



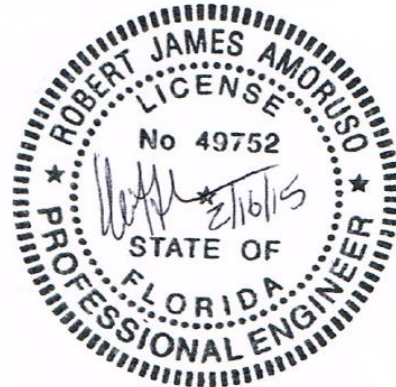
Engineering Report

Date:	February 16, 2015
Report No.:	1798
Report Revision No.:	2
Project No:	414-1104
Product Mfg.:	Pella Corporation 102 Main St. Pella, IA 50219
Project Description:	Series 350 Vinyl Window Mulling System: 1" Aluminum Mullion w/Stainless Steel Reinforcement with Fin Frame, Block Frame and Flange Frame Mullion End Clips, Non-Impact and Impact (Wind Zone 3, Missile Level D)
Product Category:	Windows
Product Sub-Category:	Mullion
Compliance Method:	Product Approval Rule 61G20-3.005(1)(d) – Evaluation Report by a Licensed Florida Professional Engineer
Prepared By:	Robert J. Amoruso, P.E. Florida P.E. No. 49752 PTC Product Design Group, LLC, PO Box 520775, Longwood, FL 32752-0775 Florida C of A No. 25935

CERTIFICATED OF INDEPENDENCE

PTC Product Design Group, LLC and Robert J. Amoruso, P.E. do not have, nor will acquire, any financial interest in the company manufacturing or distributing product(s) covered by the aforementioned Product Evaluation Report.

PTC Product Design Group, LLC and Robert J. Amoruso, P.E. do not have, nor will acquire any financial interest in any other entity involved in the approval process or testing of the product(s) covered by the aforementioned Product Evaluation Report.



Evaluated by:
Robert J. Amoruso, P.E.
Florida P.E. License Number 49752



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TOTAL	28

OBJECTIVE

The objective of this report is to summarize engineering information and installation instructions related to the mulling systems products listed in the Scope section above.

PTC Product Design Group, LLC was contracted by Pella Corporation to perform engineering evaluations of various mulled window combinations. This report is based on using the properties of the aluminum reinforcing mull only, and does not include the section properties of the window head, sill or jambs as demonstrated in the Product Evaluation Report (PER) in accordance with the AAMA A450-06, Option 3.

CODE COMPLIANCE

The mullion system was (a) tested for mulled assembly Air Infiltration and Water Penetration Resistance, (b) engineered for mullion stress and deflection and (c) engineered for alternate substrate anchoring in accordance with AAMA 450-06, Option 3 and the current edition of the Florida Building Code as documented in Reference 1.

Load Width vs. Mull Span Design Pressure tables shown in Appendix 3 and 4 of this report are based on results of Reference 2.

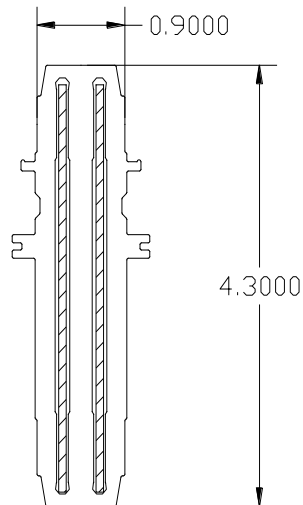
The mullion system complies with the current edition of the Florida Building Code and AAMA 450-06, Option 3.

SCOPE

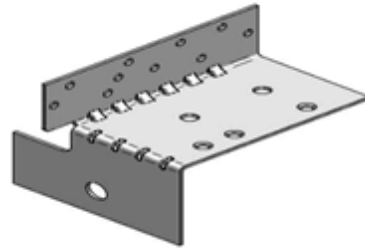
The scope of this summary report includes the following components shown below used in various mulled window assemblies.

- 1" Aluminum Mullion w/Stainless Steel Reinforcement Plates, and
- used with the following mullion end clips:
 - 4 ½" Nailing Fin Frame Mullion End Clips,
 - 4 ½" Block Frame Mullion End Clips, and
 - 4 ½" Flange Frame (Block Frame with snap-in 5/8" or 2 1/4" Flange) Mullion End Clips.

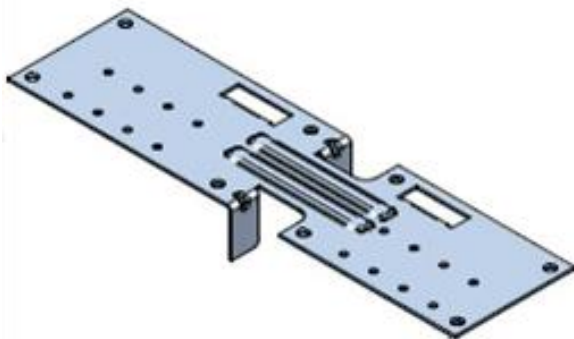
1" Aluminum Mullion
w/ Stainless Steel
Reinforcement Plates



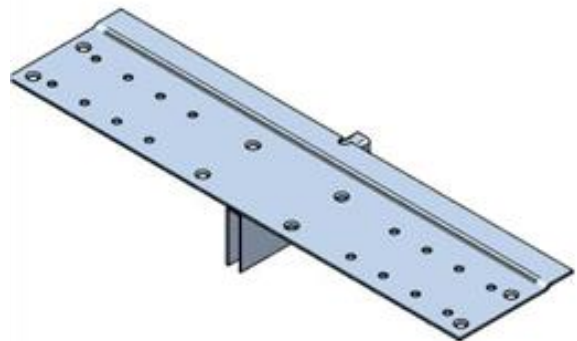
4 ½" Nailing Fin Frame Mullion End Clip



4 ½" Block Frame Mullion End Clip



4 ½" Flange Frame (Block Frame with snap-in 5/8" or
2 1/4" Flange) Mullion End Clip





Fenestration Products applicable to and for use with this mulling system include the following Series 350 Vinyl Window product line.

- Single Hung Window
- Double Hung Window
- Fixed (Picture) Window (including shapes)
- Sliding (Horizontal) Window
- Casement Window
- Awning Window

Frame configurations applicable to the Series 350 Vinyl Window product line include the following.

- 4 ½" Nailing Fin Frame,
- 4 ½" Block Frame,
- 4 ½" Flange Frame (Block Frame with snap-in 5/8" or 2 1/4" Flange), and
- 4 ½" J-Channel Frame (Nail Fin Frame with snap-in J-Channel Cover)

RESULTS

Result summaries include Design Pressure Capacities for Load Width vs. Mullion Span tables in various combinations of widths and spans for the following assemblies.

Table 1 – Vertical Mullion in 2-Way, Side-by-Side window assembly

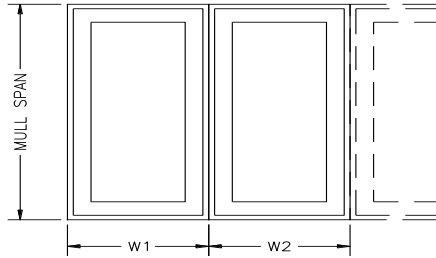


Table 2 – Horizontal Mullion in 2-Way, One-over-One window assembly

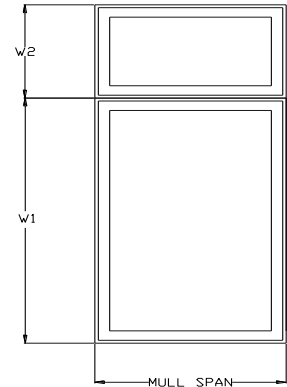


Table 3.1 – Vertical Mullion in 3-Way, Transom/Side-by-Side window assembly

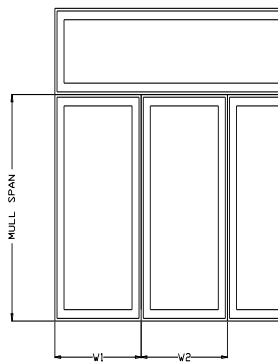


Table 3.2 – Horizontal Mullion in 3-Way, Transom/Side-by-Side window assembly

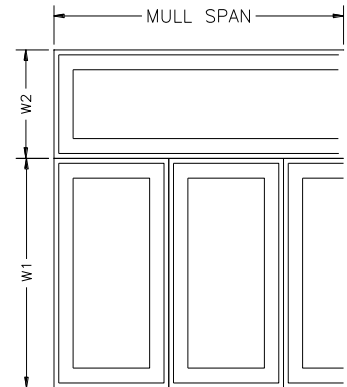


Table 4.1 – Vertical Mullion in 4-Way, Side-by-Side/Side-by-Side window assembly

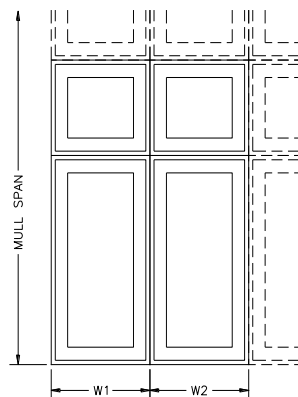
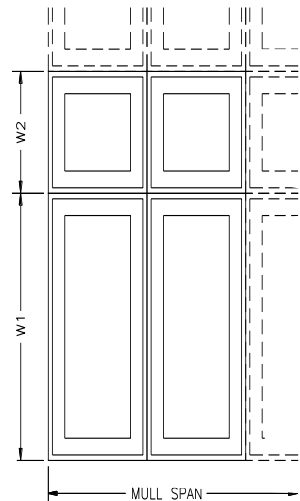


Table 4.2 – Horizontal Mullion in 4-Way, Side-by-Side/Side-by-Side window assembly





RESULTS (continued)

Installation Specifics are summarized in the following Appendixes to this report.

