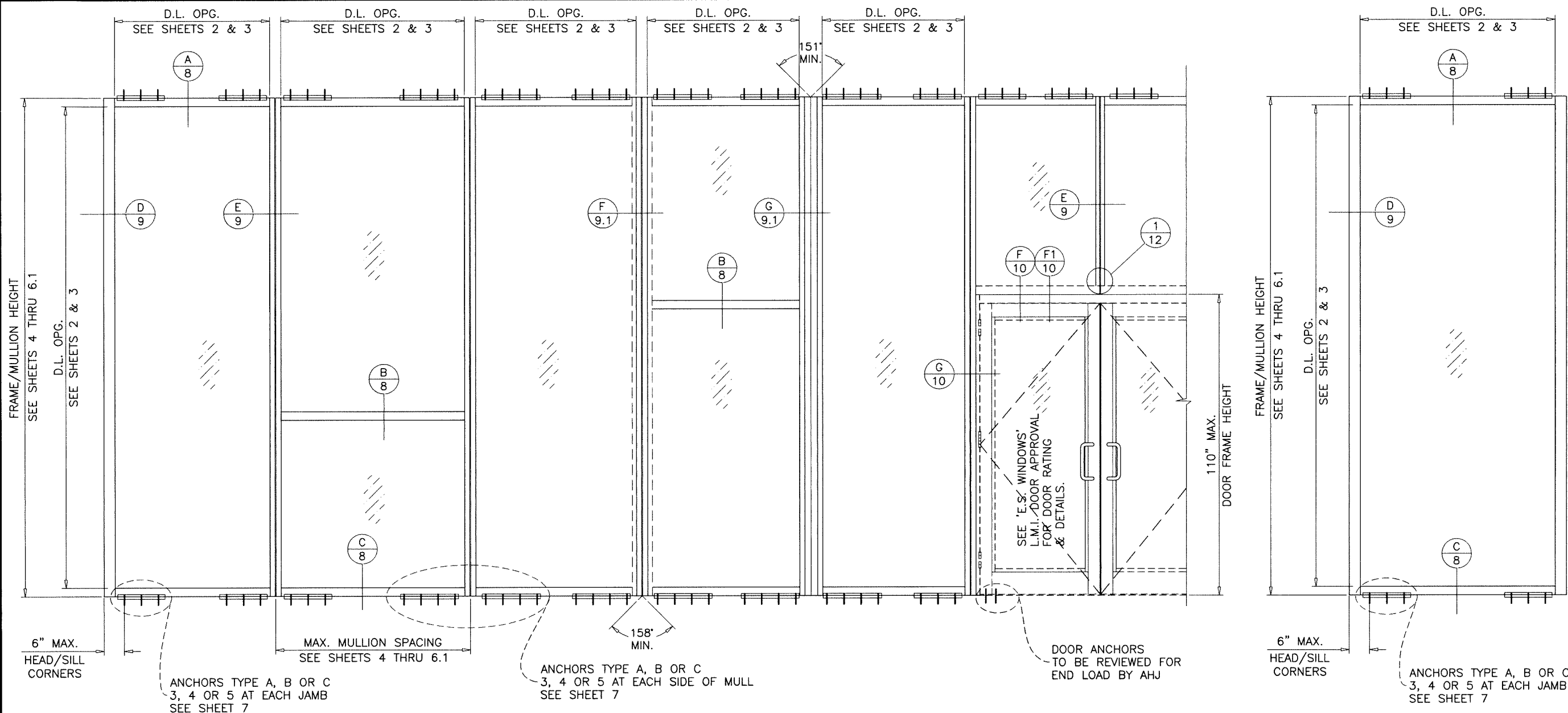




TYPICAL ELEVATIONS

**ES-WW1032
ALUMINUM WINDOW WALL SYSTEM**

THIS SYSTEM MAY BE USED IN CONJUNCTION WITH F.B.C. APPR'D LARGE MISSILE IMPACT RESISTANT DOORS. LOWER DESIGN PRESSURE FROM WINDOW WALL SYSTEM OR DOOR APPROVAL WILL APPLY TO ENTIRE SYSTEM.

THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE 2023 (8TH EDITION)/2026 (9TH EDITION) FLORIDA BUILDING CODE INCLUDING HIGH VELOCITY HURRICANE ZONE (HVHZ).

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.

ALL SHIMS TO BE LOAD-BEARING, (HIGH DENSITY PLASTIC/COMPOSITE, METAL OR OTHER RIGID MATERIALS).

MATERIALS INCLUDING BUT NOT LIMITED TO STEEL/METAL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE 2023/2026 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)'.

INSTRUCTIONS:

USE CHARTS AS FOLLOWS.

- STEP 1** DETERMINE DESIGN WIND PRESSURE REQUIREMENTS BASED ON WIND VELOCITY, BLDG. HEIGHT, WIND ZONE USING APPLICABLE ASCE 7 STANDARD.
- STEP 2** SEE CHARTS ON SHEETS 2 & 3 FOR GLASS DESIGN LOAD CAPACITY.
- STEP 3** CHECK MULLION DESIGN LOAD CAPACITY FOR A GIVEN SPACING AND HEIGHT USING CHARTS ON SHEETS 4 THRU 6.1 THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.
- STEP 4** USING CHARTS ON SHEET 7 SELECT ANCHOR OPTION WITH DESIGN LOAD CAPACITY MORE THAN DESIGN LOAD SPECIFIED IN STEP 1 ABOVE.
- STEP 5** THE LOWEST VALUE RESULTING FROM STEPS 2, 3 AND 4 THAT EXCEED THE DESIGN WIND PRESSURES DETERMINED THRU STEP 1 SHALL APPLY TO ENTIRE SYSTEM.
- STEP 6** FOR SYSTEMS WITH UNANCHORED JAMBS, USING SHEET 9, DETERMINE THE MIN. & MAX. GAP DIMENSIONS.
- STEP 7** WHEN USING THIS SYSTEM WITH DOORS, THE LOWER VALUE OF THE DESIGN PRESSURE RATING FOR THE SYSTEM AND THE DOOR SHALL APPLY.

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

PRODUCT COMPLIES WITH REQUIREMENTS OF ANSI Z97.1.

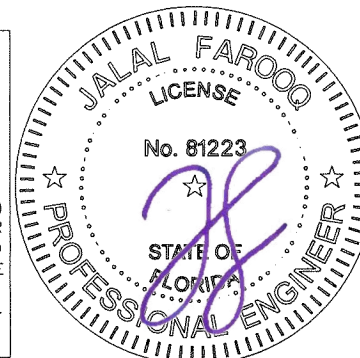
FASTENERS AND CONNECTORS (AS APPLICABLE) SHOWN IN THIS APPROVAL MAY NOT MEET CORROSION RESISTANCE REQUIREMENTS FOR COASTAL OR SALT WATER EXPOSURE ZONES. COMPLIANCE WITH THESE CONDITIONS TO BE CHECKED PER FBC 1711.

**LAMINATED GLASS
LARGE MISSILE IMPACT**

FL #18410

Sealed: 9/2/2026

- 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
TEL. (305) 264-8100 FAX. (305) 262-6978

af c

STORE\W15-72ES

ES-WW1032 ALUM WINDOW WALL SYSTEM (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
E	07.31.23		UPDATED TO 2023 FBC
F	06.23.24		SHEET 1.3 ADDED
G	12.11.24		LOADS REV. PER NEW TEST
H	09.01.26		UPDATED TO 2026 FBC

date: 08-27-15

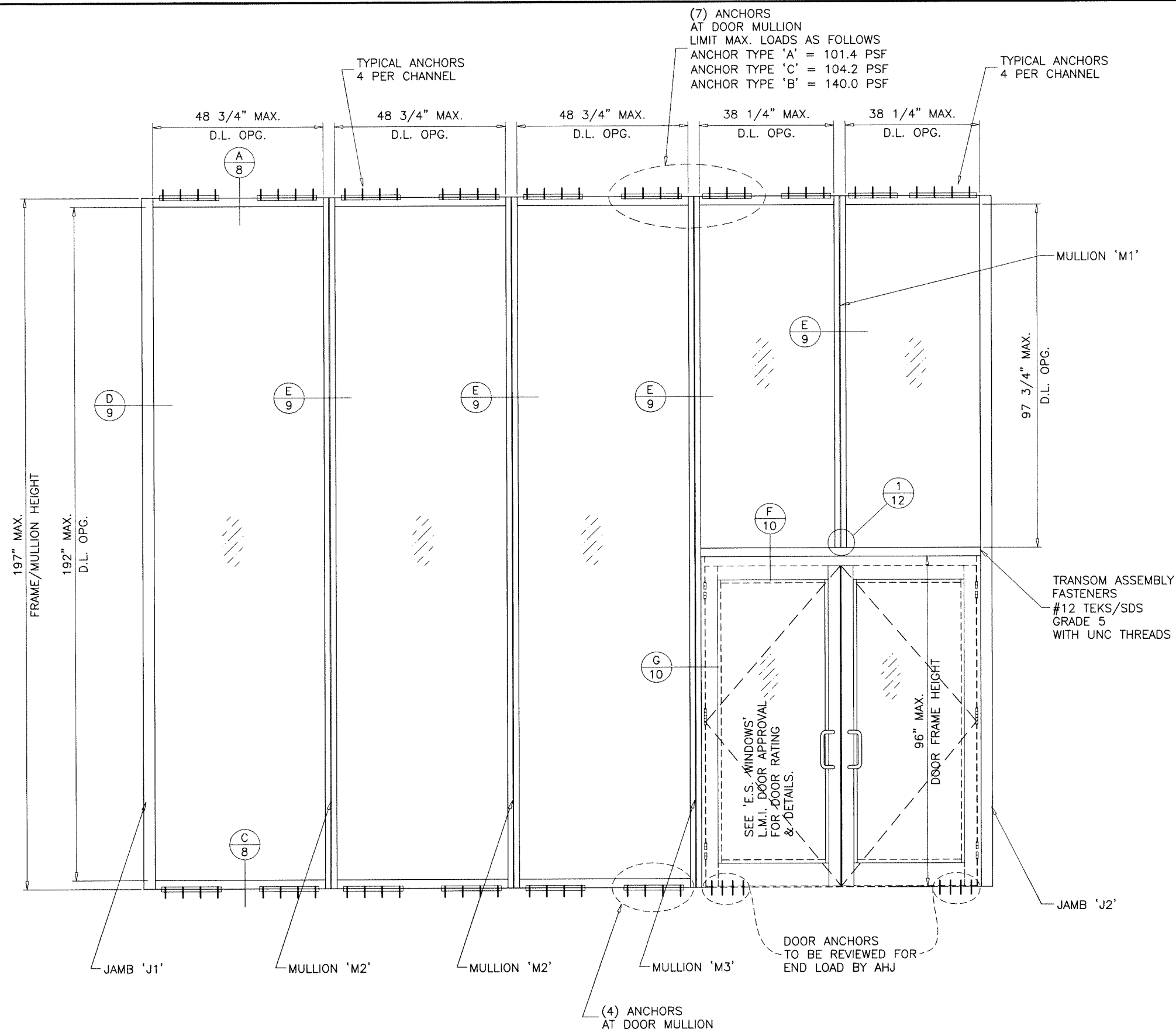
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dr. by: TARIQ

chk. by:

drawing no.
W15-72

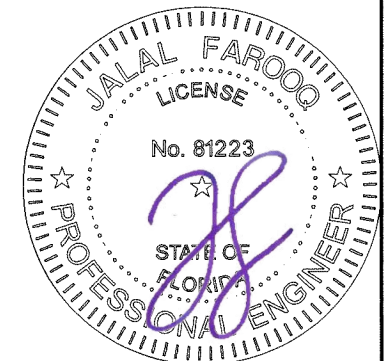
sheet 1 of 13



MAXIMUM DESIGN LOAD RATING = + 140.0 PSF
(FOR ELEVATION SHOWN ON THIS SHEET ONLY) - 140.0 PSF

Sealed: 9/2/2026

FL #18410



AL-FAROOQ CORPORATION
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(C.A.N. 3538)

ES-WW1032 ALUM WINDOW WALL SYSTEM (L.M.I.)

