

E.S. WINDOWS, LLC.
SERIES ES-CS1325
ALUMINUM CURTAINWALL 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.

CODE REQUIREMENTS FOR SAFEGUARDS MUST BE OBSERVED.

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 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 2023/2026 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)'.

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 PRESSURE REQUIREMENTS BASED
ON WIND VELOCITY, BLDG. HEIGHT, WIND ZONE USING
APPLICABLE ASCE 7 STANDARD.

STEP 2 SEE CHARTS ON SHEET 4 FOR GLASS DESIGN LOAD
CAPACITY.

STEP 3 CHECK MULLION DESIGN LOAD CAPACITY FOR A GIVEN
SPACING AND HEIGHT USING CHARTS ON SHEETS 6 THRU 9
THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.

STEP 4 CHECK ANCHOR CAPACITY FOR HEAD AND SILL ANCHORS
USING CHARTS ON SHEET 11.
FOR INTERMEDIATE ANCHORS AT MULTIPLE SPANS SEE
SHEET 22 THRU 26 FOR CAPACITY AND DETAIL.

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 16
& 17, 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.

SEE SHEETS 2.1 & 2.2 FOR DESIGN LOAD CAPACITY AND
LIMITATIONS OF CONDITIONS NOT COVERED IN STEPS ON LEFT.

INDEX OF DRAWING	
SHEET NO.	DESCRIPTION
1	GENERAL NOTES
2	CURTAIN WALL ELEVATION (SINGLE SPAN)
2.1	CURTAIN WALL ELEVATION (SINGLE SPAN)
2.2	CURTAIN WALL ELEVATION (SINGLE SPAN)
3	CURTAIN WALL ELEVATION (DOUBLE SPANS)
4	GLASS CAPACITY CHARTS, GLAZING DETAILS
5	JAMB AND MULLION DETAILS
6 & 7	JAMB AND MULLION CAPACITY CHART FOR SINGLE SPANS
8, 9 & 9.1	JAMB AND MULLION CAPACITY CHART FOR TWIN SPANS
10	DOOR MULLION CAPACITY CHART
11	HEAD/SILL ANCHOR CAPACITY CHARTS
12	VERTICAL SECTION DETAILS (INSUL. LAM. GLASS)
13	VERTICAL SECTION DETAILS (LAM. GLASS)
14	HORIZONTAL SECTION DETAILS (LOUVERS)
15	HORIZONTAL SECTION DETAILS (INSUL. LAM. GLASS)
16	HORIZONTAL SECTION DETAILS (LAM. GLASS))
17	DOOR HORIZONTAL SUPPORT AND DOOR VERTICAL MULLION DETAILS
18	FRAME JAMB HEAD/SILL ANCHOR DETAIL
19 & 20	MULLION HEAD/SILL ANCHOR DETAIL
21	CORNER MULLION HEAD/SILL ANCHOR DETAIL
22 & 24	WIND/DEAD LOAD ANCHOR INTO CONCRETE DETAILS
23 & 25	WIND/DEAD LOAD ANCHOR INTO STEEL STRUCURE DETAILS
26	BILL OF MATERIALS
27 & 28	EXTRUSION DETAILS

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.

PRODUCT COMPLIES WITH REQUIREMENTS OF ANSI Z97.1.

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

Sealed: 8/20/2026

FL #20396

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.



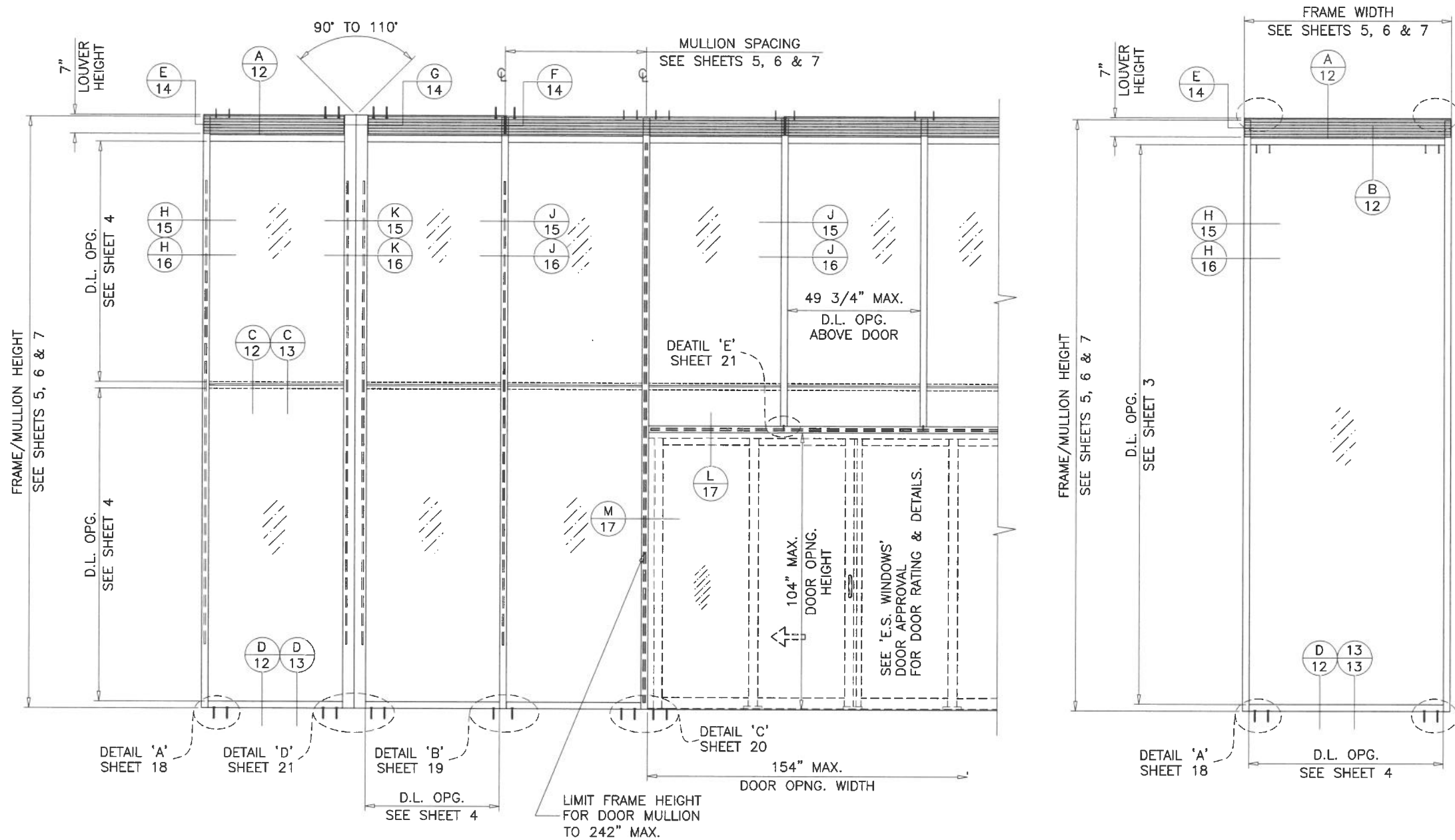
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AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
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(C.A.N. 3538)

COMP-ANL\W16-29ESW

ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)

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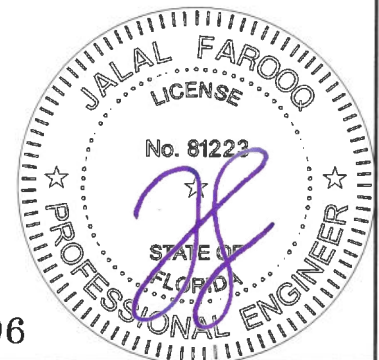
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date: 04-13-16		scale: -		dr. by: TARIQ		chk. by:		drawing no.	
								W16-29	
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TYPICAL ELEVATIONS

SINGLE SPAN WITH 90° OR 110° EXTERIOR CORNERS (OPTIONAL TOP LOUVERS SHOWN)

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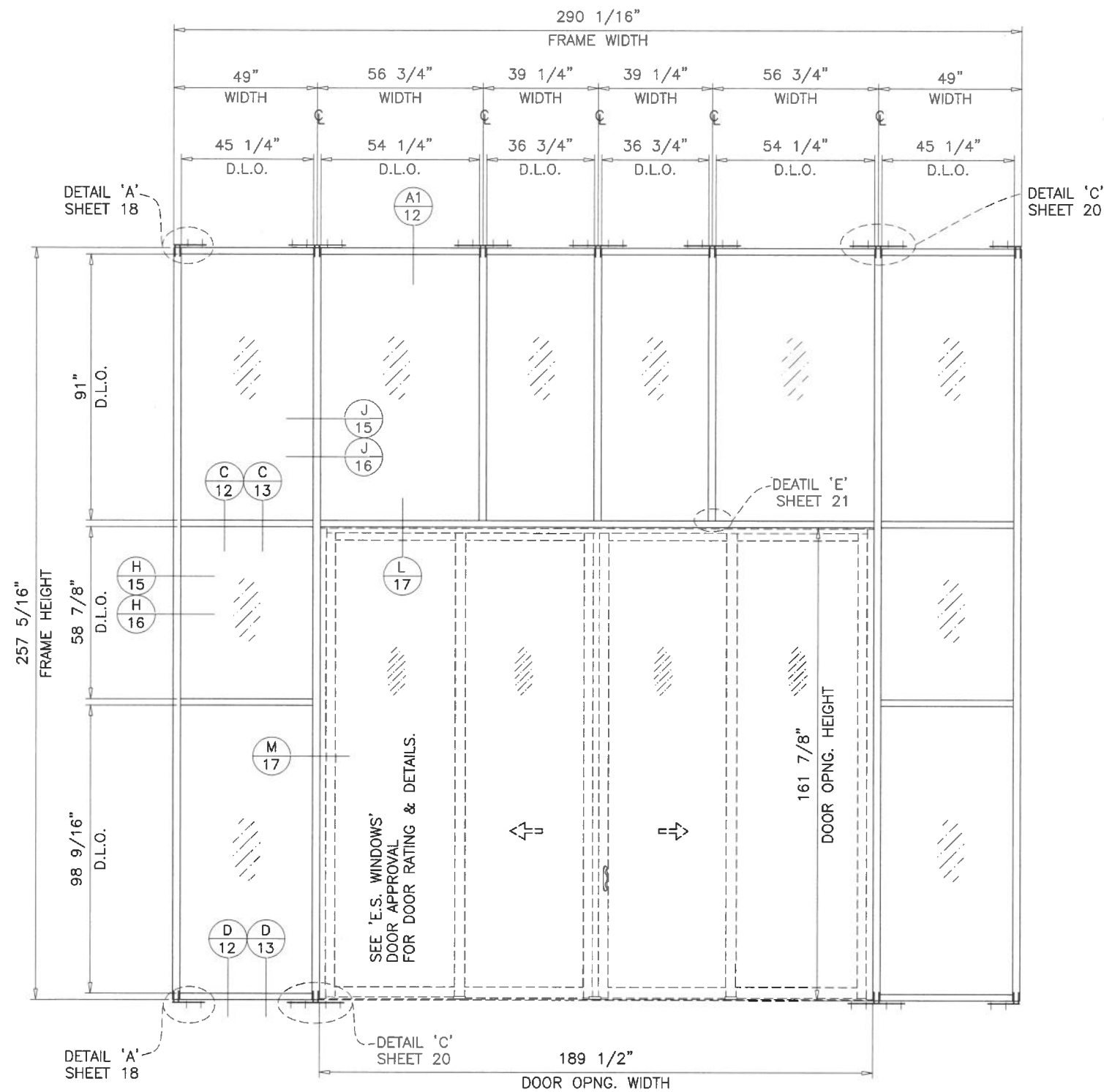
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W16-29
sheet 2 of 28



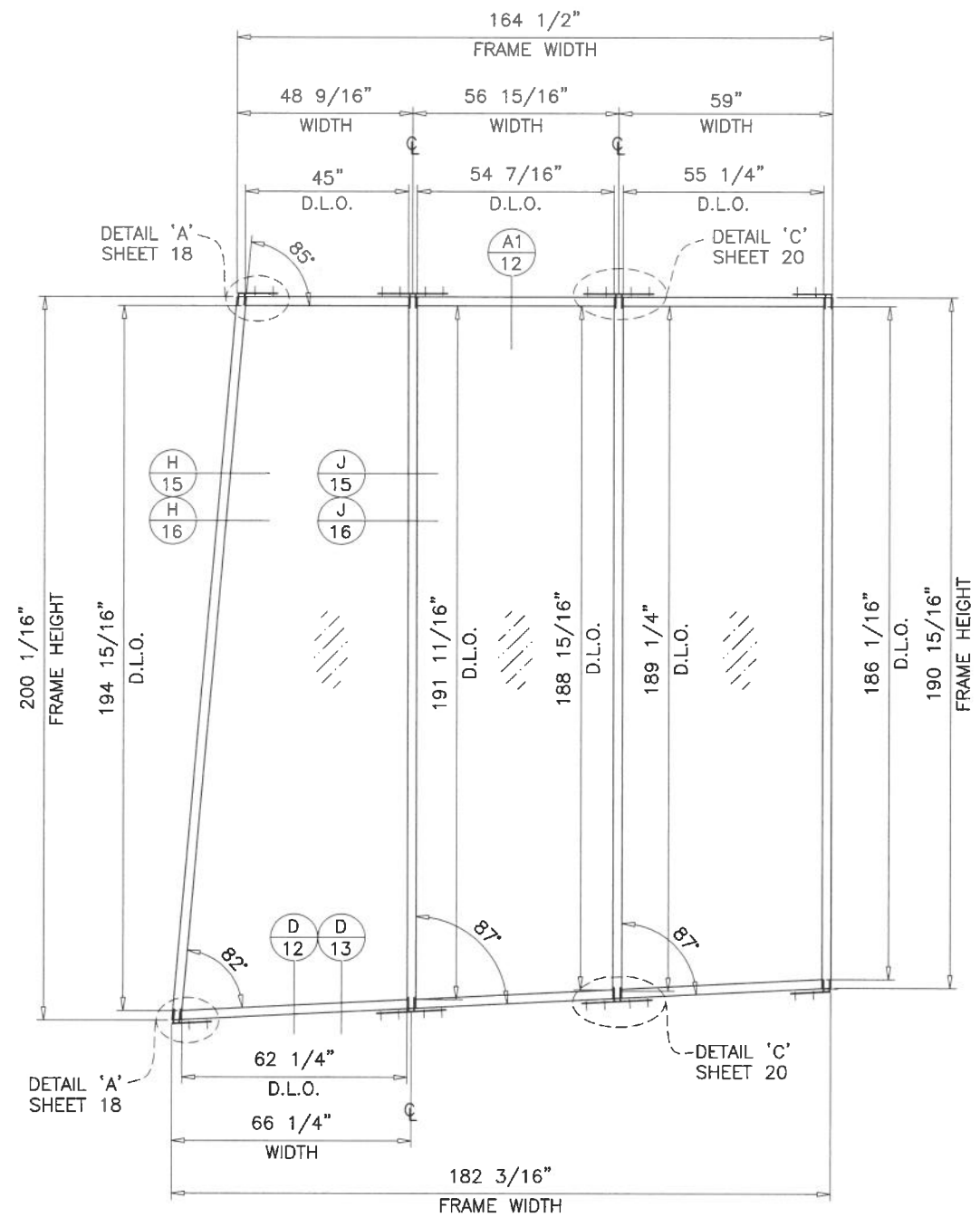
C1018 LOW CARBON STEEL BARS F_u MIN. = 64 KSI, F_y MIN. 58 KSI

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MAXIMUM DESIGN LOAD RATING = + 120.0 PSF
(FOR ELEVATION SHOWN ABOVE) - 120.0 PSF

GLASS TYPE 'A' ONLY
MULLION TYPE 'M2' ONLY
JAMB TYPE 'J1' ONLY
DOOR MULLION TYPE 'DM'