- Appendix 1 – 4 ½” Nailing Fin and J-Channel Frame, Installation Specifics
- Appendix 2 – 4 ½” Block and Flange Frame, Installation Specifics

Load Width vs. Mullion Span results are summarized in the following Appendixes to this report.

- Appendix 3 – 4 ½” Nailing Fin and J-Channel Frame, Load Width vs. Mullion Span Results Summary
- Appendix 4 – 4 ½” Block and Flange Frame, Load Width vs. Mullion Span Results Summary

USING THIS REPORT

The results contained in this report shall be utilized as follows.

Load Width vs. Mullion Span Results Summary Tables

- Based on the frame type; Nailing Fin, Block or Flange Frame employed in the mulled assembly, go to either Appendix 3 or 4 for the Load Width vs. Mullion Span Results Summary Tables.
- Match the mulled window assembly with one of four possible configurations.
 - 2-Way, Side-by-Side window assembly
 - Vertical Mullion
 - 2-Way, One-over-One window assembly
 - Horizontal Mullion
 - 3-Way, Transom/Side-by-Side window assembly
 - Vertical Mullion
 - Horizontal Mullion
 - 4-Way, Side-by-Side/Side-by-Side window assembly
 - Vertical Mullion
 - Horizontal Mullion
- For the 3-Way window assembly and 4-Way window assemblies, Tables 3.1 & 3.2 and Tables 4.1 & 4.2 cover either the horizontal or vertical mullion respectively. See RESULTS section above for illustrations.
- The Design Pressure Capacity for the Load Width vs. Mullion Span is derived from the results summaries shown in Appendix 3 and 4 as follows.

Using the 2-Way, Side-by-Side window assembly with a Vertical Mullion as an example (see illustration below), parameters required for table usage are:

Load Width = LW = $[W1 + W2]/2$

Mull Span is the length of the vertical height of the window.

The table shows resulting Design Pressure Capacity for various sizes of LW and Mull Span.

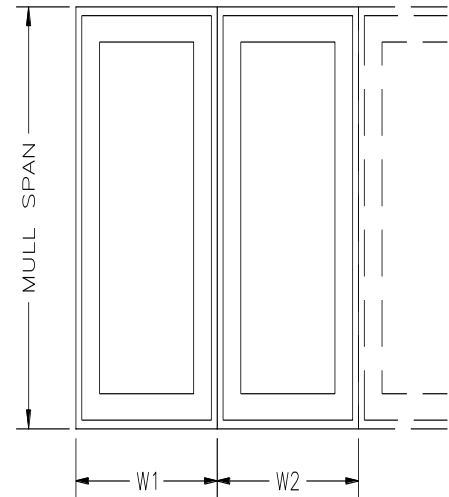
Installation Specific Requirements

The installation requirements are shown in the following Appendixes.

- Appendix 1 – 4 ½” Nailing Fin and J-Channel Frame, Installation Specifics
- Appendix 2 – 4 ½” Block and Flange Frame, Installation Specifics

Those requirements include the following.

- Installation Anchor Schedule showing:
 - approved anchors,
 - Min. Embedment into substrate,
 - Min. Edge Distance to substrate edges,
 - Min. Spacing of anchors at the mull clip, and
 - substrate strengths used in determining anchor capacity.
- Basic illustration showing:
 - fastener placement on mull end clips.



The quantities of anchors required at each mull clip end are summarized on the Load Width vs. Mullion Span Results Summary Tables.

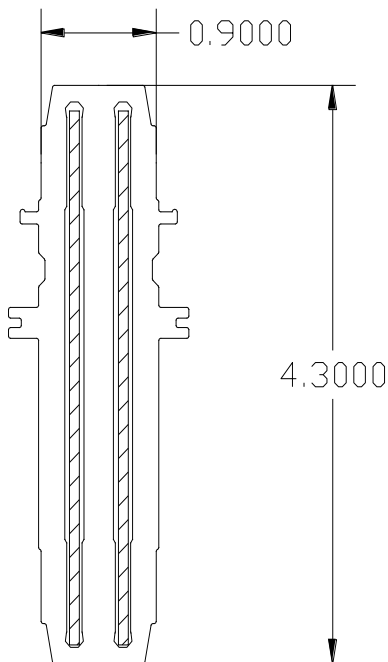
REFERENCES

1. PTC Product Evaluation Report No. 1799, Rev. 2, *Series 350 Vinyl Window Mulling System: ½” Light Duty, ½” Standard, ½” Standard w/reinforcement, 1” Structural and 1” Structural w/reinforcement Aluminum Mullion with Fin Frame, Block Frame and Flange Frame Mullion End Clips, Non-Impact and Impact (Wind Zone 3, Missile Level D)*, signed and sealed by Robert J. Amoruso, P.E. dated 2/16/15.
2. PTC Engineering Evaluation Report No. 1797, *Anchorage Engineering and Mullion Stress Analysis of Series 350 Vinyl Window Mulling System: 1” Aluminum Mullion w/Stainless Steel Reinforcement with Fin Frame, Block Frame and Flange Frame Mullion End Clips*, signed and sealed by Robert J. Amoruso, P.E. dated 6/17/11.

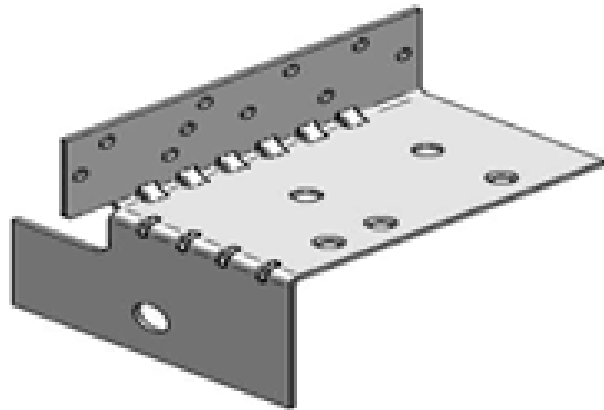
Appendix 1 – Nailing Fin and J-Channel Frame, Installation Specifics

Components Employed

- 1" Aluminum Mullion w/Stainless Steel Reinforcement Plates shown in Figure 1 below, and
- used with the following mullion end clip:
 - 4 1/2" Nailing Fin Frame Mullion End Clips shown in Figure 2 below.



1" Aluminum Mullion w/Stainless Steel
Reinforcement Plates
Figure 1



Nailing Fin Frame Mull Clip
Figure 2



Appendix 1 – Nailing Fin and J-Channel Frame, Installation Specifics

Anchor Installation Requirements

- Window assemblies and associated mulling clips and mulls shall be assembled and installed in accordance with the manufacturer's written instructions.
- Windows shall be attached to the structural substrate (including attachment to the mullion) in accordance with the manufacturer's Florida Building Code approved installation instructions.
- Anchors shall be installed through the window framing at the mounting holes shown in the following illustration (Figure 3).
- Anchors shall be as required by the *INSTALLATION ANCHOR SCHEDULE* table in this Appendix 1 below.
 - Edge distances shall be maintained and are measured from the centerline of the anchor to the structural substrate edge.
 - Embedment into the structural substrate shall be beyond any finishing and shall meet or exceed that shown in the table.
 - Spacing from centerline to centerline of the anchors shall meet or exceed the "Minimum Spacing" shown in the *INSTALLATION ANCHOR SCHEDULE*.
- Anchor quantities are specified in the *LOAD WIDTH vs. MULL SPAN* tables below and are applicable to each end of the mulls where they attach to structural substrate.
 - Mull clips are NOT used at mullion-to-mullion intersections in 3-Way and 4-Way assemblies.

