

CODE AND STANDARD COMPLIANCE:
FLORIDA BUILDING CODE 2023 - 8th EDITION
(HVHZ & non HVHZ)
TAS 201, 202, 203 (LARGE & SMALL MISSILE)

GENERAL NOTES:
(FLORIDA BUILDING CODE 2023 - 8th EDITION HVHZ & non HVHZ)

- 1- DEFINITION: THIS PRODUCT IS A ROLL-UP WIND ABATEMENT SYSTEM; 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- POSTING: A PERMANENT LABEL SHALL BE PROVIDED AS PER FBC. IT SHALL BE LOCATED ON THE BOTTOM OF THE HOOD FACING THE EXTERIOR OR OUTSIDE OR THE BOTTOM SLAT FACING THE EXTERIOR OR OUTSIDE AND A MINIMUM OF ONE LABEL PER OPENING. INFORMATION TO STATE THE FOLLOWING:
- "N.A.S.A. NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
SUPERNOVA 55mm ROLL-UP HURRICANE PROTECTION DEVICE
DEERFIELD BEACH - FLORIDA
LARGE & SMALL MISSILE IMPACT RESISTANT"
- 3- LIMITATION: GLAZING SEPARATION (GS) AS PER TABLE 2 AND GLASS SEPARATION NOTES.
- 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 DESIGNED PRESSURE MUST NOT EXCEED THE ALLOWABLE PRESSURES FOR EACH 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 PRODUCT 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.

DESIGN SCHEDULE	
COMPONENT	SHEET
SLAT ALLOWABLE PRESSURE - TABLE 1	I
GLASS SEPARATION - TABLE 2	I
TRACK REACTIONS - TABLE 3	I
TRACK ANCHORAGE	6 THROUGH 10
MULLION DESIGN	11, 12 & 13

- NOTES:
- 1- ALLOWABLE DESIGNED PRESSURE ARE FUNCTION OF THE LOWEST ALLOWABLE DESIGNED LOAD FOR EACH COMPONENT (SLATS, ANCHORAGE, STORM BARS & MULLIONS)
- 2- DESIGNED PRESSURES MUST NOT EXCEED 180 PSF.
- 3- FINISHED WIDTH (FW) MUST NOT EXCEED 294-1/2".

TABLE 1 - ALLOWABLE DESIGNED PRESSURES	
55mm SLATS	
FW (IN)	Pd (PSF)
288	30
276	40
264	50
252	60
240	70
228	80
216	90
204	100
192	110
180	120
168	130
156	140
144	150
132	160
120	170
108	180
96	190
84	200
LINEAR INTERPOLATION BETWEEN VALUES ARE ACCEPTABLE	

TABLE 2 - GS: GLASS SEPARATION (IN)

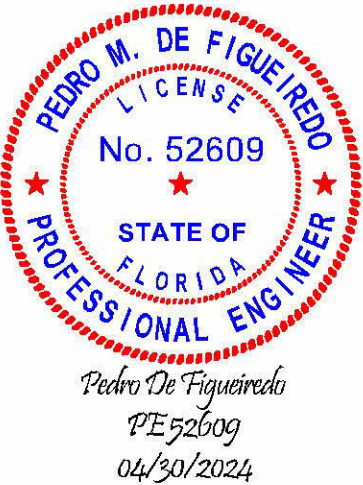
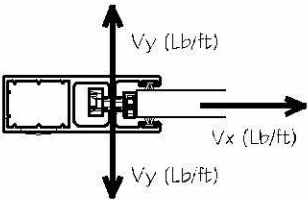
Pd	84	96	108	120	132	144	168	192	216	240	264	288
30	3.0	3.0	3.0	3.0	3.0	3.0	5.2	8.0	10.8	13.6	16.4	19.2
35	3.0	3.0	3.0	3.0	3.0	3.0	5.6	8.4	11.3	14.2	17.1	20.3
40	3.0	3.0	3.0	3.0	3.0	3.0	5.9	8.9	11.8	14.8	17.8	
45	3.0	3.0	3.0	3.0	3.0	3.2	6.2	9.3	12.3	15.4	18.4	
50	3.0	3.0	3.0	3.0	3.1	3.4	6.5	9.7	12.8	16.0	19.1	
60	3.0	3.0	3.0	3.2	3.5	3.9	7.2	10.5	13.8	17.1	20.4	
70	3.0	3.0	3.1	3.5	3.9	4.4	7.8	11.3	14.8	18.3	21.8	
80	3.0	3.0	3.4	3.9	4.4	4.8	8.5	12.2	15.8	19.5		
90	3.0	3.2	3.7	4.2	4.8	5.3	9.1	13.0	16.8	20.6		
100	3.0	3.4	4.0	4.6	5.2	5.8	9.8	13.8				
110	3.0	3.7	4.3	5.0	5.6	6.3	10.4	14.6				
120	3.2	3.9	4.6	5.3	6.0	6.7	11.1					
130	3.4	4.1	4.9	5.7	6.5	7.2	11.7					
140	3.6	4.4	5.2	6.0	6.9	7.7						
150	3.7	4.6	5.5	6.4	7.3	8.2						
160	3.9	4.9	5.8	6.8	7.7							
180	4.3	5.4	6.4	7.5								
200	4.7	5.8	7.0									

- NOTES:
- PRODUCT IS QUALIFIED AS "NON POROUS", THEREFORE GLAZING SEPARATION IS NOT REQUIRED WITH EXCEPTION FOR THE FOLLOWING LOCATIONS:
- 1- HVHZ: HIGH VELOCITY HURRICANE ZONES, MIAMI AND BROWARD COUNTIES
- 2- WIND ZONE 4 AS DEFINED IN ASTM E1996
- 3- ESSENTIAL FACILITIES AS DEFINED IN ASCE 7

TABLE 3 - TRACK REACTIONS (LB/FT)

PD (PSF)	55mm - FW - FRAME WIDTH IN INCHES																							
	84		96		108		120		132		144		168		192		216		240		264		288	
	Vx	Vy	Vx	Vy	Vx	Vy	Vx	Vy	Vx	Vy	Vx	Vy	Vx	Vy	Vx	Vy	Vx	Vy	Vx	Vy	Vx	Vy	Vx	Vy
30	0	96	0	111	0	126	0	141	0	156	0	171	249	201	460	231	795	261	872	291	934	321	945	351
35	0	112	0	130	0	147	0	165	0	182	0	200	527	235	674	270	977	305	1047	340	1109	375	1108	410
40	0	128	0	148	0	168	0	188	0	208	0	228	768	268	865	308	1142	348	1208	388	1270	428	1222	468
45	0	144	0	167	0	189	0	212	0	234	0	257	979	302	1038	347	1293	392	1355	437	1418	482	1331	527
50	0	160	0	185	0	210	0	235	0	260	0	285	1165	335	1194	385	1431	435	1491	485	1556	535	1436	585
60	0	193	0	223	0	253	0	283	0	313	0	343	1479	403	1466	463	1675	523	1734	583	1802	643	1637	703
70	0	225	0	260	0	295	0	330	0	365	0	400	1733	470	1694	540	1884	610	1944	680	2017	750	1829	820
80	0	257	0	297	0	337	0	377	128	417	460	457	1943	537	1889	617	2064	697	2127	777				
90	0	289	0	334	0	379	179	424	544	469	863	514	2119	604	2057	694	2222	784	2289	874				
100	0	321	0	371	111	421	530	471	878	521	1185	571	2269	671	2203	771	2362	871						
110	0	353	0	408	421	463	817	518	1150	573	1448	628	2399	738	2332	848								
120	0	385	195	445	680	505	1057	565	1378	625	1667	685	2512	805	2446	925								
130	0	417	442	482	899	547	1259	612	1570	677	1853	742	2611	872										
140	17	449	654	519	1086	589	1433	659	1735	729	2012	799	2699	939										
150	241	481	837	556	1249	631	1583	706	1878	781	2150	856												
160	437	513	998	593	1391	673	1714	753	2002	833	2271	913												
180	763	578	1265	668	1628	758	1933	848	2210	938	2472	1028												
200	1025	642	1479	742	1817	842	2108	942	2376	1042	2633	1142												

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



Pedro Figueiredo
Digitally signed by Pedro Figueiredo
Date: 2024.05.01 14:13:08 -04'00'

DIGITALLY SIGNED FOR 14 PAGES

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY PEDRO DE FIGUEIREDO, PE 52609 ON THE DATE INDICATED HERE. PRINTED COPIES OF THIS DOCUMENTS ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

ENGINEERING SERVICES - CA 32459
6311 SEAFORT BLVD.
CAPE CANAVERAL, FL 33324
PFME@AOL.COM
ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609

