

SUPERNOVA ACCORDION SHUTTER

EXTRUDED ALUMINUM ACCORDION SHUTTER

GENERAL NOTES: (IBC 2018 & IRC 2018)

- 1- DEFINITION: THIS PRODUCT IS A HURRICANE PROTECTION DEVICE; 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 IBC 2018 SECTION 1703.5. IT SHALL BE PLACED ON A READILY VISIBLE LOCATION AND A MINIMUM OF ONE LABEL PER OPENING.
- 3- GLASS SEPARATION (GS): PRODUCT IS QUALIFIED AS "NON POROUS", THEREFORE GLAZING SEPARATION IS NOT REQUIRED WITH EXCEPTION FOR THE FOLLOWING LOCATIONS:
 - 3.1- WIND ZONE 4 AS DEFINED IN ASTM E 1996-14a
 - 3.2- ESSENTIAL FACILITIES AS DEFINED IN ASCE 7-16
 FOR THE ABOVE LOCATIONS THE PRODUCT MUST BE SEPARATED FROM GLAZING AREAS AS PER TABLE 1.
- 4- LOADS: DESIGNED LOAD TO BE 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 SHUTTER 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 CORROSION RESISTANT IN ACCORDANCE WITH 2018 IRC AND 2018 IBC.
- 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 SHUTTER 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.

CODE AND STANDARD COMPLIANCE:

INTERNATIONAL BUILDING CODE (IBC 2018)
INTERNATIONAL RESIDENTIAL CODE (IRC 2018)
ASTM E330, E1886, E1996 (LEVEL D MISSILE)

USER INSTRUCTIONS:

- 1- DETERMINE PROJECT DESIGN WIND LOAD PRESSURES AS PER ITEM 4 OF GENERAL NOTES.
- 2- CHECK BLADE SPAN ALLOWABLE DESIGN PRESSURE ON TABLE 1 OR TABLE 1A.
- 3- VERIFY GLASS SEPARATION ON TABLE 2 IF APPLICABLE.
- 4- DETERMINE MAXIMUM ANCHORAGE PRESSURE CAPACITY FUNCTION OF SECTION TYPE TO BE USED AS PER SHEET 13, 14 AND 15.
- 5- THE LOWEST PRESSURE FROM ITEMS 2 AND 4 ABOVE MUST NOT EXCEED THE REQUIRED DESIGN PRESSURE FROM GENERAL NOTES 4

TABLE OF CONTENTS:

SHEET	DESCRIPTION
1	TABLE OF CONTENTS, GENERAL NOTES, USER INSTRUCTIONS
2	TYPICAL ELEVATION, ALLOWABLE BLADE, PRESSURE TABLE 1, 1A AND GLASS SEP. TABLE 2
3	TYPICAL SECTIONS A, B, B1, B2, B3 & B4
4	TYPICAL SECTIONS C, D, E & GH
5	TYPICAL SECTIONS F, G, G1 & I
6	OPTIONAL CURVE TRACK DETAILS
7	JAMB AND CORNER SECTIONS "J"
8	LOCK MALE & FEMALE SECTIONS "L"
9	LOCK UNIMATE SECTIONS "M"
10	STANDARD LOCK SECTIONS "N"
11	COMPONENTS
12	BILL OF MATERIALS, BLADE ASSEMBLY & ANCHOR SCHEDULE.
13	ANCHORAGE SPACING SELECTION
14	ANCHORAGE SPACING SELECTION
15	SECTION "X" DETAILS
16	OVER COUNTER TOP INSTALLATION SECTION CT DETAILS

ASSOCIATION:
N.A.S.A.

NATIONAL APPROVED
SHUTTER ASSOCIATION
L.L.C.

15701 SW 29th ST. STE 100
MIRAMAR, FL 33027
Tel.: (786) 621-6706
Fax: (786) 621-6708
WWW.NASASHUTTER.COM



Engineering: **EngCo Inc.**
CR 11234
9715 WEST BROWARD BLVD. 247
PLANTATION - FLORIDA - 33324
Engineer Seal
Pedro Figueredo
TEXAS - FE 102937

PRODUCT:
SUPERNOVA
EXTRUDED ALUMINUM
ACCORDION SHUTTER
LARGE MISSILE IMPACT RESISTANT

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

SCALE: NA
DATE: 03/16/2022
DRAWING # 22-033
SHEET 01 OF 16



Engineering: EngCo Inc.
 CR 11234
 9715 WEST BROWARD BLVD. 247
 PLANTATION - FLORIDA - 33324
 Engineer Seal
 Pedro Figueredo
 TEXAS - PE 102937

PRODUCT: SUPERNOVA
 EXTRUDED ALUMINUM
 ACCORDION SHUTTER
 LARGE MISSILE IMPACT RESISTANT

ASSOCIATION OF MANUFACTURERS:
N.A.S.A.
 NATIONAL APPROVED SHUTTER ASSOCIATION LLC.
 MIRAMAR, FL 33027
 SCALE: NA
 DATE: 03/16/2022
 DRAWING # 22-033
 SHEET 02 OF 16

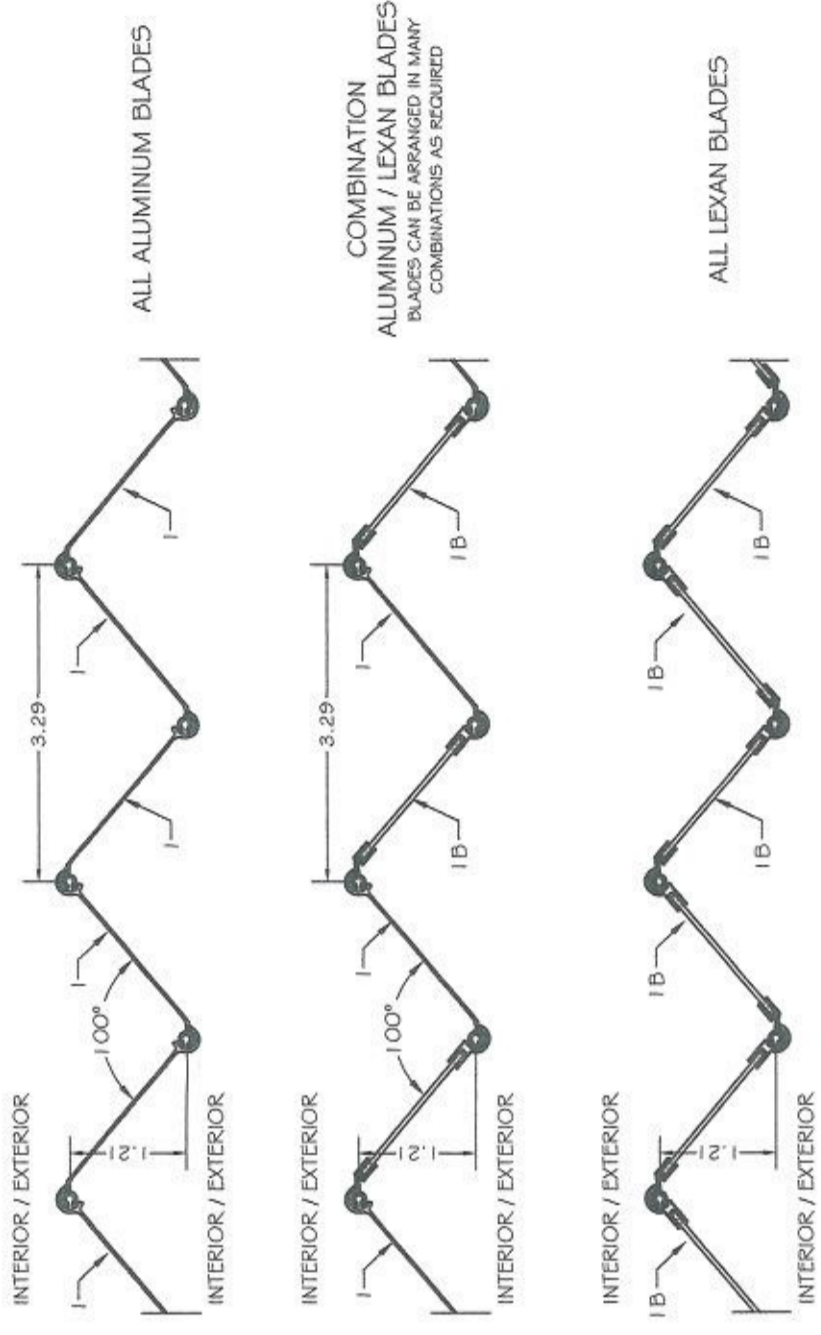


TABLE 1A
 MAXIMUM ALLOWABLE #1 & #B BLADES
 SHUTTER SPAN X PRESSURE

BLADE SPAN INCHES	PRESSURE (PSF)	
	POS	NEG
60	160	160
66	158	158
72	144	144
78	133	133
84	124	124
90	116	116
96	108	108
104	100	100
108	93	93
114	83	83
120	75	75
126	68	68
132	61	61
138	53	53
144	45	47
150	38	42
162	28	33

NOTES:
 1- ACCORDION SHUTTER BLADE SPAN (INCHES) FOR ALL CONDITIONS
 2- PRESSURE - DESIGN WIND LOAD (PSF)
 3- LINEAR INTERPOLATION IS ACCEPTABLE FOR DESIGN WIND LOADS AND BLADE SPAN BETWEEN TABULATED VALUES.
 4- USE TABLE 1A WHEN ONE OR MORE TYPE 1B BLADE IS USED
 5- BLADE REVERSED INSTALLATION IS ALLOWED FOR ALL MOUNTED CONDITIONS

TABLE 1
 MAXIMUM ALLOWABLE #1 BLADE
 SHUTTER SPAN X PRESSURE

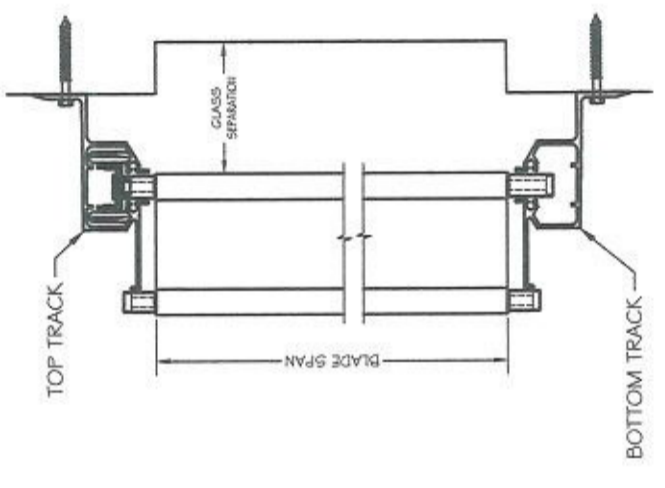
BLADE SPAN INCHES	PRESSURE (PSF)	
	POS	NEG
60	160	160
66	158	158
72	144	144
78	133	133
84	124	124
90	116	116
96	108	108
104	100	100
108	93	93
114	83	83
120	75	75
126	68	68
132	62	62
138	57	57
144	48	52
150	41	48
162	30	40

TABLE 2
 MINIMUM SHUTTER SEPARATION FROM GLAZING

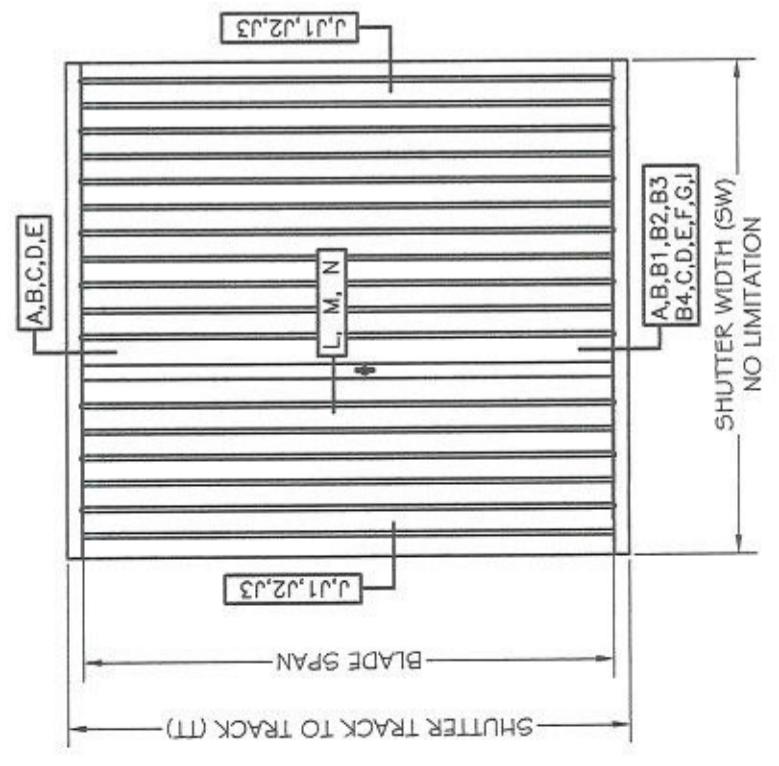
BLADE TYPE	GLAZING SEPARATION (INCHES)		
	<= 60"	<= 104"	<= 162"
ALUMINUM ALL ELEVATIONS	2"	2 3/4"	3"
LEXAN <= 30' ELEVATION	3"	3"	3"
LEXAN > 30' ELEVATION	2 1/8"	3"	3"

NOTES:
 1- SEPARATION FROM GLAZING AREAS SHALL BE MEASURED FROM GLAZING SURFACE TO THE INNER MOST BLADE OR LOCK SURFACE.
 2- GLASS SEPARATION IS APPLICABLE ON:
 2.1- WIND ZONE 4 (V_{WZ} >= 170 mph)
 2.2- ALL WIND ZONES ON ESSENTIAL FACILITIES
 2.3- AS REQUIRED BY THE SPECIFYING AUTHORITY.
 3- WHEN SHUTTER IS ASSEMBLED WITH BOTH TYPES OF BLADES THE LARGEST GLASS SEPARATION SHALL APPLY.

