PRODUCT EVALUATION REPORT

- Florida Building Code - 8th Edition (2023) -

Per Rule 61G20-3 / Method 1 - D

FL #: 41740.1 **DATE:** 12/02/2024

Product Description

Manufacturer: ECO WINDOW SYSTEMS, LLC
Address: 8502 NW 80th St #103, Medley, FL 33166
Model Name: ECO-Guard Clipped Aluminum Tube Mullion (L.M.I.)
Maximum Load: +120.0 PSF / -120.0 PSF (Large Missile Impact)
Drawing No.: JA-1844-24, signed and sealed by Javad Ahmad, P.E. - FL License No. 70592

This product COMPLIES with the 2023 Florida Building Code - 8th Edition (2023 FBC) for use in the High-Velocity Hurricane Zone (HVHZ) per TAS 201/202/203.
For maximum sizes, combination of span vs loads and anchor type refer to installation drawings.
Comparative Analysis used: ◉ YES ○ NO

Mandatory Tests (Tested in accordance with AAMA 501 / 101 / I.S.2 / NAFS / TAS 202)					
TEST	**DESCRIPTION**	**TEST LOCATION**	**TEST REPORT DATE**	**TEST REPORT #**	**TEST SEALED BY**
TAS 202-94	Uniform Static Test	Hurricane Engineering & Testing Inc.	01/15/2009	HETI-08-2192A HETI-08-2192B HETI-08-2166A HETI-08-2166C	Candido F. Font, P.E.
Supplemental Tests (Tested in accordance with TAS 201 and TAS-203)					
TEST	**DESCRIPTION**	**TEST LOCATION**	**TEST REPORT DATE**	**TEST REPORT #**	**TEST SEALED BY**
TAS 201 & TAS 203	Large Missile Impact & Cyclic Pressure Differentials	Hurricane Engineering & Testing Inc.	01/15/2009	HETI-08-2192A HETI-08-2192B HETI-08-2166A HETI-08-2166C	Candido F. Font, P.E.

Under the limitations of the attached installation drawings, to the best of my knowledge and ability, the above product conforms to the requirements of the 2023 Florida Building Code - 8th Edition (2023 FBC).



Sealed:
12/02/2024

Evaluation Report Engineer: **Javad Ahmad, PE**
FL P.E.# 70592
EB C.A.N. # 34254
JAVAD AHMAD PE, Inc.

MULLION SYSTEM IS RATED FOR LARGE MISSILE IMPACT.
AND CAN BE USED WITH ALL FLORIDA PRODUCT APPROVED
IMPACT AND NO-IMPACT RESISTANT PRODUCTS.

RECTANGULAR ALUMINUM TUBE MULLIONS USING MULLION PROPERTIES ONLY

NOTES:

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

ALL GLAZING PRODUCTS USED WITH THESE MULLIONS MUST MEET THE APPLICABLE BUILDING CODE REQUIREMENTS I.E.: WIND LOADS, WATER FILTRATION, FORCED ENTRY RESISTANCE, SAFEGUARDS, ETC.

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

INSTRUCTIONS:

USE CHARTS AND GRAPHS AS FOLLOW.

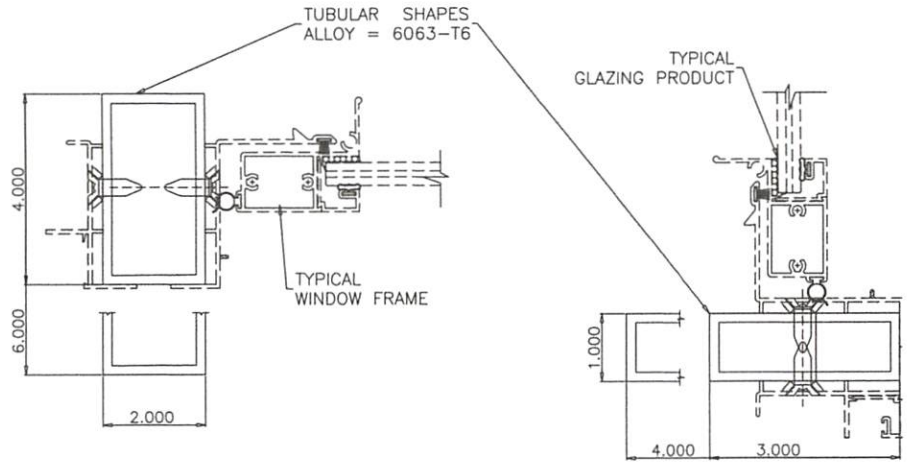
STEP 1 DETERMINE DESIGN LOADS REQUIRED PER ASCE 7 FOR PARTICULAR OPENING.

STEP 2 USE FPA APPROVED GLAZING PRODUCTS MEETING ABOVE LOAD REQUIREMENTS.

STEP 3 USE CONNECTION TO MULLION AS PER PRODUCT APPROVAL.

STEP 4 USING CHARTS ON SHEET 3 SELECT MULLION SIZE WITH DESIGN RATING MORE THAN DESIGN LOAD SPECIFIED IN STEP 1 ABOVE.

STEP 5 USING ANCHOR TYPE ON SHEET 5 THRU 9 AND ANCHOR CHARTS ON SHEET 4, SELECT ANCHOR TYPE WITH DESIGN RATING MORE THAN THE DESIGN LOADS SPECIFIED IN STEP 1 ABOVE.



MULLIONS CONTAINING TYPICAL GLAZING PRODUCTS HORIZONTAL OR VERTICAL

SEE WINDOW OR DOOR APPROVAL FOR FASTENERS SIZES AND SPACING.

FL#41740.1

JAVAD AHMAD PE, inc
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Ph: (305) 424-8001
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CONSULTING • STRUCTURAL DESIGN • FACADES • BUILDING ENVELOPE • SYSTEM DESIGN • PRODUCT APPROVALS

drawing no.	JA-1844-24	drawn by:	MA
date:	12/31/2024	check by:	BS

REVISION

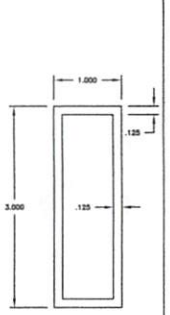
No.	DATE	BY	DESCRIPTION

ECO - GUARD CLIPPED ALUMINUM TUBE MULLION (LMI)
LARGE MISSILE IMPACT RATED

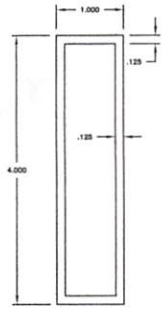
eco window systems
ECO WINDOW SYSTEMS, LLC.
8502 N.W. 80th ST. MEDLEY, FL 33166
TEL. (305) 885-5299 FAX. (305) 885-5902

