



Product Approval
USER: Public User

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OFFICE OF THE
SECRETARY

FL #

Application Type

Code Version

Application Status

FL39086-R1

Revision

2023

Approved

Comments

Archived



Product Manufacturer

Address/Phone/Email

E.S. Windows, Inc.

10653 NE Quaybridge Ct.

Miami, FL 33138

(305) 624-7775

achamorro@eswillc.com

Authorized Signature

Jalal Farooq

veronica@afceng.com

Technical Representative

Address/Phone/Email

Samir Sabagh

3550 NW 49th St.

Miami, FL 33142

(305) 638-5151

ssabagh@energiasolarsa.com

Quality Assurance Representative

Address/Phone/Email

Category

Subcategory

Windows

Mullions

Compliance Method

Evaluation Report from a Florida Registered Architect or a Licensed Florida Professional Engineer

☐ Evaluation Report - Hardcopy Received

Florida Engineer or Architect Name who developed the Evaluation Report

Jalal Farooq

Florida License

PE-81223

Quality Assurance Entity

Keystone Certifications, Inc.

Quality Assurance Contract Expiration Date

07/16/2025

Validated By

Abel Carrasco, PE

☒ Validation Checklist - Hardcopy Received

Certificate of Independence

[FL39086_R1_COI_SS - Certificate of Independence.pdf](#)

Referenced Standard and Year (of Standard)

Standard

Year

TAS 201

1994

TAS 202

1994

TAS 203

1994

Equivalence of Product Standards
Certified By

Sections from the Code

Product Approval Method

Method 1 Option D

Date Submitted

07/19/2023

Date Validated

07/20/2023

Date Pending FBC Approval

07/24/2023

Date Approved

10/18/2023

Summary of Products

FL #	Model, Number or Name	Description
39086.1	Clipped, Extruded Aluminum Tube Mullion	Large missile impact resistant clipped aluminum tube mullion.
Limits of Use Approved for use in HVHZ: Yes Approved for use outside HVHZ: Yes Impact Resistant: Yes Design Pressure: +150/-150 Other: See drawing 21-45F for installation details.		Installation Instructions FL39086_R1_II_SS - Clipped Tube Mullion (LMI) - DWG 21-45F 2023.pdf Verified By: Jalal Farooq PE #81223 Created by Independent Third Party: Yes Evaluation Reports FL39086_R1_AE_SS - Clipped Tube Mullion (LMI) - PAE 2023.pdf Created by Independent Third Party: Yes

[Back](#)

[Next](#)

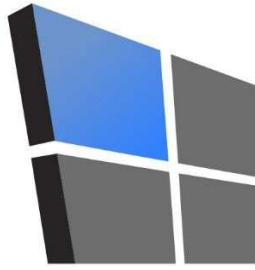
[Contact Us](#) :: 2601 Blair Stone Road, Tallahassee FL 32399 Phone: 850-487-1824

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Product Approval Accepts:





AL-FAROOQ CORPORATION

CONSULTING ENGINEERS & PRODUCT DEVELOPMENT

August 11, 2020

Product Approval Administrator
Building Codes & Standards Section
Department of Business & Professional Regulations
1940 North Monroe Street, Suite 90
Tallahassee, FL 32399-2100

To whom it may concern,

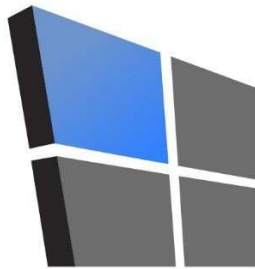
As the design engineer retained to prepare the product approval(s) associated with this letter as shown below on this same web page, I do hereby declare that I do not have and will not have any financial interest in any company manufacturing or distributing the referenced product(s), nor do I have or will have any financial interest with any other entity involved in the approval process of the referenced product(s).

Sincerely,



Sealed 8-11-2020

Jalal Farooq, P.E.
CFO



AL-FAROOQ CORPORATION

CONSULTING ENGINEERS & PRODUCT DEVELOPMENT

PRODUCT APPROVAL EVALUATION RULE CHAPTER #61G20-3 • METHOD 1 OPTION D

FL 39086

Date: 07/19/2023

Detailed Product Description:

Manufacturer: E.S. WINDOWS, LLC

Manufacturer Address: 3550 NW 49 STREET, MIAMI, FL 33142

Model Name: CLIPPED, EXTRUDED ALUMINUM TUBE MULLION

Maximum Load: +150.0 PSF, -150.0 PSF (Large Missile Impact)

Installation Drawings # 21-45F

This product complies with the High Velocity Hurricane Zone (HVHZ) testing requirements.

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 ANSI/AAMA 101/I.S.2/NAFS/TAS-202)

TEST	DESCRIPTION	TEST LOCATION	TEST REPORT DATE	TEST REPORT #	Test Sealed by
ASTM E283	Air Infiltration Leakage	Fenestration Testing Laboratory, Inc.	05/16/2003 06/09/2003 06/09/2003	FTL-3810 FTL-3819 FTL-3820	Joseph Chan, PE
ASTM E331 OR ASTM 547 & TAS 202	Water Penetration	Fenestration Testing Laboratory, Inc.	05/16/2003 06/09/2003 06/09/2003	FTL-3810 FTL-3819 FTL-3820	Joseph Chan, PE
ASTM E330 & TAS 202	Uniform Static Air Press.	Fenestration Testing Laboratory, Inc.	05/16/2003 06/09/2003 06/09/2003	FTL-3810 FTL-3819 FTL-3820	Joseph Chan, PE
ASTM F588	Forced Entry	Fenestration Testing Laboratory, Inc.	05/16/2003 06/09/2003 06/09/2003	FTL-3810 FTL-3819 FTL-3820	Joseph Chan, PE

Supplemental Tests (Tested in accordance with TAS-201 and TAS-203)

TEST	DESCRIPTION	TEST LOCATION	TEST REPORT DATE	TEST REPORT #	Test Sealed by
FBC 1626.2 (TAS 201 & 203)	Large Missile Impact & Cyclic	Fenestration Testing Laboratory, Inc.	05/16/2003 06/09/2003 06/09/2003	FTL-3810 FTL-3819 FTL-3820	Joseph Chan, PE

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.

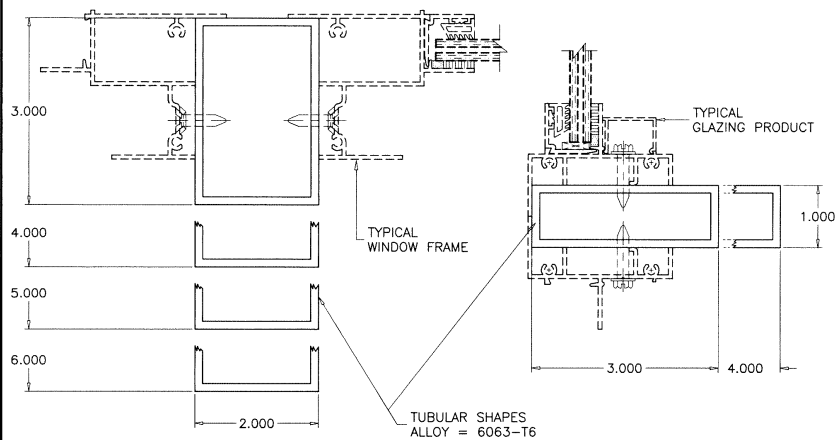
Evaluation Report Engineer:

Jalal Farooq
Al-Farooq Corporation

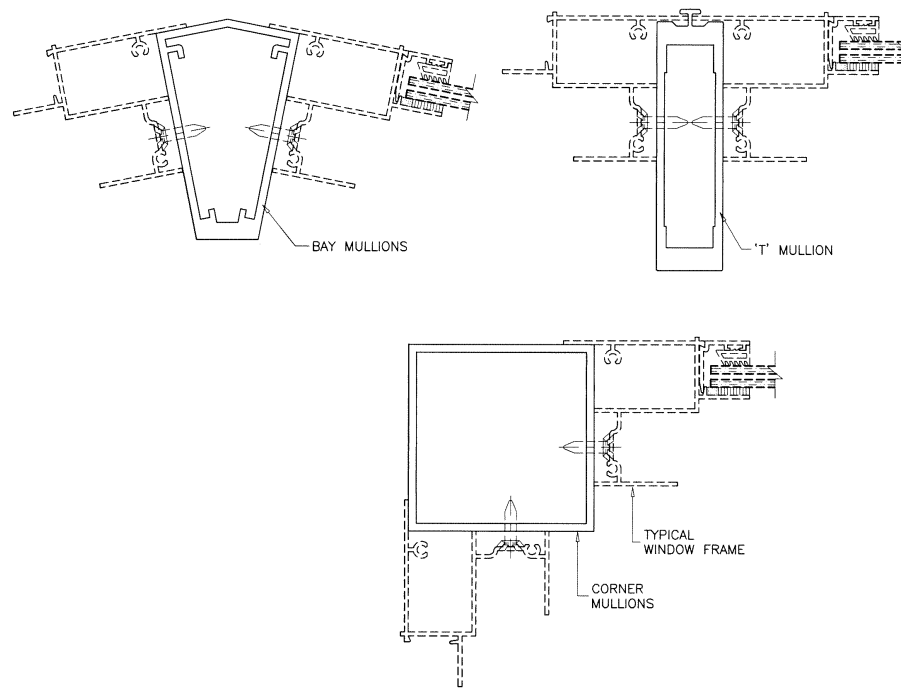
PE # 81223
EB # 3538



Sealed: 7/19/2023



MULLIONS CONTAINING TYPICAL GLAZING PRODUCTS
SEE WINDOW OR DOOR APPROVAL FOR FASTENERS SIZES AND SPACING



**ALUMINUM TUBE MULLIONS
USING MULLION PROPERTIES ONLY**

NOTES:

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).

