

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.

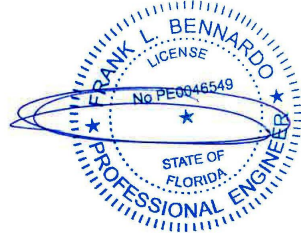
BERTHA HV ESSENTIAL ACCORDION SHUTTER
HV BLADE 1, HV WINDOW BLADE 1A & HV BLADE 2
LARGE MISSILE IMPACT RESISTANT (MISSILE LEVEL D)

VALID FOR USE INSIDE AND OUTSIDE THE HVHZ (SEE LIMITATIONS HEREIN) (SEE LIMITATIONS HEREIN)

NON-SITE-SPECIFIC STRUCTURAL PERFORMANCE EVALUATION. A DESIGN PROFESSIONAL SHALL BE RESPONSIBLE FOR CERTIFYING THE APPLICATION OF THIS INFORMATION TO ANY SITE-SPECIFIC LOCATION.

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

OCTOBER 9, 2023



Digitally signed by
Frank Bennardo
Date: 2023.10.13
14:54:31 -04'00'

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TERMINOLOGY:

THE FOLLOWING ABBREVIATIONS APPEAR IN THIS APPROVAL:
"ER" FOR "END RETENTION", "NER" FOR "NON-END RETENTION", "INC." FOR "INCORPORATION", "CORP." FOR "CORPORATION", "ALUM" FOR "ALUMINUM", "ASD" FOR "ALLOWABLE STRESS DESIGN", "ASTM" FOR "AMERICAN SOCIETY FOR TESTING AND MATERIALS", "CS" FOR "CARBON STEEL", "CONN" FOR "CONNECTION", "EMBED" FOR "EMBEDMENT", "DIST." FOR "DISTANCE", "GA" FOR "GAUGE", "HVHZ" FOR "HIGH-VELOCITY HURRICANE ZONE", "LB" FOR "POUND", "MAX" FOR "MAXIMUM", "N.T.S." FOR "NOT TO SCALE", "PSF" FOR "POUNDS PER SQUARE FOOT (lb/r²)", "SPECS" FOR "SPECIFICATIONS", "&" FOR "AND", "MAX" FOR "MAXIMUM", "W/" FOR "WITH", "EXIST" FOR "EXISTING", "STRUCT" FOR "STRUCTURE", "CONC." FOR "CONCRETE". CONTACT ENGINEERING EXPRESS FOR ADDITIONAL ABBREVIATION/TERMINOLOGY CLARIFICATIONS.

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FOR SITE-SPECIFIC DEVIATIONS
& MORE INFORMATION ABOUT THIS DOCUMENT
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(800) 432-2204

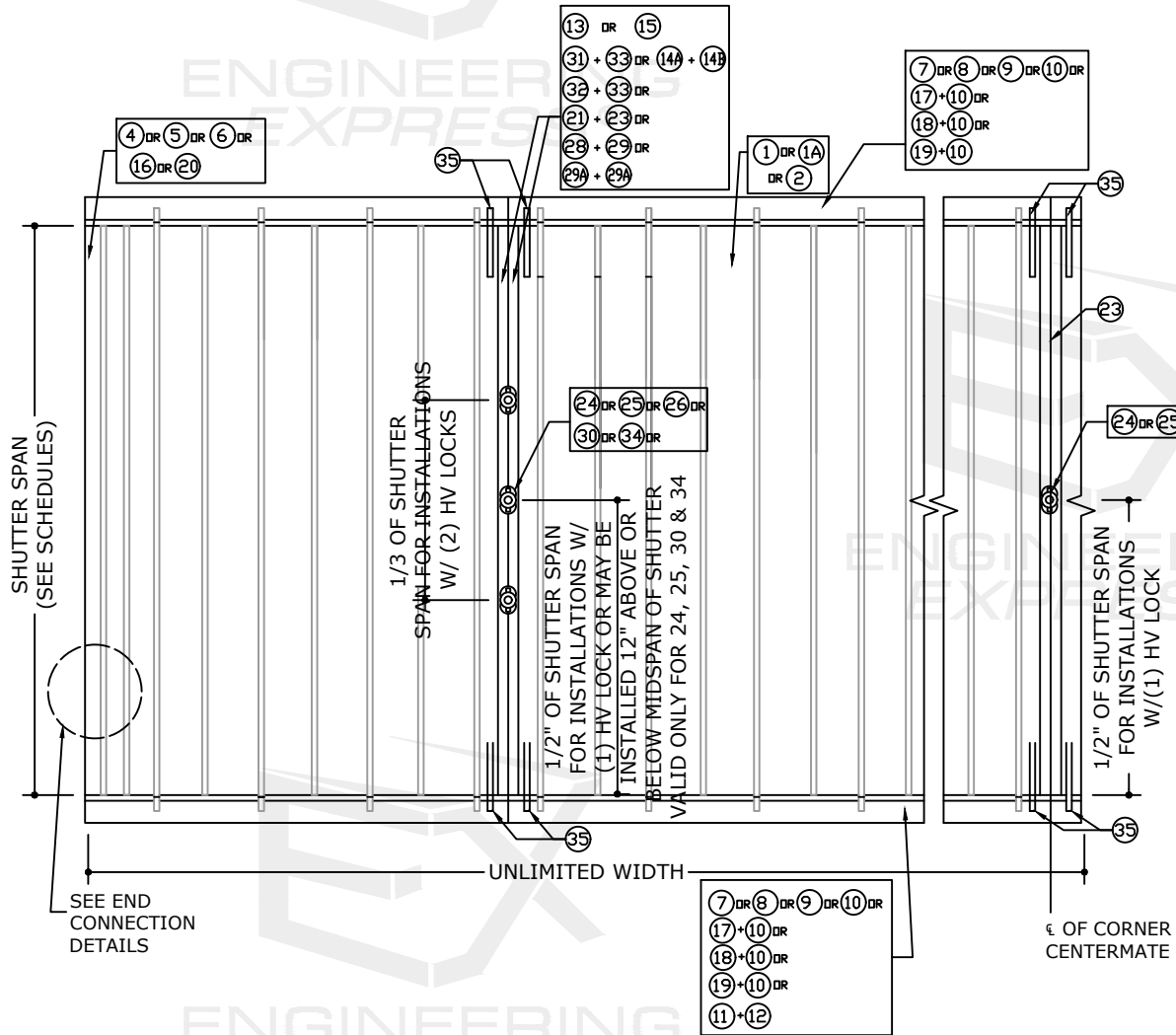
BERTHA HV ESSENTIAL ACCORDION SHUTTER
FLORIDA BUILDING CODE EIGHTH EDITION (2023)
FLORIDA STATEWIDE APPROVAL (FSA FL#32030.2)

REMARKS	DRWN	CHKD	DATE
PREV. SUBMITTAL (20-31274)	CCB	RWN	09/02/20
2023 FBC UPDATE	MRT	RWN	10/09/23
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1 OF 15



1 TYPICAL HV ESSENTIAL SHUTTER
1 N.T.S. EXTERIOR ELEV

SCHEDULE #1 (ALL BLADE OPTIONS)

MAXIMUM SHUTTER SPAN FOR ALL INSTALLATION
OPTIONS SHOWN HEREIN EXCEPT TO STEEL WALL
STUDS. SEE STEEL WALL STUD DETAIL FOR
LIMITATIONS

MAXIMUM DESIGN PRESSURE RATING (+/-)	CONCRETE & WOOD INSALLATIONS	
	ALL MOUNTING OPTIONS	
	MAX SPAN (+)	MAX SPAN (-)
30 psf	144.0 in	144.0 in
35 psf	144.0 in	144.0 in
40 psf	144.0 in	144.0 in
45 psf	140.5 in	140.5 in
50 psf	137.0 in	137.0 in
55 psf	133.5 in	133.5 in
60 psf	130.0 in	130.0 in
65 psf	126.5 in	126.5 in
70 psf	123.0 in	123.0 in
75 psf	119.5 in	119.5 in
80 psf	116.0 in	116.0 in

SCHEDULE #2 (GLASS SEPARATION)

SHUTTER SPAN	MINIMUM GLASS SEPARATION FOR ALL CONFIGURATIONS HEREIN
UP TO 116"	3.5 in
>116" UP TO 144"	5.0 in

SCHEDULE 2 NOTES:

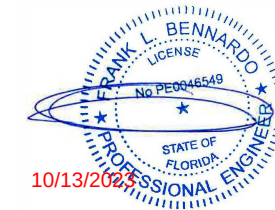
- GLASS SEPARATION ONLY REQUIRED WITHIN WIND ZONE 4 AND THE HIGH VELOCITY HURRICANE ZONE (HVHZ).
- GLASS SEPARATION VALUES SHOWN APPLY TO INSTALLATIONS LESS THAN 30 FEET FROM GRADE.
- INSTALLATIONS ABOVE 30 FEET FROM GRADE SHALL HAVE A MINIMUM GLASS SEPARATION OF 3.25".

GENERAL NOTES:

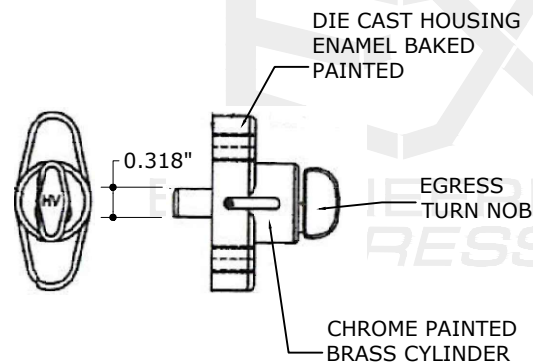
- THE SYSTEM DESCRIBED HEREIN HAS BEEN DESIGNED AND TESTED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE SEVENTH EDITION (2023), THE INTERNATIONAL BUILDING CODE (IBC) AND THE INTERNATIONAL RESIDENTIAL CODE (IRC) FOR USE INSIDE AND OUTSIDE OUTSIDE THE HIGH VELOCITY HURRICANE ZONE, PER ASTM E330, E1886, AND E1996 AND TAS 201, 202 & 203 STANDARDS. SEE PRODUCT APPROVAL EVALUATION FOR ADDITIONAL INFORMATION.
- WIND LOAD DURATION FACTOR Cd=1.6 HAS BEEN USED FOR WOOD ANCHOR DESIGN.
- POSITIVE AND NEGATIVE DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED PER SEPARATE ENGINEERING IN ACCORDANCE WITH THE GOVERNING CODE. PRESSURE REQUIREMENTS AS DETERMINED IN ACCORDANCE WITH ASCE 7 AND CHAPTER 1609 OF THE FLORIDA BUILDING CODE SHALL BE LESS THAN OR EQUAL TO THE POSITIVE OR NEGATIVE ASD DESIGN PRESSURE CAPACITY VALUES LISTED HEREIN FOR ANY ASSEMBLY AS SHOWN.
- DESIGN PRESSURES NOTED HEREIN ARE BASED ON MAXIMUM TESTED PRESSURES DIVIDED BY A 1.5 SAFETY FACTOR.
- THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.
- EACH UNIT MUST BEAR A PERMANENT LABEL IN A VISIBLE PLACE WITH WARNING NOTE: DURING PERIODS OF HURRICANE WARNINGS HOME OWNER, TENANT OR OTHERS MUST PROPERLY CLOSE A HV AND HD CENTERMATES AND ENGAGE OR LOCK ALL HV/HD LOCKS.
- THIS DOCUMENT CONTAINS INFORMATION RELEVANT TO THE NECESSARY STRUCTURAL REQUIREMENTS OF THE SYSTEM INSTALLATION. COMPONENTS AND FASTENERS NOT REFERENCED WHICH ARE PART OF THE INTERNAL FABRICATION OF THE SPECIFIED SYSTEMS OR ASSEMBLIES SHALL BE PER MANUFACTURER PUBLISHED SPECIFICATIONS.
- THE STRUCTURAL ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS BY THIS SYSTEM SHALL BE VERIFIED BY OTHERS. THE ARCHITECT/ENGINEER OF RECORD FOR THE PROJECT SUPERSTRUCTURE WITH WHICH THIS DESIGN IS USED SHALL BE RESPONSIBLE FOR THE INTEGRITY OF ALL SUPPORTING SURFACES TO THIS DESIGN WHICH SHALL BE COORDINATED BY THE PERMITTING CONTRACTOR. WOOD BUNKS (BY OTHERS) SHALL BE ANCHORED PROPERLY TO TRANSFER LOADS TO THE EXISTING STRUCTURE.

