

GENERAL NOTES:

1. EXTRUDED BERTHA BAHAMA SHUTTER SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) HAS BEEN VERIFIED FOR COMPLIANCE IN ACCORDANCE WITH THE 2023 (8th EDITION) OF THE FLORIDA BUILDING CODE. THIS BAHAMA SHUTTER 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 BASIC WIND SPEED REQUIRED BY THE JURISDICTION WHERE SHUTTER WILL BE INSTALLED. USING ASCE 7-22 AND SHALL NOT EXCEED THE MAXIMUM (A.S.D.) DESIGN PRESSURE RATINGS INDICATED ON SHEETS 7, 8 & 9.

IN ORDER TO VERIFY THE ABOVE CONDITION, ULTIMATE DESIGN WIND LOADS DETERMINED PER ASCE 7-22 SHALL BE FIRST REDUCED TO A.S.D. DESIGN WIND LOADS BY MULTIPLYING THEM BY 0.6 IN ORDER TO COMPARE THESE W/ MAX. (A.S.D.) DESIGN PRESSURE RATINGS INDICATED ON SHEETS 7, 8 & 9.

IN ORDER TO VERIFY THAT ANCHORS ON THIS P.E.D., AS TESTED, WERE NOT OVERSTRESSED, A 33% INCREASE IN ALLOWABLE STRESS FOR WIND LOADS WAS USED IN THEIR ANALYSIS. HOWEVER, FOR LAG SCREWS INTO WOOD, A 1.60 WIND LOAD DURATION FACTOR WAS USED TO CALCULATE SCREWS SPACINGS.

EXTRUDED BERTHA BAHAMA SHUTTER'S ADEQUACY FOR IMPACT AND FATIGUE RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1609.1.2 OF THE ABOVE MENTIONED CODE AS PER ATL REPORTS #0923.01-97 AND #0309.01-04 AS PER TAS-201, TAS-202 AND TAS-203 PROTOCOLS.

2. ALL ALUMINUM EXTRUSIONS SHALL BE ALUMINUM ASSOCIATION 6063-T6 ALLOY AND TEMPER, WITH Fy= 25.0 ksi MINIMUM (UNLESS OTHERWISE NOTED). ALL ALUMINUM EXTRUSIONS IN CONTACT WITH DISSIMILAR MATERIALS SHALL COMPLY WITH SECTION III-6 OF THE 2020 ALUMINUM DESIGN MANUAL.

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

4. BOLTS TO BE ASTM A-307 GALVANIZED STEEL, OR AISI 304 SERIES STAINLESS STEEL WITH 35 ksi MINIMUM YIELD STRENGTH.

5. ALL ALUMINUM POP RIVETS TO BE 5052 ALUMINUM ALLOY WITH ALUMINUM MANDREL.

6. ANCHORS TO WALL SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED):

- (A) TO EXISTING POURED CONCRETE: (Min. f'c=3000 p.s.i.)
 - 1/4" TAPCON ANCHORS AS MANUFACTURED BY I.T.W. BUILDEX.
 - 1/4" x 7/8" CALK-IN ANCHORS AS MANUFACTURED BY DEWALT, INC.

NOTES:

A.1) MINIMUM EMBEDMENT OF TAPCON ANCHORS INTO POURED CONCRETE IS 1 1/2".

A.2) CALK-IN ANCHORS SHALL BE ENTIRELY EMBEDDED INTO THE POURED CONCRETE. NO EMBEDMENT INTO STUCCO SHALL BE PERMITTED. 1/4" #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:
 - 1/4" TAPCON ANCHORS AS MANUFACTURED BY I.T.W. BUILDEX.
 - 1/4" x 7/8" CALK-IN ANCHORS AS MANUFACTURED BY DEWALT, INC.

NOTES:

B.1) MINIMUM EMBEDMENT OF TAPCON ANCHORS INTO THE CONCRETE BLOCK UNIT SHALL BE 1 1/4".

B.2) CALK-IN ANCHORS SHALL BE ENTIRELY EMBEDDED INTO THE CONCRETE BLOCK UNIT. NO EMBEDMENT INTO STUCCO SHALL BE PERMITTED. 1/4" #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 B.1) & B.2) ABOVE.

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

7. EACH SHUTTER SHALL HAVE A LEGIBLE AND READILY VISIBLE MARKING INSTRUCTING OWNER OR TENANT TO SECURE SHUTTER WITH SIDE & SILL BRACKETS DURING PERIODS OF HURRICANE WARNINGS.

8. 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. CONTRACTOR 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.

9. BERTHA BAHAMA SHUTTER'S INSTALLATION SHALL COMPLY WITH SPECS INDICATED IN THIS DRAWING PLUS ANY BUILDING AND ZONING REGULATIONS PROVIDED BY THE JURISDICTION WHERE PERMIT IS APPLIED TO.

10. SHUTTER MANUFACTURER'S LABEL SHALL BE LOCATED ON A READILY VISIBLE LOCATION AT SURFACE OF THE BAHAMA FRAME (E) OR (C) IN ACCORDANCE WITH SECTION 1709.9.2 OF FLORIDA BUILDING CODE. ONE LABEL SHALL BE PLACED FOR EVERY OPENING.

11. (a) THIS PRODUCT EVALUATION DOCUMENT (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.

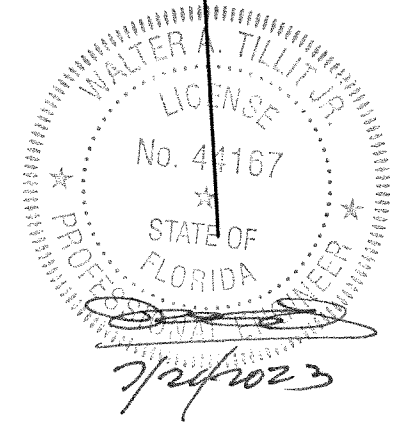
(b) CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION INCLUDING LIFE SAFETY OF THIS PRODUCT, BASED ON THIS PRODUCT EVALUATION DOCUMENT, PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.

(c) THIS PRODUCT EVALUATION DOCUMENT 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) ORIGINAL 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



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TILTECO INC.

TILLIT TESTING & ENGINEERING COMPANY
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e-mail: tilteco@aol.com
CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

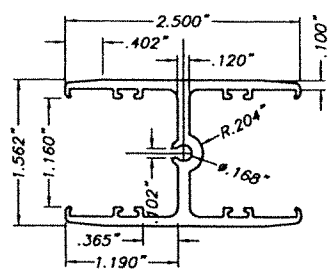
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / EXTRUDED BERTHA BAHAMA SHUTTER

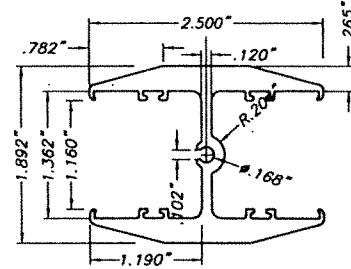
AMERICAN SHUTTER SYSTEMS ASSOC., INC.
4268 WEST ROADS DRIVE
WEST PALM BEACH, FL. 33407
PHONE: (800)432-2204
FAX: (561)209-8380

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
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2	-	-	4	-	-

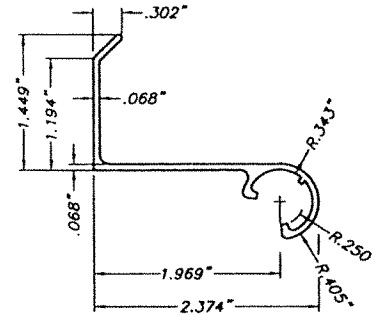
Y.M.
DRAWN BY:
7/21/2023
DATE:
23-131
DRAWING No
SHEET 1 OF 33



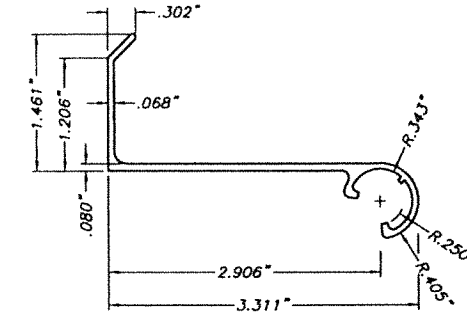
A1 REGULAR INTERIOR MULLION
6005-T5 Alum. ALLOY
SCALE: 1/2" = 1"



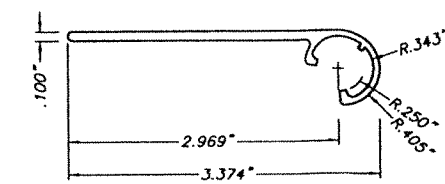
A2 HEAVY INTERIOR MULLION
6005-T5 Alum. ALLOY
SCALE: 1/2" = 1"



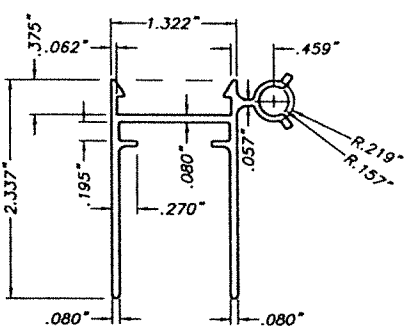
B FEMALE HINGE
SCALE: 1/2" = 1"



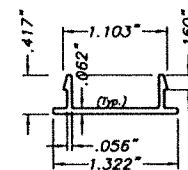
C 1" B. O. FEMALE HINGE
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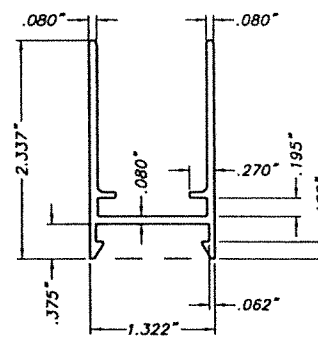
D FLAT FEMALE HINGE
SCALE: 1/2" = 1"



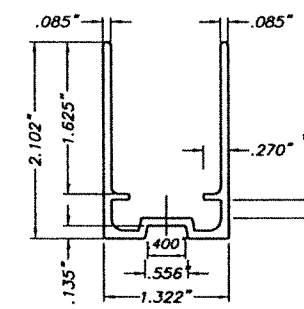
E BAHAMA MALE TOP FRAME
SCALE: 1/2" = 1"



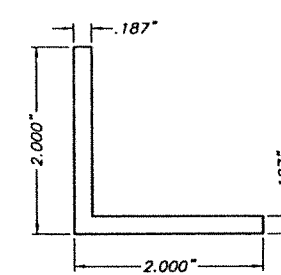
F SNAP CAP
SCALE: 1/2" = 1"



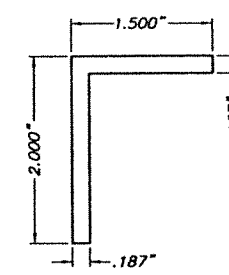
G BAHAMA FRAME
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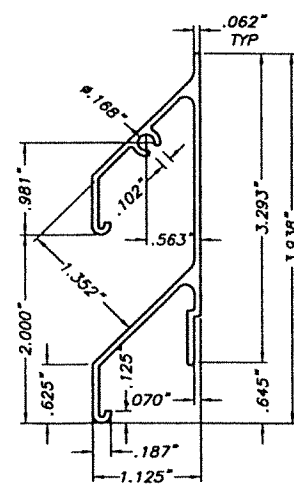
G1 ALTERNATE BAHAMA FRAME
SCALE: 1/2" = 1"



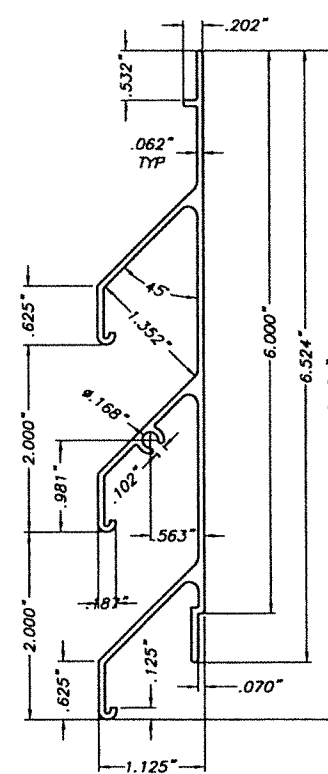
H CORNER KEY
1" LONG
SCALE: 1/2" = 1"



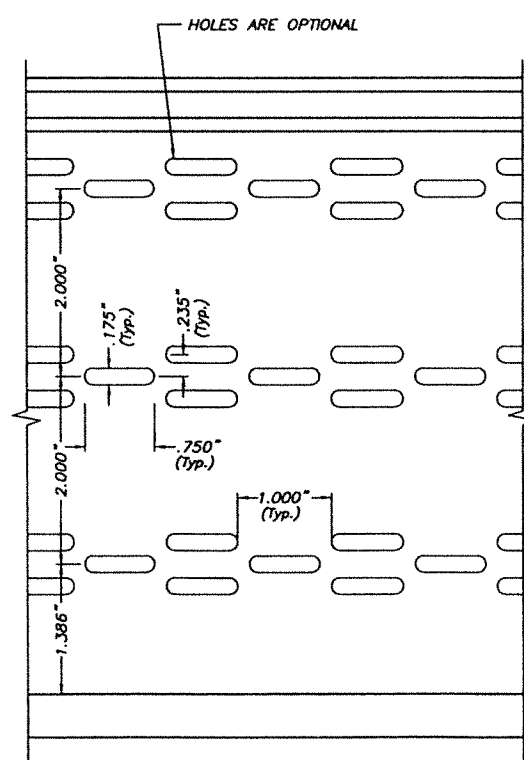
N WALL MOUNT Alum. BRACKET
7" LONG
SCALE: 1/2" = 1"



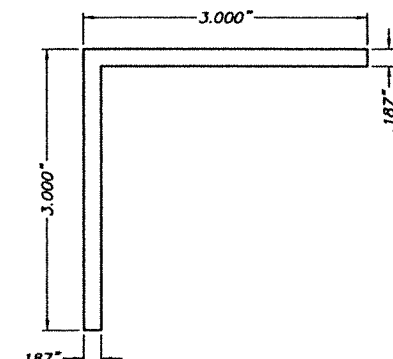
I HALF SHUTTER BLADE
SCALE: 1/2" = 1"



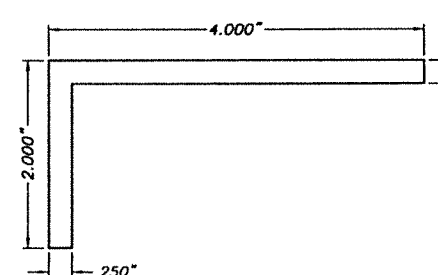
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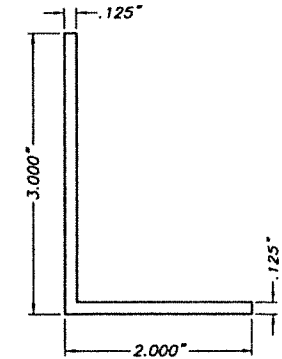
SHUTTER BLADE ELEVATION
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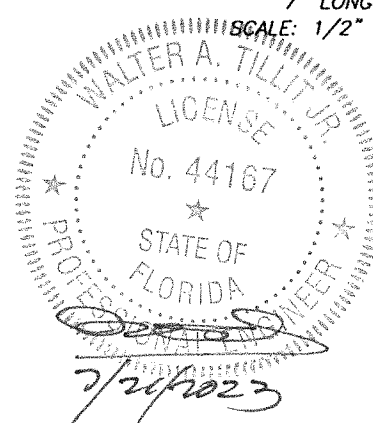
O BUILD-OUT Alum. BRACKET
7" LONG
SCALE: 1/2" = 1"



P BUILD-OUT SIDE BRACKET
7" LONG
SCALE: 1/2" = 1"



Q SILL ANGLE
SCALE: 1/2" = 1"



COMPONENTS

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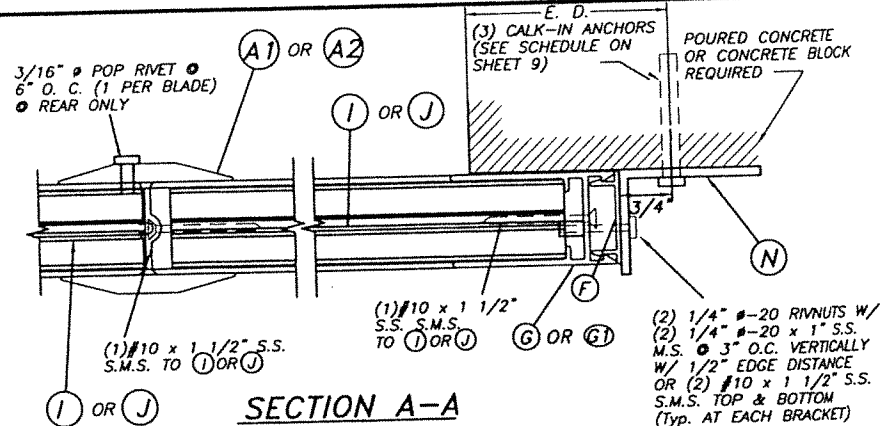
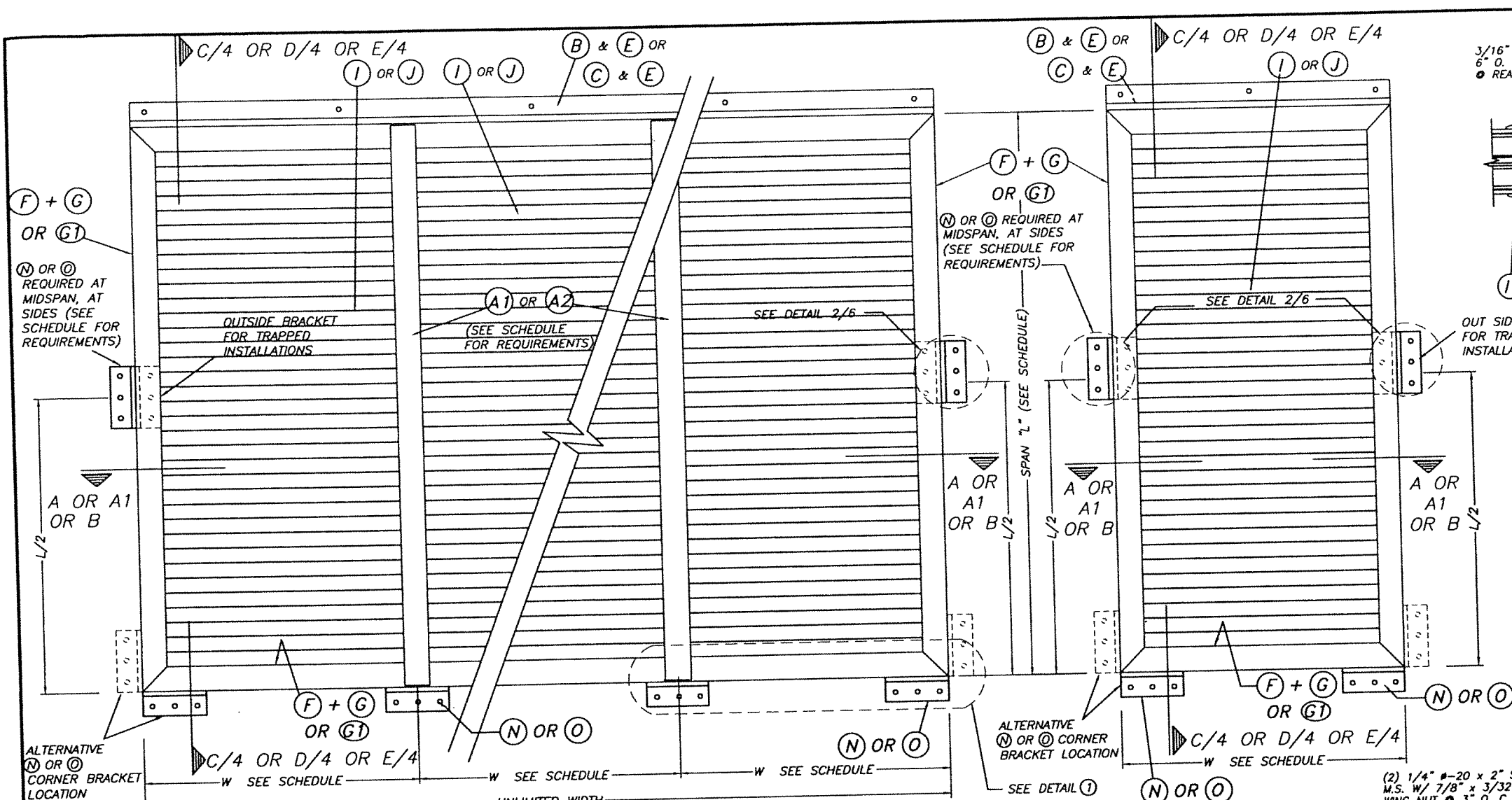
TILTECO INC.

TILLIT TESTING & ENGINEERING COMPANY
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Phone: (305)871-1530 Fax: (305)871-1531
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WALTER A. TILLIT Jr., P.E.
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FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

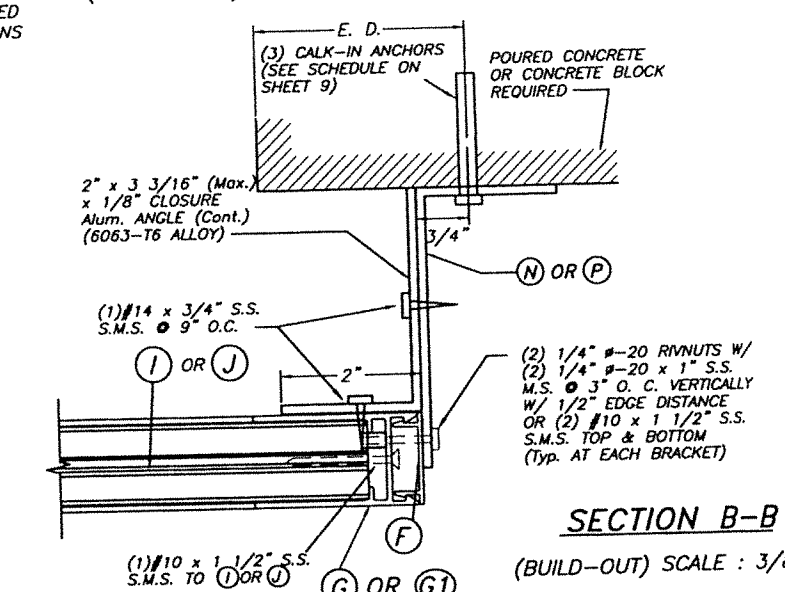
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / EXTRUDED BERTHA BAHAMA SHUTTER				Y.M. DRAWN BY:	
AMERICAN SHUTTER SYSTEMS ASSOC., INC.				7/21/2023 DATE:	
4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380				23-131 DRAWING No	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-187	7/21/23	3	-	-
2	-	-	4	-	-
					SHEET 2 OF 33



SECTION A-A

SCALE : 3/8" = 1"



SECTION B-B

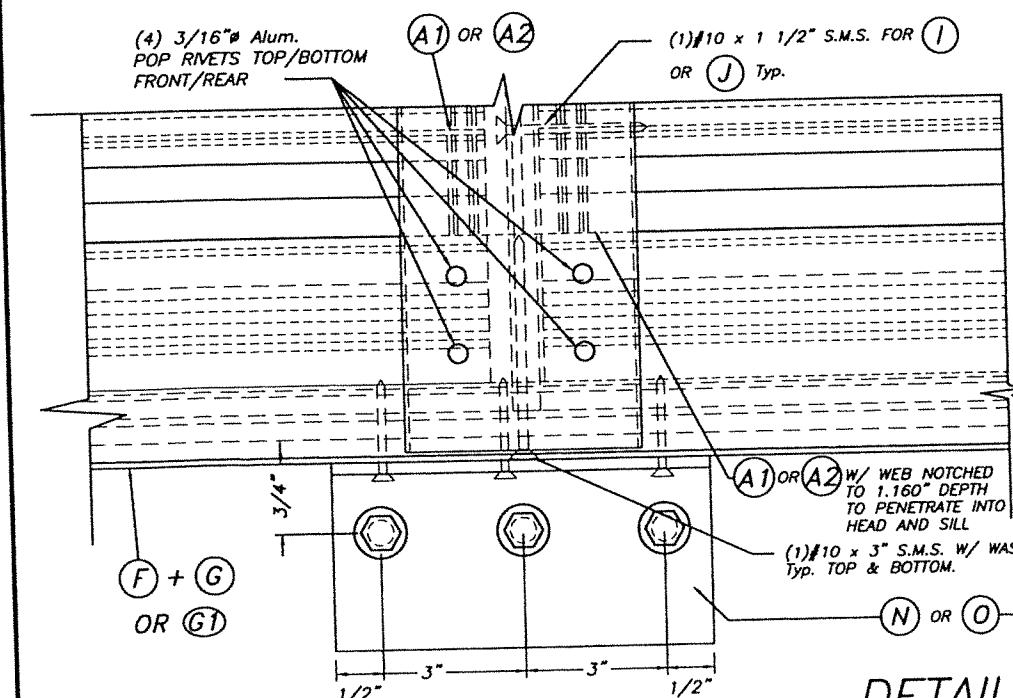
(BUILD-OUT) SCALE : 3/8" = 1"

NOTE:
E. D. = 3 1/2" Min.

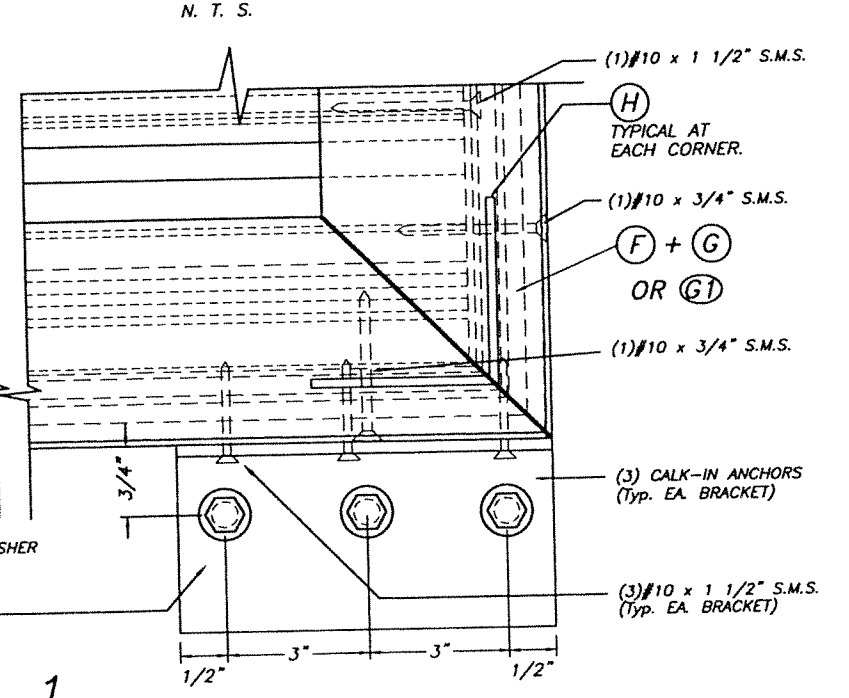
MULTIPLE UNIT

ELEVATIONS

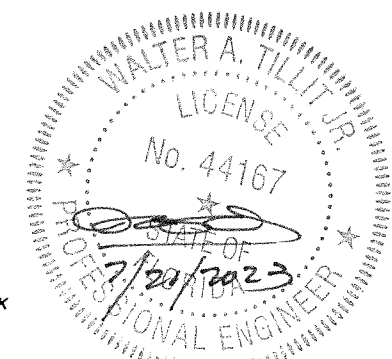
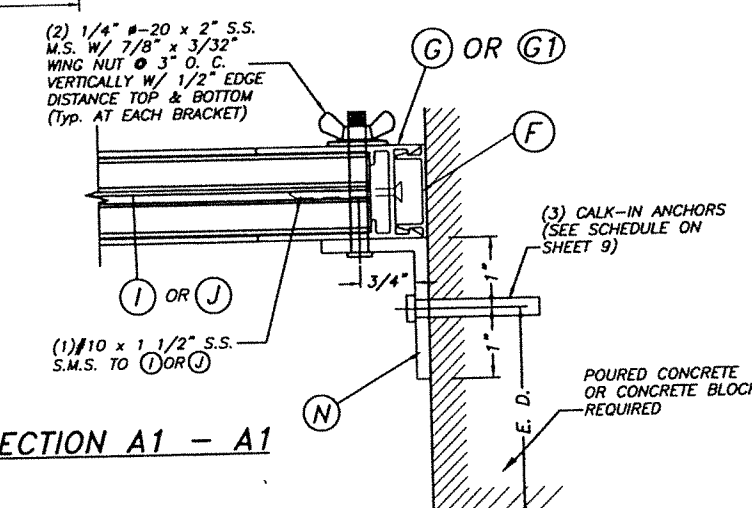
SINGLE UNIT



DETAIL 1
SCALE : 1/2" = 1"



