MIAMI-DADE COUNTY
BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION

MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING

140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908
www.miamidade.gov

NOTICE OF ACCEPTANCE (NOA)

Rolladen, Inc.
550 Ansin Boulevard
Hallandale, FL 33009

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed by Miami-Dade County Product Control Division and accepted by the Board of Rules and Appeals (BORA) to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Division (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division that this product or material fails to meet the requirements of the applicable building code.
This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone.

DESCRIPTION: "#1117 Extruded" Aluminum Roll-Up Shutter

APPROVAL DOCUMENT: Drawing No. 94-55, titled "RollShutter Details", prepared by Al-Farooq Corporation dated July 22, 1994, with last revision #H dated September 24, 2009, sheets 1 through 21 of 21, and 2.1 & 7.1, all signed and sealed by Arshad Viqar, P.E., bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and expiration date by the Miami-Dade County Product Control Division.

MISSILE IMPACT RATING: Large and Small Missile Impact Resistant

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and the following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.
This NOA **revises NOA # 08-0219.04** and consists of this page 1, evidence submitted pages E-1 & E-2 as well as approval document mentioned above.
The submitted documentation was reviewed by **Helmy A. Makar, P.E., M.S.**

MIAMI-DADE COUNTY APPROVED

Helmy A. Makar
05/26/2010

NOA No. 09-1124.02
Expiration Date: 09/25/2013
Approval Date: 05/26/2010

Rolladen, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

1. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL #08-0219.04

A. DRAWINGS

1. *Drawing prepared by Al-Farooq Corporation, titled "RollShutter Detail, Header Mullion Details, Storm Bar Connection Details, Mullion & Box Details, Post Loading Charts, Top Support Loading Charts, Storm Bar Loading Charts & Deflection Calculation Sheet," Drawing No.* ***94-55****, dated 07/22/94, with revision "g" dated 12/19/05, signed and sealed on 02/13/08 Sheets 1 through 21 of 21, signed and sealed by H. Farooq, P.E.*

B. TESTS

1. *Test report on Large Missile Impact Test per PA 201 and Cyclic Wind Pressure Test per PA 203 of Roll Shutter prepared by Hurricane Engineering & Testing, Inc., Report No.* ***HETI-07-2142*** *dated 10/31/07 signed and sealed by Candido Font, P.E.*
2. *Test report on Uniform Static Air Pressure Test per PA 202 of Roll Shutter prepared by Hurricane Engineering & Testing, Inc., Report No.* ***HETI-07-2142,*** *10/31/07, signed and sealed by Candido Font, P.E.*

C. CALCULATIONS

1. *Mullion and anchor calculations using rational analysis dated November 3, 1994 and revised on November 12, 1994, signed and sealed by H. Farooq, P.E.*
2. *Mullion and anchor calculations signed and sealed by Humayoun Farooq, PE. on February 22, 1995.*
3. *Mullions, Storm Bars, Header and anchor calculations prepared by Al-Farooq calculations on 01/31/06 and signed by H. Farooq PE.*

D. MATERIAL CERTIFICATIONS

1. *Tensile Test Report No. HETI-07T764 prepared by Hurricane Engineering & Testing, Inc. dated 11/15/07, tested as per ASTM E8-01, signed and sealed by Candido Font, P.E.*

E. STATEMENTS

1. *Letter of no change and code compliance issued by Al- Farooq Corporation. on 02/13/08 signed and sealed by H. Farooq, P.E..*

F. QUALITY ASSURANCE

1. *Miami-Dade County. Building Code Compliance Office.*

G. OTHER

1. *NOA # 06-0213.01.*

Helmy A. Makar

Helmy A. Makar, P.E., M.S.
Senior Product Control Examiner
NOA No. 09-1124.02
Expiration Date: 09/25/2013
Approval Date: 05/26/2010

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

2. NEW EVIDENCE SUBMITTED

A DRAWINGS

1. *Drawing No. 94-55, titled "RollShutter Details", prepared by Al-Farooq Corporation dated July 22, 1994, with last revision #H dated September 24, 2009, sheets 1 through 21 of 21, and 2.1 & 7.1, all signed and sealed by Arshad Viqar, P.E.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *Comparative analyses and anchor calculations, sheets L1, SC-1, TR-1, SP1 through SP6, A-1 through A-19, T-1 through T-19, H-1 & H-2, S-1 through S-11, M-1, M-1.1, & M-2, dated September 28, 2009, signed and sealed by Arshad Viqar, P.E.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County, Building Code Compliance Office.*

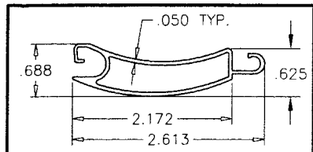
E. MATERIAL CERTIFICATIONS

1. *None.*

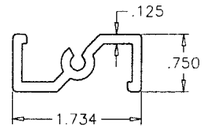
F. STATEMENTS

1. *Letter of Compliance to FBC 2007 from Al-Farooq Corporation, dated September 24, 2009, signed and sealed by Arshad Viqar, P.E.*

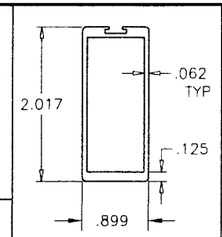
Helmy A. Makar, P.E., M.S.
Senior Product Control Examiner
NOA No. 09-1124.02
Expiration Date: 09/25/2013
Approval Date: 05/26/2010



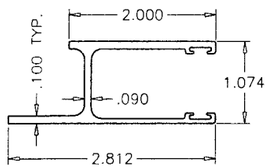
RON-68 SLAT



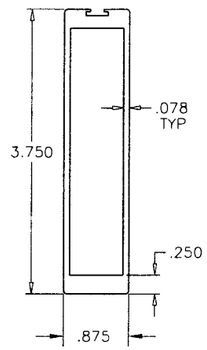
RON-23 INSERT



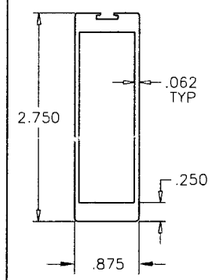
RON-24 STORM BAR



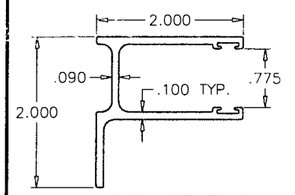
RON-72 TRACK



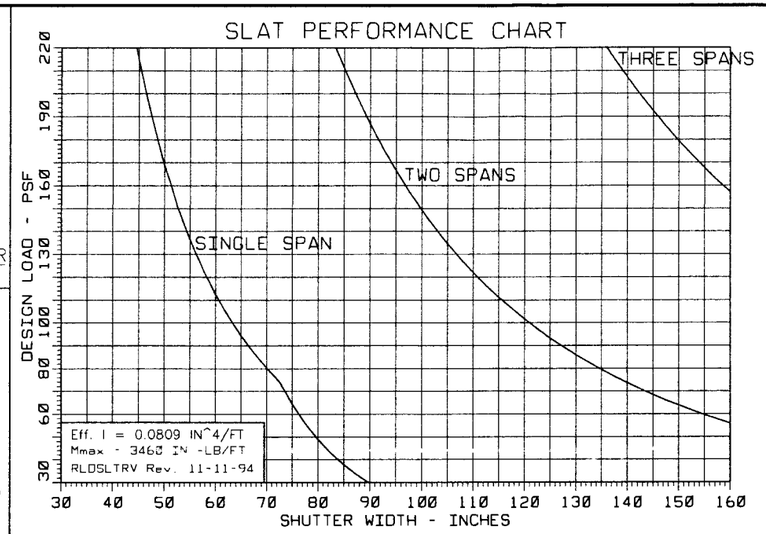
RON-56 STORM BAR

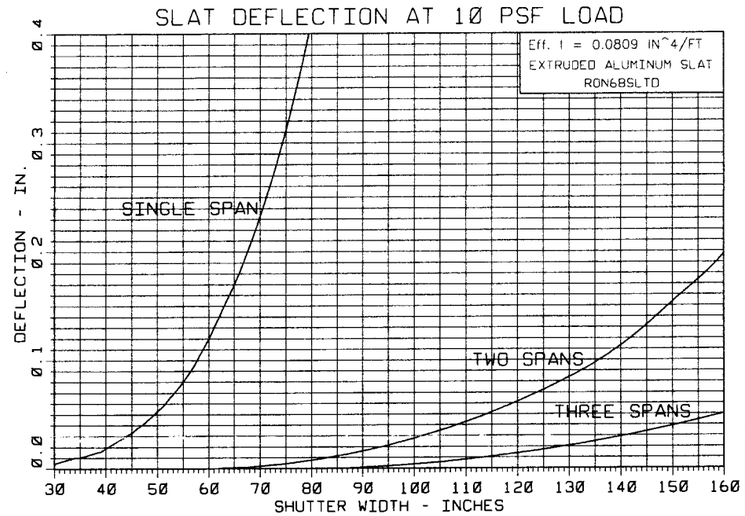


RON-57 STORM BAR

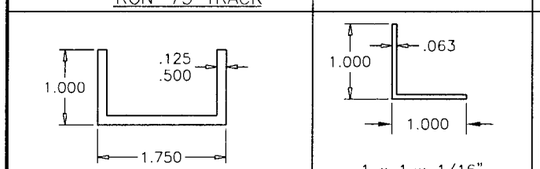


RON-73 TRACK



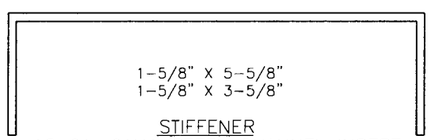


USE SLAT PERFORMANCE CHART TO VERIFY SLAT CAPACITY FOR THE REQUIRED DESIGN LOAD FOR THE PARTICULAR LOCATION.

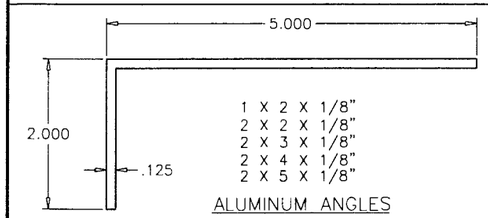


FLOOR SHOE

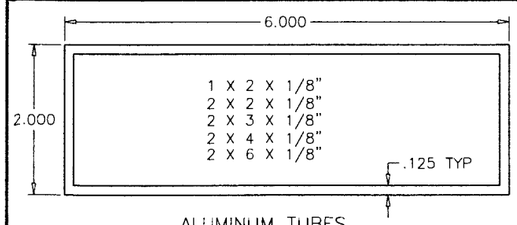
1 x 1 x 1/16"
ALUMINUM ANGLE



STIFFENER
12 GA. GALV. STEEL CHANNEL INSERT



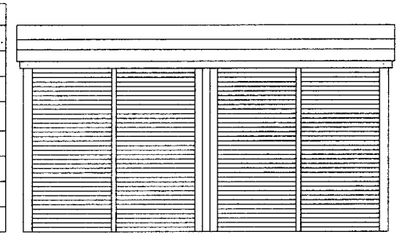
ALUMINUM ANGLES



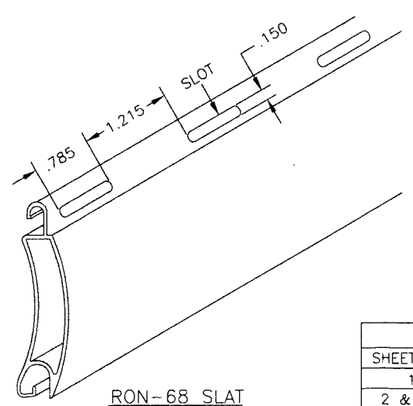
ALUMINUM TUBES

DESCRIPTION	PART #
SLAT RON-68	#1117
TRACK RON-72	#1071
TRACK RON-73	#1070
1x2x1/8" TUBE	#1019
2x2x1/8" TUBE	#1022
2x3x1/8" TUBE	#1024
2x4x1/8" TUBE	#1023
2x6x1/8" TUBE	#1026
1x1x1/16" ANGLE	#1031
1x2x1/8" ANGLE	#1029
2x2x1/8" ANGLE	#1051
2x3x1/8" ANGLE	#5012
2x4x1/8" ANGLE	#5013
2x5x1/8" ANGLE	#5014
1x1-3/4X1/8" CHANNEL	#1058
RON-24 STORM BAR	#1047
RON-57 STORM BAR	#1043
RON-56 STORM BAR	#1044
RON-23 ALUM INSERT	#1046

BOX DIMENSIONS	
SHUTTER HT.	HOOD HT.
48"	8"
73"	9"
95"	10"
119"	11"
148"	12"
181"	13"
216"	14"



TYPICAL ELEVATION



RON-68 SLAT

FOR OVERALL DEFLECTION CALCULATION USE SHEET 21 OF 21.

FOR INSTALLATION DETAILS SEE SHEETS 2 THRU 7.
FOR COMPONENT SIZES/SPANS/DESIGN LOAD RATING SEE SHEET 8 THRU 20.

INDEX OF DRAWING	
SHEET NO.	DESCRIPTION
1	EXTRUSIONS DETAILS, NOTES, SLAT GRAPHS
2 & 2.1	SINGLE SPAN DETAILS
3	TRACK ANCHOR GRAPHS
4	MULTIPLE SPAN INSTALLATION DETAIL
5	HEADER/MULLION CONNECTION DETAILS
6	STORM BAR ANCHOR DETAILS
7 & 7.1	MULLION & BOX ANCHOR DETAILS
8 THRU 13	POST (MULLION) LOADING CHARTS
14 & 15	TOP SUPPORT LOADING CHARTS
16 THRU 20	STORM BAR LOADING CHARTS
21	CALC. SHEET FOR OVERALL DEFLECTION

GENERAL NOTES

1. THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE 2007 EDITION INCLUDING HIGH VELOCITY HURRICANE ZONE.
2. DESIGN CRITERIA FOR ALUMINUM, MINIMUM MECHANICAL PROPERTIES, AND SAFETY FACTORS ARE IN ACCORDANCE WITH THE "ALUMINUM CONSTRUCTION MANUAL" LATEST EDITION.
3. ALUMINUM ALLOYS: ALL EXTRUSIONS SHALL BE ALLOY 6063-T6, OR AS NOTED.
4. STEEL SURFACES TO BE PLACED IN CONTACT WITH ALUMINUM SHALL BE GIVEN ONE COAT OF ZINC CHROMATE PRIMER IN ACCORDANCE WITH FEDERAL SPEC. NO. TTP-645, OR BE GALVANIZED.
5. ANCHORS SHALL BE AS LISTED, SPACED AS SHOWN ON DETAILS. ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO.
6. ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL OR ALUMINUM ALLOY 2024-T4 OR 7075-T6, OR PLATED STEEL.
7. SHUTTERS MAY BE MOTOR, TAPE PULLEY, OR GEAR DRIVEN.
8. DESIGN CRITERIA: FOR MULTIPLE SPANS THE COMBINED MAX DEFLECTION OF HEADER, STORM BARS AND SLATS ≤ L/30 OR 2". FOR MULLIONS MAX DEFLECTION ≤ L/180.
9. ANCHORING OR LOADING CONDITIONS OTHER THAN THOSE SHOWN IN THESE DETAILS ARE NOT PART OF THIS APPROVAL.
10. A LOAD DURATION INCREASE IS USED IN DESIGN OF ANCHORS INTO WOOD ONLY.
11. THE ROLL-UP MECHANISM NOT PART OF THIS APPROVAL, BUT SHALL BE CERTIFIED BY AN INDEPENDENT TESTING AGENCY.

PRODUCT MARKING

A LABEL SHALL BE AFFIXED ON UNIT AT RIGHT BOTTOM OF BOX WITH THE FOLLOWING STATEMENT:

#1117 EXTRUDED ALUMINUM ROLLING SHUTTER
'MIAMI-DADE COUNTY PRODUCT CONTROL APPROVED'
MANUFACTURED BY ROLLADEN, INC.

Engr. ARSHAD VIQAR
CIVIL
FLA. PE # 38863
C.A.N. 3538

SEP 28 2009

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 09-1124.02
Expiration Date 09/25/2013
By [signature]
Miami Dade Product Control Division

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978

ROLLUP\94-55RI

RollShutter Details

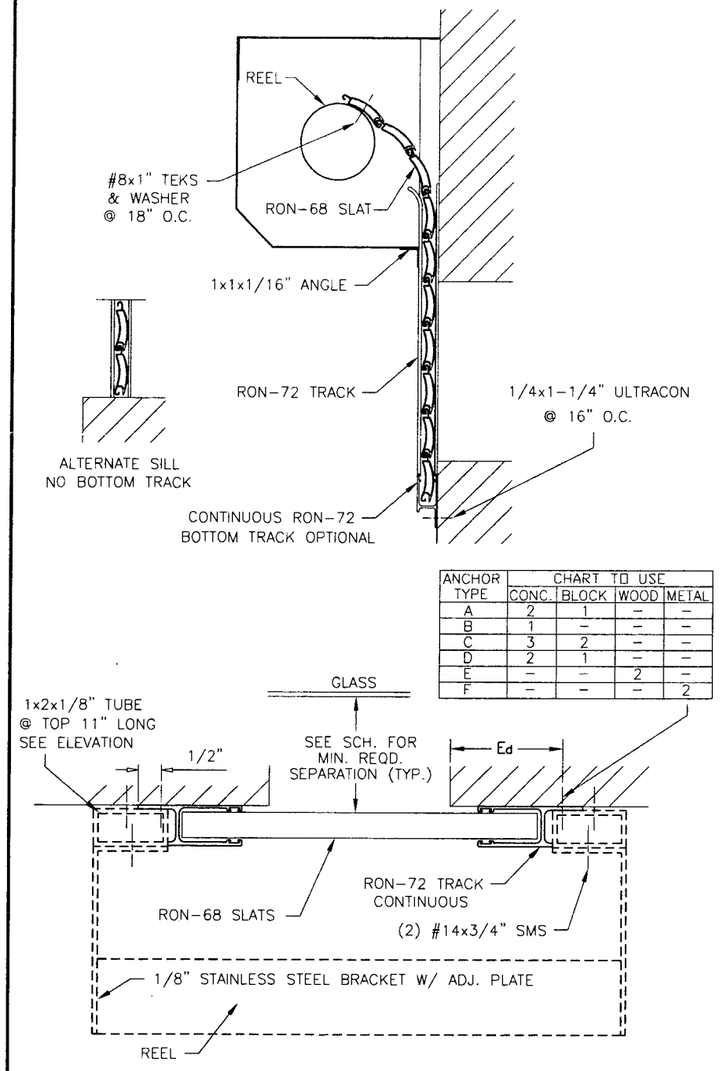
ROLLADEN INC.
550 ANSIN BLVD.
HALLANDALE, FL. 33009
TEL. (954) 757-8591 FAX. (954) 454-1577

revisions:

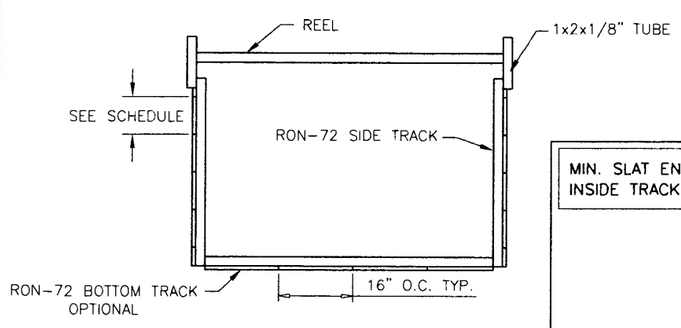
no	date	by	description
D	07.02.95	T.H.	SHEET 3 REVISED
E	04.25.03	T.H.	UPDATED FOR FBC & NDS 97
F	10.28.03	T.H.	REV. PER BCCO COMMENTS
G	12.19.05	T.H.	UPDATED FOR 2004 FBC
H	09.24.09	T.H.	UPDATED FOR 2007 FBC

date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no.
94-55

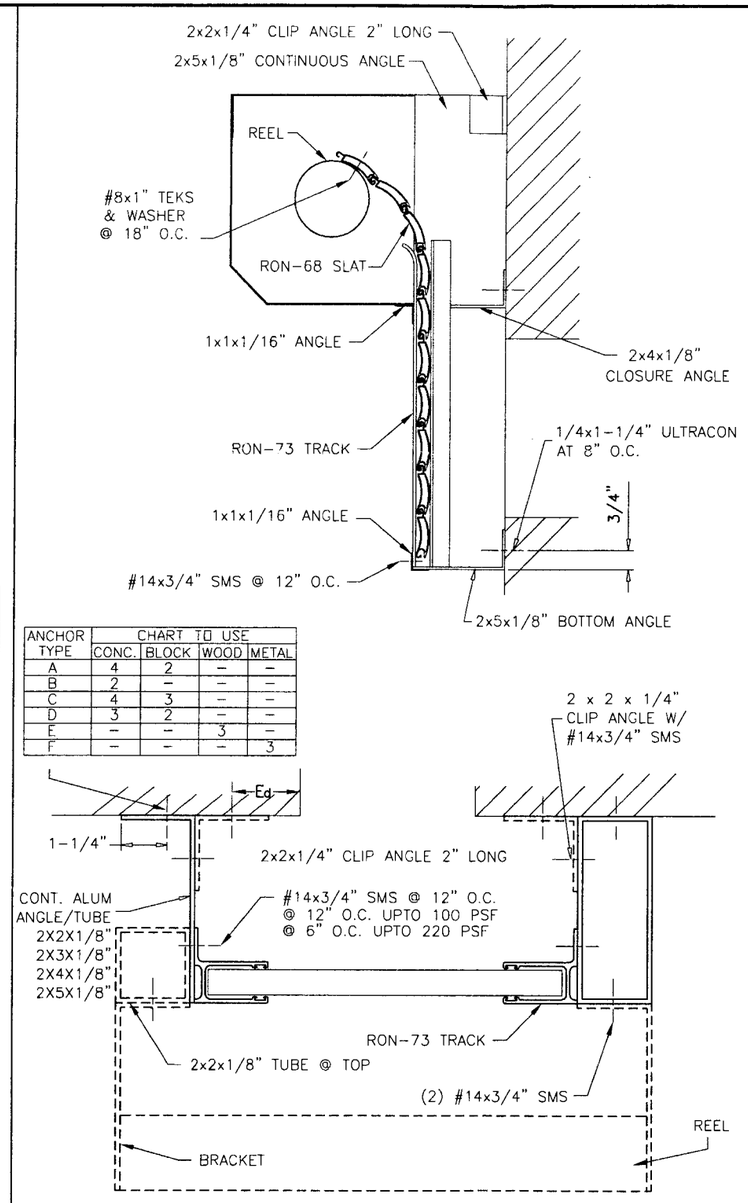


ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	2	1	–	–
B	1	–	–	–
C	3	2	–	–
D	2	1	–	–
E	–	–	2	–
F	–	–	–	2



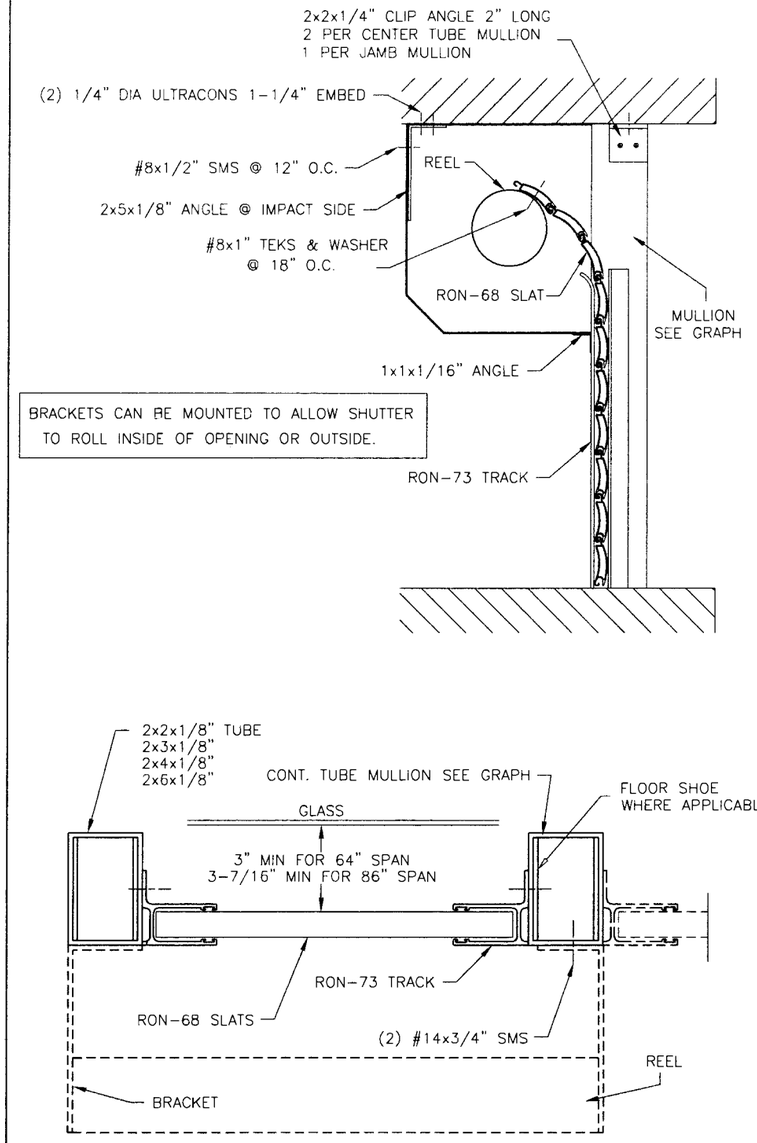
ELEVATION

SINGLE SPAN TRACK ON WALL



ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	4	2	–	–
B	2	–	–	–
C	4	3	–	–
D	3	2	–	–
E	–	–	3	–
F	–	–	–	3

SINGLE SPAN WITH BUILT OUT



SINGLE SPAN SPLIT SHUTTER W/ MULLION

MIN. SLAT ENGAGEMENT INSIDE TRACKS = 1-1/2" TYP.

