

RE 1500 ER

EXTRUDED ALUMINUM OPERABLE IMPACT PROTECTIVE SHUTTER

FLORIDA STATE APPROVAL

CODE VERSION: FLORIDA BUILDING CODE 2023 - 8th EDITION
APPROVED FOR USE OUTSIDE THE HVHZ
CATEGORY: SHUTTER -- SUBCATEGORY: ROLL-UP
IMPACT RESISTANT: LARGE MISSILE

STANDARD COMPLIANCE:

FLORIDA BUILDING CODE 2023 - 8th EDITION (NON HVHZ)
ASTM E330, E1996 (LEVEL D MISSILE), E1886
ASCE 7-22, ADM-20, NDS-18

GENERAL NOTES:

- 1- DEFINITION: THIS PRODUCT IS A ROLLING TYPE SHUTTER; DESIGNED, CONSTRUCTED AND ERECTED TO EASILY ENCLOSE AN AREA, PROVIDING PROTECTION FROM HURRICANE FORCE WINDS AND WIND BORNE DEBRIS WITHIN THE ALLOWABLE DESIGNED PRESSURES AND LIMITATIONS STATED IN THIS APPROVAL.
- 2- CODE: THIS PRODUCT HAS BEEN TESTED UNDER THE ASTM E1886 & 1996 (MISSILE LEVEL D) AND ASTM E330 AND HAS BEEN DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 2023 - 8TH EDITION.
- 3- POSTING: A PERMANENT LABEL SHALL BE PROVIDED AS PER FBC AND IT SHALL BE LOCATED ON THE BOTTOM OF THE HOOD FACING THE EXTERIOR OR OUTSIDE AND A MINIMUM OF ONE LABEL PER OPENING.
- 4- LOADS: DESIGNED LOAD CALCULATED BASED ON THE ASCE 7-22 AND PROVIDED BY A PROFESSIONAL ARCHITECT OR ENGINEER FOR EACH SPECIFIC PROJECT. THE CALCULATED ULTIMATED DESIGNED PRESSURES MULYPILED BY 0.6 MUST NOT EXCEED THE ALLOWABLE PRESSURES FOR EACH DOOR COMPONENT TO BE USED.
- 5- MATERIAL: ALL EXTRUDED ALUMINUM SHAPES SHALL BE MADE OF 6063-T6 OR AS NOTED.
- 6- FASTENERS: ASSEMBLY SCREWS AND ANCHORS SHALL BE AS SPECIFIED IN THE CURRENT SET OF DRAWINGS. INSTALLATION AND LOADS AS PER THIS APPROVAL.
- 7- USE: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, ARCHITECT OR ENGINEER OF RECORD TO VERIFY THE FOLLOWING:
7.1- THE STABILITY OF THE STRUCTURE WHERE THE DOOR IS TO BE ATTACHED INSURING PROPER ANCHORAGE.
7.2- THE SITE SPECIFIC PROJECT CRITERIA, SUCH AS BUT NOT LIMITED TO, WIND LOADS, LOCAL CODE REQUIREMENTS, DESIGNED PRESSURES ETC.
7.3- THAT THIS APPROVAL IS ADEQUATE TO THE SPECIFIC PROJECT.
- 8- DISCLAIMER: PPMF INC. HAS NO CONTROL IN THE MANUFACTURING AND/OR PERFORMANCE OF THIS PRODUCT. THESE GENERIC PLANS WERE ENGINEERED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICES AND TEST DATA PROVIDED BY THE MANUFACTURER.
- 9- THE OPERATING MECHANISM (GEARS, MOTORS, SUPPORTING END PLATES) ARE NOT PART OF THIS APPROVAL. MANUFACTURER ARE RESPONSIBLE TO SPECIFY THESE COMPONENTS FOR PROPER DOOR OPERATION.
- 10- LIMITATIONS:
10.1- PRODUCT MUST BE INSTALLED OFFSET FROM GLAZING AS PER TABLE 1 (G5 VALUES) FOR ALL ESSENTIAL FACILITIES IN ALL WIND ZONES
10.2- PRODUCT NOT TO BE INSTALLED IN WIND ZONE 4 AS DEFINED IN THE ASTM E1996.
10.3- PRODUCT NOT TO BE INSTALLED IN THE HVHZ (MIAMI-DADE AND BROWARD COUNTIES) AS DEFINED IN THE FBC

TABLE 1 - ALLOWABLE DESIGNED PRESSURE

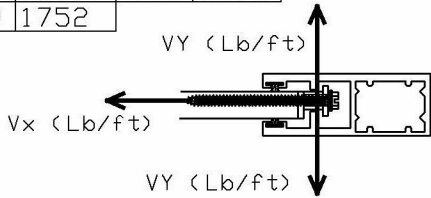
TT	WIND PRESSURES	
	POSITIVE	NEGATIVE
273	40	-40
233	45	-45
208	52	-52
196	55	-55
180	63	-63
168	68	-68
156	74	-74
144	80	-80
138	86	-86
132	92	-92
126	98	-98
120	103	-103
114	109	-109
108	115	-115
102	124	-124
96	133	-133
90	141	-141
84	150	-150

DESIGN SCHEDULE

COMPONENT	SHEET
SLAT ALLOWABLE PRESSURE - TABLE 1	1
GLASS SEPARATION - TABLE 1A	1
TRACK REACTIONS	1
TRACK ANCHORAGE	4
MULLION DESIGN	6, 7 & 8

SLAT COMPONENTS REACTIONS Vy & Vx (Lb/ft)

LOAD Psf	TRACK TO TRACK (INCHES)									
	84		108		144		196		233	
	Vy	Vx	Vy	Vx	Vy	Vx	Vy	Vx	Vy	Vx
30	105	159	135	574	180	931	245	1335	291	1598
40	140	409	180	792	240	1131	327	1538	388	1809
45	158	531	203	888	270	1214	368	1619	437	1891
50	175	652	225	976	300	1288	408	1690	485	1898
55	193	770	248	1059	330	1355	449	1752		
60	210	886	270	1135	360	1415				
65	228	1000	293	1207	390	1470				
70	245	1112	315	1273	420	1519				
80	280	1331	360	1394	480	1607				
90	315	1544	405	1501						
100	350	1749	450	1597						
115	403	2046	518	1721						
150	525	2688								



CONTRACTOR TO VERIFY ADEQUACY OF STRUCTURE
FOR MAXIMUM IMPOSED LOADS Vy AND Vx

Digitally signed
by Pedro
Figueiredo
Date: 2023.09.25
18:59:38 -04'00'

DIGITALLY SIGNED FOR 9 PAGES

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND
SEALED BY PEDRO DE FIGUEIREDO, PE 52609 ON
THE DATE INDICATED HERE.

Pedro
Figueiredo

ENGINEERING SERVICES
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PE 52609

09/25/2023

ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609

FLORIDA
STATE OF
PROFESSIONAL ENGINEER

PE 52609

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TABLE 1A - GLASS SEPARATION (G5) - INCHES
*** SEE GENERAL NOTE 10 ***

LOAD PSF	SLAT SPAN (IN)					
	84	108	144	196	233	273
40	3 1/4	4 1/2	6 3/4	10	13 1/4	16 1/4
45	3 1/4	4 3/4	7 1/4	10 3/4	13 1/4	
50	3 1/4	4 3/4	7 1/2	11 1/2	14 3/4	
55	3 1/4	5	8	12 1/4		
80	3 1/4	5 3/4	10			
115	3 3/4	7				
150	3 3/4					

TT= SLAT SPAN
SLAT SPAN = TRACK TO TRACK

NOTES:

1- ALLOWABLE DESIGNED PRESSURE ARE FUNCTION OF THE LOWEST ALLOWABLE DESIGNED LOAD FOR EACH COMPONENT (SLATS, ANCHORAGE AND MULLIONS)

2- DESIGNED PRESSURES MUST NOT EXCEED 150 PSF

3- SHUTTER SIZE (TT) MUST NOT EXCEED 273".

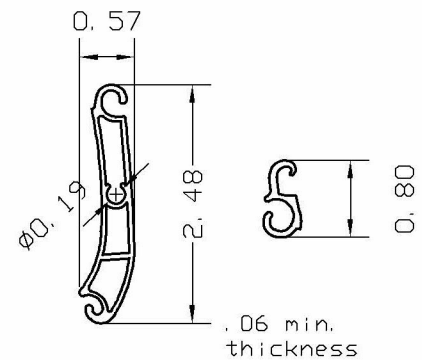
4- FOR MULTIPLE SHUTTERS USE TABLE 1 TO VERIFY MAXIMUM ALLOWABLE PRESSURE THAN USE TABLE 2 AND 3 TO SELECT INTERMEDIATE AND END MULLIONS AND SELECT THE PROPER MULLION ANCHORAGE.