ALL GLAZING PRODUCTS USED WITH THESE MULLIONS MUST MEET THE APPLICABLE BUILDING CODE REQUIREMENTS I.E. WIND LOAD, WATER INFILTRATION, 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 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.

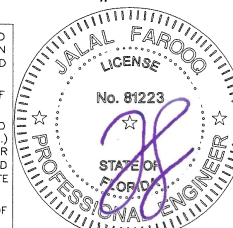
- STEP 1** DETERMINE DESIGN LOAD REQUIRED PER ASCE 7 FOR PARTICULAR OPENING.
- STEP 2** USE F.B.C. APPROVED GLAZING PRODUCTS MEETING ABOVE LOAD REQUIREMENTS.
- STEP 3** USE CONNECTION TO MULLION AS PER PRODUCT APPROVAL.
- STEP 4** USING CHARTS ON SHEETS 4 & 5 SELECT MULLION SIZE WITH DESIGN RATING MORE THAN DESIGN LOAD SPECIFIED IN STEP 1 ABOVE.
- STEP 5** USING ANCHOR TYPES ON SHEETS 7 THRU 13 AND ANCHOR CHARTS ON SHEET 6, SELECT ANCHOR TYPE WITH DESIGN RATING MORE THAN THE DESIGN LOADS SPECIFIED IN STEP 1 ABOVE.

MULLION SYSTEM IS RATED FOR LARGE & SMALL MISSILE IMPACT. AND CAN BE USED WITH ALL F.B.C. APPROVED IMPACT AND NON-IMPACT RESISTANT PRODUCTS.

Sealed: 7/19/2023

FL #39086

- 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.



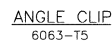
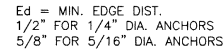
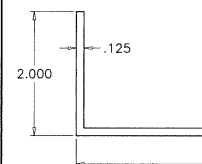
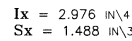
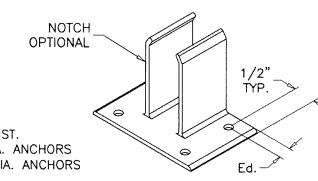
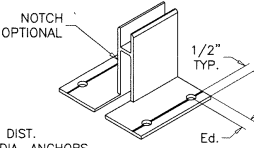
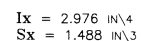
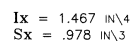
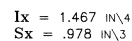
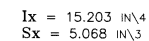
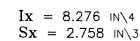
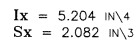
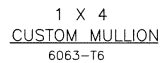
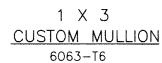
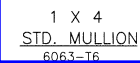
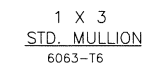
AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
TEL. (305) 262-6978 FAX. (305) 262-6978
(C.A.N. 3538)

ALUMINUM TUBE MULLIONS
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
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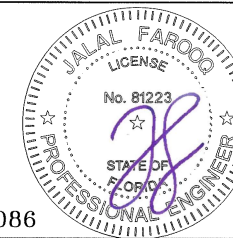
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chk. by:	

drawing no.
21-45F
sheet 1 of 13



Sealed: 7/19/2023

FL #39086



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

ALUMINUM TUBE MULLIONS

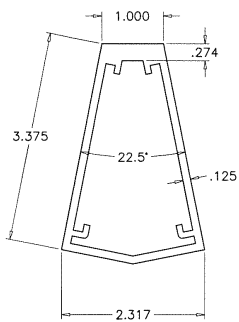
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

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chk. by:

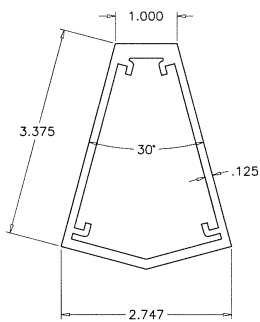
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21-45F

sheet 2 of 13



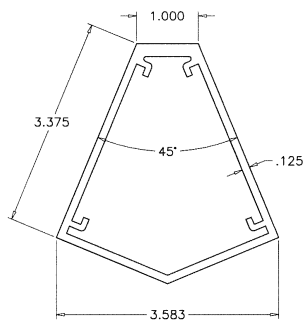
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22-1/2" BAY MULLION
 6063-T6



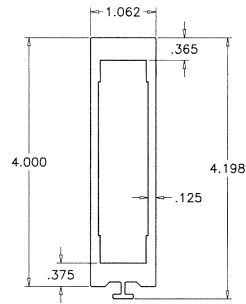
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30" BAY MULLION
 6063-T6



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45" BAY MULLION
 6063-T6

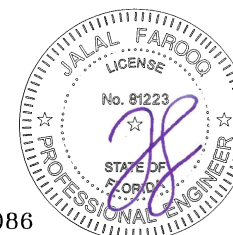


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"T" MULLION
 6063-T6

Sealed: 7/19/2023

FL #39086



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

af c
 (C.A.N. 3538)
 MULLION\21-45F-ESW

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

ALUMINUM TUBE MULLIONS

Revisions:	
no	description

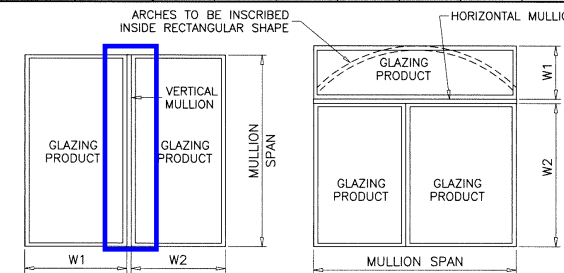
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drawing no.	21-45F
sheet	3 of 13

DESIGN LOAD CAPACITY - PSF (TUBE MULLIONS)								
WINDOW DIMS.		1 X 3 STD.	1 X 4 STD.	1 X 3 CUSTOM	1 X 4 CUSTOM	2 X 5 STD.	2 X 6 STD.	2 X 6 HEAVY
WIDTH (W)	MULL SPAN			2 X 3 STD.	2 X 4 STD.			
19-1/8"	38-3/8"	150.0	150.0	150.0	150.0	150.0	150.0	150.0
26-1/2"		150.0	150.0	150.0	150.0	150.0	150.0	150.0
30"		150.0	150.0	150.0	150.0	150.0	150.0	150.0
37"		150.0	150.0	150.0	150.0	150.0	150.0	150.0
42"		150.0	150.0	150.0	150.0	150.0	150.0	150.0
48"		140.6	150.0	150.0	150.0	150.0	150.0	150.0
54"		124.9	150.0	150.0	150.0	150.0	150.0	150.0
60"	50-5/8"	112.5	150.0	150.0	150.0	150.0	150.0	150.0
66"		102.2	150.0	150.0	150.0	150.0	150.0	150.0
72"		93.7	149.3	142.0	150.0	150.0	150.0	150.0
19-1/8"		150.0	150.0	150.0	150.0	150.0	150.0	150.0
26-1/2"		143.9	150.0	150.0	150.0	150.0	150.0	150.0
30"		127.1	150.0	150.0	150.0	150.0	150.0	150.0
37"		103.0	150.0	150.0	150.0	150.0	150.0	150.0
42"	58"	90.8	144.4	137.1	150.0	150.0	150.0	150.0
48"		79.4	126.4	119.9	150.0	150.0	150.0	150.0
54"		70.6	112.3	106.6	150.0	150.0	150.0	150.0
60"		63.5	101.1	95.9	144.4	150.0	150.0	150.0
66"		57.8	91.9	87.2	131.3	150.0	150.0	150.0
72"		53.0	84.2	80.0	120.4	150.0	150.0	150.0
19-1/8"	63"	150.0	150.0	150.0	150.0	150.0	150.0	150.0
26-1/2"		108.6	150.0	150.0	150.0	150.0	150.0	150.0
30"		95.9	150.0	144.6	150.0	150.0	150.0	150.0
37"		77.8	123.6	117.2	150.0	150.0	150.0	150.0
42"		68.5	108.9	103.3	150.0	150.0	150.0	150.0
48"		60.0	95.3	90.4	135.9	150.0	150.0	150.0
54"		53.3	84.7	80.3	120.8	150.0	150.0	150.0
60"	63"	48.0	76.2	72.3	108.7	150.0	150.0	150.0
66"		43.6	69.3	65.7	98.9	150.0	150.0	150.0
72"		40.0	63.5	60.2	90.6	137.8	150.0	150.0
19-1/8"		123.3	150.0	150.0	150.0	150.0	150.0	150.0
26-1/2"		89.0	145.3	137.3	150.0	150.0	150.0	150.0
30"		78.6	128.4	121.3	150.0	150.0	150.0	150.0
37"		63.7	104.1	98.3	148.3	150.0	150.0	150.0
42"	108"	56.1	91.7	86.6	130.7	150.0	150.0	150.0
48"		49.1	80.2	75.8	114.3	150.0	150.0	150.0
54"		43.7	71.3	67.4	101.6	150.0	150.0	150.0
60"		39.3	64.2	60.6	91.5	139.7	150.0	150.0
66"		35.7	58.4	55.1	83.1	127.0	150.0	150.0
72"		32.7	53.5	50.5	76.2	116.4	150.0	150.0