SECTION A1 - A1



FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

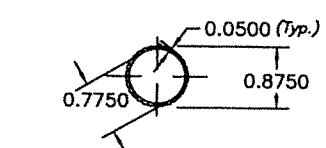
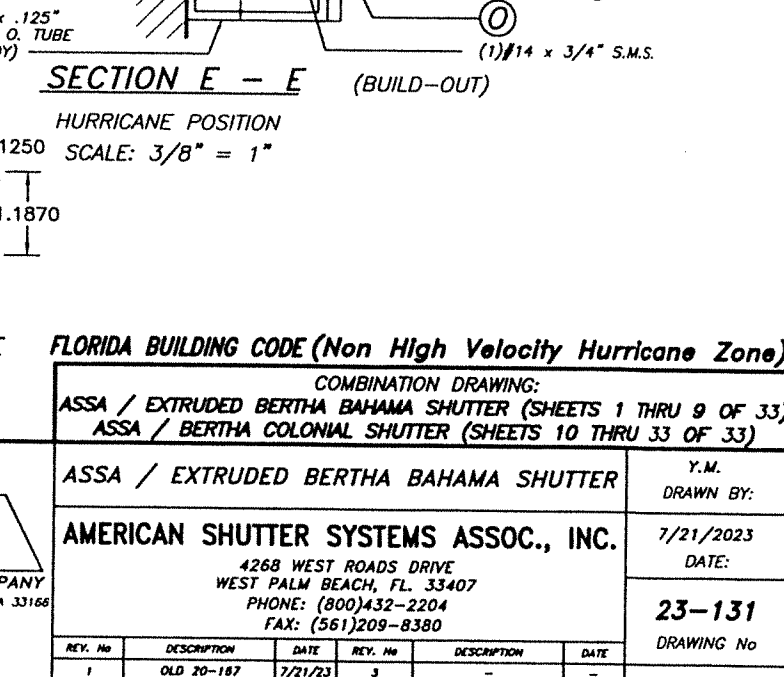
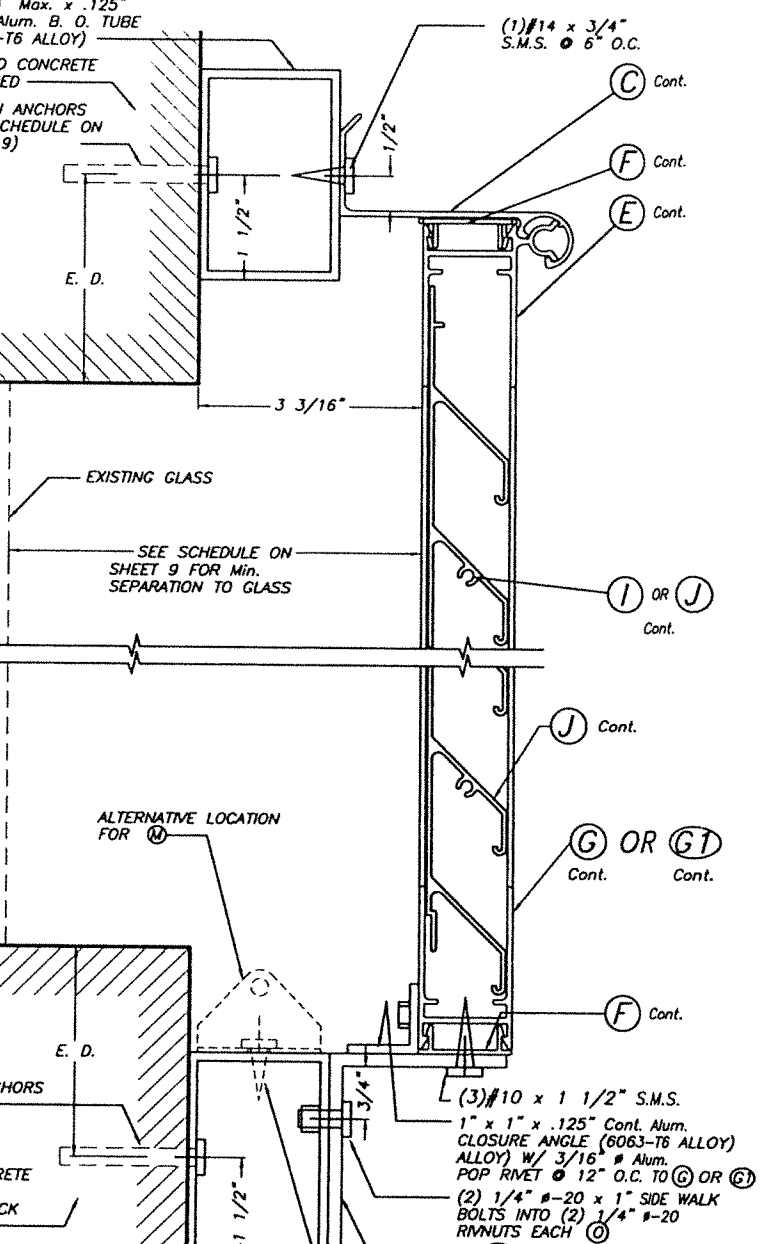
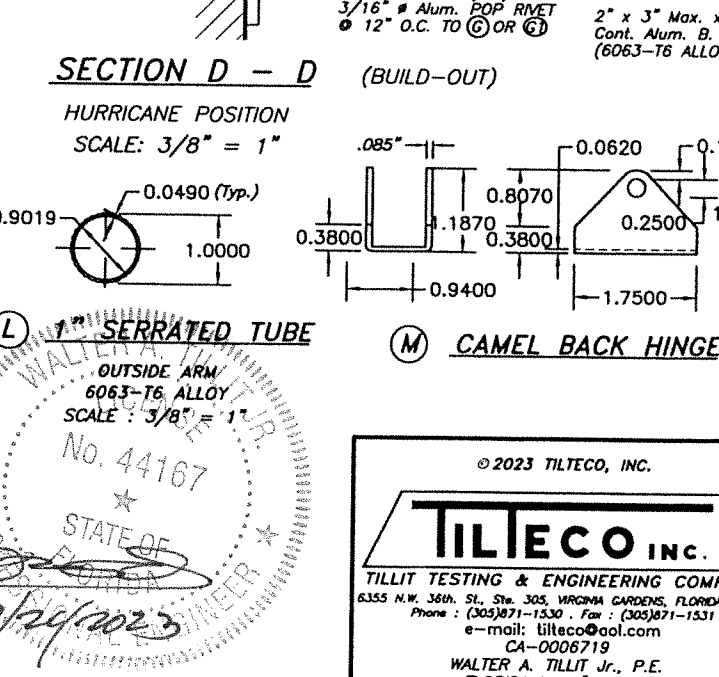
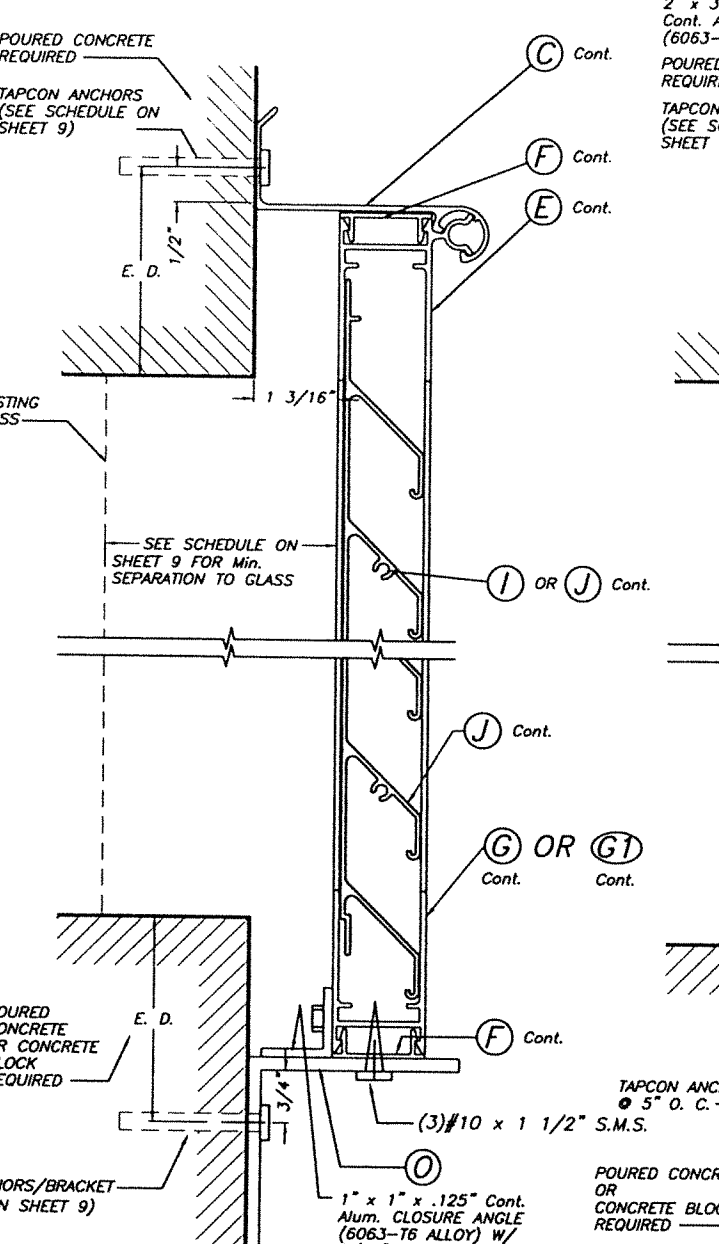
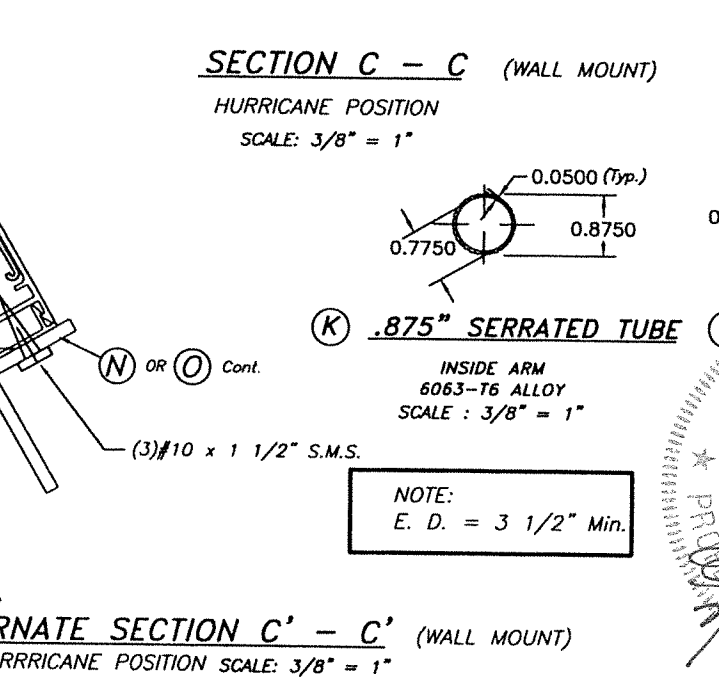
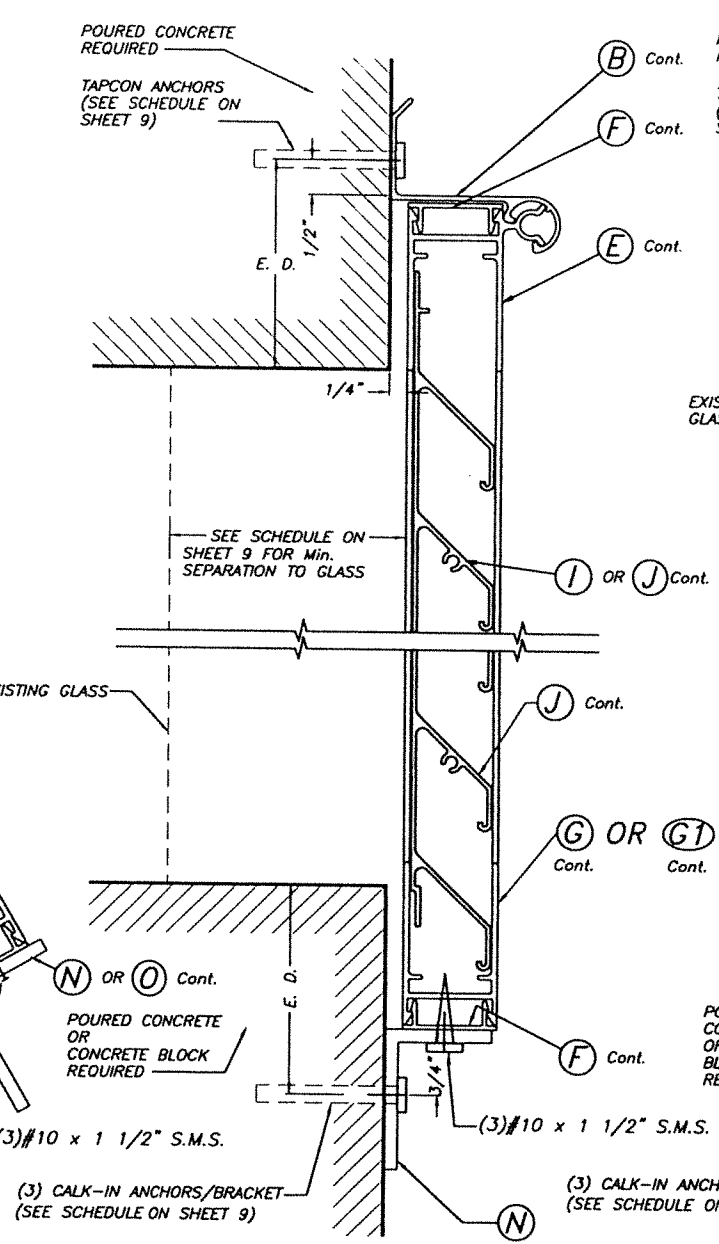
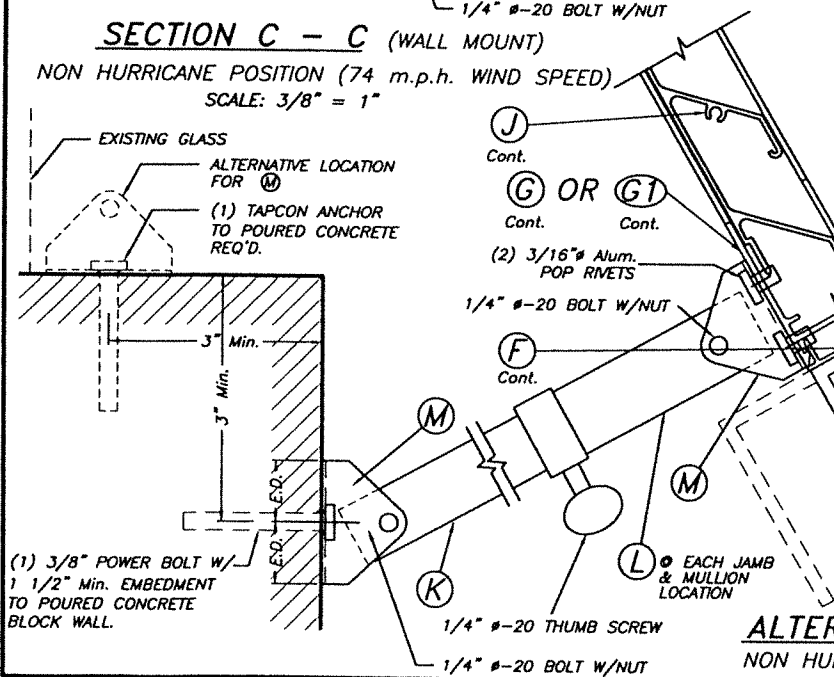
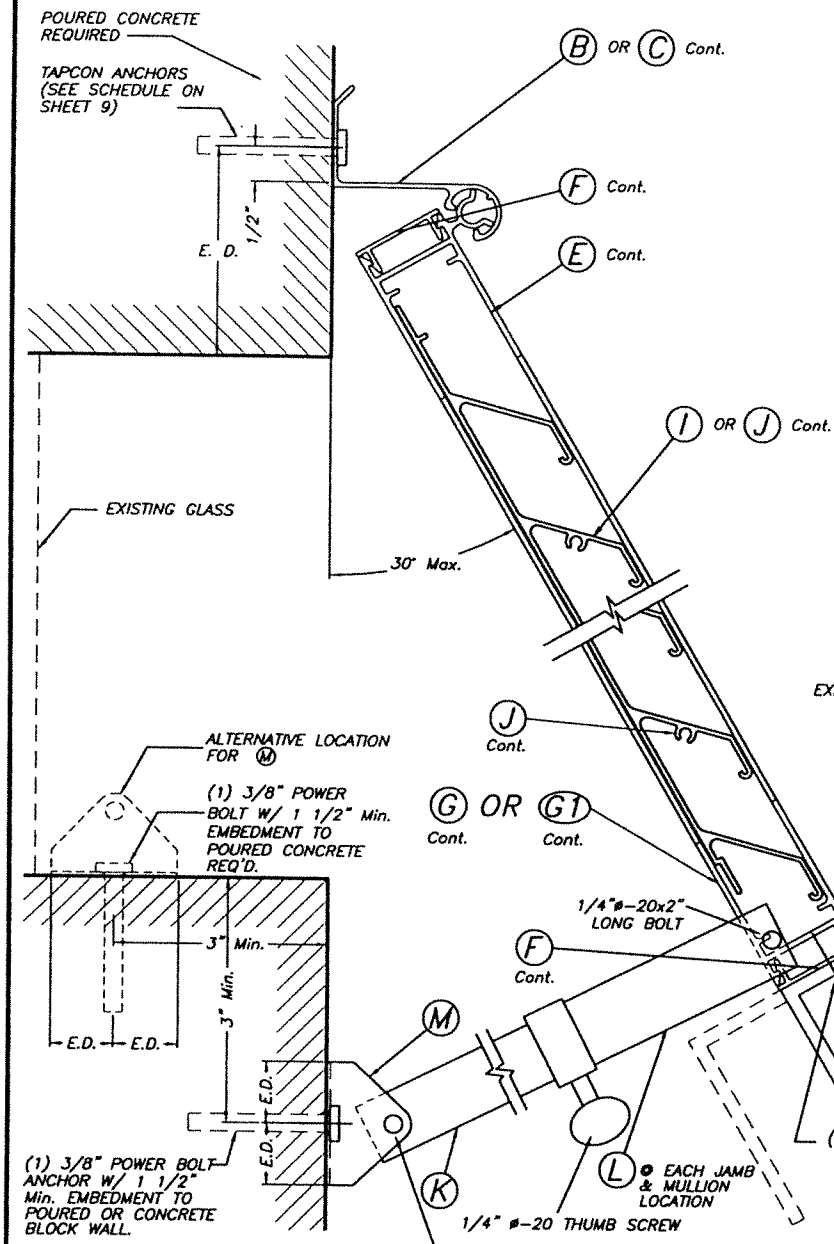
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

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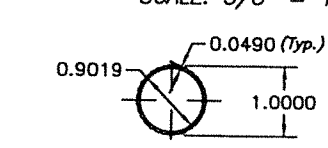
TILLIT TESTING & ENGINEERING COMPANY
6355 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FLORIDA 33166
Phone: (305)871-1530 Fax: (305)871-1531
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REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-187	7/21/23	3	-	-
2	-	-	4	-	-



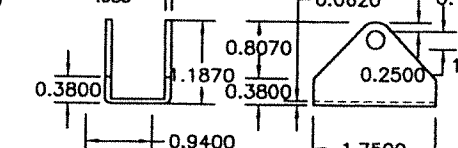
K .875" SERRATED TUBE
INSIDE ARM
6063-T6 ALLOY
SCALE: 3/8" = 1"

NOTE:
E. D. = 3 1/2" Min.



L 1" SERRATED TUBE
OUTSIDE ARM
6063-T6 ALLOY
SCALE: 3/8" = 1"

STATE OF FLORIDA
No. 44167
7/29/2023



M CAMEL BACK HINGE

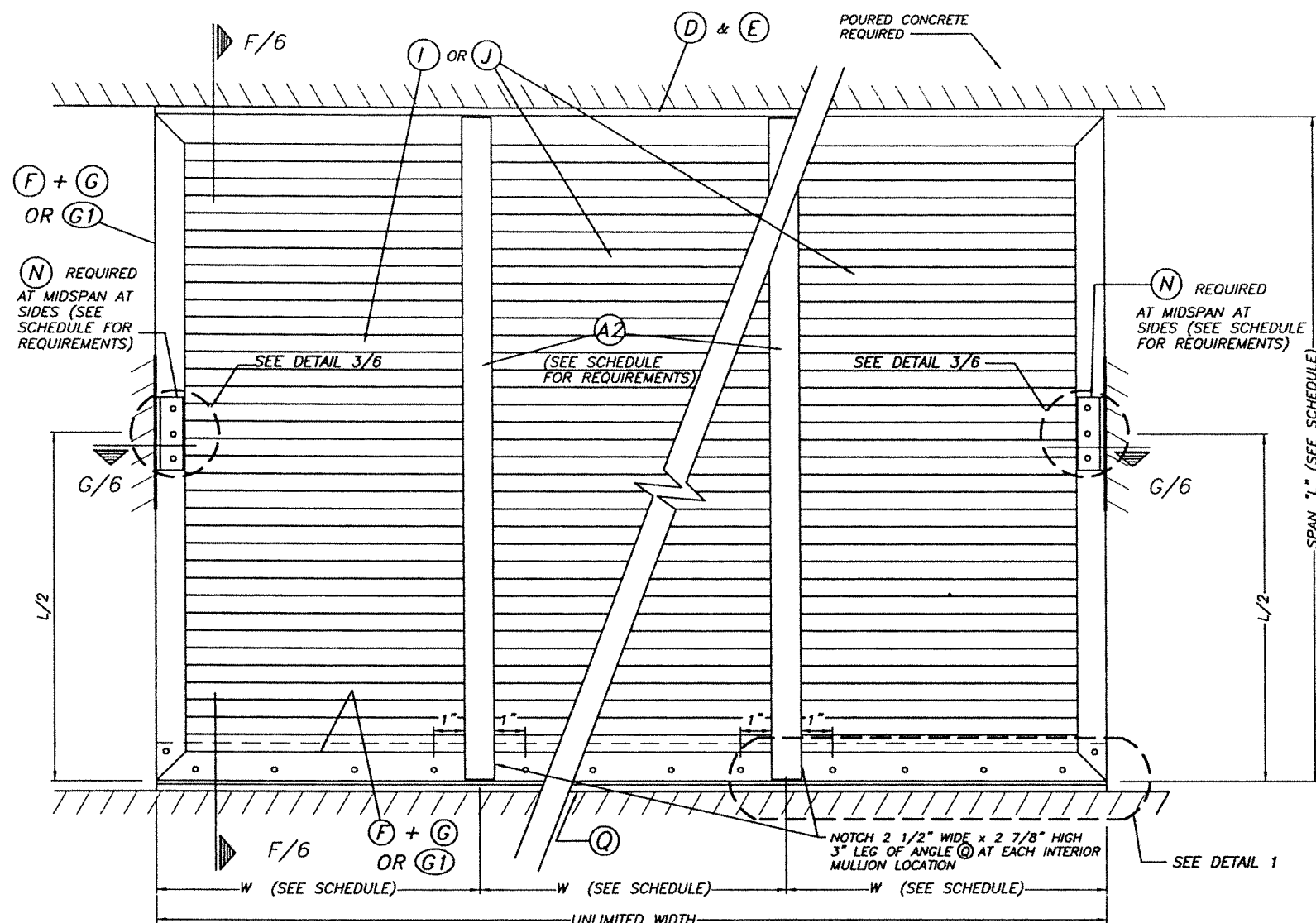
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TILLIT TESTING & ENGINEERING COMPANY
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FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

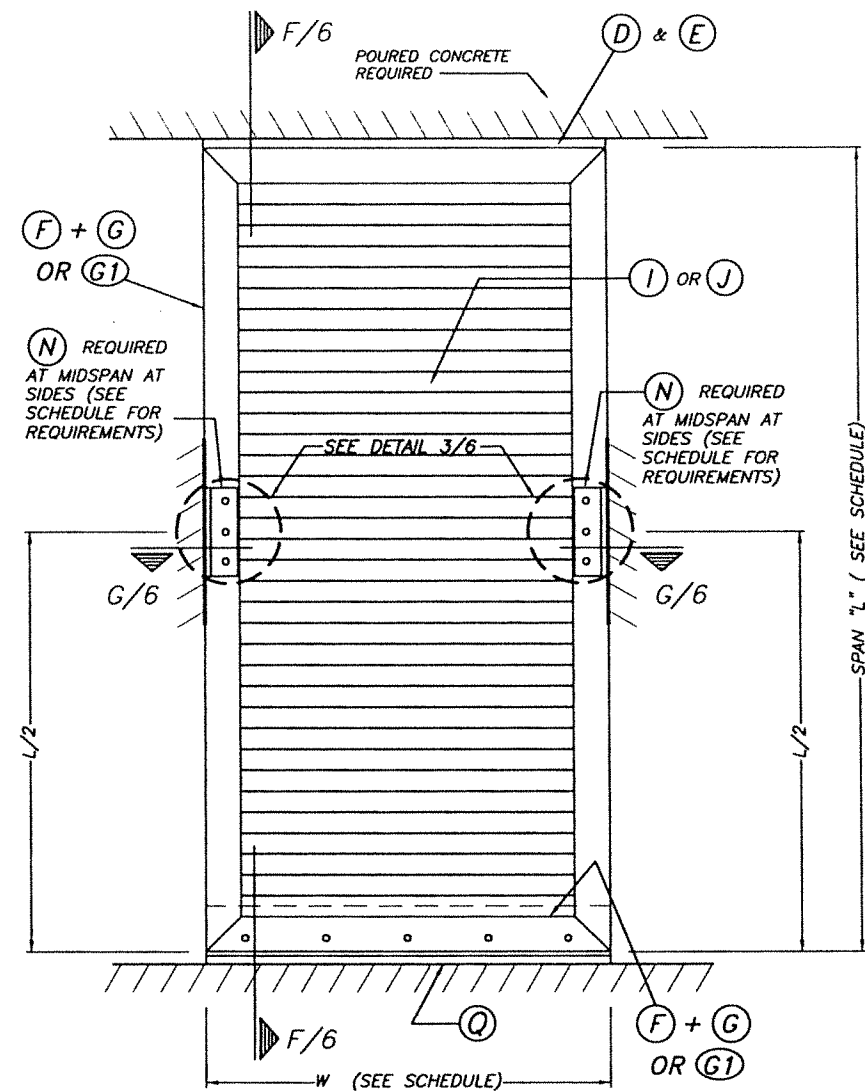
COMBINATION DRAWING:					
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)					
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER				Y.M. DRAWN BY:	
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REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-187	7/21/23	3	-	-
2	-	-	4	-	-
SHEET 4 OF 33					



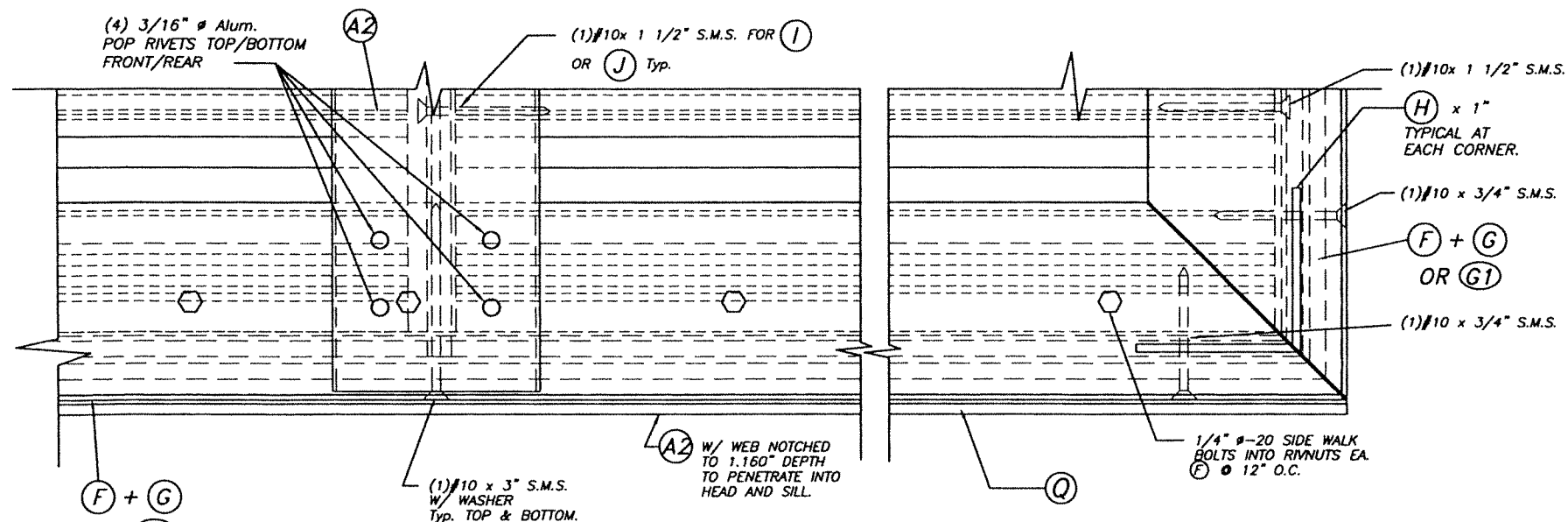
MULTIPLE UNIT

ELEVATIONS

N. T. S.

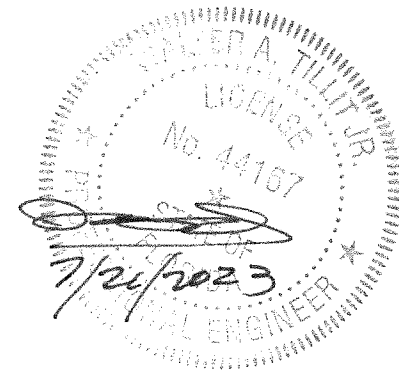


SINGLE UNIT



DETAIL 1

SCALE : 1/2" = 1"



FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

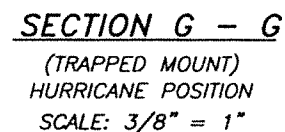
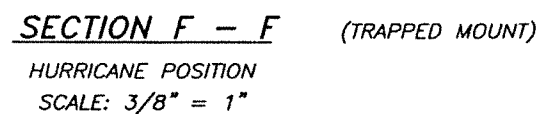
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

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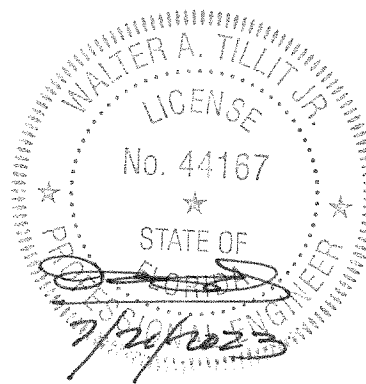
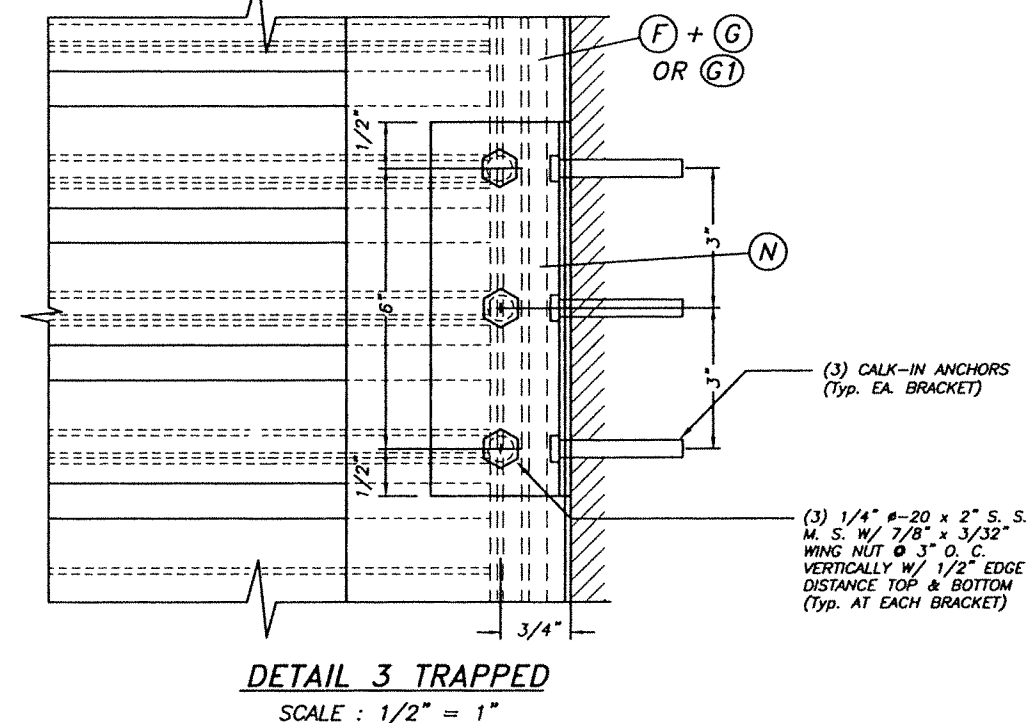
TILTECO INC.

TILLIT TESTING & ENGINEERING COMPANY
6355 N.W. 36th. St., Ste. 305, VERO BEACH, FLORIDA 33407
Phone: (305)871-1530 Fax: (305)871-1531
e-mail: tilliteco@aol.com
CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167

ASSA / EXTRUDED BERTHA BAHAMA SHUTTER					
Y.M. DRAWN BY:					7/21/2023
DATE:					23-131
DRAWING No					SHEET 5 OF 33
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-187	7/21/23	3	-	-
2	-	-	4	-	-



NOTE:
E. D. = 3 1/2" Min.



COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

4268 WEST ROADS DRIVE
WEST PALM BEACH, FL. 33407
PHONE: (800)432-2204
FAX: (561)209-8380

DRAWING No.

