

RE I 500 ULTRA ER
EXTRUDED ALUMINUM OPERABLE IMPACT PROTECTIVE SYSTEM

FLORIDA STATE APPROVAL
CODE VERSION: FLORIDA BUILDING CODE 2020 - 7TH EDITION
APPROVED FOR USE INSIDE HVHZ AND OUTSIDE HVHZ
CATEGORY: IMPACT PROTECTIVE SYSTEMS -- SUBCATEGORY: OPERABLE
IMPACT RESISTANT: LARGE MISSILE



Pedro De Figueiredo
08/12/2020

ENGINEERING
ENGCO INC. - CA 8116
9715 W. BROWARD BLVD. 247
PLANTATION - FLORIDA - 33324
ENGCO@AOL.COM
ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609

GENERAL NOTES:

- 1- DEFINITION: THIS PRODUCT IS A IMPACT PROTECTIVE SYSTEM; DESIGNED, CONSTRUCTED AND ERECTED TO EASILY ENCLOSE AN AREA, PROVIDING PROTECTION FROM HURRICANE FORCE WINDS 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, TAS 202, 201 (LARGE MISSILE), 203 AND HAS BEEN DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 2020, 7TH 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 7-16 AND PROVIDED BY A PROFESSIONAL ARCHITECT OR ENGINEER FOR EACH SPECIFIC PROJECT. THE CALCULATED DESIGNED PRESSURE MUST NOT EXCEED THE ALLOWABLE PRESSURES FOR EACH DOOR COMPONENT TO BE USED. THE DESIGN PRESSURES ARE PERMITTED TO BE MULTIPLIED BY 0.6
- 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: ENGCO 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: PRODUCT MUST BE INSTALLED OFFSET FROM GLAZING PRODUCTS. SLATS MUST BE SEPARATED FROM GLAZING AS PER TABLE 1 (GS VALUES).

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10	HOOD ASSEMBLY
TOTAL NUMBER OF PAGES: 10	

STANDARD COMPLIANCE:
ASTM E330, E1996 (LEVEL D MISSILE), E1886
TAS 201, 202, 203 (LARGE & SMALL MISSILE)
ASCE 7-16, ADM-15, NDS-18

ASSOCIATION:
N.A.S.A
NATIONAL APPROVED
SHUTTER ASSOCIATION
L.L.C.

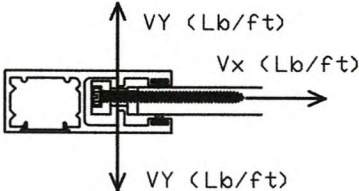
15701 SW 29TH STEET STE 100
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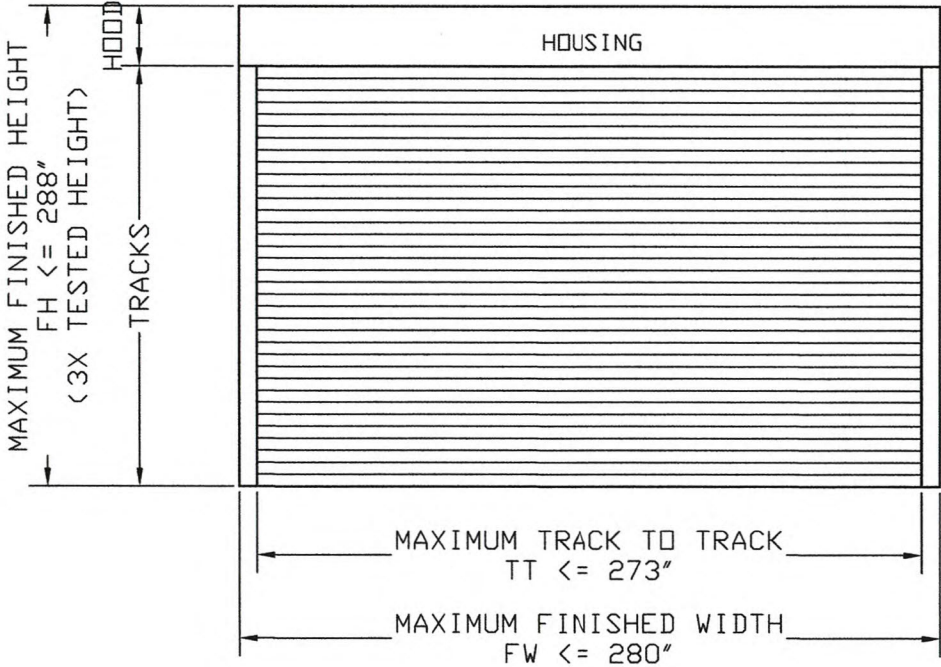
PRODUCT:
IMPACT PROTECTIVE SYSTEM
RE I 500 ULTRA ER
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
MIRAMAR, FL 33027

SCALE:
NA
DATE:
08/12/2020
DRAWING #
20-130
SHEET
1 OF 10

DESIGNED PRESSURE RATING

TABLE 1 - ALLOWABLE DESIGNED PRESSURE				CONTRACTOR TO VERIFY ADEQUACY OF STRUCTURE FOR MAXIMUM IMPOSED LOADS VY AND Vx	
TT MAX.	ALLOWABLE WIND PRESSURES		G. S.	TRACK REACTIONS	
	POSITIVE	NEGATIVE		Vy	Vx
273"	+ 40.0	- 40.0	17	455	2382
249"	+ 45.0	- 45.0	17	467	2323
225"	+ 52.0	- 52.0	16	488	2321
201"	+ 61.0	- 61.0	15	512	2355
177"	+ 71.0	- 71.0	13	524	2344
153"	+ 82.0	- 82.0	12	524	2281
120"	+105.0	-105.0	8	525	2438
NOTES: 1- DESIGNED PRESSURES MUST NOT EXCEED 105 PSF 2- DOOR SIZE (TT) MUST NOT EXCEED 273" 3- GS - GLASS SEPARATION IN INCHES AS PER NOTE 10					
MULTIPLE DOORS NOTES: 1- USE TABLE 1 TO VERIFY SLAT MAXIMUM ALLOWABLE PRESSURE 2- USE SHEET 7 TO SELECT INTERMEDIATE MULLIONS 3- USE SHEET 8 TO SELECT PROPER MULLION ANCHORAGE					



DESIGN SCHEDULE

COMPONENT	SHEET
SLAT ALLOWABLE PRESSURE	2
TRACK ANCHORAGE SPACING	4 # 5
EQUALLY SPACED MULLIONS	7 # 8

ALLOWABLE DESIGNED PRESSURE FOR MULTIPLE DOORS ARE FUNCTION OF THE LOWEST ALLOWABLE DESIGNED LOAD FOR THE SLATS, MULLIONS AND ANCHORAGE.



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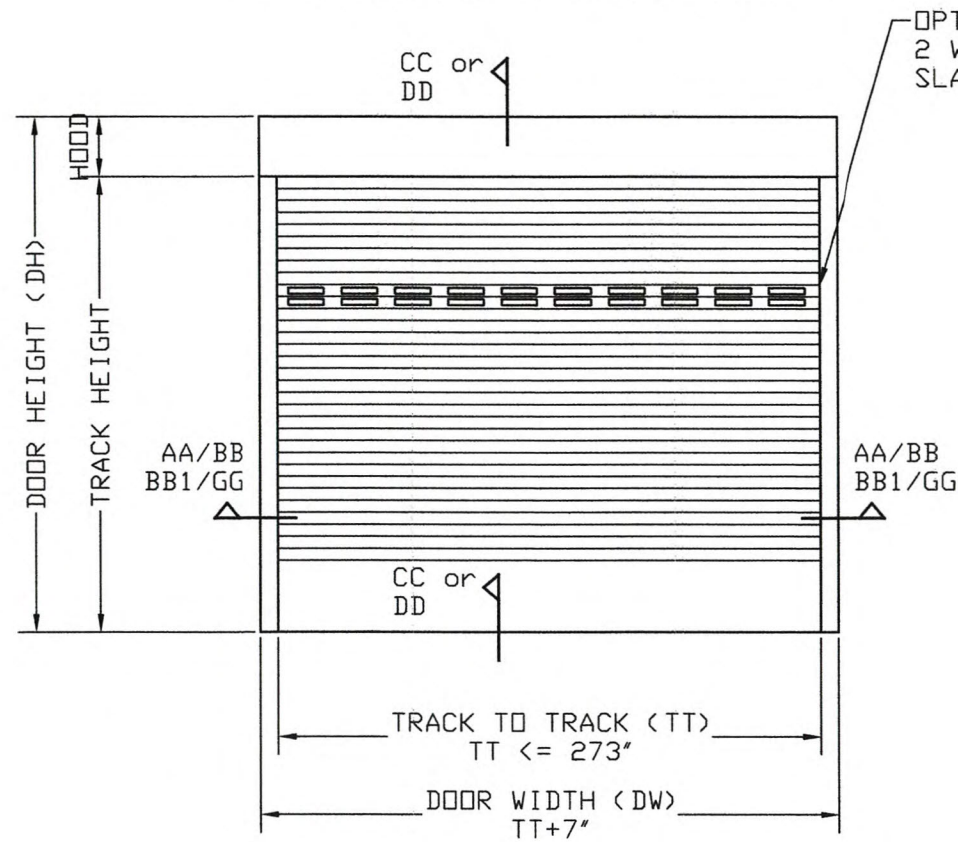
PRODUCT:
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RE1500 ULTRA ER
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
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MIRAMAR, FL 33027