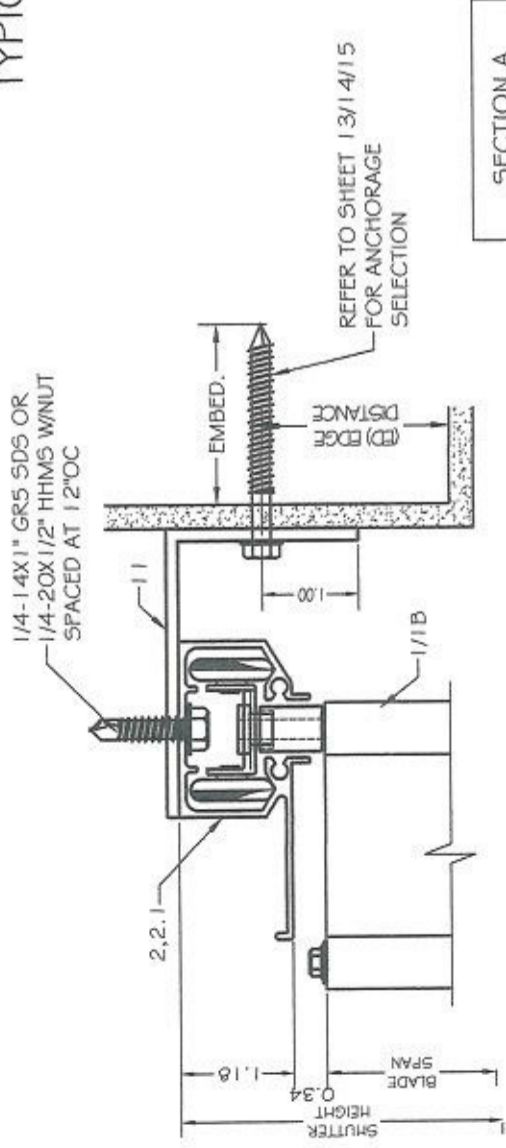
TYPICAL CROSS SECTION



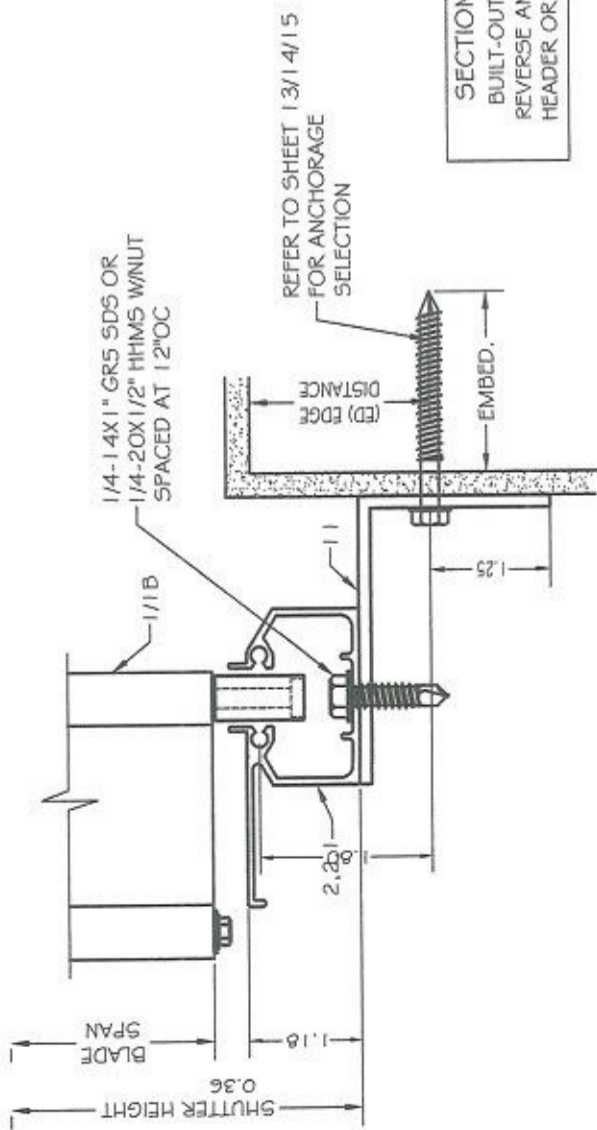
TYPICAL ELEVATION



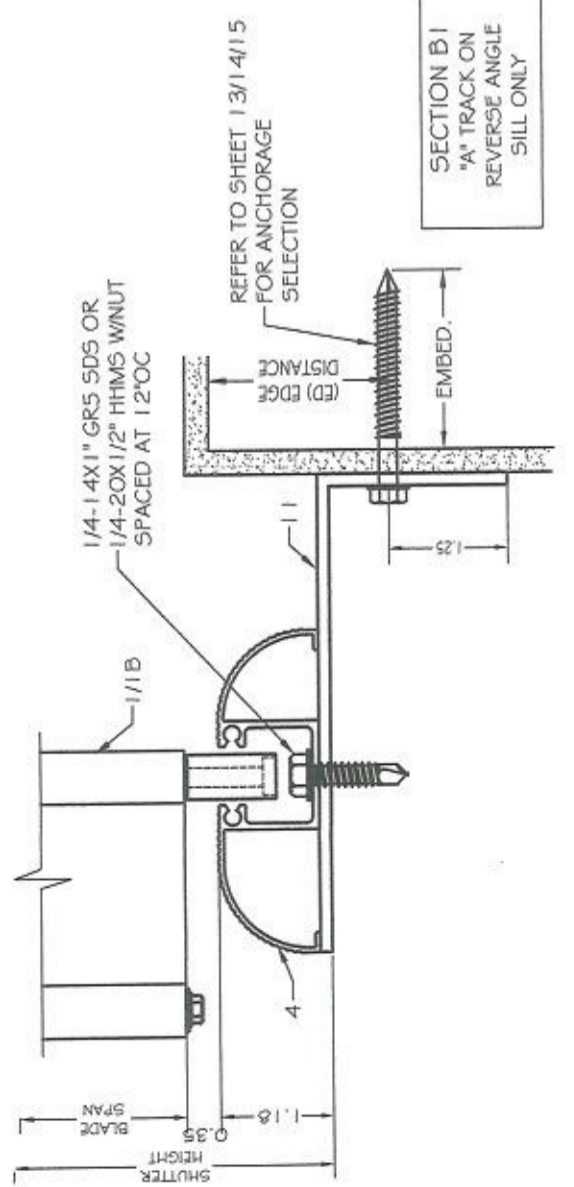
TYPICAL SECTIONS



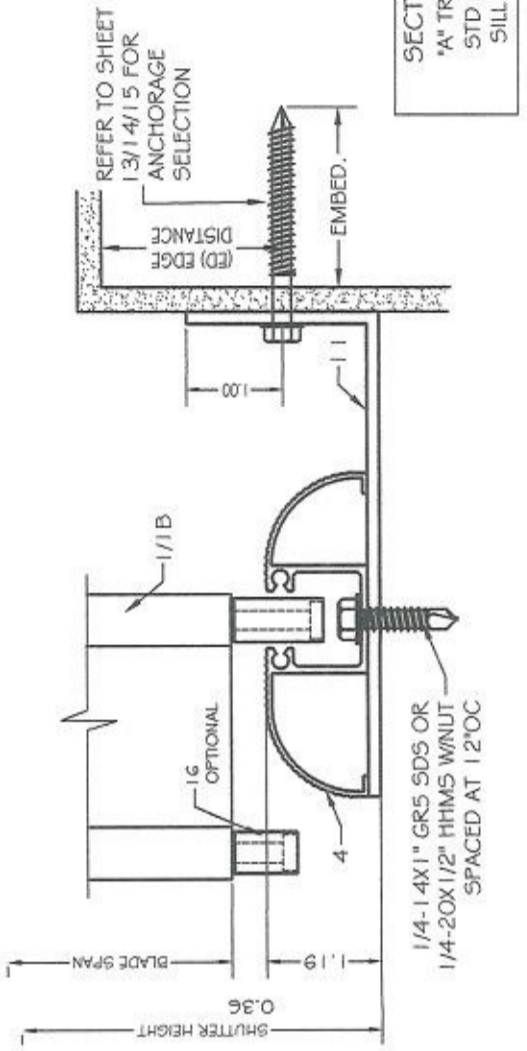
SECTION A
BUILT-OUT ON ANGLE
HEADER OR SILL



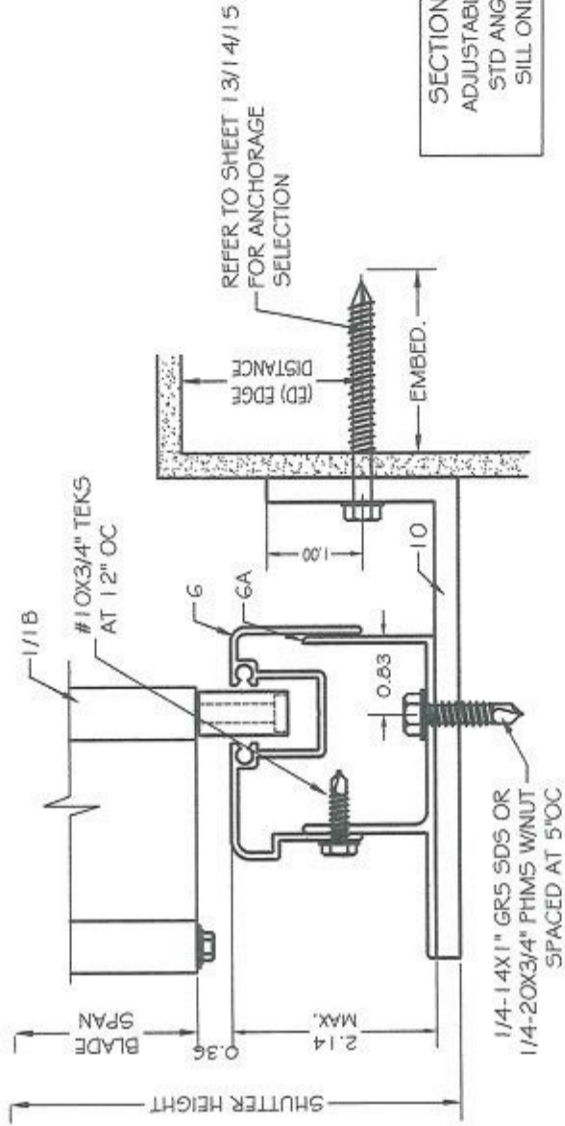
SECTION B
BUILT-OUT ON
REVERSE ANGLE
HEADER OR SILL



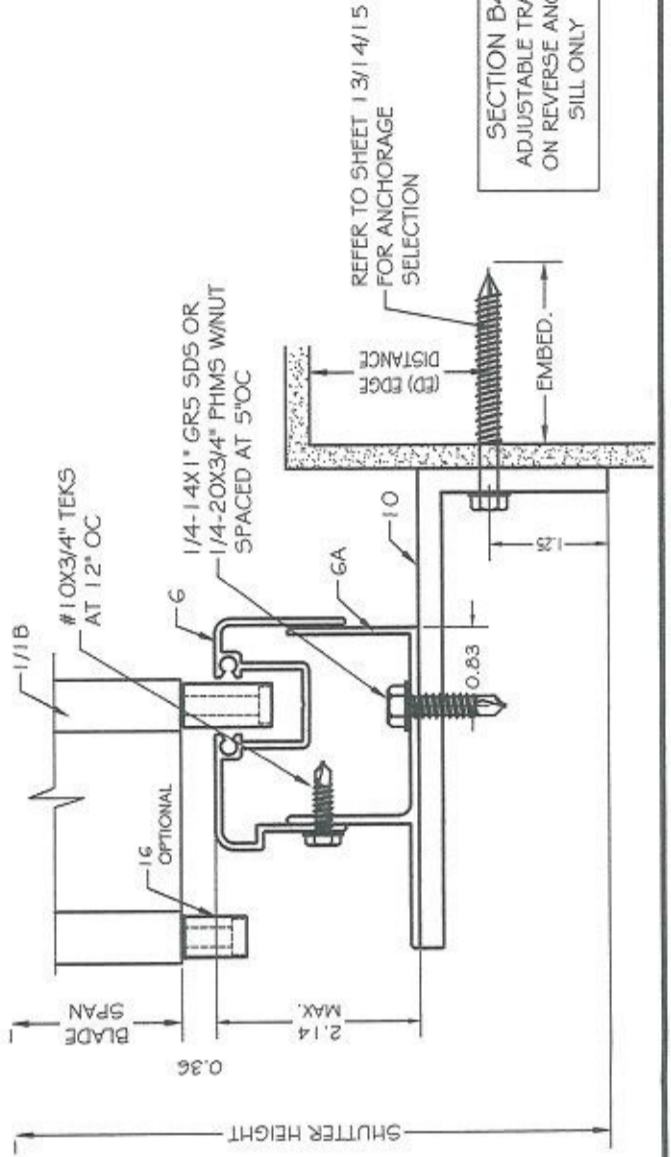
SECTION B1
"A" TRACK ON
REVERSE ANGLE
SILL ONLY



SECTION B2
"A" TRACK ON
STD ANGLE
SILL ONLY



SECTION B3
ADJUSTABLE ON
STD ANGLE
SILL ONLY



SECTION B4
ADJUSTABLE TRACK
ON REVERSE ANGLE
SILL ONLY

Engineering: **EngDo Inc.**
 CR 11234
 9715 WEST BROWARD BLVD. 247
 PLANTATION - FLORIDA - 33324
 Engineer Seal
 Pedro Figueredo
 TEXAS - PE 102937