JAVAD AHMAD LICENSE No 70592 STATE OF FLORIDA PROFESSIONAL ENGINEER

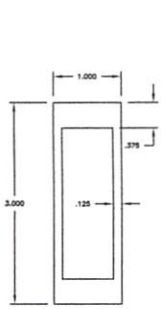
SEALED: 12/31/2024



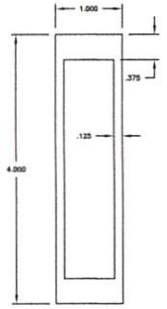
1 X 3
STD. MULLION
6063-T6



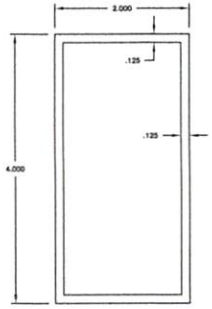
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STD. MULLION
6063-T6



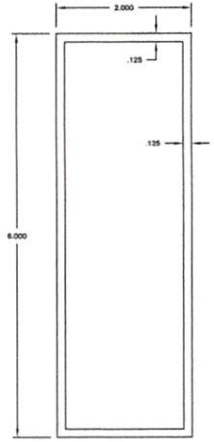
1 X 3
CUSTOM MULLION
6063-T6



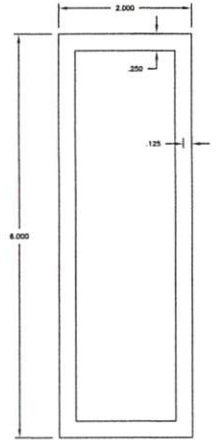
1 X 4
CUSTOM MULLION
6063-T6



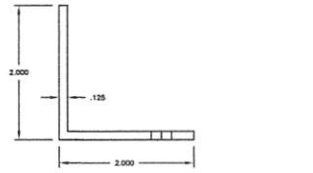
2 X 4
STD. MULLION
6063-T6

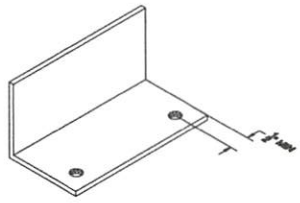


2 X 6
STD. MULLION
6063-T6

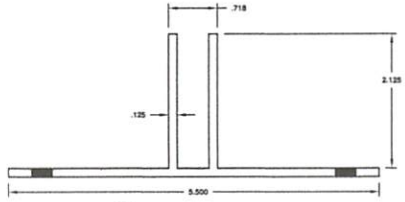


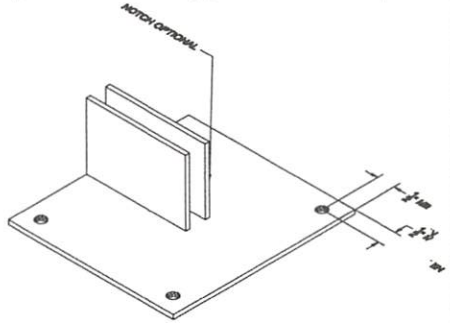
2 X 6
HEAVY MULLION
6063-T6



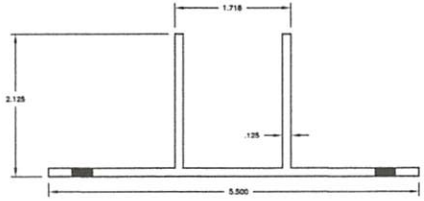


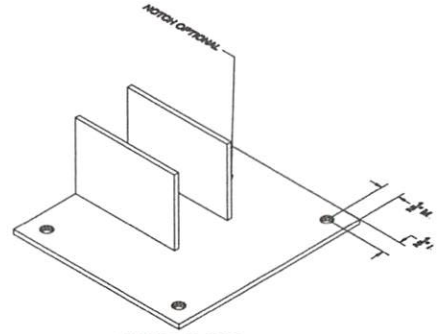
ANGLE CLIP
6063-T6





MULLION CLIP
6063-T6





MULLION CLIP
6063-T6

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drawing no.	JA 1844-24	drawn by:	MA
date:	12/31/2024	check by:	BS

REVISION

No.	DATE	BY	DESCRIPTION

ECO - GUARD CLIPPED ALUMINUM TUBE MULLION (LMJ)
LARGE MISSILE IMPACT RATED

ECO WINDOW SYSTEMS, LLC
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JAVAD AHMAD LICENSE No. 70592 STATE OF FLORIDA PROFESSIONAL ENGINEER

SEALED: 12/31/2024

Design Load Capacity - PSF (1 X 3 Tube Mullions)

Width (W)	Mull Type	Mull Span (in.)						
		38-3/8"	42"	50-5/8"	63"	74-1/4"	84"	96"
19-1/8"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-75.3	+/-52.0	+/-34.8
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-84.2	+/-56.4
26-1/2"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-89.0	+/-54.3	+/-37.5	+/-25.1
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-88.0	+/-60.8	+/-40.7
30"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-79.6	+/-48.0	+/-33.2	+/-22.1
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-77.7	+/-53.7	+/-36.0
37"	Std.	+/-120.0	+/-120.0	+/-103.1	+/-63.7	+/-38.9	+/-26.9	-
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-103.2	+/-63.0	+/-43.5	+/-29.2
42"	Std.	+/-120.0	+/-120.0	+/-90.8	+/-56.1	+/-34.3	+/-23.7	-
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-90.9	+/-55.5	+/-38.3	+/-25.7
48"	Std.	+/-120.0	+/-116.8	+/-79.5	+/-49.1	+/-30.0	+/-20.7	-
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-79.5	+/-48.6	+/-33.5	+/-22.5
54"	Std.	+/-120.0	+/-103.8	+/-70.6	+/-43.7	+/-26.7	-	
	Custom	+/-120.0	+/-120.0	+/-111.6	+/-70.7	+/-43.2	+/-29.8	
60"	Std.	+/-112.5	+/-93.4	+/-63.6	+/-39.3	+/-24.0	-	
	Custom	+/-120.0	+/-120.0	+/-100.4	+/-63.6	+/-38.9	+/-26.8	
66"	Std.	+/-102.3	+/-84.9	+/-57.8	+/-35.7	+/-21.8	-	
	Custom	+/-120.0	+/-120.0	+/-91.3	+/-57.8	+/-35.3	+/-24.4	
72"	Std.	+/-93.8	+/-77.9	+/-53.0	+/-32.7	-	-	
	Custom	+/-120.0	+/-120.0	+/-83.7	+/-53.0	+/-32.4	+/-22.4	

Design Load Capacity - PSF (1 X 4 Tube Mullions)