Appendix 1 – Nailing Fin and J-Channel Frame, Installation Specifics

Mull Clip Substrate Anchor Locations

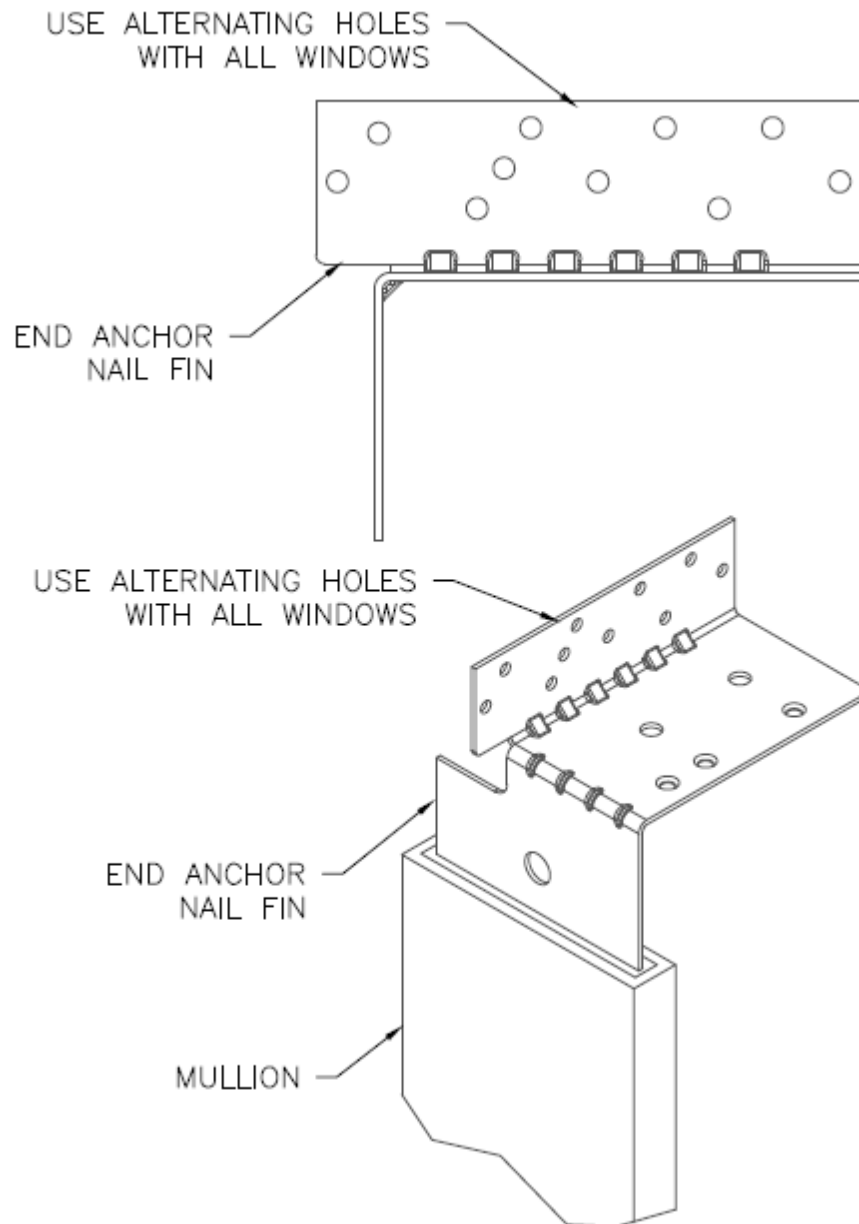


Figure 3 – Fin Frame Substrate Anchor Locations



Appendix 1 – Nailing Fin and J-Channel Frame, Installation Specifics

INSTALLATION ANCHOR SCHEDULE									
INSTALLATION TYPE	SUBSTRATE	HEAD TYPE	SIZE	MANUFACTURER AND/OR SPECIFICATION	MIN. EMBEDMENT (IN)	MIN. EDGE DISTANCE (IN)	MIN. SPACING (IN)	CAPACITIES USED IN ENGINEERING (LBS/ANCHOR)	CAPACITIES BASED ON
4 1/2" NAILING FIN FRAME	WOOD (1)	PAN HEAD	NO. 10	ANSI B18.6.1 (WOOD SCREW) ASME B18.6.4 (TAPPING SCREW)	1-1/2"	0.285"	0.57"	152 lbs	WOOD WITH A MINIMUM SPECIFIC GRAVITY OF 0.42
NOTES: 1) FOR WOOD AND TAPPING SCREWS IF SPLITTING IS A CONCERN, DRILL 3/32" PILOT HOLE FOR NAILING FIN INSTALLATION.									

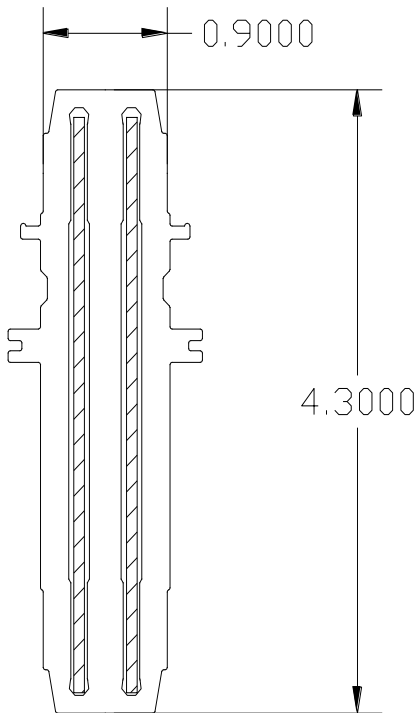
The INSTALLATION ANCHOR SCHEDULE table above lists the specific installation parameters (Min. Embedment, Min. Edge Distance, Min. Spacing and substrate strengths) and well as the specific fastener specifications (type, size, and industry specification).

For specific anchor quantities, refer to Appendix 3 Mullion Design Pressure Ratings tables.

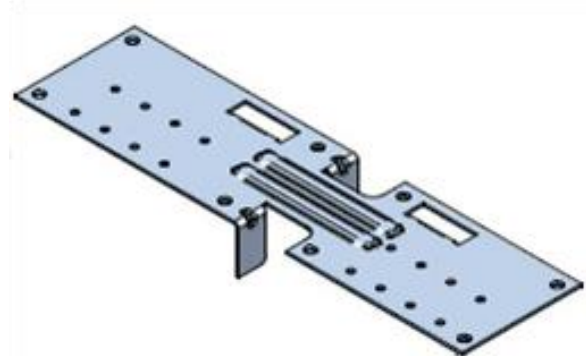
Appendix 2 – Block and Flange Frame, Installation Specifics

Components Employed

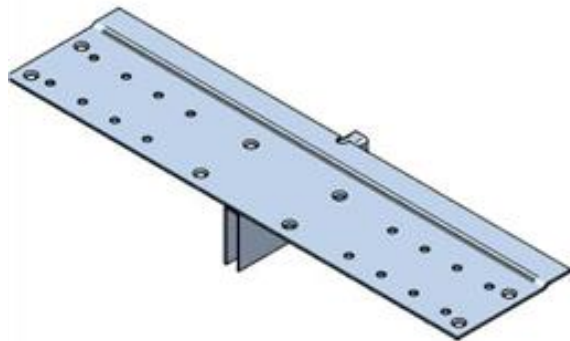
- 1" Aluminum Mullion w/ Stainless Steel Reinforcement Plates shown in Figure 1 below, and
- used with the following mullion end clips:
 - 4 ½" Block Frame Mullion End Clip shown in Figure 2a below, and
 - 4 ½" Flange Frame (Block Frame with snap-in 5/8" or 2 1/4" Flange) Mullion End Clip shown in Figure 2b below.



1" Aluminum Mullion w/ Stainless Steel
Reinforcement Plates
Figure 1



Block Frame Mull Clip
Figure 2a



Flange Frame Mull Clip
Figure 2b



Appendix 2 – Block and Flange Frame, Installation Specifics

Anchor Installation Requirements

- Window assemblies and associated mulling clips and mulls shall be assembled and installed in accordance with the manufacturer’s written instructions.
- Windows shall be attached to the structural substrate (including attachment to the mullion) in accordance with the manufacturer’s Florida Building Code approved installation instructions.
- Anchors shall be installed through the window framing at the mounting holes shown in the following illustration (Figure 3).
- Anchors shall be as required by the *INSTALLATION ANCHOR SCHEDULE* table below.
 - Edge distances shall be maintained and are measured from the centerline of the anchor to the structural substrate edge.
 - Embedment into the structural substrate shall be beyond any finishing and shall meet or exceed that shown in the table.
 - Spacing from centerline to centerline of the anchors shall meet or exceed the “Minimum Spacing” shown in the *INSTALLATION ANCHOR SCHEDULE*.
- Anchor quantities are specified in the *LOAD WIDTH vs. MULL SPAN* tables below and are applicable to each end of the mulls where they attach to structural substrate.
 - Mull clips are NOT used at mullion-to-mullion intersections in 3-Way and 4-Way assemblies.