DESIGN LOAD CAPACITY - PSF (TUBE MULLIONS)								
WINDOW DIMS.		1 X 3 STD.	1 X 4 STD.	1 X 3 CUSTOM	1 X 4 CUSTOM	2 X 5 STD.	2 X 6 STD.	2 X 6 HEAVY
WIDTH (W)	MULL SPAN			2 X 3 STD.	2 X 4 STD.			
19-1/8"	74-1/4"	75.3	143.0	116.2	150.0	150.0	150.0	150.0
26-1/2"		54.3	103.2	83.9	146.6	150.0	150.0	150.0
30"		48.0	91.1	74.1	129.5	150.0	150.0	150.0
37"		38.9	73.9	60.1	105.0	150.0	150.0	150.0
42"		34.3	65.1	52.9	92.5	142.5	150.0	150.0
48"		30.0	57.0	46.3	81.0	124.7	150.0	150.0
54"		26.7	50.6	41.2	72.0	110.8	146.2	150.0
60"	84"	24.0	45.6	37.0	64.8	99.7	131.6	150.0
66"		21.8	41.4	33.7	58.9	90.7	119.6	150.0
72"		20.0	38.0	30.9	54.0	83.1	109.7	150.0
19-1/8"		52.0	110.4	80.3	150.0	150.0	150.0	150.0
26-1/2"		37.5	79.7	57.9	113.0	150.0	150.0	150.0
30"		33.2	70.4	51.2	99.8	150.0	150.0	150.0
37"		26.9	57.1	41.5	81.0	125.6	150.0	150.0
42"	96"	23.7	50.3	36.5	71.3	110.6	145.9	150.0
48"		20.7	44.0	32.0	62.4	96.8	127.6	150.0
54"		-	39.1	28.4	55.5	86.0	113.5	150.0
60"		-	35.2	25.6	49.9	77.4	102.1	150.0
66"		-	32.0	23.3	45.4	70.4	92.8	150.0
72"		-	29.3	21.3	41.6	64.5	85.1	150.0
19-1/8"		34.8	74.7	53.8	109.1	150.0	150.0	150.0
26-1/2"	96"	25.1	53.9	38.8	78.7	133.2	150.0	150.0
30"		22.2	47.6	34.3	69.6	117.7	150.0	150.0
37"		-	38.6	27.8	56.4	95.4	125.8	150.0
42"		-	34.0	24.5	49.7	84.1	110.8	150.0
48"		-	29.8	21.4	43.5	73.5	97.0	150.0
54"		-	26.5	-	38.6	65.4	86.2	150.0
60"		-	23.8	-	34.8	58.8	77.6	142.0
66"	108"	-	21.6	-	31.6	53.5	70.5	129.0
72"		-	-	-	29.0	49.0	64.6	118.3
19-1/8"		-	52.5	37.8	76.6	134.0	150.0	150.0
26-1/2"		-	37.9	27.3	55.3	96.7	137.7	150.0
30"		-	33.4	24.1	48.9	85.5	121.7	150.0
37"		-	27.1	-	39.6	69.3	98.7	150.0
42"		-	23.9	-	34.9	61.0	86.9	150.0
48"	108"	-	20.9	-	30.5	53.4	76.0	139.1
54"		-	-	-	27.1	47.5	67.6	123.7
60"		-	-	-	24.4	42.7	60.8	111.3
66"		-	-	-	22.2	38.8	55.3	101.2
72"		-	-	-	20.4	35.6	50.7	92.7

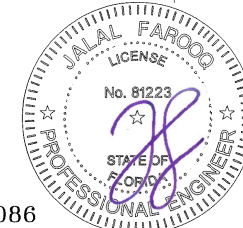
DESIGN LOAD CAPACITY - PSF (TUBE MULLIONS)								
WINDOW DIMS.		1 X 3 STD.	1 X 4 STD.	1 X 3 CUSTOM	1 X 4 CUSTOM	2 X 5 STD.	2 X 6 STD.	2 X 6 HEAVY
WIDTH (W)	MULL SPAN			2 X 3 STD.	2 X 4 STD.			
19-1/8"	120"	-	38.2	27.5	55.9	97.7	150.0	150.0
26-1/2"		-	27.6	-	40.3	70.5	110.8	150.0
30"		-	24.4	-	35.6	62.3	97.9	150.0
37"		-	-	-	28.9	50.5	79.3	145.1
42"		-	-	-	25.4	44.5	69.9	127.8
48"		-	-	-	22.3	38.9	61.2	111.9
54"		-	-	-	-	34.6	54.4	99.4
60"	132"	-	-	-	-	31.1	48.9	89.5
66"		-	-	-	-	28.3	44.5	81.4
72"		-	-	-	-	26.0	40.8	74.6
19-1/8"		-	28.7	20.7	42.0	73.4	116.8	150.0
26-1/2"		-	20.7	-	30.3	53.0	84.3	150.0
30"		-	-	-	26.8	46.8	74.4	136.7
37"		-	-	-	21.7	37.9	60.3	110.9
42"	144"	-	-	-	-	33.4	53.2	97.7
48"		-	-	-	-	29.3	46.5	85.5
54"		-	-	-	-	26.0	41.4	76.0
60"		-	-	-	-	23.4	37.2	68.4
66"		-	-	-	-	21.3	33.8	62.1
72"		-	-	-	-	-	31.0	57.0
19-1/8"		-	-	-	32.3	56.5	89.9	150.0
26-1/2"	144"	-	-	-	23.3	40.8	64.9	119.2
30"		-	-	-	20.6	36.0	57.3	105.3
37"		-	-	-	-	29.2	46.5	85.4
42"		-	-	-	-	25.7	41.0	75.2
48"		-	-	-	-	22.5	35.8	65.8
54"		-	-	-	-	20.0	31.9	58.5
60"		-	-	-	-	-	28.7	52.7
66"		-	-	-	-	-	26.1	47.9
72"		-	-	-	-	-	23.9	43.9



TYPICAL MULLION ARRANGEMENTS

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

Sealed: 7/19/2023



FL #39086

ALL LOADS ARE EXT.(+)/INT.(-).

NOTE:
MULLIONS RATED IN THESE CHARTS MAY BE ORIENTED
VERTICALLY OR HORIZONTALLY.
(INTERPOLATION BETWEEN WIDTHS ALLOWED)

ANCHORS TYPE 'D' AND 'E' APPLICABLE TO
4", 5" AND 6" TUBE MULLIONS.
ANCHORS TYPE 'A', 'B', 'C', 'F' AND 'G' APPLICABLE
TO ALL TUBE MULLIONS.

MULLIONS

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3558)
TEL. (305) 262-6978 FAX. (305) 262-6978

ALUMINUM TUBE MULLIONS

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: 05-21-21
scale:
dr. by: FAROQ
chk. by:

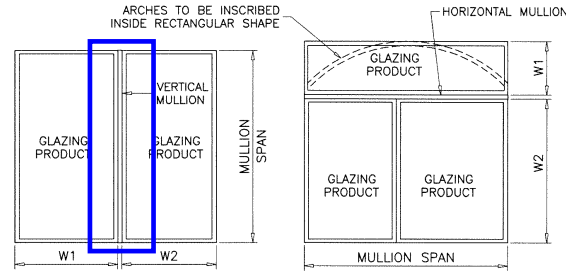
drawing no.
21-45F

sheet 4 of 13

DESIGN LOAD CAPACITY – PSF (BAY MULLIONS)						DESIGN LOAD CAPACITY – PSF (BAY MULLIONS)					
WINDOW DIMS.		22-1/2"	30"	45"	'T'	WINDOW DIMS.		22-1/2"	30"	45"	'T'
WIDTH (W)	MULL SPAN	BAY MULL	BAY MULL	BAY MULL	MULL	WIDTH (W)	MULL SPAN	BAY MULL	BAY MULL	BAY MULL	MULL
19-1/8"	38-3/8"	150.0	150.0	150.0	150.0	19-1/8"	84"	124.6	140.3	146.7	150.0
26-1/2"		150.0	150.0	150.0	150.0	26-1/2"		89.9	101.2	105.9	118.4
30"		150.0	150.0	150.0	150.0	30"		79.4	89.4	93.5	104.6
36"		150.0	150.0	150.0	150.0	36"		66.2	74.5	77.9	87.1
42"		150.0	150.0	150.0	150.0	42"		56.7	63.9	66.8	74.7
48"		150.0	150.0	150.0	150.0	48"		49.6	55.9	58.5	65.3
54"		150.0	150.0	150.0	150.0	54"		44.1	49.7	52.0	58.1
60"		150.0	150.0	150.0	150.0	60"		39.7	44.7	46.8	52.3
66"	50-5/8"	150.0	150.0	150.0	150.0	66"	96"	36.1	40.6	42.5	47.5
72"		150.0	150.0	150.0	150.0	72"		33.1	37.3	39.0	43.6
19-1/8"		150.0	150.0	150.0	150.0	19-1/8"		83.5	94.0	98.3	123.5
26-1/2"		150.0	150.0	150.0	150.0	26-1/2"		60.2	67.8	70.9	89.1
30"		150.0	150.0	150.0	150.0	30"		53.2	59.9	62.7	78.7
36"		150.0	150.0	150.0	150.0	36"		44.3	49.9	52.2	65.6
42"		150.0	150.0	150.0	150.0	42"		38.0	42.8	44.8	56.2
48"		150.0	150.0	150.0	150.0	48"		33.3	37.4	39.2	49.2
54"	58"	150.0	150.0	150.0	150.0	54"	108"	29.6	33.3	34.8	43.7
60"		143.0	140.4	145.1	150.0	60"		26.6	30.0	31.3	39.4
66"		130.0	127.7	131.9	137.9	66"		24.2	27.2	28.5	35.8
72"		119.2	117.0	120.9	126.4	72"		22.2	25.0	26.1	32.8
19-1/8"	63"	150.0	150.0	150.0	150.0	19-1/8"	120"	58.6	66.0	69.0	88.6
26-1/2"		150.0	150.0	150.0	150.0	26-1/2"		42.3	47.6	49.8	63.9
30"		150.0	150.0	150.0	150.0	30"		37.4	42.1	44.0	56.5
36"		150.0	150.0	150.0	150.0	36"		31.1	35.1	36.7	47.1
42"		150.0	150.0	150.0	150.0	42"		26.7	30.1	31.4	40.3
48"		136.1	132.9	137.4	142.7	48"		23.4	26.3	27.5	35.3
54"		121.0	118.1	122.1	126.8	54"		20.8	23.4	24.4	31.4
60"		108.9	106.3	109.9	114.1	60"		–	21.0	22.0	28.2
66"	74-1/4"	99.0	96.6	99.9	103.8	66"	132"	–	–	20.0	25.7
72"		90.8	88.6	91.6	95.1	72"		–	–	–	23.5
19-1/8"		150.0	150.0	150.0	150.0	19-1/8"		42.7	48.1	50.3	64.6
26-1/2"		150.0	150.0	150.0	150.0	26-1/2"		30.8	34.7	36.3	46.6
30"		150.0	150.0	150.0	150.0	30"		27.2	30.7	32.1	41.2
36"		150.0	149.5	150.0	150.0	36"		22.7	25.6	26.7	34.3
42"		131.8	128.1	132.6	137.1	42"		–	21.9	22.9	29.4
48"		115.3	112.1	116.0	119.9	48"		–	–	20.1	25.7
54"	77"	102.5	99.7	103.1	106.6	54"	144"	–	–	–	22.9
60"		92.3	89.7	92.8	96.0	60"		–	–	–	20.6
66"		83.9	81.5	84.4	87.2	19-1/8"		32.1	36.1	37.8	48.5
72"		76.9	74.8	77.3	80.0	26-1/2"		23.2	26.1	27.3	35.0
19-1/8"		150.0	150.0	150.0	150.0	30"		20.5	23.0	24.1	30.9
26-1/2"		130.2	144.9	150.0	150.0	36"		–	–	20.1	25.8
30"		115.0	128.0	132.6	135.8	42"		–	–	–	22.1
36"		95.8	106.7	110.5	113.1	19-1/8"		24.7	27.8	29.1	37.4
42"	82.2	91.4	94.7	97.0	26-1/2"	–		20.1	21.0	27.0	
48"	72"	71.9	80.0	82.8	84.8	30"		–	–	–	23.8
54"		63.9	71.1	73.6	75.4						
60"		57.5	64.0	66.3	67.9						
66"		52.3	58.2	60.3	61.7						
72"		47.9	53.3	55.2	56.6						

ALL LOADS ARE EXT.(+)/INT.(–)

ALL LOADS ARE EXT.(+)/INT.(–).



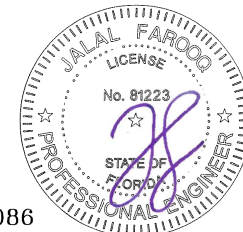
TYPICAL MULLION ARRANGEMENTS

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

NOTE:

'T' MULLION RATED IN THESE CHARTS MAY BE ORIENTED VERTICALLY OR HORIZONTALLY. (INTERPOLATION BETWEEN WIDTHS ALLOWED)

Sealed: 7/19/2023



FL #39086

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

MULLION \ 21 – 45F – ESW

ALUMINUM TUBE MULLIONS

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: 05-21-21
scale:
dr. by: TARIQ
chk. by:

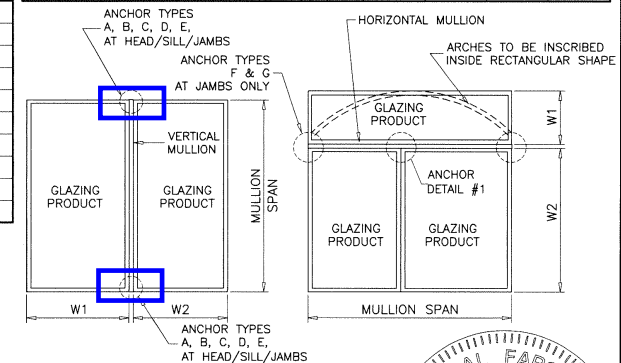
drawing no.
21-45F
sheet 5 of 13

MULLIONS

DESIGN LOAD CAPACITY - PSF								
WINDOW DIMS.		ANCHORS TYPE						
WIDTH (W)	MULL SPAN	A	B	C	D	E	F	G
19-1/8"	38-3/8"	150.0	150.0	150.0	150.0	150.0	117.7	150.0
26-1/2"		143.9	150.0	150.0	150.0	150.0	85.0	150.0
30"		127.1	150.0	150.0	150.0	150.0	75.0	150.0
37"		103.0	150.0	140.8	150.0	150.0	60.9	121.7
42"		90.8	150.0	124.0	150.0	150.0	53.6	107.2
48"		79.4	150.0	108.5	150.0	150.0	46.9	93.8
54"		70.6	141.2	96.5	150.0	150.0	41.7	83.4
60"		63.5	127.1	86.8	150.0	150.0	37.5	75.0
66"		57.8	115.5	78.9	150.0	150.0	34.1	68.2
72"		53.0	105.9	72.3	144.7	150.0	31.3	62.5
19-1/8"	50-5/8"	150.0	150.0	150.0	150.0	150.0	89.2	150.0
26-1/2"		109.1	150.0	149.0	150.0	150.0	64.4	128.8
30"		96.3	150.0	131.6	150.0	150.0	56.9	113.8
37"		78.1	150.0	106.7	150.0	150.0	46.1	92.3
42"		68.8	137.6	94.0	150.0	150.0	40.6	81.3
48"		60.2	120.4	82.3	150.0	150.0	35.6	71.1
54"		53.5	107.0	73.1	146.2	150.0	31.6	63.2
60"		48.2	96.3	65.8	131.6	150.0	28.4	56.9
66"		43.8	87.6	59.8	119.6	139.3	25.9	51.7
72"		40.1	80.3	54.8	109.7	127.7	23.7	47.4
19-1/8"	58"	131.9	150.0	150.0	150.0	150.0	77.9	150.0
26-1/2"		95.2	150.0	130.0	150.0	150.0	56.2	112.4
30"		84.1	150.0	114.9	150.0	150.0	49.7	99.3
37"		68.2	136.4	93.1	150.0	150.0	40.3	80.5
42"		60.1	120.1	82.0	150.0	150.0	35.5	70.9
48"		52.6	105.1	71.8	143.6	150.0	31.0	62.1
54"		46.7	93.4	63.8	127.6	148.6	27.6	55.2
60"		42.0	84.1	57.4	114.9	133.7	24.8	49.7
66"		38.2	76.4	52.2	104.4	121.6	22.6	45.1
72"		35.0	70.1	47.9	95.7	111.4	20.7	41.4
19-1/8"	63"	121.4	150.0	150.0	150.0	150.0	71.7	143.4
26-1/2"		87.6	150.0	119.7	150.0	150.0	51.8	103.5
30"		77.4	150.0	105.8	150.0	150.0	45.7	91.4
37"		62.8	125.5	85.7	150.0	150.0	37.1	74.1
42"		55.3	110.6	75.5	150.0	150.0	32.7	65.3
48"		48.4	96.8	66.1	132.2	150.0	28.6	57.1
54"		43.0	86.0	58.8	117.5	136.8	25.4	50.8
60"		38.7	77.4	52.9	105.8	123.1	22.9	45.7
66"		35.2	70.4	48.1	96.1	111.9	20.8	41.6
72"		32.3	64.5	44.1	88.1	102.6	-	38.1

DESIGN LOAD CAPACITY - PSF								
WINDOW DIMS.		ANCHORS TYPE						
WIDTH (W)	MULL SPAN	A	B	C	D	E	F	G
19-1/8"	74-1/4"	103.0	150.0	140.8	150.0	150.0	60.8	121.7
26-1/2"		74.4	148.7	101.6	150.0	150.0	43.9	87.8
30"		65.7	131.4	89.7	150.0	150.0	38.8	77.6
37"		53.3	106.5	72.8	145.5	150.0	31.4	62.9
42"		46.9	93.8	64.1	128.2	149.2	27.7	55.4
48"		41.1	82.1	56.1	112.2	130.6	24.2	48.5
54"		36.5	73.0	49.8	99.7	116.1	21.5	43.1
60"		32.8	65.7	44.9	89.7	104.5	-	38.8
66"		29.9	59.7	40.8	81.6	95.0	-	35.3
72"		27.4	54.7	37.4	74.8	87.1	-	32.3
19-1/8"	84"	91.1	150.0	124.4	150.0	150.0	53.8	107.6
26-1/2"		65.7	131.5	89.8	150.0	150.0	38.8	77.6
30"		58.1	116.1	79.3	150.0	150.0	34.3	68.6
37"		47.1	94.1	64.3	128.6	149.7	27.8	55.6
42"		41.5	82.9	56.7	113.3	131.9	24.5	49.0
48"		36.3	72.6	49.6	99.1	115.4	21.4	42.9
54"		32.3	64.5	44.1	88.1	102.6	-	38.1
60"		29.0	58.1	39.7	79.3	92.3	-	34.3
66"		26.4	52.8	36.1	72.1	83.9	-	31.2
72"		24.2	48.4	33.0	66.1	77.0	-	28.6
19-1/8"	96"	79.7	150.0	108.9	150.0	150.0	47.1	94.1
26-1/2"		57.5	115.0	78.6	150.0	150.0	34.0	67.9
30"		50.8	101.6	69.4	138.8	150.0	30.0	60.0
37"		41.2	82.4	56.3	112.5	131.0	24.3	48.6
42"		36.3	72.6	49.6	99.1	115.4	21.4	42.9
48"		31.8	63.5	43.4	86.8	101.0	-	37.5
54"		28.2	56.4	38.6	77.1	89.8	-	33.3
60"		25.4	50.8	34.7	69.4	80.8	-	30.0
66"		23.1	46.2	31.5	63.1	73.5	-	27.3
72"		21.2	42.3	28.9	57.8	67.3	-	25.0
19-1/8"	108"	70.8	141.7	96.8	150.0	150.0	41.8	83.7
26-1/2"		51.1	102.2	69.8	139.7	150.0	30.2	60.4
30"		45.2	90.3	61.7	123.4	143.6	26.7	53.3
37"		36.6	73.2	50.0	100.0	116.5	21.6	43.2
42"		32.3	64.5	44.1	88.1	102.6	-	38.1
48"		28.2	56.4	38.6	77.1	89.8	-	33.3
54"		25.1	50.2	34.3	68.5	79.8	-	29.6
60"		22.6	45.2	30.8	61.7	71.8	-	26.7
66"		20.5	41.1	28.0	56.1	65.3	-	24.2
72"		-	37.6	25.7	51.4	59.9	-	22.2