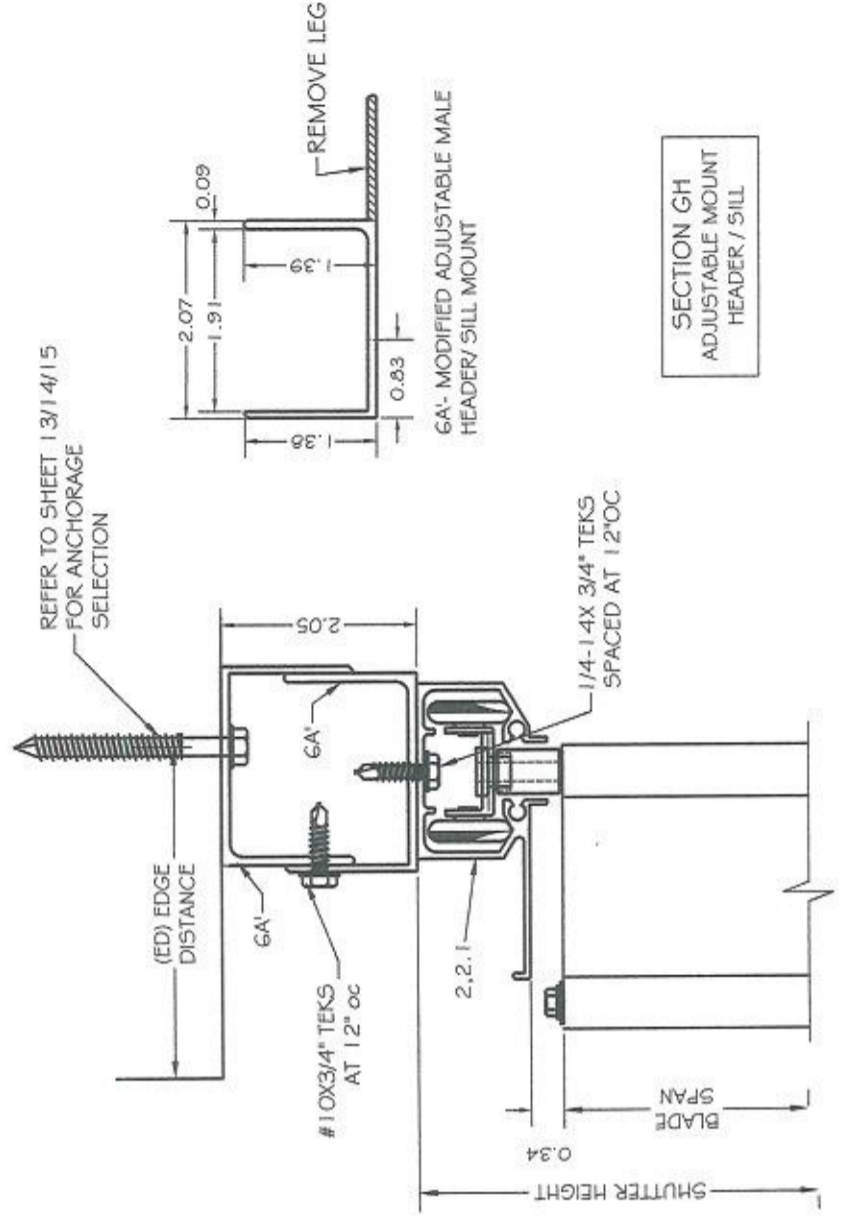
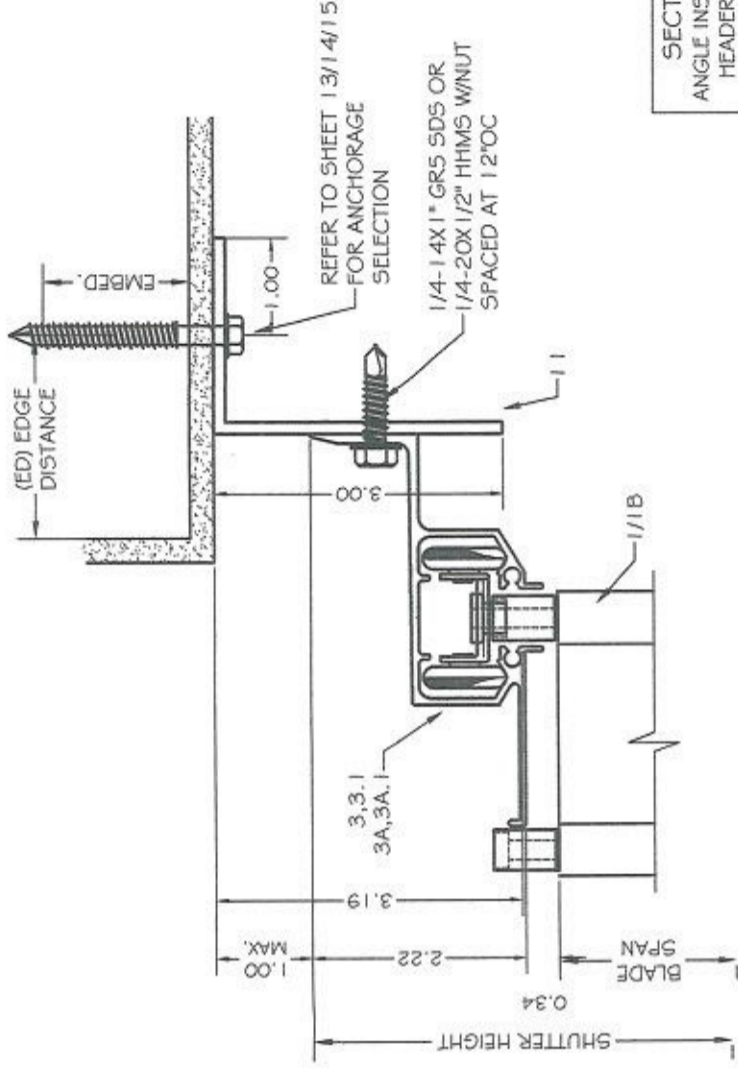
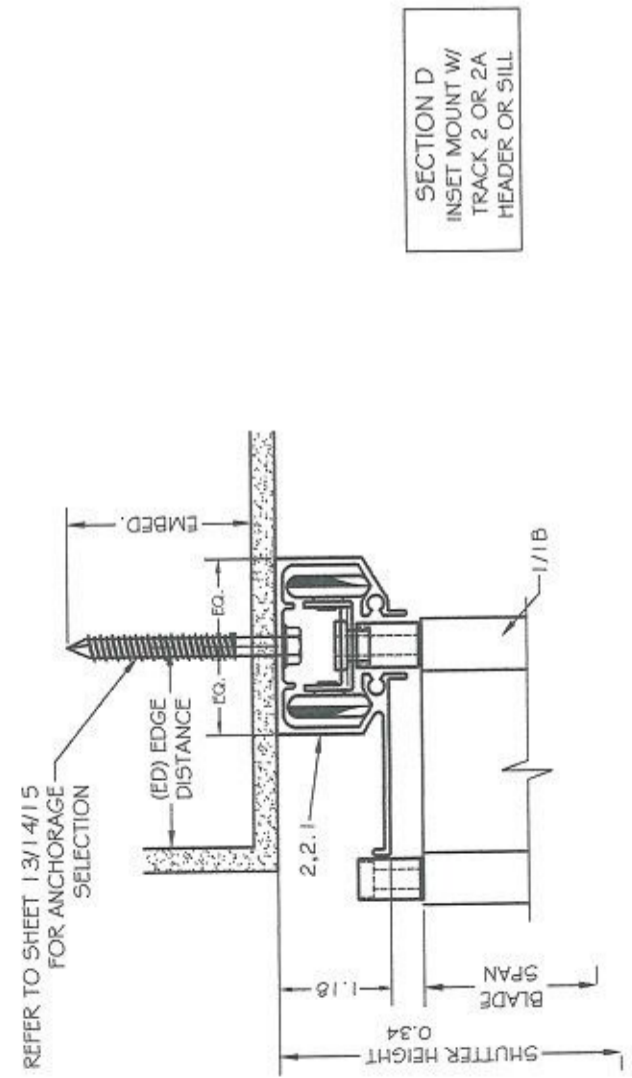
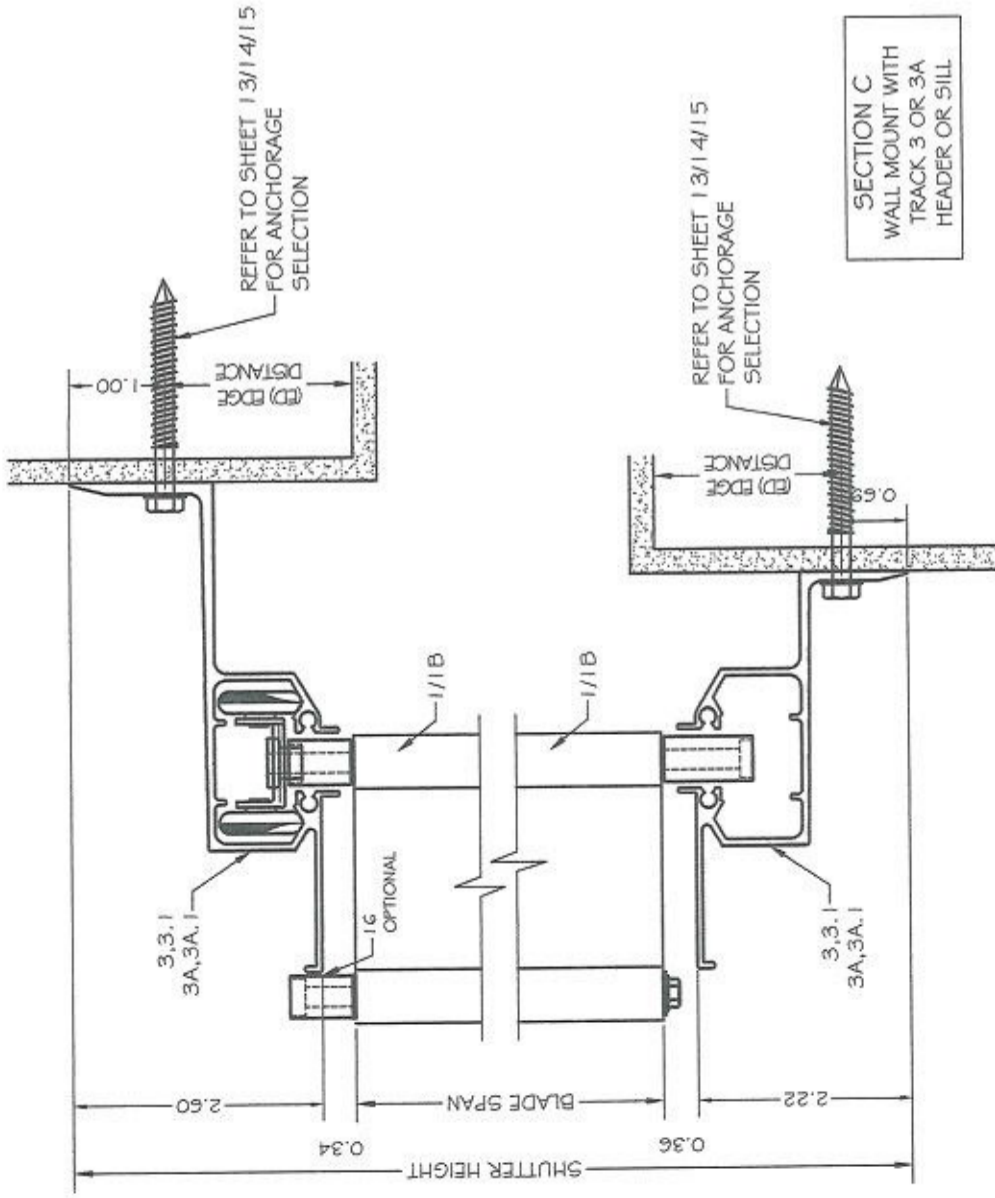
STATE OF TEXAS
 PEDRO FIGUERE DO
 102937
 PROFESSIONAL ENGINEER
 LICENSED
 4/6/22

PRODUCT:
SUPERNOVA
 EXTRUDED ALUMINUM
 ACCORDION SHUTTER
 LARGE MISSILE IMPACT RESISTANT

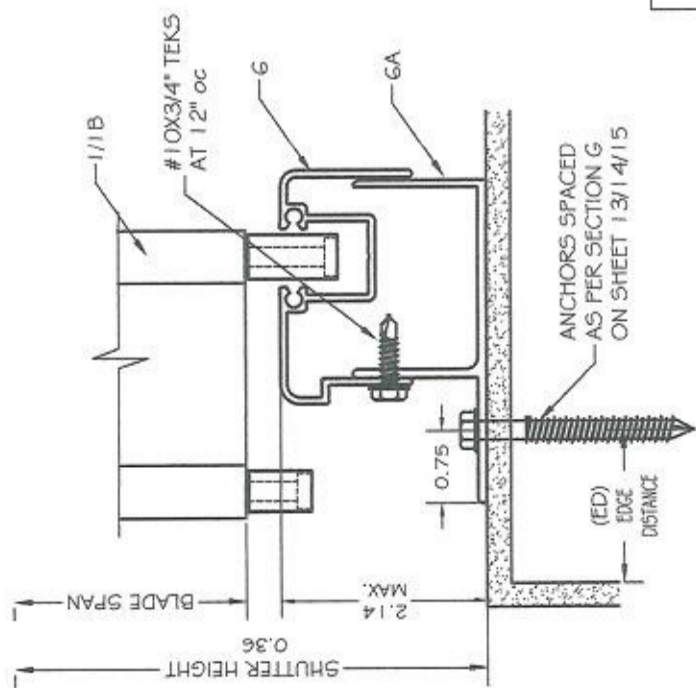
ASSOCIATION OF MANUFACTURERS:
N.A.S.A.
 NATIONAL APPROVED SHUTTER ASSOCIATION LLC.
 MIRAMAR, FL 33027

SCALE: NA
 DATE: 03/16/2022
 DRAWING # 22-033
 SHEET 03 OF 16

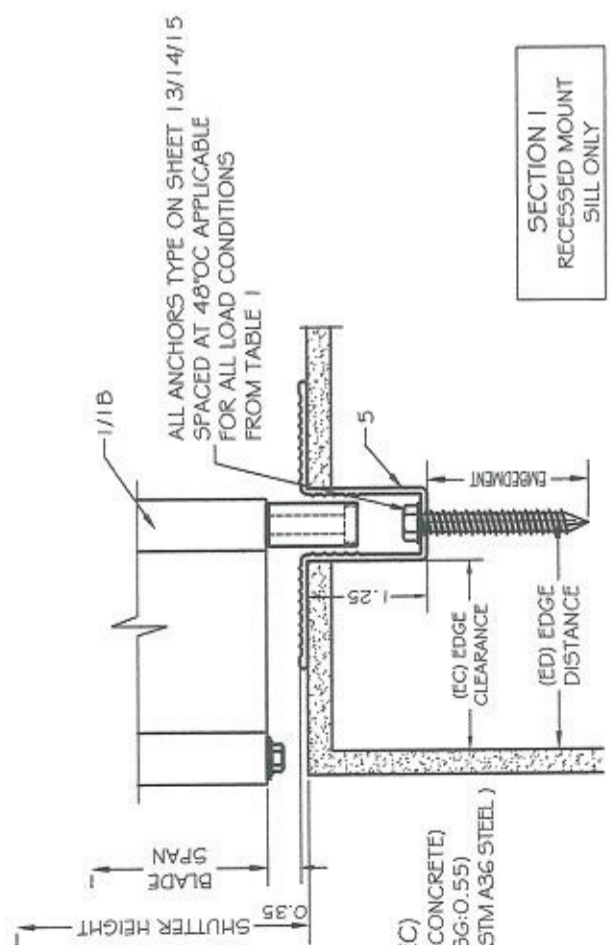
TYPICAL SECTIONS



TYPICAL SECTIONS



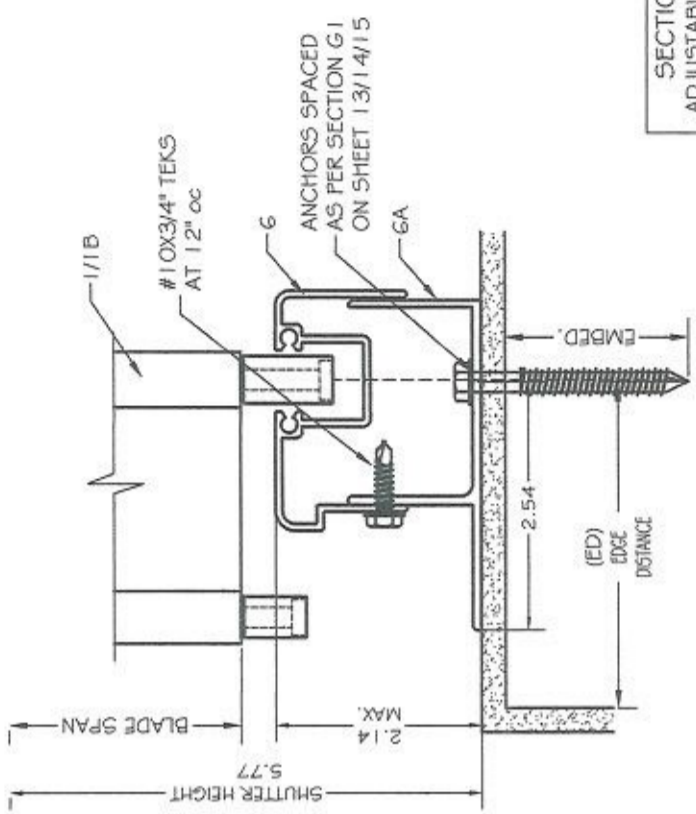
SECTION G
ADJUSTABLE MOUNT
SILL ONLY



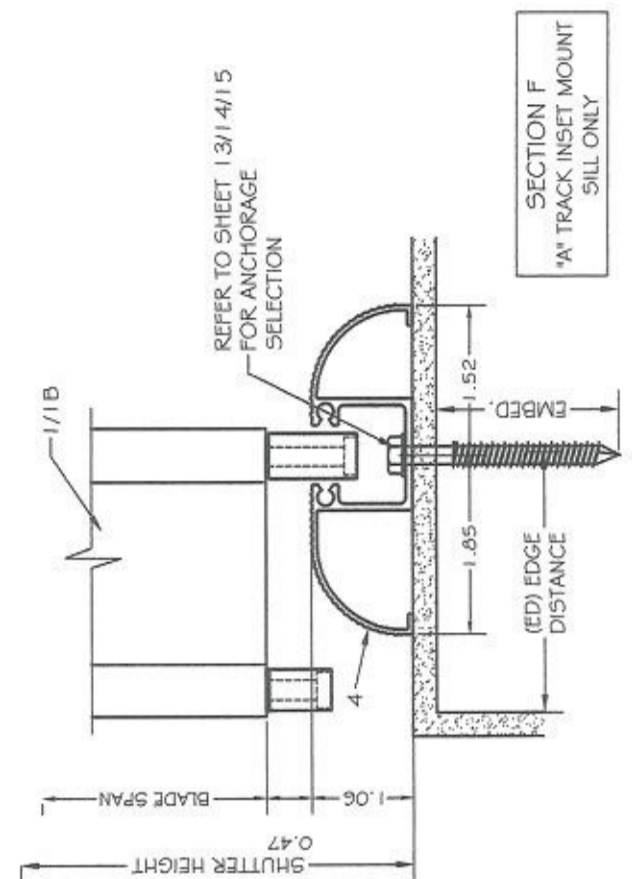
SECTION I
RECESSED MOUNT
SILL ONLY

EDGE CLEARANCE (EC)
 INTO CONCRETE = 4" (3000 PSI CONCRETE)
 INTO WOOD = 2 1/2" (WOOD SG-0.55)
 INTO METAL = 2" (6063-T6 ALUM. OR ASTM A36 STEEL)

