Product Approval
USER: Public User

FL #	FL17897-R16
Application Type	Revision
Code Version	2023
Application Status	Approved
Comments	
Archived	☐
Product Manufacturer	E.S. Windows, Inc.
Address/Phone/Email	10653 NE Quaybridge Ct. Miami, FL 33138 (305) 638-5151 ssabagh@energiasolarsa.com
Authorized Signature	Jalal Farooq veronica@afceng.com
Technical Representative	Samir Sabagh
Address/Phone/Email	3550 NW 49th St. Miami, FL 33142 (305) 638-5151 ssabagh@energiasolarsa.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	03/21/2035
Validated By	Abel Carrasco, PE ☑ Validation Checklist - Hardcopy Received
Certificate of Independence	FL17897_R16_COI_SS - Certificate of Independence 2023.pdf

Referenced Standard and Year (of Standard)

Standard	Year
AAMA 501	2015
TAS 201	1994
TAS 202	1994
TAS 203	1994

Equivalence of Product Standards Certified By

Sections from the Code

Product Approval Method	Method 1 Option D
Date Submitted	03/19/2025
Date Validated	04/24/2025
Date Pending FBC Approval	04/25/2025
Date Approved	06/10/2025

Summary of Products

FL #	Model, Number or Name	Description
17897.1	Series ES-8000 Aluminum Window Wall System	Large missile impact resistant aluminum window wall system.
Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** Yes **Design Pressure:** +130/-130 **Other:** See drawing W17-92 for span vs load combinations and installation details.		**Installation Instructions** FL17897_R16_II_SS - 8000 WW (LMI) - DWG W17-92 2023 R1.1.pdf Verified By: Jalal Farooq PE# 81223 Created by Independent Third Party: Yes **Evaluation Reports** FL17897_R16_AE_SS - ES-8000 WW (LMI)-PAE 2023.pdf Created by Independent Third Party: Yes
17897.2	Series ES-8000 Aluminum Window Wall System	Small missile impact resistant aluminum window wall system.
Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** Yes **Design Pressure:** +100/-150 **Other:** See drawing 23-06F for span vs load combinations and installation details.		**Installation Instructions** FL17897_R16_II_SS - 8000 WW (SMI) - DWG 23-06F 2023 R1.1.pdf Verified By: Jalal Farooq PE # 81223 Created by Independent Third Party: Yes **Evaluation Reports** FL17897_R16_AE_SS - ES-8000 WW (SMI)-PAE 2023.pdf Created by Independent Third Party: Yes
17897.3	Series ES-8000T 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:** +80/-100 **Other:** See drawing 24-71F for span vs load combinations and installation details.		**Installation Instructions** FL17897_R16_II_SS - ES-8000T WW (NI) - DWG 24-71F 2023 R1.pdf Verified By: Jalal Farooq PE 81223 Created by Independent Third Party: Yes **Evaluation Reports** FL17897_R16_AE_SS - ES-8000T Window Wall (NI)-PAE 2023.pdf Created by Independent Third Party: Yes
17897.4	Series ES-8000T Aluminum Window Wall System	Small missile impact resistant aluminum window wall system.
Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** Yes **Design Pressure:** +60/-60 **Other:** See drawing 21-12F for span vs load combinations and installation details.		**Installation Instructions** FL17897_R16_II_SS - 8000T WW (SMI) - DWG 21-12F 2023 R1.pdf Verified By: Jalal Farooq PE #81223 Created by Independent Third Party: Yes **Evaluation Reports** FL17897_R16_AE_SS - ES-8000T WW (SMI)-PAE 2023.pdf Created by Independent Third Party: Yes
17897.5	Series ES-8000T Aluminum Window Wall System	Large missile impact resistant aluminum window wall system.
Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** Yes **Design Pressure:** +90/-120 **Other:** See drawing W15-37 for span vs load combinations and installation details.		**Installation Instructions** FL17897_R16_II_SS - 8000T WW (LMI) - DWG W15-37 2023 R1.pdf Verified By: Jalal Farooq PE# 81223 Created by Independent Third Party: Yes **Evaluation Reports** FL17897_R16_AE_SS - ES-8000T WW (LMI)-PAE 2023.pdf Created by Independent Third Party: Yes
17897.6	Series ES-8000T Jumbo Aluminum Window Wall System	Large missile impact resistant aluminum window wall system.

Limits of Use	Installation Instructions
Approved for use in HVHZ: Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** Yes **Design Pressure:** +70/-70 **Other:** See drawing 21-58F for span vs load combinations and installation details.	FL17897_R16_II_SS - 8000T (JUMBO) WW (LMI) - DWG 21-58F 2023 R1.pdf Verified By: Jalal Farooq PE # 81223 Created by Independent Third Party: Yes **Evaluation Reports** FL17897_R16_AE_SS - ES-8000T Jumbo WW (LMI)-PAE 2023.pdf Created by Independent Third Party: Yes

Back Next

Contact Us :: 2601 Blair Stone Road, Tallahassee FL 32399 Phone: 850-487-1824

The State of Florida is an AA/EEO employer. Copyright 2007-2013 State of Florida. :: Privacy Statement :: Accessibility Statement :: Refund Statement

Under Florida law, email addresses are public records. If you do not want your e-mail address released in response to a public-records request, do not send electronic mail to this entity. Instead, contact the office by phone or by traditional mail. If you have any questions, please contact 850.487.1395. *Pursuant to Section 455.275(1), Florida Statutes, effective October 1, 2012, licensees licensed under Chapter 455, F.S. must provide the Department with an email address if they have one. The emails provided may be used for official communication with the licensee. However email addresses are public record. If you do not wish to supply a personal address, please provide the Department with an email address which can be made available to the public. To determine if you are a licensee under Chapter 455, F.S., please click here .

Product Approval Accepts:

Credit Card Safe securityMETRICS

AL-FAROOQ CORPORATION

CONSULTING ENGINEERS & PRODUCT DEVELOPMENT

January 23, 2023

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,

Jalal Farooq, P.E.
CFO

Sealed: 1/23/2023

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 17897
Date: 07/31/2023

Detailed Product Description:
Manufacturer: E.S. WINDOWS, LLC.
Manufacturer Address: 3550 N.W. 49 STREET – MIAMI, FL. 33142
Model Name: SERIES ES-8000T JUMBO ALUMINUM WINDOW WALL SYSTEM
Maximum Load: +70 PSF, -70 PSF (Large Missile Impact)
Installation Drawings # 21-58F

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	Fenestration Testing Laboratory, Inc. Blackwater Technical Services Inc.	12/19/2007 04/14/2015 08/16/2017 03/08/2021 05/17/2021	FTL-5447 FTL-7546 FTL-9605 BT-ESW-20-046 BT-ESW-20-049	Michael R. Wenzel, P.E. Idalmis Ortega, P.E. Idalmis Ortega, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E.
ASTM E331 OR ASTM 547 & TAS 202	Water Penetration	Fenestration Testing Laboratory, Inc. Blackwater	12/19/2007 04/14/2015 08/16/2017 03/08/2021 05/17/2021	FTL-5447 FTL-7546 FTL-9605 BT-ESW-20-046 BT-ESW-20-049	Michael R. Wenzel, P.E. Idalmis Ortega, P.E. Idalmis Ortega, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E.
ASTM E330 & TAS 202	Uniform Static Air Press.	Fenestration Testing Laboratory, Inc. Blackwater Technical Services Inc.	12/19/2007 04/14/2015 08/16/2017 03/08/2021 05/17/2021 01/12/2023	FTL-5447 FTL-7546 FTL-9605 BT-ESW-20-046 BT-ESW-20-049 BT-ESW-22-023	Michael R. Wenzel, P.E. Idalmis Ortega, P.E. Idalmis Ortega, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E.
ASTM F588	Forced Entry	Blackwater Technical Services Inc.	03/08/2021 05/17/2021	BT-ESW-20-046 BT-ESW-20-049	Michael D. Caldwell, P.E. Michael D. Caldwell, P.E.

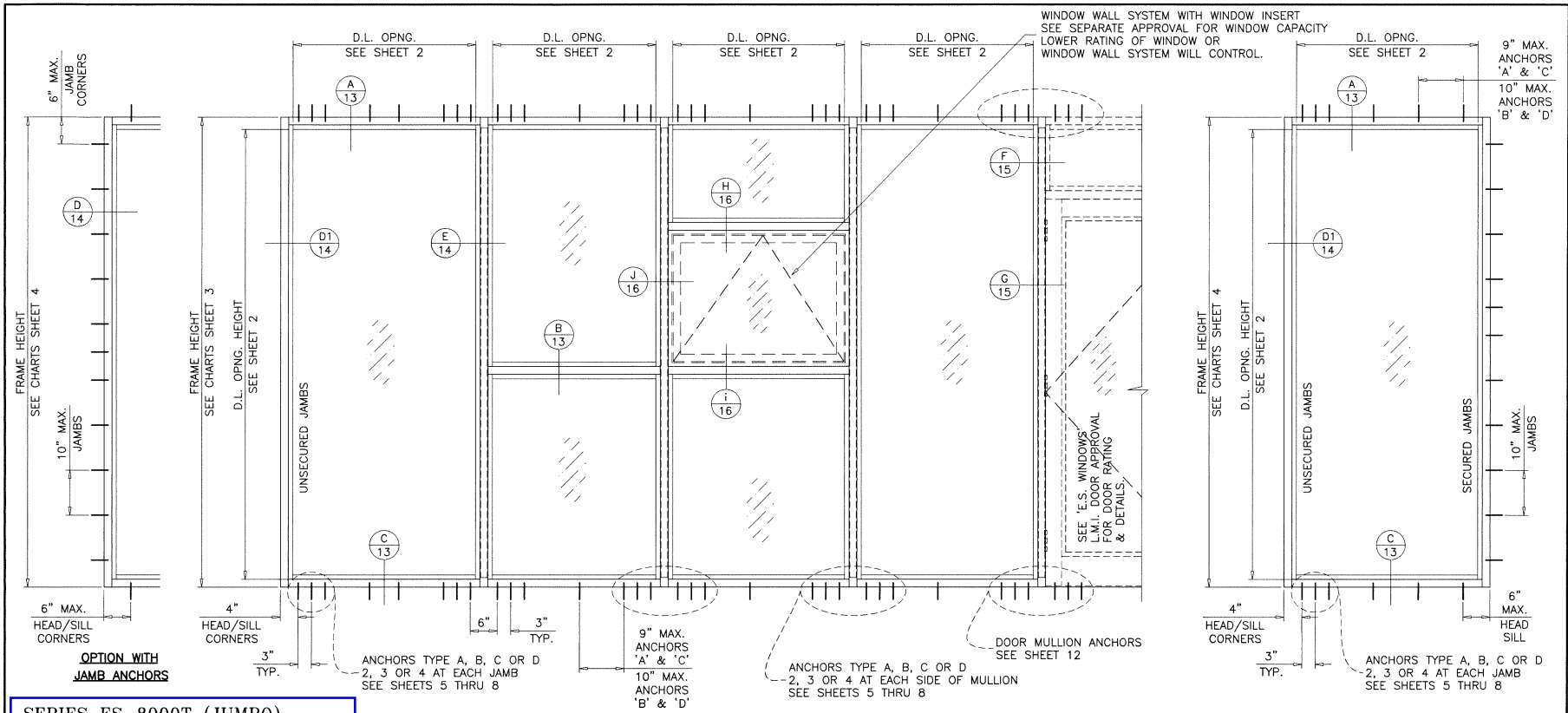
Supplemental Tests (Tested in accordance with TAS-201 and TAS-203)					
TEST	**DESCRIPTION**	**TEST LOCATION**	**TEST REPORT DATE**	**TEST REPORT #**	**Test Sealed by**
FBC 1626.2 (TAS 201 & 203) ANSI Z97.1 ASTM E1886/1996	Large Missile Impact & Cyclic	Fenestration Testing Laboratory, Inc. Blackwater Technical Services Inc.	12/19/2007 04/14/2015 08/16/2017 03/08/2021 05/17/2021 01/12/2023	FTL-5447 FTL-7546 FTL-9605 BT-ESW-20-046 BT-ESW-20-049 BT-ESW-22-023	Michael R. Wenzel, P.E. Idalmis Ortega, P.E. Idalmis Ortega, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E.

