MIAMI-DADE COUNTY
DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

NOTICE OF ACCEPTANCE (NOA)

Sunshine Windows Manufacturing, Inc.
1745 W 33rd Place
Hialeah, FL 33012

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. **M2011,** titled "Aluminum Tube Mullion L.M.I.," sheets 1 through 21 of 21, dated 02/11/13, with revision No. **2** dated 12/12/17, prepared by manufacturer, signed and sealed by Francisco Hernandez, 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 and renews NOA No. 15-0528.21** 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 **Manuel Perez, P.E.**

MIAMI-DADE COUNTY APPROVED

2/8/18

NOA No. 17-1226.22
Expiration Date: March 28, 2023
Approval Date: February 15, 2018

Sunshine Windows Manufacturing, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

1. EVIDENCE SUBMITTED UNDER PREVIOUS NOA's

A. DRAWINGS

1. Manufacturer's die drawings and sections.
   (Submitted under NOA No. 11-1216.02)
2. Drawing No **M2011**, titled "Aluminum Tube Mullion L.M.I.", sheets 1 through 21 of 21, dated 02/11/13, with revision No.**1** dated 05/09/15, prepared by manufacturer, signed and sealed by Francisco Hernandez, 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 using different sizes of rectangular and round aluminum tube mullions, prepared by Fenestration Testing Laboratory, Inc. Test Report No. **FTL-7067**, dated 09/26/12, signed and sealed by Marlin D. Brinson, P.E.
   (Submitted under NOA# 11-1216.02)

C. CALCULATIONS

1. Anchor verification calculations and structural analysis, complying with **FBC 5th Edition (2014)**, dated 05/09/15, prepared, signed and sealed by Francisco Hernandez, 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 5th Edition (2014)**, dated May 18, 2015, issued, signed and sealed by Francisco Hernandez, P.E.
   (Submitted under NOA# 15-0528.21)
2. Statement letter of conformance, complying with the FBC-2010, and of no financial interest, dated February 23, 2013, signed and sealed by Francisco Hernandez, P.E.
   (Submitted under NOA# 11-1216.02)

G. OTHERS

1. Notice of Acceptance No. **11-1216.02**, issued to Sunshine Windows Manufacturing, Inc. for their Clipped, Extruded Aluminum Tube Mullion - L.M.I., approved on 03/28/13 and expiring on 03/28/18.

Manuel Perez, P.E.
Product Control Examiner
NOA No. 17-1226.22
Expiration Date: March 28, 2023
Approval Date: February 15, 2018

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

2. NEW EVIDENCE SUBMITTED

A. DRAWINGS

1. Drawing No. **M2011**, titled "Aluminum Tube Mullion L.M.I.", sheets 1 through 21 of 21, dated 02/11/13, with revision No. **2** dated 12/12/17, prepared by manufacturer, signed and sealed by Francisco Hernandez, P.E.

B. TESTS

1. None

C. CALCULATIONS

1. None.

D. QUALITY ASSURANCE

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

E. MATERIAL CERTIFICATIONS

1. None.

F. STATEMENTS

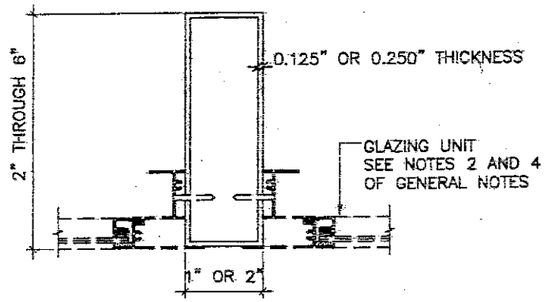
1. Statement letter of conformance, complying with **FBC 6th Edition (2017)**, dated December 8, 2017, issued, signed and sealed by Francisco Hernandez, P.E.

G. OTHERS

1. Notice of Acceptance No. **15-0528.21**, issued to Sunshine Windows Manufacturing, Inc. for their Clipped, Extruded Aluminum Tube Mullion - L.M.I., approved on 12/10/15 and expiring on 03/28/18.

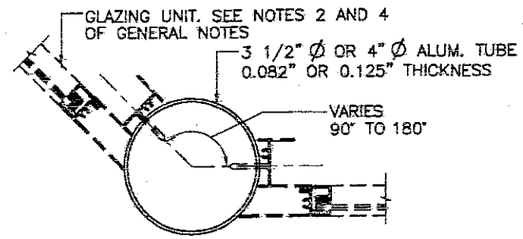
Manuel Perez

Manuel Perez, P.E.
Product Control Examiner
NOA No. 17-1226.22
Expiration Date: March 28, 2023
Approval Date: February 15, 2018



VERTICAL OR HORIZONTAL RECTANGULAR MULLIONS

SEE MULLION DESIGN LOADS (MULLION CAPACITY) TABLE # 1 ON SHEET 3 OF 21.
SEE ANCHOR DESIGN LOADS (ANCHOR CAPACITY) TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.



VERTICAL ROUND TUBE MULLION

SEE MULLION DESIGN LOADS (MULLION CAPACITY) AND
ANCHOR DESIGN LOADS (ANCHOR CAPACITY) TABLE # 4 ON SHEET 6 OF 21.

INDEX OF DRAWINGS

1 OF 22 .– MULLION SECTIONS, GENERAL NOTES AND PROCEDURE FOR MULLION SELECTION.
2 OF 21 .– MULLION SHAPES, ANCHOR CLIPS AND ANCHOR CLIPS LOCATION DETAILS.
3 OF 21 .– TABLE # 1. MULLION DESIGN LOADS (MULLION CAPACITY) FOR RECTANGULAR MULLIONS.
4 OF 21 .– TABLE # 2. ANCHOR DESIGN LOADS (ANCHOR CAPACITY) FOR RECTANGULAR MULLIONS.
5 OF 21 .– TABLE # 3. ANCHOR DESIGN LOADS (ANCHOR CAPACITY) FOR RECTANGULAR MULLIONS.
6 OF 21 .– TABLE # 4. MULLION AND ANCHOR DESIGN LOADS (MULLION AND ANCHOR CAPACITIES) FOR ROUND MULLIONS.
7 OF 21 .– ANCHOR CONFIGURATION TYPE A1 ON CONCRETE OR MASONRY WITH 1BY WOOD BUCK.
8 OF 21 .– ANCHOR CONFIGURATION TYPE A1 ON WOODEN STRUCTURE OR 2BY WOOD BUCK.
9 OF 21 .– ANCHOR CONFIGURATION TYPE A2 ON CONCRETE OR MASONRY WITH 1BY WOOD BUCK AND ON WOODEN STRUCTURE OR 2BY WOOD BUCK.
10 OF 21 .– ANCHOR CONFIGURATION TYPE A3 ON CONCRETE OR MASONRY WITH 1BY WOOD BUCK AND ON WOODEN STRUCTURE OR 2BY WOOD BUCK.
11 OF 21 .– ANCHOR CONFIGURATION TYPE A3 ON CONCRETE OR MASONRY WITH 1BY WOOD BUCK AND ON WOODEN STRUCTURE OR 2BY WOOD BUCK FOR 2" X 5" MULLION.
12 OF 21 .– ANCHOR CONFIGURATION TYPE B1 ON CONCRETE OR MASONRY.
13 OF 21 .– ANCHOR CONFIGURATION TYPE B2 AND B3 ON CONCRETE OR MASONRY.
14 OF 21 .– ANCHOR CONFIGURATION TYPE B3 ON CONCRETE OR MASONRY.
15 OF 21 .– ANCHOR CONFIGURATION TYPE C1 ON METALLIC STRUCTURE.
16 OF 21 .– ANCHOR CONFIGURATION TYPE C2 ON METALLIC STRUCTURE.
17 OF 21 .– ANCHOR CONFIGURATION TYPE C3 ON METALLIC STRUCTURE.
18 OF 21 .– ANCHOR CONFIGURATIONS TYPE D2, D3 AND D4. MULLION TO MULLION CONNECTIONS.
19 OF 21 .– ROUND MULLIONS. TOP VIEWS FOR ANCHOR CONFIGURATIONS TYPE BR2, BR3, CR2 AND CR3.
20 OF 21 .– ROUND MULLIONS. TOP VIEWS FOR ANCHOR CONFIGURATION TYPE BR4 AND CR4.
21 OF 21 .– ROUND MULLIONS. SIDE VIEWS FOR ANCHOR CONFIGURATIONS TYPE BR2, BR3, BR4, CR2, CR3 AND CR4.

GENERAL NOTES:

1.– THIS PRODUCT MEETS THE REQUIREMENTS OF THE FLORIDA BUILDING CODE 5TH EDITION, 2014 AND FBC 6TH EDITION (2017).

2.–MULLIONS SHALL BE USED ALONG WITH SEPARATE APPROVED GLAZING UNITS MEETING THE FLORIDA BUILDING CODE 5TH EDITION (2014) REQUIREMENTS. USE GLAZING UNIT APPROVAL TO SPECIFY FASTENER SIZE AND SPACING.

3.– TYPE OF ANCHORS: FOR ATTACHMENT TO CONCRETE OR GROUT FILLED BLOCK WITH 1BY, 2BY OR WOODEN STRUCTURES USE 1/4" DIAM. ELCO ULTRACON CONCRETE AND MASONRY ANCHOR; FOR ATTACHMENT TO METAL STRUCTURES, OR METAL TO METAL CONNECTIONS USE 1/4" DIAM. HILTI KWIK FLEX SELF DRILLING SCREW.

4.– THE DESIGN PRESSURES SHOWN ON THE CHARTS ARE BASED ON TUBE STRENGTH ONLY. NO CONTRIBUTION OF ATTACHED GLAZING UNITS ARE CONSIDERED.

5.– FOR DETAILS OF ATTACHMENT BETWEEN MULLIONS AND STRUCTURES REFER TO SHEETS 7 THROUGH 21 OF THIS PRODUCT APPROVAL.

6.– WOOD BUCKS BY OTHER SHALL BE PROPERLY ATTACHED TO TRANSFER GLAZING SYSTEM LOADS TO THE STRUCTURE AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO MULLION INSTALLATION.

7.– THE THICKNESS OF THE STEEL/ALUMINUM HOST STRUCTURE SHALL BE NOT LESS THAN 1/8". ALUMINUM SHALL BE 6063–T6 AND STEEL SHALL BE Fy= 36 ksi MIN.

8.– TUBE MATERIAL SHALL BE ALUMINUM ALLOY 6063–T6.

9.– ALL ANCHORS INSTALLED IN THE STEEL/ALUMINUM HOST STRUCTURE SHALL HAVE 1" MINIMUM TO THE EDGE OF THE STRUCTURAL MEMBERS.

10.– WOOD HOST STRUCTURE SHALL BE "SOUTHERN YELLOW PINE" G=0.55 OR GREATER DENSITY.
ALL ANCHORS INSTALLED IN WOOD SHALL HAVE 1" MINIMUM TO THE EDGE OF THE STRUCTURAL MEMBERS WITH 1 3/8" MIN. EMBEDMENT.

11.– CONCRETE STRENGTH: f'c=3,000 psi MIN., CMU PER ASTM C90, GROUT FILLED CMU fm= 2,000 psi MIN.
ALL ANCHORS INSTALLED IN CONCRETE SHALL HAVE 2 1/2" MINIMUM EDGE DIST. TO THE STRUCTURAL MEMBERS WITH 1 3/4" MIN. EMBEDMENT. (EXCLUDING STUCCO, FOAM, BRICK AND OTHER WALL FINISHES).

12.– MATERIALS INCLUDING BUT NOT LIMITED TO STEEL/METAL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL BE PROTECTED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.

PROCEDURE FOR MULLION SELECTION

1. DETERMINE THE WIND LOAD IN PSF ACTING ON THE MULLION PER THE FLORIDA BUILDING CODE. USE ALLOWABLE STRESS DESIGN LOAD FACTOR OF 0.6 FOR WIND LOAD CALCULATED BASED UPON ULTIMATE DESIGN WIND SPEED.
2. USE MULLION DESIGN LOAD (MULLION CAPACITY) TABLES # 1 AND # 4 ON ON SHEETS 3 AND 6 OF 21 TO DETERMINE THE MULLION SECTION REQUIRED TO MEET THE DESIGN PRESSURE.
3. USE TABLES # 2, # 3 AND # 4 ON SHEETS 4, 5 AND 6 OF 21 TO DETERMINE THE TYPE OF CONNECTION BETWEEN THE MULLION AND THE STRUCTURE TO MEET THE DESIGN LOAD (MULLION CAPACITY).
4. HIGHLIGHT MULLION AND ANCHOR SELECTED OPTIONS AND CORRESPONDING TABLE VALUES OBTAINED IN A SPECIFIC APPLICATION WHEN USING THIS NOA TO APPLY FOR A PERMIT.

PRODUCT REVISED
as complying with the Florida Building Code
NOA–No. 17–1226.22
Expiration Date 03/28/2023
By Miami–Dade Product Control

FRANCISCO HERNANDEZ LICENSE No. 51393 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-12-17
FRANCISCO HERNANDEZ
FLORIDA PE # 51393

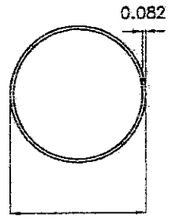
Sunshine Windows Manufacturing, Inc.
1745 W. 33rd Place
Hialeah, Florida 33012
Ph: (305)364–9952
Fax:(305)826–5118

ALUMINUM TUBE MULLION L.M.I.

No	DATE	REVISION
1	05–09–15	REVISION FOR COMPLIANCE WITH FBC 5TH EDITION (2014)
2	12–12–17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

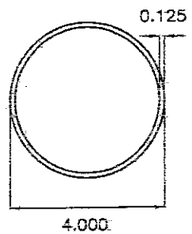
DRAWING No. M2011
DATE: 02–11–13
SCALE: NTS

ROUND MULLIONS CROSS SECTIONS



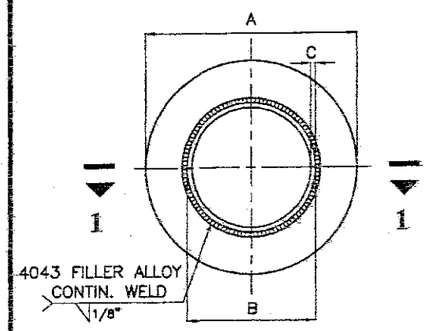
3 1/2" ROUND MULL

ALLOY: 6063–T6

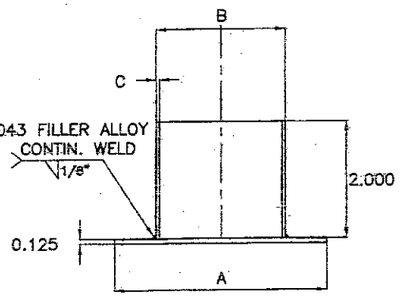


4" ROUND MULL

ALLOY: 6063–T6



TOP VIEW
ROUND MULLION ANCHOR SLEEVE
ALLOY: 6063–T5

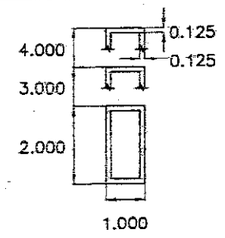


SECTION 1–1
ROUND MULLION ANCHOR SLEEVE
ALLOY: 6063–T5

ROUND MULLLION SLEEVES			
MULLION TYPE	DIMENSIONS		
	A	B	C
3 1/2"Ø	5.500"	3.250"	0.125"
4"Ø	6.000"	3.687"	0.125"

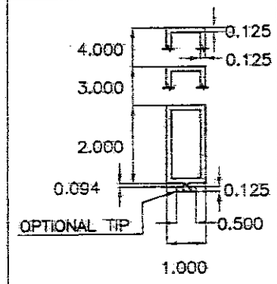
NOTES: – FOR ROUND MULLION AND ANCHOR DESIGN LOADS SEE SHEET 6 OF 21.
– FOR CONFIGURATIONS OF ROUND ANCHORS SEE SHEETS 19, 20 AND 21 OF 21.

RECTANGULAR MULLIONS CROSS SECTIONS



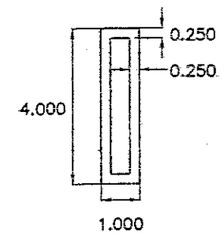
1" X 2" X 1/8"
1" X 3" X 1/8"
1" X 4" X 1/8"

ALLOY: 6063–T6



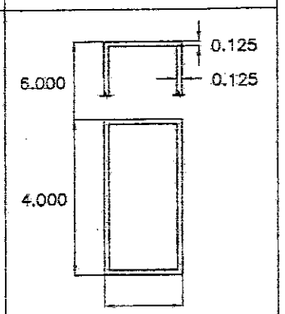
1" X 2" X 1/8"
1" X 3" X 1/8"
1" X 4" X 1/8"

ALLOY: 6063–T6



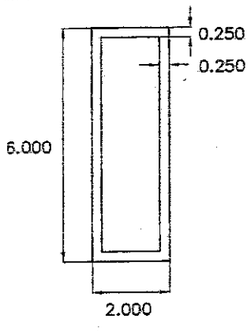
1" X 4" X 1/4"

ALLOY: 6063–T6



2" X 4" X 1/8"
2" X 6" X 1/8"

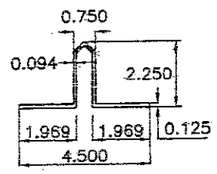
ALLOY: 6063–T6



2" X 6" X 1/4"

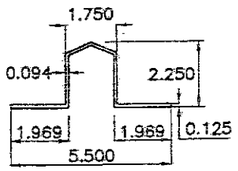
ALLOY: 6063–T6

ANCHOR CLIPS CROSS SECTIONS



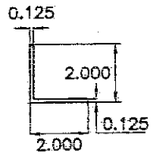
V1 CLIP

ALLOY: 6063–T5



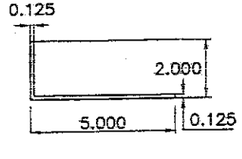
V2 CLIP

ALLOY: 6063–T5



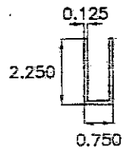
2" X 2" X 1/8" ANGLE CLIP

ALLOY: 6063–T5



2" X 5" X 1/8" ANGLE CLIP

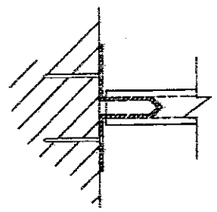
ALLOY: 6063–T5



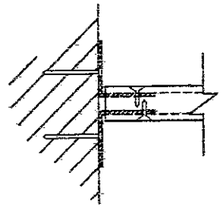
U CLIP

ALLOY: 6063–T5

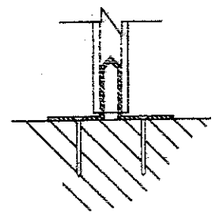
ANCHOR CLIPS LOCATION DETAILS



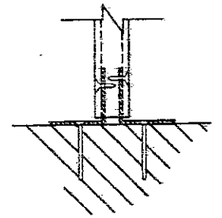
DETAIL 1
V CLIPS
HORIZONTAL POSITION
ON SUBSTRATES



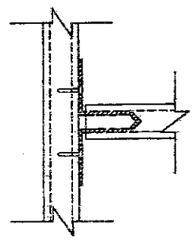
DETAIL 2
L CLIPS
HORIZONTAL POSITION
ON SUBSTRATES



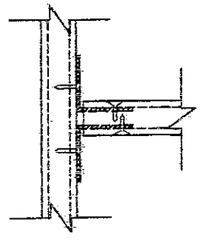
DETAIL 3
V CLIPS
VERTICAL POSITION
ON SUBSTRATES



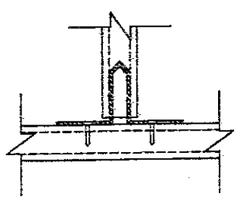
DETAIL 4
L CLIPS
VERTICAL POSITION
ON SUBSTRATES



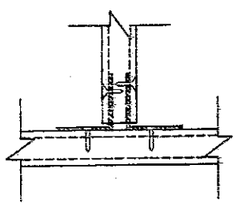
DETAIL 5
V CLIPS
HORIZONTAL POSITION
MULLION TO MULLION



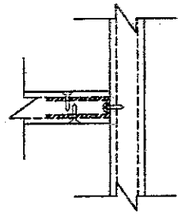
DETAIL 6
L CLIPS
HORIZONTAL POSITION
MULLION TO MULLION



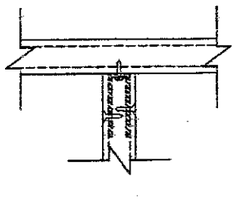
DETAIL 7
V CLIPS
VERTICAL POSITION
MULLION TO MULLION



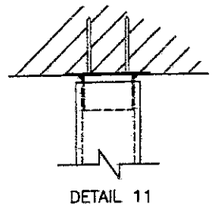
DETAIL 8
L CLIPS
VERTICAL POSITION
MULLION TO MULLION



DETAIL 9
U CLIPS
HORIZONTAL POSITION
MULLION TO MULLION



DETAIL 10
U CLIPS
VERTICAL POSITION
MULLION TO MULLION



DETAIL 11
ROUND MULLION SLEEVE
VERTICAL POSITION
ON SUBSTRATES

PRODUCT REVISED
as complying with the Florida Building Code
NOA–No. 17–1226.22
Expiration Date 03/28/2023
By Manuel Perez
Miami–Dade Product Control

12-12-17
FRANCISCO HERNANDEZ
FLORIDA PE # 51393

MULLION SHAPES, ANCHOR CLIPS AND ANCHOR CLIPS LOCATION DETAILS

Sunshine Windows Manufacturing, Inc.
1745 W. 33rd Place
Hialeah, Florida 33012
Ph: (305)364–9952
Fax:(305)828–5118

ALUMINUM TUBE MULLION L.M.I.

