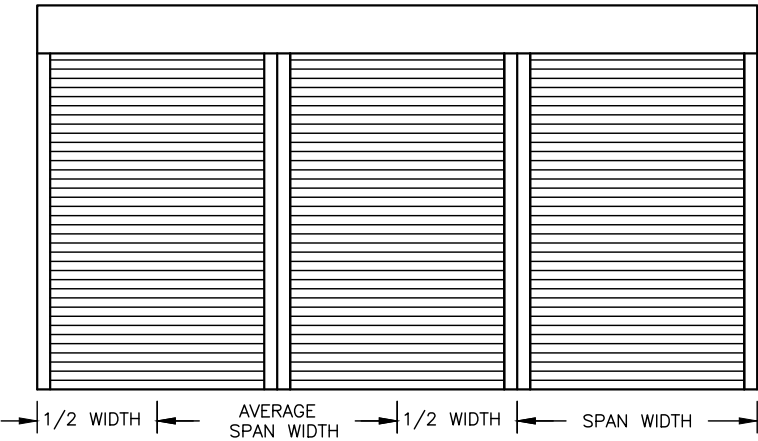
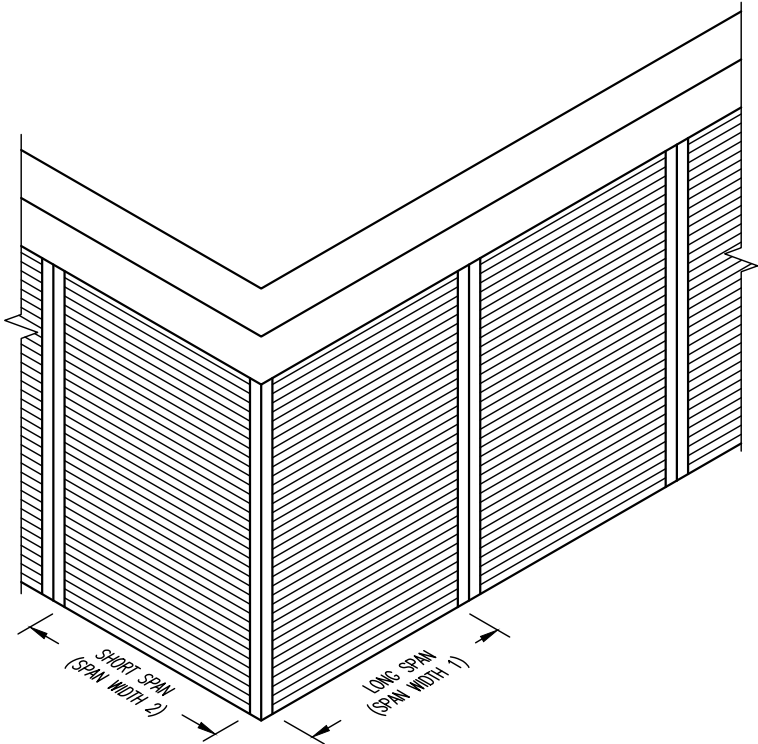




INTERMEDIATE AND END MULLION - ELEVATION  
SINGLE OR MULTIPLE MULLION INSTALLATIONS - N.T.S.

- NOTES:
- THE DIFFERENCE IN ADJCENT SLAT SPANS OF AN INTERMEDIATE MULLION SHALL NOT EXCEED 25% EXCEPT WHERE CORNER MULLION TABLES ARE USED FOR INTERMEDIATE MULLIONS
  - SEE TABLES FOR MAXIMUM DESIGN PRESSURES FOR SLAT SPAN WIDTHS AND MULLION LENGTHS
  - INTERMEDIATE MULLIONS ARE NOT REQUIRED WITH CORNER MULLIONS OR END MULLIONS



CORNER MULLION - ELEVATION  
SINGLE OR MULTIPLE MULLION INSTALLATIONS - N.T.S.

GENERAL NOTES:

- TKJ ENGINEERING, LLC. HAS NO CONTROL OF THE MANUFACTURING, PERFORMANCE, OR INSTALLATION OF THIS PRODUCT. THESE GENERIC PLANS WERE ENGINEERED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICES AND TEST DATA PROVIDED BY THE MANUFACTURER.
- THE ROLL-UP SHUTTER MULLIONS SHOWN ON THIS PRODUCT EVALUATION DOCUMENT HAS BEEN DESIGNED IN ACCORDANCE WITH THE 9TH EDITION (2026) FLORIDA BUILDING CODE (FBC) AND THE 2024 INTERNATIONAL BUILDING CODE (IBC). THESE ROLL-UP SHUTTER MULLIONS CAN BE INSTALLED IN HIGH VELOCITY HURRICANE ZONES (MIAMI-DADE COUNTY/BROWARD COUNTY) (AND IN WIND ZONE 4 FOR SHUTTERS TESTED TO ASTM E1996, REFER TO ASTM E1996). DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTION 1609 OF THE ABOVE REFERENCED CODES, IN ACCORDANCE WITH ASCE 7-22, AND FOR A BASIC WIND SPEED AS REQUIRED BY THE JURISDICTION WHERE THE ROLL-UP SHUTTER MULLIONS WILL BE INSTALLED. THE ROLL-UP SHUTTER MULLIONS ADEQUACY FOR IMPACT HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1609.1.2 OF THE ABOVE REFERENCED CODES AND AS PER TAS 201 AT FENESTRATION TESTING LABORATORY, INC. PER THEIR REPORTS (SEE LIST OF REPORTS).
- LIMITATIONS OF USE:
  - THIS PRODUCT SHALL NOT BE USED IN HIGH VELOCITY HURRICANE ZONES (SEE FBC SECTION 202).
  - IN HIGH VELOCITY HURRICANE ZONE (IN WIND ZONE 4 FOR SHUTTERS TESTED TO ASTM E1996) AND ESSENTIAL FACILITIES THE DEFLECTION FROM THE MULLIONS SHALL BE ACCOUNTED FOR IN THE SEPARATION TO GLASS (PER FBC 1616.3) FOR THE MULLION AND SHUTTER. SEE EQUATIONS ON THIS SHEET FOR SHUTTER DEFLECTION ADJUSTMENTS.
  - THIS PRODUCT EVALUATION DOCUMENT IS FOR ROLL-UP SHUTTER MULLIONS ONLY. ALL SHUTTERS AND SHUTTER COMPONENTS SHOWN ARE FOR REFERENCE/ILLUSTRATION PURPOSES. ALL END-RETENTION AND NON RETENTION SHUTTERS USED IN COMBINATION WITH THESE MULLIONS SHALL HAVE A SEPARATE PRODUCT APPROVAL AND ALLOW THE USE OF MULLIONS. THESE ROLL-UP SHUTTER MULLIONS SHALL NOT BE USED WITH WINDOWS OR DOORS AND CAN BE USED TO SUPPLEMENT MULLIONS INCLUDED WITH THE ROLL-UP SHUTTERS PRODUCT APPROVAL.
  - INSTALLATIONS SHALL NOT EXCEED THE MAXIMUM ALLOWABLE STRESS DESIGN (ASD) DESIGN RATINGS AND MAXIMUM SIZE PROVIDED IN THESE DRAWINGS. ULTIMATE DESIGN WIND LOADS DETERMINED BY THE FBC AND ASCE 7-22 SHALL BE REDUCED TO ASD BY MULTIPLYING 0.6 (SEE FBC SECTION 1609.1.2.3).
  - SHUTTER SLAT LIMITS: MODULES OF ELASTICITY,  $E < 11,000$  KSI  
MOMENT OF INERTIA,  $I > 0.040$  IN<sup>4</sup>/FT  
SECTIONAL AREA,  $A < 1.840$  IN<sup>2</sup>/FT  
MINIMUM SLACK (SLIP),  $Slack > 0.20$  IN
  - IMPACT LEVEL D; 9-1/4 LB LARGE MISSILE IMPACT.
  - ANCHORING OR LOADING CONDITIONS OTHER THAN THOSE SHOWN IN THESE DETAILS ARE NOT PART OF THIS APPROVAL
  - THIS PRODUCT SHALL ONLY BE USED IN CONJUNCTION WITH ADVANCED HURRICANE TECHNOLOGY ROLL SHUTTER SYSTEMS. OTHER PRODUCTS REQUIRE WRITTEN AUTHORIZATION FROM ADVANCED HURRICANE TECHNOLOGY AND SHALL BE EVALUATED AS A SITE SPECIFIC PROJECT. SEE NOTE 4 OF PRODUCT EVALUATION NOTES.
  - INCREASE IN ALLOWABLE STRESS (1.33) HAS NOT BEEN INCORPORATED INTO THE DESIGN OF THIS PRODUCT.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE EXISTING STRUCTURE IS DESIGNED TO SUPPORT THE LOADS FROM THE SHUTTER SYSTEM AND MULLIONS. EXISTING STRUCTURES NOT ABLE TO SUPPORT THESE LOADS SHALL BE EVALUATED AS A SITE SPECIFIC PROJECT. SEE NOTE 4 OF PRODUCT EVALUATION NOTES.
- ALL ALUMINUM EXTRUSIONS SHALL BE 6063-T6 ALLOY (UNLESS OTHERWISE NOTED OR CAN BE REPLACED WITH 6061-T6 ALLOY).

PRODUCT EVALUATION NOTES:

- THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) PREPARED BY THIS ENGINEER IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT; I.E. WHERE THE SITE CONDITIONS DEViate FROM THE P.E.D.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE SELECTION, PURCHASE, AND INSTALLATION OF THIS PRODUCT BASED ON THIS PRODUCT EVALUATION PROVIDED AND SHALL NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT.
- THIS PRODUCT EVALUATION DOCUMENT WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.
- SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A FLORIDA REGISTERED ENGINEER OR ARCHITECT WHICH WILL BECOME THE ENGINEER OF RECORD (E.O.R.) FOR THE PROJECT AND WHO WILL BE RESPONSIBLE FOR THE PROPER USE OF THE P.E.D. THE ENGINEER OF RECORD, ACTING AS A DELEGATED ENGINEER TO THE P.E.D. ENGINEER, SHALL SUBMIT SITE SPECIFIC DRAWINGS FOR REVIEW.

ANCHOR & FASTENING NOTES:

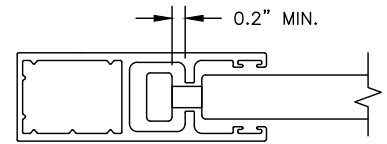
- ALL FASTENERS SHALL BE CORROSION RESISTANT COATED CARBON STEEL OR STAINLESS STEEL (SS) IN ACCORDANCE WITH SECTION 1711 OF THE FLORIDA BUILDING CODE.
- NO EMBEDMENT INTO NON-STRUCTURAL COMPONENTS SUCH AS, STUCCO, TILE, SIDING, ETC. SHALL BE CONSIDERED AS PART OF THE EMBEDMENT.
- THE ANCHOR SPACING AND DESIGN PRESSURES ARE VALID FOR EDGE DISTANCES AND MINIMUM EMBEDMENT BELOW.

| ANCHOR                            | Concrete & Filled |          | Hollow CMU |          | Wood      |          |
|-----------------------------------|-------------------|----------|------------|----------|-----------|----------|
|                                   | Min. Edge         | Min Emb. | Min. Edge  | Min Emb. | Min. Edge | Min Emb. |
| 1/4" ULTRACON HFH                 | 2"                | 2"       | 2"         | 1 1/4"   | 2"        | 2"       |
| 5/16" ULTRACON HFH                | 3 1/2"            | 2"       | 3 1/2"     | 1 1/4"   | 2"        | 2"       |
| 3/8" CONFLEX                      | 3 3/4"            | 3 1/2"   | -          | -        | -         | -        |
| 3/8" STAINLESS STEEL W/ RAMSET G5 | 3 1/2"            | 3 3/8"   | -          | -        | -         | -        |
| 1/2" STAINLESS STEEL W/ RAMSET G5 | 4"                | 4 1/2"   | -          | -        | -         | -        |
| 1/4 ULTRACON SS4                  | -                 | -        | 2 1/2"     | 1 1/4"   | 2"        | 2"       |
| 1/4" WEDGE-BOLT 316SS             | 3"                | 2 1/2"   | -          | -        | -         | -        |
| 3/8" WEDGE-BOLT 316SS             | 4"                | 3 1/2"   | -          | -        | -         | -        |
| 1/2" WEDGE-BOLT 316SS             | 5 1/4"            | 4 1/2"   | -          | -        | -         | -        |

LIST OF REPORTS:

FENESTRATION TESTING LABORATORY, INC.

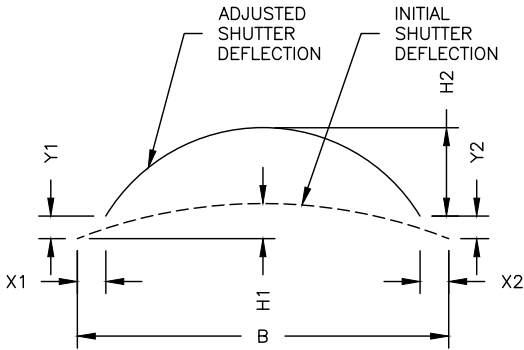
LABORATORY No. 5632  
DATE: 5/19/2008  
FILE No. 08-374  
TEST PROTOCOL: TAS 201-94  
MULLIONS: 3X4X1/8X288, 4X4X1/8X288,  
4X4X1/4X288, 4X6X1/8X288, 4X6X1/4X240,



MINIMUM SLACK FOR END-RETENTION TRACKS



TYPICAL SLATS OR SIMILAR



ADJUSTED TOTAL DEFLECTION =  $H2 + Y$

$H2 = \frac{\sqrt{4*H1^2 - 3*X^2} + 6*B*X}{2}$

$X = X1 + X2$

$Y = \frac{Y1 + Y2}{2}$

B = SHUTTER SPAN (INCHES)  
X1 = LEFT MULLION DEFLECTION IN X DIRECTION  
X2 = RIGHT MULLION DEFLECTION IN X DIRECTION  
Y1 = LEFT MULLION DEFLECTION IN Y DIRECTION  
Y2 = RIGHT MULLION DEFLECTION IN Y DIRECTION  
H1 = INITIAL SHUTTER DEFLECTION  
H2 = SHUTTER DEFLECTION WITH MULLION DEFLECTION

ADJUSTED DEFLECTION EQUATIONS NOTES

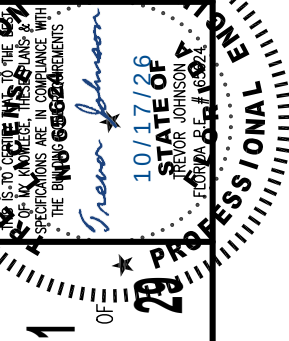
SEE MULLION TABLES FOR MULLION X AND Y DEFLECTIONS

SEE SHUTTER APPROVAL FOR MINIMUM SEPARATION TO GLASS FOR INITIAL SHUTTER DEFLECTION

Trevor K Johnson  
2026.10.17 21:23:28 -04'00'

ROLL-UP SHUTTER  
MULLIONS

TKJ Engineering, LLC.



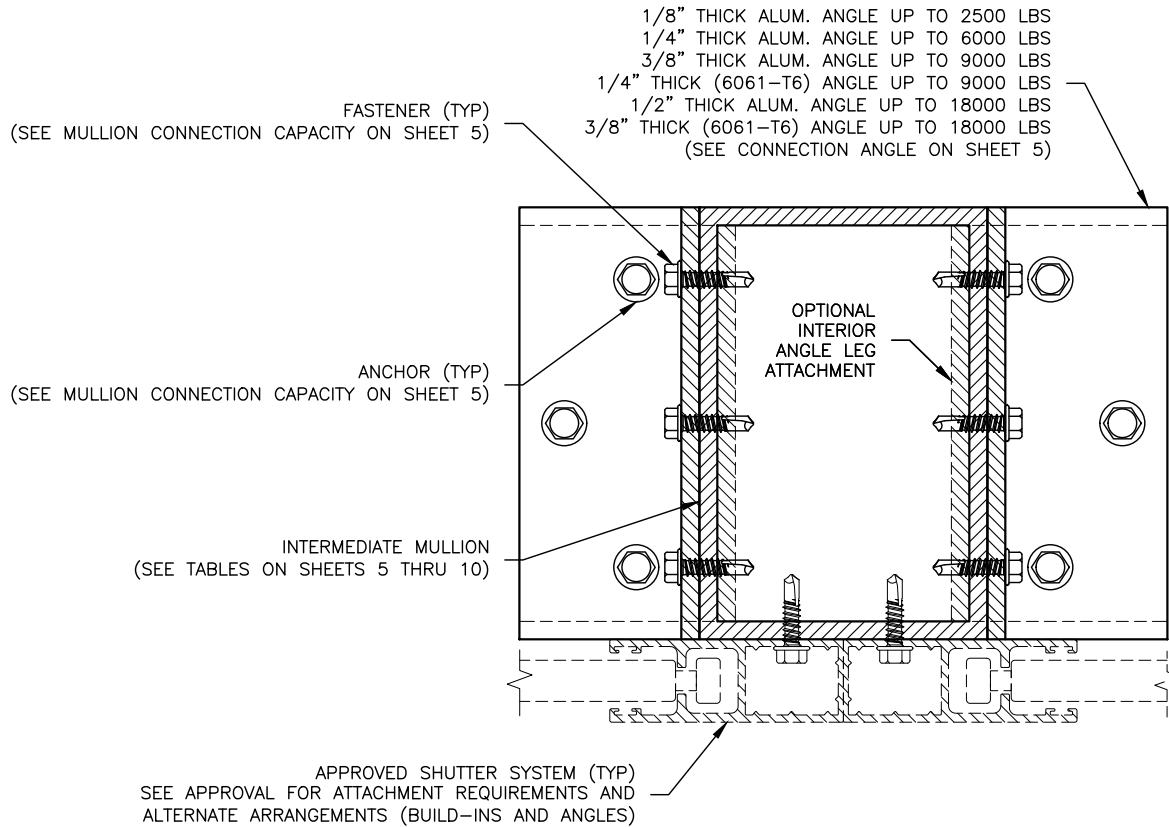
ADVANCED HURRICANE TECHNOLOGY  
16501 OLD AIRPORT HALL RD. FORT MYERS, FL 33913  
PHONE: 239.260.0020; SALES@AHT-USA.NET  
AHTWORLDWIDE.COM

REVISIONS

DATE

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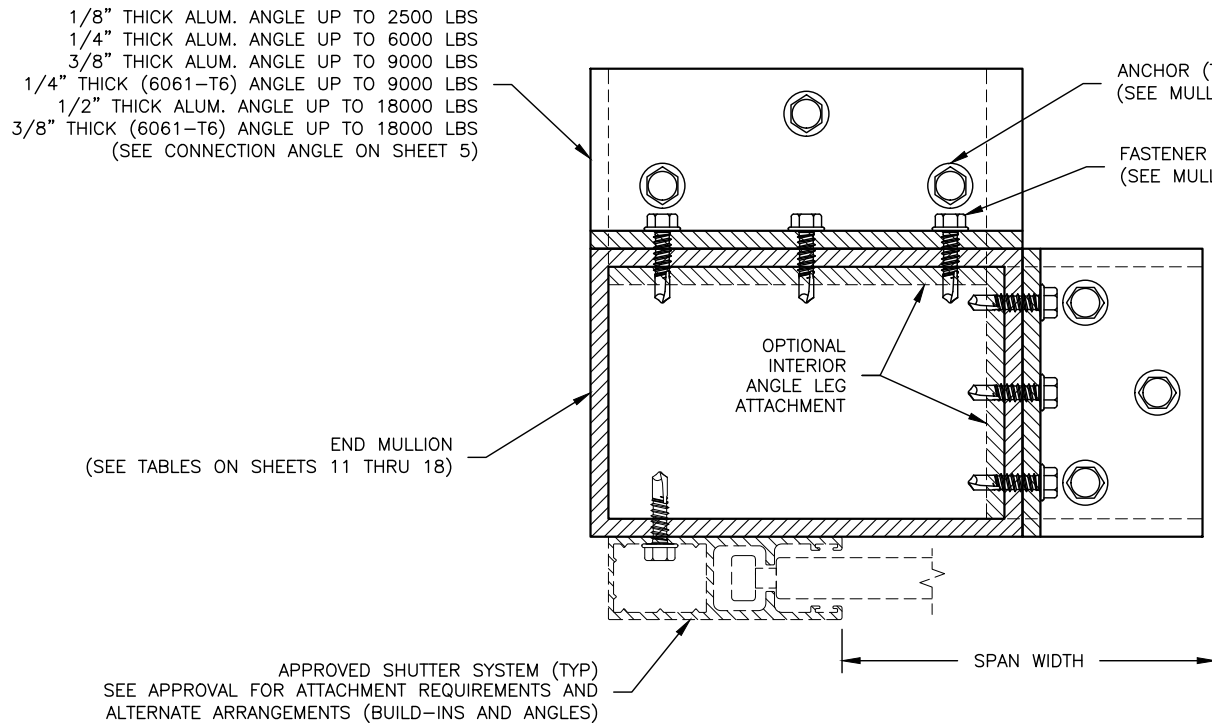
THIS ITEM HAS BEEN DIGITALLY SIGNED AND VERIFIED BY TREVOR JOHNSON ON THE DATE ADJACENT TO THE SEAL. SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES; RULE 61G15-23.004 F.A.C.



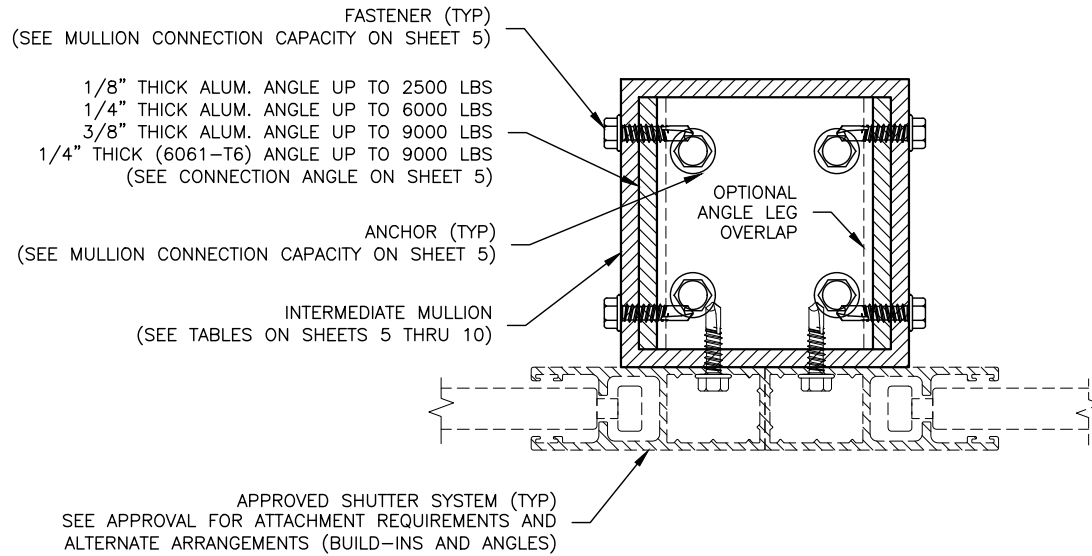
**INTERMEDIATE MULLION CONNECTION**  
TYPICAL MULLION INSTALLATION - N.T.S.

NOTES:

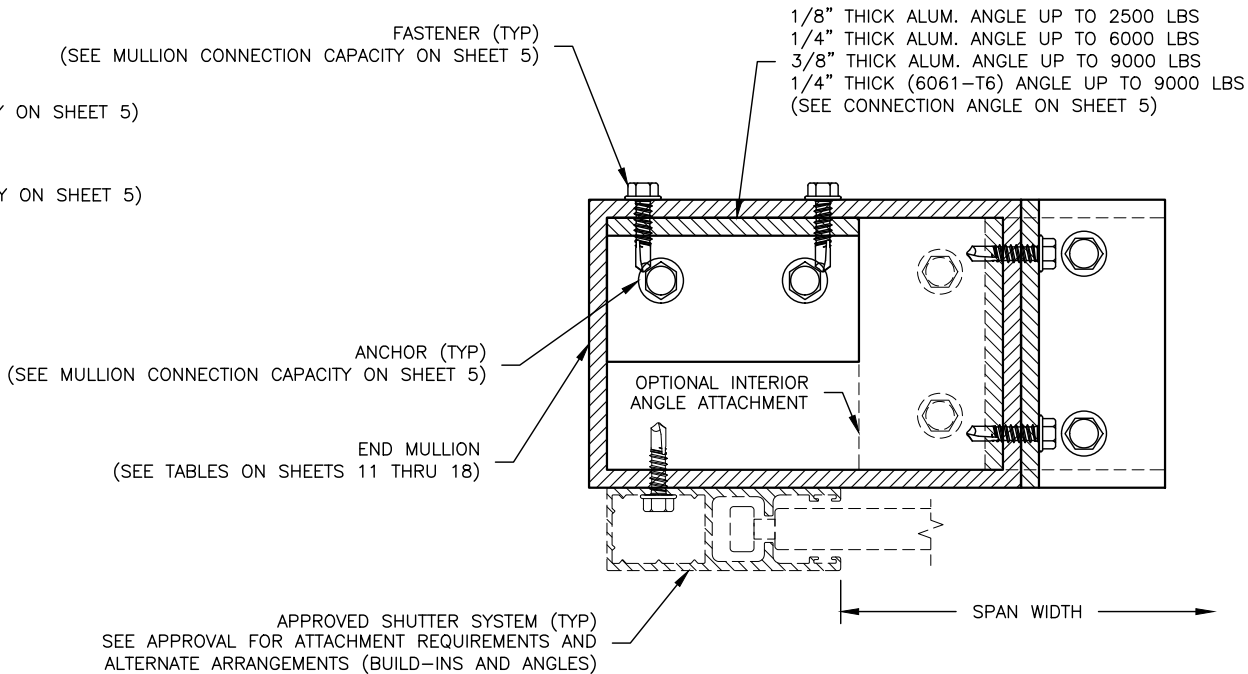
1. ANCHOR AND FASTENER SPACING MUST MEET THE REQUIREMENTS SHOWN ON THE CONNECTION ANGLE DETAIL ON SHEET 5. THE CONNECTIONS AND OPTIONAL CONNECTIONS SHOWN ARE NOT APPLICABLE WHERE THE MINIMUM SPACING REQUIREMENTS ARE EXCEEDED
2. INTERIOR ANGLE LEG ATTACHMENT CAN BE USED IN COMBINATION WITH INTERIOR ATTACHMENT



**END MULLION CONNECTION**  
TYPICAL MULLION INSTALLATION - N.T.S.



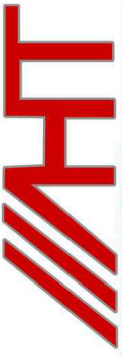
**INTERMEDIATE MULLION CONNECTION**  
INTERIOR ATTACHMENT MULLION INSTALLATION - N.T.S.



**END MULLION CONNECTION**  
INTERIOR ATTACHMENT MULLION INSTALLATION - N.T.S.

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**ADVANCED HURRICANE TECHNOLOGY**  
16501 OLD AIRPORT HAUL RD. FORT MYERS, FL 33913  
PHONE: 239.260.0020; SALES@AHT-USA.NET  
AHTWORLDWIDE.COM

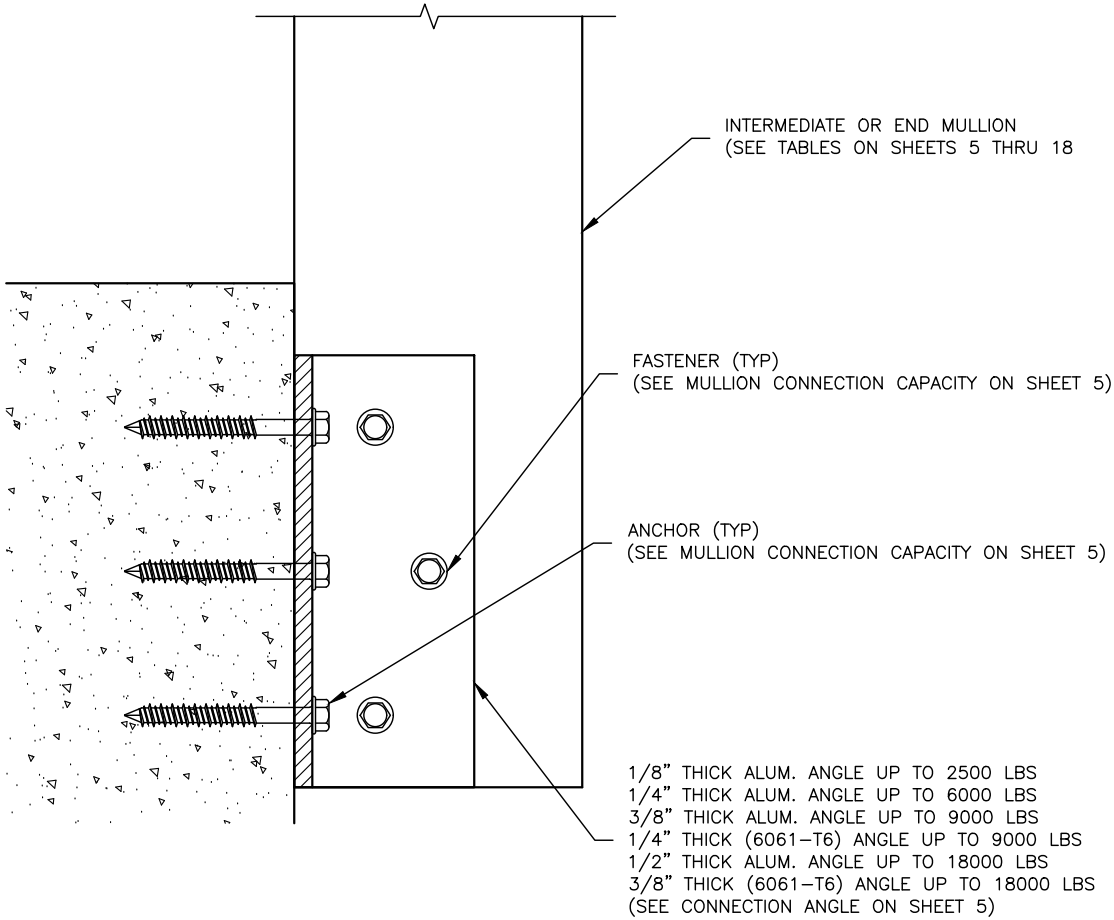
**ROLL-UP SHUTTER MULLIONS**

**TKJ Engineering, LLC.**  
11335 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569  
PH: 813.404.7649; EM: TKJENGINEERING@VERIZON.NET  
CERTIFICATE OF AUTHORIZATION NUMBER: 28582

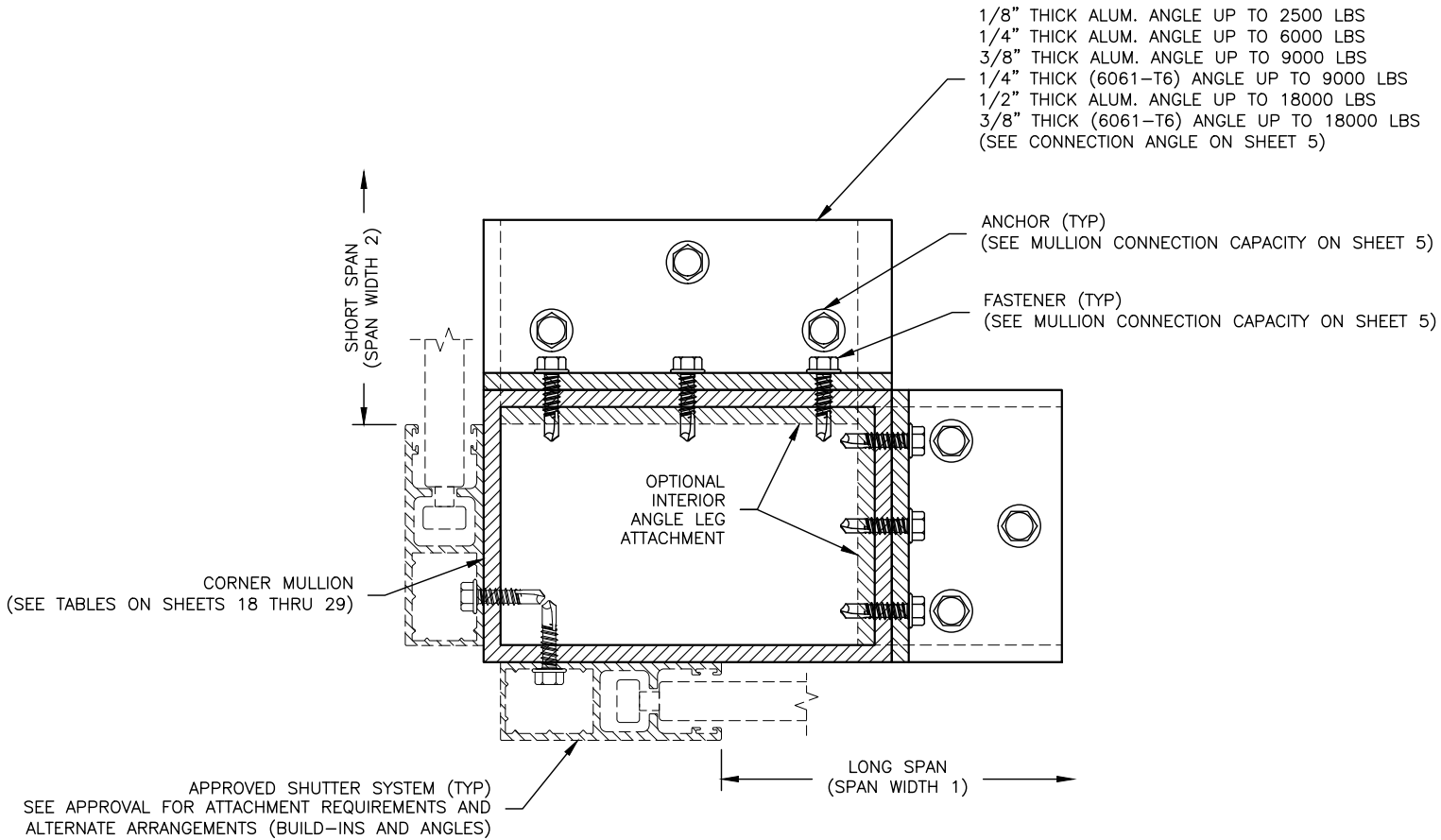
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|-----------|----------|
| DATE:     | 10/17/26 |
| DRAWN BY: | TKJ      |
| SCALE:    | N.T.S.   |
| PROJ. #:  | 26-0802  |

2 OF 29

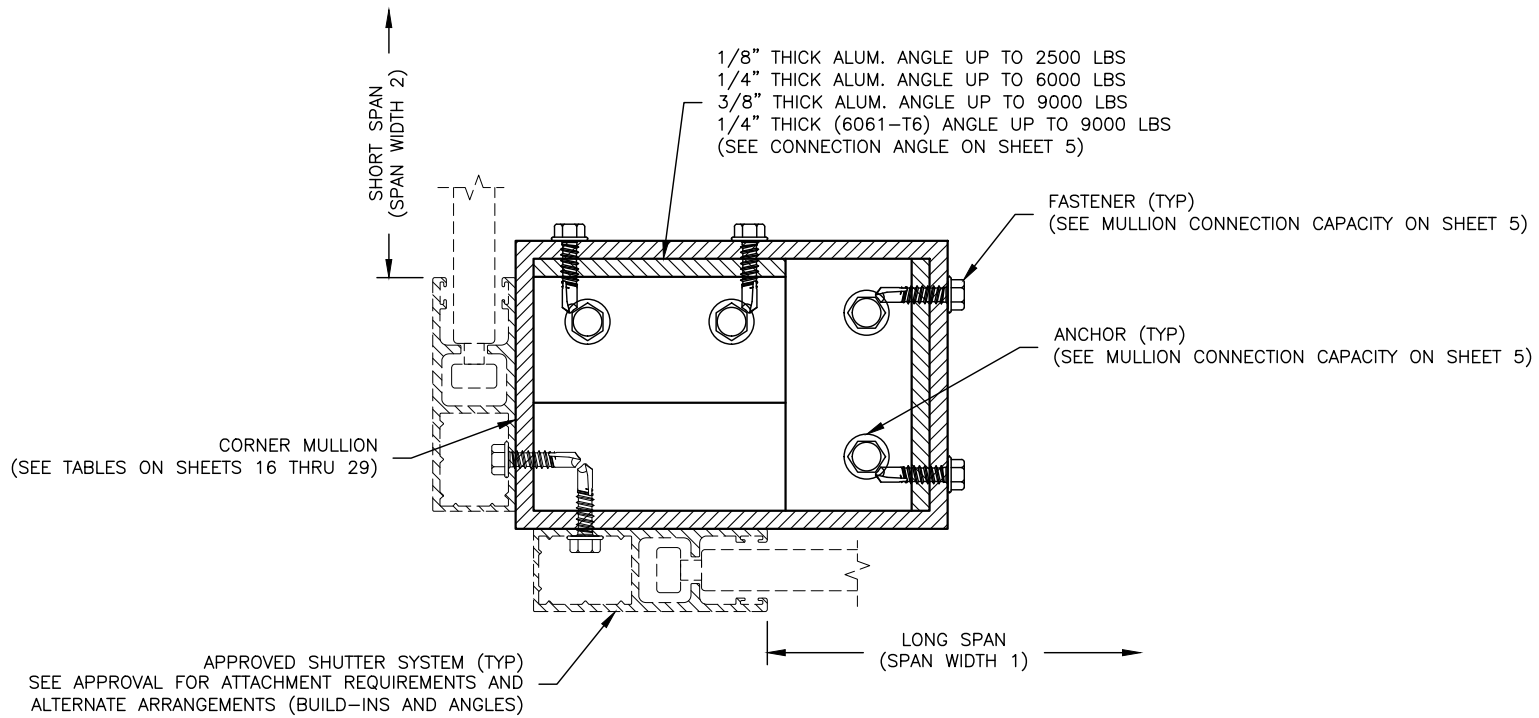
STATE OF FLORIDA  
TREVOR JOHNSON  
PROFESSIONAL ENGINEER  
10/17/26  
16024



WALL MOUNTED CONNECTION  
OPTIONAL MULLION INSTALLATION - N.T.S.



END MULLION CONNECTION  
TYPICAL MULLION INSTALLATION - N.T.S.



END MULLION CONNECTION  
INTERIOR ATTACHMENT MULLION INSTALLATION - N.T.S.

