

WEATHER SHIELD WINDOWS AND DOORS

HORIZONTAL & VERTICAL MULLION SYSTEM - IMPACT RESISTANT

MULLION SPAN VS. LOAD WIDTH TABLES - INSTALLATION ANCHORAGE DETAILS

GENERAL NOTES:

1.

THE SYSTEM DESCRIBED HEREIN IS DESIGNED TO COMPLY WITH THE CURRENT EDITION OF THE FLORIDA BUILDING CODE. TESTING, DESIGN AND ENGINEERING HAS BEEN PERFORMED TO THE FOLLOWING.

1.1.

AAMA 450-10

1.2.

AAMA/WDMA/CSA 101/I.S.2/A440-08

1.3.

AAMA/WDMA/CSA 101/I.S.2/A440-11

1.4.

ASTM E 1886-13a

1.5.

ASTM E 1996-12a

1.6.

TAS 201-94

1.7.

TAS 202-94

1.8.

TAS 203-94
2.

THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT IF REQUIRED.
3.

PERMIT HOLDER SHALL VERIFY THE ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS. WOOD BUCKS (BY OTHERS) SHALL BE ANCHORED PROPERLY TO TRANSFER LOADS TO THE EXISTING STRUCTURE.
4.

ALL FENESTRATION PRODUCTS TO BE USED WITH THESE MULLIONS SHALL MEET ALL APPLICABLE CODE AND PRODUCT APPROVAL REQUIREMENTS, e.g. WIND LOAD RESISTANCE, AIR & WATER INFILTRATION, FORCED ENTRY, SAFEGUARDS, ETC.
5.

MULLIONS SHOWN HEREIN MAY BE USED IN LARGE MISSILE IMPACT (HVHZ), SMALL MISSILE IMPACT (HVHZ), WIND BORNE DEBRIS REGIONS (WBDR OUTSIDE HVHZ) AND NON-IMPACT APPLICATIONS. WHERE OPENING PROTECTION IS REQUIRED, FENESTRATION PRODUCTS USED WITH THESE PRODUCTS MUST MEET OPENING PROTECTION REQUIREMENTS REQUIRED FOR THE SITE SPECIFIC AREA (I.E., HVHZ, WDBR, ETC.) OR AN APPROVED IMPACT RESISTANT SHUTTER USED.
6.

ALLOWABLE DESIGN PRESSURES SHALL BE BASED ON THE LOWER OF:
- 6.1.

THE MULLED ASSEMBLY DESIGN PRESSURE SHOWN ON THIS DRAWING, OR
- 6.2.

THE APPROVED FENESTRATION PRODUCT DESIGN PRESSURE.

INSTALLATION NOTES:

1.

WINDOW INSTALLATION:

1.1.

WINDOW INSTALLATION SHALL BE PER THE FLORIDA PRODUCT APPROVAL SYSTEM (FPAS) INSTALLATION DRAWING(S). SEE THE *MULLION SYSTEM PRODUCT GROUPING* TABLE BELOW FOR PRODUCTS APPROVED FOR USE WITH THE MULLION SYSTEM AND ASSOCIATED FLORIDA PRODUCT APPROVAL SYSTM (FPAS) NUMBERS. FPAS NUMBERS ARE SUBJECT TO CHANGE. CONSULT THE MANUFACTURER DIRECTLY FOR ASSISTANCE.
2.

MULLION INSTALLATION:

2.1.

TWO INSTALLATION CLIPS (DRAWING NO. 60-0048-01); ONE ON EITHER SIDE OF THE MULLION; SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.

2.1.1.

INSTALLATION CLIP TO WOOD BUCK, DRAWING NO. 85-7815-15, SHEET 1.

2.1.2.

INSTALLATION CLIP TO FENESTRATION, DRAWING NO. 85-7815-13. SHEET 1.

2.1.3.

INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 3.

2.2.

MULLION PLATE ATTACHMENT TO FENESTRATION SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.

2.1.1.

MULLION PLATE TO FENESTRATION FRAME, DRAWING NO. 85-2762-14, SHEET 2.

2.1.2.

MULLION PLATE, DRAWING NO. 06-2893-03, SHEET 1.

2.1.3.

INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 4.

2.1.

JOINING OF FENESTRATION PRODUCTS TO MULLIONS SHALL BE PER THE FOLLOWING DRAWINGS - SEE SHEET 9 THIS DRAWING FOR EXCERPTS.

2.1.1.

MULLION "A", COMBINATION MULLION PER DRAWING NO. 85-7444-35.

2.1.2.

MULLION "B", 0.063" X 4" STEEL MULLION STIFFENER PER DRAWING NO. 85-7444-45.

2.1.3.

MULLION "C", 0.5" X 4" ALUMINUM MULLION STIFFENER PER DRAWING NO. 85-11602-01.

3.

DRAWING NUMBERS LISTED ABOVE ARE AVAILABLE FROM WEATHER SHIELD DIRECTLY.

4.

SEE SHEET 10 FOR MULLION SYSTEM PRODUCT GROUPING
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| 3 | THREE-WAY COMBINATION - HVHZ - TABLE 2 |
| 4 | FOUR-WAY COMBINATION - TABLE 3 |
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| 6 | VERTICAL COMBINED MULLION COMBINATION - HVHZ - TABLE 5 |
| 7 | VERTICAL STEEL MULLION STIFFENER COMBINATION - TABLE 6 |
| 8 | VERTICAL ALUMINUM MULLION STIFFENER COMBINATION HVHZ -- TABLE 6 |
| 9 | MULLION DETAILS |
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|----------------------|--|--------------------|--------------------------------|-----------------------------------|-------------|
| PROJECT NO. 421-0902 | | R/A | R/A | R/A | BY |
| | | 9/13/21 | | | DATE |
| | | ADDED NEW PRODUCTS | UPDATED TO CURRENT EDITION FBC | UPDATED TO 6TH EDITION (2017) FBC | DESCRIPTION |
| | | C | B | A | REV |
- WEATHER SHIELD WINDOWS & DOORS

829 N. 8th Street
Medford, WI 54451

TITLE: WEATHER SHIELD HORIZONTAL & VERTICAL MULLION SYSTEM
GENERAL NOTES, INST. NOTES & ANCHOR SCHEDULE

DRAWN BY: RJA

DATE: 10/20/15

SCALE: NONE

DRAWING NO: WS0001

REV: C

SHEET: 1 OF 10

PREPARED BY:



PTC PRODUCT DESIGN GROUP, LLC
P.O. Box 520775
Longwood, FL 32752-0775
Florida CoA No. 25935

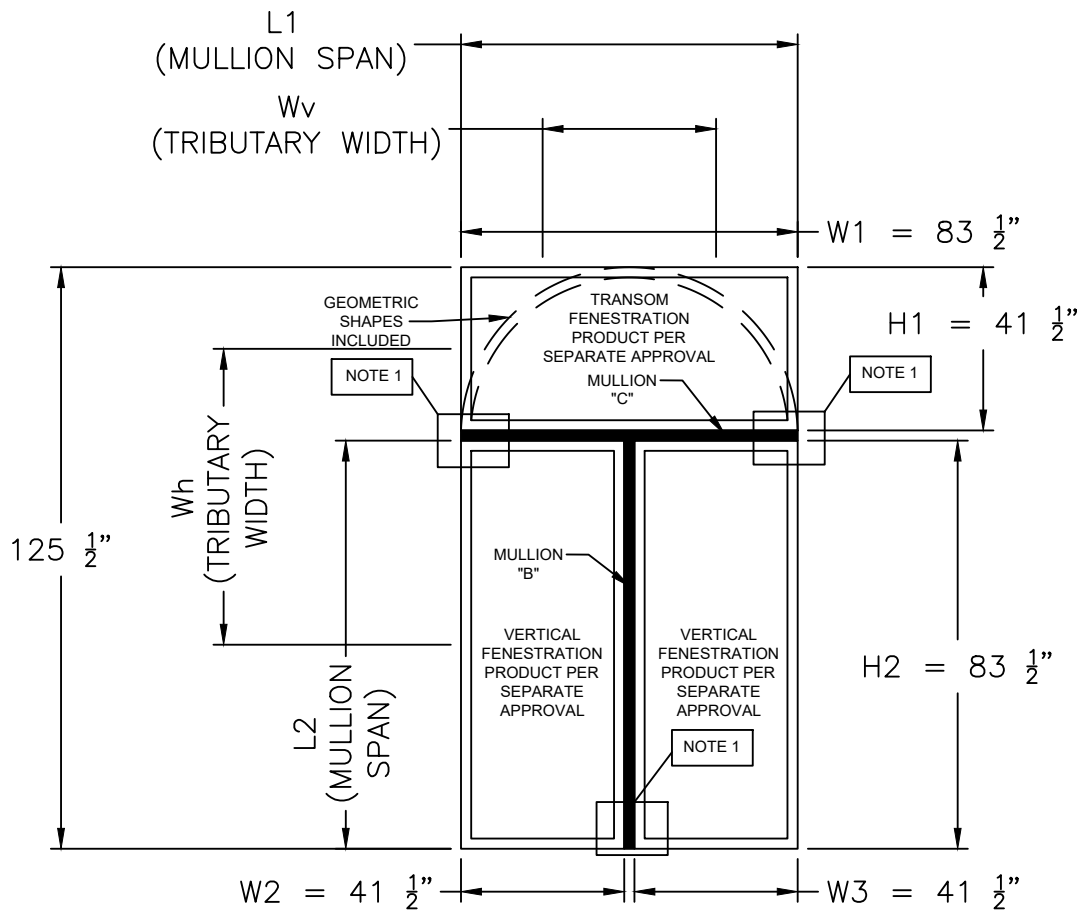
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- Robert J. Amoruso, P.E.
Florida PE No. 49752



