH 36 KSI MIN. YIELD STRENGTH.

6. ANCHORS TO WALL SHALL BE AS FOLLOWS: SEE SHEET 2 OF 5 FOR APPLICATIONS.

   (A) TO EXISTING POURED CONCRETE: MIN. F'C = 3 KSI
   –1/4" ø TAPCON ANCHORS MANUFACTURED BY I.T.W. BUILDEX
   –1/4" ø X 7/8" CALK–IN ANCHORS OR ELCO MALE & FEMALE "PANELMATE" MANUFACTURED BY POWERS FASTENERS, INC AND ELCO CONSTRUCTION PRODUCTS, RESPECTIVELY.
   –1/4" ø X 3/4" ALL POINTS SOLID–SET ANCHORS AS DISTRIBUTED BY ALL POINTS SCREW, BOLT & SPECIALTY COMPANY.

   NOTES:
   A.1) MINIMUM EMBEDMENT INTO POURED CONCRETE OF TAPCON ANCHORS IS 1 3/4" AND FOR ELCO PANELMATES IS 1 3/4".

   A.2) 7/8" CALK–IN ANCHORS AND 3/4" SOLID SET ANCHORS SHALL BE ENTIRELY EMBEDDED INTO THE POURED CONCRETE. NO EMBEDMENT INTO STUCCO SHALL BE PERMITTED.
   1/4" ø–20 SCREWS USED SHALL BE 1 1/2" LONG MINIMUM SHOULD STUCCO EXIST, AND 1" MINIMUM FOR WALLS WITH NO STUCCO.

   A.3) IN CASE THAT PRECAST STONE, PRECAST CONCRETE PANELS, OR PAVERS BE FOUND ON THE EXISTING WALL OR FLOOR, ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN STRUCTURE BEHIND SUCH PANELS, ANCHORAGE SHALL BE AS INDICATED ON NOTES A.1) & A.2) ABOVE.

   (B) TO EXISTING CONCRETE BLOCK WALL: ASTM C–90
   –1/4" ø TAPCON ANCHORS MANUFACTURED BY I.T.W. BUILDEX.
   –1/4" ø X 7/8" CALK–IN ANCHORS OR ELCO MALE & FEMALE "PANELMATE" MANUFACTURED BY POWER FASTENERS, INC. AND ELCO CONSTRUCTION PRODUCTS, RESPECTIVELY.
   –1/4" ø X 3/4" ALL POINTS SOLID–SET ANCHORS AS DISTRIBUTED BY ALL POINTS SCREW, BOLT & SPECIALTY COMPANY.

   NOTES:
   B.1) MINIMUM EMBEDMENT OF TAPCON ANCHORS AND ELCO PANELMATES INTO THE CONCRETE BLOCK UNIT SHALL BE 1 1/4"
   B.2) 7/8" CALK–IN ANCHORS AND 3/4" SOLID SET ANCHORS SHALL BE ENTERILY EMBEDDED INTO THE CONCRETE BLOCK UNIT. NO EMBEDMENT INTO STUCCO SHALL BE PERMITTED.
   1/4" ø–20 SCREWS USED SHALL BE 1 1/2" LONG MINIMUM SHOULD STUCCO EXIST, AND 1" MINIMUM FOR WALLS WITH NO STUCCO.
   B.3) IN CASE THAT PRECAST STONE OR PRECAST CONCRETE PANELS BE FOUND ON THE EXISTING WALL, ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN STRUCTURE BEHIND SUCH PANELS. ANCHORAGE SHALL BE AS INDICATED ON NOTES IN B.1) & B.2) ABOVE.

   (C) ANCHORS SHALL BE INSTALLED FOLLOWING ALL OF THE RECOMMENDATIONS AND SPECIFICATIONS OF THE ANCHOR'S MANUFACTURER.

7. PANEL MAY ALSO BE INSTALLED HORIZONTALLY FOLLOWING INSTALLATION DETAILS SHOWN ON SECTIONS 1 THRU 5, SHEET 3 OF 5.

8. STORM PANEL SHALL BE REMOVED AFTER THE HURRICANE AND SHALL BE STORED AND PROPERLY MAINTAINED.

9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE SOUNDNESS OF THE STRUCTURE WHERE SHUTTER IS TO BE ATTACHED TO INSURE PROPER ANCHORAGE.

10. SHUTTER MANUFACTURER'S LABEL SHALL BE LOCATED ON A READILY VISIBLE LOCATION AT STORM PANEL SHUTTER IN ACCORDANCE WITH SECTION 1709.9.3 OF FLORIDA BUILDING CODE. ONE LABEL SHALL BE PLACED FOR EVERY OPENING. LABELING TO COMPLY WITH SECTION 1709.9.2 OF THE FLORIDA BUILDING CODE.

11. THE INSTALLATION CONTRACTOR IS TO SEAL/CAULK ALL SHUTTER COMPONENT EDGES WHICH REMAIN IN CONTINUOUS CONTACT WITH THE BUILDING TO PREVENT WIND/RAIN INTRUSION. CAULK AND SEAL SHUTTER TRACKS ALL AROUND FULL LENGTH.

12. STORM PANEL INSTALLATION SHALL COMPLY WITH SPECS INDICATED IN THIS DRAWING PLUS ANY BUILDING AND ZONING REGULATIONS PROVIDED BY THE JURISDICTION WHERE PERMIT IS APPLIED TO.

13. (A) THIS P.E.D. PREPARED BY THIS ENGINEER IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT; I.E. WHERE THE SITE CONDITIONS DEVIATE FROM THE P.E.D.

    (B) CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION INCLUDING LIFE SAFETY OF THIS PRODUCT, BASED ON THIS P.E.D. PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.

    (C) THIS P.E.D. WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.

    (D) SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A FLORIDA REGISTERED ENGINEER OR ARCHITECT WHICH WILL BECOME THE ENGINEER OF RECORD (E.O.R.) FOR THE PROJECT AND WHO WILL BE RESPONSIBLE FOR THE PROPER USE OF THE P.E.D. ENGINEER OF RECORD, ACTING AS A DELEGATED ENGINEER TO THE P.E.D. ENGINEER, SHALL SUBMIT TO THIS LATTER THE SITE SPECIFIC DRAWINGS FOR REVIEW.

    (E) THIS P.E.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.

THIS DRAWING SHALL ONLY BE USED TO OBTAIN PERMITS IN THE STATE OF FLORIDA

WALTER A. TILLIT JR. LICENSE No. 44167 STATE OF FLORIDA PROFESSIONAL ENGINEER

10/26/17

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

TILTECO INC.
PERMIT TESTING & ENGINEERING COMPANY
8355 N.W. 36th. St., Ste.305, VIRGINIA GARDENS, Fl. 33166
Phone : (305)871–1530 . Fax : (305)871–1531
EB–0006719
WALTER A. TILLIT Jr. P.E.
FLORIDA Lic. # 44167

CLEAR BERTHA STORM PANEL (2.25" DEEP)

DRAWN BY: L.C.