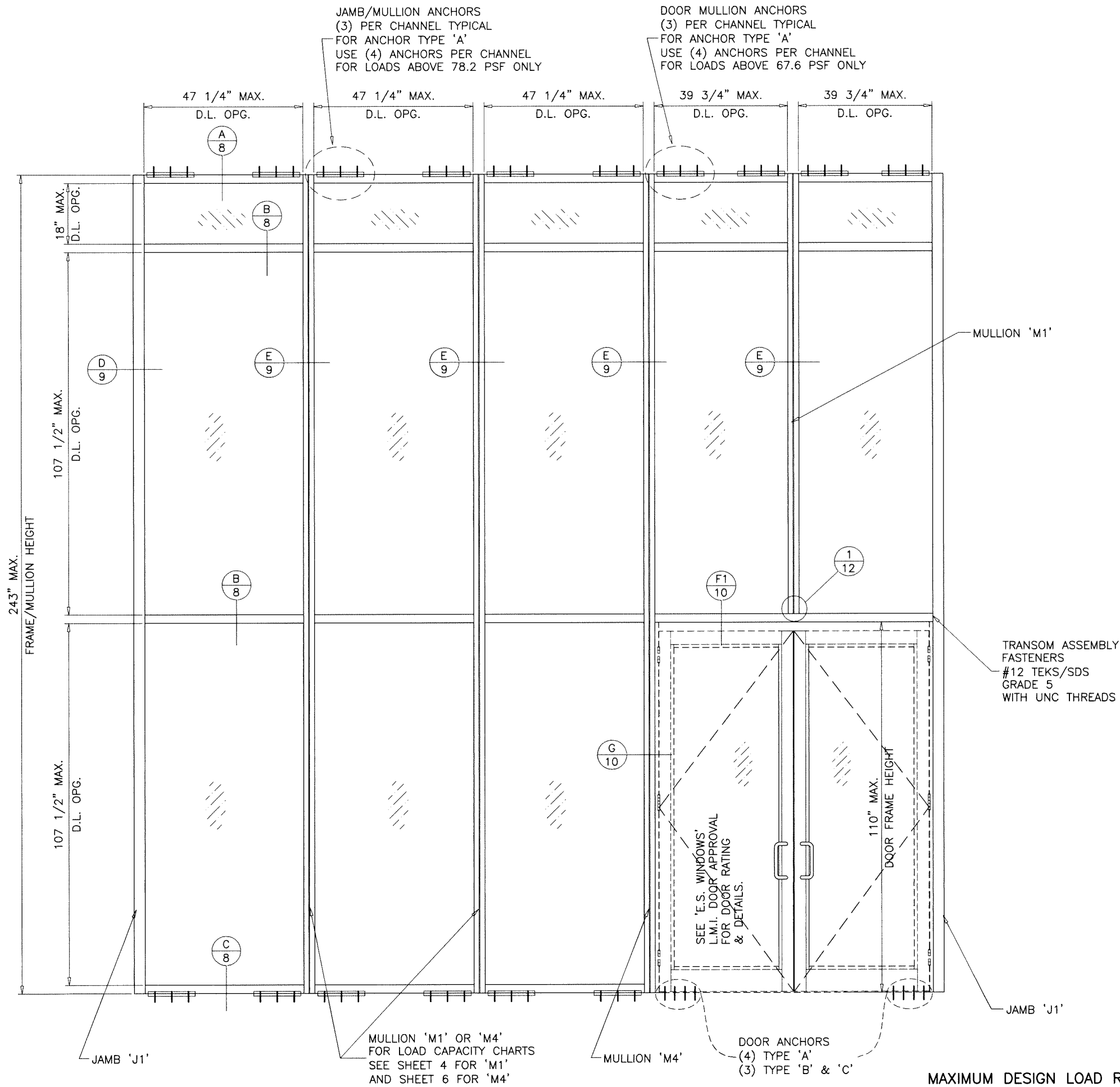
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:	no	date	by	description

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drawing no.
W15-72
sheet 1.1 of 13

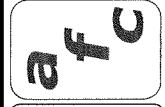
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MAXIMUM DESIGN LOAD RATING = + 75.0 PSF
(FOR ELEVATION SHOWN ON THIS SHEET ONLY) - 80.0 PSF



Sealed: 9/2/2026
FL #18410

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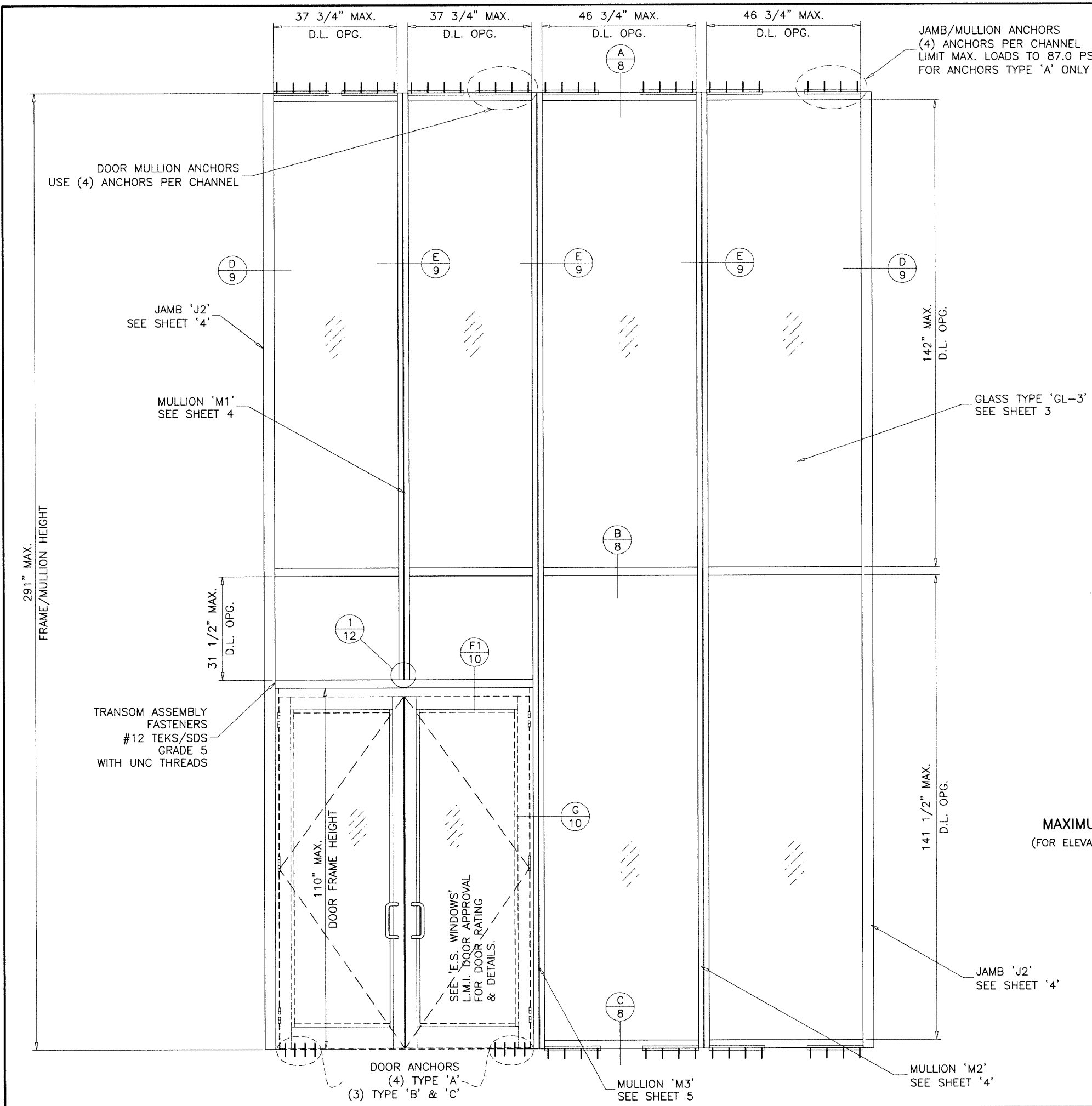
ES-WW1032 ALUM WINDOW WALL SYSTEM (L.M.I.)
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:	
no	date by description

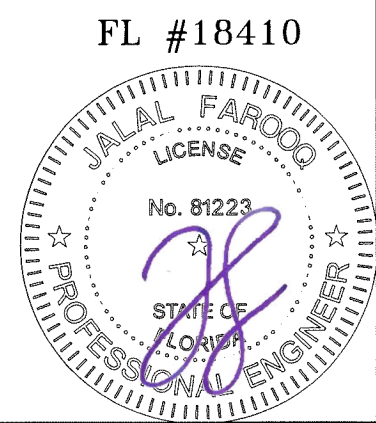
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chk. by:

drawing no.
W15-72
sheet 1.2 of 13

STORE\W15-72ES



MAXIMUM DESIGN LOAD RATING = + 90.0 PSF
(FOR ELEVATION SHOWN ON THIS SHEET ONLY) - 90.0 PSF



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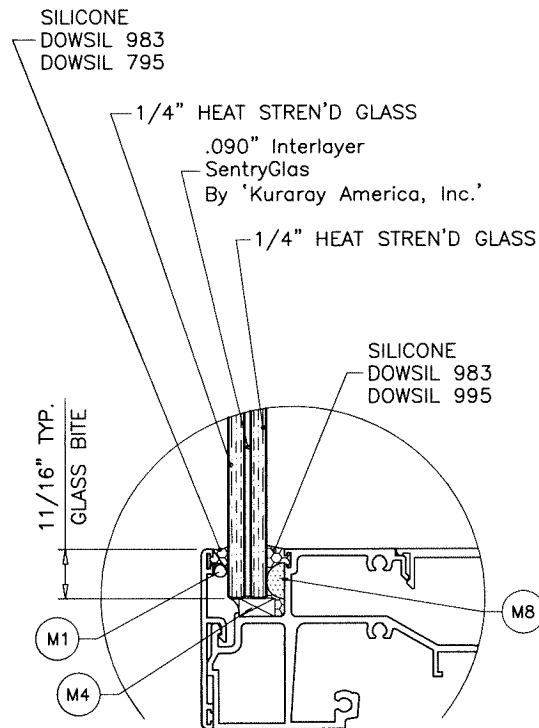
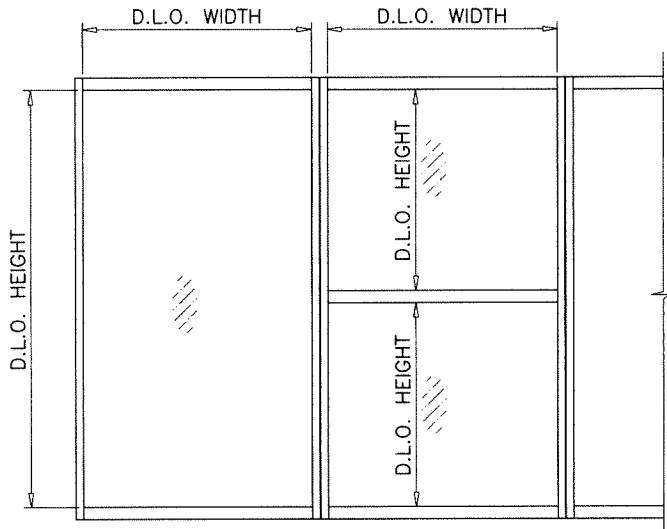
revisions:
no date by description

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chk. by:

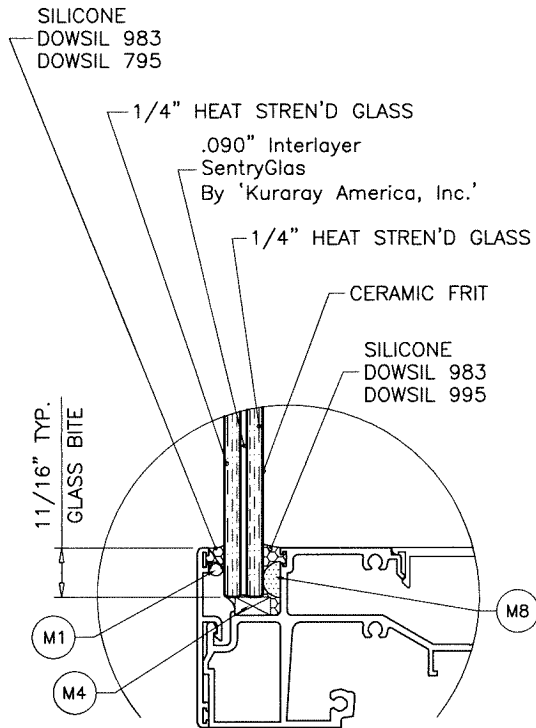
drawing no.
W15-72
sheet 1.3 of 13

STORE\W15-72ES

GLASS DESIGN LOAD CAPACITY - PSF		
NOMINAL DIMS.		GLASS TYPES 'GL-1' & 'GL-2'
D.L.O. WIDTH	D.L.O. HEIGHT	EXT. (+) INT. (-)
42"	108"	150.0
48-3/4"		140.0
52"		131.2
56"		121.9
60"		113.8
64"		106.6
68"		100.4
42"	120"	150.0
48-3/4"		140.0
52"		131.2
56"		121.9
60"		113.8
64"		106.6
68"		100.4
42"	132"	150.0
48-3/4"		140.0
52"		131.2
56"		121.9
60"		113.8
64"		106.6
68"		100.4
42"	144"	150.0
48-3/4"		140.0
52"		130.0
56"		117.0
60"		107.0
64"		101.0
42"	156"	150.0
48-3/4"		140.0
52"		127.0
56"		114.0
60"	160"	103.0
64"		103.0
42"	160"	150.0
48-3/4"	168"	140.0
52"	168"	125.0
48-3/4"	180"	140.0
52"	180"	124.0
48-3/4"	192"	140.0



GLASS TYPE 'GL-1'



GLASS TYPE 'GL-2'

GLASS

NOTE:
GLASS CAPACITIES ON THIS SHEET ARE
BASED ON ASTM E1300-16 (3 SEC. GUSTS).



