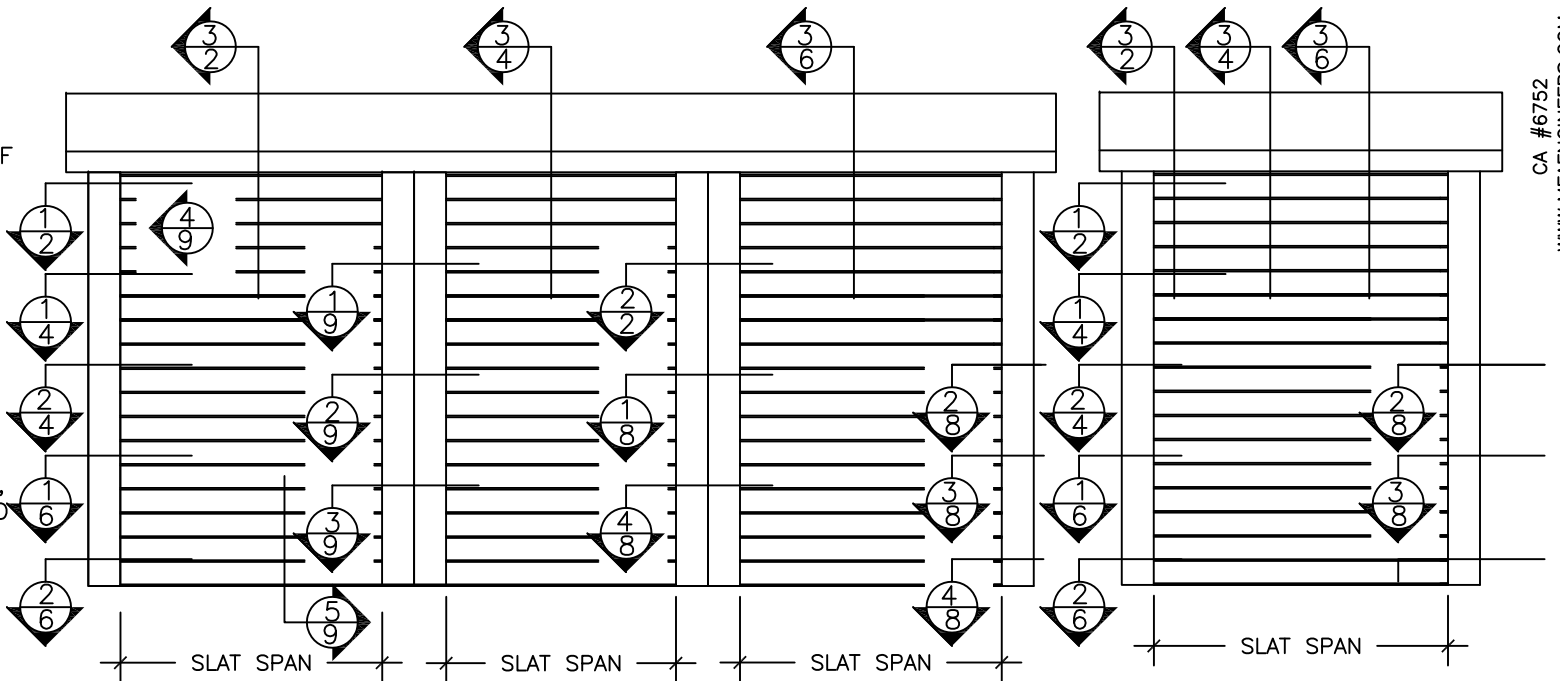


STRUCTURAL NOTES:

1. THIS NON POROUS SYSTEM HAS BEEN VERIFIED FOR COMPLIANCE IN ACCORDANCE WITH THE SEVENTH EDITION OF THE FLORIDA BUILDING CODE (2020 FBC) FOR USE WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE. THE ADEQUACY FOR IMPACT, DEFLECTION AND FATIGUE RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH APPROPRIATE SECTIONS OF THE ABOVE REFERENCED CODE, INCLUDING TESTING STANDARDS: TAS 201,202 AND 203; ASTM E330-02, ASTM E1886-02 AND ASTM E1996-03. SEE LIST OF REPORTS ON SHEET 1 OF 11.
2. DESIGN PRESSURE REQUIREMENTS OF A SPECIFIC SITE SHALL BE DETERMINED BY OTHERS IN CONFORMANCE TO APPROPRIATE SECTIONS OF THE FBC FOR A BASIC WIND SPEED (ALLOWABLE STRESS DESIGN) AS REQUIRED BY THE JURISDICTION WHERE THE SYSTEM WILL BE INSTALLED. ULTIMATE DESIGN LOADS (UD) DETERMINED BY ASCE 7-16 SHALL BE REDUCED TO ALLOWABLE STRESS DESIGN LOADS (ASD) BY MULTIPLYING THE UD BY 0.6. TO COMPARE THEM TO THE ASD PRESSURE RATINGS SHOWN ON SHEETS 3, 5 &7 OF 11. USE OF DIRECTIONALITY FACTOR Kd=0.85 IS ALLOWED.
3. IMPACT AND FATIGUE RESISTANCE HAS BEEN DETERMINED IN ACCORDANCE WITH THE FBCLARGE MISSILE AND MISSLE TYPE "D" AS LISTED HEREIN.
4. NO 33-1/3% INCREASE IN ALLOWABLE STRESS INCREASE HAS BEEN USED IN THE DESIGN OF THIS PRODUCT.
5. THIS PRODUCT EVALUATION DOCUMENT (PED) DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. IF SITE CONDITIONS DEVIATE FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS TO BE USED IN CONJUNCTION WITH THIS DOCUMENT.
6. THE CONTRACTOR AND / OR PERMIT HOLDER IS TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION OF THIS SYSTEM, INCLUDING VERIFYING THE ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND THE NEW SUPERIMPOSED LOADS SHOWN BELOW AND THE SOUDNESS OF THE STRUCTURE WHERE THE SYSTEM IS TO BE ATTACHED TO INSURE PROPER ANCHORAGE.
7. SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A FLORIDA LICENSED ENGINEER OR ARCHITECT WHO WILL BECOME THE ENGINEER OF RECORD (EOR) FOR THE PROJECT AND WHO WILL BE RESPONSIBLE FOR THE PROPER USE OF THE PED. THE ENGINEER OF RECORD, ACTING AS A DELEGATED ENGINEER TO THE PED ENGINEER SHALL SUBMIT TO THIS ENGINEER THE SITE SPECIFIC DRAWINGS FOR REVIEW.
8. THIS PED SHALL BEAR THE DATE AND ORIGINAL SEAL OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT REGARDLESS OF ITS AVAILABILITY FROM THE FLORIDA PRODUCT APPROVAL WEBSITE.
9. AN OPTIONAL UV AND / OR SOLAR EXTERNAL LAYER MAY BE ADDED ONTO THE SYSTEM.
10. LIMITATIONS OF USE:
THE MAXIMUM SIZE SHALL BE SHOWN ON SHEETS 3, 5 & 7 OF 11.
MAXIMUM HEIGHT OF ROLL-UP SHALL BE 30'-0".
11. FOR DETERMINING INTERNAL PRESSURE IN THE ABOVE REFERENCED CODES, THIS PRODUCT IS CLASSIFIED AS NON-POROUS WITH A POROSITY OF LESS THAN 10% FOR THE CONDITIONS SHOWN IN THIS PRODUCT EVALUATION DOCUMENT. THIS PRODUCT MUST COMPLETELY COVER AN OPENING IN ALL DIRECTIONS.
12. ALL SCREWS TO BE STAINLESS STEEL 304 OR GALVANIZED A307 STEEL.
13. ALL BOLTS TO BE ASTM A307, GALVANIZED OR 304 SERIES STAINLESS STEEL.
14. SUPPORTBRACKETS AND ANCHORS :
A. ANCHORS INTO THE SUPPORT SUBSTRUCTURE (WALL, CEILINGS, BEAMS AND FLOORS) SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS.
B. THE ANCHOR SPACING SHOWN ON SHEETS 3, 5, & 7 of 11 INDICATED FOR 1/4" and 3/8" DIAMETERS REFER TO CENTER OF SUPPORTING BRACKETS.
C. ANCHOR MINIMUM EMBEDMENT AND EDGE DISTANCES
- | SUBSTRUCTURE | EMBEDMENT | EDGE DISTANCE |
|----------------------------------|------------|--------------------|
| HOLLOW BLOCK | 1-1/4 INCH | 12 D OR PER MANUF. |
| GROUT FILLED OR KSI CONCRETE | 1-3/4 INCH | 12 D OR PER MANUF. |
| 4 KSI CONCRETE OR 2 KSI CONCRETE | 1-3/4 INCH | 12 D OR PER MANUF. |
| WOOD OR TIMBER | 8 D | 3/4 INCH |
- D. NO EMBEDMENT INTO NON-STRUCTURAL MATERIAL SUCH AS STUCCO, SIDING AND PAVERS SHALL BE INCLUDED AS PART OF THE EMBEDMENT REQUIREMENT.
15. STEEL SURFACES TO BE PLACED IN CONTACT WITH ALUMINUM SHALL BE GIVEN ONE COAT OF ZINC CHROMATE PRIMER IN ACCORDANCE WITH FEDERAL SPEC NO.: TTP-645, OR BE GALVANIZED.
16. MAXIMUM DESIGN PRESSURE VERSUS PANEL SPAN SHOWN ON SHEETS 3, 5 &7 OF 11.
17. ALL ALUMINUM ALLOYS SHALL BE 6063-T6 OR 6005-T6 U.N.O.
18. ANCHORING OR LOADING CONDITIONS OTHER THAN THOSE SHOWN IN THESE DETAILS ARE NOT PART OF THIS APPROVAL.
19. MANUFACTURER LABEL SHALL BE PLACED ON A READILY AND VISIBLE LOCATION ON THE ROLL-UP. ONE LABEL SHALL BE PLACED FOR EVERY OPENING. LABEL SHALL READ AS FOLLOWS:
ULTRATEK WORLDWIDE
3801 N WASHINGTON AVE
SARASOTA, FL 34234
FLORIDA PRODUCT APPROVAL NUMBER: FL-XXXX. OPENING NO.: XX
20. THIS DOCUMENT IN ITS ENTIRETY WILL BE CONSIDERED INVALID IF IT IS ALTERED BY ANY MEANS OR DOES NOT BEAR THE DATE AND ORIGINAL EMBOSSED SEAL OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.



TYPICAL MULTIPLE UNIT ELEVATION

INTERMEDIATE MULLION REQUIRED FOR INSTALLATION
SCALE 1:20

TYPICAL SINGLE UNIT ELEV.

SINGLE SPAN UNIT INSTALLATION
SCALE 1:20

SLAT SPAN	ALLOWABLE DESIGN PRESSURE
72.0"	+/- 120.0 PSF
92.0"	+/- 108.8 PSF
112.0"	+/- 101.1 PSF
132.0"	+/- 95.1 PSF
152.0"	+/- 90.0 PSF
172.0"	+/- 85.7 PSF
192.0"	+/- 82.0 PSF
204.0"	+/- 80.0 PSF
230.0"	+/- 67.8 PSF
244.0"	+/- 62.6 PSF
258.0"	+/- 58.0 PSF
272.0"	+/- 54.0 PSF
286.0"	+/- 50.5 PSF
288.0"	+/- 50.0 PSF

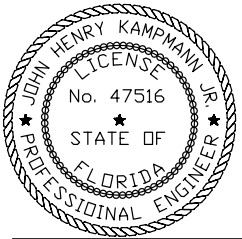
LIST OF REPORTS

EVALUATION BASED ON:
BLACKWATER TESTING INC.

LAB NO.: BT-UTW-17-001

DATED 8-16-17
TAS 201, TAS 203 - LARGE MISSILE IMPACT RESISTANCE &
CYCLIC LOADING PERFORMANCE
TAS 202 - UNIFORM STATIC LOADS

LAB NO.: BTW-UTW-17-001
DATED 8-16-17
ASTM E330-02 - UNIFORM STATIC LOADS
ASTM E1886-02 & ASTM E1996-03 - LARGE MISSILE TYPE
"D" IMPACT RESISTANCE & CYCLIC LOADING PERFORMANCE



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY JOHN HENRY KAMPMANN JR. ON THE DATE ADJACENT TO THE SEAL.

