

# AMERICAN SHUTTER SYSTEMS ASSOCIATION

## 55 MMER ROLL SHUTTER MISSILE LEVEL E IMPACT RATED

### GENERAL NOTES:

- THE PRODUCT SHOWN HEREIN IS DESIGNED AND MANUFACTURED TO COMPLY WITH THE 2006 INTERNATIONAL BUILDING CODE AND TEXAS REVISIONS AND HAS BEEN EVALUATED ACCORDING TO THE FOLLOWING:
  - ASTM E330-02
  - ASTM E1886-04
  - ASTM E1996-04
- ADEQUACY OF THE EXISTING STRUCTURAL CONCRETE/MASONRY AND 2X STUD FRAMING AS A MAIN WIND FORCE RESISTING SYSTEM CAPABLE OF WITHSTANDING AND TRANSFERRING APPLIED PRODUCT LOADS TO THE FOUNDATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD FOR THE PROJECT OF INSTALLATION.
- 2X BUCKS (WHEN USED) SHALL BE DESIGNED AND ANCHORED TO PROPERLY TRANSFER ALL LOADS TO THE STRUCTURE. BUCK DESIGN AND INSTALLATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD FOR THE PROJECT OF INSTALLATION.
- THE INSTALLATION DETAILS DESCRIBED HEREIN ARE GENERIC AND MAY NOT REFLECT ACTUAL CONDITIONS FOR A SPECIFIC SITE. IF SITE CONDITIONS CAUSE INSTALLATION TO DEVIATE FROM THE REQUIREMENTS DETAILED HEREIN, A LICENSED ENGINEER OR ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE WITH THIS DOCUMENT.
- INSTALLATION OF ROLL DOWN MAY EITHER BE INSIDE OR OUTSIDE OF THE TIE BEAM.
- ALL EXTRUSION MATERIAL: 6063-T6 ALUMINUM ALLOY, UNLESS OTHERWISE NOTED.
- DESIGN AND OPERATION OF ROLL UP MECHANISM IS NOT PART OF THIS APPROVAL, MANUFACTURER SPECIFICATIONS SHOULD BE FOLLOWED. CARE SHOULD BE TAKEN WHEN SHUTTER IS IN MOTION ENSURING THAT PERSONAL INJURY OR DAMAGE TO THIS PRODUCT DOES NOT OCCUR.
- FOR DESIGN PRESSURES SEE SHEET 2. SEE SHEET 12, 14 AND 15 FOR DESIGN PRESSURES BASED ON MULLIONS.
- HOOD ASSEMBLY IS IMPACT RATED AND CAN BE PLACED INSIDE FRAME OPENING AS AN EXPOSED FEATURE OF THE BUILDING ENVELOPE.
- OPTIONAL BOTTOM LOCK IS NOT REQUIRED FOR STRUCTURAL OR FORCED ENTRY RESISTANCE PERFORMANCE. FOR USE ON MAXIMUM 20' WIDE UNIT.
- VENTED OR UNVENTED SLATS QUALIFIED.
- SHUTTER MANUFACTURER LABEL SHALL BE LOCATED IN A READILY VISIBLE LOCATION, PER IBC CHAPTER 17.

### INSTALLATION NOTES:

- ONE (1) INSTALLATION ANCHOR IS REQUIRED AT EACH ANCHOR LOCATION SHOWN, UNLESS OTHERWISE STATED.
- THE NUMBER OF INSTALLATION ANCHORS DEPICTED IS THE MINIMUM NUMBER OF ANCHORS TO BE USED FOR PRODUCT INSTALLATION.
- INSTALL INDIVIDUAL INSTALLATION ANCHORS WITHIN A TOLERANCE OF  $\pm 1/2$  INCH OF THE DEPICTED LOCATION IN THE ANCHOR LAYOUT DETAIL (I.E., WITHOUT CONSIDERATION OF TOLERANCES). TOLERANCES ARE NOT CUMULATIVE FROM ONE INSTALLATION ANCHOR TO THE NEXT.
- REFER TO ANCHOR SCHEDULE CHART ON SHEETS 5, 6, 7, 9 & 11 FOR ANCHOR TYPE, SUBSTRATE TYPE, EDGE DISTANCE AND MINIMUM EMBEDMENT.
- MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDE WALL FINISHES, INCLUDING BUT NOT LIMITED TO STUCCO, FOAM, BRICK VENEER, AND SIDING.
- ASSEMBLY FASTENERS SHALL BE COATED WITH AN HV COATING SYSTEM AS MANUFACTURED BY AN APPROVED COATING APPLICATOR REGISTERED WITH THE AMERICAN SHUTTER SYSTEMS ASSOCIATION.
- EDGE DISTANCE IS MEASURED FROM FREE EDGE OF BLOCK OR EDGE OF MORTAR JOINT INTO FACE SHELL OF BLOCK.
- INSTALLATION ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND ANCHORS SHALL NOT BE USED IN SUBSTRATES WITH STRENGTHS LESS THAN THE MINIMUM STRENGTH SPECIFIED BY THE ANCHOR MANUFACTURER.
- INSTALLATION ANCHOR CAPACITIES FOR PRODUCTS HEREIN ARE BASED ON SUBSTRATE MATERIALS WITH THE FOLLOWING PROPERTIES:
  - WOOD - MINIMUM SPECIFIC GRAVITY OF 0.55.
  - CONCRETE - MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. SEE ANCHOR SCHEDULES, SHEETS 5, 6, 8, 13 AND 16 FOR ADDITIONAL REQUIREMENTS.
  - MASONRY - STRENGTH CONFORMANCE TO ASTM C-90, MIN 2000 PSI.
  - STEEL - MINIMUM A36,  $3/16$ " THICKNESS
  - ALUMINUM - MINIMUM 6063-T6  $1/4$ " THICKNESS.

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TITLE: 55 MMER ROLL SHUTTERS  
GENERAL & INSTALLATION NOTES

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REMARKS	BY	DATE

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DATE:	03.07.18	
DWG. BY:	SM	CHK. BY: HFN
SCALE:	NTS	
DWG. #:	EMS006	
SHEET:	1	OF 19

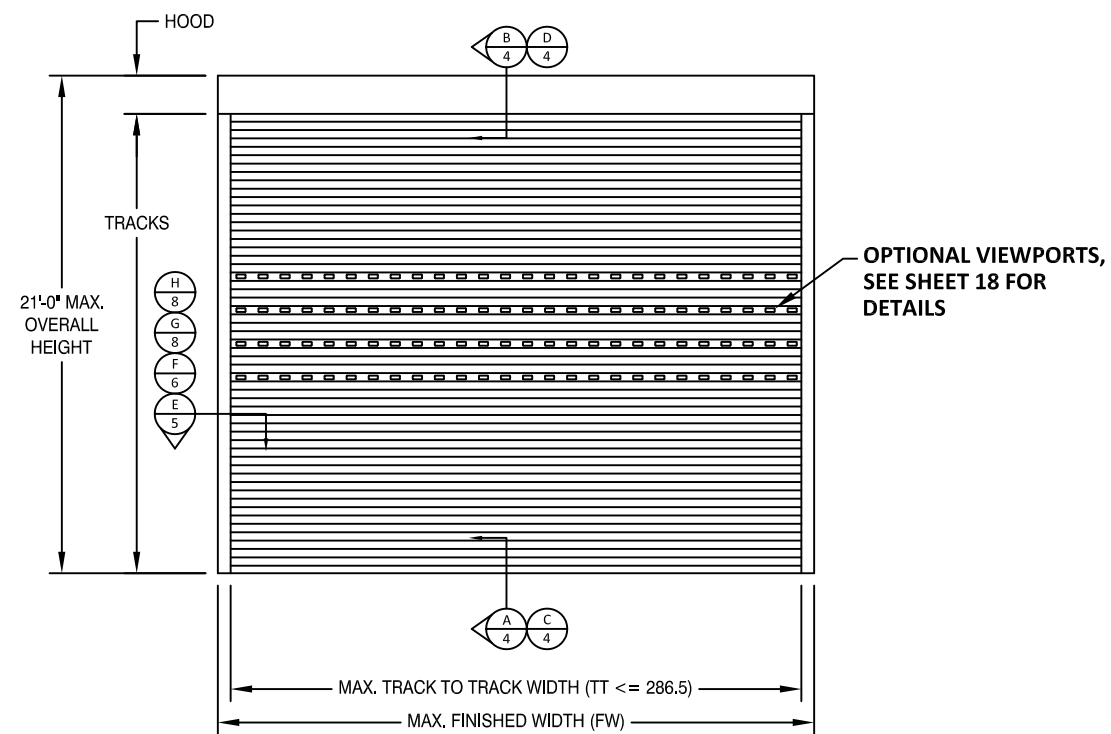
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TABLE 1 - MAX ALLOWABLE DESIGN PRESSURE		
W/ END RETENTION		
TT MAX	POSITIVE	NEGATIVE
286.5	40	40
264	45	45
240	50	50
216	55	55
204	75	75
168	100	100
144	125	125
132	135	135
120	150	150
108	160	160
96	175	175
84	185	185
72	200	200

NOTES:  
1. DESIGN PRESSURES MUST NOT EXCEED 200 PSF FOR END RETENTION SYSTEM.  
2. SHUTTER SIZE (TT) MUST NOT EXCEED 286.5".

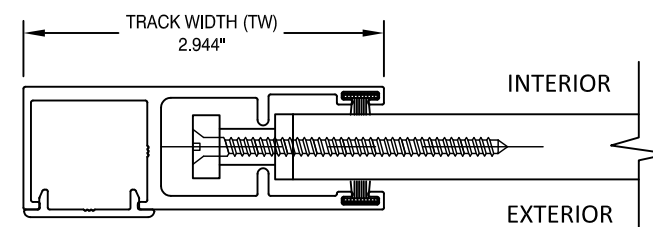
MULTIPLE SHUTTER NOTES:  
1. USE TABLE 1 TO VERIFY MAXIMUM ALLOWABLE PRESSURE.  
2. USE TABLES ON SHEETS 12, 13, 14, 15, AND 16 TO SELECT INTERMEDIATE AND END MULLIONS.  
3. SELECT PROPER MULLION ANCHORAGE.

## DESIGN PRESSURE RATINGS



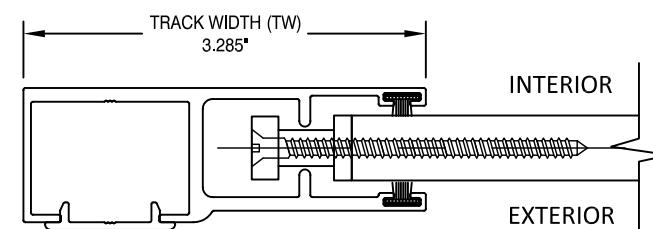
LOAD (PSF)	TABLE 2: GLASS SEPARATION (GS) INCHES												
	TRACK TO TRACK (IN)												
	72	84	96	108	120	132	144	168	204	216	240	264	286.5
40	5.13	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	8.13	8.13	9.50	12.25
45	5.13	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.50	8.13	8.50	10.50
50	5.13	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	7.00	8.13	9.25	-
55	5.13	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	7.75	8.50	-	-
75	5.13	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	10.25	-	-	-
100	5.13	6.31	6.31	6.31	6.31	6.75	7.50	9.00	-	-	-	-	-
125	5.75	6.31	6.50	7.00	7.50	8.25	9.00	-	-	-	-	-	-
135	6.00	6.50	7.00	7.50	8.25	8.75	-	-	-	-	-	-	-
150	6.75	7.25	7.75	8.25	9.00	-	-	-	-	-	-	-	-
160	7.00	7.50	8.25	8.75	-	-	-	-	-	-	-	-	-
175	7.75	8.25	8.75	-	-	-	-	-	-	-	-	-	-
185	8.00	8.50	-	-	-	-	-	-	-	-	-	-	-
200	8.75	-	-	-	-	-	-	-	-	-	-	-	-

- NOTES:
- GLASS SEPARATION REQUIREMENTS PER ABOVE TABLE SHALL ONLY APPLY FOR ESSENTIAL FACILITIES IN ANY WIND ZONE PER ASTM E1996 REQUIREMENTS. FOR NON-ESSENTIAL FACILITIES INSTALLATION SHALL PROVIDE MINIMUM 1" SEPARATION FROM GLASS.
  - MINIMUM GLASS SEPARATION BASED ON MAXIMUM DEFLECTION + 1".
  - ANALYSIS IS LIMITED BY TESTED DEFLECTION UNDER STRUCTURAL LOADS AS WELL AS DEFLECTION DUE TO MISSILE LEVEL E LARGE MISSILE IMPACTS.
  - APPROPRIATE INSTALLATION METHOD SHALL BE USED TO ACHIEVE THE REQUIRED SEPARATION IN THE ABOVE TABLE.



### SMALL GUIDE RAIL WITH END RETENTION

SECTION DETAILS ON FOLLOWING SHEETS SHOW LARGE GUIDE RAIL, SMALL GUIDE RAIL IS ALSO QUALIFIED FOR ANY MOUNTING CONDITION.



### LARGE GUIDE RAIL WITH END RETENTION

DETAILS SHOWN HERE AND SECTION DETAILS ON FOLLOWING SHEETS SHOW OPEN GUIDE RAILS, ENCLOSED GUIDE RAILS ARE QUALIFIED FOR ANY APPROVED CONDITIONS. SEE B.O.M., SHEET 19 FOR DETAILS.

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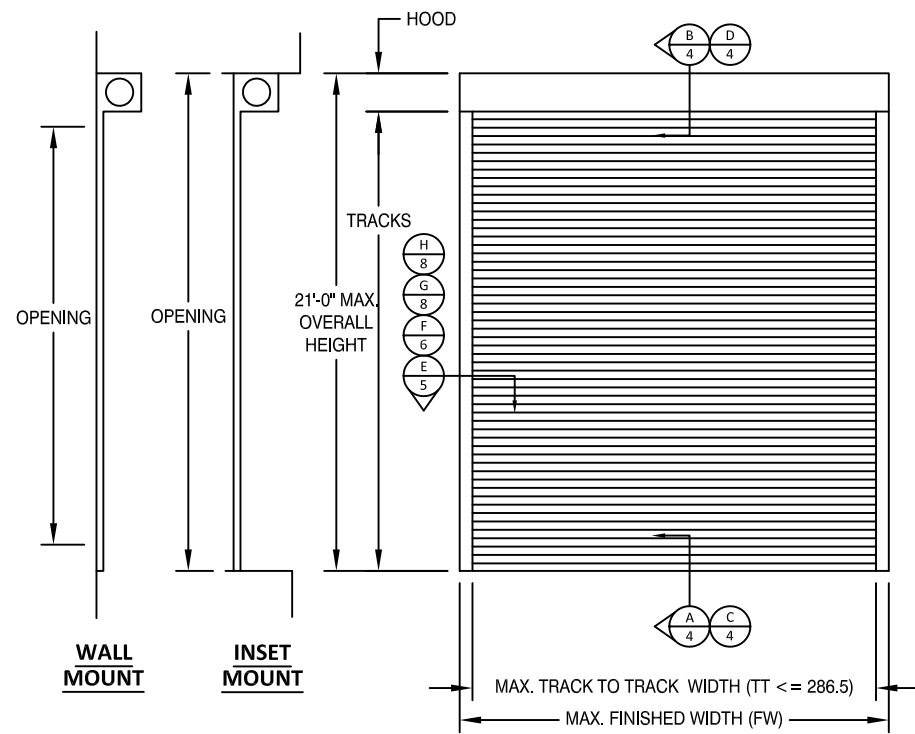
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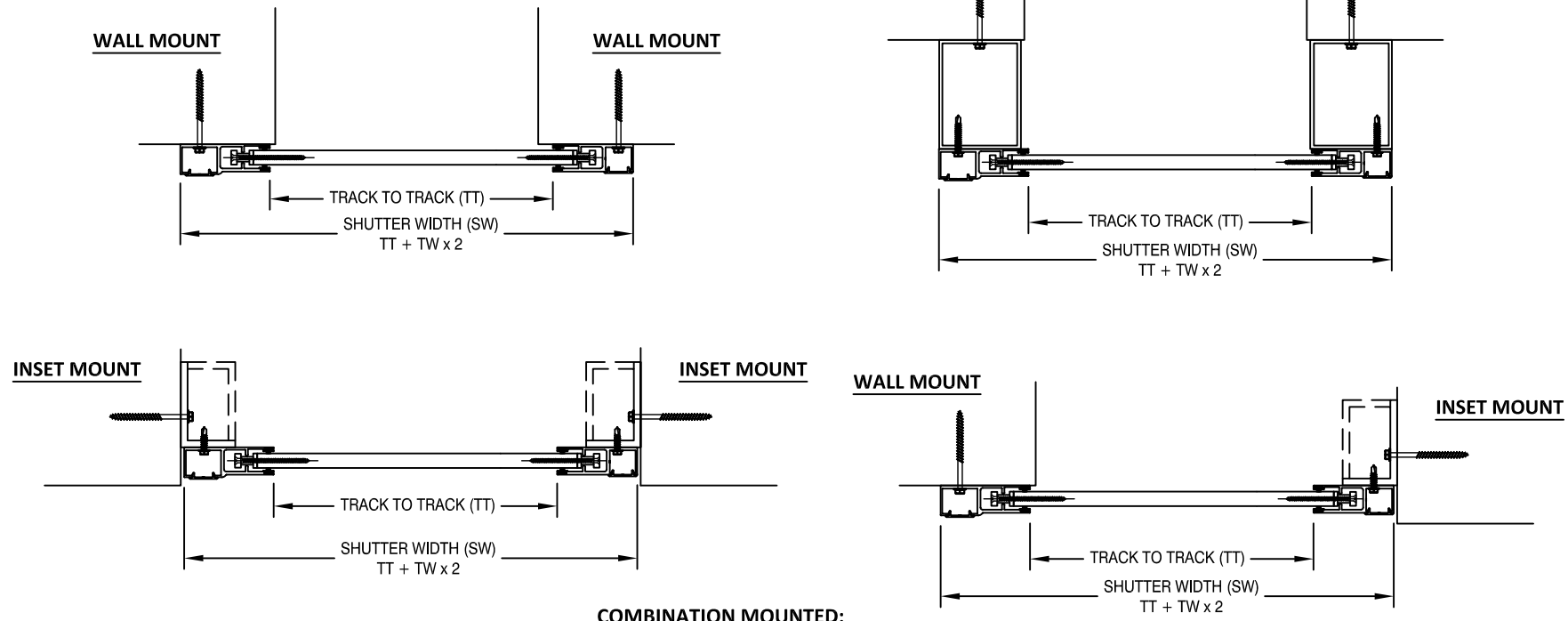
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SHEET:		OF 19



