MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING

BUILDING CODE COMPLIANCE OFFICE
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908

CONTRACTOR LICENSING SECTION
(305) 375-2527 FAX (305) 375-2558

CONTRACTOR ENFORCEMENT DIVISION
(305) 375-2966 FAX (305) 375-2908

PRODUCT CONTROL DIVISION
(305) 375-2902 FAX (305) 372-6339

PRODUCT CONTROL NOTICE OF ACCEPTANCE

Rolladen, Inc.
550 Ansin Boulevard
Hallandale ,FL 33009

Your application for Notice of Acceptance (NOA) of:
 # 1117 Extruded Aluminum Roll Up Shutter
under Chapter 8 of the Code of Miami-Dade County governing the use of Alternate Materials and Types of Construction, and completely described herein, has been recommended for acceptance by the Miami-Dade County Building Code Compliance Office (BCCO) under the conditions specified herein.

This NOA shall not be valid after the expiration date stated below. BCCO reserves the right to secure this product or material at any time from a jobsite or manufacturer's plant for quality control testing. If this product or material fails to perform in the approved manner, BCCO may revoke, modify, or suspend the use of such product or material immediately. BCCO reserves the right to revoke this approval, if it is determined by BCCO that this product or material fails to meet the requirements of the South Florida Building Code.

The expense of such testing will be incurred by the manufacturer.

ACCEPTANCE NO.: 00-0609.08
EXPIRES: 09/25/2003

Raul Rodriguez
Chief Product Control Division

THIS IS THE COVERSHEET, SEE ADDITIONAL PAGES FOR SPECIFIC AND GENERAL CONDITIONS
BUILDING CODE & PRODUCT REVIEW COMMITTEE

This application for Product Approval has been reviewed by the BCCO and approved by the Building Code and Product Review Committee to be used in Miami-Dade County, Florida under the conditions set forth above.

Francisco J. Quintana, R.A.
Director
Miami-Dade County
Building Code Compliance Office

APPROVED: 09/21/2000

Rolladen, Inc.

ACCEPTANCE No. : 00-0609.08

APPROVED : SEP 21 2000

EXPIRES : **September 25, 2003**

NOTICE OF ACCEPTANCE: SPECIFIC CONDITIONS

1. SCOPE

1.1 This **renews** the Notice of Acceptance No. 97-0826.05 that was issued on 09/25/97. It approves an aluminum slat roll-up shutter, as described in Section 2 of this Notice of Acceptance, designed to comply with the South Florida Building Code, 1994 Edition for Miami-Dade County (SFBC). For the locations where the pressure requirements, as determined by SFBC Chapter 23, do not exceed the Design Pressure Rating values indicated in the approved drawings.

2. PRODUCT DESCRIPTION

2.1 The **Rolladen # 1117 Extruded Aluminum Roll-Up Shutter** and its components shall be constructed in strict compliance with the following documents: Drawing No. 94-55, titled "Roll Shutters 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" prepared by Al-Farooq Corporation, dated 07/22/94, with revision "D" dated 07/02/95, Sheets 1 through 21 of 21. They bear the Miami-Dade County Product Control Approval stamp with the Notice of Acceptance number and approval date by the Miami-Dade County Product Control Division. These documents shall hereinafter be referred to as the approved drawings.

3. LIMITATIONS

3.1 Minimum slat engagement shall be 1.50".

3.2 Minimum separation from interior of slat to glass being protected shall be as shown on sheet 2 of 21.

3.3 The operating mechanism, not part of this approval shall be certified by a recognized testing agency.

3.4 All permanent components, including anchors must be protected against corrosion, contamination.

3.5 Slat orientation can be either concave side or convex side to the exterior.

3.6 Each unit shall be individually designed using "Roll Shutter Overall Deflection Calculation Sheet" sheet 21 of 21 and "Header/Mullion Details" sheet 5 of 21 for positive and negative loads. For each individual installation, this set of drawings shall be signed and sealed by the listed professional engineer.

4. INSTALLATION

4.1 The Aluminum Slat Roll-Up Shutter and its components shall be installed in strict compliance with the approved drawings.

5. LABELING

5.1 Each shutter shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved".

6. BUILDING PERMIT REQUIREMENTS

6.1 Application for building permit shall be accompanied by copies of the following:

6.1.1 This Notice of Acceptance.

6.1.2 Duplicate copies of the approved drawings, as identified in Section 2 of this Notice of Acceptance, clearly marked to show the components selected for the proposed installation.

6.1.3 Any other documents required by the Building Official or the South Florida Building Code (SFBC) in order to properly evaluate the installation of this system.

Manuel Perez

Manuel Perez, P.E., Product Control Examiner
Product Control Division

Rolladen, Inc.

ACCEPTANCE No. : 00-0609.08

APPROVED : SEP 2 1 2000

EXPIRES : September 25, 2003

NOTICE OF ACCEPTANCE: STANDARD CONDITIONS

1 Renewal of this Acceptance (approval) shall be considered after a renewal application has been filed and the original submitted documents, including test-supporting data, engineering documents, are no older than eight (8) years.

2. Any and all approved products shall be permanently labeled with the manufacturer's name, city, state, and the following statement: "Miami-Dade County Product Control Approval", or as specifically stated in the specific conditions of this Acceptance.

3. Renewals of Acceptance will not be considered if:
   a. There has been a change in the South Florida Building Code affecting the evaluation of this product and the product is not in compliance with the code changes.
   b. The product is no longer the same product (identical) as the one originally approved.
   c. If the Acceptance holder has not complied with all the requirements of this acceptance, including the correct installation of the product.
   d. The engineer who originally prepared, signed and sealed the required documentation initially submitted, is no longer practicing the engineering profession.

4. Any revision or change in the materials, use, and/or manufacture of the product or process shall automatically be cause for termination of this Acceptance, unless prior written approval has been requested (through the filing of a revision application with appropriate fee) and granted by this office.

5. Any of the following shall also be grounds for removal of this Acceptance:
   a. Unsatisfactory performance of this product or process.
   b. Misuse of this Acceptance as an endorsement of any product, for sales, advertising or any other purposes.

6. The Notice of Acceptance 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 Notice of Acceptance is displayed, then it shall be done in its entirety.

7. A copy of this Acceptance as well as approved drawings and other documents, where it applies, shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at all time. The engineer need not reseal the copies.

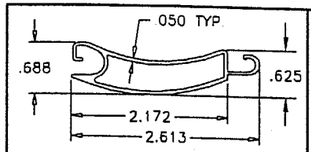
8. Failure to comply with any section of this Acceptance shall be cause for termination and removal of Acceptance.

9. This Notice of Acceptance consists of pages 1, 2 and this last page 3.

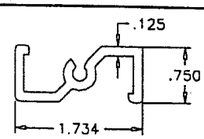
END OF THIS ACCEPTANCE

Manuel Perez

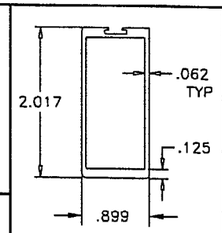
Manuel Perez, P.E., Product Control Examiner
Product Control Division



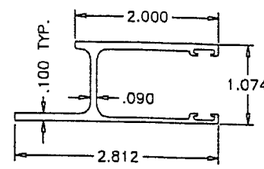
RON-68 SLAT



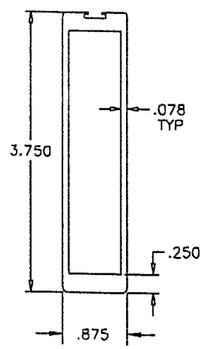
RON-23 INSERT



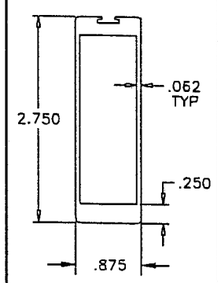
RON-24 STORM BAR



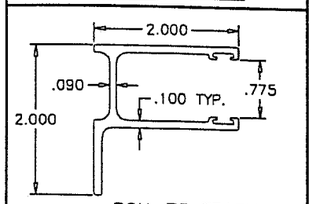
RON-72 TRACK



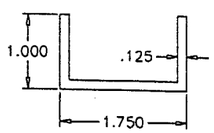
RON-56 STORM BAR



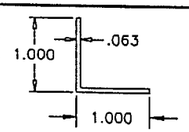
RON-57 STORM BAR



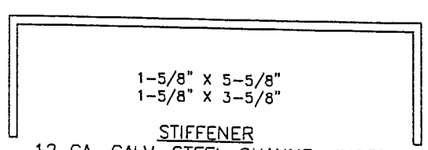
RON-73 TRACK



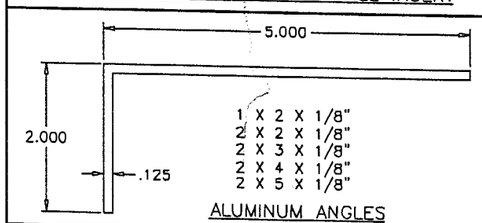
FLOOR SHOE



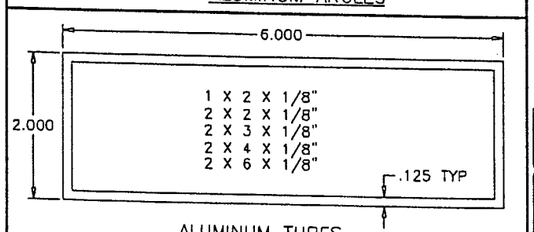
1 x 1 x 1/16"
ALUMINUM ANGLE



STIFFENER
12 GA. GALV. STEEL CHANNEL INSERT

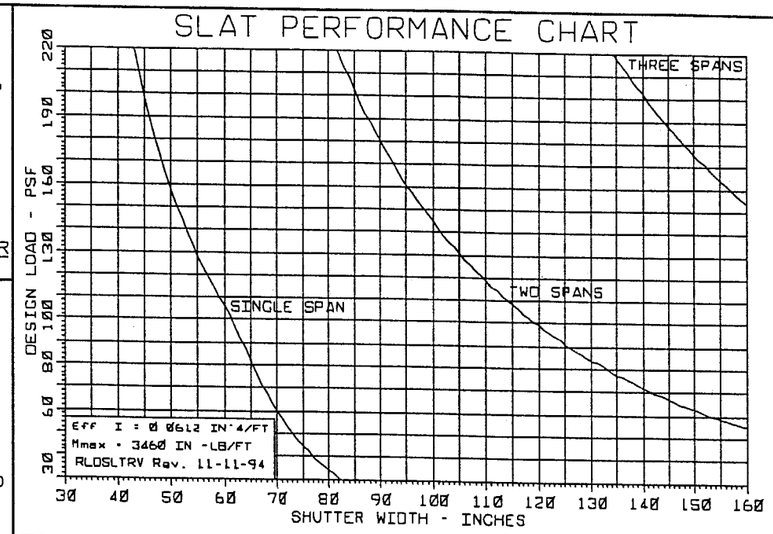


ALUMINUM ANGLES



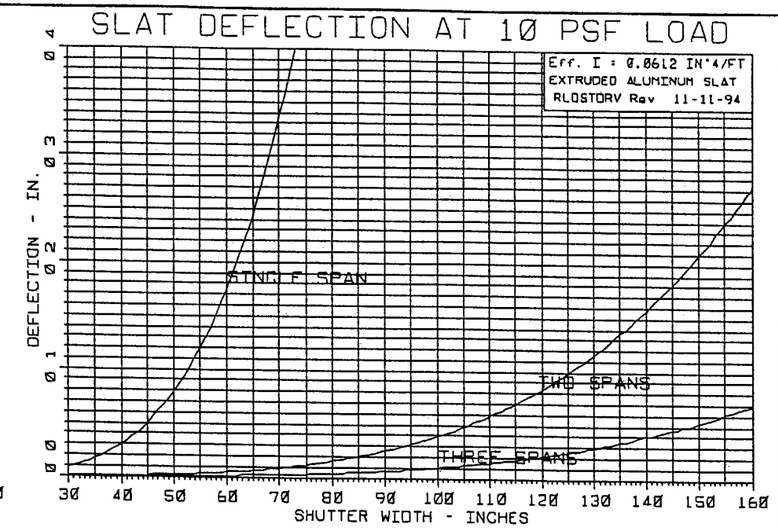
ALUMINUM TUBES

SLAT PERFORMANCE CHART

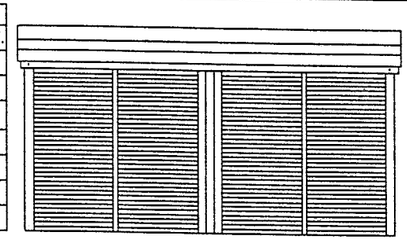


USE SLAT PERFORMANCE CHART TO VERIFY SLAT CAPACITY FOR THE REQUIRED DESIGN LOAD FOR THE PARTICULAR LOCATION.

SLAT DEFLECTION AT 10 PSF LOAD

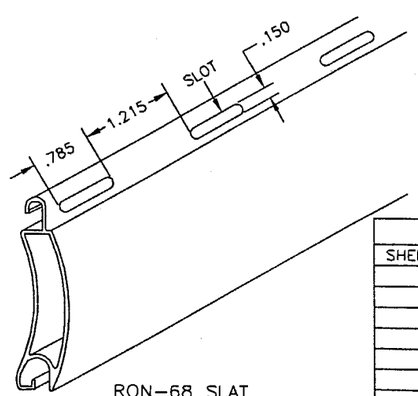


BOX DIMENSIONS	
SHUTTER HT.	HOOD HT.
48"	8"
73"	9"
95"	10"
119"	11"
148"	12"
181"	13"
216"	14"



TYPICAL ELEVATION

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



RON-68 SLAT

PRODUCT RENEWED
ACCEPTANCE No. 00-0609.08
EXPIRATION DATE September 25, 2003
By [signature]
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE

INDEX OF DRAWING	
SHEET NO.	DESCRIPTION
1	EXTRUSIONS DETAILS, NOTES, SLAT GRAPHS
2	SINGLE SPAN DETAILS
3	ANCHOR GRAPHS
4	MULTIPLE SPAN INSTALLATION DETAIL
5	HEADER/MULLION CONNECTION DETAILS
6	STORM BAR ANCHOR DETAILS
7	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

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.

ANCHORS: EMBEDMENT & EDGE DISTANCES SHOWN ARE BEYOND THE WALL & FLOOR COVERING (STUCCO, TILES, ETC.)

GENERAL NOTES

1. THIS STRUCTURE IS DESIGNED AS PER THE SOUTH FLORIDA BUILDING CODE 1994 EDITION FOR DADE COUNTY. ALSO FOR WIND LOADS AS PER ASCE 7-88 USING CORRESPONDING LOADS.
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.

DESIGN LOADS SHALL BE CALCULATED AS PER REQUIREMENTS OF ASCE 7-88, BASED ON 110 MPH WIND VELOCITY.

PRODUCT MARKING

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

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

Engr: DR. HUMAYOUN FAROOQ
STRUCTURES
FLA. PE # 16557

MAY 18 2000

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE September 25 1994
BY [signature]
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 94-0826.05

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

ROLLUP\94-55-5

RollShutter Details

ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

revisions:

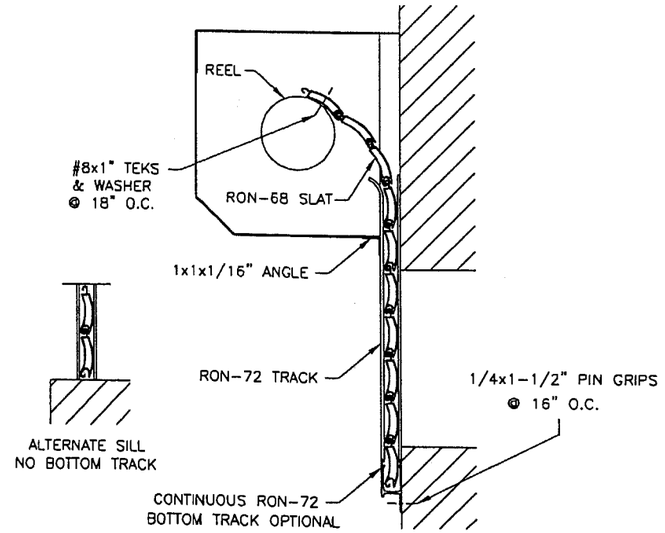
no	date	by	description
A	10.30.94	T.H.	GENERAL REVISION
B	11.12.94	T.H.	GENERAL REVISION
C	02.02.95	T.H.	GENERAL REVISION
D	07.02.95	T.H.	SHEET 3 REVISED

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

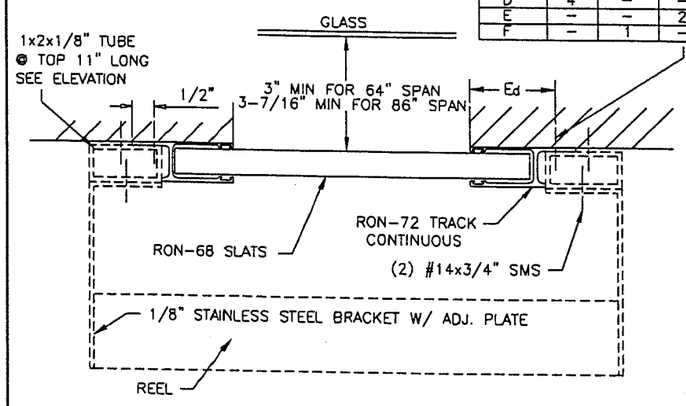
drawing no.
94-55

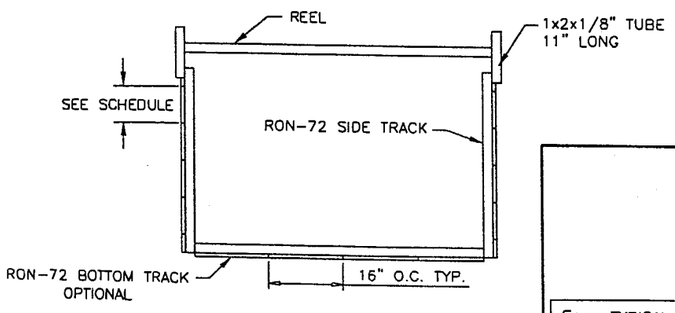
sheet 1 of 21

00-0609.08



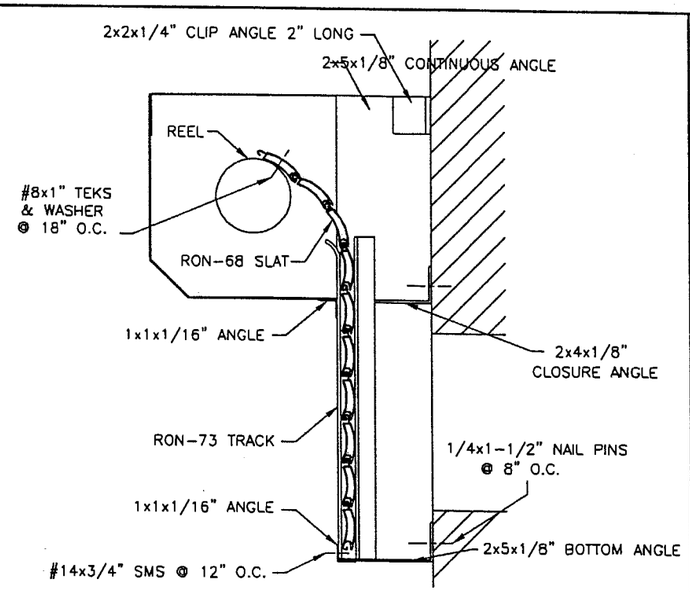
ANCHOR TYPE	CHART TO USE		
	CONC.	BLOCK	WOOD
A	4	1	–
B	2	–	–
C	2	1	–
D	4	–	–
E	–	–	2
F	–	1	–



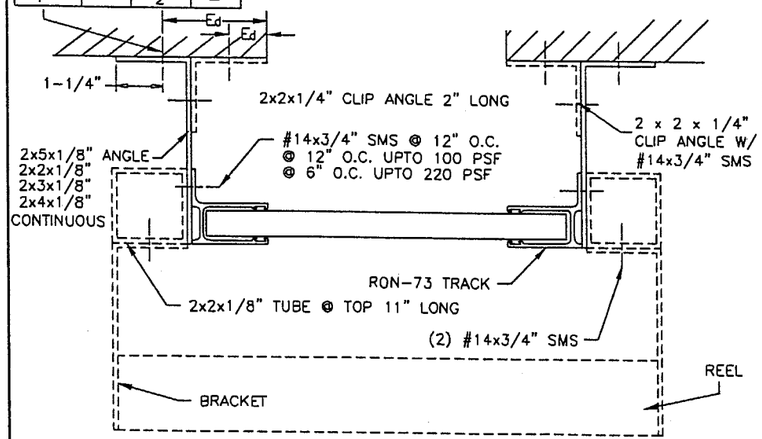


ELEVATION

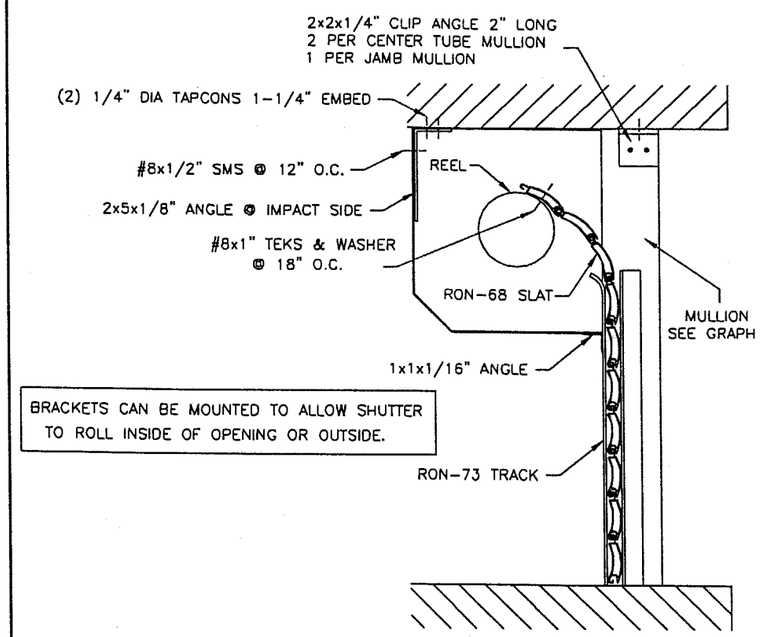
SINGLE SPAN TRACK ON WALL



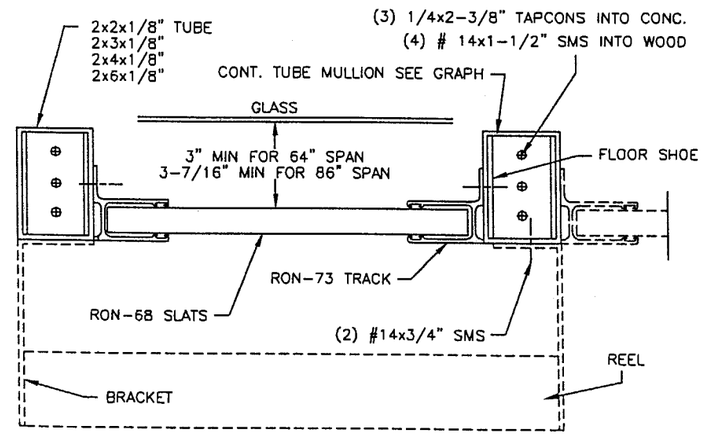
ANCHOR TYPE	CHART TO USE		
	CONC.	BLOCK	WOOD
A	5	2	–
B	3	–	–
C	3	2	–
D	5	–	–
E	–	–	3
F	–	2	–



SINGLE SPAN WITH BUILT OUT



BRACKETS CAN BE MOUNTED TO ALLOW SHUTTER TO ROLL INSIDE OF OPENING OR OUTSIDE.