PRODUCT:
IMPACT PROTECTIVE SHUTTER
RE 1500 ER
LARGE MISSILE IMPACT RESISTANT

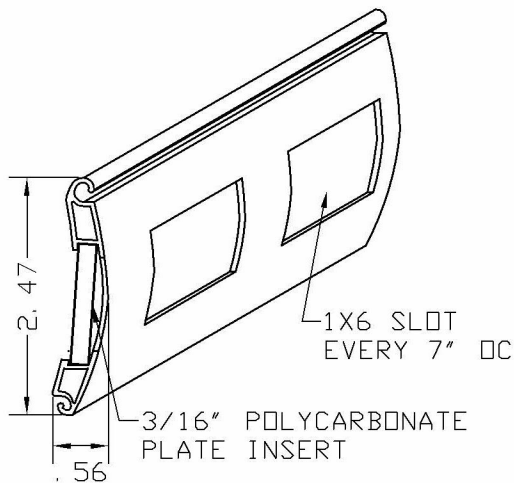
MANUFACTURER:
ROLLSECURE SHUTTERS
1762 TRADE CENTER WAY
NAPLES, FLORIDA 34109
TEL: (239) 594-1616
FAX: (239) 596-3677

SCALE:
NA
DATE:
09/25/2026
DRAWING #
23-166
SHEET
1 OF 9

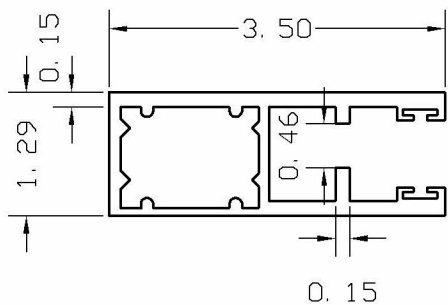
PRODUCT COMPONENTS



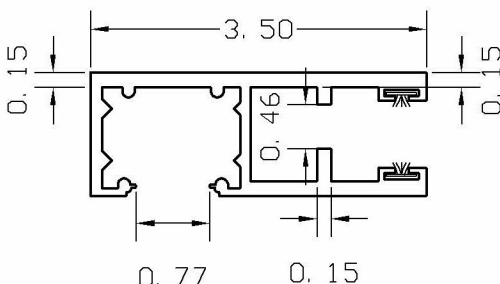
A- RE1500 MALE & FEMALE SLATS
6063-T6 EXTRUDED ALUMINUM



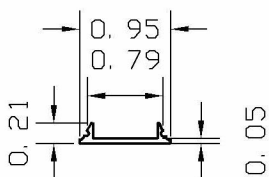
RE 1500VP WINDOW VIEW SLATS
0.05 EXTRUDED ALUMINUM 6063-T6 Alloy
NOTE: MAXIMUM 2 SLATS PER DOOR



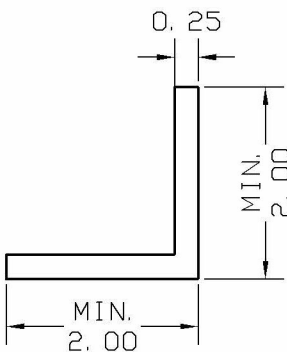
C- GUIDE RAIL W/ FELT
6005-T5 EXTRUDED ALUMINUM



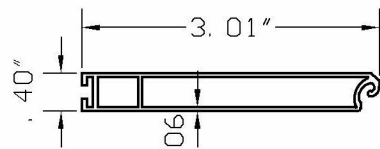
C1- GUIDE RAIL W/ FELT
6005-T5 EXTRUDED ALUMINUM