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 PE # 81223
Al-Farooq Corporation EB # 3538

Sealed: 8/1/2023



TYPICAL ELEVATIONS

SINGLE 'O' PANEL:
FRAME WIDTH = D.L.O. WIDTH + 5.50"
FRAME HEIGHT = D.L.O. HEIGHT + 5.50"

SERIES ES-8000T (JUMBO) ALUMINUM WINDOW WALL SYSTEM

THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE 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 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.

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 FOR WINDOW WALL MULLION AND SHEETS 9 THRU 11 FOR DOOR MULLION
THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.

STEP 4 CHECK ANCHOR CAPACITY FOR WINDOW WALL SYSTEM USING CHARTS ON SHEETS 5 THRU 8 FOR DOOR MULLION ANCHOR CAPACITY SEE CHART ON SHEET 12.
THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.

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

THIS SYSTEM IS RATED FOR LARGE & SMALL MISSILE IMPACT. SHUTTERS ARE NOT REQUIRED.

WINDOW WALL SYSTEM COMPLY WITH REQUIREMENTS OF ANSI Z97.1.

Sealed: 3/13/2025

FL #17897

JALAL FAROOQ LICENSE No. 81223 STATE OF FLORIDA PROFESSIONAL ENGINEER

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.

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\21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:			
no	date	by	description
A	01.25.23		GLAZING SILICONE GE ADDED
B	07.25.23		UPDATED TO 2023 FBC
C	03.13.25		GLAZING GASKET MATERIAL REV.

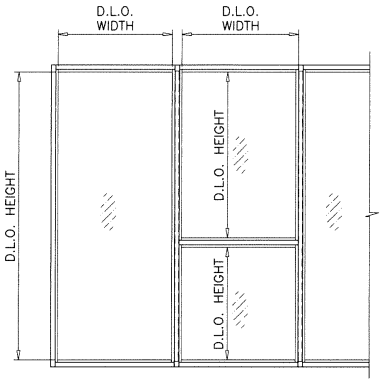
date: 07-29-21
scale: 1/2"=1'-0"
dr. by: TARIQ
chk. by:

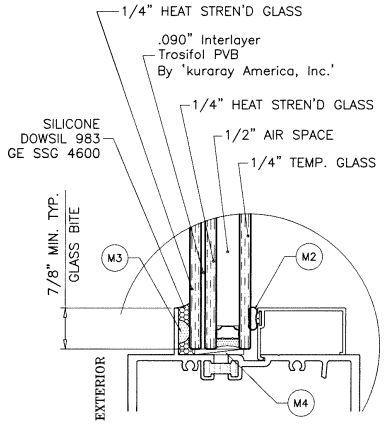
drawing no. 21-58F

sheet 1 of 18

GLASS LOAD CAPACITY – PSF					
NOMINAL DIMS.		GLASS TYPES 'GL1'		'GL2'	
D.L.O. WIDTH	D.L.O. HEIGHT	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)
60–1/2"	102–1/2"	70.0	70.0	70.0	70.0
66–1/2"		70.0	70.0	70.0	70.0
72–1/2"		70.0	70.0	70.0	70.0
78–1/2"		70.0	70.0	70.0	70.0
84–1/2"		70.0	70.0	70.0	70.0
90–1/2"		70.0	70.0	70.0	70.0
96–1/2"		70.0	70.0	70.0	70.0
102–1/2"		66.1	66.1	66.1	66.1
60–1/2"	114–1/2"	70.0	70.0	70.0	70.0
66–1/2"		70.0	70.0	70.0	70.0
72–1/2"		70.0	70.0	70.0	70.0
78–1/2"		70.0	70.0	70.0	70.0
84–1/2"		70.0	70.0	70.0	70.0
90–1/2"		70.0	70.0	70.0	70.0
96–1/2"		70.0	70.0	70.0	70.0
102–1/2"		–	–	54.4	54.4
60–1/2"	118–1/2"	70.0	70.0	70.0	70.0
66–1/2"		70.0	70.0	70.0	70.0
72–1/2"		70.0	70.0	70.0	70.0
78–1/2"		70.0	70.0	70.0	70.0
84–1/2"		70.0	70.0	70.0	70.0
90–1/2"		70.0	70.0	70.0	70.0
96–1/2"		70.0	70.0	70.0	70.0
102–1/2"		–	–	54.4	54.4
60–1/2"	126–1/2"	70.0	70.0	70.0	70.0
66–1/2"		70.0	70.0	70.0	70.0
72–1/2"		70.0	70.0	70.0	70.0
78–1/2"		70.0	70.0	70.0	70.0
84–1/2"		70.0	70.0	70.0	70.0
90–1/2"		–	–	61.3	61.3
96–1/2"		–	–	57.6	57.6
102–1/2"		–	–	54.4	54.4
60–1/2"	138–1/2"	70.0	70.0	70.0	70.0
66–1/2"		70.0	70.0	70.0	70.0
72–1/2"		70.0	70.0	70.0	70.0
78–1/2"		70.0	70.0	70.0	70.0
84–1/2"		–	–	65.3	65.3
90–1/2"		–	–	61.3	61.3
96–1/2"		–	–	57.6	57.6
60–1/2"	150–1/2"	70.0	70.0	70.0	70.0
66–1/2"		70.0	70.0	70.0	70.0
72–1/2"		70.0	70.0	70.0	70.0
78–1/2"		–	–	70.0	70.0
84–1/2"		–	–	65.3	65.3
90–1/2"		–	–	61.3	61.3
60–1/2"	162–1/2"	70.0	70.0	70.0	70.0
66–1/2"		69.1	69.1	70.0	70.0
72–1/2"		–	–	70.0	70.0
78–1/2"		–	–	70.0	70.0
84–1/2"		–	–	65.3	65.3
60–1/2"	174–1/2"	70.0	70.0	70.0	70.0
66–1/2"		–	–	70.0	70.0
72–1/2"		–	–	70.0	70.0
78–1/2"		–	–	70.0	70.0

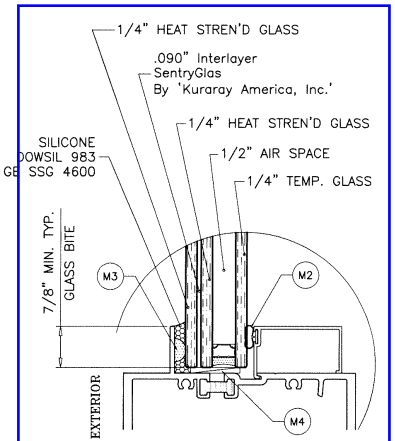
INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.





GLASS TYPE 'GL1'

1–5/16" OVERALL INSUL. LAM. GLASS



GLASS TYPE 'GL2'

1–5/16" OVERALL INSUL. LAM. GLASS

1/2" AIR SPACE CONSISTING OF:

SPACER:
'HELIMA' LOW PROFILE ALUMINUM SPACER
BY 'LINGERMANN GMBH'
AROUND THE PERIMETER OF THE GLASS.

PERIMETER SEALANT:
SILICONE
DOWSIL 791
GE 2000

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

GLASS

Sealed: 3/13/2025

FL #17897

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

COMP–ANL\21–58FES

ES–8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

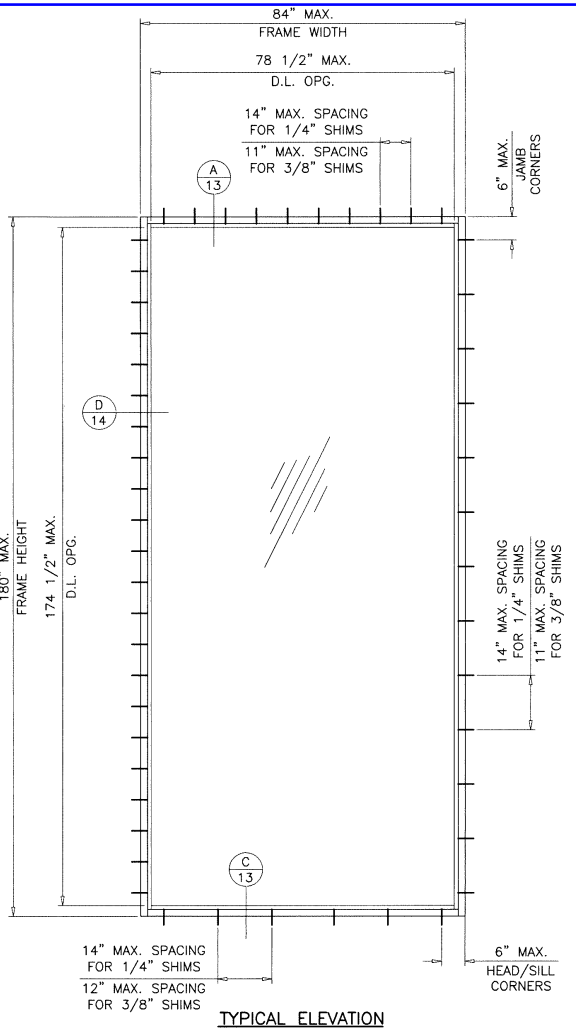
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638–5151 FAX. (305) 638–5158

revisions:

no	date	by	description

date: 07–29–21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

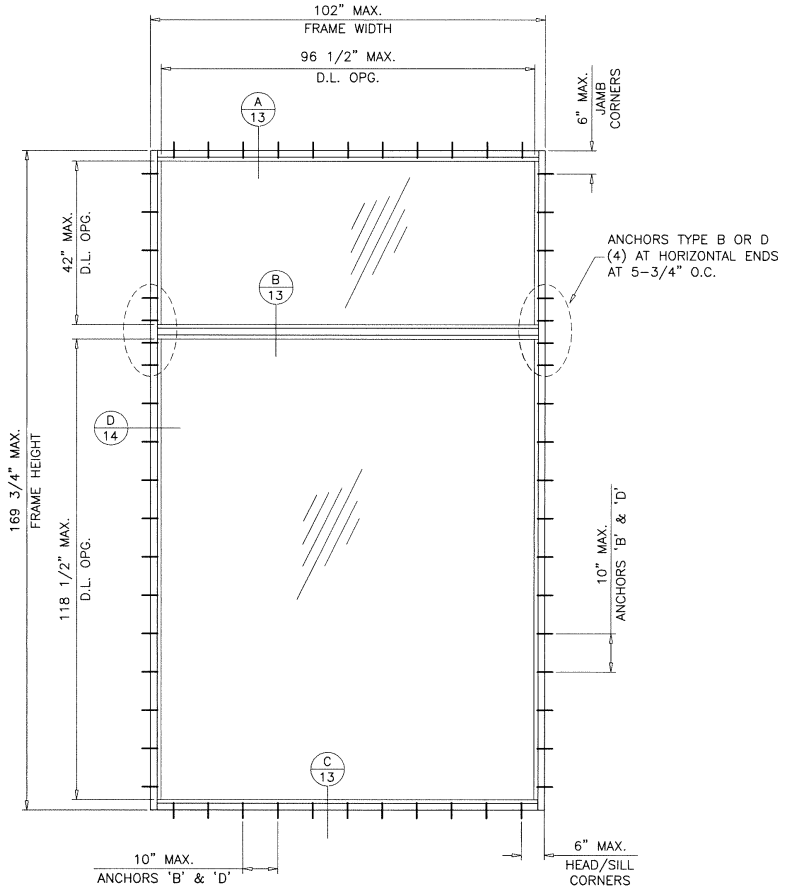
drawing no. 21–58F



TYPICAL ELEVATION
SINGLE (O) PANEL

GLASS TYPE 'GL2'
MAXIMUM DESIGN LOAD RATING = + 70.0 PSF
− 70.0 PSF
(FOR SINGLE UNITS SHOWN ABOVE OR SMALLER)

THESE FRAMES CAN BE USED AT ALL SUBSTRATES SHOWN ON SHEETS 13 AND 14.



GLASS TYPES 'GL1' & 'GL2'
MAXIMUM DESIGN LOAD RATING = + 70.0 PSF
− 70.0 PSF
(FOR SINGLE UNIT SHOWN ABOVE ONLY)

THESE FRAMES CAN BE USED AT ALL SUBSTRATES SHOWN ON SHEETS 13 AND 14.

