MIAMI-DADE

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

NOTICE OF ACCEPTANCE (NOA)

MetalTech, Inc.
7635 West 2nd Court
Hialeah, FL 33014

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 High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Maximum Impact 50mm Roll-Up Shutter

APPROVAL DOCUMENT: Drawing No. 01-06, titled "Maximum Impact 50mm Roll-Up Shutter", sheets 1 through 18, prepared, signed sealed by Humayoun Farooq, P.E., dated 1/20/01, bearing 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.

MISSILE IMPACT RATING: Large and Small Missile Impact

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and 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.

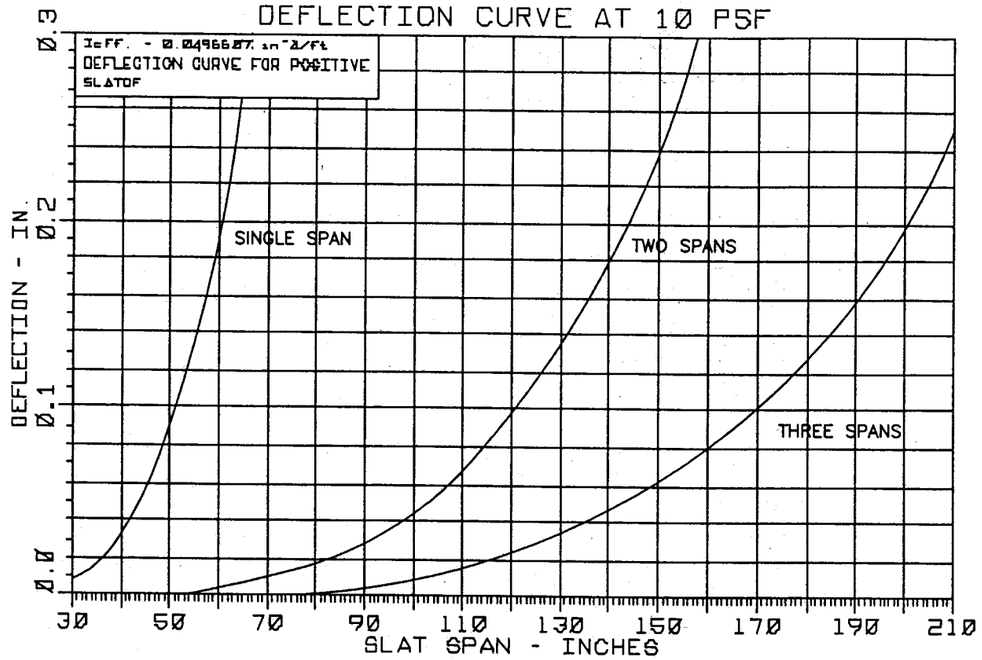
TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this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

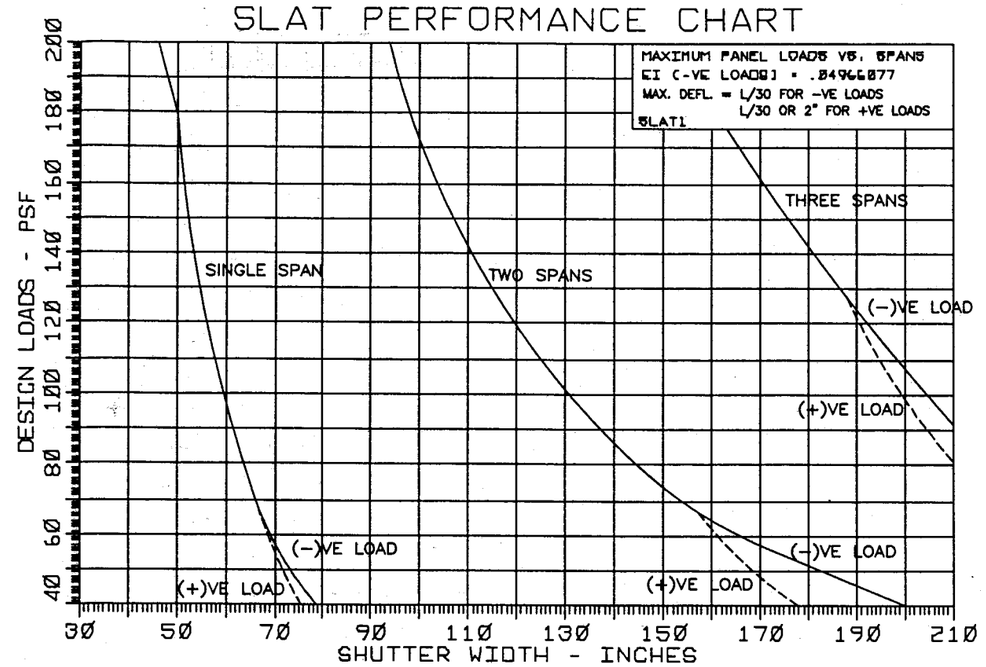
ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

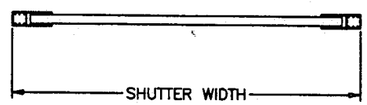
INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA **revises NOA # 01-0206.12** and, consists of this page 1 as well as approval document mentioned above. The submitted documentation was reviewed by **Raul Rodriguez.**

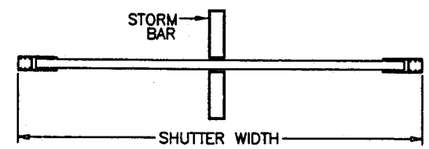
PRODUCT CONTROL ACCEPTED



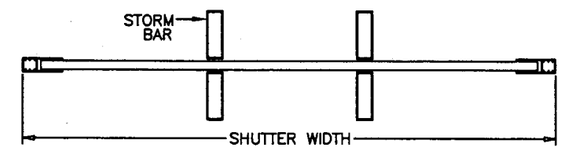




SINGLE SPANS



TWO SPANS



THREE SPANS

Guide to use charts and graphs

1. Calculate Design Wind Load requirements using ASCE 7-88 based on building height, exposure category, roof slope and tributary area.
2. From slat performance chart, select span condition as 1, 2 or 3 to determine the number of storm bars required to meet the design loads calculated above.
3. Based on slat, span and number of storm bars determine the deflection of the slat for 10 psf and determine the actual deflection for the Design Loads by proportion. Enter this deflection in step 2 of sheet 18.
4. From the shutter height and width dimensions determine the storm bar spacing and height.
5. Determine the deflection of the storm bar at 10 psf from the deflection chart and obtain storm bar deflection by proportion to the design loads. Enter this deflection in step 4 of sheet 18.
6. Determine the deflection of the header at 10 psf from the deflection chart and obtain header deflection by proportion to the design loads. Enter this deflection in step 6 of sheet 18.
7. Complete form on sheet 18 and check the deflection requirements. If deflection exceeds the allowable deflection increase the size of storm bar and/or header to bring the overall deflection under the allowable limits.
8. Repeat the procedure items 2 to 7 for both positive and negative loads for any given shutters.

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:

METALTECH, INC. HIALEAH, FL.
"DADE COUNTY PRODUCT CONTROL APPROVED"

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

JAN 31 2001

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No. 02-0312.07
Expiration Date April 19, 2006
By
Miami Dade Product Control Division

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE APR 19 2001
BY
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 01-0206.12

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

ROLLUP\01-06MTI

MAXIMUM IMPACT 50mm ROLL-UP SHUTTER

METALTECH, INC.
7635 W. SECOND CT. HIALEAH, FL 33014
EST. 1957

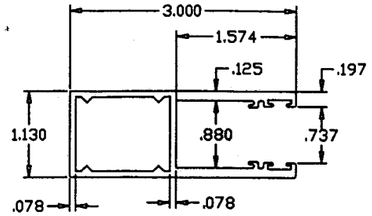
revisions:

no	date	by	description

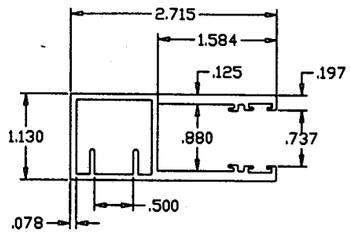
date: 01-20-01
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no.
01-06

sheet 1 of 18



TRACK 'A'
6063-T6



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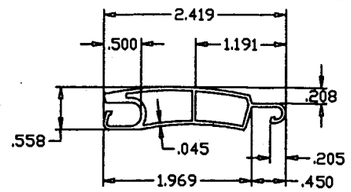
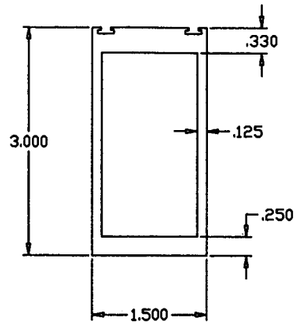
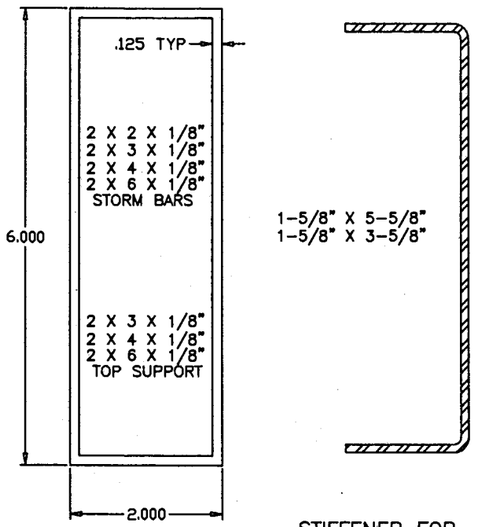


EXTRUDED ALUMINUM SLAT
6063-T6

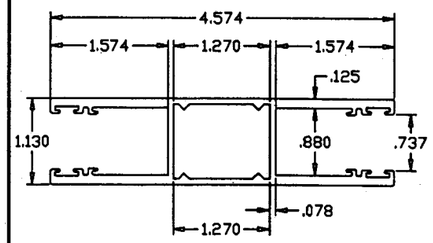


CUSTOM STORM BAR
6063-T6



ALUM TUBES
6063-T6

STIFFENER FOR
STORM BAR/TOP SUPPORT
12 GA. GALV. STEEL CHANNEL



DOUBLE TRACK
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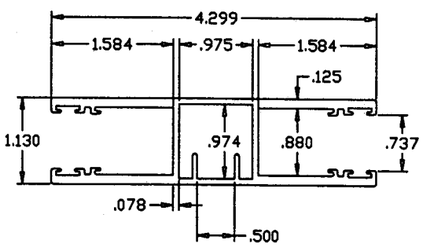

ALT. DOUBLE TRACK
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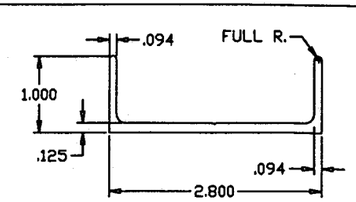
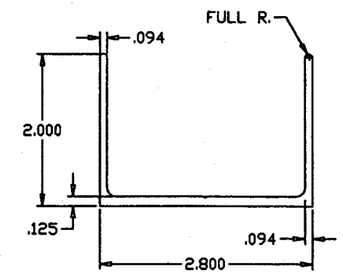
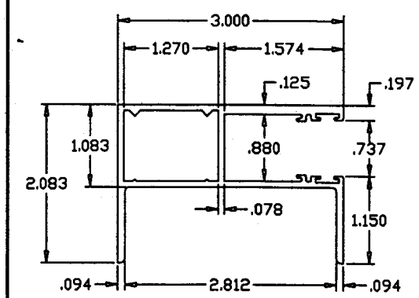


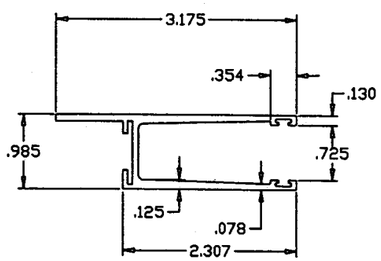
1" TRACK ADAPTER
6063-T6



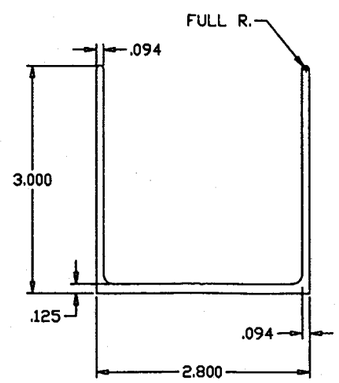
2" TRACK ADAPTER
6063-T6



TRACK 'B'
6063-T6



WALL TRACK
6063-T6



3" TRACK ADAPTER
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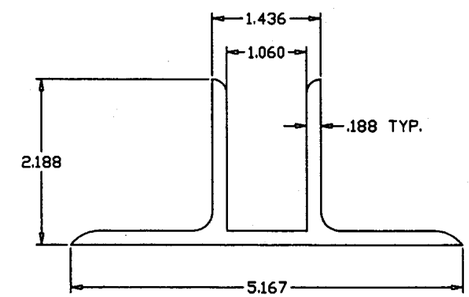
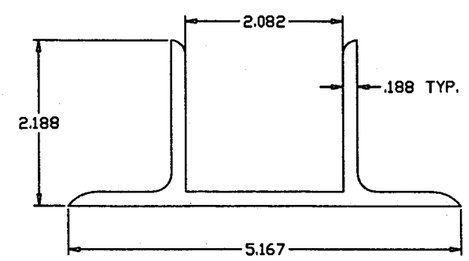


ANCHOR CLIP 'A'
6063-T6



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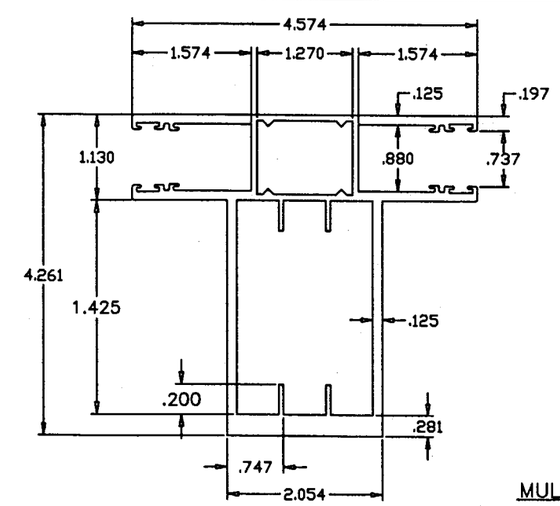

DOUBLE TRACK MULLION
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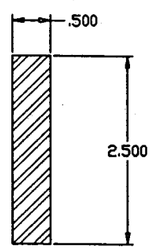


MULLION STIFFENER
STEEL

PRODUCT REVISED
as complying with the Florida
Buiding Code
Acceptance No. 02-0312.07
Expiration Date April 19, 2006
By
Miami Dade Product Control
Division

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

JAN 31 2001

APPROVED AS COMPLYING WITH THE
SOUTH FLORIDA BUILDING CODE
DATE APR 19 2001
BY
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 01-0206.12

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

ROLLUP\01-06MTI

MAXIMUM IMPACT 50mm ROLL-UP SHUTTER

METALTECH, INC.
7835 W. SECOND CT. HIALEAH, FL 33014
EST. 1957

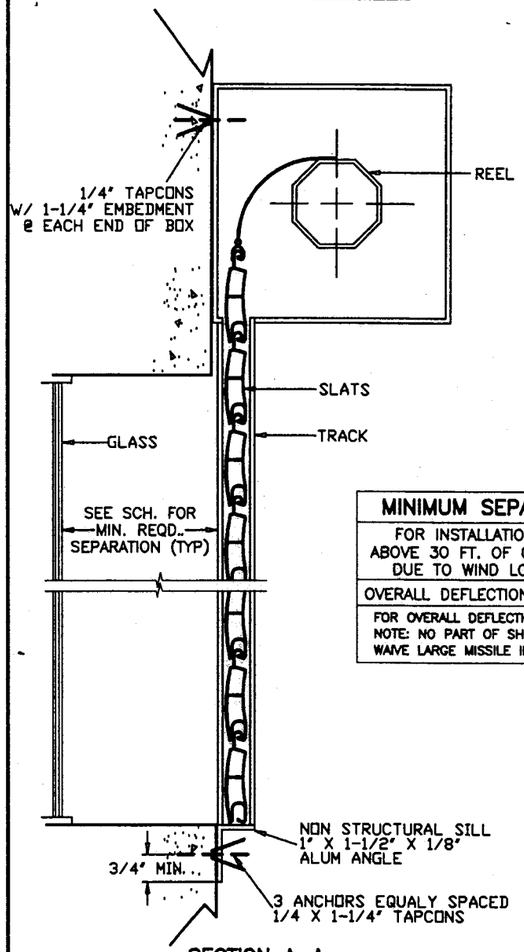
revisions:			
no	date	by	description

date: 01-20-01
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no.
01-06

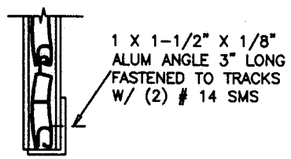
sheet 2 of 18

WALL MOUNTS



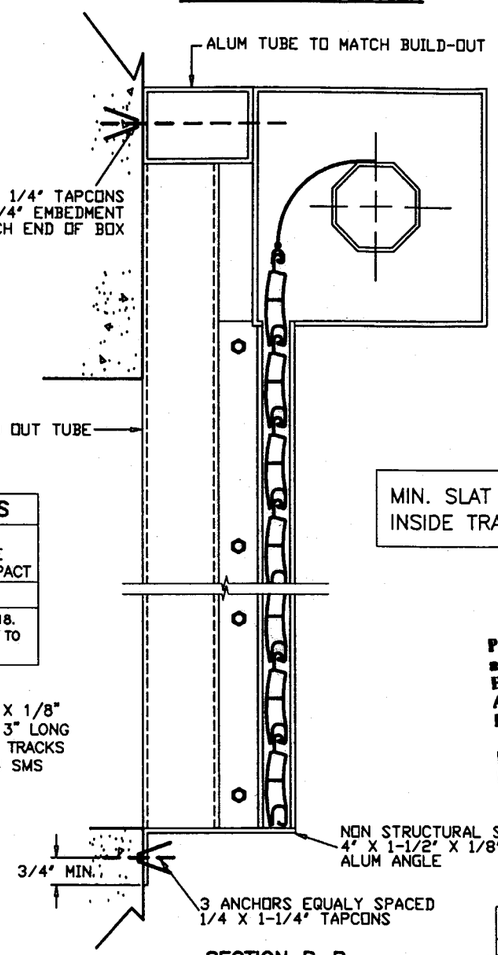
SECTION A-A

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
OVERALL DEFLECTION + 1"	3-1/4"
FOR OVERALL DEFLECTION CALCULATION REFER TO SHEET 18 OF 18. NOTE: NO PART OF SHUTTER SHALL BE UNDER 30' ABOVE GRADE TO WAIVE LARGE MISSILE IMPACT REQUIREMENT.	