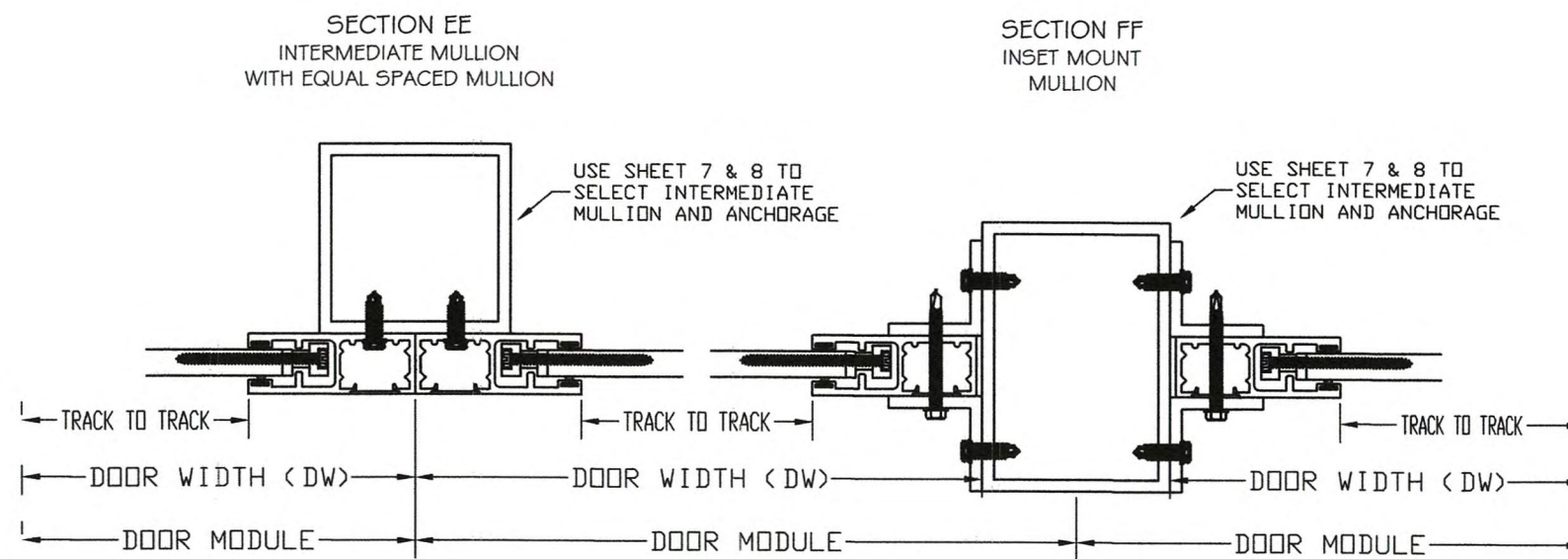
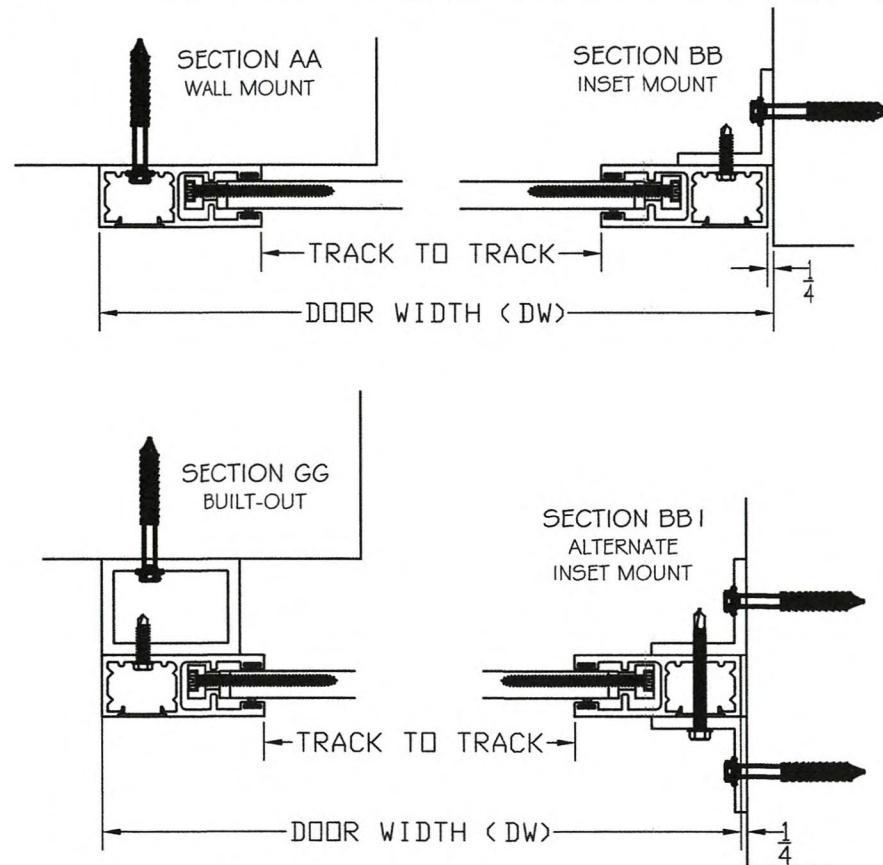
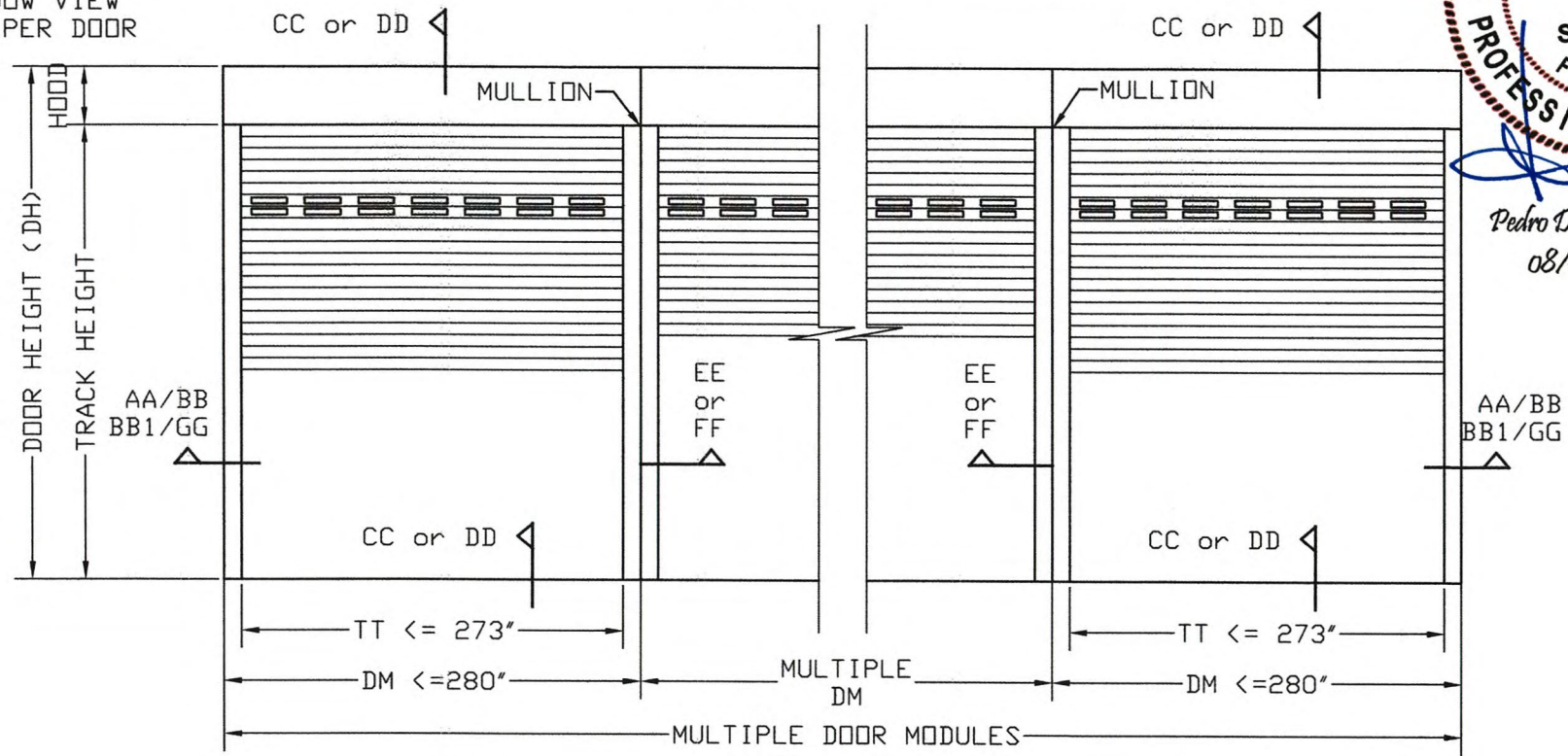
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20-130
SHEET
2 OF 10