Sealed: 3/13/2025

FL #17897

JALAL FAROOQ LICENSE No. 81223 STATE OF FLORIDA PROFESSIONAL ENGINEER

afc

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

COMP-ANL\21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

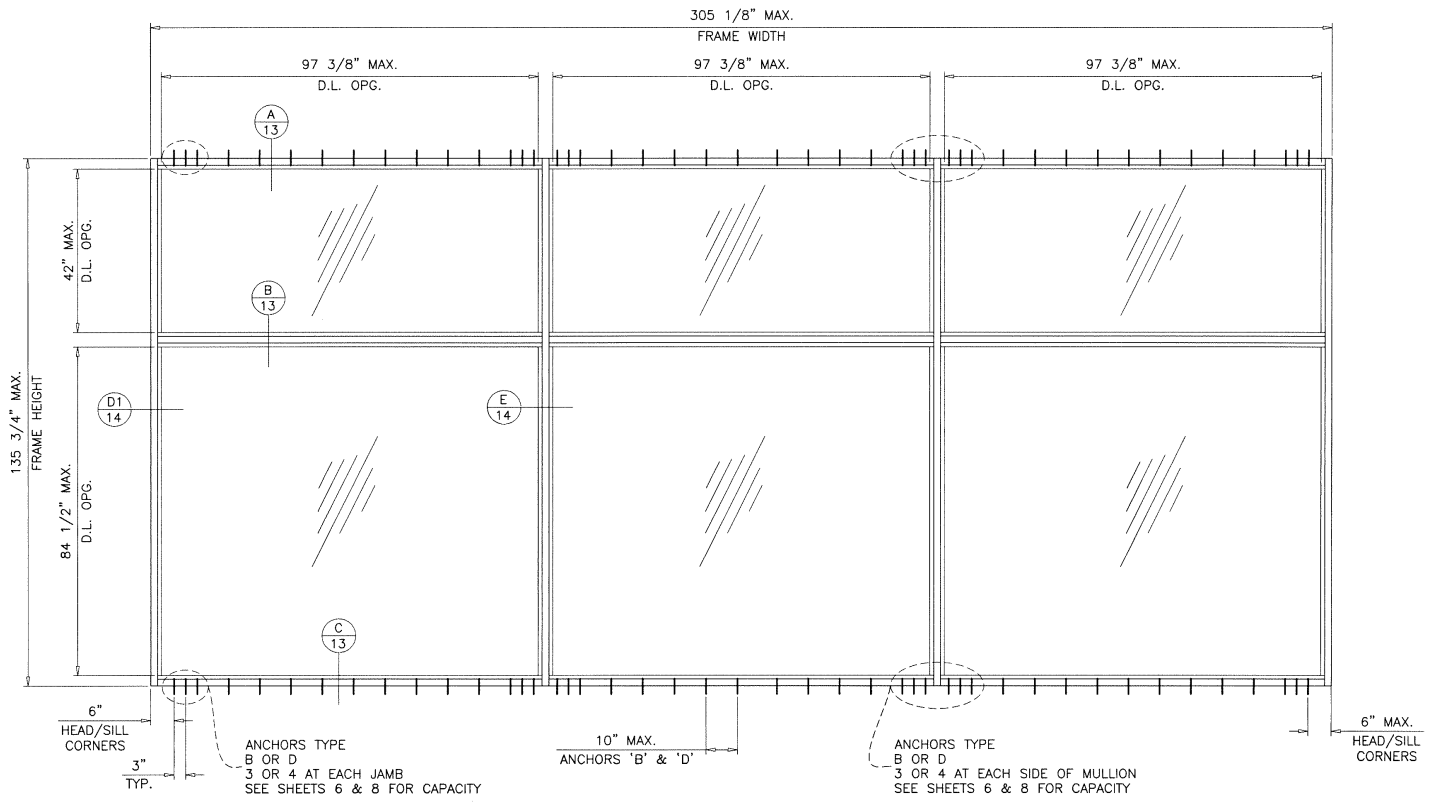
revisions:

no	date	by	description

date: 07-29-21
scale: 3/8"=1'-0"
dr. by: TARIQ
chk. by:

drawing no. 21-58F

sheet 3 of 18



GLASS TYPES 'GL1' & 'GL2'

MAXIMUM DESIGN LOAD RATING = + 66.9 PSF
− 66.9 PSF

(FOR SINGLE UNIT SHOWN ABOVE ONLY)

THESE FRAMES CAN BE USED AT ALL SUBSTRATES SHOWN ON SHEETS 13 AND 14.

Sealed: 3/13/2025

FL #17897

JALAL FAROOQ LICENSE No. 61223 STATE OF FLORIDA PROFESSIONAL ENGINEER

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

COMP-ANL\21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:

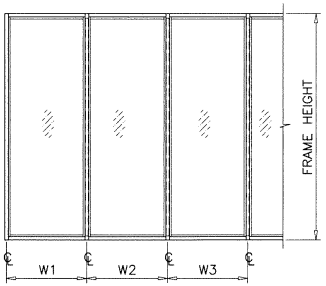
no	date	by	description

date: 07-29-21
scale: 3/8"=1'-0"
dr. by: TARIQ
chk. by:

drawing no. 21-58F

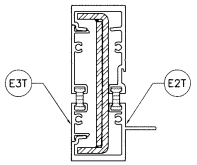
DESIGN LOAD CAPACITY – PSF JAMB/MULLION WITHOUT INTERMEDIATE HORIZONTALS					
NOMINAL DIMS.		JAMB 'J1'		MULLION 'M1'	
WIDTH (W)	FRAME HEIGHT	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)
72"	108"	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	70.0
108"		70.0	70.0	70.0	70.0
72"	120"	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	70.0
108"		70.0	70.0	70.0	70.0
72"	132"	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	70.0
102"		70.0	70.0	70.0	70.0
72"	135–3/4"	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	70.0
101–1/8"		70.0	70.0	70.0	70.0

INTERPOLATION BETWEEN WIDTHS ALLOWED.



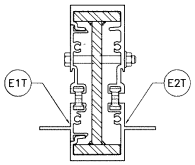
WIDTH (W) = W1
AT FRAME JAMB

WIDTH (W) = $\frac{W2 + W3}{2}$
AT FRAME MULLION



JAMB 'J1'

	Ix IN^4	Sx IN^3
ALUMINUM	6.7077	2.6264
STEEL	3.7533	1.6681
TOTAL Ix ALUM + Ix STL X 2.9	17.4845	



MULLION 'M1'

	Ix IN^4	Sx IN^3
ALUMINUM	6.8787	2.6933
STEEL	5.8308	2.5559
TOTAL Ix ALUM + Ix STL X 2.9	23.6206	

MULLIONS

Sealed: 3/13/2025

FL #17897

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

COMP–ANL\21–58FES

ES–8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638–5151 FAX. (305) 638–5158

revisions:

no	date	by	description

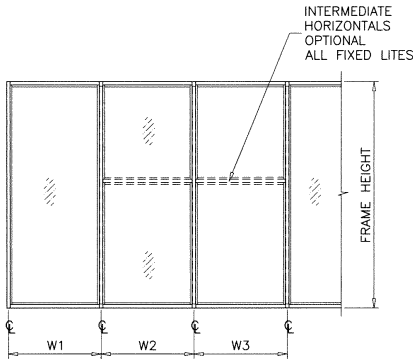
date: 07–29–21
scale: –
dr. by: TARIQ
chk. by:

drawing no. 21–58F

sheet 4 of 18

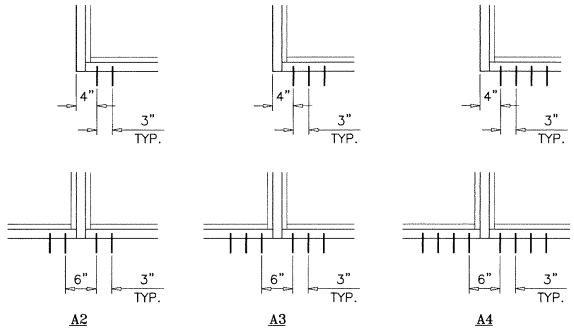
ANCHOR LOAD CAPACITY – PSF EXT.(+) & INT.(–)									
NOMINAL DIMS.		ANCHORS TYPE 'A'							
		1/4" MAX. SHIM			3/8" MAX. SHIM			1/2" SHIM	
WIDTH (W)	FRAME HEIGHT	A2	A3	A4	A2	A3	A4	A3	A4
36"	84"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	68.6	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	65.2	70.0	70.0	70.0	70.0
36"	90"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	66.7	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	62.1	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	58.7	70.0	70.0	68.4	70.0
36"	96"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	67.1	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	61.1	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	56.7	70.0	70.0	66.1	70.0
60"		70.0	70.0	70.0	53.4	70.0	70.0	62.2	70.0
36"	102"	70.0	70.0	70.0	69.9	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	62.1	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	56.4	70.0	70.0	65.8	70.0
54"		70.0	70.0	70.0	52.2	70.0	70.0	60.8	70.0
60"		69.6	70.0	70.0	48.9	70.0	70.0	57.0	70.0
36"	108"	70.0	70.0	70.0	65.2	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	57.8	70.0	70.0	67.4	70.0
48"		70.0	70.0	70.0	52.4	70.0	70.0	61.1	70.0
54"		70.0	70.0	70.0	48.3	70.0	70.0	56.3	70.0
60"		68.7	70.0	70.0	45.1	67.7	70.0	52.7	70.0
36"	114"	70.0	70.0	70.0	61.1	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	54.1	70.0	70.0	63.1	70.0
48"		69.6	70.0	70.0	48.9	70.0	70.0	57.0	70.0
54"		64.0	70.0	70.0	45.0	67.5	70.0	52.5	69.9
60"		59.7	70.0	70.0	41.9	62.9	70.0	48.9	65.2
36"	120"	70.0	70.0	70.0	57.5	70.0	70.0	67.1	70.0
42"		70.0	70.0	70.0	50.8	70.0	70.0	59.3	70.0
48"		65.3	70.0	70.0	45.9	68.8	70.0	53.5	70.0
54"		59.9	70.0	70.0	42.1	63.1	70.0	49.1	65.4
60"		55.7	70.0	70.0	39.1	58.7	70.0	45.6	60.8

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



WIDTH (W) = W1
AT FRAME JAMB

WIDTH (W) = $\frac{W2 + W3}{2}$
AT FRAME MULLION



ANCHORS TYPES: SEE SHEET 13 FOR DESCRIPTION

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

ANCHORS

Sealed: 3/13/2025

FL #17897

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

COMP-ANL\21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:
no | date | by | description

date: 07-29-21
scale: –
dr. by: TARIQ
chk. by:

drawing no. 21-58F

sheet 5 of 18

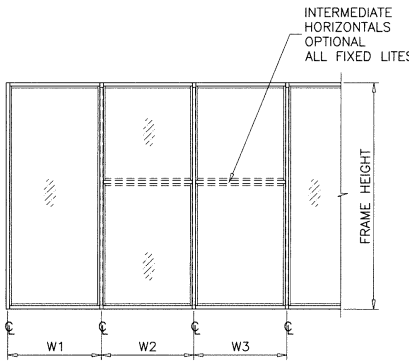
ANCHOR LOAD CAPACITY – PSF
EXT.(+) & INT.(–)

NOMINAL DIMS.		ANCHORS TYPE 'B'							
		1/4" MAX. SHIM			3/8" MAX. SHIM			1/2" SHIM	
WIDTH (W)	FRAME HEIGHT	B2	B3	B4	B2	B3	B4	B3	B4
36"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
72"	90"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
78"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
90"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
102"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
108"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
72"	96"	70.0	70.0	70.0	69.6	70.0	70.0	70.0	70.0
78"		70.0	70.0	70.0	67.6	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	66.3	70.0	70.0	70.0	70.0
90"		70.0	70.0	70.0	65.5	70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	65.3	70.0	70.0	70.0	70.0
102"		70.0	70.0	70.0	65.3	70.0	70.0	70.0	70.0
108"		70.0	70.0	70.0	65.3	70.0	70.0	70.0	70.0
36"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	69.6	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	66.0	70.0	70.0	70.0	70.0
72"	102"	70.0	70.0	70.0	63.3	70.0	70.0	70.0	70.0
78"		70.0	70.0	70.0	61.2	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	59.7	70.0	70.0	70.0	70.0
90"		70.0	70.0	70.0	58.6	70.0	70.0	69.4	70.0
96"		70.0	70.0	70.0	58.0	70.0	70.0	68.7	70.0
102"		70.0	70.0	70.0	57.8	70.0	70.0	68.4	70.0
108"		70.0	70.0	70.0	57.8	70.0	70.0	68.4	70.0
36"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	68.7	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	64.2	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	60.7	70.0	70.0	70.0	70.0
72"	108"	70.0	70.0	70.0	58.0	70.0	70.0	68.7	70.0
78"		70.0	70.0	70.0	55.9	70.0	70.0	66.1	70.0
84"		70.0	70.0	70.0	54.2	70.0	70.0	64.2	70.0
90"		69.3	70.0	70.0	53.0	70.0	70.0	62.8	70.0
96"		68.2	70.0	70.0	52.2	70.0	70.0	61.8	70.0
102"		67.6	70.0	70.0	51.7	70.0	70.0	61.2	70.0
108"		67.4	70.0	70.0	51.6	70.0	70.0	61.0	70.0