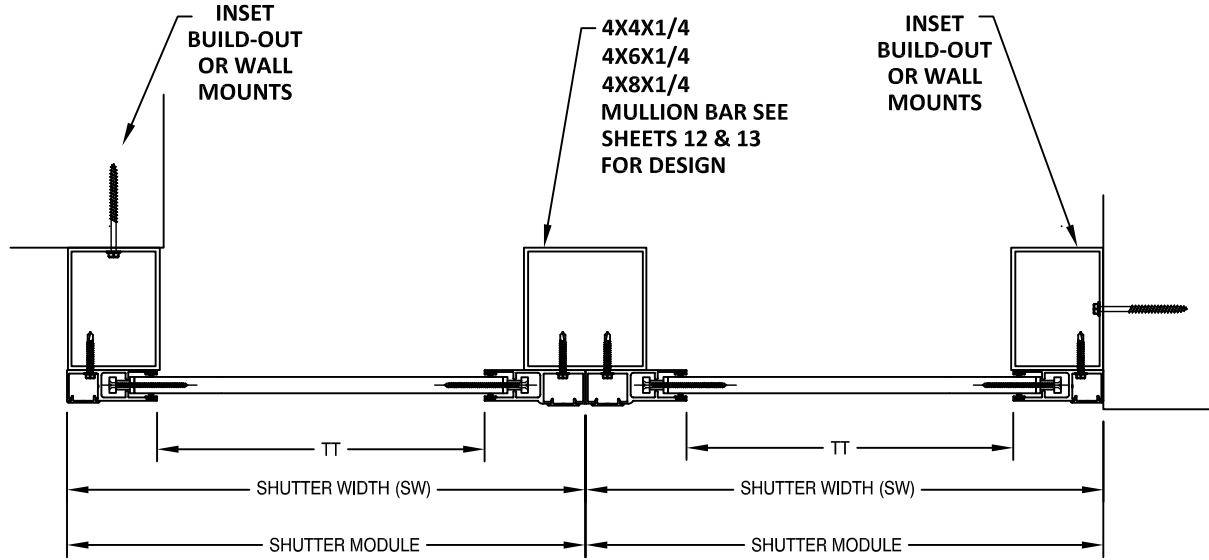
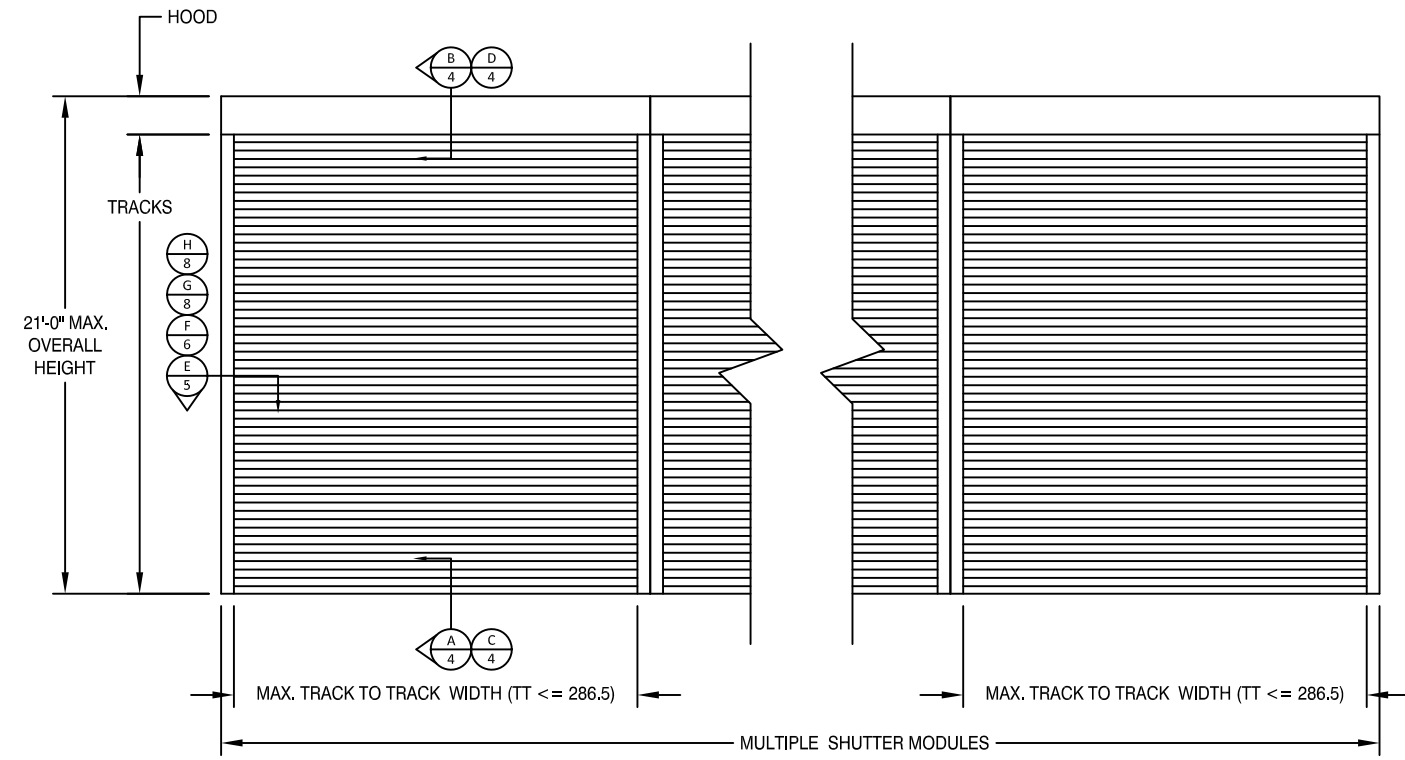
REVERSED INSTALLATION IS ACCEPTABLE

### TYPICAL SINGLE UNIT ELEVATION



COMBINATION MOUNTED:  
WALL, INSET, AND BUILD-OUT  
MOUNTS CAN BE INSTALLED BY MIXING  
ANY POSSIBLE COMBINATIONS

### TYPICAL MULTIPLE UNITS ELEVATION



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DATE: 03.07.18  
DWG. BY: SM      CHK. BY: HFN  
SCALE: NTS  
DWG. #: EMS006  
SHEET:              OF 19



# TYPICAL VERTICAL SECTIONS

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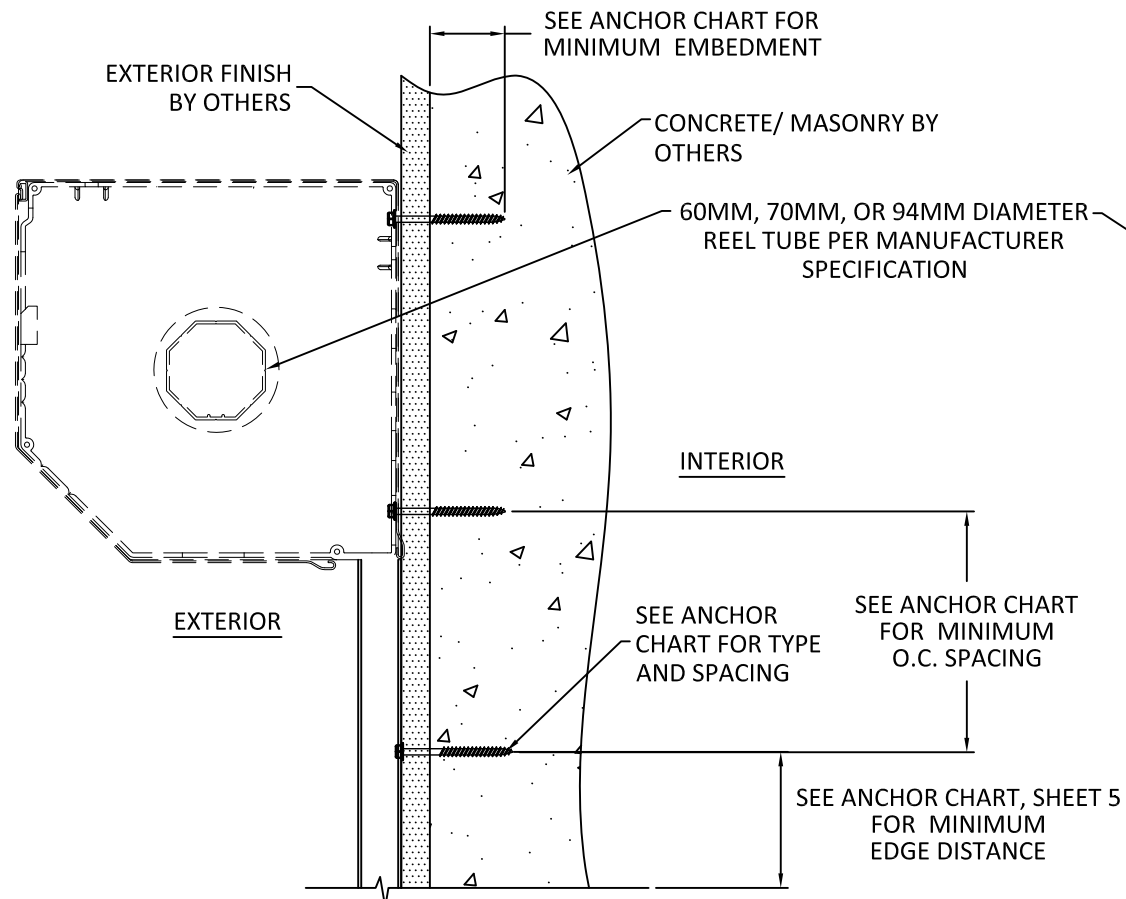
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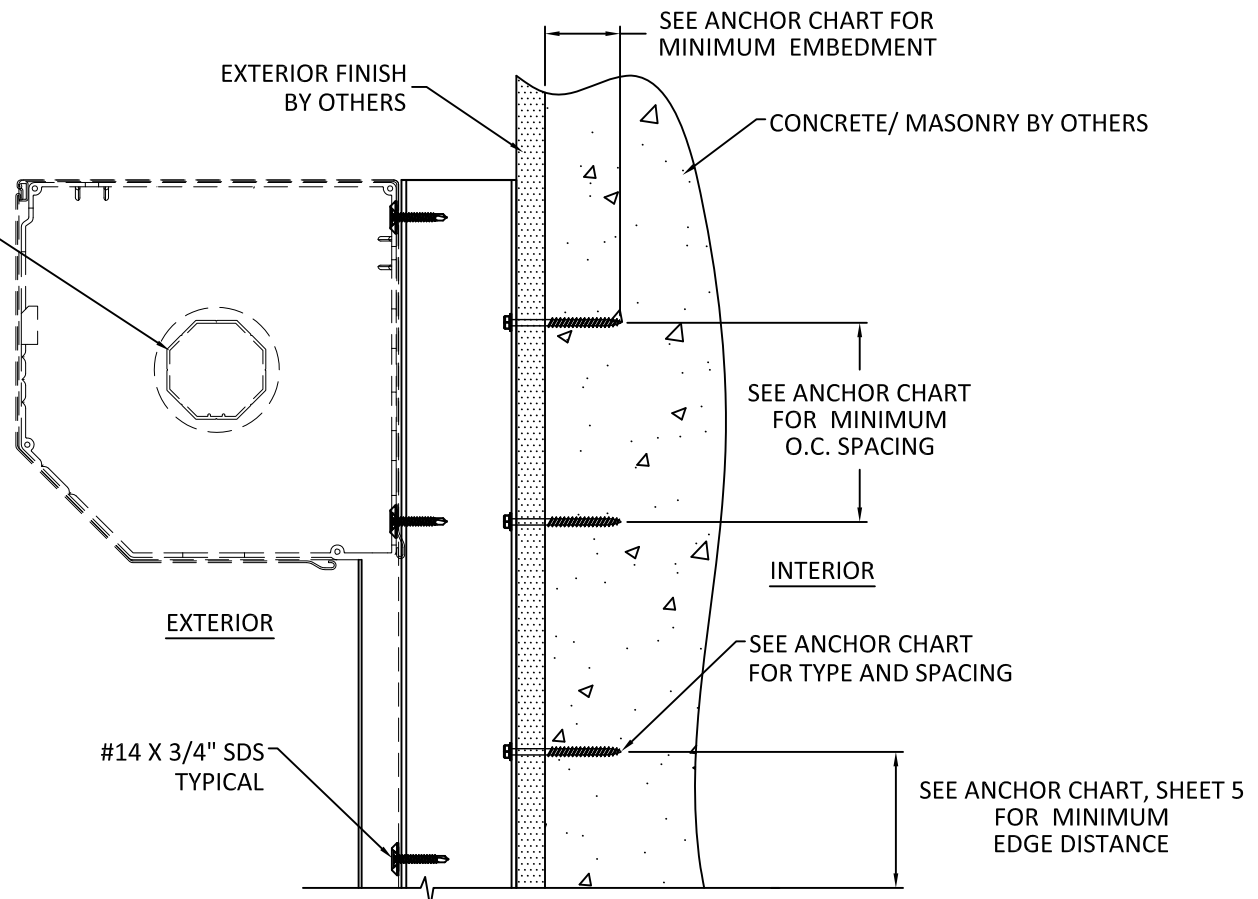


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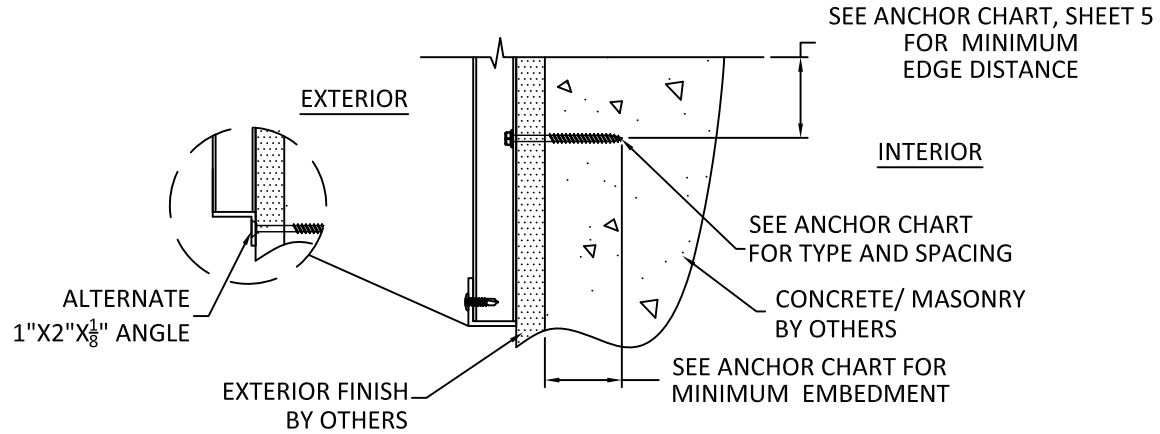
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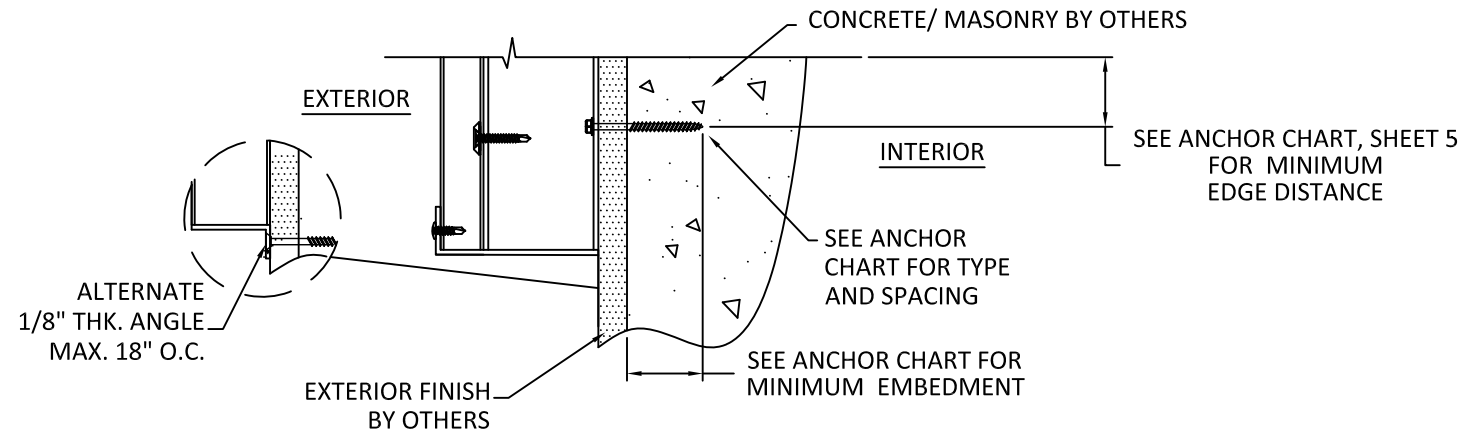
**B**  
**4** VERTICAL SECTION  
 MASONRY/CONCRETE SUBSTRATE - WALL MOUNT  
 SEE CHARTS ON SHEETS 5,6 & 7 FOR OTHER SUBSTRATES



**D**  
**4** VERTICAL SECTION  
 MASONRY/CONCRETE SUBSTRATE - BUILDOUT  
 SEE CHARTS ON SHEETS 5,6 & 7 FOR OTHER SUBSTRATES



**A**  
**4** VERTICAL SECTION  
 MASONRY/CONCRETE SUBSTRATE - WALL MOUNT  
 SEE CHARTS ON SHEETS 5,6 & 7 FOR OTHER SUBSTRATES

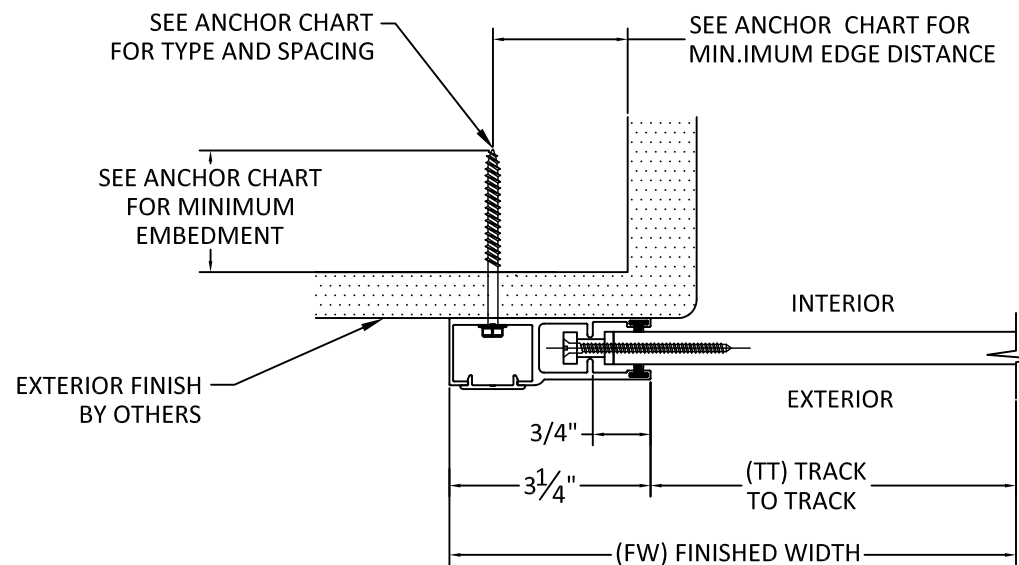


**C**  
**4** VERTICAL SECTION  
 MASONRY/CONCRETE SUBSTRATE - BUILDOUT  
 SEE CHARTS ON SHEETS 5,6 & 7 FOR OTHER SUBSTRATES

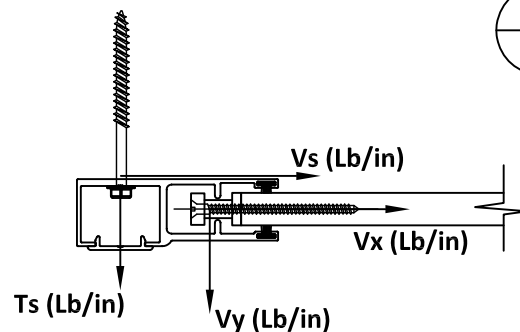
NOTES:  
 1. SLATS NOT SHOWN FOR CLARITY  
 2. REVERSED INSTALLATION IS ACCEPTABLE