C2- TRACK SNAP COVER
TO BE USED W/ C1 TRACK
6063-T5 EXTRUDED ALUMINUM

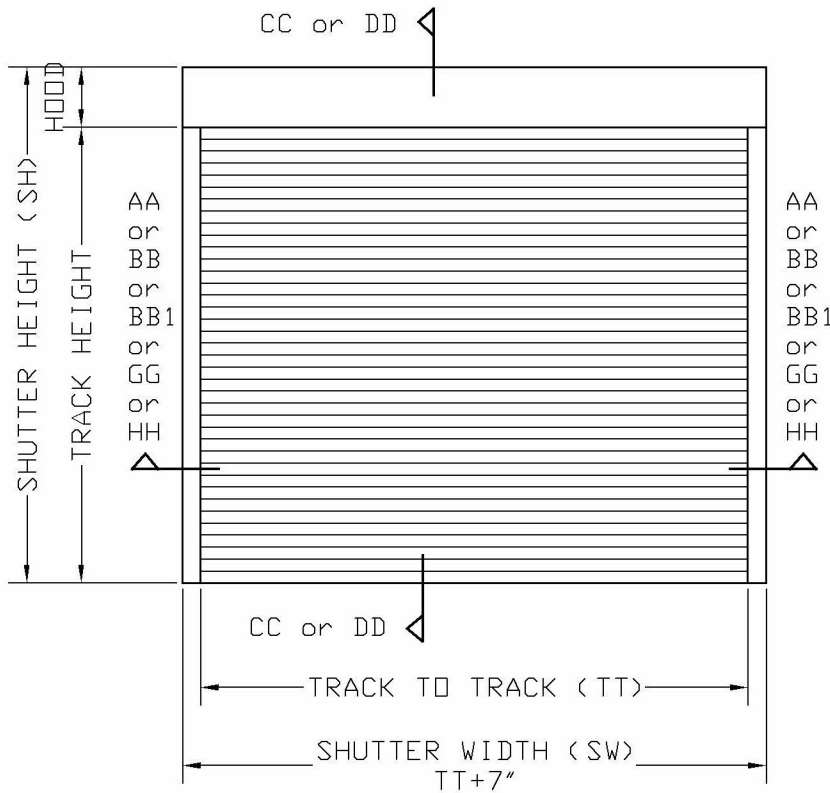


E- INSET SUPPORT ANGLE
EXTRUDED ALUMINUM
6061-T6 or 6005-T5

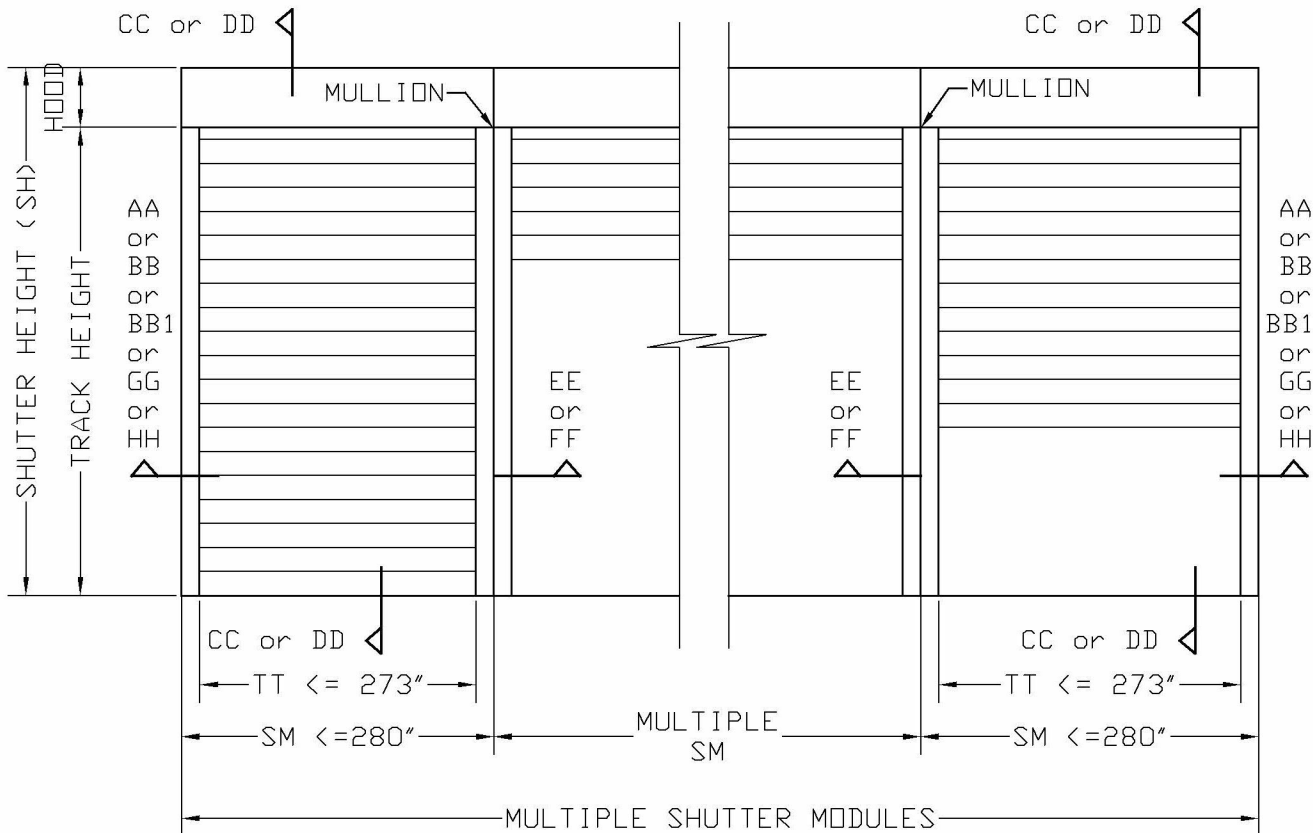


G- BAS*AT5 END SLAT
COMPATIBLE WITH RE 1500
6063-T6 Alloy

TYPICAL SINGLE UNIT ELEVATION



TYPICAL MULTIPLE UNITS ELEVATION



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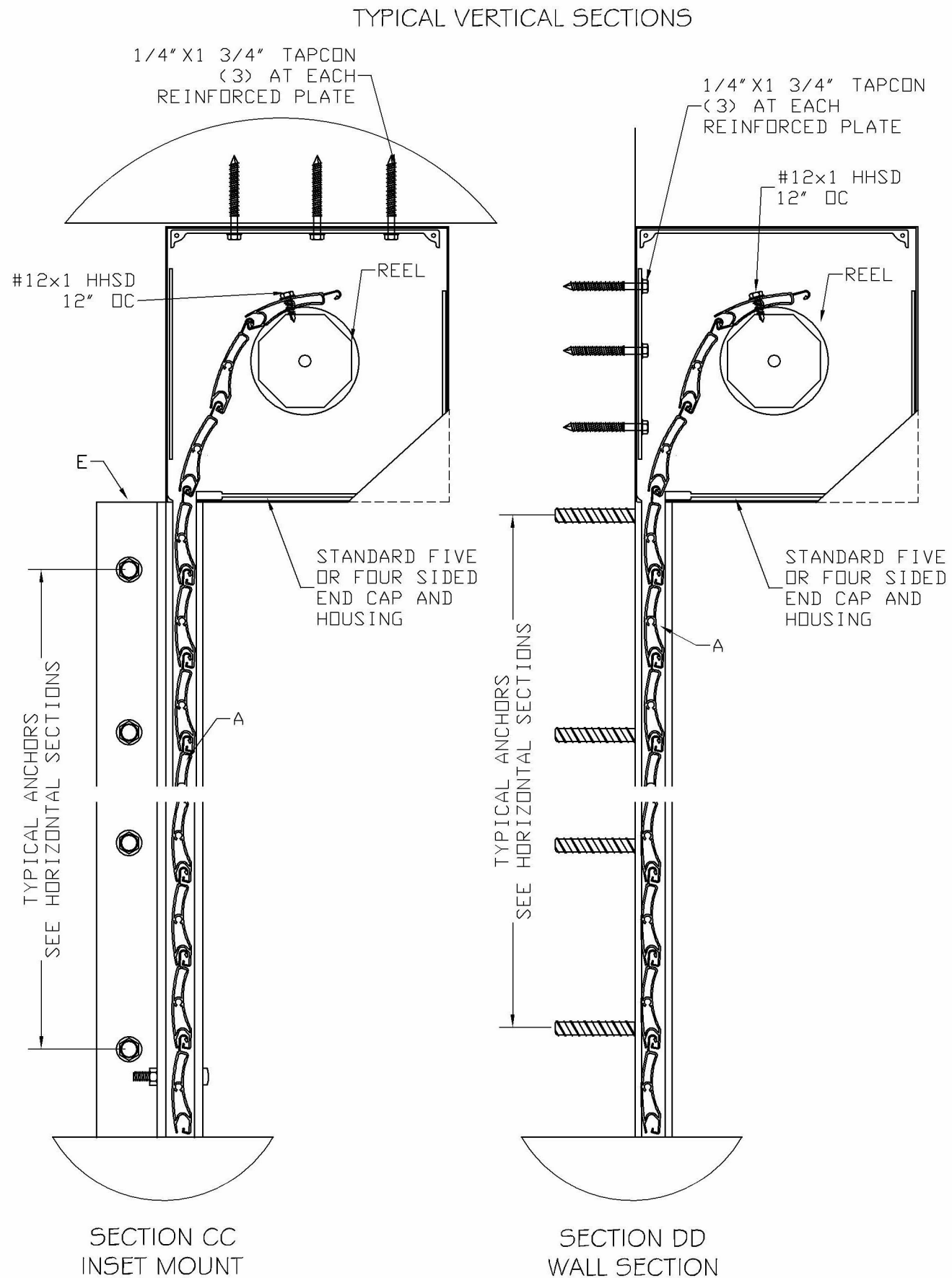
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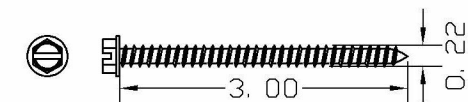
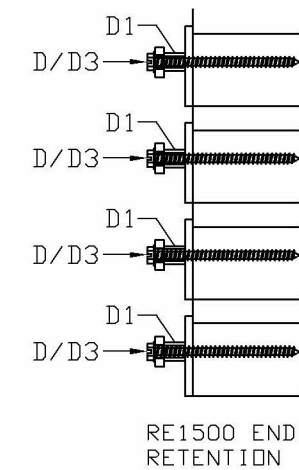
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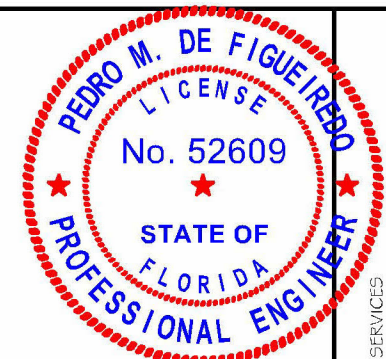
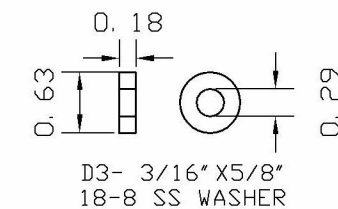
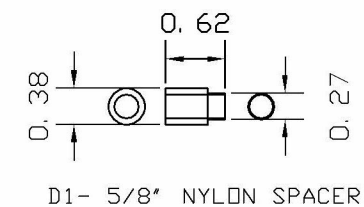
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SLAT END RETENTION LAY-OUT



D- SLAT RETENTION SCREW
#12-11X3" 18-8 SS HWH
SLOTTED SHEET METAL SCREW



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WALL MOUNT
MAXIMUM PRESSURE (PSF)

TT	ANCHOR TYPE			
	A	A1	B	C
273	40	40	40	40
233	50	50	50	50
208	50	50	50	50
196	55	55	55	55
180	55	55	55	55
168	55	55	55	55
156	55	55	55	55
144	80	80	80	80
138	80	80	80	80
132	80	80	80	80
126	80	80	80	80
120	80	80	80	80
114	80	80	80	80
108	115	115	115	115
102	115	115	115	115
96	115	115	115	115
90	115	115	115	115
84	150	115	115	115

ALL ANCHORS SPACED AT 3"OC

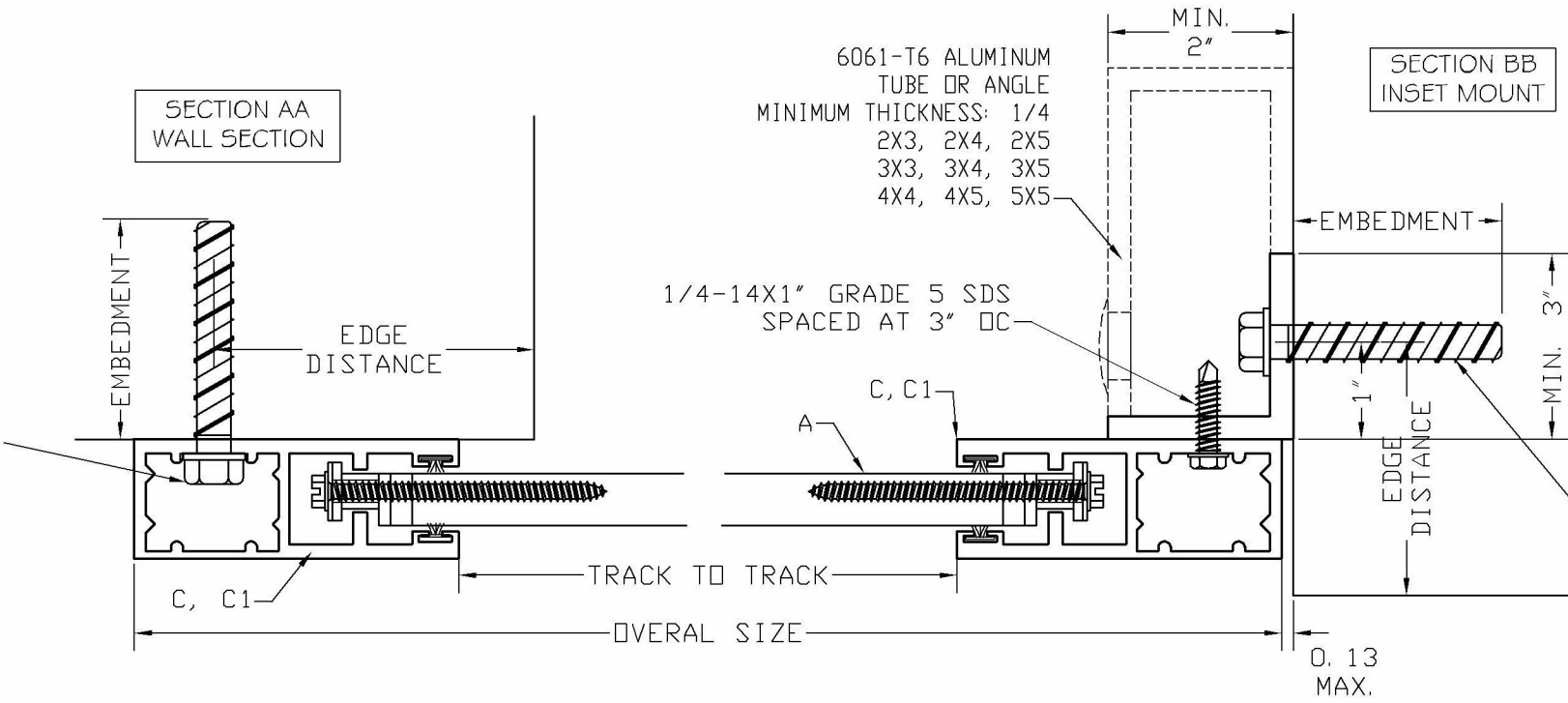
SECTION GG
BUILT-OUT SECTION

3" BUILT-OUT
MAXIMUM PRESSURE (PSF)