TYPICAL ELEVATIONS

TYPICAL SINGLE UNIT ELEVATION



TYPICAL MULTIPLE UNITS ELEVATION



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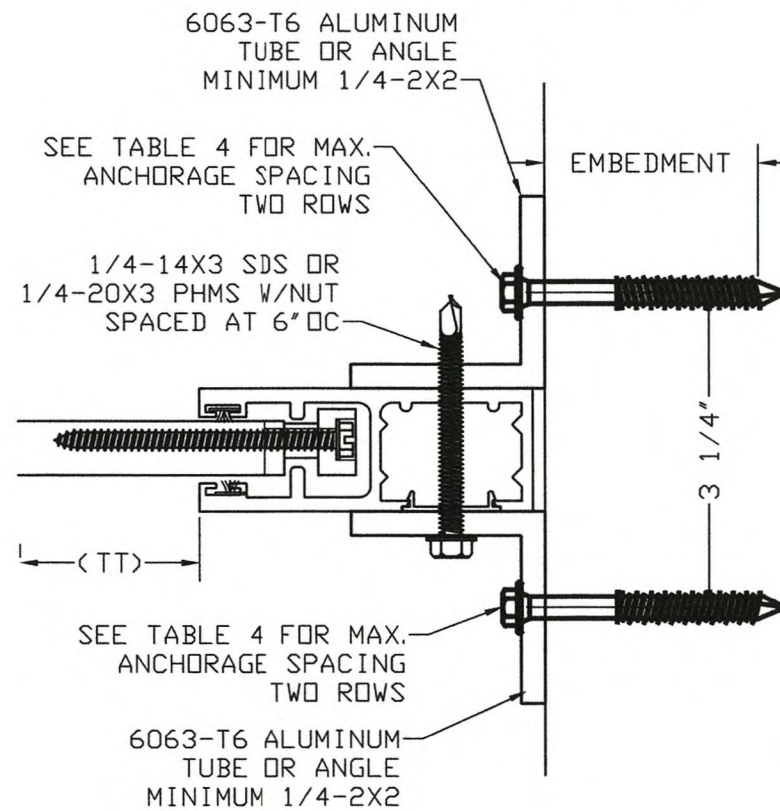
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NA
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SHEET
3 OF 10

TABLE 2 - SECTION AA MAXIMUM ANCHORAGE SPACING (In. OC)

PD	120			153			177			201			225			249			273		
	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1
40	9.0	5.0	6.0	8.0	5.0	4.0	7.0	4.0	3.8	6.0	3.8	--	5.0	--	--	5.0	--	--	5.0	--	--
45	9.0	5.0	5.0	7.0	4.0	4.0	6.0	3.8	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
46	9.0	5.0	5.0	7.0	4.0	4.0	6.0	3.8	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
52	8.0	4.0	4.0	6.0	4.0	4.0	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
53	8.0	4.0	4.0	6.0	4.0	4.0	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
60	7.0	4.0	4.0	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
61	7.0	4.0	4.0	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
62	7.0	4.0	4.0	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
70	6.0	--	3.8	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
71	6.0	--	3.8	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
79	5.0	--	--	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
80	5.0	--	--	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
82	5.0	--	--	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
105	5.0	--	--	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--

EXAMPLE: TT=225", PD=52PSF
ANCHOR TYPE A
SPACED AT 5" OC

SECTION BB1
ALTERNATE INSET MOUNTTABLE 4 - SECTION BB1
MAXIMUM ANCHORAGE SPACING (In. OC)

PD	120			153			177			201			225			249			273		
	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1
40	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.0	9.0	9.0	7.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
45	9.0	9.0	9.0	9.0	8.0	9.0	9.0	7.0	9.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
46	9.0	9.0	9.0	9.0	8.0	9.0	9.0	7.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
52	9.0	9.0	9.0	9.0	7.0	9.0	9.0	6.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
53	9.0	9.0	9.0	9.0	7.0	9.0	9.0	6.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
60	9.0	8.0	9.0	9.0	7.0	8.0	9.0	6.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
61	9.0	8.0	9.0	9.0	7.0	8.0	9.0	6.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
62	9.0	8.0	9.0	9.0	7.0	8.0	9.0	6.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
70	9.0	7.0	8.0	9.0	7.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
71	9.0	7.0	8.0	9.0	7.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
79	9.0	6.0	8.0	9.0	7.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
80	9.0	6.0	8.0	9.0	7.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
82	9.0	6.0	8.0	9.0	7.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0
105	9.0	6.0	7.0	9.0	7.0	8.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0	9.0	6.0	7.0

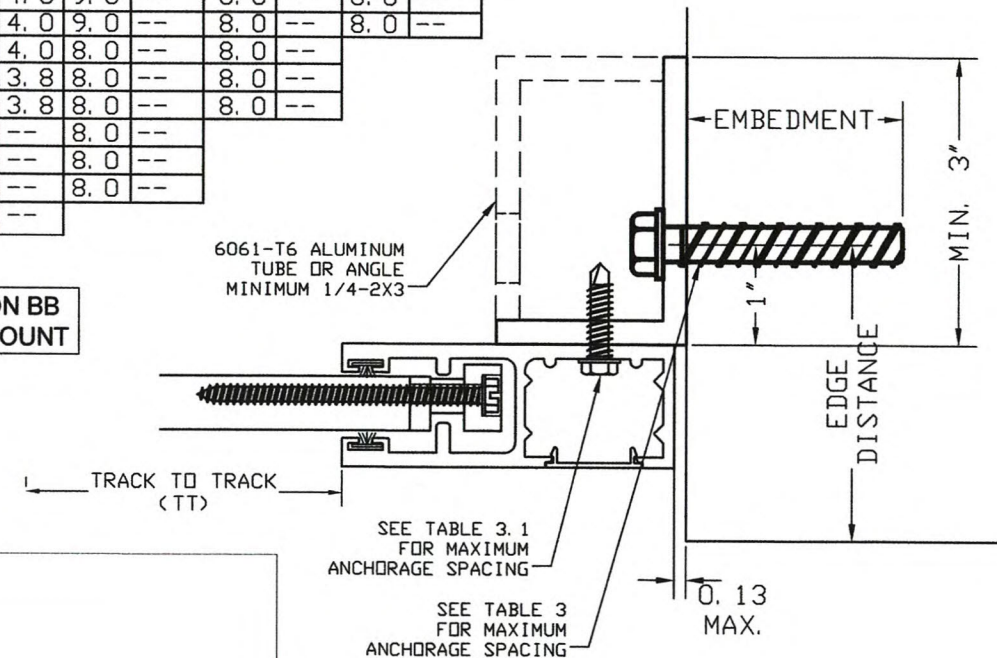
TABLE 3.1 - TRACK TO TUBE OR ANGLE
MAXIMUM ANCHORAGE SPACING (In. OC)

PD	120		153		177		201		225		249		273	
	C	D	C	D	C	D	C	D	C	D	C	D	C	D
40	5.0	8.0	4.0	7.0	3.0	6.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0
45	4.0	8.0	3.0	6.0	3.0	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
46	4.0	8.0	3.0	6.0	3.0	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
52	4.0	7.0	3.0	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
53	3.0	7.0	3.0	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
60	3.0	6.0	--	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
61	3.0	6.0	--	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
62	3.0	6.0	--	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
70	3.0	5.0	--	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
71	3.0	5.0	--	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
79	--	5.0	--	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
80	--	5.0	--	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
82	--	5.0	--	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0
105	--	4.0	--	5.0	--	5.0	--	5.0	5.0	5.0	5.0	5.0	5.0	4.0

MAX. TT

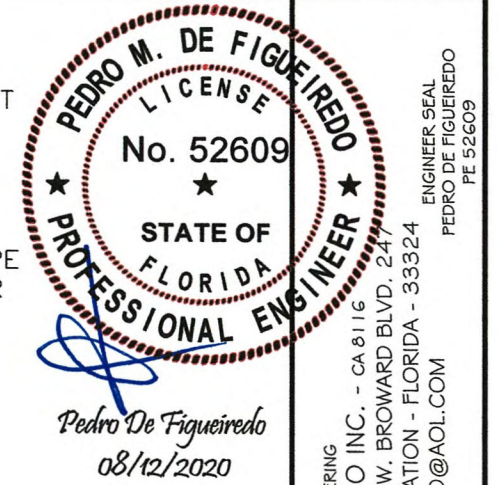
TABLE 3 - SECTION BB
MAXIMUM ANCHORAGE SPACING (In. OC)

PD	120		153		177		201		225		249		273	
	A	A1	A	A1	A	A1	A	A1	A	A1	A	A1	A	A1
40	9.0	6.0	9.0	4.0	9.0	4.0	9.0	--	8.0	--	8.0	--	8.0	--
45	9.0	5.0	9.0	4.0	9.0	3.8	8.0	--	8.0	--	8.0	--	8.0	--
46	9.0	5.0	9.0	4.0	9.0	3.8	8.0	--	8.0	--	8.0	--	8.0	--
52	9.0	4.0	9.0	3.8	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--
53	9.0	4.0	9.0	3.8	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--
60	9.0	4.0	9.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--
61	9.0	4.0	9.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--
62	9.0	4.0	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--
70	9.0	3.8	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--
71	9.0	3.8	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--
79	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--
80	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--
82	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--
105	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--	8.0	--

SECTION BB
INSET MOUNT

ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EMBEDMENT	EDGE DISTANCE
A	3/8" X 4" WEDGE BOLTS	MIN. 3000 psi CONCRETE	3 1/2"	4 1/2"
A1	5/16" X 3" TAPCONS	MIN. 3000 psi CONCRETE	2 1/4"	2 3/16"
B1	5/16" X 3" TAPCONS	GROUT FILLED C-90 BLOCK	2 1/4"	4"
C	1/4" - 14X1" SDS GRADE 5	MIN. 1/4" 6063-T6 ALUM.	--	1/2"
D	5/16" - 12X1" SDS GRADE 5	MIN. 1/4" 6063-T6 ALUM.	--	3/4"