GENERAL NOTES (CONTINUED):

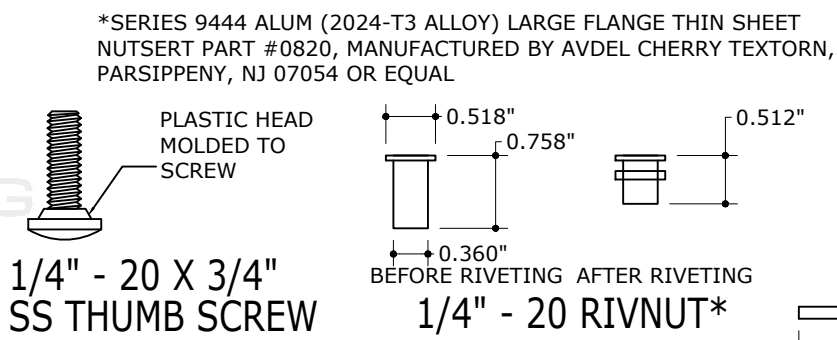
- ALL EXTRUSIONS SHALL BE MINIMUM 6063-T6 ALUMINUM ALLOY, UNLESS NOTED OTHERWISE.
- EACH SHUTTER ASSEMBLY SHALL BEAR A PERMANENT LABEL PER SECTION 1709.9 OF THE FBC 2023 WITH THE FOLLOWING MINIMUM INFORMATION:
AMERICAN SHUTTER SYSTEMS ASSOC., INC.
WEST PALM BEACH, FL
MISSILE LEVEL D - ASTM E1886, E1996 & E330 - TAS 201, 202 & 203
FLORIDA PRODUCT APPROVAL NUMBER
- ALL BOLTS & WASHERS SHALL BE ZINC COATED STEEL, GALVANIZED STEEL, OR STAINLESS STEEL WITH A MINIMUM TENSILE YIELD STRENGTH OF 60 KSI. ALL ALUMINUM 3/16"Ø OR 1/4"Ø POP RIVETS SHALL BE 7075-T6 OR STRONGER. FASTENERS SHALL BE CADMIUM-PLATED OR OTHERWISE CORROSION-RESISTANT MATERIAL AND SHALL COMPLY WITH "SPECIFICATIONS FOR ALUMINUM STRUCTURES" SECTION J.3.7.2 BY THE ALUMINUM ASSOCIATION, INC., & ANY APPLICABLE FEDERAL, STATE, AND/OR LOCAL CODES.
- ALL STEEL IN CONTACT WITH ALUMINUM SHALL BE PAINTED OR PLATED AS PRESCRIBED IN THE ABOVE-NOTED BUILDING CODE.
- CONCRETE ANCHORS NOTED HEREIN SHALL BE EMBEDDED TO NON-CRACKED CONCRETE ONLY. INSTALL ALL CONCRETE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR IS RESPONSIBLE TO INSULATE OR PROTECT ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.
- REFER TO FASTENER MANUFACTURER'S PUBLISHED DATA SHEETS AND RECOMMENDATIONS FOR FASTENER INSTALLATION INSTRUCTIONS.
- ENGINEER SEAL AFFIXED HERETO VALIDATE STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, & CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN.
- EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.
- PRESSURE VALUES ON THIS APPROVAL ARE (ASD) ALLOWABLE DESIGN PRESSURES.
- ALTERATIONS ADDITIONS OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE THIS CERTIFICATION.



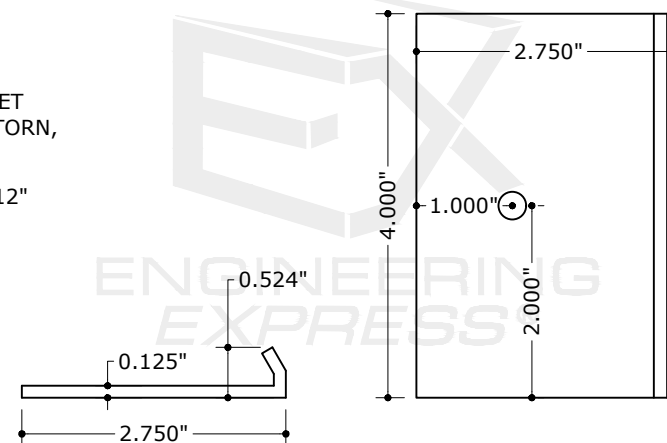
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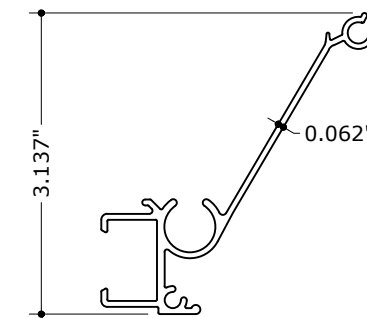
25 HV EGRESS LOCK
N.T.S.
*USE W/ BLADE 1 ONLY



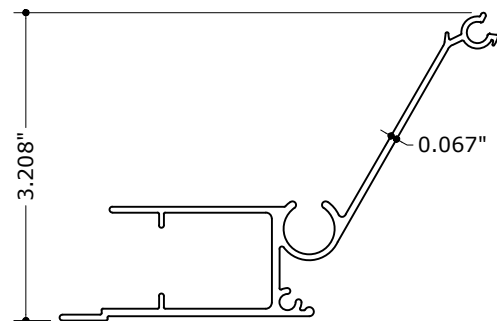
26 HV ALTERNATIVE LOCK
N.T.S.
*USE W/ BLADE 1 ONLY



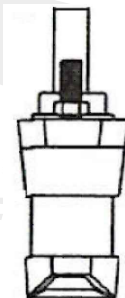
27 LOCKER FOR "T" LOCK CENTERMATE
 N.T.S. 6063-T6 ALUM
 *USE W/ BLADE 1 ONLY



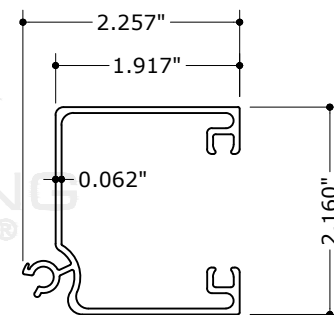
28 HV MALE "T" LOCK CENTERMATE
N.T.S. 6063-T6 ALUM
*USE W/ BLADE 1 ONLY



29 HV FEMALE "T" LOCK CENTERMATE
N.T.S. 6063-T6 ALUM
*USE W/ BLADE 1 ONLY

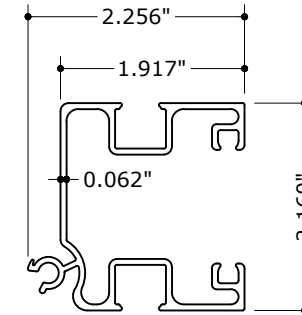


30 HV "T" LOCK
N.T.S.
*USE W/ BLADE 1 ONLY



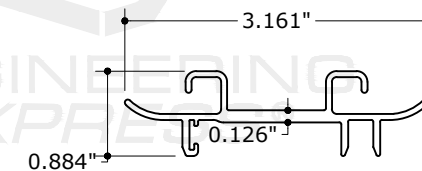
HD CENTERMATE W/
NO LOCKING ROD

31 N.T.S. 6063-T6 ALUM



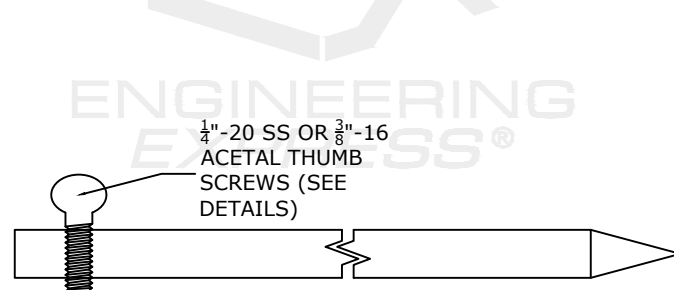
HD CENTERMATE W/
LOCKING ROD

32 N.T.S. 6063-T6 ALUM



HD CENTERMATE
INSERT

33 N.T.S. 6063-T6 ALUM



35 LOCKING ROD
N.T.S. 6063-T6 ALUM

*TOP/BOTTOM TRACK SHALL
HAVE RAINGUARD LIP TO HOLD
LOCK ROD

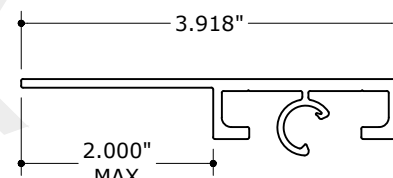
****LOCKING ROD MAY BE USED TO HOLD SYSTEM IN OPEN POSITION WITHOUT EXTENDING THROUGH RAINGUARD (VIA FRICTION). WHEN LOCKING ROD IS USED TO LOCK IN SYSTEM IN CLOSED POSITION, ROD SHALL EXTEND THROUGH RAINGUARD LIP, TYP.**



36 HV 1/4"-20 THUMBSCREW
N.T.S. 304 SS

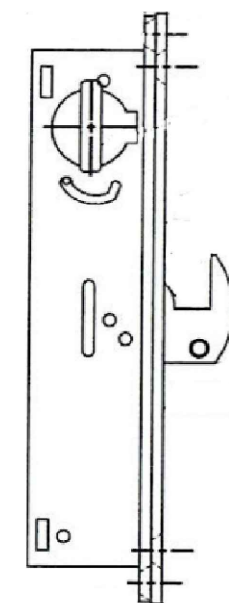


37 HV 3/8"-16 ACETAL THUMBSCREW
N.T.S. 6063-T6 ALUM



38 HV DIRECT MOUNT
N.T.S. 6063-T6 ALUM

*CAN BE USED IN LIEU OF
COMPONENT #4, #5, OR #6



34 HD LOCK
N.T.S.

BY REGENT HARDWARE
MORTISE LOCKS SERIES
2333 HOOK BOLT LOCK

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REMARKS PREV. SUBMITTAL (20-31274) 2023 FBC UPDATE	DRWN	CHKD	DATE
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	MRT	RWVN	10/09/23
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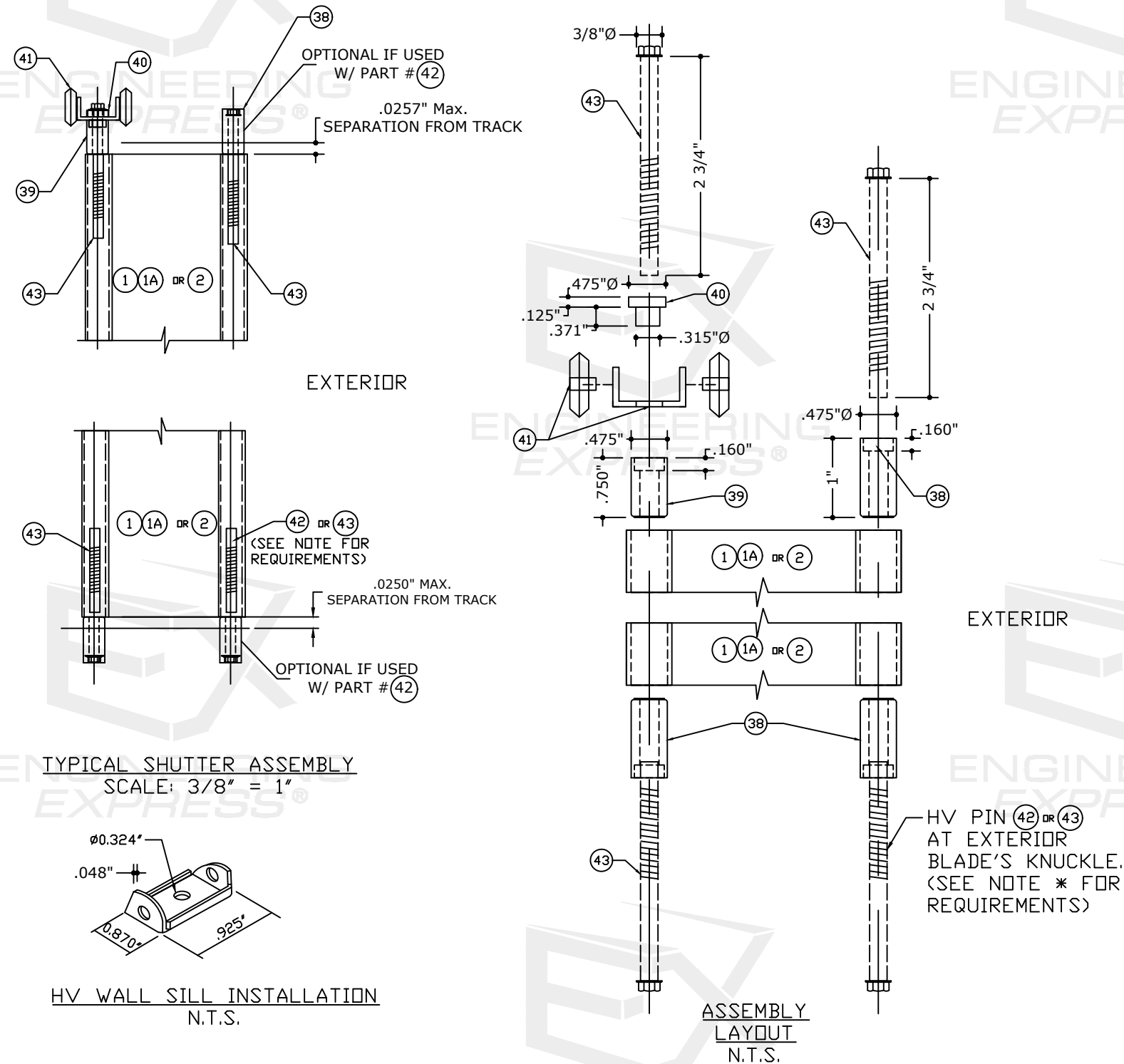
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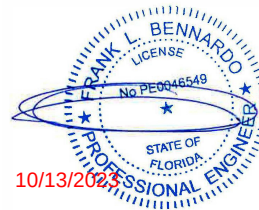