Ed = TYPICAL EDGE DISTANCE
FOR LESSER EDGE DISTANCES SEE SHEET 3 OF 21.

MINIMUM SEPARATION REQD. FROM GLASS		
FOR INSTALLATIONS ABOVE 30 FT. OF GRADE DUE TO WIND LOAD	FOR INSTALLATIONS UPTO 30 FT. OF GRADE DUE TO LARGE MISSILE IMPACT	
	SHUTTER WIDTH UPTO	SEPARATION
OVERALL DEFLECTION + 1"	56"	3-11/32"
	69"	4"
	90"	4-1/4"

FOR OVERALL DEFLECTION CALCULATION REFER TO SHEET 21 OF 21.
NOTE: NO PART OF SHUTTER SHALL BE UNDER 30' ABOVE GRADE TO WAIVE LARGE MISSILE IMPACT REQUIREMENT.

Engr: ARSHAD VIQAR
CIVIL
FLA. PE # 38863
C.A.N. 3538

SEP 28 2009

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 09-1124.07
Expiration Date 09/25/2013
By Helena A. Melo
Miami Dade Product Control Division

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
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ROLLUP\94-55RI

RollShutter Details

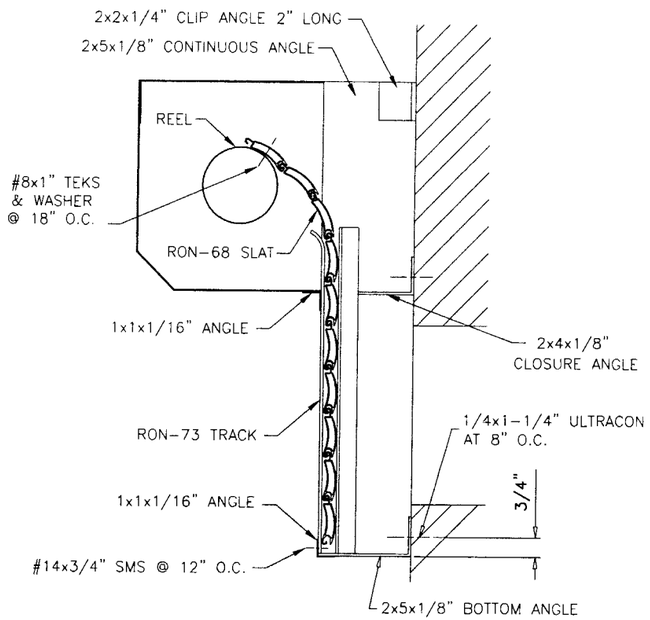
ROLLADEN INC.
550 ANSIN BLVD.
HALLANDALE, FL. 33009
TEL. (954) 757-8591 FAX. (954) 454-1577

revisions:

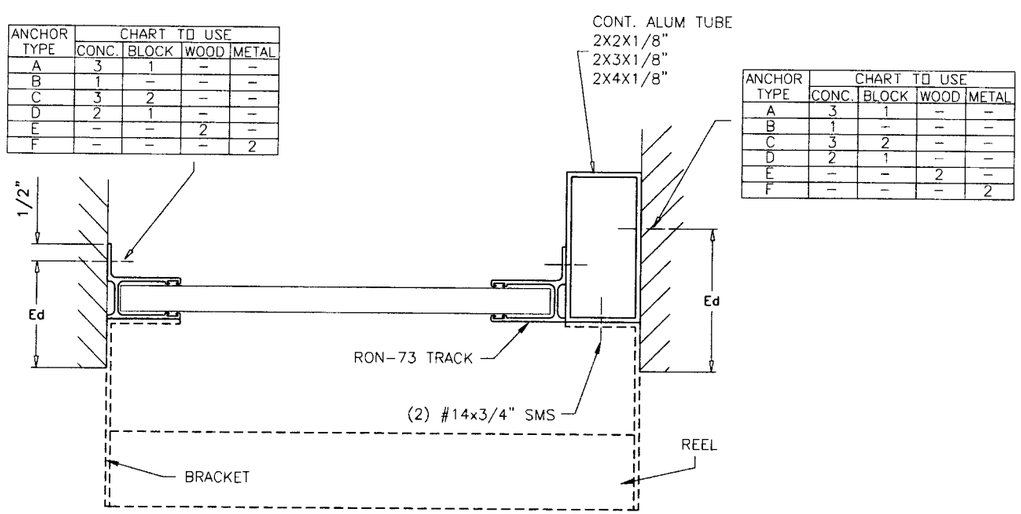
no	date	by	description
D	07.02.95	T.H.	SHEET 3 REVISED
E	04.25.03	T.H.	ANCHOR CHARTS REV.
F	10.28.03	T.H.	NO CHANGE THIS SHEET
G	12.19.05	T.H.	UPDATED FOR 2004 FBC
H	09.24.09	T.H.	UPDATED FOR 2007 FBC

date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no.
94-55



ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	3	1	–	–
B	1	–	–	–
C	3	2	–	–
D	2	1	–	–
E	–	–	2	–
F	–	–	–	2



ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	3	1	–	–
B	1	–	–	–
C	3	2	–	–
D	2	1	–	–
E	–	–	2	–
F	–	–	–	2

SINGLE SPAN WITH TRACK ON WALL

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 09-1124.02
Expiration Date 09/25/2013
By Helen A. Melon
Miami Dade Product Control Division

Engr: ARSHAD VIQAR
CIVIL
FLA. PE # 38863
C.A.N. 3538

SEP 28 2009

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978

ROLLUP\94-55RI

RollShutter Details

ROLLADEN INC.
550 ANSIN BLVD.
HALLANDALE, FL. 33009
TEL. (954) 757-8591 FAX. (954) 454-1577

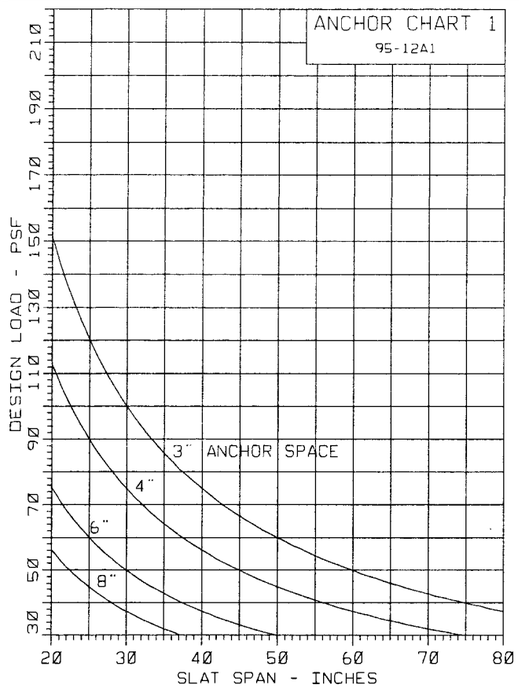
revisions:

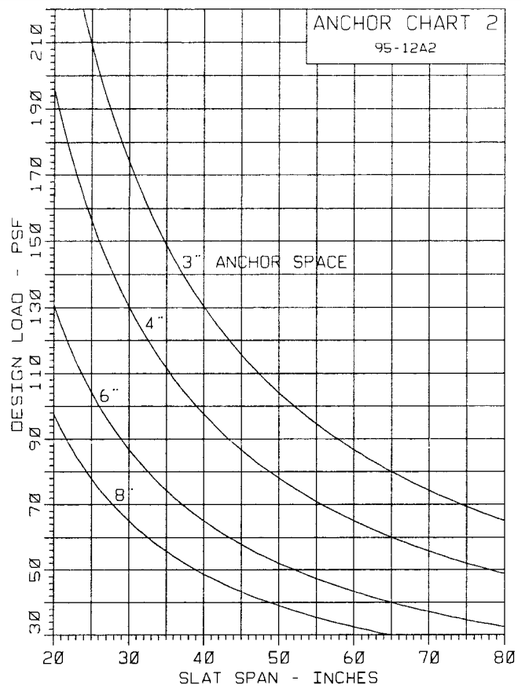
no	date	by	description
H	09.24.09	T.H.	UPDATED FOR 2007 FBC

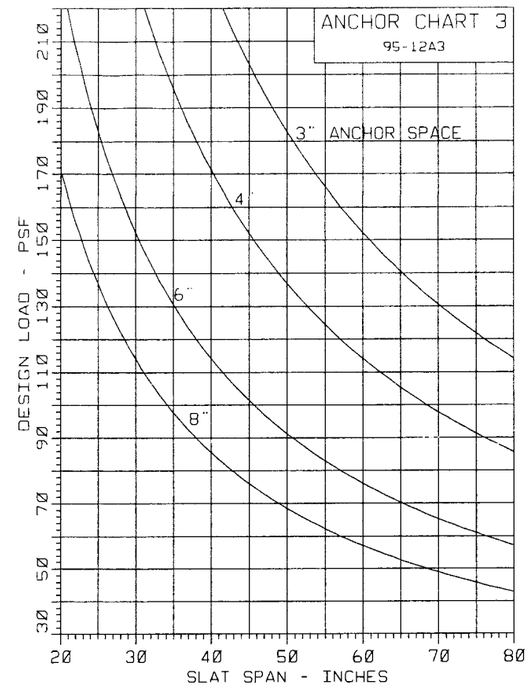
date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

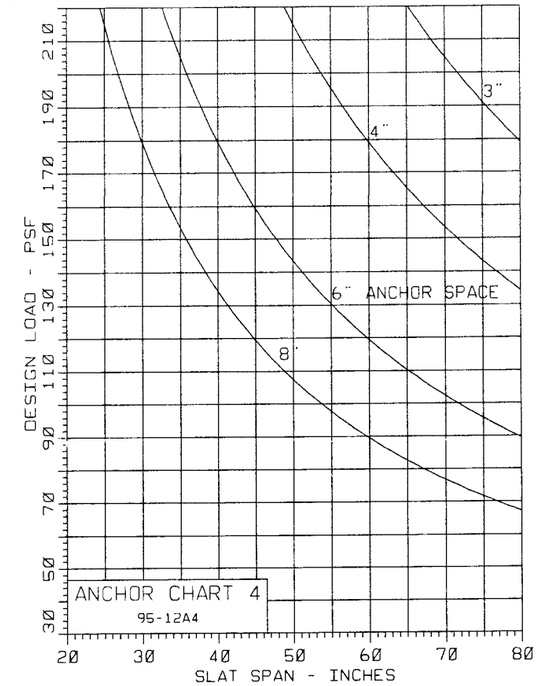
drawing no.
94-55

sheet 2.1 of 21









SLAT SPAN = SHUTTER WIDTH / # OF SPANS

TYPICAL ANCHORS AT TRACKS & CLIP ANGLES:

ANCHOR (A) = 1/4" DIA. ULTRACONS
1-3/4" EMBEDMENT INTO 3000 PSI CONC.
1-1/4" EMBEDMENT INTO C-90 BLOCK
3" MIN. EDGE DISTANCE
3" MIN. CL TO CL DISTANCE

ANCHOR (B) = #14 SMS W/ RAWL SCRU-LEAD
1-1/2" EMBEDMENT INTO 3000 PSI CONC.
3" MIN. EDGE DISTANCE
3" MIN. CL TO CL DISTANCE

ANCHOR (C) = #14 CRETE-FLEX SS4
1-3/4" EMBEDMENT INTO 3000 PSI CONC.
1-1/4" EMBEDMENT INTO C-90 BLOCK
3" MIN. EDGE DISTANCE
3" MIN. CL TO CL DISTANCE

ANCHOR (D) = 1/4" RAWL CALK-IN ANCHOR
7/8" MIN. EMBEDMENT INTO 3000 PSI CONC.
OR C-90 BLOCK
3" MIN. EDGE DISTANCE
3" MIN. CL TO CL DISTANCE

ANCHOR (E) = 1/4" DIA. LAG SCREWS
1-3/8" MIN PENETRATION INTO WOOD (S.G.=0.55)
1" MIN. EDGE DISTANCE
1" MIN. CL TO CL DISTANCE

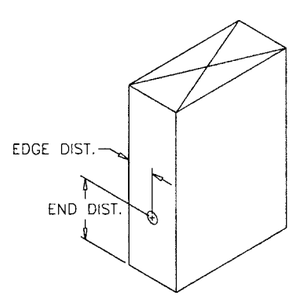
ANCHOR (F) = #14 SMS OR SELF DRILLING (TEKS) SCREWS
INTO METAL STRUCTURES
(STEEL OR ALUMINUM 1/8" MIN. THICK.)
1/2" MIN. EDGE DISTANCE
3/4" MIN. CL TO CL DISTANCE

CHARTS ARE BASED ON TYPICAL EDGE DISTANCE = 12d.
FOR LESSER EDGE DISTANCE DECREASE SPACING BY MULTIPLYING WITH THE FACTOR BELOW

EDGE DIST.	12d=3"	10d=2-1/2"	8d=2"	6d=1-1/2"	5d=1-1/4"
FACTOR	1.00	0.86	0.71	0.57	0.50

EXAMPLE: FOR 3" EDGE DIST. SPACING = 8" O.C. (FROM CHART)
FOR 2" EDGE DIST. SPACING = 8 X .71 = 5.7 O.C.

TYPICAL EDGE DISTANCE IN WOOD = 3/4"
TYPICAL END DISTANCE IN WOOD = 1"
NO REDUCTION FACTOR IS REQUIRED



TYPICAL ANCHORS AT CLIP ANGLES:

ANCHOR (A2) = 5/16" DIA. ULTRACONS
1-3/4" EMBEDMENT INTO 3000 PSI CONC.
1-1/4" EMBEDMENT INTO C-90 BLOCK
3" MIN. EDGE DISTANCE
3-3/4" MIN. CL TO CL DISTANCE

ANCHOR (G1) = 3/8" DIA. ST/ST. KWIK BOLT 3
2-1/2" MIN. EMBED INTO 3000 PSI CONC. OR C-90 FILLED BLOCK
4" MIN. EDGE DISTANCE
5" MIN. CL TO CL DISTANCE

ANCHOR (G2) = 1/2" DIA. ST/ST. KWIK BOLT 3
2-1/4" MIN. EMBED INTO 3000 PSI CONC. OR C-90 FILLED BLOCK
4" MIN. EDGE DISTANCE
5" MIN. CL TO CL DISTANCE

ANCHOR (G3) = 1/2" DIA. ST/ST. KWIK BOLT 3
3-1/2" MIN. EMBED INTO 3000 PSI CONC. OR C-90 FILLED BLOCK
4" MIN. EDGE DISTANCE
5" MIN. CL TO CL DISTANCE

ANCHOR (G4) = 5/8" DIA. ST/ST. KWIK BOLT 3
2-3/4" MIN. EMBED INTO 3000 PSI CONC. OR C-90 FILLED BLOCK
4" MIN. EDGE DISTANCE
5" MIN. CL TO CL DISTANCE

ANCHOR (G3) = 5/8" DIA. ST/ST. KWIK BOLT 3
4" MIN. EMBED INTO 3000 PSI CONC. OR C-90 FILLED BLOCK
4" MIN. EDGE DISTANCE
5" MIN. CL TO CL DISTANCE

NOTE: ANCHORS EMBEDMENT SHOWN IS BEYOND WALL & FLOOR COVERINGS (STUCCO, TILES, ETC.)

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By [signature]
Miami Dade Product Control Division

Engr: ARSHAD VIQAR
CIVIL
FLA. PE # 38863
C.A.N. 3538

SEP 28 2009

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ROLLUP\94-55R1

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dr. by: HAMID
chk. by:

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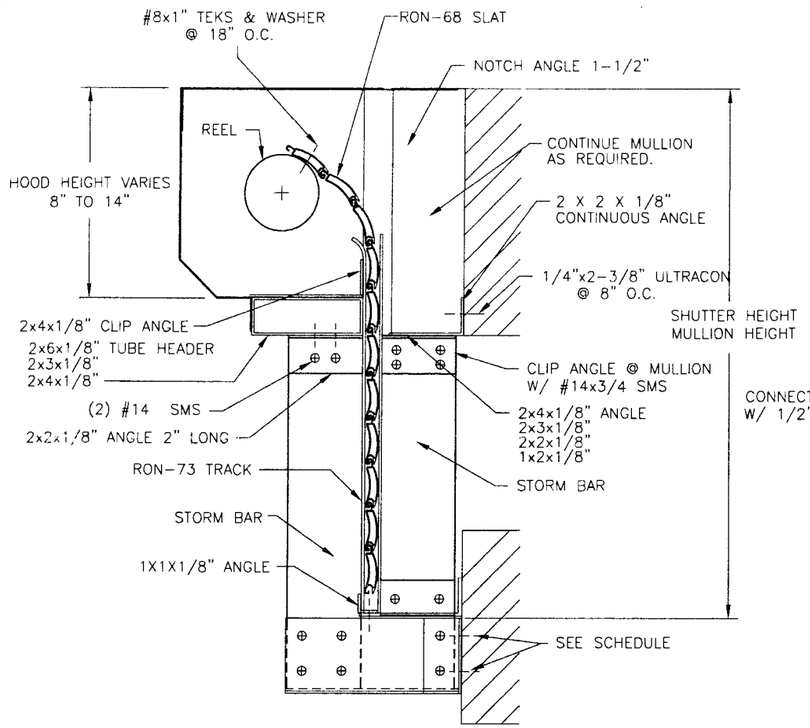
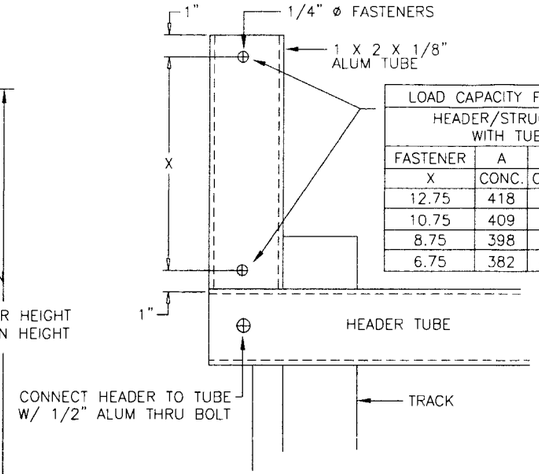


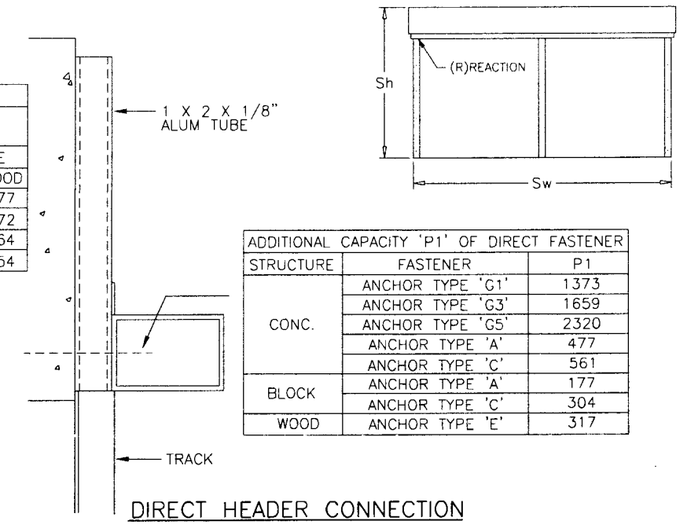
MULTIPLE SPAN SECTION

FOR MULLION ANCHOR SEE DETAIL



HEADER/STRUCTURE CONNECTION WITH TUBE EXTENSION

LOAD CAPACITY FOR FASTENER SYSTEM HEADER/STRUCTURE CONNECTION WITH TUBE EXTENSION					
FASTENER	A	C	A	C	E
X	CONC.	CONC.	BLOCK	BLOCK	WOOD
12.75	418	491	155	266	277
10.75	409	481	152	261	272
8.75	398	468	148	254	264
6.75	382	450	142	244	254

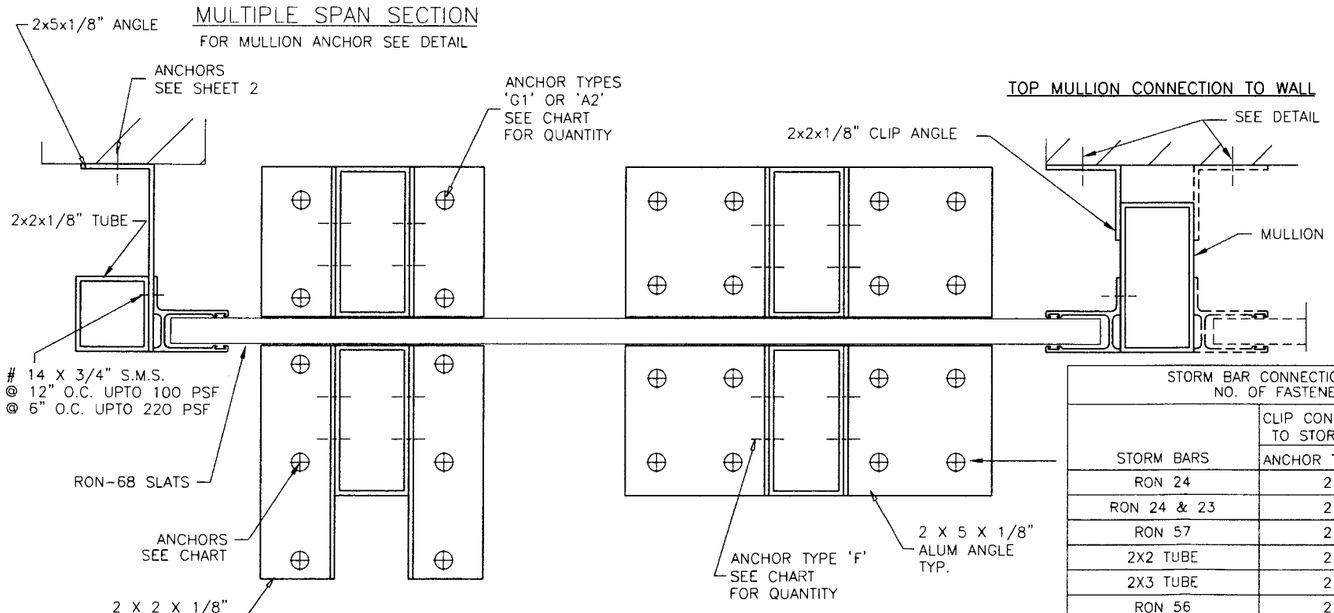


DIRECT HEADER CONNECTION TO STRUCTURE

ADDITIONAL CAPACITY 'P1' OF DIRECT FASTENER		
STRUCTURE	FASTENER	P1
CONC.	ANCHOR TYPE 'G1'	1373
	ANCHOR TYPE 'G3'	1659
	ANCHOR TYPE 'G5'	2320
	ANCHOR TYPE 'A'	477
	ANCHOR TYPE 'C'	561
BLOCK	ANCHOR TYPE 'A'	177
	ANCHOR TYPE 'C'	304
WOOD	ANCHOR TYPE 'E'	317

$$\text{REACTION} = R = \frac{1}{4} \times Sh \times Sw \times Pd$$

USE DIRECT CONNECTION AND/OR TUBE EXTENSION CAPACITY CHART TO DETERMINE ALLOWABLE CAPACITY.
FOR COMBINATION OF DIRECT ANCHOR AND TUBE EXTENSION USE THE TOTAL CAPACITY OF WOOD ANCHORS AND 80% OF THE TOTAL CAPACITY OF CONCRETE/MASONRY ANCHORS.



MULTIPLE SPAN PLAN
HEADER NOT SHOWN

TOP MULLION CONNECTION TO WALL

STORM BAR CONNECTION TO FLOOR & CEILING NO. OF FASTENERS REQD. EACH SIDE			
	CLIP CONNECTION TO STORM BAR	CLIP CONNECTION TO STRUCTURES	
STORM BARS	ANCHOR TYPE 'F'	ANCHOR TYPE 'G1'	ANCHOR TYPE 'A2'
RON 24	2	2	2
RON 24 & 23	2	2	2
RON 57	2	2	2
2X2 TUBE	2	2	2
2X3 TUBE	2	2	4
RON 56	2	2	4
2X4 TUBE	2	2	4
2X4 TUBE W/ STIFFENER	2	2	4
2X6 TUBE	3	2	4
2X6 TUBE W/ STIFFENER	3	2	4

SEE SHEET 3 FOR DESCRIPTION OF ANCHOR TYPES.