ALL ANCHORS TYPE ON SHEET 13/14/15
 SPACED AT 48" OC APPLICABLE
 FOR ALL LOAD CONDITIONS
 FROM TABLE 1



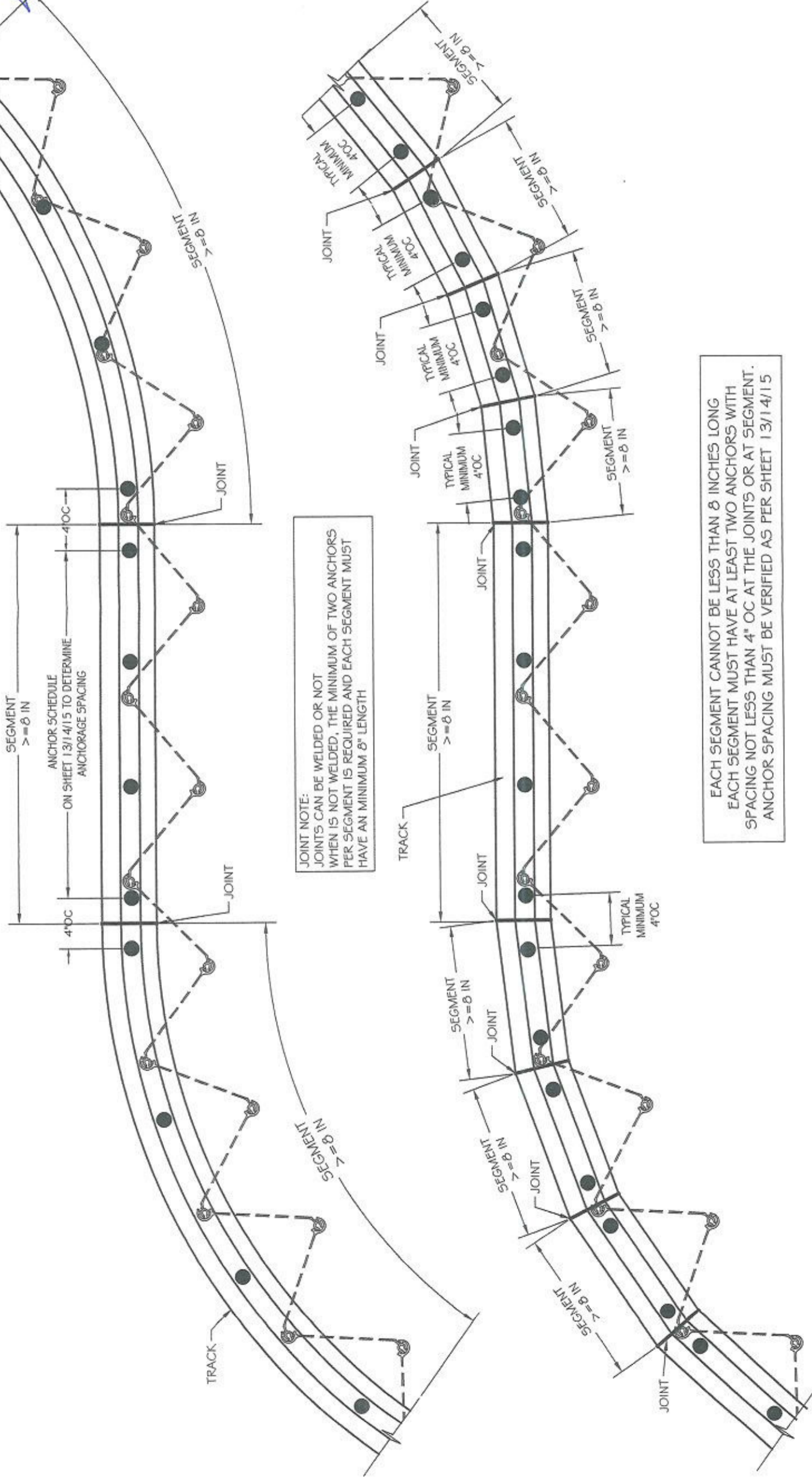
SECTION G1
ADJUSTABLE MOUNT
SILL ONLY



SECTION F
'A' TRACK INSET MOUNT
SILL ONLY

REFER TO SHEET 13/14/15
 FOR ANCHORAGE
 SELECTION

OPTIONAL CURVED TRACK
BENT TRACK OR SEGMENTED TRACK OPTIONS

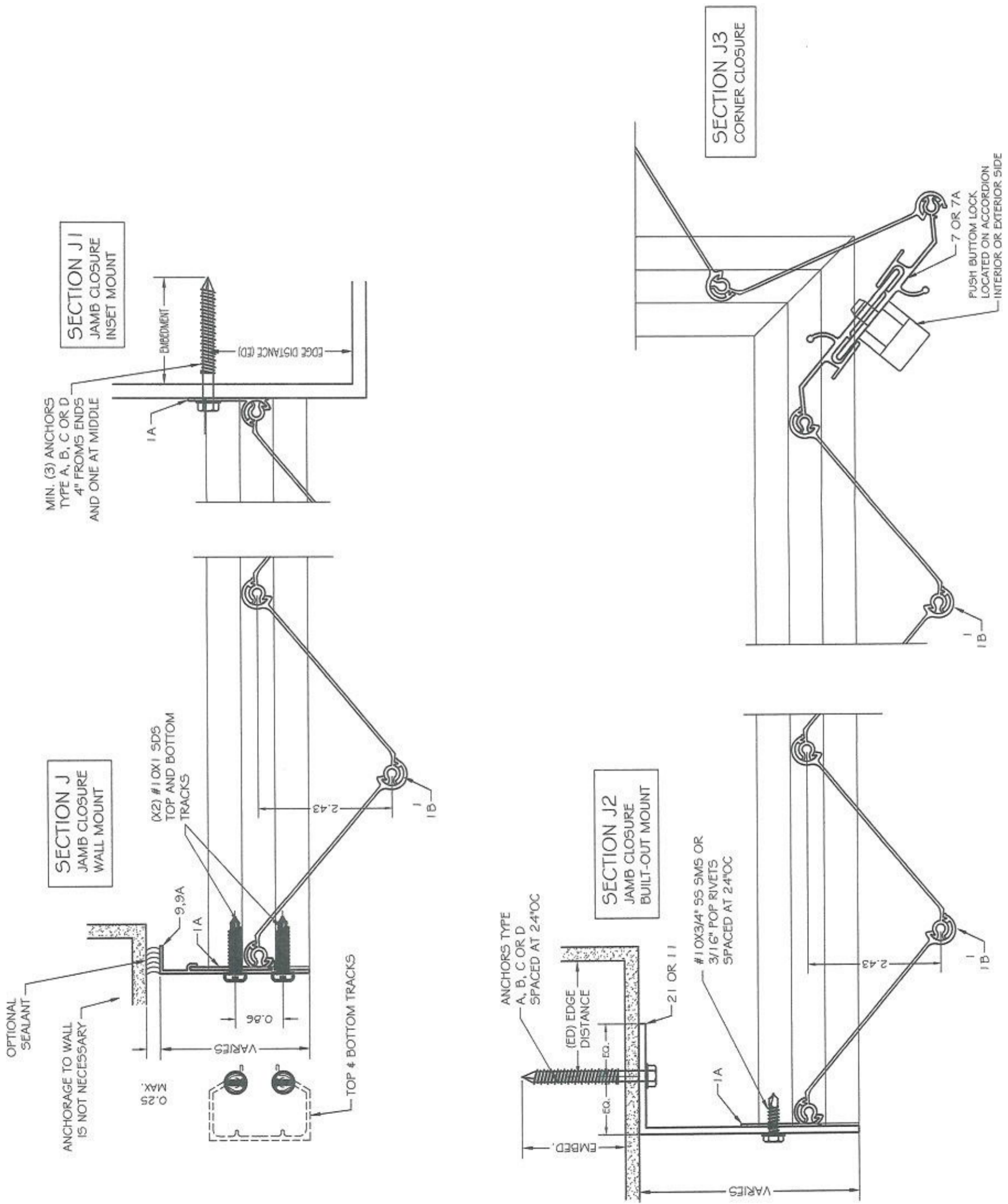


JOINT NOTE:
JOINTS CAN BE WELDED OR NOT
WHEN IS NOT WELDED, THE MINIMUM OF TWO ANCHORS
PER SEGMENT IS REQUIRED AND EACH SEGMENT MUST
HAVE AN MINIMUM 8" LENGTH

EACH SEGMENT CANNOT BE LESS THAN 8 INCHES LONG
EACH SEGMENT MUST HAVE AT LEAST TWO ANCHORS WITH
SPACING NOT LESS THAN 4" OC AT THE JOINTS OR AT SEGMENT.
ANCHOR SPACING MUST BE VERIFIED AS PER SHEET 13/14/15

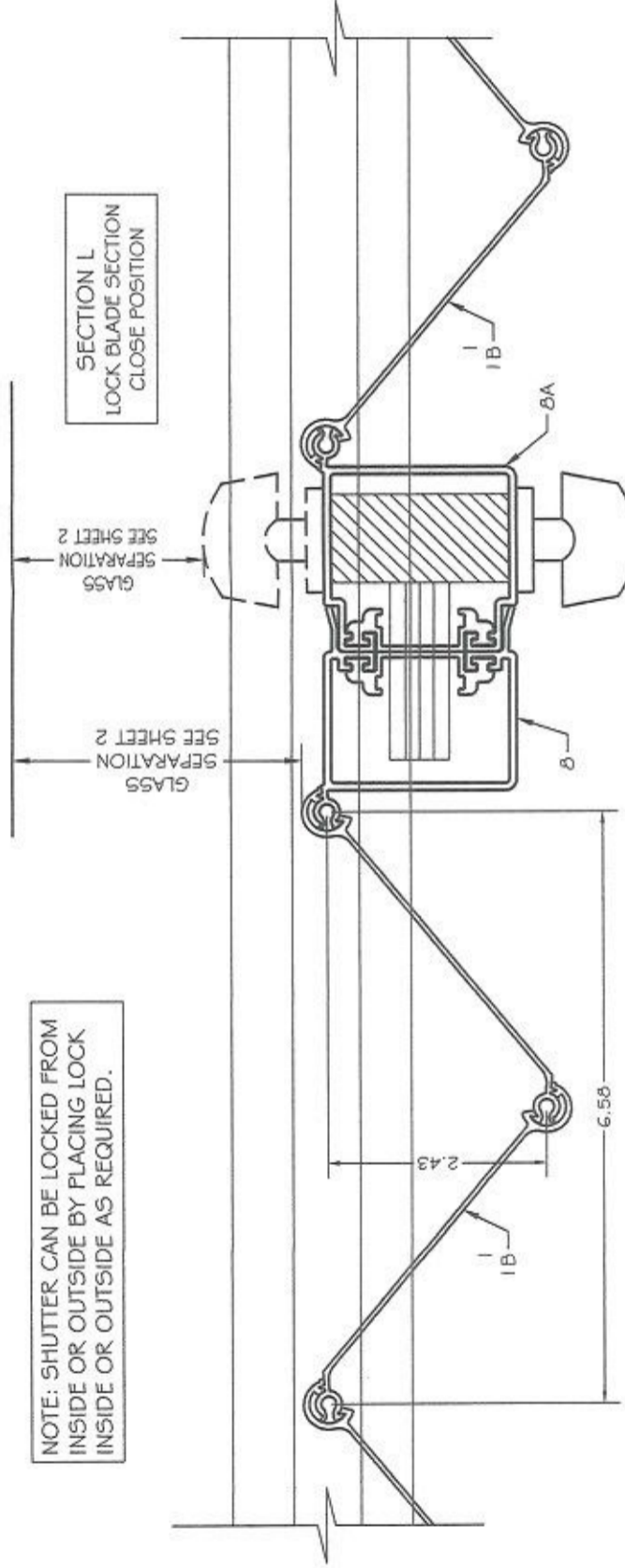


TYPICAL HORIZONTAL
JAMB AND CORNER SECTIONS J



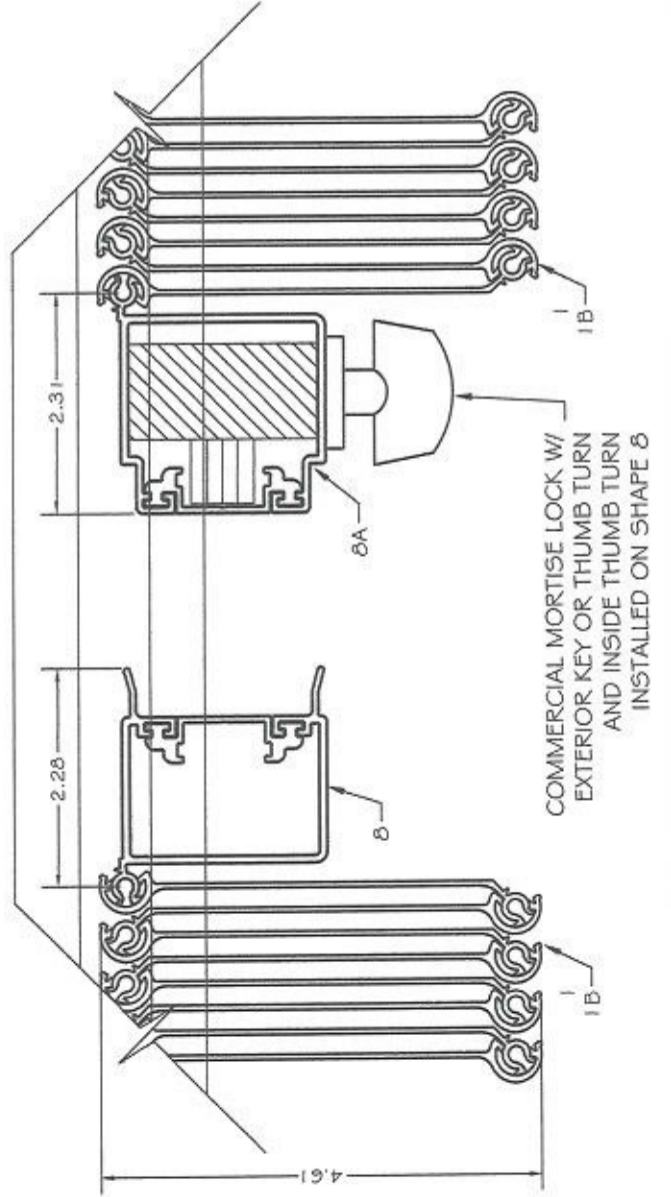
TYPICAL HORIZONTAL SECTIONS
HD LOCK SECTIONS L

NOTE: SHUTTER CAN BE LOCKED FROM
INSIDE OR OUTSIDE BY PLACING LOCK
INSIDE OR OUTSIDE AS REQUIRED.

