

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.

RECTANGULAR ALUMINUM TUBE MULLIONS USING MULLION PROPERTIES ONLY

NOTES:

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

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 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 AND GRAPHS AS FOLLOWS.

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

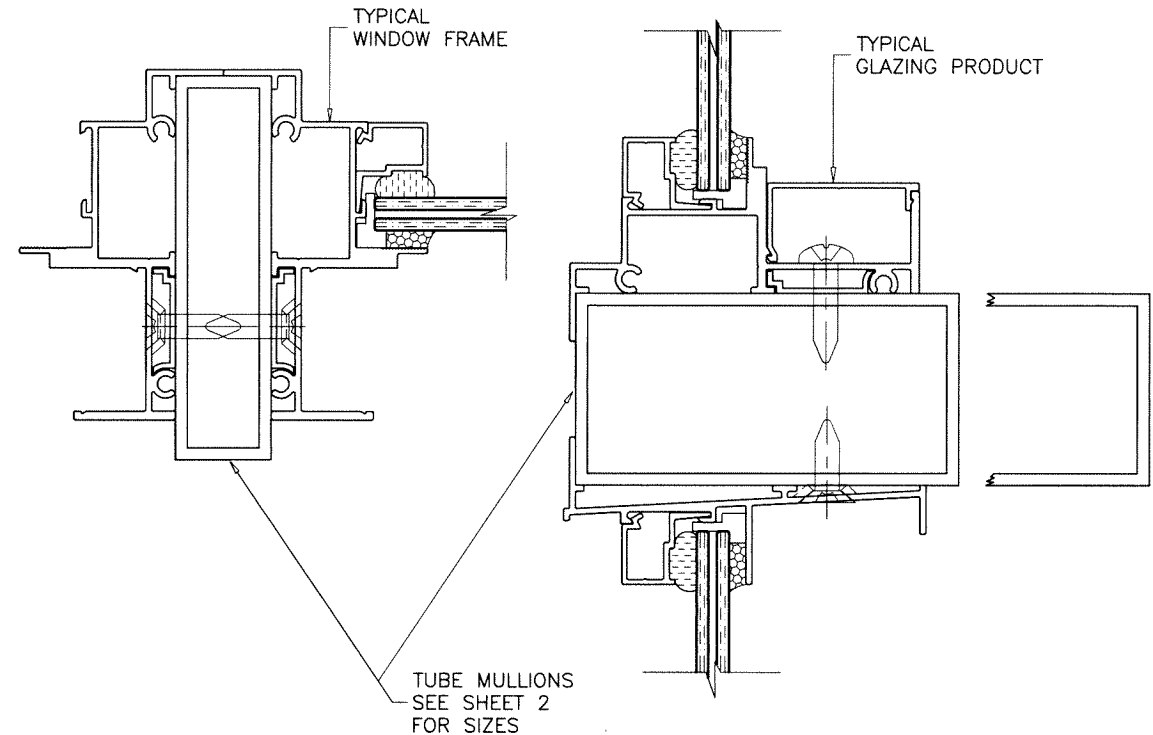
STEP 2 USE APPROVED GLAZING PRODUCTS MEETING ABOVE LOAD REQUIREMENTS.

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 TYPES ON SHEET 5 THRU 7 AND ANCHOR CHARTS ON SHEETS 4 & 4.1, SELECT ANCHOR TYPE WITH DESIGN RATING MORE THAN THE DESIGN LOADS SPECIFIED IN STEP 1 ABOVE.

LOWER VALUES FROM GLAZING PRODUCTS, MULLION CHARTS OR ANCHOR CHARTS WILL APPLY TO ENTIRE SYSTEM.



MULLIONS CONTAINING TYPICAL GLAZING PRODUCTS HORIZONTAL OR VERTICAL

SEE WINDOW OR DOOR APPROVAL FOR FASTENERS SIZES AND SPACING

MULLIONS MAY BE USED TO ATTACH TWO OR MORE WINDOWS TOGETHER

INDEX OF DRAWING	
SHEET NO.	DESCRIPTION
1	GENERAL NOTES, INSTRUCTIONS AND INDEX OF DRAWINGS
2	PARTS DRAWING
3	MULLION DESIGN LOAD CAPACITY TABLE (MULLIONS M1 THRU M9)
4 & 4.1	DESIGN LOAD CAPACITY TABLE (ANCHORS TYPE A, B, C & D)
5	ANCHORS TYPE A1, B1, C1 AND D1 DETAILS
6	ANCHORS TYPE A2, B2, C2 AND D2 DETAILS
7	ANCHORS TYPE A3, B3, C3 AND D3 DETAILS
8	ANCHOR DETAIL 1

Sealed: 12/13/2023

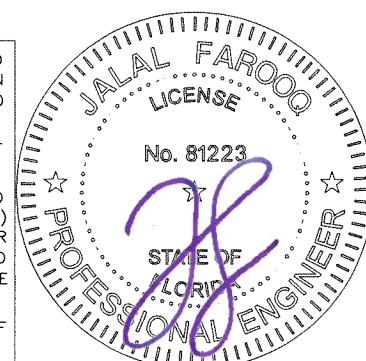
FL #17761

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.



af c
AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978
(C.A.N. 3538)
MULLION M15-04SAT

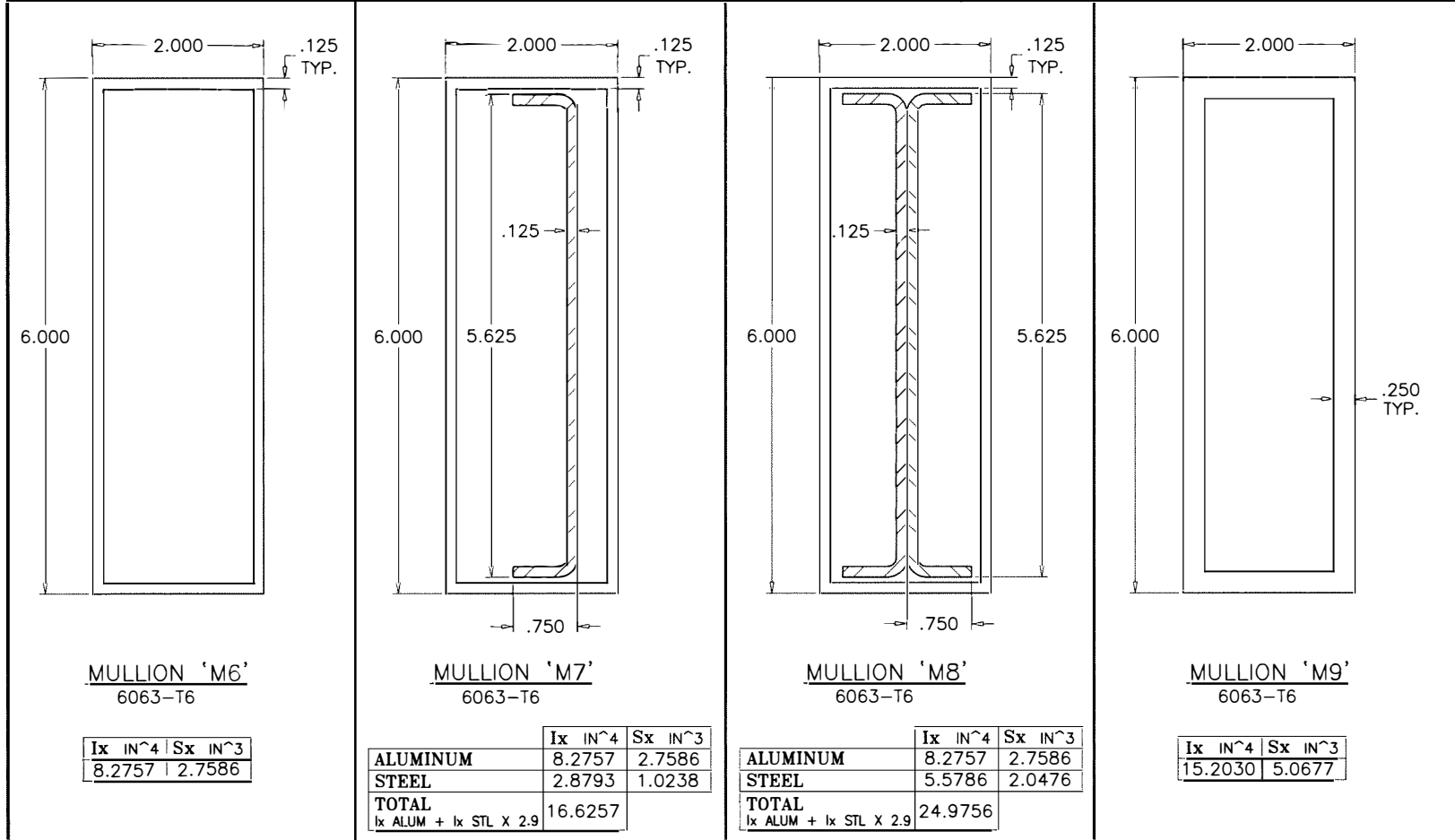
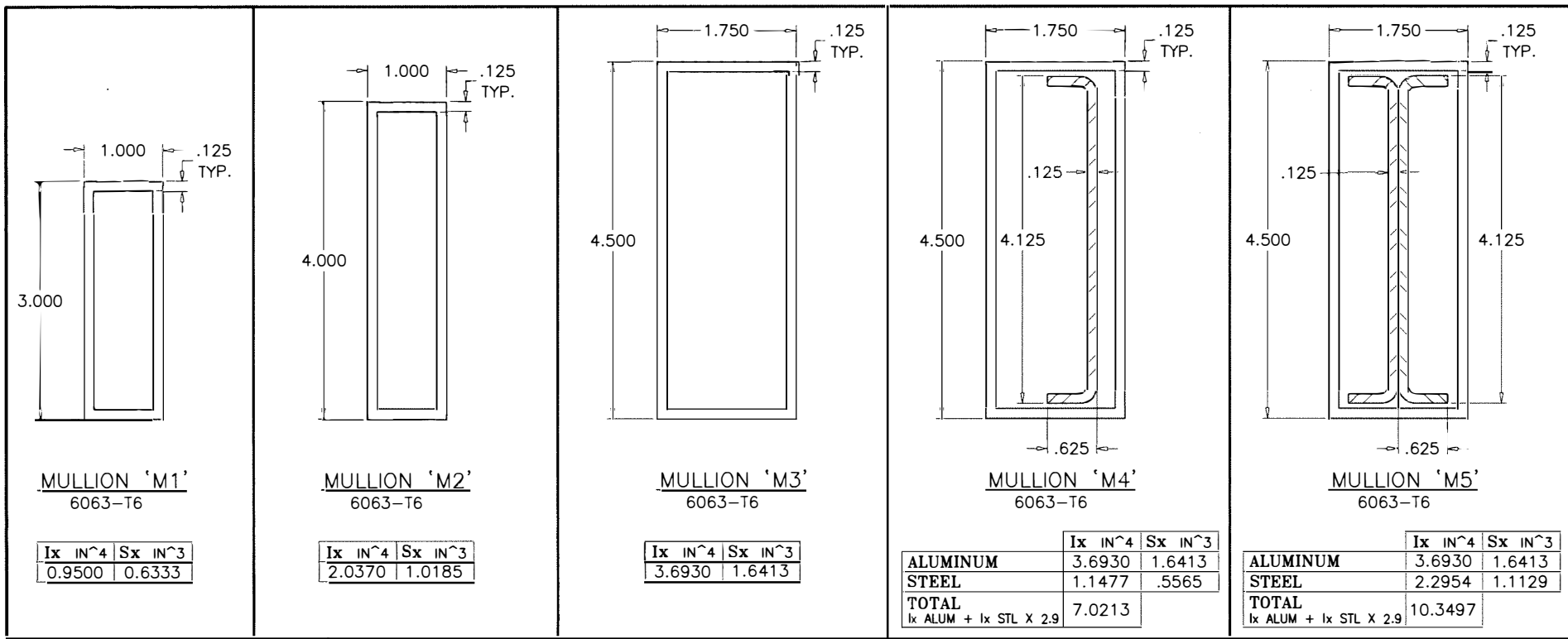
ALUMINUM TUBE MULLIONS
SOL-A-TROL ALUMINUM PRODUCTS
4101 N.W. 132ND STREET
MIAMI, FL. 33054
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revisions:

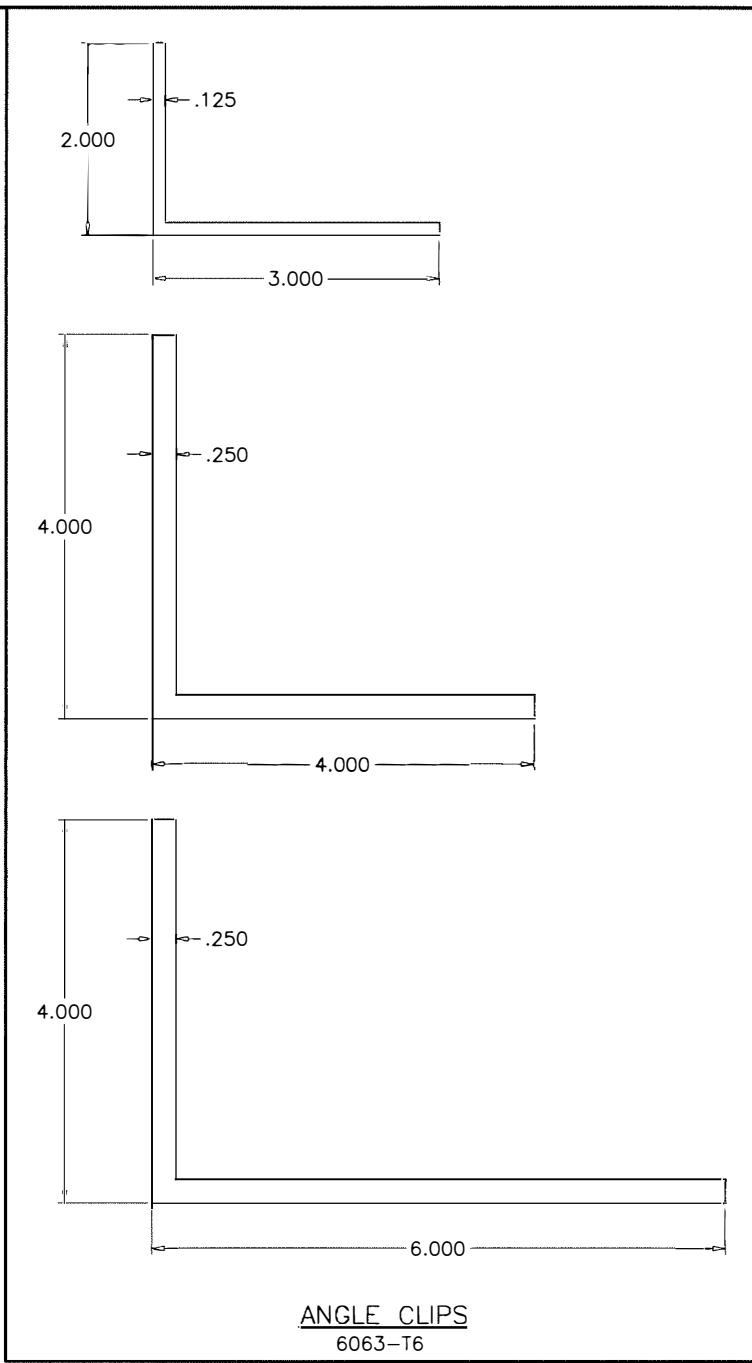
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A	11.21.18		UPDATED TO 2017 FBC
B	10.27.23		UPDATED TO 2023 FBC

date: 04-29-15	scale: 1/2" = 1"	dr. by: TARIQ	chk. by:
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drawing no.	M15-04
sheet	1 of 8

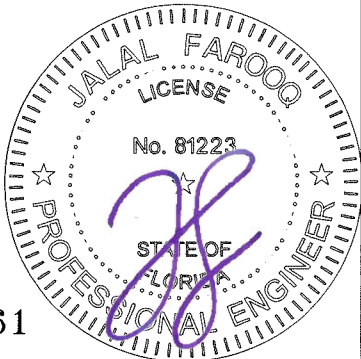


REINFORCING CHANNELS
A36 STEEL MIN., (Fy 36 KSI, Fu = 58 KSI)



Sealed: 12/13/2023

FL #17761



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revisions:

no	date	by	description

date: 04-29-15
scale: 1/2" = 1"
dr. by: TARIQ
chk. by:

drawing no.
M15-04
sheet 2 of 8

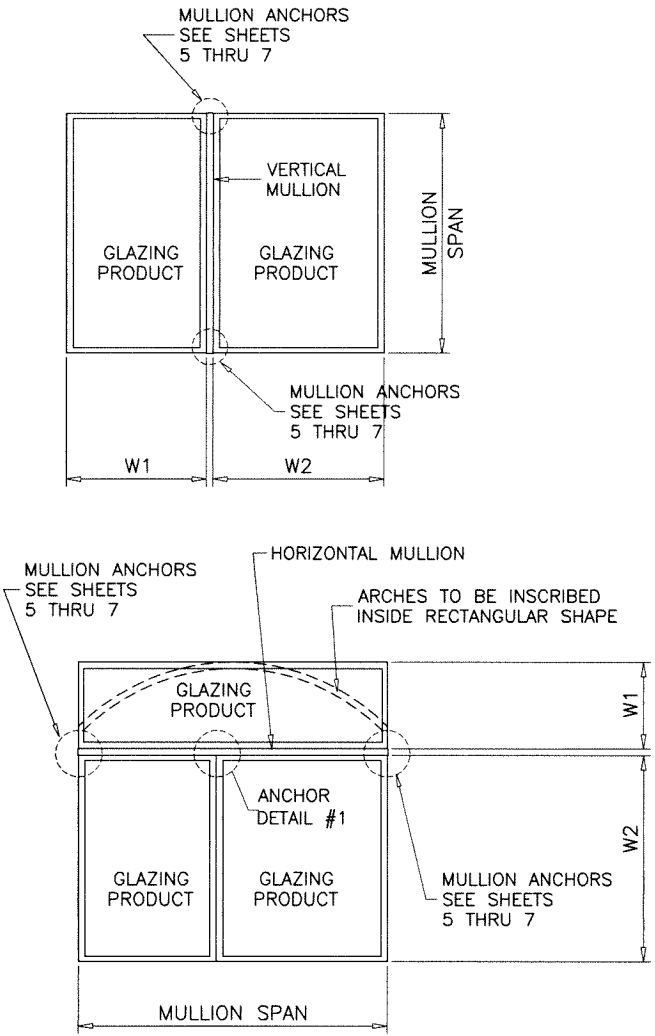
MULLION DESIGN LOAD CAPACITY – PSF										
WINDOW DIMS.		MULLION	MULLION	MULLION	MULLION	MULLION	MULLION	MULLION	MULLION	MULLION
WIDTH (W)	MULL SPAN	M1	M2	M3	M4	M5	M6	M7	M8	M9
24"	48"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
48"		88.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
50"		85.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
54"		78.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
60"		71.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
66"		64.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
72"		59.2	94.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0
24"	54"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		92.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		79.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
48"		69.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
50"		66.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
54"		61.9	98.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0
60"		55.7	88.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0
66"		50.6	80.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0
72"		–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
24"	60"	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		89.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		74.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		64.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
48"		56.0	89.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
50"		53.8	85.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0
54"		49.8	79.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0
60"		44.8	71.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0
66"		–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
72"		–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
24"	66"	85.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		68.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		57.0	97.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		48.8	83.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0
48"		42.7	73.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
50"		41.0	70.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
54"		38.0	64.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0
60"		–	–	99.4	100.0	100.0	100.0	100.0	100.0	100.0
66"		–	–	90.4	100.0	100.0	100.0	100.0	100.0	100.0
72"		–	–	–	–	–	100.0	100.0	100.0	100.0
24"	72"	65.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		52.6	97.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		43.9	81.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		37.6	69.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0
48"		32.9	60.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0
50"		31.6	58.4	99.8	100.0	100.0	100.0	100.0	100.0	100.0
54"		–	–	92.4	100.0	100.0	100.0	100.0	100.0	100.0
60"		–	–	83.1	94.4	100.0	100.0	100.0	100.0	100.0
66"		–	–	–	–	–	100.0	100.0	100.0	100.0
72"		–	–	–	–	–	100.0	100.0	100.0	100.0
24"	78"	–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
48"		–	–	88.2	100.0	100.0	100.0	100.0	100.0	100.0
50"		–	–	84.6	96.5	100.0	100.0	100.0	100.0	100.0
54"		–	–	78.4	89.4	100.0	100.0	100.0	100.0	100.0
60"		–	–	–	–	–	100.0	100.0	100.0	100.0
66"		–	–	–	–	–	100.0	100.0	100.0	100.0
72"		–	–	–	–	–	100.0	100.0	100.0	100.0

