

MIAMI-DADE COUNTY PRODUCT CONTROL SECTION

11805 SW 26 Street, Room 208 Miami, Florida 33175-2474 T (786) 315-2590 F (786) 315-2599

www.miamidade.gov/building

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

NOTICE OF ACCEPTANCE (NOA)

CGI Windows and Doors, Inc. 3780 W 104th Street Hialeah, FL 33018

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

APPROVAL DOCUMENT: Drawing No. **TUBEMULL-CGI**, titled "Aluminum Tube Mullions, Clipped (LM)", sheets 1 through 23 of 23, dated 02/02/23, prepared by manufacturer, signed and sealed by Anthony Lynn Miller, 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. 20-0610.10 and consists of this page 1 and evidence pages E-1, E-2, E-3 and E-4, as well as approval document mentioned above.

The submitted documentation was reviewed by Manuel Perez, P.E.

MIAMI-DADE COUNTY
APPROVED

3/15/23

NOA No. 23-0221.03 Expiration Date: March 28, 2028 Approval Date: March 23, 2023 Page 1

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. 95-0929.39)
- 2. Drawing No. MD-MULCLIP, titled "Clipped Mullion", sheets 1 through 7 of 7, dated 05/22/20, with revision A dated 05/22/20, prepared by manufacturer, signed and sealed by Anthony Lynn Miller, P.E.

(Submitted under NOA No.20-0610,10)

B. TESTS

- 1. Test reports on: 1) Air Infiltration Test, per FBC, TAS 201-94
 - 2) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
 - 3) Water Resistance Test, per FBC, TAS 202-94
 - 4) Small Missile Impact Test per FBC, TAS 201-94
 - 5) Large Missile Impact Test per FBC, TAS 201-94

along with marked-up drawings and installation diagram of casement windows mulled using a 1"x 2"x 1/8" aluminum tube mullion, prepared by Hurricane Testing Lab, Inc., Test Report No. **HTL-0080-0105-08**, dated 03/26/08 for Specimens No. 1 and 2, signed and sealed by Vinu J. Abraham, P.E.

(Submitted under NOA No. 08-0331.07)

- 2. Test reports on: 1) Large Missile Impact Test, Loading per SFBC, PA 201-94 along with marked-up drawings and installation diagram of an aluminum fixed window, prepared by Hurricane Test Laboratory, Inc. Test Report No. HTL-0080-0303-96, dated 03/06/96, signed and sealed by Timothy S. Marshall, P.E. (Submitted under NOA No. 95-0929.39)
- 3. Test reports on: 1) Uniform Static Air Pressure Test, Loading per SFBC, PA 202-94 along with marked-up drawings and installation diagram of fixed windows mulled using a 1"x 2"x 1/8" aluminum tube mullion, prepared by Hurricane Engineering & Testing, Inc., Test Report No. **HETI-96-525**, dated 02/12/96, signed and sealed by Hector M. Medina, P.E.

(Submitted under NOA No. 95-0929.39)

C. CALCULATIONS

- 1. Anchor verification calculations and structural analysis, complying with FBC 6th Edition (2017) and FBC 7th Edition (2020) dated 06/05/20, prepared by manufacturer, signed and sealed by Anthony Lynn Miller, P.E.
 - (Submitted under NOA No. 20-0610.10)
- 2. Glazing complies with ASTM E1300-09

Manuel Perez, P.E. Product Control Examiner

NOA No. 23-0221.03 Expiration Date: March 28, 2028

Approval Date: March 23, 2023

CGI Windows and Doors, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

- 1. EVIDENCE SUBMITTED UNDER PREVIOUS NOA'S (CONTINUED)
- 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), with FBC 7th Edition (2020) and of no financial interest, dated 05/22/20, signed and sealed by Anthony Lynn Miller, P.E.
 - (Submitted under NOA No. 20-0610.10)
- 2. Statement letter of successor engineer per 61G15-27.001 Florida Administrative Code. (Submitted under NOA No. 20-0610.10)
- 3. Laboratory compliance letters for Test Report No. HTL-0080-0105-08, specimens 1 and 2, issued by Hurricane Test Laboratory, Inc., dated 03/26/08, signed and sealed by Vinu J. Abraham, P.E.
 - (Submitted under NOA No. 08-0331.07)
- 4. Laboratory compliance letters for Test Report No. HTL-0080-0303-96, issued by Hurricane Test Laboratory, Inc., dated 03/06/96, signed and sealed by Timothy S. Marshall, P.E.
 - (Submitted under NOA No. 95-0929.39)
- 5. Laboratory compliance letters for Test Report No. **HETI-96-525**, issued by Hurricane Engineering & Testing, Inc., dated 02/12/96, signed and sealed by Hector M. Medina, P.E.
 - (Submitted under NOA No. 95-0929.39)

G. OTHERS

1. Notice of Acceptance No. **18-0129.08**, issued to CGI Windows & Doors for their Series Clipped, Extruded Aluminum Tube Mullions – L.M.I., approved on 03/19/18 and expiring on 03/28/23.

Manuel Perez, P.E.
Product Control Examiner
NOA No. 23-0221.03

Expiration Date: March 28, 2028 Approval Date: March 23, 2023

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

2. NEW EVIDENCE SUBMITTED

A. DRAWINGS

1. Drawing No. TUBEMULL-CGI, titled "Aluminum Tube Mullions, Clipped (LM)", sheets 1 through 23 of 23, dated 02/02/23, prepared by manufacturer, signed and sealed by Anthony Lynn Miller, P.E.

B. TESTS

- 1. Test reports on: 1) Air Infiltration Test, per FBC, TAS 202-94
 - 2) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
 - 3) Water Resistance Test, per FBC, TAS 202-94
 - 4) Large Missile Impact Test per FBC, TAS 201-94
 - 5) Cyclic Wind Pressure Loading per FBC, TAS 203-94
 - 6) Forced Entry Test, per FBC 2411.3.2.1, and TAS 202-94

along with marked-up drawings and installation diagram of clipped aluminum mullions, prepared by Fenestration Testing Lab, Inc., Test Report No. **FTL-6443** (samples A-1 thru E-1), dated 02/28/11, and addendum letter dated 05/05/11, signed and sealed by Marlin D. Brinson, P.E.

(Submitted under NOA's No. 17-0630.11 and 20-0406.08)

- 2. 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 two series 1000 fixed windows mulled together, prepared by Fenestration Testing Laboratory, Inc. Test Report No. FTL-18-8511, dated 11/27/18, signed and sealed by Idalmis Ortega, P.E. (Submitted under NOA's No. 15-0728.01 and 20-0826.03)

C. CALCULATIONS

1. Mullion calculations, clip details, anchor verification calculations and structural analysis, adding additional mullions and clip options from NOA No. 20-0826.03, also adding different clip styles from NOA's No. 20-0406.08 and No. 20-0610.10, all complying with FBC 7th Edition (2020), dated 02/15/23 by manufacturer, signed and sealed by Anthony Lynn Miller, P.E.

D. **OUALITY ASSURANCE**

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

E. MATERIAL CERTIFICATIONS

1. None.

Manuel Perez, P.E.
Product Control Examiner
NOA No. 23-0221.03

Expiration Date: March 28, 2028 Approval Date: March 23, 2023

CGI Windows and Doors, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

2. NEW EVIDENCE SUBMITTED (CONTINUED)

F. STATEMENTS

- 1. Statement letter of conformance, of complying with **FBC** 7th **Edition (2020)** dated 02/15/23, issued by manufacturer, signed and sealed by Anthony Lynn Miller, P.E.
- 2. Statement letter of no financial interest dated 02/15/23, issued by manufacturer, signed and sealed by Anthony Lynn Miller, P.E.
- **3.** Private labeling agreement between WinDoor, Inc. and CGI Windows and Doors, Inc. document in conformance of RER guideline dated 02/15/23.

G. OTHERS

1. Notice of Acceptance No. **20-0610.10**, issued to CGI Windows and Doors, Inc. for their Series Clipped Mullion - L.M.I., approved on 09/24/20 and expiring on 03/28/23.

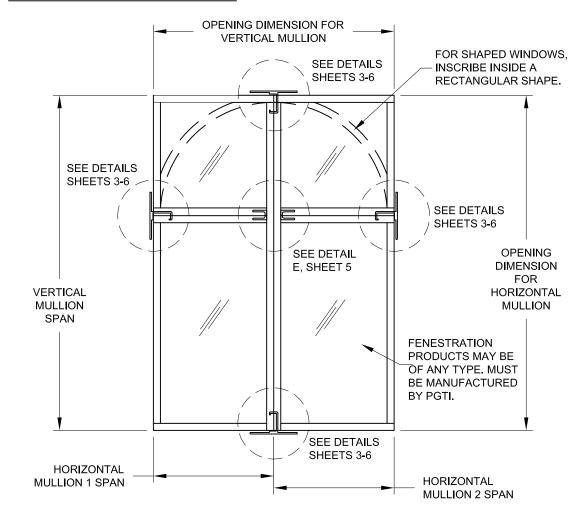
Manuel Perez, P.E.
Product Control Examiner
NOA No. 23-0221.03

Expiration Date: March 28, 2028 Approval Date: March 23, 2023

IMPACT-RESISTANT, CLIPPED, ALUMINUM TUBE MULLIONS

- 1) MULLIONS AND CLIPS HAVE BEEN DESIGNED & TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, AND ARE APPROVED FOR IMPACT AND NON-IMPACT APPLICATIONS IN THE HVHZ, MULLIONS ARE ONLY TO BE USED WITH THE MANUFACTURER'S FENESTRATION PRODUCTS.
- 2) INSTALLATION DETAILS SHOWN ARE FOR THE MULLION ONLY. ANCHORS SHOWN ARE IN ADDITION TO ANY ANCHORS REQUIRED FOR THE FENESTRATION PRODUCT INSTALLATION. TYPICAL APPLICATIONS ARE SHOWN. EACH SITUATION IS UNIQUE AND SHOULD BE EVALUATED BY AN EXPERIENCED INSTALLER FOR THE BEST INSTALLATION METHOD, OPTIONAL 1X OR 2X WOOD BUCKS IF USED. MUST BE ANCHORED PROPERLY TO TRANSFER LOADS AND ARE TO BE DESIGNED BY OTHERS.
- 3) THE TYPE AND NUMBER OF ANCHORS IS CRITICAL TO THE STRUCTURAL PERFORMANCE OF THE MULLED UNITS, MULLIONS HAVE BEEN TESTED AS "FREE-FLOATING" AND DO NOT NEED TO BE DIRECTLY ATTACHED TO THE MULLION CLIPS. BUT SHALL NOT HAVE A GAP OF MORE THAN 1/4" FROM THE CLIP, SEE FIG. 1, SHEET 4.
- 4) THE ANCHORAGE METHODS SHOWN HAVE BEEN DESIGNED TO RESIST THE WINDLOADS CORRESPONDING TO THE REQUIRED DESIGN PRESSURE, MULLIONS ARE CALCULATED TO DEFLECT NO MORE THAN L/180. THE 1/3 STRESS INCREASE WAS NOT USED IN THIS ANCHOR EVALUATION. THE 1.6 LOAD DURATION FACTOR WAS USED FOR THE EVALUATION OF WOOD SCREWS.
- 5) PROPER SEALING OF ENTIRE ASSEMBLY IS THE RESPONSIBILITY OF OTHERS AND IS BEYOND THE SCOPE OF THESE INSTRUCTIONS.
- 6) USE THE COMBINED WIDTH OR HEIGHT OF ONLY TWO ADJACENT FENESTRATION PRODUCTS TO DETERMINE PRESSURES AND ANCHORAGE FOR THE COMMON MULLION. FOR MULTIPLE UNITS. CONSIDER ONLY TWO ADJACENT UNITS AT A TIME WHEN USING THE DESIGN PRESSURE AND ANCHORAGE TABLES. THE LOWEST DESIGN PRESSURE OF MULTIPLE MULLIONS OR FENESTRATION PRODUCTS SHALL APPLY.
- 7) ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO. WOOD BUCKS BY OTHERS, MUST BE ANCHORED PROPERLY TO TRANSFER LOADS TO THE STRUCTURE, ANCHORS SHALL BE COATED OR CORROSION RESISTANT AS APPROPRIATE FOR SUBSTRATE MATERIAL. DISSIMILAR MATERIALS SHALL BE PROTECTED AS REQUIRED TO PREVENT REACTIONS.
- 8) REFERENCE: DEWALT ULTRACON+, DEWALT/ELCO AGGRE-GATOR & CRETEFLEX NOA'S.
- 9) QUANTITY OF UNITS WITHIN A MULTIPLE MULLED ASSEMBLY IS UNLIMITED PROVIDED THAT THE SPAN AND OPENING WIDTH/HEIGHT OF EACH INDIVIDUAL MULLION COMPLIES WITH THE REQUIREMENTS OF THIS APPROVAL.
- 10) SUBSTRATES: CONCRETE SHALL CONFORM TO ACI 301 SPECIFICATIONS. HOLLOW AND GROUT-FILLED CONCRETE BLOCK UNIT (CMU) SHALL CONFORM TO ASTM C-90. WOOD SHALL BE SOUTHERN YELLOW PINE WITH AN SG OF 0.55. ALUMINUM SHALL BE 6063-T5 AND BE A MINIMUM OF .125" THICK, STEEL STUDS TO BE A MINIMUM GRADE 33 AND 0.045" THICK (18 GAUGE), STRUCTURAL STEEL TO BE AT LEAST .125" THICK AND A36. ALL ANCHORS INTO METAL SHALL EXTEND AT LEAST 3 SCREW THREADS BEYOND THE MATERIAL, #12 & #14 ANCHORS INTO WOOD MAY BE STEEL, 18-8 S.S. OR 410 S.S.

FIGURE 1: MULTIPLE MULLIONS



DESIGN PRESSURE RATING

SEE TABLES 1A - 14A

IMPACT RATING

RATED FOR LARGE & SMALL MISSILE IMPACT RESISTANCE

CONTENTS:
GENERAL NOTES1
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MULL TO 1X & MASONRY3
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F-CLIP INSTALLATION5
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BAY MULL INSTALLATION6 1 X 2 X 1/8 MULL SPECS7
1 X 2 X 1/8 MULL SPECS
1 X 2-1/2 X 1/8 MULL SPECS9
1 X 3 X 1/8 MULL SPECS1
1 X 4 X 1/8 MULL SPECS
1 X 4 X 3/8 MULL SPECS
1 X 2-1/8 X 1/8 FIN MULL SPECS1;
2 X 4 X 1/8 MULL SPECS14
2 X 4 X 1/4 MULL SPECS
2 X 6 X 1/8 MULL SPECS16
2 X 6 X 1/4 MULL SPECS17
2 X 8 X 1/8 MULL SPECS18
30° X 3-1/4 BAY MULL SPECS19
45° X 3-1/4 BAY MULL SPECS 26
EXAMPLE 12
EXAMPLE 22
LOADING EXAMPLES2

PRODUCT REVISED as complying with the Florida Building Code

NOA-No.

23-0221.03 Expiration Date: 03/28/2028

Miami-Dade Product Control

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NOTES

GENERAL

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Y A. LYNN MILLER ILOGY DRIVE . 34275 REGISTRATION PREPARED BY *A* 1070 TECHNOLC N. VENICE, FL 34 (941) 480-1600

Impact Resistant
Windows & Doors
were stronger**

104TH STREET H, FL 33018

ALUMINUM TUBE Series Title Desc

No. 58705

Lynn

No. 58705

Lynn

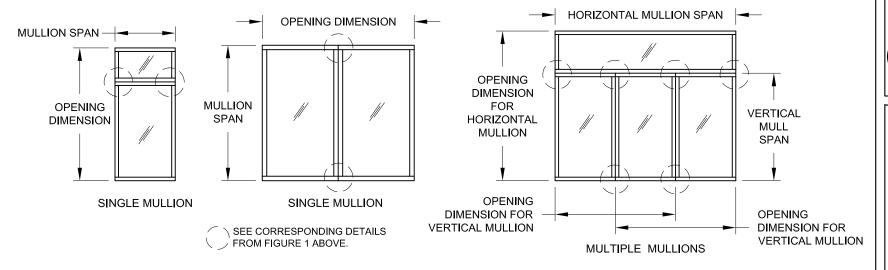
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A. LYNN MILLER, P.E., P.E.# 58705

FIGURE 2: ADDITIONAL EXAMPLES OF MULLION CONFIGURATIONS:

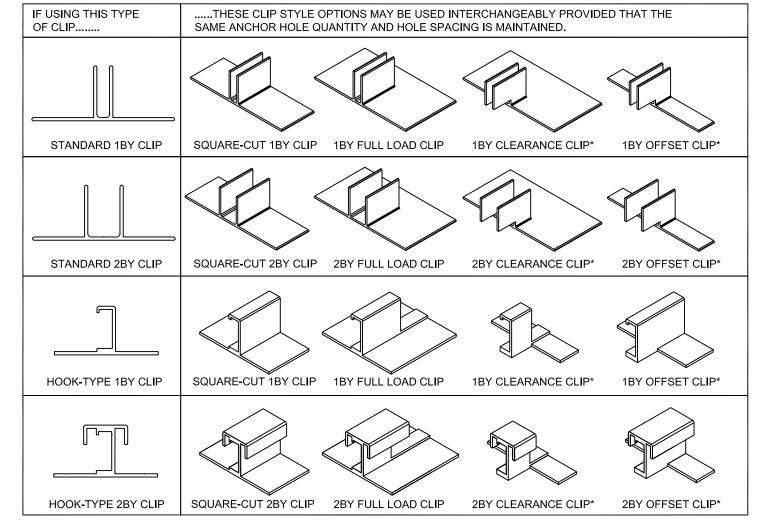


CODES / STANDARDS USED:

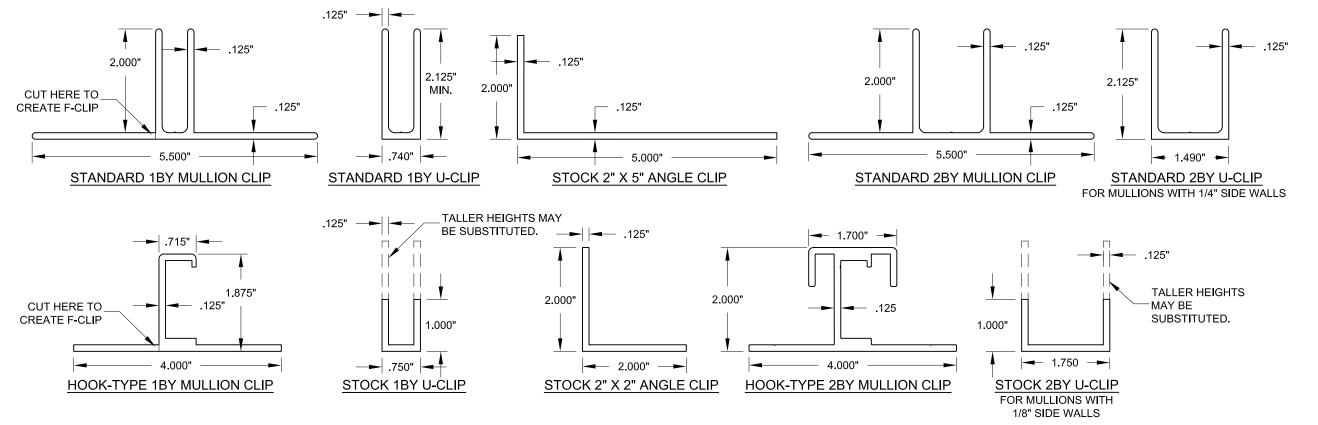
- 0 2020 FLORIDA BUILDING CODE (FBC), 7TH EDITION
- O ANSI/AF&PA NDS-2018 FOR WOOD CONSTRUCTION
- O ALUMINUM DESIGN MANUAL, ADM-2015
- AISI S100-16
- OAISC 360-16

INSTRUCTIONS:

- 1) DETERMINE THE ALLOWABLE STRESS DESIGN PRESSURE REQUIREMENT (LBS/FT²). FOR THE OPENING USING THE ASCE-7 STANDARD.
- 2) TO FIND THE DESIGN PRESSURE OF THE MULLION, USE TABLES 1A THROUGH 14A. THE MULLION DESIGN PRESSURE OBTAINED SHALL MEET OR EXCEED THE DESIGN PRESSURE REQUIREMENT FOR THE OPENING OBTAINED IN STEP 1, NOTE THAT YOU MUST FIRST DETERMINE WHETHER YOU HAVE A SINGLE MULLION OR CROSSING MULLIONS.
- 3) AFTER OBTAINING THE MULLION'S DESIGN PRESSURE, FIND THE VALUE IN THE COLUMN TITLED "ANCHOR CAPACITY REQUIRED (LBS)". THIS VALUE REPRESENTS THE CLIP/ANCHOR CAPACITY THAT MUST BE MET TO ATTAIN THE MULLION DESIGN
- 4) FROM THE ANCHOR/CLIP CAPACITY TABLE ON THE SAME SHEET, CHOOSE AN ANCHOR/CLIP/SUBSTRATE CONDITION THAT MEETS OR EXCEEDS THE VALUE OBTAINED FROM STEP 3.
- 5) VERIFY THE DESIGN PRESSURE OF THE FENESTRATION PRODUCT TO BE USED AND COMPARE WITH THE FINAL DESIGN PRESSURE FOR THIS MULLION SYSTEM. THE LOWER OF THE TWO SHALL APPLY FOR THE ENTIRE MULLED ASSEMBLY.
- 6) HIGHLIGHT OPTION USED AND TABLE VALUES USED IN A SPECIFIC APPLICATION WHEN USING THIS APPROVAL TO APPLY FOR A PERMIT.
- 7) OPTIONALLY, IF THE MULLION DESIGN PRESSURE OBTAINED IN THE TABLE IS MUCH HIGHER THAN THE DESIGN PRESSURE REQUIREMENT FOR THE OPENING, YOU MAY USE THE "ANCHOR CAPACITY ADJUSTMENT FORMULA" ON SHEET 1 TO OBTAIN A LOWER ANCHOR/CLIP CAPACITY.



* THE CLEARANCE OR OFFSET CLIPS ARE RECOMMENDED FOR FIN-FRAMED WINDOWS, BUT MAY ALSO BE USED FOR OTHER FRAME TYPES.