Width (W)	Mull Type	Mull Span (in.)										
		38-3/8"	42"	50-5/8"	63"	74-1/4"	84"	96"	108"	120"	132"	144"
19-1/8"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-110.6	+/-74.8	-	-	-	-
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-116.9	+/-82.1	+/-59.9	+/-45.0	+/-34.6
26-1/2"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-103.4	+/-79.8	+/-54.0	-	-	-	-
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-117.7	+/-84.4	+/-59.3	+/-43.2	+/-32.5	+/-25.0
30"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-91.3	+/-70.5	+/-47.7	-	-	-	-
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-104.0	+/-74.5	+/-52.3	+/-38.2	+/-28.7	+/-22.1
37"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-104.3	+/-74.0	+/-57.2	+/-38.7	-	-	-	
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-111.9	+/-84.3	+/-60.4	+/-42.4	+/-30.9	+/-23.2	
42"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-91.9	+/-65.2	+/-50.4	+/-34.1	-	-	-	
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-98.6	+/-74.3	+/-53.2	+/-37.4	+/-27.3	+/-20.5	
48"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-80.4	+/-57.1	+/-44.1	+/-29.8	-	-		
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-86.3	+/-65.0	+/-46.6	+/-32.7	+/-23.8		
54"	Std.	+/-120.0	+/-120.0	+/-112.5	+/-71.5	+/-50.7	+/-39.2	+/-26.5	-	-		
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-108.3	+/-76.7	+/-57.8	+/-41.4	+/-29.1	+/-21.2		
60"	Std.	+/-120.0	+/-120.0	+/-101.3	+/-64.3	+/-45.7	+/-35.3	+/-23.8	-			
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-97.5	+/-69.0	+/-52.0	+/-37.3	+/-26.2			
66"	Std.	+/-120.0	+/-120.0	+/-92.1	+/-58.5	+/-41.5	+/-32.1	+/-21.7	-			
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-88.6	+/-62.7	+/-47.3	+/-33.9	+/-23.8			
72"	Std.	+/-120.0	+/-120.0	+/-84.4	+/-53.6	+/-38.0	+/-29.4	-	-			
	Custom	+/-120.0	+/-120.0	+/-120.0	+/-81.3	+/-59.7	+/-43.3	+/-31.1	+/-21.8			

Design Load Capacity - PSF (2 X 4 Std. Tube Mullions)

Width (W)	Mull Span (in.)										
	38-3/8"	42"	50-5/8"	63"	74-1/4"	84"	96"	108"	120"	132"	144"
19-1/8"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-109.3	+/-76.8	+/-56.0	+/-42.0	+/-32.4
26-1/2"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-117.7	+/-78.9	+/-55.4	+/-40.4	+/-30.3	+/-23.4
30"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-104.0	+/-69.7	+/-48.9	+/-35.7	+/-26.8	+/-20.6
37"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-116.3	+/-84.3	+/-56.5	+/-39.7	+/-28.9	+/-21.7	
42"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-102.4	+/-74.3	+/-49.8	+/-35.0	+/-25.5		
48"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-89.6	+/-65.0	+/-43.5	+/-30.6	+/-22.3		
54"	+/-120.0	+/-120.0	+/-120.0	+/-111.5	+/-79.7	+/-57.8	+/-37.8	+/-27.2			
60"	+/-120.0	+/-120.0	+/-120.0	+/-100.3	+/-71.7	+/-52.0	+/-34.8	+/-24.5			
66"	+/-120.0	+/-120.0	+/-120.0	+/-91.2	+/-65.2	+/-47.3	+/-31.7	+/-22.2			
72"	+/-120.0	+/-120.0	+/-120.0	+/-83.6	+/-59.7	+/-43.3	+/-29.0	+/-20.4			

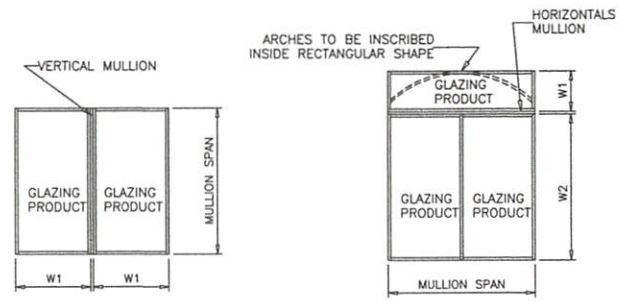
Design Load Capacity - PSF (2 X 6 Tube Mullions)

Width (W)	Mull Type	Mull Span (in.)										
		38-3/8"	42"	50-5/8"	63"	74-1/4"	84"	96"	108"	120"	132"	144"
19-1/8"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-116.8	+/-90.0
	Heavy	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0
26-1/2"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-110.9	+/-84.3	+/-64.9
	Heavy	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-119.2
30"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-97.9	+/-74.5	+/-57.4
	Heavy	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-105.3
37"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-98.7	+/-79.4	+/-60.4	+/-46.5
	Heavy	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-110.8	+/-85.4
42"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-110.9	+/-87.0	+/-69.9	+/-53.2	+/-41.0
	Heavy	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-97.6	+/-75.2
48"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-97.0	+/-76.1	+/-61.2	+/-46.5	+/-35.8
	Heavy	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-111.8	+/-85.4	+/-65.8
54"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-86.2	+/-67.6	+/-54.4	+/-41.4	+/-31.9
	Heavy	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-99.4	+/-75.9	+/-58.5
60"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-77.6	+/-60.9	+/-49.0	+/-37.2	+/-28.7
	Heavy	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-111.3	+/-89.5	+/-68.4	+/-52.6
66"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-70.6	+/-55.3	+/-44.5	+/-33.8	+/-26.1
	Heavy	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-101.2	+/-81.3	+/-62.1	+/-47.9
72"	Std.	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-64.7	+/-50.7	+/-40.8	+/-31.0	+/-23.9
	Heavy	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-118.3	+/-92.7	+/-74.6	+/-57.0	+/-43.9

NOTE:

MULLIONS RATED IN THESE CHARTS MAY BE ORIENTED VERTICALLY OR HORIZONTALLY.

FOR SIZES NOT SHOWN, ROUND UP TO THE NEXT AVAILABLE WIDTH OR SPAN DIMENSION SHOWN ON THE TABLE. (INTERPOLATION BETWEEN WIDTHS ALLOWED)



TYPICAL MULLION ARRANGEMENTS

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

MULLIONS

FL#41740.1

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drawing no.	JA 1844-24	drawn by:	MA
date:	12/31/2024	check by:	BS

REVISION

No.	DATE	BY	DESCRIPTION

ECO - GUARD CLIPPED ALUMINUM TUBE MULLION (L.M.I)
LARGE MISSILE IMPACT RATED

ECO WINDOW SYSTEMS, LLC
EVERGLADES, FLORIDA, FL. 33166
TEL: (305) 885-5299 FAX: (305) 885-5902

JAVAD AHMAD LICENSE No 70592 STATE OF FLORIDA PROFESSIONAL ENGINEER

SEALED: 12/31/2024

Design Load Capacity - PSF (A2 Anchor Type)