No	DATE	REVISION
1	05–09–15	REVISION FOR COMPLIANCE WITH FBC 5TH EDITION (2014)
2	12–12–17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

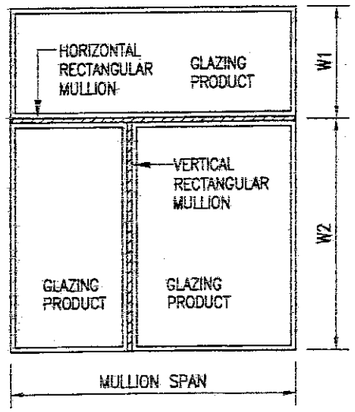
DRAWING No.
M2011
DATE: 02–11–13
SCALE: NTS

MULLION DESIGN LOADS (MULLION CAPACITY)
FOR RECTANGULAR MULLIONS
TABLE # 1

MULLION DESIGN LOAD – PSF					
DIMENSIONS		MULLION	MULLION	MULLION	MULLION
WIDTH (W)	SPAN	1" X 2" X 1/8"	1" X 3" X 1/8"	1" X 4" X 1/8"	1" X 4" X 1/4"
27"	39"	128.5	140.0	140.0	140.0
37"		93.75	140.0	140.0	140.0
48"		72.25	140.0	140.0	140.0
60"		57.80	119.9	140.0	140.0
66"		52.55	109.0	140.0	140.0
74"		46.85	97.25	140.0	140.0
80"		43.35	90.00	140.0	140.0
27"	51"	57.45	140.0	140.0	140.0
37"		41.90	113.7	140.0	140.0
48"		32.30	87.65	140.0	140.0
60"		–	70.10	112.8	140.0
66"		–	63.75	102.5	140.0
74"		–	56.85	91.45	140.0
80"		–	52.60	84.60	140.0
27"	58"	–	111.9	140.0	140.0
37"		–	81.65	140.0	140.0
48"		–	62.95	109.0	140.0
60"		–	50.35	87.20	140.0
66"		–	45.75	79.25	140.0
74"		–	40.80	70.70	138.3
80"		–	37.75	65.40	128.0
27"	63"	–	87.30	140.0	140.0
37"		–	63.70	119.8	140.0
48"		–	49.10	92.40	140.0
60"		–	39.30	73.90	140.0
66"		–	35.70	67.20	131.5
74"		–	31.85	59.90	117.3
80"		–	29.45	55.40	108.4
27"	75"	–	51.75	111.0	140.0
37"		–	37.75	81.00	140.0
48"		–	29.10	62.40	122.1
60"		–	–	49.90	97.70
66"		–	–	45.40	88.85
74"		–	–	40.50	79.25
80"		–	–	37.45	73.30

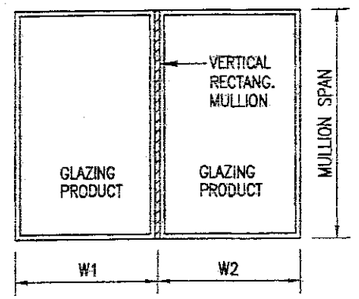
MULLION DESIGN LOAD – PSF					
DIMENSIONS		MULLION	MULLION	MULLION	MULLION
WIDTH (W)	SPAN	1" X 4" X 1/4"	2" X 4" X 1/8"	2" X 6" X 1/8"	2" X 6" X 1/4"
27"	84"	140.0	115.4	140.0	140.0
37"		112.8	84.20	140.0	140.0
48"		87.00	64.90	140.0	140.0
60"		69.55	51.90	112.5	140.0
66"		63.25	47.20	102.3	140.0
74"		56.40	42.10	91.25	140.0
80"		52.15	38.90	84.40	140.0
27"	90"	125.7	77.30	140.0	140.0
37"		91.70	56.40	140.0	140.0
48"		70.70	43.45	122.6	140.0
60"		56.55	34.75	98.00	140.0
66"		51.40	31.60	89.15	140.0
74"		45.85	28.20	79.50	140.0
80"		42.40	–	73.55	135.1
27"	96"	103.6	64.45	140.0	140.0
37"		75.55	47.00	139.7	140.0
48"		58.25	36.25	107.7	140.0
60"		46.60	29.00	86.20	140.0
66"		42.35	–	78.35	140.0
74"		37.75	–	69.90	128.4
80"		35.00	–	64.65	118.7
27"	102"	86.35	54.30	140.0	140.0
37"		63.00	39.60	123.8	140.0
48"		48.55	30.50	95.45	140.0
60"		38.85	–	76.35	140.0
66"		35.30	–	69.40	127.5
74"		31.50	–	61.90	113.7
80"		29.10	–	57.25	105.2
27"	108"	72.70	46.10	140.0	140.0
37"		53.00	36.65	110.4	140.0
48"		40.90	–	85.10	140.0
60"		32.70	–	68.10	125.1
66"		29.75	–	61.90	113.7
74"		–	–	55.20	101.4
80"		–	–	51.00	93.80

MULLION DESIGN LOAD – PSF			
DIMENSIONS		MULLION	MULLION
WIDTH (W)	SPAN	2" X 6" X 1/8"	2" X 6" X 1/4"
27"	120"	122.6	140.0
37"		89.45	140.0
48"		68.90	126.6
60"		55.15	101.3
66"		50.15	92.10
74"		44.70	82.15
80"		41.35	76.00
27"	126"	111.2	140.0
37"		81.15	140.0
48"		62.55	114.9
60"		50.00	91.90
66"		45.45	83.50
74"		40.55	74.50
80"		37.50	68.90
27"	132"	101.3	140.0
37"		73.90	135.8
48"		57.00	104.7
60"		45.60	83.75
66"		41.50	76.15
74"		36.90	67.90
80"		34.20	62.80
27"	138"	92.70	140.0
37"		67.65	124.2
48"		52.15	95.80
60"		41.70	76.60
66"		37.90	69.65
74"		33.80	62.10
80"		31.25	57.45
27"	144"	85.10	140.0
37"		62.10	114.1
48"		47.85	87.90
60"		38.30	70.35
66"		34.80	63.50
74"		31.00	57.00
80"		28.70	52.70



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

HORIZONTAL MULLION



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

VERTICAL MULLION

NOTES:

1.– INTERPOLATE FOR INTERMEDIATE VALUES OF SPAN AND/OR TRIBUTARY WIDTH TO DETERMINE THE DESIGN LOAD (MULLION CAPACITY).

2.– MULLIONS ON THIS CHART MAY BE ORIENTED VERTICALLY AND/OR HORIZONTALLY.

3.– SEE MULLION CROSS SECTIONS ON SHEET 2 OF 21.

PRODUCT REVISED
as complying with the Florida Building Code
NOA–No. 17–1226.22
Expiration Date 03/28/2023
By Manuel Perez
Miami–Dade Product Control

FRANCISCO HERNANDEZ ★ 51393 ★ STATE OF FLORIDA PROFESSIONAL ENGINEER
12-12-17
FRANCISCO HERNANDEZ
FLORIDA PE # 51393

Sunshine Windows Manufacturing, Inc.
1745 W. 33rd Place
Hialeah, Florida 33012
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ALUMINUM TUBE MULLION L.M.I.

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DRAWING No. M2011
DATE: 02–11–13
SCALE: NTS

ANCHOR DESIGN LOADS (ANCHOR CAPACITY) FOR RECTANGULAR MULLIONS TABLE # 2

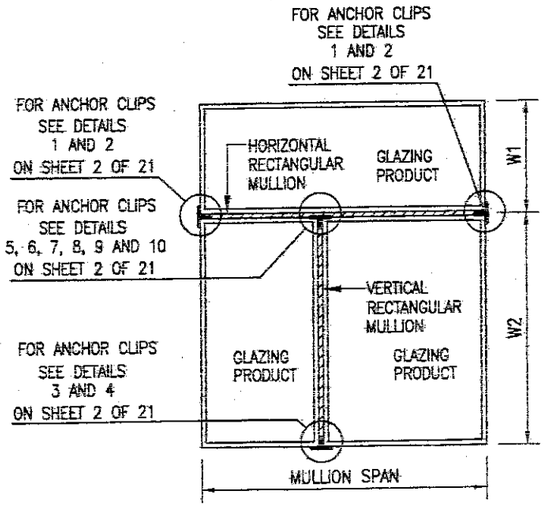
ANCHOR DESIGN LOAD – PSF													
DIMENSIONS		ANCHOR TYPE A			ANCHOR TYPE B			ANCHOR TYPE C			ANCHOR TYPE D		
WIDTH (W)	SPAN	CONFIGURATIONS			CONFIGURATIONS			CONFIGURATIONS			CONFIGURATIONS		
		A1	A2	A3	B1	B2	B3	C1	C2	C3	D2	D3	D4
27"	39"	72.26	140.0	140.0	140.0	140.0	140.0	140.0	140.0	140.0	140.0	140.0	140.0
37"		52.73	105.46	140.0	140.0	140.0	140.0	122.15	140.0	140.0	122.15	140.0	140.0
48"		40.65	81.29	121.94	118.1	140.0	140.0	94.15	140.0	140.0	94.15	140.0	140.0
60"		32.52	65.03	97.55	94.50	140.0	140.0	75.32	140.0	140.0	75.32	112.98	140.0
66"		29.56	59.12	88.68	85.90	140.0	140.0	68.48	136.95	140.0	68.48	102.71	136.95
74"		26.37	52.73	79.10	76.60	140.0	140.0	61.07	122.15	140.0	61.07	91.61	122.15
80"		24.39	48.78	73.16	70.85	140.0	140.0	56.49	112.98	140.0	56.49	84.74	112.98
27"	51"	55.26	110.52	140.0	140.0	140.0	140.0	128.00	140.0	140.0	128.00	140.0	140.0
37"		40.32	80.65	120.97	117.2	140.0	140.0	93.41	140.0	140.0	93.41	140.0	140.0
48"		31.08	62.16	93.25	90.35	140.0	140.0	72.00	140.0	140.0	72.00	108.00	140.0
60"		24.87	49.73	74.60	72.25	140.0	140.0	57.60	115.20	140.0	57.60	86.40	115.20
66"		22.61	45.21	67.82	65.70	131.4	140.0	52.36	104.73	140.0	52.36	78.55	104.73
74"		20.16	40.32	60.48	58.60	117.2	140.0	46.70	93.41	140.0	46.70	70.05	93.41
80"		18.65	37.30	55.95	54.20	108.4	140.0	43.20	86.40	129.60	43.20	64.80	86.40
27"	58"	48.59	97.18	140.0	140.0	140.0	140.0	112.55	140.0	140.0	112.55	140.0	140.0
37"		35.46	70.91	106.37	103.0	140.0	140.0	82.13	140.0	140.0	82.13	123.20	140.0
48"		27.33	54.66	81.99	79.45	140.0	140.0	63.31	126.62	140.0	63.31	94.97	126.62
60"		21.86	43.73	65.59	63.55	127.1	140.0	50.65	101.30	140.0	50.65	75.97	101.30
66"		19.88	39.75	59.63	57.75	115.5	140.0	46.04	92.09	138.13	46.04	69.07	92.09
74"		17.73	35.46	53.18	51.50	103.0	139.1	41.07	82.13	123.20	41.07	61.60	82.13
80"		16.40	32.80	49.20	47.65	95.30	128.7	37.99	75.97	113.96	37.99	56.98	75.97
27"	63"	44.73	89.46	134.20	130.0	140.0	140.0	103.62	140.0	140.0	103.62	140.0	140.0
37"		32.64	65.26	97.93	94.85	140.0	140.0	75.61	140.0	140.0	75.61	113.42	140.0
48"		25.16	50.32	75.49	73.10	140.0	140.0	58.29	116.57	140.0	58.29	87.43	116.57
60"		20.13	40.26	60.39	58.50	117.0	140.0	46.63	93.26	139.89	46.63	69.94	93.26
66"		18.30	36.60	54.90	53.10	106.3	140.0	42.39	84.78	127.17	42.39	63.58	84.78
74"		16.32	32.64	48.96	47.40	94.85	126.1	37.81	75.61	113.42	37.81	56.71	75.61
80"		15.10	30.19	45.29	43.85	87.75	118.4	34.97	69.94	104.91	34.97	52.46	69.94
27"	75"	37.58	75.15	112.73	109.2	140.0	140.0	87.04	140.0	140.0	87.04	130.56	140.0
37"		27.42	54.84	82.26	79.70	140.0	140.0	63.52	127.03	140.0	63.52	95.27	127.03
48"		21.14	42.27	63.41	61.40	122.8	140.0	48.96	97.92	140.0	48.96	73.44	97.92
60"		16.91	33.82	50.73	49.10	98.30	132.7	39.17	78.34	117.50	39.17	58.75	78.34
66"		15.37	30.74	46.11	44.65	89.35	120.6	35.61	71.21	106.82	35.61	53.41	71.21
74"		13.71	27.42	41.13	39.85	79.70	107.6	31.76	63.52	95.27	31.76	47.64	63.52
80"		12.68	25.36	38.04	36.85	73.70	99.50	29.38	58.75	88.13	29.38	44.06	58.75

ANCHOR DETAILS CROSS REFERENCE TABLE (RECTANGULAR MULLIONS)

CONFIGURATIONS	LOCATED ON
A1	SHEETS 7 AND 8 OF 21
A2	SHEET 9 OF 21
A3	SHEETS 10 AND 11 OF 21
B1	SHEET 12 OF 21
B2	SHEET 13 OF 21
B3	SHEET 13 AND 14 OF 21
C1	SHEET 15 OF 21
C2	SHEET 16 OF 21
C3	SHEET 17 OF 21
D2	SHEET 18 OF 21
D3	SHEET 18 OF 21
D4	SHEET 18 OF 21

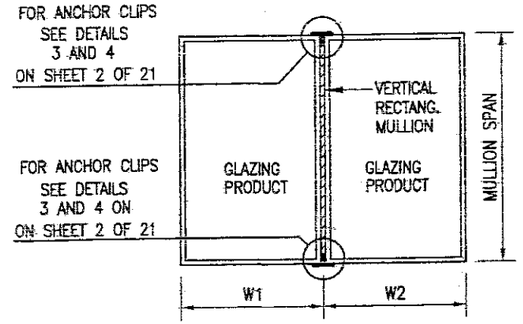
DESCRIPTION OF ANCHORS PER TYPE

ANCHOR TYPE	DESCIPTION OF ATTACHMENT
A	TROUGH 1" BY WOOD BUCK INTO CONCRETE, MASONRY OR WOOD SUBSTRATE.
B	INTO CONCRETE SUBSTRATE
C	INTO METAL SUBSTRATE
D	INTO METAL SUBSTRATE (MULLION TO MULLION)



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

HORIZONTAL MULLION



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

VERTICAL MULLION

NOTES:

1.– INTERPOLATE FOR INTERMEDIATE VALUES OF SPAN AND/OR TRIBUTARY WIDTH TO DETERMINE THE DESIGN LOAD (ANCHOR CAPACITY).

2.– MULLIONS ON THIS CHART MAY BE ORIENTED VERTICALLY AND/OR HORIZONTALLY.

3.– SEE MULLION CROSS SECTIONS ON SHEET 2 OF 21.

4.– SEE ANCHOR CLIPS CROSS SECTIONS AND LOCATIONS DETAILS ON SHEET 2 OF 21.

PRODUCT REVISED
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NOA-No. 17-1226.22
Expiration Date 03/28/2023
By Miami-Dade Product Control

FRANCISCO HERNANDEZ LICENSE No. 51393 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-12-17

FRANCISCO HERNANDEZ
FLORIDA PE # 51393

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ANCHOR DESIGN LOADS (ANCHOR CAPACITY) FOR RECTANGULAR MULLIONS TABLE # 3

