

THESE WINDOWS ARE RATED FOR LARGE & SMALL MISSILE IMPACT.
SHUTTERS ARE NOT REQUIRED.

ES-P252 (L.M.I.)
THERMAL ALUMINUM CASEMENT WINDOW

APPROVAL APPLIES TO SINGLE UNITS OR SIDE BY SIDE
COMBINATIONS OF CASMT./CASMT. OR CASEMENT WITH OTHER
WINDOW TYPES IN MODULES OF TWO OR MORE WINDOWS USING
F.B.C. APPROVED MULLIONS IN BETWEEN.
LOWER DESIGN PRESSURE FROM WINDOWS OR MULLION APPROVAL
WILL APPLY TO ENTIRE SYSTEM.

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

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

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

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

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

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

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

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

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

Sealed: 8/28/2024

FL #20692

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.



ES-P252 THERMAL ALUM CASEMENT WDW. (L.M.I.)

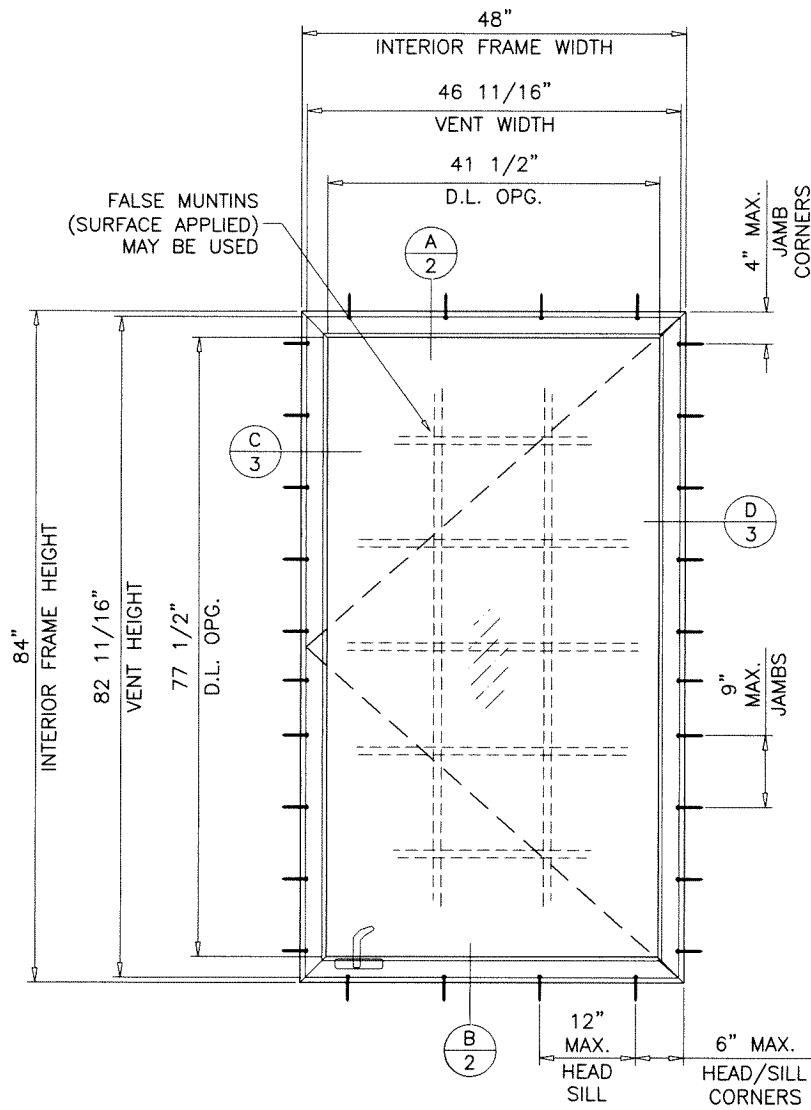
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:	
no	description
E	03.31.21 NAIL FIN ADDED
F	04.28.23 NAIL FIN REV.
G	06.15.23 GLASS TYPE E ADDED
H	07.07.23 UPDATED TO 2023 FBC
I	08.09.24 WINLITE INTERLAYER ADDED

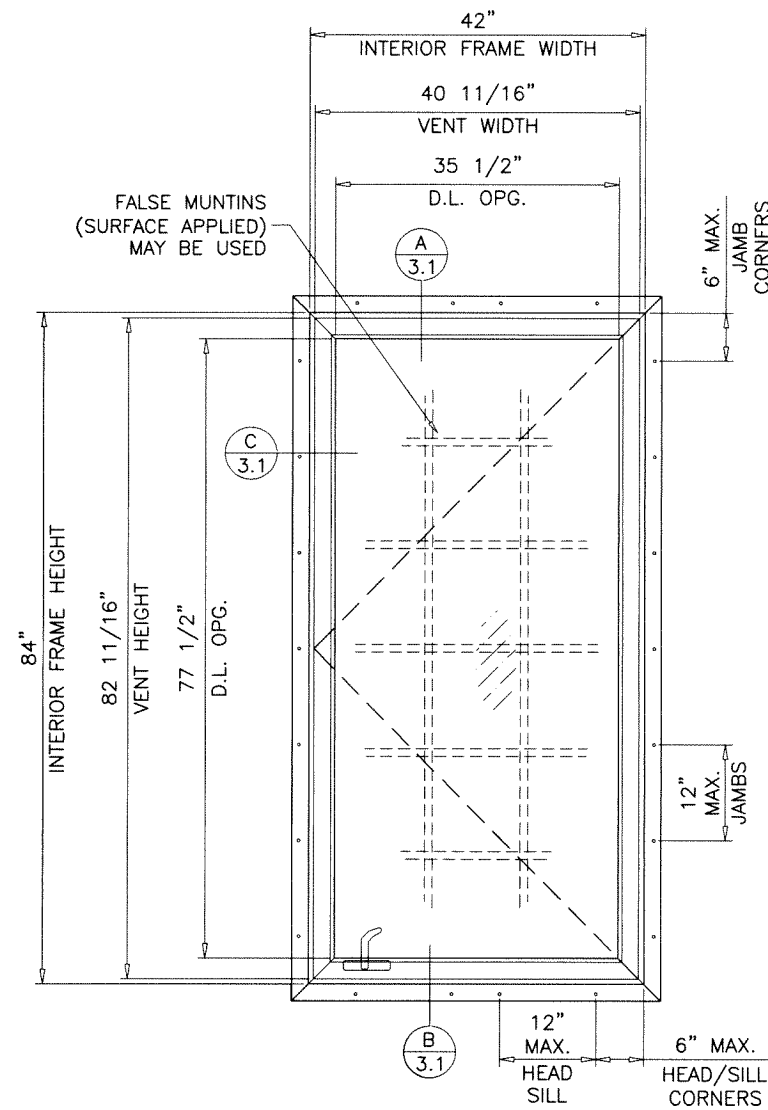
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dr. by: TARIQ
chk. by:

drawing no.
W16-46
sheet 1 of 8

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978
COMP-ANL\W16-46-ES

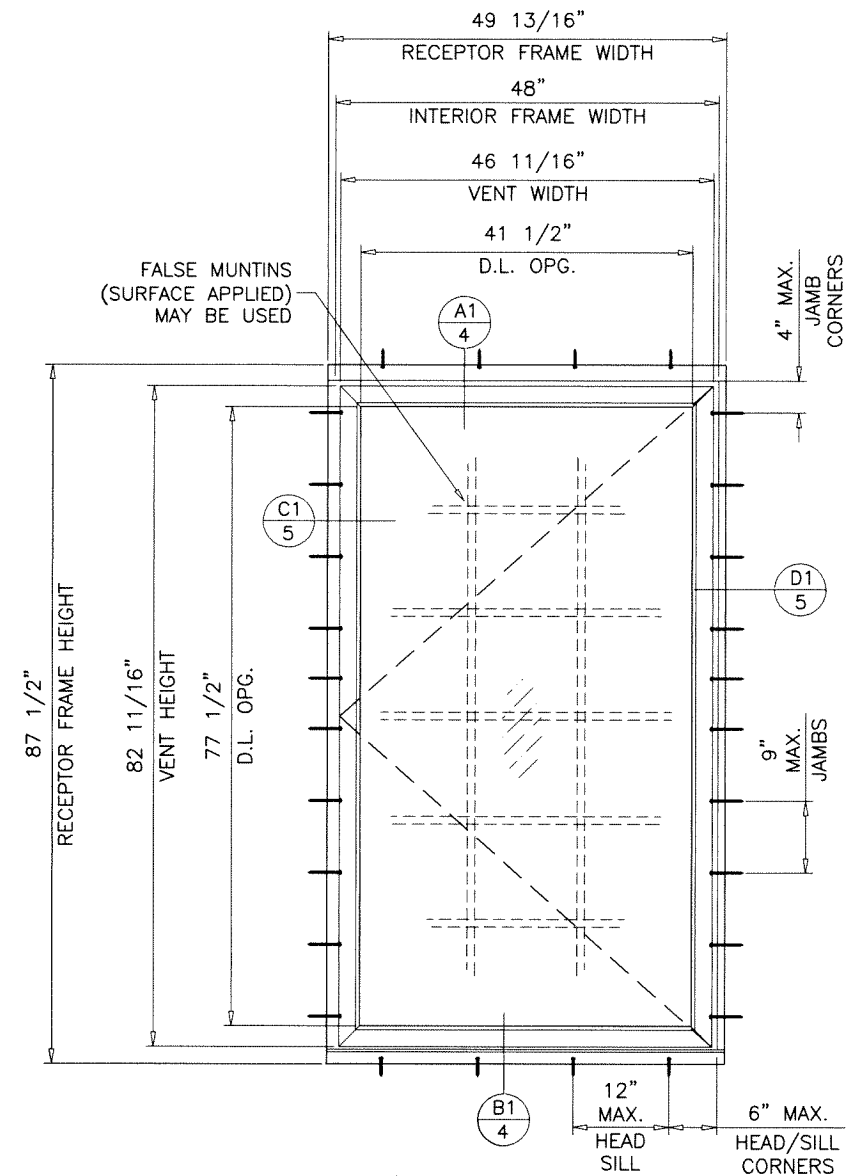


TYPICAL ELEVATION
ANCHORS THRU WDW. FRAMES



TYPICAL ELEVATION
ANCHORS THRU NAIL FINS

NOTE:
FOR WINDOWS WITH NAIL FINS
LIMIT MAX. DESIGN LOADS TO
+70.0, -75.0 PSF



TYPICAL ELEVATION
ANCHORS THRU RECEPTOR FRAMES

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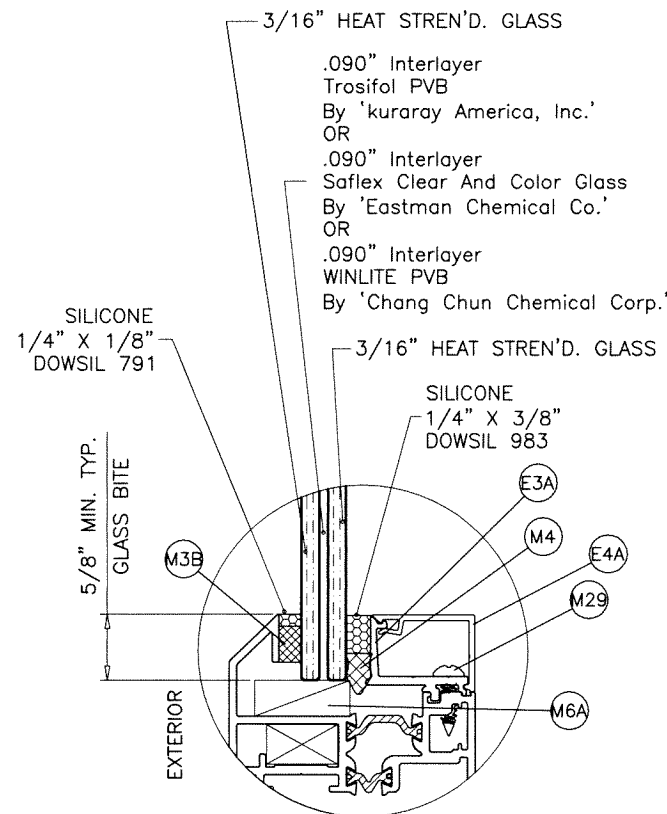
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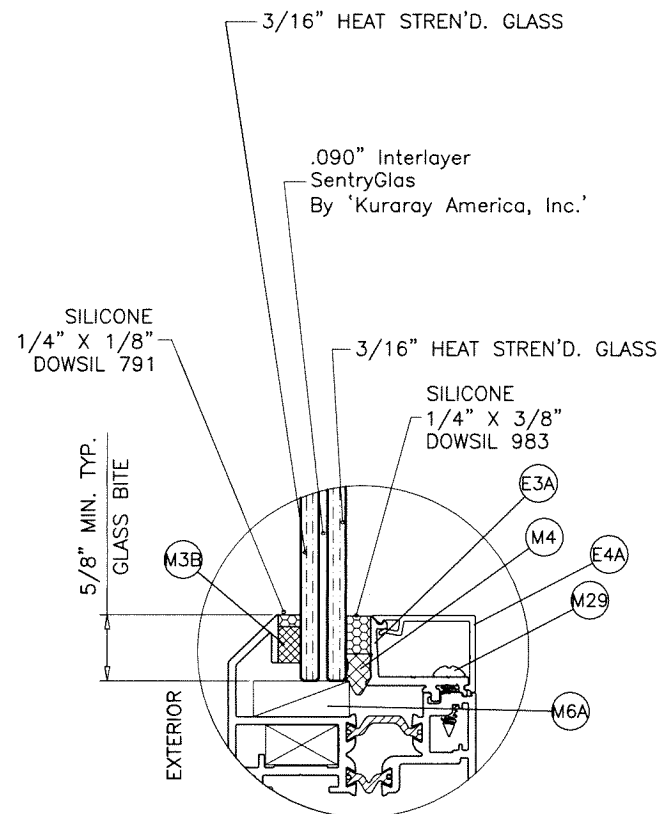
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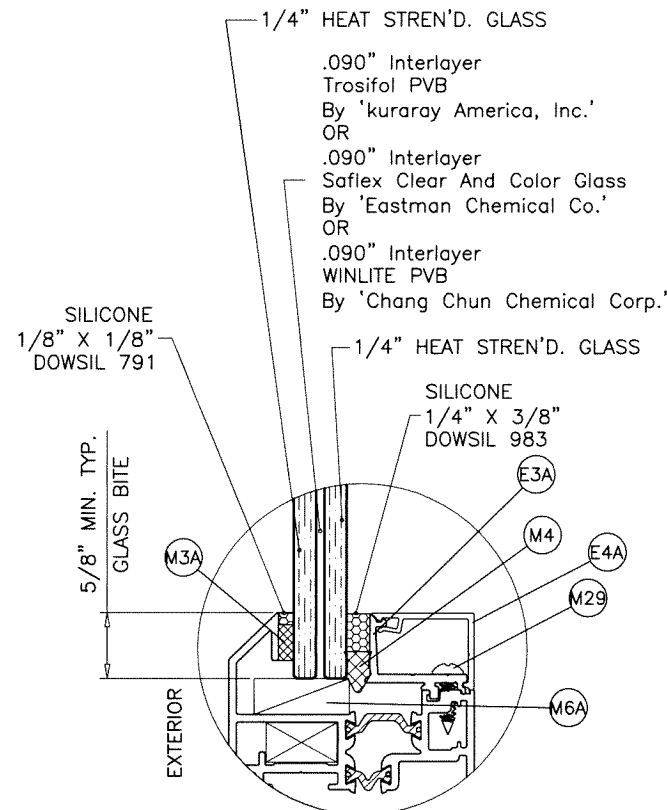
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GLASS TYPE 'A'
7/16" OVERALL NOM. THK.

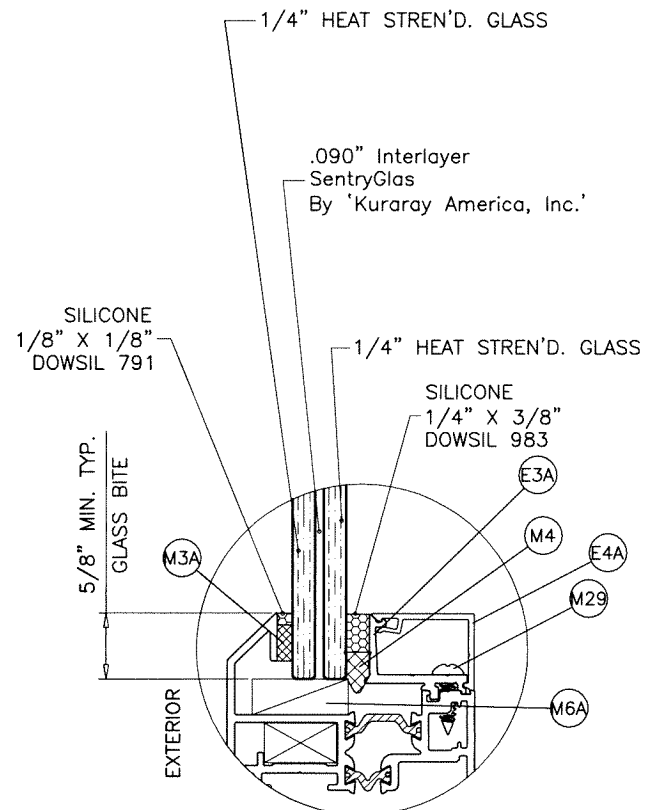


GLASS TYPE 'B'
7/16" OVERALL NOM. THK.



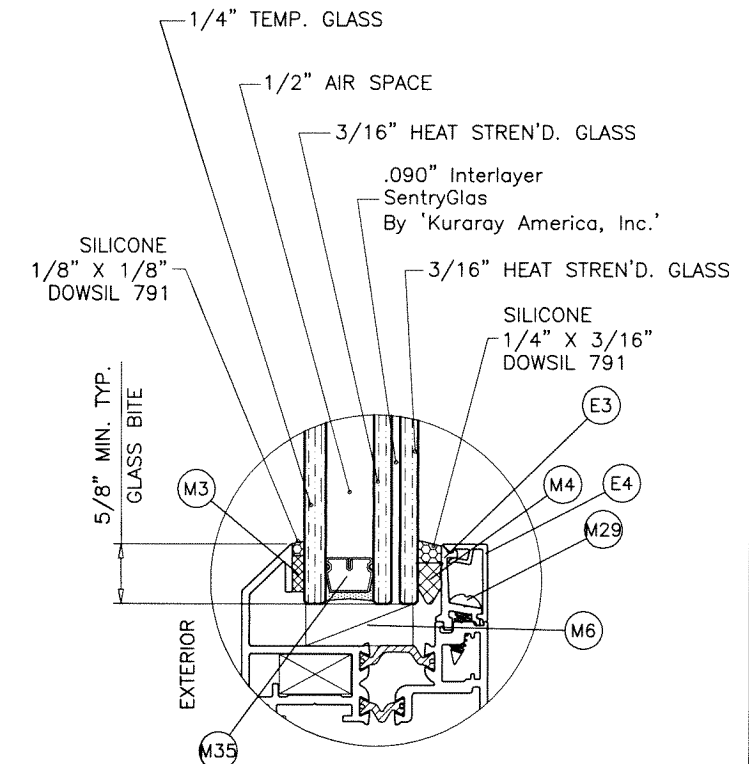
GLASS TYPE 'A1'
9/16" OVERALL NOM. THK.

GLASS TYPES 'A' & 'A1'
MAXIMUM DESIGN LOAD RATING = + 80.0 PSF
(FOR SIZE SHOWN ON SHEET 1.1 OR SMALLER) - 80.0 PSF



GLASS TYPE 'B1'
9/16" OVERALL NOM. THK.

GLASS TYPES 'B' & 'B1'
MAXIMUM DESIGN LOAD RATING = + 85.0 PSF
(FOR SIZE SHOWN ON SHEET 1.1 OR SMALLER) - 105.0 PSF



GLASS TYPE 'C'
1-3/16" OVERALL NOM. THK.

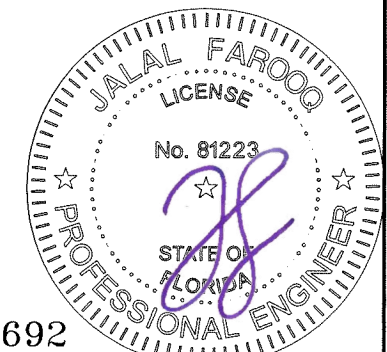
GLASS TYPE 'C'
MAXIMUM DESIGN LOAD RATING = + 95.0 PSF
(FOR SIZE SHOWN ON SHEET 1.1 OR SMALLER) - 105.0 PSF

1/2" AIR SPACE CONSISTING OF:
SPACER:
'HELIMA' LOW PROFILE ALUMINUM SPACER
BY 'LINGERMANN GMBH'
AROUND THE PERIMETER OF THE GLASS.
PERIMETER SEALANT:
SILICONE
DOWSIL 791
GE 2000

NOTE:
GLASS CAPACITIES ON THIS SHEET ARE
BASED ON ASTM E1300-09 (3 SEC. GUSTS)
AND FLORIDA BUILDING COMMISSION
DECLARATORY STATEMENT DCA05-DEC-219

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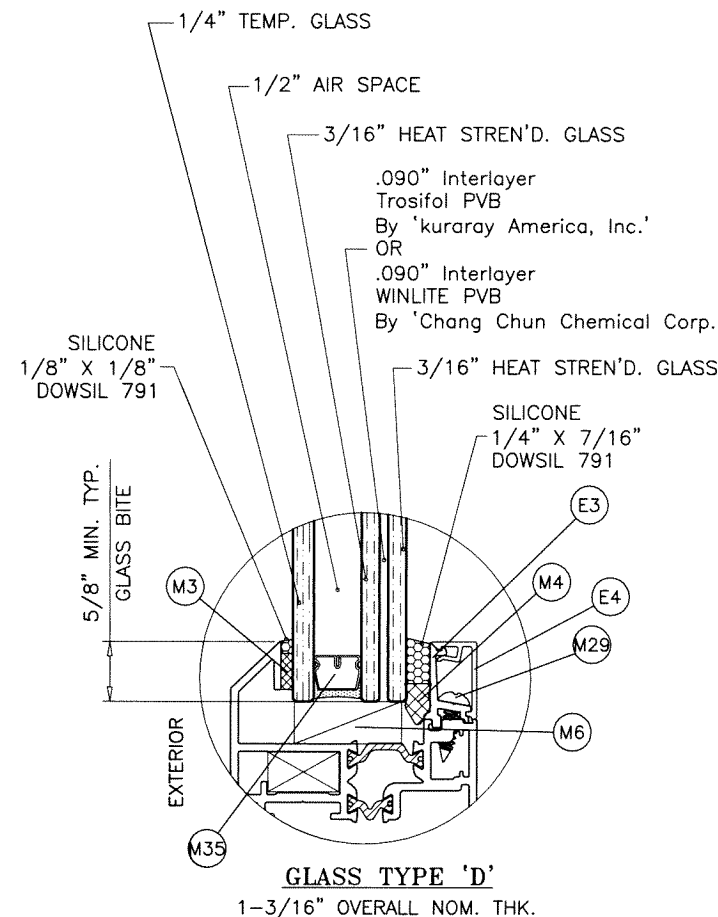
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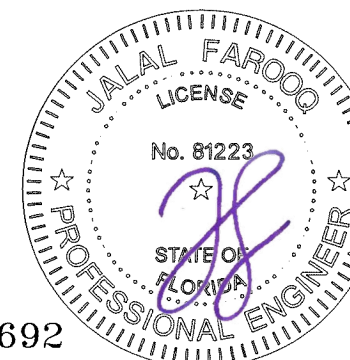
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W16-46
sheet 1.2 of 8



GLASS TYPE 'D'
MAXIMUM DESIGN LOAD RATING = + 70.0 PSF
 (FOR SIZES 42" W X 84" HT. OR SMALLER) **- 75.0 PSF**

1/2" AIR SPACE CONSISTING OF:
SPACER:
 'HELIMA' LOW PROFILE ALUMINUM SPACER
 BY 'LINGERMANN GMBH'
 AROUND THE PERIMETER OF THE GLASS.
PERIMETER SEALANT:
 SILICONE
 DOWSIL 791
 GE 2000