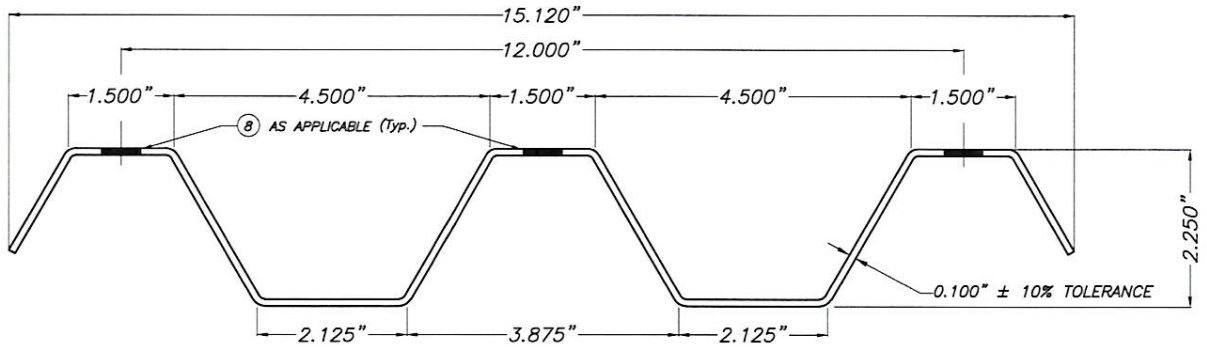
EASTERN METAL SUPPLY, INC
4268 WEST ROADS DRIVE
WEST PALM BEACH, FL 33407

07/26/17 DATE

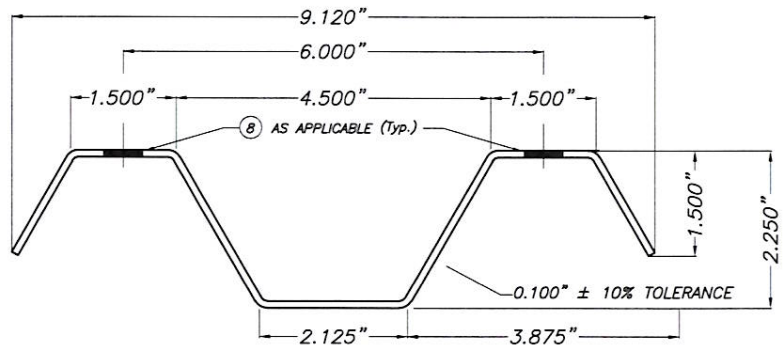
17–098 DRAWING No

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 15–046	07/26/17	3		
2	G.N. 1	10/26/17	4		

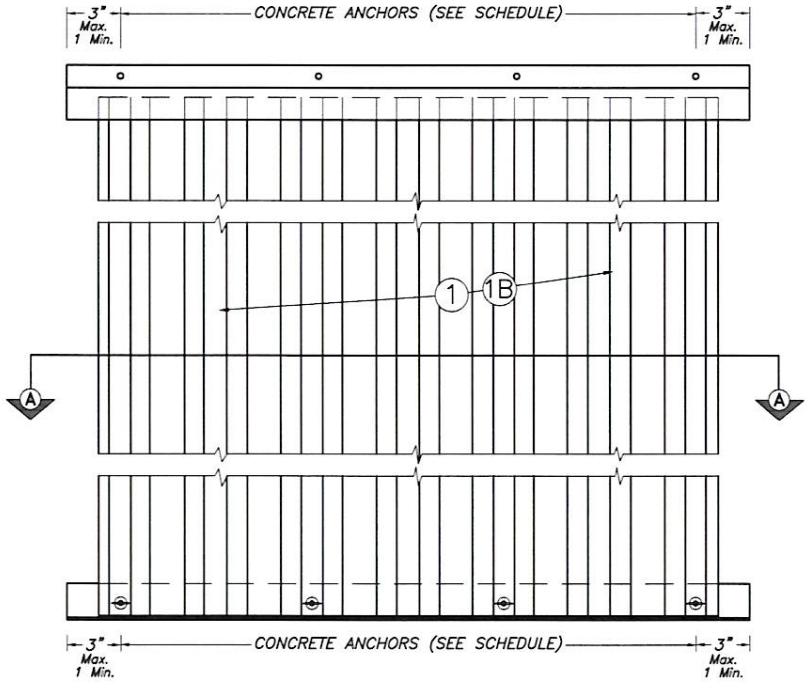
SHEET 1 OF 5



1 CLEAR PANEL

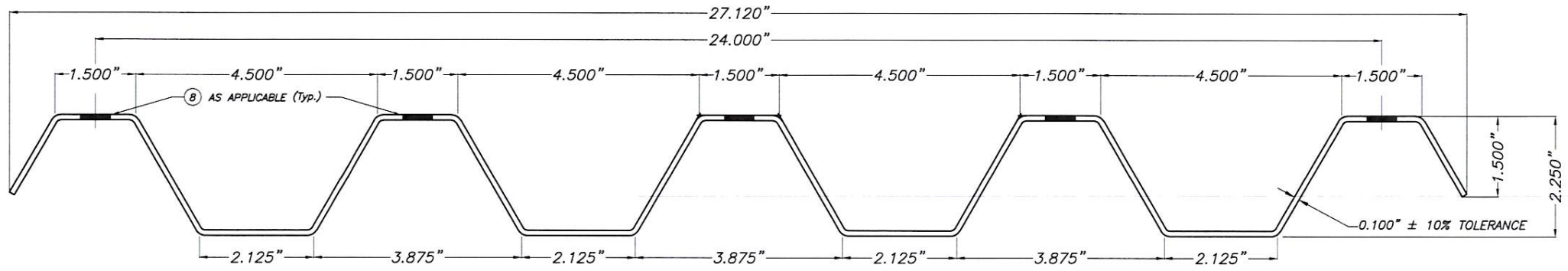


1A HALF CLEAR PANEL

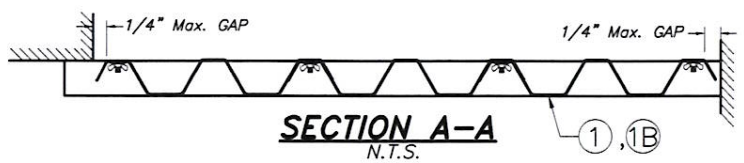


STORM PANEL TYPICAL ELEVATION

N.T.S.