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-187	7/21/23	3	-	-
2			4	-	-

SHEET 6 OF 33

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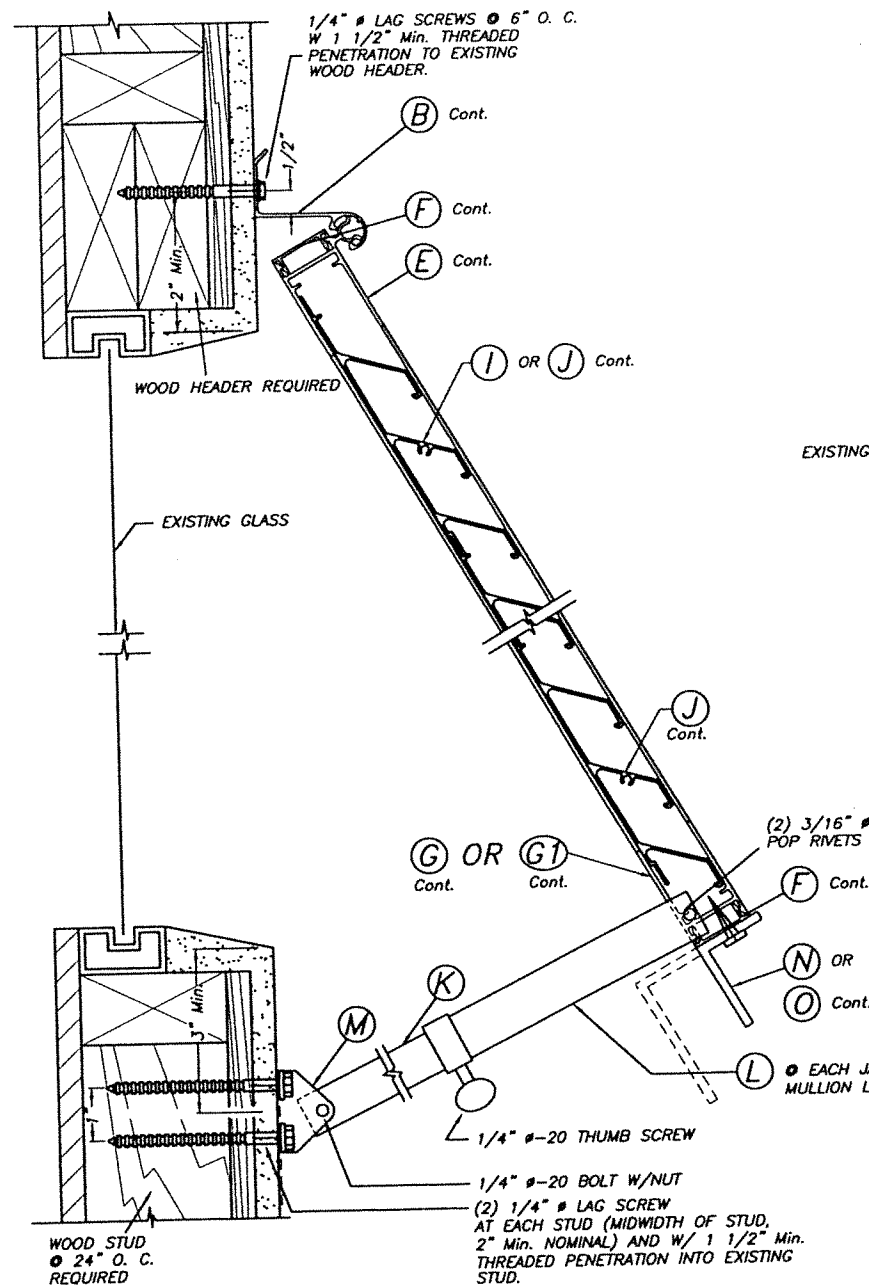
TILECO INC.

TILLIT TESTING & ENGINEERING COMPANY
6355 N.W. 38th. St., Ste. 305, VIRGINIA GARDENS, FLORIDA 33166
Phone: (305) 871-1530 Fax: (305) 871-1531

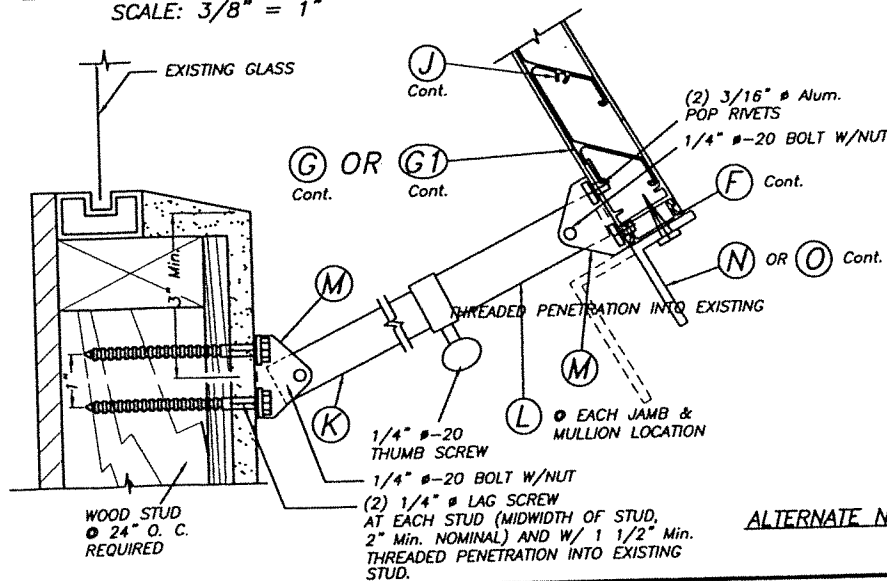
e-mail: tilteco@aol.com

CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167

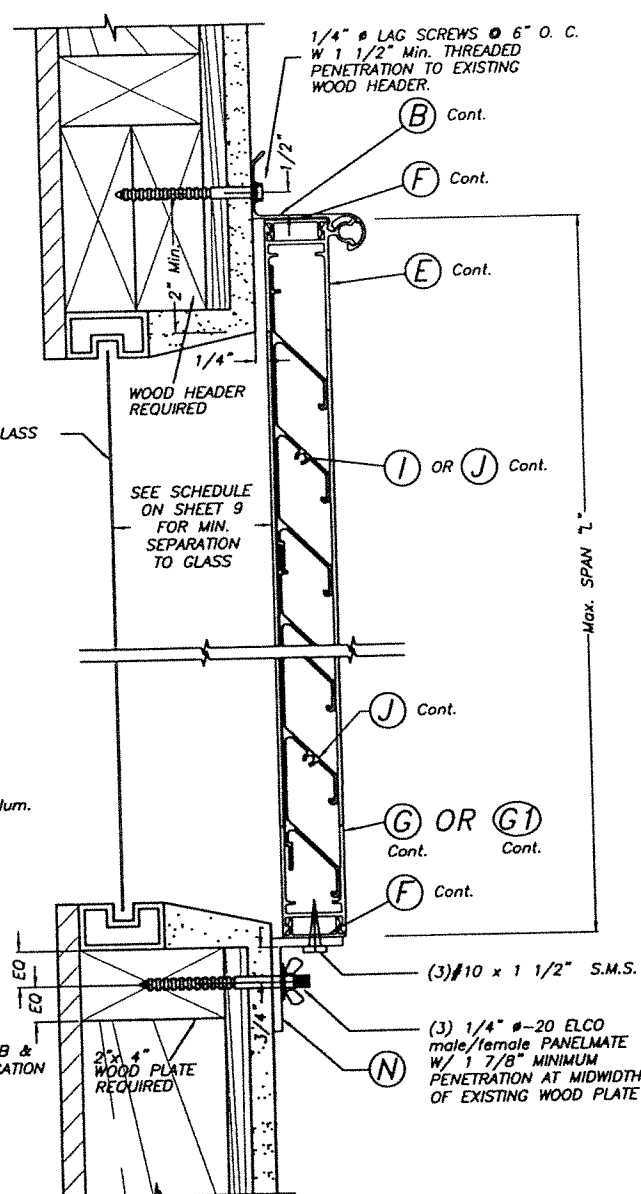
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2			4	-	-



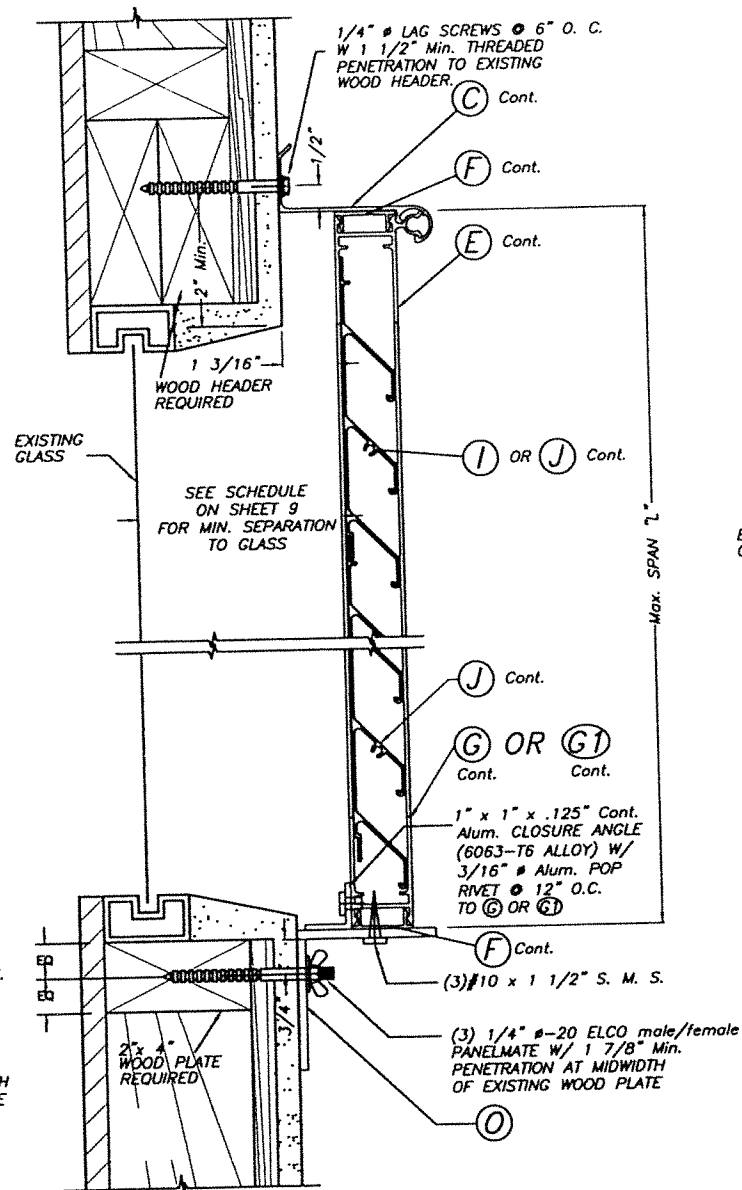
NON HURRICANE POSITION DETAIL: (74 m.p.h. OR LESS WIND SPEED)
SCALE: 3/8" = 1"



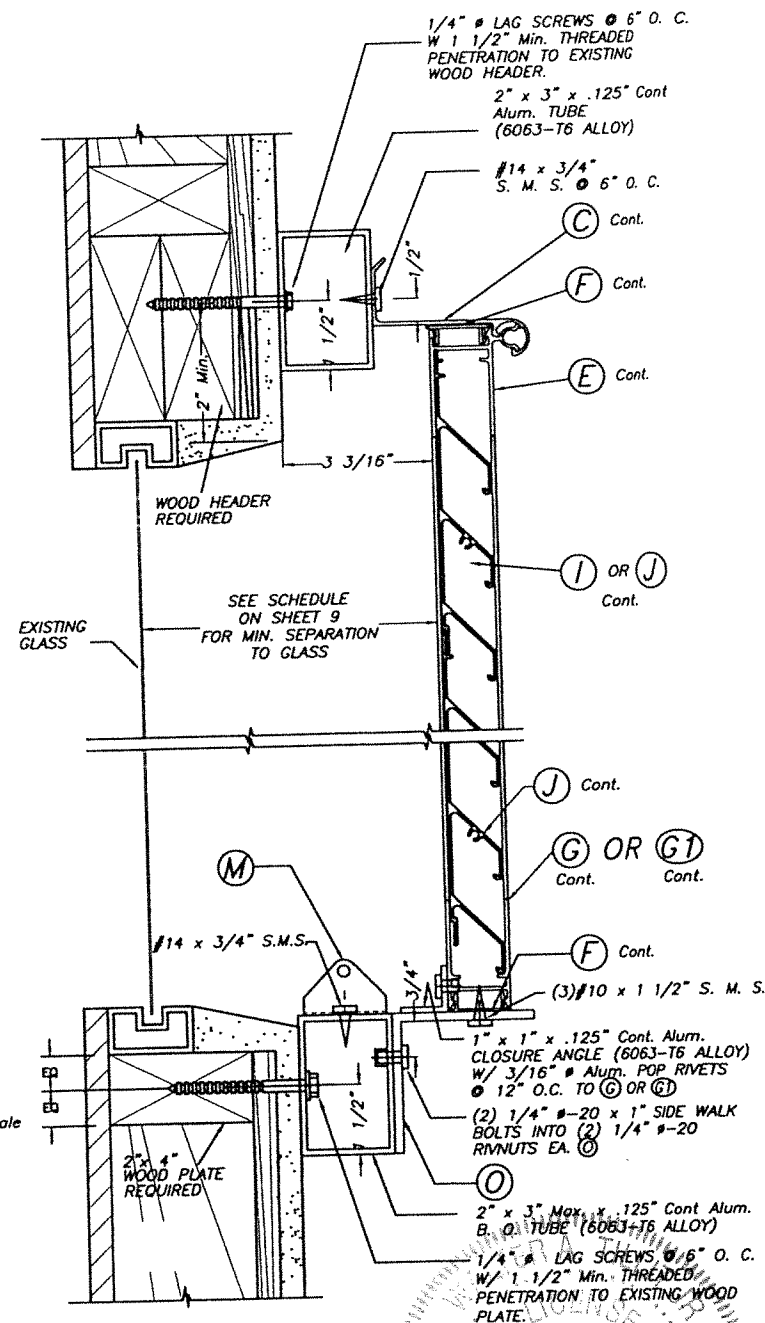
ALTERNATE NON HURRICANE POSITION DETAIL
SCALE: 3/8" = 1"



ALTERNATIVE 1
HURRICANE POSITION
SCALE: 3/8" = 1"



ALTERNATIVE 2
HURRICANE POSITION
SCALE: 3/8" = 1"



ALTERNATIVE 3
HURRICANE POSITION
SCALE: 3/8" = 1"

WALL MOUNTING INSTALLATION & BUILD-OUT
- SECTION A
INSTALLATION DETAILS ON EXISTING WOOD BUILDINGS

NOTES:

1. INSTALLATIONS ARE ONLY VALID FOR INSTALLATIONS WITH MAX. A.S.D. DESIGN PRESSURE RATING LESS OR EQUAL THAN +62.0, -75.0 p.s.f. AND MAX. SHUTTER SPAN AS PER SCHEDULES ON SHEET 9.
2. FOR NEW WOOD FRAME CONSTRUCTION: WOOD MEMBERS TO BE SOUTHERN PINE No. 2, W/ SPECIFIC DENSITY OF 0.55 OR EQUAL.

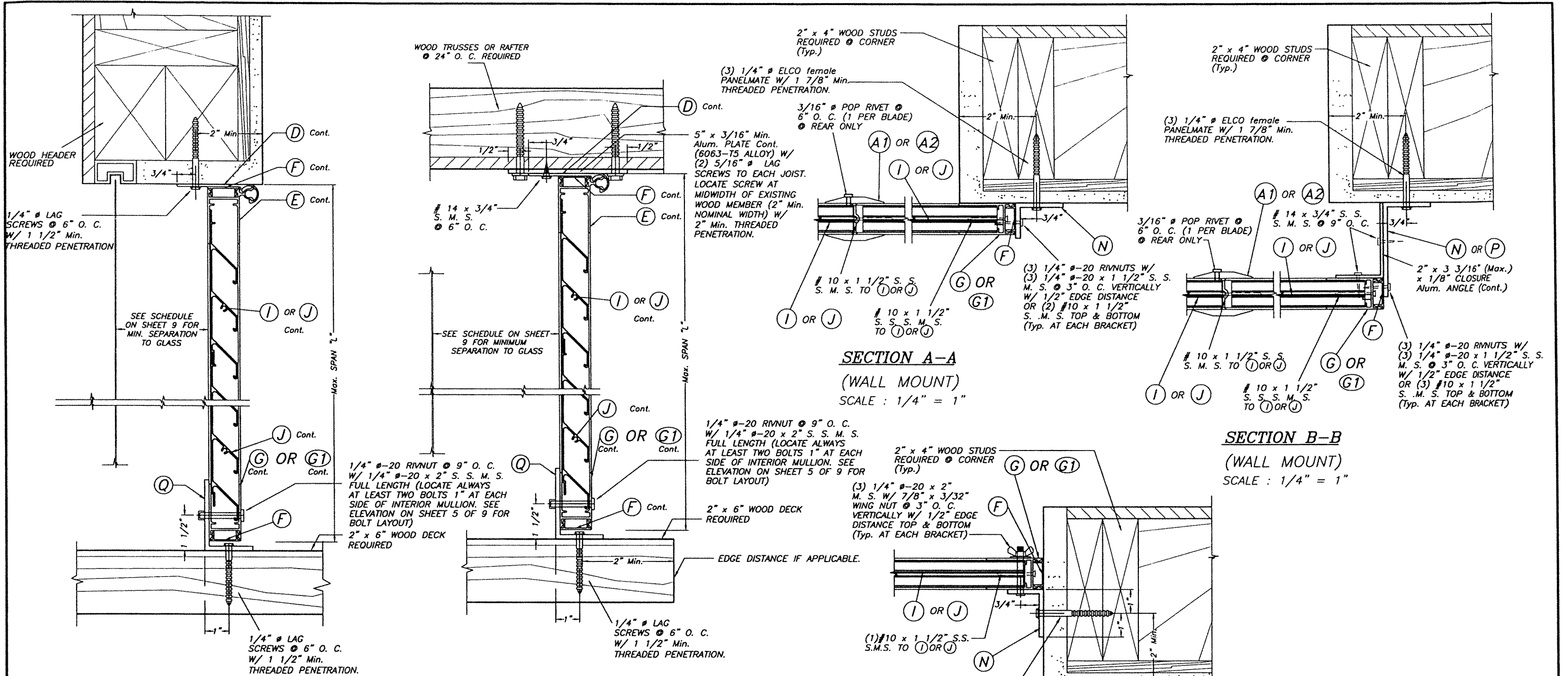
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TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
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WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / EXTRUDED BERTHA BAHAMA SHUTTER			Y.M. DRAWN BY:		
AMERICAN SHUTTER SYSTEMS ASSOC., INC.			7/21/2023 DATE:		
4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380			23-131 DRAWING No		
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-187	7/21/23	3	-	-
2	-	-	4	-	-
					SHEET 7 OF 33



ALTERNATIVE 4A

ALTERNATIVE 4B

FLOOR/CEILING MOUNTING INSTALLATION

SECTION A

SCALE: 1/4" = 1"

SECTION A-A

(WALL MOUNT)

SCALE: 1/4" = 1"

SECTION B-B

(WALL MOUNT)

SCALE: 1/4" = 1"

SECTION G-G

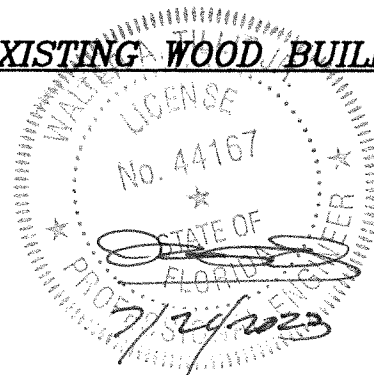
(FLOOR/CEILING MOUNT)

SCALE: 1/4" = 1"

INSTALLATION DETAILS ON EXISTING WOOD BUILDINGS

NOTES :

1. INSTALLATIONS ARE ONLY VALID FOR INSTALLATIONS WITH MAX. A.S.D. DESIGN PRESSURE RATING LESS OR EQUAL THAN +62.0, -75.0 p.s.f. AND Max. SHUTTER SPAN AS PER SCHEDULES ON SHEET 9.
2. FOR NEW WOOD FRAME CONSTRUCTION: WOOD MEMBERS TO BE SOUTHERN PINE No. 2, W/ SPECIFIC DENSITY OF 0.55 OR EQUAL.



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FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:					
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)					
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER				Y.M. DRAWN BY:	
AMERICAN SHUTTER SYSTEMS ASSOC., INC.				7/21/2023 DATE:	
4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380				23-131 DRAWING No	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-187	7/21/23	3	-	-
2	-	-	4	-	-

SCHEDULE # 1

MAXIMUM SINGLE UNIT FOR A CORRESPONDING A.S.D. DESIGN PRESSURE RATING AND

MOUNTING TYPE

MAX. A.S.D. DESIGN PRESSURE RATING (p.s.f.) AND CASE #	MAXIMUM UNIT WIDTH "W" (IN)	MAXIMUM SPAN "L" (IN)		
		W/O SIDE BRACKET	W/ SIDE BRACKET	MINIMUM SEPARATION TO GLASS (IN)
CASES I & II +56.0 , -63.0	42"	52"	N/A	3 1/8"
CASES I & II +75.0 , -100.0	42"	N/A	96"	2 1/8"

SCHEDULE # 2

LIMITATIONS FOR SINGLE AND MULTIPLE UNITS BAHAMA SHUTTER'S UNIT WIDTH (IN), SPAN L (IN) AND CORRESPONDING MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.) FOR THE INSTALLATION OF SIDE & SILL BRACKETS INTO CONCRETE & MASONRY BUILDINGS BY MEANS OF (3) 1/4" Ø x 7/8" CALK-IN ANCHORS *

MAXIMUM NEGATIVE A.S.D. DESIGN PRESSURE RATING (p.s.f.)	SINGLE UNITS				MULTIPLE UNITS			
	SIDE & SILL BRACKETS **				SIDE & SILL BRACKETS **			
	TO CONCRETE		TO BLOCK		TO CONCRETE		TO BLOCK	
	Max. "W"	Max. "L"	Max. "W"	Max. "L"	Max. "W"	Max. "L"	Max. "W"	Max. "L"
-55.7	42"	96"	42"	96"	36 1/2"	84"	36"	84"
-65.0	42"	96"	42"	96"	36 1/2"	84"	36"	72"
-75.0	42"	96"	42"	96"	36 1/2"	83"	31"	84"
-83.0	42"	96"	42"	96"	36 1/2"	83"	36 1/2"	62"
-100.0	42"	96"	42"	63	N/A	N/A	27"	83"
			36"	73	N/A	N/A	N/A	N/A

* FOR ELCO PANELMATES ((3) 1/4" Ø W/ 1 7/8" PENETRATION) USED AT SILL & SIDE BRACKETS FOR INSTALLATIONS INTO WOOD SEE SCHEDULES # 1 & # 1A FOR SHUTTER SIZE.

** IN ANY CASE, MAXIMUM "W" & "L" VALUES W/ CORRESPONDING A.S.D. DESIGN PRESSURE RATING SHALL NOT EXCEED MAXIMUM VALUES INDICATED ON SCHEDULES # 1 & 1A.

SCHEDULE # 1A

MAXIMUM MULTIPLE UNIT FOR A CORRESPONDING A.S.D. DESIGN PRESSURE RATING

AND MOUNTING TYPE

MAX. A.S.D. DESIGN PRESSURE RATING (p.s.f.) AND CASE #	MAXIMUM UNIT WIDTH "W" (IN)	MAXIMUM SPAN "L" (IN)			
		W/O SIDE BRACKET	W/ SIDE BRACKET	INTERIOR MULLION TYPE REQUIRED	MINIMUM SEPARATION TO GLASS (IN)
CASE I +50.0 , -43.3	36 1/2"	72 1/2"	N/A	A1	2 1/2"
CASE I +62.0 , -75.0	36 1/2"	N/A	83"	A2	2 3/8"
CASE II +62.0 , -75.0	36 1/2"	N/A	84"	A2	2 3/8"

SCHEDULE # 3

MAXIMUM ANCHOR SPACING AT TOP FEMALE HINGES (B), (C), OR (D) AS WELL AS SILL ANGLE (Q) AT BOTTOM (AS APPLICABLE) FOR INSTALLATIONS INTO POURED CONCRETE HEADERS AND SILL ***

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p. s. f.)	SINGLE & MULTIPLE UNITS
	TOP & BOTTOM TO CONCRETE
ALL PRESSURES COVERED IN SCHEDULE # 1 & # 1A	9" O.C. TOP & 7" O.C. BOTTOM.

*** SEE SHEETS 7 & 8 FOR ANCHOR SPACING FOR INSTALLATIONS INTO WOOD FRAME BUILDINGS.

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

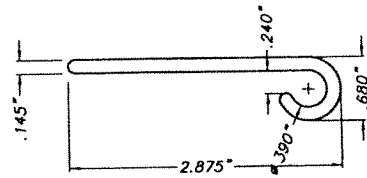
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER	Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC.	7/21/2023 DATE:
4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380	23-131 DRAWING No
REV. No DESCRIPTION DATE REV. No DESCRIPTION DATE	SHEET 9 OF 33
1 OLD 20-187 7/21/23 3 - -	
2 - - - 4 - -	

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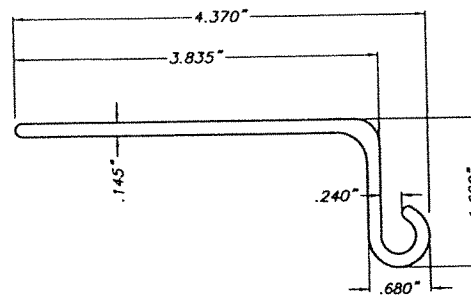
TILLIT TESTING & ENGINEERING COMPANY
6335 N.W. 36th. St., Ste. 305, VIRGINIA GARDENS, FLORIDA 33166
Phone : (305)871-1530 . Fax : (305)871-1531
e-mail: tilteco@aol.com
CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167

ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS OR STORM BARS)						Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC. 4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380						7/21/2023 DATE:
						23-131 DRAWING No
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE	
1	OLD 20-167	7/21/23	3			
SHEET 10 OF 33						



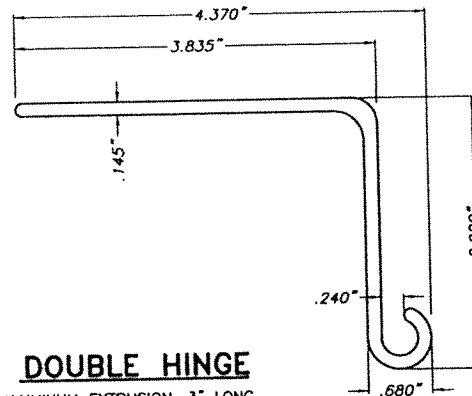
(B) FLAT HINGE

ALUMINUM EXTRUSION 3" LONG AT
 (B) OR (C): 1 1/2" LONG • PANEL JOINTS



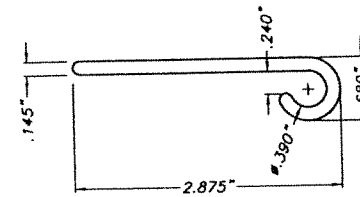
(C) SINGLE HINGE

ALUMINUM EXTRUSION, 3" LONG



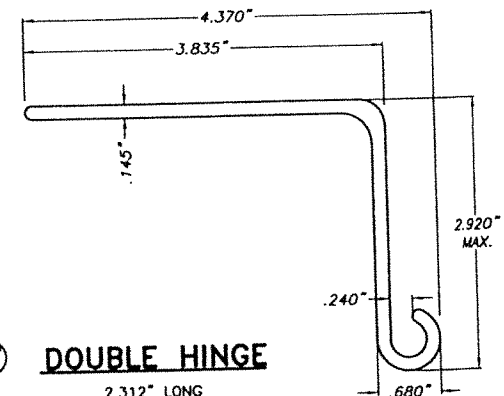
(D) DOUBLE HINGE

ALUMINUM EXTRUSION, 3" LONG



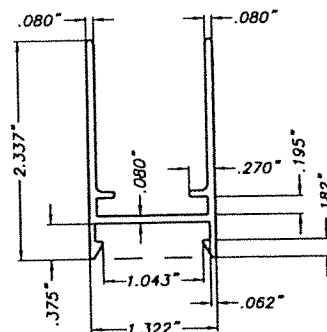
(B') FLAT HINGE

2.375" LONG
 ALUMINUM EXTRUSION



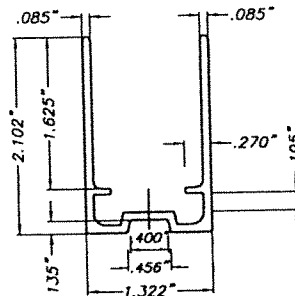
(D') DOUBLE HINGE

2.312" LONG
 ALUMINUM EXTRUSION



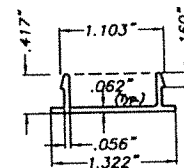
(E) COLONIAL FRAME

ALUMINUM EXTRUSION



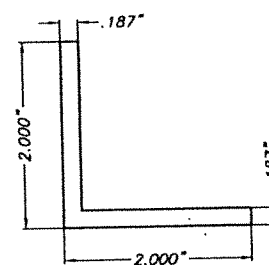
(E1) ALTERNATE COLONIAL FRAME

ALUMINUM EXTRUSION



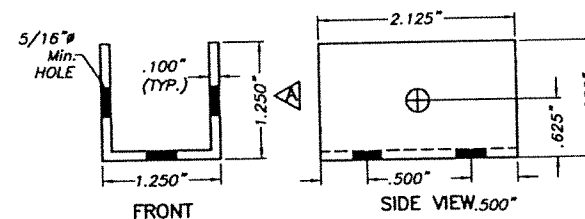
(F) SNAP CAP

ALUMINUM EXTRUSION



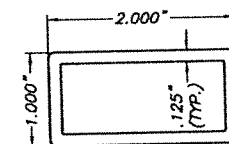
(G) CORNER KEY

1 1/8" LONG
 ALUMINUM EXTRUSION



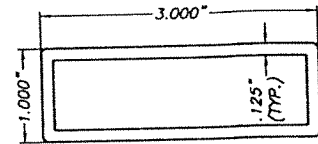
(N) H.V. STORM BAR CLIP

2 1/8" LONG
 ALUMINUM EXTRUSION



(O) STORM BAR TYPE 1

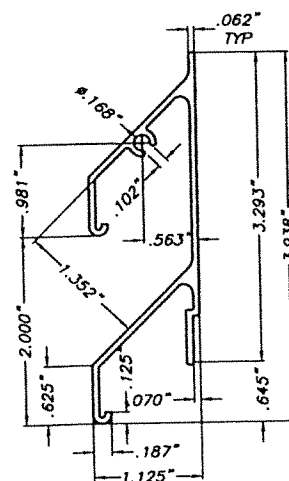
ALUMINUM EXTRUSION



(O1) STORM BAR TYPE 2

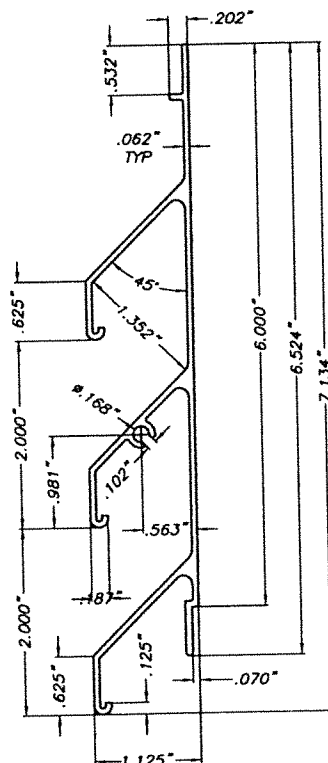
ALUMINUM EXTRUSION

COMPONENTS VALIDITY SCHEDULE		
COMPONENTS	USED WITH	
	CLIPS	STORM BARS
(B)	YES	NO
(B')	NO	YES
(C)	YES	NO
(D)	YES	NO
(D')	NO	YES
(E)	YES	YES
(E1)	YES	YES
(F)	YES	YES
(G)	YES	YES
(H)	YES	YES
(I)	YES	YES
(N)	NO	YES
(O)	NO	YES
(O1)	NO	YES
(Q1)	NO	YES
(Q2)	NO	YES



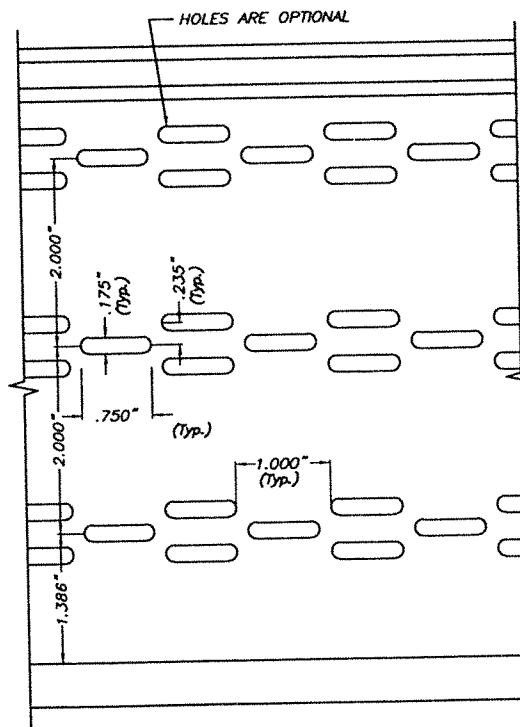
(H) HALF SHUTTER BLADE

ALUMINUM EXTRUSION



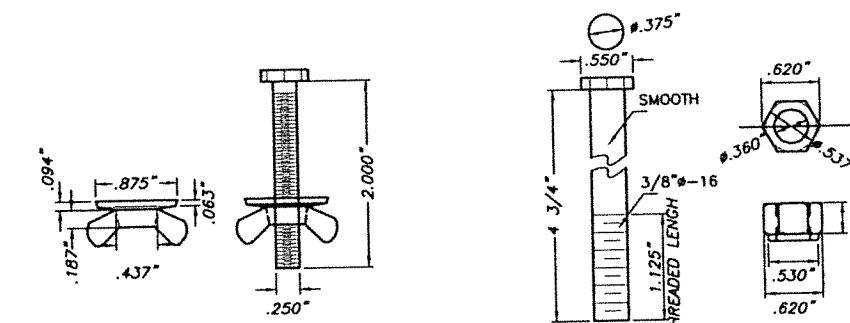
(I) SHUTTER BLADE

ALUMINUM EXTRUSION

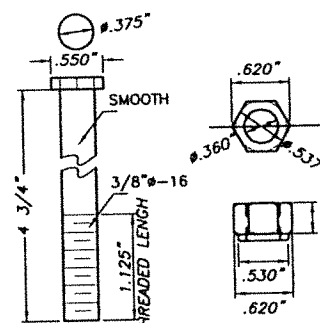


SHUTTER BLADE ELEVATION

ALUMINUM EXTRUSION



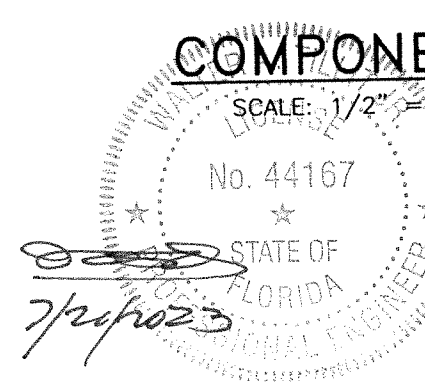
(Q1) 1/4\"-20X2\" 304 SERIES S.S. HEX HEAD BOLT W/ DIE CAST (ZINC #7) NICKEL PLATED WASHER WINGNUT



(Q2) ALUMINUM PIN FOR HINGE
 6061-T6 Alum. ALLOY

COMPONENTS

SCALE: 1/2" = 1"



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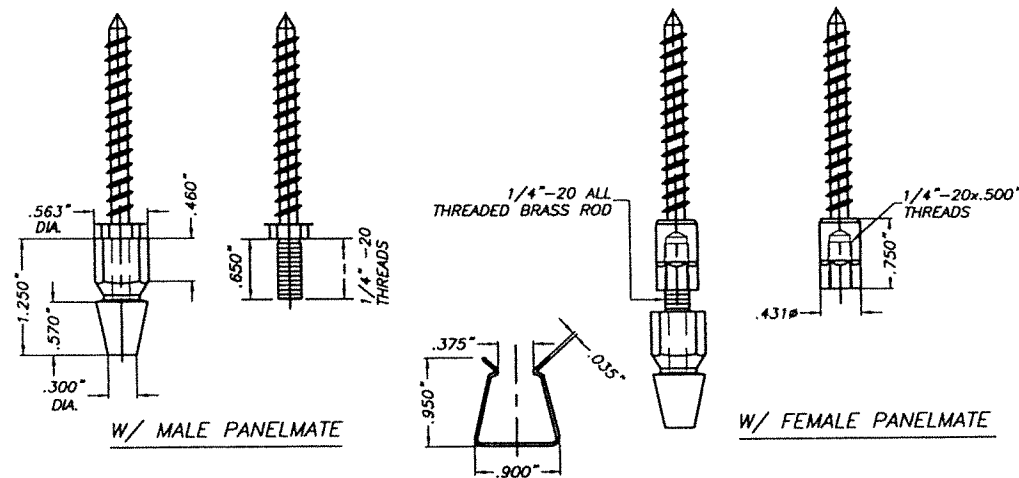
TILTECO INC.

