



Product Approval

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SECRETARY

FL #	FL2681-R7
Application Type	Revision
Code Version	2023
Application Status	Approved
Comments	
Archived	<input type="checkbox"/>
Product Manufacturer	American Shutter Systems Association, Inc.
Address/Phone/Email	4268 Westroads Drive West Palm Beach, FL 33407 (561) 209-8263 bfeeley@easternmetal.com
Authorized Signature	Bill Feeley Irodriguez@easternmetal.com
Technical Representative	
Address/Phone/Email	
Quality Assurance Representative	
Address/Phone/Email	
Category	Shutters
Subcategory	Colonial

Compliance Method	Evaluation Report from a Florida Registered Architect or a Licensed Florida Professional Engineer <input type="checkbox"/> Evaluation Report - Hardcopy Received
Florida Engineer or Architect Name who developed the Evaluation Report	Walter A. Tillit Jr.
Florida License	PE-44167
Quality Assurance Entity	National Accreditation and Management Institute
Quality Assurance Contract Expiration Date	12/31/2024
Validated By	John Henry Kampmann Jr. <input checked="" type="checkbox"/> Validation Checklist - Hardcopy Received
Certificate of Independence	FL2681_R7_COI_CERTIFICATION OF INDEPENDENCE DRAWING 23-132.pdf FL2681_R7_COI_Certification of Independence Drawing 23-131.pdf
Referenced Standard and Year (of Standard)	<u>Standard</u> <u>Year</u> TAS 201, 202, 203 1994
Equivalence of Product Standards Certified By	Florida Licensed Professional Engineer or Architect FL2681_R7_Equiv_Letter 23-450.pdf
Sections from the Code	
Product Approval Method	Method 1 Option D
Date Submitted	10/14/2023
Date Validated	10/17/2023
Date Pending FBC Approval	10/21/2023
Date Approved	12/12/2023

Summary of Products

FL #	Model, Number or Name	Description
2681.1	Bertha Colonial Shutter with clips or storm bars- (Non-HVHZ) Drawing# 23-131	Extruded aluminum blades assembled together and retained by jambs/headers to provide hurricane protection
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: Yes Design Pressure: N/A Other: Large missile.Max.width is 72" and max.height is 54" for double panels(square)with clips and +65,-65 psf A.S.D.design load,and max.width is 144" and max. height is 54" for quadruple panels(square)with clips.See sheets 13 and 14 for additional schedules.Max width is 36.5" with Max. height of 67" for +60,-81 psf double (square) panels with storm bars or max. width is 61" with 73" max. height for +51,-70 psf quadruple (square)panels with storm bars.		Installation Instructions FL2681 R7 II Drwing 23-131 COLONIAL.pdf Verified By: American Test Lab of South Florida, Inc. Created by Independent Third Party: Yes Evaluation Reports FL2681 R7 AE Product Evaluation Report Drawing 23-131 COLONIAL.pdf Created by Independent Third Party: Yes
2681.2	Bertha Colonial Shutter with Storm Bars-(HVHZ)- Drawing# 23-132	Extruded aluminum blades assembled together and retained by jambs/headers to provide hurricane protection
Limits of Use Approved for use in HVHZ: Yes Approved for use outside HVHZ: Yes Impact Resistant: Yes Design Pressure: N/A Other: Large missile. Max.width is 36.5" and max. height is 67" for +60, -81 p.s.f. A.S.D. design load for double panel shutter and max. width is 63" and max. height is 73" for +51, -70 p.s.f. A.S.D design load for quadruple panels shutter.		Installation Instructions FL2681 R7 II DRAWING 23-132.pdf Verified By: American Test Lab of South Florida, Inc. Created by Independent Third Party: Yes Evaluation Reports FL2681 R7 AE PRODUCT EVALUATION REPORT DRAWING 23-132.pdf Created by Independent Third Party: Yes

[Back](#)

[Next](#)

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personal address, please provide the Department with an email address which can be made available to the public. To determine if you are a licensee under Chapter 455, F.S., please click [here](#).

Product Approval Accepts:



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 1809 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 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. BUILDX.
 - 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. BUILDX.
- 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 (G) 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.

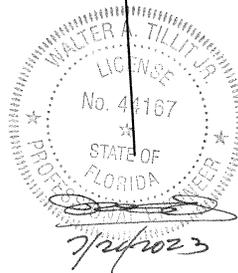
(b) CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION INCLUDING LIFE SAFETY OF THIS PRODUCT, BASED ON THIS PRODUCT EVALUATION DOCUMENT, PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.

(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 LETTER 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.

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 E-mail: tiltco@aol.com
 CA-0006719
 WALTER A. TILT 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)

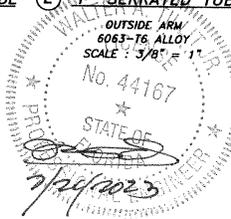
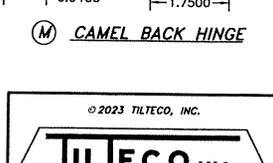
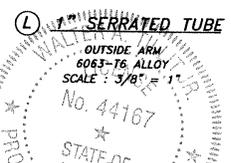
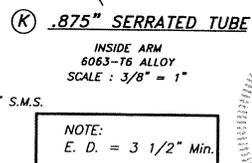
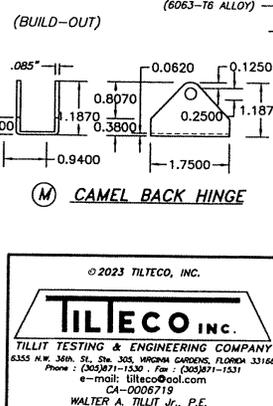
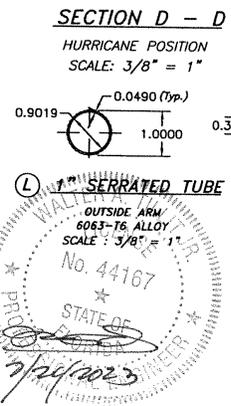
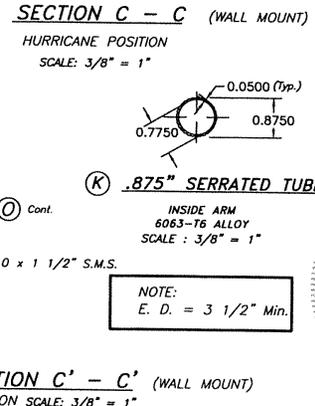
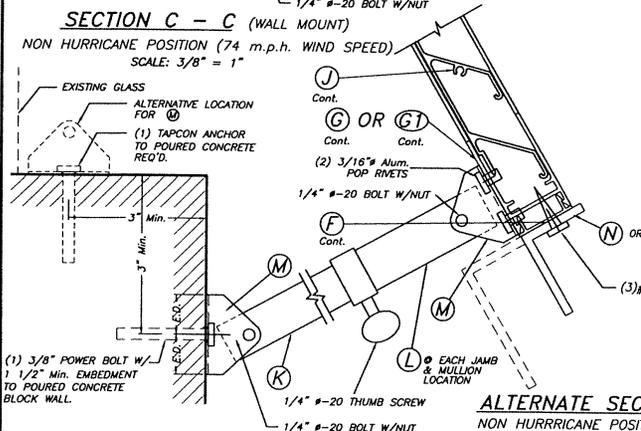
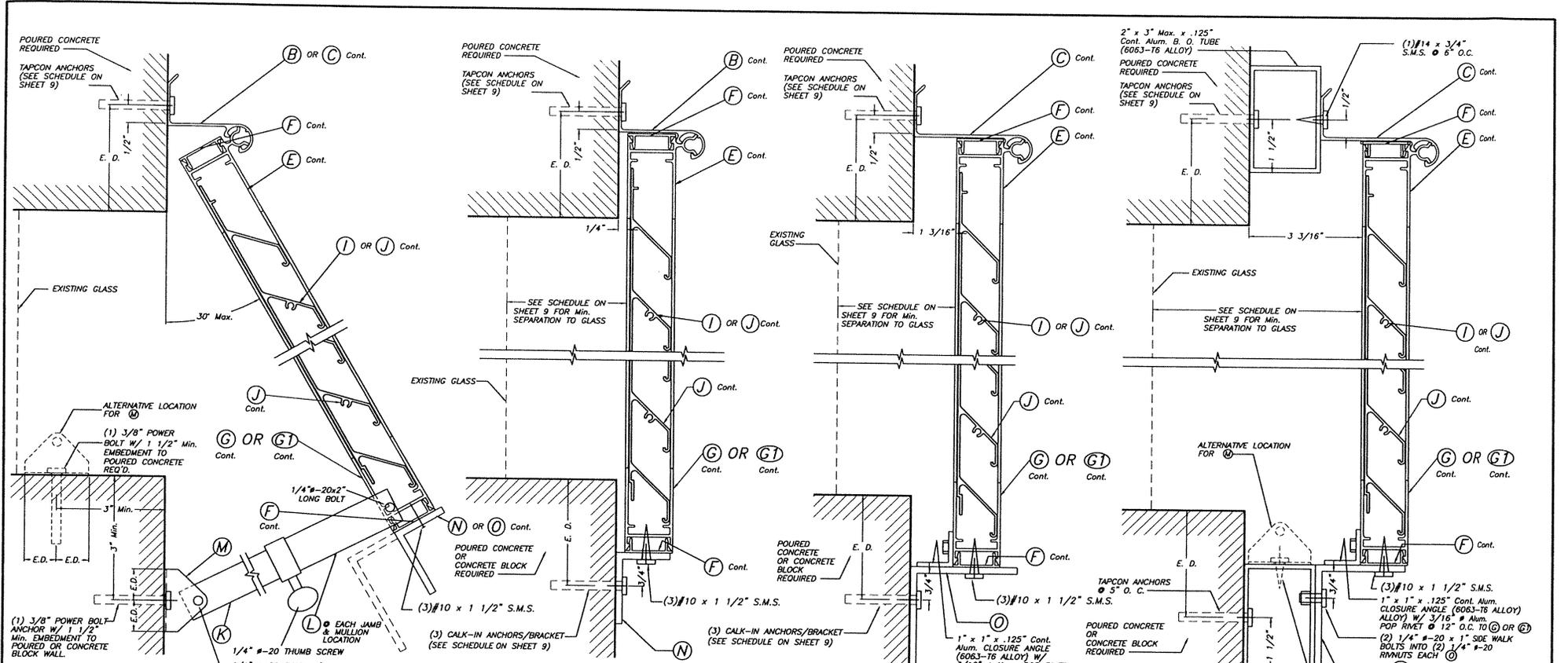
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER

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

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

REV. NO	DESCRIPTION	DATE	REV. NO	DESCRIPTION	DATE
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2			4		

SHEET 1 OF 33



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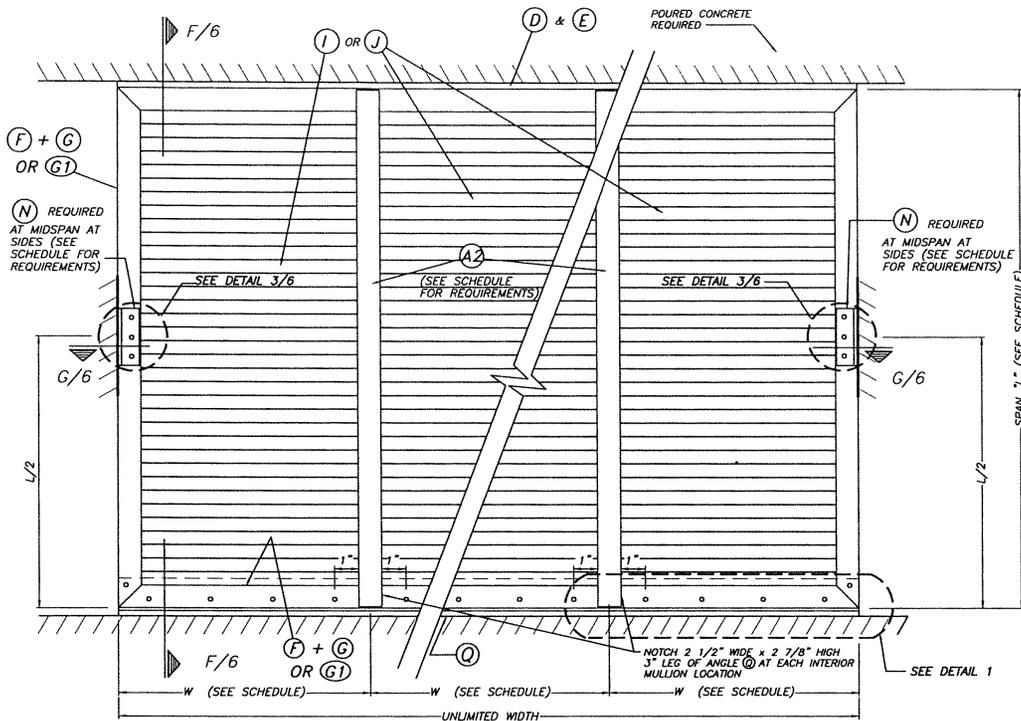
TILTECO INC.
 TILIT TESTING & ENGINEERING COMPANY
 6355 N.W. 36th St., Ste. 305, WIRMIWA GARDENS, FLORIDA 33167
 Phone: (800)871-1530 Fax: (202)871-1531
 e-mail: tiliteco@aol.com
 CA-0006719
 WALTER A. TILLIT, JR., P.E.
 FLORIDA Lic. # 44167

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

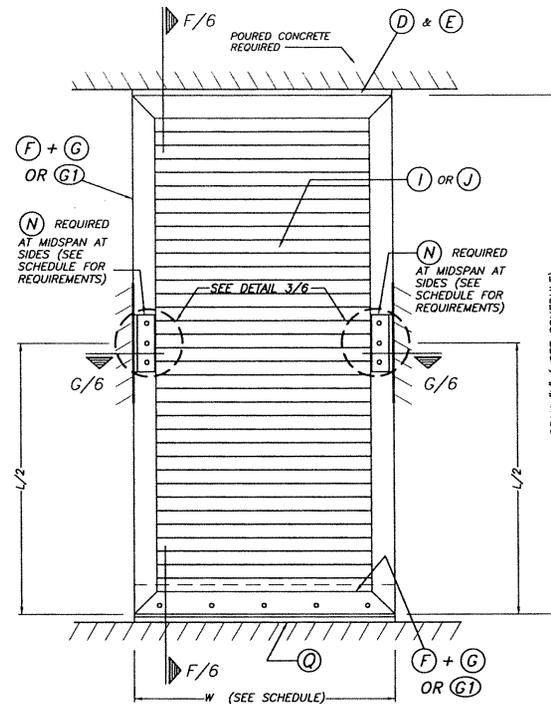
COMBINATION DRAWING:
 ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
 ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

Y.M. DRAWN BY:
 7/21/2023 DATE:
23-131 DRAWING No
 SHEET 4 OF 33

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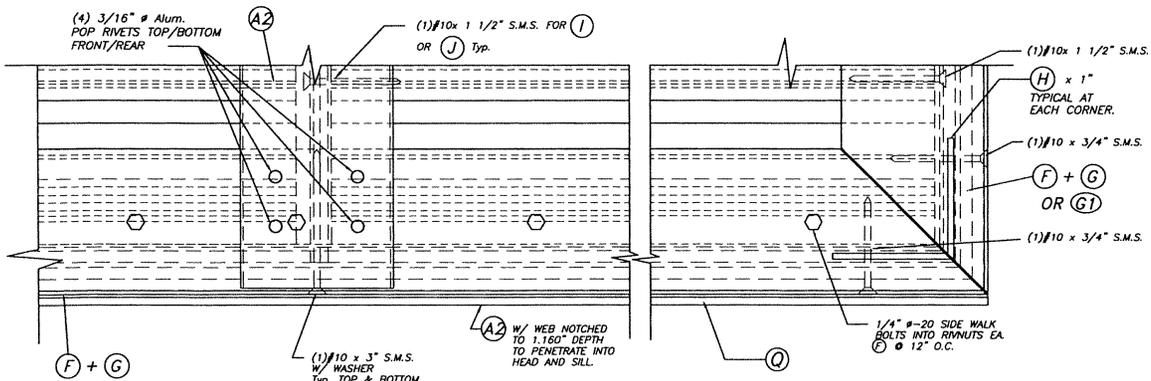
MULTIPLE UNIT



SINGLE UNIT

ELEVATIONS

N. T. S.



DETAIL 1

SCALE : 1/2" = 1"



FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

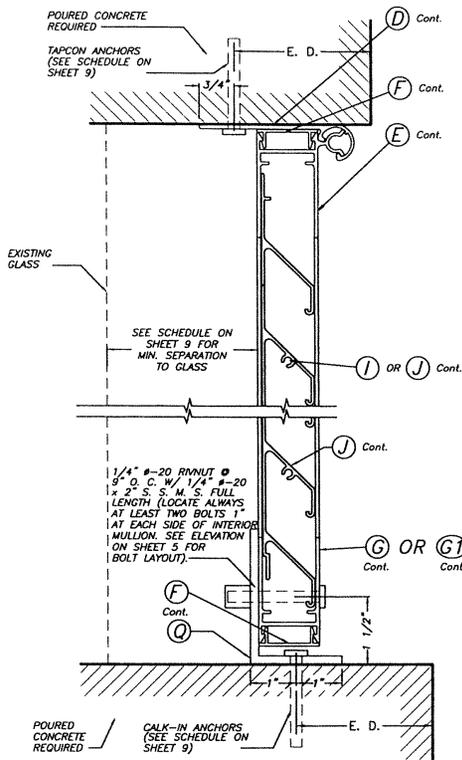
COMBINATION DRAWING:
 ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
 ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

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
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2			4

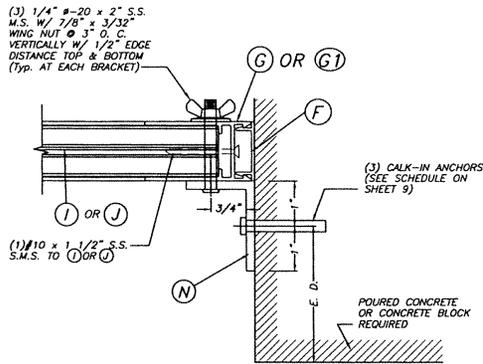
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TILTECO INC.