NOTE:
 GLASS CAPACITIES ON THIS SHEET ARE
 BASED ON ASTM E1300-09 (3 SEC. GUSTS)
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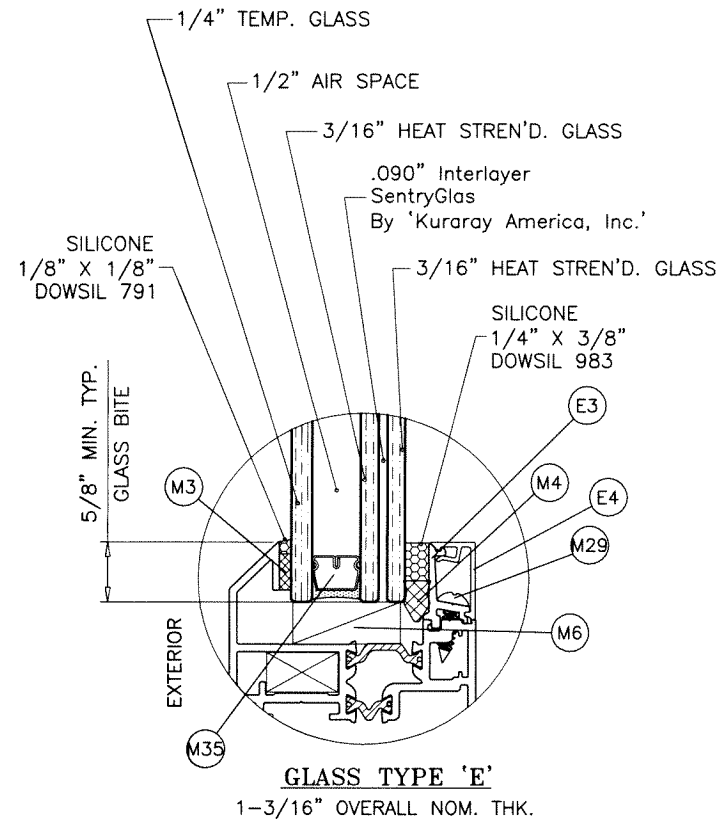
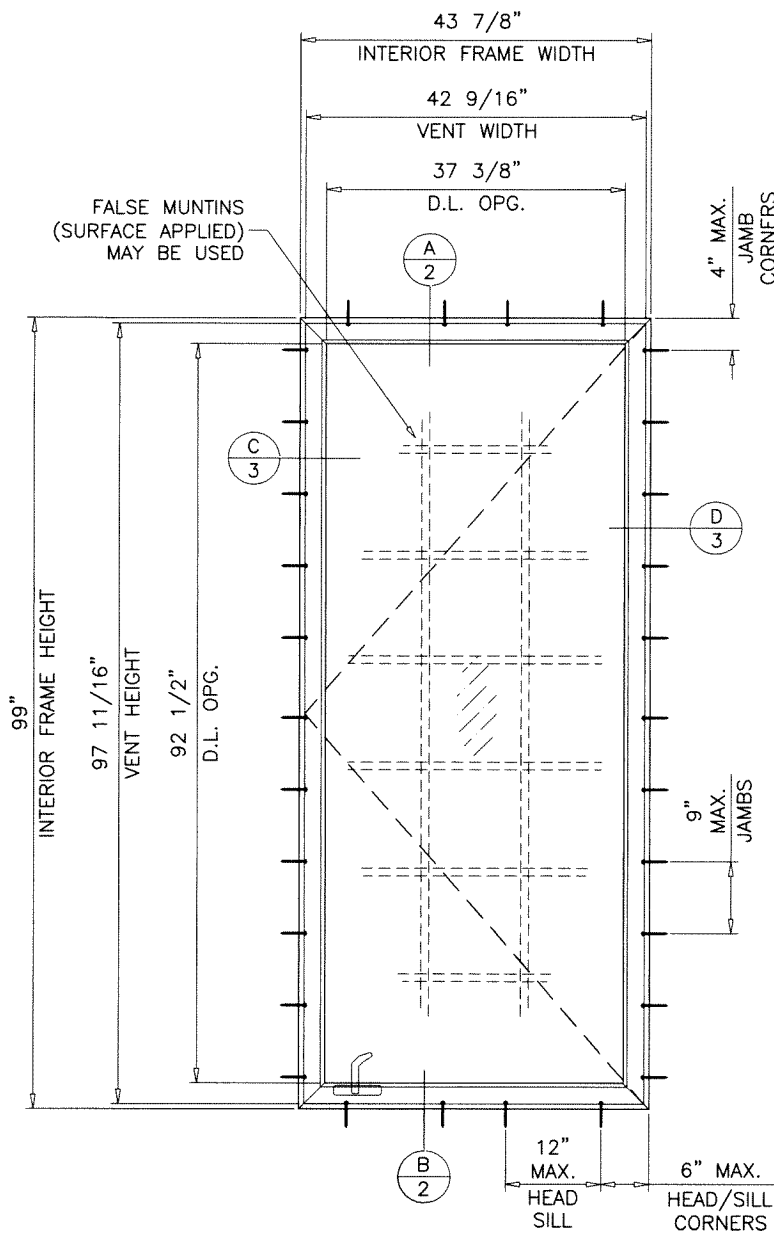
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drawing no.
W16-46

sheet **1.3** of **8**



GLASS TYPE 'E'

MAXIMUM DESIGN LOAD RATING = + 54.5 PSF

(FOR SIZE SHOWN ON THIS SHEET OR SMALLER) - 72.5 PSF

1/2" AIR SPACE CONSISTING OF:

SPACER:

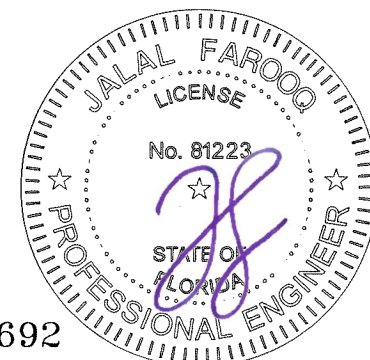
'HELIMA' LOW PROFILE ALUMINUM SPACER BY 'LINGERMANN GMBH' AROUND THE PERIMETER OF THE GLASS.

PERIMETER SEALANT:

SILICONE DOWSIL 791 GE 2000

NOTE:

GLASS CAPACITIES ON THIS SHEET ARE BASED ON ASTM E1300-09 (3 SEC. GUSTS) AND FLORIDA BUILDING COMMISSION DECLARATORY STATEMENT DCA05-DEC-219



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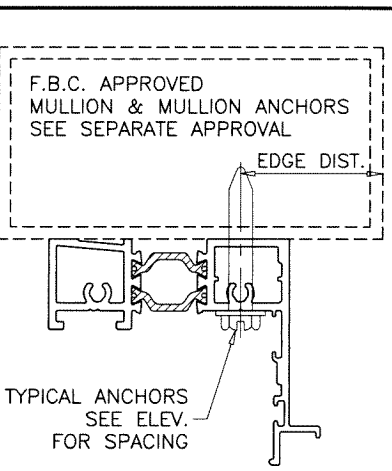
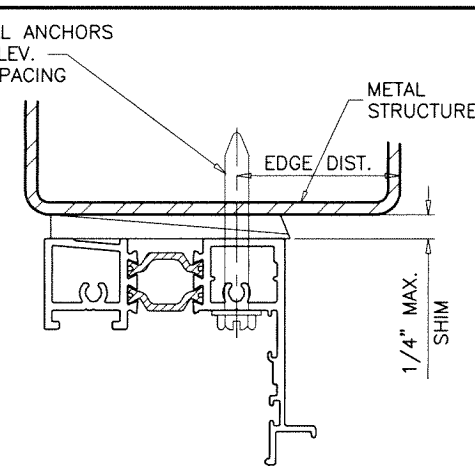
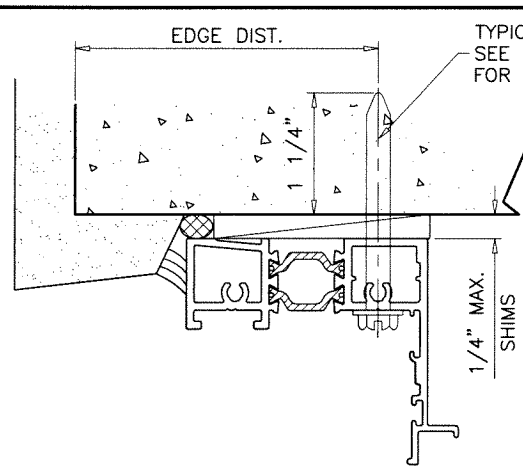
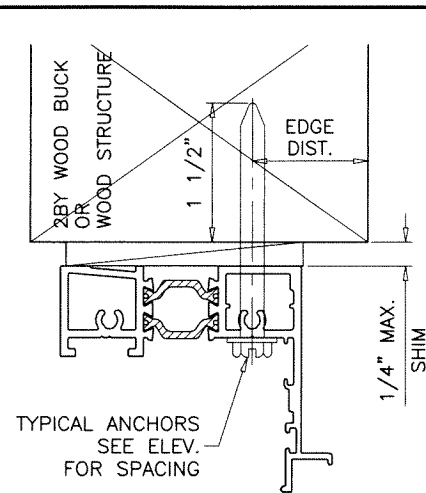
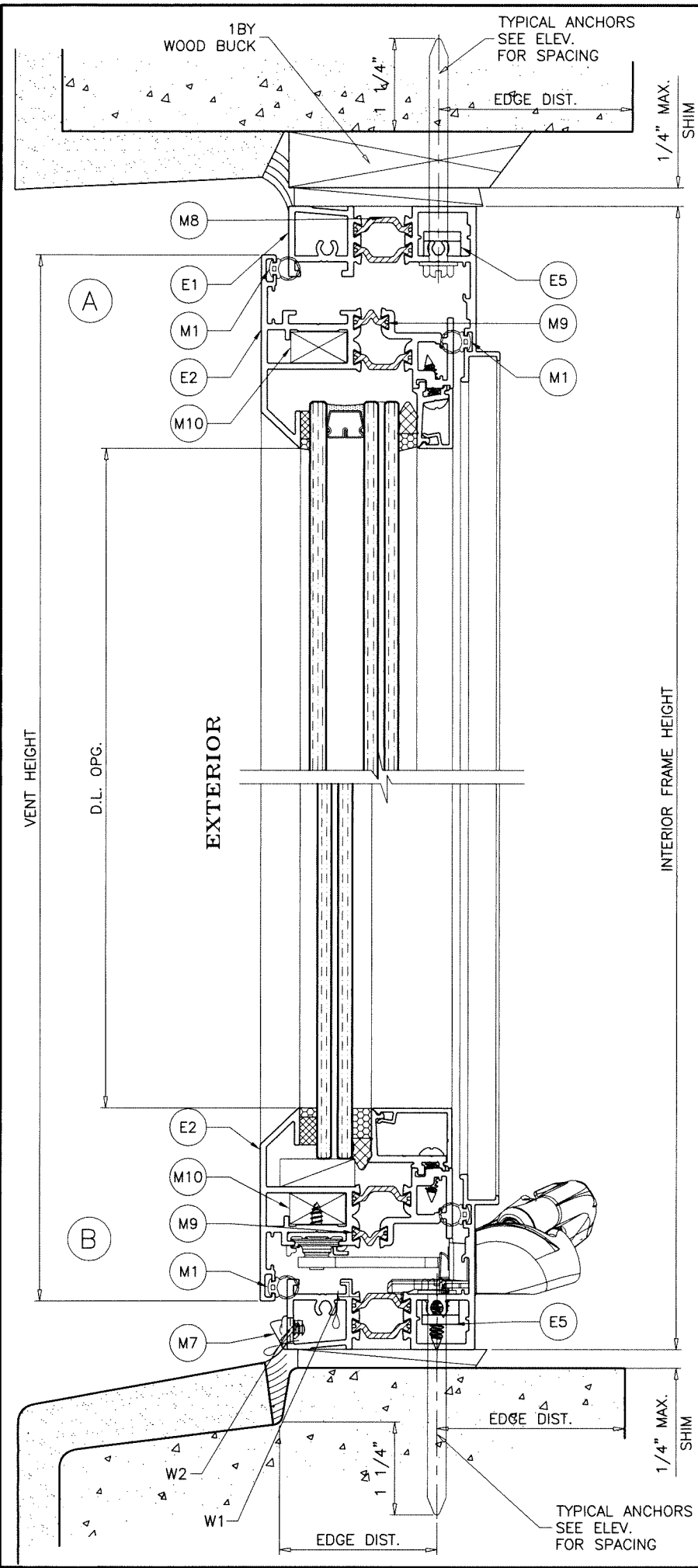
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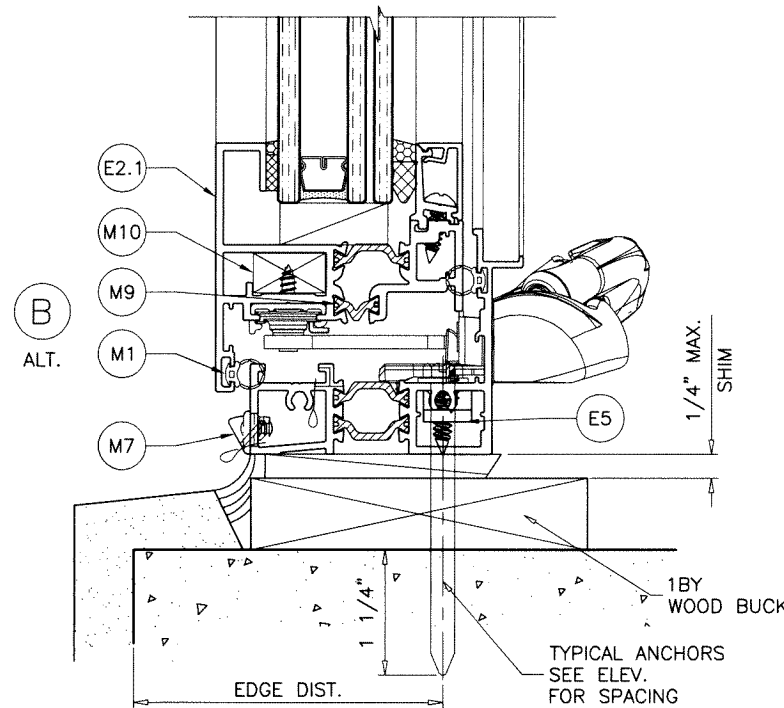
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sheet 1.4 of 8



1BY OR 2BY WOOD BUCKS AND METAL STRUCTURE NOT BY 'E.S. WDW.' MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER THEM TO THE BUILDING STRUCTURE.