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Miami Dade Product Control Division

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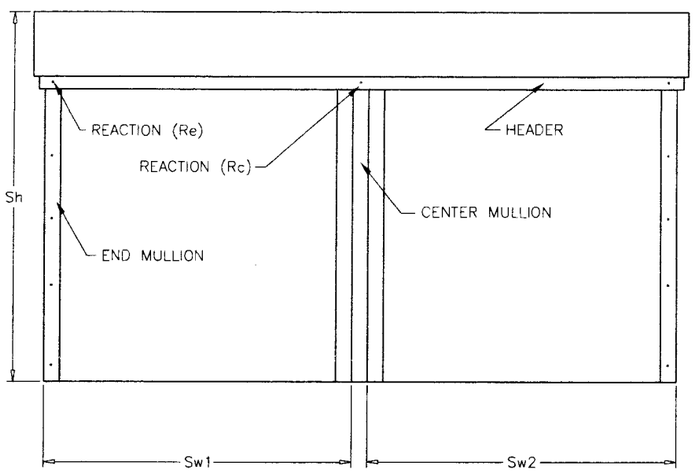

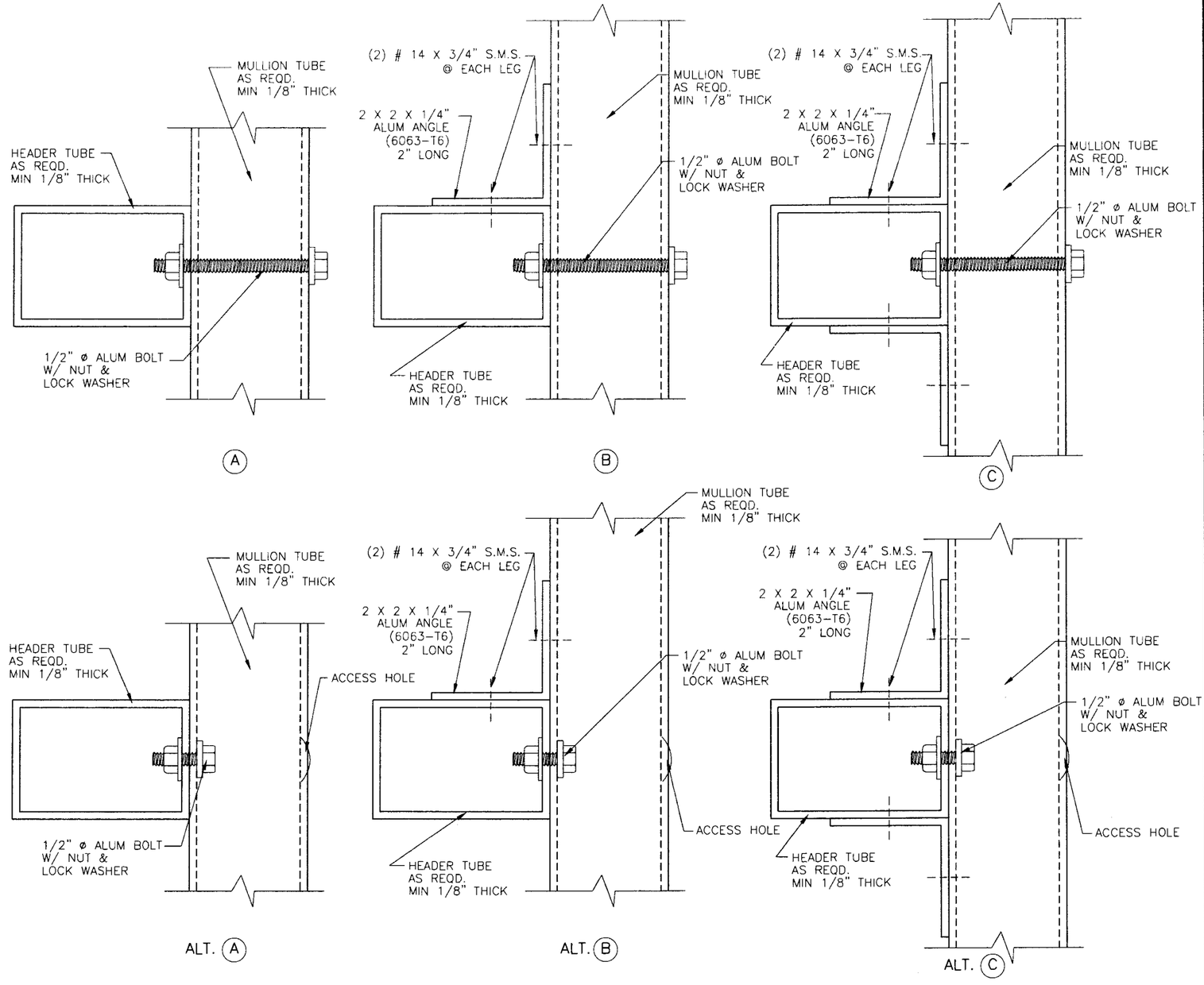

DESIGN LOAD = Pd = PSF

Sh	Sw1	Sw2

HEADER CONNECTION TO CENTER MULLION

$$Rc = \frac{Sh\ (Sw1 + Sw2)\ Pd}{4}$$

$$Rc = \frac{\qquad}{4} =$$

HEADER CONNECTION TO END MULLION

$$Re = \frac{Sh\ (Sw1\ OR\ Sw2)\ Pd}{4}$$

$$Re = \frac{\qquad}{4} =$$

FOR Re/Rc< 3000 lbs USE CONNECTION DETAIL (A)
Re/Rc< 3721 lbs USE CONNECTION DETAIL (B)
Re/Rc< 4442 lbs USE CONNECTION DETAIL (C)

ALL DIMENSIONS SHOWN Sh, Sw, Sw1 ETC. ARE IN FEET.

HEADER/MULLION CONNECTION DETAILS

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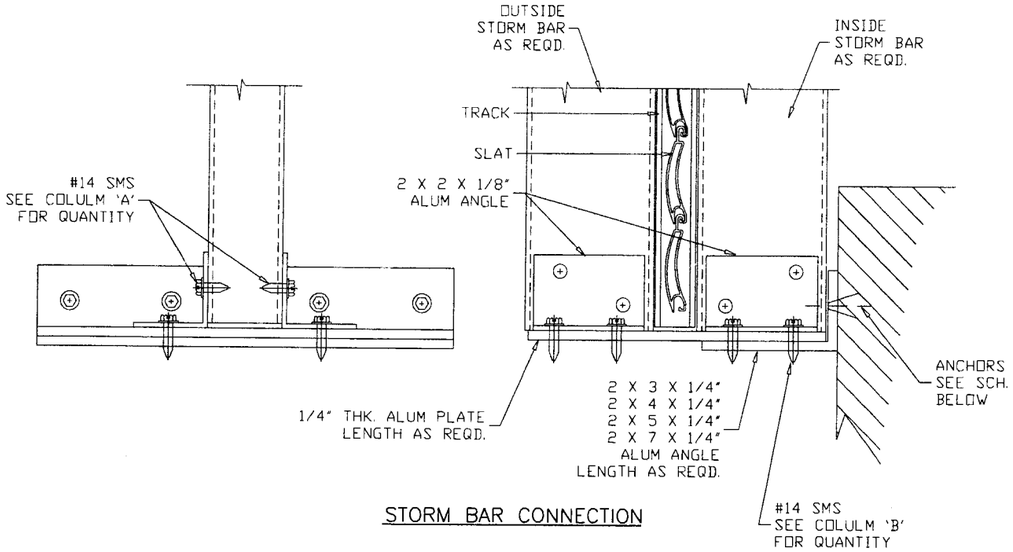
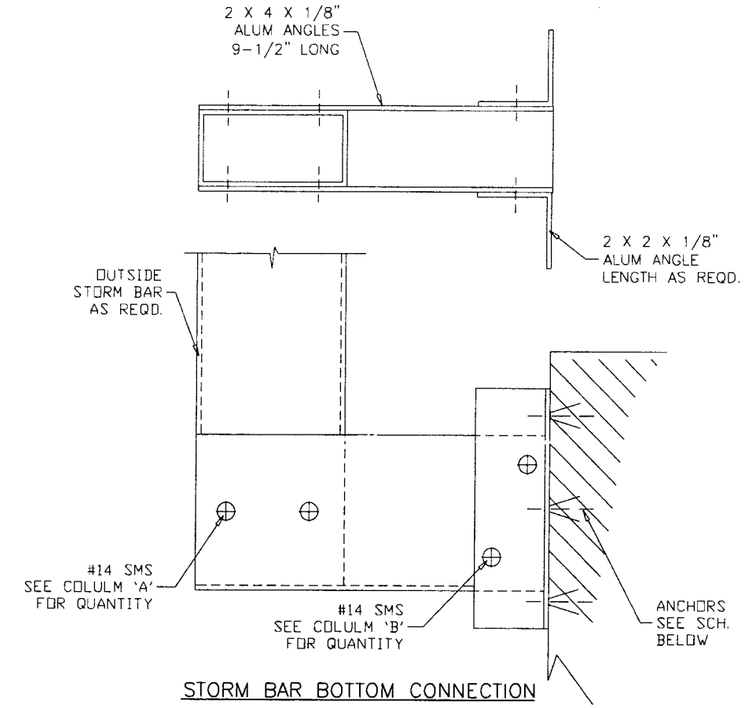
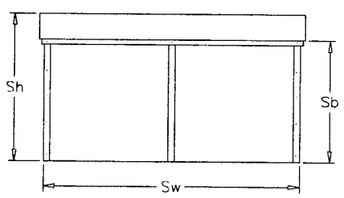


STORM BAR CONNECTION



STORM BAR BOTTOM CONNECTION



LOAD ON STORM BAR ANCHOR = $P = \frac{Sw \times Sb \times Pd \times FACTOR}{2 \times (\# \text{ OF SPANS})}$

IF P > CAPACITY OF FASTENERS SHOWN, ANCHORAGE SYSTEM SHALL BE DESIGNED ON JOB TO JOB BASIS.

FACTOR = 1.25 FOR 2 SPANS
= 1.10 FOR 3 SPANS
Sb = STORM BAR HEIGHT

ALL DIMENSIONS SHOWN Sh, Sw, Sb ETC. ARE IN FEET.

STORM BAR REACTION P (Lbs)	NO. OF ANCHORS AT EACH LEG OF ANGLE		NO. OF ANCHORS AT EACH SIDE OF STORM BAR			
	COLUMN 'A'	COLUMN 'B	CONCRETE	GROUT FILLED BLOCK	HOLLOW BLOCK	WOOD
790	2	2	(1) G1, A2, A, C (2) D	(1) G1	(2) A2, C	(2) E
1318	2	4	(1) G1, A2 (2) A, C	(2) G1	(3) A2, C	(3) E
1409	2	4	(1) G1, A2 (2) A, C	(2) G1	(3) A2, C	(3) E
1475	2	4	(1) G1 (2) A2, A, C	(2) G1	(3) C	(3) E
1865	2	4	(1) G1 (2) A2, C (3) A	(2) G1	(4) C	(4) E
1891	2	4	(1) G1 (2) A2, C (3) A	(2) G1	(4) C	(4) E
2202	2	4	(2) G1, A2 (3) A, C	(2) G1	–	(5) E
2578	2	4	(2) G1, A2 (3) C (4) A	(3) G1	–	(5) E
3067	3	4	(2) G1 (3) A2 (4) A, C	–	–	(6) E
3919	3	6	(2) G1 (3) A2 (5) A, C	–	–	(8) E

SEE SHEET 3 FOR DESCRIPTION OF ANCHOR TYPES.

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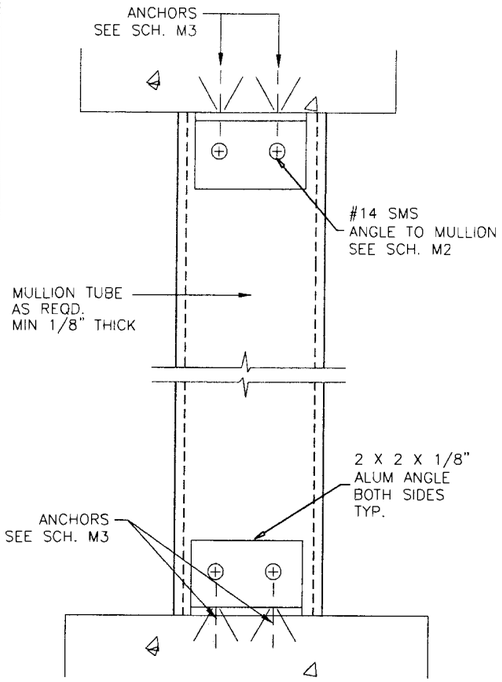


SLAB CONNECTION

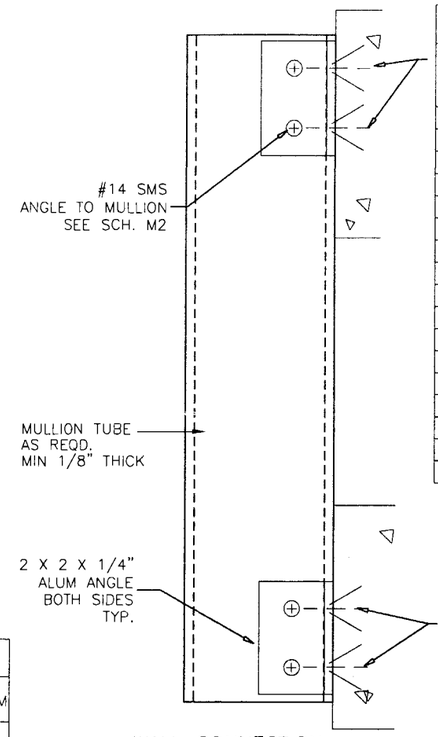
SCH. 'M3'

MULLION CONNECTION TO FLOOR & CEILING NO. OF FASTENERS REQD. PER CLIP				
MULLION SIZE	FASTENER TYPE	SUBSTRATE	TOP	BOTTOM
2 X 2 X 1/8"	A	CONC.	1	1
	B	CONC.	3	2
	C	CONC.	1	1
	E	WOOD	3	1
2 X 3 X 1/8"	A	CONC.	2	1
	B	CONC.	4	3
	C	CONC.	1	1
	E	WOOD	4	2
2 X 4 X 1/8"	A	CONC.	3	2
	B	CONC.	7	5
	C	CONC.	2	2
	E	WOOD	7	3
2 X 4 X 1/8" W/ STIFFENER	G2	CONC.	1	1
2 X 6 X 1/8"	G2	CONC.	2	1
2 X 6 X 1/8" W/ STIFFENER	G2	CONC.	2	1

SEE SHEET 3 FOR DESCRIPTION OF ANCHOR TYPES.

SCH. 'M2'

CLIP ANGLE CONNECTION TO MULLION TUBE NO. OF FASTENERS REQD. PER CLIP				
MULLION SIZE	FASTENER TYPE	SUBSTRATE	TOP	BOTTOM
2 X 2 X 1/8"	#14 SMS	ALUM.	2	2
2 X 3 X 1/8"	#14 SMS	ALUM.	2	2
2 X 4 X 1/8"	#14 SMS	ALUM.	3	2
2 X 4 X 1/8" W/ STIFFENER	#14 SMS	ALUM.	5	4
2 X 6 X 1/8"	#14 SMS	ALUM.	6	4
2 X 6 X 1/8" W/ STIFFENER	#14 SMS	ALUM.	7	5



WALL CONNECTION

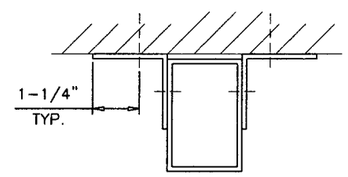
SCH. 'M1'

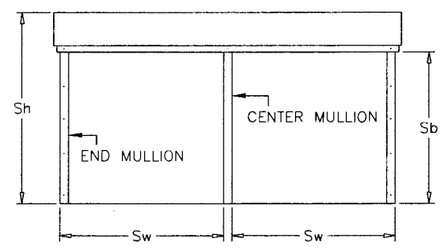
MULLION WALL ANCHOR CAPACITY, P (Lb) TO CONCRETE			
ANGLE LENGTH INCHES	NO. OF ANCHORS PER SIDE	ANCHOR TYPE	CAPACITY OF CONNECTION (Lbs)
5	2	D	423
5	2	A	596
8	3	D	634
5	2	C	701
11	4	D	845
8	3	A	894
6	2	A2	1046
8	3	C	1052
14	5	D	1056
11	4	A	1193
11	4	C	1403
14	5	A	1491
10	3	A2	1569
14	5	C	1753
8	2	G1	1645
10	4	A2	2093
14	3	G1	2467

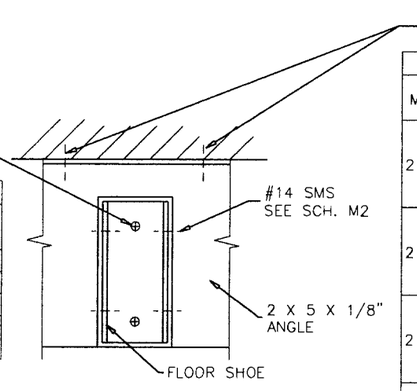
MULLION WALL ANCHOR CAPACITY, P (Lb) TO GROUT FILLED BLOCK			
ANGLE LENGTH INCHES	NO. OF ANCHORS PER SIDE	ANCHOR TYPE	CAPACITY OF CONNECTION (Lbs)
8	2	G1	878
14	3	G1	1316

MULLION WALL ANCHOR CAPACITY, P (Lb) TO HOLLOW BLOCK			
ANGLE LENGTH INCHES	NO. OF ANCHORS PER SIDE	ANCHOR TYPE	CAPACITY OF CONNECTION (Lbs)
5	2	D	219
5	2	A	221
8	3	D	328
8	3	A	332
6	2	A2	359
5	2	C	380
11	4	D	438
11	4	A	443
10	3	A2	538
14	5	D	547
14	5	A	553
8	3	C	570
10	4	A2	718
11	4	C	760
14	5	C	950

MULLION WALL ANCHOR CAPACITY, P (Lb) TO WOOD STRUCTURE			
ANGLE LENGTH INCHES	NO. OF ANCHORS PER SIDE	ANCHOR TYPE	CAPACITY OF CONNECTION (Lbs)
5	5	E	991
8	8	E	1585
11	11	E	2179
14	14	E	2774







FLOOR SHOE CONNECTION TO ANGLE	
MULLION SIZE	NO. OF FASTENERS PER CLIP
2 X 2 X 1/8"	1
2 X 3 X 1/8"	2
2 X 4 X 1/8"	3
2 X 4 X 1/8" W/ STIFFENER	7

BOTTOM MULLION CONNECTION TO BUILT-OUT

ANGLE CONNECTION TO WALL			
MULLION SIZE	FASTENER TYPE	SUBSTRATE	NO. OF ANCHORS AT MULLION
2 X 2 X 1/8"	A	CONC.	2
	B	CONC.	4
	C	CONC.	2
	E	WOOD	3
2 X 3 X 1/8"	A	CONC.	3
	B	CONC.	–
	C	CONC.	2
	E	WOOD	4
2 X 4 X 1/8"	A	CONC.	–
	B	CONC.	–
	C	CONC.	4
	E	WOOD	7
2 X 4 X 1/8" W/ STIFFENER	G3	CONC.	4

ALL DIMENSIONS SHOWN Sh, Sw, Sb ETC. ARE IN FEET.

Engr: ARSHAD VIQAR
CIVIL
FLA. PE # 38863
C.A.N. 3538

SEP 28 2009

PRODUCT REVISED
as complying with the Florida
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Acceptance No 09-1124.02
Expiration Date 09/25/2013
By
Miami Dade Product Control
Division

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978

ROLLUP\94-55RI

RollShutter Details

ROLLADEN INC.
550 ANSIN BLVD.
HALLANDALE, FL. 33009
TEL. (954) 757-8591 FAX. (954) 454-1577

revisions:

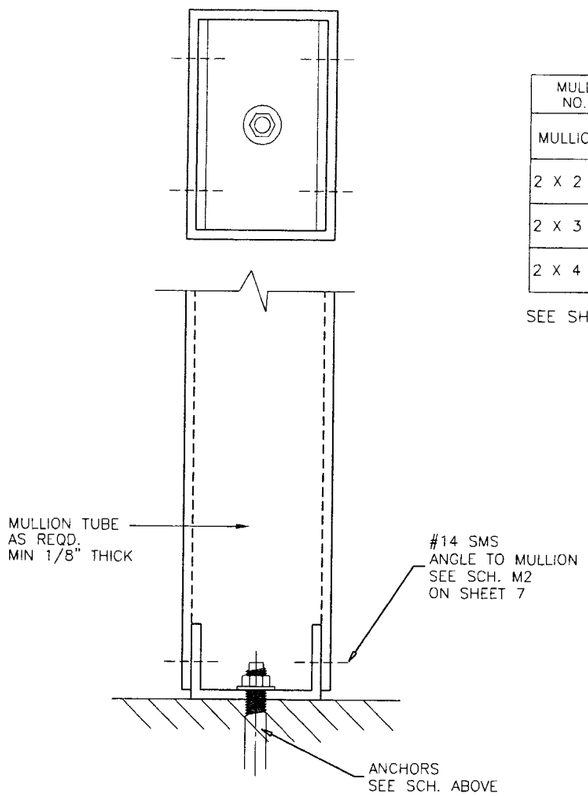
no	date	by	description
D	07.02.95	T.H.	SHEET 3 REVISED
E	04.25.03	T.H.	WOOD ANCHORS REV.
F	10.28.03	T.H.	REV. PER BCCO COMMENTS
G	12.19.05	T.H.	UPDATED FOR 2004 FBC
H	09.24.09	T.H.	UPDATED FOR 2007 FBC

date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

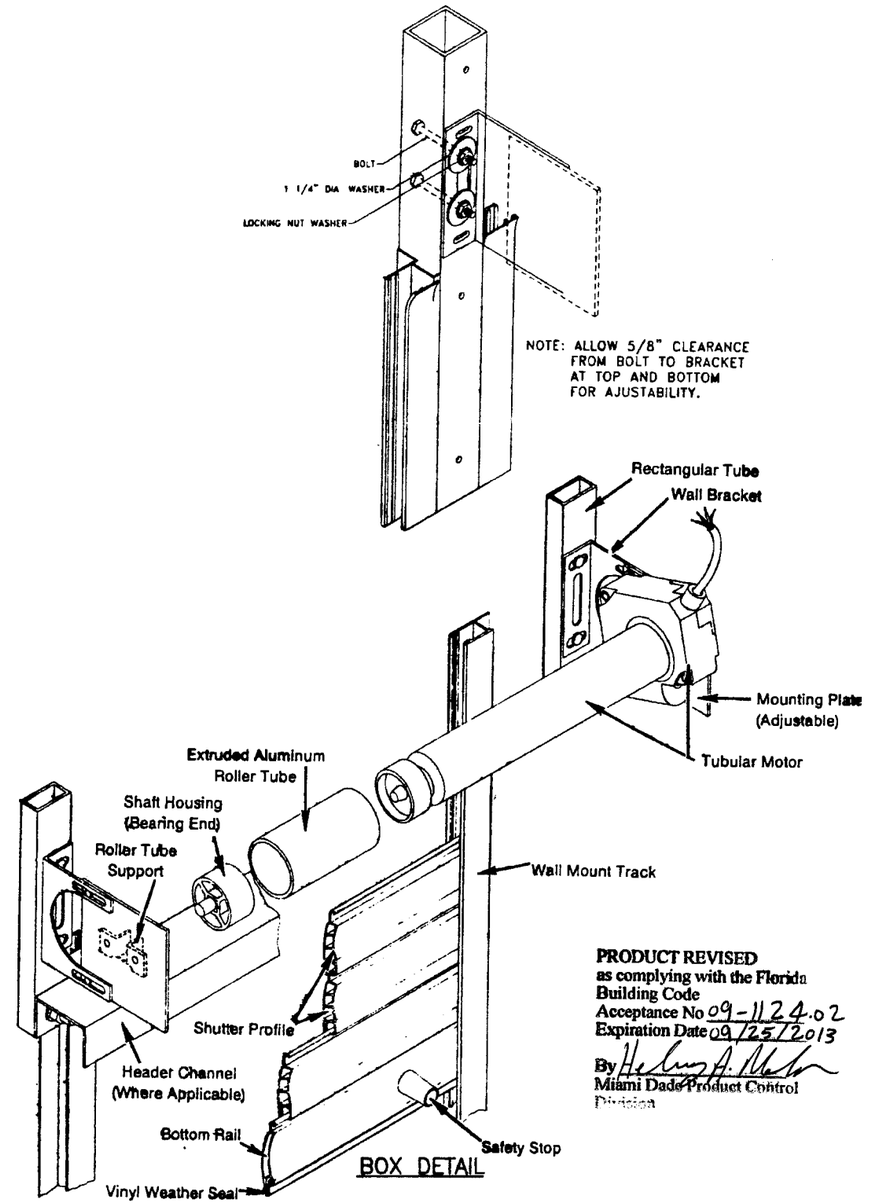
drawing no.
94-55

MULLION CONNECTION TO FLOOR & CEILING NO. OF FASTENERS REQD. PER SHOE CLIP			
MULLION SIZE	FASTENER TYPE	SUBSTRATE	NO. OF ANCHORS
2 X 2 X 1/8"	A2	CONC.	1
	E	WOOD	2
2 X 3 X 1/8"	A2	CONC.	1
	E	WOOD	3
2 X 4 X 1/8"	E	WOOD	3

SEE SHEET 3 FOR DESCRIPTION OF ANCHOR TYPES.