TILLIT TESTING & ENGINEERING COMPANY
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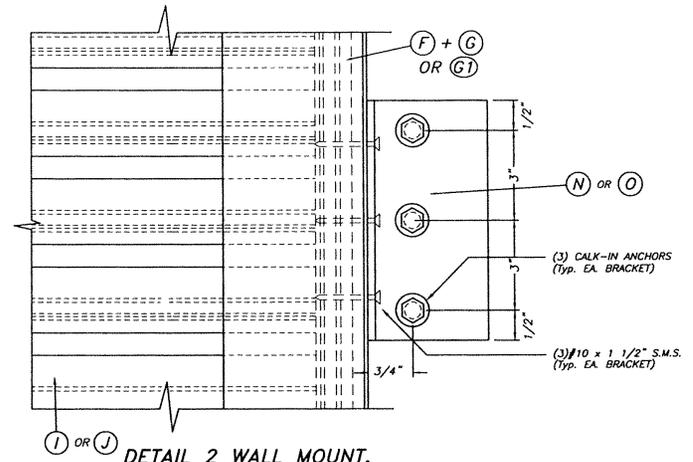


SECTION F - F (TRAPPED MOUNT)
HURRICANE POSITION
SCALE: 3/8" = 1"

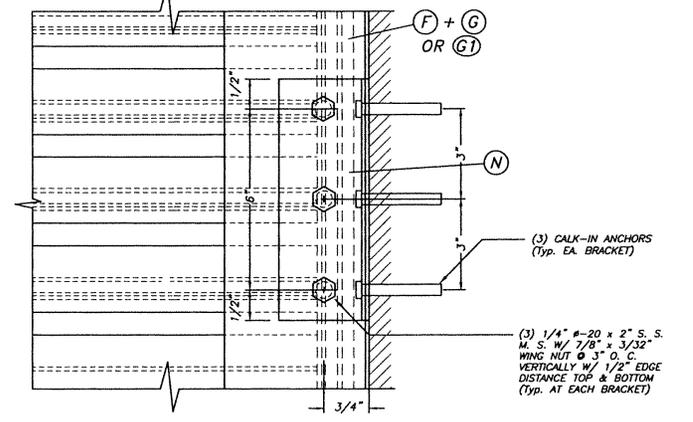


SECTION G - G
(TRAPPED MOUNT)
HURRICANE POSITION
SCALE: 3/8" = 1"

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



DETAIL 2 WALL MOUNT.
SCALE: 1/2" = 1"



DETAIL 3 TRAPPED
SCALE: 1/2" = 1"



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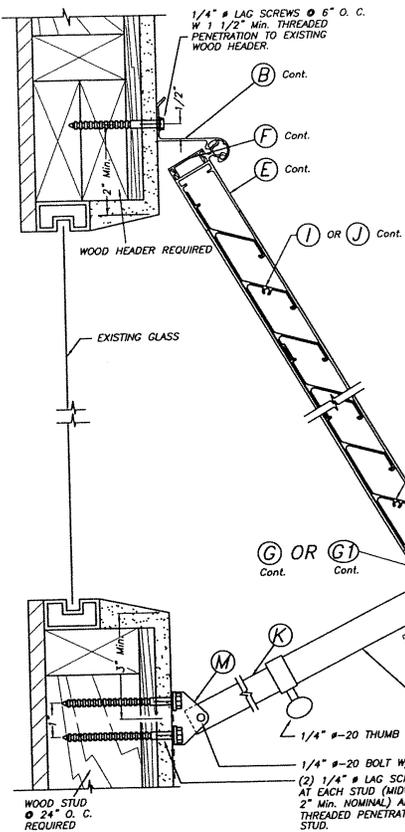
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER
Y.M. DRAWN BY:

AMERICAN SHUTTER SYSTEMS ASSOC., INC.
4268 WEST ROADS DRIVE
WEST PALM BEACH, FL 33407
PHONE: (800)432-2204
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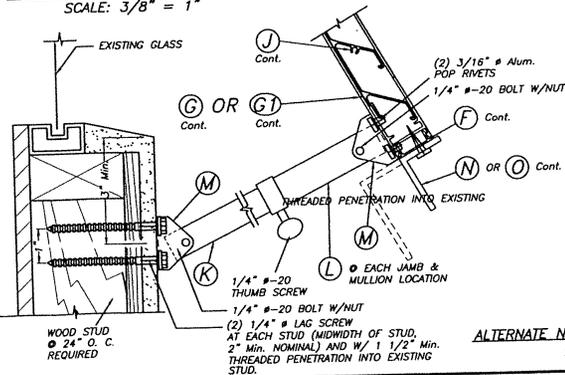
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REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
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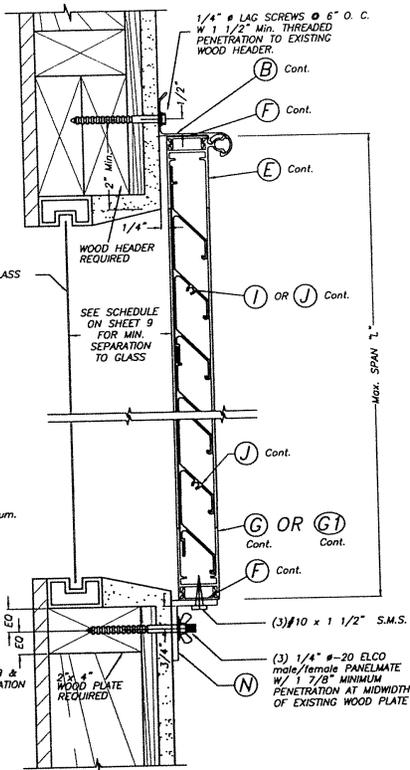
SHEET 6 OF 33



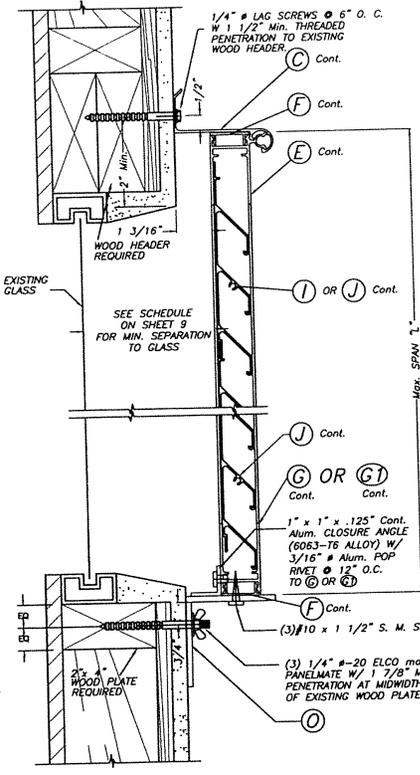
NON HURRICANE POSITION DETAIL: (74 m.p.h. OR LESS WIND SPEED)
SCALE: 3/8" = 1"



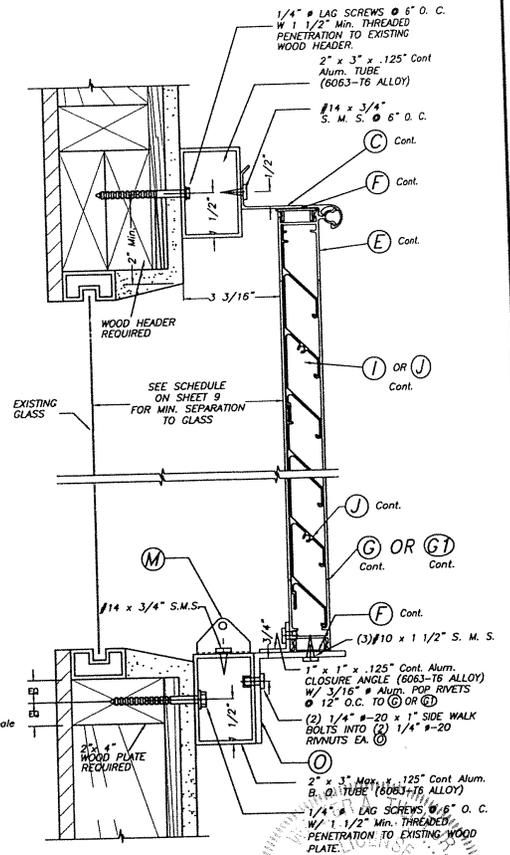
ALTERNATE NON HURRICANE POSITION DETAIL
SCALE: 3/8" = 1"



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 :

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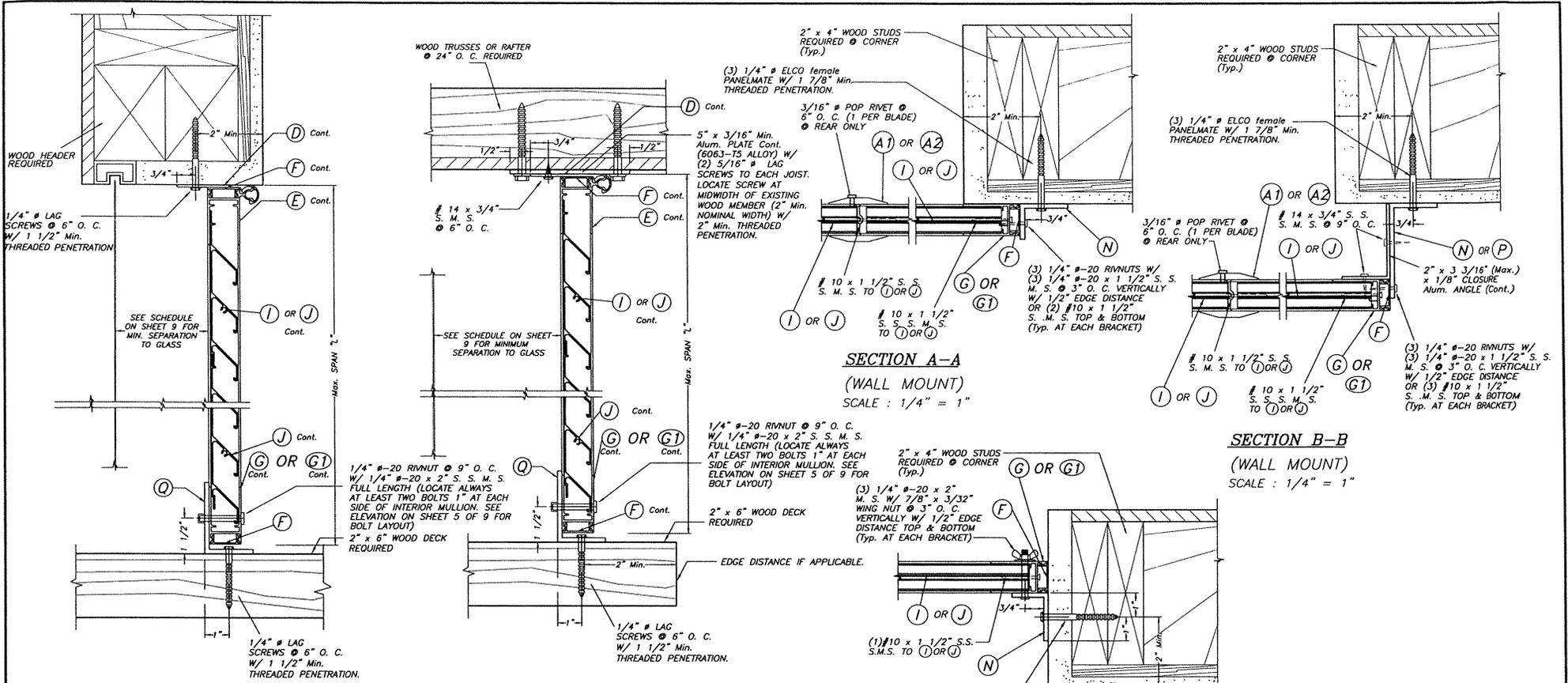
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

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

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

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





ALTERNATIVE 4A

ALTERNATIVE 4B

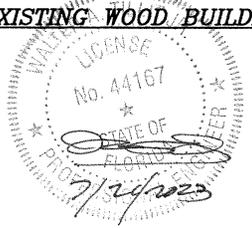
FLOOR/CEILING MOUNTING INSTALLATION

- SECTION A SCALE: 1/4" = 1"

SECTION G-G
(FLOOR/CEILING MOUNT)
SCALE: 1/4" = 1"

INSTALLATION DETAILS ON EXISTING WOOD BUILDINGS

- NOTES :**
- 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.
 - 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
 6355 N.W. 36th St., Ste. 305, Miramar Gardens, Florida 33166
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 e-mail: tilteco@tillit.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.

4269 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 8 OF 33

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 # 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"

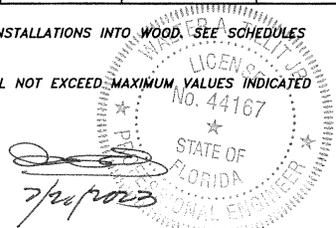
SCHEDULE # 2

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"	N/A	N/A	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 # 3

MAXIMUM ANCHOR SPACING AT TOP FEMALE HINGES (B), (C), OR (D) AS WELL AS SILL ANGLE (E) 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)

Y.M. DRAWN BY:
7/21/2023 DATE:
23-131 DRAWING No
SHEET 9 OF 33

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

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TILECO INC.

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FLORIDA Lic. # 44167

GENERAL NOTES:

1. **COLONIAL 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 COLONIAL 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 13, 14, 22 & 28.

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 13, 14, 22 & 28.

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.

COLONIAL 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 #0624.01-98R, #1005.01-00, #0309.01-04 AND 0926.01-07 AS PER TAS-201, TAS-202 AND TAS-203 PROTOCOLS

2. ALL ALUMINUM EXTRUSIONS SHALL BE ALUMINUM ASSOCIATION 6063-T6 ALLOY AND TEMPER, WITH $F_y = 25.0$ ksi MINIMUM YIELD STRENGTH (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 STRENGTH AND 90 ksi TENSILE STRENGTH & SHALL COMPLY W/ FLORIDA BUILDING CODE SECTION 2411.3.3.4.

4. BOLTS TO BE ALUMINUM ASSOCIATION 2024-T4 ALLOY AND TEMPER, 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) SEE DETAILS FOR APPLICABILITY:

- (A) TO EXISTING POURED CONCRETE: (Min $f'_c = 3000$ p.s.i.)
- 1/4" \varnothing TAPCON ANCHORS AS MANUFACTURED BY I.T.W. BUILDEX, INC.
 - 1/4" \varnothing 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" \varnothing -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: (Min. $f' = 1500$ psi)
- 1/4" \varnothing TAPCON ANCHORS AS MANUFACTURED BY I.T.W. BUILDEX, INC.
 - 1/4" \varnothing 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" \varnothing -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) TO EXISTING WOOD (MIN. SPECIFIC GRAVITY, $G=0.55$ MIN.) FRAME BUILDING. ANCHORAGE SHALL BE PERFORMED BEYOND ANY FINISH MATERIAL AT WALL LIKE BRICK VENEER, PLYWOOD, STUCCO OR ANY OTHER FINISH. -1/4" \varnothing TAPCON ANCHORS MANUFACTURED BY I.T.W. BUILDEX OR 1/4" \varnothing LAG SCREWS (NDS 2012). USE TAPCON ANCHORS FOR INSTALLATIONS WITH STORM BARS AND USE LAG SCREWS FOR INSTALLATIONS WITHOUT STORM BARS

NOTE:

- C.1) MINIMUM THREADED PENETRATION INTO WOOD FOR TAPCON ANCHORS OR LAG SCREWS IS 1 1/2" MIN.
 (D) 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 HEAD & SILL BRACKETS WHEN USED W/O STORM BARS OR TO SECURE SHUTTERS W/ STORM BARS AND SAFETY BOLTS DURING PERIODS OF HURRICANE WARNINGS.

8. OWNER TO BE RESPONSIBLE FOR PROVIDING A SUITABLE PLATFORM OR BALCONY WHEN SECURING UNIT DURING HURRICANE WARNINGS.

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. 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.