ALT. SILL

BUILT-OUT CONDITION



SECTION B-B

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

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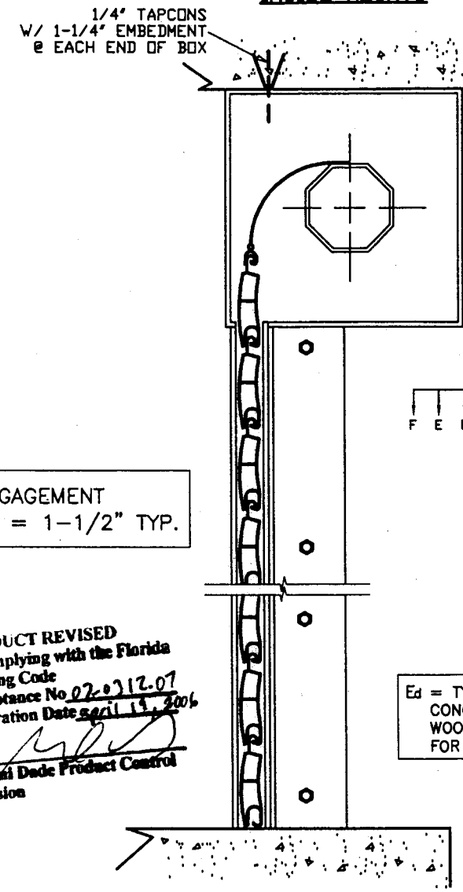
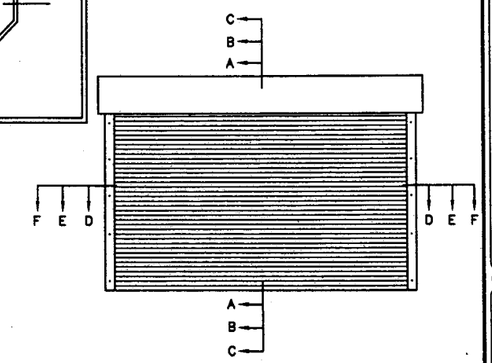
INSIDE MOUNTS



SECTION C-C



TYPICAL ELEVATION
SINGLE SPAN

Ed = TYPICAL EDGE DISTANCE
CONC. & BLOCK = 12d (12 ANCHOR DIAMETERS)
WOOD = 5d
FOR LESSER EDGE DISTANCES SEE SHEET 8 OF 18.

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

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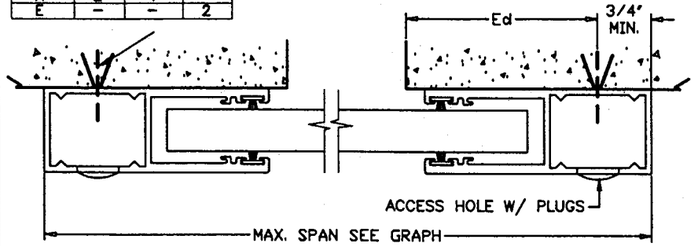
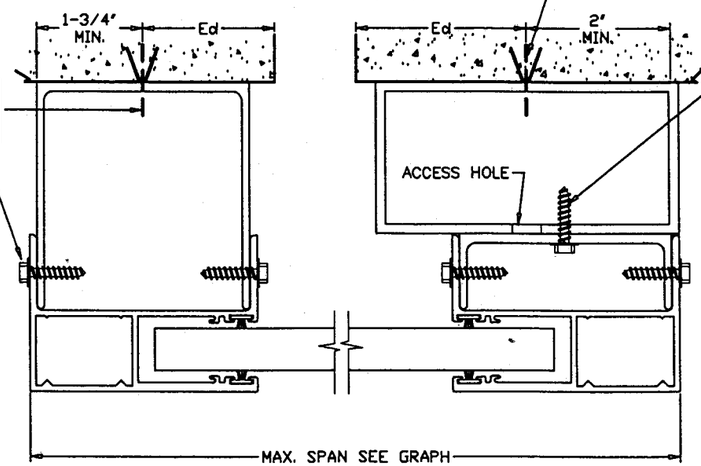
ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	2	1	–
E	–	–	2



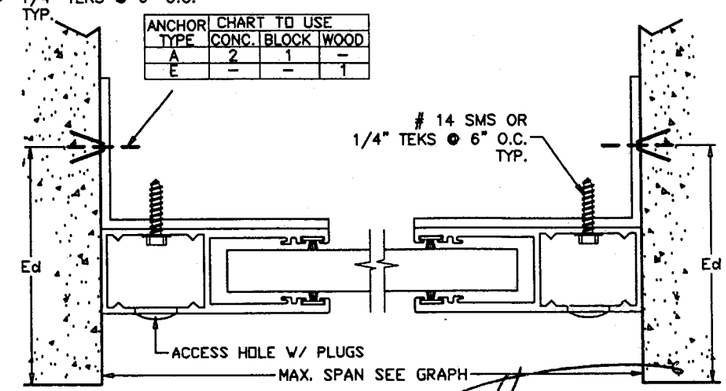
SECTION D-D

ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	4	2	–
E	–	–	3



SECTION E-E

ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	4	2	–
E	–	–	3



SECTION F-F

JAN 31 2001

AL-FAROOQ CORPORATION
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ROLLUP\01-06MTI

MAXIMUM IMPACT 50mm ROLL-UP SHUTTER

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date: 01-20-01
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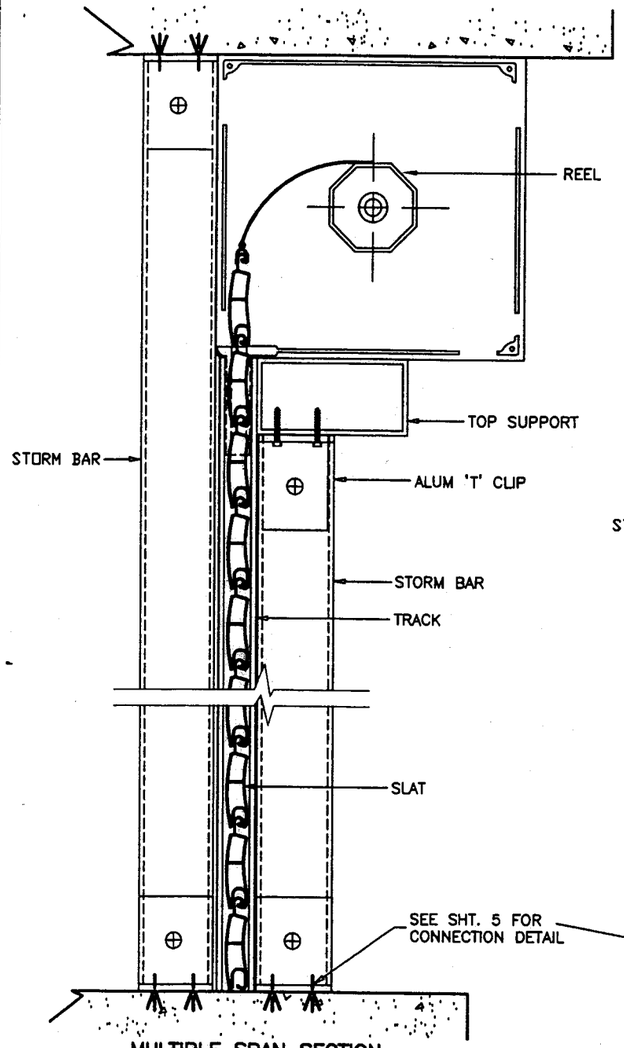
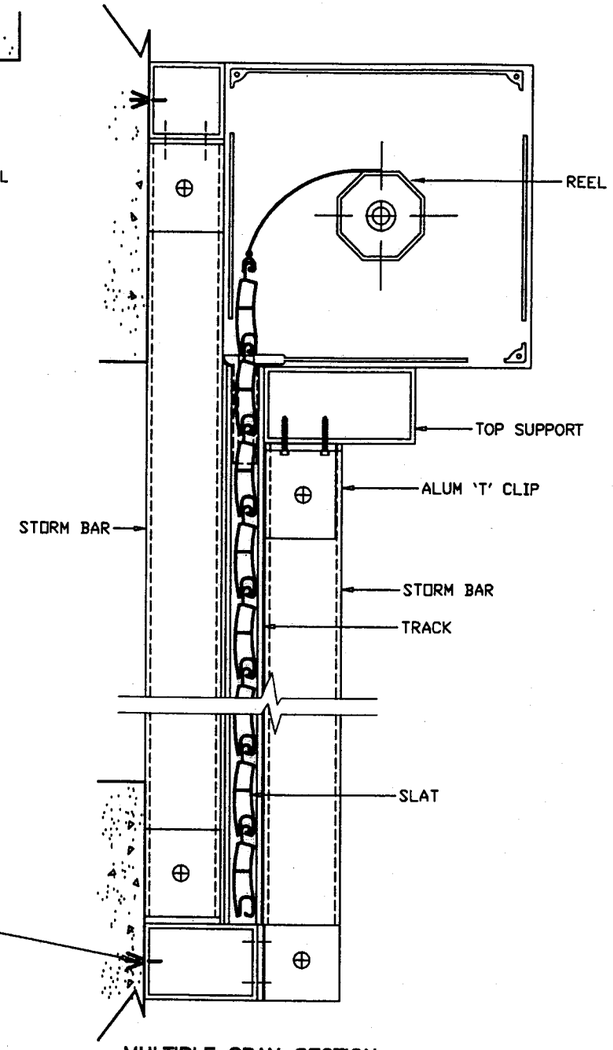
drawing no. 01-06

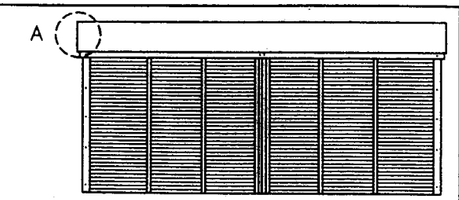
sheet 3 of 18



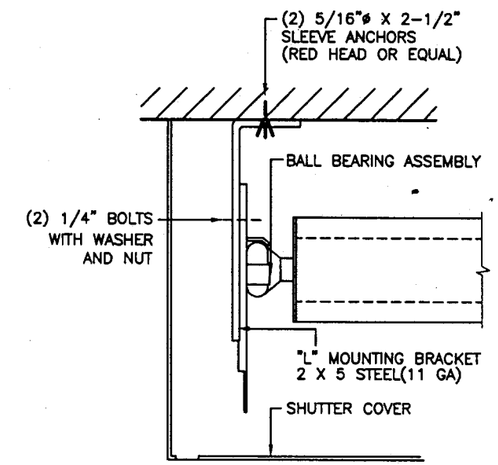
MULTIPLE SPAN SECTION
CEILING TO FLOOR MOUNTS



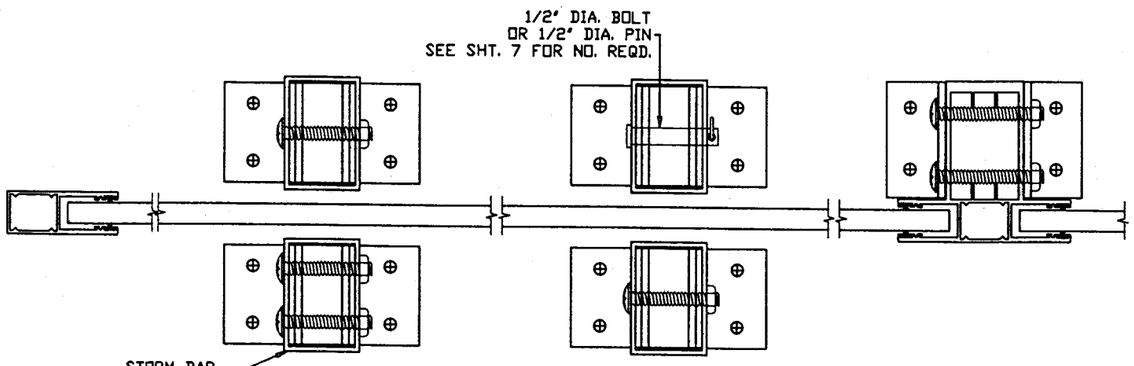
MULTIPLE SPAN SECTION
WALL MOUNTS



TYPICAL ELEVATION
MULTIPLE SPAN



DETAIL 'A' (PLAN)
SIDE BRACKET



MULTIPLE SPAN PLAN
HEADER NOT SHOWN

PRODUCT REVISED
as complying with the Florida
Buiding Code
Acceptance No 02-0317.07
Expiration Date April 19, 2006
By
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Division

Engr: DR. HUMAYOUN FAROOQ
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ROLLUP\01-06MT

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METALTECH, INC.
EST. 1957 7636 W. SECOND CT. HIALEAH, FL 33014

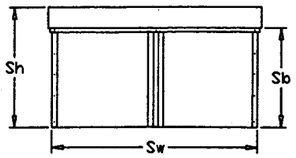
revisions:			
no	date	by	description

date: 01-20-01
scale: 1/2" = 1'
dr. by: HAMID
chk. by:

drawing no.
01-06

sheet 4 of 18

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



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

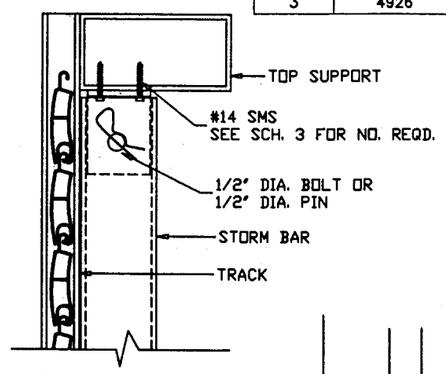
LOAD ON STORM BAR ANCHOR = $P = \frac{Sw * Sb \times Pd \times FACTOR}{2 * (\# \text{ OF SPANS})}$

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

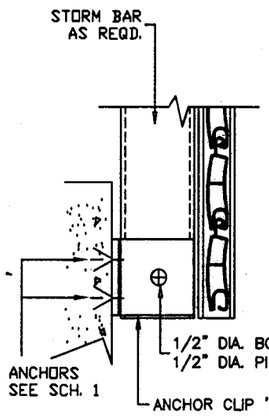
SCHEDULE 3

STORM BAR CONNECTION TO HEADER			
ANCHOR PER SIDE	CONNECTION CAPACITY–lbs	CLIP LENGTH IN.	NO. OF BOLTS
1	1642	2	1
2	3284	2	1
3	4926	4	2

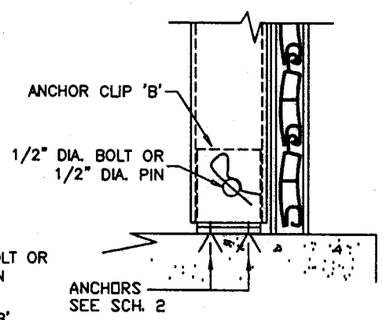
CONDITIONS NOT COVERED BY DETAILS/SCHEDULES SHALL BE ENGINEERED ON JOB TO JOB BASIS.