WEEPHOLES:

- W1 = 2" X 5/16" WEEPHOLES AT 3-1/4" FROM EACH END AND AT MIDSPAN
- W2 = 1-1/2" X 1/4" WEEPHOLES AT 6" FROM EACH END WITH NYLON BAFFLE



TYPICAL ANCHORS: SEE ELEV. FOR SPACING

1/4" DIA. CRETE-FLEX SS4 BY 'DEWALT' (Fu=190 KSI, Fy=127 KSI)

1/4" DIA. ULTRACON SS4 410 BY 'DEWALT' (Fu=190 KSI, Fy=164 KSI)

1/4" DIA. AGGRE-GATOR 300 BY 'DEWALT' (Fu=96 KSI, Fy=57 KSI)

1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)

INTO 2BY WOOD BUCKS OR WOOD STRUCTURES

1-1/2" MIN. PENETRATION INTO WOOD (HEAD/SILL/JAMBS)

THRU 1BY BUCKS INTO CONC. OR BLOCKS

1-1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL)

1-1/2" MIN. EMBED INTO FILLED BLOCKS (JAMBS)

DIRECTLY INTO CONC. OR BLOCKS

1-1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL)

1-1/2" MIN. EMBED INTO FILLED BLOCKS (JAMBS)

1/4" DIA. BI-FLEX 300 SELF DRILLING SCREWS BY 'DEWALT'

1/4" DIA. DRIL-FLEX SELF DRILLING SCREWS BY 'DEWALT' (GRADE 5 CRS)

INTO F.B.C. APPROVED MULLIONS

OR

INTO METAL STRUCTURES (HEAD/SILL/JAMBS)

(3) THREADS MIN. TO EXTEND BEYOND METAL THICKNESS

ALUMINUM: 1/8" THK. MIN. (6063-T5 MIN.)

STEEL: 1/8" THK. MIN. (Fy = 36 KSI MIN.)

(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

ANCHOR EDGE DISTANCES

INTO CONCRETE AND BLOCKS = 2-1/2" MIN.

INTO WOOD STRUCTURE = 1" MIN.

INTO METAL STRUCTURE = 3/4" MIN.

WOOD AT HEAD, SILL OR JAMBS SG = 0.55 MIN.

CONCRETE AT HEAD, SILL OR JAMBS f'c = 3000 PSI MIN.

C-90 GROUT FILLED BLOCK AT JAMBS f'm = 2000 PSI MIN.



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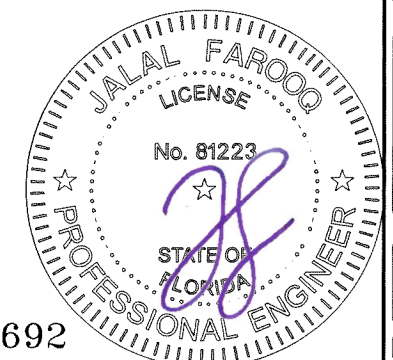
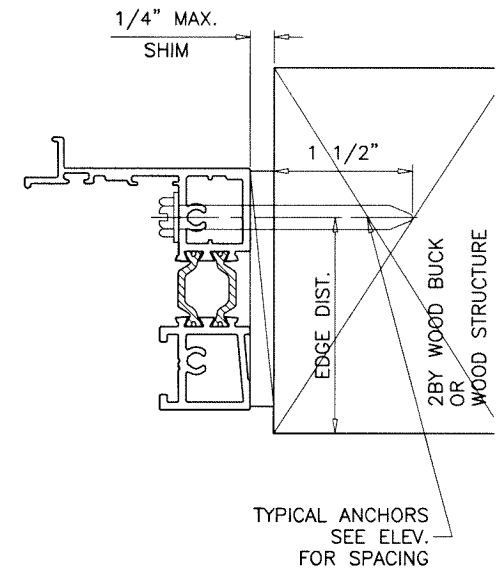
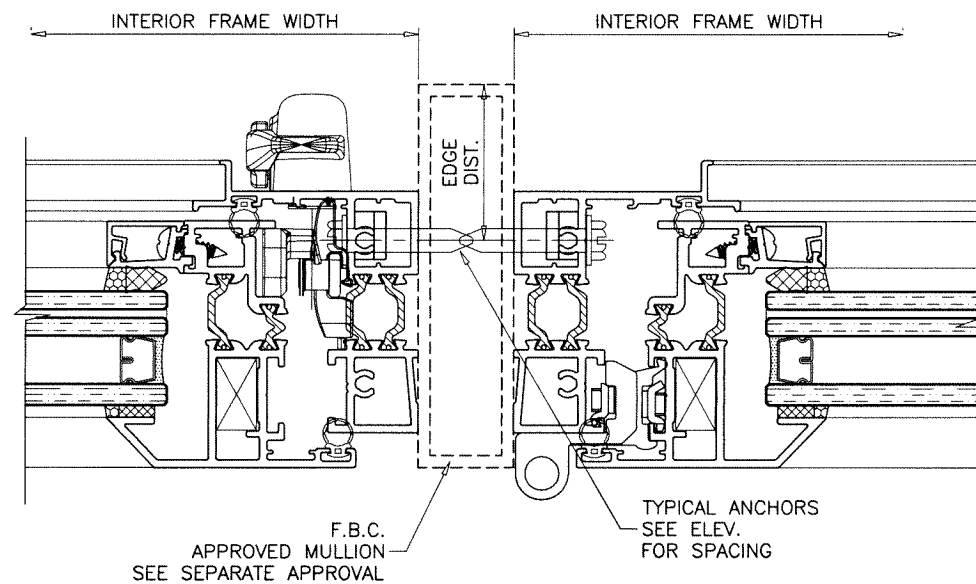
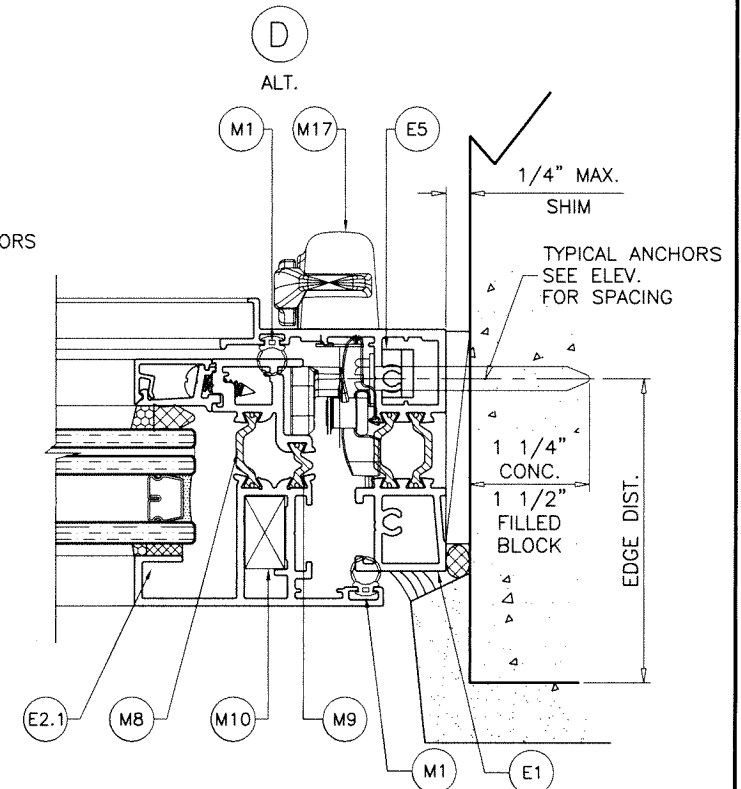
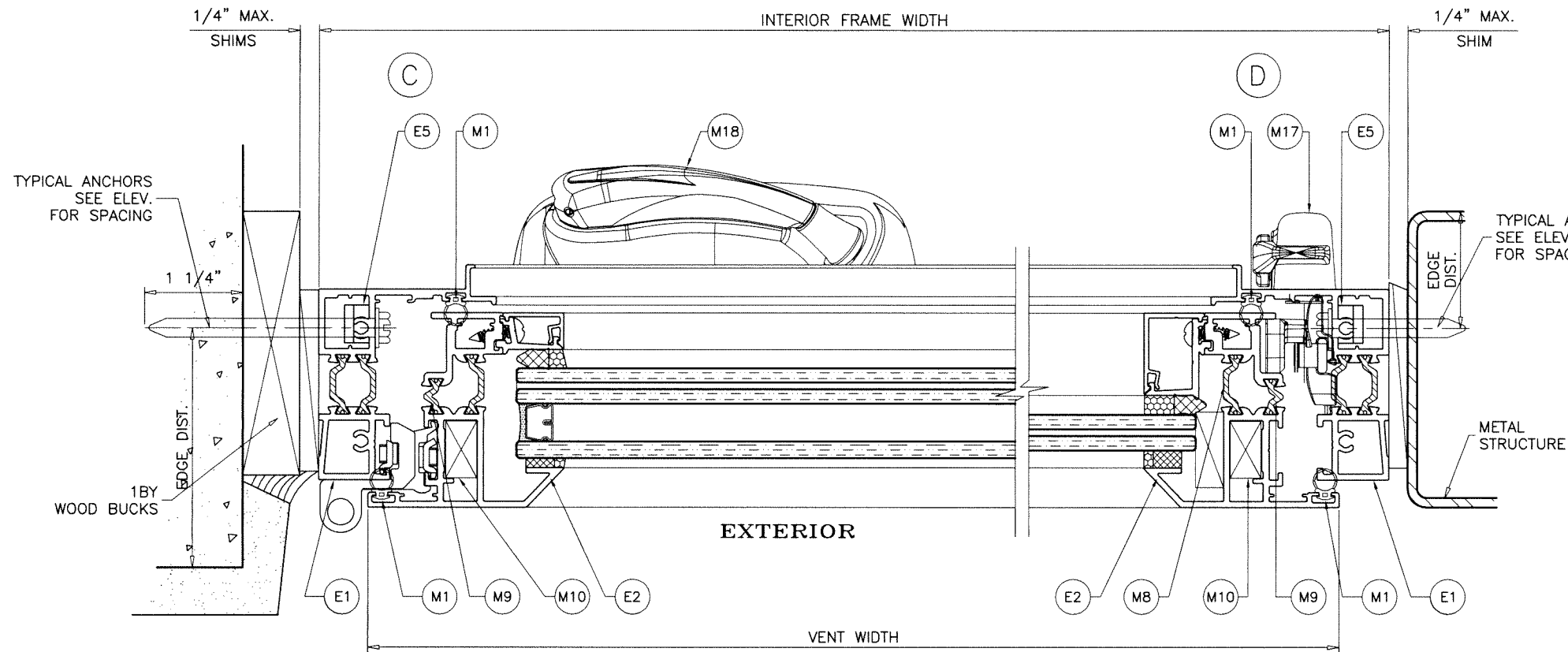
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sheet 2 of 8