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

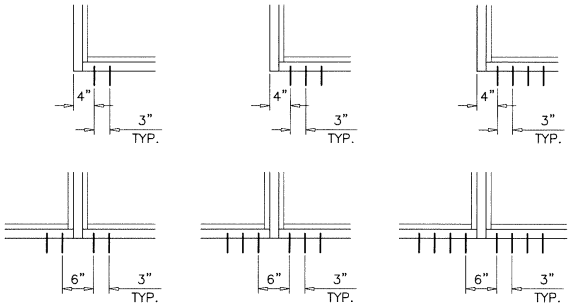
NOMINAL DIMS.		ANCHORS TYPE 'B'							
		1/4" MAX. SHIM			3/8" MAX. SHIM			1/2" SHIM	
WIDTH (W)	FRAME HEIGHT	B2	B3	B4	B2	B3	B4	B3	B4
36"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	69.6	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	64.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	59.7	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	56.2	70.0	70.0	66.6	70.0
72"	114"	69.9	70.0	70.0	53.5	70.0	70.0	63.4	70.0
78"		67.2	70.0	70.0	51.4	70.0	70.0	60.8	70.0
84"		65.0	70.0	70.0	49.7	70.0	70.0	58.9	70.0
90"		63.3	70.0	70.0	48.4	70.0	70.0	57.3	70.0
96"		62.0	70.0	70.0	47.5	70.0	70.0	56.2	70.0
102"		61.1	70.0	70.0	46.8	70.0	70.0	55.4	70.0
108"		60.6	70.0	70.0	46.4	69.6	70.0	54.9	70.0
36"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	65.3	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	59.9	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	55.7	70.0	70.0	65.9	70.0
66"		68.4	70.0	70.0	52.4	70.0	70.0	62.0	70.0
72"	120"	65.0	70.0	70.0	49.7	70.0	70.0	58.9	70.0
78"		62.2	70.0	70.0	47.6	70.0	70.0	56.3	70.0
84"		60.0	70.0	70.0	45.9	68.8	70.0	54.3	70.0
90"		58.2	70.0	70.0	44.5	66.8	70.0	52.7	70.0
96"		–	70.0	70.0	–	65.3	70.0	51.5	68.7
102"		–	70.0	70.0	–	64.1	70.0	50.6	67.4
108"		–	70.0	70.0	–	63.3	70.0	49.9	66.6
36"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	64.5	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	58.0	70.0	70.0	68.7	70.0
54"		69.3	70.0	70.0	53.0	70.0	70.0	62.8	70.0
60"		64.2	70.0	70.0	49.1	70.0	70.0	58.2	70.0
66"		60.1	70.0	70.0	46.0	69.0	70.0	54.5	70.0
72"	132"	–	70.0	70.0	–	65.3	70.0	51.5	68.7
78"		–	70.0	70.0	–	62.2	70.0	49.1	65.4
84"		–	70.0	70.0	–	59.7	70.0	47.1	62.8
90"		–	70.0	70.0	–	57.6	70.0	45.5	60.6
96"		–	70.0	70.0	–	55.9	70.0	44.1	58.9
102"		–	70.0	70.0	–	54.6	70.0	43.1	57.4
36"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	62.4	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	56.1	70.0	70.0	66.4	70.0
54"		66.9	70.0	70.0	51.2	70.0	70.0	60.6	70.0
60"		61.9	70.0	70.0	47.4	70.0	70.0	56.1	70.0
66"		57.9	70.0	70.0	44.3	66.5	70.0	52.5	70.0
72"	135–3/4"	–	70.0	70.0	–	62.8	70.0	49.6	66.1
78"		–	70.0	70.0	–	59.8	70.0	47.2	62.9
84"		–	70.0	70.0	–	57.3	70.0	45.2	60.3
90"		–	70.0	70.0	–	55.2	70.0	43.6	58.1
96"		–	69.9	70.0	–	53.5	70.0	42.3	56.3
101–1/8"		–	68.4	70.0	–	52.4	69.8	41.3	55.1

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



WIDTH (W) = W1
AT FRAME JAMB

WIDTH (W) = $\frac{W2 + W3}{2}$
AT FRAME MULLION



B2 B3 B4

ANCHORS TYPES: SEE SHEET 13 FOR DESCRIPTION

B2 = (2) ANCHORS TYPE 'B' AT EACH SIDE OF JAMB AND MULLION
B3 = (3) ANCHORS TYPE 'B' AT EACH SIDE OF JAMB AND MULLION
B4 = (4) ANCHORS TYPE 'B' AT EACH SIDE OF JAMB AND MULLION

Sealed: 3/13/2025

JALAL FAROOQ LICENSE No. 61223 STATE OF FLORIDA PROFESSIONAL ENGINEER

ANCHORS

FL #17897

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

COMP-ANL\21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:

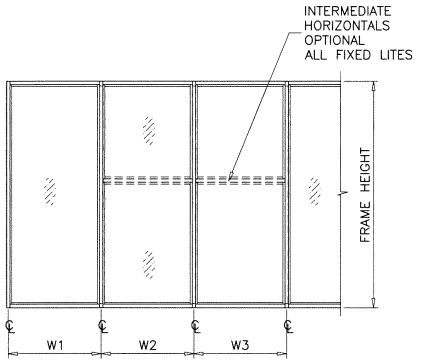
no	date	by	description

date: 07-29-21
scale: –
dr. by: TARIQ
chk. by:

drawing no. 21–58F

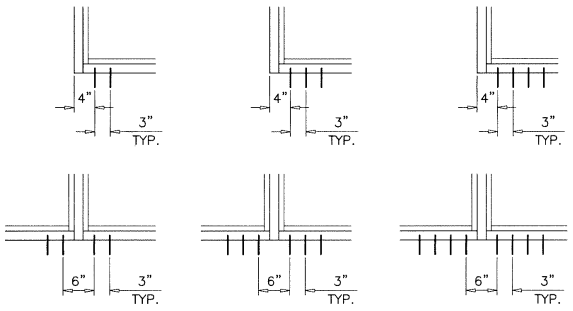
ANCHOR LOAD CAPACITY – PSF EXT.(+) & INT.(–)									
NOMINAL DIMS.		ANCHORS TYPE 'C'							
		1/4" MAX. SHIM			3/8" MAX. SHIM			1/2" SHIM	
WIDTH (W)	FRAME HEIGHT	C2	C3	C4	C2	C3	C4	C3	C4
36"	84"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	69.6	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	66.1	70.0	70.0	70.0	70.0
36"	90"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	67.6	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	63.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	59.5	70.0	70.0	70.0	70.0
36"	96"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	68.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	62.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	57.5	70.0	70.0	68.2	70.0
60"		70.0	70.0	70.0	54.1	70.0	70.0	64.1	70.0
36"	102"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	63.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	57.2	70.0	70.0	67.8	70.0
54"		70.0	70.0	70.0	52.9	70.0	70.0	62.7	70.0
60"		70.0	70.0	70.0	49.6	70.0	70.0	58.8	70.0
36"	108"	70.0	70.0	70.0	66.1	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	58.6	70.0	70.0	69.5	70.0
48"		70.0	70.0	70.0	53.1	70.0	70.0	63.0	70.0
54"		70.0	70.0	70.0	49.0	70.0	70.0	58.1	70.0
60"		70.0	70.0	70.0	45.8	68.7	70.0	54.3	70.0
36"	114"	70.0	70.0	70.0	62.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	54.9	70.0	70.0	65.0	70.0
48"		70.0	70.0	70.0	49.6	70.0	70.0	58.8	70.0
54"		70.0	70.0	70.0	45.6	68.4	70.0	54.1	70.0
60"		70.0	70.0	70.0	42.5	63.8	70.0	50.4	67.2
36"	120"	70.0	70.0	70.0	58.4	70.0	70.0	69.2	70.0
42"		70.0	70.0	70.0	51.5	70.0	70.0	61.1	70.0
48"		70.0	70.0	70.0	46.5	69.8	70.0	55.1	70.0
54"		70.0	70.0	70.0	42.7	64.0	70.0	50.6	67.4
60"		70.0	70.0	70.0	39.7	59.5	70.0	47.0	62.7

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



WIDTH (W) = W1
AT FRAME JAMB

WIDTH (W) = $\frac{W2 + W3}{2}$
AT FRAME MULLION



ANCHORS TYPES: SEE SHEET 13 FOR DESCRIPTION

C2 = (2) ANCHORS TYPE 'C' AT EACH SIDE OF JAMB AND MULLION
C3 = (3) ANCHORS TYPE 'C' AT EACH SIDE OF JAMB AND MULLION
C4 = (4) ANCHORS TYPE 'C' AT EACH SIDE OF JAMB AND MULLION

ANCHORS

Sealed: 3/13/2025

FL #17897

JALAL FAROOQ LICENSE No. 61223 STATE OF FLORIDA PROFESSIONAL ENGINEER

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

COMP-ANL\21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:

no	date	by	description

date: 07-29-21
scale: –
dr. by: TARIQ
chk. by:

drawing no. 21-58F

sheet 7 of 18

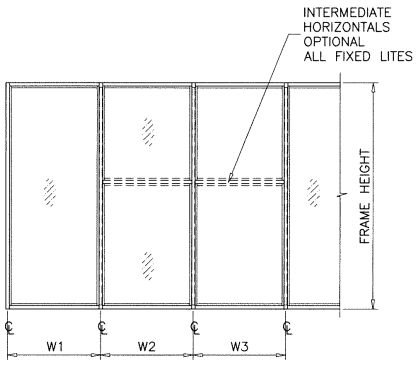
ANCHOR LOAD CAPACITY – PSF
EXT.(+) & INT.(–)

NOMINAL DIMS.		ANCHORS TYPE 'D'							
		1/4" MAX. SHIM			3/8" MAX. SHIM			1/2" SHIM	
WIDTH (W)	FRAME HEIGHT	D2	D3	D4	D2	D3	D4	D3	D4
36"	90"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
72"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
78"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
90"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
102"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
108"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36"	96"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
72"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
78"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
90"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
102"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
108"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36"	102"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
72"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
78"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
90"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
102"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
108"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36"	108"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
72"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
78"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
90"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
102"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
108"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0

