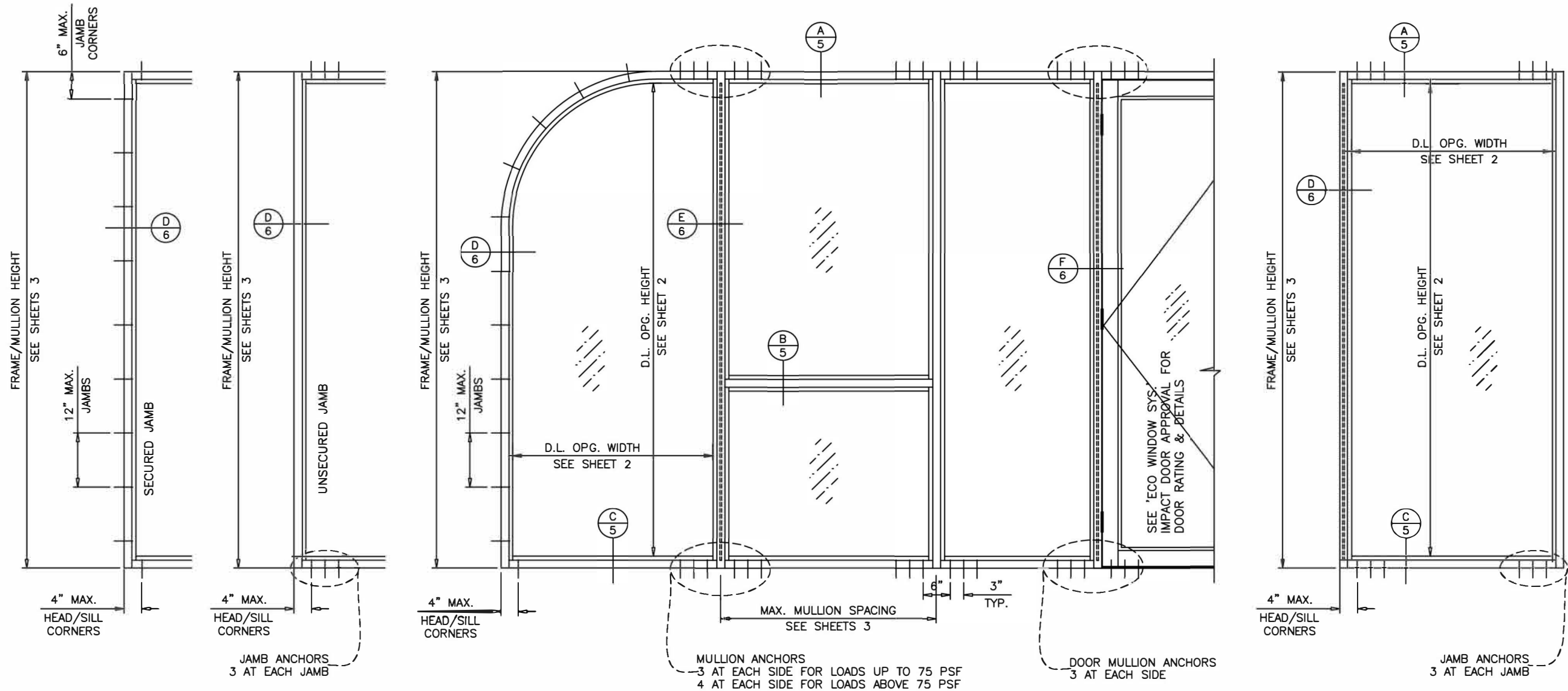




SERIES 450 ALUMINUM WINDOW WALL SYSTEM

THIS SYSTEM MAY BE USED IN CONJUNCTION WITH FBC APPROVED SMALL MISSILE IMPACT RESISTANT DOORS.

LOWER DESIGN PRESSURE FROM WINDOW WALL OR DOOR APPROVAL WILL APPLY TO ENTIRE SYSTEM.

THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE 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 AS LISTED, 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 FLORIDA BUILDING CODE.

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)'.

TYPICAL ELEVATION

INSTRUCTIONS:

USE CHARTS AS FOLLOWS.

- STEP 1** DETERMINE DESIGN WIND LOAD REQUIREMENT BASED ON WIND VELOCITY, BLDG. HEIGHT, WIND ZONE USING APPLICABLE ASCE 7 STANDARD.
- STEP 2** CHECK GLASS CAPACITY TABLE ON SHEET 2 FOR GLASS TYPE, GLASS DIMENSIONS (WIDTH & HEIGHT) AND PRESSURE CAPACITY. THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.
- STEP 3** CHECK WINDOW WALL SYSTEM CAPACITY FOR DESIRED HEIGHT AND MULLION SPACING USING CHARTS ON SHEETS 3. THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.
- STEP 4** FOR SYSTEM WITH UNANCHORED JAMBS, USING SHEET 6 DETERMINE THE MIN. & MAX. GAP DIMENSIONS.
- STEP 5** THE LOWEST VALUE RESULTING FROM STEPS 2, 3 AND 4 SHALL APPLY TO ENTIRE SYSTEM.
- STEP 6** 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 SMALL MISSILE IMPACT. FBC HVHZ APPROVED IMPACT RESISTANT SHUTTERS REQUIRED FOR INSTALLATIONS UP TO 30 FT. OF GRADE.

SMALL MISSILE IMPACT

ALL TEMPERED AND/OR LAMINATED GLASS OPTIONS IN THIS APPROVAL HAVE BEEN CERTIFIED BY THE SGCC FOR COMPLIANCE TO ANSI Z97.1, CLASS A AND CPSC 16 CFR 1201, CATEGORY II. THIS INCLUDES LAMINATED GLASS THAT IS MANUFACTURED WITH ANNEALED GLASS PLIES. FOR APPLICATIONS WHERE THE WINDOW IS BEING USED AS A GUARD, HEAT STRENGTHENED OR TEMPERED LAMINATED GLASS MUST BE USED.