SINGLE SPAN SPLIT SHUTTER W/ MULLION

Ed = TYPICAL EDGE DISTANCE
CONC. & BLOCK = 12d (12 ANCHOR DIAMETERS)
WOOD = 5d
FOR LESSER EDGE DISTANCES SEE SHEET 3 OF 21.

ANCHORS: EMBEDMENT & EDGE DISTANCES SHOWN ARE BEYOND THE WALL & FLOOR COVERING (STUCCO, TILES, ETC.)

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE SEPTEMBER 25, 1997
BY [signature]
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 97-0826.05

Engr: DR. HUMAYOUN FAROOQ
STRUCTURES
FLA. PE # 16557

MAY 1 8 2000

PRODUCT RENEWED
ACCEPTANCE No. 00-0609.08
EXPIRATION DATE 09/25/2003
By [signature]
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
1235 SW 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
ROLLUP\94-55-5

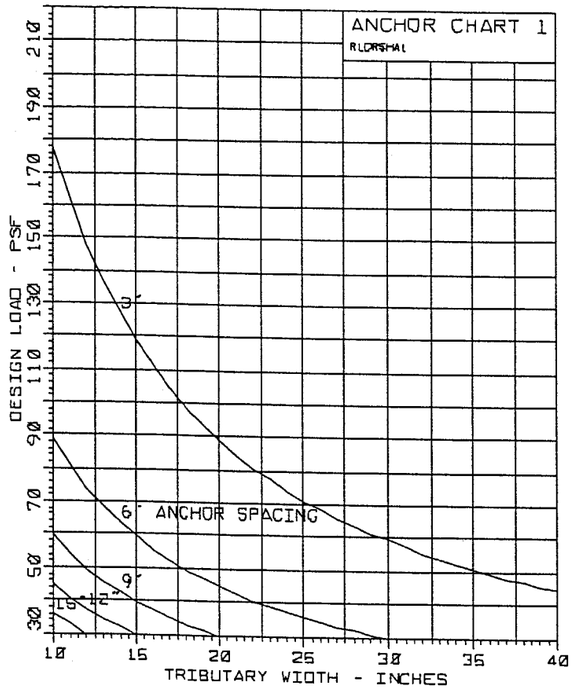
RollShutter Details

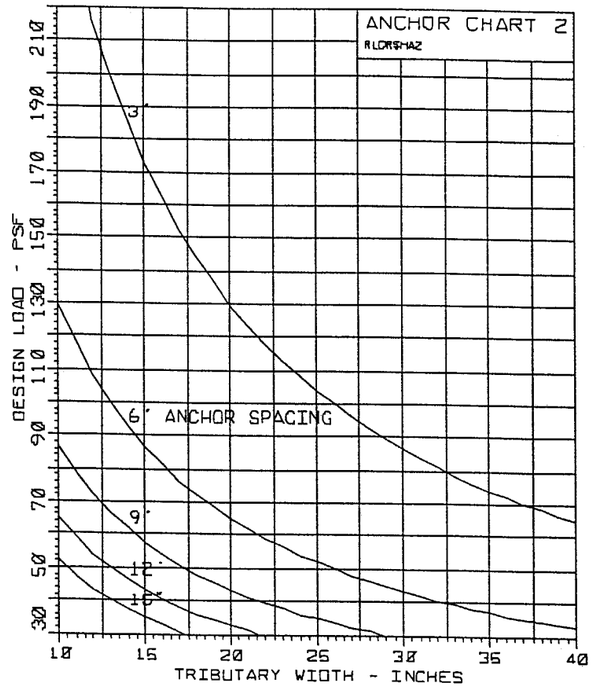
ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

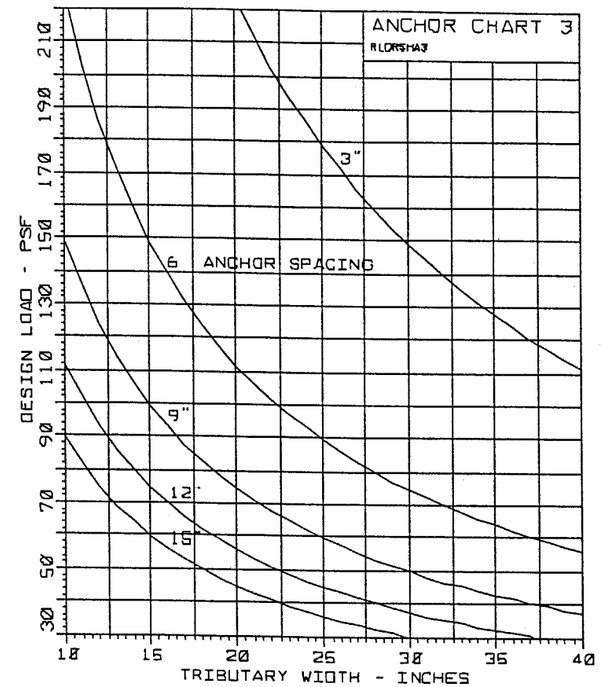
revisions:

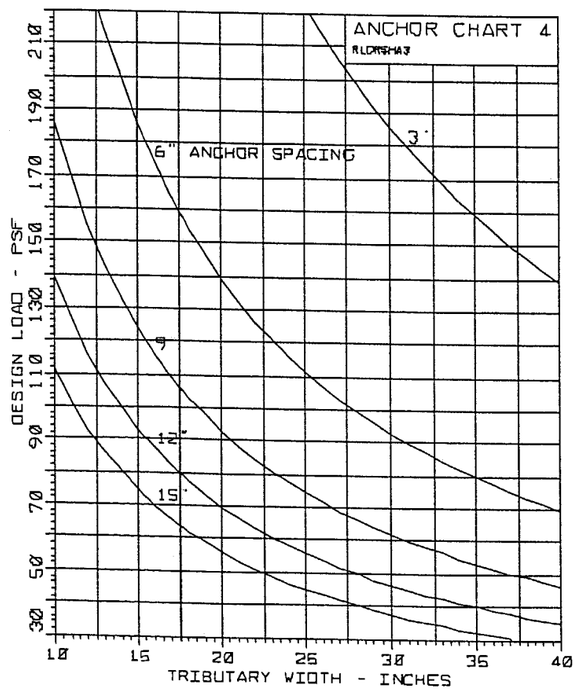
no	date	by	description
A	10.30.94	T.H.	GENERAL REVISION
B	11.12.94	T.H.	GENERAL REVISION
C	02.02.95	T.H.	GENERAL REVISION
D	07.02.95	T.H.	SHEET 3 REVISED

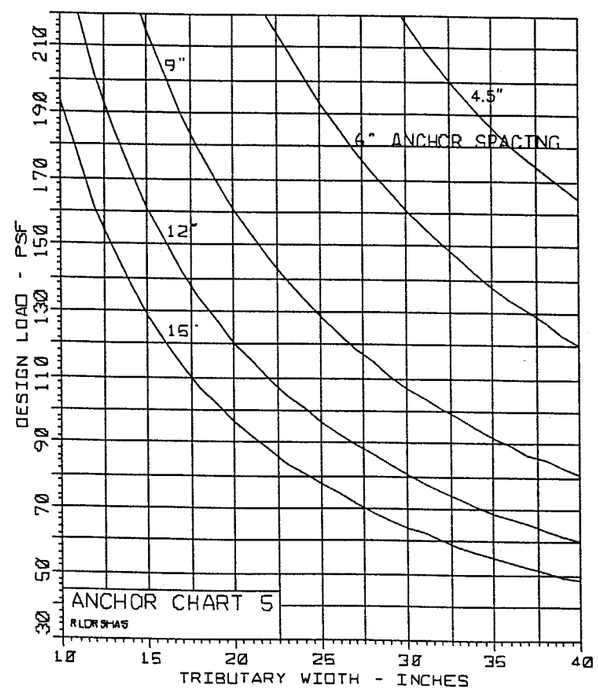
date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:
drawing no. 94-55
sheet 2 of 21











MAXIMUM ANCHOR SPACING IN ALL CASES SHALL NOT EXCEED 8" O.C.

FASTENER SPACING IN MASONRY					
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 = 12" O.C. (FROM CHART) FOR 2" EDGE DIST. SPACING = 12 X .71 = 8.5 O.C.					

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

TYPICAL ANCHORS

ANCHOR Ⓐ = 1/4" TAPCON 1-3/4" EMBEDMENT TO CONCRETE
1-1/4" EMBEDMENT TO BLOCK

ANCHOR Ⓑ = #14 S.M.S. W/ RAWL SCRU-LEAD INTO CONCRETE
1-1/2" EMBEDMENT.

ANCHOR Ⓒ = 1/4" x 1-1/4" METAL HIT ANCHORS (W/ ZAMAC BODY)
1" EMBEDMENT TO CONCRETE OR BLOCK

ANCHOR Ⓓ = 1/4" RAWL CALK-IN, STAR 'TAMPIN' OR EQUAL.
TOTAL ANCHOR BODY INTO CONC.

ANCHOR Ⓔ = #14 S.M.S. INTO WOOD, 1-1/2" MIN. EMBEDMENT
(S.G.= 0.47)

ANCHOR Ⓕ = 1/4" X 1-1/2" PIN GRIP
1/2" MIN. EMBEDMENT TO CONCRETE OR BLOCK.

TRIBUTARY WIDTH = $\frac{SW}{2 \times (\#\ \text{OF SPANS})}$

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE SEPTEMBER 25 1997
BY Manuel Suarez
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 97-0826.05

Engr: DR. HUMAYOUN FAROOQ
STRUCTURES
FLA. PE # 16557

MAY 1 8 2000

PRODUCT RENEWED
ACCEPTANCE No. 00-0609.08
EXPIRATION DATE 09/25/2002
By Manuel Suarez
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE

AL-FAROOQ CORPORATION
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1235 SW 87 AVE
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TEL. (305) 264-8100 FAX. (305) 262-6978

ROLLUP\94-55-5

RollShutter Details

ROLLADEN INC.
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(305) 757 - 8591

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chk. by:

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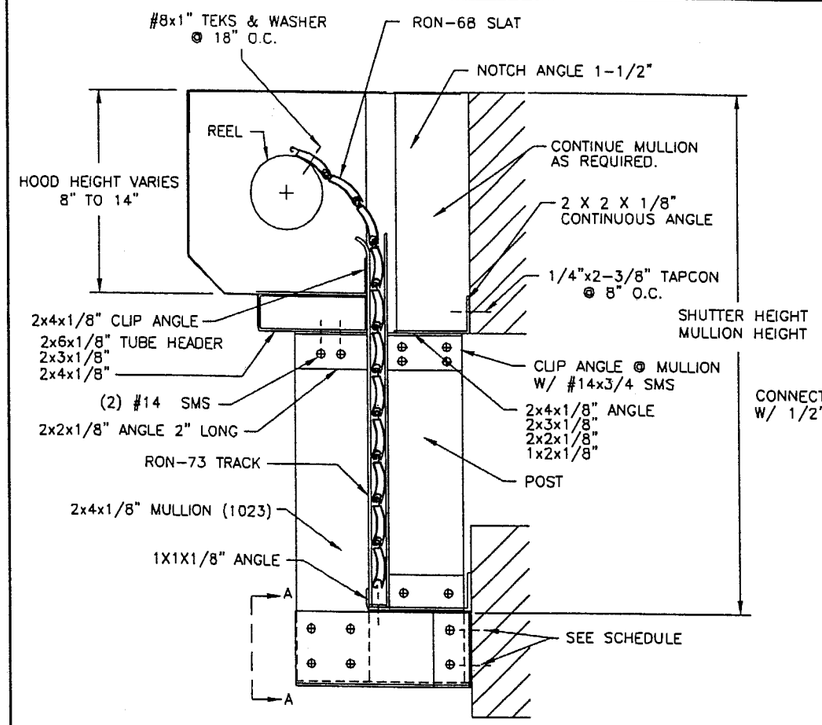
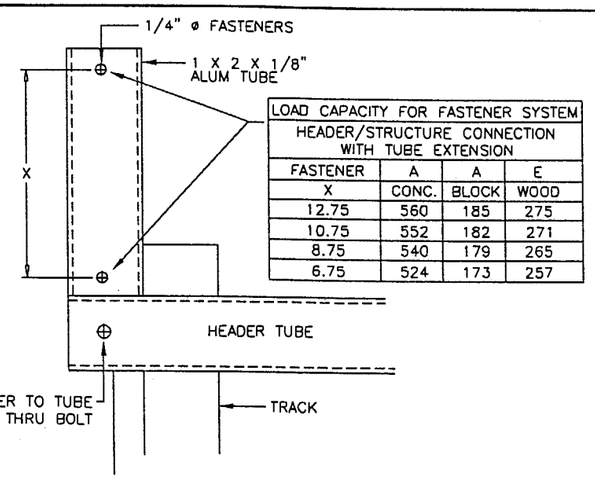


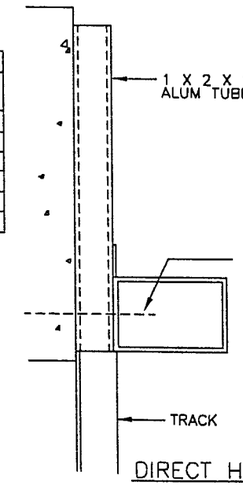
MULTIPLE SPAN SECTION

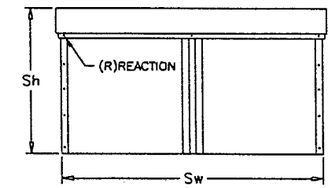
FOR MULLION ANCHOR SEE DETAIL



LOAD CAPACITY FOR FASTENER SYSTEM HEADER/STRUCTURE CONNECTION WITH TUBE EXTENSION			
FASTENER	A	A	E
X	CONC.	BLOCK	WOOD
12.75	560	185	275
10.75	552	182	271
8.75	540	179	265
6.75	524	173	257

HEADER/STRUCTURE CONNECTION WITH TUBE EXTENSION



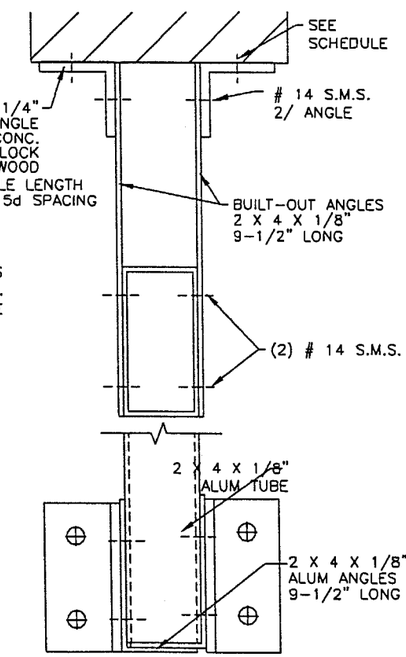


ADDITIONAL CAPACITY OF DIRECT FASTENER			
STRUCTURE	FASTENER	EMBED	P1
CONC.	3/8"øKWIK BOLT	2-1/2"	1720
	1/2"øKWIK BOLT	3-1/2"	2839
	5/8"øKWIK BOLT	4"	3800
BLOCK	1/4" SLEEVE ANCHOR	1-1/8"	266
	5/16" SLEEVE ANCHOR	1-1/4"	447
	3/8" SLEEVE ANCHOR	1-1/2"	626
WOOD	#14 SMS/LAG SCREW	1-1/2"	310

DIRECT HEADER CONNECTION TO STRUCTURE

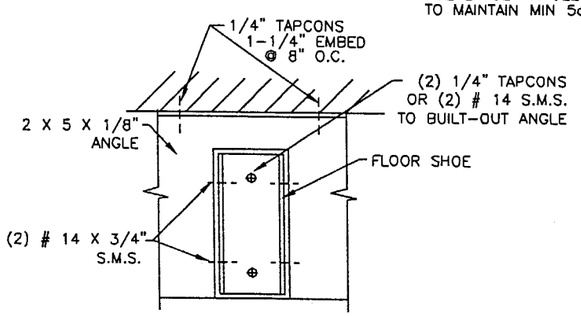
$$\text{REACTION} = R = \frac{1}{4} \times Sh \times Sw \times Pd$$

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 AS THE SUM OF THE TWO TYPES

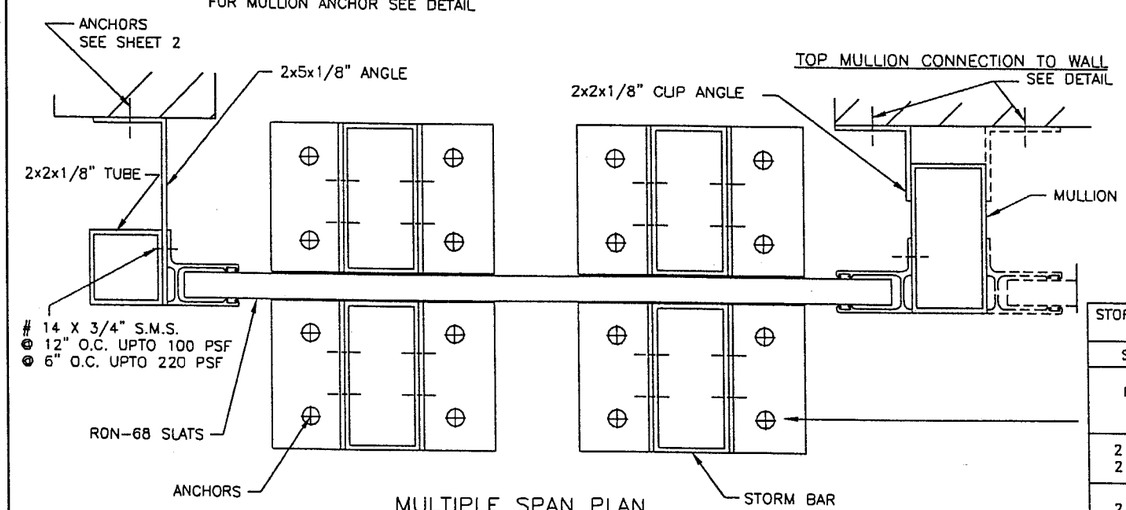


STORM BAR BOTTOM CONNECTION

VIEW "A-A"



BOTTOM MULLION CONNECTION TO BUILT-OUT



MULTIPLE SPAN PLAN
HEADER NOT SHOWN

NO. OF FASTENERS IN WOOD ON EACH SIDE MAY BE CALCULATED AS.

$$\# \text{ REQD.} = \frac{\text{LOAD ON STORM BAR ANCHOR}}{273 \times 2}$$

STORM BAR CONNECTION TO FLOOR & CEILING NO. OF FASTENERS REQD. EACH SIDE			
STORM BARS	FASTENERS	CONC.	WOOD
RON 24 RON 24&23 RON 56 RON 57	A, D	2	–
	E	–	4
2 X 2 X 1/8" 2 X 3 X 1/8"	A, D	2	–
	E	–	4
2 X 4 X 1/8"	A, D	2	–
	E	–	5
2 X 4 X 1/8" W/ STIFFENER	A, D	3	–
	E	–	5
2 X 6 X 1/8"	A, D	3	–
	E	–	6
2 X 6 X 1/8" W/ STIFFENER	A, D	4	–
	E	–	8

PRODUCT RENEWED
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STRUCTURES
FLA. PE # 16557

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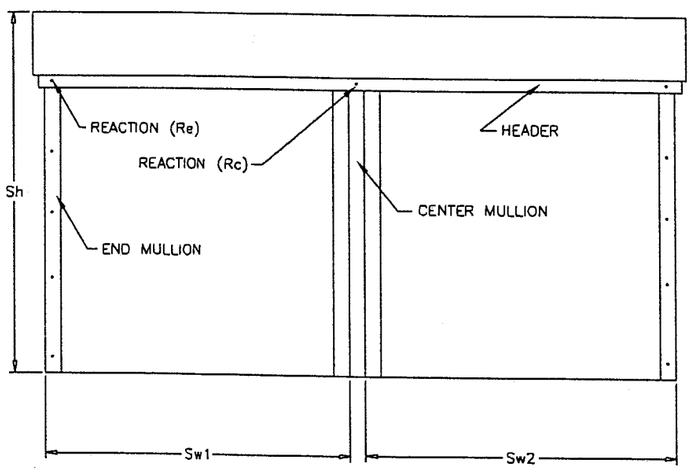
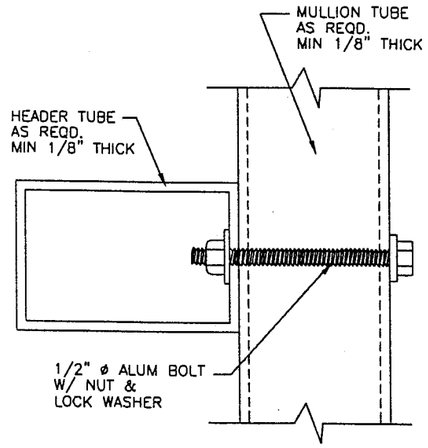
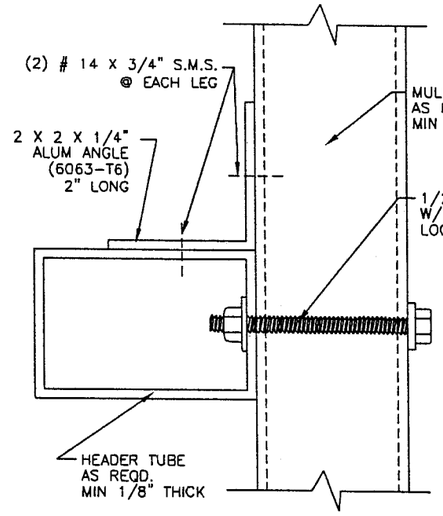




(A)



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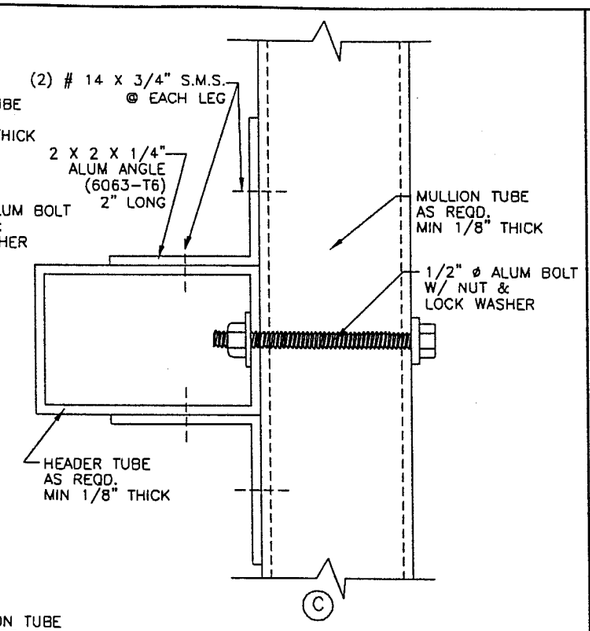


(C)

DESIGN LOAD = Pd = PSF

Sh	Sw1	Sw2

HEADER CONNECTION TO CENTER MULLION

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

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

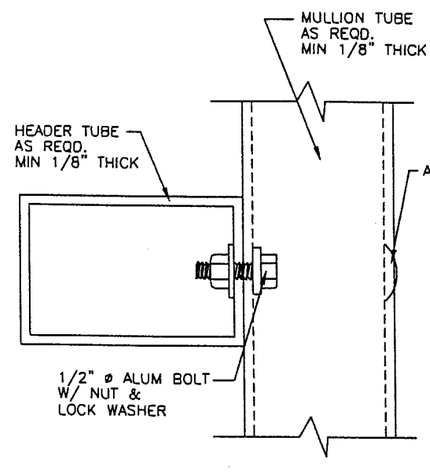
HEADER CONNECTION TO END MULLION

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

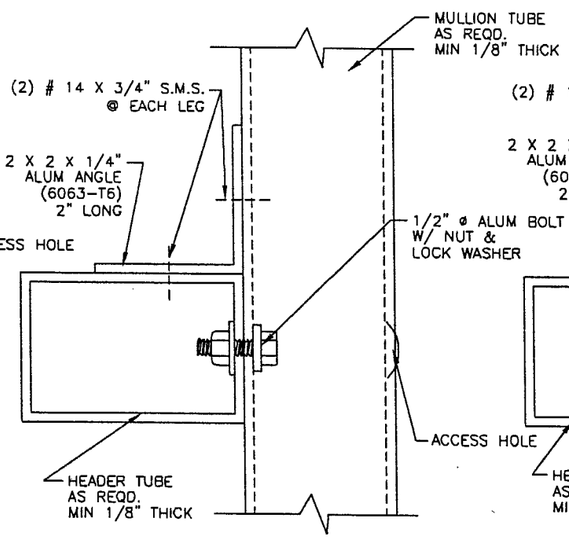
$$Re = \frac{\qquad}{4} =$$

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.



