



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)  
BOARD AND CODE ADMINISTRATION DIVISION

## NOTICE OF ACCEPTANCE (NOA)

MIAMI-DADE COUNTY  
PRODUCT CONTROL SECTION

11805 SW 26 Street, Room 208  
T (786) 315-2590 F (786) 315-2599

[www.miamidade.gov/economy](http://www.miamidade.gov/economy)

### Gopi Glass Sales & Services Corp.

7450 NW 41<sup>st</sup> Street

Miami, FL 33166

#### SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code, including the High Velocity Hurricane Zone.

#### DESCRIPTION: Clipped, Extruded Aluminum Tube Mullion – L.M.I.

**APPROVAL DOCUMENT:** Drawing No. **M95-16**, titled "Aluminum Tube Mullions", sheets 1 through 8 of 8, dated 12/05/95, with revision **J** dated 02/28/18, prepared by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P.E., bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and expiration date by the Miami-Dade County Product Control Section.

#### MISSILE IMPACT RATING: Large and Small Missile Impact Resistant

**LABELING:** Each unit shall bear a permanent label with the manufacturer's name or logo, city, state, model/series, and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

**RENEWAL** of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

**TERMINATION** of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

**ADVERTISEMENT:** The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

**INSPECTION:** A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA **revises NOA# 16-1116.02** and consists of this page 1 and evidence pages E-1 and E-2, as well as approval document mentioned above.

The submitted documentation was reviewed by **Sifang Zhao, P.E.**



S.Z.  
05/04/2018

NOA No. 18-0319.06  
Expiration Date: March 28, 2022  
Approval Date: May 10, 2018  
Page 1

**NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED**

**1. EVIDENCE SUBMITTED UNDER PREVIOUS NOA's**

**A. DRAWINGS**

1. Manufacturer's die drawings and sections.
2. Drawing No **M95-16**, titled "Aluminum Tube Mullions", sheets 1 through 8 of 8, dated 12/05/95, with revision I dated 02/25/17, prepared by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P. E.

**B. TESTS**

1. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC TAS 202-94  
2) Large Missile Impact Test per FBC, TAS 201-94  
3) Cyclic Wind Pressure Loading per FBC, TAS 203-94  
along with marked-up drawings and installation diagram of aluminum fixed windows mulled together, prepared by Fenestration Testing Laboratory, Inc., verification Test Report No. **FTL-5378**, dated 10/04/07, signed and sealed by Michael R. Wenzel, P.E. *(Submitted under NOA No. 06-0210.07)*
2. Test reports on: 1) Air Infiltration Test, per TAS 202-94  
2) Uniform Static Air Pressure Test, Loading per TAS 202-94  
3) Water Resistance Test, per TAS 202-94  
4.) Large Missile Impact Test, FBC TAS 201-94  
5.) Cyclic Loading Test, per FBC TAS 203-94  
along with marked-up drawings and installation diagram of two mulled side-by-side series 510 aluminum fixed window, prepared by Hurricane Engineering & Testing Lab, Inc., Test Report No. **HETI-02-1145B** dated 04/30/02, signed and sealed by Hector M. Medina, P.E. *(For reference only) (Submitted under NOA No. 02-0826.03)*
3. Test reports on: 1) Uniform Static Air Pressure Test, Loading per PA 202-94  
along with installation diagram of window prepared by Hurricane Engineering & Testing Inc., Test Report No. **HETI-96-512**, dated 02/02/96 signed and sealed by Hector M. Medina, P.E. *(Submitted under NOA No. 99-0331.02)*

**C. CALCULATIONS**

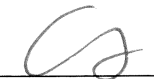
1. Anchor verification calculations and structural analysis, complying with **FBC 5<sup>th</sup> Edition (2014)**, dated 01/26/17, prepared by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P.E.

**D. QUALITY ASSURANCE**

1. Miami-Dade Department of Regulatory and Economic Resources (RER)

**E. MATERIAL CERTIFICATIONS**

1. None.



Sifang Zhao, P.E.

Product Control Examiner

NOA No. 18-0319.06

Expiration Date: March 28, 2022

Approval Date: May 10, 2018

**Gopi Glass Sales & Services Corp.**

**NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED**

**F. STATEMENTS**

1. Statement letter of conformance, complying with **FBC-5<sup>th</sup> Edition (2014)**, and of no financial interest, dated June 12, 2014, issued by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P.E. *(Submitted under NOA No. 14-0728.04)*

**G. OTHERS**

1. NOA No. **14-0728.04**, issued to Gopi Glass Sales & Services Corp. for their Clipped, Extruded Aluminum Tube Mullion – L.M.I.”, approved on 10/09/14 and expiring on 03/28/17.

**2. NEW EVIDENCE SUBMITTED**

**A. DRAWINGS**

1. Drawing No **M95-16**, titled “Aluminum Tube Mullions”, sheets 1 through 8 of 8, dated 12/05/95, with revision **J** dated 02/28/18, prepared by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P. E.

**B. TESTS**

1. None

**C. CALCULATIONS**

1. Anchor verification calculations and structural analysis, complying with **FBC 6<sup>th</sup> Edition (2017)**, dated 02/28/2018, prepared by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P.E.

**D. QUALITY ASSURANCE**

1. Miami-Dade Department of Regulatory and Economic Resources (RER)

**E. MATERIAL CERTIFICATIONS**

1. None.

**F. STATEMENTS**

1. Statement letter of conformance, complying with **FBC 6<sup>th</sup> Edition (2017)**, and of no financial interest, dated February 27, 2018, issued by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P.E.

**G. OTHERS**

1. NOA No. **16-1116.02**, issued to Gopi Glass Sales & Services Corp. for their Clipped, Extruded Aluminum Tube Mullion - L.M.I.”, approved on 03/16/17 and expiring on 03/28/22.



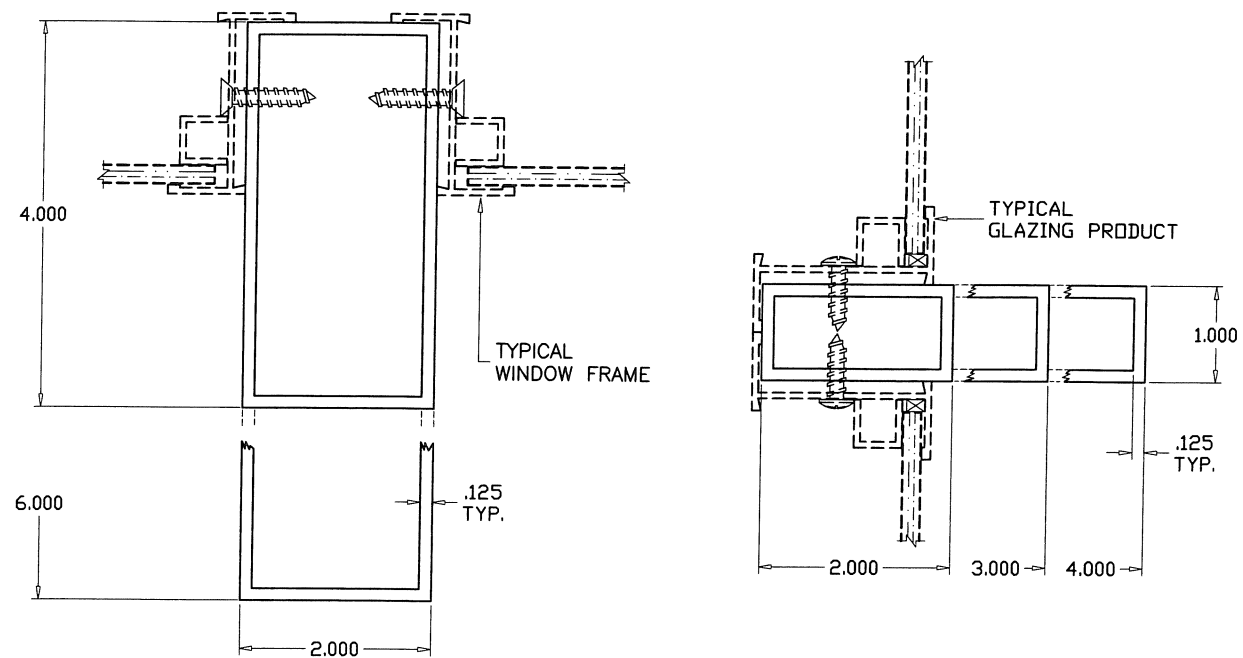
Sifang Zhao, P.E.

Product Control Examiner

NOA No. 18-0319.06

Expiration Date: March 28, 2022

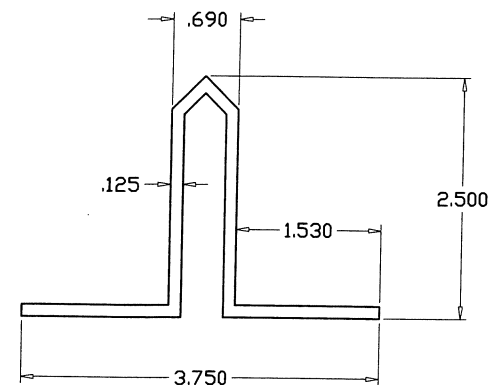
Approval Date: May 10, 2018



### MULLIONS CONTAINING TYPICAL GLAZING PRODUCTS HORIZONTAL OR VERTICAL

SEE WINDOW OR DOOR APPROVAL FOR FASTENERS SIZES AND SPACING

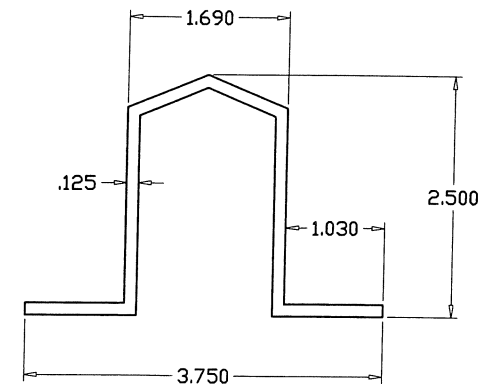
ALL MULLIONS 6063-T6 MIN.



#### MULLION CLIP (6063-T6)

(ALT. TO ANGLES)

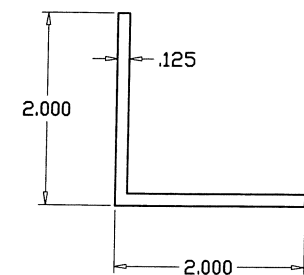
CLIP LENGTHS MUST BE CUT TO FIT SNUG  
INTO TUBE MULLIONS.



#### MULLION CLIP (6063-T6)

(ALT. TO ANGLES)

CLIP LENGTHS MUST BE CUT TO FIT SNUG  
INTO TUBE MULLIONS.



#### ANGLE CLIP (6063-T6)

### RECTANGULAR ALUMINUM TUBE MULLIONS USING MULLION PROPERTIES ONLY

#### NOTES:

THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE 2017 (6TH 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 2017 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.

MULLION SYSTEM IS RATED FOR LARGE & SMALL MISSILE IMPACT. AND CAN BE USED WITH ALL MIAMI-DADE COUNTY APPROVED IMPACT AND NON-IMPACT RESISTANT PRODUCTS.

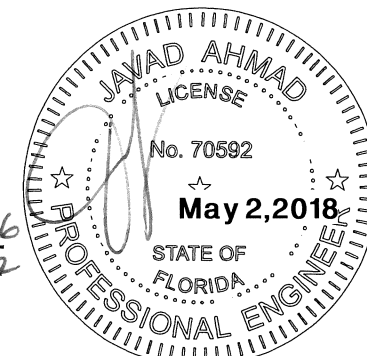
#### INSTRUCTIONS:

USE CHARTS AND GRAPHS AS FOLLOWS.

- STEP 1** DETERMINE DESIGN LOAD REQUIRED PER ASCE 7 FOR PARTICULAR OPENING.
  - STEP 2** USE MIAMI-DADE COUNTY APPROVED GLAZING PRODUCTS MEETING ABOVE LOAD REQUIREMENTS.
  - STEP 3** USE CONNECTION TO MULLION AS PER PRODUCT APPROVAL.
  - STEP 4** USING CHARTS ON SHEET 2 SELECT MULLION SIZE WITH DESIGN RATING MORE THAN DESIGN LOAD SPECIFIED IN STEP 1 ABOVE.
  - STEP 5** USING ANCHOR TYPES ON SHEETS 6 THRU 8 AND ANCHOR CHARTS ON SHEET 3 THRU 5 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.