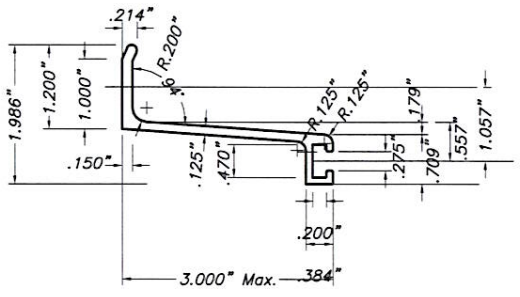


1B DOUBLE WIDE CLEAR PANEL

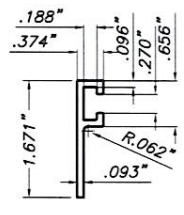


SECTION A–A

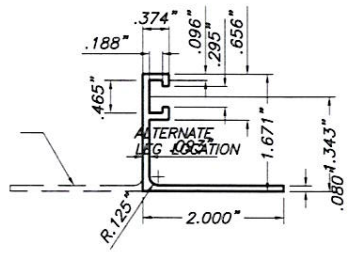
N.T.S.



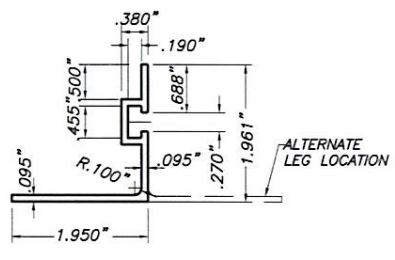
2 3" ANGLE BUILD OUT BRACKET



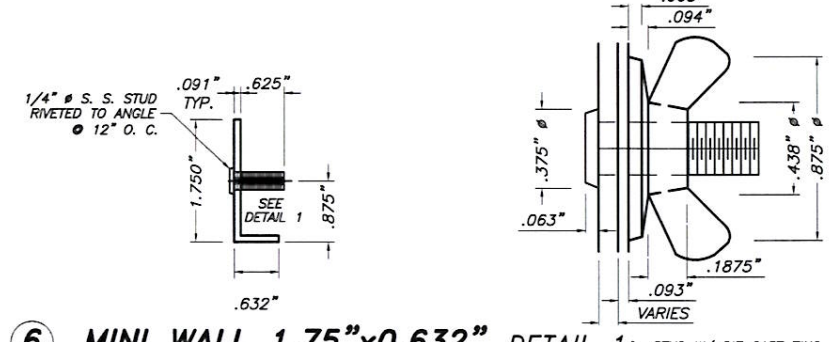
3 3/8" B.O. "F" TRACK



4 "F" TRACK ANGLE

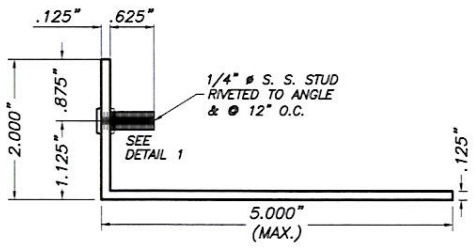


5 REVERSED "F" ANGLE TRACK

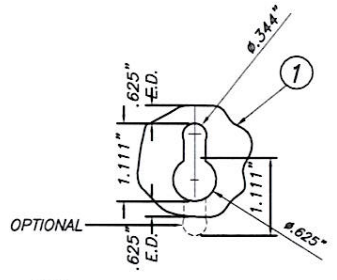


6 MINI WALL 1.75"x0.632" ANGLE WITH STUD

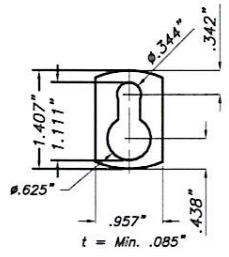
DETAIL 1: STUD W/ DIE CAST ZINC NICKEL PLATED WING NUT



7 2"x5"(MAX.)x1/8" ANGLE WITH STUD



8 KEY HOLE AT PANEL



9 KEY HOLE WASHER

3105–H154 Alum. ALLOY

COMPONENTS

SCALE: 3/8" = 1" FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

WALTER A. TILLIT JR. LICENSE No. 44167 STATE OF FLORIDA PROFESSIONAL ENGINEER

TILTECO INC.
CIVIL TESTING & ENGINEERING COMPANY
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EB-0006719
WALTER A. TILLIT Jr. P.E.
FLORIDA Lic. # 44167

CLEAR BERTHA STORM PANEL (2.25" DEEP)

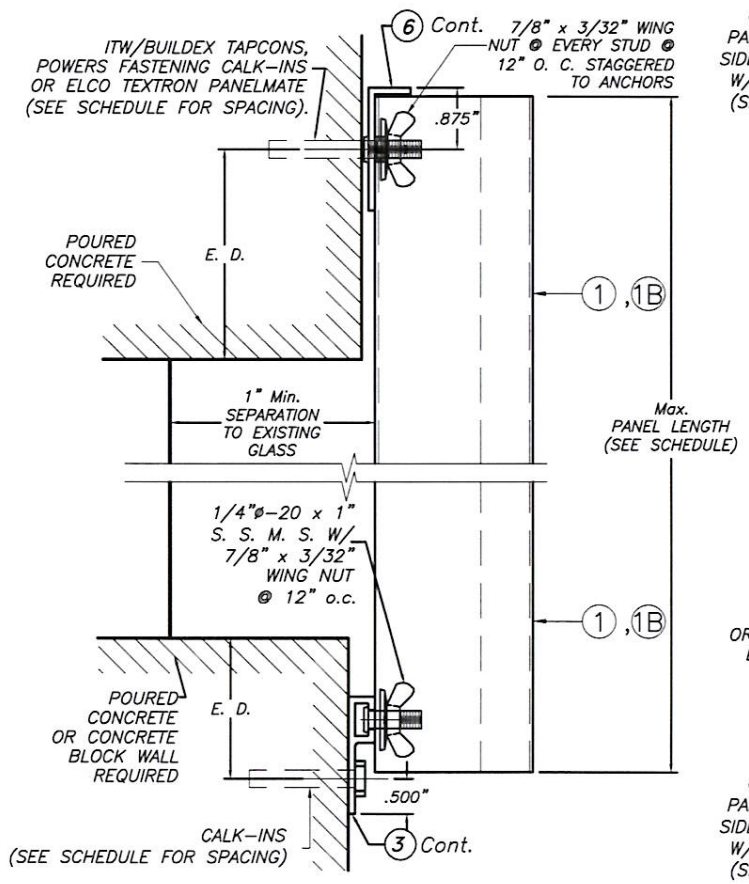
DRAWN BY: L.C.