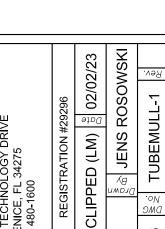




NOA-No. 23-0221.03 Expiration Date: 03/28/2028

Miami-Dade Product Control





MULLIONS,

CLIP INFO

INSTRUCTIONS &

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MULLS

PREPARED BY *A* 1070 TECHNOLC N. VENICE, FL 34 (941) 480-1600 Impact Resistant
Windows & Doors
were stronger**

ALUMINUM TUBE 104TH STREET H. FL 33018

No. 58705

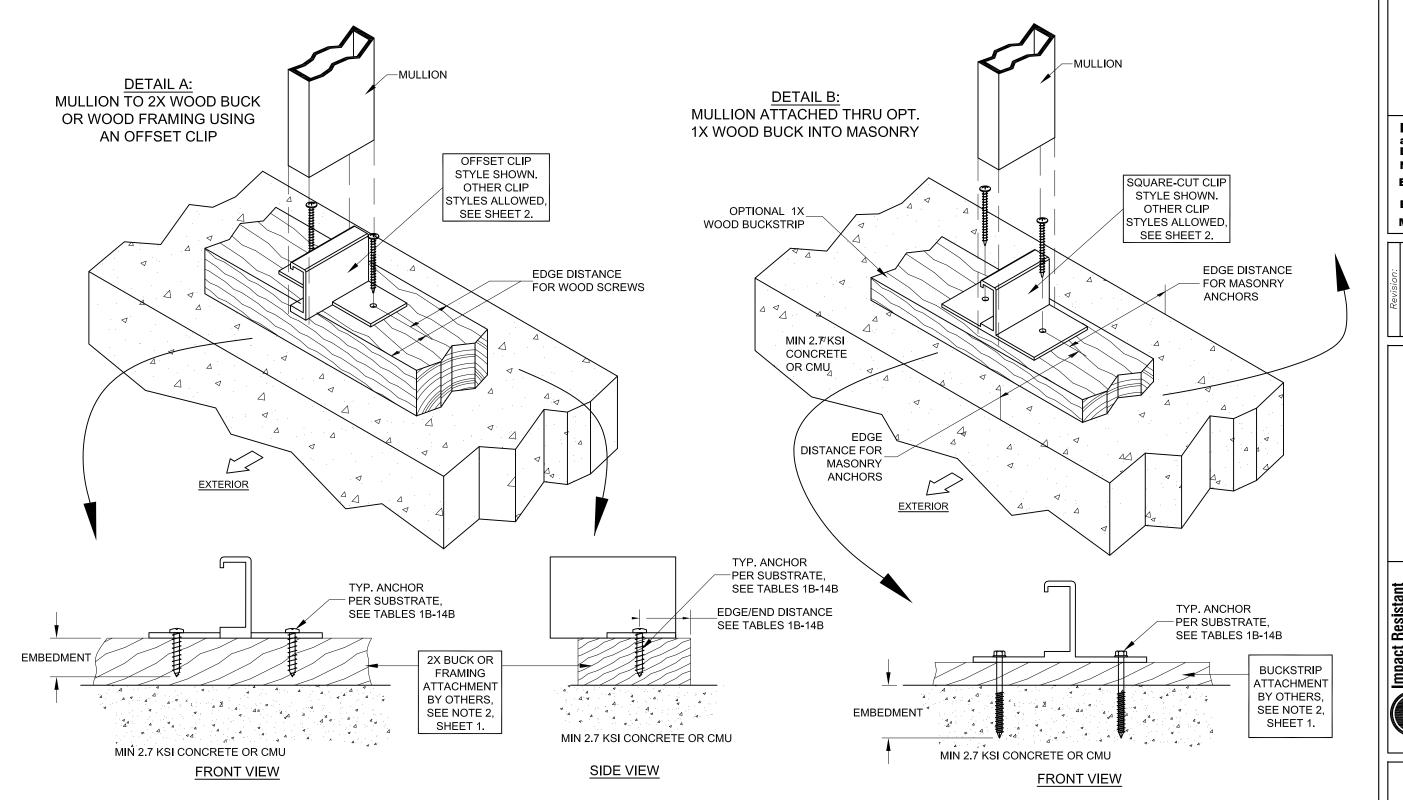
Agricultural Marian

No. 58705

Agricultural Marian

No. 58705

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INSTALLATION NOTES:

1) ANCHOR EMBEDMENT TO SUBSTRATE SHALL BE BEYOND WALL DRESSING OR STUCCO, SUBSTRATE MAY VARY FROM DETAILS, SEE TABLES 1B-14B FOR SUBSTRATE PROPERTIES. ANCHOR HEAD TYPE MAY BE PANHEAD, HEXHEAD OR FLATHEAD.

2) QUANTITY OF ANCHORS, MULLION TYPES AND MULLION CLIP TYPES AND STYLES SHOWN ABOVE ARE FOR PICTORIAL REPRESENTATION ONLY. BECAUSE THE ANCHOR CAPACITY IS BASED PARTLY ON THE ANCHOR TO ANCHOR DISTANCE, THE CORRECT QUANTITY AND LOCATION OF ANCHORS MUST BE FOLLOWED, REFER TO THE TABLES ON THE FOLLOWING SHEETS.

3) MULLIONS MAY BE INSTALLED HORIZONTALLY OR VERTICALLY. 2X2 OR 2X5 ANGLE CLIPS, IF USED, MUST BE INSTALLED IN PAIRS AND PULLED AGAINST THE MULLION'S INSIDE WALL FOR A SECURE FIT.

4) FOR MASONRY APPLICATIONS IN MIAMI-DADE COUNTY, USE ONLY MIAMI-DADE COUNTY APPROVED DEWALT ULTRACON, DEWALT ULTRACON+, ELCO 1/4" AGGREGATOR OR ELCO CRETEFLEX MASONRY ANCHORS AS LISTED IN TABLES 1B-14B.

PRODUCT REVISED as complying with the Florida Building Code

NOA-No. 23-0221.03 Expiration Date: 03/28/2028

Miami-Dade Product Control

02/02/23 PREPARED BY A. LYNN MILLER 1070 TECHNOLOGY DRIVE N. VENICE, FL 34275 (941) 480-1600 Date ALUMINUM TUBE MULLIONS, CLIPPED (LM) Ву Ву

JENS ROSOWSKI

INSTALLATION INSTRUCTIONS

TUBEMULL-1

No. DMC

3 OF 23

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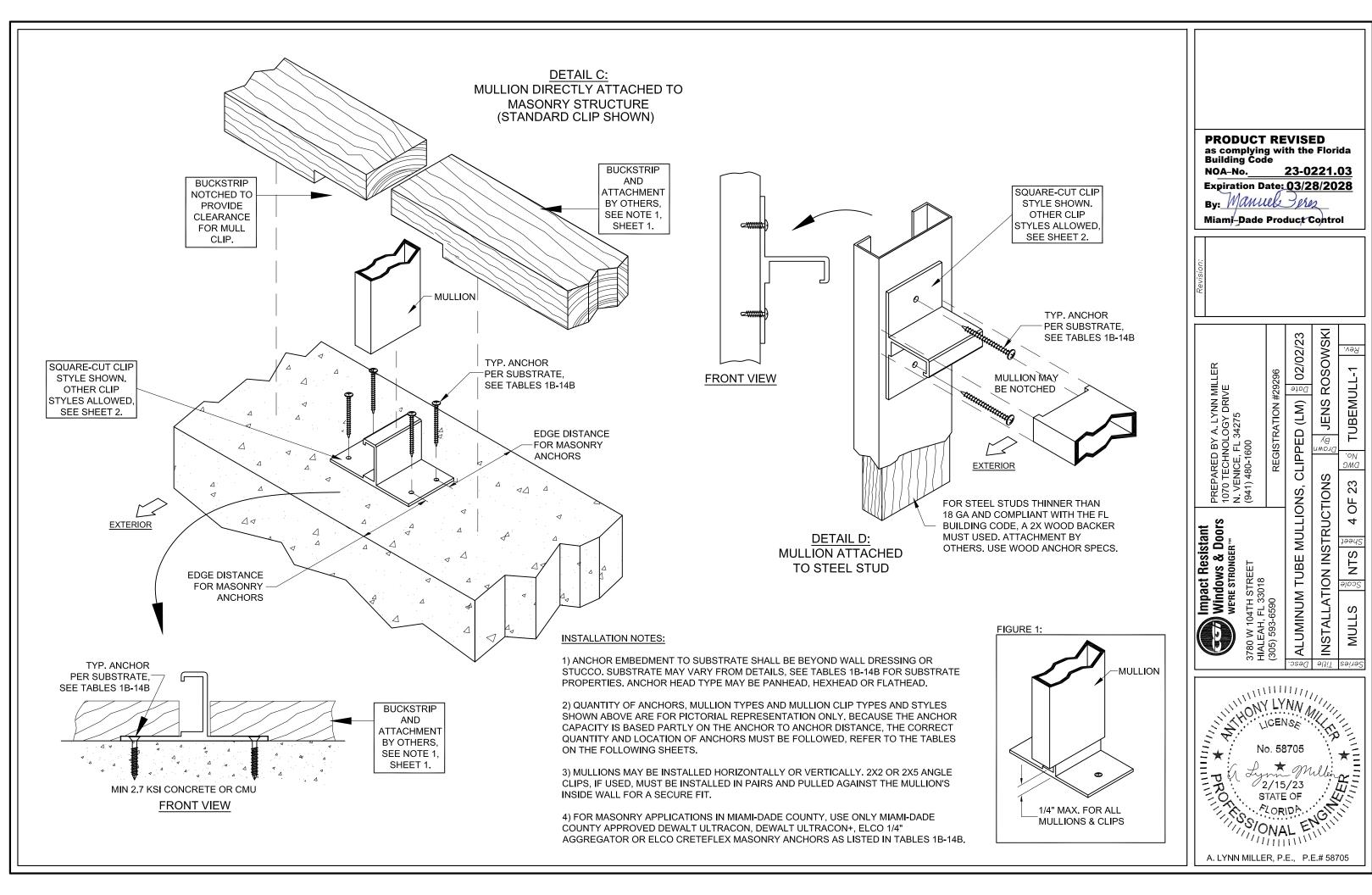
MULLS

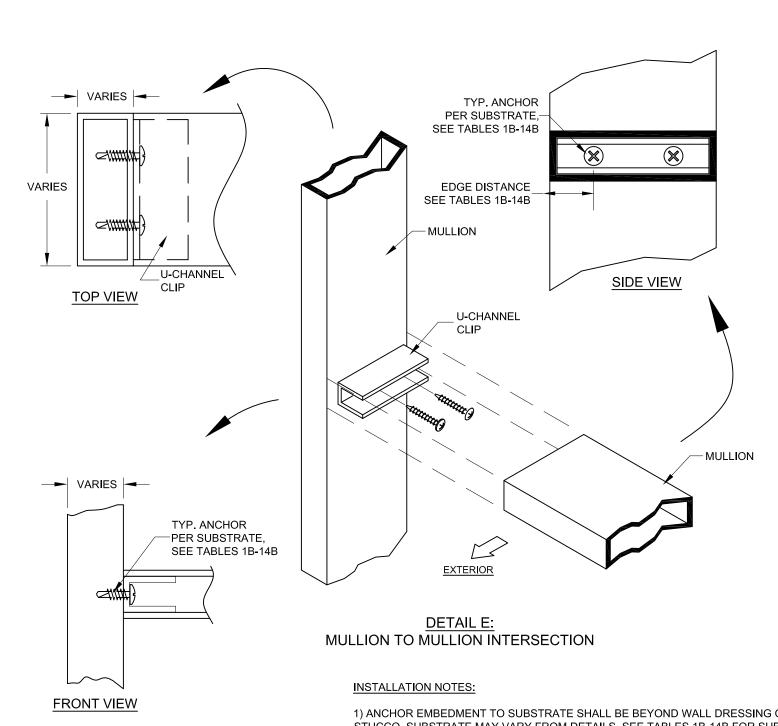
Impact Resistant
Windows & Doors
we're stronger**

/ 104TH STREET NH, FL 33018

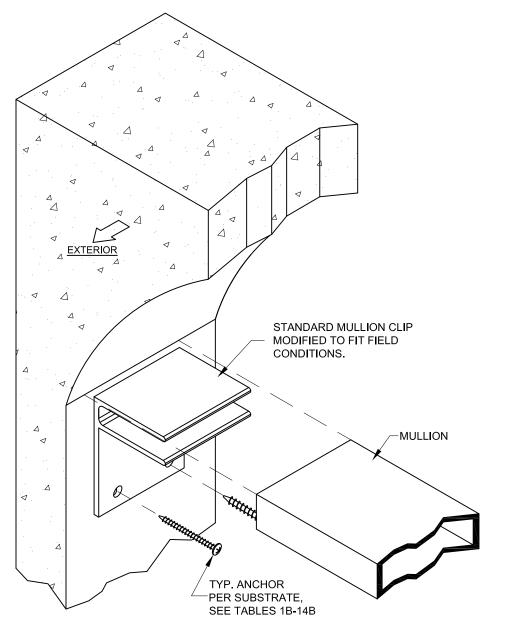
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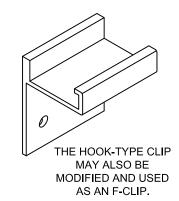


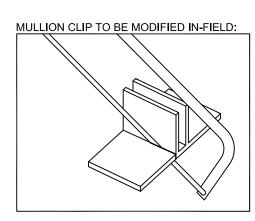


- 1) ANCHOR EMBEDMENT TO SUBSTRATE SHALL BE BEYOND WALL DRESSING OR STUCCO. SUBSTRATE MAY VARY FROM DETAILS, SEE TABLES 1B-14B FOR SUBSTRATE PROPERTIES. ANCHOR HEAD TYPE MAY BE PANHEAD, HEXHEAD OR FLATHEAD.
- 2) QUANTITY OF ANCHORS, MULLION TYPES AND MULLION CLIP TYPES AND STYLES SHOWN ABOVE ARE FOR PICTORIAL REPRESENTATION ONLY, BECAUSE THE ANCHOR CAPACITY IS BASED PARTLY ON THE ANCHOR TO ANCHOR DISTANCE, THE CORRECT QUANTITY AND LOCATION OF ANCHORS MUST BE FOLLOWED, REFER TO THE TABLES ON THE FOLLOWING SHEETS.
- 3) MULLIONS MAY BE INSTALLED HORIZONTALLY OR VERTICALLY. 2X2 OR 2X5 ANGLE CLIPS, IF USED, MUST BE INSTALLED IN PAIRS AND PULLED AGAINST THE MULLION'S INSIDE WALL FOR A SECURE FIT.
- 4) FOR MASONRY APPLICATIONS IN MIAMI-DADE COUNTY, USE ONLY MIAMI-DADE COUNTY APPROVED DEWALT ULTRACON, DEWALT ULTRACON+, ELCO 1/4" AGGREGATOR OR ELCO CRETEFLEX MASONRY ANCHORS AS LISTED IN TABLES 1B-14B.



DETAIL F: OPTIONAL FIELD-MODIFIED **MULLION F-CLIP**





PRODUCT REVISED

as complying with the Florida Building Code NOA-No. 23-0221.03

Expiration Date: 03/28/2028 By: Manuel Perez

Miami-Dade Product Control

02/02/23 JENS ROSOWSKI TUBEMULL-1 Date

Ву Ву

INSTALLATION INSTRUCTIONS

No. DMC

5 OF 23

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MULLS

PREPARED BY A. LYNN MILLER 1070 TECHNOLOGY DRIVE N. VENICE, FL 34275 (941) 480-1600

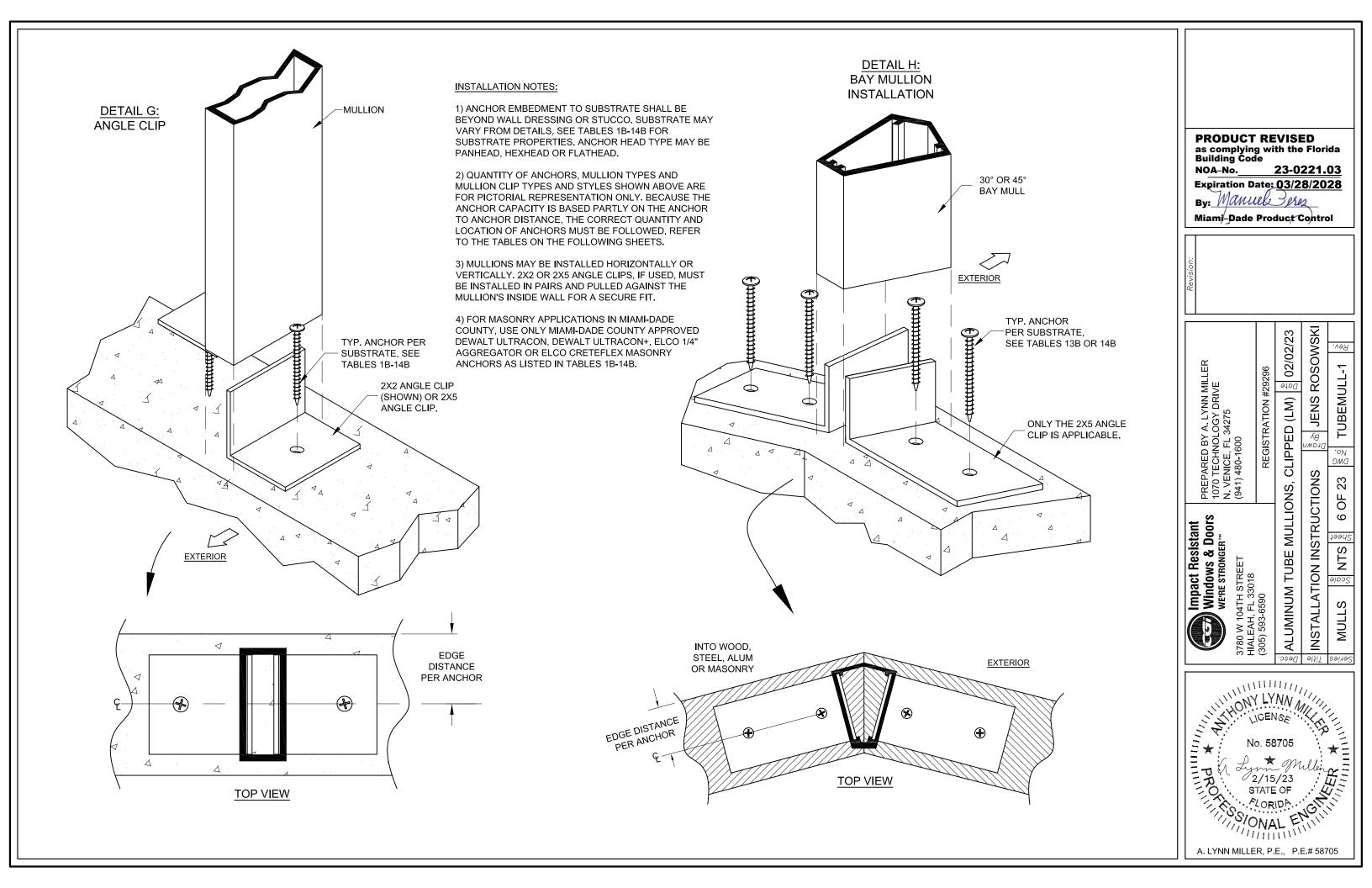
ALUMINUM TUBE MULLIONS, CLIPPED (LM) Impact Resistant Windows & Doors were stronger... / 104TH STREET NH, FL 33018



No. 58705

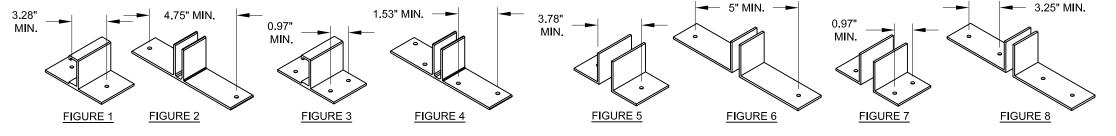
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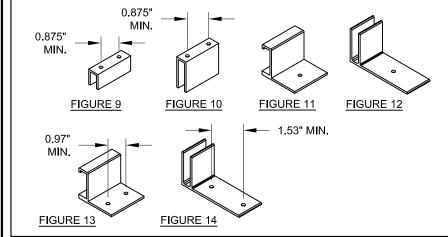
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1"	x 2" x 1/8"		50) in			60) in	- 1		70) in			80) in			90) in			10	0 in			120) in			14	10 in			160	0 in	
Tu	ıbe Mullion Design		ingular iding	3.7.5.5	Triang. ding	200	angular ading		Triang. Iding		ngular ding	12.00	Гriang. ding	Recta Loa	ngular ding	Trap/T Loa	riang. ding	100000000000000000000000000000000000000	ngular ding		riang. ding		ngular ding	1 1 1 1 1 1 1 1 1 1	Triang. ding	Recta Loa	ngular ding	Trap/1 Loa	Гriang. ding	100	angular ading		Triang. ading	Rectar Load		Trap/T Load	
С	ressure & lip/Anchor Capacity equirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)														
	42 in	111.8	408	129.4	331	93.2	408	115.5	325	79.8	408	107.7	321	69.9	408	104.3	319	62.1	408	104.0	318	55.9	408	104.0	318	46.6	408	104.0	318	39.9	408	104.0	318	34.9	408	104.0	318
	48 in	74.9	312	83.7	258	62.4	312	73.4	252	53.5	312	66.9	248	46.8	312	63.1	246	41.6	312	61.3	244	37.4	312	60.9	244	31.2	312	60.9	244	26.7	312	60.9	244	23.4	312	60.9	244
=	50-5/8 in	63.8	281	70.6	234	53.2	281	61.5	228	45.6	281	55.7	224	39.9	281	52.1	222	35.5	281	50.1	220	31.9	281	49.3	219	26.6	281	49.3	219	22.8	281	49.3	219	19.9	281	49.3	219
Span	54 in	52.6	247	57.4	207	43.8	247	49.8	202	37.6	247	44.8	199	32.9	247	41.5	196	29.2	247	39.4	194	26.3	247	38.3	193	21.9	247	38.0	193	18.8	247	38.0	193	16.4	247	38.0	193
S	60 in	38.3	200	41.2	170	32.0	200	35.4	166	27.4	200	31.5	163	24.0	200	28.9	160	21.3	200	27.0	158	19.2	200	25.9	157	16.0	200	25.0	156	13.7	200	25.0	156	12.0	200	25.0	156
<u>.</u>	63 in	33.1	181	35.3	155	27.6	181	30.3	151	23.7	181	26.9	149	20.7	181	24.5	146	18.4	181	22.8	144	16.6	181	21.7	143	13.8	181	20.6	142	11.8	181	20.5	142	10.4	181	20.5	142
Mullion	66 in	28.8	165	30.5	142	24.0	165	26.1	139	20.6	165	23.1	136	18.0	165	21.0	134	16.0	165	19.4	132	14.4	165	18.4	131	12.0	165	17.2	129	10.3	165	17.1	129	9.0	165	17.1	129
-	72 in	22.2	139	23.3	120	18.5	139	19.9	118	15.8	139	17.5	116																					\vdash	\vdash		\vdash
	76 in	18.9	124	19.7	109	15.7	124	16.8	106																						-				\vdash		
	78 in	17.5	118	18.2	103																																

	Substrate:		3k Co	ncrete		3.5k Conc.			Hol	llow CMU	A			Filled CMU		W	ood	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:	100000000000000000000000000000000000000	DeWalt icon+	100 100 100 100	eWalt con+	5/16" Elco Ultracon	1 TO A 12 OF 1	DeWalt con+		eWalt con+	1/4" Elco CreteFlex	1/4" Elco AggreGator	3/16" DeWalt Ultracon+	1/4" DeWalt Ultracon+	1/4" Elco AggreGator	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
1" x 2" x 1/8" Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	2-1/2"	2"	1"	1"	2"	0.54"	0.60"	0.324"
	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	See Sheet 1
2 Anchors @ 3.28" Min.	O.C. / Mullion Clip (Fig. 1):	310 lbs	630 lbs	220 lbs	870 lbs	1105 lbs	230 lbs	370 lbs	320 lbs	580 lbs	497 lbs	374 lbs	170 lbs	347 lbs	946 lbs	442 lbs	537 lbs	536 lbs
2 Anchors @ 4.75" Min.	O.C. / Mullion Clip (Fig. 2):	310 lbs	630 lbs	220 lbs	870 lbs	1644 lbs	230 lbs	370 lbs	320 lbs	580 lbs	514 lbs	374 lbs	170 lbs	410 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Anchors @ 0.97" Min.	O.C. / Mullion Clip (Fig. 3):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	885 lbs	1073 lbs	1073 lbs
4 Anchors @ 1.53" Min.	O.C. / Mullion Clip (Fig. 4):	420 lbs	1260 lbs	400 lbs	1700 lbs	N/A	320 lbs	740 lbs	380 lbs	960 lbs	852 lbs	N/A	340 lbs	400 lbs	N/A	885 lbs	1073 lbs	1073 lbs
2 Total Anchors @ 3.78" O.C. thru:	2x2 Angle Clip Pair (Fig. 5):	310 lbs	630 lbs	220 lbs	870 lbs	1420 lbs	230 lbs	370 lbs	320 lbs	580 lbs	503 lbs	374 lbs	170 lbs	389 lbs	946 lbs	442 lbs	537 lbs	536 lbs
2 Total Anchors @ 5" O.C. thru	2x5 Angle Clip Pair (Fig. 6):	310 lbs	630 lbs	220 lbs	870 lbs	1700 lbs	230 lbs	370 lbs	320 lbs	580 lbs	517 lbs	374 lbs	170 lbs	410 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Total Anchors @ 0.97" O.C. thru:	2x2 Angle Clip Pair (Fig. 7):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	885 lbs	1073 lbs	1073 lbs
4 Total Anchors @ 3.25" O.C. thru	2x5 Angle Clip Pair (Fig. 8):	620 lbs	1260 lbs	440 lbs	1740 lbs	2211 lbs	460 lbs	740 lbs	640 lbs	1160 lbs	994 lbs	748 lbs	340 lbs	694 lbs	1892 lbs	885 lbs	1073 lbs	1073 lbs
2 Anchors @ 0.875" Min.	O.C. / U-Clip (Fig. 9 & 10):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	442 lbs	537 lbs	536 lbs
1 An	nchor / F-Clip (Fig. 11 & 12):	155 lbs	315 lbs	110 lbs	435 lbs	850 lbs	115 lbs	185 lbs	160 lbs	290 lbs	258 lbs	187 lbs	85 lbs	205 lbs	473 lbs	221 lbs	268 lbs	268 lbs
2 Anchors @ 0.97"	Min. O.C. / F-Clip (Fig. 13):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	442 lbs	537 lbs	536 lbs
2 Anchors @ 1.53"	Min O.C. / F-Clip (Fig. 14):	210 lbs	630 lbs	200 lbs	850 lbs	N/A	160 lbs	370 lbs	190 lbs	480 lbs	426 lbs	N/A	170 lbs	200 lbs	N/A	442 lbs	537 lbs	536 lbs



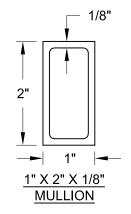


- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR OPENING DIMENSIONS IS ALLOWABLE.
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.

