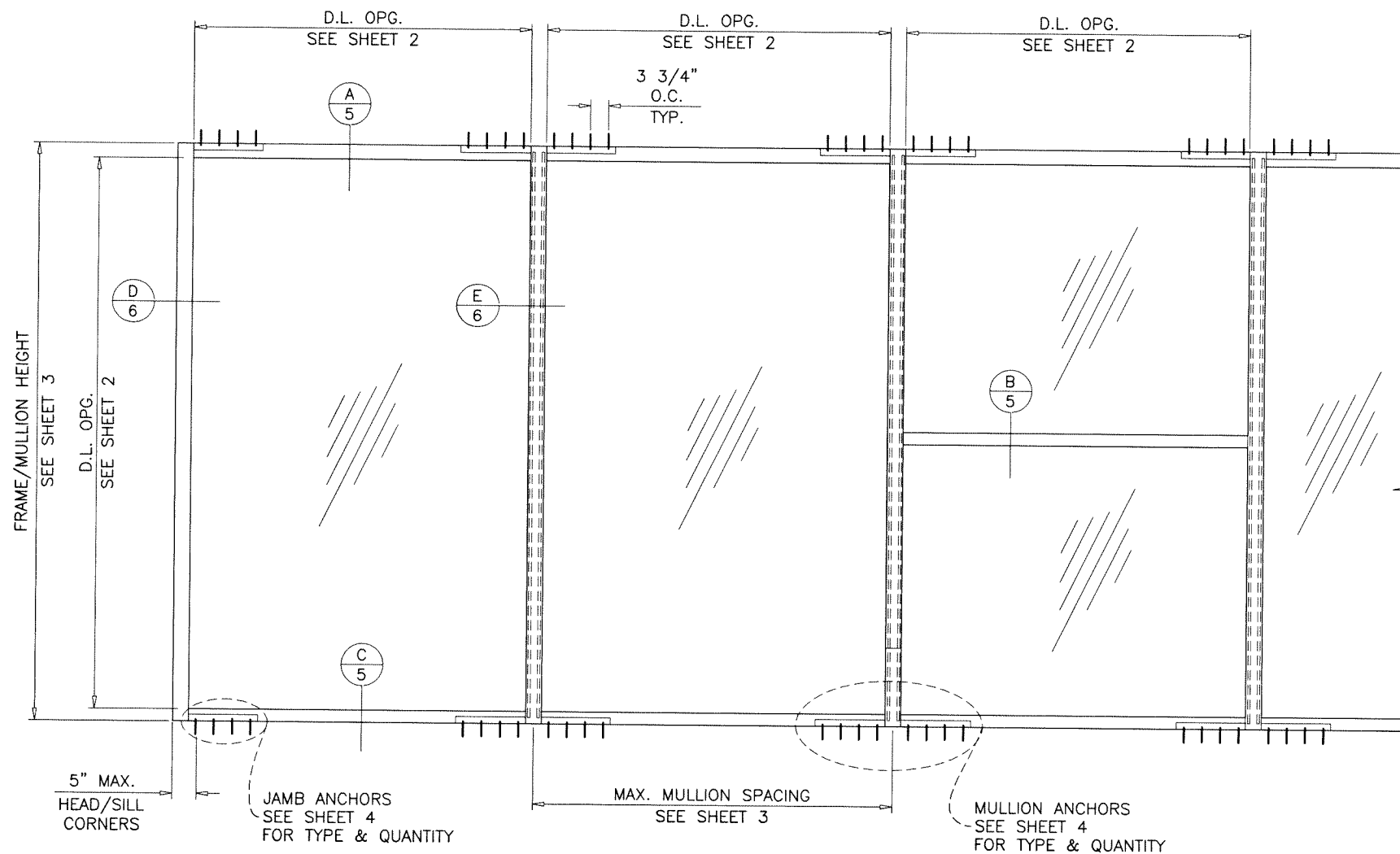
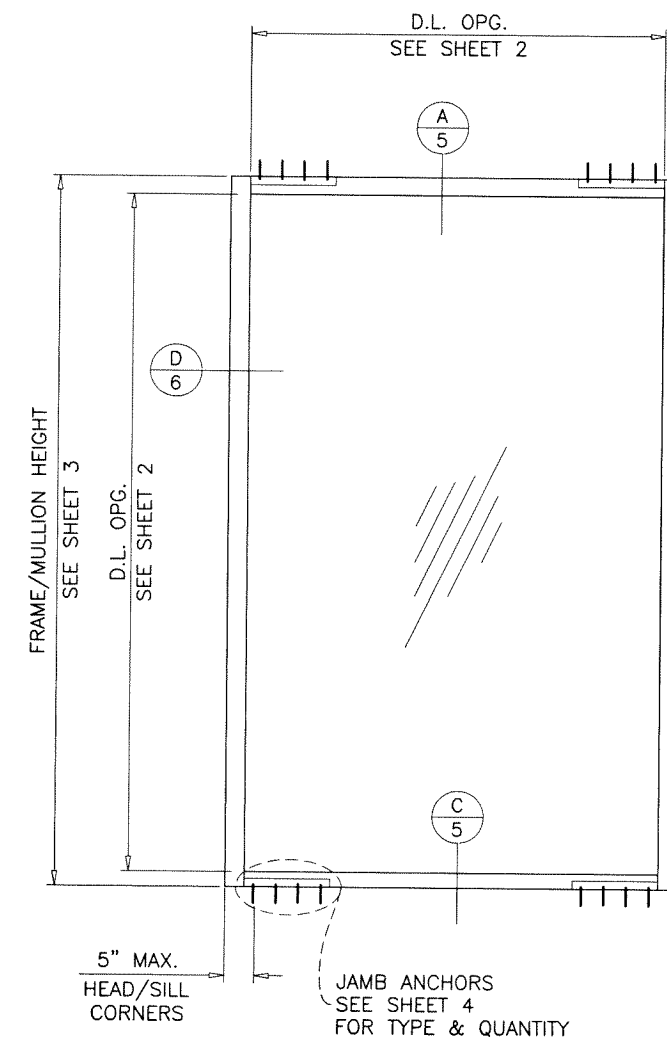




TYPICAL ELEVATIONS



ES-7100-FIN ALUMINUM WINDOW WALL SYSTEM

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

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 2020/2023 FLORIDA BLDG. CODE & ADOPTED STANDARDS.