MAXIMUM DESIGN LOAD RATING = + 95.0 PSF
(FOR ELEVATION SHOWN ABOVE) - 95.0 PSF

GLASS TYPE 'A1' ONLY
MULLION TYPE 'M1' ONLY
JAMB TYPE 'J1' ONLY

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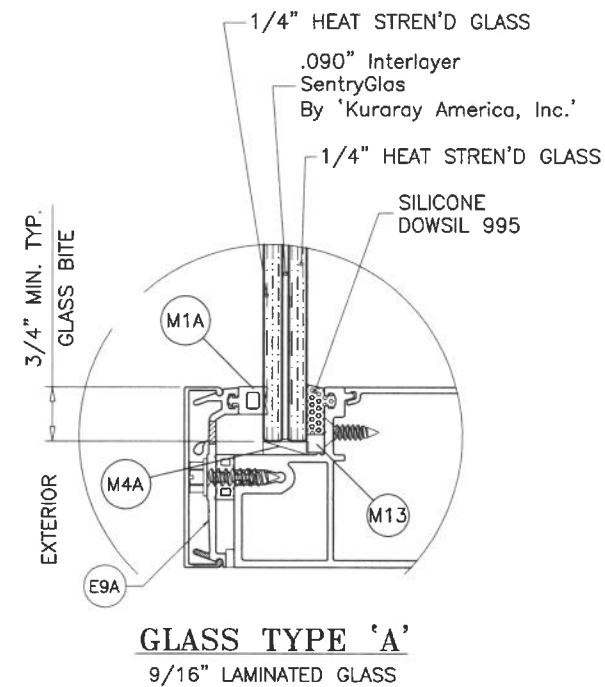
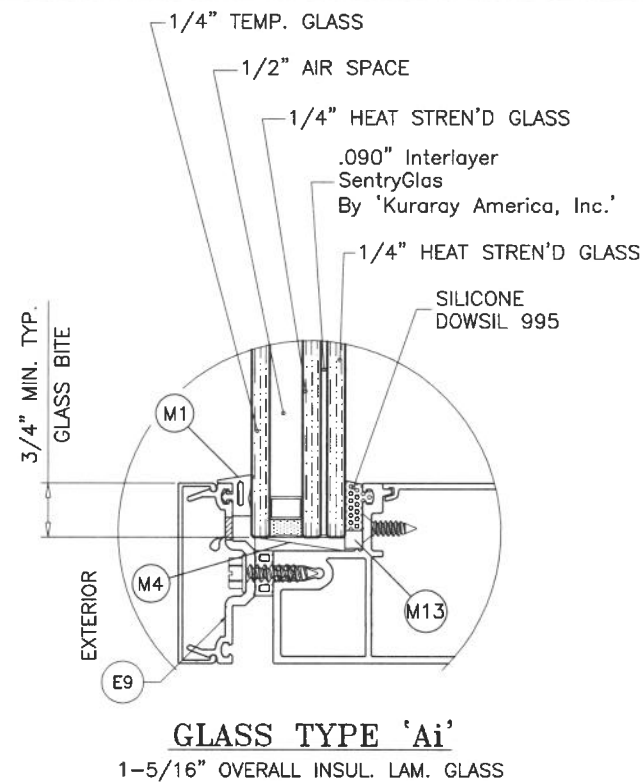
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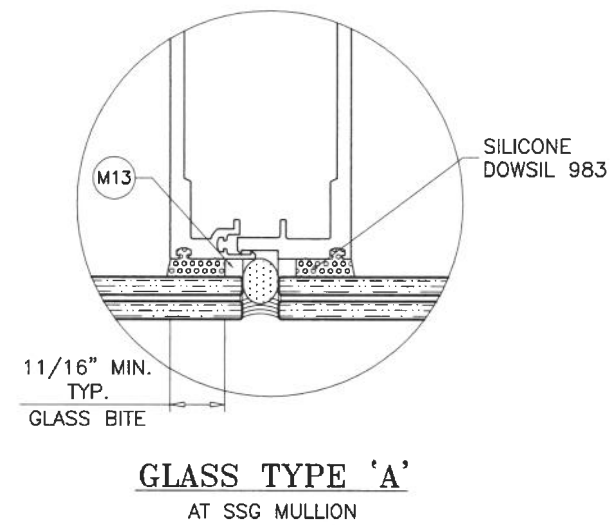
GLASS DESIGN LOAD CAPACITY - PSF					
NOMINAL DIMS.		GLASS TYPE 'A' & 'Ai' CAPTURED MULL		GLASS TYPE 'A' SSG MULLION	
D.L.O. WIDTH	D.L.O. HEIGHT	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)
27-1/2"	91"	125.0	125.0	110.0	110.0
33-1/2"		125.0	125.0	110.0	110.0
39-1/2"		125.0	125.0	110.0	110.0
45-1/2"		125.0	125.0	110.0	110.0
46-1/2"		125.0	125.0	110.0	110.0
50-1/2"		125.0	125.0	101.3	101.3
51-3/4"		122.0	122.0	98.8	98.8
27-1/2"	103"	125.0	125.0	110.0	110.0
33-1/2"		125.0	125.0	110.0	110.0
39-1/2"		125.0	125.0	110.0	110.0
45-1/2"		125.0	125.0	110.0	110.0
46-1/2"		125.0	125.0	110.0	110.0
50-1/2"		125.0	125.0	101.3	101.3
51-3/4"		122.0	122.0	98.8	98.8
27-1/2"	115"	125.0	125.0	110.0	110.0
33-1/2"		125.0	125.0	110.0	110.0
39-1/2"		125.0	125.0	110.0	110.0
45-1/2"		125.0	125.0	110.0	110.0
46-1/2"		125.0	125.0	110.0	110.0
50-1/2"		125.0	125.0	101.3	101.3
51-3/4"		122.0	122.0	98.8	98.8
27-1/2"	127"	125.0	125.0	110.0	110.0
33-1/2"		125.0	125.0	110.0	110.0
39-1/2"		125.0	125.0	110.0	110.0
45-1/2"		125.0	125.0	110.0	110.0
46-1/2"		125.0	125.0	110.0	110.0
50-1/2"		125.0	125.0	101.3	101.3
51-3/4"		122.0	122.0	98.8	98.8
27-1/2"	139"	125.0	125.0	110.0	110.0
33-1/2"		125.0	125.0	110.0	110.0
39-1/2"		125.0	125.0	110.0	110.0
45-1/2"		125.0	125.0	110.0	110.0
46-1/2"		125.0	125.0	110.0	110.0
50-1/2"		125.0	125.0	-	-
51-3/4"		122.0	122.0	-	-
27-1/2"	143"	125.0	125.0	110.0	110.0
33-1/2"		125.0	125.0	110.0	110.0
39-1/2"		125.0	125.0	110.0	110.0
45-1/2"		125.0	125.0	110.0	110.0
46-1/2"		125.0	125.0	110.0	110.0
50-1/2"		125.0	125.0	-	-
51-3/4"		122.0	122.0	-	-
27-1/2"	145-3/16"	125.0	125.0	110.0	110.0
33-1/2"		125.0	125.0	110.0	110.0
39-1/2"		125.0	125.0	110.0	110.0
45-1/2"		125.0	125.0	110.0	110.0
46-1/2"		125.0	125.0	110.0	110.0
50-1/2"		125.0	125.0	-	-
51-3/4"		122.0	122.0	-	-

INTERPOLATION BETWEEN WIDTHS AND HEIGHTS ALLOWED.

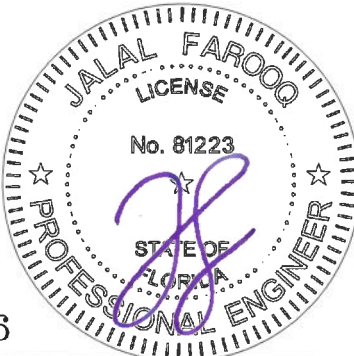
NOTE:
GLASS CAPACITIES ARE BASED ON
ASTM E1300-16 (3 SEC. GUSTS)



GLAZING OPTIONS



Sealed: 8/20/2026



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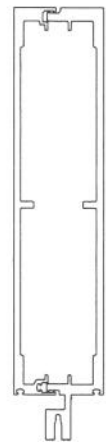
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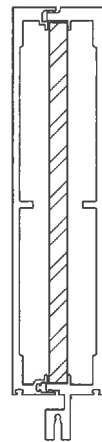
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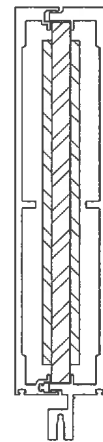
JAMB 'J1'
MULLION 'M1'

Ix IN^4	Sx IN^3
98.683	16.220



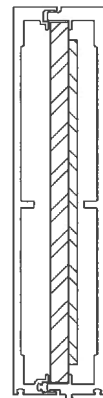
JAMB 'J2'
MULLION 'M2'

	Ix IN^4	Sx IN^3
ALUMINUM	98.683	16.220
STEEL	41.667	8.333
TOTAL Ix ALUM + Ix STL X 2.9	219.517	



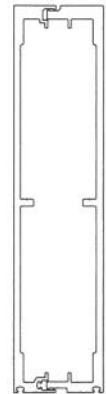
MULLION 'M3'

	Ix IN^4	Sx IN^3
ALUMINUM	98.683	16.220
STEEL	72.042	14.408
TOTAL Ix ALUM + Ix STL X 2.9	307.605	



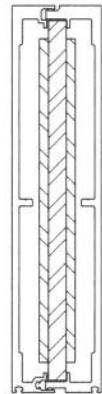
JAMB 'J3'

	Ix IN^4	Sx IN^3
ALUMINUM	98.683	16.220
STEEL	52.333	10.4666
TOTAL Ix ALUM + Ix STL X 2.9	250.448	



MULLION 'M4'

Ix IN^4	Sx IN^3
80.287	14.373



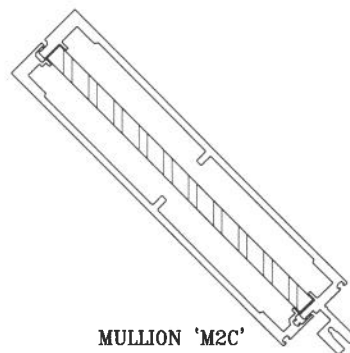
MULLION 'M5'

	Ix IN^4	Sx IN^3
ALUMINUM	80.287	14.373
STEEL	72.347	14.418
TOTAL Ix ALUM + Ix STL X 2.9	288.018	



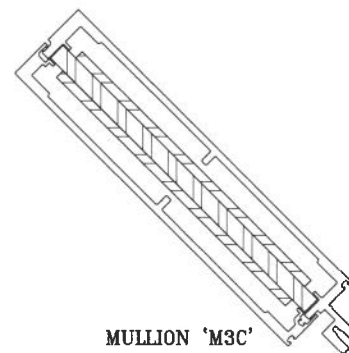
MULLION 'M1C'

Ix IN^4	Sx IN^3
49.360	9.774



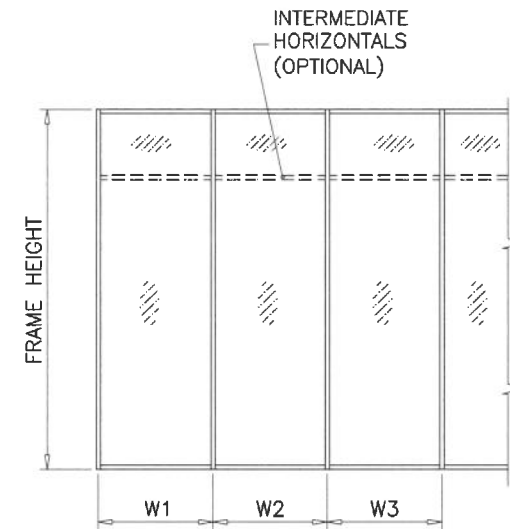
MULLION 'M2C'

	Ix IN^4	Sx IN^3
ALUMINUM	49.360	9.774
STEEL	20.230	5.527
TOTAL Ix ALUM + Ix STL X 2.9	108.027	



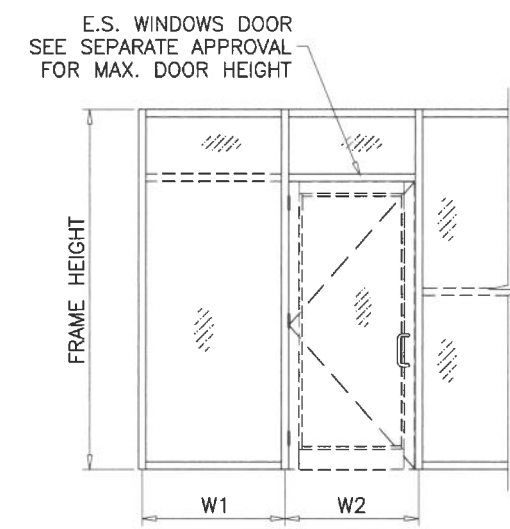
MULLION 'M3C'

	Ix IN^4	Sx IN^3
ALUMINUM	49.360	9.774
STEEL	36.400	9.810
TOTAL Ix ALUM + Ix STL X 2.9	154.920	

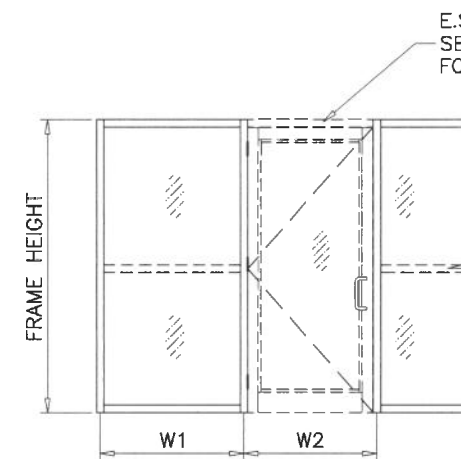


WIDTH (W) = W1
AT JAMB

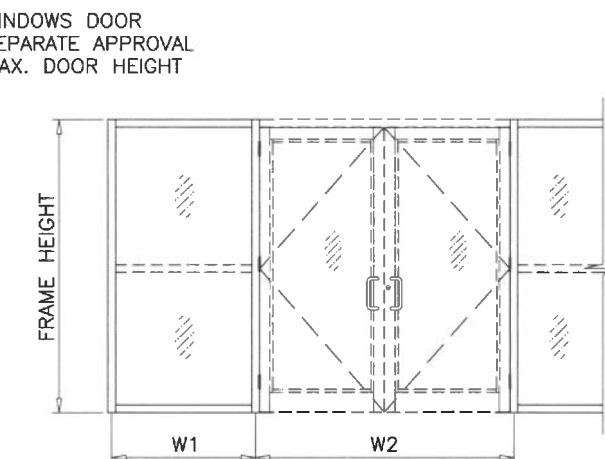
WIDTH (W) = $\frac{W2 + W3}{2}$
AT MULLION



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



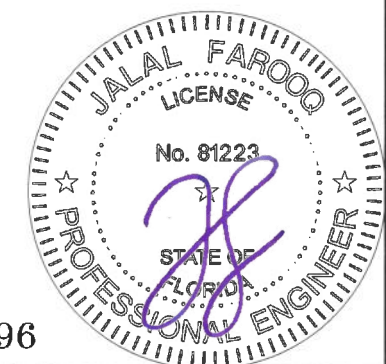
WIDTH (W) = $\frac{W1 + W2}{2}$
AT MULLION



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

MAX. DOOR HEIGHTS FOR WINDOW WALL WITH DOORS
TO BE LIMITED TO THE MAX. APPROVED DOOR HEIGHTS.

Sealed: 8/20/2026



SEE SHEET 5 FOR JAMB/MULLION CAPACITY CHART.

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MULLION DESIGN LOAD CAPACITY - PSF SINGLE SPANS WITH OR WITHOUT INTERMEDIATE HORIZONTALS					
NOMINAL DIMS.		JAMB 'J1' MULL 'M4'		JAMB 'J3' MULL 'M5'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)
30"	120"	110.0	110.0	110.0	110.0
36"		110.0	110.0	110.0	110.0
41"		110.0	110.0	110.0	110.0
42"		110.0	110.0	110.0	110.0
48"		110.0	110.0	110.0	110.0
49"		110.0	110.0	110.0	110.0
53"		110.0	110.0	110.0	110.0
54-1/4"		110.0	110.0	110.0	110.0
30"	132"	110.0	110.0	110.0	110.0
36"		110.0	110.0	110.0	110.0
41"		110.0	110.0	110.0	110.0
42"		110.0	110.0	110.0	110.0
48"		98.3	98.3	110.0	110.0
49"		96.1	96.1	110.0	110.0
53"		89.0	89.0	110.0	110.0
54-1/4"		87.0	87.0	110.0	110.0
30"	144"	110.0	110.0	110.0	110.0
36"		101.0	101.0	110.0	110.0
41"		88.6	88.6	110.0	110.0
42"		86.5	86.5	110.0	110.0
48"		75.7	75.7	110.0	110.0
49"		74.0	74.0	110.0	110.0
53"		68.6	68.6	110.0	110.0
54-1/4"		67.0	67.0	110.0	110.0
30"	148"	110.0	110.0	110.0	110.0
36"		93.0	93.0	110.0	110.0
41"		81.7	81.7	110.0	110.0
42"		79.7	79.7	110.0	110.0
48"		69.7	69.7	110.0	110.0
49"		68.2	68.2	110.0	110.0
53"		63.2	63.2	110.0	110.0
54-1/4"		61.7	61.7	110.0	110.0
30"	156"	99.8	99.8	110.0	110.0
36"		83.2	83.2	110.0	110.0
41"		73.0	73.0	110.0	110.0
42"		71.3	71.3	110.0	110.0
48"		62.4	62.4	110.0	110.0
49"		61.0	61.0	110.0	110.0
53"		56.5	56.5	110.0	110.0
54-1/4"		55.2	55.2	110.0	110.0
30"	168"	86.1	86.1	110.0	110.0
36"		71.7	71.7	110.0	110.0
41"		63.0	63.0	110.0	110.0
42"		61.5	61.5	110.0	110.0
48"		53.8	53.8	110.0	110.0
49"		52.6	52.6	110.0	110.0
53"		48.7	48.7	110.0	110.0
54-1/4"		47.6	47.6	110.0	110.0
30"	180"	75.0	75.0	110.0	110.0
36"		62.5	62.5	110.0	110.0
41"		54.9	54.9	110.0	110.0
42"		53.5	53.5	110.0	110.0
48"		46.9	46.9	110.0	110.0
49"		45.8	45.8	110.0	110.0
53"		42.4	42.4	110.0	110.0
54-1/4"		41.5	41.5	110.0	110.0

MULLION DESIGN LOAD CAPACITY - PSF SINGLE SPANS WITH OR WITHOUT INTERMEDIATE HORIZONTALS					
NOMINAL DIMS.		JAMB 'J1' MULL 'M4'		JAMB 'J3' MULL 'M5'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)
30"	190"	67.2	67.2	110.0	110.0
36"		56.0	56.0	110.0	110.0
41"		49.2	49.2	110.0	110.0
42"		48.0	48.0	110.0	110.0
48"		42.0	42.0	110.0	110.0
49"		41.1	41.1	110.0	110.0
53"		38.1	38.1	110.0	110.0
54-1/4"		37.2	37.2	110.0	110.0
30"	196"	-	-	110.0	110.0
36"		-	-	110.0	110.0
41"		-	-	110.0	110.0
42"		-	-	110.0	110.0
48"		-	-	110.0	110.0
49"		-	-	110.0	110.0
53"		-	-	110.0	110.0
54-1/4"		-	-	110.0	110.0
30"	210"	-	-	110.0	110.0
36"		-	-	110.0	110.0
41"		-	-	110.0	110.0
42"		-	-	110.0	110.0
48"		-	-	110.0	110.0
49"		-	-	110.0	110.0
53"		-	-	110.0	110.0
54-1/4"		-	-	109.3	109.3
30"	216"	-	-	110.0	110.0
36"		-	-	110.0	110.0
41"		-	-	110.0	110.0
42"		-	-	110.0	110.0
48"		-	-	110.0	110.0
49"		-	-	110.0	110.0
53"		-	-	105.7	105.7
54-1/4"		-	-	103.3	103.3
30"	228"	-	-	110.0	110.0
36"		-	-	110.0	110.0
41"		-	-	110.0	110.0
42"		-	-	110.0	110.0
48"		-	-	104.8	104.8
49"		-	-	102.4	102.4
53"		-	-	94.9	94.9
54-1/4"		-	-	92.7	92.7
30"	242"	-	-	110.0	110.0
36"		-	-	110.0	110.0
41"		-	-	108.9	108.9
42"		-	-	106.3	106.3
48"		-	-	93.0	93.0
49"		-	-	90.9	90.9
53"		-	-	84.2	84.2
54-1/4"		-	-	82.3	82.3
30"	252"	-	-	110.0	110.0
36"		-	-	110.0	110.0
41"		-	-	100.4	100.4
42"		-	-	98.0	98.0
48"		-	-	85.8	85.8
49"		-	-	83.8	83.8
53"		-	-	77.7	77.7
54-1/4"		-	-	75.9	75.9

MULLION DESIGN LOAD CAPACITY - PSF SINGLE SPANS WITH OR WITHOUT INTERMEDIATE HORIZONTALS					
NOMINAL DIMS.		JAMB 'J1' MULL 'M4'		JAMB 'J3' MULL 'M5'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)
30"	264"	-	-	110.0	110.0
36"		-	-	104.2	104.2
41"		-	-	91.5	91.5
42"		-	-	89.3	89.3
48"		-	-	78.1	78.1
49"		-	-	76.4	76.4
53"		-	-	70.8	70.8
30"	277"	-	-	110.0	110.0
36"		-	-	94.6	94.6
41"		-	-	83.1	83.1
42"		-	-	81.1	81.1
48"		-	-	71.0	71.0
49"	290-5/8"	-	-	69.4	69.4
30"		-	-	103.2	103.2
36"		-	-	86.0	86.0
41"		-	-	75.5	75.5
42"		-	-	73.7	73.7
48"		-	-	64.5	64.5
49"		-	-	63.0	63.0

INTERPOLATION BETWEEN WIDTHS AND HEIGHTS ALLOWED.