EASTERN METAL SUPPLY, INC
4268 WEST ROADS DRIVE
WEST PALM BEACH, FL 33407

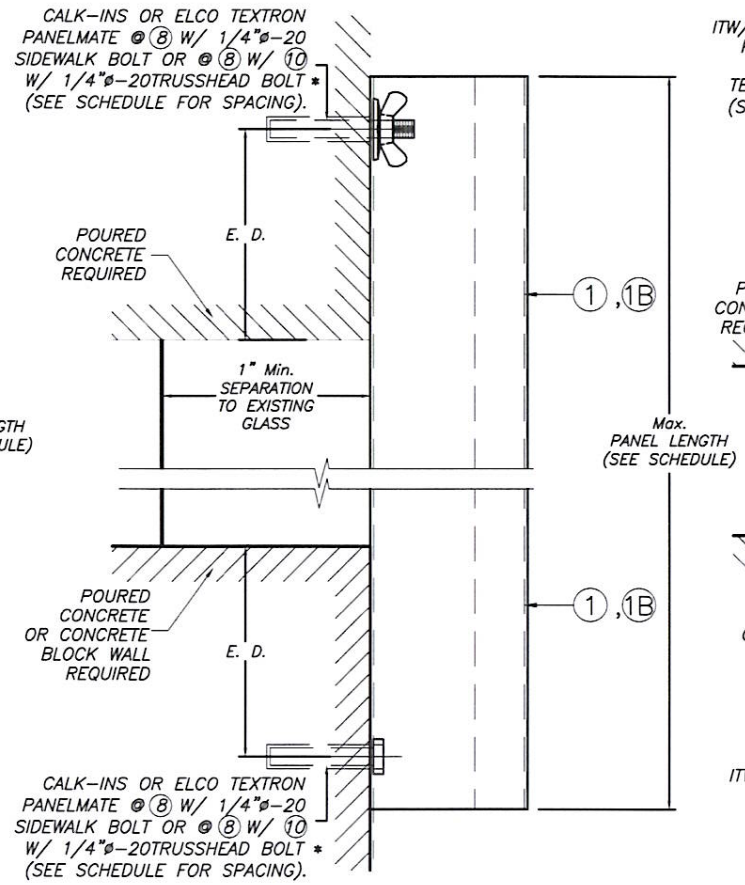
07/26/17 DATE

17–098 DRAWING No

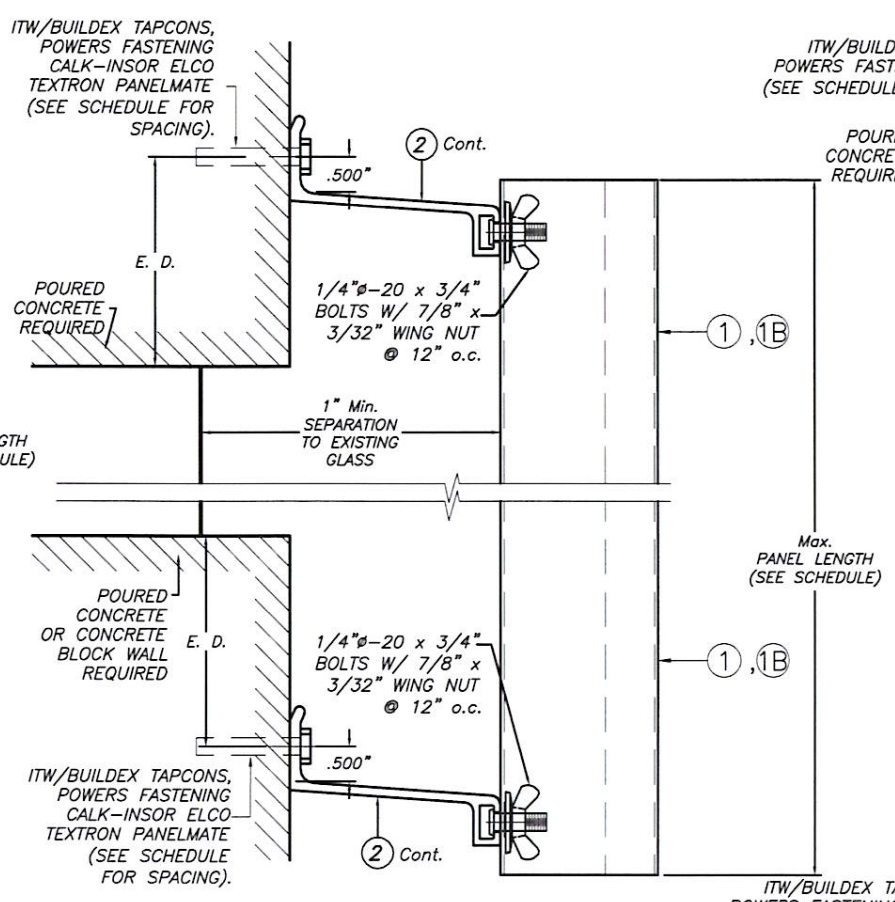
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 15–046	07/26/17	3		
2			4		