10. BERTHA COLONIAL 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.

11. SHUTTER MANUFACTURER'S LABEL SHALL BE LOCATED ON A READILY VISIBLE LOCATION AT SURFACE OF THE COLONIAL FRAME E OR E1 (N) IN ACCORDANCE WITH SECTION 1709.9.2 OF FLORIDA BUILDING CODE. ONE LABEL SHALL BE PLACED FOR EVERY OPENING.

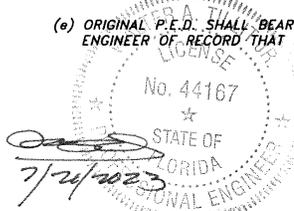
12. (a) THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) PREPARED BY THIS ENGINEER IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT; i. e. WHERE THE SITE CONDITIONS DEVIATE FROM THE P.E.D.

(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.



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)

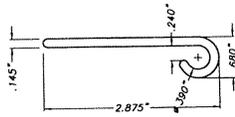
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 6355 N.W. 38th St., Ste. 305, Miramar, Florida 33186
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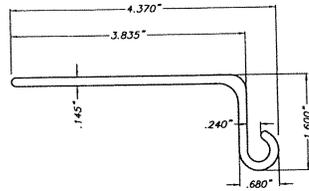
CA-0006719
 WALTER A. TILLIT Jr., P.E.
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ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS OR STORM BARS)		Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC. 4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380		7/21/2023 DATE:
		23-131 DRAWING No
REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23
2		



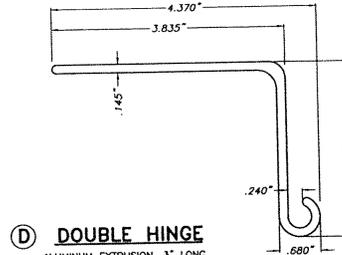
B FLAT HINGE

ALUMINUM EXTRUSION 3" LONG AT
 Ⓞ OR Ⓟ : 1 1/2" LONG ● PANEL JOINTS



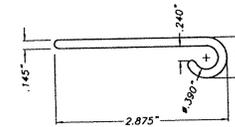
C SINGLE HINGE

ALUMINUM EXTRUSION, 3" LONG



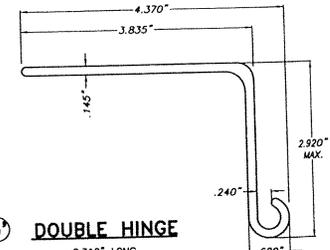
D DOUBLE HINGE

ALUMINUM EXTRUSION, 3" LONG



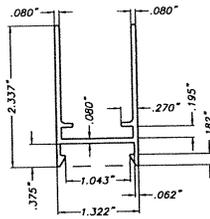
B FLAT HINGE

2.375" LONG
 ALUMINUM EXTRUSION



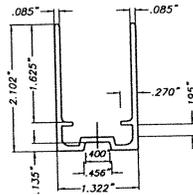
D DOUBLE HINGE

2.312" LONG
 ALUMINUM EXTRUSION



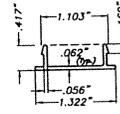
E COLONIAL FRAME

ALUMINUM EXTRUSION



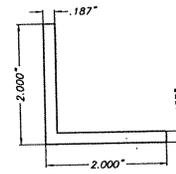
E1 ALTERNATE COLONIAL FRAME

ALUMINUM EXTRUSION



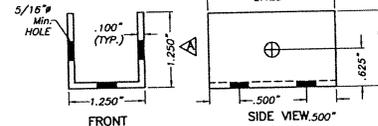
F SNAP CAP

ALUMINUM EXTRUSION



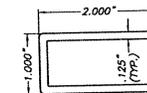
G CORNER KEY

1 1/8" LONG
 ALUMINUM EXTRUSION



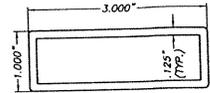
N H.V. STORM BAR CLIP

2 1/8" LONG
 ALUMINUM EXTRUSION



O STORM BAR TYPE 1

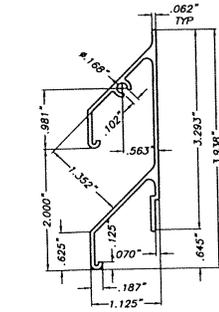
ALUMINUM EXTRUSION



O1 STORM BAR TYPE 2

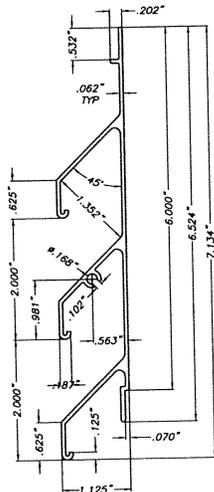
ALUMINUM EXTRUSION

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
O1	NO	YES
O2	NO	YES



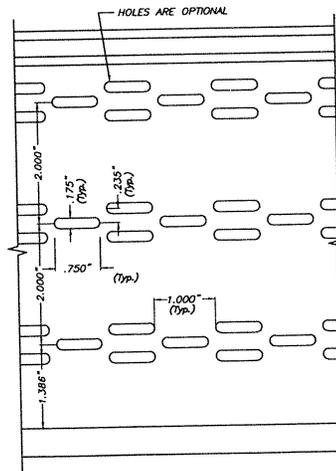
H HALF SHUTTER BLADE

ALUMINUM EXTRUSION



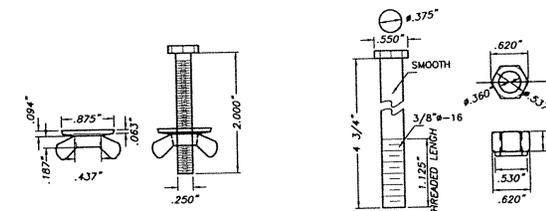
I SHUTTER BLADE

ALUMINUM EXTRUSION



SHUTTER BLADE ELEVATION

ALUMINUM EXTRUSION



Q1 1/4"φ-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



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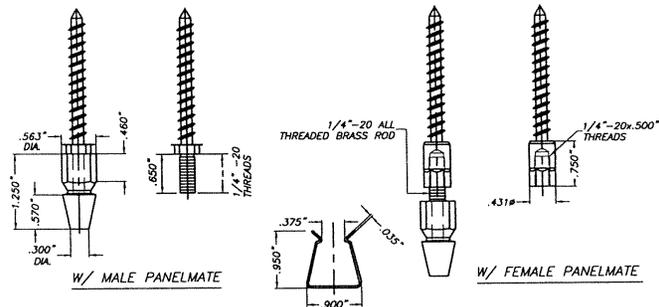
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ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS OR STORM BARS)

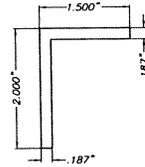
AMERICAN SHUTTER SYSTEMS ASSOC., INC.
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Y.M. DRAWN BY:
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 SHEET 11 OF 33

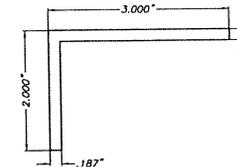
REV. NO	DESCRIPTION	DATE	REV. NO	DESCRIPTION	DATE
1	OLD 20-187	2/21/23	3		
2			4		



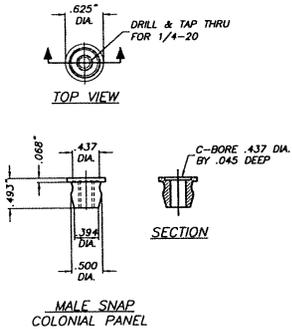
Ⓛ SPRING TEMPERED BRASS "U" CHANNEL (1" LONG)
& 1/4" ELCO TEXTRON MALE OR FEMALE PANELMATE
ANCHOR W/ 360 BRASS THREADED NUT



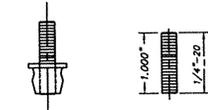
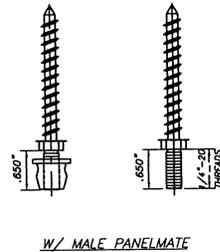
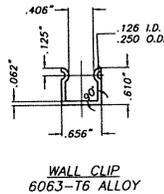
ⓙ WALL MOUNT
Alum. BRACKET
4" LONG
ALUMINUM EXTRUSION



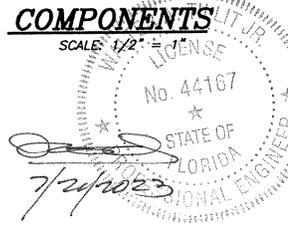
Ⓚ BUILD-OUT
Alum. BRACKET
4" LONG
ALUMINUM EXTRUSION



Ⓜ ALTERNATE ALUMINUM "U" CHANNEL (1" LONG)
& 1/4" ELCO TEXTRON MALE PANELMATE ANCHOR
OR W/ 1/4" Ø-20 S.S. MACHINE ROD



W/ 1/4" Ø-20 S.S. ALL THREADED MACHINE ROD.



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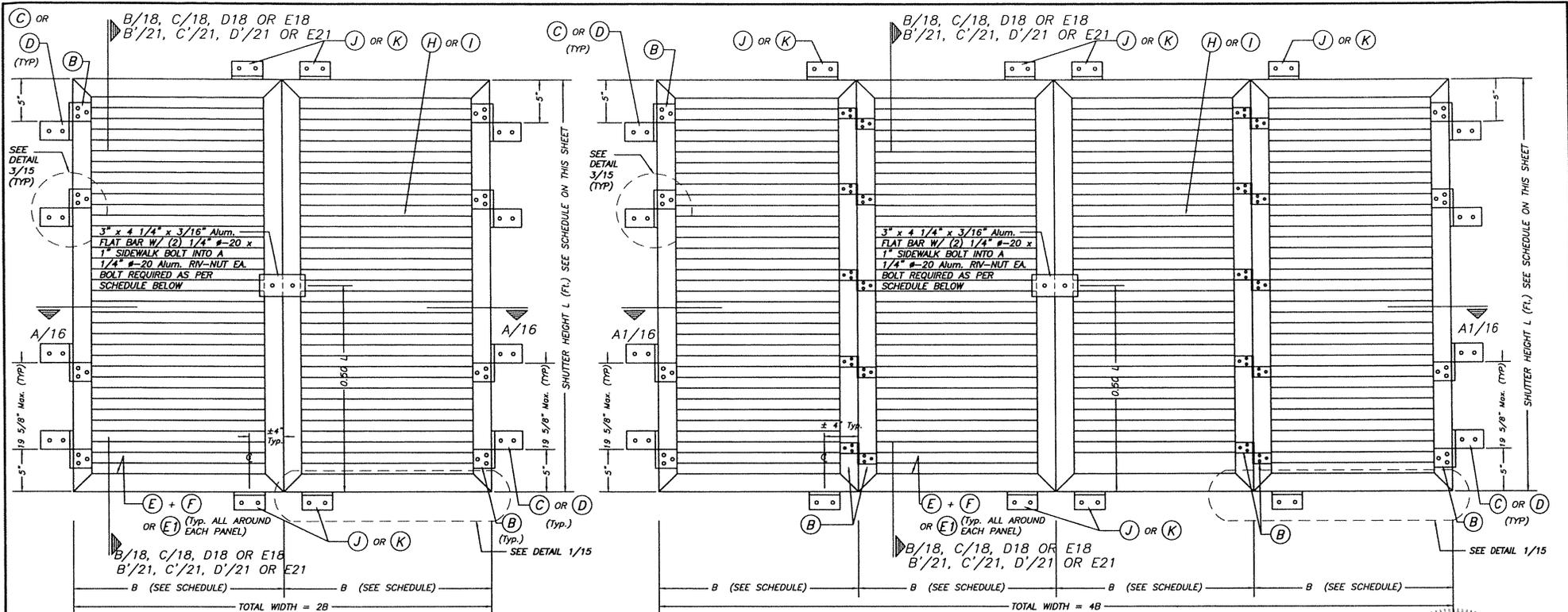
TILTECO INC.

TILLIT TESTING & ENGINEERING COMPANY
 6355 N.W. 36th St., Ste. 305, Miramar Gardens, Florida 33166
 Phone: (202)871-1530 Fax: (202)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)		Y.M. DRAWN BY:
ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)		7/21/2023 DATE:
AMERICAN SHUTTER SYSTEMS ASSOC., INC. 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
1	OLD 20-187	7/21/23
2		



DOUBLE PANEL

ELEVATIONS

QUADRUPLE PANEL

N. T. S.

MINIMUM SEPARATION TO GLASS SCHEDULE FOR PERFORATED OR NOT SHUTTER BLADES

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.) AND CORRESPONDING MAXIMUM PANEL'S WIDTH (B) AND SHUTTER'S HEIGHT (L) SCHEDULE

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



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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e-mail: tilteco@aol.com

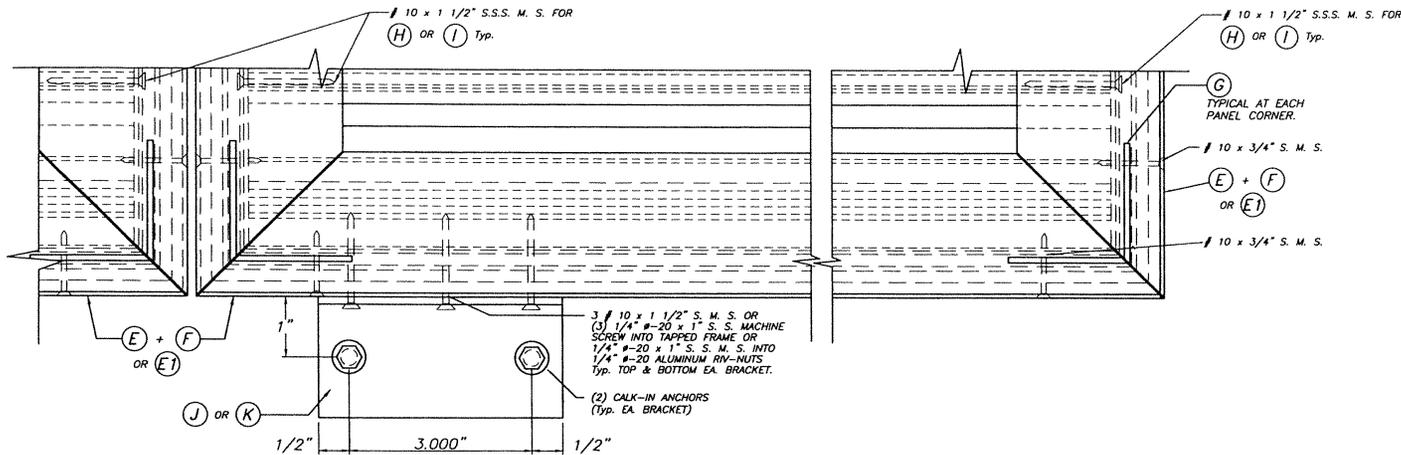
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ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)

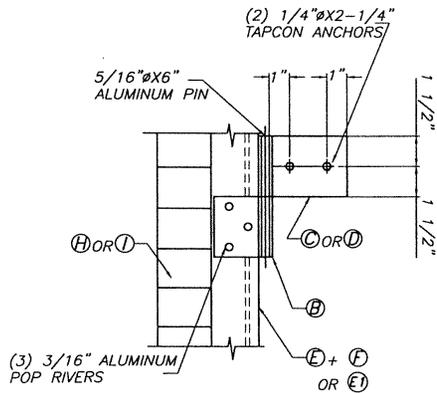
Y.M. DRAWN BY:
7/21/2023 DATE:
23-131 DRAWING No

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

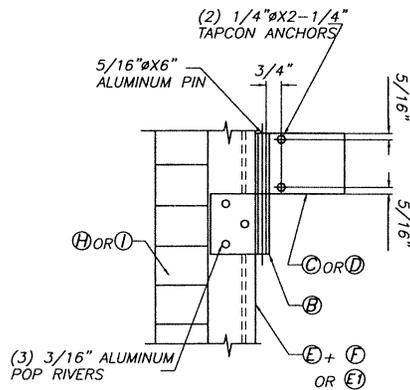
SHEET 13 OF 33



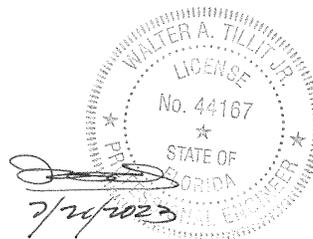
DETAIL 1
SCALE: 1/2" = 1"



DETAIL 3



ALTERNATE DETAIL 3



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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.
 DRAWN BY:

AMERICAN SHUTTER SYSTEMS ASSOC., INC.