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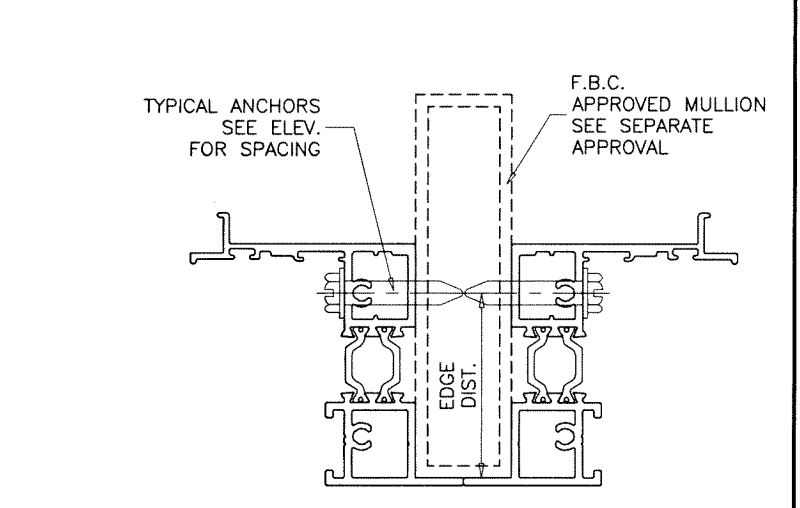
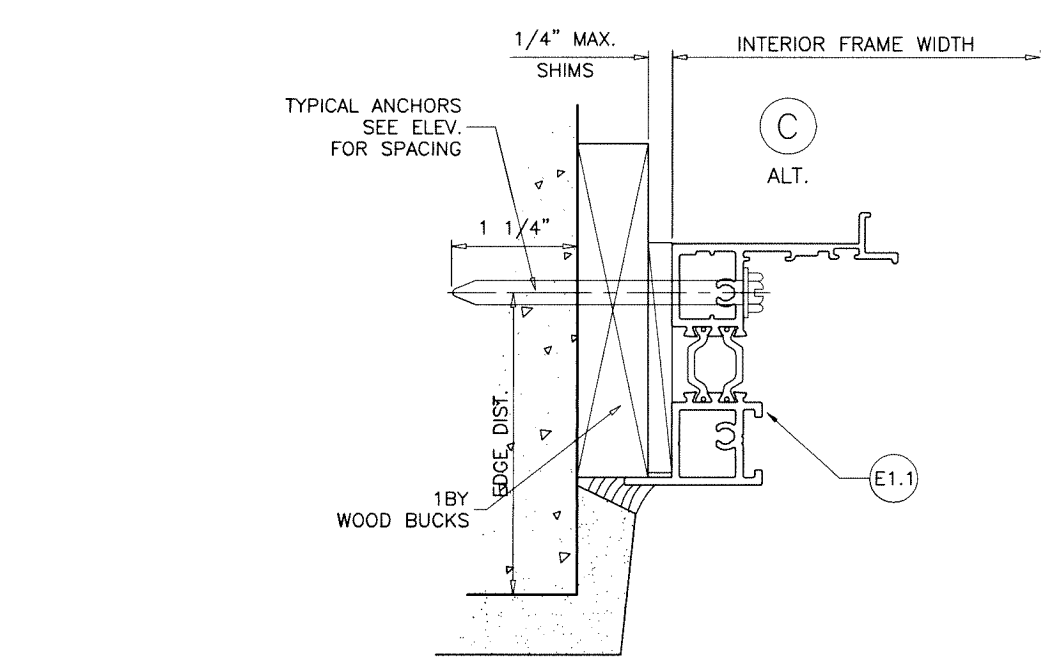
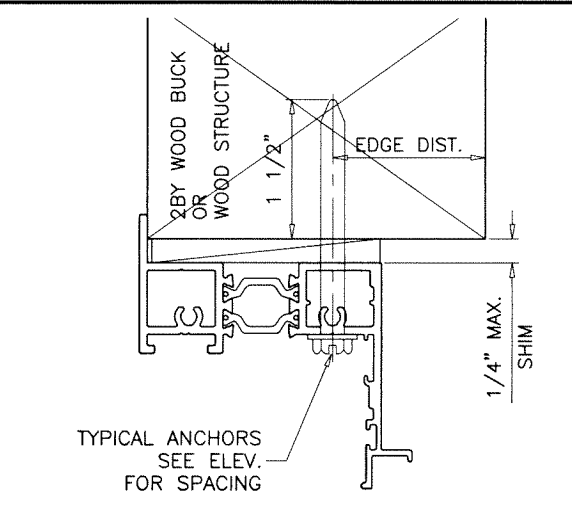
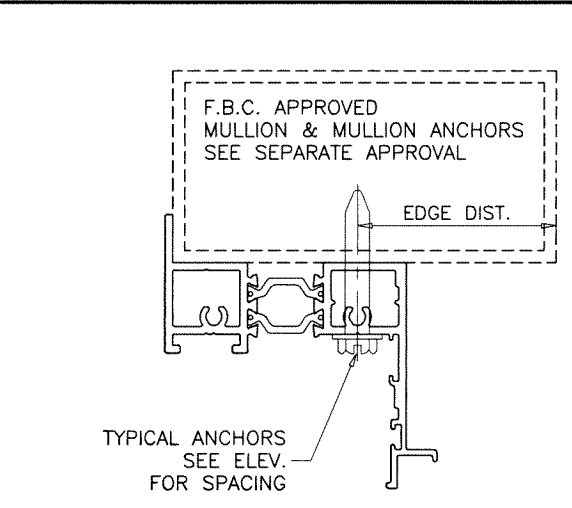
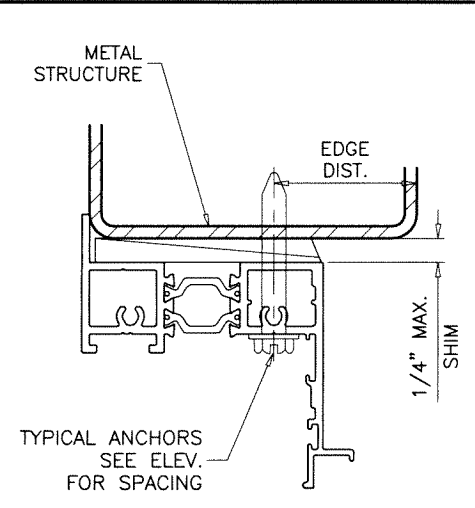
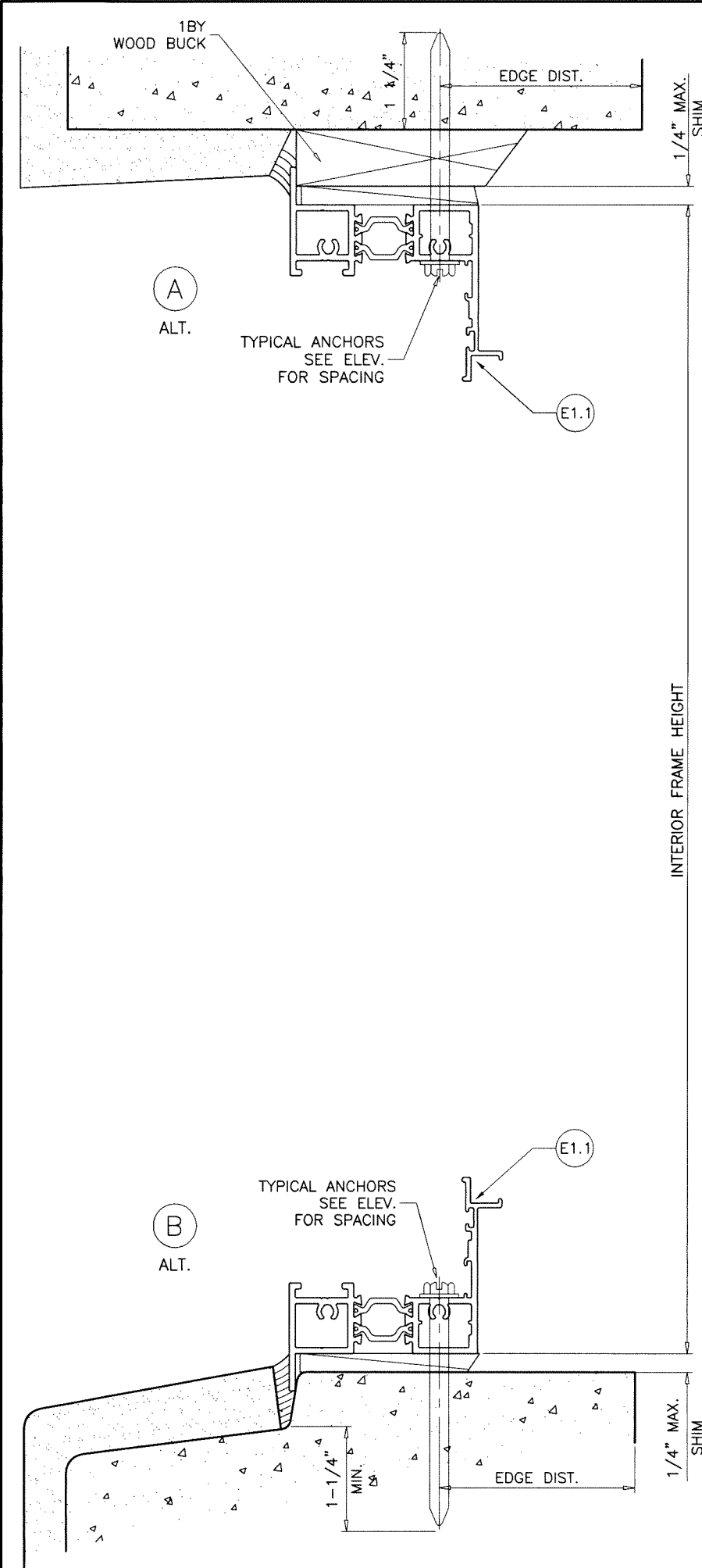
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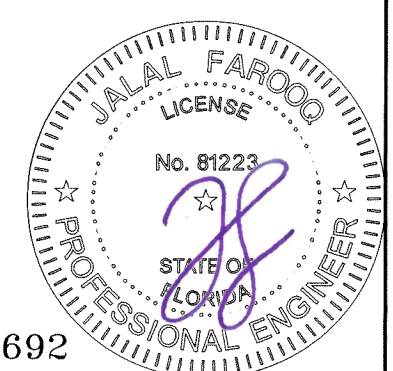
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sheet 3 of 8



INSTALLATION DETAILS WITH FLANGE FRAME
SEE SHEETS 2 & 3 FOR WINDOW DETAILS

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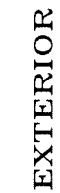
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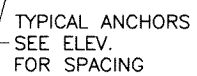
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sheet 3.1 of 8



TYPICAL ANCHORS
— SEE ELEV.
FOR SPACING

A
ALT.

INTERIOR FRAME HEIGHT



1/4" MAX.
GAP

1/2" MIN.

(C)
ALT.