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FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
 ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
 ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

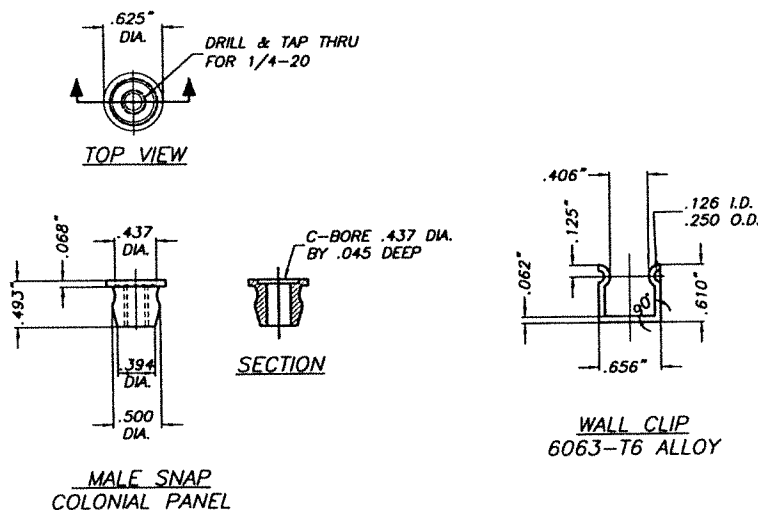
ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS OR STORM BARS)					Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC. 4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380					7/21/2023 DATE:
					23-131 DRAWING No
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-187	7/21/23	3		
2			4		
					SHEET 11 OF 33



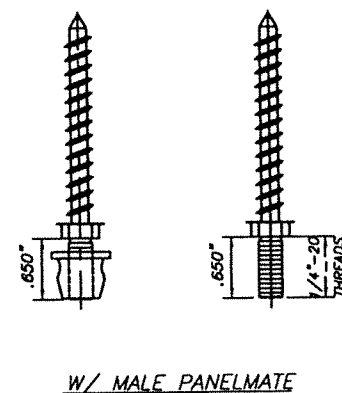
- (L) SPRING TEMPERED BRASS "U" CHANNEL (1" LONG)
& 1/4" ELCO TEXTRON MALE OR FEMALE PANELMATE
ANCHOR W/ 360 BRASS THREADED NUT

- (J) WALL MOUNT
Alum. BRACKET
4" LONG
ALUMINUM EXTRUSION

- (K) BUILD-OUT
Alum. BRACKET
4" LONG
ALUMINUM EXTRUSION



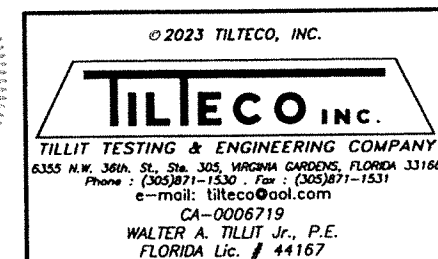
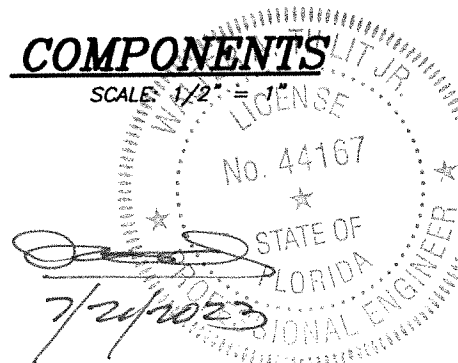
- (M) ALTERNATE ALUMINUM "U" CHANNEL (1" LONG)
& 1/4" ELCO TEXTRON MALE PANELMATE ANCHOR
OR W/ 1/4" S.S. MACHINE ROD



W/ 1/4" S.S. ALL TREADED MACHINE ROD.

COMPONENTS

SCALE: 1/2" = 1"

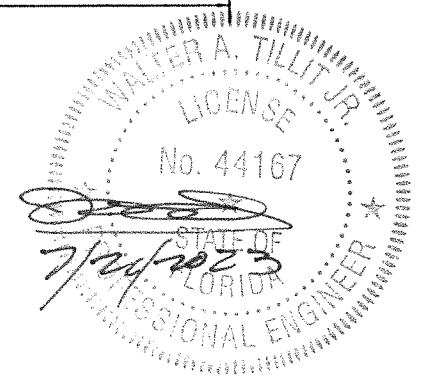
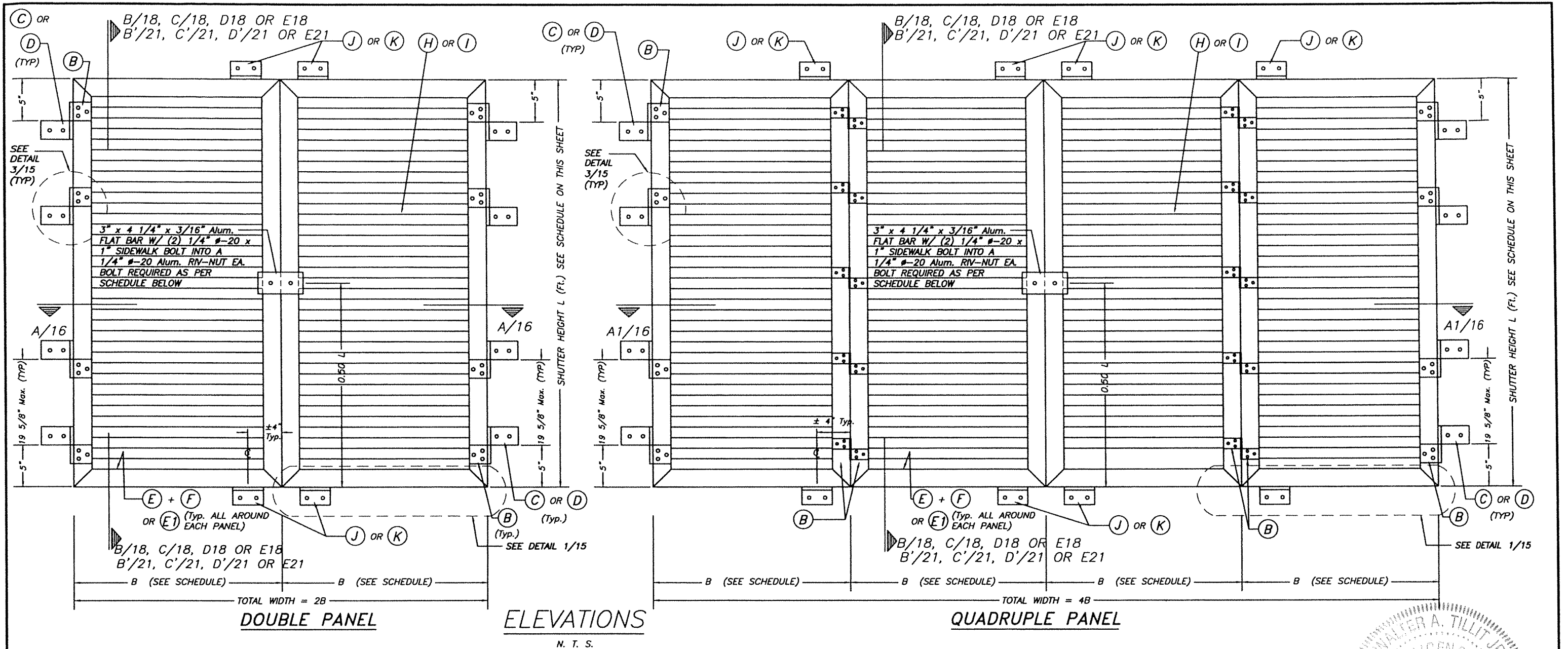


FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
 ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
 ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)					Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC.					7/21/2023 DATE:
4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800) 432-2204 FAX: (561) 209-8380					23-131 DRAWING No
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		

SHEET 12 OF 33



BLADES (H) OR (I) CONDITION	MINIMUM SEPARATION TO GLASS
PERFORATED BLADES AS SHOWN ON SHEET 11	3"
NOT PERFORATED (SOLID) BLADES	1"

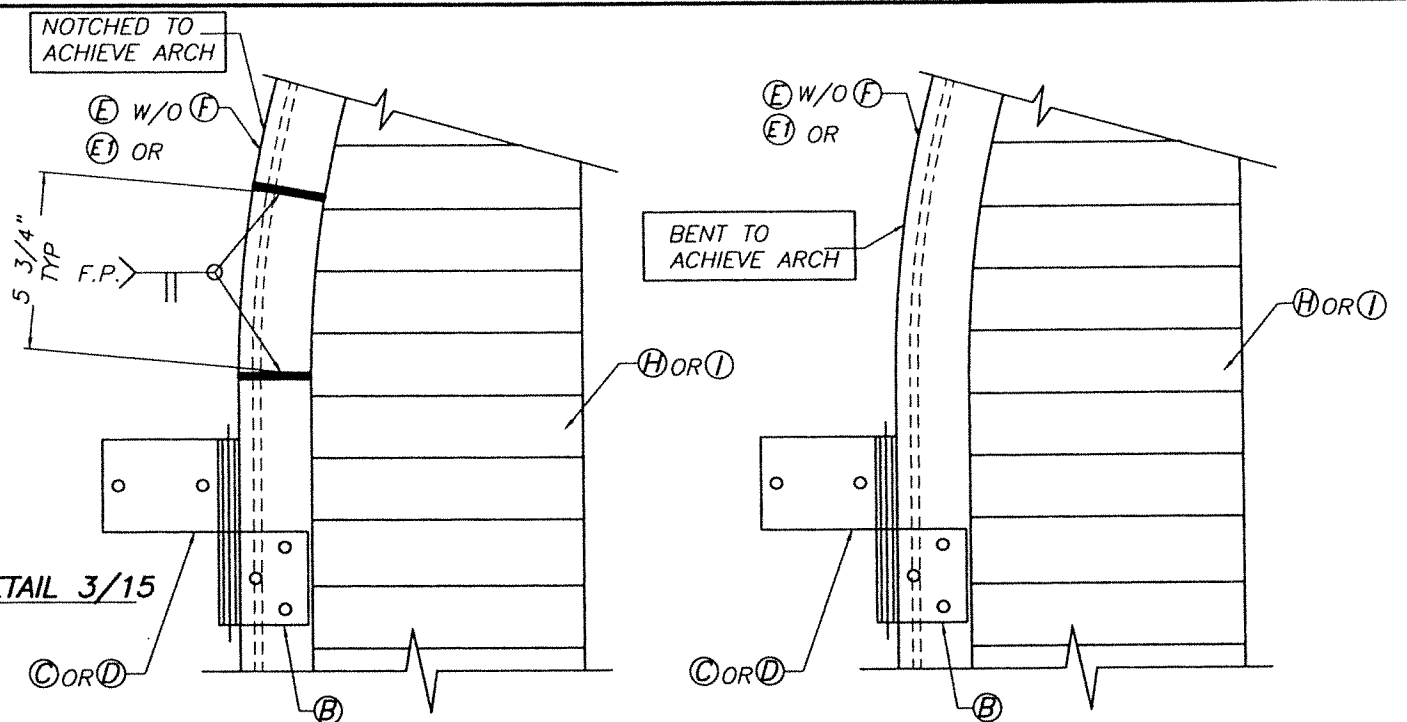
MAXIMUM A.S.D. DESIGN PRESSURE RATING(p.s.f.)	B (in.)	L (ft.)	FLAT BAR REQUIREMENTS AT CENTER OF SHUTTER
+36.0, -40.0	18"	8'-6"	YES
+36.0, -40.0	36"	6'-0"	YES
+65.0, -65.0	36"	4'-6"	NO
+69.0, -75.0	18 1/4"	6'-2 1/2"	NO
+80.0, -87.5	18 1/4"	6'-1"	NO
+100.0, -120.0	18"	4'-8"	NO

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TILLIT TESTING & ENGINEERING COMPANY
6355 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FLORIDA 33166
Phone: (305)871-1530 Fax: (305)871-1531
e-mail: tilteco@aol.com
CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)					
COMBINATION DRAWING: ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33) ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)				Y.M. DRAWN BY:	
AMERICAN SHUTTER SYSTEMS ASSOC., INC.				7/21/2023 DATE:	
4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380				23-131 DRAWING No	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	5		
2			6		
					SHEET 13 OF 33



QUANTITY OF HINGES	^C Max. SEPARATION BETWEEN HINGES	H (in.)
2	11 1/2"	20 1/8"
3	21 7/8"	51 1/4"

MAXIMUM A.S.D DESIGN PRESSURE RATING (p.s.f.)	B (in.)	L (ft.)	H (in.)
+70.0, -85.0	36"	4'-6"	20 1/8"
+80.0, -87.5	18"	5'-9"	51 1/4"

NY 0166 ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS) AMERICAN SHUTTER SYSTEMS ASSOC., INC. 4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380	Y.M. DRAWN BY:		
	7/21/2023 DATE:		
	23-131 DRAWING No		
	SHEET 14 OF 33		

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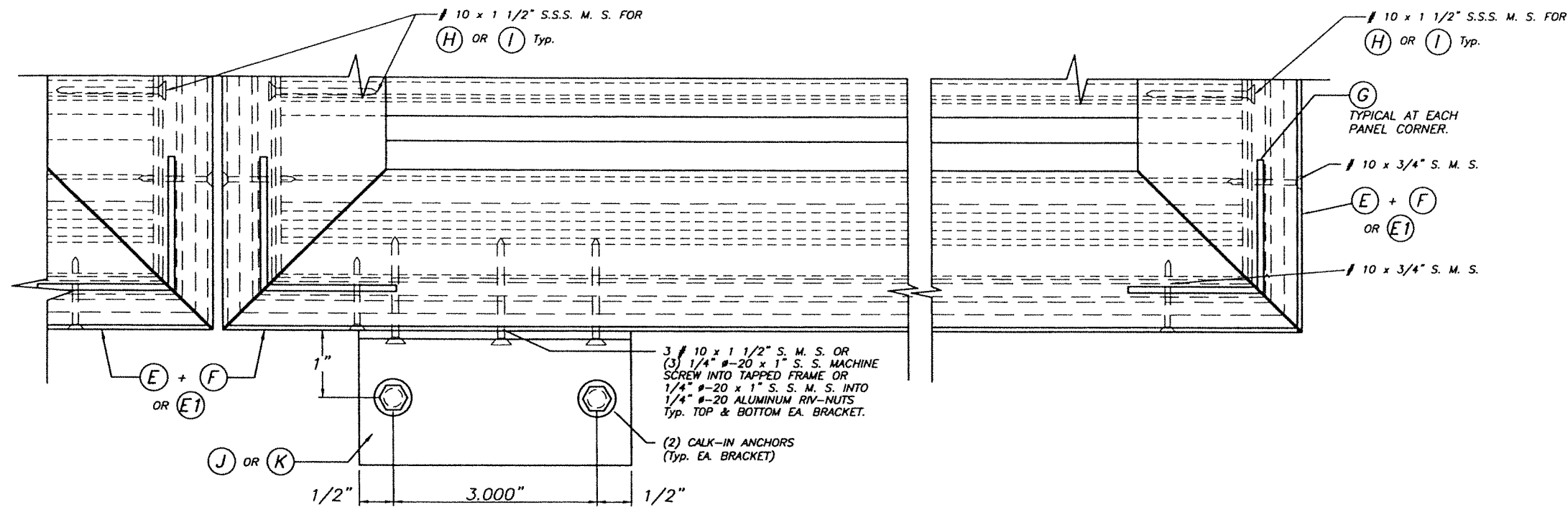
Phone : (305)871-1530 . Fax : (305)871-1531

e-mail: tilteco@aol.com

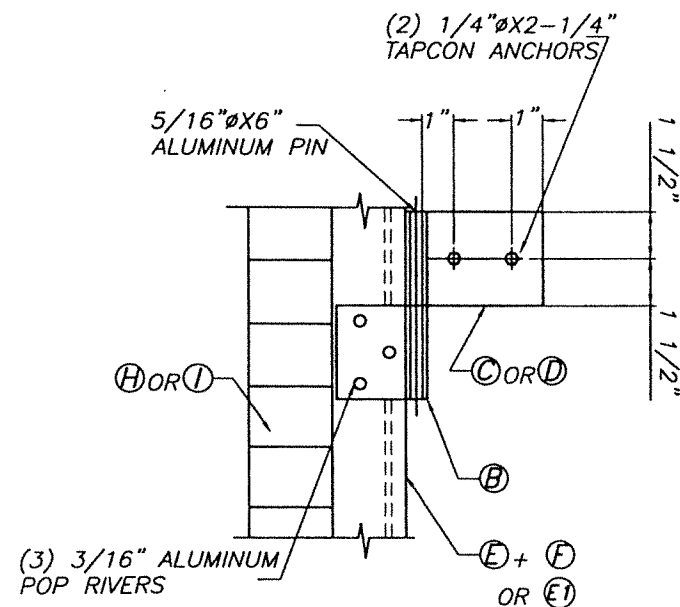
CA-0006719

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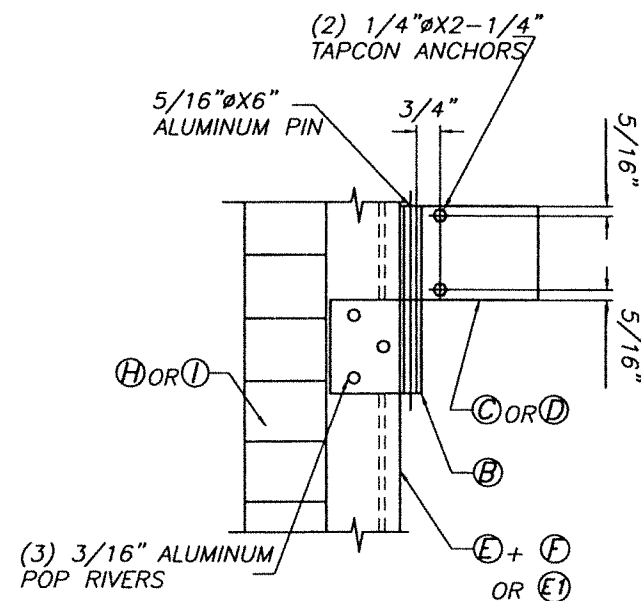
FLORIDA Lic. # 44167



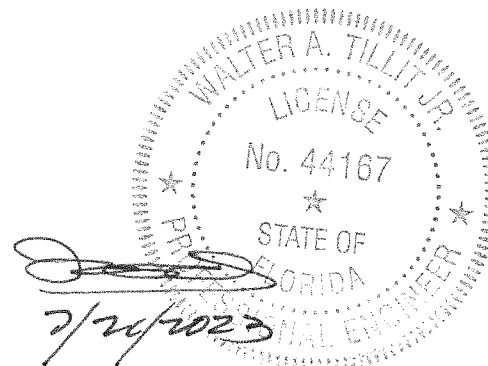
DETAIL 1
SCALE : 1/2" = 1"



DETAIL 3



ALTERNATE DETAIL 3



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CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / BERTHA COLONIAL SHUTTER
(WITH CLIPS)

AMERICAN SHUTTER SYSTEMS ASSOC., INC.

4268 WEST ROADS DRIVE
WEST PALM BEACH, FL. 33407
PHONE: (800)432-2204
FAX: (561)209-8380

Y.M.
DRAWN BY:

7/21/2023
DATE:

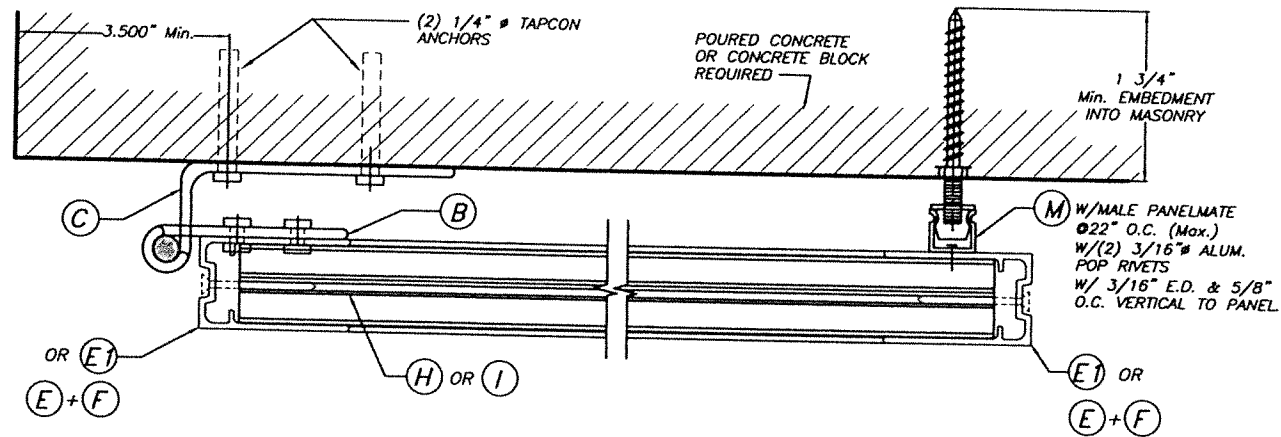
23-131

DRAWING No

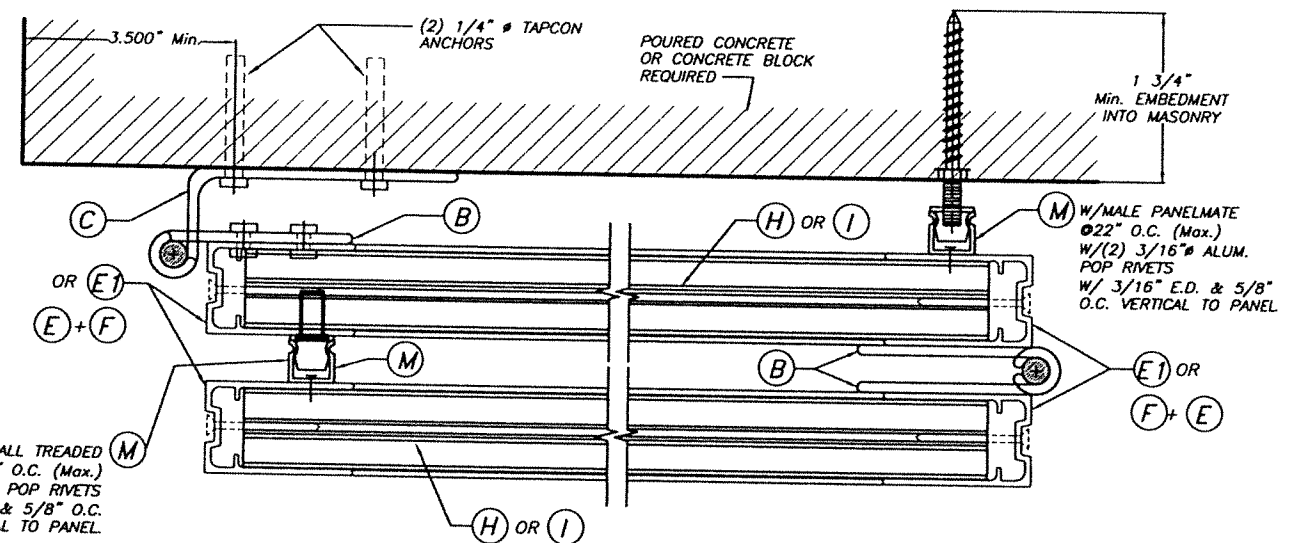
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		

SHEET 15 OF 33

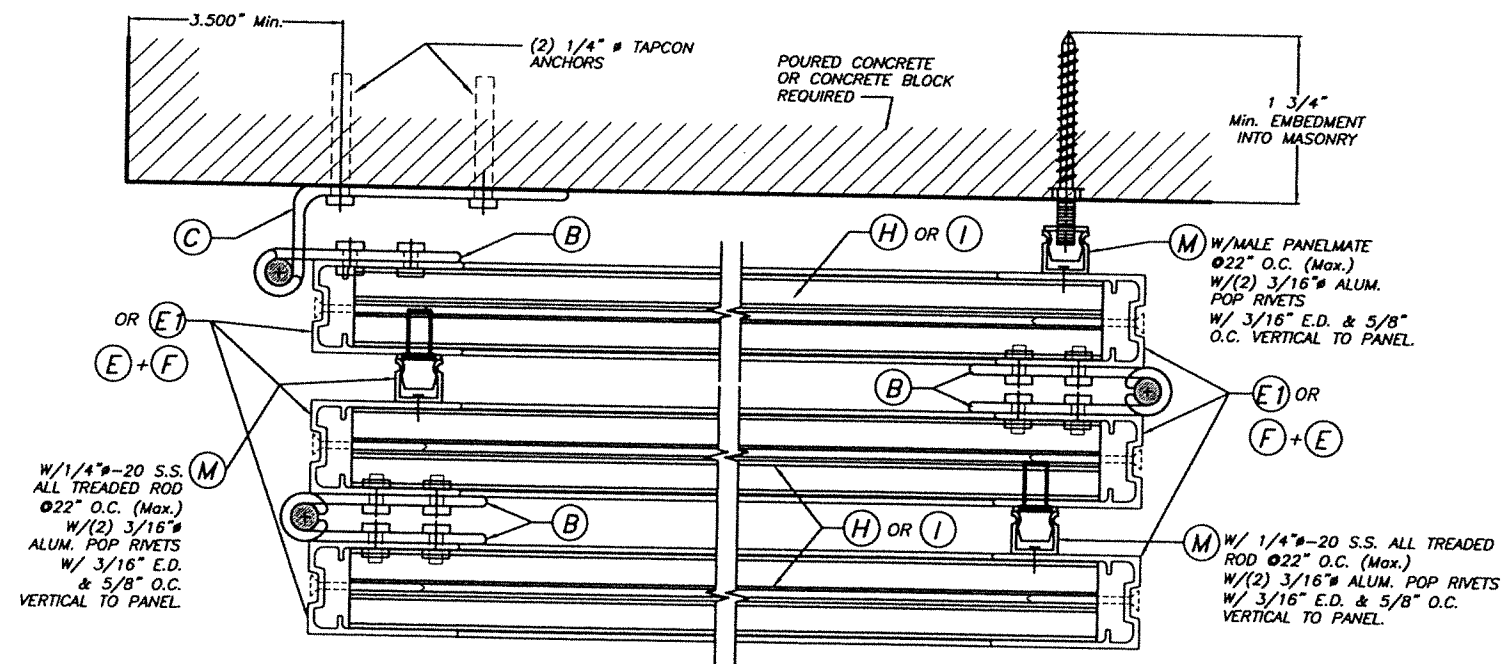
FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)					
COMBINATION DRAWING:					
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)					Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC. 4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380					7/21/2023 DATE:
					23-131 DRAWING No
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
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2			4		



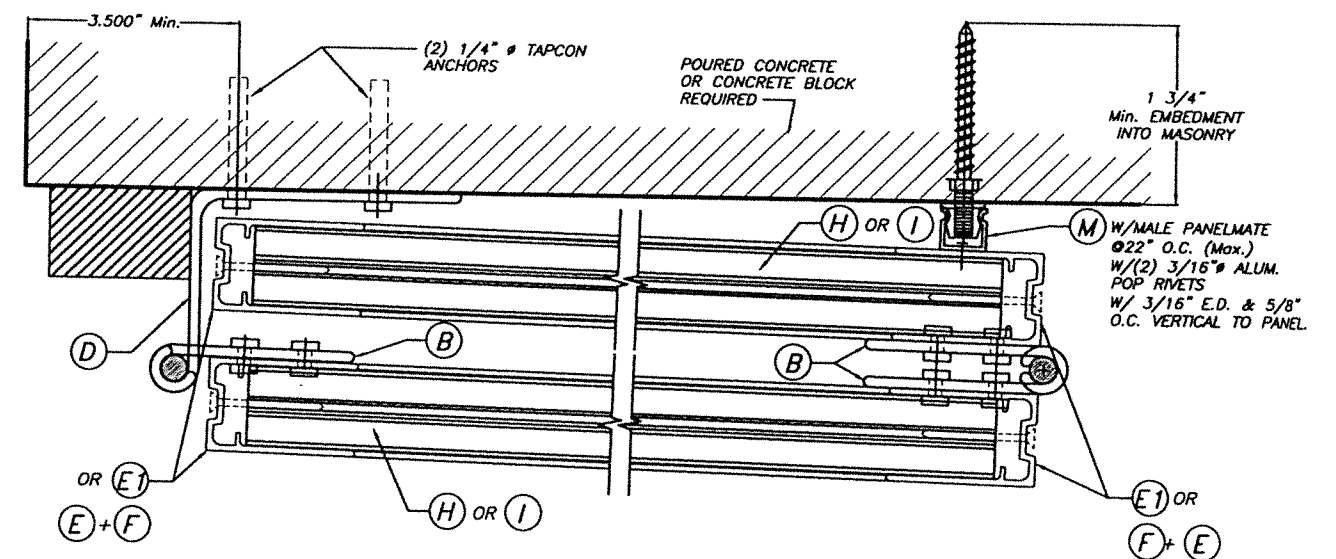
DETAIL 6: NON HURRICANE POSITION ONLY
(PLAN) SCALE : 3/8" = 1"