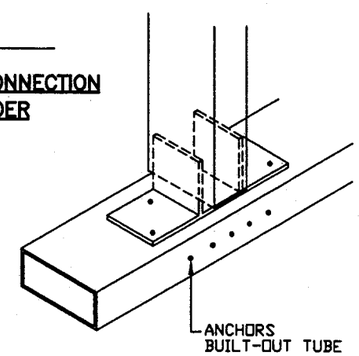
STORM BAR CONNECTION TO HEADER

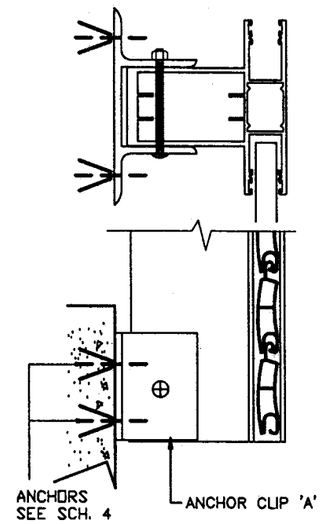


STORM BAR CONNECTION TO WALL (TOP & BOTTOM)

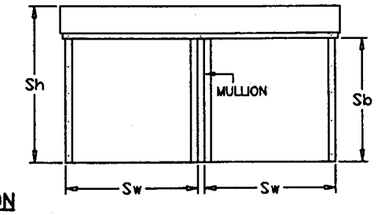


STORM BAR CONNECTION TO CEILING & FLOOR





MULLION CONNECTION TO WALL (TOP & BOTTOM)



TOTAL LOAD ON MULLION

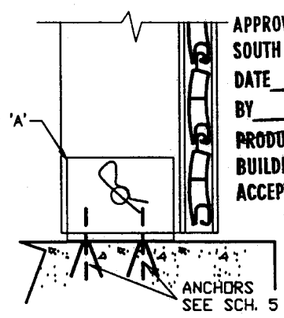
$P = \frac{Sh \times Sw}{2} Pd =$ Lbs

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 CEILING & FLOOR

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE APR 19 2001
BY
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 01-0206.12

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 02-0317.07
Expiration Date April 19, 2006
By
Miami Dade Product Control Division

SCHEDULE 1

STORM BAR CONNECTION TO WALL					
ANCHOR PER SIDE	ANCHOR TYPE	BASE MATERIAL	CONNECTION CAPACITY–lbs	CLIP LENGTH IN.	NO. OF BOLTS
1	A	CONC.	1118	2	1
	A	BLOCK	408		1
	E	WOOD	816		1
2	A	CONC.	2236	3–1/2	1
	A	BLOCK	816		1
	E	WOOD	1632		1
3	A	CONC.	3354	6	1
	A	BLOCK	1224		1
	E	WOOD	2448		1
4	A	CONC.	4472	8–1/2	2
	A	BLOCK	1632		1
	E	WOOD	3264		1
5	A	CONC.	5590	11	2
	A	BLOCK	2040		1
	E	WOOD	4080		2

SCHEDULE 2

STORM BAR CONNECTION TO FLOOR & CEILING					
ANCHOR PER SIDE	ANCHOR TYPE	BASE MATERIAL	CONNECTION CAPACITY–lbs	CLIP LENGTH IN.	NO. OF BOLTS
1	A	CONC.	1162	2	1
	A	BLOCK	704		1
	E	WOOD	408		1
2	A	CONC.	2324	3–1/2	1
	A	BLOCK	1408		1
	E	WOOD	816		1
3	A	CONC.	3486	6	1
	A	BLOCK	2112		1
	E	WOOD	1224		1
4	A	CONC.	4648	8–1/2	2
	A	BLOCK	2816		1
	E	WOOD	1632		1
5	A	CONC.	5810	11	2
	A	BLOCK	3520		1
	E	WOOD	2040		1

SCHEDULE 4

MULLION CONNECTION TO WALL					
ANCHOR PER SIDE	ANCHOR TYPE	BASE MATERIAL	CONNECTION CAPACITY–lbs	CLIP LENGTH IN.	NO. OF BOLTS
1	A	CONC.	1118	2	1
	A	BLOCK	408		1
	E	WOOD	816		1
2	A	CONC.	2236	3–1/2	1
	A	BLOCK	816		1
	E	WOOD	1632		1
3	A	CONC.	3354	6	1
	A	BLOCK	1224		1
	E	WOOD	2448		1
4	A	CONC.	4472	8–1/2	2
	A	BLOCK	1632		1
	E	WOOD	3264		1
5	A	CONC.	5590	11	2
	A	BLOCK	2040		1
	E	WOOD	4080		2
6	A	CONC.	6708	13–1/2	2
	A	BLOCK	2448		1
	E	WOOD	4896		2

SCHEDULE 5

MULLION CONNECTION TO CEILING AND FLOOR					
ANCHOR PER SIDE	ANCHOR TYPE	BASE MATERIAL	CONNECTION CAPACITY–lbs	CLIP LENGTH IN.	NO. OF BOLTS
1	A	CONC.	1162	2	1
	A	BLOCK	704		1
	E	WOOD	408		1
2	A	CONC.	2324	3–1/2	1
	A	BLOCK	1408		1
	E	WOOD	816		1
3	A	CONC.	3486	6	1
	A	BLOCK	2112		1
	E	WOOD	1224		1
4	A	CONC.	4648	8–1/2	2
	A	BLOCK	2816		1
	E	WOOD	1632		1
5	A	CONC.	5810	11	2
	A	BLOCK	3520		1
	E	WOOD	2040		1
6	A	CONC.	6972	13–1/2	2
	A	BLOCK	4224		2
	E	WOOD	2448		1

JAN 31 2001

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

ROLLUP\01-06MT

MAXIMUM IMPACT 50mm ROLL-UP SHUTTER

METALTECH, INC.
7635 W. SECOND CT. HIALEAH, FL 33014
EST. 1957

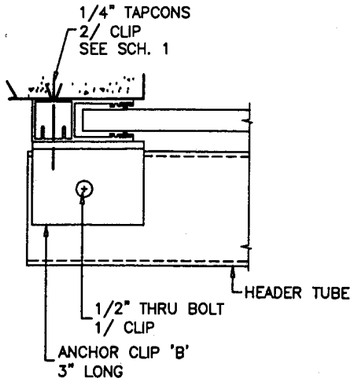
revisions:

no	date	by	description

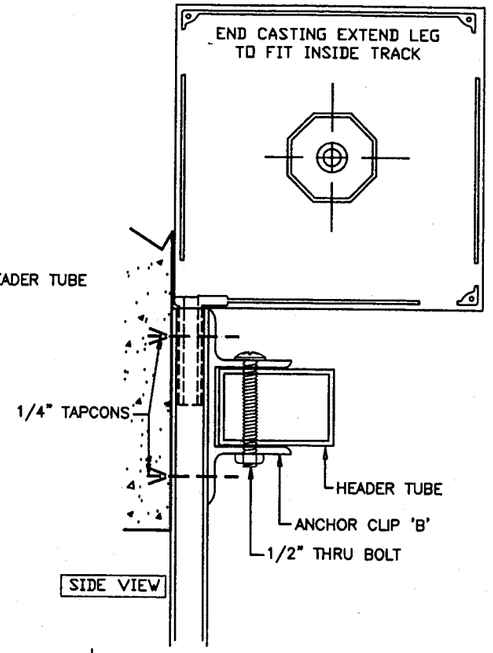
date: 01-20-01
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no. 01-06

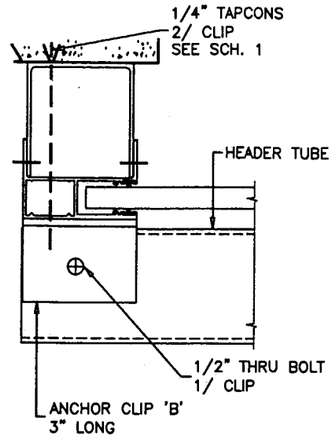
sheet 5 of 18



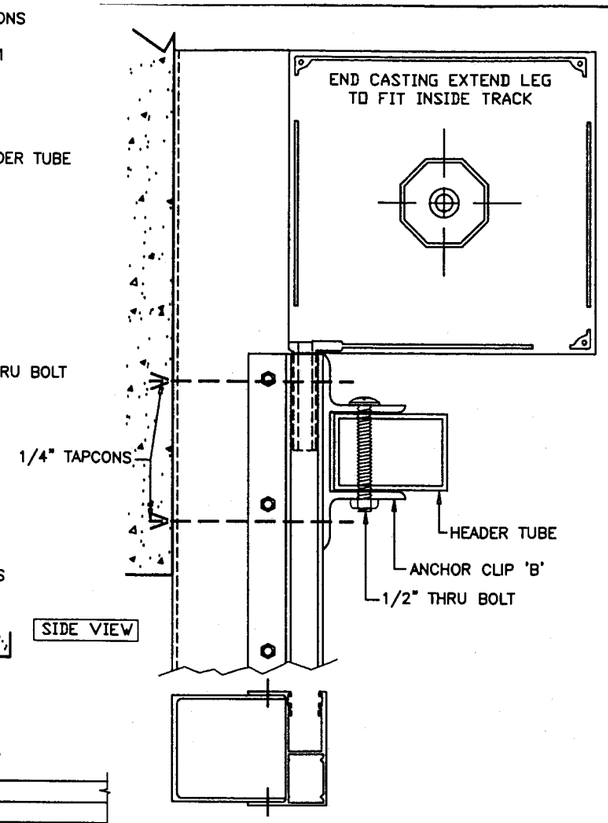
TRACK 'A'
OPTION '1'
PLAN VIEW



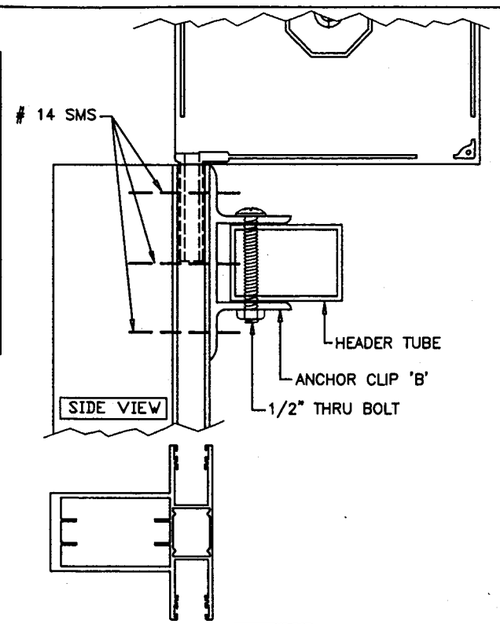
SIDE VIEW



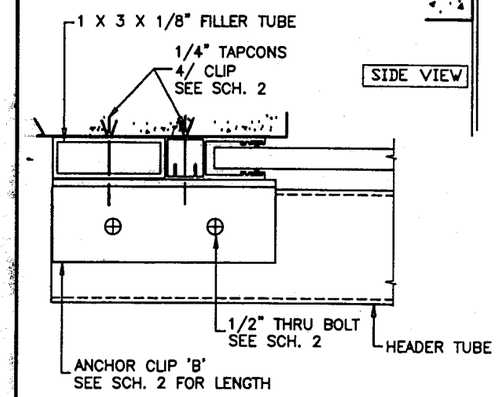
TRACK 'B'
OPTION '1'
PLAN VIEW



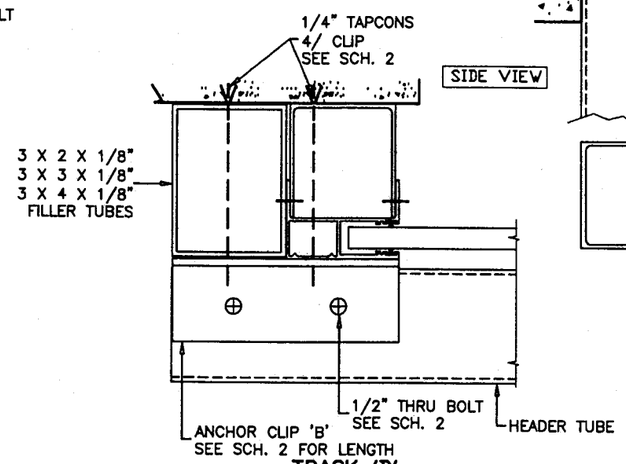
SIDE VIEW



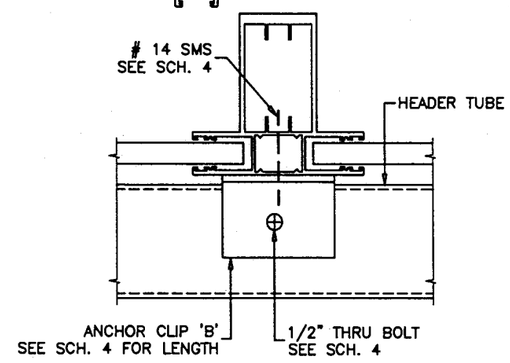
SIDE VIEW



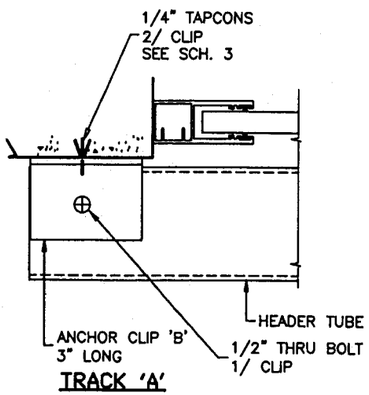
TRACK 'A'
OPTION '2'
PLAN VIEW



TRACK 'B'
OPTION '2'
PLAN VIEW



HEADER CONNECTION TO
MULLION TRACK
PLAN VIEW



TRACK 'A'
OPTION '3'
PLAN VIEW

SCHEDULE 1

TOP SUPORT (HEADER) CONNECTION TO WALL					
ANCHOR PER SIDE	ANCHOR TYPE	BASE MATERIAL	CONNECTION CAPACITY–lbs	CLIP LENGTH IN.	NO. OF BOLTS
1	A	CONC.	531	3	1
	A	BLOCK	194		1
	E	WOOD	388		1

SCHEDULE 2

TOP SUPORT (HEADER) CONNECTION TO WALL						
ANCHOR PER SIDE	ANCHOR TYPE	BASE MATERIAL	CONNECTION CAPACITY–lbs	CLIP LENGTH IN.	NO. OF BOLTS	FILLER TUBE WIDTH–IN.
2	A	CONC.	3220	6	1	3
	A	BLOCK	1175		1	
	E	WOOD	2350		1	
3	A	CONC.	4830	6	2	3
	A	BLOCK	1763		1	
	E	WOOD	3525		1	
4	A	CONC.	6440	9	2	6
	A	BLOCK	2350		1	
	E	WOOD	4700		2	

SCHEDULE 3

TOP SUPORT (HEADER) CONNECTION TO WALL					
ANCHOR PER SIDE	ANCHOR TYPE	BASE MATERIAL	CONNECTION CAPACITY–lbs	CLIP LENGTH IN.	NO. OF BOLTS
1	A	CONC.	1118	3	1
	A	BLOCK	408		1
	E	WOOD	816		1

SCHEDULE 4

TOP SUPORT CONNECTION TO MULLION			
TOTAL NO. OF SMS	CONNECTION CAPACITY–lbs	CLIP LENGTH IN.	NO. OF BOLTS
2	1769	2	1
3	2653	2	1
4	3538	2	1
5	4422	3	2
6	5307	3	2

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

JAN 31 2001

PRODUCT REVISED
as complying with the Florida
Buiding Code
Acceptance No. 02-0312.07
Expiration Date April 19, 2006
By
Miami Dade Product Control
Division

APPROVED AS COMPLYING WITH THE
SOUTH FLORIDA BUILDING CODE
DATE APR 19 2001
BY
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 01-0206.12

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

ROLLUP\01-06MTI

MAXIMUM IMPACT 50mm ROLL-UP SHUTTER

METALTECH, INC.
7636 W. SECOND CT. HIALEAH, FL 33014
EST. 1957

revisions:			
no	date	by	description

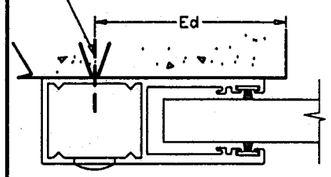
date: 01-20-01
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no.
01-06

sheet 6 of 18

ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	2	1	–
E	–	–	2

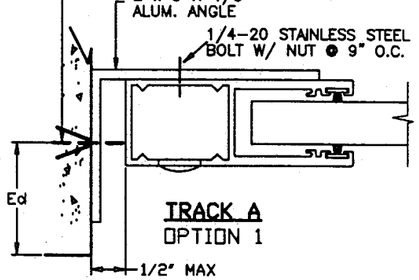
WALL MOUNTS



TRACK 'A'

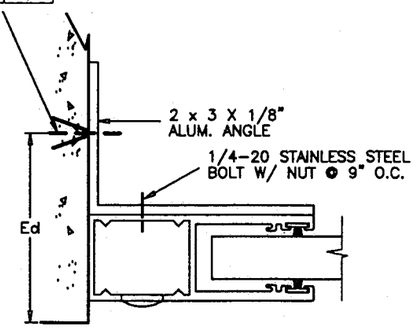
ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	2	1	–
E	–	–	1

INSIDE MOUNTS



TRACK A
OPTION 1

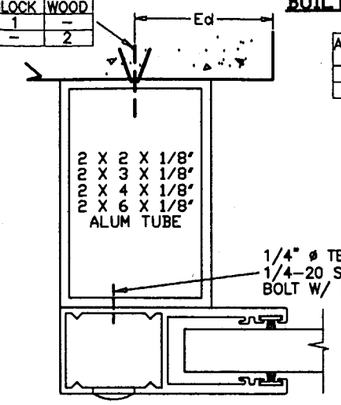
ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	2	1	–
E	–	–	1