(M36)

(E1A)

(E11)

EXTERIOR

INTERIOR FRAME WIDTH

TYPICAL ANCHORS
SEE ELEV.
FOR SPACING

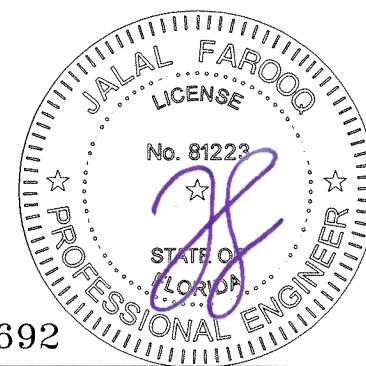
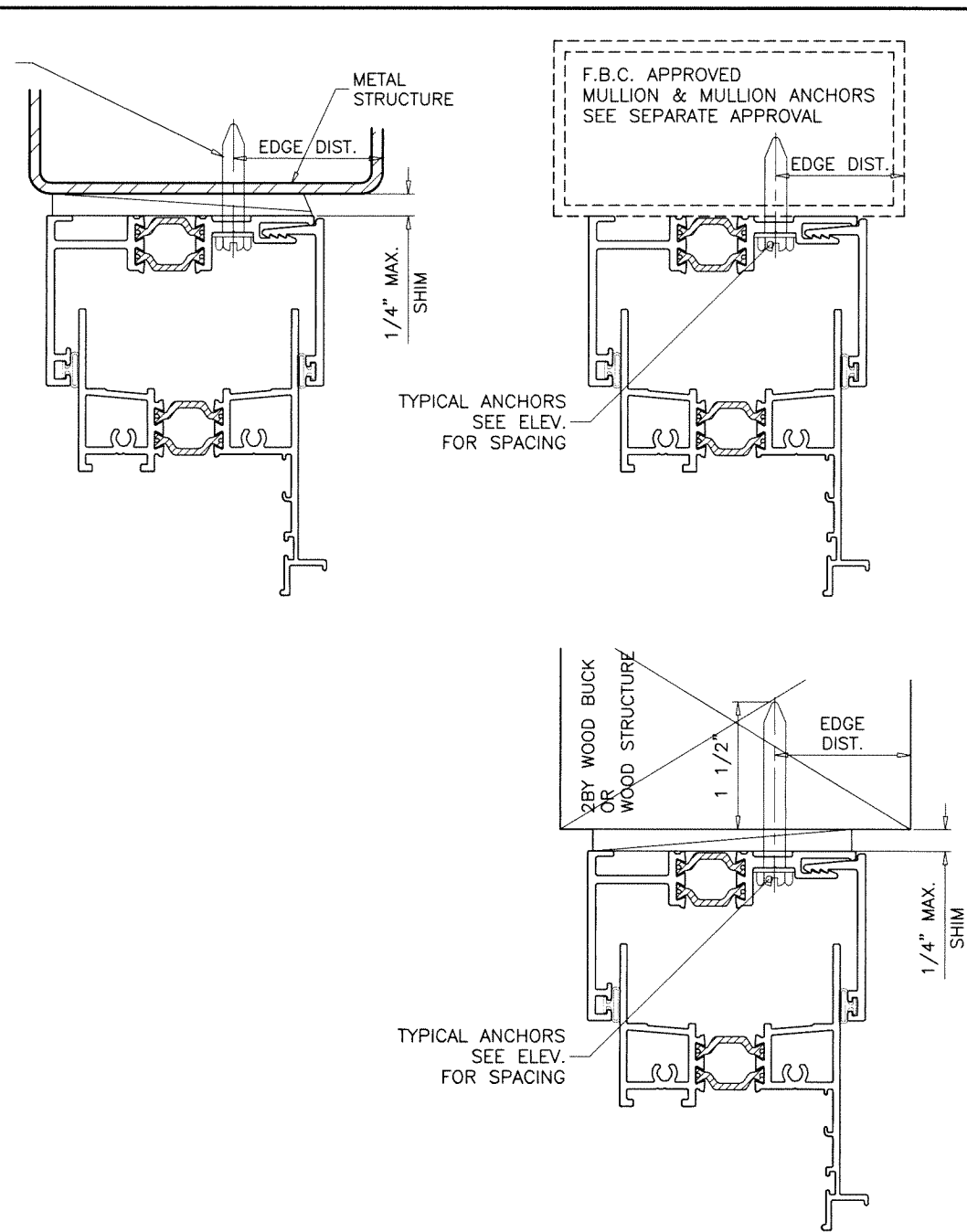
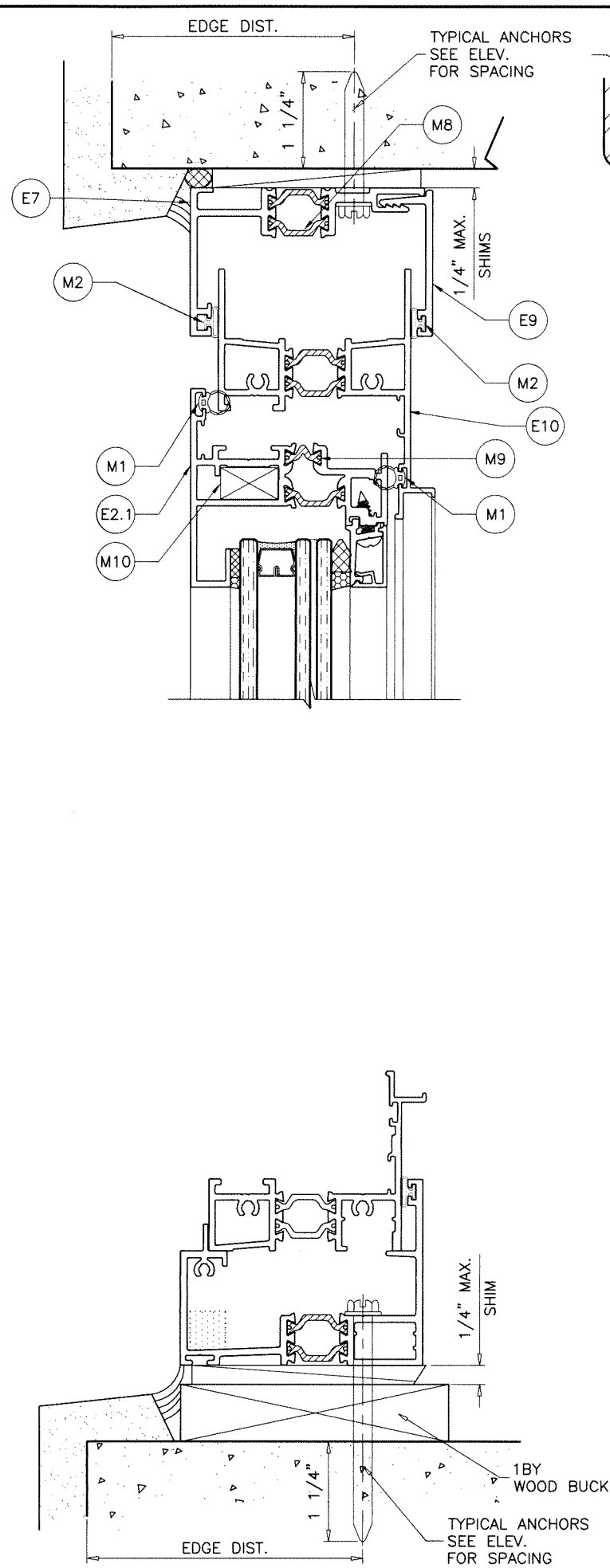
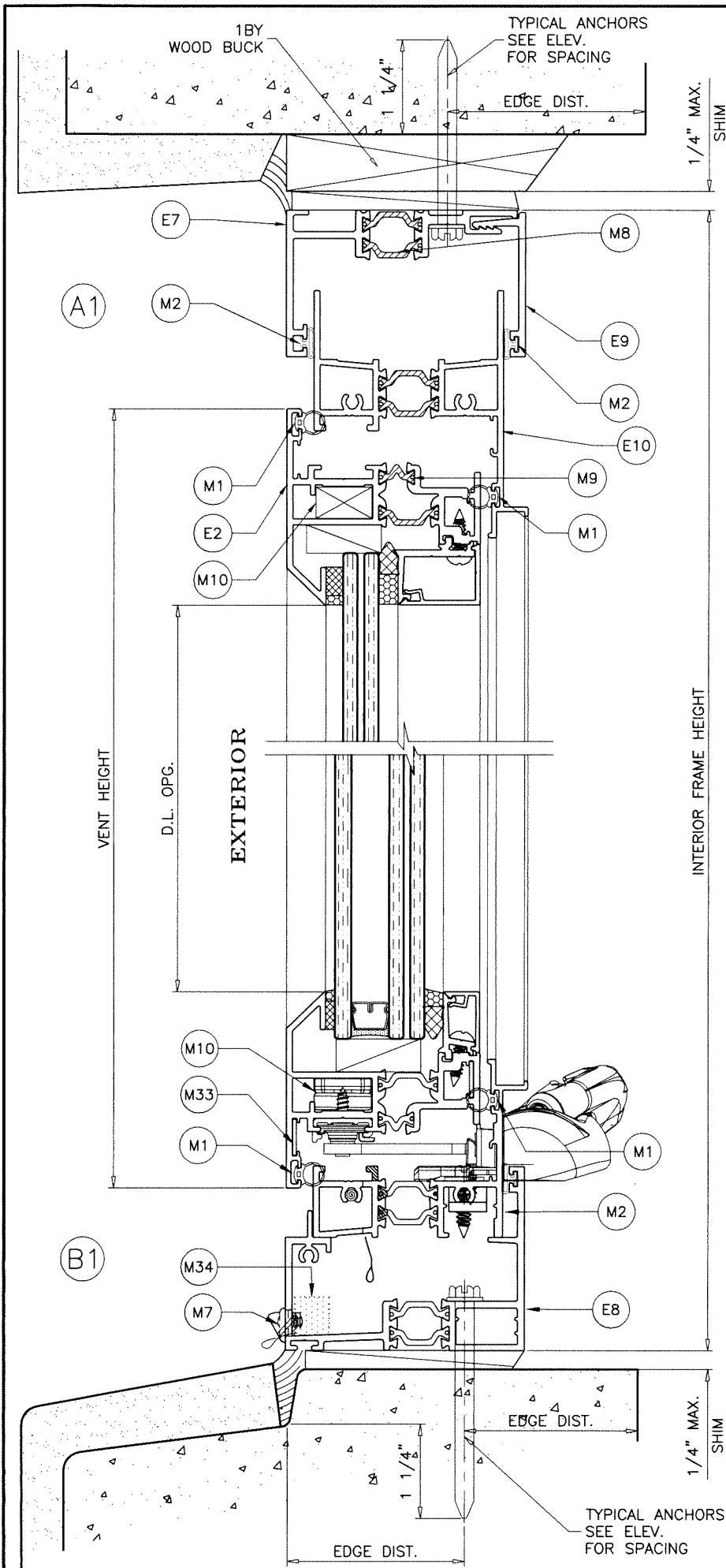
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AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978