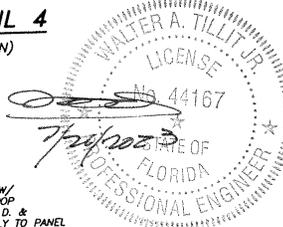
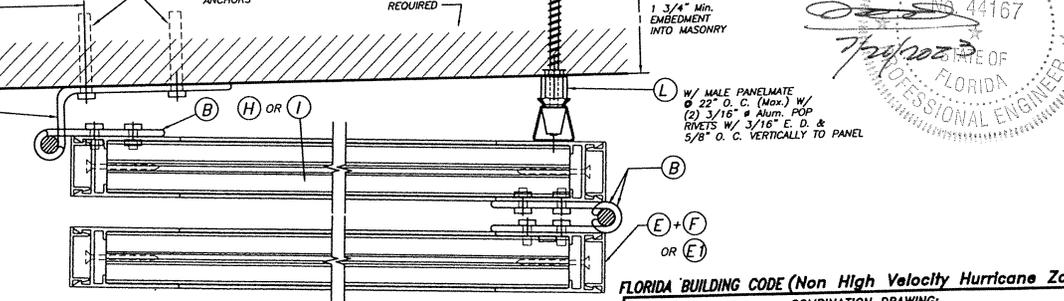
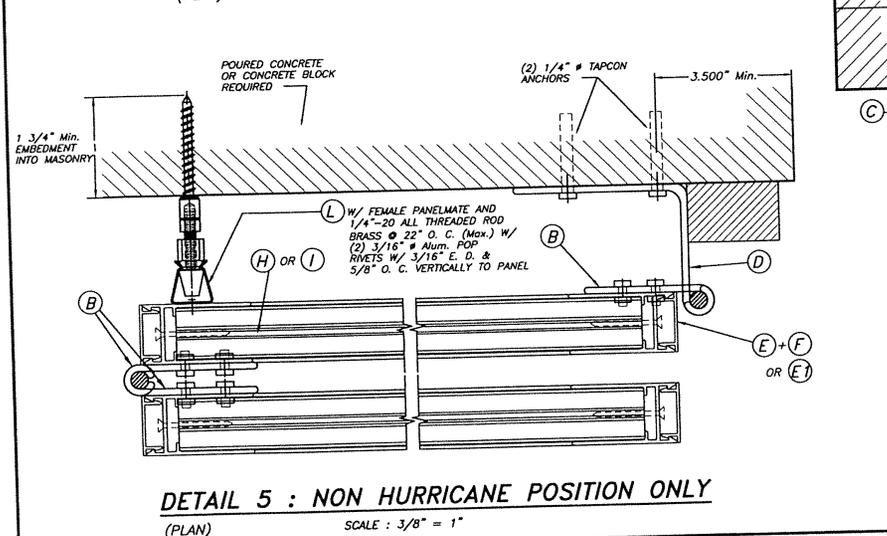
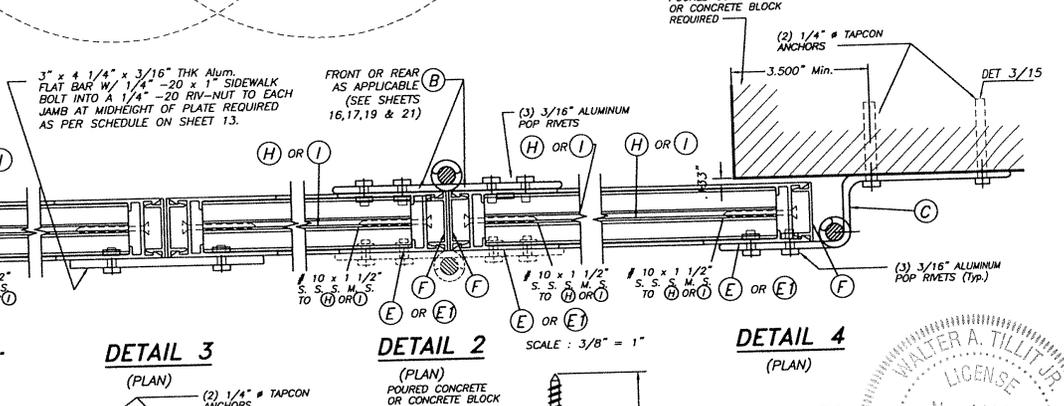
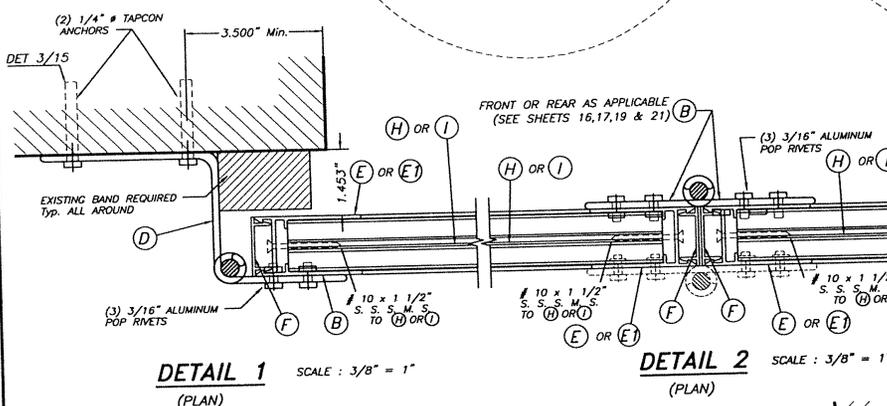
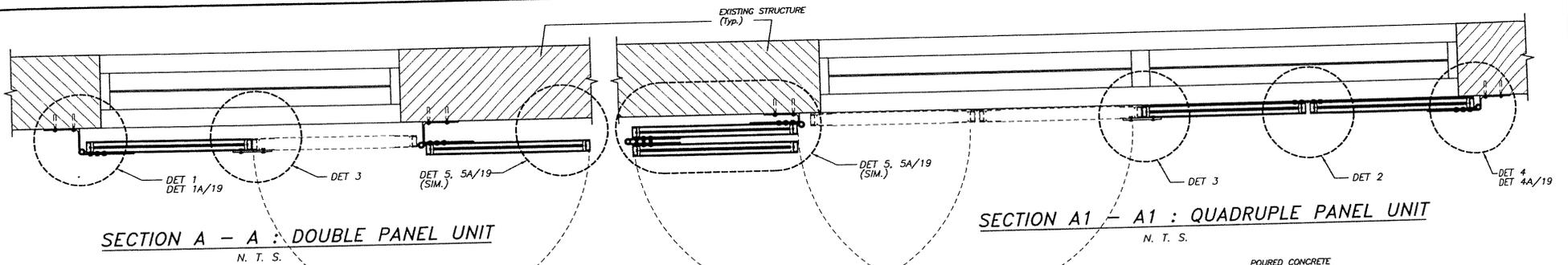
4268 WEST ROADS DRIVE
 WEST PALM BEACH, FL. 33407
 PHONE: (800)432-2204
 FAX: (561)209-8380

7/21/2023
 DATE:

23-131
 DRAWING No

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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)

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

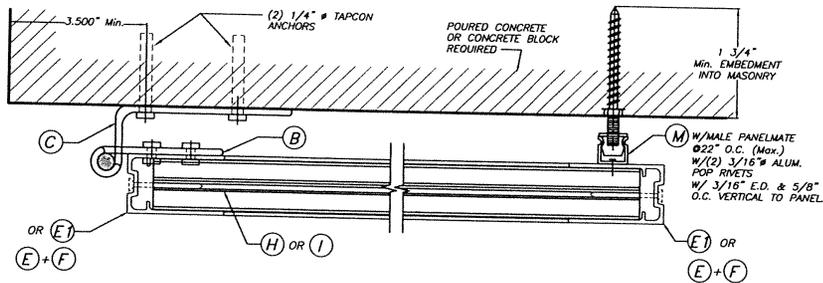
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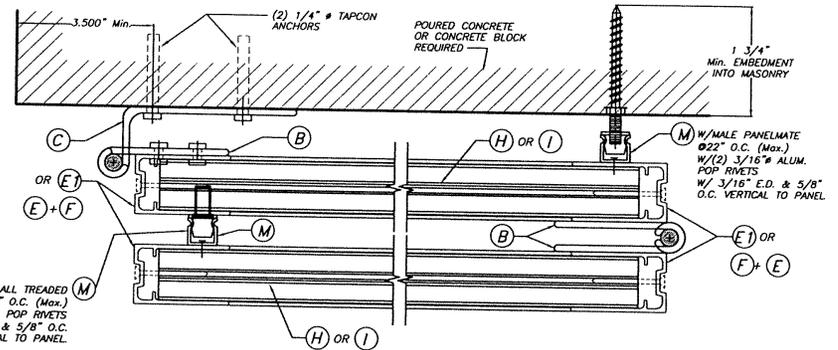
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 6355 N.W. 36th St., Ste. 305, WIRSWAM CHURCH, FLORIDA 33166
 Phone: (305)871-1530 Fax: (305)871-1531
 e-mail: tilteco@tillit.com
 CA-0006719
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 FLORIDA Lic. # 44167

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2			2		

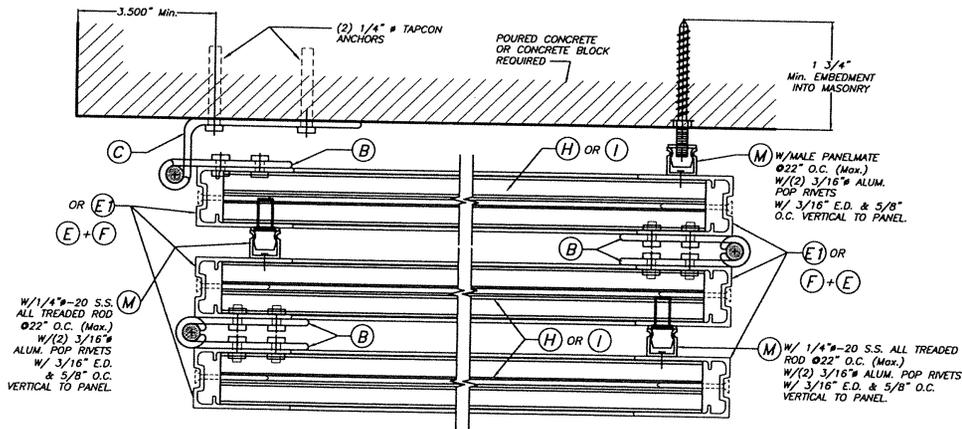
SHEET 16 OF 33



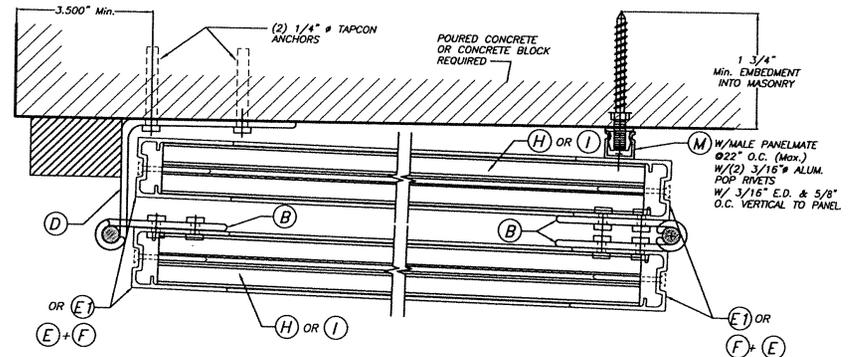
DETAIL 6: NON HURRICANE POSITION ONLY
(PLAN) SCALE: 3/8" = 1"



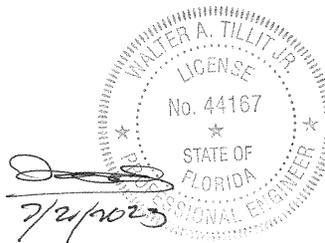
DETAIL 8: NON HURRICANE POSITION ONLY
(PLAN) SCALE: 3/8" = 1"



**DETAIL 7: NON HURRICANE POSITION ONLY
FOR INSTALLATION AT QUADRUPLE PANEL ONLY**
(W/ B (Max.) = 18")
(PLAN) SCALE: 3/8" = 1"



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



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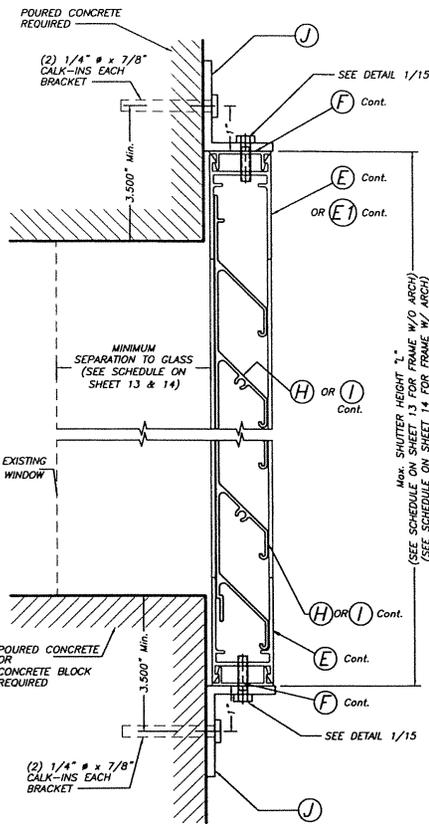
TILTECO INC.

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6355 N.W. 38th St., Ste. 305, Virginia Gardens, Florida 33168
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e-mail: tilteco@aol.com
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FLORIDA Lic. # 44167

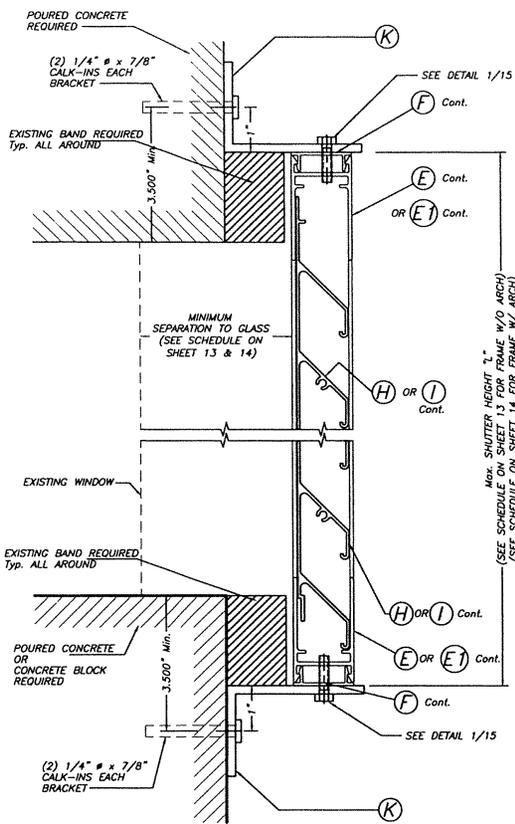
FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

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

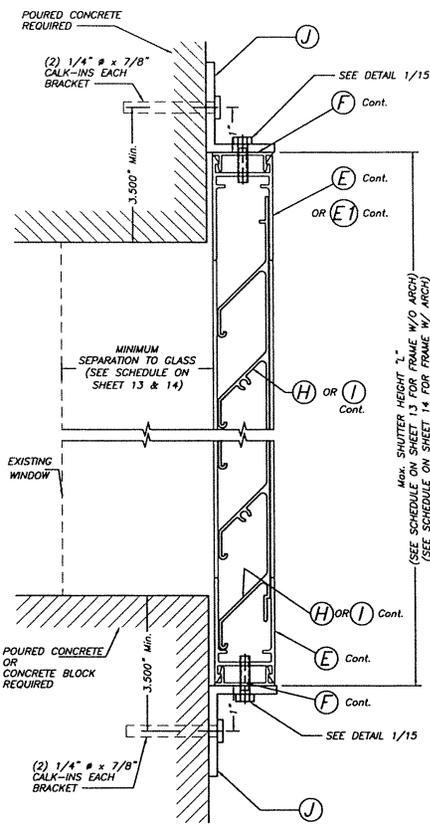
ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)		Y.M.
AMERICAN SHUTTER SYSTEMS ASSOC., INC.		DRAWN BY:
4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380		7/21/2023 DATE:
REV. No		23-131 DRAWING No
1	OLD 20-187	7/21/23
2		
		SHEET 17 OF 33



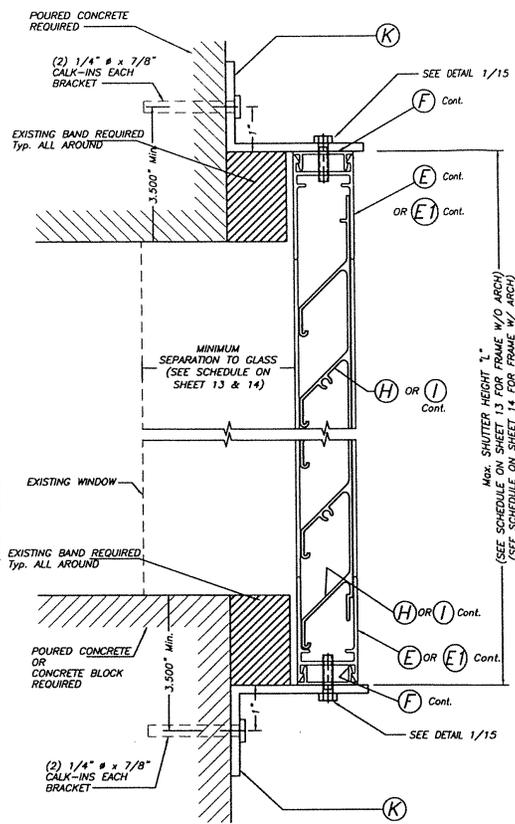
SECTION B - B (FLUSH MOUNT)
HURRICANE POSITION
SCALE: 3/8" = 1"