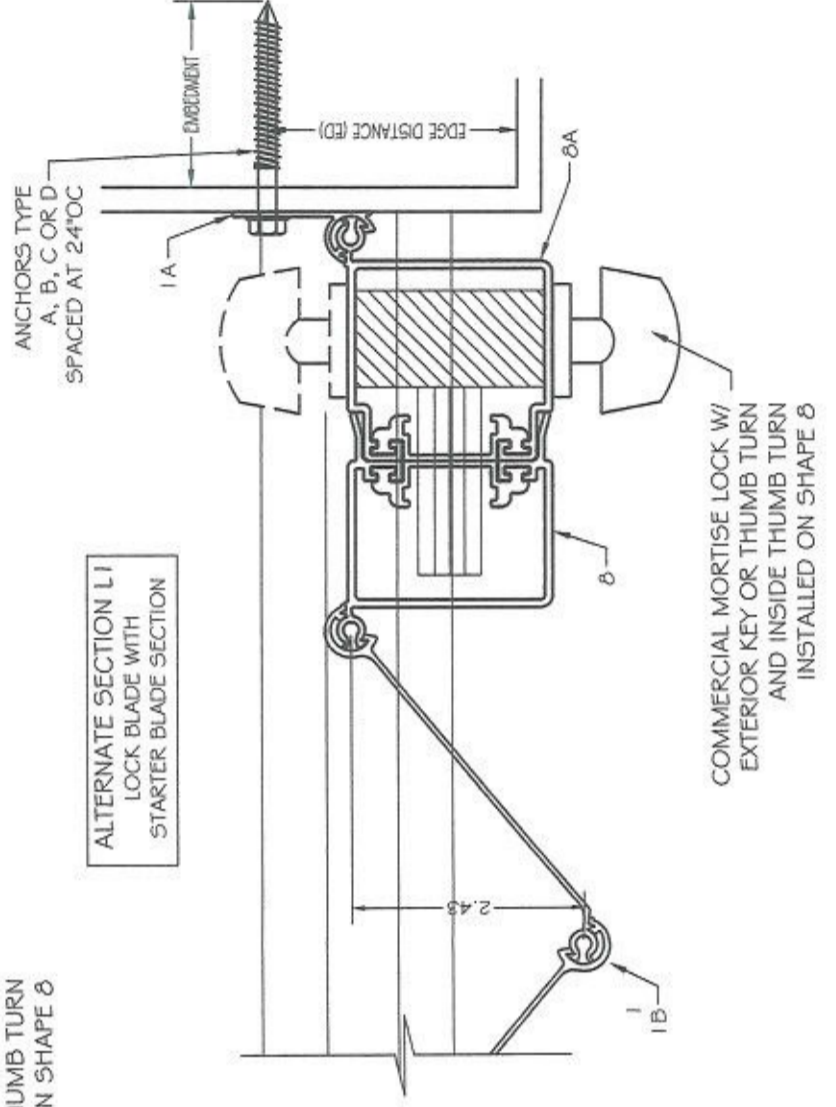


COMMERCIAL MORTISE LOCK W/
EXTERIOR KEY OR THUMB TURN
AND INSIDE THUMB TURN
INSTALLED ON SHAPE 8

SECTION L
LOCK BLADE SECTION
OPEN POSITION



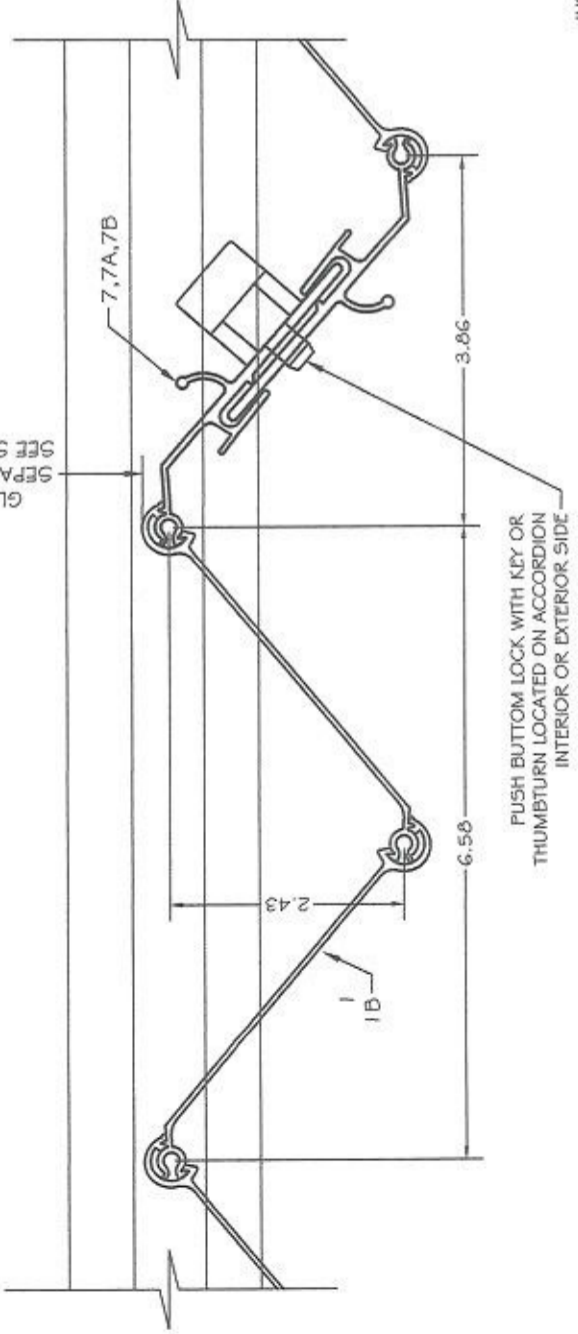
ALTERNATE SECTION LI
LOCK BLADE WITH
STARTER BLADE SECTION



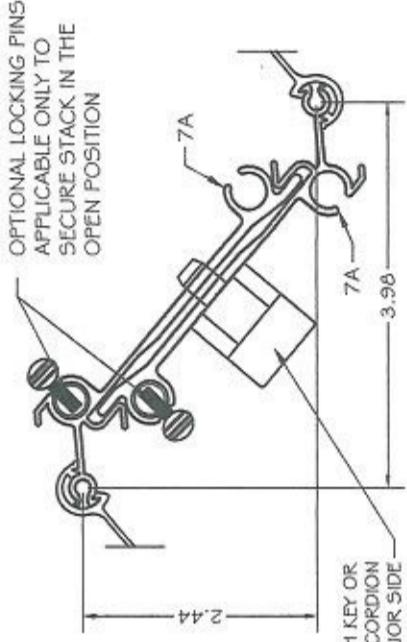
TYPICAL HORIZONTAL UNIMATE LOCK SECTIONS M

NOTE: SHUTTER CAN BE LOCKED FROM INSIDE OR OUTSIDE BY PLACING LOCK INSIDE OR OUTSIDE AS REQUIRED.

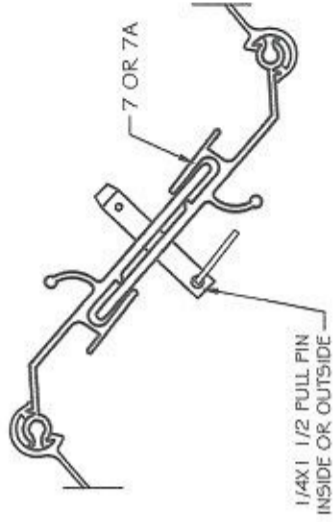
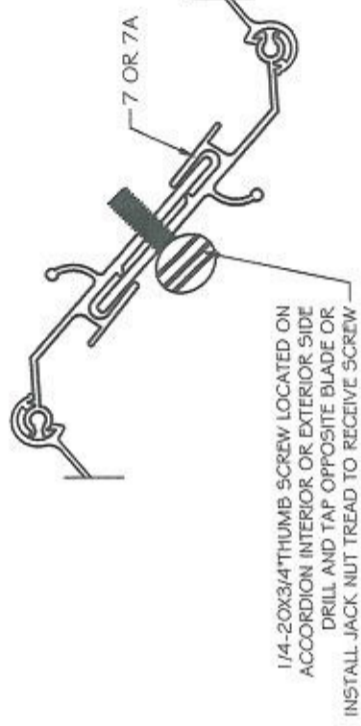
SECTION M LOCK BLADE SECTION CLOSE POSITION



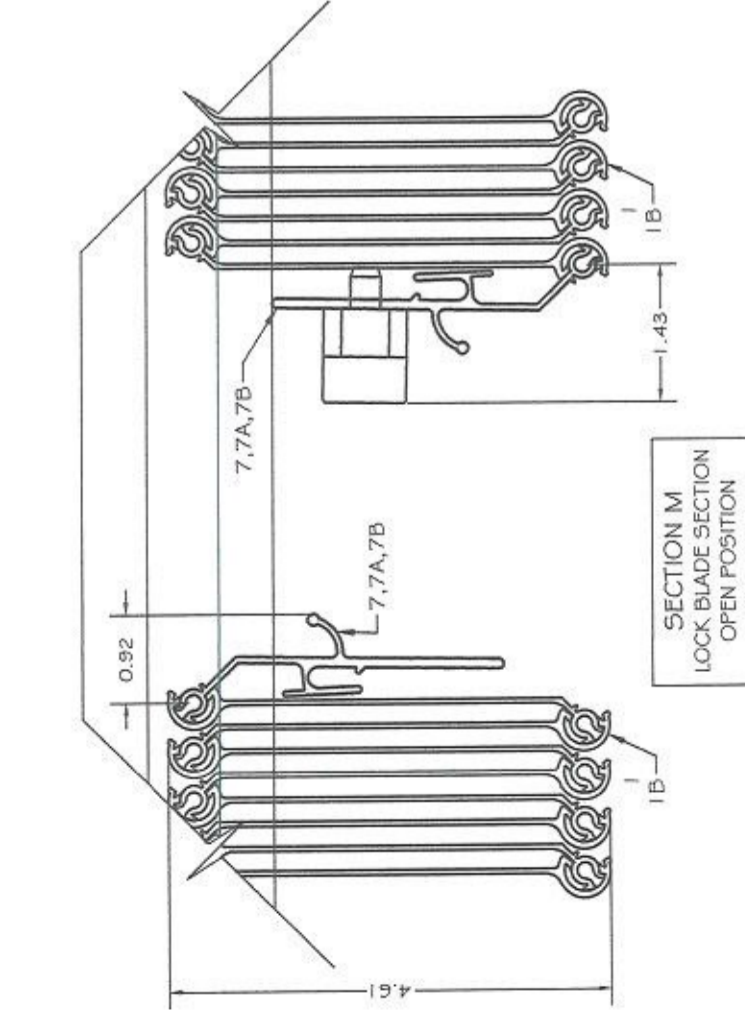
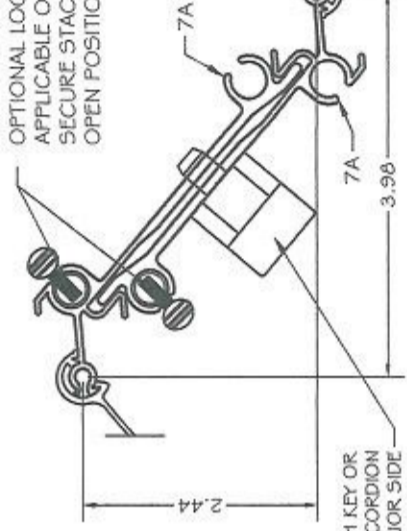
SECTION M LOCK BLADE SECTION CLOSE POSITION



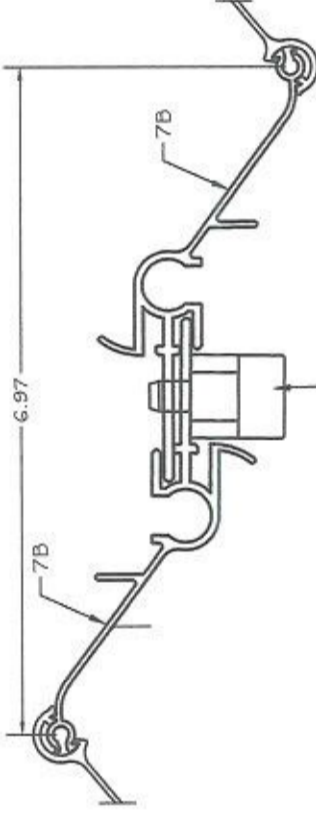
PUSH BUTTOM LOCK WITH KEY OR THUMBTURN LOCATED ON ACCORDION INTERIOR OR EXTERIOR SIDE



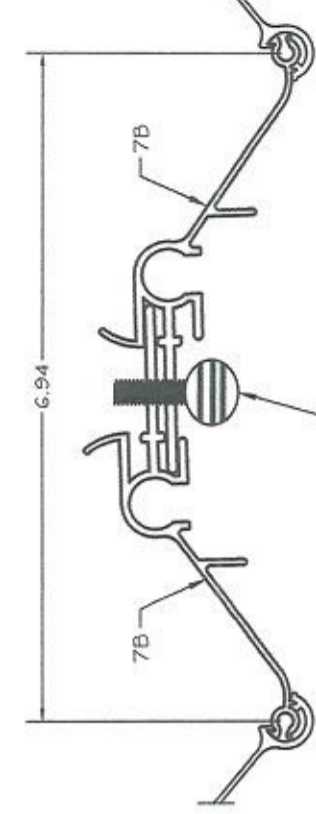
OPTIONAL LOCKING PINS APPLICABLE ONLY TO SECURE STACK IN THE OPEN POSITION



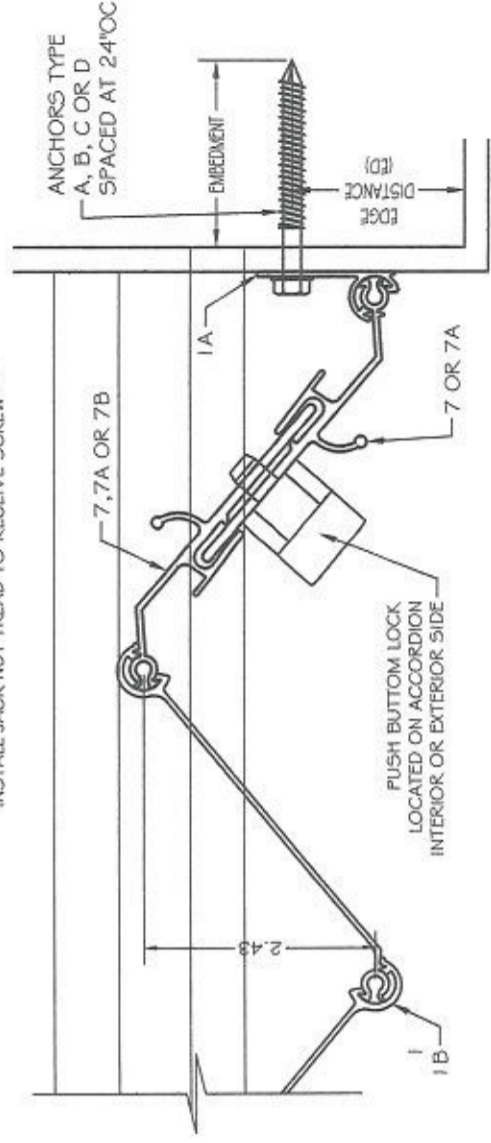
SECTION M LOCK BLADE SECTION OPEN POSITION



PUSH BUTTOM LOCK WITH KEY OR THUMBTURN LOCATED ON ACCORDION INTERIOR OR EXTERIOR SIDE



1/4-20x3/4 THUMB SCREW LOCATED ON ACCORDION INTERIOR OR EXTERIOR SIDE DRILL AND TAP OPPOSITE BLADE OR INSTALL JACK NUT TREAD TO RECEIVE SCREW