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

Digitally signed by John Henry Kampmann Jr.
DN: c=US, st=Florida, l=Sarasota, o=John Henry Kampmann Jr., cn=John Henry Kampmann Jr., email=jkampmann@meaengineers.com
Date: 2020.10.17 16:31:56 -04'00'

John H. Kampmann Jr., PE
FL License #: 47516
DATE:

2020 FBC (HIGH AND NON-HIGH VELOCITY HURRICANE ZONES)

CA #6752
WWW.MEAENGINEERS.COM

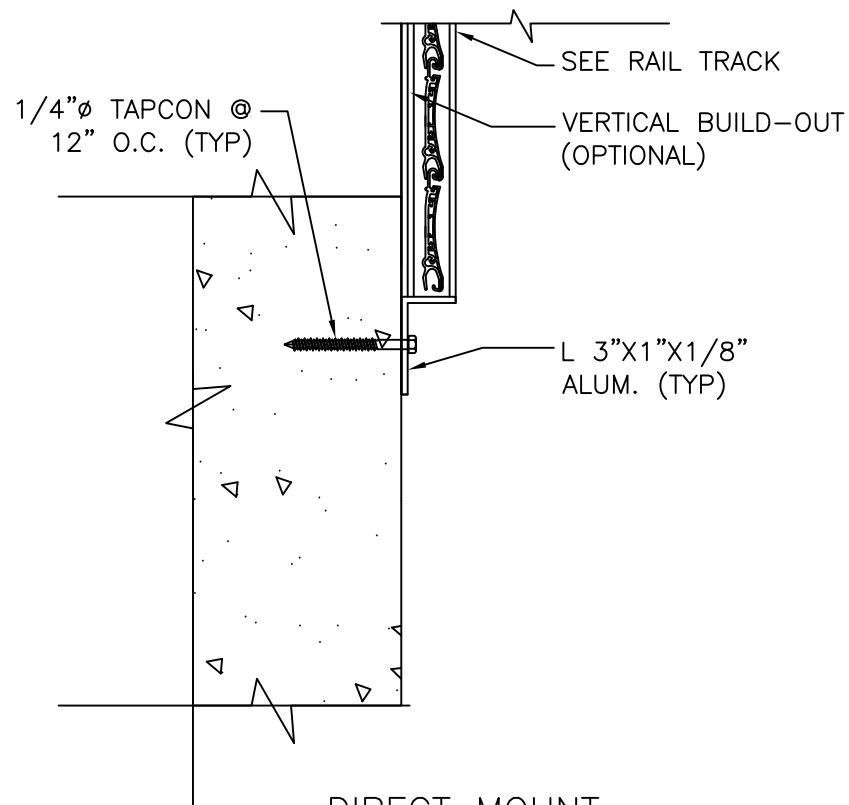
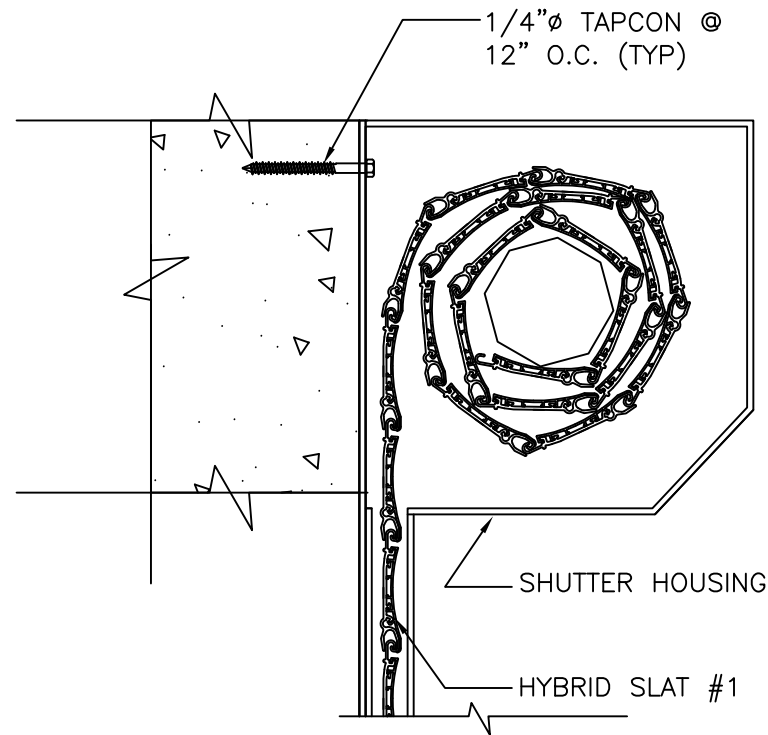


DESCRIPTION
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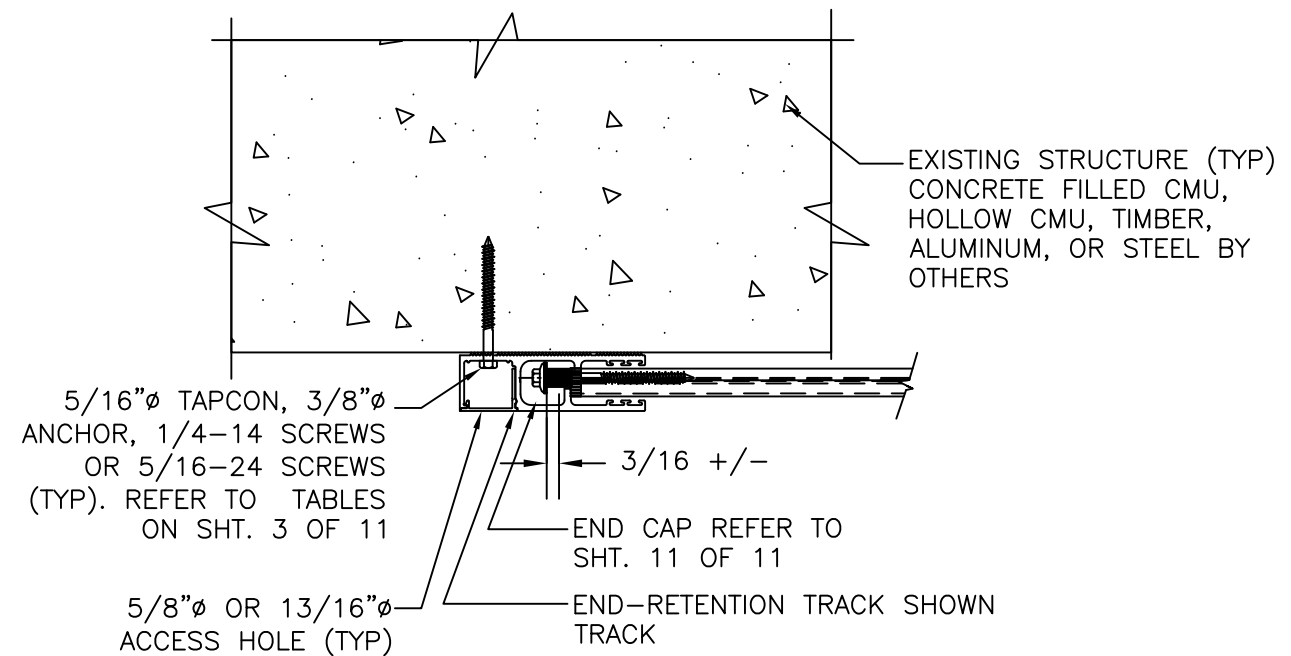
ULTRATEK WORLDWIDE
3801 N. Washington Blvd.
Sarasota, FL 34234
Phone: (941) 351-6700
info@ultratek.com

GREENTEK HYBRID
ROLL-UP SHUTTER SYSTEM

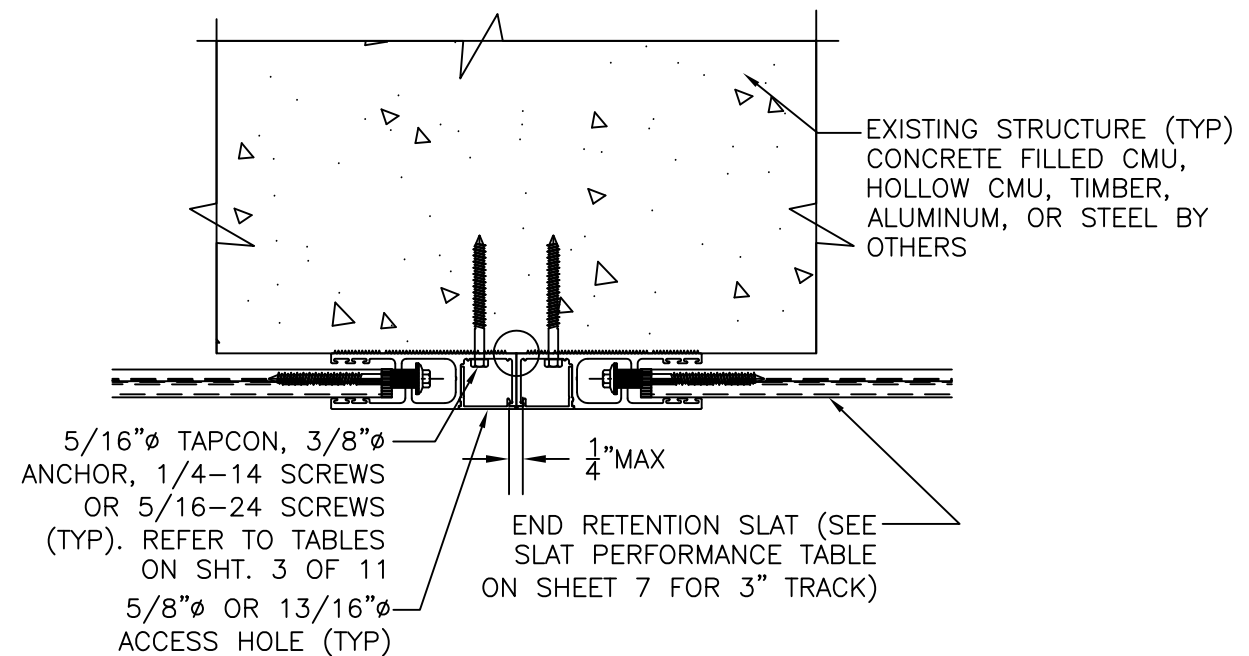
Description:
Drawn: JK
Project #: 20-0808
Scale: NOTED
Date: 10/3/20
Sheet No.:



DIRECT MOUNT
3-1/4" END RETENTION TRACK
WALL MOUNT INSTALLATION
SCALE 3"=1'-0"



END RETENTION
DIRECT MOUNT INSTALLATION
SCALE 3"=1'-0"



END RETENTION TRACK
WALL MOUNT INSTALLATION
SCALE 3"=1'-0"

John H. Kampmann Jr., PE
FL License #: 47516
DATE:

2020 FBC (HIGH AND NON-HIGH VELOCITY HURRICANE ZONES)

CA #6752
WWW.MEAENGINEERS.COM

MEA
ENGINEERS, INC.
2352 Appaloosa Circle
Sarasota, Florida 34240
(941) 922-3854

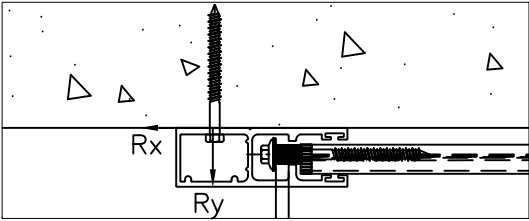
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REV. 1 XX/XX/XX - RESERVED.