ANCHOR CAPACITY ADJUSTMENT FORMULA:



USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.



PRODUCT REVISED as complying with the Florida Building Code

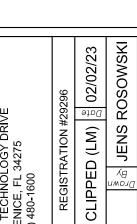
23-0221.03 NOA-No.

Expiration Date: 03/28/2028

By: Manuel Pres

Miami-Dade Product Control





ALUMINUM TUBE MULLIONS,

1 X 2 X 1/8 CAPACITIES

TUBEMULL-1

23

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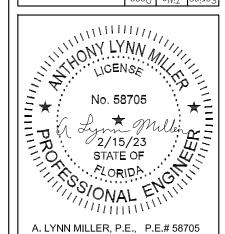
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Sheet NTS

MULLS

PREPARED BY A. LYNN MILLER 1070 TECHNOLOGY DRIVE N. VENICE, FL 34275 (941) 480-1600

Impact Resistant
Windows & Doors
We're Stronger** / 104TH STREET \H, FL 33018

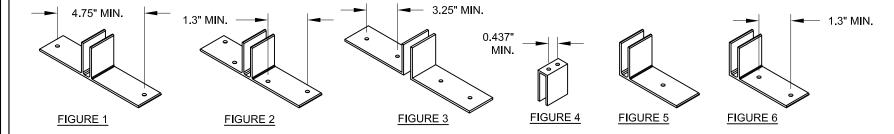


TAE	BLE 2A:																																				
																		Ope	ning l	Dimens	ion																
1'	' x 2" x 3/8"		50) in			60	in			70) in			80) in			90) in			100) in	71.11		120	0 in	-		140) in			160	0 in	
Tu	ube Mullion Design		angular iding	Trap/1 Loa	-		angular ading	Trap/1 Loa		Recta Load	ngular ding		Triang. ding		ngular ding	200	Triang. ding	Recta Loa	ngular ding	Trap/1 Loa		Recta Loa	ngular ding		Triang. ding	Recta Load	_	Trap/T Load	-	20000000	ngular ding	Trap/1 Loa		Recta Load	angular iding	2000	Triang. ading
С	Pressure & Slip/Anchor Capacity equirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)																																		
	42 in	170.0	620	170.0	435	151.3	662	170.0	478	129.7	662	170.0	506	113.5	662	169.5	518	100.9	662	168.9	517	90.8	662	168.9	517	75.7	662	168.9	517	64.9	662	168.9	517	56.7	662	168.9	517
	48 in	121.6	507	136.0	419	101.4	507	119.2	410	86.9	507	108.7	403	76.0	507	102.6	399	67.6	507	99.6	397	60.8	507	99.0	396	50.7	507	99.0	396	43.4	507	99.0	396	38.0	507	99.0	396
	50-5/8 in	103.7	456	114.6	379	86.4	456	99.9	371	74.1	456	90.5	364	64.8	456	84.6	360	57.6	456	81.3	357	51.8	456	80.0	356	43.2	456	80.0	356	37.0	456	80.0	356	32.4	456	80.0	356
Span	54 in	85.4	400	93.3	336	71.2	400	80.9	328	61.0	400	72.7	322	53.4	400	67.3	318	47.5	400	64.0	315	42.7	400	62.3	314	35.6	400	61.8	313	30.5	400	61.8	313	26.7	400	61.8	313
		62.3	324	66.9	276	51.9	324	57.5	270	44.5	324	51.2	264	38.9	324	46.9	260	34.6	324	43.9	257	31.1	324	42.0	255	26.0	324	40.5	253	22.2	324	40.5	253	19.5	324	40.5	253
Mullion	63 in	53.8	294	57.4	252	44.8	294	49.2	246	38.4	294	43.6	241	33.6	294	39.8	237	29.9	294	37.1	234	26.9	294	35.2	232	22.4	294	33.5	230	19.2	294	33.4	230	16.8	294	33.4	230
=	66 in	46.8	268	49.6	230	39.0	268	42.4	225	33.4	268	37.5	221	29.2	268	34.1	218	26.0	268	31.6	215	23.4	268	29.8	212	19.5	268	28.0	210	16.7	268	27.7	209	14.6	268	27.7	209
Σ	72 in 76 in	36.0 30.6	225	37.9 32.0	196 177	30.0 25.5	225	32.2 27.2	191 173	25.7 21.9	225	28.4	188 170	22.5 19.2	225	25.6 21.5	185 167	20.0 17.0	225	23.5 19.7	182 165	18.0 15.3	225 202	22.1 18.4	180 163	15.0 12.8	225	20.3	177 160	12.9	225	19.6	176	11.3	225	19.6	176
	78 in	28.3	192	29.6	168	23.6	192	25.1	165	20.2	192	22.0	162	17.7	192	19.7	159	15.7	192	18.1	157	14.2	192	16.8	155	12.0	202	10.7	100						\vdash	\vdash	
	90 in	18.5	144	19.0	128	15.4	144	16.1	126	20.2	132		102	17.7	132	10.7	100	13.7	102	13.1	107	1-1.2	102	10.0	100												

TABLE 2B.

	Substrate:		3k Co	ncrete		3.5k Conc.			Ho	low CMU				Filled CMU		W	ood	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:		DeWalt acon+	1/4" D Ultra	C. C. C. C. C.	5/16" Elco Ultracon		DeWalt icon+		eWalt con+	1/4" Elco CreteFlex	1/4" Elco AggreGator	3/16" DeWalt Ultracon+	1/4" DeWalt Ultracon+	1/4" Elco AggreGator	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
1" x 2" x 3/8" Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	2-1/2"	2"	1"	1"	2"	0.54"	0.60"	0.324"
	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	See Sheet 1
2 Anchors @ 4.75" Min.	O.C. / Mullion Clip (Fig. 1):	310 lbs	630 lbs	220 lbs	870 lbs	1644 lbs	230 lbs	370 lbs	320 lbs	580 lbs	514 lbs	374 lbs	170 lbs	410 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Anchors @ 1.3" Min.	O.C. / Mullion Clip (Fig. 2):	353 lbs	1260 lbs	380 lbs	N/A	N/A	N/A	740 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	885 lbs	1073 lbs	1073 lbs
4 Total Anchors @ 3.25" O.C. thru	2x5 Angle Clip Pair (Fig. 3):	620 lbs	1260 lbs	440 lbs	1740 lbs	2211 lbs	460 lbs	740 lbs	640 lbs	1160 lbs	994 lbs	748 lbs	340 lbs	694 lbs	1892 lbs	885 lbs	1073 lbs	1073 lbs
2 Anchors @ 0.437	" Min. O.C. / U-Clip (Fig. 4):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	536 lbs
	1 Anchor / F-Clip (Fig. 5):	155 lbs	315 lbs	110 lbs	435 lbs	850 lbs	115 lbs	185 lbs	160 lbs	290 lbs	258 lbs	187 lbs	85 lbs	205 lbs	473 lbs	221 lbs	268 lbs	268 lbs
2 Anchors @ 1.3	" Min. O.C. / F-Clip (Fig. 6):	177 lbs	630 lbs	190 lbs	N/A	N/A	N/A	370 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	442 lbs	537 lbs	536 lbs

SEE SUBSTRATE PROPERTIES, SHEET 1.

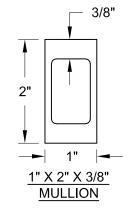


- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR OPENING DIMENSIONS IS ALLOWABLE.
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.

ANCHOR CAPACITY ADJUSTMENT FORMULA:



USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

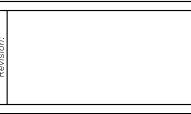


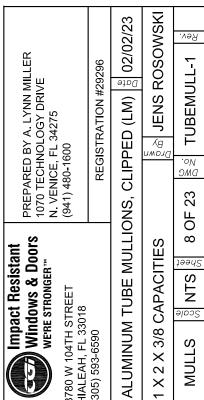
PRODUCT REVISED as complying with the Florida Building Code

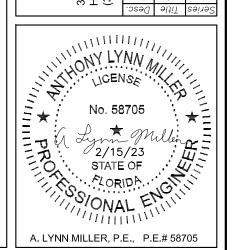
23-0221.03 NOA-No. Expiration Date: 03/28/2028

By: Manuel Pres

Miami-Dade Product Control



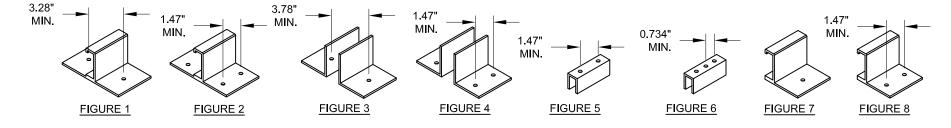




MULLS

TAE	BLE 3A:																																				
																		Ope	ning [Dimens	ion																
	' x 2-1/2" x		50) in	= =		60) in	- 1		70) in			80	in			90	in			100) in			120) in			140) in			160) in	====
	I/8" Tube Mullion Design	Recta Loa		Trap/T Load			ingular ding	Trap/T Loa		Rectar Load		Trap/T Loa		Recta Loa	Y 6	Trap/1 Loa		Rectar Load		Trap/T Load		Recta Loa	ngular ding	Trap/T Loa	Triang. ding	Rectar Load		Trap/T Load		Recta Loa	•	Trap/1 Loa	riang. ding	Recta Load	ingular ding	Trap/T Loa	Triang. ding
С	ressure & lip/Anchor Capacity equirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)
	42 in	170.0	620	170.0	435	163.1	714	170.0	478	139.8	714	170.0	506	122.4	714	170.0	519	108.8	714	170.0	521	97.9	714	170.0	521	81.6	714	170.0	521	69.9	714	170.0	521	61.2	714	170.0	521
	48 in	131.2	546	146.6	452	109.3	546	128.5	442	93.7	546	117.3	435	82.0	546	110.6	430	72.9	546	107.3	428	65.6	546	106.7	427	54.6	546	106.7	427	46.8	546	106.7	427	41.0	546	106.7	427
10.0	50-5/8 in	111.8	491	123.6	409	93.2	491	107.7	400	79.9	491	97.6	393	69.9	491	91.2	388	62.1	491	87.7	385	55.9	491	86.3	384	46.6	491	86.3	384	39.9	491	86.3	384	34.9	491	86.3	384
드	54 in	92.1	432	100.6	362	76.8	432	87.2	354	65.8	432	78.4	348	57.6	432	72.6	343	51.2	432	69.0	340	46.1	432	67.1	338	38.4	432	66.6	337	32.9	432	66.6	337	28.8	432	66.6	337
Span	60 in	67.2	350	72.1	297	56.0	350	62.0	291	48.0	350	55.2	285	42.0	350	50.5	281	37.3	350	47.3	277	33.6	350	45.3	275	28.0	350	43.7	273	24.0	350	43.7	273	21.0	350	43.7	273
0,0	00 111	58.0	317	61.9	271	48.3	317	53.1	265	41.4	317	47.1	260	36.3	317	42.9	256	32.2	317	39.9	253	29.0	317	38.0	250	24.2	317	36.1	248	20.7	317	36.0	248	18.1	317	36.0	248
.0	66 in	50.5	289	53.5	248	42.0	289	45.3	243	36.0	289	40.5	238	31.5	289	36.7	235	28.0	289	34.1	231	25.2	289	32.2	229	21.0	289	30.2	226	18.0	289	29.9	226	15.8	289	29.9	226
Mullion	72 in	38.9	243	40.8	211	32.4	243	34.3	206	27.8	243	30.6	203	24.3	243	27.6	199	21.6	243	25.4	196	19.4	243	23.8	194	16.2	243	21.8	191	13.9	243	21.1	190	12.1	243	21.1	190
2	76 in	33.0	218	34.5	190	27.5	218	29.3	186	23.6	218	25.7	183	20.7	218	23.1	180	18.4	218	21.2	177	16.5	218	19.8	175	13.8	218	18.0	172	11.8	218	17.1	171	10.3	218	17.0	170
	78 in	30.6	207	31.9	181	25.5	207	27.1	178	21.8	207	23.7	174	19.1	207	21.3	171	17.0	207	19.5	169	15.3	207	18.1	167	12.7	207	16.4	164								
	90 in	19.9	155	20.5	138	16.6	155	17.3	136																										\square		
	96 in	16.4	137	16.8	122																															· '	

TABLE 3B:																		
	Substrate:		3k Co	ncrete		3.5k Conc.			Но	llow CMU			4	Filled CMU		W	ood	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:		DeWalt acon+	99.8	DeWalt acon+	5/16" Elco Ultracon	100	DeWalt icon+	72. 7. 7.	DeWalt acon+	1/4" Elco CreteFlex	1/4" Elco AggreGator	3/16" DeWalt Ultracon+	1/4" DeWalt Ultracon+	1/4" Elco AggreGator	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
1" x 2-1/2" x 1/8" Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	2-1/2"	2"	1"	1"	2"	0.54"	0.60"	0.324"
	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	See Sheet 1
2 Anchors @ 3.28" Min.	O.C. / Mullion Clip (Fig. 1):	310 lbs	630 lbs	220 lbs	870 lbs	1105 lbs	230 lbs	370 lbs	320 lbs	580 lbs	497 lbs	374 lbs	170 lbs	347 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Anchors @ 1.47" Min.	O.C. / Mullion Clip (Fig. 2):	403 lbs	1260 lbs	395 lbs	N/A	N/A	N/A	740 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	885 lbs	1073 lbs	1073 lbs
2 Total Anchors @ 3.78" O.C. thru 2	x2 Angle Clip Pair (Fig. 3):	310 lbs	630 lbs	220 lbs	870 lbs	1420 lbs	230 lbs	370 lbs	320 lbs	580 lbs	503 lbs	374 lbs	170 lbs	389 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Total Anchors @ 1.47" O.C. thru 2	x2 Angle Clip Pair (Fig. 4):	403 lbs	1260 lbs	395 lbs	N/A	N/A	N/A	740 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	885 lbs	1073 lbs	1073 lbs
2 Anchors @ 1.47"	Min. O.C. / U-Clip (Fig. 5):	202 lbs	630 lbs	198 lbs	N/A	N/A	N/A	370 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	442 lbs	537 lbs	536 lbs
3 Anchors @ 0.734"	Min. O.C. / U-Clip (Fig. 6):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	664 lbs	805 lbs	805 lbs
	1 Anchor / F-Clip (Fig. 7):	155 lbs	315 lbs	110 lbs	435 lbs	850 lbs	115 lbs	185 lbs	160 lbs	290 lbs	258 lbs	187 lbs	85 lbs	205 lbs	473 lbs	221 lbs	268 lbs	268 lbs
2 Anchors @ 1.47"	Min O.C. / F-Clin (Fig. 8):	202 lbs	630 lbs	198 lbs	N/A	N/A	N/A	370 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	442 lbs	537 lbs	536 lbs

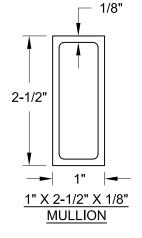


- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR OPENING DIMENSIONS IS ALLOWABLE.
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.

ANCHOR CAPACITY ADJUSTMENT FORMULA:



USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

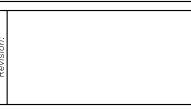


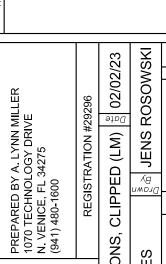
PRODUCT REVISED as complying with the Florida Building Code

23-0221.03 NOA-No. Expiration Date: 03/28/2028

By: Manuel eres

Miami-Dade Product Control





TUBEMULL-1

23

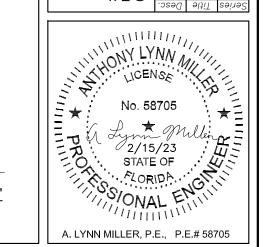
9 OF

NTS

MULLS

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A. LYNN MILLER, P.E., P.E.# 58705

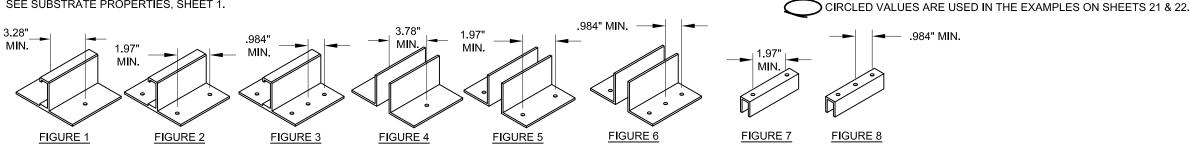
ALUMINUM TUBE MULLIONS,

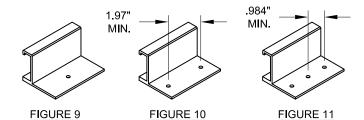
1 X 2-1/2 X 1/8 CAPACITIES

TAB	LE 4A:																																				
																		Оре	ning [Dimen	sion																
1"	x 3" x 1/8"		50	in			60) in			70) in			80	in			90	in			10	0 in		3	120	0 in			140) in			160) in	
1 200	be Mullion Design	Recta Loa		121467	Гriang. ding	Recta Loa	-	12.43.42.2	Гriang. ding	Recta Loa	ngular ding	Trap/1 Loa	riang. ding	Recta Loa		Trap/T Loa		Recta Loa	-	Trap/T Loa	Triang. ding	2.7,000	angular iding	Trap/1 Loa	riang. ding	Recta Load		Trap/1 Loa	Triang. ding	2,4,5,5	angular ading	Trap/T		Rectar Load	-	Trap/T	
C	ressure & ip/Anchor Capacity quirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)												
	42 in	170.0	620	170.0	435	170.0	744	170.0	478	170.0	868	170.0	506	170.0	992	170.0	519	170.0	1116	170.0	521	157.6	1149	170.0	521	131.3	1149	170.0	521	112.6	1149	170.0	521	98.5	1149	170.0	521
	48 in	170.0	708	170.0	524	170.0	850	170.0	584	150.8	880	170.0	630	132.0	880	170.0	661	117.3	880	170.0	677	105.6	880	170.0	680	88.0	880	170.0	680	75.4	880	170.0	680	66.0	880	170.0	680
	50-5/8 in	170.0	747	170.0	563	150.0	791	170.0	631	128.6	791	157.1	632	112.5	791	146.9	625	100.0	791	141.1	620	90.0	791	138.9	618	75.0	791	138.9	618	64.3	791	138.9	618	56.2	791	138.9	618
	54 in	148.3	695	161.9	583	123.6	695	140.4	570	105.9	695	126.2	560	92.7	695	116.9	552	82.4	695	111.1	547	74.2	695	108.1	544	61.8	695	107.3	543	53.0	695	107.3	543	46.3	695	107.3	543
_	60 in	108.1	563	116.1	479	90.1	563	99.8	468	77.2	563	88.9	459	67.6	563	81.4	452	60.1	563	76.2	447	54.1	563	72.9	443	45.0	563	70.4	440	38.6	563	70.4	440	33.8	563	70.4	440
Span	63 in	93.4	511	99.6	437	77.8	511	85.4	427	66.7	511	75.8	419	58.4	511	69.0	412	51.9	511	64.3	407	46.7	511	61.1	403	38.9	511	58.1	400	33.4	511	57.9	399	29.2	511	57.9	399
S	66 in	81.2	465	86.1	400	67.7	465	73.7	391	58.0	465	65.1	384	50.8	465	59.1	378	45.1	465	54.8	373	40.6	465	51.8	369	33.8	465	48.6	365	29.0	465	48.1	364	25.4	465	48.1	364
Mullion	72 in	62.6	391	65.7	339	52.1	391	56.0	332	44.7	391	49.2	326	39.1	391	44.4	321	34.8	391	40.9	316	31.3	391	38.3	312	26.1	391	35.2	308	22.3	391	34.0	306	19.6	391	33.9	305
=	76 in	53.2	351	55.6	306	44.3	351	47.3	300	38.0	351	41.5	295	33.2	351	37.3	290	29.6	351	34.2	286	26.6	351	31.9	282	22.2	351	28.9	277	19.0	351	27.6	275	16.6	351	27.3	274
Σ	78 in	49.2	333	51.3	292	41.0	333	43.6	286	35.1	333	38.2	281	30.8	333	34.3	276	27.3	333	31.4	272	24.6	333	29.2	269	20.5	333	26.4	264	17.6	333	25.0	261	15.4	333	24.6	260
	90 in	32.0	250	33.0	222	26.7	250	27.9	218	22.9	250	24.3	214	20.0	250	21.7	211	17.8	250	19.7	208	16.0	250	18.2	205	13.3	250	16.1	201								
	96 in	26.4	220	27.1	197	22.0	220	22.9	193	18.9	220	19.9	190	16.5	220	17.7	187	14.7	220	16.0	184																
	108 in	18.5	174	18.9	157																																
	111 in	17.1	165	17.4	149																	1															

