

GENERAL NOTES:

- 1- DEFINITION: THIS PRODUCT IS A ROLLING TYPE SHUTTER, DESIGNED, CONSTRUCTED AND ERECTED TO EASILY ENCLOSE AN AREA, PROVIDING PROTECTION FROM HURRICANE FORCE WINDS AND WIND BORNE DEBRIS WITHIN THE ALLOWABLE DESIGNED PRESSURES AND LIMITATIONS STATED IN THIS APPROVAL.
- 2- POSTING: A PERMANENT LABEL SHALL BE PROVIDED AS PER FBC 2010 SECTION 1715.8.1
 - 2.1- LOCATION: SHALL BE PLACED ON THE BOTTOM OF THE HOOD FACING THE EXTERIOR OR OUTSIDE OR ON THE BOTTOM SLAT FACING THE EXTERIOR OR OUTSIDE
 - 2.2- INFORMATION STATING THE FOLLOWING:
 - *CROCI NORTH AMERICA - FORT MYERS - FLORIDA
 - FLORIDA BUILDING COMMISSION APPROVED
 - ASTM E330, ASTM E1996, ASTM E1886
 - APPROVAL NUMBER# -----
- 3- LIMITATION: PRODUCTS WERE DESIGNED AS "NON POROUS". THE GLAZING SEPARATION WERE NOT ACCOUNT IN THE DESIGN THEREFORE NOT QUALIFYING THE PRODUCT FOR USE IN THE FOLLOWING LOCATIONS: HIGH VELOCITY HURRICANE ZONES (HVHZ MIAMI-DADE & BROWARD COUNTIES)
- WIND ZONE 4 AS DEFINED IN ASTM E 1996-05 (LOCATIONS WITH WIND SPEED GREATER THAN 160 MPH AS PER FBC 2010 SECTION 1609.1.2.4) ESSENTIAL FACILITIES AS DEFINED IN ASCE 7
- 4- LOADS: DESIGNED LOAD CALCULATED BASED ON THE ASCE 7 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 AS SPECIFIED IN THE CURRENT SET OF DRAWINGS. INSTALLATION AND LOADS AS PER THIS APPROVAL.
- 7- MULTIPLE SHUTTERS: REINFORCEMENTS SUCH AS MULLIONS WERE DESIGNED BY RATIONAL ANALYSIS AND ARE PART OF THESE DRAWINGS. DUE TO MANY VARIATIONS OF REINFORCEMENTS, LOADS AND SHUTTER DIMENSIONS BECOME IMPRACTICAL ADDRESSING ALL CONDITIONS IN ONE SET OF DRAWINGS. THE CONDITIONS ADDRESSED IN THE PROPOSED DRAWINGS HAVE CONSERVATIVE LIMITATIONS IN ORDER TO FACILITATE THE DESIGN. SITE SPECIFIC CONDITIONS CAN BE ADDRESSED ON A JOB BASIS PROVIDED PROPER ENGINEERING.
- 8- USE: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, ARCHITECT OR ENGINEER OF RECORD TO VERIFY THE FOLLOWING:
 - 8.1- THE STABILITY OF THE STRUCTURE WHERE THE SHUTTER IS TO BE ATTACHED INSURING PROPER ANCHORAGE.
 - 8.2- THE SITE SPECIFIC PROJECT CRITERIA, SUCH AS BUT NOT LIMITED TO, WINDLOADS, LOCAL CODE REQUIREMENTS, DESIGNED PRESSURES ETC.
 - 8.3- THAT THIS APPROVAL IS ADEQUATE TO THE SPECIFIC PROJECT.

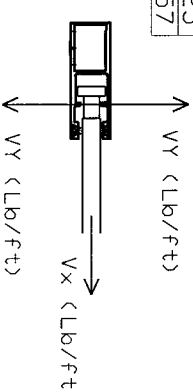
DESIGN SCHEDULE		SHEET
COMPONENT		1
SLAT ALLOWABLE PRESSURE - TABLE 1		4 & 5
TRACK ANCHORAGE		6 & 7
EQUALLY SPACED MULLIONS		8 & 9
UNEQUALLY SPACED AND END MULLIONS		8 & 9

NOTES:
 1-ALLOWABLE DESIGNED PRESSURE FOR MULTIPLE SHUTTERS ARE FUNCTION OF THE LOWEST ALLOWABLE DESIGNED LOAD FOR THE SLATS, MULLIONS AND ANCHORAGE.
 2- DESIGNED PRESSURES MUST NOT EXCEED 110 PSF.
 3- SHUTTER SIZE (TT) MUST NOT EXCEED 120".
 4- FOR MULTIPLE SHUTTERS USE TABLE 1 TO VERIFY MAXIMUM ALLOWABLE PRESSURE THAN USE TABLE 2 AND 3 TO SELECT INTERMEDIATE AND END MULLIONS AND SELECT PROPER MULLION ANCHORAGE

TABLE 1 - ALLOWABLE DESIGNED PRESSURE

FW MAX.	ALLOWABLE WIND PRESSURES	
	POSITIVE	NEGATIVE
124'	+ 40.0	- 40.0
109'	+ 50.0	- 50.0
94'	+ 60.0	- 60.0
82'	+ 80.0	- 80.0
64'	+110.0	-110.0

LOAD	FINISHED WIDTH (FW)											
	64	82	94	109	124							
Psf	Vx Vy	Vx Vy	Vx Vy	Vx Vy	Vx Vy							
30	62 74	359 96	540 111	443 130	361 149							
40	149 99	496 129	712 149	516 174	397 199							
45	187 111	557 145	789 167	545 195								
50	220 123	614 161	862 186	571 217								
55	251 135	667 177	930 204									
60	280 148	716 193	993 223									
65	306 160	763 209										
70	330 172	807 225										
80	373 197	887 257										
90	410 222											
100	442 246											
105	457 259											
110	471 271											



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

CODE AND STANDARD COMPLIANCE:
 FLORIDA BUILDING CODE 2010 (NON HVHZ)
 ASTM E330, E1996, E1886 (LEVEL D MISSILE)
 ASCE 7-10, SSTD 12-99, ADM-05

Manufacturer:

CROCI

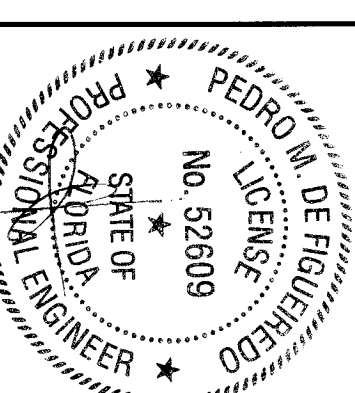
North America
 6360 TOPAZ COURT
 FORT MYERS, FL 33966
 Tel.: (239) 278-3066
 Fax: (239) 278-5977
 EMAIL: INFO@CROCIUSA.COM

PRODUCT:

ES 44 SUP
 EXTRUDED ALUMINUM
 ROLL-UP SHUTTER

Engineering:

Eng'g Do Inc.
 CA 8116
 ENGCO@AOL.COM



Engineer Seal
 Pedro De Figueiredo, PE 52609

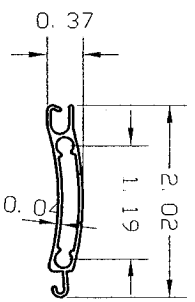
Date: 12/06/11
 Scale: NA
 Design by: PPMF

DRAFTING:
PK DRAFTING & MORE

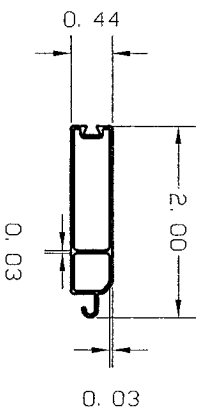
Drawing Number
11-241

Sheet
1 of 10

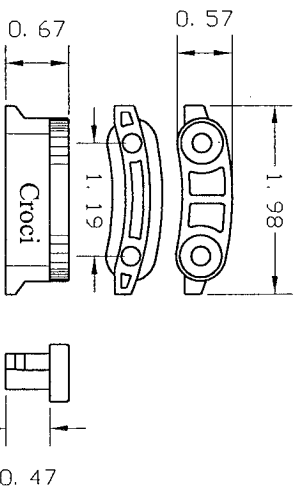
PRODUCT COMPONENTS



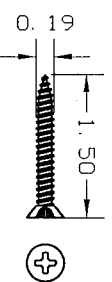
A- ES44SUP SLAT
6063-T5 EXTRUDED ALUMINUM



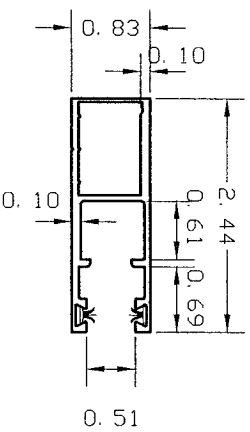
B- TE7X56U END SLAT
6063-T6 EXTRUDED ALUMINUM