TRACK A
OPTION 2

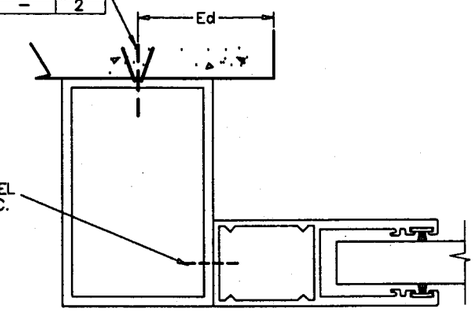
BUILT-OUT INSTALLATIONS

ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	3	1	–
E	–	–	2



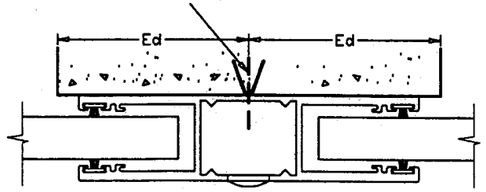
TRACK A
OPTION 1

ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	3	1	–
E	–	–	2



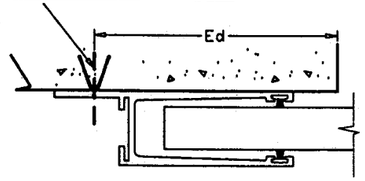
TRACK A
OPTION 2

ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	4	2	–
E	–	–	3

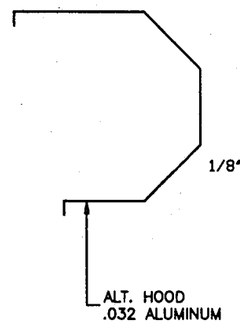


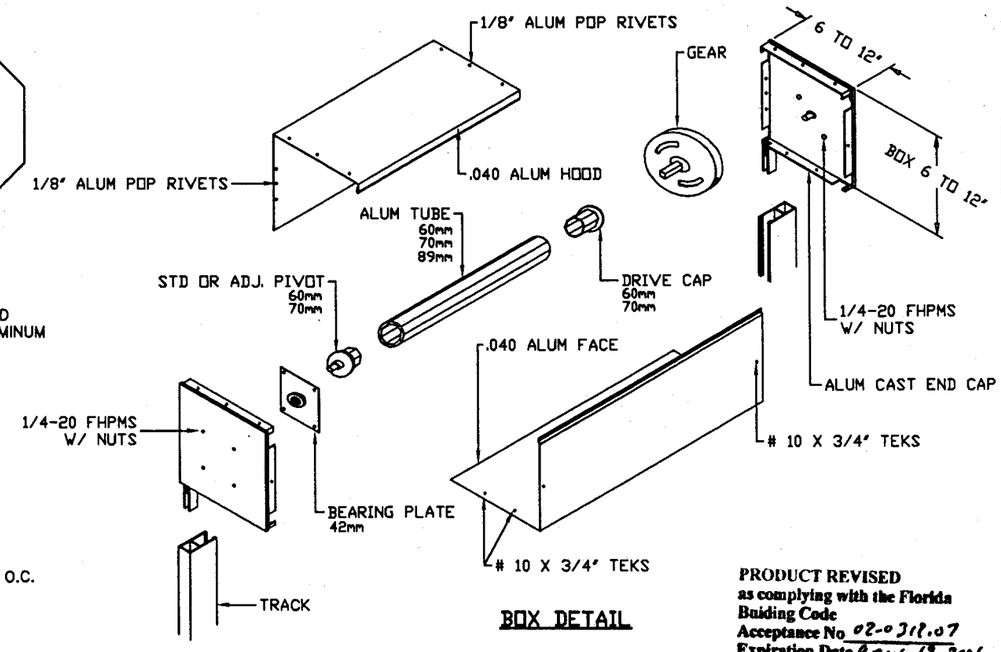
DOUBLE TRACK

ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	1	–	–
E	–	–	–



ALT. WALL TRACK

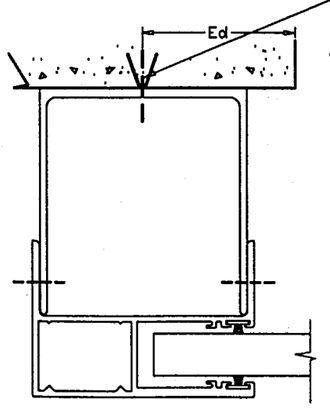




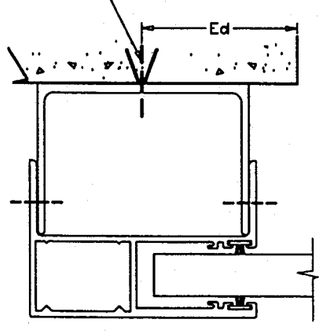
BOX DETAIL

WALL MOUNTS

ANCHOR TYPE	CHART TO USE CONC.	BLOCK	WOOD
A	4	2	–
E	–	–	3



TRACK 'B'



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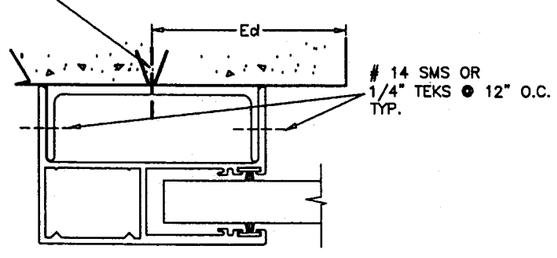

TRACK 'B'

Ed = TYPICAL EDGE DISTANCE
CONC. & BLOCK = 12d (12 ANCHOR DIAMETERS)
WOOD = 5d
FOR LESSER EDGE DISTANCES SEE SHEET 8 OF 18.

FOR CHARTS REFERED ON DETAILS
SEE SHEET 8 OF 18

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

JAN 31 2001

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No 02-0318.07
Expiration Date April 19, 2006
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Miami Dade Product Control
Division

APPROVED AS COMPLYING WITH THE
SOUTH FLORIDA BUILDING CODE
DATE APR 19 2001
BY
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BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 01-0206.12

AL-FAROOQ CORPORATION
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ROLLUP\01-06MTI

MAXIMUM IMPACT 50mm ROLL-UP SHUTTER

METALTECH, INC.
7635 W. SECOND CT. HIALEAH, FL 33014
EST. 1957

revisions: no	date	by	description

date: 01-20-01
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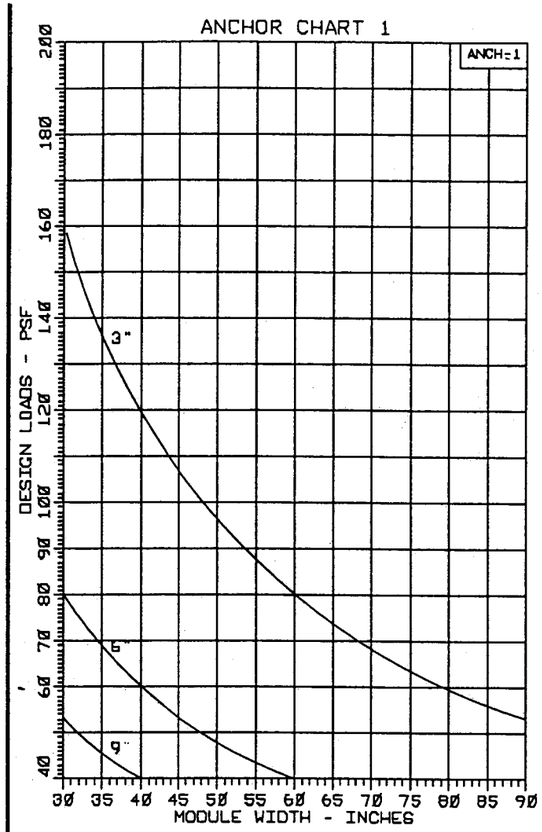
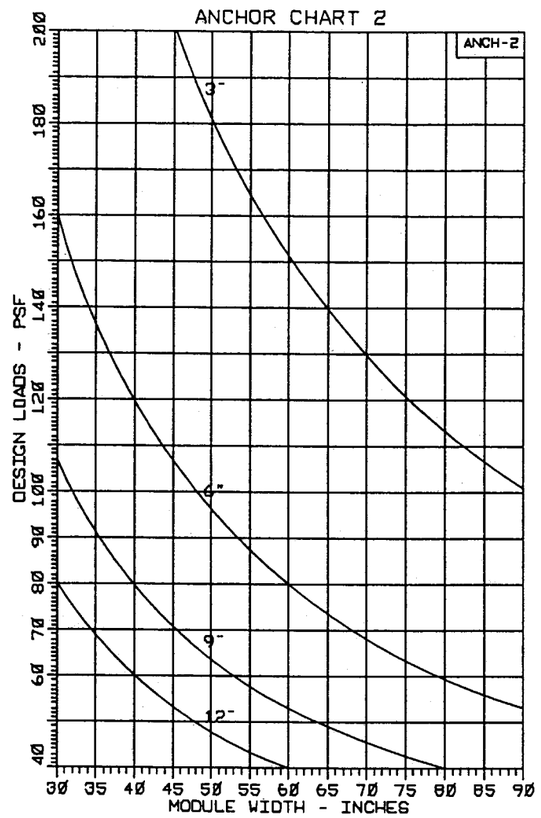
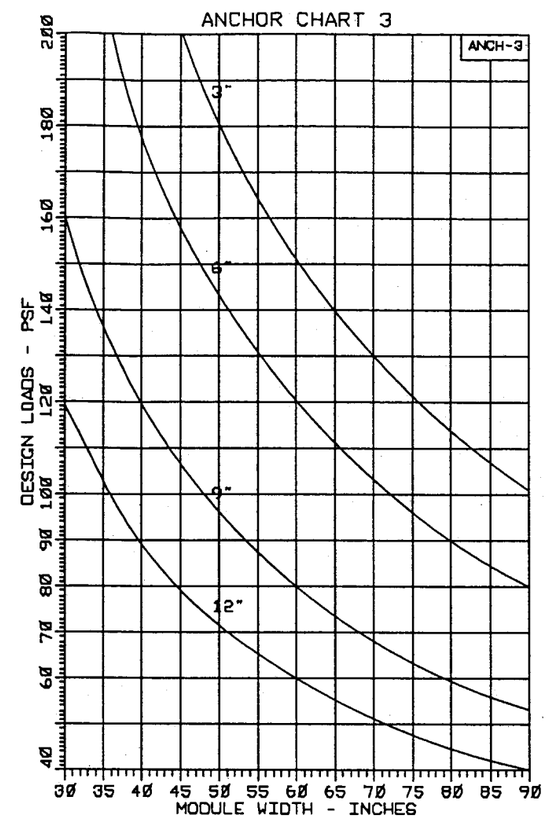
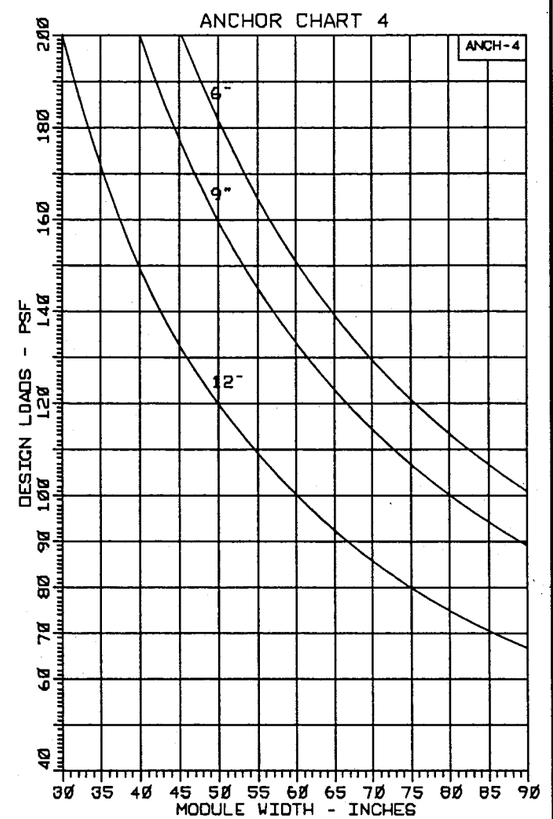
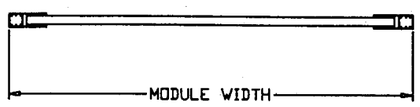




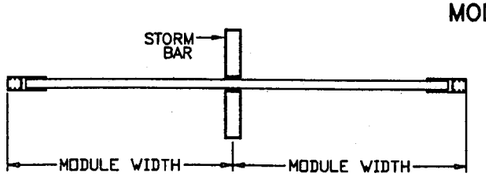




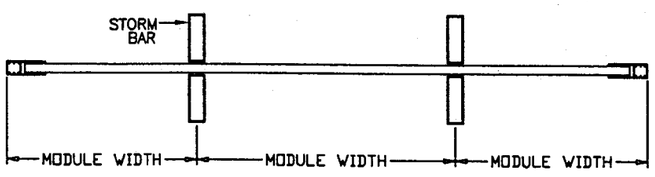


SINGLE SPANS

MODULE WIDTH = $\frac{\text{SHUTTER WIDTH}}{\text{\# OF SPANS}}$



TWO SPANS



THREE SPANS

TYPICAL ANCHORS

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

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

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

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

USE CHARTS 1 THRU 4 TO VERIFY ANCHOR REQUIREMENTS AND STRESS LIMITATIONS OF LOAD/SPAN COMBINATIONS.

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

JAN 31 2001

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Miami Dade Product Control Division

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ACCEPTANCE NO. 01-0206.12

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
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ROLLUP\01-06MT

MAXIMUM IMPACT 50mm ROLL-UP SHUTTER

METALTECH, INC.
7836 W. SECOND CT. HIALEAH, FL 33014
EST. 1957

revisions:			
no	date	by	description

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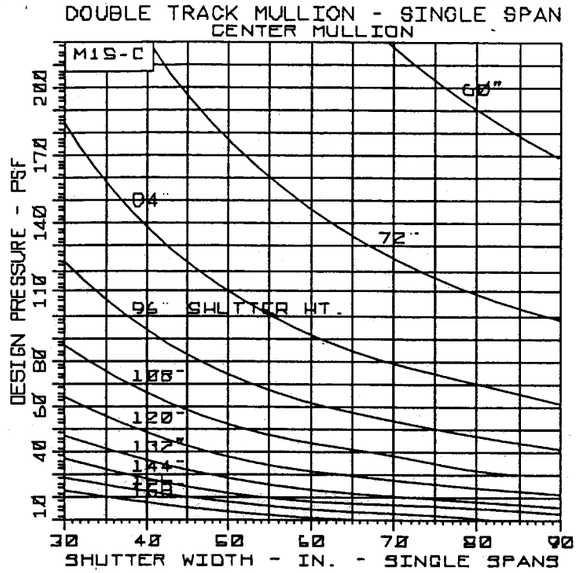
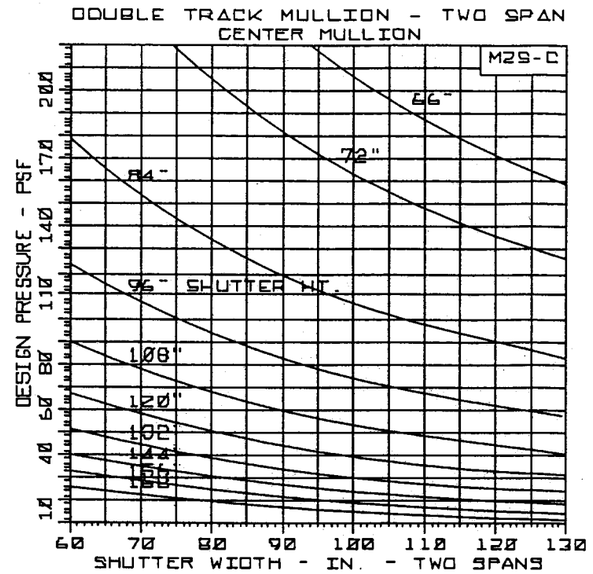
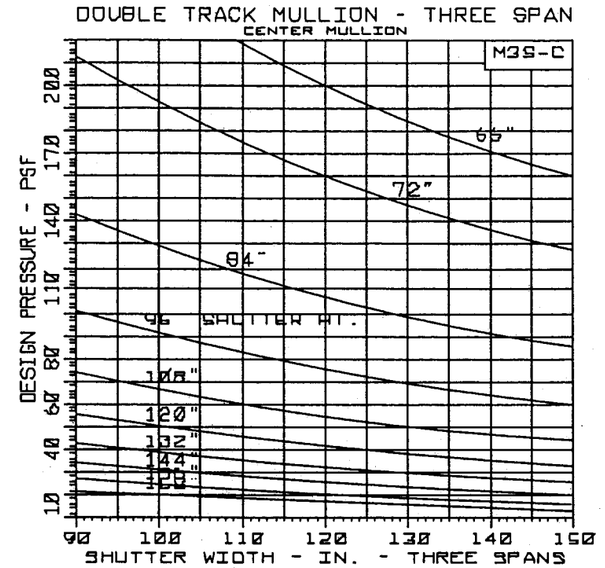
dr. by: HAMID
chk. by:

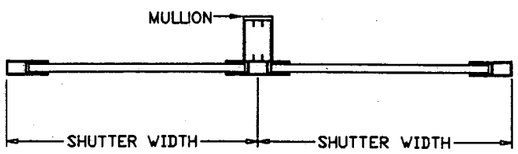
drawing no. 01-06

sheet 8 of 18









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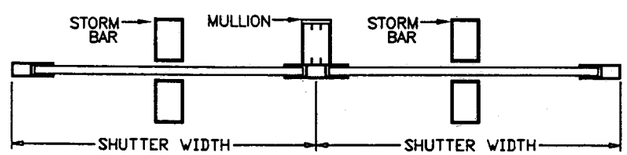

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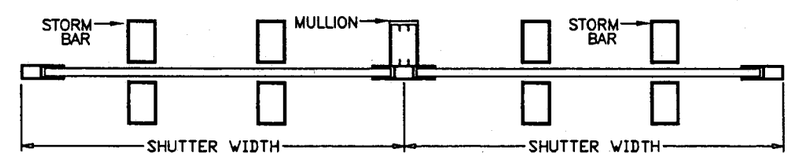

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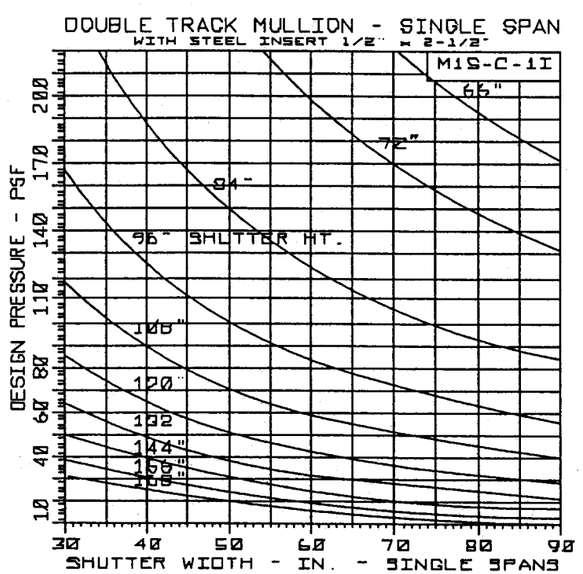

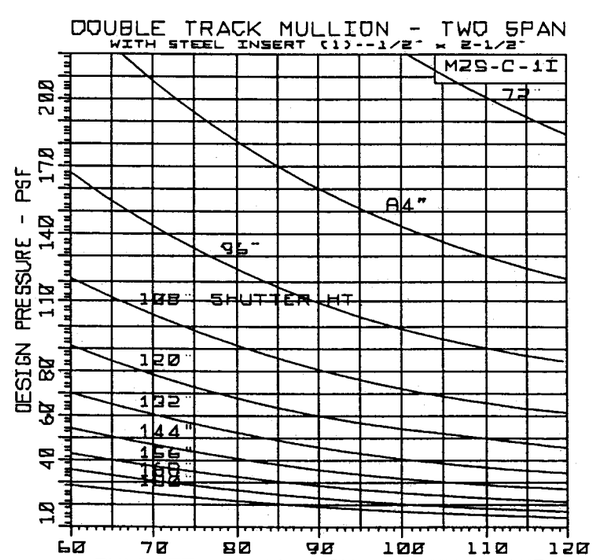

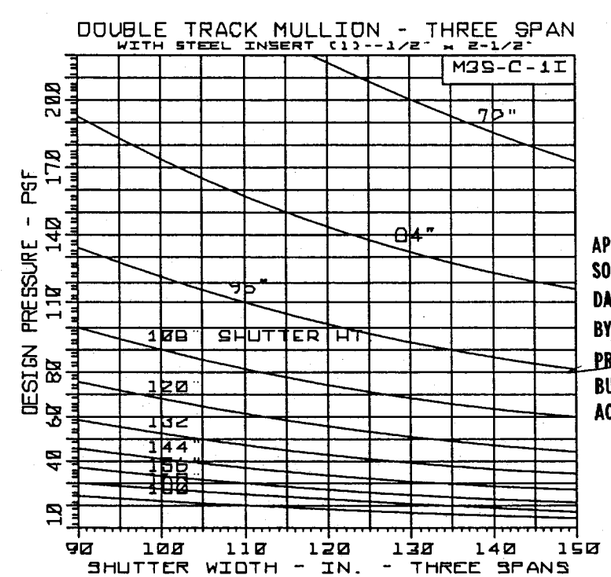

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EST. 1957

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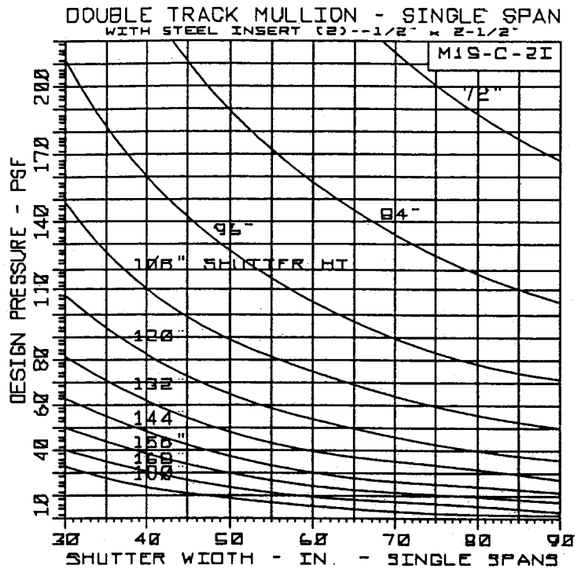

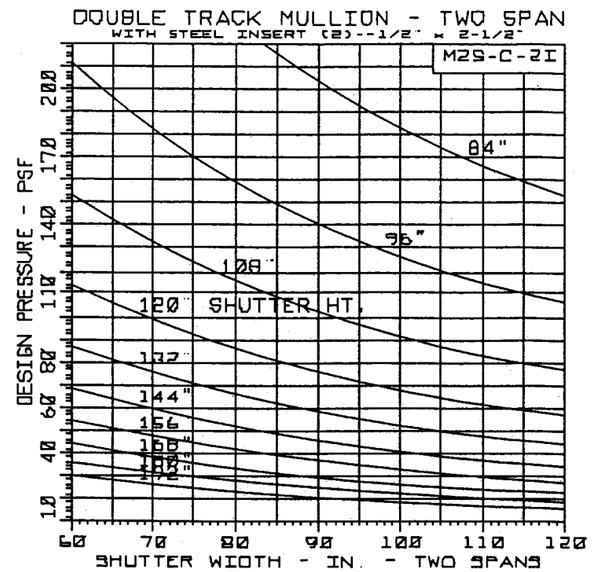

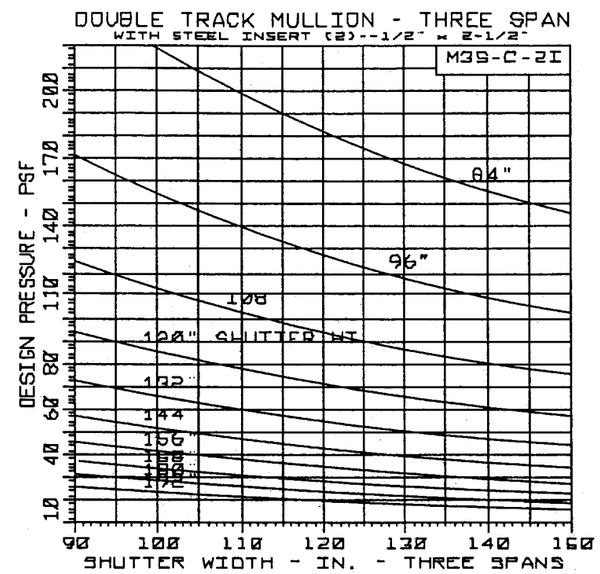

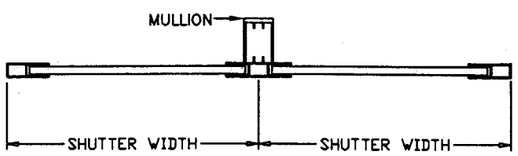

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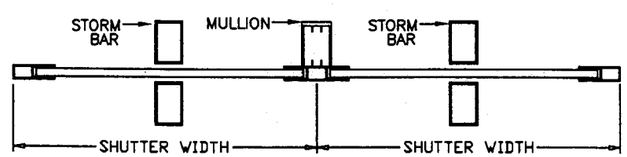

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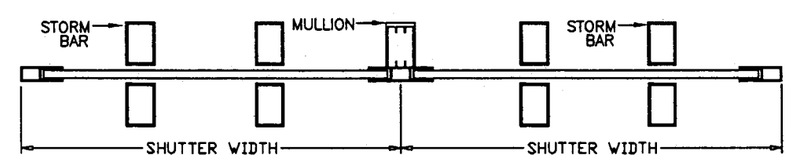

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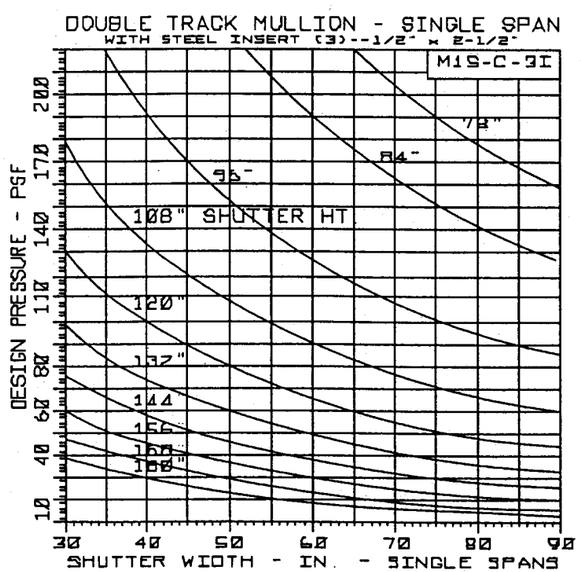

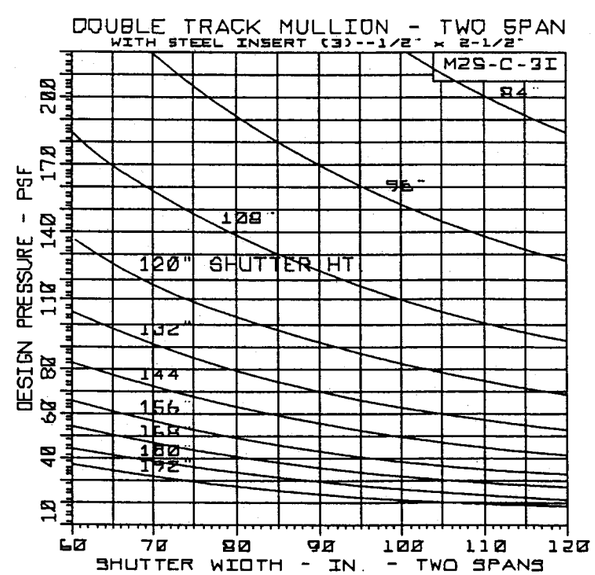

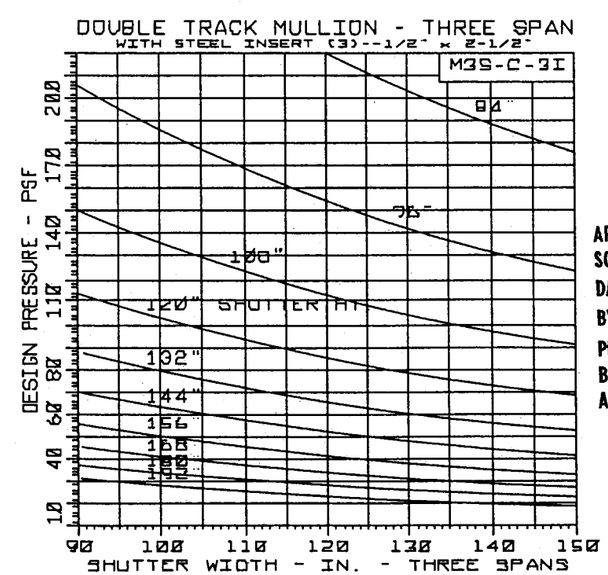

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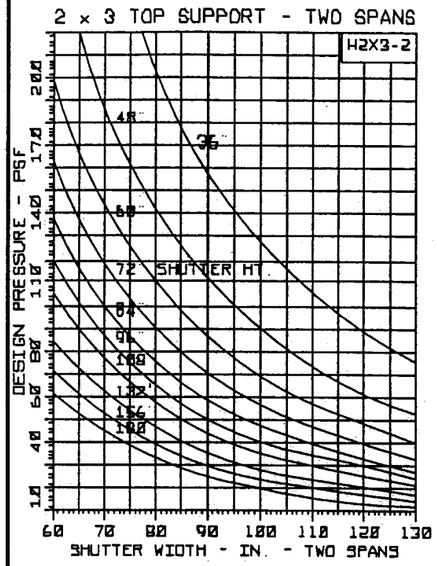

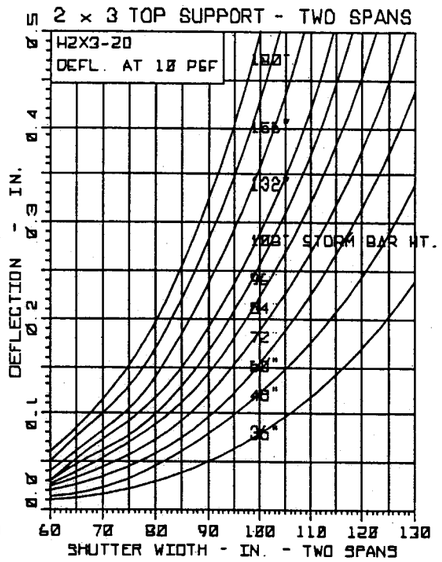

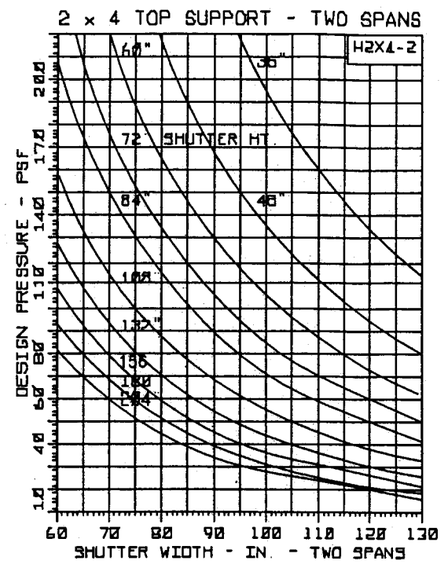

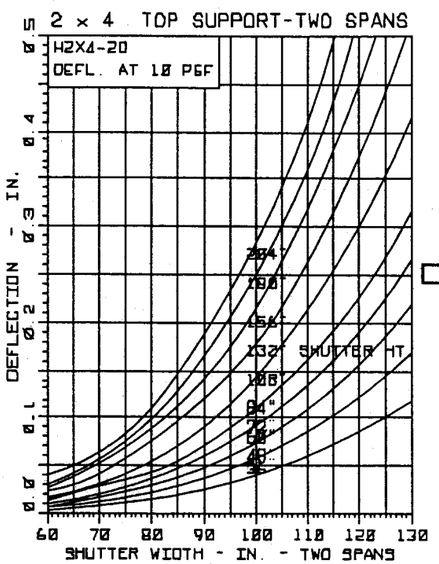

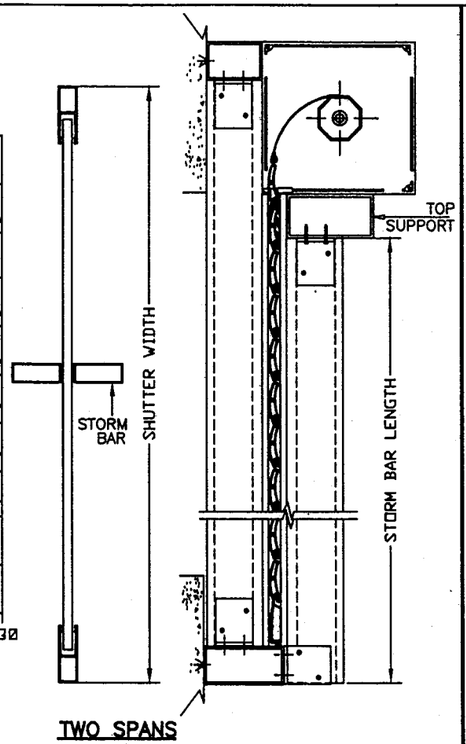

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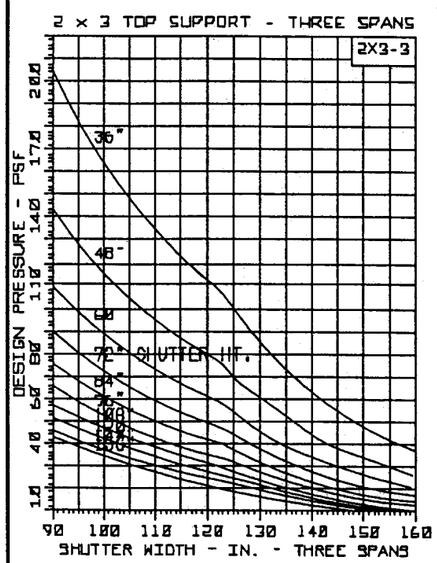

