FL #	FL39786-R1
Application Type	Revision
Code Version	2023
Application Status	Approved
Comments	
Archived	☐
Product Manufacturer	Mr-Glass Doors & Windows Manufacturing, LLC
Address/Phone/Email	8051 NW 79th Place Medley, FL 33166 (305) 470-8284 ulises@mrglasswindows.com
Authorized Signature	Ulises Senaris ulises@mrglasswindows.com
Technical Representative	Augusto Arias
Address/Phone/Email	8120 NW 84th St Medley, FL 33166 (305) 470-8284 aarias@mrglasswindows.com
Quality Assurance Representative	
Address/Phone/Email	
Category	Panel Walls
Subcategory	Storefronts
Compliance Method	Evaluation Report from a Florida Registered Architect or a Licensed Florida Professional Engineer ☐ Evaluation Report - Hardcopy Received
Florida Engineer or Architect Name who developed the Evaluation Report	Jalal Farooq
Florida License	PE-81223
Quality Assurance Entity	Keystone Certifications, Inc.
Quality Assurance Contract Expiration Date	04/30/2035
Validated By	Abel Carrasco, PE ☑ Validation Checklist - Hardcopy Received
Certificate of Independence	FL39786_R1_COI_SS - Certificate of Independence.pdf

Referenced Standard and Year (of Standard)

Standard	Year
AAMA 501	2015
TAS 202	1994

Equivalence of Product Standards Certified By

Sections from the Code

Product Approval Method	Method 1 Option D
Date Submitted	07/21/2023
Date Validated	07/22/2023
Date Pending FBC Approval	07/28/2023
Date Approved	10/18/2023

Summary of Products

FL #	Model, Number or Name	Description
39786.1	Series MG-4500 Aluminum Window Wall System	Non-Impact Resistant Aluminum Window Wall System.
Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** No **Design Pressure:** +100/-100 **Other:** See installation drawing 21-62F for span vs. load combinations and installation details.		**Installation Instructions** FL39786_R1_II_SS - MG-4500 SF (NI) DWG 21-62F 2023.pdf Verified By: Jalal Farooq PE # 81223 Created by Independent Third Party: Yes **Evaluation Reports** FL39786_R1_AE_SS - MG4500 SF (NI)-PAE 2023.pdf Created by Independent Third Party: Yes

Back Next

AL-FAROOQ CORPORATION

CONSULTING ENGINEERS & PRODUCT DEVELOPMENT

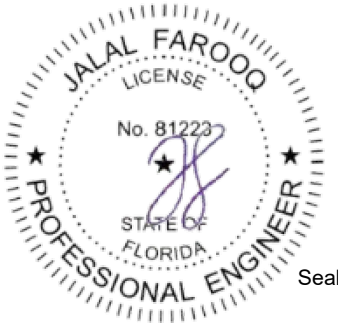
August 11, 2020

Product Approval Administrator
Building Codes & Standards Section
Department of Business & Professional Regulations
1940 North Monroe Street, Suite 90
Tallahassee, FL 32399-2100

To whom it may concern,

As the design engineer retained to prepare the product approval(s) associated with this letter as shown below on this same web page, I do hereby declare that I do not have and will not have any financial interest in any company manufacturing or distributing the referenced product(s), nor do I have or will have any financial interest with any other entity involved in the approval process of the referenced product(s).

Sincerely,



Sealed 8-11-2020

Jalal Farooq, P.E.
CFO

9360 Sunset Drive, Suite 220 | Miami, FL 33173 | T: 305.264.8100 | F: 305.262.6978 | www.afceng.com | alfarooq@afceng.com

AL-FAROOQ CORPORATION

CONSULTING ENGINEERS & PRODUCT DEVELOPMENT

PRODUCT APPROVAL EVALUATION
RULE CHAPTER #61G20-3 • METHOD 1 OPTION D

FL 39786
Date: 07/20/2023

Detailed Product Description:

Manufacturer: MR-GLASS DOORS & WINDOWS MANUFACTURING, LLC.

Manufacturer Address: 8051 NW 79th PLACE, MEDLEY, FL 33166

Model Name: SERIES "MG-4500" ALUMINUM FLUSH GLAZED STOREFRONT SYSTEM

Maximum Load: +100 PSF, -100 PSF (NON-IMPACT)

Installation Drawings # 21-62F

This product complies with the High Velocity Hurricane Zone (HVHZ) testing requirements.

For maximum sizes, combination of span vs loads and anchor type refer to installation drawings.

Comparative analysis used __X__ Yes ___ No

Mandatory Tests (Tested in accordance with AAMA 501/101/I.S.2/NAFS/TAS-202)

TEST	DESCRIPTION	TEST LOCATION	TEST REPORT DATE	TEST REPORT #	TEST SEALED BY
ASTM E283	Air Infiltration Leakage	Hurricane Engineering & Testing, Inc.	09/25/2009 09/16/2009 09/16/2009 09/16/2009 09/16/2009	HETI-09-2545 HETI-09-2546 HETI-09-2548 HETI-09-2549 HETI-09-2550	Candido F. Font, PE
ASTM E331 OR ASTM 547 & TAS 202	Water Penetration	Hurricane Engineering & Testing, Inc.	09/16/2009 09/16/2009	HETI-09-2546 HETI-09-2550	Candido F. Font, PE
ASTM E330 & TAS 202	Uniform Static Air Press.	Hurricane Engineering & Testing, Inc.	09/25/2009 09/16/2009 09/16/2009 09/16/2009 09/16/2009 09/16/2009	HETI-09-2545 HETI-09-2546 HETI-09-2547 HETI-09-2548 HETI-09-2549 HETI-09-2550	Candido F. Font, PE
AAMA 1304	Forced Entry Test	Hurricane Engineering & Testing, Inc.	09/16/2009 09/16/2009 09/16/2009 09/16/2009	HETI-09-2547 HETI-09-2548 HETI-09-2549 HETI-09-2550	Candido F. Font, PE

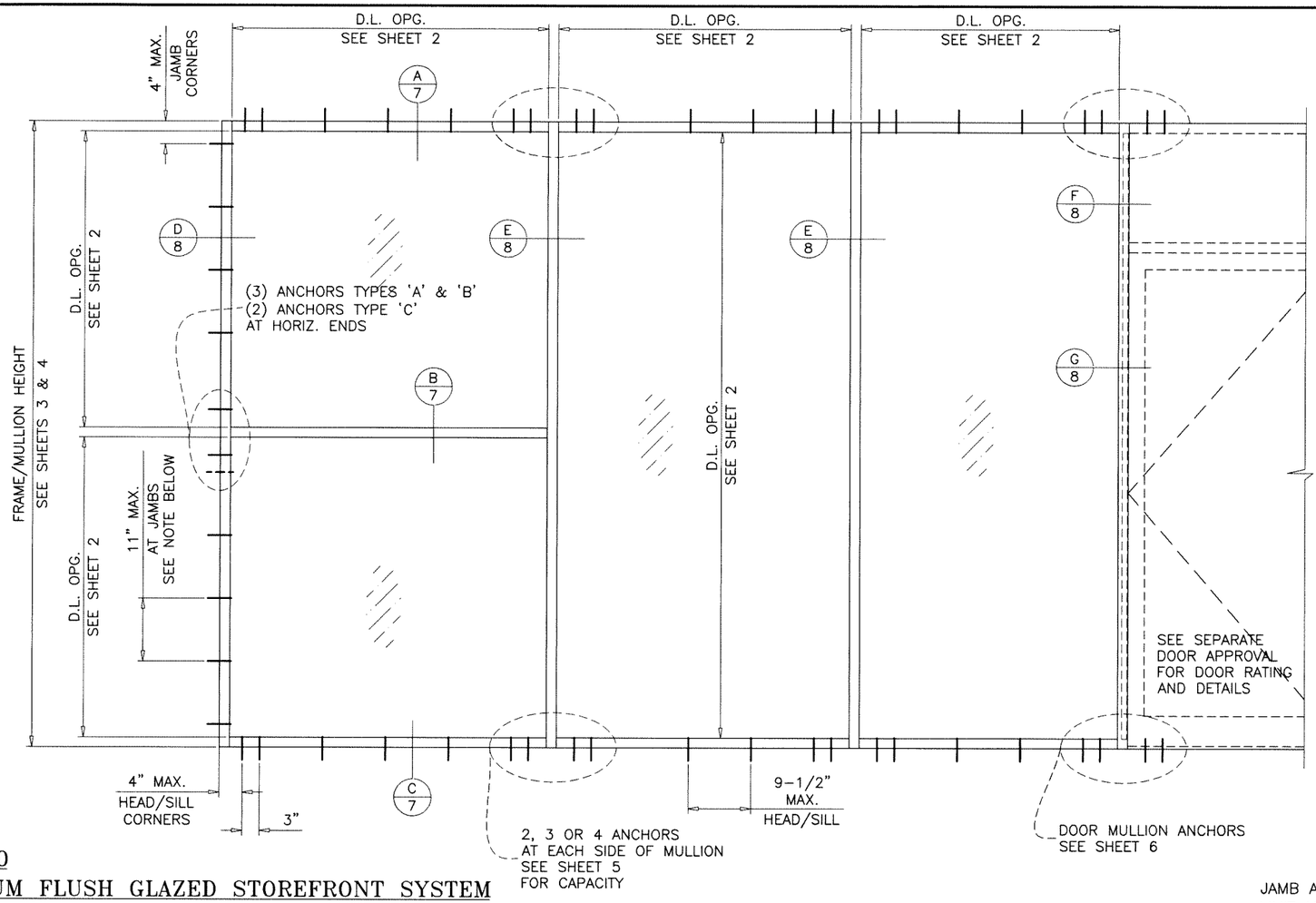
Under the limitations of the attached installation drawings, to the best of my knowledge and ability, the above product conforms to the requirements of the 2023 Florida Building Code.