TT	ANCHOR TYPE			
	A	A1	B	C
273	40	40	40	40
233	50	50	50	50
208	50	50	50	50
196	55	55	55	55
180	55	55	55	55
168	55	55	55	55
156	55	55	55	55
144	80	80	80	80
138	80	80	80	80
132	80	80	80	80
126	80	80	80	80
120	80	80	80	80
114	80	80	80	80
108	115	100	100	100
102	115	100	100	100
96	115	100	100	100
90	115	100	100	100
84	150	100	100	100

ALL ANCHORS SPACED AT 3"OC

TYPICAL HORIZONTAL SECTIONS
AND ANCHOR SCHEDULE



INSET MOUNT
MAXIMUM PRESSURE (PSF)

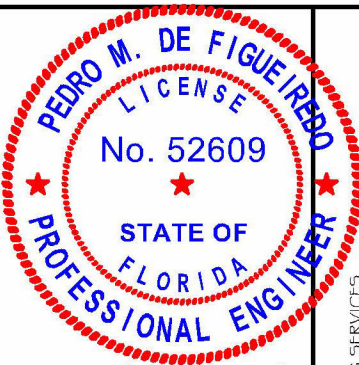
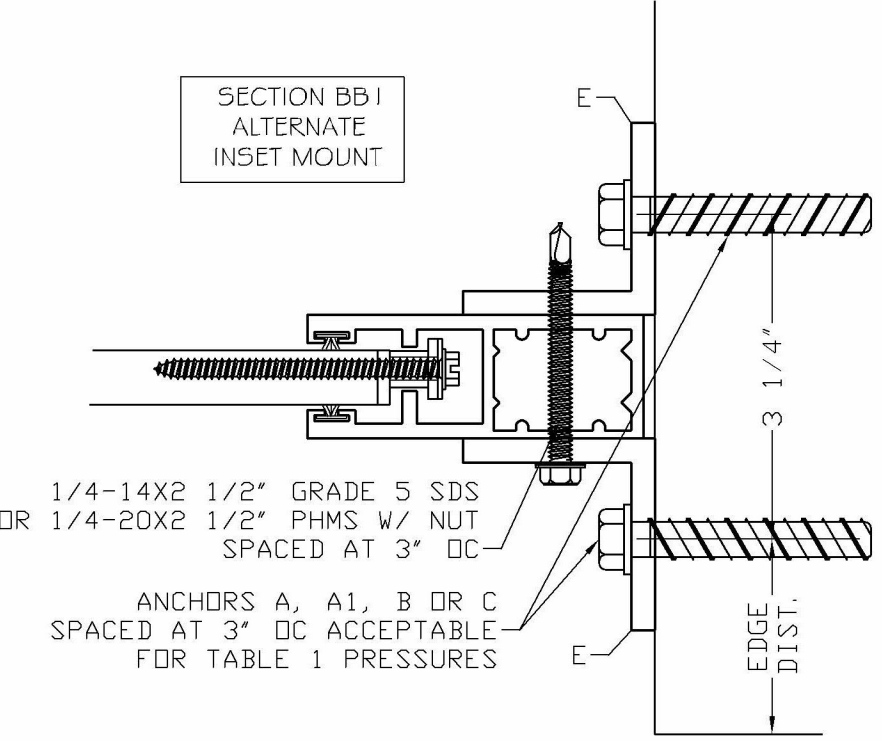
TT	ANCHOR TYPE			
	A	A1	B	C
273	40	30	40	40
233	50	45	50	50
208	50	45	50	50
196	55	55	55	55
180	55	55	55	55
168	55	55	55	55
156	55	55	55	55
144	80	80	80	80
138	80	80	80	80
132	80	80	80	80
126	80	80	80	80
120	80	80	80	80
114	80	80	80	80
108	115	115	115	115
102	115	100	115	115
96	115	100	115	115
90	115	100	115	115
84	150	100	115	115

ALL ANCHORS SPACED AT 3"OC

ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EMBEDMENT	EDGE DISTANCE
A	3/8"x4" WEDGE BOLTS	MIN. 3000 psi CONCRETE	3 1/2"	4 1/2"
A1	5/16"x3" TAPCONS	MIN. 3000 psi CONCRETE	2 1/4"	2 3/16"
B	5/16"x3" TAPCONS	GROUT FILLED C-90 BLOCK	2 1/4"	4"
C	1/4"-14x1" GRADE 5 SELF DRILLING SCREWS	MIN. 1/4" 6063-T6 ALUM. OR A36 3/16" STEEL	3 TREADS	1/2"

SECTION BB I
ALTERNATE
INSET MOUNT



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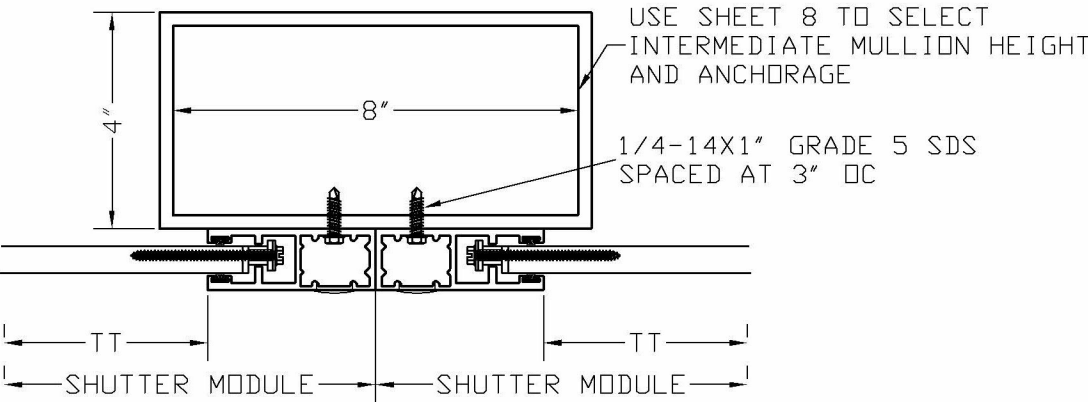
MANUFACTURER:
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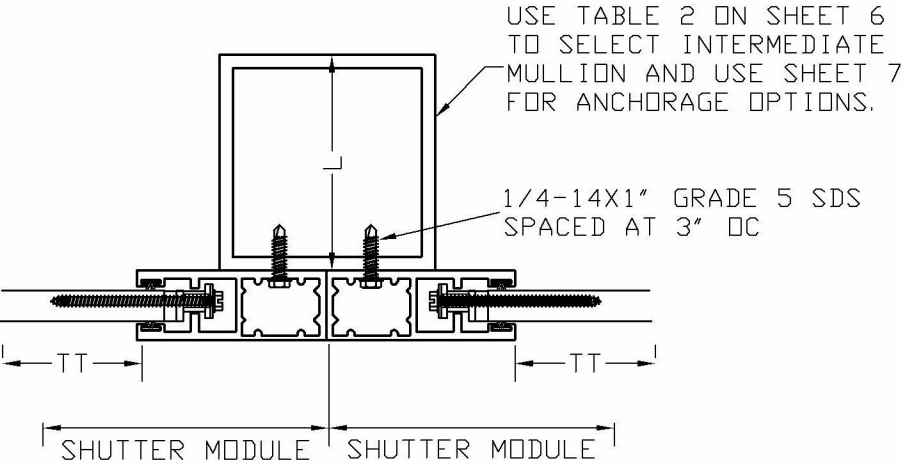
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TYPICAL MULLIONS HORIZONTAL SECTIONS