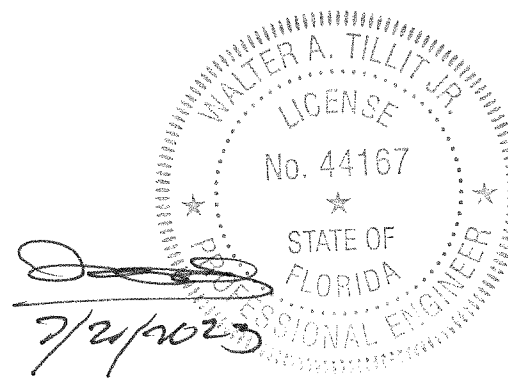
DETAIL 8: NON HURRICANE POSITION ONLY
(PLAN) SCALE : 3/8" = 1"



**DETAIL 7: NON HURRICANE POSITION ONLY
FOR INSTALLATION AT QUADRUPLE PANEL ONLY**
(PLAN) SCALE : 3/8" = 1"

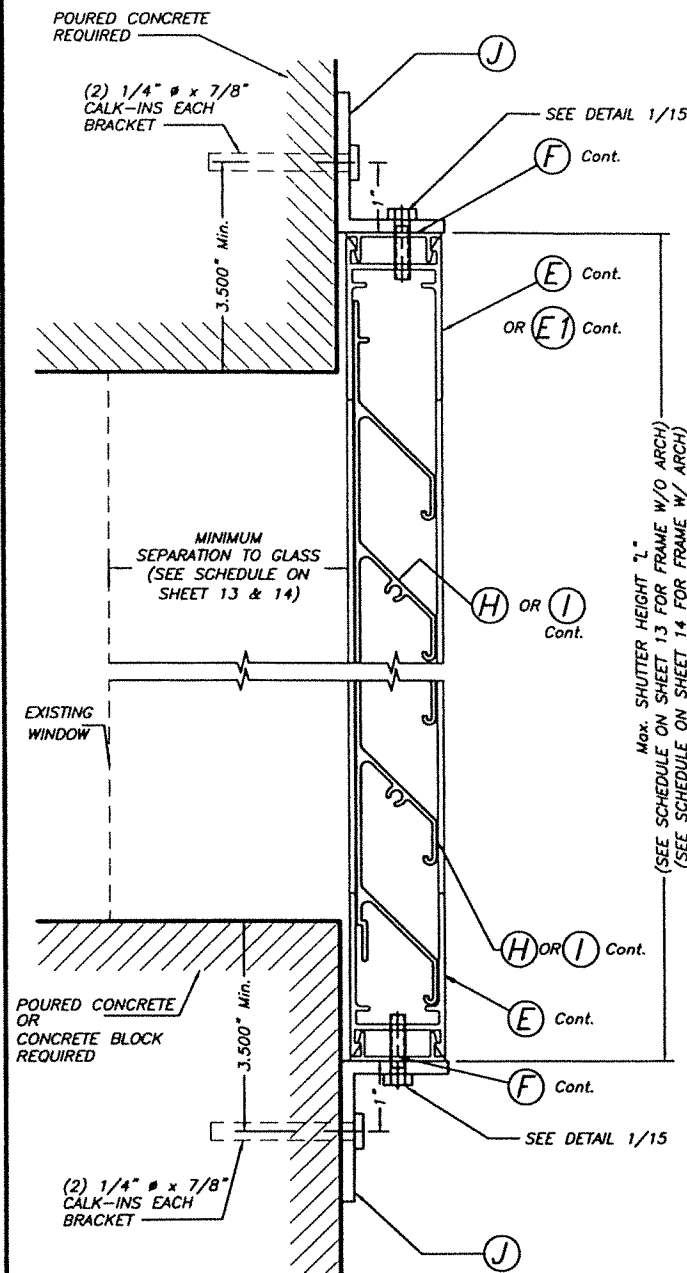


ALTERNATE DETAIL 8: NON HURRICANE POSITION ONLY
(PLAN) SCALE : 3/8" = 1"

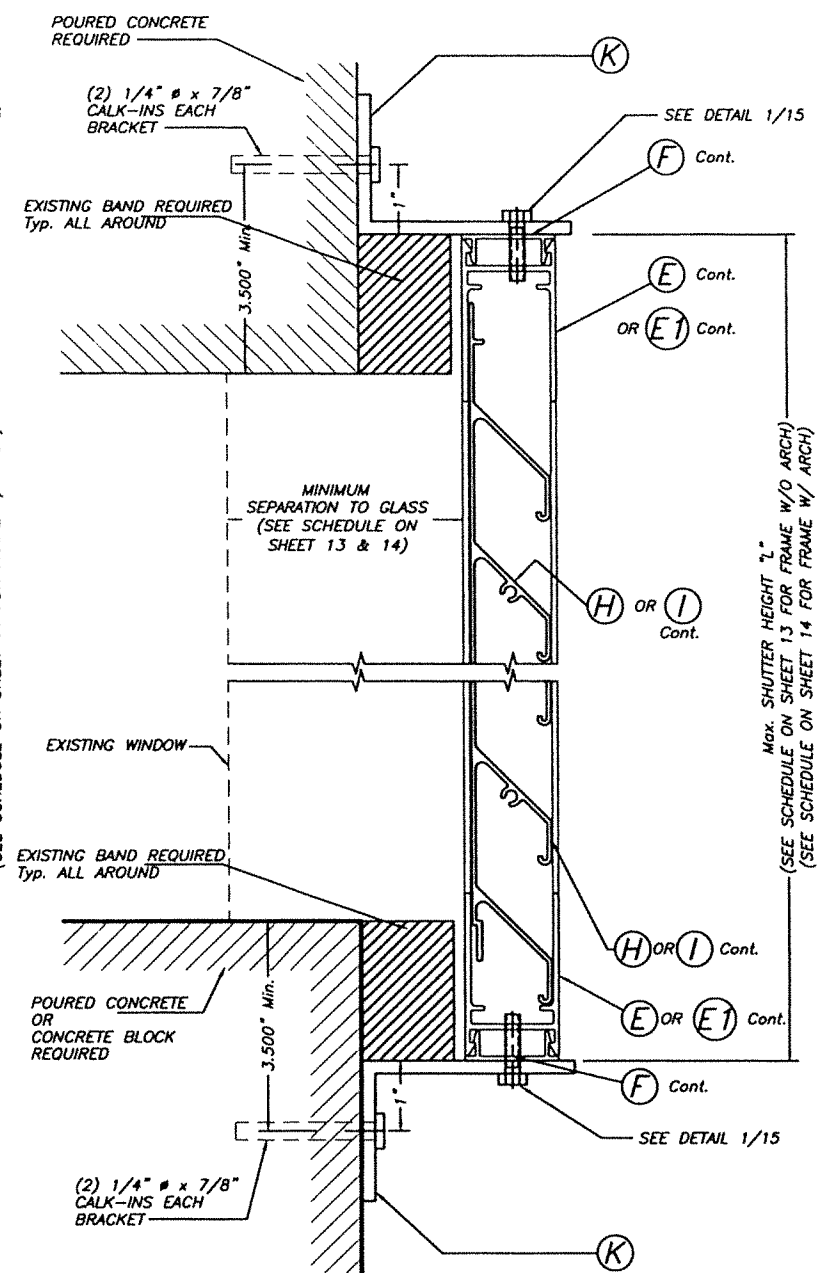


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e-mail: tilteco@aol.com
CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167

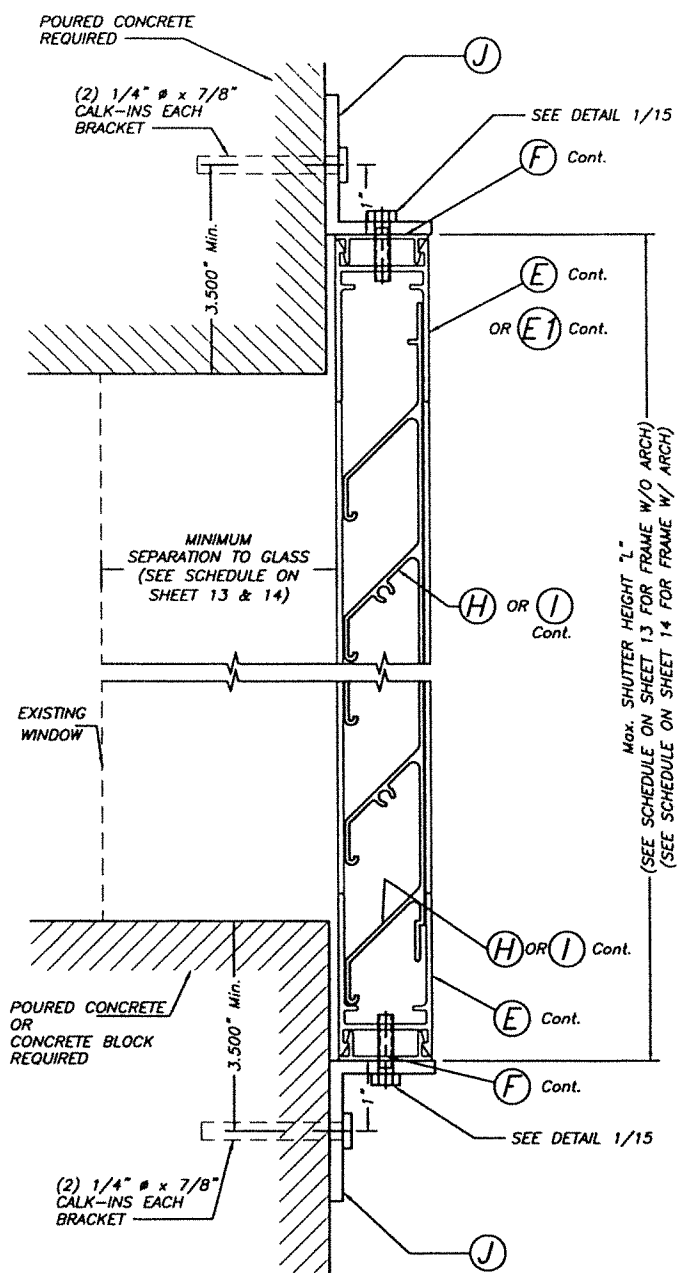
FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)					
COMBINATION DRAWING:					
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)				Y.M.	
AMERICAN SHUTTER SYSTEMS ASSOC., INC.				DRAWN BY:	
4268 WEST ROADS DRIVE				DATE:	7/21/2023
WEST PALM BEACH, FL. 33407					
PHONE: (800)432-2204					
FAX: (561)209-8380					
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		
23-131					DRAWING No
SHEET 17 OF 33					



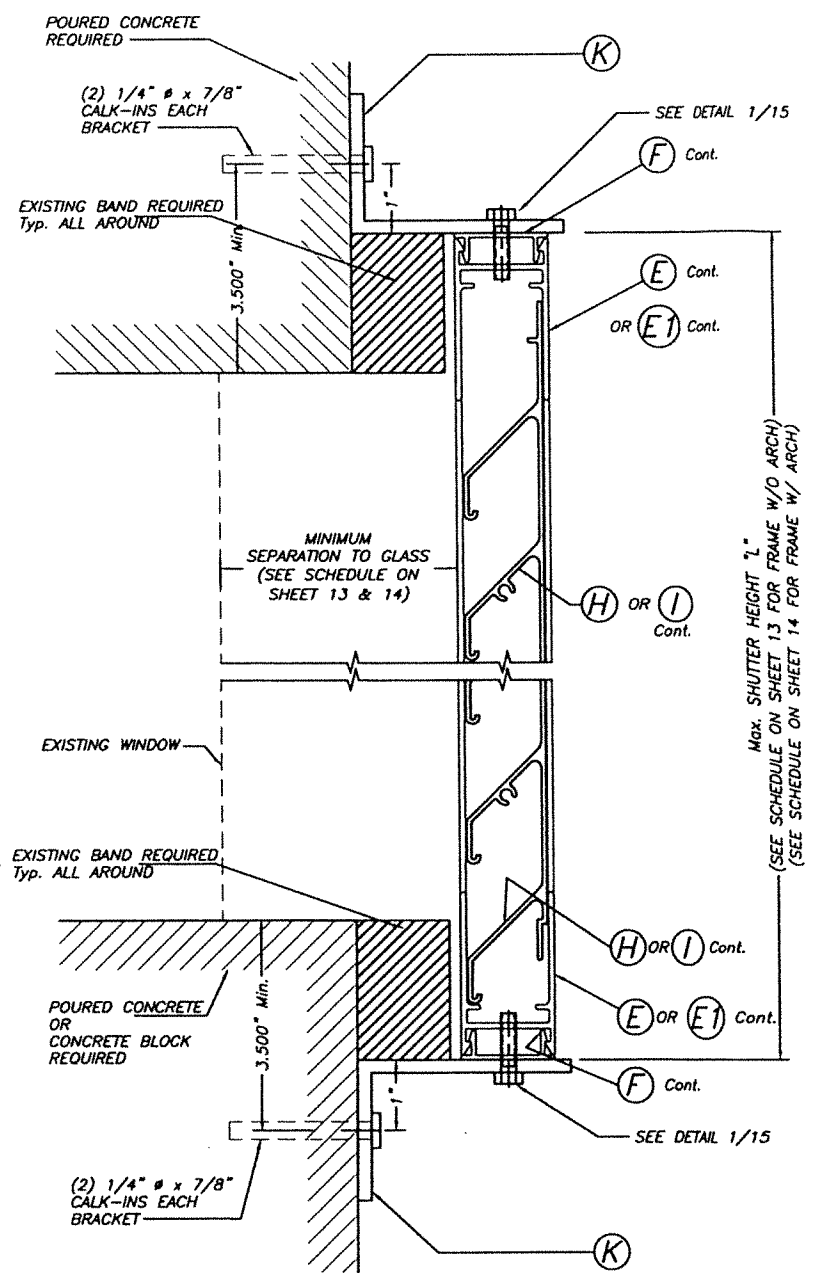
SECTION B - B (FLUSH MOUNT)
HURRICANE POSITION
SCALE: 3/8" = 1"



SECTION C - C (BUILD-OUT)
HURRICANE POSITION
SCALE: 3/8" = 1"



SECTION D - D (FLUSH MOUNT)
SHUTTER BLADE REVERSELY ORIENTED
HURRICANE POSITION
SCALE: 3/8" = 1"



SECTION E - E (BUILD-OUT)
SHUTTER BLADE REVERSELY ORIENTED
HURRICANE POSITION
SCALE: 3/8" = 1"

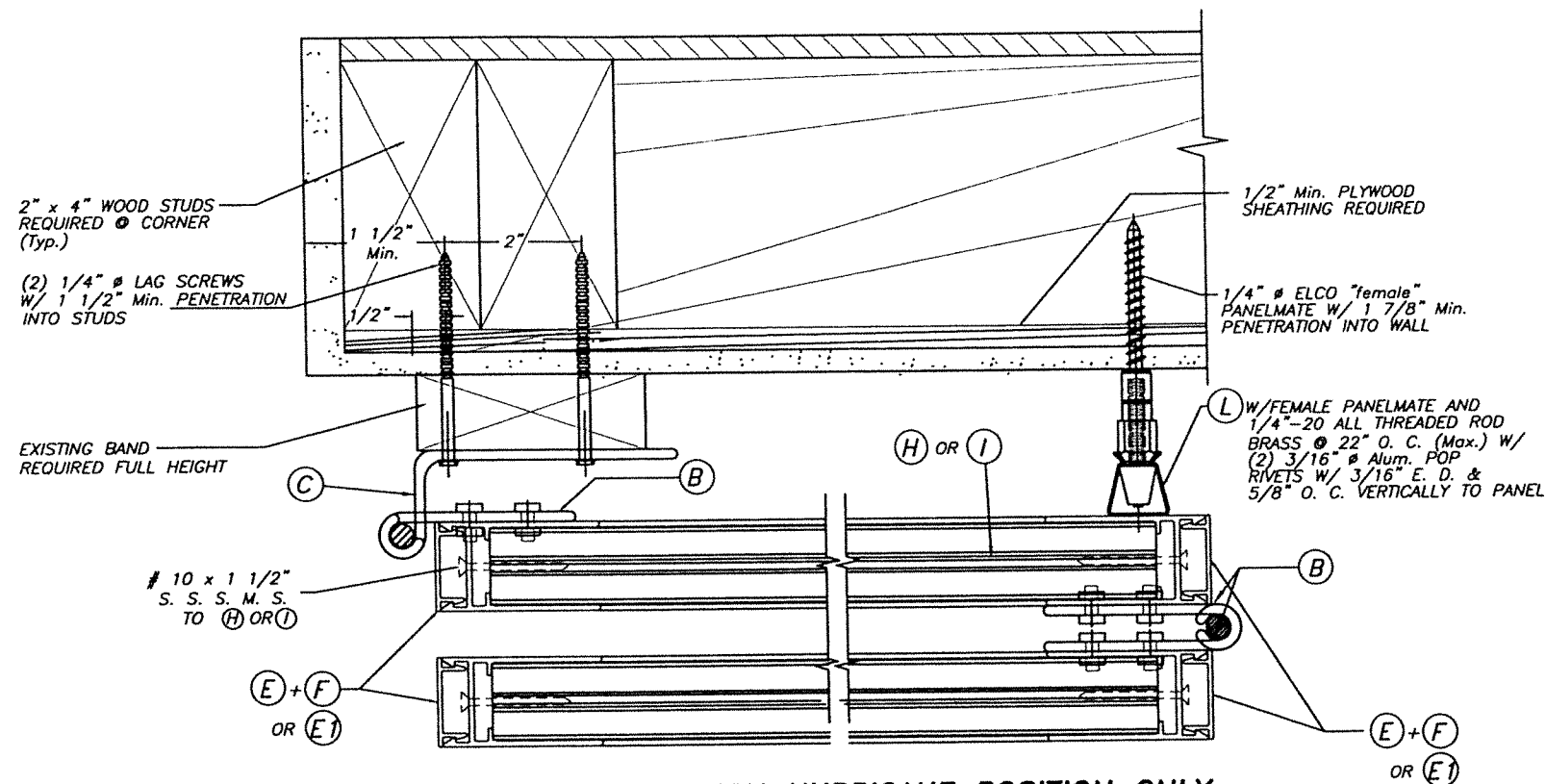
WALTER A. TILLIT JR.
LICENSE
No. 44167
STATE OF FLORIDA
PROFESSIONAL ENGINEER
7/21/2023

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e-mail: tilteco@aol.com
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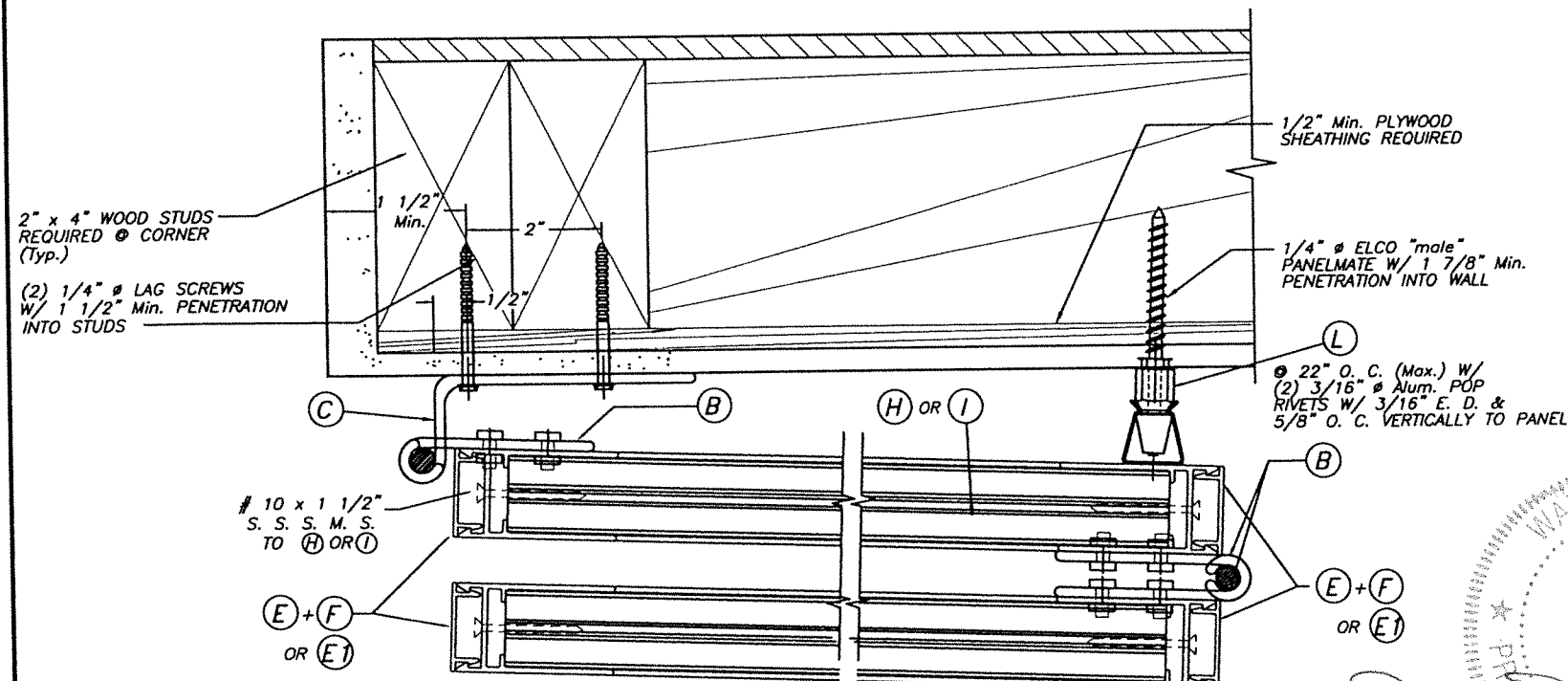
FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

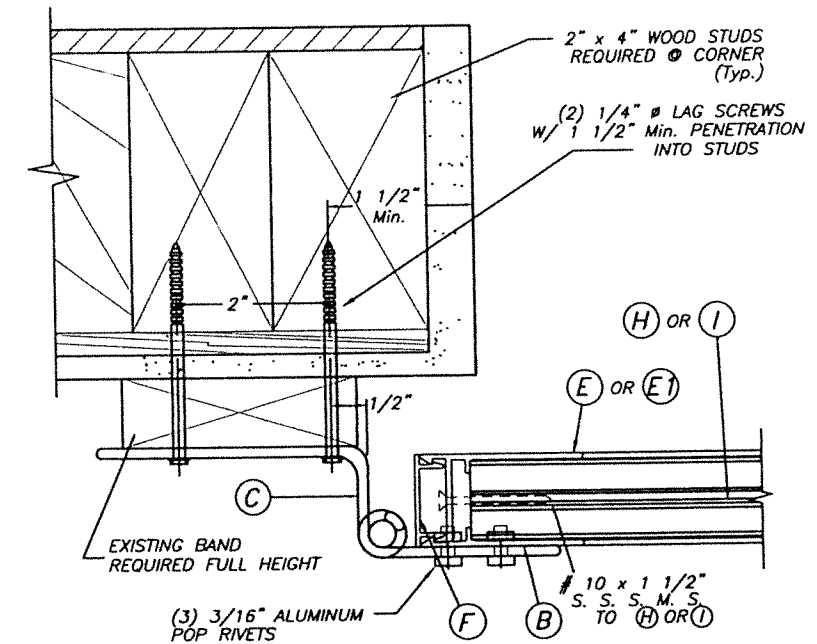
ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)				Y.M. DRAWN BY:	
AMERICAN SHUTTER SYSTEMS ASSOC., INC. 4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380				7/21/2023 DATE:	
				23-131 DRAWING No	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		
				SHEET 18 OF 33	



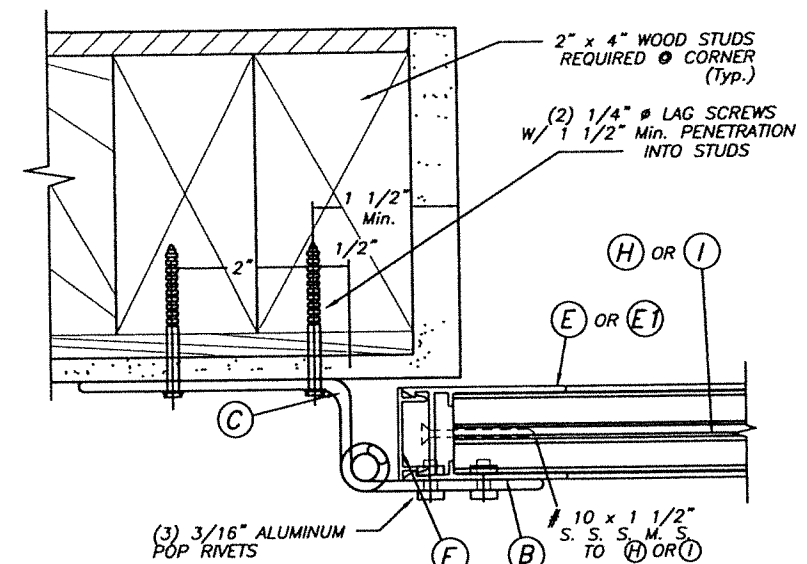
DETAIL 5A : NON HURRICANE POSITION ONLY
(PLAN) SCALE : 1/4" = 1"



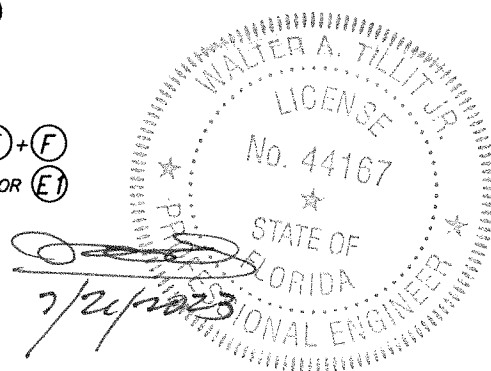
ALTERNATE DETAIL 5A : NON HURRICANE POSITION ONLY
(PLAN) SCALE : 1/4" = 1"



DETAIL 1A
(PLAN) SCALE : 1/4" = 1"



DETAIL 4A
(PLAN)



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e-mail: tilteco@aol.com

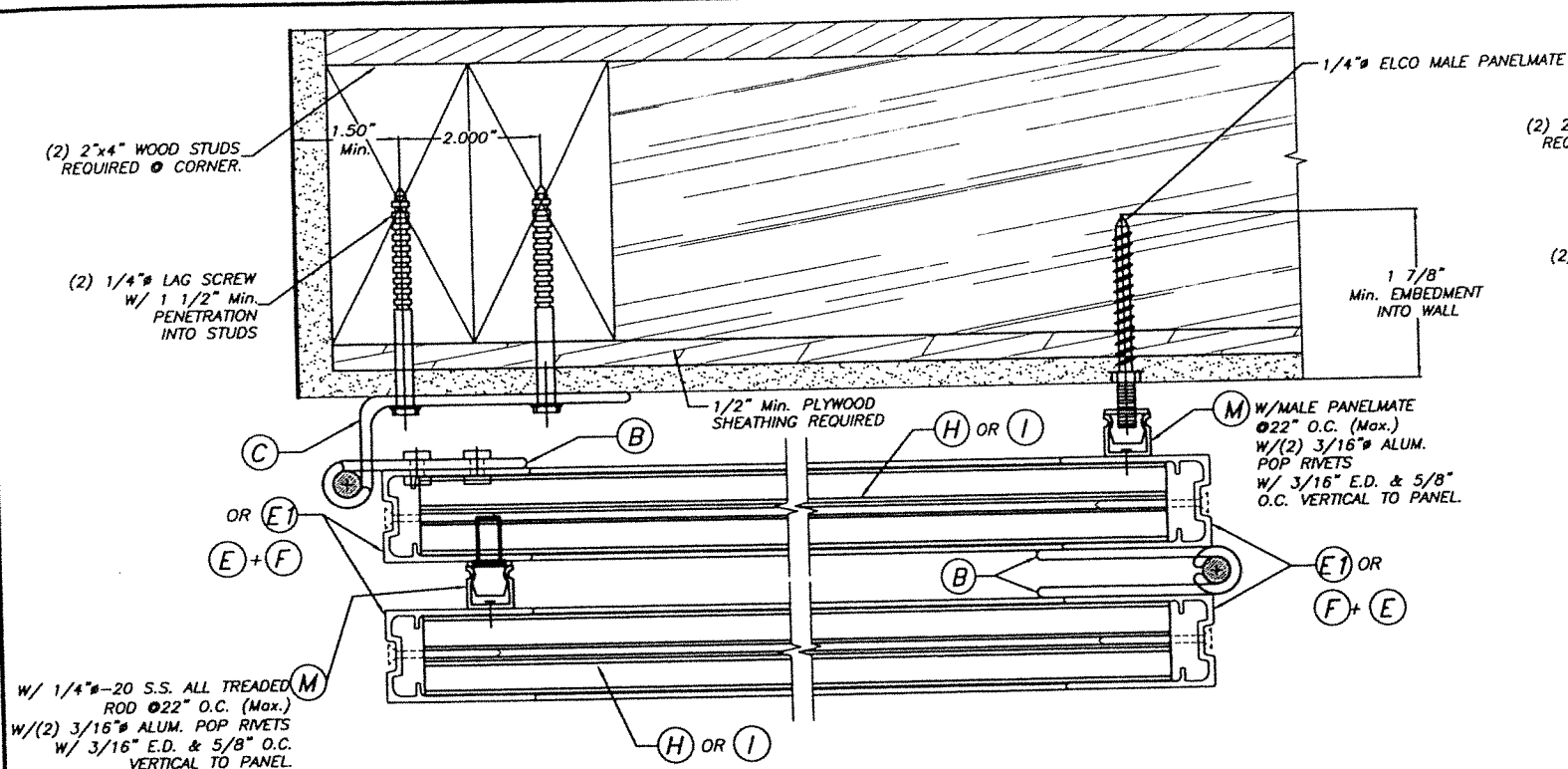
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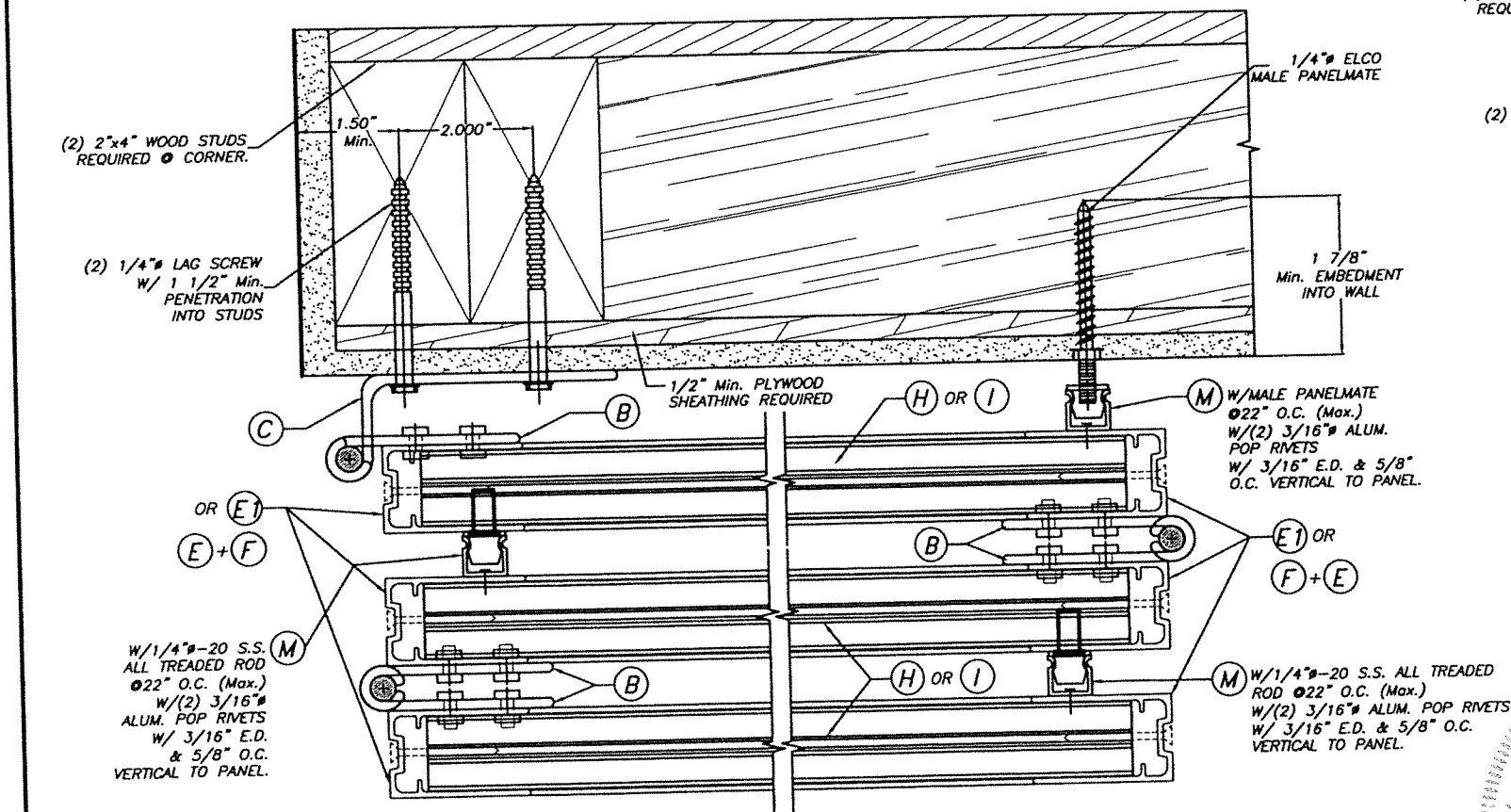
FLORIDA Lic. # 44167