NOTE: INTERIOR ANGLE LEG ATTACHMENT CAN BE USED IN COMBINATION WITH INTERIOR ATTACHMENT

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AHTWORLDWIDE.COM

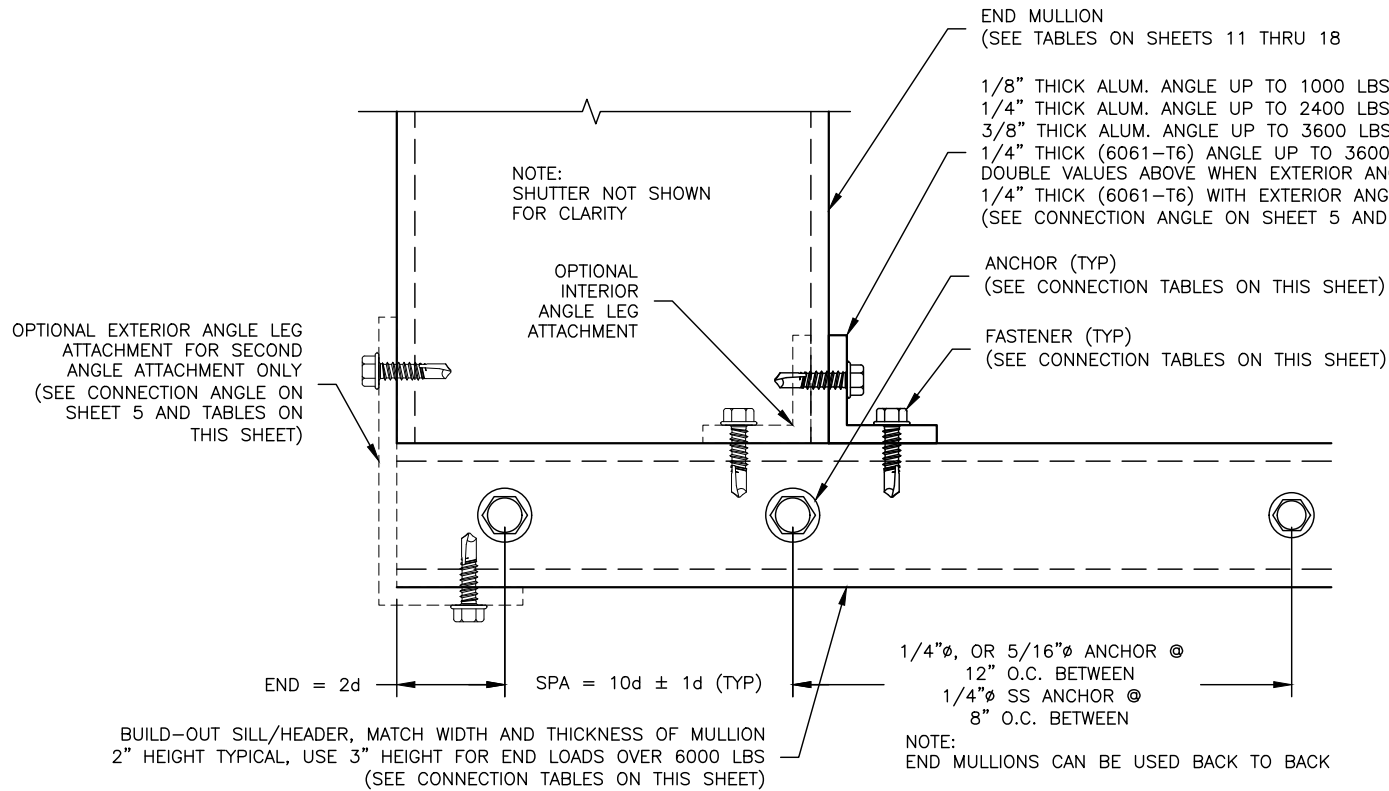
**TKJ Engineering, LLC.**

11335 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569  
PH: 813.404.7649; EM: TKJENGINEERING@VERIZON.NET  
CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26  
DRAWN BY: TKJ  
SCALE: N.T.S.  
PROJ. #: 26-0802

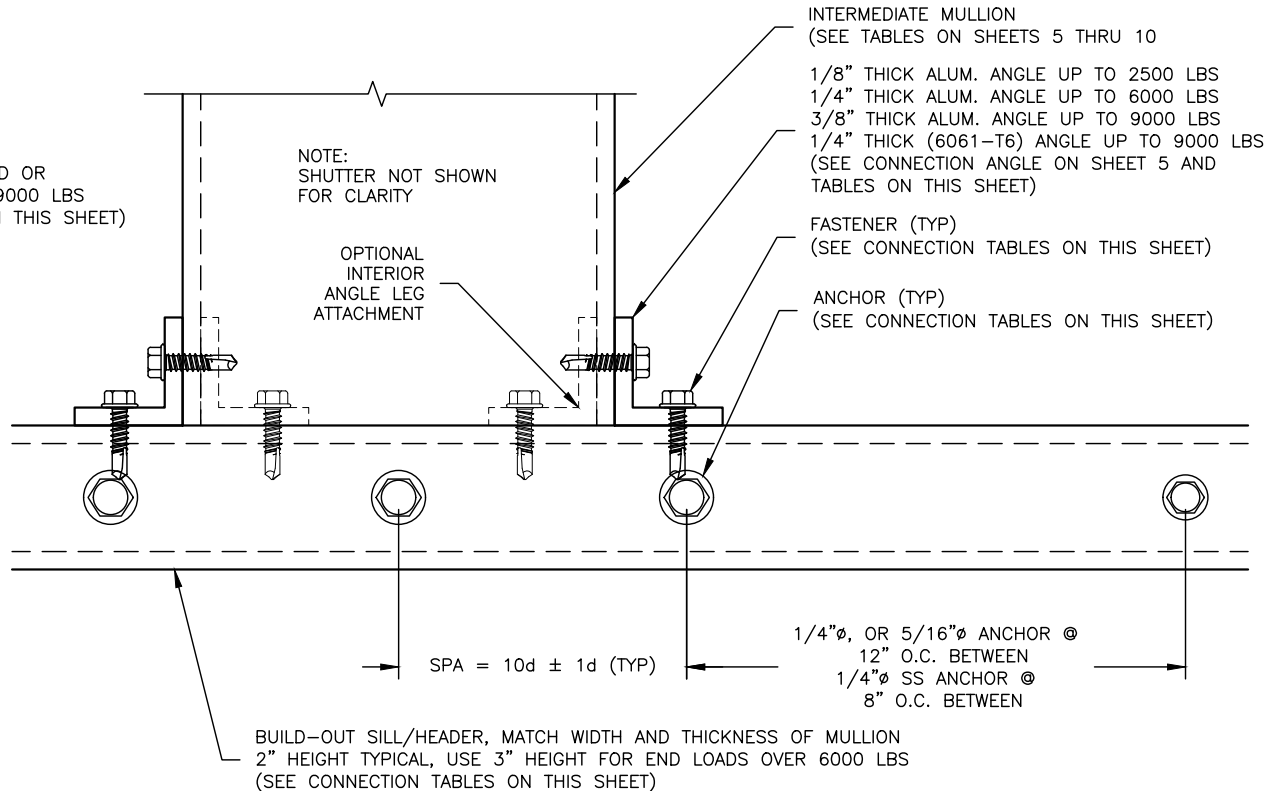
3 OF 29

STATE OF FLORIDA  
TREVOR JOHNSON  
PROFESSIONAL ENGINEER  
10/17/26  
16924



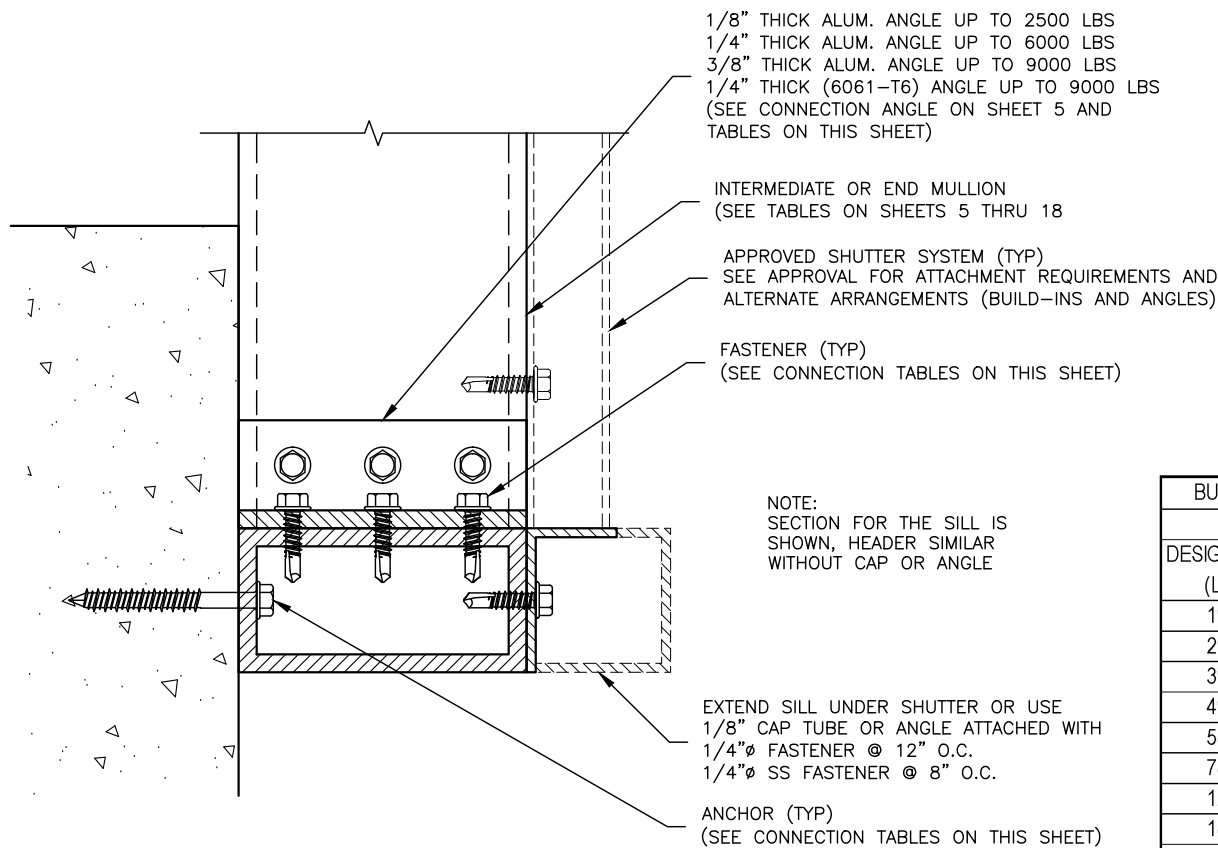
### BUILD-OUT SILL/HEADER CONNECTION

OPTIONAL END MULLION INSTALLATION - N.T.S.



### BUILD-OUT SILL/HEADER CONNECTION

OPTIONAL INTERMEDIATE MULLION INSTALLATION - N.T.S.



### BUILD-OUT SILL/HEADER SECTION

OPTIONAL END AND INTERMEDIATE MULLION INSTALLATION - N.T.S.

| BUILD-OUT SILL/HEADER CONNECTION CAPACITY |                                |                      |                                |                      |                                |
|-------------------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|
| CONCRETE & FILLED CMU                     |                                | HOLLOW CMU           |                                | WOOD                 |                                |
| DESIGN LOAD<br>(LBS)                      | ANCHORS REQUIRED<br>EACH ANGLE | DESIGN LOAD<br>(LBS) | ANCHORS REQUIRED<br>EACH ANGLE | DESIGN LOAD<br>(LBS) | ANCHORS REQUIRED<br>EACH ANGLE |
| 2080                                      | (2) 5/16" ULTRACON             | 1050                 | (3) 1/4" ULTRACON              | 900                  | (3) 1/4" ULTRACON              |
| 3120                                      | (3) 5/16" ULTRACON             | 1400                 | (4) 1/4" ULTRACON              | 1200                 | (4) 1/4" ULTRACON              |
| 4160                                      | (4) 5/16" ULTRACON             | 1290                 | (3) 5/16" ULTRACON             | 1770                 | (3) 5/16" ULTRACON             |
| 6240                                      | (6) 5/16" ULTRACON             | 1720                 | (4) 5/16" ULTRACON             | 2360                 | (4) 5/16" ULTRACON             |
| 4500                                      | (2) 3/8" ANCHOR                | 2150                 | (5) 5/16" ULTRACON             | 2950                 | (5) 5/16" ULTRACON             |
| 6750                                      | (3) 3/8" ANCHOR                | 2580                 | (6) 5/16" ULTRACON             | 3540                 | (6) 5/16" ULTRACON             |
| 9000                                      | (4) 3/8" ANCHOR                | 3440                 | (8) 5/16" ULTRACON             | 4720                 | (8) 5/16" ULTRACON             |
| 1780                                      | (2) 3/8" WDG-BLT 316SS         | 400                  | (2) 1/4" ULTRACON SS4          | 560                  | (2) 1/4" ULTRACON SS4          |
| 2670                                      | (3) 3/8" WDG-BLT 316SS         | 600                  | (3) 1/4" ULTRACON SS4          | 840                  | (3) 1/4" ULTRACON SS4          |
| 3560                                      | (4) 3/8" WDG-BLT 316SS         | 800                  | (4) 1/4" ULTRACON SS4          | 1120                 | (4) 1/4" ULTRACON SS4          |
| 4450                                      | (5) 3/8" WDG-BLT 316SS         | 1000                 | (5) 1/4" ULTRACON SS4          | 1400                 | (5) 1/4" ULTRACON SS4          |

| BUILD-OUT SILL/HEADER CONNECTION ANGLE CAPACITY (2 REQUIRED) |                                |                      |                                |
|--------------------------------------------------------------|--------------------------------|----------------------|--------------------------------|
| 1/8" MIN. ALUMINUM                                           |                                | 1/4" MIN. ALUMINUM   |                                |
| DESIGN LOAD<br>(LBS)                                         | ANCHORS REQUIRED<br>EACH ANGLE | DESIGN LOAD<br>(LBS) | ANCHORS REQUIRED<br>EACH ANGLE |
| 1960                                                         | (2) 1/4-14 DRIL-FLEX           | 3200                 | (2) 1/4-14 DRIL-FLEX           |
| 2940                                                         | (3) 1/4-14 DRIL-FLEX           | 4800                 | (3) 1/4-14 DRIL-FLEX           |
| 3920                                                         | (4) 1/4-14 DRIL-FLEX           | 6400                 | (4) 1/4-14 DRIL-FLEX           |
| 4900                                                         | (5) 1/4-14 DRIL-FLEX           | 9600                 | (6) 1/4-14 DRIL-FLEX           |
| 5880                                                         | (6) 1/4-14 DRIL-FLEX           | 12800                | (8) 1/4-14 DRIL-FLEX           |
| 7840                                                         | (8) 1/4-14 DRIL-FLEX           | 16000                | (10) 1/4-14 DRIL-FLEX          |
| 1240                                                         | (2) 1/4-14 ALUMI-FLEX          | 2160                 | (2) 1/4-14 ALUMI-FLEX          |
| 1860                                                         | (3) 1/4-14 ALUMI-FLEX          | 3240                 | (3) 1/4-14 ALUMI-FLEX          |
| 2480                                                         | (4) 1/4-14 ALUMI-FLEX          | 4320                 | (4) 1/4-14 ALUMI-FLEX          |
| 3100                                                         | (5) 1/4-14 ALUMI-FLEX          | 5400                 | (5) 1/4-14 ALUMI-FLEX          |

| BUILD-OUT SILL/HEADER CONNECTION ANGLE CAPACITY (1 REQUIRED) |                                |                      |                                |
|--------------------------------------------------------------|--------------------------------|----------------------|--------------------------------|
| 1/8" MIN. ALUMINUM                                           |                                | 1/4" MIN. ALUMINUM   |                                |
| DESIGN LOAD<br>(LBS)                                         | ANCHORS REQUIRED<br>EACH ANGLE | DESIGN LOAD<br>(LBS) | ANCHORS REQUIRED<br>EACH ANGLE |
| 490                                                          | (2) 1/4-14 DRIL-FLEX           | 800                  | (2) 1/4-14 DRIL-FLEX           |
| 735                                                          | (3) 1/4-14 DRIL-FLEX           | 1200                 | (3) 1/4-14 DRIL-FLEX           |
| 980                                                          | (4) 1/4-14 DRIL-FLEX           | 1600                 | (4) 1/4-14 DRIL-FLEX           |
| 1225                                                         | (5) 1/4-14 DRIL-FLEX           | 2400                 | (6) 1/4-14 DRIL-FLEX           |
| 1470                                                         | (6) 1/4-14 DRIL-FLEX           | 3200                 | (8) 1/4-14 DRIL-FLEX           |
| 1960                                                         | (8) 1/4-14 DRIL-FLEX           | 4000                 | (10) 1/4-14 DRIL-FLEX          |
| 465                                                          | (3) 1/4-14 ALUMI-FLEX          | 810                  | (3) 1/4-14 ALUMI-FLEX          |
| 620                                                          | (4) 1/4-14 ALUMI-FLEX          | 1080                 | (4) 1/4-14 ALUMI-FLEX          |
| 775                                                          | (5) 1/4-14 ALUMI-FLEX          | 1350                 | (5) 1/4-14 ALUMI-FLEX          |
| 930                                                          | (6) 1/4-14 ALUMI-FLEX          | 1620                 | (6) 1/4-14 ALUMI-FLEX          |

NOTE:  
ADD MULLION END LOADS TOGETHER FROM BOTH MULLIONS  
(ABOVE AND BELOW) WHEN A SHARED SILL/HEADER IS USED

REVISIONS

DATE

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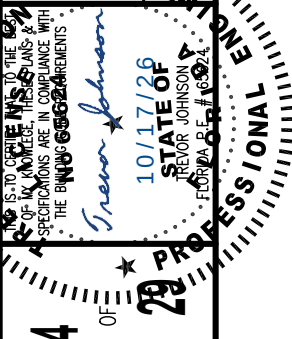


## ROLL-UP SHUTTER MULLIONS

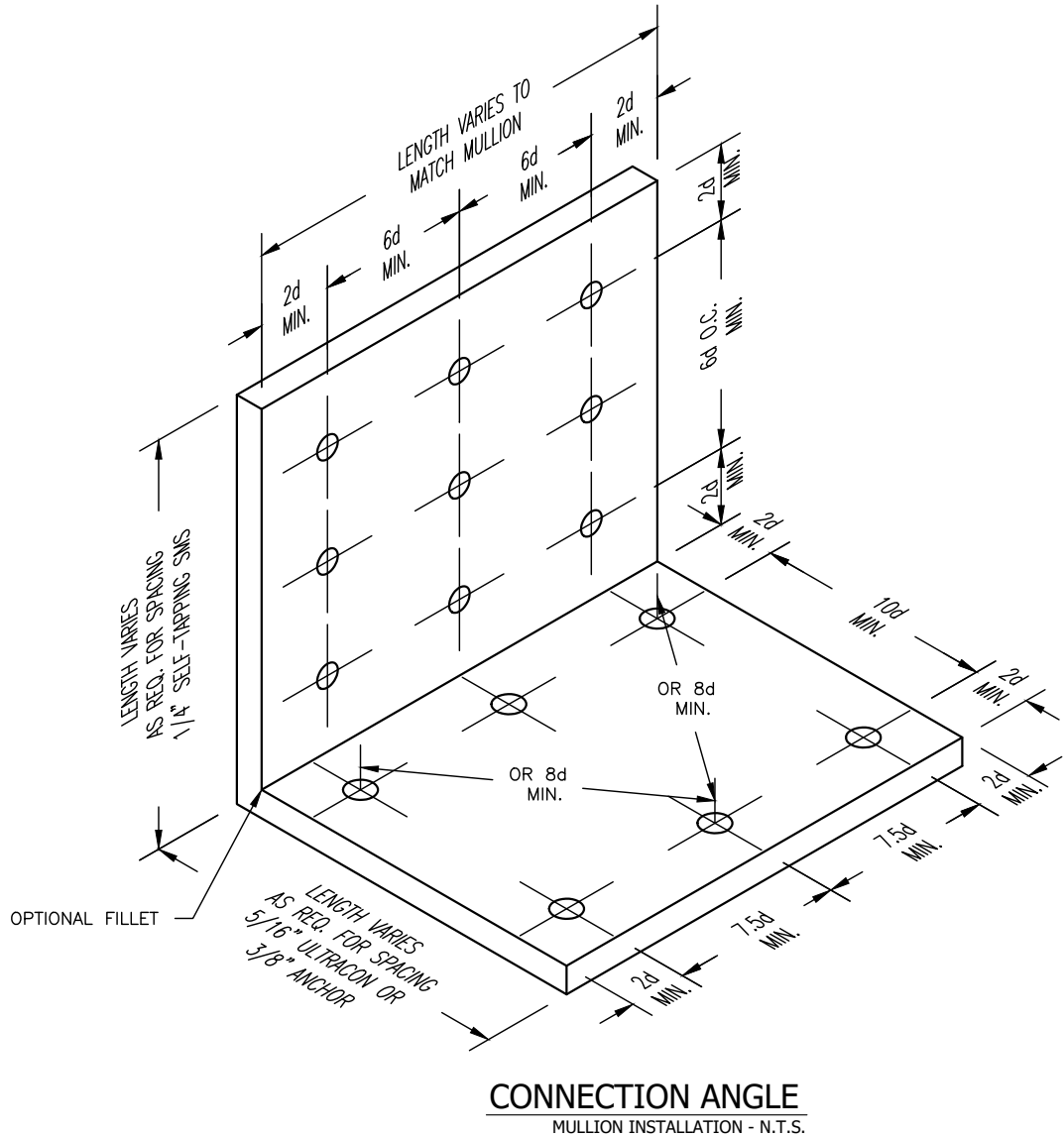
**TJK Engineering, LLC.**

11335 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569  
PH: 866.404.7649; EM: TKEENGINEERING@VERIZON.NET  
A PROFESSIONAL ENGINEER'S CERTIFICATE OF AUTHORIZATION NUMBER: 28562

PROJ. #: 26-0802  
SCALE: N.T.S.  
DRAWN BY: TKJ  
DATE: 10/17/26



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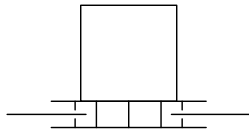
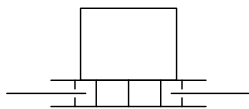


**CONNECTION ANGLE**  
MULLION INSTALLATION - N.T.S.

NOTE: SEE MULLION CONNECTION CAPACITY TABLE FOR REQUIRED ANCHORS, USE CENTER ANCHOR SPACING AND LOCATIONS WHEN REQUIRED.

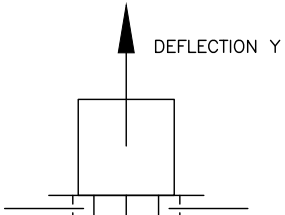
SEE MULLION END LOAD ON MAXIMUM DESIGN PRESSURE MULLION TABLES FOR THE REQUIRED MINIMUM CONNECTION CAPACITY

| MULLION CONNECTION ANGLE CAPACITY (2 REQUIRED) |                             |                       |                             |                   |                             |                   |                             |                   |                             |                   |                             |
|------------------------------------------------|-----------------------------|-----------------------|-----------------------------|-------------------|-----------------------------|-------------------|-----------------------------|-------------------|-----------------------------|-------------------|-----------------------------|
| CONCRETE                                       |                             | CONCRETE & FILLED CMU |                             | HOLLOW CMU        |                             | WOOD              |                             | 1/8" MIN ALUMINUM |                             | 1/4" MIN ALUMINUM |                             |
| DESIGN LOAD (LBS)                              | ANCHORS REQUIRED EACH ANGLE | DESIGN LOAD (LBS)     | ANCHORS REQUIRED EACH ANGLE | DESIGN LOAD (LBS) | ANCHORS REQUIRED EACH ANGLE | DESIGN LOAD (LBS) | ANCHORS REQUIRED EACH ANGLE | DESIGN LOAD (LBS) | ANCHORS REQUIRED EACH ANGLE | DESIGN LOAD (LBS) | ANCHORS REQUIRED EACH ANGLE |
| 3900                                           | (1) 3/8" RAMSET G5          | 4160                  | (2) 5/16" ULTRACON          | 1400              | (2) 1/4" ULTRACON           | 1200              | (2) 1/4" ULTRACON           | 2640              | (2) 1/4-14 DRIL-FLEX        | 4240              | (2) 1/4-14 DRIL-FLEX        |
| 7800                                           | (2) 3/8" RAMSET G5          | 6240                  | (3) 5/16" ULTRACON          | 2100              | (3) 1/4" ULTRACON           | 1800              | (3) 1/4" ULTRACON           | 3960              | (3) 1/4-14 DRIL-FLEX        | 6360              | (3) 1/4-14 DRIL-FLEX        |
| 11700                                          | (3) 3/8" RAMSET G5          | 8320                  | (4) 5/16" ULTRACON          | 1720              | (2) 5/16" ULTRACON          | 2360              | (2) 5/16" ULTRACON          | 5280              | (4) 1/4-14 DRIL-FLEX        | 8480              | (4) 1/4-14 DRIL-FLEX        |
| 7020                                           | (1) 1/2" RAMSET G5          | 9000                  | (2) 3/8" ANCHOR             | 2580              | (3) 5/16" ULTRACON          | 3540              | (3) 5/16" ULTRACON          | 6600              | (5) 1/4-14 DRIL-FLEX        | 12720             | (6) 1/4-14 DRIL-FLEX        |
| 14040                                          | (2) 1/2" RAMSET G5          | 13500                 | (3) 3/8" ANCHOR             | 3440              | (4) 5/16" ULTRACON          | 4720              | (4) 5/16" ULTRACON          | 7920              | (6) 1/4-14 DRIL-FLEX        | 16960             | (8) 1/4-14 DRIL-FLEX        |
| 21060                                          | (3) 1/2" RAMSET G5          | 18000                 | (4) 3/8" ANCHOR             | 5160              | (6) 5/16" ULTRACON          | 7080              | (6) 5/16" ULTRACON          | 10560             | (8) 1/4-14 DRIL-FLEX        | 21200             | (10) 1/4-14 DRIL-FLEX       |
| 4280                                           | (1) 1/2" WDG-BLT 316SS      | 3560                  | (2) 3/8" WDG-BLT 316SS      | 800               | (2) 1/4" ULTRACON SS4       | 1120              | (2) 1/4" ULTRACON SS4       | 1240              | (2) 1/4-14 ALUMI-FLEX       | 2160              | (2) 1/4-14 ALUMI-FLEX       |
| 8560                                           | (2) 1/2" WDG-BLT 316SS      | 5340                  | (3) 3/8" WDG-BLT 316SS      | 1200              | (3) 1/4" ULTRACON SS4       | 1680              | (3) 1/4" ULTRACON SS4       | 1860              | (3) 1/4-14 ALUMI-FLEX       | 3240              | (3) 1/4-14 ALUMI-FLEX       |
| 12840                                          | (3) 1/2" WDG-BLT 316SS      | 7120                  | (4) 3/8" WDG-BLT 316SS      | 1600              | (4) 1/4" ULTRACON SS4       | 2240              | (4) 1/4" ULTRACON SS4       | 2480              | (4) 1/4-14 ALUMI-FLEX       | 4320              | (4) 1/4-14 ALUMI-FLEX       |
| 17120                                          | (4) 1/2" WDG-BLT 316SS      | 8900                  | (5) 3/8" WDG-BLT 316SS      | 2000              | (5) 1/4" ULTRACON SS4       | 2800              | (5) 1/4" ULTRACON SS4       | 3100              | (5) 1/4-14 ALUMI-FLEX       | 5400              | (5) 1/4-14 ALUMI-FLEX       |



| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 3"x4"x1/8" MULLION (6063-T6) |                      |                       |                       |                           |
|---------------------------------------------------------------------------|----------------------|-----------------------|-----------------------|---------------------------|
| AVERAGE SPAN WIDTH UP TO                                                  | MULLION LENGTH UP TO | DESIGN PRESSURE (PSF) | MULLION END LOAD (LB) | MULLION DEFLECTION Y (IN) |
| 60"                                                                       | 72"                  | 93                    | 1395                  | 0.54                      |
|                                                                           | 84"                  | 68                    | 1190                  | 0.73                      |
|                                                                           | 96"                  | 52                    | 1040                  | 0.96                      |
|                                                                           | 108"                 | 41                    | 923                   | 1.21                      |
|                                                                           | 120"                 | 32                    | 800                   | 1.44                      |
| 72"                                                                       | 60"                  | 111                   | 1665                  | 0.37                      |
|                                                                           | 72"                  | 77                    | 1386                  | 0.54                      |
|                                                                           | 84"                  | 57                    | 1197                  | 0.74                      |
|                                                                           | 96"                  | 43                    | 1032                  | 0.95                      |
|                                                                           | 108"                 | 34                    | 918                   | 1.20                      |
| 84"                                                                       | 60"                  | 95                    | 1663                  | 0.37                      |
|                                                                           | 72"                  | 66                    | 1386                  | 0.54                      |
|                                                                           | 84"                  | 49                    | 1201                  | 0.74                      |
|                                                                           | 96"                  | 37                    | 1036                  | 0.95                      |
|                                                                           | 108"                 | 29                    | 914                   | 1.20                      |
| 96"                                                                       | 48"                  | 130                   | 2080                  | 0.24                      |
|                                                                           | 60"                  | 83                    | 1660                  | 0.37                      |
|                                                                           | 72"                  | 58                    | 1392                  | 0.54                      |
|                                                                           | 84"                  | 43                    | 1204                  | 0.74                      |
|                                                                           | 96"                  | 33                    | 1056                  | 0.97                      |
| 108"                                                                      | 48"                  | 116                   | 2088                  | 0.24                      |
|                                                                           | 60"                  | 74                    | 1665                  | 0.37                      |
|                                                                           | 72"                  | 51                    | 1377                  | 0.54                      |
|                                                                           | 84"                  | 38                    | 1197                  | 0.74                      |
|                                                                           | 96"                  | 29                    | 1044                  | 0.96                      |
| 120"                                                                      | 48"                  | 104                   | 2080                  | 0.24                      |
|                                                                           | 60"                  | 67                    | 1675                  | 0.38                      |
|                                                                           | 72"                  | 46                    | 1380                  | 0.54                      |
|                                                                           | 84"                  | 34                    | 1190                  | 0.73                      |
|                                                                           | 96"                  | 26                    | 1040                  | 0.96                      |
| 132"                                                                      | 48"                  | 95                    | 2090                  | 0.24                      |
|                                                                           | 60"                  | 61                    | 1678                  | 0.38                      |
|                                                                           | 72"                  | 42                    | 1386                  | 0.54                      |
|                                                                           | 84"                  | 31                    | 1194                  | 0.74                      |
|                                                                           | 96"                  | 24                    | 1056                  | 0.97                      |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"x4"x1/8" MULLION (6063-T6) |                      |                       |                       |                           |
|---------------------------------------------------------------------------|----------------------|-----------------------|-----------------------|---------------------------|
| AVERAGE SPAN WIDTH UP TO                                                  | MULLION LENGTH UP TO | DESIGN PRESSURE (PSF) | MULLION END LOAD (LB) | MULLION DEFLECTION Y (IN) |
| 60"                                                                       | 72"                  | 135                   | 2025                  | 0.41                      |
|                                                                           | 84"                  | 99                    | 1733                  | 0.55                      |
|                                                                           | 96"                  | 76                    | 1520                  | 0.72                      |
|                                                                           | 108"                 | 60                    | 1350                  | 0.91                      |
|                                                                           | 120"                 | 49                    | 1225                  | 1.14                      |
| 72"                                                                       | 72"                  | 112                   | 2016                  | 0.40                      |
|                                                                           | 84"                  | 83                    | 1743                  | 0.55                      |
|                                                                           | 96"                  | 63                    | 1512                  | 0.72                      |
|                                                                           | 108"                 | 50                    | 1350                  | 0.91                      |
|                                                                           | 120"                 | 40                    | 1200                  | 1.11                      |
| 84"                                                                       | 72"                  | 96                    | 2016                  | 0.40                      |
|                                                                           | 84"                  | 71                    | 1740                  | 0.55                      |
|                                                                           | 96"                  | 54                    | 1512                  | 0.72                      |
|                                                                           | 108"                 | 43                    | 1355                  | 0.92                      |
|                                                                           | 120"                 | 35                    | 1225                  | 1.14                      |
| 96"                                                                       | 72"                  | 84                    | 2016                  | 0.40                      |
|                                                                           | 84"                  | 62                    | 1736                  | 0.55                      |
|                                                                           | 96"                  | 47                    | 1504                  | 0.71                      |
|                                                                           | 108"                 | 37                    | 1332                  | 0.90                      |
|                                                                           | 120"                 | 30                    | 1200                  | 1.11                      |
| 108"                                                                      | 66"                  | 89                    | 2203                  | 0.34                      |
|                                                                           | 78"                  | 64                    | 1872                  | 0.48                      |
|                                                                           | 90"                  | 48                    | 1620                  | 0.63                      |
|                                                                           | 102"                 | 37                    | 1415                  | 0.81                      |
|                                                                           | 114"                 | 30                    | 1283                  | 1.02                      |
| 120"                                                                      | 60"                  | 97                    | 2425                  | 0.28                      |
|                                                                           | 72"                  | 67                    | 2010                  | 0.40                      |
|                                                                           | 84"                  | 50                    | 1750                  | 0.56                      |
|                                                                           | 96"                  | 38                    | 1520                  | 0.72                      |
|                                                                           | 108"                 | 30                    | 1350                  | 0.91                      |
| 132"                                                                      | 60"                  | 88                    | 2420                  | 0.28                      |
|                                                                           | 72"                  | 61                    | 2013                  | 0.40                      |
|                                                                           | 84"                  | 45                    | 1733                  | 0.55                      |
|                                                                           | 96"                  | 34                    | 1496                  | 0.71                      |
|                                                                           | 108"                 | 27                    | 1337                  | 0.90                      |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

## ROLL-UP SHUTTER MULLIONS

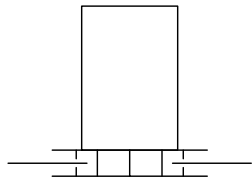
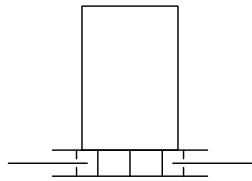
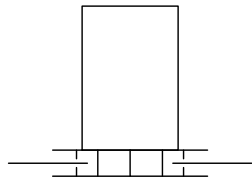
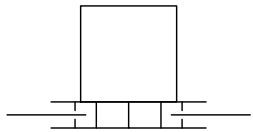
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DATE: 10/17/26  
DRAWN BY: TKJ  
SCALE: N.T.S.  
PROJ. #: 26-0802

**AHT**  
ADVANCED HURRICANE TECHNOLOGY  
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# DATE REVISIONS

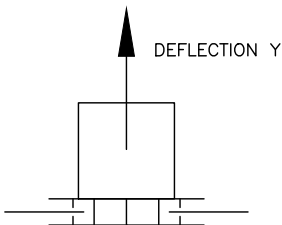


| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X4"X1/4" MULLION (6063-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 60"                                                                       | 96"                        | 138                         | 2760                        | 0.72                            |
|                                                                           | 108"                       | 109                         | 2453                        | 0.91                            |
|                                                                           | 120"                       | 88                          | 2200                        | 1.12                            |
|                                                                           | 132"                       | 73                          | 2008                        | 1.36                            |
|                                                                           | 144"                       | 61                          | 1830                        | 1.61                            |
| 72"                                                                       | 96"                        | 115                         | 2760                        | 0.72                            |
|                                                                           | 108"                       | 91                          | 2457                        | 0.91                            |
|                                                                           | 120"                       | 74                          | 2220                        | 1.13                            |
|                                                                           | 132"                       | 61                          | 2013                        | 1.37                            |
|                                                                           | 144"                       | 51                          | 1836                        | 1.62                            |
| 84"                                                                       | 96"                        | 99                          | 2772                        | 0.72                            |
|                                                                           | 108"                       | 78                          | 2457                        | 0.91                            |
|                                                                           | 120"                       | 63                          | 2205                        | 1.12                            |
|                                                                           | 132"                       | 52                          | 2002                        | 1.36                            |
|                                                                           | 144"                       | 44                          | 1848                        | 1.63                            |
| 96"                                                                       | 96"                        | 86                          | 2752                        | 0.72                            |
|                                                                           | 108"                       | 68                          | 2448                        | 0.91                            |
|                                                                           | 120"                       | 55                          | 2200                        | 1.12                            |
|                                                                           | 132"                       | 46                          | 2024                        | 1.37                            |
|                                                                           | 144"                       | 38                          | 1824                        | 1.61                            |
| 108"                                                                      | 96"                        | 77                          | 2772                        | 0.72                            |
|                                                                           | 108"                       | 61                          | 2471                        | 0.92                            |
|                                                                           | 120"                       | 49                          | 2205                        | 1.12                            |
|                                                                           | 132"                       | 41                          | 2030                        | 1.38                            |
|                                                                           | 144"                       | 34                          | 1836                        | 1.62                            |
| 120"                                                                      | 84"                        | 90                          | 3150                        | 0.55                            |
|                                                                           | 96"                        | 69                          | 2760                        | 0.72                            |
|                                                                           | 108"                       | 54                          | 2430                        | 0.90                            |
|                                                                           | 120"                       | 44                          | 2200                        | 1.12                            |
|                                                                           | 132"                       | 36                          | 1980                        | 1.34                            |
| 132"                                                                      | 84"                        | 82                          | 3157                        | 0.55                            |
|                                                                           | 96"                        | 63                          | 2772                        | 0.72                            |
|                                                                           | 108"                       | 50                          | 2475                        | 0.92                            |
|                                                                           | 120"                       | 40                          | 2200                        | 1.12                            |
|                                                                           | 132"                       | 33                          | 1997                        | 1.35                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X6"X1/8" MULLION (6063-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 60"                                                                       | 96"                        | 131                         | 2620                        | 0.48                            |
|                                                                           | 108"                       | 104                         | 2340                        | 0.61                            |
|                                                                           | 120"                       | 84                          | 2100                        | 0.75                            |
|                                                                           | 132"                       | 69                          | 1898                        | 0.90                            |
|                                                                           | 144"                       | 58                          | 1740                        | 1.07                            |
| 72"                                                                       | 96"                        | 109                         | 2616                        | 0.48                            |
|                                                                           | 108"                       | 86                          | 2322                        | 0.60                            |
|                                                                           | 120"                       | 70                          | 2100                        | 0.75                            |
|                                                                           | 132"                       | 58                          | 1914                        | 0.91                            |
|                                                                           | 144"                       | 49                          | 1764                        | 1.09                            |
| 84"                                                                       | 96"                        | 94                          | 2632                        | 0.48                            |
|                                                                           | 108"                       | 74                          | 2331                        | 0.61                            |
|                                                                           | 120"                       | 60                          | 2100                        | 0.75                            |
|                                                                           | 132"                       | 50                          | 1925                        | 0.92                            |
|                                                                           | 144"                       | 42                          | 1764                        | 1.09                            |
| 96"                                                                       | 96"                        | 82                          | 2624                        | 0.48                            |
|                                                                           | 108"                       | 65                          | 2340                        | 0.61                            |
|                                                                           | 120"                       | 52                          | 2080                        | 0.74                            |
|                                                                           | 132"                       | 43                          | 1892                        | 0.90                            |
|                                                                           | 144"                       | 36                          | 1728                        | 1.07                            |
| 108"                                                                      | 96"                        | 73                          | 2628                        | 0.48                            |
|                                                                           | 108"                       | 58                          | 2349                        | 0.61                            |
|                                                                           | 120"                       | 47                          | 2115                        | 0.76                            |
|                                                                           | 132"                       | 39                          | 1931                        | 0.92                            |
|                                                                           | 144"                       | 32                          | 1728                        | 1.07                            |
| 120"                                                                      | 84"                        | 86                          | 3010                        | 0.37                            |
|                                                                           | 96"                        | 66                          | 2640                        | 0.48                            |
|                                                                           | 108"                       | 52                          | 2340                        | 0.61                            |
|                                                                           | 120"                       | 42                          | 2100                        | 0.75                            |
|                                                                           | 132"                       | 35                          | 1925                        | 0.92                            |
| 132"                                                                      | 84"                        | 78                          | 3003                        | 0.37                            |
|                                                                           | 96"                        | 60                          | 2640                        | 0.48                            |
|                                                                           | 108"                       | 47                          | 2327                        | 0.61                            |
|                                                                           | 120"                       | 38                          | 2090                        | 0.75                            |
|                                                                           | 132"                       | 32                          | 1936                        | 0.92                            |

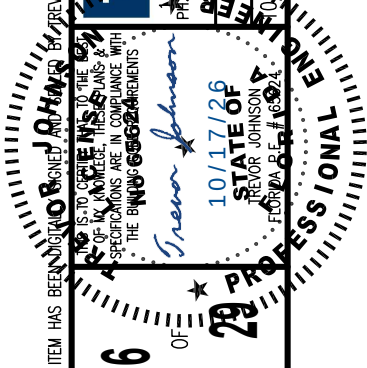
| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X6"X1/4" MULLION (6063-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 120"                                                                      | 96"                        | 122                         | 4880                        | 0.48                            |
|                                                                           | 108"                       | 97                          | 4365                        | 0.61                            |
|                                                                           | 120"                       | 78                          | 3900                        | 0.75                            |
|                                                                           | 132"                       | 65                          | 3575                        | 0.91                            |
|                                                                           | 144"                       | 54                          | 3240                        | 1.07                            |
| 132"                                                                      | 96"                        | 111                         | 4884                        | 0.48                            |
|                                                                           | 108"                       | 88                          | 4356                        | 0.61                            |
|                                                                           | 120"                       | 71                          | 3905                        | 0.75                            |
|                                                                           | 132"                       | 59                          | 3570                        | 0.91                            |
|                                                                           | 144"                       | 49                          | 3234                        | 1.07                            |
| 144"                                                                      | 96"                        | 102                         | 4896                        | 0.48                            |
|                                                                           | 108"                       | 81                          | 4374                        | 0.61                            |
|                                                                           | 120"                       | 65                          | 3900                        | 0.75                            |
|                                                                           | 132"                       | 54                          | 3564                        | 0.91                            |
|                                                                           | 144"                       | 45                          | 3240                        | 1.07                            |
| 156"                                                                      | 96"                        | 94                          | 4888                        | 0.48                            |
|                                                                           | 108"                       | 74                          | 4329                        | 0.60                            |
|                                                                           | 120"                       | 60                          | 3900                        | 0.75                            |
|                                                                           | 132"                       | 50                          | 3575                        | 0.91                            |
|                                                                           | 144"                       | 42                          | 3276                        | 1.09                            |
| 180"                                                                      | 96"                        | 82                          | 4920                        | 0.48                            |
|                                                                           | 108"                       | 64                          | 4320                        | 0.60                            |
|                                                                           | 120"                       | 52                          | 3900                        | 0.75                            |
|                                                                           | 132"                       | 43                          | 3548                        | 0.91                            |
|                                                                           | 144"                       | 36                          | 3240                        | 1.07                            |
| 192"                                                                      | 96"                        | 76                          | 4864                        | 0.48                            |
|                                                                           | 108"                       | 60                          | 4320                        | 0.60                            |
|                                                                           | 120"                       | 49                          | 3920                        | 0.75                            |
|                                                                           | 132"                       | 40                          | 3520                        | 0.90                            |
|                                                                           | 144"                       | 34                          | 3264                        | 1.08                            |
| 204"                                                                      | 96"                        | 72                          | 4896                        | 0.48                            |
|                                                                           | 108"                       | 57                          | 4361                        | 0.61                            |
|                                                                           | 120"                       | 46                          | 3910                        | 0.75                            |
|                                                                           | 132"                       | 38                          | 3553                        | 0.91                            |
|                                                                           | 144"                       | 32                          | 3264                        | 1.08                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X6"X1/4" MULLION (6063-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 216"                                                                      | 96"                        | 68                          | 4896                        | 0.48                            |
|                                                                           | 108"                       | 54                          | 4374                        | 0.61                            |
|                                                                           | 120"                       | 43                          | 3870                        | 0.74                            |
|                                                                           | 132"                       | 36                          | 3564                        | 0.91                            |
|                                                                           | 144"                       | 30                          | 3240                        | 1.07                            |
| 228"                                                                      | 96"                        | 64                          | 4864                        | 0.48                            |
|                                                                           | 108"                       | 51                          | 4361                        | 0.61                            |
|                                                                           | 120"                       | 41                          | 3895                        | 0.75                            |
|                                                                           | 132"                       | 34                          | 3553                        | 0.91                            |
|                                                                           | 144"                       | 29                          | 3306                        | 1.10                            |
| 240"                                                                      | 96"                        | 61                          | 4880                        | 0.48                            |
|                                                                           | 108"                       | 48                          | 4320                        | 0.60                            |
|                                                                           | 120"                       | 39                          | 3900                        | 0.75                            |
|                                                                           | 132"                       | 32                          | 3520                        | 0.90                            |
|                                                                           | 144"                       | 27                          | 3240                        | 1.07                            |
| 252"                                                                      | 84"                        | 76                          | 5586                        | 0.37                            |
|                                                                           | 96"                        | 58                          | 4872                        | 0.48                            |
|                                                                           | 108"                       | 46                          | 4347                        | 0.61                            |
|                                                                           | 120"                       | 37                          | 3885                        | 0.74                            |
|                                                                           | 132"                       | 31                          | 3581                        | 0.91                            |
| 264"                                                                      | 84"                        | 73                          | 5621                        | 0.37                            |
|                                                                           | 96"                        | 56                          | 4928                        | 0.48                            |
|                                                                           | 108"                       | 44                          | 4356                        | 0.61                            |
|                                                                           | 120"                       | 36                          | 3960                        | 0.76                            |
|                                                                           | 132"                       | 29                          | 3509                        | 0.90                            |
| 276"                                                                      | 84"                        | 69                          | 5555                        | 0.37                            |
|                                                                           | 96"                        | 53                          | 4876                        | 0.48                            |
|                                                                           | 108"                       | 42                          | 4347                        | 0.61                            |
|                                                                           | 120"                       | 34                          | 3910                        | 0.75                            |
|                                                                           | 132"                       | 28                          | 3542                        | 0.90                            |
| 288"                                                                      | 84"                        | 67                          | 5628                        | 0.37                            |
|                                                                           | 96"                        | 51                          | 4896                        | 0.48                            |
|                                                                           | 108"                       | 40                          | 4320                        | 0.60                            |
|                                                                           | 120"                       | 33                          | 3960                        | 0.76                            |
|                                                                           | 132"                       | 27                          | 3564                        | 0.91                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THIS ITEM HAS BEEN DIGITALLY SIGNED AND VERIFIED BY TREVOR JOHNSON ON THE DATE ADJACENT TO THE SEAL. SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES, RULE 61G15-23.004 F.A.C.