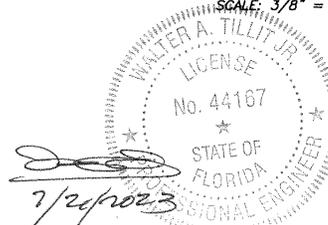
SECTION C - C (BUILD-OUT)
HURRICANE POSITION
SCALE: 3/8" = 1"



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"



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e-mail: tilteco@aol.com

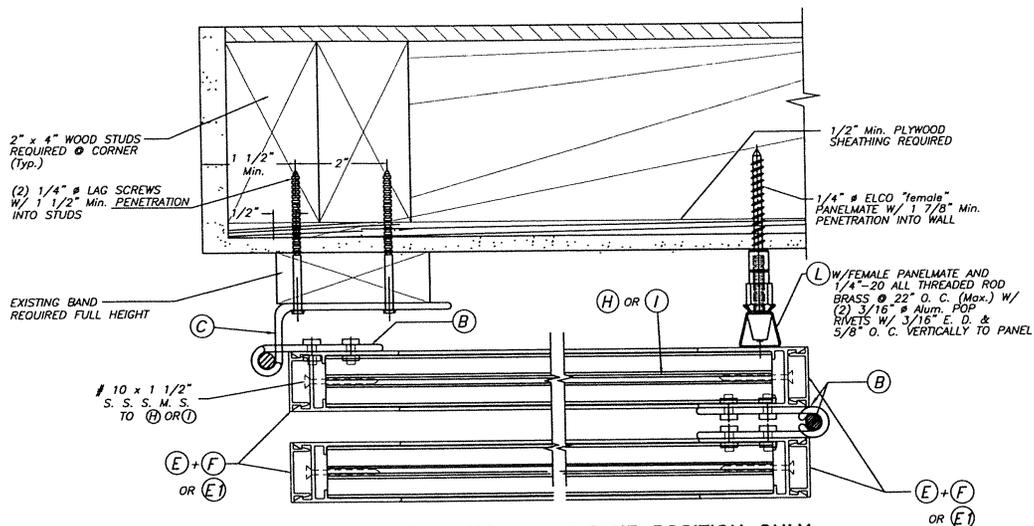
CA-0006719
WALTER A. TILLIT JR., P.E.
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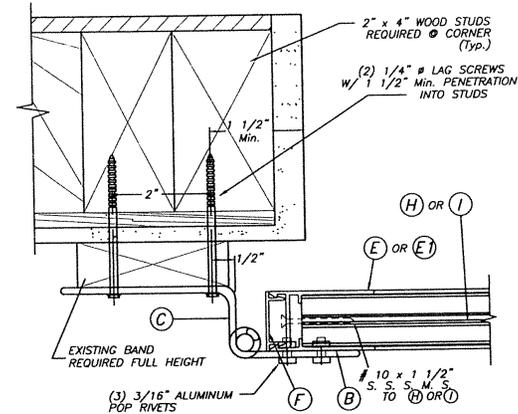
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

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

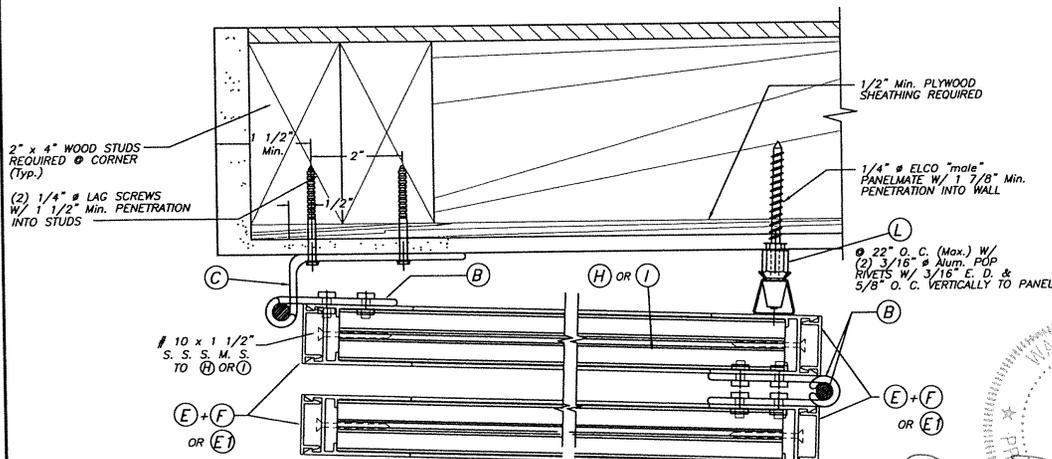
SHEET 18 OF 33



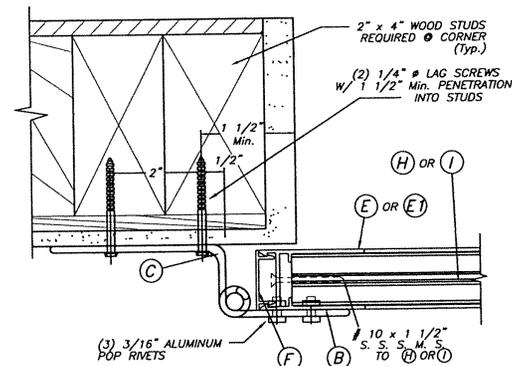
DETAIL 5A : NON HURRICANE POSITION ONLY
(PLAN) SCALE : 1/4" = 1"



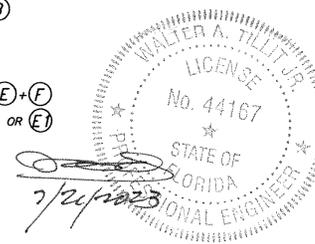
DETAIL 1A SCALE : 1/4" = 1"
(PLAN)



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



DETAIL 4A
(PLAN)



INSTALLATION DETAILS ON EXISTING WOOD FRAME BUILDINGS

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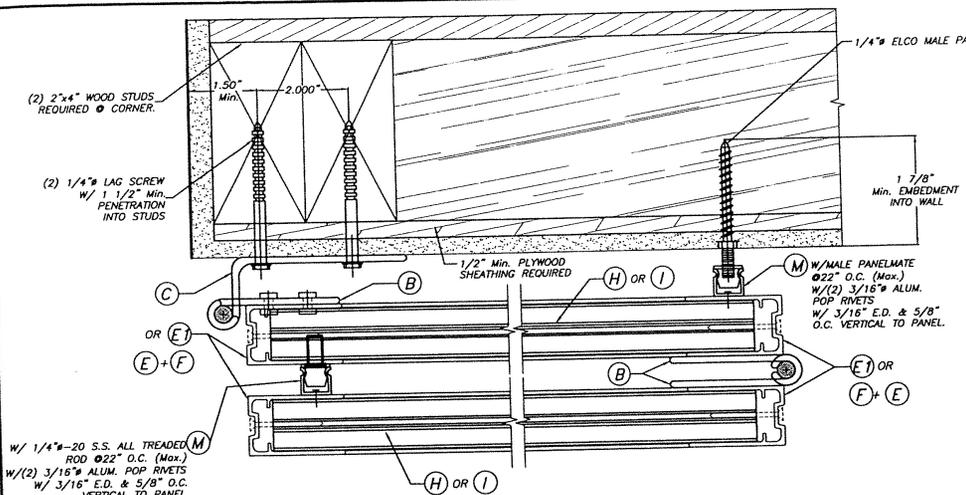
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6355 N.W. 36th St., Ste. 305, VINCENNA GARDENS, FLORIDA 33146
Phone: (305)871-1530 Fax: (305)871-1531
e-mail: tilteco@aol.com
CA-0005719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. # 44167

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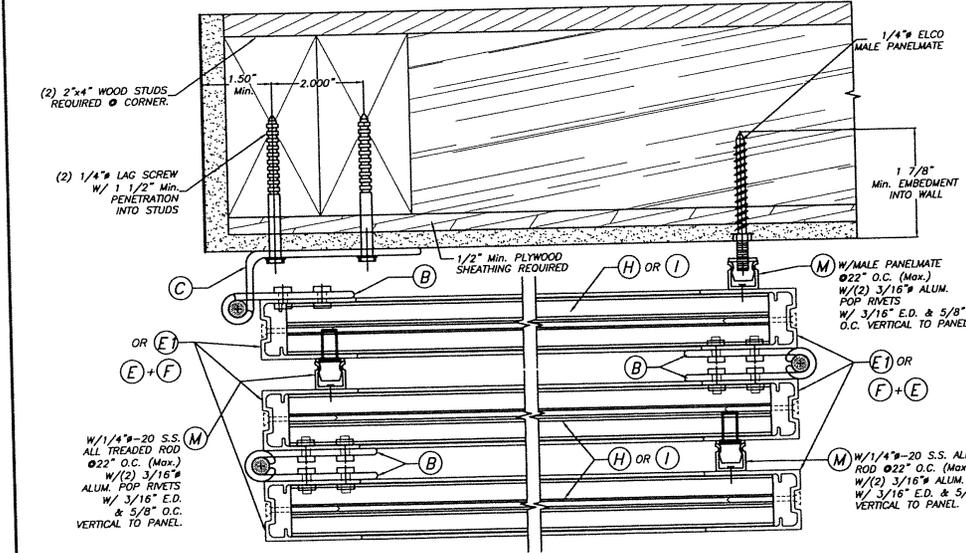
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)		Y.M.			
AMERICAN SHUTTER SYSTEMS ASSOC., INC.		DRAWN BY:			
4268 WEST ROADS DRIVE 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		

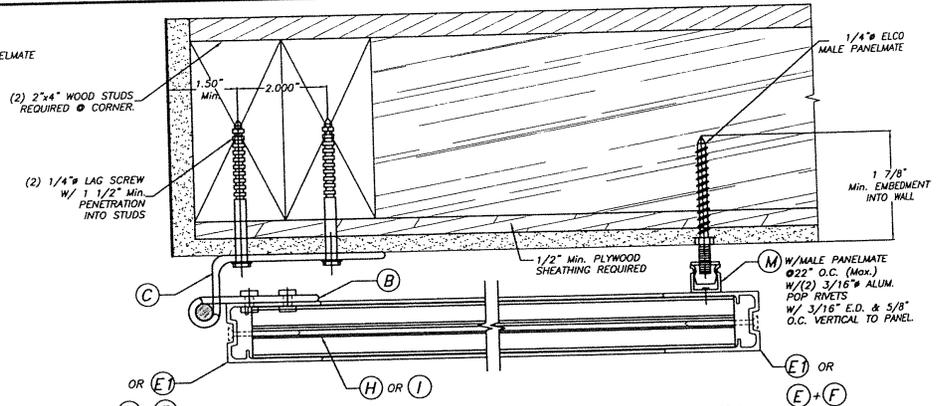
SHEET 19 OF 33



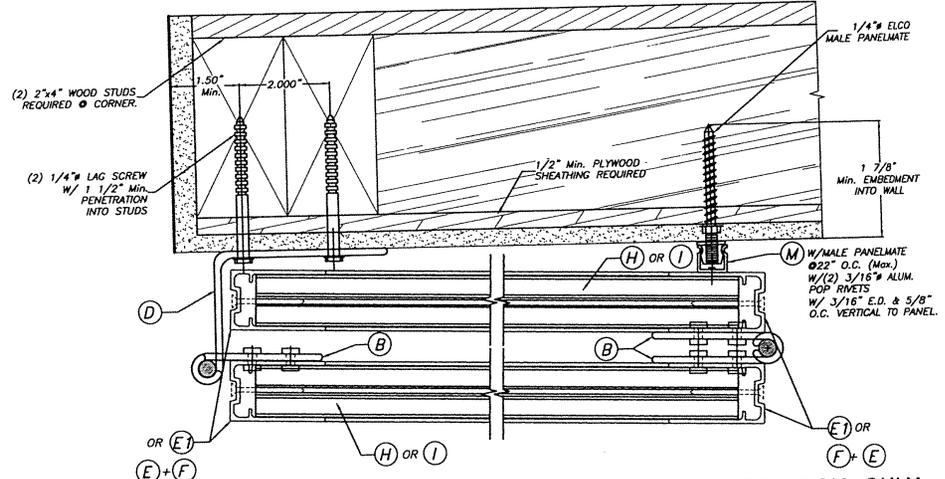
DETAIL 8A: NON HURRICANE POSITION ONLY
(PLAN) SCALE: 3/8" = 1"



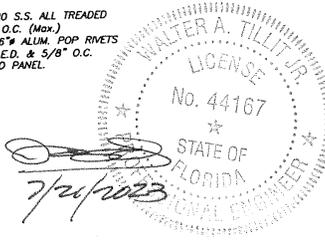
DETAIL 7A: NON HURRICANE POSITION ONLY
(PLAN) SCALE: 3/8" = 1"



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



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



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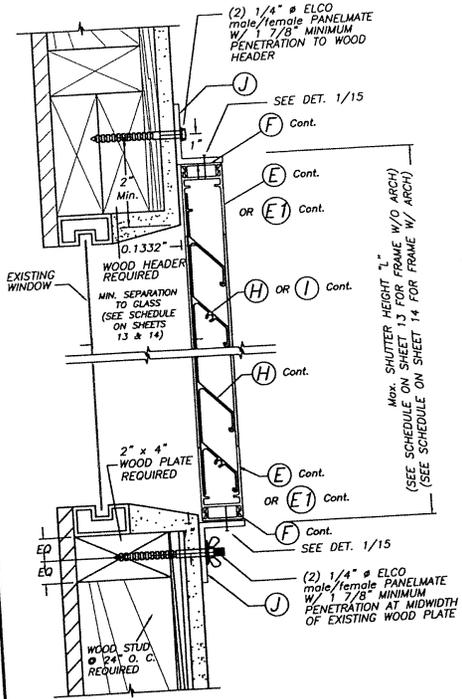
TILECO INC.
TILLIT TESTING & ENGINEERING COMPANY
6355 N.W. 36th St., Ste. 303, Miramar Gardens, Florida 33166
Phone: (305)871-1330 Fax: (305)871-1531
e-mail: tilteco@tillit.com
CA-0006719
WALTER A. TILLIT JR., P.E.
FLORIDA LIC. # 44167

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)

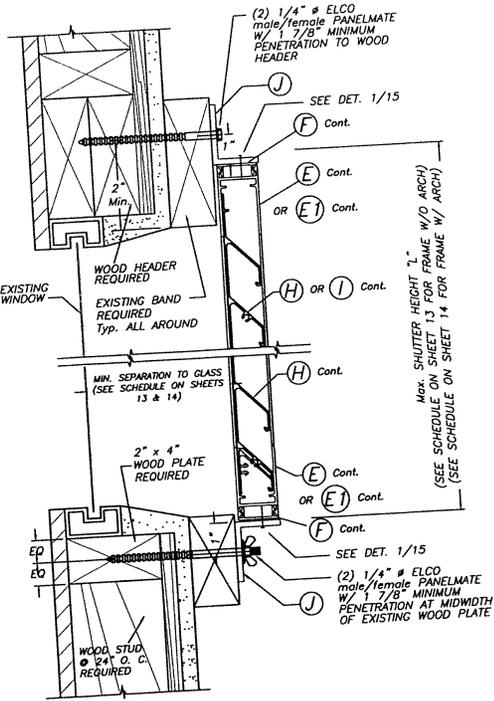
ASSA / BERTHA COLONIAL SHUTTER (WITH CLIPS)
Y.M. DRAWN BY:
7/21/2023 DATE:
23-131 DRAWING No
SHEET 20 OF 33

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

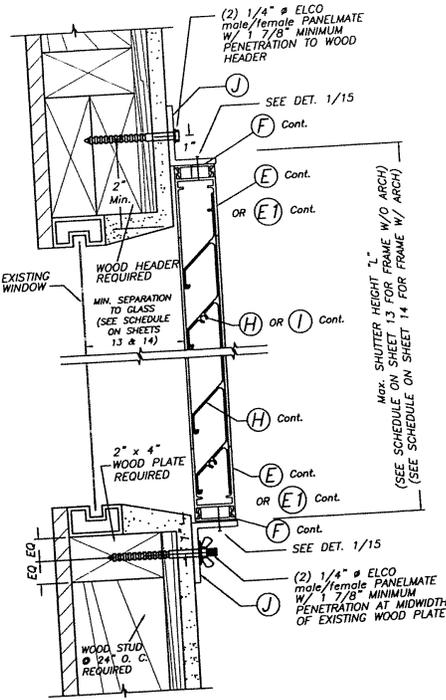
REV. NO	DESCRIPTION	DATE	REV. NO	DESCRIPTION	DATE
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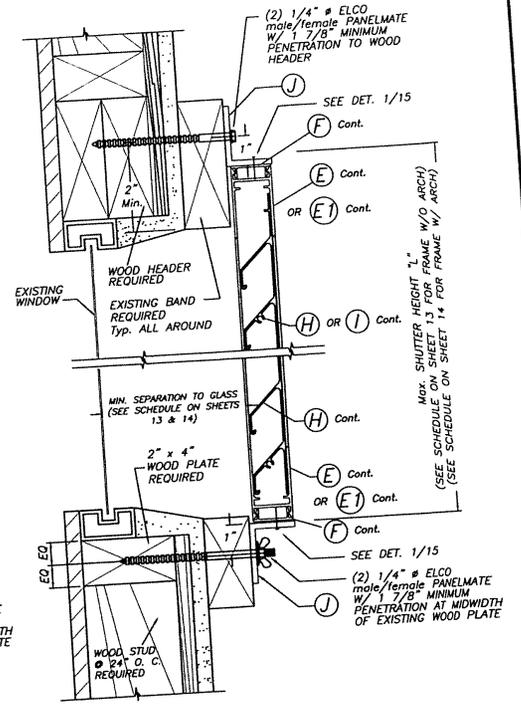
SECTION B' - B' (FLUSH MOUNT)
HURRICANE POSITION
SCALE: 1/4" = 1"