Evaluation Report Engineer:

JALAL FAROOQ LICENSE No. 81223 STATE OF FLORIDA PROFESSIONAL ENGINEER

Jalal Farooq PE # 81223
Al-Farooq Corporation EB # 3538

Sealed: 7/21/2023



MG-4500
ALUMINUM FLUSH GLAZED STOREFRONT SYSTEM

CODE REQUIREMENTS FOR SAFEGUARDS MUST BE OBSERVED.

THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE 2020 (7TH EDITION)/2023 (8TH EDITION) FLORIDA BUILDING CODE INCLUDING HIGH VELOCITY HURRICANE ZONE (HVHZ).

1BY OR 2BY WOOD BUCKS & BUCK FASTENERS BY OTHERS, MUST BE DESIGNED AND INSTALLED ADEQUATELY TO TRANSFER APPLIED PRODUCT LOADS TO THE BUILDING STRUCTURE.

ANCHORS SHALL BE CORROSION RESISTANT, SPACED AS SHOWN ON DETAILS AND INSTALLED PER MANUF'S INSTRUCTIONS. SPECIFIED EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO.

A LOAD DURATION INCREASE IS USED IN DESIGN OF ANCHORS INTO WOOD ONLY.

ALL SHIMS TO BE HIGH IMPACT, NON-METALLIC AND NON-COMPRESSIBLE.

MATERIALS INCLUDING BUT NOT LIMITED TO STEEL/METAL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE 2020/2023 FLORIDA BLDG. CODE & ADOPTED STANDARDS.

THIS PRODUCT APPROVAL IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT, i.e. LIFE SAFETY OF THIS PRODUCT, ADEQUACY OF STRUCTURE RECEIVING THIS PRODUCT AND SEALING AROUND OPENING FOR WATER INFILTRATION RESISTANCE ETC.
CONDITIONS NOT SHOWN IN THIS DRAWING ARE TO BE ANALYZED SEPARATELY, AND TO BE REVIEWED BY BUILDING OFFICIAL.

DESIGN LOADS SHOWN ARE BASED ON 'ALLOWABLE STRESS DESIGN (ASD)'.

MANUFACTURER'S LABEL SHALL BE LOCATED ON A READILY VISIBLE LOCATION IN ACCORDANCE WITH SECTION 1709.9.3 OF FLORIDA BUILDING CODE. LABELING TO COMPLY WITH SECTION 1709.9.2.

TYPICAL ELEVATIONS

JAMB ANCHORS:
LIMIT MAX. LOAD TO 85.0 PSF
FOR ANCHOR TYPE 'A' ONLY

THIS SYSTEM MAY BE USED IN CONJUNCTION WITH F.B.C. APPROVED FRENCH DOORS.
LOWER DESIGN PRESSURE FROM STOREFRONT OR DOOR APPROVAL WILL APPLY TO ENTIRE SYSTEM.

THIS SYSTEM IS NOT RATED FOR IMPACT.
INSTALLATION OF THIS PRODUCT IN THE HVHZ AREA REQUIRES THE USE OF APPROVED SHUTTERS OR EXTERNAL PROTECTION DEVICES COMPLYING WITH HVHZ REQUIREMENTS.
INSTALLATION OF THIS SYSTEM OUTSIDE THE HVHZ AREA SHALL MEET THE APPLICABLE REQUIREMENTS FOR WIND BORNE DEBRIS PROTECTION.

INSTRUCTIONS:

USE CHARTS AS FOLLOWS.

STEP 1 DETERMINE DESIGN WIND LOAD REQUIREMENT BASED ON WIND VELOCITY, BLDG. HEIGHT, WIND ZONE USING APPLICABLE ASCE 7 STANDARD.

STEP 2 SEE CHARTS ON SHEET 2 FOR DESIGN LOAD CAPACITY OF DESIRED GLASS SIZE.

STEP 3 CHECK MULLION CAPACITY FOR A GIVEN SPACING AND HEIGHT USING CHARTS ON SHEETS 3 & 4 FOR STOREFRONT MULLION AND SHEET 6 FOR DOOR MULLION. THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.

STEP 4 USING CHART ON SHEETS 5 SELECT ANCHOR OPTION WITH DESIGN RATING MORE THAN DESIGN LOAD SPECIFIED IN STEP 1 ABOVE.

STEP 5 THE LOWEST VALUE RESULTING FROM STEPS 2, 3 AND 4 SHALL APPLY TO ENTIRE SYSTEM.

A- CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION OF THIS PRODUCT BASED ON THIS PRODUCT EVALUATION PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT.

B- THIS PRODUCT EVALUATION DOCUMENT WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.

C- SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A FLORIDA REGISTERED ENGINEER OR ARCHITECT WHICH WILL BECOME THE ENGINEER OF RECORD (E.O.R.) FOR THE PROJECT AND WHO WILL BE RESPONSIBLE FOR THE PROPER USE OF THE P.E.D. ENGINEER OF RECORD, ACTING AS A DELEGATED ENGINEER TO THE P.E.D. ENGINEER SHALL SUBMIT TO THIS LATTER THE SITE SPECIFIC DRAWINGS FOR REVIEW.

D- THIS P.E.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.

Sealed: 7/21/2023

FL #39786

JALAL FAROOQ LICENSE No. 81223 STATE OF FLORIDA PROFESSIONAL ENGINEER

afc
AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3538)
TEL. (305) 264-8100 FAX. (305) 262-6978

COMP-ANL\21-62F-MG

MG-4500 ALUMINUM FLUSH GLAZED SYSTEM (N.I.)

MR-GLASS DOORS & WINDOWS MANUFACTURING, LLC
8051 N.W. 79th Place
Medley, FL. 33166
Tel. (305) 764-3963 Fax. (305) 470-8285

revisions:			
no	date	by	description
A	07.18.23		UPDATED TO 2023 FBC

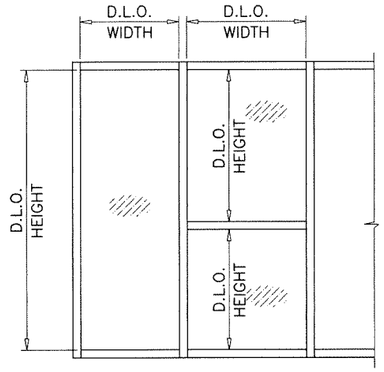
date: 08-25-21
scale: 1/2"=1'-0"
dr. by: TARIQ
chk. by:

drawing no. 21-62F

GLASS LOAD CAPACITY – PSF		
NOMINAL DIMS.		1/4" TEMP. GLASS
D.L.O. WIDTH	D.L.O. HEIGHT	EXT.(+)/INT.(–)
22–1/4"	68–1/2"	100.0
28–1/4"		100.0
34–1/4"		100.0
40–1/4"		100.0
46–1/4"		100.0
52–1/4"		100.0
58–1/4"		100.0
64–1/4"		100.0
22–1/4"	74–1/2"	100.0
28–1/4"		100.0
34–1/4"		100.0
40–1/4"		100.0
46–1/4"		100.0
52–1/4"		100.0
58–1/4"		100.0
22–1/4"	80–1/2"	100.0
28–1/4"		100.0
34–1/4"		100.0
40–1/4"		100.0
46–1/4"		100.0
52–1/4"		100.0
58–1/4"		100.0
22–1/4"	86–1/2"	100.0
28–1/4"		100.0
34–1/4"		100.0
40–1/4"		100.0
46–1/4"		100.0
52–1/4"		100.0
22–1/4"	92–1/2"	100.0
28–1/4"		100.0
34–1/4"		100.0
40–1/4"		100.0
46–1/4"		100.0
22–1/4"	94–1/2"	100.0
28–1/4"		100.0
34–1/4"		100.0
40–1/4"		100.0
46–1/4"		100.0