Sealed: 8/20/2026



FL #20396



AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
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ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
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revisions:

no	date	by	description

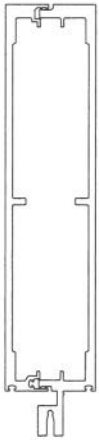
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COMP-ANL\W16-29ESW

MULLION DESIGN LOAD CAPACITY - PSF							
DOUBLE SPANS							
NOMINAL DIMS.		JAMB 'J1' MULL 'M1'		JAMB 'J2' MULL 'M2'		JAMB 'J2' MULL 'M3'	
WIDTH (W)	SPAN = L	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)
30"	120"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0
30"	132"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0
30"	144"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0
30"	148"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0
30"	156"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0
30"	168"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0
30"	180"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0
30"	196"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0
30"	210"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0
30"	216"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0

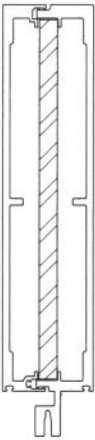
MULLION DESIGN LOAD CAPACITY - PSF							
DOUBLE SPANS							
NOMINAL DIMS.		JAMB 'J1' MULL 'M1'		JAMB 'J2' MULL 'M2'		JAMB 'J2' MULL 'M3'	
WIDTH (W)	SPAN = L	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)
30"	228"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0	95.0	95.0
30"	242"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0	95.0	95.0
53"		-	-	95.0	95.0	95.0	95.0
54-1/4"		-	-	95.0	95.0	95.0	95.0
30"	252"	95.0	95.0	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0	95.0	95.0
48"		-	-	95.0	95.0	95.0	95.0
53"		-	-	95.0	95.0	95.0	95.0
54-1/4"		-	-	95.0	95.0	95.0	95.0
30"	264"	-	-	95.0	95.0	95.0	95.0
36"		-	-	95.0	95.0	95.0	95.0
42"		-	-	95.0	95.0	95.0	95.0
48"		-	-	95.0	95.0	95.0	95.0
53"		-	-	95.0	95.0	95.0	95.0
54-1/4"		-	-	95.0	95.0	95.0	95.0

INTERPOLATION BETWEEN WIDTHS AND HEIGHTS ALLOWED.



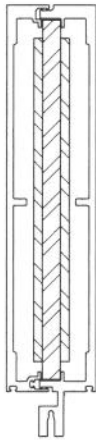
JAMB 'J1'
MULLION 'M1'

Ix	IN^4	Sx	IN^3
98.683	16.220		



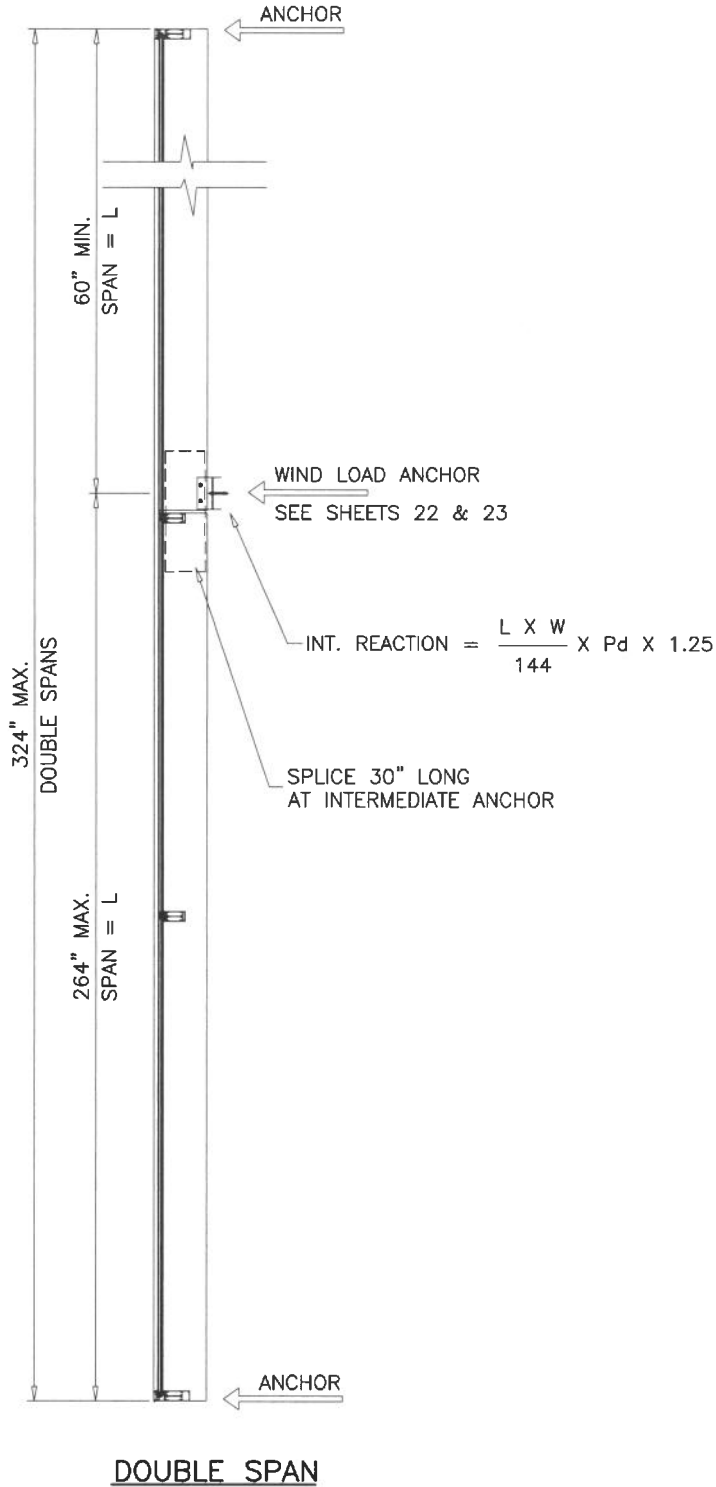
JAMB 'J2'
MULLION 'M2'

Ix	IN^4	Sx	IN^3
ALUMINUM	98.683	16.220	
STEEL	41.667	8.333	
TOTAL			
Ix ALUM + Ix STL X 2.9	219.517		



MULLION 'M3'

Ix	IN^4	Sx	IN^3
ALUMINUM	98.683	16.220	
STEEL	72.042	14.408	
TOTAL			
Ix ALUM + Ix STL X 2.9	307.605		



Sealed: 8/20/2026



FL #20396

AL-FAROOQ CORPORATION
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ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
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revisions:
no date by description

date: 04-13-16

scale: -

dr. by: TARIQ

chk. by:

drawing no.

W16-29

sheet 8 of 28

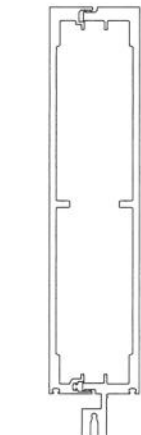
COMP-ANL\W16-29ESW

MULLION DESIGN LOAD CAPACITY - PSF DOUBLE SPANS					
NOMINAL DIMS.		JAMB 'J1' MULL 'M4'		JAMB 'J3' MULL 'M5'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)
30"	120"	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0
41"		95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0
49"		95.0	95.0	95.0	95.0
53"		95.0	95.0	95.0	95.0
54-1/4"		95.0	95.0	95.0	95.0
30"	132"	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0
41"		95.0	95.0	95.0	95.0
42"		95.0	95.0	95.0	95.0
48"		95.0	95.0	95.0	95.0
49"		95.0	95.0	95.0	95.0
53"		89.0	89.0	95.0	95.0
54-1/4"		87.0	87.0	95.0	95.0
30"	144"	95.0	95.0	95.0	95.0
36"		95.0	95.0	95.0	95.0
41"		88.6	88.6	95.0	95.0
42"		86.5	86.5	95.0	95.0
48"		75.7	75.7	95.0	95.0
49"		74.0	74.0	95.0	95.0
53"		68.6	68.6	95.0	95.0
54-1/4"		67.0	67.0	95.0	95.0
30"	148"	95.0	95.0	95.0	95.0
36"		93.0	93.0	95.0	95.0
41"		81.7	81.7	95.0	95.0
42"		79.7	79.7	95.0	95.0
48"		69.7	69.7	95.0	95.0
49"		68.2	68.2	95.0	95.0
53"		63.2	63.2	95.0	95.0
54-1/4"		61.7	61.7	95.0	95.0
30"	156"	95.0	95.0	95.0	95.0
36"		83.2	83.2	95.0	95.0
41"		73.0	73.0	95.0	95.0
42"		71.3	71.3	95.0	95.0
48"		62.4	62.4	95.0	95.0
49"		61.0	61.0	95.0	95.0
53"		56.5	56.5	95.0	95.0
54-1/4"		55.2	55.2	95.0	95.0
30"	168"	86.1	86.1	95.0	95.0
36"		71.7	71.7	95.0	95.0
41"		63.0	63.0	95.0	95.0
42"		61.5	61.5	95.0	95.0
48"		53.8	53.8	95.0	95.0
49"		52.6	52.6	95.0	95.0
53"		48.7	48.7	95.0	95.0
54-1/4"		47.6	47.6	95.0	95.0
30"	180"	75.0	75.0	95.0	95.0
36"		62.5	62.5	95.0	95.0
41"		54.9	54.9	95.0	95.0
42"		53.5	53.5	95.0	95.0
48"		46.9	46.9	95.0	95.0
49"		45.8	45.8	95.0	95.0
53"		42.4	42.4	95.0	95.0
54-1/4"		41.5	41.5	95.0	95.0

MULLION DESIGN LOAD CAPACITY - PSF DOUBLE SPANS					
NOMINAL DIMS.		JAMB 'J1' MULL 'M4'		JAMB 'J3' MULL 'M5'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)
30"	190"	67.2	67.2	95.0	95.0
36"		56.0	56.0	95.0	95.0
41"		49.2	49.2	95.0	95.0
42"		48.0	48.0	95.0	95.0
48"		42.0	42.0	95.0	95.0
49"		41.1	41.1	95.0	95.0
53"		38.1	38.1	95.0	95.0
54-1/4"		37.2	37.2	95.0	95.0
30"	196"	-	-	95.0	95.0
36"		-	-	95.0	95.0
41"		-	-	95.0	95.0
42"		-	-	95.0	95.0
48"		-	-	95.0	95.0
49"		-	-	95.0	95.0
53"		-	-	95.0	95.0
54-1/4"		-	-	95.0	95.0
30"	210"	-	-	95.0	95.0
36"		-	-	95.0	95.0
41"		-	-	95.0	95.0
42"		-	-	95.0	95.0
48"		-	-	95.0	95.0
49"		-	-	95.0	95.0
53"		-	-	95.0	95.0
54-1/4"		-	-	95.0	95.0
30"	216"	-	-	95.0	95.0
36"		-	-	95.0	95.0
41"		-	-	95.0	95.0
42"		-	-	95.0	95.0
48"		-	-	95.0	95.0
49"		-	-	95.0	95.0
53"		-	-	95.0	95.0
54-1/4"		-	-	95.0	95.0
30"	228"	-	-	95.0	95.0
36"		-	-	95.0	95.0
41"		-	-	95.0	95.0
42"		-	-	95.0	95.0
48"		-	-	95.0	95.0
49"		-	-	95.0	95.0
53"		-	-	94.9	94.9
54-1/4"		-	-	92.7	92.7
30"	242"	-	-	95.0	95.0
36"		-	-	95.0	95.0
41"		-	-	95.0	95.0
42"		-	-	95.0	95.0
48"		-	-	93.0	93.0
49"		-	-	90.9	90.9
53"		-	-	84.2	84.2
54-1/4"		-	-	82.3	82.3
30"	252"	-	-	95.0	95.0
36"		-	-	95.0	95.0
41"		-	-	95.0	95.0
42"		-	-	98.0	98.0
48"		-	-	85.8	85.8
49"		-	-	83.8	83.8
53"		-	-	77.7	77.7
54-1/4"		-	-	75.9	75.9

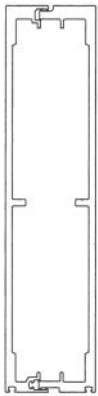
MULLION DESIGN LOAD CAPACITY - PSF DOUBLE SPANS					
NOMINAL DIMS.		JAMB 'J1' MULL 'M4'		JAMB 'J3' MULL 'M5'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)	EXT. (+)	INT. (-)
30"	264"	-	-	95.0	95.0
36"		-	-	95.0	95.0
41"		-	-	91.5	91.5
42"		-	-	89.3	89.3
48"		-	-	78.1	78.1
49"		-	-	76.4	76.4
53"		-	-	70.8	70.8

INTERPOLATION BETWEEN WIDTHS AND HEIGHTS ALLOWED.



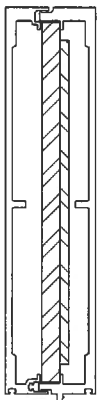
JAMB 'J1'

Ix IN^4	Sx IN^3
98.683	16.220



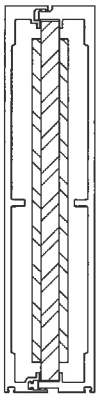
MULLION 'M4'

Ix IN^4	Sx IN^3
80.287	14.373



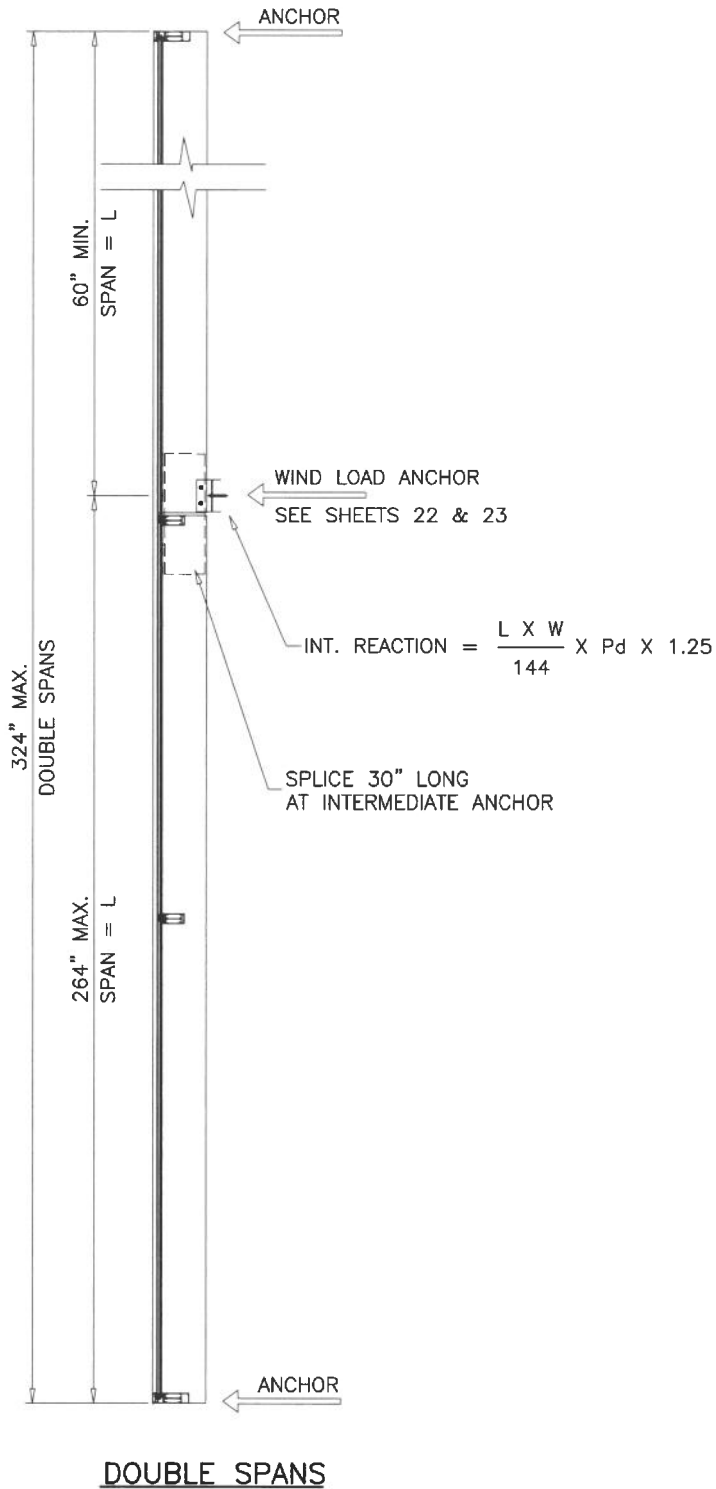
JAMB 'J3'

ALUMINUM	Ix IN^4	Sx IN^3
STEEL	52.333	10.4666
TOTAL	Ix ALUM + Ix STL X 2.9	250.448



MULLION 'M5'

ALUMINUM	Ix IN^4	Sx IN^3
STEEL	72.347	14.418
TOTAL	Ix ALUM + Ix STL X 2.9	288.018



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FL #20396

AL-FAROOQ CORPORATION
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9360 SUNSET DRIVE, SUITE 220
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FAX. (305) 262-6978
COMP-ANL\W16-29ESW

ES-CS1325 ALUMINUM CURTAIN 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

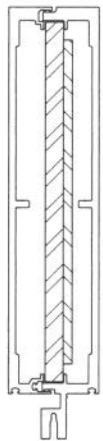
revisions:		date		by	
no	description	date	by	date	by

drawing no.
W16-29
sheet 9 of 28

MULLION DESIGN LOAD CAPACITY - PSF DOUBLE SPANS			
NOMINAL DIMS.		JAMB 'J3' MULL 'M3C'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)
30"	120"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	132"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	144"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	148"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	156"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	168"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	180"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	196"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	210"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0

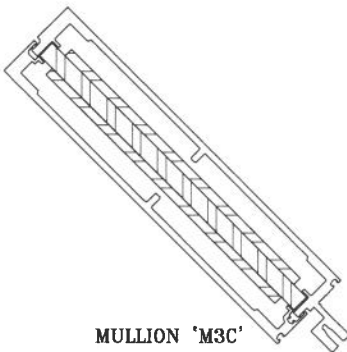
MULLION DESIGN LOAD CAPACITY - PSF DOUBLE SPANS			
NOMINAL DIMS.		JAMB 'J3' MULL 'M3C'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)
30"	216"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	228"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	242"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	252"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0
30"	264"	95.0	95.0
36"		95.0	95.0
42"		95.0	95.0
48"		95.0	95.0
53"		95.0	95.0
54-1/4"		95.0	95.0

INTERPOLATION BETWEEN WIDTHS AND HEIGHTS ALLOWED.