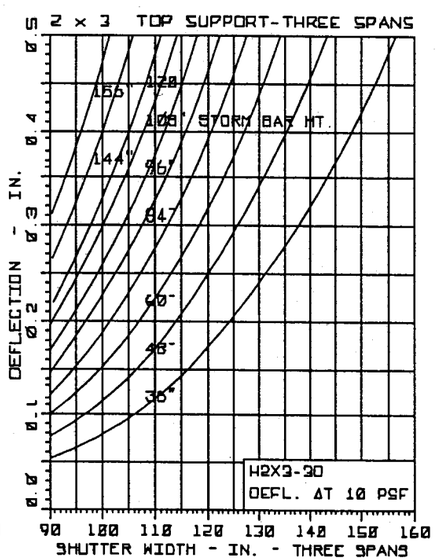

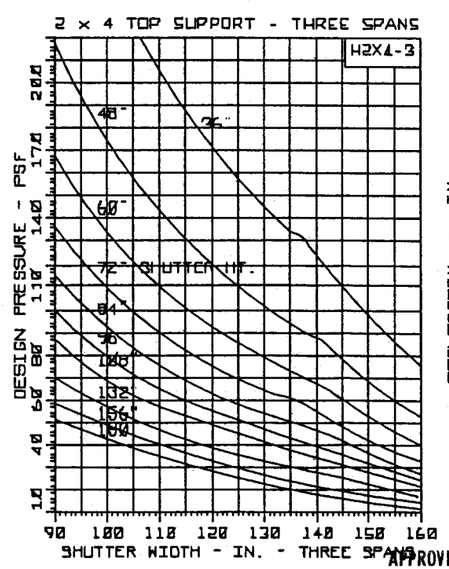

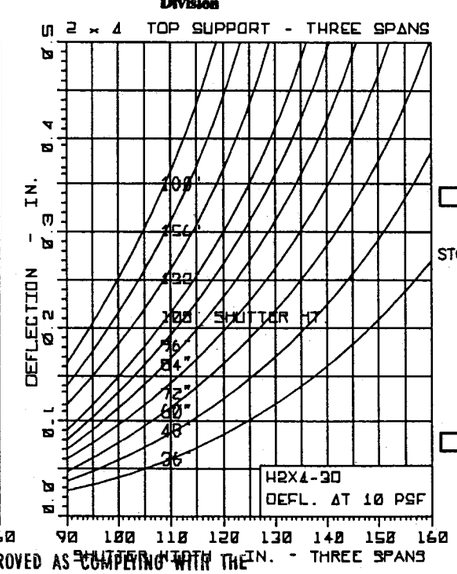

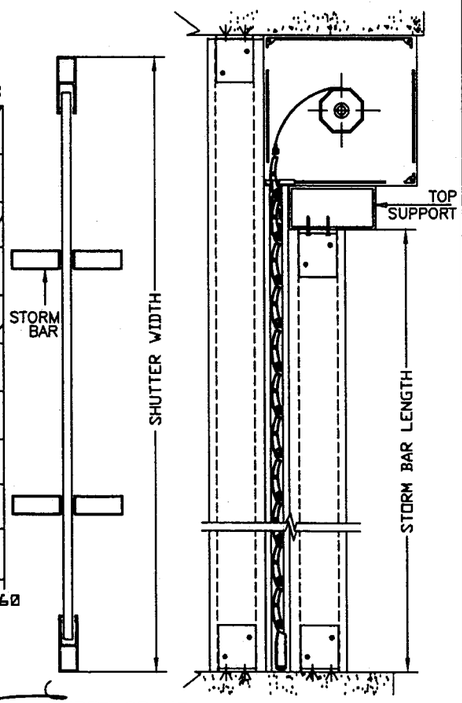

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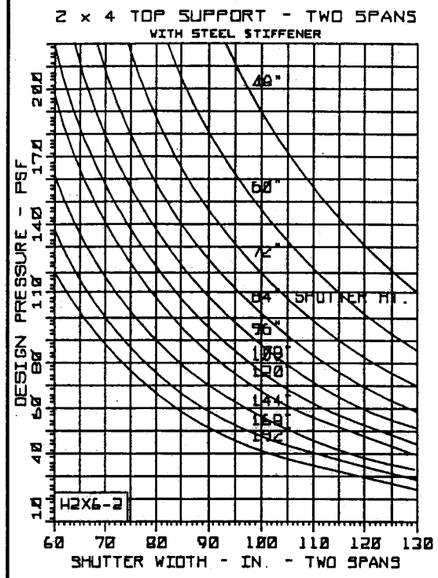

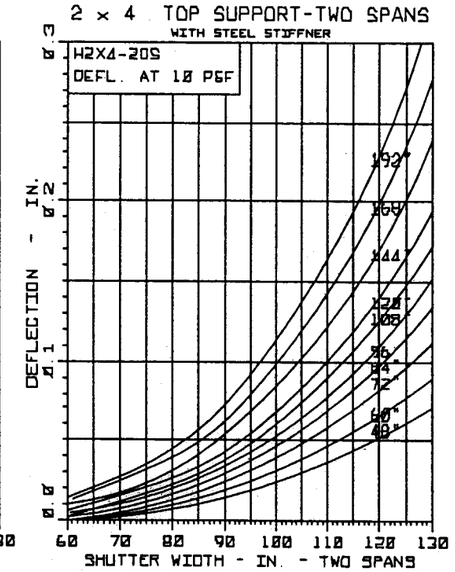

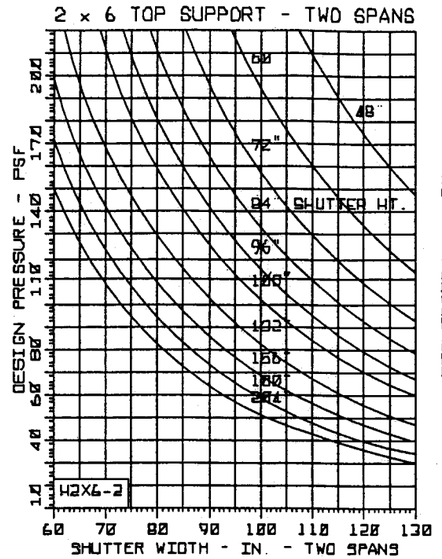

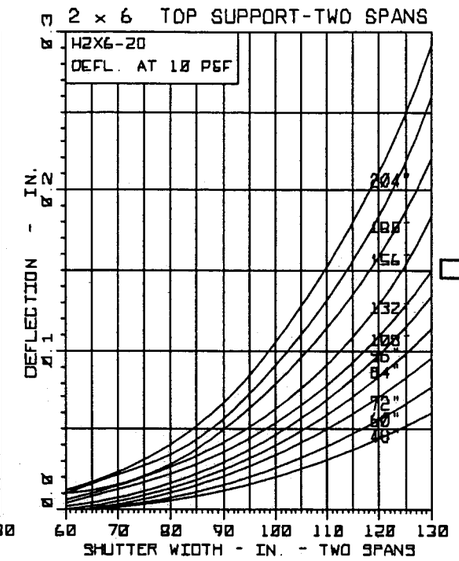

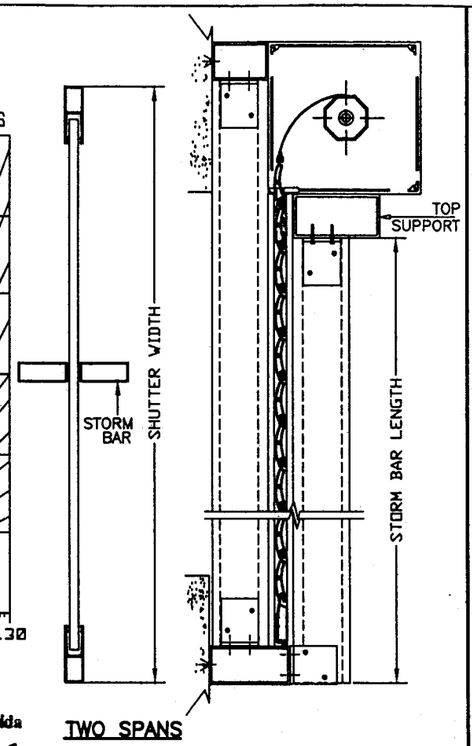

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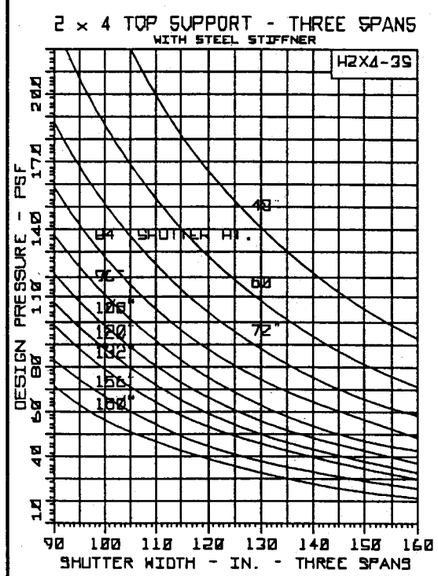

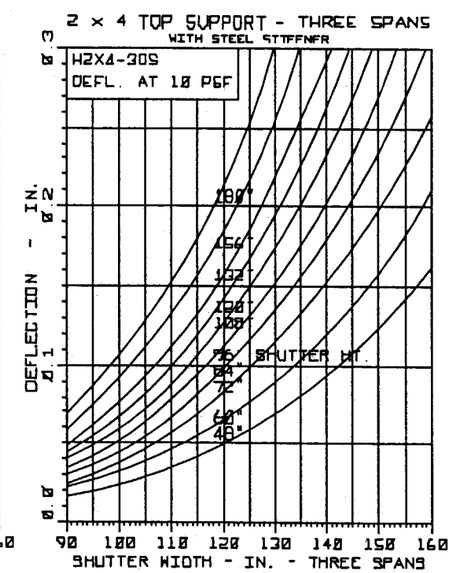

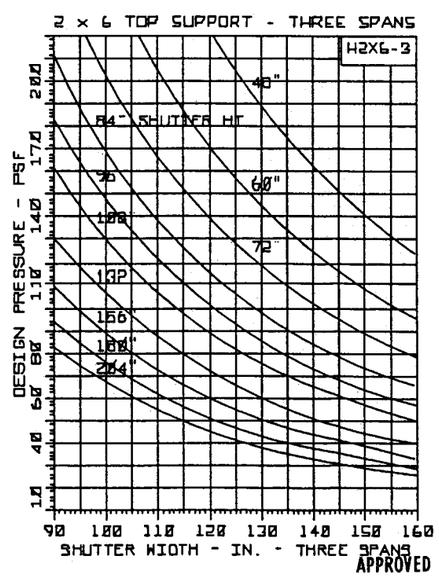

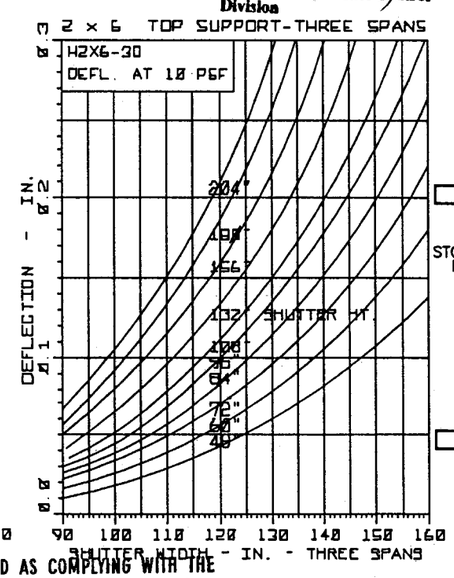

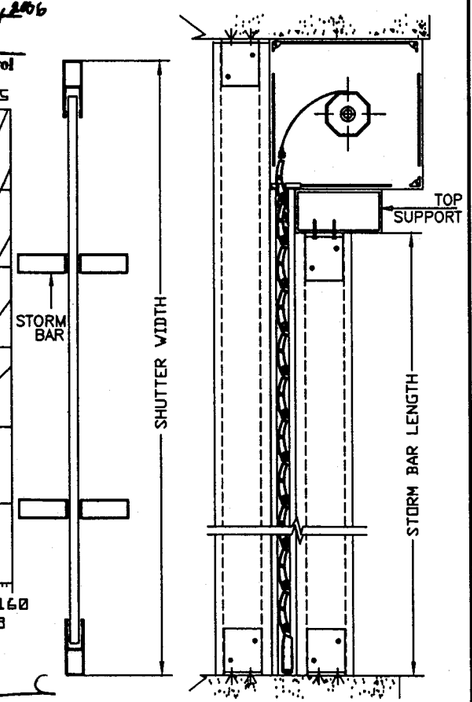

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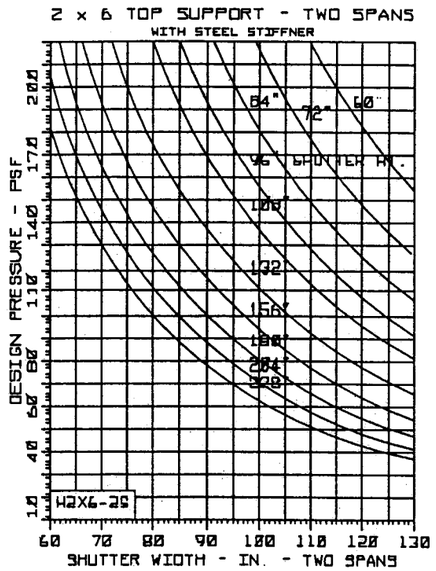

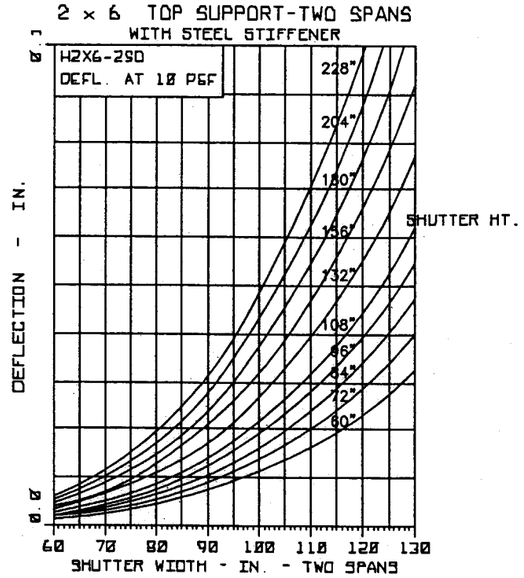

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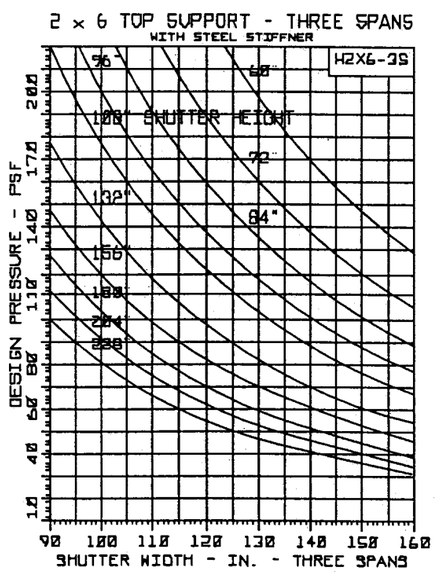

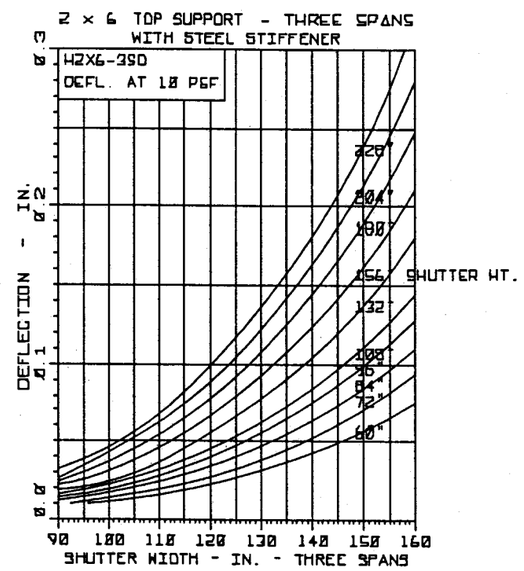

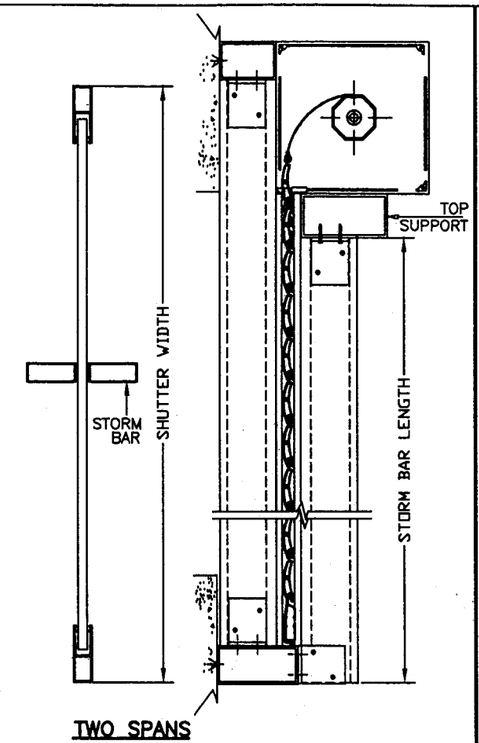

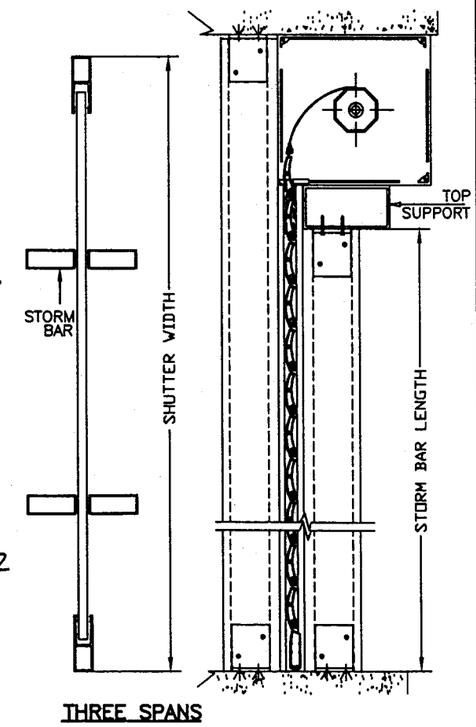

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Acceptance No 02-0312.07
Expiration Date April 15, 2006
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Miami Dade Product Control Division