FL #21632.4



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							No.	DATE	DESCRIPTION

SERIES 450:ALUMINUM WINDOW WALL SYSTEM
(S.M.I.)
SMALL MISSILE IMPACT RATED



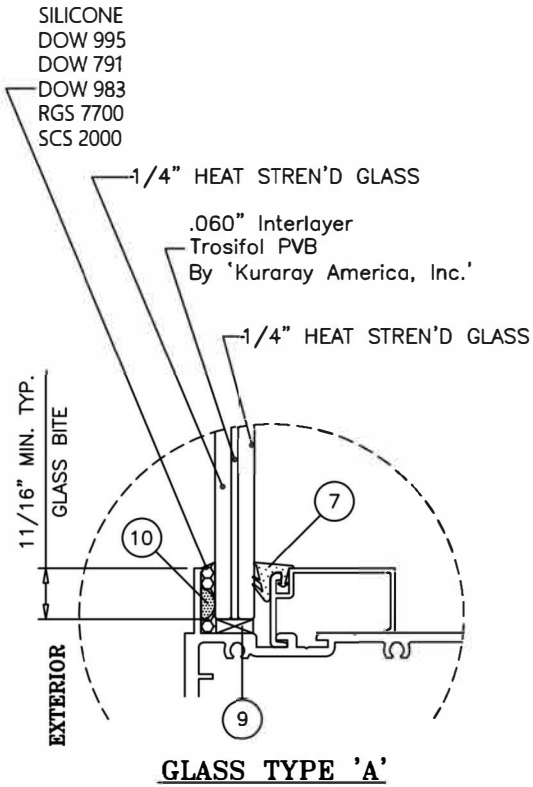
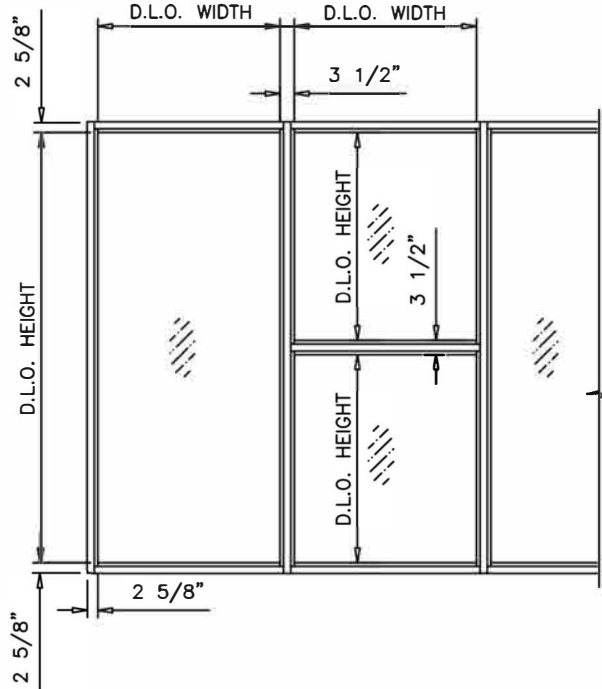
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GLASS LOAD CAPACITY – PSF			
NOMINAL DIMS.		GLASS TYPES	
D.L.O. WIDTH	D.L.O. HEIGHT	POS. (+)	NEG. (-)
30–3/4"	78–3/4"	80.0	90.0
33–3/4"		80.0	90.0
36–3/4"		80.0	90.0
39–3/4"		80.0	90.0
42–3/4"		80.0	90.0
45–3/4"		80.0	90.0
48–3/4"		80.0	90.0
51–3/4"		80.0	90.0
54–3/4"	84–3/4"	80.0	90.0
57–3/4"		76.2	85.7
60–3/4"		72.7	81.8
30–3/4"		80.0	90.0
33–3/4"		80.0	90.0
36–3/4"		80.0	90.0
39–3/4"		80.0	90.0
42–3/4"		80.0	90.0
45–3/4"		80.0	90.0
48–3/4"		80.0	90.0
51–3/4"		80.0	90.0
54–3/4"	90–3/4"	80.0	90.0
57–3/4"		76.2	85.7
30–3/4"		80.0	90.0
33–3/4"		80.0	90.0
36–3/4"		80.0	90.0
39–3/4"		80.0	90.0
42–3/4"		80.0	90.0
45–3/4"		80.0	90.0
48–3/4"		80.0	90.0
51–3/4"		80.0	90.0
54–3/4"		80.0	90.0

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



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

GLASS

FL #21632.4



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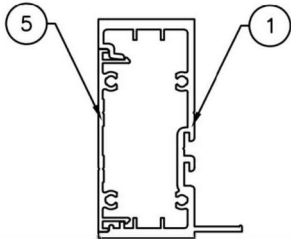
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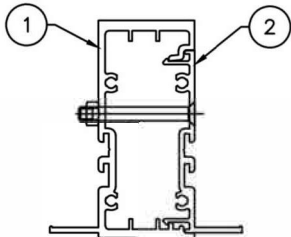


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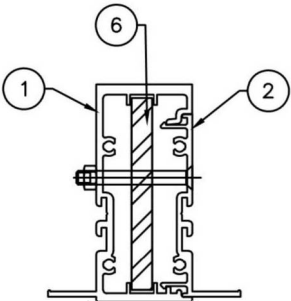
JAMB & MULLION LOAD CAPACITY – PSF							
JAMBS & MULLIONS WITHOUT INTERMEDIATE HORIZONTALS							
NOMINAL DIMS.		JAMB 'J1'		MULL 'M1'		MULL 'M2'	
WIDTH(W)	FRAME HEIGHT	POS. (+)	NEG. (-)	POS. (+)	NEG. (-)	POS. (+)	NEG. (-)
36"	84"	70.0	75.0	70.0	75.0	80.0	90.0
39"		70.0	75.0	70.0	75.0	80.0	90.0
42"		70.0	75.0	70.0	75.0	80.0	90.0
45"		70.0	75.0	70.0	75.0	80.0	90.0
48"		70.0	75.0	70.0	75.0	80.0	90.0
51"		70.0	75.0	70.0	75.0	80.0	90.0
54"		70.0	75.0	70.0	75.0	80.0	90.0
57"		70.0	75.0	–	–	80.0	90.0
60"		70.0	75.0	–	–	80.0	90.0
63"	84"	–	–	–	–	80.0	90.0
66"		–	–	–	–	80.0	90.0
36"	90"	70.0	75.0	70.0	75.0	80.0	90.0
39"		70.0	75.0	70.0	75.0	80.0	90.0
42"		70.0	75.0	70.0	75.0	80.0	90.0
45"		70.0	75.0	70.0	75.0	80.0	90.0
48"		70.0	75.0	70.0	75.0	80.0	90.0
51"		70.0	75.0	70.0	75.0	80.0	90.0
54"		70.0	75.0	–	–	80.0	90.0
57"		70.0	75.0	–	–	80.0	90.0
60"		–	–	–	–	80.0	90.0
36"	96"	70.0	75.0	70.0	75.0	80.0	90.0
39"		70.0	75.0	70.0	75.0	80.0	90.0
42"		70.0	75.0	70.0	75.0	80.0	90.0
45"		70.0	75.0	70.0	74.5	80.0	90.0
48"		70.0	75.0	70.0	70.7	80.0	90.0
51"		70.0	75.0	–	–	80.0	90.0
54"		70.0	75.0	–	–	80.0	90.0
57"		–	–	–	–	80.0	86.9
58–3/4"		–	–	–	–	80.0	85.0



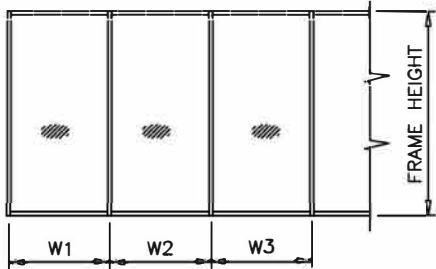
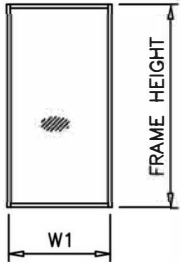
UNSECURED JAMB 'J1'



MULLION 'M1'



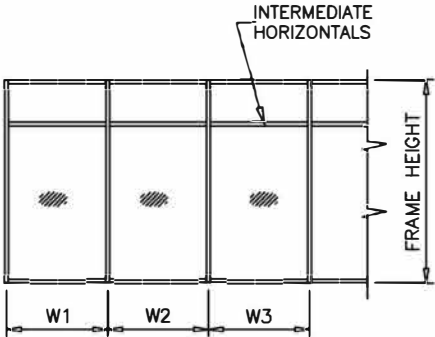
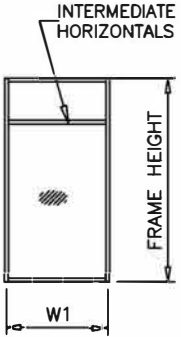
MULLION 'M2'