ALT. (A)



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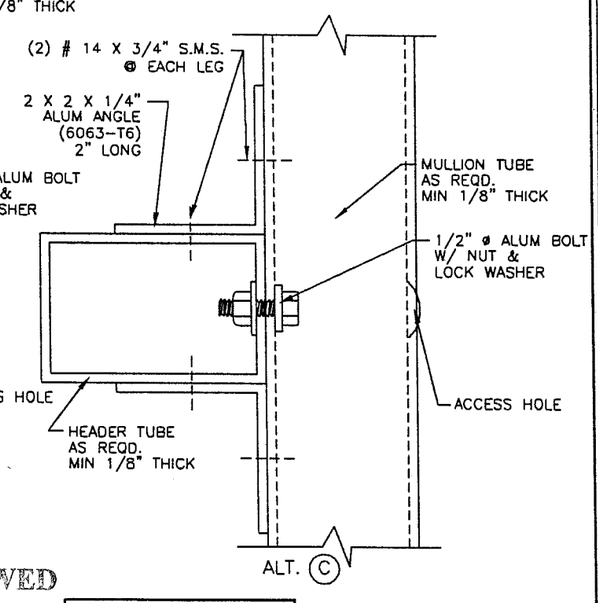

ALT. (C)

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Engr: DR. HUMAYOUN FAROOQ
STRUCTURES
FLA. PE # 16557

MAY 1 8 2000

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
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PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 97-0826.05

HEADER/MULLION CONNECTION DETAILS

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

ROLLUP\94-55-5

HEADER/MULLION DETAILS

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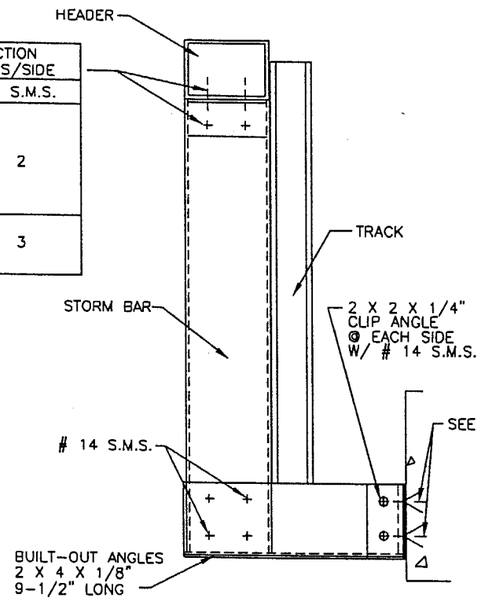
date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

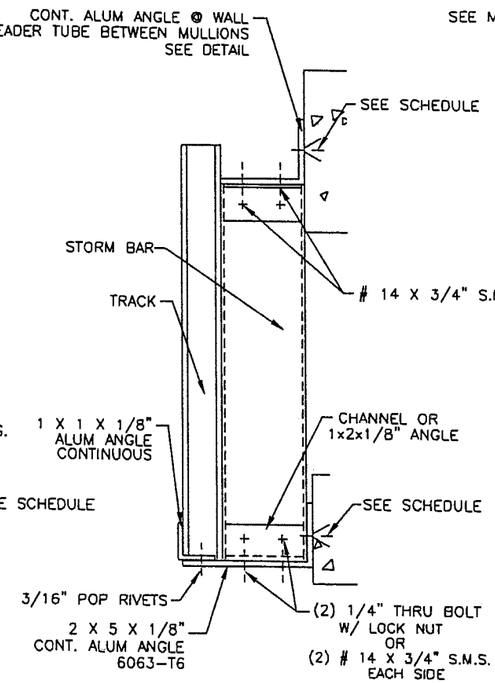
drawing no. 94-55

sheet 5 of 21

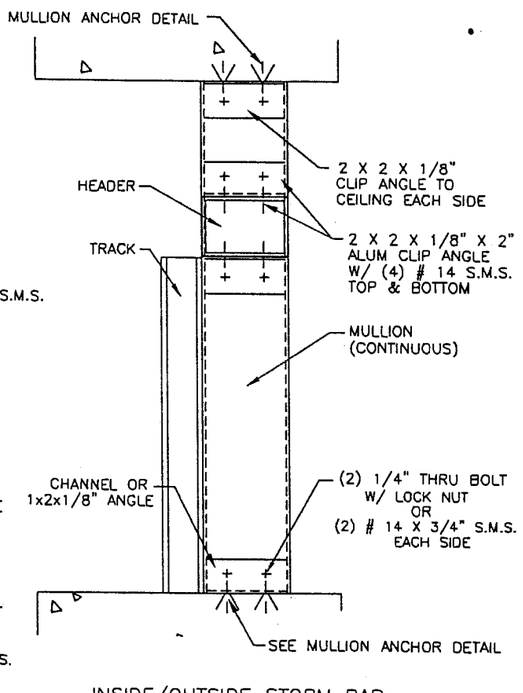
CLIP ANGLE CONNECTION NUMBER OF FASTENERS/SIDE	
STORM BAR SIZE	# 14 S.M.S.
RON-24 RON-24&23 RON-57 RON-56 2 X 2 X 1/8" 2 X 3 X 1/8" 2 X 4 X 1/8"	2
2 X 6 X 1/8" 2 X 6 X 1/8" W/ STIFFENER	3



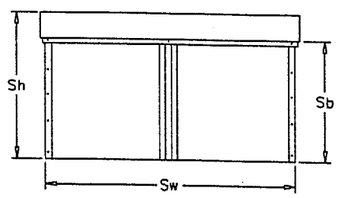
OUTSIDE STORM BAR
BUILT-OUT ANCHOR DETAIL



INSIDE STORM BAR TO WALL
ANCHOR DETAIL



INSIDE/OUTSIDE STORM BAR
MULLION TO FLOOR ANCHOR DETAIL



STORM BAR WALL ANCHOR CAPACITY (Lbs)					
ANGLE LENGTH (IN.)	# ANCHORS/SIDE	ANCHOR TYPE	BASE MATERIAL	ALUM ANGLE 2 X 2 X 1/4"	ALUM ANGLE 2 X 2 X 1/8"
2	1	D	CONC.	876	347
		E	WOOD	380	347
		F	BLOCK	271	271
3	2	D	CONC.	1227	520
		E	WOOD	760	520
		F	BLOCK	380	380
4	2	D	CONC.	1753	693
		E	WOOD	760	693
		F	BLOCK	543	543
5	3	D	CONC.	1972	866
		E	WOOD	1140	866
		F	BLOCK	610	610

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

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.

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BUILDING CODE COMPLIANCE OFFICE

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ROLLUP\94-55-10

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ROLLADEN INC.
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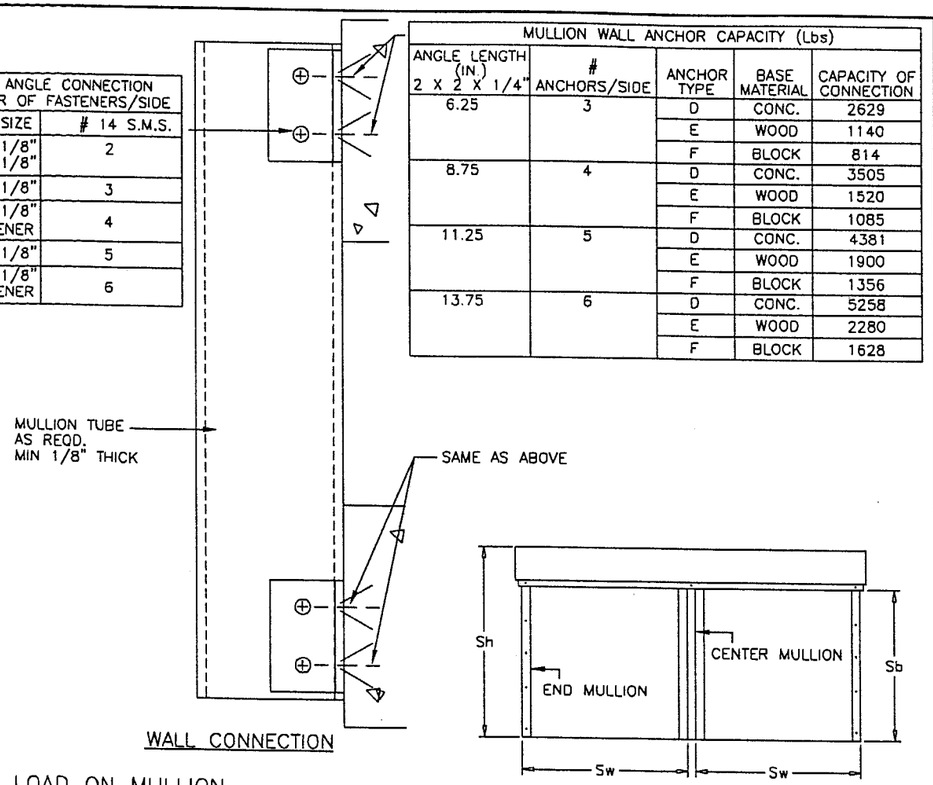
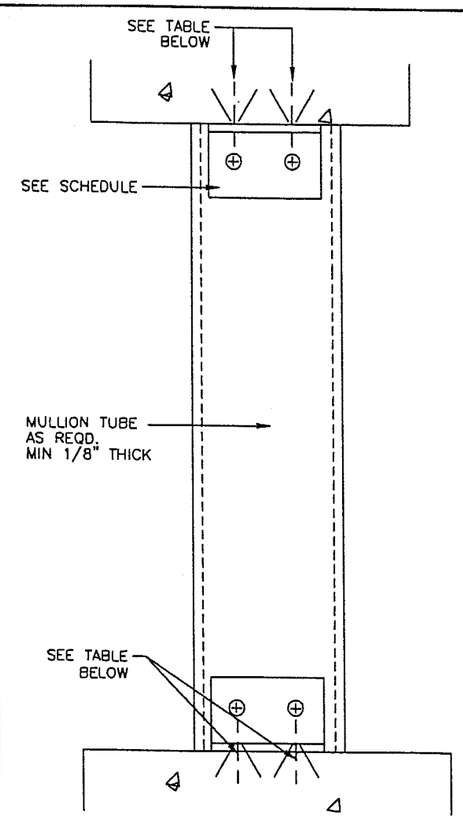
CLIP ANGLE CONNECTION NUMBER OF FASTENERS/SIDE	
MULLION SIZE	# 14 S.M.S.
2 X 2 X 1/8" 2 X 3 X 1/8"	2
2 X 4 X 1/8"	3
2 X 4 X 1/8" W/ STIFFENER	4
2 X 6 X 1/8"	5
2 X 6 X 1/8" W/ STIFFENER	6

MULLION WALL ANCHOR CAPACITY (Lbs)				
ANGLE LENGTH (IN.) 2 X 2 X 1/4"	# ANCHORS/SIDE	ANCHOR TYPE	BASE MATERIAL	CAPACITY OF CONNECTION
6.25	3	D	CONC.	2629
		E	WOOD	1140
		F	BLOCK	814
8.75	4	D	CONC.	3505
		E	WOOD	1520
		F	BLOCK	1085
11.25	5	D	CONC.	4381
		E	WOOD	1900
		F	BLOCK	1356
13.75	6	D	CONC.	5258
		E	WOOD	2280
		F	BLOCK	1628



WALL CONNECTION



SLAB CONNECTION

TOTAL LOAD ON MULLION

$P = \frac{Sh \times Sw}{4} Pd =$ Lbs (END MULLION)

$P = \frac{Sh \times Sw}{2} Pd =$ Lbs (CENTER MULLION)

LOAD AT ANCHOR

AT TOP $= Pt = \frac{P * Sb}{Sh} =$ Lbs

AT BOTTOM $= Pb = P - Pt =$ Lbs

IF Pt OR Pb > ANCHOR CAPACITY OF FASTENER SHOWN
ANCHORAGE SYSTEM SHALL BE DESIGNED ON JOB TO JOB BASIS.

MULLION CONNECTION TO FLOOR & CEILING NO. OF FASTENERS REQD. EACH SIDE					
MULLION SIZE	FASTENER TYPE	TOP		BOTTOM	
		CONC.	WOOD	CONC.	WOOD
2 X 2 X 1/8" 2 X 3 X 1/8"	A	1	–	1	–
	B	3	–	2	–
	C	2	–	1	–
	E	–	2	–	2
2 X 4 X 1/8"	A	2	–	2	–
	B	6	–	4	–
	C	3	–	2	–
	E	–	4	–	3
2 X 4 X 1/8" W/ STIFFENER	1/2" ø KWIK BOLT	1	–	1	–
2 X 6 X 1/8" 2 X 6 X 1/8" W/ STIFFENER	1/2" ø KWIK BOLT	2	–	1	–

ANCHOR DESCRIPTION

ANCHOR (A) = 1/4" TAPCON 1-3/4" EMBEDMENT TO CONCRETE
1-1/4" EMBEDMENT TO BLOCK

ANCHOR (B) = #14 S.M.S. W/ RAWL SCRU-LEAD INTO CONCRETE
1-1/2" EMBEDMENT

ANCHOR (C) = 1/4" x 1-1/4" HILTI METAL HIT ANCHORS
1" EMBEDMENT TO CONCRETE OR BLOCK

ANCHOR (D) = 1/4" RAWL CALK-IN, TOTAL ANCHOR BODY INTO CONC.

ANCHOR (E) = #14 S.M.S. INTO WOOD, 1-1/2" MIN. EMBEDMENT

ANCHOR (F) = 1/4" X 1-1/2" PIN GRIP
1/2" MIN. EMBEDMENT TO CONCRETE OR BLOCK

NOTE: ANCHORS, USE FULL EMBEDMENT IN CONCRETE BEYOND THE COVERING (STUCCO, TILES, ETC.)

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

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BUILDING CODE COMPLIANCE OFFICE

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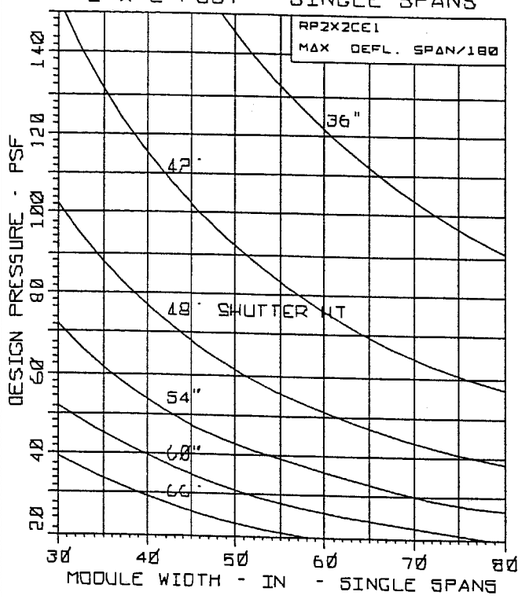
sheet 7 of 21

2 × 2 POST - SINGLE SPANS



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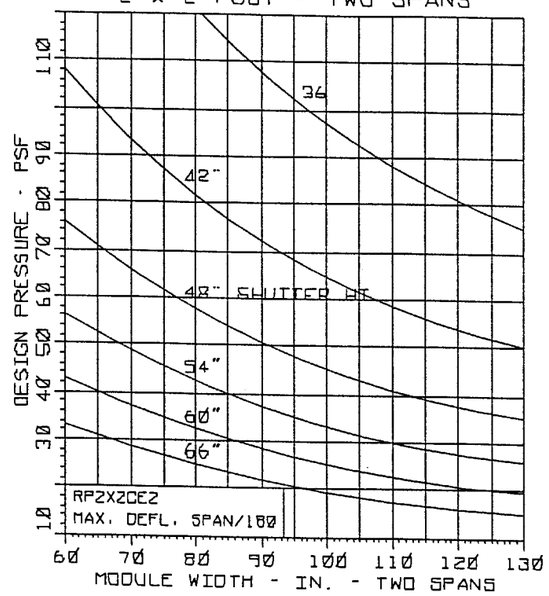

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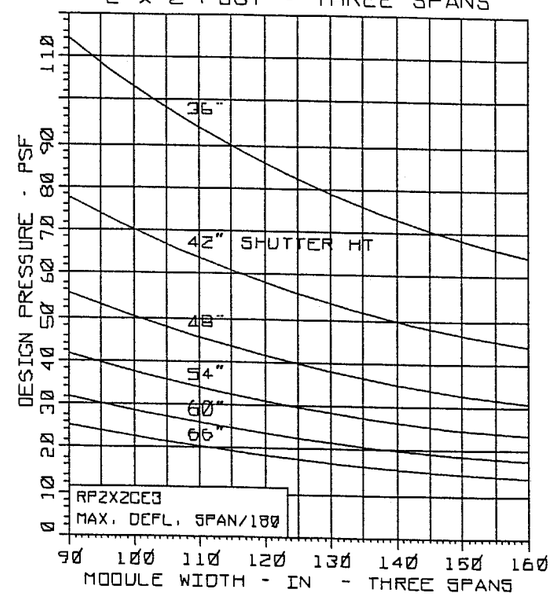

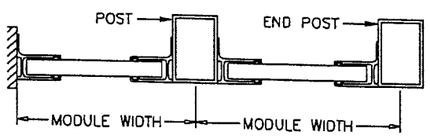

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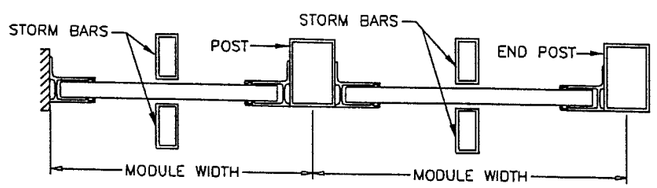

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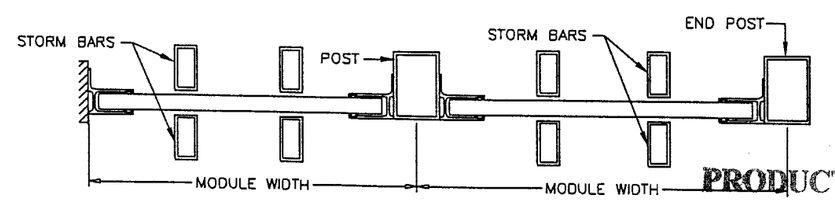

THREE SPANS

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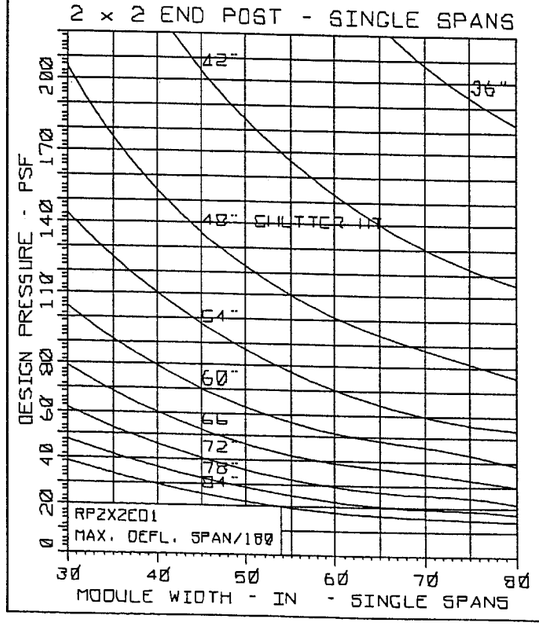

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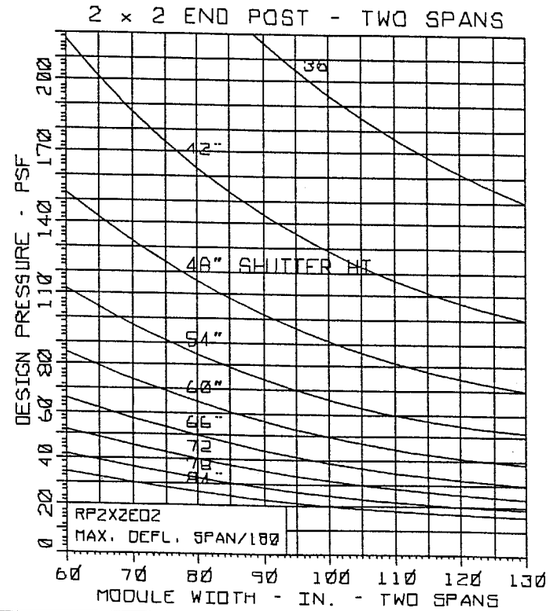

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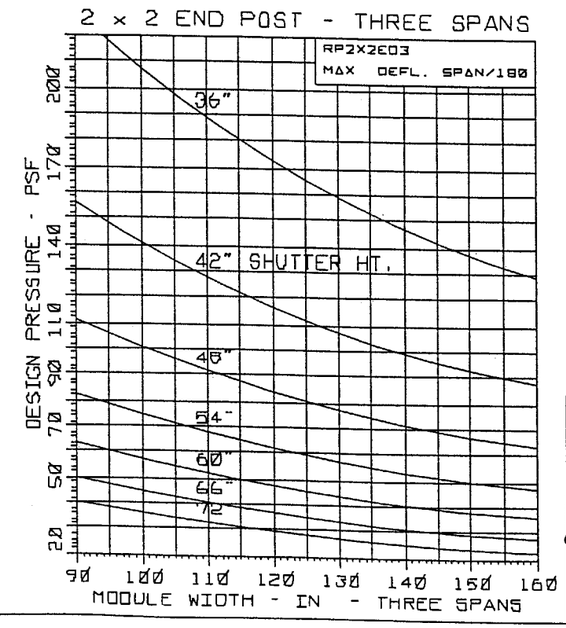

PRODUCT RENEWED

ACCEPTANCE No. 00-0609.08

EXPIRATION DATE 09/25/2003

By Manuel Perez

PRODUCT CONTROL DIVISION

BUILDING CODE COMPLIANCE OFFICE

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE

DATE SEPTEMBER 25 19 97

BY Manuel Perez

PRODUCT CONTROL DIVISION

BUILDING CODE COMPLIANCE OFFICE

ACCEPTANCE NO. 97-0826.05

Engr: DR. HUMAYOUN FAROOQ
STRUCTURES
FLA. PE # 16557

MAY 1 8 2000

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
1235 SW 87 AVE
MIAMI, FLORIDA 33174
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ROLLUP\94-55-10