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
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BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 01-0206.12

JAN 31 2001

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

ROLLUP\01-06MTI

MAXIMUM IMPACT 50mm ROLL-UP SHUTTER

METALTECH, INC.
EST. 1957 7836 W. SECOND CT. HIALEAH, FL 33014

revisions:		
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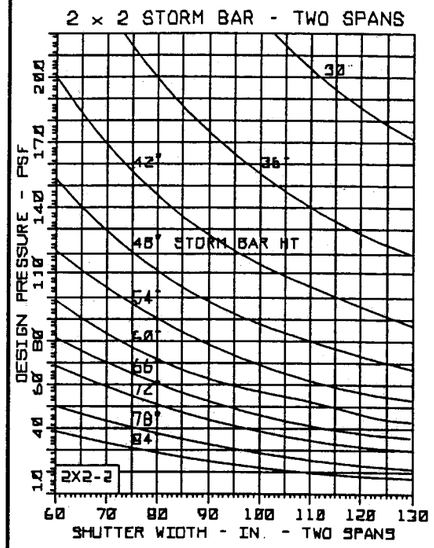
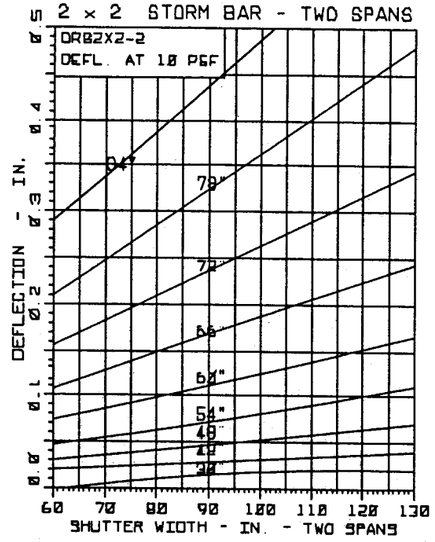
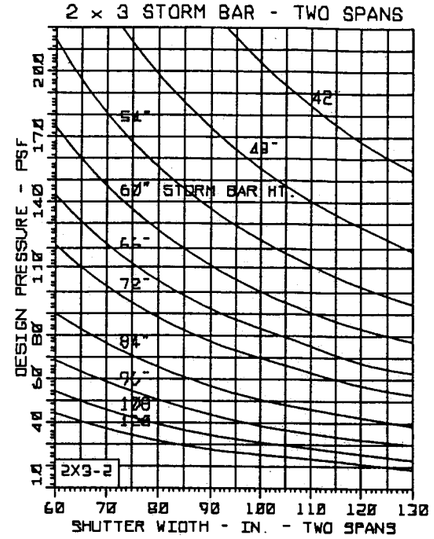
chk. by:

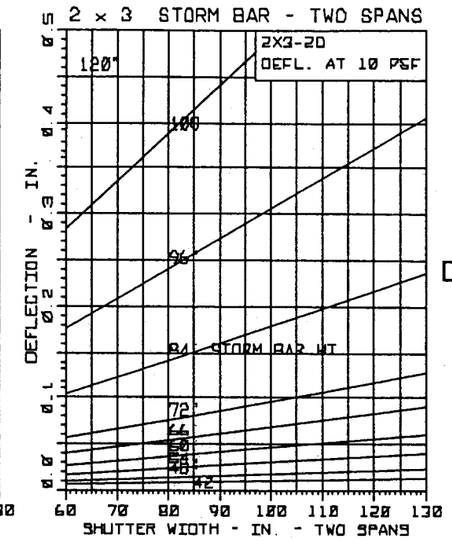
drawing no. 01-06

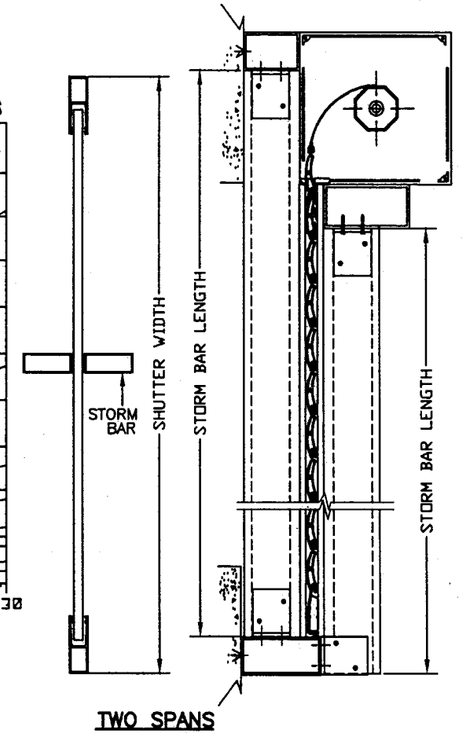
sheet 13 of 18











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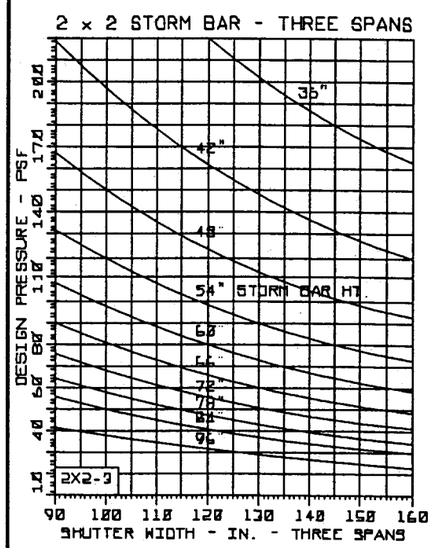

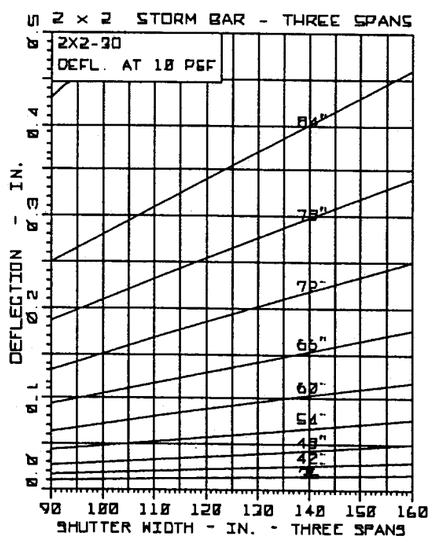

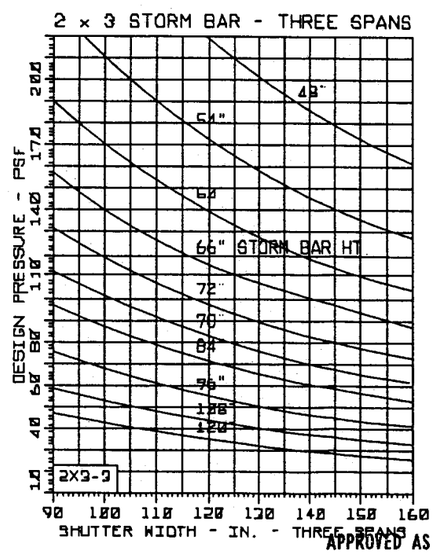

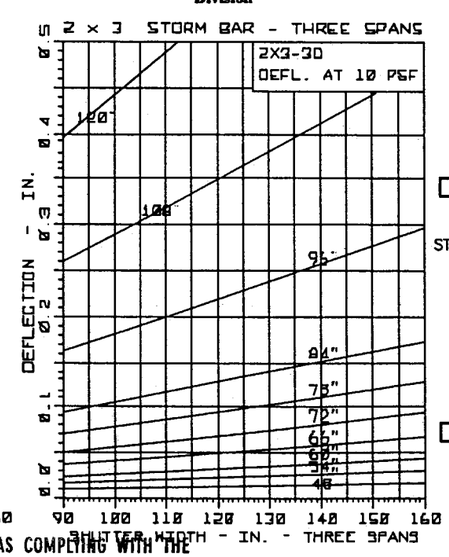

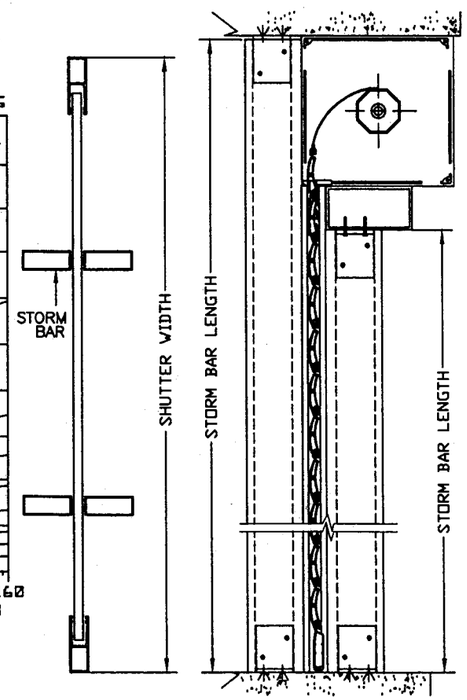

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MAXIMUM IMPACT 50mm ROLL-UP SHUTTER

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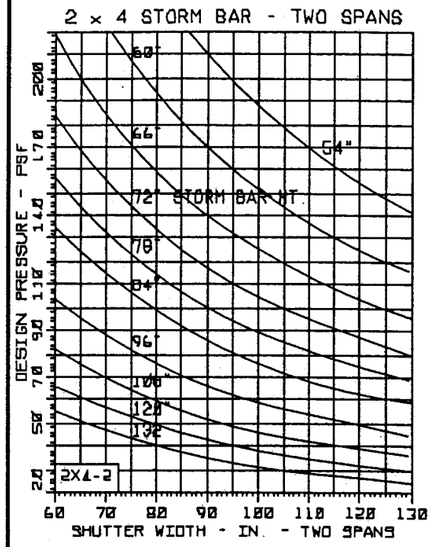

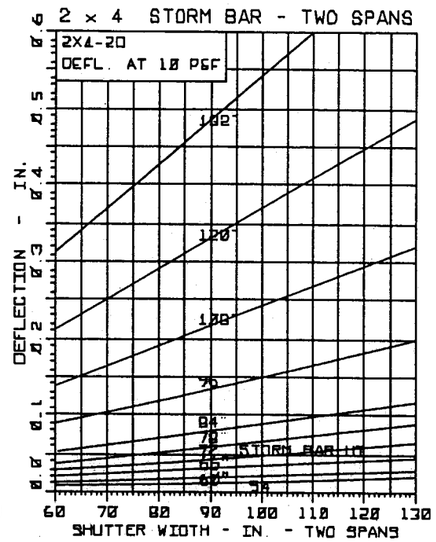

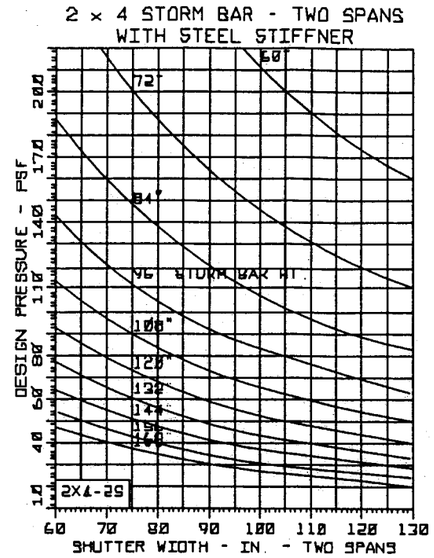

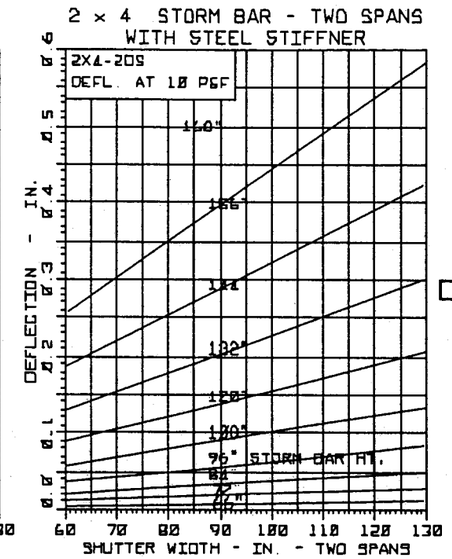

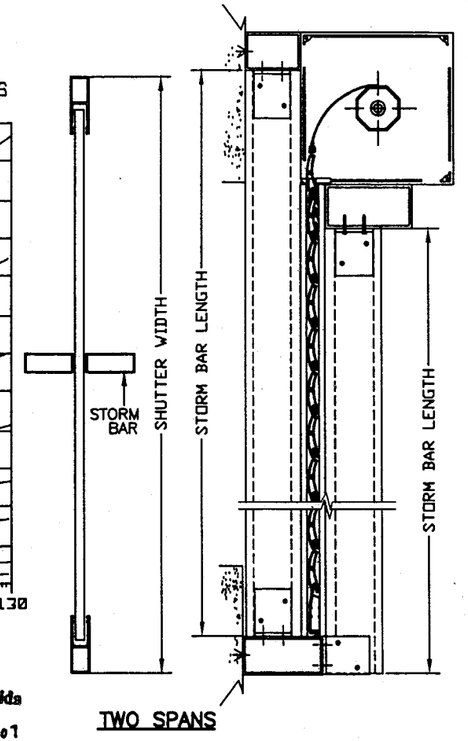

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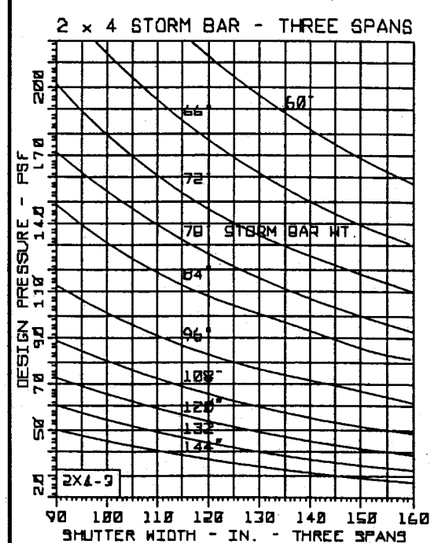