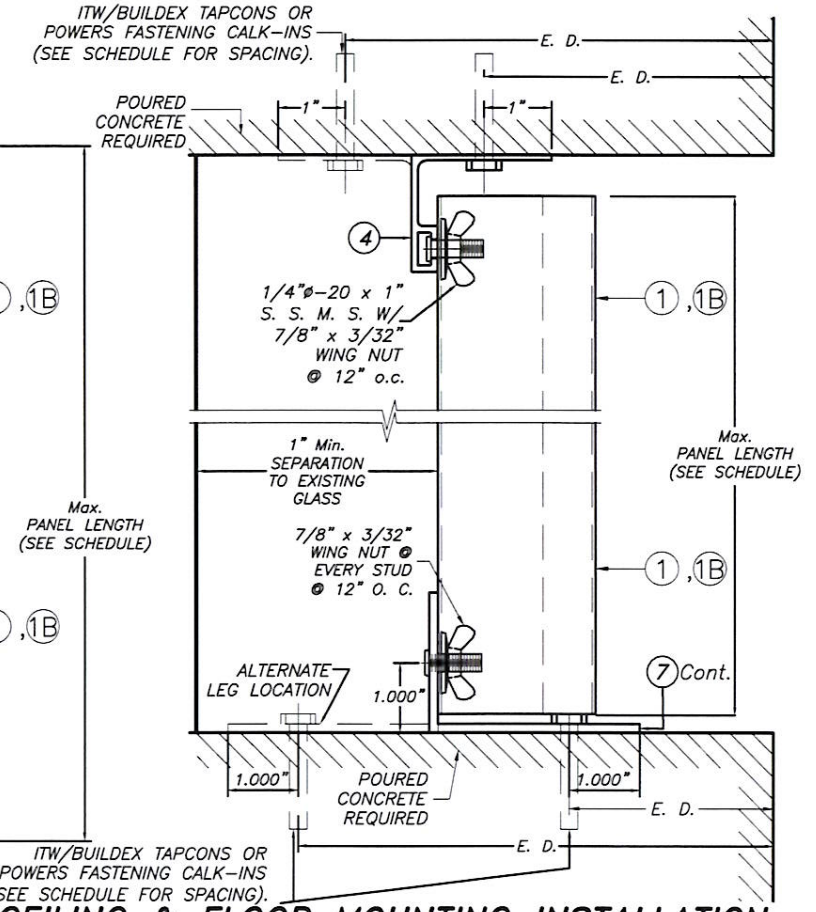
WALL MOUNTING INSTALLATION SECTION 1



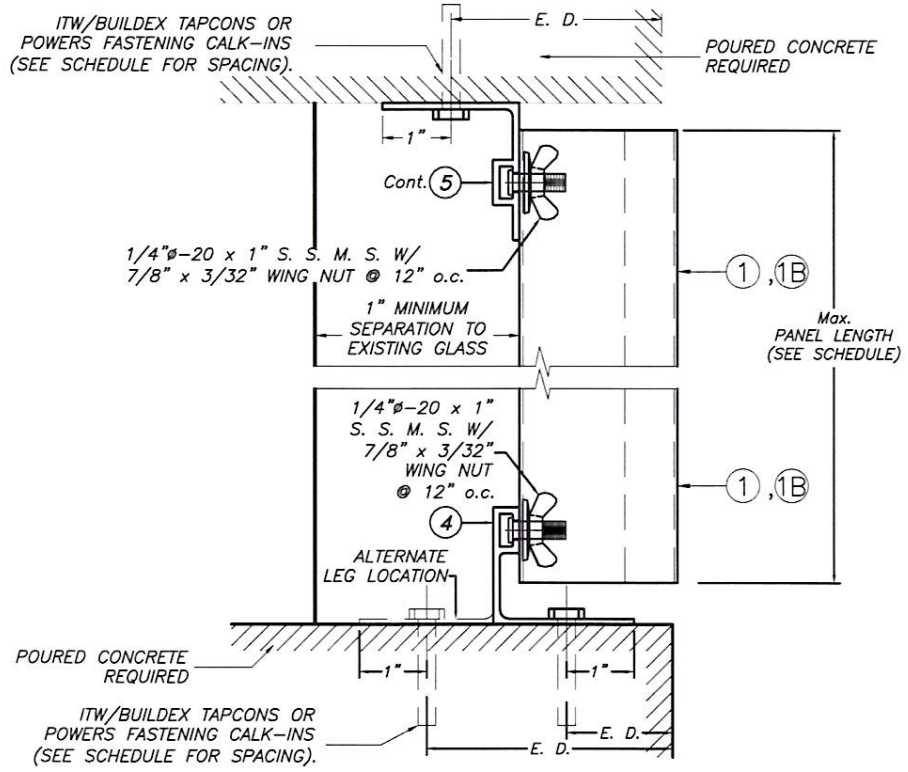
WALL MOUNTING INSTALLATION (D. M.) SECTION 2



BUILD OUT INSTALLATION SECTION 3



CEILING & FLOOR MOUNTING INSTALLATION SECTION 4



CEILING & FLOOR MOUNTING INSTALLATION SECTION 5

* SIDE WALK BOLTS ARE 3/4"øx3/32"THICK HEAD MACHINE SCREW W/LENGTH AS PER NOTES A.2 & B.2 (SHEET 1)

* TRUSS HEAD BOLTS ARE 1/2"øx1/8"THICK HEAD MACHINE SCREW W/LENGTH AS PER NOTES A.2 & B.2 (SHEET 1)

E. D. = EDGE DISTANCE (SEE SCHEDULE ON SHEET 4 OF 5)

NOTE FOR COMBINATION OF SECTIONS :

WALL/FLOOR/CEILING MOUNTING SECTIONS CAN BE COMBINED IN ANY WAY TO SUIT ANY INSTALLATION.

INSTALLATION DETAILS

SCALE: 3/8" = 1"

WALTER A. TILLIT JR. LICENSE No. 44167 STATE OF FLORIDA PROFESSIONAL ENGINEER

10/26/17

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CLEAR BERTHA STORM PANEL (2.25" DEEP)

EASTERN METAL SUPPLY, INC
4268 WEST ROADS DRIVE
WEST PALM BEACH, FL 33407

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 15–046	07/26/17	3		
2			4		

DRAWN BY: L.C.
07/26/17 DATE
17–098 DRAWING No
SHEET 3 OF 5

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.) WITH CORRESPONDING MAXIMUM PANEL LENGTH "L" (Ft.) AND CORRESPONDING ANCHOR SPACING "S" (in.) SCHEDULE FOR INSTALLATIONS IN CONCRETE, CONCRETE BLOCK AND WOOD FRAME STRUCTURES *

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)	Max. PANEL LENGTH L (ft.) * .093" CLEAR LEXAN STORM PANEL	ANCHORS SPACINGS "S" (in.) **		
		SECTION 4 (BOTTOM)	SECTIONS 2, 3, 5 (TOP/BOTTOM) & SECTION 1 (BOTTOM)	SECTION 1 (TOP) & SECTION 4 (TOP)
+28.0, −28.0	10'−0"	7"	12"	12"
+28.0, −30.0	9'−8"	7"	12"	12"
+30.0, −35.0	8'−11"	7"	12"	12"
+35.0, −40.0	8'−4"	7"	12"	12"
+40.0, −45.0	7'−11"	7"	12"	12"
+45.0, −50.0	7'−6"	7"	12"	12"
+50.0, −55.0	7'−2"	7"	12"	12"
+55.0, −60.0	6'−10"	7"	12"	12"
+60.0, −65.0	6'−7"	7"	12"	12"
+65.0, −70.0	6'−3"	7"	12"	12"
+70.0, −75.0	5'−10"	7"	12"	12"
+75.0, −80.0	5'−6"	7"	12"	12"
+80.0, −85.0	5'−2"	7"	12"	12"
+85.0, −90.0	4'−11"	7"	12"	12"
+90.0, −95.0	4'−8"	7"	12"	12"
+95.0, −100.0	4'−5"	7"	12"	12"
+100.0, −105.0	4'−2"	7"	12"	12"
+105.0, −110.0	4'−0"	7"	12"	12"

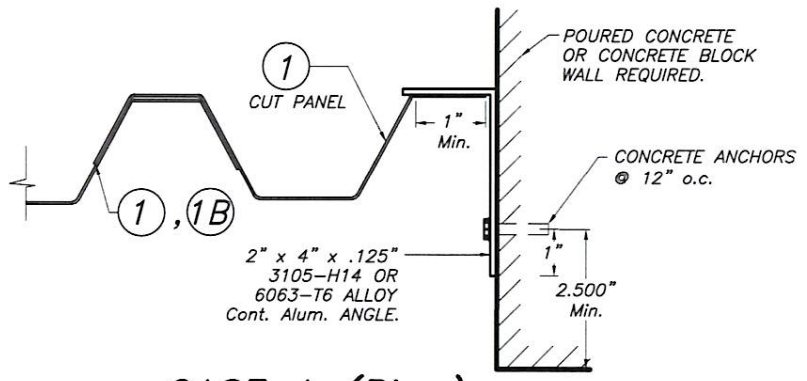
* Min. PANEL LENGTH IS 3'−0"

** MAXIMUM ANCHOR SPACINGS ARE VALID FOR 3 1/2" EDGE DISTANCE. FOR E. D. LESS THAN 3 1/2", REDUCE ANCHOR SPACING BY MULTIPLYING SPACING SHOWN ON SCHEDULE BY THE FOLLOWING FACTORS. (NOTE : Min. E. D. FOR CALK−IN ANCHORS IS 2 1/2"). FOR THIS OPERATION TO BE POSIBLE, REDUCED SPACING OBTAINED USING FACTOR SHALL NOT BE LESS THAN MINIMUM SPACING INDICATED FOR EACH ANCHOR TYPE AT ANCHORS LEGEND.

