

GENERAL NOTES: (FLORIDA BUILDING CODE 2010 - non HVHZ)

- 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 FBC 2010 SECTION 1715.8.1
- 3- GLASS SEPARATION: 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 (LOCATIONS WITH WIND SPEED GREATER THAN 160 MPH AS PER FBC 2010 SECTION 1609.1.2.4)
 - 3.2- ESSENTIAL FACILITIES AS DEFINED IN ASCE 7 FOR THE ABOVE LOCATIONS THE PRODUCT MUST BE SEPARATED 20 INCHES FROM GLAZING AREAS.
- 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- 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 BASED ON THE ALUMINUM DESIGN MANUAL 05.
- 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 PRODUCT IS TO BE ATTACHED INSURING PROPER ANCHORAGE.
 - 8.2- THE SITE SPECIFIC PROJECT CRITERIA, SUCH AS BUT NOT LIMITED TO, LOCAL CODE REQUIREMENTS, DESIGNED PRESSURES ETC.
 - 8.3- THAT THIS APPROVAL IS ADEQUATE TO THE SPECIFIC PROJECT.
- 9- LIMITATIONS: NOT APPROVED IN HIGH VELOCITY ZONES (MIAMI-DADE AND BROWARD COUNTIES)

CODE AND STANDARD COMPLIANCE:

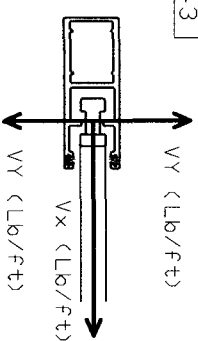
FLORIDA BUILDING CODE 2010 (non HVHZ)
 ASTM E330, E1886, E1996 (LEVEL D MISSILE)
 ASCE 7-10, SSTD 12-99, ADM-05

TABLE 1
ALLOWABLE DESIGNED PRESSURE

FW MAX. (IN)	TT MAX. (IN)	DESIGN RATING (PSF)
231	224 11/16	+70
222 5/16	216	+75
216 5/16	210	+79
210 5/16	204	+83
204 5/16	198	+87
198 5/16	192	+90
192 5/16	186	+94
186 5/16	180	+98
180 5/16	174	+102
174 5/16	168	+105
168 5/16	162	+109
162 5/16	156	+113
156 5/16	150	+116
150 5/16	144	+120

TABLE 2 - TRACK REACTION (LB/FT)

LOAD psf	TRACK TO TRACK (TT)			
	VX	VY	VX	VY
144	162	180	206	224-11/16
20	0	137	332	152
30	0	183	373	205
40	254	243	691	273
50	448	304	897	342
60	603	365	1005	410
70	728	426	1001	478
80	832	487	998	547
90	763	548	1029	615
98	722	596	1050	670
100	711	608	1055	683
109	762	663	1149	745
110	768	669		
120	818	730		



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

DESIGN SCHEDULE

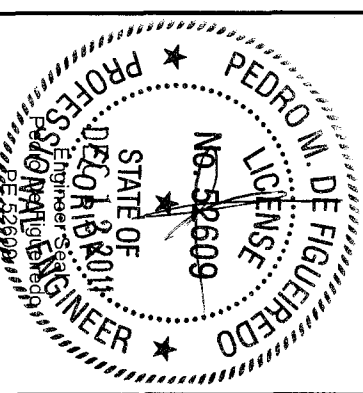
COMPONENT	SHEET
SLAT ALLOWABLE PRESSURE - TABLE 1	1
TRACK REACTION - TABLE 2	1
TRACK ANCHORAGE	3, 4, 5 & 6
MULLION	7 & 8

- NOTES:**
- 1- ALLOWABLE DESIGNED PRESSURE ARE FUNCTION OF THE LOWEST ALLOWABLE DESIGNED LOAD FOR EACH COMPONENT (SLATS, ANCHORAGE & MULLIONS)
 - 2- DESIGNED PRESSURES MUST NOT EXCEED 120 PSF.
 - 3- TRACK TO TRACK DIMENSION (TT) MUST NOT EXCEED 224 11/16".

Manufacturer:
CROCI NORTH
A M E R I C A
 11600 ADELMO LANE
 FORT MYERS, FL 33966
 Tel.: (239) 278-3066
 Fax: (239) 278-5977

PRODUCT:
ES 55 SUP
Rolling Shutter
 LARGE & SMALL MISSILE
 IMPACT RATED

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



DRAFTING:
PK DRAFTING & MORE

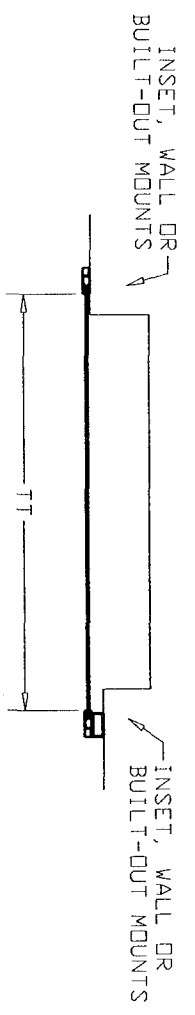
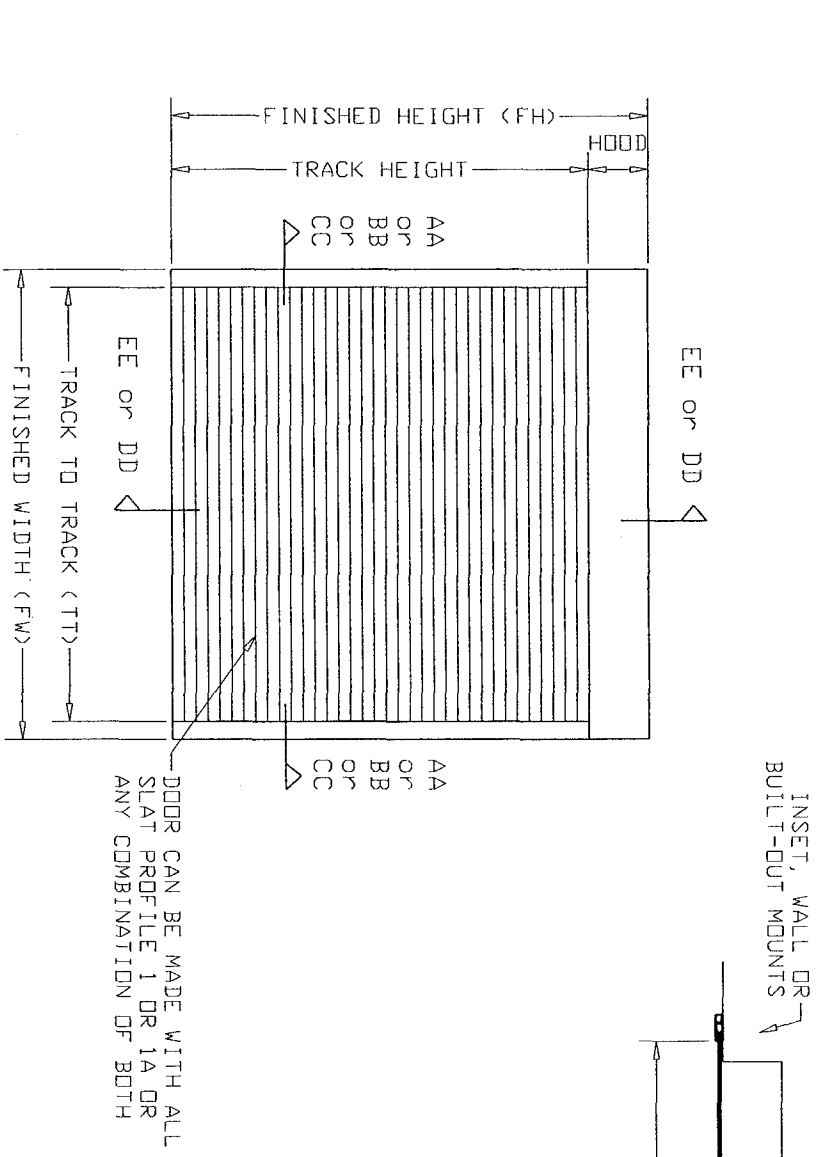
REVISIONS:

Date: 12/10/2011
 Scale: NA
 Design by: PPMF

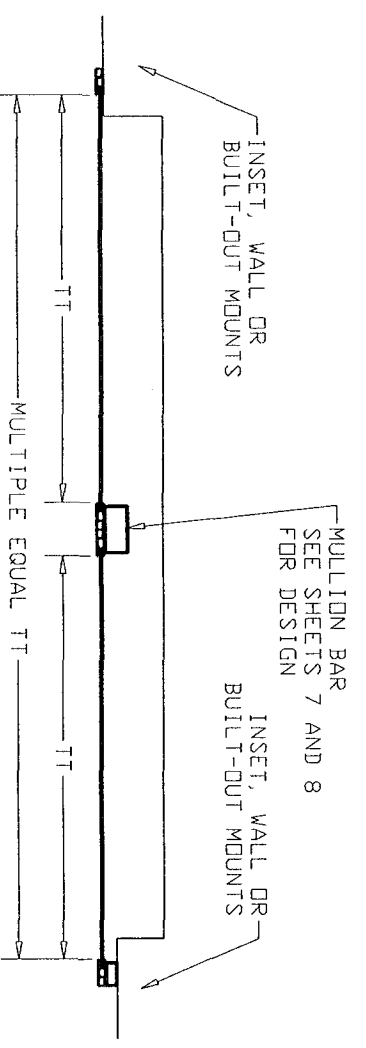
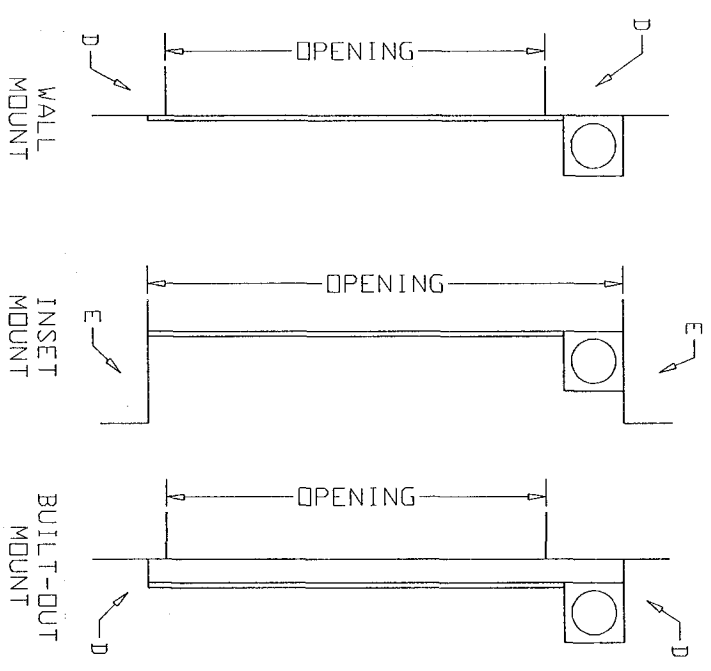
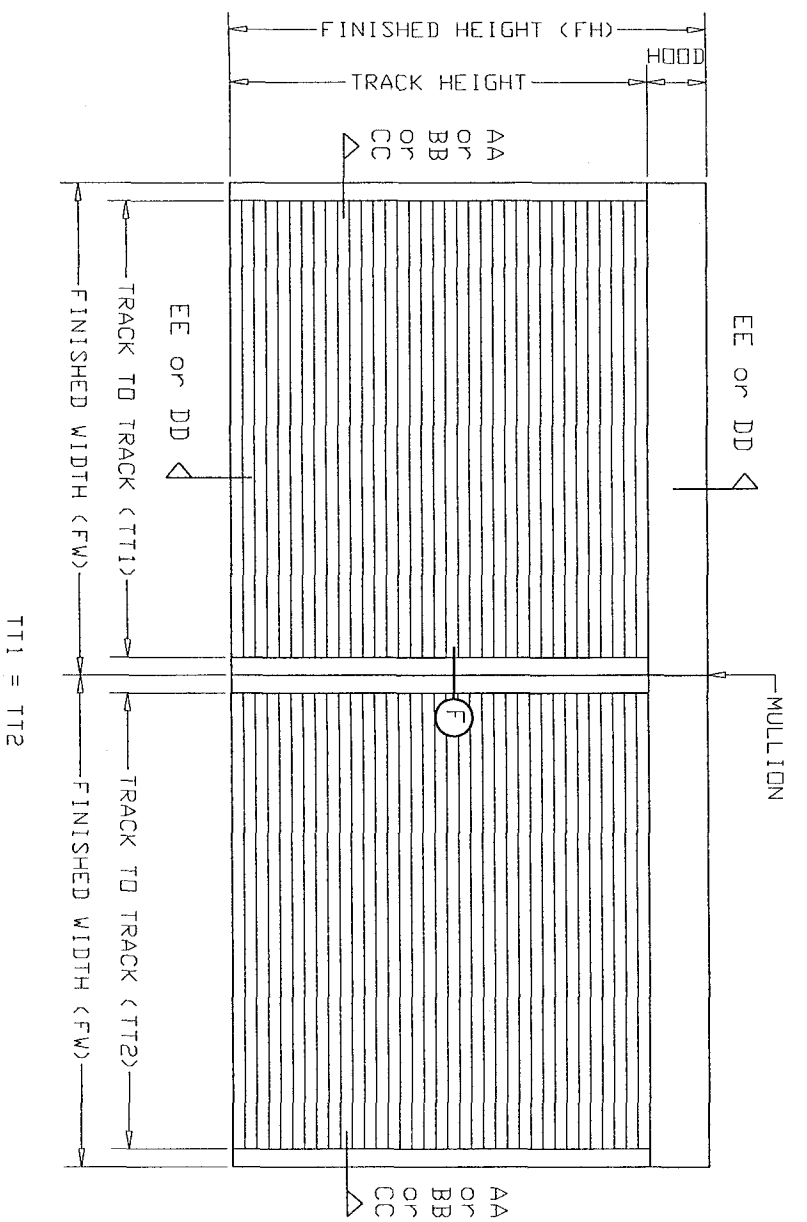
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TYPICAL SINGLE UNIT ELEVATION



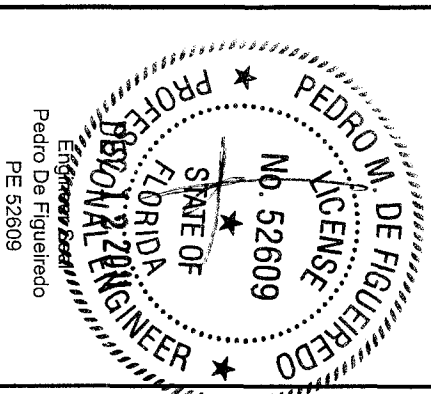
TYPICAL MULTIPLE UNITS ELEVATION



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CROCI NORTH AMERICA
 11600 ADELMO LANE
 FORT MYERS, FL 33966
 Tel.: (239) 278-3066
 Fax: (239) 278-5977

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 CA 8116
 ENGCO@AOL.COM



DRAFTING:
PK DRAFTING & MORE

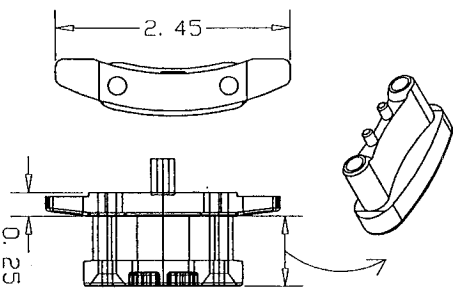
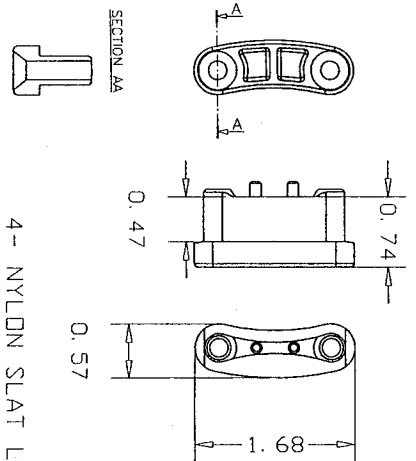
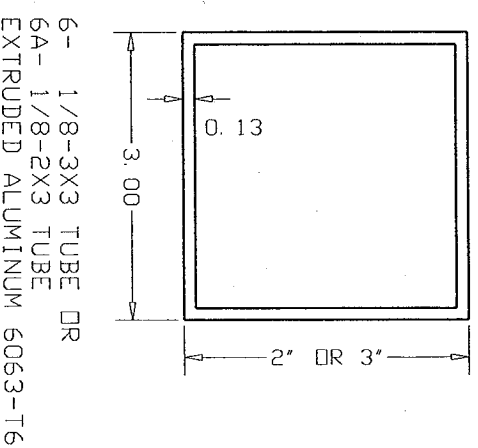
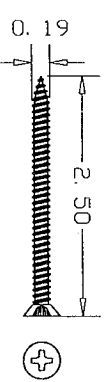
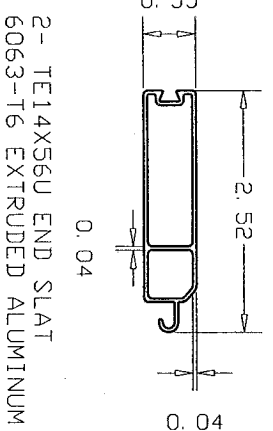
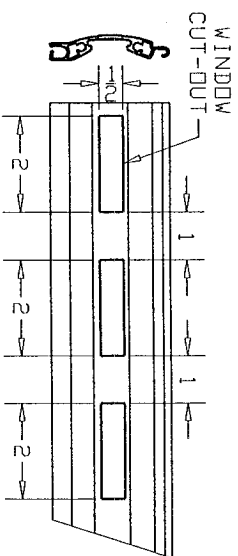
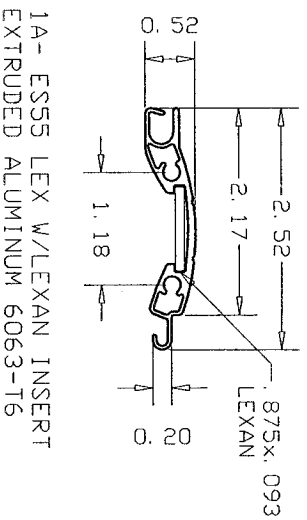
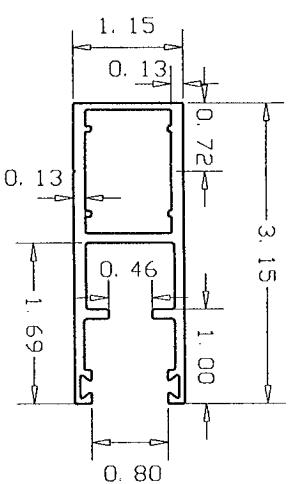
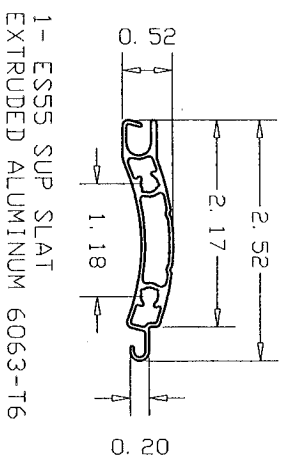
REVISIONS:

Date: 12/10/2011
 Scale: NA
 Design by: PPMF

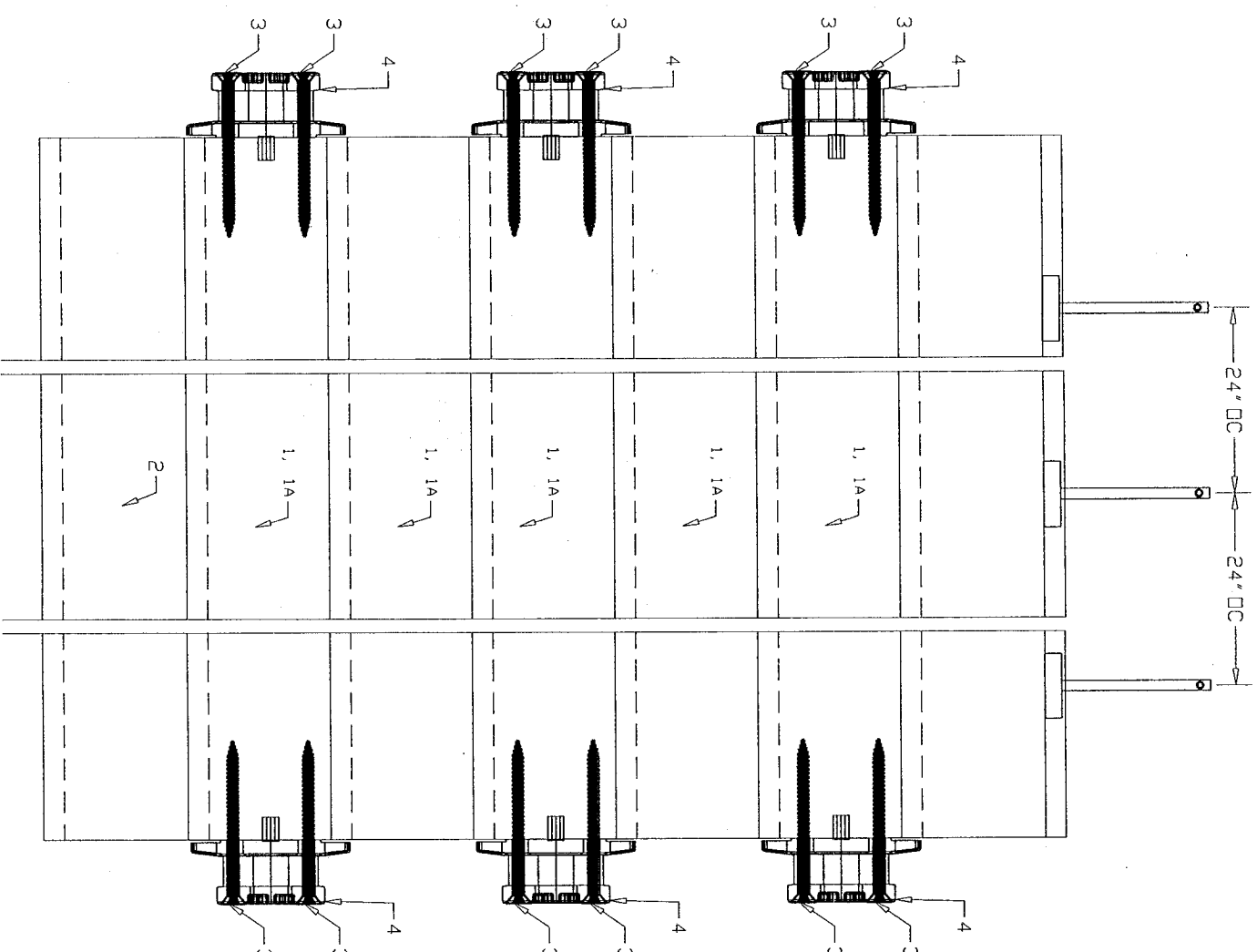
Drawing Number
11-240

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PRODUCT COMPONENTS



SLAT END RETENTION LAY-OUT



(1) #10x3/4" HSSDS

3-1 1/2" x 7-3/8" STRAP CLIP AT 24" DC

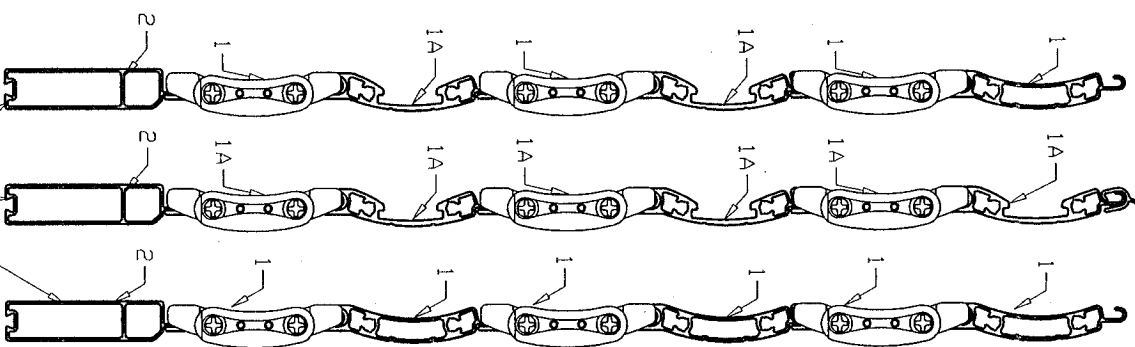


ILLUSTRATION ONLY
DOOR CAN BE MADE WITH ALL
SLAT PROFILE 1 OR 1A OR
ANY COMBINATION OF BOTH

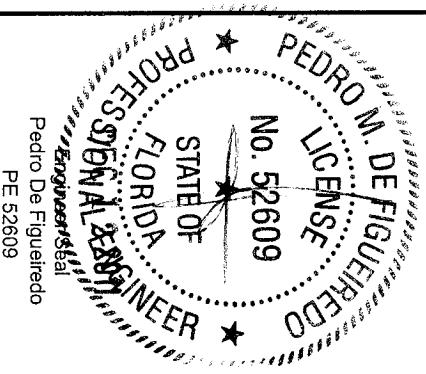
Manufacturer:

CROCI NORTH AMERICA

11600 ADELMO LANE
FORT MYERS, FL 33966
Tel.: (239) 278-3066
Fax: (239) 278-5977

PRODUCT:
ES 55 SUP
Rolling Shutter
LARGE & SMALL MISSILE
IMPACT RATED

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



DRAFTING:
PK DRAFTING & MORE

REVISIONS:

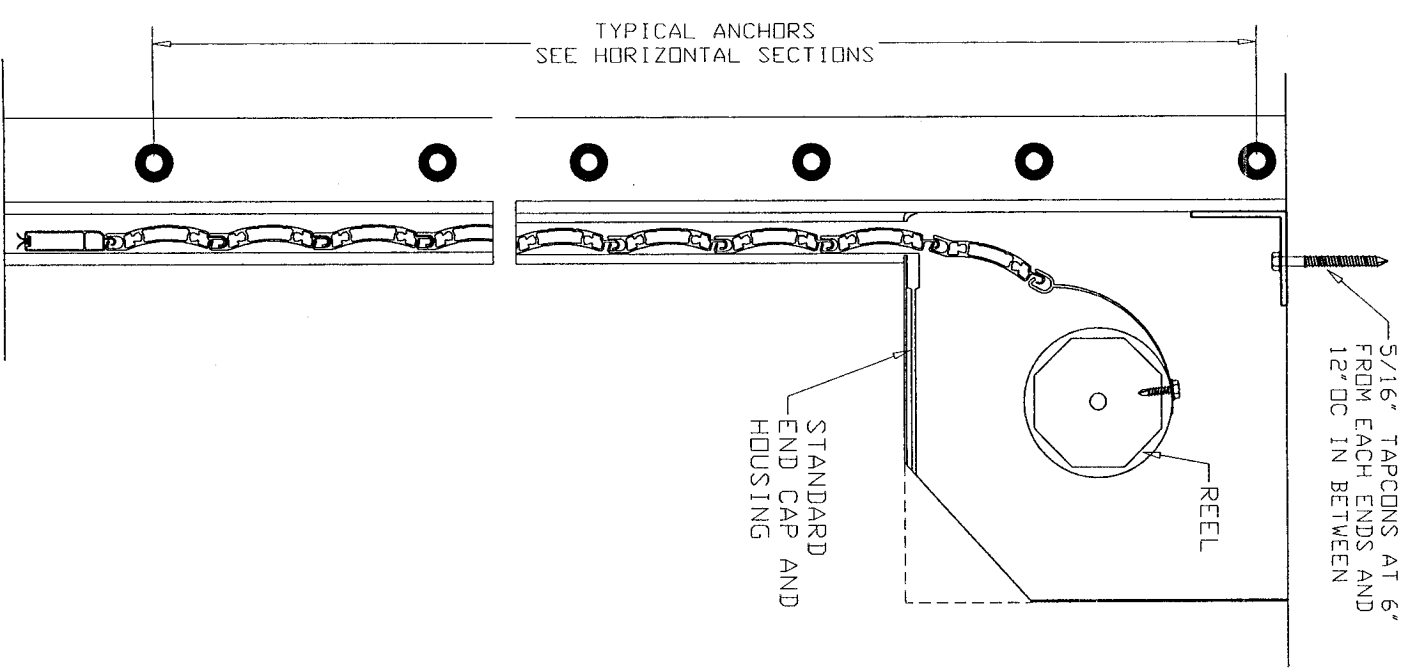
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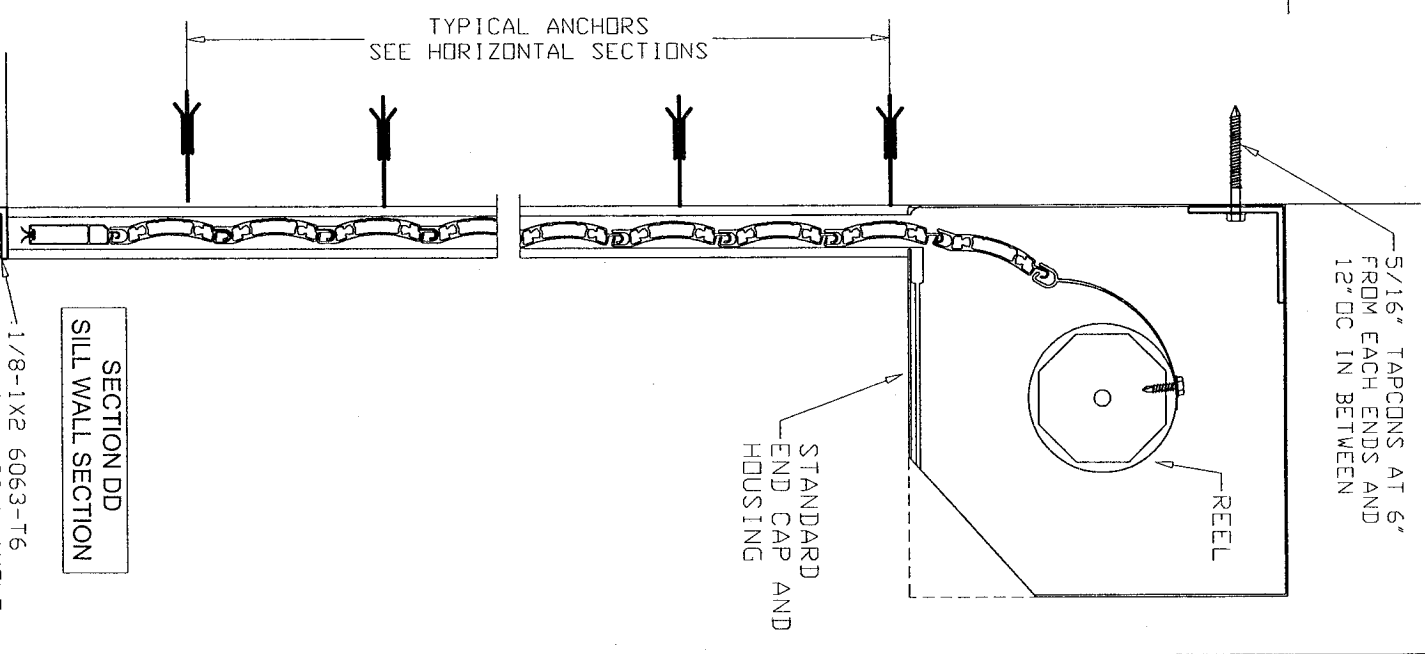
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TYPICAL VERTICAL SECTIONS

SECTION EE
HEADER CEILING SECTION



SECTION DD
HEADER WALL SECTION

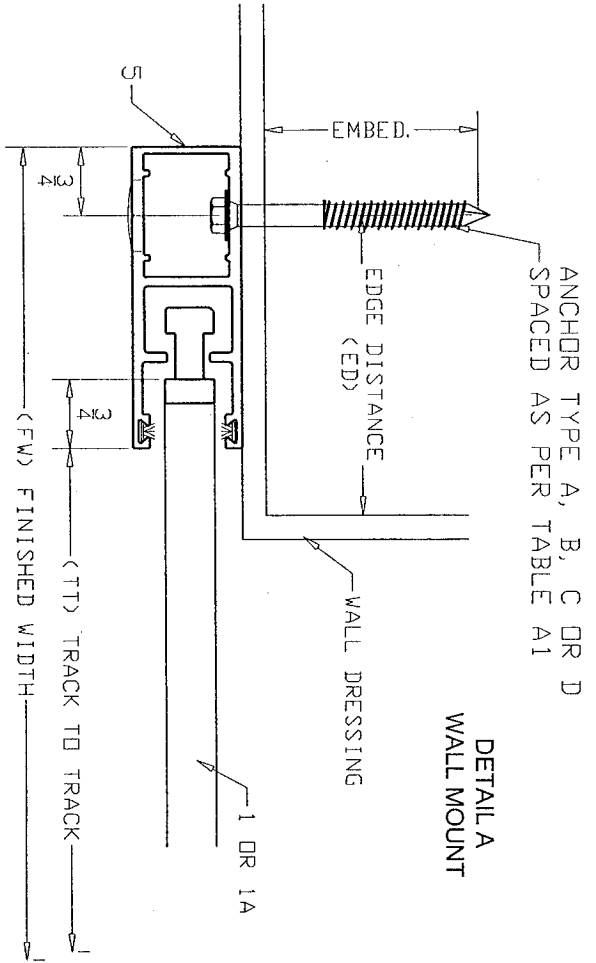


SECTION EE
SILL FLOOR SECTION

SECTION DD
SILL WALL SECTION

TABLE A1
SPACING ON CENTER FOR WALL MOUNT INSTALLATION

LOAD Psf	TRACK TD TRACK											
	A	B	C	D	A	B	C	D	A	B	C	D
144	6	6	6	6	6	6	6	6	6	6	6	6
20	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
40	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
60	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
80	6	6	6	6	6	6	6	6	6	6	6	6
83	6	6	6	6	6	6	6	6	6	6	6	6
90	5	6	3	3	4	5	-	3	4	4	-	-
98	5	5	3	3	4	4	-	3	4	4	-	-
100	5	5	3	3	4	4	-	3	4	4	-	-
109	4	5	-	3	4	4	-	-	4	4	-	-
120	4	5	-	3	4	4	-	-	4	4	-	-



ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EMBEDMENT	EDGE DISTANCE
A	5/16" ITW TAPCONS	MIN. 2899 psi CONCRETE	2 1/4"	3 1/8"
B	5/16" ITW 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.	OR A36 1/8" STEEL	1/2"
D	5/16" X 3" TAPCONS	WOOD WITH GY=55	WOOD WITH GY=55	1-1/4"
E	3/8" POWERS WEDGE BOLT	MIN. 3000 psi CONCRETE	3 1/2"	4-1/2"

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CA 8116
ENGCO@AOL.COM

DRAFTING:
PK DRAFTING & MORE

REVISIONS:

Date: 12/10/2011
Scale: NA
Design by: PPMF

Drawing Number
11-240

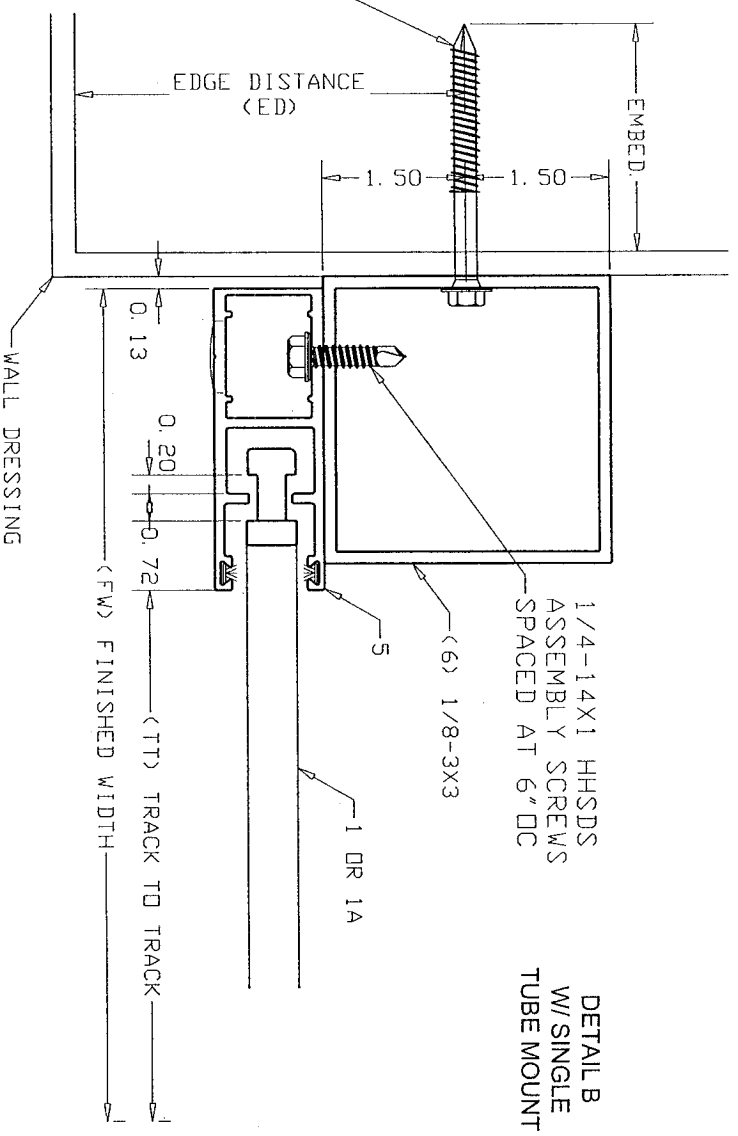
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TABLE A2
SPACING ON CENTER FOR ONE ANGLE INSET MOUNT INSTALLATION