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FLORIDA LICENSE NUMBER: 28582

DATE: 10/17/26  
DRAWN BY: TKJ  
SCALE: N.T.S.  
PROJ. #: 26-0802

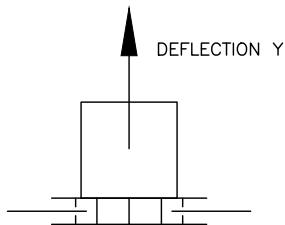
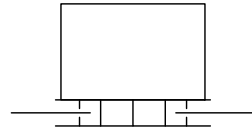
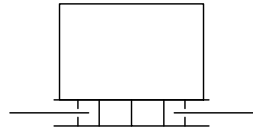
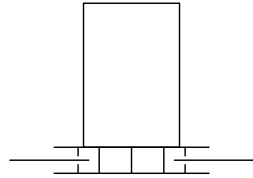
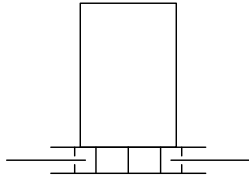
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MULLIONS



#

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NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"x8"x1/4" MULLION (6063-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 132"                                                                      | 96"                        | 150                         | 6600                        | 0.32                            |
|                                                                           | 108"                       | 134                         | 6633                        | 0.46                            |
|                                                                           | 120"                       | 108                         | 5940                        | 0.56                            |
|                                                                           | 132"                       | 89                          | 5385                        | 0.68                            |
|                                                                           | 144"                       | 75                          | 4950                        | 0.81                            |
| 144"                                                                      | 96"                        | 150                         | 7200                        | 0.35                            |
|                                                                           | 108"                       | 122                         | 6588                        | 0.45                            |
|                                                                           | 120"                       | 99                          | 5940                        | 0.56                            |
|                                                                           | 132"                       | 82                          | 5412                        | 0.68                            |
|                                                                           | 144"                       | 69                          | 4968                        | 0.81                            |
| 156"                                                                      | 96"                        | 143                         | 7436                        | 0.36                            |
|                                                                           | 108"                       | 113                         | 6611                        | 0.46                            |
|                                                                           | 120"                       | 92                          | 5980                        | 0.57                            |
|                                                                           | 132"                       | 76                          | 5434                        | 0.68                            |
|                                                                           | 144"                       | 64                          | 4992                        | 0.82                            |
| 168"                                                                      | 96"                        | 133                         | 7448                        | 0.36                            |
|                                                                           | 108"                       | 105                         | 6615                        | 0.46                            |
|                                                                           | 120"                       | 85                          | 5950                        | 0.56                            |
|                                                                           | 132"                       | 70                          | 5390                        | 0.68                            |
|                                                                           | 144"                       | 59                          | 4956                        | 0.81                            |
| 180"                                                                      | 96"                        | 124                         | 7440                        | 0.36                            |
|                                                                           | 108"                       | 98                          | 6615                        | 0.46                            |
|                                                                           | 120"                       | 79                          | 5925                        | 0.56                            |
|                                                                           | 132"                       | 66                          | 5445                        | 0.68                            |
|                                                                           | 144"                       | 55                          | 4950                        | 0.81                            |
| 192"                                                                      | 96"                        | 116                         | 7424                        | 0.36                            |
|                                                                           | 108"                       | 92                          | 6624                        | 0.46                            |
|                                                                           | 120"                       | 74                          | 5920                        | 0.56                            |
|                                                                           | 132"                       | 61                          | 5368                        | 0.68                            |
|                                                                           | 144"                       | 52                          | 4992                        | 0.82                            |
| 204"                                                                      | 96"                        | 109                         | 7412                        | 0.36                            |
|                                                                           | 108"                       | 86                          | 6579                        | 0.45                            |
|                                                                           | 120"                       | 70                          | 5950                        | 0.56                            |
|                                                                           | 132"                       | 58                          | 5423                        | 0.68                            |
|                                                                           | 144"                       | 49                          | 4998                        | 0.82                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"x8"x1/4" MULLION (6063-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 216"                                                                      | 96"                        | 103                         | 7416                        | 0.36                            |
|                                                                           | 108"                       | 82                          | 6642                        | 0.46                            |
|                                                                           | 120"                       | 66                          | 5940                        | 0.56                            |
|                                                                           | 132"                       | 55                          | 5445                        | 0.68                            |
|                                                                           | 144"                       | 46                          | 4968                        | 0.81                            |
| 228"                                                                      | 96"                        | 98                          | 7448                        | 0.36                            |
|                                                                           | 108"                       | 77                          | 6584                        | 0.45                            |
|                                                                           | 120"                       | 63                          | 5985                        | 0.57                            |
|                                                                           | 132"                       | 52                          | 5434                        | 0.68                            |
|                                                                           | 144"                       | 44                          | 5016                        | 0.82                            |
| 240"                                                                      | 96"                        | 93                          | 7440                        | 0.36                            |
|                                                                           | 108"                       | 73                          | 6570                        | 0.45                            |
|                                                                           | 120"                       | 60                          | 6000                        | 0.57                            |
|                                                                           | 132"                       | 49                          | 5390                        | 0.68                            |
|                                                                           | 144"                       | 41                          | 4920                        | 0.80                            |
| 252"                                                                      | 96"                        | 89                          | 7476                        | 0.36                            |
|                                                                           | 108"                       | 70                          | 6615                        | 0.46                            |
|                                                                           | 120"                       | 57                          | 5985                        | 0.57                            |
|                                                                           | 132"                       | 47                          | 5429                        | 0.68                            |
|                                                                           | 144"                       | 39                          | 4914                        | 0.80                            |
| 264"                                                                      | 96"                        | 85                          | 7480                        | 0.36                            |
|                                                                           | 108"                       | 67                          | 6633                        | 0.46                            |
|                                                                           | 120"                       | 54                          | 5940                        | 0.56                            |
|                                                                           | 132"                       | 45                          | 5445                        | 0.68                            |
|                                                                           | 144"                       | 38                          | 5016                        | 0.82                            |
| 276"                                                                      | 96"                        | 81                          | 7452                        | 0.36                            |
|                                                                           | 108"                       | 64                          | 6624                        | 0.46                            |
|                                                                           | 120"                       | 52                          | 5980                        | 0.57                            |
|                                                                           | 132"                       | 43                          | 5440                        | 0.68                            |
|                                                                           | 144"                       | 36                          | 4968                        | 0.81                            |
| 288"                                                                      | 96"                        | 78                          | 7488                        | 0.36                            |
|                                                                           | 108"                       | 61                          | 6588                        | 0.45                            |
|                                                                           | 120"                       | 50                          | 6000                        | 0.57                            |
|                                                                           | 132"                       | 41                          | 5412                        | 0.68                            |
|                                                                           | 144"                       | 34                          | 4896                        | 0.80                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"x6"x1/8" MULLION (6063-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 60"                                                                       | 96"                        | 105                         | 2100                        | 0.72                            |
|                                                                           | 108"                       | 83                          | 1868                        | 0.91                            |
|                                                                           | 120"                       | 67                          | 1675                        | 1.12                            |
|                                                                           | 132"                       | 56                          | 1540                        | 1.37                            |
|                                                                           | 144"                       | 47                          | 1410                        | 1.63                            |
| 72"                                                                       | 96"                        | 88                          | 2112                        | 0.72                            |
|                                                                           | 108"                       | 69                          | 1863                        | 0.91                            |
|                                                                           | 120"                       | 56                          | 1680                        | 1.12                            |
|                                                                           | 132"                       | 46                          | 1518                        | 1.35                            |
|                                                                           | 144"                       | 39                          | 1404                        | 1.62                            |
| 84"                                                                       | 96"                        | 75                          | 2100                        | 0.72                            |
|                                                                           | 108"                       | 59                          | 1859                        | 0.91                            |
|                                                                           | 120"                       | 48                          | 1680                        | 1.12                            |
|                                                                           | 132"                       | 40                          | 1540                        | 1.37                            |
|                                                                           | 144"                       | 33                          | 1386                        | 1.60                            |
| 96"                                                                       | 96"                        | 66                          | 2112                        | 0.72                            |
|                                                                           | 108"                       | 52                          | 1872                        | 0.91                            |
|                                                                           | 120"                       | 42                          | 1680                        | 1.12                            |
|                                                                           | 132"                       | 35                          | 1540                        | 1.37                            |
|                                                                           | 144"                       | 29                          | 1392                        | 1.61                            |
| 108"                                                                      | 84"                        | 76                          | 2394                        | 0.55                            |
|                                                                           | 96"                        | 58                          | 2088                        | 0.71                            |
|                                                                           | 108"                       | 46                          | 1863                        | 0.91                            |
|                                                                           | 120"                       | 37                          | 1665                        | 1.11                            |
|                                                                           | 132"                       | 31                          | 1535                        | 1.37                            |
| 120"                                                                      | 84"                        | 69                          | 2415                        | 0.55                            |
|                                                                           | 96"                        | 53                          | 2120                        | 0.73                            |
|                                                                           | 108"                       | 42                          | 1890                        | 0.92                            |
|                                                                           | 120"                       | 34                          | 1700                        | 1.14                            |
|                                                                           | 132"                       | 28                          | 1540                        | 1.37                            |
| 132"                                                                      | 72"                        | 85                          | 2805                        | 0.41                            |
|                                                                           | 84"                        | 62                          | 2387                        | 0.55                            |
|                                                                           | 96"                        | 48                          | 2112                        | 0.72                            |
|                                                                           | 108"                       | 38                          | 1881                        | 0.92                            |
|                                                                           | 120"                       | 31                          | 1705                        | 1.14                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"x6"x1/4" MULLION (6063-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 96"                                                                       | 96"                        | 121                         | 3872                        | 0.72                            |
|                                                                           | 108"                       | 95                          | 3420                        | 0.91                            |
|                                                                           | 120"                       | 77                          | 3080                        | 1.12                            |
|                                                                           | 132"                       | 64                          | 2816                        | 1.37                            |
|                                                                           | 144"                       | 54                          | 2592                        | 1.63                            |
| 108"                                                                      | 96"                        | 107                         | 3852                        | 0.72                            |
|                                                                           | 108"                       | 85                          | 3443                        | 0.91                            |
|                                                                           | 120"                       | 69                          | 3105                        | 1.13                            |
|                                                                           | 132"                       | 57                          | 2822                        | 1.37                            |
|                                                                           | 144"                       | 48                          | 2592                        | 1.63                            |
| 120"                                                                      | 96"                        | 96                          | 3840                        | 0.72                            |
|                                                                           | 108"                       | 76                          | 3420                        | 0.91                            |
|                                                                           | 120"                       | 62                          | 3100                        | 1.13                            |
|                                                                           | 132"                       | 51                          | 2805                        | 1.36                            |
|                                                                           | 144"                       | 43                          | 2580                        | 1.62                            |
| 132"                                                                      | 96"                        | 88                          | 3872                        | 0.72                            |
|                                                                           | 108"                       | 69                          | 3416                        | 0.91                            |
|                                                                           | 120"                       | 56                          | 3080                        | 1.12                            |
|                                                                           | 132"                       | 46                          | 2783                        | 1.35                            |
|                                                                           | 144"                       | 39                          | 2574                        | 1.62                            |
| 144"                                                                      | 96"                        | 80                          | 3840                        | 0.72                            |
|                                                                           | 108"                       | 64                          | 3456                        | 0.92                            |
|                                                                           | 120"                       | 51                          | 3060                        | 1.12                            |
|                                                                           | 132"                       | 43                          | 2838                        | 1.38                            |
|                                                                           | 144"                       | 36                          | 2592                        | 1.63                            |
| 156"                                                                      | 96"                        | 74                          | 3848                        | 0.72                            |
|                                                                           | 108"                       | 59                          | 3452                        | 0.92                            |
|                                                                           | 120"                       | 47                          | 3055                        | 1.11                            |
|                                                                           | 132"                       | 39                          | 2789                        | 1.35                            |
|                                                                           | 144"                       | 33                          | 2574                        | 1.62                            |
| 168"                                                                      | 96"                        | 69                          | 3864                        | 0.72                            |
|                                                                           | 108"                       | 54                          | 3402                        | 0.90                            |
|                                                                           | 120"                       | 44                          | 3080                        | 1.12                            |
|                                                                           | 132"                       | 36                          | 2772                        | 1.34                            |
|                                                                           | 144"                       | 31                          | 2604                        | 1.64                            |

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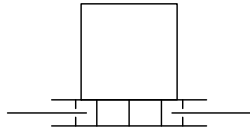
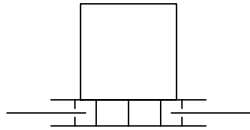
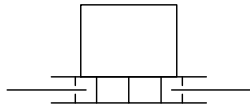
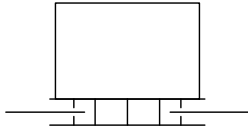
11835 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569  
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LICENSED PROFESSIONAL ENGINEER  
FLORIDA LICENSE NUMBER: 28582

DATE: 10/17/26  
DRAWN BY: TKJ  
SCALE: N.T.S.  
PROJ. #: 26-0802

ROLL-UP SHUTTER  
MULLIONS

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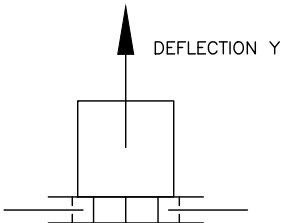


| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X8"X1/4" MULLION (6063-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 120"                                                                      | 96"                        | 124                         | 4960                        | 0.72                            |
|                                                                           | 108"                       | 98                          | 4410                        | 0.91                            |
|                                                                           | 120"                       | 79                          | 3950                        | 1.12                            |
|                                                                           | 132"                       | 66                          | 3630                        | 1.37                            |
|                                                                           | 144"                       | 55                          | 3300                        | 1.62                            |
| 132"                                                                      | 96"                        | 113                         | 4972                        | 0.72                            |
|                                                                           | 108"                       | 89                          | 4406                        | 0.91                            |
|                                                                           | 120"                       | 72                          | 3960                        | 1.12                            |
|                                                                           | 132"                       | 60                          | 3630                        | 1.37                            |
|                                                                           | 144"                       | 50                          | 3300                        | 1.62                            |
| 144"                                                                      | 96"                        | 103                         | 4944                        | 0.72                            |
|                                                                           | 108"                       | 82                          | 4428                        | 0.92                            |
|                                                                           | 120"                       | 66                          | 3960                        | 1.12                            |
|                                                                           | 132"                       | 55                          | 3630                        | 1.37                            |
|                                                                           | 144"                       | 46                          | 3312                        | 1.62                            |
| 156"                                                                      | 96"                        | 95                          | 4940                        | 0.72                            |
|                                                                           | 108"                       | 75                          | 4388                        | 0.91                            |
|                                                                           | 120"                       | 61                          | 3965                        | 1.12                            |
|                                                                           | 132"                       | 50                          | 3575                        | 1.35                            |
|                                                                           | 144"                       | 42                          | 3276                        | 1.61                            |
| 168"                                                                      | 96"                        | 89                          | 4984                        | 0.72                            |
|                                                                           | 108"                       | 70                          | 4410                        | 0.91                            |
|                                                                           | 120"                       | 57                          | 3990                        | 1.13                            |
|                                                                           | 132"                       | 47                          | 3619                        | 1.37                            |
|                                                                           | 144"                       | 39                          | 3276                        | 1.61                            |
| 180"                                                                      | 96"                        | 83                          | 4980                        | 0.72                            |
|                                                                           | 108"                       | 65                          | 4388                        | 0.91                            |
|                                                                           | 120"                       | 53                          | 3975                        | 1.13                            |
|                                                                           | 132"                       | 44                          | 3630                        | 1.37                            |
|                                                                           | 144"                       | 37                          | 3330                        | 1.63                            |
| 192"                                                                      | 96"                        | 77                          | 4928                        | 0.72                            |
|                                                                           | 108"                       | 61                          | 4392                        | 0.91                            |
|                                                                           | 120"                       | 50                          | 4000                        | 1.13                            |
|                                                                           | 132"                       | 41                          | 3608                        | 1.36                            |
|                                                                           | 144"                       | 34                          | 3264                        | 1.60                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 3"X4"X1/8" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 60"                                                                       | 72"                        | 130                         | 1950                        | 0.76                            |
|                                                                           | 84"                        | 93                          | 1628                        | 1.00                            |
|                                                                           | 96"                        | 62                          | 1240                        | 1.14                            |
|                                                                           | 108"                       | 44                          | 990                         | 1.30                            |
|                                                                           | 120"                       | 32                          | 800                         | 1.44                            |
| 72"                                                                       | 60"                        | 150                         | 2250                        | 0.51                            |
|                                                                           | 72"                        | 108                         | 1944                        | 0.76                            |
|                                                                           | 84"                        | 77                          | 1617                        | 1.00                            |
|                                                                           | 96"                        | 52                          | 1248                        | 1.15                            |
|                                                                           | 108"                       | 36                          | 972                         | 1.27                            |
| 84"                                                                       | 60"                        | 133                         | 2328                        | 0.52                            |
|                                                                           | 72"                        | 93                          | 1953                        | 0.76                            |
|                                                                           | 84"                        | 66                          | 1617                        | 1.00                            |
|                                                                           | 96"                        | 44                          | 1232                        | 1.13                            |
|                                                                           | 108"                       | 31                          | 977                         | 1.28                            |
| 96"                                                                       | 48"                        | 150                         | 2400                        | 0.28                            |
|                                                                           | 60"                        | 117                         | 2340                        | 0.53                            |
|                                                                           | 72"                        | 81                          | 1944                        | 0.76                            |
|                                                                           | 84"                        | 58                          | 1624                        | 1.00                            |
|                                                                           | 96"                        | 39                          | 1248                        | 1.15                            |
| 108"                                                                      | 48"                        | 150                         | 2700                        | 0.31                            |
|                                                                           | 60"                        | 104                         | 2340                        | 0.53                            |
|                                                                           | 72"                        | 72                          | 1944                        | 0.76                            |
|                                                                           | 84"                        | 51                          | 1607                        | 0.99                            |
|                                                                           | 96"                        | 34                          | 1224                        | 1.13                            |
| 120"                                                                      | 48"                        | 146                         | 2920                        | 0.34                            |
|                                                                           | 60"                        | 93                          | 2325                        | 0.52                            |
|                                                                           | 72"                        | 65                          | 1950                        | 0.76                            |
|                                                                           | 84"                        | 46                          | 1610                        | 0.99                            |
|                                                                           | 96"                        | 31                          | 1240                        | 1.14                            |
| 132"                                                                      | 48"                        | 133                         | 2926                        | 0.34                            |
|                                                                           | 60"                        | 85                          | 2338                        | 0.53                            |
|                                                                           | 72"                        | 59                          | 1947                        | 0.76                            |
|                                                                           | 84"                        | 42                          | 1617                        | 1.00                            |
|                                                                           | 96"                        | 28                          | 1232                        | 1.13                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X4"X1/8" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 60"                                                                       | 96"                        | 106                         | 2120                        | 1.01                            |
|                                                                           | 108"                       | 84                          | 1890                        | 1.28                            |
|                                                                           | 120"                       | 62                          | 1550                        | 1.44                            |
|                                                                           | 132"                       | 46                          | 1265                        | 1.56                            |
|                                                                           | 144"                       | 36                          | 1080                        | 1.73                            |
| 72"                                                                       | 96"                        | 88                          | 2112                        | 1.00                            |
|                                                                           | 108"                       | 70                          | 1890                        | 1.28                            |
|                                                                           | 120"                       | 51                          | 1530                        | 1.42                            |
|                                                                           | 132"                       | 39                          | 1287                        | 1.59                            |
|                                                                           | 144"                       | 30                          | 1080                        | 1.73                            |
| 84"                                                                       | 84"                        | 99                          | 2426                        | 0.77                            |
|                                                                           | 96"                        | 76                          | 2128                        | 1.01                            |
|                                                                           | 108"                       | 60                          | 1890                        | 1.28                            |
|                                                                           | 120"                       | 44                          | 1540                        | 1.43                            |
|                                                                           | 132"                       | 33                          | 1271                        | 1.57                            |
| 96"                                                                       | 84"                        | 87                          | 2436                        | 0.77                            |
|                                                                           | 96"                        | 66                          | 2112                        | 1.00                            |
|                                                                           | 108"                       | 52                          | 1872                        | 1.27                            |
|                                                                           | 120"                       | 39                          | 1560                        | 1.45                            |
|                                                                           | 132"                       | 29                          | 1276                        | 1.57                            |
| 108"                                                                      | 72"                        | 105                         | 2835                        | 0.57                            |
|                                                                           | 84"                        | 77                          | 2426                        | 0.77                            |
|                                                                           | 96"                        | 59                          | 2124                        | 1.01                            |
|                                                                           | 108"                       | 47                          | 1904                        | 1.29                            |
|                                                                           | 120"                       | 34                          | 1530                        | 1.42                            |
| 120"                                                                      | 72"                        | 94                          | 2820                        | 0.56                            |
|                                                                           | 84"                        | 69                          | 2415                        | 0.77                            |
|                                                                           | 96"                        | 53                          | 2120                        | 1.01                            |
|                                                                           | 108"                       | 42                          | 1890                        | 1.28                            |
|                                                                           | 120"                       | 31                          | 1550                        | 1.44                            |
| 132"                                                                      | 72"                        | 86                          | 2838                        | 0.57                            |
|                                                                           | 84"                        | 63                          | 2426                        | 0.77                            |
|                                                                           | 96"                        | 48                          | 2112                        | 1.00                            |
|                                                                           | 108"                       | 38                          | 1881                        | 1.27                            |
|                                                                           | 120"                       | 28                          | 1540                        | 1.43                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X4"X1/4" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WMDH<br>UP TO                                             | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 60"                                                                       | 96"                        | 150                         | 3000                        | 0.78                            |
|                                                                           | 108"                       | 150                         | 3375                        | 1.25                            |
|                                                                           | 120"                       | 112                         | 2800                        | 1.43                            |
|                                                                           | 132"                       | 84                          | 2310                        | 1.57                            |
|                                                                           | 144"                       | 65                          | 1950                        | 1.72                            |
| 72"                                                                       | 96"                        | 150                         | 3600                        | 0.94                            |
|                                                                           | 108"                       | 127                         | 3429                        | 1.27                            |
|                                                                           | 120"                       | 93                          | 2790                        | 1.42                            |
|                                                                           | 132"                       | 70                          | 2310                        | 1.57                            |
|                                                                           | 144"                       | 54                          | 1944                        | 1.71                            |
| 84"                                                                       | 96"                        | 138                         | 3864                        | 1.01                            |
|                                                                           | 108"                       | 109                         | 3434                        | 1.28                            |
|                                                                           | 120"                       | 80                          | 2800                        | 1.43                            |
|                                                                           | 132"                       | 60                          | 2310                        | 1.57                            |
|                                                                           | 144"                       | 46                          | 1932                        | 1.70                            |
| 96"                                                                       | 96"                        | 121                         | 3872                        | 1.01                            |
|                                                                           | 108"                       | 95                          | 3420                        | 1.27                            |
|                                                                           | 120"                       | 70                          | 2800                        | 1.43                            |
|                                                                           | 132"                       | 53                          | 2332                        | 1.58                            |
|                                                                           | 144"                       | 41                          | 1968                        | 1.73                            |
| 108"                                                                      | 96"                        | 107                         | 3852                        | 1.01                            |
|                                                                           | 108"                       | 85                          | 3443                        | 1.28                            |
|                                                                           | 120"                       | 62                          | 2790                        | 1.42                            |
|                                                                           | 132"                       | 47                          | 2327                        | 1.58                            |
|                                                                           | 144"                       | 36                          | 1944                        | 1.71                            |
| 120"                                                                      | 96"                        | 97                          | 3880                        | 1.01                            |
|                                                                           | 108"                       | 76                          | 3420                        | 1.27                            |
|                                                                           | 120"                       | 56                          | 2800                        | 1.43                            |
|                                                                           | 132"                       | 42                          | 2310                        | 1.57                            |
|                                                                           | 144"                       | 32                          | 1920                        | 1.69                            |
| 132"                                                                      | 96"                        | 88                          | 3872                        | 1.01                            |
|                                                                           | 108"                       | 69                          | 3416                        | 1.27                            |
|                                                                           | 120"                       | 51                          | 2805                        | 1.43                            |
|                                                                           | 132"                       | 38                          | 2299                        | 1.56                            |
|                                                                           | 144"                       | 29                          | 1914                        | 1.69                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

| # | DATE | REVISIONS |
|---|------|-----------|
|   |      |           |
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# ROLL-UP SHUTTER MULLIONS



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A PROFESSIONAL ENGINEERING FIRM  
THE BRIDGE ENGINEERS

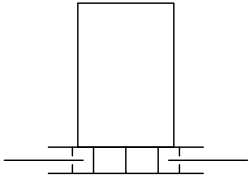
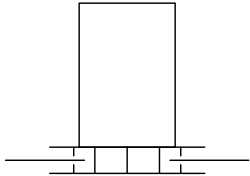
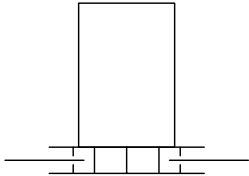
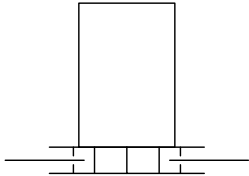
DATE: 10/17/26  
DRAWN BY: TKJ  
SCALE: N.T.S.  
PROJ. #: 26-0802

STATE OF FLORIDA  
PROFESSIONAL ENGINEER  
TREVOR JOHNSON  
FLORIDA P.E. # 16924

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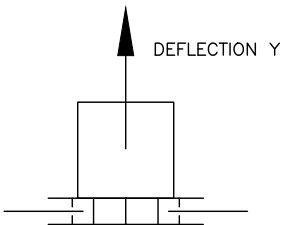


| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X6"X1/8" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 60"                                                                       | 96"                        | 150                         | 3000                        | 0.55                            |
|                                                                           | 108"                       | 145                         | 3263                        | 0.85                            |
|                                                                           | 120"                       | 118                         | 2950                        | 1.05                            |
|                                                                           | 132"                       | 97                          | 2668                        | 1.27                            |
|                                                                           | 144"                       | 82                          | 2460                        | 1.52                            |
| 72"                                                                       | 96"                        | 150                         | 3600                        | 0.66                            |
|                                                                           | 108"                       | 121                         | 3267                        | 0.85                            |
|                                                                           | 120"                       | 98                          | 2940                        | 1.05                            |
|                                                                           | 132"                       | 81                          | 2673                        | 1.27                            |
|                                                                           | 144"                       | 68                          | 2448                        | 1.51                            |
| 84"                                                                       | 96"                        | 131                         | 3668                        | 0.67                            |
|                                                                           | 108"                       | 104                         | 3276                        | 0.85                            |
|                                                                           | 120"                       | 84                          | 2940                        | 1.05                            |
|                                                                           | 132"                       | 69                          | 2657                        | 1.26                            |
|                                                                           | 144"                       | 58                          | 2436                        | 1.50                            |
| 96"                                                                       | 96"                        | 115                         | 3680                        | 0.67                            |
|                                                                           | 108"                       | 91                          | 3276                        | 0.85                            |
|                                                                           | 120"                       | 73                          | 2920                        | 1.04                            |
|                                                                           | 132"                       | 61                          | 2684                        | 1.28                            |
|                                                                           | 144"                       | 51                          | 2448                        | 1.51                            |
| 108"                                                                      | 96"                        | 102                         | 3672                        | 0.67                            |
|                                                                           | 108"                       | 81                          | 3281                        | 0.85                            |
|                                                                           | 120"                       | 65                          | 2925                        | 1.05                            |
|                                                                           | 132"                       | 54                          | 2673                        | 1.27                            |
|                                                                           | 144"                       | 45                          | 2430                        | 1.50                            |
| 120"                                                                      | 96"                        | 92                          | 3680                        | 0.67                            |
|                                                                           | 108"                       | 73                          | 3285                        | 0.86                            |
|                                                                           | 120"                       | 59                          | 2950                        | 1.05                            |
|                                                                           | 132"                       | 49                          | 2695                        | 1.28                            |
|                                                                           | 144"                       | 41                          | 2460                        | 1.52                            |
| 132"                                                                      | 96"                        | 83                          | 3652                        | 0.67                            |
|                                                                           | 108"                       | 66                          | 3267                        | 0.85                            |
|                                                                           | 120"                       | 53                          | 2915                        | 1.04                            |
|                                                                           | 132"                       | 44                          | 2662                        | 1.27                            |
|                                                                           | 144"                       | 37                          | 2442                        | 1.51                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X6"X1/4" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 132"                                                                      | 96"                        | 150                         | 6600                        | 0.65                            |
|                                                                           | 108"                       | 123                         | 6089                        | 0.85                            |
|                                                                           | 120"                       | 100                         | 5500                        | 1.05                            |
|                                                                           | 132"                       | 82                          | 4961                        | 1.27                            |
|                                                                           | 144"                       | 69                          | 4554                        | 1.51                            |
| 144"                                                                      | 96"                        | 143                         | 6864                        | 0.67                            |
|                                                                           | 108"                       | 113                         | 6102                        | 0.85                            |
|                                                                           | 120"                       | 91                          | 5460                        | 1.05                            |
|                                                                           | 132"                       | 75                          | 4950                        | 1.26                            |
|                                                                           | 144"                       | 63                          | 4536                        | 1.50                            |
| 156"                                                                      | 96"                        | 132                         | 6864                        | 0.67                            |
|                                                                           | 108"                       | 104                         | 6084                        | 0.85                            |
|                                                                           | 120"                       | 84                          | 5460                        | 1.05                            |
|                                                                           | 132"                       | 70                          | 5005                        | 1.28                            |
|                                                                           | 144"                       | 59                          | 4602                        | 1.52                            |
| 168"                                                                      | 96"                        | 122                         | 6832                        | 0.67                            |
|                                                                           | 108"                       | 97                          | 6111                        | 0.85                            |
|                                                                           | 120"                       | 78                          | 5460                        | 1.05                            |
|                                                                           | 132"                       | 65                          | 5005                        | 1.28                            |
|                                                                           | 144"                       | 54                          | 4536                        | 1.50                            |
| 180"                                                                      | 96"                        | 114                         | 6840                        | 0.67                            |
|                                                                           | 108"                       | 90                          | 6075                        | 0.85                            |
|                                                                           | 120"                       | 73                          | 5475                        | 1.05                            |
|                                                                           | 132"                       | 60                          | 4950                        | 1.26                            |
|                                                                           | 144"                       | 51                          | 4590                        | 1.52                            |
| 192"                                                                      | 96"                        | 107                         | 6848                        | 0.67                            |
|                                                                           | 108"                       | 85                          | 6120                        | 0.86                            |
|                                                                           | 120"                       | 68                          | 5440                        | 1.04                            |
|                                                                           | 132"                       | 57                          | 5016                        | 1.28                            |
|                                                                           | 144"                       | 48                          | 4608                        | 1.53                            |
| 204"                                                                      | 96"                        | 101                         | 6868                        | 0.67                            |
|                                                                           | 108"                       | 80                          | 6120                        | 0.86                            |
|                                                                           | 120"                       | 64                          | 5440                        | 1.04                            |
|                                                                           | 132"                       | 53                          | 4956                        | 1.26                            |
|                                                                           | 144"                       | 45                          | 4590                        | 1.52                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X6"X1/4" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 216"                                                                      | 96"                        | 95                          | 6840                        | 0.67                            |
|                                                                           | 108"                       | 75                          | 6075                        | 0.85                            |
|                                                                           | 120"                       | 61                          | 5490                        | 1.05                            |
|                                                                           | 132"                       | 50                          | 4950                        | 1.26                            |
|                                                                           | 144"                       | 42                          | 4536                        | 1.50                            |
| 228"                                                                      | 96"                        | 90                          | 6840                        | 0.67                            |
|                                                                           | 108"                       | 71                          | 6071                        | 0.85                            |
|                                                                           | 120"                       | 58                          | 5510                        | 1.06                            |
|                                                                           | 132"                       | 48                          | 5016                        | 1.28                            |
|                                                                           | 144"                       | 40                          | 4560                        | 1.51                            |
| 240"                                                                      | 96"                        | 86                          | 6880                        | 0.68                            |
|                                                                           | 108"                       | 68                          | 6120                        | 0.86                            |
|                                                                           | 120"                       | 55                          | 5500                        | 1.05                            |
|                                                                           | 132"                       | 45                          | 4950                        | 1.26                            |
|                                                                           | 144"                       | 38                          | 4560                        | 1.51                            |
| 252"                                                                      | 96"                        | 82                          | 6888                        | 0.68                            |
|                                                                           | 108"                       | 64                          | 6048                        | 0.85                            |
|                                                                           | 120"                       | 52                          | 5460                        | 1.05                            |
|                                                                           | 132"                       | 43                          | 4967                        | 1.27                            |
|                                                                           | 144"                       | 36                          | 4536                        | 1.50                            |
| 264"                                                                      | 96"                        | 78                          | 6864                        | 0.67                            |
|                                                                           | 108"                       | 61                          | 6039                        | 0.84                            |
|                                                                           | 120"                       | 50                          | 5500                        | 1.05                            |
|                                                                           | 132"                       | 41                          | 4961                        | 1.27                            |
|                                                                           | 144"                       | 35                          | 4620                        | 1.53                            |
| 276"                                                                      | 96"                        | 74                          | 6808                        | 0.67                            |
|                                                                           | 108"                       | 59                          | 6107                        | 0.85                            |
|                                                                           | 120"                       | 48                          | 5520                        | 1.06                            |
|                                                                           | 132"                       | 39                          | 4934                        | 1.26                            |
|                                                                           | 144"                       | 33                          | 4554                        | 1.51                            |
| 288"                                                                      | 96"                        | 71                          | 6816                        | 0.67                            |
|                                                                           | 108"                       | 56                          | 6048                        | 0.85                            |
|                                                                           | 120"                       | 46                          | 5520                        | 1.06                            |
|                                                                           | 132"                       | 38                          | 5016                        | 1.28                            |
|                                                                           | 144"                       | 32                          | 4608                        | 1.53                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X8"X1/4" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 132"                                                                      | 96"                        | 150                         | 6600                        | 0.32                            |
|                                                                           | 108"                       | 150                         | 7425                        | 0.51                            |
|                                                                           | 120"                       | 150                         | 8250                        | 0.78                            |
|                                                                           | 132"                       | 125                         | 7563                        | 0.95                            |
|                                                                           | 144"                       | 105                         | 6930                        | 1.13                            |
| 144"                                                                      | 96"                        | 150                         | 7200                        | 0.35                            |
|                                                                           | 108"                       | 150                         | 8100                        | 0.56                            |
|                                                                           | 120"                       | 139                         | 8340                        | 0.79                            |
|                                                                           | 132"                       | 115                         | 7590                        | 0.95                            |
|                                                                           | 144"                       | 96                          | 6912                        | 1.13                            |
| 156"                                                                      | 96"                        | 150                         | 7800                        | 0.38                            |
|                                                                           | 108"                       | 150                         | 8775                        | 0.60                            |
|                                                                           | 120"                       | 128                         | 8320                        | 0.79                            |
|                                                                           | 132"                       | 106                         | 7579                        | 0.95                            |
|                                                                           | 144"                       | 89                          | 6942                        | 1.13                            |
| 168"                                                                      | 96"                        | 150                         | 8400                        | 0.41                            |
|                                                                           | 108"                       | 147                         | 9261                        | 0.64                            |
|                                                                           | 120"                       | 119                         | 8330                        | 0.79                            |
|                                                                           | 132"                       | 98                          | 7546                        | 0.95                            |
|                                                                           | 144"                       | 83                          | 6972                        | 1.14                            |
| 180"                                                                      | 96"                        | 150                         | 9000                        | 0.44                            |
|                                                                           | 108"                       | 137                         | 9248                        | 0.64                            |
|                                                                           | 120"                       | 111                         | 8325                        | 0.79                            |
|                                                                           | 132"                       | 92                          | 7590                        | 0.95                            |
|                                                                           | 144"                       | 77                          | 6930                        | 1.13                            |
| 192"                                                                      | 96"                        | 150                         | 9600                        | 0.46                            |
|                                                                           | 108"                       | 129                         | 9288                        | 0.64                            |
|                                                                           | 120"                       | 104                         | 8320                        | 0.79                            |
|                                                                           | 132"                       | 86                          | 7568                        | 0.95                            |
|                                                                           | 144"                       | 72                          | 6912                        | 1.13                            |
| 204"                                                                      | 96"                        | 150                         | 10200                       | 0.49                            |
|                                                                           | 108"                       | 121                         | 9257                        | 0.64                            |
|                                                                           | 120"                       | 98                          | 8330                        | 0.79                            |
|                                                                           | 132"                       | 81                          | 7574                        | 0.95                            |
|                                                                           | 144"                       | 68                          | 6936                        | 1.13                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

TKJ Engineering, LLC.