Appendix 2 – Block and Flange Frame, Installation Specifics

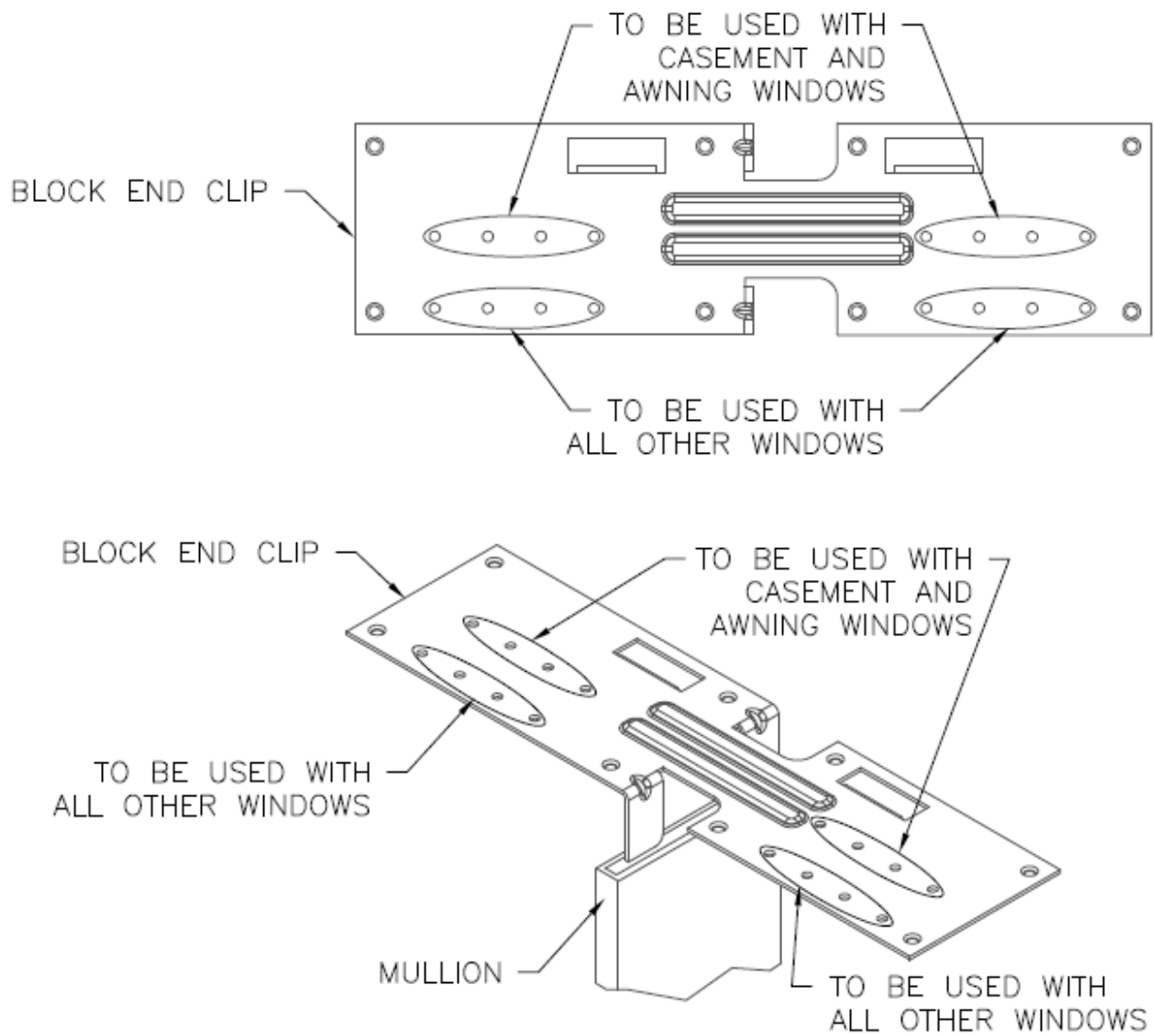


Figure 3 – Block Frame Substrate Anchor Locations

Appendix 2 – Block and Flange Frame, Installation Specifics

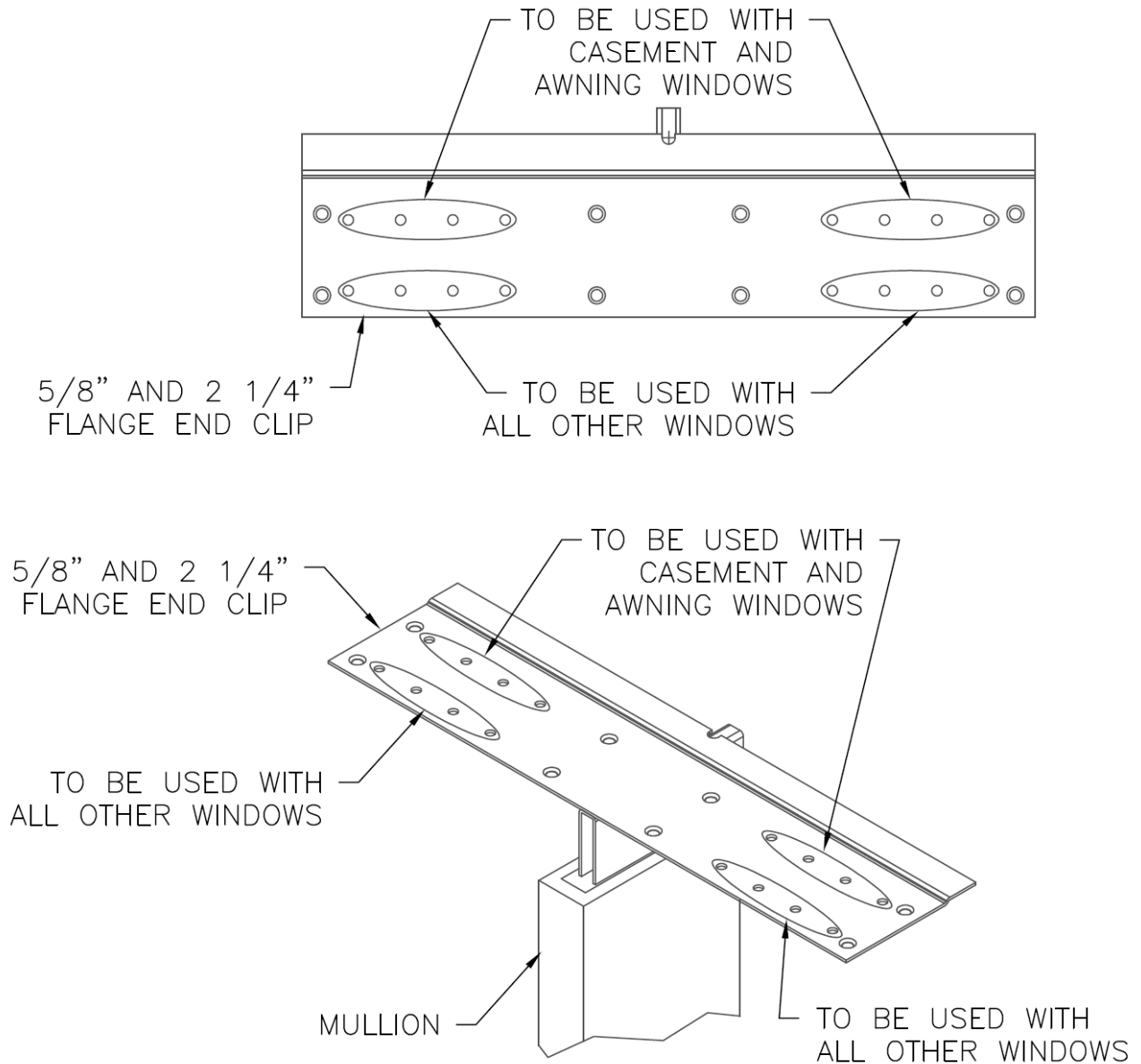


Figure 3 – Flange Frame Substrate Anchor Locations



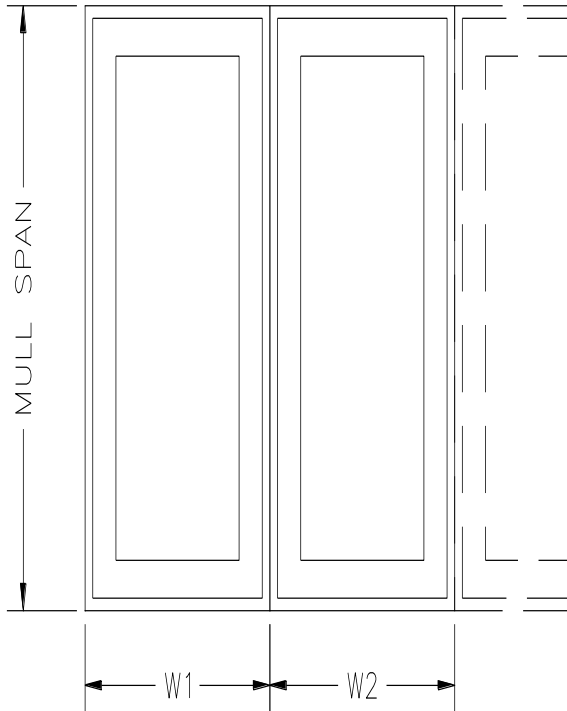
Appendix 2 – Block and Flange Frame, Installation Specifics