Digitally signed
by Robert J
Amoruso

Date: 2021.09.21
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THREE-WAY MULLION COMBINATION



PERFORMANCE RATING	
DESIGN PRESSURE (PSF)	IMPACT RATING
+55 / -70	WIND ZONE 4, MISSILE LEVEL D
LIMITATIONS OF USE	
NOT APPROVED FOR USE IN HIGH VELOCITY HURRICANE ZONE (HVHZ)	
APPROVED FOR USE IN WIND-BORNE DEBRIS REGIONS (WBDR) AND ALL OTHER AREAS OUTSIDE THE HVHZ AS DEFINED IN THE FLORIDA BUILDING CODE	
CERTIFICATION AND TESTING	
WDMA CERTIFICATION NO.	TEST REPORT NO.
449-H-013.50 to 449-H-013.55	ESP018974P-1682 (3-Way Tested, Mullion B&C)

Table 1								
Three-Way Mullion Combination								
Mullion B Vertical (Full Length) - Mullion C Horizontal (Full Length)								
Window =>	Operable or Fixed Window			Transom			Overall Assembly	
Mullion Span / Tributary Width =>	---	L2	Wv	L1	H1	---	W	H
Window Size =>	W2 & W3	H2	---	W1	H1	---	W	H
84" Tall Vertical Windows (L2 Span)	31.3	84	31.3	62.61	96	90.0	62.61	180
	32	84	32	64	91.2	87.6	64	175
	34	84	34	68	78.5	81.2	68	162
	36	84	36	72	67.1	75.5	72	151
	38	84	38	76	56.9	70.5	76	141
	40	84	40	80	47.8	65.9	80	132
78" Tall Vertical Windows (L2 Span)	42	84	42	84	up to 42	63.0	84	126
	32.7	78	32.65	65.3	96	87.0	65.3	174
	34	78	34	68	87.5	82.7	68	165
	34	78	34	68	87.5	82.7	68	165
	36	78	36	72	76.1	77.0	72	154
	38	78	38	76	65.9	72.0	76	144
72" Tall Vertical Windows (L2 Span)	40	78	40	80	up to 57	67.5	80	135
	34	72	34	68	96	84.2	68	168
	36	72	36	72	85.1	78.5	72	157
	38	72	38	76	74.9	73.5	76	147
66" Tall Vertical Windows (L2 Span)	40	72	40	80	up to 66	69.0	80	138
	35.65	66	35.65	71.3	96	81.0	71.3	162
	36	66	36	72	94.1	80.0	72	160
60" Tall Vertical Windows (L2 Span)	38	66	38	76	up to 84	75.0	76	150
	37.4	60	37.4	74.8	96	77.9	74.8	156
	38	60	38	76	up to 93	76.5	76	153
54" Tall Vertical Windows (L2 Span)	24	54	24	48	up to 96	75.0	48	150
	26	54	26	52		75.0	52	150
	28	54	28	56		75.0	56	150
	30	54	30	60		75.0	60	150
	32	54	32	64		75.0	64	150
	34	54	34	68		75.0	68	150
	36	54	36	72		75.0	72	150
48" Tall Vertical Windows (L2 Span)	24	48	24	48	up to 96	72.0	48	144
	26	48	26	52		72.0	52	144
	28	48	28	56		72.0	56	144
	30	48	30	60		72.0	60	144
	32	48	32	64		72.0	64	144
	34	48	34	68		72.0	68	144
	36	48	36	72		72.0	72	144
42" Tall Vertical Windows (L2 Span)	24	42	24	48	up to 96	69.0	48	138
	26	42	26	52		69.0	52	138
	28	42	28	56		69.0	56	138
	30	42	30	60		69.0	60	138
	32	42	32	64		69.0	64	138
	34	42	34	68		21.0	68	138

NOTES:

- TWO INSTALLATION CLIPS (DRAWING NO. 60-0048-01); ONE ON EITHER SIDE OF THE MULLION; SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.
 - INSTALLATION CLIP TO WOOD BUCK, DRAWING NO. 85-7815-15, SHEET 1.
 - INSTALLATION CLIP TO FENESTRATION, DRAWING NO. 85-7815-13, SHEET 1.
 - INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 3.
- MULLION PLATE ATTACHMENT TO FENESTRATION SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.
 - MULLION PLATE TO FENESTRATION FRAME, DRAWING NO. 85-2762-14, SHEET 2.
 - MULLION PLATE, DRAWING NO. 06-2893-03, SHEET 1.
 - INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 4.
- JOINING OF FENESTRATION PRODUCTS TO MULLIONS SHALL BE PER THE FOLLOWING DRAWINGS - SEE SHEET 9 THIS DRAWING FOR EXCERPTS.
 - MULLION "A", COMBINATION MULLION PER DRAWING NO. 85-7444-35.
 - MULLION "B", 0.063" X 4" STEEL MULLION STIFFENER PER DRAWING NO. 85-7444-45.
 - MULLION "C", 0.5" X 4" ALUMINUM MULLION STIFFENER PER DRAWING NO. 85-11602-01.
- ALLOWABLE DESIGN PRESSURES SHALL BE BASED ON THE LOWER OF:
 - THE MULLED ASSEMBLY DESIGN PRESSURE SHOWN ON THIS DRAWING OR,
 - THE APPROVED FENESTRATION PRODUCT DESIGN PRESSURE.

- MULLION SPANS AND TRIBUTARY SIZES OF FENESTRATION PRODUCTS SHALL NOT EXCEED THE FOLLOWING (AS-TESTED CONDITIONS).
 - TRANSOM FENESTRATION COMPONENT
 - HORIZONTAL SPAN OF TRANSOM (W1) 83 1/2" (84" NOMINAL).
 - VERTICAL HEIGHT OF TRANSOM (H1) 41 1/2" (42" NOMINAL).
 - VERTICAL FENESTRATION COMPONENT
 - WIDTH (W2 AND W3) MAXIMUM 41 1/2" (42" NOMINAL).
 - WIDTH OVERALL MAXIMUM 83 1/2" (84" NOMINAL).
 - W2 DOES NOT HAVE TO EQUAL W3.
 - W2 + W3 CANNOT EXCEED 83 1/2" OVERALL (84" NOMINAL).
 - HEIGHT (H2) MAXIMUM 83 1/2" (84" NOMINAL).
 - OVERALL ASSEMBLY SIZE MAXIMUM 83 1/2" WIDTH X 125 1/2" HEIGHT (84" x 126" NOMINAL).
 - VARIABLE TRIBUTARY SIZES BASED ON COMPARATIVE ANALYSIS - SEE TABLE 1 THIS SHEET.
 - OVERALL ASSEMBLY AND FENESTRATION COMPONENT WIDTH OR HEIGHT ALLOWED TO EXCEED AS-TESTED SIZES BASED ON COMPARATIVE ANALYSIS RESULTS SHOWN IN TABLE 1.
 - L1 (MULLION SPAN) = HORIZONTAL WIDTH OF MULLED FENESTRATION PRODUCT.
 - L2 (MULLION SPAN) = VERTICAL HEIGHT OF MULLED FENESTRATION PRODUCT.
 - Wh (TRIBUTARY WIDTH) = 1/2 WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER (H1/2 + H2/2).
 - Wv (TRIBUTARY WIDTH) = 1/2 WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER (W2/2 + W3/2).
 - FOR CORRESPONDING DECREASE IN MULLION SPAN, THE TRIBUTARY WIDTH INCREASES.
 - COMPARATIVE ANALYSIS CONSIDERS THE FOLLOWING.
 - MAINTAINING EQUIVALENT LOADING FOR DEFLECTION
 - MAINTAINING EQUIVALENT LOADING FOR MEMBER STRESSES
 - MAINTAINING EQUIVALENT TRIBUTARY LOADING AREA FOR TOTAL LOAD ON MULLION.