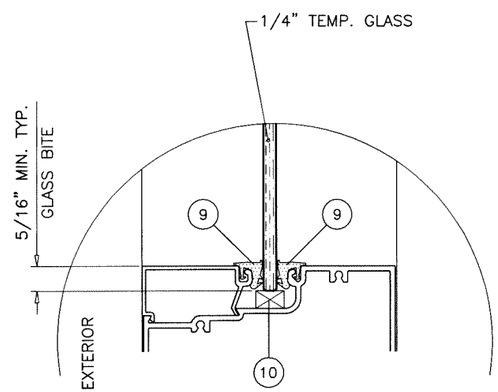
GLASS LOAD CAPACITY – PSF		
NOMINAL DIMS.		1/4" TEMP. GLASS
D.L.O. WIDTH	D.L.O. HEIGHT	EXT.(+)/INT.(–)
22–1/4"	98–1/2"	100.0
28–1/4"		100.0
34–1/4"		100.0
40–1/4"		100.0
46–1/4"		100.0
22–1/4"	104–1/2"	100.0
28–1/4"		100.0
34–1/4"		100.0
40–1/4"		100.0
22–1/4"	110–1/2"	100.0
28–1/4"		100.0
34–1/4"		100.0
40–1/4"		100.0
22–1/4"	116–1/2"	100.0
28–1/4"		100.0
34–1/4"		100.0
40–1/4"		100.0

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



LOADS SHOWN IN CHARTS ARE FOR INSTALLATIONS WHERE WATER INFILTRATION RESISTANCE IS NOT REQUIRED. LIMIT EXTERIOR LOADS TO +60.0 PSF FOR INSTALLATIONS WHERE WATER INFILTRATION RESISTANCE IS REQUIRED.

NOTE:
GLASS CAPACITIES ON THIS SHEET ARE BASED ON ASTM E1300–09 (3 SEC. GUSTS).



GLAZING DETAIL

GLASS

Sealed: 7/21/2023

FL #39786

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3538)
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MG–4500 ALUMINUM FLUSH GLAZED SYSTEM (N.I.)

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revisions:

no	date	by	description

date: 08–25–21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

drawing no. 21–62F

sheet 2 of 9

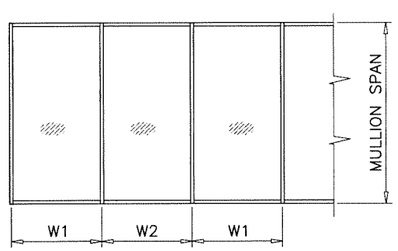
MULLION LOAD CAPACITY – PSF
WITHOUT INTERMEDIATE HORIZONTALS

NOMINAL DIMS.		MULLION 'M1'	MULLION 'M2'	MULLION 'M3'	MULLION 'M4'
WIDTH (W)	FRAME HEIGHT	EXT.(+)/INT.(–)	EXT.(+)/INT.(–)	EXT.(+)/INT.(–)	EXT.(+)/INT.(–)
24"	60"	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0
42"		100.0	100.0	100.0	100.0
48"		100.0	100.0	100.0	100.0
54"		100.0	100.0	100.0	100.0
60"		100.0	100.0	100.0	100.0
66"		100.0	100.0	100.0	100.0
72"		100.0	100.0	100.0	100.0
24"	66"	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0
42"		100.0	100.0	100.0	100.0
48"		100.0	100.0	100.0	100.0
54"		100.0	100.0	100.0	100.0
60"		100.0	100.0	100.0	100.0
66"		100.0	100.0	100.0	100.0
72"		–	–	100.0	100.0
24"	72"	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0
42"		100.0	100.0	100.0	100.0
48"		99.4	99.6	100.0	100.0
54"		92.7	92.9	100.0	100.0
60"		88.3	88.5	100.0	100.0
66"		–	–	100.0	100.0
72"		–	–	100.0	100.0
24"	78"	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0
42"		90.6	90.9	100.0	100.0
48"		82.0	82.3	100.0	100.0
54"		75.8	76.1	100.0	100.0
60"		–	–	100.0	100.0
66"		–	–	100.0	100.0
72"		–	–	100.0	100.0
24"	84"	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0
36"		87.2	87.6	100.0	100.0
42"		76.5	76.9	100.0	100.0
48"		68.9	69.2	100.0	100.0
54"		63.3	63.6	100.0	100.0
60"		–	–	100.0	100.0
66"		–	–	99.0	98.3
24"	90"	100.0	100.0	100.0	100.0
30"		88.4	88.9	100.0	100.0
36"		74.9	75.3	100.0	100.0
42"		65.5	65.9	100.0	100.0
48"		58.7	59.0	100.0	100.0
54"		–	–	94.9	94.3
60"		–	–	88.3	87.7

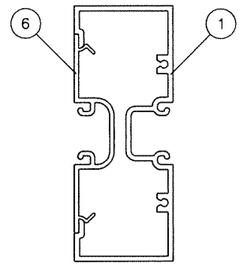
MULLION LOAD CAPACITY – PSF
WITHOUT INTERMEDIATE HORIZONTALS

NOMINAL DIMS.		MULLION 'M1'	MULLION 'M2'	MULLION 'M3'	MULLION 'M4'
WIDTH (W)	FRAME HEIGHT	EXT.(+)/INT.(–)	EXT.(+)/INT.(–)	EXT.(+)/INT.(–)	EXT.(+)/INT.(–)
24"	96"	93.8	92.1	100.0	100.0
30"		76.1	74.7	100.0	100.0
36"		64.6	63.4	100.0	100.0
42"		56.5	55.5	100.0	100.0
48"		50.7	49.8	90.1	89.5
54"		–	–	82.1	81.6
60"		–	–	76.0	75.5
24"	97–3/4"	88.8	87.2	100.0	100.0
30"		72.0	70.7	100.0	100.0
36"		61.0	59.9	100.0	100.0
42"		53.4	52.4	97.1	96.4
45"		50.4	49.5	91.5	90.9
46–1/2"		49.1	48.2	89.0	88.4
48"		–	–	86.6	86.1
54"		–	–	78.8	78.3
60"		–	–	72.9	72.4
24"	102"	–	–	100.0	100.0
30"		–	–	100.0	100.0
36"		–	–	100.0	100.0
42"		–	–	88.7	88.1
48"		–	–	79.0	78.5
54"		–	–	71.7	71.3
24"	108"	–	–	100.0	100.0
30"		–	–	100.0	100.0
36"		–	–	90.5	89.9
42"		–	–	78.6	78.1
48"		–	–	69.9	69.4
54"		–	–	63.3	62.9
24"	114"	–	–	100.0	100.0
30"		–	–	96.1	95.5
36"		–	–	80.9	80.4
42"		–	–	70.2	69.7
48"		–	–	62.3	61.9
24"	120"	–	–	100.0	100.0
30"		–	–	86.6	86.0
36"		–	–	72.8	72.3
42"		–	–	63.1	62.7
48"		–	–	55.9	55.5

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.