INSTALLATION ANCHOR SCHEDULE									
INSTALLATION TYPE	SUBSTRATE	HEAD TYPE	SIZE	MANUFACTURER AND/OR SPECIFICATION	MIN. EMBEDMENT (IN)	MIN. EDGE DISTANCE (IN)	MIN. SPACING (IN)	CAPACITIES USED IN ENGINEERING (LBS/ANCHOR)	CAPACITIES BASED ON
4 1/2" BLOCK OR 4 1/2" FLANGE FRAME	CONCRETE	FLAT OR PAN HEAD	3/16"	ITW TAPCONS (3)	1-3/4"	1-1/8"	2"	208 lbs (2)	MIN. 2000 PSI CONCRETE
				ELCO CRETE-FLEX SS4	2"	1-7/8"	2"	208 lbs	MIN. 2500 PSI CONCRETE
				HILTI KWIK-CON II	1-1/2"	1-1/8"	2"	208 lbs	MIN. 2000 PSI CONCRETE
	MASONRY (BLOCK/CMU)	FLAT OR PAN HEAD	3/16"	ITW TAPCONS (3)	1"	2"	3"	205 lbs (2)	STRENGTH CONFORMANCE TO ASTM C-90, MEDIUM WEIGHT
				ELCO CRETE-FLEX SS4	1-1/4"	1-7/8"	3"	205 lbs	
				HILTI KWIK-CON II	1"	1-1/8"	3"	205 lbs	
	WOOD (1)	FLAT OR PAN HEAD	NO. 10	ANSI B18.6.1 (WOOD SCREW) ASME B18.6.4 (TAPPING SCREW)	1-1/2"	3/4"	3/4"	143 lbs	WOOD WITH A MINIMUM SPECIFIC GRAVITY OF 0.42
	1/8" THK. ALUMINUM	FLAT OR PAN HEAD	NO. 10	ASME B18.6.4 (TAPPING SCREW)	FULLY PENETRATE SUBSTRATE WITH 3 THREADS PROTRUDING INTERNALLY	3/8"	5/8"	172 lbs	ALUMINUM 6063-T5 ALUMINUM OR BETTER
	1/8" THK. STEEL	FLAT OR PAN HEAD	NO. 10	ASME B18.6.4 (TAPPING SCREW)		3/8"	5/8"	172 lbs	ASTM A-36 STEEL, 36 KSI YIELD STRENGTH STEEL OR BETTER
	20 GAUGE (0.0346" MIN. THK.) STEEL INCLUDING STEEL STUDS	FLAT OR PAN HEAD	NO. 10	ASME B18.6.4 (TAPPING SCREW)		3/8"	5/8"	172 lbs	ASTM A-653 STEEL, 33 KSI YIELD STRENGTH STEEL OR BETTER
NOTES:									
1) FOR WOOD AND TAPPING SCREWS IF SPLITTING IS A CONCERN, DRILL 7/64" PILOT HOLE FOR FLANGE/BLOCK FRAME INSTALLATION.									
2) ITW TAPCONS CONCRETE AND MASONRY (BLOCK/CMU) ANCHOR CAPACITIES ARE BASED ON PAIRS OF ANCHORS AT THE SPACING SHOWN. THE PER ANCHOR CAPACITY IS SHOWN AND MUST BE DOUBLED TO ARRIVE AT THE PAIRED ANCHOR CAPACITY.									
3) WHEN ITW TAPCONS ARE USED FOR CONCRETE/MASONRY INSTALLATION, THEY SHALL BE THE ADVANCED THREADFORM TECHNOLOGY TYPE.									

The INSTALLATION ANCHOR SCHEDULE table above lists the specific installation parameters (Min. Embedment, Min. Edge Distance, Min. Spacing and substrate strengths) and well as the specific fastener specifications (type, size, and industry specification).

For specific anchor quantities, refer to Appendix 4 Mullion Design Pressure Ratings tables.

Appendix 3 – Nailing Fin and J-Channel Frame, Load Width vs. Mullion Span Results Summary



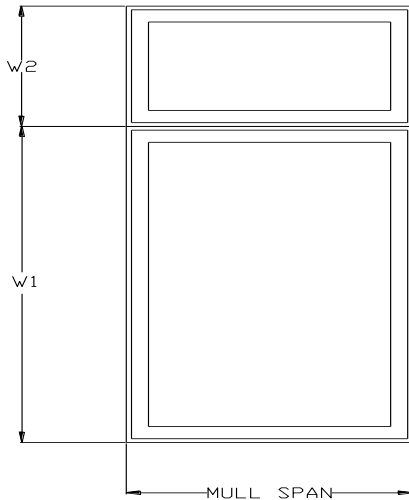
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

- 1) This table applies to multi-wide combination using a Vertical Structural Mullion.
- 2) LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
- 3) Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
- 4) Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
- 5) Allowable pressures on the mullied assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Wood	Wood or Tapping Screw	6
1. See Appendix 1 for anchor requirements. 2. Anchor Quantities are for each clip end.		

MULLION TABLE 1 (VERTICAL SPAN — 1" Aluminum Reinforcing Mull w/Reinforcement)								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
24	24	75.0	60	24	75.0	96	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	70.5
	60	75.0		60	75.0		60	66.3
	66	75.0		66	75.0		66	63.17
30	72	75.0	66	72	75.0	102	72	60.8
	24	75.0		24	75.0		24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	70.2
	54	75.0		54	75.0		54	64.9
	60	75.0		60	75.0		60	60.8
36	66	75.0	72	66	75.0	108	66	57.7
	72	75.0		72	75.0		72	55.3
	24	75.0		24	75.0		24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	71.9
	48	75.0		48	75.0		48	65.1
	54	75.0		54	75.0		54	60.0
42	60	75.0	78	60	75.0	114	60	56.1
	66	75.0		66	75.0		66	53.1
	72	75.0		72	75.0		72	50.7
	24	75.0		24	75.0		24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	67.2
	48	75.0		48	75.0		48	60.8
48	54	75.0	84	54	75.0	120	54	55.9
	60	75.0		60	75.0		60	52.1
	66	75.0		66	75.0		66	49.1
	72	75.0		72	75.0		72	46.5
	24	75.0		24	75.0		24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	70.0
	42	75.0		42	75.0		42	60.8
54	48	75.0	90	48	75.0		48	54.0
	54	75.0		54	75.0		54	48.9
	60	75.0		60	75.0		60	44.9
	66	75.0		66	75.0		66	41.7
	72	75.0		72	75.0		72	39.2
	24	75.0		24	75.0			
	30	75.0		30	75.0			
	36	75.0		36	75.0			
	42	75.0		42	75.0			
	48	75.0		48	75.0			
	54	75.0		54	75.0			
	60	75.0		60	73.0			
	66	75.0		66	69.8			
	72	75.0		72	67.6			

Appendix 3 – Nailing Fin and J-Channel Frame, Load Width vs. Mullion Span Results Summary



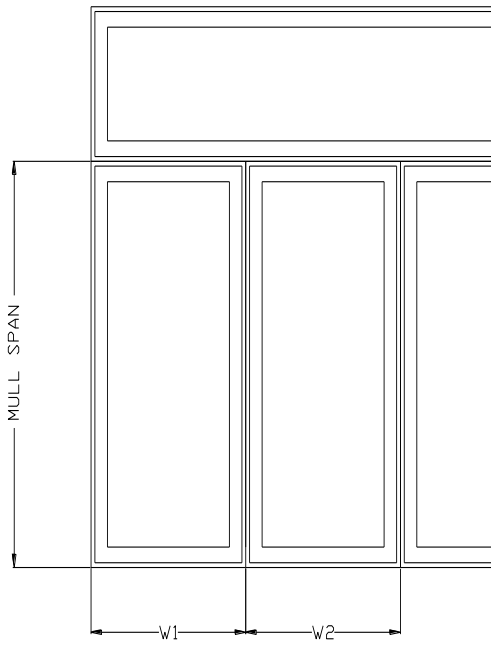
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

- 1) This table applies to one-wide, multi-high combinations using a Horizontal Structural Mullion.
- 2) LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
- 3) Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
- 4) Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
- 5) Allowable pressures on the mullied assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Wood	Wood or Tapping Screw	6
1. See Appendix 1 for anchor requirements. 2. Anchor Quantities are for each clip end.		

MULLION TABLE 2								
(HORIZONTAL SPAN — 1" Aluminum Reinforcing Mull w/Reinforcement)								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
48	24	75.0	72	24	75.0	96	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	70.5
	60	75.0		60	75.0		60	66.3
	66	75.0		66	75.0		66	63.2
54	24	75.0	78	24	75.0	102	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	70.2
	54	75.0		54	75.0		54	64.9
	60	75.0		60	75.0		60	60.8
	66	75.0		66	75.0		66	57.7
60	24	75.0	84	24	75.0	108	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	71.9
	48	75.0		48	75.0		48	65.1
	54	75.0		54	75.0		54	60.0
	60	75.0		60	75.0		60	56.1
	66	75.0		66	75.0		66	53.1
66	24	75.0	90	24	75.0	114	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	67.2
	48	75.0		48	75.0		48	60.8
	54	75.0		54	75.0		54	55.9
	60	75.0		60	73.0		60	52.1
	66	75.0		66	69.8		66	49.1
						120	24	75.0
							30	75.0
							36	70.0
							42	60.8
							48	54.0
							54	48.9
							60	44.9
							66	41.7

Appendix 3 – Nailing Fin and J-Channel Frame, Load Width vs. Mullion Span Results Summary



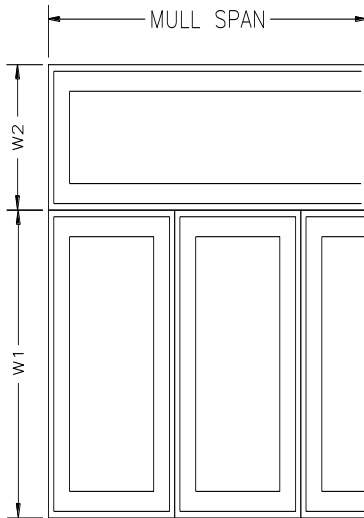
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

- 1) This table applies to a transom over a multi-wide combination using a Vertical Structural Mullion.
- 2) LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
- 3) Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
- 4) Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
- 5) Allowable pressures on the mullied assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Wood	Wood or Tapping Screw	6
1. See Appendix 1 for anchor requirements. 2. Anchor Quantities are for each clip end.		