PROJECT NO. 421-0902

R/A	9/13/21	R/A	12/18/20	R/A	9/27/18	BY	DATE
ADDED NEW PRODUCTS		UPDATED TO CURRENT EDITION FBC		UPDATED TO 6TH EDITION (2017) FBC		DESCRIPTION	
C	B	A	REV				

WEATHER SHIELD WINDOWS & DOORS

829 N. 8th Street
Medford, WI 54451

TITLE: WEATHER SHIELD HORIZONTAL & VERTICAL MULLION SYSTEM
THREE-WAY COMBINATION - TABLE 1

DRAWN BY:	RJA	DATE:	10/20/15
SCALE:	NONE	DRAWING NO:	WS0001
REV:	C	SHEET:	2 OF 10



PTC PRODUCT DESIGN GROUP, LLC
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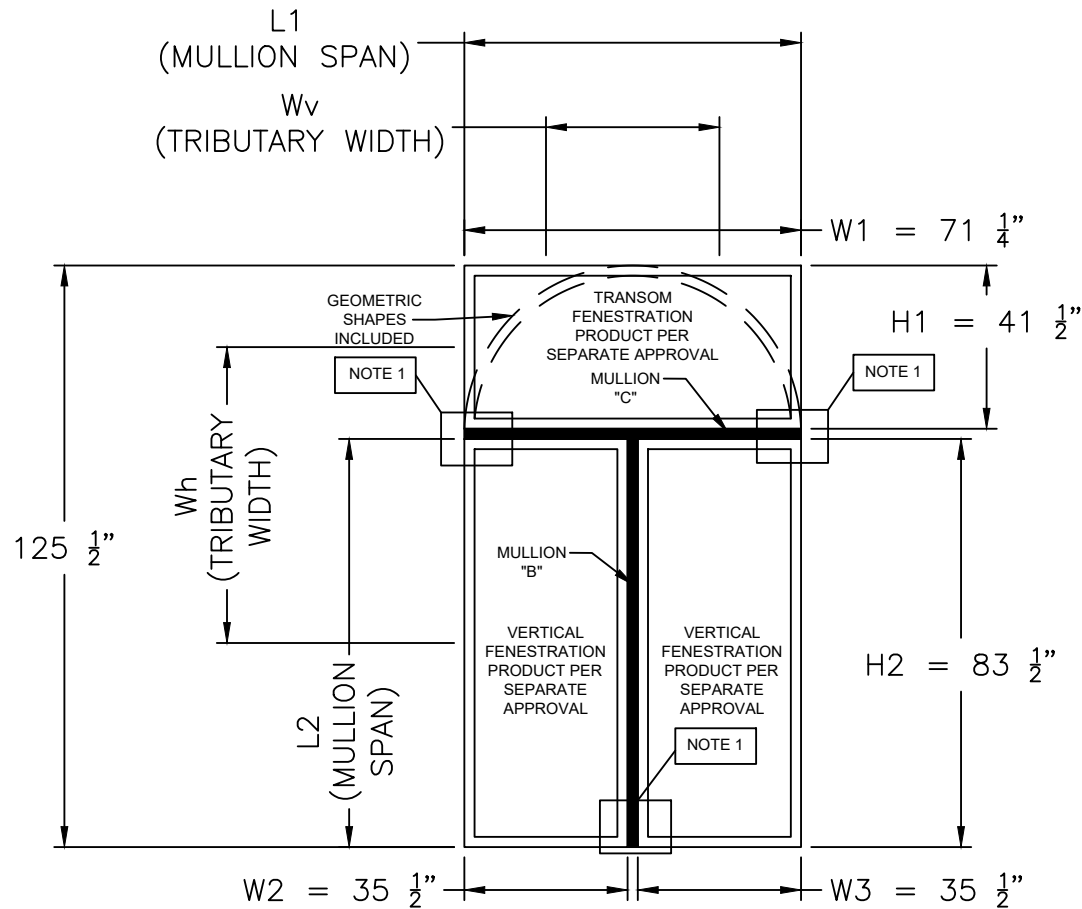
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Digitally signed
by Robert J
Amoruso

Date: 2021.09.21
14:06:01 -04'00'

THREE-WAY MULLION COMBINATION - HVHZ



PERFORMANCE RATING	
DESIGN PRESSURE (PSF)	IMPACT RATING
+55 / -70	LARGE AND SMALL MISSILE IMPACT (HVHZ) WIND ZONE 4, MISSILE LEVEL D (WBDR)
LIMITATIONS OF USE	
APPROVED FOR USE IN HIGH VELOCITY HURRICANE ZONE (HVHZ)	
APPROVED FOR USE IN WIND-BORNE DEBRIS REGIONS (WBDR) AND ALL OTHER AREAS OUTSIDE THE HVHZ AS DEFINED IN THE FLORIDA BUILDING CODE	
CERTIFICATION AND TESTING	
WDMA CERTIFICATION NO.	TEST REPORT NO.
449-H-013.65 to 449-H-013.71	ESP019892P-1719 (3-Way Tested, Mullion B&C)

Table 2 - High Velocity Hurricane Zone (HVHZ) Approved								
Three-Way Mullion Combination								
Mullion B Vertical (Full Length) - Mullion C Horizontal (Full Length)								
Window =>	Operable or Fixed Window			Transom		Overall Assembly		
Mullion Span / Tributary Width =>	---	L2	Wv	L1	---	Wh	W	H
Window Size =>	W2 & W3	H2	---	W1	H1	---	W	H
84" Tall Vertical Windows (L2 Span)	26.8	84	26.8	53.5	96	89.9	53.5	180
	28	84	28	56	86.0	85.0	56	170
	30	84	30	60	71.8	77.9	60	156
	32	84	32	64	59.5	71.7	64	143
	34	84	34	68	48.6	66.3	68	133
	36	84	36	72	42.0	63.0	72	126
	36	84	36	72	38.9	61.4	72	123
	38	84	38	76	30.2	57.1	76	114
	40.0	84	40	80	22	53.2	80	106
	42	84	42	84	15.3	49.7	84	99
78" Tall Vertical Windows (L2 Span)	27.86	78	27.86	55.72	96	87.0	55.72	174
	28	78	28	56	95.0	86.5	56	173
	30	78	30	60	80.8	79.4	60	159
	32	78	32	64	68.5	73.2	64	146
	34	78	34	68	57.6	67.8	68	136
	36	78	36	72	47.9	62.9	72	126
	38	78	38	76	39	58.6	76	117
	40	78	40	80	31.4	54.7	80	109
72" Tall Vertical Windows (L2 Span)	29.1	72	29.1	58.2	96	84.0	58.2	168
	30	72	30	60	89.8	80.9	60	162
	32	72	32	64	77	74.7	64	149
	34	72	34	68	66.6	69.3	68	139
	36	72	36	72	56.9	64.4	72	129
	38	72	38	76	48	60.1	76	120
	40	72	40	80	40.4	56.2	80	112
	42	72	42	84	33.3	52.7	84	105
	44	72	44	88	26.9	49.4	88	99
	46	72	46	92	21.0	46.5	92	93
66" Tall Vertical Windows (L2 Span)	30.45	66	30.45	60.9	96	81.0	60.9	162
	32	66	32	64	86.5	76.2	64	152
	34	66	34	68	75.6	70.8	68	142
	35.65	66	35.65	71.3	67.5	66.7	71.3	133
	36	66	36	72	65.9	65.9	72	132
	38	66	38	76	57.2	61.6	76	123
	40	66	40	80	49.4	57.7	80	115
	42	66	42	84	42.3	54.2	84	108
	44	66	44	88	35.9	50.9	88	102
	31.9	60	31.9	63.8	96	78.0	63.8	156
60" Tall Vertical Windows (L2 Span)	32	60	32	64	95.5	77.7	64	155
	34	60	34	68	84.6	72.3	68	145
	36	60	36	72	74.9	67.4	72	135
	37.4	60	37.4	74.8	68.7	64.3	74.8	129
	38	60	38	76	66.2	63.1	76	126
	40	60	40	80	58.4	59.2	80	118
	42	60	42	84	51.3	55.7	84	111
	33.6	54	33.6	67.2	96	74.8	67.2	150
	34	54	34	68	93.6	73.8	68	148
	36	54	36	72	83.9	68.9	72	138
54" Tall Vertical Windows (L2 Span)	38	54	38	76	75.2	64.6	76	129
	40	54	40	80	67.4	60.7	80	121
	42	54	42	84	60.3	57.2	84	114
48" Tall Vertical Windows (L2 Span)	35.3	48	35.3	70.6	96	72.1	70.6	144
	36	48	36	72	92.9	70.4	72	141
	38	48	38	76	84.2	66.1	76	132
	40	48	40	80	76.4	62.2	80	124
	42	48	42	84	69.3	58.7	84	117
42" Tall Vertical Windows (L2 Span)	37.3	42	37.3	74.6	96	69.1	74.6	138
	38	42	38	76	93.2	67.6	76	135
	40	42	40	80	85.4	63.7	80	127
	42	42	42	84	78.3	60.2	84	120