THIS PRODUCT APPROVAL IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT, I.E. LIFE SAFETY OF THIS PRODUCT, ADEQUACY OF STRUCTURE RECEIVING THIS PRODUCT AND SEALING AROUND OPENING FOR WATER INFILTRATION RESISTANCE ETC.

CONDITIONS NOT SHOWN IN THIS DRAWING ARE TO BE ANALYZED SEPARATELY, AND TO BE REVIEWED BY BUILDING OFFICIAL.

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

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

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 2 FOR GLASS DESIGN LOAD CAPACITY.
- STEP 3** CHECK MULLION DESIGN LOAD CAPACITY FOR A GIVEN SPACING AND HEIGHT USING CHARTS ON SHEET 3 THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.
- STEP 4** USING CHARTS ON SHEET 4 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 6, DETERMINE THE MIN. & MAX. GAP DIMENSIONS.

THIS SYSTEM IS RATED FOR SMALL MISSILE IMPACT.
F.B.C. APPROVED IMPACT RESISTANT SHUTTERS
REQUIRED FOR INSTALLATIONS UP TO 30 FT. OF GRADE.
SHUTTERS NOT REQD. FOR INSTALLATIONS ABOVE 30 FT. OF GRADE.

PRODUCT COMPLIES WITH REQUIREMENTS OF ANSI Z97.1.

LAMINATED GLASS
SMALL MISSILE IMPACT

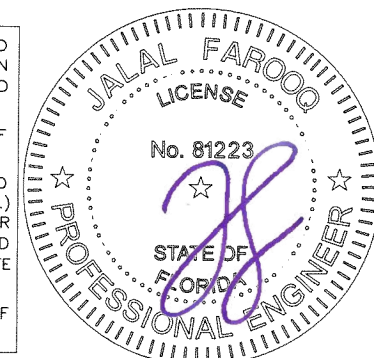
Sealed: 8/17/2023 FL #22244

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.



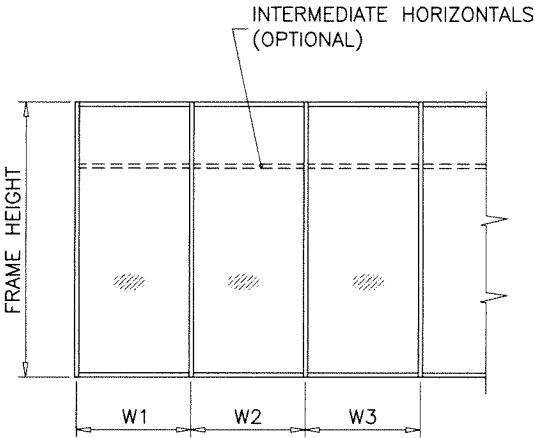
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AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3538)
TEL. (305) 264-8100 FAX. (305) 262-6978
WWW.AFCENG.COM

ES-7100-FIN ALUM WINDOW WALL SYSTEM (S.M.I.)

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

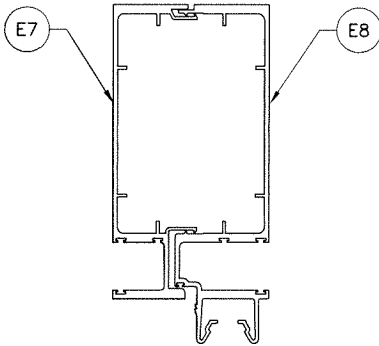
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dr. by:	TARIQ			
chk. by:				
drawing no.	21-69F			
sheet	1 of 9			

MULLION DESIGN LOAD CAPACITY - PSF			
WITH OR WITHOUT INTERMEDIATE HORIZONTALS			
NOMINAL DIMS.		JAMB 'J1' MULL 'M1'	
WIDTH (W)	FRAME HEIGHT	EXT. (+)	INT. (-)
36"	96"	107.0	107.0
42"		107.0	107.0
48"		107.0	107.0
54"		107.0	107.0
60"		107.0	107.0
66"		107.0	107.0
72-3/8"		107.0	107.0
36"	102"	107.0	107.0
42"		107.0	107.0
48"		107.0	107.0
54"		107.0	107.0
60"		107.0	107.0
66"		107.0	107.0
72-3/8"		107.0	107.0
36"	108"	107.0	107.0
42"		107.0	107.0
48"		107.0	107.0
54"		107.0	107.0
60"		107.0	107.0
66"		107.0	107.0
72-3/8"		107.0	107.0
36"	114"	107.0	107.0
42"		107.0	107.0
48"		107.0	107.0
54"		107.0	107.0
60"		107.0	107.0
66"		107.0	107.0
72-3/8"		107.0	107.0
36"	118"	107.0	107.0
42"		107.0	107.0
48"		107.0	107.0
54"		107.0	107.0
60"		107.0	107.0
66"		107.0	107.0
72-3/8"		107.0	107.0