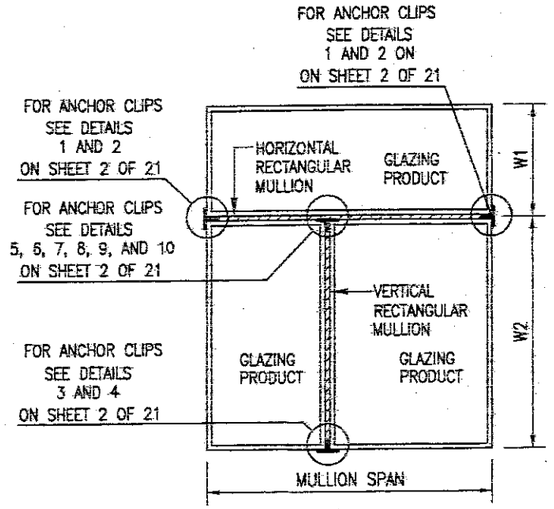
ANCHOR DESIGN LOAD – PSF													
DIMENSIONS		ANCHOR TYPE A		ANCHOR TYPE B		ANCHOR TYPE C		DIMENSIONS		ANCHOR TYPE A		ANCHOR TYPE B		ANCHOR TYPE C	
WIDTH (W)	SPAN	CONFIGURATIONS		CONFIGURATIONS		CONFIGURATIONS		WIDTH (W)	SPAN	CONFIGURATIONS		CONFIGURATIONS		CONFIGURATIONS	
		A2	A3	B2	B3	C2	C3			A2	A3	B2	B3	C2	C3
27"	84"	67.10	100.65	140.0	140.0	140.0	140.0	27"	120"	46.97	70.45	136.5	140.0	108.80	140.0
37"		48.96	73.45	140.0	140.0	113.42	140.0	37"		34.27	51.41	99.60	134.5	79.39	119.09
48"		37.74	56.61	109.7	140.0	87.43	131.14	48"		26.42	39.63	76.80	103.6	61.20	91.80
60"		30.19	45.29	87.75	118.4	69.94	104.91	60"		21.14	31.70	61.40	82.90	48.96	73.44
66"		27.45	41.17	79.75	107.7	63.58	95.38	66"		19.21	28.82	55.85	75.40	44.51	66.76
74"		24.48	36.72	71.15	96.05	56.71	85.07	74"		17.14	25.71	49.80	67.25	39.70	59.55
74"		22.65	33.97	65.80	88.85	52.46	78.69	74"		15.85	23.78	46.00	62.20	36.72	55.08
27"	90"	62.63	93.94	140.0	140.0	140.0	140.0	27"	126"	44.73	67.10	130.0	140.0	103.62	140.0
37"		45.70	68.55	132.8	140.0	105.86	140.0	37"		32.64	48.96	94.85	128.1	75.61	113.42
48"		35.23	52.84	102.4	138.2	81.60	122.40	48"		25.16	37.74	73.10	98.70	58.29	87.43
60"		28.18	42.27	81.90	110.5	65.28	97.92	60"		20.13	30.19	58.50	79.00	46.63	69.94
66"		25.62	38.43	74.45	100.5	59.35	89.02	66"		18.30	27.45	53.15	71.80	42.39	63.58
74"		22.85	34.27	66.40	89.65	52.93	79.39	74"		16.32	24.48	47.40	64.00	37.81	56.71
74"		21.14	31.70	61.44	82.90	48.96	73.44	74"		15.10	22.65	43.85	59.20	34.97	52.46
27"	96"	58.71	86.07	140.0	140.0	136.00	140.0	27"	132"	42.70	64.05	124.1	140.0	98.91	140.0
37"		42.84	64.26	124.5	140.0	99.24	140.0	37"		31.16	46.74	90.55	122.2	72.18	108.27
48"		33.03	49.54	96.00	129.6	76.50	114.75	48"		24.02	36.03	69.85	94.25	55.64	83.45
60"		26.42	39.63	76.80	103.6	61.20	91.80	60"		19.21	28.82	55.85	75.40	44.51	66.76
66"		24.02	36.03	69.80	94.25	55.64	83.45	66"		17.47	26.20	50.75	68.55	40.46	60.69
74"		21.42	32.13	62.25	84.05	49.62	74.43	74"		15.58	23.37	45.25	61.10	36.09	54.13
74"		19.82	29.72	57.60	77.75	45.90	68.85	74"		14.41	21.62	41.85	56.55	33.38	50.07
27"	102"	55.26	82.89	140.0	140.0	128.00	140.0	27"	138"	40.84	61.26	118.7	140.0	94.61	140.0
37"		40.32	60.48	117.2	140.0	93.41	140.0	37"		29.80	44.71	86.60	116.9	69.04	103.56
48"		31.08	46.62	90.35	121.9	72.00	108.00	48"		22.97	34.46	66.75	90.10	53.22	79.83
60"		24.87	37.30	72.25	97.55	57.60	86.40	60"		18.38	27.57	53.40	72.10	42.57	63.86
66"		22.61	33.91	65.70	88.70	52.36	78.55	66"		16.71	25.06	48.55	66.55	38.70	58.06
74"		20.16	30.24	58.60	79.10	46.70	70.05	74"		14.90	22.35	43.30	58.45	34.52	51.78
74"		18.65	27.97	54.20	73.15	43.20	64.80	74"		13.78	20.68	40.00	54.00	31.93	47.90
27"	108"	52.19	78.28	140.0	140.0	120.89	140.0	27"	144"	39.14	58.71	113.7	140.0	90.67	136.00
37"		38.08	57.12	110.7	140.0	88.22	132.32	37"		28.56	42.84	83.00	112.0	66.16	99.24
48"		29.36	44.03	85.30	115.2	68.00	102.00	48"		22.02	33.03	64.00	86.40	51.00	76.50
60"		23.48	35.23	68.25	92.15	54.40	81.60	60"		17.61	26.42	51.20	69.10	40.80	61.20
66"		21.35	32.02	62.05	83.75	49.45	74.18	66"		16.01	24.02	46.55	62.80	37.09	55.64
74"		19.04	28.56	55.35	74.70	44.11	66.16	74"		14.28	21.42	41.50	56.00	33.08	49.62
74"		17.61	26.42	51.20	69.10	40.80	61.20	74"		13.21	19.82	38.40	51.80	30.60	45.90

ANCHOR DETAILS CROSS REFERENCE TABLE (RECTANGULAR MULLIONS)

CONFIGURATIONS	LOCATED ON
A1	SHEETS 7 AND 8 OF 21
A2	SHEET 9 OF 21
A3	SHEETS 10 AND 11 OF 21
B1	SHEET 12 OF 21
B2	SHEET 13 OF 21
B3	SHEET 13 AND 14 OF 21
C1	SHEET 15 OF 21
C2	SHEET 16 OF 21
C3	SHEET 17 OF 21
D2	SHEET 18 OF 21
D3	SHEET 18 OF 21
D4	SHEET 18 OF 21

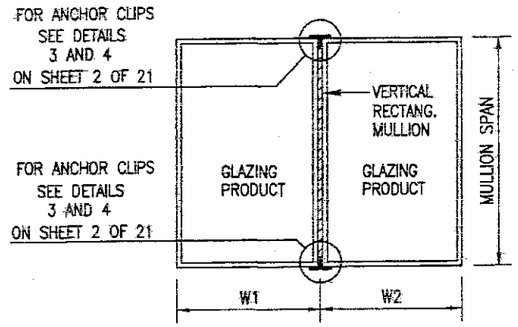
DESCRIPTION OF ANCHORS PER TYPE

ANCHOR TYPE	DESCIPTION OF ATTACHMENT
A	TROUGH 1" BY WOOD BUCK INTO CONCRETE, MASONRY OR WOOD SUBSTRATE.
B	INTO CONCRETE SUBSTRATE
C	INTO METAL SUBSTRATE
D	INTO METAL SUBSTRATE (MULLION TO MULLION)



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

HORIZONTAL MULLION



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

VERTICAL MULLION

NOTES:

1.– INTERPOLATE FOR INTERMEDIATE VALUES OF SPAN AND/OR TRIBUTARY WIDTH TO DETERMINE THE DESIGN LOAD (ANCHOR CAPACITY).

2.– MULLIONS ON THIS CHART MAY BE ORIENTED VERTICALLY AND/OR HORIZONTALLY.

3.– SEE MULLION CROSS SECTIONS ON SHEET 2 OF 21.

4.– SEE ANCHOR CLIPS CROSS SECTIONS AND LOCATIONS DETAILS ON SHEET 2 OF 21.

PRODUCT REVISED
as complying with the Florida Buiding Code
NOA-No. 17-1226.22
Expiration Date 03/28/2023
By Miami-Dade Product Control

FRANCISCO HERNANDEZ LICENSE No. 51393 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-12-17

FRANCISCO HERNANDEZ
FLORIDA PE # 51393

Sunshine Windows Manufacturing, Inc.
1745 W. 33rd Place
Hialeah, Florida 33012
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ALUMINUM TUBE MULLION L.M.I.

No	DATE	REVISION
1	05-09-15	REVISION IN COMPLIANCE WITH FBC 5TH EDITION (2014)
2	12-12-17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

DRAWING No. M2011
DATE: 02-11-13
SCALE: NTS

MULLION AND ANCHOR DESIGN LOADS (MULLION AND ANCHOR CAPACITIES)
FOR ROUND MULLIONS
TABLE # 4

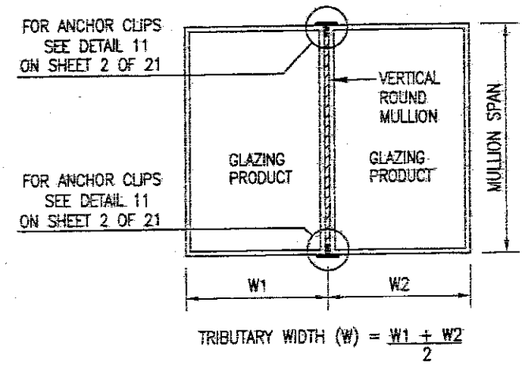
MULLION DESIGN LOAD – PSF				ANCHOR DESIGN LOAD – PSF					
DIMENSIONS		MULLION	MULLION	ANCHOR TYPE B			ANCHOR TYPE C		
				CONFIGURATIONS			CONFIGURATIONS		
WIDTH (W)	SPAN	3 1/2"Ø X 0.082"	4"Ø X 0.125"	BR2	BR3	BR4	CR2	CR3	CR4
27"	39"	140.0	140.0	140.0	140.0	140.0	140.00	140.00	140.00
37"		116.9	140.0	140.0	140.0	140.0	122.15	140.00	140.00
48"		90.10	140.0	118.1	140.0	113.2	94.15	140.00	140.00
60"		72.10	140.0	94.50	127.6	90.55	75.32	112.98	140.00
66"		65.55	129.0	85.90	116.0	82.35	68.48	102.71	136.95
74"		58.45	115.0	76.60	103.4	73.45	61.07	91.61	122.15
80"		54.00	106.4	70.85	95.70	67.90	56.49	84.74	112.98
27"	51"	93.70	140.0	140.0	140.0	140.0	128.00	140.00	140.00
37"		68.35	134.5	117.2	140.0	112.3	93.41	140.00	140.00
48"		52.70	103.7	90.35	121.9	86.55	72.00	108.00	140.00
60"		42.15	82.90	72.25	97.55	69.25	57.60	86.40	115.20
66"		38.30	75.40	65.70	88.70	62.95	52.36	78.55	104.73
74"		–	67.25	58.60	79.10	56.15	46.70	70.05	93.41
80"		–	62.20	54.20	73.15	51.95	43.20	64.80	86.40
27"	58"	72.40	140.0	140.0	140.0	135.3	112.55	140.00	140.00
37"		52.85	104.0	103.0	139.1	98.75	82.13	123.20	140.00
48"		40.75	80.15	79.45	107.2	76.10	63.31	94.97	126.62
60"		32.60	64.15	63.55	85.80	60.90	50.65	75.97	101.30
66"		–	58.30	57.75	78.00	55.35	46.04	69.07	92.09
74"		–	52.00	51.50	69.55	49.35	41.07	61.60	82.13
80"		–	48.10	47.65	64.35	45.65	37.99	56.98	75.97
27"	63"	61.25	120.8	130.0	140.0	124.6	103.62	140.00	140.00
37"		44.70	88.15	94.85	128.1	90.90	75.61	113.42	140.00
48"		34.45	67.90	73.10	98.70	70.10	58.29	87.43	116.57
60"		–	54.35	58.50	78.95	56.05	46.63	69.94	93.26
66"		–	49.40	53.15	71.80	50.95	42.39	63.58	84.78
74"		–	44.00	47.40	64.00	45.45	37.81	56.71	75.61
80"		–	40.75	43.85	59.25	42.05	34.97	52.46	69.94
27"	75"	36.31	81.65	109.2	140.0	104.6	87.04	130.56	140.00
37"		–	59.55	79.70	107.6	76.35	63.52	95.27	127.03
48"		–	45.90	61.40	82.90	58.85	48.96	73.44	97.92
60"		–	36.70	49.15	66.35	47.10	39.17	58.75	78.34
66"		–	33.40	44.65	60.30	42.80	35.61	53.41	71.21
74"		–	–	39.85	53.80	38.15	31.76	47.64	63.52
80"		–	–	36.85	49.75	35.30	29.38	44.06	58.75

ANCHOR DETAILS CROSS REFERENCE TABLE (ROUND MULLIONS)

CONFIGURATIONS	TOP VIEW LOCATED ON	SECTION LOCATED ON
BR2	SHEET 19 OF 21	SHEET 21 OF 21
BR3	SHEET 19 OF 21	SHEET 21 OF 21
BR4	SHEET 20 OF 21	SHEET 21 OF 21
CR2	SHEET 19 OF 21	SHEET 21 OF 21
CR3	SHEET 19 OF 21	SHEET 21 OF 21
CR4	SHEET 20 OF 21	SHEET 21 OF 21

DESCRIPTION OF ANCHORS PER TYPE (ROUND MULLIONS)

ANCHOR TYPE	DESCIPTION OF ATTACHMENT
B	INTO CONCRETE SUBSTRATE
C	INTO METAL SUBSTRATE



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

VERTICAL MULLION

NOTES:

1.– INTERPOLATE FOR INTERMEDIATE VALUES OF SPAN AND/OR TRIBUTARY WIDTH TO DETERMINE DESIGN LOAD (MULLION AND ANCHOR CAPACITIES).

2.– SEE DETAILS OF ROUND MULLIONS ON SHEETS 19, 20 AND 21 OF 21.

3.– ROUND MULLIONS SHALL BE ORIENTED VERTICALLY ONLY.

4.– SEE MULLION CROSS SECTIONS ON SHEET 2 OF 21.

5.– SEE ANCHOR SLEEVE DETAILS, SECTIONS AND LOCATIONS ON SHEET 2 OF 21.

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-1226.22
Expiration Date 03/28/2023
By
Miami-Dade Product Control

FRANCISCO HERNANDEZ LICENSE No. 51393 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-12-17

FRANCISCO HERNANDEZ
FLORIDA PE # 51393

Sunshine Windows Manufacturing, Inc.
1745 W. 33rd Place
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ALUMINUM TUBE MULLION L.M.I.

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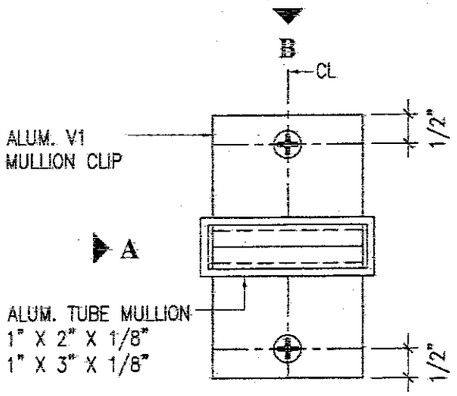
2	12-12-17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

DRAWING No. M2011
DATE: 02-11-13
SCALE: NTS

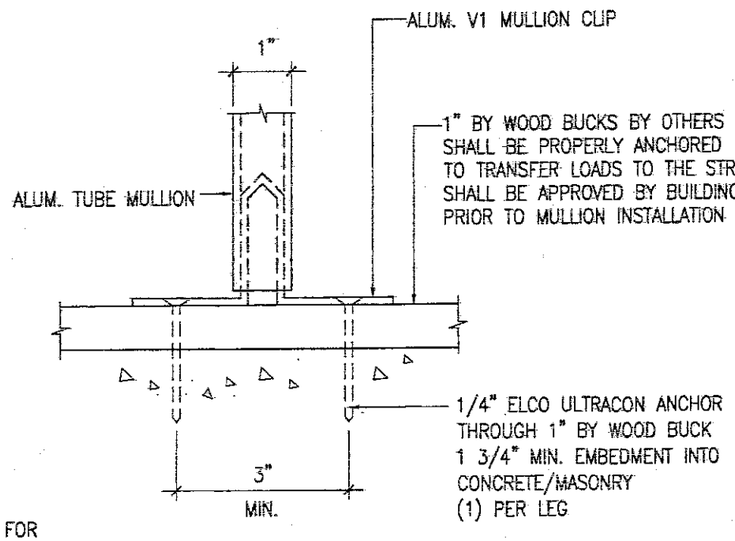
ANCHOR CONFIGURATION TYPE A1

FOR 1" X 2" OR 1" X 3" MULLIONS WITH V1 MULLION CLIP

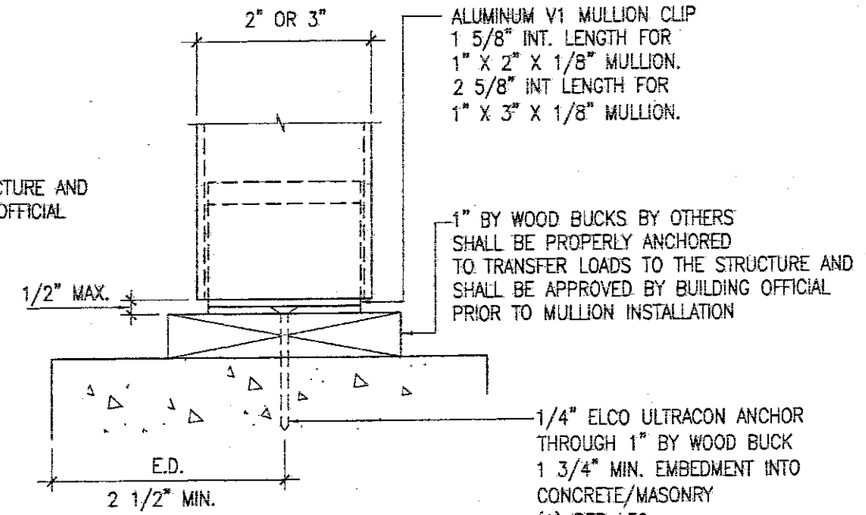
NUMBER OF ANCHORS PER LEG = (1) ULTRACON ANCHORS
SUBSTRATE: 1" BY WOOD BUCK FASTENED TO GROUT FILLED BLOCK



TOP VIEW



SIDE VIEW A



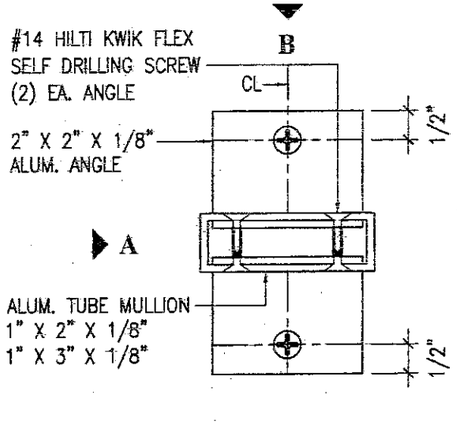
SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE A1 AS SHOWN IS VALID FOR MULLIONS 1" X 2" X 1/8" AND 1" X 3" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLE # 2 ON SHEET 4 OF 21.

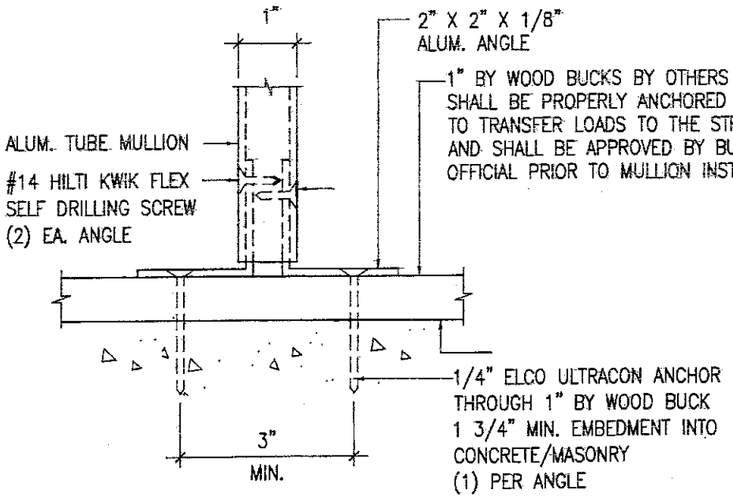
ANCHOR CONFIGURATION TYPE A1

FOR 1" X 2" OR 1" X 3" MULLIONS WITH 2" X 2" X 1/8" ANGLES

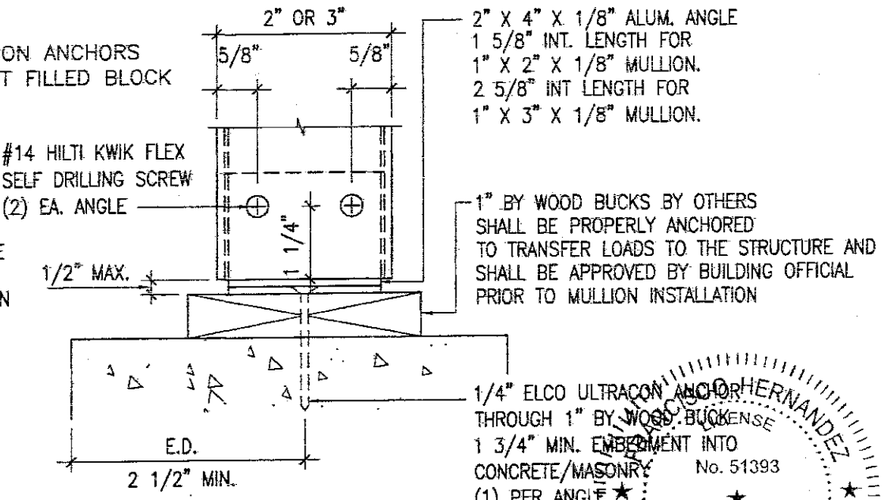
NUMBER OF ANCHORS PER ANGLE = (1) ULTRACON ANCHORS
SUBSTRATE: 1" BY WOOD BUCK FASTENED TO GROUT FILLED BLOCK



TOP VIEW



SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE A1 AS SHOWN IS VALID FOR MULLIONS 1" X 2" X 1/8" AND 1" X 3" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLE # 2 ON SHEET 4 OF 21.