- ③⑧ - HV LONG RECESSED NYLON BUSHING
- ③⑨ - HV SHORT RECESSED NYLON BUSHING
- ④⑩ - HV NYLON HAT WASHER
- ④② - HV 1-3/4" ACCORDION PIN W/ #8 HEAD
- ④③ - HV 2-3/4" ACCORDION PIN W/ #8 HEAD
- ④④ - POLYCARBONATE IMPACT RESISTANT HV WINDOW

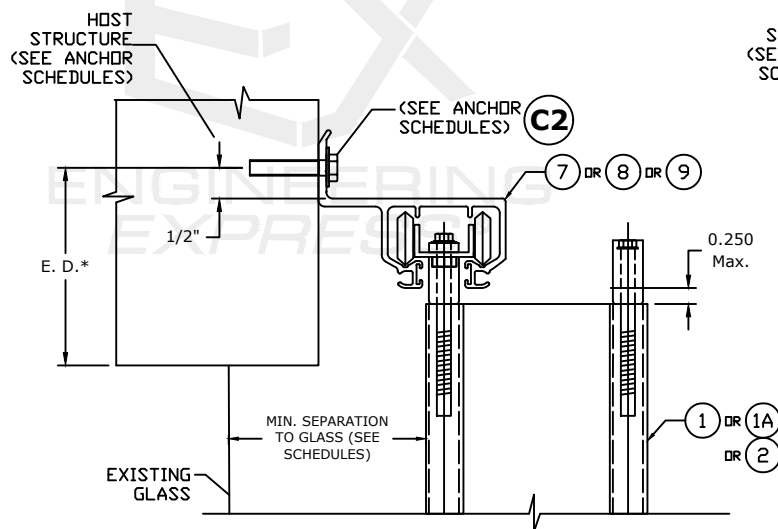
SECTION DETAILS - ALL BLADE OPTIONS

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PE# 0046549 CA# 9885

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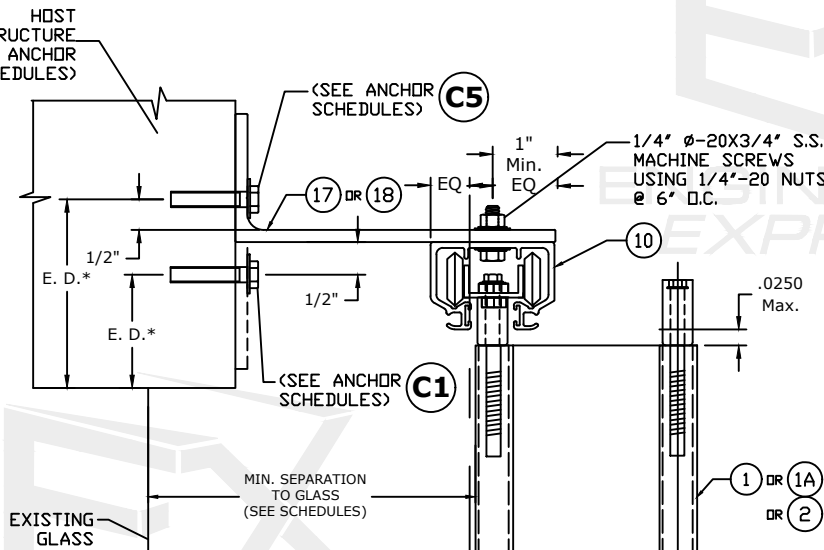


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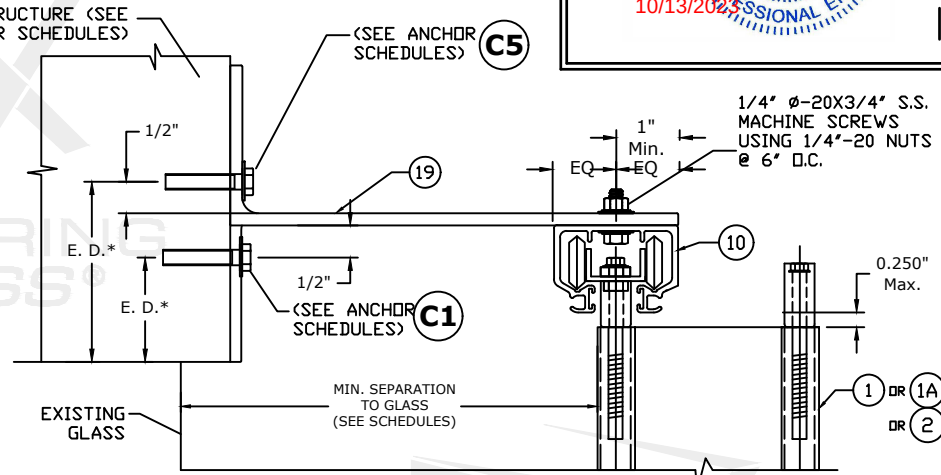


WALL HEADER INSTALLATION

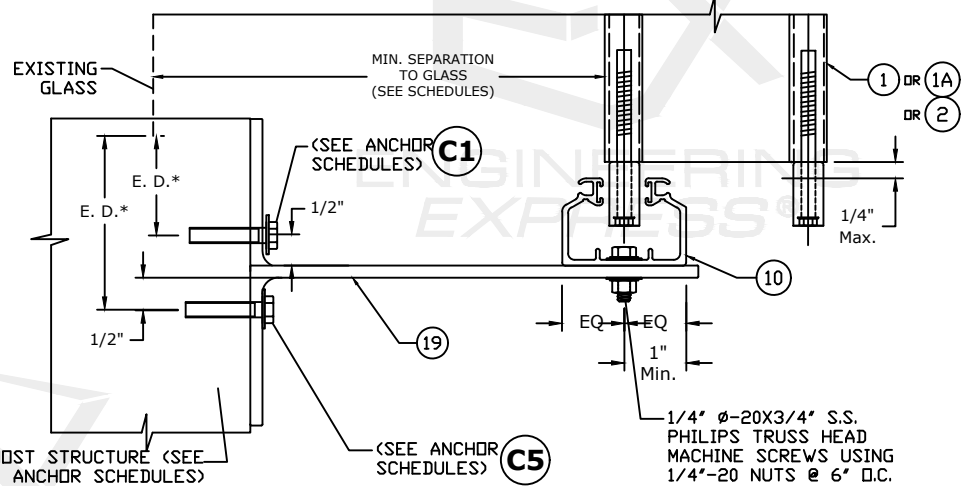
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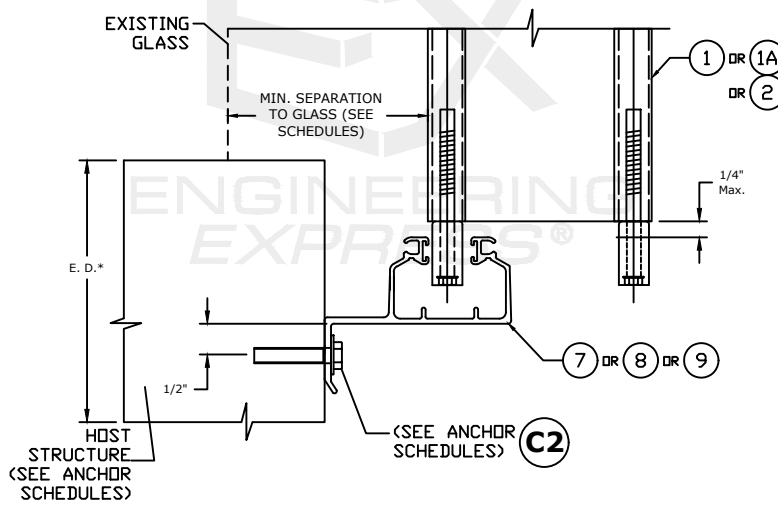
ALT. WALL HEADER INSTALLATION



ALT. WALL HEADER INSTALLATION

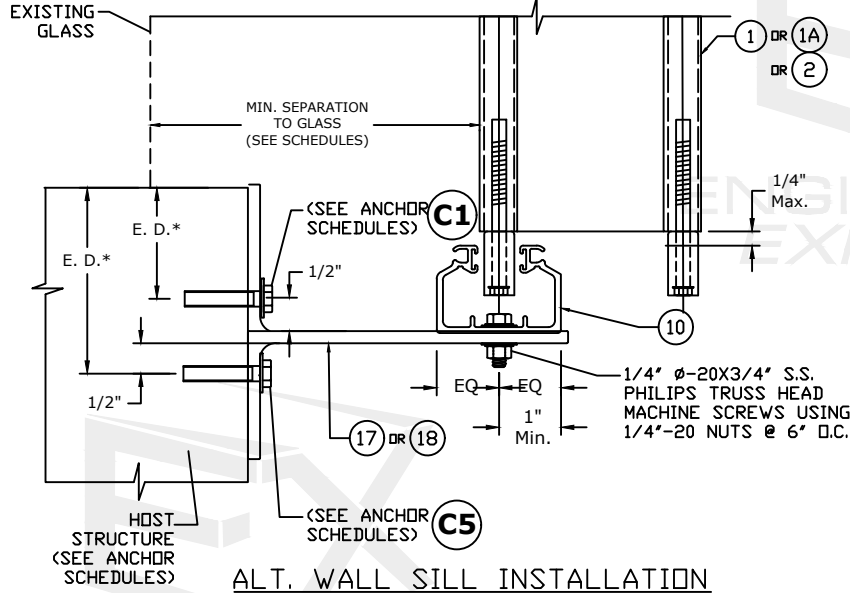


ALT. WALL SILL INSTALLATION

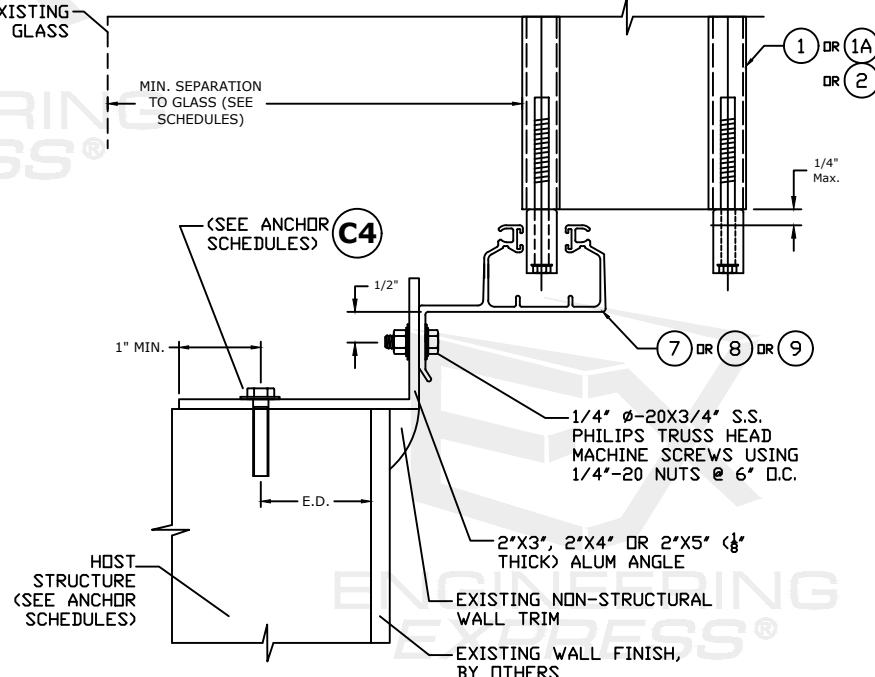


WALL SILL INSTALLATION

*ONLY APPROVED FOR BLADE 1 OR 1A



ALT. WALL SILL INSTALLATION



KEYSTONE MOUNT INSTALLATION

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BERTHA HV ESSENTIAL ACCORDION SHUTTER

FLORIDA BUILDING CODE EIGHTH EDITION (2023)