TT	TABLE 3 - ANCHOR SPACING					ANCHOR TYPE & SPACING WALL - MOUNT 1						ANCHOR TYPE & SPACING 2X4, 3X4, 3X3 OR 4X4 BO - MOUNT 2					
	PD	Vx	Vy	Vs	Ts	A	B	C	D	E	F	A	B	C	D	E	F
72	40	0.0	10.9	0.0	39.3	10	10	10	10	10	10	10	10	10	10	10	10
	45	0.0	12.3	0.0	44.2	10	10	10	10	10	10	10	10	10	10	10	10
	50	0.0	13.6	0.0	49.1	10	10	10	10	10	10	10	10	10	10	10	10
	55	0.0	15.0	0.0	54.0	10	10	10	10	10	10	10	10	10	10	10	10
	60	0.0	16.4	0.0	58.9	10	10	10	10	10	10	10	10	10	10	10	10
	65	0.0	17.7	0.0	63.9	10	10	10	10	10	10	10	10	10	10	10	10
	70	0.0	19.1	0.0	68.8	10	10	10	10	10	10	10	10	10	10	10	10
	75	0.0	20.5	0.0	73.7	10	10	10	10	10	10	10	10	10	10	10	10
	80	0.0	21.8	0.0	78.6	10	10	10	10	10	10	10	10	10	10	10	10
	85	0.0	23.2	0.0	83.5	10	10	10	10	10	10	10	10	10	10	10	10
	90	0.0	24.6	0.0	88.4	10	10	10	10	10	10	10	10	10	10	10	10
	95	138.3	25.9	138.3	333.8	10	10	4	10	10	10	10	3	-	-	-	-
	100	138.3	27.3	138.3	334.5	10	10	4	10	10	10	10	3	-	-	-	-
	105	138.3	28.6	138.3	335.1	10	10	4	10	10	10	10	3	-	-	-	-
	110	138.3	30.0	138.3	335.7	10	10	4	10	10	10	10	3	-	-	-	-
	115	138.3	31.4	138.3	336.4	10	10	4	10	10	10	10	3	-	-	-	-
	120	138.3	32.7	138.3	337.0	10	10	4	10	10	10	10	3	-	-	-	-
	125	138.3	34.1	138.3	337.7	10	10	4	10	10	10	10	3	-	-	-	-
	130	138.3	35.5	138.3	338.3	10	10	4	10	10	10	10	3	-	-	-	-
	135	138.3	36.8	138.3	338.9	10	10	4	10	10	10	10	3	-	-	-	-
	140	138.3	38.2	138.3	339.6	10	10	4	10	10	10	10	3	-	-	-	-
	145	138.3	39.6	138.3	340.2	10	10	4	10	10	10	10	3	-	-	-	-
	150	138.3	40.9	138.3	340.8	10	10	4	10	10	10	10	3	-	-	-	-
	155	138.3	42.3	138.3	341.5	10	10	4	10	10	10	10	3	-	-	-	-
	160	138.3	43.7	138.3	342.1	10	10	4	10	10	10	10	3	-	-	-	-
	165	138.3	45.0	138.3	342.8	10	10	4	10	10	10	10	3	-	-	-	-
	170	138.3	46.4	138.3	343.4	10	10	4	10	10	10	10	3	-	-	-	-
	175	138.3	47.7	138.3	344.0	10	10	4	10	10	10	10	3	-	-	-	-
	180	138.3	49.1	138.3	344.7	10	10	4	10	10	10	10	3	-	-	-	-
	185	138.3	50.5	138.3	345.3	10	10	4	10	10	10	10	3	-	-	-	-
	190	138.3	51.8	138.3	346.0	10	10	4	10	10	10	10	3	-	-	-	-
	195	138.3	53.2	138.3	346.6	10	10	4	10	10	10	10	3	-	-	-	-
	200	138.3	54.6	138.3	347.2	10	10	4	10	10	10	10	3	-	-	-	-
84	40	0.0	12.6	0.0	45.3	10	10	10	10	10	10	10	10	10	10	10	10
	45	0.0	14.2	0.0	51.0	10	10	10	10	10	10	10	10	10	10	10	10
	50	0.0	15.7	0.0	56.6	10	10	10	10	10	10	10	10	10	10	10	10
	55	0.0	17.3	0.0	62.3	10	10	10	10	10	10	10	10	10	10	10	10
	60	0.0	18.9	0.0	67.9	10	10	10	10	10	10	10	10	10	10	10	10
	65	0.0	20.4	0.0	73.6	10	10	10	10	10	10	10	10	10	10	10	10
	70	0.0	22.0	0.0	79.3	10	10	10	10	10	10	10	10	10	10	10	10
	75	0.0	23.6	0.0	84.9	10	10	10	10	10	10	10	10	10	10	10	10
	80	0.0	25.2	0.0	90.6	10	10	10	10	10	10	10	10	10	10	10	10
	85	0.0	26.7	0.0	96.3	10	10	10	10	10	10	10	10	10	10	10	10
	90	0.0	28.3	0.0	101.9	10	10	10	10	10	10	10	10	10	10	10	10
	95	170.2	29.9	170.2	409.9	10	10	3	8	8	7	8	-	-	-	-	-
	100	170.2	31.4	170.2	410.6	10	10	3	8	8	7	8	-	-	-	-	-
	105	170.2	33.0	170.2	411.4	10	10	3	8	8	7	8	-	-	-	-	-
	110	170.2	34.6	170.2	412.1	10	10	3	8	8	7	8	-	-	-	-	-
	115	170.2	36.2	170.2	412.8	10	10	3	8	8	7	8	-	-	-	-	-
	120	170.2	37.7	170.2	413.6	10	10	3	8	8	7	8	-	-	-	-	-
	125	170.2	39.3	170.2	414.3	10	10	3	8	8	7	8	-	-	-	-	-
	130	170.2	40.9	170.2	415.1	10	10	3	8	8	7	8	-	-	-	-	-
	135	170.2	42.5	170.2	415.8	10	10	3	8	8	7	8	-	-	-	-	-
	140	170.2	44.0	170.2	416.5	10	10	3	8	8	7	8	-	-	-	-	-
	145	170.2	45.6	170.2	417.3	10	10	3	8	8	7	8	-	-	-	-	-
	150	170.2	47.2	170.2	418.0	10	10	3	8	8	7	8	-	-	-	-	-
	155	170.2	48.7	170.2	418.7	10	10	3	8	8	7	8	-	-	-	-	-
	160	170.2	50.3	170.2	419.5	10	10	3	8	8	7	8	-	-	-	-	-
	165	170.2	51.9	170.2	420.2	10	10	3	7	8	7	8	-	-	-	-	-
	170	170.2	53.5	170.2	420.9	10	10	3	7	8	7	8	-	-	-	-	-
	175	170.2	55.0	170.2	421.7	10	10	3	7	8	7	8	-	-	-	-	-
	180	170.2	56.6	170.2	422.4	10	10	3	7	8	7	8	-	-	-	-	-
	185	170.2	58.2	170.2	423.1	10	10	3	7	8	7	8	-	-	-	-	-

## TYPICAL HORIZONTAL SECTIONS WALL MOUNT



### E 5 HORIZONTAL SECTION MOUNT TYPE 1 WALL MOUNT \*WITH END RETENTION



CONTRACTOR TO VERIFY ADEQUACY OF STRUCTURE  
NOTE: LOADS V<sub>y</sub> AND V<sub>x</sub> ARE LOADS IMPOSED BY SLAT ON TRACK. LOADS T<sub>s</sub> AND V<sub>s</sub> ARE LOADS IMPOSED ON STRUCTURE BY ANCHORS.

#### ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EDGE DISTANCE	EMBEDMENT
A	3/8" POWERS WEDGE BOLT	MIN. 3000 PSI CONCRETE	3 3/4"	3 1/2"
B	5/16" ITW TAPCON	MIN. 3000 PSI CONCRETE	2 3/16"	2 1/4"
C	3/8" POWERS WEGDE BOLT	GROUT FILLED C-90 BLOCK f'm ≥ 1500 PSI	2"	2 1/2"
D	5/16" ITW TAPCON	GROUT FILLED C-90 BLOCK f'm ≥ 2000 PSI	4"	2 1/4"
E	#14 ELCO DRIL-FLEX SELF DRILLING SCREW	MIN 1/4" 6063-T6 ALUM. A36 3/16" STEEL	1/2" 3/8"	3 threads penetration
F	5/16" ELCO Ultracon	MIN. SG = 0.55 WOOD	1 1/2"	2"

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TITLE: 55 MMER ROLL SHUTTERS  
HORIZONTAL SECTIONS

AMERICAN SHUTTER SYSTEMS ASSOCIATION  
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REMARKS	BY	DATE

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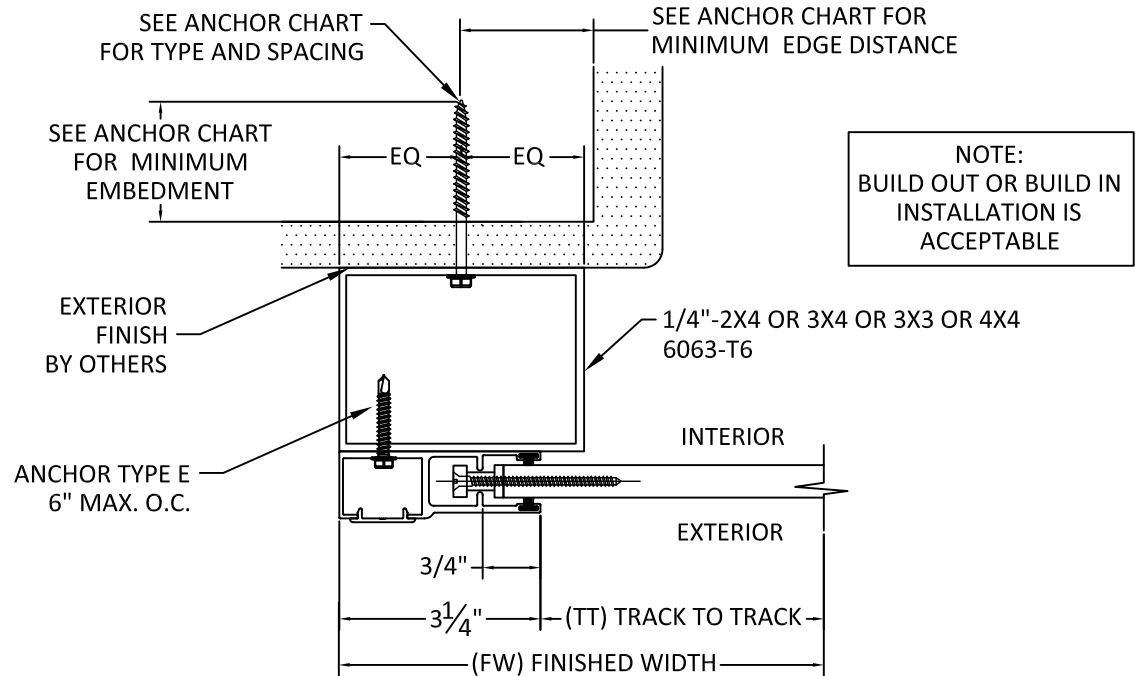
HERMES F. NORERO, P.E.  
TEXAS P.E. NO. 118471  
BUILDING DROPS, INC.  
398 E. DANIA BEACH BLVD. #338  
DANIA BEACH, FL 33004  
TBP FIRM NO. 13734

DATE: 03.07.18	
DWG. BY: SM	CHK. BY: HFN
SCALE: NTS	
DWG. #: EMS006	
SHEET: OF 19	

5

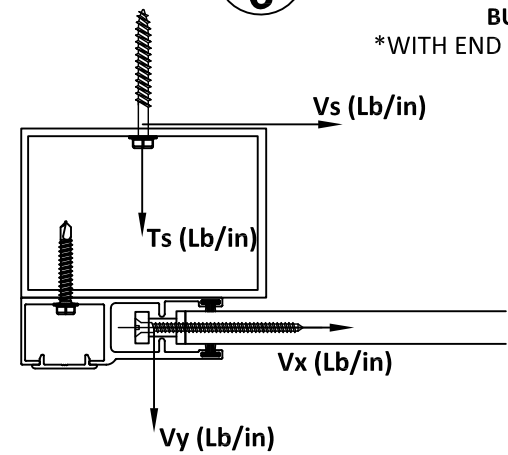
TABLE 3 - ANCHOR SPACING						ANCHOR TYPE & SPACING WALL - MOUNT 1						ANCHOR TYPE & SPACING 2X4, 3X4, 3X3 OR 4X4 BO - MOUNT 2					
TT	PD	Vx	Vy	Vs	Ts	A	B	C	D	E	F	A	B	C	D	E	F
96	40	0.0	14.2	0.0	51.3	10	10	10	10	10	10	10	10	10	10	10	10
96	45	0.0	16.0	0.0	57.7	10	10	10	10	10	10	10	10	10	10	10	10
96	50	0.0	17.8	0.0	64.1	10	10	10	10	10	10	10	10	10	10	10	10
96	55	0.0	19.6	0.0	70.5	10	10	10	10	10	10	10	10	10	10	10	10
96	60	0.0	21.4	0.0	76.9	10	10	10	10	10	10	10	10	10	10	10	10
96	65	0.0	23.1	0.0	83.4	10	10	10	10	10	10	10	10	10	10	10	10
96	70	0.0	24.9	0.0	89.8	10	10	10	10	10	10	10	10	10	10	10	10
96	75	0.0	26.7	0.0	96.2	10	10	10	10	10	10	10	10	10	10	10	10
96	80	0.0	28.5	0.0	102.6	10	10	10	10	10	10	10	10	10	10	10	10
96	85	0.0	30.3	0.0	109.0	10	10	10	10	10	10	10	10	10	10	10	10
96	90	0.0	32.1	0.0	115.4	10	10	10	10	10	10	10	10	10	10	10	10
96	95	201.5	33.8	201.5	484.6	10	9	-	6	6	5	6	-	-	-	-	-
96	100	201.5	35.6	201.5	485.4	10	9	-	6	6	5	6	-	-	-	-	-
96	105	201.5	37.4	201.5	486.3	10	9	-	6	6	5	6	-	-	-	-	-
96	110	201.5	39.2	201.5	487.1	10	9	-	6	6	5	6	-	-	-	-	-
96	115	201.5	41.0	201.5	487.9	10	9	-	6	6	5	6	-	-	-	-	-
96	120	201.5	42.7	201.5	488.8	10	9	-	6	6	5	6	-	-	-	-	-
96	125	201.5	44.5	201.5	489.6	10	9	-	6	6	5	6	-	-	-	-	-
96	130	201.5	46.3	201.5	490.4	10	9	-	6	6	5	6	-	-	-	-	-
96	135	201.5	48.1	201.5	491.3	10	9	-	6	6	5	6	-	-	-	-	-
96	140	201.5	49.9	201.5	492.1	10	9	-	6	6	5	6	-	-	-	-	-
96	145	201.5	51.6	201.5	492.9	10	9	-	6	6	5	6	-	-	-	-	-
96	150	201.5	53.4	201.5	493.8	10	8	-	6	6	5	6	-	-	-	-	-
96	155	201.5	55.2	201.5	494.6	10	8	-	6	6	5	6	-	-	-	-	-
96	160	201.5	57.0	201.5	495.4	10	8	-	6	6	5	6	-	-	-	-	-
96	165	201.5	58.8	201.5	496.3	10	8	-	6	6	5	6	-	-	-	-	-
96	170	201.5	60.5	201.5	497.1	10	8	-	6	6	5	6	-	-	-	-	-
96	175	201.5	62.3	201.5	497.9	10	8	-	6	6	5	6	-	-	-	-	-
108	40	0.0	15.9	0.0	57.3	10	10	10	10	10	10	10	10	10	10	10	10
108	45	0.0	17.9	0.0	64.5	10	10	10	10	10	10	10	10	10	10	10	10
108	50	0.0	19.9	0.0	71.6	10	10	10	10	10	10	10	10	10	10	10	10
108	55	0.0	21.9	0.0	78.8	10	10	10	10	10	10	10	10	10	10	10	10
108	60	0.0	23.9	0.0	85.9	10	10	10	10	10	10	10	10	10	10	10	10
108	65	0.0	25.9	0.0	93.1	10	10	10	10	10	10	10	10	10	10	10	10
108	70	0.0	27.8	0.0	100.3	10	10	10	10	10	10	10	10	10	10	10	10
108	75	0.0	29.8	0.0	107.4	10	10	10	10	10	10	10	10	10	10	10	10
108	80	0.0	31.8	0.0	114.6	10	10	10	10	10	10	10	10	10	10	10	10
108	85	0.0	33.8	0.0	121.8	10	10	10	10	10	10	10	10	10	10	10	10
108	90	0.0	35.8	0.0	128.9	10	10	10	10	10	10	10	10	10	10	10	10
108	95	231.2	37.8	231.2	555.5	10	7	-	4	5	4	5	-	-	-	-	-
108	100	231.2	39.8	231.2	556.5	10	7	-	4	5	4	5	-	-	-	-	-
108	105	231.2	41.8	231.2	557.4	10	7	-	4	5	4	5	-	-	-	-	-
108	110	231.2	43.8	231.2	558.3	10	7	-	4	5	4	5	-	-	-	-	-
108	115	231.2	45.7	231.2	559.3	10	7	-	4	5	4	5	-	-	-	-	-
108	120	231.2	47.7	231.2	560.2	10	7	-	4	5	4	5	-	-	-	-	-
108	125	231.2	49.7	231.2	561.1	10	7	-	4	5	4	5	-	-	-	-	-
108	130	231.2	51.7	231.2	562.1	10	7	-	4	5	4	5	-	-	-	-	-
108	135	231.2	53.7	231.2	563.0	10	7	-	4	5	4	5	-	-	-	-	-
108	140	231.2	55.7	231.2	563.9	10	7	-	4	5	4	5	-	-	-	-	-
108	145	231.2	57.7	231.2	564.8	10	7	-	4	5	4	5	-	-	-	-	-
108	150	231.2	59.7	231.2	565.8	10	7	-	4	5	4	5	-	-	-	-	-
108	155	231.2	61.7	231.2	566.7	10	7	-	4	5	4	5	-	-	-	-	-
108	160	231.2	63.7	231.2	567.6	10	7	-	4	5	4	5	-	-	-	-	-

## TYPICAL HORIZONTAL SECTIONS BUILD OUT



## F 6 HORIZONTAL SECTION

MOUNT TYPE 2  
BUILD-OUT MOUNT  
\*WITH END RETENTION



CONTRACTOR TO VERIFY ADEQUACY OF STRUCTURE  
NOTE: LOADS Vy AND Vx ARE LOADS IMPOSED BY SLAT ON TRACK. LOADS Ts AND Vs ARE LOADS IMPOSED ON STRUCTURE BY ANCHORS.

### ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EDGE DISTANCE	EMBEDMENT
A	3/8" POWERS WEDGE BOLT	MIN. 3000 PSI CONCRETE	3 3/4"	3 1/2"
B	5/16" ITW TAPCON	MIN. 3000 PSI CONCRETE	2 3/16"	2 1/4"
C	3/8" POWERS WEGDE BOLT	GROUT FILLED C-90 BLOCK f'm ≥ 1500 PSI	2"	2 1/2"
D	5/16" ITW TAPCON	GROUT FILLED C-90 BLOCK f'm ≥ 2000 PSI	4"	2 1/4"
E	#14 ELCO DRIL-FLEX SELF DRILLING SCREW	MIN 1/4" 6063-T6 ALUM. A36 3/16" STEEL	1/2" 3/8"	3 threads penetration
F	5/16" ELCO Ultracon	MIN. SG = 0.55 WOOD	1 1/2"	2"

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TITLE: 55 MMR ROLL SHUTTERS  
WALL MOUNT & BUILD OUT ANCHOR SPACING

AMERICAN SHUTTER SYSTEMS ASSOCIATION  
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TBPE FIRM NO. 13734

DATE:	03.07.18
DWG. BY:	CHK. BY:
SM	HFN
SCALE:	NTS
DWG. #:	EMS006
SHEET:	OF 19

6



**BUILDING DROPS, INC.**

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TABLE 3 - ANCHOR SPACING						ANCHOR TYPE & SPACING WALL - MOUNT 1						ANCHOR TYPE & SPACING 2X4, 3X4, 3X3 OR 4X4 BO - MOUNT 2					
TT	PD	Vx	Vy	Vs	Ts	A	B	C	D	E	F	A	B	C	D	E	F
120	40	0.0	17.6	0.0	63.3	10	10	10	10	10	10	10	10	10	10	10	10
	45	0.0	19.8	0.0	71.2	10	10	10	10	10	10	10	10	10	10	10	10
	50	0.0	22.0	0.0	79.1	10	10	10	10	10	10	10	10	10	10	10	10
	55	0.0	24.2	0.0	87.0	10	10	10	10	10	10	10	10	10	10	10	10
	60	0.0	26.4	0.0	94.9	10	10	10	10	10	10	10	10	10	10	10	10
	65	0.0	28.6	0.0	102.9	10	10	10	10	10	10	10	10	10	10	10	10
	70	0.0	30.8	0.0	110.8	10	10	10	10	10	10	10	10	10	10	10	10
	75	0.0	33.0	0.0	118.7	10	10	10	10	10	10	10	10	10	10	10	10
	80	0.0	35.2	0.0	126.6	10	10	10	10	10	10	10	10	10	10	10	10
	85	0.0	37.4	0.0	134.5	10	10	10	10	10	10	10	10	10	10	10	10
	90	258.3	39.6	258.3	619.5	9	6	-	4	4	3	4	-	-	-	-	-
	95	258.3	41.8	258.3	620.6	9	6	-	4	4	3	4	-	-	-	-	-
	100	258.3	43.9	258.3	621.6	9	6	-	4	4	3	4	-	-	-	-	-
	105	258.3	46.1	258.3	622.6	9	6	-	4	4	3	4	-	-	-	-	-
	110	258.3	48.3	258.3	623.6	9	6	-	4	4	3	4	-	-	-	-	-
115	258.3	50.5	258.3	624.7	9	6	-	4	4	3	4	-	-	-	-	-	
120	258.3	52.7	258.3	625.7	9	6	-	4	4	3	4	-	-	-	-	-	
125	258.3	54.9	258.3	626.7	9	6	-	4	4	3	4	-	-	-	-	-	
130	258.3	57.1	258.3	627.8	9	6	-	4	4	3	4	-	-	-	-	-	
135	258.3	59.3	258.3	628.8	9	5	-	4	4	3	4	-	-	-	-	-	
140	258.3	61.5	258.3	629.8	9	5	-	4	4	3	4	-	-	-	-	-	
145	258.3	63.7	258.3	630.8	9	5	-	4	4	3	4	-	-	-	-	-	
150	258.3	65.9	258.3	631.9	9	5	-	4	4	3	4	-	-	-	-	-	
132	40	0.0	19.2	0.0	69.3	10	10	10	10	10	10	10	10	10	10	10	10
	45	0.0	21.7	0.0	78.0	10	10	10	10	10	10	10	10	10	10	10	10
	50	0.0	24.1	0.0	86.6	10	10	10	10	10	10	10	10	10	10	10	10
	55	0.0	26.5	0.0	95.3	10	10	10	10	10	10	10	10	10	10	10	10
	60	0.0	28.9	0.0	103.9	10	10	10	10	10	10	10	10	10	10	10	10
	65	0.0	31.3	0.0	112.6	10	10	10	10	10	10	10	10	10	10	10	10
	70	0.0	33.7	0.0	121.3	10	10	10	10	10	10	10	10	10	10	10	10
	75	0.0	36.1	0.0	129.9	10	10	10	10	10	10	10	10	10	10	10	10
	80	0.0	38.5	0.0	138.6	10	10	10	10	10	10	10	10	10	10	10	10
	85	282.0	40.9	282.0	675.3	8	5	-	3	3	3	3	-	-	-	-	-
	90	282.0	43.3	282.0	676.5	8	5	-	3	3	3	3	-	-	-	-	-
	95	282.0	45.7	282.0	677.6	8	5	-	3	3	3	3	-	-	-	-	-
	100	282.0	48.1	282.0	678.7	8	5	-	3	3	3	3	-	-	-	-	-
	105	282.0	50.5	282.0	679.9	8	5	-	3	3	3	3	-	-	-	-	-
	110	282.0	52.9	282.0	681.0	8	5	-	3	3	3	3	-	-	-	-	-
115	282.0	55.3	282.0	682.1	8	5	-	3	3	3	3	-	-	-	-	-	
120	282.0	57.7	282.0	683.2	8	5	-	3	3	3	3	-	-	-	-	-	
125	282.0	60.1	282.0	684.4	8	5	-	3	3	3	3	-	-	-	-	-	
130	282.0	62.5	282.0	685.5	8	5	-	3	3	3	3	-	-	-	-	-	
135	282.0	65.0	282.0	686.6	8	5	-	3	3	3	3	-	-	-	-	-	

TABLE 3 - ANCHOR SPACING						ANCHOR TYPE & SPACING WALL - MOUNT 1						ANCHOR TYPE & SPACING 2X4, 3X4, 3X3 OR 4X4 BO - MOUNT 2					
TT	PD	Vx	Vy	Vs	Ts	A	B	C	D	E	F	A	B	C	D	E	F
144	40	0.0	20.9	0.0	75.3	10	10	10	10	10	10	10	10	10	10	10	10
	45	0.0	23.5	0.0	84.7	10	10	10	10	10	10	10	10	10	10	10	10
	50	0.0	26.1	0.0	94.1	10	10	10	10	10	10	10	10	10	10	10	10
	55	0.0	28.8	0.0	103.5	10	10	10	10	10	10	10	10	10	10	10	10
	60	0.0	31.4	0.0	113.0	10	10	10	10	10	10	10	10	10	10	10	10
	65	0.0	34.0	0.0	122.4	10	10	10	10	10	10	10	10	10	10	10	10
	70	0.0	36.6	0.0	131.8	10	10	10	10	10	10	10	10	10	10	10	10
	75	0.0	39.2	0.0	141.2	10	10	10	10	10	10	10	10	10	10	10	10
	80	301.5	41.8	301.5	721.1	7	4	-	3	3	-	3	-	-	-	-	-
	85	301.5	44.4	301.5	722.3	7	4	-	3	3	-	3	-	-	-	-	-
	90	301.5	47.1	301.5	723.5	7	4	-	3	3	-	3	-	-	-	-	-
	95	301.5	49.7	301.5	724.8	7	4	-	3	3	-	3	-	-	-	-	-
	100	301.5	52.3	301.5	726.0	7	4	-	3	3	-	3	-	-	-	-	-
	105	301.5	54.9	301.5	727.2	7	4	-	3	3	-	3	-	-	-	-	-
	110	301.5	57.5	301.5	728.4	7	4	-	3	3	-	3	-	-	-	-	-
115	301.5	60.1	301.5	729.6	7	4	-	3	3	-	3	-	-	-	-	-	
120	301.5	62.7	301.5	730.9	7	4	-	3	3	-	3	-	-	-	-	-	
125	301.5	65.4	301.5	732.1	7	4	-	3	3	-	3	-	-	-	-	-	
168	40	0.0	24.2	0.0	87.3	10	10	10	10	10	10	10	10	10	10	10	10
	45	0.0	27.3	0.0	98.2	10	10	10	10	10	10	10	10	10	10	10	10
	50	0.0	30.3	0.0	109.1	10	10	10	10	10	10	10	10	10	10	10	10
	55	0.0	33.3	0.0	120.0	10	10	10	10	10	10	10	10	10	10	10	10
	60	0.0	36.4	0.0	131.0	10	10	10	10	10	10	10	10	10	10	10	10
	65	0.0	39.4	0.0	141.9	10	10	10	10	10	10	10	10	10	10	10	10
	70	324.7	42.4	324.7	775.3	6	4	-	-	3	-	3	-	-	-	-	-
	75	324.7	45.5	324.7	776.7	6	4	-	-	3	-	3	-	-	-	-	-
	80	324.7	48.5	324.7	778.1	6	4	-	-	3	-	3	-	-	-	-	-
	85	324.7	51.5	324.7	779.5	6	4	-	-	3	-	3	-	-	-	-	-
204	40	0.0	29.2	0.0	105.3	10	10	10	10	10	10	10	10	10	10	10	10
	45	0.0	32.9	0.0	118.5	10	10	10	10	10	10	10	10	10	10	10	10
	50	93.0	36.6	93.0	233.4	10	10	8	10	10	10	10	6	3	5	4	5
	55	112.7	40.2	112.7	281.0	10	10	5	10	10	10	10	4	-	3	3	3
	60	129.1	43.9	129.1	321.0	10	10	4	10	10	10	10	3	-	3	-	-
	65	143.0	47.5	143.0	355.0	10	10	4	10	10	9	10	3	-	-	-	-
	70	155.0	51.2	155.0	384.5	10	10	3	9	9	8	10	-	-	-	-	-
	75	165.3	54.8	165.3	410.2	10	10	3	8	8	7	9	-	-	-	-	-
216	40	0.0	30.9	0.0	111.3	10	10	10	10	10	10	10	10	10	10	10	10
	45	0.0	34.8	0.0	125.2	10	10	10	10	10	10	10	10	10	10	10	10
	50	93.9	38.6	94.0	236.9	10	10	8	10	10	10	10	6	3	5	4	4
	55	113.8	42.5	114.0	285.1	10	10	5	10	10	10	10	4	-	3	3	3
240	40	38.7	34.2	38.9	106.5	10	10	10	10	10	10	10	10	10	10	10	10
	45	68.8	38.5	69.2	178.9	10	10	10	10	10	10	10	9	5	8	7	8
	50	92.8	42.8	93.4	237.3	10	10	8	10	10	10	10	6	3	5	4	4
264	40	73.1	37.6	73.9	189.6	10	10	10	10	10	10	10	8	4	7	7	7
	45	97.5	42.3	98.6	249.1	10	10	7	10	10	10	10	5	3	4	4	4
286.5	40	65.9	40.7	65.9	172.4	10	10	10	10	10	10	10	10	5	9	8	8

TITLE: 55 MMR ROLL SHUTTERS  
WALL MOUNT & BUILD OUT ANCHOR SPACING

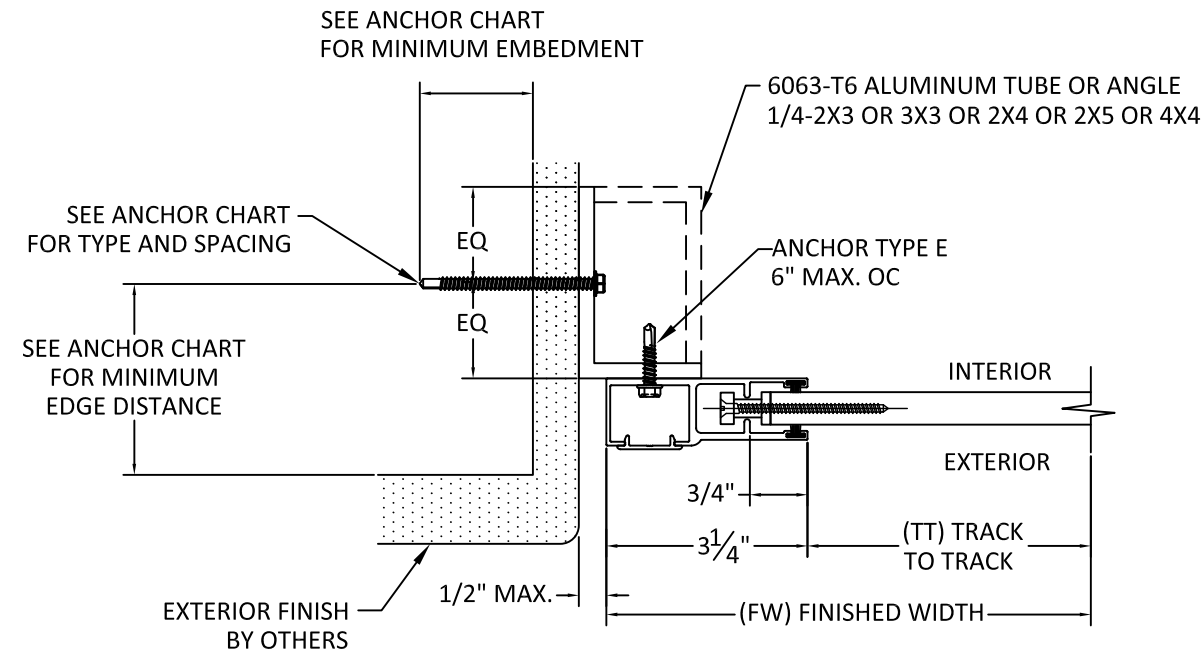
AMERICAN SHUTTER SYSTEMS ASSOCIATION  
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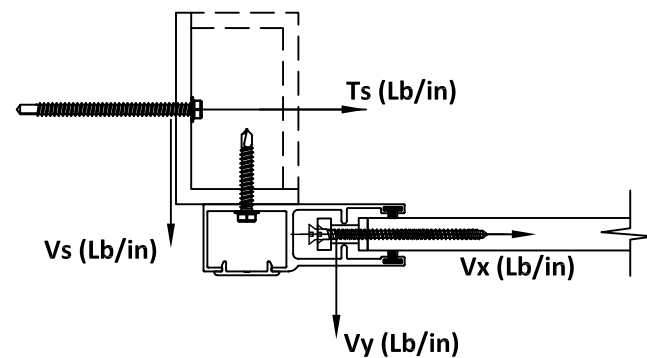
## TYPICAL HORIZONTAL SECTIONS INSET MOUNT



### H 8

## HORIZONTAL SECTION

**MOUNT TYPE 3  
INSET MOUNT**  
\*WITH END RETENTION



**CONTRACTOR TO VERIFY ADEQUACY OF STRUCTURE**  
NOTE: LOADS  $V_y$  AND  $V_x$  ARE LOADS IMPOSED BY SLAT ON TRACK. LOADS  $T_s$  AND  $V_s$  ARE LOADS IMPOSED ON STRUCTURE BY ANCHORS.

SEE SHEETS 9, 10 & 11 FOR ANCHOR SPACING TABLES

**ANCHOR SCHEDULE:**

ANCHOR	DESCRIPTION	MATERIAL	EDGE DISTANCE	EMBEDMENT
A	3/8" POWERS WEDGE BOLT	MIN. 3000 PSI CONCRETE	3 3/4"	3 1/2"
B	5/16" ITW TAPCON	MIN. 3000 PSI CONCRETE	2 3/16"	2 1/4"
C	3/8" POWERS WEGDE BOLT	GROUT FILLED C-90 BLOCK $f'm \geq 1500$ PSI	2"	2 1/2"
D	5/16" ITW TAPCON	GROUT FILLED C-90 BLOCK $f'm \geq 2000$ PSI	4"	2 1/4"
E	#14 ELCO DRIL-FLEX SELF DRILLING SCREW	MIN 1/4" 6063-T6 ALUM.	1/2"	3 threads penetration
		A36 3/16" STEEL	3/8"	
F	5/16" ELCO Ultracon	MIN. SG = 0.55 WOOD	1 1/2"	2"

PREPARED BY:



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TITLE: 55 MMER ROLL SHUTTERS  
INSET MOUNT HORIZONTAL SECTION

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398 E. DANIA BEACH BLVD. #338  
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TBPE FIRM NO. 13734