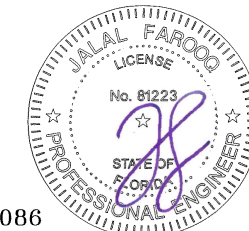
DESIGN LOAD CAPACITY - PSF								
WINDOW DIMS.		ANCHORS TYPE						
WIDTH (W)	MULL SPAN	A	B	C	D	E	F	G
19-1/8"	120"	63.7	127.5	87.1	150.0	150.0	37.6	75.3
26-1/2"		46.0	92.0	62.9	125.7	146.4	27.2	54.3
30"		40.6	81.3	55.5	111.0	129.3	24.0	48.0
37"		33.0	65.9	45.0	90.0	104.8	-	38.9
42"		29.0	58.1	39.7	79.3	92.3	-	34.3
48"		25.4	50.8	34.7	69.4	80.8	-	30.0
54"		22.6	45.2	30.8	61.7	71.8	-	26.7
60"		20.3	40.6	27.8	55.5	64.6	-	24.0
66"		-	36.9	25.2	50.5	58.8	-	21.8
72"		-	33.9	23.1	46.3	53.9	-	20.0
19-1/8"	132"	58.0	115.9	79.2	150.0	150.0	34.2	68.4
26-1/2"		41.8	83.7	57.1	114.3	133.0	24.7	49.4
30"		36.9	73.9	50.5	100.9	117.5	21.8	43.6
37"		30.0	59.9	40.9	81.8	95.3	-	35.4
42"		26.4	52.8	36.1	72.1	83.9	-	31.2
48"		23.1	46.2	31.5	63.1	73.5	-	27.3
54"		20.5	41.1	28.0	56.1	65.3	-	24.2
60"		-	36.9	25.2	50.5	58.8	-	21.8
66"		-	33.6	22.9	45.9	53.4	-	-
72"		-	30.8	21.0	42.1	49.0	-	-
19-1/8"	144"	53.1	106.2	72.6	145.2	150.0	31.4	62.7
26-1/2"		38.3	76.7	52.4	104.8	122.0	22.6	45.3
30"		33.9	67.7	46.3	92.5	107.7	20.0	40.0
37"		27.5	54.9	37.5	75.0	87.4	-	32.4
42"		24.2	48.4	33.0	66.1	77.0	-	28.6
48"		-	42.3	28.9	57.8	67.3	-	25.0
54"		-	37.6	25.7	51.4	59.9	-	22.2
60"		-	33.9	23.1	46.3	53.9	-	20.0
66"		-	30.8	21.0	42.1	49.0	-	-
72"		-	28.2	-	38.6	44.9	-	-



TYPICAL MULLION ARRANGEMENTS

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

Sealed: 7/19/2023



FL #39086

ALL LOADS ARE EXT.(+)/INT.(-).

NOTE:

ANY ANCHOR CONDITION SHOWN HEREIN MAY COVER LOCATIONS AT HEAD, SILL OR JAMB ENDS.

FOR ANCHORS DESCRIPTION SEE SHEETS 7 THRU 13. (INTERPOLATION BETWEEN WIDTHS OR SPANS ALLOWED)

ANCHORS TYPE 'D' AND 'E' APPLICABLE TO 4", 5" AND 6" TUBE MULLIONS.

ANCHORS TYPE 'A', 'B', 'C', 'F' AND 'G' APPLICABLE TO ALL TUBE MULLIONS.

ANCHORS

af c

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3558)
TEL (305) 262-6978 FAX (305) 262-6978

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

ALUMINUM TUBE MULLIONS

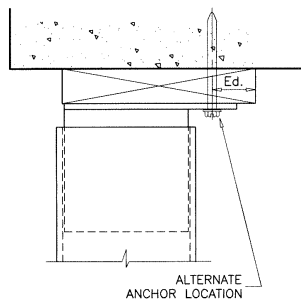
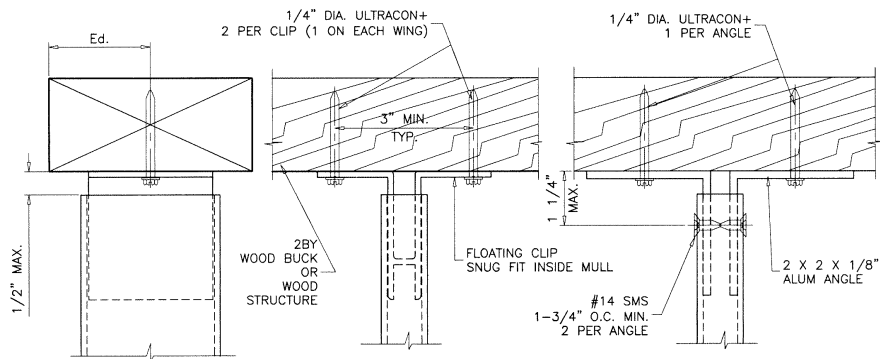
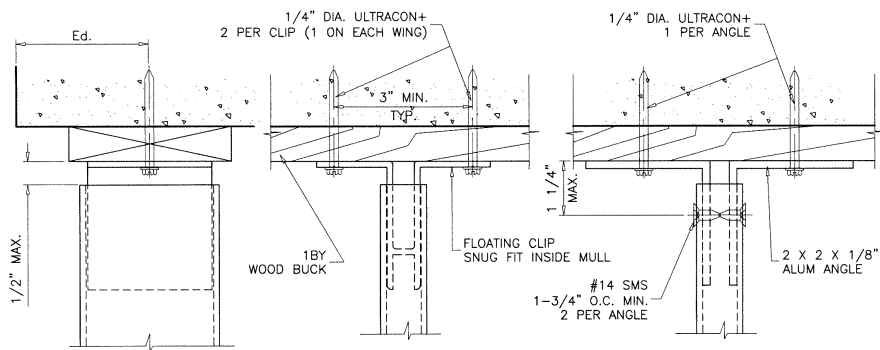
Revisions: no date by description

date: 05-21-21 scale: dr: TARIQ chg: by:

drawing no. 21-45F

sheet 6 of 13

MULLION 21-45F-ESW

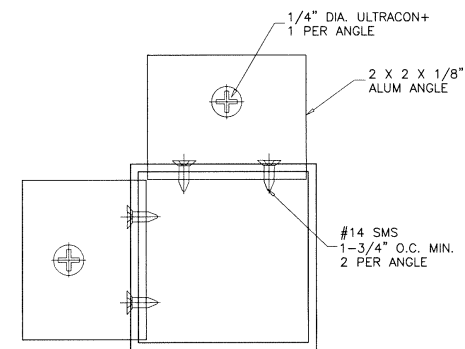
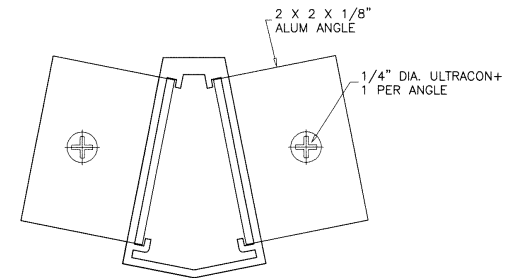


ANCHORS TYPE 'A'

1/4" DIA. ULTRACON+ BY 'DEWALT'		
(Fu=164 KSI, Fy=148 KSI)		
ULTRACON+ MAY BE HEX OR FLAT HEAD		
SUBSTRATE	Ed. = MIN. EDGE DIST.	MIN. EMBEDMENT
WOOD	1"	1-1/2"
CONCRETE	2-1/2"	1-3/4"

WOOD = 2BY WOOD BUCKS OR WOOD STRUCTURE S.G. = 0.55 MIN.
CONCRETE = f'c = 3000 PSI MIN.