POST LOADING CHARTS

ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

revisions:

no	date	by	description
A	10.30.94	T.H.	GENERAL REVISION
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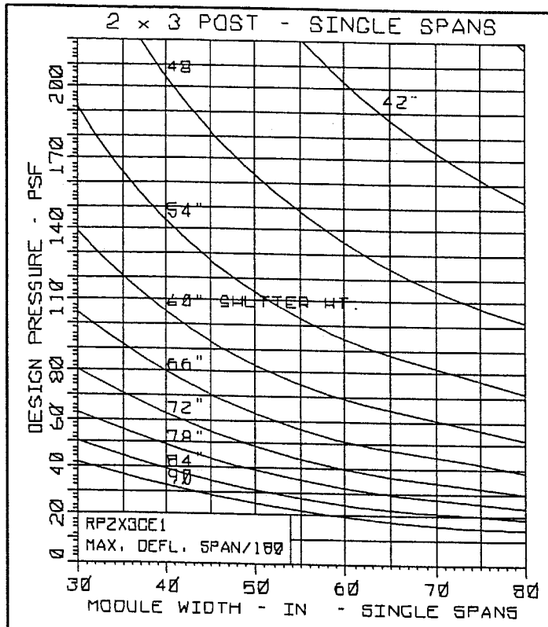
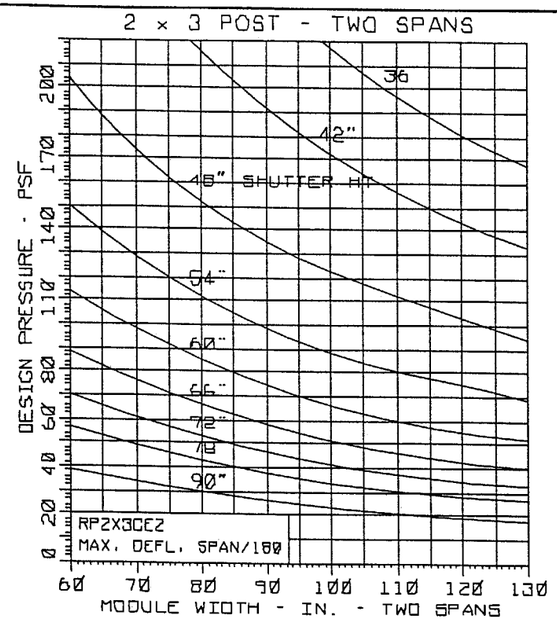
D	07.02.95	T.H.	SHEET 3 REVISED

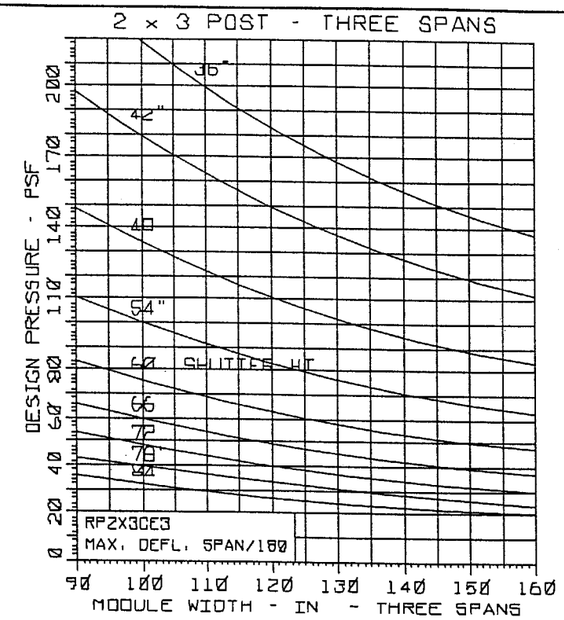
date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

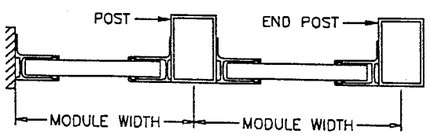
drawing no. 94-55

sheet 8 of 21









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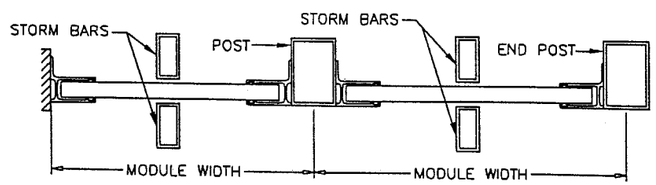

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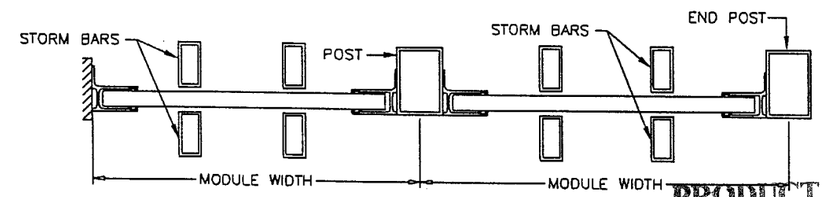

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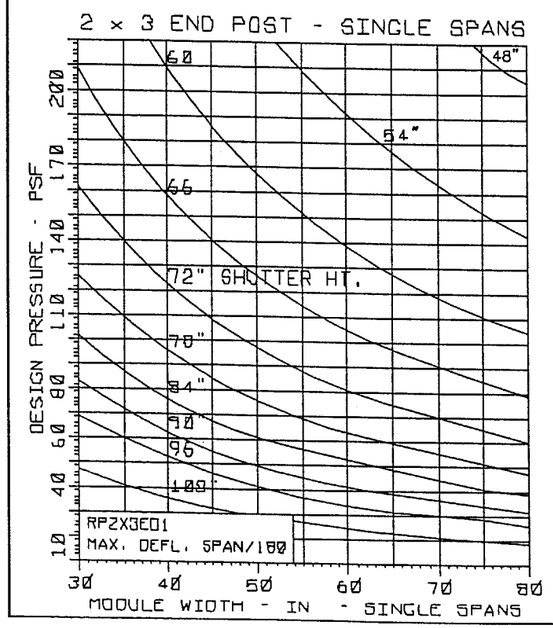

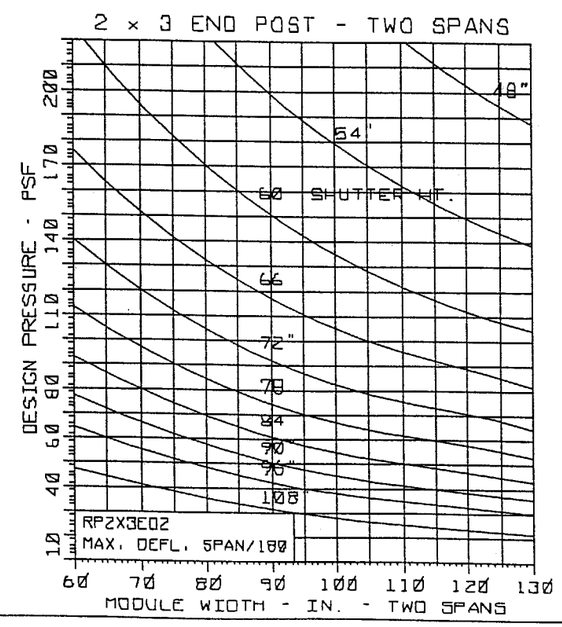

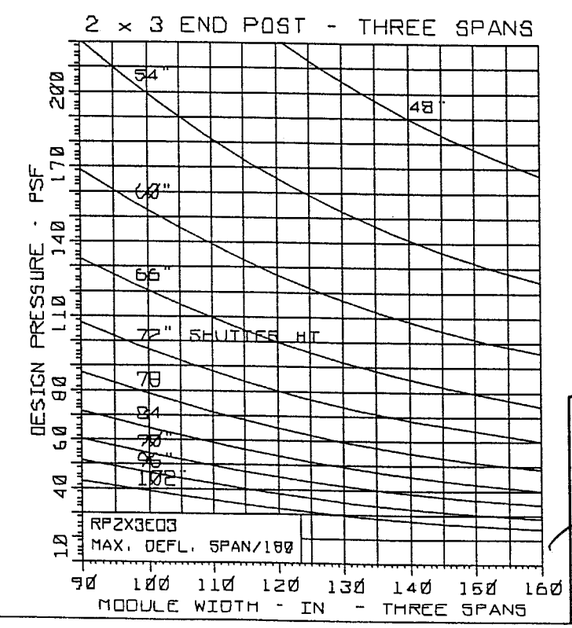

PRODUCT RENEWED

ACCEPTANCE No. 00-0609.08

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By [signature]

PRODUCT CONTROL DIVISION

~~BUILDING CODE COMPLIANCE OFFICE~~

~~APPROVED AS COMPLYING WITH THE~~

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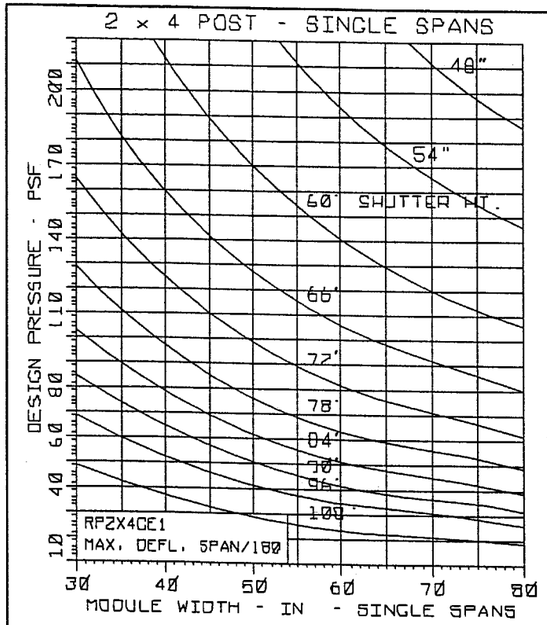

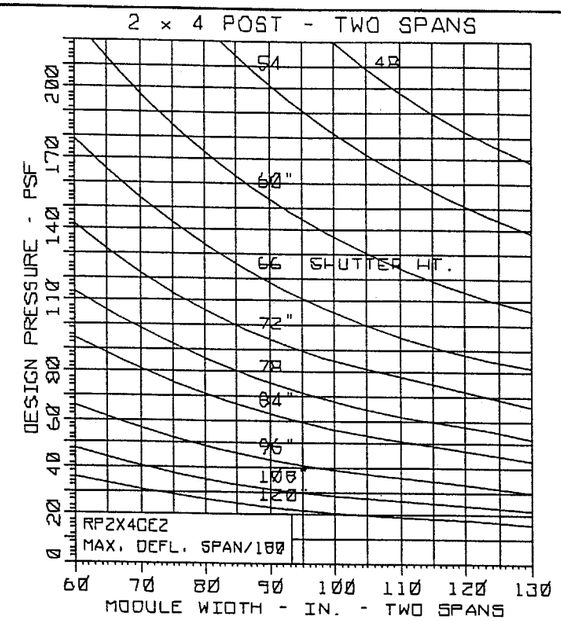

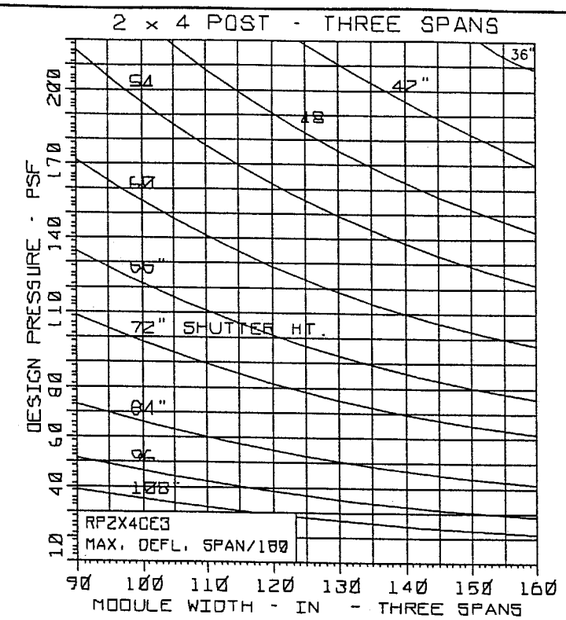

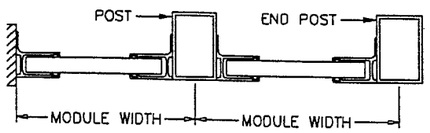

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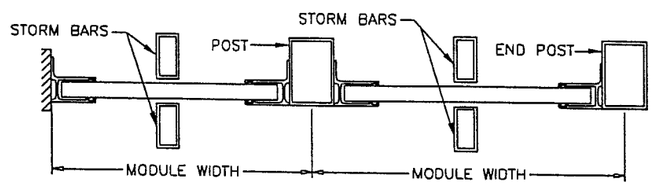

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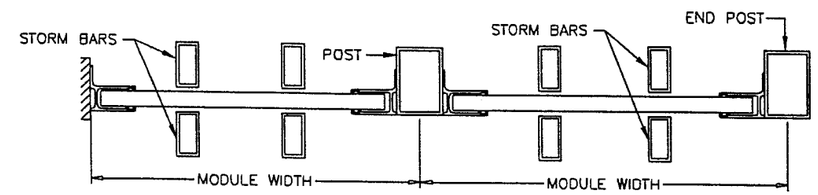

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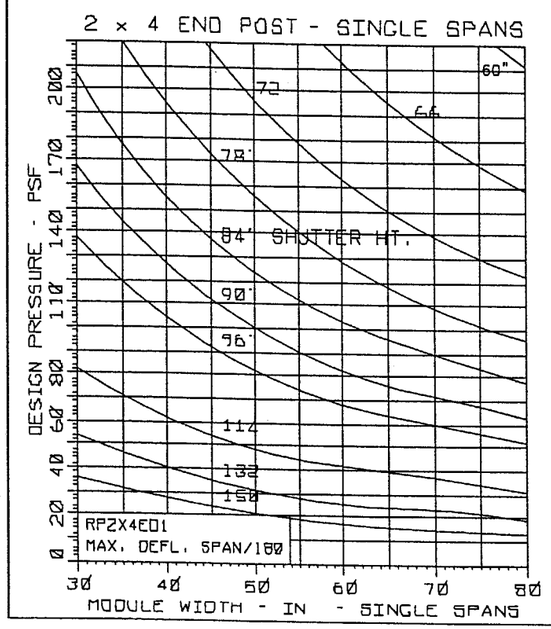

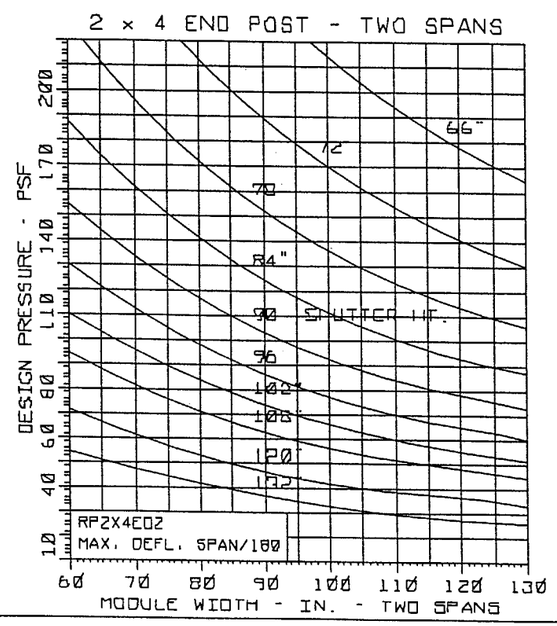

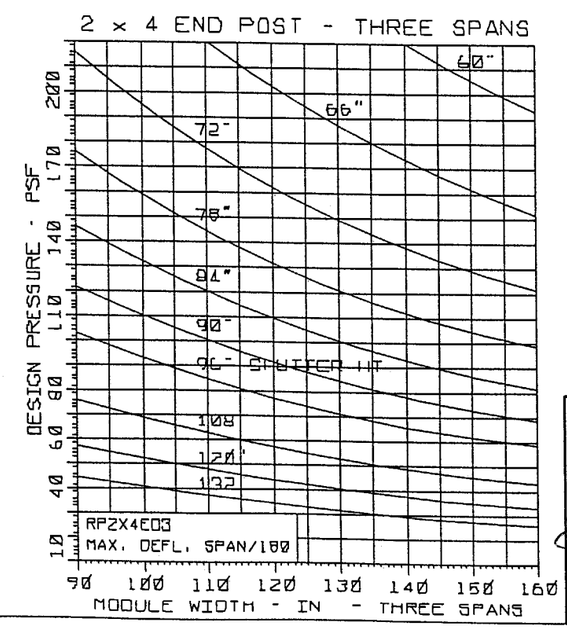

PRODUCT RENEWED

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EXPIRATION DATE 09/25/2003

By Manuel Cruz

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BUILDING CODE COMPLIANCE OFFICE

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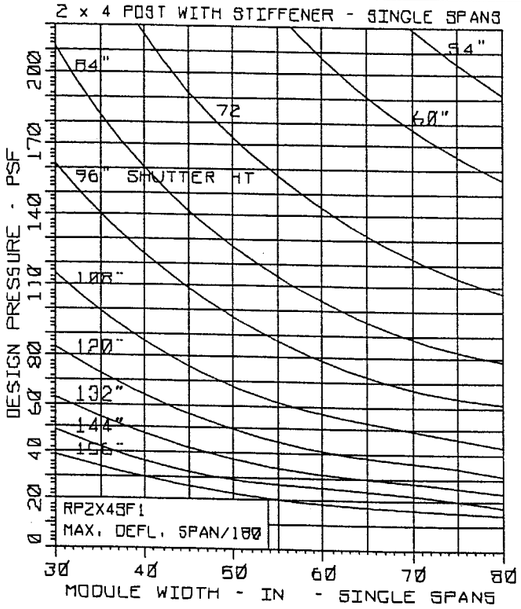

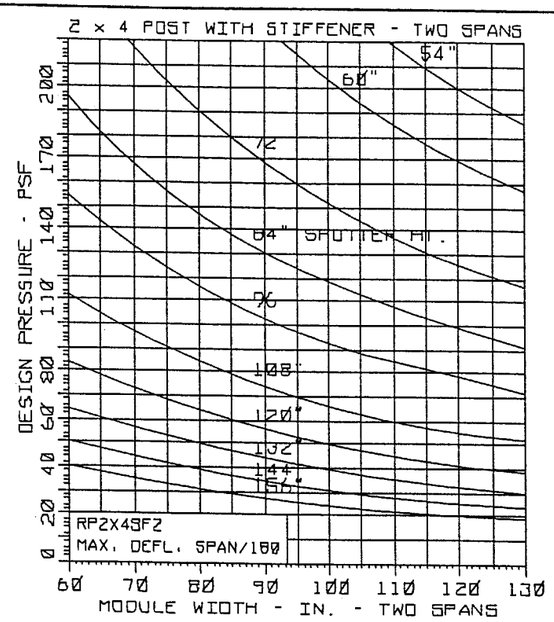

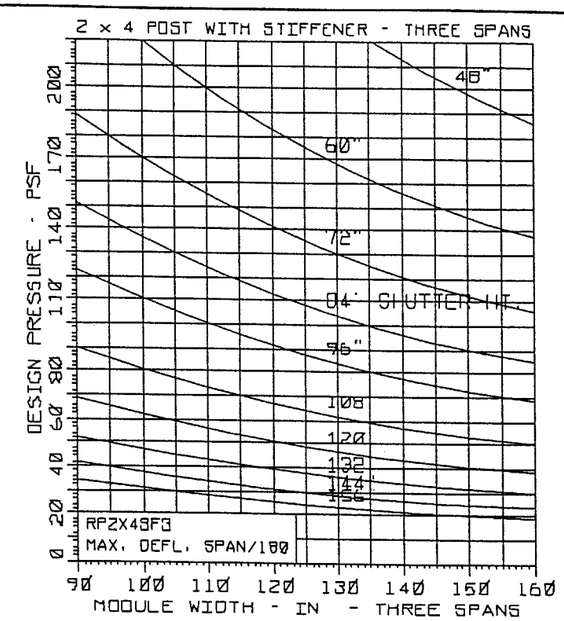

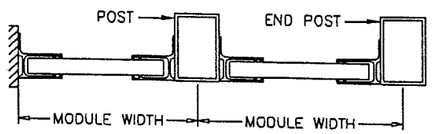

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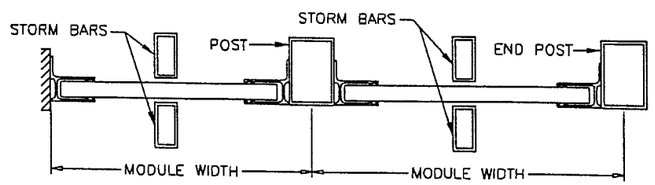

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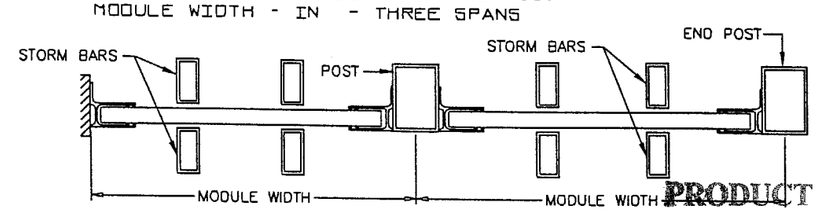

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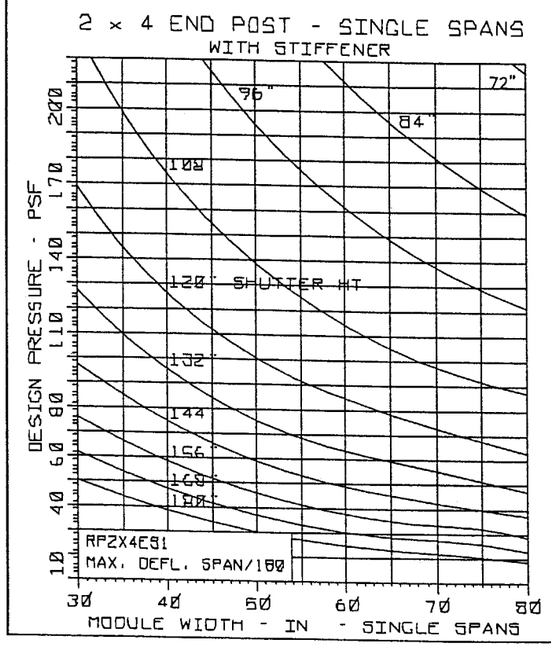