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-1226.22
Expiration Date 03/28/2023
By Miami-Dade Product Control

FRANCISCO HERNANDEZ
LICENSE No. 51393
STATE OF FLORIDA
PROFESSIONAL ENGINEER
12-12-17

FRANCISCO HERNANDEZ
FLORIDA PE # 51393

Sunshine Windows Manufacturing, Inc.
1745 W. 33rd Place
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ALUMINUM TUBE MULLION L.M.I.

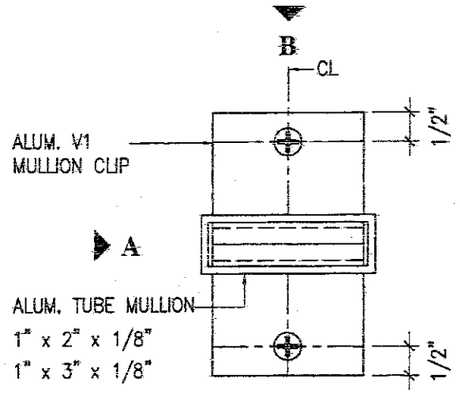
No	DATE	REVISION
1	05-09-15	REVISION IN COMPLIANCE WITH FBC 5TH EDITION (2014)
2	12-12-17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

DRAWING No. M2011
DATE: 02-11-13
SCALE: NTS

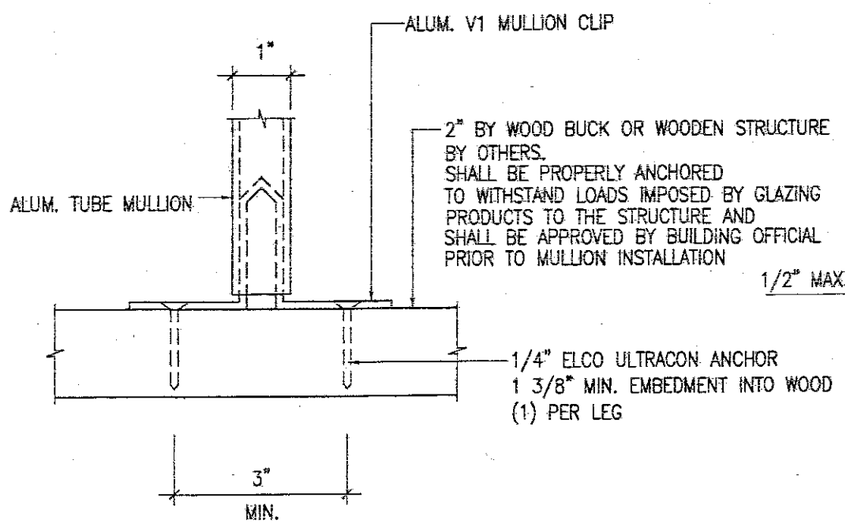
ANCHOR CONFIGURATION TYPE A1

FOR 1" X 2" OR 1" X 3" MULLIONS WITH V1 MULLION CLIP

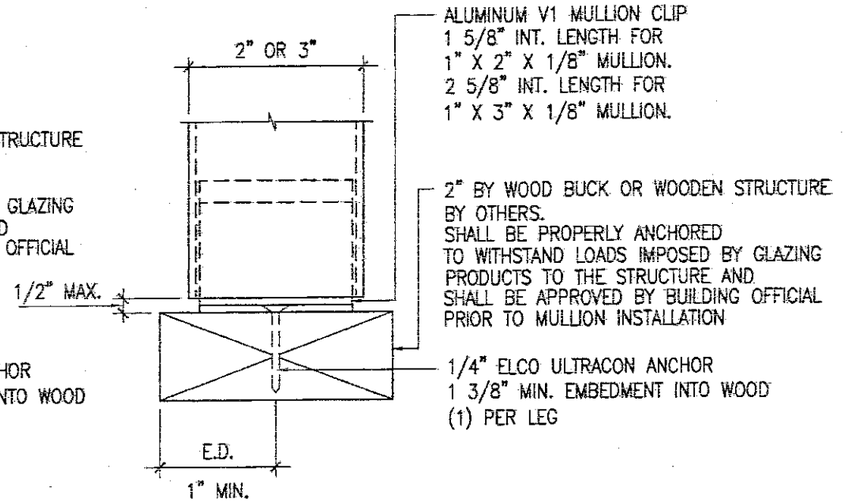
NUMBER OF ANCHORS PER LEG = (1) ULTRACON ANCHORS IN WOOD SUBSTRATE: 2" BY WOOD BUCK OR WOODEN STRUCTURE



TOP VIEW



SIDE VIEW A



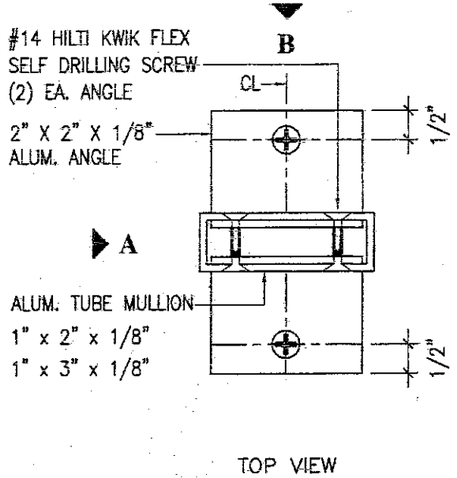
SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE A1 AS SHOWN IS VALID FOR MULLIONS 1" X 2" X 1/8" AND 1" X 3" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLE # 2 ON SHEET 4 OF 21.

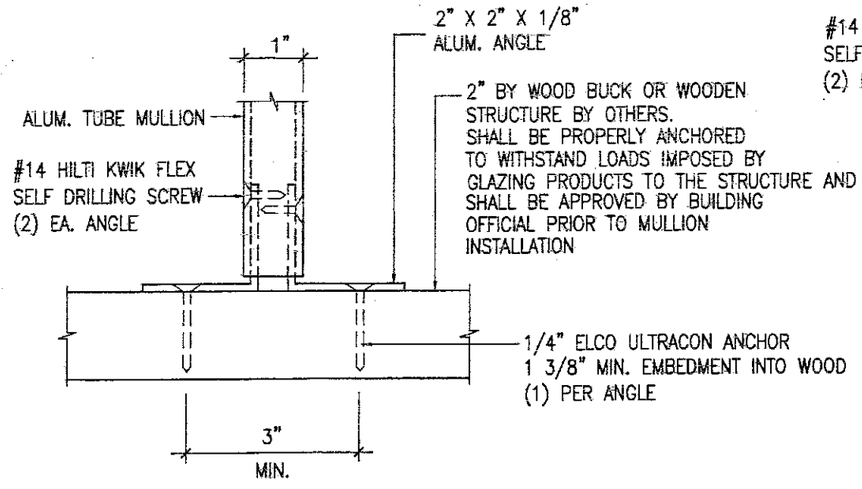
ANCHOR CONFIGURATION TYPE A1

FOR 1" X 2" OR 1" X 3" MULLIONS WITH 2" X 2" 1/8" ANGLES

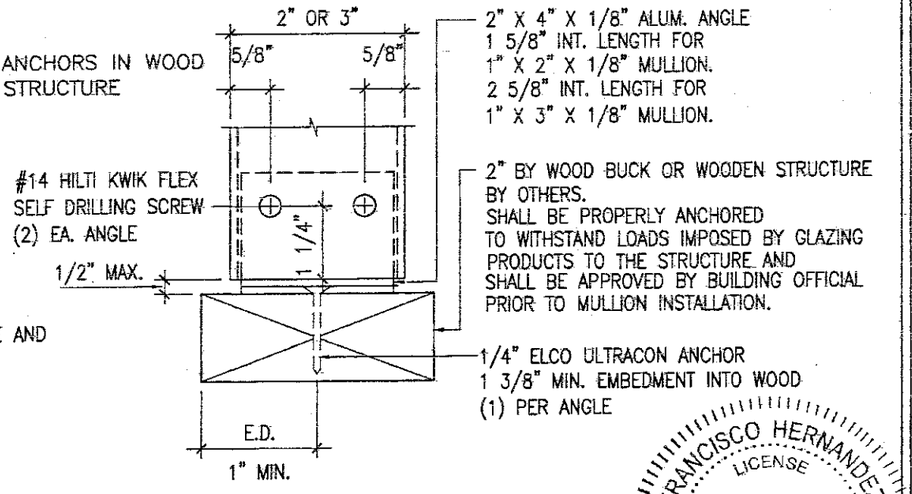
NUMBER OF ANCHORS PER ANGLE = (1) ULTRACON ANCHORS IN WOOD SUBSTRATE: 2" BY WOOD BUCK OR WOODEN STRUCTURE



TOP VIEW



SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE A1 AS SHOWN IS VALID FOR MULLIONS 1" X 2" X 1/8" AND 1" X 3" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLE # 2 ON SHEET 4 OF 21.

PRODUCT REVISED
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Expiration Date 03/28/2023
By Manuel Perez
Miami-Dade Product Control

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DRAWING No. M2011
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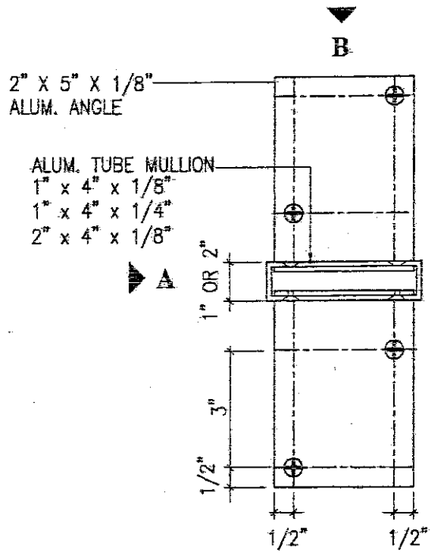
SCALE: NTS

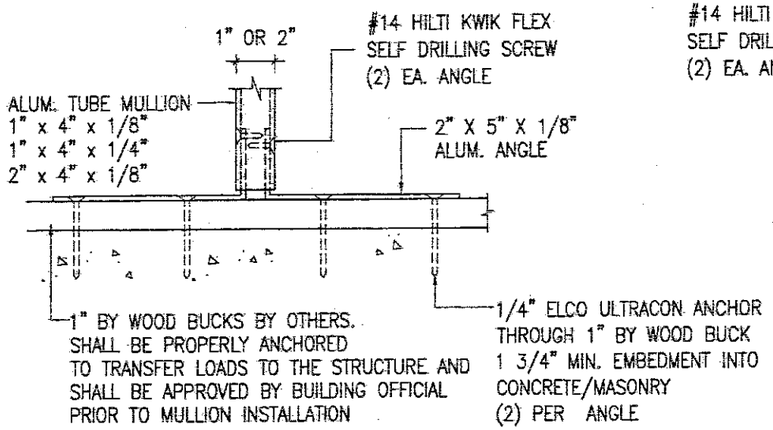
ANCHOR CONFIGURATION TYPE A2

FOR 1" X 4" OR 2" X 4" MULLIONS WITH 2" X 5" X 1/8" ALUM. ANGLES

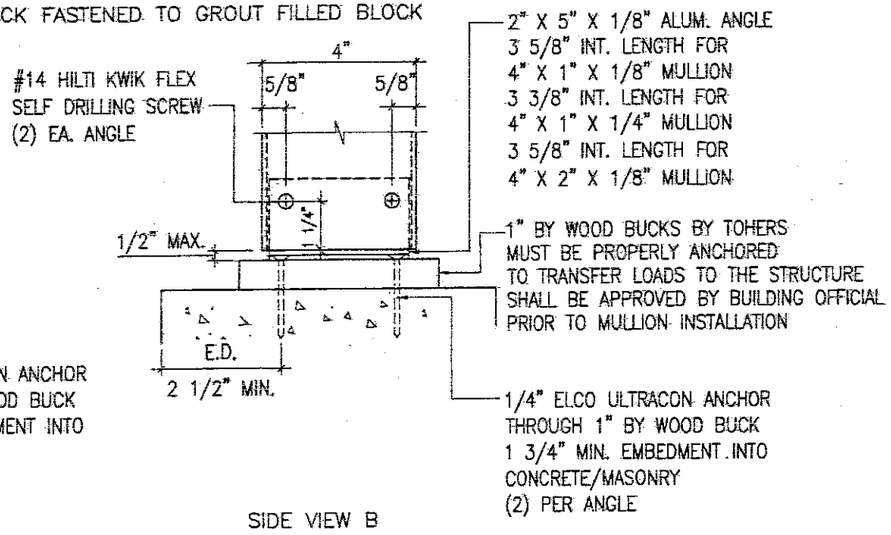
NUMBER OF ANCHORS PER ANGLE = (2) ULTRACON ANCHORS
SUBSTRATE: 1" BY WOOD BUCK FASTENED TO GROUT FILLED BLOCK



TOP VIEW



SIDE VIEW A



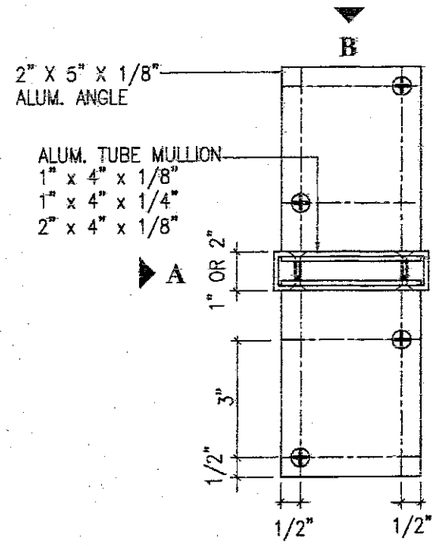
SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE A2 AS SHOWN IS VALID FOR MULLIONS 1" X 4" X 1/8", 1" X 4" X 1/4" AND 2" X 4" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

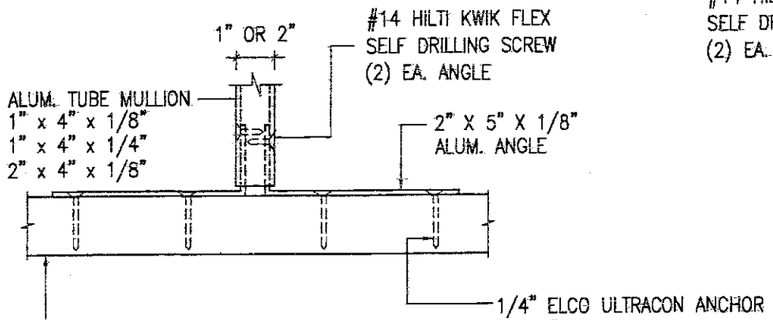
ANCHOR CONFIGURATION TYPE A2

FOR 1" X 4" OR 2" X 4" MULLIONS WITH 2" X 5" X 1/8" ALUM. ANGLES

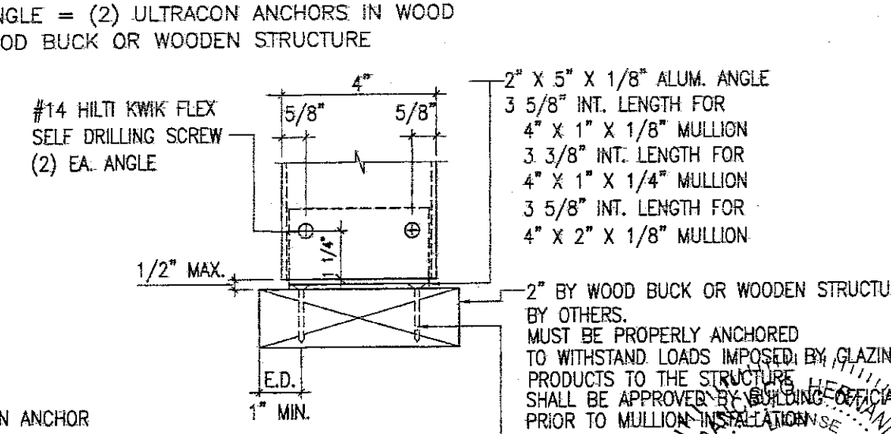
NUMBER OF ANCHORS PER ANGLE = (2) ULTRACON ANCHORS IN WOOD
SUBSTRATE: 2" BY WOOD BUCK OR WOODEN STRUCTURE



TOP VIEW



SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE A2 AS SHOWN IS VALID FOR MULLIONS 1" X 4" X 1/8", 1" X 4" X 1/4" AND 2" X 4" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

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ALUMINUM TUBE MULLION L.M.I.

No	DATE	REVISION
1	05-09-15	REVISION IN COMPLIANCE WITH FBC 5TH EDITION (2014)
2	12-12-17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

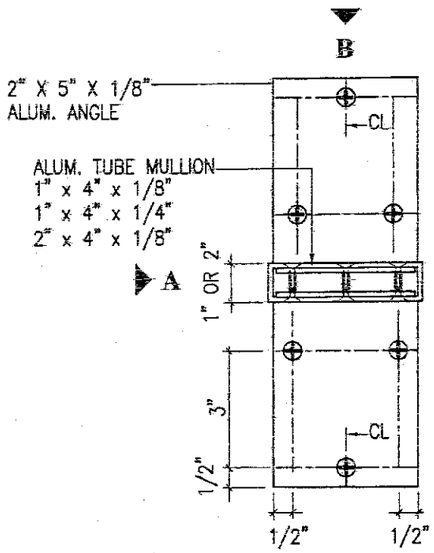
FRANCISCO HERNANDEZ
LICENSE
No. 51393
STATE OF FLORIDA
PROFESSIONAL ENGINEER
12-12-17
FRANCISCO HERNANDEZ
FLORIDA PE # 51393

DRAWING No. M2011
DATE: 02-11-13
SCALE: NTS

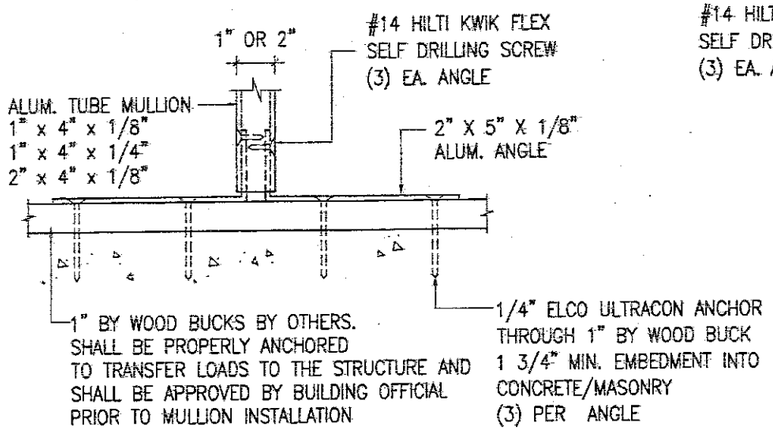
ANCHOR CONFIGURATION TYPE A3

FOR 1" X 4" OR 2" X 4" MULLIONS WITH 2" X 5" X 1/8" ALUM. ANGLES

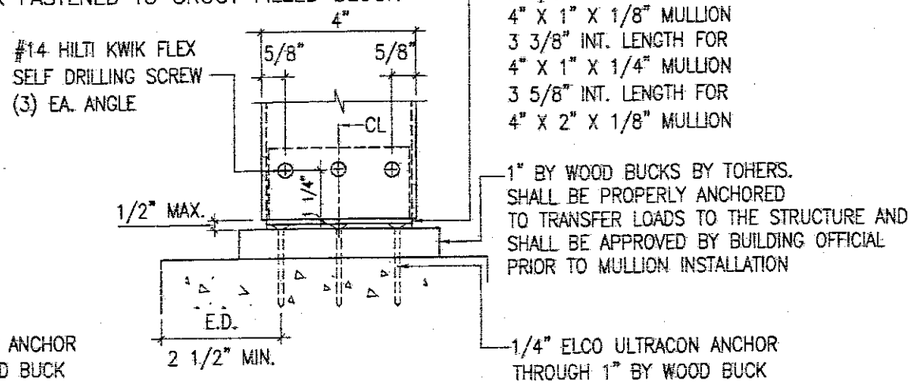
NUMBER OF ANCHORS PER ANGLE = (3) ULTRACON ANCHORS
SUBSTRATE: 1" BY WOOD BUCK FASTENED TO GROUT FILLED BLOCK



TOP VIEW



SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE A3 AS SHOWN IS VALID FOR MULLIONS 1" X 4" X 1/8", 1" X 4" X 1/4" AND 2" X 4" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

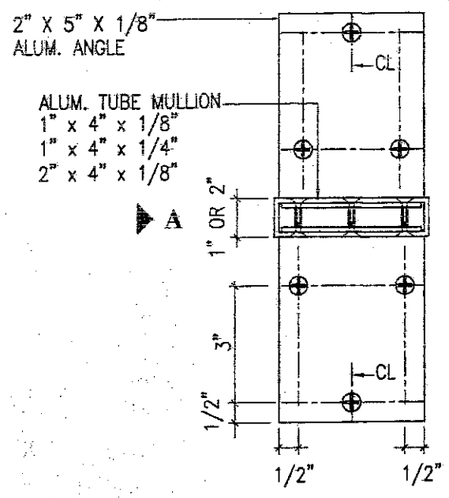
Sunshine Windows Manufacturing, Inc.
1745 W. 33rd Place
Hialeah, Florida 33012
Ph: (305)364-9952
Fax:(305)828-5118

ALUMINUM TUBE MULLION L.M.I.