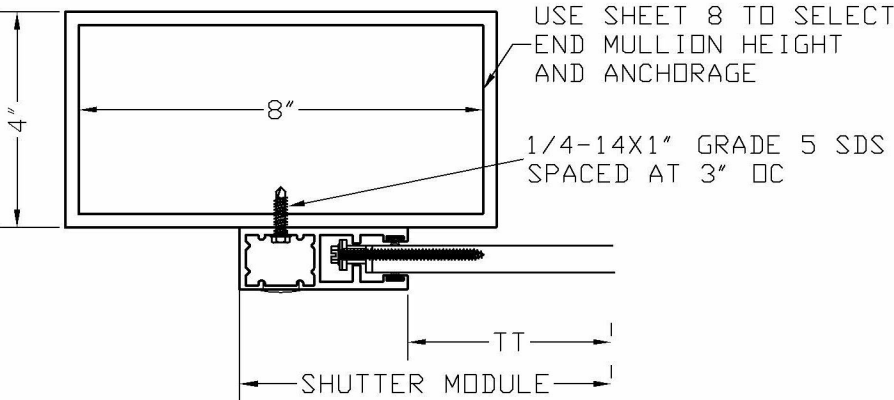
SECTION EE
INTERMEDIATE MULLION
WITH UNEQUAL SPACED MULLION



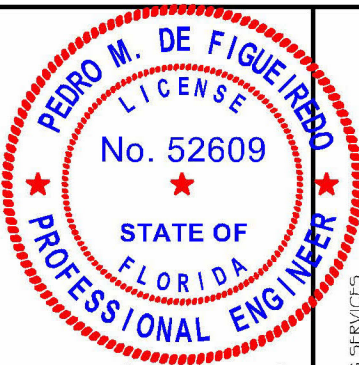
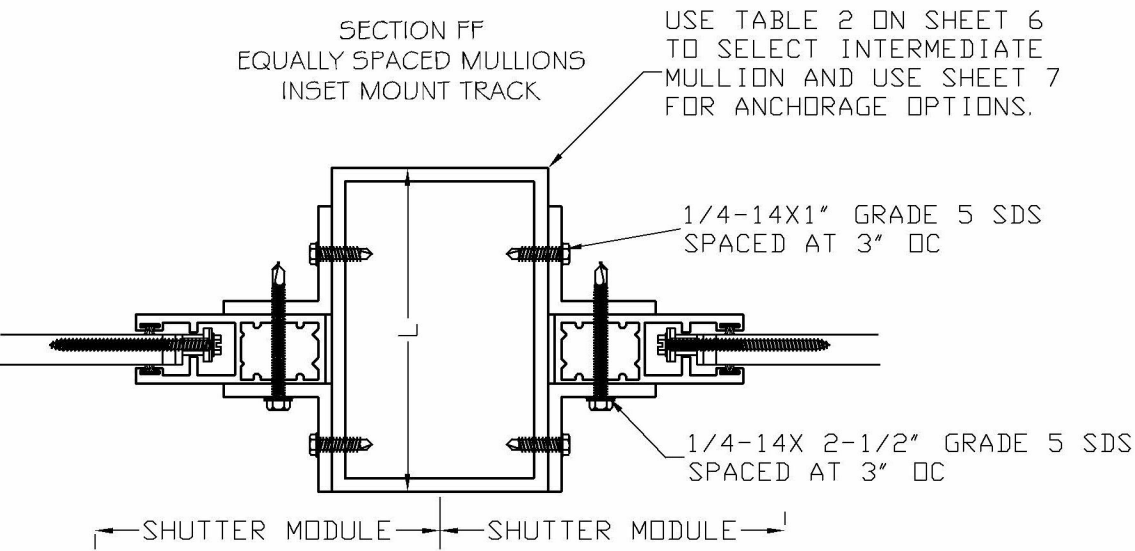
SECTION FF
EQUALLY SPACED MULLIONS
WALL MOUNT TRACK



SECTION HH
END MULLION



SECTION FF
EQUALLY SPACED MULLIONS
INSET MOUNT TRACK



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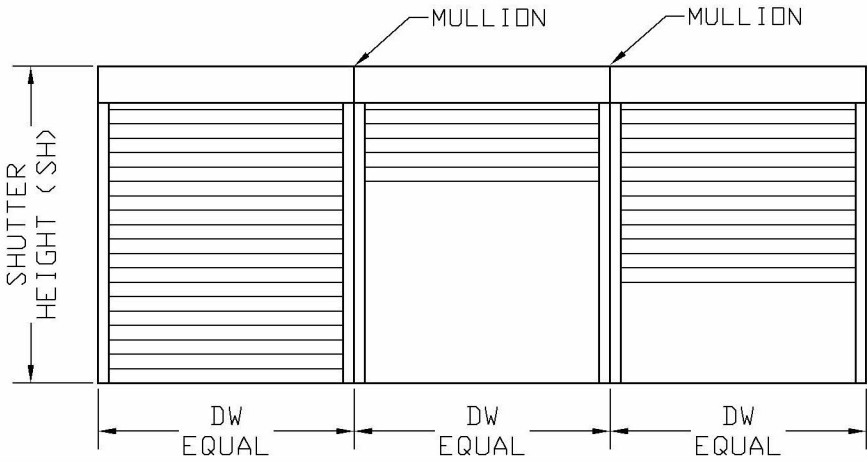
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EQUALLY SPACED MULLIONS SELECTION



MULLIONS SECTIONS

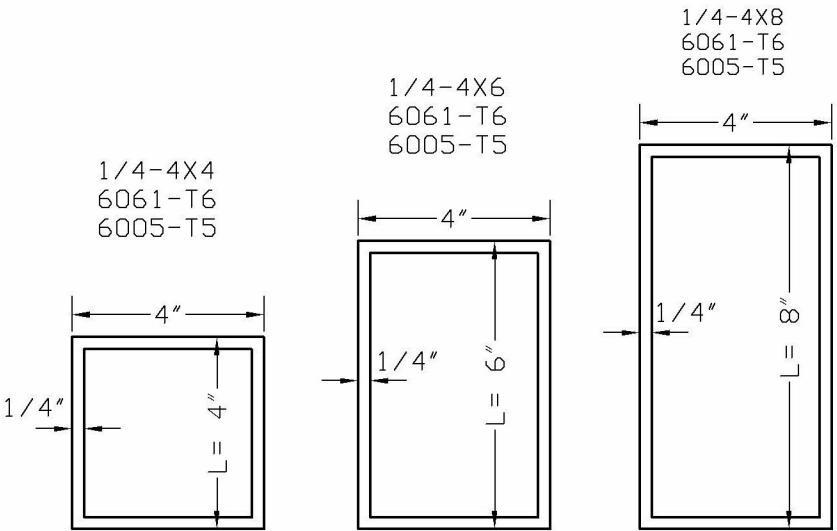
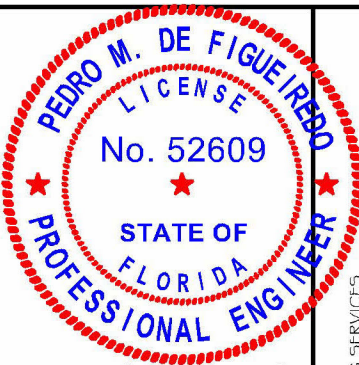


TABLE 2 - EQUAL SPACED MULLION DESIGNED PRESSURES (PSF)
NOTE: TABLE 2 IS APPLICABLE ONLY FOR EQUAL SHUTTER MODULES SM1=SM2=SM3

	1/4-4x8 mullion span			1/4-4x6 mullion span				1/4-4x4 mullion span			
DW	144	120	108	144	120	108	96	120	108	96	84
280	40	40	40	27	40	40	40	17	23	32	37
240	45	45	45	32	45	45	45	20	27	38	43
215	52	52	52	35	52	52	52	22	30	42	48
203	55	55	55	38	55	55	55	23	32	45	51
187	63	63	63	41	60	63	63	25	35	48	55
175	67	68	68	44	64	68	68	27	37	52	59
163	72	74	74	47	69	74	74	29	40	56	63
151	78	80	80	50	75	80	80	32	43	60	68
145	81	86	86	53	78	86	86	33	45	62	71
139	85	92	92	55	81	90	92	34	47	65	74
133	89	98	98	57	85	94	98	36	49	68	78
127	93	103	103	60	89	98	103	38	51	71	81
121	97	109	109	63	93	103	109	39	53	75	85
115	102	115	115	66	98	109	115	41	56	79	90
109	108	124	124	70	103	115	124	44	59	83	95
103	114	133	133	74	109	121	133	46	63	88	100
97	121	141	141	79	116	129	141	49	67	93	107
91	129	150	150	84	124	137	150	52	71	99	114