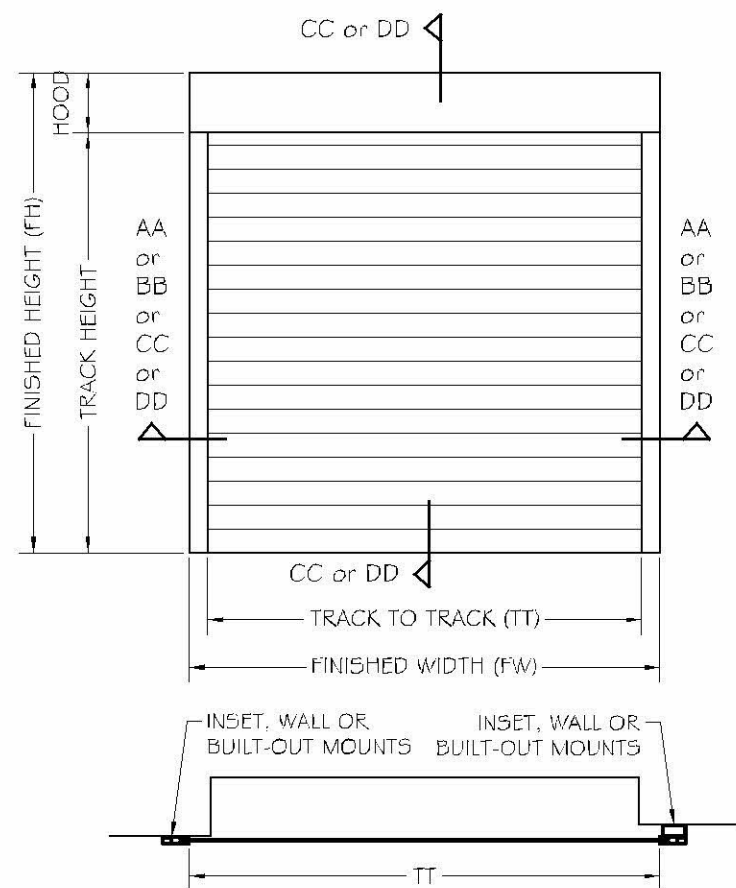


PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

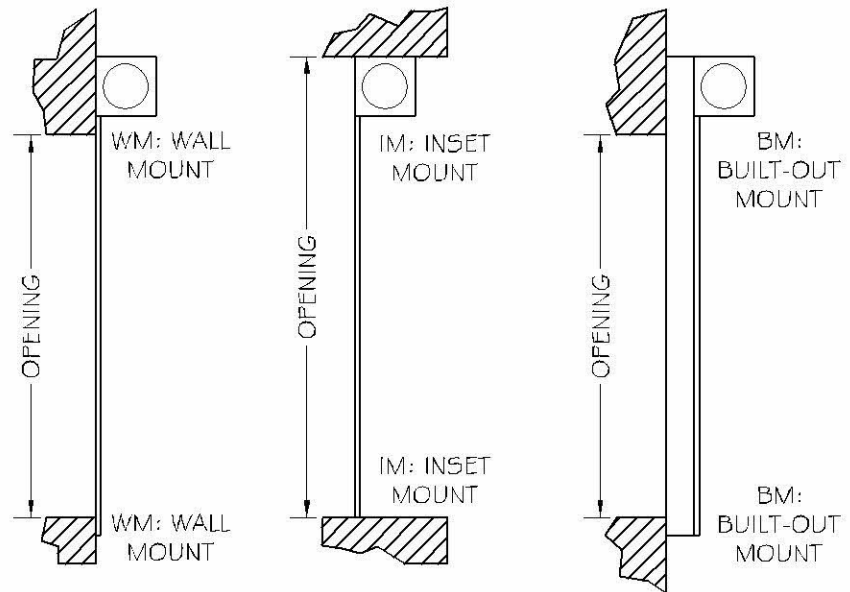
ASSOCIATION OF MANUFACTURERS:
N.A.S.A.
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 33441

SCALE:
NA
DATE:
04/30/2024
DRAWING #
24-090
SHEET
1 OF 14

TYPICAL SINGLE UNIT ELEVATION

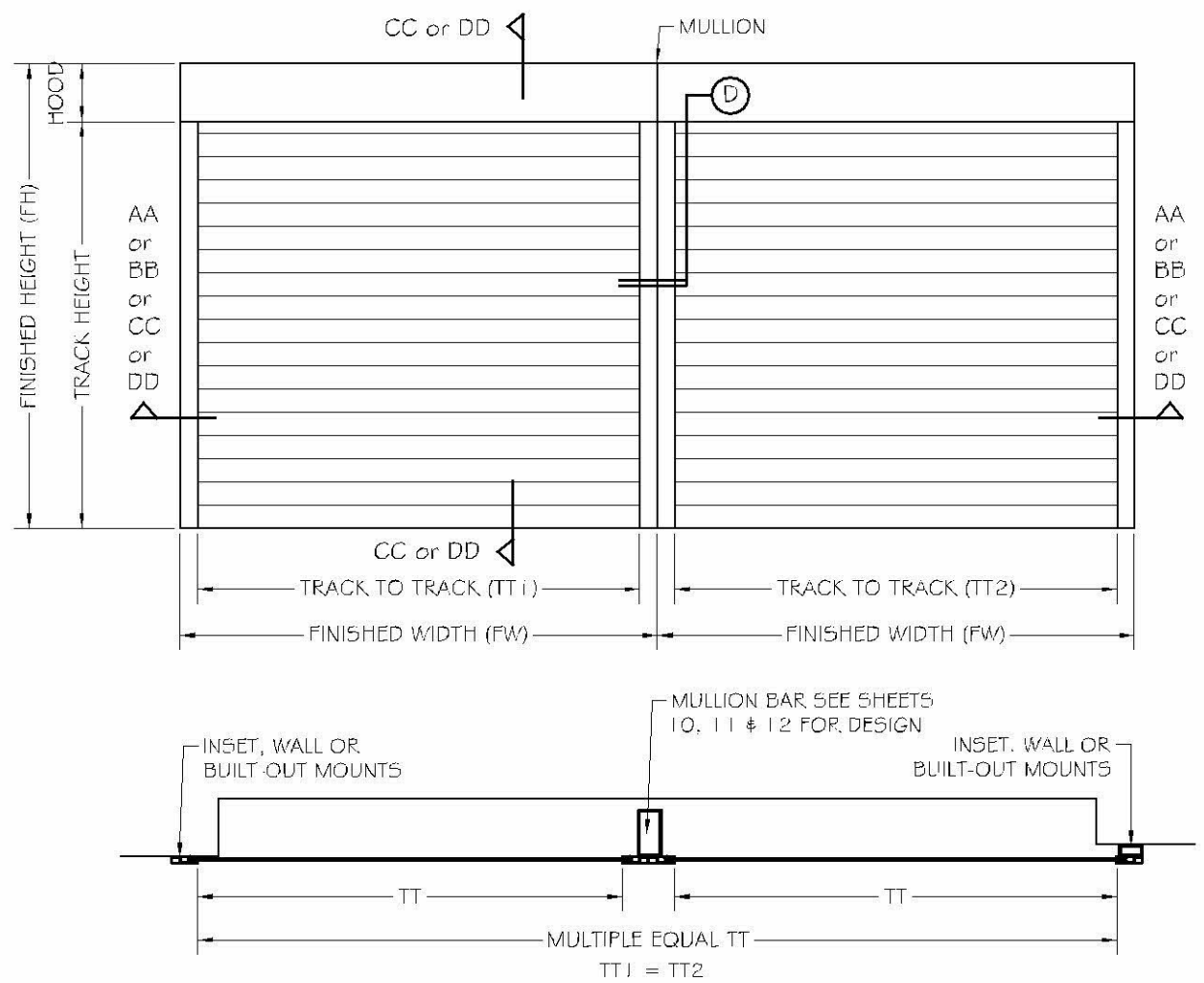


TYPICAL VERTICAL SECTIONS



MOUNTING TYPES CAN BE INTERCHANGED:
WM - IM; BM - IM; IM - WM; ETC...

TYPICAL MULTIPLE UNITS ELEVATION



Pedro De Figueiredo
PE 52609
04/30/2024

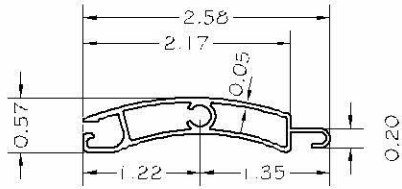
ENGINEERING SERVICES - CA 32459
6311 SEAFORT BLVD.
CAPE CANAVERAL, FL 33324
PPMF@AOL.COM
ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609

PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

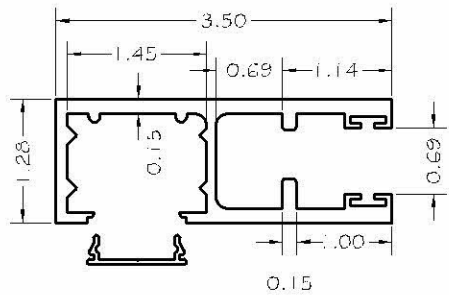
ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 33441

SCALE:
NA
DATE:
04/30/2024
DRAWING #
24-090
SHEET
2 OF 14

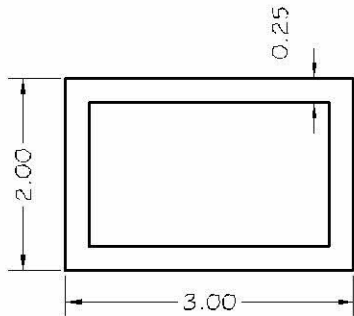
PRODUCT COMPONENTS



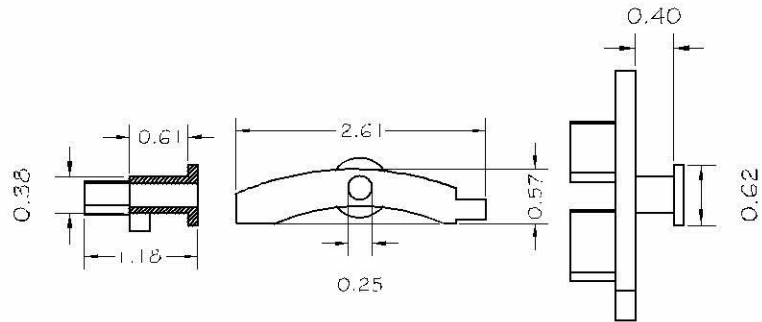
A- SUPERNOVA 55mm SLAT
EXTRUDED ALUMINUM 6063-T6



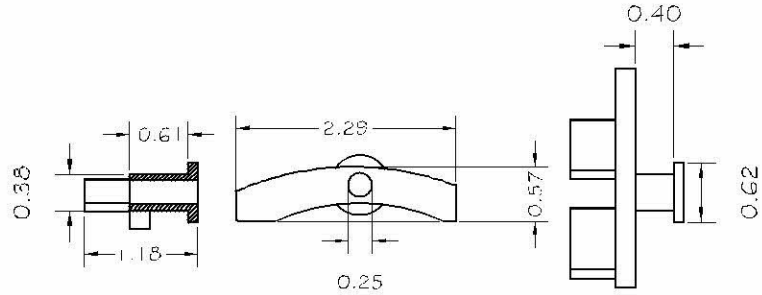
C- 55mm GUIDE RAIL
WITH SNAP COVER
6063-T6 EXTRUDED ALUMINUM



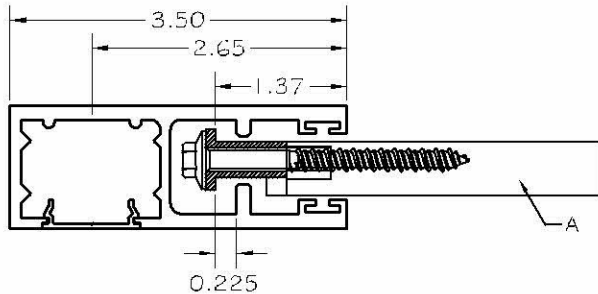
F- TUBE
EXTRUDED ALUMINUM
6063-T6



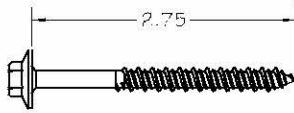
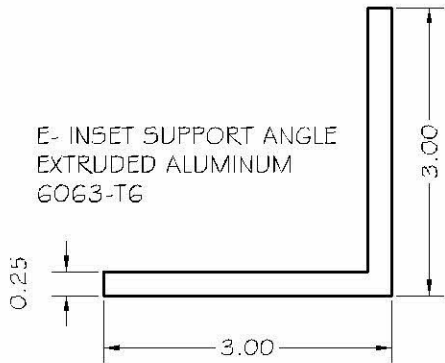
B- 55mm SLAT LOCK W/ THE TAB
FOR FW <= 84"