ULTRATEK WORLDWIDE
3801 N. Washington Blvd.
Sarasota, FL 34234
Phone: (941) 351-6700
info@ultratek.com

GREENTEK HYBRID
ROLL-UP SHUTTER SYSTEM

Drawn: JK
Project #: 20-0808
Scale: NOTED
Date: 10/3/20
Sheet No.:

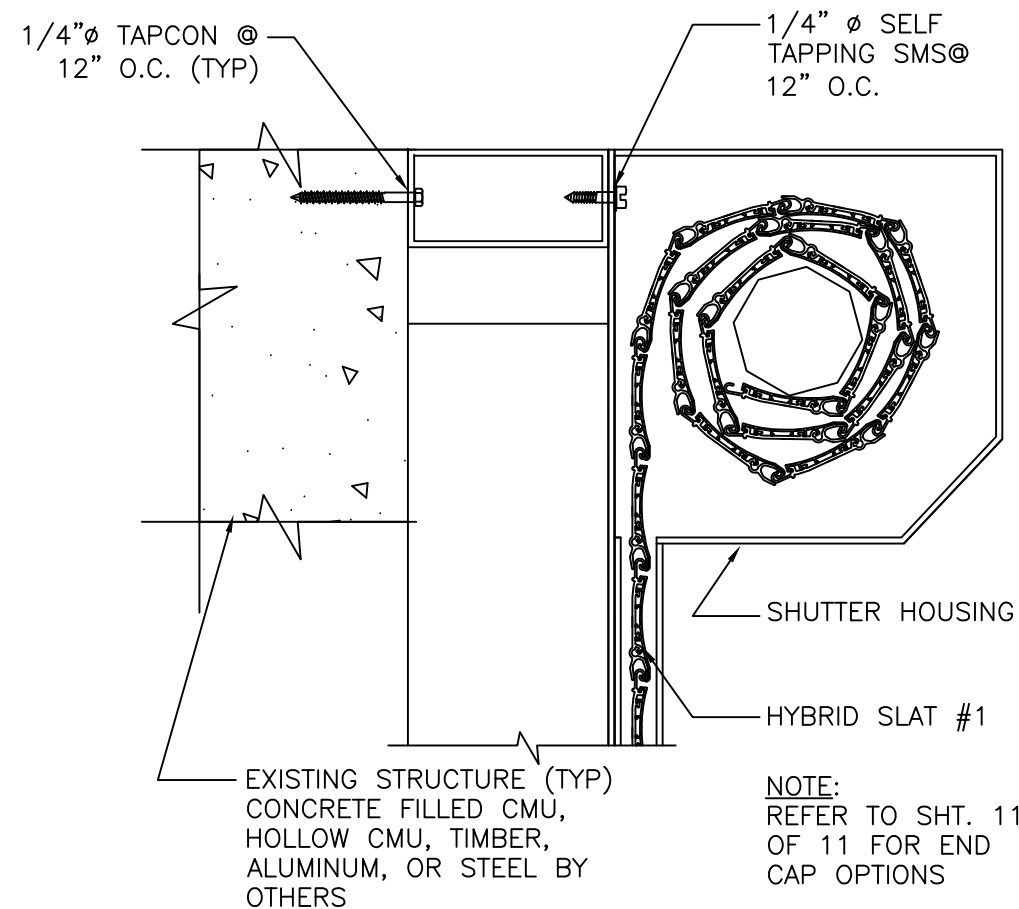
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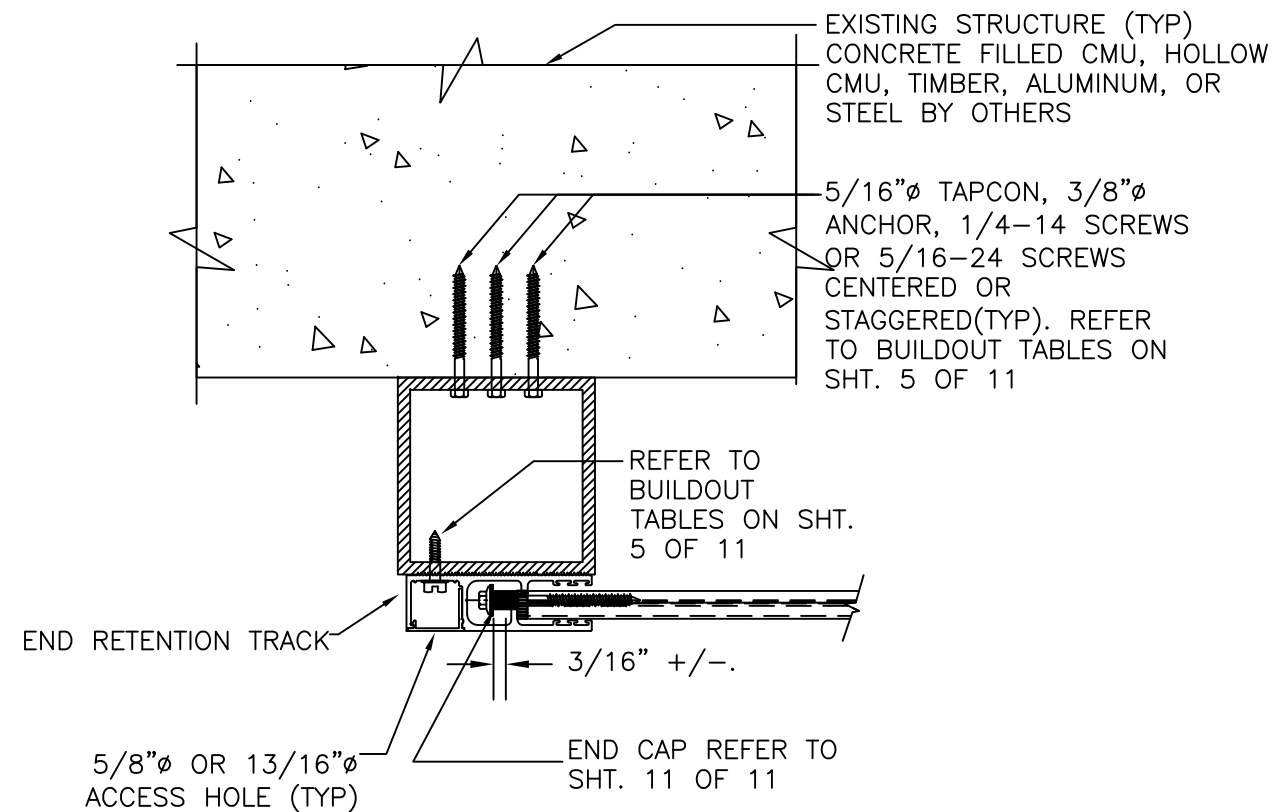
(WALL MOUNT)

SLAT SPAN	DESIGN PRESSURE	R _x	R _y
72"	+/- 50 PSF	678.2 LB/FT	150.0 LB/FT
	+/- 60 PSF	842.2 LB/FT	180.0 LB/FT
	+/- 70 PSF	1004.9 LB/FT	210.0 LB/FT
	+/- 80 PSF	1166.2 LB/FT	240.0 LB/FT
	+/- 90 PSF	1325.9 LB/FT	270.0 LB/FT
	+/- 100 PSF	1484.2 LB/FT	300.0 LB/FT
	+/- 110 PSF	1640.8 LB/FT	330.0 LB/FT
112"	+/- 120 PSF	1795.7 LB/FT	360.0 LB/FT
	+/- 45 PSF	1405.0 LB/FT	210.0 LB/FT
	+/- 50 PSF	1567.1 LB/FT	233.3 LB/FT
	+/- 55 PSF	1729.0 LB/FT	256.7 LB/FT
	+/- 60 PSF	1890.7 LB/FT	280.0 LB/FT
	+/- 65 PSF	2052.0 LB/FT	303.3 LB/FT
	+/- 70 PSF	2213.1 LB/FT	326.7 LB/FT
152"	+/- 75 PSF	2373.8 LB/FT	350.0 LB/FT
	+/- 80 PSF	2534.3 LB/FT	373.3 LB/FT
	+/- 45 PSF	2292.4 LB/FT	285.0 LB/FT
	+/- 50 PSF	2549.3 LB/FT	316.7 LB/FT
	+/- 55 PSF	2805.7 LB/FT	348.3 LB/FT
	+/- 60 PSF	3061.8 LB/FT	380.0 LB/FT
	+/- 65 PSF	3317.3 LB/FT	411.7 LB/FT
192"	+/- 70 PSF	3572.4 LB/FT	443.3 LB/FT
	+/- 75 PSF	3827.1 LB/FT	475.0 LB/FT
	+/- 80 PSF	4081.2 LB/FT	506.7 LB/FT
	+/- 45 PSF	3284.4 LB/FT	360.0 LB/FT
	+/- 50 PSF	3649.1 LB/FT	400.0 LB/FT
	+/- 55 PSF	4013.1 LB/FT	440.0 LB/FT
	+/- 60 PSF	4376.5 LB/FT	480.0 LB/FT
204"	+/- 65 PSF	4739.2 LB/FT	520.0 LB/FT
	+/- 70 PSF	5101.1 LB/FT	560.0 LB/FT
	+/- 75 PSF	5462.4 LB/FT	600.0 LB/FT
	+/- 80 PSF	5822.8 LB/FT	640.0 LB/FT
	+/- 45 PSF	3602.0 LB/FT	382.5 LB/FT
	+/- 50 PSF	4001.3 LB/FT	425.0 LB/FT
	+/- 55 PSF	4399.9 LB/FT	467.5 LB/FT
230"	+/- 60 PSF	4797.8 LB/FT	510.0 LB/FT
	+/- 65 PSF	5194.9 LB/FT	552.5 LB/FT
	+/- 70 PSF	5591.1 LB/FT	595.0 LB/FT
	+/- 75 PSF	5986.6 LB/FT	637.5 LB/FT
	+/- 80 PSF	6381.2 LB/FT	680.0 LB/FT
	+/- 20 PSF	1918.7 LB/FT	191.7 LB/FT
	+/- 25 PSF	2400.7 LB/FT	239.6 LB/FT
272"	+/- 30 PSF	2882.0 LB/FT	287.5 LB/FT
	+/- 35 PSF	3362.6 LB/FT	335.4 LB/FT
	+/- 40 PSF	3842.5 LB/FT	383.3 LB/FT
	+/- 45 PSF	4321.5 LB/FT	431.3 LB/FT
	+/- 50 PSF	4799.6 LB/FT	479.2 LB/FT
	+/- 20 PSF	2477.2 LB/FT	226.7 LB/FT
	+/- 25 PSF	3097.3 LB/FT	283.3 LB/FT
288"	+/- 30 PSF	3716.4 LB/FT	340.0 LB/FT
	+/- 35 PSF	4334.6 LB/FT	396.7 LB/FT
	+/- 40 PSF	4951.6 LB/FT	453.3 LB/FT
	+/- 45 PSF	5567.6 LB/FT	510.0 LB/FT
	+/- 50 PSF	6182.4 LB/FT	566.7 LB/FT
	+/- 20 PSF	2701.4 LB/FT	240.0 LB/FT
	+/- 25 PSF	3377.0 LB/FT	300.0 LB/FT