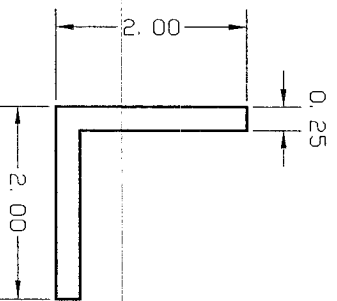
A1- SLAT NYLON RETAINER
SECURED TO SLAT BY
(2) #10X1 1/2" PFHSMS



D- SLAT RETENTION SCREW
#10X1-1/2" 18-8 SS PFH
SHEET METAL SCREW

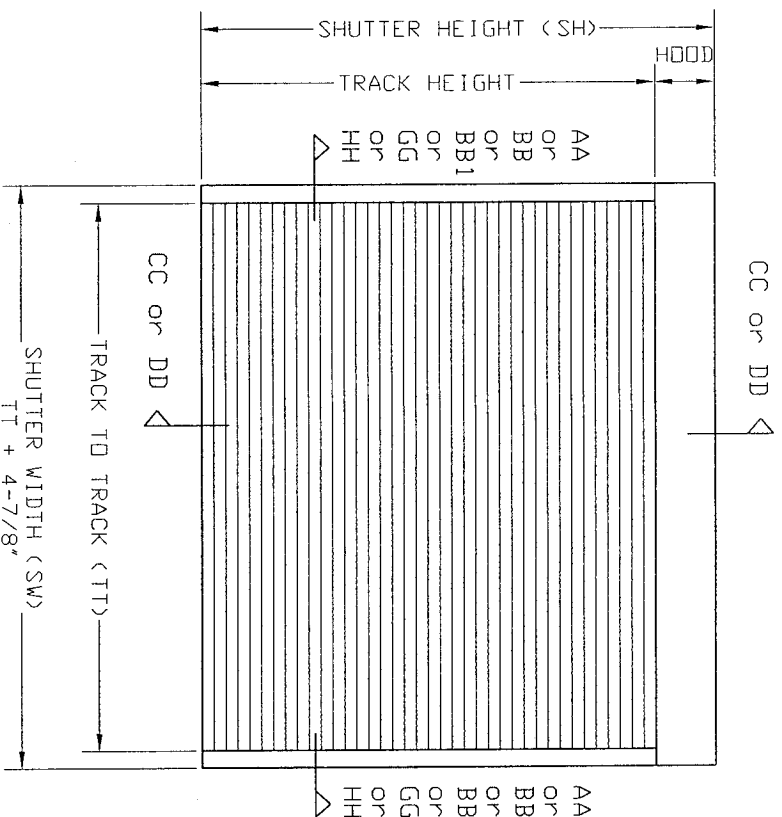


C- GE62X21SUP GUIDE RAIL W/ FELT
6063-T5 EXTRUDED ALUMINUM

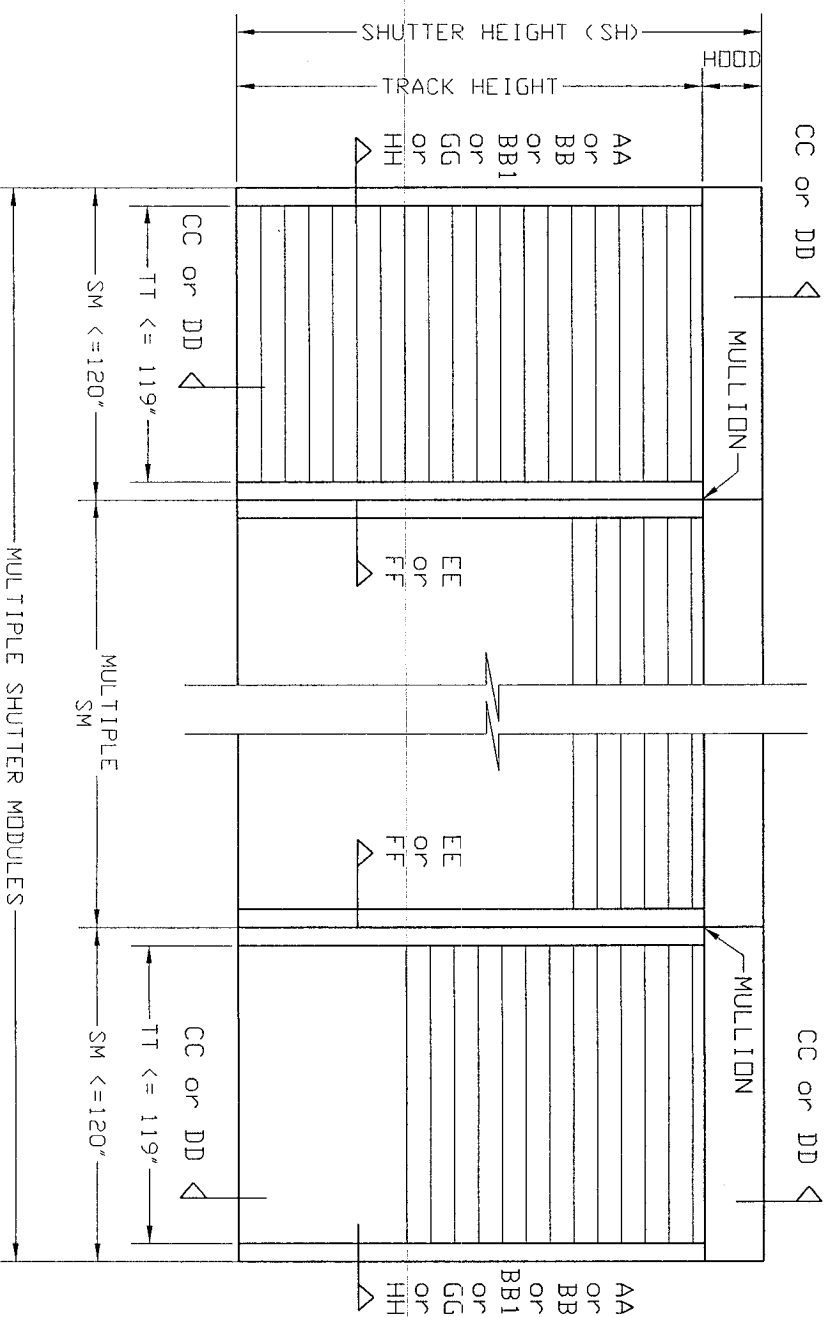


E- INSET SUPPORT ANGLE
EXTRUDED ALUMINUM
6061-T6 or 6005-T5

TYPICAL SINGLE UNIT ELEVATION



TYPICAL MULTIPLE UNITS ELEVATION



Manufacturer:

CROCCI

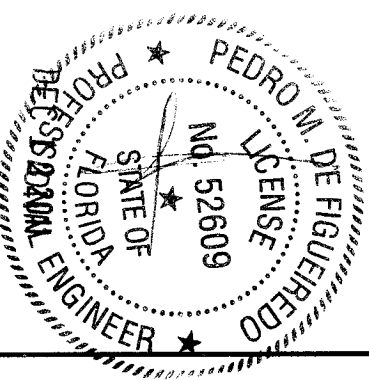
North America
6360 TOPAZ COURT
FORT MYERS, FL 33966
Tel.: (239) 278-3066
Fax: (239) 278-5977
EMAIL: INFO@CROCIUSA.COM

PRODUCT:

ES 44 SUP
EXTRUDED ALUMINUM
ROLL-UP SHUTTER

Engineering:

EngCo Inc.
CA 8116
ENGCO@AOL.COM



Engineer Seal
Pedro De Figueredo, PE 52609

Date: 12/06/11
Scale: NA
Design by: PPMF

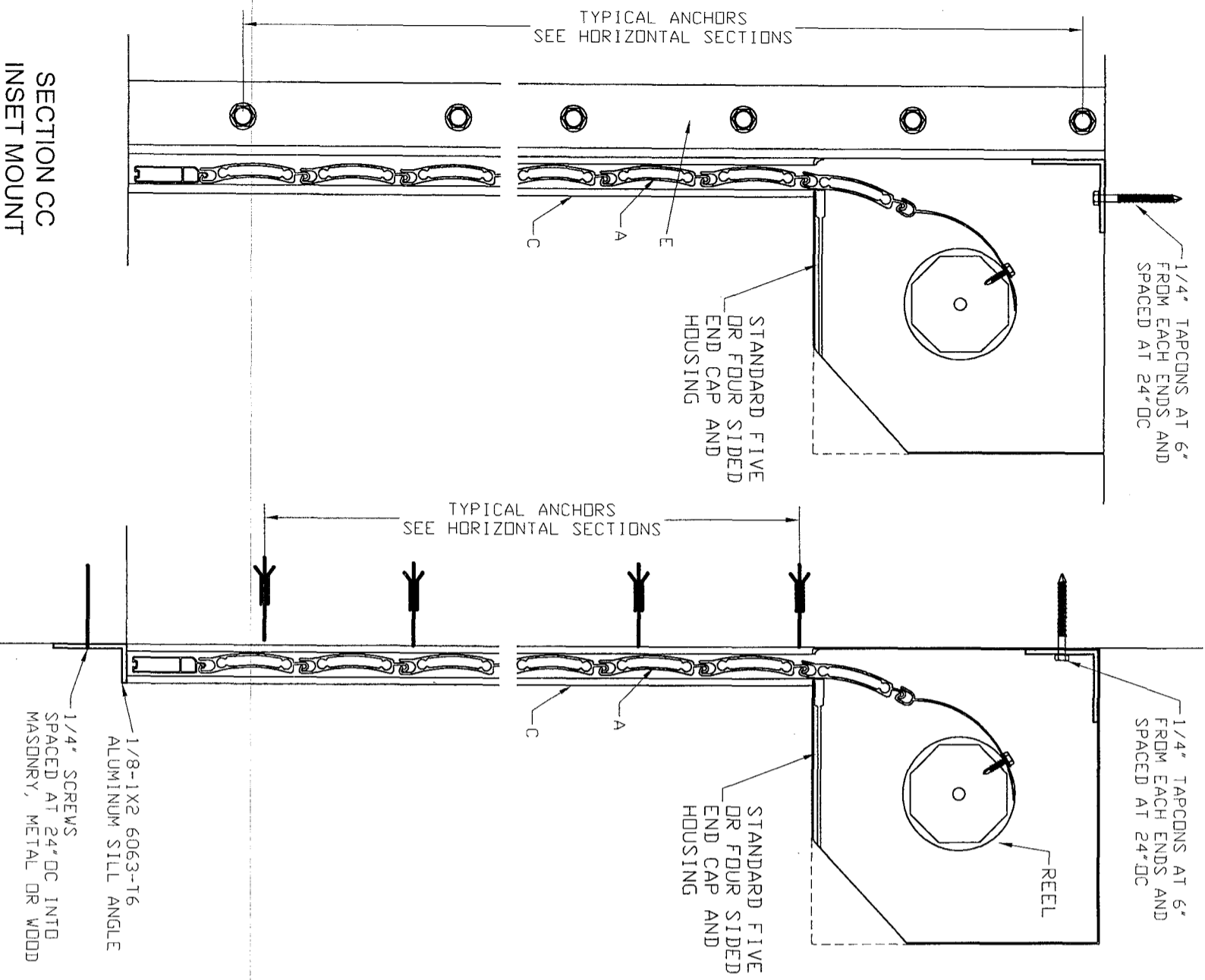
DRAFTING:

PK DRAFTING & MORE

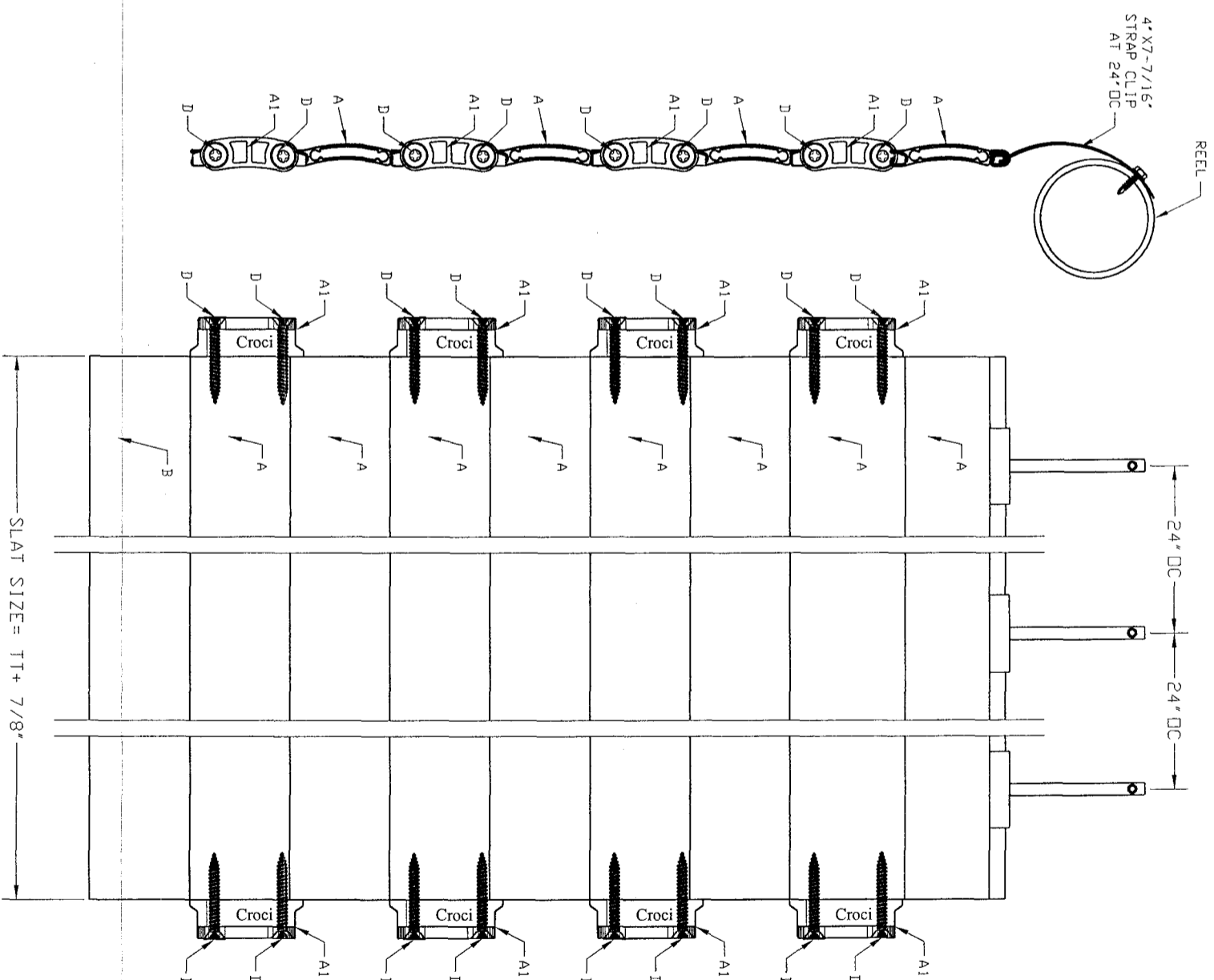
Drawing Number
11-241

Sheet
2 of 10

TYPICAL VERTICAL SECTIONS



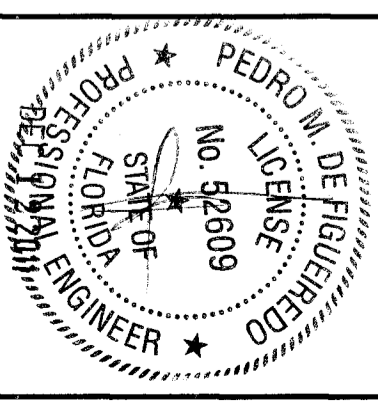
SLAT END RETENTION LAY-OUT



Manufacturer:
C R O C I
 North America
 6360 TOPPAZ COURT
 FORT MYERS, FL 33966
 Tel.: (239) 278-3066
 Fax: (239) 278-5977
 EMAIL: INFO@CROCIUSA.COM

PRODUCT:
ES 44 SUP
 EXTRUDED ALUMINUM
 ROLL-UP SHUTTER

Engineering:
Eng'g Jr.
 CA 8116
 ENGCO@AOL.COM



Engineer Seal
 Pedro De Figueredo, PE 52609
 Date: 12/06/11
 Scale: NA
 Design by: PPMF

DRAFTING:
PK DRAFTING & MORE

Drawing Number
11-241

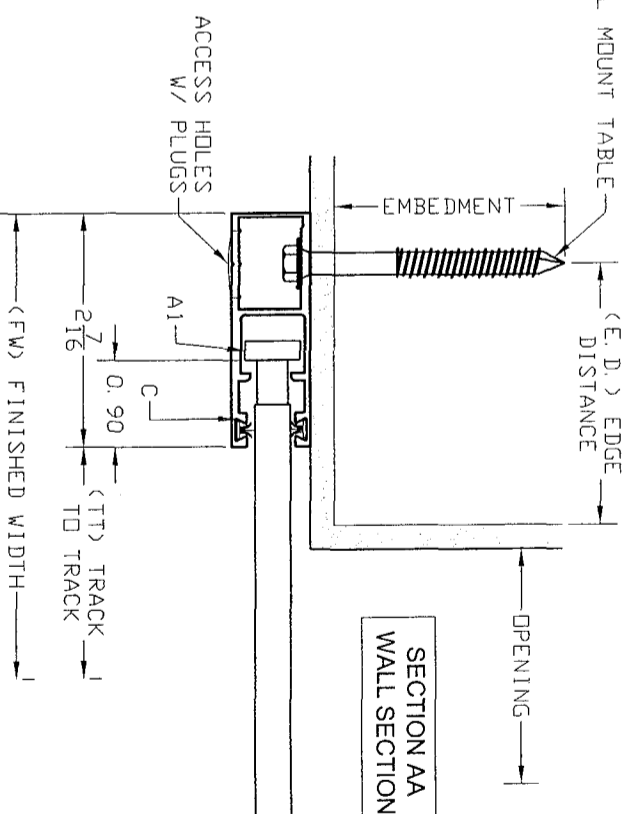
Sheet
3 of 10

TYPICAL HORIZONTAL SECTIONS
AND ANCHOR SCHEDULE

WALL MOUNT ANCHORAGE SPACING

LOAD	64				82				94				109				124									
	A	A1	B	B1	C	D	A	A1	B	B1	C	D	A	A1	B	B1	C	D	A	A1	B	B1	C	D		
Psf	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
30	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
45	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
50	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
55	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
60	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
65	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
70	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
80	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
90	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
100	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
105	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
110	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