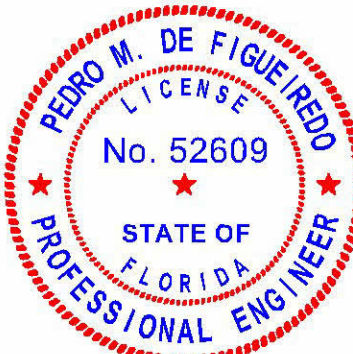
B1- 55mm SLAT LOCK W/O THE TAB
FOR FW > 84"



E- INSET SUPPORT ANGLE
EXTRUDED ALUMINUM
6063-T6



1/4" X 2 3/4" MAXI SEET TAPCONS
SLAT LOCK SCREW



Pedro De Figueiredo
PE 52609
04/30/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
PEDRO DE FIGUEIREDO ON THE DATE INDICATED HERE.
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED
SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED
ON ANY ELECTRONIC COPIES

ENGINEERING SERVICES - CA 32459
6311 SFAFORT BLVD.
CAPE CANAVERAL, FL 33324
PPMF@AOL.COM
ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609

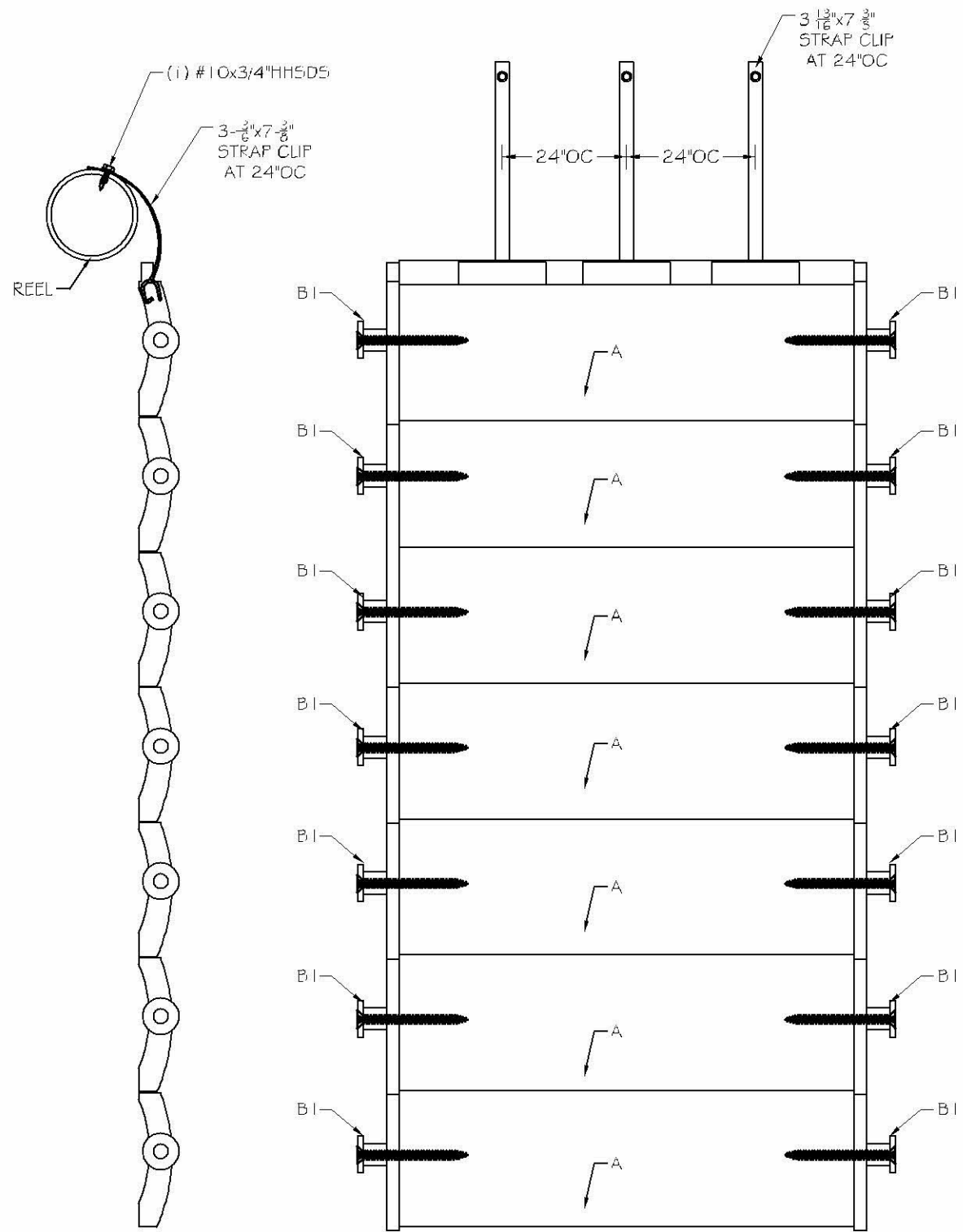


PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

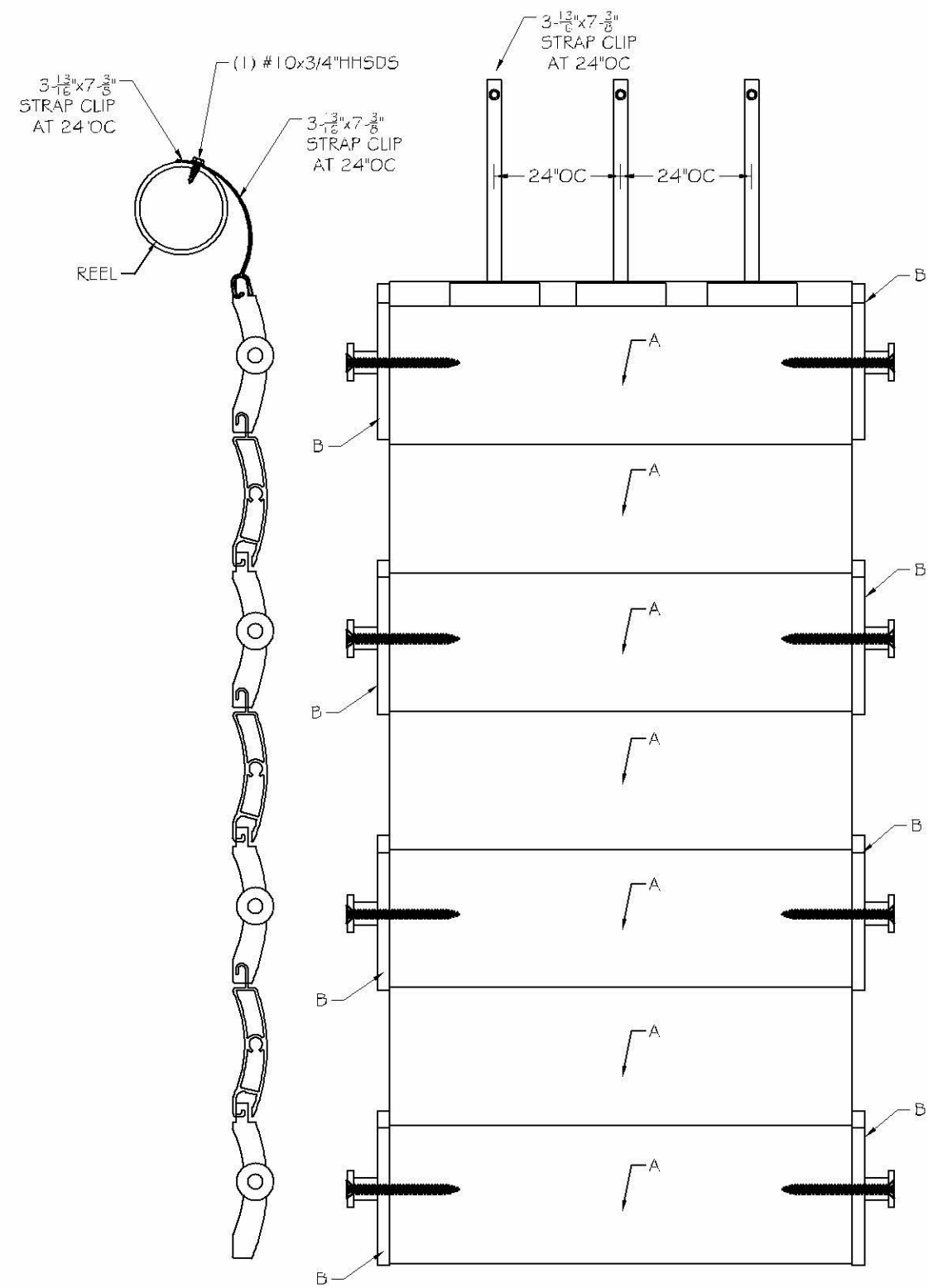
ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 33441

SCALE:
NA
DATE:
04/30/2024
DRAWING #
24-090
SHEET
3 OF 14

55mm SLAT END RETENTION LAY-OUT
FOR FINISHED WIDTH GREATER THAN 84"



55mm SLAT END RETENTION LAY-OUT
FOR FINISHED WIDTH LESS OR EQUAL THAN 84"



Pedro De Figueiredo
PE 52609
04/30/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
PEDRO DE FIGUEIREDO ON THE DATE INDICATED HERE.
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED
SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED
ON ANY ELECTRONIC COPIES

ENGINEERING SERVICES - CA 32459
6311 SEAFORT BLVD.
CAPE CANAVERAL, FL 33924
PPMF@AOL.COM
ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609