DATE: 03.07.18

DWG. BY: SM      CHK. BY: HFN

SCALE: NTS

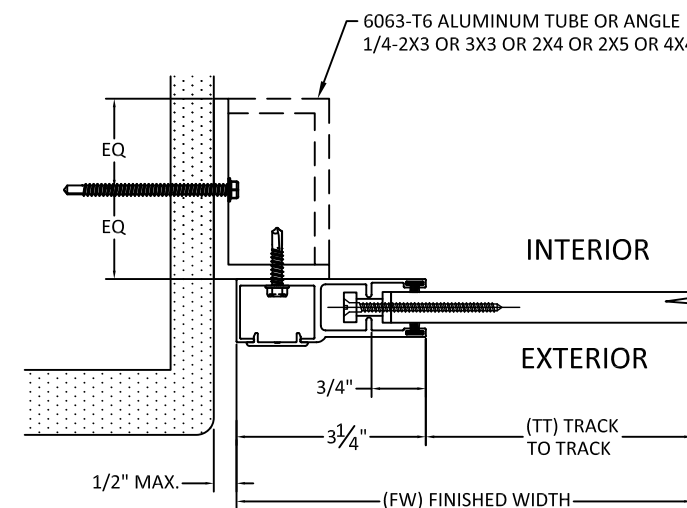
DWG. #: EMS006

SHEET:                      OF 19

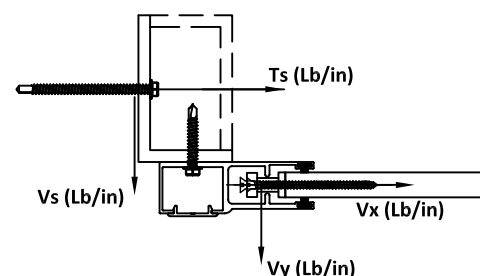


TABLE 4 - ANCHOR SPACING						ANCHOR TYPE & SPACING 2X3 OR 3X3 INSET - MOUNT 3						ANCHOR TYPE & SPACING 2X4 OR 4X4 INSET - MOUNT 3						ANCHOR TYPE & SPACING 2X5 INSET - MOUNT 3					
TT	PD	Vx	Vy	Vs	Ts	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
72	40	0	10.91	10.91	20.36	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	45	0	12.28	12.28	22.90	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	50	0	13.64	13.64	25.44	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	55	0	15.00	15.00	27.99	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	60	0	16.37	16.37	30.53	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	65	0	17.73	17.73	33.08	10	10	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	70	0	19.10	19.10	35.62	10	10	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	75	0	20.46	20.46	38.17	10	10	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	80	0	21.83	21.83	40.71	10	10	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	85	0	23.19	23.19	43.26	10	10	7	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	90	0	24.55	24.55	45.80	10	10	7	10	9	9	10	10	10	10	10	10	10	10	10	10	10	
	95	138.268	25.92	25.92	370.04	5	-	-	-	-	-	10	3	-	3	3	3	10	4	3	3	3	3
	100	138.268	27.28	27.28	372.58	5	-	-	-	-	-	10	3	-	3	3	3	10	4	3	3	3	3
	105	138.268	28.65	28.65	375.13	5	-	-	-	-	-	10	3	-	3	3	3	10	4	3	3	3	3
	110	138.268	30.01	30.01	377.67	4	-	-	-	-	-	10	3	-	3	3	3	10	3	-	3	3	3
	115	138.268	31.37	31.37	380.22	4	-	-	-	-	-	10	3	-	3	-	3	10	3	-	3	3	3
	120	138.268	32.74	32.74	382.76	4	-	-	-	-	-	10	3	-	3	-	3	10	3	-	3	3	3
	125	138.268	34.10	34.10	385.31	4	-	-	-	-	-	10	3	-	3	-	3	10	3	-	3	3	3
	130	138.268	35.47	35.47	387.85	4	-	-	-	-	-	10	3	-	3	-	3	10	3	-	3	3	3
	135	138.268	36.83	36.83	390.39	4	-	-	-	-	-	10	3	-	3	-	3	10	3	-	3	3	3
	140	138.268	38.19	38.19	392.94	4	-	-	-	-	-	10	3	-	3	-	3	10	3	-	3	3	3
	145	138.268	39.56	39.56	395.48	4	-	-	-	-	-	10	3	-	3	-	3	10	3	-	3	3	3
	150	138.268	40.92	40.92	398.03	4	-	-	-	-	-	10	3	-	3	-	3	10	3	-	3	3	3
	155	138.268	42.29	42.29	400.57	4	-	-	-	-	-	10	3	-	3	-	-	10	3	-	3	3	3
	160	138.268	43.65	43.65	403.12	4	-	-	-	-	-	10	3	-	3	-	-	10	3	-	3	-	3
	165	138.268	45.01	45.01	405.66	4	-	-	-	-	-	10	3	-	3	-	-	10	3	-	3	-	3
	170	138.268	46.38	46.38	408.21	4	-	-	-	-	-	10	3	-	3	-	-	10	3	-	3	-	3
	175	138.268	47.74	47.74	410.75	4	-	-	-	-	-	10	3	-	3	-	-	10	3	-	3	-	3
	180	138.268	49.11	49.11	413.29	4	-	-	-	-	-	10	3	-	3	-	-	10	3	-	3	-	3
	185	138.268	50.47	50.47	415.84	4	-	-	-	-	-	10	3	-	-	-	-	10	3	-	3	-	3
	190	138.268	51.83	51.83	418.38	4	-	-	-	-	-	10	3	-	-	-	-	10	3	-	3	-	3
	195	138.268	53.20	53.20	420.93	4	-	-	-	-	-	10	3	-	-	-	-	10	3	-	3	-	3
	200	138.268	54.56	54.56	423.47	4	-	-	-	-	-	10	3	-	-	-	-	10	3	-	3	-	-
84	40	0	12.58	12.58	23.46	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	45	0	14.15	14.15	26.40	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	50	0	15.72	15.72	29.33	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	55	0	17.30	17.30	32.26	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	60	0	18.87	18.87	35.20	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	65	0	20.44	20.44	38.13	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	70	0	22.01	22.01	41.06	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	75	0	23.59	23.59	44.00	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	80	0	25.16	25.16	46.93	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	85	0	26.73	26.73	49.86	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	90	0	28.30	28.30	52.79	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	95	170.1704	29.88	29.88	451.65	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	100	170.1704	31.45	31.45	454.58	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	105	170.1704	33.02	33.02	457.51	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	110	170.1704	34.59	34.59	460.45	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	115	170.1704	36.17	36.17	463.38	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	120	170.1704	37.74	37.74	466.31	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	125	170.1704	39.31	39.31	469.24	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	130	170.1704	40.88	40.88	472.18	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	135	170.1704	42.45	42.45	475.11	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	140	170.1704	44.03	44.03	478.04	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	145	170.1704	45.60	45.60	480.98	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	150	170.1704	47.17	47.17	483.91	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	155	170.1704	48.74	48.74	486.84	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	160	170.1704	50.32	50.32	489.78	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	165	170.1704	51.89	51.89	492.71	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	170	170.1704	53.46	53.46	495.64	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	175	170.1704	55.03	55.03	498.57	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	180	170.1704	56.61	56.61	501.51	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	185	170.1704	58.18	58.18	504.44	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-

## TYPICAL HORIZONTAL SECTIONS INSET MOUNT



## J 9 HORIZONTAL SECTION MOUNT TYPE 3 INSET MOUNT \*WITH END RETENTION



CONTRACTOR TO VERIFY ADEQUACY OF STRUCTURE  
NOTE: LOADS Vy AND Vx ARE LOADS IMPOSED BY SLAT ON TRACK. LOADS Ts AND Vs ARE LOADS IMPOSED ON STRUCTURE BY ANCHORS.

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INSET MOUNT ANCHOR SPACING

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TBPE FIRM NO. 13734

DATE: 03.07.18

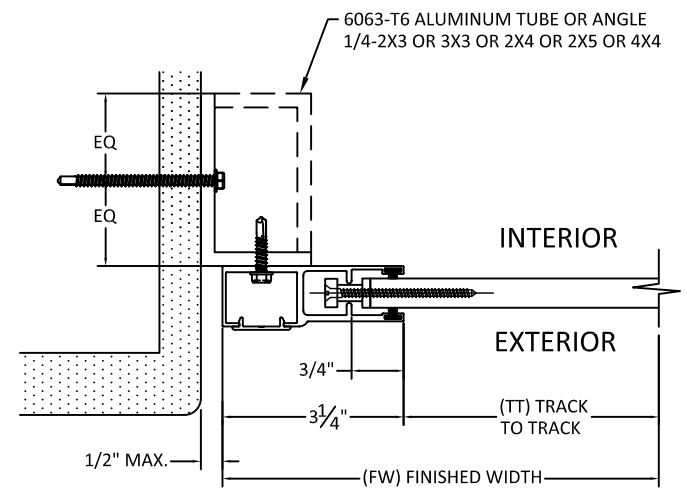
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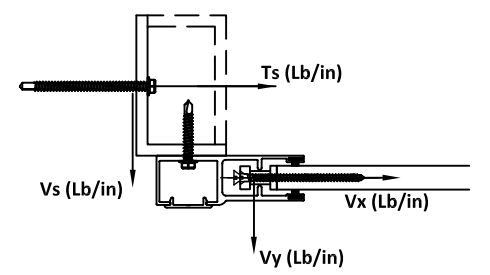
SCALE: NTS

TABLE 4 - ANCHOR SPACING						ANCHOR TYPE & SPACING 2X3 OR 3X3 INSET - MOUNT 3						ANCHOR TYPE & SPACING 2X4 INSET - MOUNT 3						ANCHOR TYPE & SPACING 2X5 INSET - MOUNT 3					
TT	PD	Vx	Vy	Vs	Ts	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
96	80	0	14.25	14.25	26.57	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	45	0	16.03	16.03	29.89	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	50	0	17.81	17.81	33.22	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	55	0	19.59	19.59	36.54	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	60	0	21.37	21.37	39.86	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	65	0	23.15	23.15	43.18	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	70	0	24.93	24.93	46.50	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	75	0	26.71	26.71	49.82	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	80	0	28.49	28.49	53.15	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	85	0	30.27	30.27	56.47	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	90	0	32.05	32.05	59.79	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	95	201.4766	33.83	33.83	531.87	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	100	201.4766	35.61	35.61	535.19	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	105	201.4766	37.40	37.40	538.51	10	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	110	201.4766	39.18	39.18	541.83	9	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	115	201.4766	40.96	40.96	545.15	9	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	120	201.4766	42.74	42.74	548.48	9	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	125	201.4766	44.52	44.52	551.80	9	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	130	201.4766	46.30	46.30	555.12	9	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	135	201.4766	48.08	48.08	558.44	9	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	140	201.4766	49.86	49.86	561.76	9	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	145	201.4766	51.64	51.64	565.08	9	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	150	201.4766	53.42	53.42	568.41	8	-	-	-	-	-	10	-	-	-	-	-	10	-	-	-	-	-
	155	201.4766	55.20	55.20	571.73	8	-	-	-	-	-	9	-	-	-	-	-	10	-	-	-	-	-
	160	201.4766	56.98	56.98	575.05	8	-	-	-	-	-	9	-	-	-	-	-	10	-	-	-	-	-
	165	201.4766	58.76	58.76	578.37	8	-	-	-	-	-	9	-	-	-	-	-	10	-	-	-	-	-
	170	201.4766	60.54	60.54	581.69	8	-	-	-	-	-	9	-	-	-	-	-	10	-	-	-	-	-
	175	201.4766	62.33	62.33	585.01	8	-	-	-	-	-	9	-	-	-	-	-	10	-	-	-	-	-
108	80	0	15.91	15.91	29.68	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	45	0	17.90	17.90	33.39	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	50	0	19.89	19.89	37.10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	55	0	21.88	21.88	40.81	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	60	0	23.87	23.87	44.52	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	65	0	25.86	25.86	48.23	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	70	0	27.85	27.85	51.94	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	75	0	29.84	29.84	55.65	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	80	0	31.83	31.83	59.36	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	85	0	33.81	33.81	63.07	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	90	0	35.80	35.80	66.78	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	95	231.1754	37.79	37.79	608.35	8	-	-	-	-	-	9	-	-	-	-	-	9	-	-	-	-	-
	100	231.1754	39.78	39.78	612.06	8	-	-	-	-	-	9	-	-	-	-	-	9	-	-	-	-	-
	105	231.1754	41.77	41.77	615.77	8	-	-	-	-	-	8	-	-	-	-	-	9	-	-	-	-	-
	110	231.1754	43.76	43.76	619.48	7	-	-	-	-	-	8	-	-	-	-	-	9	-	-	-	-	-
	115	231.1754	45.75	45.75	623.19	7	-	-	-	-	-	8	-	-	-	-	-	9	-	-	-	-	-
	120	231.1754	47.74	47.74	626.90	7	-	-	-	-	-	8	-	-	-	-	-	9	-	-	-	-	-
	125	231.1754	49.73	49.73	630.61	7	-	-	-	-	-	8	-	-	-	-	-	9	-	-	-	-	-
	130	231.1754	51.72	51.72	634.32	7	-	-	-	-	-	8	-	-	-	-	-	9	-	-	-	-	-
	135	231.1754	53.70	53.70	638.03	7	-	-	-	-	-	8	-	-	-	-	-	8	-	-	-	-	-
	140	231.1754	55.69	55.69	641.74	7	-	-	-	-	-	8	-	-	-	-	-	8	-	-	-	-	-
	145	231.1754	57.68	57.68	645.45	7	-	-	-	-	-	8	-	-	-	-	-	8	-	-	-	-	-
	150	231.1754	59.67	59.67	649.16	7	-	-	-	-	-	8	-	-	-	-	-	8	-	-	-	-	-
	155	231.1754	61.66	61.66	652.87	7	-	-	-	-	-	7	-	-	-	-	-	8	-	-	-	-	-
	160	231.1754	63.65	63.65	656.58	7	-	-	-	-	-	7	-	-	-	-	-	8	-	-	-	-	-

## TYPICAL HORIZONTAL SECTIONS INSET MOUNT



**J**  
**10** HORIZONTAL SECTION  
MOUNT TYPE 3  
INSET MOUNT  
\*WITH END RETENTION



CONTRACTOR TO VERIFY ADEQUACY OF STRUCTURE  
NOTE: LOADS Vy AND Vx ARE LOADS IMPOSED BY SLAT ON TRACK. LOADS Ts AND Vs ARE LOADS IMPOSED ON STRUCTURE BY ANCHORS.

PREPARED BY:  
  
**BUILDING DROPS, INC.**  
398 E. DANIA BEACH BLVD., STE. 338  
DANIA BEACH, FL 33004  
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FAX: (954)744.4738  
WEB: www.buildingdrops.com

TITLE: 55 MMR ROLL SHUTTERS  
INSET MOUNT ANCHOR SPACING

AMERICAN SHUTTER SYSTEMS ASSOCIATION  
4268 WESTROADS DRIVE  
WEST PALM BEACH, FL 33407  
PH: 1-800-432-2204  
FAX: 561-841-0852

EASTERN METAL SUPPLY, INC.  
9400 TELGE RD  
HOUSTON, TX 77095  
PH: 1-800-996-6061  
FAX: 281-656-2297

Eastern Metal Supply

REMARKS	BY	DATE

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HERMES F. NORERO, P.E.  
TEXAS P.E. NO. 118471  
BUILDING DROPS, INC.  
398 E. DANIA BEACH BLVD. #338  
DANIA BEACH, FL 33004  
TBPE FIRM NO. 13734

DATE: 03.07.18  
DWG. BY: SM      CHK. BY: HFN  
SCALE: NTS  
DWG. #: EMS006  
SHEET:                      OF 19

PREPARED BY:



**BUILDING DROPS, INC.**

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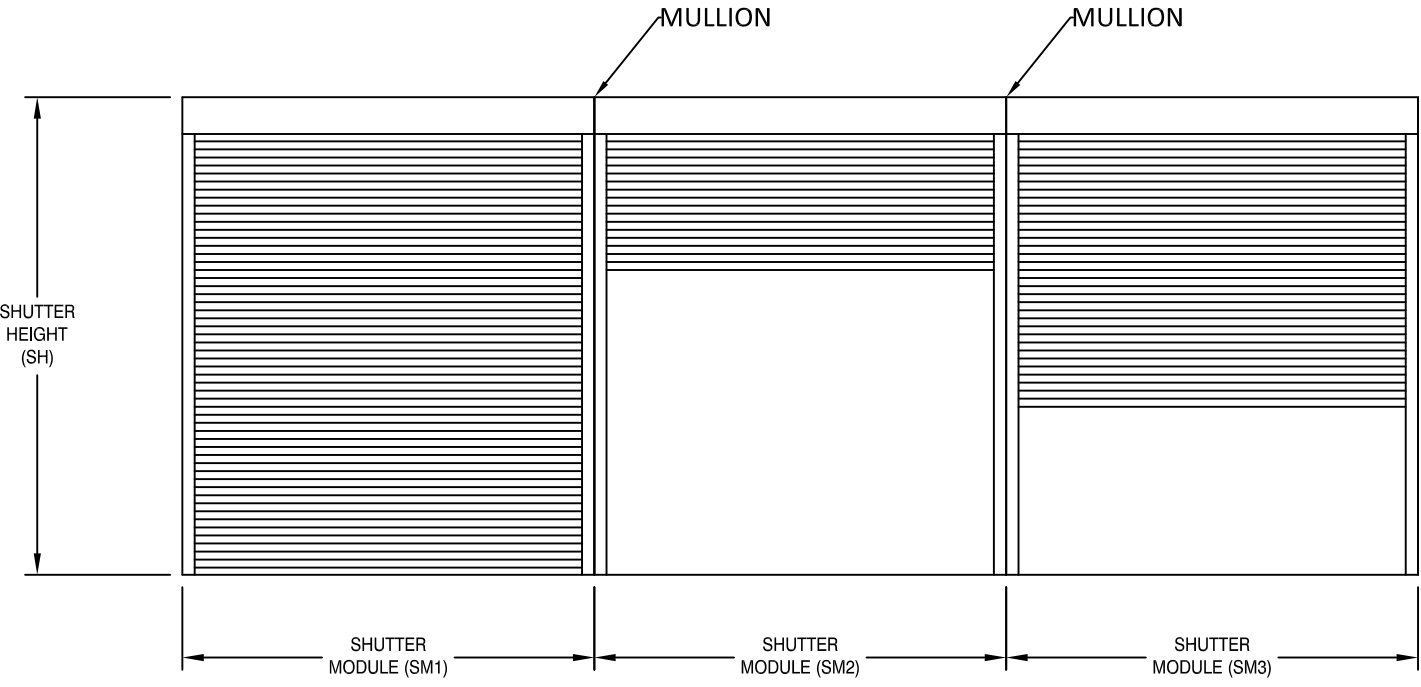
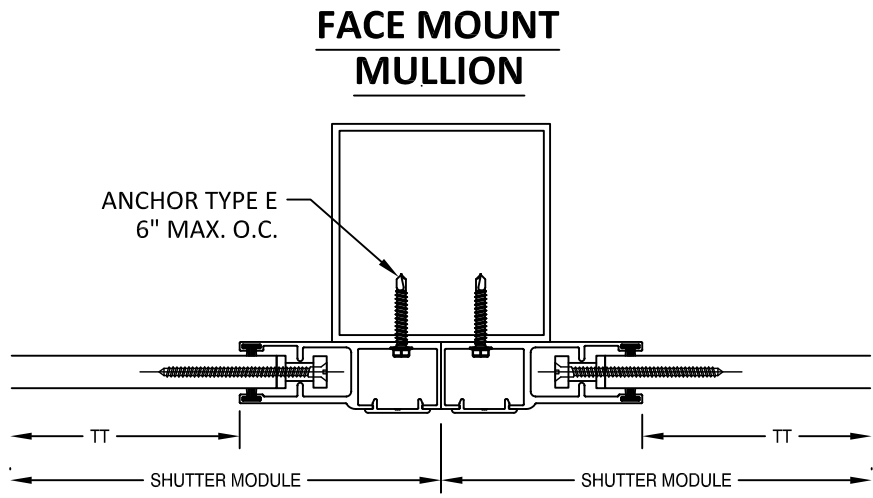
HERMES F. NORERO, P.E.  
 TEXAS P.E. NO. 118471  
 BUILDING DROPS, INC.  
 398 E. DANIA BEACH BLVD. #338  
 DANIA BEACH, FL 33004  
 TBPE FIRM NO. 13734

DATE: 03.07.18  
 DWG. BY: SM      CHK. BY: HFN  
 SCALE: NTS  
 DWG. #: EMS006  
 SHEET: OF 19

TABLE 4 - ANCHOR SPACING						ANCHOR TYPE & SPACING 2X3 OR 3X3 INSET - MOUNT 3						ANCHOR TYPE & SPACING 2X4 INSET - MOUNT 3						ANCHOR TYPE & SPACING 2X5 INSET - MOUNT 3											
TT	PD	Vx	Vy	Vs	Ts	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
	40	0	17.58	17.58	32.79	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	45	0	19.78	19.78	36.89	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	50	0	21.97	21.97	40.99	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	55	0	24.17	24.17	45.09	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	60	0	26.37	26.37	49.19	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	65	0	28.57	28.57	53.29	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	70	0	30.76	30.76	57.38	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	75	0	32.96	32.96	61.48	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	80	0	35.16	35.16	65.58	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	85	0	37.36	37.36	69.68	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	90	258.3246	39.55	39.55	674.80	6	-	-	-	-	-	7	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	
	95	258.3246	41.75	41.75	678.90	6	-	-	-	-	-	7	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	
	100	258.3246	43.95	43.95	683.00	6	-	-	-	-	-	7	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	
	105	258.3246	46.15	46.15	687.09	6	-	-	-	-	-	7	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	110	258.3246	48.34	48.34	691.19	6	-	-	-	-	-	7	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	115	258.3246	50.54	50.54	695.29	6	-	-	-	-	-	7	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	120	258.3246	52.74	52.74	699.39	6	-	-	-	-	-	7	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	125	258.3246	54.93	54.93	703.49	6	-	-	-	-	-	7	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	130	258.3246	57.13	57.13	707.59	6	-	-	-	-	-	7	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	135	258.3246	59.33	59.33	711.69	6	-	-	-	-	-	6	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	140	258.3246	61.53	61.53	715.79	6	-	-	-	-	-	6	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	145	258.3246	63.72	63.72	719.89	6	-	-	-	-	-	6	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	150	258.3246	65.92	65.92	723.98	5	-	-	-	-	-	6	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	40	0	19.25	19.25	35.90	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	45	0	21.65	21.65	40.39	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	50	0	24.06	24.06	44.87	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	55	0	26.46	26.46	49.36	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	60	0	28.87	28.87	53.85	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	65	0	31.27	31.27	58.34	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	70	0	33.68	33.68	62.82	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	75	0	36.09	36.09	67.31	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	80	0	38.49	38.49	71.80	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	85	282.0454	40.90	40.90	732.49	6	-	-	-	-	-	6	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	90	282.0454	43.30	43.30	736.98	6	-	-	-	-	-	6	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	
	95	282.0454	45.71	45.71	741.47	5	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	
	100	282.0454	48.11	48.11	745.96	5	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	
	105	282.0454	50.52	50.52	750.44	5	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	
	110	282.0454	52.93	52.93	754.93	5	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	
	115	282.0454	55.33	55.33	759.42	5	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	
	120	282.0454	57.74	57.74	763.91	5	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	
	125	282.0454	60.14	60.14	768.39	5	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	
	130	282.0454	62.55	62.55	772.88	5	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	
	135	282.0454	64.95	64.95	777.37	5	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	