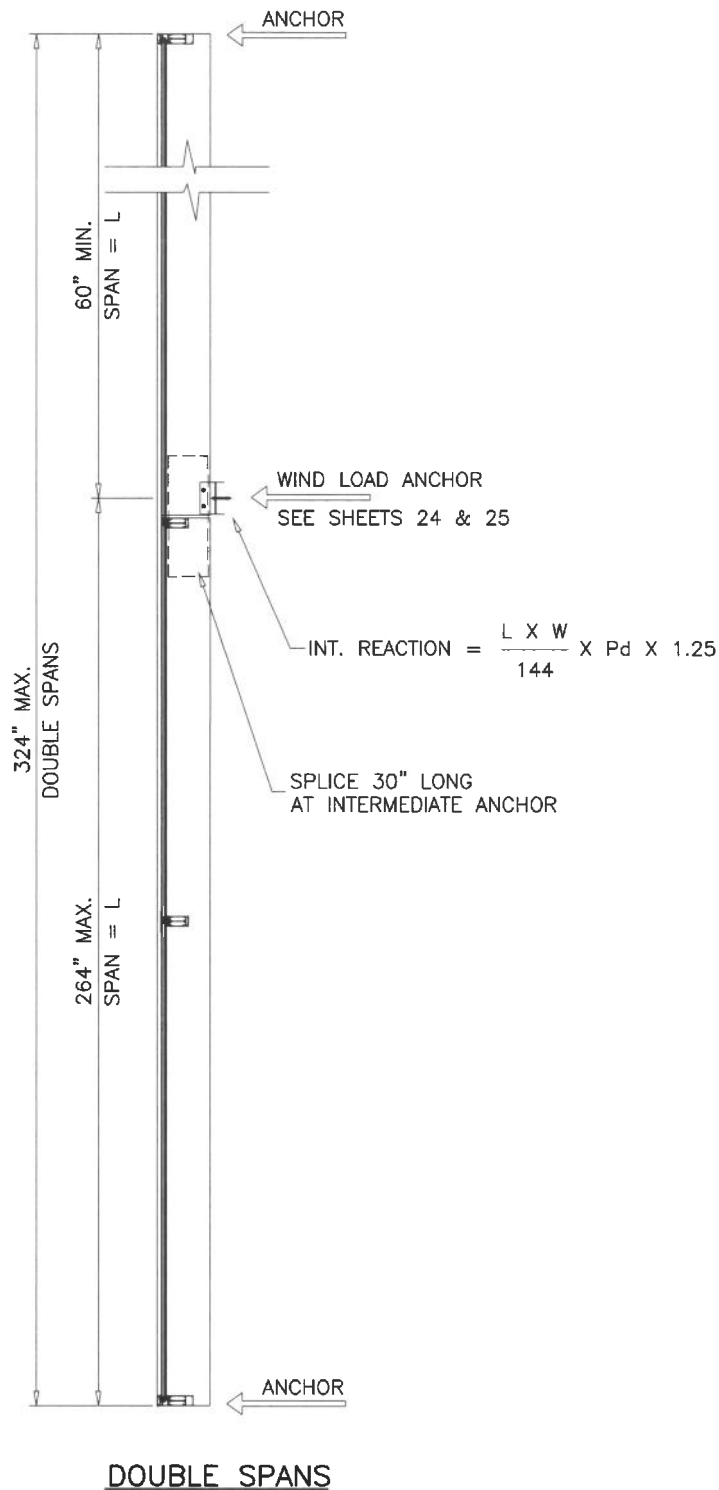
JAMB 'J3'

	Ix IN^4	Sx IN^3
ALUMINUM	98.683	16.220
STEEL	52.333	10.4666
TOTAL Ix ALUM + Ix STL X 2.9	250.448	



MULLION 'M3C'

	Ix IN^4	Sx IN^3
ALUMINUM	49.360	9.774
STEEL	36.400	9.810
TOTAL Ix ALUM + Ix STL X 2.9	154.920	



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FL #20396

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TEL. (305) 264-8100 FAX. (305) 262-6978
COMP-ANL\W16-29ESW

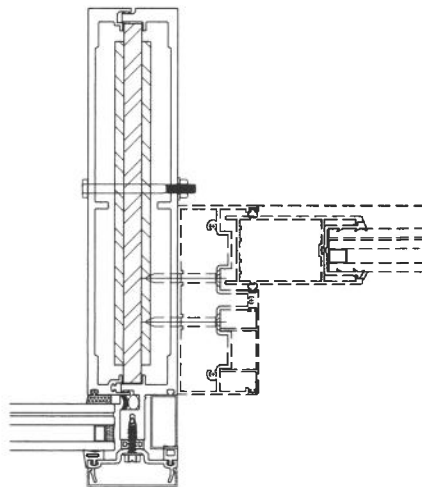
ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:
no date by description
date: 04-13-16
scale: -
dr. by: TARIQ
chk. by:
drawing no.
W16-29
sheet 9.1 of 28

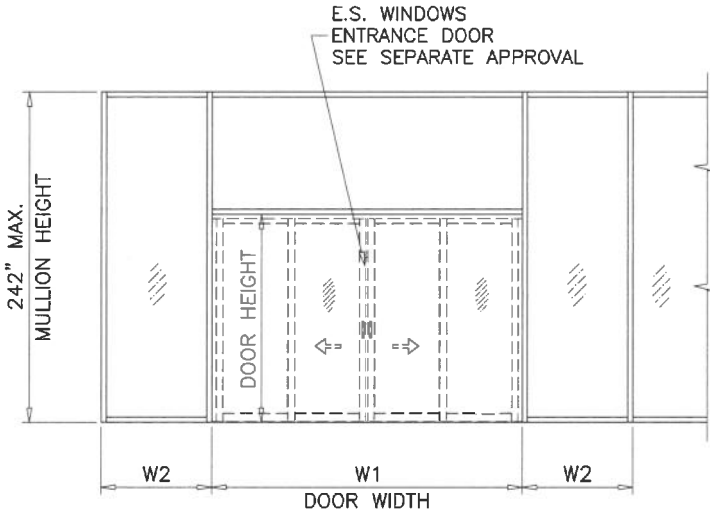
DOOR MULLION LOAD CAPACITY - PSF				
NOMINAL DIMS.			MULL 'DM'	
WIDTH (W1) INCHES	WIDTH (W2) INCHES	DOOR HEIGHT INCHES	EXT.(+)	INT.(-)
72	24	90	125.0	125.0
	36		125.0	125.0
	42		125.0	125.0
	48		125.0	125.0
	54		125.0	125.0
	54-1/4		125.0	125.0
96	24		125.0	125.0
	36		125.0	125.0
	42		125.0	125.0
	48		125.0	125.0
	54		122.8	122.8
	54-1/4		122.5	122.5
120	24		123.4	123.4
	36		118.5	118.5
	42		114.0	114.0
	48		109.9	109.9
	54		106.0	106.0
	54-1/4		105.8	105.8
144	24		106.5	106.5
	36		102.8	102.8
	42		99.4	99.4
	48		96.3	96.3
	54		93.3	93.3
	54-1/4		93.2	93.2
154	24		100.7	100.7
	36		97.5	97.5
	42		94.4	94.4
	48		91.5	91.5
	54		88.8	88.8
	54-1/4		88.7	88.7
72	24	96	125.0	125.0
	36		125.0	125.0
	42		125.0	125.0
	48		125.0	125.0
	54		125.0	125.0
	54-1/4		125.0	125.0
96	24		125.0	125.0
	36		125.0	125.0
	42		125.0	125.0
	48		125.0	125.0
	54		121.8	121.8
	54-1/4		121.6	121.6
120	24		122.3	122.3
	36		117.5	117.5
	42		113.1	113.1
	48		109.0	109.0
	54		105.2	105.2
	54-1/4		105.0	105.0
144	24		105.5	105.5
	36		101.9	101.9
	42		98.5	98.5
	48		95.4	95.4
	54		92.5	92.5
	54-1/4		92.4	92.4
154	24		99.8	99.8
	36		96.5	96.5
	42		93.5	93.5
	48		90.7	90.7
	54		88.1	88.1
	54-1/4		88.0	88.0

DOOR MULLION LOAD CAPACITY - PSF				
NOMINAL DIMS.			MULL 'DM'	
WIDTH (W1) INCHES	WIDTH (W2) INCHES	DOOR HEIGHT INCHES	EXT.(+)	INT.(-)
72	24	104	125.0	125.0
	36		125.0	125.0
	42		125.0	125.0
	48		125.0	125.0
	54		125.0	125.0
	54-1/4		125.0	125.0
96	24		125.0	125.0
	36		125.0	125.0
	42		125.0	125.0
	48		125.0	125.0
	54		120.9	120.9
	54-1/4		120.7	120.7
120	24		121.1	121.1
	36		116.4	116.4
	42		112.1	112.1
	48		108.1	108.1
	54		104.3	104.3
	54-1/4		104.2	104.2
144	24		104.5	104.5
	36		100.9	100.9
	42		97.7	97.7
	48		94.6	94.6
	54		91.7	91.7
	54-1/4		91.6	91.6
154	24		98.8	98.8
	36		95.6	95.6
	42		92.7	92.7
	48		89.9	89.9
	54		87.3	87.3
	54-1/4		87.2	87.2

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



	Ix IN^4	Sx IN^3
ALUMINUM	98.683	16.220
STEEL	72.042	14.408
TOTAL		
Ix ALUM + Ix STL X 2.9	307.605	



Sealed: 8/20/2026



FL #20396

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

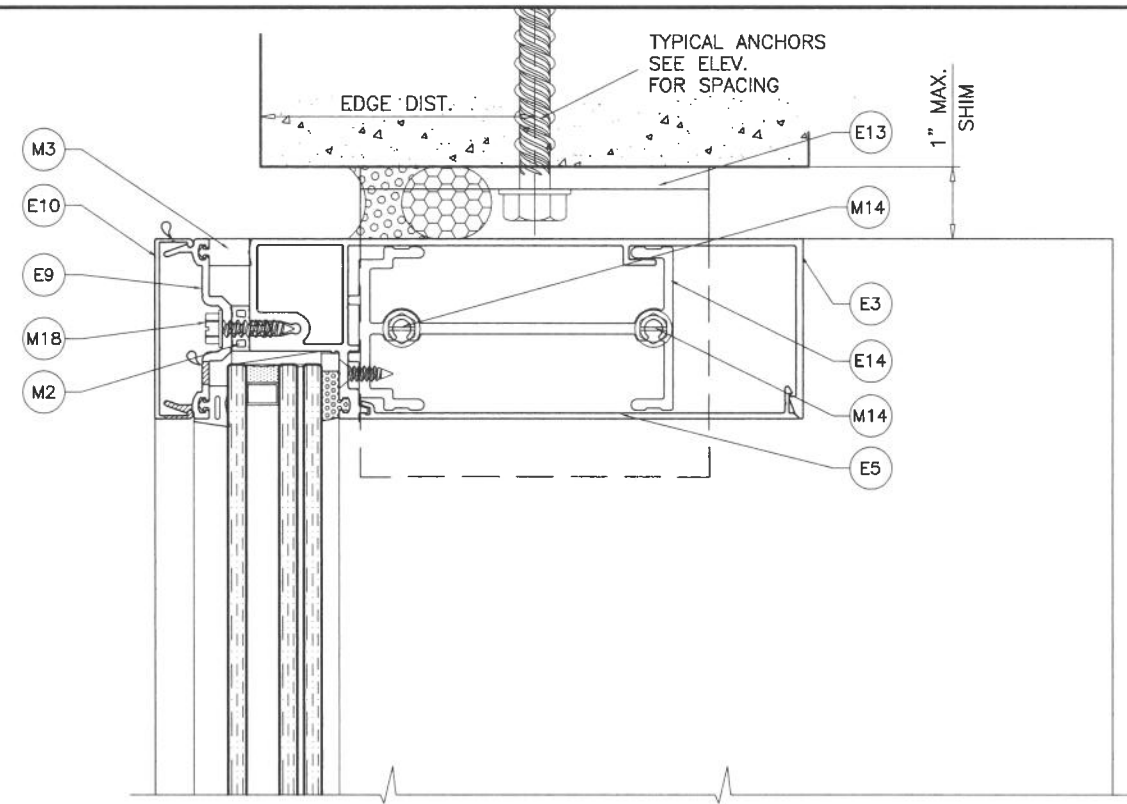
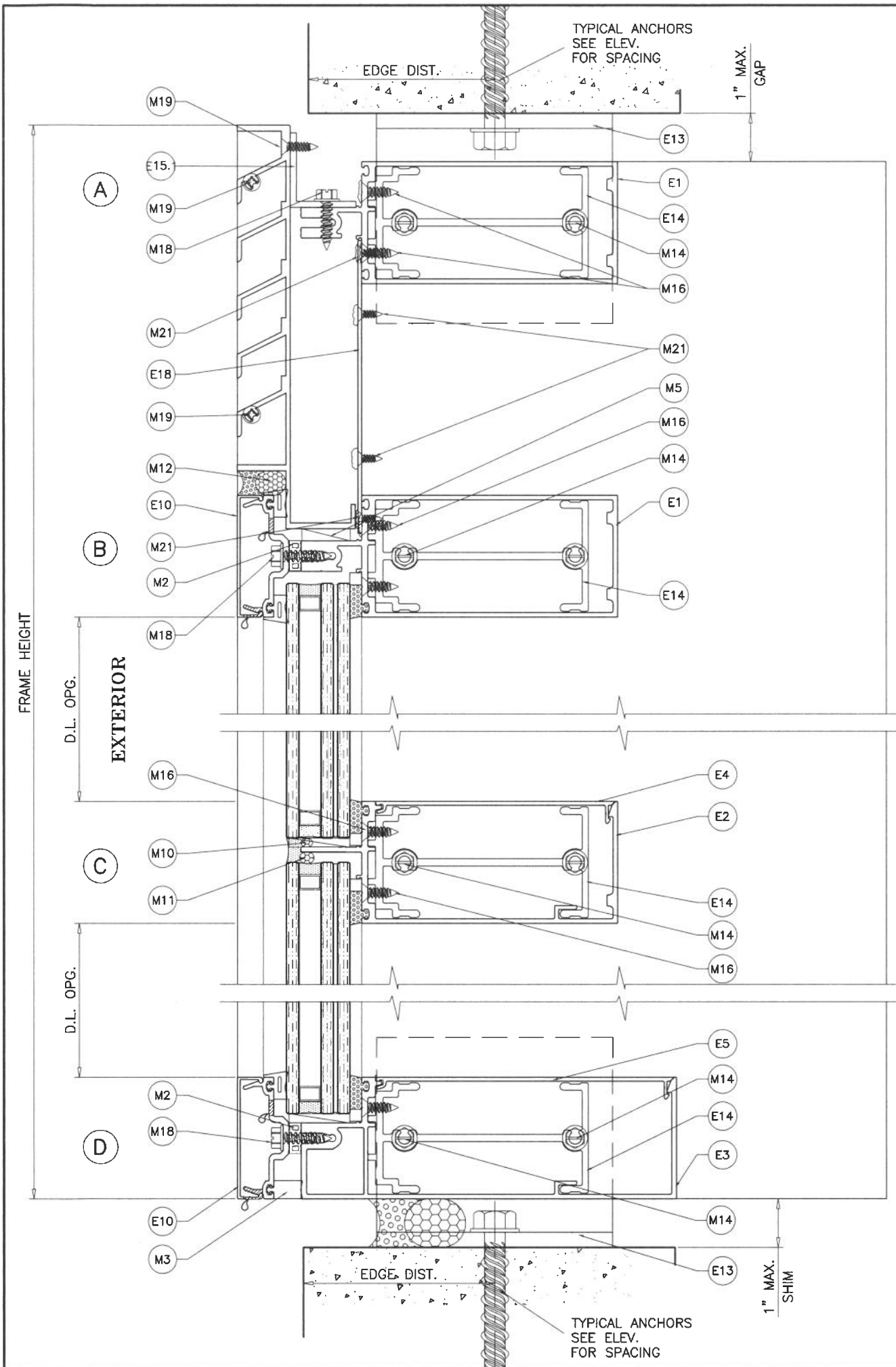
ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)

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: 04-13-16	scale: -	dr. by: TARIQ	chk. by:
drawing no. W16-29		sheet 10 of 28	



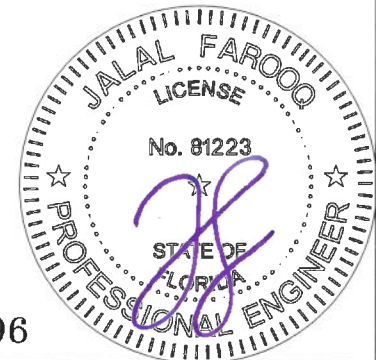
TYPICAL ANCHORS: SEE ELEV. FOR SPACING

TYPE 'A'— 1/2" DIA. MACHINE SCREWS (GRADE 5 CRS)
 INTO STEEL STRUCTURES
 1/8" THK. MIN. (F_y = 36 KSI MIN.)
 (3) THREADS MIN. TO EXTEND BEYOND METAL THICKNESS
 (STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

TYPE 'B'— 1/2" DIA. KWIK-BOLT-3 BY 'HILTI'
 DIRECTLY INTO CONCRETE (4000 PSI MIN.) 3-1/2" MIN. EMBED
 5" MIN. CL TO CL SPACING
 5" MIN. EDGE DISTANCE

NOTE:
 ANCHOR TORQUED AND OTHERWISE INSTALLED AS
 PER MANUFACTURER SPECIFICATIONS.