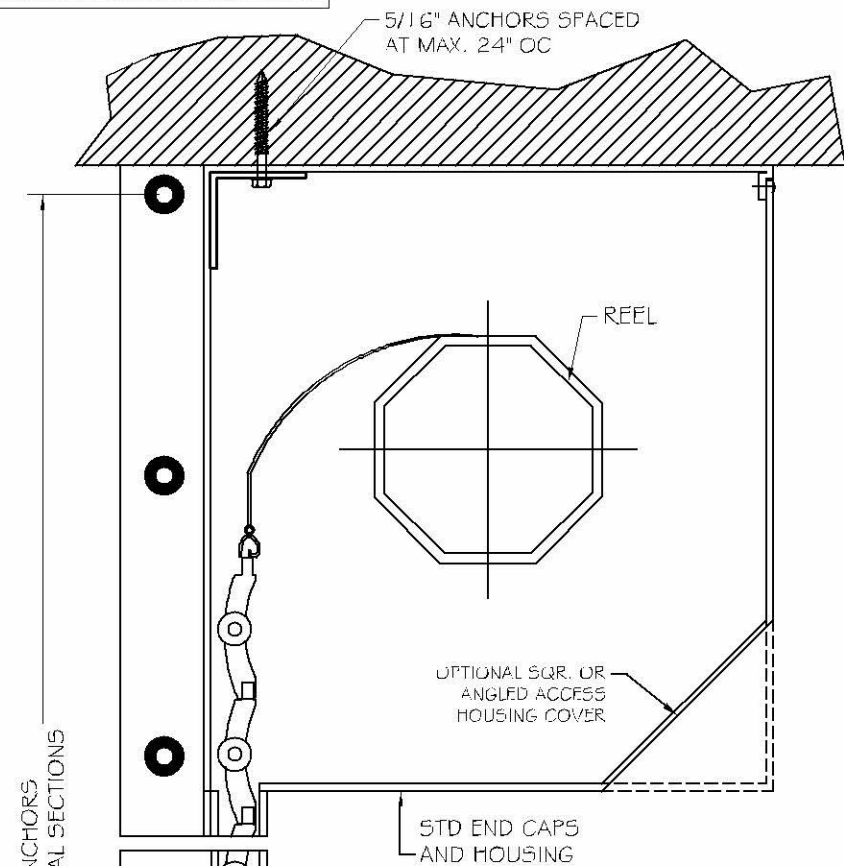


PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 33441

SCALE:
NA
DATE:
04/30/2024
DRAWING #
24-090
SHEET
4 OF 14

SECTION CC
HEADER, CEILING SECTION



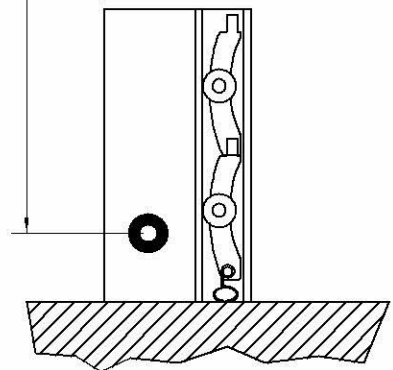
TYPICAL ANCHORS
SEE HORIZONTAL SECTIONS

OPTIONAL SQR. OR
ANGLED ACCESS
HOUSING COVER

STD END CAPS
AND HOUSING

A OR A I
C OR C I
E OR F

SECTION CC
SILL FLOOR SECTION
INSET MOUNT

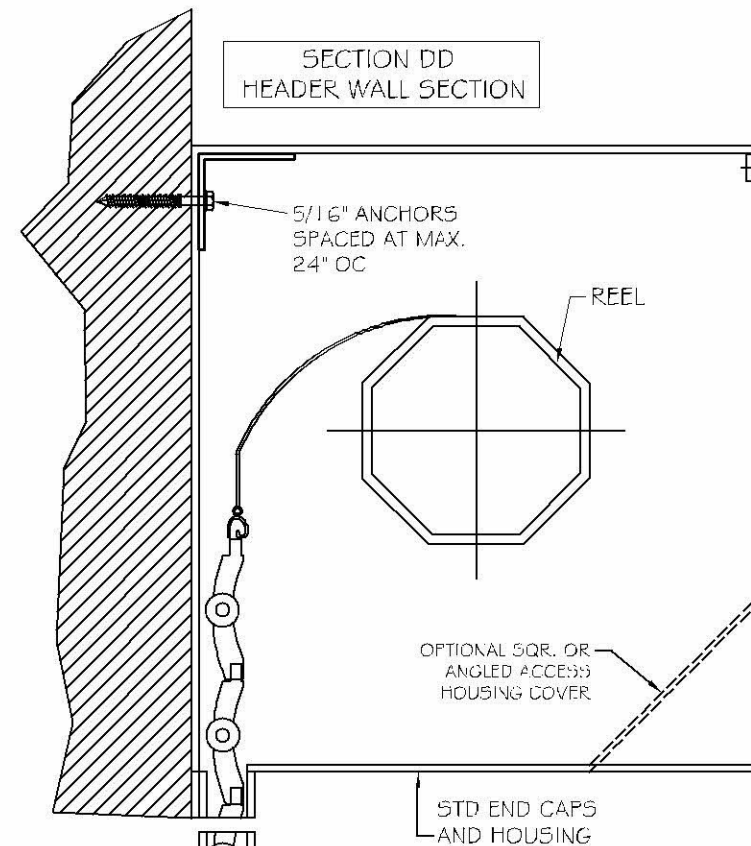


BUILT-OUT

1/8-2X 6063-T6
ALUMINUM SILL ANGLE
1/4" SCREWS
SPACED AT 24"OC INTO
MASONRY, METAL OR WOOD

TYPICAL VERTICAL SECTIONS

SECTION DD
HEADER WALL SECTION



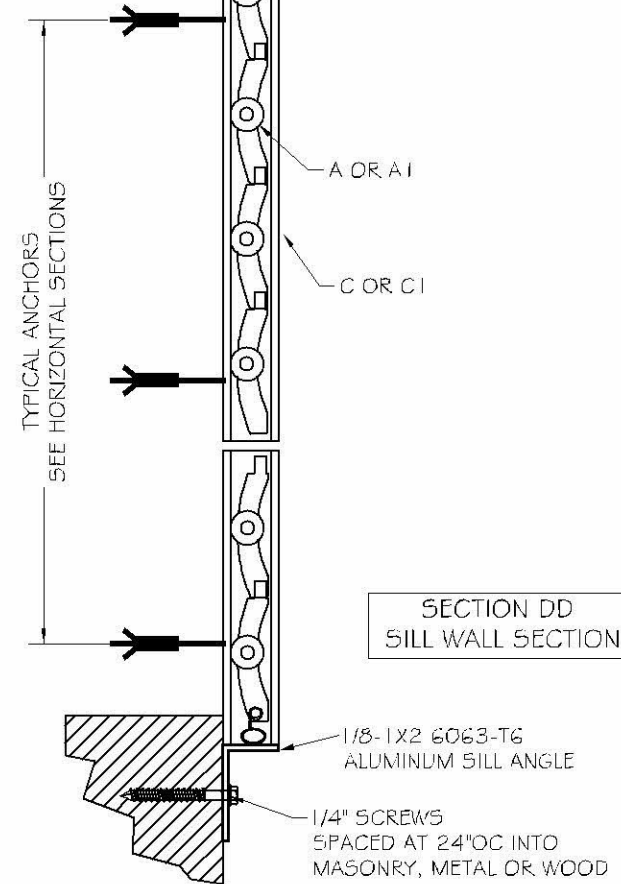
5/16" ANCHORS
SPACED AT MAX.
24" OC

OPTIONAL SQR. OR
ANGLED ACCESS
HOUSING COVER

STD END CAPS
AND HOUSING

A OR A I
C OR C I

SECTION DD
SILL WALL SECTION



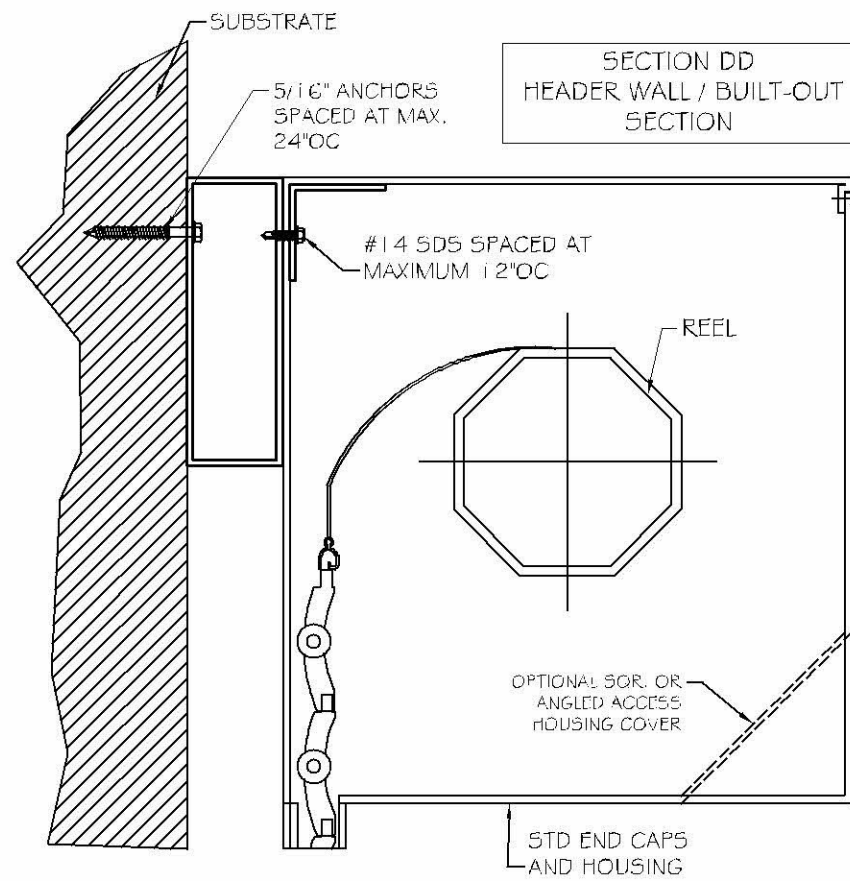
1/8-1X2 6063-T6
ALUMINUM SILL ANGLE
1/4" SCREWS
SPACED AT 24"OC INTO
MASONRY, METAL OR WOOD



Pedro De Figueiredo
PE 52609
04/30/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
PEDRO DE FIGUEIREDO ON THE DATE INDICATED HERE.
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED
SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED
ON ANY ELECTRONIC COPIES

SECTION DD
HEADER WALL / BUILT-OUT
SECTION



SUBSTRATE

5/16" ANCHORS
SPACED AT MAX.
24"OC

#14 SDS SPACED AT
MAXIMUM 12"OC

OPTIONAL SQR. OR
ANGLED ACCESS
HOUSING COVER

STD END CAPS
AND HOUSING

ENGINEERING SERVICES - CA 32459
6311 SEAFORT BLVD.
CAPE CANAVERAL, FL 33324
PPMF@AOL.COM
ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609