TABLE 4 - ANCHOR SPACING						ANCHOR TYPE & SPACING 2X3 OR 3X3 INSET - MOUNT 3						ANCHOR TYPE & SPACING 2X4 INSET - MOUNT 3						ANCHOR TYPE & SPACING 2X5 INSET - MOUNT 3											
TT	PD	Vx	Vy	Vs	Ts	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
	40	0	20.91	20.91	39.01	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	45	0	23.53	23.53	43.88	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	50	0	26.14	26.14	48.76	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	55	0	28.75	28.75	53.64	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	60	0	31.37	31.37	58.51	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	65	0	33.98	33.98	63.39	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	70	0	36.60	36.60	68.27	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	75	0	39.21	39.21	73.14	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	80	301.517	41.83	41.83	779.53	5	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	
	85	301.517	44.44	44.44	784.40	5	-	-	-	-	-	5	-	-	-	-	-	6</											

# EQUALLY SPACED MULLIONS SELECTION

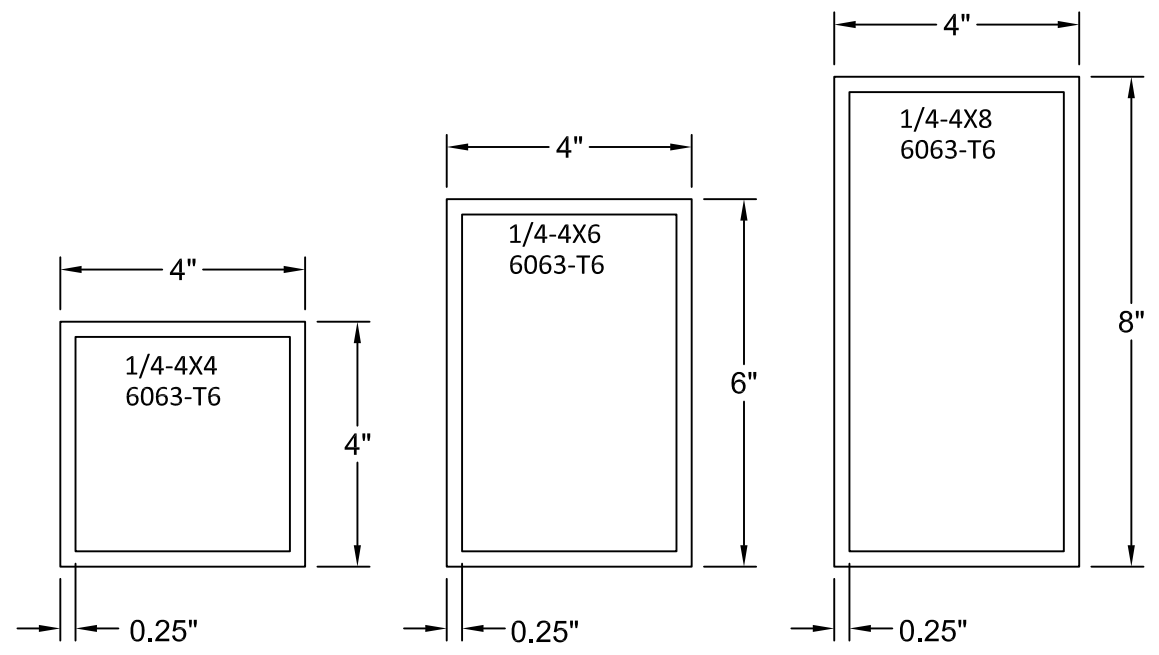


SM1 = SM2 = SM3

MAXIMUM MULLION DESIGN PRESSURE (PSF)

TT Max.	1/4-4x8 MULLION SPAN			1/4-4x6 MULLION SPAN			1/4-4x4 MULLION SPAN		
	144	120	96	144	120	96	144	120	96
286.5	35	40	40	N/A	30	40	N/A	N/A	N/A
264	38	45	45	N/A	32	45	N/A	N/A	N/A
240	42	50	50	N/A	36	50	N/A	N/A	N/A
216	47	55	55	N/A	40	55	N/A	N/A	N/A
204	49	72	75	N/A	42	74	N/A	N/A	31
168	60	88	100	N/A	51	90	N/A	N/A	37
144	70	103	125	34	60	106	N/A	N/A	44
132	77	112	135	38	65	115	N/A	N/A	48
120	84	124	150	41	72	127	N/A	N/A	53
108	94	137	160	46	80	141	N/A	30	58
96	106	155	175	52	90	159	N/A	33	66
84	121	177	185	59	103	181	N/A	38	75
72	141	200	200	69	120	200	N/A	45	88

- NOTES:
- MULLIONS WERE DESIGNED BY RATIONAL ANALYSIS BASED ON THE ALUMINUM DESIGN MANUAL AND THE INTERNATIONAL BUILDING CODE. ABOVE LOADS ARE ALSO LIMITED BY THE MAX. CAPACITY OF THE PRODUCT.
  - DEFLECTION CRITERIA: MAX. SPAN/175
  - VALUES ABOVE ARE APPLICABLE ONLY FOR EQUAL MODULES SM1=SM2=SM3
  - UNEQUAL MODULES ARE TO BE DESIGNED BY RATIONAL ANALYSIS ON A CASE BY CASE BASIS.



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TITLE: 55 MMR ROLL SHUTTERS  
 EQUALLY SPACED MULLION


AMERICAN SHUTTER SYSTEMS ASSOCIATION  
 4268 WESTROADS DRIVE  
 WEST PALM BEACH, FL 33407  
 PH: 1-800-432-2204  
 FAX: 561-841-0852

EASTERN METAL SUPPLY, INC.  
 9400 TELGE RD  
 HOUSTON, TX 77095  
 PH: 1-800-996-6061  
 FAX: 281-656-2297




REMARKS	BY	DATE

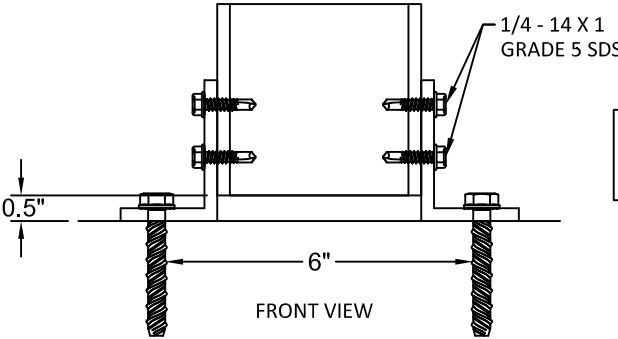
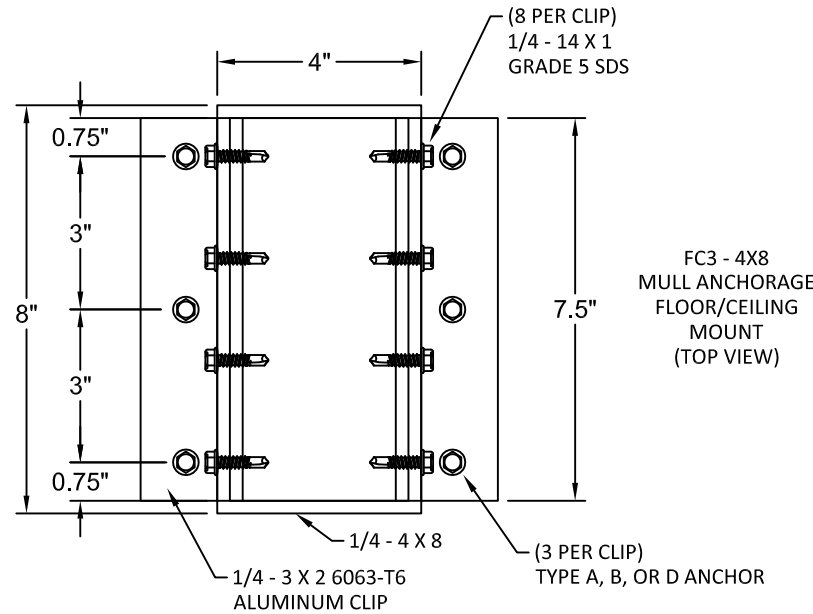
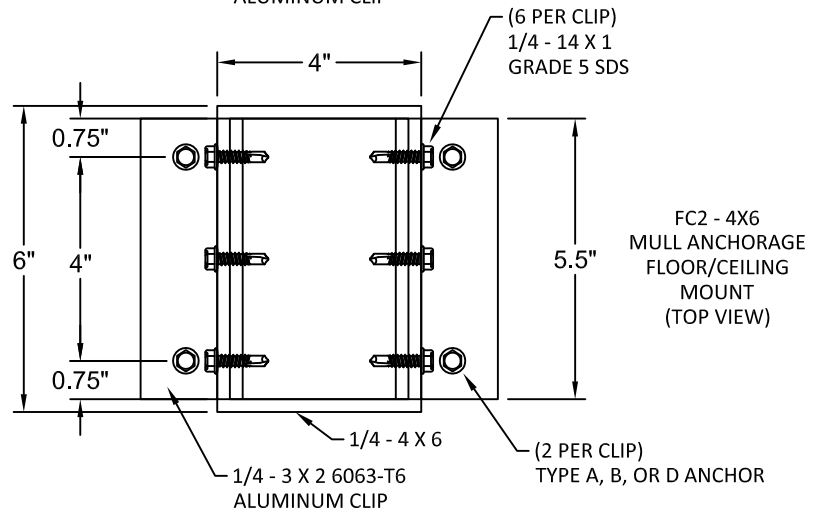
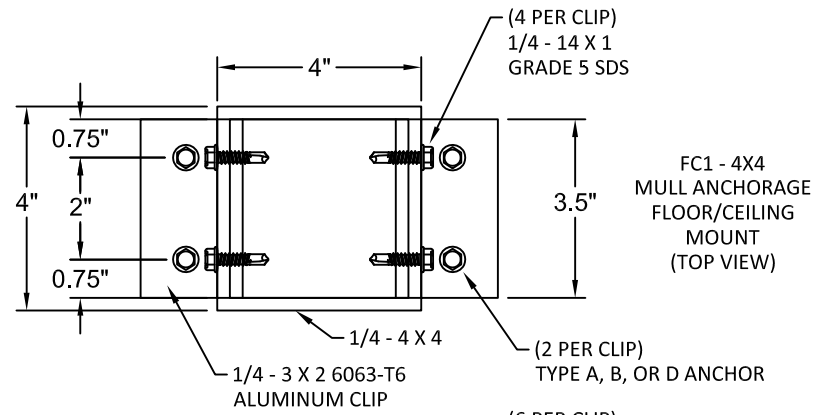
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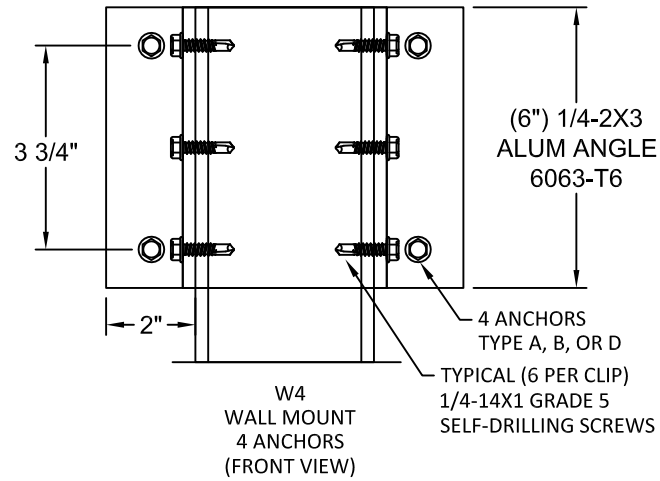
HERMES F. NORERO, P.E.  
 TEXAS P.E. NO. 118471  
 BUILDING DROPS, INC.  
 398 E. DANIA BEACH BLVD. #338  
 DANIA BEACH, FL 33004  
 TBPE FIRM NO. 13734

DATE: 03.07.18  
 DWG. BY: SM  
 CHK. BY: HFN  
 SCALE: NTS  
 DWG. #: EMS006  
 SHEET: OF 19

# EQUALLY SPACED MULLIONS WALL AND INSET CONNECTIONS



NOTE: ANGLE CLIP TO BE PLACED OUTSIDE OR INSIDE TUBE



WALL MOUNT ANCHOR SELECTION			
ANCHOR TYPE	MULLION TYPE		
	4X4	4X6	4X8
A	W4	W4	W4
B	W4	N/A	N/A
D	W4	N/A	N/A

FLOOR/CEILING MOUNT ANCHOR SELECTION			
ANCHOR TYPE	MULLION TYPE		
	4X4	4X6	4X8
A	FC1	FC2	FC3

### ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EDGE DISTANCE	EMBEDMENT
A	3/8" POWERS WEDGE BOLT	MIN. 3000 PSI CONCRETE	3 3/4"	3 1/2"
B	5/16" ITW TAPCON	MIN. 3000 PSI CONCRETE	2 3/16"	2 1/4"
D	5/16" ITW TAPCON	GROUT FILLED C-90 BLOCK f'm ≥ 2000 PSI	4"	2 1/4"

PREPARED BY:  
  
**BUILDING DROPS, INC.**  
 398 E. DANIA BEACH BLVD., STE. 338  
 DANIA BEACH, FL 33004  
 PH: (954)399-8478  
 FAX: (954)744.4738  
 WEB: www.buildingdrops.com

TITLE: 55 MMR ROLL SHUTTERS  
 EQUALLY SPACED MULLION ANCHORS

AMERICAN SHUTTER SYSTEMS ASSOCIATION  
 4268 WESTROADS DRIVE  
 WEST PALM BEACH, FL 33407  
 PH: 1-800-432-2204  
 FAX: 561-841-0852

EASTERN METAL SUPPLY, INC.  
 9400 TELGE RD  
 HOUSTON, TX 77095  
 PH: 1-800-996-6061  
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PREPARED BY:

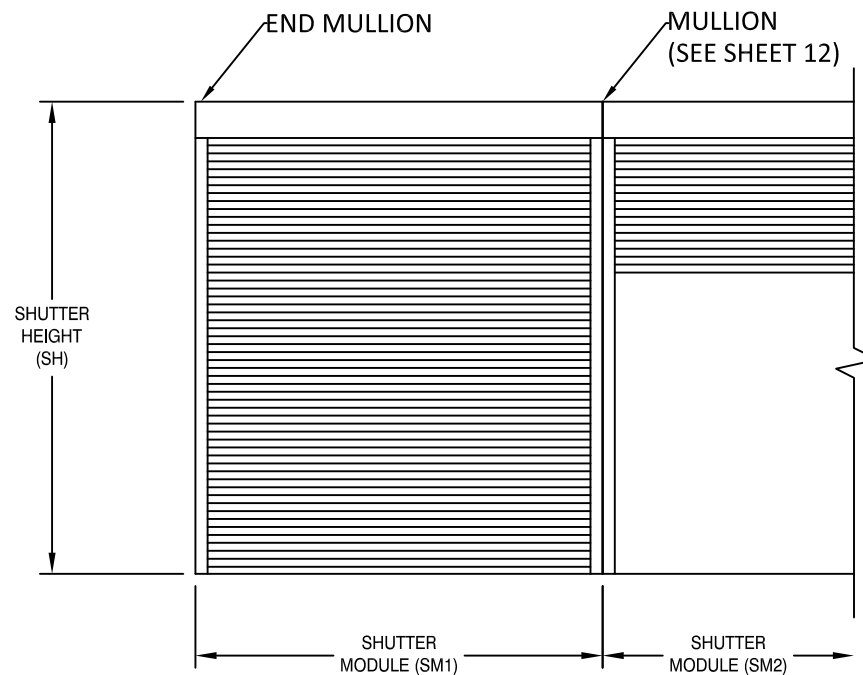
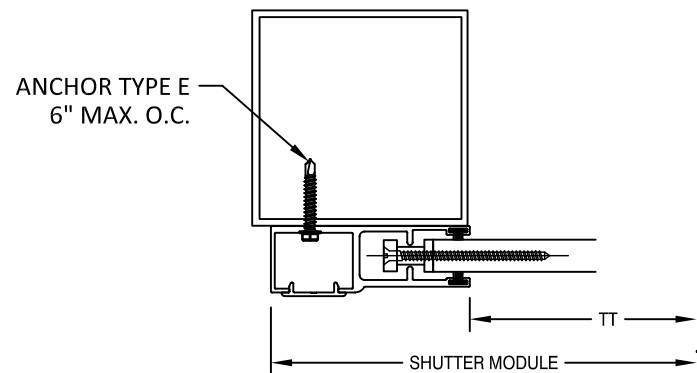


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### END MULLION SELECTION

#### FACE MOUNT MULLION



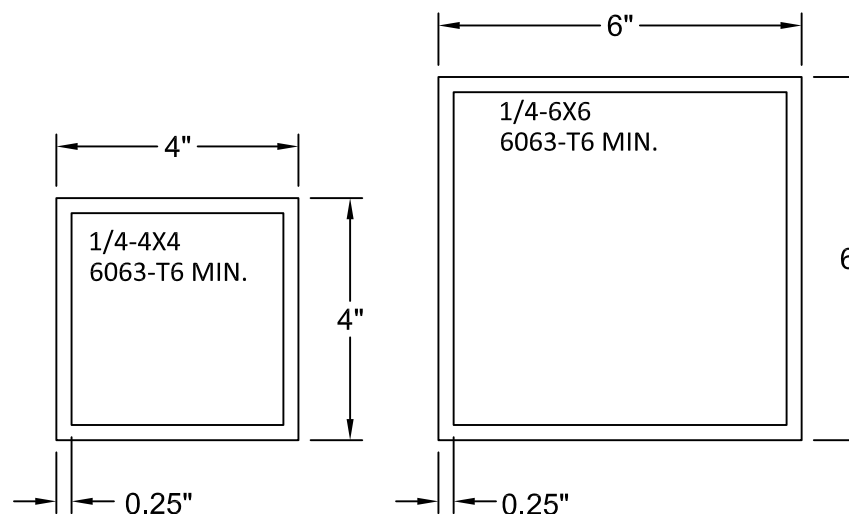
SM1 = SM2

MAXIMUM END MULLION SPANS AND DESIGN PRESSURES

TT MAX (in)	ALLOWABLE DP (PSF)	ALLOWABLE MULLION SPANS (FT)	
		4" x 4" X 0.25" 6063-T6 MIN.	6" x 6" X 0.25" 6063-T6 MIN.
72	200	12.00	12.00
84	185	12.00	12.00
96	175	12.00	12.00
108	160	11.93	12.00
120	150	11.49	12.00
132	135	11.16	12.00
144	125	10.92	12.00
168	100	10.65	12.00
204	75	10.04	12.00
216	55	9.69	12.00
240	50	10.80	12.00
264	45	10.99	12.00
286.5	40	11.41	12.00