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

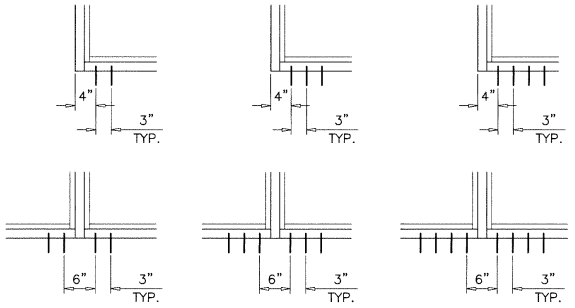
NOMINAL DIMS.		ANCHORS TYPE 'D'							
		1/4" MAX. SHIM			3/8" MAX. SHIM			1/2" SHIM	
WIDTH (W)	FRAME HEIGHT	D2	D3	D4	D2	D3	D4	D3	D4
36"	114"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
72"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
78"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	69.3	70.0	70.0	70.0	70.0
90"		70.0	70.0	70.0	67.5	70.0	70.0	70.0	70.0
96"		70.0	70.0	70.0	66.2	70.0	70.0	70.0	70.0
102"		70.0	70.0	70.0	65.3	70.0	70.0	70.0	70.0
108"		70.0	70.0	70.0	64.7	70.0	70.0	70.0	70.0
36"	120"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
72"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
78"		70.0	70.0	70.0	66.4	70.0	70.0	70.0	70.0
84"		70.0	70.0	70.0	64.0	70.0	70.0	70.0	70.0
90"		70.0	70.0	70.0	62.1	70.0	70.0	70.0	70.0
96"		–	70.0	70.0	–	70.0	70.0	70.0	70.0
102"		–	70.0	70.0	–	70.0	70.0	70.0	70.0
108"		–	70.0	70.0	–	70.0	70.0	70.0	70.0
36"	132"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	68.5	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	64.2	70.0	70.0	70.0	70.0
72"		–	70.0	70.0	–	70.0	70.0	70.0	70.0
78"		–	70.0	70.0	–	70.0	70.0	68.8	70.0
84"		–	70.0	70.0	–	70.0	70.0	66.1	70.0
90"		–	70.0	70.0	–	70.0	70.0	63.8	70.0
96"		–	70.0	70.0	–	70.0	70.0	61.9	70.0
102"		–	70.0	70.0	–	70.0	70.0	60.4	70.0
36"	135–3/4"	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54"		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60"		70.0	70.0	70.0	66.1	70.0	70.0	70.0	70.0
66"		70.0	70.0	70.0	61.8	70.0	70.0	70.0	70.0
72"		–	70.0	70.0	–	70.0	70.0	69.5	70.0
78"		–	70.0	70.0	–	70.0	70.0	66.2	70.0
84"		–	70.0	70.0	–	70.0	70.0	63.4	70.0
90"		–	70.0	70.0	–	70.0	70.0	61.1	70.0
96"		–	70.0	70.0	–	70.0	70.0	59.3	70.0
101–1/8"		–	70.0	70.0	–	70.0	70.0	58.0	70.0

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



WIDTH (W) = W1
AT FRAME JAMB

WIDTH (W) = $\frac{W2 + W3}{2}$
AT FRAME MULLION



ANCHORS TYPES: SEE SHEET 13 FOR DESCRIPTION

D2 = (2) ANCHORS TYPE 'D' AT EACH SIDE OF JAMB AND MULLION
D3 = (3) ANCHORS TYPE 'D' AT EACH SIDE OF JAMB AND MULLION
D4 = (4) ANCHORS TYPE 'D' AT EACH SIDE OF JAMB AND MULLION

Sealed: 3/13/2025

ANCHORS

FL #17897

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

COMP–ANL\21–58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638–5151 FAX. (305) 638–5158

revisions:		
no	date	by description

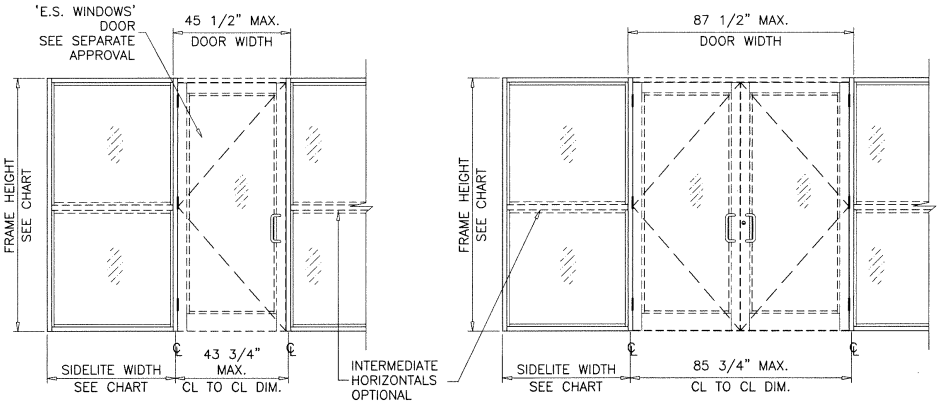
date: 07-29-21
scale: –
dr. by: TARIQ
chk. by:

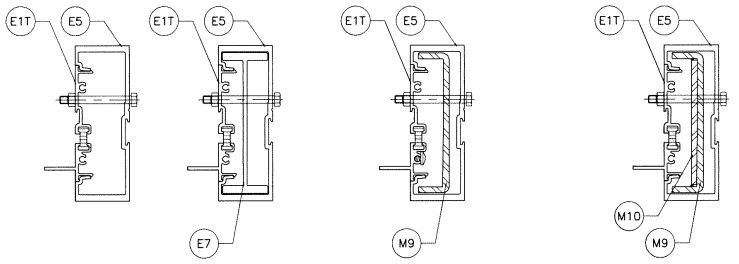
drawing no. 21–58F

sheet 8 of 18

DOOR MULLION LOAD CAPACITY–PSF											
SIDELITE WIDTH INCHES	FRAME HEIGHT INCHES	MULL 'MD1'		MULL 'MD2'		MULL 'MD3'		MULL 'MD4'		MULL 'MD5'	
		EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)
32	86–1/2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
60		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
32	98–1/2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
32	110–1/2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48		66.1	66.1	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
32	120	–	–	–	–	–	–	–	–	70.0	70.0
36		–	–	–	–	–	–	–	–	70.0	70.0
42		–	–	–	–	–	–	–	–	70.0	70.0
48		–	–	–	–	–	–	–	–	70.0	70.0

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.





MULLION 'MD1'

Ix IN^4	Sx IN^3
6.7517	2.6954

MULLION 'MD2'

Ix IN^4	Sx IN^3
10.8394	4.4985

MULLION 'MD3'

	Ix IN^4	Sx IN^3
ALUMINUM	6.7517	2.6954
STEEL	2.7506	1.2225
TOTAL Ix ALUM + Ix STL X 2.9	14.6495	

MULLION 'MD4'

	Ix IN^4	Sx IN^3
ALUMINUM	6.7517	2.6954
STEEL	3.7533	1.6681
TOTAL Ix ALUM + Ix STL X 2.9	17.5285	

DOOR–WINDOWALL TRANSITION MULLION

Sealed: 3/13/2025

FL #17897

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

COMP–ANL\21–58FES

ES–8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638–5151 FAX. (305) 638–5158

revisions:

no	date	by	description

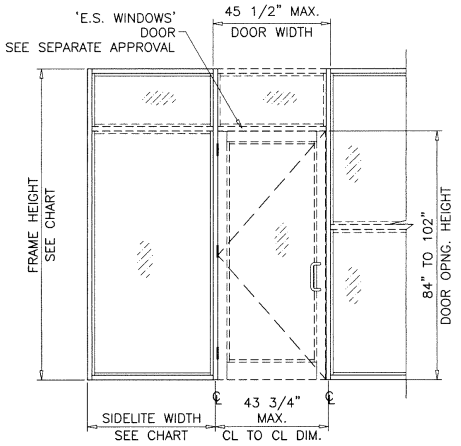
date: 07–29–21
scale: –
dr. by: TARIQ
chk. by:

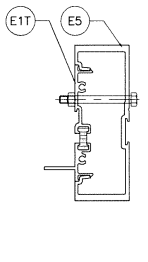
drawing no. 21–58F

sheet 9 of 18

DOOR MULLION LOAD CAPACITY–PSF											
SIDELITE WIDTH INCHES	FRAME HEIGHT INCHES	MULL 'MD1'		MULL 'MD2'		MULL 'MD3'		MULL 'MD4'		MULL 'MD5'	
		EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)
32	98–1/2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
54		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
32	110–1/2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48		66.1	66.1	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
32	114	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36		69.1	69.1	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42		64.3	64.3	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48		60.2	60.2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
32	120	62.3	62.3	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
36		59.2	59.2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
42		55.2	55.2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
48		51.6	51.6	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0

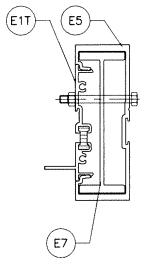
INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.





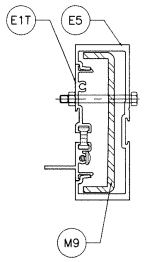
MULLION 'MD1'

Ix IN^4	Sx IN^3
6.7517	2.6954



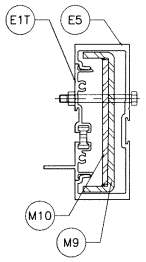
MULLION 'MD2'

Ix IN^4	Sx IN^3
10.8394	4.4985



MULLION 'MD3'

	Ix IN^4	Sx IN^3
ALUMINUM	6.7517	2.6954
STEEL	2.7506	1.2225
TOTAL Ix ALUM + Ix STL X 2.9	14.6495	



MULLION 'MD4'

	Ix IN^4	Sx IN^3
ALUMINUM	6.7517	2.6954
STEEL	3.7533	1.6681
TOTAL Ix ALUM + Ix STL X 2.9	17.5285	

DOOR–WINDOWALL TRANSITION MULLION

Sealed: 3/13/2025

FL #17897

JALAL FAROOQ LICENSE No. 81223 STATE OF FLORIDA PROFESSIONAL ENGINEER

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

COMP–ANL\21–58FES

ES–8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638–5151 FAX. (305) 638–5158

revisions:

no	date	by	description

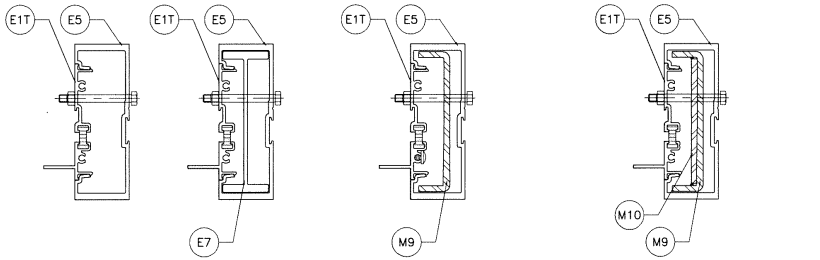
date: 07–29–21
scale: –
dr. by: TARIQ
chk. by:

drawing no. 21–58F

DOOR MULLION LOAD CAPACITY – PSF												
NOMINAL DIMS.				MULL 'MD1'		MULL 'MD2'		MULL 'MD3'		MULL 'MD4'		MULL 'MD5'	
WIDTH (W1) INCHES	WIDTH (W2) INCHES	FRAME HEIGHT INCHES	DOOR HEIGHT INCHES	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)
85–3/4	30	96	84	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	54			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	60			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	30	102		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	54			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	30	108		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			69.5	69.5	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			65.4	65.4	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			61.7	61.7	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	30	114		60.2	60.2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			56.6	56.6	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			53.3	53.3	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			50.5	50.5	70.0	70.0	69.9	69.9	70.0	70.0	70.0	70.0
	30	120		49.7	49.7	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			46.8	46.8	70.0	70.0	68.1	68.1	70.0	70.0	70.0	70.0
	42			44.2	44.2	70.0	70.0	64.8	64.8	70.0	70.0	68.2	68.2
	48			41.9	41.9	67.5	67.5	61.7	61.7	70.0	70.0	65.0	65.0
85–3/4	30	96	90	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	54			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	30	102		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	54			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	30	108		70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			69.3	69.3	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			65.2	65.2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	30	114		63.9	63.9	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			59.9	59.9	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			56.3	56.3	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			53.1	53.1	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	30	120		52.4	52.4	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			49.2	49.2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			46.3	46.3	70.0	70.0	66.9	66.9	70.0	70.0	69.9	69.9
	48			43.8	43.8	70.0	70.0	63.6	63.6	70.0	70.0	66.5	66.5
85–3/4	30	96	96	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			68.8	68.8	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	30	102		68.2	68.2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			63.5	63.5	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			59.5	59.5	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			56.0	56.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	30	114		55.5	55.5	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			51.9	51.9	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			48.8	48.8	70.0	70.0	69.7	69.7	70.0	70.0	70.0	70.0
	48			46.0	46.0	70.0	70.0	66.2	66.2	70.0	70.0	68.6	68.6

DOOR MULLION LOAD CAPACITY – PSF													
NOMINAL DIMS.				MULL 'MD1'		MULL 'MD2'		MULL 'MD3'		MULL 'MD4'		MULL 'MD5'	
WIDTH (W1) INCHES	WIDTH (W2) INCHES	FRAME HEIGHT INCHES	DOOR HEIGHT INCHES	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)
85–3/4	30	114	102	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			67.2	67.2	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			62.7	62.7	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			58.8	58.8	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	30	120		59.0	59.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			55.0	55.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			51.5	51.5	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			48.4	48.4	70.0	70.0	69.4	69.4	70.0	70.0	70.0	70.0
85–3/4	30	120	110–1/2	63.7	63.7	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	36			59.0	59.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	42			55.0	55.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
	48			51.5	51.5	70.0	70.0	70.0	70.0	70.0	70.0	77.0	70.0