11835 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569

PH: 863-404-7649; EM: TKJENGINEERING@VERIZON.NET

PROFESSIONAL ENGINEER'S CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26

PROJ. #: 26-0802

DRAWN BY: TKJ

SCALE: N.T.S.

ROLL-UP SHUTTER  
MULLIONS

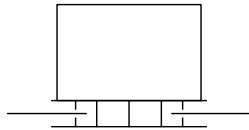
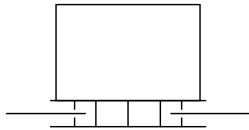
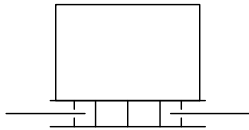
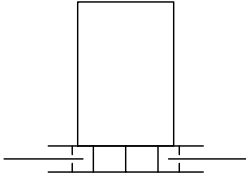


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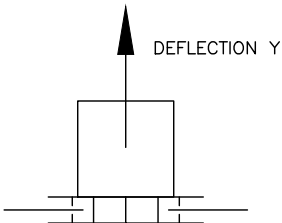


| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X8"X1/4" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 216"                                                                      | 96"                        | 145                         | 10440                       | 0.51                            |
|                                                                           | 108"                       | 114                         | 9234                        | 0.64                            |
|                                                                           | 120"                       | 93                          | 8370                        | 0.79                            |
|                                                                           | 132"                       | 77                          | 7623                        | 0.96                            |
|                                                                           | 144"                       | 64                          | 6912                        | 1.13                            |
| 228"                                                                      | 96"                        | 137                         | 10412                       | 0.50                            |
|                                                                           | 108"                       | 108                         | 9234                        | 0.64                            |
|                                                                           | 120"                       | 88                          | 8360                        | 0.79                            |
|                                                                           | 132"                       | 72                          | 7524                        | 0.95                            |
|                                                                           | 144"                       | 61                          | 6954                        | 1.14                            |
| 240"                                                                      | 96"                        | 130                         | 10400                       | 0.50                            |
|                                                                           | 108"                       | 103                         | 9270                        | 0.64                            |
|                                                                           | 120"                       | 83                          | 8300                        | 0.78                            |
|                                                                           | 132"                       | 69                          | 7590                        | 0.95                            |
|                                                                           | 144"                       | 58                          | 6960                        | 1.14                            |
| 252"                                                                      | 96"                        | 124                         | 10416                       | 0.50                            |
|                                                                           | 108"                       | 98                          | 9261                        | 0.64                            |
|                                                                           | 120"                       | 79                          | 8295                        | 0.78                            |
|                                                                           | 132"                       | 66                          | 7623                        | 0.96                            |
|                                                                           | 144"                       | 55                          | 6930                        | 1.13                            |
| 264"                                                                      | 96"                        | 118                         | 10384                       | 0.50                            |
|                                                                           | 108"                       | 94                          | 9306                        | 0.64                            |
|                                                                           | 120"                       | 76                          | 8360                        | 0.79                            |
|                                                                           | 132"                       | 63                          | 7623                        | 0.96                            |
|                                                                           | 144"                       | 53                          | 6996                        | 1.14                            |
| 276"                                                                      | 96"                        | 113                         | 10396                       | 0.50                            |
|                                                                           | 108"                       | 89                          | 9212                        | 0.63                            |
|                                                                           | 120"                       | 72                          | 8280                        | 0.78                            |
|                                                                           | 132"                       | 60                          | 7590                        | 0.95                            |
|                                                                           | 144"                       | 50                          | 6900                        | 1.13                            |
| 288"                                                                      | 96"                        | 109                         | 10464                       | 0.51                            |
|                                                                           | 108"                       | 86                          | 9288                        | 0.64                            |
|                                                                           | 120"                       | 69                          | 8280                        | 0.78                            |
|                                                                           | 132"                       | 57                          | 7524                        | 0.95                            |
|                                                                           | 144"                       | 48                          | 6912                        | 1.13                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X6"X1/8" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 60"                                                                       | 96"                        | 147                         | 2940                        | 1.01                            |
|                                                                           | 108"                       | 116                         | 2610                        | 1.27                            |
|                                                                           | 120"                       | 85                          | 2125                        | 1.42                            |
|                                                                           | 132"                       | 64                          | 1760                        | 1.57                            |
|                                                                           | 144"                       | 49                          | 1470                        | 1.70                            |
| 72"                                                                       | 96"                        | 123                         | 2952                        | 1.01                            |
|                                                                           | 108"                       | 97                          | 2619                        | 1.28                            |
|                                                                           | 120"                       | 71                          | 2130                        | 1.42                            |
|                                                                           | 132"                       | 54                          | 1782                        | 1.59                            |
|                                                                           | 144"                       | 41                          | 1476                        | 1.71                            |
| 84"                                                                       | 96"                        | 105                         | 2940                        | 1.01                            |
|                                                                           | 108"                       | 83                          | 2615                        | 1.27                            |
|                                                                           | 120"                       | 61                          | 2135                        | 1.43                            |
|                                                                           | 132"                       | 46                          | 1771                        | 1.58                            |
|                                                                           | 144"                       | 35                          | 1470                        | 1.70                            |
| 96"                                                                       | 96"                        | 92                          | 2944                        | 1.01                            |
|                                                                           | 108"                       | 73                          | 2628                        | 1.28                            |
|                                                                           | 120"                       | 53                          | 2120                        | 1.42                            |
|                                                                           | 132"                       | 40                          | 1760                        | 1.57                            |
|                                                                           | 144"                       | 31                          | 1488                        | 1.72                            |
| 108"                                                                      | 96"                        | 82                          | 2952                        | 1.01                            |
|                                                                           | 108"                       | 65                          | 2633                        | 1.28                            |
|                                                                           | 120"                       | 47                          | 2115                        | 1.41                            |
|                                                                           | 132"                       | 36                          | 1782                        | 1.59                            |
|                                                                           | 144"                       | 27                          | 1458                        | 1.68                            |
| 120"                                                                      | 84"                        | 96                          | 3360                        | 0.77                            |
|                                                                           | 96"                        | 74                          | 2960                        | 1.01                            |
|                                                                           | 108"                       | 58                          | 2610                        | 1.27                            |
|                                                                           | 120"                       | 43                          | 2150                        | 1.44                            |
|                                                                           | 132"                       | 32                          | 1760                        | 1.57                            |
| 132"                                                                      | 84"                        | 87                          | 3350                        | 0.77                            |
|                                                                           | 96"                        | 67                          | 2948                        | 1.01                            |
|                                                                           | 108"                       | 53                          | 2624                        | 1.28                            |
|                                                                           | 120"                       | 39                          | 2145                        | 1.43                            |
|                                                                           | 132"                       | 29                          | 1755                        | 1.56                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X6"X1/4" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 96"                                                                       | 96"                        | 150                         | 4800                        | 0.90                            |
|                                                                           | 108"                       | 133                         | 4788                        | 1.27                            |
|                                                                           | 120"                       | 98                          | 3920                        | 1.43                            |
|                                                                           | 132"                       | 74                          | 3256                        | 1.58                            |
|                                                                           | 144"                       | 57                          | 2736                        | 1.72                            |
| 108"                                                                      | 96"                        | 150                         | 5400                        | 1.01                            |
|                                                                           | 108"                       | 119                         | 4820                        | 1.28                            |
|                                                                           | 120"                       | 87                          | 3915                        | 1.43                            |
|                                                                           | 132"                       | 65                          | 3218                        | 1.56                            |
|                                                                           | 144"                       | 50                          | 2700                        | 1.70                            |
| 120"                                                                      | 96"                        | 135                         | 5400                        | 1.01                            |
|                                                                           | 108"                       | 107                         | 4815                        | 1.28                            |
|                                                                           | 120"                       | 78                          | 3900                        | 1.42                            |
|                                                                           | 132"                       | 59                          | 3245                        | 1.57                            |
|                                                                           | 144"                       | 45                          | 2700                        | 1.70                            |
| 132"                                                                      | 96"                        | 123                         | 5412                        | 1.01                            |
|                                                                           | 108"                       | 97                          | 4802                        | 1.28                            |
|                                                                           | 120"                       | 71                          | 3905                        | 1.42                            |
|                                                                           | 132"                       | 54                          | 3267                        | 1.58                            |
|                                                                           | 144"                       | 41                          | 2706                        | 1.70                            |
| 144"                                                                      | 96"                        | 113                         | 5424                        | 1.01                            |
|                                                                           | 108"                       | 89                          | 4806                        | 1.28                            |
|                                                                           | 120"                       | 65                          | 3900                        | 1.42                            |
|                                                                           | 132"                       | 49                          | 3234                        | 1.57                            |
|                                                                           | 144"                       | 38                          | 2736                        | 1.72                            |
| 156"                                                                      | 96"                        | 104                         | 5408                        | 1.01                            |
|                                                                           | 108"                       | 82                          | 4797                        | 1.27                            |
|                                                                           | 120"                       | 60                          | 3900                        | 1.42                            |
|                                                                           | 132"                       | 45                          | 3218                        | 1.56                            |
|                                                                           | 144"                       | 35                          | 2730                        | 1.72                            |
| 168"                                                                      | 96"                        | 96                          | 5376                        | 1.00                            |
|                                                                           | 108"                       | 76                          | 4788                        | 1.27                            |
|                                                                           | 120"                       | 56                          | 3920                        | 1.43                            |
|                                                                           | 132"                       | 42                          | 3234                        | 1.57                            |
|                                                                           | 144"                       | 32                          | 2688                        | 1.69                            |

| MAXIMUM DESIGN PRESSURE OF A<br>INTERMEDIATE 4"X8"X1/4" MULLION (6061-T6) |                            |                             |                             |                                 |
|---------------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|
| AVERAGE<br>SPAN WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) |
| 120"                                                                      | 96"                        | 150                         | 6000                        | 0.87                            |
|                                                                           | 108"                       | 137                         | 6165                        | 1.27                            |
|                                                                           | 120"                       | 101                         | 5050                        | 1.43                            |
|                                                                           | 132"                       | 76                          | 4180                        | 1.58                            |
|                                                                           | 144"                       | 58                          | 3480                        | 1.71                            |
| 132"                                                                      | 96"                        | 150                         | 6600                        | 0.96                            |
|                                                                           | 108"                       | 125                         | 6188                        | 1.28                            |
|                                                                           | 120"                       | 92                          | 5060                        | 1.43                            |
|                                                                           | 132"                       | 69                          | 4175                        | 1.58                            |
|                                                                           | 144"                       | 53                          | 3498                        | 1.71                            |
| 144"                                                                      | 96"                        | 145                         | 6960                        | 1.01                            |
|                                                                           | 108"                       | 114                         | 6156                        | 1.27                            |
|                                                                           | 120"                       | 84                          | 5040                        | 1.43                            |
|                                                                           | 132"                       | 63                          | 4158                        | 1.57                            |
|                                                                           | 144"                       | 49                          | 3528                        | 1.73                            |
| 156"                                                                      | 96"                        | 134                         | 6968                        | 1.01                            |
|                                                                           | 108"                       | 105                         | 6143                        | 1.27                            |
|                                                                           | 120"                       | 78                          | 5070                        | 1.44                            |
|                                                                           | 132"                       | 58                          | 4147                        | 1.57                            |
|                                                                           | 144"                       | 45                          | 3510                        | 1.72                            |
| 168"                                                                      | 96"                        | 124                         | 6944                        | 1.01                            |
|                                                                           | 108"                       | 98                          | 6174                        | 1.28                            |
|                                                                           | 120"                       | 72                          | 5040                        | 1.43                            |
|                                                                           | 132"                       | 54                          | 4158                        | 1.57                            |
|                                                                           | 144"                       | 42                          | 3528                        | 1.73                            |
| 180"                                                                      | 96"                        | 116                         | 6960                        | 1.01                            |
|                                                                           | 108"                       | 91                          | 6143                        | 1.27                            |
|                                                                           | 120"                       | 67                          | 5025                        | 1.42                            |
|                                                                           | 132"                       | 50                          | 4125                        | 1.56                            |
|                                                                           | 144"                       | 39                          | 3510                        | 1.72                            |
| 192"                                                                      | 96"                        | 108                         | 6912                        | 1.00                            |
|                                                                           | 108"                       | 86                          | 6192                        | 1.28                            |
|                                                                           | 120"                       | 63                          | 5040                        | 1.43                            |
|                                                                           | 132"                       | 47                          | 4136                        | 1.56                            |
|                                                                           | 144"                       | 36                          | 3456                        | 1.69                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

ROLL-UP SHUTTER  
MULLIONS



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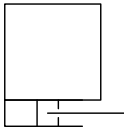
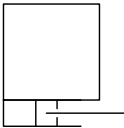
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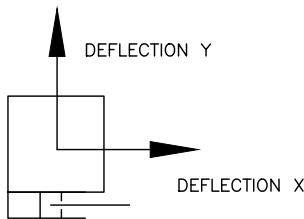
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| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x4"x1/8" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 60"                                                               | 96"                        | 135                         | 1707                        | 0.65                            | 0.29                            |
|                                                                   | 108"                       | 109                         | 1474                        | 0.84                            | 0.17                            |
|                                                                   | 120"                       | 71                          | 1341                        | 0.83                            | 0.25                            |
|                                                                   | 132"                       | 61                          | 1164                        | 1.05                            | 0.18                            |
|                                                                   | 144"                       | 37                          | 1133                        | 0.91                            | 0.34                            |
| 72"                                                               | 96"                        | 87                          | 1724                        | 0.50                            | 0.46                            |
|                                                                   | 108"                       | 80                          | 1541                        | 0.74                            | 0.45                            |
|                                                                   | 120"                       | 57                          | 1333                        | 0.81                            | 0.29                            |
|                                                                   | 132"                       | 49                          | 1180                        | 1.02                            | 0.22                            |
|                                                                   | 144"                       | 45                          | 1028                        | 1.33                            | 0.27                            |
| 84"                                                               | 96"                        | 60                          | 1754                        | 0.41                            | 0.54                            |
|                                                                   | 108"                       | 55                          | 1556                        | 0.60                            | 0.58                            |
|                                                                   | 120"                       | 53                          | 1468                        | 0.88                            | 0.67                            |
|                                                                   | 132"                       | 41                          | 1182                        | 1.00                            | 0.27                            |
|                                                                   | 144"                       | 39                          | 1098                        | 1.35                            | 0.38                            |
| 96"                                                               | 96"                        | 44                          | 1796                        | 0.34                            | 0.60                            |
|                                                                   | 108"                       | 41                          | 1625                        | 0.51                            | 0.73                            |
|                                                                   | 120"                       | 38                          | 1429                        | 0.72                            | 0.84                            |
|                                                                   | 132"                       | 35                          | 1299                        | 0.98                            | 0.81                            |
|                                                                   | 144"                       | 20                          | 1151                        | 0.81                            | 0.31                            |
| 108"                                                              | 84"                        | 38                          | 2038                        | 0.20                            | 0.56                            |
|                                                                   | 96"                        | 34                          | 1802                        | 0.30                            | 0.70                            |
|                                                                   | 108"                       | 30                          | 1588                        | 0.42                            | 0.72                            |
|                                                                   | 120"                       | 28                          | 1420                        | 0.60                            | 0.86                            |
|                                                                   | 132"                       | 27                          | 1361                        | 0.86                            | 0.98                            |
| 120"                                                              | 60"                        | 45                          | 2906                        | 0.07                            | 0.30                            |
|                                                                   | 66"                        | 40                          | 2625                        | 0.09                            | 0.38                            |
|                                                                   | 72"                        | 36                          | 2397                        | 0.11                            | 0.44                            |
|                                                                   | 78"                        | 33                          | 2221                        | 0.14                            | 0.51                            |
|                                                                   | 84"                        | 31                          | 2141                        | 0.18                            | 0.55                            |
| 132"                                                              | 48"                        | 53                          | 3657                        | 0.04                            | 0.21                            |
|                                                                   | 54"                        | 44                          | 3223                        | 0.05                            | 0.25                            |
|                                                                   | 60"                        | 38                          | 2906                        | 0.06                            | 0.32                            |
|                                                                   | 66"                        | 34                          | 2686                        | 0.08                            | 0.39                            |
|                                                                   | 72"                        | 30                          | 2413                        | 0.10                            | 0.45                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x4"x1/4" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 72"                                                               | 96"                        | 122                         | 3316                        | 0.39                            | 0.63                            |
|                                                                   | 108"                       | 112                         | 2980                        | 0.57                            | 0.72                            |
|                                                                   | 120"                       | 103                         | 2691                        | 0.80                            | 0.75                            |
|                                                                   | 132"                       | 96                          | 2468                        | 1.09                            | 0.77                            |
|                                                                   | 144"                       | 74                          | 2025                        | 1.19                            | 0.31                            |
| 84"                                                               | 96"                        | 86                          | 3362                        | 0.32                            | 0.65                            |
|                                                                   | 108"                       | 79                          | 3028                        | 0.47                            | 0.83                            |
|                                                                   | 120"                       | 73                          | 2797                        | 0.66                            | 0.91                            |
|                                                                   | 132"                       | 67                          | 2534                        | 0.89                            | 0.94                            |
|                                                                   | 144"                       | 64                          | 2389                        | 1.20                            | 1.05                            |
| 96"                                                               | 96"                        | 66                          | 3431                        | 0.28                            | 0.74                            |
|                                                                   | 108"                       | 59                          | 3102                        | 0.40                            | 0.85                            |
|                                                                   | 120"                       | 54                          | 2779                        | 0.56                            | 1.04                            |
|                                                                   | 132"                       | 49                          | 2516                        | 0.75                            | 1.07                            |
|                                                                   | 144"                       | 46                          | 2339                        | 0.99                            | 1.17                            |
| 108"                                                              | 96"                        | 52                          | 3471                        | 0.25                            | 0.77                            |
|                                                                   | 108"                       | 46                          | 3089                        | 0.35                            | 0.93                            |
|                                                                   | 120"                       | 42                          | 2849                        | 0.49                            | 1.08                            |
|                                                                   | 132"                       | 38                          | 2575                        | 0.65                            | 1.16                            |
|                                                                   | 144"                       | 35                          | 2353                        | 0.86                            | 1.27                            |
| 120"                                                              | 96"                        | 42                          | 3478                        | 0.22                            | 0.76                            |
|                                                                   | 108"                       | 38                          | 3217                        | 0.33                            | 0.96                            |
|                                                                   | 120"                       | 33                          | 2828                        | 0.43                            | 1.06                            |
|                                                                   | 132"                       | 31                          | 2684                        | 0.60                            | 1.26                            |
|                                                                   | 144"                       | 28                          | 2373                        | 0.77                            | 1.44                            |
| 132"                                                              | 78"                        | 47                          | 4391                        | 0.12                            | 0.55                            |
|                                                                   | 84"                        | 42                          | 4032                        | 0.14                            | 0.62                            |
|                                                                   | 90"                        | 38                          | 3720                        | 0.17                            | 0.69                            |
|                                                                   | 96"                        | 36                          | 3577                        | 0.21                            | 0.82                            |
|                                                                   | 102"                       | 33                          | 3341                        | 0.25                            | 0.87                            |
| 144"                                                              | 66"                        | 51                          | 5135                        | 0.07                            | 0.40                            |
|                                                                   | 72"                        | 45                          | 4701                        | 0.09                            | 0.48                            |
|                                                                   | 78"                        | 40                          | 4356                        | 0.11                            | 0.55                            |
|                                                                   | 84"                        | 36                          | 4037                        | 0.14                            | 0.62                            |
|                                                                   | 90"                        | 33                          | 3770                        | 0.16                            | 0.73                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x6"x1/8" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 72"                                                               | 96"                        | 102                         | 2698                        | 0.42                            | 0.37                            |
|                                                                   | 108"                       | 91                          | 2313                        | 0.61                            | 0.38                            |
|                                                                   | 120"                       | 85                          | 2082                        | 0.86                            | 0.41                            |
|                                                                   | 132"                       | 78                          | 1834                        | 1.16                            | 0.39                            |
|                                                                   | 144"                       | 57                          | 1657                        | 1.21                            | 0.22                            |
| 84"                                                               | 96"                        | 73                          | 2845                        | 0.35                            | 0.42                            |
|                                                                   | 108"                       | 65                          | 2466                        | 0.51                            | 0.47                            |
|                                                                   | 120"                       | 59                          | 2153                        | 0.70                            | 0.50                            |
|                                                                   | 132"                       | 55                          | 1928                        | 0.96                            | 0.56                            |
|                                                                   | 144"                       | 52                          | 1775                        | 1.29                            | 0.58                            |
| 96"                                                               | 96"                        | 55                          | 2929                        | 0.31                            | 0.45                            |
|                                                                   | 108"                       | 48                          | 2529                        | 0.43                            | 0.50                            |
|                                                                   | 120"                       | 45                          | 2324                        | 0.62                            | 0.62                            |
|                                                                   | 132"                       | 40                          | 2008                        | 0.80                            | 0.62                            |
|                                                                   | 144"                       | 39                          | 1912                        | 1.11                            | 0.74                            |
| 108"                                                              | 96"                        | 43                          | 2946                        | 0.27                            | 0.48                            |
|                                                                   | 108"                       | 38                          | 2646                        | 0.38                            | 0.54                            |
|                                                                   | 120"                       | 34                          | 2338                        | 0.53                            | 0.62                            |
|                                                                   | 132"                       | 32                          | 2157                        | 0.73                            | 0.76                            |
|                                                                   | 144"                       | 30                          | 1988                        | 0.97                            | 0.85                            |
| 120"                                                              | 84"                        | 42                          | 3544                        | 0.17                            | 0.39                            |
|                                                                   | 96"                        | 35                          | 3017                        | 0.25                            | 0.48                            |
|                                                                   | 108"                       | 31                          | 2705                        | 0.35                            | 0.59                            |
|                                                                   | 120"                       | 28                          | 2451                        | 0.48                            | 0.71                            |
|                                                                   | 132"                       | 25                          | 2116                        | 0.64                            | 0.83                            |
| 132"                                                              | 78"                        | 39                          | 3837                        | 0.13                            | 0.34                            |
|                                                                   | 84"                        | 35                          | 3528                        | 0.16                            | 0.39                            |
|                                                                   | 90"                        | 32                          | 3297                        | 0.19                            | 0.44                            |
|                                                                   | 96"                        | 29                          | 3037                        | 0.23                            | 0.49                            |
|                                                                   | 102"                       | 27                          | 2852                        | 0.27                            | 0.54                            |
| 144"                                                              | 60"                        | 50                          | 5010                        | 0.06                            | 0.21                            |
|                                                                   | 66"                        | 43                          | 4533                        | 0.08                            | 0.26                            |
|                                                                   | 72"                        | 38                          | 4213                        | 0.10                            | 0.30                            |
|                                                                   | 78"                        | 34                          | 3912                        | 0.13                            | 0.35                            |
|                                                                   | 84"                        | 30                          | 3562                        | 0.15                            | 0.40                            |

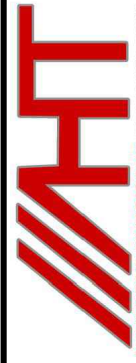


NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

THIS ITEM HAS BEEN DIGITALLY SIGNED AND VERIFIED BY TREVOR JOHNSON ON THE DATE ADJACENT TO THE SEAL. SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES, RULE 61G15-23.004 F.A.C.

| # | DATE | REVISIONS |
|---|------|-----------|
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ADVANCED HURRICANE TECHNOLOGY  
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# ROLL-UP SHUTTER MULLIONS



TKJ Engineering, LLC.  
11535 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569  
PH: 863.404.7649; EM: TKJENGINEERING@VERIZON.NET  
CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26  
DRAWN BY: TKJ  
SCALE: N.T.S.  
PROJ. #: 26-0802

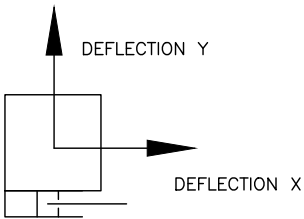
11 OF 29

STATE OF FLORIDA  
TREVOR JOHNSON  
PROFESSIONAL ENGINEER  
EXPIRATION DATE: 10/17/26  
FLORIDA P.E. # 16924

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x6"x1/4" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 72"                                                               | 96"                        | 150                         | 5436                        | 0.34                            | 0.45                            |
|                                                                   | 108"                       | 135                         | 4765                        | 0.49                            | 0.52                            |
|                                                                   | 120"                       | 122                         | 4255                        | 0.67                            | 0.58                            |
|                                                                   | 132"                       | 113                         | 3844                        | 0.91                            | 0.65                            |
|                                                                   | 144"                       | 105                         | 3499                        | 1.20                            | 0.69                            |
| 84"                                                               | 96"                        | 113                         | 5617                        | 0.30                            | 0.47                            |
|                                                                   | 108"                       | 99                          | 4950                        | 0.42                            | 0.56                            |
|                                                                   | 120"                       | 88                          | 4390                        | 0.57                            | 0.65                            |
|                                                                   | 132"                       | 81                          | 4003                        | 0.77                            | 0.74                            |
|                                                                   | 144"                       | 75                          | 3682                        | 1.00                            | 0.80                            |
| 96"                                                               | 96"                        | 88                          | 5729                        | 0.27                            | 0.48                            |
|                                                                   | 108"                       | 77                          | 5107                        | 0.37                            | 0.60                            |
|                                                                   | 120"                       | 68                          | 4552                        | 0.50                            | 0.71                            |
|                                                                   | 132"                       | 62                          | 4125                        | 0.67                            | 0.84                            |
|                                                                   | 144"                       | 57                          | 3797                        | 0.88                            | 0.93                            |
| 108"                                                              | 96"                        | 72                          | 5856                        | 0.25                            | 0.52                            |
|                                                                   | 108"                       | 62                          | 5196                        | 0.34                            | 0.64                            |
|                                                                   | 120"                       | 55                          | 4710                        | 0.46                            | 0.75                            |
|                                                                   | 132"                       | 49                          | 4239                        | 0.60                            | 0.87                            |
|                                                                   | 144"                       | 45                          | 3912                        | 0.78                            | 1.00                            |
| 120"                                                              | 96"                        | 60                          | 5951                        | 0.23                            | 0.51                            |
|                                                                   | 108"                       | 51                          | 5271                        | 0.31                            | 0.62                            |
|                                                                   | 120"                       | 45                          | 4734                        | 0.42                            | 0.79                            |
|                                                                   | 132"                       | 40                          | 4327                        | 0.55                            | 0.87                            |
|                                                                   | 144"                       | 36                          | 3934                        | 0.70                            | 0.99                            |
| 132"                                                              | 96"                        | 51                          | 5966                        | 0.21                            | 0.53                            |
|                                                                   | 108"                       | 44                          | 5396                        | 0.30                            | 0.66                            |
|                                                                   | 120"                       | 38                          | 4827                        | 0.39                            | 0.79                            |
|                                                                   | 132"                       | 34                          | 4421                        | 0.51                            | 0.94                            |
|                                                                   | 144"                       | 31                          | 4104                        | 0.66                            | 1.09                            |
| 144"                                                              | 84"                        | 54                          | 6867                        | 0.14                            | 0.42                            |
|                                                                   | 96"                        | 44                          | 5997                        | 0.20                            | 0.53                            |
|                                                                   | 108"                       | 38                          | 5429                        | 0.28                            | 0.69                            |
|                                                                   | 120"                       | 32                          | 4772                        | 0.36                            | 0.79                            |
|                                                                   | 132"                       | 29                          | 4417                        | 0.48                            | 0.98                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x8"x1/4" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 84"                                                               | 96"                        | 144                         | 8261                        | 0.29                            | 0.35                            |
|                                                                   | 108"                       | 124                         | 7307                        | 0.41                            | 0.44                            |
|                                                                   | 120"                       | 109                         | 6509                        | 0.55                            | 0.51                            |
|                                                                   | 132"                       | 97                          | 5780                        | 0.71                            | 0.59                            |
|                                                                   | 144"                       | 88                          | 5222                        | 0.92                            | 0.67                            |
| 96"                                                               | 96"                        | 115                         | 8459                        | 0.27                            | 0.37                            |
|                                                                   | 108"                       | 98                          | 7515                        | 0.37                            | 0.45                            |
|                                                                   | 120"                       | 86                          | 6744                        | 0.49                            | 0.55                            |
|                                                                   | 132"                       | 75                          | 5987                        | 0.63                            | 0.62                            |
|                                                                   | 144"                       | 69                          | 5505                        | 0.82                            | 0.74                            |
| 108"                                                              | 96"                        | 95                          | 8642                        | 0.25                            | 0.38                            |
|                                                                   | 108"                       | 80                          | 7626                        | 0.34                            | 0.47                            |
|                                                                   | 120"                       | 70                          | 6906                        | 0.45                            | 0.57                            |
|                                                                   | 132"                       | 62                          | 6262                        | 0.59                            | 0.67                            |
|                                                                   | 144"                       | 55                          | 5633                        | 0.74                            | 0.76                            |
| 120"                                                              | 96"                        | 81                          | 8850                        | 0.24                            | 0.39                            |
|                                                                   | 108"                       | 67                          | 7751                        | 0.32                            | 0.48                            |
|                                                                   | 120"                       | 58                          | 6937                        | 0.42                            | 0.59                            |
|                                                                   | 132"                       | 51                          | 6292                        | 0.54                            | 0.70                            |
|                                                                   | 144"                       | 46                          | 5814                        | 0.69                            | 0.80                            |
| 132"                                                              | 96"                        | 69                          | 8866                        | 0.22                            | 0.39                            |
|                                                                   | 108"                       | 58                          | 7890                        | 0.30                            | 0.49                            |
|                                                                   | 120"                       | 50                          | 7109                        | 0.40                            | 0.61                            |
|                                                                   | 132"                       | 44                          | 6494                        | 0.51                            | 0.71                            |
|                                                                   | 144"                       | 39                          | 5886                        | 0.65                            | 0.84                            |
| 144"                                                              | 96"                        | 60                          | 8915                        | 0.21                            | 0.40                            |
|                                                                   | 108"                       | 51                          | 8011                        | 0.29                            | 0.51                            |
|                                                                   | 120"                       | 43                          | 7104                        | 0.37                            | 0.61                            |
|                                                                   | 132"                       | 38                          | 6539                        | 0.49                            | 0.74                            |
|                                                                   | 144"                       | 34                          | 6068                        | 0.62                            | 0.85                            |
| 156"                                                              | 84"                        | 67                          | 10393                       | 0.15                            | 0.32                            |
|                                                                   | 96"                        | 54                          | 9076                        | 0.21                            | 0.41                            |
|                                                                   | 108"                       | 45                          | 8120                        | 0.28                            | 0.51                            |
|                                                                   | 120"                       | 38                          | 7196                        | 0.36                            | 0.62                            |
|                                                                   | 132"                       | 33                          | 6559                        | 0.46                            | 0.72                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x6"x3/8" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 84"                                                               | 96"                        | 150                         | 8143                        | 0.29                            | 0.50                            |
|                                                                   | 108"                       | 129                         | 7160                        | 0.40                            | 0.60                            |
|                                                                   | 120"                       | 114                         | 6407                        | 0.53                            | 0.71                            |
|                                                                   | 132"                       | 103                         | 5841                        | 0.71                            | 0.82                            |
|                                                                   | 144"                       | 95                          | 5363                        | 0.92                            | 0.94                            |
| 96"                                                               | 96"                        | 119                         | 8296                        | 0.26                            | 0.51                            |
|                                                                   | 108"                       | 102                         | 7362                        | 0.36                            | 0.64                            |
|                                                                   | 120"                       | 89                          | 6614                        | 0.48                            | 0.73                            |
|                                                                   | 132"                       | 79                          | 5961                        | 0.62                            | 0.84                            |
|                                                                   | 144"                       | 73                          | 5522                        | 0.81                            | 1.01                            |
| 108"                                                              | 96"                        | 98                          | 8451                        | 0.24                            | 0.53                            |
|                                                                   | 108"                       | 83                          | 7460                        | 0.33                            | 0.66                            |
|                                                                   | 120"                       | 72                          | 6714                        | 0.44                            | 0.77                            |
|                                                                   | 132"                       | 65                          | 6186                        | 0.58                            | 0.93                            |
|                                                                   | 144"                       | 58                          | 5601                        | 0.73                            | 1.06                            |
| 120"                                                              | 96"                        | 83                          | 8569                        | 0.23                            | 0.54                            |
|                                                                   | 108"                       | 70                          | 7601                        | 0.31                            | 0.68                            |
|                                                                   | 120"                       | 60                          | 6807                        | 0.40                            | 0.78                            |
|                                                                   | 132"                       | 53                          | 6194                        | 0.52                            | 0.92                            |
|                                                                   | 144"                       | 48                          | 5717                        | 0.67                            | 1.10                            |
| 132"                                                              | 96"                        | 71                          | 8599                        | 0.21                            | 0.55                            |
|                                                                   | 108"                       | 60                          | 7720                        | 0.29                            | 0.68                            |
|                                                                   | 120"                       | 52                          | 6980                        | 0.39                            | 0.82                            |
|                                                                   | 132"                       | 45                          | 6250                        | 0.49                            | 0.96                            |
|                                                                   | 144"                       | 41                          | 5861                        | 0.63                            | 1.14                            |
| 144"                                                              | 96"                        | 62                          | 8690                        | 0.21                            | 0.55                            |
|                                                                   | 108"                       | 52                          | 7750                        | 0.28                            | 0.68                            |
|                                                                   | 120"                       | 45                          | 6998                        | 0.37                            | 0.85                            |
|                                                                   | 132"                       | 39                          | 6334                        | 0.47                            | 0.98                            |
|                                                                   | 144"                       | 35                          | 5865                        | 0.59                            | 1.15                            |
| 156"                                                              | 84"                        | 67                          | 9876                        | 0.14                            | 0.43                            |
|                                                                   | 96"                        | 55                          | 8796                        | 0.20                            | 0.56                            |
|                                                                   | 108"                       | 46                          | 7853                        | 0.27                            | 0.68                            |
|                                                                   | 120"                       | 39                          | 6957                        | 0.34                            | 0.85                            |
|                                                                   | 132"                       | 35                          | 6534                        | 0.45                            | 1.02                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

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12 OF 29

STATE OF FLORIDA  
TREVOR JOHNSON  
PROFESSIONAL ENGINEER  
10/17/26  
10/17/26  
10/17/26

ROLL-UP SHUTTER  
MULLIONS

TJK Engineering, LLC.

11335 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569  
PH: 813-404-7649; EM: TJKENGINEERING@VERIZON.NET  
LICENSED PROFESSIONAL ENGINEER  
FLORIDA LICENSE NUMBER: 28582

DATE: 10/17/26

DRAWN BY: TKJ

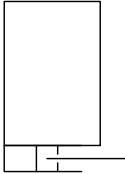
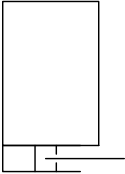
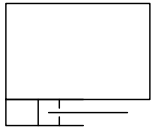
SCALE: N.T.S.