NOTES:

- TWO INSTALLATION CLIPS (DRAWING NO. 60-0048-01); ONE ON EITHER SIDE OF THE MULLION; SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.
 - INSTALLATION CLIP TO WOOD BUCK, DRAWING NO. 85-7815-15, SHEET 1.
 - INSTALLATION CLIP TO FENESTRATION, DRAWING NO. 85-7815-13, SHEET 1.
 - INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 3.
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 - MULLION PLATE, DRAWING NO. 06-2893-03, SHEET 1.
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 - MULLION "A", COMBINATION MULLION PER DRAWING NO. 85-7444-35.
 - MULLION "B", 0.063" X 4" STEEL MULLION STIFFENER PER DRAWING NO. 85-7444-45.
 - MULLION "C", 0.5" X 4" ALUMINUM MULLION STIFFENER PER DRAWING NO. 85-11602-01.
- ALLOWABLE DESIGN PRESSURES SHALL BE BASED ON THE LOWER OF:
 - THE MULLED ASSEMBLY DESIGN PRESSURE SHOWN ON THIS DRAWING OR,
 - THE APPROVED FENESTRATION PRODUCT DESIGN PRESSURE.
- MULLION SPANS AND TRIBUTARY SIZES OF FENESTRATION PRODUCTS SHALL NOT EXCEED THE FOLLOWING (AS-TESTED CONDITIONS).

- TRANSOM FENESTRATION COMPONENT
 - HORIZONTAL SPAN OF TRANSOM (W1) 71 1/4" (71" NOMINAL).
 - VERTICAL HEIGHT OF TRANSOM (H1) 41 1/2" (42" NOMINAL).
- VERTICAL FENESTRATION COMPONENT
 - WIDTH (W2 AND W3) MAXIMUM 35 1/2" (36" NOMINAL).
 - WIDTH OVERALL MAXIMUM 71 1/2" (71" NOMINAL).
 - W2 DOES NOT HAVE TO EQUAL W3.
 - W2 + W3 CANNOT EXCEED 71 1/2" OVERALL (71" NOMINAL).
 - HEIGHT (H2) MAXIMUM 83 1/2" (84" NOMINAL).
- OVERALL ASSEMBLY SIZE MAXIMUM 71 1/2" WIDTH X 125 1/2" HEIGHT (72" x 126" NOMINAL).
- VARIABLE TRIBUTARY SIZES BASED ON COMPARATIVE ANALYSIS - SEE TABLE 1 THIS SHEET.
 - OVERALL ASSEMBLY AND FENESTRATION COMPONENT WIDTH OR HEIGHT ALLOWED TO EXCEED AS-TESTED SIZES BASED ON COMPARATIVE ANALYSIS RESULTS SHOWN IN TABLE 1.
 - L1 (MULLION SPAN) = HORIZONTAL WIDTH OF MULLED FENESTRATION PRODUCT.
 - L2 (MULLION SPAN) = VERTICAL HEIGHT OF MULLED FENESTRATION PRODUCT.
 - Wh (TRIBUTARY WIDTH) = 1/2 WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER (H1/2 + H2/2).
 - Wv (TRIBUTARY WIDTH) = 1/2 WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER (W2/2 + W3/2).
 - FOR CORRESPONDING DECREASE IN MULLION SPAN, THE TRIBUTARY WIDTH INCREASES.
 - COMPARATIVE ANALYSIS CONSIDERS THE FOLLOWING.
 - MAINTAINING EQUIVALENT LOADING FOR DEFLECTION
 - MAINTAINING EQUIVALENT LOADING FOR MEMBER STRESSES
 - MAINTAINING EQUIVALENT TRIBUTARY LOADING AREA FOR TOTAL LOAD ON MULLION.

PROJECT NO. 421-0902

C	ADDED NEW PRODUCTS	9/13/21	RJA
B	UPDATED TO CURRENT EDITION FBC	12/18/20	RJA
A	UPDATED TO 6TH EDITION (2017) FBC	9/27/18	RJA
REV	DESCRIPTION	DATE	BY

WEATHER SHIELD WINDOWS & DOORS

829 N. 8th Street
Medford, WI 54451

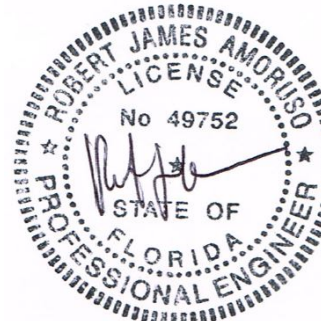
TITLE: WEATHER SHIELD HORIZONTAL & VERTICAL MULLION SYSTEM
THREE-WAY COMBINATION - TABLE 2

DRAWN BY:	RJA	DATE:	10/20/15
SCALE:	NONE	DRAWING NO:	WS0001
REV:	C	SHEET:	3 OF 10

PREPARED BY:

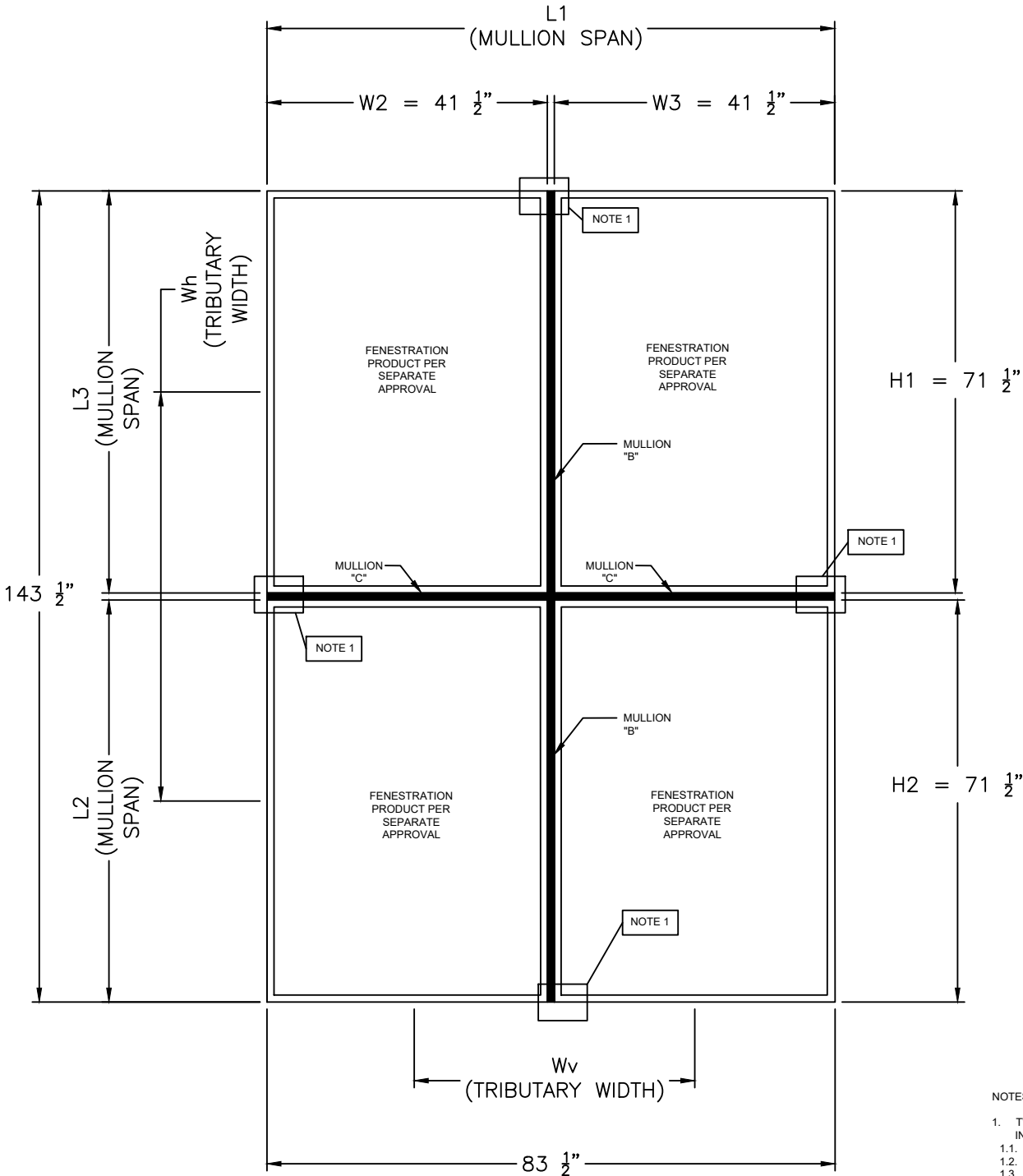
PTC PRODUCT DESIGN GROUP, LLC
P.O. Box 520775
Longwood, FL 32752-0775
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Robert J. Amoruso, P.E.
Florida PE No. 49752



Digitally signed
by Robert J
Amoruso
Date: 2021.09.21
14:06:14 -04'00'

FOUR-WAY MULLION COMBINATION



PERFORMANCE RATING	
DESIGN PRESSURE (PSF)	IMPACT RATING
+55 / -70	WIND ZONE 4, MISSILE LEVEL D (WBDR)
LIMITATIONS OF USE	
NOT APPROVED FOR USE IN HIGH VELOCITY HURRICANE ZONE (HVHZ)	
APPROVED FOR USE IN WIND-BORNE DEBRIS REGIONS (WBDR) AND ALL OTHER AREAS OUTSIDE THE HVHZ AS DEFINED IN THE FLORIDA BUILDING CODE	
CERTIFICATION AND TESTING	
WDMA CERTIFICATION NO.	TEST REPORT NO.
449-H-013.50 to 449-H-013.55 449-H-018.11 to 449-H-018.15	ESP018974P-1682 (Mullion B) ESP018829P-1676 (Mullion C)

NOTES:

1. TWO INSTALLATION CLIPS (DRAWING NO. 60-0048-01); ONE ON EITHER SIDE OF THE MULLION; SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.

1.1. INSTALLATION CLIP TO WOOD BUCK, DRAWING NO. 85-7815-15, SHEET 1.

1.2. INSTALLATION CLIP TO FENESTRATION, DRAWING NO. 85-7815-13, SHEET 1.

1.3. INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 3.

2. MULLION PLATE ATTACHMENT TO FENESTRATION SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.

2.1. MULLION PLATE TO FENESTRATION FRAME, DRAWING NO. 85-2762-14, SHEET 2.

2.2. MULLION PLATE, DRAWING NO. 06-2893-03, SHEET 1.

2.3. INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 4.

3. JOINING OF FENESTRATION PRODUCTS TO MULLIONS SHALL BE PER THE FOLLOWING DRAWINGS - SEE SHEET 9 THIS DRAWING FOR EXCERPTS.

3.1. MULLION "A", COMBINATION MULLION PER DRAWING NO. 85-7444-35.

3.2. MULLION "B", 0.063" X 4" STEEL MULLION STIFFENER PER DRAWING NO. 85-7444-45.

3.3. MULLION "C", 0.5" X 4" ALUMINUM MULLION STIFFENER PER DRAWING NO. 85-11602-01.

4. ALLOWABLE DESIGN PRESSURES SHALL BE BASED ON THE LOWER OF:

4.1. THE MULLED ASSEMBLY DESIGN PRESSURE SHOWN ON THIS DRAWING OR,

4.2. THE APPROVED FENESTRATION PRODUCT DESIGN PRESSURE.
5. MULLION SPANS AND TRIBUTARY SIZES OF FENESTRATION PRODUCTS SHALL NOT EXCEED THE FOLLOWING (ENGINEERED CONDITIONS).

5.1. FOUR-WAY COMBINATION BASED ON MAINTAINING LOAD PATH CONNECTIVITY USING SOLID HORIZONTAL MULLION "C" BASED ON TEST REPORT ESP018829P-1676 AND COMBINING IT WITH VERTICAL MULLION "B" TEST REPORT ESP018974P-1682.

5.1.1. COMPARATIVE ANALYSIS CONSIDERS THE FOLLOWING.

5.1.1.1. MAINTAINING EQUIVALENT LOADING FOR DEFLECTION

5.1.1.2. MAINTAINING EQUIVALENT LOADING FOR MEMBER STRESSES

5.1.1.3. MAINTAINING EQUIVALENT TRIBUTARY LOADING AREA FOR TOTAL LOAD ON MULLION.

5.1.1.4. FOR CORRESPONDING DECREASE IN MULLION SPAN, THE TRIBUTARY WIDTH INCREASES.

5.2. THE VARIABLE TRIBUTARY SIZES BASED ON COMPARATIVE ANALYSIS - SEE TABLE 1 THIS SHEET.

5.2.10. OVERALL ASSEMBLY AND FENESTRATION COMPONENT WIDTH OR HEIGHT ALLOWED TO EXCEED AS-TESTED SIZES BASED ON COMPARATIVE ANALYSIS RESULTS SHOWN IN TABLE 1.

5.2.6. L1 (MULLION SPAN) = HORIZONTAL WIDTH OF MULLED FENESTRATION PRODUCT USING MULLION "C" OVER THE FULL LENGTH OF THE SPAN.

5.2.7. L2 & L3 (MULLION SPAN) = VERTICAL HEIGHT OF MULLED FENESTRATION PRODUCT USING MULLION "B" OVER THE FULL HEIGHT OF THE WINDOW COMPONENT.