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



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MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978
C.E.N. #5538

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

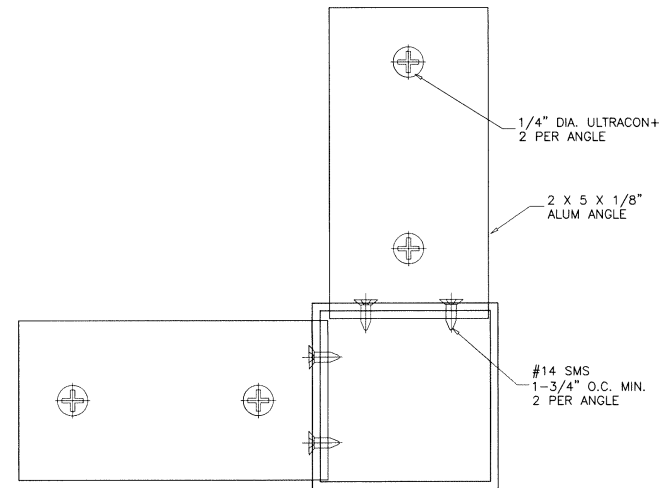
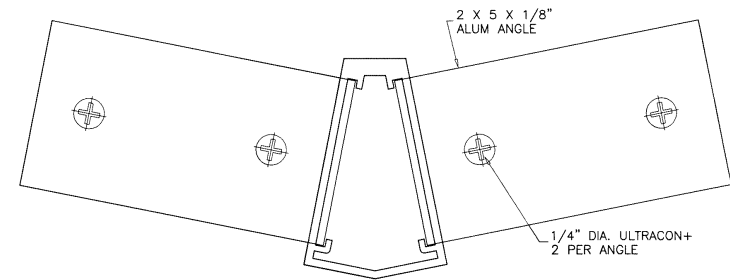
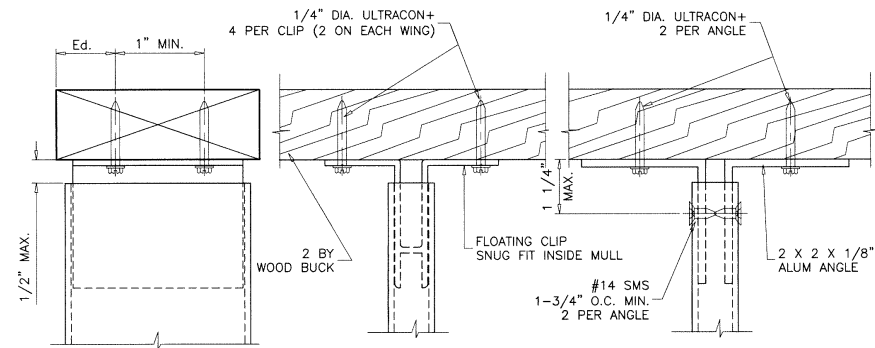
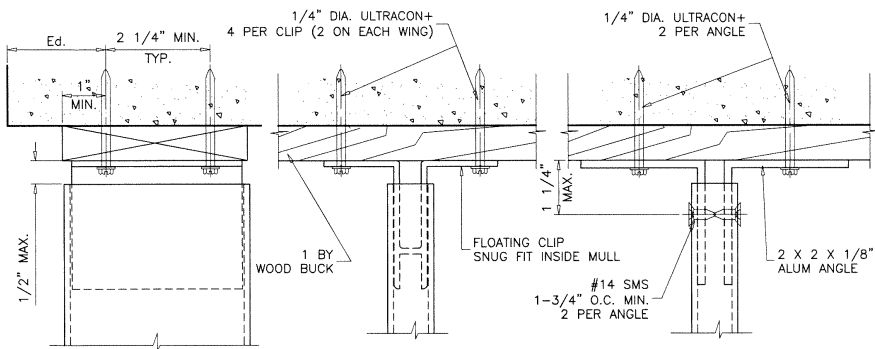
revisions:	no	date	by	description

date: 05-21-21	scale: 3/8" = 1"	dr: TARO	chk: by:
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drawing no.
21-45F

sheet 7 of 13

MULLION 21-45F-ESW



ANCHORS TYPE 'B'

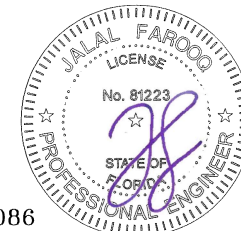
1/4" DIA. ULTRACON+ BY 'DEWALT'		
(Fu=164 KSI, Fy=148 KSI)		
ULTRACON+ MAY BE HEX OR FLAT HEAD		
SUBSTRATE	Ed. = MIN. EDGE DIST.	MIN. EMBEDMENT
WOOD	1"	1-1/2"
CONCRETE	2-1/2"	1-3/4"

WOOD = 2BY WOOD BUCKS OR WOOD STRUCTURE S.G. = 0.55 MIN.
CONCRETE = f'c = 3000 PSI MIN.

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

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(C.A.N. 3538)

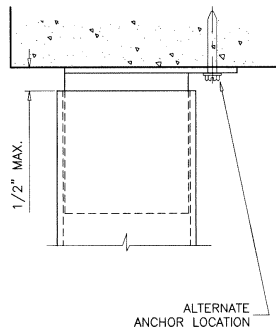
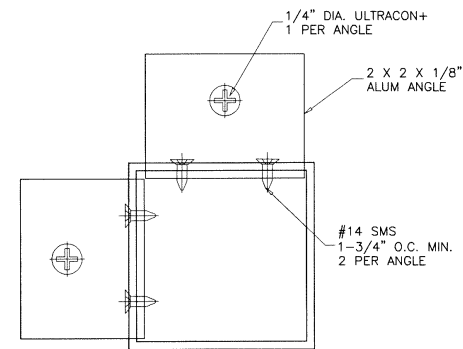
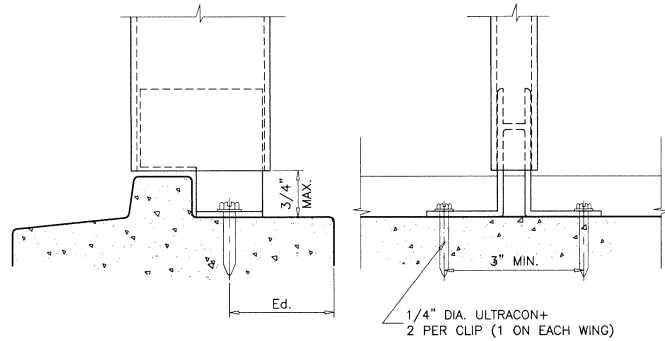
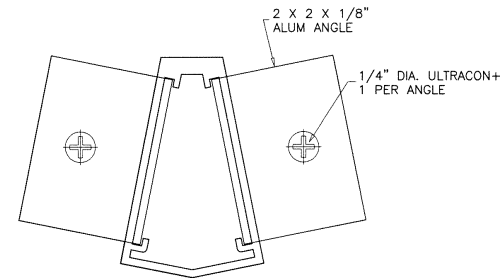
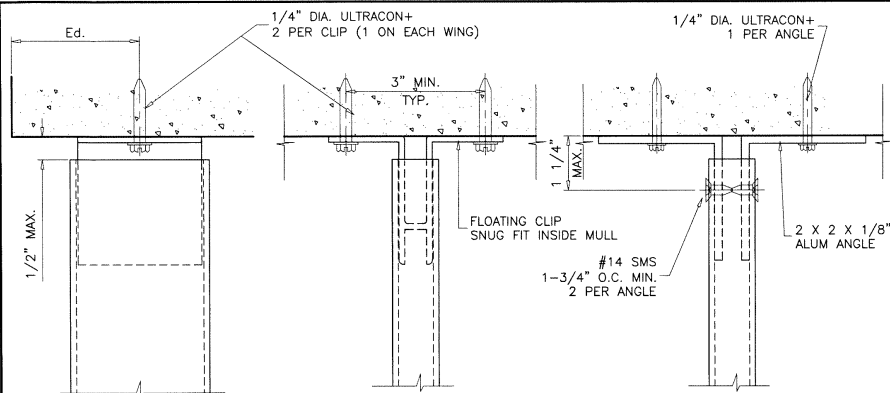
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3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

revisions:	no	date	by	description

date:	05-21-21
scale:	3/8" = 1"
dr. by:	TARLO
chk. by:	

drawing no.
21-45F

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ANCHORS TYPE 'C'

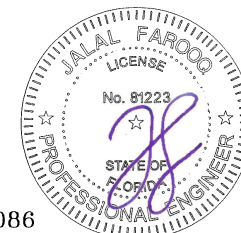
1/4" DIA. ULTRACON+ BY 'DEWALT'		
(Fu=164 KSI, Fy=148 KSI)		
ULTRACON+ MAY BE HEX OR FLAT HEAD		
SUBSTRATE	Ed. = MIN. EDGE DIST.	MIN. EMBEDMENT
CONCRETE	2-1/2"	1-3/4"

CONCRETE = f'c = 3000 PSI MIN.