PROJ. #: 26-0802

AHT

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16501 OLD AIRPORT HALL RD. FORT MYERS, FL 33913  
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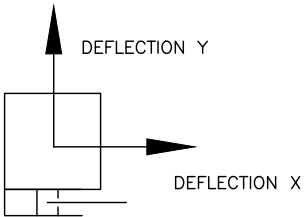
# DATE REVISIONS



| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"X6"X1/2" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                               | 96"                        | 147                         | 10578                       | 0.26                            | 0.53                            |
|                                                                   | 108"                       | 124                         | 9363                        | 0.36                            | 0.65                            |
|                                                                   | 120"                       | 109                         | 8490                        | 0.48                            | 0.78                            |
|                                                                   | 132"                       | 96                          | 7622                        | 0.62                            | 0.93                            |
|                                                                   | 144"                       | 87                          | 7063                        | 0.79                            | 1.05                            |
| 108"                                                              | 96"                        | 121                         | 10675                       | 0.24                            | 0.54                            |
|                                                                   | 108"                       | 102                         | 9505                        | 0.33                            | 0.66                            |
|                                                                   | 120"                       | 89                          | 8629                        | 0.44                            | 0.80                            |
|                                                                   | 132"                       | 78                          | 7769                        | 0.56                            | 0.95                            |
|                                                                   | 144"                       | 70                          | 7168                        | 0.72                            | 1.09                            |
| 120"                                                              | 96"                        | 103                         | 10849                       | 0.23                            | 0.55                            |
|                                                                   | 108"                       | 86                          | 9627                        | 0.31                            | 0.67                            |
|                                                                   | 120"                       | 75                          | 8776                        | 0.41                            | 0.82                            |
|                                                                   | 132"                       | 66                          | 7994                        | 0.53                            | 0.99                            |
|                                                                   | 144"                       | 59                          | 7367                        | 0.67                            | 1.13                            |
| 132"                                                              | 96"                        | 89                          | 10951                       | 0.22                            | 0.56                            |
|                                                                   | 108"                       | 74                          | 9701                        | 0.29                            | 0.69                            |
|                                                                   | 120"                       | 64                          | 8812                        | 0.39                            | 0.84                            |
|                                                                   | 132"                       | 56                          | 8006                        | 0.50                            | 1.02                            |
|                                                                   | 144"                       | 50                          | 7401                        | 0.63                            | 1.17                            |
| 144"                                                              | 96"                        | 77                          | 10946                       | 0.21                            | 0.56                            |
|                                                                   | 108"                       | 65                          | 9799                        | 0.28                            | 0.71                            |
|                                                                   | 120"                       | 56                          | 8939                        | 0.37                            | 0.86                            |
|                                                                   | 132"                       | 49                          | 8164                        | 0.48                            | 1.02                            |
|                                                                   | 144"                       | 43                          | 7431                        | 0.59                            | 1.18                            |
| 156"                                                              | 96"                        | 69                          | 11126                       | 0.20                            | 0.57                            |
|                                                                   | 108"                       | 57                          | 9821                        | 0.27                            | 0.70                            |
|                                                                   | 120"                       | 49                          | 8900                        | 0.35                            | 0.88                            |
|                                                                   | 132"                       | 43                          | 8203                        | 0.45                            | 1.03                            |
|                                                                   | 144"                       | 38                          | 7506                        | 0.57                            | 1.24                            |
| 168"                                                              | 84"                        | 76                          | 12600                       | 0.14                            | 0.45                            |
|                                                                   | 96"                        | 62                          | 11172                       | 0.20                            | 0.58                            |
|                                                                   | 108"                       | 51                          | 9882                        | 0.26                            | 0.71                            |
|                                                                   | 120"                       | 44                          | 8998                        | 0.34                            | 0.89                            |
|                                                                   | 132"                       | 38                          | 8209                        | 0.43                            | 1.04                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"X6"X1/8" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 60"                                                               | 108"                       | 150                         | 2467                        | 0.47                            | 0.52                            |
|                                                                   | 120"                       | 118                         | 1999                        | 0.53                            | 0.21                            |
|                                                                   | 132"                       | 113                         | 1927                        | 0.75                            | 0.30                            |
|                                                                   | 144"                       | 76                          | 1760                        | 0.71                            | 0.45                            |
|                                                                   | 156"                       | 66                          | 1534                        | 0.85                            | 0.36                            |
| 72"                                                               | 96"                        | 109                         | 2645                        | 0.24                            | 0.61                            |
|                                                                   | 108"                       | 100                         | 2421                        | 0.36                            | 0.64                            |
|                                                                   | 120"                       | 97                          | 2303                        | 0.53                            | 0.77                            |
|                                                                   | 132"                       | 73                          | 1825                        | 0.58                            | 0.27                            |
|                                                                   | 144"                       | 77                          | 1893                        | 0.87                            | 0.63                            |
| 84"                                                               | 96"                        | 75                          | 2625                        | 0.19                            | 0.65                            |
|                                                                   | 108"                       | 70                          | 2415                        | 0.29                            | 0.79                            |
|                                                                   | 120"                       | 64                          | 2190                        | 0.41                            | 0.80                            |
|                                                                   | 132"                       | 62                          | 2112                        | 0.58                            | 0.95                            |
|                                                                   | 144"                       | 58                          | 1946                        | 0.77                            | 0.94                            |
| 96"                                                               | 96"                        | 56                          | 2682                        | 0.17                            | 0.70                            |
|                                                                   | 108"                       | 51                          | 2382                        | 0.24                            | 0.88                            |
|                                                                   | 120"                       | 46                          | 2165                        | 0.34                            | 0.87                            |
|                                                                   | 132"                       | 44                          | 2040                        | 0.47                            | 1.04                            |
|                                                                   | 144"                       | 41                          | 1906                        | 0.62                            | 1.02                            |
| 108"                                                              | 84"                        | 49                          | 2981                        | 0.10                            | 0.58                            |
|                                                                   | 96"                        | 43                          | 2664                        | 0.14                            | 0.71                            |
|                                                                   | 108"                       | 38                          | 2341                        | 0.21                            | 0.83                            |
|                                                                   | 120"                       | 36                          | 2234                        | 0.30                            | 1.01                            |
|                                                                   | 132"                       | 33                          | 2012                        | 0.40                            | 1.10                            |
| 120"                                                              | 60"                        | 61                          | 4132                        | 0.03                            | 0.32                            |
|                                                                   | 66"                        | 53                          | 3729                        | 0.04                            | 0.38                            |
|                                                                   | 72"                        | 48                          | 3484                        | 0.06                            | 0.46                            |
|                                                                   | 78"                        | 43                          | 3193                        | 0.07                            | 0.51                            |
|                                                                   | 84"                        | 39                          | 2959                        | 0.09                            | 0.56                            |
| 132"                                                              | 48"                        | 72                          | 5118                        | 0.02                            | 0.21                            |
|                                                                   | 54"                        | 60                          | 4557                        | 0.02                            | 0.26                            |
|                                                                   | 60"                        | 52                          | 4176                        | 0.03                            | 0.32                            |
|                                                                   | 66"                        | 45                          | 3757                        | 0.04                            | 0.39                            |
|                                                                   | 72"                        | 40                          | 3467                        | 0.05                            | 0.45                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"X6"X1/4" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 72"                                                               | 96"                        | 150                         | 4997                        | 0.19                            | 0.72                            |
|                                                                   | 108"                       | 141                         | 4484                        | 0.27                            | 0.83                            |
|                                                                   | 120"                       | 132                         | 4169                        | 0.38                            | 0.98                            |
|                                                                   | 132"                       | 124                         | 3922                        | 0.53                            | 1.08                            |
|                                                                   | 144"                       | 118                         | 3713                        | 0.71                            | 1.20                            |
| 84"                                                               | 96"                        | 113                         | 4989                        | 0.16                            | 0.75                            |
|                                                                   | 108"                       | 102                         | 4557                        | 0.23                            | 0.91                            |
|                                                                   | 120"                       | 93                          | 4138                        | 0.32                            | 1.07                            |
|                                                                   | 132"                       | 87                          | 3900                        | 0.43                            | 1.23                            |
|                                                                   | 144"                       | 82                          | 3666                        | 0.58                            | 1.38                            |
| 96"                                                               | 96"                        | 87                          | 5037                        | 0.14                            | 0.79                            |
|                                                                   | 108"                       | 77                          | 4565                        | 0.20                            | 0.94                            |
|                                                                   | 120"                       | 70                          | 4155                        | 0.27                            | 1.16                            |
|                                                                   | 132"                       | 64                          | 3868                        | 0.36                            | 1.26                            |
|                                                                   | 144"                       | 61                          | 3669                        | 0.49                            | 1.54                            |
| 108"                                                              | 96"                        | 70                          | 5125                        | 0.13                            | 0.80                            |
|                                                                   | 108"                       | 61                          | 4578                        | 0.18                            | 0.98                            |
|                                                                   | 120"                       | 55                          | 4200                        | 0.24                            | 1.19                            |
|                                                                   | 132"                       | 50                          | 3905                        | 0.32                            | 1.32                            |
|                                                                   | 144"                       | 46                          | 3558                        | 0.42                            | 1.58                            |
| 120"                                                              | 84"                        | 68                          | 5785                        | 0.08                            | 0.63                            |
|                                                                   | 96"                        | 57                          | 5103                        | 0.11                            | 0.79                            |
|                                                                   | 108"                       | 50                          | 4611                        | 0.16                            | 1.01                            |
|                                                                   | 120"                       | 44                          | 4171                        | 0.22                            | 1.17                            |
|                                                                   | 132"                       | 41                          | 3939                        | 0.29                            | 1.46                            |
| 132"                                                              | 78"                        | 63                          | 6120                        | 0.06                            | 0.55                            |
|                                                                   | 84"                        | 57                          | 5754                        | 0.07                            | 0.62                            |
|                                                                   | 90"                        | 52                          | 5364                        | 0.09                            | 0.73                            |
|                                                                   | 96"                        | 48                          | 5068                        | 0.11                            | 0.83                            |
|                                                                   | 102"                       | 45                          | 4899                        | 0.13                            | 0.90                            |
| 144"                                                              | 78"                        | 55                          | 6178                        | 0.06                            | 0.57                            |
|                                                                   | 84"                        | 49                          | 5747                        | 0.07                            | 0.62                            |
|                                                                   | 90"                        | 45                          | 5416                        | 0.08                            | 0.73                            |
|                                                                   | 96"                        | 41                          | 5056                        | 0.10                            | 0.84                            |
|                                                                   | 102"                       | 38                          | 4822                        | 0.12                            | 0.92                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

THIS ITEM HAS BEEN DIGITALLY SIGNED AND VERIFIED BY TREVOR JOHNSON ON THE DATE ADJACENT TO THE SEAL. SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES, RULE 61G15-23.004 F.A.C.

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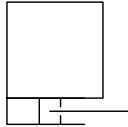
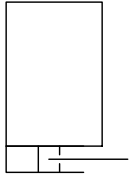
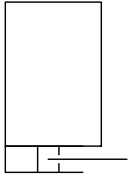
## ROLL-UP SHUTTER MULLIONS

**TJK Engineering, LLC.**  
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A PROFESSIONAL ENGINEERING FIRM  
THE BRIDGE ENGINEERS

DATE: 10/17/26  
STATE OF FLORIDA  
TREVOR JOHNSON  
PROFESSIONAL ENGINEER  
FLORIDA P.E. #16924

SCALE: N.T.S.  
DRAWN BY: TKJ  
PROJ. #: 26-0802

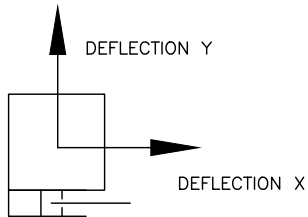
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| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"X8"X1/4" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 84"                                                               | 96"                        | 138                         | 6584                        | 0.09                            | 0.78                            |
|                                                                   | 108"                       | 124                         | 6022                        | 0.14                            | 0.98                            |
|                                                                   | 120"                       | 113                         | 5544                        | 0.19                            | 1.17                            |
|                                                                   | 132"                       | 104                         | 5178                        | 0.25                            | 1.33                            |
|                                                                   | 144"                       | 98                          | 4871                        | 0.34                            | 1.57                            |
| 96"                                                               | 96"                        | 107                         | 6613                        | 0.08                            | 0.80                            |
|                                                                   | 108"                       | 95                          | 6027                        | 0.12                            | 1.00                            |
|                                                                   | 120"                       | 86                          | 5563                        | 0.16                            | 1.22                            |
|                                                                   | 132"                       | 77                          | 5074                        | 0.22                            | 1.36                            |
|                                                                   | 144"                       | 72                          | 4771                        | 0.29                            | 1.60                            |
| 108"                                                              | 96"                        | 86                          | 6607                        | 0.08                            | 0.82                            |
|                                                                   | 108"                       | 75                          | 5954                        | 0.11                            | 1.03                            |
|                                                                   | 120"                       | 67                          | 5452                        | 0.14                            | 1.25                            |
|                                                                   | 132"                       | 61                          | 5095                        | 0.19                            | 1.43                            |
|                                                                   | 144"                       | 56                          | 4841                        | 0.26                            | 1.69                            |
| 120"                                                              | 96"                        | 71                          | 6587                        | 0.07                            | 0.82                            |
|                                                                   | 108"                       | 62                          | 6026                        | 0.10                            | 1.02                            |
|                                                                   | 120"                       | 55                          | 5516                        | 0.13                            | 1.23                            |
|                                                                   | 132"                       | 50                          | 5145                        | 0.18                            | 1.47                            |
|                                                                   | 144"                       | 43                          | 4689                        | 0.23                            | 1.73                            |
| 132"                                                              | 96"                        | 61                          | 6696                        | 0.07                            | 0.84                            |
|                                                                   | 108"                       | 52                          | 5957                        | 0.09                            | 1.06                            |
|                                                                   | 120"                       | 46                          | 5458                        | 0.12                            | 1.30                            |
|                                                                   | 132"                       | 41                          | 5066                        | 0.16                            | 1.47                            |
|                                                                   | 144"                       | 36                          | 4680                        | 0.20                            | 1.70                            |
| 144"                                                              | 84"                        | 63                          | 7500                        | 0.04                            | 0.65                            |
|                                                                   | 96"                        | 53                          | 6731                        | 0.06                            | 0.85                            |
|                                                                   | 108"                       | 45                          | 6025                        | 0.09                            | 1.05                            |
|                                                                   | 120"                       | 39                          | 5443                        | 0.11                            | 1.27                            |
|                                                                   | 132"                       | 35                          | 5023                        | 0.15                            | 1.57                            |
| 156"                                                              | 72"                        | 69                          | 8573                        | 0.03                            | 0.48                            |
|                                                                   | 84"                        | 55                          | 7462                        | 0.04                            | 0.65                            |
|                                                                   | 96"                        | 46                          | 6695                        | 0.06                            | 0.85                            |
|                                                                   | 108"                       | 39                          | 5959                        | 0.08                            | 1.08                            |
|                                                                   | 120"                       | 34                          | 5469                        | 0.11                            | 1.29                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"X6"X3/8" MULLION (6063-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 84"                                                               | 96"                        | 147                         | 7106                        | 0.15                            | 0.80                            |
|                                                                   | 108"                       | 129                         | 6405                        | 0.20                            | 0.96                            |
|                                                                   | 120"                       | 117                         | 5862                        | 0.28                            | 1.17                            |
|                                                                   | 132"                       | 107                         | 5429                        | 0.38                            | 1.32                            |
|                                                                   | 144"                       | 101                         | 5111                        | 0.51                            | 1.59                            |
| 96"                                                               | 96"                        | 115                         | 7205                        | 0.13                            | 0.81                            |
|                                                                   | 108"                       | 100                         | 6443                        | 0.18                            | 1.01                            |
|                                                                   | 120"                       | 89                          | 5895                        | 0.25                            | 1.18                            |
|                                                                   | 132"                       | 82                          | 5484                        | 0.33                            | 1.44                            |
|                                                                   | 144"                       | 76                          | 5152                        | 0.44                            | 1.64                            |
| 108"                                                              | 96"                        | 93                          | 7218                        | 0.12                            | 0.83                            |
|                                                                   | 108"                       | 81                          | 6532                        | 0.17                            | 1.04                            |
|                                                                   | 120"                       | 71                          | 5930                        | 0.22                            | 1.21                            |
|                                                                   | 132"                       | 65                          | 5504                        | 0.30                            | 1.49                            |
|                                                                   | 144"                       | 59                          | 5075                        | 0.38                            | 1.71                            |
| 120"                                                              | 96"                        | 77                          | 7223                        | 0.11                            | 0.83                            |
|                                                                   | 108"                       | 66                          | 6483                        | 0.15                            | 1.03                            |
|                                                                   | 120"                       | 59                          | 5989                        | 0.21                            | 1.26                            |
|                                                                   | 132"                       | 52                          | 5428                        | 0.27                            | 1.46                            |
|                                                                   | 144"                       | 45                          | 5097                        | 0.35                            | 1.76                            |
| 132"                                                              | 96"                        | 66                          | 7276                        | 0.10                            | 0.85                            |
|                                                                   | 108"                       | 57                          | 6607                        | 0.14                            | 1.07                            |
|                                                                   | 120"                       | 49                          | 5939                        | 0.19                            | 1.26                            |
|                                                                   | 132"                       | 44                          | 5450                        | 0.25                            | 1.57                            |
|                                                                   | 144"                       | 38                          | 5076                        | 0.32                            | 1.85                            |
| 144"                                                              | 84"                        | 69                          | 8217                        | 0.07                            | 0.68                            |
|                                                                   | 96"                        | 57                          | 7278                        | 0.10                            | 0.86                            |
|                                                                   | 108"                       | 49                          | 6574                        | 0.13                            | 1.10                            |
|                                                                   | 120"                       | 43                          | 6046                        | 0.18                            | 1.32                            |
|                                                                   | 132"                       | 37                          | 5571                        | 0.23                            | 1.53                            |
| 156"                                                              | 72"                        | 77                          | 9525                        | 0.05                            | 0.50                            |
|                                                                   | 84"                        | 61                          | 8277                        | 0.07                            | 0.67                            |
|                                                                   | 96"                        | 50                          | 7297                        | 0.09                            | 0.86                            |
|                                                                   | 108"                       | 43                          | 6609                        | 0.13                            | 1.11                            |
|                                                                   | 120"                       | 37                          | 5995                        | 0.17                            | 1.32                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"X4"X1/8" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 72"                                                               | 96"                        | 110                         | 2510                        | 0.63                            | 0.75                            |
|                                                                   | 108"                       | 101                         | 2278                        | 0.93                            | 0.79                            |
|                                                                   | 120"                       | 75                          | 1800                        | 1.06                            | 0.26                            |
|                                                                   | 132"                       | 61                          | 1693                        | 1.26                            | 0.45                            |
|                                                                   | 144"                       | 59                          | 1587                        | 2.05                            | 0.67                            |
| 84"                                                               | 96"                        | 78                          | 2587                        | 0.52                            | 0.86                            |
|                                                                   | 108"                       | 70                          | 2298                        | 0.76                            | 0.91                            |
|                                                                   | 120"                       | 65                          | 2088                        | 1.07                            | 1.01                            |
|                                                                   | 132"                       | 62                          | 1992                        | 1.50                            | 1.09                            |
|                                                                   | 144"                       | 50                          | 1724                        | 1.85                            | 1.08                            |
| 96"                                                               | 96"                        | 58                          | 2617                        | 0.45                            | 0.93                            |
|                                                                   | 108"                       | 52                          | 2310                        | 0.64                            | 1.07                            |
|                                                                   | 120"                       | 48                          | 2156                        | 0.91                            | 1.13                            |
|                                                                   | 132"                       | 44                          | 1910                        | 1.22                            | 1.22                            |
|                                                                   | 144"                       | 42                          | 1863                        | 1.65                            | 1.25                            |
| 108"                                                              | 96"                        | 45                          | 2608                        | 0.39                            | 0.99                            |
|                                                                   | 108"                       | 39                          | 2301                        | 0.55                            | 1.03                            |
|                                                                   | 120"                       | 37                          | 2145                        | 0.79                            | 1.34                            |
|                                                                   | 132"                       | 33                          | 2022                        | 1.10                            | 1.54                            |
|                                                                   | 144"                       | 32                          | 1846                        | 1.43                            | 1.52                            |
| 120"                                                              | 72"                        | 50                          | 3451                        | 0.15                            | 0.60                            |
|                                                                   | 84"                        | 42                          | 2988                        | 0.24                            | 0.82                            |
|                                                                   | 96"                        | 37                          | 2709                        | 0.36                            | 1.02                            |
|                                                                   | 108"                       | 32                          | 2371                        | 0.50                            | 1.15                            |
|                                                                   | 120"                       | 29                          | 2222                        | 0.72                            | 1.46                            |
| 132"                                                              | 66"                        | 48                          | 3837                        | 0.11                            | 0.53                            |
|                                                                   | 72"                        | 42                          | 3468                        | 0.14                            | 0.61                            |
|                                                                   | 78"                        | 38                          | 3214                        | 0.18                            | 0.71                            |
|                                                                   | 84"                        | 35                          | 3018                        | 0.22                            | 0.81                            |
|                                                                   | 90"                        | 32                          | 2806                        | 0.27                            | 0.91                            |
| 144"                                                              | 54"                        | 55                          | 4623                        | 0.06                            | 0.37                            |
|                                                                   | 60"                        | 48                          | 4259                        | 0.09                            | 0.45                            |
|                                                                   | 66"                        | 42                          | 3899                        | 0.11                            | 0.54                            |
|                                                                   | 72"                        | 37                          | 3563                        | 0.14                            | 0.63                            |
|                                                                   | 78"                        | 33                          | 3258                        | 0.17                            | 0.74                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

THIS ITEM HAS BEEN DIGITALLY SIGNED AND VERIFIED BY TREVOR JOHNSON ON THE DATE ADJACENT TO THE SEAL. SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES, RULE 61G15-23.004 F.A.C.

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# ROLL-UP SHUTTER MULLIONS

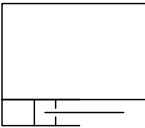
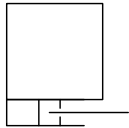


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CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26  
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PROJ. #: 26-0802

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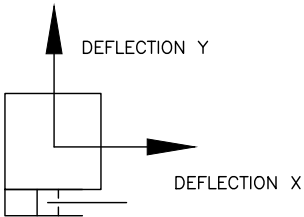
STATE OF FLORIDA  
TREVOR JOHNSON  
PROFESSIONAL ENGINEER  
EXPIRATION DATE: 10/17/26  
FLORIDA P.E. # 16924



| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x4"x1/4" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 84"                                                               | 96"                        | 116                         | 4853                        | 0.43                            | 0.97                            |
|                                                                   | 108"                       | 104                         | 4373                        | 0.61                            | 1.18                            |
|                                                                   | 120"                       | 94                          | 3980                        | 0.85                            | 1.31                            |
|                                                                   | 132"                       | 87                          | 3655                        | 1.15                            | 1.49                            |
|                                                                   | 144"                       | 82                          | 3423                        | 1.54                            | 1.69                            |
| 96"                                                               | 96"                        | 90                          | 4944                        | 0.38                            | 1.03                            |
|                                                                   | 108"                       | 79                          | 4430                        | 0.54                            | 1.23                            |
|                                                                   | 120"                       | 68                          | 4062                        | 0.74                            | 1.48                            |
|                                                                   | 132"                       | 61                          | 3717                        | 1.00                            | 1.74                            |
|                                                                   | 144"                       | 55                          | 3502                        | 1.31                            | 1.80                            |
| 108"                                                              | 96"                        | 73                          | 5054                        | 0.35                            | 1.07                            |
|                                                                   | 108"                       | 62                          | 4508                        | 0.48                            | 1.25                            |
|                                                                   | 120"                       | 52                          | 4117                        | 0.67                            | 1.56                            |
|                                                                   | 132"                       | 44                          | 3713                        | 0.87                            | 1.78                            |
|                                                                   | 144"                       | 40                          | 3494                        | 1.14                            | 1.90                            |
| 120"                                                              | 96"                        | 60                          | 5077                        | 0.32                            | 1.07                            |
|                                                                   | 108"                       | 49                          | 4555                        | 0.44                            | 1.31                            |
|                                                                   | 120"                       | 40                          | 4081                        | 0.60                            | 1.63                            |
|                                                                   | 132"                       | 35                          | 3734                        | 0.78                            | 1.79                            |
|                                                                   | 144"                       | 31                          | 3486                        | 1.03                            | 2.14                            |
| 132"                                                              | 84"                        | 61                          | 5788                        | 0.21                            | 0.89                            |
|                                                                   | 96"                        | 51                          | 5112                        | 0.30                            | 1.11                            |
|                                                                   | 108"                       | 40                          | 4507                        | 0.40                            | 1.31                            |
|                                                                   | 120"                       | 32                          | 4104                        | 0.55                            | 1.57                            |
|                                                                   | 132"                       | 28                          | 3848                        | 0.74                            | 1.95                            |
| 144"                                                              | 84"                        | 52                          | 5737                        | 0.19                            | 0.87                            |
|                                                                   | 90"                        | 48                          | 5436                        | 0.24                            | 1.02                            |
|                                                                   | 96"                        | 44                          | 5117                        | 0.28                            | 1.15                            |
|                                                                   | 102"                       | 38                          | 4904                        | 0.34                            | 1.27                            |
|                                                                   | 108"                       | 33                          | 4670                        | 0.39                            | 1.37                            |
| 156"                                                              | 78"                        | 51                          | 6217                        | 0.15                            | 0.75                            |
|                                                                   | 84"                        | 46                          | 5777                        | 0.19                            | 0.90                            |
|                                                                   | 90"                        | 42                          | 5447                        | 0.23                            | 1.03                            |
|                                                                   | 96"                        | 38                          | 5104                        | 0.26                            | 1.13                            |
|                                                                   | 102"                       | 33                          | 4826                        | 0.31                            | 1.26                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x6"x1/8" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 84"                                                               | 96"                        | 96                          | 4121                        | 0.46                            | 0.60                            |
|                                                                   | 108"                       | 85                          | 3627                        | 0.66                            | 0.70                            |
|                                                                   | 120"                       | 77                          | 3229                        | 0.91                            | 0.80                            |
|                                                                   | 132"                       | 71                          | 2952                        | 1.23                            | 0.85                            |
|                                                                   | 144"                       | 66                          | 2672                        | 1.63                            | 0.93                            |
| 96"                                                               | 96"                        | 74                          | 4209                        | 0.41                            | 0.65                            |
|                                                                   | 108"                       | 65                          | 3729                        | 0.58                            | 0.77                            |
|                                                                   | 120"                       | 59                          | 3379                        | 0.80                            | 0.91                            |
|                                                                   | 132"                       | 52                          | 2965                        | 1.04                            | 0.92                            |
|                                                                   | 144"                       | 49                          | 2745                        | 1.39                            | 1.06                            |
| 108"                                                              | 96"                        | 59                          | 4295                        | 0.37                            | 0.65                            |
|                                                                   | 108"                       | 52                          | 3843                        | 0.52                            | 0.82                            |
|                                                                   | 120"                       | 46                          | 3413                        | 0.71                            | 0.95                            |
|                                                                   | 132"                       | 41                          | 3052                        | 0.92                            | 1.03                            |
|                                                                   | 144"                       | 38                          | 2817                        | 1.22                            | 1.16                            |
| 120"                                                              | 96"                        | 49                          | 4363                        | 0.34                            | 0.69                            |
|                                                                   | 108"                       | 42                          | 3853                        | 0.47                            | 0.81                            |
|                                                                   | 120"                       | 38                          | 3555                        | 0.65                            | 0.98                            |
|                                                                   | 132"                       | 34                          | 3177                        | 0.86                            | 1.16                            |
|                                                                   | 144"                       | 31                          | 2928                        | 1.11                            | 1.25                            |
| 132"                                                              | 84"                        | 50                          | 5063                        | 0.23                            | 0.55                            |
|                                                                   | 96"                        | 42                          | 4475                        | 0.32                            | 0.71                            |
|                                                                   | 108"                       | 36                          | 3970                        | 0.45                            | 0.87                            |
|                                                                   | 120"                       | 32                          | 3613                        | 0.61                            | 1.05                            |
|                                                                   | 132"                       | 28                          | 3193                        | 0.78                            | 1.19                            |
| 144"                                                              | 84"                        | 43                          | 5057                        | 0.21                            | 0.57                            |
|                                                                   | 90"                        | 39                          | 4723                        | 0.25                            | 0.65                            |
|                                                                   | 96"                        | 36                          | 4486                        | 0.30                            | 0.72                            |
|                                                                   | 102"                       | 33                          | 4178                        | 0.36                            | 0.82                            |
|                                                                   | 108"                       | 31                          | 4027                        | 0.42                            | 0.89                            |
| 156"                                                              | 78"                        | 42                          | 5460                        | 0.17                            | 0.50                            |
|                                                                   | 84"                        | 38                          | 5120                        | 0.20                            | 0.58                            |
|                                                                   | 90"                        | 35                          | 4878                        | 0.25                            | 0.65                            |
|                                                                   | 96"                        | 31                          | 4455                        | 0.28                            | 0.71                            |
|                                                                   | 102"                       | 29                          | 4258                        | 0.34                            | 0.81                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x6"x1/4" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 84"                                                               | 96"                        | 150                         | 8030                        | 0.41                            | 0.66                            |
|                                                                   | 108"                       | 135                         | 7125                        | 0.57                            | 0.80                            |
|                                                                   | 120"                       | 119                         | 6372                        | 0.77                            | 0.93                            |
|                                                                   | 132"                       | 108                         | 5783                        | 1.02                            | 1.10                            |
|                                                                   | 144"                       | 99                          | 5286                        | 1.32                            | 1.26                            |
| 96"                                                               | 96"                        | 124                         | 8191                        | 0.37                            | 0.69                            |
|                                                                   | 108"                       | 107                         | 7337                        | 0.52                            | 0.84                            |
|                                                                   | 120"                       | 94                          | 6601                        | 0.69                            | 1.00                            |
|                                                                   | 132"                       | 84                          | 5967                        | 0.91                            | 1.18                            |
|                                                                   | 144"                       | 77                          | 5525                        | 1.18                            | 1.36                            |
| 108"                                                              | 96"                        | 102                         | 8323                        | 0.35                            | 0.71                            |
|                                                                   | 108"                       | 87                          | 7435                        | 0.47                            | 0.87                            |
|                                                                   | 120"                       | 75                          | 6646                        | 0.62                            | 1.01                            |
|                                                                   | 132"                       | 68                          | 6118                        | 0.83                            | 1.24                            |
|                                                                   | 144"                       | 61                          | 5549                        | 1.05                            | 1.44                            |
| 120"                                                              | 96"                        | 86                          | 8435                        | 0.32                            | 0.72                            |
|                                                                   | 108"                       | 73                          | 7519                        | 0.44                            | 0.90                            |
|                                                                   | 120"                       | 63                          | 6762                        | 0.58                            | 1.06                            |
|                                                                   | 132"                       | 56                          | 6163                        | 0.76                            | 1.27                            |
|                                                                   | 144"                       | 51                          | 5753                        | 0.98                            | 1.49                            |
| 132"                                                              | 96"                        | 74                          | 8528                        | 0.31                            | 0.74                            |
|                                                                   | 108"                       | 63                          | 7661                        | 0.42                            | 0.92                            |
|                                                                   | 120"                       | 54                          | 6846                        | 0.55                            | 1.10                            |
|                                                                   | 132"                       | 47                          | 6198                        | 0.70                            | 1.26                            |
|                                                                   | 144"                       | 43                          | 5836                        | 0.91                            | 1.49                            |
| 144"                                                              | 96"                        | 65                          | 8618                        | 0.30                            | 0.76                            |
|                                                                   | 108"                       | 54                          | 7618                        | 0.39                            | 0.92                            |
|                                                                   | 120"                       | 47                          | 6910                        | 0.52                            | 1.14                            |
|                                                                   | 132"                       | 41                          | 6263                        | 0.67                            | 1.35                            |
|                                                                   | 144"                       | 36                          | 5740                        | 0.84                            | 1.48                            |
| 156"                                                              | 96"                        | 57                          | 8615                        | 0.28                            | 0.75                            |
|                                                                   | 108"                       | 48                          | 7693                        | 0.38                            | 0.95                            |
|                                                                   | 120"                       | 42                          | 7099                        | 0.51                            | 1.15                            |
|                                                                   | 132"                       | 36                          | 6358                        | 0.64                            | 1.34                            |
|                                                                   | 144"                       | 32                          | 5848                        | 0.81                            | 1.57                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.



ROLL-UP SHUTTER  
MULLIONS

TKJ Engineering, LLC.

11335 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569  
PH: 863.404.7649; EM: TKJENGINEERING@VERIZON.NET  
A CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26

SCALE: N.T.S.

DRAWN BY: TKJ

PROJ. #: 26-0802

15 OF 29

PROFESSIONAL ENGINEER

TREVOR JOHNSON  
10/17/26  
STATE OF FLORIDA  
TREVOR JOHNSON  
FLORIDA P.E. # 16924

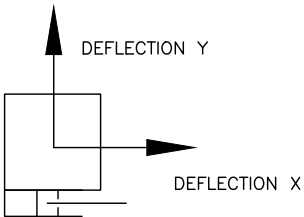
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| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x8"x1/4" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                               | 96"                        | 150                         | 12005                       | 0.38                            | 0.51                            |
|                                                                   | 108"                       | 138                         | 10646                       | 0.52                            | 0.64                            |
|                                                                   | 120"                       | 119                         | 9535                        | 0.68                            | 0.76                            |
|                                                                   | 132"                       | 105                         | 8620                        | 0.88                            | 0.91                            |
|                                                                   | 144"                       | 94                          | 7884                        | 1.12                            | 1.02                            |
| 108"                                                              | 96"                        | 137                         | 12297                       | 0.36                            | 0.53                            |
|                                                                   | 108"                       | 114                         | 10837                       | 0.48                            | 0.65                            |
|                                                                   | 120"                       | 98                          | 9728                        | 0.63                            | 0.78                            |
|                                                                   | 132"                       | 87                          | 8932                        | 0.82                            | 0.93                            |
|                                                                   | 144"                       | 77                          | 8079                        | 1.03                            | 1.09                            |
| 120"                                                              | 96"                        | 116                         | 12378                       | 0.34                            | 0.54                            |
|                                                                   | 108"                       | 97                          | 11035                       | 0.46                            | 0.66                            |
|                                                                   | 120"                       | 83                          | 9907                        | 0.60                            | 0.80                            |
|                                                                   | 132"                       | 73                          | 9043                        | 0.77                            | 0.96                            |
|                                                                   | 144"                       | 64                          | 8205                        | 0.96                            | 1.09                            |
| 132"                                                              | 96"                        | 101                         | 12565                       | 0.33                            | 0.55                            |
|                                                                   | 108"                       | 84                          | 11162                       | 0.43                            | 0.68                            |
|                                                                   | 120"                       | 72                          | 10075                       | 0.57                            | 0.84                            |
|                                                                   | 132"                       | 63                          | 9220                        | 0.73                            | 0.99                            |
|                                                                   | 144"                       | 55                          | 8347                        | 0.91                            | 1.14                            |
| 144"                                                              | 96"                        | 89                          | 12738                       | 0.31                            | 0.55                            |
|                                                                   | 108"                       | 74                          | 11356                       | 0.42                            | 0.69                            |
|                                                                   | 120"                       | 63                          | 10191                       | 0.54                            | 0.84                            |
|                                                                   | 132"                       | 55                          | 9285                        | 0.70                            | 1.02                            |
|                                                                   | 144"                       | 48                          | 8466                        | 0.86                            | 1.16                            |
| 156"                                                              | 96"                        | 79                          | 12792                       | 0.30                            | 0.56                            |
|                                                                   | 108"                       | 65                          | 11316                       | 0.40                            | 0.70                            |
|                                                                   | 120"                       | 56                          | 10322                       | 0.53                            | 0.85                            |
|                                                                   | 132"                       | 49                          | 9482                        | 0.67                            | 1.02                            |
|                                                                   | 144"                       | 43                          | 8642                        | 0.84                            | 1.22                            |
| 168"                                                              | 96"                        | 71                          | 12911                       | 0.29                            | 0.57                            |
|                                                                   | 108"                       | 59                          | 11510                       | 0.39                            | 0.71                            |
|                                                                   | 120"                       | 50                          | 10350                       | 0.51                            | 0.88                            |
|                                                                   | 132"                       | 43                          | 9433                        | 0.64                            | 1.00                            |
|                                                                   | 144"                       | 38                          | 8638                        | 0.80                            | 1.23                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x6"x3/8" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                               | 96"                        | 150                         | 11772                       | 0.37                            | 0.72                            |
|                                                                   | 108"                       | 144                         | 10472                       | 0.50                            | 0.88                            |
|                                                                   | 120"                       | 125                         | 9411                        | 0.67                            | 1.06                            |
|                                                                   | 132"                       | 111                         | 8596                        | 0.87                            | 1.25                            |
|                                                                   | 144"                       | 100                         | 7878                        | 1.11                            | 1.45                            |
| 108"                                                              | 96"                        | 141                         | 11945                       | 0.35                            | 0.73                            |
|                                                                   | 108"                       | 119                         | 10649                       | 0.47                            | 0.90                            |
|                                                                   | 120"                       | 103                         | 9630                        | 0.62                            | 1.09                            |
|                                                                   | 132"                       | 90                          | 8706                        | 0.79                            | 1.27                            |
|                                                                   | 144"                       | 81                          | 8049                        | 1.01                            | 1.48                            |
| 120"                                                              | 96"                        | 120                         | 12107                       | 0.33                            | 0.75                            |
|                                                                   | 108"                       | 101                         | 10797                       | 0.44                            | 0.92                            |
|                                                                   | 120"                       | 87                          | 9761                        | 0.58                            | 1.11                            |
|                                                                   | 132"                       | 76                          | 8887                        | 0.75                            | 1.31                            |
|                                                                   | 144"                       | 68                          | 8178                        | 0.95                            | 1.55                            |
| 132"                                                              | 96"                        | 104                         | 12228                       | 0.31                            | 0.76                            |
|                                                                   | 108"                       | 87                          | 10874                       | 0.42                            | 0.94                            |
|                                                                   | 120"                       | 75                          | 9876                        | 0.55                            | 1.14                            |
|                                                                   | 132"                       | 66                          | 9071                        | 0.71                            | 1.37                            |
|                                                                   | 144"                       | 58                          | 8261                        | 0.89                            | 1.58                            |
| 144"                                                              | 96"                        | 91                          | 12275                       | 0.30                            | 0.76                            |
|                                                                   | 108"                       | 76                          | 10918                       | 0.40                            | 0.96                            |
|                                                                   | 120"                       | 65                          | 9873                        | 0.52                            | 1.17                            |
|                                                                   | 132"                       | 57                          | 9055                        | 0.68                            | 1.40                            |
|                                                                   | 144"                       | 50                          | 8316                        | 0.84                            | 1.57                            |
| 156"                                                              | 96"                        | 81                          | 12376                       | 0.29                            | 0.77                            |
|                                                                   | 108"                       | 68                          | 11131                       | 0.39                            | 0.97                            |
|                                                                   | 120"                       | 58                          | 10051                       | 0.51                            | 1.17                            |
|                                                                   | 132"                       | 50                          | 9079                        | 0.64                            | 1.41                            |
|                                                                   | 144"                       | 45                          | 8536                        | 0.82                            | 1.65                            |
| 168"                                                              | 96"                        | 73                          | 12499                       | 0.28                            | 0.78                            |
|                                                                   | 108"                       | 61                          | 11218                       | 0.38                            | 0.98                            |
|                                                                   | 120"                       | 52                          | 10136                       | 0.49                            | 1.19                            |
|                                                                   | 132"                       | 45                          | 9239                        | 0.62                            | 1.42                            |
|                                                                   | 144"                       | 40                          | 8580                        | 0.79                            | 1.67                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x6"x1/2" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 108"                                                              | 96"                        | 150                         | 15125                       | 0.35                            | 0.75                            |
|                                                                   | 108"                       | 148                         | 13508                       | 0.48                            | 0.94                            |
|                                                                   | 120"                       | 127                         | 12190                       | 0.62                            | 1.11                            |
|                                                                   | 132"                       | 111                         | 11089                       | 0.80                            | 1.32                            |
|                                                                   | 144"                       | 99                          | 10197                       | 1.01                            | 1.55                            |
| 120"                                                              | 96"                        | 150                         | 15257                       | 0.34                            | 0.77                            |
|                                                                   | 108"                       | 126                         | 13656                       | 0.45                            | 0.96                            |
|                                                                   | 120"                       | 108                         | 12326                       | 0.59                            | 1.16                            |
|                                                                   | 132"                       | 94                          | 11257                       | 0.75                            | 1.35                            |
|                                                                   | 144"                       | 84                          | 10446                       | 0.96                            | 1.58                            |
| 132"                                                              | 96"                        | 131                         | 15449                       | 0.32                            | 0.78                            |
|                                                                   | 108"                       | 109                         | 13752                       | 0.43                            | 0.97                            |
|                                                                   | 120"                       | 93                          | 12431                       | 0.56                            | 1.18                            |
|                                                                   | 132"                       | 81                          | 11396                       | 0.72                            | 1.37                            |
|                                                                   | 144"                       | 72                          | 10493                       | 0.90                            | 1.65                            |
| 144"                                                              | 96"                        | 115                         | 15551                       | 0.31                            | 0.78                            |
|                                                                   | 108"                       | 96                          | 13935                       | 0.41                            | 0.98                            |
|                                                                   | 120"                       | 82                          | 12631                       | 0.54                            | 1.19                            |
|                                                                   | 132"                       | 71                          | 11496                       | 0.69                            | 1.41                            |
|                                                                   | 144"                       | 63                          | 10625                       | 0.86                            | 1.68                            |
| 156"                                                              | 96"                        | 102                         | 15578                       | 0.30                            | 0.79                            |
|                                                                   | 108"                       | 85                          | 13946                       | 0.40                            | 0.99                            |
|                                                                   | 120"                       | 73                          | 12735                       | 0.52                            | 1.22                            |
|                                                                   | 132"                       | 63                          | 11574                       | 0.66                            | 1.45                            |
|                                                                   | 144"                       | 56                          | 10795                       | 0.83                            | 1.69                            |
| 168"                                                              | 96"                        | 92                          | 15712                       | 0.29                            | 0.80                            |
|                                                                   | 108"                       | 77                          | 14193                       | 0.39                            | 1.00                            |
|                                                                   | 120"                       | 65                          | 12795                       | 0.50                            | 1.19                            |
|                                                                   | 132"                       | 56                          | 11594                       | 0.63                            | 1.46                            |
|                                                                   | 144"                       | 50                          | 10863                       | 0.80                            | 1.71                            |
| 180"                                                              | 96"                        | 83                          | 15782                       | 0.28                            | 0.80                            |
|                                                                   | 108"                       | 69                          | 14145                       | 0.37                            | 1.00                            |
|                                                                   | 120"                       | 59                          | 12884                       | 0.49                            | 1.22                            |
|                                                                   | 132"                       | 51                          | 11764                       | 0.62                            | 1.46                            |
|                                                                   | 144"                       | 44                          | 10883                       | 0.78                            | 1.76                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