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EQUALLY SPACED MULLIONS WALL AND FLOOR CONNECTIONS

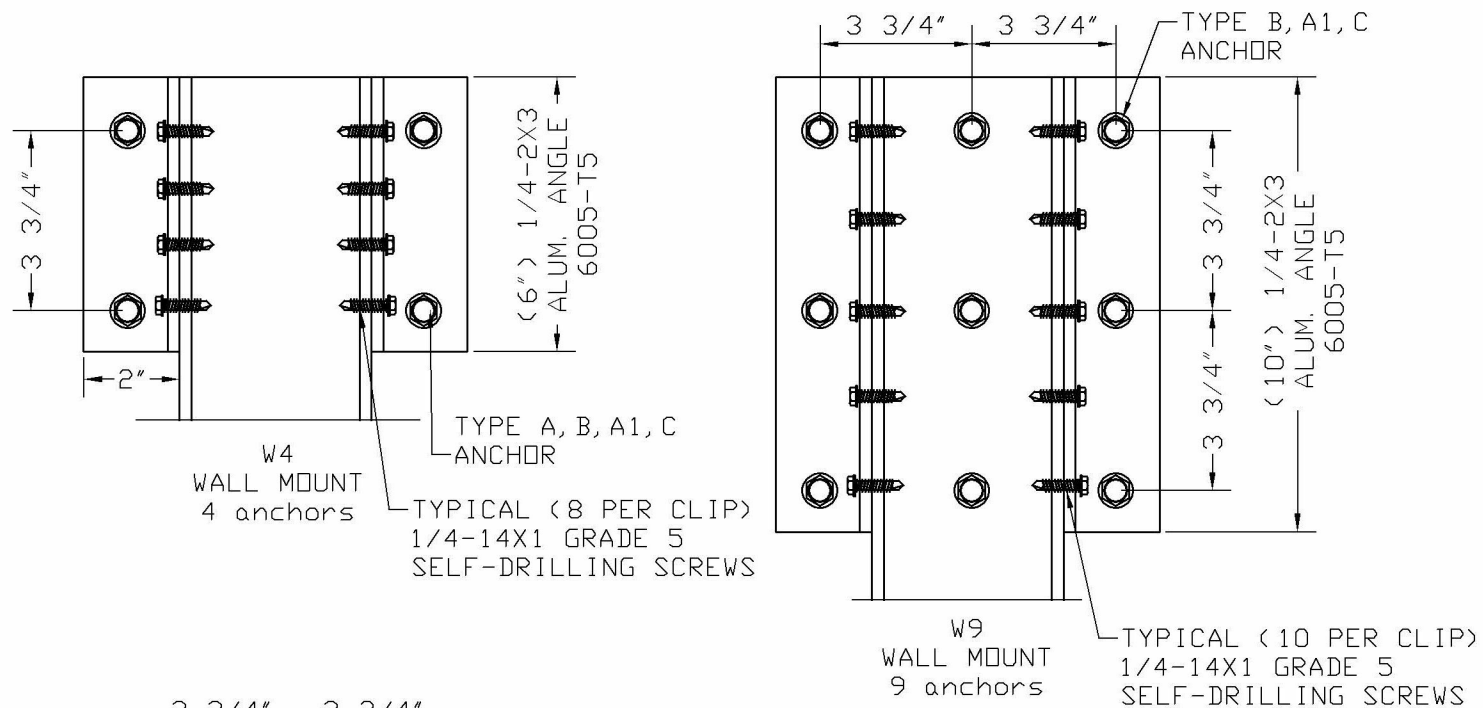
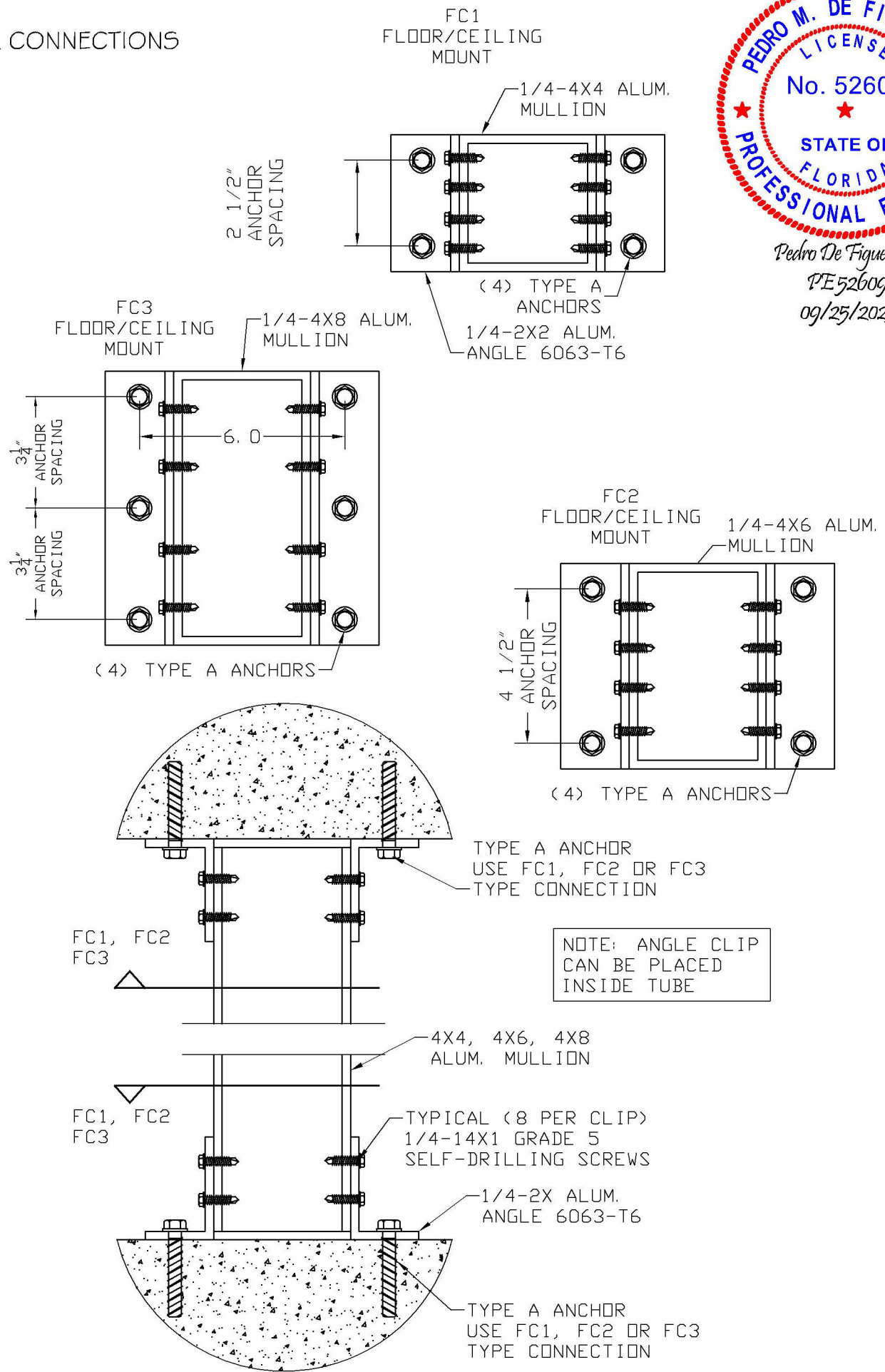


TABLE 2A
WALL MOUNT ANCHOR SELECTION

ANCHOR TYPE	MULLION TYPE			
	4X4	4X6	4X8	
A	W4	W4	W4	
A1	W4	W6	W9	
B	W4	W6	W9	
C	W4	W6	W9	

ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EMBEDMENT	EDGE DISTANCE
A	3/8"X4" WEDGE BOLTS	MIN. 3000 psi CONCRETE	3 1/2"	4 1/2"
A1	5/16"X3" TAPCONS	MIN. 3000 psi CONCRETE	2 1/4"	2 3/16"
B	5/16"X3" TAPCONS	GROUT FILLED C-90 BLOCK	2 1/4"	4"
C	1/4"-14X1" GRADE 5 SELF DRILLING SCREWS	MIN. 1/4" 6063-T6 ALUM. OR A36 3/16" STEEL	3 TREADS	1/2"



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23-166

SHEET
7 OF 9

ENGINEER SEAL
PEDRO DE FIGUEIREDO
FE 52609

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PRODUCT:
IMPACT PROTECTIVE SHUTTER
RE I 500 ER
LARGE MISSILE IMPACT RESISTANT

MANUFACTURER:
ROLLSECURE SHUTTERS

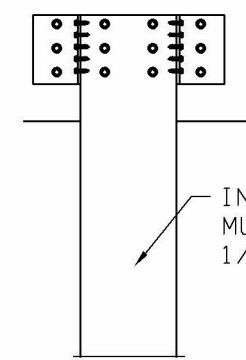
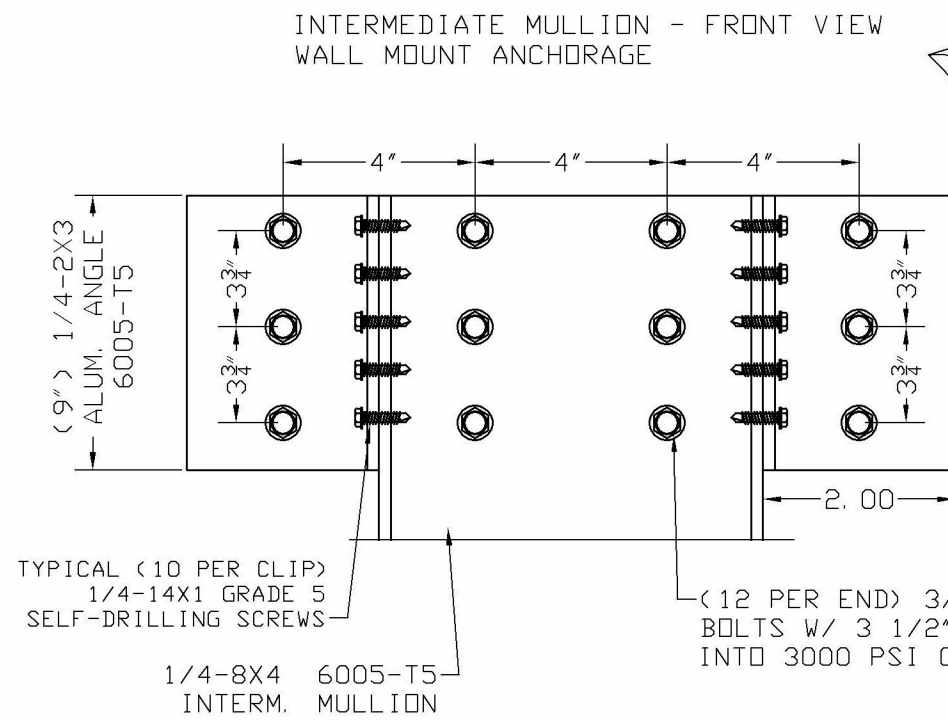
1762 TRADE CENTER WAY
NAPLES, FLORIDA 34109
TEL. (239) 531-1616