SEE WALL MOUNT TABLE



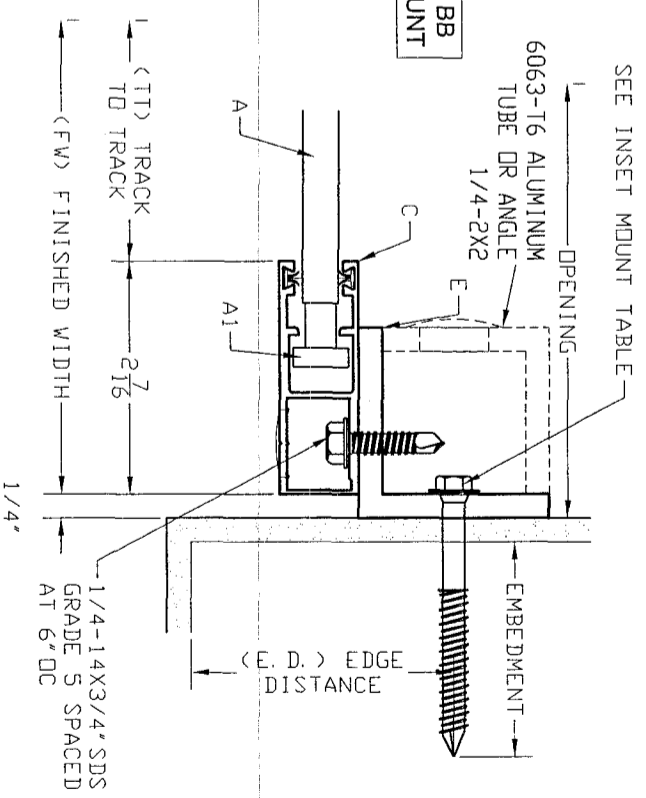
ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EMBEDMENT	EDGE DISTANCE
A	1/4"X2-3/4" TAPCONS	MIN. 3192 psi CONCRETE	1-3/4"	2-1/2"
A1	5/16"X3" TAPCONS	MIN. 2899 psi CONCRETE	2 1/4"	3 1/8"
B	1/4"X2-3/4" TAPCONS	HOLLOW C-90 BLOCK	1 1/4"	2-1/2"
B1	5/16"X3" TAPCONS	GRDUT FILLED C-90 BLOCK	2 1/4"	4"
C	1/4"-14X1" GRADE 5 SELF DRILLING SCREWS	MIN. 1/4" 6063-T6 ALUM. DR A36 3/16" STEEL		1/2" 3/8"
D	5/16"X3" TAPCONS	WOOD WITH G>= 55	2 1/4"	1-1/4"

INSET MOUNT ANCHORAGE SPACING

LOAD	64				82				94				109				124									
	A	A1	B	B1	C	D	A	A1	B	B1	C	D	A	A1	B	B1	C	D	A	A1	B	B1	C	D		
Psf	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
30	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
45	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
50	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
55	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
60	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
65	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
70	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
80	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
90	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
100	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
105	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
110	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

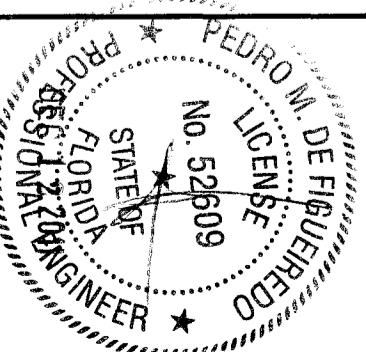
SECTION BB
INSET MOUNT



Manufacturer:
CROCCI
North America
6360 TOPAZ COURT
FORT MYERS, FL 33966
Tel.: (239) 278-3066
Fax: (239) 278-5977
EMAIL: INFO@CROCIUSA.COM

PRODUCT:
ES 44 SUP
EXTRUDED ALUMINUM
ROLL-UP SHUTTER

Engineering:
EngCo Inc.
CA 8116
ENGCO@AOL.COM

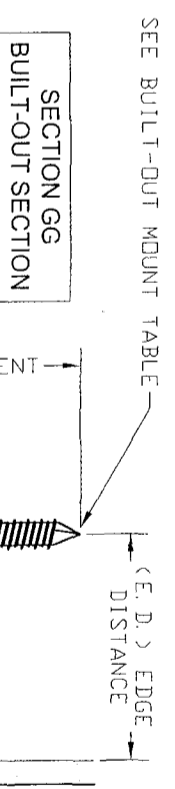


Engineer Seal
Pedro De Figueiredo, PE 52609
Date: 12/06/11
Scale: NA
Design by: PPMF

DRAFTING:
PK DRAFTING & MORE
Drawing Number
11-241

BUILT-OUT MOUNT ANCHORAGE SPACING

LOAD Psf	FINISHED WIDTH (FW)																
	64			82			94			109			124				
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
30	6	6	6	6	5	6	6	6	4	6	6	6	5	4	6	6	6
40	6	6	6	6	3	5	5	5	4	4	4	3	3	5	5	5	4
45	6	6	6	6	3	5	5	5	4	4	4	3	3	5	5	5	4
50	6	6	6	6	3	5	5	5	4	4	4	3	3	5	5	5	4
55	6	6	6	6	4	4	4	4	4	4	4	3	3	4	4	4	3
60	6	6	6	6	4	4	4	4	4	4	4	3	3	4	4	4	3
65	6	6	6	6	4	4	4	4	4	4	4	3	3	4	4	4	3
70	5	6	6	6	3	3	3	3	3	3	3	3	3	3	3	3	3
80	4	6	6	6	3	3	3	3	3	3	3	3	3	3	3	3	3
90	4	6	6	6	3	3	3	3	3	3	3	3	3	3	3	3	3
100	3	6	6	6	4	4	4	4	4	4	4	4	4	4	4	4	4
105	3	5	6	6	5	5	5	5	4	4	4	4	4	4	4	4	4
110	3	5	6	6	5	5	5	5	4	4	4	4	4	4	4	4	4



1/4"-14X1" GRADE 5 SDS
SPACED AT 3" DC
ACCESS HOLES
W/ PLUGS

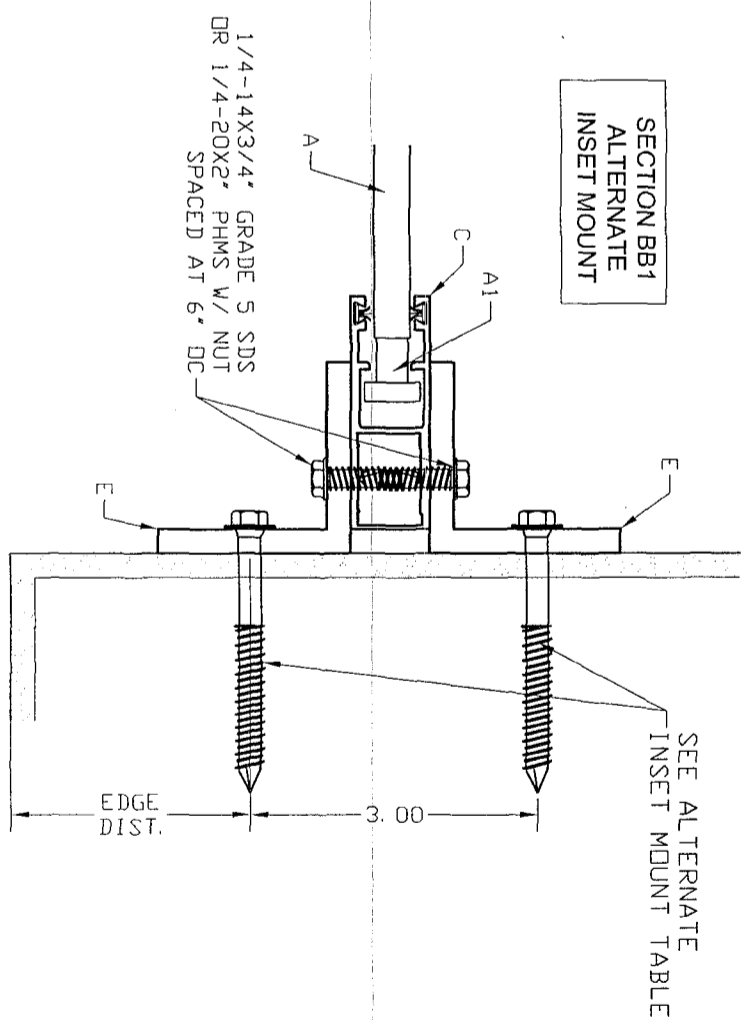
ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EMBEDMENT	EDGE DISTANCE
A	1/4"X2-3/4" TAPCONS	MIN. 3192 PSI CONCRETE	1-3/4"	2-1/2"
A1	5/16"X3" TAPCONS	MIN. 2899 PSI CONCRETE	2 1/4"	3 1/8"
B	1/4"X2-3/4" TAPCONS	HOLLOW C-90 BLDCK	1 1/4"	2-1/2"
B1	5/16"X3" TAPCONS	GRUIT FILLED C-90 BLDCK	2 1/4"	4"
C	1/4"-14X1" GRADE 5 SELF DRILLING SCREWS	MIN. 1/4" 6063-T6 ALUM. DR A36 3/16" STEEL	1 1/4"	1/2" 3/8"
D	5/16"X3" TAPCONS	WDD WITH G>= S5	2 1/4"	1-1/4"

ALTERNATE INSET MOUNT ANCHORAGE SPACING

LOAD Psf	ANCHORS A, A1, B1, C, D																
	64			82			94			109			124				
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
30	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
45	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
50	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
55	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
60	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
65	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
70	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
80	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
90	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
100	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
105	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
110	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

LOAD Psf	ANCHOR B																
	64			82			94			109			124				
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
30	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
45	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
50	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
55	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
60	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
65	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
70	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
80	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
90	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
100	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
105	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
110	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6



Manufacturer: **CROCI**
 North America
 6360 TOPAZ COURT
 FORT MYERS, FL 33966
 Tel.: (239) 278-3066
 Fax: (239) 278-5977
 EMAIL: INFO@CROCIUSA.COM