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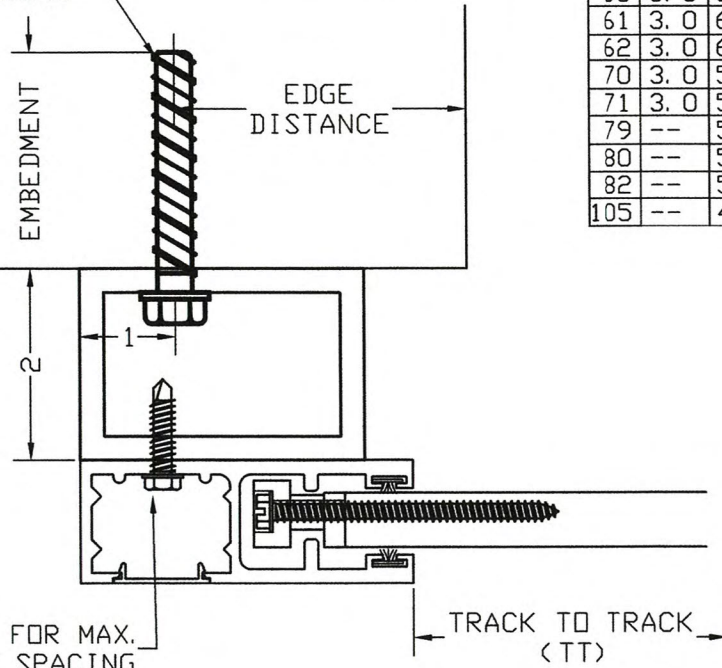
SCALE:
NA
DATE:
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DRAWING #
20-130
SHEET
4 OF 10

TABLE 3.1 - TRACK TO TUBE OR ANGLE
MAXIMUM ANCHORAGE SPACING (In. OC)

	120		153		177		201		225	249	273
PD	C	D	C	D	C	D	C	D	D	D	D
40	5.0	8.0	4.0	7.0	3.0	6.0	3.0	5.0	5.0	5.0	4.0
45	4.0	8.0	3.0	6.0	3.0	5.0	--	5.0	5.0	5.0	--
46	4.0	8.0	3.0	6.0	3.0	5.0	--	5.0	5.0	5.0	--
52	4.0	7.0	3.0	5.0	--	5.0	--	5.0	5.0	5.0	--
53	3.0	7.0	3.0	5.0	--	5.0	--	5.0	5.0	5.0	--
60	3.0	6.0	--	5.0	--	5.0	--	5.0	5.0	5.0	--
61	3.0	6.0	--	5.0	--	5.0	--	5.0	5.0	5.0	--
62	3.0	6.0	--	5.0	--	5.0	--	5.0	5.0	5.0	--
70	3.0	5.0	--	5.0	--	5.0	--	5.0	5.0	5.0	--
71	3.0	5.0	--	5.0	--	5.0	--	5.0	5.0	5.0	--
79	--	5.0	--	5.0	--	5.0	--	5.0	5.0	5.0	--
80	--	5.0	--	5.0	--	5.0	--	5.0	5.0	5.0	--
82	--	5.0	--	5.0	--	5.0	--	5.0	5.0	5.0	--
105	--	4.0	--	5.0	--	5.0	--	5.0	5.0	5.0	--

SEE TABLE 5 FOR MAXIMUM ANCHORAGE SPACING

SECTION GG
2X3 BUILT-OUT MOUNT



SEE TABLE 3.1 FOR MAX. ANCHORAGE SPACING

TABLE 5 - SECTION GG
MAXIMUM ANCHORAGE SPACING (In. OC)

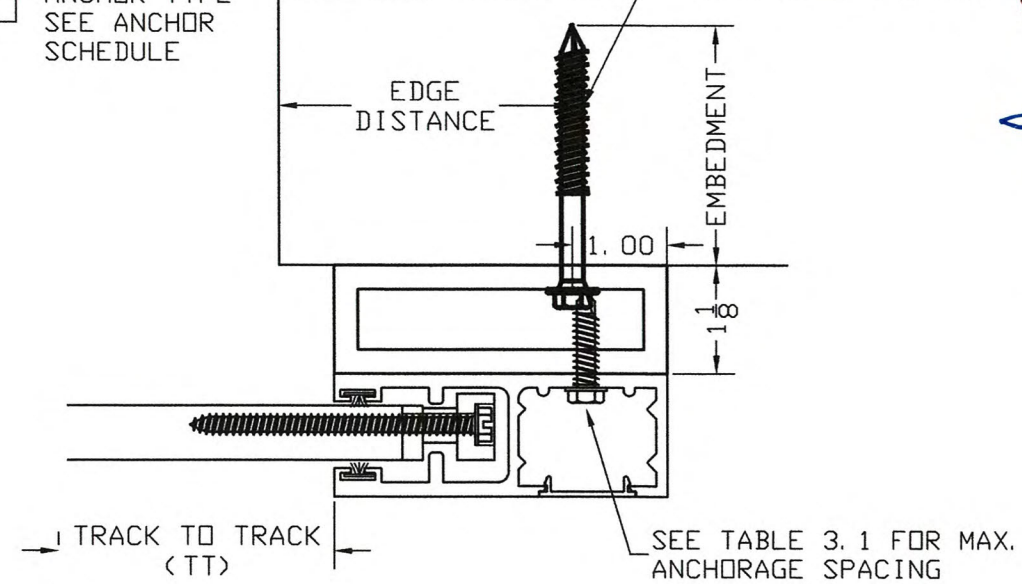
	120			153			177	201	MAX. TT
PD	A	A1	B1	A	A1	B1	A	A	
40	9.0	6.0	6.0	8.0	4.0	4.0	5.0	4.5	
45	9.0	5.0	5.0	6.0	3.8	3.8	5.0		
46	9.0	5.0	5.0	6.0	--	--	4.5		
52	8.0	4.0	4.0	5.0	--	--			
53	7.0	4.0	4.0	5.0	--	--			
60	6.0	--	--	4.5	--	--			
61	6.0	--	--		--	--			
62	6.0	--	--		--	--			
70	5.0	--	--		--	--			
71	4.5	--	--		--	--			

EXAMPLE: TT=153", PD=60PSF
ANCHOR TYPE A
SPACED AT 4 1/2" OC

MAX. TT

SECTION GG1
1X3.5 BUILT-OUT MOUNT

SEE TABLE 5.1 FOR MAXIMUM ANCHORAGE SPACING



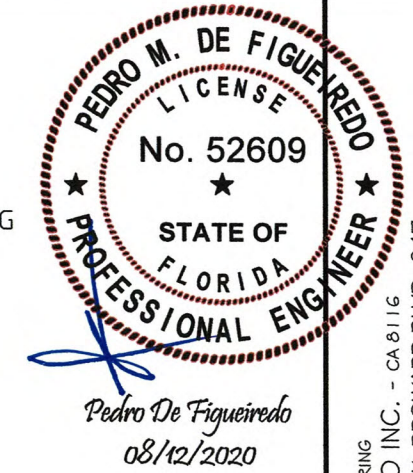
SEE TABLE 3.1 FOR MAX. ANCHORAGE SPACING

TABLE 5.1 - SECTION GG1
MAXIMUM ANCHORAGE SPACING (In. OC)

	120			153			177			201			225			249			273		
PD	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1	A	A1	B1
40	9.0	6.0	6.0	8.0	5.0	4.0	7.0	4.0	4.0	6.0	3.8	3.8	5.0	--	--	5.0	--	--	5.0	--	--
45	9.0	5.0	5.0	7.0	4.0	4.0	6.0	3.8	3.8	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
46	9.0	5.0	5.0	7.0	4.0	4.0	6.0	3.8	3.8	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
52	8.0	5.0	4.0	6.0	4.0	4.0	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
53	8.0	4.0	4.0	6.0	4.0	4.0	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
60	7.0	4.0	4.0	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
61	7.0	4.0	4.0	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
62	7.0	4.0	4.0	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
70	6.0	3.8	3.8	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
71	6.0	3.8	3.8	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
79	5.0	--	--	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
80	5.0	--	--	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
82	5.0	--	--	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--
105	5.0	--	--	6.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--	5.0	--	--

EXAMPLE: TT=225", PD=52 PSF
ANCHOR TYPE A
SPACED AT 5" 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"
B1	5/16" X3" TAPCONS	GROUT FILLED C-90 BLOCK	2 1/4"	4"
C	1/4" -14X1" SDS GRADE 5	MIN. 1/4" 6063-T6 ALUM.	-	1/2"
D	5/16" -12X1" SDS GRADE 5	MIN. 1/4" 6063-T6 ALUM.	-	3/4"