MULLION TABLE 3.1								
(VERTICAL SPAN — 1" Aluminum Reinforcing Mull w/Reinforcement)								
Vertical mull in 3-way transom/side-by-side assembly. Covers the transom and window heights shown in Tables 3.2 for Substrate Clip.								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
24	24	75.0	48	24	75.0	72	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	75.0
	60	75.0		60	75.0		60	75.0
30	24	75.0	54	24	75.0	78	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	75.0
	60	75.0		60	75.0		60	75.0
36	24	75.0	60	24	75.0	84	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	75.0
	60	75.0		60	75.0		60	75.0
42	24	75.0	66	24	75.0	90	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	75.0
	60	75.0		60	75.0		60	73.0
	66	75.0		66	75.0	96	66	69.8
							24	75.0
							30	75.0
							36	75.0
							42	75.0
							48	75.0
							54	70.5
							60	66.3
							66	63.2

Appendix 3 – Nailing Fin and J-Channel Frame, Load Width vs. Mullion Span Results Summary



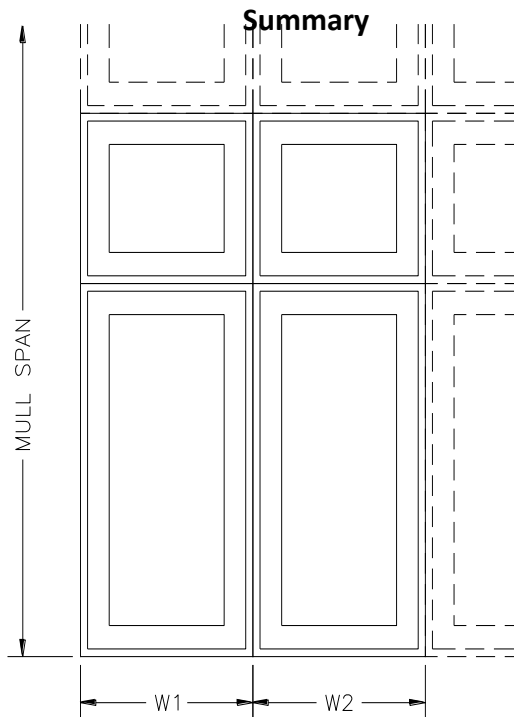
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

- 1) This table applies to a transom over a multi-wide combination using a Horizontal Structural Mullion.
- 2) LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
- 3) Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
- 4) Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
- 5) Allowable pressures on the mullied assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Wood	Wood or Tapping Screw	8
1. See Appendix 1 for anchor requirements. 2. Anchor Quantities are for each clip end.		

MULLION TABLE 3.2 (HORIZONTAL 3-WAY SPAN — 1" Aluminum Reinforcing Mullion w/Reinforcement)								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
48	24	75.0	78	24	75.0	108	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	73.8
	48	75.0		48	75.0		48	71.0
	54	75.0		54	75.0		54	72.6
	60	75.0		60	75.0		60	67.0
	66	75.0		66	75.0		66	62.4
	72	75.0		72	75.0		72	58.6
54	24	75.0	84	24	75.0	114	24	75.0
	30	75.0		30	75.0		30	74.0
	36	75.0		36	75.0		36	70.4
	42	75.0		42	75.0		42	67.3
	48	75.0		48	75.0		48	64.7
	54	75.0		54	75.0		54	61.0
	60	75.0		60	75.0		60	56.2
	66	75.0		66	75.0		66	52.3
	72	75.0		72	75.0		72	49.1
60	24	75.0	90	24	75.0	120	24	71.5
	30	75.0		30	75.0		30	67.7
	36	75.0		36	75.0		36	64.4
	42	75.0		42	75.0		42	61.7
	48	75.0		48	75.0		48	56.9
	54	75.0		54	75.0		54	51.7
	60	75.0		60	75.0		60	47.6
	66	75.0		66	75.0		66	44.3
	72	75.0		72	75.0		72	41.5
66	24	75.0	96	24	75.0			
	30	75.0		30	75.0			
	36	75.0		36	75.0			
	42	75.0		42	75.0			
	48	75.0		48	75.0			
	54	75.0		54	75.0			
	60	75.0		60	75.0			
	66	75.0		66	75.0			
	72	75.0		72	75.0			
72	24	75.0	102	24	75.0			
	30	75.0		30	75.0			
	36	75.0		36	75.0			
	42	75.0		42	75.0			
	48	75.0		48	75.0			
	54	75.0		54	75.0			
	60	75.0		60	75.0			
	66	75.0		66	75.0			
	72	75.0		72	70.7			

Appendix 3 – Nailing Fin and J-Channel Frame, Load Width vs. Mullion Span Results



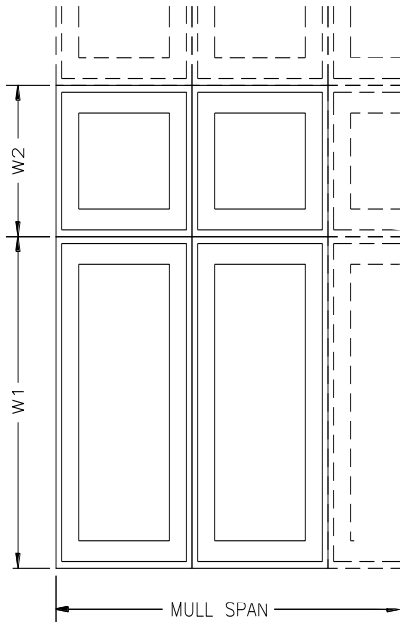
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

- 1) This table applies to a 4-way multi-wide, multi-high combination with a Vertical Structural Mullion running through the intersection.
- 2) LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
- 3) Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
- 4) Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
- 5) Allowable pressures on the mullion assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Wood	Wood or Tapping Screw	6
1. See Appendix 1 for anchor requirements.		
2. Anchor Quantities are for each clip end.		

MULLION TABLE 4.1 (VERTICAL 4-WAY SPAN — 1" Aluminum Reinforcing Mull w/Reinforcement)								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
36	24	75.0	66	24	75.0	96	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	70.5
	60	75.0		60	75.0		60	66.3
	66	75.0		66	75.0		66	63.2
	72	75.0		72	75.0		72	60.8
42	24	75.0	72	24	75.0	102	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	70.2
	54	75.0		54	75.0		54	64.9
	60	75.0		60	75.0		60	60.8
	66	75.0		66	75.0		66	57.7
	72	75.0		72	75.0		72	55.3
48	24	75.0	78	24	75.0	108	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	71.9
	48	75.0		48	75.0		48	65.1
	54	75.0		54	75.0		54	60.0
	60	75.0		60	75.0		60	56.1
	66	75.0		66	75.0		66	53.1
	72	75.0		72	75.0		72	50.7
54	24	75.0	84	24	75.0	114	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	67.2
	48	75.0		48	75.0		48	60.8
	54	75.0		54	75.0		54	55.9
	60	75.0		60	75.0		60	52.1
	66	75.0		66	75.0		66	48.4
	72	75.0		72	75.0		72	44.8
60	24	75.0	90	24	75.0	120	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	71.5
	42	75.0		42	75.0		42	62.2
	48	75.0		48	75.0		48	55.0
	54	75.0		54	75.0		54	49.4
	60	75.0		60	73.0		60	45.0
	66	75.0		66	69.8		66	41.3
	72	75.0		72	67.6		72	38.2

Appendix 3 – Nailing Fin and J-Channel Frame, Load Width vs. Mullion Span Results Summary



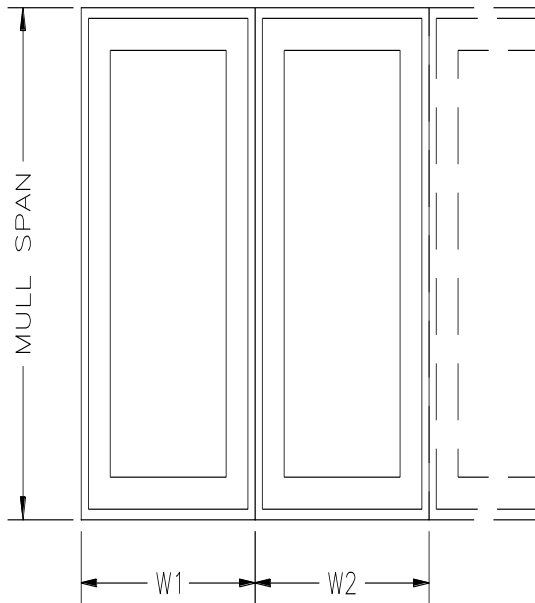
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

- 1) This table applies to a 4-way multi-wide, multi-high combination with a Horizontal Structural Mullion running through the intersection.
- 2) LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
- 3) Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
- 4) Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
- 5) Allowable pressures on the mullied assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Wood	Wood or Tapping Screw	6
1. See Appendix 1 for anchor requirements. 2. Anchor Quantities are for each clip end.		