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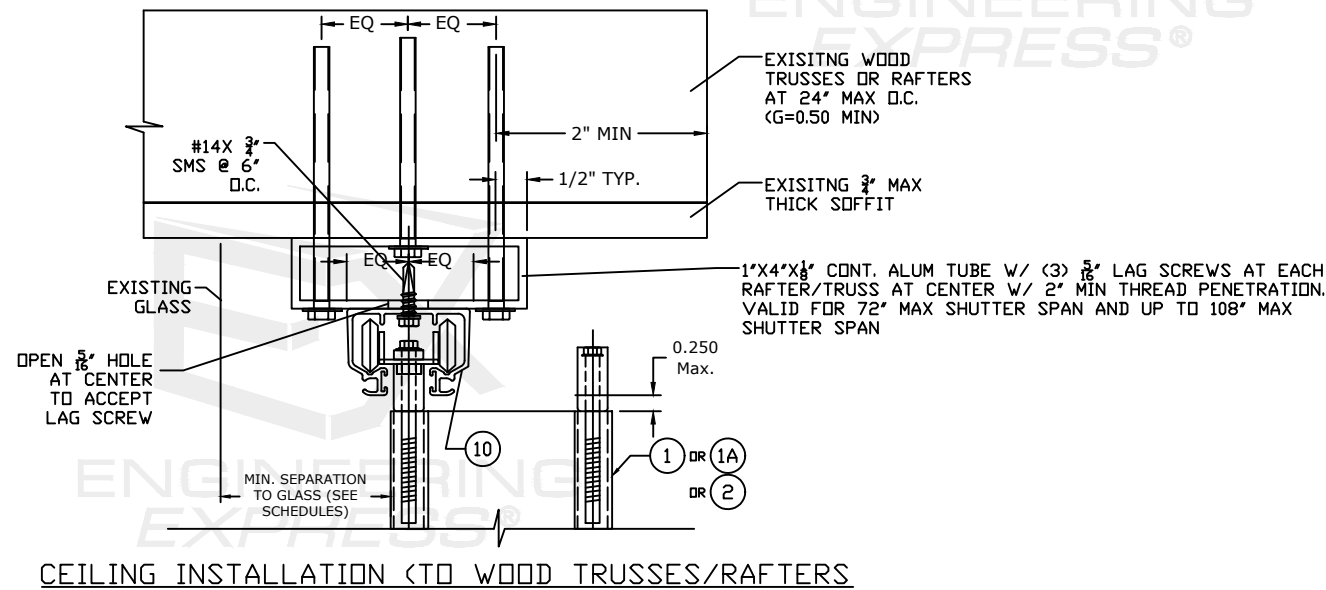
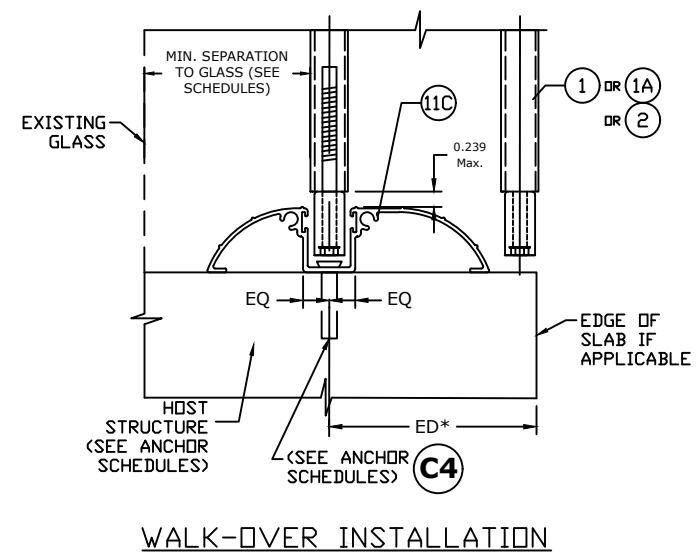
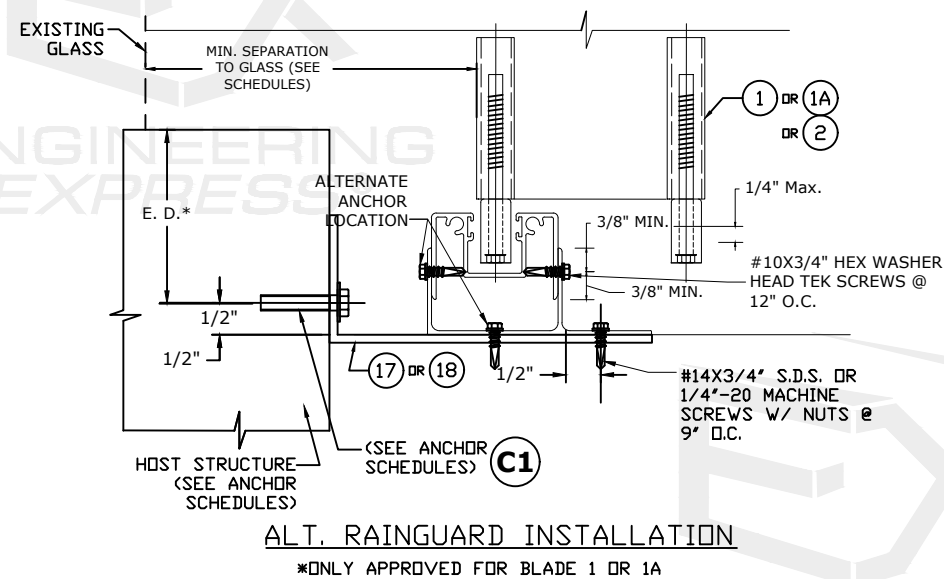
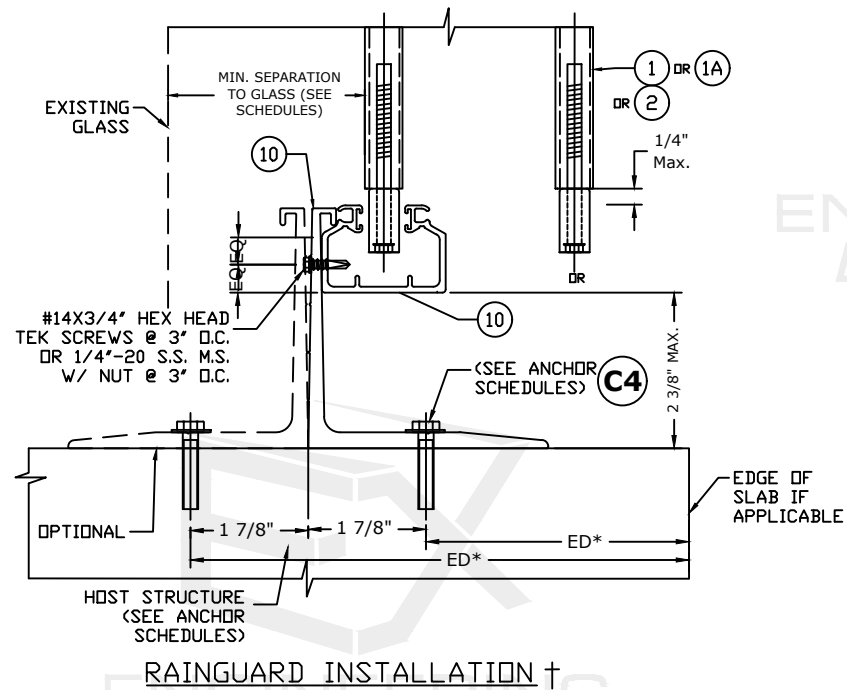
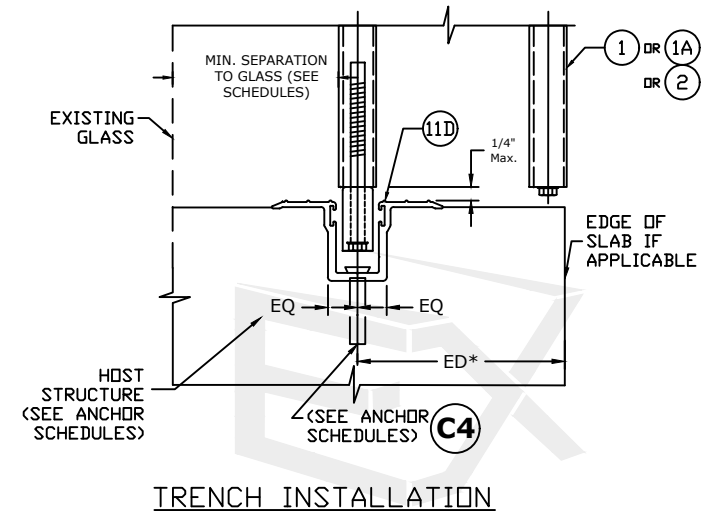
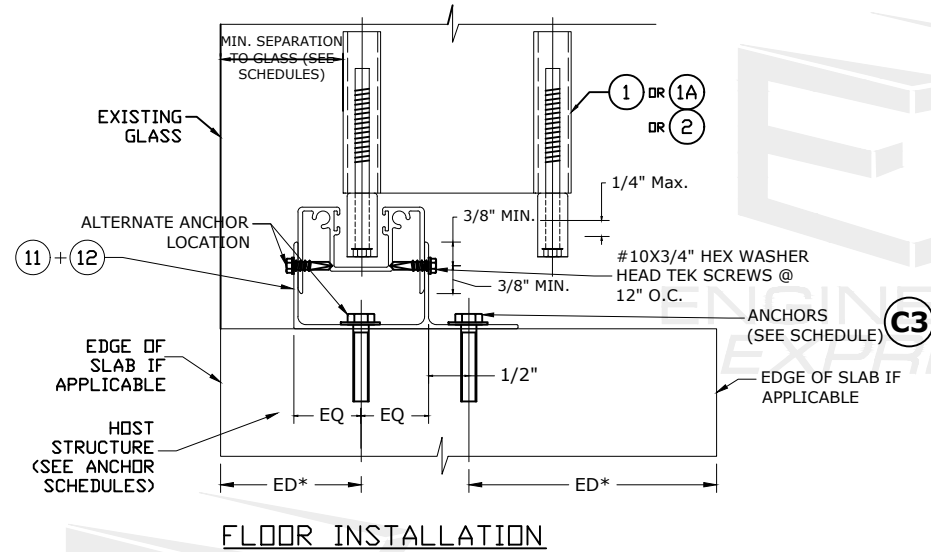
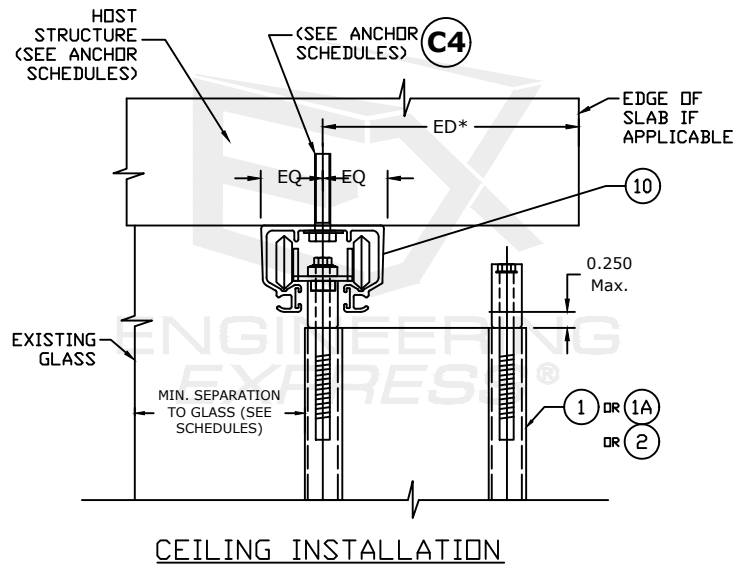
OF 15

SECTION DETAILS - ALL BLADE OPTIONS (CONT'D)

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

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OCTOBER 9, 2023



NOTE:
THIS INSTALLATION SHALL BE REMOVED WHEN PERFORMED ADJACENT TO AN OPERABLE EXIT OR ENTRANCE

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NOTE: HV ESSENTIAL "FLAT"
CENTERMATE (PART #13) MAY
BE USED IN LIEU OF THE
CENTERMATE OPTIONS SHOWN
ON THIS SHEET