MULLION DESIGN LOAD CAPACITY – PSF										
WINDOW DIMS.		MULLION	MULLION	MULLION	MULLION	MULLION	MULLION	MULLION	MULLION	MULLION
WIDTH (W)	MULL SPAN	M1	M2	M3	M4	M5	M6	M7	M8	M9
24"	84"	–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
42"		–	–	86.5	99.1	100.0	100.0	100.0	100.0	100.0
48"		–	–	75.7	86.7	100.0	100.0	100.0	100.0	100.0
50"		–	–	72.7	83.2	100.0	100.0	100.0	100.0	100.0
54"		–	–	67.3	77.1	100.0	100.0	100.0	100.0	100.0
60"		–	–	–	–	–	100.0	100.0	100.0	100.0
66"		–	–	–	–	–	–	100.0	100.0	100.0
72"		–	–	–	–	–	–	100.0	100.0	100.0
24"	90"	–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
36"		–	–	87.3	100.0	100.0	100.0	100.0	100.0	100.0
42"		–	–	74.8	86.3	100.0	100.0	100.0	100.0	100.0
48"		–	–	65.5	75.5	100.0	100.0	100.0	100.0	100.0
50"		–	–	62.9	72.5	100.0	100.0	100.0	100.0	100.0
54"		–	–	–	–	–	98.5	100.0	100.0	100.0
60"		–	–	–	–	–	–	100.0	100.0	100.0
66"		–	–	–	–	–	–	95.4	100.0	100.0
24"	96"	–	–	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30"		–	–	86.3	100.0	100.0	100.0	100.0	100.0	100.0
36"		–	–	72.0	88.5	100.0	100.0	100.0	100.0	100.0
42"		–	–	61.7	75.9	100.0	100.0	100.0	100.0	100.0
48"		–	–	54.0	66.4	97.7	97.0	100.0	100.0	100.0
50"		–	–	–	–	–	93.2	100.0	100.0	100.0
54"		–	–	–	–	–	86.3	100.0	100.0	100.0
60"		–	–	–	–	–	–	92.2	100.0	100.0
24"	102"	–	–	–	–	–	–	100.0	100.0	100.0
30"		–	–	–	–	–	–	100.0	100.0	100.0
36"		–	–	–	–	–	–	100.0	100.0	100.0
42"		–	–	–	–	–	–	100.0	100.0	100.0
48"		–	–	–	–	–	–	100.0	100.0	100.0
50"		–	–	–	–	–	–	98.0	100.0	100.0
54"		–	–	–	–	–	–	90.7	100.0	100.0
60"		–	–	–	–	–	–	81.7	100.0	100.0
24"	108"	–	–	–	–	–	–	100.0	100.0	100.0
30"		–	–	–	–	–	–	100.0	100.0	100.0
36"		–	–	–	–	–	–	100.0	100.0	100.0
42"		–	–	–	–	–	–	100.0	100.0	100.0
48"		–	–	–	–	–	–	91.1	100.0	100.0
50"		–	–	–	–	–	–	87.4	100.0	100.0
54"		–	–	–	–	–	–	80.9	100.0	100.0
60"		–	–	–	–	–	–	–	–	–
24"	114"	–	–	–	–	–	–	100.0	100.0	100.0
30"		–	–	–	–	–	–	100.0	100.0	100.0
36"		–	–	–	–	–	–	100.0	100.0	100.0
42"		–	–	–	–	–	–	93.4	100.0	100.0
48"		–	–	–	–	–	–	81.7	100.0	100.0
50"		–	–	–	–	–	–	78.4	100.0	100.0
54"		–	–	–	–	–	–	72.6	100.0	100.0
60"		–	–	–	–	–	–	–	–	–
24"	120"	–	–	–	–	–	–	100.0	100.0	100.0
30"		–	–	–	–	–	–	100.0	100.0	100.0
36"		–	–	–	–	–	–	98.3	100.0	100.0
42"		–	–	–	–	–	–	84.3	100.0	100.0
48"		–	–	–	–	–	–	73.8	100.0	100.0
50"		–	–	–	–	–	–	70.8	100.0	100.0
54"		–	–	–	–	–	–	–	–	–
60"		–	–	–	–	–	–	–	–	–

ANGLE CLIPS ON BOTH SIDES OF MULLION DESIGN LOAD CAPACITY - PSF							
WINDOW DIMS.		ANCHORS TYPE A & B			ANCHORS TYPE C & D		
WIDTH (W)	MULL SPAN	A1/B1	A2/B2	A3/B3	C1/D1	C2/D2	C3/D3
24"	48"	100.0	100.0	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0	100.0	100.0
36"		88.0	100.0	100.0	100.0	100.0	100.0
42"		75.4	100.0	100.0	100.0	100.0	100.0
48"		66.0	100.0	100.0	100.0	100.0	100.0
54"		58.7	100.0	100.0	94.0	100.0	100.0
60"		52.8	100.0	100.0	84.6	100.0	100.0
66"		48.0	96.0	100.0	76.9	100.0	100.0
72"		44.0	88.0	100.0	70.5	100.0	100.0
24"	54"	100.0	100.0	100.0	100.0	100.0	100.0
30"		93.9	100.0	100.0	100.0	100.0	100.0
36"		78.2	100.0	100.0	100.0	100.0	100.0
42"		67.0	100.0	100.0	100.0	100.0	100.0
48"		58.7	100.0	100.0	94.0	100.0	100.0
54"		52.1	100.0	100.0	83.6	100.0	100.0
60"		46.9	93.9	100.0	75.2	100.0	100.0
66"		42.7	85.3	100.0	68.4	100.0	100.0
72"		39.1	78.2	100.0	62.7	100.0	100.0
24"	60"	100.0	100.0	100.0	100.0	100.0	100.0
30"		84.5	100.0	100.0	100.0	100.0	100.0
36"		70.4	100.0	100.0	100.0	100.0	100.0
42"		60.3	100.0	100.0	96.7	100.0	100.0
48"		52.8	100.0	100.0	84.6	100.0	100.0
54"		46.9	93.9	100.0	75.2	100.0	100.0
60"		42.2	84.5	100.0	67.7	100.0	100.0
66"		38.4	76.8	100.0	61.5	100.0	100.0
72"		35.2	70.4	100.0	56.4	100.0	100.0
24"	66"	96.0	100.0	100.0	100.0	100.0	100.0
30"		76.8	100.0	100.0	100.0	100.0	100.0
36"		64.0	100.0	100.0	100.0	100.0	100.0
42"		54.9	100.0	100.0	87.9	100.0	100.0
48"		48.0	96.0	100.0	76.9	100.0	100.0
54"		42.7	85.3	100.0	68.4	100.0	100.0
60"		38.4	76.8	100.0	61.5	100.0	100.0
66"		34.9	69.8	100.0	55.9	100.0	100.0
72"		32.0	64.0	96.0	51.3	100.0	100.0
24"	72"	88.0	100.0	100.0	100.0	100.0	100.0
30"		70.4	100.0	100.0	100.0	100.0	100.0
36"		58.7	100.0	100.0	94.0	100.0	100.0
42"		50.3	100.0	100.0	80.6	100.0	100.0
48"		44.0	88.0	100.0	70.5	100.0	100.0
54"		39.1	78.2	100.0	62.7	100.0	100.0
60"		35.2	70.4	100.0	56.4	100.0	100.0
66"		32.0	64.0	96.0	51.3	100.0	100.0
72"		29.3	58.7	88.0	47.0	94.0	100.0
24"	78"	81.2	100.0	100.0	100.0	100.0	100.0
30"		65.0	100.0	100.0	100.0	100.0	100.0
36"		54.2	100.0	100.0	86.8	100.0	100.0
42"		46.4	92.8	100.0	74.4	100.0	100.0
48"		40.6	81.2	100.0	65.1	100.0	100.0
54"		36.1	72.2	100.0	57.8	100.0	100.0
60"		32.5	65.0	97.5	52.1	100.0	100.0
66"		29.5	59.1	88.6	47.3	94.7	100.0
72"		27.1	54.2	81.2	43.4	86.8	100.0