LOAD Psf	TRACK TD TRACK																			
	144			162			180			204			224-11/16							
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
20	6	6	6	6	6	6	6	6	6	6	6	6	4	5	-	-	-	-	-	-
30	6	6	6	6	6	6	6	6	6	6	6	6	4	4	-	-	-	-	-	-
40	6	6	6	6	6	6	6	6	6	6	6	6	4	4	-	-	-	-	-	-
50	5	6	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	4	4	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	-	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ANCHOR TYPE A, B, C OR D
SPACED AS PER TABLE A2 OR
ANCHOR TYPE E SPACED AT 5" OC
WITH TYPRESSURE TABLE BELOW:

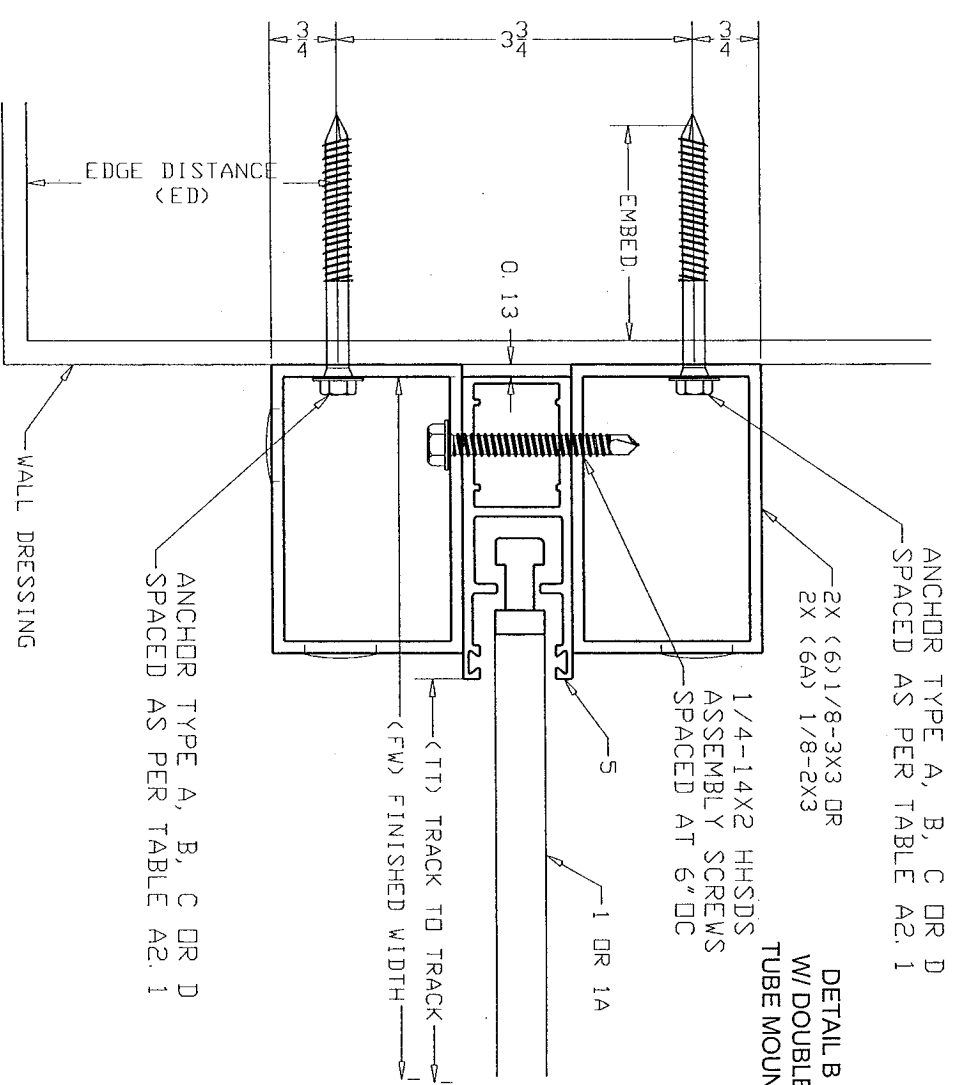
ANCHOR TYPE E SPACED AT 5" OC	
TT (IN)	144 162 180 204 224-11/16
LOAD (PSF)	120 109 90 70 60



ANCHOR	SCHEDULE	DESCRIPTION	MATERIAL	EMBEDMENT	EDGE DISTANCE
A	5/16"	ITW TAPCONS	MIN. 2899 PSI CONCRETE	2 1/4"	3 1/8"
B	5/16"	ITW 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 G ₅₅	2 1/4"	3/8"
E	3/8"	POWERS WEDGE BOLT	MIN. 3000 PSI CONCRETE	3 1/2"	1-1/4"
					4-1/2"

TABLE A2.1
SPACING ON CENTER FOR ONE ANGLE INSET MOUNT INSTALLATION

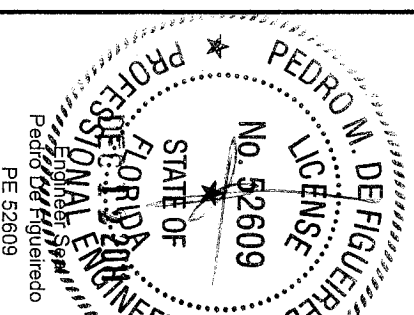
LOAD Psf	TRACK TD TRACK																			
	144			162			180			204			224-11/16							
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
20	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
30	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
50	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
60	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
80	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
83	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
98	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
109	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
120	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6



Manufacturer:
CROCI NORTH AMERICA
11600 ADELMO LANE
FORT MYERS, FL 33966
Tel.: (239) 278-3066
Fax: (239) 278-5977

PRODUCT:
ES 55 SUP
Rolling Shutter
LARGE & SMALL MISSILE
IMPACT RATED

Engineering:
EngCo Inc.
CA 816
ENGCO@AOL.COM



DRAFTING:
PK DRAFTING & MORE

REVISIONS:

Date: 12/10/2011
Scale: NA
Design by: PPMF

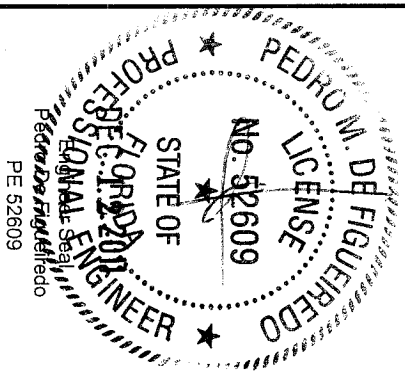
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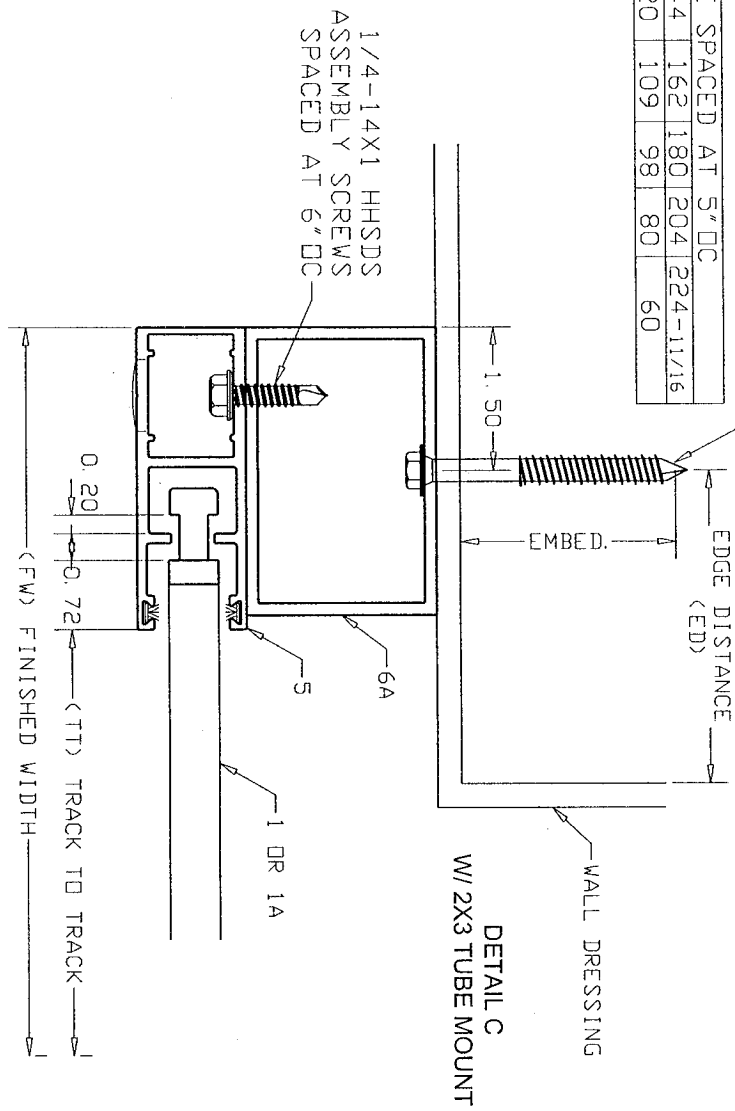
REVISIONS:
 Date: 12/10/2011
 Scale: NA
 Design by: PPMF

Drawing Number
11-240

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ANCHOR TYPE A, B, C OR D
 SPACED AS PER TABLE A3.1 OR
 ANCHOR TYPE E SPACED AT 5" DC
 WITH TT×PRESSURE TABLE BELOW:

ANCHOR TYPE E SPACED AT 5" DC	TT (IN)	144	162	180	204	224-11/16
LOAD (PSF)	120	109	98	80	60	



ANCHOR TYPE A, B, C OR D
 SPACED AS PER TABLE A3.1 OR
 ANCHOR TYPE E SPACED AT 5" DC
 WITH TT×PRESSURE TABLE BELOW:

ANCHOR TYPE E SPACED AT 5" DC	TT (IN)	144	162	180	204	224-11/16
LOAD (PSF)	120	109	83	40	NA	

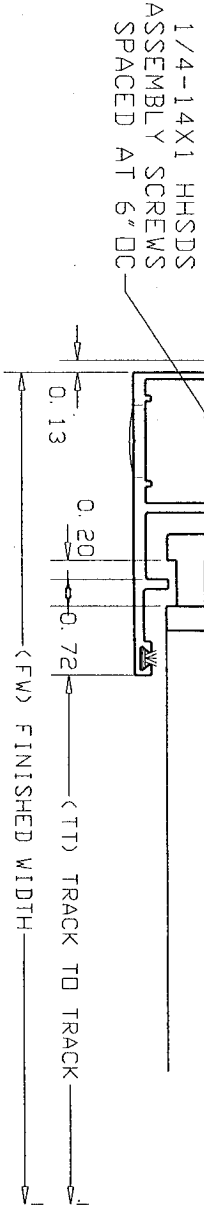


TABLE A3
 SPACING ON CENTER FOR 1/8-2X3 BUILT-OUT MOUNT INSTALLATION

LOAD	TRACK TO TRACK																			
	144			162			180			204			224-11/16							
Psf	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
20	6	6	6	6	6	6	6	6	6	6	6	6	4	5	-	3	-	-	-	-
30	6	6	6	6	6	6	6	6	6	6	6	6	4	4	-	3	-	-	-	-
40	6	6	6	6	6	6	6	6	6	6	6	6	5	-	3	-	-	-	-	-
50	6	6	6	6	6	6	6	6	6	6	6	6	5	-	4	-	-	-	-	-
60	5	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	4	5	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

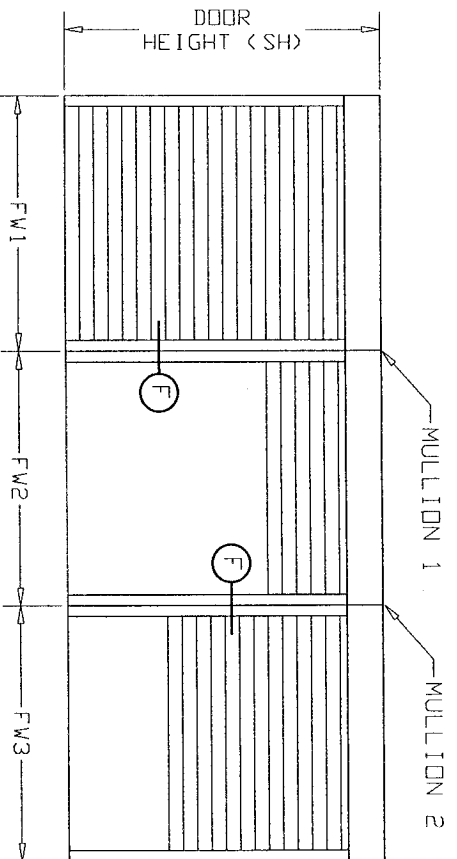
ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EMBEDMENT	EDGE DISTANCE
A	5/16" ITW TAPCONS	MIN. 2899 PSI CONCRETE	2 1/4"	3 1/8"
B	5/16" ITW 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 G=55	2 1/4"	3/8"
E	3/8" POWERS WEDGE BOLT	MIN. 3000 PSI CONCRETE	3 1/2"	4-1/2"

TABLE A3.1
 SPACING ON CENTER FOR 1/8-3X3 BUILT-OUT MOUNT INSTALLATION

LOAD	TRACK TO TRACK																			
	144			162			180			204			224-11/16							
Psf	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
20	6	6	6	6	6	6	6	6	6	6	6	6	4	3	-	-	-	-	-	-
30	6	6	6	6	6	6	6	6	6	6	6	6	4	4	-	3	-	-	-	-
40	6	6	6	6	6	6	6	6	6	6	6	6	4	4	-	3	-	-	-	-
50	6	6	6	6	6	6	6	6	6	6	6	6	5	-	3	-	-	-	-	-
60	4	5	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	4	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

EQUALLY SPACED MULLIONS SELECTION



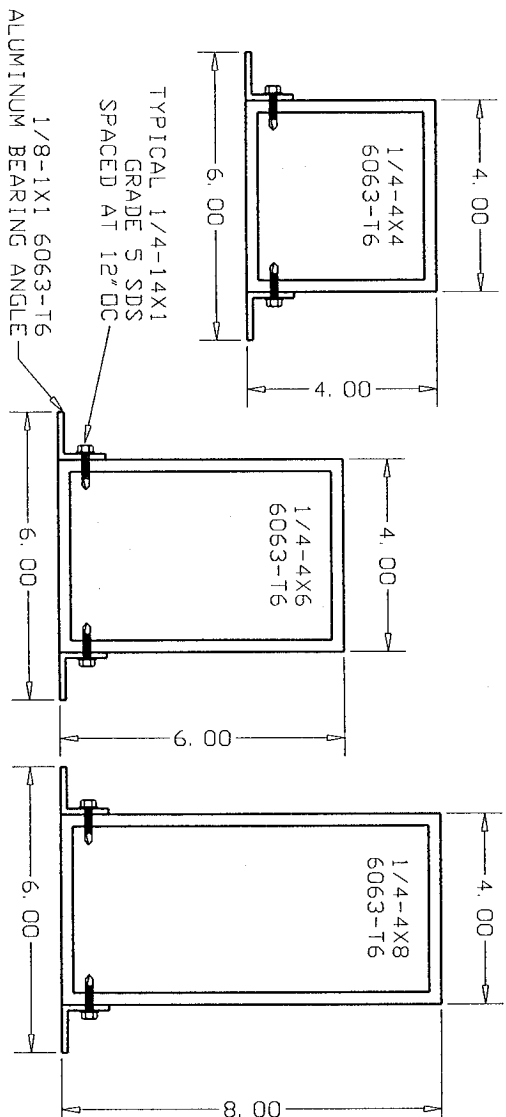
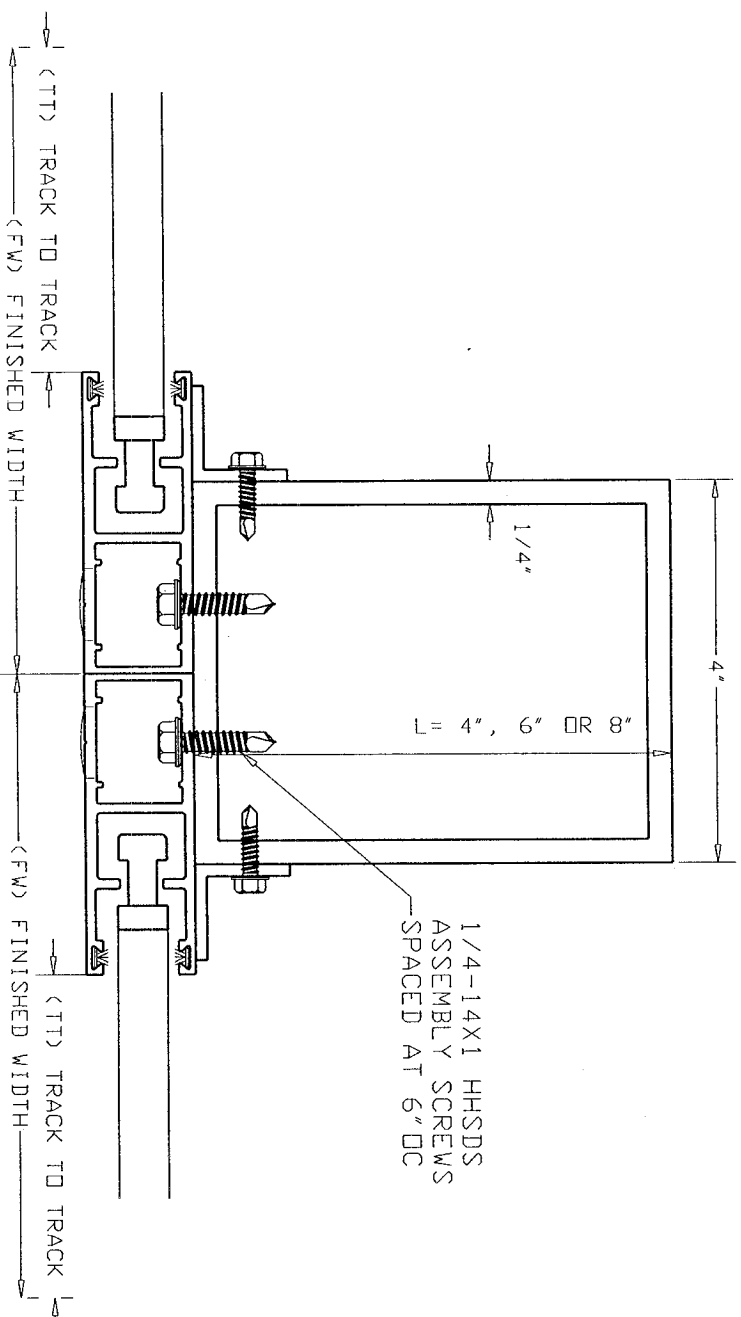
MULLION 1: $TM1 = (FW1 + FW2) / 2$
 MULLION 2: $TM2 = (FW2 + FW3) / 2$
 TM: TRIBUTARY MODULE

MULLION BARS SELECTION TABLES (PSF)