PRODUCT REVISED  
as complying with the Florida  
Building Code  
Acceptance No. 18-0319.06  
Expiration Date 03/28/2022

By Ca  
Miami Dade Product Control



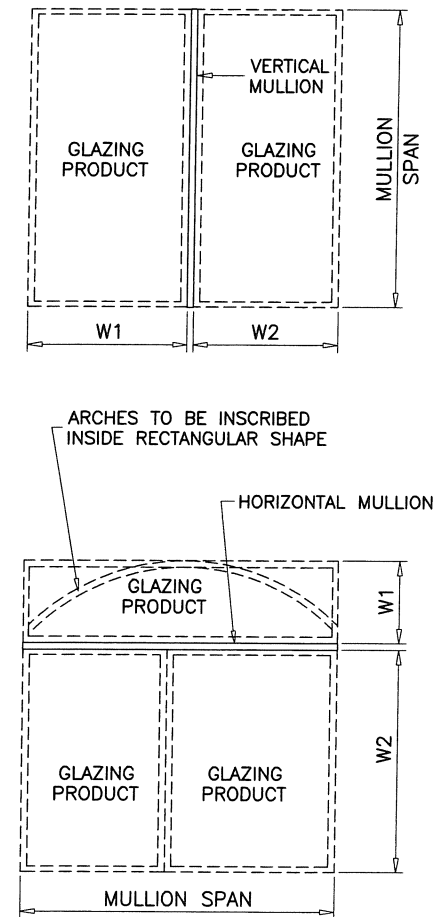
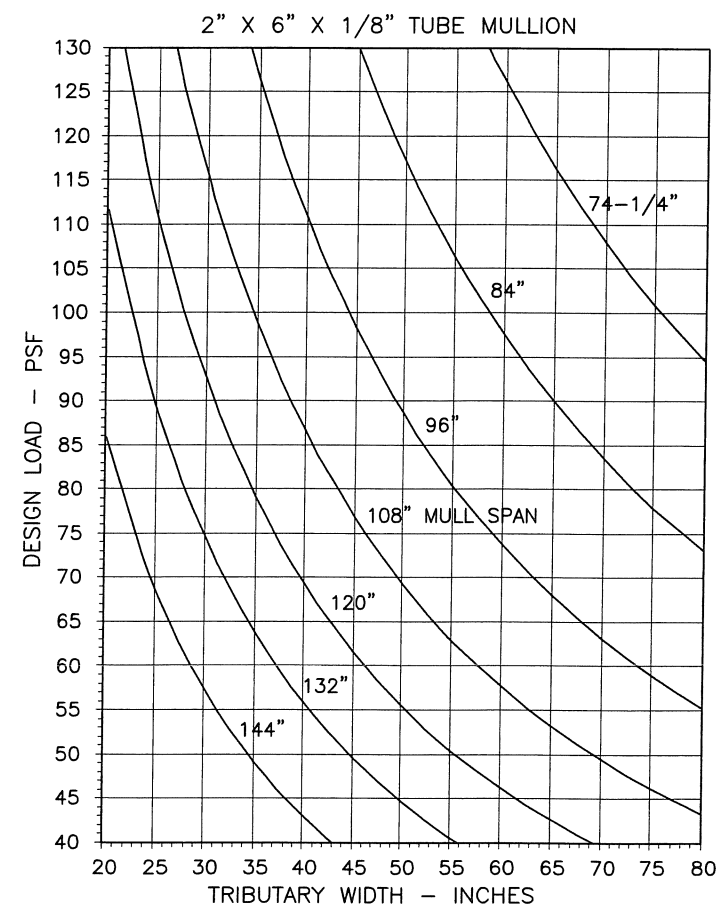
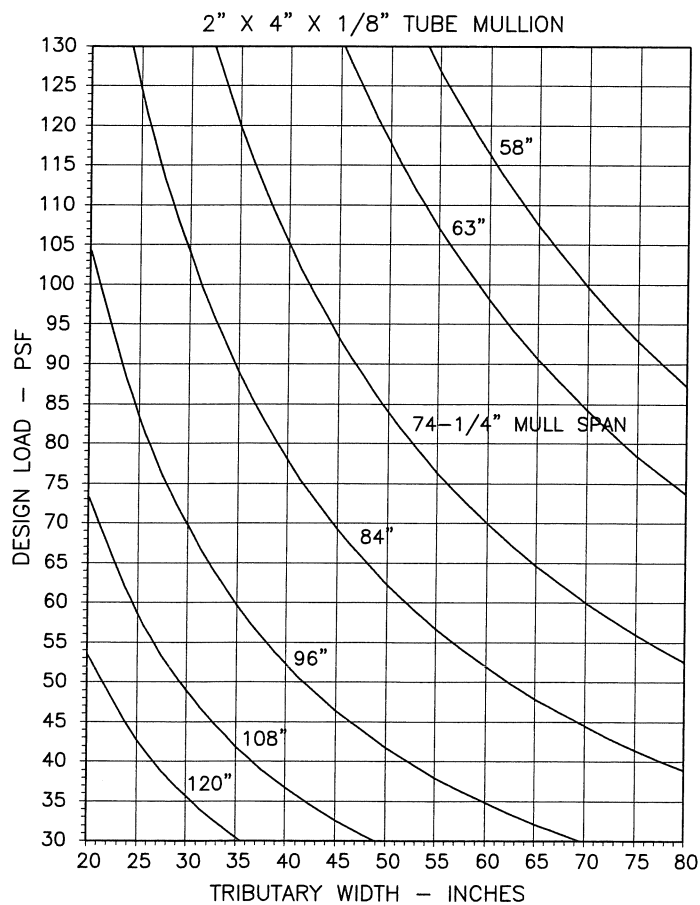
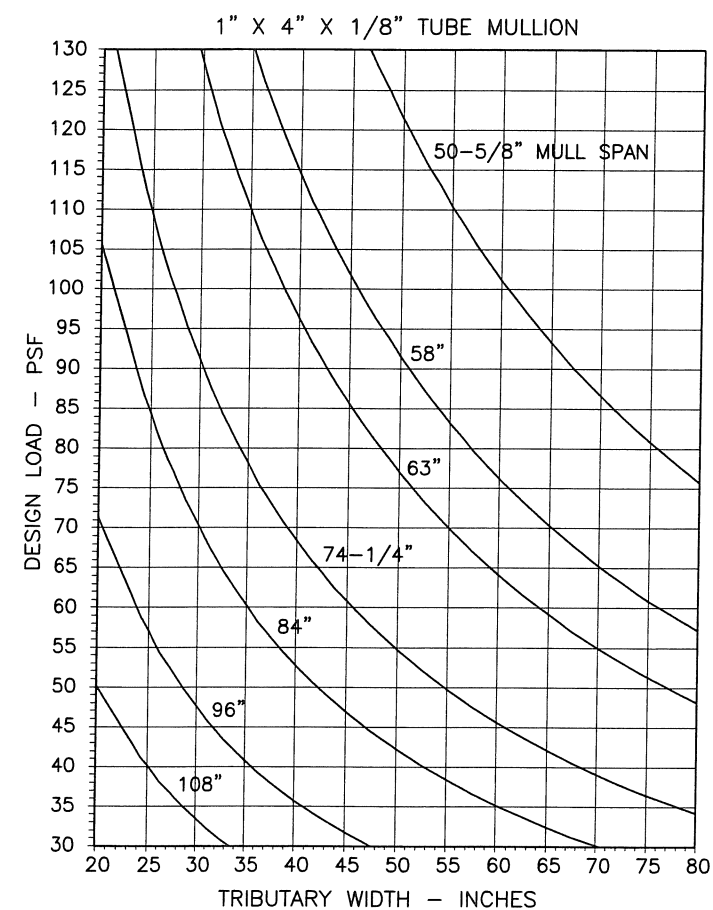
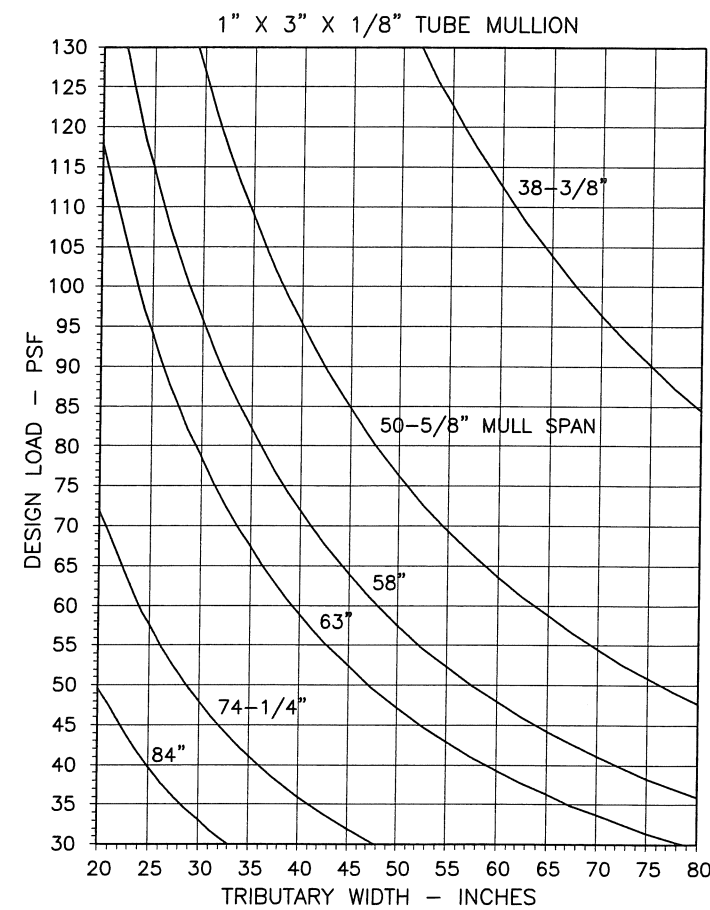
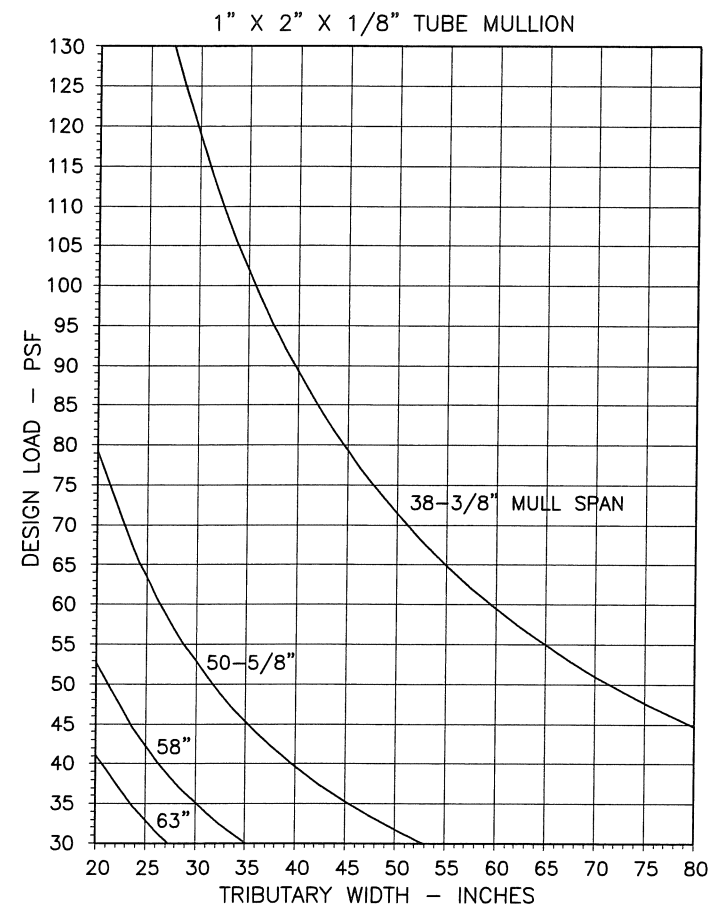
**af c**  
**AL-FAROOQ CORPORATION**  
ENGINEERS & PRODUCT DEVELOPMENT  
9360 SUNSET DRIVE, SUITE 220  
MIAMI, FLORIDA 33173 (C.A.N. 3538)  
TEL. (305) 264-8100 FAX. (305) 262-6978  
MULLION M95-16GG

ALUMINUM TUBE MULLIONS  
**Gopi Glass Sales & Services Corp.**  
7450 N.W. 41 STREET  
MIAMI, FL. 33166  
TEL. (305) 592-2089 FAX. (305) 477-0992

no	date	by	description
G	06.12.14		UPDATED TO 2014 FBC
H	11.07.16		EDITORIAL CHANGES
I	02.25.17		REV. PER PER COMMENTS
J	02.28.18		UPDATED TO 2017 FBC

date: 12-05-95  
scale: 1/2" = 1"  
dr. by: TARIQ  
chk. by:

drawing no.  
**M95-16**  
sheet 1 of 8

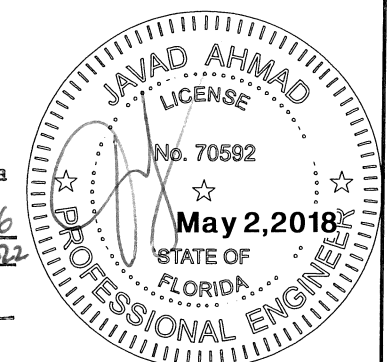


TYPICAL MULLION ARRANGEMENTS

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

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

PRODUCT REVISED  
as complying with the Florida  
Building Code  
Acceptance No. 18-0319.06  
Expiration Date 03/28/2022  
By CS  
Miami Dade Product Control