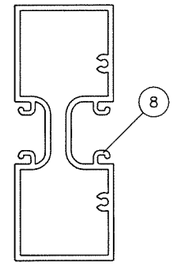


$$\text{WIDTH (W)} = \frac{W1 + W2}{2}$$



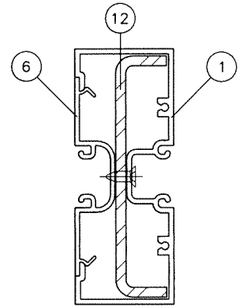
MULLION 'M1'

Ix IN^4	Sx IN^3
3.1382	1.3948



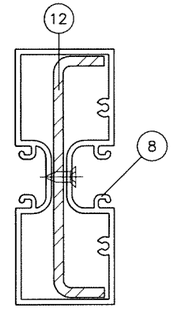
MULLION 'M2'

Ix IN^4	Sx IN^3
3.0804	1.3691



MULLION 'M3'

	Ix IN^4	Sx IN^3
ALUMINUM	3.1382	1.3948
STEEL	2.0346	.9575
TOTAL Ix ALUM + Ix STL X 2.9	8.9801	



MULLION 'M4'

	Ix IN^4	Sx IN^3
ALUMINUM	3.0804	1.3691
STEEL	2.0346	.9575
TOTAL Ix ALUM + Ix STL X 2.9	8.9223	

LOADS SHOWN IN CHARTS ARE FOR INSTALLATIONS WHERE WATER INFILTRATION RESISTANCE IS NOT REQUIRED.
LIMIT EXTERIOR LOADS TO +60.0 PSF FOR INSTALLATIONS WHERE WATER INFILTRATION RESISTANCE IS REQUIRED.

MULLIONS

Sealed: 7/21/2023

FL #39786

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3538)
TEL. (305) 264-8100 FAX. (305) 262-6978

COMP-ANL\21-62F-MG

MG-4500 ALUMINUM FLUSH GLAZED SYSTEM (N.I.)

MR-GLASS DOORS & WINDOWS MANUFACTURING, LLC
8051 N.W. 79th Place
Medley, FL. 33166
Tel. (305) 764-3963 Fax. (305) 470-8285

revisions:

no	date	by	description

date: 08-25-21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

drawing no. 21–62F

sheet 3 of 9

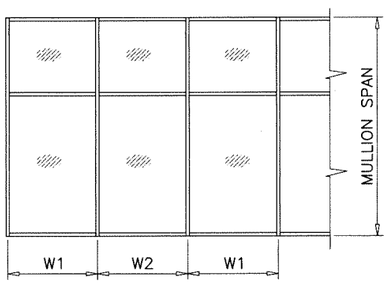
MULLION LOAD CAPACITY – PSF
WITH INTERMEDIATE HORIZONTALS

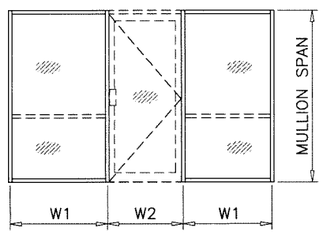
NOMINAL DIMS.		MULLION 'M1'	MULLION 'M2'	MULLION 'M3'	MULLION 'M4'
WIDTH (W)	FRAME HEIGHT	EXT.(+)/INT.(−)	EXT.(+)/INT.(−)	EXT.(+)/INT.(−)	EXT.(+)/INT.(−)
24"	60"	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0
42"		100.0	100.0	100.0	100.0
48"		100.0	100.0	100.0	100.0
54"		100.0	99.9	100.0	100.0
60"		91.6	89.9	100.0	100.0
66"		83.2	81.7	100.0	100.0
72"		76.3	74.9	100.0	100.0
24"	66"	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0
42"		100.0	100.0	100.0	100.0
48"		94.6	92.8	100.0	100.0
54"		84.1	82.5	100.0	100.0
60"		75.7	74.3	100.0	100.0
66"		68.8	67.5	100.0	100.0
72"		–	–	100.0	100.0
24"	72"	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0
42"		90.8	89.2	100.0	100.0
48"		79.5	78.0	100.0	100.0
54"		70.6	69.3	100.0	100.0
60"		63.6	62.4	100.0	100.0
66"		–	–	100.0	100.0
72"		–	–	98.1	97.5
24"	78"	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0
36"		90.3	88.6	100.0	100.0
42"		77.4	76.0	100.0	100.0
48"		67.7	66.5	100.0	100.0
54"		60.2	59.1	100.0	100.0
60"		–	–	100.0	99.7
66"		–	–	91.2	90.6
72"		–	–	83.6	83.1
24"	84"	100.0	100.0	100.0	100.0
30"		93.4	91.7	100.0	100.0
36"		77.9	76.4	100.0	100.0
42"		66.7	65.5	100.0	100.0
48"		58.4	57.3	100.0	100.0
54"		51.9	50.9	96.1	95.5
60"		–	–	86.5	86.0
66"		–	–	78.6	78.1
24"	90"	100.0	99.9	100.0	100.0
30"		81.4	79.9	100.0	100.0
36"		67.8	66.6	100.0	100.0
42"		58.1	57.1	100.0	100.0
48"		50.9	49.9	94.2	93.6
54"		–	–	83.7	83.2
60"		–	–	75.4	74.9

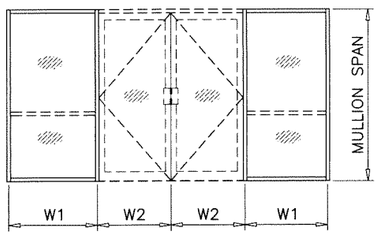
MULLION LOAD CAPACITY – PSF
WITH INTERMEDIATE HORIZONTALS

NOMINAL DIMS.		MULLION 'M1'	MULLION 'M2'	MULLION 'M3'	MULLION 'M4'
WIDTH (W)	FRAME HEIGHT	EXT.(+)/INT.(−)	EXT.(+)/INT.(−)	EXT.(+)/INT.(−)	EXT.(+)/INT.(−)
24"	96"	89.4	87.8	100.0	100.0
30"		71.5	70.2	100.0	100.0
36"		59.6	58.5	100.0	100.0
42"		51.1	50.2	94.6	94.0
48"		44.7	43.9	82.8	82.3
54"		–	–	73.6	73.1
60"		–	–	66.2	65.8
24"	97-3/4"	86.2	84.6	100.0	100.0
30"		69.0	67.7	100.0	100.0
36"		57.5	56.4	100.0	100.0
42"		49.3	48.4	91.3	90.7
45"		46.0	45.1	85.2	84.6
46-1/2"		44.5	43.7	82.4	81.9
48"		–	–	79.9	79.3
54"		–	–	71.0	70.5
60"		–	–	63.9	63.5
24"	102"	–	–	100.0	100.0
30"		–	–	100.0	100.0
36"		–	–	97.8	97.2
42"		–	–	83.8	83.3
48"		–	–	73.3	72.9
54"		–	–	65.2	64.8
24"	108"	–	–	100.0	100.0
30"		–	–	100.0	100.0
36"		–	–	87.2	86.7
42"		–	–	74.8	74.3
48"		–	–	65.4	65.0
54"		–	–	58.1	57.8
24"	114"	–	–	100.0	100.0
30"		–	–	93.9	93.3
36"		–	–	78.3	77.8
42"		–	–	67.1	66.7
48"		–	–	58.7	58.3
24"	120"	–	–	100.0	100.0
30"		–	–	84.8	84.2
36"		–	–	70.6	70.2
42"		–	–	60.6	60.2
48"		–	–	53.0	52.6

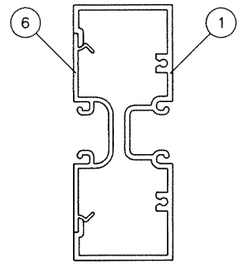
INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.