SCALE:
NA

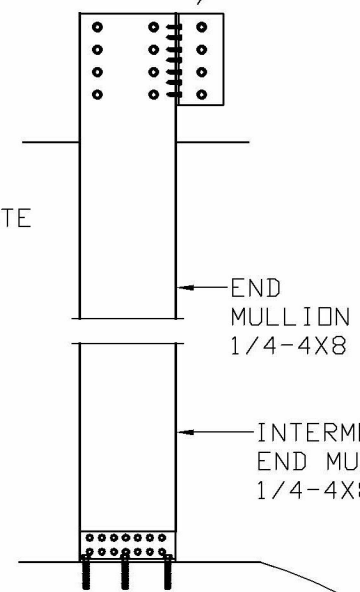
DATE: 0/25/202

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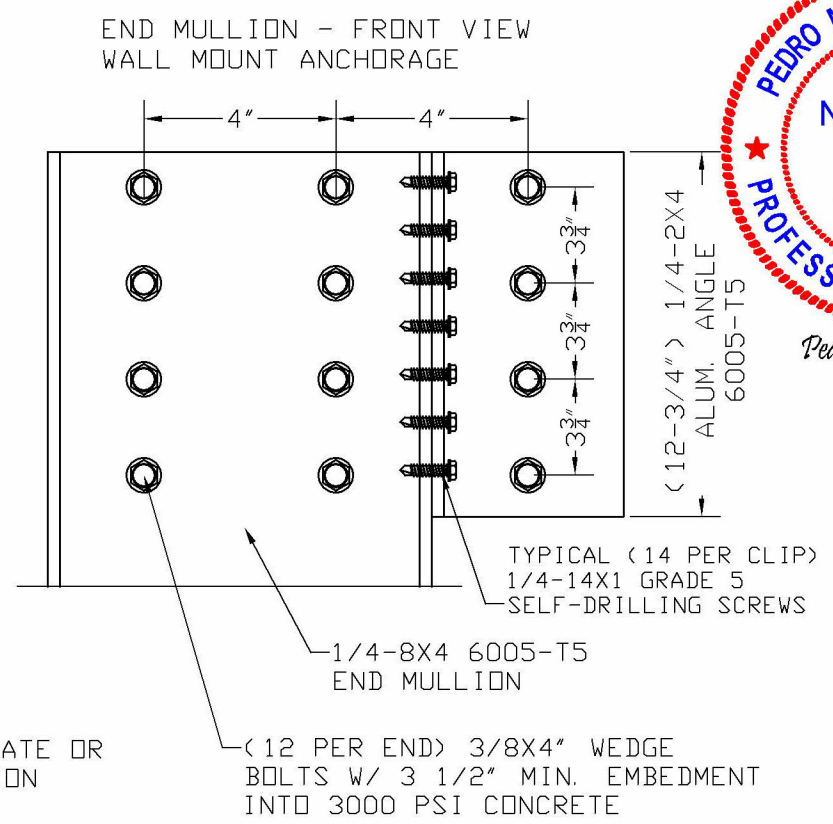


INTERMEDIATE
MULLION
1/4-4X8



—END
MULLION
1/4-4X8

—INTERMEDIATE OR
END MULLION
1/4-4X8



FLOOR MOUNT ANCHORAGE
TOP VIEW

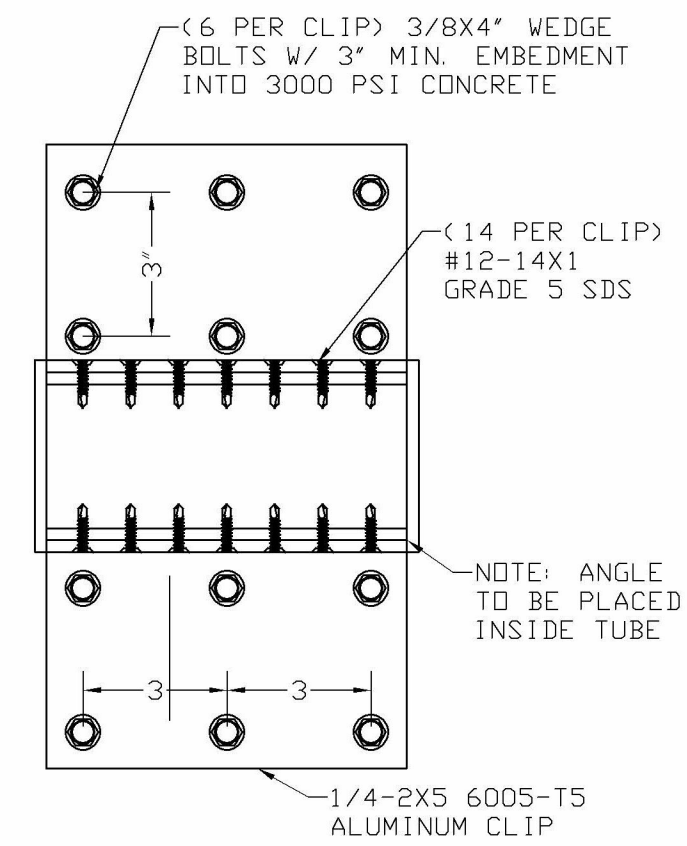
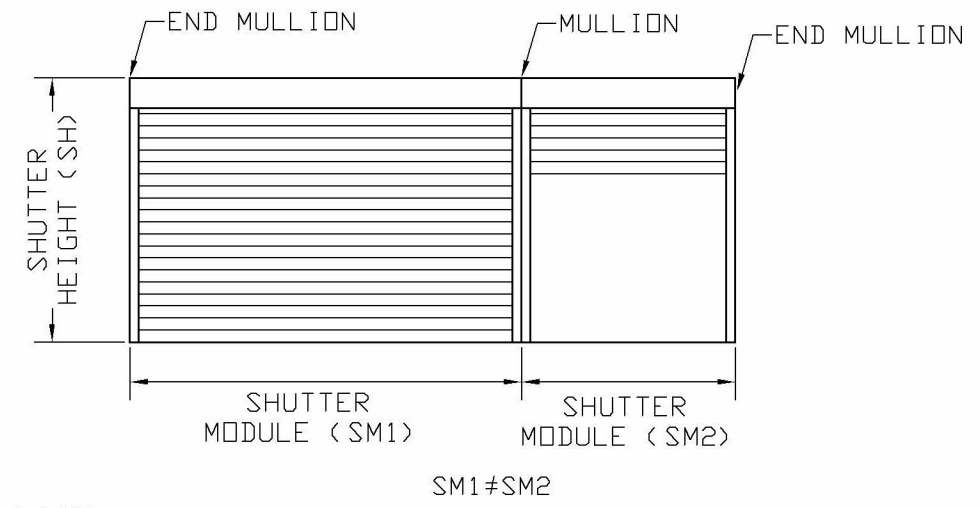


TABLE 3 - MAXIMUM MULLION HEIGHT
FOR UNEQUAL SPACED MULLIONS AND END MULLIONS

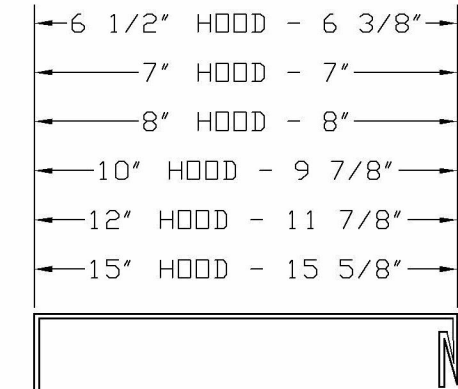
Pd (Psf)	SM1 (in)	SM2 (in)	Mull (in)	
40	280"	0-<91	89	END MULL
		91	93	INT. MULL
		115	100	
		151	108	
		203	115	
50	240"	0-<91	84	END MULL
		91	96	INT. MULL
		115	102	
		151	108	
		203	110	
55	203"	0-<91	92	END MULL
		91	104	INT. MULL
		115	110	
		151	115	
80	151"	0-<91	94	END MULL
		91	116	INT. MULL
		115	113	
115	115"	0-<91	91	END MULL
		91	109	INT. MULL
150	91"	0-<91	65	END MULL



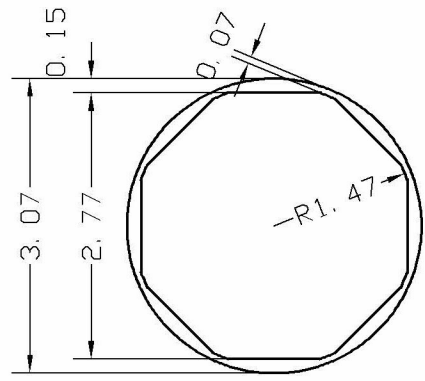
NOTES:

- 1- TABLE IS APPLICABLE ONLY FOR UNEQUAL SHUTTER MODULES AND END MULLION.
- 2- USE 1/4-4X8 MULLION AS PER SECTIONS EE, HH
- 3- PD= MAXIMUM DESIGNED PRESSURE IN PSF
- 4- THE MAXIMUM END MULLION SIZES ($SM2=0$) IS FOUND WHEN $SM2=0$
- 5- SPECIFIC CONDITIONS NOT INCLUDED HERE IN ARE TO BE ADDRESSED WITH SITE SPECIFIC PROVIDED BY A PROFESSIONAL ENGINEER.