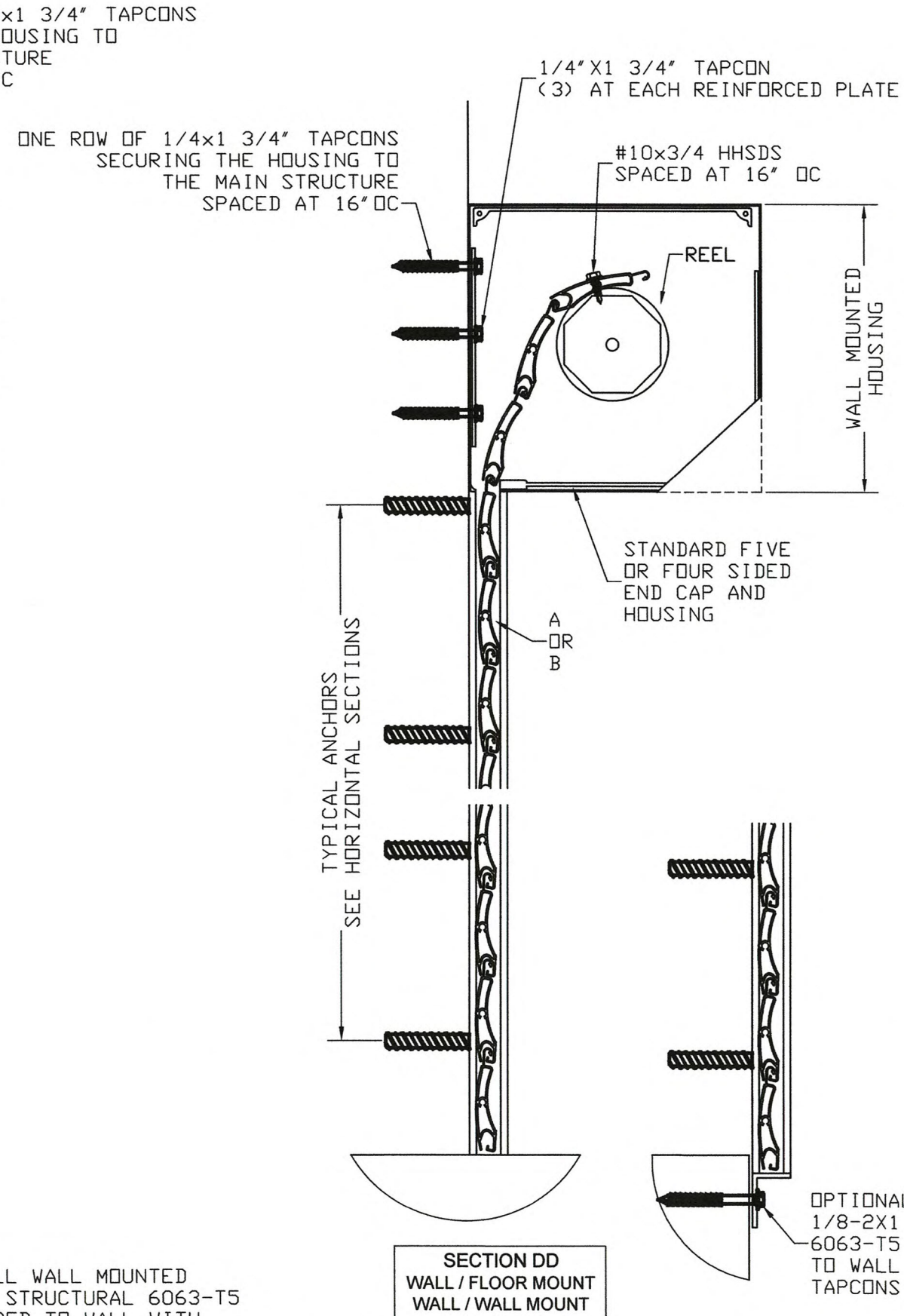
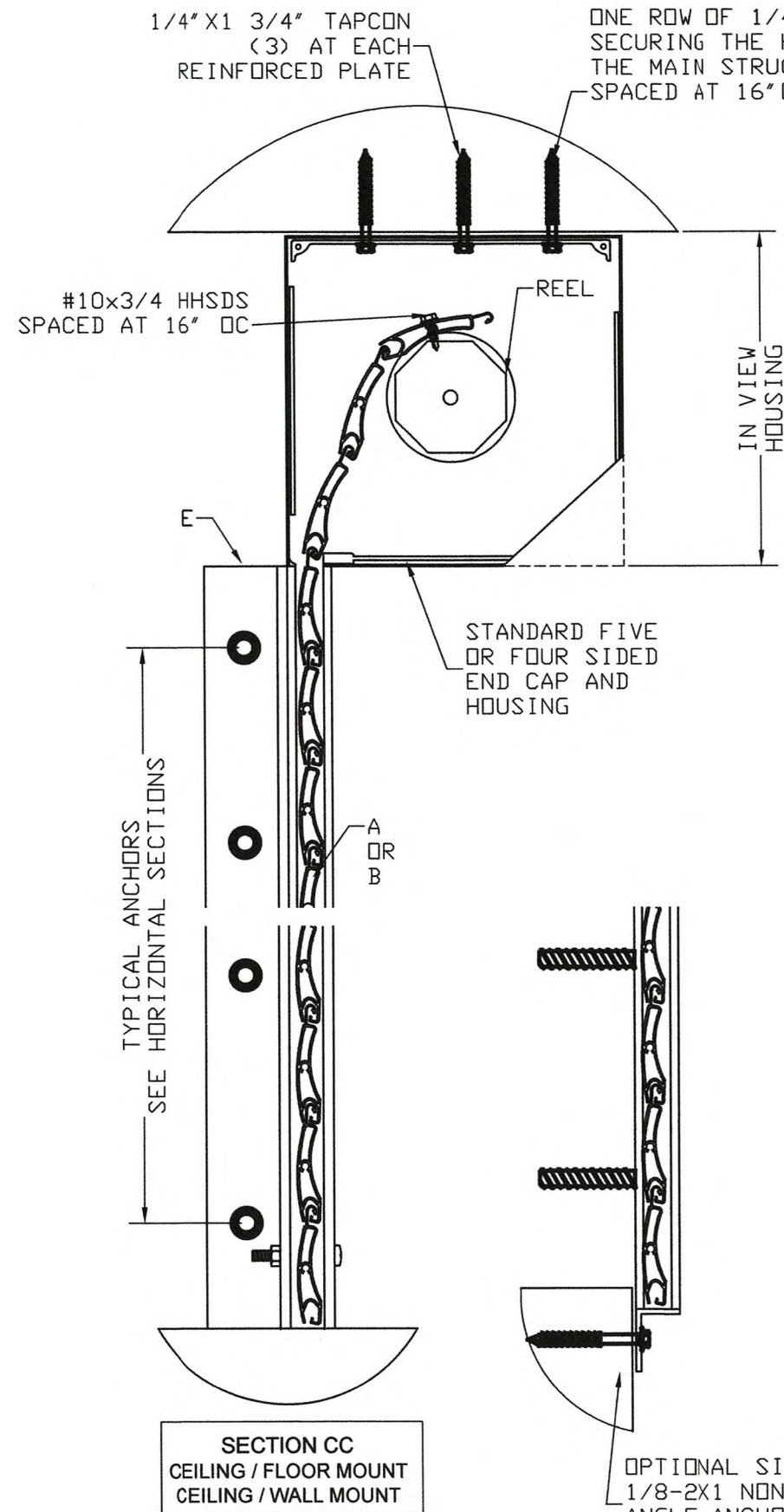
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ENGCO INC. - CA 8116
9715 W. BROWARD BLVD. 247
PLANTATION - FLORIDA - 33324
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ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609

PRODUCT:
IMPACT PROTECTIVE SYSTEM
REI 500 ULTRA ER
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
N.A.S.A.
NATIONAL APPROVED SHUTTER ASSOCIATION LLC.
MIRAMAR, FL 33027

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TYPICAL VERTICAL SECTIONS



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EQUALLY SPACED MULLIONS SELECTION



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PEDRO DE FIGUEIREDO
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PRODUCT:
IMPACT PROTECTIVE SYSTEM
RE 1500 ULTRA ER
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
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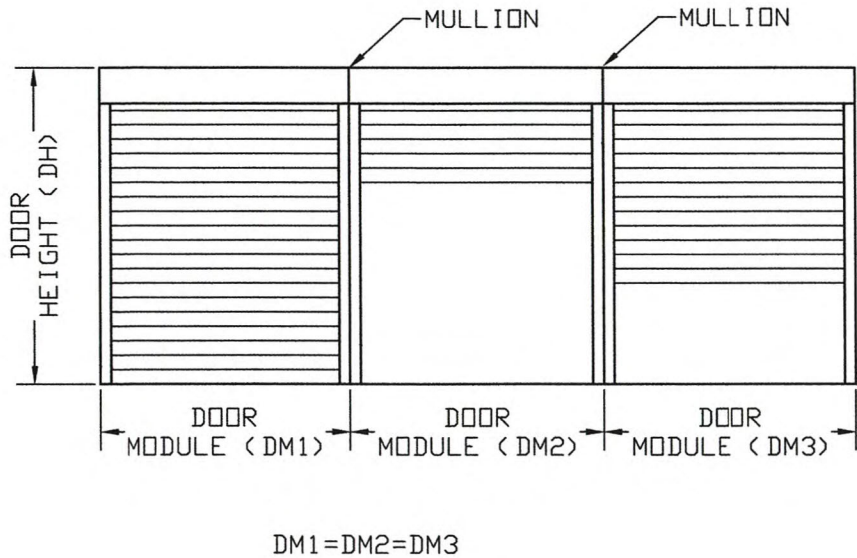
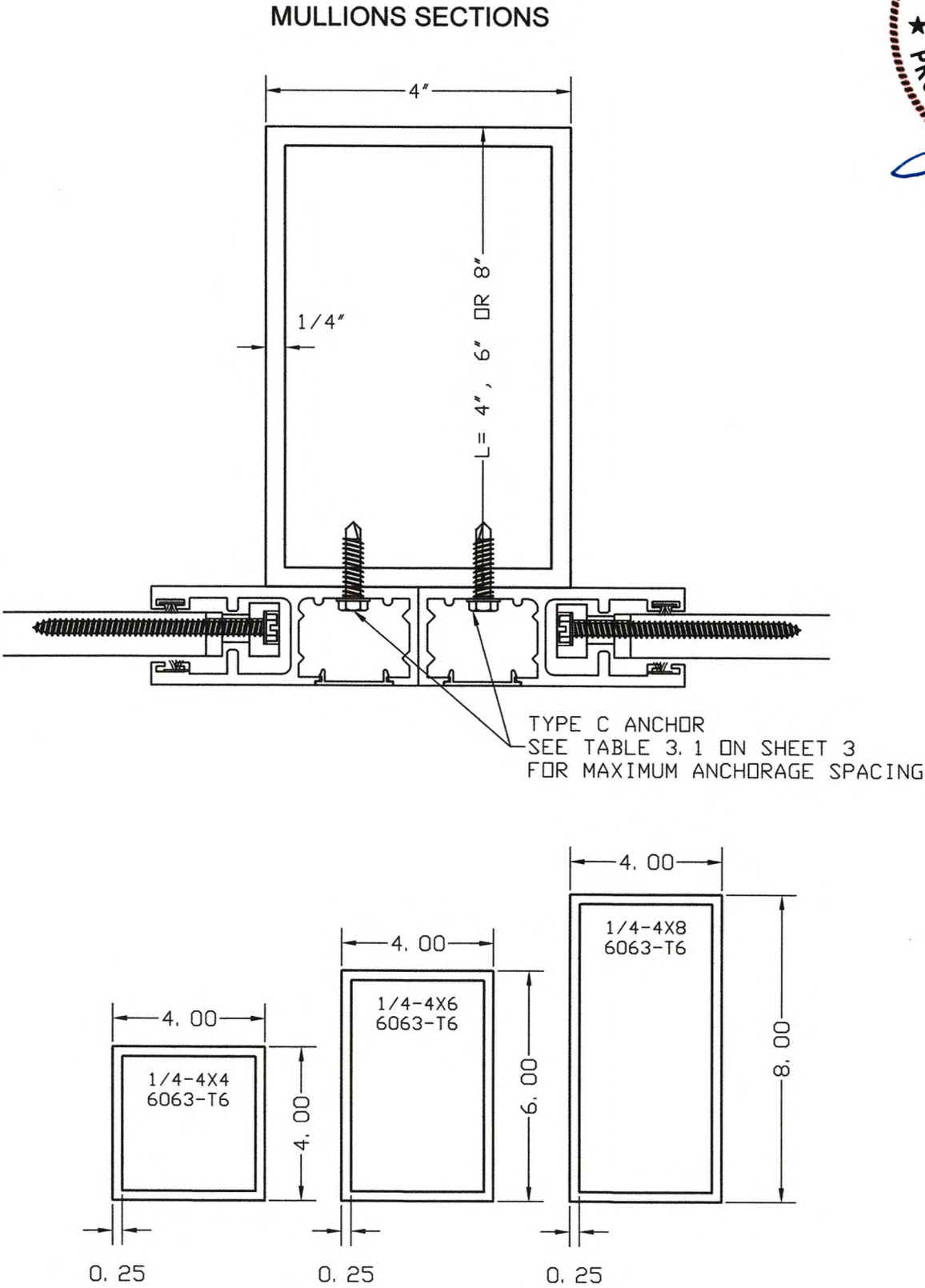