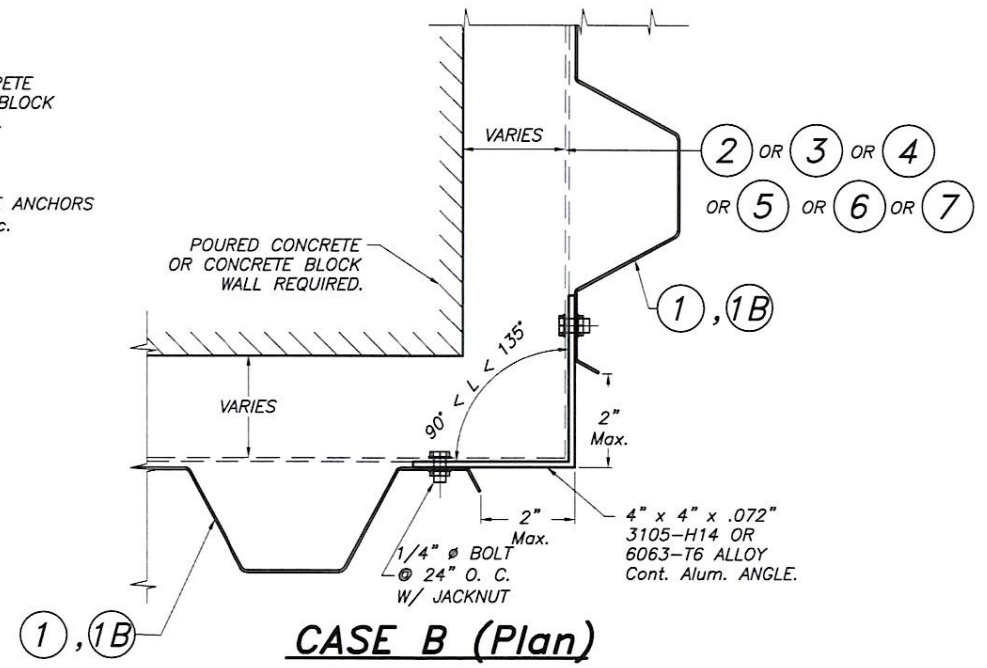
ACTUAL E. D.	FACTOR	
	TAPCON/ PANELMATES	CALK−IN
3"	.86	.75
2 1/2"	.71	.50
2"	.50	−

ANCHORS LEGEND

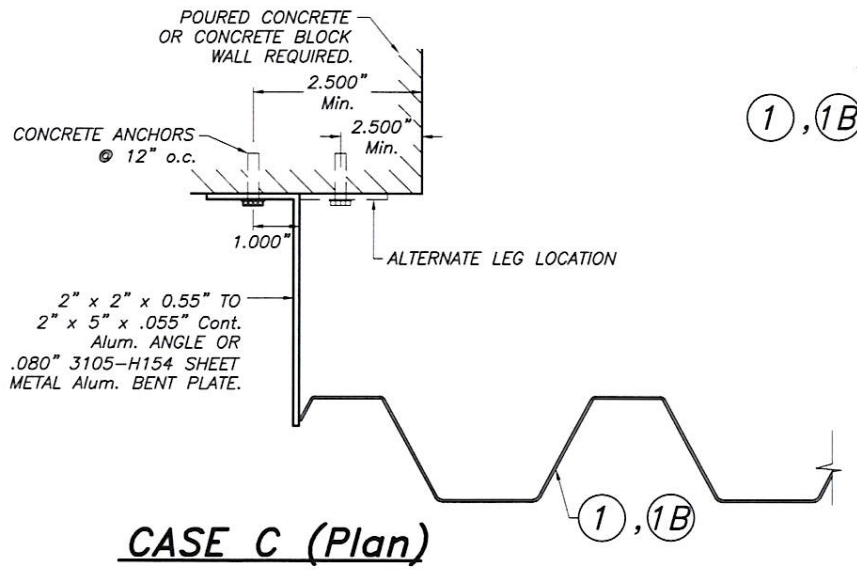
ANCHORS TYPE	ANCHOR MIN. SPACING
TAPCON/ PANELMATES	3.0"
CALK−IN	2.5"



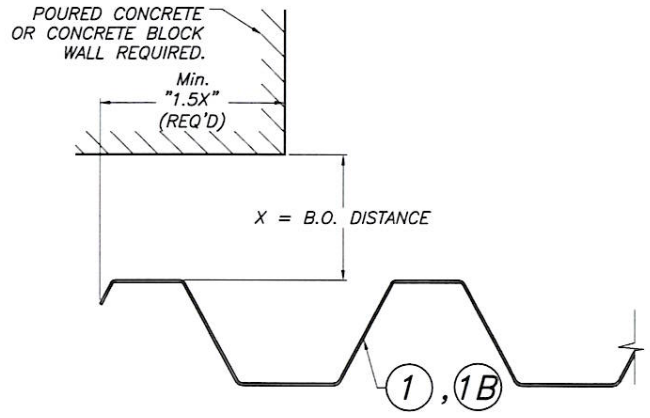
CASE A (Plan)



CASE B (Plan)

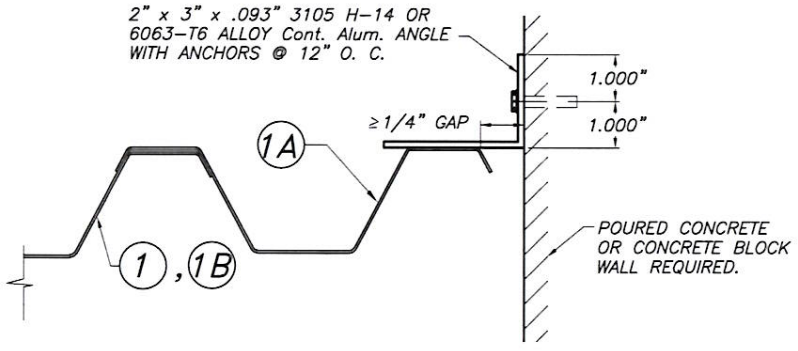


CASE C (Plan)