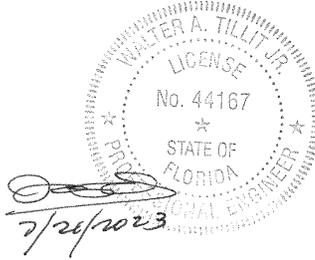
SECTION C' - C' (BUILD-OUT MOUNT)
HURRICANE POSITION
SCALE: 1/4" = 1"



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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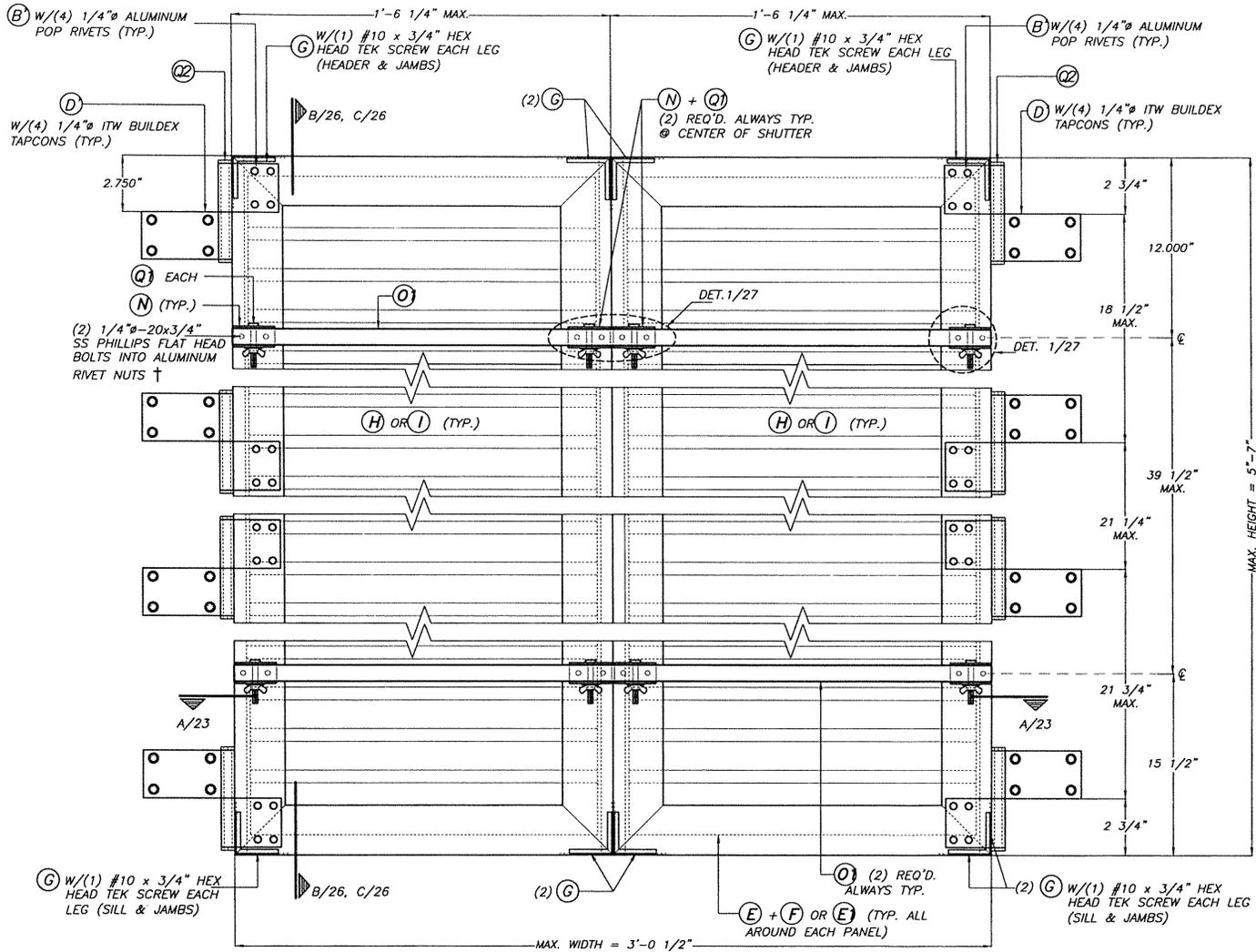
TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
6355 N.W. 36th St., Ste. 306, WOODBRIDGE GARDENS, FLORIDA 33166
Phone: (800)871-1330, Fax: (202)871-1537
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CA-0006719
WALTER A. TILLIT JR., P.E.
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PHONE: (800)432-2204
FAX: (561)209-8380

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

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

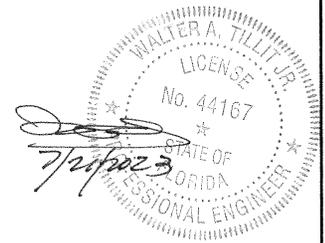


**TYPICAL EXTERIOR ELEV. DOUBLE PANEL
(HURRICANE POSITION)**

SCALE: 3/16"=1"

†: 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.



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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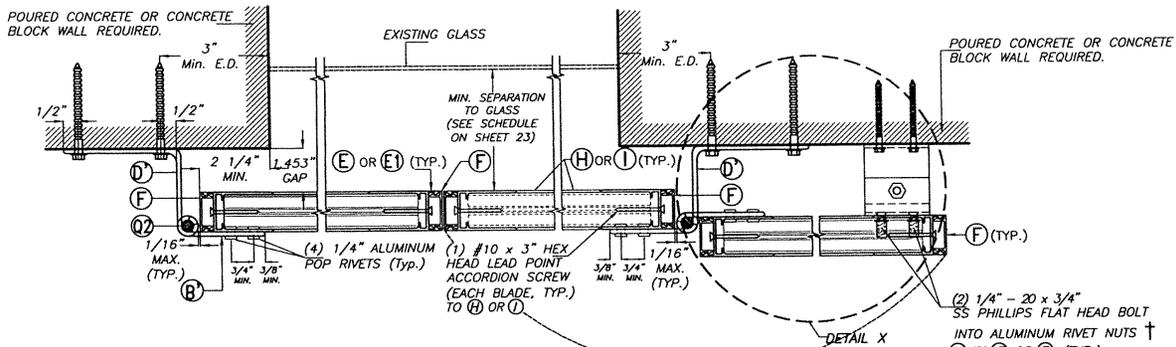
TILTECO INC.

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6300 N.W. 30th St., Ste. 305, Miramar Gardens, Florida 33166
Phone: (305)871-1530, Fax: (305)871-1531
e-mail: tilliteco@tilliteco.com
CA-0006719

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

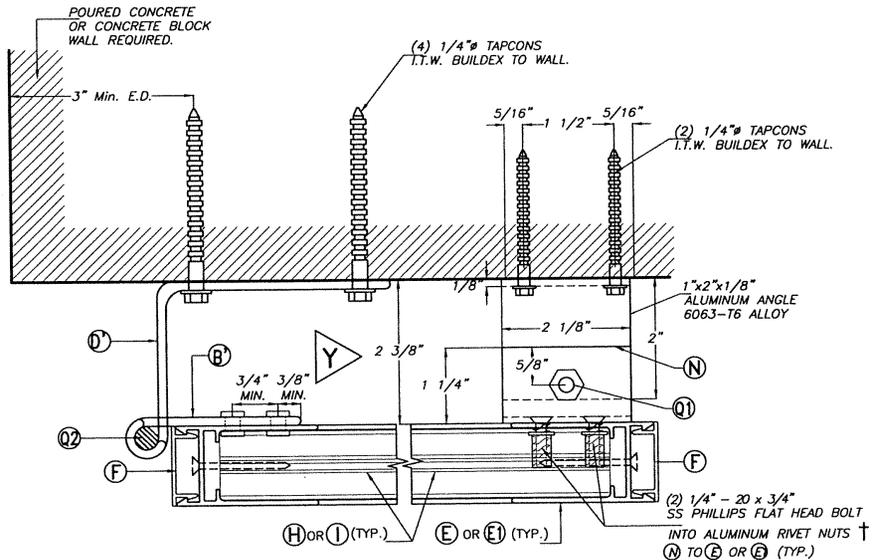
ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)		Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC. 4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380		7/21/2023 DATE:
23-131		DRAWING No
REV. No	DESCRIPTION	DATE
1	OLD 20-187	2/21/23
2		

SHEET 22 OF 33



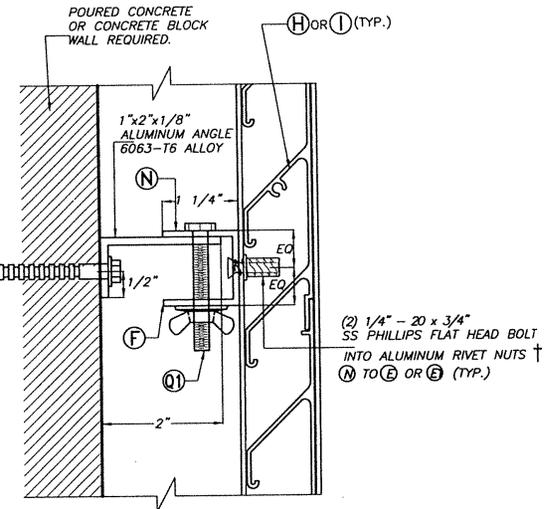
TYPICAL PLAN (NON HURRICANE POSITION)

SCALE 1/4"=1"



DETAIL X (NON HURRICANE POSITION)

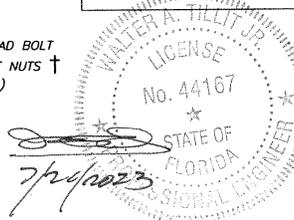
SCALE 1/8"=1"



ELEVATION Y-Y

SCALE 1/8"=1"

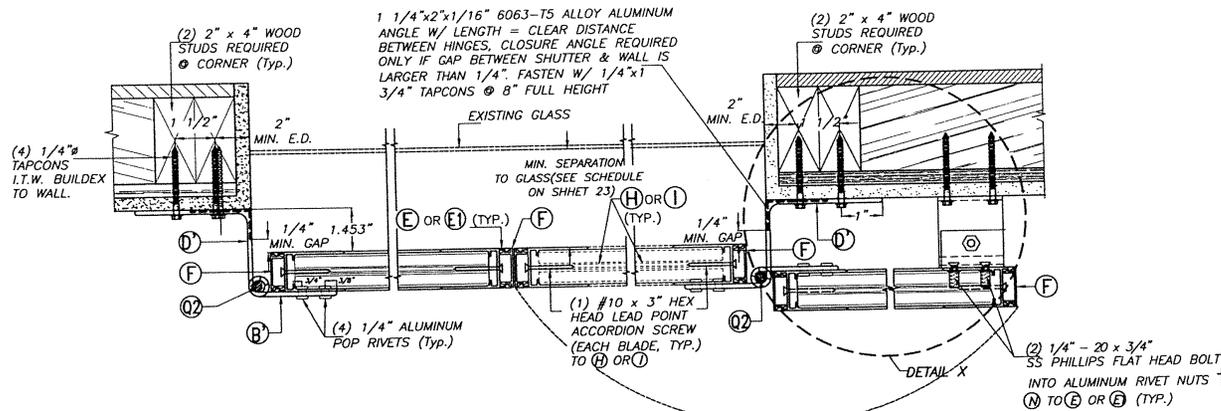
†: 1/4"Ø-20x3/4", AS DISTRIBUTED BY ALL POINT SCREW, BOLT AND SPECIALITY CO. (PART # 25CRFNA)



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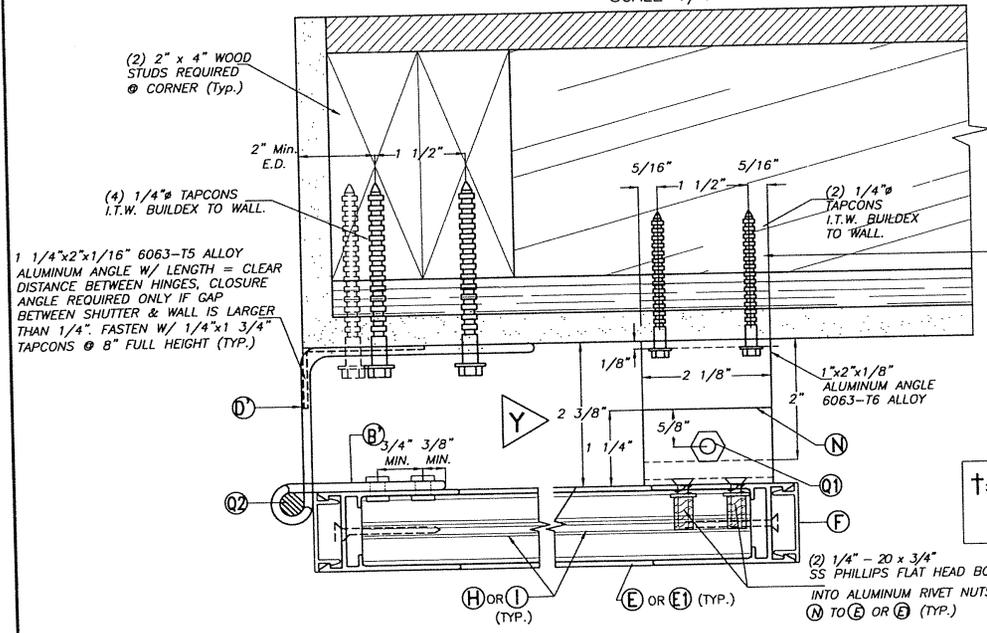
FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

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 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		
2			4		



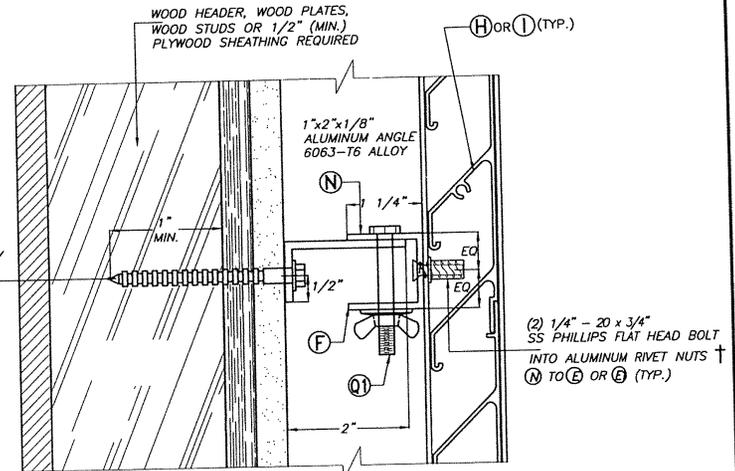
TYPICAL PLAN (NON HURRICANE POSITION)

SCALE 1/4"=1"



DETAIL X (NON HURRICANE POSITION)

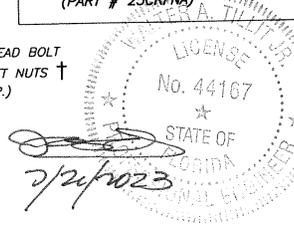
SCALE 1/8"=1"



ELEVATION Y-Y

SCALE 1/8"=1"

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



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e-mail: tilteco@aol.com

CA-0006719

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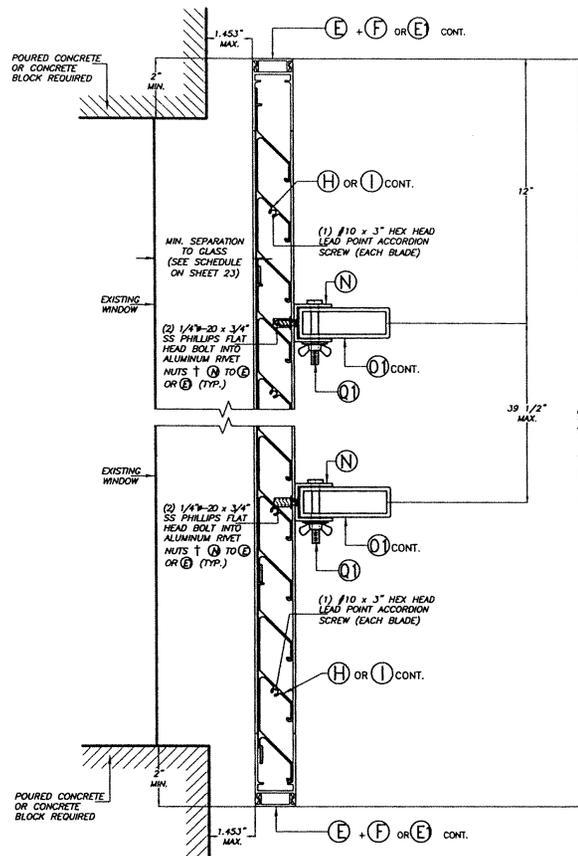
FLORIDA Lic. # 44167