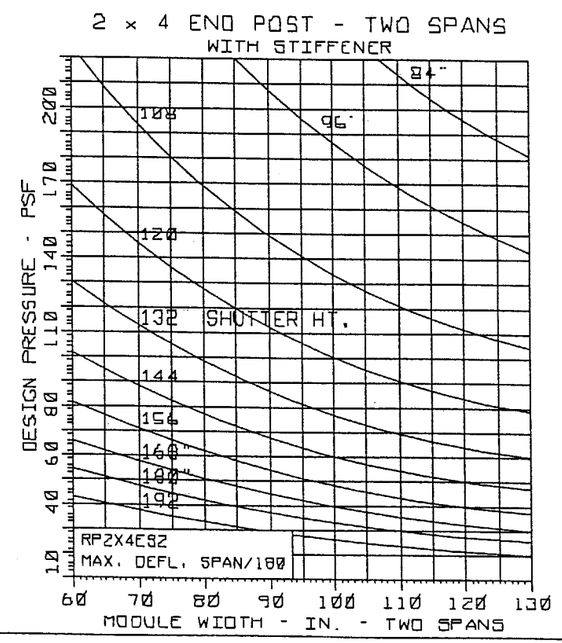

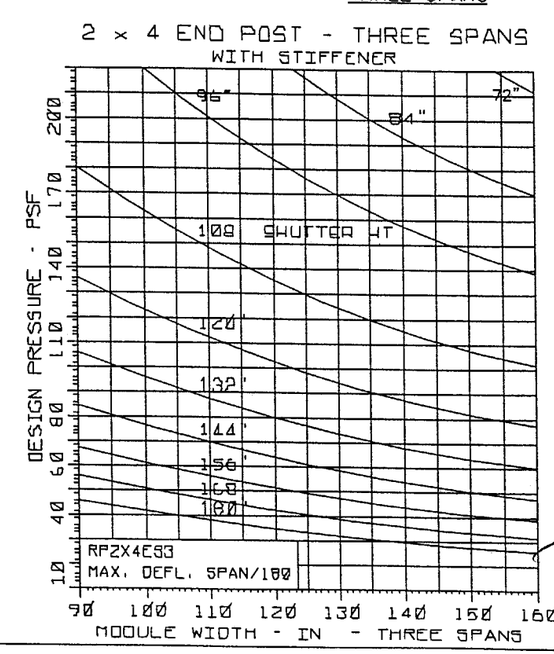

PRODUCT RENEWED

ACCEPTANCE No. 00-0609.08

EXPIRATION DATE 09/25/2003

By Manuel Serra

PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE

DATE SEPTEMBER 25 19 97

BY Manuel Serra

PRODUCT CONTROL DIVISION

BUILDING CODE COMPLIANCE OFFICE

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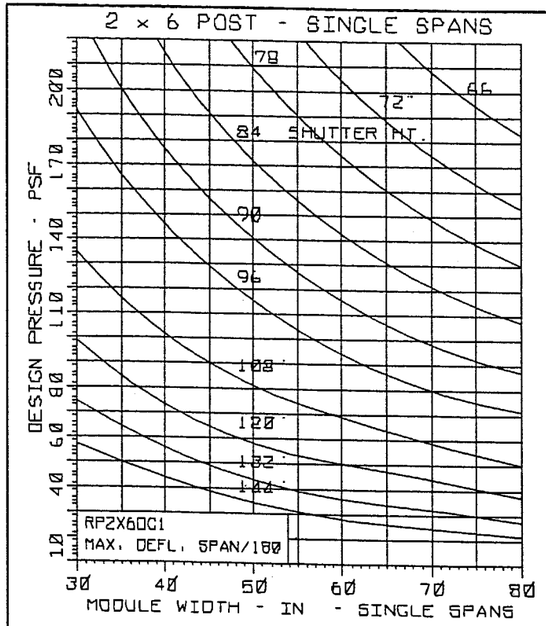

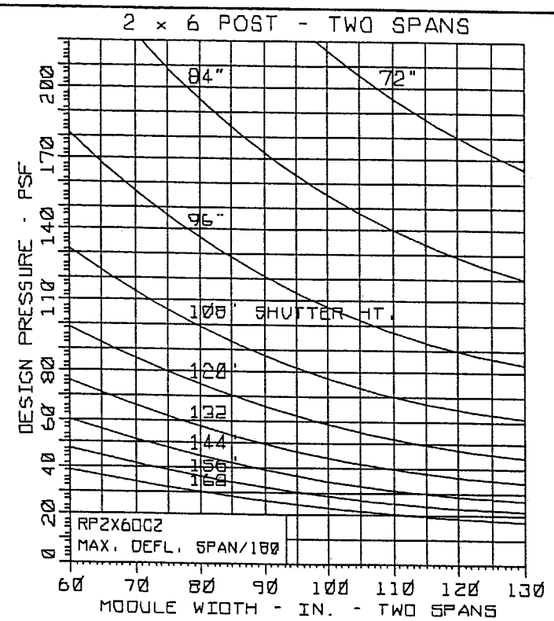

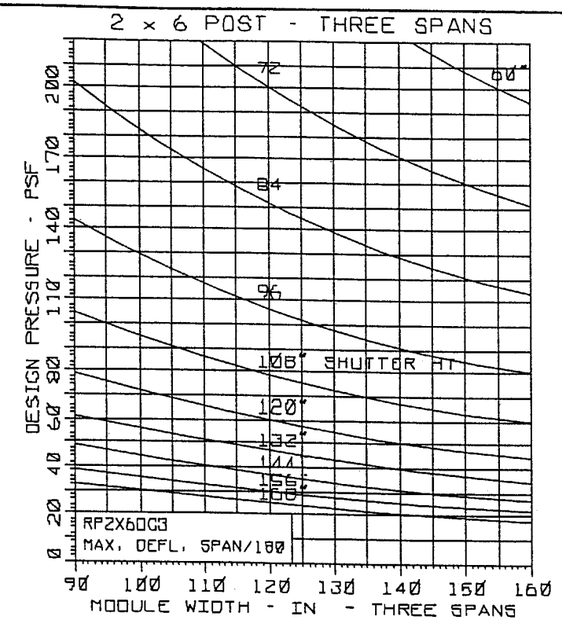

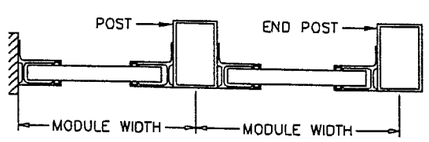

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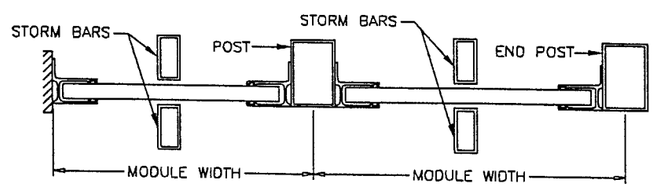

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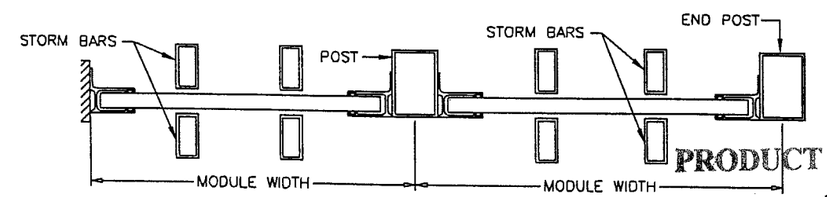

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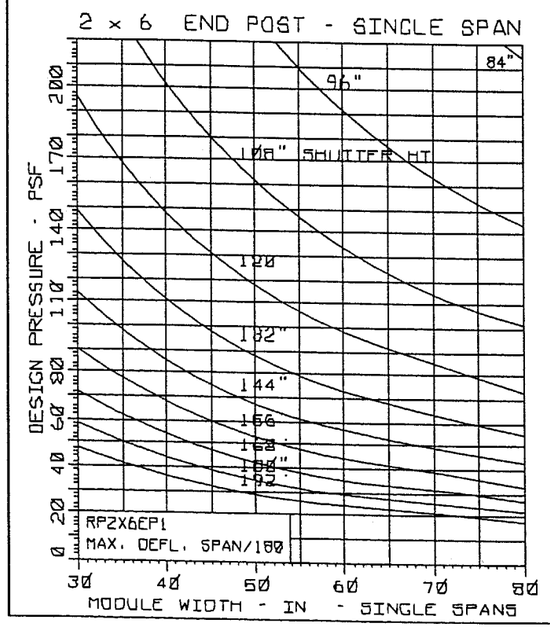

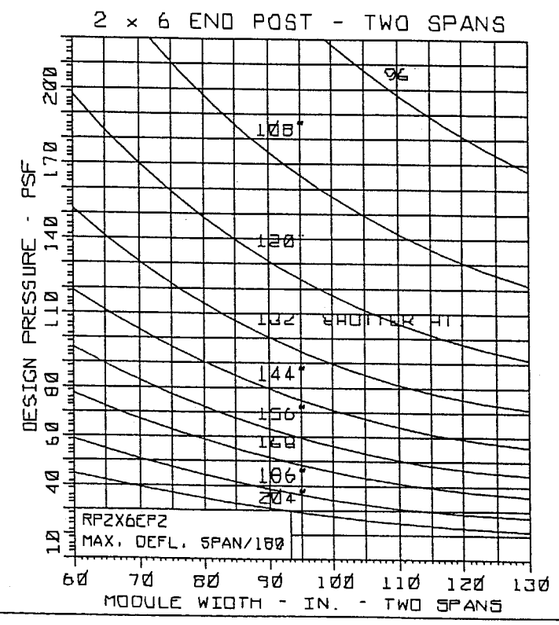

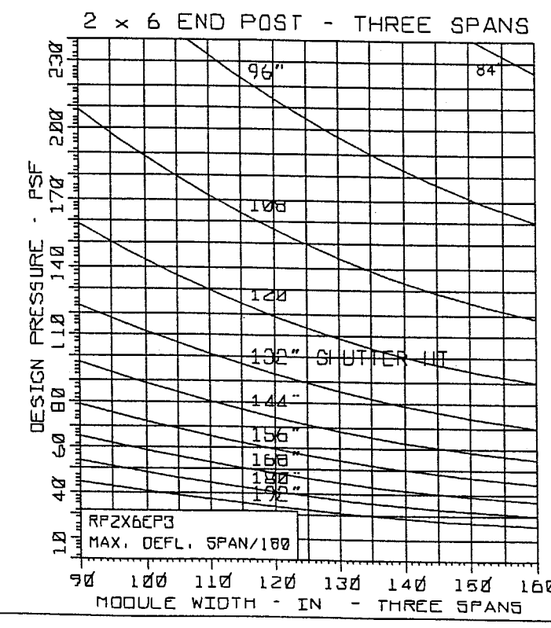

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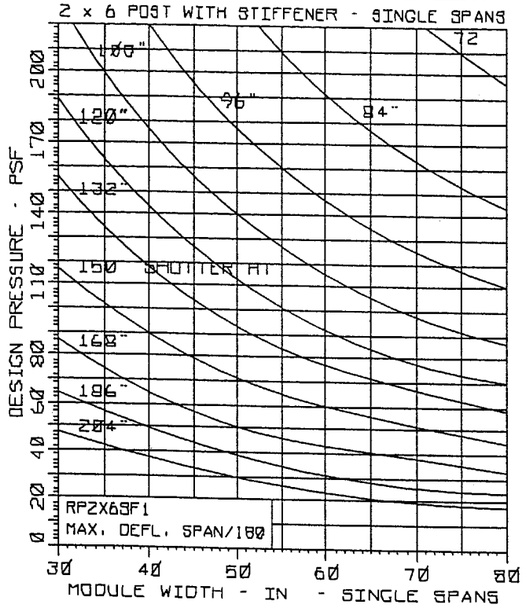
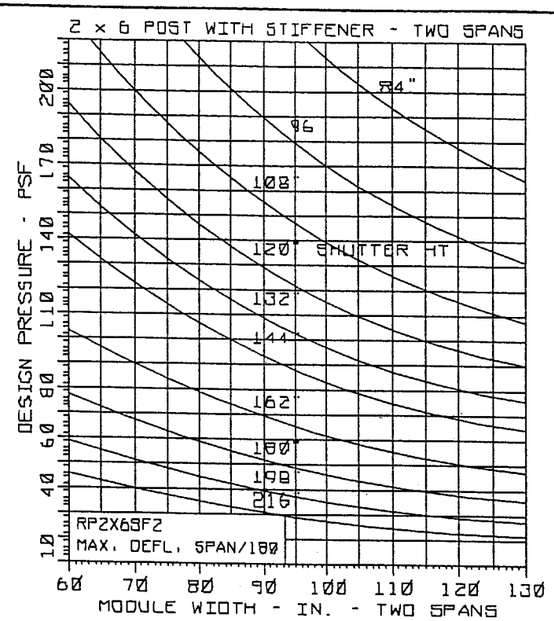
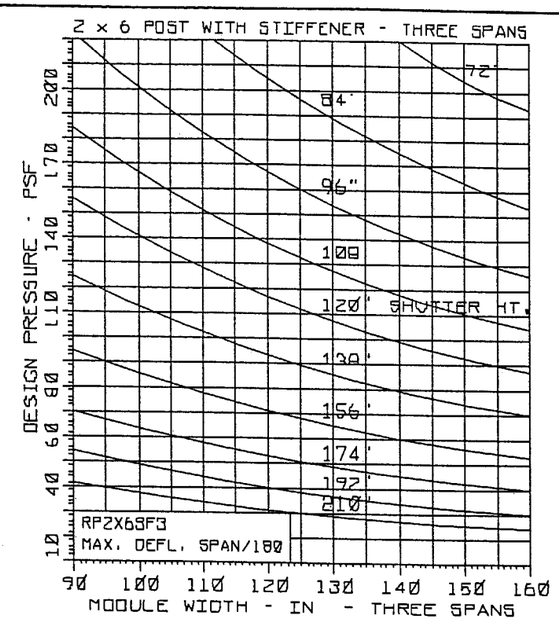
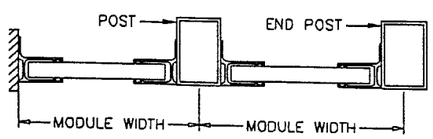
drawing no. 94-55

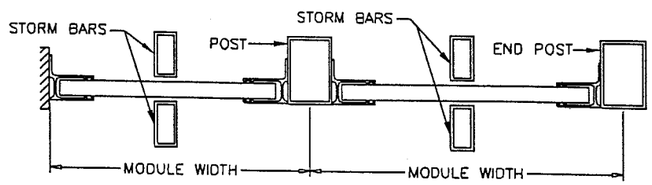




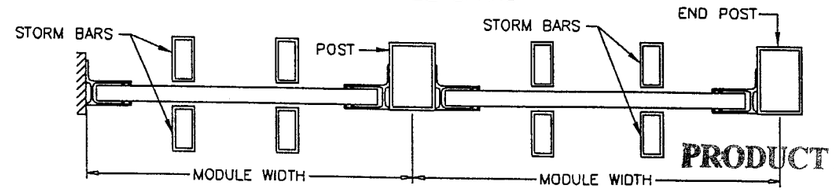




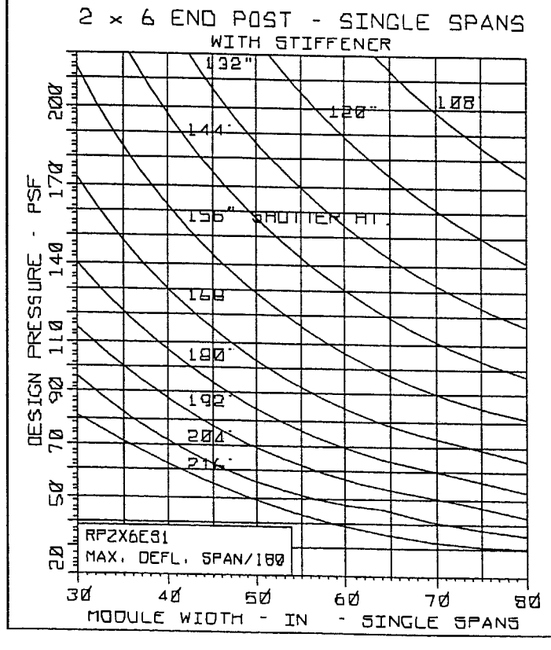
SINGLE SPANS

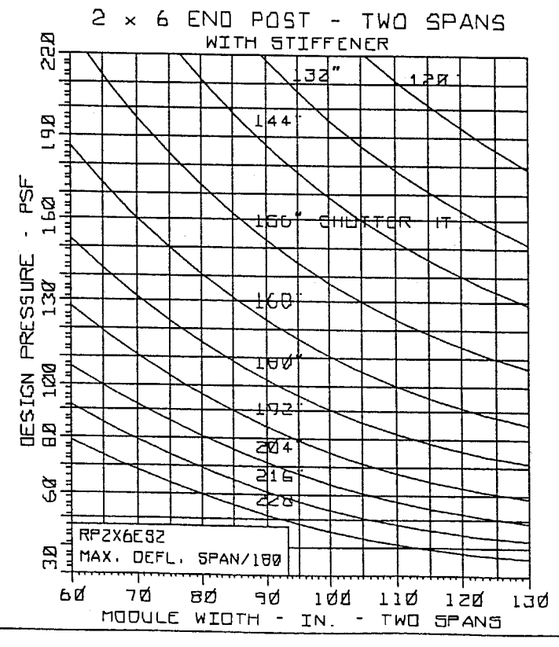


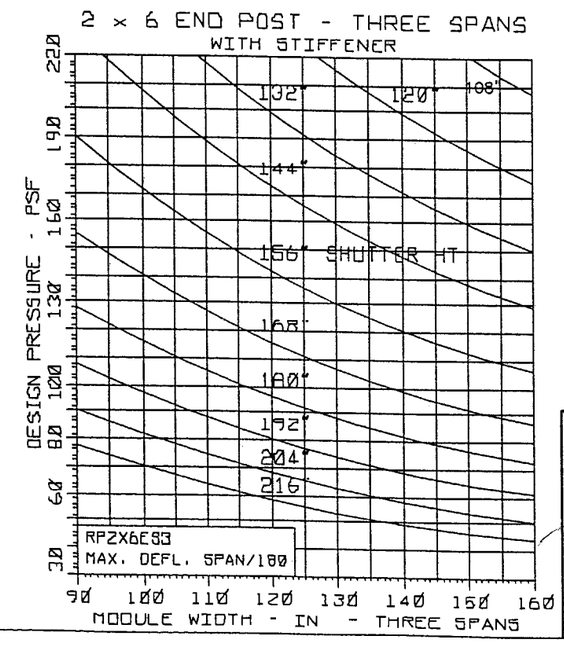
TWO SPANS



THREE SPANS







PRODUCT RENEWED
ACCEPTANCE No. 00-0609.08
EXPIRATION DATE 09/25/2003
By
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE SEPTEMBER 25, 1997
BY
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 97-0826.05

Engr: DR. HUMAYOUN FAROOQ
STRUCTURES
FLA. PE # 16557

MAY 1 8 2000

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
1235 SW 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
ROLLUP\94-55-15

POST LOADING CHARTS

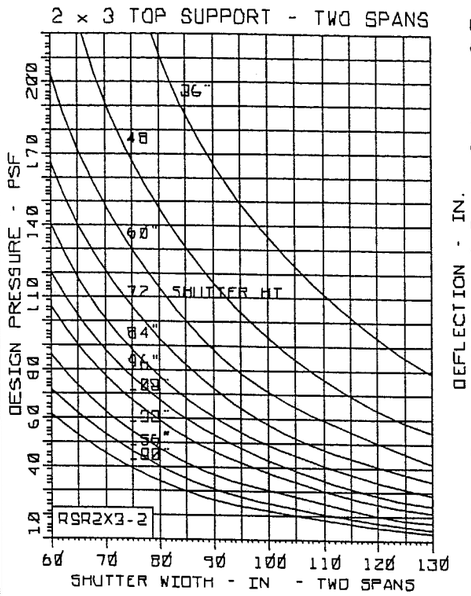
ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

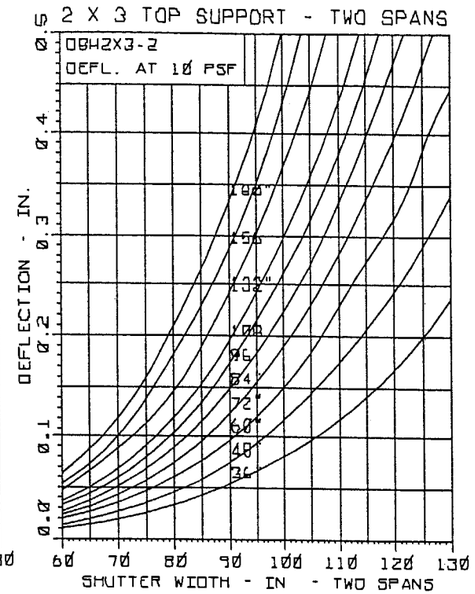
revisions:

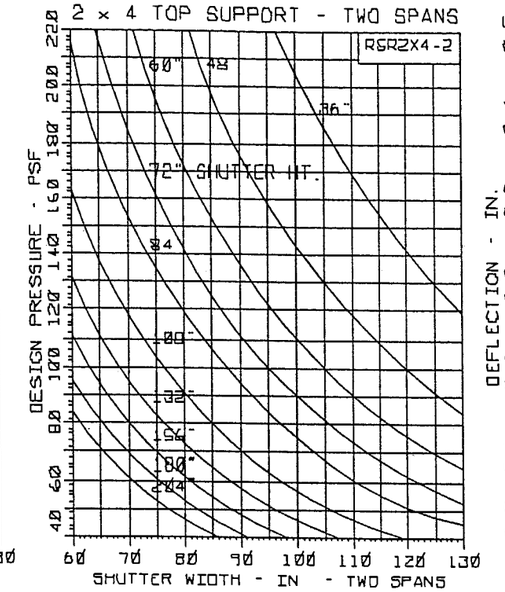
no	date	by	description
A	10.30.94	T.H.	GENERAL REVISION
B	11.12.94	T.H.	GENERAL REVISION
C	02.02.95	T.H.	GENERAL REVISION
D	07.02.95	T.H.	SHEET 3 REVISED

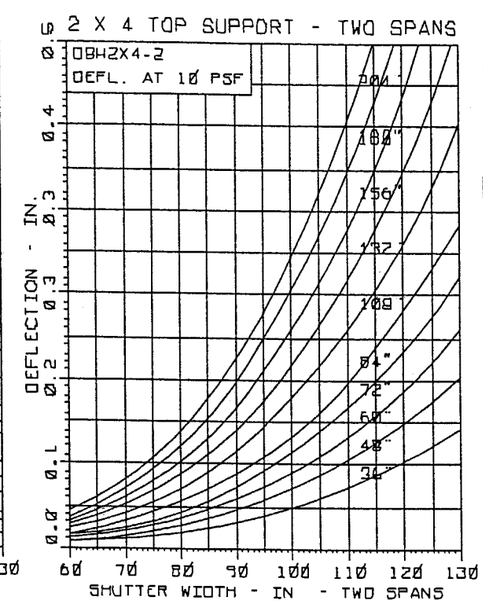
date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