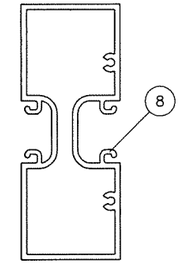


$$\text{WIDTH (W)} = \frac{W1 + W2}{2}$$



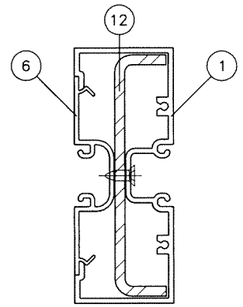
MULLION 'M1'

Ix IN^4	Sx IN^3
3.1382	1.3948



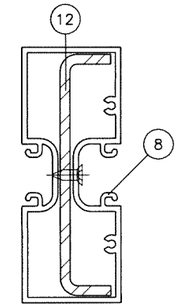
MULLION 'M2'

Ix IN^4	Sx IN^3
3.0804	1.3691



MULLION 'M3'

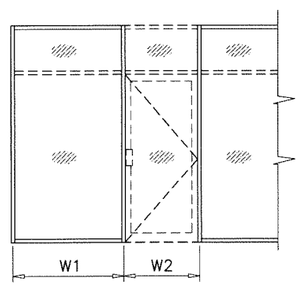
	Ix IN^4	Sx IN^3
ALUMINUM	3.1382	1.3948
STEEL	2.0346	.9575
TOTAL Ix ALUM + Ix STL X 2.9	8.9801	



MULLION 'M4'

	Ix IN^4	Sx IN^3
ALUMINUM	3.0804	1.3691
STEEL	2.0346	.9575
TOTAL Ix ALUM + Ix STL X 2.9	8.9223	

LOADS SHOWN IN CHARTS ARE FOR INSTALLATIONS WHERE WATER INFILTRATION RESISTANCE IS NOT REQUIRED. LIMIT EXTERIOR LOADS TO +60.0 PSF FOR INSTALLATIONS WHERE WATER INFILTRATION RESISTANCE IS REQUIRED.



DOORS NOT PART OF THIS APPROVAL.

MULLIONS

Sealed: 7/21/2023

FL #39786

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3538)
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revisions:

no	date	by	description

date: 08-25-21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

drawing no. 21-62F

sheet 4 of 9

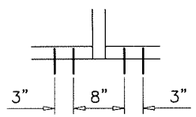
ANCHOR LOAD CAPACITY – PSF
EXT.(+) & INT.(–)

NOMINAL DIMS.		ANCHOR TYPE 'A'			ANCHOR TYPE 'B'		ANCHOR TYPE 'C'	
WIDTH (W)	FRAME HEIGHT	A2	A3	A4	B2	B3	C2	C3
24"	60"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
48"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
54"		92.1	100.0	100.0	100.0	100.0	100.0	100.0
60"		82.9	100.0	100.0	97.8	100.0	100.0	100.0
66"		75.3	100.0	100.0	88.9	100.0	100.0	100.0
72"		69.1	100.0	100.0	81.5	100.0	100.0	100.0
24"	66"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
48"		94.2	100.0	100.0	100.0	100.0	100.0	100.0
54"		83.7	100.0	100.0	98.8	100.0	100.0	100.0
60"		75.3	100.0	100.0	88.9	100.0	100.0	100.0
66"		68.5	100.0	100.0	80.8	100.0	100.0	100.0
72"		62.8	94.2	100.0	74.1	100.0	92.8	100.0
24"	72"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		98.7	100.0	100.0	100.0	100.0	100.0	100.0
48"		86.3	100.0	100.0	100.0	100.0	100.0	100.0
54"		76.7	100.0	100.0	90.5	100.0	100.0	100.0
60"		69.1	100.0	100.0	81.5	100.0	100.0	100.0
66"		62.8	94.2	100.0	74.1	100.0	92.8	100.0
72"		57.6	86.3	100.0	67.9	100.0	85.1	100.0
24"	78"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		91.1	100.0	100.0	100.0	100.0	100.0	100.0
48"		79.7	100.0	100.0	94.0	100.0	100.0	100.0
54"		70.8	100.0	100.0	83.6	100.0	100.0	100.0
60"		63.8	95.6	100.0	75.2	100.0	94.3	100.0
66"		58.0	86.9	100.0	68.4	100.0	85.7	100.0
72"		53.1	79.7	100.0	62.7	94.0	78.6	100.0
24"	84"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		98.7	100.0	100.0	100.0	100.0	100.0	100.0
42"		84.6	100.0	100.0	99.8	100.0	100.0	100.0
48"		74.0	100.0	100.0	87.3	100.0	100.0	100.0
54"		65.8	98.7	100.0	77.6	100.0	97.3	100.0
60"		59.2	88.8	100.0	69.9	100.0	87.5	100.0
66"		53.8	80.7	100.0	63.5	95.3	79.6	100.0
24"	96"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		86.3	100.0	100.0	100.0	100.0	100.0	100.0
42"		74.0	100.0	100.0	87.3	100.0	100.0	100.0
48"		64.8	97.1	100.0	76.4	100.0	95.8	100.0
54"		57.6	86.3	100.0	67.9	100.0	85.1	100.0
60"		51.8	77.7	100.0	61.1	91.7	76.6	100.0

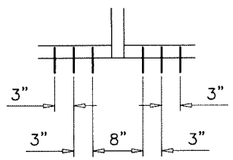
ANCHOR LOAD CAPACITY – PSF
EXT.(+) & INT.(–)

NOMINAL DIMS.		ANCHOR TYPE 'A'			ANCHOR TYPE 'B'		ANCHOR TYPE 'C'	
WIDTH (W)	FRAME HEIGHT	A2	A3	A4	B2	B3	C2	C3
24"	97–3/4"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		84.8	100.0	100.0	100.0	100.0	100.0	100.0
42"		72.7	100.0	100.0	85.8	100.0	100.0	100.0
48"		63.6	95.4	100.0	75.0	100.0	94.0	100.0
54"		56.5	84.8	100.0	66.7	100.0	83.6	100.0
60"		50.9	76.3	100.0	60.0	90.0	75.2	100.0
24"	102"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		97.5	100.0	100.0	100.0	100.0	100.0	100.0
36"		81.3	100.0	100.0	95.9	100.0	100.0	100.0
42"		69.6	100.0	100.0	82.2	100.0	100.0	100.0
48"		60.9	91.4	100.0	71.9	100.0	90.1	100.0
54"		54.2	81.3	100.0	63.9	95.9	80.1	100.0
24"	108"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		92.1	100.0	100.0	100.0	100.0	100.0	100.0
36"		76.7	100.0	100.0	90.5	100.0	100.0	100.0
42"		65.8	98.7	100.0	77.6	100.0	97.3	100.0
48"		57.6	86.3	100.0	67.9	100.0	85.1	100.0
54"		51.2	76.7	100.0	60.4	90.5	75.7	100.0
24"	114"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		87.2	100.0	100.0	100.0	100.0	100.0	100.0
36"		72.7	100.0	100.0	85.8	100.0	100.0	100.0
42"		62.3	93.5	100.0	73.5	100.0	92.2	100.0
48"		54.5	81.8	100.0	64.3	96.5	80.6	100.0
24"	120"	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		82.9	100.0	100.0	97.8	100.0	100.0	100.0
36"		69.1	100.0	100.0	81.5	100.0	100.0	100.0
42"		59.2	88.8	100.0	69.9	100.0	87.5	100.0
48"		51.8	77.7	100.0	61.1	91.7	76.6	100.0

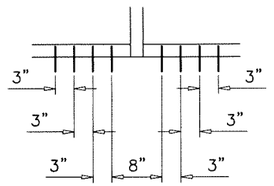
INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



A2, B2, C2



A3, B3, C3



A4

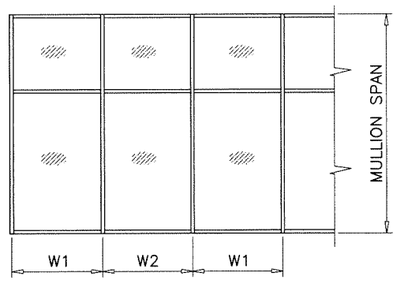
ANCHORS TYPES: SEE SHEET 7 FOR DESCRIPTION

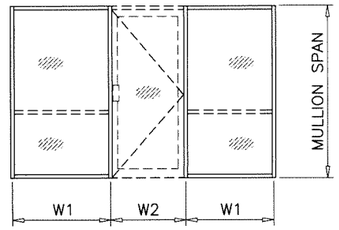
A2 = (2) ANCHORS TYPE 'A' AT EACH SIDE OF MULLION
A3 = (3) ANCHORS TYPE 'A' AT EACH SIDE OF MULLION
A4 = (4) ANCHORS TYPE 'A' AT EACH SIDE OF MULLION

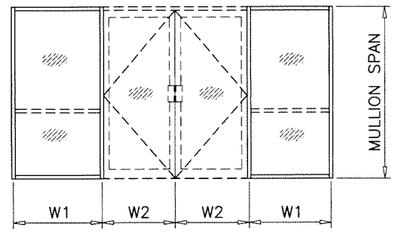
B2 = (2) ANCHORS TYPE 'B' AT EACH SIDE OF MULLION
B3 = (3) ANCHORS TYPE 'B' AT EACH SIDE OF MULLION

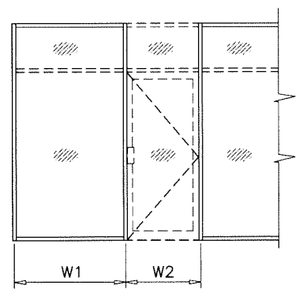
C2 = (2) ANCHORS TYPE 'C' AT EACH SIDE OF MULLION

ALL OTHER ANCHORS TO BE SPACED AS PER ELEVATION.