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 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
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2			4		

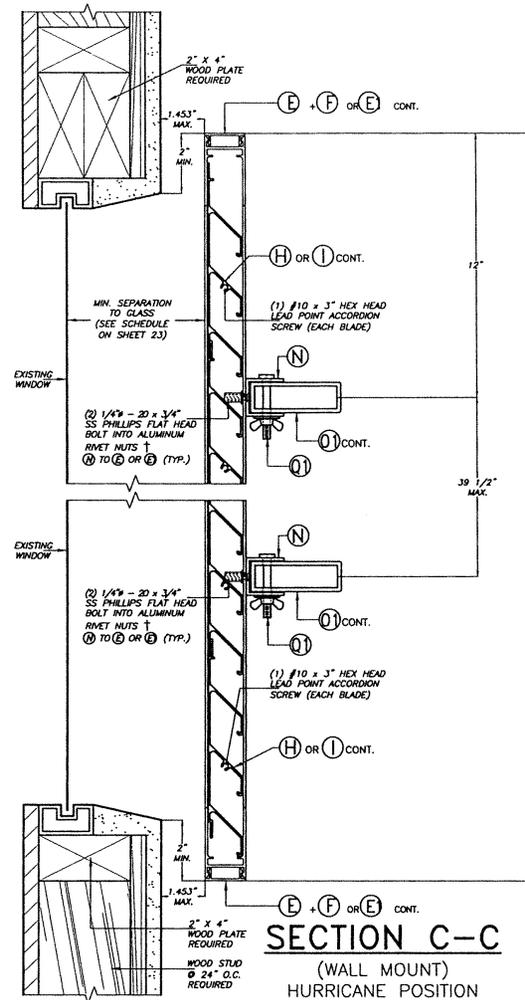
SHEET 25 OF 33



SECTION B-B

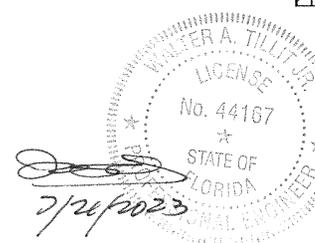
(WALL MOUNT)
HURRICANE POSITION
SCALE 1/4"=1"

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



SECTION C-C

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



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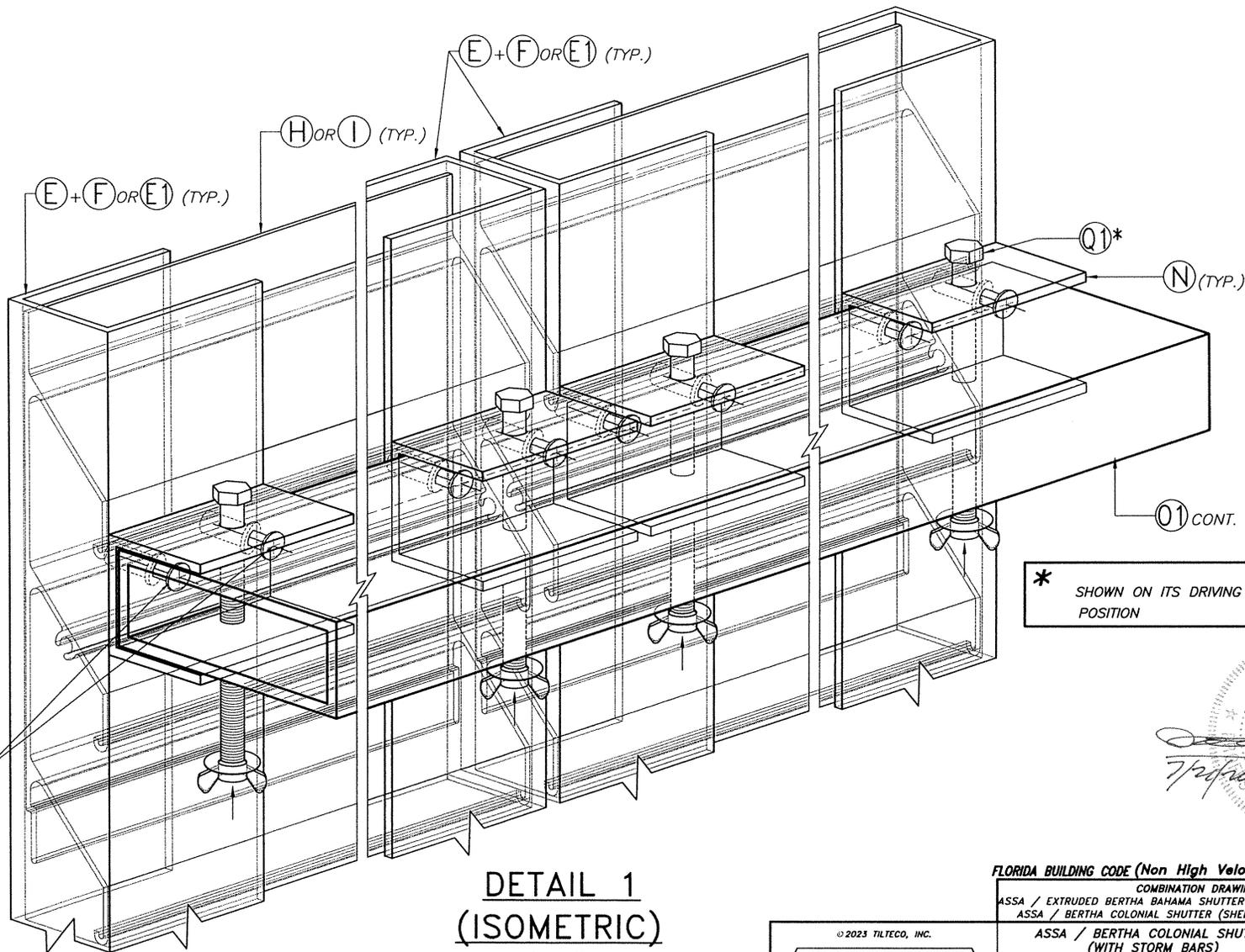
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e-mail: tilliteco@aol.com
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WALTER A. TILLIT JR., P.E.
FLORIDA Lic. # 44167

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 / 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
1	OLD 20-167	7/21/23	3
2			4



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

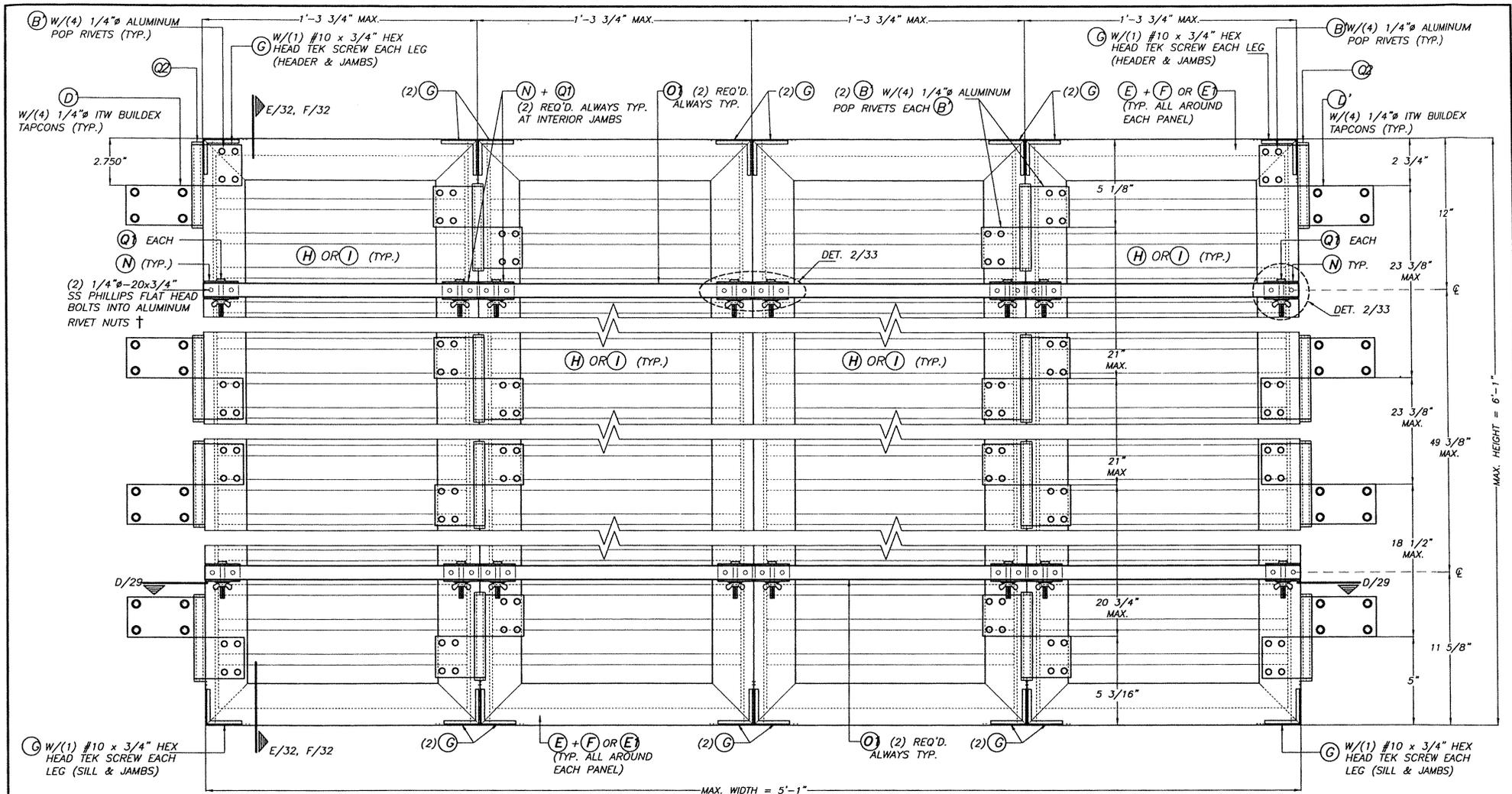
ASSA / BERTHA COLONIAL SHUTTER
(WITH STORM BARS)

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:
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 27 OF 33

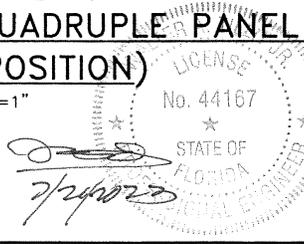


**TYPICAL EXTERIOR ELEV. QUADRUPLE PANEL FOR
(HURRICANE POSITION)**

SCALE: 3/16"=1"

†: 1/4"Ø-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.



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CA-0006719

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FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

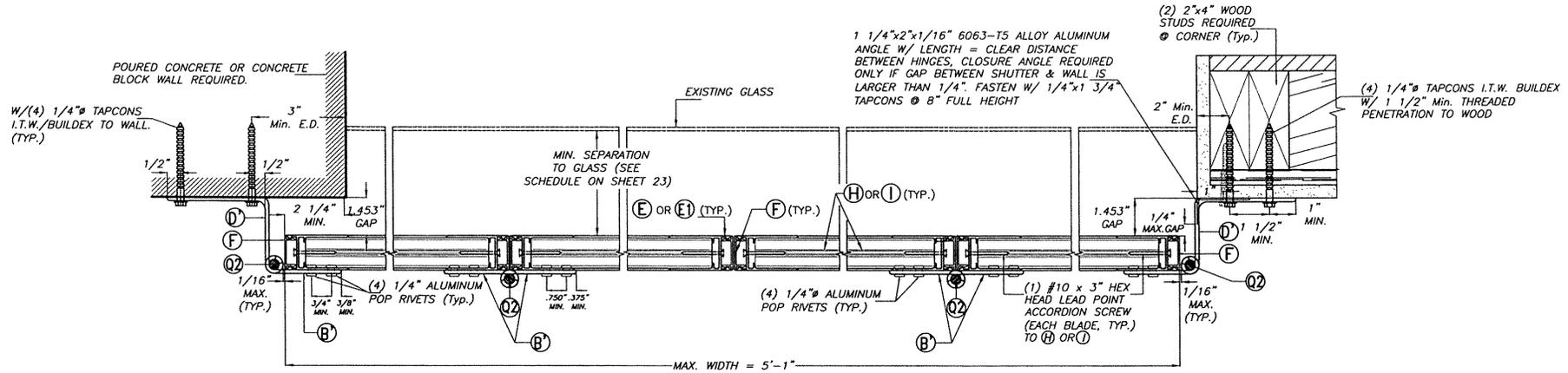
COMBINATION DRAWING:
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

**ASSA / BERTHA COLONIAL SHUTTER
(WITH STORM BARS)**

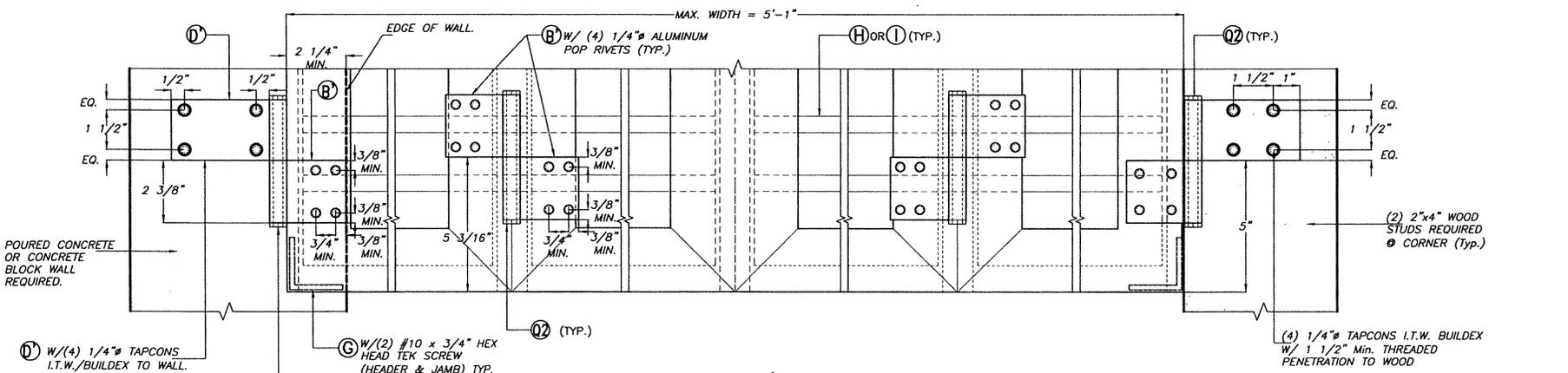
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4268 WEST ROADS DRIVE
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PHONE: (800)432-2204
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Y.M.
DRAWN BY:
7/21/2023
DATE:
23-131
DRAWING No
SHEET 28 OF 33

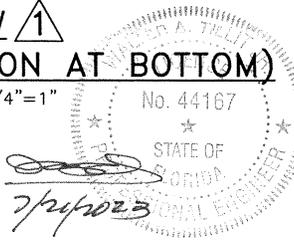
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-187	7/21/23	3		
2			4		



1
SECTION D-D
SCALE 1/4"=1"



VIEW 1
(PARTIAL ELEVATION AT BOTTOM)
SCALE 1/4"=1"