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A PROFESSIONAL ENGINEERING FIRM  
A CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26  
DRAWN BY: TJK  
SCALE: N.T.S.  
PROJ. #: 26-0802

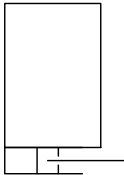
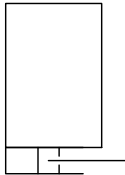
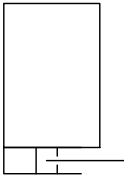
**AHT**  
**ADVANCED HURRICANE TECHNOLOGY**  
16501 OLD AIRPORT HALL RD. FORT MYERS, FL 33913  
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**ROLL-UP SHUTTER  
MULLIONS**

#

DATE

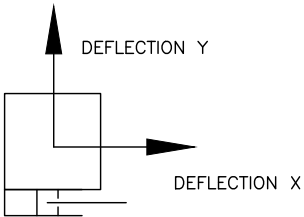
REVISIONS



| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"X6"X1/8" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 72"                                                               | 96"                        | 140                         | 3811                        | 0.31                            | 0.91                            |
|                                                                   | 108"                       | 129                         | 3495                        | 0.46                            | 1.07                            |
|                                                                   | 120"                       | 120                         | 3257                        | 0.65                            | 1.14                            |
|                                                                   | 132"                       | 114                         | 3076                        | 0.90                            | 1.30                            |
|                                                                   | 144"                       | 99                          | 2737                        | 1.11                            | 1.16                            |
| 84"                                                               | 96"                        | 99                          | 3791                        | 0.26                            | 0.97                            |
|                                                                   | 108"                       | 90                          | 3432                        | 0.37                            | 1.18                            |
|                                                                   | 120"                       | 82                          | 3148                        | 0.52                            | 1.26                            |
|                                                                   | 132"                       | 79                          | 2999                        | 0.73                            | 1.56                            |
|                                                                   | 144"                       | 75                          | 2886                        | 0.99                            | 1.62                            |
| 96"                                                               | 96"                        | 75                          | 3810                        | 0.22                            | 1.03                            |
|                                                                   | 108"                       | 67                          | 3443                        | 0.32                            | 1.23                            |
|                                                                   | 120"                       | 59                          | 3192                        | 0.45                            | 1.46                            |
|                                                                   | 132"                       | 54                          | 2949                        | 0.61                            | 1.60                            |
|                                                                   | 144"                       | 50                          | 2775                        | 0.82                            | 1.84                            |
| 108"                                                              | 96"                        | 59                          | 3815                        | 0.20                            | 1.07                            |
|                                                                   | 108"                       | 52                          | 3502                        | 0.28                            | 1.30                            |
|                                                                   | 120"                       | 45                          | 3198                        | 0.39                            | 1.53                            |
|                                                                   | 132"                       | 39                          | 2962                        | 0.53                            | 1.71                            |
|                                                                   | 144"                       | 34                          | 2767                        | 0.70                            | 1.91                            |
| 120"                                                              | 72"                        | 68                          | 4958                        | 0.08                            | 0.63                            |
|                                                                   | 84"                        | 56                          | 4332                        | 0.12                            | 0.82                            |
|                                                                   | 96"                        | 48                          | 3854                        | 0.18                            | 1.04                            |
|                                                                   | 108"                       | 41                          | 3522                        | 0.26                            | 1.34                            |
|                                                                   | 120"                       | 34                          | 3150                        | 0.35                            | 1.56                            |
| 132"                                                              | 72"                        | 57                          | 4932                        | 0.07                            | 0.63                            |
|                                                                   | 78"                        | 52                          | 4623                        | 0.09                            | 0.75                            |
|                                                                   | 84"                        | 47                          | 4290                        | 0.11                            | 0.86                            |
|                                                                   | 90"                        | 43                          | 4019                        | 0.14                            | 0.98                            |
|                                                                   | 96"                        | 40                          | 3810                        | 0.17                            | 1.11                            |
| 144"                                                              | 72"                        | 50                          | 4987                        | 0.07                            | 0.65                            |
|                                                                   | 78"                        | 45                          | 4655                        | 0.09                            | 0.76                            |
|                                                                   | 84"                        | 41                          | 4391                        | 0.11                            | 0.87                            |
|                                                                   | 90"                        | 37                          | 4065                        | 0.13                            | 0.97                            |
|                                                                   | 96"                        | 34                          | 3819                        | 0.15                            | 1.09                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"X6"X1/4" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 84"                                                               | 96"                        | 150                         | 7151                        | 0.21                            | 1.05                            |
|                                                                   | 108"                       | 134                         | 6448                        | 0.30                            | 1.26                            |
|                                                                   | 120"                       | 115                         | 5956                        | 0.42                            | 1.52                            |
|                                                                   | 132"                       | 102                         | 5581                        | 0.57                            | 1.80                            |
|                                                                   | 144"                       | 92                          | 5237                        | 0.75                            | 2.04                            |
| 96"                                                               | 96"                        | 121                         | 7181                        | 0.19                            | 1.09                            |
|                                                                   | 108"                       | 100                         | 6558                        | 0.27                            | 1.36                            |
|                                                                   | 120"                       | 84                          | 5955                        | 0.37                            | 1.62                            |
|                                                                   | 132"                       | 73                          | 5573                        | 0.49                            | 1.89                            |
|                                                                   | 144"                       | 65                          | 5189                        | 0.64                            | 2.16                            |
| 108"                                                              | 96"                        | 99                          | 7288                        | 0.18                            | 1.12                            |
|                                                                   | 108"                       | 78                          | 6504                        | 0.24                            | 1.38                            |
|                                                                   | 120"                       | 64                          | 5996                        | 0.33                            | 1.68                            |
|                                                                   | 132"                       | 55                          | 5594                        | 0.44                            | 1.96                            |
|                                                                   | 144"                       | 48                          | 5156                        | 0.57                            | 2.34                            |
| 120"                                                              | 96"                        | 82                          | 7283                        | 0.16                            | 1.12                            |
|                                                                   | 108"                       | 63                          | 6591                        | 0.23                            | 1.42                            |
|                                                                   | 120"                       | 51                          | 6056                        | 0.31                            | 1.73                            |
|                                                                   | 132"                       | 43                          | 5541                        | 0.40                            | 2.03                            |
|                                                                   | 144"                       | 38                          | 5135                        | 0.52                            | 2.41                            |
| 132"                                                              | 84"                        | 84                          | 8234                        | 0.11                            | 0.89                            |
|                                                                   | 96"                        | 68                          | 7301                        | 0.15                            | 1.15                            |
|                                                                   | 108"                       | 52                          | 6618                        | 0.21                            | 1.41                            |
|                                                                   | 120"                       | 42                          | 5952                        | 0.28                            | 1.72                            |
|                                                                   | 132"                       | 35                          | 5529                        | 0.37                            | 2.11                            |
| 144"                                                              | 84"                        | 73                          | 8260                        | 0.10                            | 0.90                            |
|                                                                   | 93"                        | 63                          | 7508                        | 0.13                            | 1.09                            |
|                                                                   | 102"                       | 51                          | 6942                        | 0.17                            | 1.32                            |
|                                                                   | 111"                       | 42                          | 6454                        | 0.21                            | 1.52                            |
|                                                                   | 120"                       | 36                          | 6036                        | 0.26                            | 1.72                            |
| 156"                                                              | 84"                        | 64                          | 8225                        | 0.10                            | 0.90                            |
|                                                                   | 93"                        | 55                          | 7479                        | 0.13                            | 1.09                            |
|                                                                   | 102"                       | 44                          | 6942                        | 0.16                            | 1.33                            |
|                                                                   | 111"                       | 36                          | 6533                        | 0.21                            | 1.51                            |
|                                                                   | 120"                       | 30                          | 6128                        | 0.26                            | 1.80                            |

| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"X8"X1/4" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 84"                                                               | 96"                        | 150                         | 9421                        | 0.13                            | 1.11                            |
|                                                                   | 108"                       | 150                         | 8564                        | 0.19                            | 1.35                            |
|                                                                   | 120"                       | 133                         | 7891                        | 0.25                            | 1.64                            |
|                                                                   | 132"                       | 116                         | 7378                        | 0.34                            | 1.92                            |
|                                                                   | 144"                       | 104                         | 6863                        | 0.44                            | 2.16                            |
| 96"                                                               | 96"                        | 150                         | 9424                        | 0.12                            | 1.13                            |
|                                                                   | 108"                       | 120                         | 8573                        | 0.17                            | 1.41                            |
|                                                                   | 120"                       | 99                          | 7851                        | 0.22                            | 1.72                            |
|                                                                   | 132"                       | 83                          | 7272                        | 0.30                            | 1.96                            |
|                                                                   | 144"                       | 73                          | 6870                        | 0.39                            | 2.29                            |
| 108"                                                              | 96"                        | 123                         | 9441                        | 0.11                            | 1.14                            |
|                                                                   | 108"                       | 95                          | 8569                        | 0.15                            | 1.40                            |
|                                                                   | 120"                       | 77                          | 7819                        | 0.20                            | 1.69                            |
|                                                                   | 132"                       | 64                          | 7266                        | 0.27                            | 2.06                            |
|                                                                   | 144"                       | 56                          | 6764                        | 0.34                            | 2.37                            |
| 120"                                                              | 96"                        | 102                         | 9408                        | 0.10                            | 1.14                            |
|                                                                   | 108"                       | 77                          | 8564                        | 0.14                            | 1.43                            |
|                                                                   | 120"                       | 61                          | 7829                        | 0.19                            | 1.73                            |
|                                                                   | 132"                       | 52                          | 7285                        | 0.25                            | 2.07                            |
|                                                                   | 144"                       | 43                          | 6843                        | 0.32                            | 2.49                            |
| 132"                                                              | 96"                        | 86                          | 9501                        | 0.10                            | 1.17                            |
|                                                                   | 108"                       | 65                          | 8562                        | 0.13                            | 1.48                            |
|                                                                   | 120"                       | 52                          | 7923                        | 0.18                            | 1.80                            |
|                                                                   | 132"                       | 42                          | 7235                        | 0.23                            | 2.16                            |
|                                                                   | 144"                       | 36                          | 6867                        | 0.30                            | 2.54                            |
| 144"                                                              | 96"                        | 74                          | 9464                        | 0.09                            | 1.17                            |
|                                                                   | 108"                       | 56                          | 8613                        | 0.12                            | 1.48                            |
|                                                                   | 120"                       | 44                          | 7827                        | 0.16                            | 1.79                            |
|                                                                   | 132"                       | 36                          | 7330                        | 0.22                            | 2.13                            |
|                                                                   | 144"                       | 30                          | 6692                        | 0.27                            | 2.51                            |
| 156"                                                              | 84"                        | 82                          | 10649                       | 0.06                            | 0.90                            |
|                                                                   | 96"                        | 65                          | 9500                        | 0.09                            | 1.18                            |
|                                                                   | 108"                       | 48                          | 8606                        | 0.12                            | 1.51                            |
|                                                                   | 120"                       | 38                          | 7883                        | 0.16                            | 1.78                            |
|                                                                   | 132"                       | 30                          | 7196                        | 0.20                            | 2.20                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

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| # | DATE | REVISIONS |
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ADVANCED HURRICANE TECHNOLOGY  
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# ROLL-UP SHUTTER MULLIONS



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CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26

DRAWN BY: TKJ

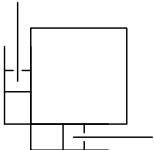
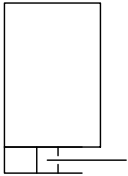
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PROJ. #: 26-0802

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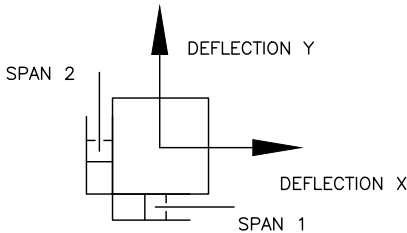
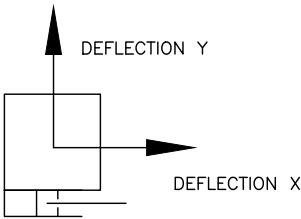
STATE OF FLORIDA  
TREVOR JOHNSON  
PROFESSIONAL ENGINEER  
10/17/26

NO IS TO BE USED TO THE BEST OF MY KNOWLEDGE. THESE PLANS & SPECIFICATIONS ARE IN COMPLIANCE WITH THE BUILDING DEPARTMENT'S REQUIREMENTS.



| MAXIMUM DESIGN PRESSURE OF AN<br>END 4"x6"x3/8" MULLION (6061-T6) |                            |                             |                             |                                 |                                 |
|-------------------------------------------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH<br>UP TO                                            | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 84"                                                               | 96"                        | 150                         | 10170                       | 0.20                            | 1.11                            |
|                                                                   | 108"                       | 150                         | 9162                        | 0.29                            | 1.39                            |
|                                                                   | 120"                       | 139                         | 8445                        | 0.39                            | 1.66                            |
|                                                                   | 132"                       | 120                         | 7801                        | 0.52                            | 1.96                            |
|                                                                   | 144"                       | 105                         | 7338                        | 0.68                            | 2.27                            |
| 96"                                                               | 96"                        | 150                         | 10189                       | 0.18                            | 1.14                            |
|                                                                   | 108"                       | 127                         | 9209                        | 0.26                            | 1.41                            |
|                                                                   | 120"                       | 103                         | 8408                        | 0.34                            | 1.68                            |
|                                                                   | 132"                       | 88                          | 7787                        | 0.45                            | 2.00                            |
|                                                                   | 144"                       | 76                          | 7280                        | 0.59                            | 2.26                            |
| 108"                                                              | 96"                        | 131                         | 10268                       | 0.17                            | 1.16                            |
|                                                                   | 108"                       | 100                         | 9331                        | 0.24                            | 1.46                            |
|                                                                   | 120"                       | 81                          | 8469                        | 0.31                            | 1.76                            |
|                                                                   | 132"                       | 67                          | 7815                        | 0.41                            | 2.06                            |
|                                                                   | 144"                       | 59                          | 7288                        | 0.53                            | 2.44                            |
| 120"                                                              | 96"                        | 108                         | 10262                       | 0.16                            | 1.16                            |
|                                                                   | 108"                       | 82                          | 9296                        | 0.22                            | 1.45                            |
|                                                                   | 120"                       | 66                          | 8469                        | 0.29                            | 1.81                            |
|                                                                   | 132"                       | 54                          | 7908                        | 0.38                            | 2.08                            |
|                                                                   | 144"                       | 45                          | 7301                        | 0.48                            | 2.40                            |
| 132"                                                              | 96"                        | 92                          | 10388                       | 0.15                            | 1.18                            |
|                                                                   | 108"                       | 69                          | 9292                        | 0.21                            | 1.50                            |
|                                                                   | 120"                       | 54                          | 8599                        | 0.28                            | 1.80                            |
|                                                                   | 132"                       | 45                          | 7818                        | 0.35                            | 2.15                            |
|                                                                   | 144"                       | 38                          | 7357                        | 0.45                            | 2.50                            |
| 144"                                                              | 96"                        | 79                          | 10325                       | 0.14                            | 1.21                            |
|                                                                   | 108"                       | 59                          | 9435                        | 0.20                            | 1.49                            |
|                                                                   | 120"                       | 46                          | 8528                        | 0.26                            | 1.86                            |
|                                                                   | 132"                       | 37                          | 7957                        | 0.34                            | 2.17                            |
|                                                                   | 144"                       | 31                          | 7322                        | 0.43                            | 2.63                            |
| 156"                                                              | 84"                        | 90                          | 11647                       | 0.10                            | 0.93                            |
|                                                                   | 96"                        | 69                          | 10474                       | 0.14                            | 1.21                            |
|                                                                   | 108"                       | 51                          | 9369                        | 0.19                            | 1.53                            |
|                                                                   | 120"                       | 40                          | 8652                        | 0.25                            | 1.86                            |
|                                                                   | 132"                       | 32                          | 7806                        | 0.31                            | 2.14                            |

| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"x4"x1/8" MULLION (6063-T6) |                         |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|-------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 60"                                                                 | 48"                     | 96"                        | 76                            | 80                            | 1760                        | 0.42                            | 0.46                            |
|                                                                     |                         | 108"                       | 61                            | 64                            | 1424                        | 0.48                            | 0.46                            |
|                                                                     |                         | 120"                       | 40                            | 42                            | 1432                        | 0.56                            | 0.68                            |
|                                                                     |                         | 132"                       | 31                            | 33                            | 1180                        | 0.47                            | 0.71                            |
|                                                                     |                         | 144"                       | 28                            | 29                            | 1067                        | 0.75                            | 0.71                            |
| 72"                                                                 | 48"                     | 96"                        | 69                            | 75                            | 1665                        | 0.44                            | 0.40                            |
|                                                                     |                         | 108"                       | 46                            | 50                            | 1480                        | 0.57                            | 0.35                            |
|                                                                     |                         | 120"                       | 40                            | 43                            | 1319                        | 0.66                            | 0.41                            |
|                                                                     |                         | 132"                       | 26                            | 28                            | 1171                        | 0.39                            | 0.60                            |
|                                                                     |                         | 144"                       | 17                            | 19                            | 1055                        | 0.57                            | 0.25                            |
| 72"                                                                 | 60"                     | 96"                        | 60                            | 63                            | 1774                        | 0.45                            | 0.45                            |
|                                                                     |                         | 108"                       | 46                            | 48                            | 1385                        | 0.40                            | 0.41                            |
|                                                                     |                         | 120"                       | 31                            | 32                            | 1404                        | 0.54                            | 0.68                            |
|                                                                     |                         | 132"                       | 26                            | 27                            | 1251                        | 0.63                            | 0.71                            |
|                                                                     |                         | 144"                       | 19                            | 20                            | 1013                        | 0.46                            | 0.43                            |
| 96"                                                                 | 48"                     | 84"                        | 41                            | 46                            | 1925                        | 0.21                            | 0.48                            |
|                                                                     |                         | 96"                        | 37                            | 42                            | 1710                        | 0.35                            | 0.56                            |
|                                                                     |                         | 108"                       | 34                            | 38                            | 1556                        | 0.46                            | 0.64                            |
|                                                                     |                         | 120"                       | 27                            | 31                            | 1241                        | 0.45                            | 0.45                            |
|                                                                     |                         | 132"                       | 27                            | 31                            | 1270                        | 0.74                            | 0.71                            |
| 96"                                                                 | 72"                     | 84"                        | 40                            | 43                            | 1911                        | 0.21                            | 0.50                            |
|                                                                     |                         | 96"                        | 36                            | 38                            | 1680                        | 0.26                            | 0.58                            |
|                                                                     |                         | 108"                       | 27                            | 29                            | 1433                        | 0.47                            | 0.35                            |
|                                                                     |                         | 120"                       | 26                            | 28                            | 1380                        | 0.67                            | 0.61                            |
|                                                                     |                         | 132"                       | 17                            | 18                            | 1109                        | 0.45                            | 0.55                            |
| 96"                                                                 | 96"                     | 72"                        | 35                            | 35                            | 2032                        | 0.25                            | 0.25                            |
|                                                                     |                         | 84"                        | 33                            | 33                            | 1842                        | 0.39                            | 0.39                            |
|                                                                     |                         | 96"                        | 31                            | 31                            | 1672                        | 0.47                            | 0.47                            |
|                                                                     |                         | 108"                       | 26                            | 26                            | 1354                        | 0.40                            | 0.40                            |
|                                                                     |                         | 120"                       | 20                            | 20                            | 1481                        | 0.56                            | 0.56                            |
| 120"                                                                | 48"                     | 48"                        | 57                            | 66                            | 3558                        | 0.03                            | 0.20                            |
|                                                                     |                         | 54"                        | 46                            | 53                            | 3087                        | 0.05                            | 0.24                            |
|                                                                     |                         | 60"                        | 41                            | 47                            | 2849                        | 0.07                            | 0.30                            |
|                                                                     |                         | 66"                        | 36                            | 42                            | 2569                        | 0.09                            | 0.37                            |
|                                                                     |                         | 72"                        | 33                            | 38                            | 2420                        | 0.11                            | 0.42                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

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AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

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TKJ Engineering, LLC.

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FL CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26

DRAWN BY: TKJ

SCALE: N.T.S.

PROJ. #: 26-0802



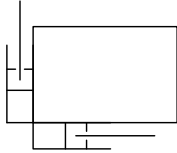
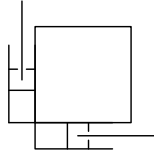
16501 OLD AIRPORT HALL RD. FORT MYERS, FL 33913  
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ROLL-UP SHUTTER  
MULLIONS

#

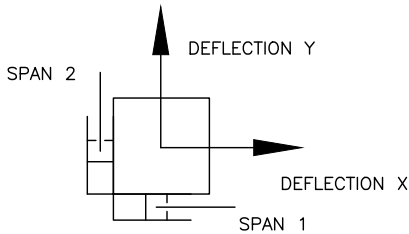
DATE

REVISIONS



| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X4"X1/4" MULLION (6063-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 48"                      | 96"                        | 57                            | 64                            | 3321                        | 0.23                            | 0.68                            |
|                                                                     |                          | 108"                       | 51                            | 58                            | 2931                        | 0.41                            | 0.87                            |
|                                                                     |                          | 120"                       | 45                            | 51                            | 2736                        | 0.60                            | 0.94                            |
|                                                                     |                          | 132"                       | 42                            | 47                            | 2566                        | 0.75                            | 1.06                            |
|                                                                     |                          | 144"                       | 33                            | 37                            | 2045                        | 0.55                            | 0.76                            |
| 96"                                                                 | 72"                      | 96"                        | 53                            | 56                            | 3338                        | 0.29                            | 0.67                            |
|                                                                     |                          | 108"                       | 48                            | 51                            | 2981                        | 0.43                            | 0.85                            |
|                                                                     |                          | 120"                       | 43                            | 46                            | 2693                        | 0.52                            | 0.91                            |
|                                                                     |                          | 132"                       | 38                            | 40                            | 2296                        | 0.49                            | 0.97                            |
|                                                                     |                          | 144"                       | 37                            | 39                            | 2238                        | 0.81                            | 1.14                            |
| 96"                                                                 | 96"                      | 96"                        | 41                            | 41                            | 3088                        | 0.50                            | 0.50                            |
|                                                                     |                          | 108"                       | 39                            | 39                            | 2905                        | 0.64                            | 0.64                            |
|                                                                     |                          | 120"                       | 37                            | 37                            | 2691                        | 0.78                            | 0.78                            |
|                                                                     |                          | 132"                       | 29                            | 29                            | 2142                        | 0.53                            | 0.53                            |
|                                                                     |                          | 144"                       | 29                            | 29                            | 2200                        | 0.80                            | 0.80                            |
| 120"                                                                | 48"                      | 72"                        | 55                            | 63                            | 4518                        | 0.08                            | 0.46                            |
|                                                                     |                          | 84"                        | 44                            | 51                            | 3883                        | 0.16                            | 0.60                            |
|                                                                     |                          | 96"                        | 37                            | 43                            | 3411                        | 0.21                            | 0.71                            |
|                                                                     |                          | 108"                       | 33                            | 38                            | 3104                        | 0.30                            | 0.88                            |
|                                                                     |                          | 120"                       | 28                            | 32                            | 2617                        | 0.28                            | 1.06                            |
| 120"                                                                | 72"                      | 66"                        | 57                            | 63                            | 4735                        | 0.10                            | 0.36                            |
|                                                                     |                          | 75"                        | 49                            | 54                            | 4283                        | 0.12                            | 0.48                            |
|                                                                     |                          | 84"                        | 42                            | 46                            | 3825                        | 0.15                            | 0.56                            |
|                                                                     |                          | 93"                        | 38                            | 42                            | 3537                        | 0.19                            | 0.71                            |
|                                                                     |                          | 102"                       | 34                            | 38                            | 3209                        | 0.21                            | 0.86                            |
| 120"                                                                | 96"                      | 60"                        | 48                            | 50                            | 4499                        | 0.16                            | 0.23                            |
|                                                                     |                          | 69"                        | 41                            | 43                            | 4011                        | 0.20                            | 0.32                            |
|                                                                     |                          | 78"                        | 36                            | 38                            | 3662                        | 0.24                            | 0.39                            |
|                                                                     |                          | 87"                        | 32                            | 34                            | 3254                        | 0.28                            | 0.51                            |
|                                                                     |                          | 96"                        | 30                            | 32                            | 3073                        | 0.37                            | 0.62                            |
| 120"                                                                | 120"                     | 60"                        | 40                            | 40                            | 4423                        | 0.20                            | 0.20                            |
|                                                                     |                          | 69"                        | 34                            | 34                            | 3981                        | 0.26                            | 0.26                            |
|                                                                     |                          | 78"                        | 29                            | 29                            | 3518                        | 0.31                            | 0.31                            |
|                                                                     |                          | 87"                        | 26                            | 26                            | 3148                        | 0.42                            | 0.42                            |
|                                                                     |                          | 96"                        | 24                            | 24                            | 2921                        | 0.51                            | 0.51                            |

| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X6"X1/8" MULLION (6063-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 48"                      | 96"                        | 46                            | 52                            | 2775                        | 0.33                            | 0.41                            |
|                                                                     |                          | 108"                       | 41                            | 46                            | 2483                        | 0.43                            | 0.46                            |
|                                                                     |                          | 120"                       | 35                            | 40                            | 2056                        | 0.51                            | 0.47                            |
|                                                                     |                          | 132"                       | 31                            | 35                            | 1810                        | 0.48                            | 0.46                            |
|                                                                     |                          | 144"                       | 32                            | 36                            | 1780                        | 1.06                            | 0.64                            |
| 96"                                                                 | 72"                      | 96"                        | 45                            | 48                            | 2815                        | 0.31                            | 0.41                            |
|                                                                     |                          | 108"                       | 38                            | 40                            | 2310                        | 0.30                            | 0.44                            |
|                                                                     |                          | 120"                       | 37                            | 39                            | 2246                        | 0.52                            | 0.53                            |
|                                                                     |                          | 132"                       | 35                            | 37                            | 2045                        | 0.72                            | 0.64                            |
|                                                                     |                          | 144"                       | 26                            | 28                            | 1686                        | 1.11                            | 0.42                            |
| 96"                                                                 | 96"                      | 96"                        | 35                            | 35                            | 2426                        | 0.45                            | 0.32                            |
|                                                                     |                          | 108"                       | 34                            | 34                            | 2317                        | 0.61                            | 0.42                            |
|                                                                     |                          | 120"                       | 29                            | 29                            | 1941                        | 0.47                            | 0.37                            |
|                                                                     |                          | 132"                       | 27                            | 27                            | 1763                        | 0.74                            | 0.35                            |
|                                                                     |                          | 144"                       | 21                            | 21                            | 1784                        | 0.90                            | 0.55                            |
| 120"                                                                | 48"                      | 60"                        | 60                            | 69                            | 4764                        | 0.06                            | 0.20                            |
|                                                                     |                          | 72"                        | 46                            | 53                            | 3994                        | 0.12                            | 0.28                            |
|                                                                     |                          | 84"                        | 36                            | 42                            | 3292                        | 0.15                            | 0.37                            |
|                                                                     |                          | 96"                        | 31                            | 36                            | 2894                        | 0.23                            | 0.48                            |
|                                                                     |                          | 108"                       | 26                            | 30                            | 2485                        | 0.24                            | 0.50                            |
| 120"                                                                | 72"                      | 66"                        | 50                            | 55                            | 4304                        | 0.10                            | 0.24                            |
|                                                                     |                          | 75"                        | 42                            | 46                            | 3782                        | 0.12                            | 0.31                            |
|                                                                     |                          | 84"                        | 37                            | 41                            | 3464                        | 0.16                            | 0.38                            |
|                                                                     |                          | 93"                        | 32                            | 35                            | 3038                        | 0.19                            | 0.45                            |
|                                                                     |                          | 102"                       | 27                            | 30                            | 2663                        | 0.35                            | 0.51                            |
| 120"                                                                | 96"                      | 60"                        | 41                            | 43                            | 3801                        | 0.16                            | 0.14                            |
|                                                                     |                          | 69"                        | 35                            | 37                            | 3401                        | 0.21                            | 0.20                            |
|                                                                     |                          | 78"                        | 31                            | 33                            | 3080                        | 0.24                            | 0.26                            |
|                                                                     |                          | 87"                        | 29                            | 31                            | 2939                        | 0.32                            | 0.35                            |
|                                                                     |                          | 96"                        | 27                            | 28                            | 2732                        | 0.35                            | 0.42                            |
| 120"                                                                | 120"                     | 54"                        | 38                            | 38                            | 3936                        | 0.16                            | 0.09                            |
|                                                                     |                          | 63"                        | 31                            | 31                            | 3414                        | 0.21                            | 0.13                            |
|                                                                     |                          | 72"                        | 27                            | 27                            | 3101                        | 0.28                            | 0.17                            |
|                                                                     |                          | 81"                        | 24                            | 24                            | 2800                        | 0.38                            | 0.22                            |
|                                                                     |                          | 90"                        | 22                            | 22                            | 2597                        | 0.44                            | 0.27                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

ROLL-UP SHUTTER  
MULLIONS



TKJ Engineering, LLC.

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A PROFESSIONAL ENGINEER'S CERTIFICATE OF AUTHORIZATION NUMBER: 28582

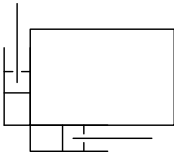
DATE: 10/17/26  
DRAWN BY: TKJ  
SCALE: N.T.S.  
PROJ. #: 26-0802

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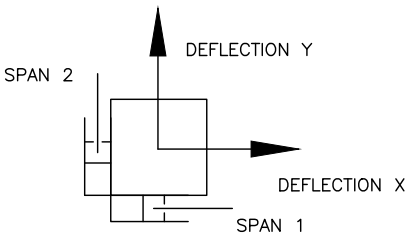
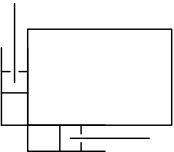
19 OF 29

STATE OF FLORIDA  
TREVOR JOHNSON  
PROFESSIONAL ENGINEER  
10/17/26  
10/17/26  
10/17/26

| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X6"X1/4" MULLION (6063-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 96"                      | 96"                        | 50                            | 50                            | 4583                        | 0.52                            | 0.31                            |
|                                                                     |                          | 108"                       | 46                            | 46                            | 4252                        | 0.65                            | 0.40                            |
|                                                                     |                          | 120"                       | 43                            | 43                            | 3947                        | 0.79                            | 0.50                            |
|                                                                     |                          | 132"                       | 41                            | 41                            | 3720                        | 0.95                            | 0.64                            |
|                                                                     |                          | 144"                       | 39                            | 39                            | 3460                        | 1.10                            | 0.75                            |
| 120"                                                                | 48"                      | 96"                        | 55                            | 63                            | 5887                        | 0.19                            | 0.52                            |
|                                                                     |                          | 108"                       | 45                            | 52                            | 5068                        | 0.34                            | 0.62                            |
|                                                                     |                          | 120"                       | 39                            | 45                            | 4532                        | 0.40                            | 0.75                            |
|                                                                     |                          | 132"                       | 35                            | 40                            | 4162                        | 0.49                            | 0.86                            |
|                                                                     |                          | 144"                       | 32                            | 37                            | 3857                        | 0.69                            | 0.96                            |
| 120"                                                                | 72"                      | 96"                        | 51                            | 56                            | 5696                        | 0.25                            | 0.50                            |
|                                                                     |                          | 108"                       | 43                            | 47                            | 4986                        | 0.30                            | 0.62                            |
|                                                                     |                          | 120"                       | 38                            | 42                            | 4522                        | 0.39                            | 0.73                            |
|                                                                     |                          | 132"                       | 34                            | 38                            | 4161                        | 0.45                            | 0.84                            |
|                                                                     |                          | 144"                       | 28                            | 31                            | 3570                        | 0.72                            | 0.89                            |
| 120"                                                                | 96"                      | 96"                        | 39                            | 41                            | 4900                        | 0.39                            | 0.39                            |
|                                                                     |                          | 105"                       | 36                            | 38                            | 4567                        | 0.47                            | 0.49                            |
|                                                                     |                          | 114"                       | 34                            | 36                            | 4404                        | 0.52                            | 0.57                            |
|                                                                     |                          | 123"                       | 32                            | 34                            | 4111                        | 0.64                            | 0.70                            |
|                                                                     |                          | 132"                       | 31                            | 33                            | 4055                        | 0.69                            | 0.81                            |
| 120"                                                                | 120"                     | 84"                        | 36                            | 36                            | 5083                        | 0.38                            | 0.23                            |
|                                                                     |                          | 93"                        | 32                            | 32                            | 4652                        | 0.48                            | 0.28                            |
|                                                                     |                          | 102"                       | 29                            | 29                            | 4253                        | 0.57                            | 0.36                            |
|                                                                     |                          | 111"                       | 27                            | 27                            | 4012                        | 0.71                            | 0.42                            |
|                                                                     |                          | 120"                       | 25                            | 25                            | 3718                        | 0.82                            | 0.48                            |
| 144"                                                                | 48"                      | 84"                        | 51                            | 60                            | 6874                        | 0.14                            | 0.42                            |
|                                                                     |                          | 93"                        | 42                            | 49                            | 6078                        | 0.19                            | 0.49                            |
|                                                                     |                          | 102"                       | 36                            | 42                            | 5401                        | 0.22                            | 0.58                            |
|                                                                     |                          | 111"                       | 32                            | 38                            | 4981                        | 0.26                            | 0.68                            |
|                                                                     |                          | 120"                       | 29                            | 34                            | 4644                        | 0.35                            | 0.76                            |
| 144"                                                                | 72"                      | 78"                        | 53                            | 60                            | 7144                        | 0.14                            | 0.35                            |
|                                                                     |                          | 87"                        | 43                            | 49                            | 6205                        | 0.13                            | 0.42                            |
|                                                                     |                          | 96"                        | 39                            | 44                            | 5829                        | 0.20                            | 0.53                            |
|                                                                     |                          | 105"                       | 33                            | 37                            | 5148                        | 0.19                            | 0.59                            |
|                                                                     |                          | 114"                       | 31                            | 35                            | 4974                        | 0.26                            | 0.72                            |



| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X8"X1/4" MULLION (6063-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 96"                      | 96"                        | 61                            | 61                            | 6395                        | 0.53                            | 0.23                            |
|                                                                     |                          | 108"                       | 54                            | 54                            | 5723                        | 0.67                            | 0.29                            |
|                                                                     |                          | 120"                       | 50                            | 50                            | 5341                        | 0.82                            | 0.37                            |
|                                                                     |                          | 132"                       | 46                            | 46                            | 4914                        | 0.93                            | 0.45                            |
|                                                                     |                          | 144"                       | 44                            | 44                            | 4741                        | 1.06                            | 0.53                            |
| 120"                                                                | 48"                      | 96"                        | 73                            | 84                            | 8633                        | 0.24                            | 0.38                            |
|                                                                     |                          | 108"                       | 62                            | 71                            | 7722                        | 0.30                            | 0.49                            |
|                                                                     |                          | 120"                       | 54                            | 62                            | 7000                        | 0.38                            | 0.59                            |
|                                                                     |                          | 132"                       | 43                            | 50                            | 5893                        | 0.49                            | 0.63                            |
|                                                                     |                          | 144"                       | 40                            | 46                            | 5583                        | 0.69                            | 0.76                            |
| 120"                                                                | 72"                      | 96"                        | 66                            | 73                            | 8197                        | 0.29                            | 0.36                            |
|                                                                     |                          | 108"                       | 59                            | 65                            | 7605                        | 0.33                            | 0.48                            |
|                                                                     |                          | 120"                       | 49                            | 54                            | 6683                        | 0.45                            | 0.54                            |
|                                                                     |                          | 132"                       | 43                            | 47                            | 6017                        | 0.51                            | 0.65                            |
|                                                                     |                          | 144"                       | 37                            | 41                            | 5324                        | 0.52                            | 0.70                            |
| 120"                                                                | 96"                      | 96"                        | 48                            | 50                            | 6735                        | 0.43                            | 0.27                            |
|                                                                     |                          | 108"                       | 43                            | 45                            | 6257                        | 0.53                            | 0.35                            |
|                                                                     |                          | 120"                       | 39                            | 41                            | 5836                        | 0.63                            | 0.45                            |
|                                                                     |                          | 132"                       | 36                            | 38                            | 5451                        | 0.69                            | 0.57                            |
|                                                                     |                          | 144"                       | 34                            | 36                            | 5220                        | 0.87                            | 0.68                            |
| 120"                                                                | 120"                     | 96"                        | 39                            | 39                            | 6282                        | 0.54                            | 0.22                            |
|                                                                     |                          | 108"                       | 34                            | 34                            | 5657                        | 0.68                            | 0.29                            |
|                                                                     |                          | 120"                       | 31                            | 31                            | 5313                        | 0.84                            | 0.36                            |
|                                                                     |                          | 132"                       | 28                            | 28                            | 4856                        | 0.94                            | 0.45                            |
|                                                                     |                          | 144"                       | 26                            | 26                            | 4523                        | 1.10                            | 0.54                            |
| 144"                                                                | 48"                      | 84"                        | 69                            | 81                            | 10047                       | 0.15                            | 0.31                            |
|                                                                     |                          | 96"                        | 56                            | 66                            | 8836                        | 0.19                            | 0.39                            |
|                                                                     |                          | 108"                       | 46                            | 54                            | 7816                        | 0.31                            | 0.48                            |
|                                                                     |                          | 120"                       | 38                            | 45                            | 6788                        | 0.34                            | 0.58                            |
|                                                                     |                          | 132"                       | 34                            | 40                            | 6278                        | 0.50                            | 0.71                            |
| 144"                                                                | 72"                      | 84"                        | 63                            | 71                            | 9505                        | 0.20                            | 0.29                            |
|                                                                     |                          | 96"                        | 53                            | 60                            | 8633                        | 0.24                            | 0.39                            |
|                                                                     |                          | 108"                       | 45                            | 51                            | 7855                        | 0.31                            | 0.48                            |
|                                                                     |                          | 120"                       | 38                            | 43                            | 6904                        | 0.37                            | 0.60                            |
|                                                                     |                          | 132"                       | 34                            | 38                            | 6391                        | 0.44                            | 0.73                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