MULLIONS

**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)

**ALUMINUM TUBE MULLIONS**  
**Gopi Glass Sales & Services Corp.**  
7450 N.W. 41 STREET  
MIAMI, FL. 33166  
TEL. (305) 592-2089 FAX. (305) 477-0992

no	date	by	description
G	06.12.14		NO CHANGE THIS SHEET
H	11.07.16		EDITORIAL CHANGES
I	02.25.17		REV. PER PER COMMENTS
J	02.28.18		UPDATED TO 2017 FBC

date:	12-05-95
scale:	1/2" = 1"
dr. by:	TARIQ
chk. by:	

drawing no.  
**M95-16**  
sheet 2 of 8

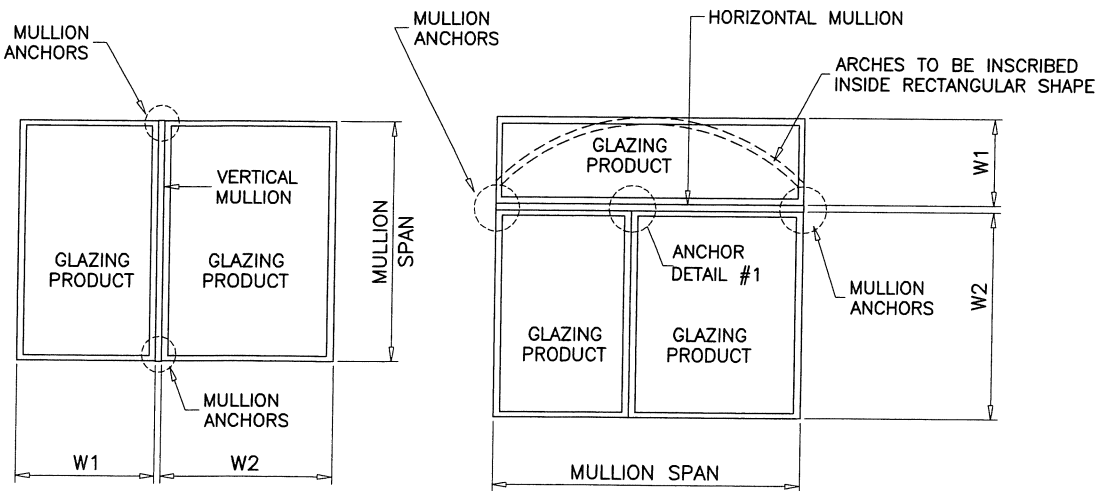
MULLION M95-16GG

DESIGN LOAD CAPACITY - PSF				
WINDOW DIMS.		ANCHORS TYPE		
WIDTH (W)	MULL SPAN	W2	B2	C2/M2
20"	50-5/8"	130.0	107.0	130.0
25"		120.1	85.6	130.0
30"		100.1	71.3	130.0
35"		85.8	61.1	126.8
40"		75.1	53.5	110.9
45"		66.7	47.5	98.6
50"		60.1	42.8	88.7
55"		54.6	38.9	80.7
60"		50.1	35.7	74.0
65"		46.2	32.9	68.3
70"		42.9	30.6	63.4
75"		40.0	28.5	59.2
80"		37.5	26.7	55.5
85"		35.3	25.2	52.2
20"	58"	130.0	93.4	130.0
25"		104.9	74.7	130.0
30"		87.4	62.2	129.1
35"		74.9	53.3	110.7
40"		65.5	46.7	96.8
45"		58.3	41.5	86.1
50"		52.4	37.3	77.5
55"		47.7	33.9	70.4
60"		43.7	31.1	64.6
65"		40.3	28.7	59.6
70"		37.5	26.7	55.3
75"		35.0	24.9	51.6
80"		32.8	23.3	48.4
85"		30.8	22.0	45.6
20"	63"	120.7	85.9	130.0
25"		96.5	68.8	130.0
30"		80.5	57.3	118.9
35"		69.0	49.1	101.9
40"		60.3	43.0	89.1
45"		53.6	38.2	79.2
50"		48.3	34.4	71.3
55"		43.9	31.3	64.8
60"		40.2	28.6	59.4
65"		37.1	26.4	54.9
70"		34.5	24.6	50.9
75"		32.2	22.9	47.5
80"		30.2	21.5	44.6
85"		28.4	20.2	41.9
20"	74-1/4"	102.4	72.9	130.0
25"		81.9	58.3	121.0
30"		68.3	48.6	100.8
35"		58.5	41.7	86.4
40"		51.2	36.5	75.6
45"		45.5	32.4	67.2
50"		41.0	29.2	60.5
55"		37.2	26.5	55.0
60"		34.1	24.3	50.4
65"		31.5	22.4	46.5
70"		29.3	20.8	43.2
75"		27.3	-	40.3
80"		25.6	-	37.8
85"		24.1	-	35.6

DESIGN LOAD CAPACITY - PSF				
WINDOW DIMS.		ANCHORS TYPE		
WIDTH (W)	MULL SPAN	W2	B2	C2/M2
20"	84"	90.5	64.5	130.0
25"		72.4	51.6	107.0
30"		60.3	43.0	89.1
35"		51.7	36.8	76.4
40"		45.3	32.2	66.9
45"		40.2	28.6	59.4
50"		36.2	25.8	53.5
55"		32.9	23.4	48.6
60"		30.2	21.5	44.6
65"		27.9	-	41.1
70"		25.9	-	38.2
75"		24.1	-	35.7
80"		22.6	-	33.4
85"		21.3	-	31.5
20"	96"	79.2	56.4	117.0
25"		63.4	45.1	93.6
30"		52.8	37.6	78.0
35"		45.3	32.2	66.9
40"		39.6	28.2	58.5
45"		35.2	25.1	52.0
50"		31.7	22.6	46.8
55"		28.8	20.5	42.5
60"		26.4	-	39.0
65"		24.4	-	36.0
70"		22.6	-	33.4
75"		21.1	-	31.2
80"		-	-	29.3
85"		-	-	27.5
20"	108"	70.4	50.1	104.0
25"		56.3	40.1	83.2
30"		46.9	33.4	69.3
35"		40.2	28.6	59.4
40"		35.2	25.1	52.0
45"		31.3	22.3	46.2
50"		28.2	20.1	41.6
55"		25.6	-	37.8
60"		23.5	-	34.7
65"		21.7	-	32.0
70"		20.1	-	29.7
75"		-	-	27.7
80"		-	-	26.0
85"		-	-	24.5
20"	120"	63.4	45.1	93.6
25"		50.7	36.1	74.9
30"		42.2	30.1	62.4
35"		36.2	25.8	53.5
40"		31.7	22.6	46.8
45"		28.2	20.1	41.6
50"		25.3	-	37.4
55"		23.0	-	34.0
60"		21.1	-	31.2
65"		-	-	28.8
70"		-	-	26.7
75"		-	-	25.0
80"		-	-	23.4
85"		-	-	22.0

DESIGN LOAD CAPACITY - PSF				
WINDOW DIMS.		ANCHORS TYPE		
WIDTH (W)	MULL SPAN	W2	B2	C2/M2
20"	132"	57.6	41.0	85.1
25"		46.1	32.8	68.1
30"		38.4	27.3	56.7
35"		32.9	23.4	48.6
40"		28.8	20.5	42.5
45"		25.6	-	37.8
50"		23.0	-	34.0
55"		20.9	-	30.9
60"		-	-	28.4
65"		-	-	26.2
70"		-	-	24.3
75"		-	-	22.7
80"		-	-	21.3
85"		-	-	20.0
20"	144"	52.8	37.6	78.0
25"		42.2	30.1	62.4
30"		35.2	25.1	52.0
35"		30.2	21.5	44.6
40"		26.4	-	39.0
45"		23.5	-	34.7
50"		21.1	-	31.2
55"		-	-	28.4
60"		-	-	26.0
65"		-	-	24.0
70"		-	-	22.3
75"		-	-	20.8

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



TYPICAL MULLION ARRANGEMENTS

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

ANCHORS

## TYPICAL ANCHORS:

**1/4" DIA. ULTRACON BY 'ELCO'** (Fu=177 KSI, Fy=155 KSI)

W2: INTO 2BY WOOD BUCKS OR WOOD STRUCTURES  
1-1/2" MIN. PENETRATION INTO WOOD

B2: THRU 1BY BUCKS INTO CONC. OR BLOCKS  
1-1/4" MIN. EMBED INTO CONCRETE  
1-3/4" MIN. EMBED INTO GROUT FILLED BLOCK

B2: DIRECTLY INTO GROUT FILLED BLOCK  
1-3/4" MIN. EMBED INTO BLOCK

C2: DIRECTLY INTO CONCRETE  
1-3/4" MIN. EMBED INTO CONCRETE

**1/4" DIA. TEKS OR SELF DRILLING SCREWS** (GRADE 5 CRS)

M2: INTO METAL STRUCTURES  
(3) THREADS MIN. TO EXTEND BEYOND METAL THICKNESS  
ALUMINUM: 1/8" THK. MIN. (6063-T5 MIN.)  
STEEL: 1/8" THK. MIN. (Fy = 36 KSI MIN.)  
(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

## TYPICAL EDGE DISTANCE

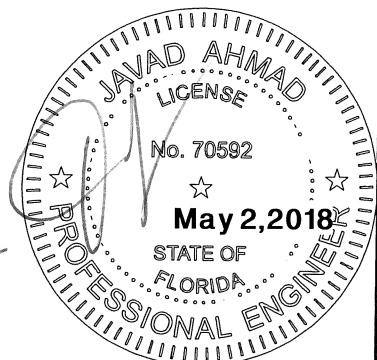
INTO CONCRETE AND BLOCKS = 2-1/2" MIN.  
INTO WOOD STRUCTURE = 1" MIN.  
INTO METAL STRUCTURE = 3/4" MIN.

WOOD AT HEAD, SILL OR JAMBS SG = 0.55 MIN.  
CONCRETE AT HEAD, SILL OR JAMBS f'c = 3000 PSI MIN.  
C-90 GROUT FILLED NORMAL WEIGHT BLOCK AT JAMBS f'm = 2000 PSI MIN.

NOTE:  
ANY ANCHOR CONDITION SHOWN HEREIN MAY COVER LOCATIONS  
AT HEAD, SILL OR JAMB ENDS.  
SEE SHEET 6 FOR ANCHOR DETAILS.