PRODUCT: **ES 44 SUP**
 EXTRUDED ALUMINUM
 ROLL-UP SHUTTER

Engineering: **EngCo Inc.**
 CA 8116
 ENGCO@AOL.COM

PEDRO M. DE FIGUEROA
 LICENSE No. 52609
 STATE OF FLORIDA REGISTERED PROFESSIONAL ENGINEER

Engineer Seal
 Pedro De Figueroa, PE 52609

Date: 12/06/11
 Scale: NA
 Design by: PPMF

DRAFTING: **PK DRAFTING & MORE**

Drawing Number: **11-241**

Sheet: **5 of 10**

EQUALLY SPACED MULLIONS SELECTION

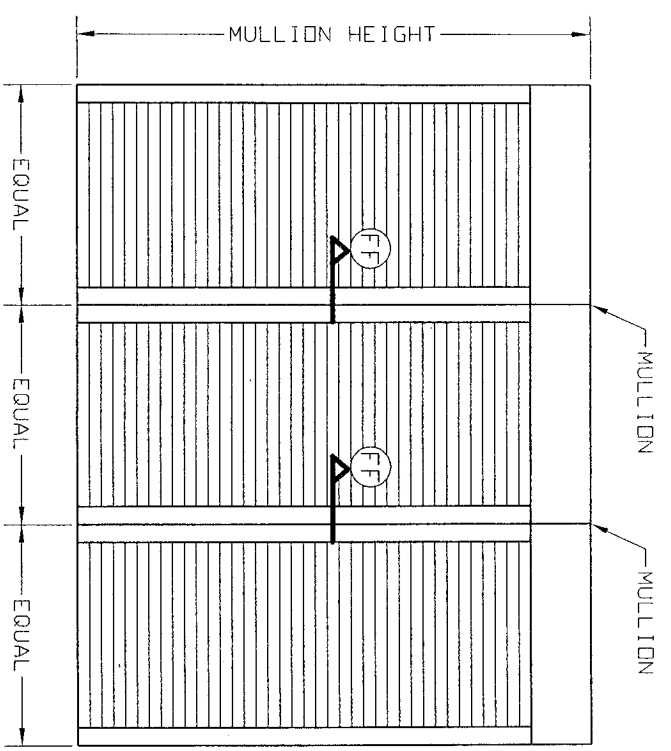
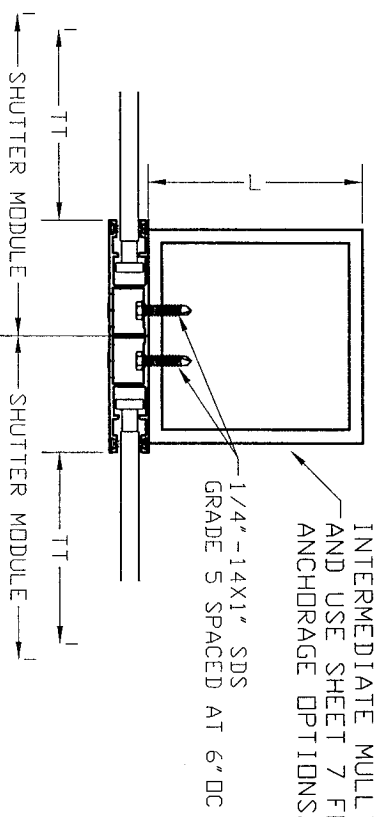


TABLE 2 - EQUAL SPACED MULLION DESIGNED PRESSURES (PSF)

SHUTTER MODULE	MULLION TYPE & MAX. HEIGHT			1/4-3x3	1/4-4x4	1/4-4x6	MAXIMUM PRESSURE IN PSF
	1/4-4x6	1/4-4x4	1/4-3x3				
144	120	108	96	108	96	84	
124	40	40	40	20	29	40	
109	50	50	43	23	33	50	
94	60	60	50	27	39	58	
82	79	80	57	31	44	66	
64	101	110	74	40	57	85	

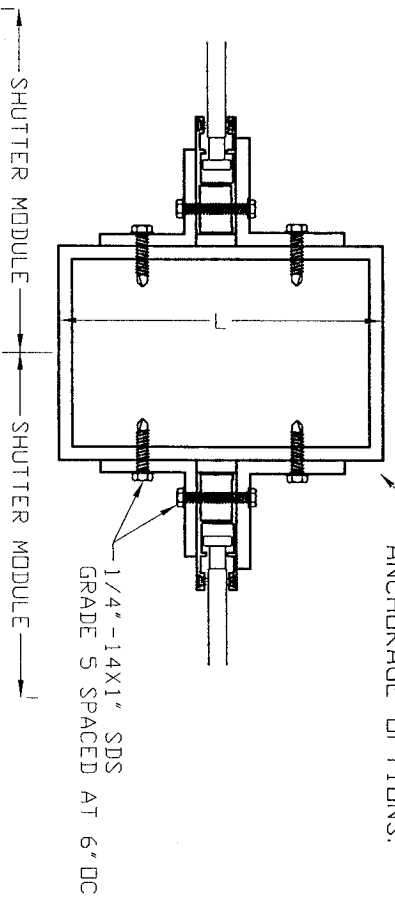
NOTE: TABLE 2 IS APPLICABLE ONLY FOR EQUAL SHUTTER MODULES

SECTION FF
EQUALLY SPACED MULLIONS
WALL MOUNT TRACK



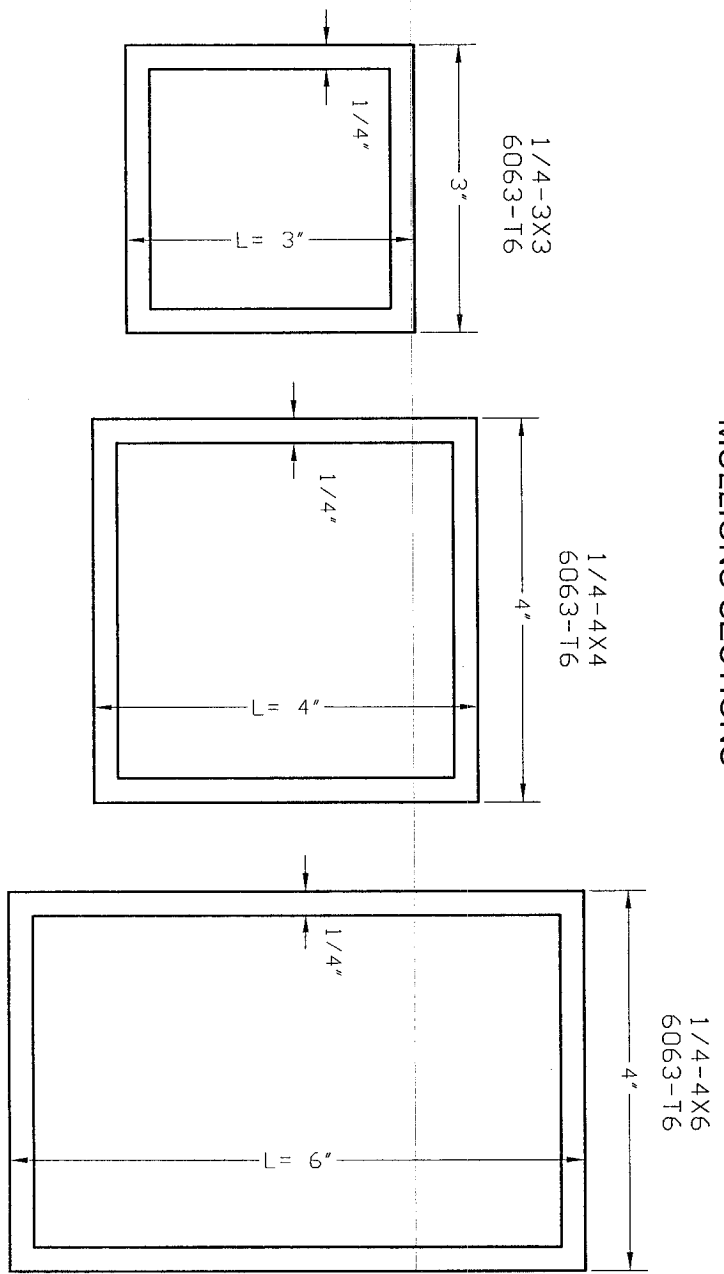
USE TABLE 2 TO SELECT INTERMEDIATE MULLION AND USE SHEET 7 FOR ANCHORAGE OPTIONS.

SECTION FF
EQUALLY SPACED MULLIONS
INSET MOUNT TRACK



USE TABLE 2 TO SELECT INTERMEDIATE MULLION AND USE SHEET 7 FOR ANCHORAGE OPTIONS.