FL #18410

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(C.A.N. 3538)

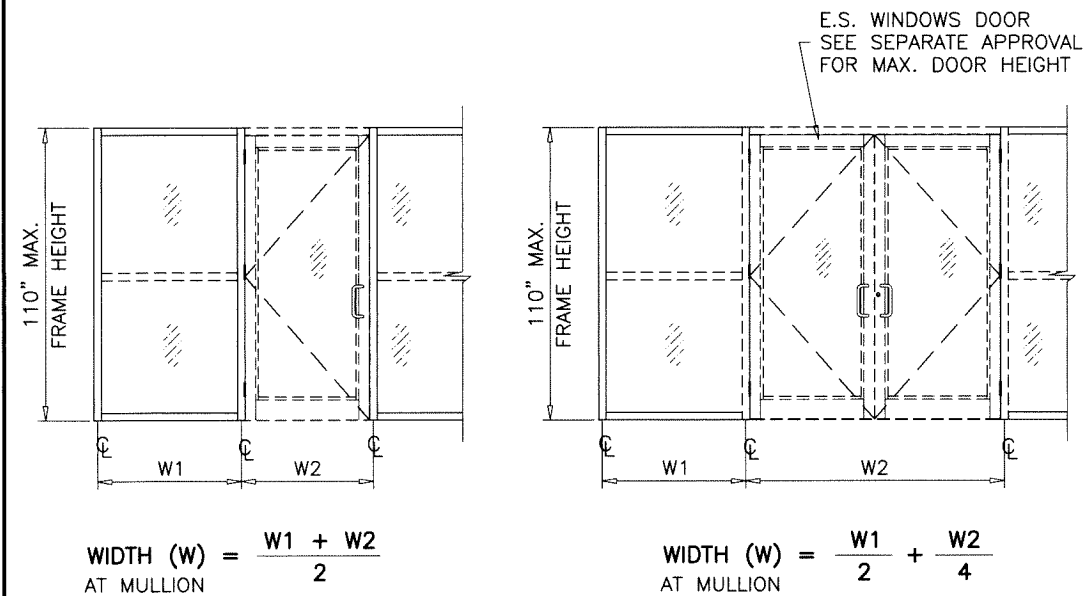
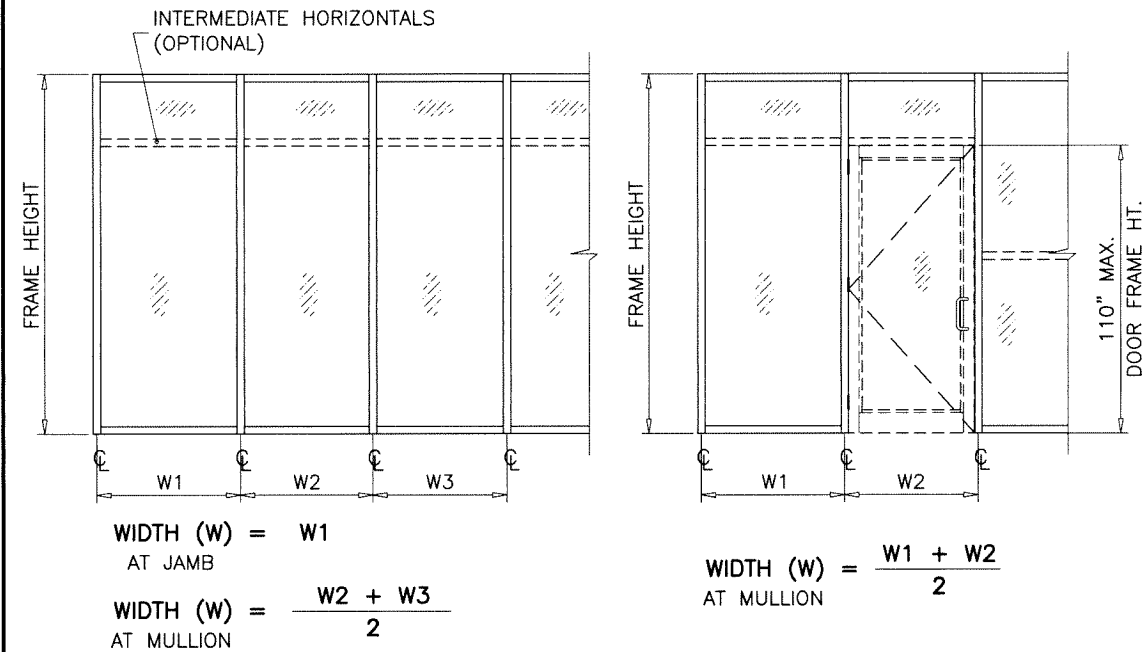
ES-WW1032 ALUM WINDOW WALL SYSTEM (L.M.I.)
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:	no	date	by	description

date: 08-27-15	scale: 3/8" = 1"	dr. by: TARIQ	chk. by:
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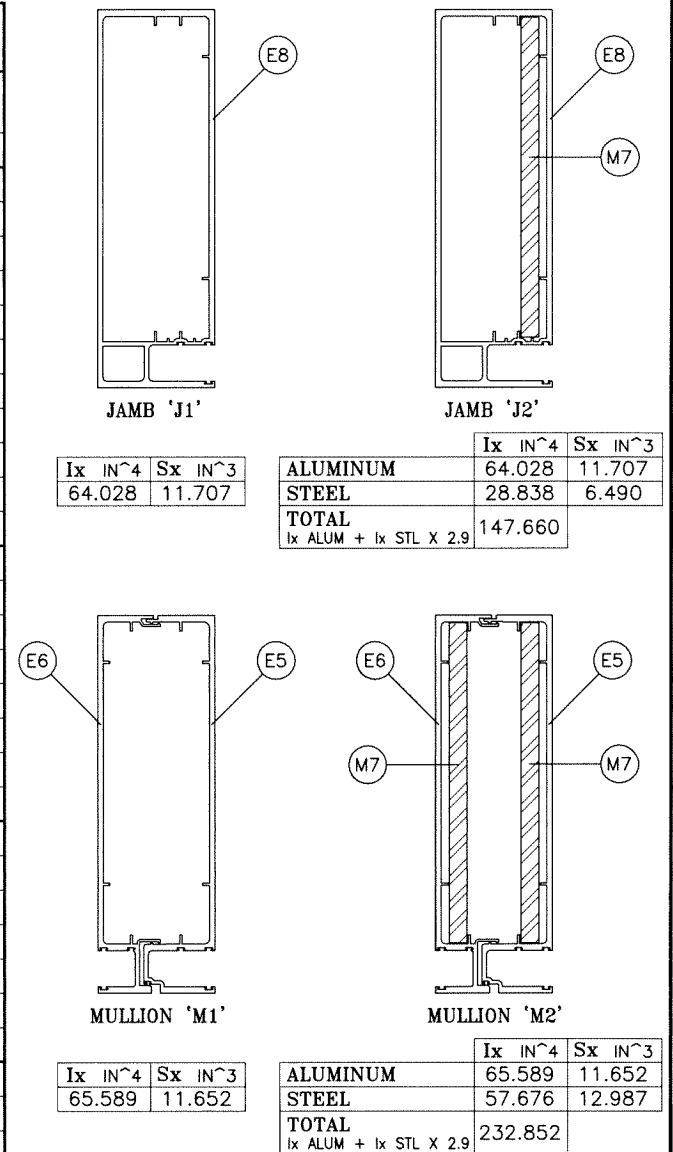
drawing no.
W15-72
sheet 2 of 13

STORE\W15-72ES



MULLION DESIGN LOAD CAPACITY - PSF WITH OR WITHOUT INTERMEDIATE HORIZONTALS				
NOMINAL DIMS.		JAMB 'J1'		
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)	
48"	156"	90.0	90.0	
50"		90.0	90.0	
54"		90.0	90.0	
60"		90.0	90.0	
66"		90.0	90.0	
70"		90.0	90.0	
72"		90.0	90.0	
48"	170"	90.0	90.0	
50"		90.0	90.0	
54"		90.0	90.0	
60"		90.0	90.0	
66"		90.0	90.0	
70"		90.0	90.0	
72"		90.0	90.0	
48"	180"	75.0	80.0	
50"		75.0	80.0	
54"		75.0	80.0	
60"		75.0	80.0	
66"		75.0	80.0	
68"		75.0	80.0	
72"		75.0	80.0	
48"	192"	75.0	80.0	
50"		75.0	80.0	
54"		75.0	80.0	
60"		75.0	80.0	
63"		75.0	80.0	
66"		75.0	80.0	
68"		75.0	80.0	
48"	204"	75.0	80.0	
50"		75.0	80.0	
54"		75.0	80.0	
60"		75.0	80.0	
63"		75.0	80.0	
66"		75.0	80.0	
68"		75.0	80.0	
48"	216"	75.0	80.0	
50"		75.0	80.0	
54"		75.0	80.0	
60"		75.0	80.0	
63"		75.0	80.0	
66"		75.0	80.0	
68"		75.0	80.0	
48"	228"	67.8	67.8	
50"		65.1	65.1	
53"		61.4	61.4	
50-1/2"	243"	52.5	52.5	

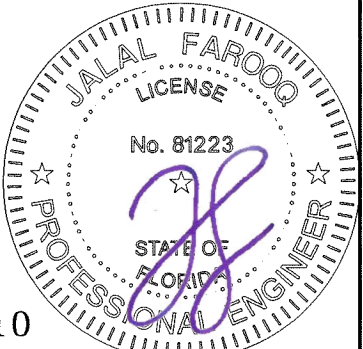
MULLION DESIGN LOAD CAPACITY - PSF WITH OR WITHOUT INTERMEDIATE HORIZONTALS				
NOMINAL DIMS.		JAMB 'J2'		
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)	
48"	156"	140.0	140.0	
50"		140.0	140.0	
54"		140.0	140.0	
60"		140.0	140.0	
64"		140.0	140.0	
65"		140.0	140.0	
66"		125.5	125.5	
67"		123.6	123.6	
68"		121.8	121.8	
70"		118.3	118.3	
72"		115.0	115.0	
48"	168"	140.0	140.0	
50"		140.0	140.0	
54"		140.0	140.0	
60"		140.0	140.0	
64"		129.4	129.4	
66"		125.5	125.5	
67"		123.6	123.6	
68"		121.8	121.8	
48"	170"	140.0	140.0	
50"		140.0	140.0	
54"		140.0	140.0	
60"		140.0	140.0	
64"		129.4	129.4	
66"		125.5	125.5	
67"		123.6	123.6	
48"	180"	140.0	140.0	
50"		140.0	140.0	
54"		140.0	140.0	
56"		140.0	140.0	
60"		138.0	138.0	
64"		129.4	129.4	
66"		125.5	125.5	
48"	192"	140.0	140.0	
50"		140.0	140.0	
53"		140.0	140.0	
54"		138.0	138.0	
60"		138.0	138.0	
64"		129.4	129.4	
66"		125.5	125.5	
48"	197"	140.0	140.0	
50"		140.0	140.0	
52"		140.0	140.0	



JAMB 'J1'		JAMB 'J2'	
IX IN ⁴	SX IN ³	IX IN ⁴	SX IN ³
64.028	11.707	64.028	11.707
ALUMINUM		64.028	11.707
STEEL		28.838	6.490
TOTAL		147.660	
IX ALUM + IX STL X 2.9		147.660	

MULLION 'M1'		MULLION 'M2'	
IX IN ⁴	SX IN ³	IX IN ⁴	SX IN ³
65.589	11.652	65.589	11.652
ALUMINUM		65.589	11.652
STEEL		57.676	12.987
TOTAL		232.852	
IX ALUM + IX STL X 2.9		232.852	

FL #18410



Sealed: 9/2/2026

MULLION

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revisions:

no	date	by	description

date: 08-27-15

scale: -

dr. by: TARIQ

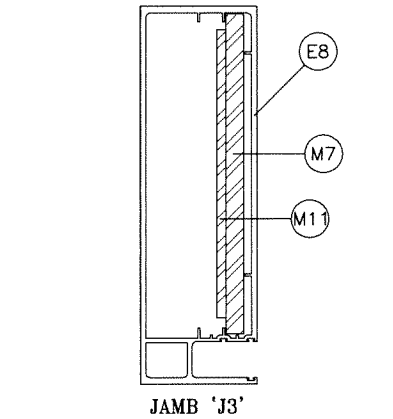
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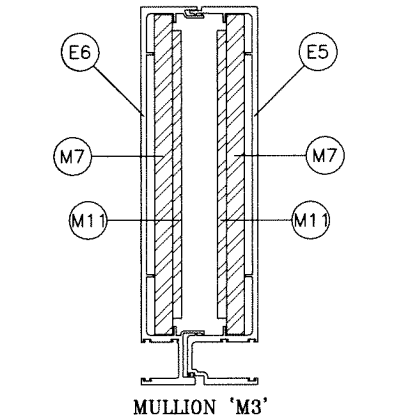
sheet 4 of 13

MULLION DESIGN LOAD CAPACITY – PSF
WITH OR WITHOUT INTERMEDIATE HORIZONTALS

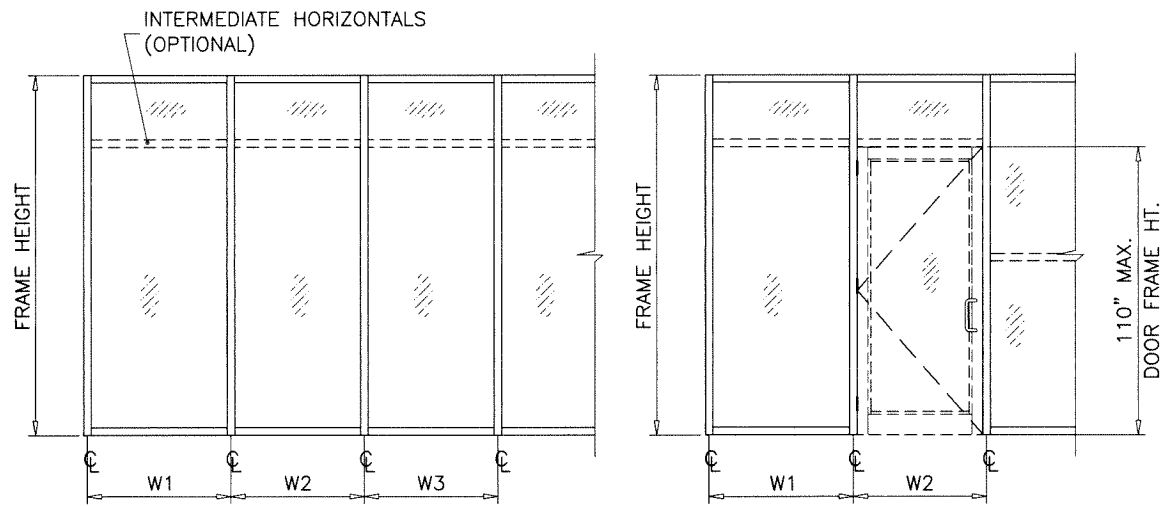
NOMINAL DIMS.		JAMB 'J3'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)
45-1/4"	170"	150.0	150.0
50"		150.0	150.0
53"		150.0	150.0
54"		150.0	150.0
56"		140.0	140.0
59"		140.0	140.0
60"		140.0	140.0
62"		111.3	111.3
66"		104.5	104.5
70"		98.6	98.6
71"		97.2	97.2
72"		95.8	95.8
45-1/4"	180"	150.0	150.0
50"		140.0	140.0
53"		140.0	140.0
54"		140.0	140.0
56"		140.0	140.0
59"		116.9	116.9
60"		115.0	115.0
62"		111.3	111.3
66"		104.5	104.5
70"		98.6	98.6
71"		97.2	97.2
45-1/4"	192"	150.0	150.0
50"		140.0	140.0
53"		140.0	140.0
54"		127.8	127.8
56"		123.2	123.2
59"		116.9	116.9
60"		115.0	115.0
62"		111.3	111.3
66"		104.5	104.5
66"		104.5	104.5
45-1/4"	204"	150.0	150.0
50"		138.0	138.0
53"		130.2	130.2
54"		127.8	127.8
56"		123.2	123.2
59"		116.9	116.9
60"		115.0	115.0
62"		111.3	111.3
45-1/4"	205"	150.0	150.0
50"	216"	138.0	138.0
53"		130.2	130.2
54"		127.8	127.8
56"		123.2	123.2
59"		116.9	116.9
50"	228"	138.0	138.0
53"		130.2	130.2
54"		127.8	127.8
56"		123.2	123.2
50"	240"	138.0	138.0
53"		130.2	130.2
50"	252"	138.0	138.0
50"	256"	138.0	138.0