WIDTH (W) = W1
AT FRAME JAMB

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

JAMB & MULLION LOAD CAPACITY – PSF							
JAMBS & MULLIONS WITH INTERMEDIATE HORIZONTALS							
NOMINAL DIMS.		JAMB 'J1'		MULL 'M1'		MULL 'M2'	
WIDTH (W)	FRAME HEIGHT	POS. (+)	NEG. (-)	POS. (+)	NEG. (-)	POS. (+)	NEG. (-)
36"	84"	70.0	75.0	70.0	75.0	80.0	90.0
39"		70.0	75.0	70.0	75.0	80.0	90.0
42"		70.0	75.0	70.0	75.0	80.0	90.0
45"		70.0	75.0	70.0	75.0	80.0	90.0
48"		70.0	75.0	70.0	75.0	80.0	90.0
51"		70.0	75.0	70.0	75.0	80.0	90.0
54"		70.0	75.0	70.0	75.0	80.0	90.0
57"		70.0	75.0	–	–	80.0	90.0
60"		70.0	75.0	–	–	80.0	90.0
63"	84"	–	–	–	–	80.0	90.0
66"		–	–	–	–	80.0	86.7
36"	90"	70.0	75.0	70.0	75.0	80.0	90.0
39"		70.0	75.0	70.0	75.0	80.0	90.0
42"		70.0	75.0	70.0	75.0	80.0	90.0
45"		70.0	75.0	70.0	75.0	80.0	90.0
48"		70.0	75.0	70.0	75.0	80.0	90.0
51"		70.0	75.0	70.0	73.0	80.0	90.0
54"		70.0	75.0	–	–	80.0	90.0
57"		70.0	75.0	–	–	80.0	87.5
60"		–	–	–	–	80.0	83.1
36"	96"	70.0	75.0	70.0	75.0	80.0	90.0
39"		70.0	75.0	70.0	75.0	80.0	90.0
42"		70.0	75.0	70.0	73.1	80.0	90.0
45"		70.0	75.0	68.2	68.2	80.0	90.0
48"		70.0	75.0	63.9	63.9	80.0	90.0
51"		70.0	75.0	–	–	80.0	85.9
54"		70.0	75.0	–	–	80.0	81.1
57"		–	–	–	–	76.9	76.9
58–3/4"		–	–	–	–	74.6	74.6
36"	102"	70.0	75.0	–	–	70.0	75.0
39"		70.0	75.0	–	–	70.0	75.0
42"		70.0	75.0	–	–	70.0	75.0
45"		70.0	75.0	–	–	70.0	75.0
48"		70.0	75.0	–	–	70.0	75.0
36"	108"	70.0	75.0	–	–	70.0	75.0
39"		70.0	75.0	–	–	70.0	75.0
42"		70.0	75.0	–	–	70.0	75.0
45"		70.0	75.0	–	–	70.0	75.0
48"		70.0	72.7	–	–	70.0	72.7



WIDTH (W) = W1
AT FRAME JAMB

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

MULLION

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(S.M.I.)
SMALL MISSILE IMPACT RATED

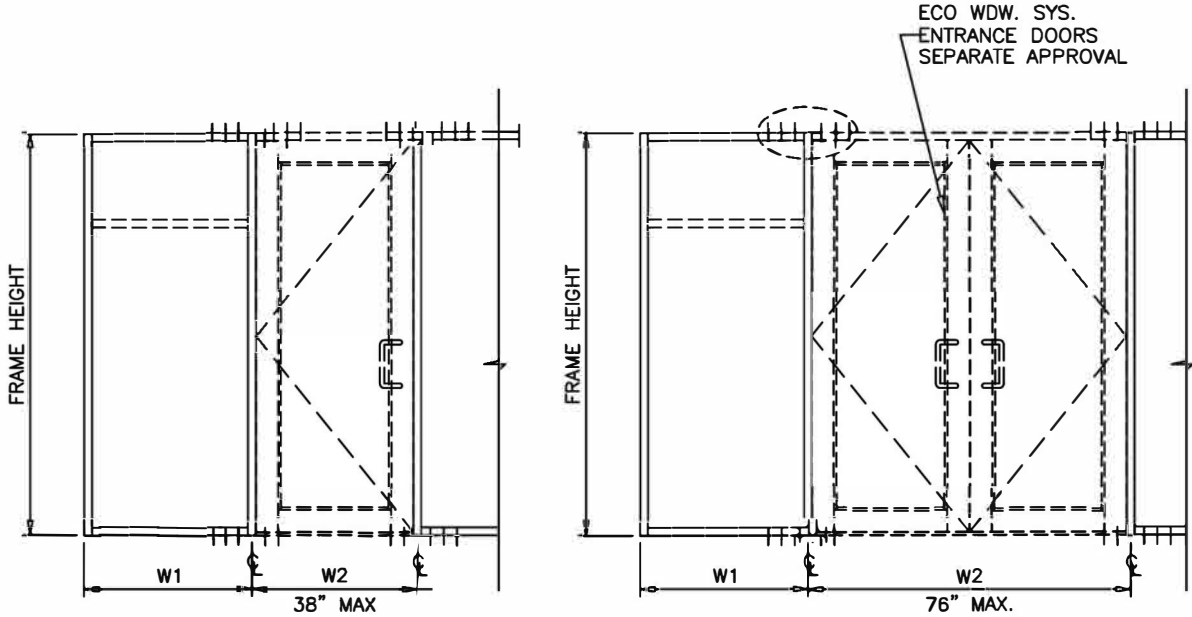


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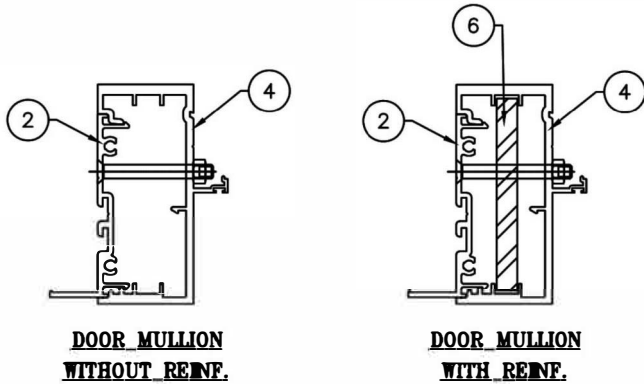
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DOOR MULLION LOAD CAPACITY – PSF					
NOMINAL DIMS.		WITHOUT REINF.		WITH REINF.	
WIDTH (W)	FRAME HEIGHT	POS. (+)	NEG. (-)	POS. (+)	NEG. (-)
37"	84"	70.0	75.0	70.0	75.0
38-1/2"		70.0	75.0	70.0	75.0
40"		70.0	75.0	70.0	75.0
41-1/2"		70.0	75.0	70.0	75.0
43"		70.0	75.0	70.0	75.0
44-1/2"		70.0	75.0	70.0	75.0
46"		70.0	75.0	70.0	75.0
47-1/2"		70.0	75.0	70.0	75.0
49"		70.0	74.8	70.0	75.0
37"	90"	70.0	75.0	70.0	75.0
38-1/2"		70.0	75.0	70.0	75.0
40"		70.0	75.0	70.0	75.0
41-1/2"		70.0	75.0	70.0	75.0
43"		70.0	74.3	70.0	75.0
44-1/2"		70.0	71.8	70.0	75.0
46"		–	–	70.0	75.0
47-1/2"		–	–	70.0	75.0
49"		–	–	70.0	75.0
37"	96"	70.0	74.0	70.0	75.0
38-1/2"		70.0	71.1	70.0	75.0
40"		68.5	68.5	70.0	75.0
41-1/2"		66.0	66.0	70.0	75.0
43"		63.7	63.7	70.0	75.0
44-1/2"		–	–	70.0	75.0
46"		–	–	70.0	75.0
47-1/2"		–	–	70.0	75.0
37"	102"	–	–	70.0	75.0
38-1/2"		–	–	70.0	75.0
40"		–	–	70.0	75.0
41-1/2"		–	–	70.0	75.0
43"		–	–	70.0	75.0
44-1/2"		–	–	70.0	75.0
37"	108"	–	–	70.0	75.0
38-1/2"		–	–	70.0	75.0
40"		–	–	70.0	75.0
41-1/2"		–	–	70.0	75.0
43"		–	–	70.0	75.0