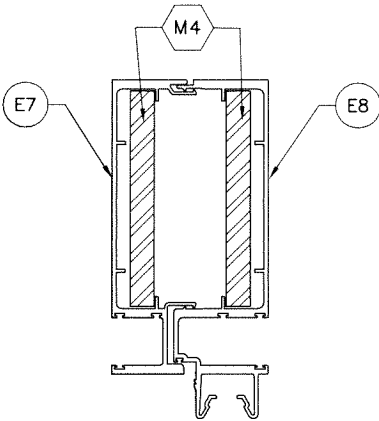
WIDTH (W) = W1
AT JAMB

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



JAMB 'J1'

Ix	IN^4	Sx	IN^3
17.6776		4.9528	

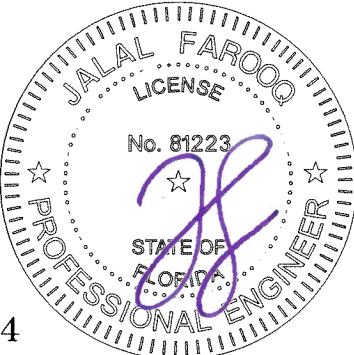


MULLION 'M1'

	Ix	IN^4	Sx	IN^3
ALUMINUM	17.6776		4.9528	
STEEL	7.5938		3.3750	
TOTAL				
Ix ALUM + Ix STL X 2.9	39.4816			

MALE AND FEMALE MULLION ORIENTATION
SHOWN (FEMALE LEFT & MALE RIGHT)
CAN BE REVERSED (MALE LEFT & FEMALE RIGHT)
WITHOUT AFFECTING STRUCTURAL FUNCTIONALITY
OF THE SYSTEM.

Sealed: 8/17/2023



FL #22244

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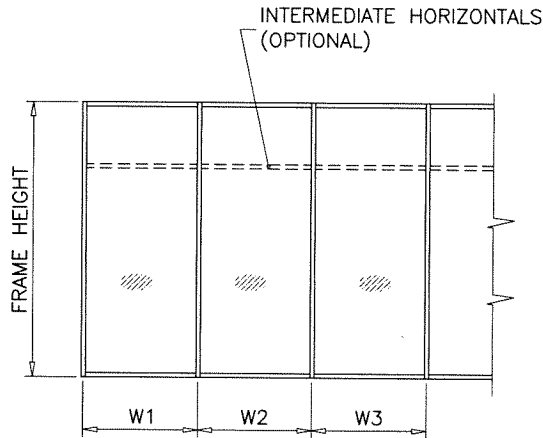
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21-69F

sheet 3 of 9

HEAD/SILL ANCHOR DESIGN LOAD CAPACITY - PSF				
EXT.(+) & INT.(-)				
NOMINAL DIMS.		TYPE 'A'		TYPE 'B'
WIDTH (W)	FRAME HEIGHT	A4	A5	B4
36"	96"	107.0	107.0	107.0
42"		107.0	107.0	107.0
48"		107.0	107.0	107.0
54"		107.0	107.0	107.0
60"		107.0	107.0	107.0
66"		107.0	107.0	107.0
72-3/8"		107.0	107.0	107.0
36"	102"	107.0	107.0	107.0
42"		107.0	107.0	107.0
48"		107.0	107.0	107.0
54"		107.0	107.0	107.0
60"		107.0	107.0	107.0
66"		107.0	107.0	107.0
72-3/8"		107.0	107.0	107.0
36"	108"	107.0	107.0	107.0
42"		107.0	107.0	107.0
48"		107.0	107.0	107.0
54"		107.0	107.0	107.0
60"		107.0	107.0	107.0
66"		104.9	107.0	107.0
72-3/8"		95.7	107.0	107.0
36"	114"	107.0	107.0	107.0
42"		107.0	107.0	107.0
48"		107.0	107.0	107.0
54"		107.0	107.0	107.0
60"		107.0	107.0	107.0
66"		99.4	107.0	107.0
72-3/8"		90.6	107.0	107.0
36"	118"	107.0	107.0	107.0
42"		107.0	107.0	107.0
48"		107.0	107.0	107.0
54"		107.0	107.0	107.0
60"		105.6	107.0	107.0
66"		96.0	107.0	107.0
72-3/8"		87.6	107.0	107.0

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



WIDTH (W) = W1
AT JAMB

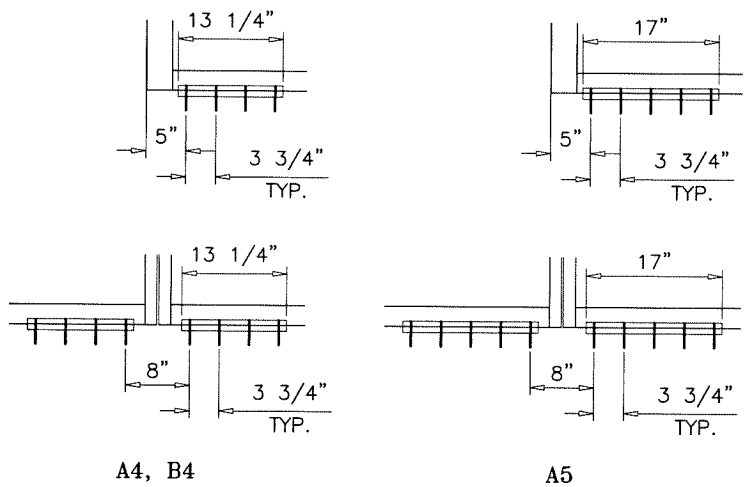
WIDTH (W) = $\frac{W2 + W3}{2}$
AT MULLION

ANCHORS TYPES: SEE SHEET 5 FOR DESCRIPTION

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

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

A5 = (5) ANCHORS TYPE 'A' AT EACH SIDE OF JAMB AND MULLION



Sealed: 8/17/2023

ANCHORS

JALAL FAROOQ

LICENSE

No. 81223

STATE OF FLORIDA

PROFESSIONAL ENGINEER

date: 10-01-21

scale: -

dr. by: TARIQ

chk. by:

drawing no.