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



MULLION 'MD1'

Ix IN^4	Sx IN^3
6.7517	2.6954

MULLION 'MD2'

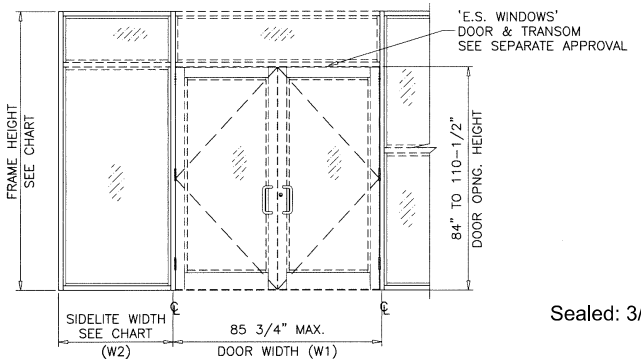
Ix IN^4	Sx IN^3
10.8394	4.4985

MULLION 'MD3'

	Ix IN^4	Sx IN^3
ALUMINUM	6.7517	2.6954
STEEL	2.7506	1.2225
TOTAL Ix ALUM + Ix STL X 2.9	14.6495	

MULLION 'MD4'

	Ix IN^4	Sx IN^3
ALUMINUM	6.7517	2.6954
STEEL	3.7533	1.6681
TOTAL Ix ALUM + Ix STL X 2.9	17.5285	



DOOR–WINDOWALL
TRANSITION MULLION

Sealed: 3/13/2025

FL #17897

JALAL FAROOQ LICENSE No. 81223 STATE OF FLORIDA PROFESSIONAL ENGINEER

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

COMP–ANL\21–58FES

ES–8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638–5151 FAX. (305) 638–5158

revisions:

no	date	by	description

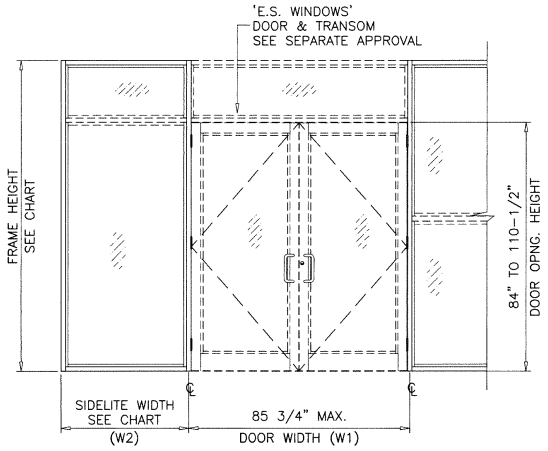
date: 07–29–21
scale: –
dr. by: TARIQ
chk. by:

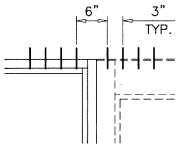
drawing no. 21–58F

DOOR MULLION HEAD ANCHOR LOAD CAPACITY – PSF					
NOMINAL DIMS.				'B4'/'C4'	'B5'/'C5'
WIDTH (W1) INCHES	WIDTH (W2) INCHES	FRAME HEIGHT INCHES	DOOR HEIGHT INCHES	EXT.(+) INT.(–)	EXT.(+) INT.(–)
85–3/4	30	96	84	70.0	70.0
	36			70.0	70.0
	42			70.0	70.0
	48			70.0	70.0
	54			70.0	70.0
	60			70.0	70.0
	30	102		70.0	70.0
	36			70.0	70.0
	42			70.0	70.0
	48			70.0	70.0
	54			70.0	70.0
	30	108		70.0	70.0
	36			70.0	70.0
	42			70.0	70.0
	48			70.0	70.0
	30	114		70.0	70.0
	36			70.0	70.0
	42			70.0	70.0
	48			68.0	70.0
	30	120		70.0	70.0
	36			70.0	70.0
	42			68.9	70.0
	48			65.4	70.0
85–3/4	30	102	90	70.0	70.0
	36			70.0	70.0
	42			70.0	70.0
	48			70.0	70.0
	54			69.1	70.0
	30	108		70.0	70.0
	36			70.0	70.0
	42			70.0	70.0
	48			69.4	70.0
	30	114		70.0	70.0
	36			70.0	70.0
	42			70.0	70.0
	48			66.8	70.0
	30	120		70.0	70.0
	36			70.0	70.0
	42			67.6	70.0
	48			64.3	70.0

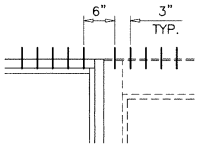
DOOR MULLION HEAD ANCHOR LOAD CAPACITY – PSF					
NOMINAL DIMS.				'B4'/'C4'	'B5'/'C5'
WIDTH (W1) INCHES	WIDTH (W2) INCHES	FRAME HEIGHT INCHES	DOOR HEIGHT INCHES	EXT.(+) INT.(–)	EXT.(+) INT.(–)
85–3/4	30	108	96	70.0	70.0
	36			70.0	70.0
	42			70.0	70.0
	48			68.1	70.0
	30	114		70.0	70.0
	36			70.0	70.0
	42			68.8	70.0
	48			65.6	70.0
	30	120		70.0	70.0
	36			69.9	70.0
	42			66.4	70.0
	48			63.2	70.0
85–3/4	30	114	102	70.0	70.0
	36			70.0	70.0
	42			67.6	70.0
	48			64.4	70.0
	30	120		70.0	70.0
	36			68.6	70.0
	42			65.2	70.0
	48			62.1	70.0
85–3/4	30	120	110–1/2	70.0	70.0
	36			66.8	70.0
	42			63.6	70.0
	48			60.7	70.0

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.

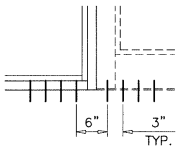




'B4', 'C4'



'B5', 'C5'



'B4' AT SILL ALL CASES

ANCHORS TYPES: SEE SHEET 8 FOR DESCRIPTION

B4 = (4) ANCHORS TYPE 'B' AT EACH SIDE OF DOOR MULLION
B5 = (5) ANCHORS TYPE 'B' AT EACH SIDE OF DOOR MULLION

C4 = (4) ANCHORS TYPE 'C' AT EACH SIDE OF DOOR MULLION
C5 = (5) ANCHORS TYPE 'C' AT EACH SIDE OF DOOR MULLION

ALL OTHER ANCHORS TO BE SPACED AS PER ELEVATION.
SHIM SPACE FOR ANCHORS TYPE 'C' LIMITED TO 1/4" MAX.

TRANSITION MULLION ANCHORS

Sealed: 3/13/2025

FL #17897

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

COMP–ANL\21–58FES

ES–8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638–5151 FAX. (305) 638–5158

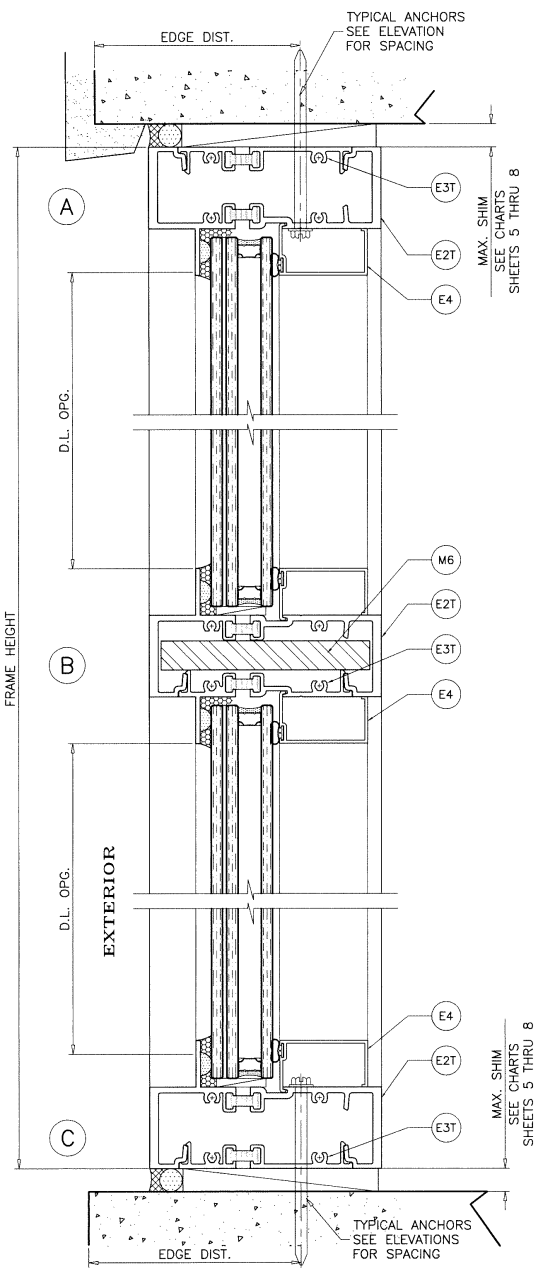
revisions:

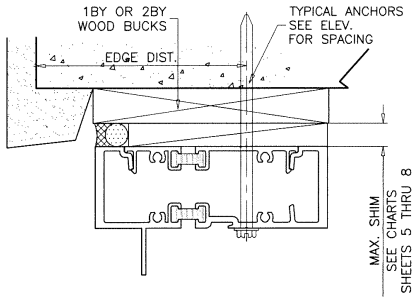
no	date	by	description

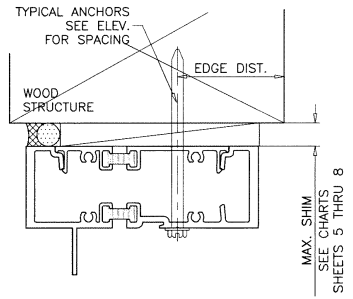
date: 07–29–21
scale: –
dr. by: TARIQ
chk. by:

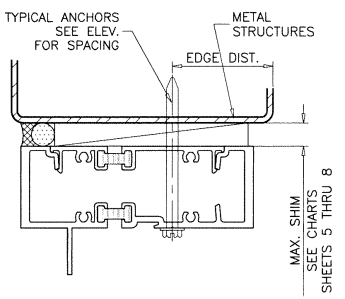
drawing no. 21–58F

sheet 12 of 18









1BY OR 2BY WOOD BUCKS AND METAL STRUCTURE NOT BY 'E.S. WINDOWS'.
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 WOOD STRUCTURES
2" MIN. PENETRATION INTO WOOD (HEAD/SILL/JAMBS)

THRU 1BY OR 2BY BUCKS INTO CONC. OR BLOCKS
1–1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL/JAMBS)
1–1/4" MIN. EMBED INTO BLOCKS (JAMBS)

DIRECTLY INTO CONC. OR BLOCKS
2" MIN. EMBED INTO CONCRETE (HEAD/SILL/JAMBS)
2" MIN. EMBED INTO FILLED BLOCKS (JAMBS)

ANCHOR EDGE DISTANCES

INTO CONCRETE AND MASONRY = 2–1/2" MIN.
INTO WOOD STRUCTURE = 1" MIN.

TYPE 'B'– 5/16" DIA. ULTRACON BY 'DEWALT' (Fu=177 KSI, Fy=155 KSI)

INTO WOOD STRUCTURES
2" MIN. PENETRATION INTO WOOD (HEAD/SILL/JAMBS)

THRU 1BY OR 2BY BUCKS INTO CONC. OR BLOCKS
1–1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL/JAMBS)
1–1/4" MIN. EMBED INTO BLOCKS (JAMBS)

DIRECTLY INTO CONC. OR BLOCKS
2" MIN. EMBED INTO CONCRETE (HEAD/SILL/JAMBS)
2" MIN. EMBED INTO FILLED BLOCKS (JAMBS)

ANCHOR EDGE DISTANCES

INTO CONCRETE AND MASONRY = 2–1/2" MIN.
INTO WOOD STRUCTURE = 1–1/4" MIN.

TYPE 'C'– 1/4" DIA. TEKS OR SELF DRILLING SCREWS (GRADE 5 CRS)

INTO F.B.C. APPROVED MULLIONS
OR
INTO METAL STRUCTURES (HEAD/SILL/JAMBS)
(3) THREADS MIN. PENETRATION BEYOND SUBSTRATE
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 = 1/2" MIN.