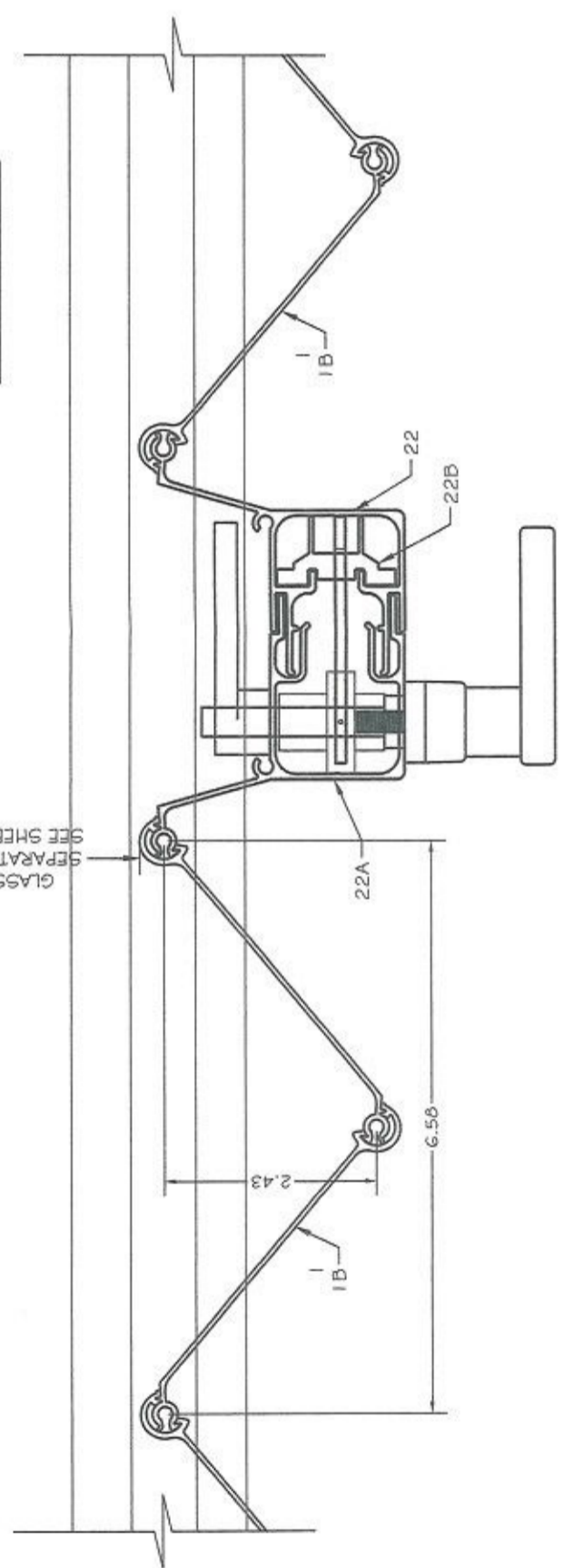
ALTERNATE SECTION M1 LOCK BLADE WITH STARTER BLADE SECTION

Engineering:
EngCo Inc.
 PEDRO FIGUEIREDO
 PROFESSIONAL ENGINEER
 LICENSE NO. 102937
 4/6/22

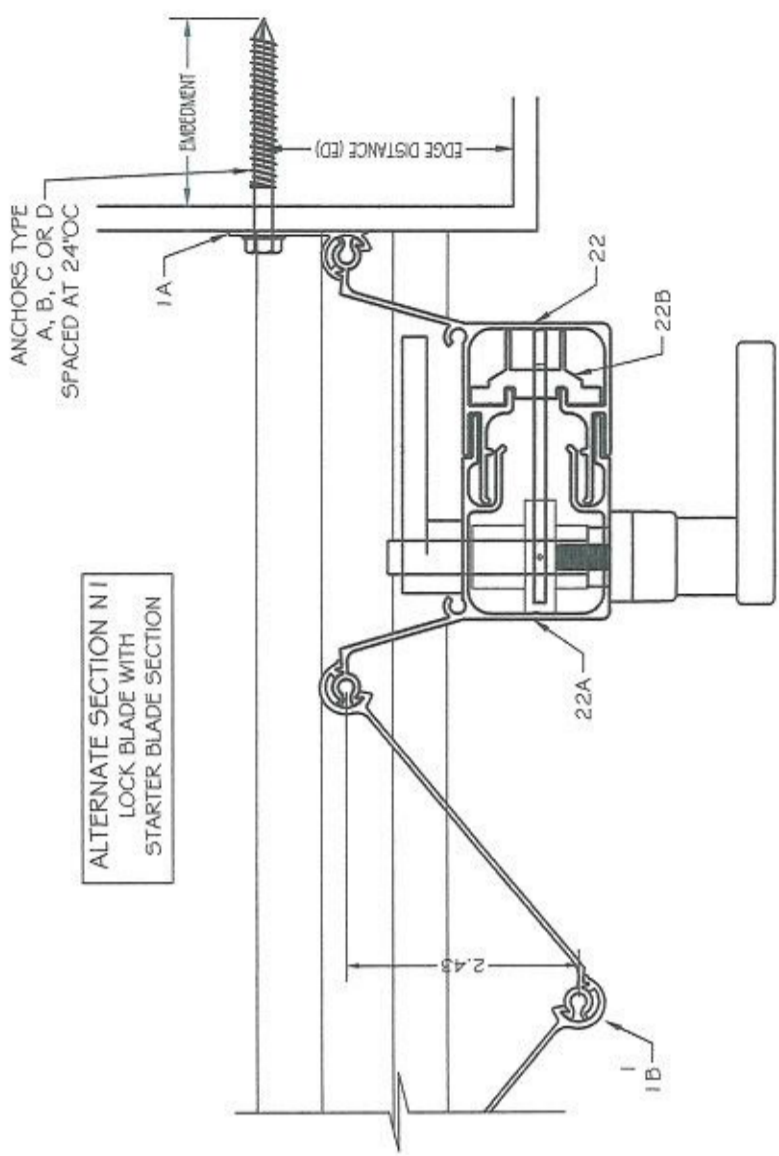
TYPICAL HORIZONTAL SECTIONS
STD LOCK SECTIONS N

NOTE: SHUTTER CAN BE LOCKED FROM INSIDE OR OUTSIDE BY PLACING LOCK INSIDE OR OUTSIDE AS REQUIRED.

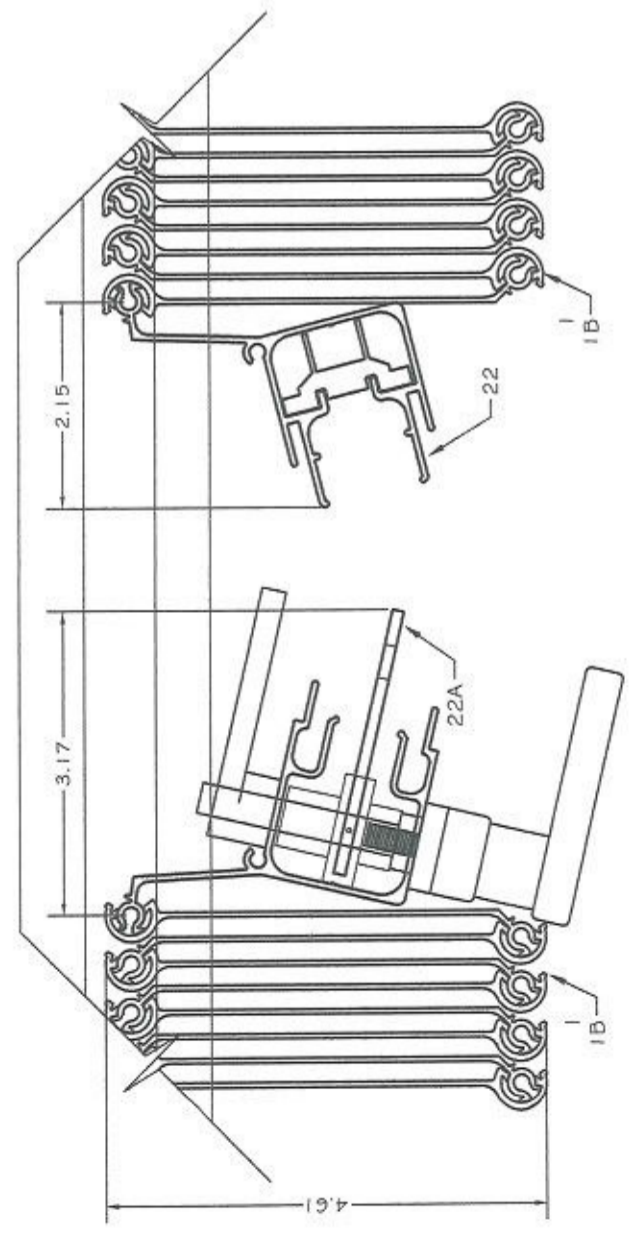
SECTION N
LOCK BLADE SECTION
CLOSE POSITION



ALTERNATE SECTION N I
LOCK BLADE SECTION
STARTER BLADE SECTION



SECTION N
LOCK BLADE SECTION
OPEN POSITION

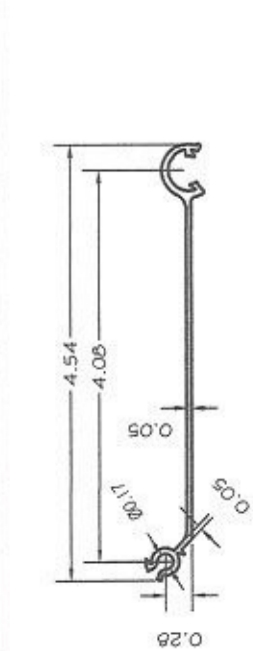


SHUTTER COMPONENTS

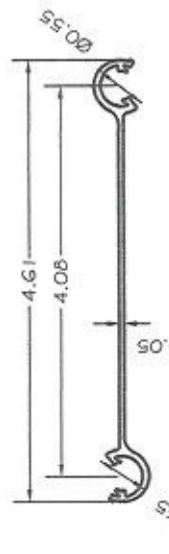
ASSOCIATION OF MANUFACTURERS: N.A.S.A.
 NATIONAL APPROVED SHUTTER ASSOCIATION LLC.
 MIRAMAR, FL 33027

PRODUCT: SUPERNOVA
 EXTRUDED ALUMINUM
 ACCORDION SHUTTER
 LARGE MISSILE IMPACT RESISTANT

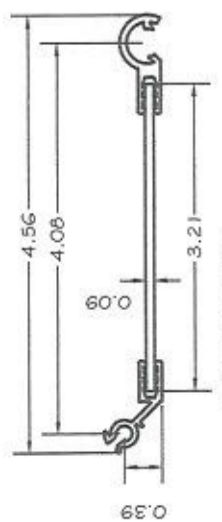
Engineering: EngDo Inc.
 CR 11234
 9715 WEST BROWARD BLVD. 247
 PLANTATION - FLORIDA - 33324
 Engineer Seal: Pedro Figueredo
 TEXAS - PE 102937



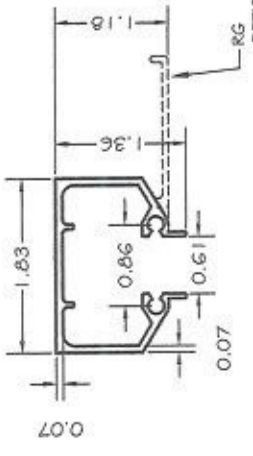
1- 0.05' ACCORDION BLADE



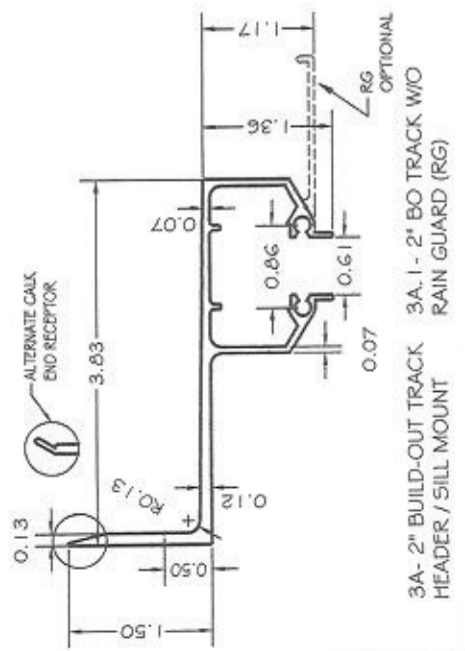
1C- 0.05' FLOATING STACK BLADE



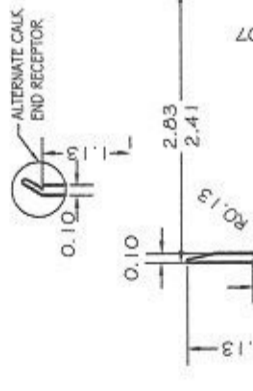
1B- COMPOSITE ALUMINUM / LEXAN BLADE
 LEXAN POLYCARBONATE APPROVED
 AS PER NOA 13-0717.01
 XL102UV



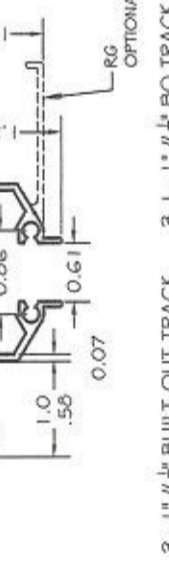
2- INSET TRACK W/ RG
 2.1- INSET TRACK W/O RG
 HEADER / SILL MOUNT



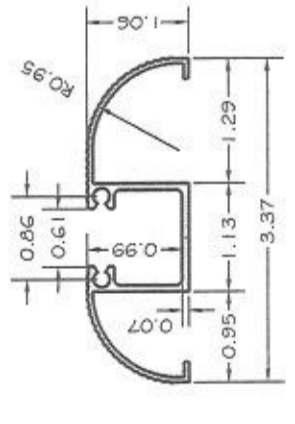
3A- 2" BUILD-OUT TRACK
 3A- 1- 2" BO TRACK W/O
 RAIN GUARD (RG)



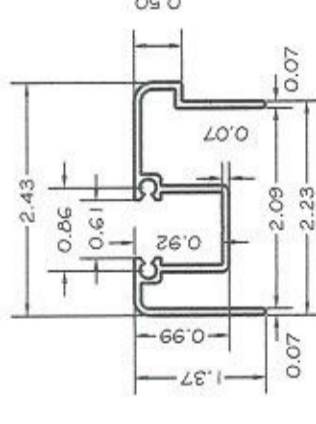
3- 1" #2 BUILT-OUT TRACK
 HEADER / SILL MOUNT



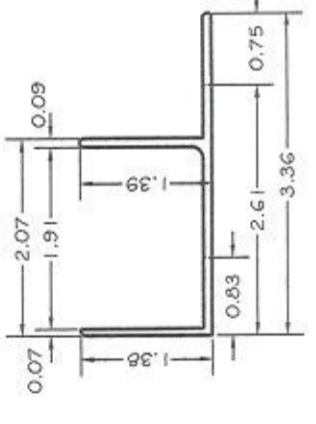
3.1- 1" #3 BO TRACK W/O
 RAIN GUARD (RG)



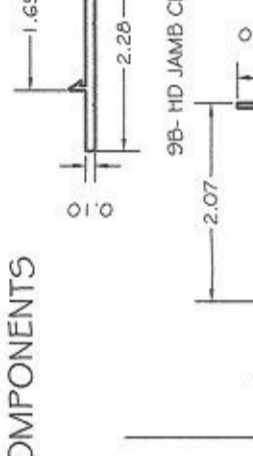
4- "A" TRACK
 SILL MOUNT ONLY



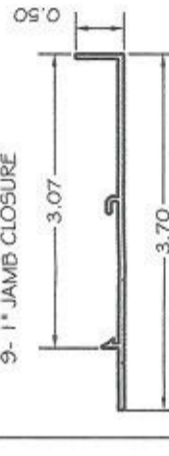
6- ADJUSTABLE FEMALE
 HEADER/ SILL MOUNT