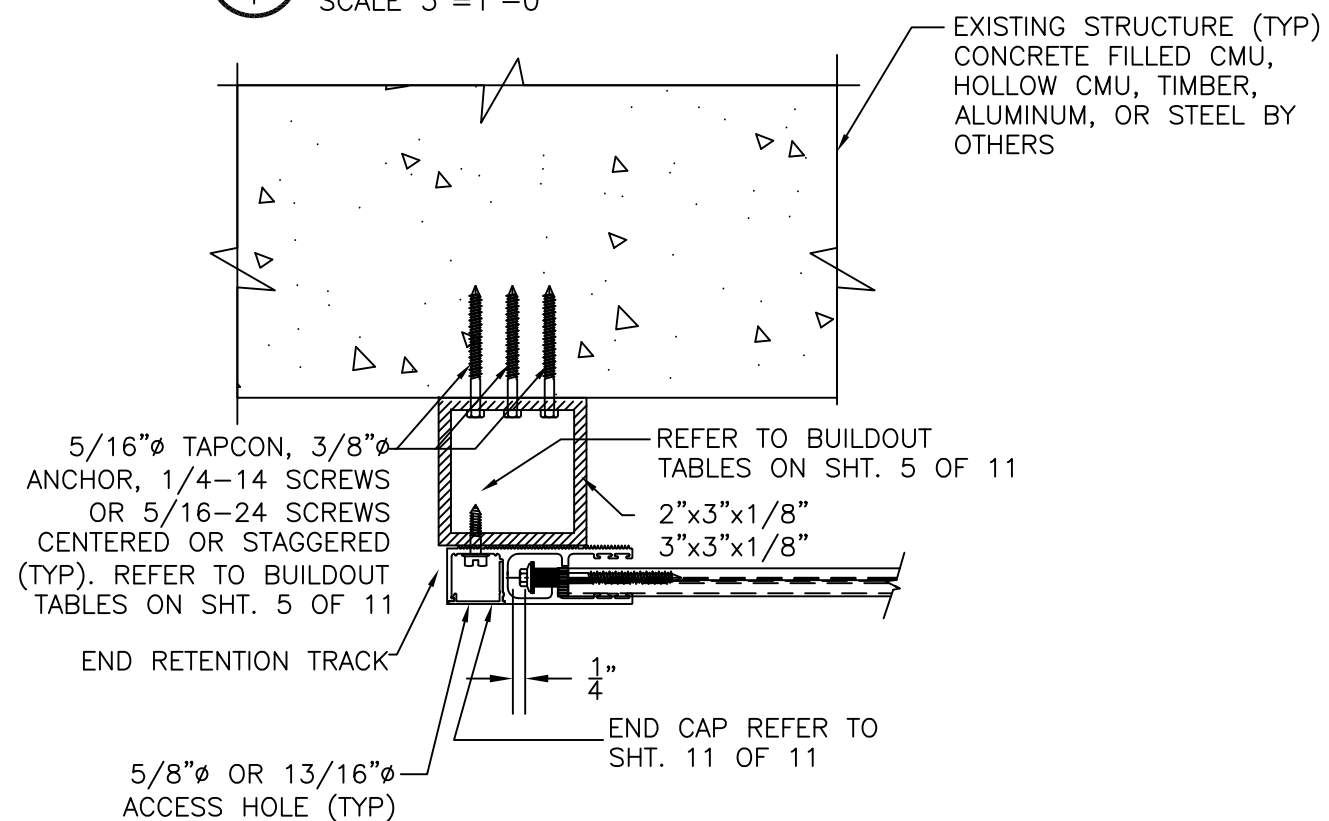
MAXIMUM SPACING (O.C.)																	
1/4" ELCO ULTRACON TO 2700 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	1/4" SS ITW TAPCON TO 3192 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	5/16" ELCO ULTRACON TO 3500 PSI MIN. CONCRETE; 2" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	5/16" ITW TAPCON			1/4" POWERS POWER-BOLT TO 3000 PSI MIN. CONCRETE; 2.5" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" ALL-POINTS SOLID-SET		1/4" LAG SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	5/16" LAG SCREW TO G=0.42 MIN WOOD; 2" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 WOOD SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 410 SS SMS W/ FULL THREAD PENETRATION OR 1/4-20 410 SS THRU-BOLT TO 0.125" MIN. 6063-T6 ALUM; 0.5" MIN. EDGE DISTANCE	5/16" 410 SS SMS W/ FULL THREAD PENETRATION OR 5/16-18 410 SS THRU-BOLT TO 0.25" MIN. 6063-T6 ALUM; 0.625" MIN. EDGE DISTANCE	3/8" POWERS WEDGE BOLT TO 3000 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 4.5" MIN. EDGE DISTANCE	3/8" ELCO CONFLX		
TO 2899 PSI MIN. CONCRETE; 2.25" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	TO GROUT-FILLED CONCRETE BLOCK; 2.25" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	TO HOLLOW CONCRETE BLOCK; 1.75" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE					TO 3000 PSI MIN. CONCRETE; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	TO HOLLOW BLOCK; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE								TO 1819 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE	TO 4510 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE
6.5"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.7"	3.0"	2.5"	3.1"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
5.3"	5.7"	6.0"	6.0"	6.0"	5.5"	6.0"	6.0"	4.7"	2.4"	2.0"	2.5"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
4.4"	4.8"	6.0"	6.0"	6.0"	6.0"	4.7"	6.0"	3.9"	2.0"		2.1"	5.4"	6.0"	6.0"	6.0"	6.0"	6.0"
3.8"	4.1"	6.0"	6.0"	6.0"	4.0"	5.4"	4.8"	3.4"	4.7"		5.5"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
3.4"	3.6"	6.0"	6.0"	6.0"	3.6"	4.8"	4.2"	3.0"	4.1"		4.9"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
3.0"	3.2"	5.7"	5.6"	5.4"	3.2"	4.3"	3.8"	2.7"	3.7"		4.4"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
2.7"	2.9"	5.2"	5.1"	4.9"	2.9"	3.9"	3.4"	2.4"	3.3"		4.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
2.5"	2.7"	4.7"	4.7"	4.5"	2.6"	3.5"	3.1"	2.2"	3.0"		3.6"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
3.3"	3.6"	6.0"	6.0"	6.0"	6.0"	6.0"	4.8"	2.9"	4.3"		5.3"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
3.0"	3.2"	5.7"	5.6"	5.3"	3.3"	4.3"	3.7"	2.6"	3.9"		4.8"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
2.7"	2.9"	5.1"	5.1"	4.8"	3.0"	3.9"	3.4"	2.4"	3.5"		4.3"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
2.5"	2.7"	4.7"	4.7"	4.4"	2.7"	3.6"	3.1"	2.2"	3.2"		4.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
2.3"	2.4"	4.3"	4.3"	4.1"	2.5"	3.3"	2.9"	2.0"	2.9"	3.7"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	
2.1"	2.3"	4.0"	4.0"	3.8"	2.3"	3.1"	2.7"		2.7"	3.4"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	
	2.1"	4"	3.7"	3.5"	2.2"	2.8"	2.5"		2.6"	3.2"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
		3.5"	3.5"	3.3"	2.0"	2.7"	2.3"		2.3"	2.4"	3.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
2.1"	2.2"	4.0"	3.9"	3.7"	2.3"	3.0"	2.6"		2.7"	2.4"	2.5"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
		3.6"	3.5"	3.3"	2.1"	2.7"	2.4"		2.5"	2.3"	2.9"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
		3.2"	3.2"	3.0"		2.5"	2.1"			2.5"	3.2"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
		3.0"	2.9"	2.8"		2.3"				2.3"	2.9"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
		2.7"	2.7"	2.6"		2.1"				2.1"	2.4"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
		2.5"	2.5"	2.4"							2.3"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
		2.4"	2.4"	2.2"							2.1"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
		2.2"	2.2"	2.1"							4.1"	6.0"	6.0"	6.0"	6.0"	6.0"	
		2.8"	2.8"	2.6"		2.2"					2.6"	5.2"	5.7"	5.7"	6.0"	6.0"	
		2.5"	2.5"	2.4"							2.3"	4.7"	5.2"	5.2"	6.0"	6.0"	
		2.3"	2.3"	2.1"							2.1"	4.3"	4.7"	4.7"	5.7"	5.7"	
		2"	2.1"									3.9"	4.3"	4.3"	5.2"	5.2"	
												3.6"	4.0"	4.0"	4.8"	4.8"	
												3.3"	3.7"	3.7"	4.5"	4.5"	
												3.1"	3.5"	3.5"	4.2"	4.2"	
												2.9"	3.2"	3.2"	3.9"	3.9"	
		2.6"	2.5"	2.4"									2.4"	4.8"	5.3"	6.0"	6.0"
		2.3"	2.3"	2.2"									2.1"	4.3"	4.7"	5.7"	5.7"
		2.1"	2.1"										3.9"	4.3"	4.3"	5.2"	5.2"
													3.6"	3.9"	3.9"	4.8"	4.8"
													3.3"	3.6"	3.6"	4.4"	4.4"
													3.1"	3.4"	3.4"	4.1"	4.1"
													2.9"	3.2"	3.2"	3.8"	3.8"
													2.7"	3.0"	3.0"	3.6"	3.6"
2.5"	2.7"	4.8"	4.8"	4.5"	2.9"	3.7"	3.2"	2.3"				3.5"	4.5"	6.0"	6.0"	6.0"	6.0"
2.0"	2.2"	3.9"	3.8"	3.6"	2.3"	3.0"	2.6"					2.8"	3.6"	6.0"	6.0"	6.0"	6.0"
		3.2"	3.2"	3.0"		2.5"	2.1"					2.3"	3.0"	6.0"	6.0"	6.0"	6.0"
		2.8"	2.7"	2.6"		2.1"							2.6"	5.1"	5.7"	6.0"	6.0"
		2.4"	2.4"	2.3"									2.3"	4.5"	5.0"	6.0"	6.0"
		2.1"	2.1"	2.0"									2.0"	4.0"	4.4"	5.3"	5.3"
														3.6"	4.0"	4.8"	4.8"
	2.1"	3.8"	3.8"	3.5"	2.3"	2.9"	2.5"					2.7"	3.6"	6.0"	6.0"	6.0"	6.0"
		3.0"	3.0"	2.8"		2.3"						2.2"	2.9"	5.6"	6.0"	6.0"	6.0"
		2.5"	2.5"	2.4"									2.4"	4.7"	5.2"	6.0"	6.0"
		2.2"	2.1"	2.0"									2.1"	4.0"	4.4"	5.3"	5.3"
														3.5"	3.9"	4.7"	4.7"
														3.1"	3.5"	4.2"	4.2"
														2.8"	3.1"	3.7"	3.7"
		3"	3.5"	3.2"	2.1"	2.7"	2.3"					2.5"	3.4"	6.0"	6.0"	6.0"	6.0"
		3"	2.8"	2.6"		2.1"						2.0"	2.7"	5.1"	5.7"	6.0"	6.0"
		2"	2.3"	2.2"									2.2"	4.3"	4.8"	5.7"	5.7"
														3.7"	4.1"	4.9"	4.9"
														3.2"	3.6"	4.3"	4.3"
														2.6"	2.8"	3.4"	3.4"
														2.3"	2.5"	3.1"	3.1"



3
4 BUILT-OUT INSTALLATION
END RETENTION TRACK
WALL MOUNT INSTALLATION
SCALE 3"=1'-0"

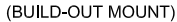


4" BUILD-OUT INSTALLATION
FOR END RETENTION
1
4 SCALE 3"=1'-0"



2
4 2"-3" BUILD-OUT INSTALLATION
END RETENTION
SCALE 3"=1'-0"

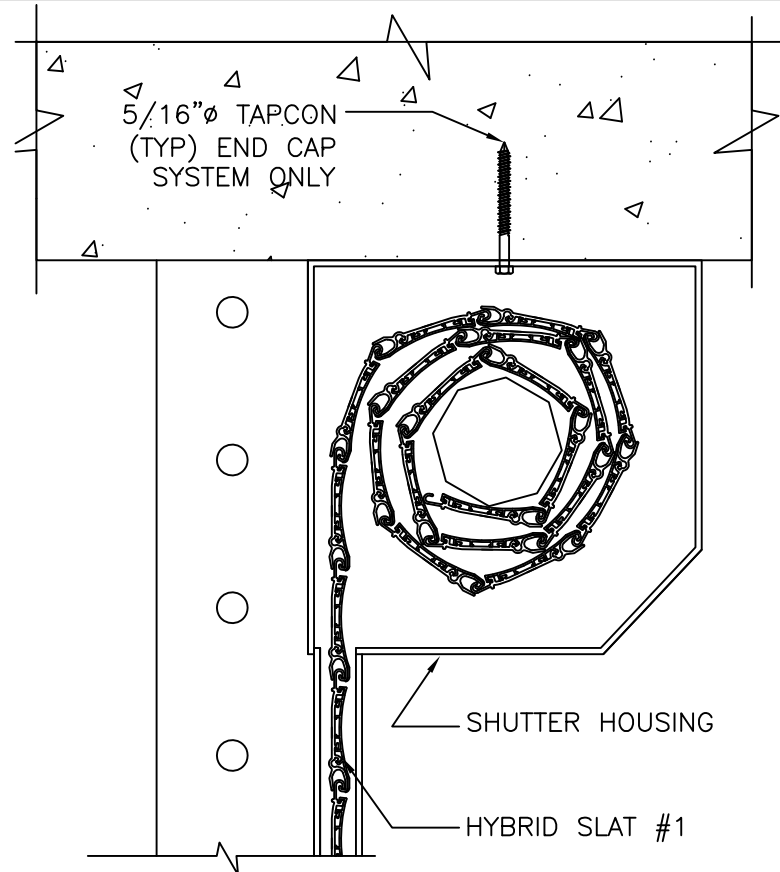
John H. Kampmann Jr., PE
FL License #: 47516
DATE:



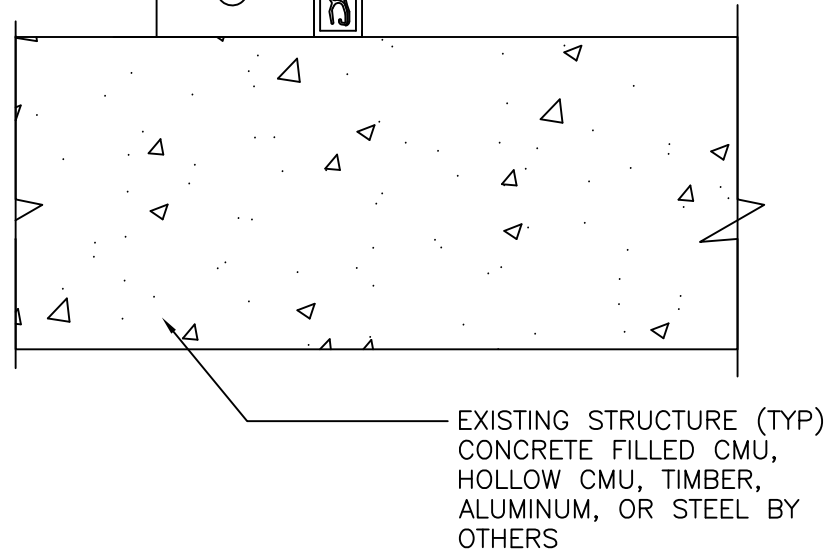
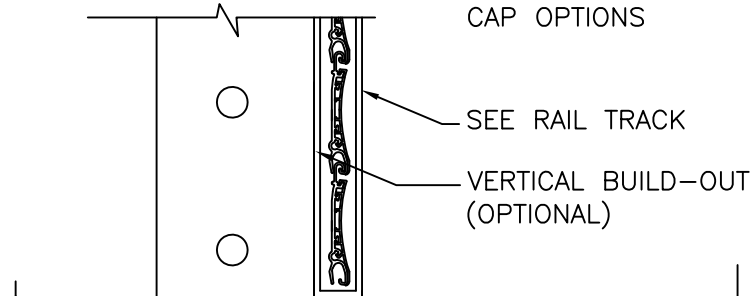
SLAT SPAN	DESIGN PRESSURE	R _x	R _y	
72"	+/- 50 PSF	678.2 LB/FT	431.0 LB/FT	
	+/- 60 PSF	842.2 LB/FT	554.5 LB/FT	
	+/- 70 PSF	1004.9 LB/FT	687.4 LB/FT	
	+/- 80 PSF	1166.2 LB/FT	829.2 LB/FT	
	+/- 90 PSF	1325.9 LB/FT	979.9 LB/FT	
	+/- 100 PSF	1484.2 LB/FT	1139.1 LB/FT	
	+/- 110 PSF	1640.8 LB/FT	1306.7 LB/FT	
112"	+/- 120 PSF	1795.7 LB/FT	1482.3 LB/FT	
	+/- 45 PSF	1405.0 LB/FT	631.3 LB/FT	
	+/- 50 PSF	1567.1 LB/FT	715.6 LB/FT	
	+/- 55 PSF	1729.0 LB/FT	802.4 LB/FT	
	+/- 60 PSF	1890.7 LB/FT	891.7 LB/FT	
	+/- 65 PSF	2052.0 LB/FT	983.4 LB/FT	
	+/- 70 PSF	2213.1 LB/FT	1077.6 LB/FT	
152"	+/- 75 PSF	2373.8 LB/FT	1174.1 LB/FT	
	+/- 80 PSF	2534.3 LB/FT	1273.1 LB/FT	
	+/- 45 PSF	2292.4 LB/FT	906.2 LB/FT	
	+/- 50 PSF	2549.3 LB/FT	1028.1 LB/FT	
	+/- 55 PSF	2805.7 LB/FT	1154.1 LB/FT	
	+/- 60 PSF	3061.8 LB/FT	1284.2 LB/FT	
	+/- 65 PSF	3317.3 LB/FT	1418.2 LB/FT	
192"	+/- 70 PSF	3572.4 LB/FT	1556.2 LB/FT	
	+/- 75 PSF	3827.1 LB/FT	1698.2 LB/FT	
	+/- 80 PSF	4081.2 LB/FT	1844.2 LB/FT	
	+/- 45 PSF	3284.4 LB/FT	1205.1 LB/FT	
	+/- 50 PSF	3649.1 LB/FT	1371.7 LB/FT	
	+/- 55 PSF	4013.1 LB/FT	1544.6 LB/FT	
	+/- 60 PSF	4376.5 LB/FT	1723.9 LB/FT	
204"	+/- 65 PSF	4739.2 LB/FT	1909.5 LB/FT	
	+/- 70 PSF	5101.1 LB/FT	2101.3 LB/FT	
	+/- 75 PSF	5462.4 LB/FT	2299.4 LB/FT	
	+/- 80 PSF	5822.8 LB/FT	2503.8 LB/FT	
	+/- 45 PSF	3602.0 LB/FT	1300.4 LB/FT	
	+/- 50 PSF	4001.3 LB/FT	1481.8 LB/FT	
	+/- 55 PSF	4399.9 LB/FT	1670.3 LB/FT	
204"	+/- 60 PSF	4797.8 LB/FT	1866.1 LB/FT	
	+/- 65 PSF	5194.9 LB/FT	2069.0 LB/FT	
	+/- 70 PSF	5591.1 LB/FT	2279.0 LB/FT	
	+/- 75 PSF	5986.6 LB/FT	2496.0 LB/FT	
	+/- 80 PSF	6381.2 LB/FT	2720.1 LB/FT	
	230"	+/- 20 PSF	1918.7 LB/FT	579.2 LB/FT
		+/- 25 PSF	2400.7 LB/FT	748.8 LB/FT
+/- 30 PSF		2882.0 LB/FT	928.0 LB/FT	
+/- 35 PSF		3362.6 LB/FT	1116.9 LB/FT	
+/- 40 PSF		3842.5 LB/FT	1315.2 LB/FT	
+/- 45 PSF		4321.5 LB/FT	1523.1 LB/FT	
+/- 50 PSF		4799.6 LB/FT	1740.4 LB/FT	
272"	+/- 20 PSF	2477.2 LB/FT	709.1 LB/FT	
	+/- 25 PSF	3097.3 LB/FT	922.3 LB/FT	
	+/- 30 PSF	3716.4 LB/FT	1149.7 LB/FT	
	+/- 35 PSF	4334.6 LB/FT	1391.1 LB/FT	
	+/- 40 PSF	4951.6 LB/FT	1646.4 LB/FT	
	+/- 45 PSF	5567.6 LB/FT	1915.7 LB/FT	
	+/- 50 PSF	6182.4 LB/FT	2198.8 LB/FT	
288"	+/- 20 PSF	2701.4 LB/FT	760.8 LB/FT	
	+/- 25 PSF	3377.0 LB/FT	991.9 LB/FT	
	+/- 30 PSF	4051.6 LB/FT	1239.1 LB/FT	
	+/- 35 PSF	4725.0 LB/FT	1502.4 LB/FT	
	+/- 40 PSF	5397.3 LB/FT	1781.6 LB/FT	
	+/- 45 PSF	6068.3 LB/FT	2076.7 LB/FT	
	+/- 50 PSF	6738.0 LB/FT	2387.5 LB/FT	

[illegible]

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DATE:

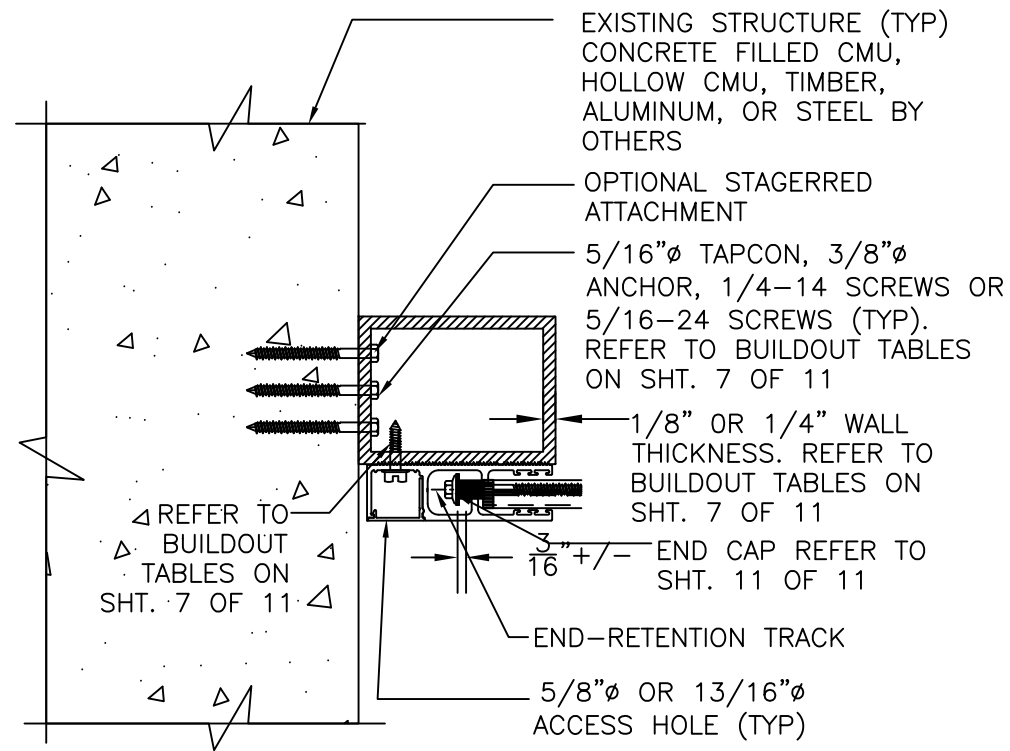


NOTE:
REFER TO SHT. 11
OF 11 FOR END
CAP OPTIONS



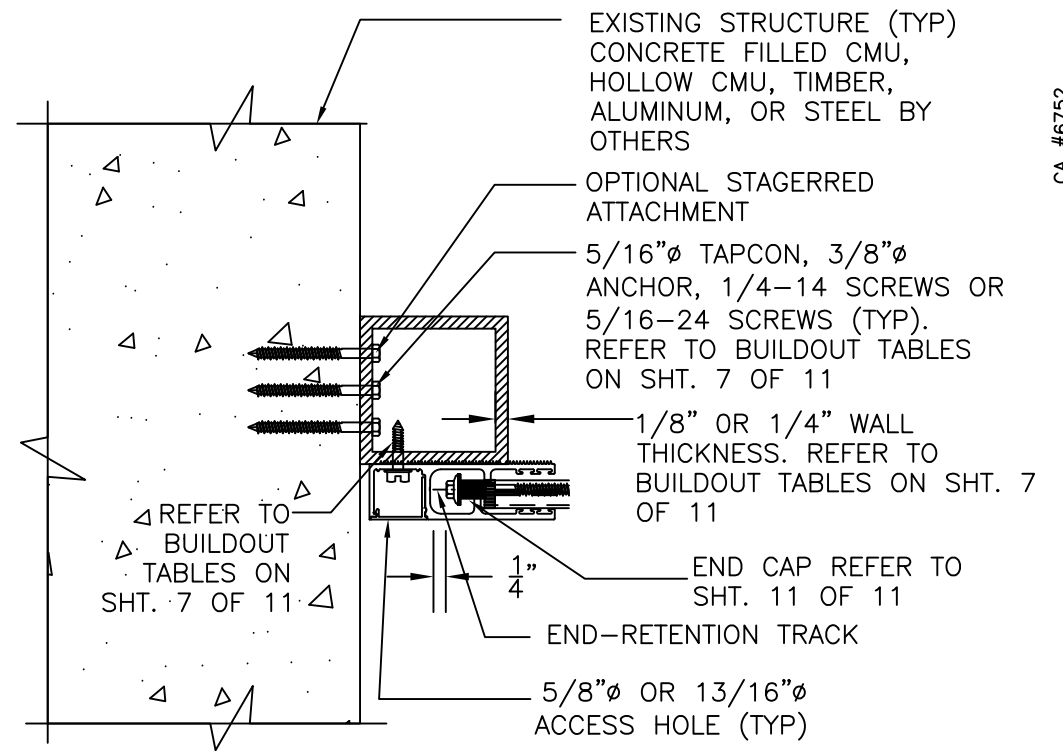
3/8" ANGLE TRAPPED INSTALLATION
END RETENTION

SCALE 3"=1'-0"



2", 3" OR 4" BUILD-OUT TRAPPED
INSTALLATION END RETENTION

SCALE 3"=1'-0"



3" OR 2" BUILD-OUT TRAPPED
INSTALLATION END RETENTION

SCALE 3"=1'-0"

NOTE: SEE BUILD-OUT TABLE
CORRESPONDING TO THE
BUILD-OUT WIDTH AGAINST
EXISTING STRUCTURE

2020 FBC (HIGH AND NON-HIGH VELOCITY HURRICANE ZONES)

CA #6752
WWW.MEAENGINEERS.COM

MEA
ENGINEERS, INC.
2352 Appaloosa Circle
Sarasota, Florida 34240
(941) 922-3854

DESCRIPTION
REV. 1 XX/XX/XX - RESERVED.