	Ix IN^4	Sx IN^3
ALUMINUM	64.028	11.707
STEEL	39.862	8.976
TOTAL	103.890	20.683
Ix ALUM + Ix STL X 2.9	178.280	



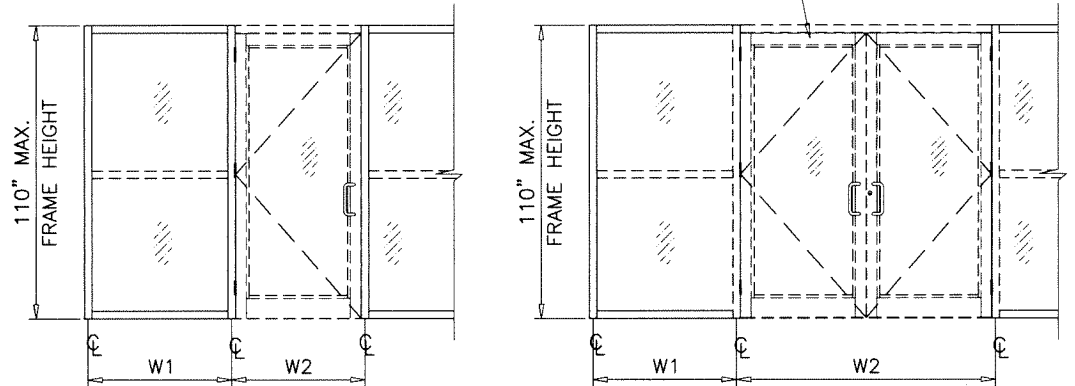
	Ix IN^4	Sx IN^3
ALUMINUM	65.589	11.652
STEEL	79.725	17.952
TOTAL	145.314	29.604
Ix ALUM + Ix STL X 2.9	294.50	



WIDTH (W) = W1
AT JAMB

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

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

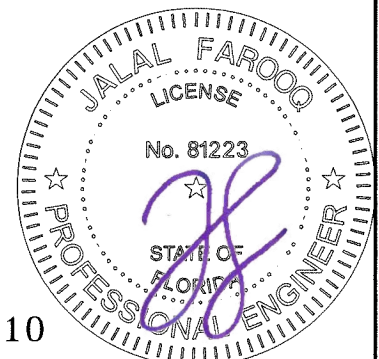


WIDTH (W) = $\frac{W1 + W2}{2}$
AT MULLION

WIDTH (W) = $\frac{W1}{2} + \frac{W2}{4}$
AT MULLION

Sealed: 9/2/2026

MULLION



FL #18410

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revisions:
no date by description

date: 08-27-15 scale: - dr. by: TARIQ chk. by:

drawing no.
W15-72

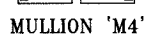
sheet 5 of 13

STORE \W15-72ES

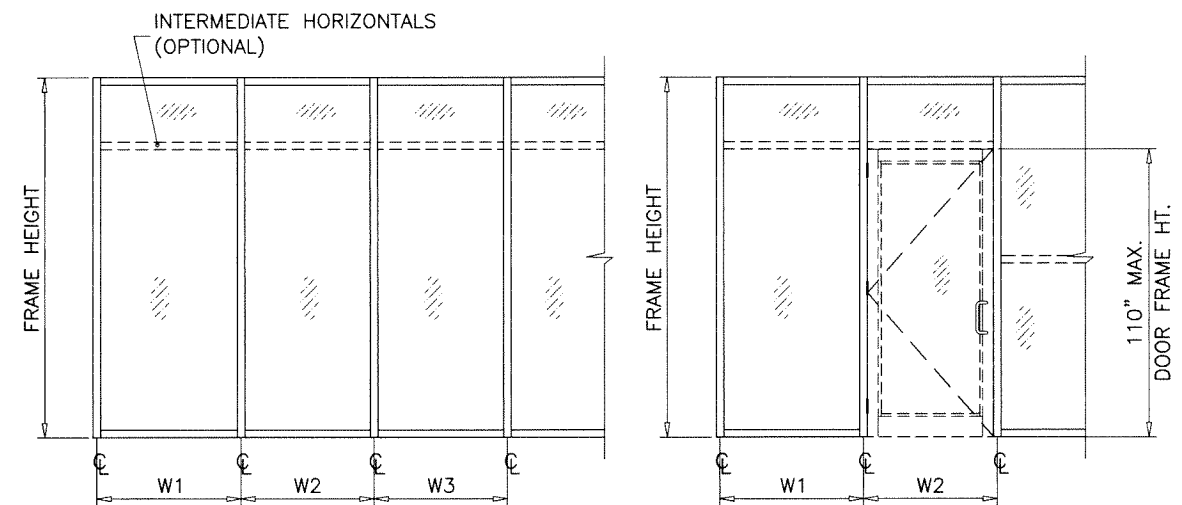
NOMINAL DIMS.		JAMB 'J1' MULLION 'M4'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)
48"	156"	90.0	90.0
50"		90.0	90.0
54"		90.0	90.0
60"		90.0	90.0
66"		90.0	90.0
70"		90.0	90.0
72"		90.0	90.0
48"	170"	90.0	90.0
50"		90.0	90.0
54"		90.0	90.0
60"		90.0	90.0
66"		90.0	90.0
70"		90.0	90.0
72"		90.0	90.0
48"	180"	75.0	80.0
50"		75.0	80.0
54"		75.0	80.0
60"		75.0	80.0
66"		75.0	80.0
72"		75.0	80.0
48"	192"	75.0	80.0
50"		75.0	80.0
54"		75.0	80.0
60"		75.0	80.0
66"		75.0	80.0
72"		75.0	80.0
48"	204"	75.0	80.0
50"		75.0	80.0
54"		75.0	80.0
60"		75.0	80.0
48"	216"	75.0	80.0
50"		75.0	80.0
54"		75.0	80.0
56"		75.0	80.0
48"	228"	75.0	80.0
50"		75.0	80.0
53"		75.0	80.0
50-1/2"	243"	75.0	80.0



$\sum x_i^4$	$\sum x_i^3$
64.028	11.707



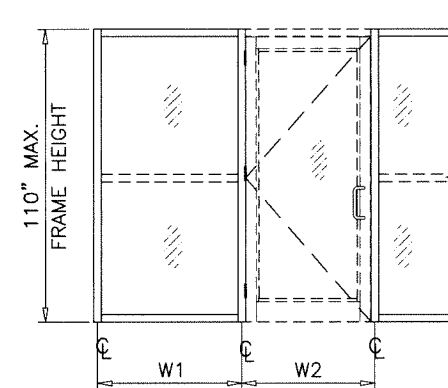
	$I_x \text{ IN}^4$	$S_x \text{ IN}^3$
ALUMINUM	65.589	11.652
STEEL	29.196	9.861
TOTAL $I_x \text{ ALUM} + I_x \text{ STL} \times 2.9$	149.419	



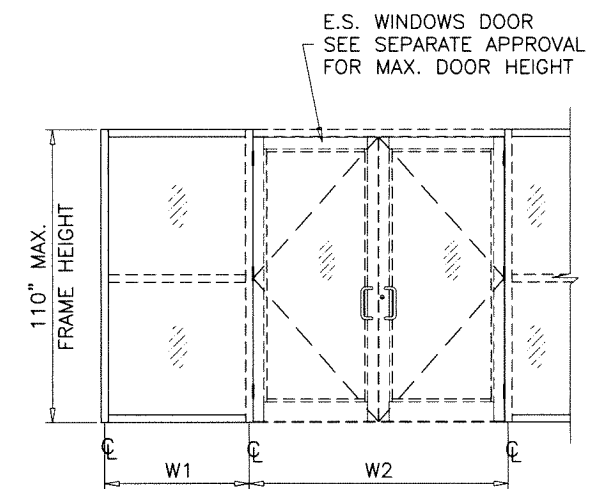
WIDTH (W) = W1
AT JAMB

$$\text{WIDTH (W)} = \frac{W2 + W3}{2}$$

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



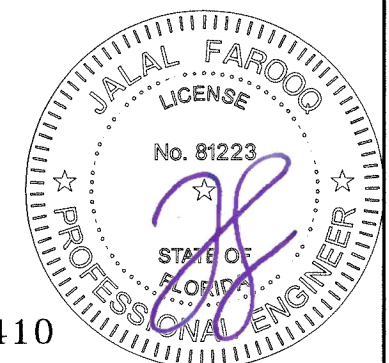
$$\text{WIDTH (W) AT MULLION} = \frac{W1 + W2}{2}$$



$$\text{WIDTH (W) AT MULLION} = \frac{W1}{2} + \frac{W2}{4}$$

Sealed: 9/2/2026

MULLION



FL #18410

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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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ES-WW1032 ALUM WINDOW WALL SYSTEM (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET

MIAMI, FL. 33142

TEL. (303) 638-3131 FAX. (303) 638-3138

revisions:		
no	date	

by description

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scale: —

dr. by: TARIQ

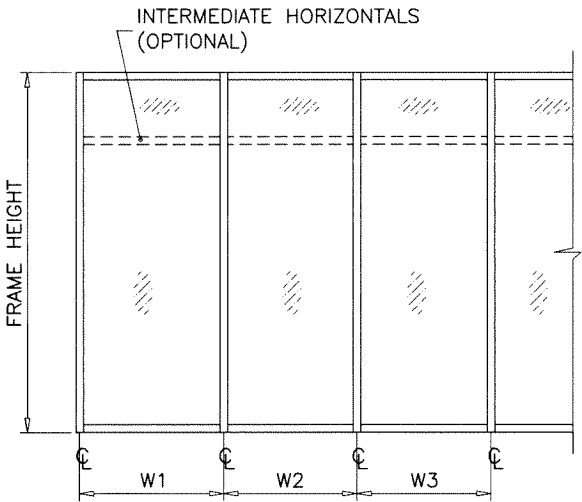
chk. by:

drawing no.

W15-72

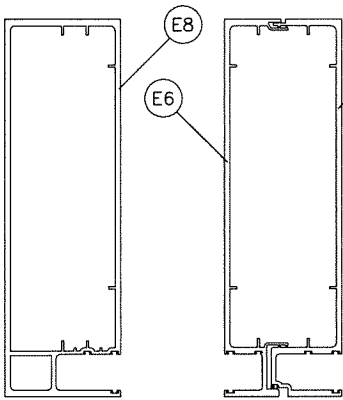
sheet 6 of 13

JAMB/MULLION DESIGN LOAD CAPACITY - PSF													
WITH OR WITHOUT INTERMEDIATE HORIZONTALS													
NOMINAL DIMS.		JAMB 'J1'		MULLION 'M1'		22° BAY MULL '22 BM1'		30° BAY MULL '30 BM1'		22° BAY MULL '22 BM2'		30° BAY MULL '30 BM2'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)
44-7/8"	156"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
46-5/8"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
48"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
51"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
54"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
58"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
44-7/8"	170"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
46-5/8"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
48"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
51"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
54"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
44-7/8"	180"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
46-5/8"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
48"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
51"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
44-7/8"	191"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
46-5/8"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
48"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
44-7/8"	205"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0
46-5/8"		100.0	100.0	-	-	100.0	100.0	100.0	100.0	150.0	150.0	150.0	150.0



WIDTH (W) = W1
AT JAMB

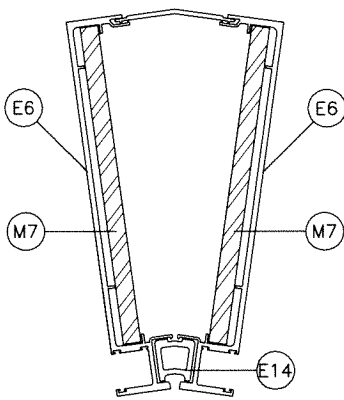
WIDTH (W) = $\frac{W2 + W3}{2}$
AT MULLION



JAMB 'J1' MULLION 'M1'

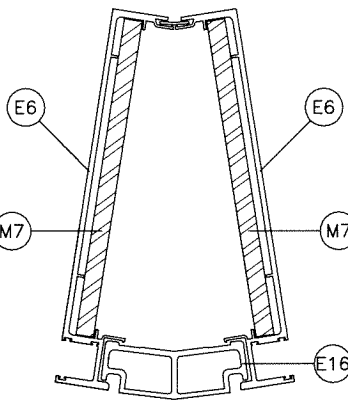
Ix IN^4	Sx IN^3
64.028	11.707

Ix IN^4	Sx IN^3
65.589	11.652



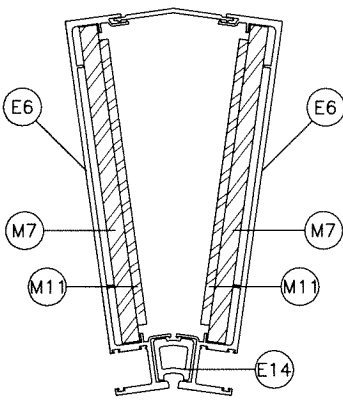
22° BAY MULLION '22 BM1'