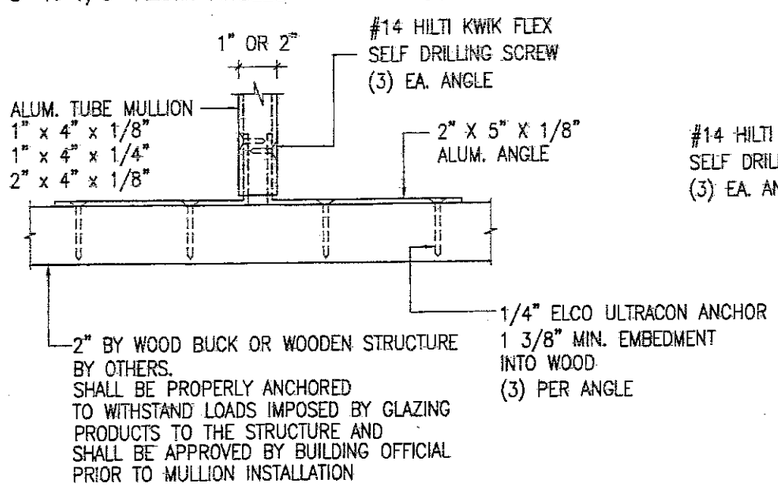
ANCHOR CONFIGURATION TYPE A3

FOR 1" X 4" OR 2" X 4" MULLIONS WITH 2" X 5" X 1/8" ALUM. ANGLES

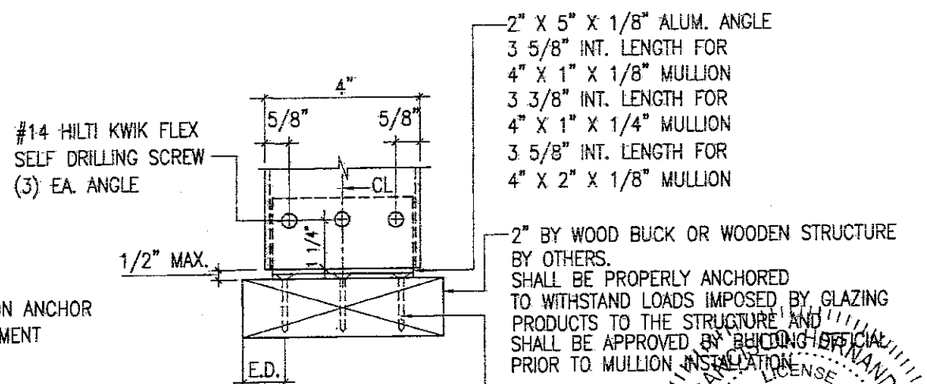
NUMBER OF ANCHORS PER ANGLE = (3) ULTRACON ANCHORS IN WOOD
SUBSTRATE: 2" BY WOOD BUCK OR WOODEN STRUCTURE



TOP VIEW



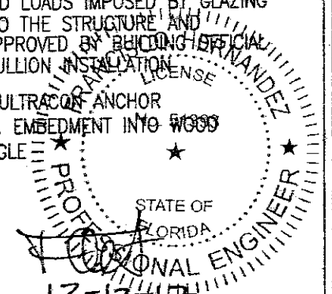
SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE A3 AS SHOWN IS VALID FOR MULLIONS 1" X 4" X 1/8", 1" X 4" X 1/4" AND 2" X 4" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-1226.22
Expiration Date 03/28/2023
By Miami-Dade Product Control



FRANCISCO HERNANDEZ
FLORIDA PE # 51393

No	DATE	REVISION
1	05-09-15	REVISION IN COMPLIANCE WITH FBC 5TH EDITION (2014)
2	12-12-17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

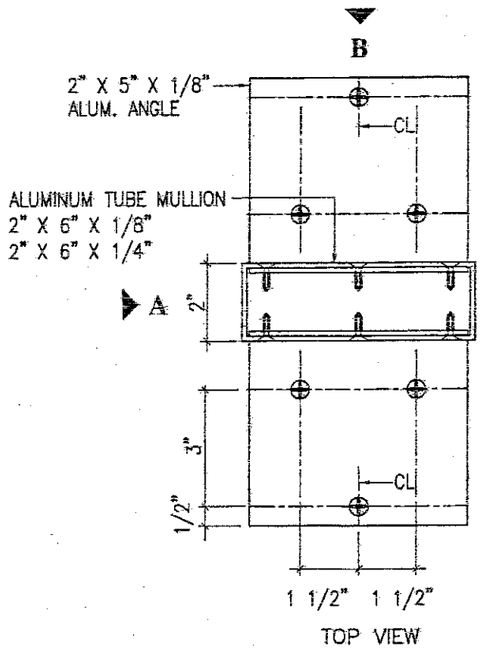
DRAWING No. M2011
DATE: 02-11-13
SCALE: NTS

SHEET 10 OF 21

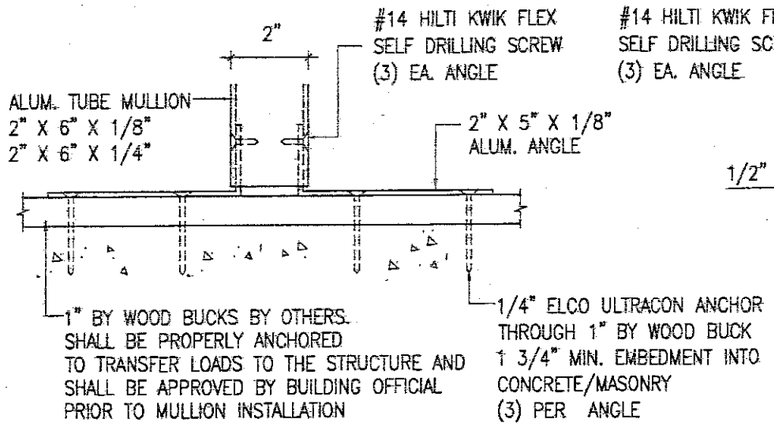
ANCHOR CONFIGURATION TYPE A3

FOR 2" X 6" MULLIONS WITH 2" X 5" X 1/8" ALUM. ANGLES

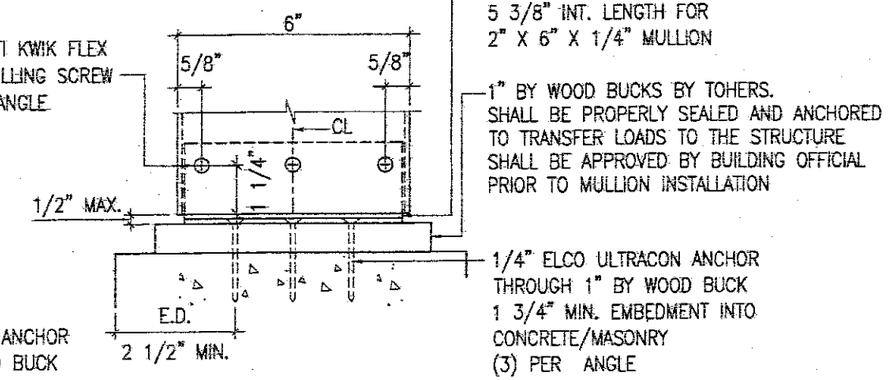
NUMBER OF ANCHORS PER ANGLE = (3) ULTRACON ANCHORS
SUBSTRATE: 1" BY WOOD BUCK FASTENED TO GROUT FILLED BLOCK



TOP VIEW



SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE A3 AS SHOWN IS VALID FOR MULLIONS 2" X 6" X 1/8" AND 2" X 6" X 1/4".
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

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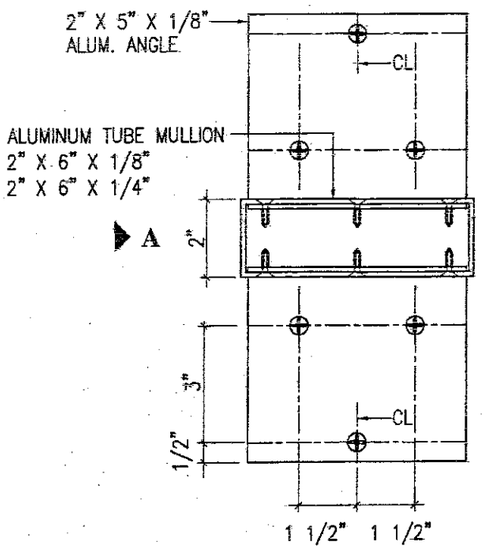
ALUMINUM TUBE MULLION L.M.I.

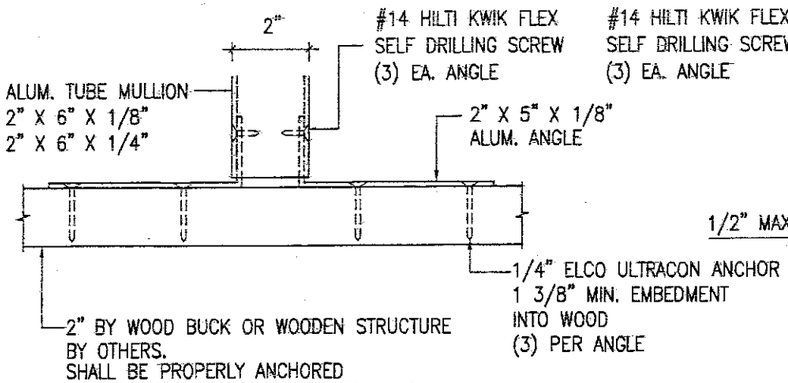
ANCHOR CONFIGURATION TYPE A3

FOR 2" X 6" MULLIONS WITH 2" X 5" X 1/8" ALUM. ANGLES

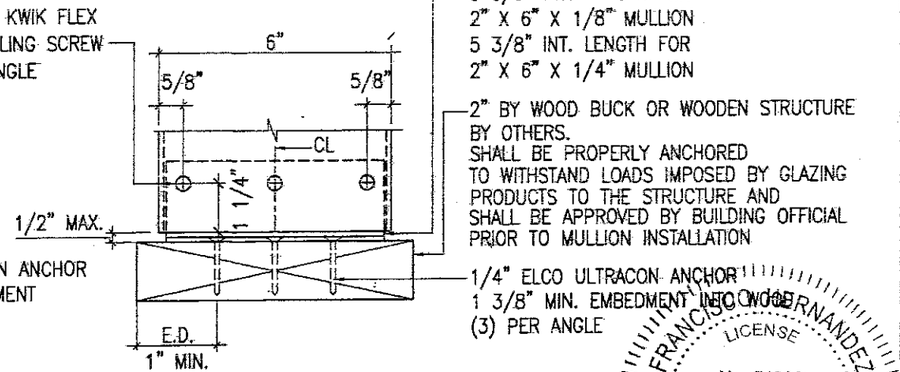
NUMBER OF ANCHORS PER ANGLE = (3) ULTRACON ANCHORS IN WOOD
SUBSTRATE: 2" BY WOOD BUCK OR WOODEN STRUCTURE



TOP VIEW



SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE A3 AS SHOWN IS VALID FOR MULLIONS 2" X 6" X 1/8" AND 2" X 6" X 1/4".
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

PRODUCT REVISED
as complying with the Florida Building Code
NOA No. 17-1226.22
Expiration Date 03/28/2023
By Manuel Perez
Miami-Dade Product Control

FRANCISCO HERNANDEZ LICENSE No. 51393 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-12-17

FRANCISCO HERNANDEZ
FLORIDA PE # 51393

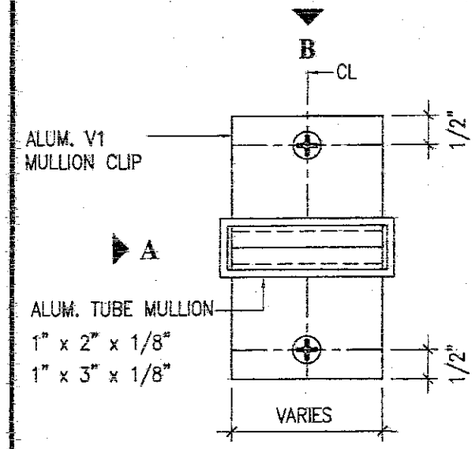
No	DATE	REVISION
1	05-09-15	REVISION IN COMPLIANCE WITH FBC 5TH EDITION (2014)
2	12-12-17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

DRAWING No.
M2011
DATE: 02-11-13
SCALE: NTS

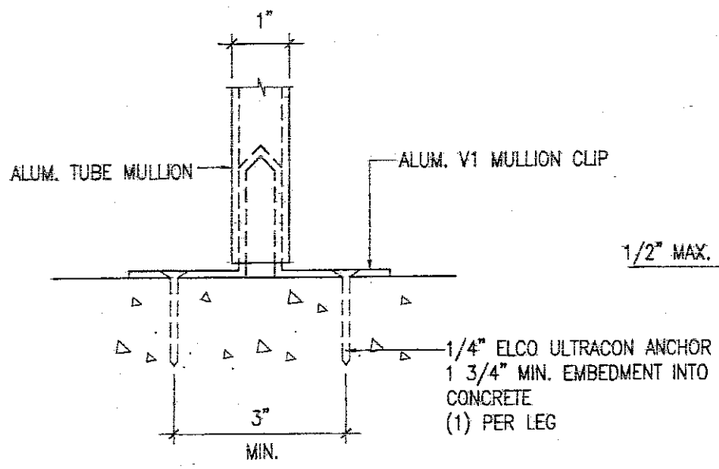
ANCHOR CONFIGURATION TYPE B1

FOR 1" X 2" OR 1" X 3" MULLIONS WITH V1 MULLION CLIP

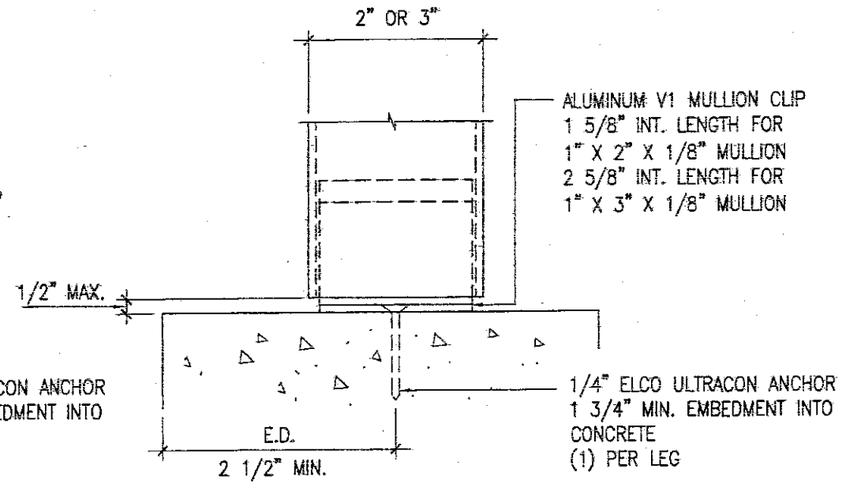
NUMBER OF ANCHORS PER LEG = (1) ULTRACON ANCHORS IN CONCRETE
SUBSTRATE: 3.000 PSI CONCRETE



TOP VIEW



SIDE VIEW A



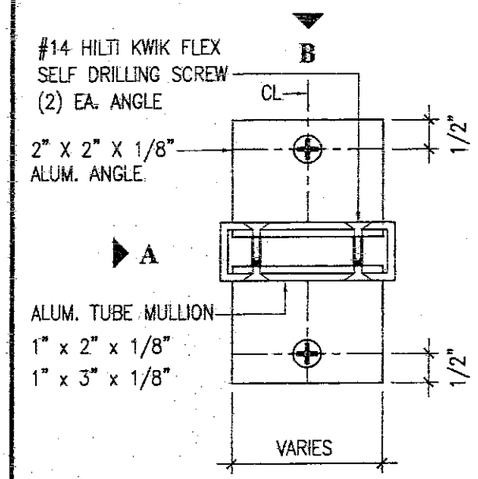
SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE B1 AS SHOWN ON THIS SHEET IS VALID FOR MULLIONS 1" X 2" X 1/8" AND 1" X 3" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLE # 2 ON SHEET 4 OF 21.

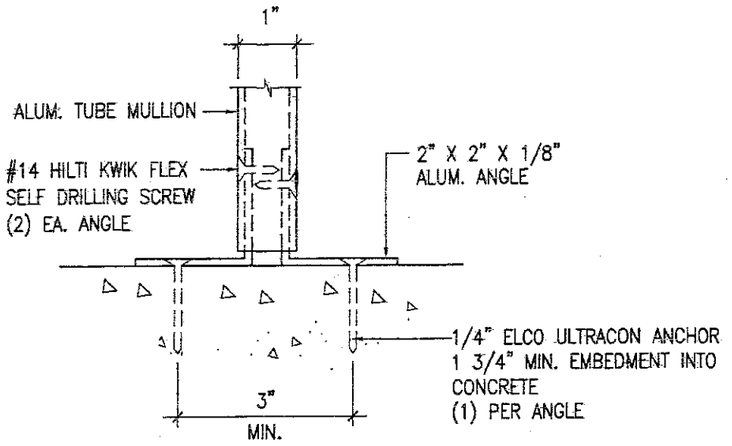
ANCHOR CONFIGURATION TYPE B1

FOR 1" X 2" OR 1" X 3" MULLIONS WITH 2" X 2" x 1/8" ANGLE

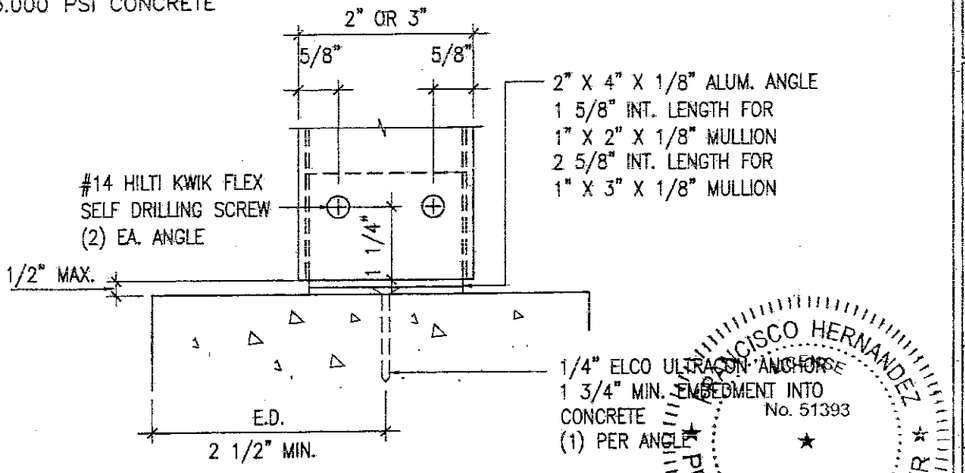
NUMBER OF ANCHORS PER ANGLE = (1) ULTRACON ANCHORS IN CONCRETE
SUBSTRATE: 3.000 PSI CONCRETE



TOP VIEW



SIDE VIEW A



SIDE VIEW B

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-1226.22
Expiration Date 03/28/2023
By Manuel Perez
Miami-Dade Product Control

FRANCISCO HERNANDEZ
STATE OF FLORIDA
PROFESSIONAL ENGINEER
No. 51393

12-12-17
FRANCISCO HERNANDEZ
FLORIDA PE # 51393

NOTE: ANCHOR CONFIGURATION TYPE B1 AS SHOWN ON THIS SHEET IS VALID FOR MULLIONS 1" X 2" X 1/8" AND 1" X 3" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLE # 2 ON SHEET 4 OF 21.