Project Name: **ULTRATEK WORLDWIDE**
3801 N. Washington Blvd.
Sarasota, FL 34234
Phone: (941) 351-6700
info@ultratek.com

Description: **GREENTEK HYBRID
ROLL-UP SHUTTER SYSTEM**

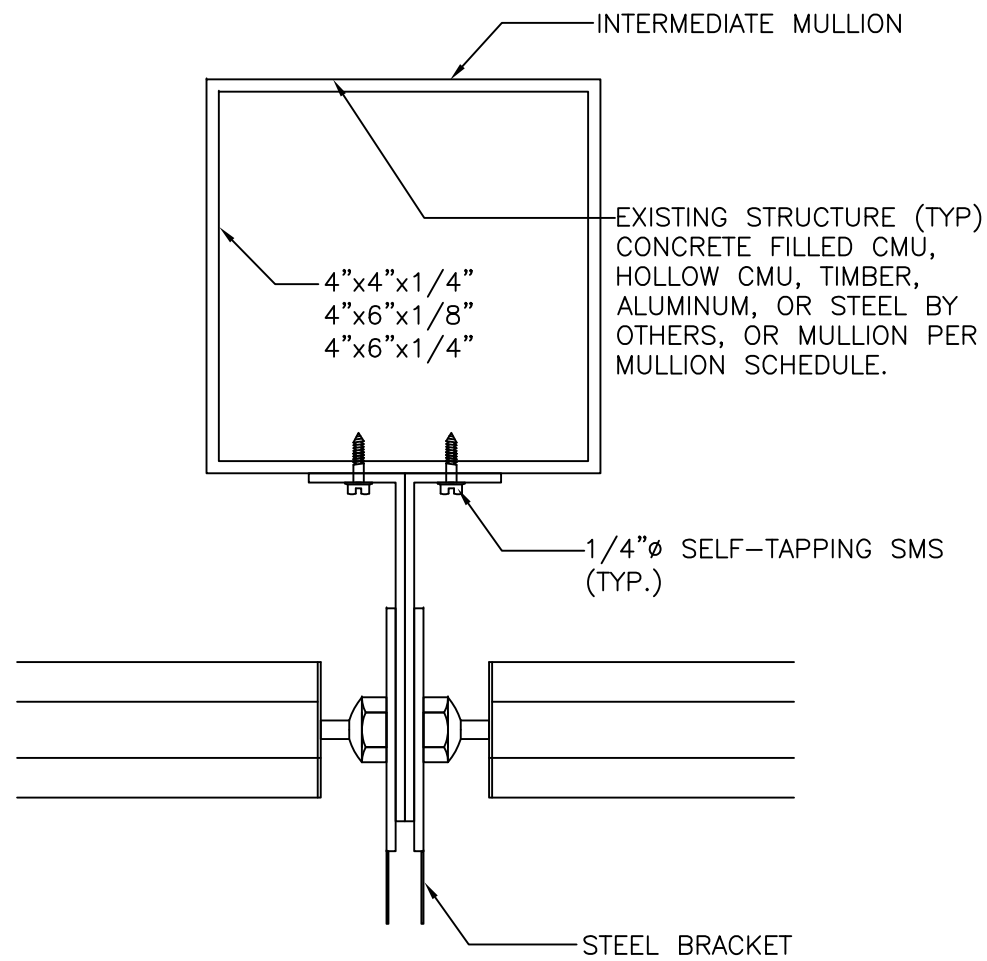
Drawn: JK
Project #: 20-0808
Scale: NOTED
Date: 10/3/20
Sheet No.:

6 of 11

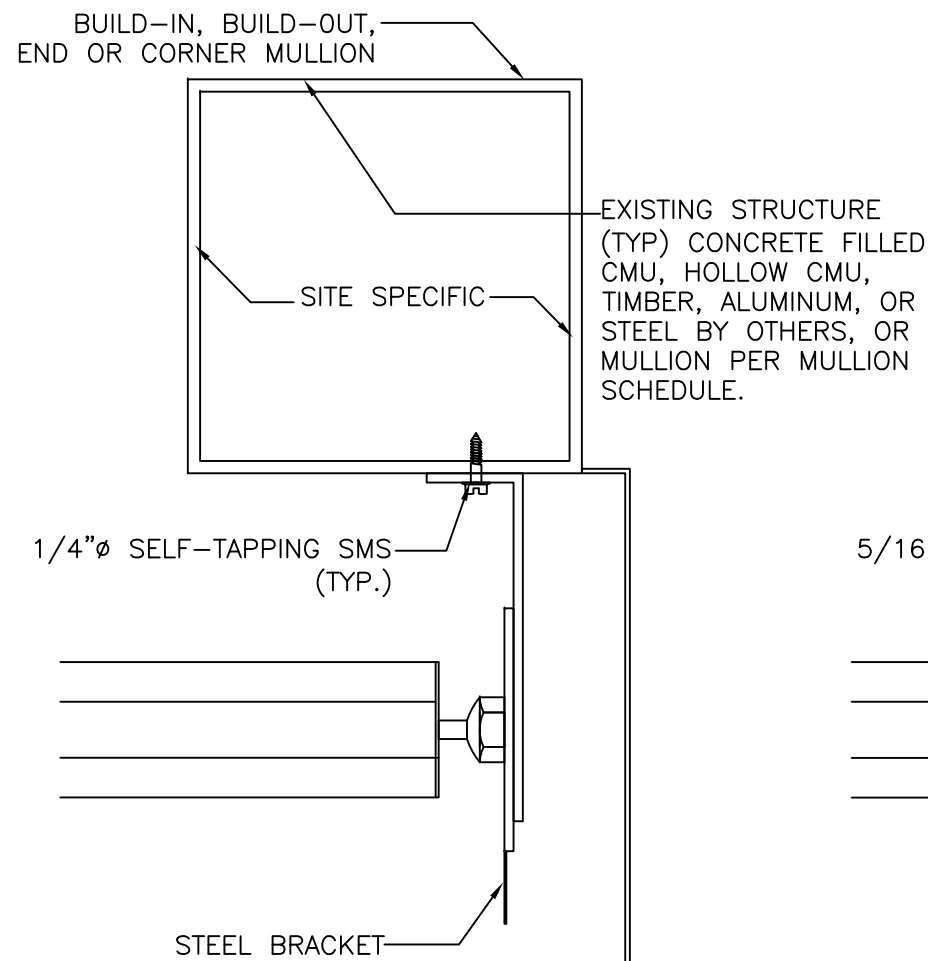
John H. Kampmann Jr., PE
FL License #: 47516
DATE:



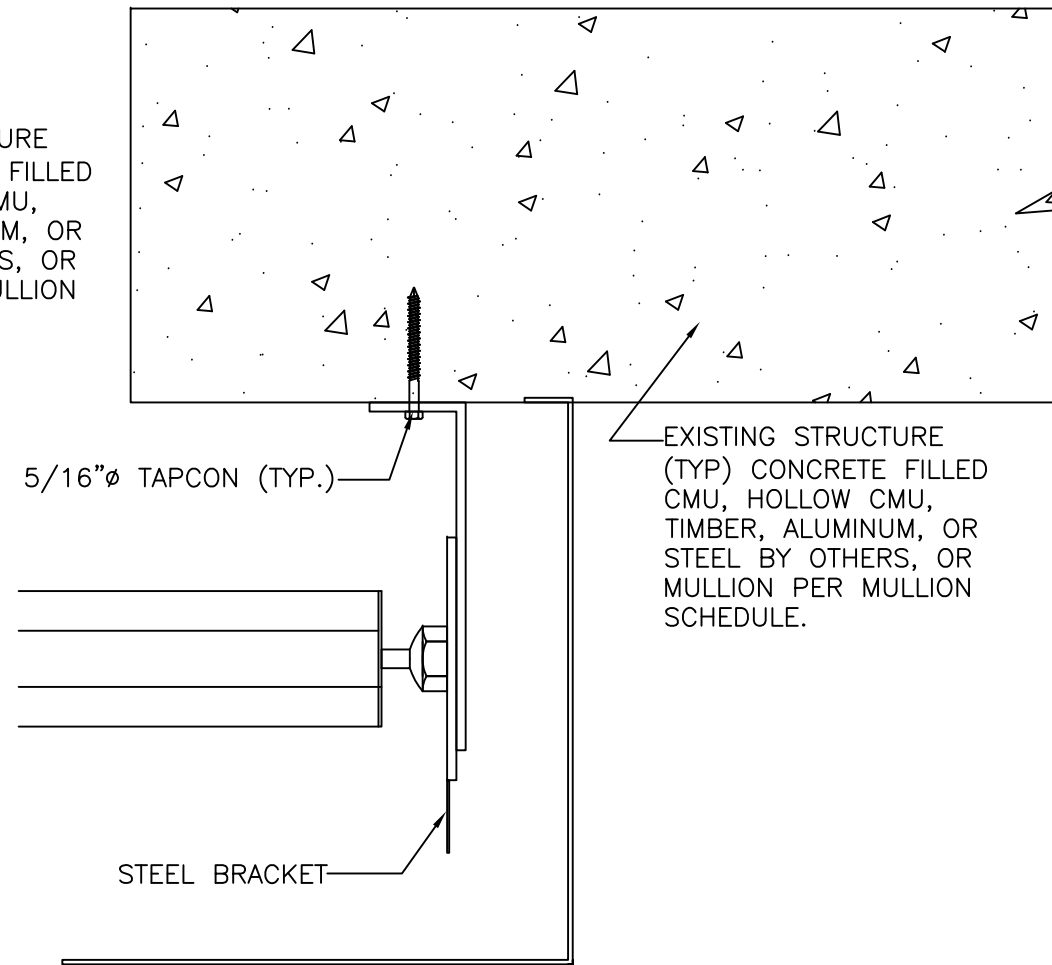
John H. Kampmann Jr., PE
FL License #: 47516
DATE:



1
8 MOUNTING BRACKET INSTALLATION
END RETENTION INSTALLATION
SCALE 3"=1'-0"



2
8 MOUNTING BRACKET INSTALLATION
END RETENTION INSTALLATION
SCALE 3"=1'-0"

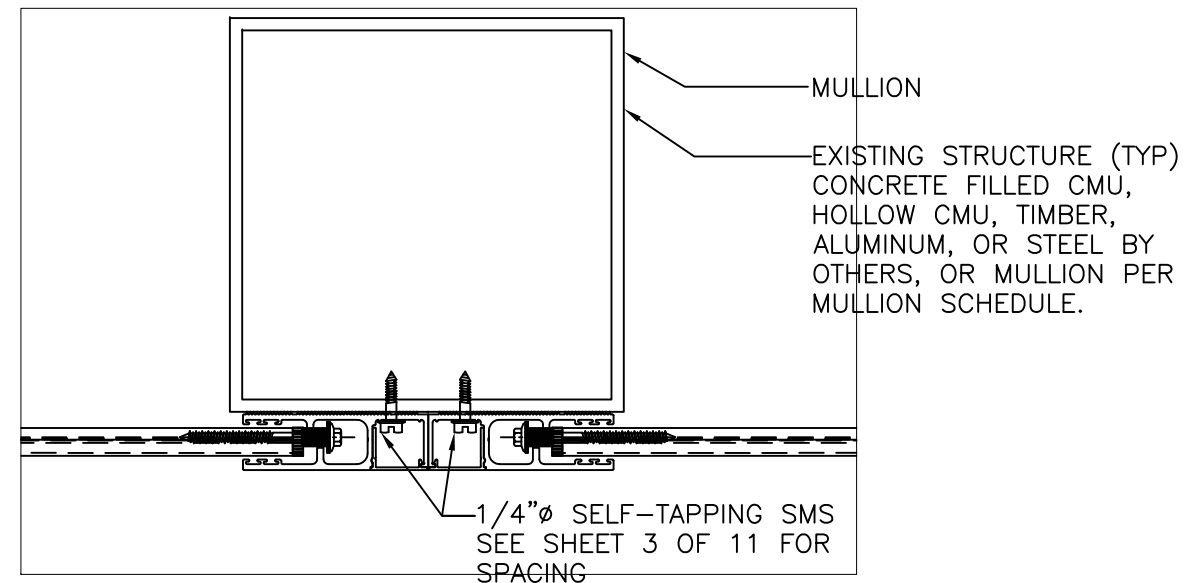


3
8 MOUNTING BRACKET INSTALLATION
END RETENTION INSTALLATION
SCALE 3"=1'-0"

SPAN	GLASS SEPARATION
72"	7.250"
92"	7.063"
112"	7.609"
132"	8.298"
152"	9.045"
172"	9.825"
192"	10.631"
204"	11.125"
230"	11.207"
244"	11.308"
258"	11.433"
272"	11.574"
286"	11.727"
288"	11.750"