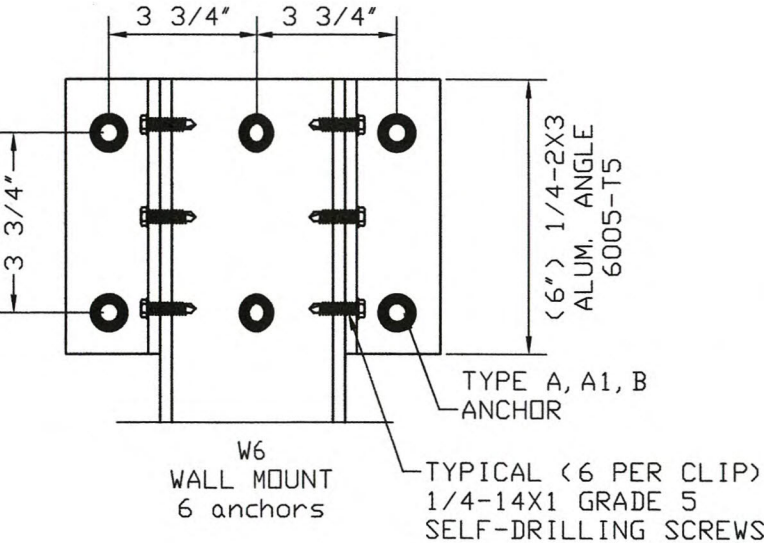
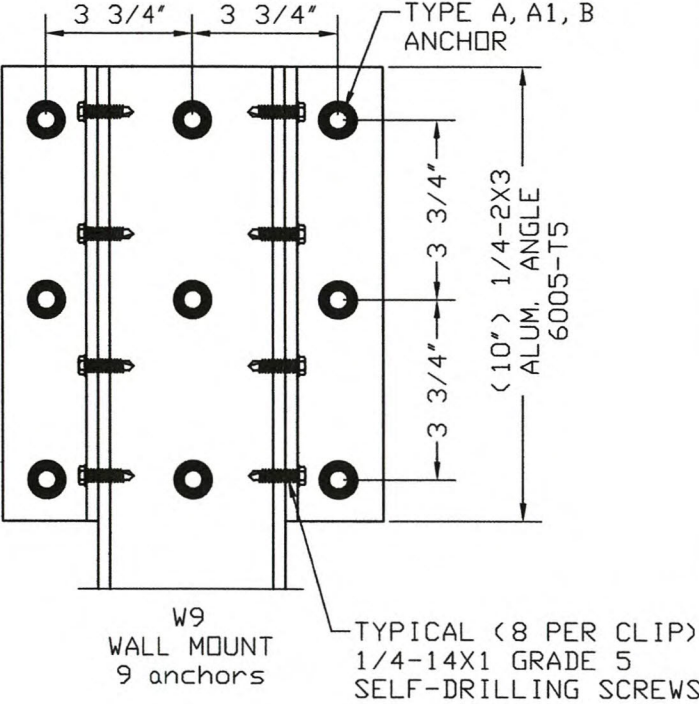
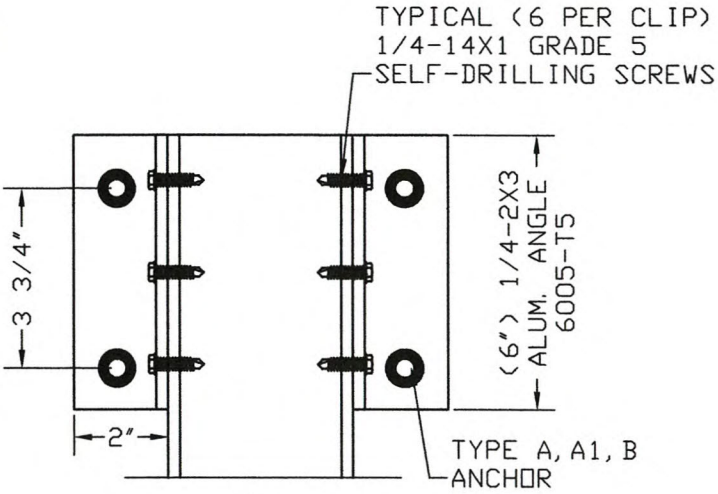
TABLE 6 - EQUAL SPACED MULLION DESIGNED PRESSURES (PSF)

DOOR MODULE	MULLION TYPE & MAX. HEIGHT								
	1/4-4x8			1/4-4x6			1/4-4x4		
	144	132	120	120	108	96	96	84	72
280	35	39	40	30	40	40	--	--	30
256	38	45	45	32	45	45	--	30	35
232	42	50	52	36	49	52	31	35	41
208	47	56	61	40	55	61	34	39	45
184	53	64	71	45	62	71	42	48	56
160	61	73	82	52	72	82	55	63	73
127	77	92	105	66	91	105	69	79	92

NOTES:
1- MULLIONS WERE DESIGNED BY RATIONAL ANALYSIS BASED ON THE ALUMINUM DESIGN MANUAL 2015 ED. AND THE FLORIDA BUILDING CODE.
2- DEFLECTION CRITERIA: MAXIMUM SPAN /180
3- TABLE 6 IS APPLICABLE ONLY FOR EQUAL MODULES DM1=DM2=DM3.
4- UNEQUAL MODULES ARE TO BE DESIGNED BY RATIONAL ANALYSIS IN A CASE BY CASE BASIS.