MULLIONS SECTIONS



Manufacturer:

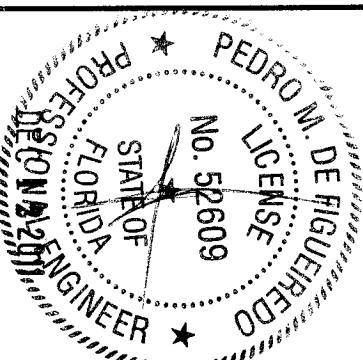
CROCCI

North America
6360 TOPAZ COURT
FORT MYERS, FL 33966
Tel.: (239) 278-3066
Fax: (239) 278-5977
EMAIL: INFO@CROCIUSA.COM

PRODUCT:

ES 44 SUP
EXTRUDED ALUMINUM
ROLL-UP SHUTTER

Engineering:
FengGo Inc.
CA 8116
ENGCO@AOL.COM



Engineer Seal
Pedro De Figueiredo, PE 52609

Date: 12/06/11
Scale: NA
Design by: PPMF

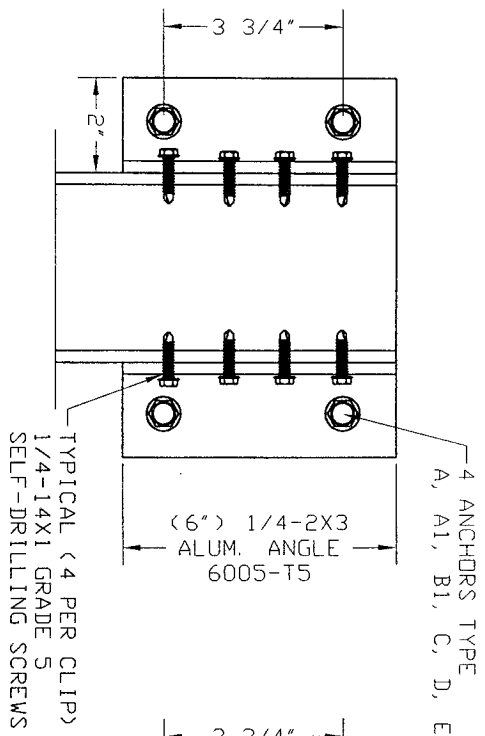
DRAFTING:
PK DRAFTING & MORE

Drawing Number
11-241

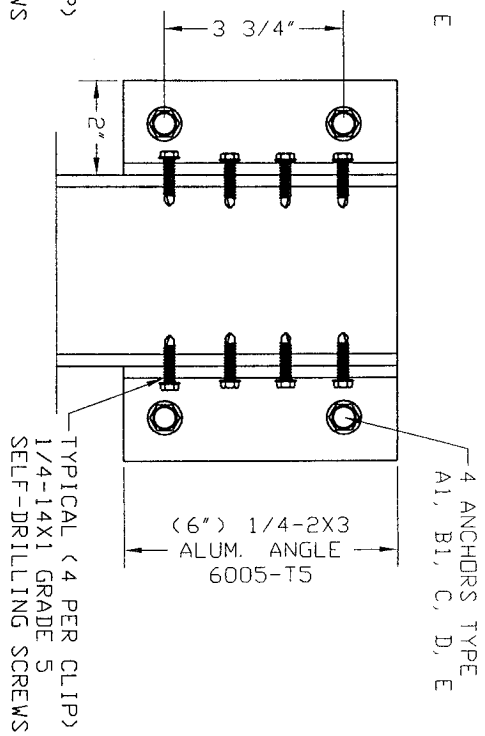
Sheet
6 of 10

EQUALLY SPACED MULLIONS WALL AND FLOOR CONNECTIONS

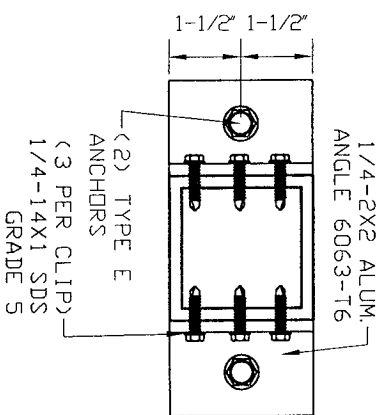
3X3 MULLION WITH 4 ANCHORS



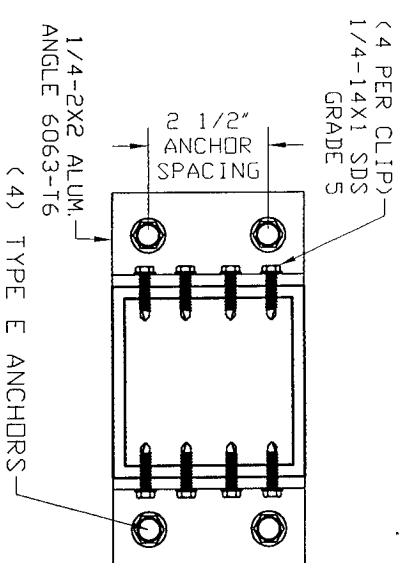
4X4 MULLION WITH 4 ANCHORS



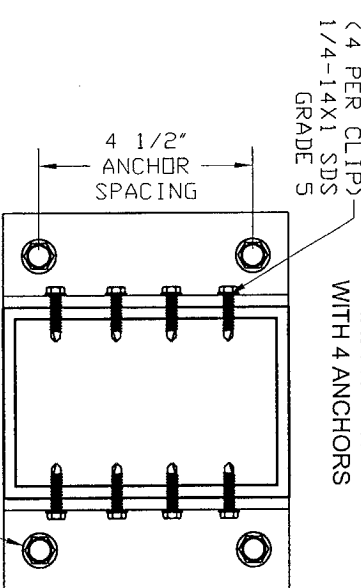
3X3 MULLION WITH 2 ANCHORS



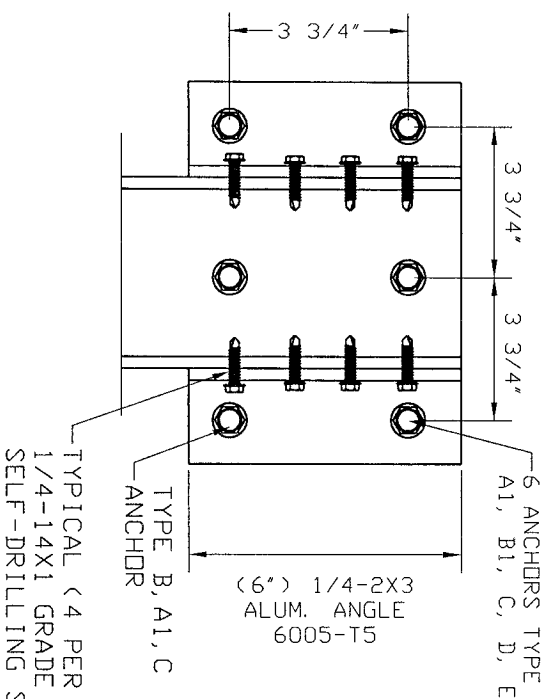
4X4 MULLION WITH 4 ANCHORS



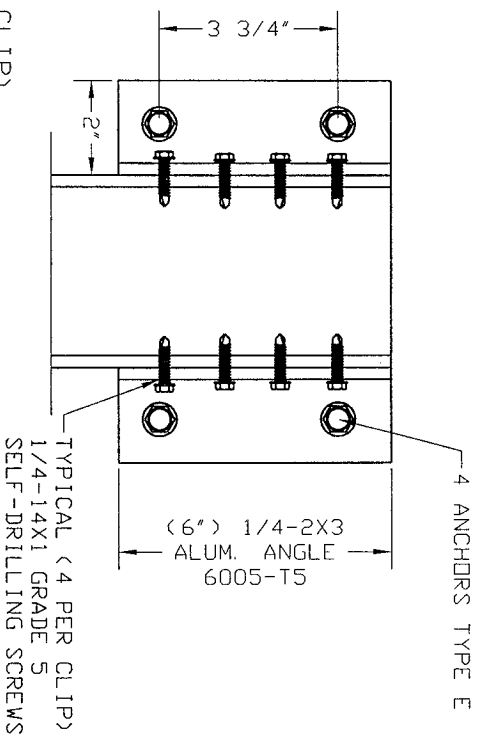
4X6 MULLION WITH 4 ANCHORS



4X6 MULLION WITH 6 ANCHORS

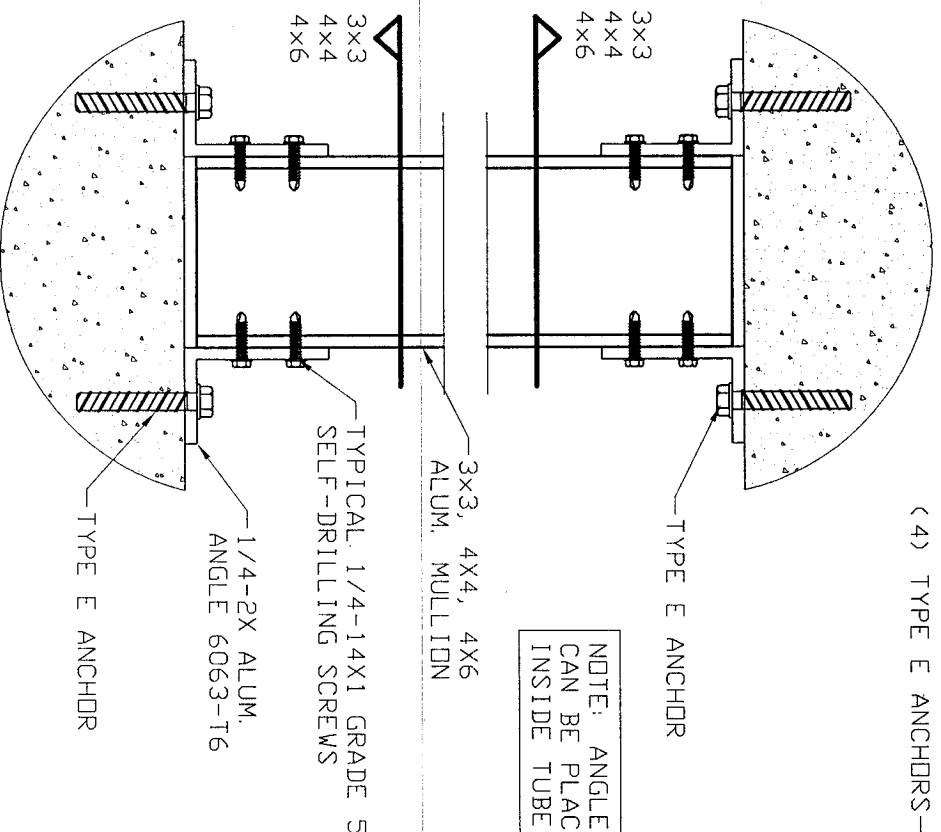


6X6 MULLION WITH 4 ANCHORS



ANCHORAGE DESIGN FOR MAXIMUM LOADS FROM TABLE 2

ANCHOR	DESCRIPTION	MATERIAL	EMBEDMENT	EDGE DISTANCE
A	1/4" X2-3/4" TAPCONS	MIN. 3192 PSI CONCRETE	1-3/4"	2-1/2"
A1	5/16" X3" TAPCONS	MIN. 2899 PSI CONCRETE	2 1/4"	3 1/8"
B	1/4" X2-3/4" TAPCONS	HOLLOW C-90 BLOCK	1 1/4"	2-1/2"
B1	5/16" X3" TAPCONS	GROUT FILLED C-90 BLOCK	2 1/4"	4"
C	1/4" -14X1" GRADE 5 SELF DRILLING SCREWS	MIN. 1/4" 6063-T6 ALUM.		1/2"
D	5/16" X3" TAPCONS	WOOD WITH G3=55	2 1/4"	3/8"
E	3/8" X4" WEDGE BOLTS	MIN. 3000 PSI CONCRETE	3 1/2"	4 1/2"