(INTERPOLATION BETWEEN WIDTHS OR SPANS ALLOWED)

PRODUCT REVISED  
as complying with the Florida  
Building Code  
Acceptance No. 18-0319.06  
Expiration Date 03/28/2022  
By Ca  
Miami Dade Product Control



**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)

ALUMINUM TUBE MULLIONS  
**Gopi Glass Sales & Services Corp.**  
7450 N.W. 41 STREET  
MIAMI, FL. 33166  
TEL. (305) 592-2089 FAX. (305) 477-0992

revisions:	no	date	by	description
	G	06.12.14		UPDATED TO 2014 FBC
	H	11.07.16		EDITORIAL CHANGES
	I	02.25.17		REV. PER RER COMMENTS
	J	02.28.18		UPDATED TO 2017 FBC

date:	12-05-95
scale:	1/2" = 1"
dr. by:	TARIQ
chk. by:	

drawing no.  
**M95-16**

sheet 3 of 8

MULLION\M95-16GG



DESIGN LOAD CAPACITY - PSF				
WINDOW DIMS.		ANCHORS TYPE		
WIDTH (W)	MULL SPAN	W4.2	B4.2	C4.2
20"	50-5/8"	130.0	130.0	130.0
25"		130.0	113.8	130.0
30"		130.0	94.8	130.0
35"		130.0	81.3	130.0
40"		130.0	71.1	130.0
45"		130.0	63.2	130.0
50"		120.1	56.9	118.3
55"		109.2	51.7	107.6
60"		100.1	47.4	98.6
65"		92.4	43.8	91.0
70"		85.8	40.6	84.5
75"		80.1	37.9	78.9
80"		75.1	35.6	74.0
85"		70.7	33.5	69.6
20"	58"	130.0	124.1	130.0
25"		130.0	99.3	130.0
30"		130.0	82.8	130.0
35"		130.0	70.9	130.0
40"		130.0	62.1	129.1
45"		116.5	55.2	114.8
50"		104.9	49.7	103.3
55"		95.3	45.1	93.9
60"		87.4	41.4	86.1
65"		80.7	38.2	79.4
70"		74.9	35.5	73.8
75"		69.9	33.1	68.9
80"		65.5	31.0	64.6
85"		61.7	29.2	60.8
20"	63"	130.0	114.3	130.0
25"		130.0	91.4	130.0
30"		130.0	76.2	130.0
35"		130.0	65.3	130.0
40"		120.7	57.1	118.9
45"		107.3	50.8	105.7
50"		96.5	45.7	95.1
55"		87.8	41.6	86.4
60"		80.5	38.1	79.2
65"		74.3	35.2	73.1
70"		69.0	32.7	67.9
75"		64.4	30.5	63.4
80"		60.3	28.6	59.4
85"		56.8	26.9	55.9
20"	74-1/4"	130.0	97.0	130.0
25"		130.0	77.6	130.0
30"		130.0	64.6	130.0
35"		117.0	55.4	115.3
40"		102.4	48.5	100.8
45"		91.0	43.1	89.6
50"		81.9	38.8	80.7
55"		74.5	35.3	73.3
60"		68.3	32.3	67.2
65"		63.0	29.8	62.1
70"		58.5	27.7	57.6
75"		54.6	25.9	53.8
80"		51.2	24.2	50.4
85"		48.2	22.8	47.5

DESIGN LOAD CAPACITY - PSF				
WINDOW DIMS.		ANCHORS TYPE		
WIDTH (W)	MULL SPAN	W4.2	B4.2	C4.2
20"	84"	130.0	85.7	130.0
25"		130.0	68.6	130.0
30"		120.7	57.1	118.9
35"		103.4	49.0	101.9
40"		90.5	42.9	89.1
45"		80.5	38.1	79.2
50"		72.4	34.3	71.3
55"		65.8	31.2	64.8
60"		60.3	28.6	59.4
65"		55.7	26.4	54.9
70"		51.7	24.5	50.9
75"		48.3	22.9	47.5
80"		45.3	21.4	44.6
85"		42.6	20.2	41.9
20"	96"	130.0	75.0	130.0
25"		126.7	60.0	124.8
30"		105.6	50.0	104.0
35"		90.5	42.9	89.1
40"		79.2	37.5	78.0
45"		70.4	33.3	69.3
50"		63.4	30.0	62.4
55"		57.6	27.3	56.7
60"		52.8	25.0	52.0
65"		48.7	23.1	48.0
70"		45.3	21.4	44.6
75"		42.2	20.0	41.6
80"		39.6	-	39.0
85"		37.3	-	36.7
20"	108"	130.0	66.7	130.0
25"		112.6	53.3	110.9
30"		93.9	44.4	92.4
35"		80.5	38.1	79.2
40"		70.4	33.3	69.3
45"		62.6	29.6	61.6
50"		56.3	26.7	55.5
55"		51.2	24.2	50.4
60"		46.9	22.2	46.2
65"		43.3	20.5	42.7
70"		40.2	-	39.6
75"		37.5	-	37.0
80"		35.2	-	34.7
85"		33.1	-	32.6
20"	120"	126.7	60.0	124.8
25"		101.4	48.0	99.8
30"		84.5	40.0	83.2
35"		72.4	34.3	71.3
40"		63.4	30.0	62.4
45"		56.3	26.7	55.5
50"		50.7	24.0	49.9
55"		46.1	21.8	45.4
60"		42.2	20.0	41.6
65"		39.0	-	38.4
70"		36.2	-	35.7
75"		33.8	-	33.3
80"		31.7	-	31.2
85"		29.8	-	29.4

DESIGN LOAD CAPACITY - PSF				
WINDOW DIMS.		ANCHORS TYPE		
WIDTH (W)	MULL SPAN	W4.2	B4.2	C4.2
20"	132"	115.2	54.5	113.5
25"		92.2	43.6	90.8
30"		76.8	36.4	75.6
35"		65.8	31.2	64.8
40"		57.6	27.3	56.7
45"		51.2	24.2	50.4
50"		46.1	21.8	45.4
55"		41.9	-	41.3
60"		38.4	-	37.8
65"		35.4	-	34.9
70"		32.9	-	32.4
75"		30.7	-	30.3
80"		28.8	-	28.4
85"		27.1	-	26.7
20"	144"	105.6	50.0	104.0
25"		84.5	40.0	83.2
30"		70.4	33.3	69.3
35"		60.3	28.6	59.4
40"		52.8	25.0	52.0
45"		46.9	22.2	46.2
50"		42.2	20.0	41.6
55"		38.4	-	37.8
60"		35.2	-	34.7
65"		32.5	-	32.0
70"		30.2	-	29.7
75"		28.2	-	27.7
80"		26.4	-	26.0
85"		24.8	-	24.5

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

## TYPICAL ANCHORS:

1/4" DIA. ULTRACON BY 'ELCO' (Fu=177 KSI, Fy=155 KSI)

W4.2: INTO 2BY WOOD BUCKS OR WOOD STRUCTURES  
1-1/2" MIN. PENETRATION INTO WOOD

B4.2: THRU 1BY BUCKS INTO CONC. OR BLOCKS  
1-1/4" MIN. EMBED INTO CONCRETE  
1-3/4" MIN. EMBED INTO GROUT FILLED BLOCK

B4.2: DIRECTLY INTO GROUT FILLED BLOCK  
1-3/4" MIN. EMBED INTO BLOCK

C4.2: DIRECTLY INTO CONCRETE  
1-3/4" MIN. EMBED INTO CONCRETE

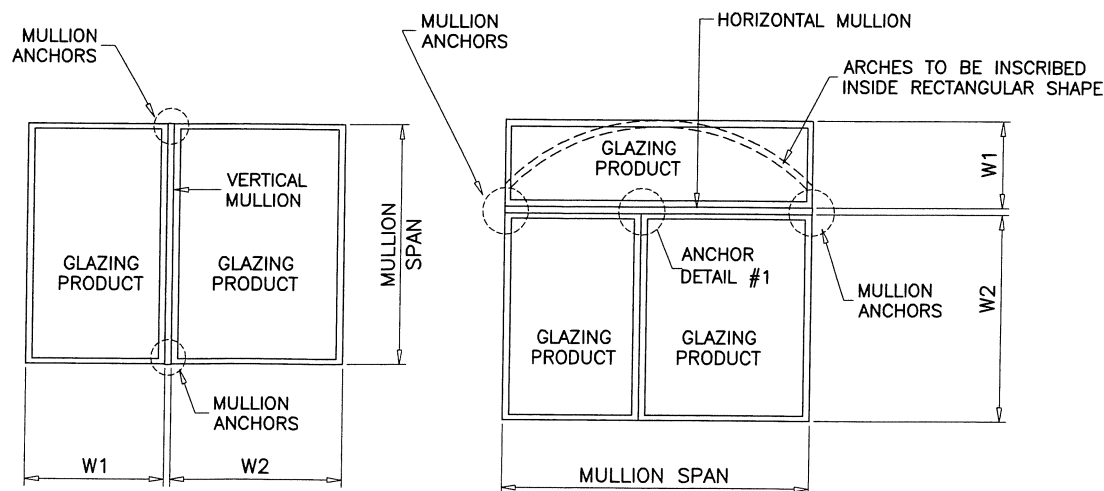
## TYPICAL EDGE DISTANCE

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

WOOD AT HEAD, SILL OR JAMBS SG = 0.55 MIN.  
CONCRETE AT HEAD, SILL OR JAMBS f'c = 3000 PSI MIN.  
C-90 GROUT FILLED NORMAL WEIGHT BLOCK AT JAMBS f'm = 2000 PSI MIN.

NOTE:  
ANY ANCHOR CONDITION SHOWN HEREIN MAY COVER LOCATIONS  
AT HEAD, SILL OR JAMB ENDS.  
SEE SHEET 7 FOR ANCHOR DETAILS.

(INTERPOLATION BETWEEN WIDTHS OR SPANS ALLOWED)



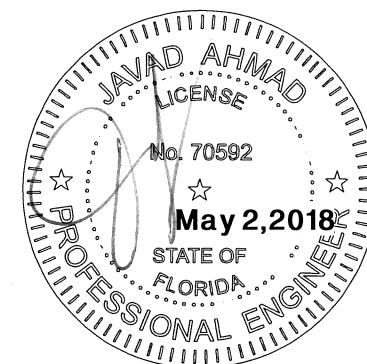
## TYPICAL MULLION ARRANGEMENTS

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

ANCHORS

PRODUCT REVISED  
as complying with the Florida  
Building Code  
Acceptance No. 18-0319.06  
Expiration Date 03/28/2022

By CS  
Miami Dade Product Control



**AL-FAROOQ CORPORATION**  
ENGINEERS & PRODUCT DEVELOPMENT  
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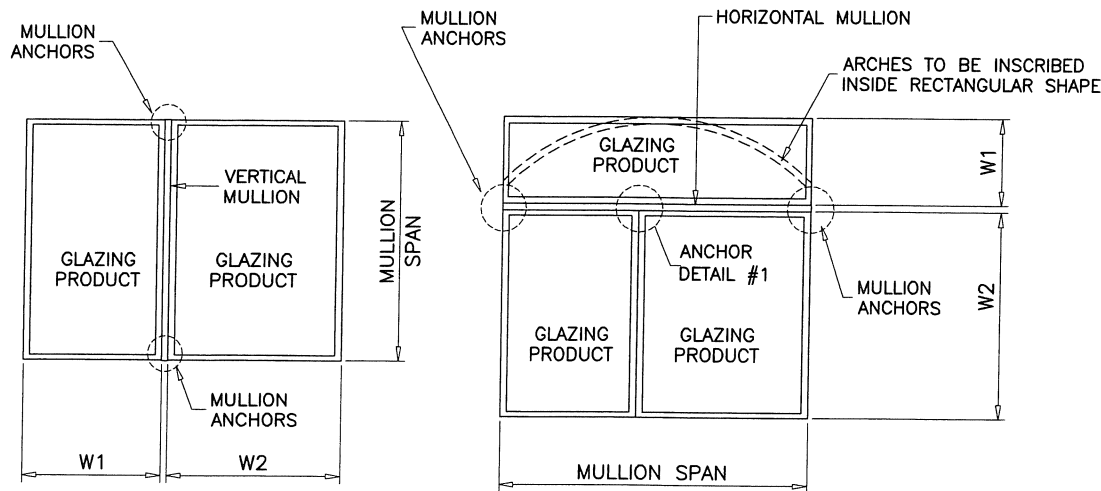
revisions:		date:		description:	
no	date	no	date	by	description
1	02.25.17			TARIQ	REV. PER RER COMMENTS
2	02.28.18				UPDATED TO 2017 FBC
date: 12-05-95		scale: 1/2" = 1"		drawing no. M95-16	
sheet 4 of 8		dr. by: TARIQ		chk. by:	

DESIGN LOAD CAPACITY - PSF				
WINDOW DIMS.		ANCHORS TYPE		
WIDTH (W)	MULL SPAN	W4.3	B4.3	C4.3/M4.3
20"	50-5/8"	130.0	130.0	130.0
25"		130.0	130.0	130.0
30"		130.0	130.0	130.0
35"		130.0	122.2	130.0
40"		130.0	107.0	130.0
45"		130.0	95.1	130.0
50"		120.1	85.6	130.0
55"		109.2	77.8	130.0
60"		100.1	71.3	130.0
65"		92.4	65.8	130.0
70"		85.8	61.1	126.8
75"		80.1	57.0	118.3
80"		75.1	53.5	110.9
85"		70.7	50.3	104.4
20"	58"	130.0	130.0	130.0
25"		130.0	130.0	130.0
30"		130.0	124.5	130.0
35"		130.0	106.7	130.0
40"		130.0	93.4	130.0
45"		116.5	83.0	130.0
50"		104.9	74.7	130.0
55"		95.3	67.9	130.0
60"		87.4	62.2	129.1
65"		80.7	57.4	119.2
70"		74.9	53.3	110.7
75"		69.9	49.8	103.3
80"		65.5	46.7	96.8
85"		61.7	43.9	91.1
20"	63"	130.0	130.0	130.0
25"		130.0	130.0	130.0
30"		130.0	114.6	130.0
35"		130.0	98.2	130.0
40"		120.7	85.9	130.0
45"		107.3	76.4	130.0
50"		96.5	68.8	130.0
55"		87.8	62.5	129.7
60"		80.5	57.3	118.9
65"		74.3	52.9	109.7
70"		69.0	49.1	101.9
75"		64.4	45.8	95.1
80"		60.3	43.0	89.1
85"		56.8	40.4	83.9
20"	74-1/4"	130.0	130.0	130.0
25"		130.0	116.7	130.0
30"		130.0	97.2	130.0
35"		117.0	83.3	130.0
40"		102.4	72.9	130.0
45"		91.0	64.8	130.0
50"		81.9	58.3	121.0
55"		74.5	53.0	110.0
60"		68.3	48.6	100.8
65"		63.0	44.9	93.1
70"		58.5	41.7	86.4
75"		54.6	38.9	80.7
80"		51.2	36.5	75.6
85"		48.2	34.3	71.2