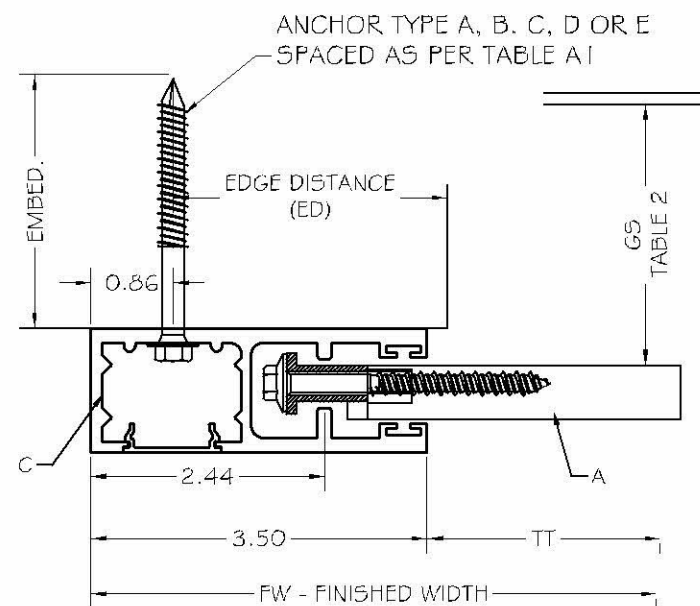


PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 33441

SCALE:
NA
DATE:
04/30/2024
DRAWING #
24-090
SHEET
5 OF 14

WALL MOUNT



ANCHOR SCHEDULE

ANCHOR MARK	ANCHORS DESCRIPTION	SUBSTRATE	SUBSTRATE PENETRATION	EDGE DISTANCE
A	5/16" ITW TAPCONS XL	MIN. 3KSI CONCRETE	2 1/4"	2 3/16"
B	5/16" ITW TAPCONS XL	GROUT FILLED C-90 CMU	2 1/4"	4"
C1	1/4-14X1 GR5 SDS	MIN. 1/4" THICK 6063-T6 ALUM.	3 TREADS	1/2"
C2	1/4-14X1 GR5 SDS	MIN. 3/16" ASTM A36 STEEL	3 TREADS	1/2"
D	5/16" ITW TAPCONS XL	WOOD WITH SG >= 0.55	2 1/4"	3/4"
E	3/8" DEWALT SCREW-BOLT +	MIN. 3KSI CONCRETE	3 1/2"	4 1/2"



Pedro De Figueiredo
PE52609
04/30/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY PEDRO DE FIGUEROA ON THE DATE INDICATED HERE.
UNPRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



ENGINEERING SERVICES - CA 32459
631 SFAFOT BLVD.
CAPE CANAVERAL, FL 33324
PFMF@AOL.COM

ENGINEER SEAL
TEODORO DE FIGUEIREDO
7E 52603

PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 3344

SCALE:
NA

DATE:
04/30/2024

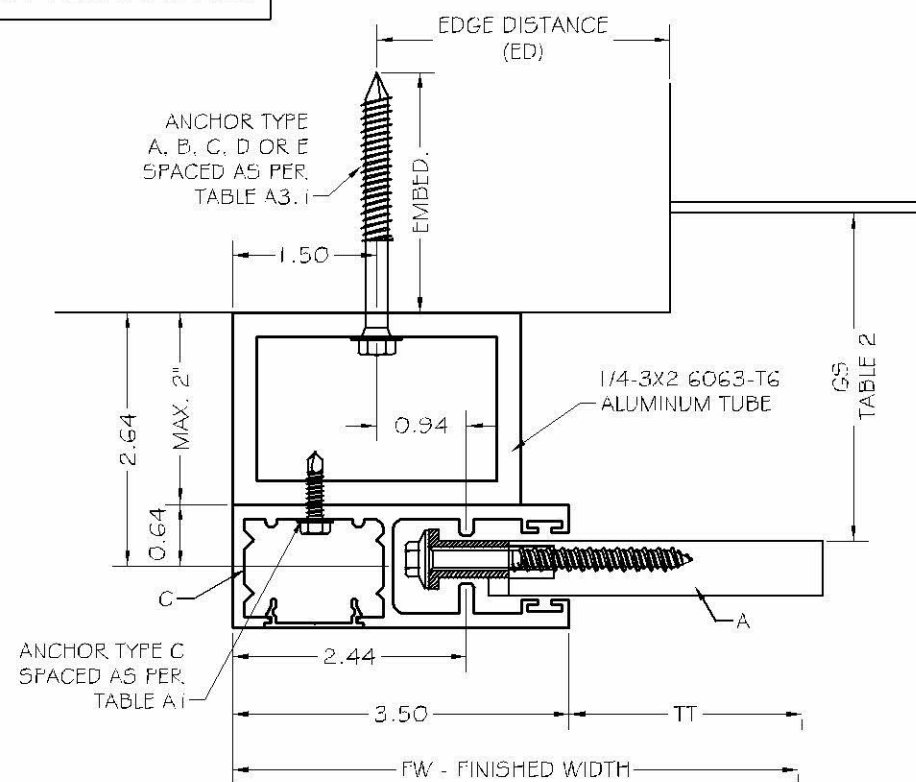
DRAWING #
24-090

SHEET
6 OF 14

TABLE A1 - SPACING INCHES ON CENTER FOR WALL MOUNT INSTALLATION

[illegible]

2" BUILT-OUT ON
1/4" ALUMINUM TUBE



ANCHOR SCHEDULE

ANCHOR MARK	ANCHORS DESCRIPTION	SUBSTRATE	SUBSTRATE PENETRATION	EDGE DISTANCE
A	5/16" ITW TAPCONS XL	MIN. 3KSI CONCRETE	2 1/4"	2 3/16"
B	5/16" ITW TAPCONS XL	GROUT FILLED C-90 CMU	2 1/4"	4"
C1	1/4-14X1 GR5 SDS	MIN. 1/4" THICK 6063-T6 ALUM.	3 TREADS	1/2"
C2	1/4-14X1 GR5 SDS	MIN. 3/16" ASTM A36 STEEL	3 TREADS	1/2"
D	5/16" ITW TAPCONS XL	WOOD WITH SG>= 0.55	2 1/4"	3/4"
E	3/8" DEWALT SCREW-BOLT +	MIN. 3KSI CONCRETE	3 1/2"	4 1/2"



Pedro De Figueiredo
PE52609
04/30/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
PEDRO DE FIGUEROA ON THE DATE INDICATED HERE.
PRINTED COPIES OF THIS DOCUMENTS ARE NOT CONSIDERED
SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED
ON ANY ELECTRONIC COPIES.



ENGINEERING SERVICES - CA 32439
631 SEAFORT BLVD.
CAPE CANAVERAL, FL 33324
PPMF@AOL.COM

ENGINEER SEAL
TEDRO DE FIGUEROA
(7E 52609

TABLE A3 - SPACING ON CENTER FOR 2" BUILT-OUT MOUNT INSTALLATION

[illegible]

PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

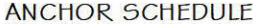
ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 33441

SCALE:
NA

DATE:
04/30/2024

DRAWING #
24-090

SHEET
8 OF 14



ANCHOR MARK	ANCHORS DESCRIPTION	SUBSTRATE	SUBSTRATE PENETRATION	EDGE DISTANCE
A	5/16" ITW TAPCONS XL	MIN. 3KSI CONCRETE	2 1/4"	2 3/16"
B	5/16" ITW TAPCONS XL	GROUT FILLED C-90 CMU	2 1/4"	4"
C1	1/4-14X1 GR5 SDS	MIN. 1/4" THICK 6063-T6 ALUM.	3 TREADS	1/2"
C2	1/4-14X1 GR5 SDS	MIN. 3/16" ASTM A36 STEEL	3 TREADS	1/2"
D	5/16" ITW TAPCONS XL	WOOD WITH SG >= 0.55	2 1/4"	3/4"
E	3/8" DEWALT SCREW-BOLT+	MIN. 3KSI CONCRETE	3 1/2"	4 1/2"



Pedro De Figueiredo
PE52609
04/30/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
FEUO DE FIGUEIROA ON THE DATE INDICATED HERE.
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED
SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED
ON ANY ELECTRONIC COPIES



ENGINEERING SERVICES - CA 32459
631 STAFFORD BLVD.
CAPE CANAVERAL, FL 33324
PFMF@AOL.COM

ENGINEER SEAL
TEODRO DE FIGUEIREDO
7E 52603

TABLE A5 - SPACING ON CENTER FOR INSET MOUNT INSTALLATION WITH DOUBLE ANGLES

[illegible]

PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION LLC,
604 HILLSBORO TECHNOLOGY DR.,
DEERFIELD, FL 33441

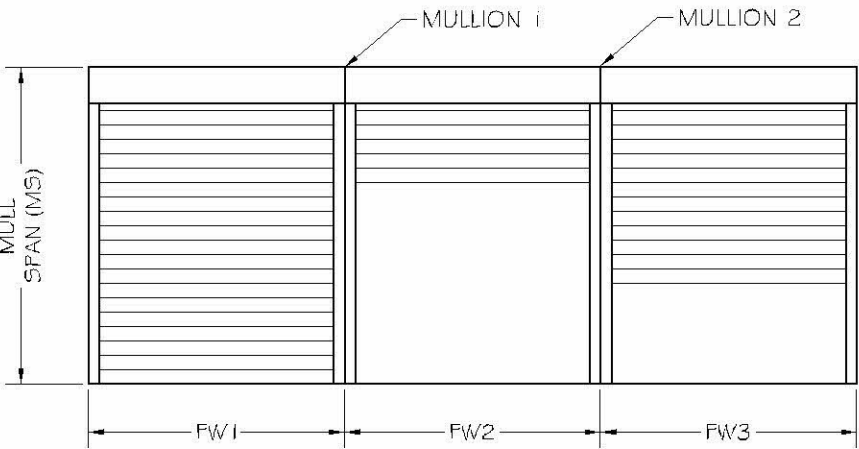
SCALE:
NA

DATE:
04/30/2024

DRAWING #
24-090

SHEET
10 OF 14

EQUALLY SPACED MULLIONS SELECTION



MULLION 1: $TM1 = (FW1 + FW2) / 2$
MULLION 2: $TM2 = (FW2 + FW3) / 2$
TM: TRIBUTARY MODULE

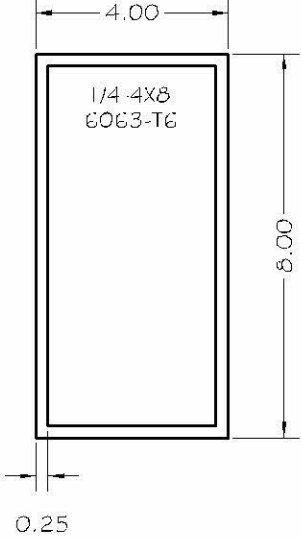
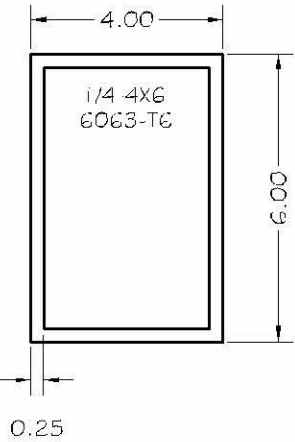
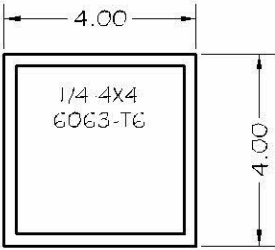