CASE E (Plan) *

SCALE: 1/4" = 1"



CASE D (Plan)

END CLOSURES DETAILS

SCALE: 1/4" = 1"

WALTER A. TILLIT JR. LICENSE No. 44167 STATE OF FLORIDA PROFESSIONAL ENGINEER

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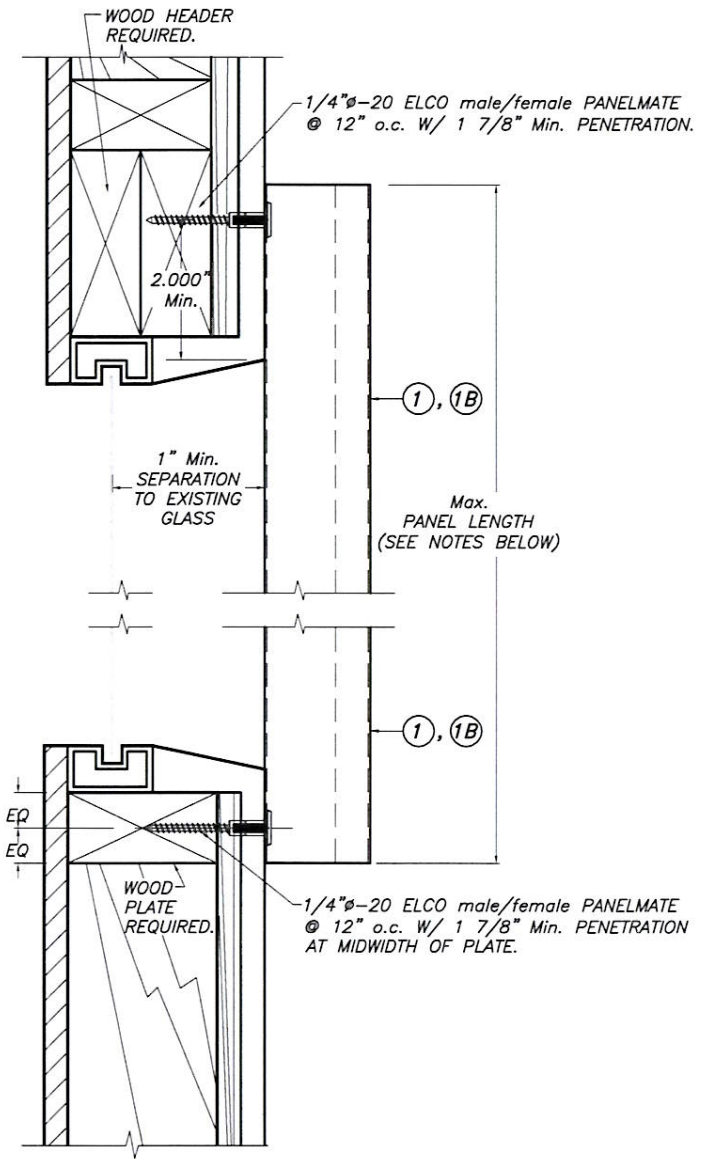
EB−0006719
WALTER A. TILLIT Jr. P.E.
FLORIDA Lic. # 44167

CLEAR BERTHA STORM PANEL
(2.25" DEEP)

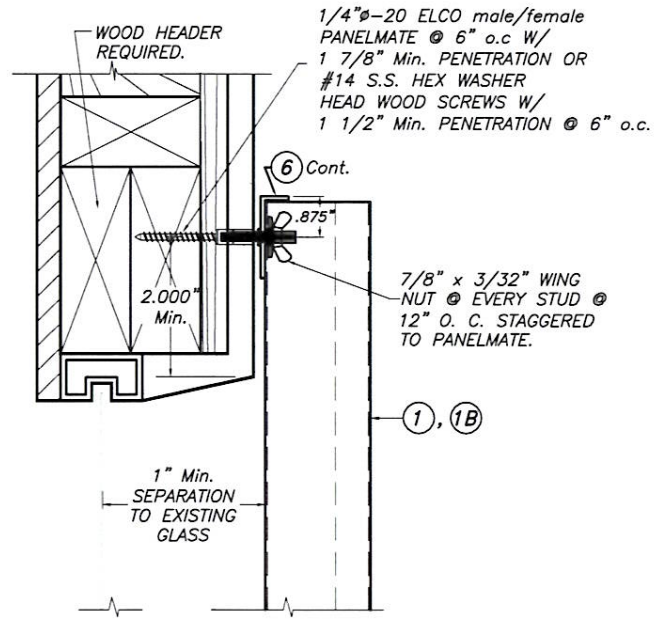
EASTERN METAL SUPPLY, INC
4268 WEST ROADS DRIVE
WEST PALM BEACH, FL 33407

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 15−046	07/26/17	3		
2			4		

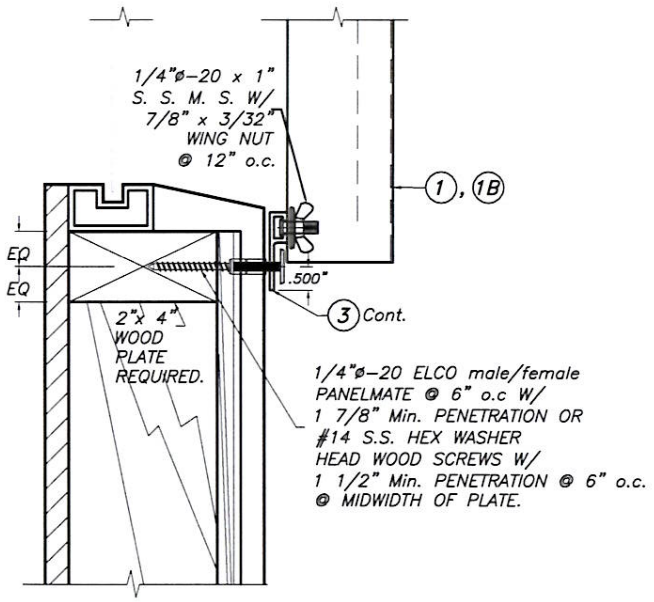
DRAWN BY: L.C.
07/26/17 DATE
17−098 DRAWING No
SHEET 4 OF 5