WIDTH (W) = $\frac{W1 + W2}{2}$

ANCHORS

DOORS NOT PART OF THIS APPROVAL.

Sealed: 7/21/2023

FL #39786

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3538)
TEL. (305) 264-8100 FAX. (305) 262-6978
COMP-ANL\21-62F-MG

MG-4500 ALUMINUM FLUSH GLAZED SYSTEM (N.I.)

MR-GLASS DOORS & WINDOWS MANUFACTURING, LLC
8051 N.W. 79th Place
Medley, FL. 33166
Tel. (305) 764-3963 Fax. (305) 470-8285

revisions:

no	date	by	description

date: 08-25-21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

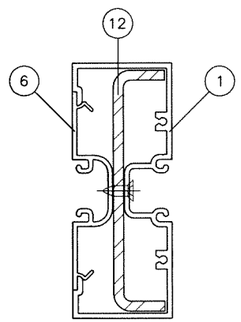
drawing no. 21–62F

sheet 5 of 9

DOOR MULLION LOAD CAPACITY – PSF				
NOMINAL DIMS.				DOOR MULLION
WIDTH (W1) INCHES	DOOR HEIGHT INCHES	FRAME HEIGHT INCHES	WIDTH (W2) INCHES	EXT. (+) INT. (–)
72	84	96	18	100.0
			24	100.0
			30	97.2
			36	90.6
			42	84.8
			48	79.7
		102	18	94.0
			24	87.0
			30	81.0
			36	75.8
			42	71.2
			48	67.1
		108	18	79.6
			24	74.0
			30	69.1
			36	64.8
			42	61.0
			48	57.7
		114	18	68.8
			24	64.1
			30	60.0
			36	56.4
			42	53.2
		120	18	60.4
			24	56.4
			30	52.9
			36	49.8
			42	47.0

DOOR MULLION LOAD CAPACITY – PSF				
NOMINAL DIMS.				DOOR MULLION
WIDTH (W1) INCHES	DOOR HEIGHT INCHES	FRAME HEIGHT INCHES	WIDTH (W2) INCHES	EXT. (+) INT. (–)
72	90	96	18	100.0
			24	100.0
			30	100.0
			36	98.8
			42	92.0
			48	86.0
		102	18	100.0
			24	93.9
			30	87.0
			36	81.0
			42	75.7
			48	71.2
		108	18	84.9
			24	78.5
			30	73.0
			36	68.3
			42	64.1
			48	60.4
		114	18	72.3
			24	67.2
			30	62.7
			36	58.8
			42	55.3
		120	18	62.8
			24	58.5
			30	54.7
			36	51.4
			42	48.4

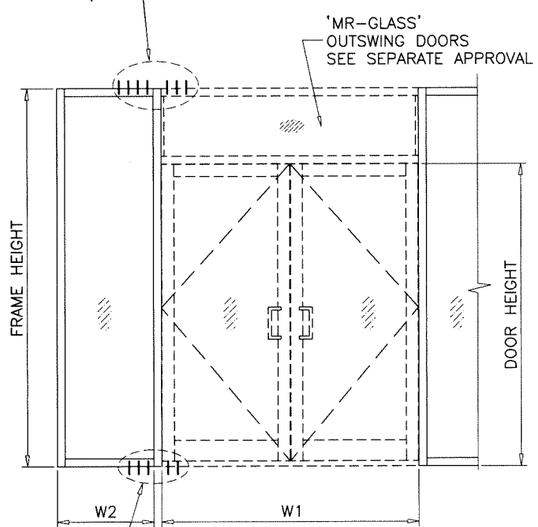
DOOR MULLION LOAD CAPACITY – PSF				
NOMINAL DIMS.				DOOR MULLION
WIDTH (W1) INCHES	DOOR HEIGHT INCHES	FRAME HEIGHT INCHES	WIDTH (W2) INCHES	EXT. (+) INT. (–)
72	96	102	18	100.0
			24	100.0
			30	95.2
			36	88.0
			42	81.9
			48	76.5
		108	18	92.1
			24	84.6
			30	78.3
			36	72.8
			42	68.1
			–	63.9
		114	18	77.1
			24	71.2
			30	66.2
			36	61.8
			42	58.0
		120	18	66.0
			24	61.3
			30	57.1
			36	53.5
			42	50.3



DOOR MULLION
WITH REINFORCING

	Ix IN^4	Sx IN^3
ALUMINUM	3.1382	1.3948
STEEL	2.0346	.9575
TOTAL Ix ALUM + Ix STL X 2.9	8.9801	

ANCHOR TYPES	TOTAL NO. OF ANCHORS AT DOOR MULLION HEAD
A	7
B	6
C	5



ANCHOR TYPE	TOTAL NO. OF ANCHORS AT DOOR MULLION SILL
B	5

DOOR MULLION

Sealed: 7/21/2023

FL #39786

JALAL FAROOQ LICENSE No. 81223 STATE OF FLORIDA PROFESSIONAL ENGINEER

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3538)
TEL. (305) 264-8100 FAX. (305) 262-6978

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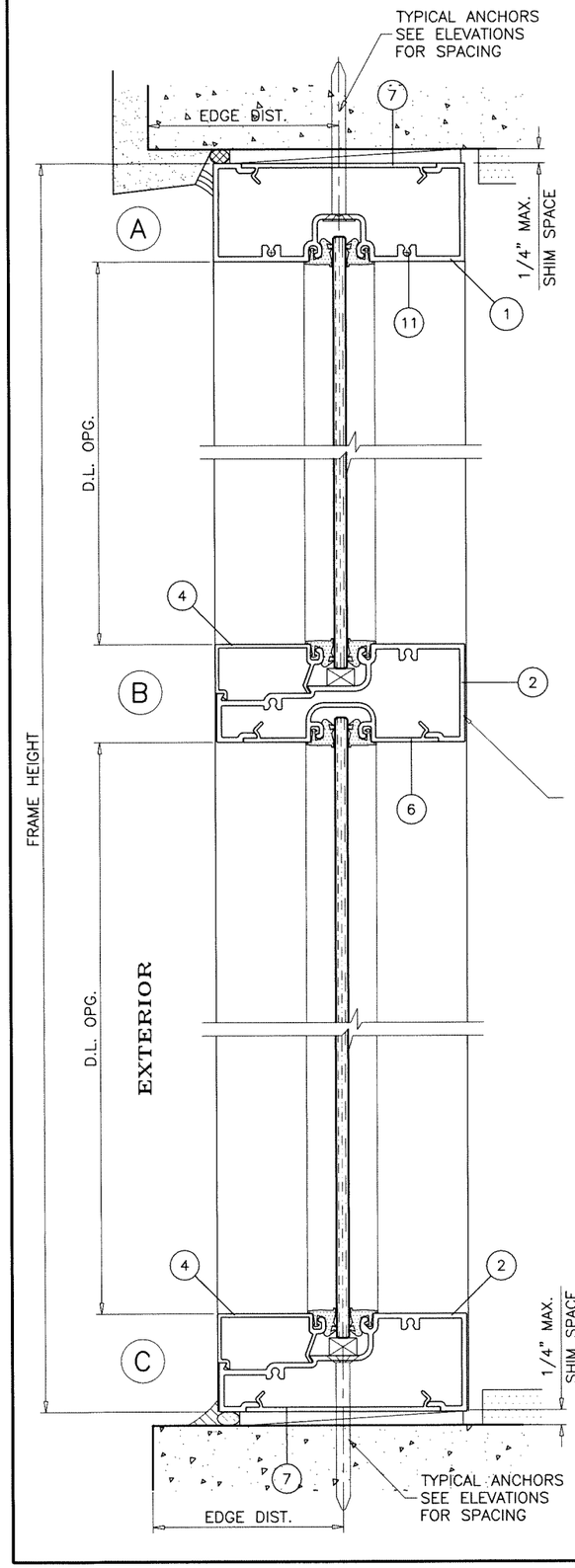
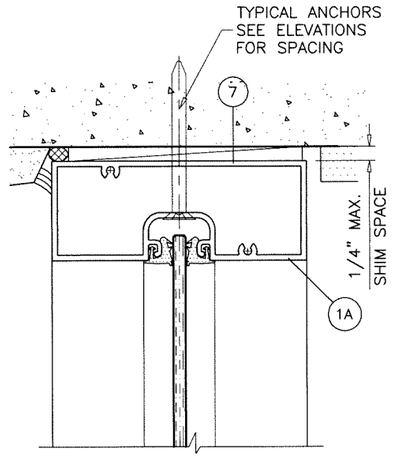
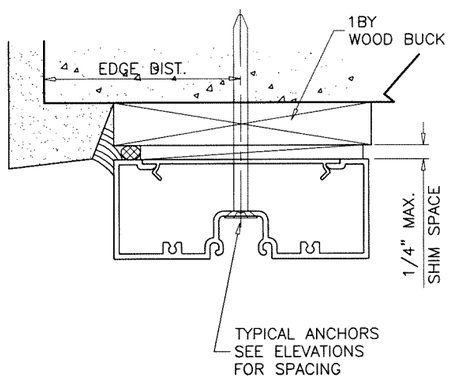
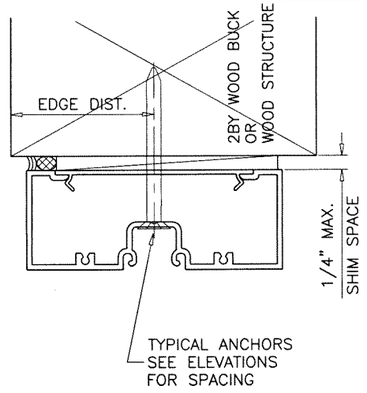
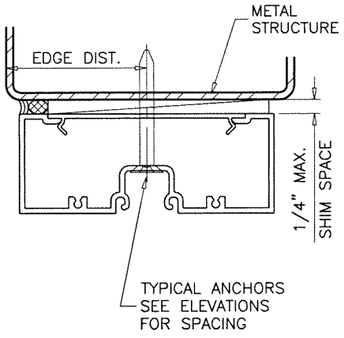