COMP-ANL\W16-46-ES

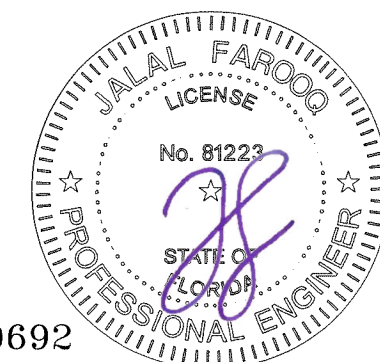
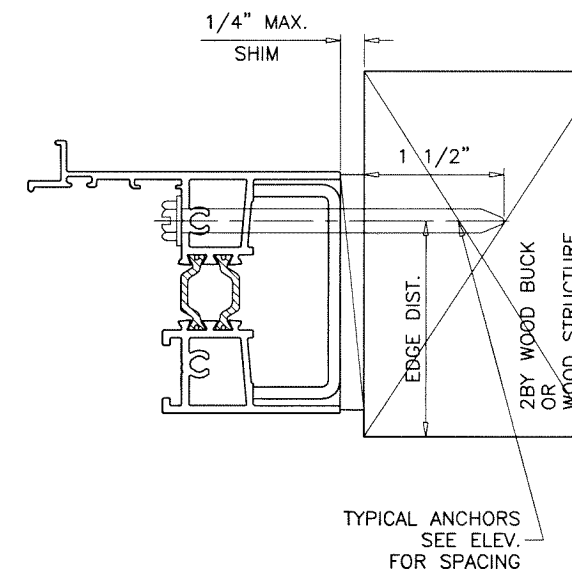
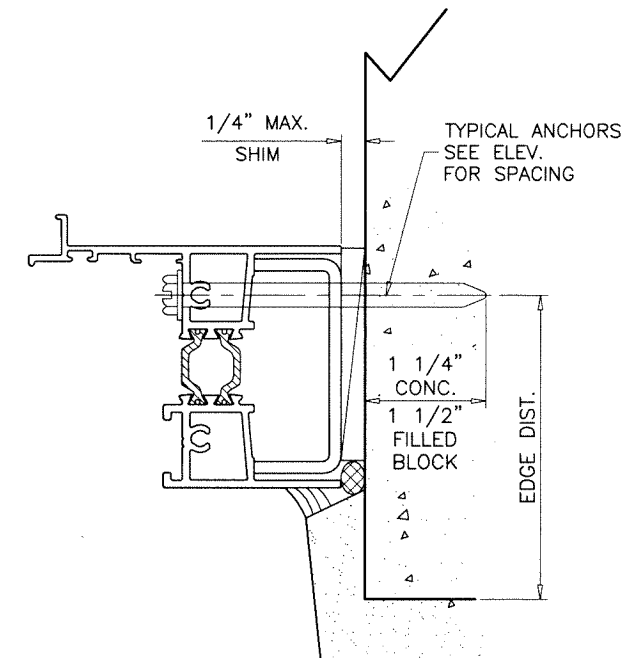
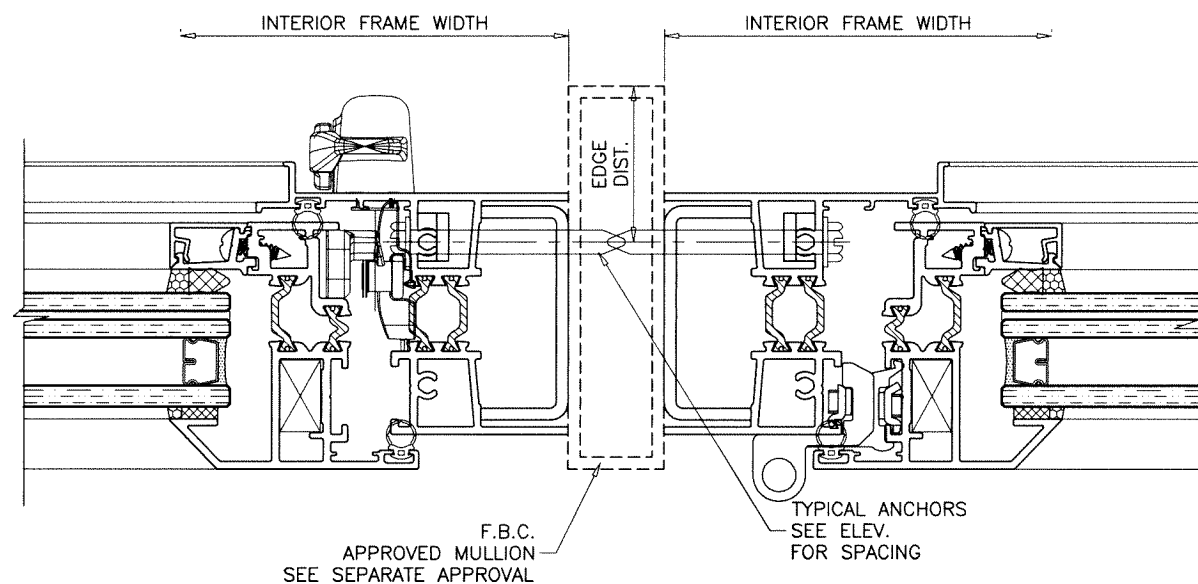
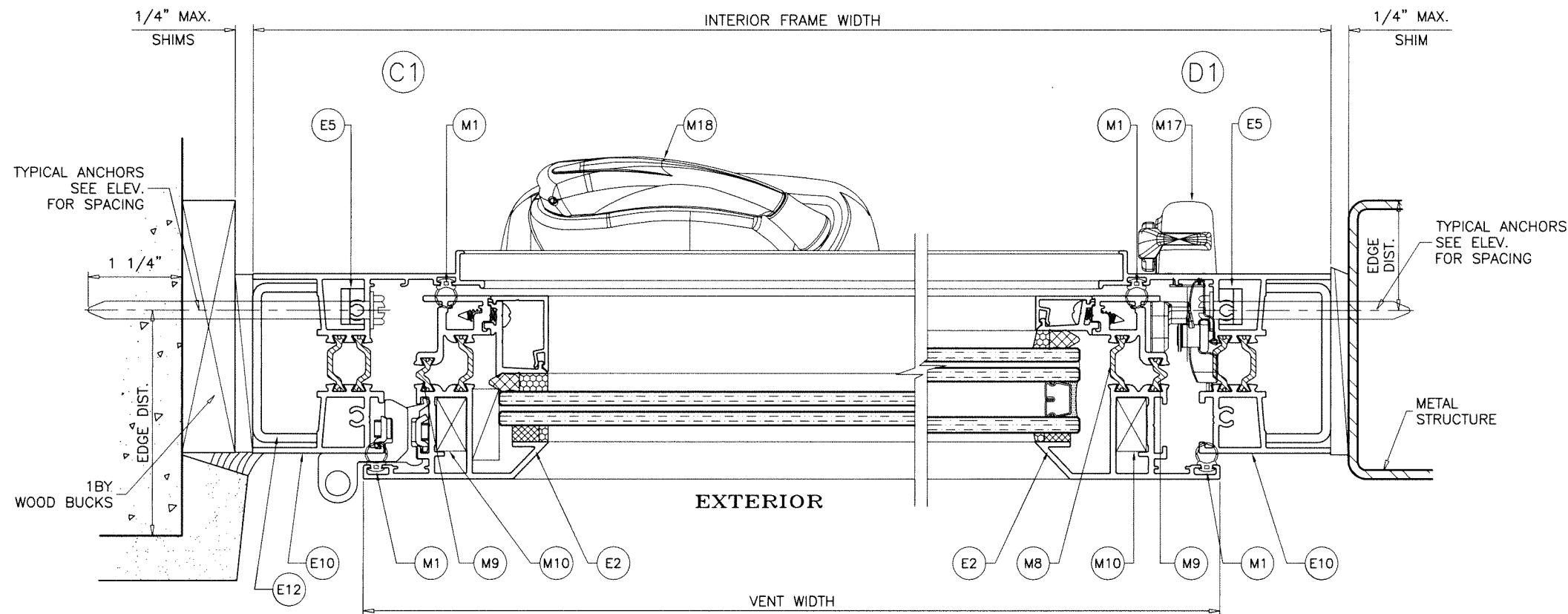
ES-P252 THERMAL ALUM CASEMENT WDW. (L.M.I.)

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

revisions:	
no	description

date: 06-13-16
scale: 1/2" = 1"
dr. by: TARIQ
chk. by:

drawing no.
W16-46
sheet 4 of 8



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sheet 5 of 8

ITEM #	PART #	REQD.	DESCRIPTION	MATERIAL	MANF./SUPPLIER/REMARKS
E1	ES-P250-001/P252-001	4	FLUSH FRAME HEAD/SILL/JAMB	6063-T6	-
E1.1	ES-P250-030/P252-001	4	FLANGE FRAME HEAD/SILL/JAMB	6063-T6	-
E1A	ES-P252-508	4	FIN FRAME HEAD/SILL/JAMB	6063-T6	-
E2	ES-P252-509A	4	VENT	6063-T6	-
E2.1	ES-P252-026/P250-003	4	ALT. VENT	6063-T6	-
E3	ES-P252-004	4/	GLASS STOP (INSUL. LAM. GLASS)	6063-T6	-
E3A	ES-P252-029	4/	GLASS STOP (LAM. GLASS)	6063-T6	-
E4	ES-P252-003	-	COVER IMPACT (INSUL. LAM. GLASS)	6063-T6	-
E4A	ES-P252-030	-	COVER IMPACT (LAM. GLASS)	6063-T6	-
E5	AAC-A-027	1/	CORNER FRAME ATTACHMENT ANGLE	6063-T6	-
E7	ES-P250-010/P251-013	AS REQD.	RECEPTOR HEAD	6063-T6	-
E8	ES-P251-016/032	1	RECEPTOR SILL	6063-T6	-
E9	ES-P251-014	1	RECEPTOR STOP	6063-T6	-
E10	ES-P250-017/P252-012	-	EQUAL LEG FRAME HEAD/JAMB	6063-T6	-
E11	TBA-001	AS REQD.	NAIL FIN	6063-T6	-
E12	-	AS REQD.	JAMB REINF. CHANNEL	6063-T6	-
M1	ES-P251-G05	AS REQD.	INTERIOR VENT GASKET	EPDM	TREMCO #TX-20003E, DUROMETER 70±5 SHORE A
M2	27-245	AS REQD.	FRAME RECEPTOR	EPDM	CANALVIDRIOS, DUROMETER 65±5 SHORE A
M3	-	-	GLAZING TAPE (1/8" X 3/8")	POLYURETHANE	-
M3A	-	AS REQD.	GLAZING TAPE (3/16" X 3/8")	POLYURETHANE	-
M3B	-	AS REQD.	GLAZING TAPE (1/4" X 3/8")	POLYURETHANE	-
M4	ES-H340-G02	-	GLAZING WEDGE	EPDM	DUROMETER 60±5 SHORE A
M6	ES-6025-B01	-	SETTING BLOCK AT VENT	EPDM	TREMCO TR-1870E, DUROMETER 85±5 SHORE A
M6A	NS-25-B03A	-	SETTING BLOCK AT VENT	EPDM	DUROMETER 85±5 SHORE A
M7	WA2L	-	WEEP HOLE COVER	-	PREFERRED
M8	2479	AS REQD.	INSULBAR 20MM OFFSET	POLYAMIDE	ENSINGER
M9	2531	AS REQD.	INSULBAR 12MM OFFSET	POLAMIDE	ENSINGER
M10	0337	-	CORNER JOINT	DIECAST ALUM	MASTER
M11	CL02-002X	-	LOCK POINT BAR	ST. STEEL	INTERLOCK
M12	CL02-2059-00B	-	STRIKER	-	INTERLOCK
M13	CL02-2060-00B	-	LOCKING BAR GUIDE	-	INTERLOCK
M14	C011-0151-085	-	13.5" SA OPERATOR LOW PROFILE RH	ST. STEEL	INTERLOCK
M15	C011-0152	-	13.5" SA OPERATOR LOW PROFILE LH	ST. STEEL	INTERLOCK
M16	C011-0704	-	TRACK	ST. STEEL	INTERLOCK
M17	CL01-0475	-	MULTIPOINT HANDLE	DIE CAST ZINC	INTERLOCK
M18	C011-0605-XXX	-	COVER OPERATOR HANDLE LEFT	-	INTERLOCK
M19	C011-0606-XXX	-	COVER OPERATOR HANDLE RIGHT	-	INTERLOCK
M20	CL01-2250-XXX	-	SNAP ON COVER	DIE CAST ZINC	INTERLOCK
M21	CL01-1050-XXX	-	SNAP ON HANDLE	COPOLYMER	INTERLOCK
M22	C001-4001	-	CLAMP WASHER	ST. STEEL	INTERLOCK
M23	A1199X0003	-	EURO HINGE	ST. STEEL	AMC
M24	#10 X 2" FH	-	FRAME CORNER FASTENER	ST. STEEL	-
M26	#10 X 3/4" PH	-	FRAME CORNER ANGLE FASTENER	ST. STEEL	-
M27	#8 X 1" FH	-	STRIKER FASTENER	ST. STEEL	-
M28	#8 X 1/2" FH	-	GUIDE, OPERATOR, TRACK FASTENER	ST. STEEL	-
M29	#8 X 5/8" PH SMS	-	GLASS STOP FASTENER	ST. STEEL	AT 4" FROM ENDS & 8-1/4" O.C.
M30	#8-32 X 1/2" PH	-	LOCKING HANDLE CLAMP WASHER FASTENER	ST. STEEL	-
M31	#8 X 1/2" PH	-	END DAM FASTENER	ST. STEEL	-
M32	C001-4000	-	CLAMP WASHER	ROH	INTERLOCK
M33	PJS43-SS	-	CORNER LOCK	ST. STEEL	-
M34	WPSA-N1	-	3/4" X 3/4" X 2" RETICALATED FOAM	OPEN CELL FOAM	30 PP1
M35	HELIMA	-	LOW PROFILE SPACER	ALUMINUM	LINGERMANN GMBH & CO. KG
M36	#10 X 3/4"	AS REQD.	NAIL FIN FASTENERS AT 3" FROM ENDS & 12" O.C.	ALUMINUM	FH SMS

SEALANTS:

FRAME AND VENT CORNERS AND INSTALLATION SCREWS AT SILL SEALED WITH WHITE/ALUMINUM COLORED GENERAL PURPOSE SILICONE SEALANT BY MACKLANBURG-DUNCAN.