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COMP-ANL W16-29ESW

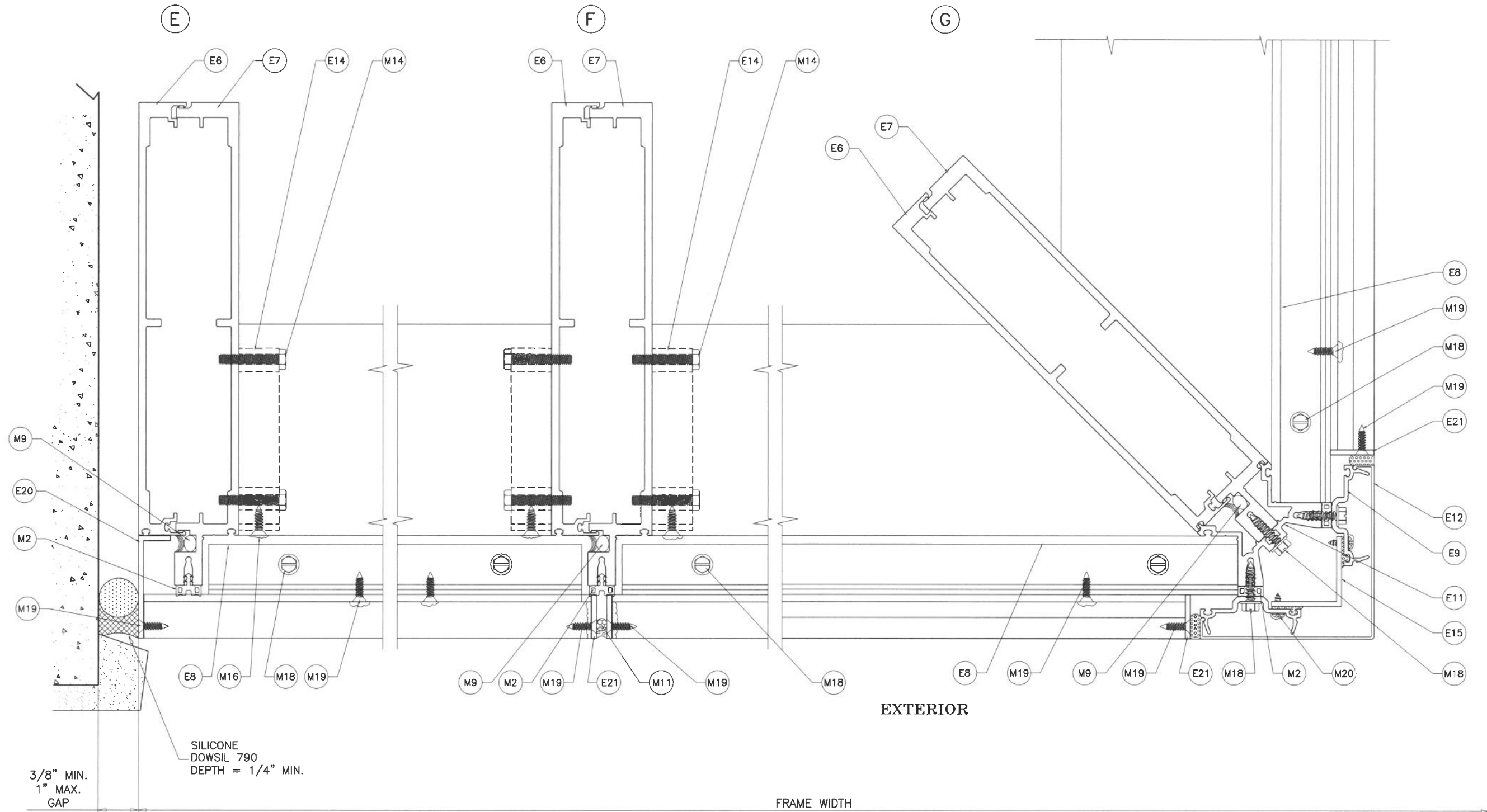
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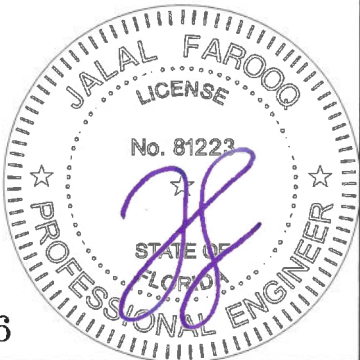
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drawing no.	sheet 12 of 28
W16-29	



Sealed: 8/20/2026



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AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
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af c

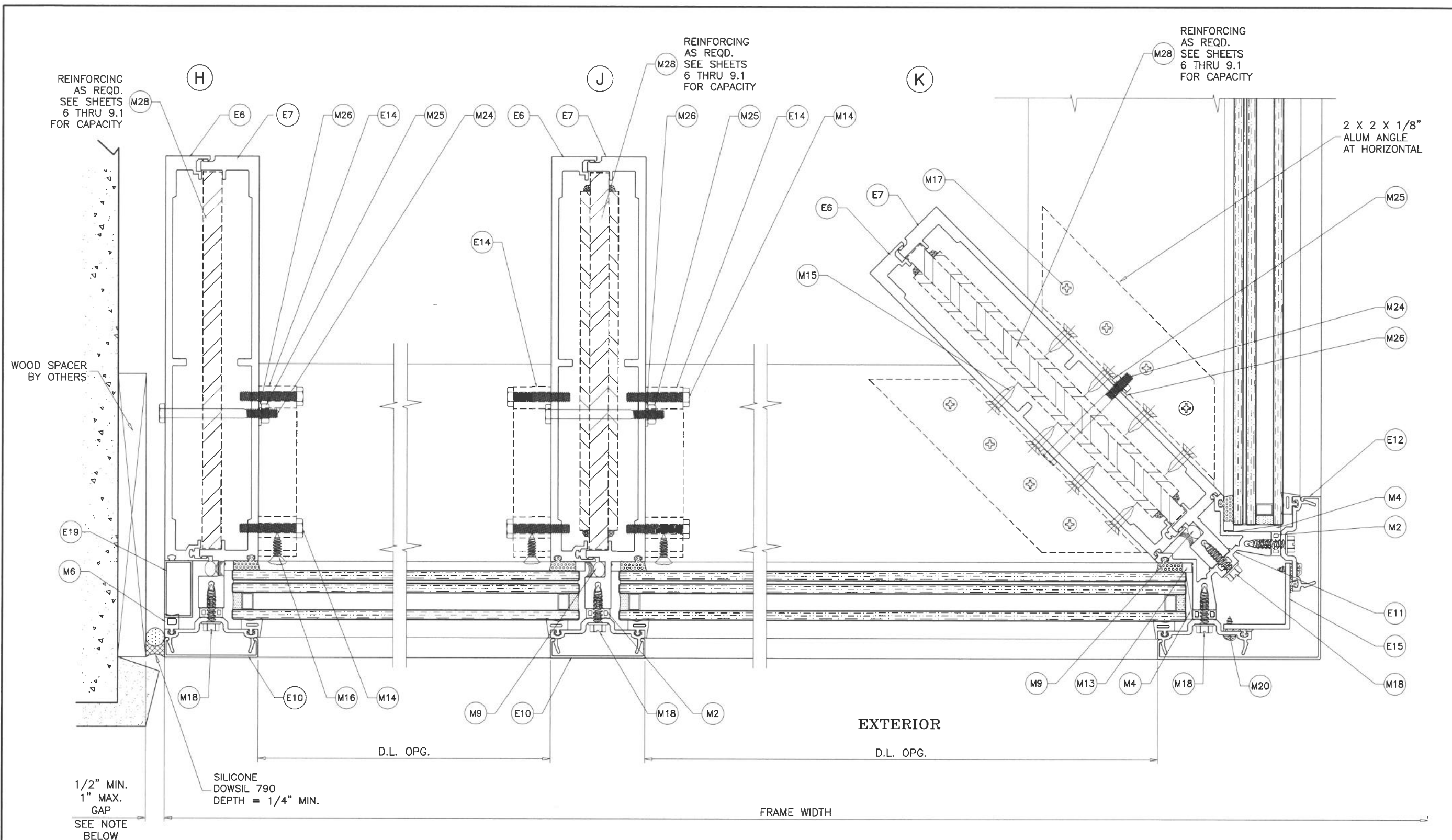
COMP-ANL\W16-29ESW

ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)

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revisions:		by description	
no	date		

date: 04-13-16	scale: 3/8" = 1"	dr. by: TARIQ	chk. by:	
drawing no.				
W16-29				
sheet 14 of 28				



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.

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FL #20396

af c

AL-FAROOQ CORPORATION
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COMP-ANL W16-29ESW

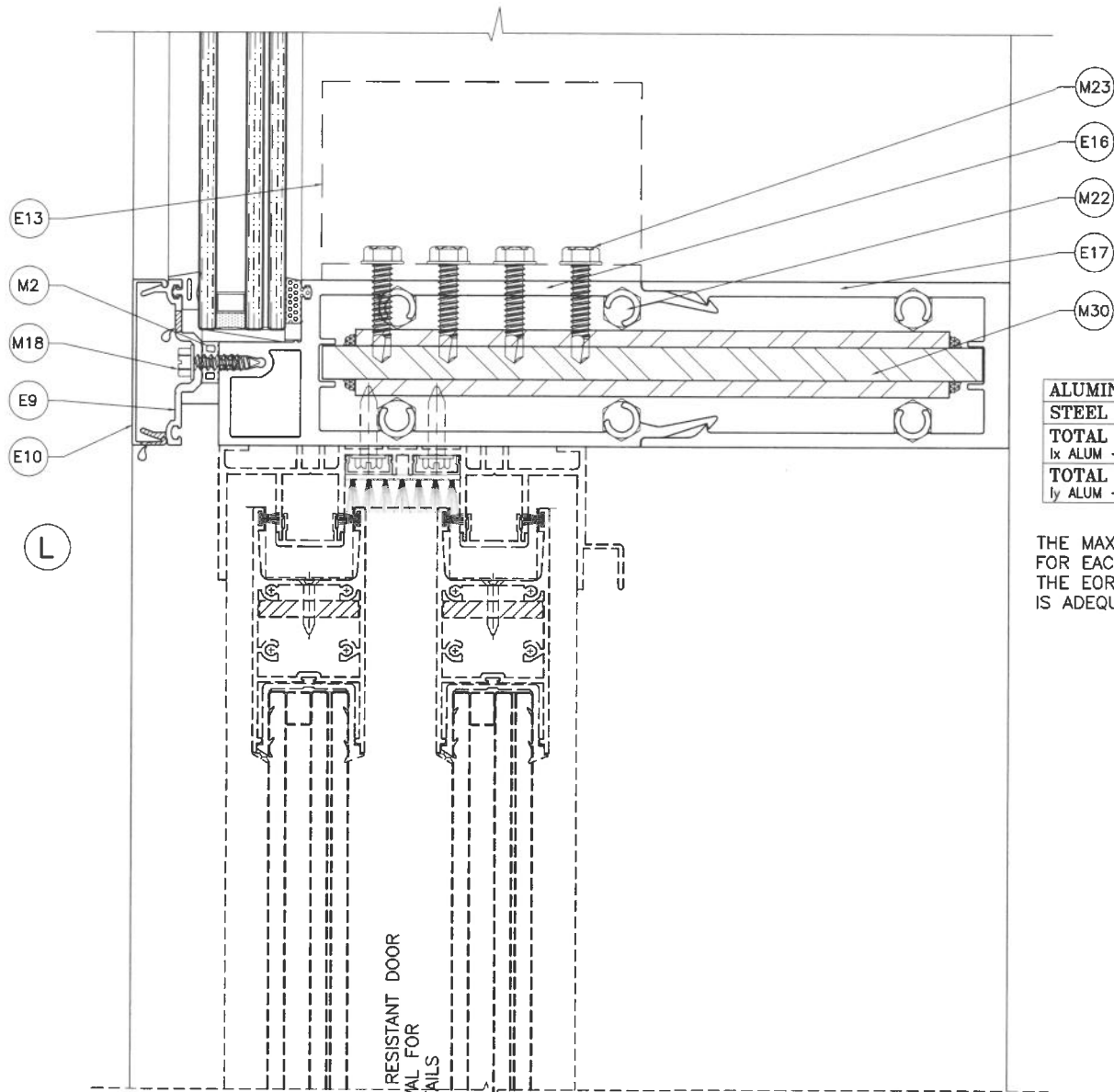
ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)

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revisions:	no	date	by description

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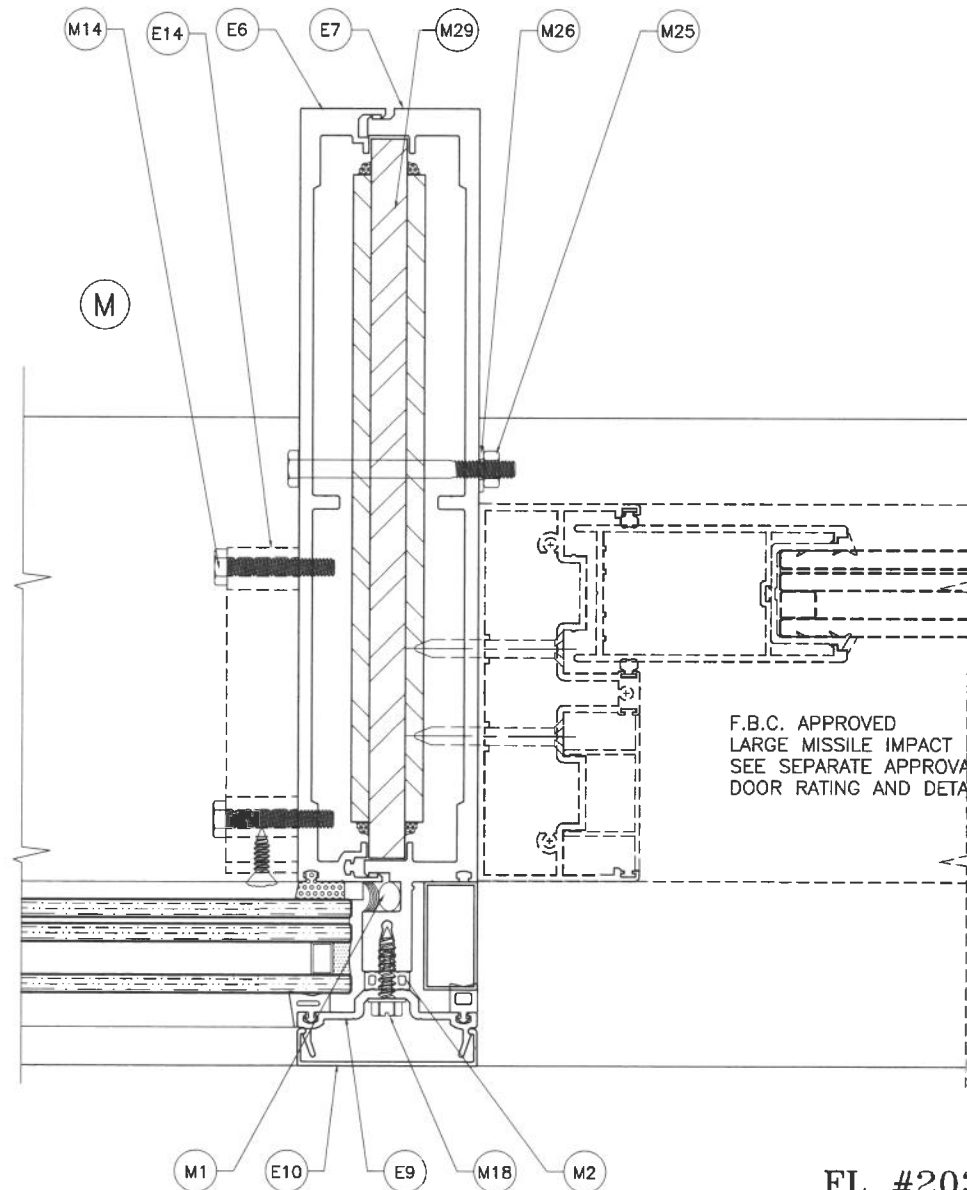
drawing no.
W16-29
 sheet 15 of 28



	$I_x \text{ IN}^4$	$I_y \text{ IN}^4$
ALUMINUM	19.222	3.982
STEEL	72.042	14.408
TOTAL		
$I_x \text{ ALUM} + I_x \text{ STL} \times 2.9$	228.144	
TOTAL		
$I_y \text{ ALUM} + I_y \text{ STL} \times 2.9$		45.765

THE MAXIMUM VERTICAL DEFLECTION MUST BE CHECKED FOR EACH PROJECT.
THE EOR TO DETERMINE IF THE CALCULATED DEFLECTION IS ADEQUATE FOR PROPER OPERATION OF DOOR.

F.B.C. APPROVED
LARGE MISSILE IMPACT RESISTANT DOOR
SEE SEPARATE APPROVAL FOR
DOOR RATING AND DETAILS



F.B.C. APPROVED
LARGE MISSILE IMPACT RESISTANT DOOR
SEE SEPARATE APPROVAL FOR
DOOR RATING AND DETAILS

Sealed: 8/20/2026



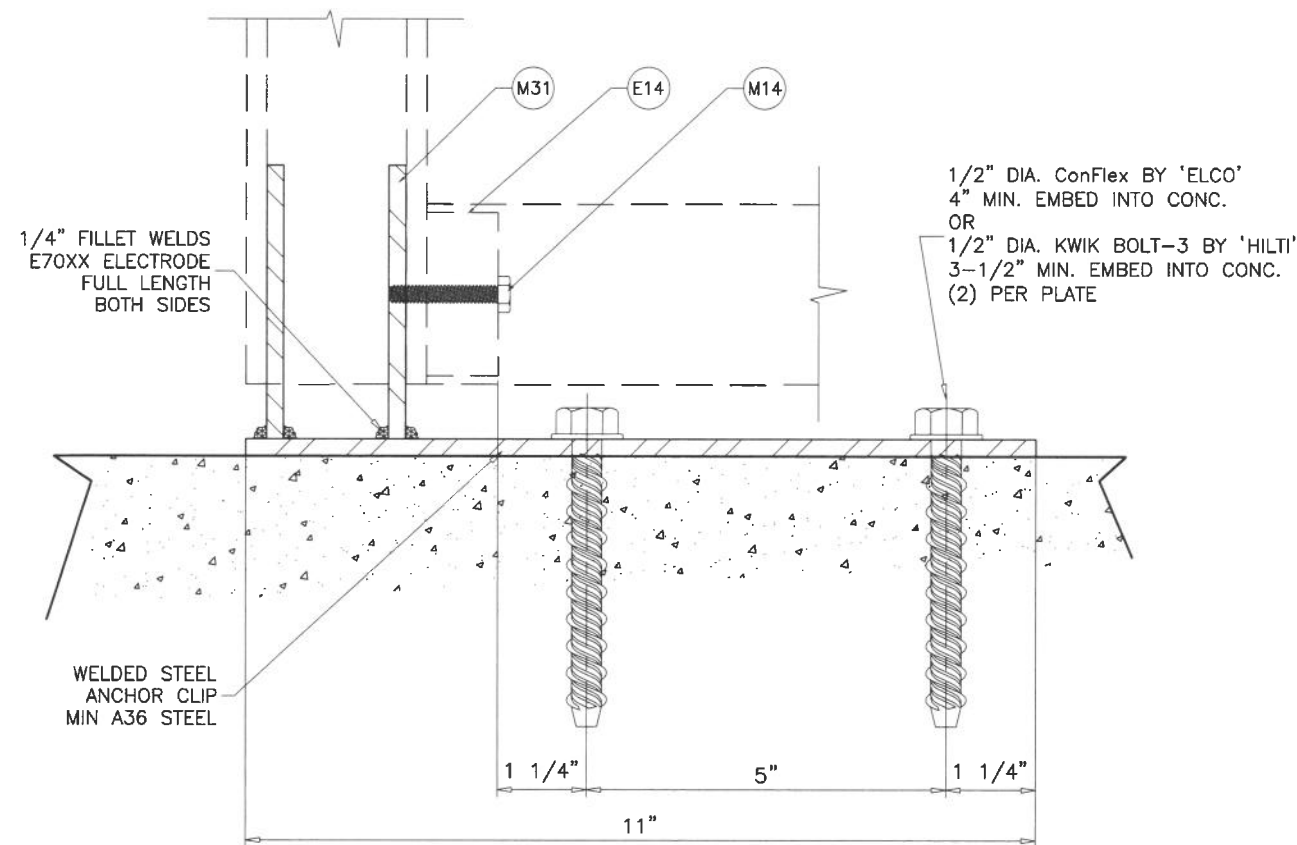
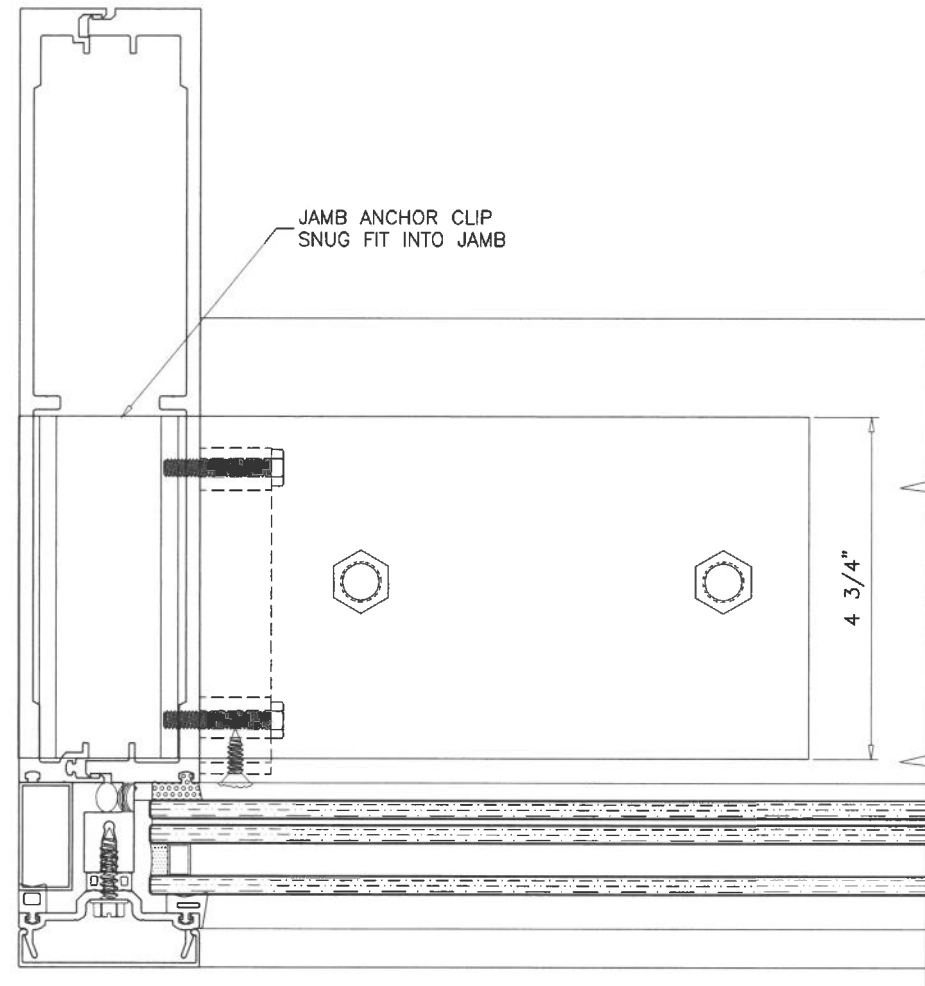
FL #20396