Manufacturer:

CROCI

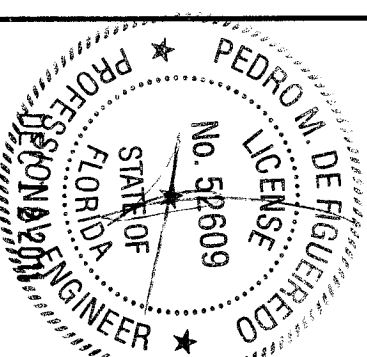
North America
6360 TOPAZ COURT
FORT MYERS, FL 33966
Tel: (239) 278-3066
Fax: (239) 278-5977
EMAIL: INFO@CROCIUSA.COM

PRODUCT:

ES 44 SUP
EXTRUDED ALUMINUM
ROLL-UP SHUTTER

Engineering:

Eng Do Inc.
CA 8116
ENGCO@AOL.COM



Engineer Seal
Pedro De Figueredo, PE 52609

Date: 12/06/11
Scale: NA
Design by: PPMF

DRAFTING:

PK DRAFTING & MORE

Drawing Number

11-241

Sheet

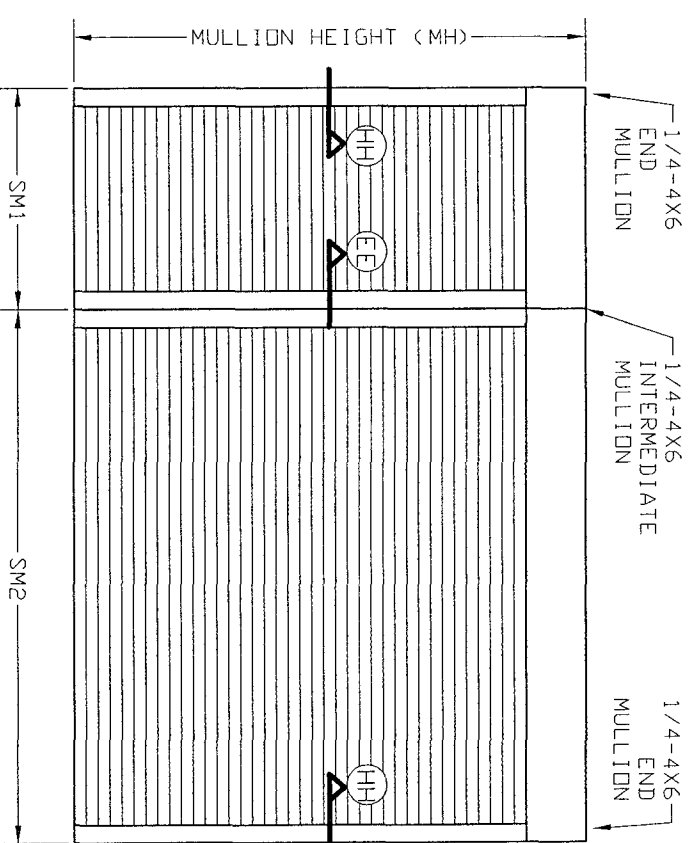
7 of 10

UNEQUALLY SPACED MULLIONS SELECTION

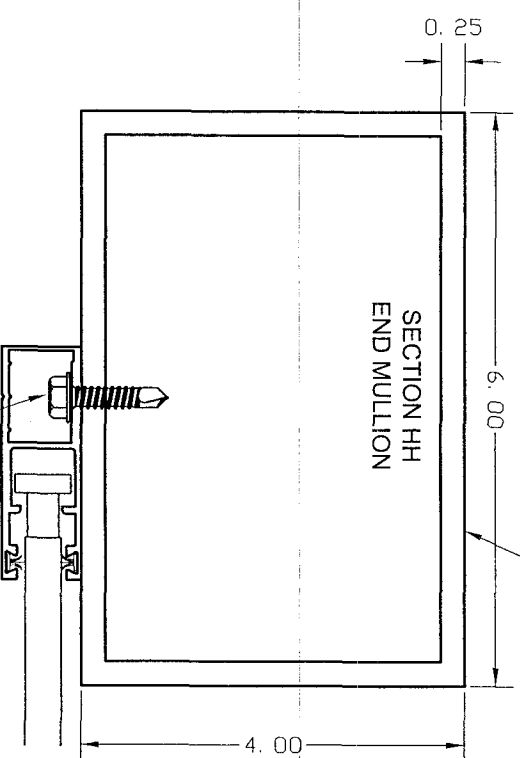
TABLE 3 - MAXIMUM MULLION HEIGHT FOR UNEQUAL SPACED MULLIONS AND END MULLIONS

PD (PSF)	SM1 (in)	SM2 (in)	MH (in)	END MULL
40	124	0-<64	132	END MULL
		64	132	INT. MULL
		82	132	INT. MULL
50	109	0-<64	120	END MULL
		64	102	INT. MULL
		82	90	INT. MULL
60	94	0-<64	96	END MULL
		64	96	INT. MULL
		82	120	END MULL
80	82	0-<64	96	END MULL
		64	102	INT. MULL
		110	114	END MULL

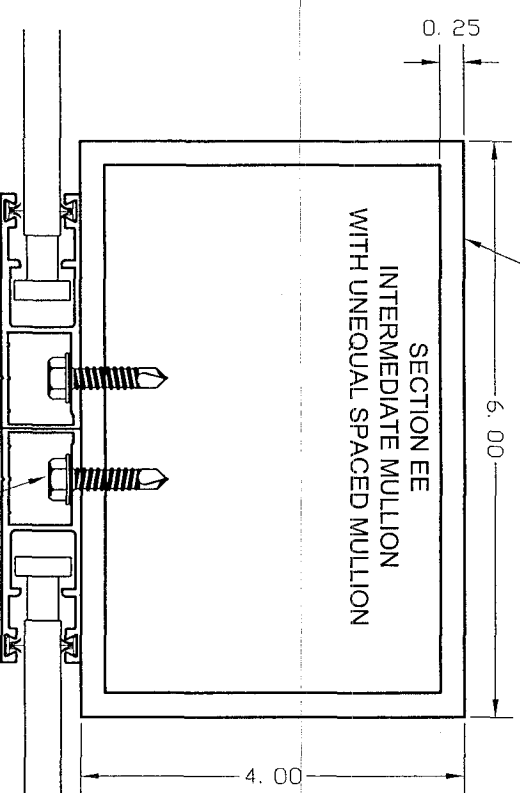
- NOTES:
- 1- TABLE IS APPLICABLE ONLY FOR UNEQUAL SHUTTER MODULES AND END MULLION.
 - 2- USE 1/4-4X6 MULLION AS PER SECTIONS EE, HH
 - 3- PD= MAXIMUM DESIGNED PRESSURE IN PSF
 - 4- THE MAXIMUM END MULLION SIZES (SM2=0) ARE FOUND WHEN SM2=0
 - 5- SPECIFIC CONDITIONS NOT INCLUDED HERE IN ARE TO BE ADDRESSED WITH SITE SPECIFIC PROVIDED BY A PROFESSIONAL ENGINEER.



USE TABLE 3 TO SELECT END MULLION HEIGHT (MH) AND USE SHEET 8 FOR ANCHORAGE OPTIONS.



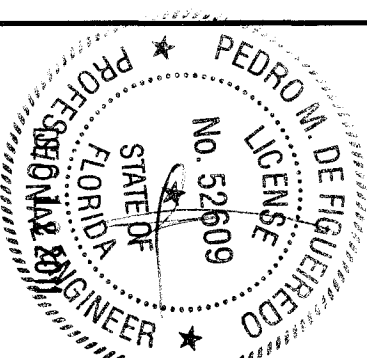
USE TABLE 3 TO SELECT INTERMEDIATE MULLION HEIGHT (MH) AND USE SHEET 8 FOR ANCHORAGE OPTIONS.