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)					
COMBINATION DRAWING:					
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)				Y.M.	
AMERICAN SHUTTER SYSTEMS ASSOC., INC.				DRAWN BY:	
4268 WEST ROADS DRIVE				DATE:	7/21/2023
WEST PALM BEACH, FL. 33407					
PHONE: (800)432-2204					
FAX: (561)209-8380					
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		
DRAWING No					23-131
SHEET 19 OF 33					

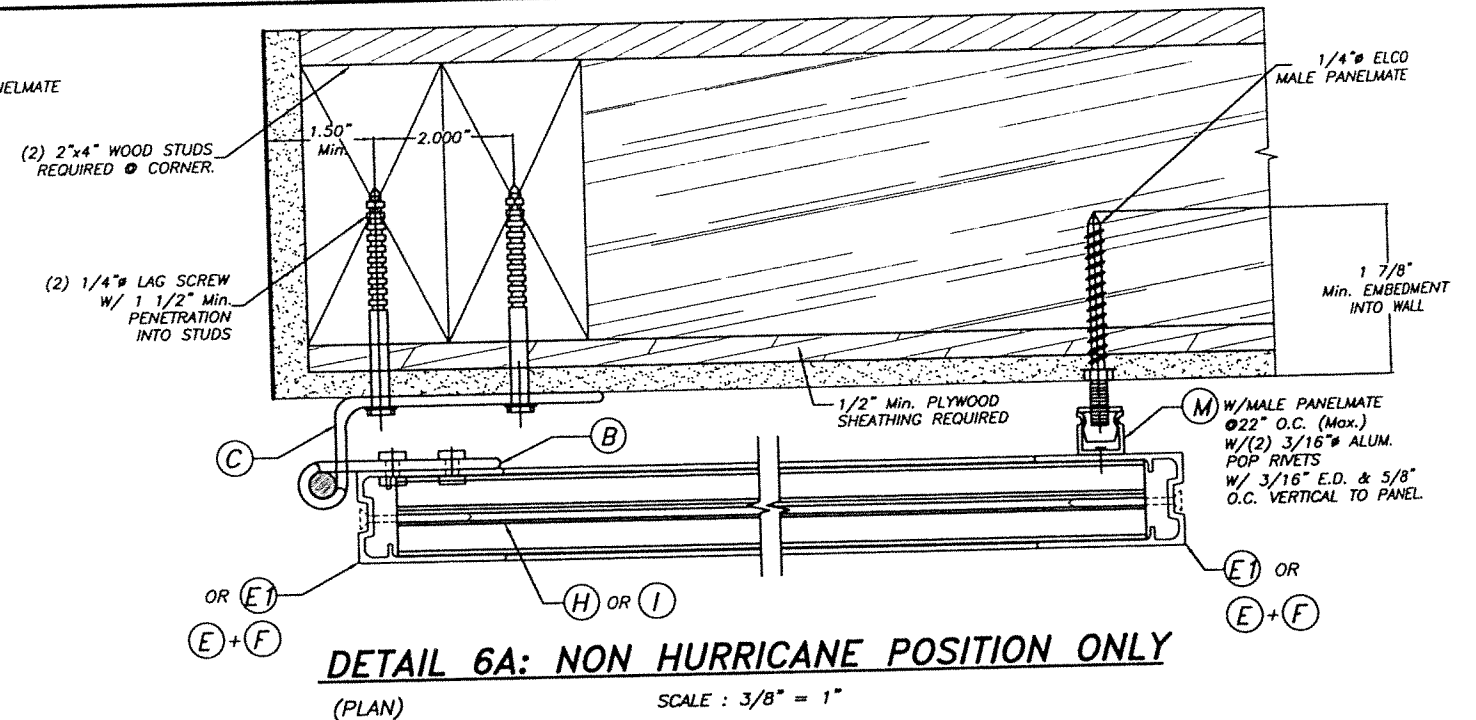
INSTALLATION DETAILS ON EXISTING WOOD FRAME BUILDINGS



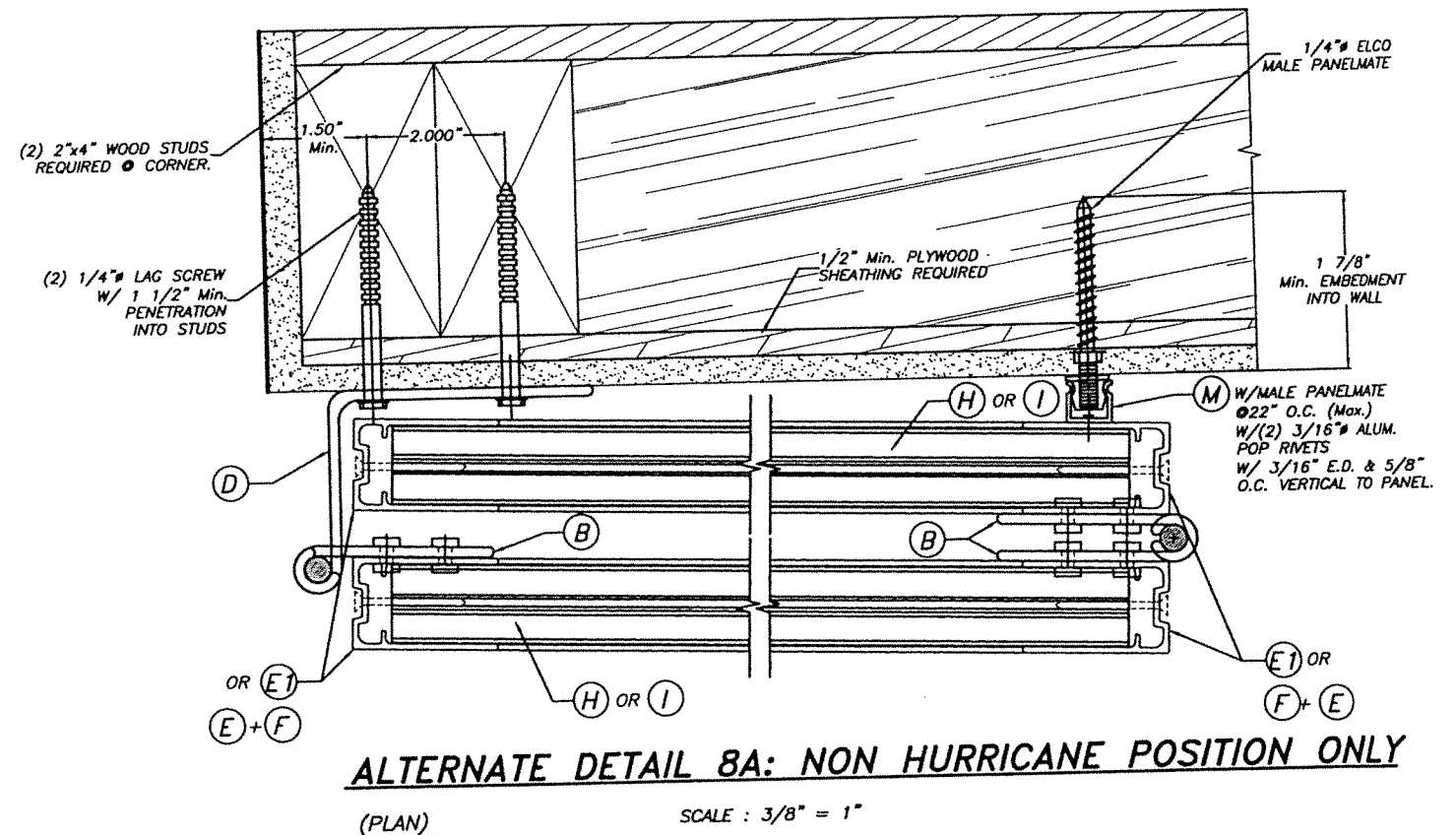
DETAIL 8A: NON HURRICANE POSITION ONLY
(PLAN) SCALE : 3/8" = 1"



DETAIL 7A: NON HURRICANE POSITION ONLY
(PLAN) SCALE : 3/8" = 1"



DETAIL 6A: NON HURRICANE POSITION ONLY
(PLAN) SCALE : 3/8" = 1"



ALTERNATE DETAIL 8A: NON HURRICANE POSITION ONLY
(PLAN) SCALE : 3/8" = 1"

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / BERTHA COLONIAL SHUTTER
(WITH CLIPS)

Y.M.
DRAWN BY:

AMERICAN SHUTTER SYSTEMS ASSOC., INC.

7/21/2023
DATE:

4268 WEST ROADS DRIVE
WEST PALM BEACH, FL. 33407
PHONE: (800)432-2204
FAX: (561)209-8380

23-131
DRAWING No

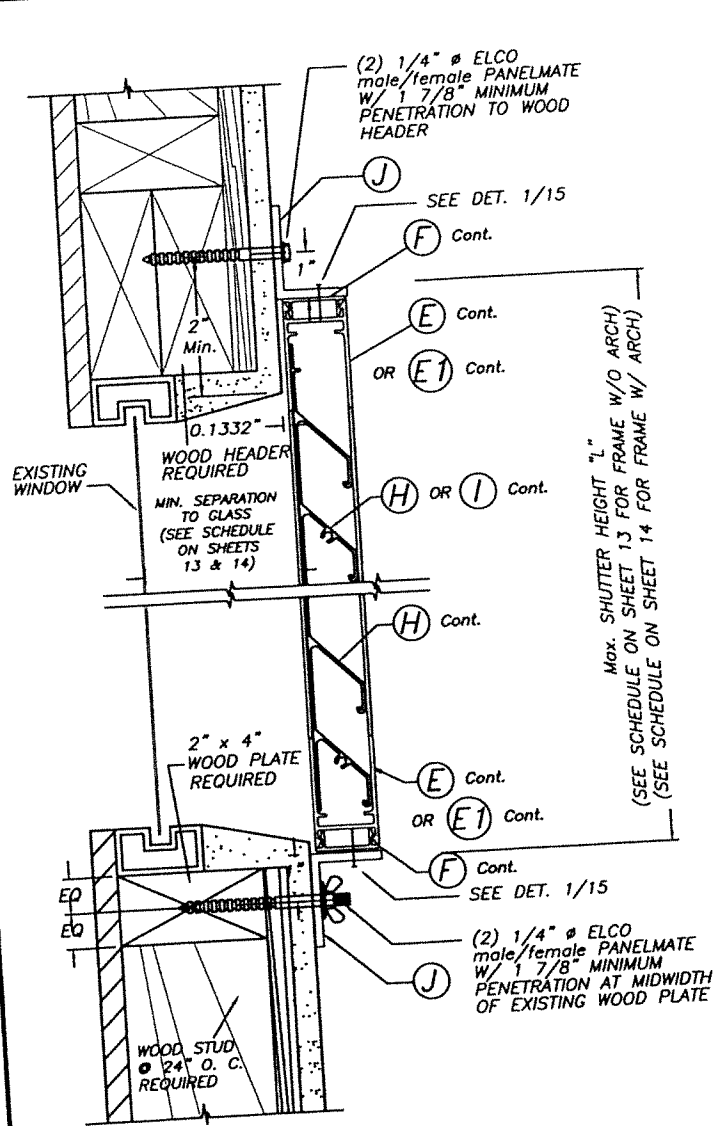
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2			4		

SHEET 20 OF 33

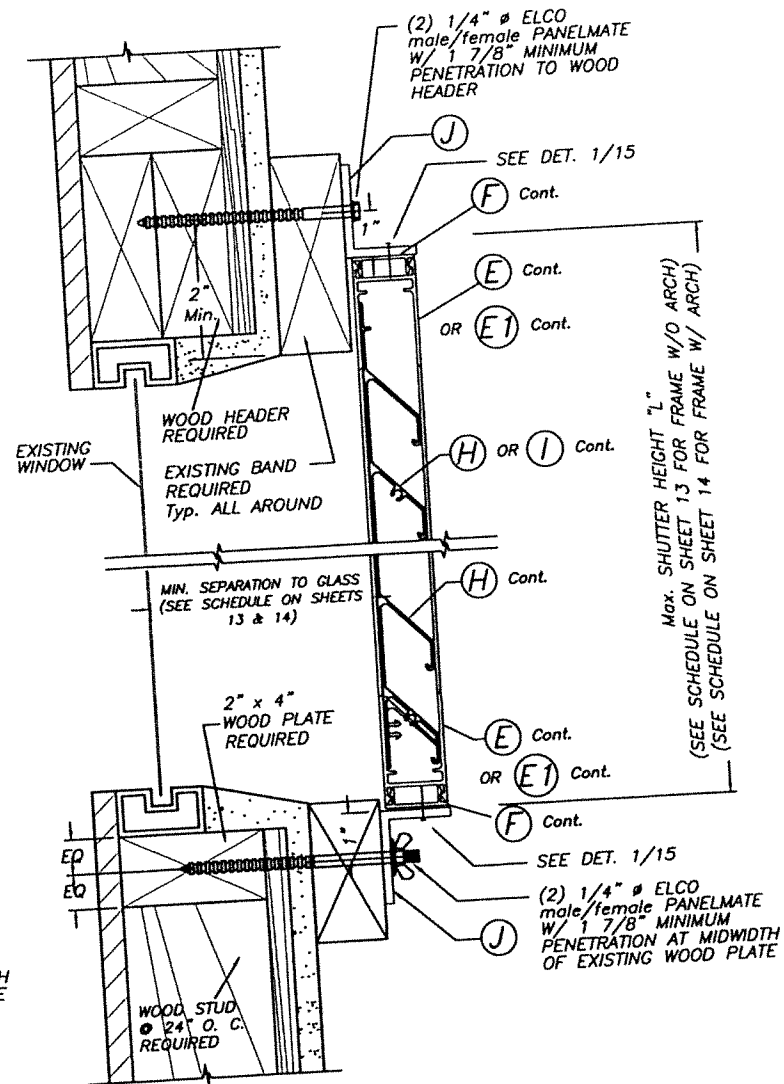
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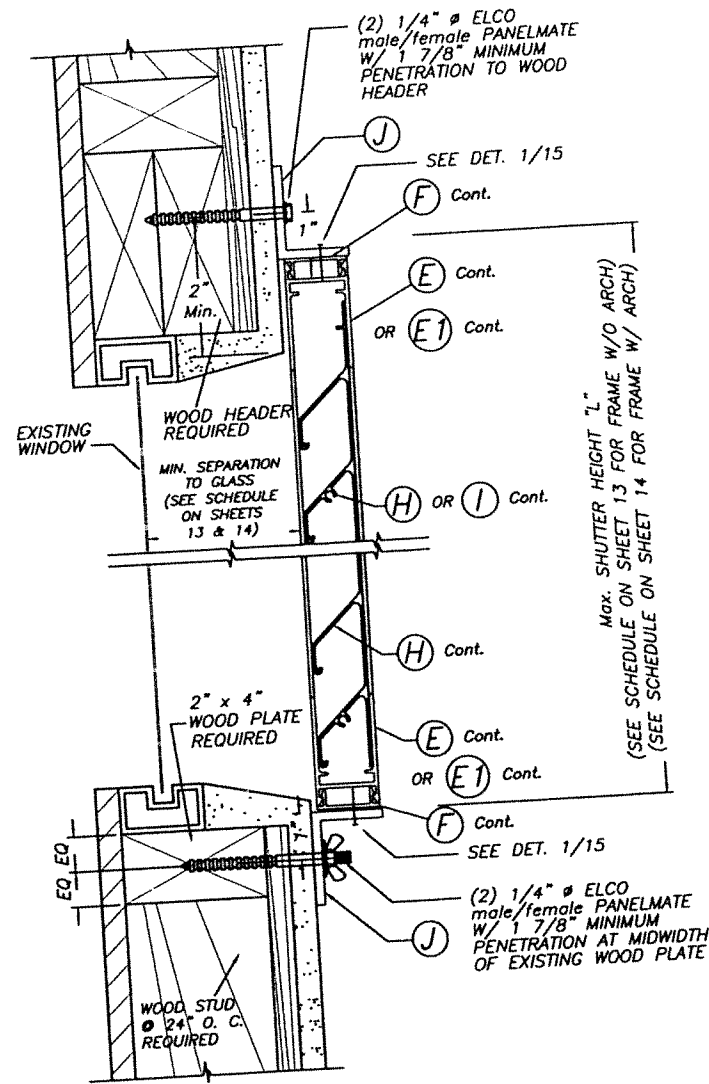
WALTER A. TILLIT JR.
LICENSE
No. 44167
STATE OF
FLORIDA
Professional Engineer
7/21/2023



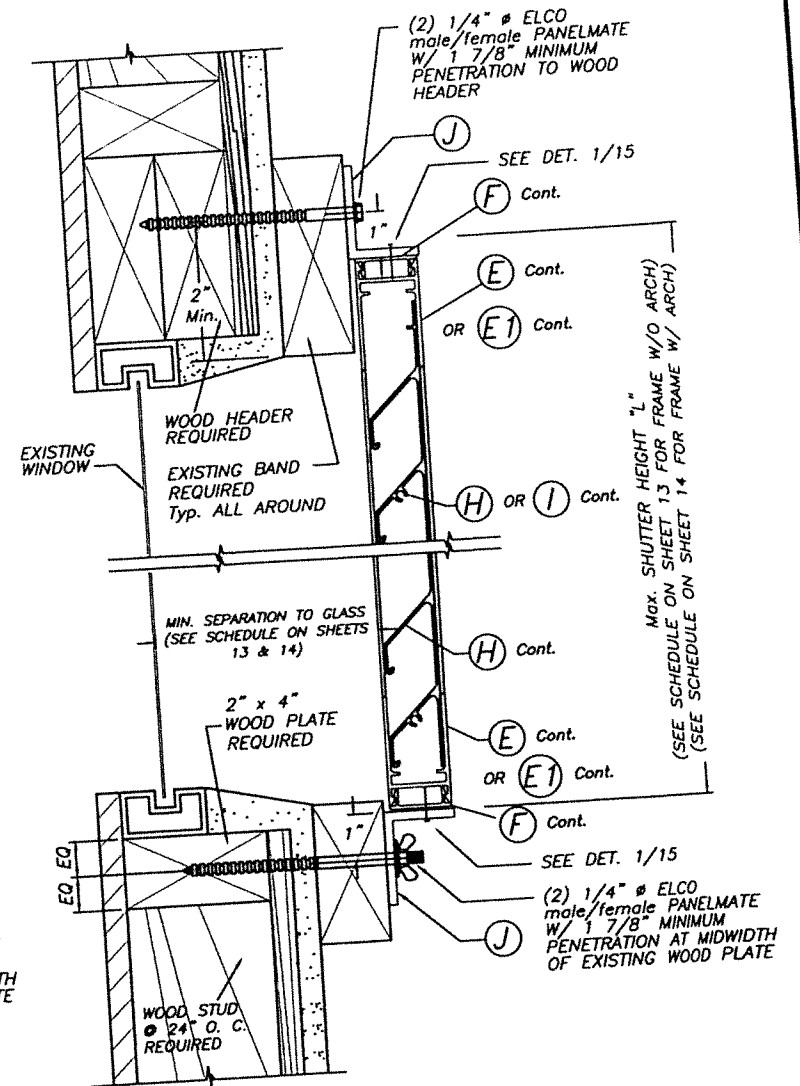
SECTION B' - B' (FLUSH MOUNT)
HURRICANE POSITION
SCALE: 1/4" = 1"



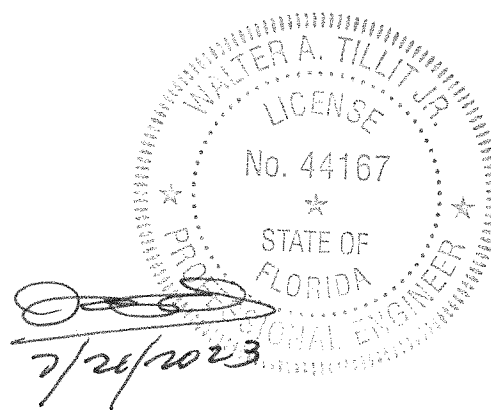
SECTION C' - C' (BUILD-OUT MOUNT)
HURRICANE POSITION
SCALE: 1/4" = 1"



SECTION D' - D' (FLUSH MOUNT)
SHUTTER BLADE REVERSELY ORIENTED
HURRICANE POSITION
SCALE: 1/4" = 1"

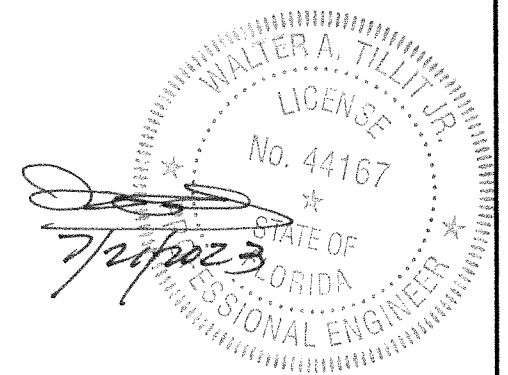
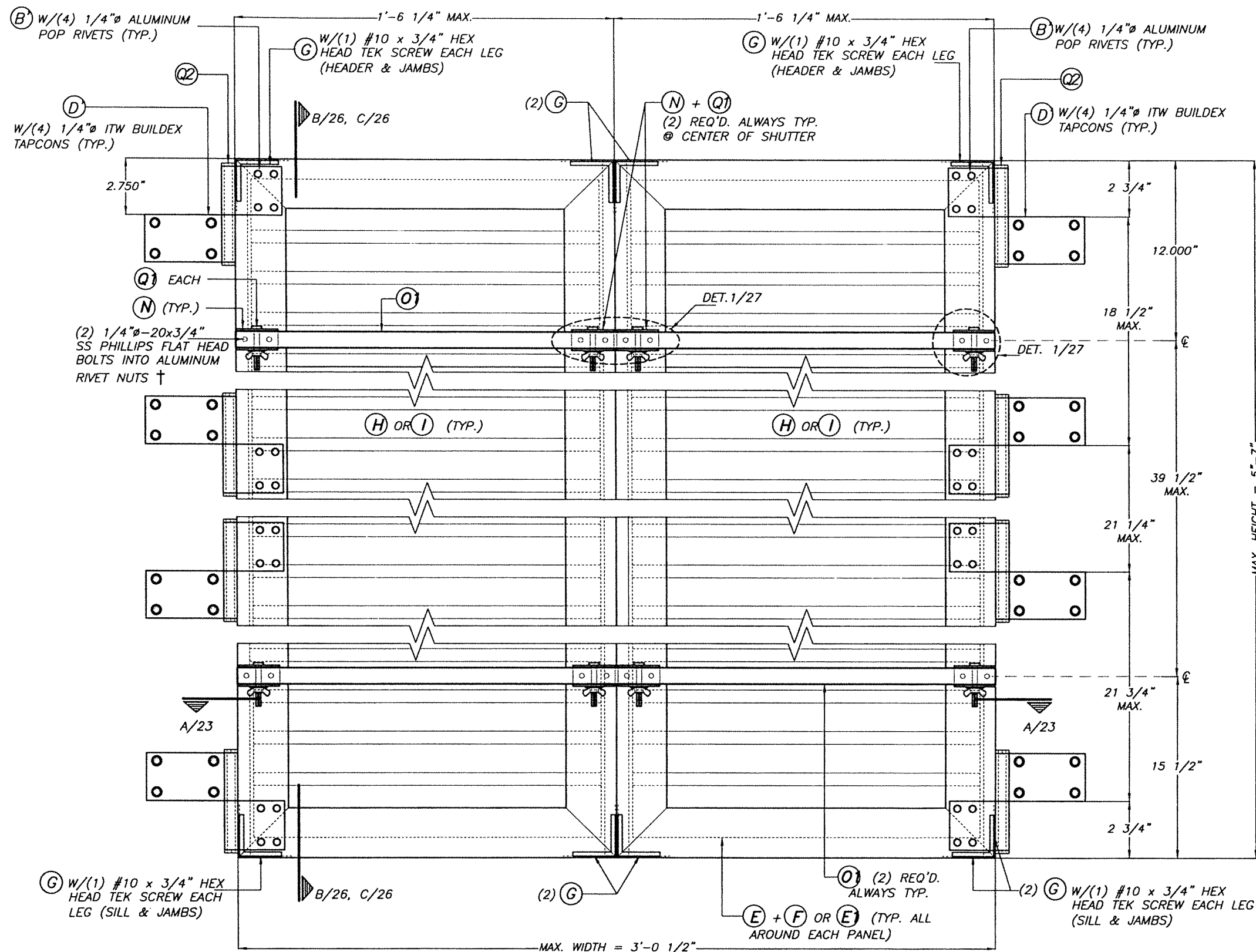


SECTION E' - E' (BUILD-OUT MOUNT)
SHUTTER BLADE REVERSELY ORIENTED
HURRICANE POSITION
SCALE: 1/4" = 1"



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FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)					
COMBINATION DRAWING: ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33) ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)				Y.M. DRAWN BY:	
AMERICAN SHUTTER SYSTEMS ASSOC., INC.				7/21/2023 DATE:	
4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380				23-131 DRAWING No	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		

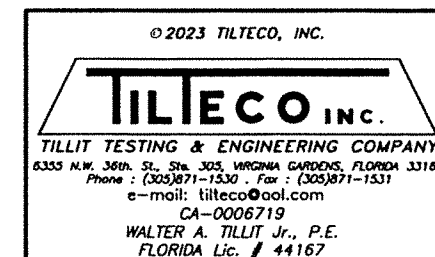


†: 1/4"Ø-20x3/4", AS DISTRIBUTED BY ALL
POINT SCREW, BOLT AND SPECIALTY CO.
(PART # 25CRFNA)

MAXIMUM A.S.D. DESIGN PRESSURE RATING = +60.0, -81.0 p.s.f. FOR
INSTALLATION INTO CONCRETE OR CONCRETE BLOCK WALL SUBSTRATE.

TYPICAL EXTERIOR ELEV. DOUBLE PANEL (HURRICANE POSITION)

SCALE: 3/16"=1"

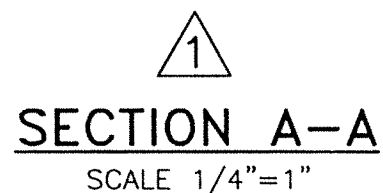


FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

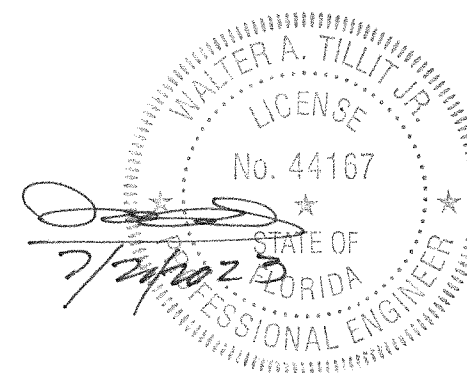
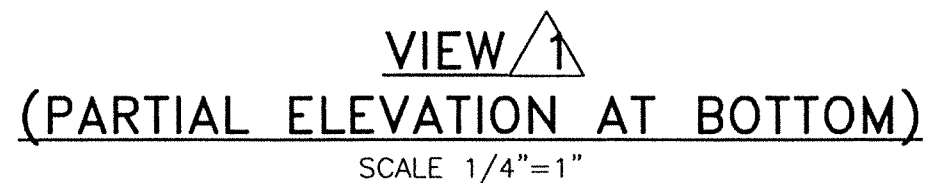
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)			Y.M. DRAWN BY:		
AMERICAN SHUTTER SYSTEMS ASSOC., INC.			7/21/2023		
4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380			DATE:		
			23-131		
			DRAWING No		
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		

SHEET 22 OF 33



MINIMUM SEPARATION TO GLASS		
BLADE TYPE (H), (I)	DOUBLE PANEL	QUADRUPLE PANEL
SOLID	1"	1"
PERFORATED	1 3/4"	2 1/8"



FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / BERTHA COLONIAL SHUTTER
(WITH STORM BARS)

Y.M.
DRAWN BY:

AMERICAN SHUTTER SYSTEMS ASSOC., INC.

7/21/2023
DATE:

4268 WEST ROADS DRIVE
WEST PALM BEACH, FL 33407
PHONE: (800)432-2204
FAX: (561)209-8380

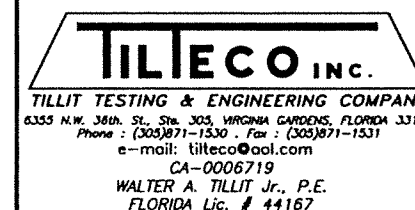
23-131

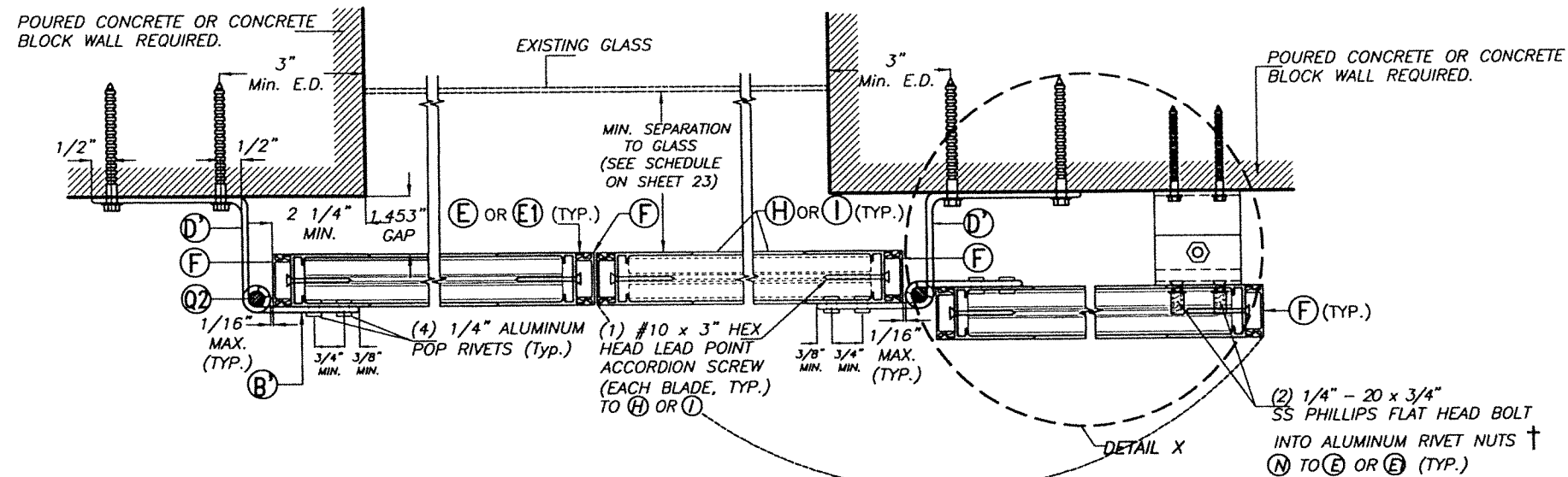
DRAWING No.