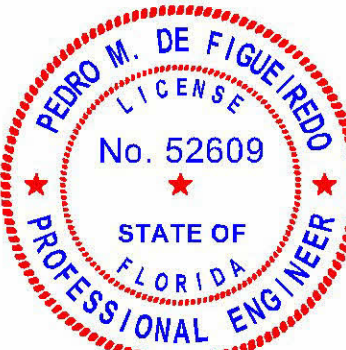
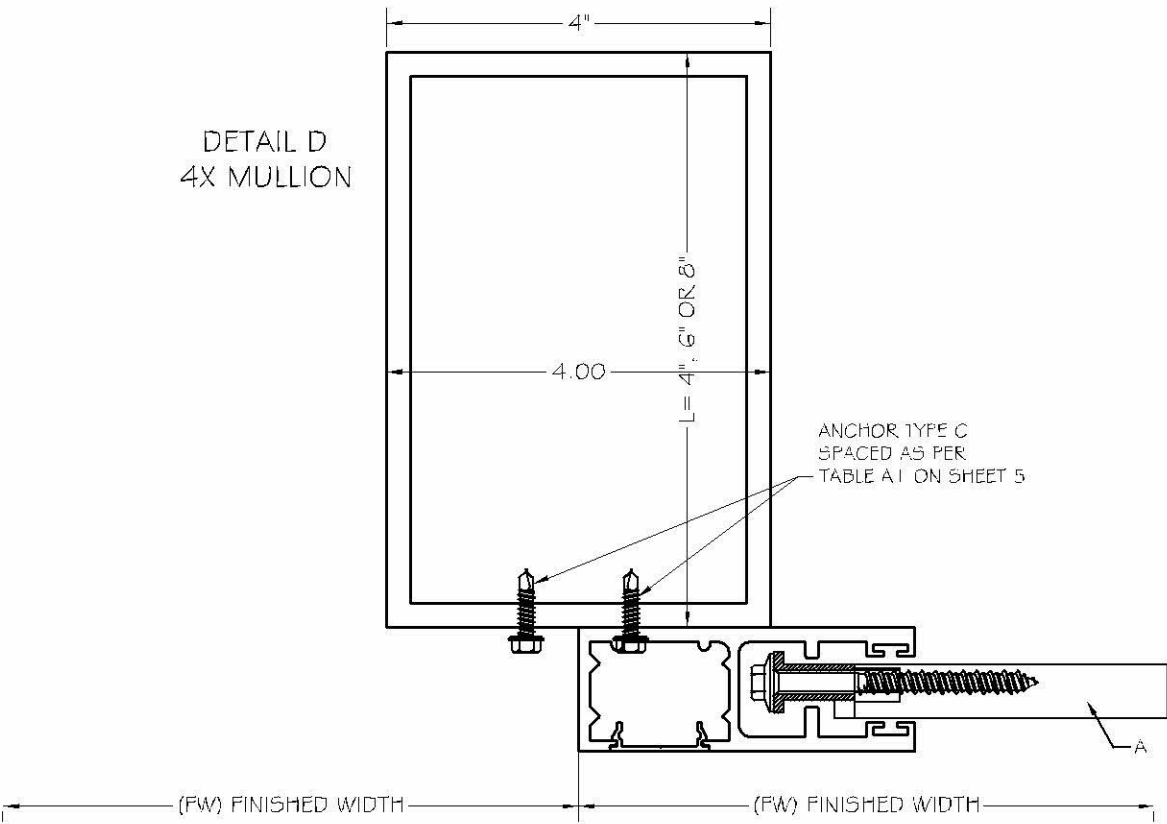
TABLE 4 - MULLIONS MAXIMUM DESIGNED PRESSURES (PSF)

DOOR TRIBUTARY MODULE (TM)	1/4-4x8 mullion span			1/4-4x6 mullion span			1/4-4x4 mullion span		
	144	132	120	120	108	96	96	84	72
288	27	30	30	24	30	30	17	26	30
264	30	39	50	26	35	50	19	28	44
240	33	43	57	28	39	55	21	31	49
216	37	48	64	31	43	61	23	34	54
192	41	54	72	35	48	69	26	39	61
168	47	61	82	40	55	79	30	44	70
144	55	71	96	47	64	92	35	52	82
120	66	86	115	56	77	110	42	62	98
108	73	95	127	63	86	123	46	69	109
96	82	107	143	71	96	138	52	77	122
84	94	123	164	81	110	158	59	88	140

- NOTES:
1- MULLIONS WERE DESIGNED BY RATIONAL ANALYSIS BASED ON THE ALUMINUM DESIGN MANUAL 2020 ED. AND THE FLORIDA BUILDING CODE.
2- DEFLECTION CRITERIA: MAXIMUM MULL SPAN DIVIDED BY 180: (MS/180)
3- VALUES ABOVE IS APPLICABLE ONLY FOR EQUAL MODULES FW1=FW2=FW3.
4- UNEQUAL MODULES ARE TO BE DESIGNED BY RATIONAL ANALYSIS IN A CASE BY CASE BASIS.

MULLIONS SECTIONS

DETAIL D
4X MULLION



Pedro De Figueiredo
PE 52609
04/30/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
PEDRO DE FIGUEIREDO ON THE DATE INDICATED HERE.
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED
SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED
ON ANY ELECTRONIC COPIES

ENGINEERING SERVICES - CA 32459
6311 SFAFORT BLVD.
CAPE CANAVERAL, FL 33324
PPMF@AOL.COM
ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609



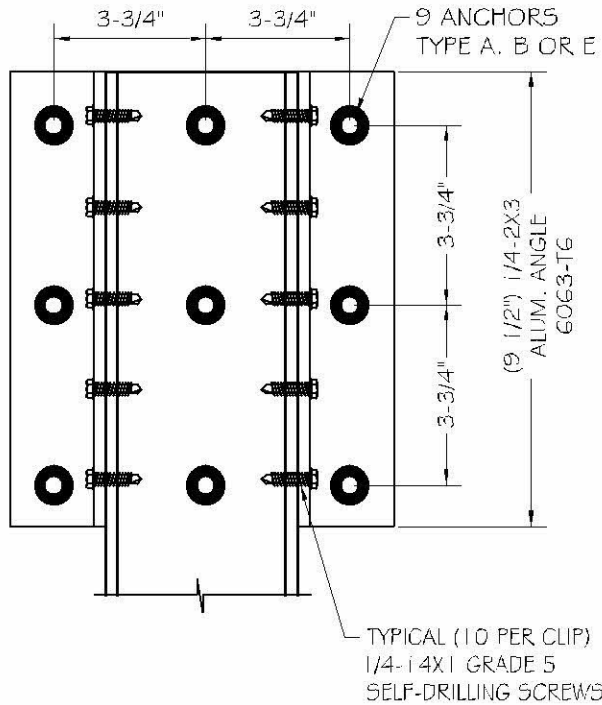
PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 33441

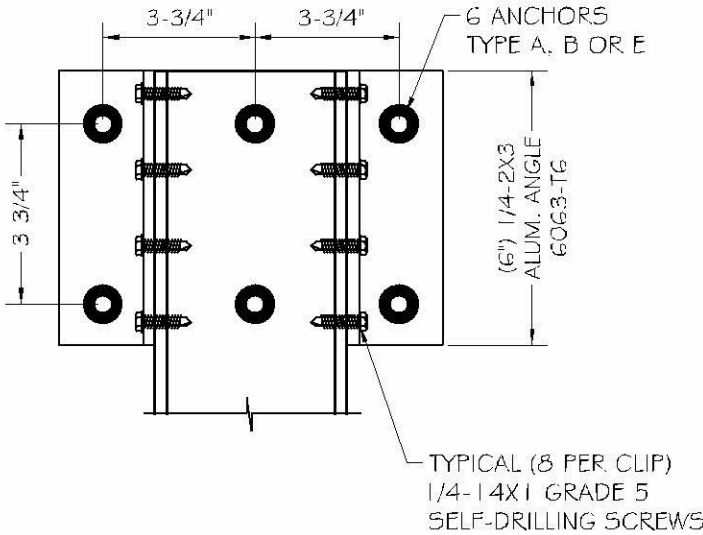
SCALE:
NA
DATE:
04/30/2024
DRAWING #
24-090
SHEET
11 OF 14

EQUALLY SPACED MULLIONS WALL CONNECTIONS

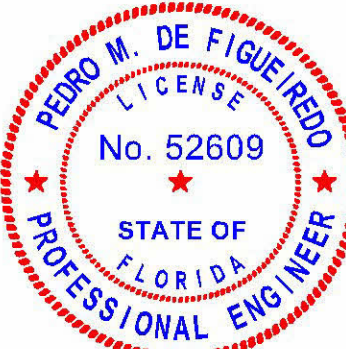
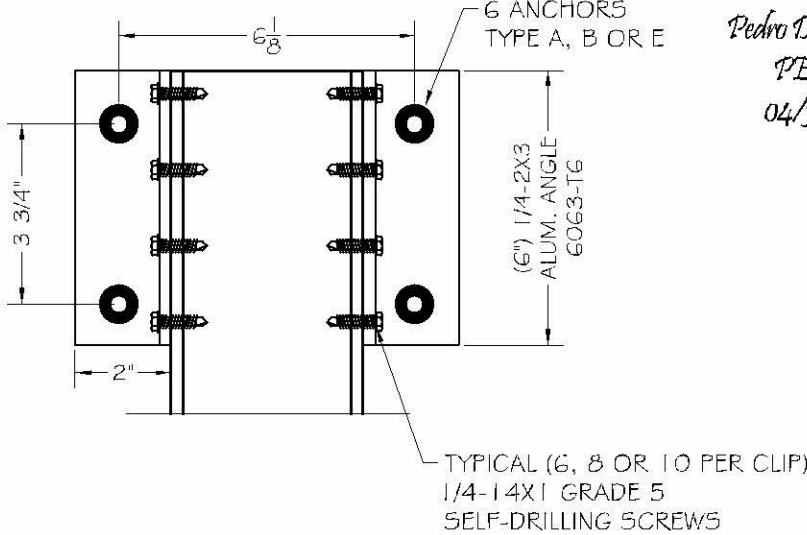
W9 - WALL MOUNT MOUNT
WITH (9) ANCHORS TYPE A OR B



W6 - WALL MOUNT MOUNT
WITH (6) ANCHORS TYPE A OR B



W4 - WALL MOUNT MOUNT
WITH (4) ANCHORS TYPE A, B OR E



Pedro De Figueiredo
PE 52609
04/30/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
PEDRO DE FIGUEIREDO ON THE DATE INDICATED HERE.
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED
SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED
ON ANY ELECTRONIC COPIES