NOTES:

- MULLIONS WERE DESIGNED BY RATIONAL ANALYSIS BASED ON THE ALUMINUM DESIGN MANUAL AND THE INTERNATIONAL BUILDING CODE. ABOVE LOADS ARE ALSO LIMITED BY THE MAX. CAPACITY OF THE PRODUCT.
- VALUES ABOVE ARE APPLICABLE FOR END MULLIONS ONLY



TITLE: 55 MMER ROLL SHUTTERS  
 END MULLION

AMERICAN SHUTTER SYSTEMS ASSOCIATION  
 4268 WESTROADS DRIVE  
 WEST PALM BEACH, FL 33407  
 PH: 1-800-432-2204  
 FAX: 561-841-0852

EASTERN METAL SUPPLY, INC.  
 9400 TELGE RD  
 HOUSTON, TX 77095  
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REMARKS	BY	DATE

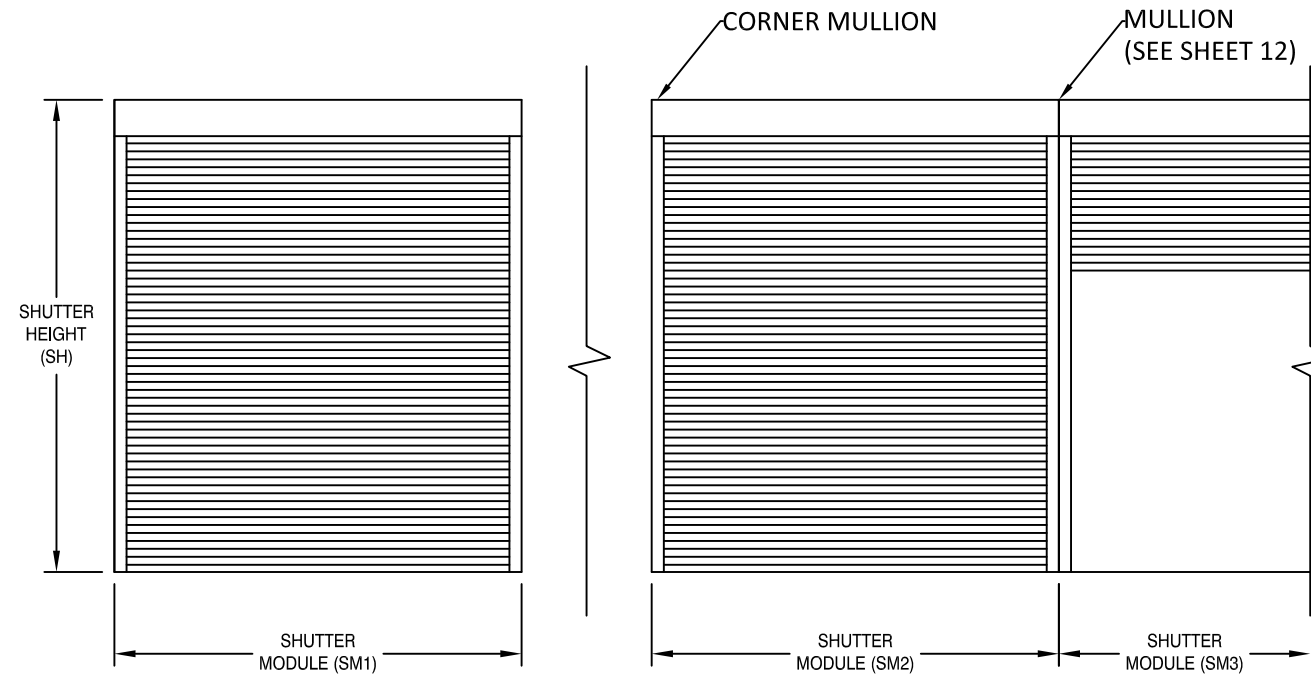
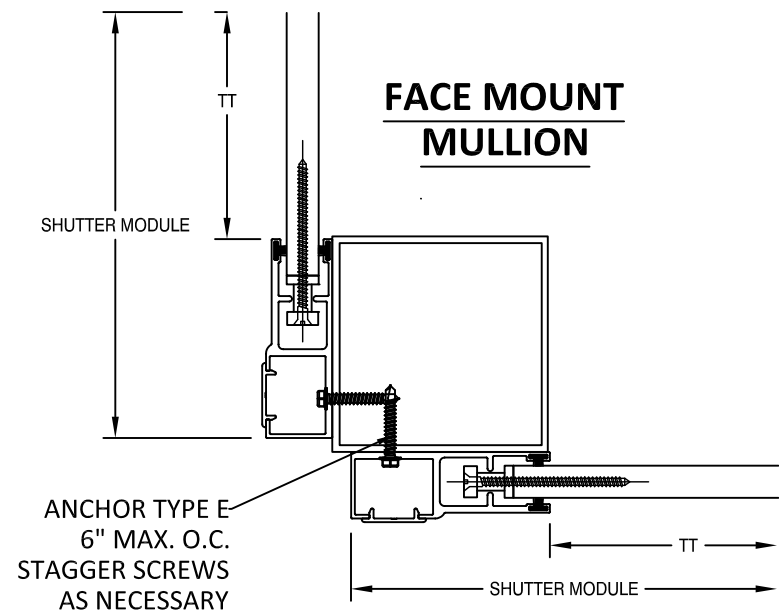
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 398 E. DANIA BEACH BLVD. #338  
 DANIA BEACH, FL 33004  
 TBPE FIRM NO. 13734

DATE:	03.07.18	
DWG. BY:	SM	CHK. BY: HFN
SCALE:	NTS	
DWG. #:	EMS006	
SHEET:		OF 19

## CORNER MULLION SELECTION



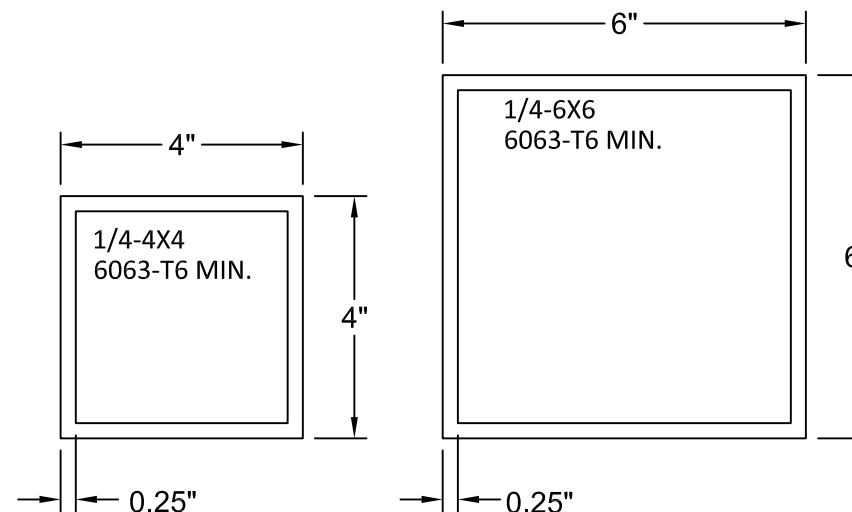
SM1 = SM2 = SM3

MAXIMUM CORNER MULLION SPANS AND DESIGN PRESSURES

TT MAX (in)	ALLOWABLE DP (PSF)	ALLOWABLE MULLION SPANS (FT)	
		4" x 4" X 0.25" 6063-T6 MIN.	6" x 6" X 0.25" 6063-T6 MIN.
72	200	10.75	12.00
84	185	9.88	12.00
96	175	9.19	12.00
108	160	8.70	12.00
120	150	8.29	12.00
132	135	8.02	12.00
144	125	7.80	12.00
168	100	7.61	11.78
204	75	7.10	10.99
216	55	6.86	10.62
240	50	7.94	12.00
264	45	8.12	12.00
286.5	40	8.56	12.00

**NOTES:**

- MULLIONS WERE DESIGNED BY RATIONAL ANALYSIS BASED ON THE ALUMINUM DESIGN MANUAL AND THE IBC WITH TEXAS REVISIONS. ABOVE LOADS ARE ALSO LIMITED BY THE MAX. CAPACITY OF THE PRODUCT.
- VALUES ABOVE ARE APPLICABLE FOR CORNER MULLIONS ONLY WITH EQUAL WIDTH SHUTTERS ON BOTH SIDES, UNEQUAL SHUTTERS SHALL BE EVALUATED ON A CASE BY CASE BASIS.



PREPARED BY:



**BUILDING DROPS, INC.**

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 DANIA BEACH, FL 33004  
 PH: (954)399-8478  
 FAX: (954)744.4738  
 WEB: www.buildingdrops.com

TITLE: 55 MMER ROLL SHUTTERS  
 CORNER MULLION

AMERICAN SHUTTER SYSTEMS ASSOCIATION

4268 WESTROADS DRIVE  
 WEST PALM BEACH, FL 33407  
 PH: 1-800-432-2204  
 FAX: 561-841-0852

EASTERN METAL SUPPLY, INC.  
 9400 TELGE RD  
 HOUSTON, TX 77095  
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 DANIA BEACH, FL 33004  
 TBPE FIRM NO. 13734

DATE: 03.07.18

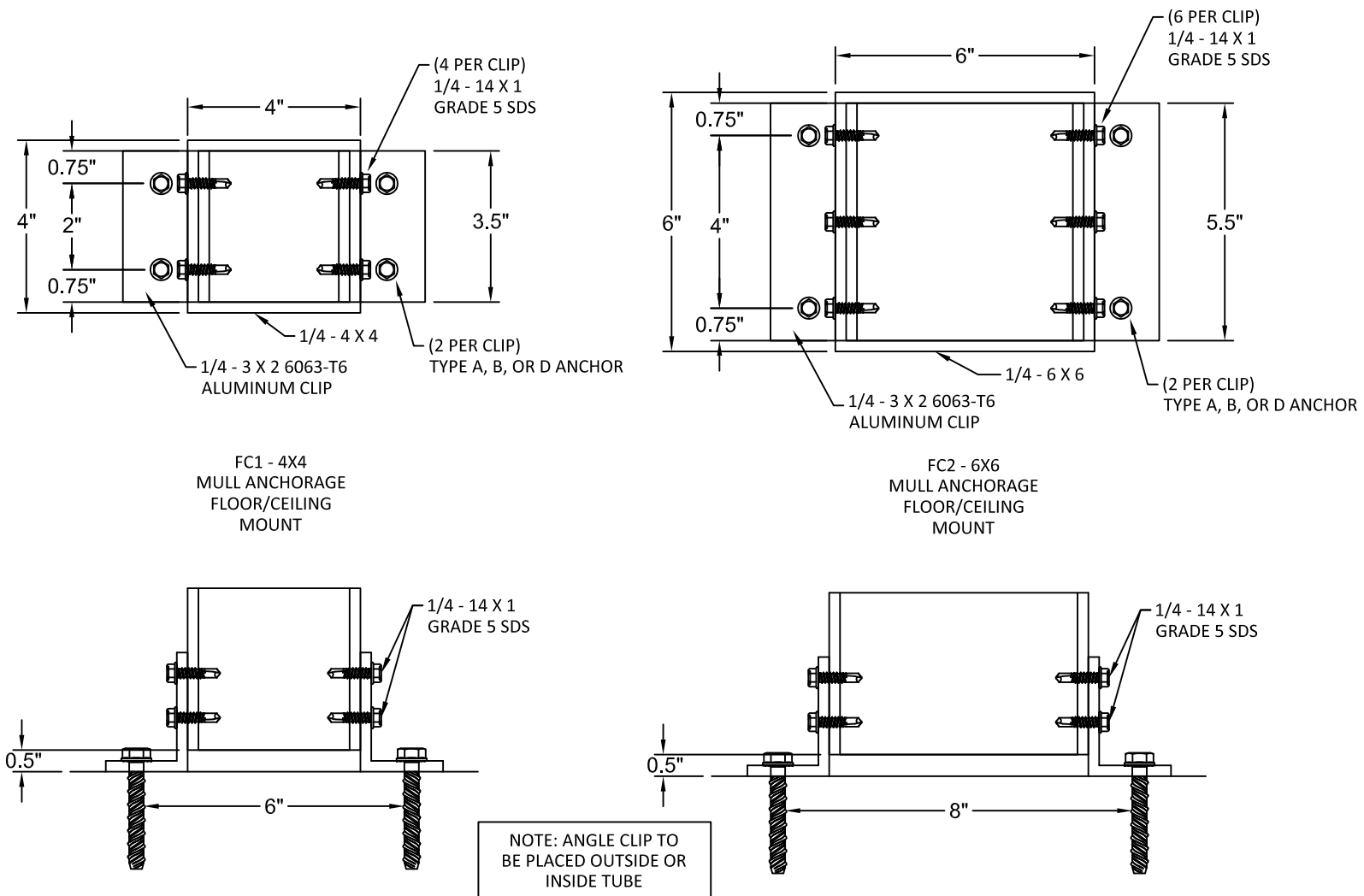
DWG. BY: SM      CHK. BY: HFN

SCALE: NTS

DWG. #: EMS006

SHEET:                      OF 19

## END MULLION AND CORNER MULLION INSET CONNECTIONS

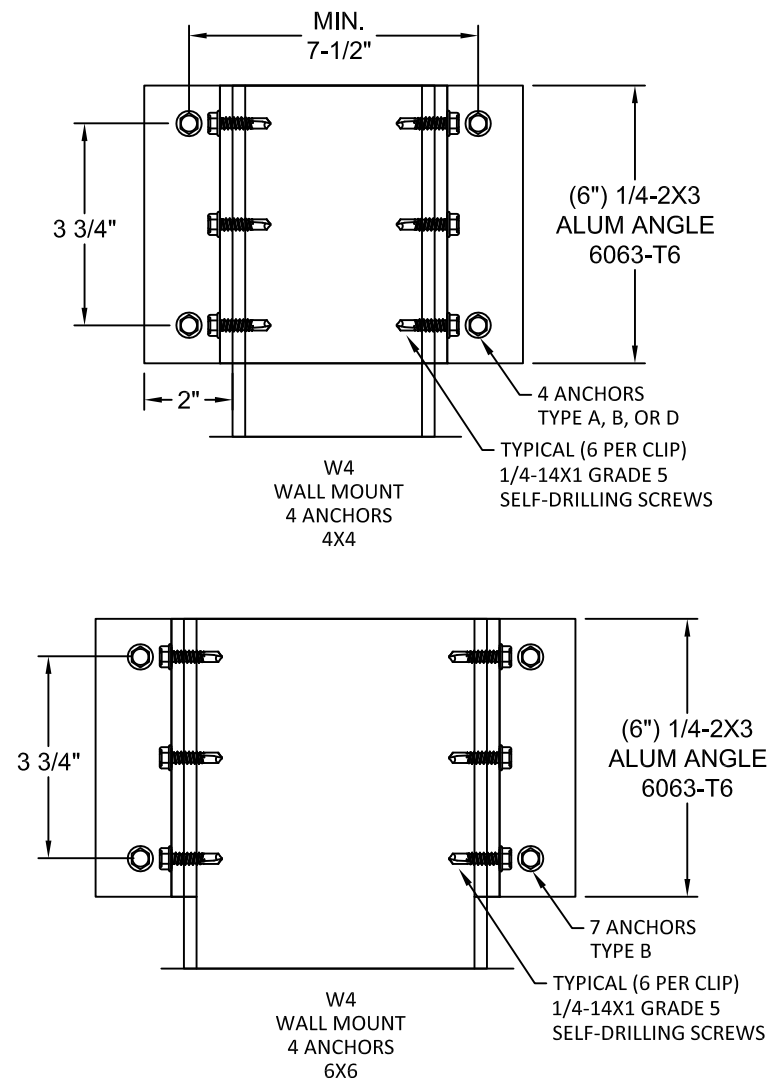


MULL FLOOR/CEILING MOUNT ANCHOR SELECTION				
ANCHOR TYPE	END MULLION TYPE		CORNER MULLION TYPE	
	4X4	6X6	4X4	6X6
A	FC1	FC2	FC1	FC2
B	N/A	FC2	N/A	N/A
D	N/A	FC2	N/A	N/A

### ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EDGE DISTANCE	EMBEDMENT
A	3/8" POWERS WEDGE BOLT	MIN. 3000 PSI CONCRETE	3 3/4"	3 1/2"
B	5/16" ITW TAPCON	MIN. 3000 PSI CONCRETE	2 3/16"	2 1/4"
D	5/16" ITW TAPCON	GROUT FILLED C-90 BLOCK f'm ≥ 2000 PSI	4"	2 1/4"

## END MULLION WALL CONNECTIONS



WALL MOUNT ANCHOR SELECTION		
ANCHOR TYPE	END MULLION TYPE	
	4X4	6X6
A	W4	W4
B	W4	W4
D	W4	W4

PREPARED BY:



**BUILDING DROPS, INC.**

398 E. DANIA BEACH BLVD., STE. 338  
DANIA BEACH, FL 33004  
PH: (954)399-8478  
FAX: (954)744.4738  
WEB: www.buildingdrops.com

TITLE: 55 MMER ROLL SHUTTERS  
END MULLION ANCHORS

AMERICAN SHUTTER SYSTEMS ASSOCIATION  
4268 WESTROADS DRIVE  
WEST PALM BEACH, FL 33407  
PH: 1-800-432-2204  
FAX: 561-841-0852

EASTERN METAL SUPPLY, INC.  
9400 TELGE RD  
HOUSTON, TX 77095  
PH: 1-800-996-6061  
FAX: 281-656-2297



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TEXAS P.E. NO. 118471  
BUILDING DROPS, INC.  
398 E. DANIA BEACH BLVD. #338  
DANIA BEACH, FL 33004  
TBPE FIRM NO. 13734