EQUALLY SPACED MULLIONS WALL AND FLOOR CONNECTIONS

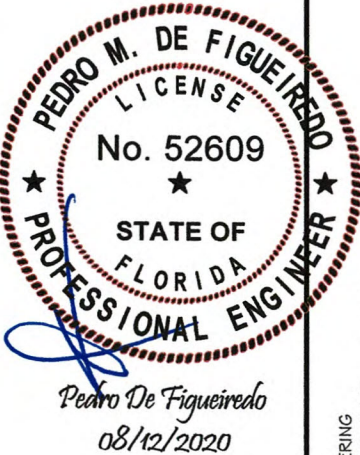
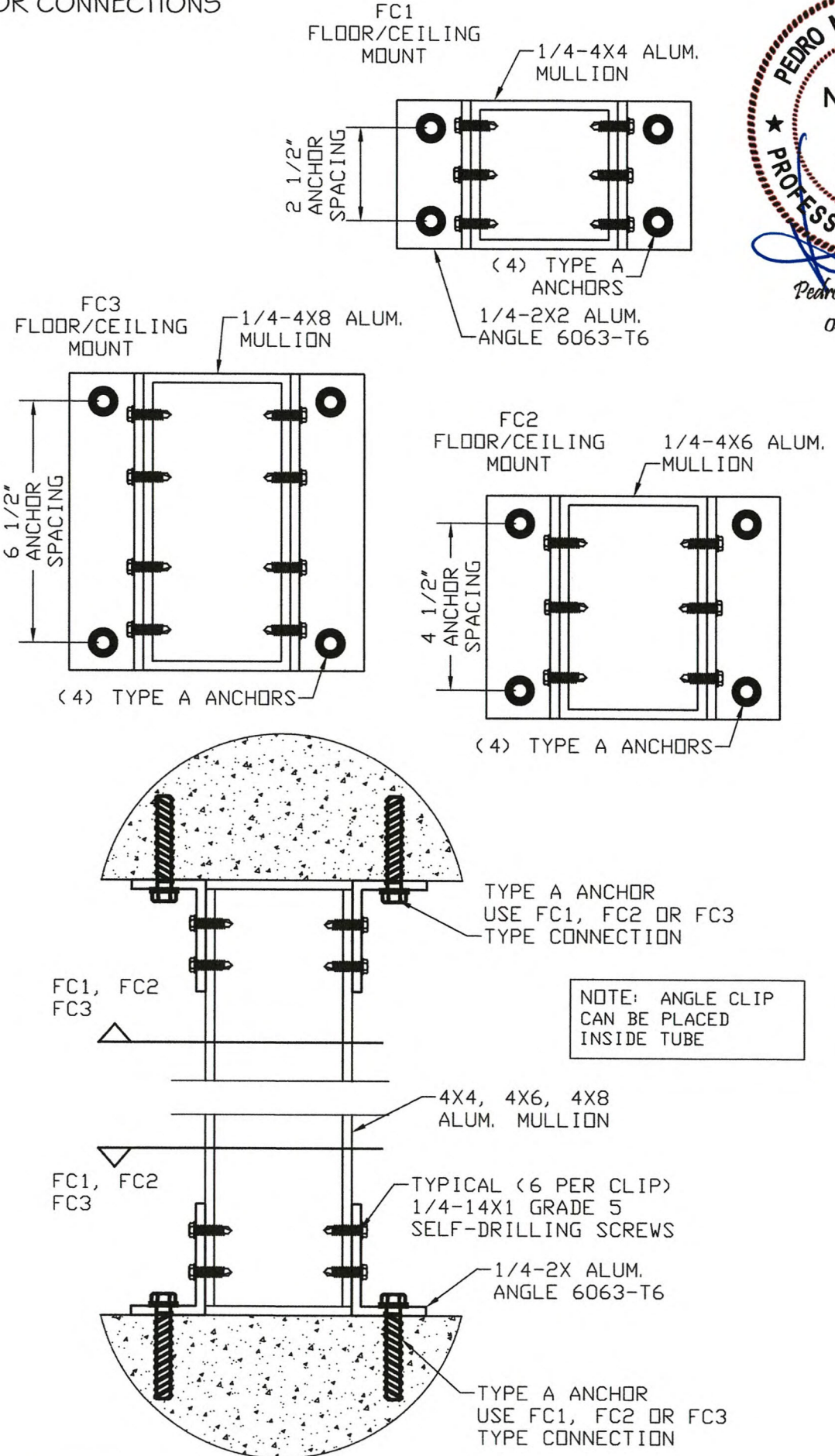


WALL MOUNT ANCHOR SELECTION

ANCHOR TYPE	MULLION TYPE			
	4X4	4X6	4X8	
A	W4	W4	W4	
A1	W4	W6	W9	
B1	W4	W6	W6	

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"
B1	5/16"X3" TAPCONS	GROUT FILLED C-90 BLOCK	2 1/4"	4"
C	1/4"-14X1" SDS GRADE 5	MIN. 1/4" 6063-T6 ALUM.	-	1/2"

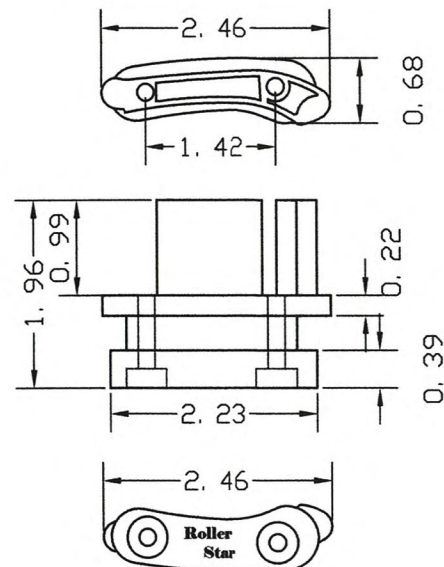


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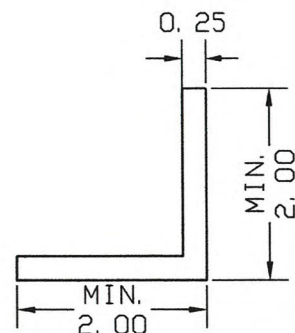
PRODUCT:
IMPACT PROTECTIVE SYSTEM
RE1500 ULTRA ER
LARGE MISSILE IMPACT RESISTANT

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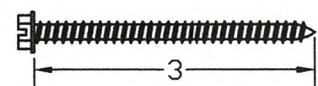
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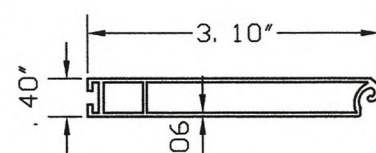
D1- NYLON RETAINER



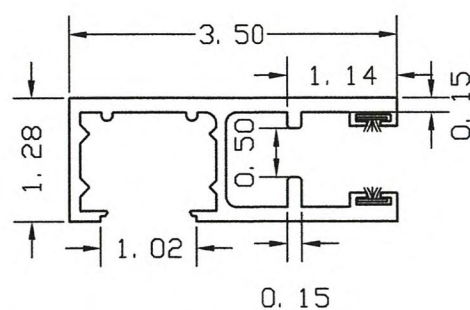
E- INSET SUPPORT ANGLE
EXTRUDED ALUMINUM
6061-T6 or 60005-T5



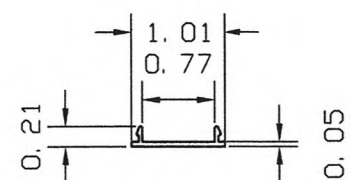
D- SLAT RETENTION SCREW
#12X3" HEX HEAD SDS



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

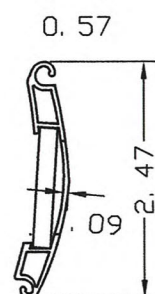
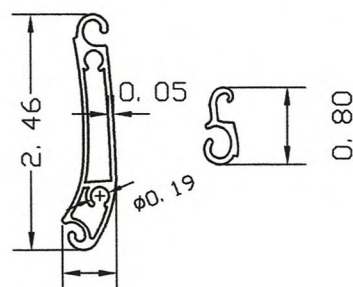


C- GUIDE RAIL W/ FELT
6005-T5 EXTRUDED ALUMINUM

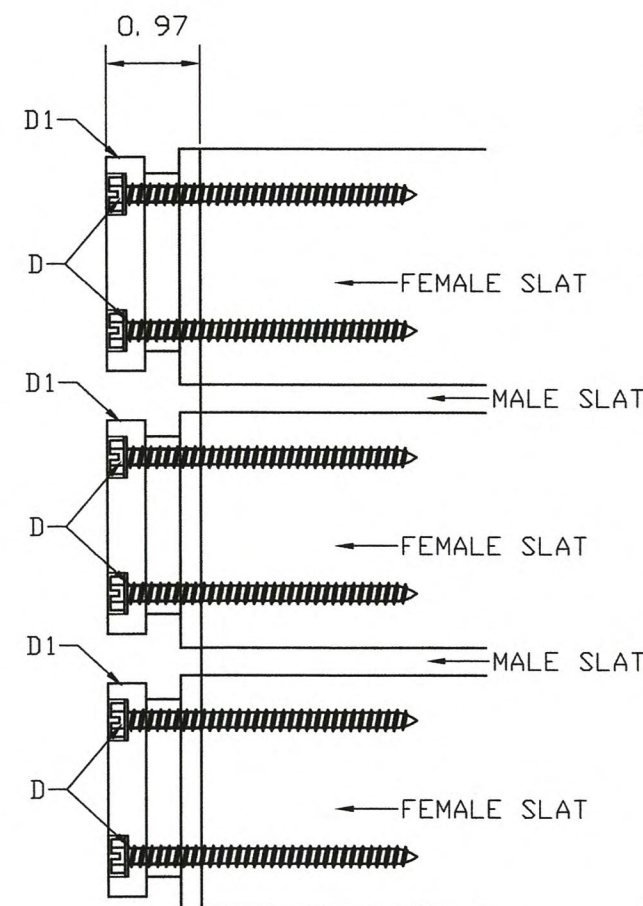
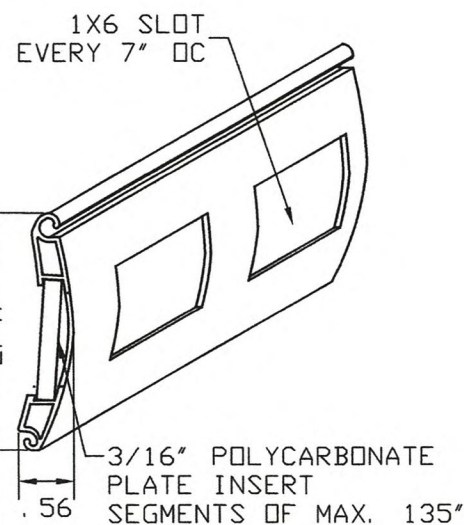