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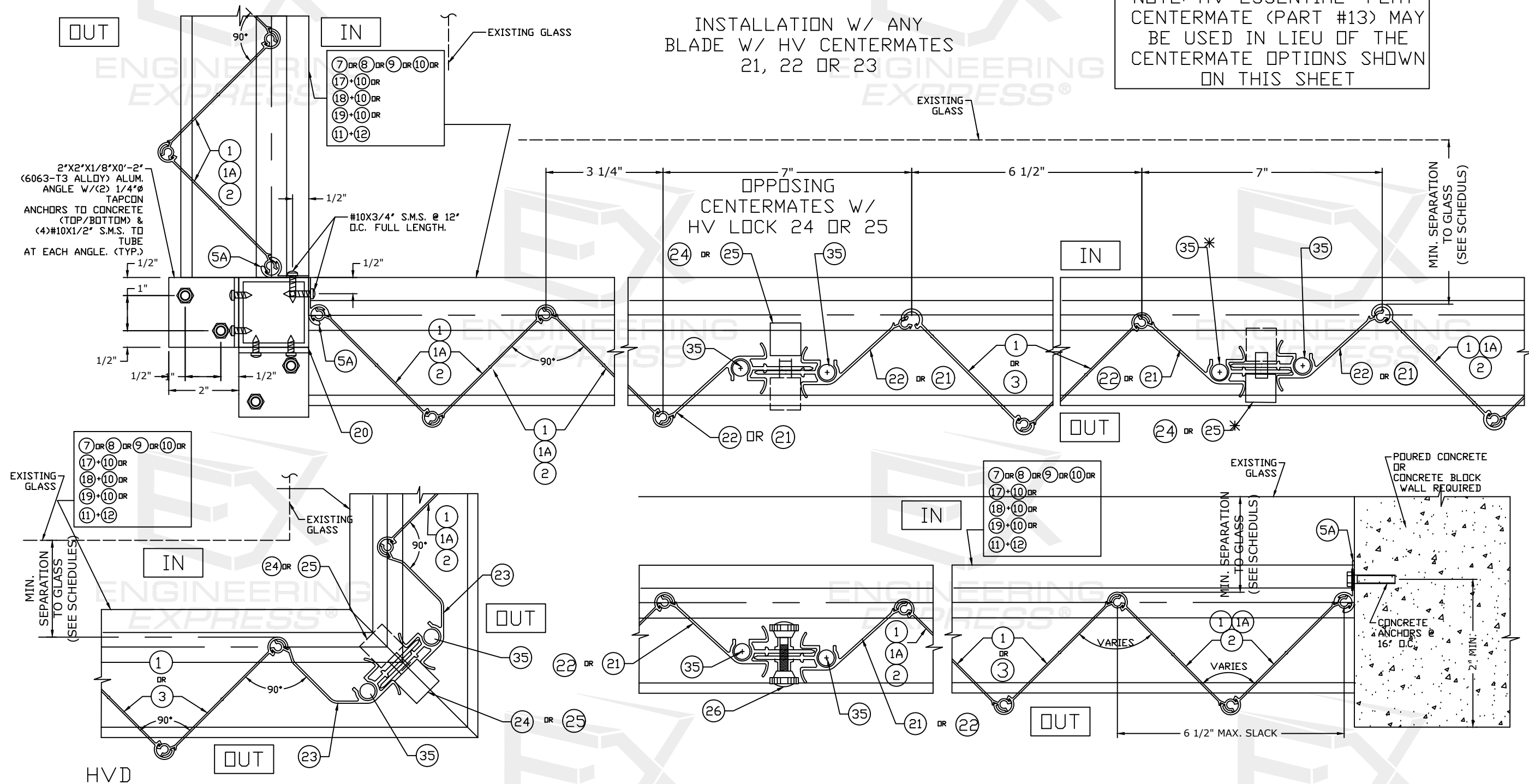
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"	"	"	"
"	"	"	"

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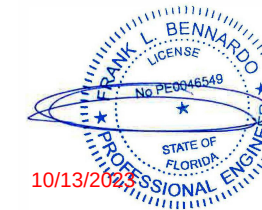
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HV BLADE 1 - SECTION DETAILS (CONT'D)

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

OCTOBER 9, 2023



FL

FL 32030.2

**ENGINEERING
EXPRESS**

POSTAL ADDRESS:
2234 NORTH FEDERAL HWY #7664
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AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.

4268 WESTROADS DR.

WEST PALM BEACH, FL 33407

(800) 432-2204

BERTHA HV ESSENTIAL ACCORDION SHUTTER

FLORIDA BUILDING CODE EIGHTH EDITION (2023)

FLORIDA STATEWIDE APPROVAL (FSA FL #32030.2)

REMARKS
PREV. SUBMITTAL (20-31274)
2023 FBC UPDATE

DATE
09/02/20
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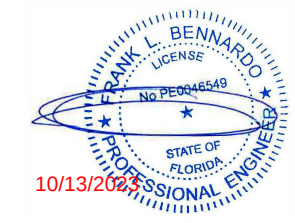
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HV BLADE 1 OR 2 - SECTION DETAILS

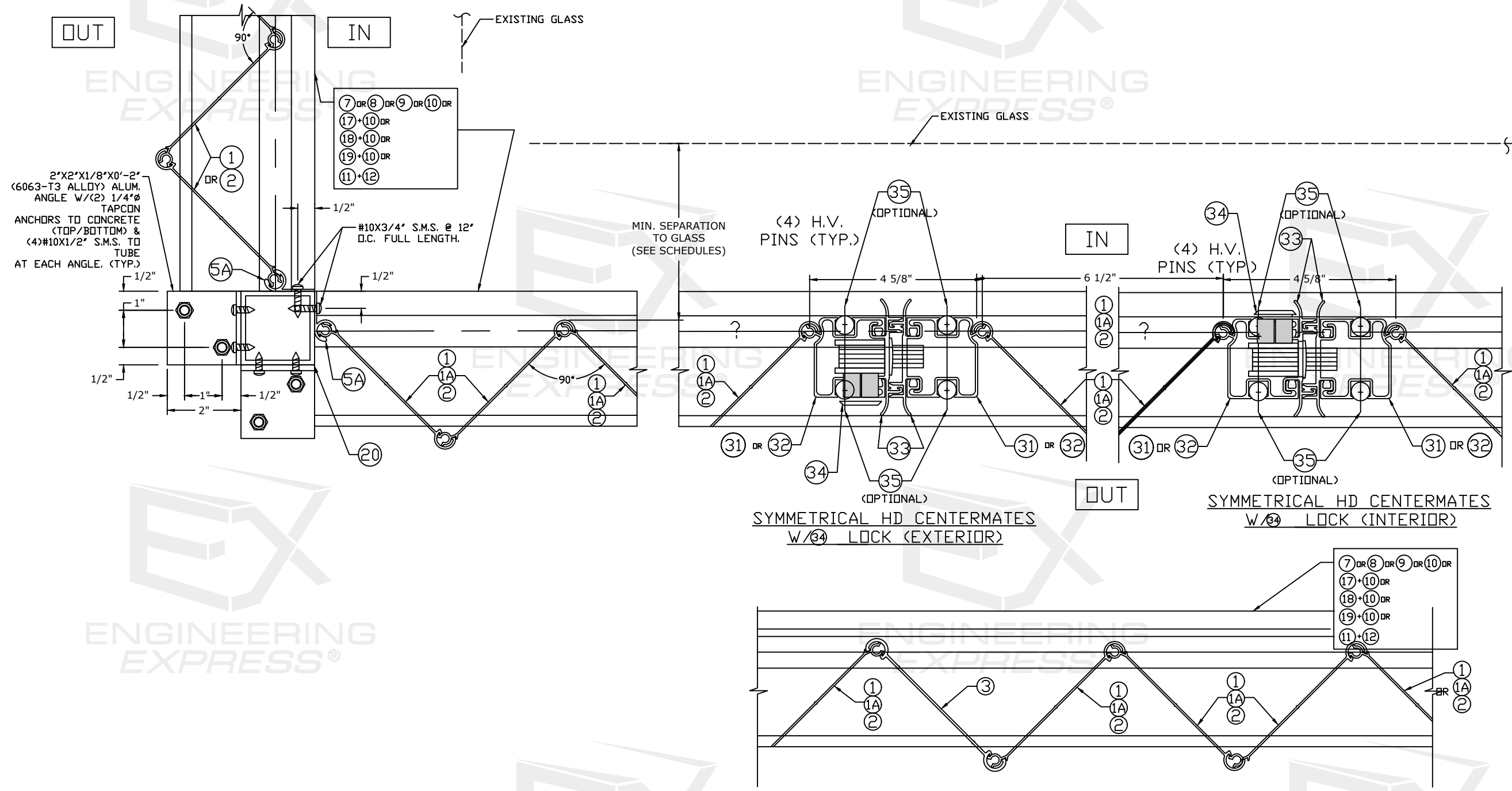
FRANK BENNARDI, P.E.
PE# 0046549 CA# 9885

OCTOBER 9, 2023



FL

INSTALLATION W/ ANY BLADE W/ HD
CENTERMATES 31, 32 OR 33



FL 32030.2

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BOCA RATON, FL 33431
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AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 WESTROADS DR.
WEST PALM BEACH, FL 33407
(800) 432-2204

BERTHA HV ESSENTIAL ACCORDION SHUTTER
FLORIDA BUILDING CODE EIGHTH EDITION (2023)
FLORIDA STATEWIDE APPROVAL (FSA FL #32030.2)