DESIGN LOAD CAPACITY - PSF				
WINDOW DIMS.		ANCHORS TYPE		
WIDTH (W)	MULL SPAN	W4.3	B4.3	C4.3/M4.3
20"	84"	130.0	128.9	130.0
25"		130.0	103.1	130.0
30"		120.7	85.9	130.0
35"		103.4	73.7	130.0
40"		90.5	64.5	130.0
45"		80.5	57.3	118.9
50"		72.4	51.6	107.0
55"		65.8	46.9	97.2
60"		60.3	43.0	89.1
65"		55.7	39.7	82.3
70"		51.7	36.8	76.4
75"		48.3	34.4	71.3
80"		45.3	32.2	66.9
85"		42.6	30.3	62.9
20"	96"	130.0	112.8	130.0
25"		126.7	90.2	130.0
30"		105.6	75.2	130.0
35"		90.5	64.5	130.0
40"		79.2	56.4	117.0
45"		70.4	50.1	104.0
50"		63.4	45.1	93.6
55"		57.6	41.0	85.1
60"		52.8	37.6	78.0
65"		48.7	34.7	72.0
70"		45.3	32.2	66.9
75"		42.2	30.1	62.4
80"		39.6	28.2	58.5
85"		37.3	26.5	55.1
20"	108"	130.0	100.3	130.0
25"		112.6	80.2	130.0
30"		93.9	66.8	130.0
35"		80.5	57.3	118.9
40"		70.4	50.1	104.0
45"		62.6	44.6	92.4
50"		56.3	40.1	83.2
55"		51.2	36.5	75.6
60"		46.9	33.4	69.3
65"		43.3	30.9	64.0
70"		40.2	28.6	59.4
75"		37.5	26.7	55.5
80"		35.2	25.1	52.0
85"		33.1	23.6	48.9
20"	120"	126.7	90.2	130.0
25"		101.4	72.2	130.0
30"		84.5	60.2	124.8
35"		72.4	51.6	107.0
40"		63.4	45.1	93.6
45"		56.3	40.1	83.2
50"		50.7	36.1	74.9
55"		46.1	32.8	68.1
60"		42.2	30.1	62.4
65"		39.0	27.8	57.6
70"		36.2	25.8	53.5
75"		33.8	24.1	49.9
80"		31.7	22.6	46.8
85"		29.8	21.2	44.0

DESIGN LOAD CAPACITY - PSF				
WINDOW DIMS.		ANCHORS TYPE		
WIDTH (W)	MULL SPAN	W4.3	B4.3	C4.3/M4.3
20"	132"	115.2	82.0	130.0
25"		92.2	65.6	130.0
30"		76.8	54.7	113.5
35"		65.8	46.9	97.2
40"		57.6	41.0	85.1
45"		51.2	36.5	75.6
50"		46.1	32.8	68.1
55"		41.9	29.8	61.9
60"		38.4	27.3	56.7
65"		35.4	25.2	52.4
70"		32.9	23.4	48.6
75"		30.7	21.9	45.4
80"		28.8	20.5	42.5
85"		27.1	-	40.0
20"	144"	105.6	75.2	130.0
25"		84.5	60.2	124.8
30"		70.4	50.1	104.0
35"		60.3	43.0	89.1
40"		52.8	37.6	78.0
45"		46.9	33.4	69.3
50"		42.2	30.1	62.4
55"		38.4	27.3	56.7
60"		35.2	25.1	52.0
65"		32.5	23.1	48.0
70"		30.2	21.5	44.6
75"		28.2	20.1	41.6
80"		26.4	-	39.0
85"		24.8	-	36.7

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



TYPICAL MULLION ARRANGEMENTS

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

## ANCHORS

### TYPICAL ANCHORS:

1/4" DIA. ULTRACON BY 'ELCO' (Fu=177 KSI, Fy=155 KSI)

W4.3: INTO 2BY WOOD BUCKS OR WOOD STRUCTURES  
1-1/2" MIN. PENETRATION INTO WOOD

B4.3: THRU 1BY BUCKS INTO CONC. OR BLOCKS  
1-1/4" MIN. EMBED INTO CONCRETE  
1-3/4" MIN. EMBED INTO GROUT FILLED BLOCK

B4.3: DIRECTLY INTO GROUT FILLED BLOCK  
1-3/4" MIN. EMBED INTO BLOCK

C4.3: DIRECTLY INTO CONCRETE  
1-3/4" MIN. EMBED INTO CONCRETE

1/4" DIA. TEKS OR SELF DRILLING SCREWS (GRADE 5 CRS)

M4.3: INTO METAL STRUCTURES  
(3) THREADS MIN. TO EXTEND BEYOND METAL THICKNESS  
ALUMINUM: 1/8" THK. MIN. (6063-T5 MIN.)  
STEEL: 1/8" THK. MIN. (Fy = 36 KSI MIN.)  
(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

### TYPICAL EDGE DISTANCE

INTO CONCRETE AND BLOCKS = 2-1/2" MIN.  
INTO WOOD STRUCTURE = 1" MIN.  
INTO METAL STRUCTURE = 3/4" MIN.

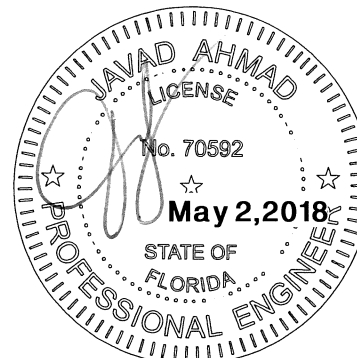
WOOD AT HEAD, SILL OR JAMBS SG = 0.55 MIN.  
CONCRETE AT HEAD, SILL OR JAMBS f'c = 3000 PSI MIN.  
C-90 GROUT FILLED NORMAL WEIGHT BLOCK AT JAMBS f'm = 2000 PSI MIN.

NOTE:  
ANY ANCHOR CONDITION SHOWN HEREIN MAY COVER LOCATIONS  
AT HEAD, SILL OR JAMB ENDS.  
SEE SHEET 8 FOR ANCHOR DETAILS.

(INTERPOLATION BETWEEN WIDTHS OR SPANS ALLOWED)

PRODUCT REVISED  
as complying with the Florida  
Building Code  
Acceptance No. 18-0319.06  
Expiration Date 03/28/2022

By Ca  
Miami Dade Product Control



**AL-FAROOQ CORPORATION**  
ENGINEERS & PRODUCT DEVELOPMENT  
9360 SUNSET DRIVE, SUITE 220  
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(C.A.N. 3538)

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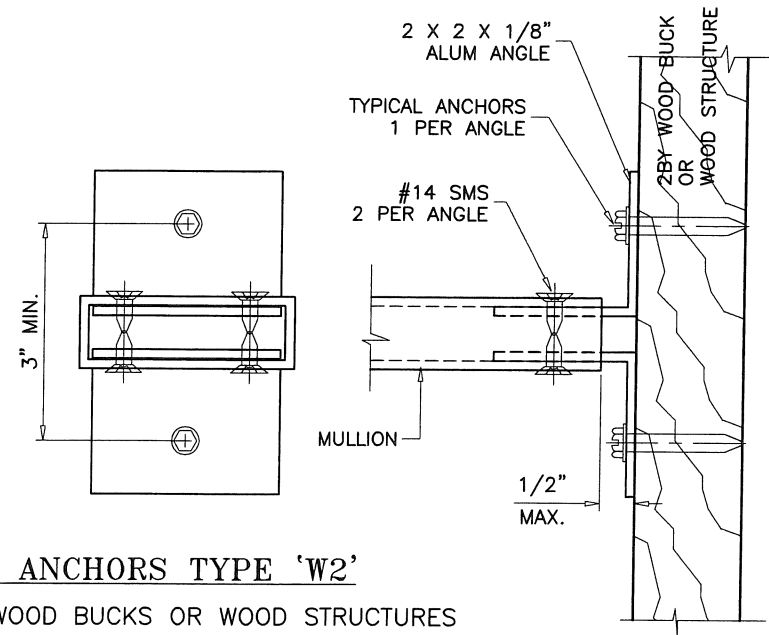
revisions:	no	date	by	description
	I	02.25.17		REV. PER RER COMMENTS
	J	02.28.18		UPDATED TO 2017 FBC

date: 12-05-95  
scale: 1/2" = 1"  
dr. by: TARIQ  
chk. by:

drawing no.  
**M95-16**  
sheet 5 of 8

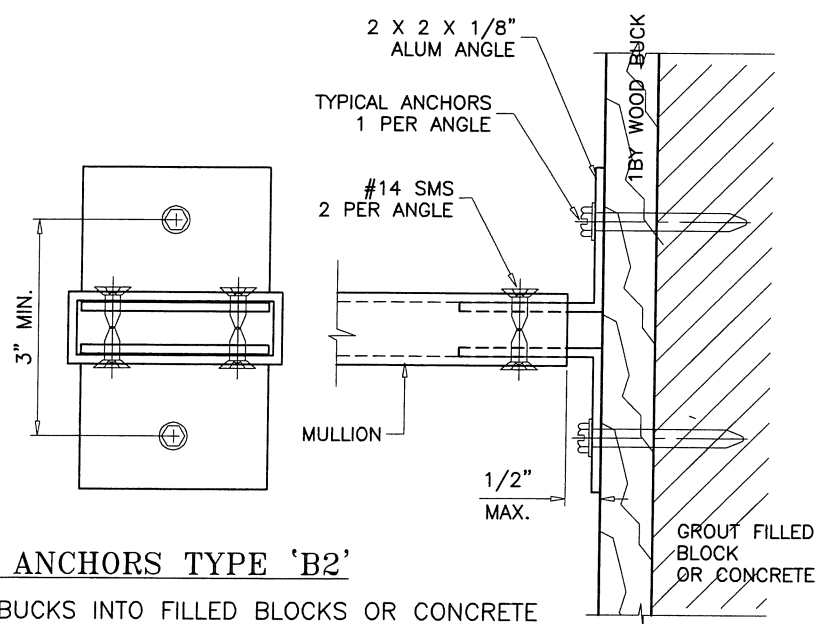
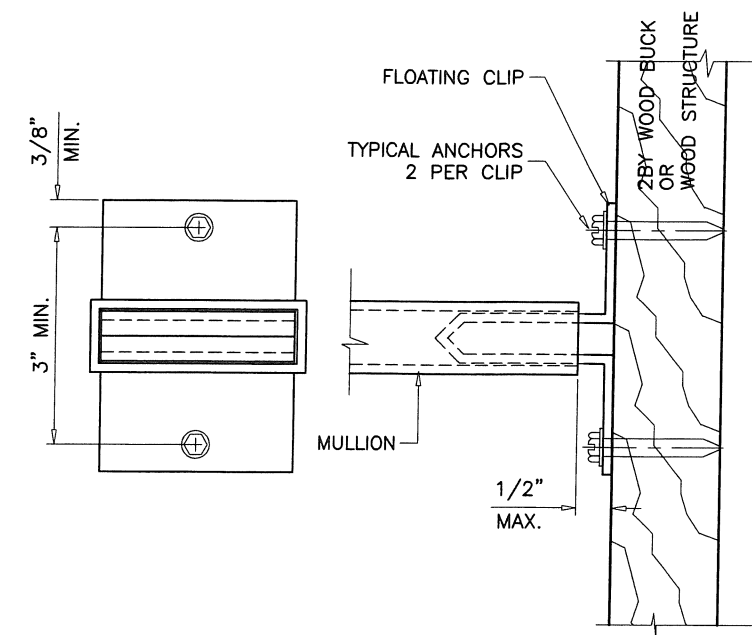
MULLION M95-16GG