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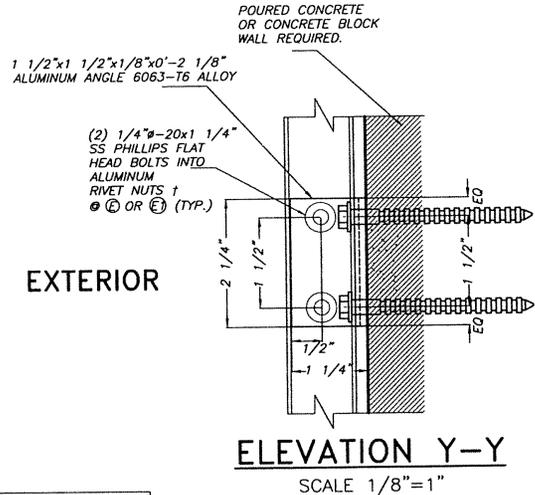
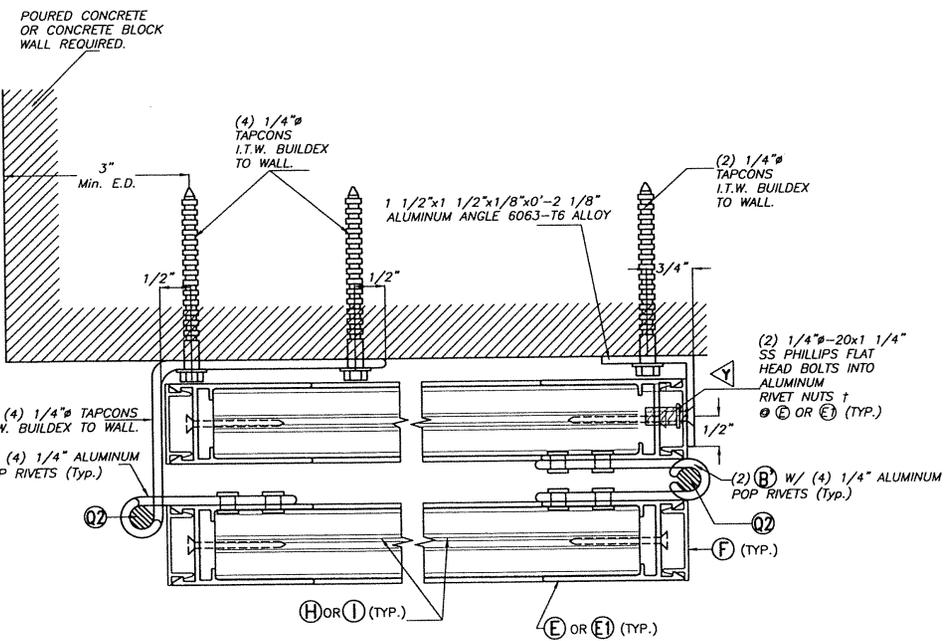
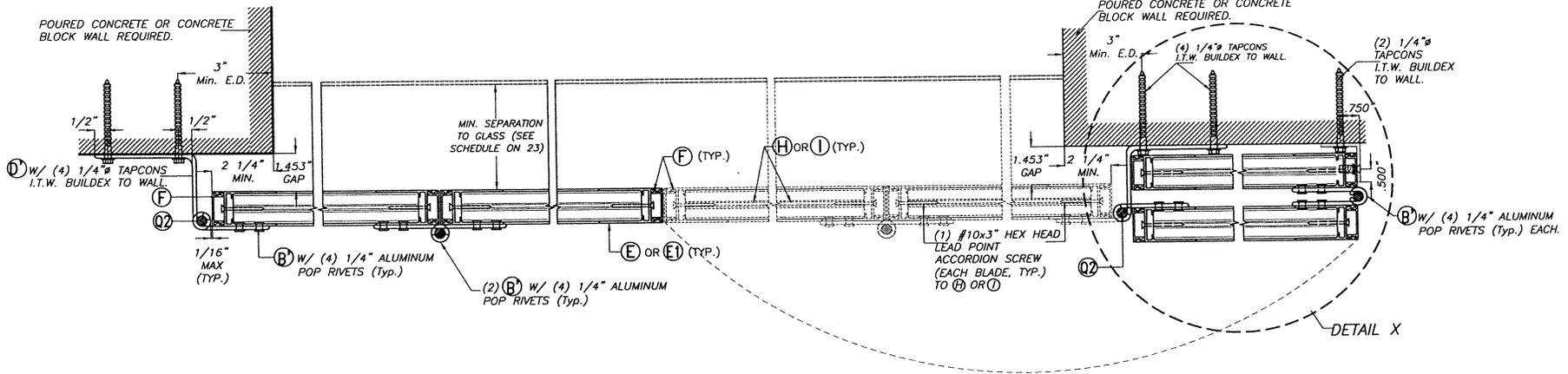
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Phone: (202)971-1530, Fax: (202)971-1531
e-mail: tilteco@aol.com
CA-0006719
WALTER A. TILLET, JR., P.E.
FLORIDA Lic. # 44167

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)

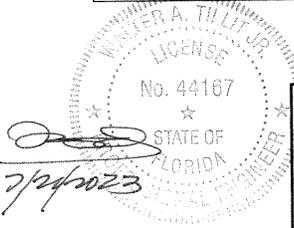
ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)		Y.M. DRAWN BY:			
AMERICAN SHUTTER SYSTEMS ASSOC., INC.		7/21/2023 DATE:			
4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380		23-131 DRAWING No			
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23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

SHEET 29 OF 33



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

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



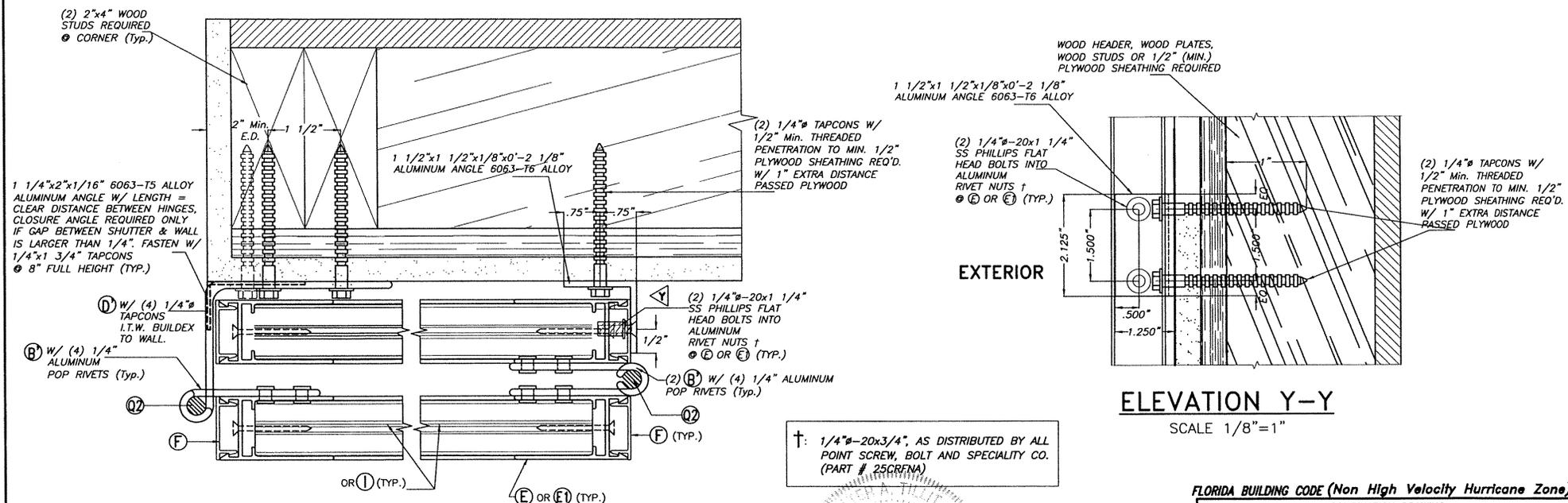
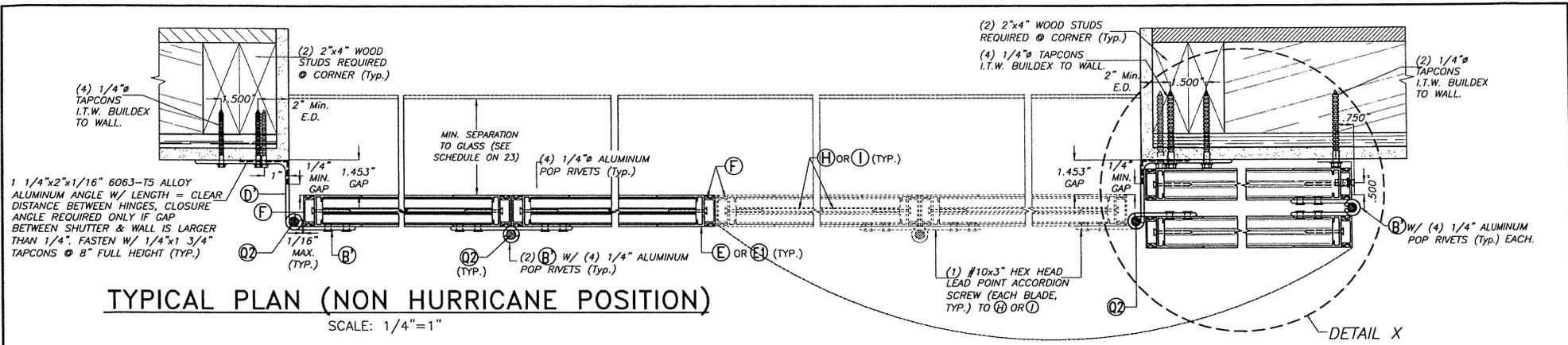
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 e-mail: tilteco@aol.com
 CA-006719
 WALTER A. TILLIT JR., P.E.
 FLORIDA Lic. # 44167

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)

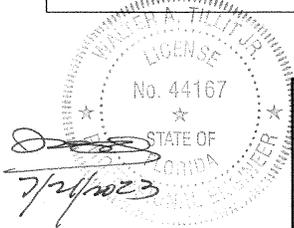
ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)	Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC.	7/21/2023 DATE:
4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380	23-131 DRAWING No

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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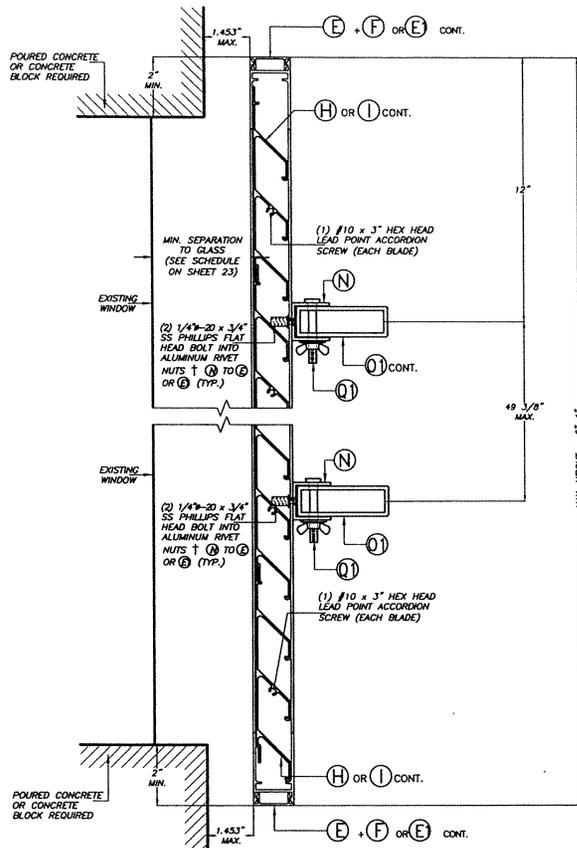
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FLORIDA Lic. # 44167

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 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
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2		

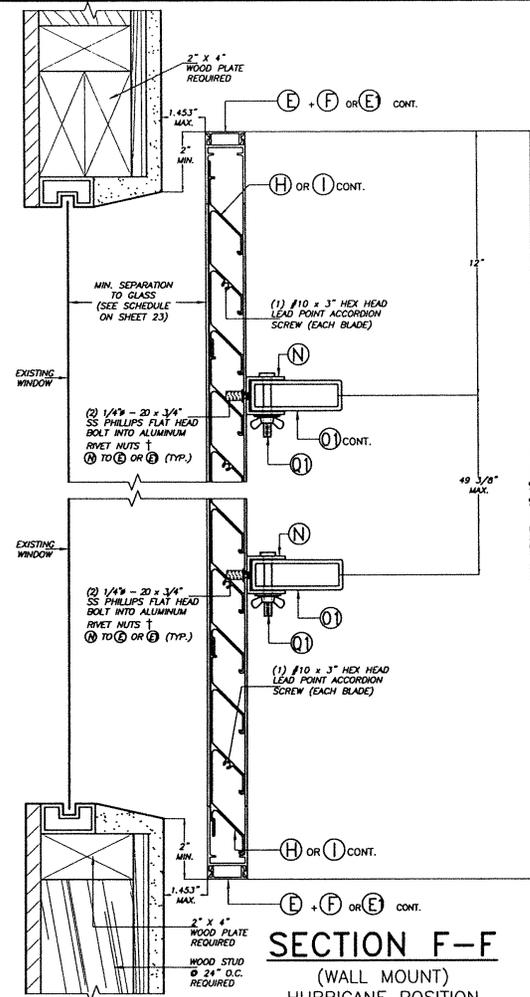
SHEET 31 OF 33



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)



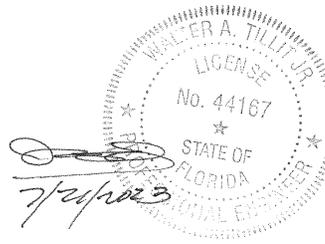
SECTION F-F

(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)

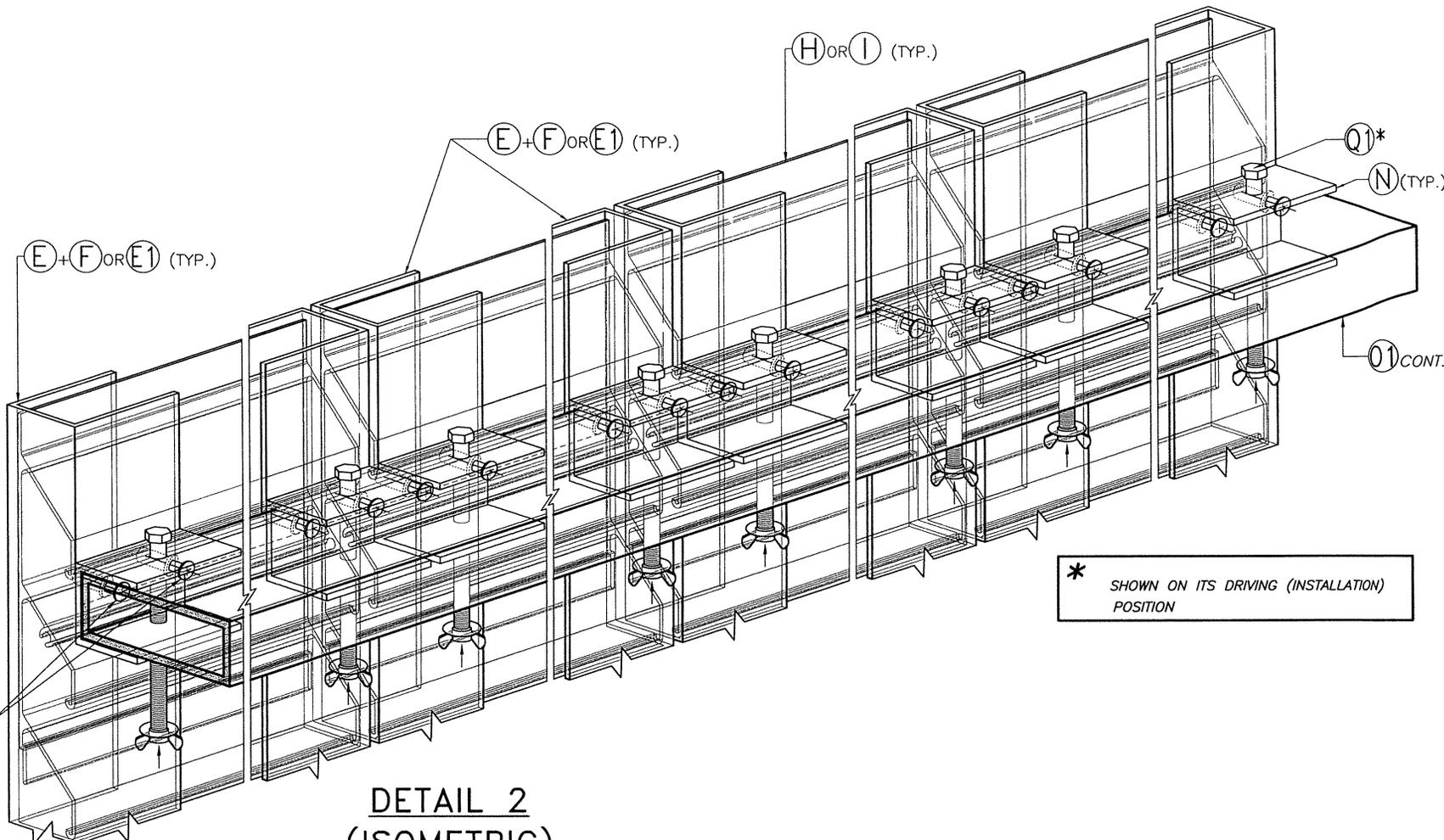
ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)		Y.M. DRAWN BY:
AMERICAN SHUTTER SYSTEMS ASSOC., INC.		7/21/2023 DATE:
4268 WEST ROADS DRIVE WEST PALM BEACH, FL 33407 PHONE: (800)432-2204 FAX: (561)209-8380		23-131 DRAWING No
REV. No	DESCRIPTION	DATE
1	OLD 20-167	7/21/23
2		



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



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

* SHOWN ON ITS DRIVING (INSTALLATION)
POSITION

DETAIL 2
(ISOMETRIC)
N.T.S

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



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e-mail: tilteco@aol.com
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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 / 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:
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		