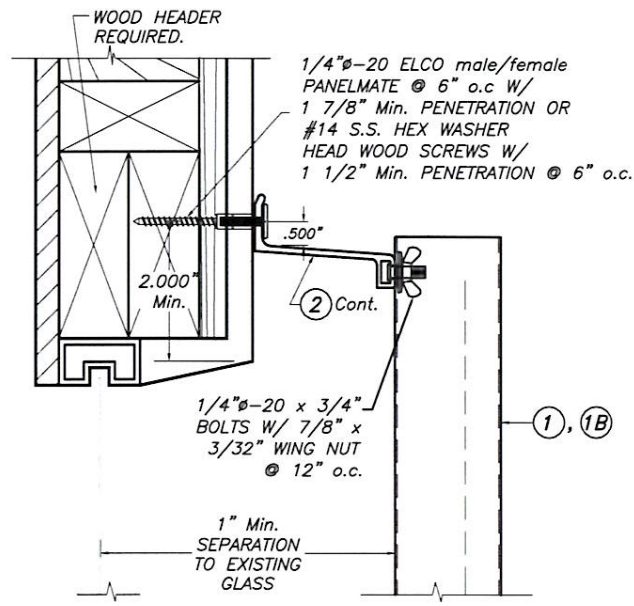
WALL MOUNTING (D. M.) ALTERNATIVE 1



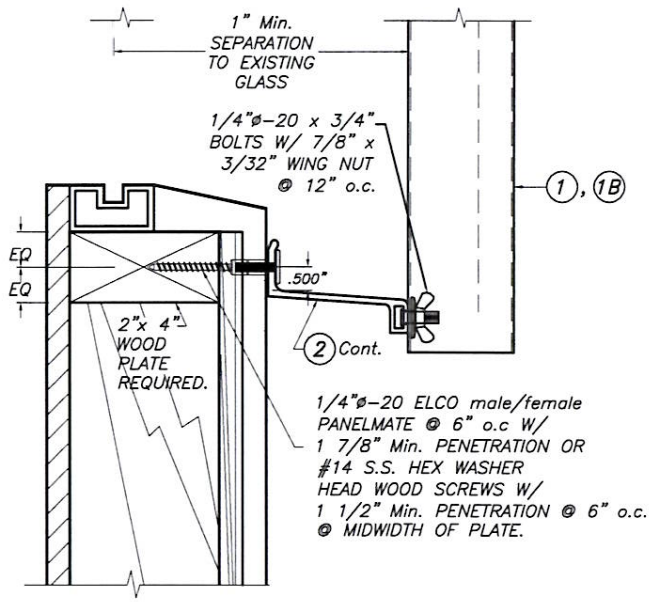
WALL MOUNTING INSTALLATION ALTERNATIVE 2



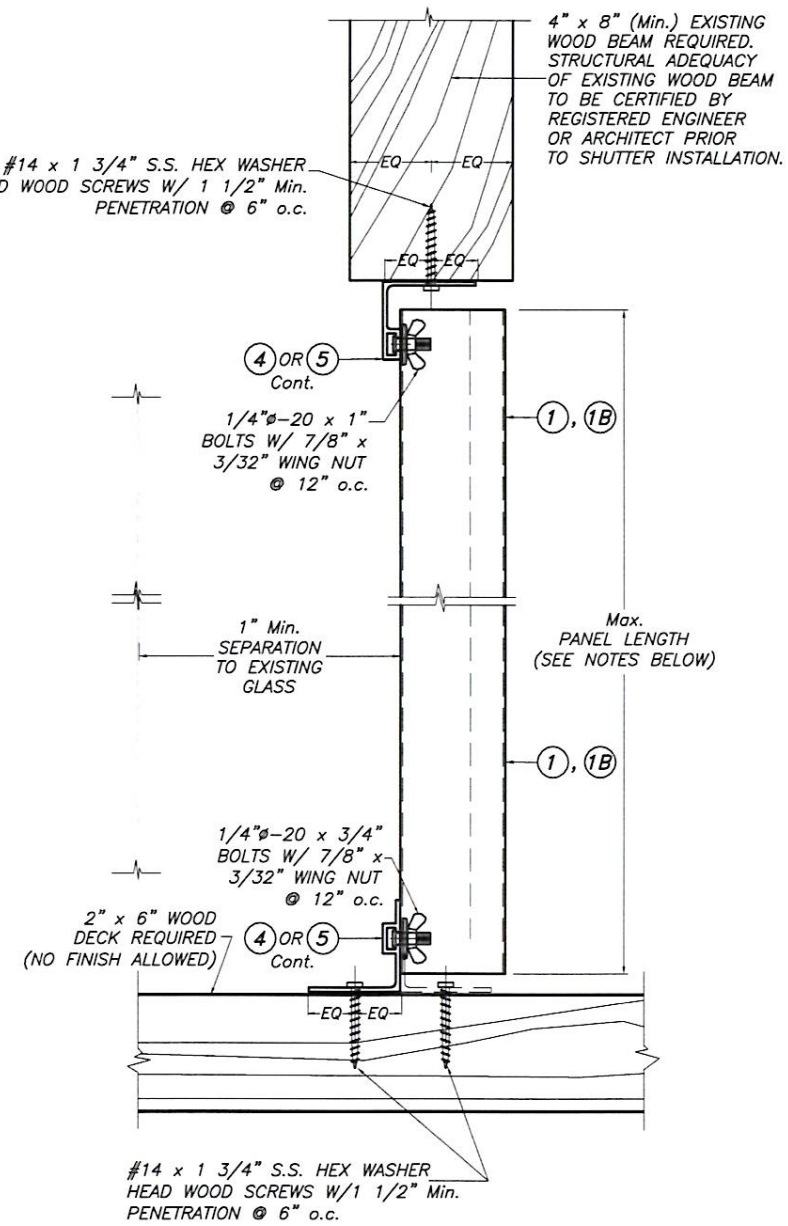
WALL MOUNTING INSTALLATION ALTERNATIVE 3



BUILD OUT INSTALLATION ALTERNATIVE 4



BUILD OUT INSTALLATION ALTERNATIVE 5



CEILING & FLOOR MOUNTING INSTALLATION ALTERNATIVE 6

NOTE FOR COMBINATION OF SECTION:

WALL MOUNTING SECTIONS CAN BE COMBINED IN ANY WAY TO SUIT ANY INSTALLATION.

NOTES:

1. *INSTALLATION ARE ONLY VALID FOR MAX. A.S.D. DESIGN PRESSURE RATING AND PANEL'S LENGTHS AS PER SCHEDULE SHOWN ON SHEETS 4 OF 5.*
2. *FOR WOOD FRAME CONSTRUCTION: WOOD MEMBERS TO BE SOUTHERN PINE No. 2, W/ SPECIFIC DENSITY OF 0.55 OR EQUAL.*

INSTALLATION DETAILS ON EXISTING WOOD BUILDINGS

SCALE: 1

WALTER A. TILLIT JR. LICENSE No. 44167 STATE OF FLORIDA PROFESSIONAL ENGINEER

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
6355N.W. 36th. St., Ste.305, VIRGINIA GARDENS, FL 33166
Phone : (305)871–1530 . Fax : (305)871–1531
EB–0006719
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