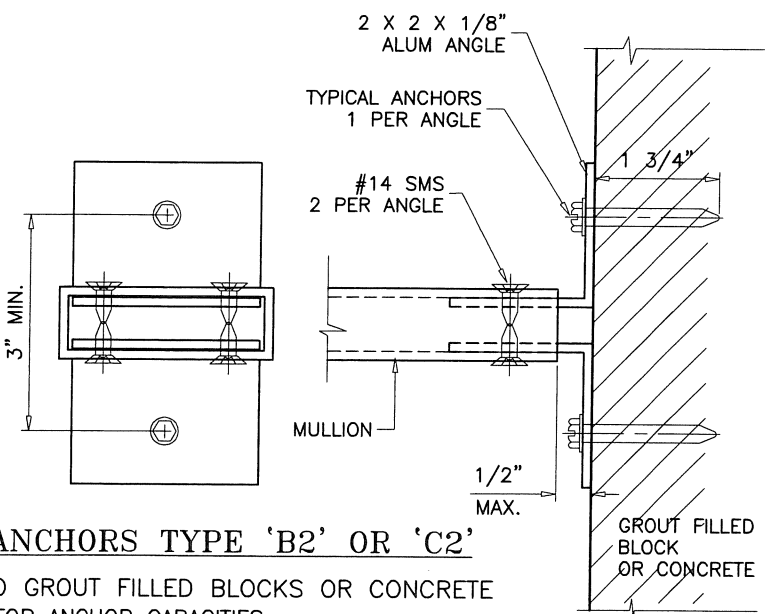
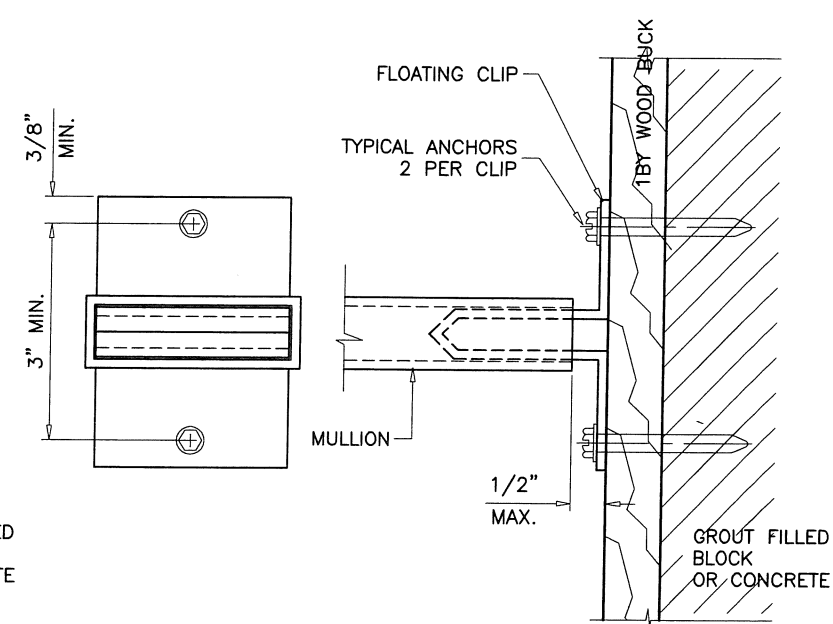
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INTO 2BY WOOD BUCKS OR WOOD STRUCTURES  
SEE SHEET 6 FOR ANCHOR CAPACITIES



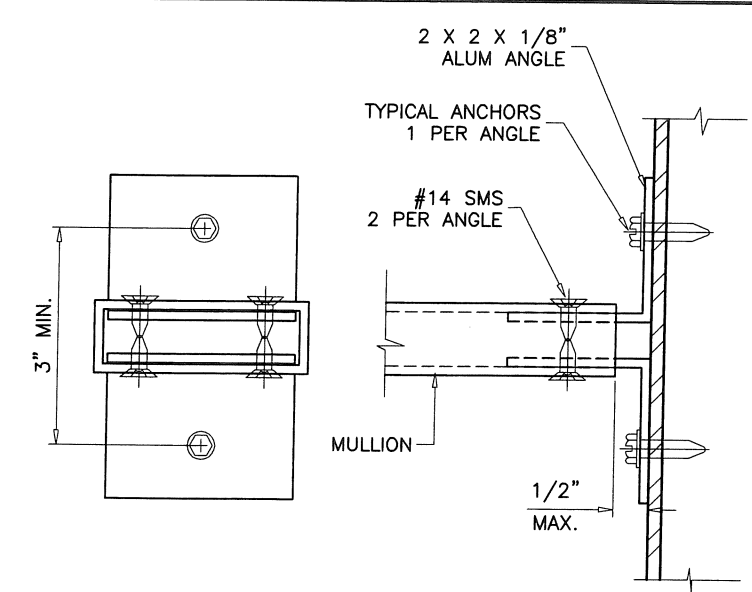
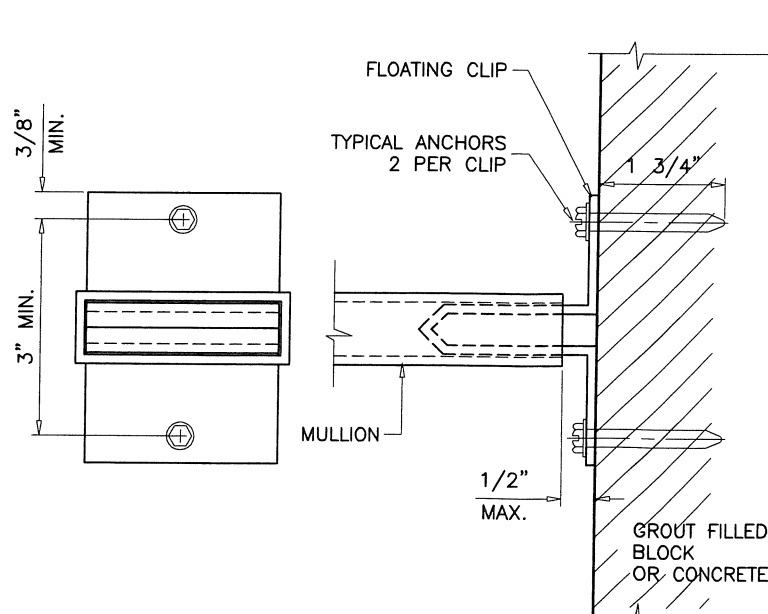
### TYPICAL ANCHORS TYPE 'B2'

THRU 1BY BUCKS INTO FILLED BLOCKS OR CONCRETE  
SEE SHEET 6 FOR ANCHOR CAPACITIES



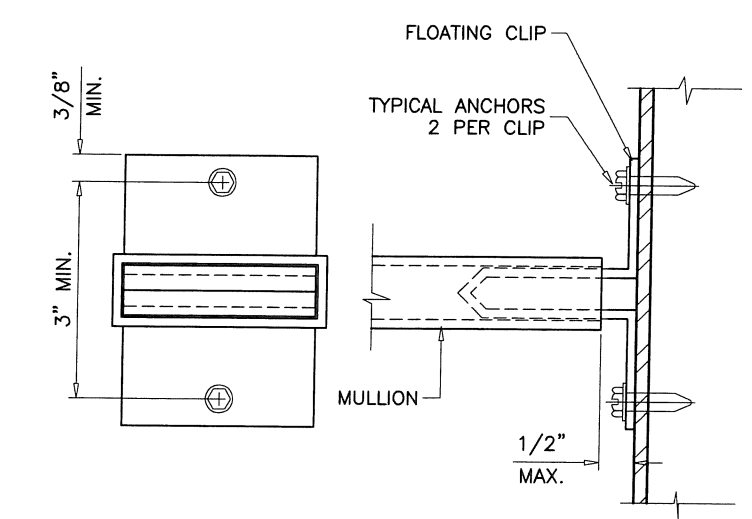
### TYPICAL ANCHORS TYPE 'B2' OR 'C2'

DIRECTLY INTO GROUT FILLED BLOCKS OR CONCRETE  
SEE SHEET 3 FOR ANCHOR CAPACITIES



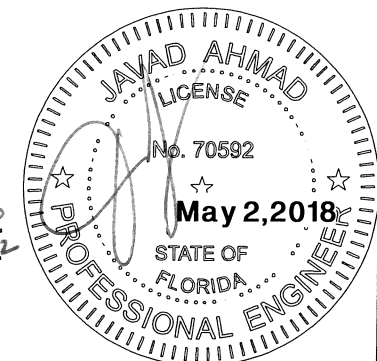
### TYPICAL ANCHORS TYPE 'M2'

INTO METAL STRUCTURES  
SEE SHEET 3 FOR ANCHOR CAPACITIES



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.

PRODUCT REVISED  
as complying with the Florida  
Building Code  
Acceptance No. 18-0319.06  
Expiration Date 03/28/2022  
By [Signature]  
Miami Dade Product Control



**af c**  
**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  
MULLION M95-16GG

ALUMINUM TUBE MULLIONS  
**Gopi Glass Sales & Services Corp.**  
7450 N.W. 41 STREET  
MIAMI, FL. 33166  
TEL. (305) 592-2089 FAX. (305) 477-0992

no	date	description
G	06.12.14	NO CHANGE THIS SHEET
H	11.07.16	EDITORIAL CHANGES
I	02.25.17	REV. PER REF COMMENTS
J	02.28.18	UPDATED TO 2017 FBC

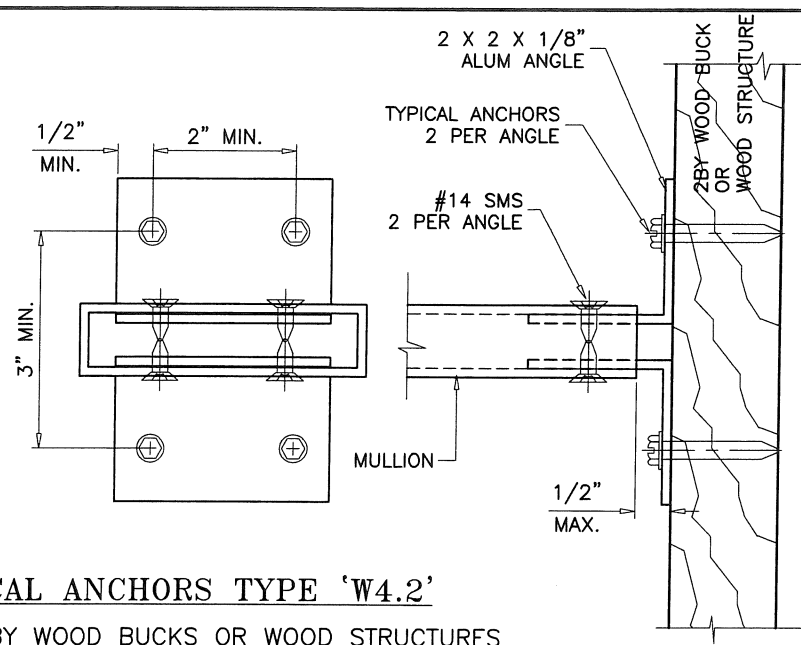
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chk. by:

drawing no.  
**M95-16**  
sheet 6 of 8

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	J	02.28.18		UPDATED TO 2017 FBC

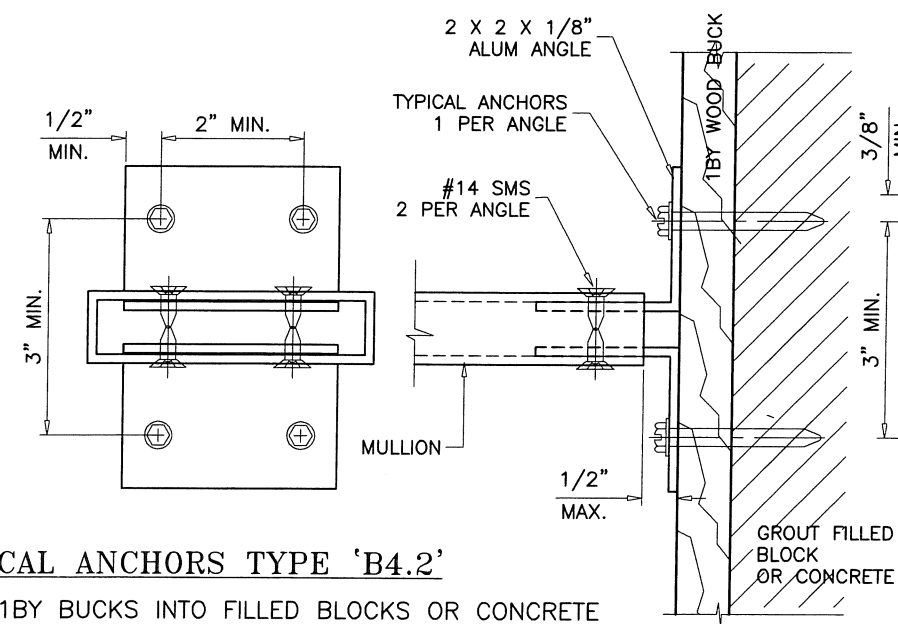
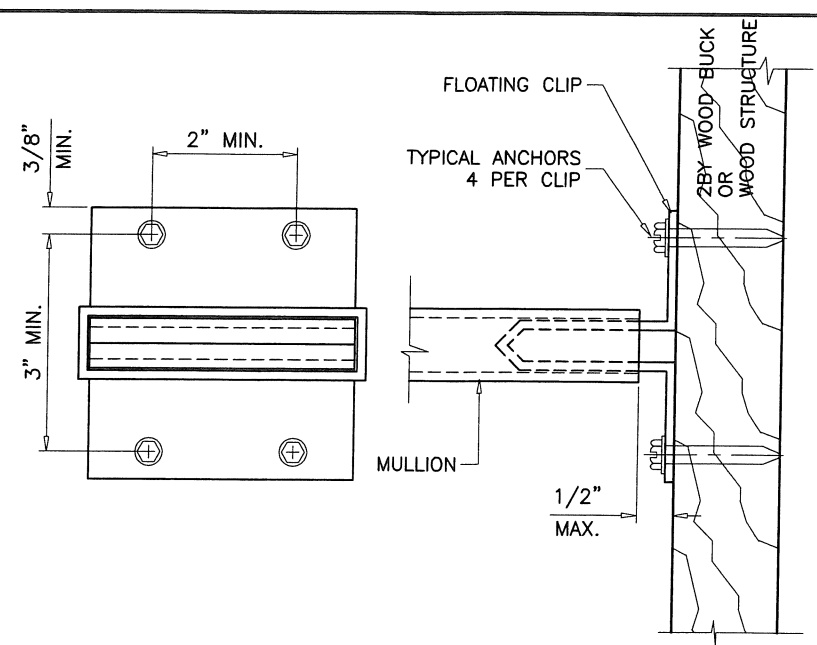
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drawing no.	M95-16
sheet	7 of 8