Width (W)	Mull Span (in.)										
	38-3/8"	42"	50-5/8"	63"	74-1/4"	84"	96"	108"	120"	132"	144"
19-1/8"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-108.8	+/-97.9	+/-89.0	+/-81.6
26-1/2"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-114.2	+/-100.9	+/-88.3	+/-78.5	+/-70.6	+/-64.2	+/-58.9
30"	+/-120.0	+/-120.0	+/-120.0	+/-118.9	+/-100.8	+/-89.1	+/-78.0	+/-69.3	+/-62.4	+/-56.7	+/-52.0
37"	+/-120.0	+/-120.0	+/-119.9	+/-96.4	+/-81.8	+/-72.3	+/-63.2	+/-56.2	+/-50.6	+/-46.0	+/-42.2
42"	+/-120.0	+/-120.0	+/-105.7	+/-84.9	+/-72.0	+/-63.7	+/-55.7	+/-49.5	+/-44.6	+/-40.5	+/-37.1
48"	+/-120.0	+/-111.4	+/-92.4	+/-74.3	+/-63.0	+/-55.7	+/-48.8	+/-43.3	+/-39.0	+/-35.5	+/-32.5
54"	+/-108.4	+/-99.0	+/-82.2	+/-66.0	+/-56.0	+/-49.5	+/-43.3	+/-38.5	+/-34.7	+/-31.5	+/-28.9
60"	+/-97.6	+/-89.1	+/-74.0	+/-59.4	+/-50.4	+/-44.6	+/-39.0	+/-34.7	+/-31.2	+/-28.4	+/-26.0
66"	+/-88.7	+/-81.0	+/-67.2	+/-54.0	+/-45.8	+/-40.5	+/-35.5	+/-31.5	+/-28.4	+/-25.8	+/-23.6
72"	+/-81.3	+/-74.3	+/-61.6	+/-49.5	+/-42.0	+/-37.1	+/-32.5	+/-28.9	+/-26.0	+/-23.6	+/-21.7

Design Load Capacity - PSF (A4 Anchor Type)

Width (W)	Mull Span (in.)										
	38-3/8"	42"	50-5/8"	63"	74-1/4"	84"	96"	108"	120"	132"	144"
19-1/8"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0
26-1/2"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-112.0	+/-102.6
30"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-108.8	+/-98.9	+/-90.7
37"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-110.3	+/-98.0	+/-88.2	+/-80.2	+/-73.5
42"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-111.0	+/-97.1	+/-86.3	+/-77.7	+/-70.6	+/-64.8
48"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-109.9	+/-97.1	+/-85.0	+/-75.6	+/-68.0	+/-61.8	+/-56.7
54"	+/-120.0	+/-120.0	+/-120.0	+/-115.1	+/-97.7	+/-86.3	+/-75.6	+/-67.2	+/-60.4	+/-54.9	+/-50.4
60"	+/-120.0	+/-120.0	+/-120.0	+/-103.6	+/-87.9	+/-77.7	+/-68.0	+/-60.4	+/-54.4	+/-49.5	+/-45.3
66"	+/-120.0	+/-120.0	+/-117.2	+/-94.2	+/-79.9	+/-70.6	+/-61.8	+/-54.9	+/-49.5	+/-45.0	+/-41.2
72"	+/-120.0	+/-120.0	+/-107.5	+/-86.2	+/-73.3	+/-64.8	+/-56.7	+/-50.4	+/-45.3	+/-41.2	+/-37.8

Design Load Capacity - PSF (A6 Anchor Type)

Width (W)	Mull Span (in.)										
	38-3/8"	42"	50-5/8"	63"	74-1/4"	84"	96"	108"	120"	132"	144"
19-1/8"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0
26-1/2"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0
30"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0
37"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-110.3
42"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-116.6	+/-106.0	+/-97.1
48"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-113.3	+/-102.0	+/-92.7	+/-85.0
54"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-113.3	+/-100.7	+/-90.7	+/-82.4	+/-75.6
60"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-116.6	+/-102.0	+/-90.7	+/-81.6	+/-74.2	+/-68.0
66"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-119.9	+/-106.0	+/-92.7	+/-82.4	+/-74.2	+/-67.4	+/-61.8
72"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-109.9	+/-97.1	+/-85.0	+/-75.6	+/-68.0	+/-61.8	+/-56.7

Design Load Capacity - PSF (B2 Anchor Type)

Width (W)	Mull Span (in.)										
	38-3/8"	42"	50-5/8"	63"	74-1/4"	84"	96"	108"	120"	132"	144"
19-1/8"	+/-120.0	+/-120.0	+/-120.0	+/-119.5	+/-101.4	+/-89.6	+/-78.4	+/-69.7	+/-62.7	+/-57.0	+/-52.3
26-1/2"	+/-120.0	+/-120.0	+/-107.3	+/-86.3	+/-73.2	+/-64.7	+/-56.6	+/-50.3	+/-45.3	+/-41.2	+/-37.7
30"	+/-120.0	+/-114.3	+/-94.8	+/-76.2	+/-64.6	+/-57.1	+/-50.0	+/-44.4	+/-40.0	+/-36.4	+/-33.3
37"	+/-101.4	+/-92.7	+/-76.9	+/-61.8	+/-52.4	+/-46.3	+/-40.5	+/-36.0	+/-32.4	+/-29.5	+/-27.0
42"	+/-89.3	+/-81.6	+/-67.7	+/-54.4	+/-46.2	+/-40.8	+/-35.7	+/-31.7	+/-28.6	+/-26.0	+/-23.8
48"	+/-78.2	+/-71.4	+/-59.3	+/-47.6	+/-40.4	+/-35.7	+/-31.3	+/-27.8	+/-25.0	+/-22.7	+/-20.8
54"	+/-69.5	+/-63.5	+/-52.7	+/-42.3	+/-35.9	+/-31.7	+/-27.8	+/-24.7	+/-22.2	+/-20.2	
60"	+/-62.5	+/-57.1	+/-47.4	+/-38.1	+/-32.3	+/-28.6	+/-25.0	+/-22.2	+/-20.0		
66"	+/-56.9	+/-51.9	+/-43.1	+/-34.6	+/-29.4	+/-26.0	+/-22.7	+/-20.2			
72"	+/-52.1	+/-47.6	+/-39.5	+/-31.7	+/-26.9	+/-23.8	+/-20.8				

Design Load Capacity - PSF (B4a Anchor Type)