MULLION CONNECTION WITH SHOE CLIP



BOX DETAIL

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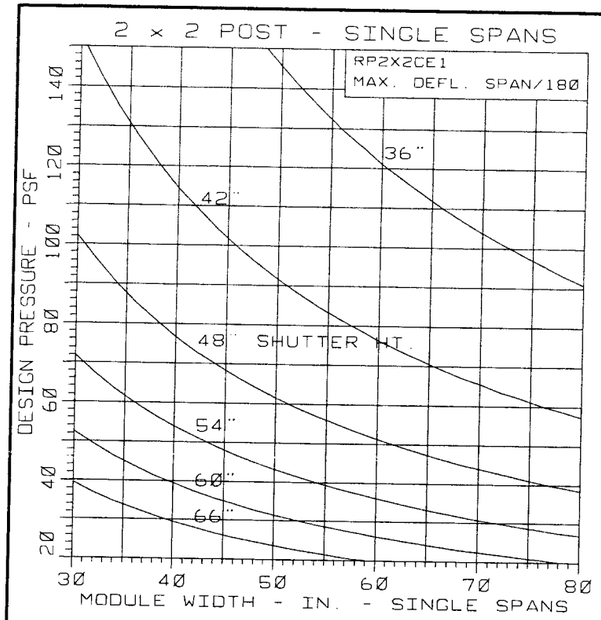
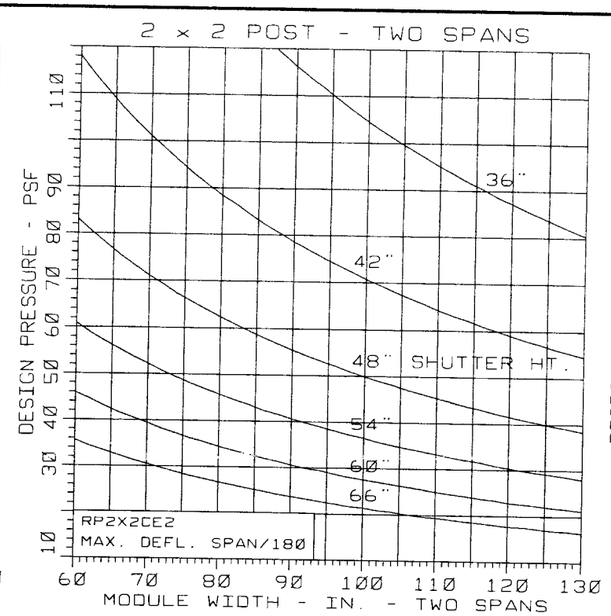
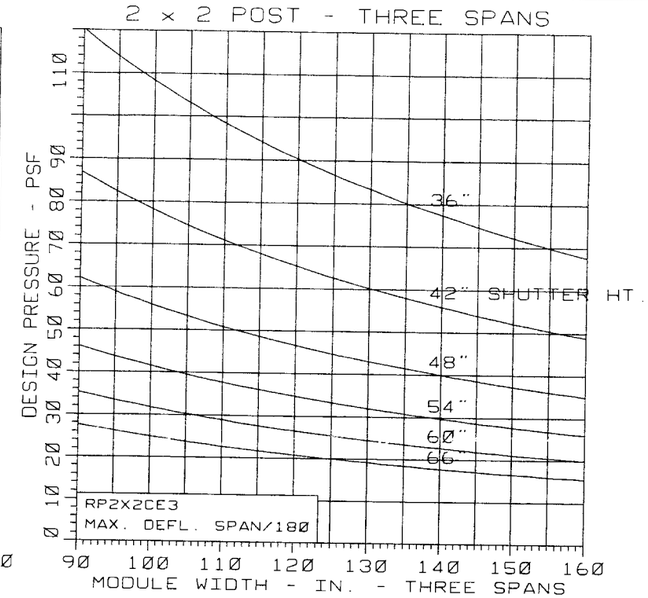
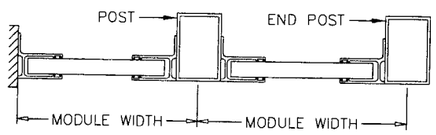
sheet 7.1 of 21









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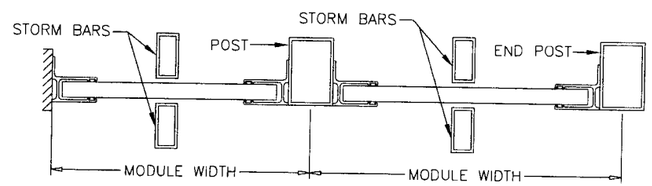

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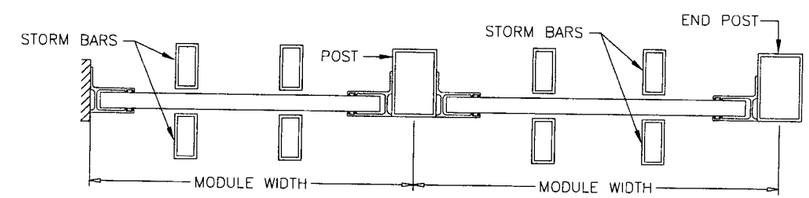

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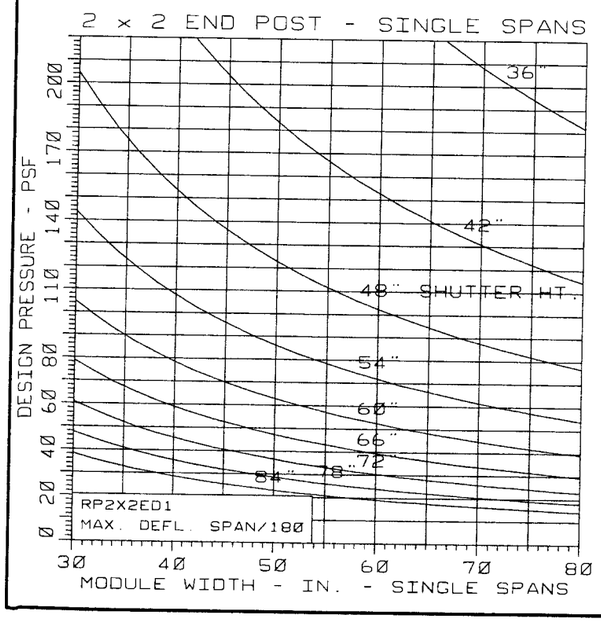

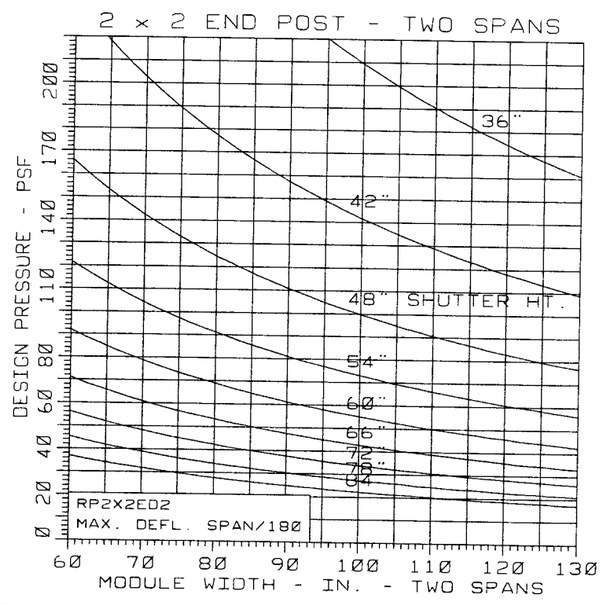

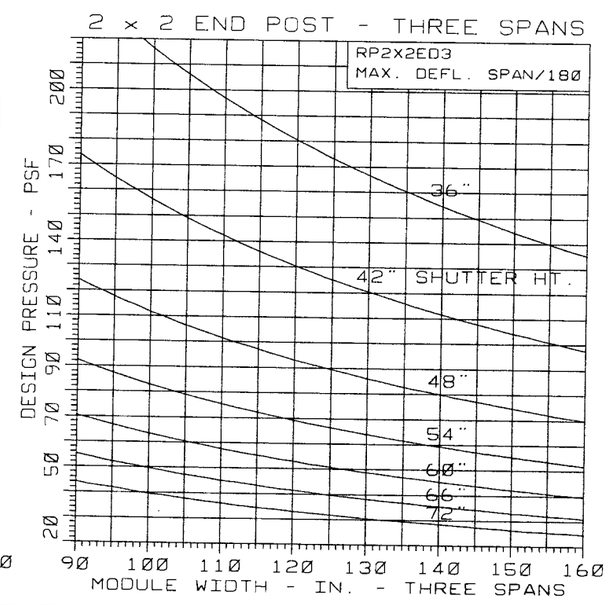

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scale: -
dr. by: HAMID
chk. by:

drawing no.
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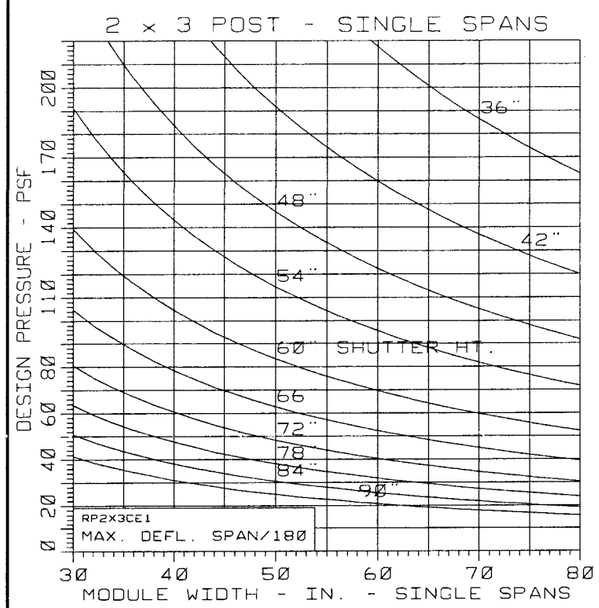

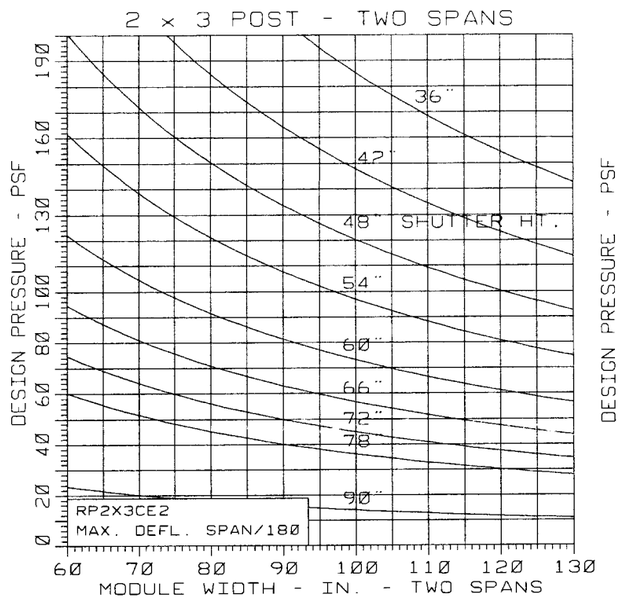

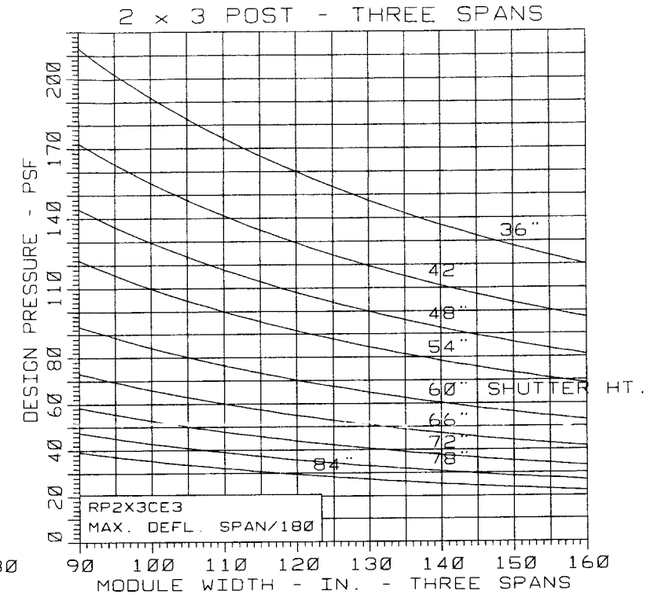

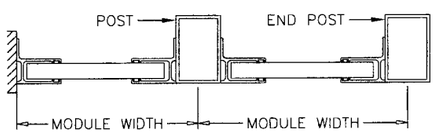

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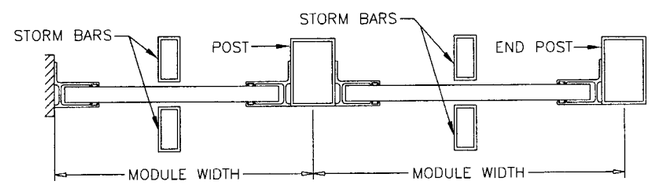

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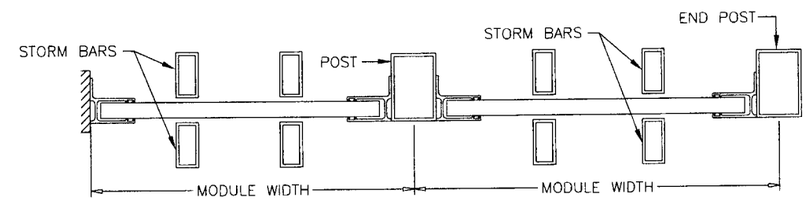

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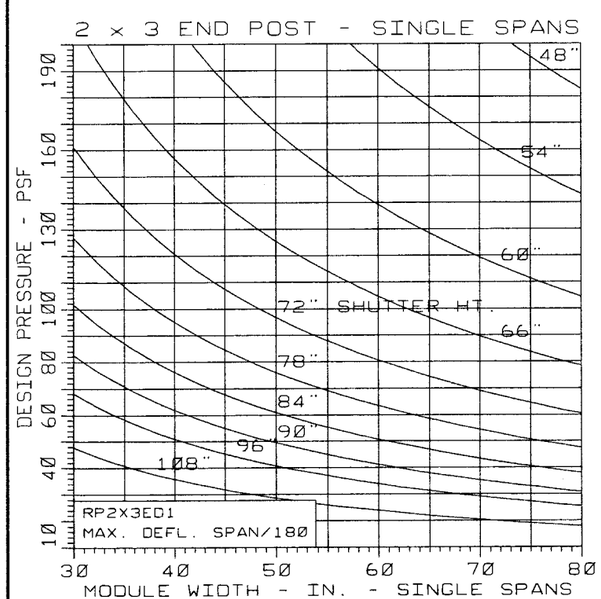

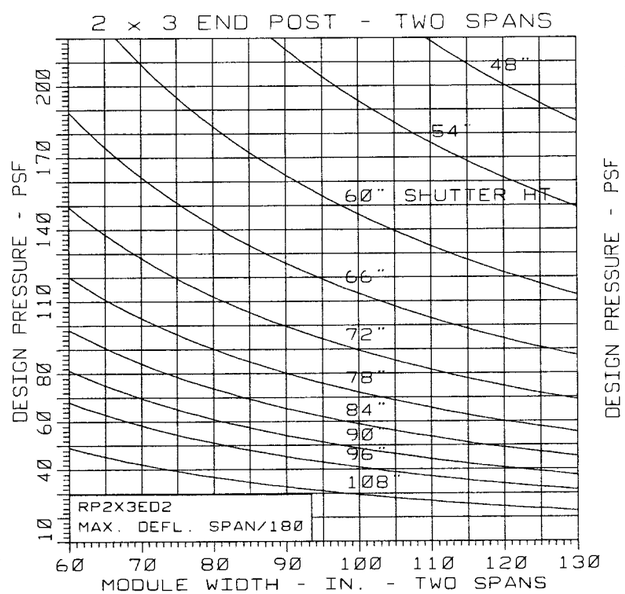

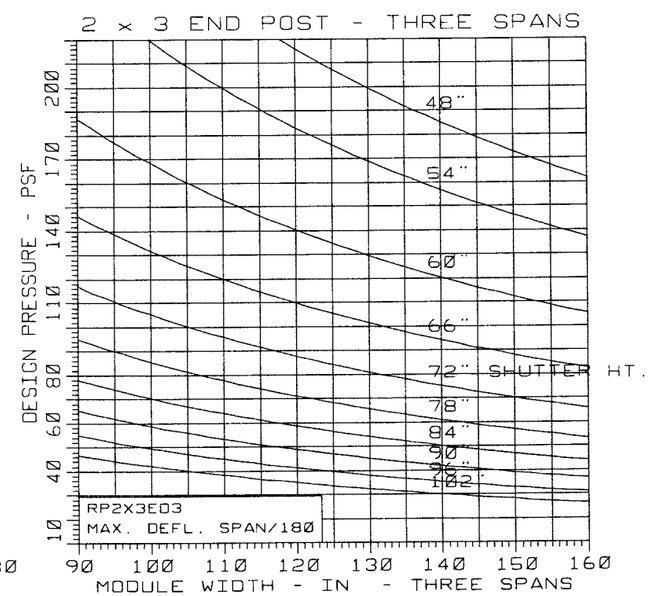

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ROLLUP\94-55RI

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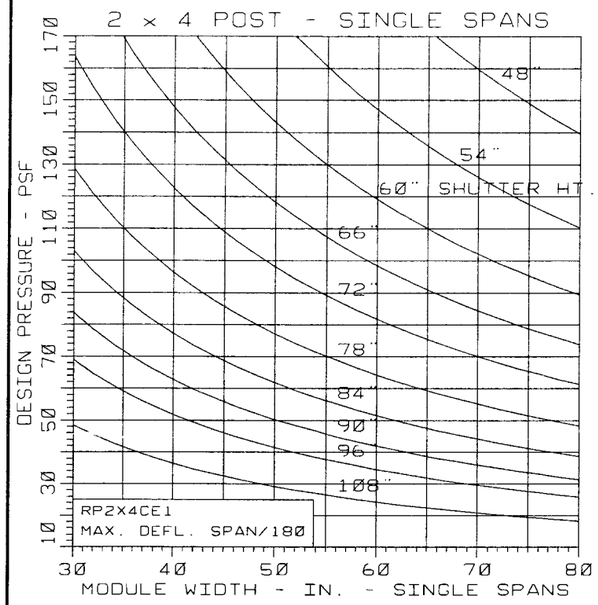

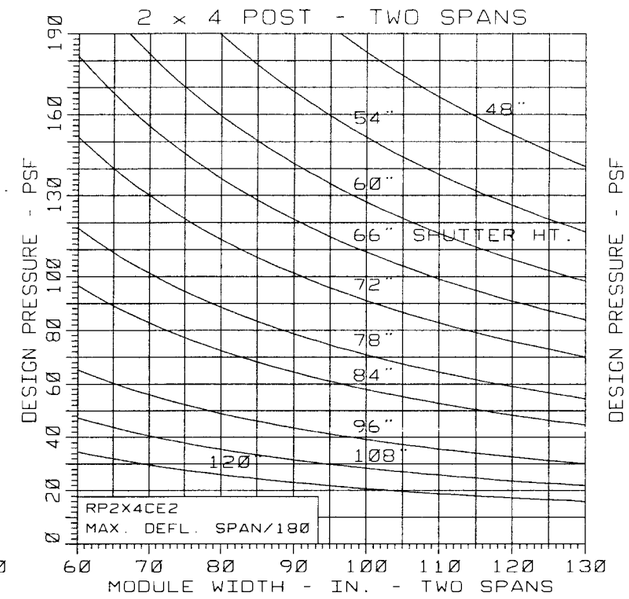

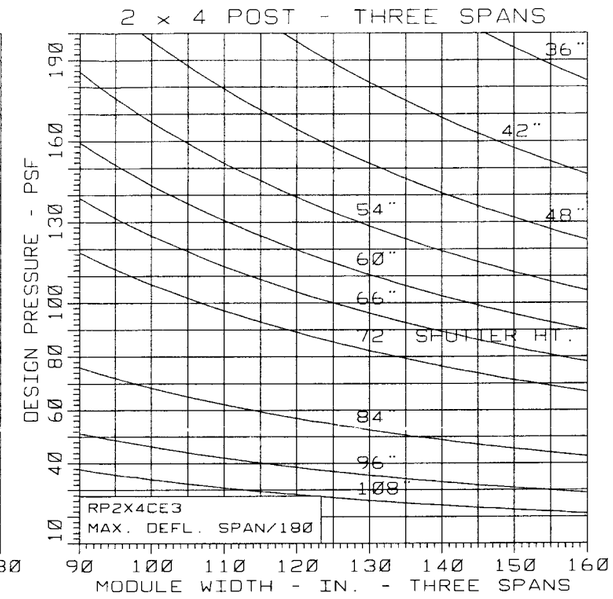

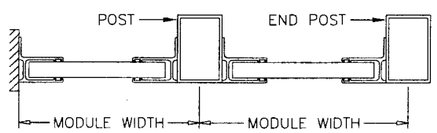

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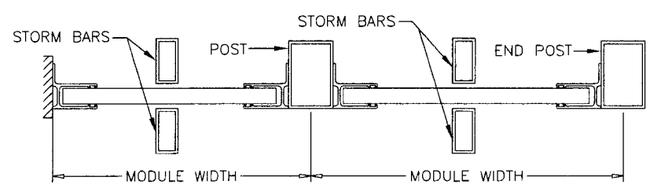

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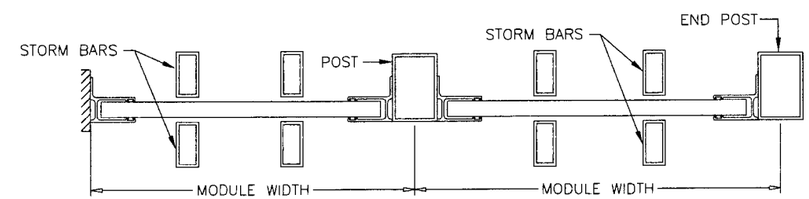

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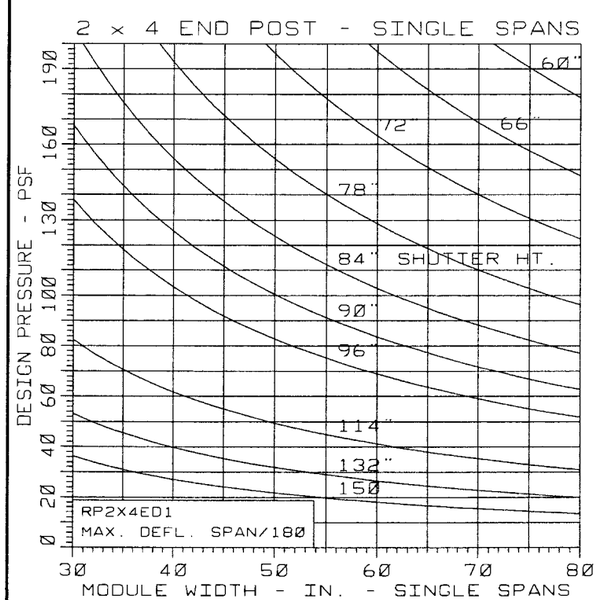