LIMIT MAX. DESIGN LOADS FOR HORIZONTAL AS FOLLOWS	
HORIZ. SPAN MAX.	LOADS
70–1/4"	81.6 PSF
64–1/4"	98.4 PSF
58–1/4"	100.0 PSF









WOOD BUCKS AND METAL STRUCTURE NOT BY 'MR–GLASS' MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER THEM TO THE BUILDING STRUCTURE.

TYPICAL ANCHORS: SEE ELEV. FOR SPACING

TYPE 'A'– 1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)
INTO 2BY WOOD BUCKS OR WOOD STRUCTURES
1–3/8" MIN. PENETRATION INTO WOOD (HEAD/SILL/JAMBS)
THRU 1BY BUCKS INTO CONC. OR BLOCKS
1–1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL/JAMBS)
1–1/4" MIN. EMBED INTO BLOCKS (JAMBS)

ANCHOR EDGE DISTANCES
INTO CONCRETE AND BLOCKS = 2–1/2" MIN.
INTO WOOD STRUCTURE = 1" MIN.

TYPE 'B'– 1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)
DIRECTLY INTO CONCRETE OR BLOCKS
1–1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL/JAMBS)
1–1/4" MIN. EMBED INTO BLOCKS (JAMBS)

ANCHOR EDGE DISTANCES
INTO CONCRETE AND BLOCKS = 2–1/2" MIN.

TYPE 'C'– #14 SMS OR SELF–DRILLING SCREWS (GRADE 2 CRS)
INTO F.B.C. APPROVED MULLIONS
AND
INTO METAL STRUCTURES (HEAD/SILL/JAMBS)
(3) THREADS MIN. TO EXTEND BEYOND METAL THICKNESS
ALUMINUM: 1/8" THK. MIN. (6063–T5 MIN.)
STEEL: 1/8" THK. MIN. (Fy = 36 KSI MIN.)
(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

ANCHOR EDGE DISTANCES
INTO METAL STRUCTURE = 3/4" MIN.

WOOD AT HEAD, SILL OR JAMBS SG = 0.55 MIN.
CONCRETE AT HEAD, SILL OR JAMBS f'c = 3000 PSI MIN.
C–90 HOLLOW/FILLED BLOCK AT JAMBS f'm = 2000 PSI MIN.

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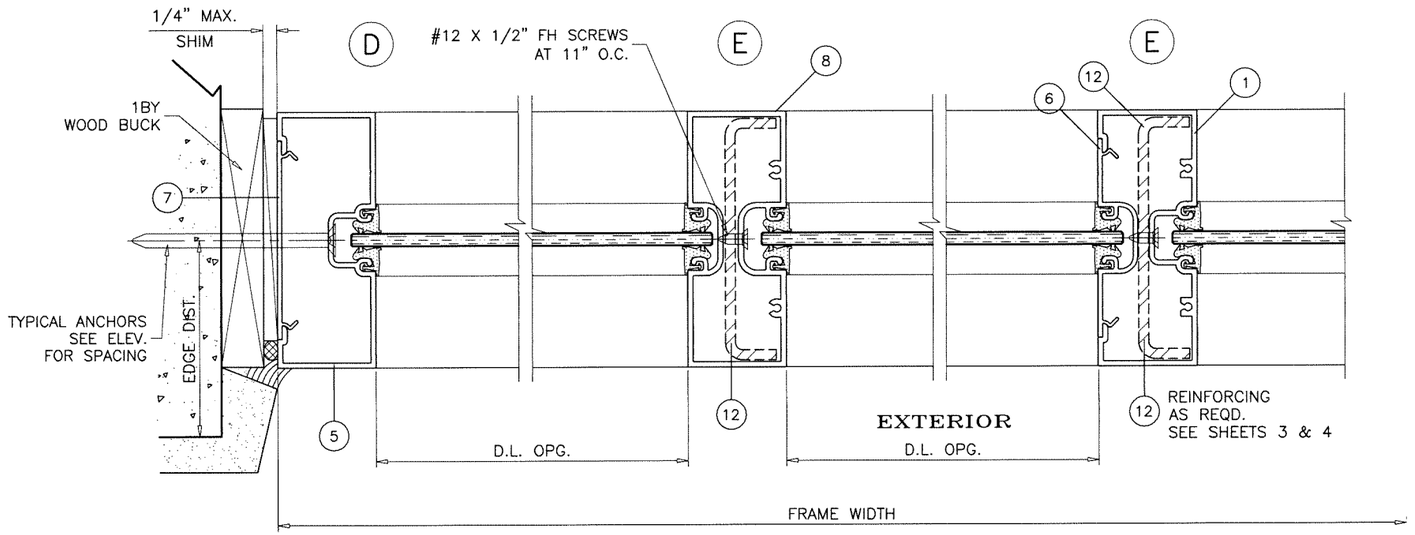