21-69F

sheet 4 of 9

FL #22244

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MIAMI, FL. 33142

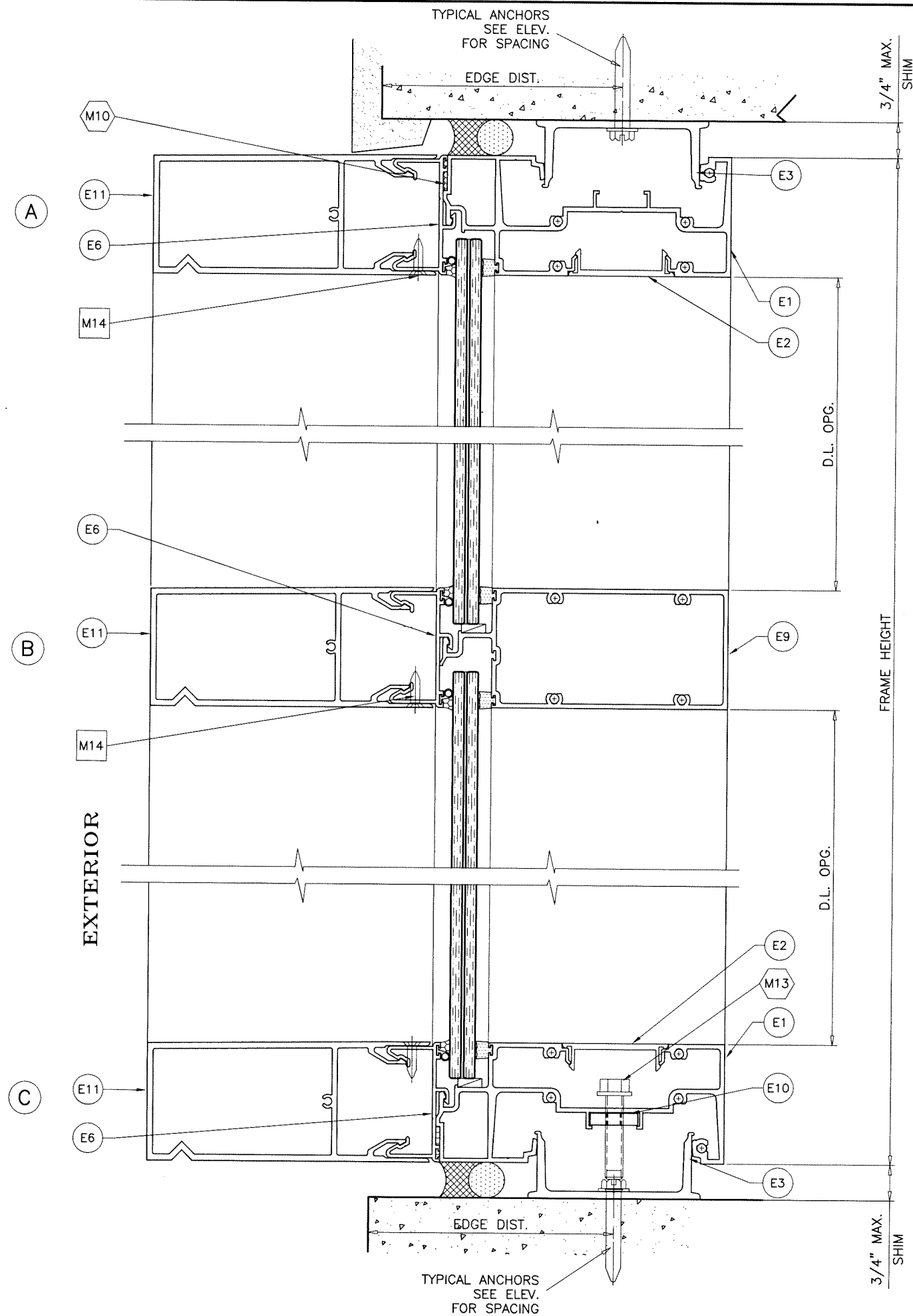
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revisions:

no.	date	by	description

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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 (3000 PSI MIN.)
2" MIN. EMBED INTO CONC.

ANCHOR EDGE DISTANCES

INTO CONCRETE = 3-1/8" MIN.

TYPE 'B'

5/16" DIA. SELF DRILLING SCREWS (GRADE 5 CRS)

INTO METAL STRUCTURES
(3) THREADS MIN. TO EXTEND BEYOND METAL THICKNESS
ALUMINUM: 1/4" THK. MIN. (6063-T5 MIN.)
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.