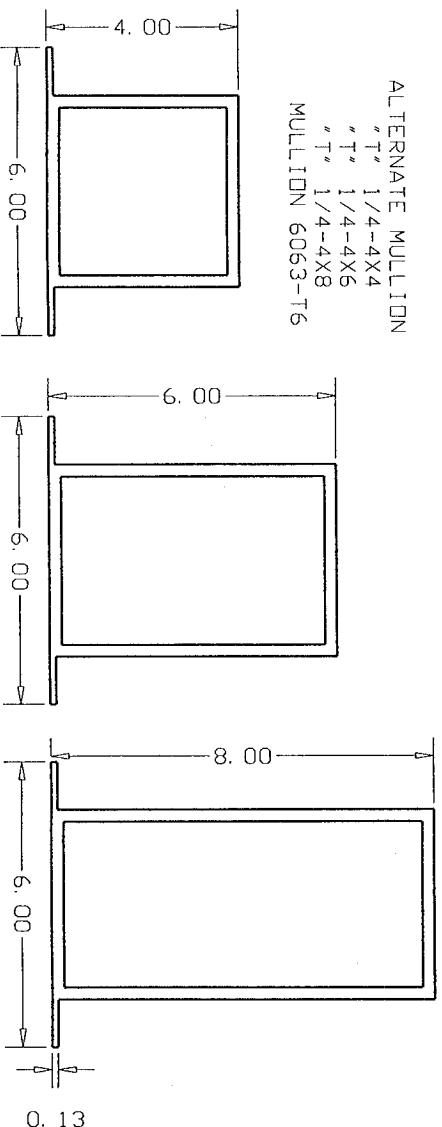
DOOR MODULE	MULLION TYPE & MAX. HEIGHT		
	1/4-4x8	1/4-4x6	1/4-4x4
132	120	108	96
51	61	70	40
231	51	61	70
211	55	67	83
199	59	71	88
181	65	78	97
169	69	84	104
157	75	90	112
151	78	94	116

NOTES:
 1- MULLIONS WERE DESIGNED BY RATIONAL ANALYSIS BASED ON THE ALUMINUM DESIGN MANUAL 2005 ED. AND THE FLORIDA BUILDING CODE.
 2- DEFLECTION CRITERIA: MAXIMUM SPAN / 120
 3- VALUES ABOVE IS APPLICABLE ONLY FOR EQUAL MODULES $FW1=FW2=FW3$.
 4- UNEQUAL MODULES ARE TO BE DESIGNED BY RATIONAL ANALYSIS IN A CASE BY CASE BASIS.

MULLIONS SECTIONS (DETAIL F)



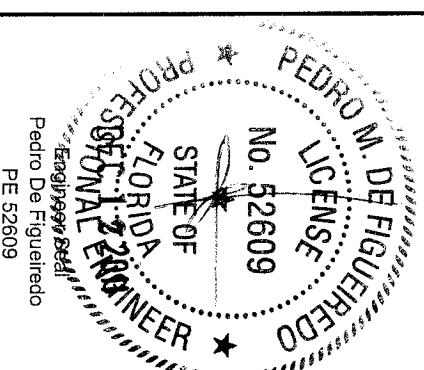
ALTERNATE MULLION
 T 1/4-4x4
 T 1/4-4x6
 T 1/4-4x8
 MULLION 6063-T6



Manufacturer:
CROCI NORTH AMERICA
 11600 ADELMO LANE
 FORT MYERS, FL 33966
 Tel.: (239) 278-3066
 Fax: (239) 278-5977

PRODUCT:
ES 55 SUP
Rolling Shutter
 LARGE & SMALL MISSILE
 IMPACT RATED

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



DRAFTING:
PK DRAFTING & MORE

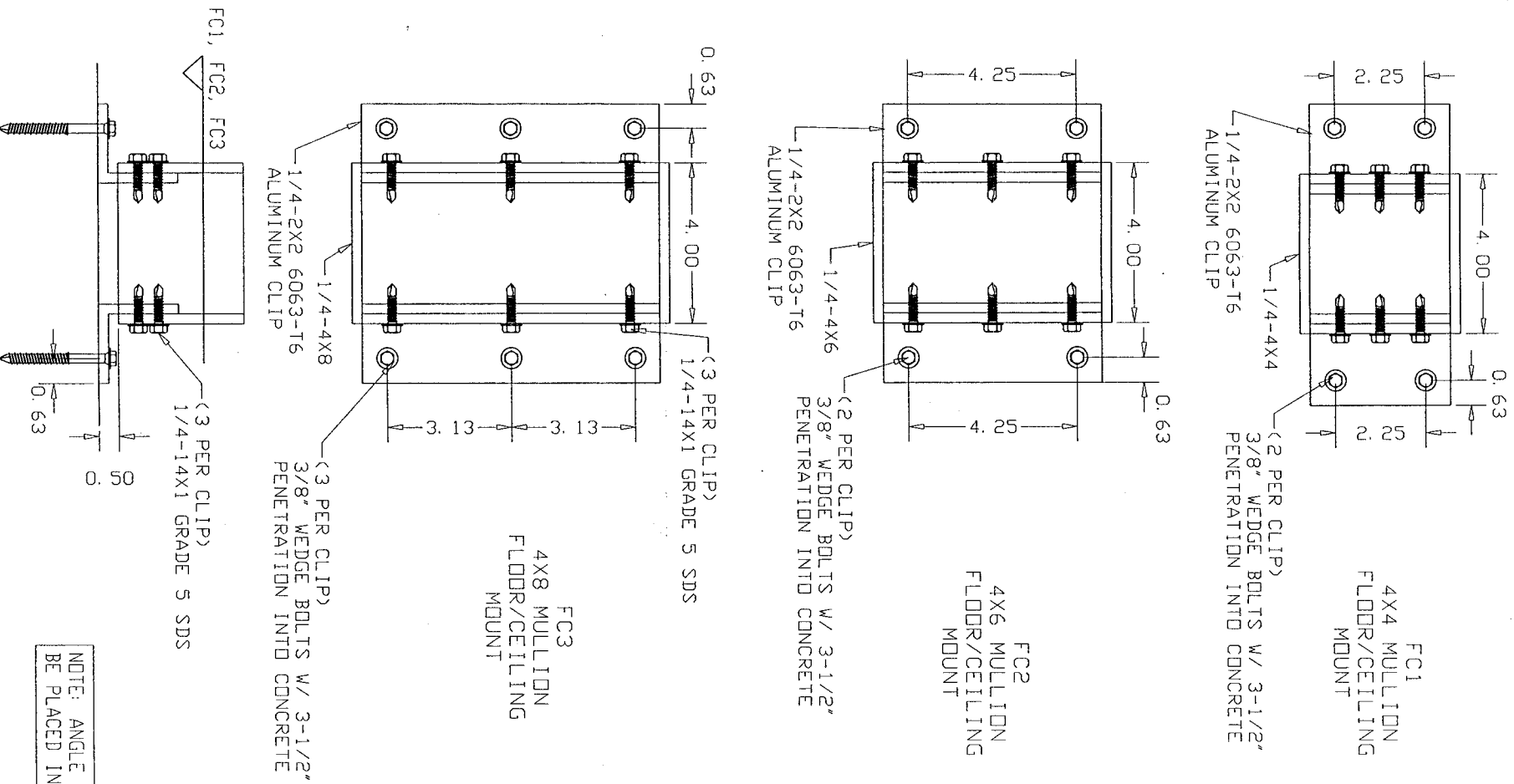
REVISIONS:

Date: 12/10/2011
 Scale: NA
 Design by: PPMF

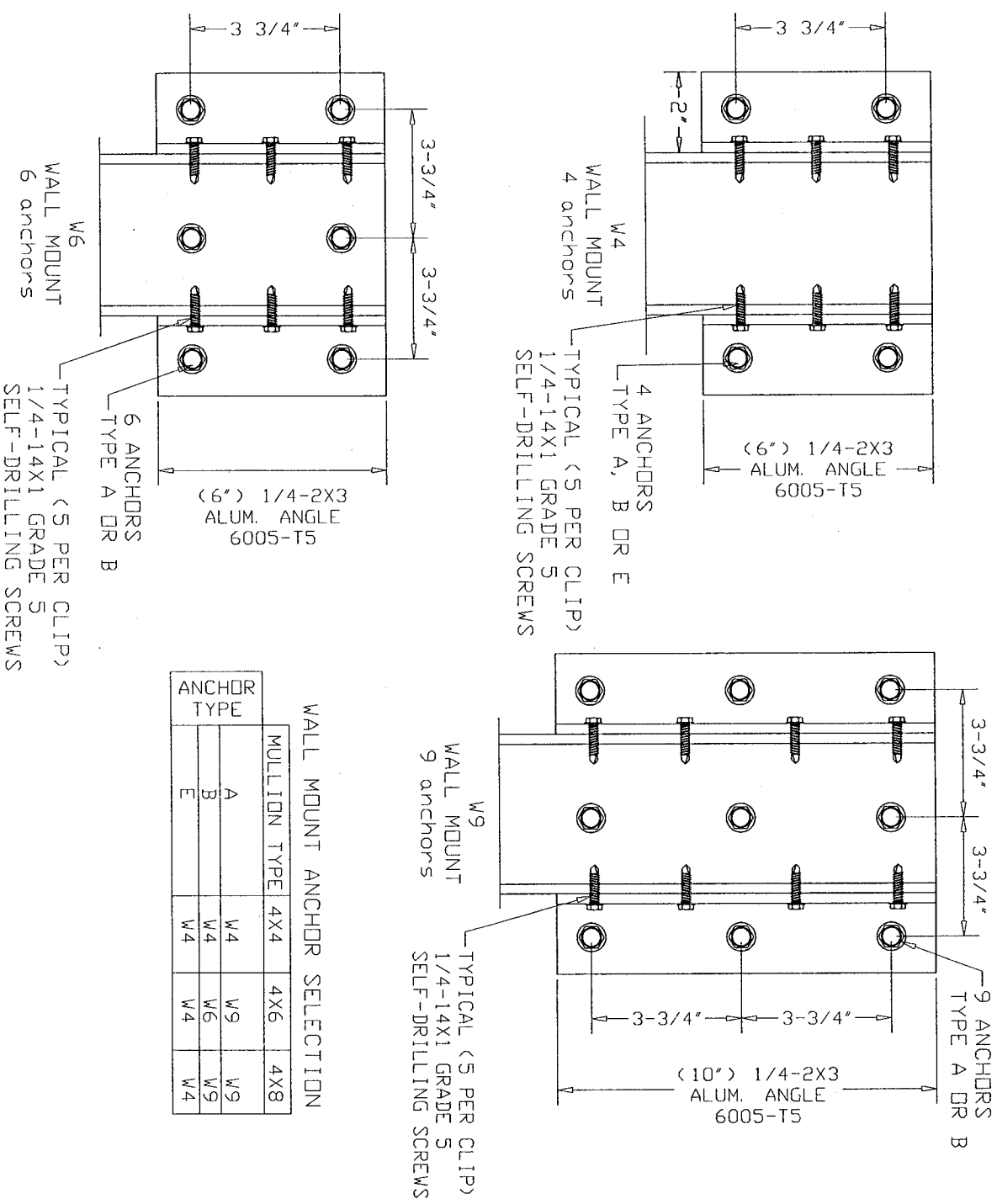
Drawing Number
11-240

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EQUALLY SPACED MULLIONS WALL AND INSET CONNECTIONS



NOTE: ANGLE CLIP TO BE PLACED INSIDE TUBE



WALL MOUNT ANCHOR SELECTION

ANCHOR TYPE	MULLION TYPE	4X4	4X6	4X8
A		W4	W9	W9
B		W4	W6	W9
E		W4	W4	W4

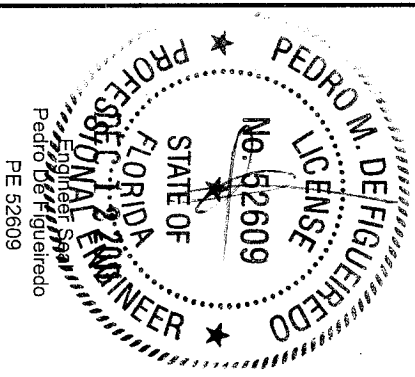
ANCHOR SCHEDULE:

ANCHOR	DESCRIPTION	MATERIAL	EMBEDMENT	EDGE DISTANCE
A	5/16" X 3" TAPCONS	MIN. 2899 psi CONCRETE	2 1/4"	3 1/8"
B	5/16" X 3" TAPCONS	GROUT FILLED C-90 BLOCK	2 1/4"	4"
E	3/8" X 4" WEDGE BOLTS	MIN. 3000 psi CONCRETE	3 1/2"	4 1/2"

Manufacturer:
CROCI NORTH AMERICA
 11600 ADELMO LANE
 FORT MYERS, FL 33966
 Tel.: (239) 278-3066
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PRODUCT:
ESS 55 SUP
 Rolling Shutter
 LARGE & SMALL MISSILE
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Engineering:
Eng'g Dr. Inc.
 CA 8116
 ENGCO@AOL.COM



DRAFTING:
PK DRAFTING & MORE

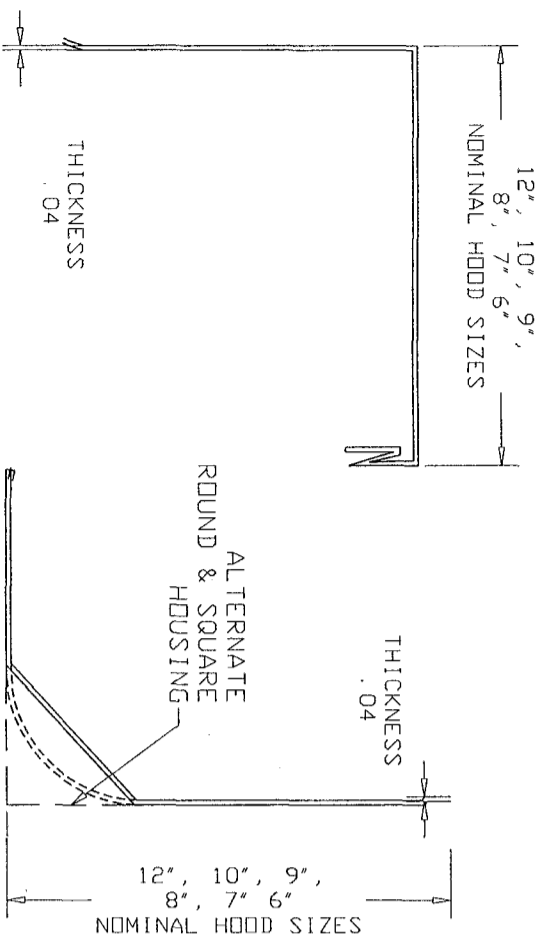
REVISIONS:

Date: 12/10/2011
 Scale: NA
 Design by: PPMF

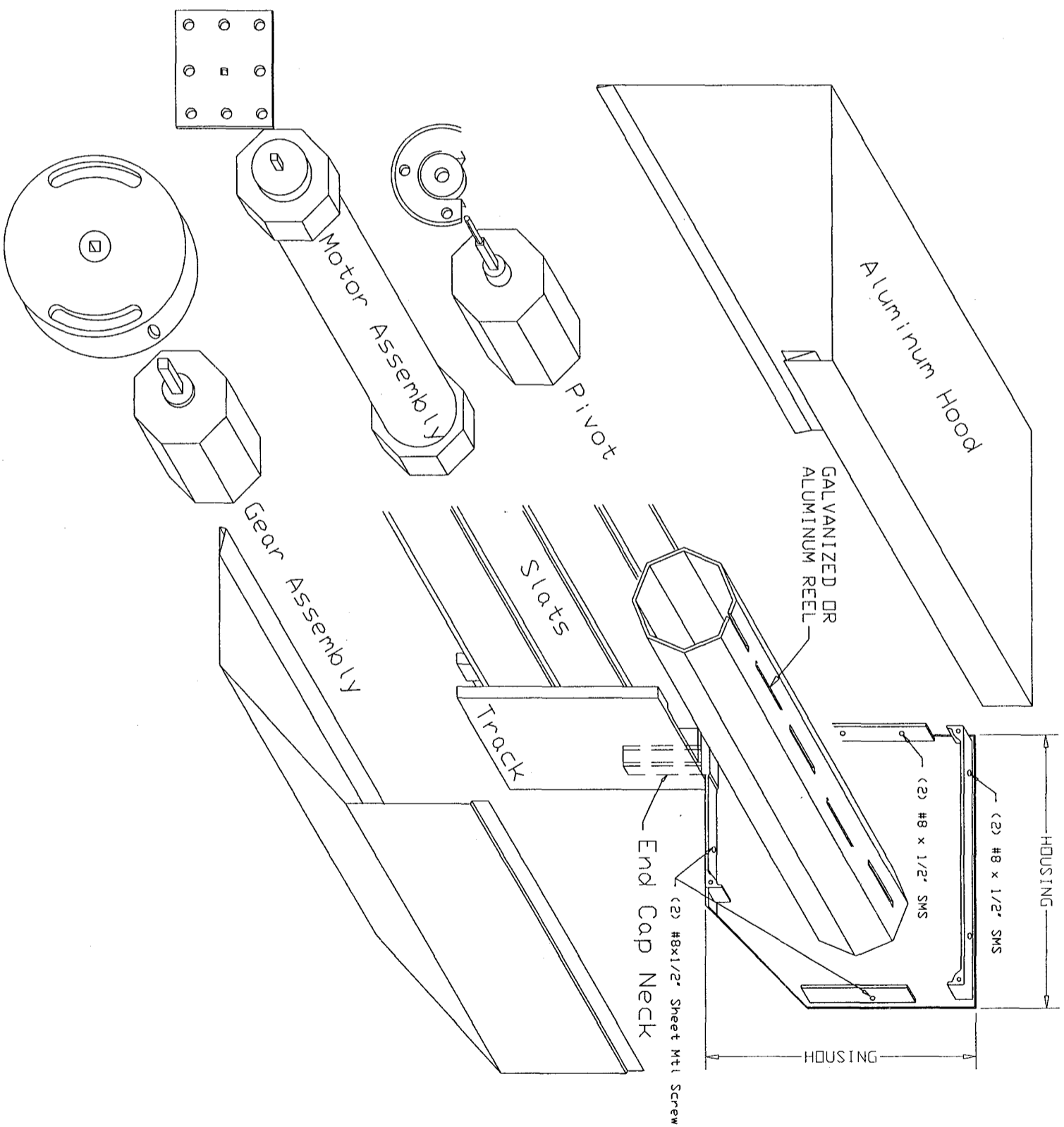
Drawing Number
11-240

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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:
CROCI NORTH AMERICA
11600 ADELMO LANE
FORT MYERS, FL 33966
Tel.: (239) 278-3066
Fax: (239) 278-5977

PRODUCT:
ES 55 SUP
Rolling Shutter
LARGE & SMALL MISSILE
IMPACT RATED

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

PEDRO M. DE FIGUEIREDO
LICENSE
No. 52609
STATE OF FLORIDA
PROFESSIONAL ENGINEER
Pedro De Figueiredo
Engineer Seal
PE 52609

DRAFTING:
PK DRAFTING & MORE

REVISIONS:

Date: 12/10/2011
Scale: NA
Design by: PPMF

Drawing Number
11-240

SHEET
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