Sunshine Windows Manufacturing, Inc.
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ALUMINUM TUBE MULLION L.M.I.

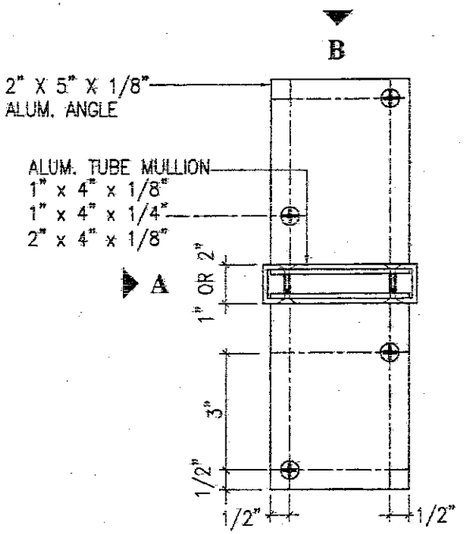
No	DATE	REVISION
1	05-09-15	REVISION IN COMPLIANCE WITH FBC 5TH EDITION (2014)
2	12-12-17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

DRAWING No. M2011
DATE: 02-11-13
SCALE: NTS

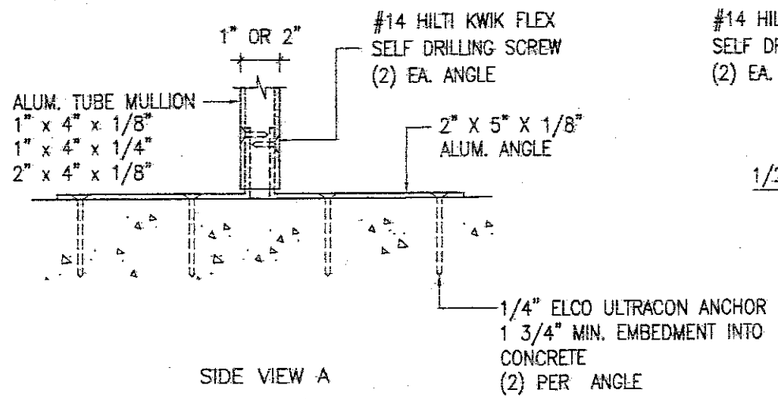
ANCHOR CONFIGURATION TYPE B2

FOR 1" X 4" OR 2" X 4" MULLIONS WITH 2" X 5" X 1/8" ALUM. ANGLES

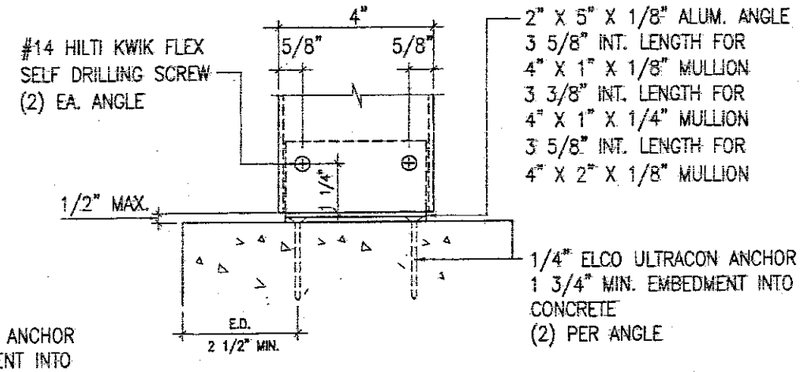
NUMBER OF ANCHORS PER ANGLE = (2) ULTRACON ANCHORS IN CONCRETE
SUBSTRATE: 3.000 PSI CONCRETE



TOP VIEW



SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE B2 AS SHOWN IS VALID FOR MULLIONS 1" X 4" X 1/8", 1" X 4" X 1/4" AND 2" X 4" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 5 AND 6 OF 22.

PRODUCT REVISED
as complying with the Florida Building Code
NOA No. 17-1226.22
Expiration Date 03/28/2023
By Manuel Perez
Miami-Dade Product Control

FRANCISCO HERNANDEZ LICENSE No. 51393 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-12-17
FRANCISCO HERNANDEZ
FLORIDA PE # 51393

Sunshine Windows Manufacturing, Inc.
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ALUMINUM TUBE MULLION L.M.I.

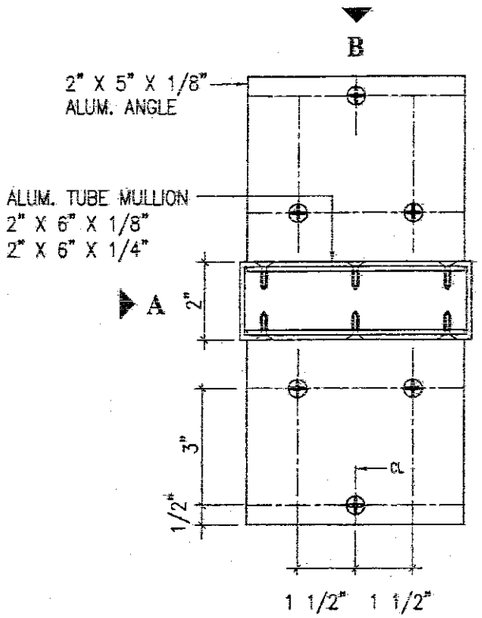
No	DATE	REVISION
1	05-09-15	REVISION IN COMPLIANCE WITH FBC 5TH EDITION (2014)
2	12-12-17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

DRAWING No. M2011
DATE: 02-11-13
SCALE: NTS

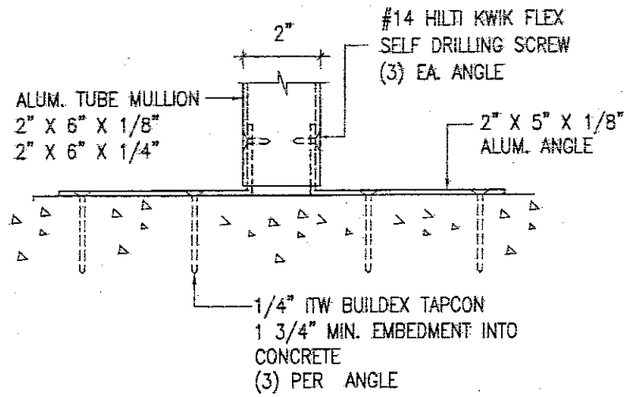
ANCHOR CONFIGURATION TYPE B3

FOR 2" X 6" MULLIONS
WITH 2" X 5" X 1/8" ALUM. ANGLES

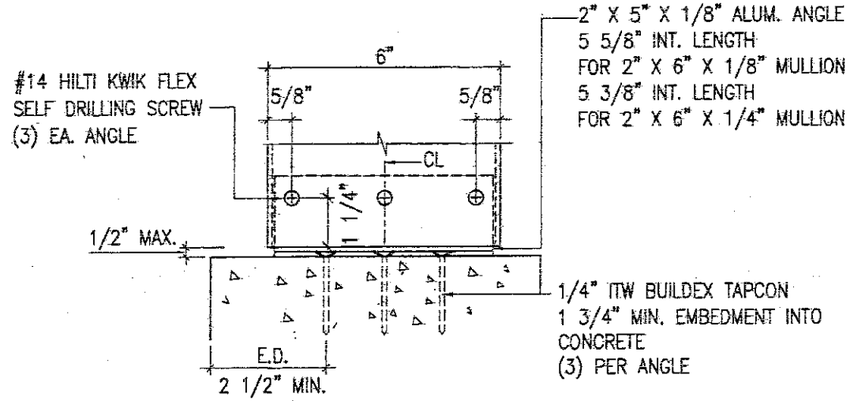
NUMBER OF ANCHORS PER ANGLE = (3) ULTRACON ANCHORS IN CONCRETE
SUBSTRATE: 3.000 PSI CONCRETE



TOP VIEW



SIDE VIEW A



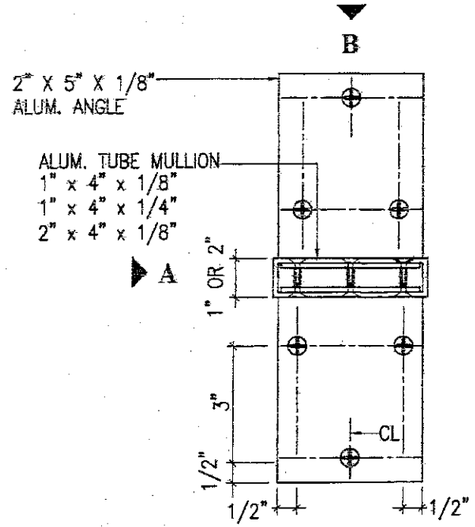
SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE B3 AS SHOWN IS VALID FOR
MULLIONS 2" X 6" X 1/8" AND 2" X 6" X 1/4".
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

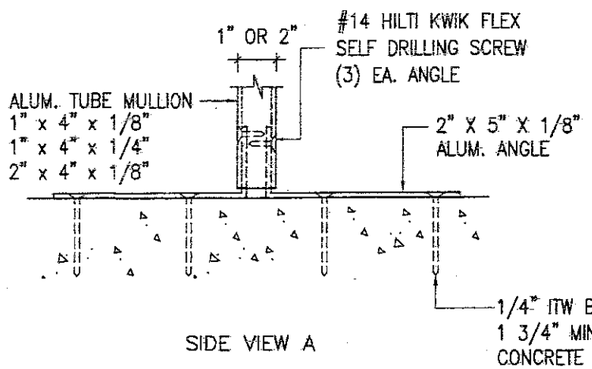
ANCHOR CONFIGURATION TYPE B3

FOR 1" X 4" OR 2" X 4" MULLIONS
WITH 2" X 5" X 1/8" ALUM. ANGLES

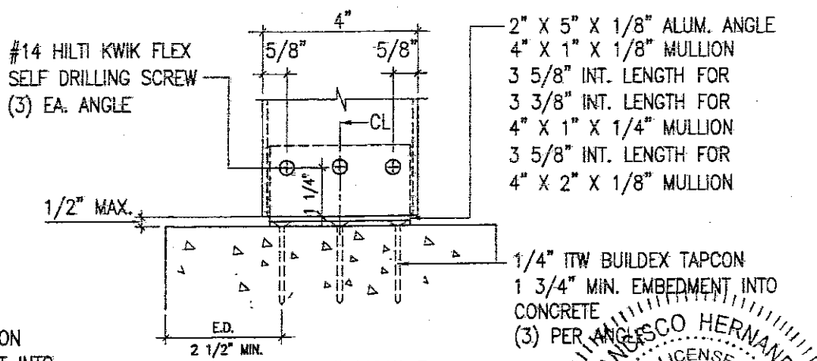
NUMBER OF ANCHORS PER ANGLE = (3) ULTRACON ANCHORS IN CONCRETE
SUBSTRATE: 3.000 PSI CONCRETE



TOP VIEW



SIDE VIEW A



SIDE VIEW B

PRODUCT REVISED
as complying with the Florida Building Code
NOA No. 17-1226.22
Expiration Date 03/28/2023
By Miami-Dade Product Control

NOTE: ANCHOR CONFIGURATION TYPE B3 AS SHOWN IS VALID FOR
MULLIONS 1" X 4" X 1/8", 1" X 4" X 1/4" AND 2" X 4" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

FRANCISCO HERNANDEZ LICENSE No. 51393 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-12-17
FRANCISCO HERNANDEZ
FLORIDA PE # 51393

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ALUMINUM TUBE MULLION L.M.I.

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1	05-09-15	REVISION IN COMPLIANCE WITH FBC 5TH EDITION (2014)
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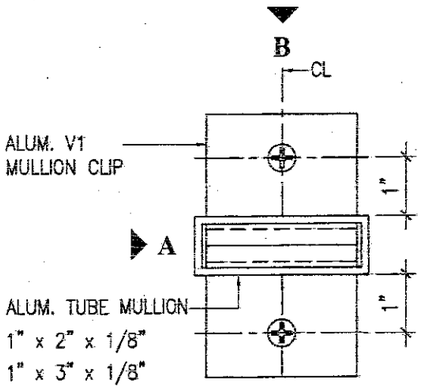
DRAWING No.. M2011
DATE: 02-11-13
SCALE: NTS

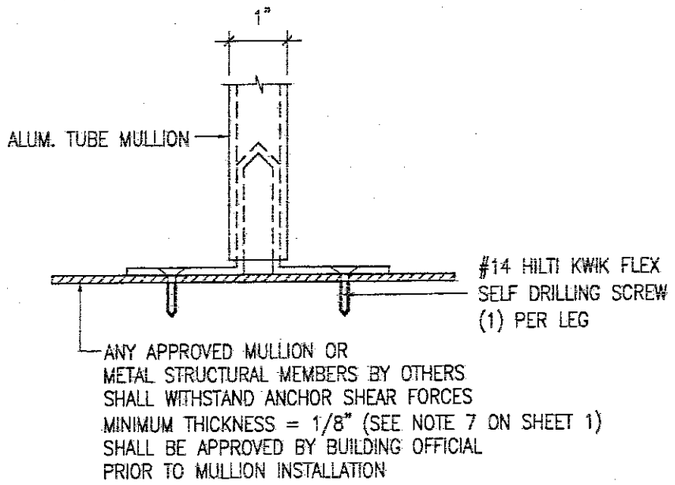
ANCHOR CONFIGURATION TYPE C1

FOR 1" X 2" OR 1" X 3" MULLIONS WITH V1 MULLION CLIP

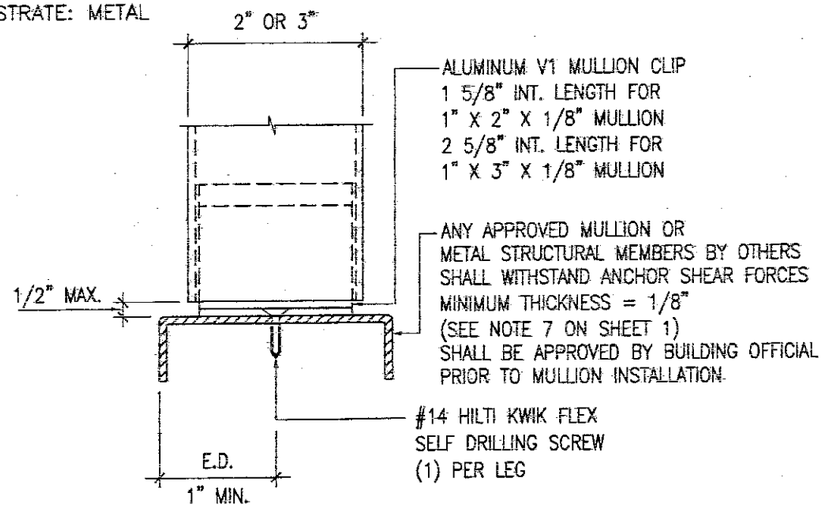
NUMBER OF ANCHORS PER LEG = (1) HILTI KWIK FLEX SELF DRILLING SCREW IN METAL SUBSTRATE: METAL



TOP VIEW



SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE C1 AS SHOWN IS VALID FOR MULLIONS 1" X 2" X 1/8" AND 1" X 3" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLE # 2 ON SHEET 4 OF 21.

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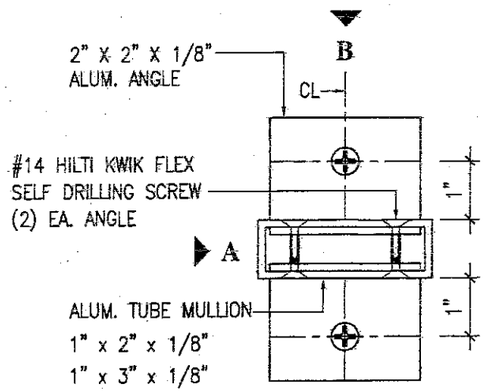
ALUMINUM TUBE MULLION L.M.I.

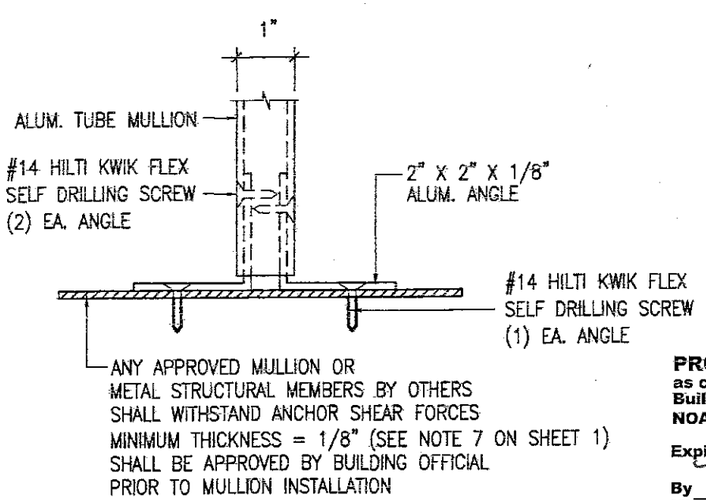
ANCHOR CONFIGURATION TYPE C1

FOR 1" X 2" OR 1" X 3" MULLIONS WITH 2" X 2" X 1/8" ALUM. ANGLES

NUMBER OF ANCHORS PER ANGLE = (1) HILTI KWIK FLEX SELF DRILLING SCREW IN METAL SUBSTRATE: METAL

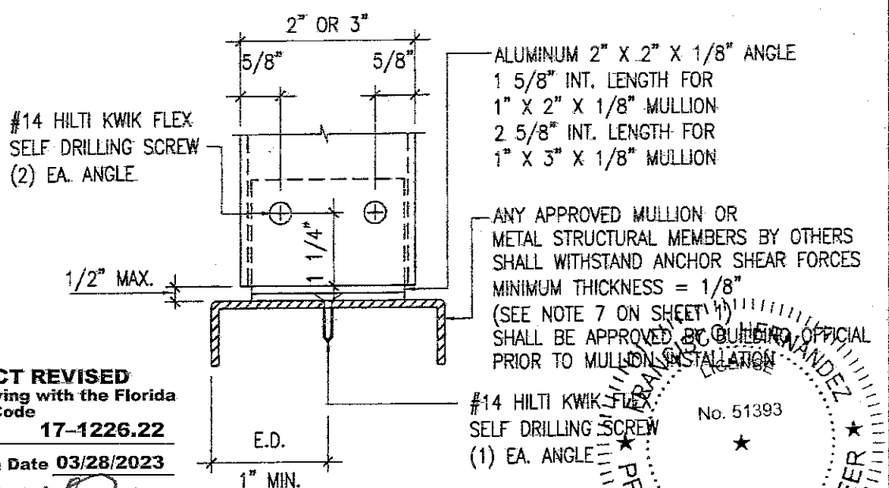


TOP VIEW



SIDE VIEW A

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-1226.22
Expiration Date 03/28/2023
By Manuel Perez
Miami-Dade Product Control



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE C1 AS SHOWN IS VALID FOR MULLIONS 1" X 2" X 1/8" AND 1" X 3" X 1/8".
FOR ANCHOR DESIGN LOADS SEE TABLE # 2 ON SHEET 4 OF 21.