Width (W)	Mull Span (in.)										
	38-3/8"	42"	50-5/8"	63"	74-1/4"	84"	96"	108"	120"	132"	144"
19-1/8"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-112.9	+/-100.4	+/-90.4	+/-82.1	+/-75.3
26-1/2"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-105.4	+/-93.2	+/-81.5	+/-72.5	+/-65.2	+/-59.3	+/-54.3
30"	+/-120.0	+/-120.0	+/-120.0	+/-109.7	+/-93.1	+/-82.3	+/-72.0	+/-64.0	+/-57.6	+/-52.4	+/-48.0
37"	+/-120.0	+/-120.0	+/-110.7	+/-89.0	+/-75.5	+/-66.7	+/-58.4	+/-51.9	+/-46.7	+/-42.5	+/-38.9
42"	+/-120.0	+/-117.6	+/-97.5	+/-78.4	+/-66.5	+/-58.8	+/-51.4	+/-45.7	+/-41.1	+/-37.4	+/-34.3
48"	+/-112.6	+/-102.9	+/-85.3	+/-68.6	+/-58.2	+/-51.4	+/-45.0	+/-40.0	+/-36.0	+/-32.7	+/-30.0
54"	+/-100.1	+/-91.4	+/-75.9	+/-61.0	+/-51.7	+/-45.7	+/-40.0	+/-35.6	+/-32.0	+/-29.1	+/-26.7
60"	+/-90.1	+/-82.3	+/-68.3	+/-54.9	+/-46.5	+/-41.1	+/-36.0	+/-32.0	+/-28.8	+/-26.2	+/-24.0
66"	+/-81.9	+/-74.8	+/-62.1	+/-49.9	+/-42.3	+/-37.4	+/-32.7	+/-29.1	+/-26.2	+/-23.8	+/-21.8
72"	+/-75.0	+/-68.6	+/-56.9	+/-45.7	+/-38.8	+/-34.3	+/-30.0	+/-26.7	+/-24.0	+/-21.8	+/-20.0

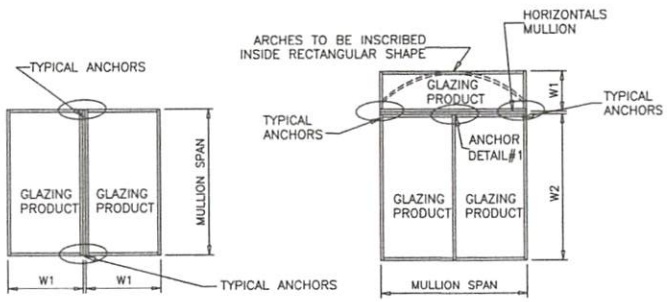
Design Load Capacity - PSF (B4b Anchor Type)

Width (W)	Mull Span (in.)										
	38-3/8"	42"	50-5/8"	63"	74-1/4"	84"	96"	108"	120"	132"	144"
19-1/8"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-114.1	+/-104.6
26-1/2"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-113.2	+/-100.6	+/-90.6	+/-82.3	+/-75.5
30"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-114.3	+/-100.0	+/-88.9	+/-80.0	+/-72.7	+/-66.7
37"	+/-120.0	+/-120.0	+/-120.0	+/-120.0	+/-104.8	+/-92.7	+/-81.1	+/-72.1	+/-64.9	+/-59.0	+/-54.1
42"	+/-120.0	+/-120.0	+/-120.0	+/-108.8	+/-92.4	+/-81.6	+/-71.4	+/-63.5	+/-57.1	+/-51.9	+/-47.6
48"	+/-120.0	+/-120.0	+/-118.5	+/-95.2	+/-80.8	+/-71.4	+/-62.5	+/-55.6	+/-50.0	+/-45.5	+/-41.7
54"	+/-120.0	+/-120.0	+/-105.3	+/-84.7	+/-71.8	+/-63.5	+/-55.6	+/-49.4	+/-44.4	+/-40.4	+/-37.0
60"	+/-120.0	+/-114.3	+/-94.8	+/-76.2	+/-64.6	+/-57.1	+/-50.0	+/-44.4	+/-40.0	+/-36.4	+/-33.3
66"	+/-113.7	+/-103.9	+/-86.2	+/-69.3	+/-58.8	+/-51.9	+/-45.5	+/-40.4	+/-36.4	+/-33.1	+/-30.3
72"	+/-104.2	+/-95.2	+/-79.0	+/-63.5	+/-53.9	+/-47.6	+/-41.7	+/-37.0	+/-33.3	+/-30.3	+/-27.8

NOTE:

ANY ANCHOR CONDITION SHOWN HEREIN MAY COVER LOCATIONS AT HEAD, SILL OR JAMB ENDS.
FOR ANCHORS DESCRIPTION SEE SHEETS 5 THRU 9.

FOR SIZES NOT SHOWN, ROUND UP TO THE NEXT AVAILABLE WIDTH OR SPAN DIMENSION SHOWN ON THE TABLE.
(INTERPOLATION BETWEEN WIDTHS OR SPANS ALLOWED)



TYPICAL MULLION ARRANGEMENTS

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

ANCHORS

FL#41740.1

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drawing no.	JA-1844-24
date:	12/31/2024
drawn by:	MA
check by:	BS

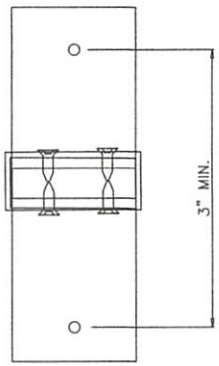
REVISION

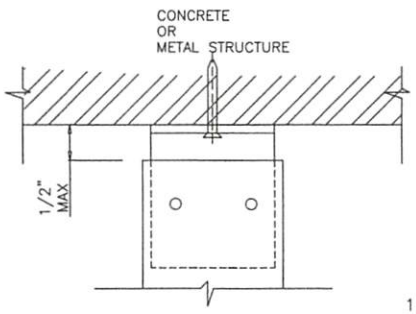
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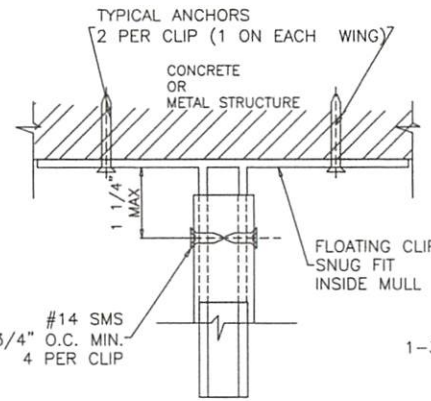
ECO - GUARD CLIPPED ALUMINUM TUBE MULLION (LM1)
LARGE MISSILE IMPACT RATED

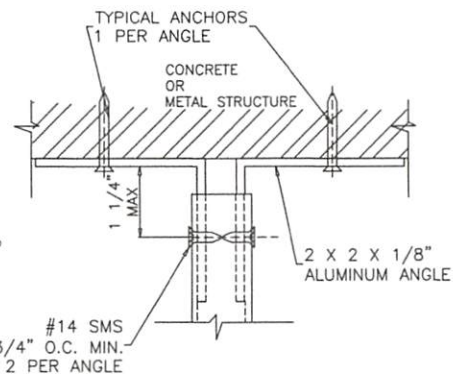
ECO WINDOW SYSTEMS, LLC.
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TEL: (305) 885-8299 FAX: (305) 885-8902