# ROLL-UP SHUTTER MULLIONS

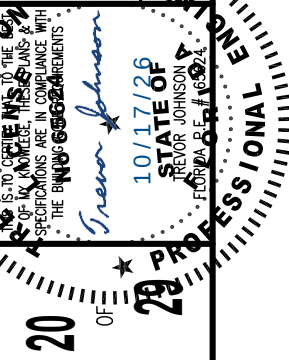


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PROFESSIONAL ENGINEER  
CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26  
DRAWN BY: TKJ  
SCALE: N.T.S.  
PROJ. #: 26-0802

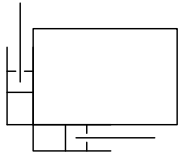


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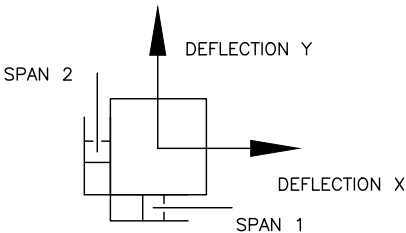
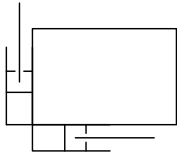
DATE

REVISIONS

| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X6"X3/8" MULLION (6063-T6) |                         |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|-------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WDTH 1<br>UP TO                                             | SPAN<br>WDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 48"                     | 96"                        | 106                           | 119                           | 8169                        | 0.22                            | 0.52                            |
|                                                                     |                         | 108"                       | 88                            | 99                            | 7175                        | 0.36                            | 0.62                            |
|                                                                     |                         | 120"                       | 77                            | 87                            | 6403                        | 0.47                            | 0.74                            |
|                                                                     |                         | 132"                       | 69                            | 78                            | 5802                        | 0.59                            | 0.87                            |
|                                                                     |                         | 144"                       | 61                            | 69                            | 5177                        | 0.60                            | 0.95                            |
| 96"                                                                 | 72"                     | 96"                        | 86                            | 91                            | 7312                        | 0.38                            | 0.43                            |
|                                                                     |                         | 108"                       | 78                            | 83                            | 6784                        | 0.44                            | 0.56                            |
|                                                                     |                         | 120"                       | 72                            | 77                            | 6327                        | 0.52                            | 0.72                            |
|                                                                     |                         | 132"                       | 64                            | 68                            | 5674                        | 0.61                            | 0.84                            |
|                                                                     |                         | 144"                       | 57                            | 61                            | 5253                        | 0.88                            | 0.93                            |
| 96"                                                                 | 96"                     | 96"                        | 63                            | 63                            | 6497                        | 0.52                            | 0.32                            |
|                                                                     |                         | 108"                       | 57                            | 57                            | 5982                        | 0.66                            | 0.42                            |
|                                                                     |                         | 120"                       | 52                            | 52                            | 5454                        | 0.84                            | 0.52                            |
|                                                                     |                         | 132"                       | 49                            | 49                            | 5161                        | 1.00                            | 0.64                            |
|                                                                     |                         | 144"                       | 46                            | 46                            | 4804                        | 1.16                            | 0.76                            |
| 120"                                                                | 48"                     | 96"                        | 74                            | 85                            | 8305                        | 0.22                            | 0.53                            |
|                                                                     |                         | 108"                       | 63                            | 73                            | 7441                        | 0.28                            | 0.66                            |
|                                                                     |                         | 120"                       | 55                            | 63                            | 6771                        | 0.34                            | 0.78                            |
|                                                                     |                         | 132"                       | 46                            | 53                            | 5934                        | 0.55                            | 0.89                            |
|                                                                     |                         | 144"                       | 41                            | 47                            | 5416                        | 0.64                            | 1.03                            |
| 120"                                                                | 72"                     | 96"                        | 68                            | 75                            | 8039                        | 0.29                            | 0.50                            |
|                                                                     |                         | 108"                       | 60                            | 66                            | 7360                        | 0.32                            | 0.66                            |
|                                                                     |                         | 120"                       | 50                            | 55                            | 6467                        | 0.42                            | 0.75                            |
|                                                                     |                         | 132"                       | 44                            | 49                            | 5901                        | 0.48                            | 0.89                            |
|                                                                     |                         | 144"                       | 38                            | 42                            | 5139                        | 0.48                            | 1.02                            |
| 120"                                                                | 96"                     | 96"                        | 49                            | 52                            | 6716                        | 0.42                            | 0.37                            |
|                                                                     |                         | 108"                       | 44                            | 46                            | 6173                        | 0.55                            | 0.49                            |
|                                                                     |                         | 120"                       | 41                            | 43                            | 5904                        | 0.67                            | 0.63                            |
|                                                                     |                         | 132"                       | 37                            | 39                            | 5367                        | 0.78                            | 0.76                            |
|                                                                     |                         | 144"                       | 35                            | 37                            | 5184                        | 0.87                            | 0.91                            |
| 120"                                                                | 120"                    | 96"                        | 41                            | 41                            | 6504                        | 0.54                            | 0.32                            |
|                                                                     |                         | 108"                       | 36                            | 36                            | 5894                        | 0.68                            | 0.42                            |
|                                                                     |                         | 120"                       | 32                            | 32                            | 5324                        | 0.86                            | 0.52                            |
|                                                                     |                         | 132"                       | 29                            | 29                            | 4886                        | 0.98                            | 0.62                            |
|                                                                     |                         | 144"                       | 27                            | 27                            | 4607                        | 1.21                            | 0.68                            |



| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X6"X3/8" MULLION (6063-T6) |                         |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|-------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WDTH 1<br>UP TO                                             | SPAN<br>WDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 144"                                                                | 72"                     | 84"                        | 63                            | 71                            | 9128                        | 0.19                            | 0.40                            |
|                                                                     |                         | 96"                        | 54                            | 61                            | 8399                        | 0.22                            | 0.53                            |
|                                                                     |                         | 108"                       | 46                            | 52                            | 7590                        | 0.29                            | 0.67                            |
|                                                                     |                         | 120"                       | 40                            | 45                            | 6864                        | 0.37                            | 0.84                            |
|                                                                     |                         | 132"                       | 35                            | 40                            | 6272                        | 0.41                            | 1.01                            |
| 144"                                                                | 96"                     | 84"                        | 48                            | 52                            | 7823                        | 0.29                            | 0.31                            |
|                                                                     |                         | 96"                        | 41                            | 45                            | 7091                        | 0.39                            | 0.42                            |
|                                                                     |                         | 108"                       | 37                            | 40                            | 6668                        | 0.44                            | 0.56                            |
|                                                                     |                         | 120"                       | 33                            | 36                            | 6161                        | 0.51                            | 0.70                            |
|                                                                     |                         | 132"                       | 30                            | 33                            | 5688                        | 0.63                            | 0.89                            |
| 144"                                                                | 120"                    | 84"                        | 40                            | 42                            | 7400                        | 0.37                            | 0.27                            |
|                                                                     |                         | 96"                        | 34                            | 35                            | 6620                        | 0.47                            | 0.36                            |
|                                                                     |                         | 108"                       | 29                            | 30                            | 5872                        | 0.60                            | 0.45                            |
|                                                                     |                         | 120"                       | 26                            | 27                            | 5401                        | 0.73                            | 0.59                            |
|                                                                     |                         | 132"                       | 24                            | 25                            | 5144                        | 0.80                            | 0.74                            |
| 144"                                                                | 144"                    | 72"                        | 44                            | 44                            | 8344                        | 0.31                            | 0.17                            |
|                                                                     |                         | 84"                        | 35                            | 35                            | 7227                        | 0.42                            | 0.25                            |
|                                                                     |                         | 96"                        | 29                            | 29                            | 6380                        | 0.54                            | 0.31                            |
|                                                                     |                         | 108"                       | 25                            | 25                            | 5740                        | 0.70                            | 0.40                            |
|                                                                     |                         | 120"                       | 22                            | 22                            | 5209                        | 0.82                            | 0.51                            |
| 168"                                                                | 48"                     | 78"                        | 63                            | 74                            | 10500                       | 0.10                            | 0.37                            |
|                                                                     |                         | 87"                        | 53                            | 63                            | 9480                        | 0.13                            | 0.46                            |
|                                                                     |                         | 96"                        | 45                            | 53                            | 8599                        | 0.21                            | 0.55                            |
|                                                                     |                         | 105"                       | 39                            | 46                            | 7842                        | 0.24                            | 0.64                            |
|                                                                     |                         | 114"                       | 34                            | 40                            | 7115                        | 0.28                            | 0.76                            |
| 168"                                                                | 72"                     | 72"                        | 65                            | 74                            | 10668                       | 0.13                            | 0.29                            |
|                                                                     |                         | 81"                        | 56                            | 64                            | 9816                        | 0.15                            | 0.39                            |
|                                                                     |                         | 90"                        | 48                            | 55                            | 9000                        | 0.17                            | 0.49                            |
|                                                                     |                         | 99"                        | 41                            | 47                            | 8170                        | 0.19                            | 0.57                            |
|                                                                     |                         | 108"                       | 37                            | 42                            | 7697                        | 0.23                            | 0.69                            |
| 168"                                                                | 96"                     | 72"                        | 51                            | 57                            | 9263                        | 0.20                            | 0.24                            |
|                                                                     |                         | 81"                        | 44                            | 49                            | 8524                        | 0.26                            | 0.32                            |
|                                                                     |                         | 90"                        | 38                            | 42                            | 7760                        | 0.30                            | 0.40                            |
|                                                                     |                         | 99"                        | 34                            | 38                            | 7261                        | 0.35                            | 0.50                            |
|                                                                     |                         | 108"                       | 31                            | 34                            | 6875                        | 0.40                            | 0.60                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.



## ROLL-UP SHUTTER MULLIONS

**TKJ Engineering, LLC.**

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PROFESSIONAL ENGINEER  
CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26  
DRAWN BY: TKJ  
SCALE: N.T.S.  
PROJ. #: 26-0802

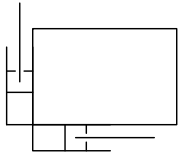
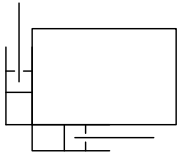
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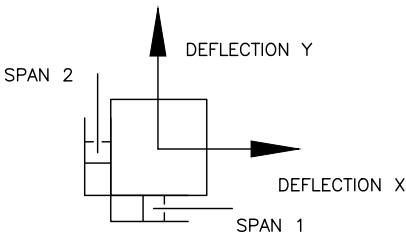


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| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"x6"x1/2" MULLION (6063-T6) |                         |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|-------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 48"                     | 96"                        | 130                           | 146                           | 10456                       | 0.25                            | 0.52                            |
|                                                                     |                         | 108"                       | 109                           | 123                           | 9146                        | 0.30                            | 0.65                            |
|                                                                     |                         | 120"                       | 92                            | 104                           | 8141                        | 0.48                            | 0.75                            |
|                                                                     |                         | 132"                       | 81                            | 91                            | 7331                        | 0.57                            | 0.86                            |
|                                                                     |                         | 144"                       | 75                            | 85                            | 6891                        | 0.78                            | 1.04                            |
| 96"                                                                 | 72"                     | 96"                        | 100                           | 106                           | 9049                        | 0.41                            | 0.43                            |
|                                                                     |                         | 108"                       | 90                            | 96                            | 8355                        | 0.51                            | 0.56                            |
|                                                                     |                         | 120"                       | 83                            | 88                            | 7809                        | 0.59                            | 0.71                            |
|                                                                     |                         | 132"                       | 76                            | 81                            | 7338                        | 0.64                            | 0.85                            |
|                                                                     |                         | 144"                       | 68                            | 72                            | 6604                        | 0.72                            | 1.00                            |
| 96"                                                                 | 96"                     | 96"                        | 75                            | 75                            | 8179                        | 0.56                            | 0.33                            |
|                                                                     |                         | 108"                       | 66                            | 66                            | 7419                        | 0.68                            | 0.40                            |
|                                                                     |                         | 120"                       | 60                            | 60                            | 6830                        | 0.87                            | 0.50                            |
|                                                                     |                         | 132"                       | 55                            | 55                            | 6339                        | 0.96                            | 0.60                            |
|                                                                     |                         | 144"                       | 53                            | 53                            | 6131                        | 1.24                            | 0.76                            |
| 120"                                                                | 48"                     | 96"                        | 91                            | 105                           | 10514                       | 0.23                            | 0.54                            |
|                                                                     |                         | 108"                       | 78                            | 90                            | 9489                        | 0.32                            | 0.68                            |
|                                                                     |                         | 120"                       | 68                            | 78                            | 8643                        | 0.40                            | 0.84                            |
|                                                                     |                         | 132"                       | 58                            | 67                            | 7665                        | 0.44                            | 0.95                            |
|                                                                     |                         | 144"                       | 53                            | 61                            | 7208                        | 0.58                            | 1.12                            |
| 120"                                                                | 72"                     | 96"                        | 78                            | 86                            | 9626                        | 0.31                            | 0.48                            |
|                                                                     |                         | 108"                       | 71                            | 78                            | 9101                        | 0.38                            | 0.65                            |
|                                                                     |                         | 120"                       | 62                            | 68                            | 8248                        | 0.39                            | 0.80                            |
|                                                                     |                         | 132"                       | 54                            | 60                            | 7560                        | 0.57                            | 0.92                            |
|                                                                     |                         | 144"                       | 48                            | 53                            | 6926                        | 0.66                            | 1.05                            |
| 120"                                                                | 96"                     | 96"                        | 60                            | 63                            | 8592                        | 0.46                            | 0.37                            |
|                                                                     |                         | 108"                       | 52                            | 55                            | 7704                        | 0.59                            | 0.50                            |
|                                                                     |                         | 120"                       | 47                            | 49                            | 7140                        | 0.69                            | 0.61                            |
|                                                                     |                         | 132"                       | 44                            | 46                            | 6850                        | 0.83                            | 0.78                            |
|                                                                     |                         | 144"                       | 40                            | 42                            | 6320                        | 0.93                            | 0.89                            |
| 120"                                                                | 120"                    | 96"                        | 49                            | 49                            | 8074                        | 0.55                            | 0.33                            |
|                                                                     |                         | 108"                       | 42                            | 42                            | 7224                        | 0.69                            | 0.40                            |
|                                                                     |                         | 120"                       | 38                            | 38                            | 6703                        | 0.88                            | 0.52                            |
|                                                                     |                         | 132"                       | 34                            | 34                            | 6150                        | 0.98                            | 0.63                            |
|                                                                     |                         | 144"                       | 32                            | 32                            | 5864                        | 1.28                            | 0.74                            |

| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"x6"x1/2" MULLION (6063-T6) |                         |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|-------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 144"                                                                | 72"                     | 96"                        | 66                            | 74                            | 10435                       | 0.26                            | 0.54                            |
|                                                                     |                         | 108"                       | 58                            | 65                            | 9678                        | 0.29                            | 0.69                            |
|                                                                     |                         | 120"                       | 48                            | 54                            | 8537                        | 0.39                            | 0.82                            |
|                                                                     |                         | 132"                       | 42                            | 47                            | 7760                        | 0.45                            | 1.00                            |
|                                                                     |                         | 144"                       | 35                            | 40                            | 6755                        | 0.39                            | 1.11                            |
| 144"                                                                | 96"                     | 96"                        | 50                            | 54                            | 8923                        | 0.41                            | 0.42                            |
|                                                                     |                         | 108"                       | 43                            | 47                            | 8047                        | 0.49                            | 0.55                            |
|                                                                     |                         | 120"                       | 39                            | 42                            | 7540                        | 0.58                            | 0.71                            |
|                                                                     |                         | 132"                       | 35                            | 38                            | 7009                        | 0.66                            | 0.85                            |
|                                                                     |                         | 144"                       | 33                            | 36                            | 6729                        | 0.81                            | 1.08                            |
| 144"                                                                | 120"                    | 96"                        | 41                            | 43                            | 8287                        | 0.50                            | 0.37                            |
|                                                                     |                         | 108"                       | 35                            | 37                            | 7480                        | 0.60                            | 0.45                            |
|                                                                     |                         | 120"                       | 31                            | 32                            | 6826                        | 0.71                            | 0.57                            |
|                                                                     |                         | 132"                       | 28                            | 29                            | 6314                        | 0.84                            | 0.72                            |
|                                                                     |                         | 144"                       | 26                            | 27                            | 6009                        | 1.04                            | 0.85                            |
| 144"                                                                | 144"                    | 96"                        | 36                            | 36                            | 8145                        | 0.56                            | 0.32                            |
|                                                                     |                         | 108"                       | 30                            | 30                            | 7168                        | 0.71                            | 0.39                            |
|                                                                     |                         | 120"                       | 27                            | 27                            | 6705                        | 0.90                            | 0.51                            |
|                                                                     |                         | 132"                       | 24                            | 24                            | 6109                        | 1.08                            | 0.64                            |
|                                                                     |                         | 144"                       | 22                            | 22                            | 5755                        | 1.23                            | 0.77                            |
| 156"                                                                | 48"                     | 96"                        | 65                            | 76                            | 11064                       | 0.20                            | 0.58                            |
|                                                                     |                         | 108"                       | 54                            | 64                            | 9904                        | 0.24                            | 0.70                            |
|                                                                     |                         | 120"                       | 43                            | 51                            | 8467                        | 0.33                            | 0.81                            |
|                                                                     |                         | 132"                       | 39                            | 46                            | 7970                        | 0.48                            | 1.03                            |
|                                                                     |                         | 144"                       | 34                            | 40                            | 7261                        | 0.58                            | 1.16                            |
| 156"                                                                | 72"                     | 96"                        | 60                            | 68                            | 10613                       | 0.24                            | 0.54                            |
|                                                                     |                         | 108"                       | 50                            | 57                            | 9509                        | 0.29                            | 0.68                            |
|                                                                     |                         | 120"                       | 43                            | 49                            | 8671                        | 0.34                            | 0.81                            |
|                                                                     |                         | 132"                       | 38                            | 43                            | 7916                        | 0.43                            | 1.03                            |
|                                                                     |                         | 144"                       | 34                            | 39                            | 7372                        | 0.51                            | 1.23                            |
| 156"                                                                | 96"                     | 96"                        | 46                            | 51                            | 9119                        | 0.40                            | 0.44                            |
|                                                                     |                         | 108"                       | 40                            | 44                            | 8305                        | 0.45                            | 0.58                            |
|                                                                     |                         | 120"                       | 36                            | 40                            | 7782                        | 0.57                            | 0.74                            |
|                                                                     |                         | 132"                       | 33                            | 36                            | 7343                        | 0.62                            | 0.93                            |
|                                                                     |                         | 144"                       | 30                            | 33                            | 6869                        | 0.68                            | 1.13                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

ROLL-UP SHUTTER  
MULLIONS



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A CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26

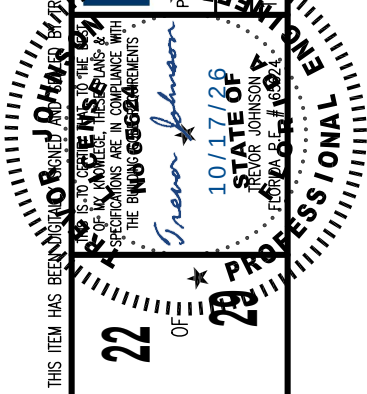
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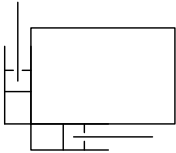
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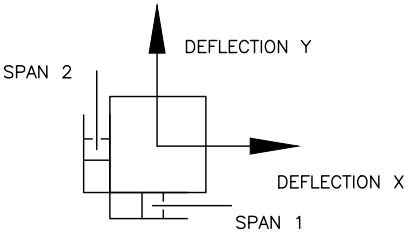
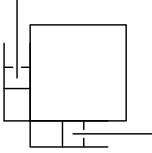


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| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"x6"x1/2" MULLION (6063-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 156"                                                                | 120"                     | 84"                        | 46                            | 49                            | 9502                        | 0.37                            | 0.28                            |
|                                                                     |                          | 96"                        | 38                            | 40                            | 8379                        | 0.48                            | 0.37                            |
|                                                                     |                          | 108"                       | 33                            | 35                            | 7693                        | 0.61                            | 0.49                            |
|                                                                     |                          | 120"                       | 29                            | 31                            | 7050                        | 0.74                            | 0.61                            |
|                                                                     |                          | 132"                       | 25                            | 27                            | 6325                        | 0.74                            | 0.71                            |
| 168"                                                                | 48"                      | 84"                        | 72                            | 85                            | 12569                       | 0.14                            | 0.45                            |
|                                                                     |                          | 96"                        | 58                            | 69                            | 11033                       | 0.19                            | 0.58                            |
|                                                                     |                          | 108"                       | 49                            | 58                            | 9972                        | 0.25                            | 0.72                            |
|                                                                     |                          | 120"                       | 40                            | 47                            | 8736                        | 0.34                            | 0.86                            |
|                                                                     |                          | 132"                       | 35                            | 41                            | 8070                        | 0.41                            | 1.02                            |
| 168"                                                                | 72"                      | 84"                        | 65                            | 74                            | 11850                       | 0.18                            | 0.41                            |
|                                                                     |                          | 96"                        | 56                            | 64                            | 10933                       | 0.21                            | 0.57                            |
|                                                                     |                          | 108"                       | 45                            | 52                            | 9541                        | 0.25                            | 0.68                            |
|                                                                     |                          | 120"                       | 40                            | 46                            | 8887                        | 0.35                            | 0.88                            |
|                                                                     |                          | 132"                       | 33                            | 38                            | 7769                        | 0.33                            | 0.99                            |
| 168"                                                                | 96"                      | 84"                        | 51                            | 57                            | 10344                       | 0.30                            | 0.34                            |
|                                                                     |                          | 96"                        | 43                            | 48                            | 9342                        | 0.37                            | 0.46                            |
|                                                                     |                          | 108"                       | 37                            | 41                            | 8488                        | 0.43                            | 0.59                            |
|                                                                     |                          | 120"                       | 33                            | 37                            | 7926                        | 0.50                            | 0.75                            |
|                                                                     |                          | 132"                       | 30                            | 33                            | 7399                        | 0.55                            | 0.95                            |
| 168"                                                                | 120"                     | 72"                        | 54                            | 58                            | 10980                       | 0.26                            | 0.22                            |
|                                                                     |                          | 84"                        | 43                            | 46                            | 9624                        | 0.35                            | 0.30                            |
|                                                                     |                          | 96"                        | 35                            | 38                            | 8471                        | 0.45                            | 0.39                            |
|                                                                     |                          | 108"                       | 31                            | 33                            | 7855                        | 0.58                            | 0.51                            |
|                                                                     |                          | 120"                       | 27                            | 29                            | 7184                        | 0.67                            | 0.63                            |
| 180"                                                                | 48"                      | 72"                        | 84                            | 100                           | 14511                       | 0.10                            | 0.33                            |
|                                                                     |                          | 84"                        | 66                            | 78                            | 12697                       | 0.14                            | 0.45                            |
|                                                                     |                          | 96"                        | 52                            | 62                            | 10966                       | 0.16                            | 0.58                            |
|                                                                     |                          | 108"                       | 43                            | 51                            | 9842                        | 0.27                            | 0.71                            |
|                                                                     |                          | 120"                       | 37                            | 44                            | 8980                        | 0.35                            | 0.87                            |
| 180"                                                                | 72"                      | 72"                        | 74                            | 85                            | 13414                       | 0.14                            | 0.30                            |
|                                                                     |                          | 84"                        | 60                            | 69                            | 11989                       | 0.17                            | 0.43                            |
|                                                                     |                          | 96"                        | 50                            | 58                            | 10872                       | 0.20                            | 0.57                            |
|                                                                     |                          | 108"                       | 42                            | 48                            | 9736                        | 0.26                            | 0.72                            |
|                                                                     |                          | 120"                       | 35                            | 40                            | 8674                        | 0.27                            | 0.85                            |



| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"x4"x1/8" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 60"                                                                 | 48"                      | 96"                        | 117                           | 123                           | 2280                        | 0.52                            | 0.63                            |
|                                                                     |                          | 108"                       | 90                            | 95                            | 2026                        | 0.87                            | 0.59                            |
|                                                                     |                          | 120"                       | 68                            | 71                            | 1865                        | 0.72                            | 0.96                            |
|                                                                     |                          | 132"                       | 49                            | 52                            | 1672                        | 1.09                            | 0.60                            |
|                                                                     |                          | 144"                       | 35                            | 37                            | 1591                        | 0.75                            | 1.00                            |
| 72"                                                                 | 48"                      | 96"                        | 89                            | 97                            | 2506                        | 0.63                            | 0.70                            |
|                                                                     |                          | 108"                       | 70                            | 76                            | 2045                        | 0.58                            | 0.64                            |
|                                                                     |                          | 120"                       | 51                            | 55                            | 1920                        | 1.01                            | 0.62                            |
|                                                                     |                          | 132"                       | 45                            | 49                            | 1752                        | 1.07                            | 0.84                            |
|                                                                     |                          | 144"                       | 37                            | 40                            | 1510                        | 1.56                            | 0.80                            |
| 72"                                                                 | 72"                      | 96"                        | 71                            | 71                            | 2305                        | 0.49                            | 0.49                            |
|                                                                     |                          | 108"                       | 56                            | 56                            | 2122                        | 0.70                            | 0.70                            |
|                                                                     |                          | 120"                       | 49                            | 49                            | 1888                        | 0.85                            | 0.85                            |
|                                                                     |                          | 132"                       | 40                            | 40                            | 1507                        | 0.76                            | 0.76                            |
|                                                                     |                          | 144"                       | 29                            | 29                            | 1740                        | 1.29                            | 1.29                            |
| 96"                                                                 | 48"                      | 84"                        | 57                            | 64                            | 2838                        | 0.24                            | 0.75                            |
|                                                                     |                          | 96"                        | 47                            | 53                            | 2475                        | 0.43                            | 0.82                            |
|                                                                     |                          | 108"                       | 44                            | 50                            | 2282                        | 0.71                            | 1.04                            |
|                                                                     |                          | 120"                       | 40                            | 45                            | 2094                        | 0.88                            | 1.11                            |
|                                                                     |                          | 132"                       | 34                            | 38                            | 1813                        | 1.04                            | 1.03                            |
| 96"                                                                 | 72"                      | 84"                        | 52                            | 55                            | 2800                        | 0.31                            | 0.69                            |
|                                                                     |                          | 96"                        | 46                            | 49                            | 2469                        | 0.43                            | 0.88                            |
|                                                                     |                          | 108"                       | 40                            | 43                            | 2142                        | 0.47                            | 0.94                            |
|                                                                     |                          | 120"                       | 38                            | 40                            | 2024                        | 0.68                            | 1.00                            |
|                                                                     |                          | 132"                       | 27                            | 29                            | 1723                        | 1.09                            | 0.70                            |
| 96"                                                                 | 96"                      | 72"                        | 45                            | 45                            | 2938                        | 0.38                            | 0.38                            |
|                                                                     |                          | 84"                        | 40                            | 40                            | 2561                        | 0.50                            | 0.50                            |
|                                                                     |                          | 96"                        | 38                            | 38                            | 2407                        | 0.67                            | 0.67                            |
|                                                                     |                          | 108"                       | 36                            | 36                            | 2221                        | 0.83                            | 0.83                            |
|                                                                     |                          | 120"                       | 29                            | 29                            | 1844                        | 0.70                            | 0.70                            |
| 120"                                                                | 48"                      | 72"                        | 45                            | 52                            | 3426                        | 0.16                            | 0.59                            |
|                                                                     |                          | 78"                        | 40                            | 46                            | 3108                        | 0.19                            | 0.67                            |
|                                                                     |                          | 84"                        | 37                            | 43                            | 2942                        | 0.23                            | 0.77                            |
|                                                                     |                          | 90"                        | 34                            | 39                            | 2750                        | 0.26                            | 0.83                            |
|                                                                     |                          | 96"                        | 32                            | 37                            | 2548                        | 0.35                            | 1.00                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

ROLL-UP SHUTTER  
MULLIONS



TKJ Engineering, LLC.

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A PROFESSIONAL ENGINEERING FIRM  
THE BRIDGE ENGINEERS

DATE: 10/17/26  
DRAWN BY: TKJ  
SCALE: N.T.S.  
PROJ. #: 26-0802

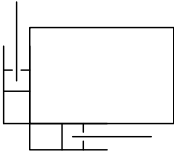
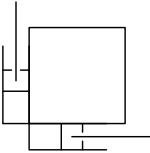


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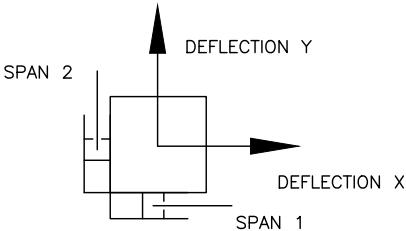
DATE

REVISIONS

| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"x4"x1/4" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 48"                      | 96"                        | 77                            | 87                            | 4800                        | 0.37                            | 1.01                            |
|                                                                     |                          | 108"                       | 67                            | 76                            | 4261                        | 0.48                            | 1.18                            |
|                                                                     |                          | 120"                       | 59                            | 67                            | 3797                        | 0.52                            | 1.31                            |
|                                                                     |                          | 132"                       | 52                            | 59                            | 3626                        | 0.82                            | 1.70                            |
|                                                                     |                          | 144"                       | 48                            | 54                            | 3324                        | 1.16                            | 1.53                            |
| 96"                                                                 | 72"                      | 96"                        | 71                            | 76                            | 4732                        | 0.44                            | 0.95                            |
|                                                                     |                          | 108"                       | 64                            | 68                            | 4310                        | 0.52                            | 1.21                            |
|                                                                     |                          | 120"                       | 56                            | 60                            | 3953                        | 0.81                            | 1.30                            |
|                                                                     |                          | 132"                       | 50                            | 53                            | 3575                        | 1.01                            | 1.52                            |
|                                                                     |                          | 144"                       | 45                            | 48                            | 3309                        | 1.15                            | 1.73                            |
| 96"                                                                 | 96"                      | 96"                        | 52                            | 52                            | 4298                        | 0.69                            | 0.69                            |
|                                                                     |                          | 108"                       | 49                            | 49                            | 4070                        | 0.90                            | 0.90                            |
|                                                                     |                          | 120"                       | 46                            | 46                            | 3843                        | 1.07                            | 1.07                            |
|                                                                     |                          | 132"                       | 44                            | 44                            | 3650                        | 1.29                            | 1.29                            |
|                                                                     |                          | 144"                       | 41                            | 41                            | 3402                        | 1.49                            | 1.49                            |
| 120"                                                                | 48"                      | 84"                        | 64                            | 74                            | 5616                        | 0.20                            | 0.86                            |
|                                                                     |                          | 96"                        | 54                            | 62                            | 4969                        | 0.27                            | 1.06                            |
|                                                                     |                          | 108"                       | 44                            | 51                            | 4422                        | 0.44                            | 1.25                            |
|                                                                     |                          | 120"                       | 36                            | 42                            | 4021                        | 0.60                            | 1.50                            |
|                                                                     |                          | 132"                       | 31                            | 36                            | 3549                        | 0.69                            | 1.74                            |
| 120"                                                                | 72"                      | 84"                        | 60                            | 66                            | 5500                        | 0.25                            | 0.82                            |
|                                                                     |                          | 96"                        | 49                            | 54                            | 4786                        | 0.32                            | 1.00                            |
|                                                                     |                          | 108"                       | 43                            | 47                            | 4331                        | 0.41                            | 1.24                            |
|                                                                     |                          | 120"                       | 35                            | 39                            | 3811                        | 0.43                            | 1.48                            |
|                                                                     |                          | 132"                       | 30                            | 33                            | 3533                        | 0.59                            | 1.77                            |
| 120"                                                                | 96"                      | 72"                        | 53                            | 56                            | 5495                        | 0.33                            | 0.47                            |
|                                                                     |                          | 84"                        | 45                            | 47                            | 4865                        | 0.41                            | 0.62                            |
|                                                                     |                          | 96"                        | 40                            | 42                            | 4398                        | 0.54                            | 0.88                            |
|                                                                     |                          | 108"                       | 36                            | 38                            | 4013                        | 0.65                            | 1.09                            |
|                                                                     |                          | 120"                       | 34                            | 36                            | 3853                        | 0.75                            | 1.40                            |
| 120"                                                                | 120"                     | 72"                        | 44                            | 44                            | 5353                        | 0.40                            | 0.40                            |
|                                                                     |                          | 84"                        | 37                            | 37                            | 4713                        | 0.55                            | 0.55                            |
|                                                                     |                          | 96"                        | 32                            | 32                            | 4183                        | 0.71                            | 0.71                            |
|                                                                     |                          | 108"                       | 29                            | 29                            | 3920                        | 0.84                            | 0.84                            |
|                                                                     |                          | 120"                       | 26                            | 26                            | 3474                        | 1.05                            | 1.05                            |



| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"x6"x1/8" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 48"                      | 96"                        | 64                            | 72                            | 4075                        | 0.37                            | 0.61                            |
|                                                                     |                          | 108"                       | 57                            | 64                            | 3662                        | 0.47                            | 0.74                            |
|                                                                     |                          | 120"                       | 48                            | 54                            | 3195                        | 0.78                            | 0.81                            |
|                                                                     |                          | 132"                       | 44                            | 50                            | 2934                        | 1.02                            | 0.92                            |
|                                                                     |                          | 144"                       | 41                            | 46                            | 2688                        | 1.40                            | 1.02                            |
| 96"                                                                 | 72"                      | 96"                        | 61                            | 65                            | 4103                        | 0.41                            | 0.61                            |
|                                                                     |                          | 108"                       | 51                            | 54                            | 3509                        | 0.58                            | 0.68                            |
|                                                                     |                          | 120"                       | 47                            | 50                            | 3225                        | 0.83                            | 0.82                            |
|                                                                     |                          | 132"                       | 40                            | 43                            | 2661                        | 0.72                            | 0.89                            |
|                                                                     |                          | 144"                       | 38                            | 40                            | 2504                        | 0.86                            | 0.97                            |
| 96"                                                                 | 96"                      | 96"                        | 45                            | 45                            | 3568                        | 0.69                            | 0.44                            |
|                                                                     |                          | 108"                       | 42                            | 42                            | 3300                        | 0.84                            | 0.58                            |
|                                                                     |                          | 120"                       | 40                            | 40                            | 3088                        | 1.06                            | 0.73                            |
|                                                                     |                          | 132"                       | 37                            | 37                            | 2825                        | 1.20                            | 0.80                            |
|                                                                     |                          | 144"                       | 34                            | 34                            | 2732                        | 1.51                            | 0.90                            |
| 120"                                                                | 48"                      | 84"                        | 53                            | 61                            | 4884                        | 0.20                            | 0.53                            |
|                                                                     |                          | 96"                        | 43                            | 50                            | 4244                        | 0.33                            | 0.65                            |
|                                                                     |                          | 108"                       | 36                            | 42                            | 3663                        | 0.40                            | 0.75                            |
|                                                                     |                          | 120"                       | 33                            | 38                            | 3378                        | 0.61                            | 0.96                            |
|                                                                     |                          | 132"                       | 29                            | 34                            | 3027                        | 0.69                            | 1.03                            |
| 120"                                                                | 72"                      | 84"                        | 49                            | 54                            | 4744                        | 0.24                            | 0.51                            |
|                                                                     |                          | 96"                        | 42                            | 46                            | 4222                        | 0.34                            | 0.66                            |
|                                                                     |                          | 108"                       | 35                            | 39                            | 3602                        | 0.35                            | 0.81                            |
|                                                                     |                          | 120"                       | 33                            | 36                            | 3426                        | 0.59                            | 1.00                            |
|                                                                     |                          | 132"                       | 26                            | 29                            | 2910                        | 0.83                            | 0.94                            |
| 120"                                                                | 96"                      | 72"                        | 45                            | 47                            | 4660                        | 0.32                            | 0.30                            |
|                                                                     |                          | 84"                        | 38                            | 40                            | 4092                        | 0.41                            | 0.40                            |
|                                                                     |                          | 96"                        | 34                            | 36                            | 3710                        | 0.54                            | 0.56                            |
|                                                                     |                          | 108"                       | 31                            | 33                            | 3441                        | 0.61                            | 0.71                            |
|                                                                     |                          | 120"                       | 28                            | 29                            | 3138                        | 0.58                            | 0.85                            |
| 120"                                                                | 120"                     | 72"                        | 36                            | 36                            | 4347                        | 0.39                            | 0.24                            |
|                                                                     |                          | 81"                        | 31                            | 31                            | 3865                        | 0.49                            | 0.28                            |
|                                                                     |                          | 90"                        | 28                            | 28                            | 3532                        | 0.60                            | 0.38                            |
|                                                                     |                          | 99"                        | 26                            | 26                            | 3315                        | 0.76                            | 0.45                            |
|                                                                     |                          | 108"                       | 24                            | 24                            | 3082                        | 0.85                            | 0.53                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

THIS ITEM HAS BEEN DIGITALLY SIGNED AND VERIFIED BY TREVOR JOHNSON ON THE DATE ADJACENT TO THE SEAL. SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES, RULE 61G15-23.004 F.A.C.