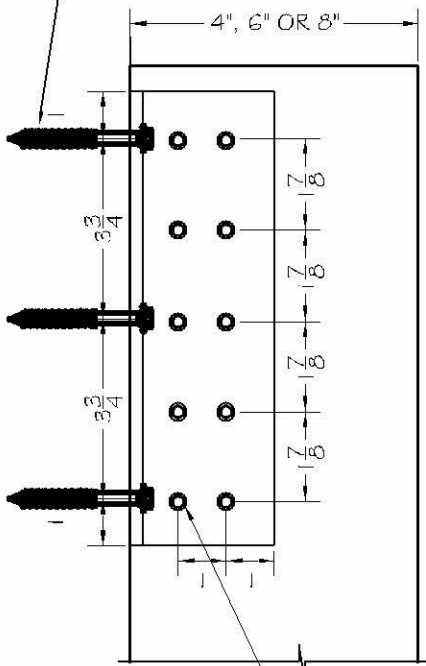
ENGINEERING SERVICES - CA 32459
6311 SEAFORT BLVD.
CAPE CANAVERAL, FL 33324
PFME@AOL.COM
ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609

PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

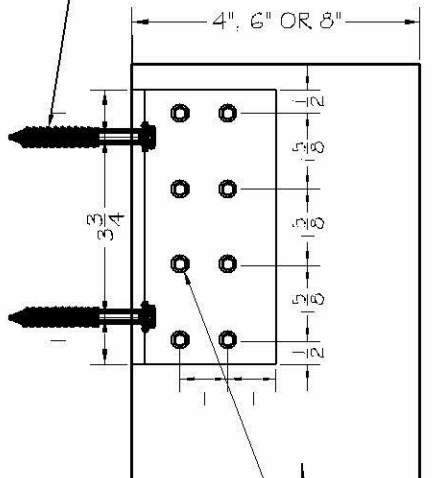
ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 33441

SCALE:
NA
DATE:
04/30/2024
DRAWING #
24-090
SHEET
12 OF 14

W9 (6) ANCHORS TYPE A, B OR E



W4 (4) ANCHORS TYPE A, B OR E
W6 (6) ANCHORS TYPE A, B OR E



TYPICAL (10 PER CLIP)
1/4-14x1 GRADE 5
SELF-DRILLING SCREWS

TYPICAL (8 PER CLIP)
1/4-14x1 GRADE 5
SELF-DRILLING SCREWS

MULL WALL ANCHORAGE CAPACITY (Ra)

ANCHOR TYPE	W4 (LB)	W6 (LB)	W9 (LB)
A	3120	4680	7020
B	3016	4524	6786
E	3750	5625	11250

ANCHOR MARK	ANCHORS DESCRIPTION	SUBSTRATE	SUBSTRATE PENETRATION	EDGE DISTANCE
A	5/16" ITW TAPCONS XL	MIN. 3KSI CONCRETE	2 1/4"	2 3/16"
B	5/16" ITW TAPCONS XL	GROUT FILLED C-90 CMU	2 1/4"	4"
E	3/8" DEWALT SCREW-BOLT+	MIN. 3KSI CONCRETE	3 1/4"	4 1/2"

CALCULATING SERVICE REACTION (Rs):

- 1- (PD) - PROJECT DESIGNED PRESSURE CALCULATED AS PER GENERAL NOTE 4.
- 2- (TM) - TRIBUTARY MODULE TM AS PER SHEET 11
- 3- (MS) - MULL SPAN

$$\text{SERVICE REACTION: } R_s = PD \times TM \times MS / 144 / 2$$

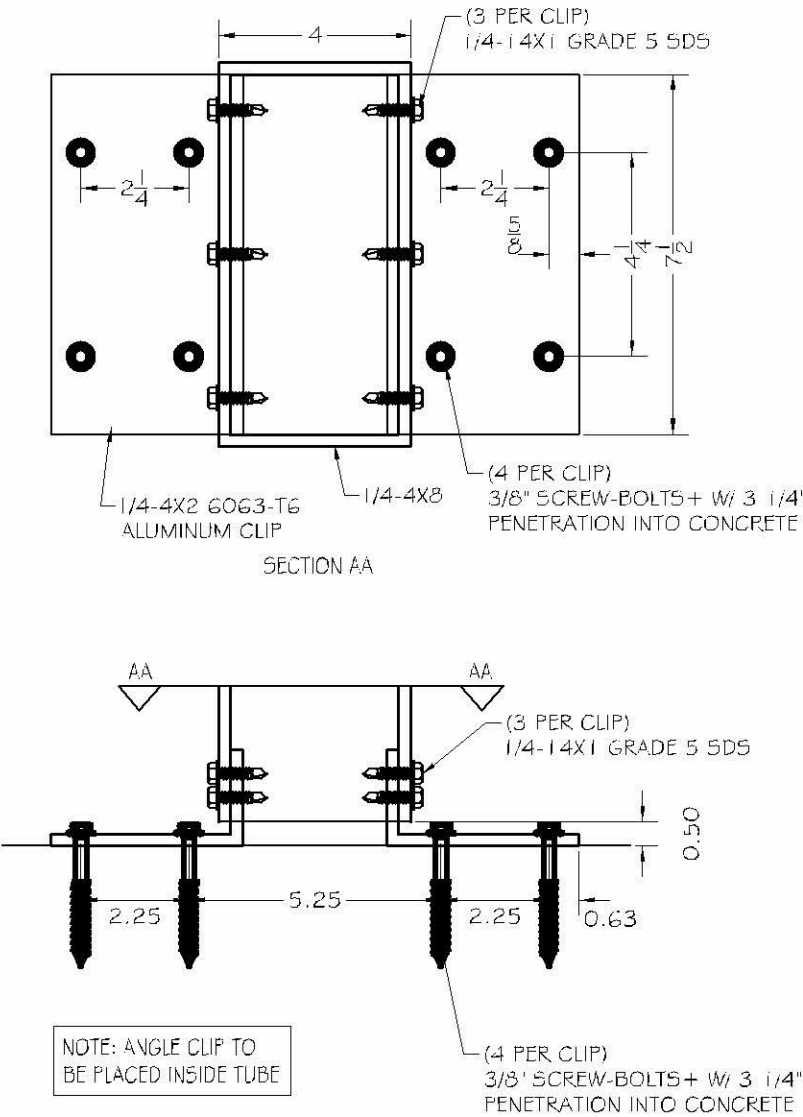
Service Reaction must be lower or equal to anchorage capacity: $R_s \leq R_a$

Example:

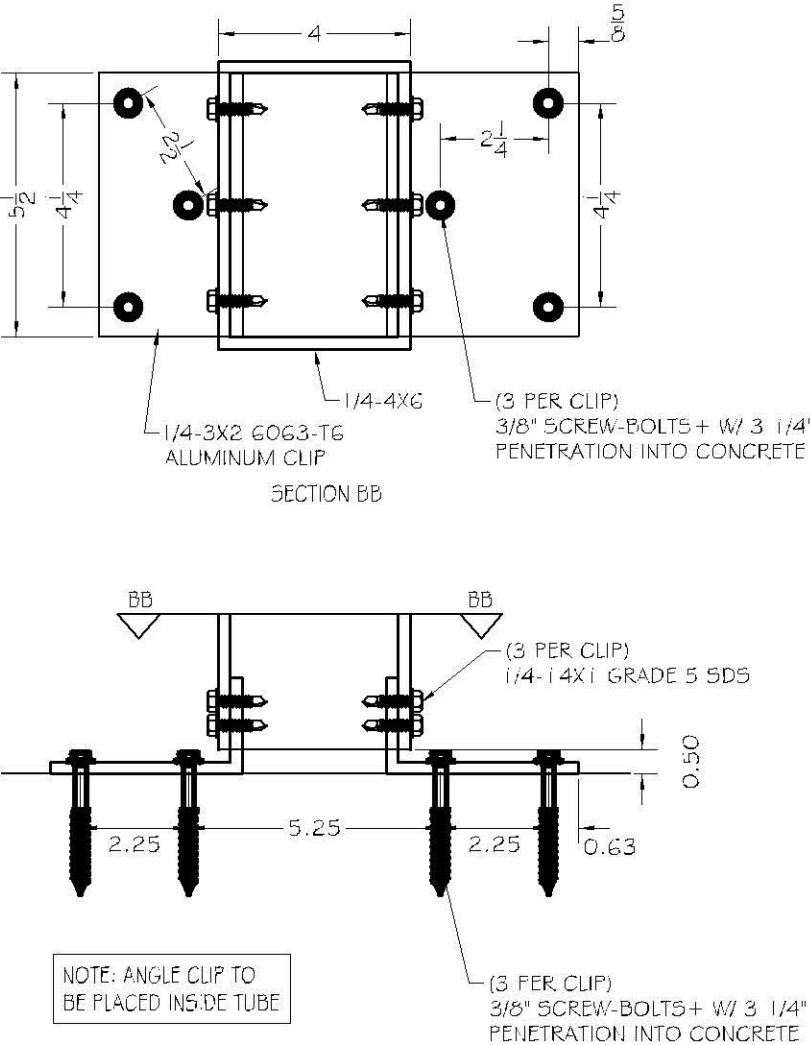
- 1- Project pressure: $PD = \pm 30$ psf
- 2- Two doors 288" wide with one 108" mull at middle
- 3- Tributary Module: $TM = (288 + 288) / 2 = 288$ "
- 4- Mullion Span: $MS = 108$ "
- 5- Table 4 select 1/4-4x6 mull rated at 30 psf => 30 psf -- Ok
- 6- Wall Mounted with W6 condition anchor type A - $R_a = 4680$ lb
- 7- Calculate R_s as above:
 $R_s = 30 \text{ psf} \times 288" \times 108" / 144 / 2 = 3240 \text{ LB}$
 $R_s = 3240 < R_a = 4680$ (W6 Type A anchor type ACCEPTABLE)