DATE: 03.07.18

DWG. BY: SM

CHK. BY: HFN

SCALE: NTS

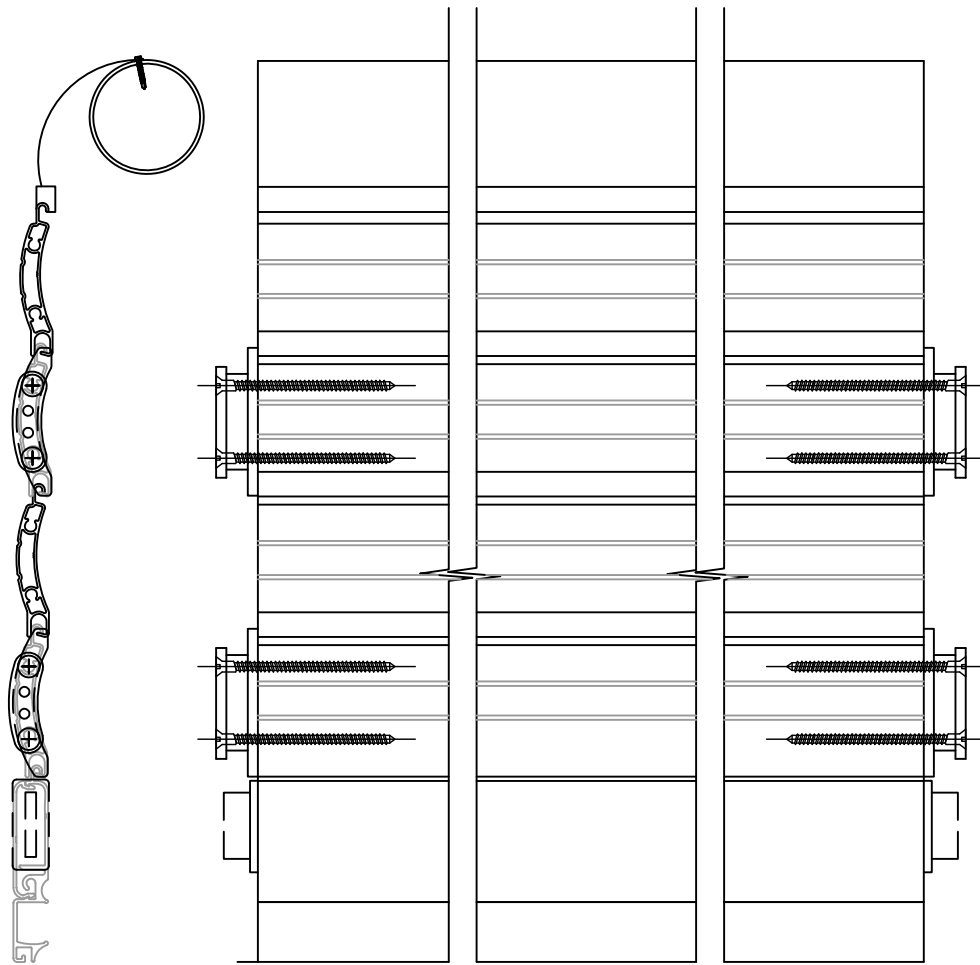
DWG. #: EMS006

SHEET: OF 19

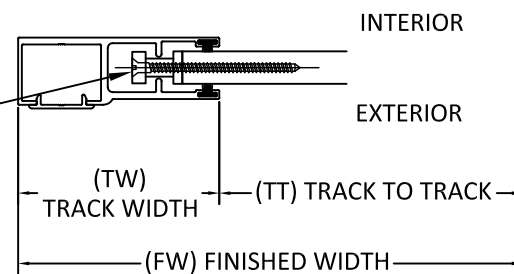
16



## SLAT END RETENTION LAY-OUT



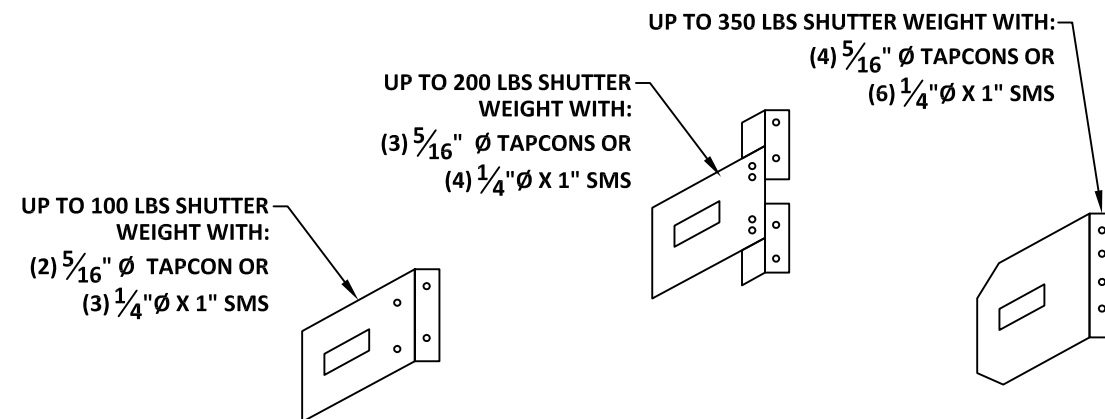
#10 X 2.5" PFH 18-8 S/S SMS, TWO (2) PER END RETENTION SLAT LOCK GUIDE, WITH A HV COATING SYSTEM AS MANUFACTURED BY AN APPROVED COATING APPLICATOR REGISTERED WITH THE AMERICAN SHUTTER SYSTEMS ASSOCIATION.



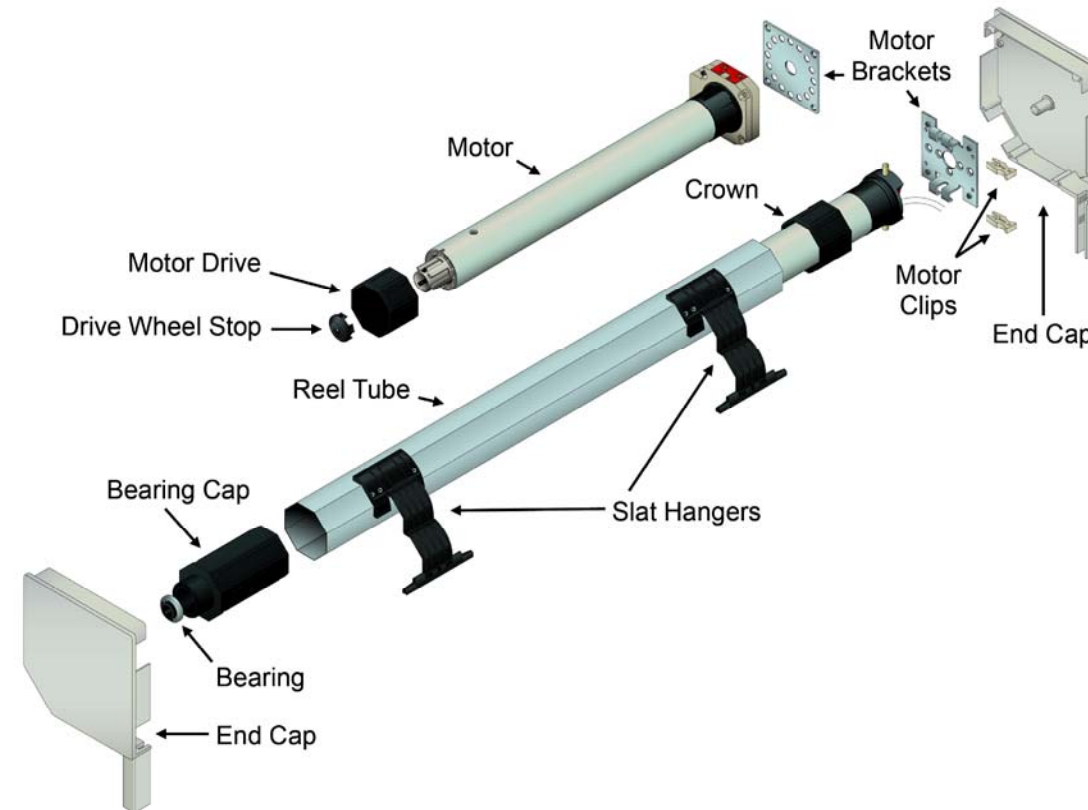
### NOTES:

1. SLAT END RETENTION LOCK TO BE AT EVERY OTHER SLAT
2. INSTALLATION SCREWS SHALL BE COATED WITH A HV COATING SYSTEM AS MANUFACTURED BY AN APPROVED COATING APPLICATOR REGISTERED WITH THE AMERICAN SHUTTER SYSTEMS ASSOCIATION.

## MOUNTING BRACKET



## ROLL-UP MECHANISM EXPLODED



### NOTES:

1. THE ROLL-UP MECHANISM (GEARS, MOTOR, SUPPORTING END PLATES) ARE NOT A PART OF THIS APPROVAL AND SHALL BE SELECTED BASED ON MANUFACTURER'S SPECIFICATIONS.
2. 60MM, 70MM, OR 94MM DIAMETER REEL TUBE PER MANUFACTURER SPECIFICATION
3. TUBULAR MOTOR MAY BE REPLACED WITH GEAR FOR MANUAL OPERATION.
4. OPTIONAL BOTTOM LOCK IS NOT REQUIRED FOR STRUCTURAL OR FORCED ENTRY RESISTANCE PERFORMANCE. FOR USE ON MAXIMUM 20' WIDE UNIT.
5. BASE SLAT IS OPTIONAL AND IS NOT REQUIRED FOR STRUCTURAL OR FORCED ENTRY RESISTANCE PERFORMANCE. FOR USE ON MAXIMUM 20' WIDE UNIT.

PREPARED BY:



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398 E. DANIA BEACH BLVD., STE. 338  
DANIA BEACH, FL 33004  
PH: (954)399-8478  
FAX: (954)744.4738  
WEB: www.buildingdrops.com

TITLE: 55 MMR ROLL SHUTTERS  
SLAT END RETENTION & HOOD ASSEMBLY

AMERICAN SHUTTER SYSTEMS ASSOCIATION  
4268 WESTROADS DRIVE  
WEST PALM BEACH, FL 33407  
PH: 1-800-432-2204  
FAX: 561-841-0852



EASTERN METAL SUPPLY, INC.  
9400 TELGE RD  
HOUSTON, TX 77095  
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DANIA BEACH, FL 33004  
TBPE FIRM NO. 13734

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SHEET: OF 19

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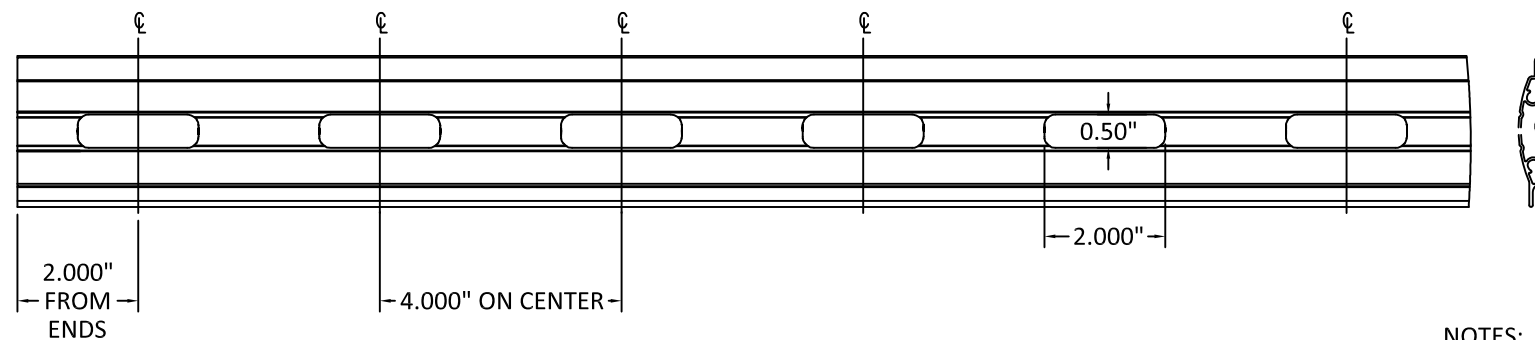
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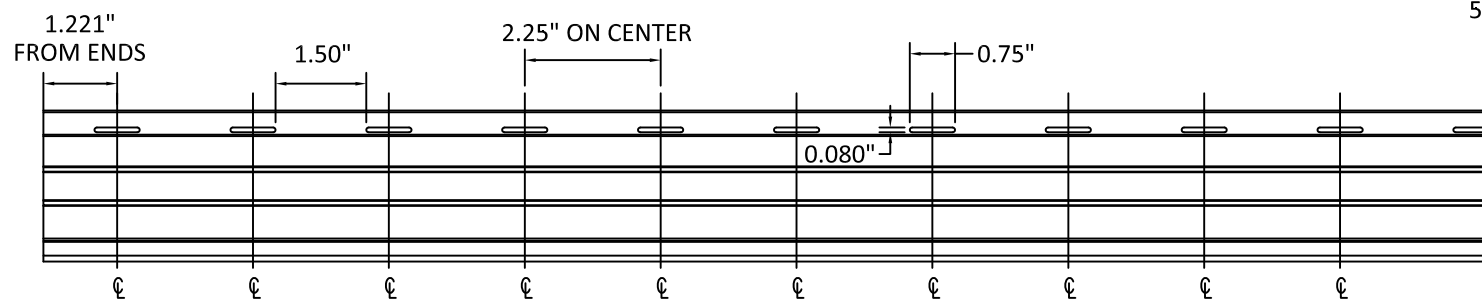
**BUILDING DROPS, INC.**

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DANIA BEACH, FL 33004  
PH: (954)399-8478  
FAX: (954)744.4738  
WEB: www.buildingdrops.com

### VIEWPORT SLAT DETAIL



### VENTED SLAT DETAIL



**NOTES:**

1. USE OF VIEWPORT SLATS SHALL BE LIMITED TO EVERY OTHER SLAT. MAY BE USED FOR FULL DOOR HEIGHT, EXCEPT FOR WITHIN 36" OF BOTTOM OF FRAME.
2. VIEWPORT SLATS MAY ONLY BE USED ON SLATS WITH END RETENTION.
3. VIEWPORTS USE MAKROLON POLYCARBONATE INSERT.
4. END RETENTION LOCKS ARE REQUIRED EVERY OTHER SLAT.
5. VENTED OR UN-VENTED SLATS QUALIFIED.

TITLE: 55 MMR ROLL SHUTTERS  
VIEWPORT AND VENT DETAILS

AMERICAN SHUTTER SYSTEMS ASSOCIATION  
4268 WESTROADS DRIVE  
WEST PALM BEACH, FL 33407  
PH: 1-800-432-2204  
FAX: 561-841-0852



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SCALE: NTS

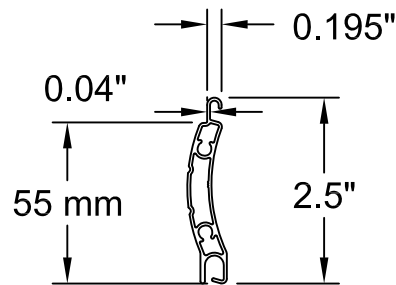
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SHEET: OF 19

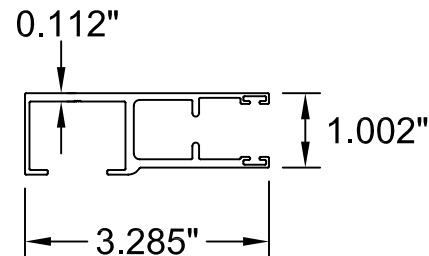
## BILL OF MATERIALS

ITEM NO.	DESCRIPTION	MATERIAL
1	55 mm SLAT	6063-T6
2	LARGE GUIDE RAIL	6063-T6
2A	LARGE GUIDE RAIL - ENCLOSED	6063-T6
3	SMALL GUIDE RAIL	6063-T6
3A	SMALL GUIDE RAIL - ENCLOSED	6063-T6
4	COVER CAP	6063-T6
5	SLAT LOCK - 2 PIECE	POLYACETAL
5A	SLAT LOCK - 1 PIECE	POLYACETAL
6	BOTTOM SLAT COVER	6063-T6
7	BOTTOM SLAT	6063-T6

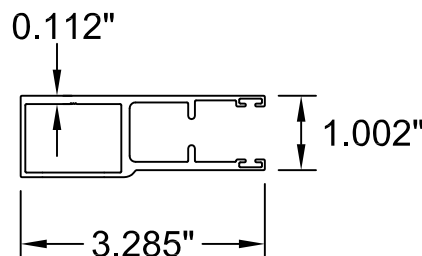
**1** SLAT  
6063-T6



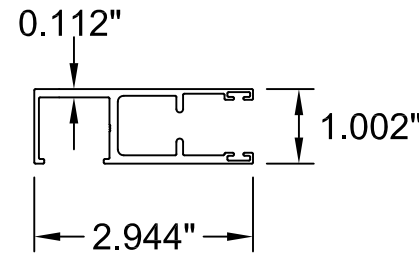
**2** LARGE GUIDE RAIL  
6063-T6



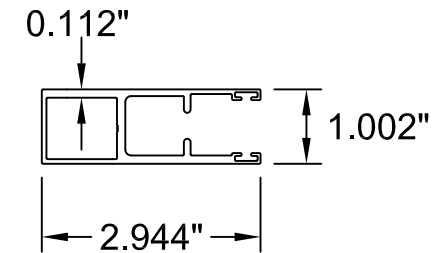
**2A** LARGE GUIDE RAIL  
ENCLOSED  
6063-T6



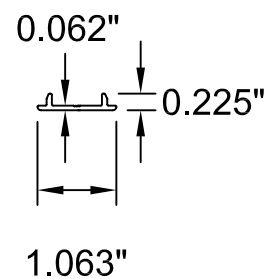
**3** SMALL GUIDE RAIL  
6063-T6



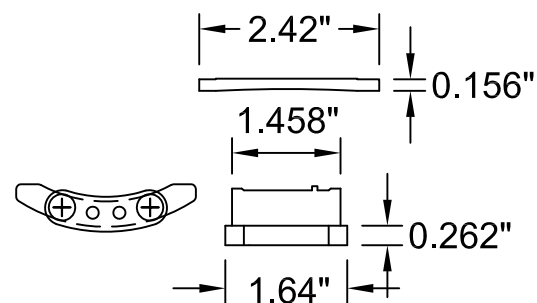
**3A** SMALL GUIDE RAIL  
ENCLOSED  
6063-T6



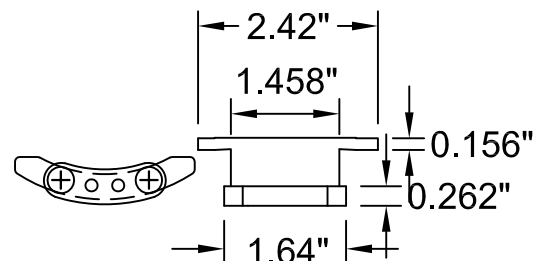
**4** COVER CAP  
6063-T6



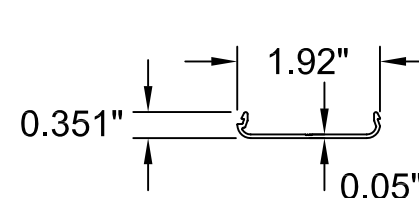
**5** SLAT LOCK - 2 PIECE  
POLYACETAL



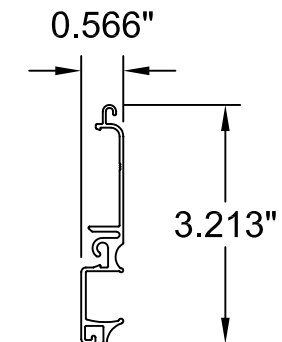
**5A** SLAT LOCK - 1 PIECE  
POLYACETAL



**6** BOTTOM SLAT  
COVER



**7** BOTTOM SLAT



PREPARED BY:



**BUILDING DROPS, INC.**

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DANIA BEACH, FL 33004  
PH: (954)399-8478  
FAX: (954)744.4738  
WEB: www.buildingdrops.com

TITLE: 55 MMER ROLL SHUTTERS  
BOM & COMPONENTS

AMERICAN SHUTTER SYSTEMS ASSOCIATION  
4268 WESTROADS DRIVE  
WEST PALM BEACH, FL 33407  
PH: 1-800-432-2204  
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REMARKS	BY	DATE

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