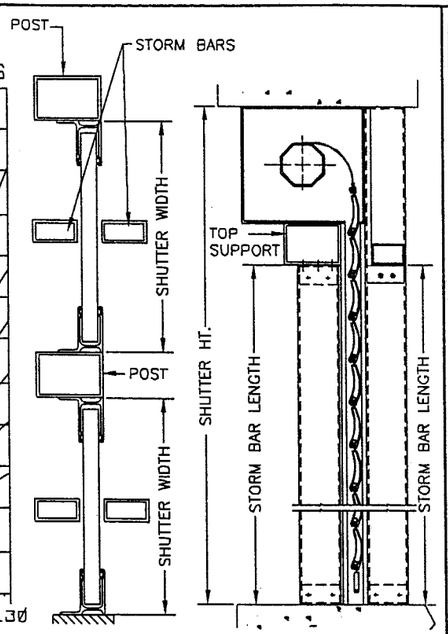
drawing no. 94-55











TWO SPANS

PRODUCT RENEWED

ACCEPTANCE No. 00-0609.08

EXPIRATION DATE 09/25/2003

By Manuel Perez

PRODUCT CONTROL DIVISION

BUILDING CODE COMPLIANCE OFFICE

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE

DATE SEPTEMBER 25, 1997

BY Manuel Perez

PRODUCT CONTROL DIVISION

BUILDING CODE COMPLIANCE OFFICE

ACCEPTANCE NO. 97-0826.05

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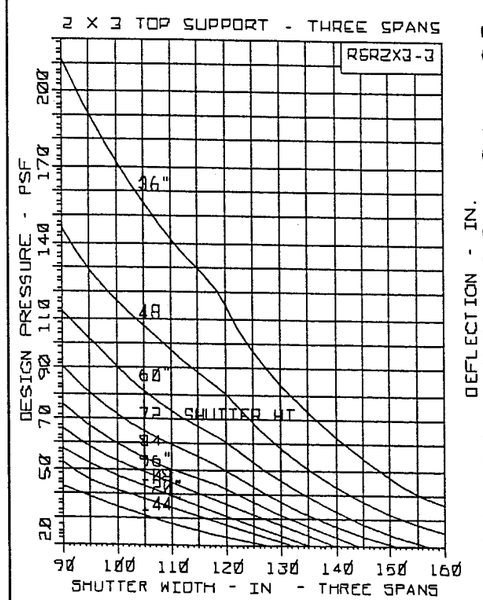

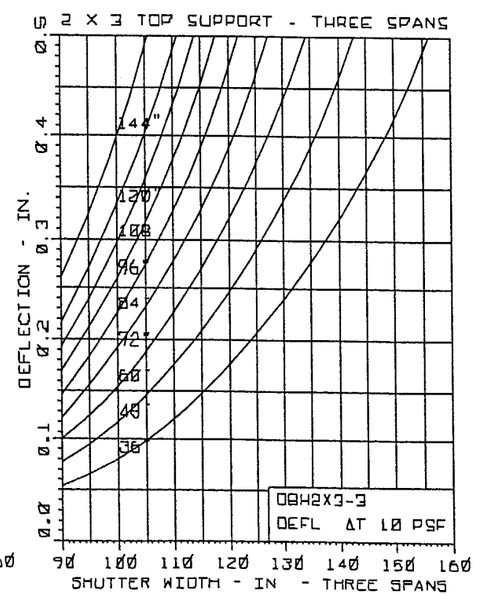

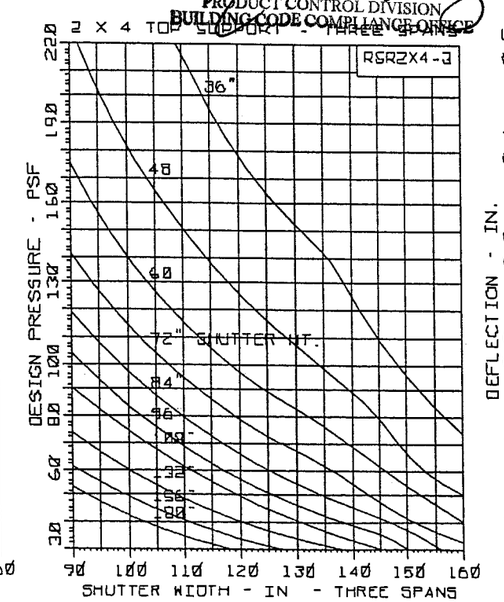

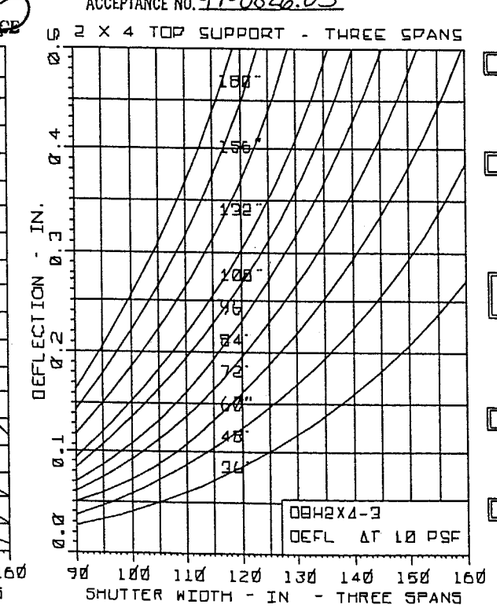

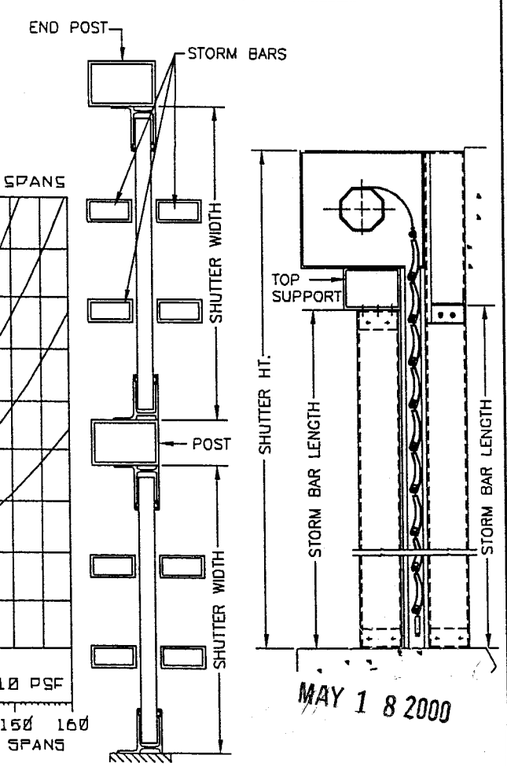

THREE SPANS

MAY 1 8 2000

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
1235 SW 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
Engr: DR. H. FAROOQ PE # 16557 ROLLUP\94-55-15

TOP SUPPORT LOADING CHARTS

ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

revisions:

no	date	by	description
A	10.30.94	T.H.	GENERAL REVISION
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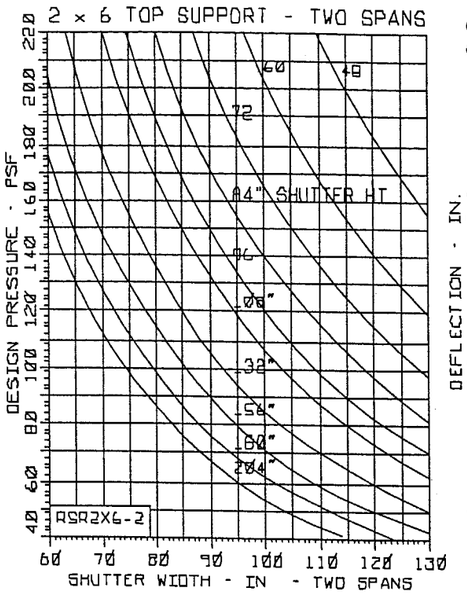
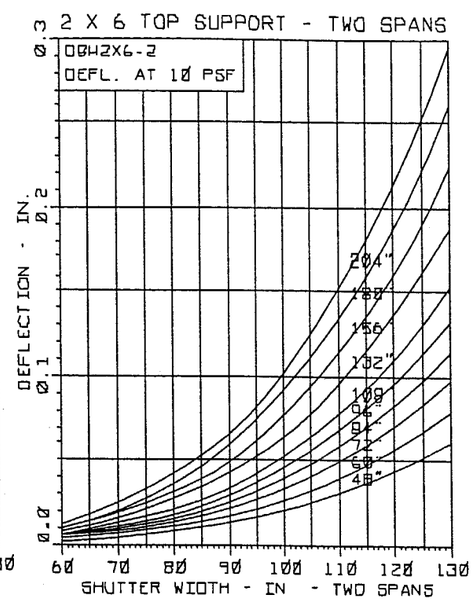
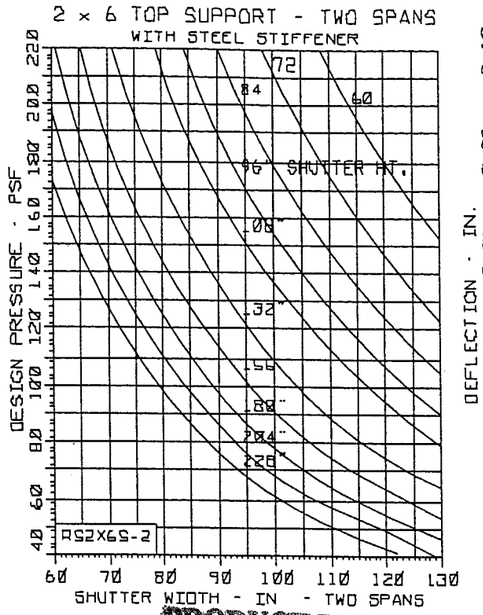
C	02.02.95	T.H.	GENERAL REVISION
D	07.02.95	T.H.	SHEET 3 REVISED

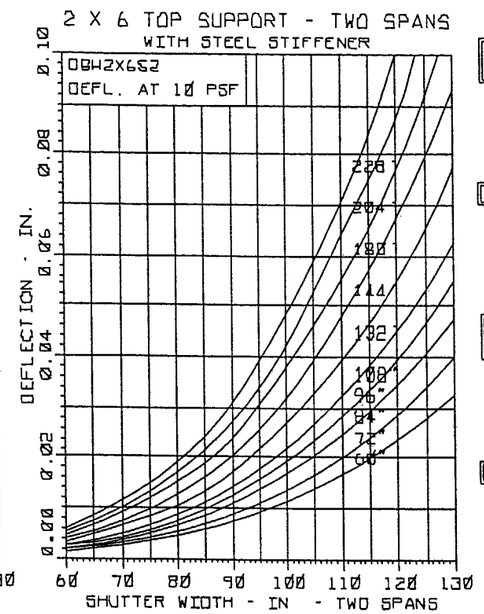
date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

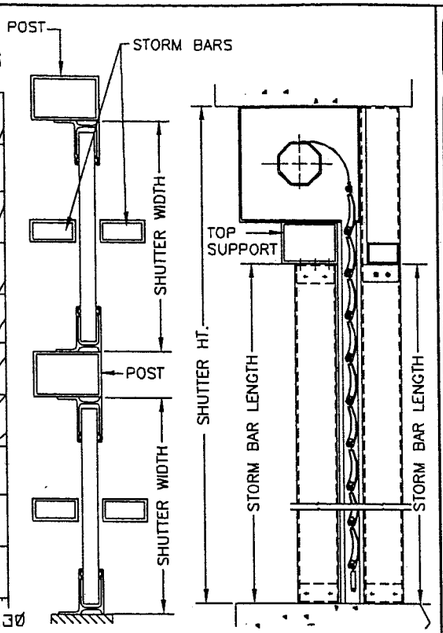
drawing no. 94-55









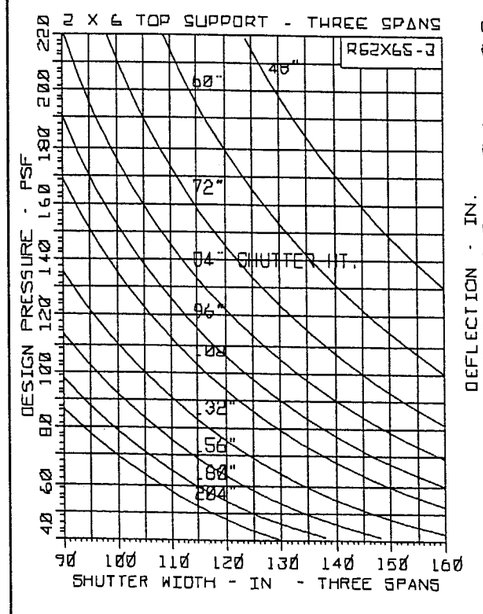


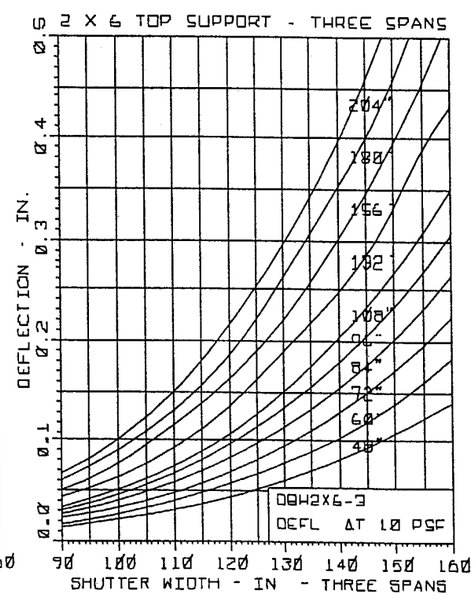
TWO SPANS

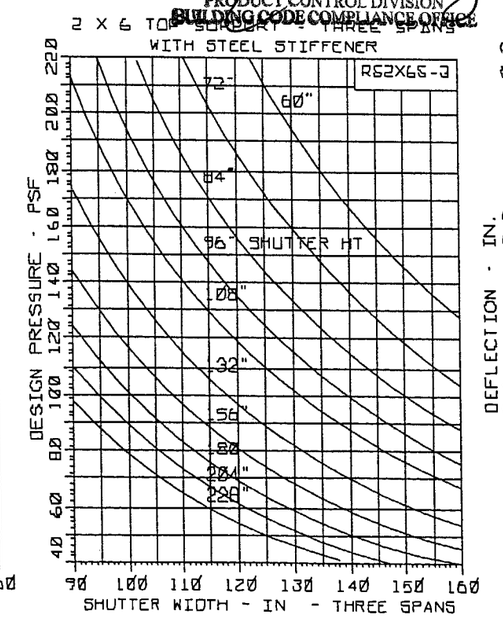
THE CURVES ON THESE GRAPHS SHOW SHUTTER HEIGHT
SEE SKETCH FOR REFERENCE
FOR CONNECTION OF HEADER TO MULLION SEE SHEET 5 OF 21.

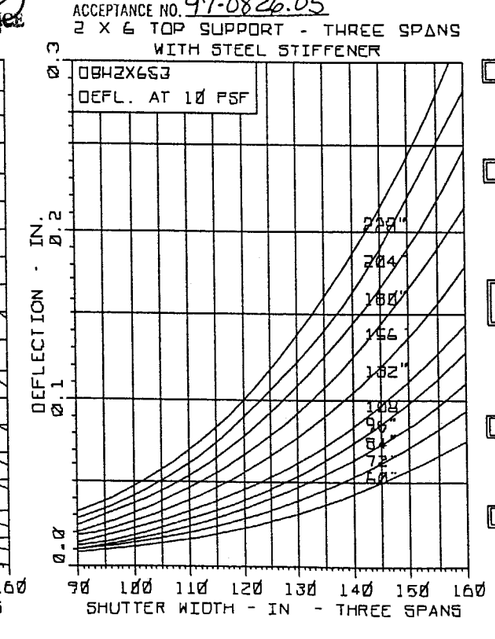
PRODUCT RENEWED
ACCEPTANCE No. 00-0609.08
EXPIRATION DATE 09/25/2003
By Manuel Seroz
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE

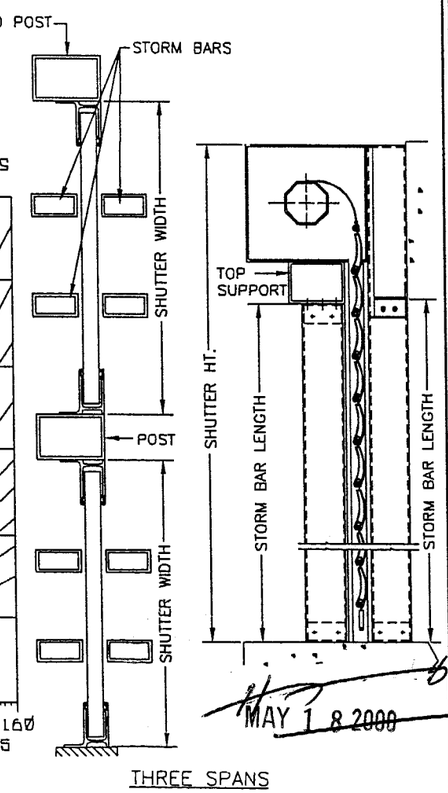
APPROVED AS COMPLYING WITH THE
SOUTH FLORIDA BUILDING CODE
DATE SEPTEMBER 25, 1997
BY Manuel Seroz
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 97-0826.05











THREE SPANS

MAY 1 8 2000

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
1235 SW 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
Engr: DR. H. FAROOQ PE # 16557 ROLLUP\94-55-15

TOP SUPPORT LOADING CHARTS

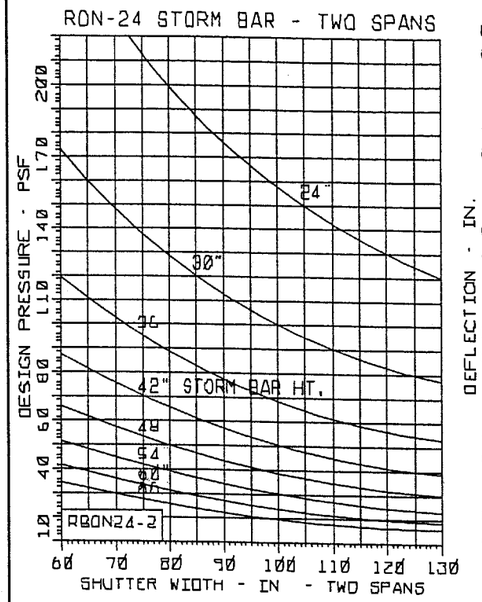
ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

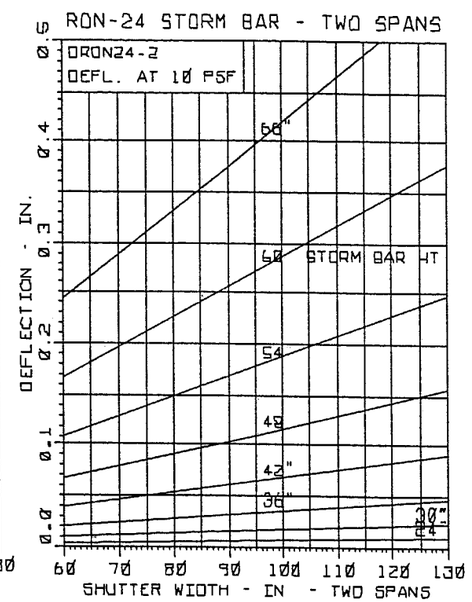
revisions:

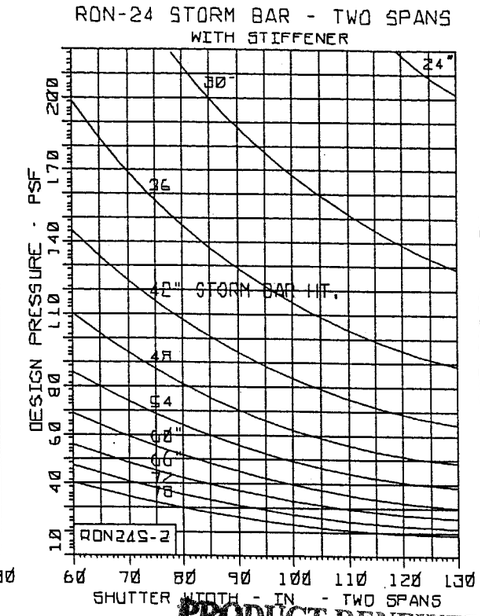
no	date	by	description
A	10.30.94	T.H.	GENERAL REVISION
B	11.12.94	T.H.	GENERAL REVISION
C	02.02.95	T.H.	GENERAL REVISION
D	07.02.95	T.H.	SHEET 3 REVISED

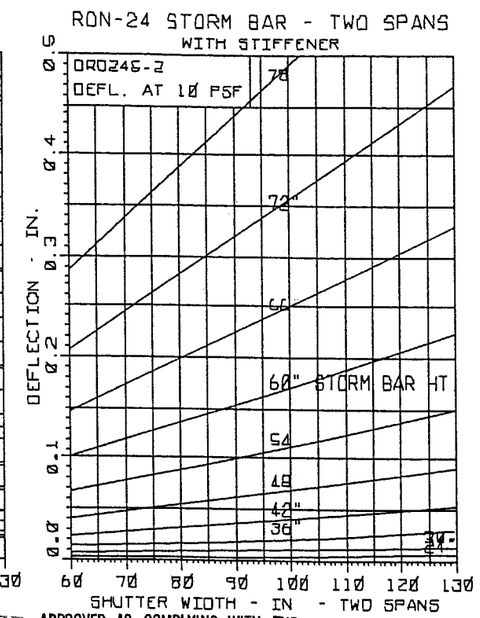
date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

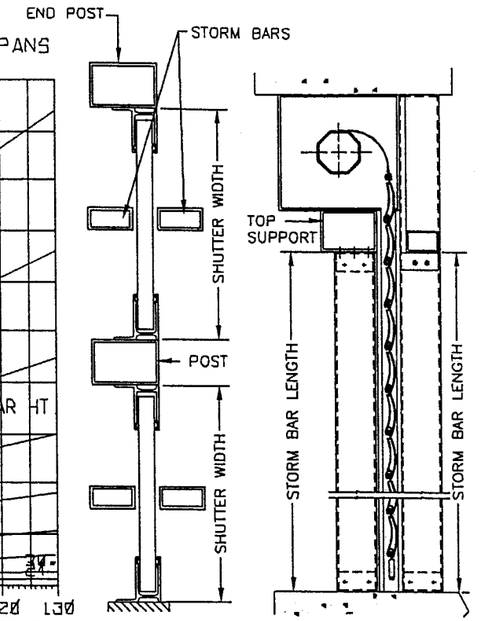
drawing no. 94-55









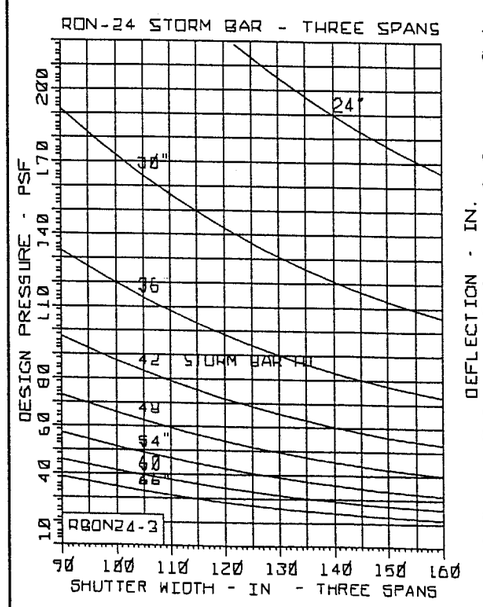


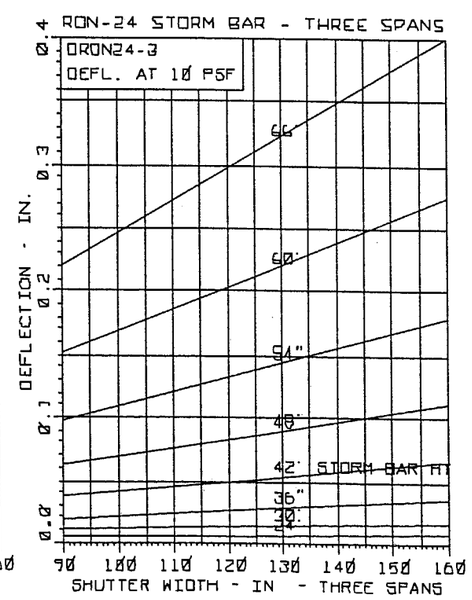
TWO SPANS

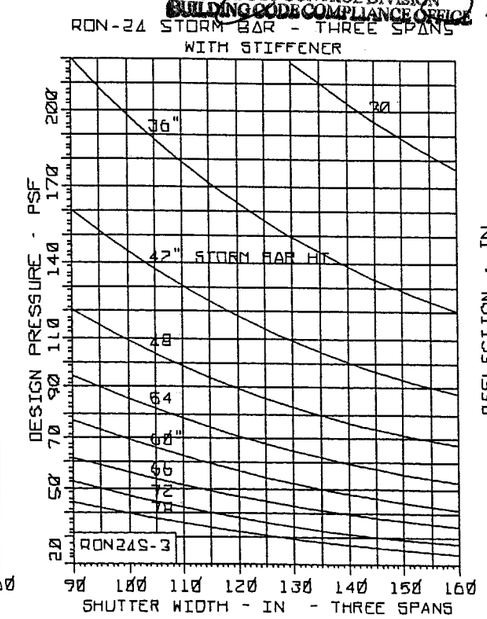
THE CURVES ON THESE GRAPHS SHOW STORM BAR LENGTHS
SEE SKETCH FOR REFERENCE

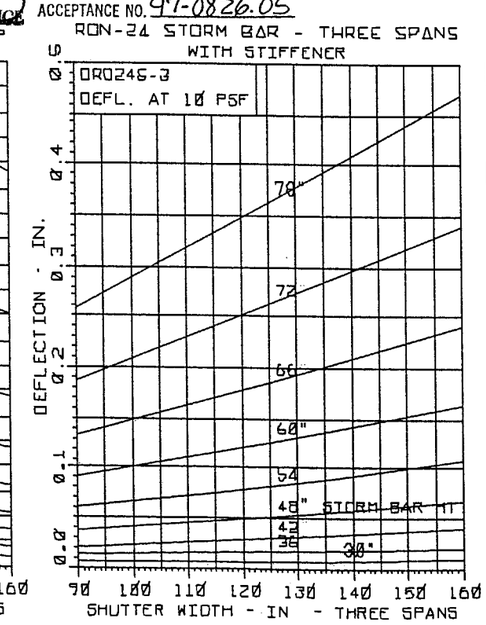
PRODUCT RENEWED
ACCEPTANCE No. 00-0609.08
EXPIRATION DATE 09/25/2003
By Manuel Sirez
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE

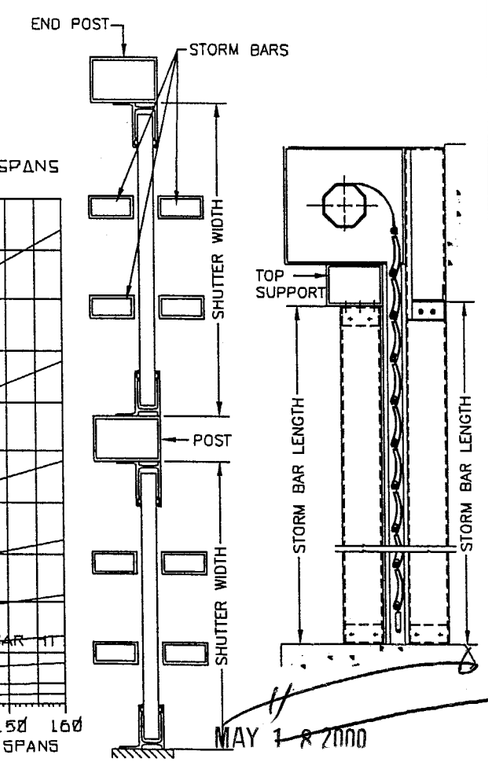
APPROVED AS COMPLYING WITH THE
SOUTH FLORIDA BUILDING CODE
DATE SEPTEMBER 25, 1997
BY Manuel Sirez
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 97-0826.05











THREE SPANS

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MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
Engr: DR. H. FAROOQ PE # 16557 ROLLUP\94-55-20

STORM BAR LOADING CHARTS

ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

revisions:

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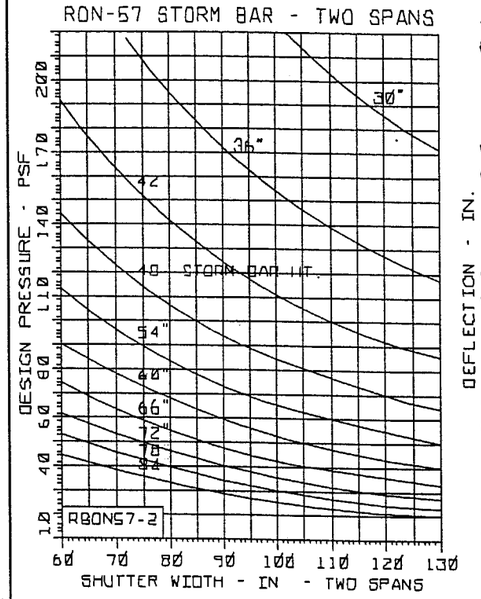
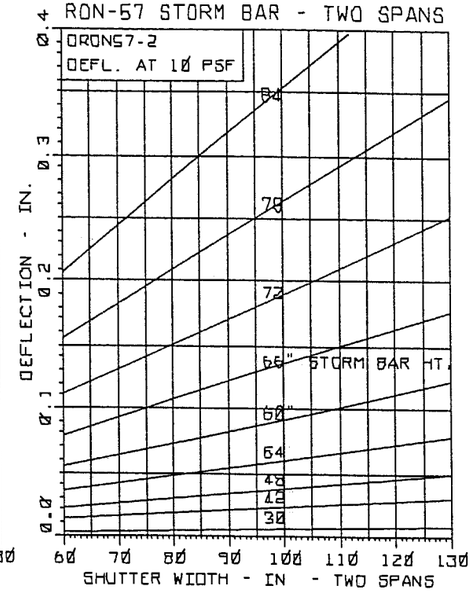
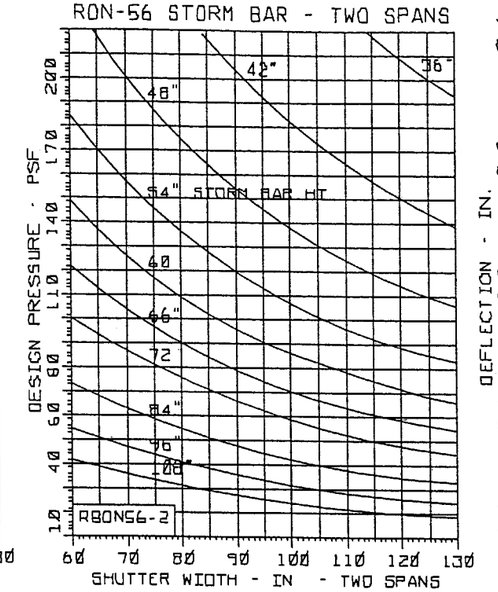
chk. by:

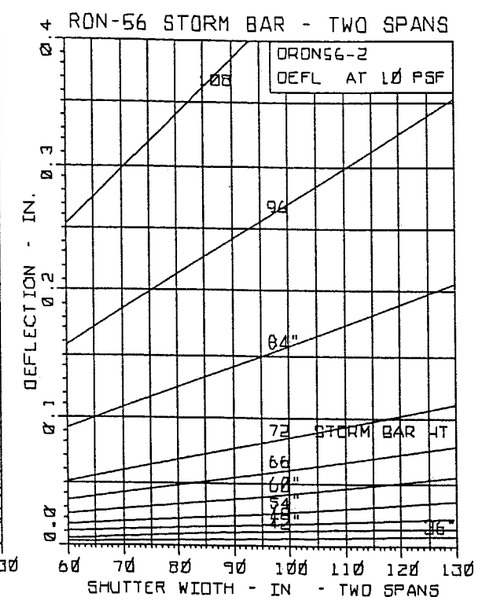
drawing no.
94-55

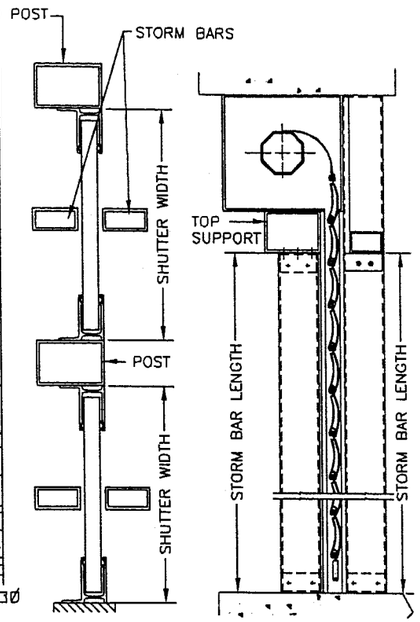
sheet 16 of 21











TWO SPANS

PRODUCT RENEWED

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE SEPTEMBER 25, 1997
BY Manuel Perez
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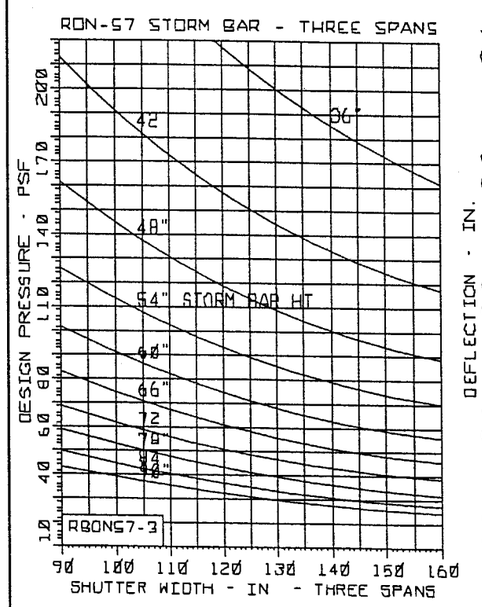
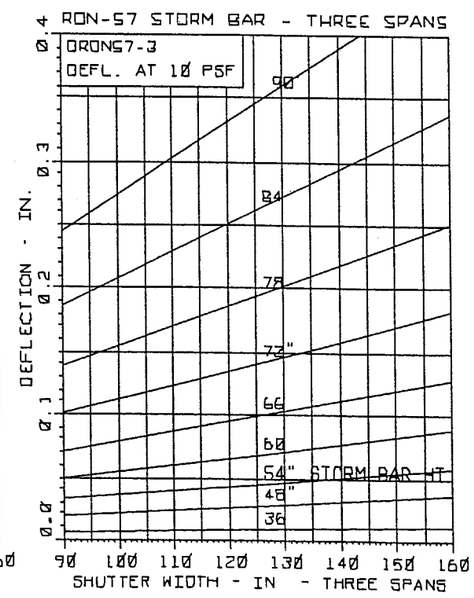
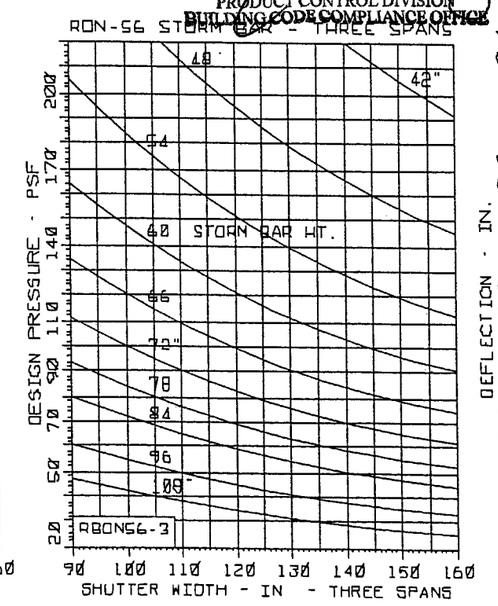
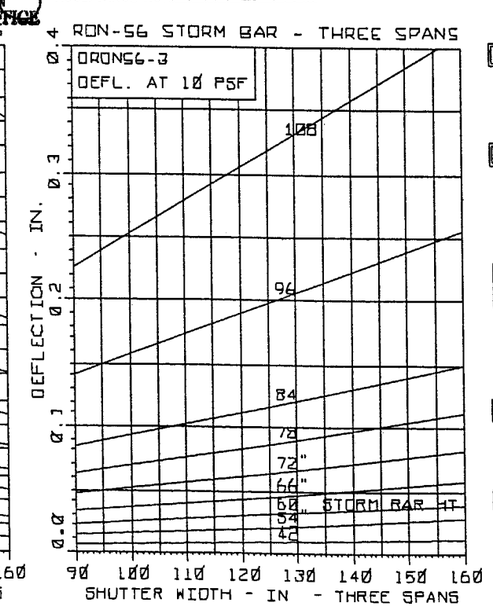
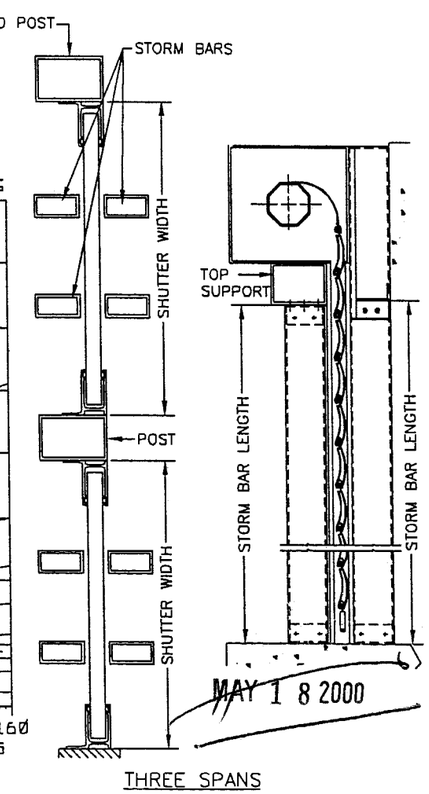










THREE SPANS

MAY 1 8 2000

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
1235 SW 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
Engr: DR. H. FAROOQ PE # 16557 ROLLUP\94-55-20

STORM BAR LOADING CHARTS

ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

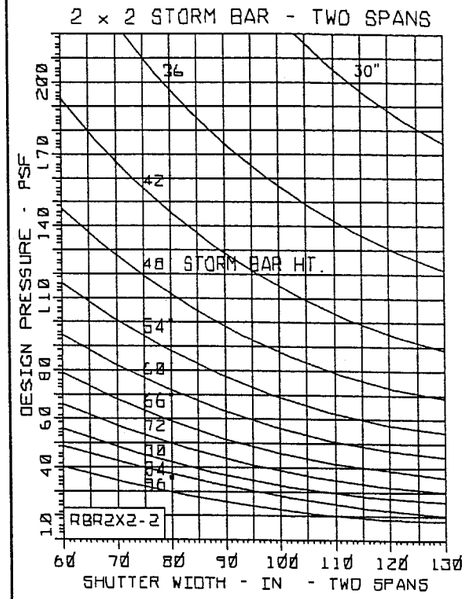
revisions:

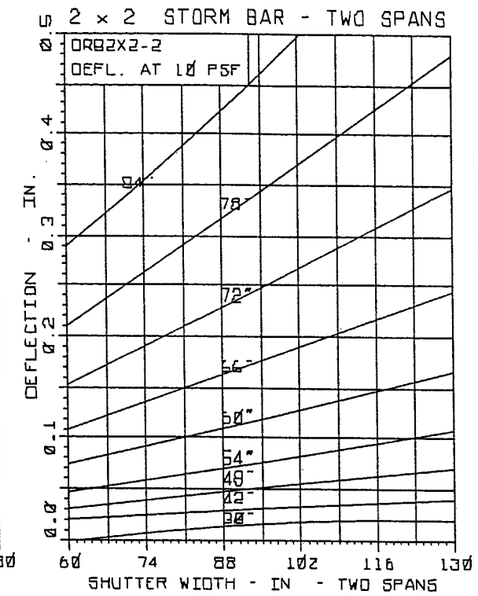
no	date	by	description
A	10.30.94	T.H.	GENERAL REVISION
B	11.12.94	T.H.	GENERAL REVISION
C	02.02.95	T.H.	GENERAL REVISION
D	07.02.95	T.H.	SHEET 3 REVISED

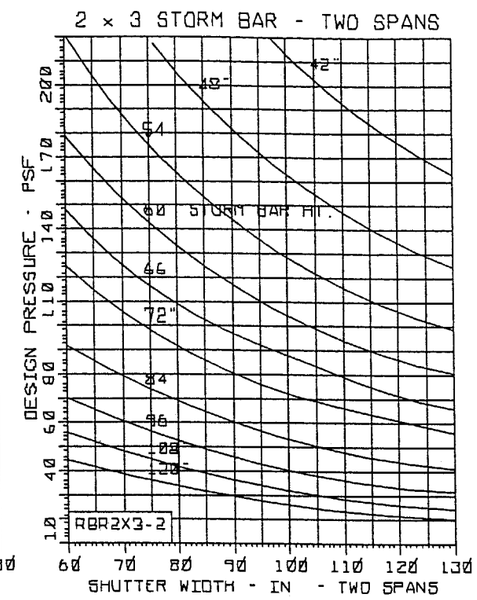
date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

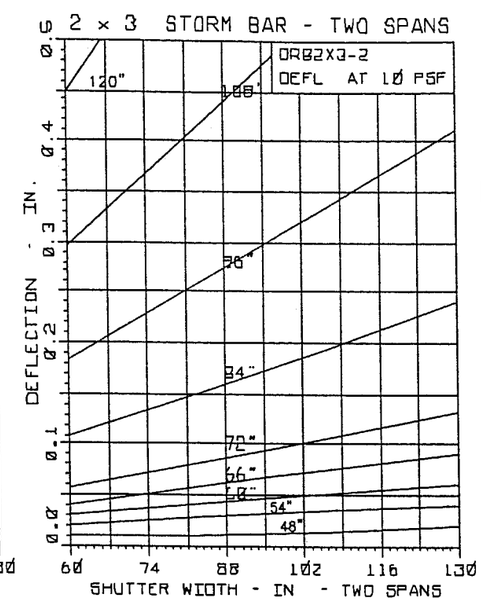
drawing no. 94-55

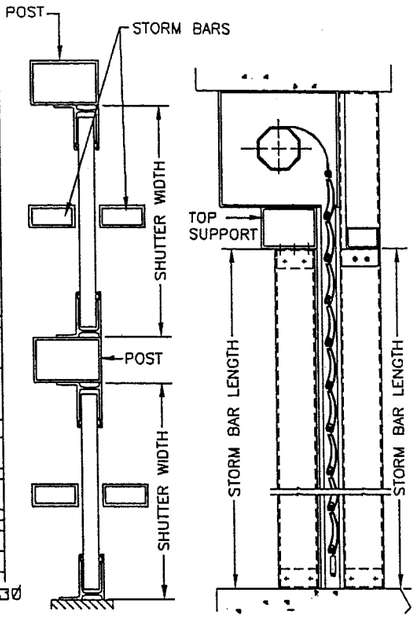
sheet 17 of 21











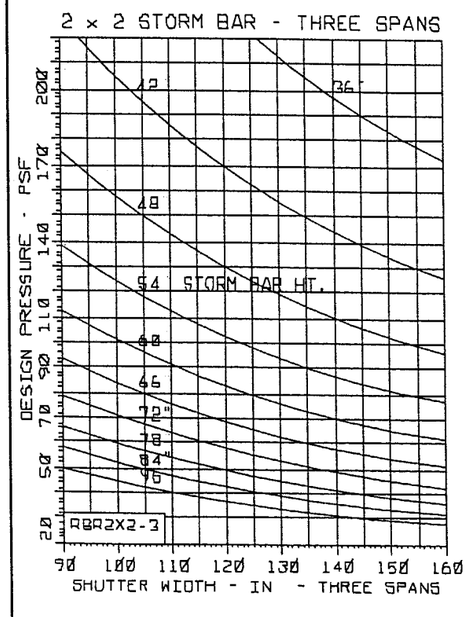
TWO SPANS

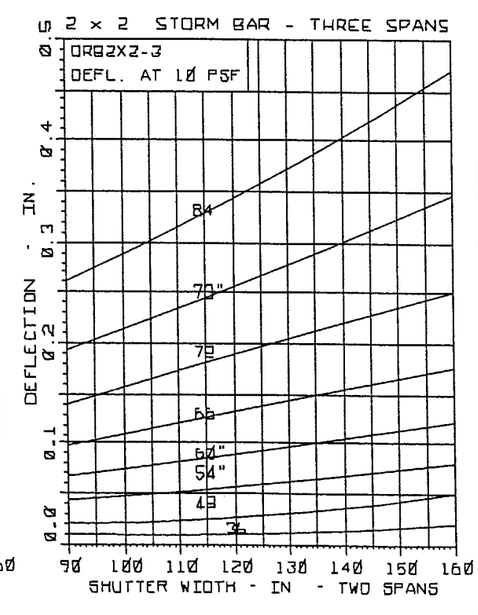
THE CURVES ON THESE GRAPHS SHOW STORM BAR LENGTHS
SEE SKETCH FOR REFERENCE

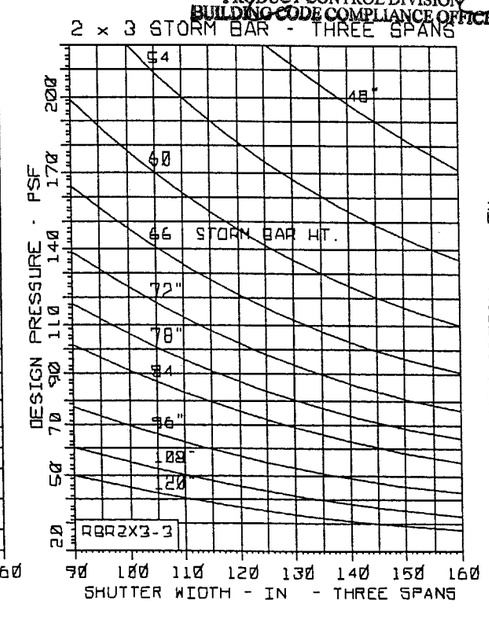
PRODUCT RENEWED

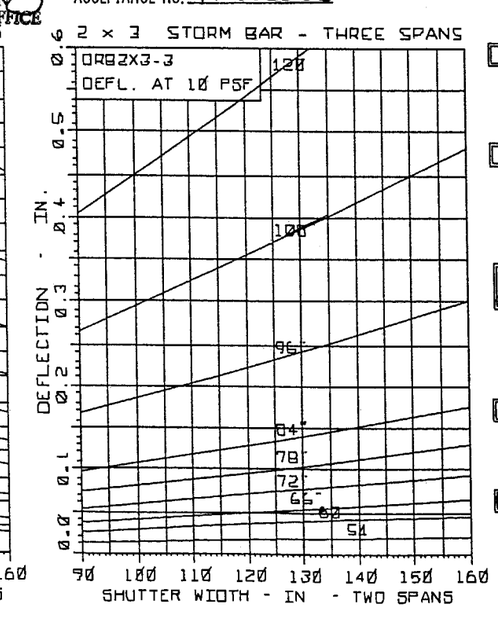
ACCEPTANCE No. 00-0609.08
EXPIRATION DATE 09/25/2003
By Manuel Perez
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE

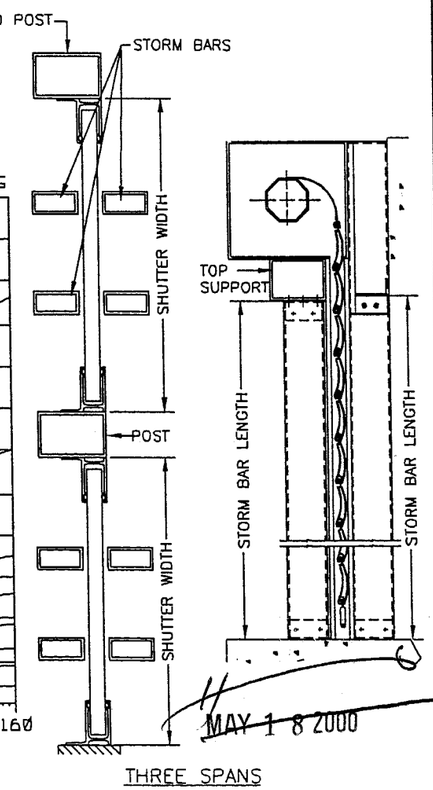
APPROVED AS COMPLYING WITH THE
SOUTH FLORIDA BUILDING CODE
DATE SEPTEMBER 25, 1997
BY Manuel Perez
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 97-0826.05











THREE SPANS

MAY 1 8 2000

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
1235 SW 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
Engr: DR. H. FAROOQ PE # 16557 ROLLUP\94-55-20

STORM BAR LOADING CHARTS

ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

revisions:

no	date	by	description
A	10.30.94	T.H.	GENERAL REVISION
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scale: 1/2" = 1"
dr. by: HAMID
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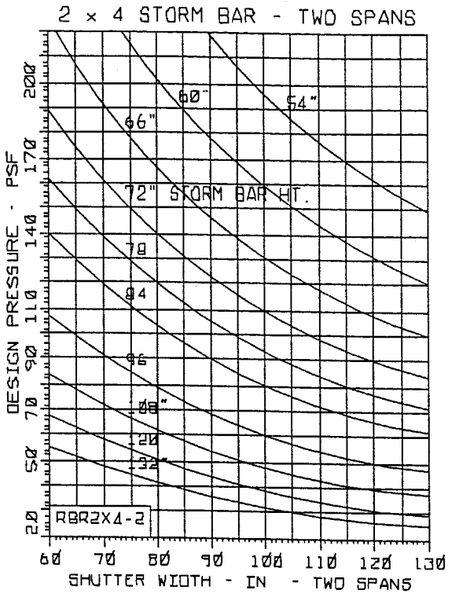
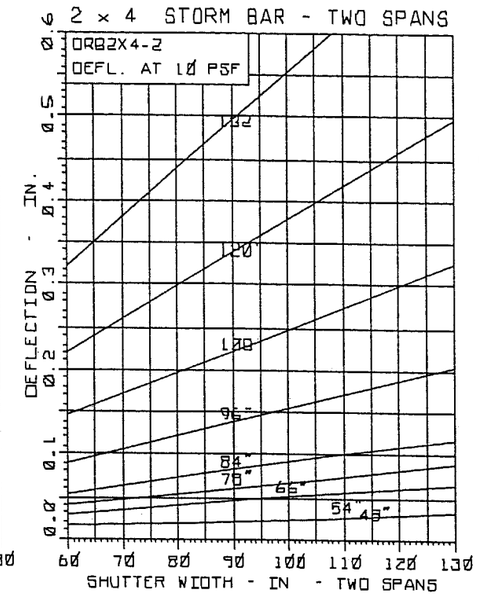
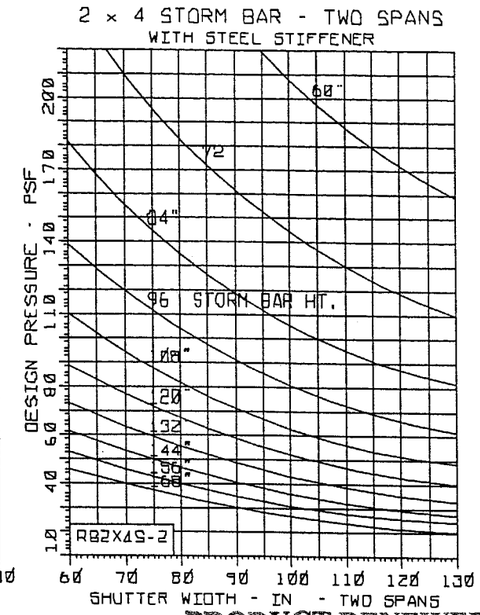
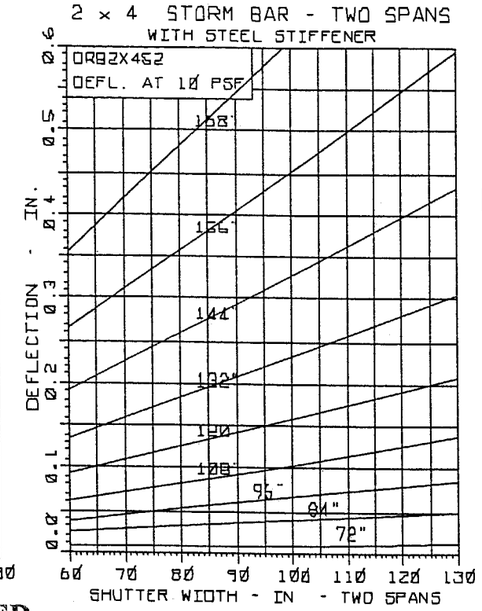
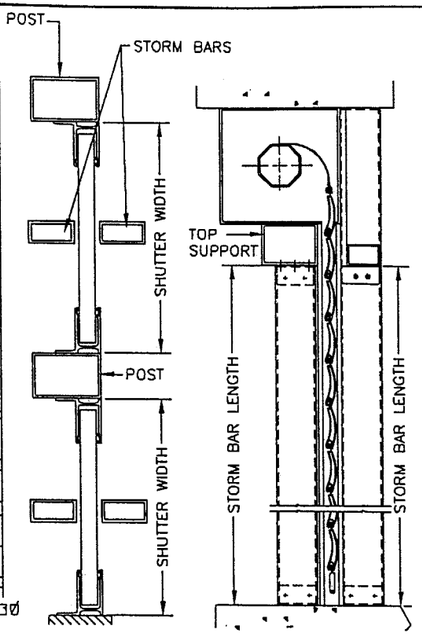
drawing no. 94-55











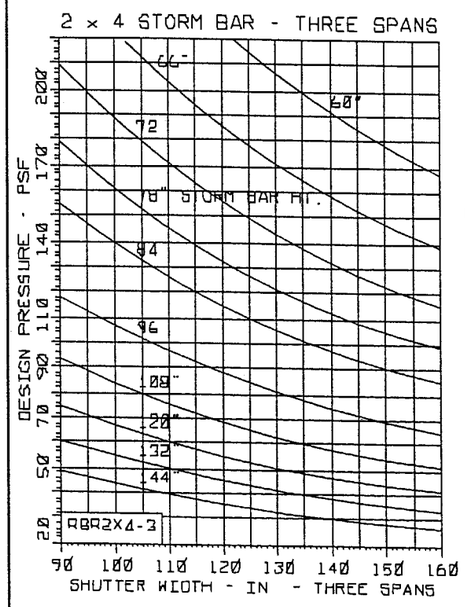
TWO SPANS

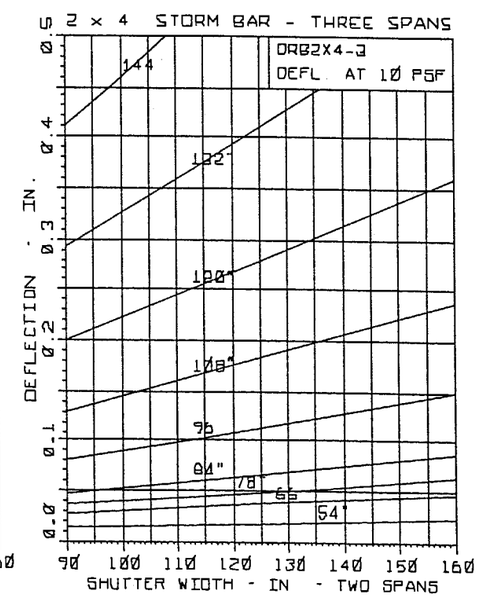
PRODUCT RENEWED

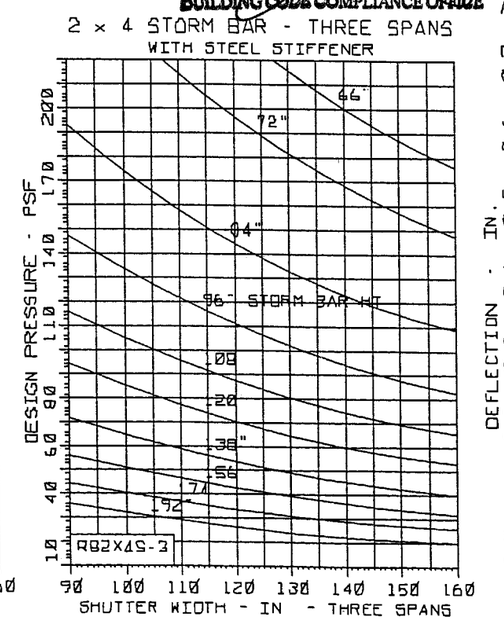
ACCEPTANCE No. 00-0669.08
EXPIRATION DATE 09/25/2003
By Manuel Perez
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE

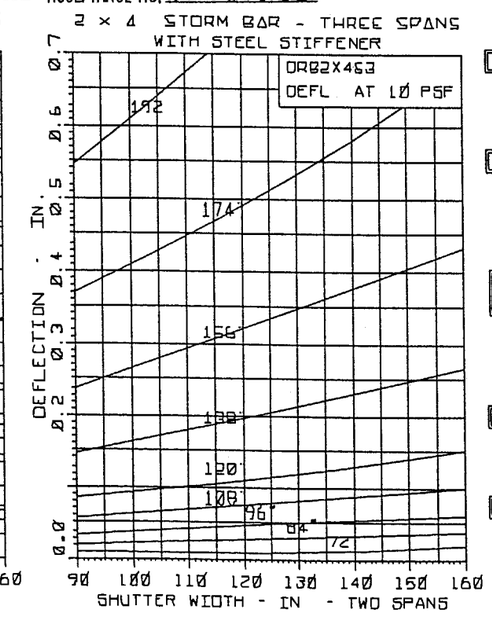
APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE SEPTEMBER 25, 1997
BY Manuel Perez
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 97-0826.05

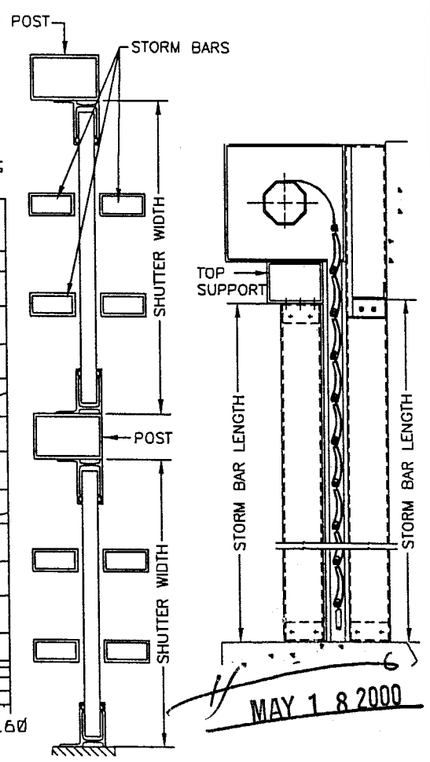
THE CURVES ON THESE GRAPHS SHOW STORM BAR LENGTHS
SEE SKETCH FOR REFERENCE











THREE SPANS

MAY 1 8 2000

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
1235 SW 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
Engr: DR. H. FAROOQ PE # 16557 ROLLUP\94-55-20

STORM BAR LOADING CHARTS

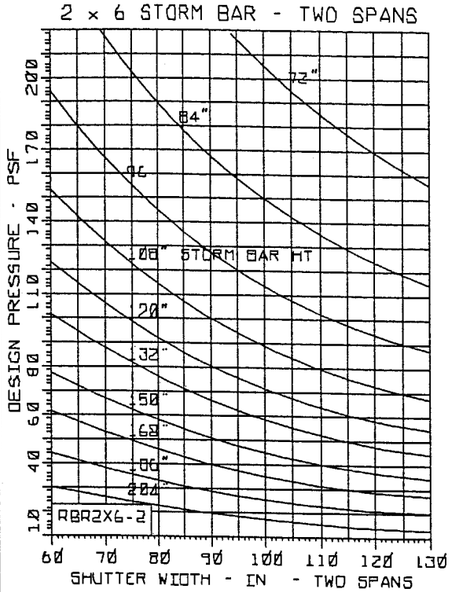
ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

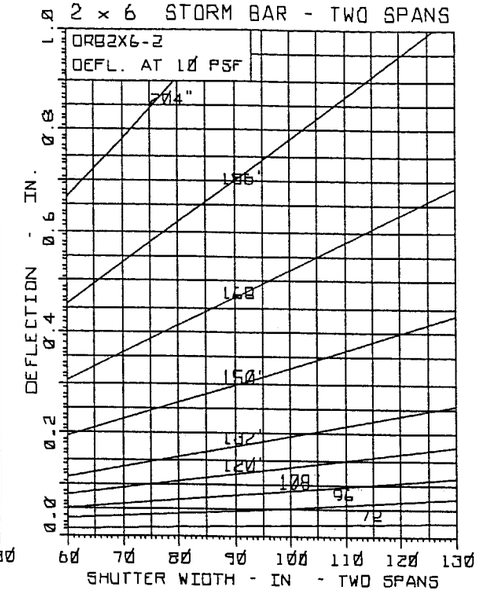
revisions:

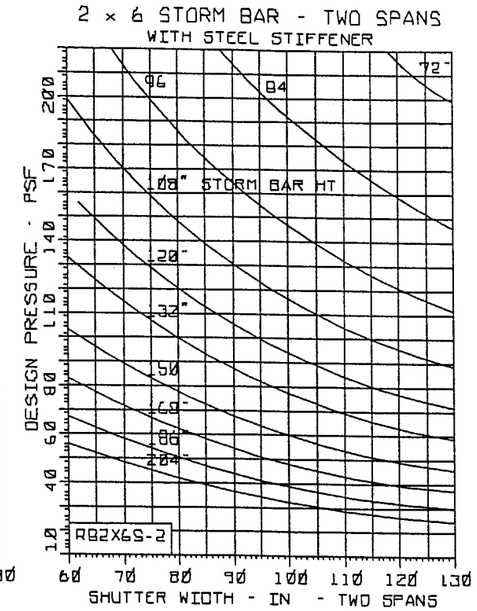
no	date	by	description
A	10.30.94	T.H.	GENERAL REVISION
B	11.12.94	T.H.	GENERAL REVISION
C	02.02.95	T.H.	GENERAL REVISION
D	07.02.95	T.H.	SHEET 3 REVISED

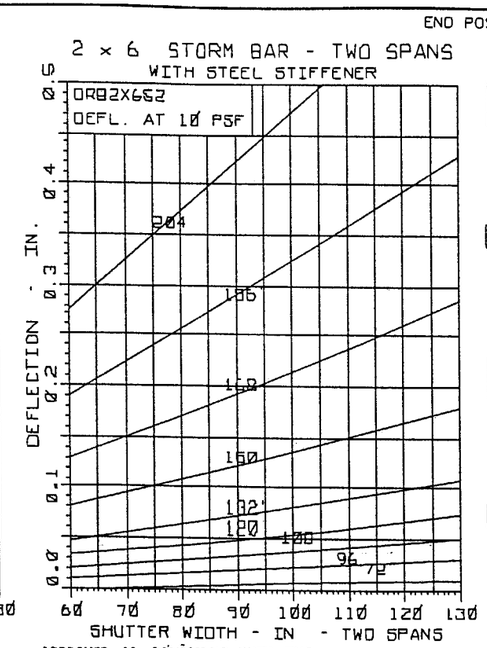
date: 07-22-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

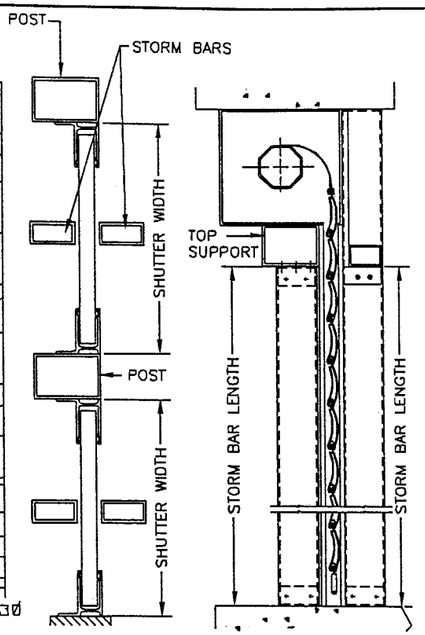
drawing no. 94-55











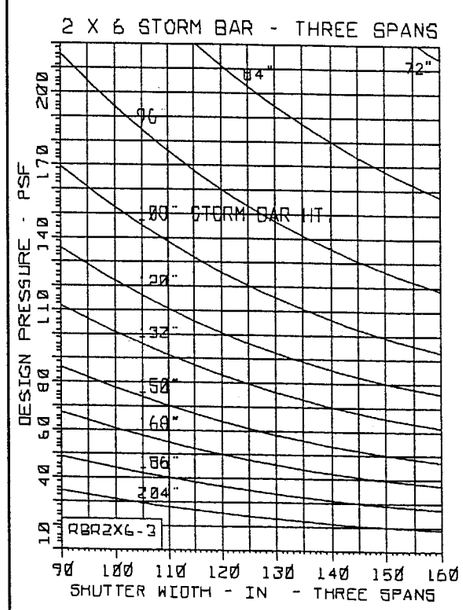
TWO SPANS

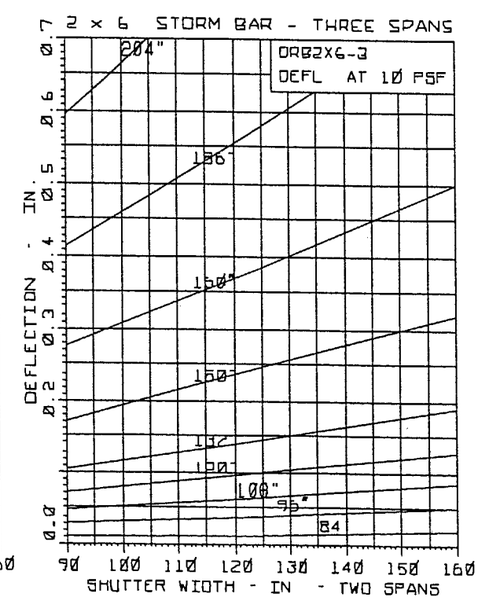
PRODUCT RENEWED

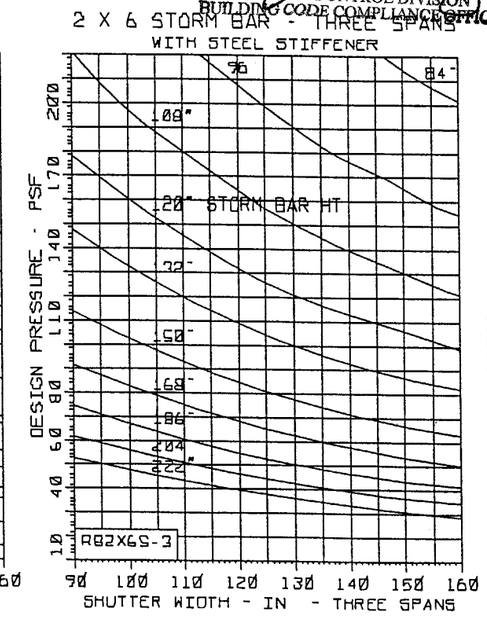
ACCEPTANCE No. 06-0609.08 DATE SEPTEMBER 25, 1997
EXPIRATION DATE 09/25/2003 BY Manuel Seiz
PRODUCT CONTROL DIVISION
By Manuel Seiz
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE

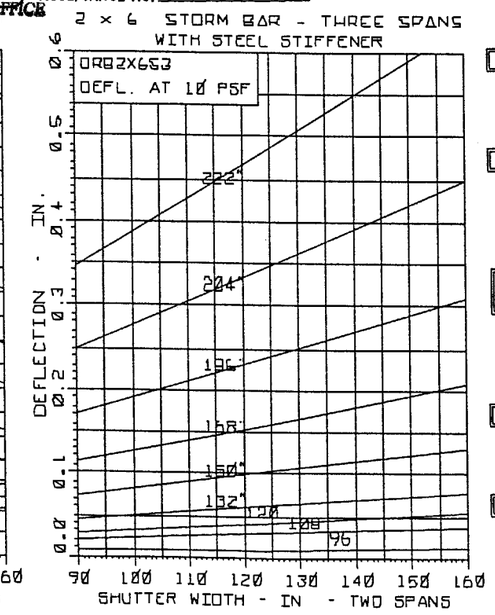
APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 97-0826.05

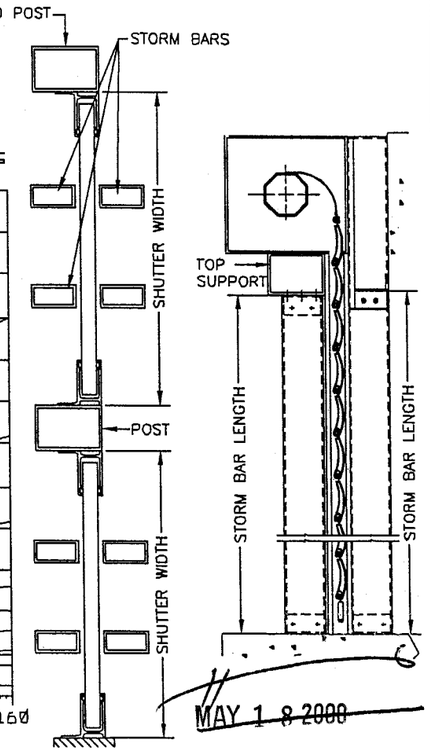
THE CURVES ON THESE GRAPHS SHOW STORM BAR LENGTHS
SEE SKETCH FOR REFERENCE











THREE SPANS

MAY 1 8 2000

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
1235 SW 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
Engr: DR. H. FAROOQ PE # 16557 ROLLUP\94-55-20

STORM BAR LOADING CHARTS

ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

revisions:

no	date	by	description
A	10.30.94	T.H.	GENERAL REVISION
B	11.12.94	T.H.	GENERAL REVISION
C	02.02.95	T.H.	GENERAL REVISION
D	07.02.95	T.H.	SHEET 3 REVISED

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

drawing no. 94-55

ROLL SHUTTER OVERALL DEFLECTION CALCULATION SHEET

POSITIVE LOAD

ASCE 7-88: 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	
SLAT 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 :	
STORM BAR 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:	
HEADER 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 7-88: 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	
SLAT 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 :	
STORM BAR 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:	
HEADER 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.

PRODUCT RENEWED
ACCEPTANCE No. 00-0609.01
EXPIRATION DATE 09/25/2003
By Manuel Diaz
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE SEPTEMBER 25 19 97
BY Manuel Diaz
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 97-0826.05

Engr: DR. HUMAYOUN FAROOQ
STRUCTURES
FLA. PE # 16557
MAY 1 6 2000

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

ROLLUP\94-55-21

DEFLECTION CALCULATION SHEET

ROLLADEN INC.
550 ANSIN BOULEVARD
HALLANDALE, FL. 33009
(305) 757 - 8591

revisions:			
no	date	by	description

date: 07-22-94
scale:
dr. by: HAMID
chk. by:

drawing no. 94-55