TABL	E.	4B:
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	Substrate:		3k Cor	ncrete		3.5k Conc.			Hol	low CMU				Filled CMU		W	ood	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:	3/16" [Ultra	DeWalt con+	2000	eWalt con+	5/16" Elco Ultracon	061 (3.5)	DeWalt con+	1/4" D Ultra	eWalt con+	1/4" Elco CreteFlex	1/4" Elco AggreGator	3/16" DeWalt Ultracon+	1/4" DeWalt Ultracon+	1/4" Elco AggreGator	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
1" x 3" x 1/8" Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	2-1/2"	2"	1"	1"	2"	0.54"	0.60"	0.324"
	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	See Sheet 1
2 Anchors @ 3.28" Min.	O.C. / Mullion Clip (Fig. 1):	310 lbs	630 lbs	220 lbs	870 lbs	1105 lbs	230 lbs	370 lbs	320 lbs	580 lbs	497 lbs	374 lbs	170 lbs	347 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Anchors @ 1.97" Min.	O.C. / Mullion Clip (Fig. 2):	537 lbs	1260 lbs	412 lbs	1712 lbs	559 lbs	361 lbs	740 lbs	456 lbs	1018 lbs	892 lbs	N/A	340 lbs	474 lbs	N/A	885 lbs	1073 lbs	1073 lbs
6 Anchors @ 0.984" Min.	O.C. / Mullion Clip (Fig. 3):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1327 lbs	1610 lbs	1609 lbs
2 Total Anchors @ 3.78" O.C. thru 2	2x2 Angle Clip Pair (Fig. 4):	310 lbs	630 lbs	220 lbs	870 lbs	1420 lbs	230 lbs	370 lbs	320 lbs	580 lbs	503 lbs	374 lbs	170 lbs	389 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Total Anchors @ 1.97" O.C. thru 2	2x2 Angle Clip Pair (Fig. 5):	537 lbs	1260 lbs	412 lbs	1712 lbs	559 lbs	361 lbs	740 lbs	456 lbs	1018 lbs	892 lbs	N/A	340 lbs	474 lbs	N/A	885 lbs	1073 lbs	1073 lbs
6 Total Anchors @ 0.984" O.C. thru 2	2x2 Angle Clip Pair (Fig. 6):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1327 lbs	1610 lbs	1609 lbs
2 Anchors @ 1.97"	Min. O.C. / U-Clip (Fig. 7):	268 lbs	630 lbs	206 lbs	856 lbs	279 lbs	180 lbs	370 lbs	228 lbs	509 lbs	446 lbs	N/A	170 lbs	237 lbs	N/A	442 lbs	537 lbs	536 lbs
3 Anchors @ 0.984"	Min. O.C. / U-Clip (Fig. 8):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	664 lbs	805 lbs	805 lbs
	1 Anchor / F-Clip (Fig. 9):	155 lbs	315 lbs	110 lbs	435 lbs	850 lbs	115 lbs	185 lbs	160 lbs	290 lbs	258 lbs	187 lbs	85 lbs	205 lbs	473 lbs	221 lbs	268 lbs	268 lbs
2 Anchors @ 1.97"	Min. O.C. / F-Clip (Fig. 10):	268 lbs	630 lbs	206 lbs	856 lbs	279 lbs	180 lbs	370 lbs	228 lbs	509 lbs	446 lbs	N/A	170 lbs	237 lbs	N/A	442 lbs	537 lbs	536 lbs
3 Anchors @ 0.984"	Min. O.C. / F-Clip (Fig. 11):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	664 lbs	805 lbs	805 lbs



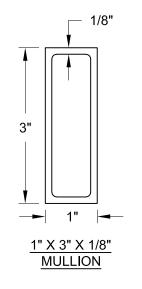


- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR OPENING DIMENSIONS IS ALLOWABLE.
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.

ANCHOR CAPACITY ADJUSTMENT FORMULA:



USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

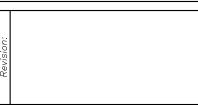


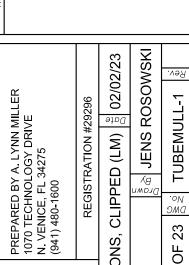
PRODUCT REVISED as complying with the Florida Building Code

NOA-No. 23-0221.03 Expiration Date: 03/28/2028

By: Manuel eres

Miami-Dade Product Control





ALUMINUM TUBE MULLIONS,

1 X 3 X 1/8 CAPACITIES

23

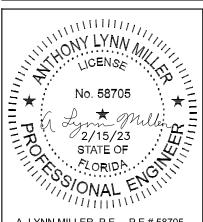
10 OF

NTS Page

MULLS

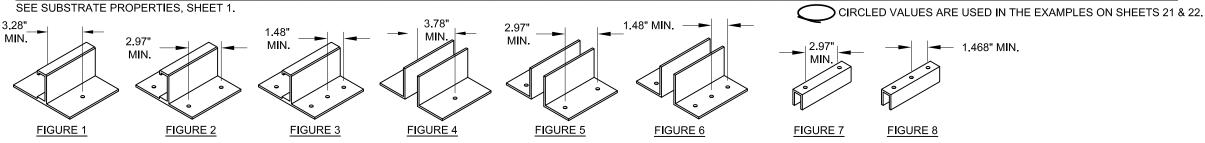
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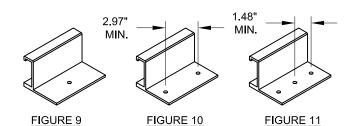
/ 104TH STREET \H, FL 33018



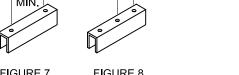
TAB	E 5A:																																				
																		Ope	ning [Dimens	sion																
1"	c 4" x 1/8"		50	in			60) in			70) in	- 1		80	in			90) in			10	0 in			120	0 in			14	0 in			16	60 in	
	oe Mullion Design	Recta Loa	•	Trap/T Loa		Recta Loa	ngular ding	Trap/T Load	-	Recta Loa	ngular ding		riang. ding	Recta Loa	ngular ding	Trap/T Loa			ngular ding	Trap/1 Loa	-	Recta Loa	ngular ding	Trap/1 Loa	Triang. ding	Recta Loa	ngular ding	Trap/1 Loa		100000000000000000000000000000000000000	ingular ding	Trap/T Load		1,000,000	angular ading	Trap/1 Loa	Triang. Iding
CI	essure & p/Anchor apacity quirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)														
	42 in	170.0	620	170.0	435	170.0	744	170.0	478	170.0	868	170.0	506	170.0	992	170.0	519	170.0	1116	170.0	521	170.0	1240	170.0	521	170.0	1488	170.0	521	170.0	1735	170.0	521	170.0	1983	170.0	521
	48 in	170.0	708	170.0	524	170.0	850	170.0	584	170.0	992	170.0	630	170.0	1133	170.0	661	170.0	1275	170.0	677	170.0	1417	170.0	680	170.0	1700	170.0	680	163.7	1910	170.0	680	143.3	1910	170.0	680
	50-5/8 in	170.0	747	170.0	563	170.0	896	170.0	631	170.0	1046	170.0	684	170.0	1195	170.0	723	170.0	1345	170.0	747	170.0	1494	170.0	756	162.8	1717	170.0	756	139.6	1717	170.0	756	122.1	1717	170.0	756
	54 in	170.0	797	170.0	612	170.0	956	170.0	691	170.0	1116	170.0	754	170.0	1275	170.0	803	170.0	1434	170.0	837	161.0	1509	170.0	856	134.2	1509	170.0	861	115.0	1509	170.0	861	100.6	1509	170.0	861
	60 in	170.0	885	170.0	701	170.0	1063	170.0	797	167.7	1223	170.0	878	146.7	1223	170.0	944	130.4	1223	165.5	970	117.4	1223	158.3	962	97.8	1223	152.8	955	83.8	1223	152.8	955	73.4	1223	152.8	955
⊑	63 in	170.0	930	170.0	745	169.0	1109	170.0	850	144.8	1109	164.5	910	126.7	1109	149.8	895	112.6	1109	139.6	884	101.4	1109	132.7	875	84.5	1109	126.2	867	72.4	1109	125.7	866	63.4	1109	125.7	866
Span	66 in	170.0	974	170.0	789	147.0	1010	160.0	850	126.0	1010	141.4	834	110.2	1010	128.3	820	98.0	1010	119.0	809	88.2	1010	112.5	801	73.5	1010	105.5	792	63.0	1010	104.4	789	55.1	1010	104.4	789
S	72 in	135.8	849	142.7	737	113.2	849	121.5	722	97.0	849	106.9	708	84.9	849	96.4	696	75.5	849	88.8	686	67.9	849	83.1	678	56.6	849	76.3	668	48.5	849	73.8	664	42.4	849	73.7	663
Mullion	76 in	115.5	762	120.7	665	96.2	762	102.6	652	82.5	762	90.0	640	72.2	762	80.9	629	64.2	762	74.2	620	57.7	762	69.2	612	48.1	762	62.8	602	41.2	762	59.9	597	36.1	762	59.4	595
3	78 in	106.8	723	111.4	633	89.0	723	94.6	621	76.3	723	82.9	609	66.8	723	74.4	599	59.4	723	68.1	591	53.4	723	63.4	583	44.5	723	57.3	573	38.2	723	54.3	567	33.4	723	53.5	565
2	90 in	69.5	543	71.8	483	58.0	543	60.6	474	49.7	543	52.8	466	43.5	543	47.1	458	38.6	543	42.8	452	34.8	543	39.5	446	29.0	543	34.9	436	24.8	543	32.1	430	21.7	543	30.7	426
	96 in	57.3	478	58.9	427	47.8	478	49.7	419	40.9	478	43.2	412	35.8	478	38.5	406	31.8	478	34.8	400	28.7	478	32.0	395	23.9	478	28.1	386	20.5	478	25.6	380	17.9	478	24.2	376
	108 in	40.2	377	41.1	341	33.5	377	34.6	335	28.7	377	30.0	330	25.2	377	26.6	325	22.4	377	24.0	321	20.1	377	22.0	317	16.8	377	19.0	309	14.4	377	17.1	304	3.5			
	111 in	37.1	357	37.8	323	30.9	357	31.8	318	26.5	357	27.6	313	23.2	357	24.4	309	20.6	357	22.0	305	18.5	357	20.1	301	15.4	357	17.4	294								
	120 in	29.3	306	29.8	278	24.5	306	25.1	274	21.0	306	21.7	270	18.3	306	19.2	267	16.3	306	17.3	263																
	144 in	17.0	212	17.2	196																						1										

The company of the contract of	Substrate:		3k Co	ncrete		3.5k Conc.			Hol	low CMU				Filled CMU		W	bod	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:	11 VEX.22.2	DeWalt icon+		eWalt con+	5/16" Elco Ultracon	0.000,000,000	DeWalt scon+	100	eWalt con+	1/4" Elco CreteFlex	1/4" Elco AggreGator	3/16" DeWalt Ultracon+	1/4" DeWalt Ultracon+	1/4" Elco AggreGator	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
1" x 4" x 1/8" Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	2-1/2"	2"	1"	1"	2"	0.54"	0.60"	0.324"
	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	See Sheet 1
2 Anchors @ 3.28" Min.	O.C. / Mullion Clip (Fig. 1):	310 lbs	630 lbs	220 lbs	870 lbs	1105 lbs	230 lbs	370 lbs	320 lbs	580 lbs	497 lbs	374 lbs	170 lbs	347 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Anchors @ 2.97" Min.	O.C. / Mullion Clip (Fig. 2):	620 lbs	1260 lbs	438 lbs	1738 lbs	1817 lbs	454 lbs	740 lbs	629 lbs	1152 lbs	982 lbs	N/A	340 lbs	642 lbs	N/A	885 lbs	1073 lbs	1073 lbs
6 Anchors @ 1.48" Min.	O.C. / Mullion Clip (Fig. 3):	605 lbs	1890 lbs	593 lbs	N/A	N/A	N/A	1110 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1327 lbs	1610 lbs	1609 lbs
2 Total Anchors @ 3.78" O.C. thru 2	x2 Angle Clip Pair (Fig. 4):	310 lbs	630 lbs	220 lbs	870 lbs	1420 lbs	230 lbs	370 lbs	320 lbs	580 lbs	503 lbs	374 lbs	170 lbs	389 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Total Anchors @ 2.97" O.C. thru 2	x2 Angle Clip Pair (Fig. 5):	620 lbs	1260 lbs	438 lbs	1738 lbs	1817 lbs	454 lbs	740 lbs	629 lbs	1152 lbs	982 lbs	N/A	340 lbs	642 lbs	N/A	885 lbs	1073 lbs	1073 lbs
6 Total Anchors @ 1.48" O.C. thru 2	x2 Angle Clip Pair (Fig. 6):	605 lbs	1890 lbs	593 lbs	N/A	N/A	N/A	1110 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1327 lbs	1610 lbs	1609 lbs
2 Anchors @ 2.97"	Min. O.C. / U-Clip (Fig. 7):	310 lbs	630 lbs	219 lbs	869 lbs	909 lbs	227 lbs	370 lbs	315 lbs	576 lbs	491 lbs	N/A	170 lbs	321 lbs	N/A	442 lbs	537 lbs	536 lbs
3 Anchors @ 1.48"	Min. O.C. / U-Clip (Fig. 8):	303 lbs	945 lbs	296 lbs	N/A	N/A	N/A	555 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	664 lbs	805 lbs	805 lbs
	1 Anchor / F-Clip (Fig. 9):	155 lbs	315 lbs	110 lbs	435 lbs	850 lbs	115 lbs	185 lbs	160 lbs	290 lbs	258 lbs	187 lbs	85 lbs	205 lbs	473 lbs	221 lbs	268 lbs	268 lbs
2 Anchors @ 2.97" N	Min. O.C. / F-Clip (Fig. 10):	310 lbs	630 lbs	219 lbs	869 lbs	909 lbs	227 lbs	370 lbs	315 lbs	576 lbs	491 lbs	N/A	170 lbs	321 lbs	N/A	442 lbs	537 lbs	536 lbs
3 Anchors @ 1.48" N	Min. O.C. / F-Clip (Fig. 11):	303 lbs	945 lbs	296 lbs	N/A	N/A	N/A	555 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	664 lbs	805 lbs	805 lbs





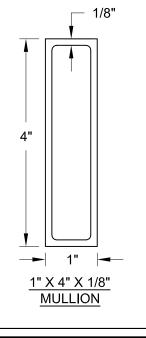
- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR OPENING DIMENSIONS IS ALLOWABLE.
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.



ANCHOR CAPACITY ADJUSTMENT FORMULA:



USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

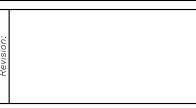


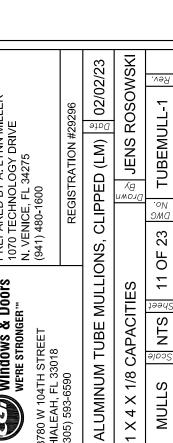


NOA-No. 23-0221.03 Expiration Date: 03/28/2028

By: Manuel eres

Miami-Dade Product Control





23 Я

NTS Sheet

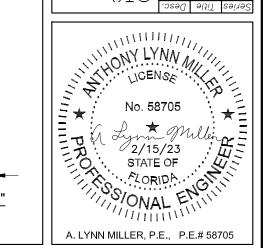
MULLS

1 X 4 X 1/8 CAPACITIES

PREPARED BY A. LYNN MILLER 1070 TECHNOLOGY DRIVE N. VENICE, FL 34275 (941) 480-1600

Impact Resistant
Windows & Doors
We're Stronger** / 104TH STREET \H, FL 33018

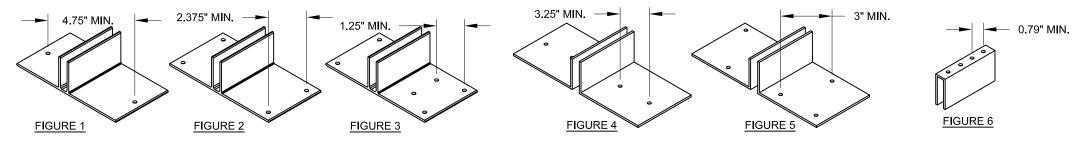


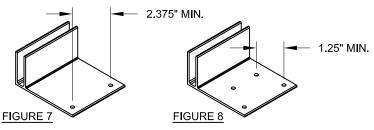


TAB	LE 6A:																																				
																		Ope	ning [Dimens	sion																
1"	x 4" x 3/8"		50	in			60) in			70	in			80) in			90	in			100) in			120	0 in			140	0 in		1	160	0 in	
Tu	be Mullion Design	Recta		Trap/1 Loa	Triang. ding	Recta Loa		Trap/1 Loa	Triang. ding	Recta Loa	ngular ding	Trap/1 Loa	Triang. ding	Recta Load	•	Trap/1 Loa		Rectar Load		Trap/1 Loa	-	100 100 000	angular ading	Trap/1 Loa		Recta Load	-	Trap/T Loa		Recta Loa	ngular ding	Trap/Ti Load		Recta Loa	angular iding	Trap/T Load	
CI	ressure & ip/Anchor Capacity quirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (Ibs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (Ibs/rt²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)								
1111	42 in	170.0	620	170.0	435	170.0	744	170.0	478	170.0	868	170.0	506	170.0	992	170.0	519	170.0	1116	170.0	521	170.0	1240	170.0	521	170.0	1488	170.0	521	170.0	1735	170.0	521	170.0	1983	170.0	521
	48 in	170.0	708	170.0	524	170.0	850	170.0	584	170.0	992	170.0	630	170.0	1133	170.0	661	170.0	1275	170.0	677	170.0	1417	170.0	680	170.0	1700	170.0	680	170.0	1983	170.0	680	170.0	2267	170.0	680
	50-5/8 in	170.0	747	170.0	563	170.0	896	170.0	631	170.0	1046	170.0	684	170.0	1195	170.0	723	170.0	1345	170.0	747	170.0	1494	170.0	756	170.0	1793	170.0	756	170.0	2092	170.0	756	170.0	2391	170.0	756
	54 in	170.0	797	170.0	612	170.0	956	170.0	691	170.0	1116	170.0	754	170.0	1275	170.0	803	170.0	1434	170.0	837	170.0	1594	170.0	856	170.0	1913	170.0	861	170.0	2231	170.0	861	156.4	2346	170.0	861
14.0	60 in	170.0	885	170.0	701	170.0	1063	170.0	797	170.0	1240	170.0	878	170.0	1417	170.0	944	170.0	1594	170.0	996	170.0	1771	170.0	1033	152.0	1900	170.0	1063	130.3	1900	170.0	1063	114.0	1900	170.0	1063
⊑	63 in	170.0	930	170.0	745	170.0	1116	170.0	850	170.0	1302	170.0	940	170.0	1488	170.0	1015	17C.0	1673	170.0	1076	157.6	1723	170.0	1122	131.3	1723	170.0	1169	112.6	1723	170.0	1171	98.5	1723	170.0	1171
pa	66 in	170.0	974	170.0	789	170.0	1169	170.0	903	170.0	1364	170.0	1002	170.0	1558	170.0	1086	152.3	1570	170.0	1155	137.0	1570	170.0	1210	114.2	1570	164.0	1230	97.9	1570	162.2	1227	85.7	1570	162.2	1227
S	72 in	170.0	1063	170.0	878	170.0	1275	170.0	1009	150.8	1320	166.2	1101	132.0	1320	149.9	1082	117.3	1320	137.9	1067	105.6	1320	129.2	1054	88.0	1320	118.7	1038	75.4	1320	114.7	1032	66.0	1320	114.5	1031
.0	76 in	170.0	1122	170.0	937	149.6	1184	159.4	1013	128.2	1184	139.9	994	112.2	1184	125.7	978	99.7	1184	115.3	964	89.8	1184	107.5	952	74.8	1184	97.6	935	64.1	1184	93.1	927	56.1	1184	92.3	925
Mullion	78 in	166.1	1124	170.0	967	138.4	1124	147.0	965	118.6	1124	128.8	947	103.8	1124	115.6	931	92.3	1124	105.8	918	83.0	1124	98.5	906	69.2	1124	89.0	890	59.3	1124	84.3	881	51.9	1124	83.2	878
2	90 in	108.1	844	111.5	750	90.1	844	94.3	736	77.2	844	82.1	724	67.6	844	73.3	712	60.1	844	66.5	702	54.0	844	61.4	693	45.0	844	54.2	678	38.6	844	50.0	668	33.8	844	47.7	662
1) 1	96 in	89.1	742	91.5	663	74.2	742	77.2	652	63.6	742	67.2	641	55.7	742	59.8	631	49.5	742	54.1	622	44.5	742	49.8	614	37.1	742	43.6	600	31.8	742	39.8	590	27.8	742	37.5	584
	108 in	62.6	586	63.9	530	52.1	586	53.8	521	44.7	586	46.6	513	39.1	586	41.4	505	34.8	586	37.3	498	31.3	586	34.2	492	26.1	586	29.6	481	22.3	586	26.6	472	19.5	586	24.7	466
	111 in	57.6	555	58.8	503	48.0	555	49.5	495	41.2	555	42.9	487	36.0	555	38.0	480	32.0	555	34.2	473	28.8	555	31.3	467	24.0	555	27.1	457	20.6	555	24.3	448	18.0	555	22.4	442
	120 in	45.6	475	46.4	433	38.0	475	39.0	426	32.6	475	33.7	420	28.5	475	29.8	414	25.3	475	26.8	409	22.8	475	24.5	404	19.0	475	21.1	395	16.3	475	18.7	387	14.3	475	17.2	381
- 1	144 in	26.4	330	26.7	305	22.0	330	22.4	301	18.9	330	19.3	297	16.5	330	17.0	293																				1

TAI	BLE	6B
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	Substrate:		3k Co	ncrete		3.5k Conc.			Но	low CMU				Filled CMU		W	ood	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:		DeWalt con+	1/4" D Ultra		5/16" Elco Ultracon	3/16" [Ultra	DeWalt con+	93.67.75	eWalt con+	1/4" Elco CreteFlex	1/4" Elco AggreGator	3/16" DeWalt Ultracon+	1/4" DeWalt Ultracon+	1/4" Elco AggreGator	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
1" x 4" x 3/8" Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	2-1/2"	2"	1"	1"	2"	0.54"	0.60"	0.324"
	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	See Sheet 1
2 Anchors @ 4.75" Min.	O.C. / Mullion Clip (Fig. 1):	310 lbs	630 lbs	220 lbs	870 lbs	1644 lbs	230 lbs	370 lbs	320 lbs	580 lbs	514 lbs	374 lbs	170 lbs	410 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Anchors @ 2.375" Min.	O.C. / Mullion Clip (Fig. 2):	620 lbs	1260 lbs	423 lbs	1723 lbs	1109 lbs	402 lbs	740 lbs	532 lbs	1077 lbs	931 lbs	N/A	340 lbs	547 lbs	N/A	885 lbs	1073 lbs	1073 lbs
8 Anchors @ 1.25" Min.	O.C. / Mullion Clip (Fig. 3):	707 lbs	2520 lbs	760 lbs	N/A	N/A	N/A	1480 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1770 lbs	2146 lbs	2146 lbs
4 Total Anchors @ 3.25" O.C. thru	2x5 Angle Clip Pair (Fig. 4):	620 lbs	1260 lbs	440 lbs	1740 lbs	2211 lbs	460 lbs	740 lbs	640 lbs	1160 lbs	994 lbs	748 lbs	340 lbs	694 lbs	1892 lbs	885 lbs	1073 lbs	1073 lbs
6 Total Anchors @ 3" O.C. thru	2x5 Angle Clip Pair (Fig. 5):	930 lbs	1890 lbs	660 lbs	2610 lbs	2844 lbs	690 lbs	1110 lbs	960 lbs	1740 lbs	1482 lbs	1122 lbs	510 lbs	978 lbs	2838 lbs	1327 lbs	1610 lbs	1609 lbs
4 Anchors @ 0.79	" Min. O.C. / U-Clip (Fig. 6):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1073 lbs
2 Anchors @ 2.375	" Min. O.C. / F-Clip (Fig. 7):	310 lbs	630 lbs	212 lbs	862 lbs	555 lbs	201 lbs	370 lbs	266 lbs	538 lbs	466 lbs	N/A	170 lbs	274 lbs	N/A	442 lbs	537 lbs	536 lbs
4 Anchors @ 1.25	" Min. O.C. / F-Clip (Fig. 8):	353 lbs	1260 lbs	380 lbs	N/A	N/A	N/A	740 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	885 lbs	1073 lbs	1073 lbs



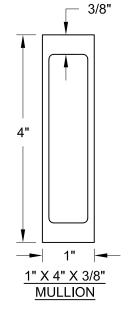


- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR **OPENING DIMENSIONS IS ALLOWABLE.**
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.





USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

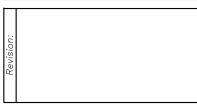


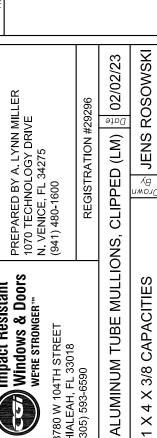
PRODUCT REVISED as complying with the Florida Building Code

NOA-No. 23-0221.03 Expiration Date: 03/28/2028

By: Manuel eres

Miami-Dade Product Control





TUBEMULL-1

23

12 OF

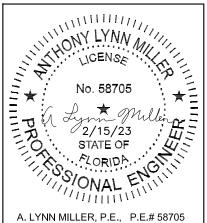
NTS Page

MULLS

Impact Resistant
Windows & Doors
WE'RE STRONGER"



1 X 4 X 3/8 CAPACITIES 3780 W 104TH STREET HIALEAH, FL 33018 (305) 593-6590

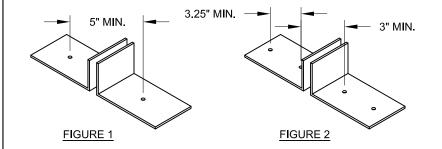


TAE	BLE 7A:																																				
	A 72 Let																	Оре	ening I	Dimen	sion																
1'	" x 2-1/8" x		50) in			60) in			70) in			80) in			90) in			10	0 in			12) in			14	0 in			160) in	
_	1/8" Fin	Recta	ngular	Trap/T	riang.	Recta	ngular	Trap/	riang.	Recta	ngular	Trap/T	riang.	Recta	angular	Trap/	Triang.	Recta	ngular	Trap/	Triang.	Recta	angular	Trap/1	Triang.	Recta	ngular	Trap/T	riang.	Recta	ngular	Trap/T	Triang.	Recta	ngular	Trap/1	Triang.
10	be Mullion		ding	Load			ding	Loa		Load	•	Load			ding		ding	100000000000000000000000000000000000000	ding	1000	ding	1 15 577 13 1	ding	Loa		10.00	ding	Load		197.35.77.75	ding		iding		ding		ading
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6.3	lip/Anchor	oacit	oacit	oacit	oacit os)	pacit	apacit (lbs)	oacit	apacit (lbs)	pacity	oacit	oacit	S G	acit	oacit	pacit	oacit	oacit	oacit	oacit	pacity os)	acit	pacity ps)	oacit	oacit	oacit	apacit (lbs)	oacit	apacit (lbs)	pacit	oacit	pacit	apacity (lbs)	pacit	apacity (lbs)	oacit	apacit (lbs)
	Capacity	Cal	Cap	Cap	Cap	Cal	Cap S	Cal	Cap ed (II	Cal	Cap	Cap	Caps	Cal	Cap ed (lb	Cal	Cap	Cal	Cag Sd (≡)	Cal	Cap ed (lb	Cal	Cap (Cal	Cap od (Cap	Cal Cal	Cap	Cap	Cal	Cap ed (lb	Sal	Cap	Car	Cap od ⊝	Cal	Cap Cap
Re	equirement	ullion s/ft²)	chor	ullion s/ft²)	chor quire	allion s/ft ²)	chor	ullion s/ft²)	chor quire	ullion s/ft²)	chor	allion s/ft²)	chor	allion s/ff²)	chor	Illion s/ft²)	chor	allion s/ft²)	chor	Illion s/ft ²)	chor	ullion s/ft²)	chor	allion s/ft²)	chor	allion s/ft²)	chor	ullion s/ft²)	chor quire	allion s/ft²)	chor	allion s/ft²)	chor	allion s/ft²)	chor	allion s/ft²)	Anchor
		ML (Ibs	An	ML (B)	An Re	∄ ä	A B	ML (Ibs	An	∄ Ä	An Re	β Mr	An Re	₽ ĕ	A Be	B R	A	ML (lb)	A Re	β. (B. β.	An	₽ ë	A B	B Mc	A Re	ML (lb.	An	ML (B)	An Re	∄ ä	A B	B Mc	A B	∄ ä	An	ML (B)	A Re
	42 in	144.2	526	167.0	428	120.2	526	148.9	419	103.0	526	138.9	414	90.1	526	134.6	411	80.1	526	134.1	411	72.1	526	134.1	411	60.1	526	134.1	411	51.5	526	134.1	411	45.1	526	134.1	411
	48 in	96.6	403	108.0	333	80.5	403	94.7	325	69.0	403	86.4	320	60.4	403	81.4	317	53.7	403	79.1	315	48.3	403	78.6	314	40.3	403	78.6	314	34.5	403	78.6	314	30.2	403	78.6	314
=	50-5/8 in	82.3	362	91.0	301	68.6	362	79.3	294	58.8	362	71.9	289	51.5	362	67.2	286	45.7	362	64.6	284	41.2	362	63.6	283	34.3	362	63.5	283	29.4	362	63.5	283	25.7	362	63.5	283
ò	54 in	67.8	318	74.1	267	56.5	318	64.2	261	48.5	318	57.7	256	42.4	318	53.5	253	37.7	318	50.8	250	33.9	318	49.5	249	28.3	318	49.1	248	24.2	318	49.1	248	21.2	318	49.1	248
n S	60 in	49.5	258	53.1	219	41.2	258	45.7	214	35.3	258	40.7	210	30.9	258	37.2	207	27.5	258	34.9	204	24.7	258	33.4	203	20.6	258	32.2	201	17.7	258	32.2	201	15.5	258	32.2	201
.0	63 in	42.7	234	45.6	200	35.6	234	39.1	195	30.5	234	34.7	192	26.7	234	31.6	189	23.7	234	29.4	186	21.4	234	28.0	184	17.8	234	26.6	183	15.3	234	26.5	183	13.4	234	26.5	183
Mullio	66 in	37.2	213	39.4	183	31.0	213	33.7	179	26.5	213	29.8	176	23.2	213	27.0	173	20.6	213	25.1	170	18.6	213	23.7	169	15.5	213	22.2	167	13.3	213	22.0	166	11.6	213	22.0	166
2	72 in	28.6	179	30.1	155	23.9	179	25.6	152	20.4	179	22.5	149	17.9	179	20.3	147	15.9	179	18.7	145	14.3	179	17.5	143	11.9	179	16.1	141								
	76 in	24.3	161	25.4	140	20.3	161	21.6	137	17.4	161	19.0	135	15.2	161	17.0	133													-							
	78 in	22.5	152	23.5	133	18.8	152	19.9	131	16.1	152	17.5	128																								

TABLE 7B:

A - 1 - 101: - 0 14 - 11 -)	Substrate:		3k Coi	ncrete		3.5k Conc.			Но	low CMU				Filled CMU		W	ood	Metal
Anchor/Clip Capacity (lbs) when using a 1-1/4" x 2-1/8" x 1/8"	Anchor Type:	3/16" [Ultra	DeWalt con+	1/4" D Ultra		5/16" Elco Ultracon	3/16" I Ultra	DeWalt con+	1/4" [Ultra	eWalt con+	1/4" Elco CreteFlex	1/4" Elco AggreGator	3/16" DeWalt Ultracon+	1/4" DeWalt Ultracon+	1/4" Elco AggreGator	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
Fin Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	2-1/2"	2"	1"	1"	2"	0.54"	0.60"	0.324"
Till Tube Muller	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	See Sheet 1
2 Total Anchors @ 5" O.C. thru	2x5 Angle Clip Pair (Fig. 1):	310 lbs	630 lbs	220 lbs	870 lbs	1700 lbs	230 lbs	370 lbs	320 lbs	580 lbs	517 lbs	374 lbs	170 lbs	410 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Total Anchors @ 3.25" O.C. thru	2x5 Angle Clip Pair (Fig. 2):	620 lbs	1260 lbs	440 lbs	1740 lbs	2211 lbs	460 lbs	740 lbs	640 lbs	1160 lbs	994 lbs	748 lbs	340 lbs	694 lbs	1892 lbs	885 lbs	1073 lbs	1073 lbs

SEE SUBSTRATE PROPERTIES, SHEET 1.

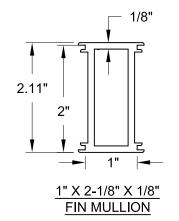


- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR OPENING DIMENSIONS IS ALLOWABLE.
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.

ANCHOR CAPACITY ADJUSTMENT FORMULA:



USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

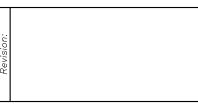


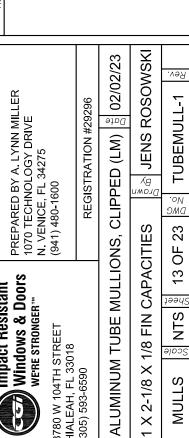
PRODUCT REVISED as complying with the Florida Building Code

23-0221.03 NOA-No. Expiration Date: 03/28/2028

By: Manuel Pres

Miami-Dade Product Control





13 OF 23

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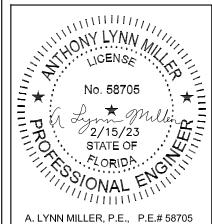
MULLS

1 X 2-1/8 X 1/8 FIN CAPACITIES

Impact Resistant
Windows & Doors
We're Stronger**

/ 104TH STREET NH, FL 33018

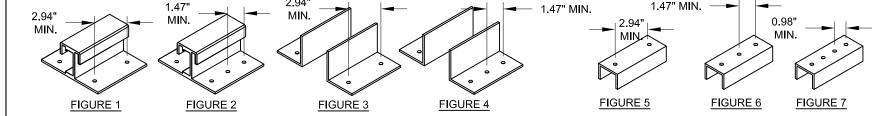
3780 W 104TH (HIALEAH, FL 33 (305) 593-6590

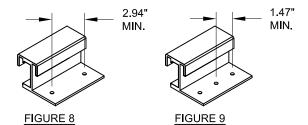


TAB	LE 8A:																																				
																		Оре	ning I	Dimen	sion																
2"	x 4" x 1/8"		50	in			60	0 in			70	in			80) in			90) in			100) in	= +		120) in			140	0 in			160) in	
Tu	be Mullion Design	Recta Loa	ngular ding	Trap/T Load		1 4 3 3 3 3 3 3	ingular iding	Trap/	Triang. ding	Recta Loa	ngular ding	Trap/T Loa		Recta Loa	ingular ding	Trap/1 Loa	_	Recta Loa		Trap/T Loa	Triang. ding	Recta Loa	ingular ding	Trap/T Load		Recta Lca	ngular ding	Trap/T Loa		Recta Loa	ngular ding	Trap/Ti Load	-	Recta Load	•	Trap/T Loa	Triang. Iding
CI	ressure & ip/Anchor Capacity quirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (Ibs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)								
	42 in	170.0	620	170.0	435	170.0	744	170.0	478	170.0	868	170.0	506	170.0	992	170.0	519	170.0	1116	170.0	521	170.0	1240	170.0	521	170.0	1488	170.0	521	170.0	1735	170.0	521	170.0	1983	170.0	521
	48 in	170.0	708	170.0	524	170.0	850	170.0	584	170.0	992	170.0	630	170.0	1133	170.0	661	170.0	1275	170.0	677	170.0	1417	170.0	680	170.0	1700	170.0	680	170.0	1983	170.0	680	170.0	2267	170.0	680
	50-5/8 in	170.0	747	170.0	563	170.0	896	170.0	631	170.0	1046	170.0	684	170.0	1195	170.0	723	170.0	1345	170.0	747	170.0	1494	170.0	756	170.0	1793	170.0	756	170.0	2092	170.0	756	170.0	2391	170.0	756
	54 in	170.0	797	170.0	612	170.0	956	170.0	691	170.0	1116	170.0	754	170.0	1275	170.0	803	170.0	1434	170.0	837	170.0	1594	170.0	856	170.0	1913	170.0	861	165.9	2177	170.0	861	145.2	2177	170.0	861
	60 in	170.0	885	170.0	701	170.0	1063	170.0	797	170.0	1240	170.0	878	170.0	1417	170.0	944	170.0	1594	170.0	996	169.3	1764	170.0	1033	141.1	1764	170.0	1063	120.9	1764	170.0	1063	105.8	1764	170.0	1063
_	63 in	170.0	930	170.0	745	170.0	1116	170.0	850	170.0	1302	170.0	940	170.0	1488	170.0	1015	162.5	1600	170.0	1076	146.3	1600	170.0	1122	121.9	1600	170.0	1169	104.5	1600	170.0	1171	91.4	1600	170.0	1171
Spa	66 in	170.0	974	170.0	789	170.0	1169	170.0	903	170.0	1364	170.0	1002	159.0	1458	170.0	1086	141.3	1458	170.0	1155	127.2	1458	162.3	1155	106.0	1458	152.3	1142	90.9	1458	150.6	1139	79.5	1458	150.6	1139
S	72 in	170.0	1063	170.0	878	163.3	1225	170.0	1009	140.0	1225	154.2	1022	122.5	1225	139.1	1005	108.9	1225	128.0	990	98.0	1225	120.0	979	81.7	1225	110.1	964	70.0	1225	106.5	958	61.2	1225	106.3	957
.0	76 in	166.6	1099	170.0	937	138.9	1099	148.0	940	119.0	1099	129.8	923	104.1	1099	116.7	908	92.6	1099	107.0	895	83.3	1099	99.8	884	69.4	1099	90.6	868	59.5	1099	86.4	861	52.1	1099	85.6	859
Mullion	78 in	154.1	1044	160.7	914	128.4	1044	136.5	896	110.1	1044	119.6	879	96.3	1044	107.3	865	85.6	1044	98.2	852	77.1	1044	91.4	841	64.2	1044	82.6	826	55.0	1044	78.3	818	48.2	1044	77.2	815
2	90 in	100.3	784	103.5	696	83.6	784	87.5	684	71.7	784	76.2	672	62.7	784	68.0	661	55.7	784	61.8	651	50.2	784	57.0	643	41.8	784	50.3	629	35.8	784	46.4	620	31.4	784	44.3	615
	96 in	82.7	689	85.0	616	68.9	689	71.7	605	59.1	689	62.3	595	51.7	689	55.5	586	45.9	689	50.3	577	41.3	689	46.2	570	34.4	689	40.5	557	29.5	689	37.0	548	25.8	689	34.8	542
[108 in	58.1	544	59.3	492	48.4	544	49.9	484	41.5	544	43.3	476	36.3	544	38.4	469	32.3	544	34.6	463	29.0	544	31.7	457	24.2	544	27.5	446	20.7	544	24.7	438	18.1	544	22.9	432
	111 in	53.5	515	54.6	467	44.6	515	45.9	459	38.2	515	39.8	452	33.4	515	35.2	446	29.7	515	31.8	439	26.7	515	29.1	434	22.3	515	25.1	424	19.1	515	22.5	416	16.7	515	20.8	410
	120 in	42.3	441	43.1	402	35.3	441	36.2	396	30.2	441	31.3	390	26.5	441	27.7	384	23.5	441	24.9	379	21.2	441	22.7	375	17.6	441	19.5	366	15.1	441	17.4	359				
- 1	144 in	24.5	306	24.8	283	20.4	306	20.8	279	17.5	306	17.9	275								1				17-						1			_			

TΑ	ΒI	F	8B:	

	Substrate:		3k Co	ncrete		3.5k Conc.			Но	llow CMU				Filled CMU		W	bod	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:	77.50	DeWalt con+	1/4" D Ultra		5/16" Elco Ultracon	1000	DeWalt icon+	1917/41 7	DeWalt scon+	1/4" Elco CreteFlex	1/4" Elco AggreGator	3/16" DeWalt Ultracon+	1/4" DeWalt Ultracon+	1/4" Elco AggreGator	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
2" x 4" x 1/8" Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	2-1/2"	2"	1"	1"	2"	0.54"	0.60"	0.324"
	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	Sea Sheet 1
4 Anchors @ 2.94" Min	. O.C. / Mullion Clip (Fig. 1):	620 lbs	1260 lbs	437 lbs	1737 lbs	1739 lbs	448 lbs	740 lbs	618 lbs	1143 lbs	977 lbs	N/A	340 lbs	631 lbs	N/A	885 lbs	1073 lbs	1073 lbs
6 Anchors @ 1.47" Min	. O.C. / Mullion Clip (Fig. 2):	605 lbs	1890 lbs	593 lbs	N/A	N/A	N/A	1110 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1327 lbs	1610 lbs	1609 lbs
4 Total Anchors @ 2.94" O.C. thru	2x5 Angle Clip Pair (Fig. 3):	620 lbs	1260 lbs	437 lbs	1737 lbs	1739 lbs	448 lbs	740 lbs	618 lbs	1143 lbs	977 lbs	N/A	340 lbs	631 lbs	N/A	885 lbs	1073 lbs	1073 lbs
6 Total Anchors @ 1.47" O.C. thru	2x5 Angle Clip Pair (Fig. 4):	605 lbs	1890 lbs	593 lbs	N/A	N/A	N/A	1110 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1327 lbs	1610 lbs	1609 lbs
2 Anchors @ 2.94	" Min. O.C. / U-Clip (Fig. 5):	310 lbs	630 lbs	218 lbs	868 lbs	869 lbs	224 lbs	370 lbs	309 lbs	572 lbs	488 lbs	N/A	170 lbs	316 lbs	N/A	442 lbs	537 lbs	536 lbs
3 Anchors @ 1.47	" Min. O.C. / U-Clip (Fig. 6):	303 lbs	945 lbs	296 lbs	N/A	N/A	N/A	555 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	664 lbs	805 lbs	805 lbs
4 Anchors @ 0.98	" Min. O.C. / U-Clip (Fig. 7):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	885 lbs	1073 lbs	1073 lbs
2 Anchors @ 2.94	4" Min. O.C. / F-Clip (Fig. 8):	310 lbs	630 lbs	218 lbs	868 lbs	869 lbs	224 lbs	370 lbs	309 lbs	572 lbs	488 lbs	N/A	170 lbs	316 lbs	N/A	442 lbs	537 lbs	536 lbs
3 Anchors @ 1.47	7" Min. O.C. / F-Clip (Fig. 9):	303 lbs	945 lbs	296 lbs	N/A	N/A	N/A	555 lbs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	664 lbs	805 lbs	805 lbs



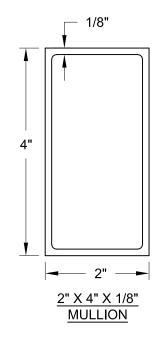


- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR OPENING DIMENSIONS IS ALLOWABLE.
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.

ANCHOR CAPACITY ADJUSTMENT FORMULA:



USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.