	Ix IN^4	Sx IN^3
ALUMINUM	61.401	11.033
STEEL	57.324	12.928
TOTAL Ix ALUM + Ix STL X 2.9	227.641	



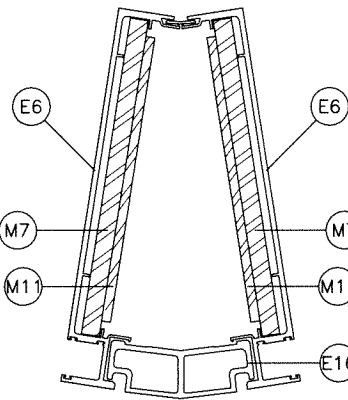
30° BAY MULLION '30 BM1'

	Ix IN^4	Sx IN^3
ALUMINUM	62.105	11.393
STEEL	57.038	12.883
TOTAL Ix ALUM + Ix STL X 2.9	227.515	



22° BAY MULLION '22 BM2'

	Ix IN^4	Sx IN^3
ALUMINUM	61.401	11.033
STEEL	57.324	12.928
TOTAL Ix ALUM + Ix STL X 2.9	227.641	



30° BAY MULLION '30 BM2'

	Ix IN^4	Sx IN^3
ALUMINUM	62.105	11.393
STEEL	57.038	12.883
TOTAL Ix ALUM + Ix STL X 2.9	227.515	

Sealed: 9/2/2026

MULLION



FL #18410

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ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
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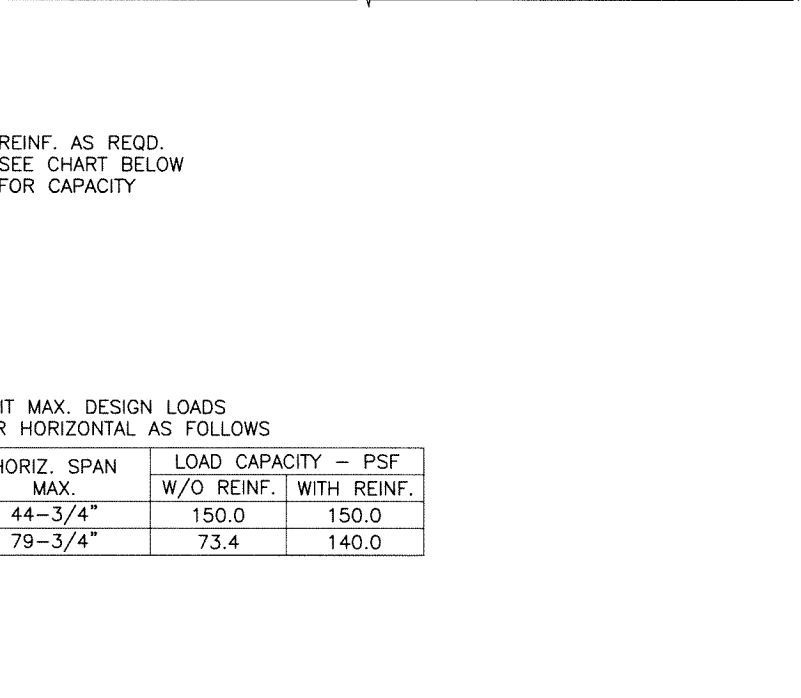
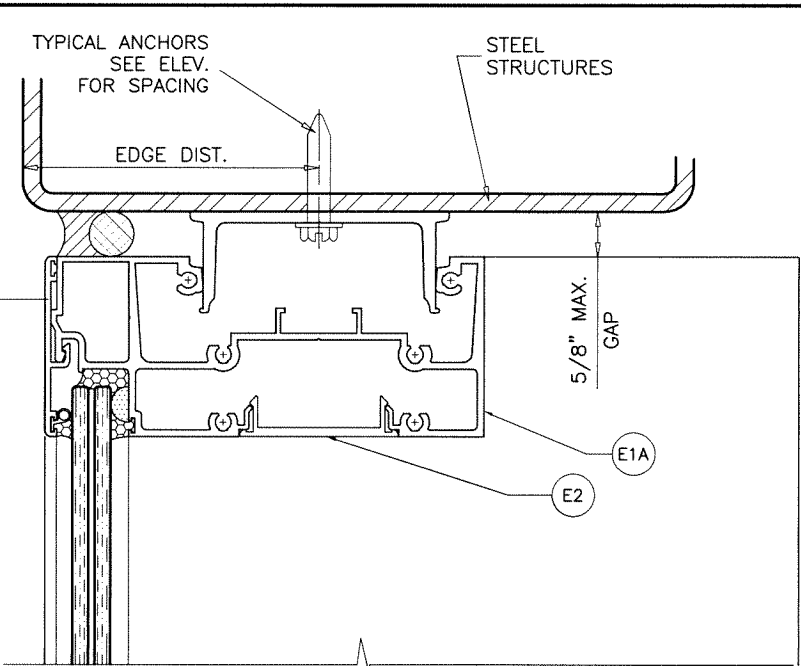
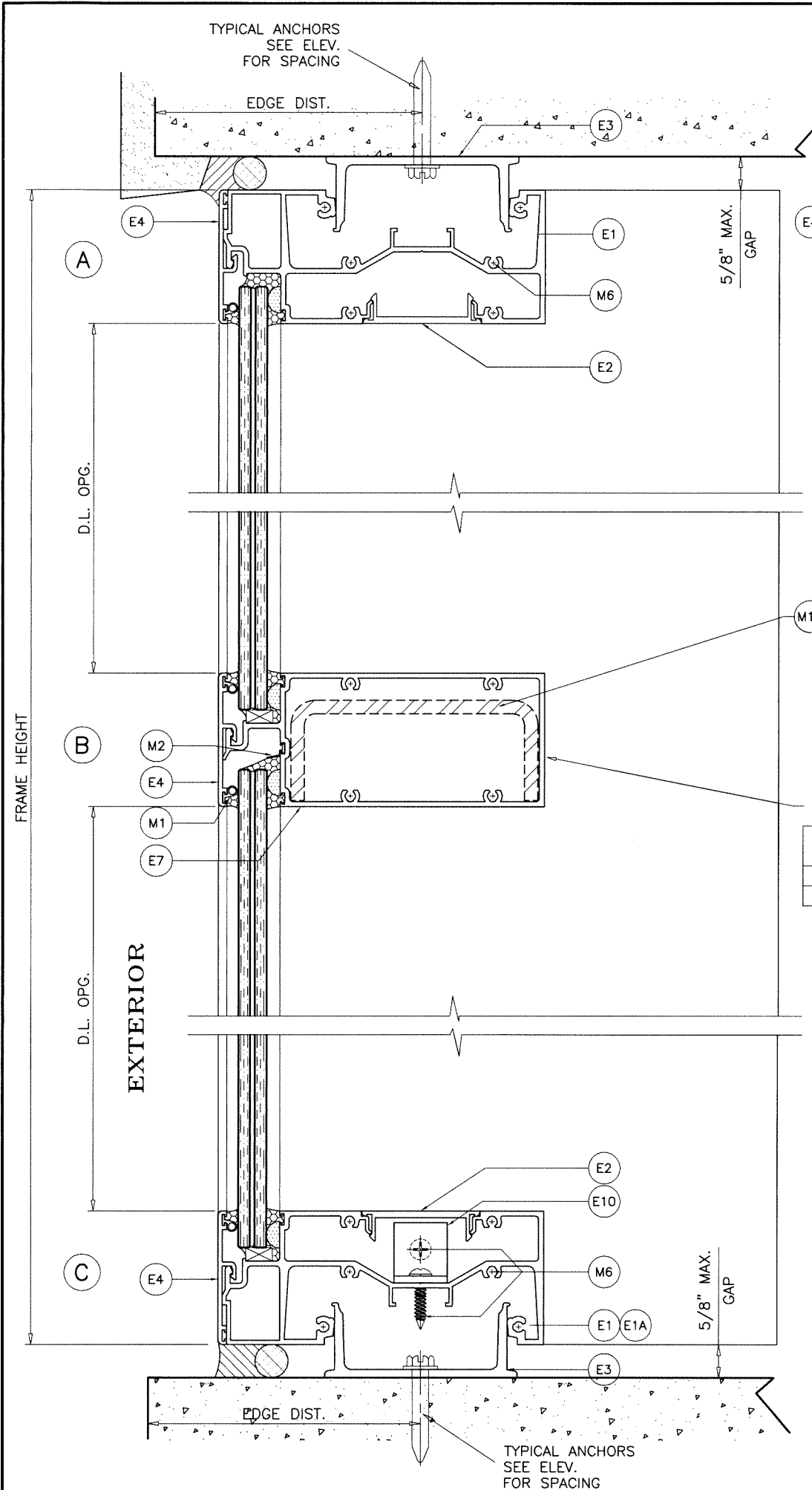
ES-WW1032 ALUM WINDOW WALL SYSTEM (L.M.I.)

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: 08-27-15	scale: -	dr. by: TARIQ	chk. by:
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drawing no.
W15-72
sheet 6.1 of 13



REINF. AS REQD.
SEE CHART BELOW
FOR CAPACITY

LIMIT MAX. DESIGN LOADS
FOR HORIZONTAL AS FOLLOWS

HORIZ. SPAN MAX.	LOAD CAPACITY -- PSF	
	W/O REINF.	WITH REINF.
44-3/4"	150.0	150.0
79-3/4"	73.4	140.0

METAL STRUCTURES NOT BY E.S. WDW.
MUST SUPPORT LOADS IMPOSED BY GLAZING SYSTEM AND
TRANSFER THEM TO THE BUILDING STRUCTURE.

TYPICAL ANCHORS: SEE ELEV. FOR SPACING

TYPE 'A'
5/16" DIA ULTRACON BY 'DEWALT' (Fu=177 KSI, Fy=155 KSI)
DIRECTLY INTO CONCRETE (3515 PSI MIN.)
2" MIN. EMBED INTO CONCRETE, 5" O.C. MIN.

ANCHOR EDGE DISTANCES
INTO CONCRETE = 3-1/8" MIN.

TYPE 'B'
3/8" DIA SCREW-BOLT+ BY 'DEWALT'
DIRECTLY INTO CONCRETE (4000 PSI MIN.)
3-1/4" MIN. EMBED INTO CONCRETE, 5" O.C. MIN.

ANCHOR EDGE DISTANCES
INTO CONCRETE = 4-1/2" MIN.

TYPE 'C'
5/16" DIA. DRIL-FLEX SELF DRILLING SCREWS (Fu=120 KSI, Fy=95 KSI)
INTO METAL STRUCTURES, 3" O.C. MIN.
(3) THREADS MIN. TO EXTEND BEYOND METAL THICKNESS
STEEL: 1/4" THK. MIN. (Fy = 36 KSI MIN.)
(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

ANCHOR EDGE DISTANCES
INTO METAL STRUCTURE = 1" MIN.

SEALANTS:

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



FL #18410

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AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
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ES-WW1032 ALUM WINDOW WALL SYSTEM (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	by description

date: 08-27-15

scale: 3/8" = 1"

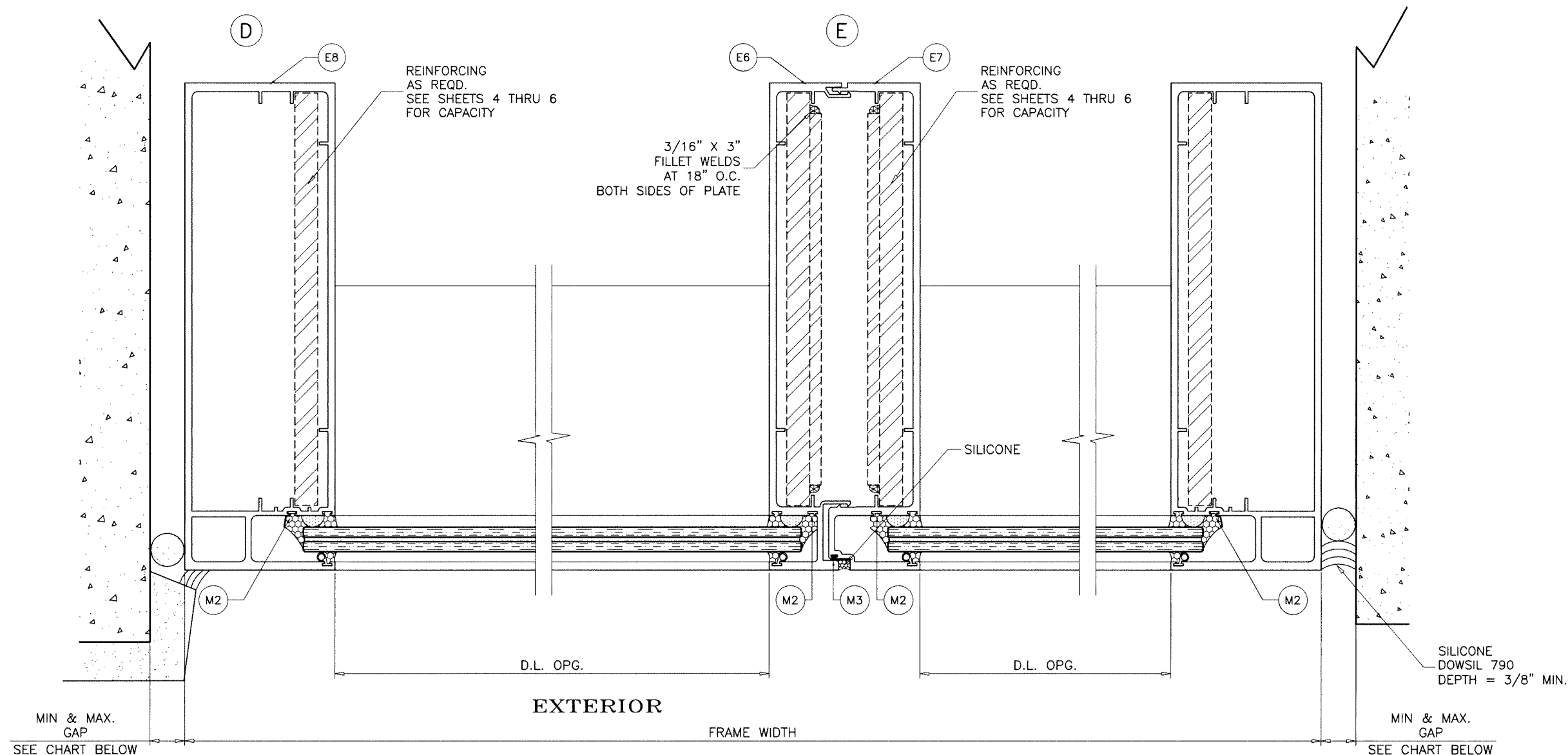
dr. by: TARIQ

chk. by:

drawing no.