REMARKS	DRWN	CHKD	DATE
PREV. SUBMITTAL (20-31274)	CCB	RWN	09/02/20
2023 FBC UPDATE	MRT	RWN	10/09/23

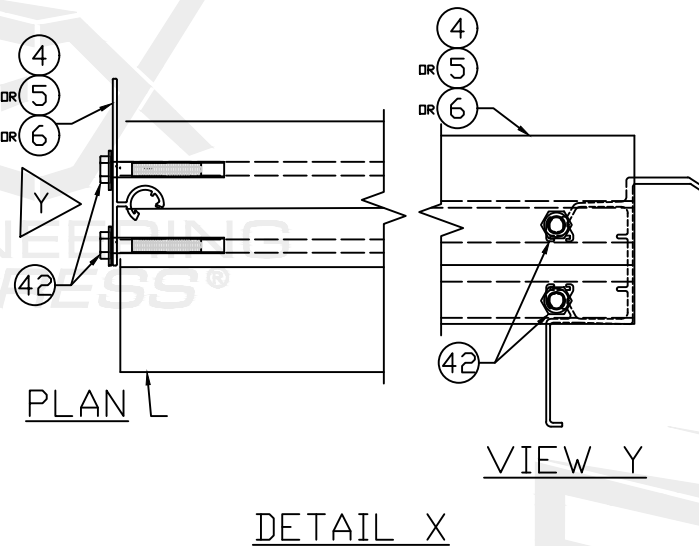
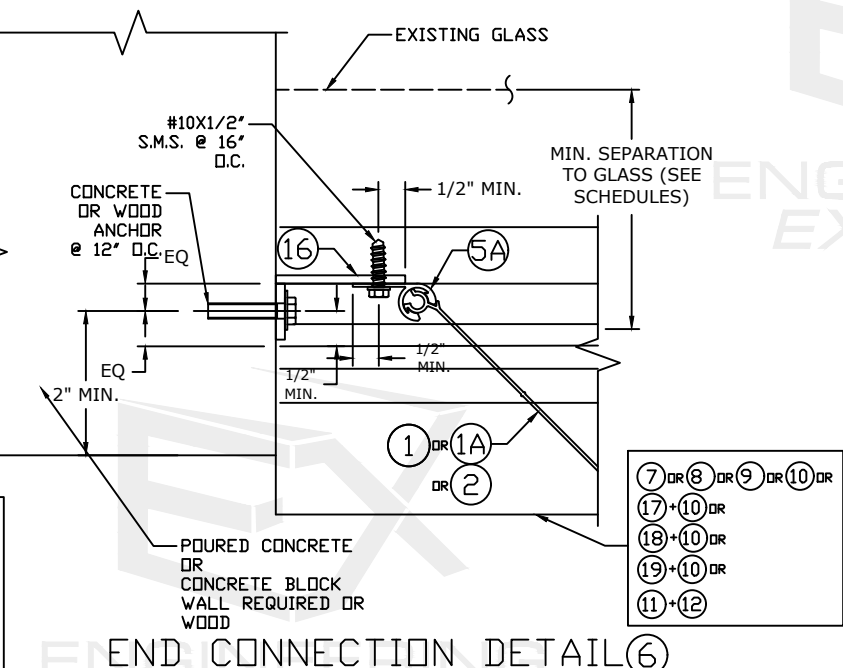
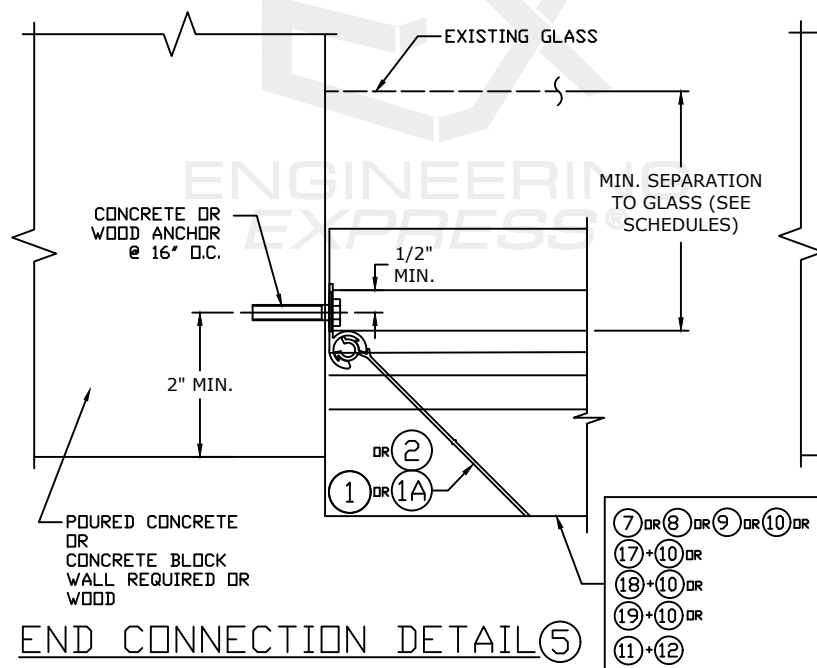
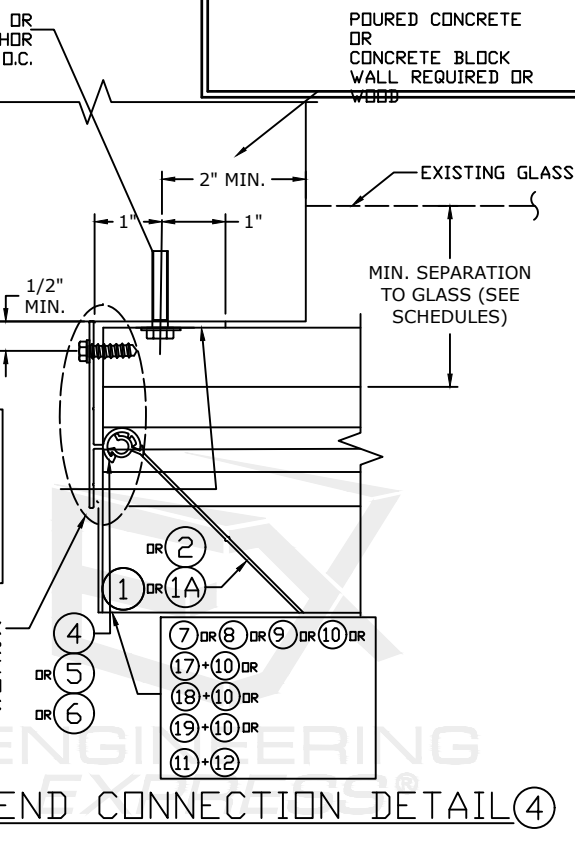
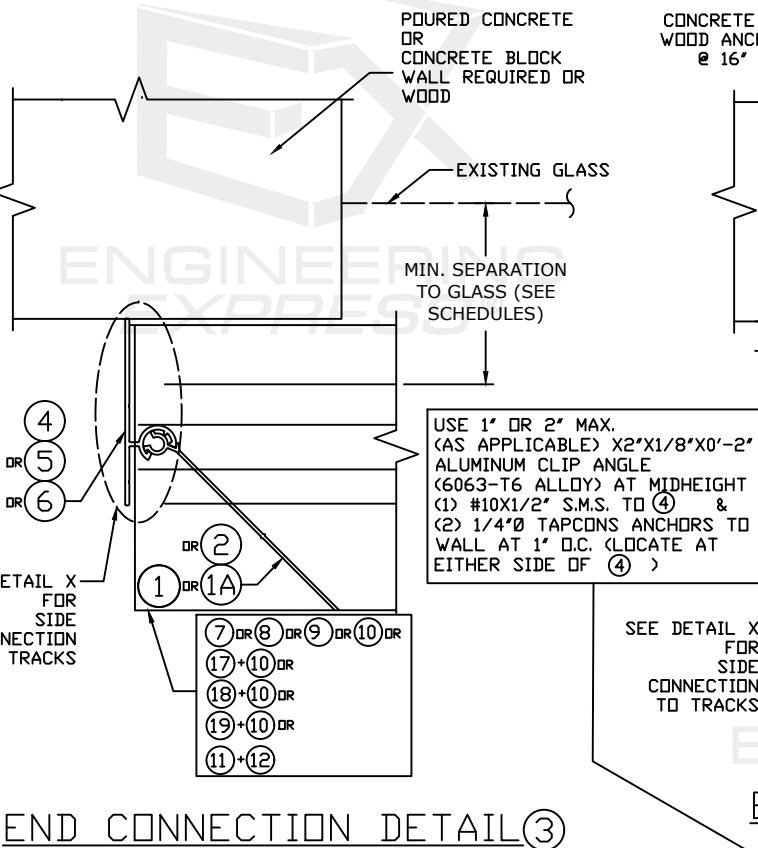
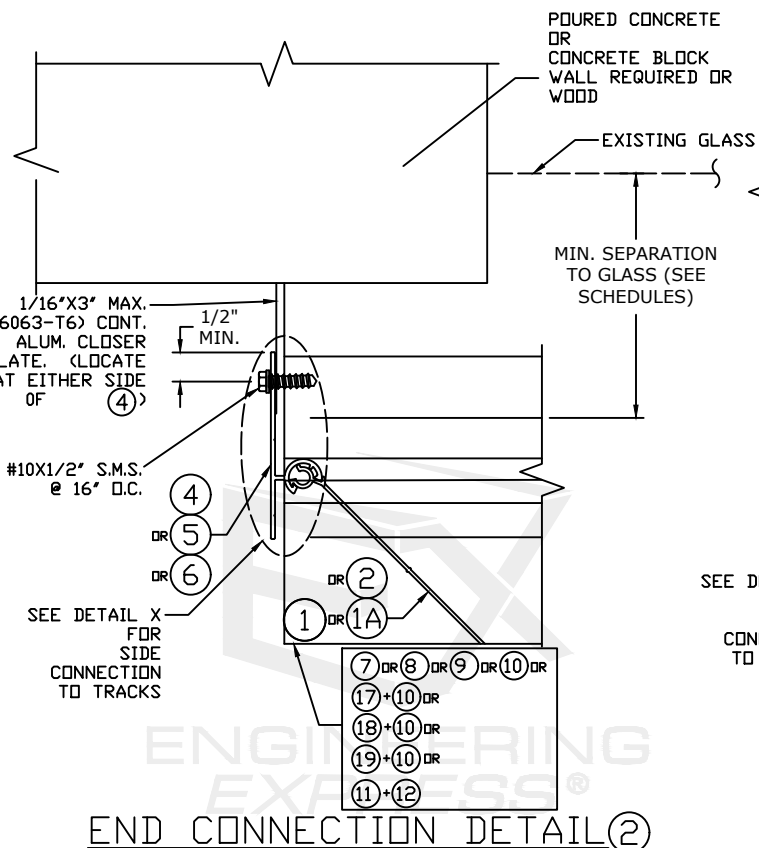
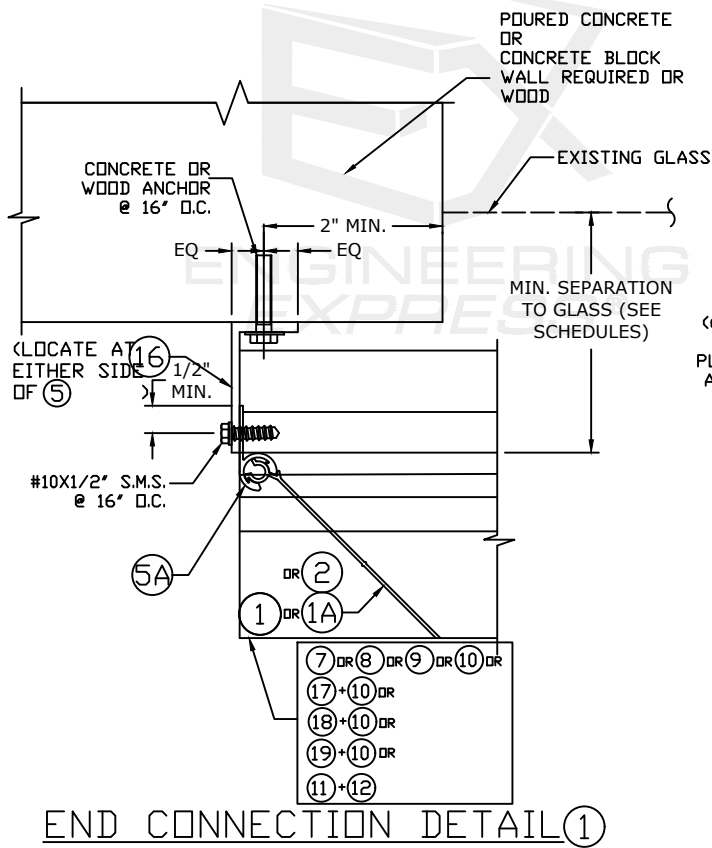
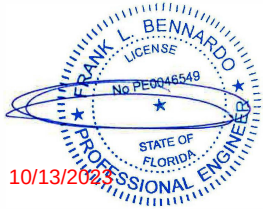
23-65177

SCALE: NTS UNLESS NOTED

END CONNECTION DETAILS (ALL BLADE OPTIONS)

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

OCTOBER 9, 2023



FL 32030.2

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BERTHA HV ESSENTIAL ACCORDION SHUTTER
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PREV. SUBMITTAL (20-31274)	CCB	RWN	09/02/20
2023 FBC UPDATE	MRT	RWN	10/09/23

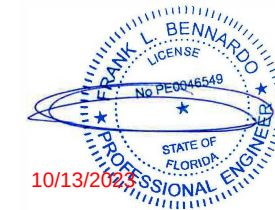
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SCALE: NTS UNLESS NOTED

CONNECTION TO METAL WALL STUDS (BLADE 1 ONLY)

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

OCTOBER 9, 2023



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PREV. SUBMITTAL (20-31274)	CCB	RWN	09/02/2023
2023 FBC UPDATE	MRT	RWN	10/09/2023

23-65177

SCALE: NTS UNLESS NOTED

11 OF 15

INSTALLATIONS W/ ① HV BLADE & HV CENTERMATES ②① INTO METAL STUD WALLS *

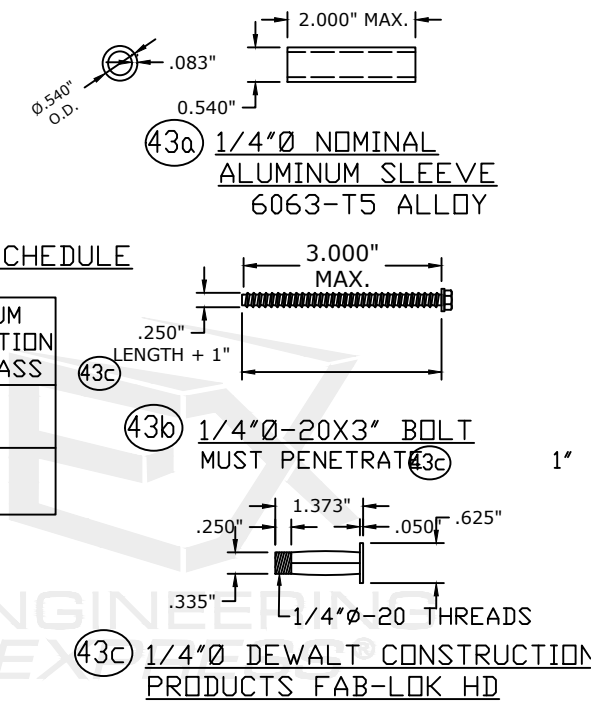
*LIMITATIONS AND CONDITIONS OF USE FOR BERTHA 1 HV BLADE INSTALLATION TO METAL STUD WALLS

1. MAX. A.S.D. DESIGN PRESSURE RATING: +75 p.s.f
2. MAX. SHUTTER SPAN: 84"
3. ALLOWED MOUNTING: ① ON THIS SHEET.
4. ONLY CENTERMATE ②① W/ ②④ HV LOCK ARE ALLOWED WITH ②① ARRANGED IN A SYMMETRICAL LAYOUT. USE OF ③⑤ (②) (6" LONG, MINIMUM) MUST ALWAYS BE INCLUDED AT EXTERIOR OR INTERIOR ACCESS SIDE OF CENTERMATES.