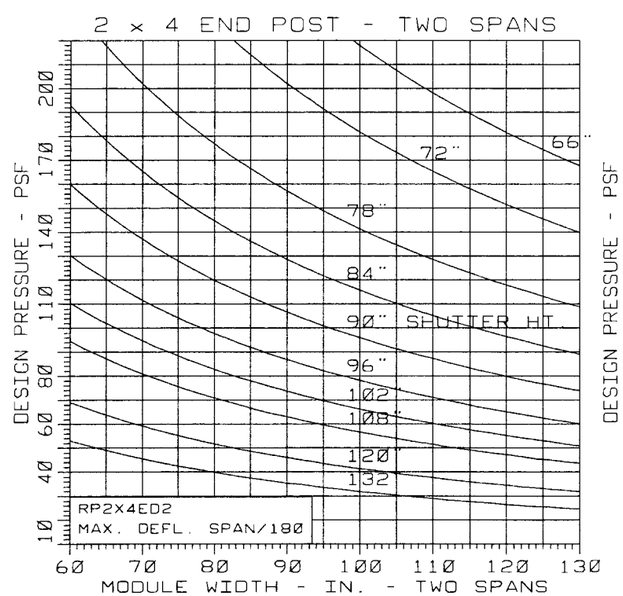

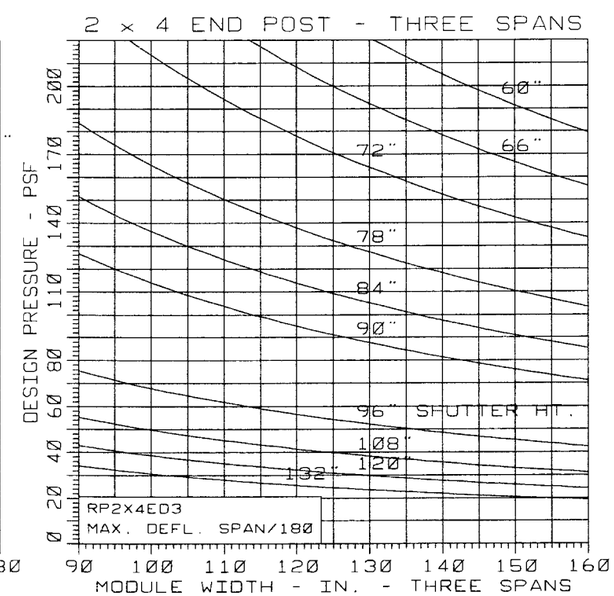

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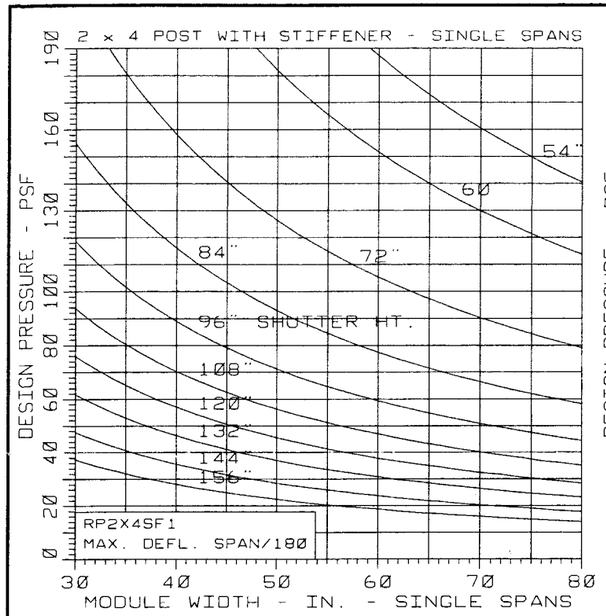

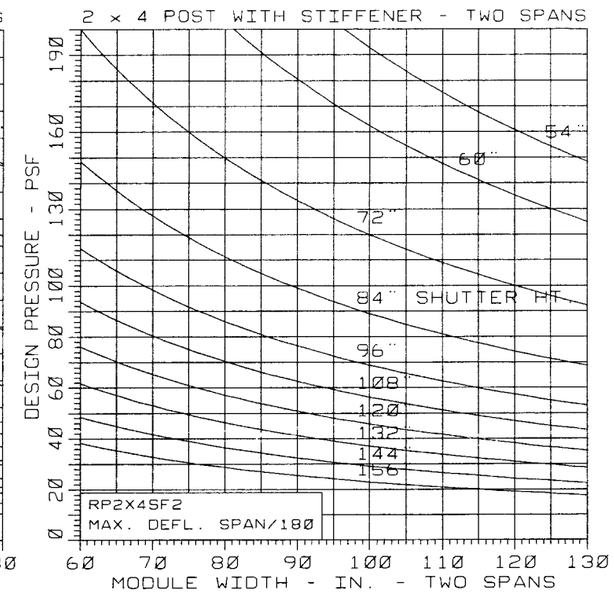

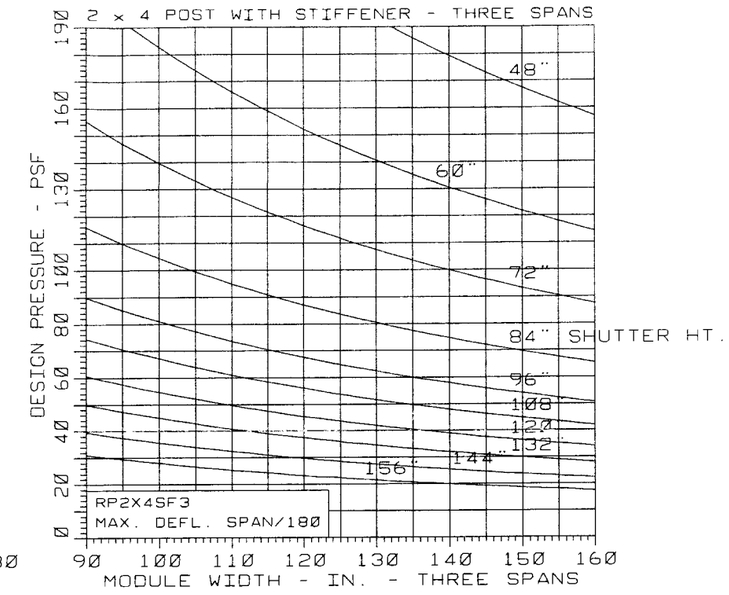

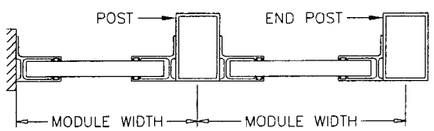

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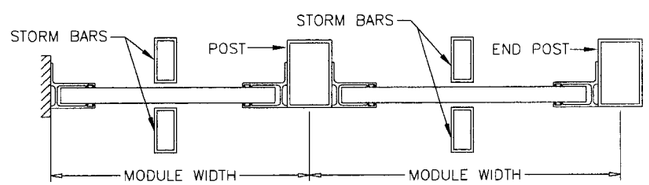

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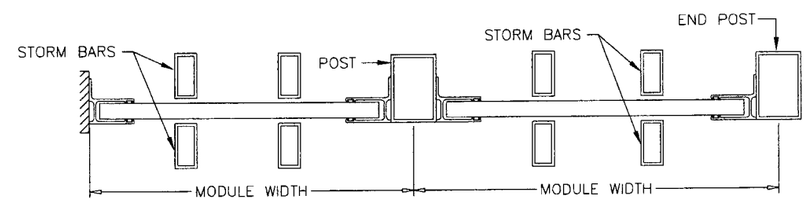

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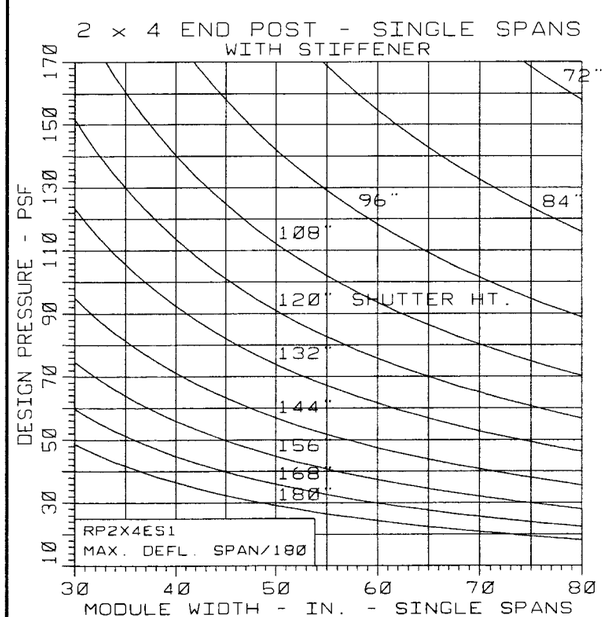

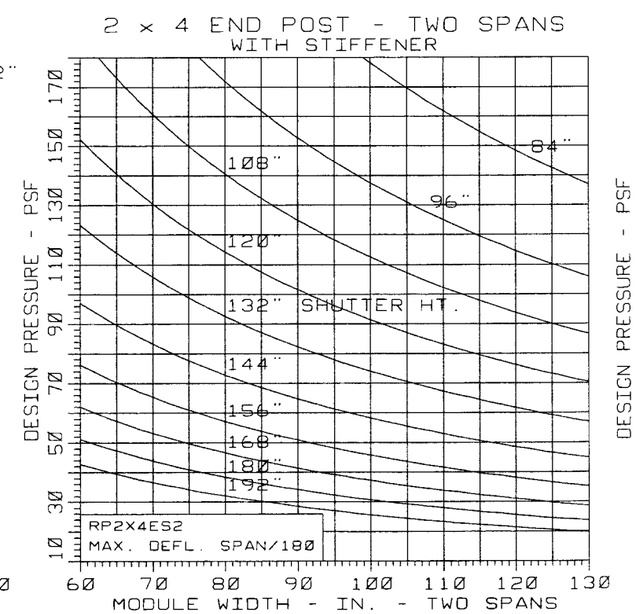

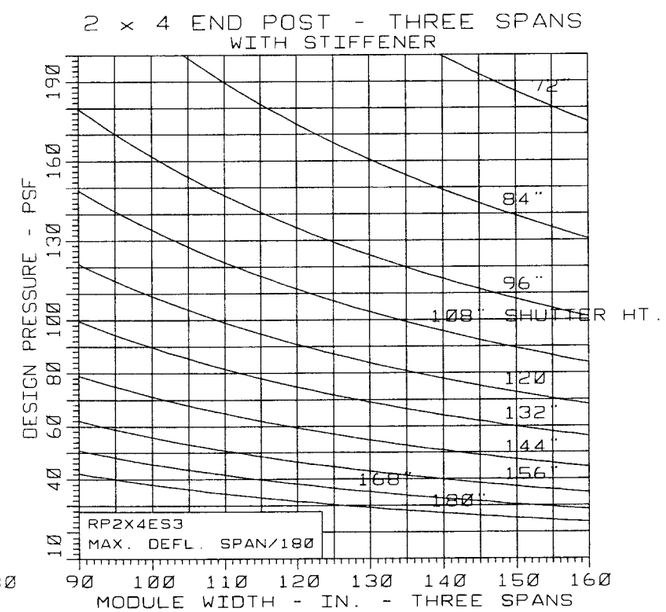

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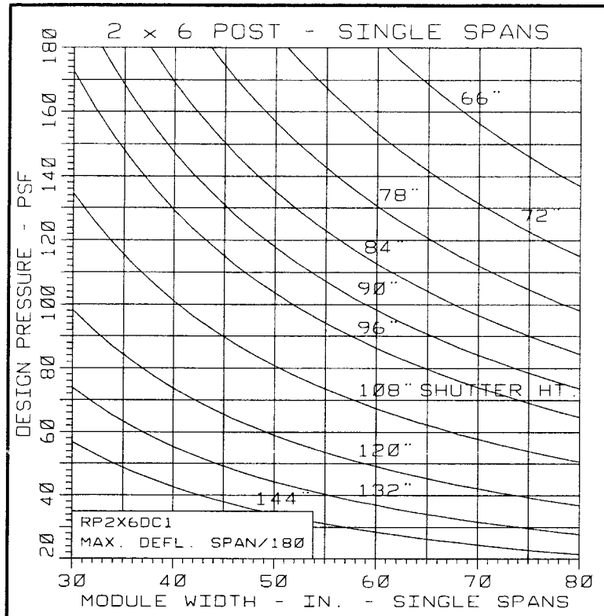

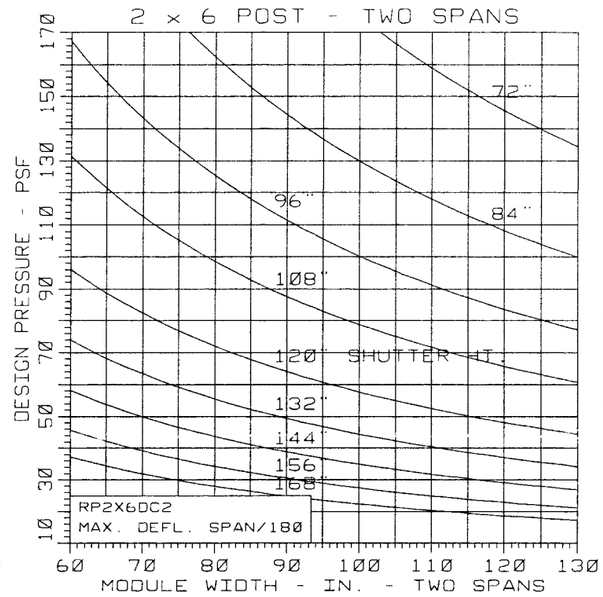

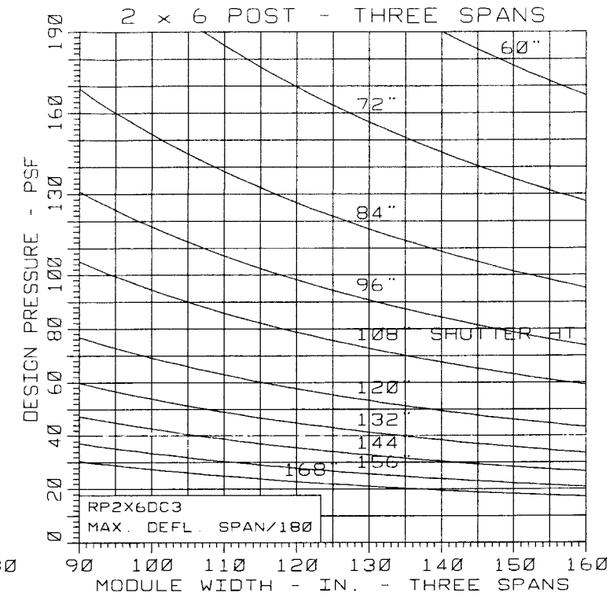

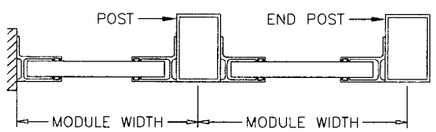

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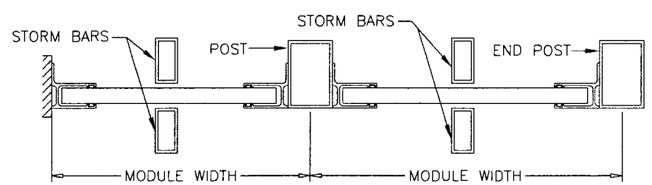

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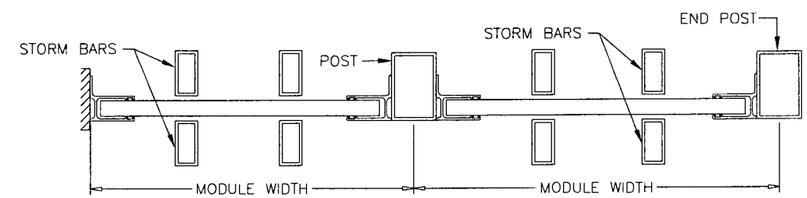

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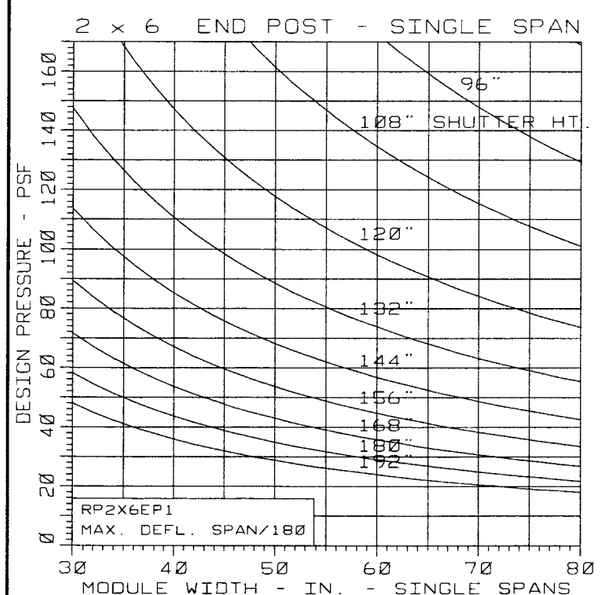

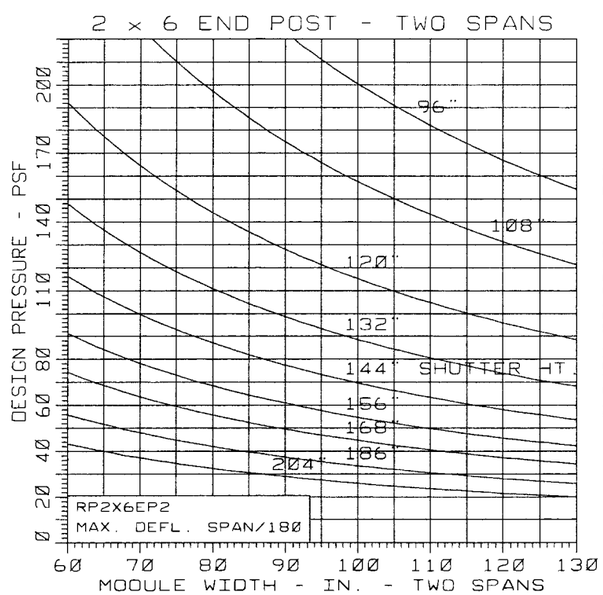

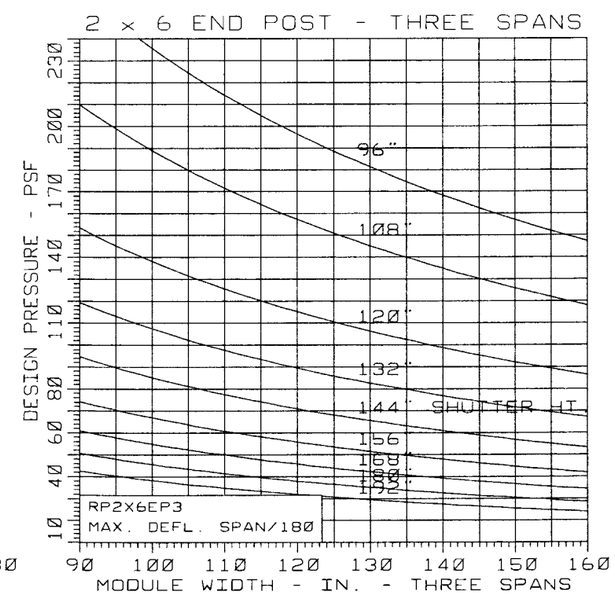

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Acceptance No 09-1124.02
Expiration Date 09/25/2013
By [signature]
Miami Dade Product Control Division

Engr: ARSHAD VIQAR
CIVIL
FLA. PE # 38863
C.A.N. 3538

SEP 28 2009

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ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
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TEL. (305) 264-8100 FAX. (305) 262-6978

ROLLUP\94-55RI

RollShutter Details

ROLLADEN INC.
550 ANSIN BLVD.
HALLANDALE, FL. 33009
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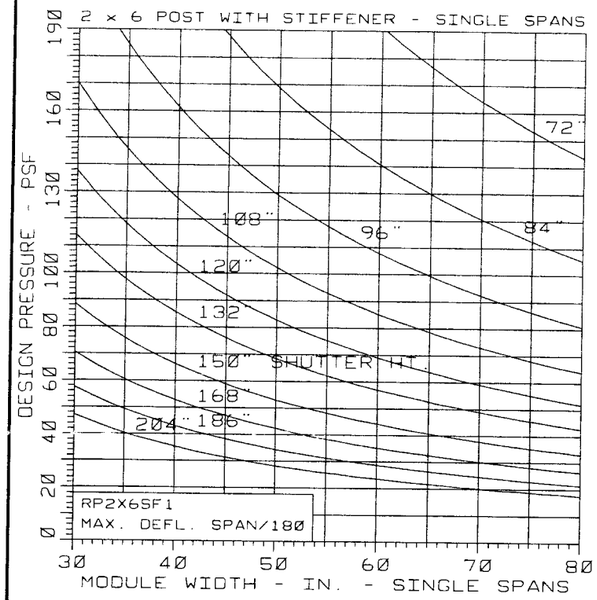
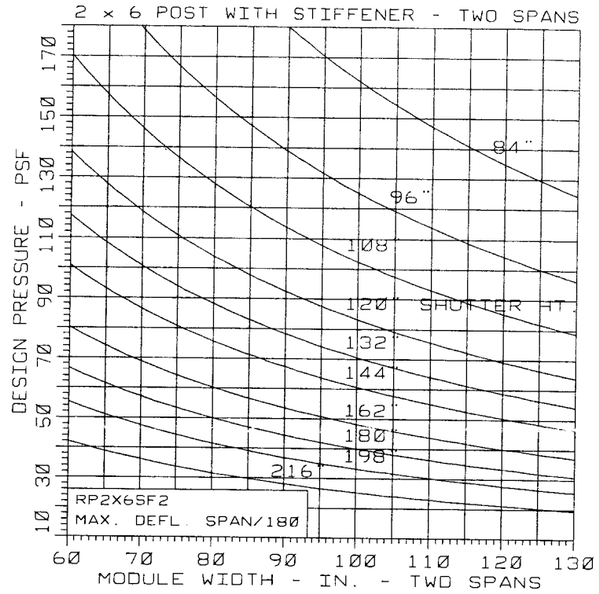
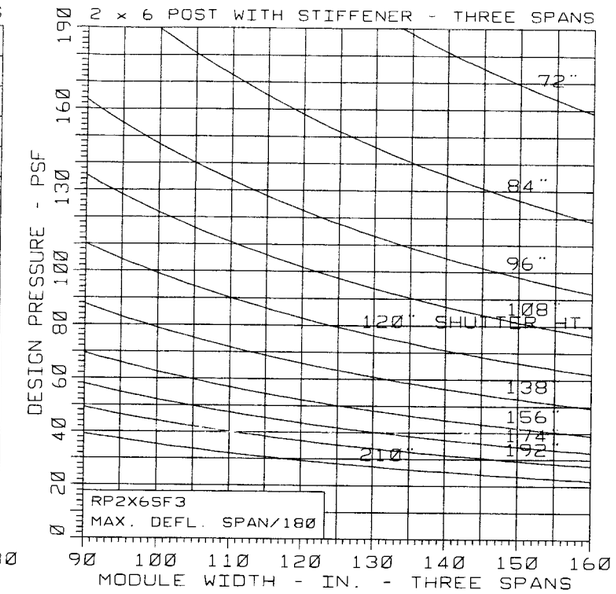
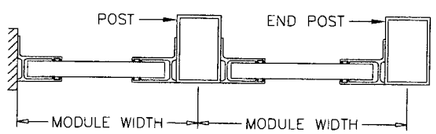
scale: -
dr. by: HAMID
chk. by:

drawing no.
94-55









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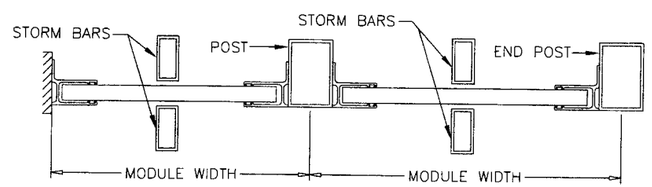

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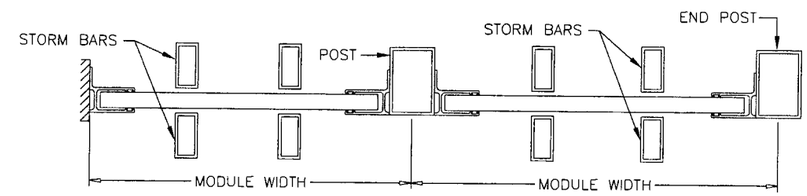

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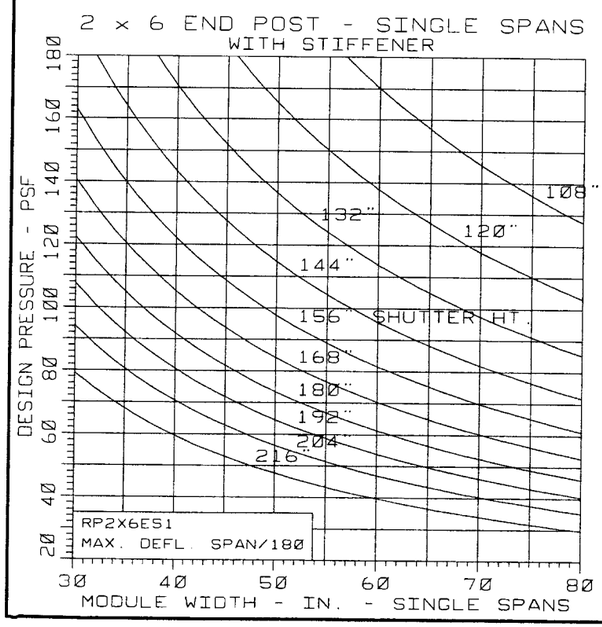