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

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



DOOR MULLION

FL #21632.4



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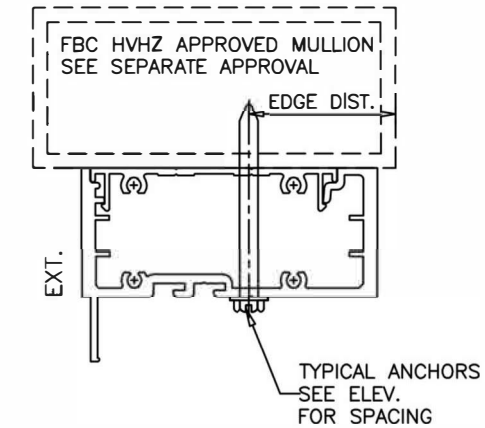
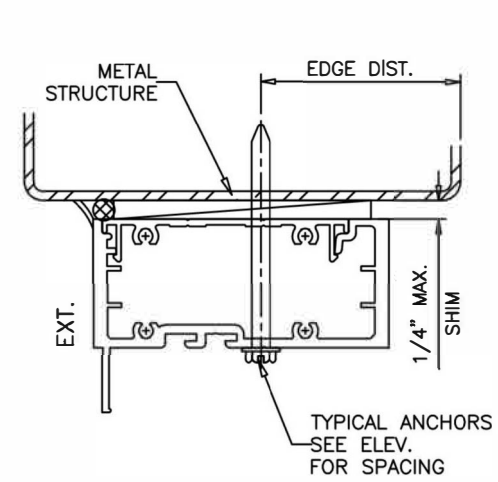
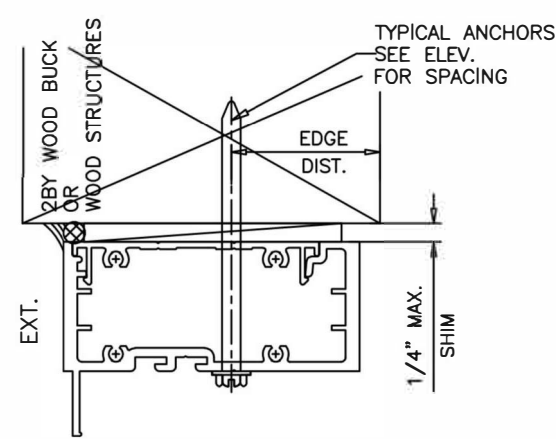
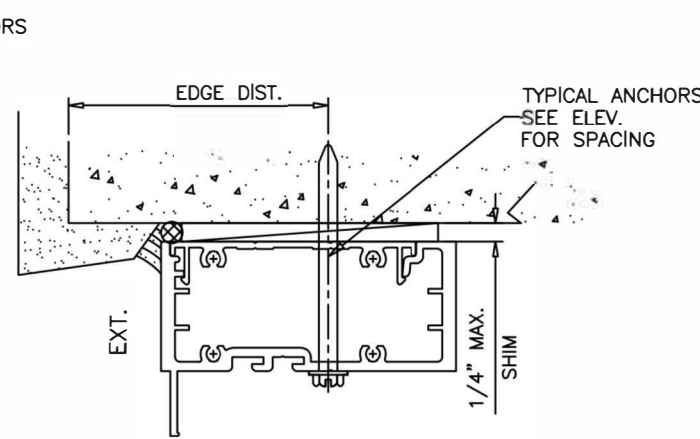
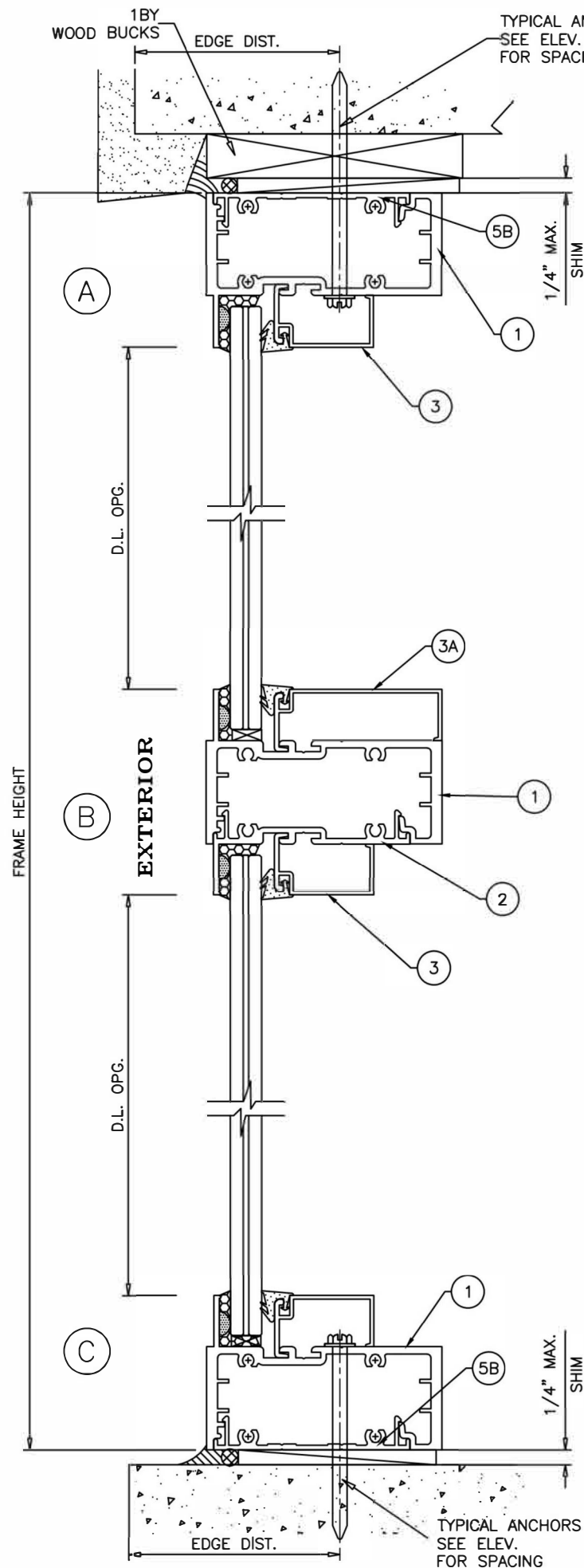
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SMALL MISSILE IMPACT RATED

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WOOD BUCKS AND METAL STRUCTURE NOT BY ECO WINDOWS
MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM
AND TRANSFER THEM TO THE BUILDING STRUCTURE.