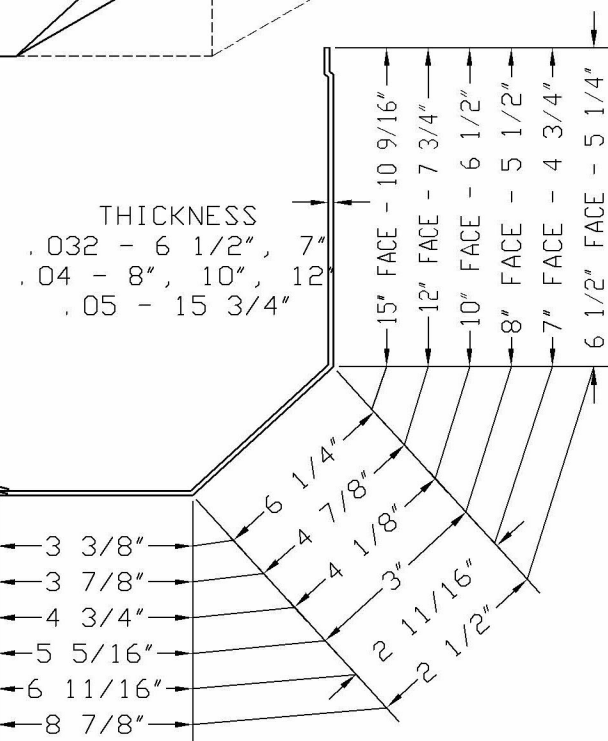
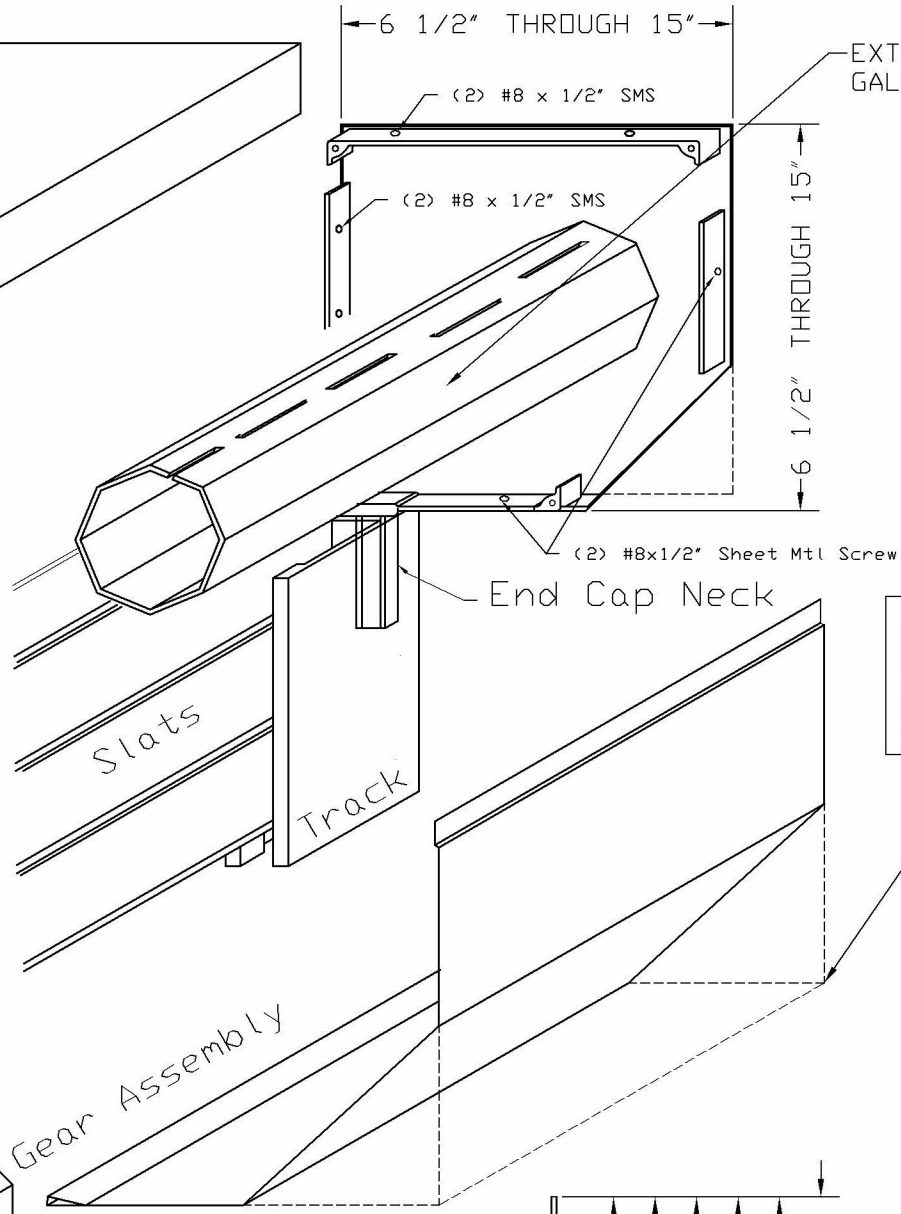
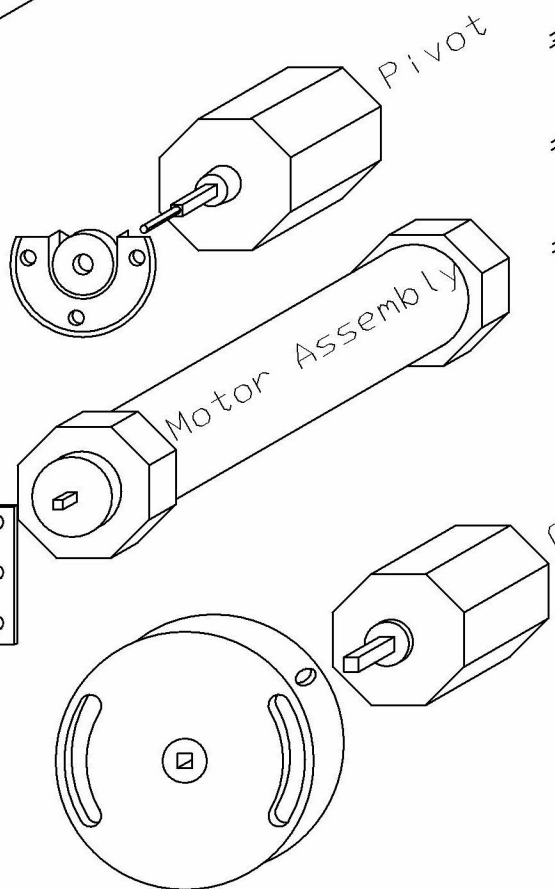
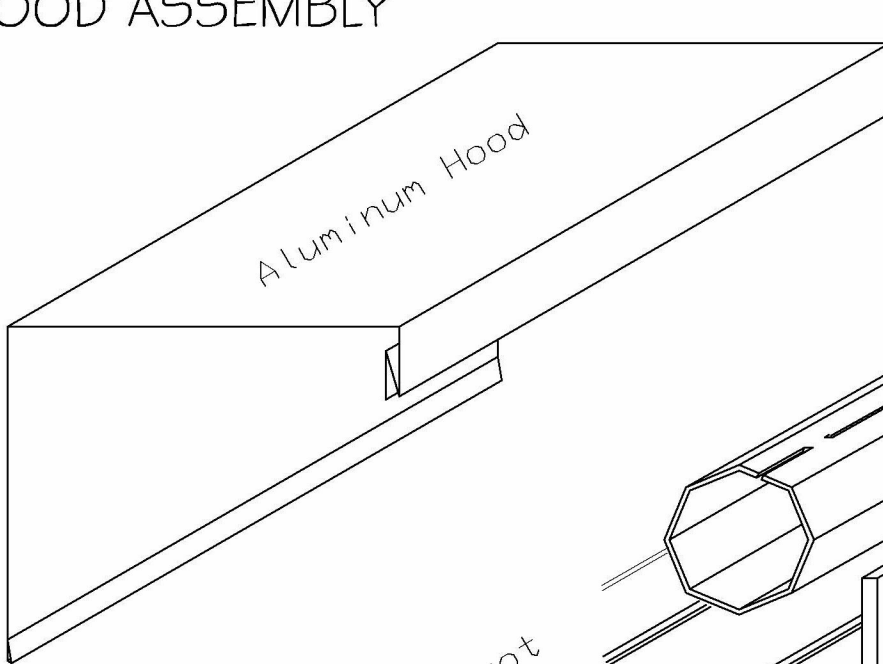
HOOD ASSEMBLY



THICKNESS
.032 - 6 1/2", 7"
.04 - 8", 10", 12"
.05 - 15 3/4"



H- ALUMINUM ROLL TUBE
6005-T5



THICKNESS
.032 - 6 1/2", 7"
.04 - 8", 10", 12"
.05 - 15 3/4"

THICKNESS
.032 - 6 1/2", 7"
.04 - 8", 10", 12"
.05 - 15 3/4"

ALTERNATE
SQUARE HOUSING

NOTE: THE ROLL-UP MECHANISM (GEARS, MOTORS, SUPPORTING END PLATES) ARE NOT PART OF THIS APPROVAL. MANUFACTURER IS RESPONSIBLE TO SPECIFY THESE COMPONENTS FOR PROPER SHUTTER OPERATION.



Pedro De Figueiredo
PE 52609
09/25/2023



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