** BLADE SLACK DETAIL E IS VALID FOR CENTERMATE ②① APPLICATION WITH BLADE ①

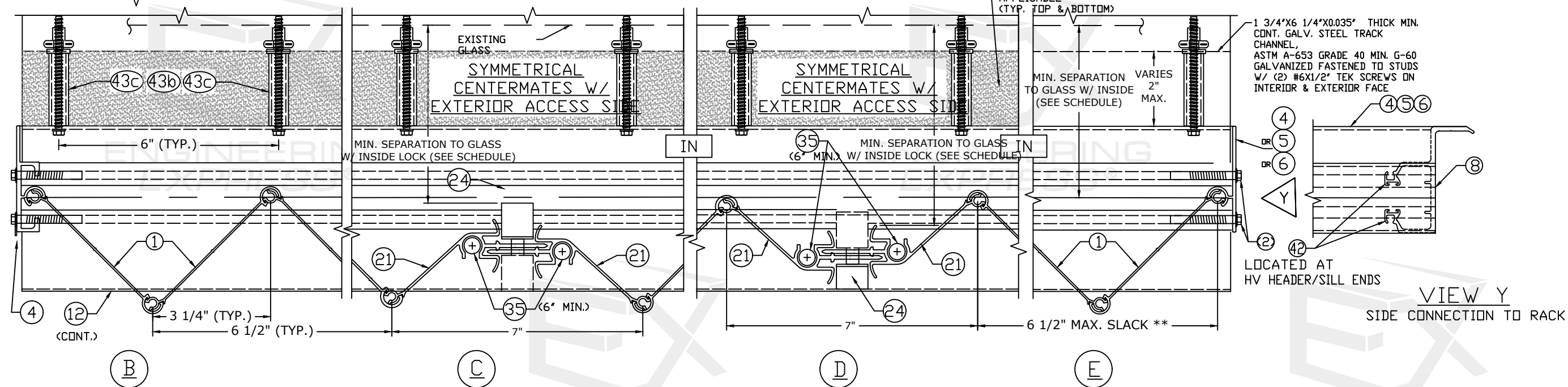
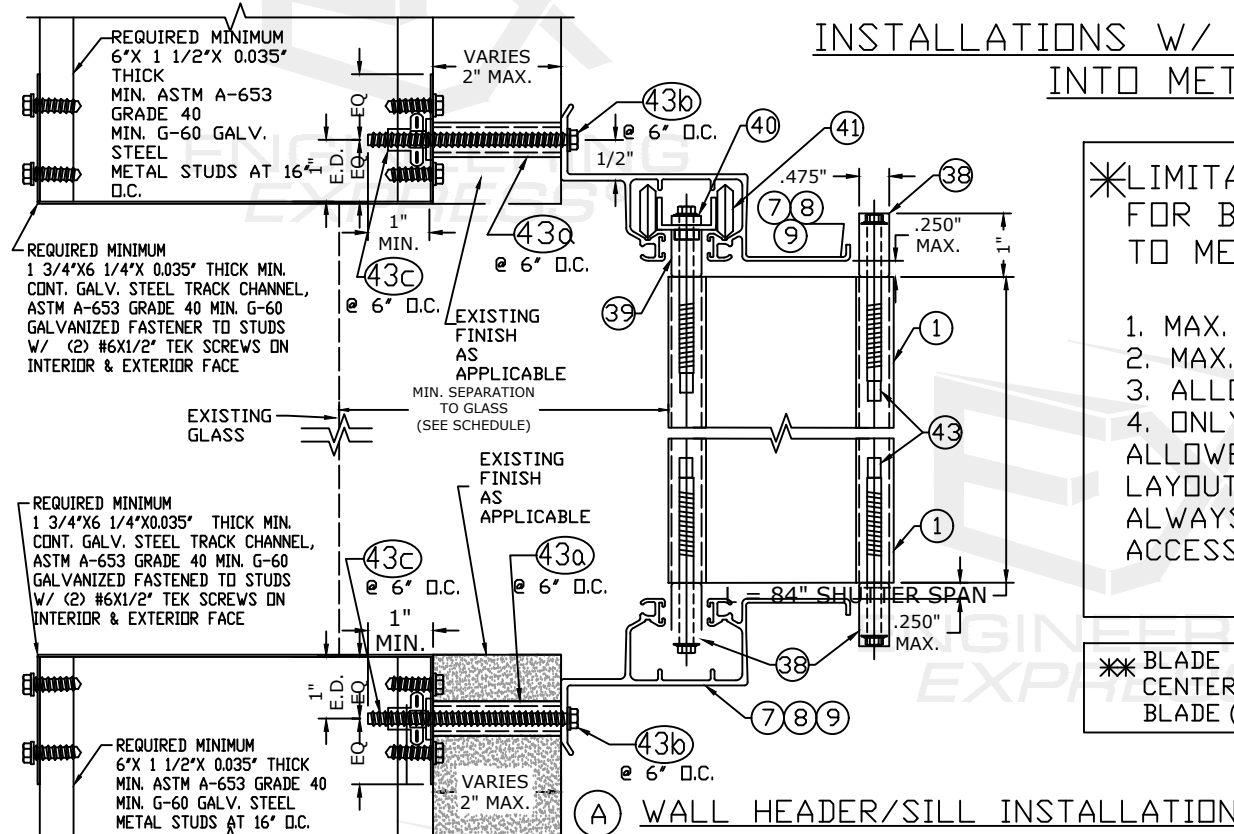
SEPARATION GLASS SCHEDULE

WIND ZONE ASTM E-1996	MINIMUM SEPARATION TO GLASS
1 THRU 3	1"
4	4"



COMPONENTS

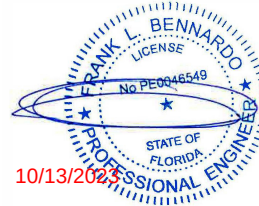
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FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

OCTOBER 9, 2023



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ANCHOR SCHEDULES - ALL BLADE OPTIONS (CONT'D)

HOST STRUCT.	ANCHOR	LOAD (psf)	1" MIN EDGE DISTANCE														
			Spans Up To 6'-0"					Spans Up To 9'-8"					Spans Up To 12'-0"				
			CONN TYPE					CONN TYPE					CONN TYPE				
HOLLOW CONCRETE BLOCK	1/4" ITW TAPCON WITH 1-1/4" EMBED	40	9.0"	9.0"	4.0"	4.0"	9.0"	5.5"	5.5"			5.5"	4.5"	4.5"			3.0"
		50	7.0"	7.0"	3.0"	3.0"	7.0"	4.5"	4.5"			3.0"	3.0"	3.0"			
		60	6.0"	6.0"			6.0"	3.0"	3.5"								
		70	5.0"	5.0"			5.0"										
	1/4" ELCO/DEWALT ULTRA CON WITH 1-1/4" EMBED	80	4.5"	4.5"			3.0"										
		40	14.0"	14.0"	7.5"	7.5"	14.0"	8.5"	8.5"	4.0"	4.0"	8.5"	6.5"	7.0"	3.0"		5.0"
		50	11.0"	11.0"	6.0"	6.0"	11.0"	6.5"	6.5"	3.0"		5.0"	4.5"	5.0"			3.0"
		60	9.0"	9.0"	4.5"	4.5"	9.0"	5.0"	5.5"			3.0"	3.5"	3.5"			
		70	8.0"	8.0"	3.5"	3.5"	7.5"	4.0"	4.0"			3.0"					
		80	6.5"	7.0"	3.0"		5.0"	3.5"	3.0"								

HOST STRUCT.	ANCHOR	LOAD (psf)	2-1/2" MIN EDGE DISTANCE														
			Spans Up To 6'-0"					Spans Up To 9'-8"					Spans Up To 12'-0"				
			CONN TYPE					CONN TYPE					CONN TYPE				
HOLLOW CONCRETE BLOCK	1/4" ITW TAPCON WITH 1-1/4" EMBED	40	12.5"	12.5"	7.5"	7.5"	12.5"	7.5"	7.5"	4.0"	4.0"	7.5"	6.0"	6.0"	3.0"		4.5"
		50	10.0"	10.0"	6.0"	6.0"	10.0"	6.0"	6.0"	3.0"		4.5"	4.5"	4.5"			
		60	8.5"	8.5"	4.5"	4.5"	8.5"	4.5"	5.0"			3.0"	3.5"	3.0"			
		70	7.0"	7.0"	3.5"	3.5"	6.5"	3.5"	3.5"								
	1/4" ELCO/DEWALT ULTRA CON WITH 1-1/4" EMBED	80	6.0"	6.0"	3.0"		4.5"	3.0"									
		40	14.0"	14.0"	7.0"	7.0"	14.0"	8.5"	8.5"	4.0"	3.5"	8.5"	6.5"	7.0"	3.0"		5.0"
		50	11.0"	11.0"	5.5"	5.5"	11.0"	6.5"	6.5"	3.0"		5.0"	4.5"	5.0"			3.0"
		60	9.0"	9.0"	4.0"	4.0"	9.0"	5.0"	5.5"			3.0"	3.5"	3.5"			
		70	8.0"	8.0"	3.5"	3.0"	7.5"	4.0"	4.0"			3.0"					
		80	6.5"	7.0"	3.0"		5.0"	3.5"	3.0"								

HOST STRUCT.	ANCHOR	LOAD (psf)	1-1/4" MIN EDGE DISTANCE														
			Spans Up To 6'-0"					Spans Up To 9'-8"					Spans Up To 12'-0"				
			CONN TYPE					CONN TYPE					CONN TYPE				
HOLLOW CONC. BLOCK	1/4" ALL-POINTS SOLID-SET ANCHOR W/ 7/8" EMBED & 1/4-20 SS MACHINE SCREW	40	16.0"	16.0"	7.0"	7.0"	16.0"	10.0"	10.0"	4.0"	3.5"	10.0"	8.0"	8.0"	3.0"		6.0"
		50	13.0"	13.0"	5.5"	5.5"	13.0"	8.0"	8.0"	3.0"		6.0"	5.5"	6.0"			3.5"
		60	11.0"	11.0"	4.0"	4.0"	11.0"	6.0"	6.5"			3.5"	4.5"	4.0"			
		70	9.5"	9.5"	3.5"	3.0"	9.0"	4.5"	4.5"				3.5"	3.0"			
		80	8.0"	8.0"	3.0"		6.0"	4.0"	3.5"				3.0"				

HOST STRUCT.	ANCHOR	LOAD (psf)	2" MIN EDGE DISTANCE														
			Spans Up To 6'-0"					Spans Up To 9'-8"					Spans Up To 12'-0"				
			CONN TYPE					CONN TYPE					CONN TYPE				
HOLLOW CONC BLOCK	1/4" ALL-POINTS SOLID-SET ANCHOR W/ 7/8" EMBED & 1/4-20 SS MACHINE SCREW	40	16.0"	16.0"	11.5"	11.5"	16.0"	16.0"	6.5"	6.0"	16.0"	14.0"	14.0"	5.0"	4.5"		10.5"
		50	16.0"	16.0"	9.0"	9.0"	16.0"	13.5"	14.0"	5.0"	4.5"	10.0"	10.0"	10.5"	3.5"		6.0"
		60	16.0"	16.0"	7.0"	7.0"	16.0"	10.5"	11.0"	4.0"	3.5"	6.5"	7.5"	7.5"	3.0"		4.5"
		70	16.0"	16.0"	6.0"	5.5"	15.5"	8.5"	8.0"	3.0"	3.0"	5.0"	6.0"	5.5"			3.5"
		80	14.0"	14.0"	5.0"	4.5"	10.5"	7.0"	6.5"			4.0"	5.0"	4.5"			

HOST STRUCT.	ANCHOR	LOAD (psf)	3-1/8" MIN EDGE DISTANCE														
			Spans Up To 6'-0"					Spans Up To 9'-8"					Spans Up To 12'-0"				
			CONN TYPE					CONN TYPE					CONN TYPE				
HOLLOW CONC BLOCK	5/16" ELCO/DEWALT ULTRA CON WITH 1-1/4" EMBED	40	16.0"	16.0"	12.5"	12.5"	16.0"	13.5"	13.5"	7.0"	6.5"	13.5"	11.0"	11.0"	5.0"	4.5"	8.0"
		50	16.0"	16.0"	10.0"	9.5"	16.0"	10.5"	11.0"	5.0"	4.5"	8.0"	7.5"	8.0"	4.0"		5.0"
		60	15.0"	15.0"	7.5"	7.0"	15.0"	8.0"	8.5"	4.0"	4.5"	5.0"	6.0"	5.5"			
		70	12.5"	12.5"	6.0"	5.5"	12.0"	6.5"	6.5"			4.0"	5.0"	4.5"			
		80	11.0"	11.0"	5.0"	4.5"	8.0"	5.5"	5.0"			4.0"					