TYPICAL ANCHORS: SEE ELEV. FOR SPACING

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 WOOD BUCKS INTO CONCRETE OR BLOCKS
1-1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL/JAMBS)
1-1/4" MIN. EMBED INTO BLOCKS (JAMBS)

DIRECTLY INTO CONCRETE OR BLOCKS
1-1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL/JAMBS)
1-1/4" MIN. EMBED INTO BLOCKS (JAMBS)

#14 SMS OR SELF DRILLING SCREWS (GRADE 2 CRS)
INTO FBC APPROVED MULLIONS
OR
INTO METAL STRUCTURES
(3) THREADS MIN. PENETRATION BEYOND SUBSTRATE
STEEL : 1/8" THK. MIN. (Fy = 36 KSI MIN.)
ALUMINUM : 1/8" THK. MIN. (6063-T5 MIN.)
(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

TYPICAL 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 HOLLOW/FILLED BLOCK AT JAMBS f'm = 2000 PSI MIN.

FL #21632.4



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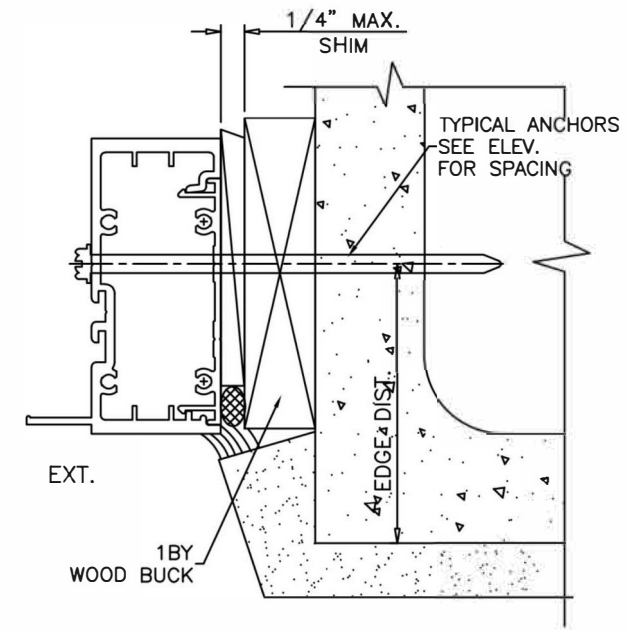
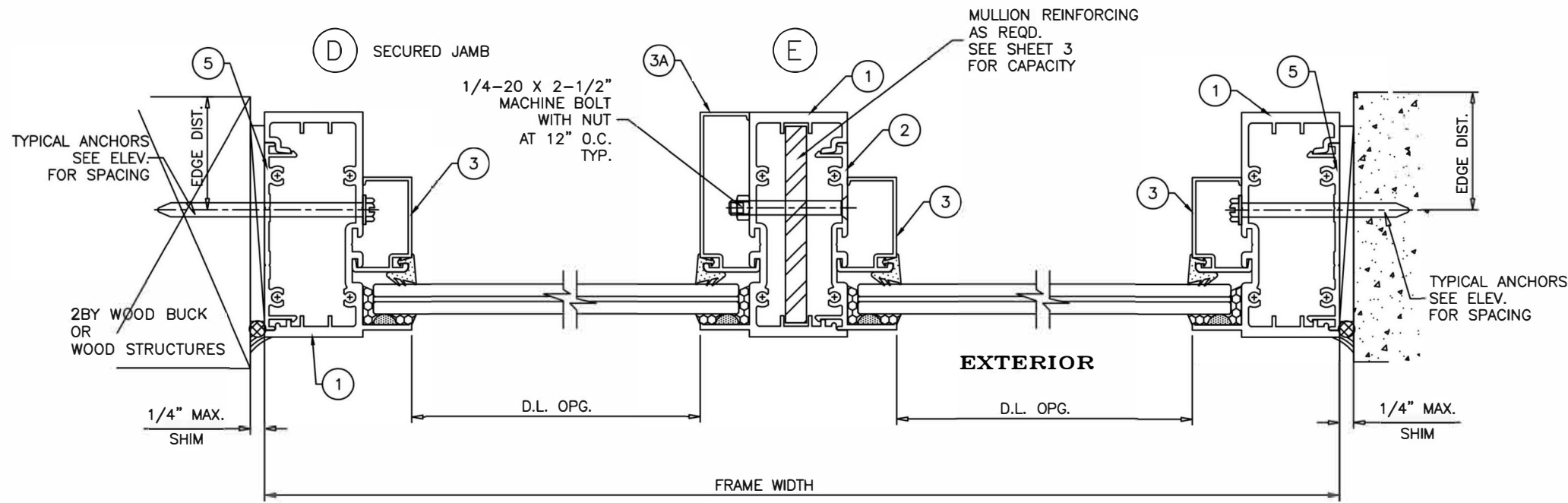
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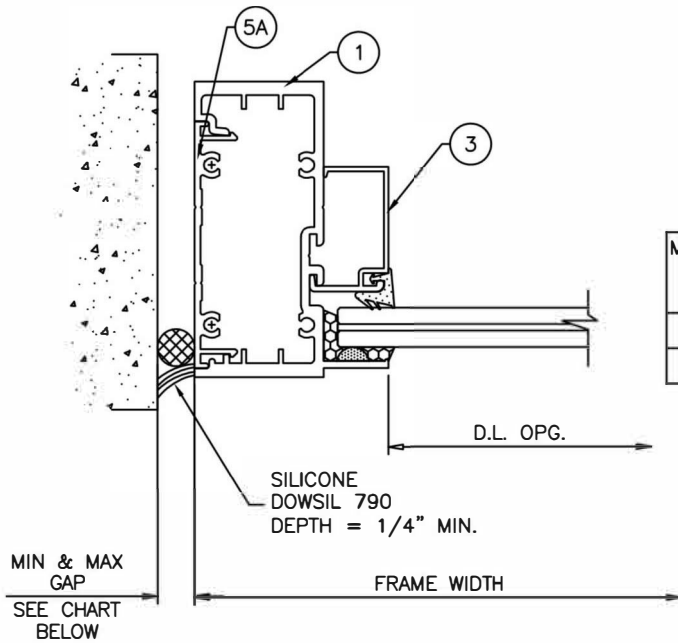
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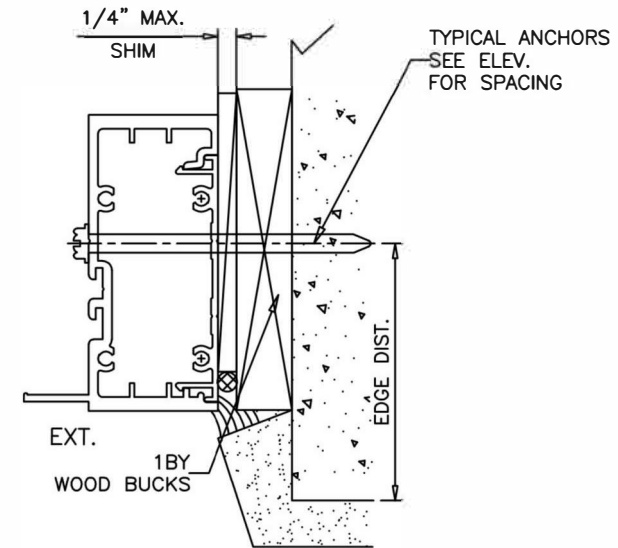
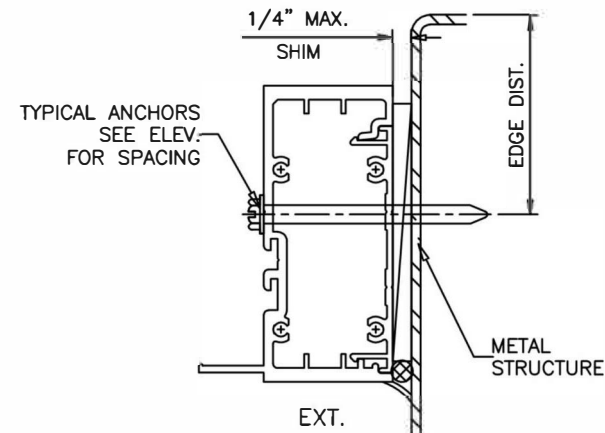
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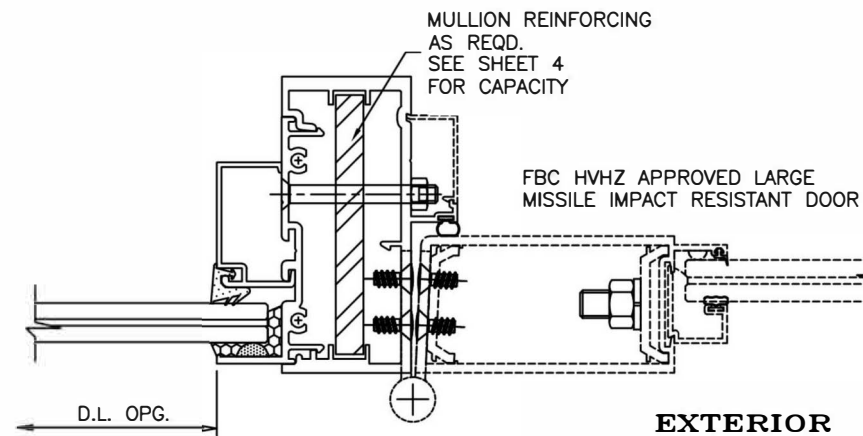
D UNSECURED JAMB