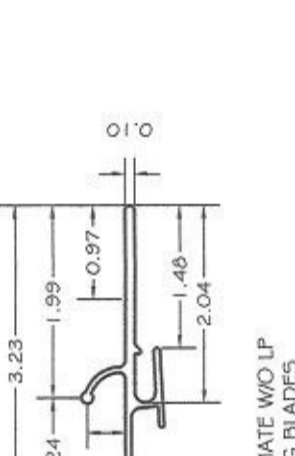
6A- ADJUSTABLE MALE
 HEADER/ SILL MOUNT



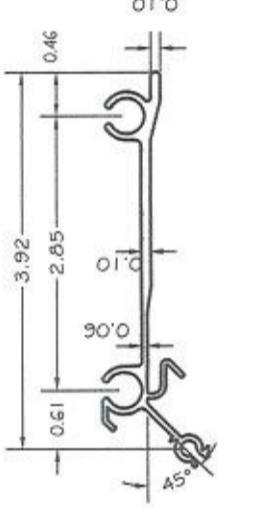
9B- HD JAMB CLOSURE



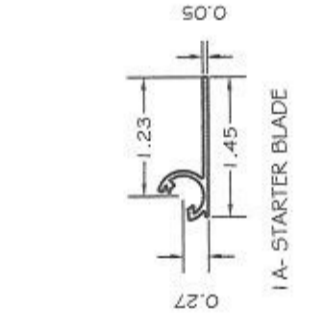
9- 1" JAMB CLOSURE



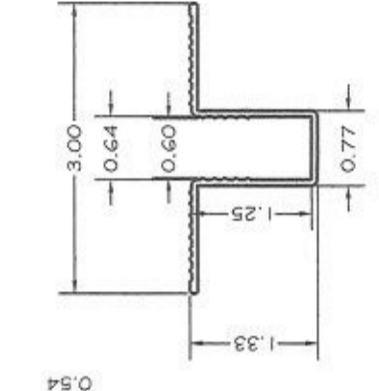
9A- 2" JAMB CLOSURE



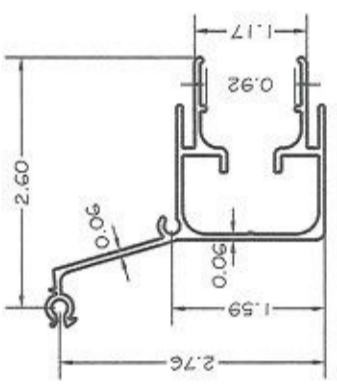
7A- UNIMATE W/ LP
 LOCKING BLADES



1A- STARTER BLADE

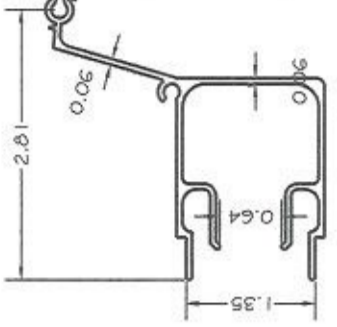


5- RECESSED TRACK
 SILL MOUNT ONLY

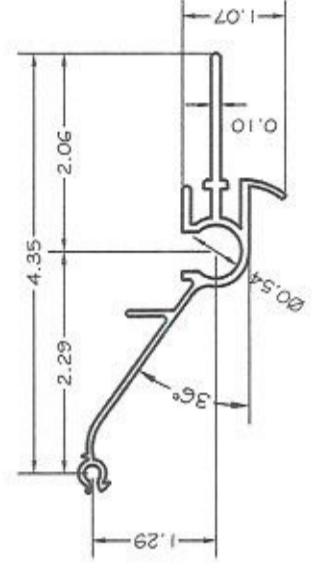
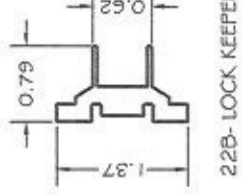


22- FEMALE STD
 LOCKING BLADE

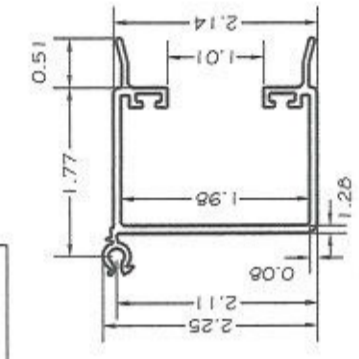
22A- MALE STD
 LOCKING BLADE



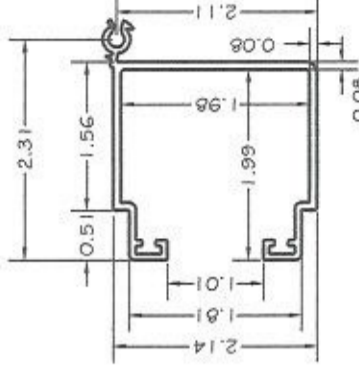
22B- LOCK KEEPER INSERT



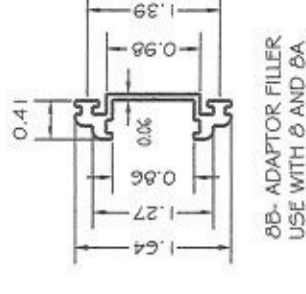
7B- UNIVERSAL
 LOCKING BLADES



6- FEMALE HD
 LOCKING BLADE

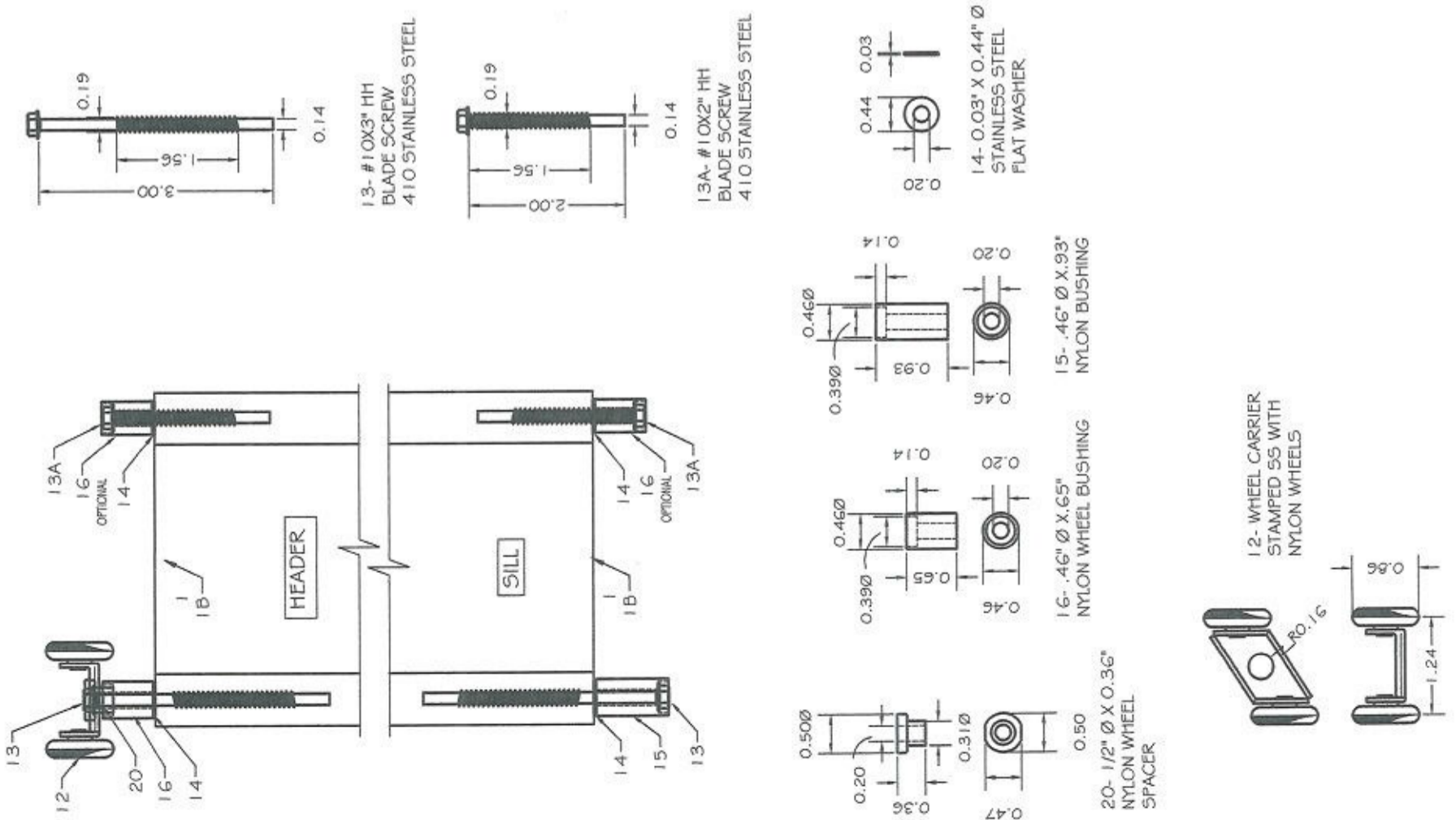


6A- MALE HD
 LOCKING BLADE



6B- ADAPTOR FILLER
 USE WITH 6 AND 6A

TYPICAL BLADE ASSEMBLY



BILL OF MATERIALS

ITEM	DESCRIPTION	MATERIAL	MANUFACTURER
1	BLADE	G063-T6 ALUMINUM	N.A.S.A.
1A	STARTER BLADE	G063-T6 ALUMINUM	N.A.S.A.
1B	COMPOSITE BLADE	G063-T6 / LEXAN	N.A.S.A.
1C	FLOATING STACK BLADE	G063-T6 ALUMINUM	N.A.S.A.
2	CEILING TRACK	G063-T6 ALUMINUM	N.A.S.A.
2.1	CEILING TRACK W/O RAINGUARD	G063-T6 ALUMINUM	N.A.S.A.
3	1" WALL MOUNT TRACK	G063-T6 ALUMINUM	N.A.S.A.
3.1	1" WALL MOUNT TRACK - W/O RG	G063-T6 ALUMINUM	N.A.S.A.
3A	2" WALL MOUNT TRACK	G063-T6 ALUMINUM	N.A.S.A.
3A.1	2" WALL MOUNT TRACK - W/O RG	G063-T6 ALUMINUM	N.A.S.A.
4	*A* TRACK	G063-T6 ALUMINUM	N.A.S.A.
5	RECESSED TRACK	G063-T6 ALUMINUM	N.A.S.A.
6	ADJUSTABLE FEMALE TRACK	G063-T6 ALUMINUM	N.A.S.A.
6A	ADJUSTABLE MALE TRACK	G063-T6 ALUMINUM	N.A.S.A.
7	UNIMATE LOCK BLADE W/O LP	G063-T6 ALUMINUM	N.A.S.A.
7A	UNIMATE LOCK BLADE W/ LP	G063-T6 ALUMINUM	N.A.S.A.
7B	UNIVERSAL LOCKING BLADES	G063-T6 ALUMINUM	N.A.S.A.
8	HD FEMALE LOCK BLADE	G063-T6 ALUMINUM	N.A.S.A.
8A	HD MALE LOCK BLADE	G063-T6 ALUMINUM	N.A.S.A.
8B	HD ADAPTOR FILLER	G063-T6 ALUMINUM	N.A.S.A.
9	1" JAMB CLOSURE	G063-T6 ALUMINUM	N.A.S.A.
9A	2" JAMB CLOSURE	G063-T6 ALUMINUM	N.A.S.A.
10	1/4-2X ANGLE	G063-T6 ALUMINUM	N.A.S.A.
11	1/8-2X ANGLE	G063-T6 ALUMINUM	N.A.S.A.
12	WHEEL CARRIER	PLATED STEEL NYLON	N.A.S.A.
13	#10X3" HH BLADE SCREW	410 STAINLESS STEEL	N.A.S.A.
13A	#10X2" HH BLADE SCREW	410 STAINLESS STEEL	N.A.S.A.
14	0.44" Ø FLAT WASHER	STAINLESS STEEL	N.A.S.A.
15	0.46" Ø x 0.93" BUSHING	NYLON	N.A.S.A.
16	0.46" Ø x 0.65" WHEEL BUSHING	NYLON	N.A.S.A.
19	PUSH-BOTTOM LOCK	NYLON	N.A.S.A.
20	1/2" x 3/8" WHEEL SPACER	NYLON	N.A.S.A.
21	1/16" x 1/2", 1X2.5, 1X4, 1.5X3 ANGLES	G063-T5 ALUMINUM	N.A.S.A.
22	STD FEMALE LOCK BLADE	G063-T6 ALUMINUM	N.A.S.A.
22A	STD MALE LOCK BLADE	G063-T6 ALUMINUM	N.A.S.A.
22B	STD LOCK KEEPER	G063-T6 ALUMINUM	N.A.S.A.

ANCHOR SCHEDULE

Anchor Type	Description
A	ITW 1/4" Tapcon into 3000 psi concrete - 1.75" embed, 3" ED - s=4"oc
A1	DeWalt 1/4" Ultracon into 3 ksi concrete - 1.75" embed, 2.5" ED - s=4"oc
B	ITW 1/4" Tapcon into Medium Weight CMU - 1" embed, 3" ED - s=4"oc
B1	DeWalt 1/4" Ultracon into Hollow CMU - 1.25" embed, 2.5" ED - s=3"oc
C	Hillman 1/4-20 Solid-Set into 3000 psi concrete - 7/8" embed, 3" ED - s=3"oc
D	Hillman 1/4-20 Solid-Set into Hollow CMU - 7/8" embed, 3" ED - s=3"oc
E	1/4" Lag Screws into Wood - 1.5" embed, 1" ED - s=3"oc
E1	1/4-14 Self Drilling screws into 1/8" min. 6063-T6 Aluminum or ASTM A36 Steel
F	DeWalt 1/4" Crete-flex SS4 screws 1.75" into 3ksi concrete 2.5 ED, s=6"oc
F1	DeWalt 1/4" Crete-flex SS4 screws 1.25" into Hollow CMU 2.5 ED, s=6"oc
F1	DeWalt Aggre-gator 300 SS 1.75" into 3 ksi concrete - 2.5" ED, s=1.5"oc
F1	DeWalt Aggre-gator 300 SS 1.25" into Hollow CMU 2" ED, s=3"oc

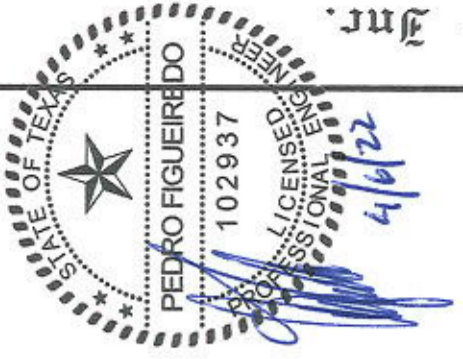
NOTES:
 1- ED: EDGE DISTANCE SHALL BE BEYOND WALL DRESSING
 2- ANCHOR EMBEDMENT SHALL BE BEYOND WALL DRESSING
 3- 1/4" TAPCON, 1/4" CRETE-FLEX, #14 WOOD SCREWS CAN BE USED IN REPLACE OF 1/4" LAG SCREWS
 4- ANCHORS WITH REDUCED EDGE DISTANCE CAN BE CALCULATED FOR A SITE SPECIFIC JOB

Engineering:
EngCo Inc.
 CR 11234
 9715 WEST BROWARD BLVD. 247
 PLANTATION - FLORIDA - 33324
 Pedro Figueiredo
 Engineer Seal
 TEXAS - PE 102937