TYPE 'D'– 5/16" DIA. TEKS OR SELF DRILLING SCREWS (GRADE 5 CRS)

INTO F.B.C. APPROVED MULLIONS
OR
INTO METAL STRUCTURES (HEAD/SILL/JAMBS)
(3) THREADS MIN. PENETRATION BEYOND SUBSTRATE
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 = 1/2" MIN.

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

SEALANTS:

ALL FRAME CORNERS, JOINTS, MULLION SEAMS AND PERIMETER OF GLAZING BEAD TO FRAME SEALED WITH SILICONE SEALANT.

Sealed: 3/13/2025

FL #17897

JALAL FAROOQ LICENSE No. 81223 STATE OF FLORIDA PROFESSIONAL ENGINEER

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

COMP–ANL\21–58FES

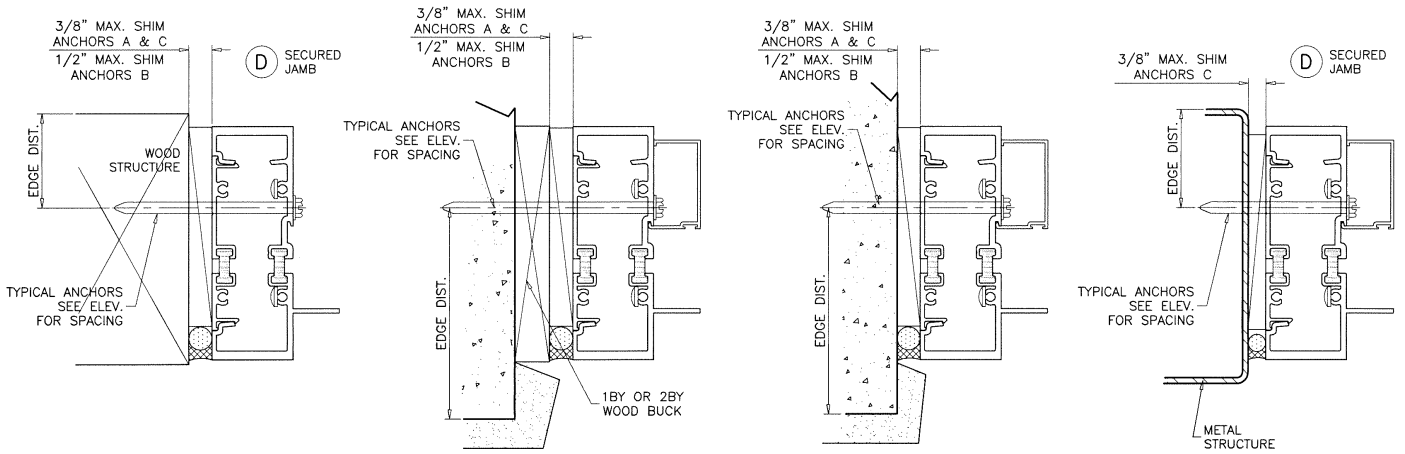
ES–8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

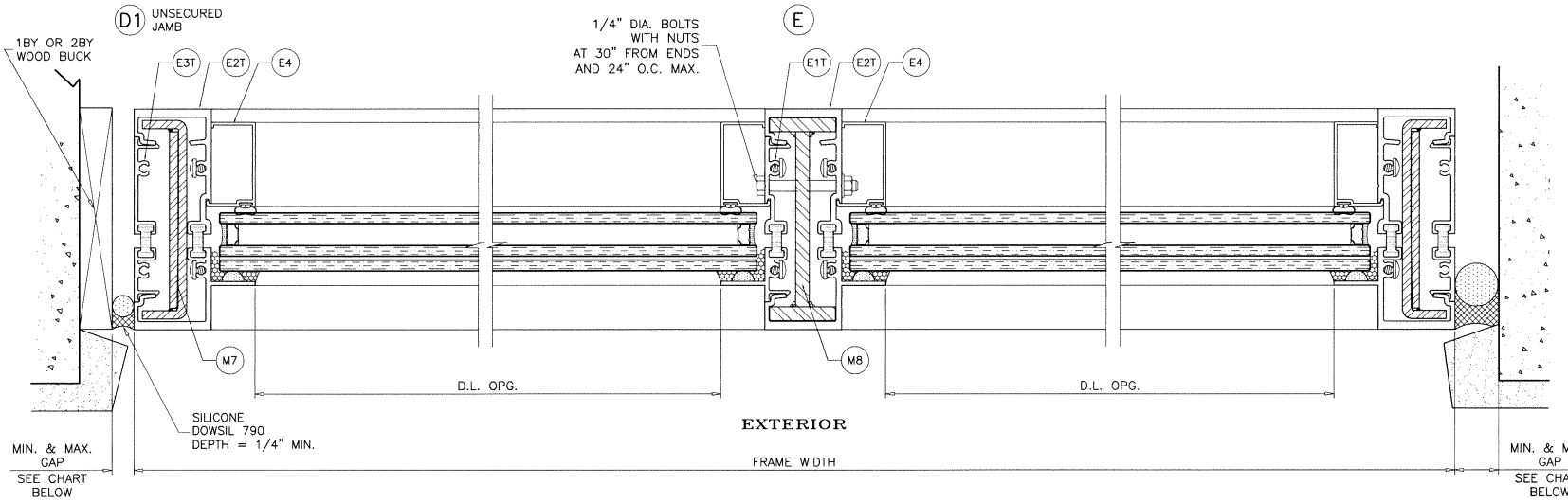
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638–5151 FAX. (305) 638–5158

revisions:			
no	date	by	description

date: 07–29–21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

drawing no. 21–58F





MAX. GAPS FOR UNANCHORED JAMBS		
MAX. FRAME HEIGHT	JAMB J1	
	MIN.	MAX.
96"	1/4"	1"
102"	1/4"	1"
108"	3/8"	1"
120"	3/8"	1"
132"	3/8"	1"
135-3/4"	3/8"	1"

NOTE:
MAX. MOVEMENT CONSIDERED=100% STRETCH.
PLEASE REFER TO SEALANT MANUFACTURER'S DATA AND APPLICATION MANUAL FOR COMPATABILITY OF SEALANT TO SUBSTRATE & WINDOWALL MATERIAL/FINISH AND COMPLIANCE FOR WARRANTY.
REFER TO ACI-117-10 FOR CONSTRUCTION TOLERANCES.

ALTERNATE SEALANTS AT JAMB GAPS CAN BE DESIGNED BY ENGINEER OF RECORD BASED ON MANUFACTURER GUIDE LINES.

GAPS LESS THAN 1/4" MAY BE DESIGNED BY ENGINEER OF RECORD BY THE USE OF BOND BREAKER TAPE OR 15% OF GAP ALLOWED MOVEMENT.

Sealed: 3/13/2025

FL #17897

JALAL FAROOQ LICENSE No. 61223 STATE OF FLORIDA PROFESSIONAL ENGINEER

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

COMP-ANL\21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

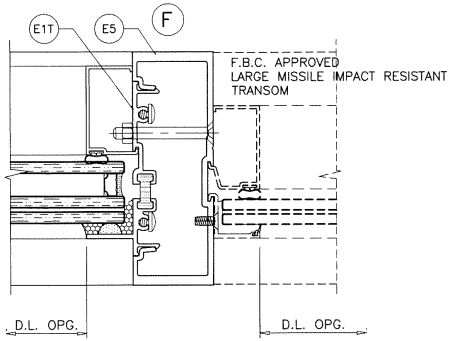
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

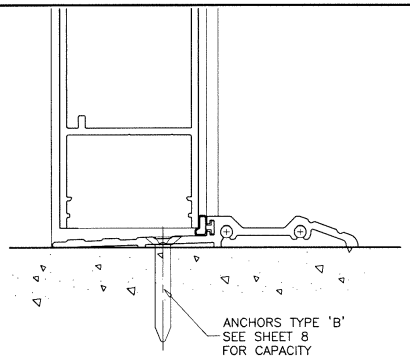
revisions:

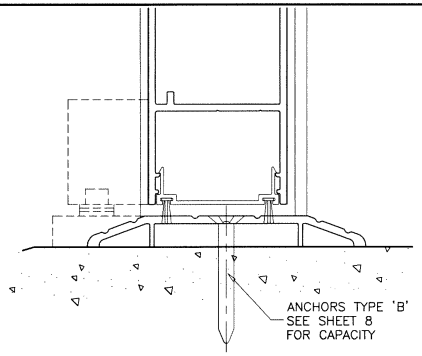
no	date	by	description

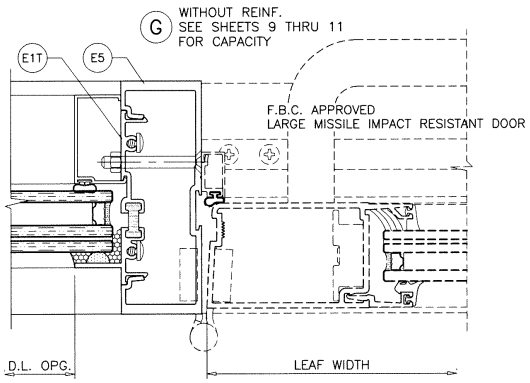
date: 07-29-21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

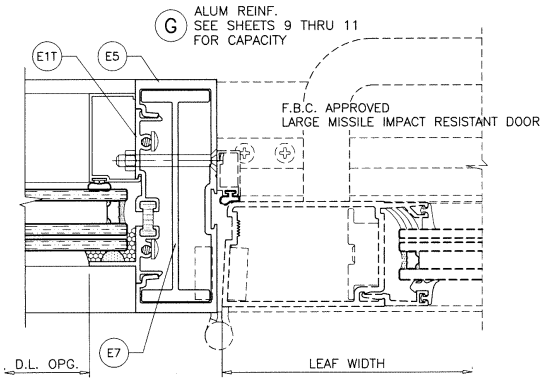
drawing no. 21-58F

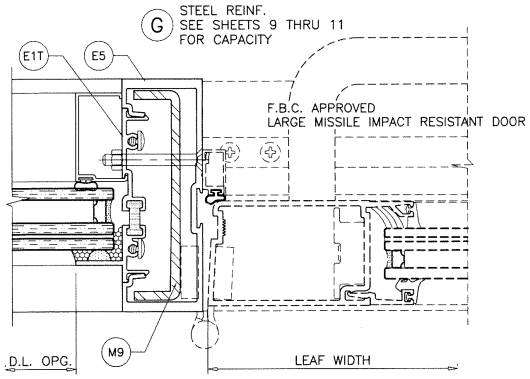


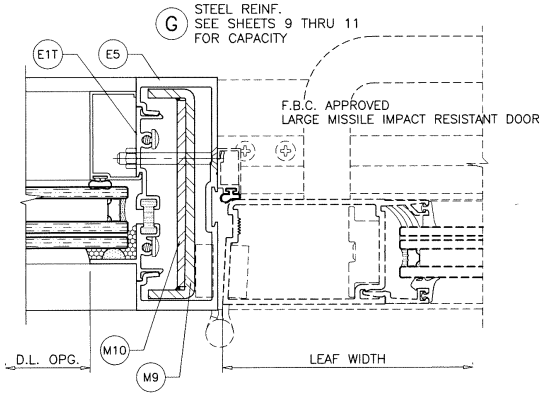












SEE SEPARATE APPROVAL FOR DESIGN LOAD CAPACITY OF DOORS AND DOOR ANCHORS.

LOWER VALUES FROM DOORS APPROVAL OR STOREFRONT SYSTEM CAPACITY CHARTS WILL APPLY TO ENTIRE SYSTEM.