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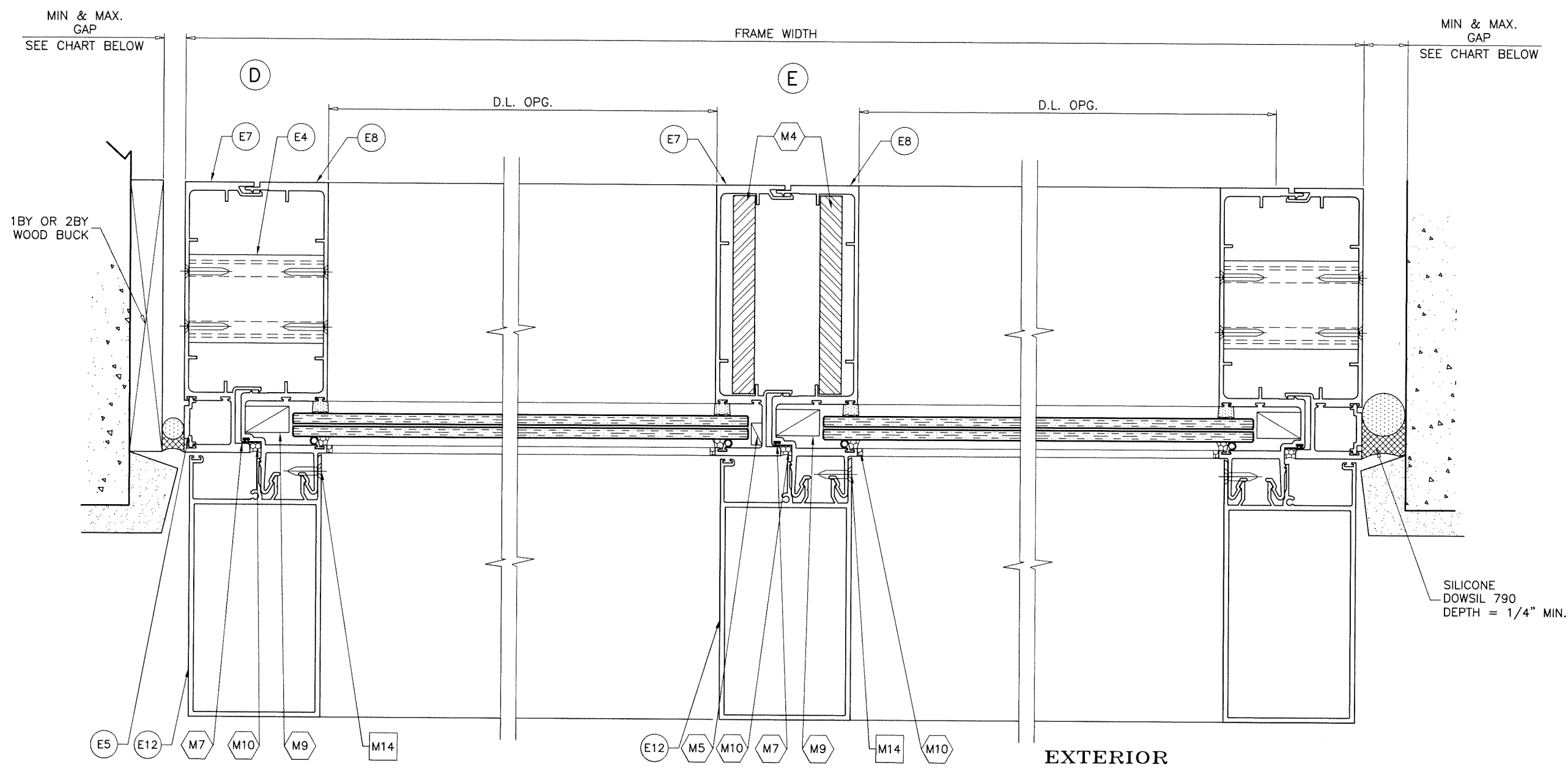
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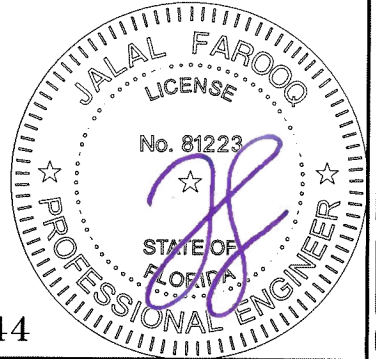
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drawing no.
21-69F
sheet 5 of 9



MAX. GAPS FOR UNANCHORED JAMBS		
MAX. FRAME HEIGHT	JAMB J1	
	MIN.	MAX.
96"	5/16"	3/4"
108"	3/8"	3/4"
118"	7/16"	3/4"