FRANCISCO HERNANDEZ LICENSE No. 51393 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-12-17
FRANCISCO HERNANDEZ
FLORIDA PE # 51393

No	DATE	REVISION
1	05-09-15	REVISION IN COMPLIANCE WITH FBC 5TH EDITION (2014)
2	12-12-17	REVISION FOR COMPLIANCE WITH FBC 6TH EDITION (2017)

DRAWING No. M2011

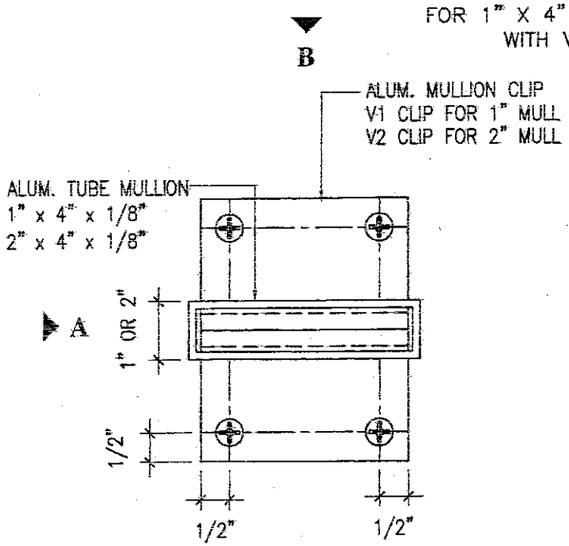
DATE: 02-11-13

SCALE: NTS

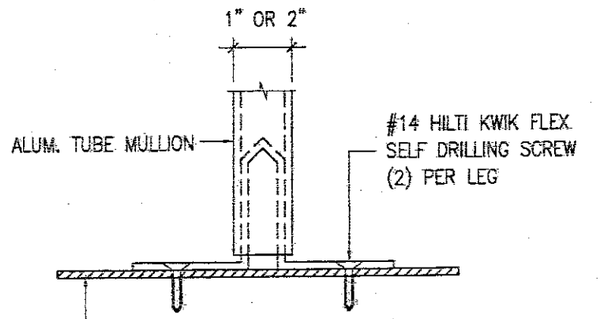
ANCHOR CONFIGURATION TYPE C2

FOR 1" X 4" OR 2" X 4" MULLIONS WITH V1 AND V2 CLIPS

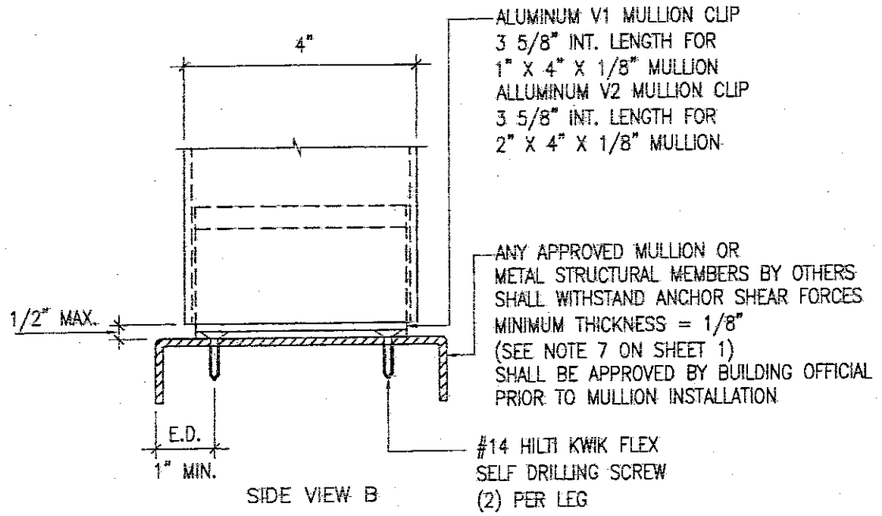
NUMBER OF ANCHORS PER LEG = (2) HILTI KWIK FLEX SELF DRILLING SCREW IN METAL SUBSTRATE: METAL



TOP VIEW



SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE C2 AS SHOWN IS VALID FOR
1" X 4" X 1/8" AND 2" X 4" X 1/8" MULLIONS.
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

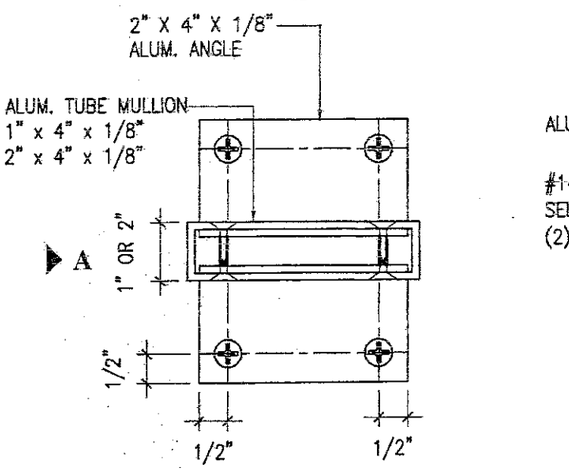
Sunshine Windows Manufacturing, Inc.
1745 W. 33rd Place
Hialeah, Florida 33012
Ph: (305)364-9952
Fax:(305)828-5116

ALUMINUM TUBE MULLION L.M.I.

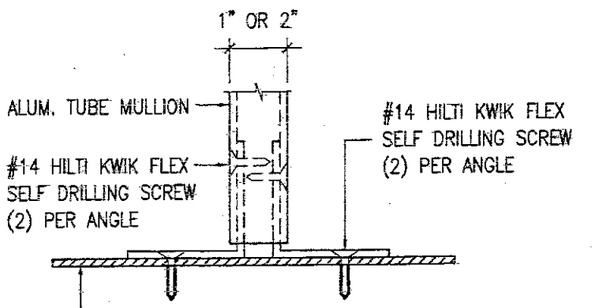
ANCHOR CONFIGURATION TYPE C2

FOR 1" X 4" OR 2" X 4" MULLIONS WITH 2" X 2" X 1/8" ALUM. ANGLES

NUMBER OF ANCHORS PER ANGLE = (2) HILTI KWIK FLEX SELF DRILLING SCREW IN METAL SUBSTRATE: METAL

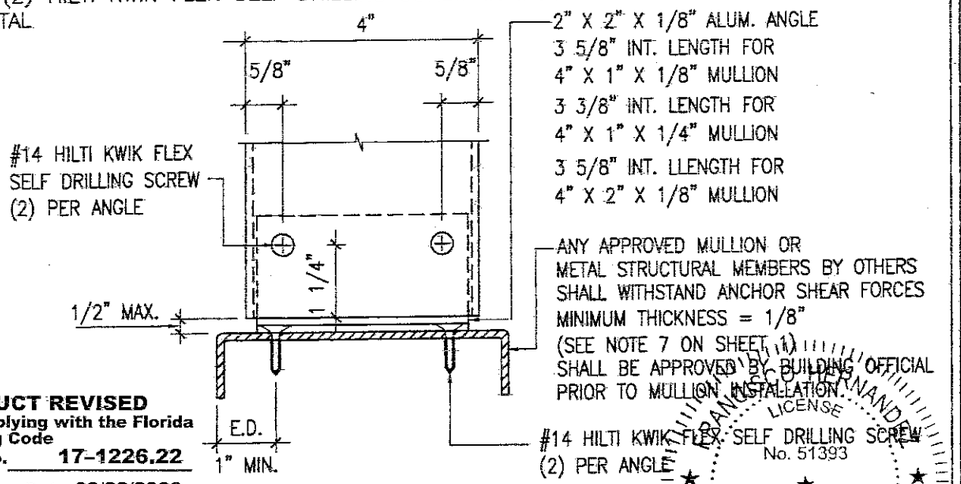


TOP VIEW



SIDE VIEW A

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-1226.22
Expiration Date 03/28/2023
By Manuel Perez
Miami-Dade Product Control



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE C2 AS SHOWN ON THIS SHEET IS VALID FOR
1" X 4" X 1/8", 1" X 4" X 1/4" AND 2" X 4" X 1/8" MULLIONS.
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

FRANCISCO J. HERNANDEZ LICENSE No. 51393 STATE OF FLORIDA PROFESSIONAL ENGINEER

12-12-17
FRANCISCO HERNANDEZ
FLORIDA PE # 51393

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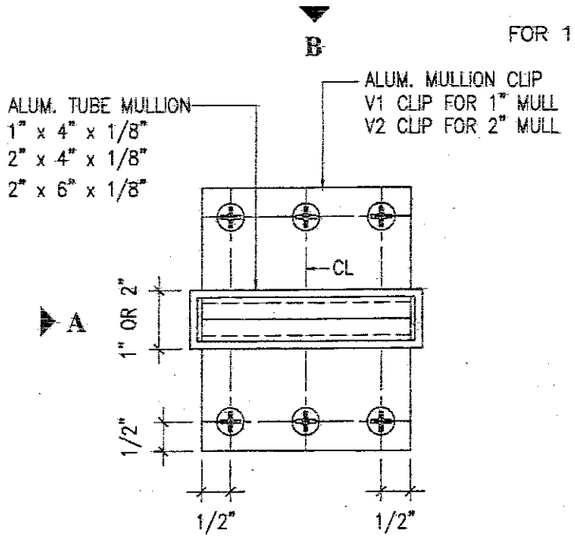
DRAWING No. M2011
DATE: 02-11-13
SCALE: NTS

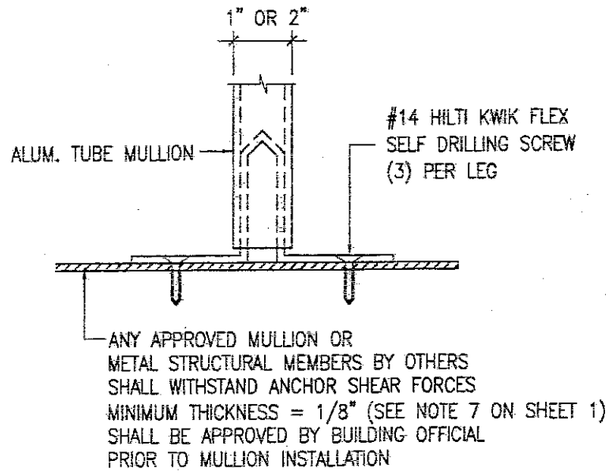
ANCHOR CONFIGURATION TYPE C3

FOR 1" X 4", 2" X 4" OR 2" X 6" MULLIONS WITH V1 AND V2 CLIPS

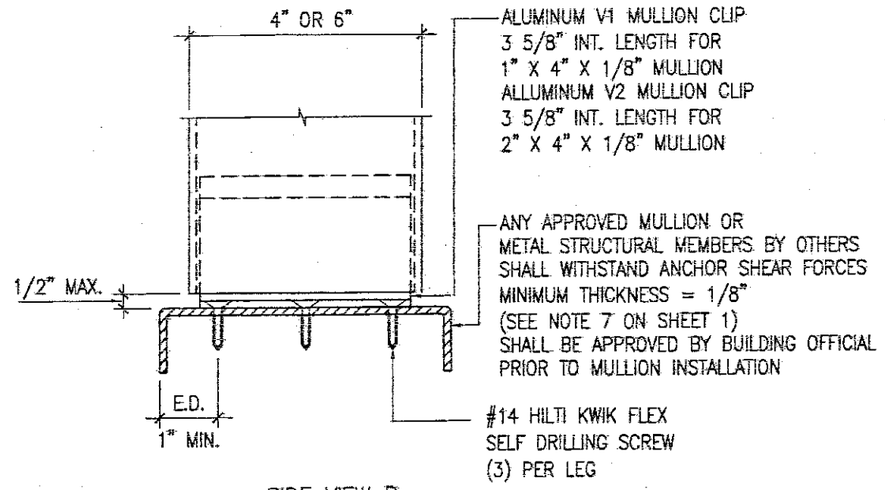
NUMBER OF ANCHORS PER LEG = (3) HILTI KWIK FLEX SELF DRILLING SCREW IN METAL SUBSTRATE: METAL



TOP VIEW



SIDE VIEW A



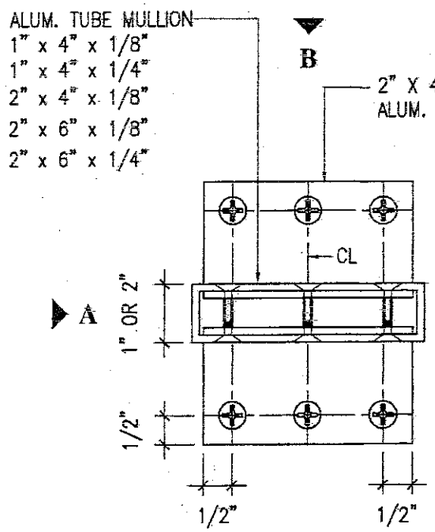
SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE C3 AS SHOWN IS VALID FOR
1" X 4" X 1/8", 2" X 4" X 1/8" AND 2" X 6" X 1/8"
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

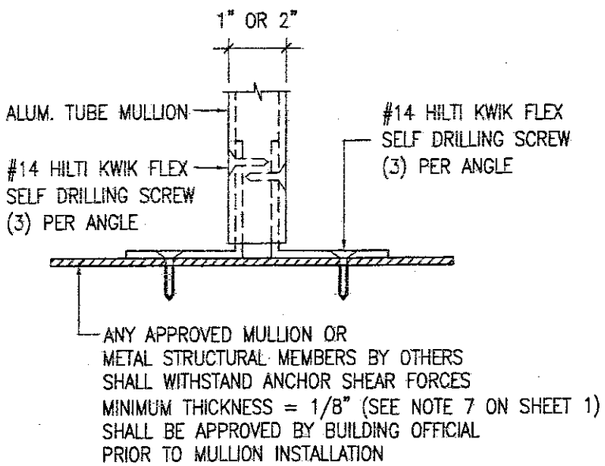
ANCHOR CONFIGURATION TYPE C3

FOR 1" X 4", 2" X 4" OR 2" X 6" MULLIONS WITH 2" X 2" X 1/8" ALUM. ANGLES

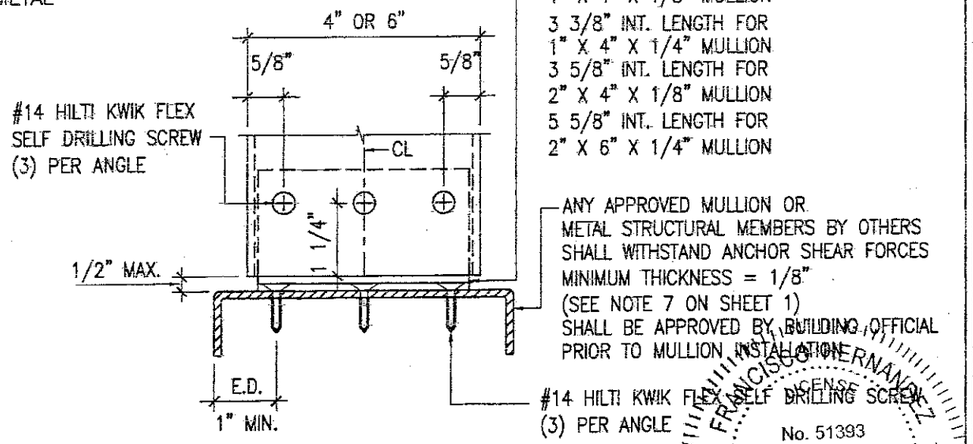
NUMBER OF ANCHORS PER ANGLE = (3) HILTI KWIK FLEX SELF DRILLING SCREW IN METAL SUBSTRATE: METAL



TOP VIEW



SIDE VIEW A



SIDE VIEW B

NOTE: ANCHOR CONFIGURATION TYPE C3 AS SHOWN IS VALID FOR MULLIONS 1" X 4" X 1/8", 1" X 4" X 1/4", 2" X 4" X 1/8", 2" X 6" X 1/8" AND 2" X 6" X 1/4".
FOR ANCHOR DESIGN LOADS SEE TABLES # 2 AND # 3 ON SHEETS 4 AND 5 OF 21.

PRODUCT REVISED
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By Miami-Dade Product Control

FRANCISCO HERNANDEZ LICENSE No. 51393 STATE OF FLORIDA PROFESSIONAL ENGINEER
12-12-17
FRANCISCO HERNANDEZ
FLORIDA PE # 51393

Sunshine Windows Manufacturing, Inc.
1745 W. 33rd Place
Hialeah, Florida 33012
Ph: (305)364-9952
Fax:(305)828-5118

ALUMINUM TUBE MULLION L.M.I.

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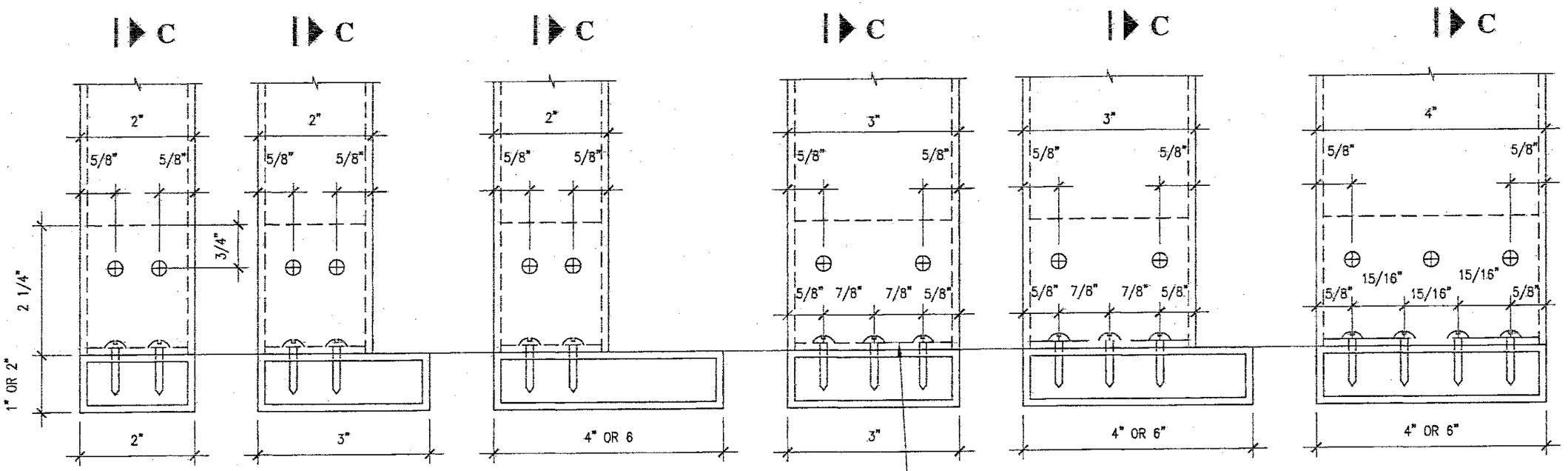
ANCHOR CONFIGURATIONS D2, D3 AND D4
MULLION TO MULLION CONNECTION

FOR 1" X 2", 1" X 3" AND 1" X 4" MULLIONS
WITH U CLIPS SUBSTRATE: METAL



ANCHOR CONFIG. D2
FOR 1" X 2" TO 1" X 2" CONNECTION

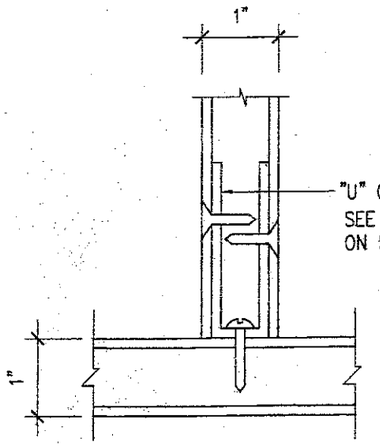
ANCHOR CONFIG. D2
FOR 1" X 2" TO 1" X 3" CONNECTION

ANCHOR CONFIG. D2
FOR 1" X 2" TO 1" X 4" CONNECTION

ANCHOR CONFIG. D3
FOR 1" X 3" TO 1" X 3" CONNECTION

ANCHOR CONFIG. D3
FOR 1" X 3" TO 1" X 4" CONNECTION

ANCHOR CONFIG. D4
FOR 1" X 4" TO 1" X 4" CONNECTION



SECTION C-C

NOTE: ALL SCREWS USED FOR MULLION TO MULLION CONNECTIONS SHOWN ON THIS SHEET SHALL BE #14 HILTI KWIK FLEX SELF DRILLING SCREW FOR ANCHORS DESIGN LOADS SEE TABLE # 2 ON SHEET 4 OF 21.