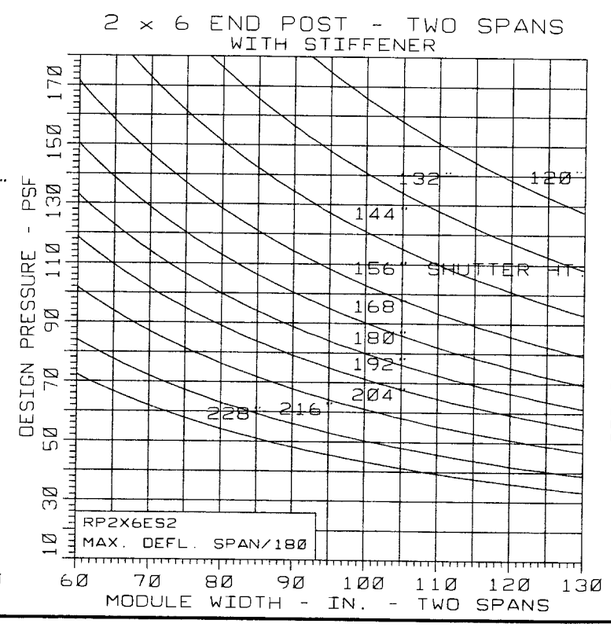

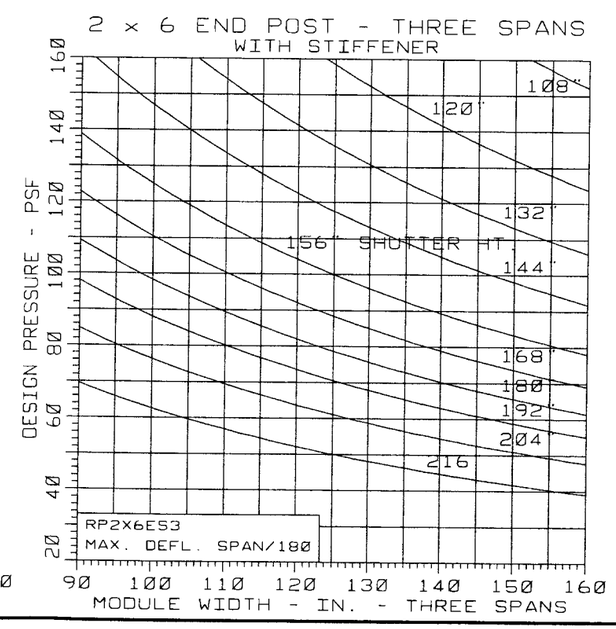

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Miami Dade Product Control Division

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CIVIL
FLA. PE # 38863
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chk. by:

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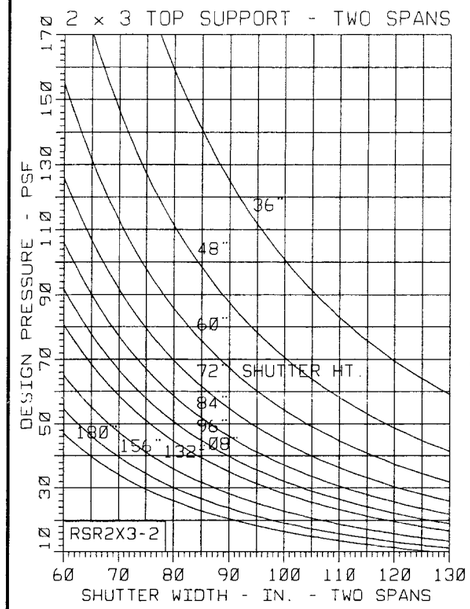

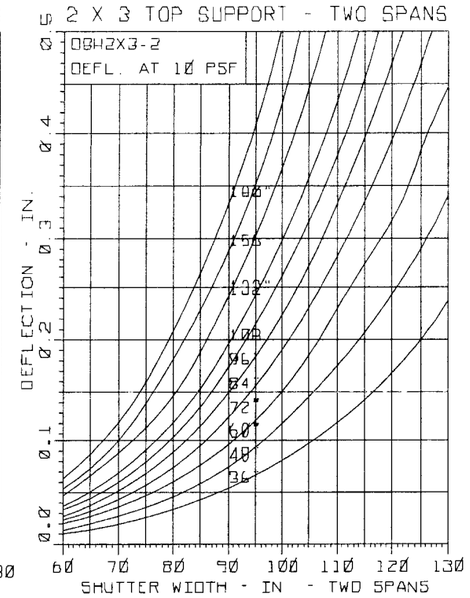

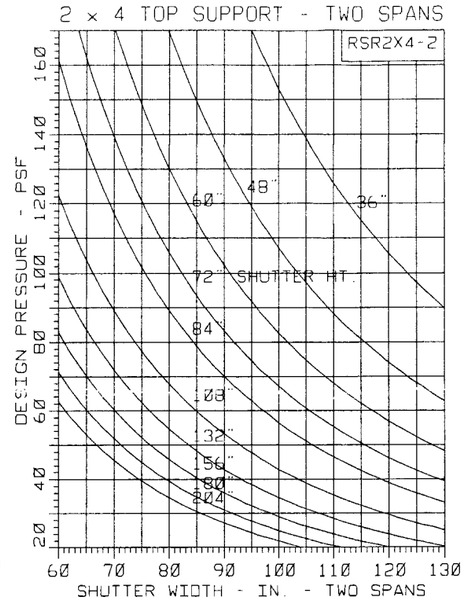

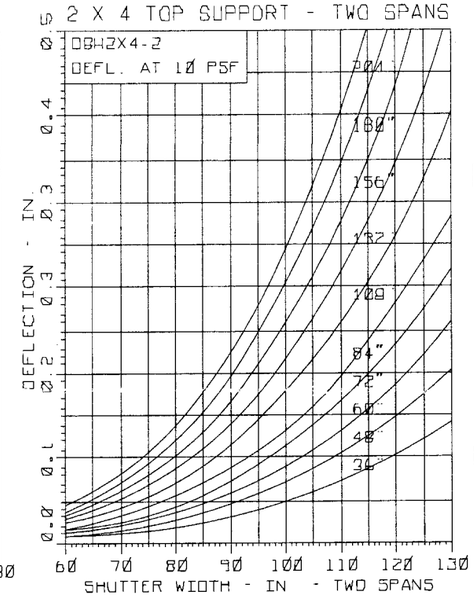

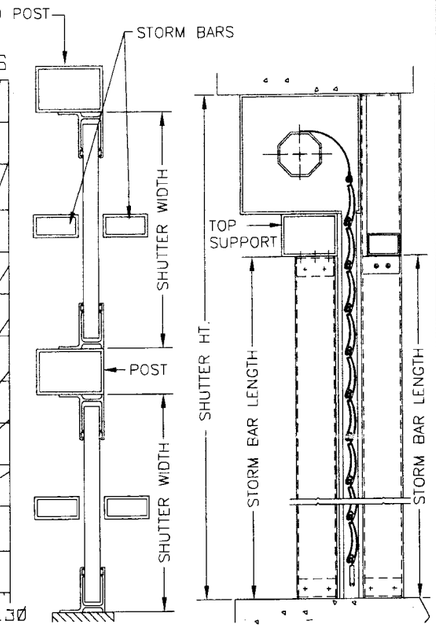

TWO SPANS

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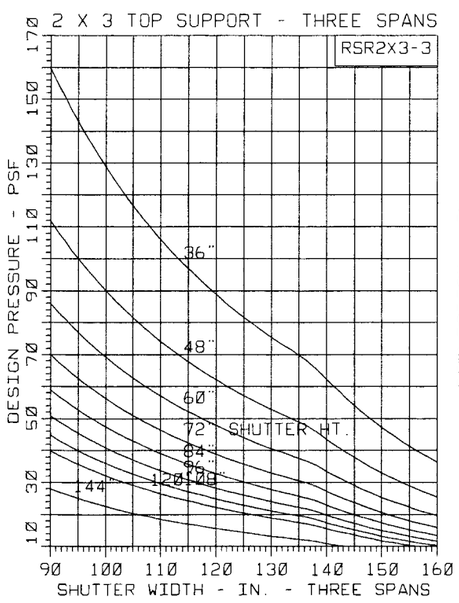

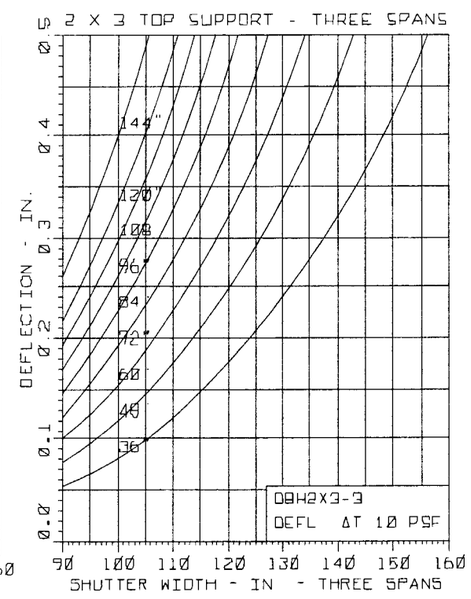

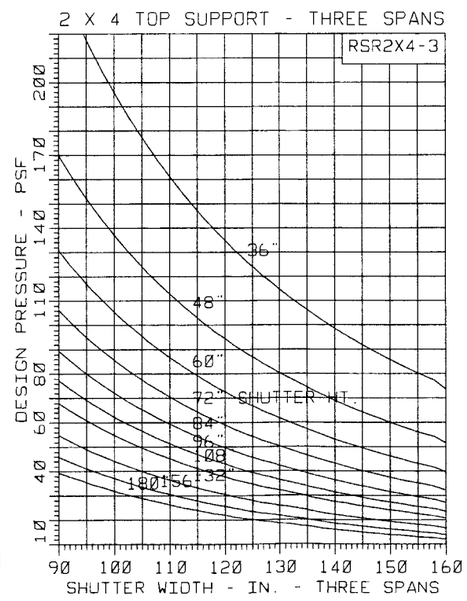

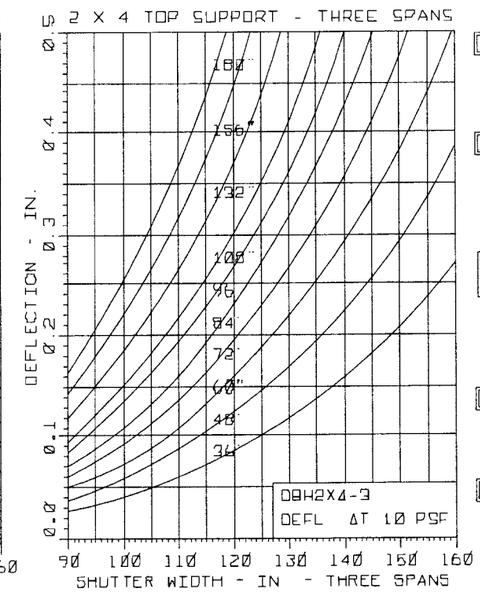

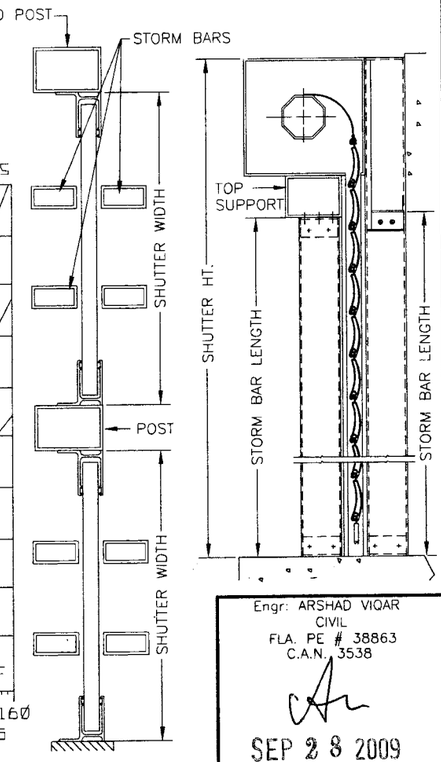

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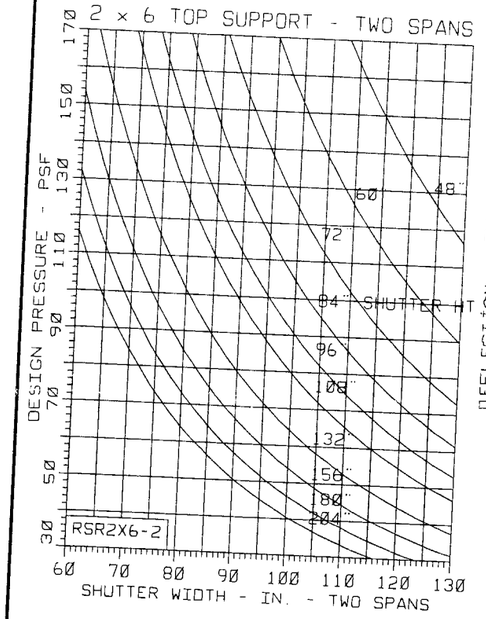

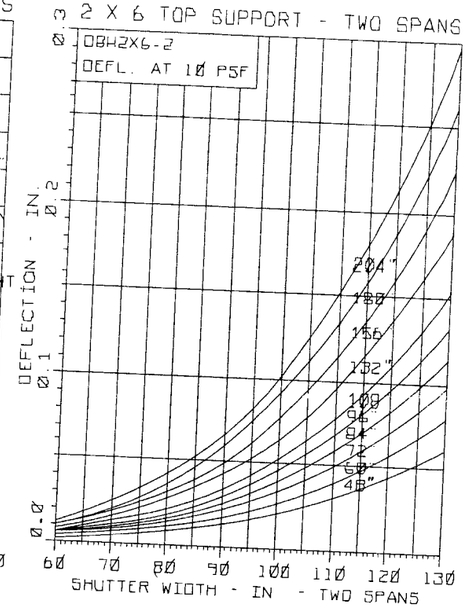

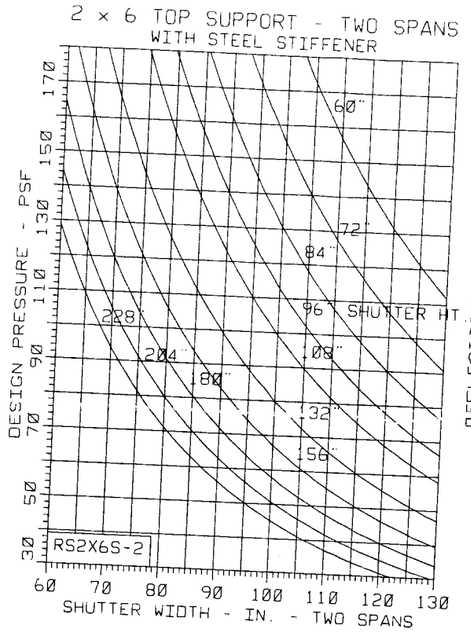

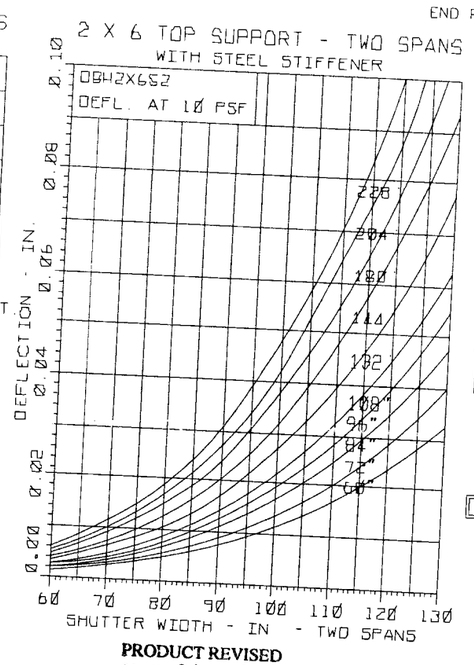

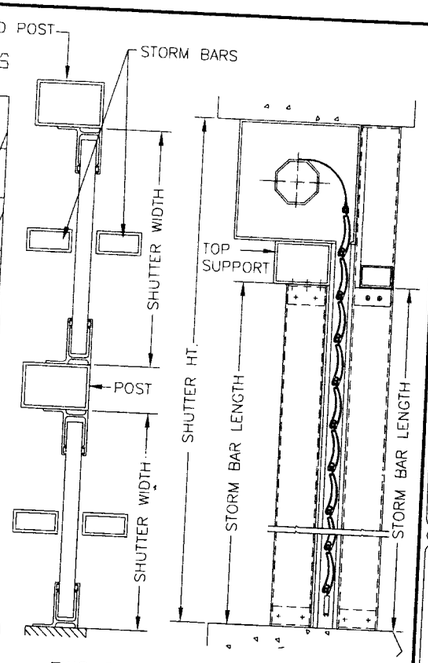

TWO SPANS

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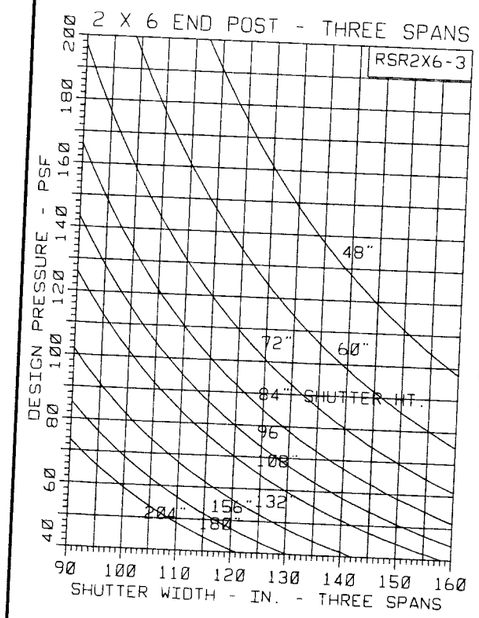

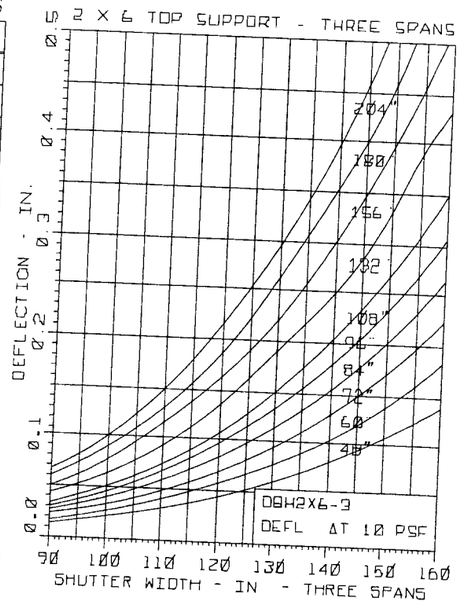

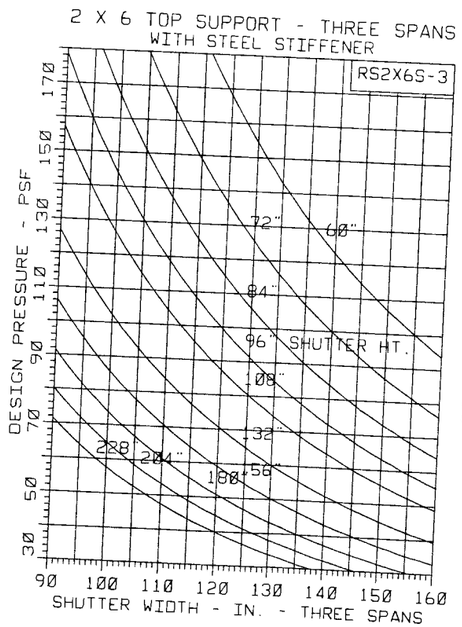

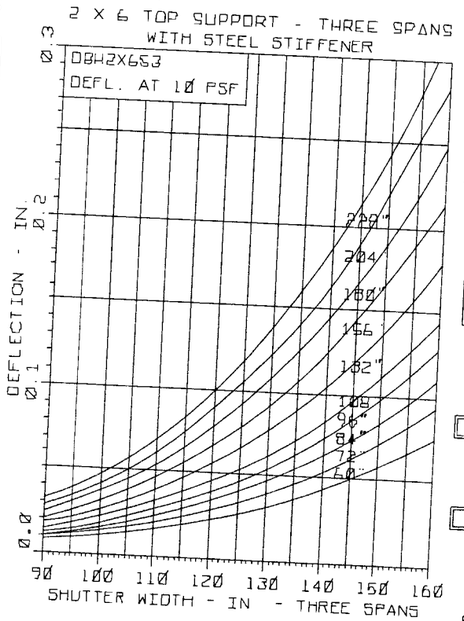

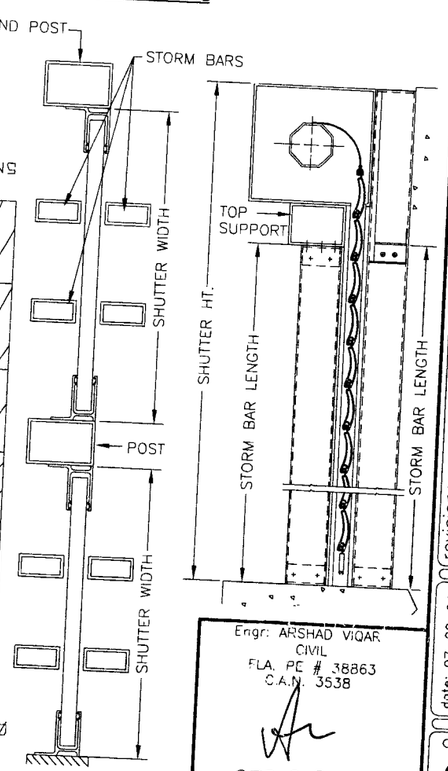

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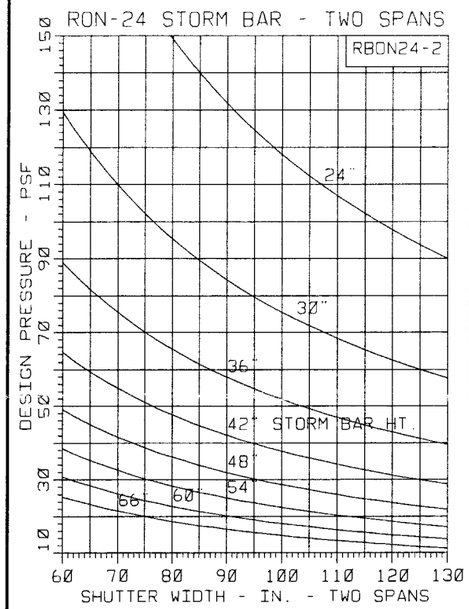

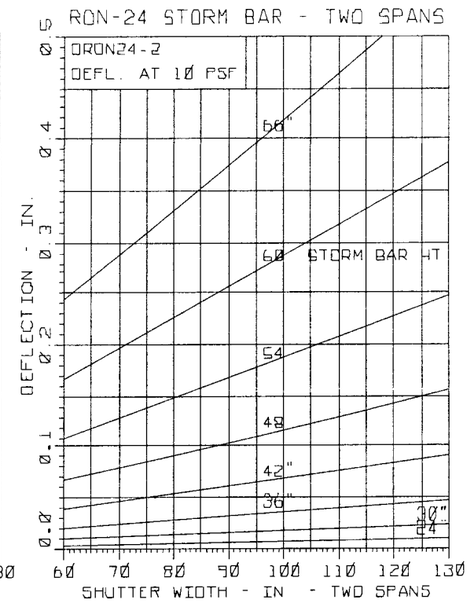

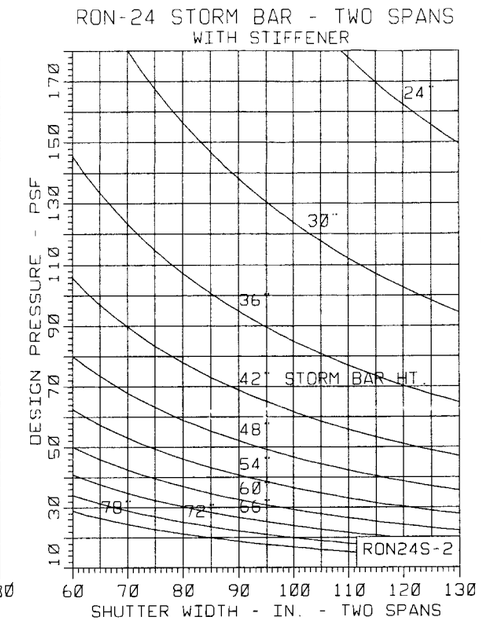

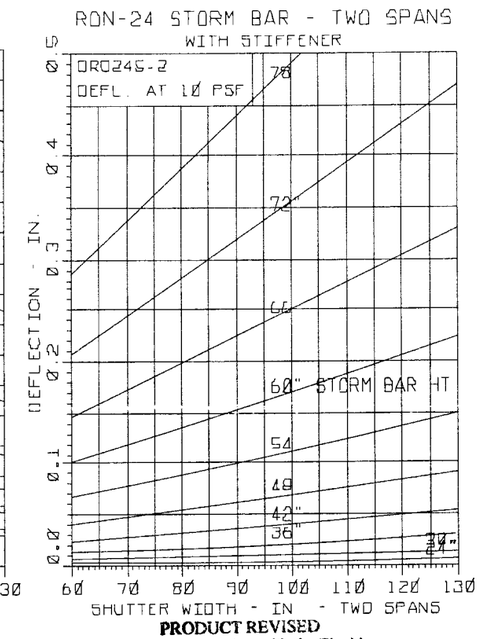

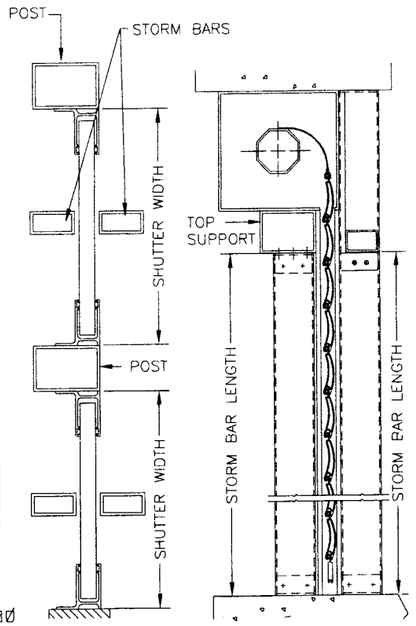

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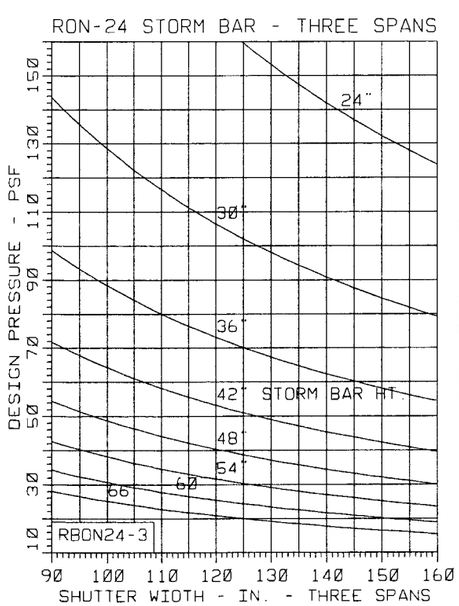