JAVAD AHMAD LICENSE No. 70592 STATE OF FLORIDA PROFESSIONAL ENGINEER
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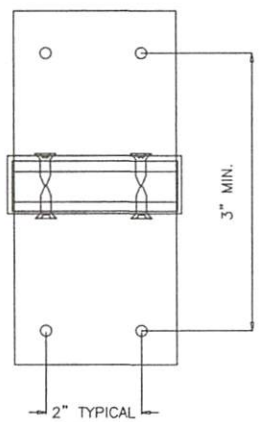


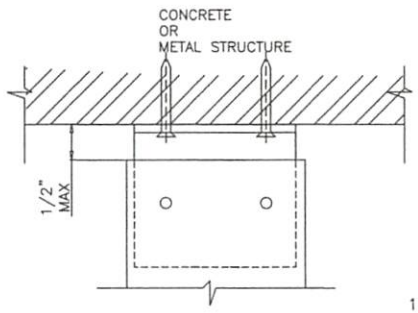
ANCHORS TYPE 'A2'

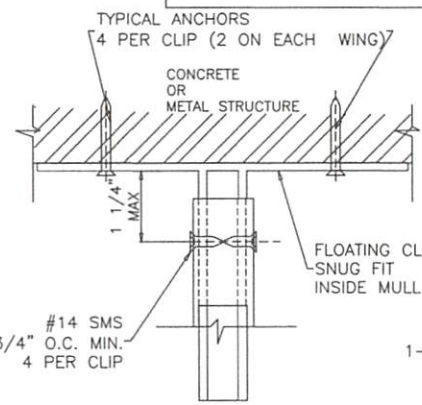
TYPICAL ANCHORS:			
ANCHOR TYPES	SUBSTRATE	MIN. EMBED.	MIN. EDGE DIST.
1/4" DIA. ULTRACON + (Fu=164 KSI, fy=148 KSI)	CONCRETE	1-3/4"	2-1/2"
1/4" DIA. SELF DRILLING SCREWS (GRADE 5 CRS)	METAL	1/8"	3/4"

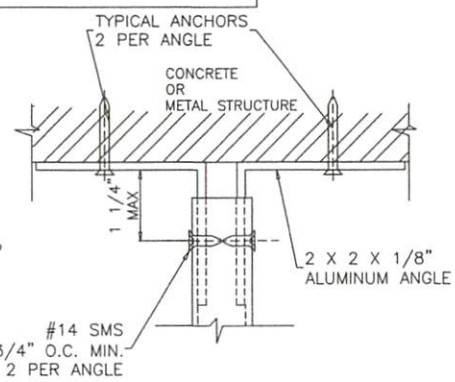
CONCRETE = f'c = 3000 PSI MIN.
METAL = 1/8" MIN. THK. STEEL Fy = 36 KSI MIN.
1/8" MIN. THK. ALUMINUM (6063-T5 MIN.)
ANCHORS MAY BE HEX OR FLAT HEAD.

ALL CLIPS AND ANGLES TO FIT SNUG INTO TUBE MULLIONS.
CLIPS OR ANGLES CONNECTED DIRECTLY TO MASONRY TO BE PROTECTED
WITH ALKALI-RESISTANCE COATINGS, SUCH AS BUTUMINOUS PAINT OR WATER-WHITE METHACRYLATE LACQUER









ANCHORS TYPE 'A4'

FL#41740.1

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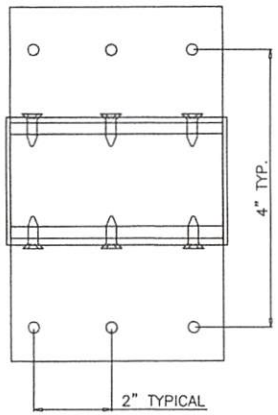
REVISION

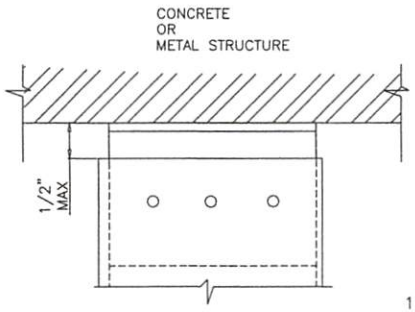
No.	DATE	BY	DESCRIPTION

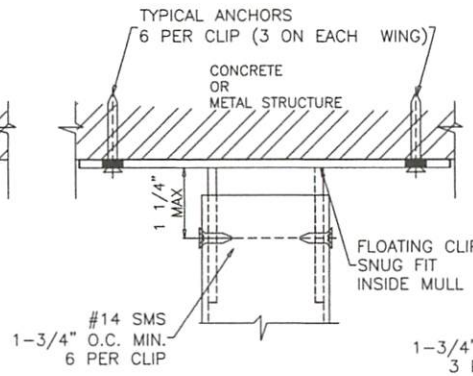
ECO - GUARD CLIPPED ALUMINUM TUBE MULLION (L.M.I)
LARGE MISSILE IMPACT RATED

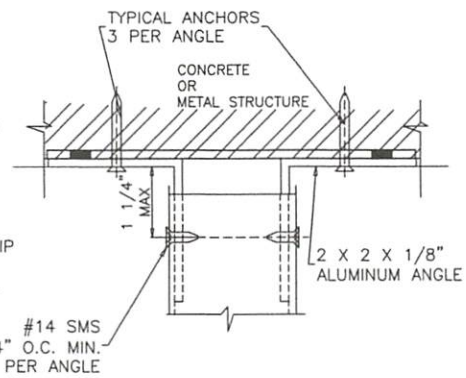
ECO WINDOW SYSTEMS, LLC.
6622 NW 165th ST. MIAMI, FL. 33166
TEL: (305) 885-5299 FAX: (305) 885-5902

JAVAD AHMAD LICENSE No 70592 STATE OF FLORIDA PROFESSIONAL ENGINEER
SEALED: 12/31/2024









ANCHORS TYPE 'A6'

TYPICAL ANCHORS:			
ANCHOR TYPES	SUBSTRATE	MIN. EMBED.	MIN. EDGE DIST.
1/4" DIA. ULTRACON + (Fu=164 KSI, fy=148 KSI)	CONCRETE	1-3/4"	2-1/2"
1/4" DIA. SELF DRILLING SCREWS (GRADE 5 CRS)	METAL	1/8"	3/4"

CONCRETE = f'c = 3000 PSI MIN.
METAL = 1/8" MIN. THK. STEEL Fy = 36 KSI MIN.
1/8" MIN. THK. ALUMINUM (6063-T5 MIN.)
ANCHORS MAY BE HEX OR FLAT HEAD.