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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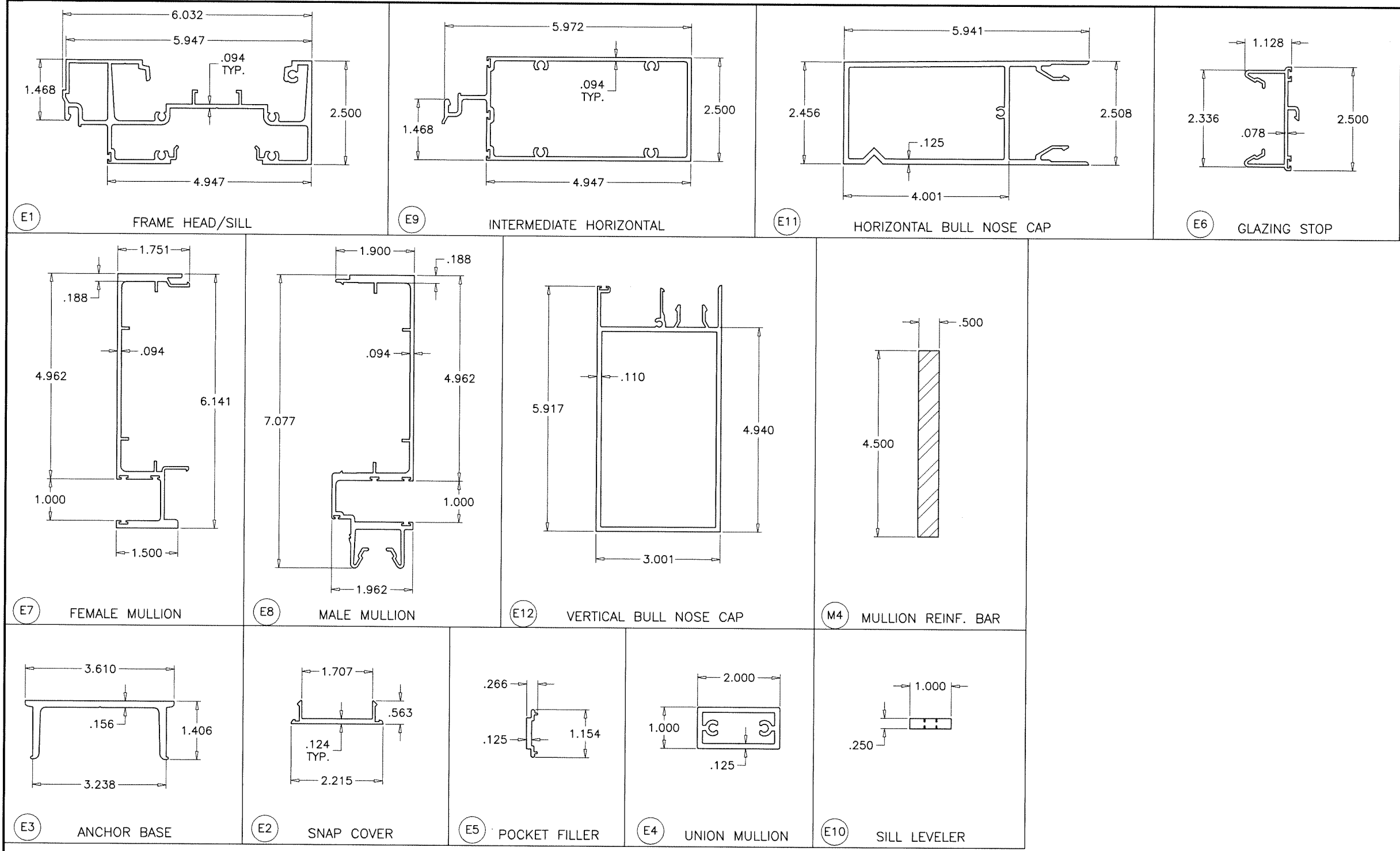
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21-69F

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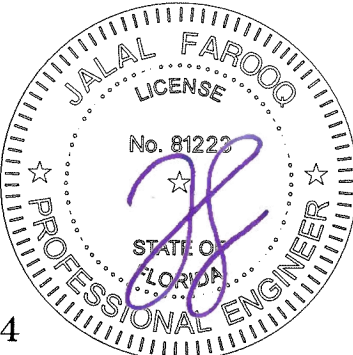
sheet 7 of 9

ITEM NO.	PART NUMBER	QUANTITY	DESCRIPTION	MATERIAL	MANF./SUPPLIER/REMARKS
E1	ES-7001B	AS REQD.	FRAME HEAD/SILL	6005-T5	-
E2	ES-7003	AS REQD.	SNAP COVER	6063-T5	-
E3	ES-7004	AS REQD.	ANCHOR BASE, LENGTH AS REQD.	6005-T5	-
E4	103-047	AS REQD.	UNION MULLION	6063-T6	-
E5	ES-7032	AS REQD.	POCKET FILLER	6063-T5	-
E6	ES-7000-409	AS REQD.	GLAZING STOP HEAD/SILL	6063-T6	-
E7	ES-7008	AS REQD.	FEMALE MULLION	6005-T5	-
E8	ES-7000-405	AS REQD.	MALE MULLION	6005-T5	-
E9	ES-7005	AS REQD.	INTERMEDIATE HORIZONTAL	6005-T5	-
E10	ALU-P-020	AS REQD.	SILL LEVELER	6063-T5	-
E11	ES-7000-408	AS REQD.	HORIZONTAL BULL NOSE CAP	6063-T5	-
E12	ES-7000-407	AS REQD.	VERTICAL BULL NOSE CAP	6063-T5	-
M1	ES7000-G01A	AS REQD.	EXTERIOR GLASS SEAL	SILICONE	SILICONE DUROMETER 60±5 SHORE A
M2	ES7100-G01A	AS REQD.	INTERIOR GASKET	SILICONE	DUROMETER 60±5 SHORE A
M4	-	AS REQD.	REINFORCING BAR	STEEL	A36, Fu MIN. = 58 KSI
M5	80-378A S	AS REQD.	SIDE BLOCK	EPDM	DUROMETER 60±5 SHORE A
M7	ES7000-G03	AS REQD.	SILICONE SEPARATER	SILICONE	DUROMETER 60±5 SHORE A
M8	80-372A S	2/ LITE	SETTING BLOCK (LAM. GLASS)	SILICONE	DUROMETER 80±5 SHORE A
M9	ES-21-B02A S	AS REQD.	SIDE BLOCK	EPDM	DUROMETER 60±5 SHORE A
M11	#10 X 1"	AS REQD.	UNION FASTENERS	ST. STEEL	FH SMS
M12	#12 X 1"	AS REQD.	FRAME ASSEMBLY SCREWS	ST. STEEL	PH SMS
M13	3/8" BOLT	AS REQD.	LEVELING SCREW	ST. STEEL	HWH
M14	#8 X 1/2"	3/ CAP	FIN FASTENERS, AT 3" FROM EACH END & AT MID SPAN	ST. STEEL	FH SELF DRILLING

SEALANTS:

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

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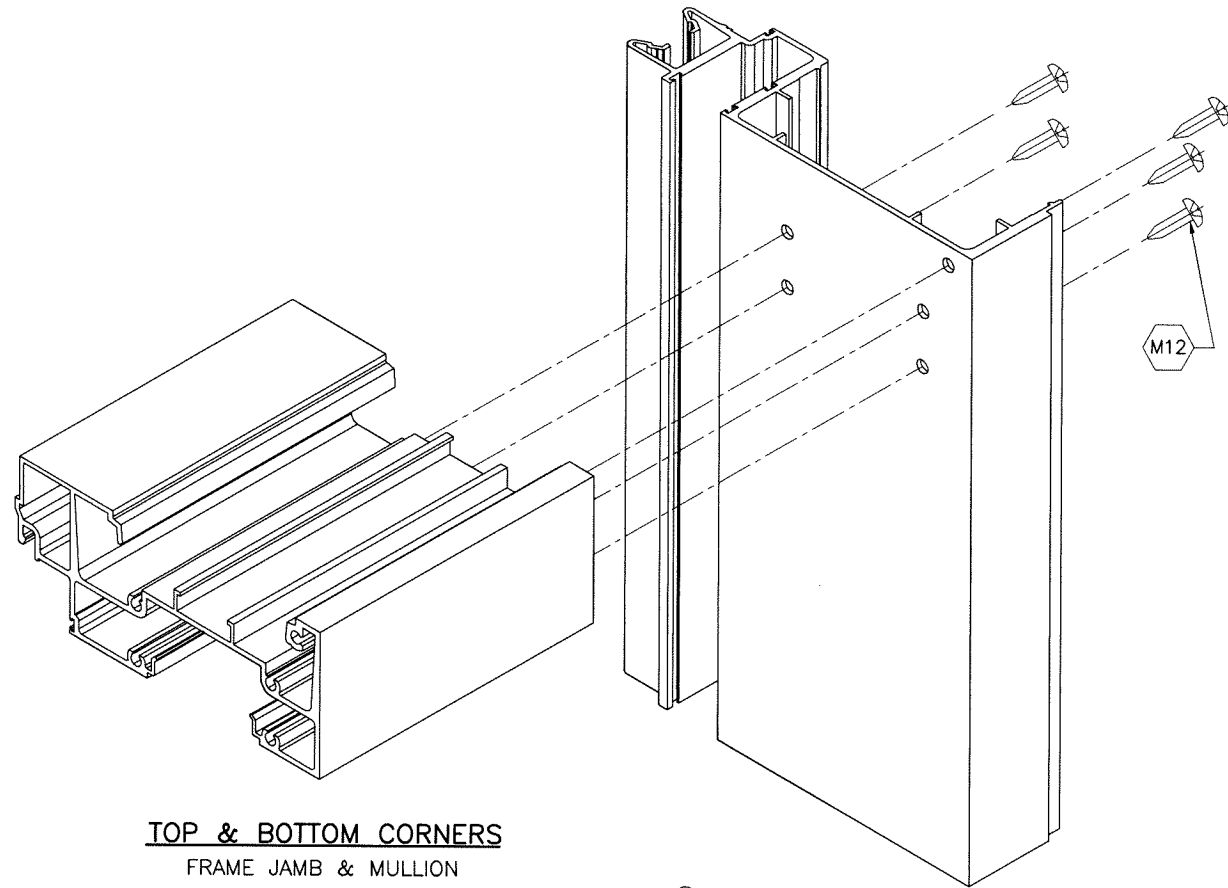
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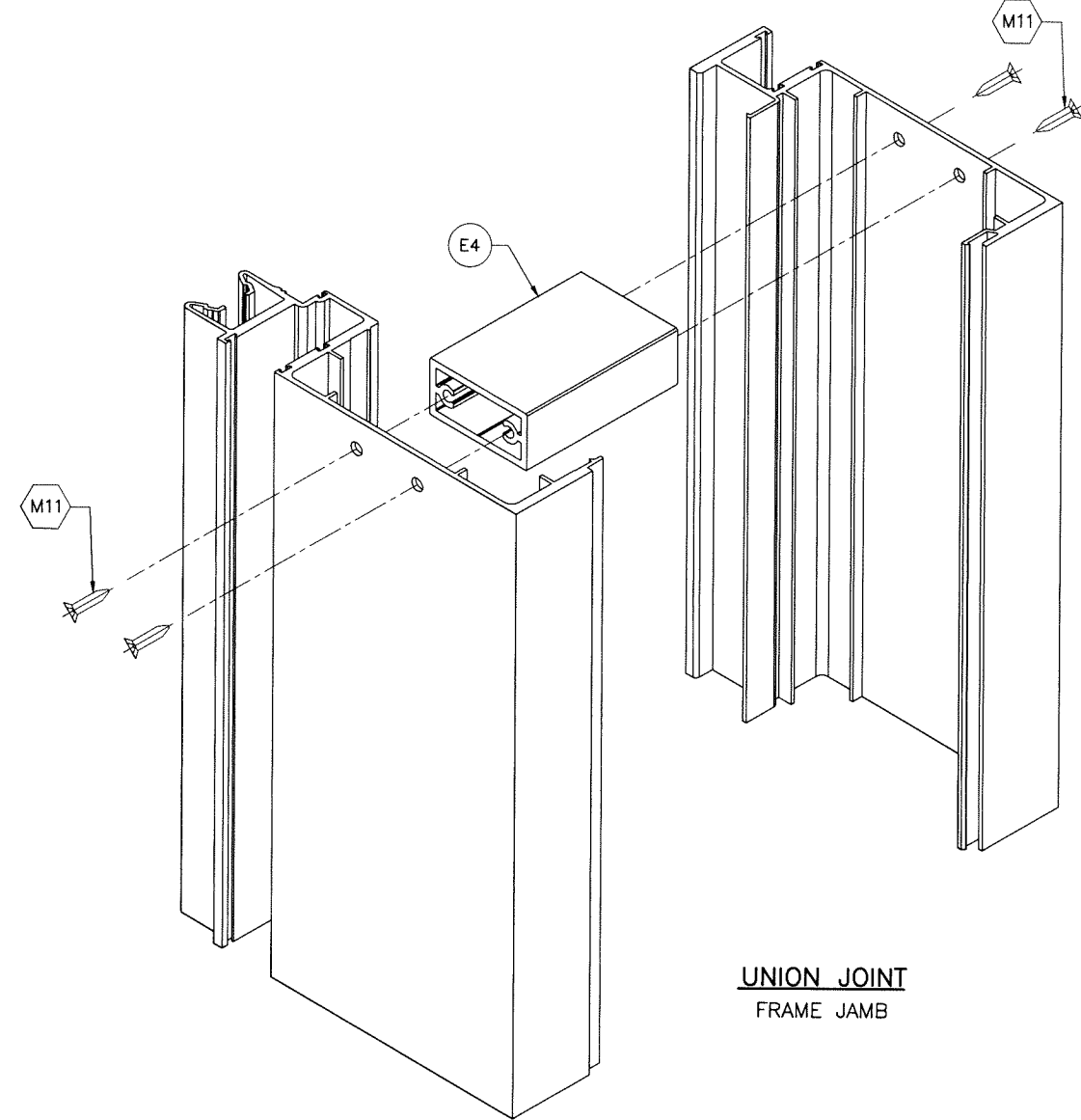
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sheet 8 of 9