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
TEL. (305) 262-6978 FAX. (305) 262-6978
COMP-ANL\W16-29ESW

ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)

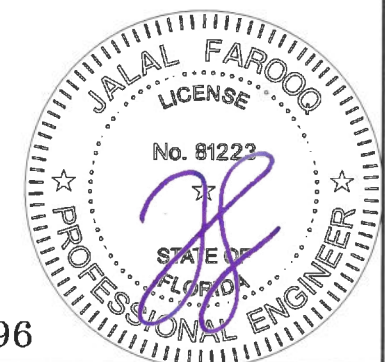
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:	
no	date by description
date:	04-13-16
scale:	3/8" = 1"
dr. by:	TARIQ
chk. by:	
drawing no.	
W16-29	
sheet 17 of 28	



DETAIL 'A' @ HEAD/SILL

Sealed: 8/20/2026



FL #20396

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
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TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:
no date by description

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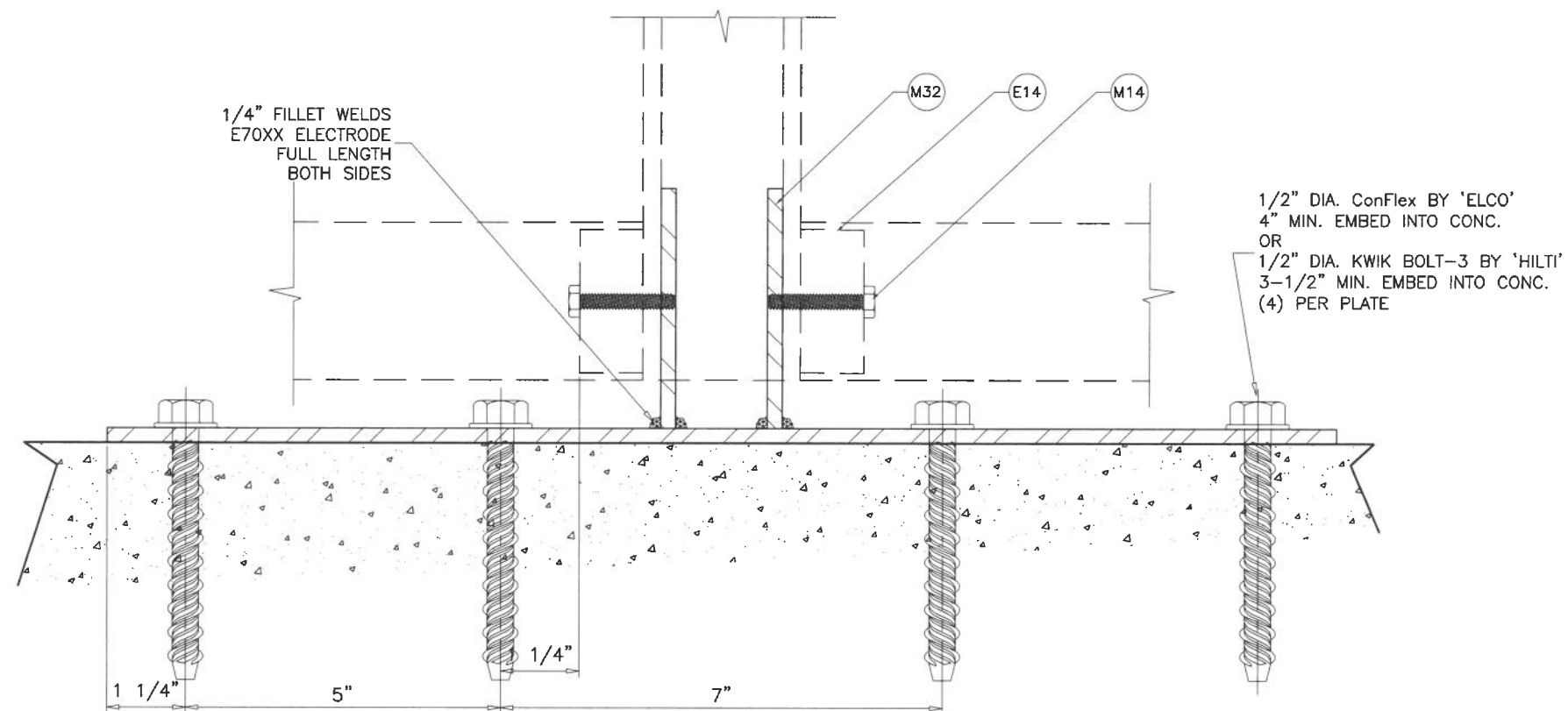
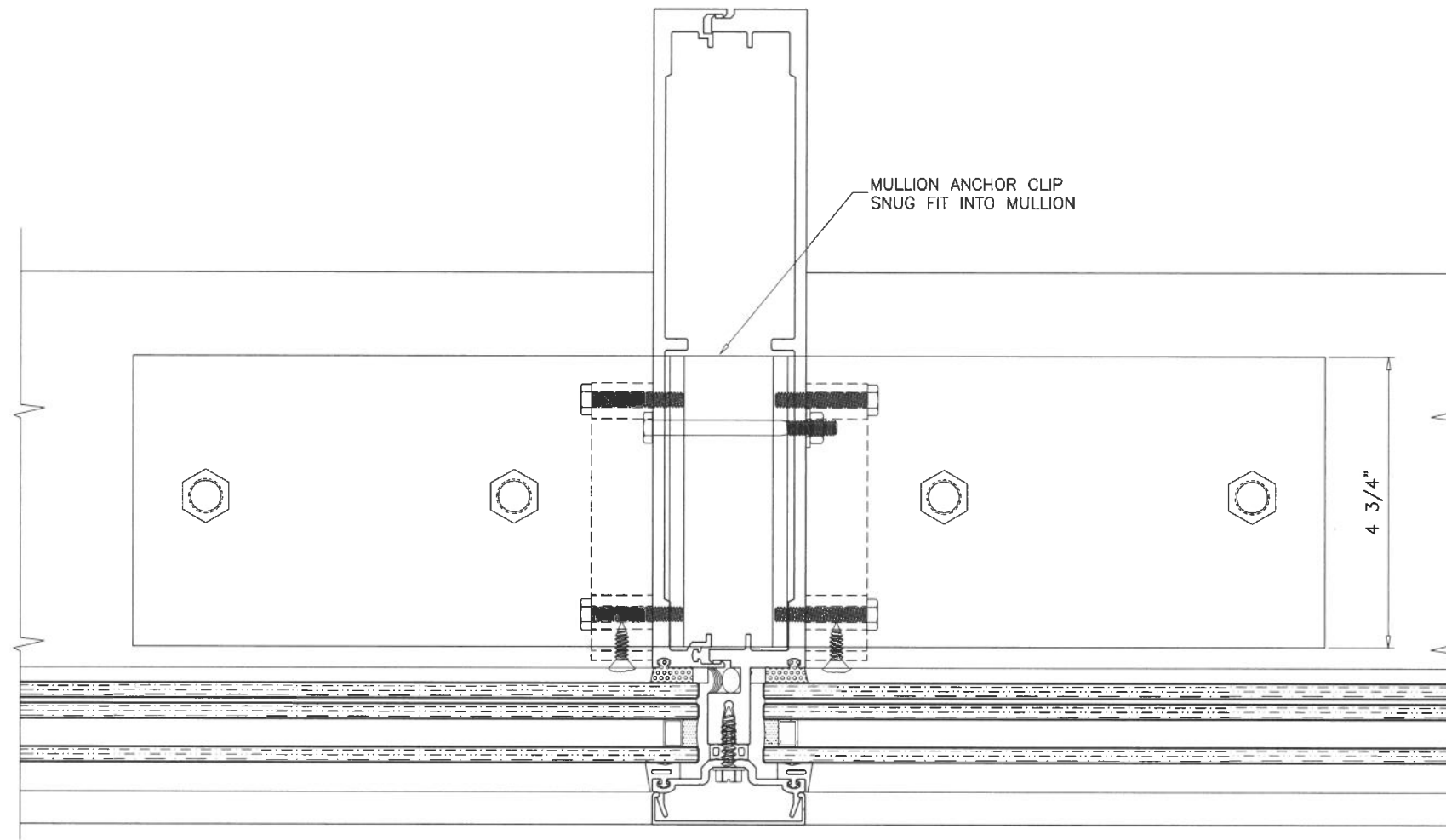
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chk. by:

drawing no.

W16-29

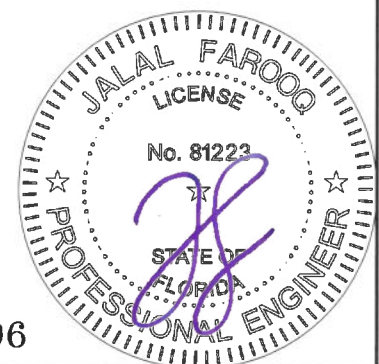
sheet 18 of 28



DETAIL 'C' @ HEAD/SILL

Sealed: 8/20/2026

FL #20396



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\W16-29ESW

ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)

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 MIAMI, FL. 33142
 TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:
 no date by description

date: 04-13-16

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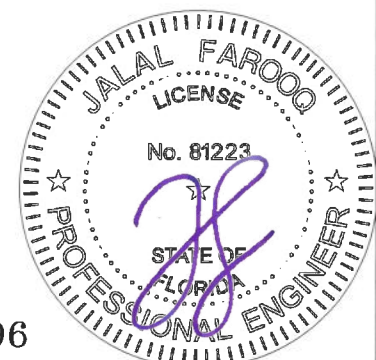
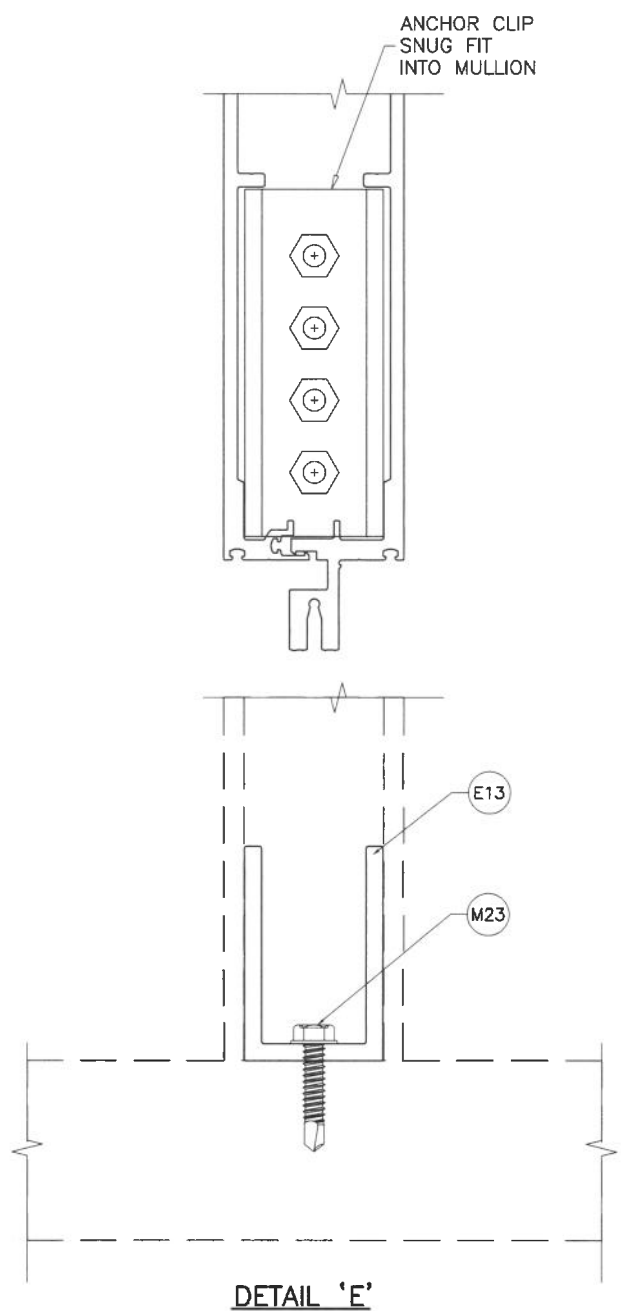
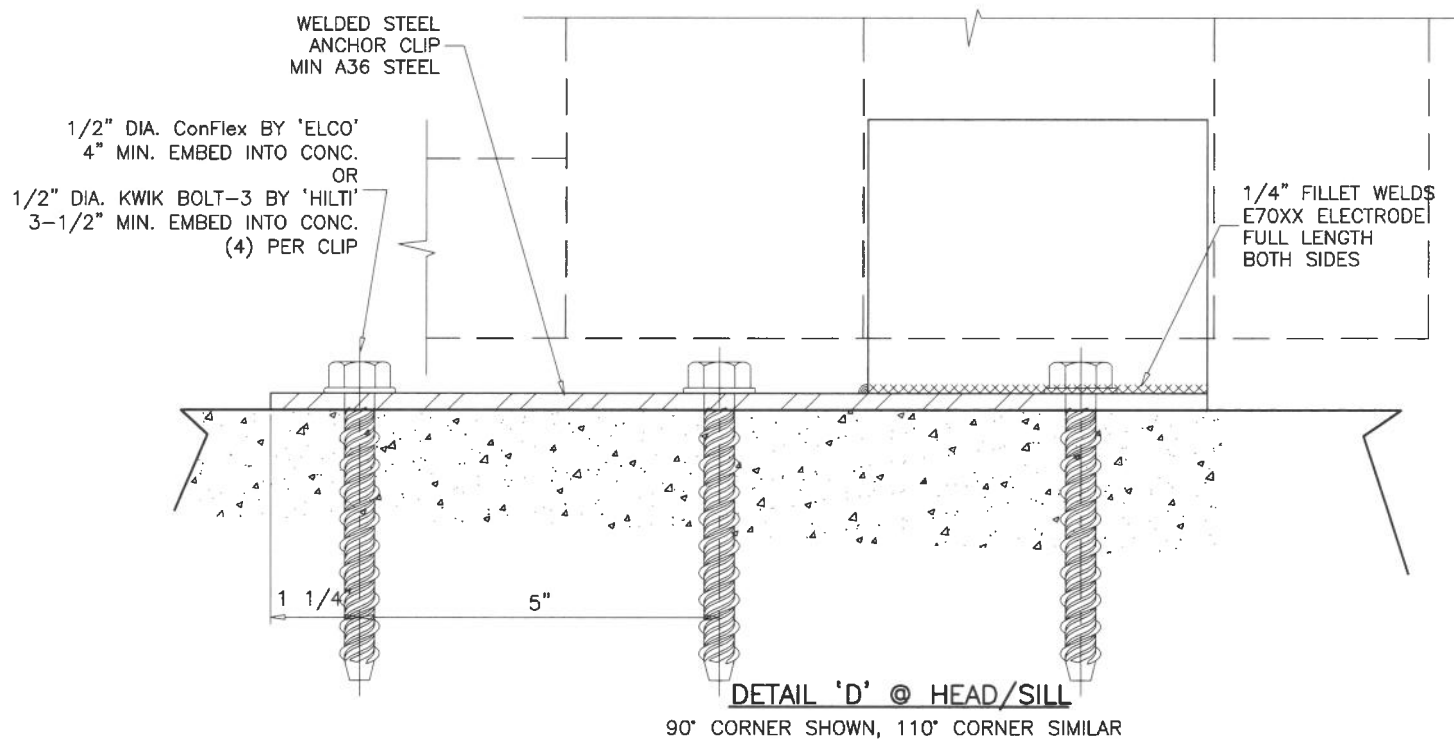
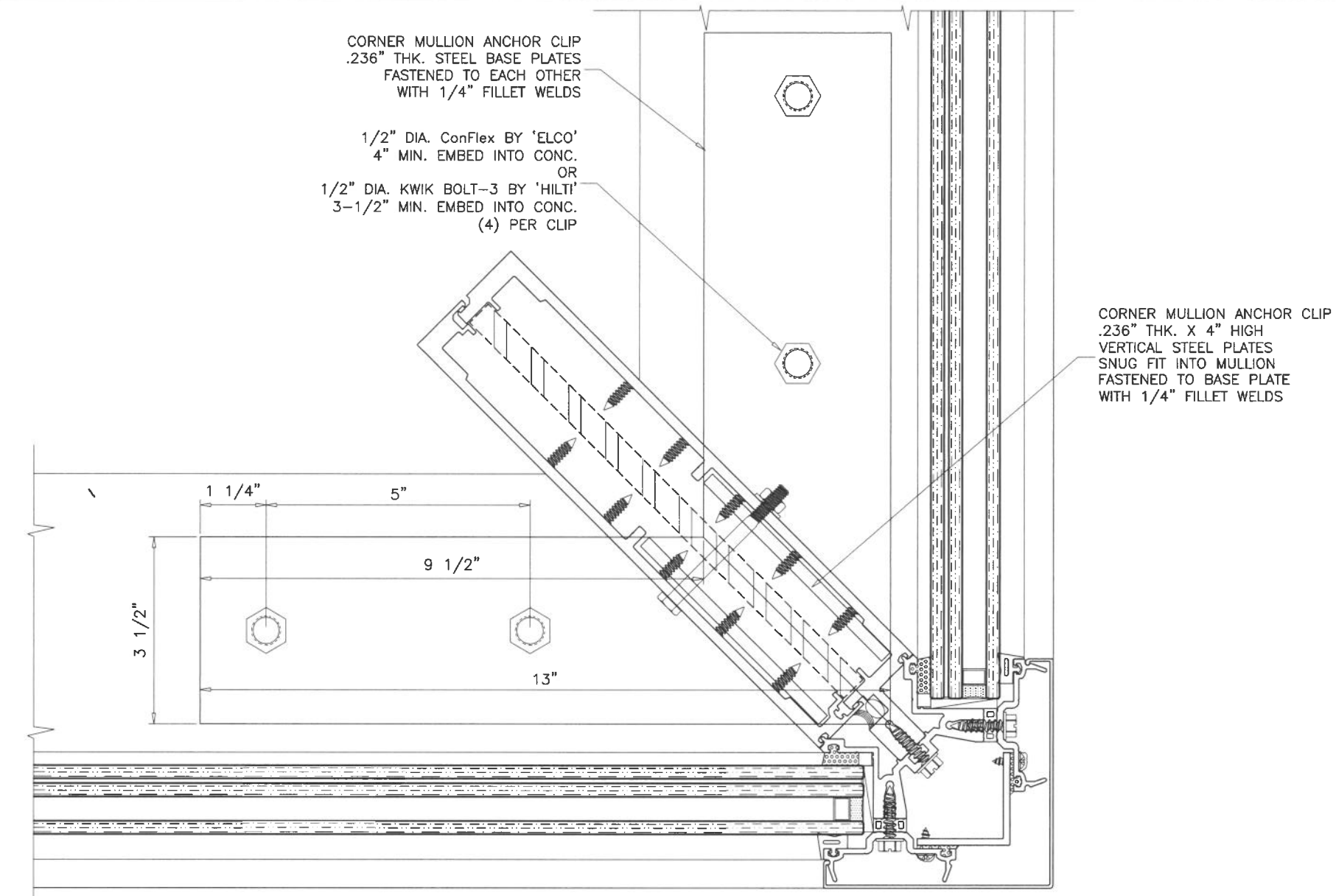
dr. by: TARIQ

chk. by:

drawing no.