ANCHOR NOTES: SEE SHEET 13 FOR ANCHOR NOTES

HOST STRUCT.	ANCHOR	LOAD (psf)	4" MIN EDGE DISTANCE														
			Spans Up To 6'-0"					Spans Up To 9'-8"					Spans Up To 12'-0"				
			CONN TYPE					CONN TYPE					CONN TYPE				
GROUT-FILLED CONCRETE BLOCK	5/16" ITW TAPCON XL W/ 2-1/4" MIN. EMBED	40	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	14.5"	13.5"	16.0"
		50	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	14.5"	13.0"	16.0"	16.0"	16.0"	11.0"	10.0"	16.0"
		60	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	11.5"	10.5"	16.0"	16.0"	16.0"	9.0"	8.0"	12.0"
		70	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	9.5"	8.5"	13.0"	16.0"	15.0"	7.5"	6.5"	9.0"
	5/16" ELCO/DEWALT ULTRA CON W/ 2-1/4" MIN. EMBED	80	16.0"	16.0"	14.5"	13.5"	16.0"	16.0"	16.0"	8.0"	7.0"	10.5"	14.0"	12.0"	6.5"	5.5"	7.5"
		40	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	9.0"	8.0"	16.0"	14.0"	14.5"	6.5"	6.0"	10.5"
		50	16.0"	16.0"	12.5"	12.5"	16.0"	14.0"	14.0"	6.5"	6.0"	10.0"	10.0"	10.5"	5.0"	4.5"	6.0"
		60	16.0"	16.0"	9.5"	9.0"	16.0"	10.5"	11.5"	5.0"	4.5"	6.5"	7.5"	7.5"	4.0"		4.5"
		70	16.0"	16.0"	8.0"	7.0"	15.5"	8.5"	8.0"	4.0"		5.0"	6.5"	5.5"			
		80	14.0"	14.5"	6.5"	6.0"	10.5"	7.0"	6.5"			4.0"					

HOST STRUCT.	ANCHOR	LOAD (psf)	3/4" MIN EDGE DISTANCE														
			Spans Up To 6'-0"					Spans Up To 9'-8"					Spans Up To 12'-0"				
			CONN TYPE					CONN TYPE					CONN TYPE				
WOOD (G=0.55)	1/4" LAG SCREW WITH 1-3/4" MIN THREAD PENETRATION 	40	16.0"	16.0"	14.0"	14.0"	16.0"	16.0"	16.0"	8.0"	8.0"	16.0"	16.0"	16.0"	6.5"	6.0"	16.0"
		50	16.0"	16.0"	11.0"	11.0"	16.0"	16.0"	16.0"	6.5"	6.0"	16.0"	16.0"	16.0"	5.0"	4.5"	16.0"
		60	16.0"	16.0"	9.0"	8.5"	16.0"	16.0"	16.0"	5.0"	5.0"	16.0"	16.0"	16.0"	4.0"	4.0"	11.5"
		70	16.0"	16.0"	7.5"	7.0"	16.0"	16.0"	16.0"	4.5"	4.0"	12.5"	16.0"	14.5"	3.5"	3.0"	9.0"
		80	16.0"	16.0"	6.5"	6.0"	16.0"	16.0"	16.0"	3.5"	3.5"	10.0"	13.5"	12.0"	3.0"	2.5"	7.0"
	7/16" WOOD BUSHING WITH 1.13" MIN EMBED & 1/4-20 SS MACHINE SCREW 	40	16.0"	16.0"	11.5"	11.5"	16.0"	14.0"	14.0"	6.0"	6.0"	14.0"	11.0"	11.5"	4.5"	4.0"	8.5"
		50	16.0"	16.0"	9.0"	9.0"	16.0"	11.0"	11.0"	4.5"	4.0"	8.0"	8.0"	8.5"	3.5"	3.0"	5.0"
		60	15.0"	15.0"	7.0"	6.5"	15.0"	8.5"	9.0"	3.5"	3.5"	5.5"	6.0"	6.0"	3.0"	2.5"	3.5"
		70	13.0"	13.0"	5.5"	5.0"	12.5"	6.5"	6.5"	3.0"	2.5"	4.0"	5.0"	4.5"	2.5"	2.0"	2.5"
	#14 WOOD SCREW OR 1/4" ITW TAPCON WITH 1-3/4" MIN THREAD PENETRATION 	80	11.0"	11.5"	4.5"	4.0"	8.5"	5.5"	5.0"	2.5"	2.0"	3.0"	4.0"	3.5"	2.0"	1.5"	2.0"
		40	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	16.0"	9.0"	9.0"	16.0"	16.0"	16.0"	7.0"	6.5"	16.0"
		50	16.0"	16.0"	12.5"	12.5"	16.0"	16.0"	16.0"	7.0"	6.5"	16.0"	16.0"	16.0"	5.5"	5.0"	13.0"
60		16.0"	16.0"	10.0"	10.0"	16.0"	16.0"	16.0"	5.5"	5.5"	13.5"	16.0"	15.0"	4.5"	4.0"	9.0"	
70		16.0"	16.0"	8.5"	8.0"	16.0"	16.0"	16.0"	5.0"	4.5"	10.0"	13.0"	11.5"	3.5"	3.5"	7.0"	
80	16.0"	16.0"	7.0"	6.5"	16.0"	14.5"	13.5"	4.0"	3.5"	8.0"	11.0"	9.5"	3.0"	3.0"	5.5"		



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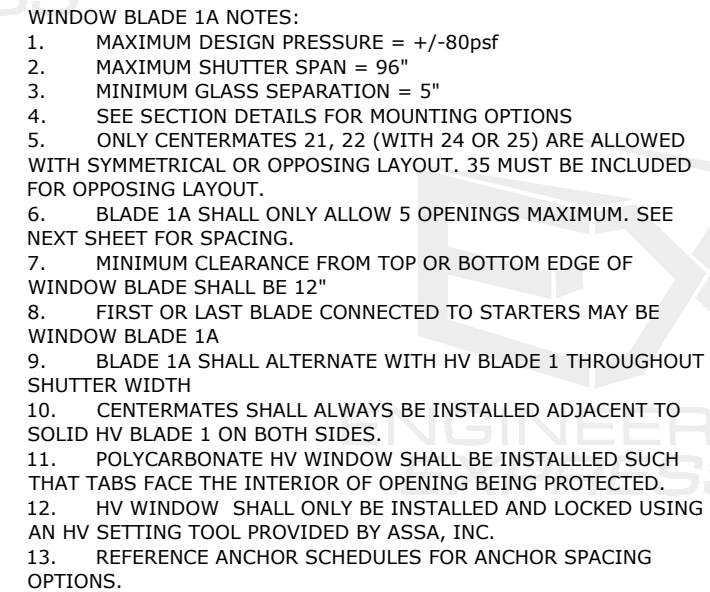
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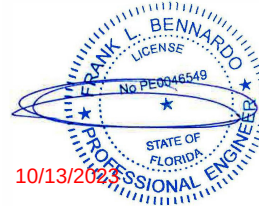


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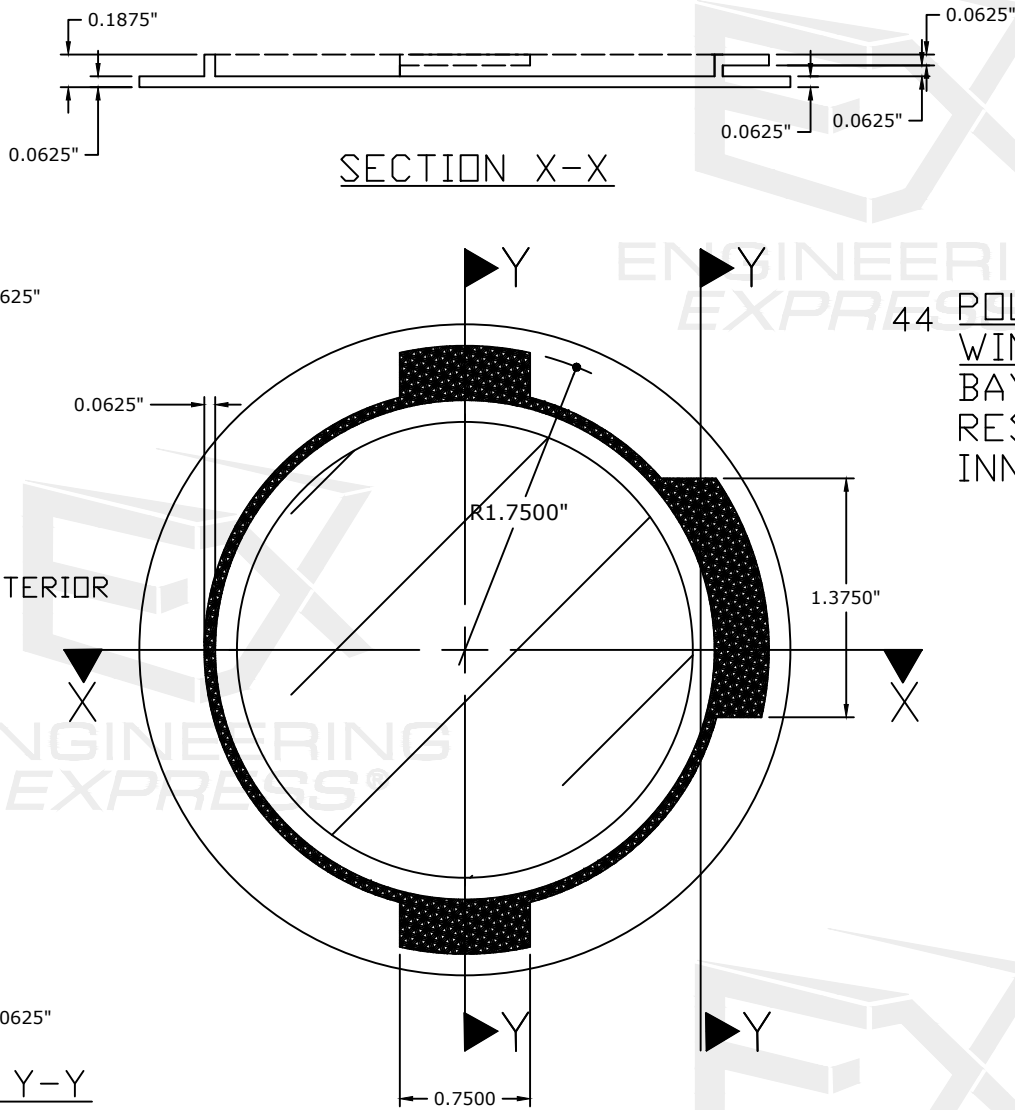
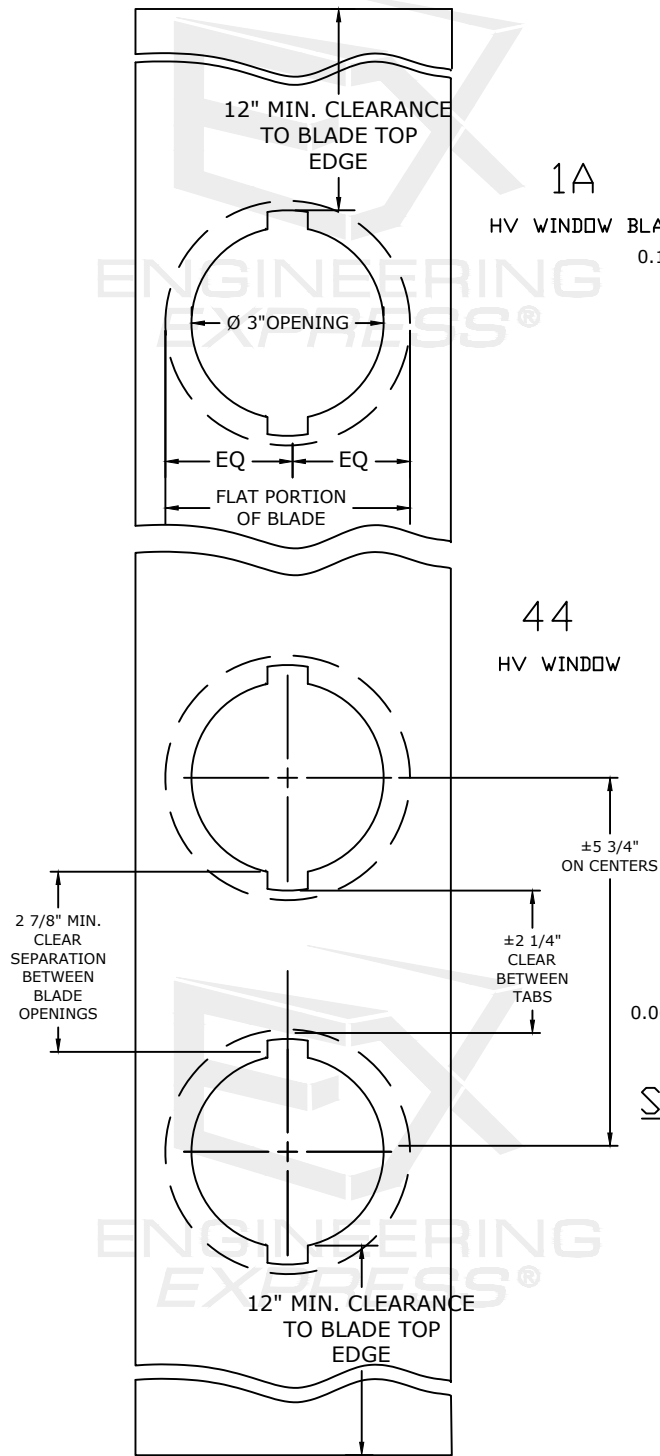
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