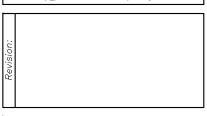
PRODUCT REVISED as complying with the Florida Building Code

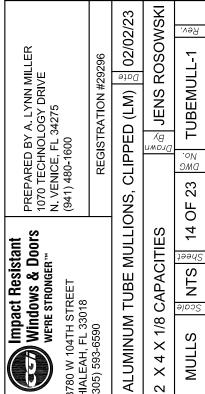
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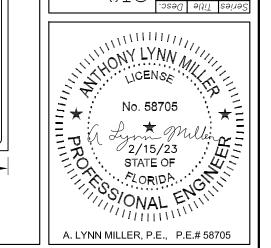
Expiration Date: 03/28/2028

By: Manuel Pres

Miami-Dade Product Control







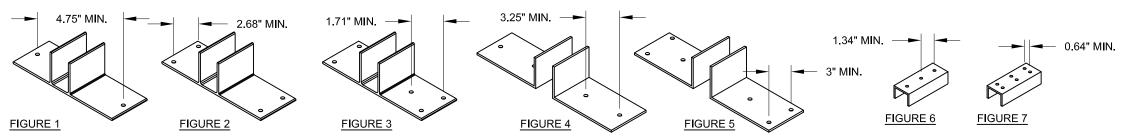
MULLS

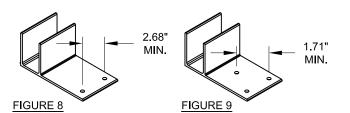
TABL	E 9A:																																				
																		Оре	ning [Dimens	sion																
2" :	c 4" x 1/4"		50	in			60) in			70	in			80) in			90) in			100	0 in			120	O in			140	in .			160	0 in	- 1
	e Mullion Design	Rectar Load		Trap/T Load		Recta Load		Trap/T Loa	riang. ding	Recta Load		Trap/T Load	A. L. S. 77	Recta Loa	ngular ding		Triang. Iding	Recta Loa		Trap/1 Loa	riang. ding	Recta Loa		Trap/T Load		Recta Load	-	Trap/T Loa			ngular ding	Trap/T Loa		Recta Loa	angular Iding	Trap/T Loa	_
Cli	essure & p/Anchor apacity quirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ff²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (Ibs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)						
	42 in	170.0	620	170.0	435	170.0	744	170.0	478	170.0	868	170.0	506	170.0	992	170.0	519	170.0	1116	170.0	521	170.0	1240	170.0	521	170.0	1488	170.0	521	170.0	1735	170.0	521	170.0	1983	170.0	521
	48 in	170.0	708	170.0	524	170.0	850	170.0	584	170.0	992	170.0	630	170.0	1133	170.0	661	170.0	1275	170.0	677	170.0	1417	170.0	680	170.0	1700	170.0	680	170.0	1983	170.0	680	170.0	2267	170.0	680
	50-5/8 in	170.0	747	170.0	563	170.0	896	170.0	631	170.0	1046	170.0	684	170.0	1195	170.0	723	170.0	1345	170.0	747	170.0	1494	170.0	756	170.0	1793	170.0	756	170.0	2092	170.0	756	170.0	2391	170.0	756
	54 in	170.0	797	170.0	612	170.0	956	170.0	691	170.0	1116	170.0	754	170.0	1275	170.0	803	170.0	1434	170.0	837	170.0	1594	170.0	856	170.0	1913	170.0	861	170.0	2231	170.0	861	170.0	2550	170.0	861
14,33	60 in	170.0	885	170.0	701	170.0	1063	170.0	797	170.0	1240	170.0	878	170.0	1417	170.0	944	170.0	1594	170.0	996	170.0	1771	170.0	1033	170.0	2125	170.0	1063	170.0	2479	170.0	1063	170.0	2833	170.0	1063
⊆	63 in	170.0	930	170.0	745	170.0	1116	170.0	850	170.0	1302	170.0	940	170.0	1488	170.0	1015	170.0	1673	170.0	1076	170.0	1859	170.0	1122	170.0	2231	170.0	1169	170.0	2603	170.0	1171	163.0	2853	170.0	1171
Span	66 in	170.0	974	170.0	789	170.0	1169	170.0	903	170.0	1364	170.0	1002	170.0	1558	170.0	1086	170.0	1753	170.0	1155	170.0	1948	170.0	1210	170.0	2338	170.0	1275	162.0	2599	170.0	1286	141.8	2599	170.0	1286
် ေ	72 in	170.0	1063	170.0	878	170.0	1275	170.0	1009	170.0	1488	170.0	1126	170.0	1700	170.0	1228	170.0	1913	170.0	1315	170.0	2125	170.0	1387	145.6	2184	170.0	1488	124.8	2184	170.0	1529	109.2	2184	170.0	1530
Mullion	76 in	170.0	1122	170.0	937	170.0	1346	170.0	1080	170.0	1570	170.0	1209	170.0	1794	170.0	1322	165.1	1960	170.0	1421	148.6	1960	170.0	1505	123.8	1960	161.6	1548	106.1	1960	154.0	1535	92.9	1960	152.7	1531
3 L	78 in	170.0	1151	170.0	967	170.0	1381	170.0	1116	170.0	1611	170.0	1250	170.0	1842	170.0	1369	152.7	1861	170.0	1474	137.4	1861	163.1	1500	114.5	1861	147.3	1473	98.2	1861	139.6	1459	85.9	1861	137.6	1454
≥	90 in	170.0	1328	170.0	1144	149.1	1398	156.0	1219	127.8	1398	136.0	1198	111.8	1398	121.3	1179	99.4	1398	110.2	1162	89.5	1398	101.6	1147	74.5	1398	89.8	1122	63.9	1398	82.7	1105	55.9	1398	78.9	1096
	96 in	147.4	1229	151.5	1098	122.9	1229	127.8	1079	105.3	1229	111.2	1061	92.1	1229	98.9	1044	81.9	1229	89.6	1029	73.7	1229	82.4	1016	61.4	1229	72.2	993	52.7	1229	65.9	977	46.1	1229	62.1	967
	108 in	103.5	971	105.8	877	86.3	971	89.0	862	74.0	971	77.2	849	64.7	971	68.4	837	57.5	971	61.8	825	51.8	971	56.5	815	43.1	971	49.0	796	37.0	971	44.0	782	32.4	971	40.8	771
	111 in	95.4	919	97.3	832	79.5	919	81.9	819	68.1	919	70.9	806	59.6	919	62.9	794	53.0	919	56.7	784	47.7	919	51.8	774	39.7	919	44.8	756	34.1	919	40.2	742	29.8	919	37.1	732
	120 in	75.5	786	76.8	716	62.9	786	64.5	705	53.9	786	55.8	695	47.2	786	49.4	686	41.9	786	44.4	677	37.7	786	40.5	668	31.5	786	34.9	653	27.0	786	31.0	641	23.6	786	28.4	631
) i	144 in	43.7	546	44.2	504	36.4	546	37.0	498	31.2	546	31.9	491	27.3	546	28.2	485	24.3	546	25.3	479	21.8	546	22.9	474	18.2	546	19.5	464	15.6	546	17.2	455				

TARLE 9R.

	Substrate:		3k Co	ncrete		3.5k Conc.			Но	llow CMU		_		Filled CMU		W	ood	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:		DeWalt con+	1/4" D Ultra	7	5/16" Elco Ultracon	200	DeWalt icon+	7777	DeWalt Icon+	1/4" Elco CreteFlex	1/4" Elco AggreGator	3/16" DeWalt Ultracon+	1/4" DeWalt Ultracon+	1/4" Elco AggreGator	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
2" x 4" x 1/4" Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	2-1/2"	2"	1"	1"	2"	0.54"	0.60"	0.324"
	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	Sea Sheet 1
2 Anchors @ 4.75" Min	O.C. / Mullion Clip (Fig. 1):	310 lbs	630 lbs	220 lbs	870 lbs	1644 lbs	230 lbs	370 lbs	320 lbs	580 lbs	514 lbs	374 lbs	170 lbs	410 lbs	946 lbs	442 lbs	537 lbs	536 lbs
4 Anchors @ 2.68" Min	O.C. / Mullion Clip (Fig. 2):	620 lbs	1260 bs	430 lbs	1730 lbs	1424 lbs	425 lbs	740 lbs	575 lbs	1110 lbs	954 lbs	N/A	340 lbs	589 lbs	N/A	885 lbs	1073 lbs	1073 lbs
6 Anchors @ 1.71" Min	O.C. / Mullion Clip (Fig. 3):	705 lbs	1890 lbs	608 lbs	2558 lbs	N/A	506 lbs	1110 lbs	619 lbs	1478 lbs	1304 lbs	N/A	510 lbs	647 lbs	N/A	1327 lbs	1610 lbs	1609 lbs
4 Total Anchors @ 3.25" O.C. thru	2x5 Angle Clip Pair (Fig. 4):	620 lbs	1260 lbs	440 lbs	1740 lbs	2211 lbs	460 lbs	740 lbs	640 lbs	1160 lbs	994 lbs	748 lbs	340 lbs	694 lbs	1892 lbs	885 lbs	1073 lbs	1073 lbs
6 Total Anchors @ 3" O.C. thru	2x5 Angle Clip Pair (Fig. 5):	930 lbs	1890 lbs	660 lbs	2610 lbs	2844 lbs	690 lbs	1110 lbs	960 lbs	1740 lbs	1482 lbs	1122 lbs	510 lbs	978 lbs	2838 lbs	1327 lbs	1610 lbs	1609 lbs
3 Anchors @ 1.34	" Min. O.C. / U-Clip (Fig. 6):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	805 lbs
6 Anchors @ 0.64	" Min. O.C. / U-Clip (Fig. 7):	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1609 lbs
2 Anchors @ 2.68	" Min. O.C. / F-Clip (Fig. 8):	310 lbs	630 lbs	215 lbs	865 lbs	712 lbs	213 lbs	370 lbs	288 lbs	555 lbs	477 lbs	N/A	170 lbs	295 lbs	N/A	442 lbs	537 lbs	536 lbs
3 Anchors @ 1.71	" Min. O.C. / F-Clip (Fig. 9):	353 lbs	945 lbs	304 lbs	1279 lbs	N/A	253 lbs	555 lbs	309 lbs	739 lbs	652 lbs	N/A	255 lbs	324 lbs	N/A	664 lbs	805 lbs	805 lbs

SEE SUBSTRATE PROPERTIES, SHEET 1.





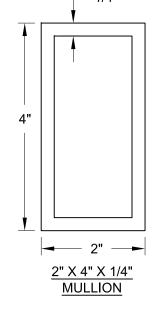
- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR ÓPENING DIMENSIONS IS ALLOWABLE.
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.

ANCHOR CAPACITY ADJUSTMENT FORMULA:



CIRCLED VALUES ARE USED IN THE EXAMPLES ON SHEETS 21 & 22.

USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

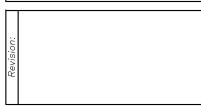


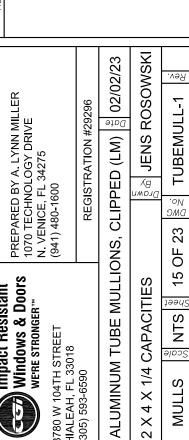
PRODUCT REVISED as complying with the Florida Building Code

NOA-No. 23-0221.03 Expiration Date: 03/28/2028

By: Manuel eres

Miami-Dade Product Control





23

15 OF

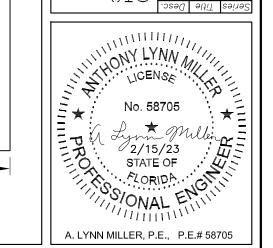
NTS Sheet

MULLS

2 X 4 X 1/4 CAPACITIES

Impact Resistant
Windows & Doors
We're Stronger**

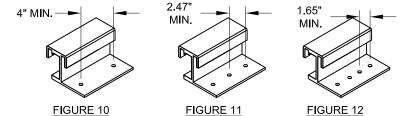
/ 104TH STREET NH, FL 33018



TAB	LE 10A:																																				
																		Ope	ning [Dimens	ion																
2"	x 6" x 1/8"		50) in			60) in			70	in			80	in			90) in			100	0 in			120) in			140	0 in			160	0 in	
	be Mullion Design	Recta Load		Trap/T Load		Recta Loa	-	Trap/T Loa		100000000000000000000000000000000000000	ngular ding	Trap/T Load		Recta	•	Trap/T Load		Recta Loa	•	Trap/T Loa		Recta Loa	•	Trap/1 Loa		Recta Loa	•	Trap/T Load		100000000000000000000000000000000000000	angular iding	Trap/1 Loa	riang. ding		ingular ding	Trap/Ti Load	
CI	ressure & ip/Anchor Capacity quirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ff²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)								
100	42 in	170.0	620	170.0	435	170.0	744	170.0	478	170.0	868	170.0	506	170.0	992	170.0	519	170.0	1116	170.0	521	170.0	1240	170.0	521	170.0	1488	170.0	521	170.0	1735	170.0	521	170.0	1983	170.0	521
	48 in	170.0	708	170.0	524	170.0	850	170.0	584	170.0	992	170.0	630	170.0	1133	170.0	661	170.0	1275	170.0	677	170.0	1417	170.0	680	170.0	1700	170.0	680	170.0	1983	170.0	680	170.0	2267	170.0	680
	50-5/8 in	170.0	747	170.0	563	170.0	896	170.0	631	170.0	1046	170.0	684	170.0	1195	170.0	723	170.0	1345	170.0	747	170.0	1494	170.0	756	170.0	1793	170.0	756	170.0	2092	170.0	756	170.0	2391	170.0	756
	54 in	170.0	797	0.019704	612		956	170.0	691	170.0	1116	170.0	754	170.0	1275	170.0	803	170.0	1434	170.0	837	170.0	1594	170.0	856	170.0	1913	170.0	861	170.0	2231	170.0	861	170.0	2550	170.0	861
	60 in	170.0	885	170.0	701	170.0	1063	170.0	797	170.0	1240	170.0	878	170.0	1417	170.0	944	170.0	1594	170.0	996	170.0	1771	170.0	1033	170.0	2125	170.0	1063	170.0	2479	170.0	1063	170.0	2833	170.0	1063
u u	63 in	170.0	930	170.0	745	170.0	1116	170.0	850	170.0	1302	170.0	940	170.0	1488	170.0	1015	170.0	1673	170.0	1076	170.0	1859	170.0	1122	170.0	2231	170.0	1169	170.0	2603	170.0	1171	170.0	2975	170.0	1171
ba	66 in	170.0	974	170.0	789	170.0	1169	170.0	903	170.0	1364	170.0	1002	170.0	1558	170.0	1086	170.0	1753	170.0	1155	170.0	1948	170.0	1210	170.0	2338	170.0	1275	170.0	2727	170.0	1286	170.0	3117	170.0	1286
n S	72 in	170.0	1063	170.0	878	170.0	1275	170.0	1009	170.0	1488	170.0	1126	170.0	1700	170.0	1228	170.0	1913	170.0	1315	170.0	2125	170.0	1387	170.0	2550	170.0	1488	170.0	2975	170.0	1529	170.0	3400	170.0	1530
Mullion	76 in	170.0	1122	170.0	937	170.0	1346	170.0	1080	170.0	1570	170.0	1209	170.0	1794	170.0	1322	170.0	2019	170.0	1421	170.0	2243	170.0	1505	170.0	2692	170.0	1629	165.5	3057	170.0	1694	144.8	3057	170.0	1705
J.	78 in	170.0	1151	170.0	967	170.0	1381	170.0	1116	170.0	1611	170.0	1250	170.0	1842	170.0	1369	170.0	2072	170.0	1474	170.0	2302	170.0	1564	170.0	2763	170.0	1700	153.1	2902	170.0	1777	133.9	2902	170.0	1796
_	90 in	170.0	1328	170.0	1144		1594	170.0	1328	170.0	1859	170.0	1498	170.0	2125	170.0	1653	155.0	2180	170.0		139.5	2180	158.4	1788	116.2	2180	140.0	1749	99.6	2180	128.9	1724	87.2	2180	123.1	1709
	96 in	170.0	1417	170.0	1232	170.0	1700	170.0	1434	164.2	1916	170.0	1622	143.7	1916	154.3	1628	127.7	1916	139.8	1605	114.9	1916	128.5	1584	95.8	1916	112.6	1549	82.1	1916	102.8	1523	71.8	1916	96.9	1507
	108 in	161.5	1514	164.9	1367	134.5	1514	138.8	1345	115.3	1514	120.4	1324	100.9	1514	106.7	1304	89.7	1514	96.3	1287	80.7	1514	88.1	1270	67.3	1514	76.4	1241	57.7	1514	68.7	1219	50.5	1514	63.6	1202
	111 in	148.7	1433	151.7	1297	123.9	1433	127.6	1276	106.2	1433	110.6	1257	92.9	1433	98.0	1239	82.6	1433	88.4	1222	74.4	1433	80.8	1206	62.0	1433	69.9	1179	53.1	1433	62.7	1157	46.5	1433	57.8	1141
	120 in	117.7	1226	119.7	1117	98.1	1226	100.6	1100	84.1	1226	87.0	1084	73.6	1226	77.0	1069	65.4	1226	69.3	1055	58.8	1226	63.2	1042	49.0	1226	54.3	1019	42.0	1226	48.4	1000	36.8	1226	44.3	984
	144 in	68.1	851	68.9	786	56.8	851	57.7	776	48.7	851	49.8	766	42.6	851	43.9	756	37.8	851	39.4	748	34.1	851	35.8	739	28.4	851	30.5	724	24.3	851	26.8	710	21.3	851	24.2	698

ABLE 10B:																		
	Substrate:		3k Co	ncrete		3.5k Conc.			Но	low CMU				Filled CMU		W	ood	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:	15678.50.5	DeWalt con+	87,73,473	DeWalt con+	5/16" Elco Ultracon	131.351	DeWalt acon+		eWalt con+	1/4" Elco CreteFlex	1/4" Elco AggreGator	3/16" DeWalt Ultracon+	1/4" DeWalt Ultracon+	1/4" Elco AggreGator	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
2" x 6" x 1/8" Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	2-1/2"	2"	1"	1"	2"	0.54"	0.60"	0.324"
	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	See Sheet 1
4 Anchors @ 3.25" Mir	n. O.C. / Mullion Clip (Fig. 1):	620 lbs	1260 lbs	440 lbs	1740 lbs	2211 lbs	460 lbs	740 lbs	640 lbs	1160 lbs	994 lbs	748 lbs	340 lbs	694 lbs	1892 lbs	885 lbs	1073 lbs	1073 lbs
6 Anchors @ 2.47" Mir	n. O.C. / Mullion Clip (Fig. 2):	930 lbs	1890 lbs	638 lbs	2588 lbs	1782 lbs	611 lbs	1110 lbs	814 lbs	1628 lbs	1406 lbs	N/A	510 lbs	836 lbs	N/A	1327 lbs	1610 lbs	1609 lbs
8 Anchors @ 1.65" Mir	n. O.C. / Mullion Clip (Fig. 3):	907 lbs	2520 lbs	807 lbs	3407 lbs	N/A	663 lbs	1480 lbs	803 lbs	1953 lbs	1727 lbs	N/A	680 lbs	842 lbs	N/A	1770 lbs	2146 lbs	2146 lbs
4 Total Anchors @ 4" O.C. thru	2x5 Angle Clip Pair (Fig. 4):	620 lbs	1260 lbs	440 lbs	1740 lbs	2952 lbs	460 lbs	740 lbs	640 lbs	1160 lbs	1011 lbs	748 lbs	340 lbs	820 lbs	1892 lbs	885 lbs	1073 lbs	1073 lbs
6 Total Anchors @ 2.47" O.C. thru	2x5 Angle Clip Pair (Fig. 5):	930 lbs	1890 lbs	638 lbs	2588 lbs	1782 lbs	611 lbs	1110 lbs	814 lbs	1628 lbs	1406 lbs	N/A	510 lbs	836 lbs	N/A	1327 lbs	1610 lbs	1609 lbs
8 Total Anchors @ 1.65" O.C. thru	2x5 Angle Clip Pair (Fig. 6):	907 lbs	2520 lbs	807 lbs	3407 lbs	N/A	663 lbs	1480 lbs	803 lbs	1953 lbs	1727 lbs	N/A	680 lbs	842 lbs	N/A	1770 lbs	2146 lbs	2146 lbs
2 Anchors @ 4	4" Min. O.C. / U-Clip (Fig. 7):	310 lbs	630 lbs	220 lbs	870 lbs	1476 lbs	230 lbs	370 lbs	320 lbs	580 lbs	505 lbs	374 lbs	170 lbs	410 lbs	946 lbs	442 lbs	537 lbs	536 lbs
3 Anchors @ 2.4	7" Min. O.C. / U-Clip (Fig. 8):	465 lbs	945 lbs	319 lbs	1294 lbs	891 lbs	306 lbs	555 lbs	407 lbs	814 lbs	703 lbs	N/A	255 lbs	418 lbs	N/A	664 lbs	805 lbs	805 lbs
4 Anchors @ 1.69	5" Min. O.C. / U-Clip (Fig. 9):	453 lbs	1260 lbs	403 lbs	1703 lbs	N/A	332 lbs	740 lbs	402 lbs	977 lbs	863 lbs	N/A	340 lbs	421 lbs	N/A	885 lbs	1073 lbs	1073 lbs
2 Ancho's @ 4	" Min. O.C. / F-Clip (Fig. 10):	310 lbs	630 lbs	220 lbs	870 lbs	1476 lbs	230 lbs	370 lbs	320 lbs	580 lbs	505 lbs	374 lbs	170 lbs	410 lbs	946 lbs	442 lbs	537 lbs	536 lbs
3 Anchors @ 2.47	" Min. O.C. / F-Clip (Fig. 11):	465 lbs	945 lbs	319 lbs	1294 lbs	891 lbs	306 lbs	555 lbs	407 lbs	814 lbs	703 lbs	N/A	255 lbs	418 lbs	N/A	664 lbs	805 lbs	805 lbs
4 Anchors @ 1.65	" Min. O.C. / F-Clip (Fig. 12):	453 lbs	1260 lbs	403 lbs	1703 lbs	N/A	332 lbs	740 lbs	402 lbs	977 lbs	863 lbs	N/A	340 lbs	421 lbs	N/A	885 lbs	1073 lbs	1073 lbs

1.65" MIN. 1.65" 4" MIN. 3.25" 2.47' 1.65" MIN. MIN. MIN. FIGURE 6 FIGURE 7 FIGURE 8 FIGURE 9 FIGURE 5 FIGURE 1 FIGURE 2 FIGURE 3 FIGURE 4

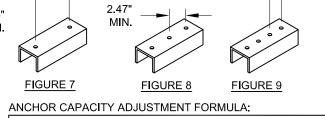


SEE SUBSTRATE PROPERTIES, SHEET 1.

1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR **OPENING DIMENSIONS IS ALLOWABLE.**

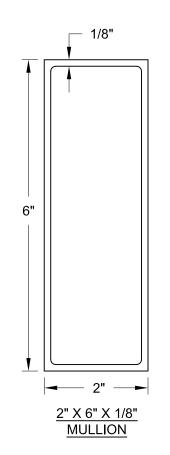
2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.

3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.



= ANCHOR CAP. REQ.

USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

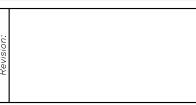


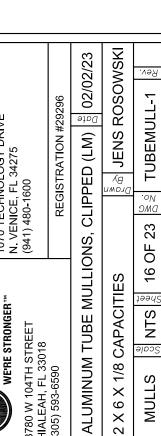
PRODUCT REVISED as complying with the Florida Building Code

NOA-No. 23-0221.03 Expiration Date: 03/28/2028

By: Manuel Pres

Miami-Dade Product Control





23

16 OF

NTS Page

Scale

MULLS

2 X 6 X 1/8 CAPACITIES

PREPARED BY A. LYNN MILLER 1070 TECHNOLOGY DRIVE N. VENICE, FL 34275 (941) 480-1600

Impact Resistant Windows & Doors we're stronger"

/ 104TH STREET NH, FL 33018

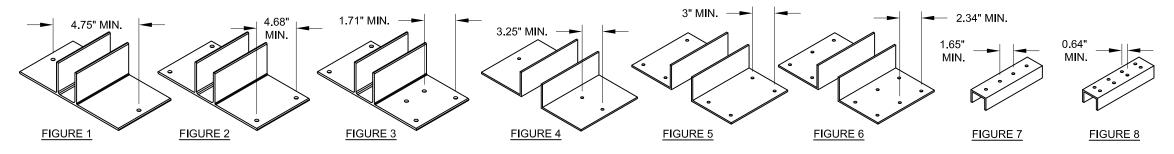
No. 58705

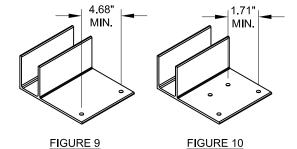
No. 58705

Ayring Mulei ayring 1970 Ayring

TAB	LE 11A:																																				
																		Оре	ning [Dimens	sion																_ 1
2"	x 6" x 1/4"		50	in			60) in			70) in			80) in			90) in			100	0 in			120) in			140	in in			160) in	
	be Mullion Design	Recta Loa	ngular ding	Trap/1 Loa			angular ading	Trap/1 Loa	Triang. ding		ingular ding	Trap/T Loa		Recta Loa	-		Triang. ding		ngular ding	Trap/1 Loa	riang. ding	Recta Load	35 CO 5 CO 1	Trap/T Loa	Triang. ding	Rectar Load	-	Trap/T Load	-	Recta Load		Trap/T Load	-		angular ading	Trap/1 Loa	Triang. ding
CI	essure & ip/Anchor Capacity quirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (Ibs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)								
	42 in	170.0	620	170.0	435	170.0	744	170.0	478	170.0	868	170.0	506	170.0	992	170.0	519	170.0	1116	170.0	521	170.0	1240	170.0	521	170.0	1488	170.0	521	170.0	1735	170.0	521	170.0	1983	170.0	521
	48 in	170.0	708	170.0	524	170.0		170.0	- 4.374	170.0	992	170.0	630	170.0		170.0		170.0	1275	170.0	677	170.0	1417		680	170.0	1700	170.0	680	170.0	1983	170.0	680	170.0		170.0	680
	50-5/8 in	170.0	747	170.0	563	170.0		170.0		170.0	1046	170.0	684	170.0		170.0		170.0	1345	170.0	747	170.0	1494	170.0	756	170.0	1793	170.0	756	170.0	2092	170.0	756	170.0		170.0	756
	54 in	170.0	797	170.0	612	170.0		170.0		170.0	1116	170.0	754	170.0		170.0	803	170.0	1434	170.0	837	170.0	1594	170.0	856	170.0	1913	170.0	861	170.0	2231	170.0	861	170.0		170.0	861
14.0	60 in	170.0	885	170.0	701	170.0	1000000000	170.0	797	170.0	1240	170.0	878	170.0	F (5/2000)	170.0	944	170.0	1594	170.0	996	170.0	1771	170.0	1033	170.0	2125	170.0	1063	170.0	2479	170.0	1063	170.0		170.0	1063
모	63 in	170.0	930	170.0	745	170.0		170.0	850	170.0	1302	170.0	940	170.0	1488	170.0	1015	170.0	1673	170.0	1076	170.0	1859	170.0	1122	170.0	2231	170.0	1169	170.0	2603	170.0	1171	170.0		170.0	1171
Span	66 in	170.0	974	170.0	789	170.0	1169	170.0	903	170.0	1364	170.0	1002	170.0	1558	170.0	1086	170.0	1753	170.0	1155	170.0	1948	170.0	1210	170.0	2338	170.0	1275	170.0	2727	170.0	1286	170.0	3117	170.0	1286
n S	72 in	170.0	1063	170.0	878	170.0	- V- V	170.0		170.0	1488	170.0	1126	170.0	- AA-3/10/10	170.0	1228	170.0	1913	170.0	1315	170.0	2125	170.0	1387	170.0	2550	170.0	1488	170.0	2975	170.0	1529	170.0		170.0	1530
Mullion	76 in	170.0	1122	170.0	937	170.0	1346	170.0		170.0	1570	170.0	1209	170.0	110.000	170.0		170.0	2019	170.0	1421	170.0	2243	170.0	1505	170.0	2692	170.0	1629	170.0	3140	170.0	1694	170.0		170.0	1705
⊒	78 in	170.0	1151	170.0	967	170.0	1381	170.0	1116	170.0	1611	170.0	1250	170.0		170.0	1369	170.0	2072	170.0	1474	170.0	2302	170.0	1564	170.0	2763	170.0	1700	170.0	3223	170.0	1777	170.0	-00.00000	170.0	1796
2	90 in	170.0	1328	170.0	1144	170.0		170.0	1328	170.0	1859	170.0	1498	170.0	100000000000000000000000000000000000000	170.0		170.0	2391	170.0	1793	170.0	2656	170.0	1918	170.0	3188	170.0	2125	170.0	3719	170.0	2273	160.2		170.0	2361
	96 in	170.0	1417	170.0	1232			170.0		170.0	1983	170.0	1622	170.0		170.0		170.0	2550	170.0	1952	170.0	2833	170.0	2095	170.0	3400	170.0	2338	150.8	3519	170.0	2520	132.0	_	170.0	2644
	108 in	170.0	1594	170.0				170.0		170.0	2231	170.0	1870	170.0				164.8	2781	170.0	2271	148.3	2781	161.9	2333	123.6	2781	140.4	2281	105.9	2781	126.2	2239	92.7	2781	116.9	2208
	111 in	170.0	1638	170.0		170.0	-	170.0		170.0	2293	170.0	1932	170.0				151.8	2632	162.3	2245	136.6	2632	148.4	2216	113.8	2632	128.4	2166	97.6	2632	115.1	2126	85.4	2632	106.3	2096
	120 in	170.0	1771	170.0	1586	170.0		170.0		154.4	2252	159.9	1991	135.1	2252	141.4	1964	120.1	2252	127.2	1938	108.1	2252	116.1	1915	90.1	2252	99.8	1872	77.2	2252	88.9	1836	67.6	2252	81.4	1808
	144 in	125.1	1564	126.6	1445	104.3	1564	106.1	1425	89.4	1564	91.5	1407	78.2	1564	80.7	1390	69.5	1564	72.3	1373	62.6	1564	65.7	1358	52.1	1564	56.0	1330	44.7	1564	49.2	1305	39.1	1564	44.4	1283
<u>TAB</u>	LE 11B:									01.0				-1.0					1-11							E'll- 10					V1		14-4-				

3.5k Conc. Filled CMU Hollow CMU Anchor/Clip Capacity (lbs) 1/4" DeWalt 5/16" Elco 3/16" DeWalt 1/4" DeWalt 1/4" Elco 1/4" Elco 3/16" DeWalt 1/4" DeWalt 1/4" Elco #12 Steel #14 Steel #12 Steel Anchor Type Ultracon+ Ultracon+ Ultracon Ultracon+ Ultracon+ CreteFlex AggreGato Ultracon+ Ultracon+ AggreGator Screw when using a 2" x 6" x 1/4" Tube Mullion Edge Distance (in 2-1/2" 2-1/2" 3-1/8" 2-1/2" 0.324" 1-3/4" 1-3/4" 1-3/4" 1-3/4" 2" 1-1/4" 1-1/4" 1-1/4" 1-1/4" 1-1/4" 1-1/4" 1-3/4" 1-3/4" 2" 1-3/8" 1-3/8" See Sheet 1 2 Anchors @ 4.75" Min. O.C. / Mullion Clip (Fig. 1 310 lbs 630 lbs 220 lbs 870 lbs 1644 lbs 230 lbs 370 lbs 320 lbs 580 lbs 514 lbs 374 lbs 170 lbs 410 lbs 946 lbs 442 lbs 537 lbs 536 lbs 4 Anchors @ 4.68" Min. O.C. / Mullion Clip (Fig. 2) 620 lbs 1260 lbs 440 lbs 1740 lbs 3232 lbs 460 lbs 740 lbs 640 lbs 1160 lbs 1025 lbs 748 lbs 340 lbs 820 lbs 1892 lbs 885 lbs 1073 bs 1073 lbs 8 Anchors @ 1.71" Min. O.C. / Mullion Clip (Fig. 3): 940 lbs 2520 lbs 810 lbs 3410 lbs N/A 675 lbs 1480 lbs 825 lbs 1970 lbs 1738 lbs N/A 680 lbs 863 lbs N/A 1770 lbs 2146 bs 2146 lbs 4 Total Anchors @ 3.25" O.C. thru 2x5 Angle Clip Pair (Fig. 4) 620 lbs 1260 lbs 440 lbs 1740 lbs 2211 lbs 460 lbs 740 lbs 640 lbs 1160 lbs 994 lbs 748 lbs 340 lbs 694 lbs 1892 lbs 885 lbs 1073 bs 1073 lbs 8 Total Anchors @ 3" O.C. thru 2x5 Angle Clip Pair (Fig. 5) 1240 lbs 2520 lbs 880 lbs 3480 lbs 3792 lbs 920 lbs 1480 lbs 1280 lbs 2320 lbs 1976 lbs 1496 lbs 680 lbs 1304 lbs 3784 lbs 1770 lbs 2146 bs 2146 lbs 12 Total Anchors @ 2.34" O.C. thru 2x5 Angle Clip Pair (Fig. 6): 1860 lbs 3780 lbs 1265 lbs 5165 lbs 3092 lbs 1188 lbs 2220 lbs 1563 lbs 3205 lbs 2777 lbs N/A 1020 lbs 1610 lbs N/A 2654 lbs 3220 bs 3218 lbs 4 Anchors @ 1.65" Min. O.C. / U-Clip (Fig. 7 N/A 1073 lbs 8 Anchors @ 0.64" Min. O.C. / U-Clip (Fig. 8): N/A 2146 lbs 2 Anchors @ 4.68" Min. O.C. / F-Clip (Fig. 9): 310 lbs 630 lbs 220 lbs 870 lbs 1616 lbs 230 lbs 370 lbs 320 lbs 580 lbs 512 lbs 374 lbs 170 lbs 410 lbs 946 lbs 442 lbs 537 lbs 536 lbs 4 Anchors @ 1.71" Min. O.C. / F-Clip (Fig. 10): 470 lbs 1260 lbs 405 lbs 1705 lbs N/A 338 lbs 740 lbs 413 lbs 985 lbs 869 lbs N/A 340 lbs 432 lbs N/A 885 lbs 1073 lbs 1073 lbs SEE SUBSTRATE PROPERTIES, SHEET 1.





1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR OPENING DIMENSIONS IS ALLOWABLE.

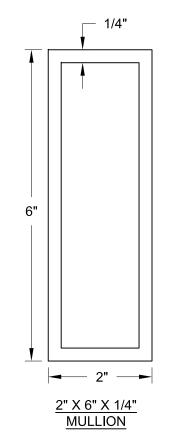
2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED. APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.

3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.

ANCHOR CAPACITY ADJUSTMENT FORMULA:

 $(\mathsf{DP}_{_{\mathsf{REO}}}) \times \left(\frac{\mathsf{ANCHOR}\; \mathsf{CAP}._{_{\mathsf{FROM}\;\mathsf{TABLE}}}}{\mathsf{MULLION}\; \mathsf{CAP}._{_{\mathsf{FROM}\;\mathsf{TABLE}}}}\right) = \mathsf{ANCHOR}\; \mathsf{CAP}._{_{\mathsf{REO}}}$

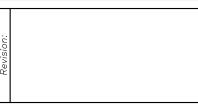
USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION, IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

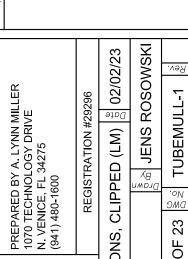


PRODUCT REVISED as complying with the Florida Building Code

23-0221.03 NOA-No. Expiration Date: 03/28/2028 By: Manuel Peres

Miami-Dade Product Control





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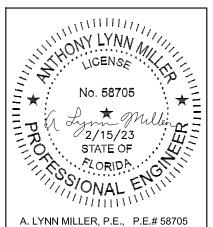
MULLS

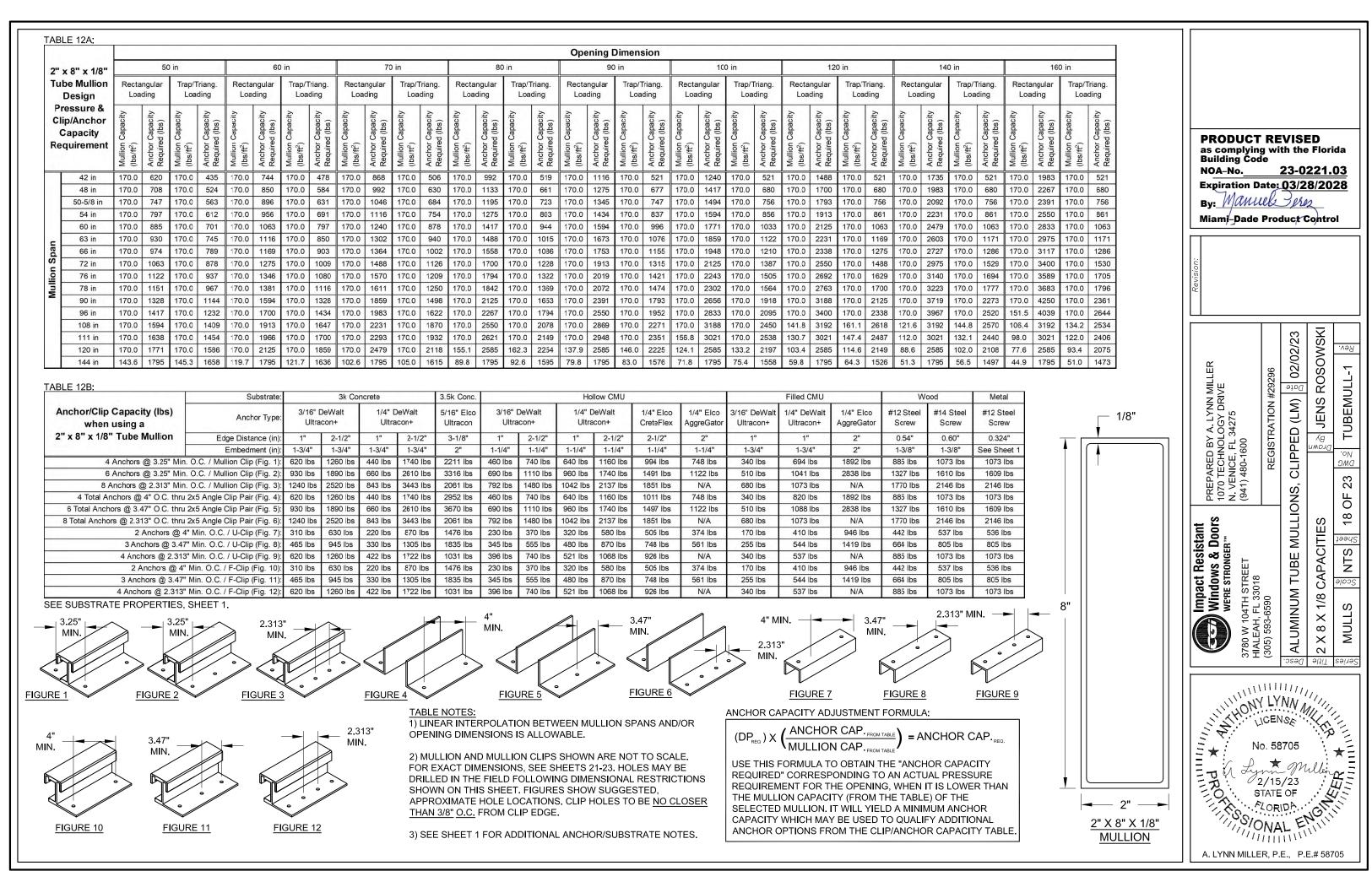
2 X 6 X 1/4 CAPACITIES

Impact Resistant Windows & Doors were stronger...



ALUMINUM TUBE MULLIONS, / 104TH STREET \H, FL 33018



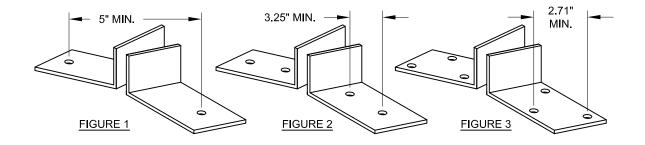


TAB	_E 13A:																																				
-																		Оре	ening l	Dimen	sion																
3) Degree		50) in			60) in		7	70) in			80	in			90) in			100	0 in			120) in			140	0 in			160	0 in	
Tu	pe Mullion Design	Recta Loa	ngular ding	Trap/T Loa		100000000000000000000000000000000000000	ngular ding	Trap/T Loa		Recta Loa	ngular ding	Trap/T Load	7.76	0.0000000000000000000000000000000000000	angular ding		Triang. iding	11 (6 17)	angular iding		Triang. ding		ingular ding	Trap/T Load	_	Recta Loa	ngular ding	Trap/1 Loa		Recta Loa		Trap/T Load		Recta	angular iding	Trap/1 Loa	Triang. ading
C	essure & p/Anchor capacity quirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (Ibs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (Ibs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)
-	42 in	170.0	620	170.0	435	170.0	744	170.0	478	170.0	868	170.0	506	170.0	992	170.0	519	170.0	1116	170.0	521	170.0	1240	170.0	521	170.0	1488	170.0	521	163.5	1670	170.0	521	143.1	1670	170.0	521
	48 in	170.0	708	170.0	524	170.0	850	170.0	584	170.0	992	170.0	630	170.0	1133	170.0	661	170.0	1275	170.0	677	153.4	1278	170.0	680	127.8	1278	170.0	680	109.6	1278	170.0	680	95.9	1278	170.0	680
	50-5/8 in	170.0	747	170.0	563	170.0	896	170.0	631	170.0	1046	170.0	684	163.4	1149	170.0	723	145.3	1149	170.0	747	130.7	1149	170.0	756	109.0	1149	170.0	756	93.4	1149	170.0	756	81.7	1149	170.0	756
	54 in	170.0	797	170.0	612	170.0	956	170.0	691	153.9	1010	170.0	754	134.7	1010	169.8	802	119.7	1010	161.5	795	107.7	1010	157.1	791	89.8	1010	155.9	789	76.9	1010	155.9	789	67.3	1010	155.9	789
	60 in	157.1	818	168.6	695	130.9	818	145.0	680	112.2	818	129.1	667	98.2	818	118.2	657	87.3	818	110.7	649	78.5	818	105.9	644	65.4	818	102.3	639	56.1	818	102.3	639	49.1	818	102.3	639
an	63 in	135.7	742	144.7	634	113.1	742	124.1	620	96.9	742	110.1	609	84.8	742	100.3	599	75.4	742	93.4	591	67.8	742	88.8	586	56.5	742	84.4	580	48.5	742	84.1	580	42.4	742	84.1	580
Span	66 in	118.0	676	125.1	581	98.3	676	107.0	569	84.3	676	94.6	558	73.8	676	85.9	549	65.6	676	79.6	541	59.0	676	75.3	536	49.2	676	70.6	530	42.1	676	69.8	528	36.9	676	69.8	528
Ē	72 in	90.9	568	95.5	493	75.7	568	81.3	483	64.9	568	71.5	474	56.8	568	64.5	466	50.5	568	59.4	459	45.4	568	55.6	454	37.9	568	51.1	447	32.5	568	49.4	444	28.4	568	49.3	444
Mullion	76 in	77.3	510	80.8	445	64.4	510	68.6	436	55.2	510	60.2	428	48.3	510	54.1	421	42.9	510	49.6	415	38.6	510	46.3	410	32.2	510	42.0	403	27.6	510	40.1	399	24.2	510	39.7	398
M	78 in	71.5	484	74.5	424	59.6	484	63.3	415	51.1	484	55.5	408	44.7	484	49.8	401	39.7	484	45.6	395	35.7	484	42.4	390	29.8	484	38.3	383	25.5	484	36.3	379	22.3	484	35.8	378
	90 in	46.5	364	48.0	323	38.8	364	40.6	317	33.2	364	35.4	312	29.1	364	31.5	307	25.9	364	28.7	302	23.3	364	26.4	298	19.4	364	23.3	292	16.6	364	21.5	288	14.5	364	20.5	285
	96 in	38.3	320	39.4	286	32.0	320	33.3	281	27.4	320	28.9	276	24.0	320	25.7	272	21.3	320	23.3	268	19.2	320	21.4	264	16.0	320	18.8	258	13.7	320	17.1	254	12.0	320	16.2	251
	108 in	26.9	252	27.5	228	22.4	252	23.2	224	19.2	252	20.1	221	16.8	252	17.8	218	15.0	252	16.1	215																
	111 in	24.8	239	25.3	216	20.7	239	21.3	213	17.7	239	18.5	210	15.5	239	16.3	207														1						
4 8	120 in	19.6	205	20.0	186	16.4	205	16.8	183											7																	

TABLE 13B:

	Substrate:		3k Co	ncrete		3.5k Conc.	We	ood	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:	1,731,730	DeWalt con+	1000	eWalt con+	5/16" Elco Ultracon	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
30 Degree Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	0.54"	0.60"	0.324"
2027 112 112 112 11	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	See Sheet 1
2 Total Anchors @ 5" O.C. thru	2x5 Angle Clip Pair (Fig. 1):	310 lbs	630 lbs	220 lbs	870 lbs	1700 lbs	442 lbs	537 lbs	536 lbs
4 Total Anchors @ 3.25" O.C. thru	2x5 Angle Clip Pair (Fig. 2):	620 lbs	1260 lbs	440 lbs	1740 lbs	2211 lbs	885 lbs	1073 lbs	1073 lbs
6 Total Anchors @ 2.71" O.C. thru	2x5 Angle Clip Pair (Fig. 3):	930 lbs	1890 lbs	648 lbs	2598 lbs	2254 lbs	1327 lbs	1610 lbs	1609 lbs

SEE SUBSTRATE PROPERTIES, SHEET 1.

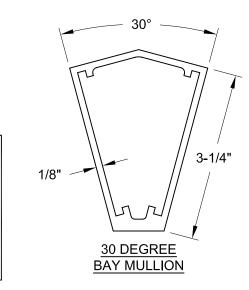


- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR OPENING DIMENSIONS IS ALLOWABLE.
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.

ANCHOR CAPACITY ADJUSTMENT FORMULA:



USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

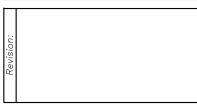


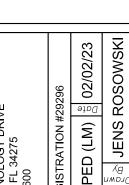
PRODUCT REVISED as complying with the Florida Building Code 23-0221.03 NOA-No.

Expiration Date: 03/28/2028

By: Manuel Pres

Miami-Dade Product Control





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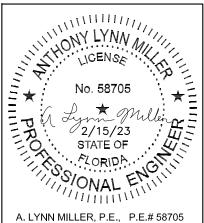
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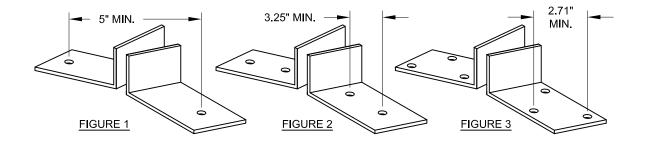


TAB	_E 14A:																																				
																		Ope	ening l	Dimen	sion																
4	5 Degree		50) in			60	0 in			70) in			80	in			90) in		1	100) in	4		120) in			14	0 in			160) in	
Tu	be Mullion Design	Recta Loa		Trap/1 Loa	Triang. ding	1 2 2 2 2 2	angular ading	0.00	Triang. ding		ngular ding	Trap/T Load		Recta Loa	ngular ding		Triang. ding		angular iding		riang. ding	Recta Loa	ngular ding	Trap/T Loa		Recta Loa	ngular ding	Trap/T Load		Recta Loa	•	Trap/T Load		Rectar Load	0	100	Triang. ading
C	ressure & ip/Anchor Capacity quirement	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)																						
	42 in	170.0	620	170.0	435	170.0	744	170.0	478	170.0	868	170.0	506	170.0	992	170.0	519	170.0	1116	170.0	521	170.0	1240	170.0	521	170.0	1488	170.0	521	170.0	1735	170.0	521	164.5	1919	170.0	521
	48 in	170.0	708	170.0	524	170.0	850	170.0	584	170.0	992	170.0	630	170.0	1133	170.0	661	170.0	1275	170.0	677	170.0	1417	170.0	680	146.9	1469	170.0	680	125.9	1469	170.0	680	110.2	1469	170.0	680
	50-5/8 in	170.0	747	170.0	563	170.0	896	170.0	631	170.0	1046	170.0	684	170.0	1195	170.0	723	167.0	1321	170.0	747	150.3	1321	170.0	756	125.2	1321	170.0	756	107.3	1321	170.0	756	93.9	1321	170.0	756
	54 in	170.0	797	170.0	612	170.0	956	170.0	691	170.0	1116	170.0	754	154.8	1161	170.0	803	137.6	1161	170.0	837	123.8	1161	170.0	856	103.2	1161	170.0	861	88.4	1161	170.0	861	77.4	1161	170.0	861
	60 in	170.0	885	170.0	701	150.5	940	166.7	782	129.0	940	148.4	767	112.8	940	135.9	755	100.3	940	127.3	746	90.3	940	121.8	740	75.2	940	117.5	735	64.5	940	117.5	735	56.4	940	117.5	735
an	63 in	156.0	853	166.3	729	130.0	853	142.6	713	111.4	853	126.5	700	97.5	853	115.3	683	86.6	853	107.4	680	78.0	853	102.1	673	65.0	853	97.0	667	55.7	853	96.7	666	48.7	853	96.7	666
Span	66 in	135.6	777	143.8	668	113.0	777	123.0	654	96.9	777	108.8	641	84.8	777	98.7	631	75.4	777	91.5	622	67.8	777	86.5	616	56.5	777	81.2	609	48.4	777	80.3	607	42.4	777	80.3	607
=	72 in	104.5	653	109.8	567	87.1	653	93.5	555	74.6	653	82.2	545	65.3	653	74.2	536	58.0	653	68.3	528	52.2	653	64.0	522	43.5	653	58.7	514	37.3	653	56.8	511	32.7	653	56.7	510
≅	76 in	88.8	586	92.8	512	74.0	586	78.9	501	63.5	586	69.2	492	55.5	586	62.2	484	49.4	586	57.1	477	44.4	586	53.2	471	37.0	586	48.3	463	31.7	586	46.1	459	27.8	586	45.7	458
Mullion	78 in	82.2	556	85.7	487	68.5	556	72.8	477	58.7	556	63.7	469	51.4	556	57.2	461	45.7	556	52.4	454	41.1	556	48.7	449	34.2	556	44.0	440	29.3	556	41.7	436	25.7	556	41.2	435
-	90 in	53.5	418	55.2	371	44.6	418	46.6	364	38.2	418	40.7	358	33.4	418	36.3	352	29.7	418	32.9	347	26.7	418	30.4	343	22.3	418	26.8	335	19.1	418	24.7	330	16.7	418	23.6	328
	96 in	44.1	367	45.3	328	36.7	367	38.2	322	31.5	367	33.2	317	27.5	367	29.6	312	24.5	367	26.8	308	22.0	367	24.6	304	18.4	367	21.6	297	15.7	367	19.7	292	13.8	367	18.6	289
1 7	108 in	31.0	290	31.6	262	25.8	290	26.6	258	22.1	290	23.1	254	19.3	290	20.5	250	17.2	290	18.5	247	15.5	290	16.9	244			7.75									
	111 in	28.5	275	29.1	249	23.8	275	24.5	245	20.4	275	21.2	241	17.8	275	18.8	233	15.8	275	16.9	234								1 = =	1							
-	120 in	22.6	235	23.0	214	18.8	235	19.3	211	16.1	235	16.7	208																								

TABLE 14B:

	Substrate:		3k Co	ncrete		3.5k Conc.	W	bod	Metal
Anchor/Clip Capacity (lbs) when using a	Anchor Type:		DeWalt con+		eWalt con+	5/16" Elco Ultracon	#12 Steel Screw	#14 Steel Screw	#12 Steel Screw
45 Degree Tube Mullion	Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	0.54"	0.60"	0.324"
	Embedment (in):	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-3/8"	1-3/8"	See Sheet 1
2 Total Anchors @ 5" O.C. thru	2x5 Angle Clip Pair (Fig. 1):	310 lbs	630 lbs	220 lbs	870 lbs	1700 lbs	442 lbs	537 lbs	536 lbs
4 Total Anchors @ 3.25" O.C. thru	2x5 Angle Clip Pair (Fig. 2):	620 lbs	1260 lbs	440 lbs	1740 lbs	2211 lbs	885 lbs	1073 lbs	1073 lbs
6 Total Anchors @ 2.71" O.C. thru	2x5 Angle Clip Pair (Fig. 3):	930 lbs	1890 lbs	648 lbs	2598 lbs	2254 lbs	1327 lbs	1610 lbs	1609 lbs

SEE SUBSTRATE PROPERTIES, SHEET 1.