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		

DRAWING No. _____
 SHEET 23 OF _____

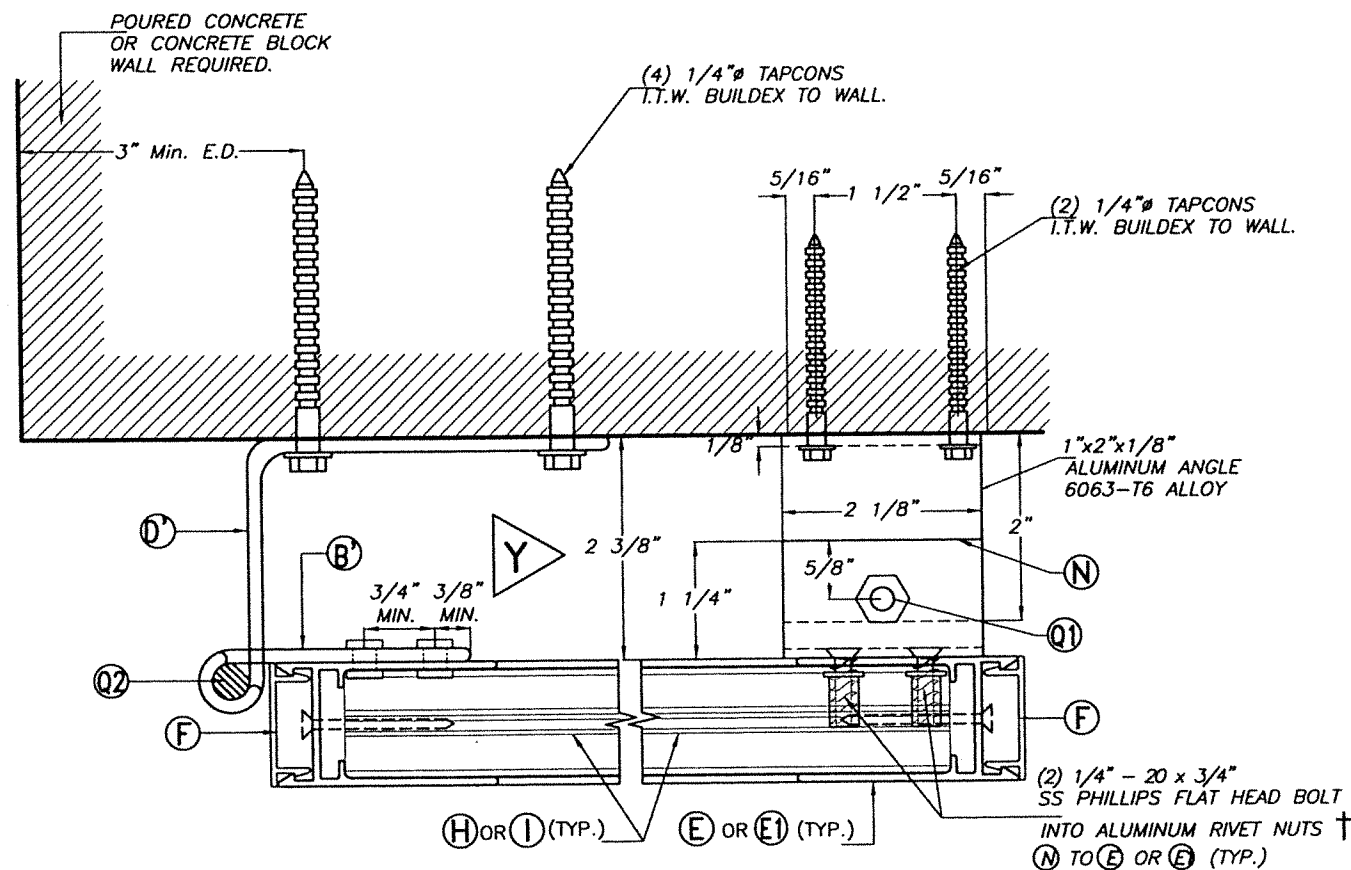
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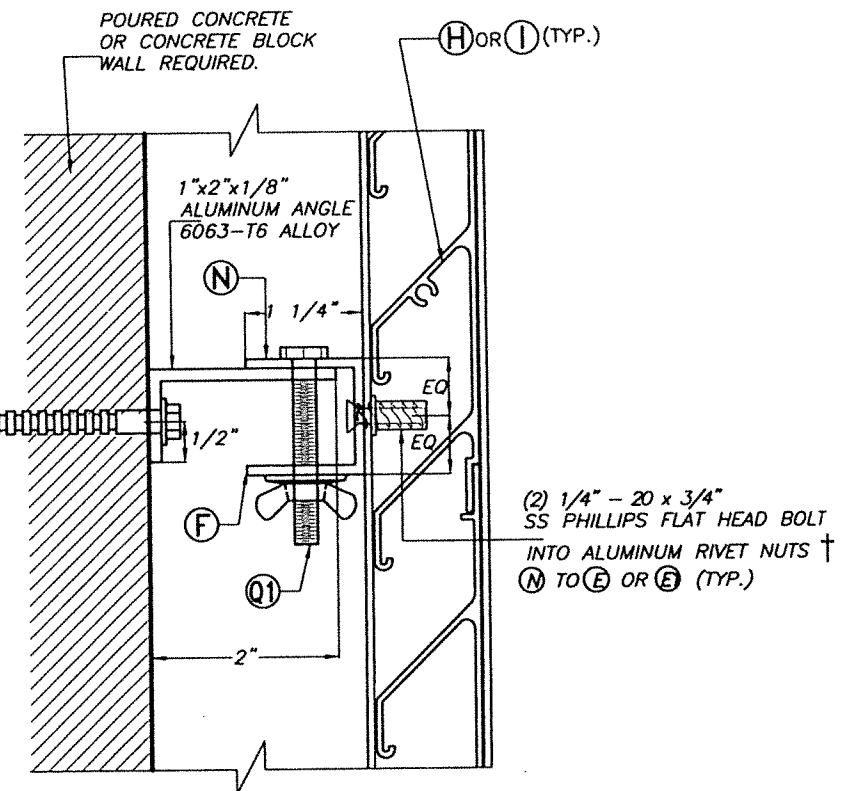
TYPICAL PLAN (NON HURRICANE POSITION)

SCALE 1/4"=1"



DETAIL X (NON HURRICANE POSITION)

SCALE 1/8"=1"



ELEVATION Y-Y

SCALE 1/8"=1"

†: 1/4" - 20x3/4", AS DISTRIBUTED BY ALL
POINT SCREW, BOLT AND SPECIALTY CO.
(PART # 25CRFNA)

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

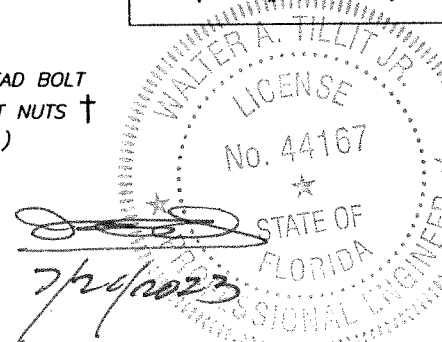
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

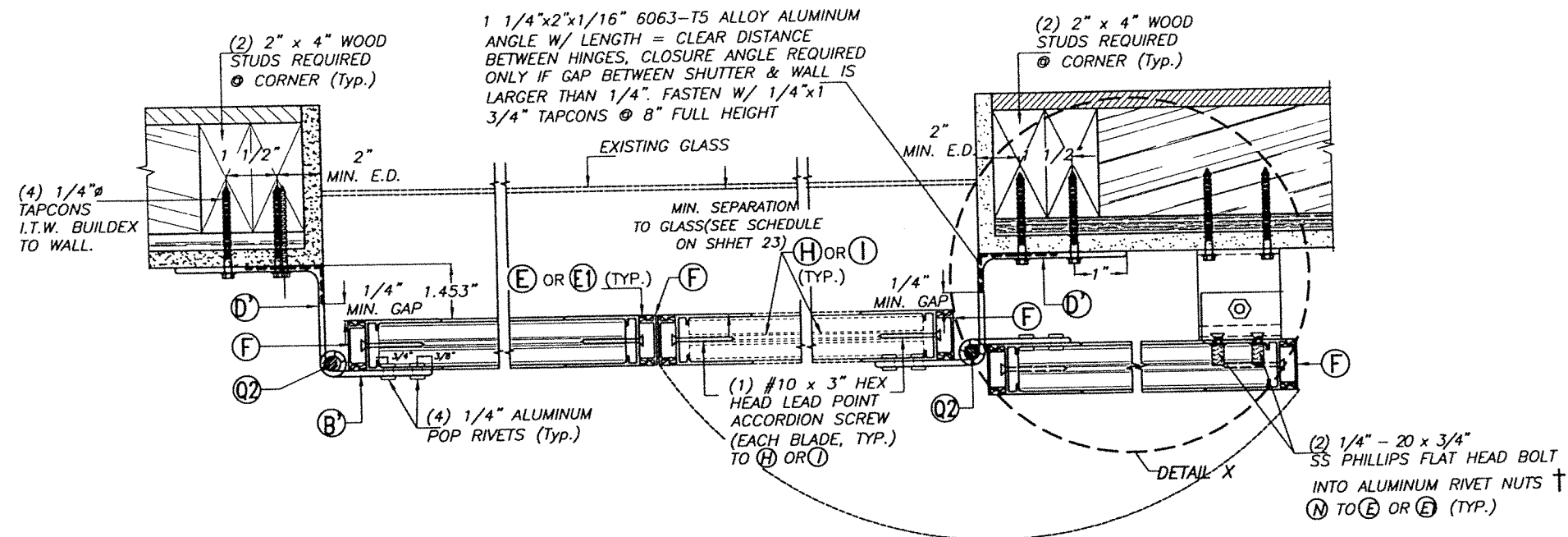
ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)			Y.M. DRAWN BY:		
AMERICAN SHUTTER SYSTEMS ASSOC., INC.			7/21/2023 DATE:		
4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380			23-131 DRAWING No		
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		

SHEET 24 OF 33

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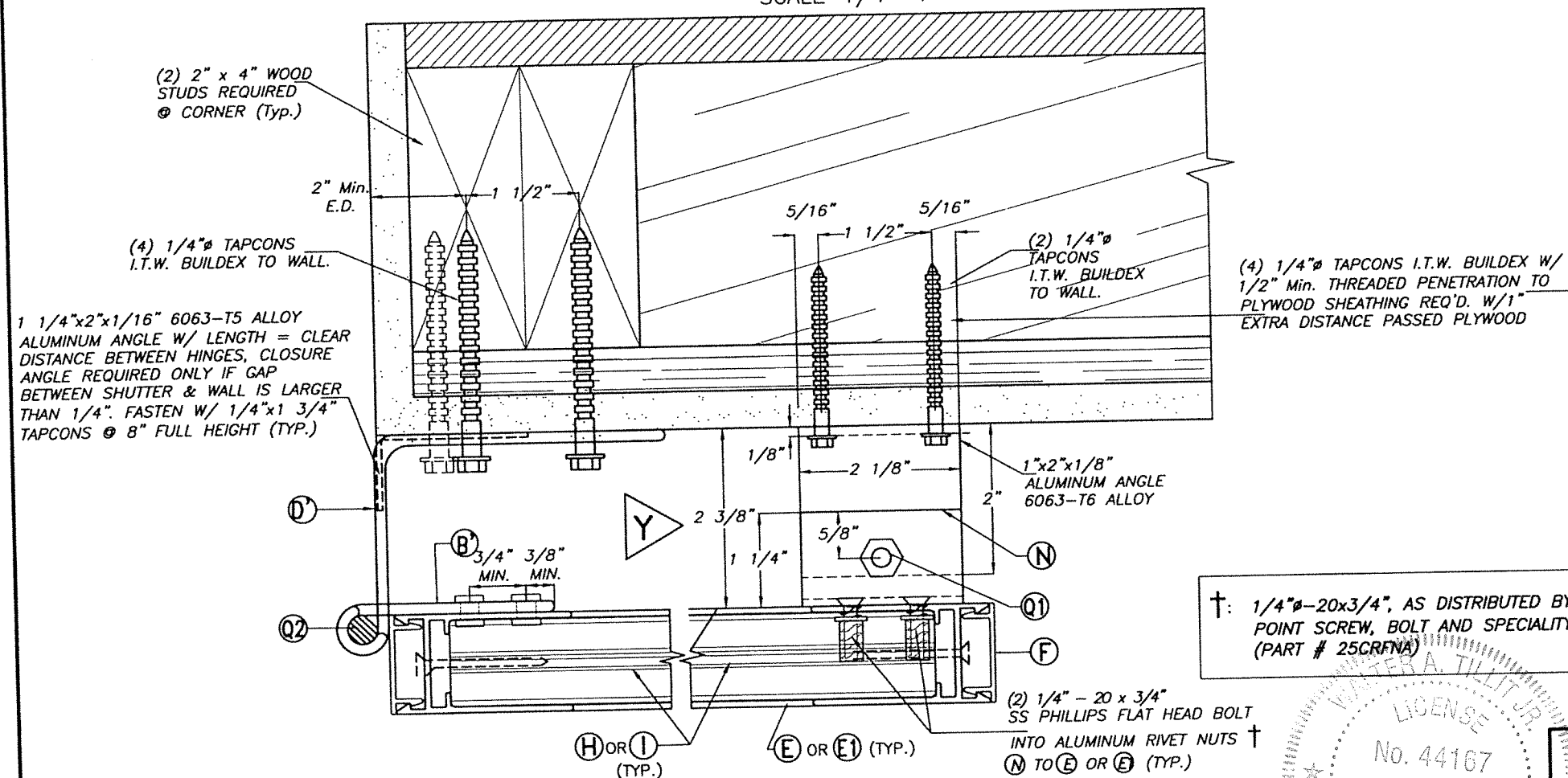
TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
6355 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FLORIDA 33166
Phone: (305)871-1530 • Fax: (305)871-1531
e-mail: tilteco@aol.com
CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167





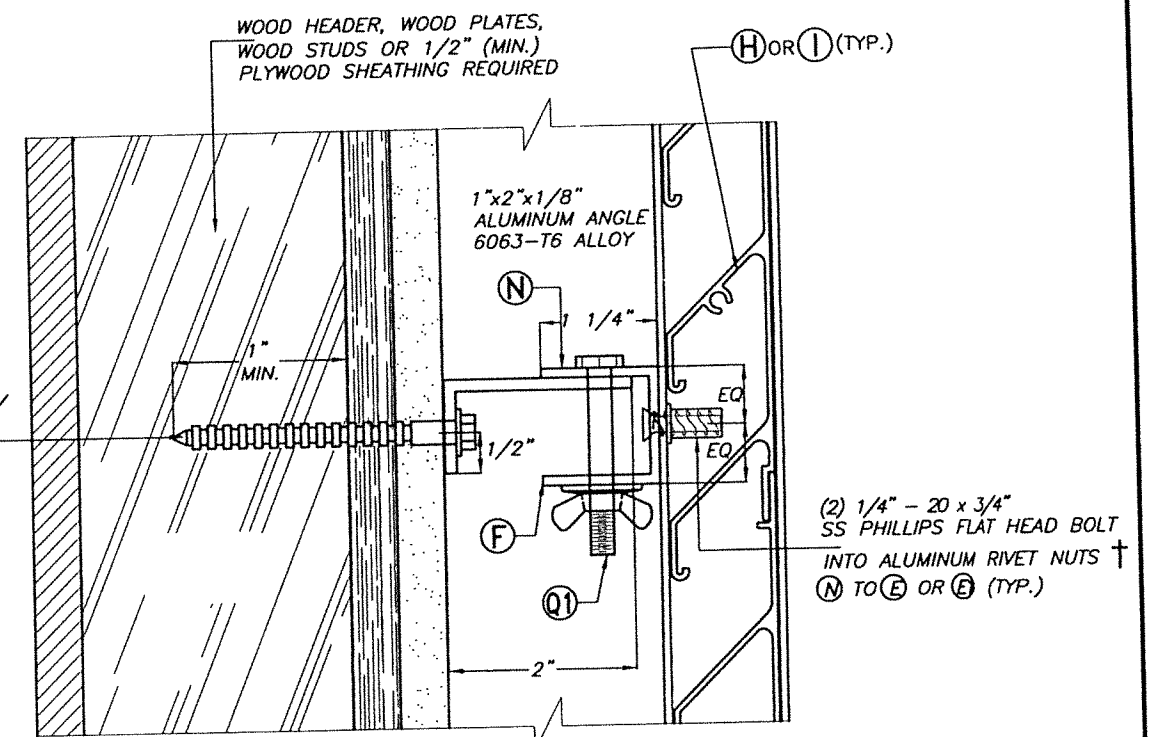
TYPICAL PLAN (NON HURRICANE POSITION)

SCALE 1/4"=1"



DETAIL X (NON HURRICANE POSITION)

SCALE 1/8"=1"



ELEVATION Y-Y

SCALE 1/8"=1"

†: 1/4"-20x3/4", AS DISTRIBUTED BY ALL POINT SCREW, BOLT AND SPECIALTY CO. (PART # 25CRFNA)

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)					Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC.					7/21/2023 DATE:
4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380					23-131 DRAWING No
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		
					SHEET 25 OF 33

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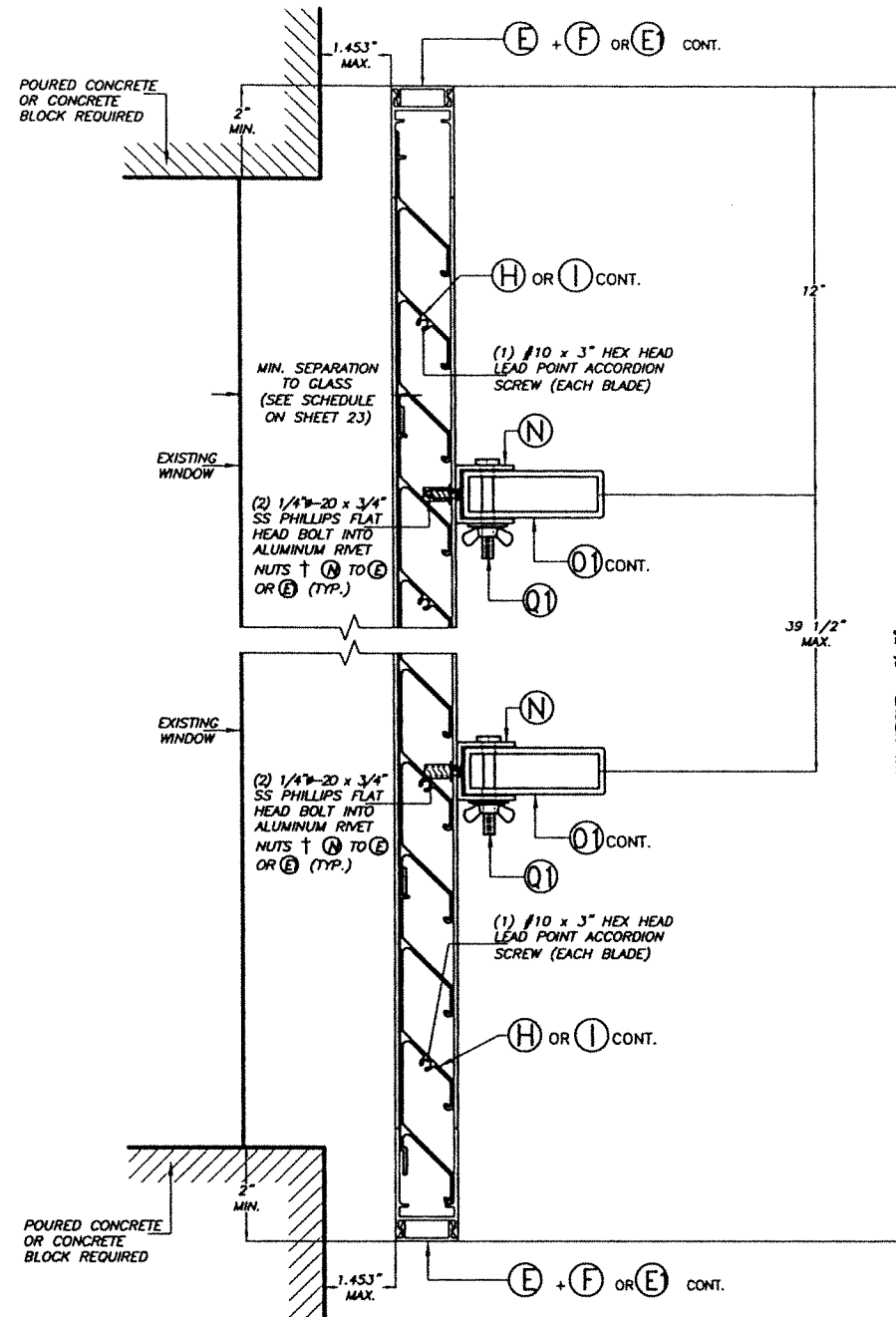
Phone: (305)871-1530 Fax: (305)871-1531

e-mail: tilteco@aol.com

CA-0006719

WALTER A. TILLIT Jr., P.E.

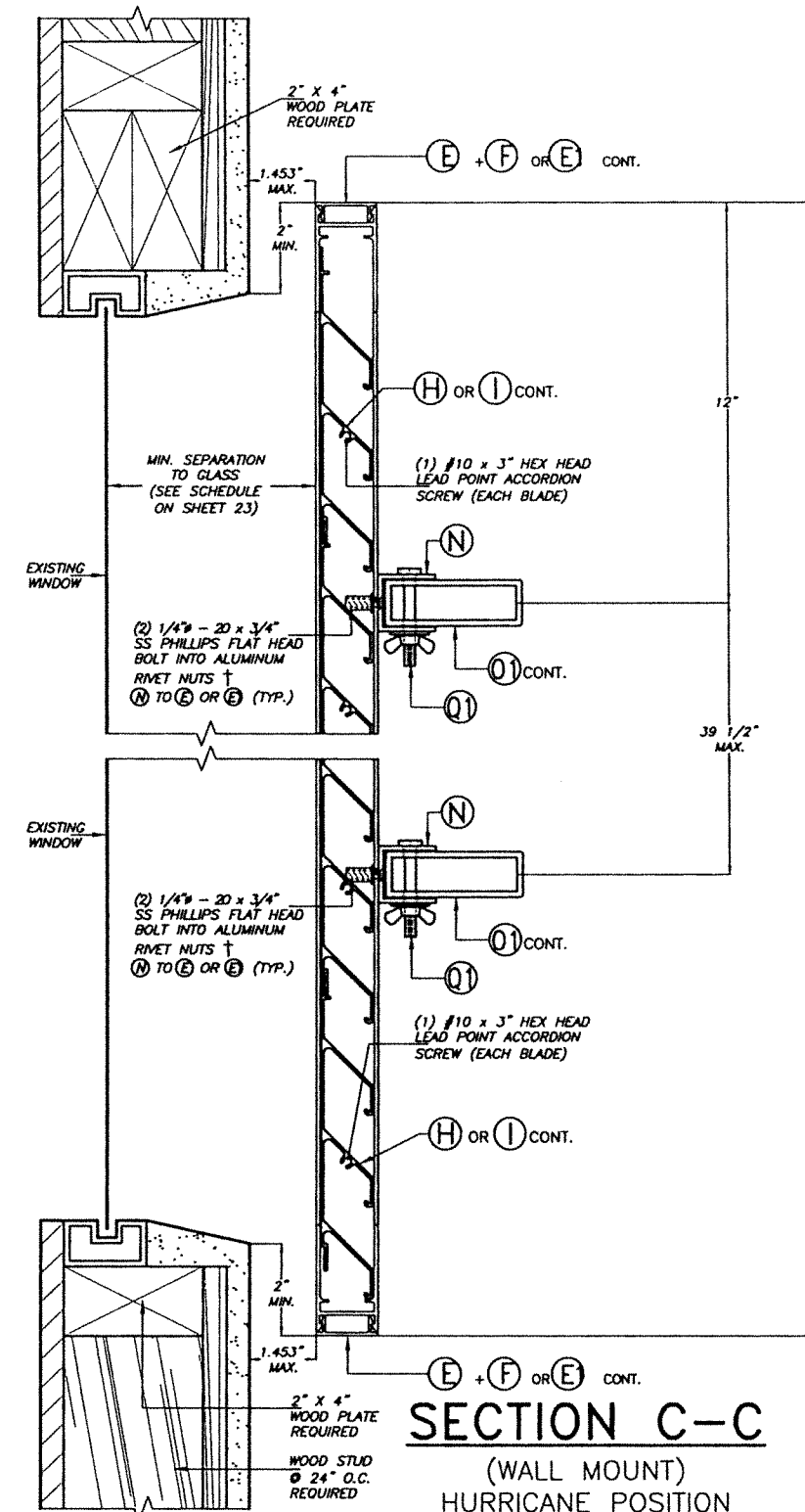
FLORIDA Lic. # 44167



SECTION B-B

(WALL MOUNT)
HURRICANE POSITION
SCALE 1/4"=1"

†: 1/4" - 20 x 3/4", AS DISTRIBUTED BY ALL
POINT SCREW, BOLT AND SPECIALTY CO.
(PART # 25CRFNA)



SECTION C-C

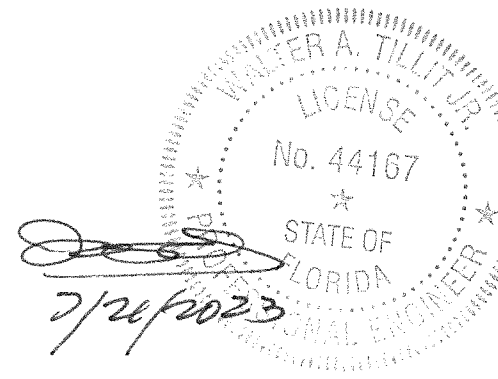
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HURRICANE POSITION
SCALE 1/4"=1"

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

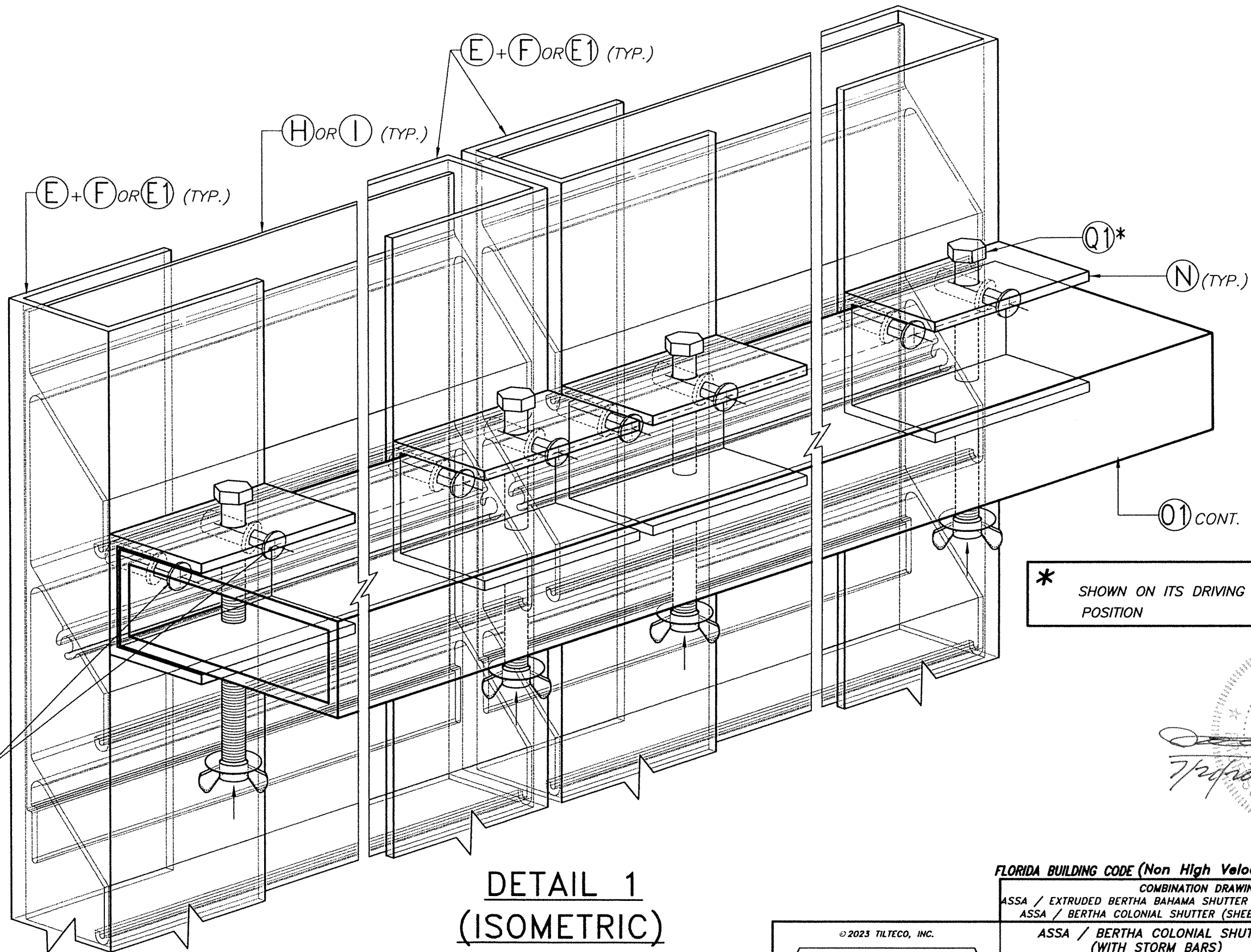
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)			Y.M. DRAWN BY:		
AMERICAN SHUTTER SYSTEMS ASSOC., INC.			7/21/2023 DATE:		
4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380			23-131 DRAWING No		
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
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2			4		

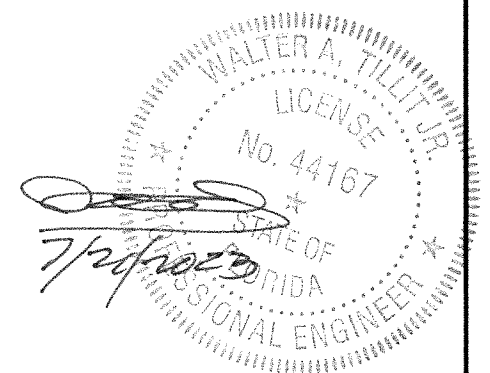
SHEET 26 OF 33



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CA-0006719
WALTER A. TILLIT JR., P.E.
FLORIDA Lic. # 44167



* SHOWN ON ITS DRIVING (INSTALLATION) POSITION



DETAIL 1 (ISOMETRIC) N.T.S

(2) 1/4"Ø - 20 x 3/4"
SS PHILLIPS FLAT HEAD
BOLT INTO ALUMINUM
RIVET NUTS †
(N) TO (E) OR (E1) (TYP.)