W15-72

sheet 8 of 13

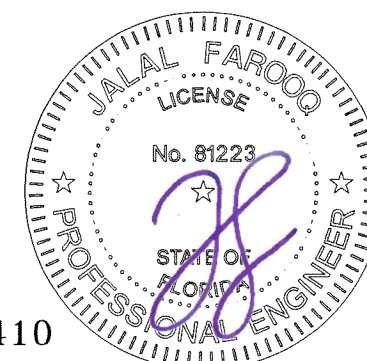


MAX. FRAME HEIGHT	MAX. GAPS FOR UNANCHORED JAMBS					
	JAMB 'J1'		JAMB 'J2'		JAMB 'J3'	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
170"	1/4"	3/4"	1/4"	3/4"	1/4"	3/4"
192"	5/8"	1"	1/4"	3/4"	1/4"	3/4"
240"	3/4"	1"	—	—	3/8"	3/4"
243"	3/4"	1"	—	—	3/8"	3/4"
256"	—	—	—	—	1/2"	3/4"

SEE SHEETS 4 THRU 6 FOR JAMB TYPES

NOTE:
 MAX. MOVEMENT CONSIDERED=100% STRETCH.
 PLEASE REFER TO SEALANT MANUFACTURER'S DATA AND APPLICATION MANUAL FOR COMPATABILITY OF SEALANT TO SUBSTRATE & WINDOW WALL 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.

FL #18410



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 ENGINEERS & PRODUCT DEVELOPMENT
 9360 SUNSET DRIVE, SUITE 220
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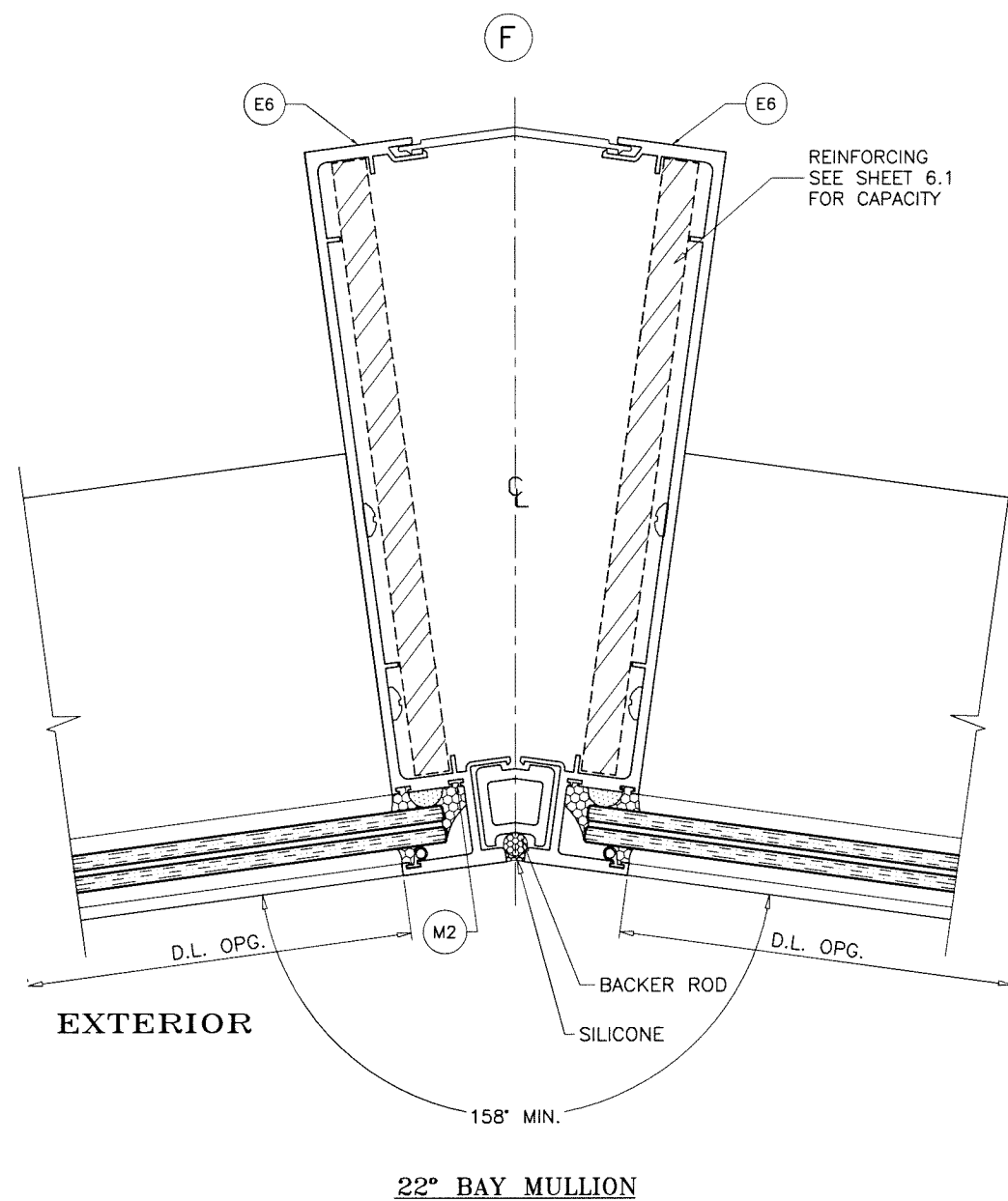
ES-WW1032 ALUM WINDOW WALL SYSTEM (L.M.I.)

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

no	date	by	description

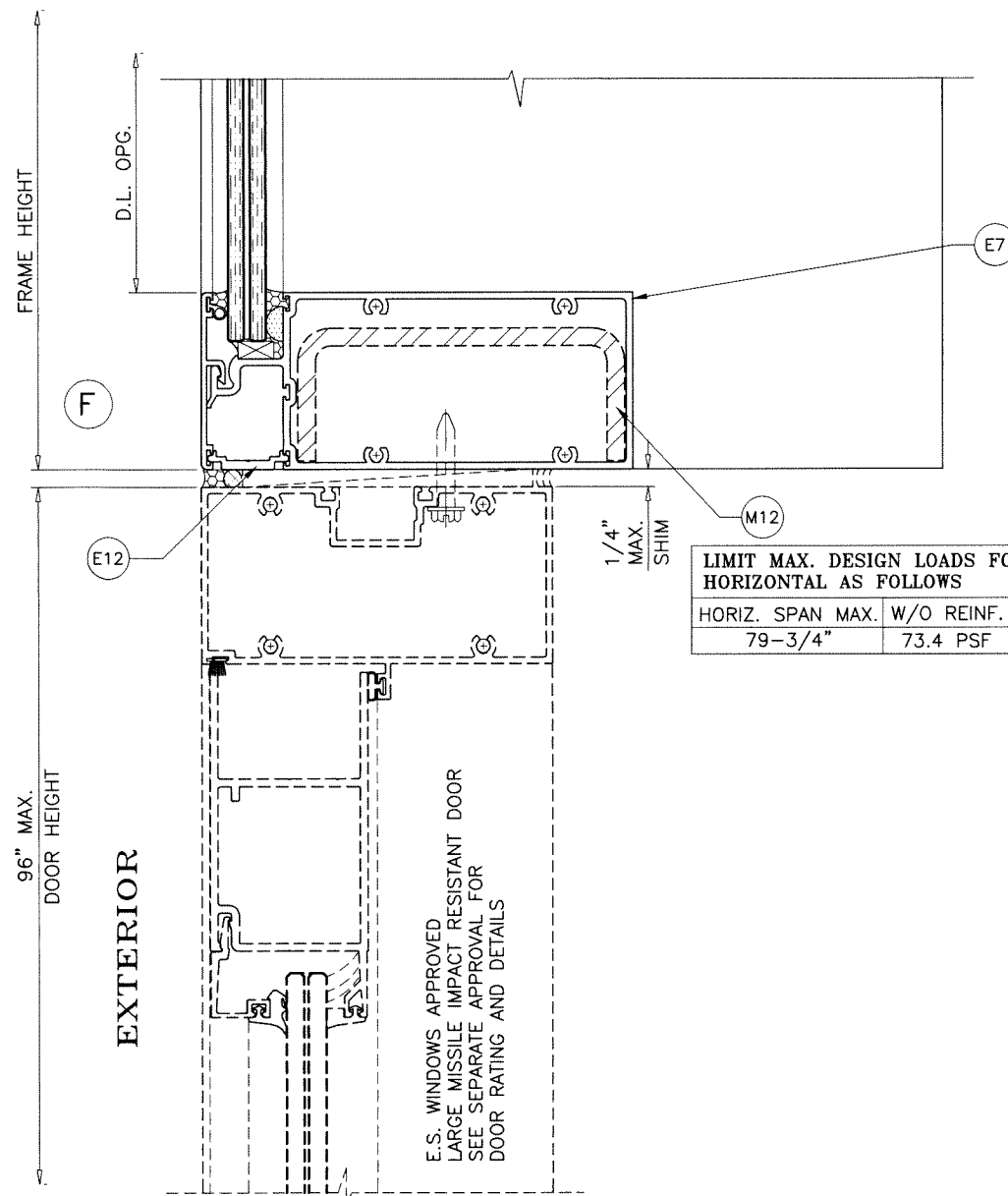
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 scale: 3/8" = 1"
 dr. by: TARIQ
 chk. by:

drawing no.
W15-72
 sheet 9 of 13

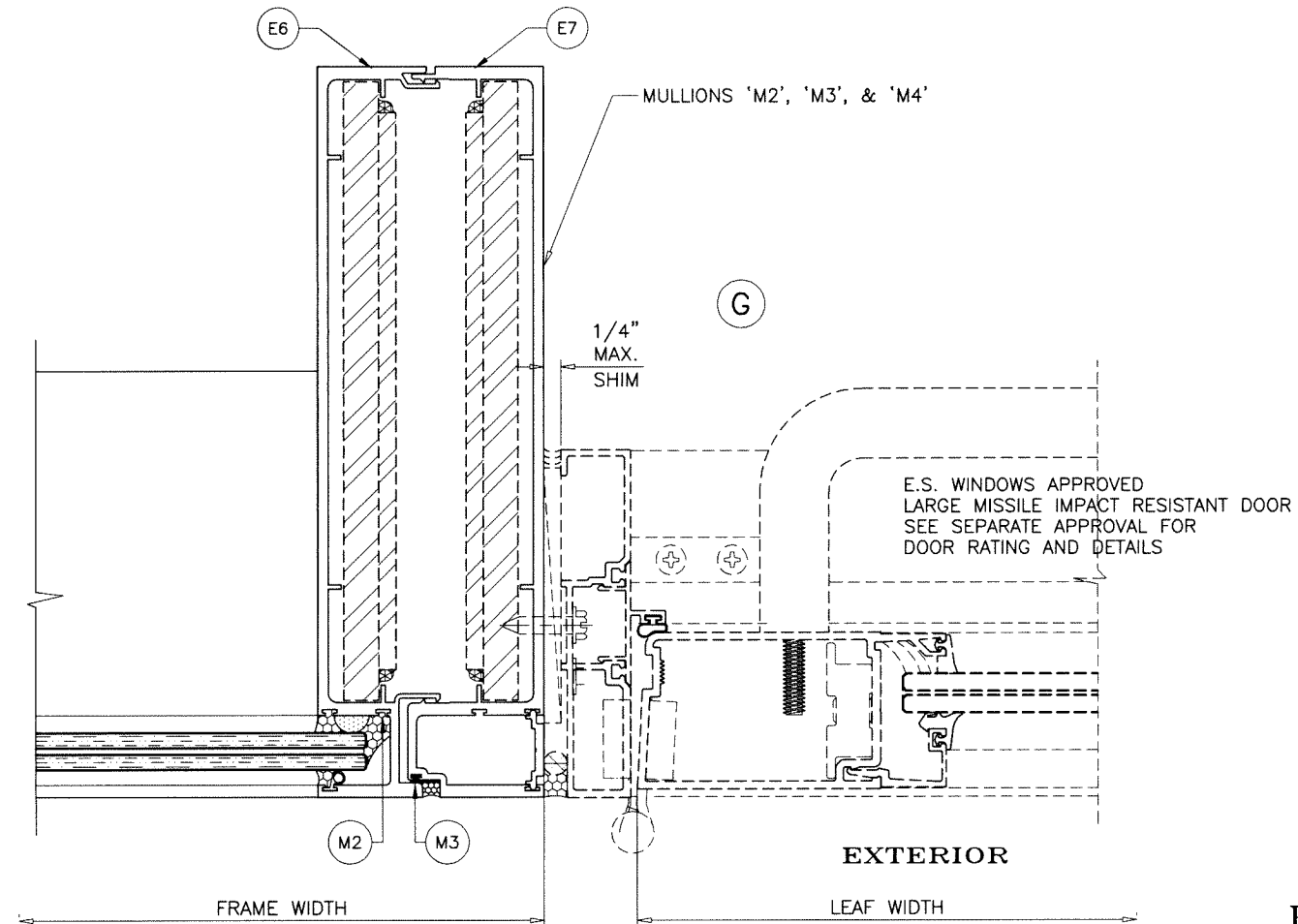
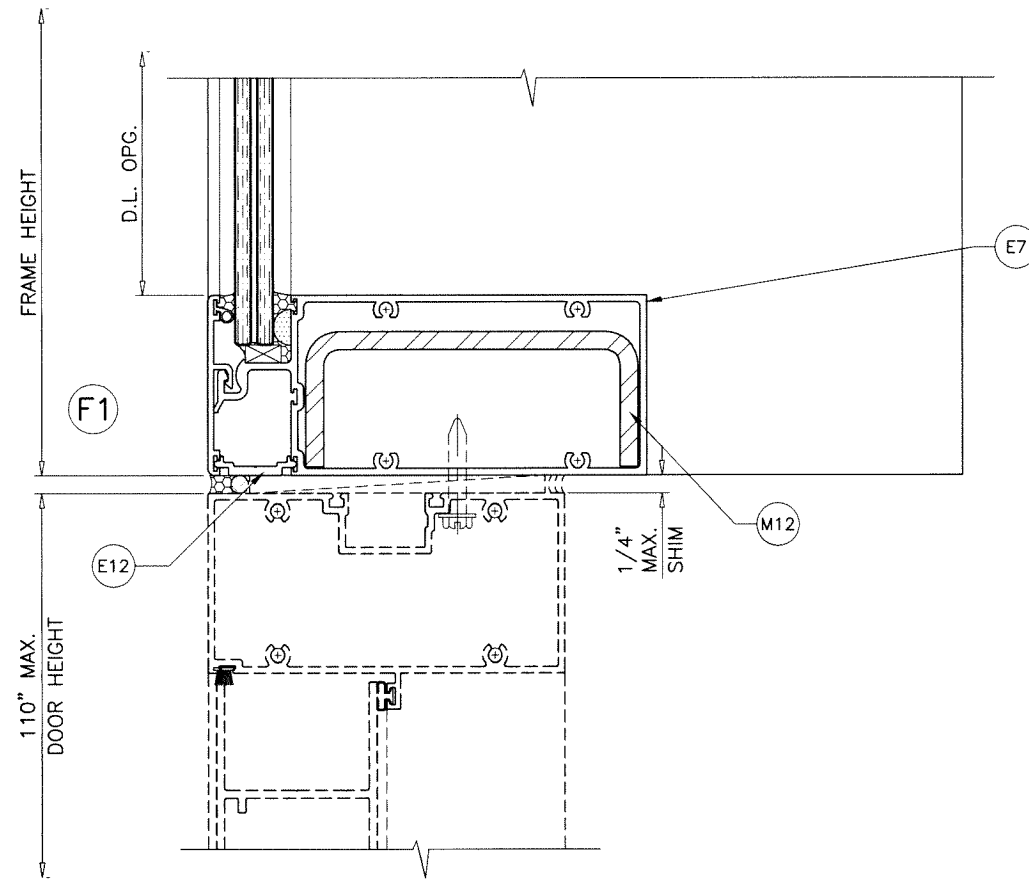