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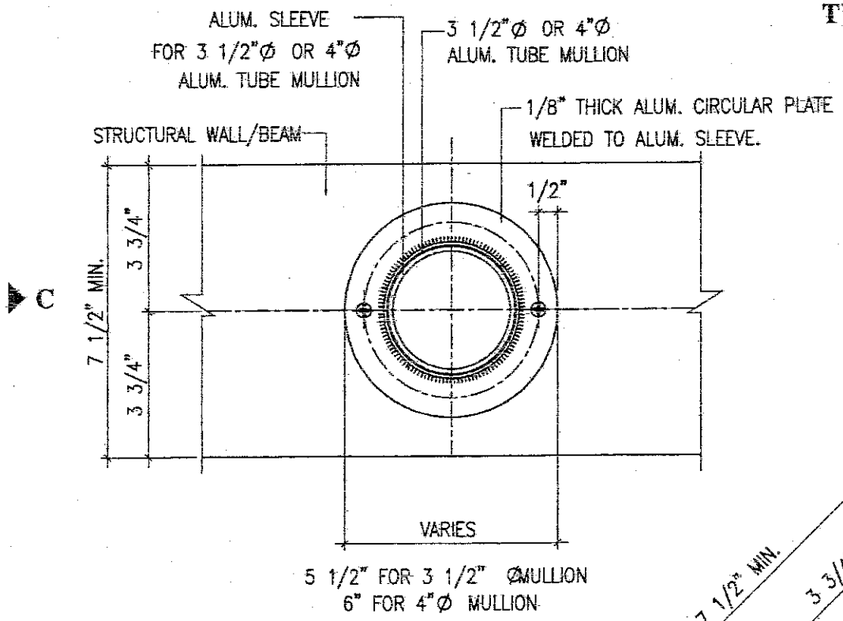
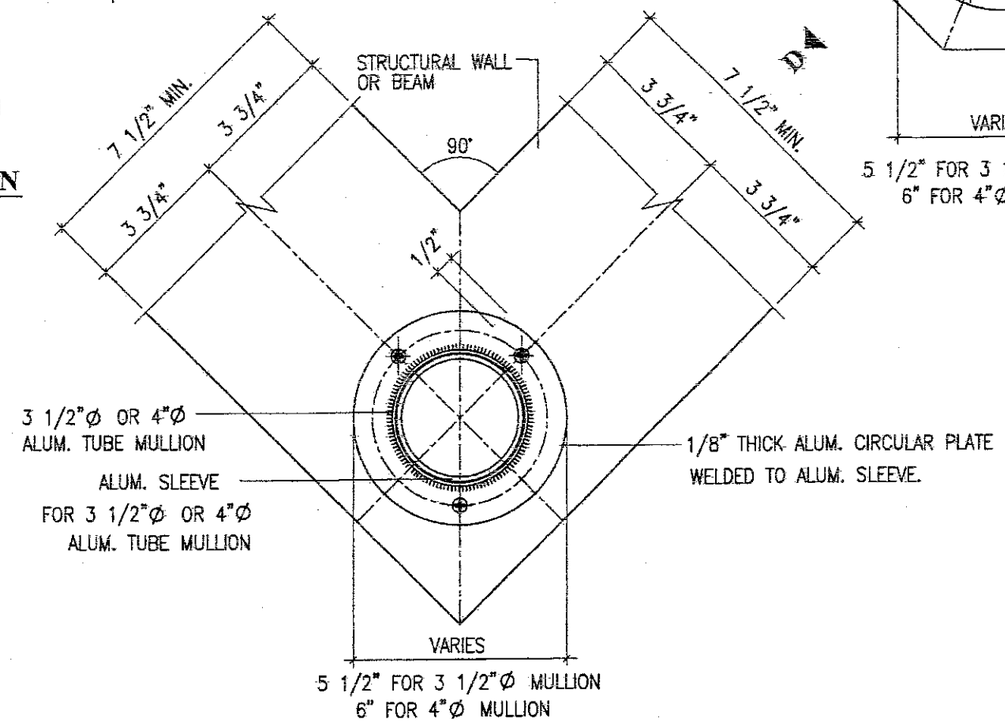
TOP VIEWS FOR ANCHOR CONFIGURATION TYPE BR2, BR3, CR2 AND CR3 ROUND MULLIONS

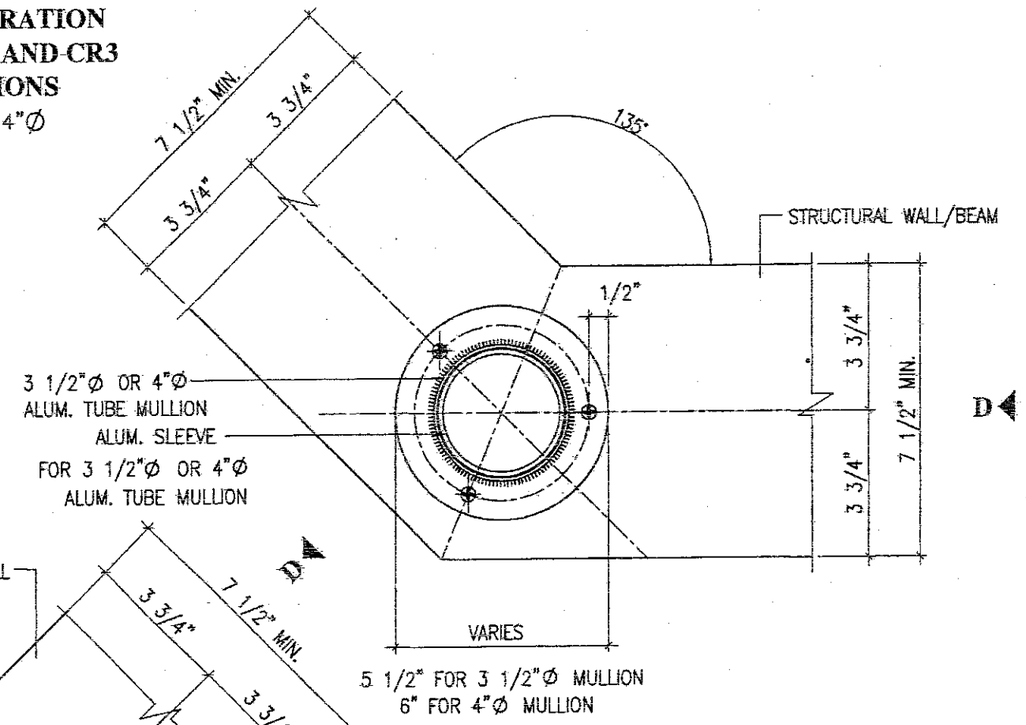
3 1/2"Ø AND 4"Ø



ANCHOR CONFIGURATION
BR2 AND CR2
FOR 180° ANGLE



ANCHOR CONFIGURATION
BR3 AND CR3
FOR 90° ANGLE



ANCHOR CONFIGURATION
BR3 AND CR3
FOR 135° ANGLE

NOTE: FOR MULLION AND ANCHOR DESIGN LOADS SEE TABLE # 4 ON SHEET 6 OF 21.

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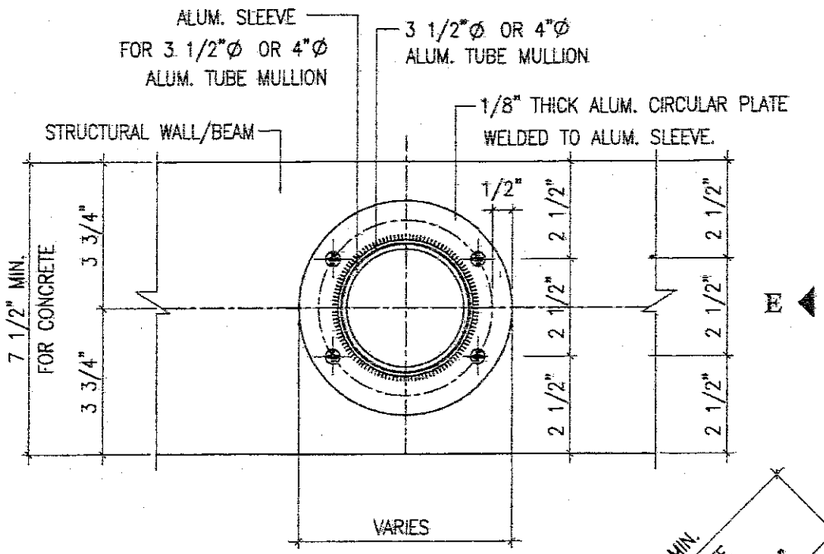
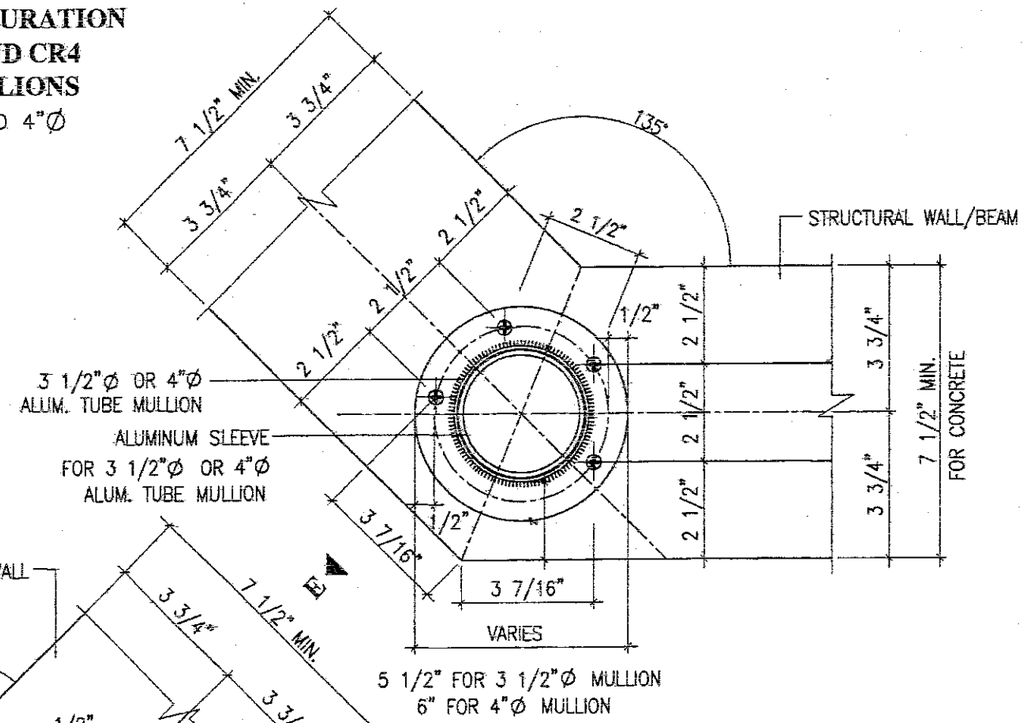
TOP VIEWS FOR ANCHOR CONFIGURATION TYPE BR4 AND CR4 ROUND MULLIONS

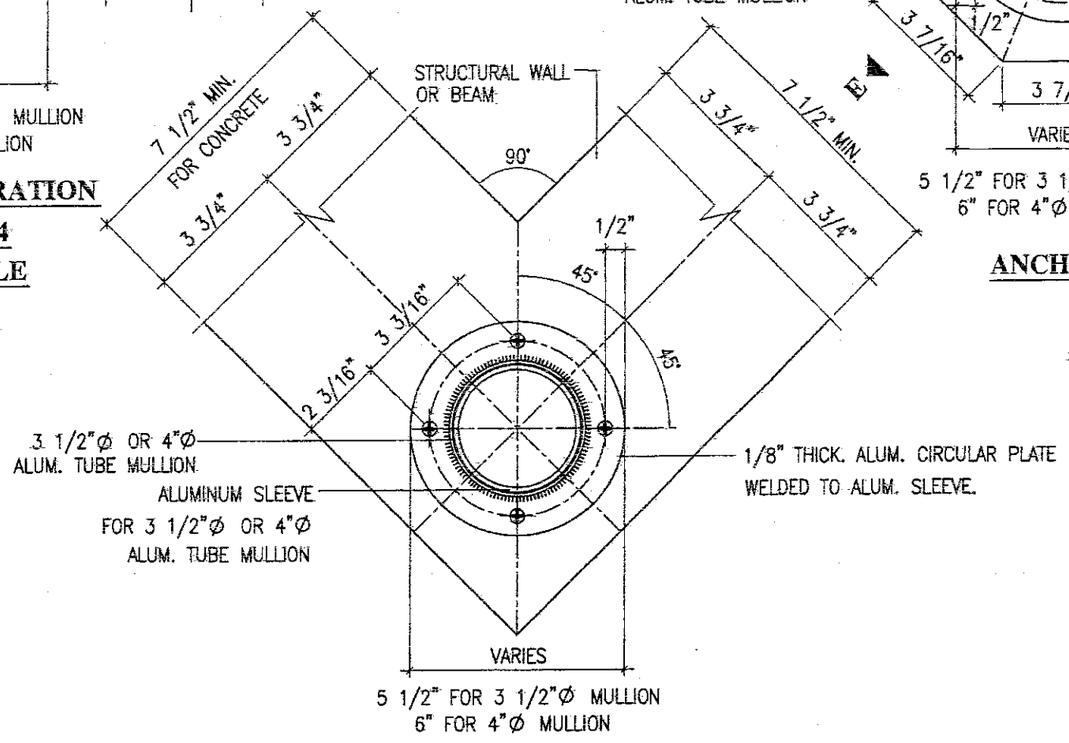
3 1/2"Ø AND 4"Ø



ANCHOR CONFIGURATION BR4 AND CR4 FOR 180° ANGLE



ANCHOR CONFIGURATION BR4 AND CR4 FOR 135° ANGLE



ANCHOR CONFIGURATION BR4 AND CR4 FOR 90° ANGLE

NOTE: FOR MULLION AND ANCHOR DESIGN LOADS SEE TABLE # 4 ON SHEET 6 OF 21.

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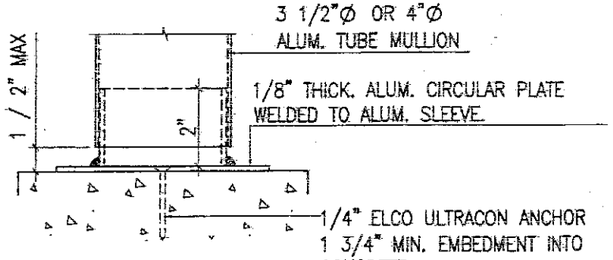
SCALE: NTS

SIDE VIEWS FOR ANCHOR CONFIGURATION TYPE BR2, BR3 AND BR4 ROUND MULLIONS

3 1/2"Ø AND 4"Ø

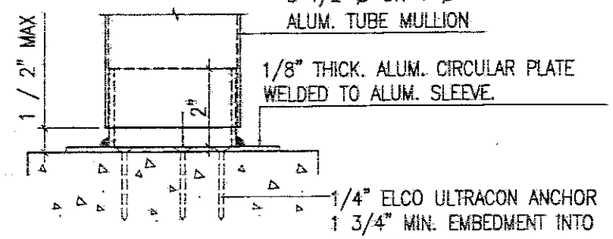
SUBSTRATE: CONCRETE



SIDE VIEW C

ANCHOR CONFIG. BR2

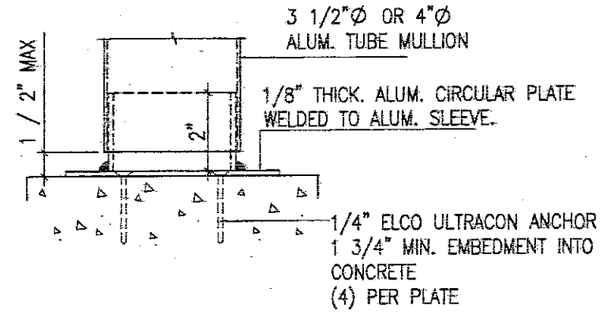
NUMBER OF ANCHORS PER LEG = 2



SIDE VIEW D

ANCHOR CONFIG. BR3

NUMBER OF ANCHORS PER LEG = 3



SIDE VIEW E

ANCHOR CONFIG. BR4

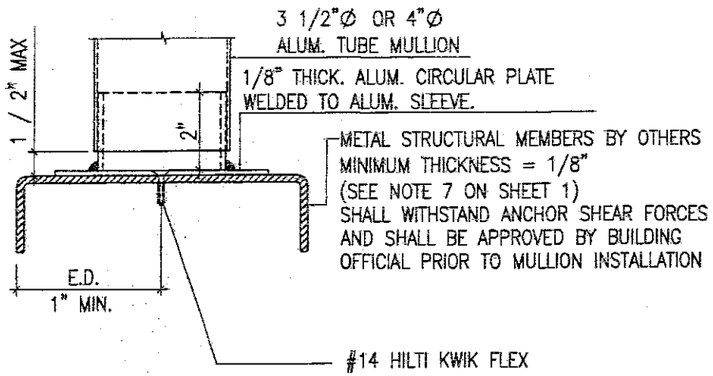
NUMBER OF ANCHORS PER LEG = 4

NOTE: FOR MULLION AND ANCHOR DESIGN LOADS SEE TABLE # 4 ON SHEET 6 OF 21.

SIDE VIEWS FOR ANCHOR CONFIGURATION TYPE CR2, CR3 AND CR4 ROUND MULLIONS

3 1/2"Ø AND 4"Ø

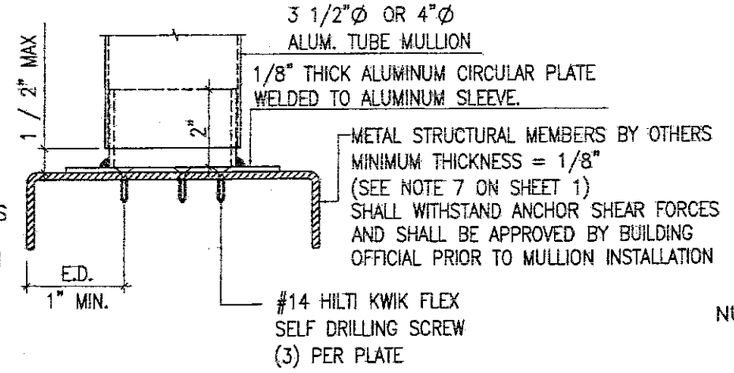
SUBSTRATE: METAL



SIDE VIEW C

ANCHOR CONFIG. CR2

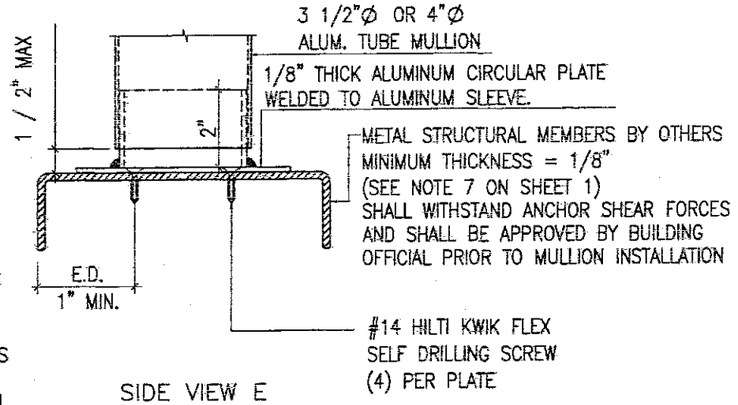
NUMBER OF ANCHORS PER LEG = 2



SIDE VIEW D

ANCHOR CONFIG. CR3

NUMBER OF ANCHORS PER LEG = 3



SIDE VIEW E

ANCHOR CONFIG. CR4

NUMBER OF ANCHORS PER LEG = 4

NOTE: FOR MULLION AND ANCHOR DESIGN LOADS SEE TABLE # 4 ON SHEET 6 OF 21.

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