ANGLE CLIPS ON BOTH SIDES OF MULLION DESIGN LOAD CAPACITY - PSF							
WINDOW DIMS.		ANCHORS TYPE A & B			ANCHORS TYPE C & D		
WIDTH (W)	MULL SPAN	A1/B1	A2/B2	A3/B3	C1/D1	C2/D2	C3/D3
24"	84"	75.4	100.0	100.0	100.0	100.0	100.0
30"		60.3	100.0	100.0	96.7	100.0	100.0
36"		50.3	100.0	100.0	80.6	100.0	100.0
42"		43.1	86.2	100.0	69.1	100.0	100.0
48"		37.7	75.4	100.0	60.4	100.0	100.0
54"		33.5	67.0	100.0	53.7	100.0	100.0
60"		30.2	60.3	90.5	48.3	96.7	100.0
66"		27.4	54.9	82.3	43.9	87.9	100.0
72"		25.1	50.3	75.4	40.3	80.6	100.0
24"	90"	70.4	100.0	100.0	100.0	100.0	100.0
30"		56.3	100.0	100.0	90.2	100.0	100.0
36"		46.9	93.9	100.0	75.2	100.0	100.0
42"		40.2	80.5	100.0	64.5	100.0	100.0
48"		35.2	70.4	100.0	56.4	100.0	100.0
54"		31.3	62.6	93.9	50.1	100.0	100.0
60"		28.2	56.3	84.5	45.1	90.2	100.0
66"		25.6	51.2	76.8	41.0	82.0	100.0
24"	96"	66.0	100.0	100.0	100.0	100.0	100.0
30"		52.8	100.0	100.0	84.6	100.0	100.0
36"		44.0	88.0	100.0	70.5	100.0	100.0
42"		37.7	75.4	100.0	60.4	100.0	100.0
48"		33.0	66.0	99.0	52.9	100.0	100.0
54"		29.3	58.7	88.0	47.0	94.0	100.0
60"		26.4	52.8	79.2	42.3	84.6	100.0
24"	102"	62.1	100.0	100.0	99.5	100.0	100.0
30"		49.7	99.4	100.0	79.6	100.0	100.0
36"		41.4	82.8	100.0	66.4	100.0	100.0
42"		35.5	71.0	100.0	56.9	100.0	100.0
48"		31.1	62.1	93.2	49.8	99.5	100.0
54"		27.6	55.2	82.8	44.2	88.5	100.0
60"		24.8	49.7	74.5	39.8	79.6	100.0
24"	108"	58.7	100.0	100.0	94.0	100.0	100.0
30"		46.9	93.9	100.0	75.2	100.0	100.0
36"		39.1	78.2	100.0	62.7	100.0	100.0
42"		33.5	67.0	100.0	53.7	100.0	100.0
48"		29.3	58.7	88.0	47.0	94.0	100.0
54"		26.1	52.1	78.2	41.8	83.6	100.0
24"	114"	55.6	100.0	100.0	89.1	100.0	100.0
30"		44.5	88.9	100.0	71.2	100.0	100.0
36"		37.1	74.1	100.0	59.4	100.0	100.0
42"		31.8	63.5	95.3	50.9	100.0	100.0
48"		27.8	55.6	83.4	44.5	89.1	100.0
54"		24.7	49.4	74.1	39.6	79.2	100.0
24"	120"	52.8	100.0	100.0	84.6	100.0	100.0
30"		42.2	84.5	100.0	67.7	100.0	100.0
36"		35.2	70.4	100.0	56.4	100.0	100.0
42"		30.2	60.3	90.5	48.3	96.7	100.0
48"		26.4	52.8	79.2	42.3	84.6	100.0
50"		25.3	50.7	76.0	40.6	81.2	100.0

NOTE:
ANY ANCHOR CONDITION SHOWN HEREIN MAY COVER LOCATIONS AT HEAD, SILL OR JAMB ENDS.
FOR ANCHORS DESCRIPTION SEE SHEETS 5 THRU 7.
(INTERPOLATION BETWEEN WIDTHS OR SPANS ALLOWED)



TYPICAL MULLION ARRANGEMENTS

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

ANCHORS



Sealed: 12/13/2023

FL #17761

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ENGINEERS & PRODUCT DEVELOPMENT
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MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978
MULLION\M15-04SAT

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4101 N.W. 132ND STREET
MIAMI, FL. 33054
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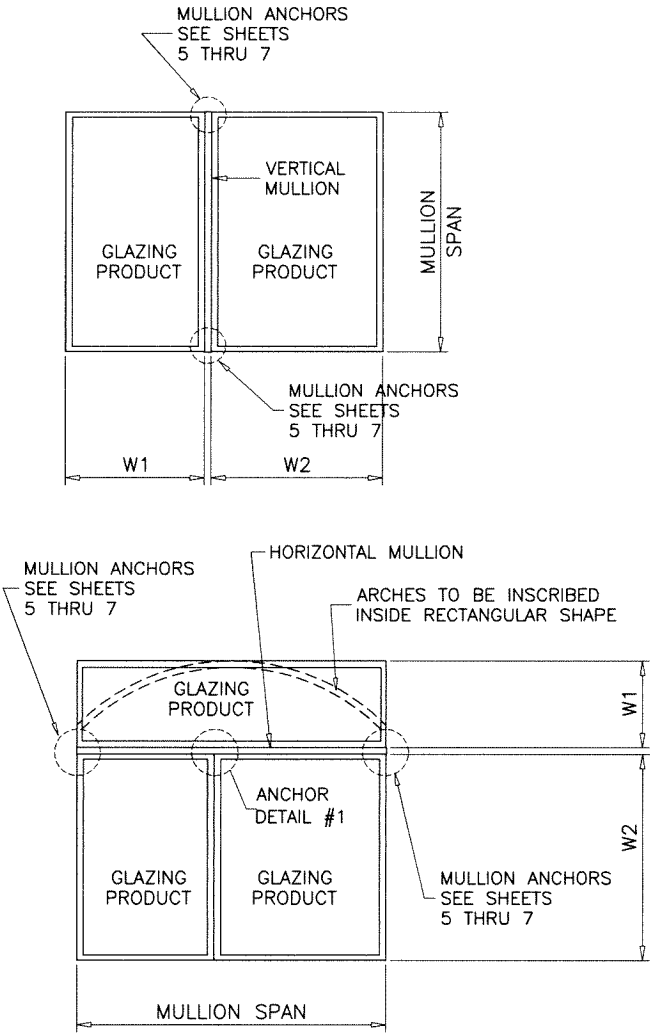
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date: 04-29-15
scale: -
dr. by: TARIQ
chk. by:
drawing no.
M15-04
sheet 4 of 8

ANGLE CLIP ON ONE SIDE OF MULLION DESIGN LOAD CAPACITY – PSF					
WINDOW DIMS.		ANCHORS TYPE A & B		ANCHORS TYPE C & D	
WIDTH (W)	MULL SPAN	A2/B2	A3/B3	C2/D2	C3/D3
24"	48"	100.0	100.0	100.0	100.0
30"		100.0	100.0	100.0	100.0
36"		88.0	100.0	100.0	100.0
42"		75.4	100.0	100.0	100.0
48"		66.0	99.0	100.0	100.0
54"		58.7	88.0	94.0	100.0
60"		52.8	79.2	84.6	100.0
66"		48.0	72.0	76.9	100.0
72"		44.0	66.0	70.5	100.0
24"	54"	100.0	100.0	100.0	100.0
30"		93.9	100.0	100.0	100.0
36"		78.2	100.0	100.0	100.0
42"		67.0	100.0	100.0	100.0
48"		58.7	88.0	94.0	100.0
54"		52.1	78.2	83.6	100.0
60"		46.9	70.4	75.2	100.0
66"		42.7	64.0	68.4	100.0
72"		39.1	58.7	62.7	94.0
24"	60"	100.0	100.0	100.0	100.0
30"		84.5	100.0	100.0	100.0
36"		70.4	100.0	100.0	100.0
42"		60.3	90.5	96.7	100.0
48"		52.8	79.2	84.6	100.0
54"		46.9	70.4	75.2	100.0
60"		42.2	63.4	67.7	100.0
66"		38.4	57.6	61.5	92.3
72"		35.2	52.8	56.4	84.6
24"	66"	96.0	100.0	100.0	100.0
30"		76.8	100.0	100.0	100.0
36"		64.0	96.0	100.0	100.0
42"		54.9	82.3	87.9	100.0
48"		48.0	72.0	76.9	100.0
54"		42.7	64.0	68.4	100.0
60"		38.4	57.6	61.5	92.3
66"		34.9	52.4	55.9	83.9
72"		32.0	48.0	51.3	76.9
24"	72"	88.0	100.0	100.0	100.0
30"		70.4	100.0	100.0	100.0
36"		58.7	88.0	94.0	100.0
42"		50.3	75.4	80.6	100.0
48"		44.0	66.0	70.5	100.0
54"		39.1	58.7	62.7	94.0
60"		35.2	52.8	56.4	84.6
66"		32.0	48.0	51.3	76.9
72"		29.3	44.0	47.0	70.5
24"	78"	81.2	100.0	100.0	100.0
30"		65.0	97.5	100.0	100.0
36"		54.2	81.2	86.8	100.0
42"		46.4	69.6	74.4	100.0
48"		40.6	60.9	65.1	97.6
54"		36.1	54.2	57.8	86.8
60"		32.5	48.7	52.1	78.1
66"		29.5	44.3	47.3	71.0
72"		27.1	40.6	43.4	65.1

ANGLE CLIP ON ONE SIDE OF MULLION DESIGN LOAD CAPACITY – PSF					
WINDOW DIMS.		ANCHORS TYPE A & B		ANCHORS TYPE C & D	
WIDTH (W)	MULL SPAN	A2/B2	A3/B3	C2/D2	C3/D3
24"	84"	75.4	100.0	100.0	100.0
30"		60.3	90.5	96.7	100.0
36"		50.3	75.4	80.6	100.0
42"		43.1	64.7	69.1	100.0
48"		37.7	56.6	60.4	90.6
54"		33.5	50.3	53.7	80.6
60"		30.2	45.3	48.3	72.5
66"		27.4	41.1	43.9	65.9
72"		25.1	37.7	40.3	60.4
24"	90"	70.4	100.0	100.0	100.0
30"		56.3	84.5	90.2	100.0
36"		46.9	70.4	75.2	100.0
42"		40.2	60.3	64.5	96.7
48"		35.2	52.8	56.4	84.6
54"		31.3	46.9	50.1	75.2
60"		28.2	42.2	45.1	67.7
66"		25.6	38.4	41.0	61.5
24"	96"	66.0	99.0	100.0	100.0
30"		52.8	79.2	84.6	100.0
36"		44.0	66.0	70.5	100.0
42"		37.7	56.6	60.4	90.6
48"		33.0	49.5	52.9	79.3
54"		29.3	44.0	47.0	70.5
60"		26.4	39.6	42.3	63.5
66"		24.8	37.3	39.8	59.7
24"	102"	62.1	93.2	99.5	100.0
30"		49.7	74.5	79.6	100.0
36"		41.4	62.1	66.4	99.5
42"		35.5	53.2	56.9	85.3
48"		31.1	46.6	49.8	74.6
54"		27.6	41.4	44.2	66.4
60"		24.8	37.3	39.8	59.7
66"		22.9	34.4	37.0	55.8
24"	108"	58.7	88.0	94.0	100.0
30"		46.9	70.4	75.2	100.0
36"		39.1	58.7	62.7	94.0
42"		33.5	50.3	53.7	80.6
48"		29.3	44.0	47.0	70.5
54"		26.1	39.1	41.8	62.7
60"		23.4	36.4	39.2	58.9
66"		21.6	34.0	36.8	55.4
24"	114"	55.6	83.4	89.1	100.0
30"		44.5	66.7	71.2	100.0
36"		37.1	55.6	59.4	89.1
42"		31.8	47.6	50.9	76.3
48"		27.8	41.7	44.5	66.8
54"		24.7	37.1	39.6	59.4
60"		22.4	34.8	37.3	56.1
66"		20.6	32.8	35.4	53.2
24"	120"	52.8	79.2	84.6	100.0
30"		42.2	63.4	67.7	100.0
36"		35.2	52.8	56.4	84.6
42"		30.2	45.3	48.3	72.5
48"		26.4	39.6	42.3	63.5
54"		23.4	36.4	39.2	58.9
60"		21.1	34.0	36.8	55.4
66"		19.3	32.0	34.9	52.4