5.2.8. Wh (TRIBUTARY WIDTH) = $\frac{1}{2}$ WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER (H1/2 + H2/2).

5.2.9. Wv (TRIBUTARY WIDTH) = $\frac{1}{2}$ WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER (W2/2 + W3/2).

5.2.10. FOR CORRESPONDING DECREASE IN MULLION SPAN, THE TRIBUTARY WIDTH INCREASES.

Table 3									
Four-Way Mullion Combination									
Mullion B Vertical (Divided) - Mullion C Horizontal (Full Length)									
Window/Mull Component =>	Horizontal Mull		Vertical Mull	Operable or Fixed Window		Transom		Overall Assembly	
Mullion Span / Tributary Width =>	L1	Wv	Wh	---	L2	---	L3	W	H
Window Size =>	W2 + W3	---	---	W2 & W3	H2	W2 & W3	H1		
	84.0	42.0	72.0	42.0	72.0	42.0	72.0	84	144
	82.5	41.2	72.3	41.2	72.3	41.2	72.3	82	145
	81.0	40.5	72.7	40.5	72.7	40.5	72.7	81	145
	79.5	39.7	73.0	39.7	73.0	39.7	73.0	79	146
	78.1	39.0	73.3	39.0	73.3	39.0	73.3	78	147
	76.7	38.3	73.7	38.3	73.7	38.3	73.7	77	147
	75.3	37.6	74.0	37.6	74.0	37.6	74.0	75	148
	73.9	37.0	74.3	37.0	74.3	37.0	74.3	74	149
	72.6	36.3	74.7	36.3	74.7	36.3	74.7	73	149
	71.3	35.7	75.0	35.7	75.0	35.7	75.0	71	150
	70.1	35.0	75.3	35.0	75.3	35.0	75.3	70	151
	68.9	34.4	75.7	34.4	75.7	34.4	75.7	69	151
	67.7	33.8	76.0	33.8	76.0	33.8	76.0	68	152
	66.5	33.2	76.3	33.2	76.3	33.2	76.3	66	153
	65.3	32.7	76.7	32.7	76.7	32.7	76.7	65	153
	64.2	32.1	77.0	32.1	77.0	32.1	77.0	64	154
	63.1	31.6	77.3	31.6	77.3	31.6	77.3	63	155
	62.0	31.0	77.7	31.0	77.7	31.0	77.7	62	155
	61.0	30.5	78.0	30.5	78.0	30.5	78.0	61	156
	60.0	30.0	78.3	30.0	78.3	30.0	78.3	60	157
	58.9	29.5	78.7	29.5	78.7	29.5	78.7	59	157
	58.0	29.0	79.0	29.0	79.0	29.0	79.0	58	158
	57.0	28.5	79.3	28.5	79.3	28.5	79.3	57	159
	56.0	28.0	79.7	28.0	79.7	28.0	79.7	56	159
	55.1	27.6	80.0	27.6	80.0	27.6	80.0	55	160
	54.2	27.1	80.3	27.1	80.3	27.1	80.3	54	161
	53.3	26.7	80.7	26.7	80.7	26.7	80.7	53	161
	52.4	26.2	81.0	26.2	81.0	26.2	81.0	52	162
	51.6	25.8	81.3	25.8	81.3	25.8	81.3	52	163
	50.7	25.4	81.7	25.4	81.7	25.4	81.7	51	163
	49.9	25.0	82.0	25.0	82.0	25.0	82.0	50	164
	49.1	24.6	82.3	24.6	82.3	24.6	82.3	49	165
	48.3	24.2	82.7	24.2	82.7	24.2	82.7	48	165
	48.0	24.0	83.0	24.0	83.0	24.0	83.0	48	166
	47.6	23.8	82.7	23.8	82.7	23.8	82.7	48	165
	46.8	23.4	83.3	23.4	83.3	23.4	83.3	47	167
	46.1	23.0	83.7	23.0	83.7	23.0	83.7	46	167
	45.3	22.7	84.0	22.7	84.0	22.7	84.0	45	168

PROJECT NO. 421-0902

	R/A		R/A		R/A		BY
	9/13/21		12/18/20		9/27/18		DATE
ADDED NEW PRODUCTS		UPDATED TO CURRENT EDITION FBC		UPDATED TO 6TH EDITION (2017) FBC		DESCRIPTION	
C	B	A	REV				

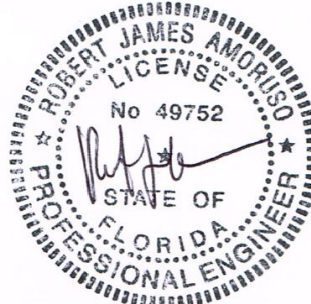
WEATHER SHIELD WINDOWS & DOORS

829 N. 8th Street
Medford, WI 54451

TITLE: WEATHER SHIELD HORIZONTAL & VERTICAL MULLION SYSTEM
FOUR-WAY COMBINATION - TABLE 3

DRAWN BY:	RJA	DATE:	10/20/15
SCALE:	NONE	DRAWING NO:	WS0001
REV:	C	SHEET:	4 OF 10
PTC PRODUCT DESIGN GROUP, LLC P.O. Box 520775 Longwood, FL 32752-0775 Florida CoA No. 259935 Phone: 321.690.1788 Fax: 321.690.1789 Email: info@ptc-corp.com			

Robert J. Amoruso, P.E.
Florida PE No. 49752



Digitally signed
by Robert J
Amoruso
Date: 2021.09.21
14:06:24 -04'00'