MAX. FRAME HEIGHT UP TO	GAP	
	MIN.	MAX.
96	5/16"	3/4"
120	3/8"	3/4"



F



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

LOWER VALUES FROM DOOR APPROVALS OR WINDOW WALL SYSTEM CAPACITY CHARTS WILL APPLY TO ENTIRE SYSTEM.

NOTE:
MAX. MOVEMENT CONSIDERED = 100% STRETCH.
PLEASE REFER TO SEALANT MANUFACTURER'S DATA AND APPLICATION MANUAL FOR COMPATIBILITY OF SEALANT TO SUBSTRATE & WINDOW WALL MATERIAL/FINISH AND COMPLIANCE FOR WARRANTY.
REFER TO ACI-117.1R-14 FOR CONSTRUCTION TOLERANCES.

ALTERNATIVE SEALANTS AT JAMB GAPS CAN BE DESIGNED BY ENGINEER OR RECORD BASED ON MANUFACTURER GUIDELINES.

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



JAVAD AHMAD PE, inc

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drawing no.	date:	MA	BS
JA-1844-24	12/30/2024		
REVISION		DATE	DESCRIPTION
No.	BY		

SERIES 450:ALUMINUM WINDOW WALL SYSTEM (S.M.I.)

SMALL MISSILE IMPACT RATED



ECO WINDOW SYSTEMS, LLC.
8502 N.W. 80th ST. MEDLEY, FL 33166
TEL. (305) 885-5299 FAX. (305) 885-5902

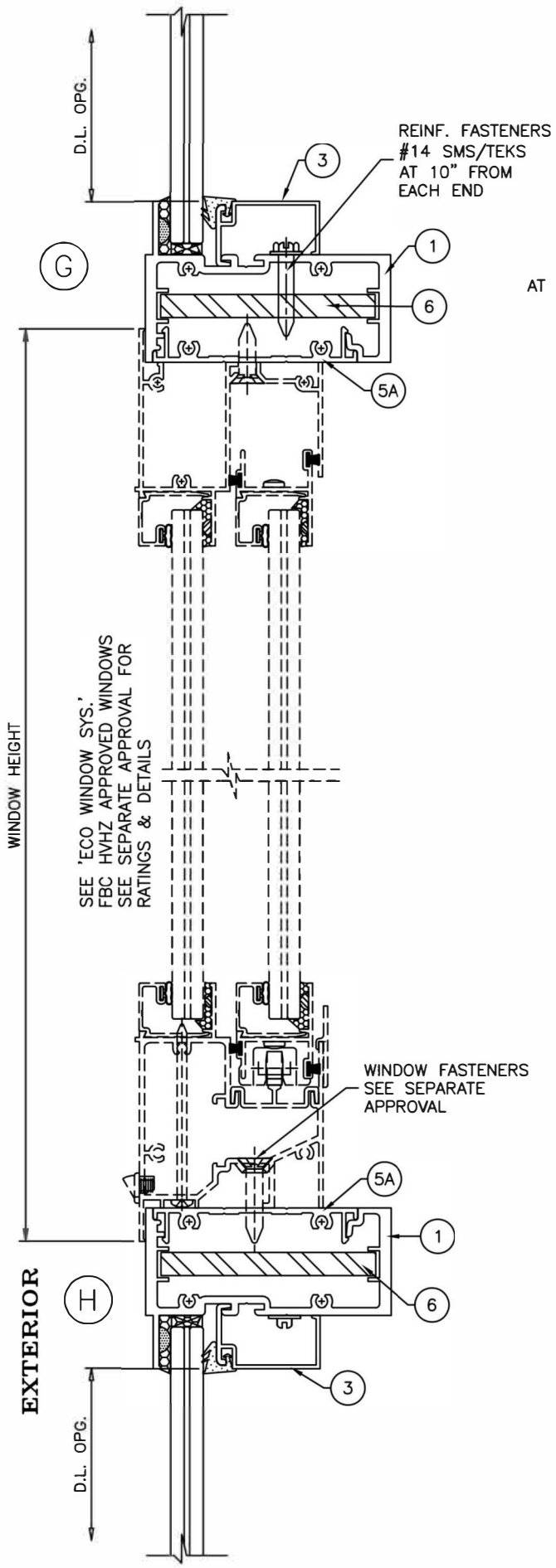


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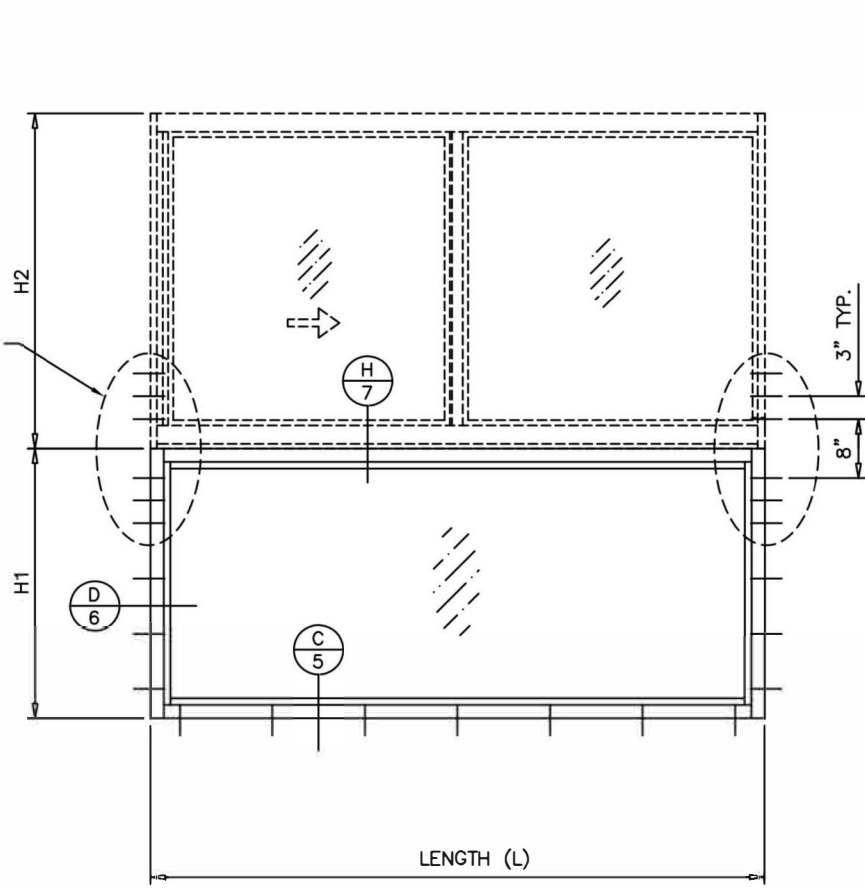
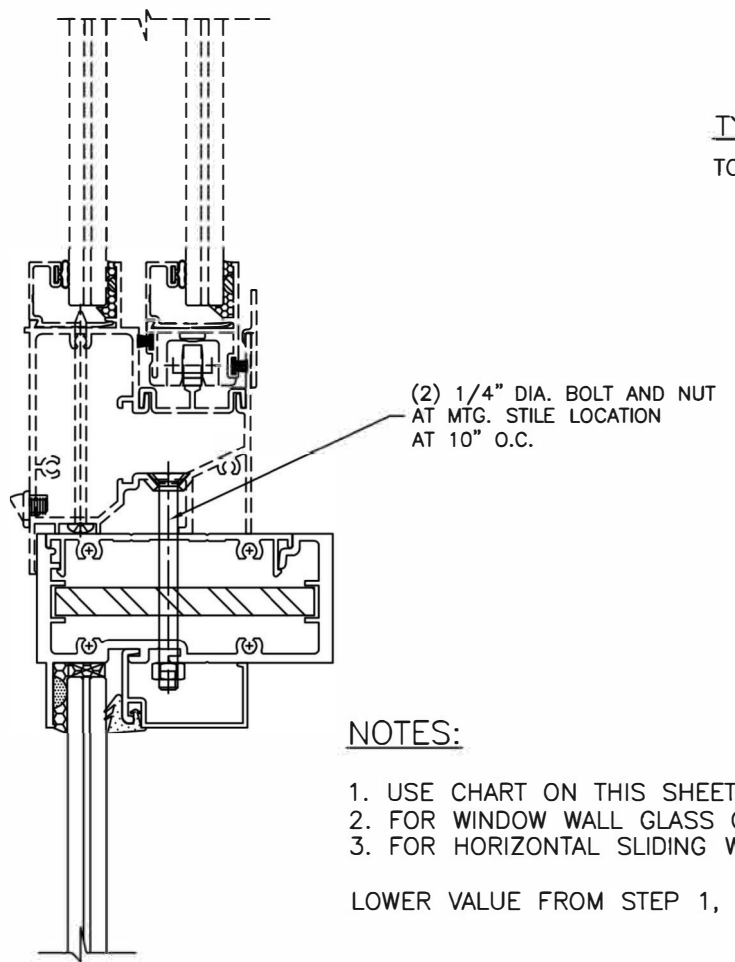
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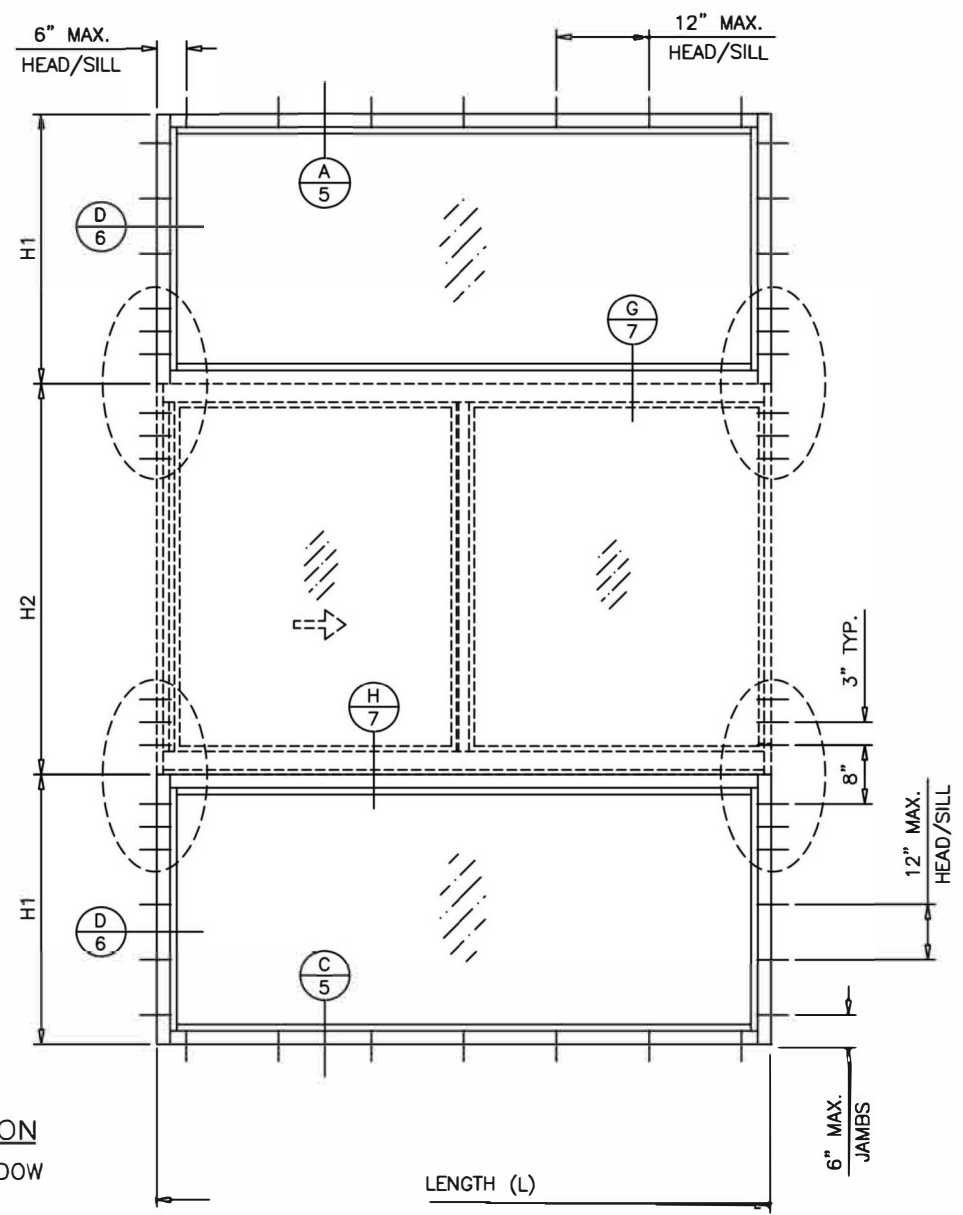
REINF. FASTENERS
#14 SMS/TEKS
AT 10" FROM
EACH END

(6) ANCHORS
AT HORIZ. ENDS
TYP.