Sealed: 3/13/2025

FL #17897

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220 (C.A.N. 3538)
MIAMI, FLORIDA 33173 FAX. (305) 262-6978
TEL. (305) 264-8100 COMP-ANL\21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

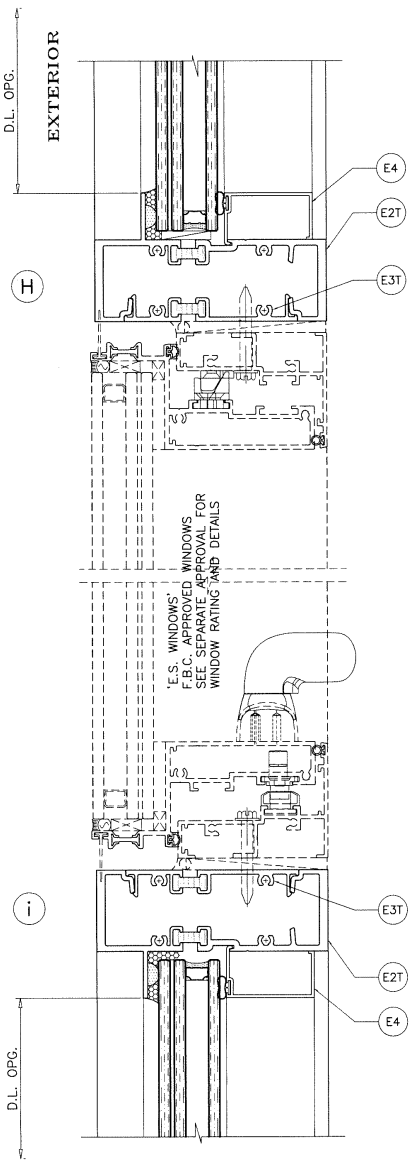
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

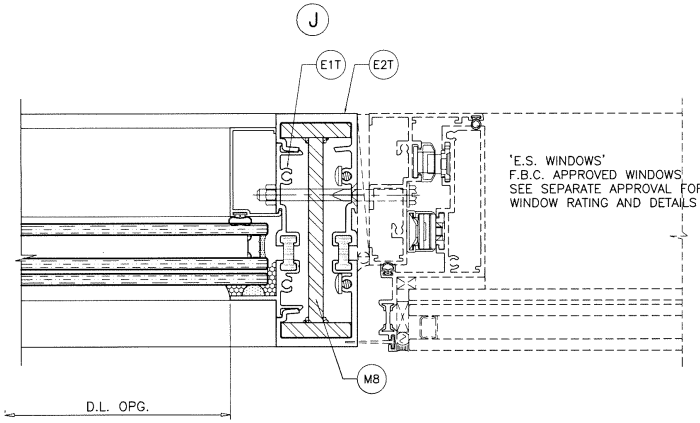
revisions:		
no	date	by description

date: 07-29-21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

drawing no. 21-58F

sheet 15 of 18





Sealed: 3/13/2025

FL #17897

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
COMP-ANL\21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

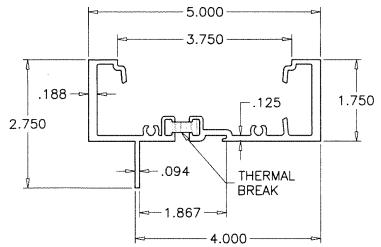
revisions:

no	date	by	description

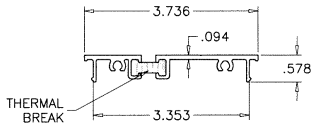
date: 07-29-21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

drawing no. 21-58F

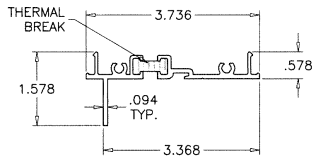
sheet 16 of 18



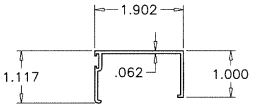
E2T WINDOW WALL FRAME



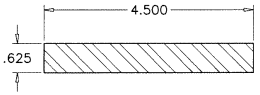
E3T SHEAR CLIP



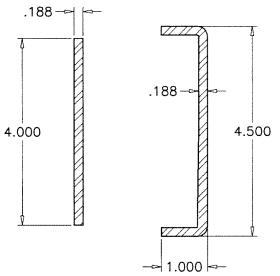
E1T INTERMEDIATE SNAP



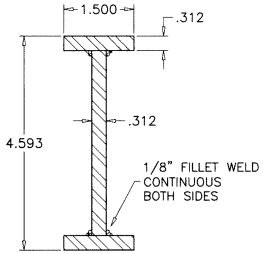
E4 GLAZING BEAD



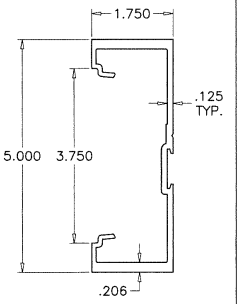
M6 HORIZONTAL REINF.



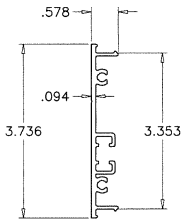
M7 JAMB REINF.



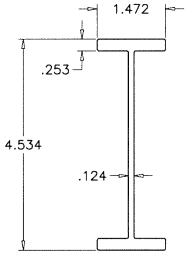
M8 MULLION REINF.



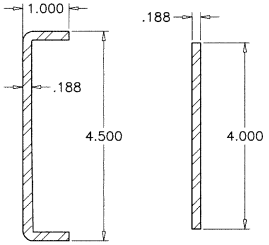
E5 DOOR MULLION



E6 DOOR MULL SNAP–IN PLATE



E7 DOOR MULL STIFFENER

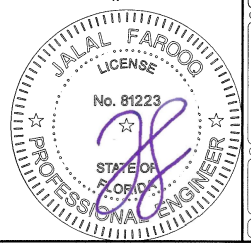


M9 M10 DOOR MULL STEEL REINF.

ITEM #	PART #	REQ'D	DESCRIPTION	MATERIAL	MANF./SUPPLIER/REMARKS
E1T	ES–8000T–013T	AS REQD.	INTERMEDIATE SNAP	6005–T5	–
E2T	ES–8000T–008T	AS REQD.	WINDOW WALL FRAME	6063–T6	–
E3T	ES–8000T–003T	AS REQD.	SHEAR CLIP	6063–T6	–
E4	ES–8000T–005	AS REQD.	GLAZING BEAD	6005–T5	–
E5	–	AS REQD.	DOOR MULLION	6005–T5	–
E6	ES–8000T–003	AS REQD.	DOOR MULL SNAP–IN PLATE	6005–T5	–
E7	–	AS REQD.	DOOR MULLION STIFFENER	6005–T5	–
M1	#12 X 1–1/2"	AS REQD.	ASSEMBLY FASTENERS	ST. STEEL	PH SMS
M2	ES–8010A	AS REQD.	INTERIOR GLAZING GASKET	SILICONE	DUROMETER 70±3 SHORE A
M3	ES–8011A	AS REQD.	1/4" GLASS SPACER	SILICONE	DUROMETER 85±5 SHORE A
M4	ES–9550–B01A	2/ LITE	SETTING BLOCKS AT 1/4 POINTS	SILICONE	DUROMETER 80±5 SHORE A
M5	1/4" X 2–1/8"	AS REQD.	MULLION FASTENERS	ST. STEEL	BOLT WITH NUT
M6	–	AS REQD.	HORIZONTAL REINFORCING	STEEL	A36, Fu MIN. = 58 KSI
M7	–	AS REQD.	JAMB REINFORCING	STEEL	A36, Fu MIN. = 58 KSI
M8	–	AS REQD.	MULLION REINFORCING	STEEL	A36, Fu MIN. = 58 KSI
M9	–	AS REQD.	DOOR MULLION REINFORCING CHANNEL	STEEL	A36, Fu MIN. = 58 KSI
M10	–	AS REQD.	DOOR MULLION REINFORCING BAR	STEEL	A36, Fu MIN. = 58 KSI

THERMAL BREAK:
FRAME MEMBERS FILLED AND DEBRIDGED USING 'BAYDUR TB 100–30' MANUFACTURED BY 'BAYER MATERIALSCIENCE, LLC.

FL #17897



Sealed: 3/13/2025

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

COMP–ANL\21–58FES

ES–8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

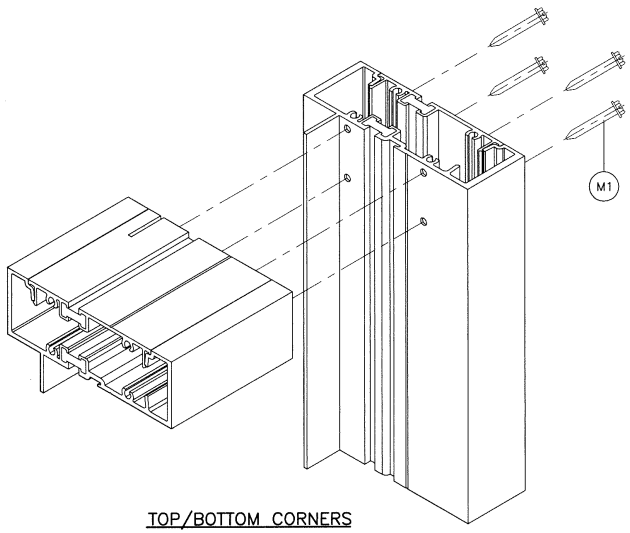
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638–5151 FAX. (305) 638–5158

revisions:

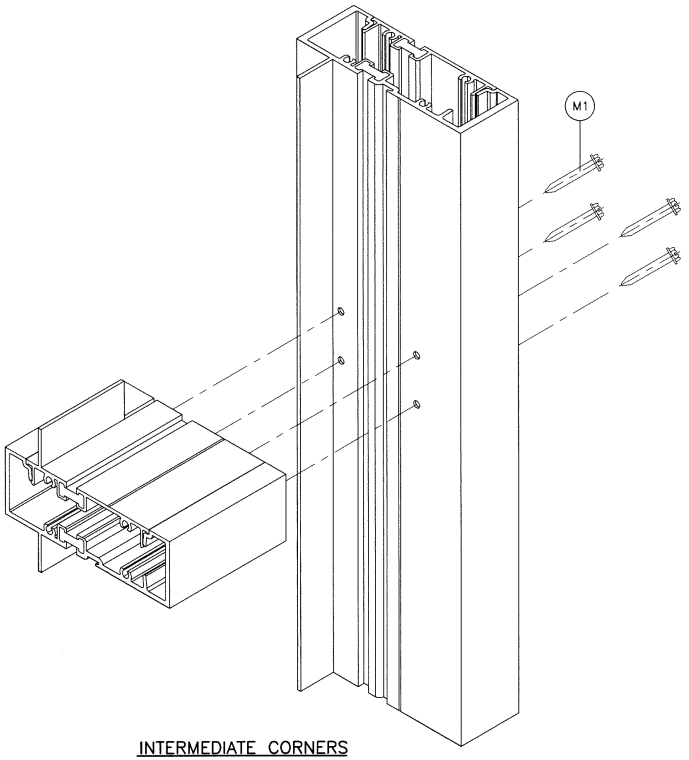
no	date	by	description

date: 07–29–21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

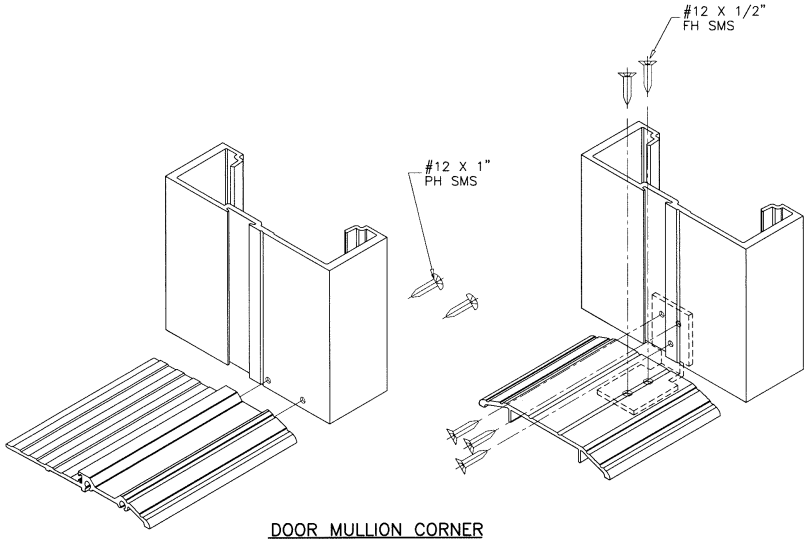
drawing no. 21–58F



TOP/BOTTOM CORNERS



INTERMEDIATE CORNERS



DOOR MULLION CORNER

Sealed: 3/13/2025

FL #17897

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

COMP-ANL\21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:

no	date	by	description

date: 07-29-21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

drawing no. 21-58F