FOUR-WAY MULLION COMBINATION - HVHZ

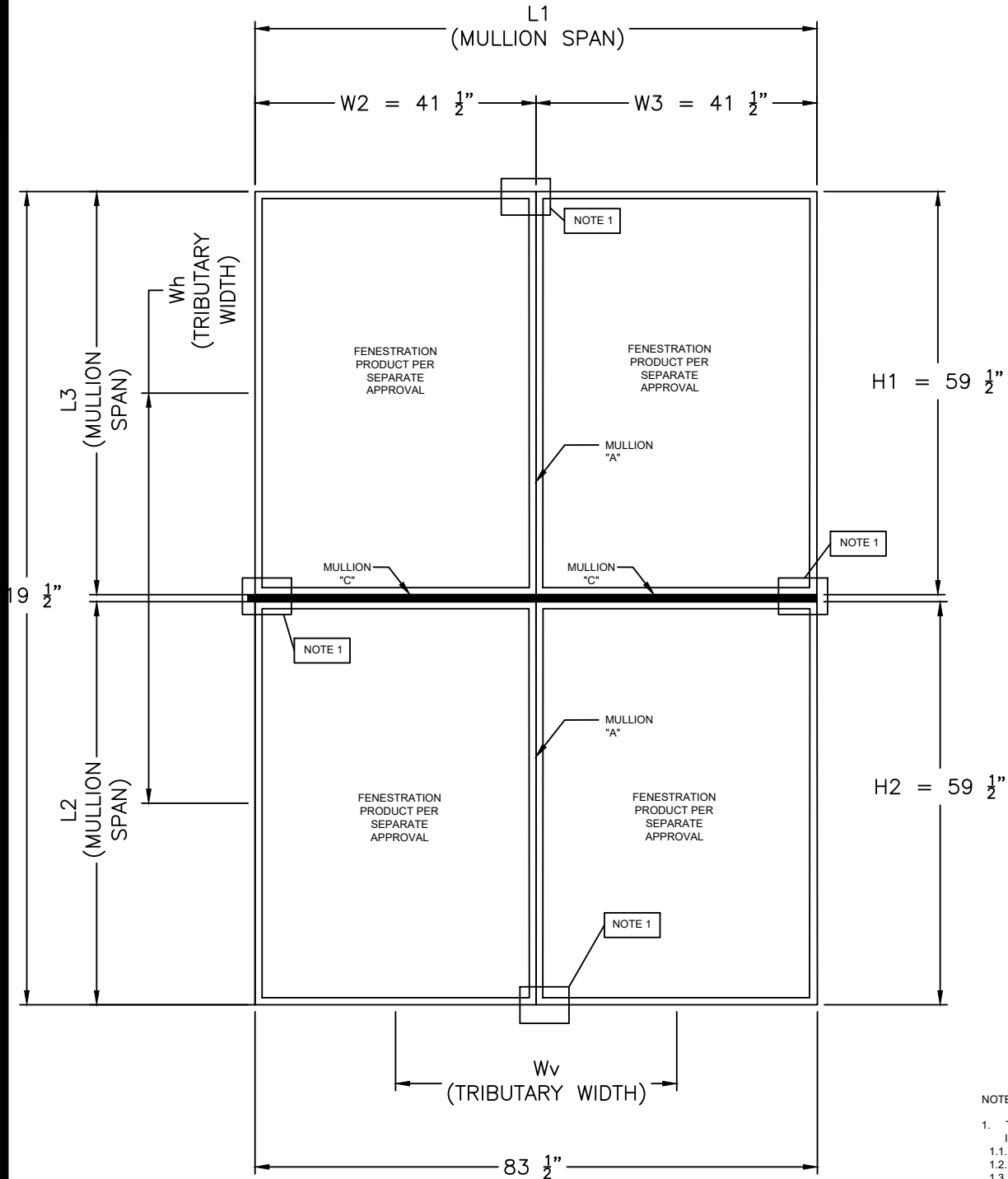


Table 4 - High Velocity Hurricane Zone (HVHZ) Approved									
Four-Way Mullion Combination									
Mullion A Vertical (Divided) - Mullion C Horizontal (Full Length)									
Window/Mull Component =>	Horizontal Mull		Vertical Mull	Operable or Fixed Window		Transom		Overall Assembly	
Mullion Span / Tributary Width =>	L1	Wv	Wh	---	L2	---	L3	W	H
Window Size =>	W2 + W3	---	---	W2 & W3	H2	W2 & W3	H1		
	84.0	42.0	60.0	42.0	60.0	42.0	60.0	84	120
	82.5	41.2	60.3	41.2	60.3	41.2	60.3	82	121
	81.0	40.5	60.7	40.5	60.7	40.5	60.7	81	121
	79.5	39.7	61.0	39.7	61.0	39.7	61.0	79	122
	78.1	39.0	61.3	39.0	61.3	39.0	61.3	78	123
	76.7	38.3	61.7	38.3	61.7	38.3	61.7	77	123
	75.3	37.6	62.0	37.6	62.0	37.6	62.0	75	124
	73.9	37.0	62.3	37.0	62.3	37.0	62.3	74	125
	72.6	36.3	62.7	36.3	62.7	36.3	62.7	73	125
	71.3	35.7	63.0	35.7	63.0	35.7	63.0	71	126
	70.1	35.0	63.3	35.0	63.3	35.0	63.3	70	127
	68.9	34.4	63.7	34.4	63.7	34.4	63.7	69	127
	67.7	33.8	64.0	33.8	64.0	33.8	64.0	68	128
	66.5	33.2	64.3	33.2	64.3	33.2	64.3	66	129
	65.3	32.7	64.7	32.7	64.7	32.7	64.7	65	129
	64.2	32.1	65.0	32.1	65.0	32.1	65.0	64	130
	63.1	31.6	65.3	31.6	65.3	31.6	65.3	63	131
	62.0	31.0	65.7	31.0	65.7	31.0	65.7	62	131
	61.0	30.5	66.0	30.5	66.0	30.5	66.0	61	132
	60.0	30.0	66.3	30.0	66.3	30.0	66.3	60	133
	58.9	29.5	66.7	29.5	66.7	29.5	66.7	59	133
	58.0	29.0	67.0	29.0	67.0	29.0	67.0	58	134
	57.0	28.5	67.3	28.5	67.3	28.5	67.3	57	135
	56.0	28.0	67.7	28.0	67.7	28.0	67.7	56	135
	55.1	27.6	68.0	27.6	68.0	27.6	68.0	55	136
	54.2	27.1	68.3	27.1	68.3	27.1	68.3	54	137
	53.3	26.7	68.7	26.7	68.7	26.7	68.7	53	137
	52.4	26.2	69.0	26.2	69.0	26.2	69.0	52	138
	51.6	25.8	69.3	25.8	69.3	25.8	69.3	52	139
	50.7	25.4	69.7	25.4	69.7	25.4	69.7	51	139
	49.9	25.0	70.0	25.0	70.0	25.0	70.0	50	140
	49.1	24.6	70.3	24.6	70.3	24.6	70.3	49	141
	48.3	24.2	70.7	24.2	70.7	24.2	70.7	48	141
	48.0	24.0	71.0	24.0	71.0	24.0	71.0	48	142
	47.6	23.8	70.7	23.8	70.7	23.8	70.7	48	141
	46.8	23.4	71.3	23.4	71.3	23.4	71.3	47	143
	46.1	23.0	71.7	23.0	71.7	23.0	71.7	46	143
	45.3	22.7	72.0	22.7	72.0	22.7	72.0	45	144

NOTES:

1.

TWO INSTALLATION CLIPS (DRAWING NO. 60-0048-01); ONE ON EITHER SIDE OF THE MULLION; SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.

1.1.

INSTALLATION CLIP TO WOOD BUCK, DRAWING NO. 85-7815-15, SHEET 1.

1.2.

INSTALLATION CLIP TO FENESTRATION, DRAWING NO. 85-7815-13, SHEET 1.

1.3.

INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 3.
2.

MULLION PLATE ATTACHMENT TO FENESTRATION SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.

2.1.

MULLION PLATE TO FENESTRATION FRAME, DRAWING NO. 85-2762-14, SHEET 2.

2.2.

MULLION PLATE, DRAWING NO. 06-2893-03, SHEET 1.

2.3.

INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 4.
3.

JOINING OF FENESTRATION PRODUCTS TO MULLIONS SHALL BE PER THE FOLLOWING DRAWINGS - SEE SHEET 9 THIS DRAWING FOR EXCERPTS.

3.1.

MULLION "A", COMBINATION MULLION PER DRAWING NO. 85-7444-35.

3.2.

MULLION "B", 0.063" X 4" STEEL MULLION STIFFENER PER DRAWING NO. 85-7444-45.

3.3.

MULLION "C", 0.5" X 4" ALUMINUM MULLION STIFFENER PER DRAWING NO. 85-11602-01.
4.

ALLOWABLE DESIGN PRESSURES SHALL BE BASED ON THE LOWER OF:

4.1.

THE MULLED ASSEMBLY DESIGN PRESSURE SHOWN ON THIS DRAWING OR,

4.2.

THE APPROVED FENESTRATION PRODUCT DESIGN PRESSURE.

5.

MULLION SPANS AND TRIBUTARY SIZES OF FENESTRATION PRODUCTS SHALL NOT EXCEED THE FOLLOWING (ENGINEERED CONDITIONS).

5.1.

FOUR-WAY COMBINATION BASED ON MAINTAINING LOAD PATH CONNECTIVITY USING SOLID HORIZONTAL MULLION "C" BASED ON TEST REPORT ESP018829P-1676 AND COMBINING IT WITH VERTICAL MULLION "A" TEST REPORT ESP018434-1647.

5.1.1.

COMPARATIVE ANALYSIS CONSIDERS THE FOLLOWING.

5.1.1.1.

MAINTAINING EQUIVALENT LOADING FOR DEFLECTION

5.1.1.2.

MAINTAINING EQUIVALENT LOADING FOR MEMBER STRESSES

5.1.1.3.

MAINTAINING EQUIVALENT TRIBUTARY LOADING AREA FOR TOTAL LOAD ON MULLION.

5.1.1.4.

FOR CORRESPONDING DECREASE IN MULLION SPAN, THE TRIBUTARY WIDTH INCREASES.

5.2.

THE VARIABLE TRIBUTARY SIZES BASED ON COMPARATIVE ANALYSIS - SEE TABLE 1 THIS SHEET.

5.2.10.

OVERALL ASSEMBLY AND FENESTRATION COMPONENT WIDTH OR HEIGHT ALLOWED TO EXCEED AS-TESTED SIZES BASED ON COMPARATIVE ANALYSIS RESULTS SHOWN IN TABLE 1.

L2 & L3 (MULLION SPAN) = HORIZONTAL WIDTH OF MULLED FENESTRATION PRODUCT USING MULLION "C" OVER THE FULL LENGTH OF THE SPAN.

L2 & L3 (MULLION SPAN) = VERTICAL HEIGHT OF MULLED FENESTRATION PRODUCT USING MULLION "B" OVER THE FULL HEIGHT OF THE WINDOW COMPONENT.

5.2.8.

Wh (TRIBUTARY WIDTH) = 1/2 WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER (H1/2 + H2/2).

5.2.9.

Wv (TRIBUTARY WIDTH) = 1/2 WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER (W2/2 + W3/2).

5.2.10.

FOR CORRESPONDING DECREASE IN MULLION SPAN, THE TRIBUTARY WIDTH INCREASES.