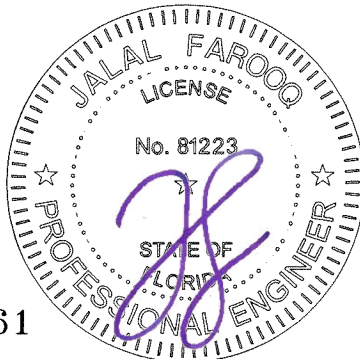
NOTE:
ANY ANCHOR CONDITION SHOWN HEREIN MAY COVER LOCATIONS AT HEAD, SILL OR JAMB ENDS.
FOR ANCHORS DESCRIPTION SEE SHEETS 5 THRU 7.
(INTERPOLATION BETWEEN WIDTHS OR SPANS ALLOWED)



TYPICAL MULLION ARRANGEMENTS

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

ANCHORS



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ALUMINUM TUBE MULLIONS

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4101 N.W. 132ND STREET
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revisions:

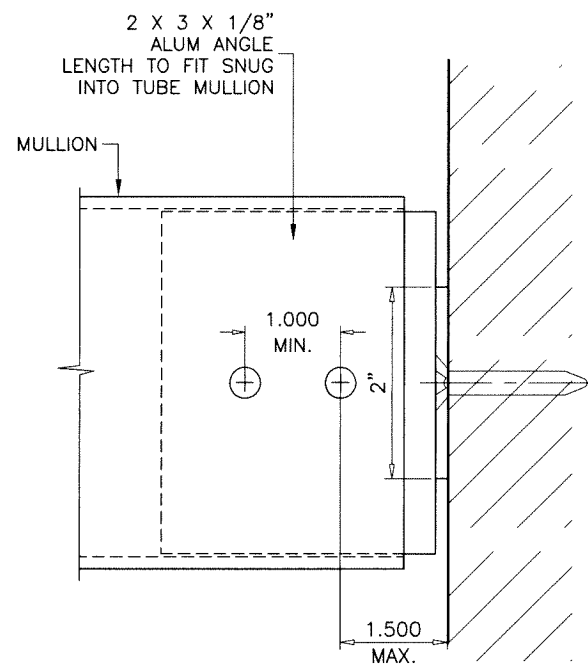
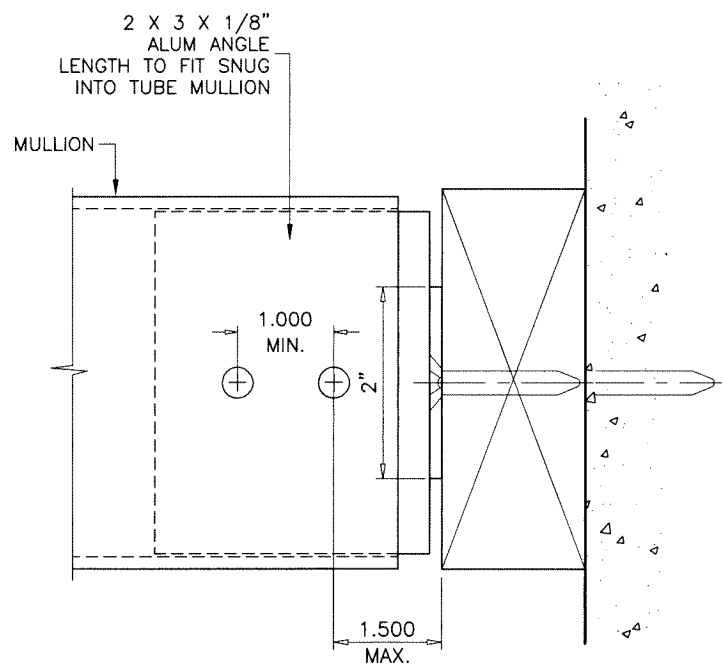
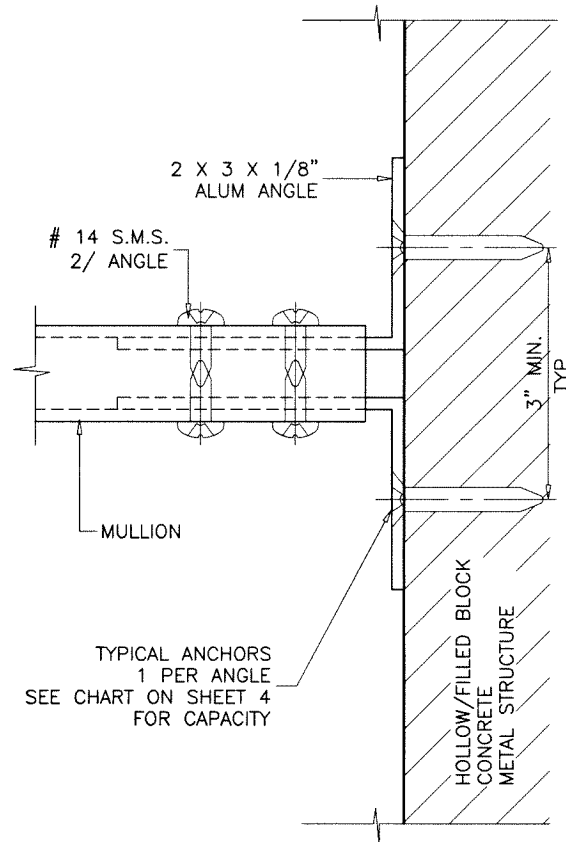
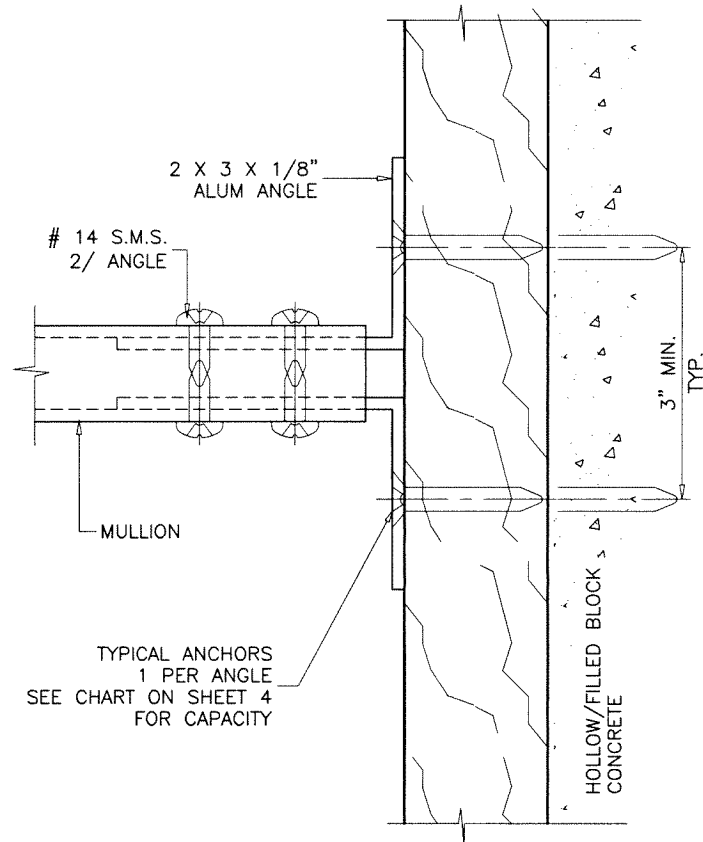
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drawing no. **M15-04**

sheet **4** of **8**

MULLION \M15-04SAT



ANCHORS TYPE 'A1'

INTO 2BY WOOD BUCKS OR WOOD STRUCTURES THRU 1BY BUCKS INTO CONC. OR MASONRY

ANCHORS TYPE 'B1', 'C1' & 'D1'

DIRECTLY INTO CONC. OR MASONRY INTO METAL STRUCTURES

TYPICAL ANCHORS:

ANCHOR TYPES	SUBSTRATE	AT HEAD & SILL		AT JAMBS	
		MIN. EMBED.	MIN. EDGE DIST.	MIN. EMBED.	MIN. EDGE DIST.
1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)	TYPE 'A1' WOOD	1-1/2"	1"	1-1/2"	1"
	TYPE 'B1' MASONRY	N.A.	N.A.	1-1/4"	2-1/2"
	TYPE 'C1' CONCRETE	1-3/4"	2-1/2"	1-3/4"	2-1/2"
1/4" DIA. SELF DRILLING SCREWS (GRADE 5 CRS)	TYPE 'D1' METAL	1/8"	3/4"	1/8"	3/4"

WOOD = 2BY WOOD BUCKS OR WOOD STRUCTURE S.G. = 0.55 MIN.

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

CONCRETE = f'c = 3000 PSI MIN.