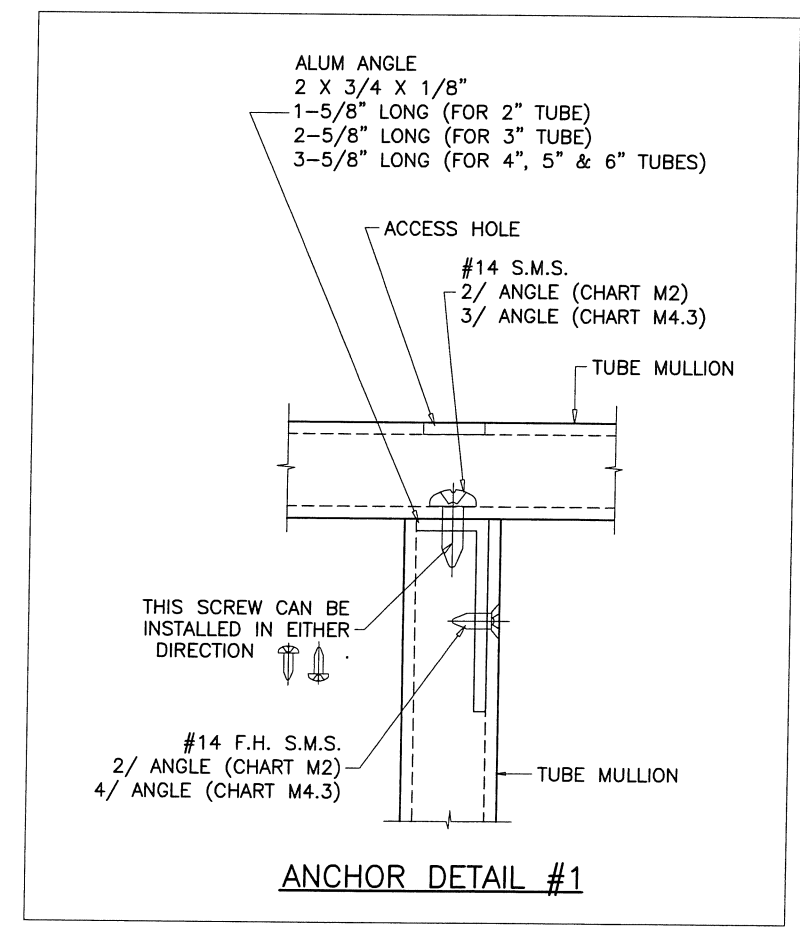
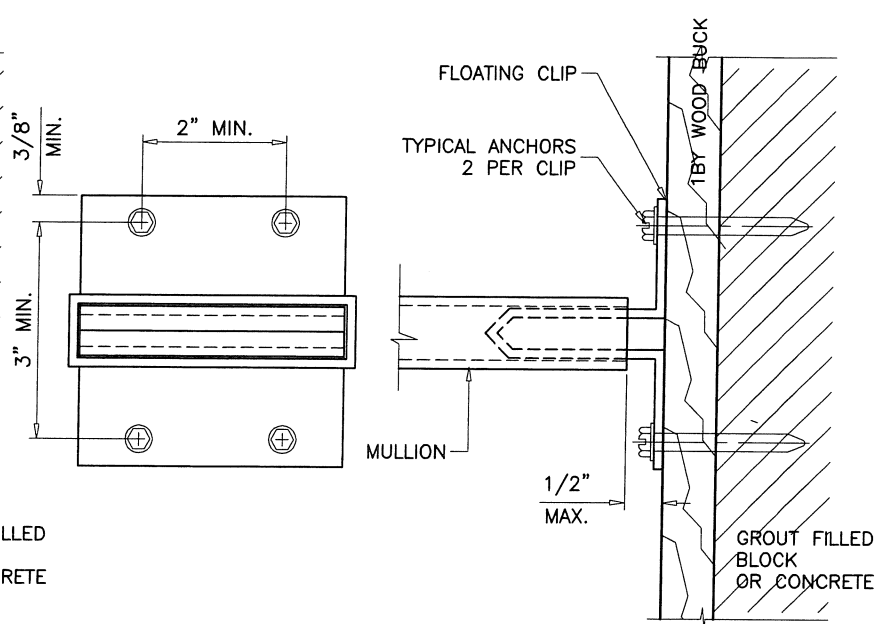
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INTO 2BY WOOD BUCKS OR WOOD STRUCTURES  
 SEE SHEET 6 FOR ANCHOR CAPACITIES

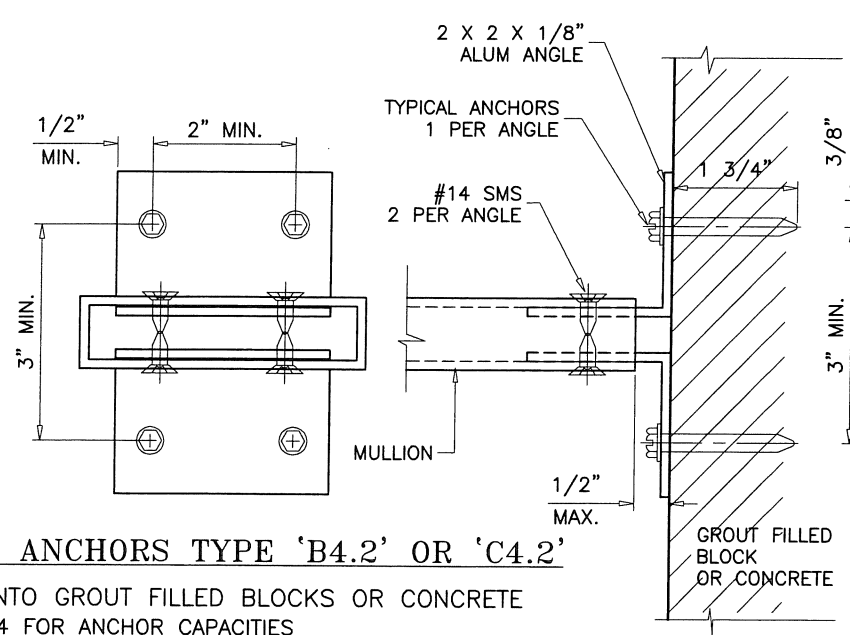


**TYPICAL ANCHORS TYPE 'B4.2'**

THRU 1BY BUCKS INTO FILLED BLOCKS OR CONCRETE  
 SEE SHEET 6 FOR ANCHOR CAPACITIES

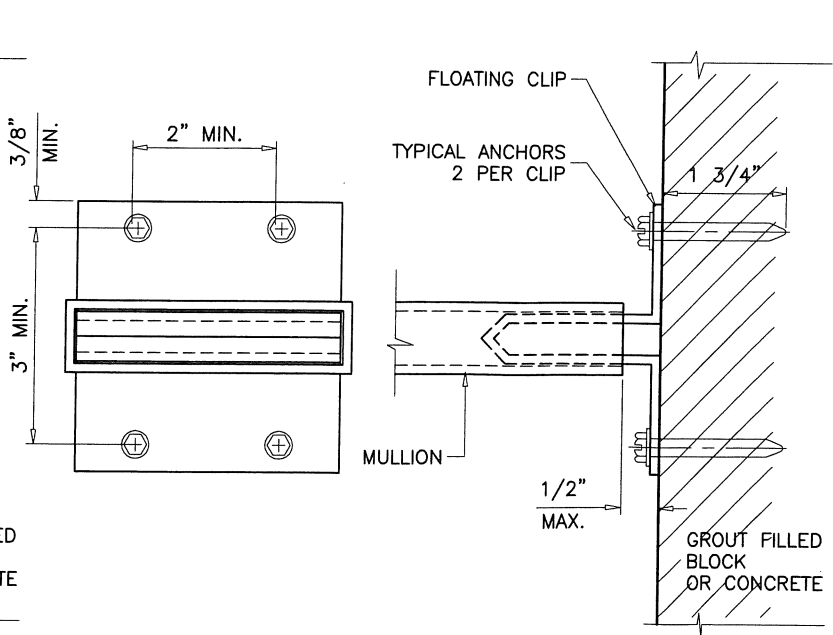


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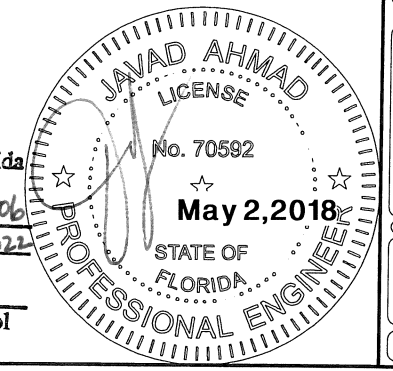


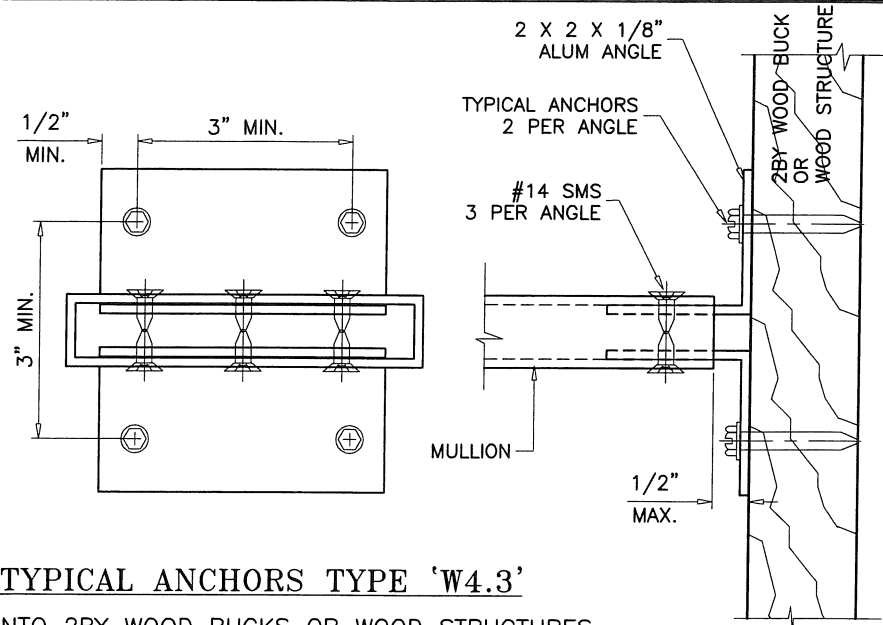
**TYPICAL ANCHORS TYPE 'B4.2' OR 'C4.2'**