Manufacturer:
CROCCI
 North America
 6360 TOPPAZ COURT
 FORT MYERS, FL 33966
 Tel.: (239) 278-3066
 Fax: (239) 278-5977
 EMAIL: INFO@CROCIUSA.COM

PRODUCT:
ES 44 SUP
 EXTRUDED ALUMINUM
 ROLL-UP SHUTTER

Engineering:
Eng'g Mr.
 CA 8116
 ENGCO@AOL.COM



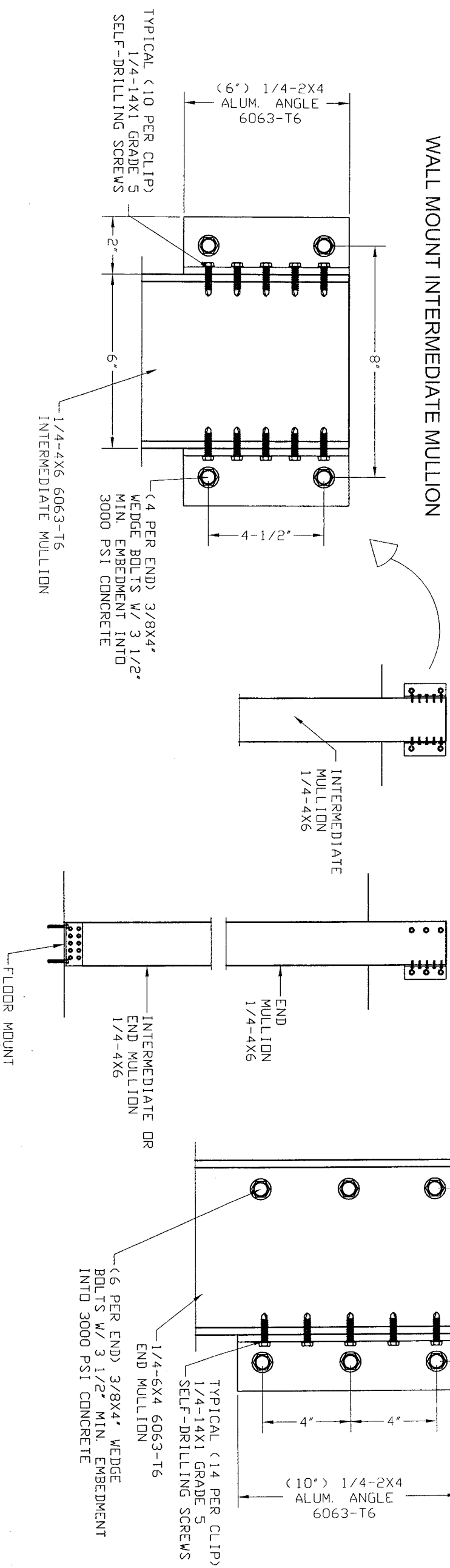
Engineer Seal
 Pedro De Figueiredo, PE 52609
 Date: 12/06/11
 Scale: NA
 Design by: PPMF

DRAFTING:
PK DRAFTING & MORE

Drawing Number
11-241

Sheet
8 of 10

UNEQUAL SPACED MULLIONS AND END MULLIONS
WALL AND FLOOR CONNECTIONS

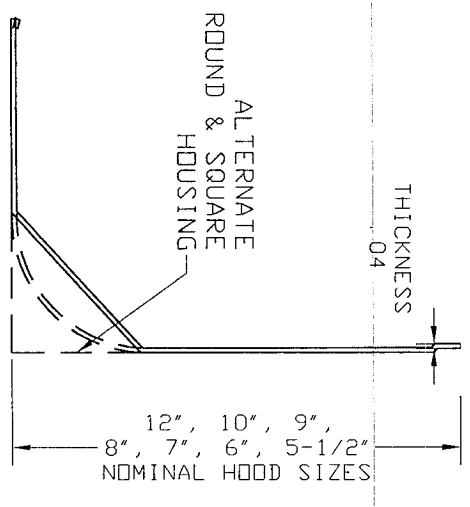
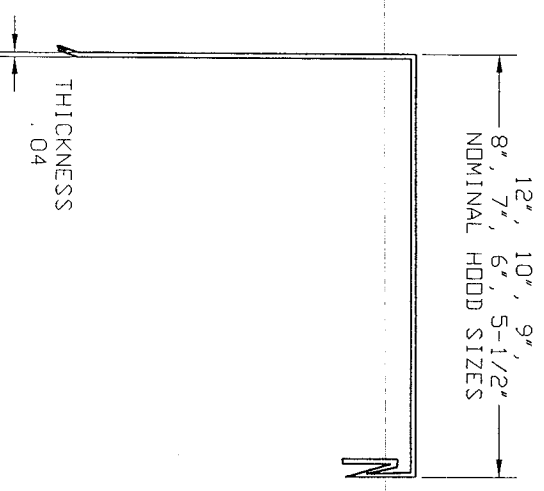
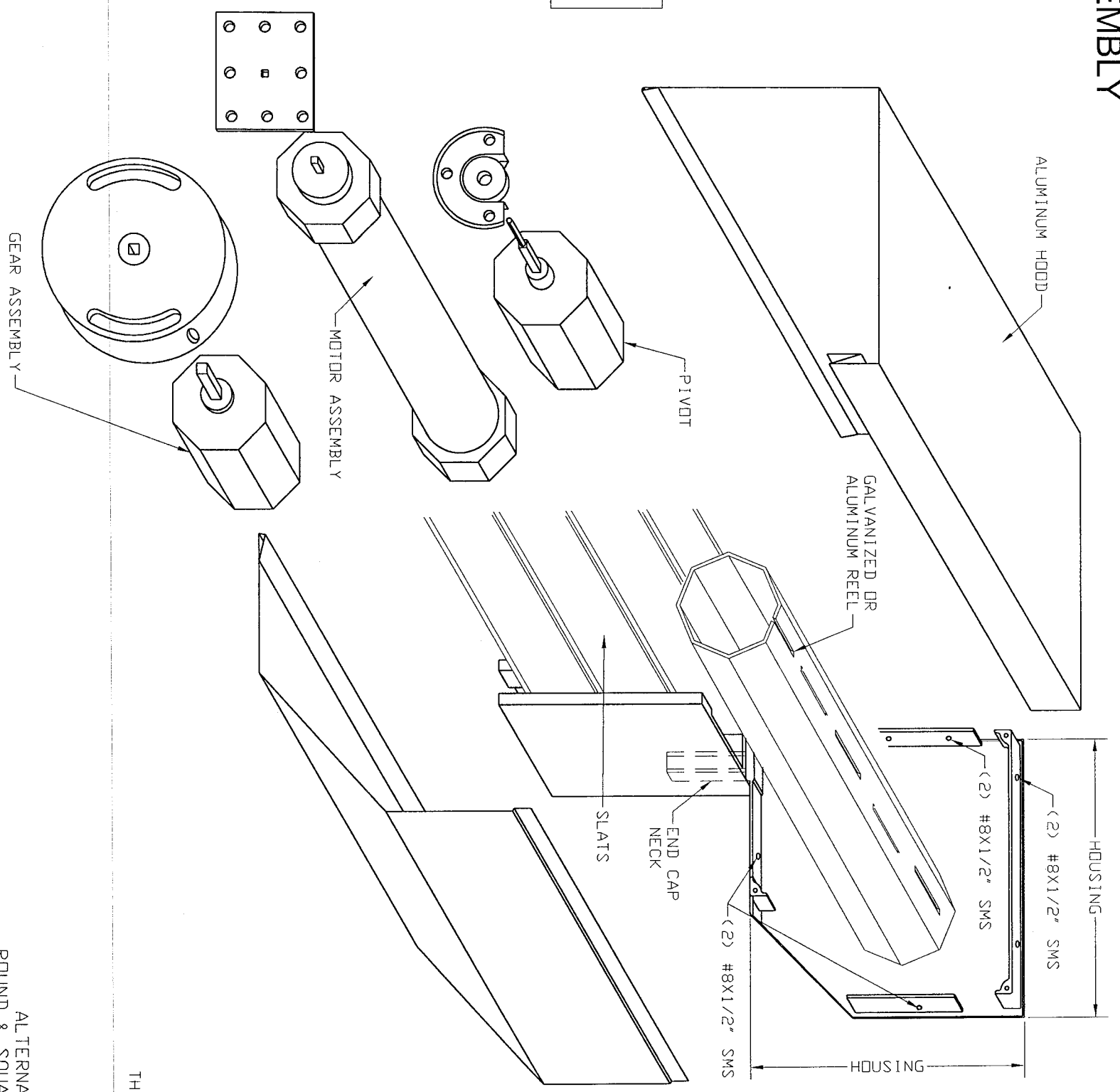


WALL MOUNT END MULLION

<p>Manufacturer: CROCCI North America 6360 TOPPAZ COURT FORT MYERS, FL 33966 Tel.: (239) 278-3066 Fax: (239) 278-5977 EMAIL: INFO@CROCIUSA.COM</p>	<p>Engineering: Eng'g Oo Inc. CA 8116 ENGCOO@AOL.COM</p>	<p>Engineer Seal Pedro De Figueiredo, PE 52609</p>	<p>Date: 12/06/11 Scale: NA Design by: PPMF</p>	<p>DRAFTING: PK DRAFTING & MORE</p>	<p>Drawing Number 11-241</p>	<p>Sheet 9 of 10</p>
---	---	--	---	--	---	---------------------------------

HOOD ASSEMBLY

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



Manufacturer:
CROCCI
 North America
 6360 TOPAZ COURT
 FORT MYERS, FL 33966
 Tel.: (239) 278-3066
 Fax: (239) 278-5977
 EMAIL: INFO@CROCIUSA.COM

PRODUCT:
ES 44 SUP
 EXTRUDED ALUMINUM
 ROLL-UP SHUTTER

Engineering:
EngCo Inc.
 CA 8116
 ENGCO@AOL.COM

PEDRO M. DE FIGUEROA
 LICENSE
 NO. 52609
 STATE OF
 PROFESSIONAL ENGINEER
 Pedro De Figueiredo, PE 52609

Date: 12/06/11
 Scale: NA
 Design by: PPMF

DRAFTING:
PK DRAFTING & MORE

Drawing Number
11-241

Sheet
10 of 10