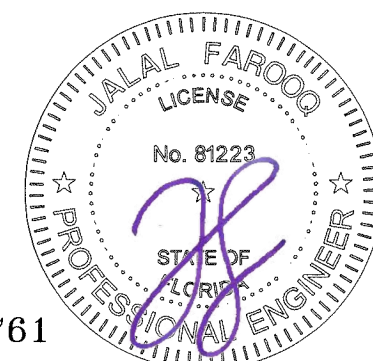
METAL = 1/8" MIN. THK. STEEL Fy = 36 KSI MIN.

F.B.C. APPROVED MULLION 1/8" MIN. THK.

1BY OR 2BY WOOD BUCKS AND METAL STRUCTURES NOT BY 'SOL-A-TROL' MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER THEM TO BUILDING STRUCTURE.

ANCHORS MAY BE HEX OR FLAT HEAD.

Sealed: 12/13/2023



ANGLES CONNECTED DIRECTLY TO MASONRY TO BE PROTECTED WITH ALKALI-RESISTANT COATINGS, SUCH AS BITUMINOUS PAINT OR WATER-WHITE METHACRYLATE LACQUER.

FL #17761

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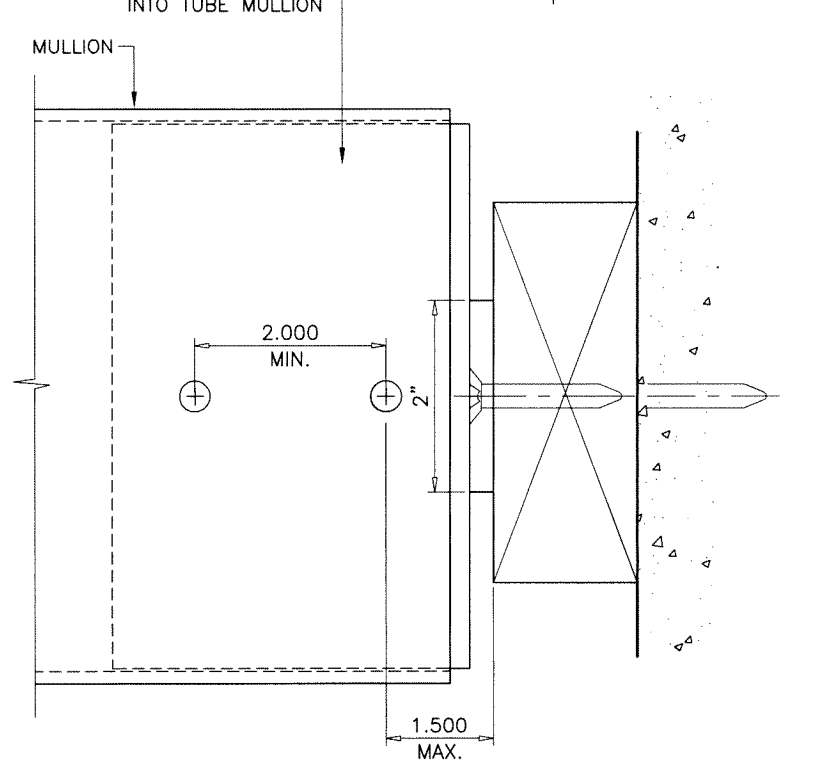
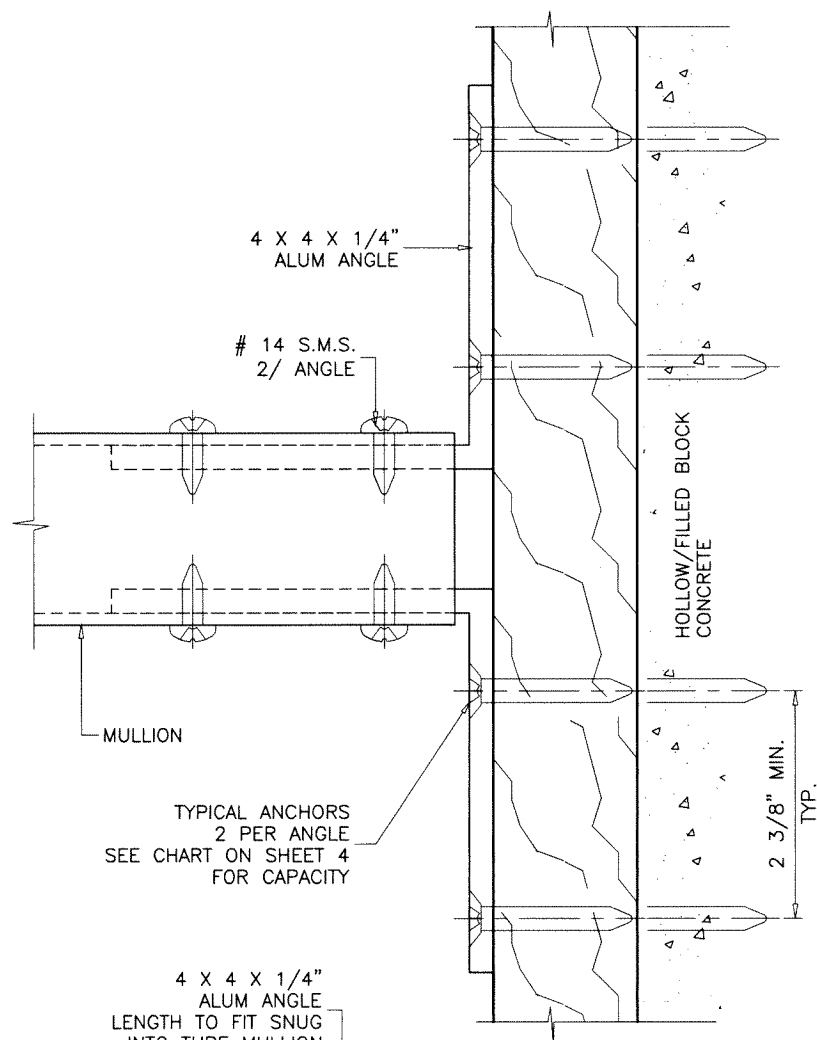
ALUMINUM TUBE MULLIONS

SOL-A-TROL ALUMINUM PRODUCTS
4101 N.W. 132ND STREET
MIAMI, FL. 33054
TEL. (305) 681-2020 FAX. (305) 681-2035

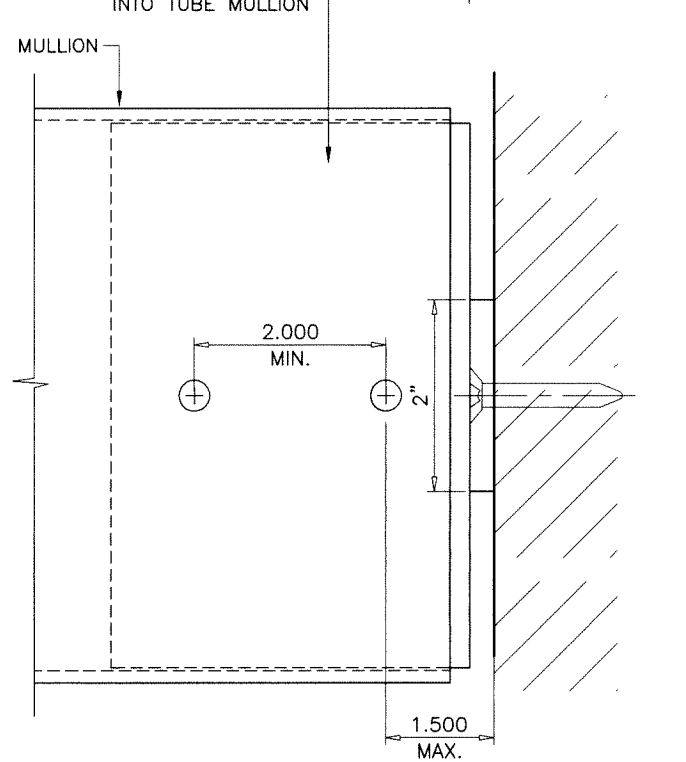
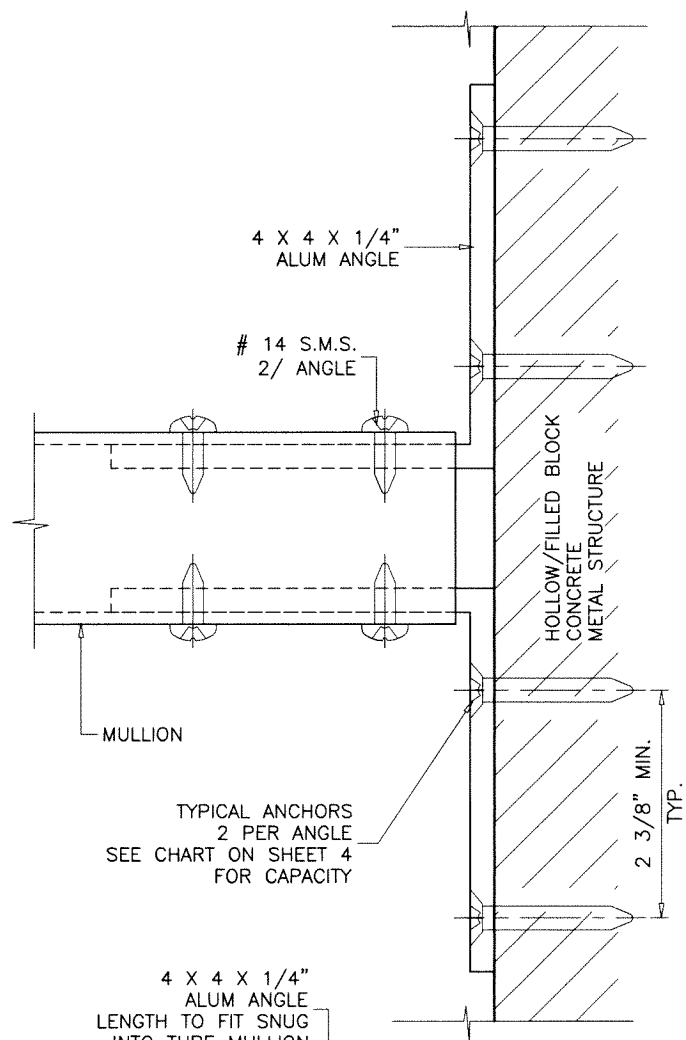
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chk. by:

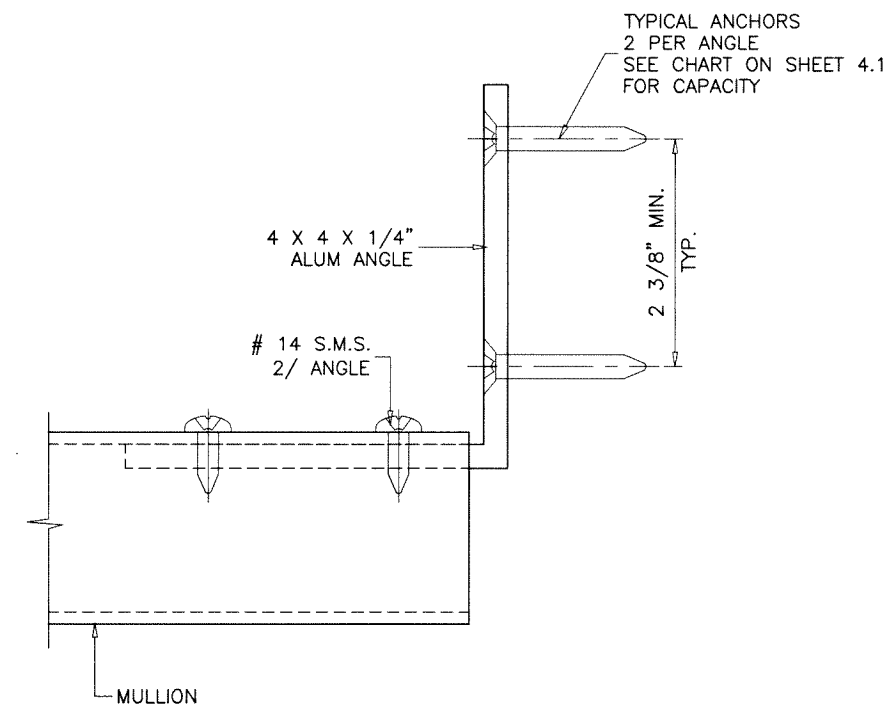
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M15-04
sheet 5 of 8



ANCHORS TYPE 'A2'
INTO 2BY WOOD BUCKS OR WOOD STRUCTURES
THRU 1BY BUCKS INTO CONC. OR MASONRY



ANCHORS TYPE 'B2', 'C2' & 'D2'
DIRECTLY INTO CONC. OR MASONRY
INTO METAL STRUCTURES



ANGLE CLIP ON ONE SIDE OF MULLION

TYPICAL ANCHORS:

ANCHOR TYPES	SUBSTRATE	AT HEAD & SILL		AT JAMBS	
		MIN. EMBED.	MIN. EDGE DIST.	MIN. EMBED.	MIN. EDGE DIST.
1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)	TYPE 'A2' WOOD	1-1/2"	1"	1-1/2"	1"
	TYPE 'B2' MASONRY	N.A.	N.A.	1-1/4"	2-1/2"
	TYPE 'C2' CONCRETE	1-3/4"	2-1/2"	1-3/4"	2-1/2"
1/4" DIA. SELF DRILLING SCREWS (GRADE 5 CRS)	TYPE 'D2' METAL	1/8"	3/4"	1/8"	3/4"

WOOD = 2BY WOOD BUCKS OR WOOD STRUCTURE S.G. = 0.55 MIN.
MASONRY = C-90 HOLLOW/FILLED BLOCK f'm = 2000 PSI MIN.
CONCRETE = f'c = 3000 PSI MIN.
METAL = 1/8" MIN. THK. STEEL Fy = 36 KSI MIN.
F.B.C. APPROVED MULLION 1/8" MIN. THK.

1BY OR 2BY WOOD BUCKS AND METAL STRUCTURES NOT BY 'SOL-A-TROL'
MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER
THEM TO BUILDING STRUCTURE.

ANCHORS MAY BE HEX OR FLAT HEAD.



Sealed: 12/13/2023

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MULLION M15-04SAT

ALUMINUM TUBE MULLIONS

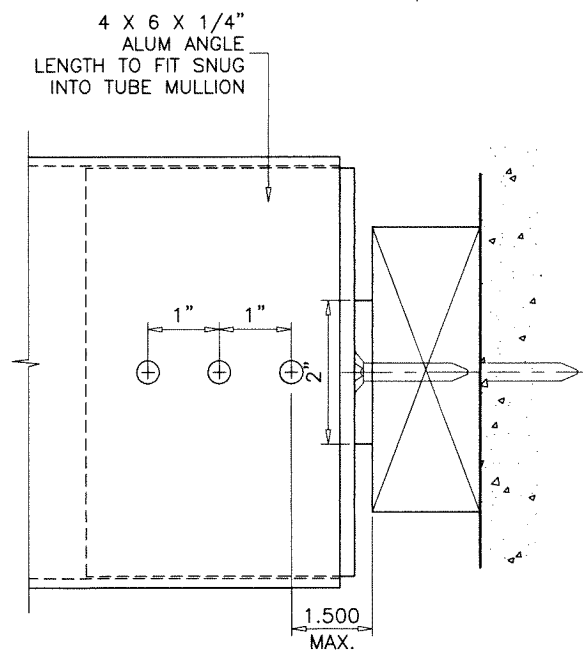
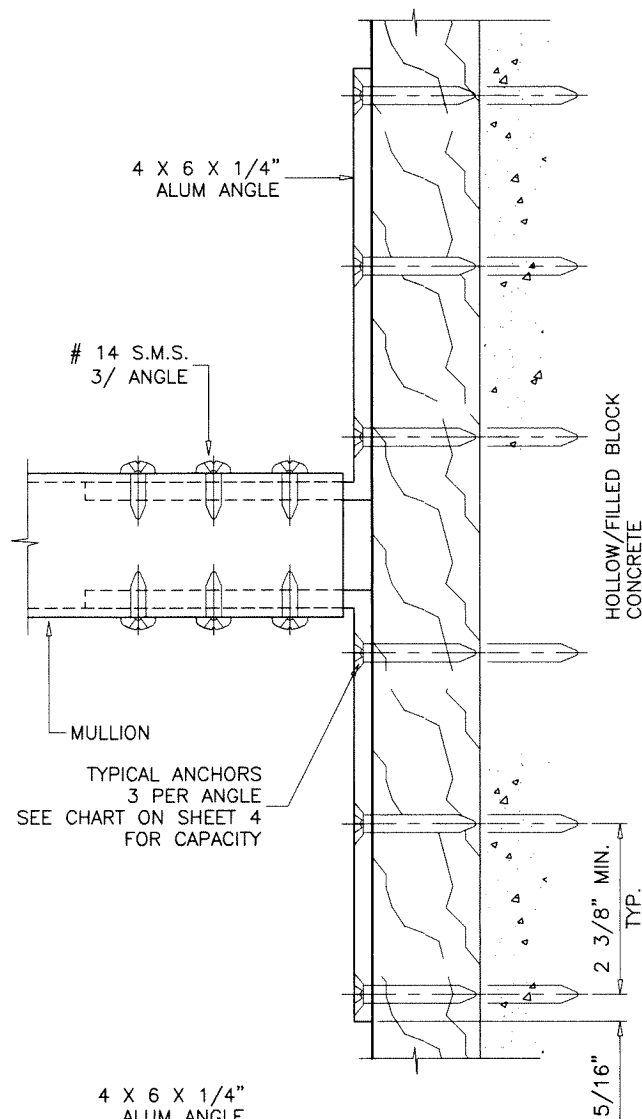
SOL-A-TROL ALUMINUM PRODUCTS
4101 N.W. 132ND STREET
MIAMI, FL. 33054
TEL. (305) 681-2020 FAX. (305) 681-2035

revisions:

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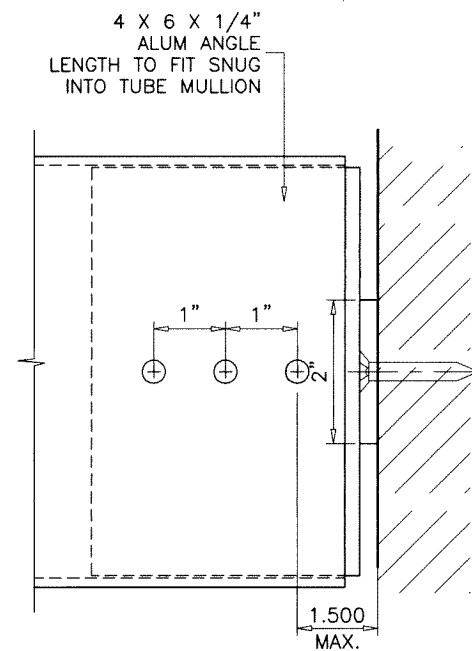
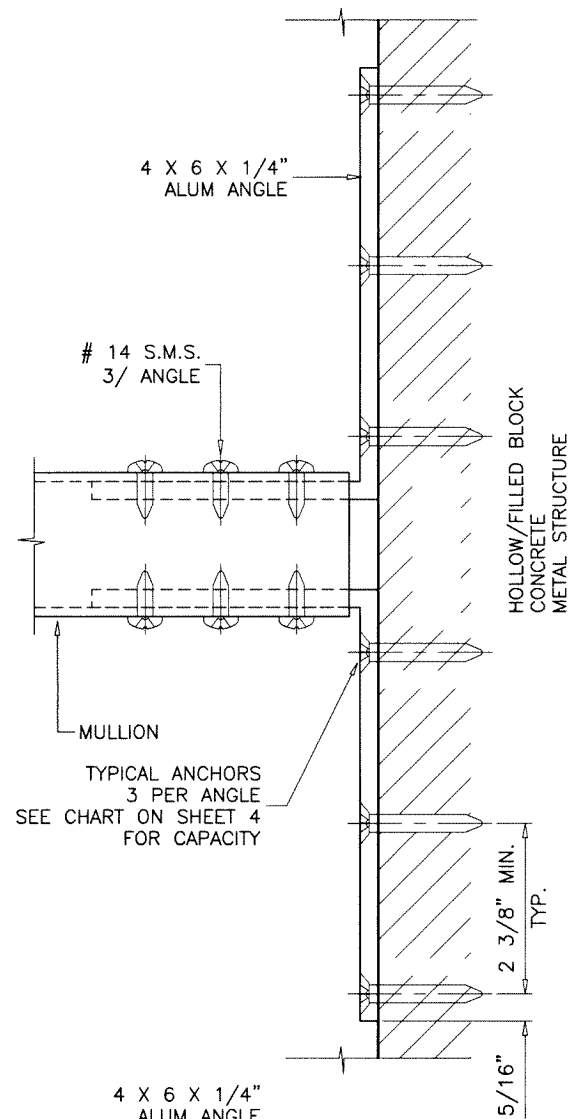
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dr. by: TARIQ
chk. by:

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M15-04
sheet 6 of 8



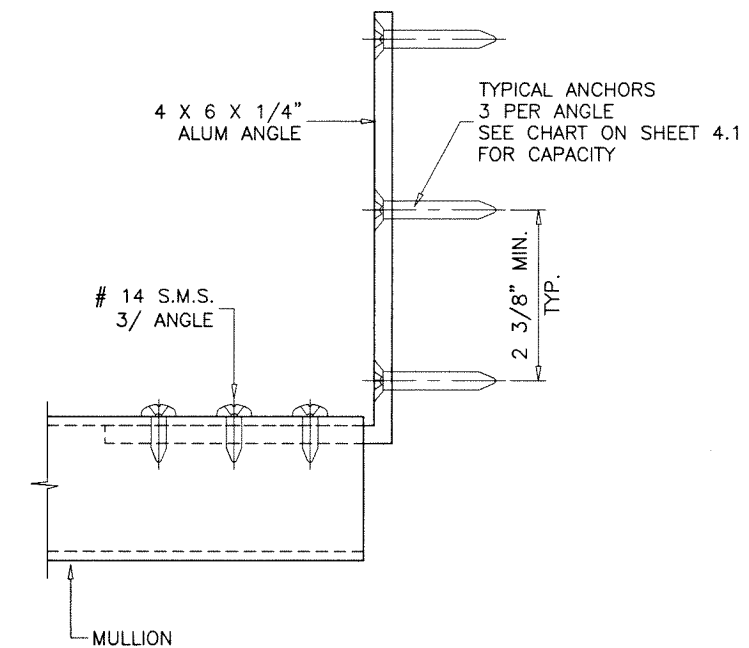
ANCHORS TYPE 'A3'

INTO 2BY WOOD BUCKS OR WOOD STRUCTURES
THRU 1BY BUCKS INTO CONC. OR MASONRY



ANCHORS TYPE 'B3', 'C3' & 'D3'

DIRECTLY INTO CONC. OR MASONRY
INTO METAL STRUCTURES



ANGLE CLIP ON ONE SIDE OF MULLION

TYPICAL ANCHORS:

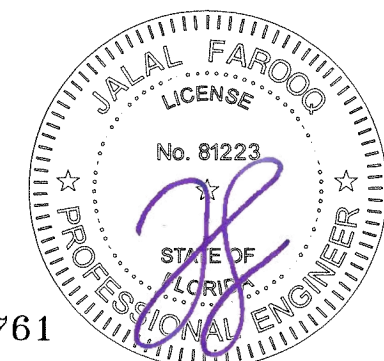
ANCHOR TYPES	SUBSTRATE	AT HEAD & SILL		AT JAMBS	
		MIN. EMBED.	MIN. EDGE DIST.	MIN. EMBED.	MIN. EDGE DIST.
1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)	TYPE 'A3'	WOOD	1-1/2"	1"	1"
	TYPE 'B3'	MASONRY	N.A.	N.A.	1-1/4"
	TYPE 'C3'	CONCRETE	1-3/4"	2-1/2"	1-3/4"
1/4" DIA. SELF DRILLING SCREWS (GRADE 5 CRS)	TYPE 'D3'	METAL	1/8"	3/4"	1/8"

WOOD = 2BY WOOD BUCKS OR WOOD STRUCTURE S.G. = 0.55 MIN.
MASONRY = C-90 HOLLOW/FILLED BLOCK f'm = 2000 PSI MIN.
CONCRETE = f'c = 3000 PSI MIN.
METAL = 1/8" MIN. THK. STEEL Fy = 36 KSI MIN.
F.B.C. APPROVED MULLION 1/8" MIN. THK.

1BY OR 2BY WOOD BUCKS AND METAL STRUCTURES NOT BY 'SOL-A-TROL'
MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER
THEM TO BUILDING STRUCTURE.

ANCHORS MAY BE HEX OR FLAT HEAD.

Sealed: 12/13/2023



ANGLES CONNECTED DIRECTLY TO MASONRY TO BE PROTECTED WITH
ALKALI-RESISTANT COATINGS, SUCH AS BITUMINOUS PAINT OR
WATER-WHITE METHACRYLATE LACQUER.

FL #17761

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

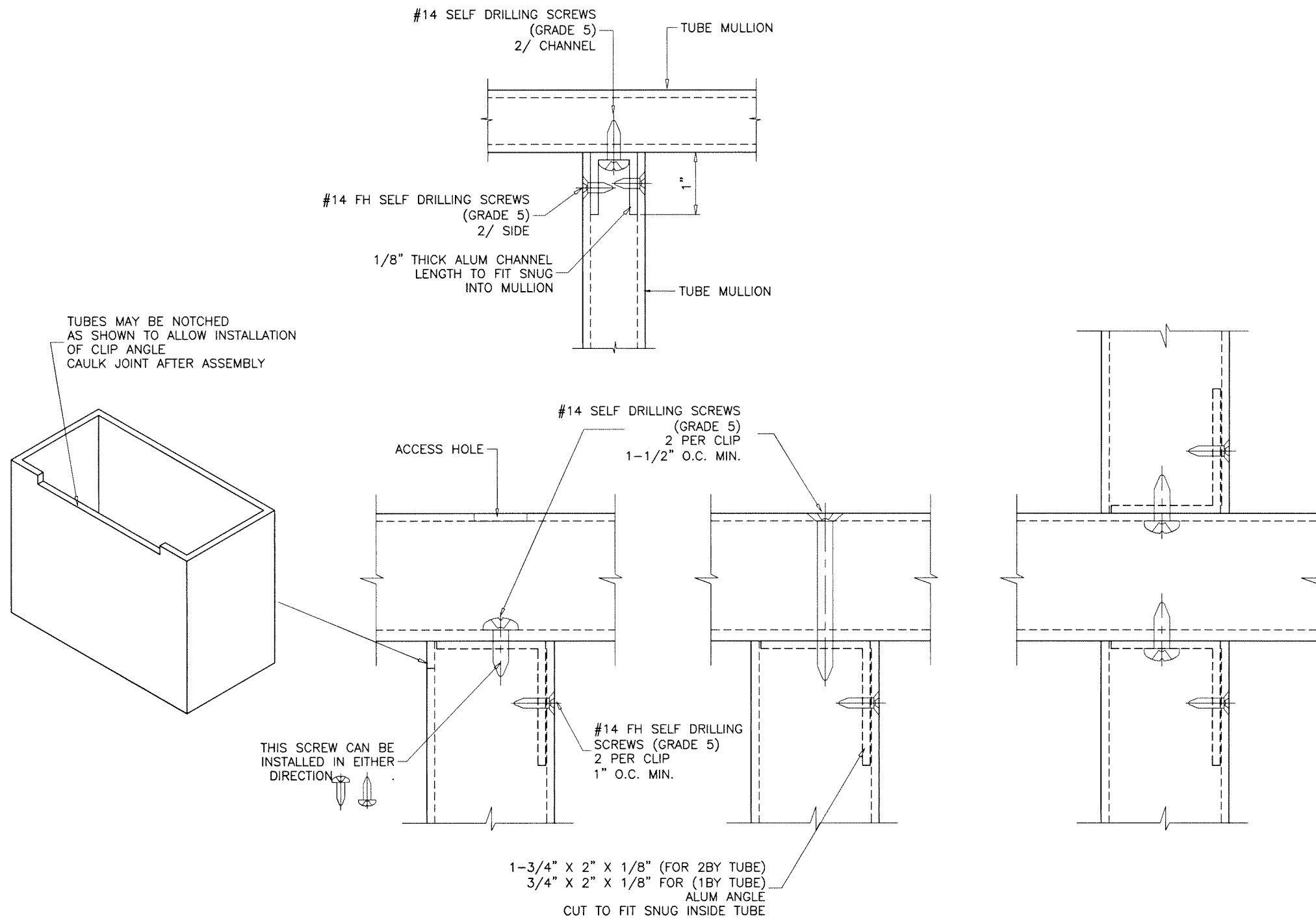
ALUMINUM TUBE MULLIONS

SOL-A-TROL ALUMINUM PRODUCTS
4101 N.W. 132ND STREET
MIAMI, FL. 33054
TEL. (305) 681-2020 FAX. (305) 681-2035

revisions:	no	date	by	description

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chk. by:

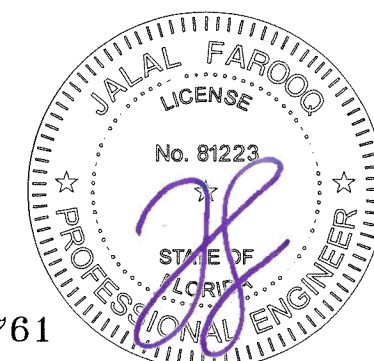
drawing no.
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sheet 7 of 8



ANCHOR DETAIL #1

METAL TO METAL CONNECTION
USE CHARTS FOR ANCHOR TYPE 'D' TO VERIFY CAPACITY OF CONNECTION
SEE SHEET 4 FOR ANCHOR CHARTS

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afc

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revisions:	
no	date by description

date: 04-29-15	scale: 1/2" = 1"	dr. by: TARIQ	chk. by:
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M15-04

sheet 8 of 8

MULLION\M15-04SAT