LOCKS:

SEVEN POINT LOCK SYSTEM BY 'INTERLOCK' LOCATED AT FRAME JAMB AT 10" FROM BOTTOM FASTENED WITH (2) #8-32 X 1/2" PH MS

(10) SLIDE BAR NYLON GUIDES, EACH FASTENED TO FRAME JAMB WITH (2) #8 X 1" FH SMS

SURFACE MOUNT NYLON KEEPERS AT VENT FACING LOCKING POINTS EACH FASTENED WITH (2) #10 X 3/4" FH SDS

HINGES:

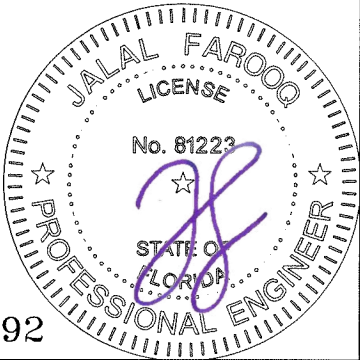
SURFACE MOUNT METALLIC PIVOT HINGES
(2) FOR VENT HEIGHTS UPTO 82-11/16"
(3) FOR VENT HEIGHTS ABOVE 82-11/16"
TOP & BOTTOM HINGES AT 8" FROM EACH END
INTERMEDIATE HINGE AT MIDSPAN
FASTENED WITH (2) #12-28 X 1/2" FH MS
(2) 1/4-20 X 1/4" SET SCREW

OPERATOR:

ROTO OPERATOR BY 'INTERLOCK' LOCATED AT SILL END FASTENED WITH (6) #8 X 3/4" FH SMS
(2) #8-32 X 7/16" FH MS

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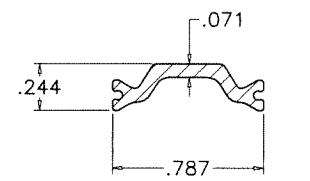
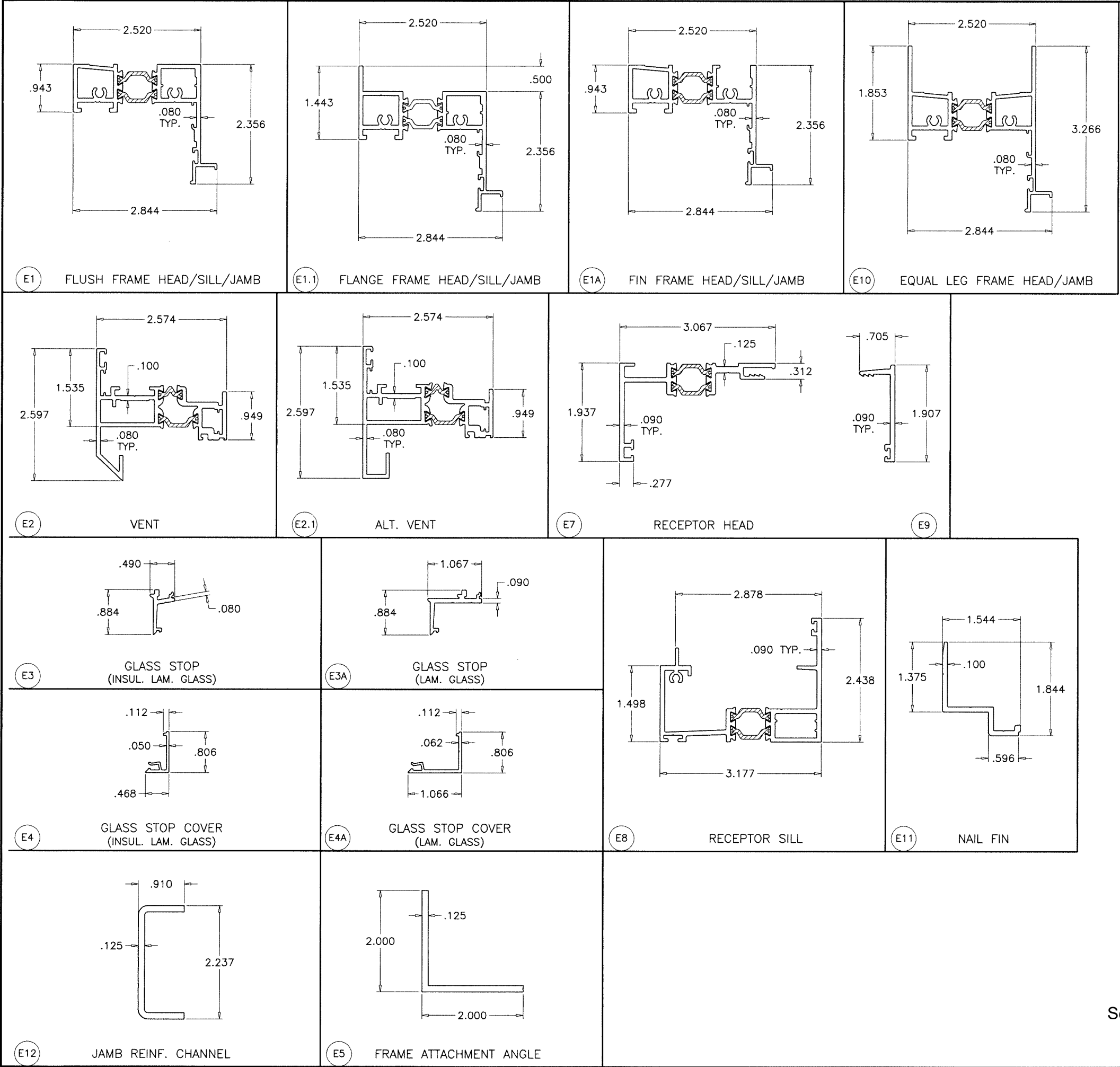
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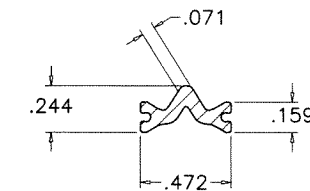
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sheet 6 of 8



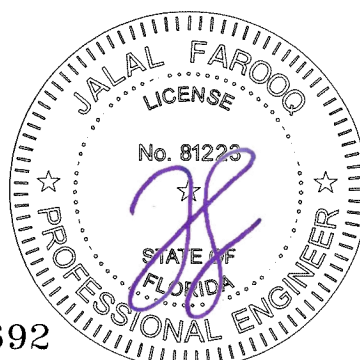
M8 20MM OFFSET



M9 12MM OFFSET

TECATHERM® 66 GF INSULBARS
SCALE 1:1

MATERIAL = POLYAMIDE
TENSILE STRENGTH = 13031 PSI
RATE OF BURN = .752 IN./MIN.
SELF IGNITION TEMP. = 793° F
FLASH IGNITION TEMP. = 781°C
SMOKE DENSITY = 1.63



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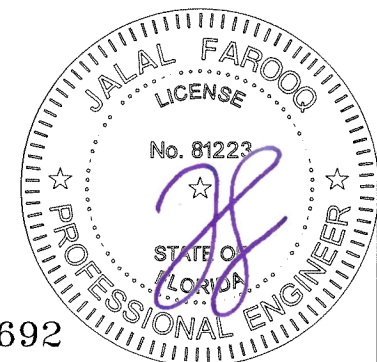
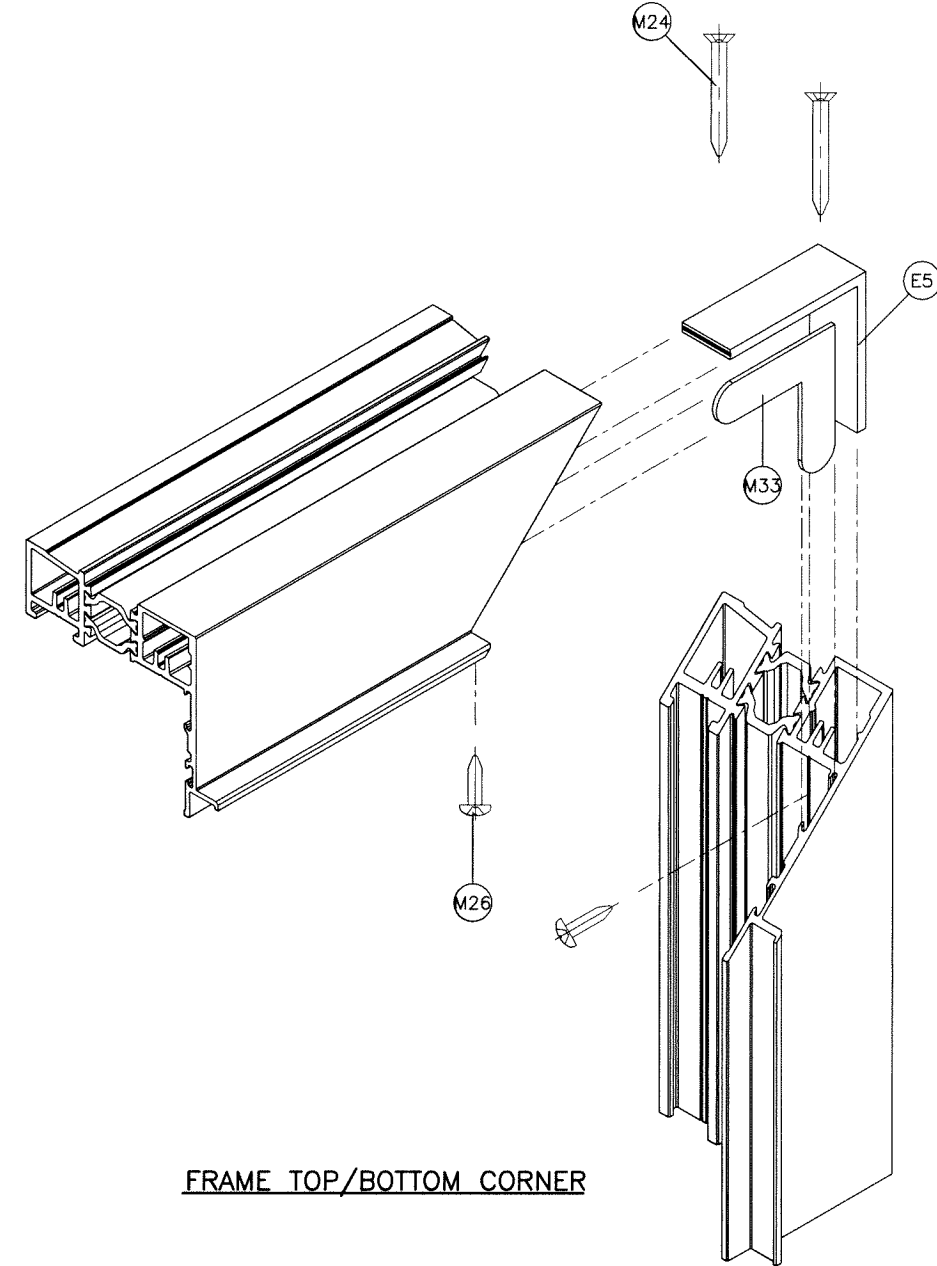
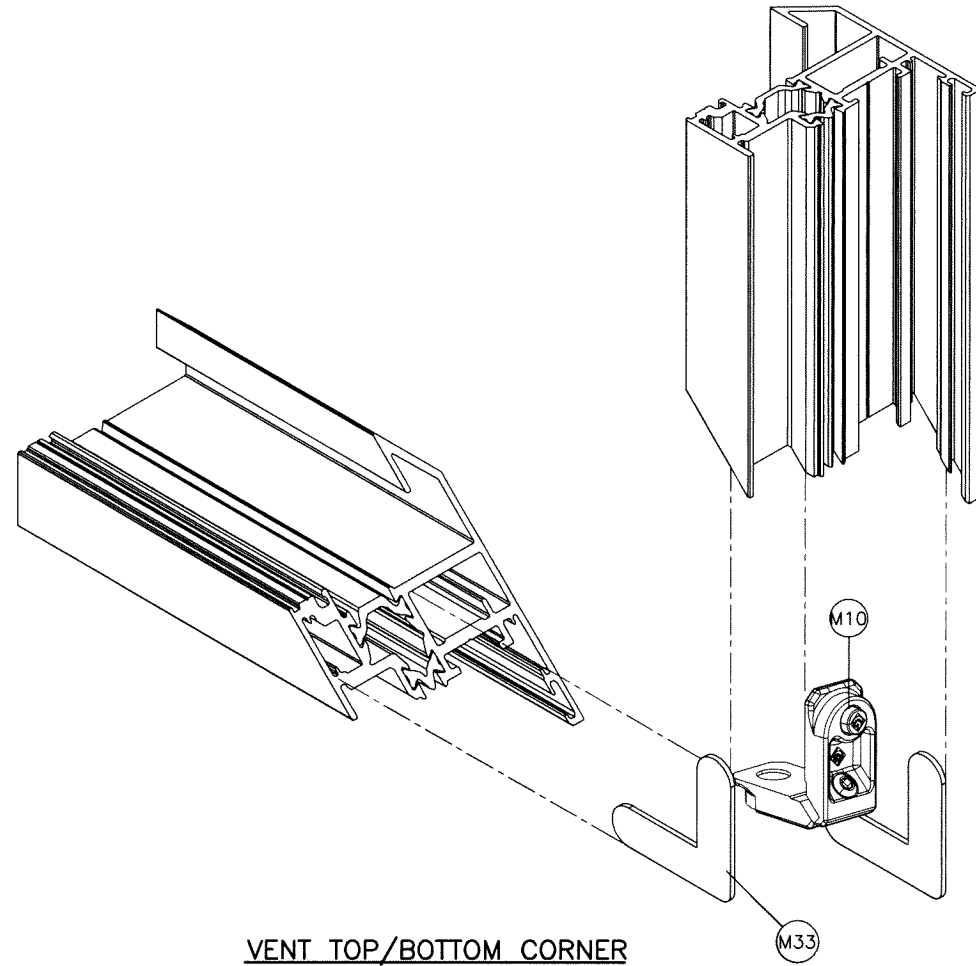
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