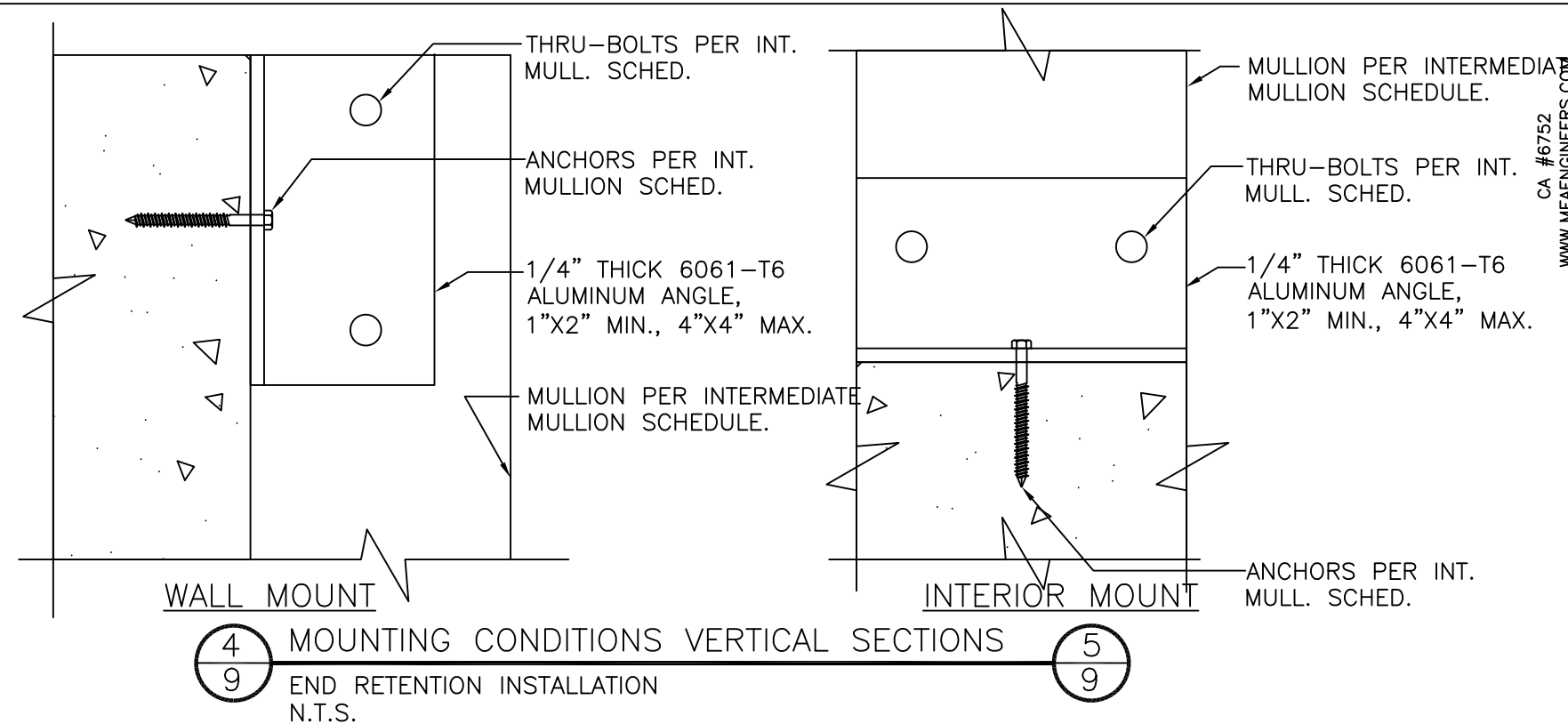
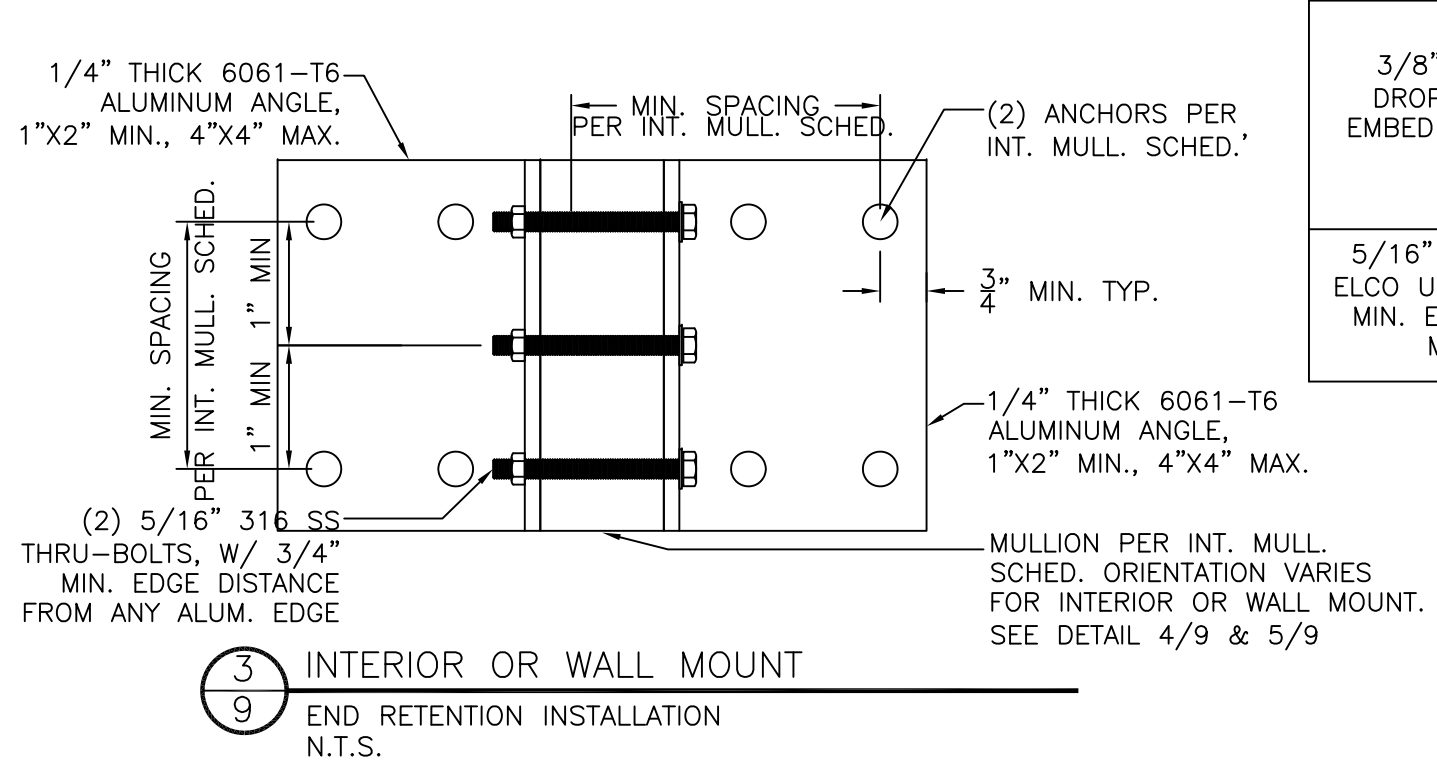
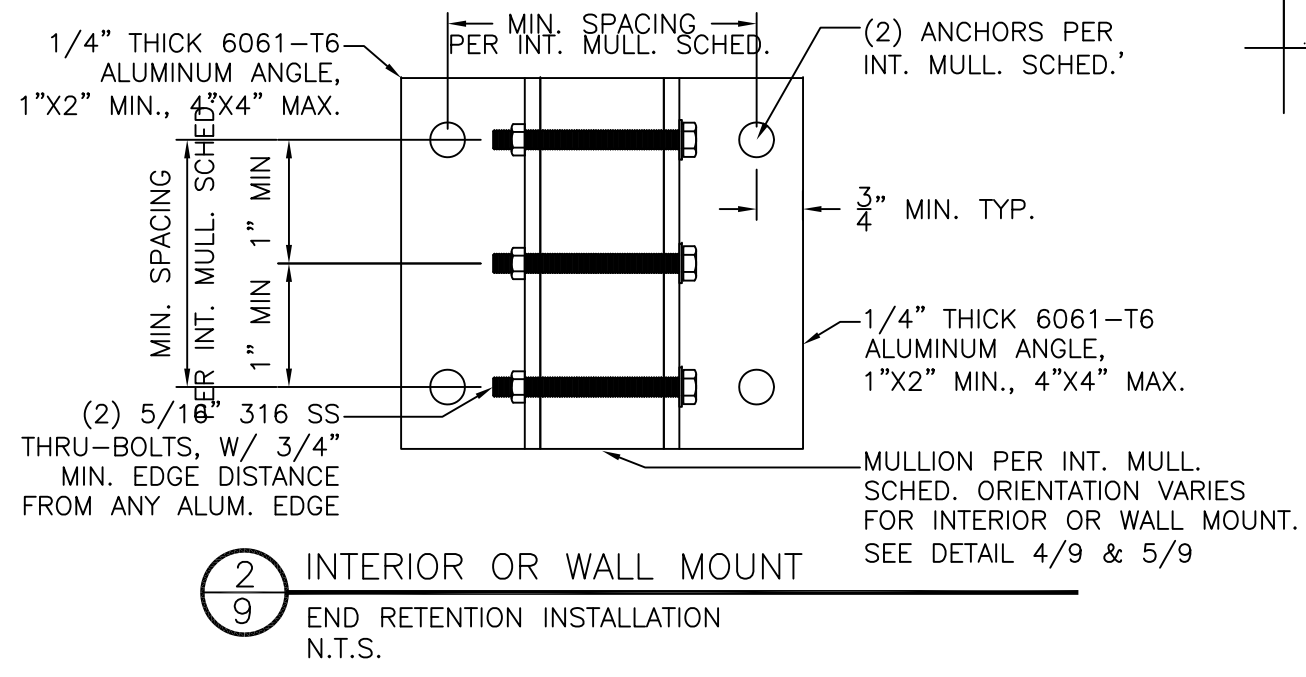
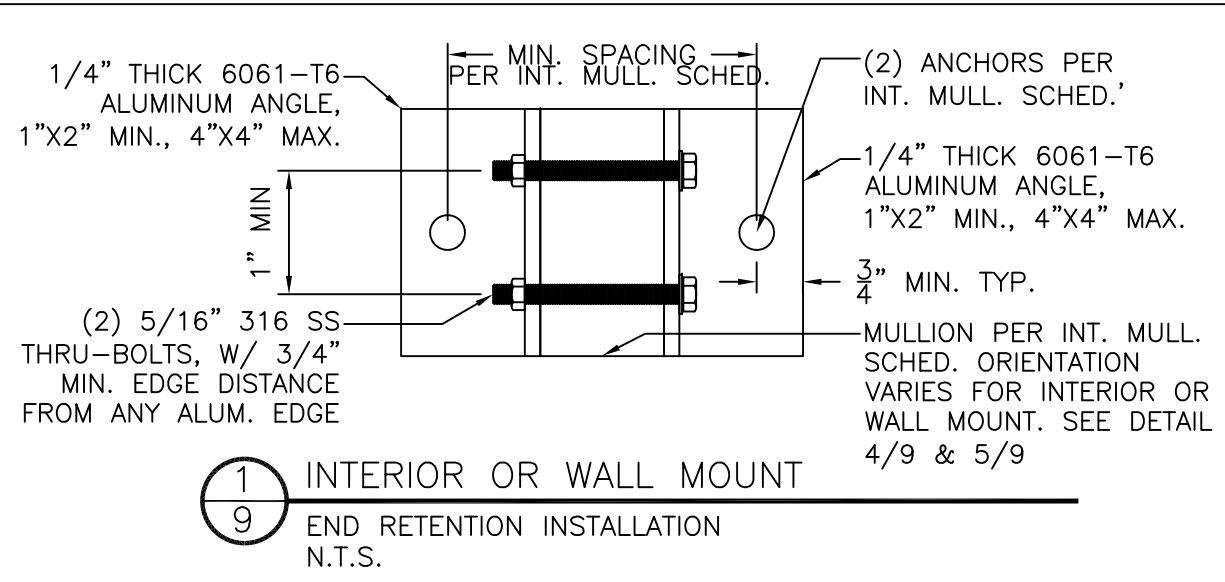
SEPARATION FROM GLAZING NOTES:

1. SEPARATION FROM GLAZING IS REQUIRED FOR ALL INSTALLATIONS WITHIN THE HIGH VELOCITY HURRICANE ZONE, WIND ZONE 4 AND ESSENTIAL FACILITIES.
2. SEPARATION IS NOT REQUIRED FROM ANY FENESTRATION PRODUCT THAT DOES NOT CONTAIN GLAZING.
3. SEPARATION FROM GLAZING IS NOT REQUIRED FOR INSTALLATIONS OUTSIDE OF WIND ZONE 4 AND ESSENTIAL FACILITIES.
4. INTERPOLATION OF THIS TABLE IS NOT PERMITTED. UTILIZE THE NEXT HIGHEST SEPARATION FROM GLAZING VALUE IF NEEDED.



4
8 MOUNTING BRACKET INSTALLATION
END RETENTION INSTALLATION
SCALE 3"=1'-0"

John H. Kampmann Jr., PE
FL License #: 47516
DATE:



INTERMEDIATE MULLION SCHED. W/ EQUAL SPANS BOTH SIDES								
ANCHOR TYPE	MINIMUM SPACING	MINIMUM EDGE DISTANCE	CONNECTION DETAIL	MIN. MULLION SIZE	MAX. SLAT SPAN	MAX. MULLION HT.	MAX. DP	E.R. OR NON E.R
3/8" POWERS WEDGE BOLTS W/ 3-1/2" EMBED TO 3000P SI MIN CONCRETE	4.5"	4.5"	1/9	3X3.25	96"	60"	60	E.R.
			2/9	4X6X.25	180"	90"	60	E.R.
	2.5"	4.5"	3/9	4X8X.25	240"	90"	40	E.R.
3/8" POWERS STEEL DROPIN W/ 1-9/16" EMBED TO 3000 PSI MIN CONCRETE	4.5"	5.25"	1/9	3X3.25	84"	90"	120	NON E.R.
			2/9	4X6X.25	144"	90"	120	E.R.
	2.5"	5.25"	3/9	4X6X.25	168"	90"	60	E.R.
5/16" ITW TAPCON XL OR ELCO ULTRACON W/ 2-1/4" MIN. EMBED TO 3500 PS1 MIN. CONCRETE	5.0"	3.125"	1/9	3X3.25	84"	90"	120	NON E.R.
			2/9	3X3.25	96"	60"	60	E.R.

John H. Kampmann Jr., PE
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DATE:

MEAEENGINEERS, INC.