MULLION TABLE 4.2 (HORIZONTAL 4-WAY SPAN — 1" Aluminum Reinforcing Mull W/Reinforcement)								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
36	24	75.0	66	24	75.0	96	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	70.5
	60	75.0		60	75.0		60	66.3
42	24	75.0	72	24	75.0	102	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	70.2
	54	75.0		54	75.0		54	64.9
	60	75.0		60	75.0		60	60.8
48	24	75.0	78	24	75.0	108	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	71.9
	48	75.0		48	75.0		48	65.1
	54	75.0		54	75.0		54	60.0
	60	75.0		60	75.0		60	56.1
54	24	75.0	84	24	75.0	114	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	67.2
	48	75.0		48	75.0		48	60.8
	54	75.0		54	75.0		54	55.9
	60	75.0		60	75.0		60	52.1
60	24	75.0	90	24	75.0	120	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	63.2
	48	75.0		48	75.0		48	57.0
	54	75.0		54	75.0		54	50.5
	60	75.0		60	73.0		60	45.0

Appendix 4 – Block and Flange Frame, Load Width vs. Mullion Span Results Summary



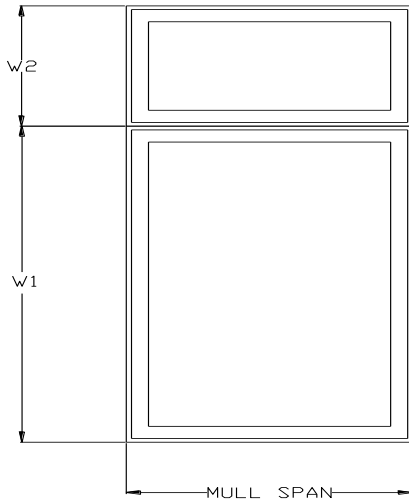
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

- 1) This table applies to multi-wide combination using a Vertical Structural Mullion.
- 2) LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
- 3) Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
- 4) Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
- 5) Allowable pressures on the mullied assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Concrete/Masonry	Concrete Screw	4
Wood	Wood or Tapping Screw	6
Aluminum or Steel Substrate	Tapping Screw	6
1. See Appendix 2 for anchor requirements.		
2. Anchor Quantities are for each clip end.		

MULLION TABLE 1 (VERTICAL SPAN — 1" Aluminum Reinforcing Mull w/Reinforcement)								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
24	24	75.0	60	24	75.0	96	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	68.3
	54	75.0		54	75.0		54	63.4
	60	75.0		60	75.0		60	59.6
	66	75.0		66	75.0		66	56.8
30	72	75.0		72	75.0		72	54.7
	24	75.0	66	24	75.0	102	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	69.4
	48	75.0		48	75.0		48	63.1
	54	75.0		54	75.0		54	58.3
	60	75.0		60	75.0		60	54.7
	66	75.0		66	75.0		66	51.9
36	72	75.0		72	75.0		72	49.7
	24	75.0	72	24	75.0	108	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	72.9
	42	75.0		42	75.0		42	64.6
	48	75.0		48	75.0		48	58.6
	54	75.0		54	75.0		54	54.0
	60	75.0		60	75.0		60	50.5
	66	75.0		66	75.0		66	47.7
42	72	75.0		72	75.0		72	45.6
	24	75.0	78	24	75.0	114	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	68.3
	42	75.0		42	75.0		42	60.5
	48	75.0		48	75.0		48	54.7
	54	75.0		54	75.0		54	50.3
	60	75.0		60	75.0		60	46.9
	66	75.0		66	75.0		66	44.2
48	72	75.0		72	75.0		72	42.1
	24	75.0	84	24	75.0	120	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	64.3
	42	75.0		42	75.0		42	56.8
	48	75.0		48	75.0		48	51.3
	54	75.0		54	75.0		54	47.0
	60	75.0		60	72.9		60	43.7
	66	75.0		66	70.2		66	41.1
54	72	75.0		72	68.3		72	39.0
	24	75.0	90	24	75.0		24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	74.5		48	74.5
	54	75.0		54	69.4		54	69.4
	60	75.0		60	65.6		60	65.6
	66	75.0		66	62.8		66	62.8
	72	75.0		72	60.7		72	60.7

Appendix 4 – Block and Flange Frame, Load Width vs. Mullion Span Results Summary



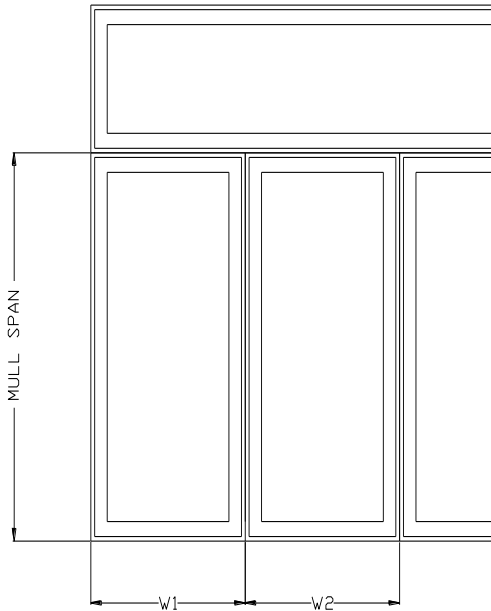
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

- 1) This table applies to one-wide, multi-high combinations using a Horizontal Structural Mullion.
- 2) LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
- 3) Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
- 4) Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
- 5) Allowable pressures on the mullion assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Concrete/Masonry	Concrete Screw	4
Wood	Wood or Tapping Screw	6
Aluminum or Steel Substrate	Tapping Screw	6
1. See Appendix 2 for anchor requirements.		
2. Anchor Quantities are for each clip end.		

MULLION TABLE 2								
(HORIZONTAL SPAN — 1" Aluminum Reinforcing Mull w/Reinforcement)								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
48	24	75.0	72	24	75.0	96	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	68.3
	54	75.0		54	75.0		54	63.4
	60	75.0		60	75.0		60	59.6
	66	75.0		66	75.0		66	56.8
54	24	75.0	78	24	75.0	102	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	69.4
	48	75.0		48	75.0		48	63.1
	54	75.0		54	75.0		54	58.3
	60	75.0		60	75.0		60	54.7
	66	75.0		66	75.0		66	51.9
60	24	75.0	84	24	75.0	108	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	72.9
	42	75.0		42	75.0		42	64.6
	48	75.0		48	75.0		48	58.6
	54	75.0		54	75.0		54	54.0
	60	75.0		60	72.9		60	50.5
	66	75.0		66	70.2		66	47.7
66	24	75.0	90	24	75.0	114	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	68.3
	42	75.0		42	75.0		42	60.5
	48	75.0		48	74.5		48	54.7
	54	75.0		54	69.4		54	50.3
	60	75.0		60	65.6		60	46.9
	66	75.0		66	62.8		66	44.2
	24	75.0		24	75.0	120	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	64.3
	42	75.0		42	75.0		42	56.8
	48	75.0		48	74.5		48	51.3
	54	75.0		54	69.4		54	47.0
	60	75.0		60	65.6		60	43.7
	66	75.0		66	62.8		66	41.1

Appendix 4 – Block and Flange Frame, Load Width vs. Mullion Span Results Summary



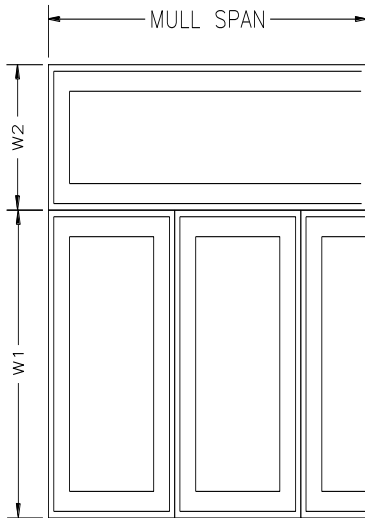
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

- 1) This table applies to a transom over a multi-wide combination using a Vertical Structural Mullion.
- 2) LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
- 3) Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
- 4) Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
- 5) Allowable pressures on the mullied assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Concrete/Masonry	Concrete Screw	4
Wood	Wood or Tapping Screw	6
Aluminum or Steel Substrate	Tapping Screw	6
1. See Appendix 2 for anchor requirements.		
2. Anchor Quantities are for each clip end.		