† 1/4"Ø-20x3/4", AS DISTRIBUTED BY ALL
POINT SCREW, BOLT AND SPECIALITY CO.
(PART # 25CRFNA)

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

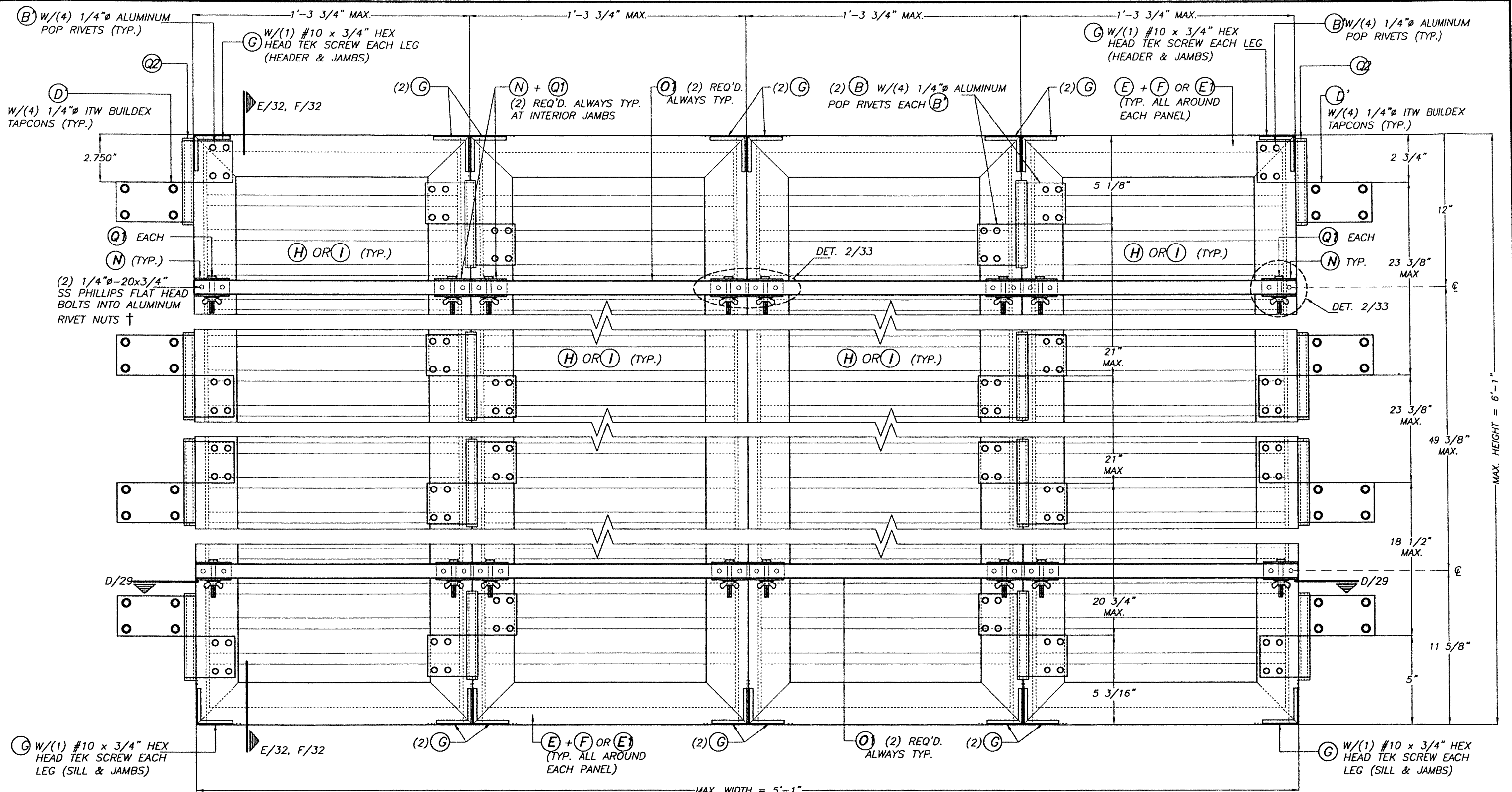
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

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WALTER A. TILLIT Jr., P.E.
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ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)			Y.M. DRAWN BY:		
AMERICAN SHUTTER SYSTEMS ASSOC., INC.			7/21/2023		
4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380			DATE:		
			23-131		
			DRAWING No		
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-187	7/21/23	3		
2			4		



TYPICAL EXTERIOR ELEV. QUADRUPLE PANEL FOR (HURRICANE POSITION)

SCALE: 3/16"=1"

†: 1/4"-20x3/4", AS DISTRIBUTED BY ALL
POINT SCREW, BOLT AND SPECIALTY CO.
(PART # 25CRFNA)

MAXIMUM A.S.D. DESIGN PRESSURE RATING = +51.0, -70.0 p.s.f. FOR
INSTALLATION INTO CONCRETE OR CONCRETE BLOCK WALL SUBSTRATE.

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

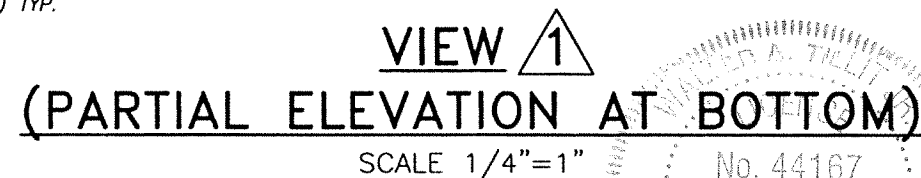
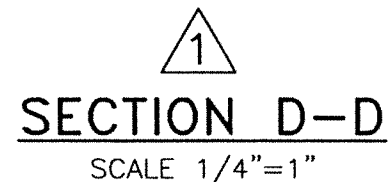
ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)			Y.M. DRAWN BY:		
AMERICAN SHUTTER SYSTEMS ASSOC., INC.			7/21/2023		
4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380			DATE:		
			23-131		
			DRAWING No		
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		
			SHEET 28 OF 33		

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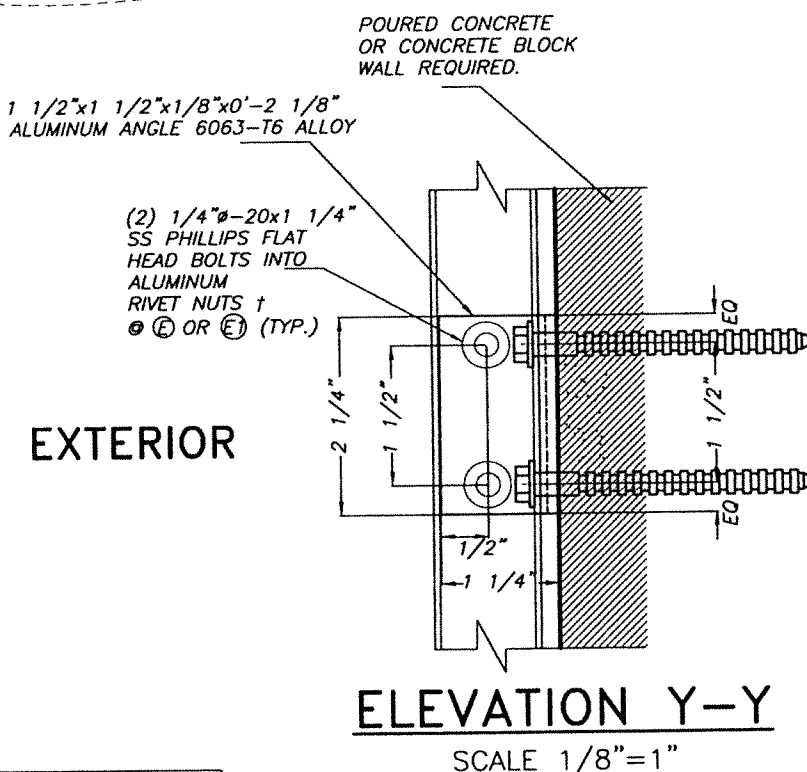
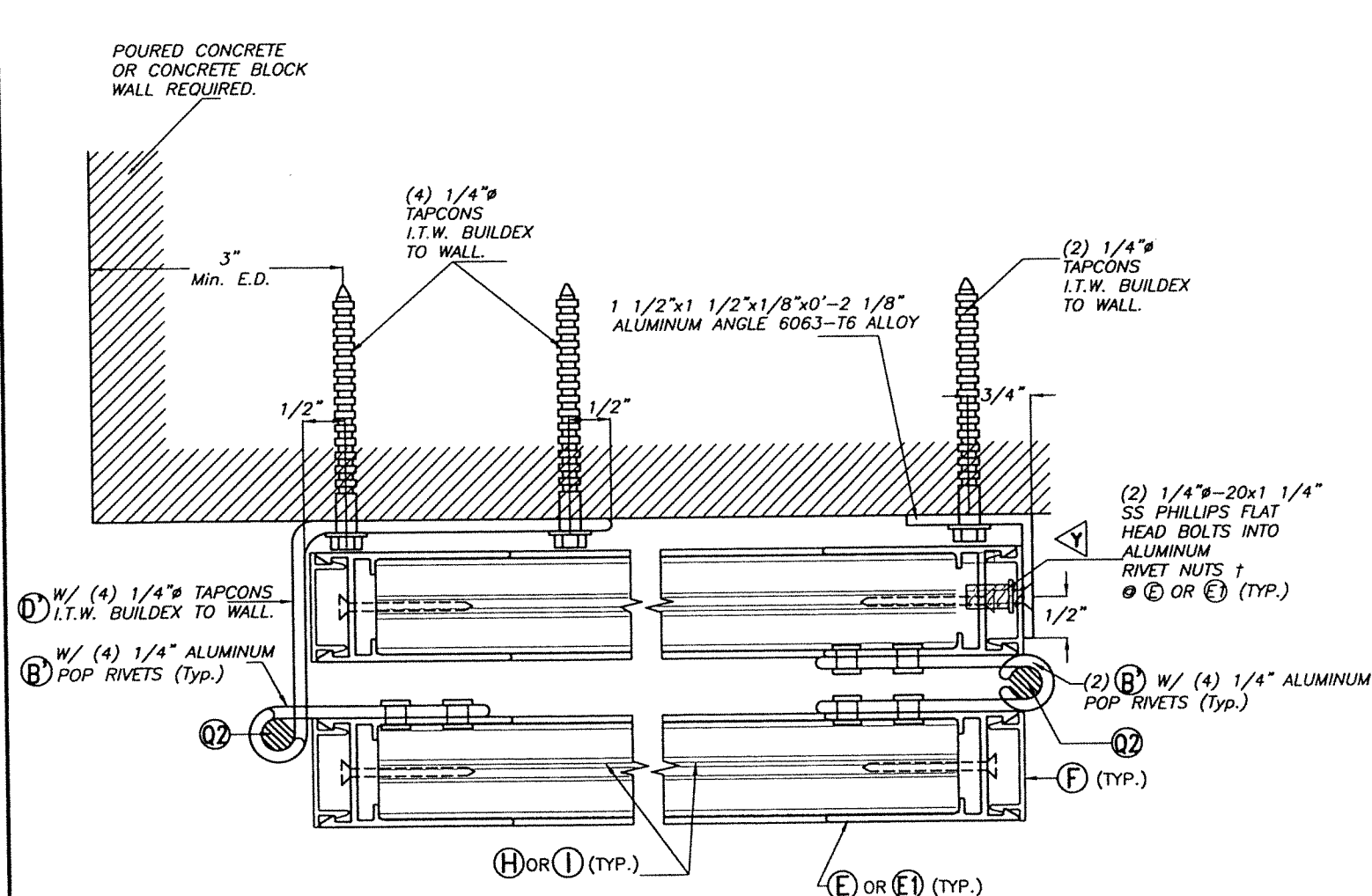
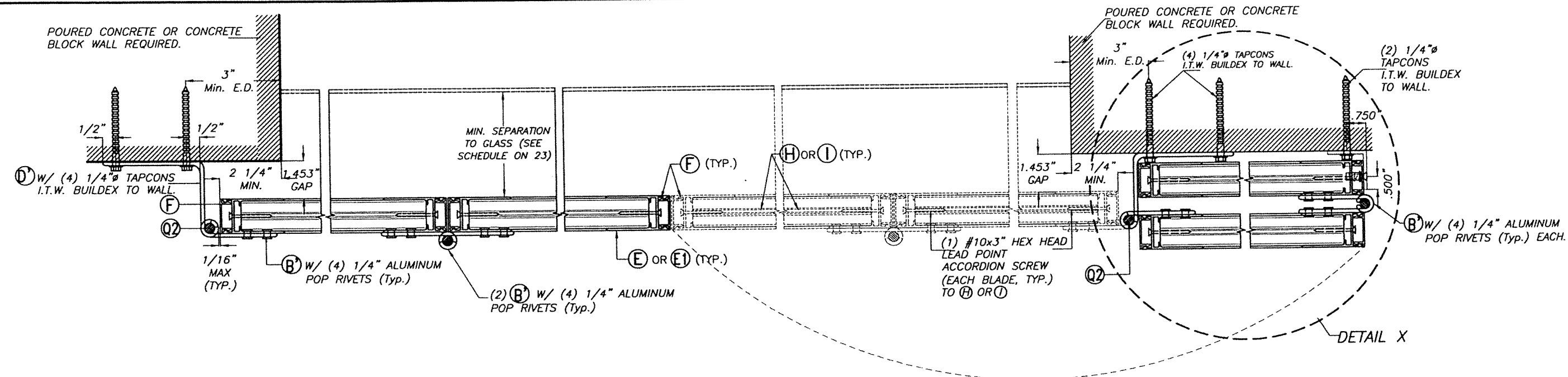
TILTECO INC.

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CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167

STATE OF FLORIDA
Professional Engineer
No. 44167
7/24/23

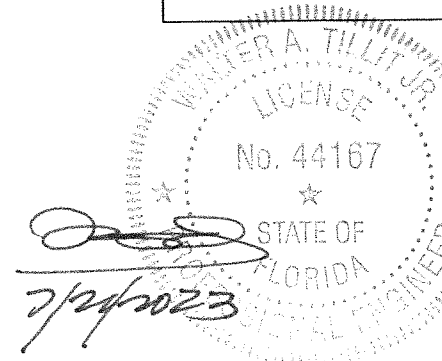


NY 3165	ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)					Y.M. DRAWN BY:																		
	AMERICAN SHUTTER SYSTEMS ASSOC., INC. 4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380					7/21/2023 DATE:																		
						23-131 DRAWING No																		
						SHEET 29 OF 33																		
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1	OLD 20-167	7/21/23	3																					
2			4																					



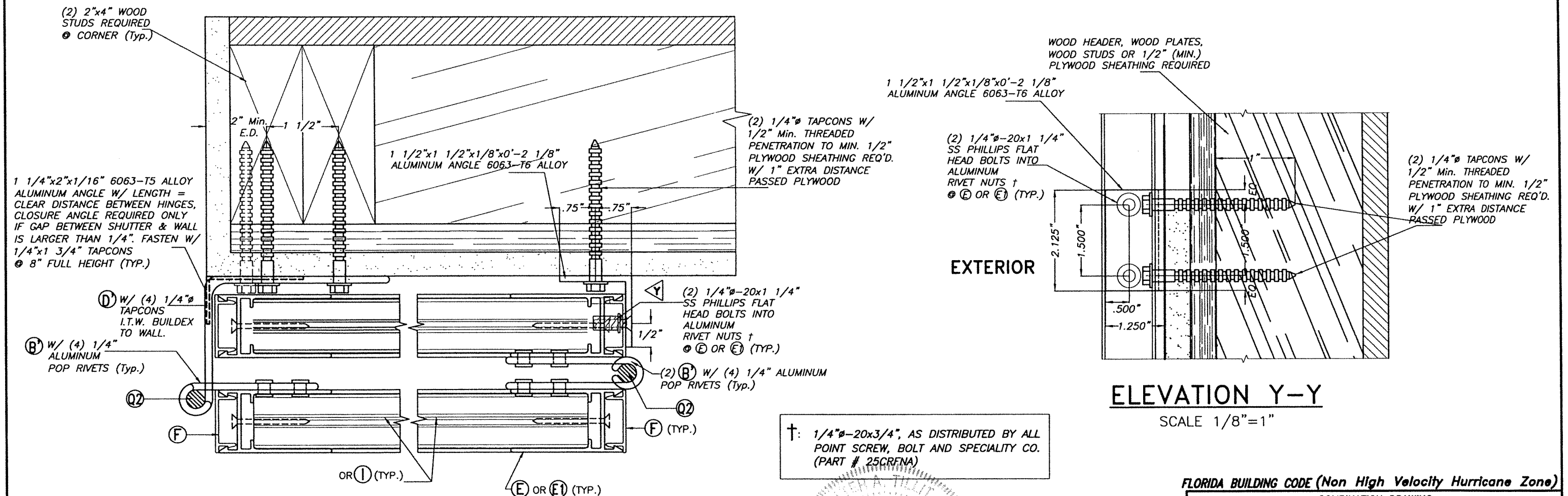
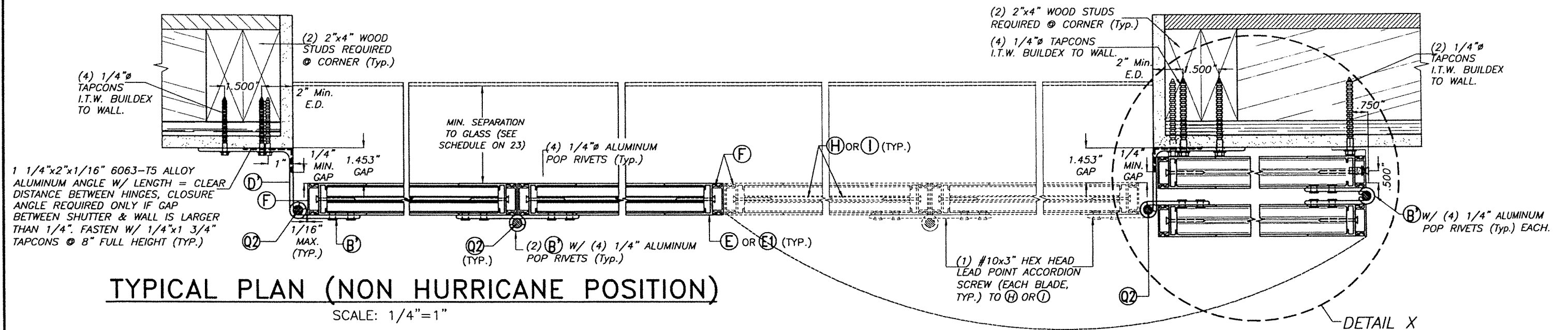
DETAIL X (NON HURRICANE POSITION)
SCALE 1/8"=1"

†: 1/4"-20x3/4", AS DISTRIBUTED BY ALL
POINT SCREW, BOLT AND SPECIALTY CO.
(PART # 25CRFNA)

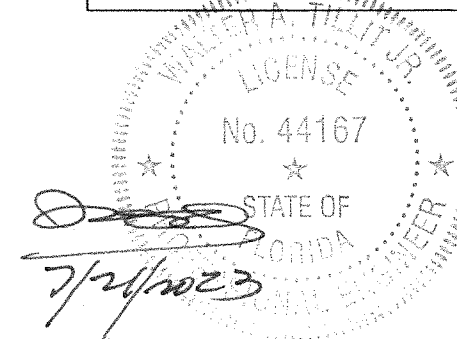


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e-mail: tilteco@aol.com
CA-0006719
WALTER A. TILLIT JR., P.E.
FLORIDA Lic. # 44167

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)					
COMBINATION DRAWING:					
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)				Y.M. DRAWN BY:	
AMERICAN SHUTTER SYSTEMS ASSOC., INC.				7/21/2023 DATE:	
4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380				23-131 DRAWING No	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		
					SHEET 30 OF 33



†: 1/4"-20x3/4", AS DISTRIBUTED BY ALL POINT SCREW, BOLT AND SPECIALTY CO. (PART # 25CRFNA)

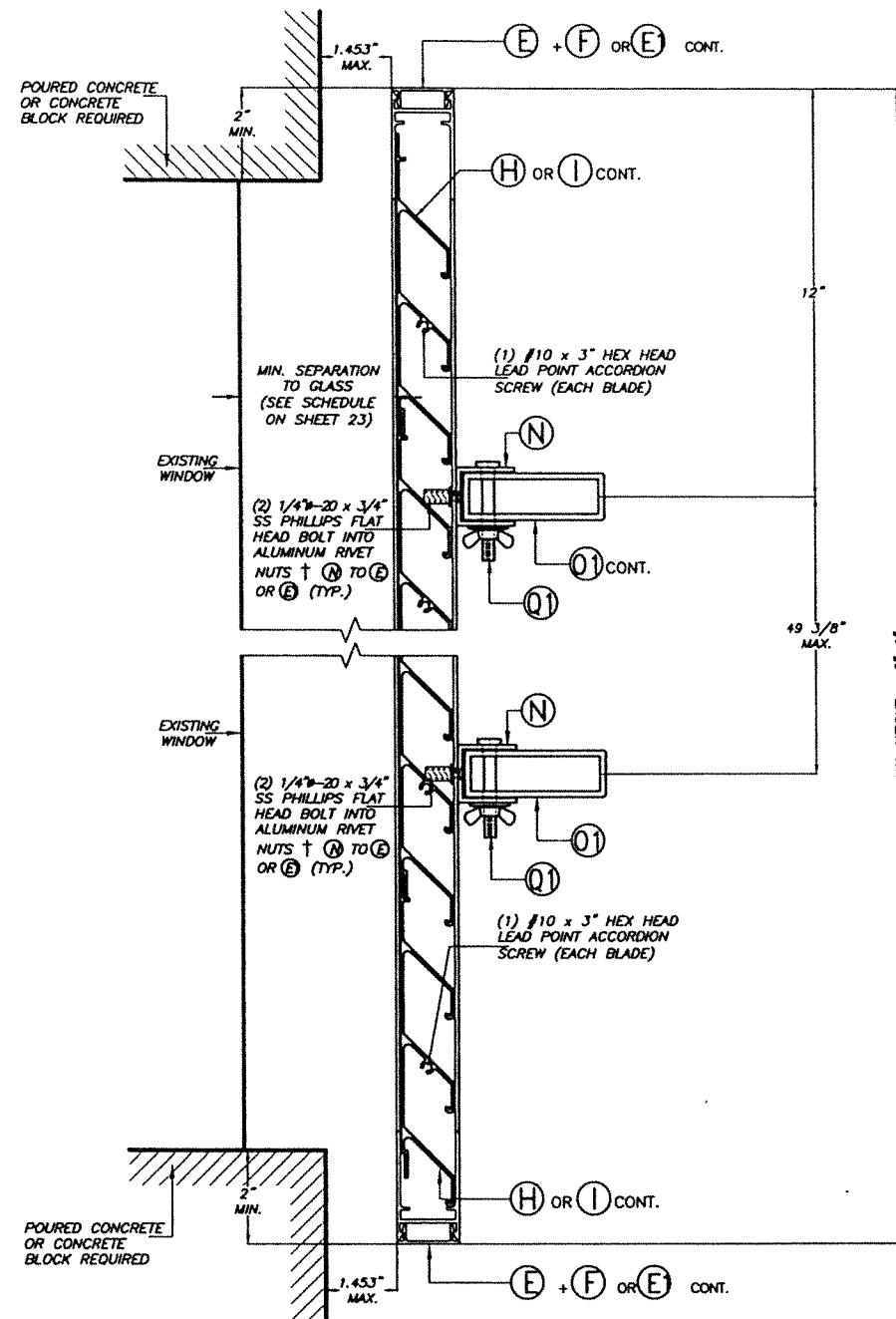


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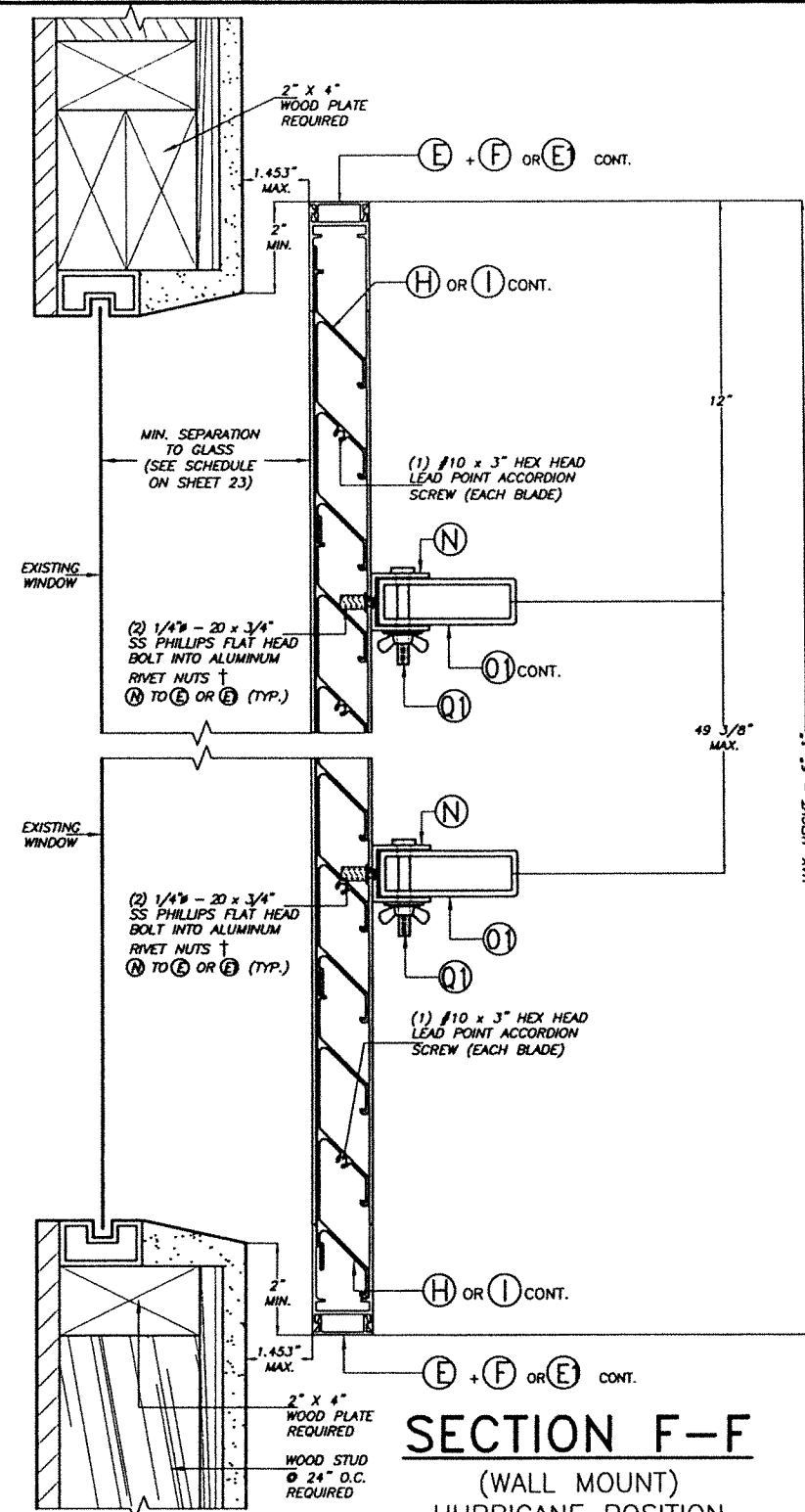
FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)					
COMBINATION DRAWING:					
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)					
ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)				Y.M.	
AMERICAN SHUTTER SYSTEMS ASSOC., INC.				DRAWN BY:	
4268 WEST ROADS DRIVE WEST PALM BEACH, FL. 33407 PHONE: (800)432-2204 FAX: (561)209-8380				7/21/2023	
				DATE:	
				23-131	
				DRAWING No	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23	3		
2			4		
SHEET 31 OF 33					



SECTION E-E

(WALL MOUNT)
HURRICANE POSITION
SCALE 1/4"=1"

†: 1/4"-20x3/4", AS DISTRIBUTED BY ALL
POINT SCREW, BOLT AND SPECIALTY CO.
(PART #25 CRFNA)



SECTION F-F

(WALL MOUNT)
HURRICANE POSITION
SCALE 1/4"=1"

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / BERTHA COLONIAL SHUTTER
(WITH STORM BARS)

AMERICAN SHUTTER SYSTEMS ASSOC., INC.

4268 WEST ROADS DRIVE
WEST PALM BEACH, FL. 33407
PHONE: (800)432-2204
FAX: (561)209-8380

Y.M.
DRAWN BY:

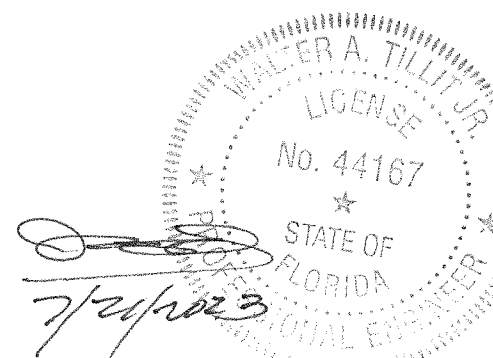
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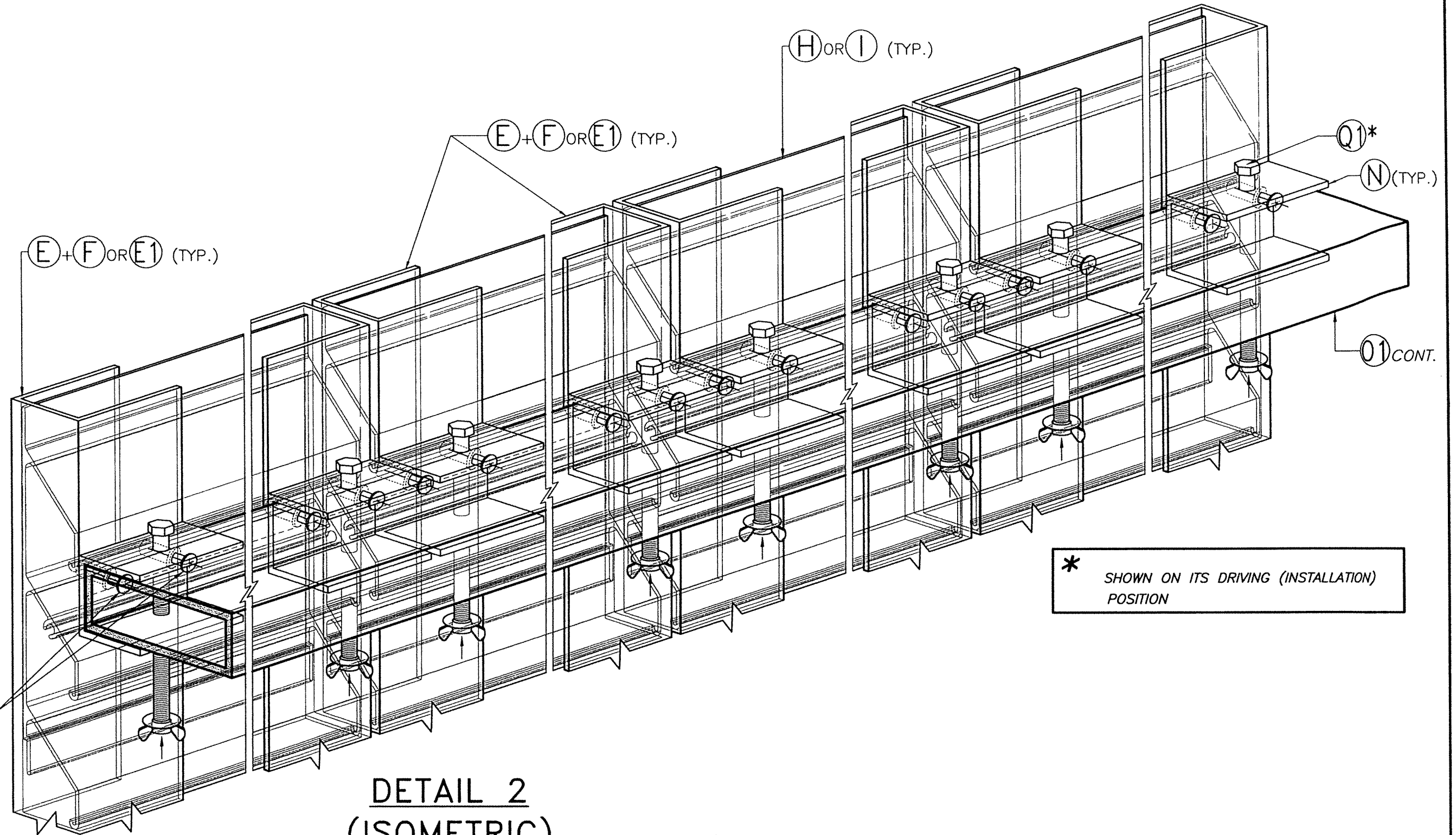
23-131
DRAWING No

SHEET 32 OF 33

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WALTER A. TILLIT Jr., P.E.
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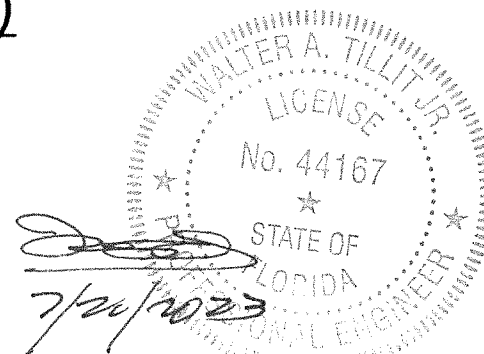


* SHOWN ON ITS DRIVING (INSTALLATION) POSITION

DETAIL 2
(ISOMETRIC)
N.T.S

(2) 1/4"φ - 20 x 3/4"
SS PHILLIPS FLAT HEAD
BOLT INTO ALUMINUM
RIVET NUTS †
(N TO E OR E1) (TYP.)

† 1/4"φ-20x3/4", AS DISTRIBUTED BY ALL
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(PART # 25CRFNA)



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COMBINATION DRAWING:
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ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)				Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC.				7/21/2023 DATE:
4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380				23-131 DRAWING No
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION
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2			4	
				SHEET 33 OF 33