ALL CLIPS AND ANGLES TO FIT SNUG INTO TUBE MULLIONS.
CLIPS OR ANGLES CONNECTED DIRECTLY TO MASONRY TO BE PROTECTED
WITH ALKALI-RESISTANCE COATINGS, SUCH AS BUTUMINOUS PAINT OR WATER-WHITE METHACRYLATE LACQUER

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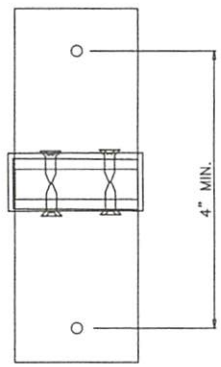
REVISION

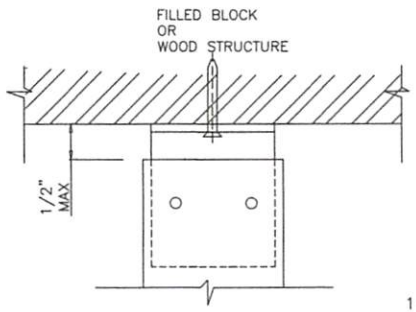
No	DATE	BY	DESCRIPTION

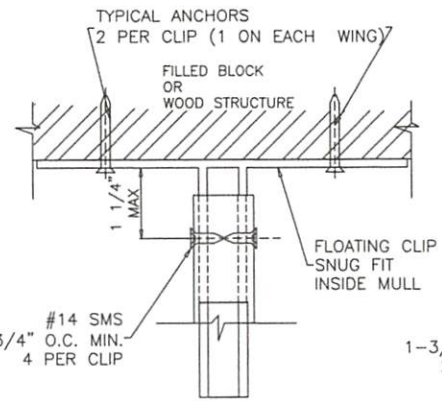
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LARGE MISSILE IMPACT RATED

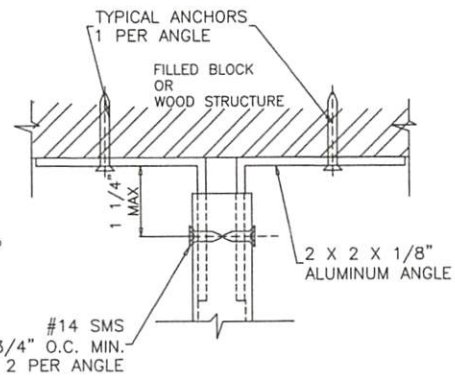
ECO WINDOW SYSTEMS, LLC
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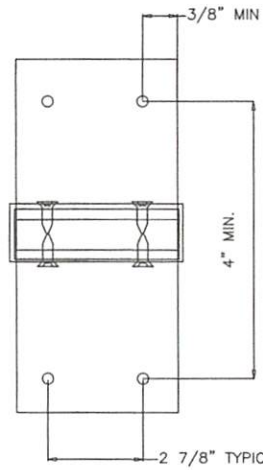
ANCHORS TYPE 'B2'

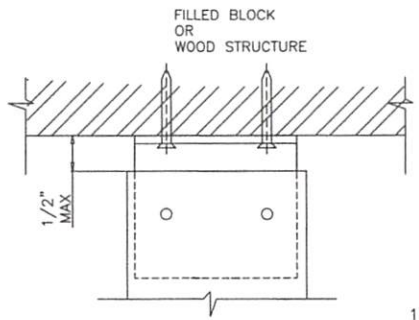
TYPICAL ANCHORS:			
ANCHOR TYPES	SUBSTRATE	MIN. EMBED.	MIN. EDGE DIST.
1/4" DIA. ULTRACON + (Fu=164 KSI, fy=148 KSI)	MASONRY	1-3/4"	2-1/2"
	WOOD	1-1/2"	1"

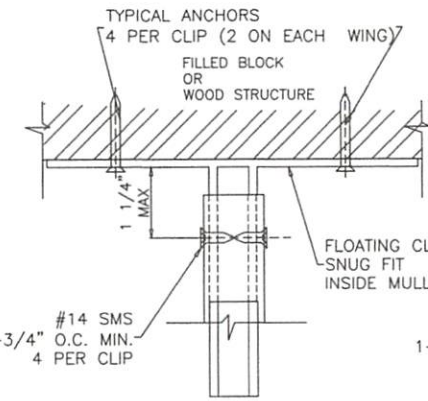
WOOD = 2BY WOOD BUCKS OR WOOD STRUCTURE S.G. = 0.55 MIN.
MASONRY = C-90 HOLLOW/FILLED BLOCK f'm = 2000 PSI MIN.

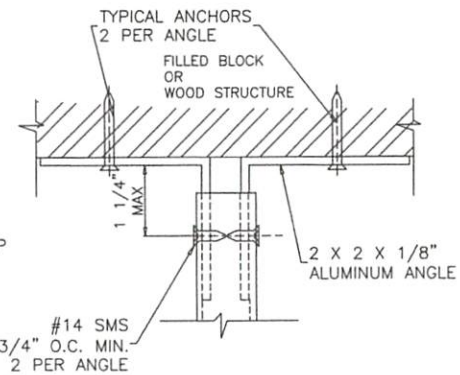
ANCHORS MAY BE HEX OR FLAT HEAD.

1BY OR 2BY WOOD BUCKS NOT BY 'ECO WINDOWS' MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER THEM TO BUILDING STRUCTURE









ANCHORS TYPE 'B4a'

FL#41740.1

JAVAD AHMAD PE, inc
7875 NW 12th St., Suite 102 Doral, FL 33126
Ph: (305) 424-8001
support@ja-pe.com
CONSULTING • STRUCTURAL DESIGN • FACADES • BUILDING ENVELOPE • SYSTEM DESIGN • PRODUCT APPROVALS