TYPICAL ELEVATION
TOP OR BOTTOM WINDOW

$$\text{HEIGHT (H)} = \frac{H1 + H2}{2}$$



HORIZONTAL LOAD CAPACITY - PSF			
NOMINAL DIMS.		HORIZONTAL MULLION	
HEIGHT (H)	LENGTH (L)	POS. (+)	NEG. (-)
57"	84"	80.0	90.0
60"		80.0	90.0
63"		80.0	90.0
66"		80.0	90.0
69"		80.0	90.0
54"	90"	80.0	90.0
57"		80.0	90.0
60"		80.0	90.0
63"		80.0	90.0
54"	96"	80.0	90.0
57"		80.0	88.9
60"		80.0	85.0

NOTES:

1. USE CHART ON THIS SHEET FOR WINDOW WALL HORIZONTAL LOAD CAPACITY.
2. FOR WINDOW WALL GLASS CAPACITY, SEE CHART ON SHEET 2.
3. FOR HORIZONTAL SLIDING WINDOW LOAD CAPACITY, SEE SEPARATE APPROVAL.

LOWER VALUE FROM STEP 1, 2, OR 3 WILL APPLY TO ENTIRE SYSTEM.

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ITEM #	PART #	REQD.	DESCRIPTION	MATERIAL	MANF./SUPPLIER/REMARKS
1	451	AS REQD.	FRAME HEAD/SILL/JAMB/MULLION	6063 – T6	–
2	452	AS REQD.	SNAP-IN MATE	6063 – T6	–
3	UW-404	AS REQD.	GLAZING BEAD	6063 – T6	–
3A	E458	AS REQD.	GLAZING BEAD	6063 – T6	–
4	454	AS REQD.	DOOR FRAME JAMB	6063 – T6	–
5	453	AS REQD.	SHEAR CLIP. 3-3/4" LONG AT JAMB ANCHORS	6063 – T6	–
5A	453	AS REQD.	SHEAR CLIP. FULL LENGTH	6063 – T6	–
5B	453	AS REQD.	SHEAR CLIP. LENGTH VARIES TO COVER ANCHOR SPACINGS	6063 – T6	–
6	–	AS REQD.	STIFFENER BAR	GALV. STEEL	–
7	UW-406	AS REQD.	GLAZING GASKET	NEOPRENE	DUROMETER 55±5 SHORE A
8	#12 X 1-1/4"	4/ CORNER	FRAME ASSEMBLY SCREW	–	PH SMS
9	–	2/ LITE	SETTING BLOCKS AT 1/4 POINTS (3/16" X 1/2" X 2" LONG)	EPDM	DUROMETER 80±5 SHORE A
10	–	AS REQD.	GLASS SPACER	SILICONE	FRANK LOWE

SEALANTS:

ALL FRAME JOINTS AND SEAMS SEALED WITH
SCHNEE-MOREHEAD SM5504 ACRYL-R SEAM SEALER.



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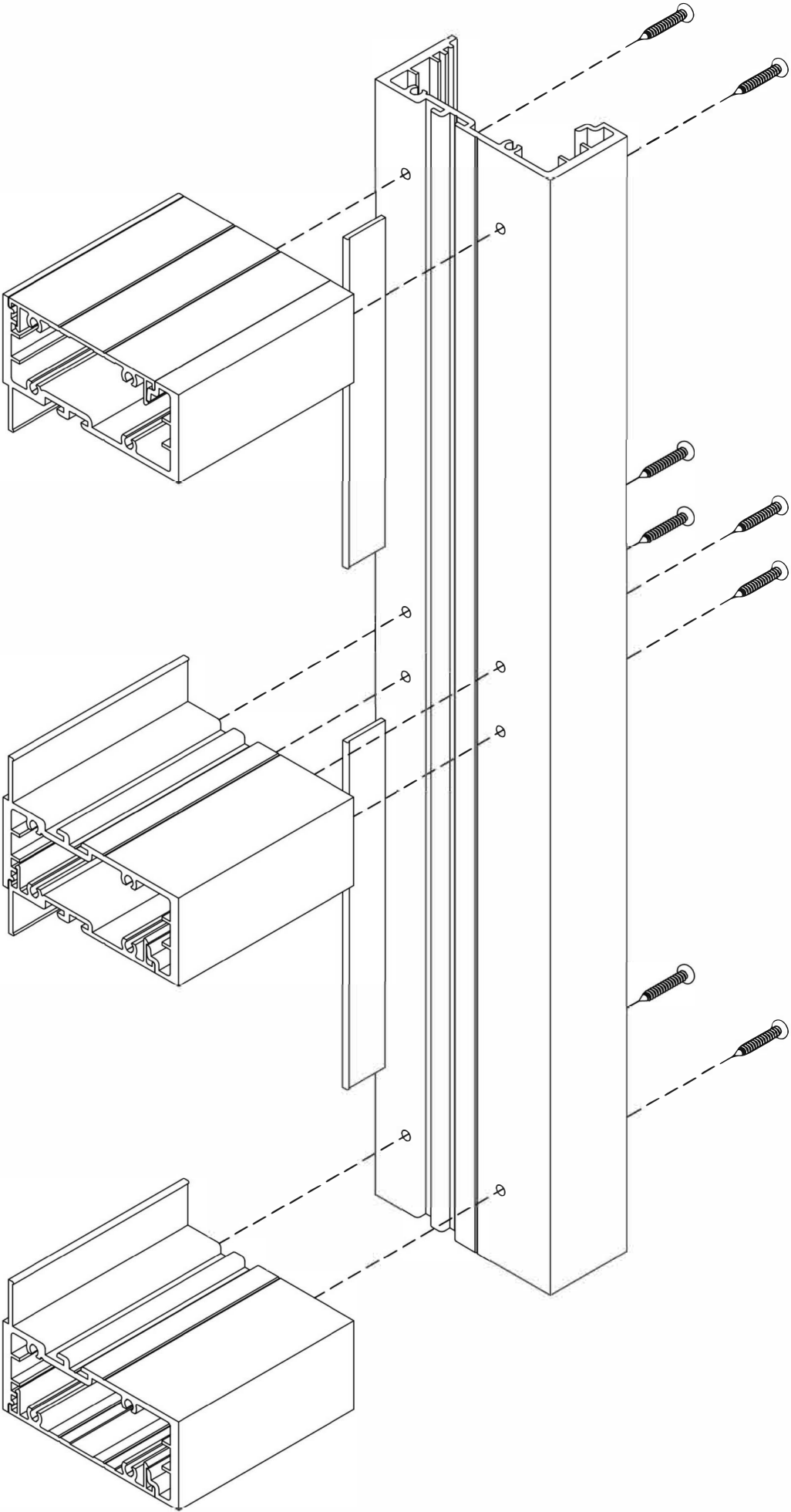
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FRAME TOP CORNER

HORIZONTAL CORNER

FRAME BOTTOM CORNER



FL #21632.4



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