# ROLL-UP SHUTTER MULLIONS

**TKJ Engineering, LLC.**

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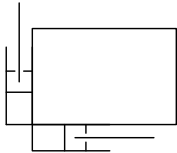
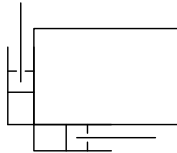
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PROJ. #: 26-0802



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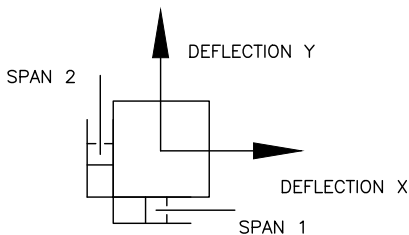
DATE

REVISIONS



| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"x6"x1/4" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 96"                      | 96"                        | 67                            | 67                            | 6642                        | 0.72                            | 0.44                            |
|                                                                     |                          | 108"                       | 60                            | 60                            | 6068                        | 0.90                            | 0.54                            |
|                                                                     |                          | 120"                       | 55                            | 55                            | 5558                        | 1.14                            | 0.68                            |
|                                                                     |                          | 132"                       | 52                            | 52                            | 5321                        | 1.36                            | 0.81                            |
|                                                                     |                          | 144"                       | 49                            | 49                            | 4925                        | 1.59                            | 1.04                            |
| 120"                                                                | 48"                      | 96"                        | 78                            | 90                            | 8369                        | 0.33                            | 0.71                            |
|                                                                     |                          | 108"                       | 65                            | 75                            | 7325                        | 0.40                            | 0.88                            |
|                                                                     |                          | 120"                       | 57                            | 66                            | 6652                        | 0.51                            | 1.07                            |
|                                                                     |                          | 132"                       | 48                            | 55                            | 5940                        | 0.76                            | 1.18                            |
|                                                                     |                          | 144"                       | 43                            | 50                            | 5480                        | 0.88                            | 1.35                            |
| 120"                                                                | 72"                      | 96"                        | 71                            | 78                            | 8001                        | 0.39                            | 0.68                            |
|                                                                     |                          | 108"                       | 62                            | 68                            | 7313                        | 0.44                            | 0.85                            |
|                                                                     |                          | 120"                       | 52                            | 57                            | 6436                        | 0.60                            | 1.01                            |
|                                                                     |                          | 132"                       | 46                            | 51                            | 5891                        | 0.73                            | 1.17                            |
|                                                                     |                          | 144"                       | 43                            | 47                            | 5595                        | 1.00                            | 1.41                            |
| 120"                                                                | 96"                      | 96"                        | 52                            | 55                            | 6803                        | 0.59                            | 0.52                            |
|                                                                     |                          | 108"                       | 47                            | 49                            | 6296                        | 0.74                            | 0.68                            |
|                                                                     |                          | 120"                       | 43                            | 45                            | 5874                        | 0.89                            | 0.88                            |
|                                                                     |                          | 132"                       | 40                            | 42                            | 5568                        | 1.05                            | 1.07                            |
|                                                                     |                          | 144"                       | 37                            | 39                            | 5254                        | 1.07                            | 1.24                            |
| 120"                                                                | 120"                     | 96"                        | 43                            | 43                            | 6530                        | 0.73                            | 0.44                            |
|                                                                     |                          | 108"                       | 38                            | 38                            | 5959                        | 0.93                            | 0.56                            |
|                                                                     |                          | 120"                       | 34                            | 34                            | 5428                        | 1.17                            | 0.69                            |
|                                                                     |                          | 132"                       | 31                            | 31                            | 5006                        | 1.40                            | 0.83                            |
|                                                                     |                          | 144"                       | 29                            | 29                            | 4722                        | 1.60                            | 1.04                            |
| 144"                                                                | 48"                      | 96"                        | 59                            | 69                            | 8412                        | 0.24                            | 0.73                            |
|                                                                     |                          | 108"                       | 50                            | 59                            | 7544                        | 0.40                            | 0.91                            |
|                                                                     |                          | 120"                       | 42                            | 49                            | 6727                        | 0.53                            | 1.11                            |
|                                                                     |                          | 132"                       | 36                            | 42                            | 6006                        | 0.65                            | 1.26                            |
|                                                                     |                          | 144"                       | 32                            | 38                            | 5571                        | 0.73                            | 1.42                            |
| 144"                                                                | 72"                      | 96"                        | 57                            | 64                            | 8355                        | 0.30                            | 0.74                            |
|                                                                     |                          | 108"                       | 48                            | 54                            | 7509                        | 0.43                            | 0.92                            |
|                                                                     |                          | 120"                       | 40                            | 45                            | 6588                        | 0.48                            | 1.07                            |
|                                                                     |                          | 132"                       | 35                            | 40                            | 6069                        | 0.46                            | 1.23                            |
|                                                                     |                          | 144"                       | 32                            | 36                            | 5610                        | 0.69                            | 1.52                            |

| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"x6"x1/4" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 144"                                                                | 96"                      | 96"                        | 43                            | 47                            | 7069                        | 0.51                            | 0.59                            |
|                                                                     |                          | 108"                       | 38                            | 41                            | 6504                        | 0.60                            | 0.75                            |
|                                                                     |                          | 120"                       | 35                            | 38                            | 6163                        | 0.76                            | 0.99                            |
|                                                                     |                          | 132"                       | 32                            | 35                            | 5802                        | 0.86                            | 1.20                            |
|                                                                     |                          | 144"                       | 29                            | 32                            | 5416                        | 0.90                            | 1.47                            |
| 144"                                                                | 120"                     | 84"                        | 42                            | 44                            | 7426                        | 0.50                            | 0.37                            |
|                                                                     |                          | 96"                        | 35                            | 37                            | 6586                        | 0.62                            | 0.49                            |
|                                                                     |                          | 108"                       | 31                            | 32                            | 5992                        | 0.82                            | 0.63                            |
|                                                                     |                          | 120"                       | 28                            | 29                            | 5580                        | 0.97                            | 0.83                            |
|                                                                     |                          | 132"                       | 26                            | 27                            | 5338                        | 1.18                            | 1.00                            |
| 144"                                                                | 144"                     | 72"                        | 45                            | 45                            | 8186                        | 0.42                            | 0.24                            |
|                                                                     |                          | 84"                        | 36                            | 36                            | 7117                        | 0.57                            | 0.33                            |
|                                                                     |                          | 96"                        | 30                            | 30                            | 6288                        | 0.72                            | 0.44                            |
|                                                                     |                          | 108"                       | 26                            | 26                            | 5714                        | 0.94                            | 0.52                            |
|                                                                     |                          | 120"                       | 23                            | 23                            | 5244                        | 1.05                            | 0.67                            |
| 168"                                                                | 48"                      | 72"                        | 75                            | 89                            | 11289                       | 0.13                            | 0.43                            |
|                                                                     |                          | 84"                        | 59                            | 70                            | 9805                        | 0.19                            | 0.59                            |
|                                                                     |                          | 96"                        | 46                            | 54                            | 8344                        | 0.27                            | 0.74                            |
|                                                                     |                          | 108"                       | 39                            | 46                            | 7566                        | 0.38                            | 0.92                            |
|                                                                     |                          | 120"                       | 34                            | 40                            | 6981                        | 0.49                            | 1.10                            |
| 168"                                                                | 72"                      | 72"                        | 67                            | 77                            | 10536                       | 0.19                            | 0.40                            |
|                                                                     |                          | 84"                        | 57                            | 65                            | 9711                        | 0.22                            | 0.58                            |
|                                                                     |                          | 96"                        | 45                            | 52                            | 8398                        | 0.26                            | 0.73                            |
|                                                                     |                          | 108"                       | 38                            | 44                            | 7577                        | 0.33                            | 0.90                            |
|                                                                     |                          | 120"                       | 33                            | 38                            | 6889                        | 0.38                            | 1.13                            |
| 168"                                                                | 96"                      | 72"                        | 53                            | 59                            | 9252                        | 0.29                            | 0.33                            |
|                                                                     |                          | 81"                        | 45                            | 50                            | 8386                        | 0.34                            | 0.43                            |
|                                                                     |                          | 90"                        | 40                            | 44                            | 7794                        | 0.40                            | 0.56                            |
|                                                                     |                          | 99"                        | 36                            | 40                            | 7314                        | 0.47                            | 0.69                            |
|                                                                     |                          | 108"                       | 32                            | 36                            | 6764                        | 0.50                            | 0.83                            |
| 168"                                                                | 120"                     | 72"                        | 45                            | 48                            | 8679                        | 0.33                            | 0.29                            |
|                                                                     |                          | 81"                        | 38                            | 41                            | 7836                        | 0.42                            | 0.38                            |
|                                                                     |                          | 90"                        | 33                            | 35                            | 7152                        | 0.52                            | 0.47                            |
|                                                                     |                          | 99"                        | 29                            | 31                            | 6581                        | 0.60                            | 0.57                            |
|                                                                     |                          | 108"                       | 26                            | 28                            | 6083                        | 0.69                            | 0.70                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

ROLL-UP SHUTTER  
MULLIONS



TKJ Engineering, LLC.

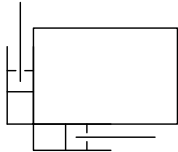
11335 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569  
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SCALE: N.T.S.  
PROJ. #: 26-0802

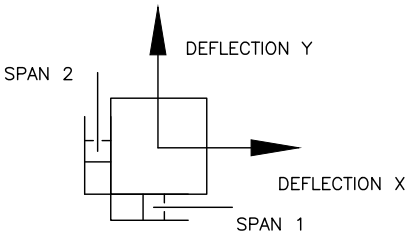
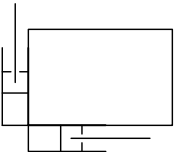
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TREVOR JOHNSON  
STATE OF FLORIDA  
10/17/26  
16924

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| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X8"X1/4" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 96"                      | 96"                        | 82                            | 82                            | 9014                        | 0.73                            | 0.32                            |
|                                                                     |                          | 108"                       | 73                            | 73                            | 8274                        | 0.95                            | 0.40                            |
|                                                                     |                          | 120"                       | 66                            | 66                            | 7649                        | 1.17                            | 0.50                            |
|                                                                     |                          | 132"                       | 61                            | 61                            | 7162                        | 1.40                            | 0.61                            |
|                                                                     |                          | 144"                       | 57                            | 57                            | 6707                        | 1.61                            | 0.76                            |
| 120"                                                                | 48"                      | 96"                        | 106                           | 122                           | 12231                       | 0.30                            | 0.54                            |
|                                                                     |                          | 108"                       | 87                            | 100                           | 10834                       | 0.47                            | 0.65                            |
|                                                                     |                          | 120"                       | 74                            | 85                            | 9630                        | 0.57                            | 0.80                            |
|                                                                     |                          | 132"                       | 65                            | 75                            | 8811                        | 0.71                            | 0.94                            |
|                                                                     |                          | 144"                       | 57                            | 66                            | 7975                        | 0.78                            | 1.09                            |
| 120"                                                                | 72"                      | 96"                        | 88                            | 97                            | 11040                       | 0.48                            | 0.47                            |
|                                                                     |                          | 108"                       | 79                            | 87                            | 10362                       | 0.55                            | 0.62                            |
|                                                                     |                          | 120"                       | 70                            | 77                            | 9533                        | 0.64                            | 0.79                            |
|                                                                     |                          | 132"                       | 62                            | 68                            | 8795                        | 0.78                            | 0.92                            |
|                                                                     |                          | 144"                       | 53                            | 58                            | 7861                        | 0.96                            | 1.05                            |
| 120"                                                                | 96"                      | 96"                        | 66                            | 69                            | 9467                        | 0.64                            | 0.37                            |
|                                                                     |                          | 108"                       | 58                            | 61                            | 8726                        | 0.81                            | 0.48                            |
|                                                                     |                          | 120"                       | 52                            | 55                            | 8066                        | 0.95                            | 0.61                            |
|                                                                     |                          | 132"                       | 48                            | 50                            | 7568                        | 1.17                            | 0.77                            |
|                                                                     |                          | 144"                       | 45                            | 47                            | 7279                        | 1.29                            | 0.92                            |
| 120"                                                                | 120"                     | 96"                        | 54                            | 54                            | 8880                        | 0.74                            | 0.31                            |
|                                                                     |                          | 108"                       | 47                            | 47                            | 8101                        | 0.95                            | 0.40                            |
|                                                                     |                          | 120"                       | 41                            | 41                            | 7310                        | 1.12                            | 0.48                            |
|                                                                     |                          | 132"                       | 38                            | 38                            | 6899                        | 1.45                            | 0.62                            |
|                                                                     |                          | 144"                       | 35                            | 35                            | 6499                        | 1.73                            | 0.73                            |
| 144"                                                                | 48"                      | 96"                        | 80                            | 94                            | 12321                       | 0.30                            | 0.54                            |
|                                                                     |                          | 108"                       | 68                            | 80                            | 11137                       | 0.41                            | 0.69                            |
|                                                                     |                          | 120"                       | 57                            | 67                            | 9949                        | 0.46                            | 0.81                            |
|                                                                     |                          | 132"                       | 50                            | 59                            | 9081                        | 0.71                            | 0.99                            |
|                                                                     |                          | 144"                       | 42                            | 49                            | 8094                        | 0.88                            | 1.08                            |
| 144"                                                                | 72"                      | 96"                        | 74                            | 83                            | 11882                       | 0.39                            | 0.52                            |
|                                                                     |                          | 108"                       | 64                            | 72                            | 10882                       | 0.43                            | 0.67                            |
|                                                                     |                          | 120"                       | 54                            | 61                            | 9754                        | 0.60                            | 0.82                            |
|                                                                     |                          | 132"                       | 47                            | 53                            | 8909                        | 0.69                            | 0.96                            |
|                                                                     |                          | 144"                       | 42                            | 47                            | 8250                        | 0.89                            | 1.14                            |



| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X8"X1/4" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 144"                                                                | 96"                      | 96"                        | 55                            | 60                            | 9902                        | 0.56                            | 0.41                            |
|                                                                     |                          | 108"                       | 49                            | 53                            | 9277                        | 0.71                            | 0.55                            |
|                                                                     |                          | 120"                       | 43                            | 47                            | 8501                        | 0.83                            | 0.67                            |
|                                                                     |                          | 132"                       | 40                            | 43                            | 8108                        | 1.00                            | 0.87                            |
|                                                                     |                          | 144"                       | 37                            | 40                            | 7708                        | 1.14                            | 1.06                            |
| 144"                                                                | 120"                     | 96"                        | 46                            | 48                            | 9270                        | 0.70                            | 0.35                            |
|                                                                     |                          | 108"                       | 39                            | 41                            | 8313                        | 0.87                            | 0.44                            |
|                                                                     |                          | 120"                       | 35                            | 37                            | 7836                        | 1.00                            | 0.56                            |
|                                                                     |                          | 132"                       | 31                            | 32                            | 7054                        | 1.16                            | 0.70                            |
|                                                                     |                          | 144"                       | 29                            | 30                            | 6789                        | 1.44                            | 0.84                            |
| 144"                                                                | 144"                     | 84"                        | 48                            | 48                            | 10028                       | 0.59                            | 0.24                            |
|                                                                     |                          | 96"                        | 39                            | 39                            | 8746                        | 0.75                            | 0.31                            |
|                                                                     |                          | 108"                       | 34                            | 34                            | 8062                        | 0.96                            | 0.41                            |
|                                                                     |                          | 120"                       | 29                            | 29                            | 7170                        | 1.15                            | 0.50                            |
|                                                                     |                          | 132"                       | 26                            | 26                            | 6644                        | 1.38                            | 0.61                            |
| 168"                                                                | 48"                      | 96"                        | 67                            | 79                            | 12842                       | 0.29                            | 0.57                            |
|                                                                     |                          | 108"                       | 55                            | 65                            | 11347                       | 0.32                            | 0.70                            |
|                                                                     |                          | 120"                       | 45                            | 53                            | 9991                        | 0.52                            | 0.83                            |
|                                                                     |                          | 132"                       | 39                            | 46                            | 9150                        | 0.67                            | 0.97                            |
|                                                                     |                          | 144"                       | 35                            | 41                            | 8540                        | 0.79                            | 1.18                            |
| 168"                                                                | 72"                      | 96"                        | 63                            | 72                            | 12477                       | 0.33                            | 0.55                            |
|                                                                     |                          | 108"                       | 52                            | 60                            | 11093                       | 0.41                            | 0.69                            |
|                                                                     |                          | 120"                       | 45                            | 52                            | 10204                       | 0.52                            | 0.85                            |
|                                                                     |                          | 132"                       | 39                            | 45                            | 9287                        | 0.62                            | 1.01                            |
|                                                                     |                          | 144"                       | 34                            | 39                            | 8438                        | 0.72                            | 1.18                            |
| 168"                                                                | 96"                      | 84"                        | 57                            | 63                            | 11579                       | 0.42                            | 0.33                            |
|                                                                     |                          | 96"                        | 48                            | 53                            | 10438                       | 0.51                            | 0.45                            |
|                                                                     |                          | 108"                       | 42                            | 47                            | 9698                        | 0.63                            | 0.59                            |
|                                                                     |                          | 120"                       | 37                            | 41                            | 8974                        | 0.74                            | 0.73                            |
|                                                                     |                          | 132"                       | 34                            | 38                            | 8589                        | 0.84                            | 0.92                            |
| 168"                                                                | 120"                     | 84"                        | 48                            | 52                            | 10741                       | 0.49                            | 0.29                            |
|                                                                     |                          | 96"                        | 40                            | 43                            | 9610                        | 0.63                            | 0.39                            |
|                                                                     |                          | 108"                       | 34                            | 37                            | 8719                        | 0.74                            | 0.50                            |
|                                                                     |                          | 120"                       | 30                            | 32                            | 7980                        | 0.96                            | 0.63                            |
|                                                                     |                          | 132"                       | 27                            | 29                            | 7525                        | 1.05                            | 0.76                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON–RETENSION SHUTTERS  
AND WHEN STORM–BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

| # | DATE | REVISIONS |
|---|------|-----------|
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# ROLL-UP SHUTTER MULLIONS



TKJ Engineering, LLC.  
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A CERTIFICATE OF AUTHORIZATION NUMBER: 28582

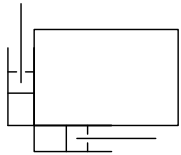
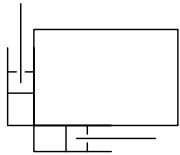
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PROJ. #: 26-0802

26 OF 29

PROFESSIONAL ENGINEER  
STATE OF FLORIDA  
10/17/26  
TREVOR JOHNSON  
FLORIDA P.E. # 16924

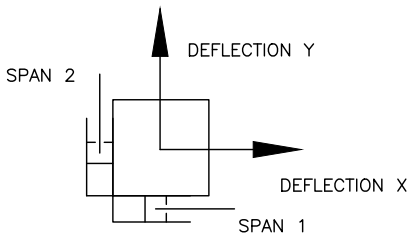
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| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4\"X6\"X3/8\" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|------------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WDTH 1<br>UP TO                                                | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                    | 48"                      | 96"                        | 147                           | 150                           | 11513                       | 0.36                            | 0.70                            |
|                                                                        |                          | 108"                       | 123                           | 139                           | 10133                       | 0.40                            | 0.86                            |
|                                                                        |                          | 120"                       | 109                           | 123                           | 9230                        | 0.54                            | 1.05                            |
|                                                                        |                          | 132"                       | 94                            | 106                           | 8359                        | 0.92                            | 1.21                            |
|                                                                        |                          | 144"                       | 84                            | 95                            | 7639                        | 1.06                            | 1.39                            |
| 96"                                                                    | 72"                      | 96"                        | 114                           | 121                           | 10150                       | 0.57                            | 0.57                            |
|                                                                        |                          | 108"                       | 102                           | 108                           | 9355                        | 0.69                            | 0.74                            |
|                                                                        |                          | 120"                       | 94                            | 100                           | 8823                        | 0.80                            | 0.93                            |
|                                                                        |                          | 132"                       | 86                            | 91                            | 8188                        | 0.94                            | 1.16                            |
|                                                                        |                          | 144"                       | 77                            | 82                            | 7466                        | 1.12                            | 1.33                            |
| 96"                                                                    | 96"                      | 96"                        | 86                            | 86                            | 9235                        | 0.75                            | 0.45                            |
|                                                                        |                          | 108"                       | 76                            | 76                            | 8442                        | 0.93                            | 0.57                            |
|                                                                        |                          | 120"                       | 69                            | 69                            | 7850                        | 1.15                            | 0.69                            |
|                                                                        |                          | 132"                       | 64                            | 64                            | 7351                        | 1.42                            | 0.85                            |
|                                                                        |                          | 144"                       | 60                            | 60                            | 6911                        | 1.68                            | 1.06                            |
| 120"                                                                   | 48"                      | 96"                        | 110                           | 127                           | 12034                       | 0.30                            | 0.75                            |
|                                                                        |                          | 108"                       | 89                            | 103                           | 10511                       | 0.44                            | 0.90                            |
|                                                                        |                          | 120"                       | 77                            | 89                            | 9552                        | 0.56                            | 1.08                            |
|                                                                        |                          | 132"                       | 67                            | 77                            | 8601                        | 0.66                            | 1.29                            |
|                                                                        |                          | 144"                       | 60                            | 69                            | 7956                        | 0.72                            | 1.52                            |
| 120"                                                                   | 72"                      | 96"                        | 90                            | 99                            | 10768                       | 0.46                            | 0.65                            |
|                                                                        |                          | 108"                       | 80                            | 88                            | 9999                        | 0.54                            | 0.85                            |
|                                                                        |                          | 120"                       | 72                            | 79                            | 9337                        | 0.60                            | 1.07                            |
|                                                                        |                          | 132"                       | 63                            | 69                            | 8475                        | 0.73                            | 1.25                            |
|                                                                        |                          | 144"                       | 55                            | 61                            | 7741                        | 1.03                            | 1.45                            |
| 120"                                                                   | 96"                      | 96"                        | 69                            | 73                            | 9623                        | 0.66                            | 0.53                            |
|                                                                        |                          | 108"                       | 61                            | 64                            | 8857                        | 0.81                            | 0.68                            |
|                                                                        |                          | 120"                       | 54                            | 57                            | 8105                        | 0.92                            | 0.84                            |
|                                                                        |                          | 132"                       | 49                            | 52                            | 7546                        | 1.11                            | 1.00                            |
|                                                                        |                          | 144"                       | 47                            | 49                            | 7341                        | 1.35                            | 1.25                            |
| 120"                                                                   | 120"                     | 96"                        | 57                            | 57                            | 9175                        | 0.75                            | 0.44                            |
|                                                                        |                          | 108"                       | 49                            | 49                            | 8232                        | 0.94                            | 0.56                            |
|                                                                        |                          | 120"                       | 44                            | 44                            | 7637                        | 1.20                            | 0.70                            |
|                                                                        |                          | 132"                       | 40                            | 40                            | 7098                        | 1.46                            | 0.88                            |
|                                                                        |                          | 144"                       | 37                            | 37                            | 6753                        | 1.64                            | 1.03                            |

| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4\"X6\"X3/8\" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|------------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WDTH 1<br>UP TO                                                | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 144"                                                                   | 72"                      | 96"                        | 75                            | 85                            | 11503                       | 0.38                            | 0.71                            |
|                                                                        |                          | 108"                       | 67                            | 76                            | 10797                       | 0.44                            | 0.93                            |
|                                                                        |                          | 120"                       | 58                            | 65                            | 9788                        | 0.54                            | 1.17                            |
|                                                                        |                          | 132"                       | 48                            | 54                            | 8611                        | 0.65                            | 1.33                            |
|                                                                        |                          | 144"                       | 43                            | 49                            | 8005                        | 0.83                            | 1.59                            |
|                                                                        |                          | 96"                        | 57                            | 62                            | 9885                        | 0.55                            | 0.58                            |
| 144"                                                                   | 96"                      | 108"                       | 50                            | 54                            | 9105                        | 0.70                            | 0.73                            |
|                                                                        |                          | 120"                       | 45                            | 49                            | 8540                        | 0.79                            | 0.94                            |
|                                                                        |                          | 132"                       | 41                            | 45                            | 8067                        | 0.89                            | 1.16                            |
|                                                                        |                          | 144"                       | 37                            | 40                            | 7421                        | 0.96                            | 1.39                            |
|                                                                        |                          | 96"                        | 48                            | 50                            | 9399                        | 0.68                            | 0.50                            |
| 144"                                                                   | 120"                     | 108"                       | 41                            | 43                            | 8454                        | 0.87                            | 0.63                            |
|                                                                        |                          | 120"                       | 36                            | 38                            | 7757                        | 1.03                            | 0.78                            |
|                                                                        |                          | 132"                       | 33                            | 34                            | 7252                        | 1.26                            | 0.97                            |
|                                                                        |                          | 144"                       | 30                            | 31                            | 6747                        | 1.43                            | 1.20                            |
|                                                                        |                          | 96"                        | 41                            | 41                            | 8987                        | 0.76                            | 0.44                            |
| 144"                                                                   | 144"                     | 108"                       | 35                            | 35                            | 8116                        | 0.94                            | 0.55                            |
|                                                                        |                          | 120"                       | 31                            | 31                            | 7478                        | 1.20                            | 0.69                            |
|                                                                        |                          | 132"                       | 28                            | 28                            | 6986                        | 1.41                            | 0.88                            |
|                                                                        |                          | 144"                       | 25                            | 25                            | 6443                        | 1.58                            | 0.99                            |
|                                                                        |                          | 96"                        | 67                            | 79                            | 12189                       | 0.27                            | 0.76                            |
| 168"                                                                   | 48"                      | 108"                       | 56                            | 66                            | 10909                       | 0.30                            | 0.97                            |
|                                                                        |                          | 120"                       | 48                            | 57                            | 9888                        | 0.49                            | 1.19                            |
|                                                                        |                          | 132"                       | 41                            | 49                            | 9059                        | 0.63                            | 1.38                            |
|                                                                        |                          | 144"                       | 35                            | 41                            | 8090                        | 0.73                            | 1.58                            |
|                                                                        |                          | 96"                        | 63                            | 72                            | 11856                       | 0.29                            | 0.74                            |
| 168"                                                                   | 72"                      | 108"                       | 54                            | 62                            | 10877                       | 0.41                            | 0.96                            |
|                                                                        |                          | 120"                       | 45                            | 52                            | 9677                        | 0.48                            | 1.14                            |
|                                                                        |                          | 132"                       | 39                            | 45                            | 8806                        | 0.58                            | 1.36                            |
|                                                                        |                          | 144"                       | 35                            | 40                            | 8235                        | 0.64                            | 1.62                            |
|                                                                        |                          | 96"                        | 50                            | 55                            | 10418                       | 0.51                            | 0.63                            |
| 168"                                                                   | 96"                      | 108"                       | 43                            | 48                            | 9531                        | 0.61                            | 0.80                            |
|                                                                        |                          | 120"                       | 39                            | 43                            | 8999                        | 0.73                            | 1.03                            |
|                                                                        |                          | 132"                       | 35                            | 39                            | 8388                        | 0.80                            | 1.29                            |
|                                                                        |                          | 144"                       | 32                            | 36                            | 7967                        | 0.90                            | 1.53                            |



NOTE: USE DEFLECTIONS PROVIDED WHEN DETERMINING MINIMUM SEPARATION TO GLASS

THE DEFLECTION IN THE X DIRECTION CAN BE NEGLECTED ON NON-RETENSION SHUTTERS  
AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

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ADVANCED HURRICANE TECHNOLOGY  
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# ROLL-UP SHUTTER MULLIONS

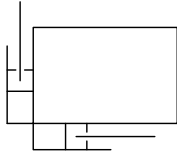
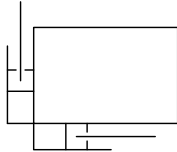


11835 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569  
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A PROFESSIONAL ENGINEERING FIRM  
THE BRITISH COLUMBIA SOCIETY OF PROFESSIONAL ENGINEERS

DATE: 10/17/26  
STATE OF FLORIDA  
TREVOR JOHNSON  
FORMAL P.E. # 16924

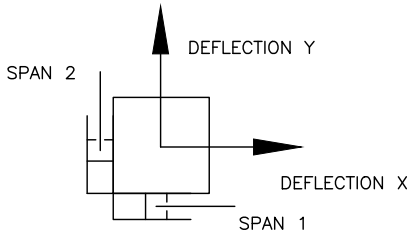
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| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X6"X1/2" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 96"                                                                 | 48"                      | 96"                        | 150                           | 150                           | 14763                       | 0.33                            | 0.73                            |
|                                                                     |                          | 108"                       | 150                           | 150                           | 12990                       | 0.50                            | 0.89                            |
|                                                                     |                          | 120"                       | 134                           | 150                           | 11836                       | 0.65                            | 1.10                            |
|                                                                     |                          | 132"                       | 119                           | 134                           | 10854                       | 0.80                            | 1.30                            |
|                                                                     |                          | 144"                       | 107                           | 121                           | 9974                        | 0.95                            | 1.54                            |
| 96"                                                                 | 72"                      | 96"                        | 135                           | 144                           | 12633                       | 0.62                            | 0.57                            |
|                                                                     |                          | 108"                       | 119                           | 127                           | 11515                       | 0.75                            | 0.73                            |
|                                                                     |                          | 120"                       | 108                           | 115                           | 10728                       | 0.86                            | 0.93                            |
|                                                                     |                          | 132"                       | 101                           | 107                           | 10230                       | 1.06                            | 1.14                            |
|                                                                     |                          | 144"                       | 92                            | 98                            | 9523                        | 1.18                            | 1.38                            |
| 96"                                                                 | 96"                      | 96"                        | 103                           | 103                           | 11602                       | 0.77                            | 0.45                            |
|                                                                     |                          | 108"                       | 90                            | 90                            | 10534                       | 0.96                            | 0.57                            |
|                                                                     |                          | 120"                       | 81                            | 81                            | 9748                        | 1.19                            | 0.71                            |
|                                                                     |                          | 132"                       | 74                            | 74                            | 9061                        | 1.47                            | 0.86                            |
|                                                                     |                          | 144"                       | 67                            | 67                            | 8594                        | 1.73                            | 1.01                            |
| 120"                                                                | 48"                      | 96"                        | 135                           | 150                           | 15046                       | 0.32                            | 0.76                            |
|                                                                     |                          | 108"                       | 114                           | 131                           | 13511                       | 0.42                            | 0.95                            |
|                                                                     |                          | 120"                       | 95                            | 109                           | 12082                       | 0.59                            | 1.11                            |
|                                                                     |                          | 132"                       | 82                            | 94                            | 10895                       | 0.72                            | 1.31                            |
|                                                                     |                          | 144"                       | 74                            | 85                            | 10167                       | 0.89                            | 1.57                            |
| 120"                                                                | 72"                      | 96"                        | 108                           | 119                           | 13370                       | 0.52                            | 0.64                            |
|                                                                     |                          | 108"                       | 95                            | 105                           | 12338                       | 0.63                            | 0.83                            |
|                                                                     |                          | 120"                       | 86                            | 95                            | 11588                       | 0.71                            | 1.07                            |
|                                                                     |                          | 132"                       | 77                            | 85                            | 10762                       | 0.81                            | 1.30                            |
|                                                                     |                          | 144"                       | 67                            | 74                            | 9771                        | 0.84                            | 1.47                            |
| 120"                                                                | 96"                      | 96"                        | 84                            | 88                            | 12091                       | 0.67                            | 0.53                            |
|                                                                     |                          | 108"                       | 72                            | 76                            | 10905                       | 0.83                            | 0.67                            |
|                                                                     |                          | 120"                       | 65                            | 68                            | 10198                       | 1.01                            | 0.83                            |
|                                                                     |                          | 132"                       | 59                            | 62                            | 9548                        | 1.21                            | 1.02                            |
|                                                                     |                          | 144"                       | 54                            | 57                            | 8928                        | 1.40                            | 1.25                            |
| 120"                                                                | 120"                     | 96"                        | 70                            | 70                            | 11597                       | 0.77                            | 0.45                            |
|                                                                     |                          | 108"                       | 60                            | 60                            | 10449                       | 1.00                            | 0.57                            |
|                                                                     |                          | 120"                       | 53                            | 53                            | 9620                        | 1.24                            | 0.70                            |
|                                                                     |                          | 132"                       | 47                            | 47                            | 8812                        | 1.41                            | 0.85                            |
|                                                                     |                          | 144"                       | 41                            | 41                            | 8247                        | 1.72                            | 1.02                            |

| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X6"X1/2" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WDTH 1<br>UP TO                                             | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 144"                                                                | 72"                      | 96"                        | 89                            | 100                           | 13941                       | 0.43                            | 0.69                            |
|                                                                     |                          | 108"                       | 78                            | 88                            | 12914                       | 0.49                            | 0.90                            |
|                                                                     |                          | 120"                       | 71                            | 80                            | 12254                       | 0.59                            | 1.17                            |
|                                                                     |                          | 132"                       | 61                            | 69                            | 11126                       | 0.65                            | 1.37                            |
|                                                                     |                          | 144"                       | 52                            | 59                            | 10009                       | 0.88                            | 1.56                            |
| 144"                                                                | 96"                      | 96"                        | 70                            | 76                            | 12438                       | 0.59                            | 0.57                            |
|                                                                     |                          | 108"                       | 61                            | 66                            | 11411                       | 0.74                            | 0.75                            |
|                                                                     |                          | 120"                       | 53                            | 58                            | 10449                       | 0.83                            | 0.92                            |
|                                                                     |                          | 132"                       | 49                            | 53                            | 9922                        | 1.06                            | 1.18                            |
|                                                                     |                          | 144"                       | 44                            | 48                            | 9253                        | 1.16                            | 1.35                            |
| 144"                                                                | 120"                     | 96"                        | 59                            | 62                            | 11888                       | 0.69                            | 0.49                            |
|                                                                     |                          | 108"                       | 50                            | 52                            | 10582                       | 0.86                            | 0.64                            |
|                                                                     |                          | 120"                       | 44                            | 46                            | 9788                        | 1.05                            | 0.79                            |
|                                                                     |                          | 132"                       | 39                            | 41                            | 8997                        | 1.25                            | 0.98                            |
|                                                                     |                          | 144"                       | 36                            | 38                            | 8555                        | 1.54                            | 1.20                            |
| 144"                                                                | 144"                     | 96"                        | 51                            | 51                            | 11388                       | 0.77                            | 0.45                            |
|                                                                     |                          | 108"                       | 44                            | 44                            | 10422                       | 1.01                            | 0.57                            |
|                                                                     |                          | 120"                       | 38                            | 38                            | 9485                        | 1.24                            | 0.69                            |
|                                                                     |                          | 132"                       | 34                            | 34                            | 8774                        | 1.51                            | 0.88                            |
|                                                                     |                          | 144"                       | 30                            | 30                            | 8337                        | 1.70                            | 1.04                            |
| 168"                                                                | 48"                      | 96"                        | 85                            | 100                           | 15477                       | 0.29                            | 0.78                            |
|                                                                     |                          | 108"                       | 71                            | 84                            | 13912                       | 0.39                            | 0.98                            |
|                                                                     |                          | 120"                       | 61                            | 72                            | 12676                       | 0.48                            | 1.23                            |
|                                                                     |                          | 132"                       | 53                            | 63                            | 11661                       | 0.56                            | 1.45                            |
|                                                                     |                          | 144"                       | 44                            | 52                            | 10317                       | 0.73                            | 1.66                            |
| 168"                                                                | 72"                      | 96"                        | 77                            | 88                            | 14728                       | 0.38                            | 0.74                            |
|                                                                     |                          | 108"                       | 67                            | 77                            | 13564                       | 0.43                            | 0.97                            |
|                                                                     |                          | 120"                       | 57                            | 65                            | 12311                       | 0.53                            | 1.15                            |
|                                                                     |                          | 132"                       | 50                            | 57                            | 11444                       | 0.67                            | 1.42                            |
|                                                                     |                          | 144"                       | 43                            | 49                            | 10292                       | 0.72                            | 1.67                            |
| 168"                                                                | 96"                      | 96"                        | 60                            | 67                            | 12807                       | 0.54                            | 0.62                            |
|                                                                     |                          | 108"                       | 52                            | 58                            | 11752                       | 0.67                            | 0.80                            |
|                                                                     |                          | 120"                       | 46                            | 51                            | 10919                       | 0.81                            | 1.00                            |
|                                                                     |                          | 132"                       | 41                            | 46                            | 10181                       | 0.89                            | 1.22                            |
|                                                                     |                          | 144"                       | 38                            | 42                            | 9725                        | 1.08                            | 1.50                            |



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AND WHEN STORM-BARS ARE USED TO REDUCE SHUTTER DEFLECTIONS.

# ROLL-UP SHUTTER MULLIONS



TKJ Engineering, LLC.

11335 AUTUMN CREEK DRIVE, RIVERVIEW, FL 33569  
PH: 813.404.7649; EM: TKJENGINEERING@VERIZON.NET  
A CERTIFICATE OF AUTHORIZATION NUMBER: 28582

DATE: 10/17/26

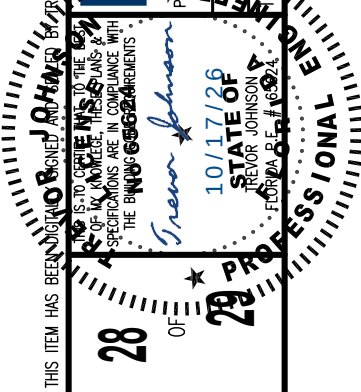
STATE OF FLORIDA

PROJ. #: 26-0802

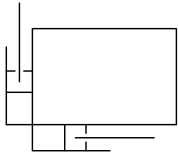
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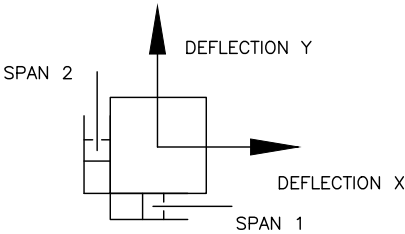
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| MAXIMUM DESIGN PRESSURE OF A<br>CORNER 4"X6"X1/2" MULLION (6061-T6) |                          |                            |                               |                               |                             |                                 |                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------|-------------------------------|-------------------------------|-----------------------------|---------------------------------|---------------------------------|
| SPAN<br>WIDTH 1<br>UP TO                                            | SPAN<br>WIDTH 2<br>UP TO | MULLION<br>LENGTH<br>UP TO | DESIGN<br>PRESSURE 1<br>(PSF) | DESIGN<br>PRESSURE 2<br>(PSF) | MULLION<br>END LOAD<br>(LB) | MULLION<br>DEFLECTION<br>Y (IN) | MULLION<br>DEFLECTION<br>X (IN) |
| 168"                                                                | 120"                     | 96"                        | 51                            | 55                            | 12082                       | 0.66                            | 0.54                            |
|                                                                     |                          | 108"                       | 44                            | 47                            | 11048                       | 0.80                            | 0.71                            |
|                                                                     |                          | 120"                       | 38                            | 41                            | 10049                       | 0.96                            | 0.88                            |
|                                                                     |                          | 132"                       | 34                            | 37                            | 9405                        | 1.22                            | 1.06                            |
|                                                                     |                          | 144"                       | 31                            | 33                            | 8824                        | 1.36                            | 1.28                            |
| 192"                                                                | 48"                      | 96"                        | 71                            | 85                            | 15646                       | 0.26                            | 0.79                            |
|                                                                     |                          | 108"                       | 59                            | 70                            | 14006                       | 0.34                            | 0.99                            |
|                                                                     |                          | 120"                       | 51                            | 61                            | 12915                       | 0.42                            | 1.23                            |
|                                                                     |                          | 132"                       | 42                            | 50                            | 11457                       | 0.64                            | 1.39                            |
|                                                                     |                          | 144"                       | 37                            | 44                            | 10589                       | 0.68                            | 1.68                            |
| 192"                                                                | 72"                      | 96"                        | 67                            | 78                            | 15248                       | 0.32                            | 0.77                            |
|                                                                     |                          | 108"                       | 57                            | 66                            | 13892                       | 0.36                            | 0.99                            |
|                                                                     |                          | 120"                       | 48                            | 56                            | 12529                       | 0.50                            | 1.22                            |
|                                                                     |                          | 132"                       | 41                            | 48                            | 11388                       | 0.55                            | 1.42                            |
|                                                                     |                          | 144"                       | 35                            | 41                            | 10264                       | 0.54                            | 1.64                            |
| 192"                                                                | 96"                      | 96"                        | 53                            | 60                            | 13301                       | 0.50                            | 0.65                            |
|                                                                     |                          | 108"                       | 46                            | 52                            | 12247                       | 0.62                            | 0.86                            |
|                                                                     |                          | 120"                       | 40                            | 45                            | 11211                       | 0.70                            | 1.07                            |
|                                                                     |                          | 132"                       | 36                            | 41                            | 10573                       | 0.81                            | 1.33                            |
|                                                                     |                          | 144"                       | 33                            | 37                            | 10083                       | 0.90                            | 1.59                            |
| 192"                                                                | 120"                     | 96"                        | 45                            | 49                            | 12328                       | 0.61                            | 0.57                            |
|                                                                     |                          | 108"                       | 38                            | 42                            | 11135                       | 0.74                            | 0.74                            |
|                                                                     |                          | 120"                       | 33                            | 36                            | 10217                       | 0.85                            | 0.90                            |
|                                                                     |                          | 132"                       | 30                            | 33                            | 9682                        | 1.04                            | 1.16                            |
|                                                                     |                          | 144"                       | 27                            | 30                            | 9087                        | 1.30                            | 1.36                            |
| 216"                                                                | 48"                      | 84"                        | 75                            | 90                            | 17785                       | 0.19                            | 0.62                            |
|                                                                     |                          | 96"                        | 61                            | 73                            | 15848                       | 0.25                            | 0.81                            |
|                                                                     |                          | 108"                       | 51                            | 61                            | 14315                       | 0.33                            | 1.02                            |
|                                                                     |                          | 120"                       | 42                            | 50                            | 12688                       | 0.46                            | 1.24                            |
|                                                                     |                          | 132"                       | 36                            | 43                            | 11561                       | 0.60                            | 1.48                            |
| 216"                                                                | 72"                      | 84"                        | 69                            | 81                            | 16980                       | 0.24                            | 0.59                            |
|                                                                     |                          | 96"                        | 58                            | 68                            | 15452                       | 0.25                            | 0.80                            |
|                                                                     |                          | 108"                       | 48                            | 56                            | 13831                       | 0.36                            | 1.00                            |
|                                                                     |                          | 120"                       | 41                            | 48                            | 12665                       | 0.43                            | 1.21                            |
|                                                                     |                          | 132"                       | 35                            | 41                            | 11511                       | 0.44                            | 1.44                            |



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MULLIONS

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STATE OF FLORIDA  
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10/17/26  
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