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FL #20396

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ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978
COMP-ANL\W16-29ESW

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

revisions:	
no	date by description

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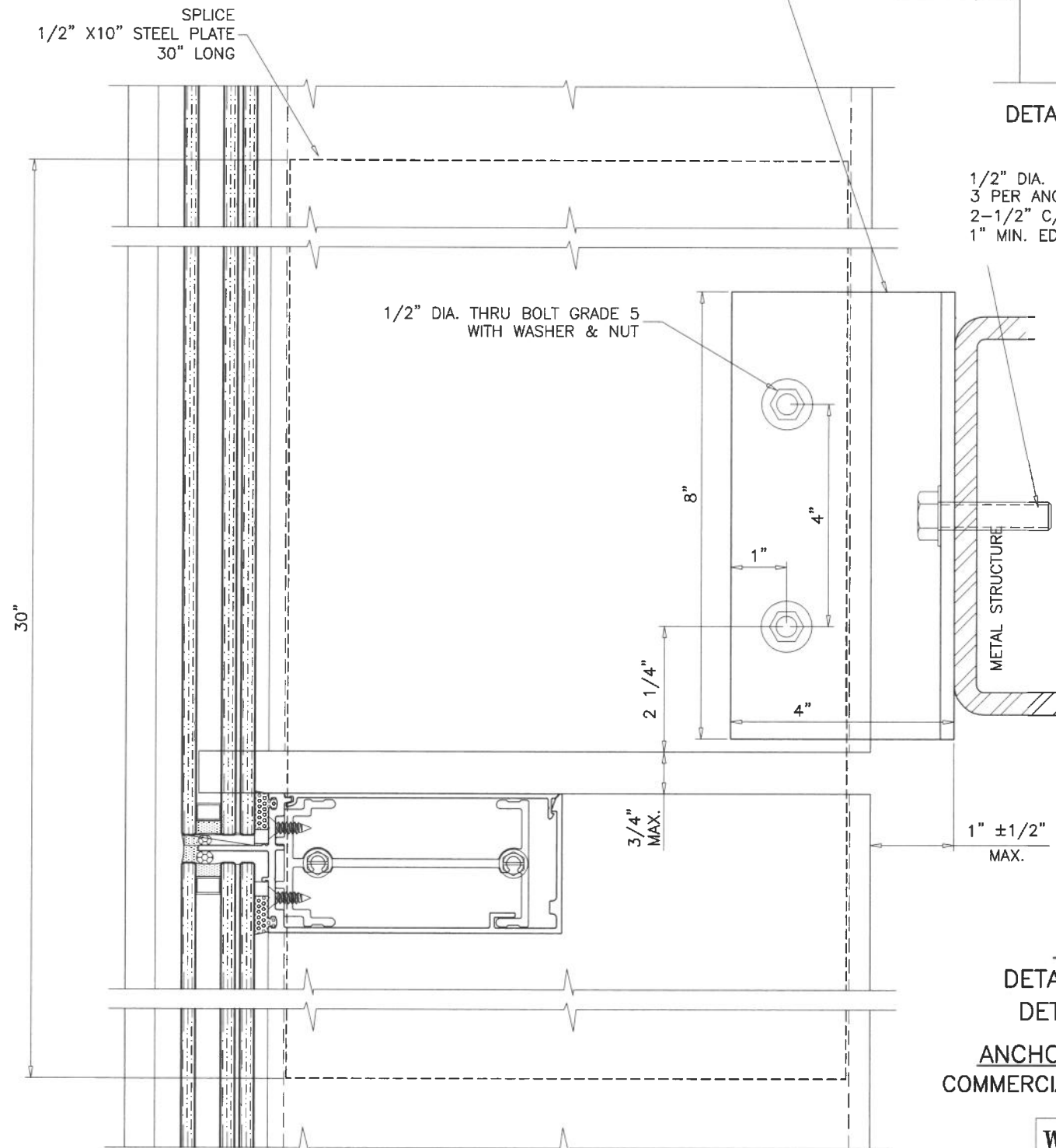
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drawing no.
W16-29

sheet 21 of 28

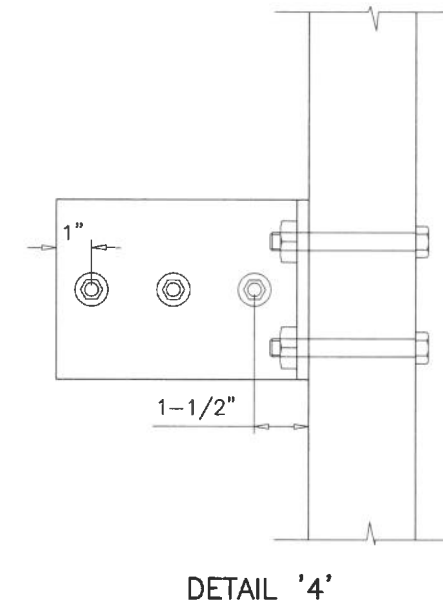
MAX. DESIGN LOAD = 95.0 PSF



INTERMEDIATE ANCHORS
DETAIL '3' AT CENTER MULLION
DETAIL '4' AT JAMB MULLION
ANCHORS INTO METAL STRUCTURES
COMMERCIAL STEEL — 1/4" MIN. THICKNESS

WIND + DEAD LOAD ANCHOR

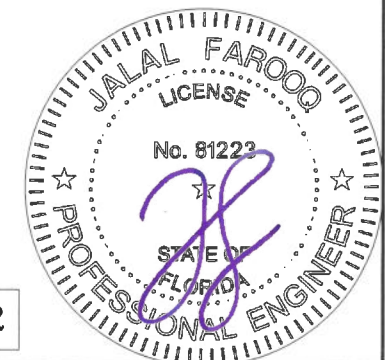
INTERMEDIATE ANCHORS AT JAMB



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ALL ANGLES AND PLATES
TO BE A-36 STEEL
 $F_u = 58$ KSI MIN.

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ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)

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revisions:	no	date	by	description

date: 04-13-16

scale: $3/8" = 1"$

chk. by: JARIQ

drawing no.

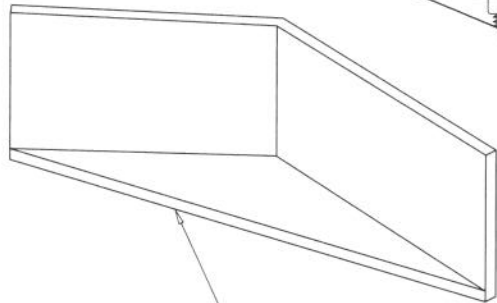
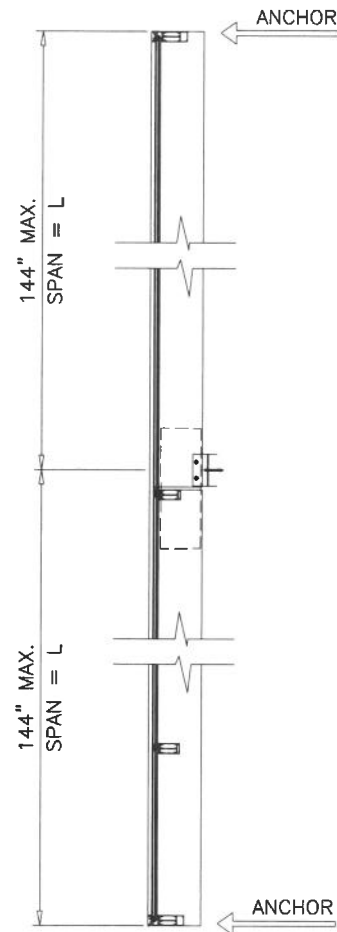
W16-29

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MAX. DESIGN LOAD -PSF DUE TO ANCHOR CAPACITY EXT.(+) & INT.(-)		
NOMINAL DIMS.		1/2" DIA. KWIK BOLT
WIDTH (W)	SPAN = L	
30"	120"	95.0
36"		95.0
42"		95.0
48"		86.4
53"		74.4
54-1/4"		71.7
30"	132"	95.0
36"		95.0
42"		91.4
48"		74.8
53"		63.8
54-1/4"		61.4
30"	144"	95.0
36"		95.0
42"		80.3
48"		65.1
53"		55.0
54-1/4"		52.8

NOTE:
FOR SLABS LESS THAN 8 INCHES IN THICKNESS
ANCHORS TO BE DESIGNED ON JOB TO JOB BASIS.
THE DESIGN TO BE REVIEWED BY AUTHORITY HAVING
JURISDICTION.

LOADS SHOWN IN CHART ABOVE APPLY
TO EQUAL SPAN CONDITIONS.
UNEQUAL SPANS TO BE CHECKED ON
JOB TO JOB BASIS.



3/8" THK. GUSSET PLATE
ATTACHED TO BENT PLATE
W/ 5/16" X 1" WELDS AT 2" O.C.
BOTH SIDES

9 X 9 X 3/8"
STEEL BENT PLATE, 5" LONG
AT EACH SIDE OF MULLION

1/2" DIA. KWIK BOLT-3 EXPANSION ANCHOR
2 PER PLATE
4-3/4" MIN. EMBED
5" C/C SPACING
4" MIN. EDGE DIST.

CONCRETE
4000 PSI MIN.

5"

(2) 1/2" DIA. THRU BOLT GRADE 5
WITH WASHER & NUT
3" C/C SPACING

INTERMEDIATE ANCHORS INTO CORNER MULLION
ANCHORS INTO CONCRETE

WIND + DEAD LOAD ANCHOR

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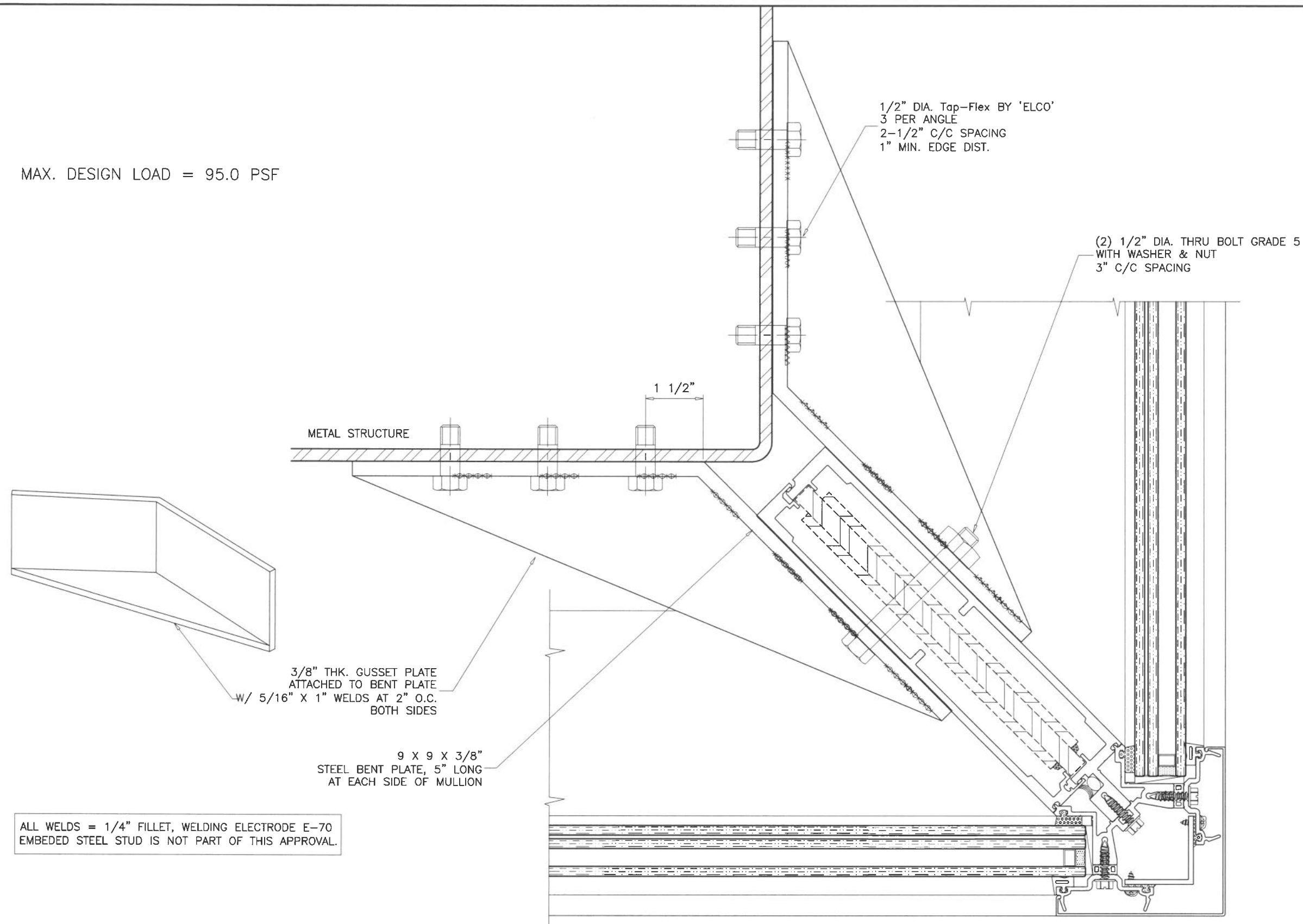


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no	description	no	date	no	description
04-13-16	scale: 3/8" = 1"				
	dr. by: TARIQ				
	chk. by:				
drawing no.		W16-29		sheet 24 of 28	

MAX. DESIGN LOAD = 95.0 PSF



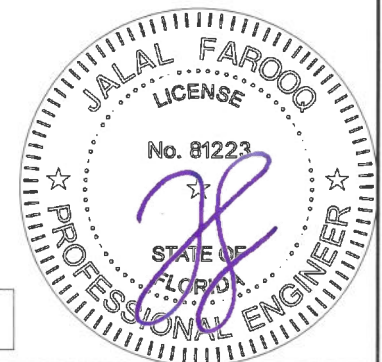
ALL WELDS = 1/4" FILLET, WELDING ELECTRODE E-70
EMBEDDED STEEL STUD IS NOT PART OF THIS APPROVAL.

INTERMEDIATE ANCHORS AT CORNER MULLION
ANCHORS INTO METAL STRUCTURES
COMMERCIAL STEEL - 1/4" MIN. THICKNESS

WIND + DEAD LOAD ANCHOR

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FL #20396



ES-CS1325 ALUMINUM CURTAIN WALL SYSTEM (L.M.I.)