drawing no.	JA-1844-24	drawn by:	MA
date:	12/31/2024	check by:	BS

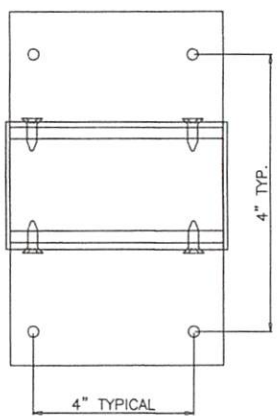
REVISION

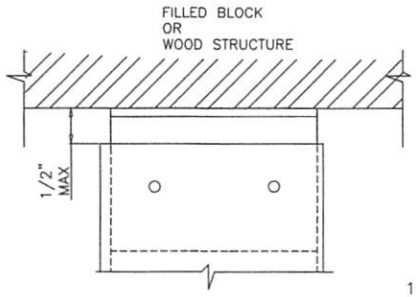
No.	DATE	BY	DESCRIPTION

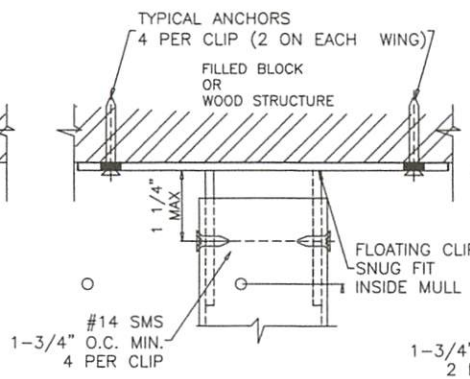
ECO - GUARD CLIPPED ALUMINUM TUBE MULLION (LM)
LARGE MISSILE IMPACT RATED

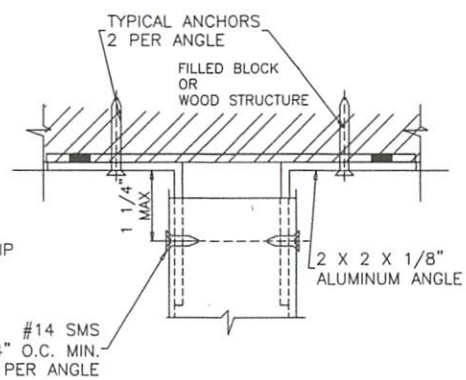
ECO WINDOW SYSTEMS, LLC.
6561 NW 49th ST. MIAMI, FLY. FL 33166
TEL. (305) 885-5299 FAX. (305) 885-5902

JAVAD AHMAD LICENSE No 70592 STATE OF FLORIDA PROFESSIONAL ENGINEER
SEALED: 12/31/2024









ANCHORS TYPE 'B4b'

TYPICAL ANCHORS:			
ANCHOR TYPES	SUBSTRATE	MIN. EMBED.	MIN. EDGE DIST.
1/4" DIA. ULTRACON + (Fu=164 KSI, fy=148 KSI)	MASONRY	1-3/4"	2-1/2"
	WOOD	1-1/2"	1"

WOOD = 2BY WOOD BUCKS OR WOOD STRUCTURE S.G. = 0.55 MIN.
MASONRY = C-90 HOLLOW/FILLED BLOCK f'm = 2000 PSI MIN.

ANCHORS MAY BE HEX OR FLAT HEAD.

1BY OR 2BY WOOD BUCKS NOT BY 'ECO WINDOWS' MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER THEM TO BUILDING STRUCTURE

FL#41740.1

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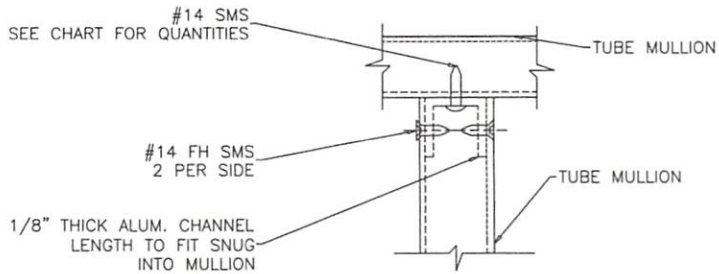
drawing no. | JA 1844-24 | drawn by: MA
date: | 12/31/2024 | check by: BS

No.	DATE	BY	REVISION DESCRIPTION

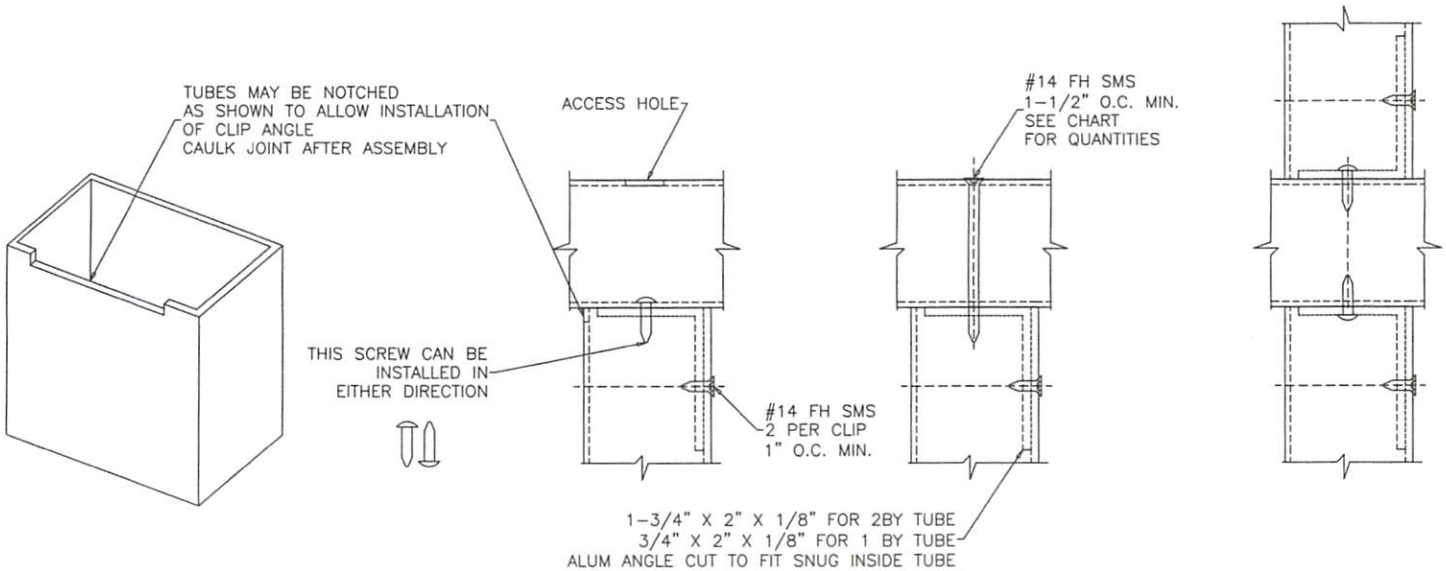
ECO - GUARD CLIPPED ALUMINUM TUBE MULLION (L.M.I)
LARGE MISSILE IMPACT RATED

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

JAVAD AHMAD LICENSE No 70592 STATE OF FLORIDA PROFESSIONAL ENGINEER
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ANCHOR CHART	NO. OF SCREWS
TYPE A2	2
TYPE A4	3
TYPE A6	4



ANCHORS DETAILS #1

METAL TO METAL CONNECTION

#14 SMS		
SUBSTRATE	Ed. = MIN. EDGE DIST.	MIN. CL TO CL SPACING
ALUMINUM	5/8"	1/2"

FL#41740.1

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drawing no.	JA-1844-24	drawn by:	MA
date:	12/31/2024	check by:	BS

REVISION

No.	DATE	BY	DESCRIPTION

ECO - GUARD CLIPPED ALUMINUM TUBE MULLION (L.M.I)
LARGE MISSILE IMPACT RATED

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

JAVAD AHMAD LICENSE No 70592 STATE OF FLORIDA PROFESSIONAL ENGINEER
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