C1- TRACK SNAP COVER
6063-T5 EXTRUDED ALUMINUM

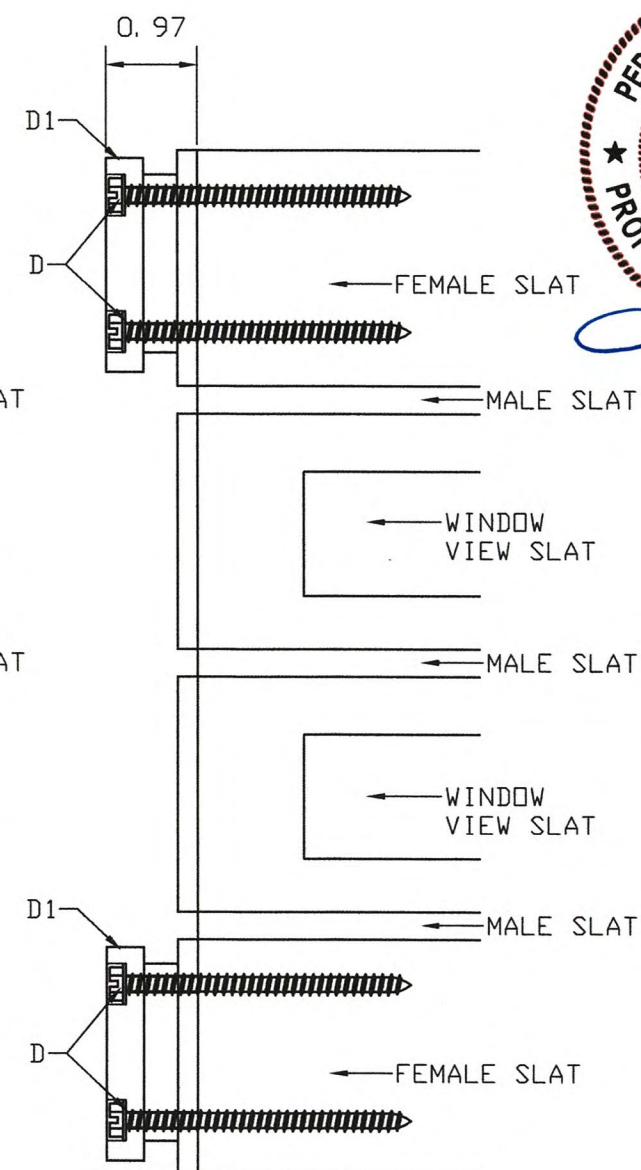
A- RE1500 ULTRA ER
MALE & FEMALE SLATS
6063-T6 EXTRUDED ALUMINUM



RE 1500VP WINDOW VIEW SLATS
.05 EXTRUDED ALUMINUM
6063-T5 Alloy
NOTE: MAXIMUM 2 SLATS PER DOOR



RE1500 END RETENTION



RE1500 END RETENTION
AT WINDOW VIEW SLATS



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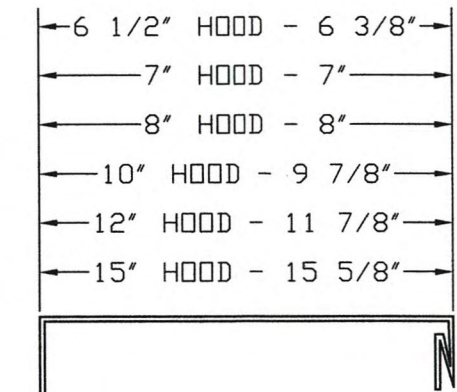
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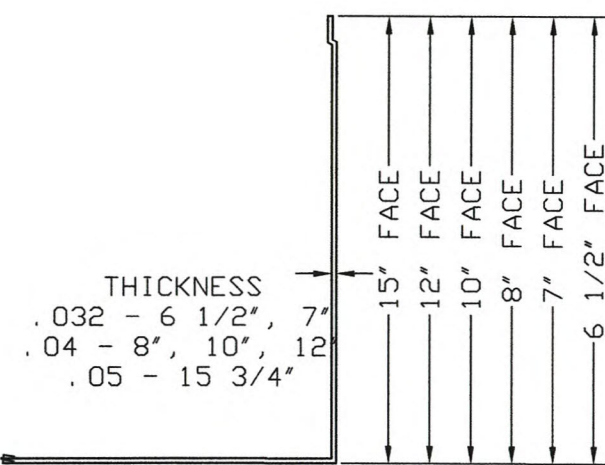
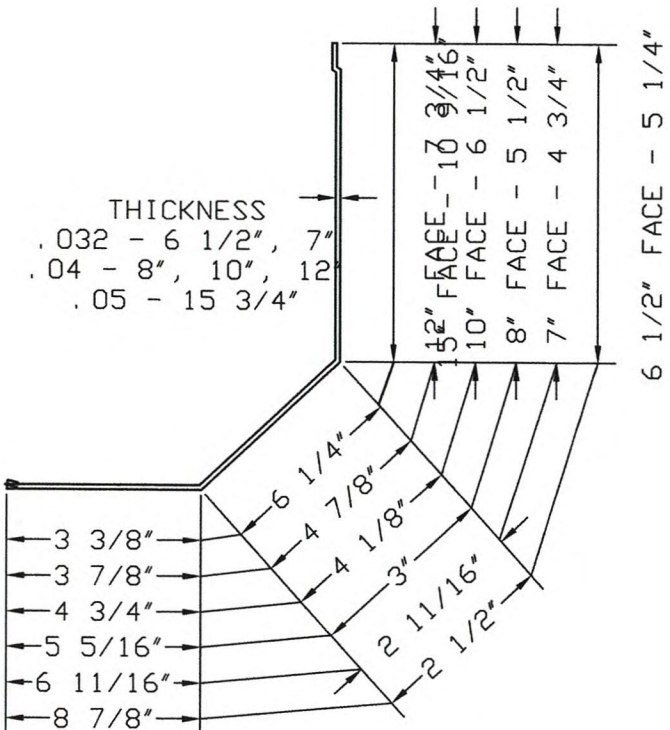
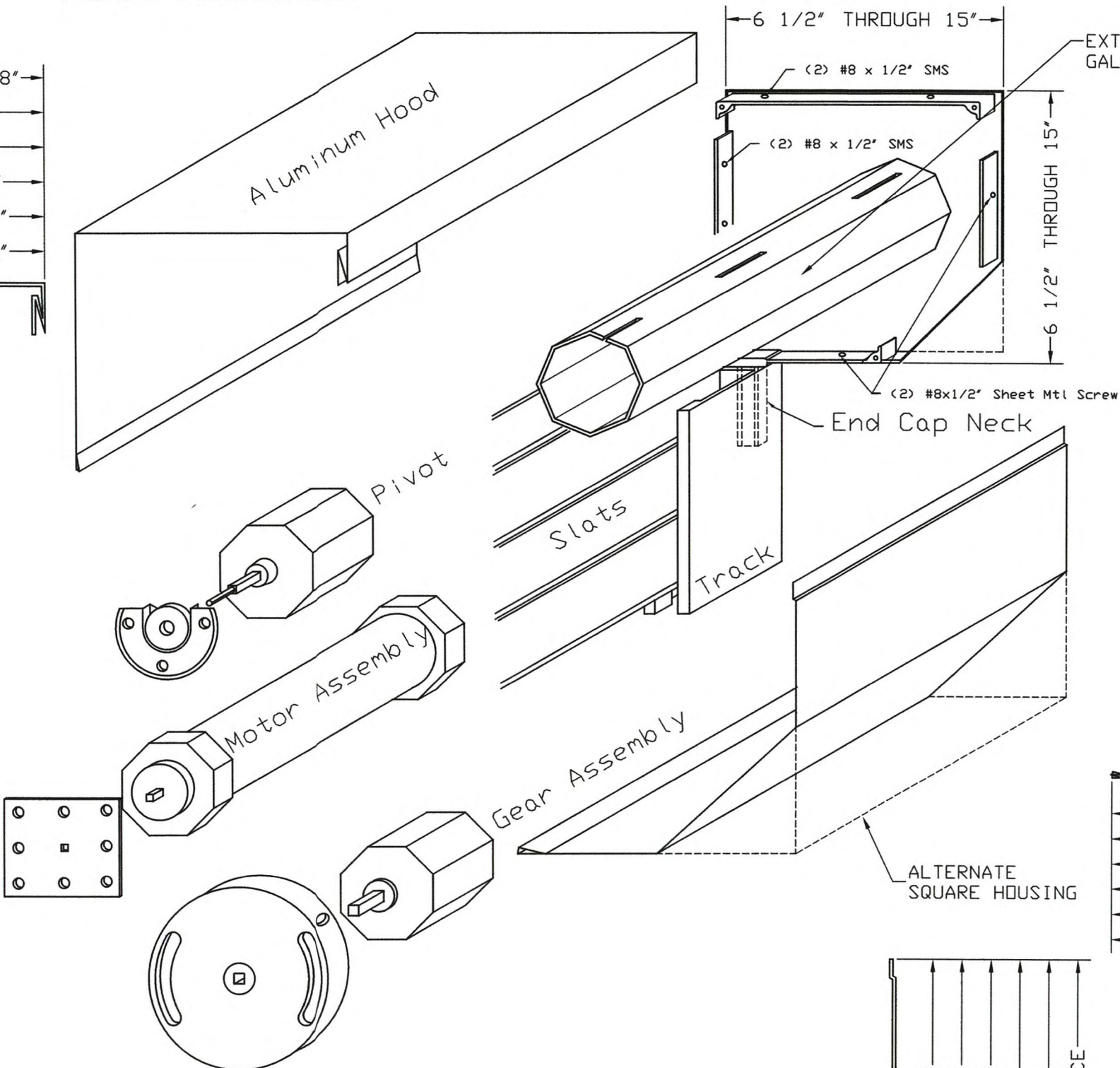
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HOOD ASSEMBLY



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



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 DOOR OPERATION.



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REI 1500 ULTRA ER
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