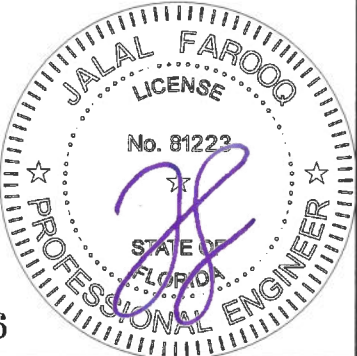
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04-13-16		3/8"	1"	dr. by: TARIQ	chk. by:
drawing no.		W16-29		sheet 25 of 28	

ITEM NO.	PART NUMBER	QUANTITY	DESCRIPTION	MATERIAL	MANF./SUPPLIER/REMARKS
E1	ES-7525-003	AS REQD.	HORIZONTAL MULLION	6063-T6	-
E2	ES-CS1325-002	AS REQD.	HORIZONTAL MULLION	6063-T6	-
E3	ES-CS1325-001	AS REQD.	HORIZONTAL MULLION	6063-T6	-
E4	ES-7525-005	AS REQD.	INTERIOR SNAP COVER	6063-T5	-
E5	ES-CS1325-052	AS REQD.	INTERIOR SNAP COVER	6063-T5	-
E6	ES-CS1325-004	AS REQD.	FEMALE MULLION	6005-T5	-
E7	ES-CS1325-005	AS REQD.	MALE MULLION	6005-T5	-
E7A	ES-CS1325-008	AS REQD.	MALE MULLION (SSG)	6005-T5	-
E8	ES-CS1325-401	AS REQD.	LOUVER	6063-T5	-
E9	ES-6025-008	AS REQD.	PRESSURE PLATE (INSUL. LAM. GLASS)	6063-T5	-
E9A	ES-6025-025	AS REQD.	PRESSURE PLATE (LAM. GLASS)	6063-T5	-
E9B	ES-6025-024	AS REQD.	PRESSURE PLATE (LAM. GLASS)	6063-T5	-
E10	ES-6025-009	AS REQD.	STANDARD COVER	6063-T5	-
E11	ES-6025-015	AS REQD.	90° CORNER ADAPTER	6063-T6	-
E11A	ES-CS1325-012	AS REQD.	110° CORNER ADAPTER	6063-T6	-
E12	ES-CS1325-051	AS REQD.	90° CORNER COVER	6063-T5	-
E12A	ES-CS1325-053	AS REQD.	110° CORNER COVER	6063-T5	-
E13	ES-CS1325-402	AS REQD.	ANCHOR CLIP	6005-T5	-
E14	ES-7525-006	AS REQD.	SHEAR BLOCK	6005-T5	-
E15	ALU-A-027	AS REQD.	90° CORNER MULLION ANGLE	-	-
E15A	ES-CS1325-013	AS REQD.	110° CORNER MULLION PRESSURE PLATE	-	-
E15.1	-	AS REQD.	LOUVER INSTALLATION ANGLE 2" X 1/8"	-	-
E16	ES-CS1325-006	AS REQD.	FRONT HORIZONTAL SNAP	6005-T5	-
E17	ES-CS1325-007	AS REQD.	BACK HORIZONTAL SNAP	6005-T5	-
E18	ES-CF-001	AS REQD.	FIRE WALL	-	-
E19	ES-T-097	AS REQD.	POCKET FILLER	6063-T6	-
E19A	ES-6025-013	AS REQD.	POCKET FILLER (LAM. GLASS)	6063-T5	-
E20	AAC-A-1356	AS REQD.	LOUVER SIDE ANGLE	6063-T6	-
E21	AAC-PL-051	AS REQD.	PLATE 3" X 1/8"	6063-T6	-
M1	ES-6025-G01A	AS REQD.	EXTERIOR GLAZING GASKET (INSUL. LAM. GLASS)	SILICONE	DUROMETER 70±5 SHORE A
M1A	ES-6025-G06	AS REQD.	EXTERIOR GLAZING GASKET (LAM. GLASS)	SILICONE	DUROMETER 70±5 SHORE A
M2	ES-6025-G02	AS REQD.	ISOLATOR	EPDM	DUROMETER 60±5 SHORE A
M3	ES-6025-G04	AS REQD.	SPACER	EPDM	DUROMETER 70±5 SHORE A
M3A	1/8 X 1/4	AS REQD.	SPACER	EPDM	DUROMETER 70±5 SHORE A
M4	ES-4520-B02A	AS REQD.	SETTING BLOCK (INSUL. LAM. GLASS)	SILICONE	DUROMETER 80±5 SHORE A
M4A	ES-4520-B05	AS REQD.	SETTING BLOCK (LAM. GLASS)	SILICONE	DUROMETER 80±5 SHORE A
M5	80-356	AS REQD.	SETTING BLOCK	EPDM	DUROMETER 75±5 SHORE A
M6	ES-6025-809	AS REQD.	END PLUG	FOAM	-
M7	ES-6025-C02	AS REQD.	MULLION END CAP	ALUMINUM	-
M8	ES-CS1325-C01	AS REQD.	CORNER MULLION END CAP	ALUMINUM	-
M9	-	AS REQD.	1/2" CLOSED CELL FOAM BACKER ROD	POLYETHYLENE	-
M10	-	AS REQD.	1/4" CLOSED CELL FOAM BACKER ROD	POLYETHYLENE	-
M11	-	AS REQD.	3/8" CLOSED CELL FOAM BACKER ROD	POLYETHYLENE	-
M12	-	AS REQD.	3/4" CLOSED CELL FOAM BACKER ROD	POLYETHYLENE	-
M13	-	AS REQD.	1/4" X 1/4" GLASS SPACER	-	-
M14	1/4-20 X 1-1/2"	AS REQD.	SHEAR BLOCK FASTENERS	ST. STEEL	-
M15	#14 X 1"	AS REQD.	SHEAR BLOCK CORNER FASTENERS	ST. STEEL	PH SMS
M16	#14 X 3/4"	AS REQD.	SHEAR BLOCK FASTENERS	ST. STEEL	FH SMS
M17	#14 X 1/2"	AS REQD.	SHEAR BLOCK CORNER FASTENERS	ST. STEEL	FH SMS
M18	1/4" X 1"	AS REQD.	LOUVER, PRESSURE PLATE & CORNER ADAPTER FASTENERS, AT 16" O.C.	ST. STEEL	-
M19	#10 X 3/4"	AS REQD.	LOUVER FASTENERS, AT 16" O.C.	ST. STEEL	FH SMS
M20	#8 X 1/2"	AS REQD.	CORNER ADAPTER AND END CAP FASTENERS	ST. STEEL	PH SMS
M21	#8 X 1/2"	AS REQD.	FIRE WALL FASTENERS	ST. STEEL	FH SMS
M22	3/8-16 X 1-1/2"	AS REQD.	HORIZONTAL SNAP FASTENERS	ST. STEEL	MACHINE SCREW
M23	5/16" X 1-1/2"	4/ CLIP	ANCHOR CLIP FASTENERS	ST. STEEL	HH TEKS
M24	1/4" X 3"	AS REQD.	MULLION REINF. FASTENER	ST. STEEL	-
M25	1/4"-20	AS REQD.	MULLION REINF. FASTENER	ST. STEEL	-
M26	-	AS REQD.	1/4" WASHER, AT MULLION REINF. FASTENER	ST. STEEL	-
M27	-	AS REQD.	3/8" WASHER, AT HORIZONTAL SNAP FASTENER	ST. STEEL	-
M28	-	AS REQD.	1/2" X 10" REINF. BAR, LENGTH = FRAME HEIGHT - 48" (A36, Fu MIN. = 58 KSI)	STEEL	-
M29	-	AS REQD.	(1) 1/2" X 10" + (2) 1/4" X 9" REINF. BARS, FULL LENGTH (A36, Fu MIN. = 58 KSI)	STEEL	1/4" BARS WELDED TO EACH SIDE OF 1/2' BAR
M30	-	AS REQD.	(1) 1/2" X 10" + (2) 1/4" X 9" REINF. BARS, FULL LENGTH (A36, Fu MIN. = 58 KSI)	STEEL	1/4" BARS WELDED TO EACH SIDE OF 1/2' BAR
M31	-	AS REQD.	JAMB ANCHOR CLIP	STEEL	-
M32	-	AS REQD.	MULLION ANCHOR CLIP	STEEL	-
M33	ES-6025-B10	AS REQD.	JOINT PLUG	FOAM	-
M34	ES-6025-G06	AS REQD.	EXTERIOR GASKET	EPDM	DUROMETER 70±5 SHORE A

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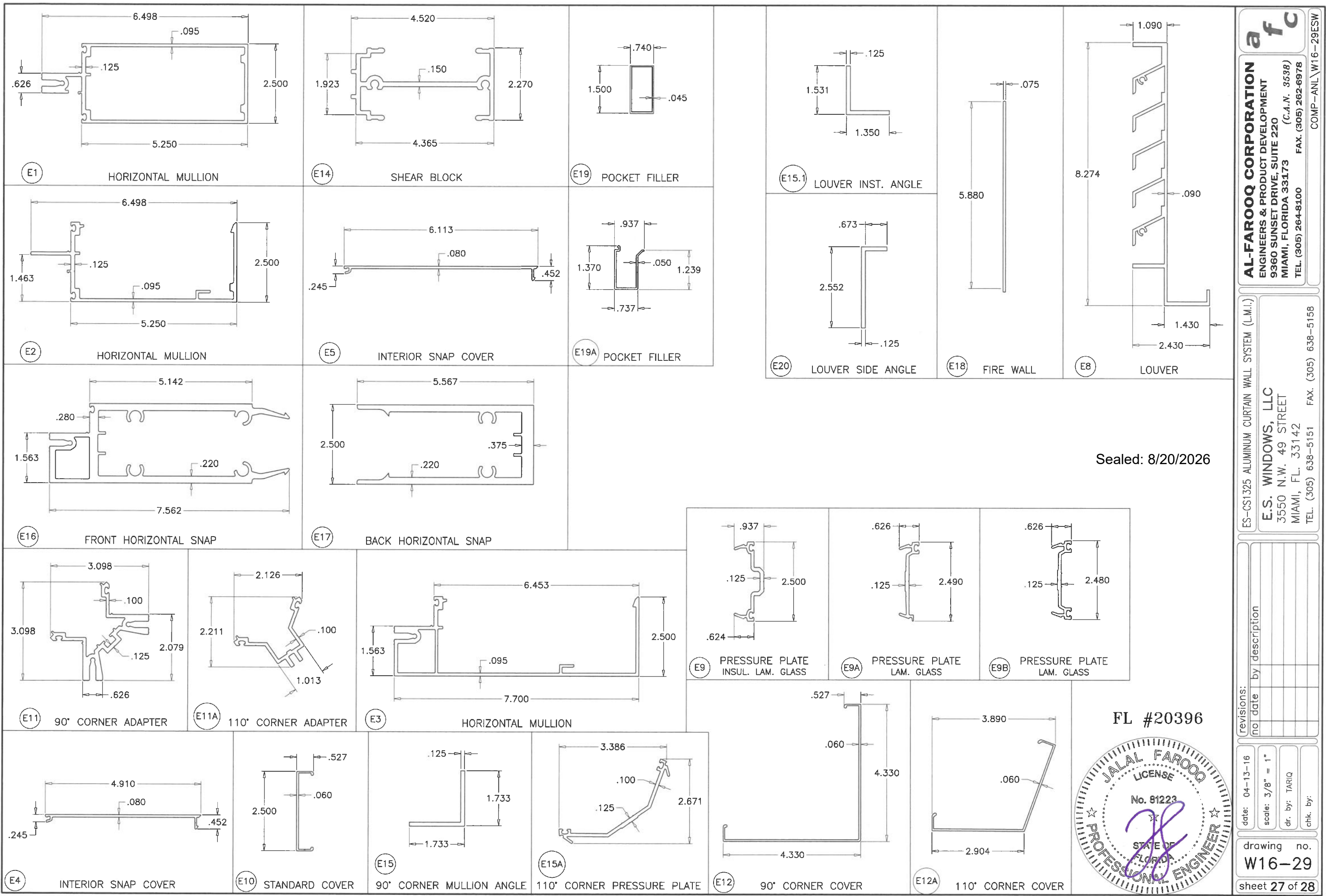
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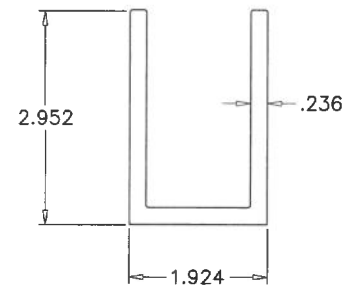
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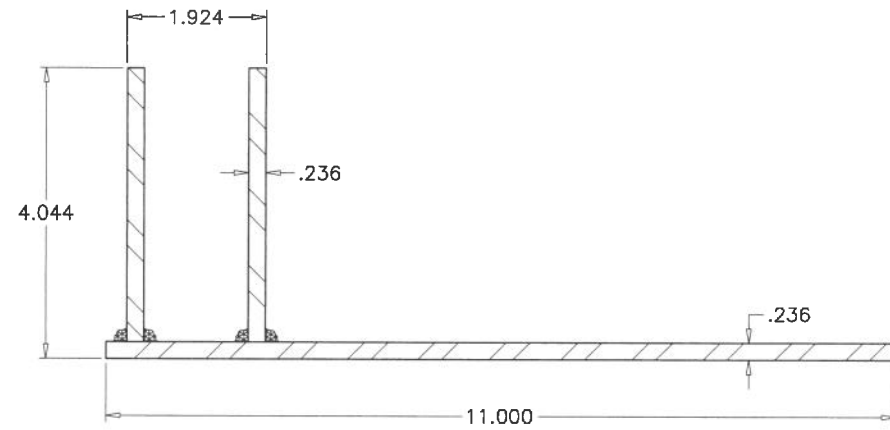
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JALAL FAROOQ
LICENSE
No. 81223
STATE OF FLORIDA
PROFESSIONAL ENGINEER

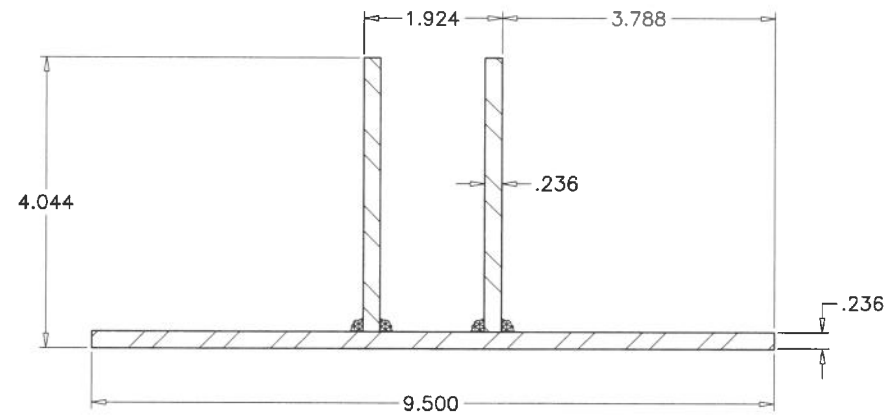
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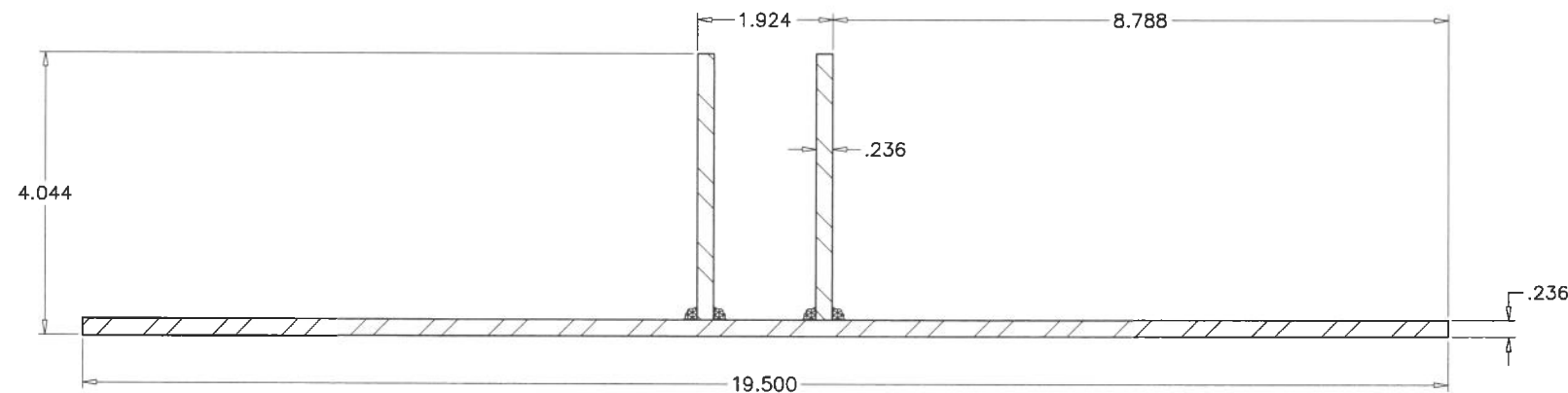
(E13) MULLION CLIP AT HORIZONTAL



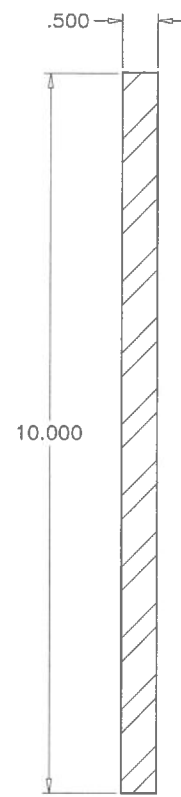
(M31) JAMB ANCHOR CLIP



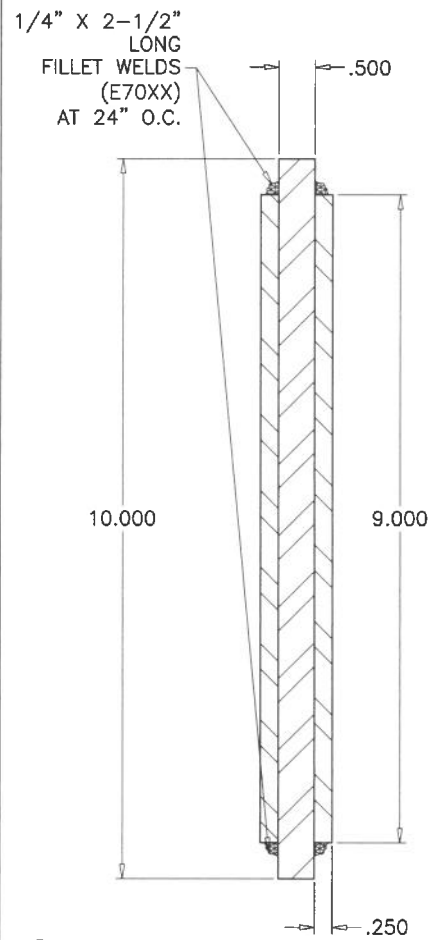
MULLION ANCHOR CLIP



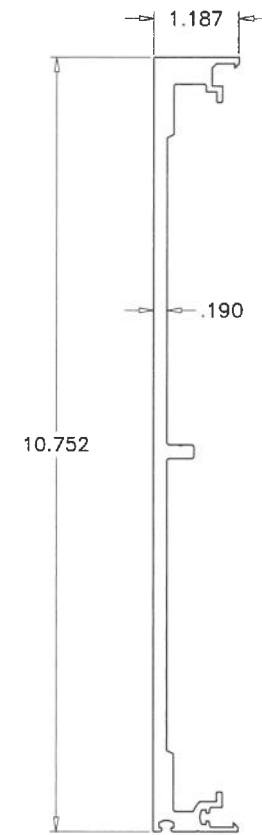
(M32) MULLION ANCHOR CLIP



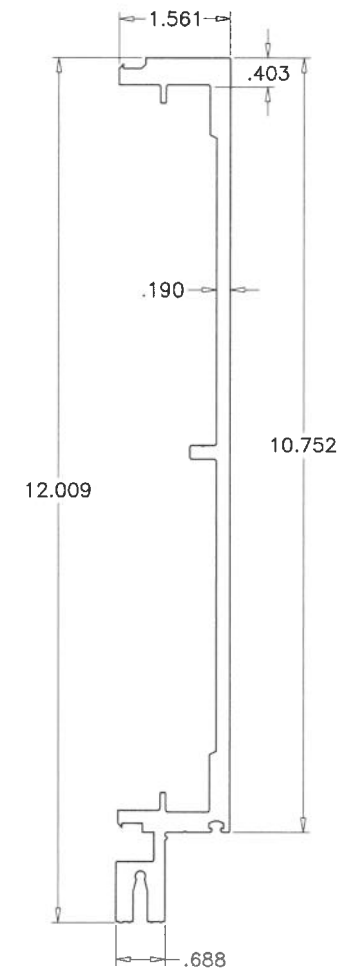
(M28) REINFORCEMENT



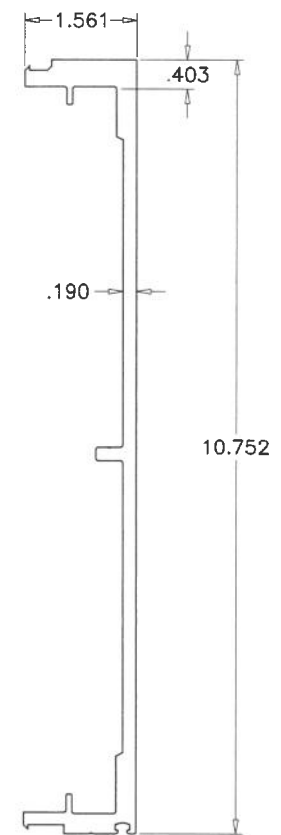
(M29) REINFORCEMENT



(E6) FEMALE MULLION



(E7) MALE MULLION



(E7A) MALE MULLION SSG

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