EQUALLY SPACED MULLIONS FLOOR AND CEILING CONNECTIONS

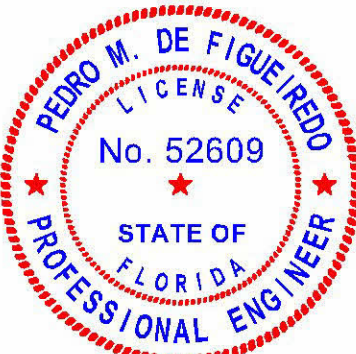
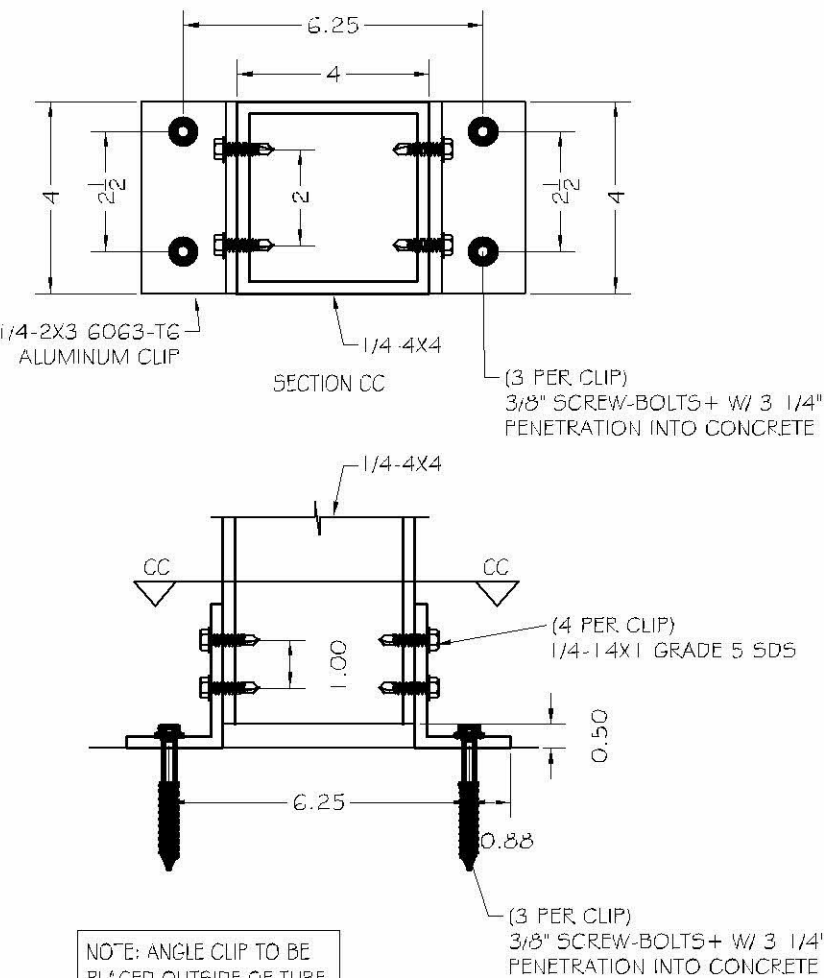
1/4-4X8 MULLION
FLOOR/CEILING MOUNT



1/4-4X6 MULLION
FLOOR/CEILING MOUNT



1/4-4X4 MULLION
FLOOR/CEILING MOUNT



Pedro De Figueiredo
PE 52609
04/30/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
PEDRO DE FIGUEIREDO ON THE DATE INDICATED HERE.
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED
SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED
ON ANY ELECTRONIC COPIES

ENGINEERING SERVICES - CA 32459
6311 SEAFORT BLVD.
CAPE CANAVERAL, FL 33324
PPME@AOL.COM
ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609



PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 33441

SCALE:
NA

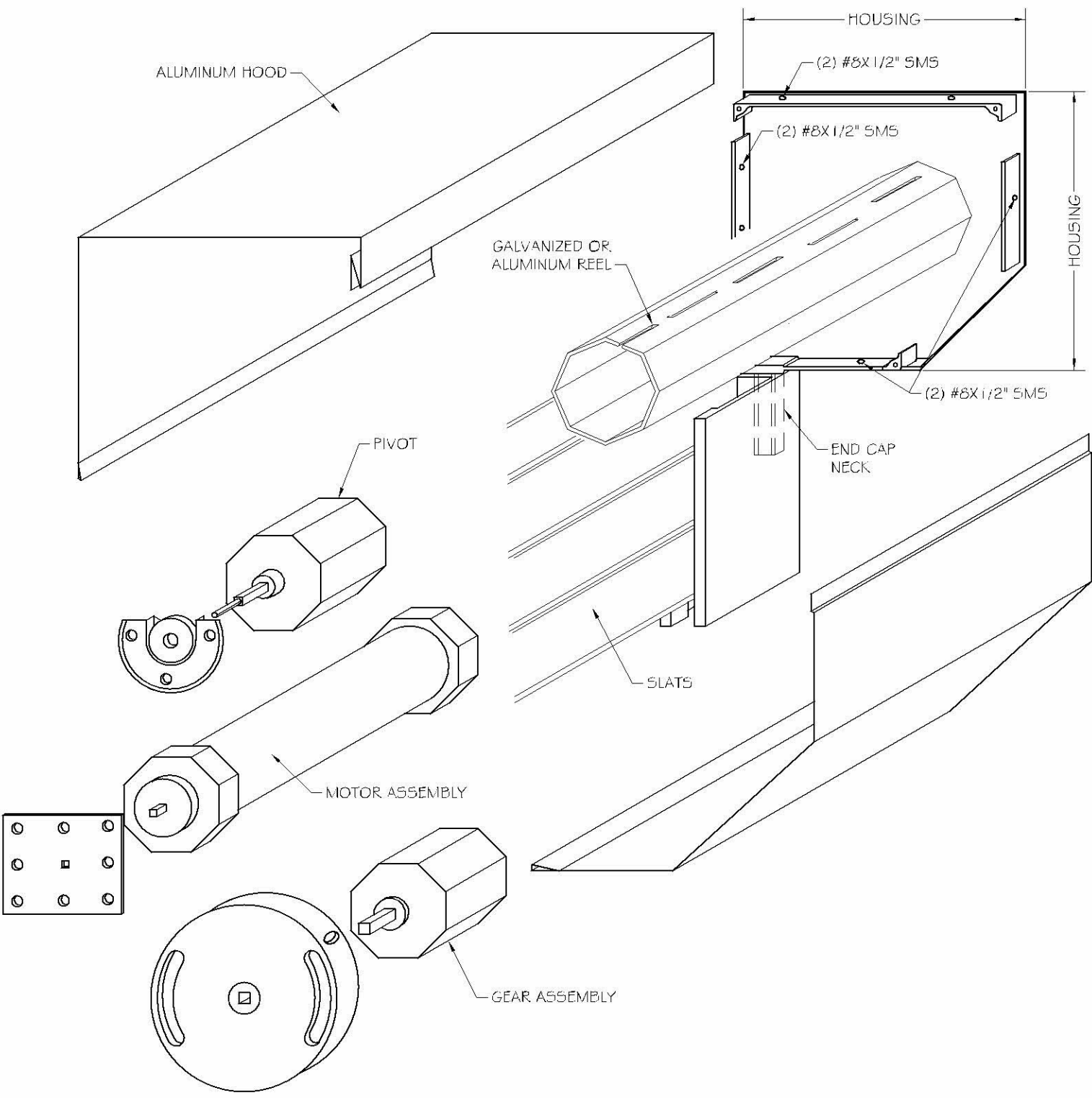
DATE:
04/30/2024

DRAWING #
24-090

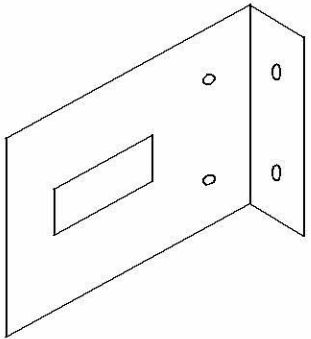
SHEET
13 OF 14

FLOOR / CEILING CONNECTION CAPACITY FUNCTION OF DESIGNED PRESSURES ON TABLE 4

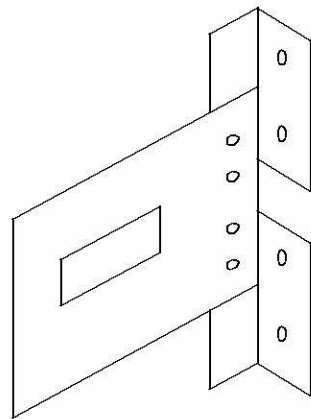
HOOD ASSEMBLY



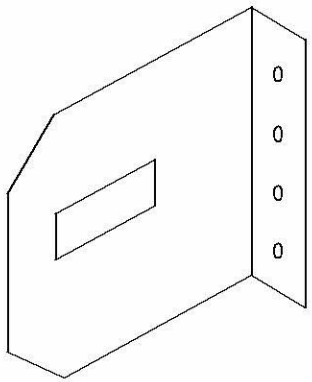
OPTIONAL STEEL BRACKET



UP TO 100 LBS SHUTTER WEIGHT
(2) 5/16" TAPCON OR,
(3) 1/4"Øx1" SMS

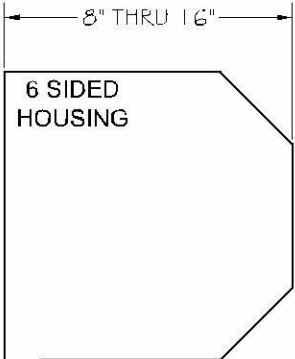
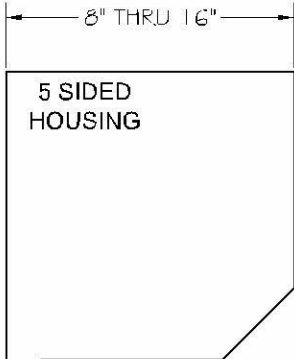
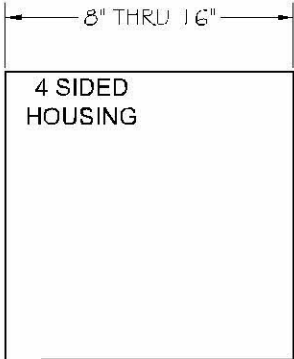


UP TO 200 LBS SHUTTER WEIGHT
(3) 5/16"Ø TAPCONS OR
(4) 1/4"Øx1" SMS



UP TO 350 LBS SHUTTER WEIGHT
(4) 5/16" TAPCON OR,
(6) 1/4"Øx1" SMS

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
04/30/2024

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY PEDRO DE FIGUEIREDO ON THE DATE INDICATED HERE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES

ENGINEERING SERVICES - CA 32459
6311 SFAFORT BLVD.
CAPE CANAVERAL, FL 33324
PPMF@AOL.COM
ENGINEER SEAL
PEDRO DE FIGUEIREDO
PE 52609



PRODUCT:
SUPERNOVA 55mm
EXTRUDED ALUMINUM
ROLL-UP HURRICANE PROTECTION DEVICE
LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
N.A.S.A
NATIONAL APPROVED SHUTTER ASSOCIATION L.L.C.
604 HILLSBORO TECHNOLOGY DR.
DEERFIELD, FL 33441

SCALE:
NA
DATE:
04/30/2024
DRAWING #
24-090
SHEET
14 OF 14