PRODUCT:
SUPERNOVA
 EXTRUDED ALUMINUM
 ACCORDION SHUTTER
 LARGE MISSILE IMPACT RESISTANT

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

DATE: 03/16/2022
 DRAWING # 22-033
 SCALE: NA
 SHEET 12 OF 16



ANCHOR SPACING TABLE
30 PSF ≤ PD ≤ 70 PSF

PD	MOUNT A, B2, B3, B4													MOUNT B, B1, C													D & F						G & G1						E & GH					
	ANCHOR TYPES						ANCHOR TYPES						ANCHOR TYPES						ANCHOR TYPES						ANCHOR TYPES						ANCHOR TYPES													
	A	A1	B	B1	C	D	E	E1	F	F1	A	A1	B	B1	C	D	E	E1	F	F1	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F						
30	162	14	6	14	14	14	14	14	14	10	14	14	13	14	14	14	14	12	13	10	17	18	10	18	18	16	16	12	14	8	14	14	14	11	10	11	7	11	9					
	166	14	7	14	14	14	14	14	14	10	14	14	13	14	14	14	14	12	13	10	18	18	10	18	18	17	17	13	14	9	14	15	12	10	11	8	11	9						
	144	14	7	14	14	14	14	14	14	11	14	14	14	14	14	14	14	13	14	11	18	18	11	18	18	18	18	14	16	10	16	16	13	11	12	8	12	10						
	132	14	8	14	14	14	14	14	14	12	14	14	14	14	14	14	14	14	14	12	18	18	12	18	18	18	18	16	16	10	16	16	14	12	12	9	12	11						
	120	14	9	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	18	18	14	18	18	18	16	16	12	16	16	16	15	12	10	12	12	12						
	108	14	10	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	18	18	15	18	18	18	16	16	13	16	16	16	16	16	12	11	12	12	12					
	96	14	11	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	18	18	17	18	18	18	16	16	15	16	16	16	16	16	12	12	12	12	12					
	84	14	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	18	18	18	18	18	18	16	16	16	16	16	16	16	16	12	12	12	12	12					
	72	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	18	18	18	18	18	18	16	16	16	16	16	16	16	16	12	12	12	12	12					
	60	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	18	18	18	18	18	18	16	16	16	16	16	16	16	16	12	12	12	12	12					
	462	14	5	14	14	14	14	14	14	7	12	5	12	9	12	12	13	9	9	7	13	15	7	15	15	12	9	10	6	10	6	10	8	7	8	5	8	6						
	156	14	5	14	14	14	14	14	14	11	14	5	13	10	12	12	13	9	10	8	13	16	8	16	16	13	10	11	6	11	6	11	11	9	8	6	8	7						
	144	14	5	14	14	14	14	14	14	12	14	5	14	11	13	13	14	10	11	8	14	17	8	17	17	14	10	12	7	12	7	12	12	9	8	9	9	7						
	132	14	6	14	14	14	14	14	14	13	14	6	14	12	14	14	14	11	12	9	16	18	9	18	18	15	11	13	8	13	8	13	10	9	10	7	10	8						
	120	14	7	14	14	14	14	14	14	14	14	7	14	13	14	14	14	12	13	10	17	18	10	18	18	17	13	14	9	14	14	14	11	10	11	7	11	9						
	108	14	7	14	14	14	14	14	14	14	14	7	14	14	14	14	14	13	14	11	18	18	11	18	18	18	16	16	10	16	16	16	13	11	12	8	12	10						
	96	14	8	14	14	14	14	14	14	14	14	8	14	14	14	14	14	14	14	13	18	18	13	18	18	18	16	16	11	16	16	16	14	12	9	12	12	11						
	84	14	10	14	14	14	14	14	14	14	14	10	14	14	14	14	14	14	14	14	18	18	15	18	18	18	16	16	12	16	16	16	16	16	12	11	12	12	12					
	72	14	11	14	14	14	14	14	14	14	14	11	14	14	14	14	14	14	14	14	18	18	17	18	18	18	16	16	15	16	16	16	16	16	16	12	12	12	12					
	60	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	18	18	18	18	18	18	16	16	16	16	16	16	16	16	16	12	12	12	12					
	156	14	4	14	14	14	14	14	14	9	11	4	10	8	10	10	10	7	8	6	11	12	6	13	13	10	8	5	8	5	8	9	7	6	7	4	6	7	5					
	144	14	4	14	14	14	14	14	14	9	12	4	11	8	11	11	11	8	8	7	11	13	7	14	14	11	8	9	6	9	9	9	7	7	7	5	7	7	6					
	132	14	5	14	14	14	14	14	14	10	13	5	12	9	12	12	8	9	7	13	15	7	15	15	12	9	10	6	10	6	10	8	7	8	5	8	8	6						
	120	14	5	14	14	14	14	14	14	11	14	5	13	10	13	13	9	10	8	14	16	8	16	17	13	10	11	7	11	7	11	11	9	8	9	6	9	7						
	108	14	6	14	14	14	14	14	14	13	14	6	14	11	14	14	10	11	9	15	18	9	18	18	15	11	12	8	12	8	12	13	10	9	10	6	10	8						
	96	14	7	14	14	14	14	14	14	14	14	7	14	13	14	14	14	12	13	10	17	18	10	18	18	17	13	14	9	14	14	14	11	10	11	7	11	11	9					
	84	14	8	14	14	14	14	14	14	14	14	8	14	14	14	14	14	13	14	12	18	18	12	18	18	18	16	16	10	16	16	16	13	12	8	12	12	10						
	72	14	9	14	14	14	14	14	14	14	14	9	14	14	14	14	14	14	14	14	18	18	14	18	18	18	16	16	12	16	16	16	16	15	12	10	12	12	12					
	60	14	11	14	14	14	14	14	14	14	14	11	14	14	14	14	14	14	14	14	18	18	16	18	18	18	16	16	14	16	16	16	16	16	16	16	12	12	12					
	144	13	--	14	10	13	13	14	14	8	10	5	9	--	9	9	9	6	7	5	9	11	5	11	11	9	7	8	5	6	5	6	4	4	6	6	5	5						
	132	14	4	14	14	14	14	14	14	8	11	4	10	8	10	10	7	8	6	10	12	6	12	12	10	7	8	5	8	8	7	6	6	4	6	7	5	5						
	120	14	4	14	14	14	14	14	14	9	12	4	11	8	11	11	8	8	7	11	13	7	14	14	11	8	9	6	9	6	9	9	7	7	5	7	7	6						
	108	14	5	14	14	14	14	14	14	10	14	5	12	9	12	13	9	9	7	13	15	7	15	15	12	9	10	6	10	6	10	8	7	8	5	8	8	6						
	96	14	5	14	14	14	14	14	14	12	14	5	14	11	13	14	10	11	8	14	17	8	17	17	14	14	12	7	12	7	12	12	9	8	9	6	9	7						
	84	14	6	14	14	14	14	14	14	13	14	6	14	12	14	14	11	12	10	17	18	10	18	18	16	16	12	8	13	8	13	14	11	10	10	7	10	11	8					
	72	14	7	14	14	14	14	14	14	14	14	7	14	14	14	14	14	13	14	11	18	18	11	18	18	18	16	16	10	16	16	16	13	11	12	8	12	12	10					
	60	14	9	14	14	14	14	14	14	14	14	9	14	14	14	14	14	14	14	14	18	18	14	18	18	18	16	16	12	16	16	16	16	15	12	10	12	12	12					
	132	12	--	13	9	12	12	13	14	7	9	5	8	--	8	8	9	6	6	5	9	10	5	11	11	8	7	4	7	7	7	6	5	4	5	6	4	4						
	120	14	4	14	14	14	14	14	14	8	10	4	9	7	9	9	10	6	7	6	10	11	6	12	12	10	7	8	5	8	8	7	6	6	4	6	6	5						
	108	14	4	14	14	14	14	14	14	9	12	4	10	8	10	11	7	8	7	11	13	7	14	14	11	8	9	6	9	6	9	9	7	7	4	7	7	6						
	96	14	5	14	14	14	14	14	14	10	14	5	12	9	12	13	8	9	8	13	15	7	15	15	12	9	10	6	10	6	10	8	7	8	5	8	8	6						
	84	14	6	14	14	14	14	14	14	12	14	6	14	11	13	14	10	11	9	14	17	8	17	17	14	14	12	7	12	7	12	12	9	8	9	6	9	7						
	72	14	7	14	14	14	14	14	14	13	14	7	14	12	14	14	11	12	10	17	18	10	18	18	16	16	12	8	13	8	13	14	11	10	10	7	10	11	8					
	60	14	9	14	14	14	14	14	14	14	14	9	14	14	14	14	14	14	14	14	18	18	14	18	18	18	16	16	12	16	16	16	16	15	12	10	12	12	12					
	132																																											

ANCHOR SPACING TABLE
80 PSF <= PD <= 160 PSF

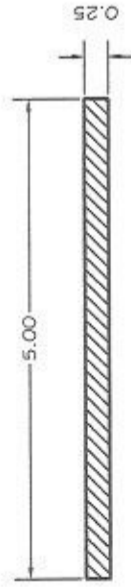
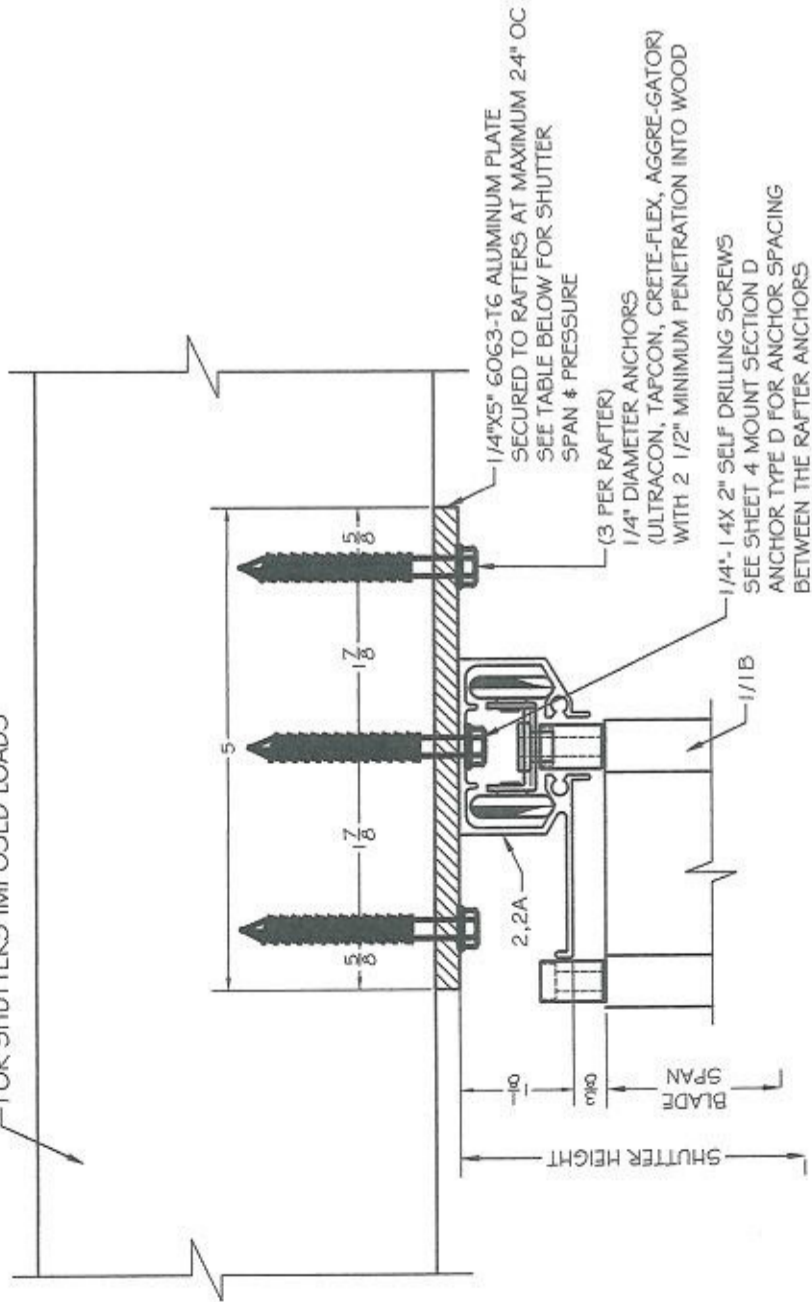
PD	MOUNT A, B2, B3, B4																MOUNT B, B1, C																D & F						G & G1						E & GH					
	ANCHOR TYPES																ANCHOR TYPES																ANCHOR TYPES						ANCHOR TYPES						ANCHOR TYPES					
	A	A1	B	B1	C	D	E	E1	F	F1	A	A1	B	B1	C	D	E	E1	F	F1	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F						
80	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
90	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
100	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	
110	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
120	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
140	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
160	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	



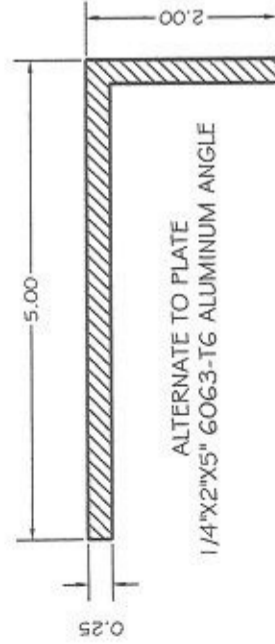
NOTE: SEE SHEET 12 FOR ANCHOR TYPE AND SELECTION

SECTION X
TRACK 2 OR 2A INSET MOUNT
SECURED TO AN ALUMINUM PLATE
BETWEEN WOOD TRUSSES

2X WOOD RAFTERS SPACED AT
MAXIMUM 24" OC MADE OF
WOOD WITH $G > 0.55$
MUST BE VERIFIED BY OTHERS
FOR SHUTTERS IMPOSED LOADS



1/4"x5" G063-T6 ALUMINUM PLATE



ALTERNATE TO PLATE
1/4"x2"x5" G063-T6 ALUMINUM ANGLE

ALLOWABLE DESIGNED PRESSURES
FOR SECTION X WITH 1/4" ALUMINUM PLATE
OR ALTERNATE 1/4" ANGLE

BLADE SPAN (IN)	MAXIMUM DESIGNED LOAD (PSF)
60	146
66	133
72	122
78	112
84	104
90	97
96	91
104	84
108	81
114	77
120	73
126	68
132	62
138	57
144	52
150	48
162	40

NOTES:
1- LINEAR INTERPOLATION BETWEEN BLADE SPAN SIZES IS ALLOWABLE.
2- DESIGN LOAD MUST NOT EXCEED THE LOADS ON TABLE 1 AND 1A ON SHEET 2

Engineering: **EngCo Inc.**
CR 11234
9715 WEST BROWARD BLVD. 247
PLANTATION - FLORIDA - 33324
Engineer Seal
Pedro Figueiredo
TEXAS - PE 102937



PRODUCT:
SUPERNOVA
EXTRUDED ALUMINUM
ACCORDION SHUTTER
LARGE MISSILE IMPACT RESISTANT

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

SCALE: NA
DATE: 03/16/2022
DRAWING # 22-033
SHEET 15 OF 16

Engineer's Seal
 PEDRO FIGUEIREDO
 102937
 LICENSED PROFESSIONAL ENGINEER
 STATE OF TEXAS
 4/6/22

Engineering:
EngCo Inc.
 CR 11234
 9715 WEST BROWARD BLVD. 247
 PLANTATION - FLORIDA - 33324
 TEXAS - PE 102937

PRODUCT:
SUPERNOVA
 EXTRUDED ALUMINUM
 ACCORDION SHUTTER
 LARGE MISSILE IMPACT RESISTANT

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

SECTION CT
 REMOVABLE SILL
 OVER COUNTER TOP