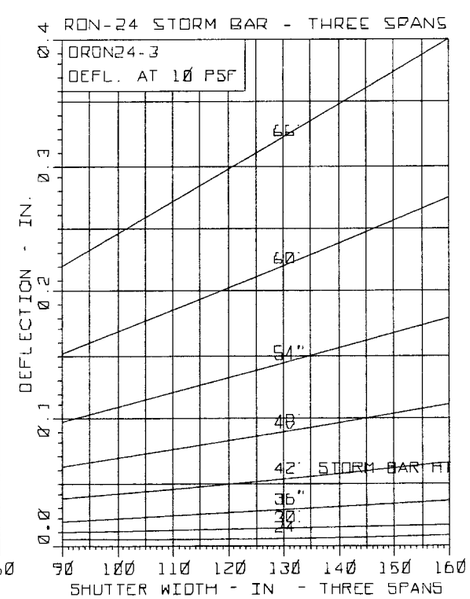

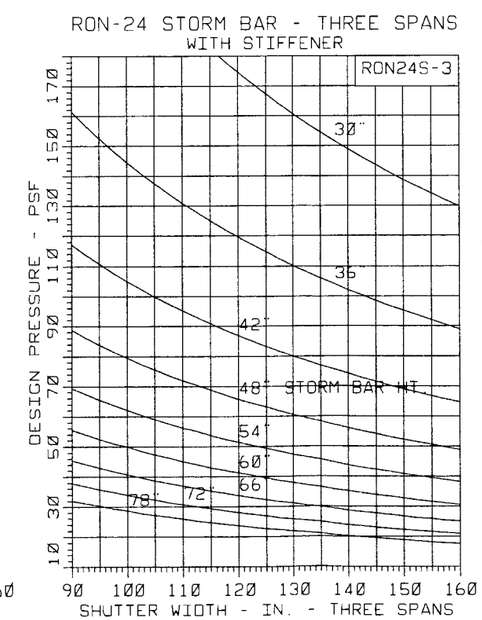

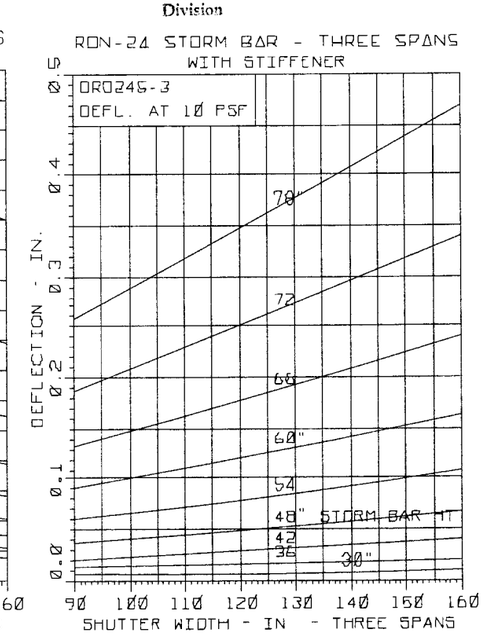

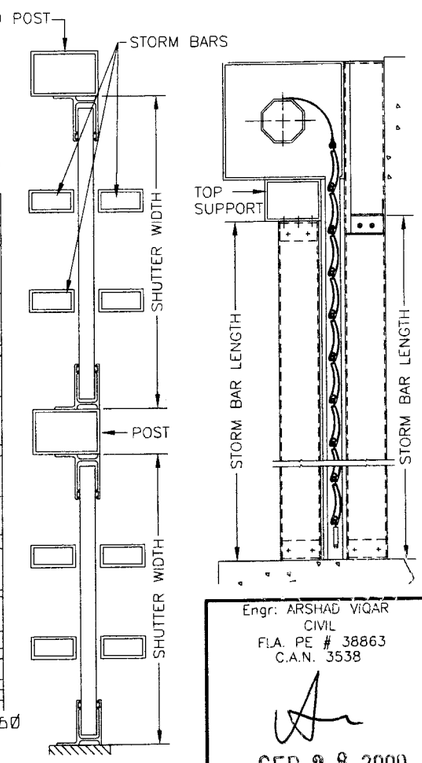

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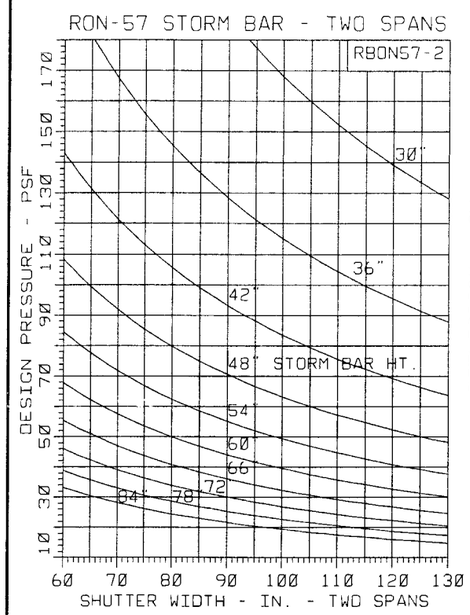

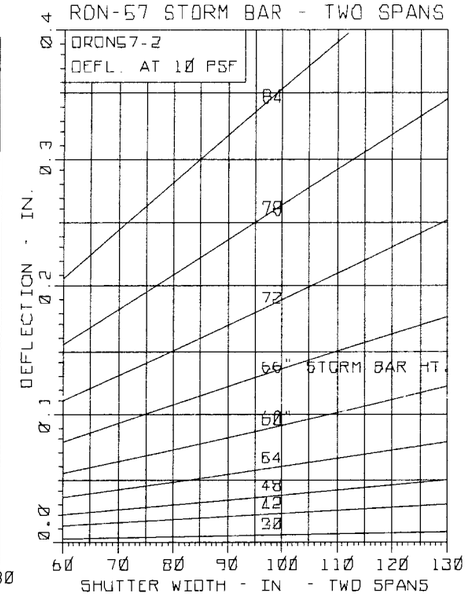

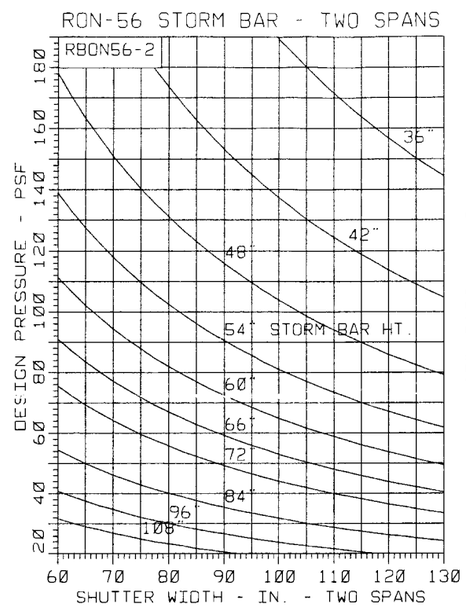

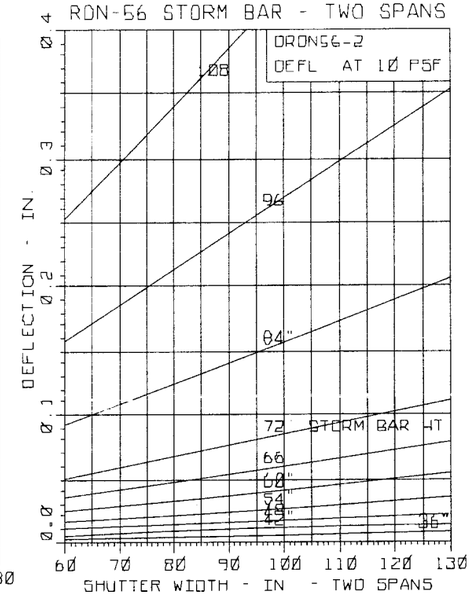

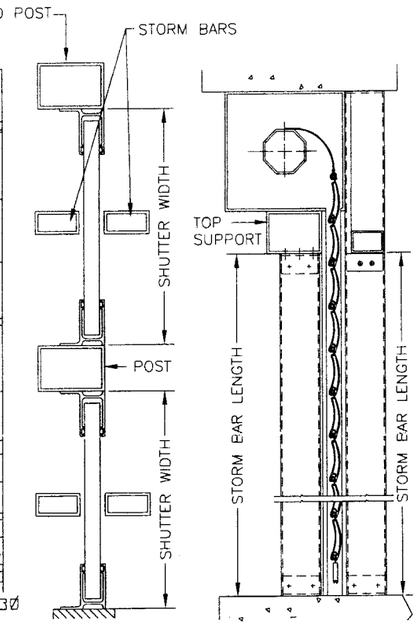

TWO SPANS

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SEE SKETCH FOR REFERENCE

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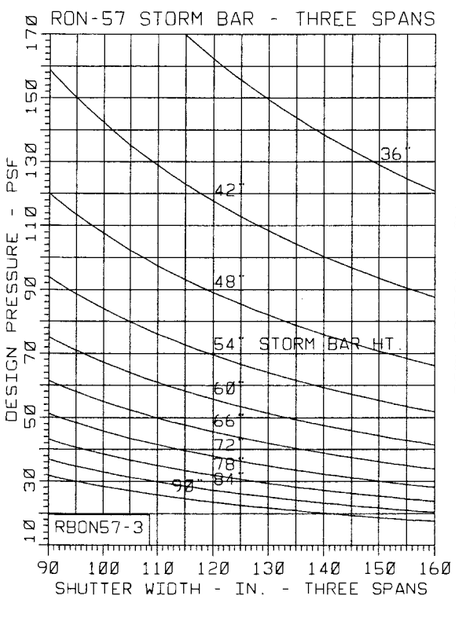
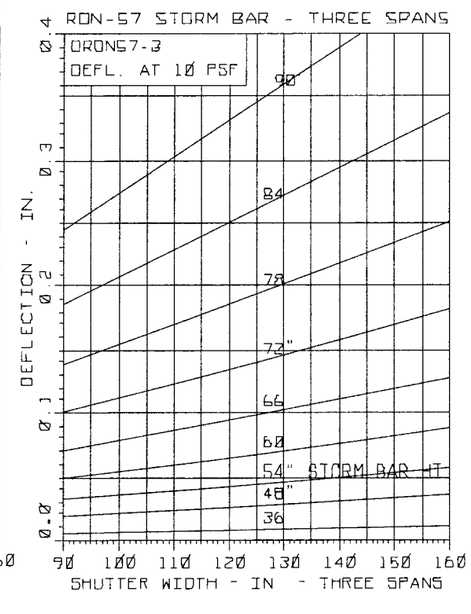
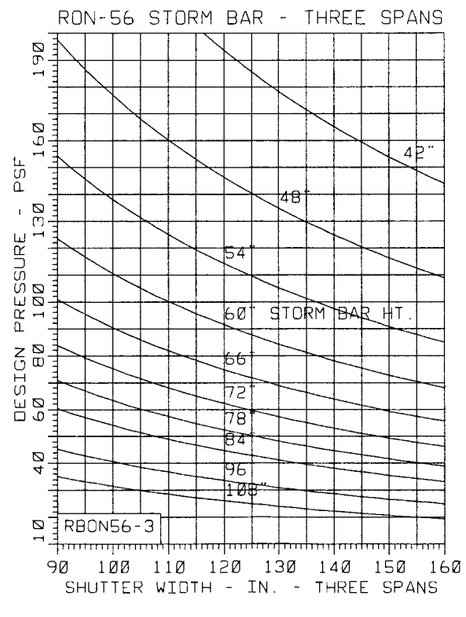
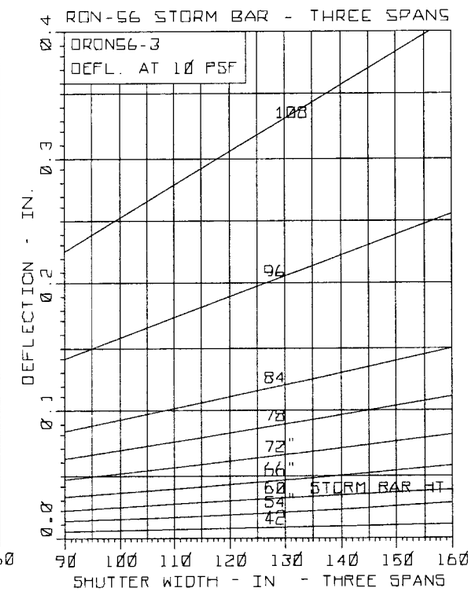
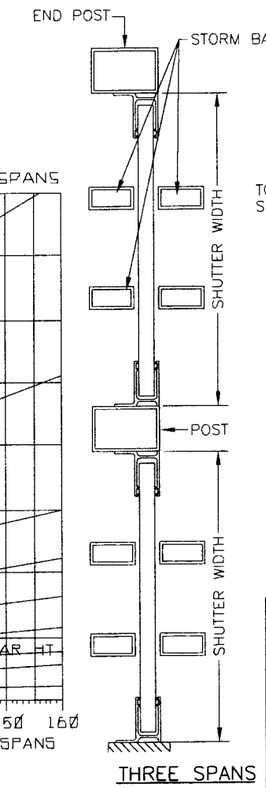
By [signature]
Miami Dade Product Control
Division











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CIVIL
FLA. PE # 38863
C.A.N. 3538

SEP 28 2009

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ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
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ROLLUP\94-55R1

RollShutter Details

ROLLADEN INC.
550 ANSIN BLVD.
HALLANDALE, FL. 33009
TEL. (954) 757-8591 FAX. (954) 454-1577

revisions:

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D	07.02.95	T.H.	SHEET 3 REVISED
E	04.25.03	T.H.	NO CHANGE THIS SHEET
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G	12.19.05	T.H.	GRAPHS REV.
H	09.24.09	T.H.	UPDATED FOR 2007 FBC

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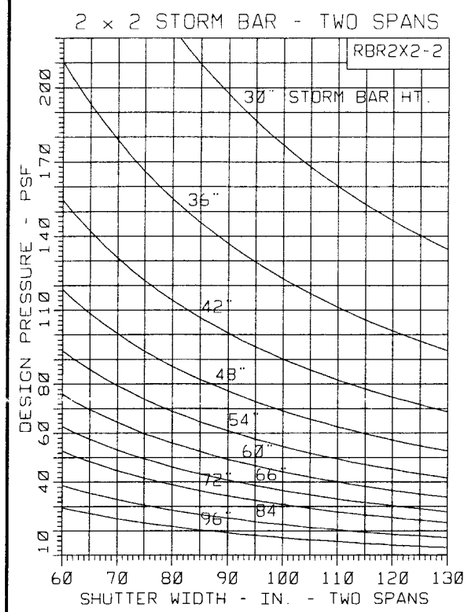
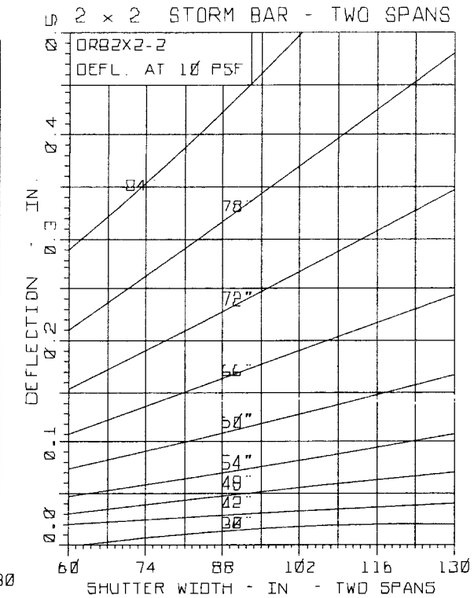
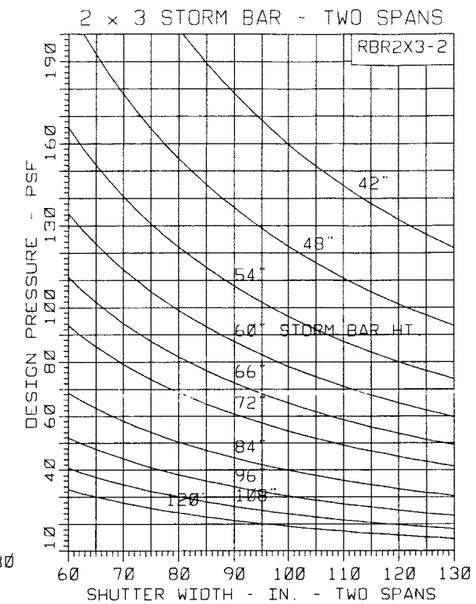
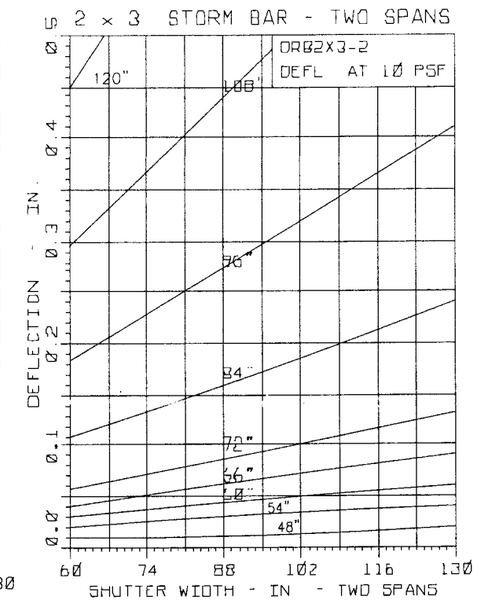
scale: -
dr. by: HAMID
chk. by:

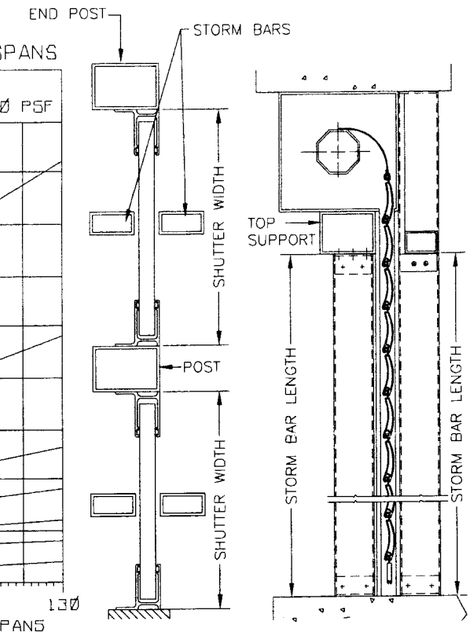
drawing no.
94-55











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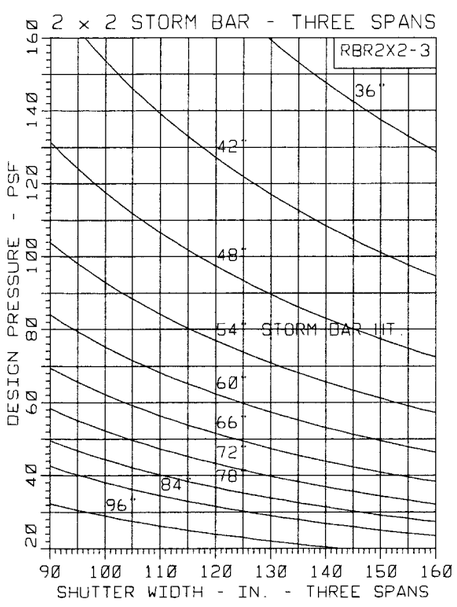

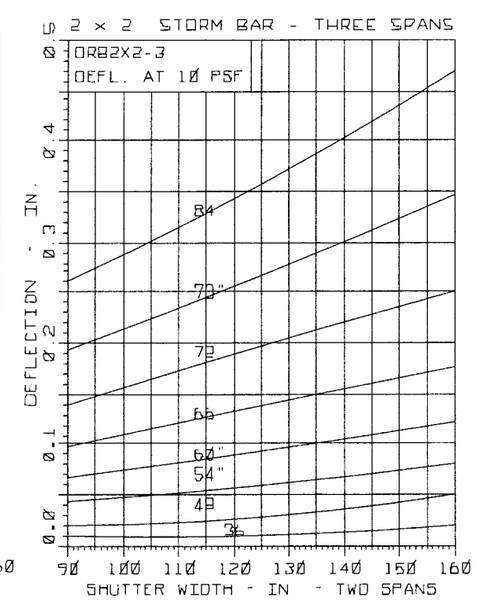

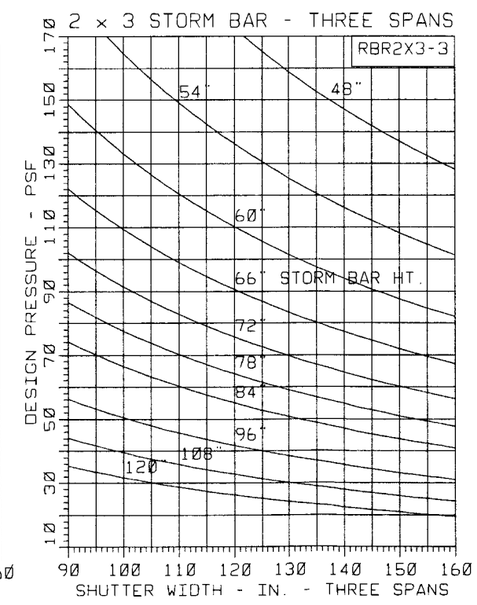

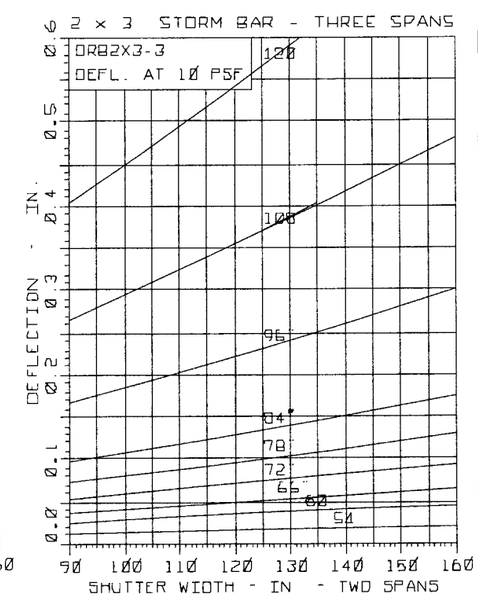

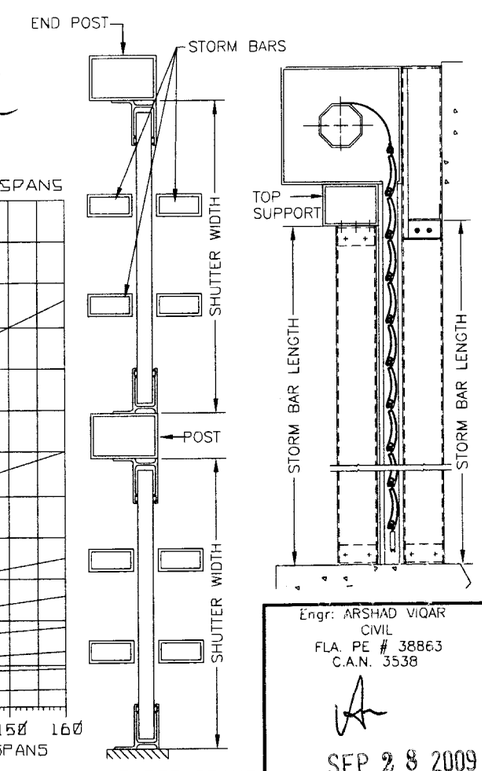

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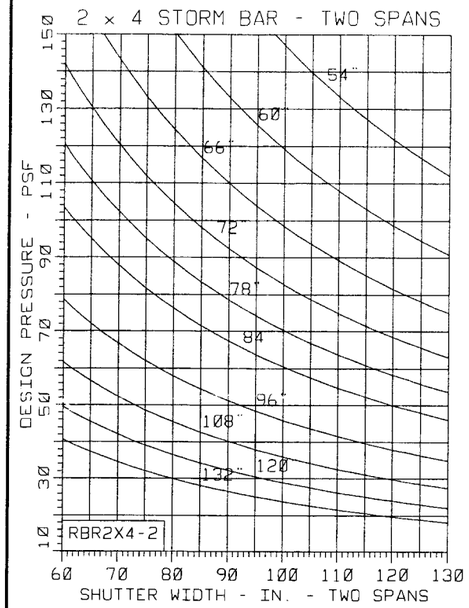