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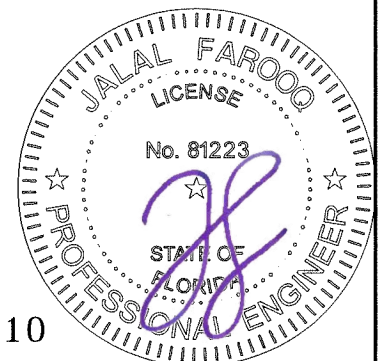
FL #18410



LIMIT MAX. DESIGN LOADS FOR HORIZONTAL AS FOLLOWS		
HORIZ. SPAN MAX.	W/O REINF.	WITH REINF.
79-3/4"	73.4 PSF	140.0 PSF



FL #18410



Sealed: 9/2/2026

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
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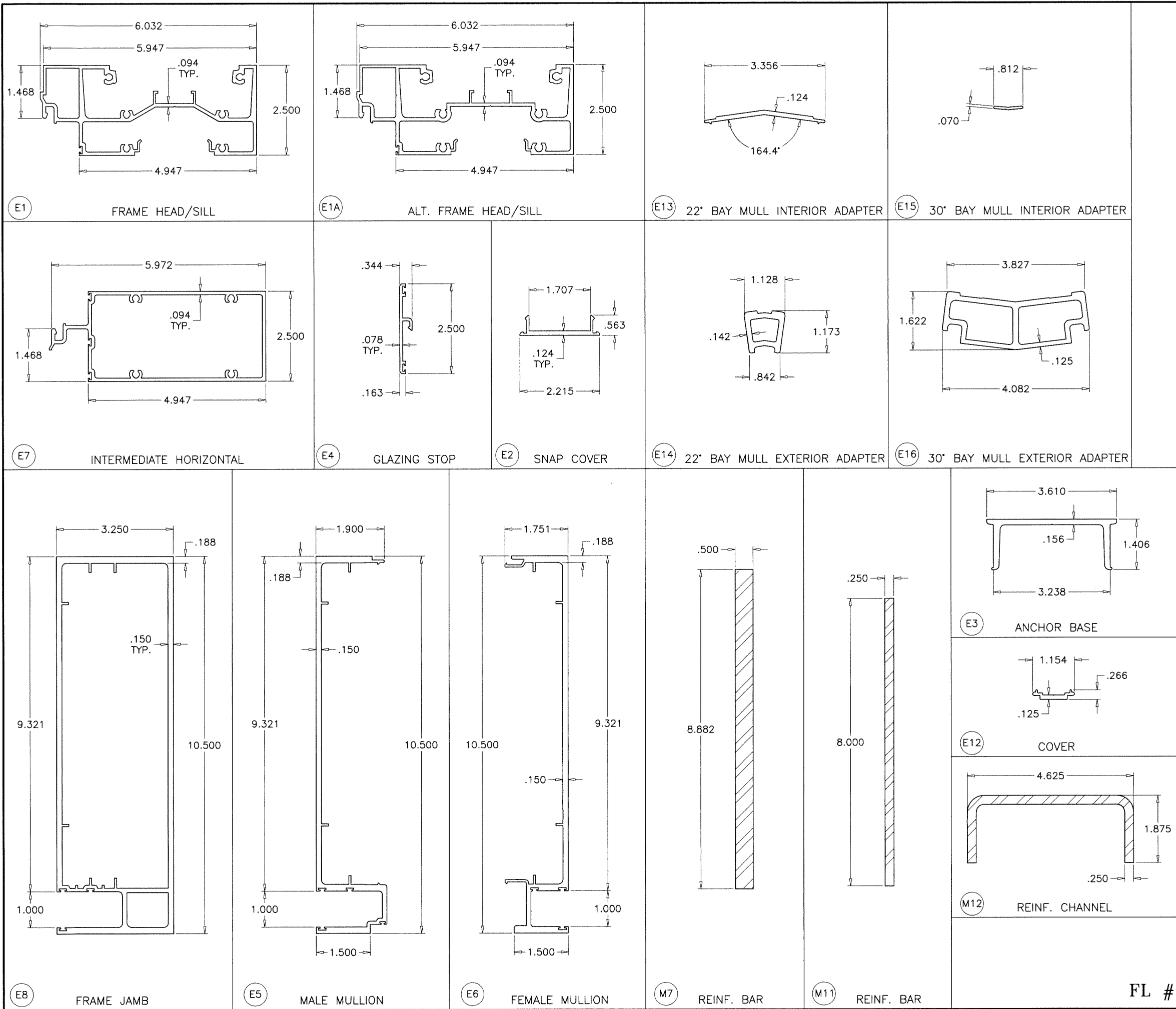
ES-WW1032 ALUM WINDOW WALL SYSTEM (L.M.I.)

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: 08-27-15
scale: 3/8" = 1"
dr. by: TARIQ
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drawing no.
W15-72
sheet 10 of 13



FL #18410



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ES-WW1032 ALUM WINDOW WALL SYSTEM (L.M.I.)

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3550 N.W. 49 STREET
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date: 08-27-15	scale: 3/8" = 1"	dr. by: TARIQ	chk. by:	drawing no. W15-72
sheet 11 of 13				

ITEM NO.	PART NUMBER	QUANTITY	DESCRIPTION	MATERIAL	MANF./SUPPLIER/REMARKS
E1	ES7001A	AS REQD.	FRAME HEAD/SILL	6005-T5	-
E1A	ES-WW1032-001	AS REQD.	ALT. FRAME HEAD/SILL	6005-T5	-
E2	ES7003A	AS REQD.	SNAP COVER	6063-T5	-
E3	ES7004	AS REQD.	ANCHOR BASE (SEE SHEET 4 THRU 6 FOR LENGTHS)	6005-T5	-
E4	ES7006	AS REQD.	GLAZING STOP	6063-T6	-
E5	ES-WW1032-003	AS REQD.	MALE MULLION	6005-T5	-
E6	ES-WW1032-002	AS REQD.	FEMALE MULLION	6005-T5	-
E7	ES7005	AS REQD.	INTERMEDIATE HORIZONTAL	6005-T5	-
E8	ES-WW1032-004	AS REQD.	FRAME JAMB	6005-T5	-
E9	ALU-P-020	AS REQD.	SILL LEVELER (1" X 1")	ALUMINUM	-
E10	-	AS REQD.	ALUMINUM ANGLE (1" X 1" X 1/8")	6063-T6	-
E12	ES-7032	AS REQD.	COVER	6063-T6	-
E13	ES-WW1032-403	AS REQD.	22" BAY MULLION INTERIOR ADAPTER	6005-T5	-
E14	ES-WW1032-402	AS REQD.	22" BAY MULLION EXTERIOR ADAPTER	6005-T5	-
E15	ES-7000-403	AS REQD.	30" BAY MULLION INTERIOR ADAPTER	6005-T5	-
E16	ES-WW1032-401	AS REQD.	30" BAY MULLION EXTERIOR ADAPTER	6005-T5	-
M1	ES7000-G01	AS REQD.	EXTERIOR GLASS SEAL	SANTOPRENE	DUROMETER 60±5 SHORE A
M2	ES7000-G02	AS REQD.	SILICONE DAM	SANTOPRENE	DUROMETER 60±5 SHORE A
M3	ES7000-G03	AS REQD.	SILICONE SEPARATOR	SANTOPRENE	DUROMETER 60±5 SHORE A
M4	80-378	2/ LITE	SETTING BLOCK	EPDM	DUROMETER 85±5 SHORE A
M5	3/8" BOLT	AS REQD.	LEVELING SCREW	ST/ST	-
M6	#12 X 1"	AS REQD.	FRAME ASSEMBLY SCREWS	ST/ST	PH SMS
M7	-	AS REQD.	REINFORCING BAR (FRAME LENGTH - 6")	STEEL	A36, F _u MIN. = 58 KSI
M8	ES8011	AS REQD.	BUMPON	EPDM	DUROMETER 80±5 SHORE A
M11	-	AS REQD.	REINFORCING BAR (FRAME LENGTH - 6")	STEEL	A36, F _u MIN. = 58 KSI
M12	-	AS REQD.	REINFORCING CHANNEL (FULL LENGTH)	STEEL	A36, F _u MIN. = 58 KSI

FL #18410



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AL-FAROOQ CORPORATION
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TEL. (305) 264-8100 FAX. (305) 262-6978
(C.A.N. 3538)

ES-WW1032 ALUM WINDOW WALL SYSTEM (L.M.I.)

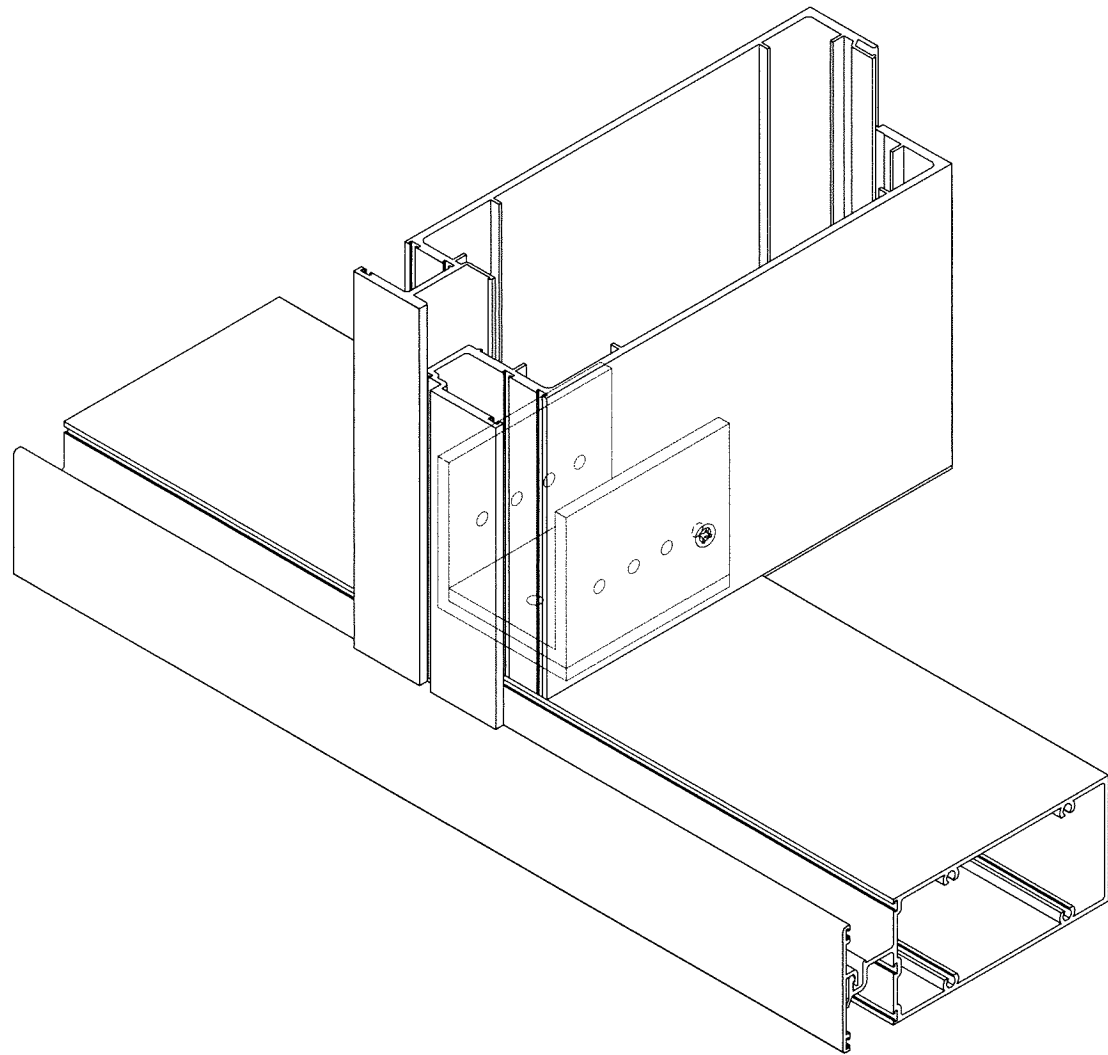
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:
no. date by description