DIRECTLY INTO GROUT FILLED BLOCKS OR CONCRETE  
 SEE SHEET 4 FOR ANCHOR CAPACITIES



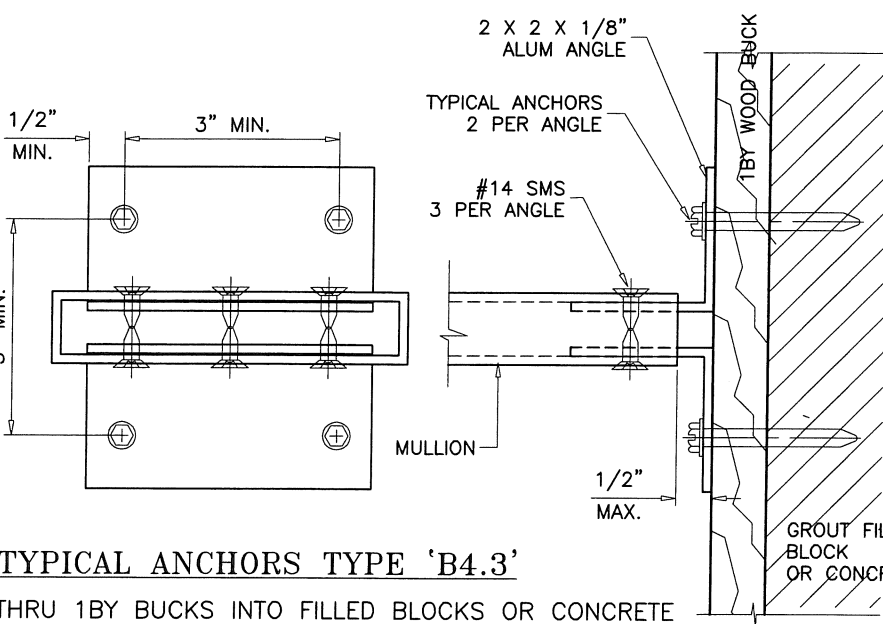
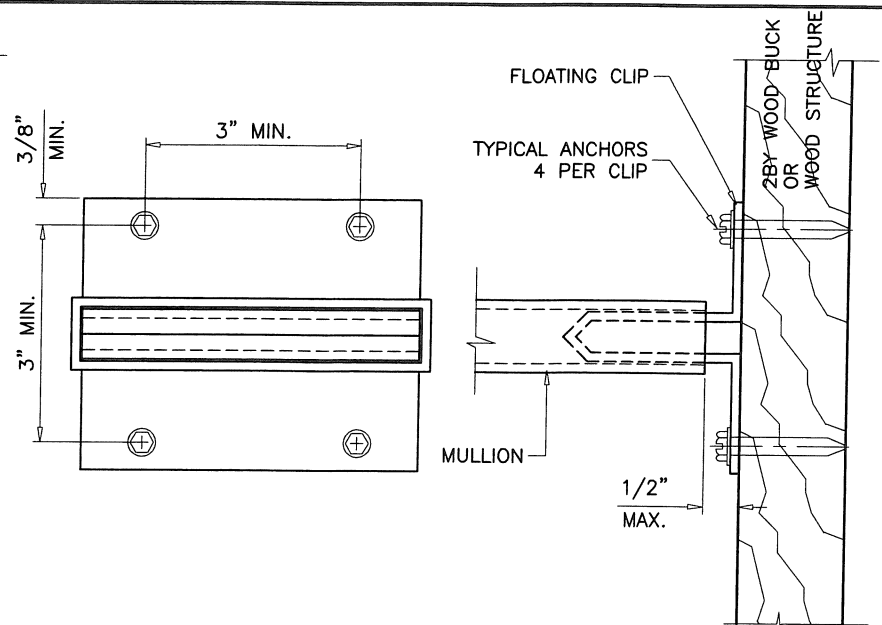
PRODUCT REVISED  
 as complying with the Florida  
 Building Code  
 Acceptance No. 18-0319.06  
 Expiration Date 03/28/2022  
 By: [Signature]  
 Miami Dade Product Control





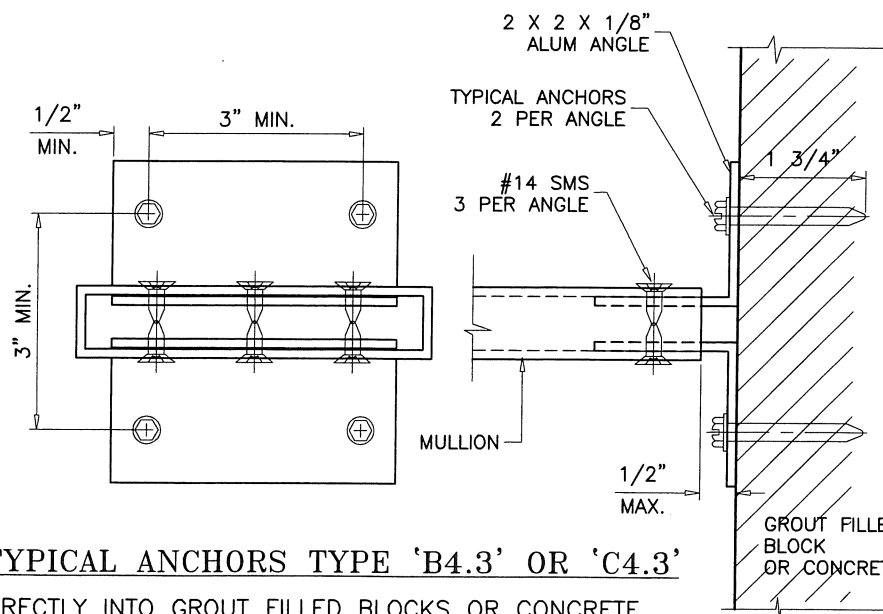
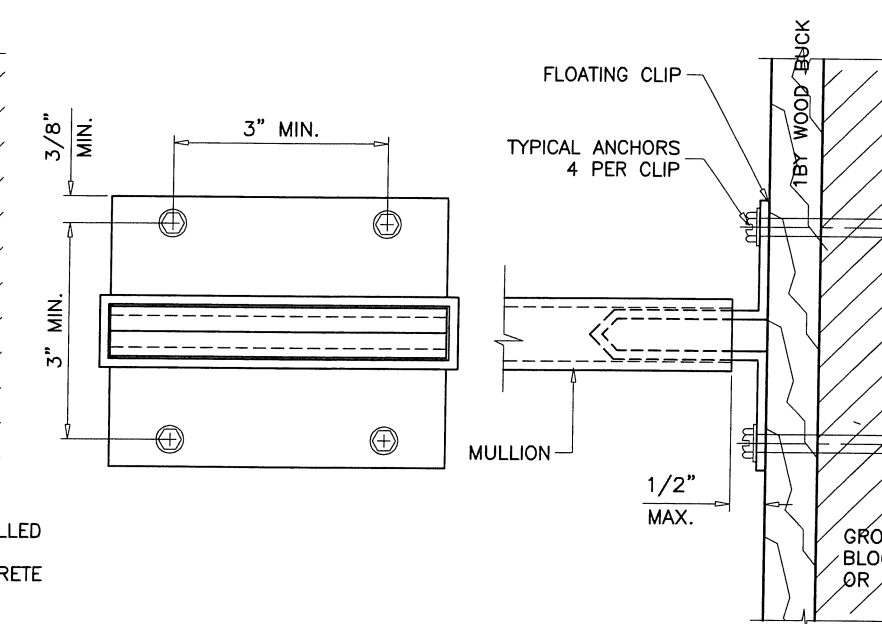
**TYPICAL ANCHORS TYPE 'W4.3'**

INTO 2BY WOOD BUCKS OR WOOD STRUCTURES  
SEE SHEET 6 FOR ANCHOR CAPACITIES



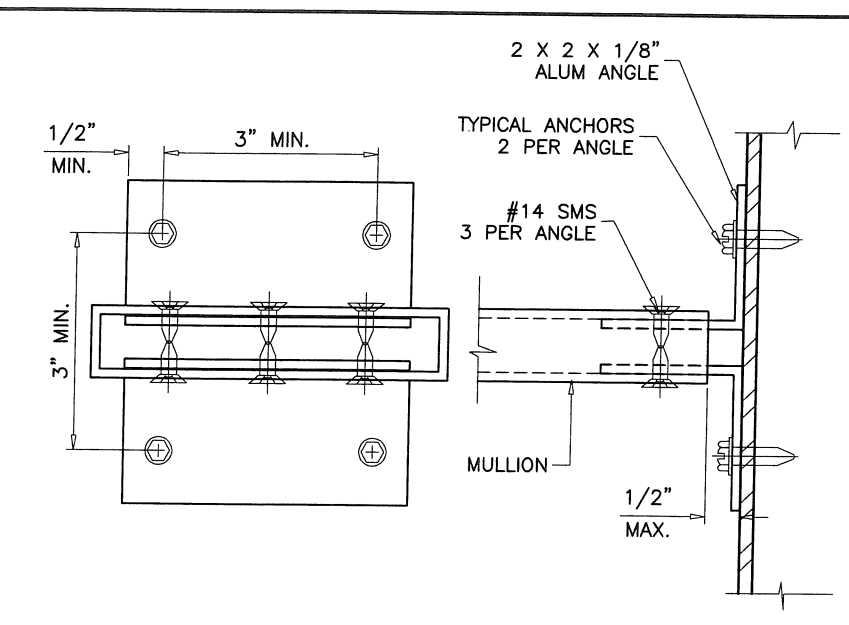
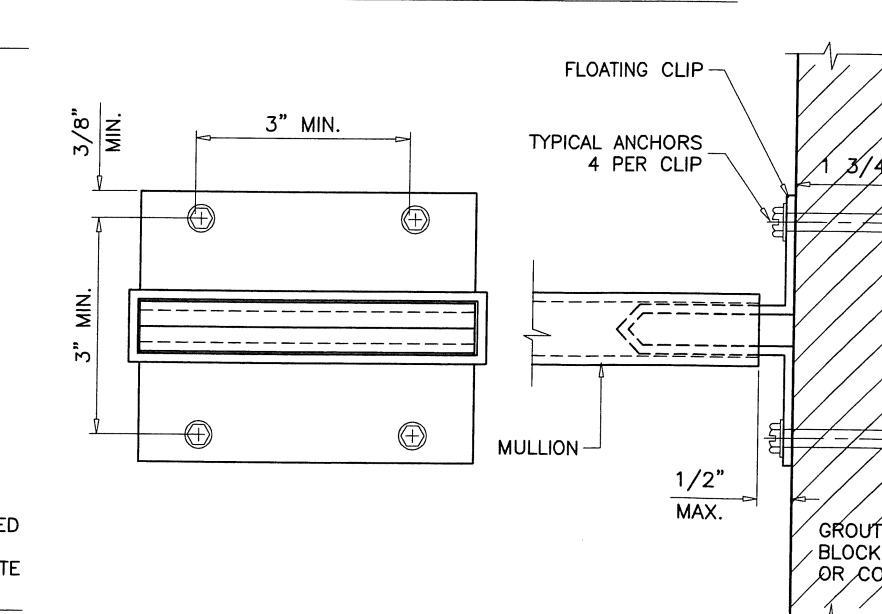
**TYPICAL ANCHORS TYPE 'B4.3'**

THRU 1BY BUCKS INTO FILLED BLOCKS OR CONCRETE  
SEE SHEET 6 FOR ANCHOR CAPACITIES



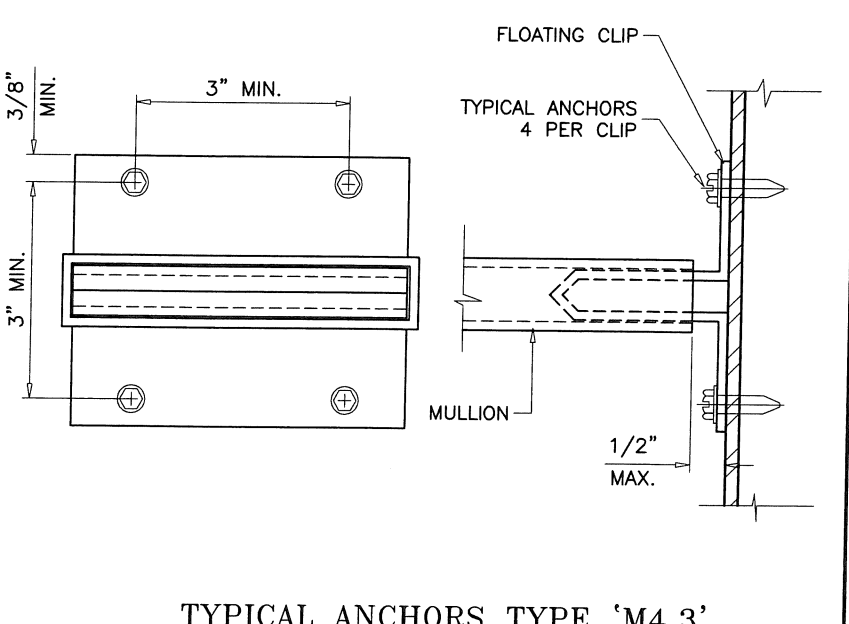
**TYPICAL ANCHORS TYPE 'B4.3' OR 'C4.3'**

DIRECTLY INTO GROUT FILLED BLOCKS OR CONCRETE  
SEE SHEET 5 FOR ANCHOR CAPACITIES



**TYPICAL ANCHORS TYPE 'M4.3'**


INTO METAL STRUCTURES  
SEE SHEET 5 FOR ANCHOR CAPACITIES



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dr. by: TARIQ

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drawing no.

**M95-16**

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