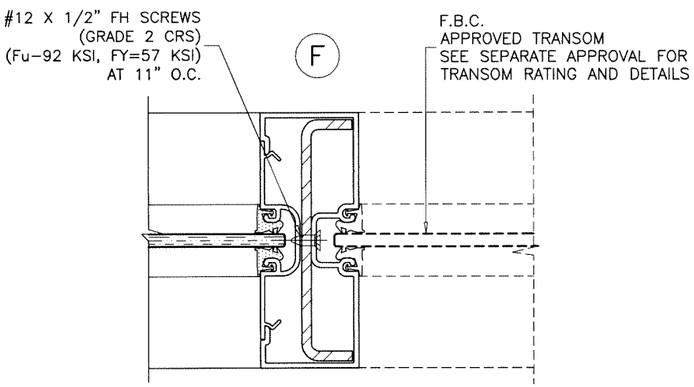

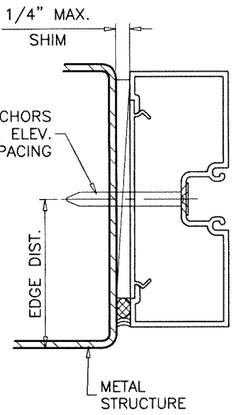

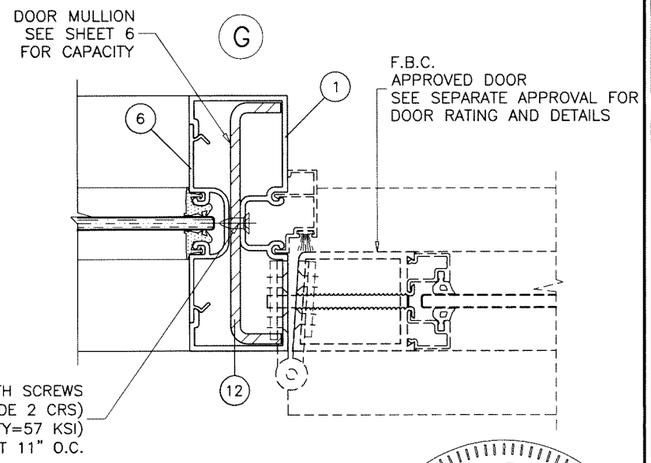

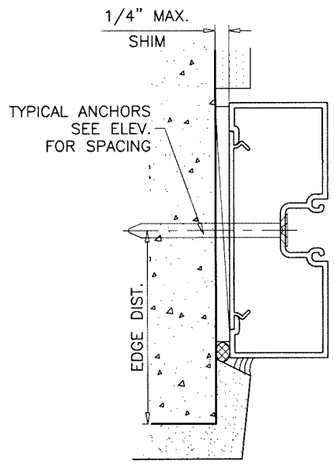

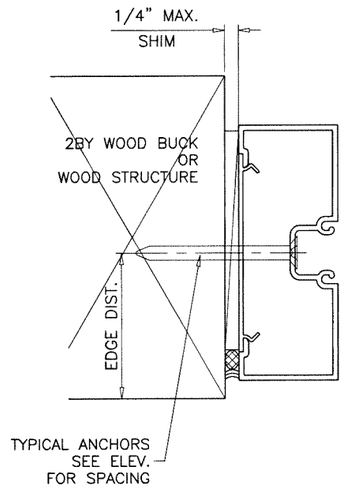

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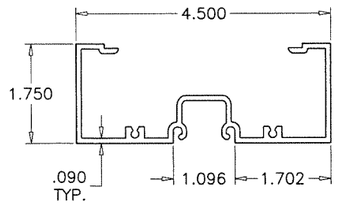
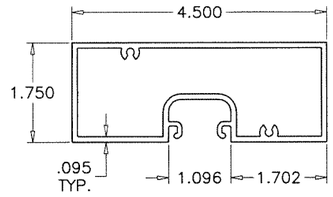
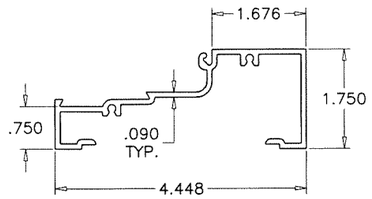


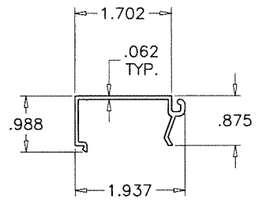
1 FRAME HEAD/MULLION/JAMB
MG-452



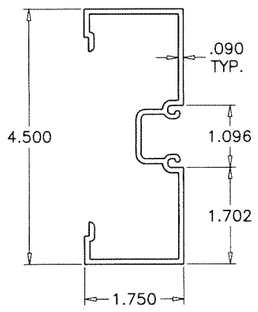
1A ALT. FRAME HEAD
MG-457



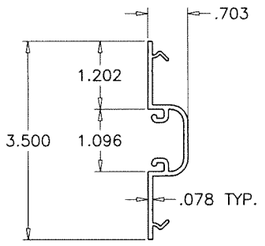
2 FRAME SILL/HORIZONTAL
MG-453



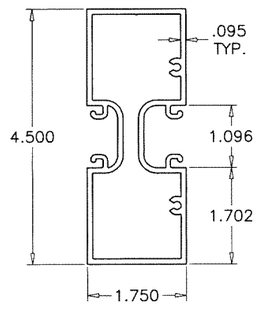
4 GLAZING STOP
MG-454



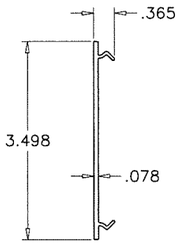
5 FRAME JAMB
–



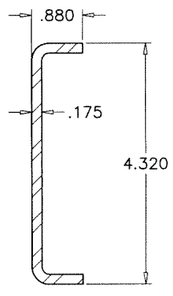
6 POCKET FILLER
MG-458



8 FRAME MULLION
MG-456



7 SNAP IN COVER
MG-459

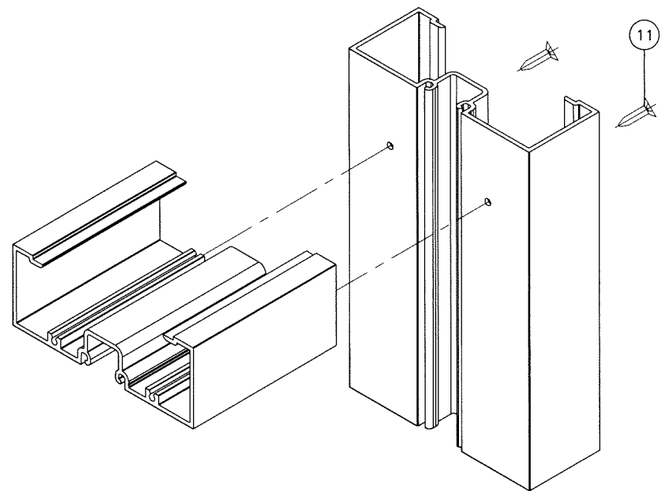


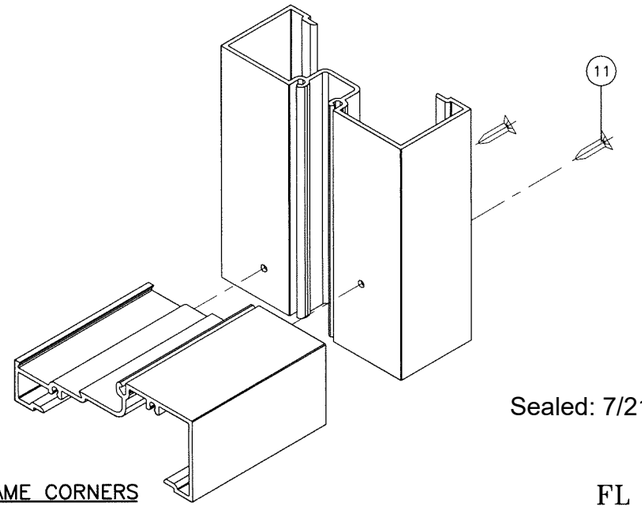
12 STEEL REINFORCING

ITEM NO.	PART NUMBER	QUANTITY	DESCRIPTION	MATERIAL	MANF./SUPPLIER/REMARKS
1	MG-452	–	FRAME HEAD/MULLION/JAMB	6063-T6	–
1A	MG-457	–	ALT. FRAME HEAD	6063-T6	–
2	MG-453	–	FRAME SILL/HORIZONTAL	6063-T6	–
4	MG-454	–	GLAZING STOP	6063-T6	–
5	–	–	FRAME JAMB	6063-T6	–
6	MG-458	–	POCKET FILLER	6063-T6	–
7	MG-459	–	SNAP IN COVER	6063-T6	–
8	MG-456	–	FRAME MULLION	6063-T6	–
9	2028	AS REQD.	GLAZING GASKET	NEOPRENE	CAROLINA CUSTOM RUBBER, DUROMETER 70±5
10	SB563	2/ LITE	SETTING BLOCK, 1/4" X 1/2" X 2" LONG, AT 3" FROM EACH END	NEOPRENE	C.R. LAURENCE, DUROMETER 80±5
11	#8 X 1"	2/ CORNER	ASSEMBLY SCREWS (PH SELF DRILLING)	–	GRADE 4 CRS, Fu=92 KSI, FY=120 KSI
12	–	–	REINFORCING CHANNEL	STEEL	ASTM A36, Fy 36 KSI

SEALANTS:

ALL FRAME CORNERS, JOINTS, MULLION SEAMS AND PERIMETER OF GLAZING BEAD TO FRAME TO BE SEALED WITH DOW CORNING 795 SEALANT.





FRAME CORNERS

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