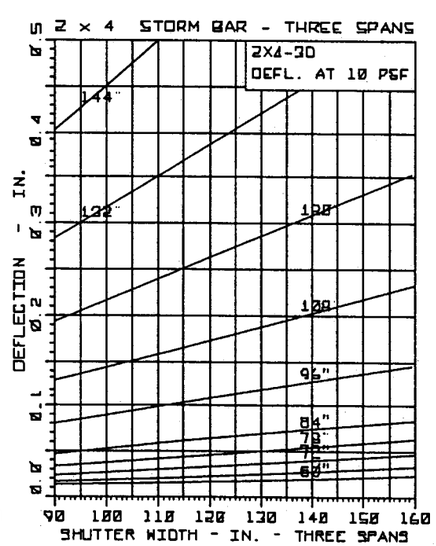

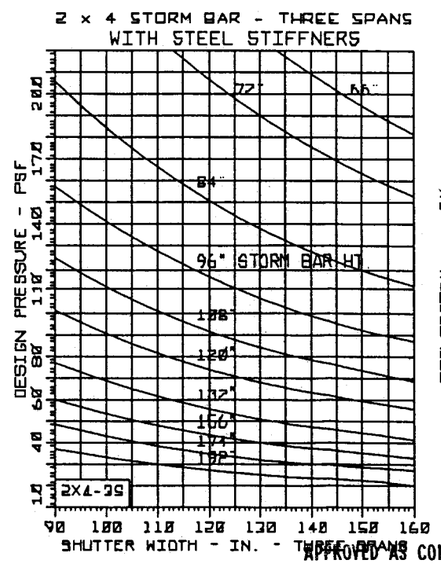

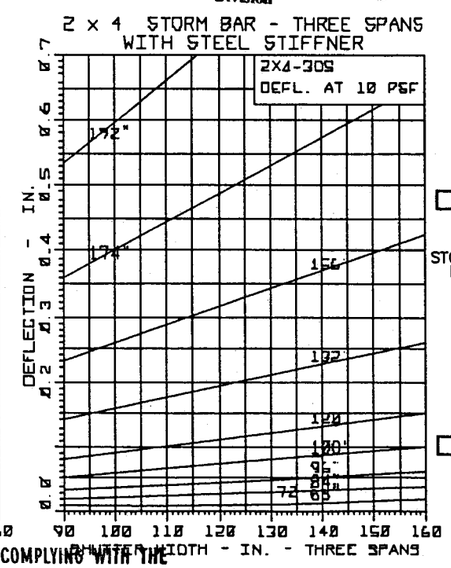

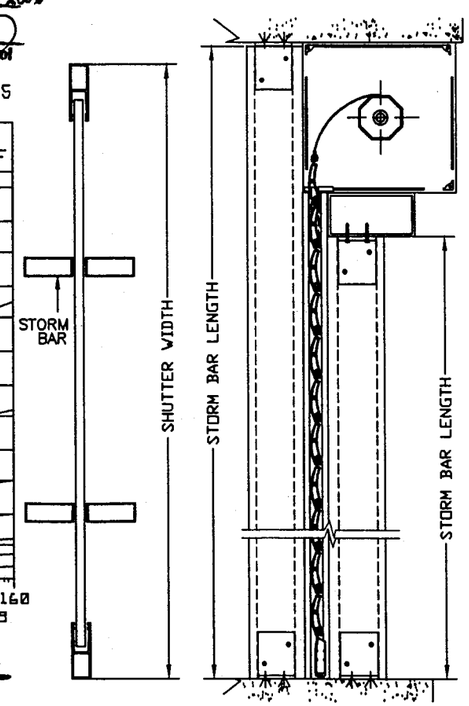

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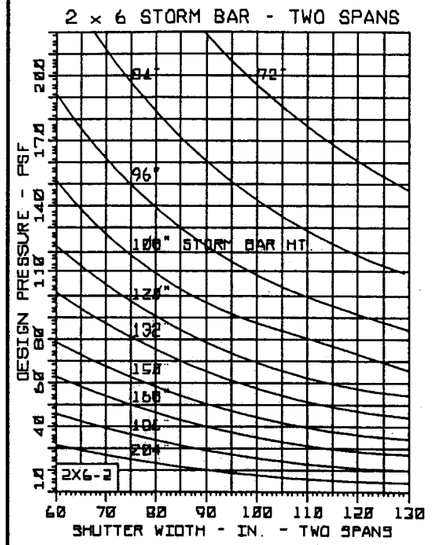

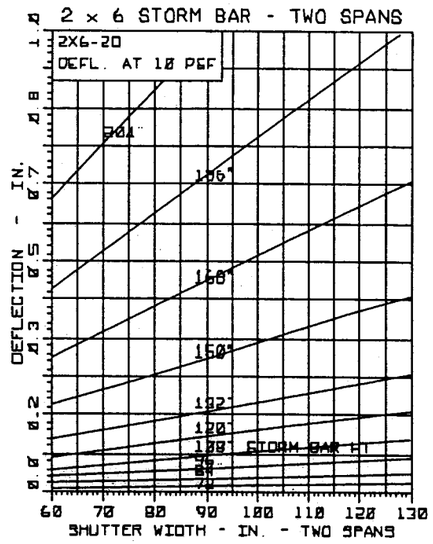

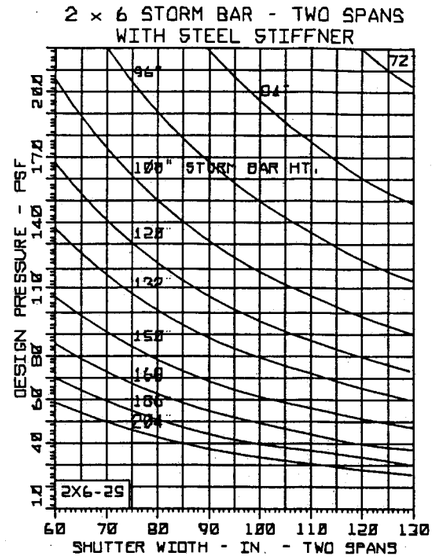

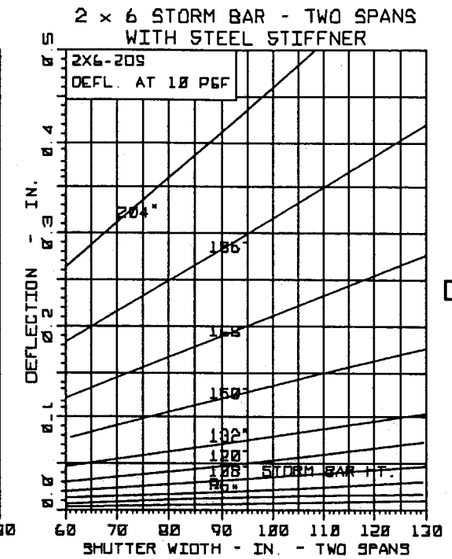

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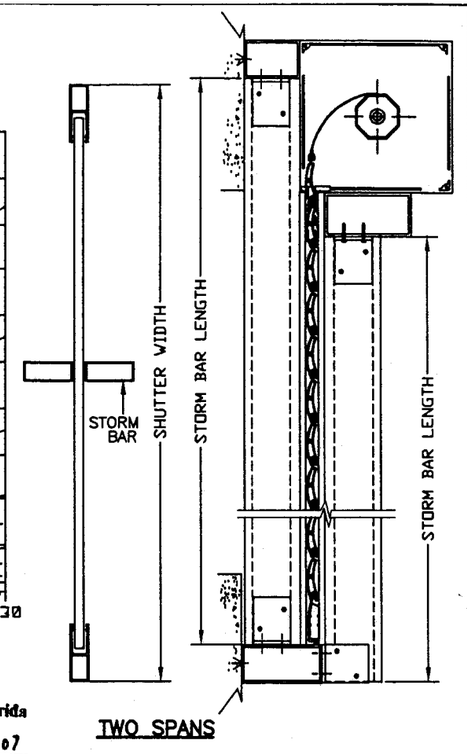

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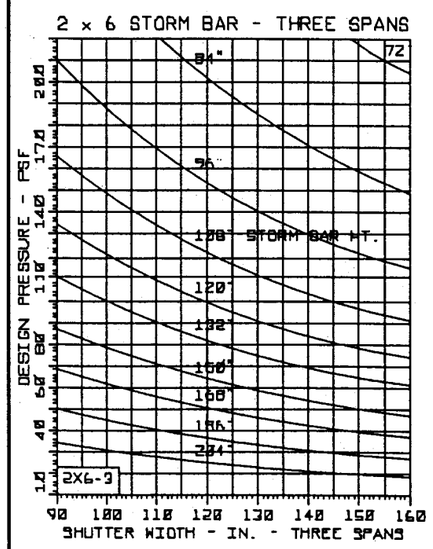

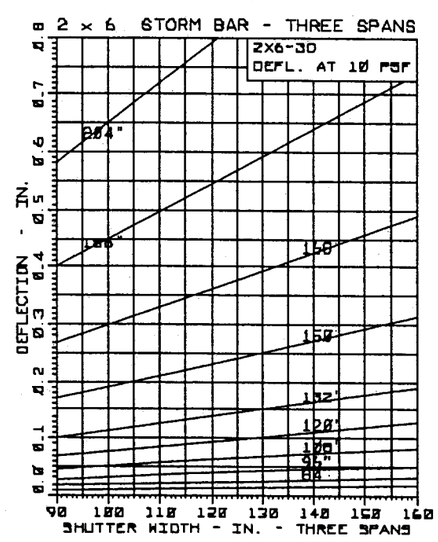

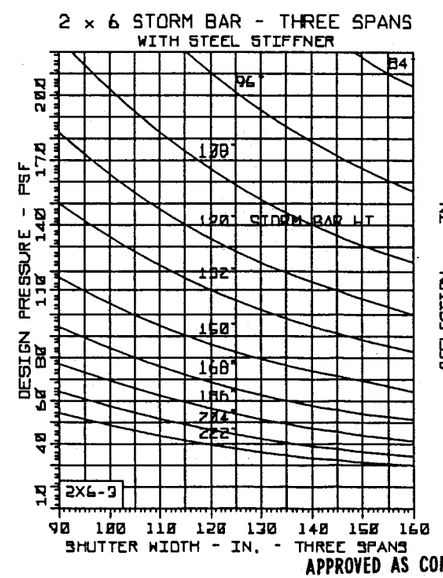

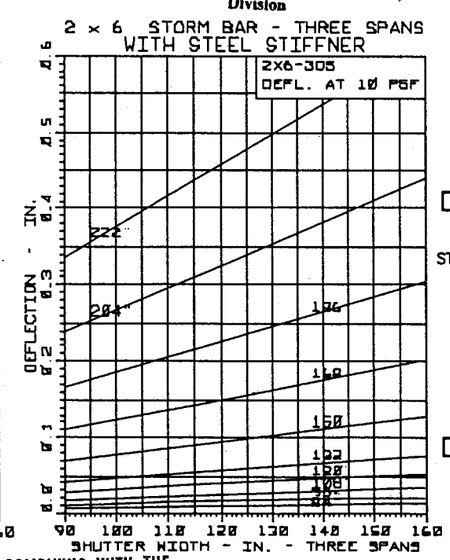

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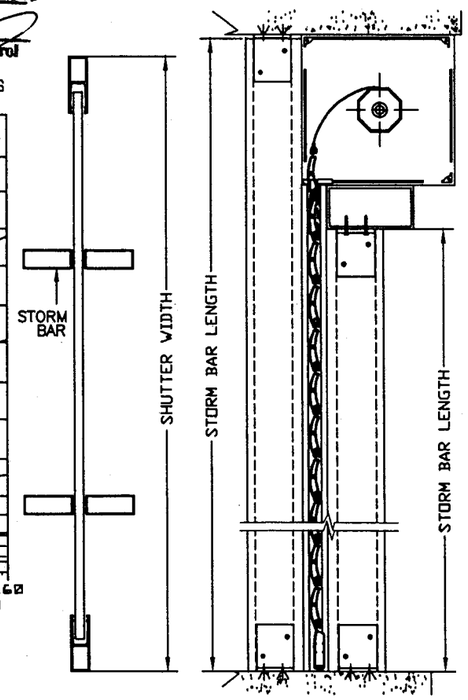

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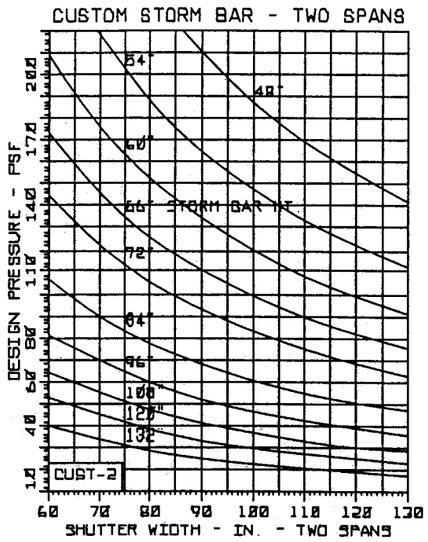

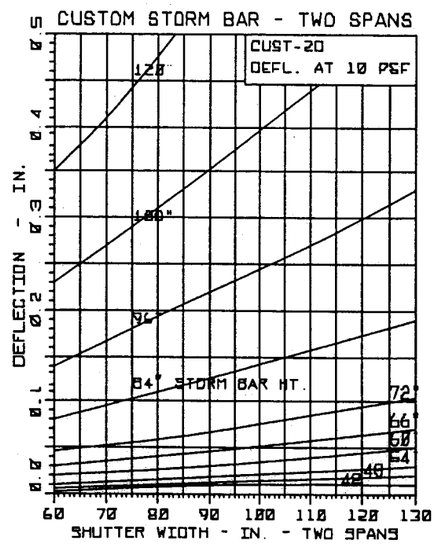

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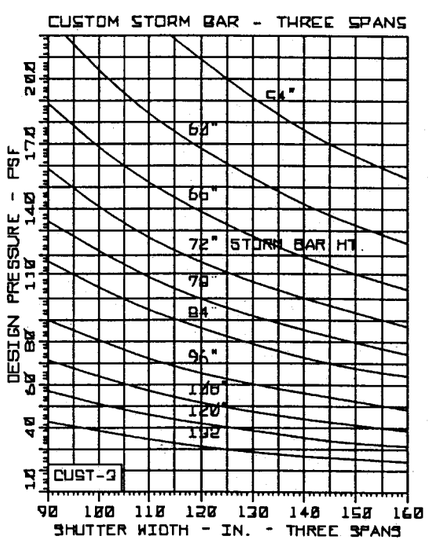

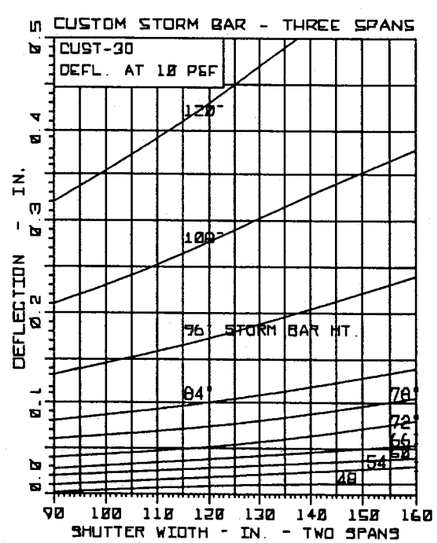

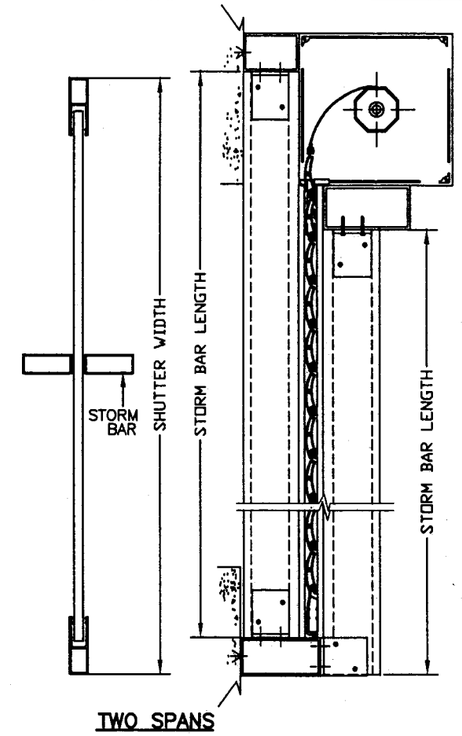

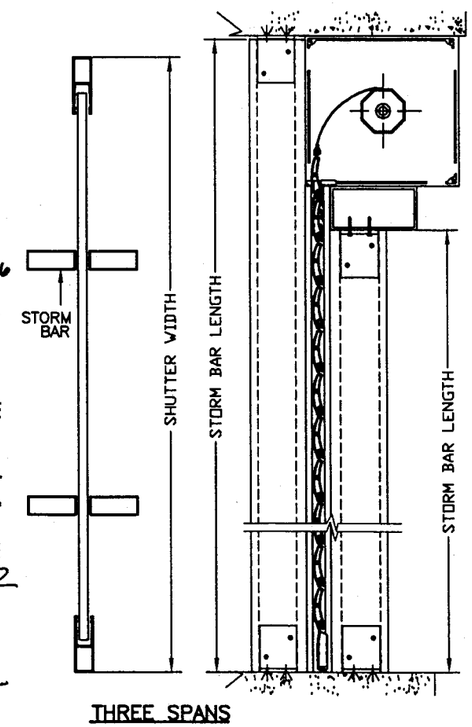

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ROLL SHUTTER OVERALL DEFLECTION CALCULATION SHEET

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	
	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 7-88: 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	
	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.

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
OVERALL DEFLECTION + 1"	3-1/4"
NOTE: NO PART OF SHUTTER SHALL BE UNDER 30' ABOVE GRADE TO WAIVE LARGE MISSILE IMPACT REQUIREMENT.	

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

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for Dade County
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Miami Dade Product Control
Division

APPROVED AS COMPLYING WITH THE
SOUTH FLORIDA BUILDING CODE
DATE APR 19 2001
BY
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 01-0206.12

AL-FAROOQ CORPORATION
ENGINEERS, PLANNERS & PRODUCT DESIGN
1235 SW 87 AVE
MIAMI, FLORIDA 33174
TEL (305) 264-8100 FAX. (305) 262-6978
ROLLUP\01-06MTI

MAXIMUM IMPACT 50mm ROLL-UP SHUTTER

METALTECH, INC.
7635 W. SECOND CT. HIALEAH, FL 33014
EST. 1957

revisions:

no	date	by	description

date: 01-20-01
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no. 01-06

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