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

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MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978
C.O.N. 3538

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E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
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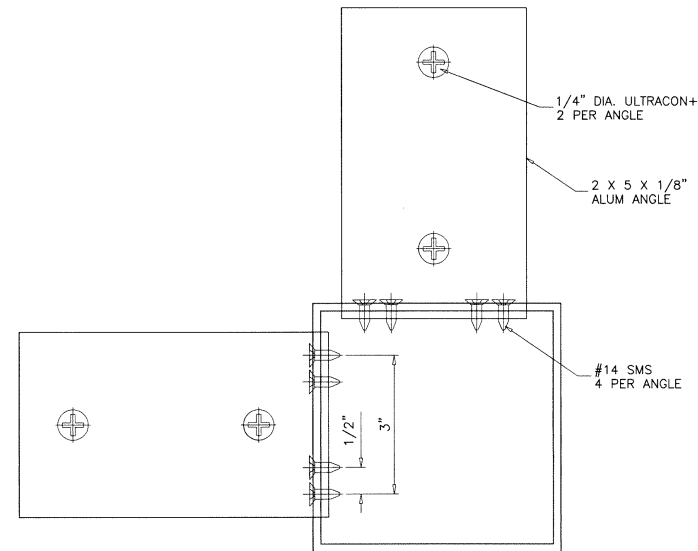
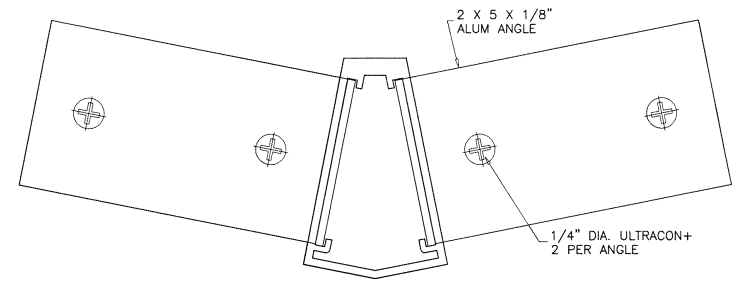
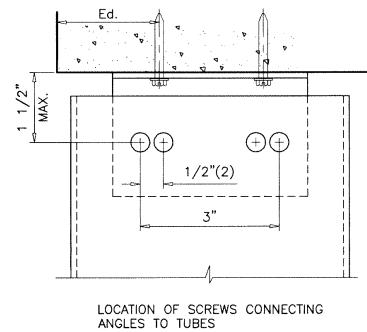
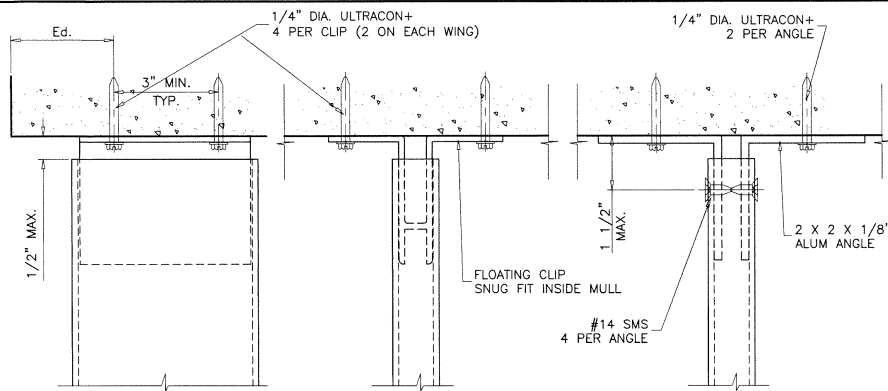
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date: 05-21-21
scale: 3/8" = 1"
dr. by: TARIO
chk. by:

drawing no.
21-45F

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MULLION 21-45F-ESW



ANCHORS TYPE 'D'

APPLICABLE FOR 4", 5" AND 6" TUBE MULLIONS

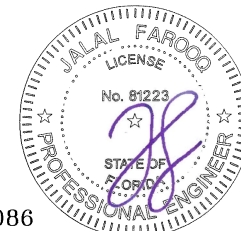
1/4" DIA. ULTRACON+ BY 'DEWALT'			
(F _u =164 KSI, F _y =148 KSI)			
ULTRACON+ MAY BE HEX OR FLAT HEAD			
SUBSTRATE	Ed. = MIN. EDGE DIST.	MIN. EMBEDMENT	
CONCRETE	2-1/2"	1-3/4"	

CONCRETE = f'_c = 3000 PSI MIN.

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

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MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978
C.O.N. 3538

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E.S. WINDOWS, LLC
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MIAMI, FL. 33142
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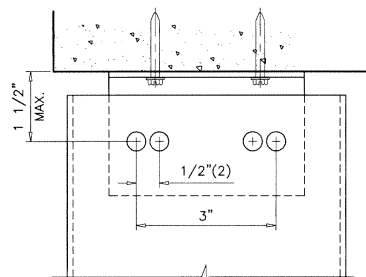
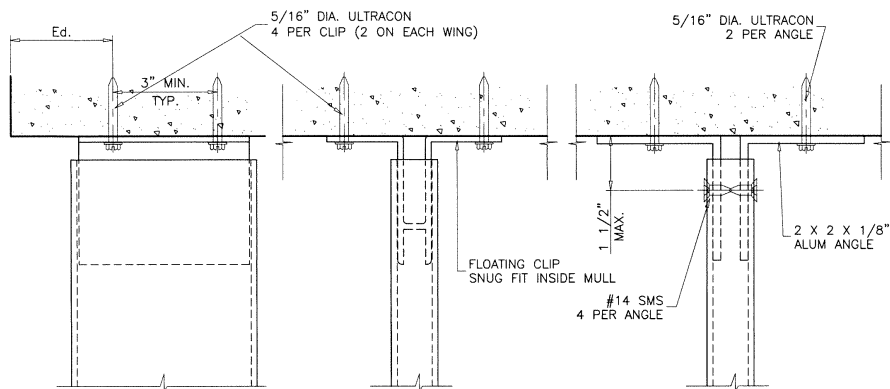
revisions:	no	date	by	description

date: 05-21-21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

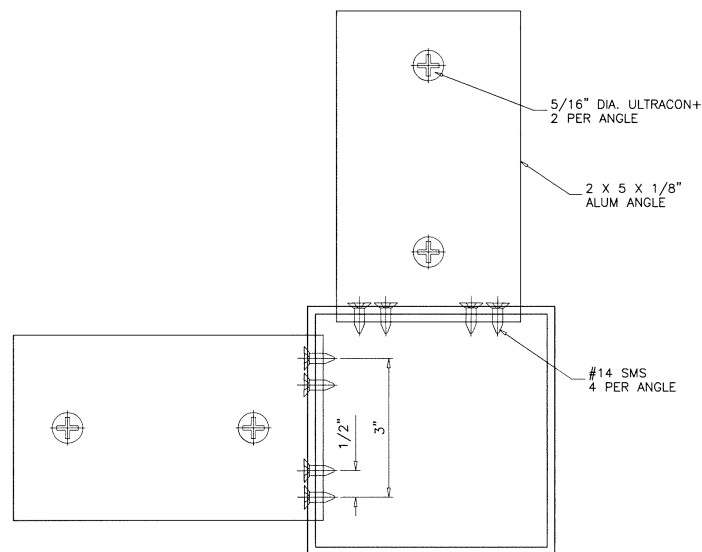
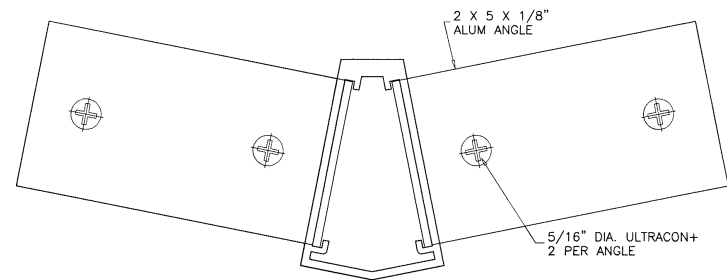
drawing no.
21-45F

sheet 10 of 13

MULLION 21-45F-ESW



LOCATION OF SCREWS CONNECTING
ANGLES TO TUBES



ANCHORS TYPE 'E'

APPLICABLE FOR 4", 5" AND 6" TUBE MULLIONS

5/16" DIA. ULTRACON BY 'DEWALT'
($F_u=177$ KSI, $F_y=155$ KSI)

ULTRACON MAY BE HEX OR FLAT HEAD

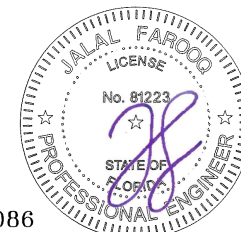
SUBSTRATE	Ed. = MIN. EDGE DIST.	MIN. EMBEDMENT
CONCRETE	3-1/8"	2"

CONCRETE = f'_c = 3000 PSI MIN.

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

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AL-FAROOQ CORPORATION
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MIAMI, FLORIDA 33173 (C.A.N. 3538)
TEL (305) 264-8100 FAX (305) 262-6978

ALUMINUM TUBE MULLIONS

E.S. WINDOWS, LLC

3550 N.W. 49 STREET
MIAMI, FL. 33142

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revisions:
no date by description

date: 05-21-21
scale: 3/8" = 1"

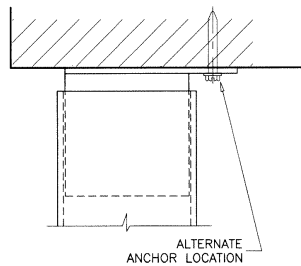
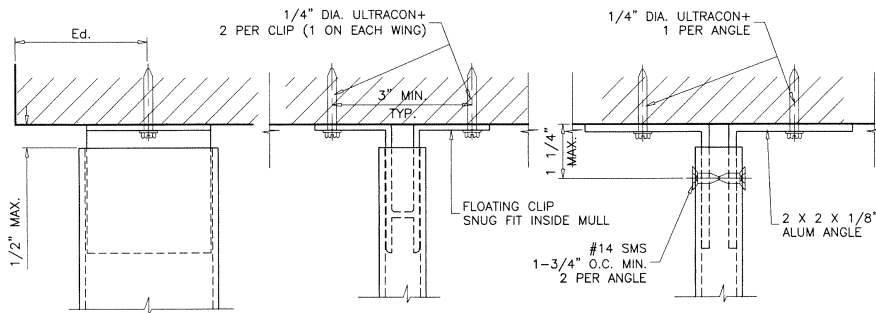
dr. by: TARIQ

chk. by:

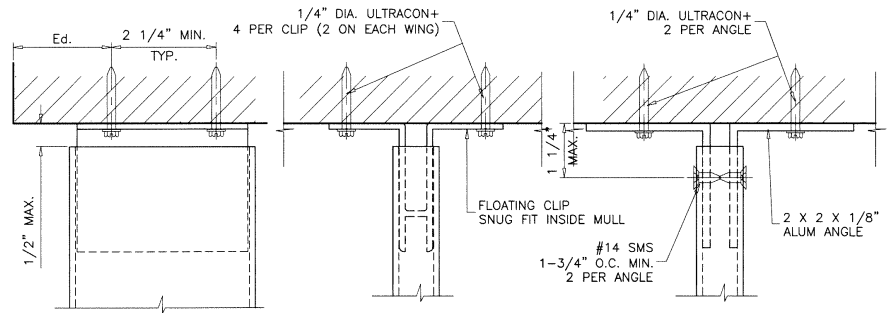
drawing no.
21-45F

sheet 11 of 13

MULLION 21-45F-ESW



ANCHORS TYPE 'F'
AT JAMBS ONLY



ANCHORS TYPE 'G'
AT JAMBS ONLY

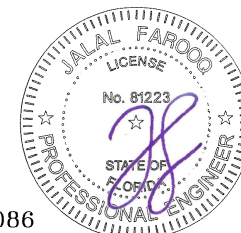
1/4" DIA. ULTRACON+ BY 'DEWALT'		
(Fu=164 KSI, Fy=148 KSI)		
ULTRACON+ MAY BE HEX OR FLAT HEAD		
SUBSTRATE	Ed. = MIN. EDGE DIST.	MIN. EMBEDMENT
MASONRY	2-1/2"	1-1/4"

MASONRY = C-90 HOLLOW/FILLED BLOCK f'm = 2000 PSI MIN.

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

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ENGINEERS & PRODUCT DEVELOPMENT
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MIAMI, FLORIDA 33173
TEL (305) 264-8100 FAX (305) 262-6978
C.E.N. 3558

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revisions:	no	date	by	description

date: 05-21-21
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chk. by:

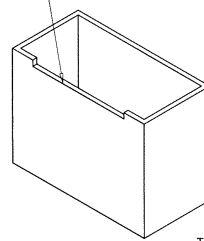
drawing no.
21-45F

sheet 12 of 13

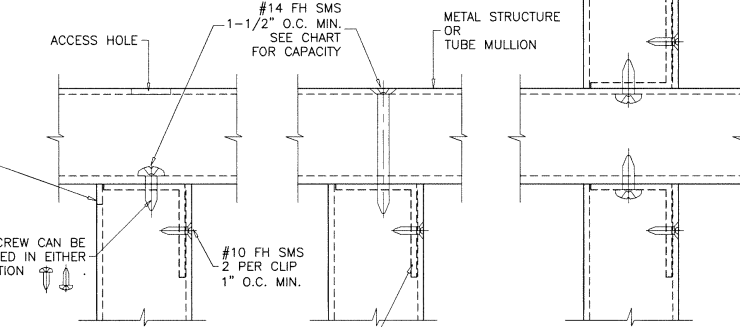
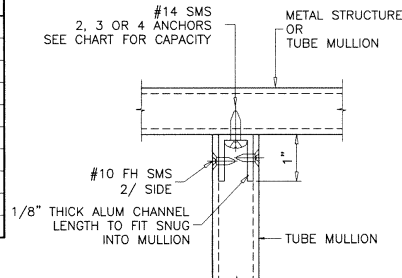
MULLION 21-45F-ESW

DESIGN LOAD CAPACITY - PSF					DESIGN LOAD CAPACITY - PSF					DESIGN LOAD CAPACITY - PSF				
WINDOW DIMS.		ANCHORS QUANTITY			WINDOW DIMS.		ANCHORS QUANTITY			WINDOW DIMS.		ANCHORS QUANTITY		
WIDTH (W)	MULL SPAN	2	3	4	WIDTH (W)	MULL SPAN	2	3	4	WIDTH (W)	MULL SPAN	2	3	4
19-1/8"	38-3/8"	150.0	150.0	150.0	19-1/8"	84"	150.0	150.0	150.0	19-1/8"	144"	93.7	140.5	150.0
26-1/2"		150.0	150.0	150.0	26-1/2"		115.9	150.0	150.0	26-1/2"		67.6	101.4	135.2
30"		150.0	150.0	150.0	30"		102.4	150.0	150.0	30"		59.7	89.6	119.5
37"		150.0	150.0	150.0	37"		83.0	124.5	150.0	37"		48.4	72.6	96.9
42"		150.0	150.0	150.0	42"		73.1	109.7	146.3	42"		42.7	64.0	85.3
48"		140.1	150.0	150.0	48"		64.0	96.0	128.0	48"		37.3	56.0	74.7
54"		124.5	150.0	150.0	54"		56.9	85.3	113.8	54"		33.2	49.8	66.4
60"		112.1	150.0	150.0	60"		51.2	76.8	102.4	60"		29.9	44.8	59.7
66"	50-5/8"	101.9	150.0	150.0	66"	96"	46.5	69.8	93.1	66"		27.2	40.7	54.3
72"		93.4	140.1	150.0	72"		42.7	64.0	85.3	72"		24.9	37.3	49.8
19-1/8"		150.0	150.0	150.0	19-1/8"		140.5	150.0	150.0					
26-1/2"		150.0	150.0	150.0	26-1/2"		101.4	150.0	150.0					
30"		150.0	150.0	150.0	30"		89.6	134.4	150.0					
37"		137.8	150.0	150.0	37"		72.6	109.0	145.3					
42"		121.4	150.0	150.0	42"		64.0	96.0	128.0					
48"		106.2	150.0	150.0	48"		56.0	84.0	112.0					
54"	58"	94.4	141.6	150.0	54"	108"	49.8	74.7	99.6					
60"		85.0	127.4	150.0	60"		44.8	67.2	89.6					
66"		77.2	115.8	150.0	66"		40.7	61.1	81.5					
72"		70.8	106.2	141.6	72"		37.3	56.0	74.7					
19-1/8"		150.0	150.0	150.0	19-1/8"		124.9	150.0	150.0					
26-1/2"		150.0	150.0	150.0	26-1/2"		90.2	135.2	150.0					
30"		148.3	150.0	150.0	30"		79.6	119.5	150.0					
37"		120.2	150.0	150.0	37"		64.6	96.9	129.2					
42"	63"	105.9	150.0	150.0	42"		56.9	85.3	113.8					
48"		92.7	139.0	150.0	48"		49.8	74.7	99.6					
54"		82.4	123.6	150.0	54"		44.2	66.4	88.5					
60"		74.2	111.2	148.3	60"		39.8	59.7	79.6					
66"		67.4	101.1	134.8	66"		36.2	54.3	72.4					
72"		61.8	92.7	123.6	72"		33.2	49.8	66.4					
19-1/8"	74-1/4"	150.0	150.0	150.0	19-1/8"	120"	112.4	150.0	150.0					
26-1/2"		150.0	150.0	150.0	26-1/2"		81.1	121.7	150.0					
30"		136.5	150.0	150.0	30"		71.7	107.5	143.4					
37"		110.7	150.0	150.0	37"		58.1	87.2	116.2					
42"		97.5	146.3	150.0	42"		51.2	76.8	102.4					
48"		85.3	128.0	150.0	48"		44.8	67.2	89.6					
54"		75.9	113.8	150.0	54"		39.8	59.7	79.6					
60"		68.3	102.4	136.5	60"		35.8	53.8	71.7					
66"		62.1	93.1	124.1	66"	132"	32.6	48.9	65.2					
72"		56.9	85.3	113.8	72"		29.9	44.8	59.7					
19-1/8"		150.0	150.0	150.0	19-1/8"		102.2	150.0	150.0					
26-1/2"		131.1	150.0	150.0	26-1/2"		73.8	110.7	147.5					
30"		115.8	150.0	150.0	30"		65.2	97.7	130.3					
37"		93.9	140.9	150.0	37"		52.8	79.3	105.7					
42"		82.7	124.1	150.0	42"		46.5	69.8	93.1					
48"		72.4	108.6	144.8	48"		40.7	61.1	81.5					
54"		64.4	96.5	128.7	54"		36.2	54.3	72.4					
60"		57.9	86.9	115.8	60"		32.6	48.9	65.2					
66"		52.7	79.0	105.3	66"		29.6	44.4	59.2					
72"		48.3	72.4	96.5	72"		27.2	40.7	54.3					

TUBES MAY BE NOTCHED
AS SHOWN TO ALLOW INSTALLATION
OF CLIP ANGLE
CAULK JOINT AFTER ASSEMBLY



THIS SCREW CAN BE
INSTALLED IN EITHER
DIRECTION



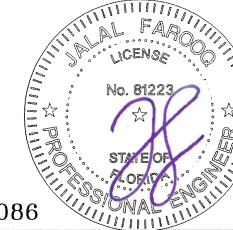
1-3/4" X 2" X 1/8" (FOR 2BY TUBE)
3/4" X 2" X 1/8" FOR (1BY TUBE)
ALUM ANGLE
CUT TO FIT SNUG INSIDE TUBE

ANCHORS DETAIL #1

METAL TO METAL CONNECTION

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

METAL = 1/8" MIN. THK. STEEL Fy = 36 KSI MIN.
1/8" MIN. THK. ALUMINUM (6063-T6 MIN.)



Sealed: 7/19/2023

FL #39086

af c

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

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: 05-21-21
scale: 3/8" = 1"
dr. by: TARIQ
chk. by:

drawing no.
21-45F

sheet 13 of 13