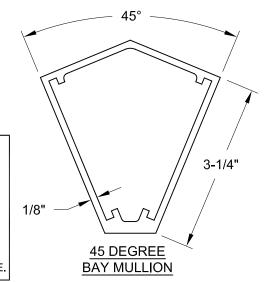


- 1) LINEAR INTERPOLATION BETWEEN MULLION SPANS AND/OR OPENING DIMENSIONS IS ALLOWABLE.
- 2) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEETS 21-23. HOLES MAY BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON THIS SHEET. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS. CLIP HOLES TO BE NO CLOSER THAN 3/8" O.C. FROM CLIP EDGE.
- 3) SEE SHEET 1 FOR ADDITIONAL ANCHOR/SUBSTRATE NOTES.

ANCHOR CAPACITY ADJUSTMENT FORMULA:



USE THIS FORMULA TO OBTAIN THE "ANCHOR CAPACITY REQUIRED" CORRESPONDING TO AN ACTUAL PRESSURE REQUIREMENT FOR THE OPENING, WHEN IT IS LOWER THAN THE MULLION CAPACITY (FROM THE TABLE) OF THE SELECTED MULLION. IT WILL YIELD A MINIMUM ANCHOR CAPACITY WHICH MAY BE USED TO QUALIFY ADDITIONAL ANCHOR OPTIONS FROM THE CLIP/ANCHOR CAPACITY TABLE.

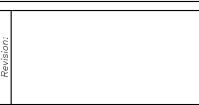


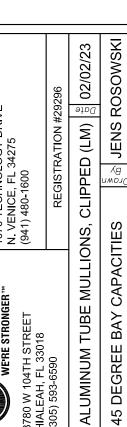
PRODUCT REVISED as complying with the Florida Building Code

NOA-No. 23-0221.03 Expiration Date: 03/28/2028

By: Manuel Pres

Miami-Dade Product Control





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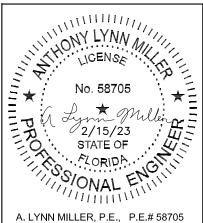
45 DEGREE BAY CAPACITIES

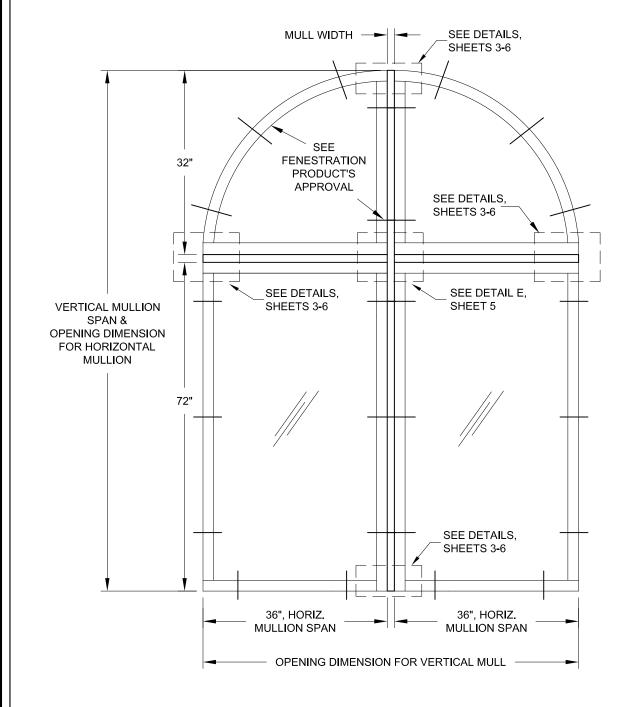
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EXAMPLE 1: MULTIPLE MULLIONS

THE BUILDING SUBSTRATE IS KNOWN TO BE CMU ON THE JAMBS AND USES A CONCRETE HEADER AND SILL. THE WINDOW FRAME DEPTH IS 2-3/8". THE OPENING REQUIRES A DESIGN PRESSURE OF +50.0/-55.0 PSF.

FOR THE VERTICAL MULLION:

1) INITIALLY ASSUMING THAT A 1" WIDE MULLION IS SUITABLE, THE MULLION SPAN IS 32"+72"+1"=105" AND THE OPENING DIMENSION IS 36"+36"+1" =73". REFERENCING SHEET 23, THE COLUMN USING RECTANGULAR LOADING SHALL BE USED. SCAN THE MULLION TABLES FOR A MULLION THAT IS AT LEAST THE WINDOW FRAME DEPTH OF 2-3/8" AND WILL MEET OR EXCEED THE REQUIRED DESIGN PRESSURE OF +50.0/-55.0 PSF. IF THE TABLE DOES NOT SHOW THE EXACT SIZE. USE THE NEXT LARGER SIZE AVAILABLE.

FROM TABLE 5A. SHEET 11. THE 1" X 4" X 1/8" MULLION (SPAN = 108", OPENING DIMENSION = 80") MEETS THE DEPTH REQUIRED, HOWEVER THE DESIGN PRESSURE IS ONLY +/-25.2 PSF AND WOULD NOT BE SUITABLE FOR THIS APPLICATION.

FROM TABLE 9A, SHEET 15, THE 2" X 4" X .250" MULLION (SPAN = 108", OPENING DIMENSION = 80") HAS A DESIGN PRESSURE OF +/-64.7 PSF WHICH EXCEEDS THE REQUIREMENTS FOR THE OPENING AND MAY BE USED IN THIS APPLICATION, NOTE THE ANCHOR CAPACITY REQUIRED OF 971 LBS.

BECAUSE IT IS NOW KNOWN THAT THE MULLION WILL ADD 2" TO THE WIDTH OF THE MULLED UNIT INSTEAD OF 1", THE ADJUSTED OPENING DIMENSION IS 36"+36"+2"=74", NOT 73" AS PREVIOUSLY ASSUMED, VERIFY THAT THE DESIGN PRESSURE IS STILL APPLICABLE FOR THE ADJUSTED OPENING. ALTERNATIVELY, THE WINDOW WIDTHS MAY BE REDUCED TO MAINTAIN THE 73" DIMENSION (35-1/2"+35-1/2"+2"=73").

2) USE TABLE 9B TO FIND THE ANCHOR TYPE, ANCHOR QUANTITY AND CLIP TYPE REQUIRED FOR THE CONCRETE SUBSTRATE. IN THIS EXAMPLE, ASSUME THE POURED CONCRETE HEADER AND SILL ARE 8" WIDE. IF THE MULLION CLIP WERE TO BE CENTERED WITHIN THE 8", CARE MUST BE TAKEN TO MAINTAIN THE FASTENER'S EDGE DISTANCE. USING THE STANDARD CLIP WITH (4) 3/16" ULTRACON+ ANCHORS AT AN EDGE DISTANCE OF 2-1/2" GIVES AN ANCHOR CAPACITY OF 1260 LBS WHICH IS GREATER, AND THEREFORE SUITABLE, FOR THE REQUIRED ANCHOR CAPACITY OF 971 LBS.

FOR THE HORIZONTAL MULLIONS:

BECAUSE THE VERTICAL MULL WILL BE A 2" X 4" X ,250" MULLION. IN THIS EXAMPLE WE WILL MATCH THE HORIZONTAL AND VERTICAL MULLIONS, ALTERNATIVELY, ANOTHER MULLION TYPE COULD BE CHOSEN.

- 1) THE MULLION SPAN IS 36" AND THE OPENING DIMENSION IS 32"+72"+2" =106". REFERENCING SHEET 23, THE COLUMN USING TRAPEZOIDAL/TRIANGULAR LOADING MAY BE USED. FROM TABLE 9A, SHEET 15, THE 2" X 4" X .250" MULLION (@ SPAN = 42". OPENING DIMENSION = 120") HAS A DESIGN PRESSURE OF +/-170.0 PSF WHICH EXCEEDS THE REQUIREMENTS FOR THE OPENING AND MAY BE USED IN THIS APPLICATION, NOTE THE ANCHOR CAPACITY REQUIRED OF 521 LBS.
- 2) USE TABLE 9B TO FIND THE ANCHOR TYPE, ANCHOR QUANTITY AND CLIP TYPE REQUIRED FOR THE CMU SUBSTRATE. IN THIS EXAMPLE, ASSUME THE CMU JAMBS ARE 8" WIDE. IF THE MULLION CLIP WERE TO BE CENTERED WITHIN THE 8", CARE MUST BE TAKEN TO MAINTAIN THE FASTENER'S EDGE DISTANCE. USING THE STANDARD MULL CLIPS WITH (4) 3/16" ULTRACON+ ANCHORS AT AN EDGE DISTANCE OF 2-1/2" GIVES AN ANCHOR CAPACITY OF 740 LBS WHICH IS GREATER, AND THEREFORE SUITABLE. FOR THE REQUIRED ANCHOR CAPACITY OF 521 LBS. THE SAME ANCHOR TYPES WERE CHOSEN AS BEFORE FOR SIMPLICITY, HOWEVER ANY ANCHOR MEETING THE REQUIREMENTS COULD HAVE BEEN USED.
- 3) FOR THE U-CLIP IN THE HORIZONTAL MULLION TO VERTICAL MULLION, USE THE SAME ANCHOR CAPACITY OF 521 LBS. TABLE 9B FOR THE U-CLIP SHOWS THE ANCHOR CAPACITY IS 805 LBS WHEN USING 3 ANCHORS. WHICH IS GREATER, AND THEREFORE SUITABLE. FOR THE REQUIRED ANCHOR CAPACITY REQUIREMENT OF 521 LBS. THE ANCHOR TYPE IS A #12 STEEL SCREW.

FROM THE ABOVE STEPS, OUR MULLION DESIGN PRESSURE IS:

- +/-64.7 PSF FROM THE VERTICAL MULLION:
- +/-170.0 PSF FROM THE 36" HORIZONTAL MULLION ATTACHING TO CMU;
- +/-170,0 PSF FROM THE 36" HORIZONTAL MULLION ATTACHING TO THE VERTICAL MULLION (INTERSECTION). THE LOWEST DESIGN PRESSURE IS +/-64.7 PSF AND WOULD APPLY TO ALL OF THE MULLIONS.

VERIFY THE DESIGN PRESSURE OF THE FENESTRATION PRODUCTS USED WITH THIS MULLION SYSTEM. THE LOWER DESIGN PRESSURE, OF MULLIONS OR FENESTRATION PRODUCTS, WILL APPLY TO THE OVERALL ASSEMBLY, FINAL DESIGN PRESSURE REQUIRES THAT THE BOTH THE MULLION AND THE FENESTRATION PRODUCT BE INSTALLED IN ACCORDANCE WITH THE INSTALLATION SPECIFICATIONS INTO RESPECTIVE SUBSTRATES AND FENESTRATION PRODUCTS TO MULLION.

PRODUCT REVISED as complying with the Florida Building Code 23-0221.03

NOA-No.

Expiration Date: 03/28/2028

Miami-Dade Product Control

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EXAMPLE

Series Title Desc

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104TH STREET H, FL 33018

ALUMINUM TUBE

No. 58705

Agricultural Marie Constitution of the constitution of ALORIDA.

(PER WINDOW APPROVAL) MULL WIDTH SEE DETAILS, SHEETS 3-6 **FENESTRATION** PRODUCT'S **APPROVAL** 72" MULLION SPAN SEE DETAILS. SHEETS 3-6 NO WINDOW ANCHORS IN WINDOW SILL (PER WINDOW APPROVAL) OPENING DIMENSION

NO WINDOW ANCHORS IN WINDOW SILL

EXAMPLE 2: SINGLE VERTICAL MULLION

THE BUILDING SUBSTRATE IS KNOWN TO BE WOOD ON ALL FOUR SIDES. THE WINDOW FRAME DEPTH IS 2-3/4". THE OPENING REQUIRES A DESIGN PRESSURE OF +60.0/-60.0 PSF.

1) INITIALLY ASSUMING THAT A 1" WIDE MULLION IS SUITABLE, THE MULLION SPAN IS 72" AND THE OPENING DIMENSION IS 32"+32+1" = 65". REFERENCING SHEET 23. THE COLUMN USING RECTANGULAR LOADING MUST BE USED. SCAN THE MULLION TABLES FOR A MULLION THAT IS AT LEAST THE WINDOW FRAME DEPTH OF 2-3/4" AND WILL MEET OR EXCEED THE REQUIRED DESIGN PRESSURE OF +60.0/-60.0 PSF. IF THE TABLE DOES NOT SHOW THE EXACT SIZE, USE THE NEXT LARGER SIZE AVAILABLE.

FROM TABLE 4A, SHEET 10, THE 1" X 3" X 1/8" MULLION (SPAN = 72", OPENING DIMENSION = 70") MEETS THE DEPTH REQUIRED, HOWEVER THE DESIGN PRESSURE IS ONLY +/-44.7 PSF AND WOULD NOT BE SUITABLE FOR THIS APPLICATION.

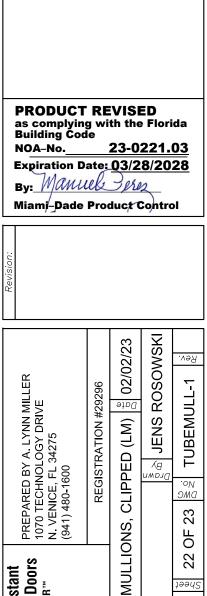
FROM TABLE 5A, SHEET 11, THE 1" X 4" X 1/8" MULLION (SPAN = 72", OPENING DIMENSION = 70") HAS A DESIGN PRESSURE OF +/-97.0 PSF WHICH EXCEEDS THE REQUIREMENTS FOR THE OPENING AND MAY BE USED IN THIS APPLICATION. NOTE THE ANCHOR CAPACITY REQUIRED OF 849 LBS.

2) USE TABLE 5B TO FIND THE ANCHOR TYPE, ANCHOR QUANTITY AND CLIP TYPE REQUIRED FOR THE WOOD SUBSTRATE, BOTH THE STANDARD CLIP WITH (4) #12 ANCHORS AND THE 2X5 ANGLE CLIPS WITH (4) #12 ANCHORS HAVE A CAPACITY 0F 885 LBS. THOUGH EITHER ONE COULD BE USED, THE STANDARD CLIP IS EASIEST TO INSTALL.

3) VERIFY THE DESIGN PRESSURE OF THE FENESTRATION PRODUCTS USED WITH THIS MULLION SYSTEM. THE LOWER DESIGN PRESSURE, OF MULLIONS OR FENESTRATION PRODUCTS, WILL APPLY TO THE OVERALL ASSEMBLY. FINAL DESIGN PRESSURE REQUIRES THAT THE BOTH THE MULLION AND THE FENESTRATION PRODUCT BE INSTALLED IN ACCORDANCE WITH THE INSTALLATION SPECIFICATIONS INTO RESPECTIVE SUBSTRATES AND FENESTRATION PRODUCTS TO MULLION.

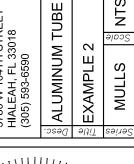
IN THIS EXAMPLE, THE DESIGN PRESSURE REQUIRED WAS +/-60.0 PSF. THE OVERALL MULLION SYSTEM WAS DETERMINED TO BE 97.0 PSF WITH AN ANCHOR CAPACITY OF 885 LBS. ALTERNATIVELY. THE ANCHOR CAPACITY ADJUSTMENT FORMULA COULD HAVE BEEN USED TO CALCULATE THE ANCHOR CAPACITY REQUIRED FOR THE EXACT DESIGN PRESSURE OF 60 PSF:

 $(60 \text{ PSF}) \times (\frac{885 \text{ LBS}}{97.0 \text{ PSF}}) = \frac{547.4 \text{ LBS}}{97.0 \text{ PSF}}) = \frac{547.4 \text{ LBS}}{97.0 \text{ PSF}} = \frac{547.4 \text{ LBS}$





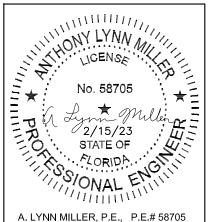
' 104TH STREET .H, FL 33018



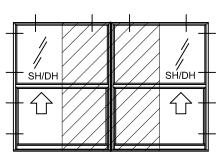
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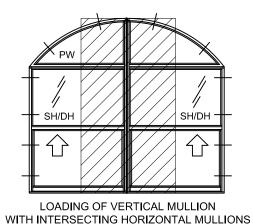
MULLS

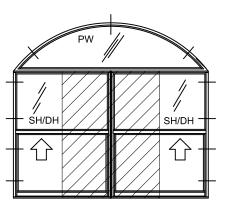


EXAMPLES OF RECTANGULAR LOADING:

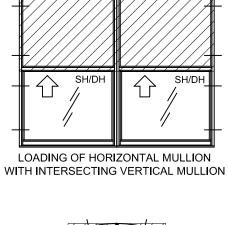


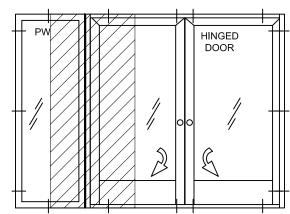
LOADING OF VERTICAL MULLION SILL OF WINDOWS NOT ANCHORED



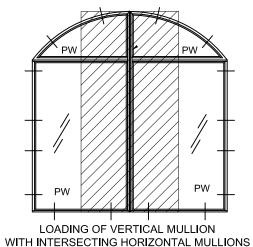


LOADING OF VERTICAL MULLION SILL OF WINDOWS NOT ANCHORED

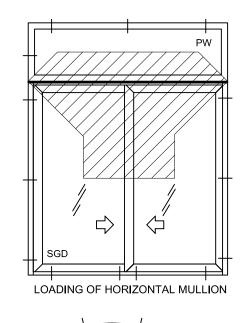


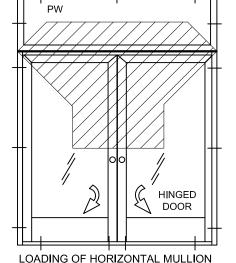


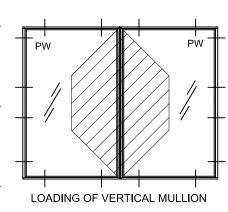
LOADING OF VERTICAL MULLION PANEL OF HINGED DOOR IS NOT CAPTURED OR ANCHORED

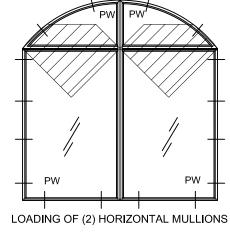


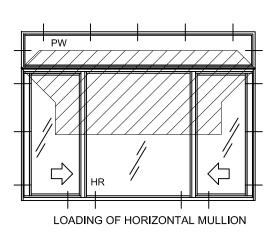
EXAMPLES OF TRAPEZOIDAL/TRIANGULAR LOADING:

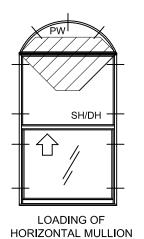


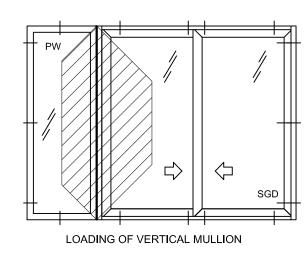


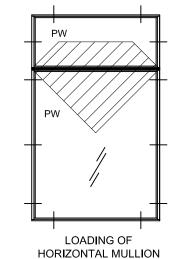












NOTES:

- 1) DRAWINGS ARE RERESENTATIONS OF TYPICAL CONFIGURATIONS. CONFIGURATIONS NOT SHOWN MAY BE EXTRAPOLATED FROM THOSE SHOWN.
- 2) IF THE LOADING TYPE CANNOT BE DETERMINED, USE RECTANGULAR LOADING.
- 3) SEE PRODUCTS' APPROVAL FOR ACTUAL ANCHOR LOCATIONS.

PRODUCT REVISED

as complying with the Florida Building Code NOA-No. 23-0221.03

Expiration Date: 03/28/2028 By: Manuel Perez

Miami-Dade Product Control

JENS ROSOWSKI 02/02/23 TUBEMULL-1 Date CLIPPED (LM)

ALUMINUM TUBE MULLIONS,

)rawr By

LOADING AREA EXAMPLES

No. DMC

23 OF 23

Sheet NTS

Scale

MULLS

PREPARED BY A. LYNN MILLER 1070 TECHNOLOGY DRIVE N. VENICE, FL 34275 (941) 480-1600

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