2352 Appaloosa Circle
Sarasota, Florida 34240
(941) 922-3854

CA #6752
WWW.MEAENGINEERS.COM

ULTRATEK WORLDWIDE
3801 N. Washington Blvd.
Sarasota, FL 34234
Phone: (941) 351-6700
info@ultratek.com

Project Name:

GREENTEK HYBRID
ROLL-UP SHUTTER SYSTEM

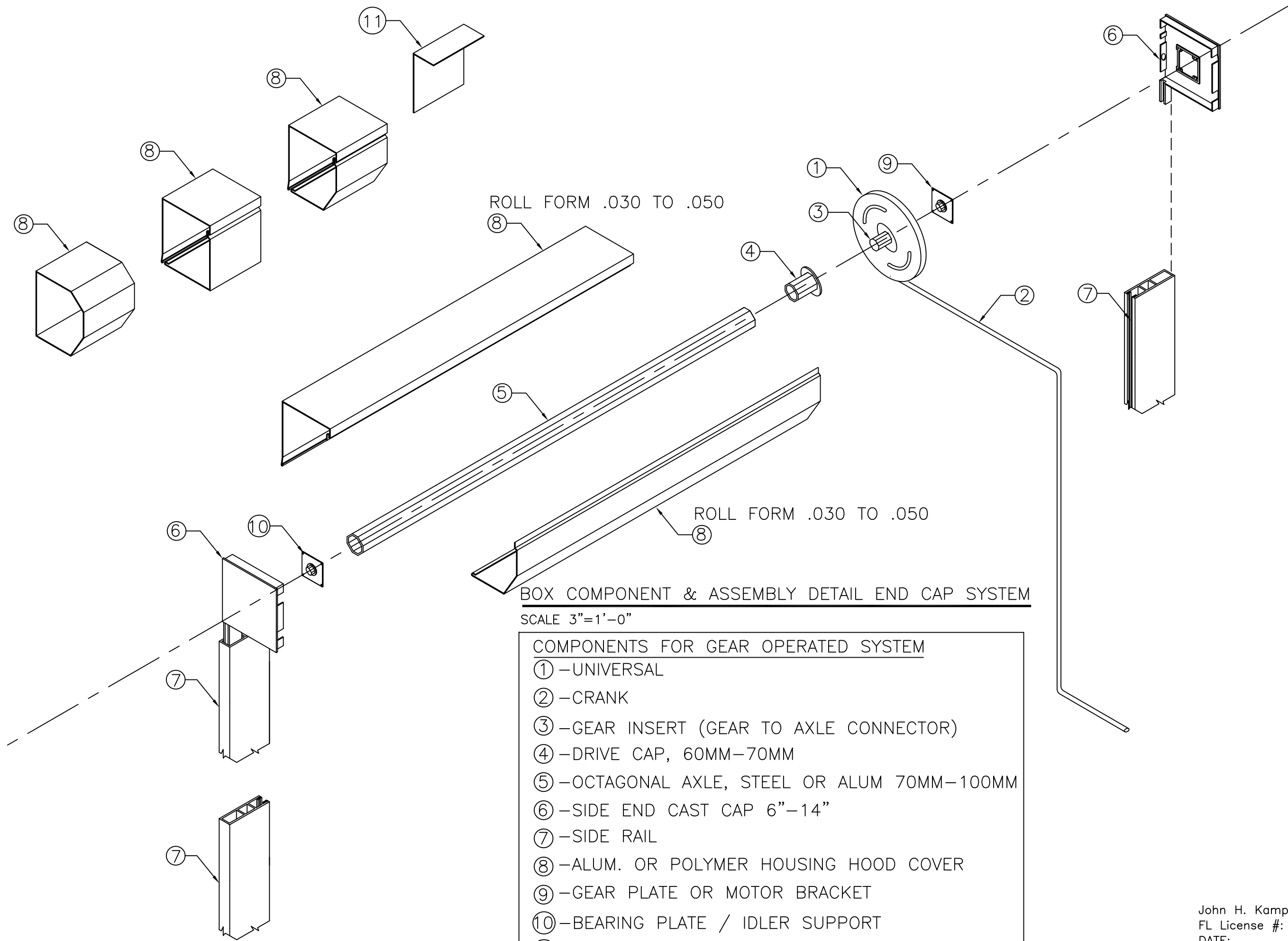
Description:

2020 FBC (HIGH AND NON-HIGH VELOCITY HURRICANE ZONES)

Drawn: JK
Project #: 20-0808
Scale: NOTED
Date: 10/3/20
Sheet No.: 9 of 11

REV. 1
DESCRIPTION
XX/XX/XX - RESERVED.

1
XX/XX/XX - RESERVED.



BOX COMPONENT & ASSEMBLY DETAIL END CAP SYSTEM

SCALE 3"=1'-0"

COMPONENTS FOR GEAR OPERATED SYSTEM

- ① – UNIVERSAL
- ② – CRANK
- ③ – GEAR INSERT (GEAR TO AXLE CONNECTOR)
- ④ – DRIVE CAP, 60MM–70MM
- ⑤ – OCTAGONAL AXLE, STEEL OR ALUM 70MM–100MM
- ⑥ – SIDE END CAST CAP 6"–14"
- ⑦ – SIDE RAIL
- ⑧ – ALUM. OR POLYMER HOUSING HOOD COVER
- ⑨ – GEAR PLATE OR MOTOR BRACKET
- ⑩ – BEARING PLATE / IDLER SUPPORT
- ⑪ – STEEL BRACKET

John H. Kampmann Jr., PE
FL License #: 47516
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2020 FBC (HIGH AND NON-HIGH VELOCITY HURRICANE ZONES)

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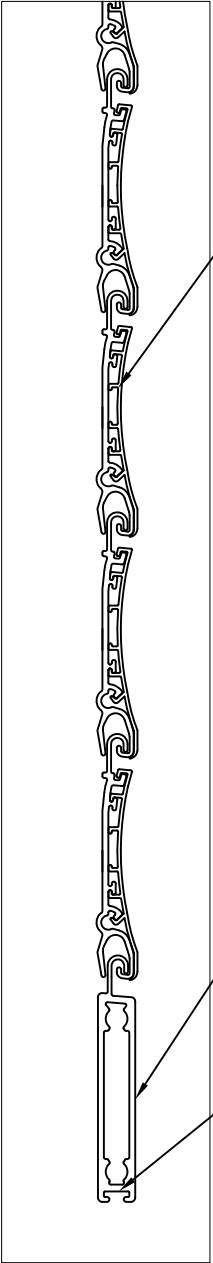
DESCRIPTION
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3801 N. Washington Blvd.
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Phone: (941) 351-6700
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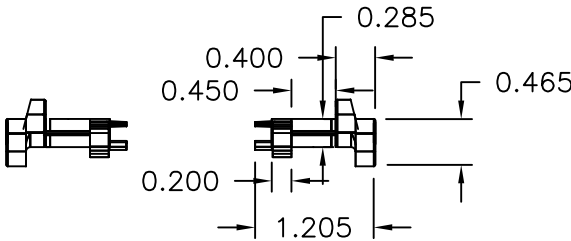
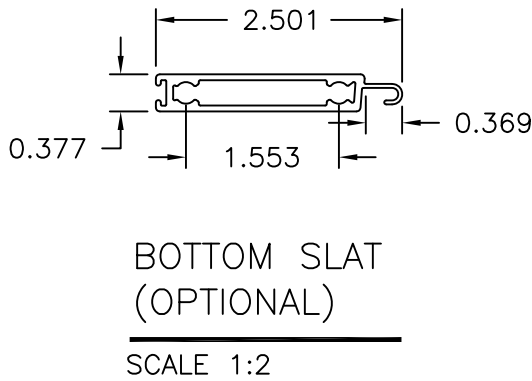
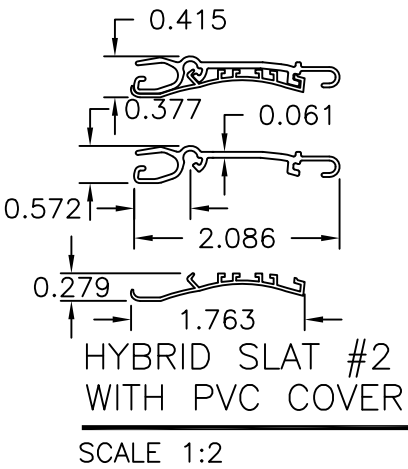
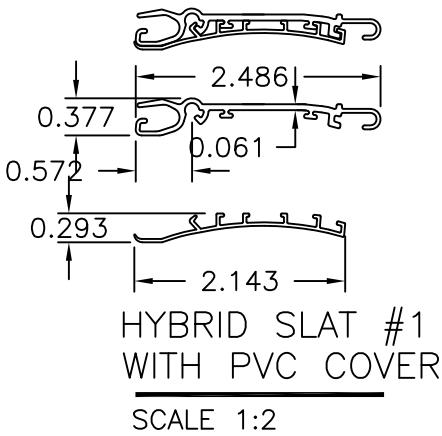
Description: **GREENTEK HYBRID
ROLL-UP SHUTTER SYSTEM**

Drawn: JK
Project #: 20-0808
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Sheet No.:

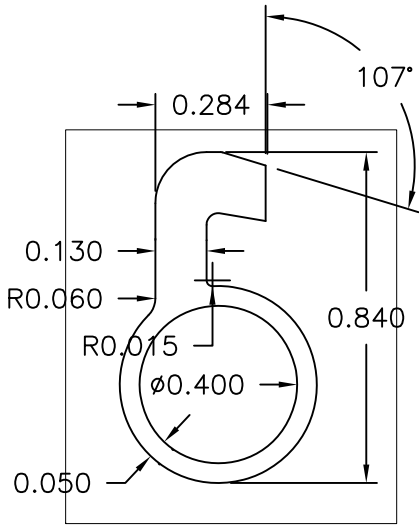
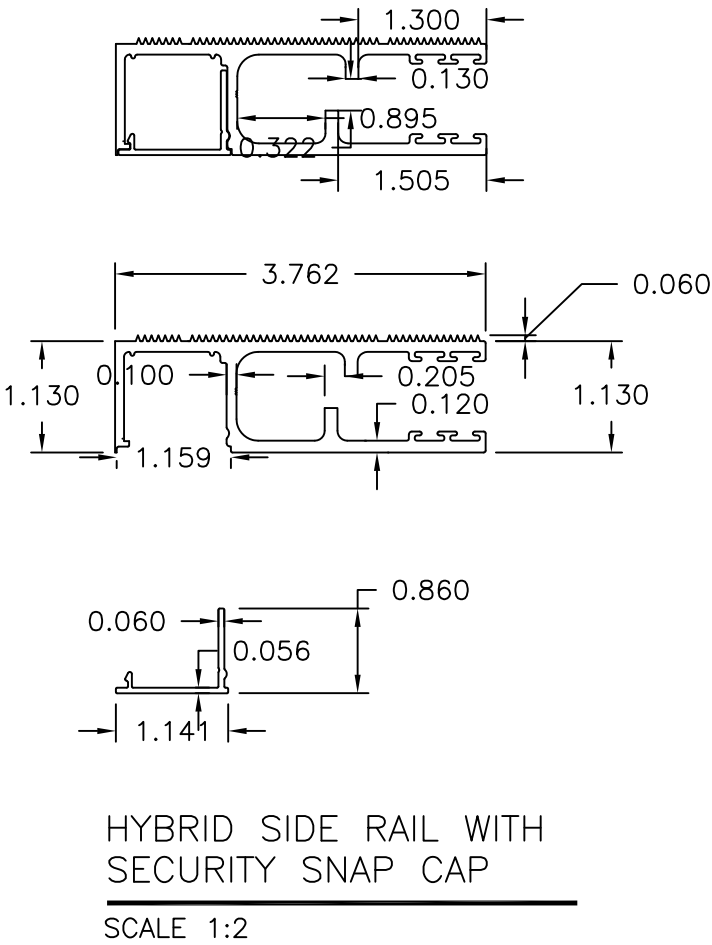
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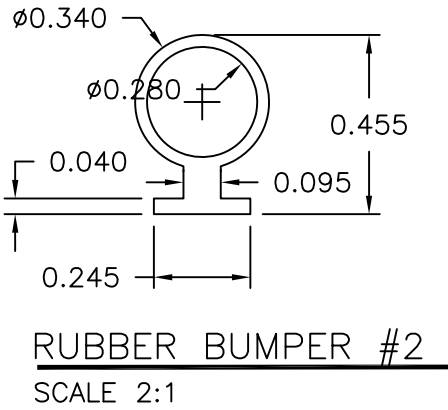
SLAT LAYOUT
SCALE 1:2



OFFSET END RETENTION CLIPS
SCALE 1:2



RUBBER BUMPER #1
SCALE 2:1



John H. Kampmann Jr., PE
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Project #:	20-0808
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