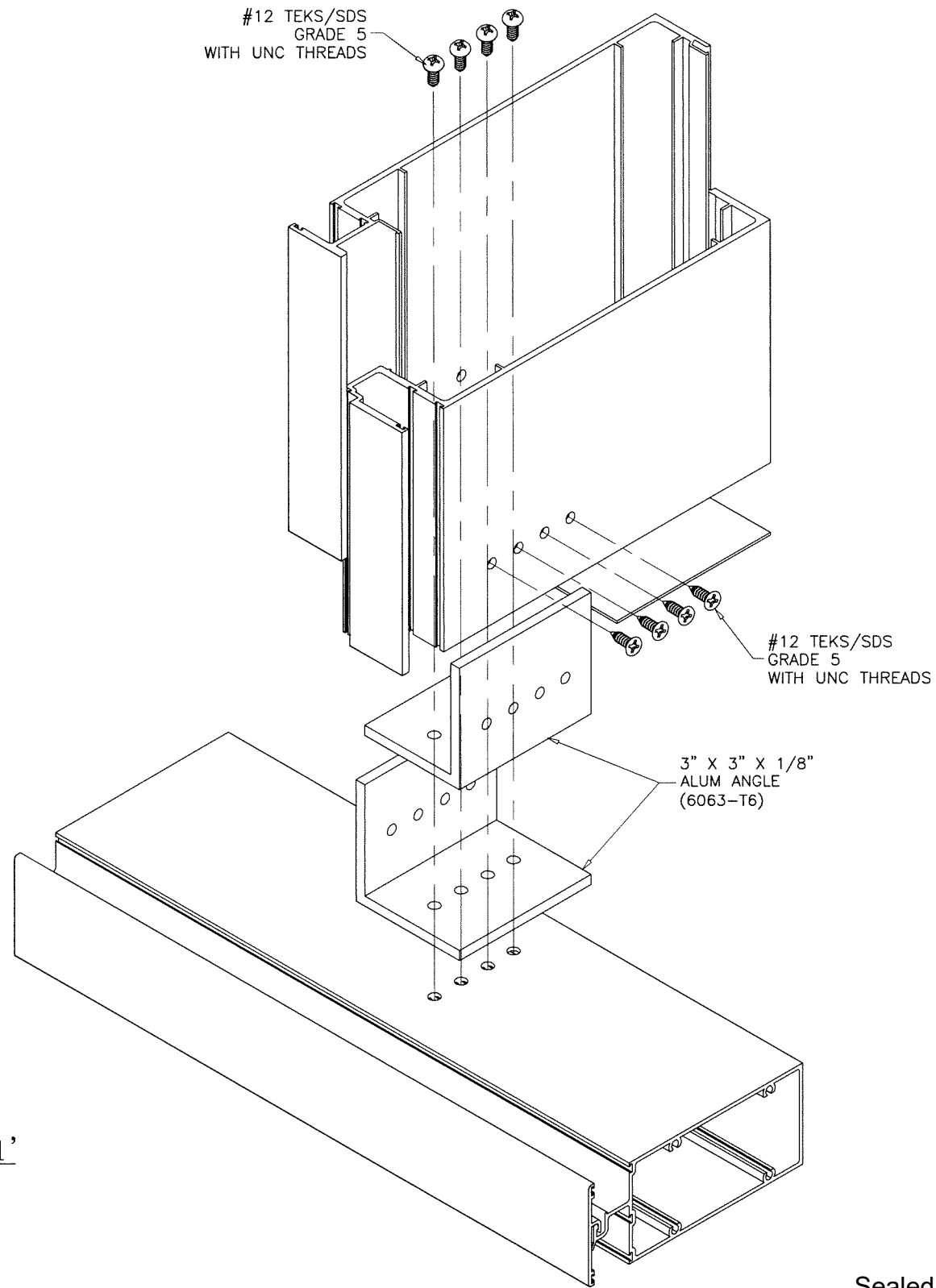
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scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

drawing no.
W15-72
sheet 11.1 of 13

STORE\W15-72ES

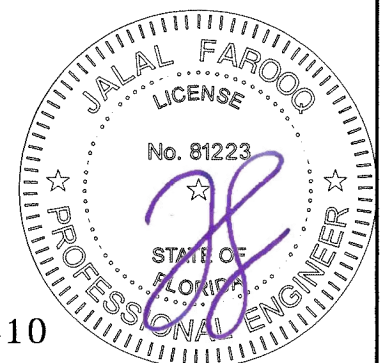


DETAIL '1'



Sealed: 9/2/2026

FL #18410



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

ES-WW1032 ALUM WINDOW WALL SYSTEM (L.M.I.)

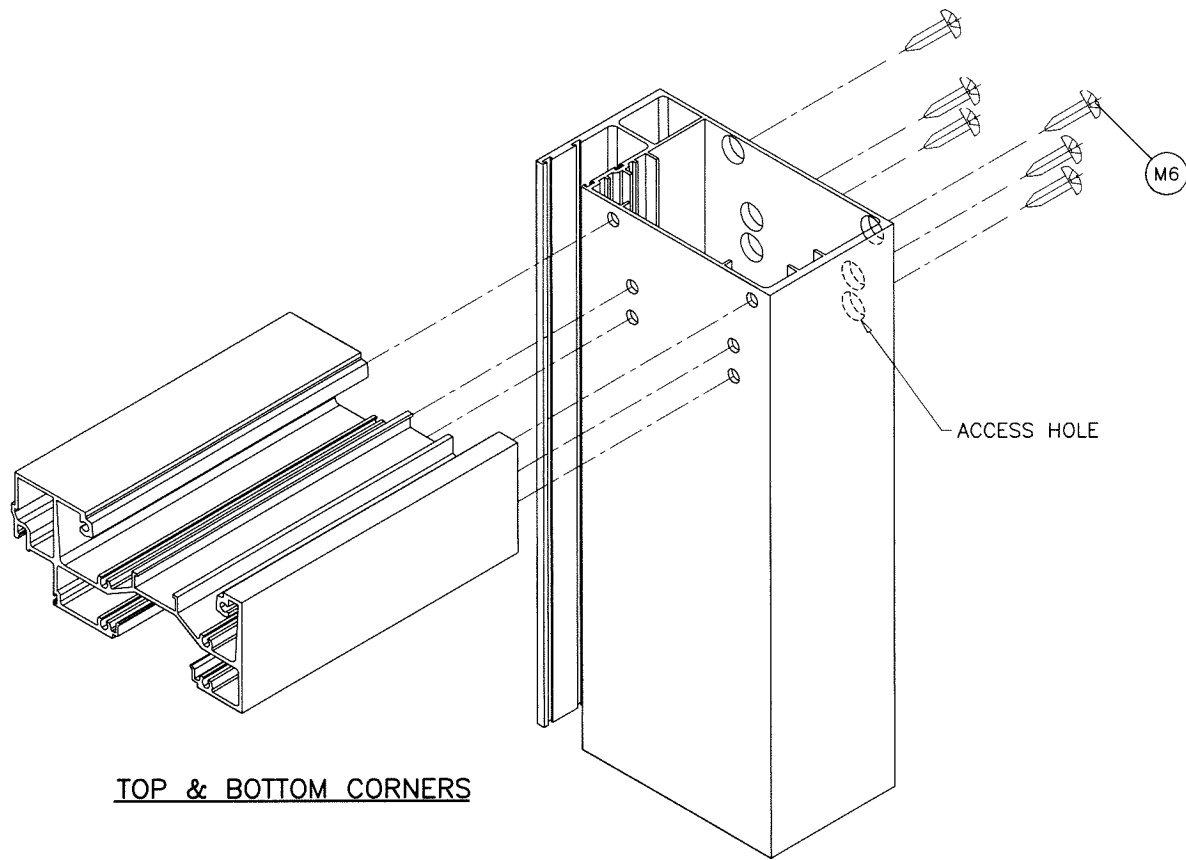
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:
no date by description

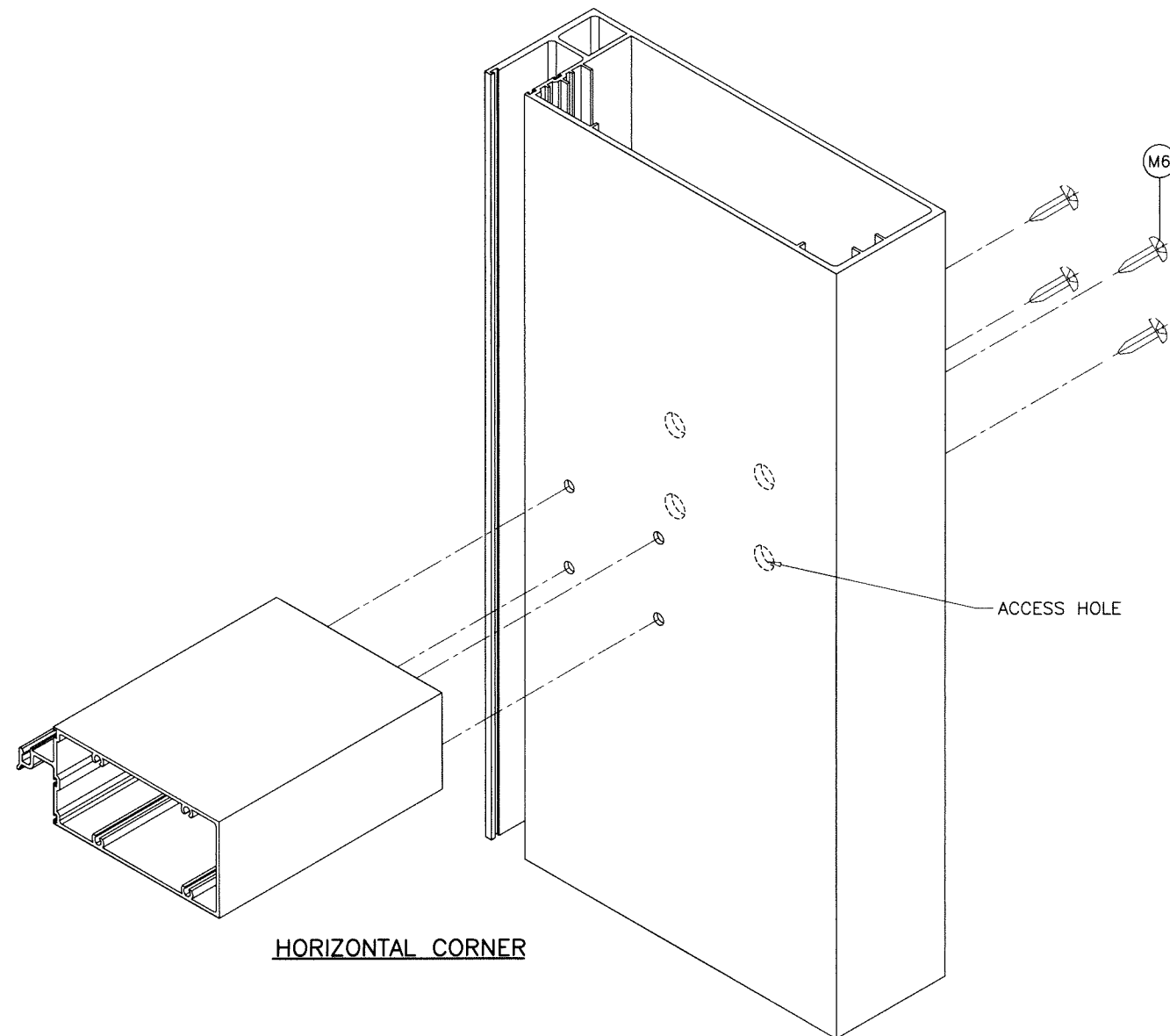
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dr. by: TARIQ
chk. by:

drawing no.
W15-72
sheet 12 of 13

STORE\W15-72ES

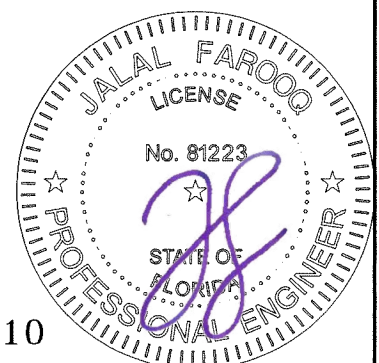


TOP & BOTTOM CORNERS



HORIZONTAL CORNER

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af c
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revisions:		no date by description	

date: 08-27-15	scale: 3/8" = 1"	dr. by: TARIQ	chk. by:
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drawing no.
W15-72
 sheet 13 of 13