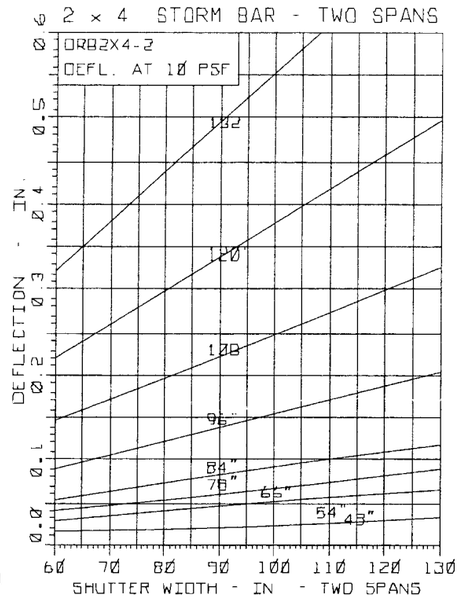

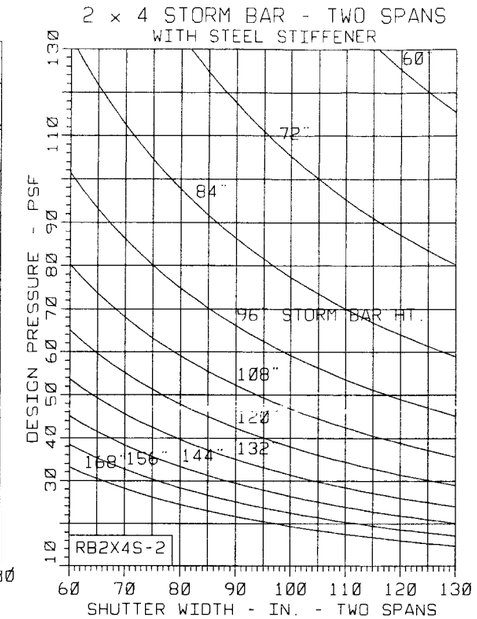

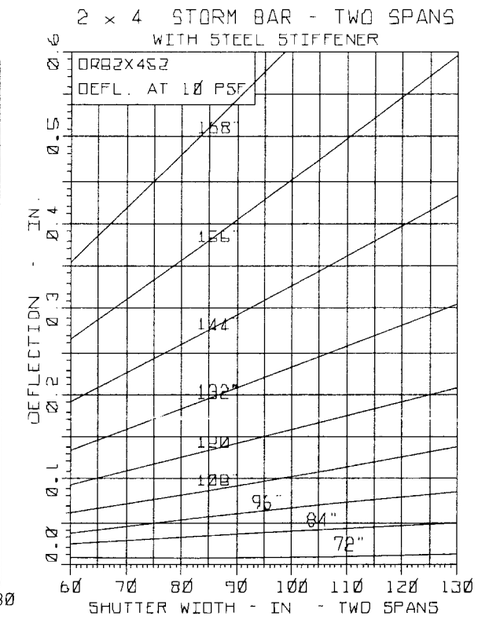

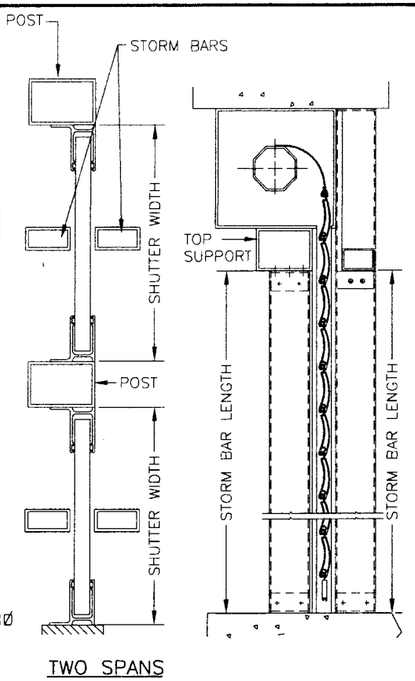

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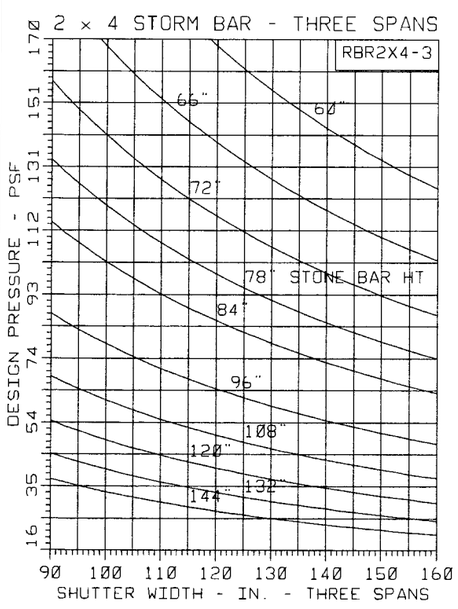

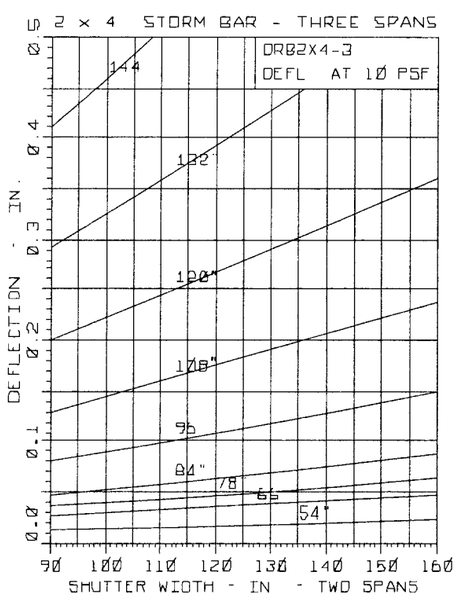

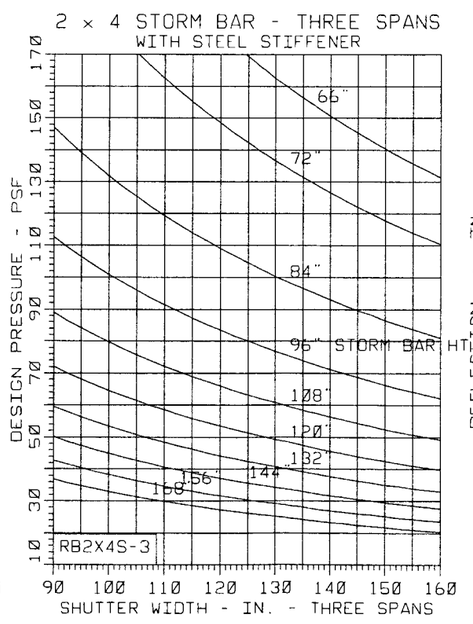

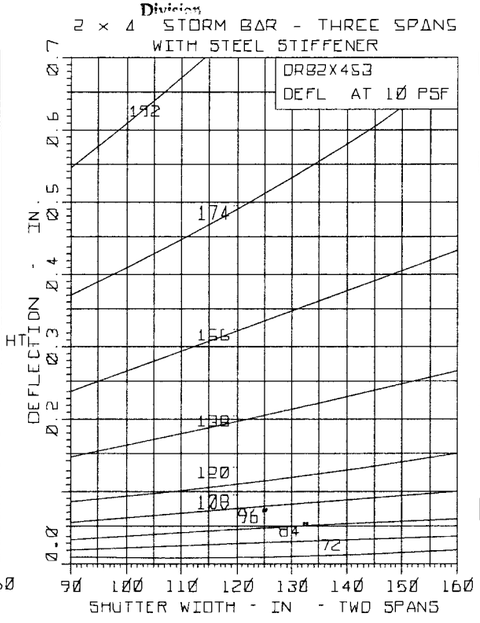

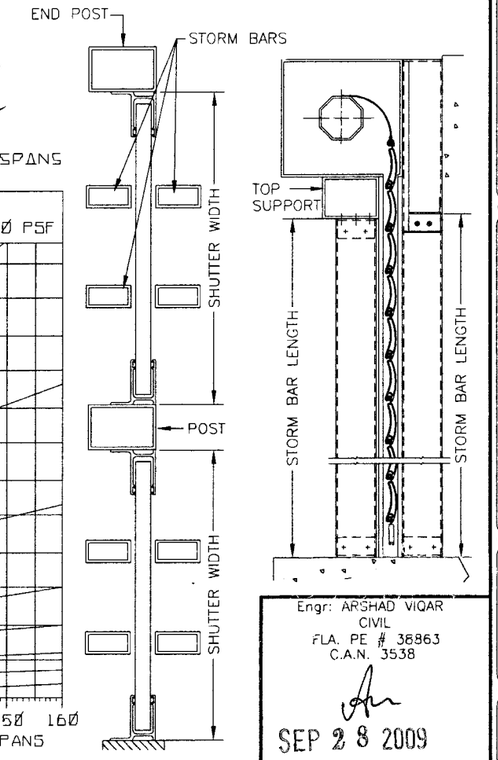

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chk. by:

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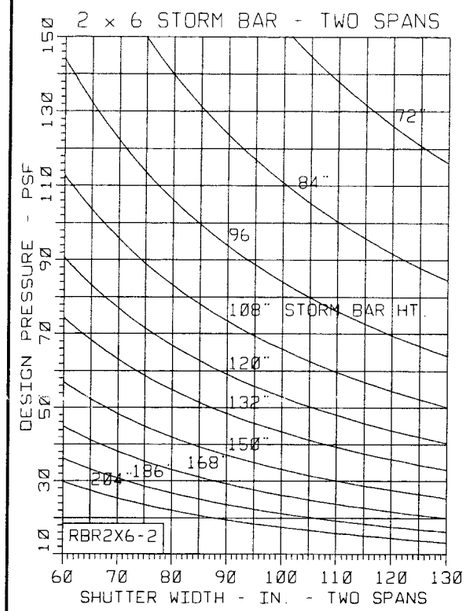

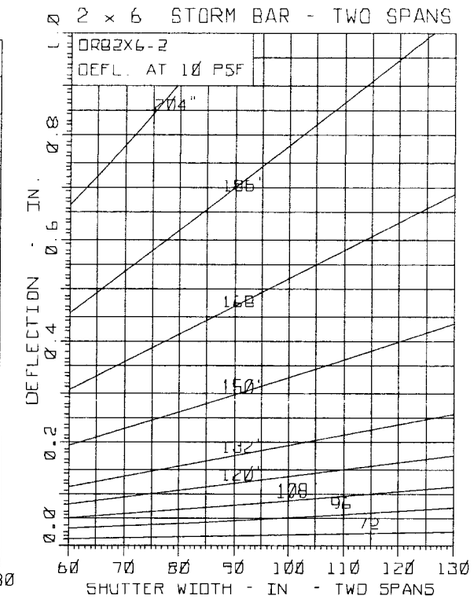

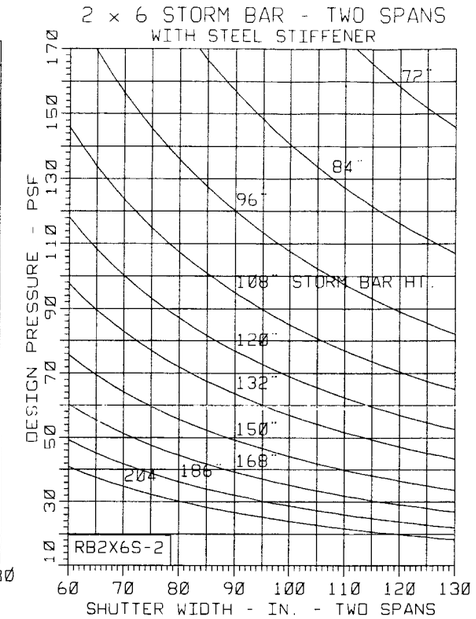

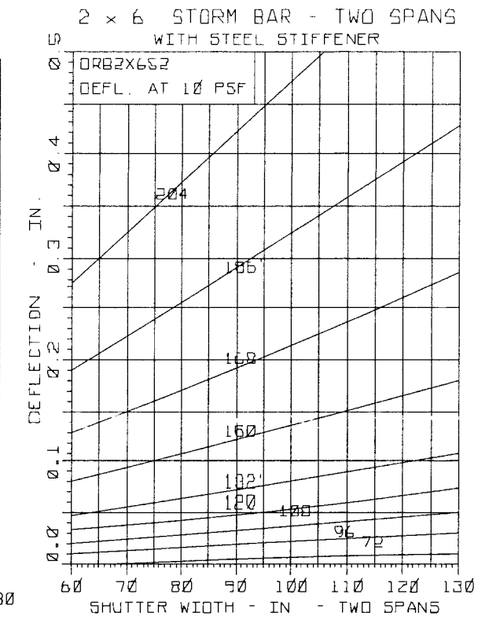

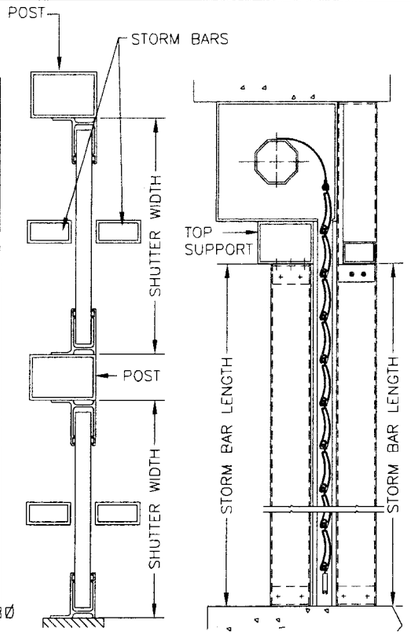

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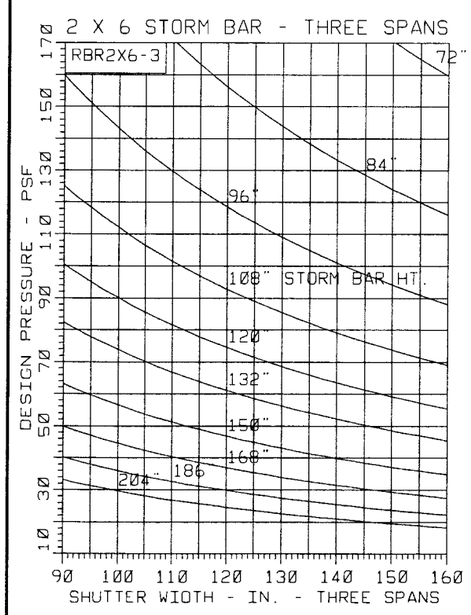

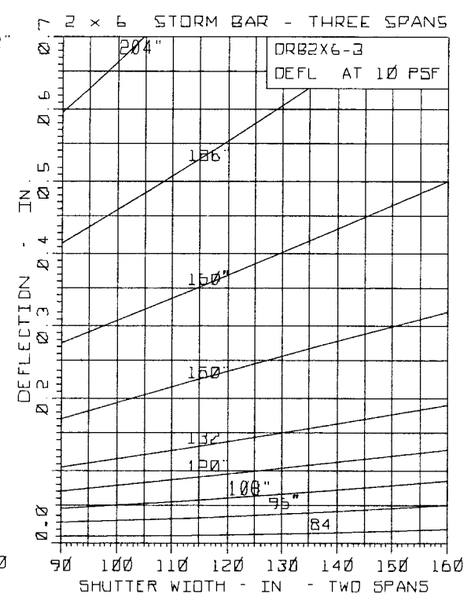

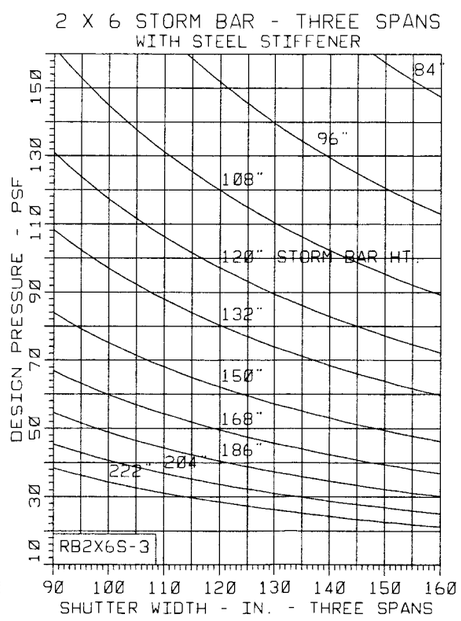

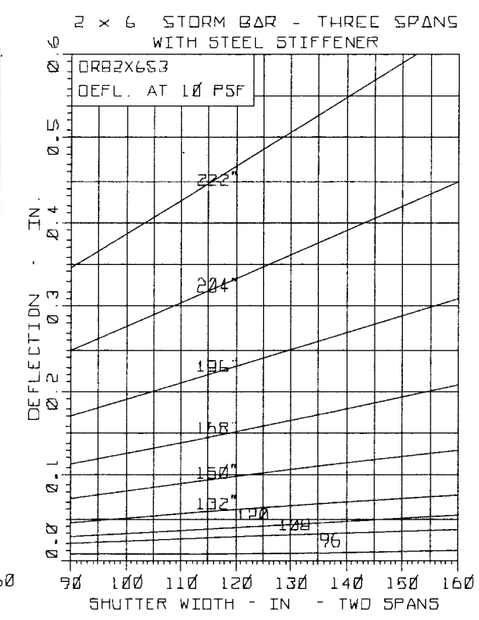

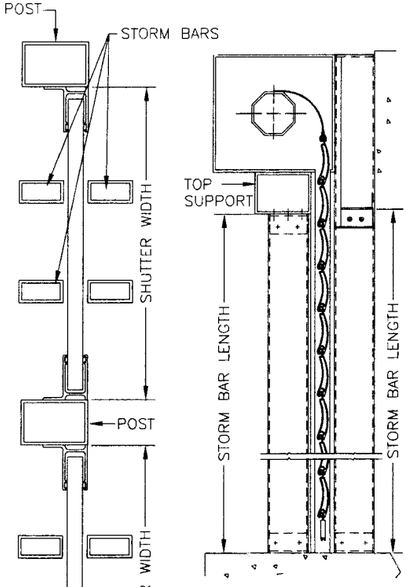

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chk. by:

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ROLL SHUTTER OVERALL DEFLECTION CALCULATION SHEET

POSITIVE LOAD

ASCE 7-05: DESIGN LOAD = Pd = PSF
MULTIPLIER FACTOR = K = Pd/10 =

SHUTTER WIDTH = Sw = 1N.			
NO. OF STORM BARS USED = N =			
SPAN CONDITION = N+1 =			
SHUTTER HEIGHT = Sh = IN.			
BOX HEIGHT = BOXh = IN.			
STORM BAR HEIGHT = BL = SH-BOXh = IN.			
TRACK WIDTH = Tw = IN.			
	STEP		
SLAT	1	SLAT SPAN = Ls = (Sw − 2 * Tw)/(N + 1) FROM GRAPHS CHECK SLAT SPAN FOR DESIGN LOAD AND SPAN CONDITION TO MEET DEFLECTION < L/30 OR 2". AND STRESSES LESS THAN ALLOWABLE	
	2	FROM DEFLECTION GRAPH FOR 10 PSF READING FOR ABOVE SLAT SPAN = R1 DEFLECTION OF SLAT = D1 = K * R1	→
STORM BAR	3	FROM GRAPHS SELECT STORM BAR FOR ABOVE SHUTTER WIDTH, SHUTTER HEIGHT, DESIGN LOAD & SPAN CONDITION TO MEET DEFLECTION < L/30 OR 2". AND STRESSES LESS THAN ALLOWABLE TRY STORM BAR SIZE :	
	4	FROM DEFLECTION GRAPH FOR 10 PSF READING FOR ABOVE STORM BAR = R2 DEFLECTION OF STORM BAR = Db = K * R2 EFFECT ON SLATS = D2 = Db/2	→
HEADER (IF THERE IS NO HEADER SKIP STEPS 5 & 6.)	5	FROM GRAPHS SELECT HEADER SIZE FOR ABOVE SHUTTER WIDTH, SHUTTER HEIGHT, DESIGN LOAD & SPAN CONDITION TO MEET DEFLECTION < L/30 OR 2". AND STRESSES LESS THAN ALLOWABLE. TRY HEADER SIZE:	
	6	FROM DEFLECTION GRAPH FOR 10 PSF READING FOR ABOVE HEADER = R3 DEFLECTION OF HEADER = Dh = K * R3 EFFECT ON SLATS = D3 = Dh/4	→
	7	TOTAL DEFLECTION = D = D1+D2+D3 IN.	→
		Ls/30	→

NEGATIVE LOAD

ASCE 7-05: DESIGN LOAD = Pd = PSF
MULTIPLIER FACTOR = K = Pd/10 =

SHUTTER WIDTH = Sw = 1N.			
NO. OF STORM BARS USED = N =			
SPAN CONDITION = N+1 =			
SHUTTER HEIGHT = Sh = IN.			
BOX HEIGHT = BOXh = IN.			
STORM BAR HEIGHT = BL = SH-BOXh = IN.			
TRACK WIDTH = Tw = IN.			
	STEP		
SLAT	1	SLAT SPAN = Ls = (Sw − 2 * Tw)/(N + 1) FROM GRAPHS CHECK SLAT SPAN FOR DESIGN LOAD AND SPAN CONDITION TO MEET DEFLECTION < L/30 OR 2". AND STRESSES LESS THAN ALLOWABLE	
	2	FROM DEFLECTION GRAPH FOR 10 PSF READING FOR ABOVE SLAT SPAN = R1 DEFLECTION OF SLAT = D1 = K * R1	→
STORM BAR	3	FROM GRAPHS SELECT STORM BAR FOR ABOVE SHUTTER WIDTH, SHUTTER HEIGHT, DESIGN LOAD & SPAN CONDITION TO MEET DEFLECTION < L/30 OR 2". AND STRESSES LESS THAN ALLOWABLE TRY STORM BAR SIZE :	
	4	FROM DEFLECTION GRAPH FOR 10 PSF READING FOR ABOVE STORM BAR = R2 DEFLECTION OF STORM BAR = Db = K * R2 EFFECT ON SLATS = D2 = Db/2	→
HEADER	5	FROM GRAPHS SELECT HEADER SIZE FOR ABOVE SHUTTER WIDTH, SHUTTER HEIGHT, DESIGN LOAD & SPAN CONDITION TO MEET DEFLECTION < L/30 OR 2". AND STRESSES LESS THAN ALLOWABLE. TRY HEADER SIZE:	
	6	FROM DEFLECTION GRAPH FOR 10 PSF READING FOR ABOVE HEADER = R3 DEFLECTION OF HEADER = Dh = K * R3 EFFECT ON SLATS = D3 = Dh/4	→
	7	TOTAL DEFLECTION = D = D1+D2+D3 IN.	→
		Ls/30	→

NOTES:
1. IF FOR NEGATIVE LOAD D > Ls/30
   OR IF FOR POSITIVE LOAD D > Ls/30 OR 2".
   REPEAT ABOVE CALCULATIONS WITH LARGER STORM BARS AND OR LARGER HEADER.
2. DIFFERENT SIZE STORM BARS/HEADERS MAY BE USED FOR POSITIVE AND NEGATIVE LOADS.
3. USE ADDITIONAL CALCULATION SHEETS FOR DIFFERENT SHUTTERS ON THE SAME JOB.

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Engr: ARSHAD VIQAR
CIVIL
FLA. PE # 38863
C.A.N. 3538

SEP 28 2009

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
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TEL. (305) 264-8100 FAX. (305) 262-6978

ROLLUP\94-55RI

RollShutter Details

ROLLADEN INC.
550 ANSIN BLVD.
HALLANDALE, FL. 33009
TEL. (954) 757-8591 FAX. (954) 454-1577

revisions:

no	date	by	description
E	04.25.03	T.H.	NO CHANGE THIS SHEET
F	10.28.03	T.H.	NO CHANGE THIS SHEET
G	12.19.05	T.H.	NO CHANGE THIS SHEET
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