MULLION TABLE 3.1								
(VERTICAL SPAN — 1" Aluminum Reinforcing Mull w/Reinforcement)								
Vertical mull in 3-way transom/side-by-side assembly. Covers the transom and window heights shown in Tables 3.2 for Substrate Clip.								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
24	24	75.0	48	24	75.0	72	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	75.0
	60	75.0		60	75.0		60	75.0
	66	75.0		66	75.0		66	75.0
30	24	75.0	54	24	75.0	78	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	75.0
	60	75.0		60	75.0		60	75.0
	66	75.0		66	75.0		66	75.0
36	24	75.0	60	24	75.0	84	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	75.0
	54	75.0		54	75.0		54	75.0
	60	75.0		60	75.0		60	72.9
	66	75.0		66	75.0		66	70.2
42	24	75.0	66	24	75.0	90	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	74.5
	54	75.0		54	75.0		54	69.4
	60	75.0		60	75.0		60	65.6
	66	75.0		66	75.0		66	62.8
	24	75.0		24	75.0	96	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	68.3
	54	75.0		54	75.0		54	63.4
	60	75.0		60	75.0		60	59.6
	66	75.0		66	75.0		66	56.8

Appendix 4 – Block and Flange Frame, Load Width vs. Mullion Span Results Summary



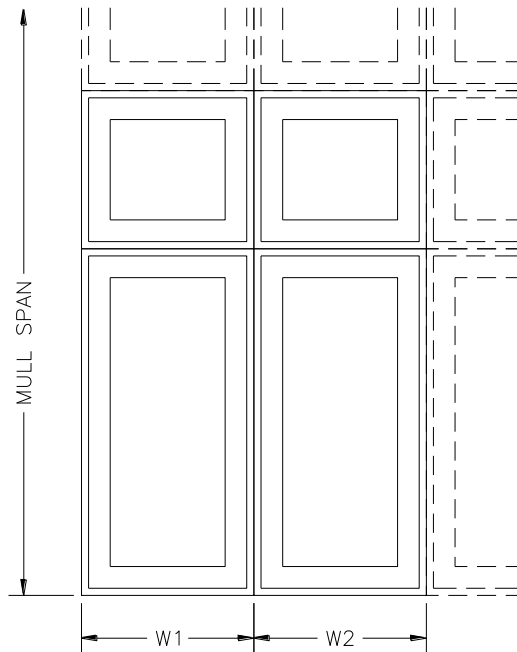
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

- 1) This table applies to a transom over a multi-wide combination using a Horizontal Structural Mullion.
- 2) LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
- 3) Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
- 4) Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
- 5) Allowable pressures on the mulled assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Concrete/Masonry	Concrete Screw	4
Wood	Wood or Tapping Screw	6
Aluminum or Steel Substrate	Tapping Screw	6
1. See Appendix 2 for anchor requirements.		
2. Anchor Quantities are for each clip end.		

MULLION TABLE 3.2 (HORIZONTAL 3-WAY SPAN — 1" ALUMINUM REINFORCING MULLION W/REINFORCEMENT)								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
48	24	75.0	78	24	75.0	108	24	58.1
	30	75.0		30	75.0		30	54.8
	36	75.0		36	75.0		36	52.1
	42	75.0		42	75.0		42	49.8
	48	75.0		48	75.0		48	47.9
	54	75.0		54	75.0		54	54.0
	60	75.0		60	75.0		60	50.4
	66	75.0		66	74.9		66	47.4
	72	75.0		72	71.6		72	44.9
54	24	75.0	84	24	75.0	114	24	52.8
	30	75.0		30	75.0		30	49.9
	36	75.0		36	75.0		36	47.5
	42	75.0		42	75.0		42	45.4
	48	75.0		48	75.0		48	43.7
	54	75.0		54	75.0		54	42.2
	60	75.0		60	71.1		60	46.8
	66	75.0		66	67.3		66	44.0
	72	75.0		72	64.2		72	41.6
60	24	75.0	90	24	75.0	120	24	48.2
	30	75.0		30	75.0		30	45.6
	36	75.0		36	71.1		36	43.4
	42	75.0		42	68.0		42	41.6
	48	75.0		48	74.5		48	40.0
	54	75.0		54	69.0		54	38.6
	60	75.0		60	64.6		60	43.7
	66	75.0		66	61.0		66	41.1
	72	75.0		72	58.0		72	38.8
66	24	75.0	96	24	71.3			
	30	75.0		30	67.1			
	36	75.0		36	63.7			
	42	75.0		42	60.9			
	48	75.0		48	68.3			
	54	75.0		54	63.2			
	60	75.0		60	59.1			
	66	75.0		66	55.7			
	72	75.0		72	52.9			
72	24	75.0	102	24	64.2			
	30	75.0		30	60.5			
	36	75.0		36	57.4			
	42	75.0		42	54.9			
	48	75.0		48	52.8			
	54	75.0		54	58.3			
	60	75.0		60	54.4			
	66	75.0		66	51.2			
	72	75.0		72	48.6			

Appendix 4 – Block and Flange Frame, Load Width vs. Mullion Span Results Summary



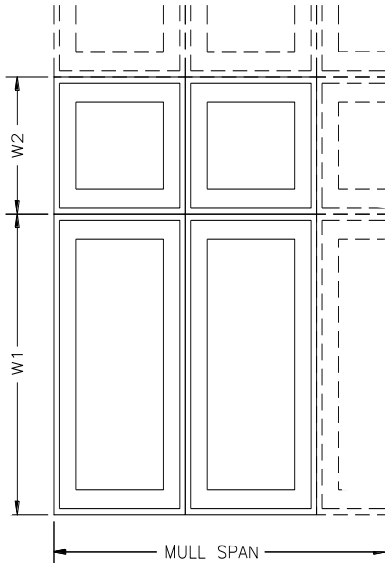
$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

1. This table applies to a 4-way multi-wide, multi-high combination with a Vertical Structural Mullion running through the intersection.
2. LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
3. Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
4. Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
5. Allowable pressures on the mullion assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Concrete/Masonry	Concrete Screw	4
Wood	Wood or Tapping Screw	6
Aluminum or Steel Substrate	Tapping Screw	6
1. See Appendix 2 for anchor requirements.		
2. Anchor Quantities are for each clip end.		

MULLION TABLE 4.1 (VERTICAL 4-WAY SPAN — 1" Aluminum Reinforcing Mull w/Reinforcement)								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
36	24	75.0	66	24	75.0	96	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	68.3
	54	75.0		54	75.0		54	63.4
	60	75.0		60	75.0		60	59.6
	66	75.0		66	75.0		66	56.8
	72	75.0		72	75.0		72	54.7
42	24	75.0	72	24	75.0	102	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	69.4
	48	75.0		48	75.0		48	63.1
	54	75.0		54	75.0		54	58.3
	60	75.0		60	75.0		60	54.7
	66	75.0		66	75.0		66	51.9
	72	75.0		72	75.0		72	49.7
48	24	75.0	78	24	75.0	108	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	72.9
	42	75.0		42	75.0		42	64.6
	48	75.0		48	75.0		48	58.6
	54	75.0		54	75.0		54	54.0
	60	75.0		60	75.0		60	50.5
	66	75.0		66	75.0		66	47.7
	72	75.0		72	75.0		72	45.6
54	24	75.0	84	24	75.0	114	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	68.3
	42	75.0		42	75.0		42	60.5
	48	75.0		48	75.0		48	54.7
	54	75.0		54	75.0		54	50.3
	60	75.0		60	72.9		60	46.9
	66	75.0		66	70.2		66	44.2
	72	75.0		72	68.3		72	42.1
60	24	75.0	90	24	75.0	120	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	64.3
	42	75.0		42	75.0		42	56.8
	48	75.0		48	74.5		48	51.3
	54	75.0		54	69.4		54	47.0
	60	75.0		60	65.6		60	43.7
	66	75.0		66	62.8		66	41.1
	72	75.0		72	60.7		72	38.2

Appendix 4 – Block and Flange Frame, Load Width vs. Mullion Span Results Summary



$$\text{LOAD WIDTH} = (W1 + W2) / 2$$

1. This table applies to a 4-way multi-wide, multi-high combination with a Horizontal Structural Mullion running through the intersection.
2. LOAD WIDTH must be calculated using two largest adjacent (side by side) window widths.
3. Mull spans are restricted to the longest span shown in the Table. For Mull spans between those shown in the table, use the next longest span.
4. Windows may be Fixed, Sliding, Double Hung, Casement, Single Hung and Awning Windows.
5. Allowable pressures on the mullied assembly shall be controlled by the lesser of the mullion or individual window unit.

Anchor Quantities (per clip end)		
Substrate	Anchor	Min. Quantity
Concrete/Masonry	Concrete Screw	4
Wood	Wood or Tapping Screw	6
Aluminum or Steel Substrate	Tapping Screw	6
1. See Appendix 2 for anchor requirements. 2. Anchor Quantities are for each clip end.		

MULLION TABLE 4.2 (HORIZONTAL 4-WAY SPAN — 1" Aluminum Reinforcing Mull)								
MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)	MULL SPAN	LOAD WIDTH	DP (PSF)
36	24	75.0	66	24	75.0	96	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	75.0
	48	75.0		48	75.0		48	68.3
	54	75.0		54	75.0		54	63.4
	60	75.0		60	75.0		60	59.6
42	24	75.0	72	24	75.0	102	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	75.0
	42	75.0		42	75.0		42	69.4
	48	75.0		48	75.0		48	63.1
	54	75.0		54	75.0		54	58.3
	60	75.0		60	75.0		60	54.7
48	24	75.0	78	24	75.0	108	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	72.9
	42	75.0		42	75.0		42	64.6
	48	75.0		48	75.0		48	58.6
	54	75.0		54	75.0		54	54.0
	60	75.0		60	75.0		60	50.5
54	24	75.0	84	24	75.0	114	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	68.3
	42	75.0		42	75.0		42	60.5
	48	75.0		48	75.0		48	54.7
	54	75.0		54	75.0		54	50.3
	60	75.0		60	72.9		60	46.9
60	24	75.0	90	24	75.0	120	24	75.0
	30	75.0		30	75.0		30	75.0
	36	75.0		36	75.0		36	72.9
	42	75.0		42	75.0		42	56.8
	48	75.0		48	74.5		48	51.3
	54	75.0		54	69.4		54	47.0
	60	75.0		60	65.6		60	43.7