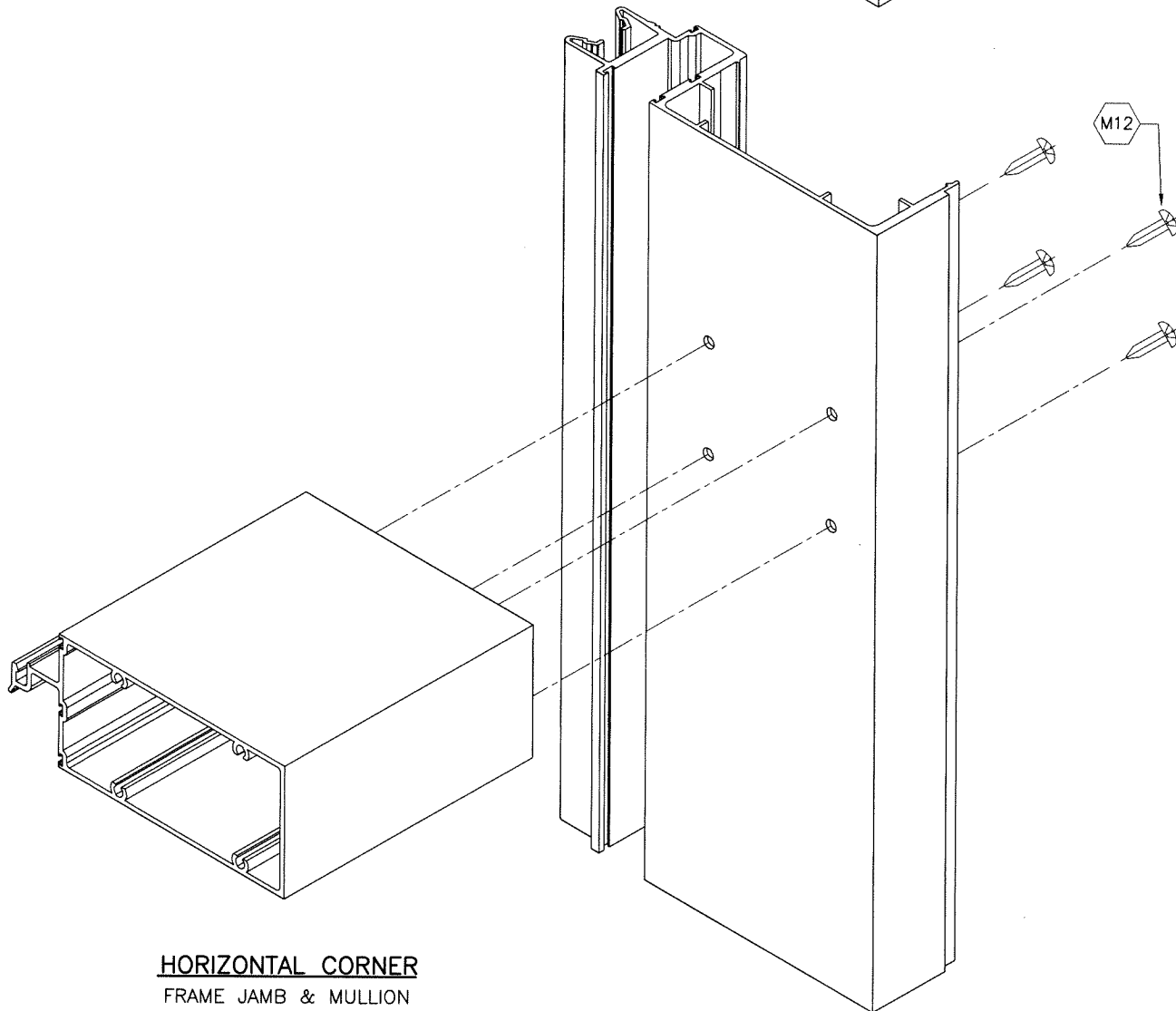
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TOP & BOTTOM CORNERS
FRAME JAMB & MULLION



UNION JOINT
FRAME JAMB



HORIZONTAL CORNER
FRAME JAMB & MULLION

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