PERFORMANCE RATING	
DESIGN PRESSURE (PSF)	IMPACT RATING
+55 / -70	LARGE AND SMALL MISSILE IMPACT (HVHZ) WIND ZONE 4, MISSILE LEVEL D (WBDP)
LIMITATIONS OF USE	
APPROVED FOR USE IN HIGH VELOCITY HURRICANE ZONE (HVHZ)	
APPROVED FOR USE IN WIND-BORNE DEBRIS REGIONS (WBDP) AND ALL OTHER AREAS OUTSIDE THE HVHZ AS DEFINED IN THE FLORIDA BUILDING CODE	
CERTIFICATION AND TESTING	
WDMA CERTIFICATION NO.	TEST REPORT NO.
449-H-017.24 to 449-H-017.30	ESP018434P-1647 (Four-Way Tested, Mullion A Vertical and Mullion C Horizontal)

PROJECT NO. 421-0902		R/A	R/A	R/A	BY
ADDED NEW PRODUCTS		9/13/21	12/18/20	9/27/18	DATE
UPDATED TO CURRENT EDITION FBC		A		UPDATED TO 6TH EDITION (2017) FBC	DESCRIPTION
C	B	A	REV		

WEATHER SHIELD WINDOWS & DOORS

829 N. 8th Street
Medford, WI 54451

TITLE: WEATHER SHIELD HORIZONTAL & VERTICAL MULLION SYSTEM
FOUR-WAY COMBINATION - TABLE 3

DATE: 10/20/15
DRAWING NO: WS0001
SHEET: 5 OF 10

PREPARED BY: RJA
SCALE: NONE
REV: C

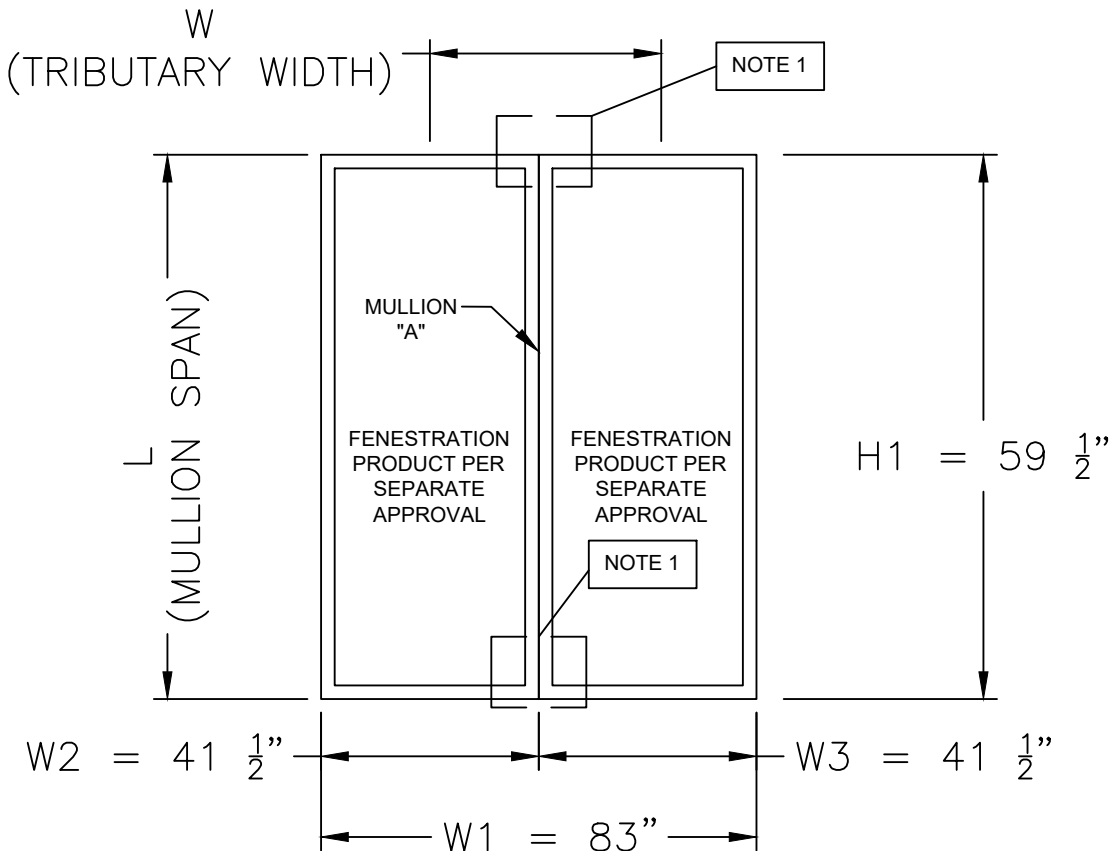
PTC PRODUCT DESIGN GROUP, LLC
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Email: info@ptc-corp.com

Robert J. Amoruso, P.E.
Florida PE No. 49752

Digitally signed
by Robert J
Amoruso

Date: 2021.09.21
14:06:49 -04'00'

TWO-WAY VERTICAL MULLION COMBINATION - HVHZ



NOTES:

- 1. TWO INSTALLATION CLIPS (DRAWING NO. 60-0048-01); ONE ON EITHER SIDE OF THE MULLION; SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.
 - 1.1. INSTALLATION CLIP TO WOOD BUCK, DRAWING NO. 85-7815-15, SHEET 1.
 - 1.2. INSTALLATION CLIP TO FENESTRATION, DRAWING NO. 85-7815-13, SHEET 1.
 - 1.3. INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 3.
- 2. MULLION PLATE ATTACHMENT TO FENESTRATION SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.
 - 2.1. MULLION PLATE TO FENESTRATION FRAME, DRAWING NO. 85-2762-14, SHEET 2.
 - 2.2. MULLION PLATE, DRAWING NO. 06-2893-03, SHEET 1.
 - 2.3. INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 4.
- 3. JOINING OF FENESTRATION PRODUCTS TO MULLIONS SHALL BE PER THE FOLLOWING DRAWINGS - SEE SHEET 9 THIS DRAWING FOR EXCERPTS.
 - 3.1. MULLION "A", COMBINATION MULLION PER DRAWING NO. 85-7444-35.
 - 3.2. MULLION "B", 0.063" X 4" STEEL MULLION STIFFENER PER DRAWING NO. 85-7444-45.
 - 3.3. MULLION "C", 0.5" X 4" ALUMINUM MULLION STIFFENER PER DRAWING NO. 85-11602-01.
- 4. ALLOWABLE DESIGN PRESSURES SHALL BE BASED ON THE LOWER OF:
 - 4.1. THE MULLED ASSEMBLY DESIGN PRESSURE SHOWN ON THIS DRAWING OR,
 - 4.2. THE APPROVED FENESTRATION PRODUCT DESIGN PRESSURE.
- 5. MULLION SPANS AND TRIBUTARY SIZES OF FENESTRATION PRODUCTS SHALL NOT EXCEED THE FOLLOWING EXCEPT AS ALLOWED IN MULLION TRIBUTARY LOADING SPAN TABLE 1. MULLION SPANS AND FENESTRATION SIZES BELOW ARE REPRESENTATIVE OF THE AS-TESTED CONDITION.
 - 5.1. WIDTHS
 - 5.1.1. W2 = W3 = 41 1/2" MAXIMUM (42" NOMINAL).
 - 5.1.2. W2 DOES NOT HAVE TO EQUAL W3
 - 5.1.3. W2 + W3 CANNOT EXCEED 83" MAXIMUM (84" NOMINAL) OVERALL WIDTH (W1).
 - 5.2. HEIGHTS
 - 5.2.1. H1 = 59 1/2" MAXIMUM (60" NOMINAL).
 - 5.3. VARIABLE TRIBUTARY SIZES BASED ON COMPARATIVE ANALYSIS - SEE TABLE 4 THIS SHEET.
 - 5.3.1. L (MULLION SPAN) = VERTICAL HEIGHT OF MULLED FENESTRATION PRODUCT
 - 5.3.2. W (TRIBUTARY WIDTH) = 1/2 WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER (W2/2 + W3/2)
 - 5.3.3. FOR CORRESPONDING DECREASE IN MULLION SPAN, THE TRIBUTARY WIDTH INCREASES.
 - 5.3.4. COMPARATIVE ANALYSIS CONSIDERS THE FOLLOWING.
 - 5.3.4.1. MAINTAINING EQUIVALENT LOADING FOR DEFLECTION
 - 5.3.4.2. MAINTAINING EQUIVALENT LOADING FOR MEMBER STRESSES
 - 5.3.4.3. MAINTAINING EQUIVALENT TRIBUTARY LOADING AREA FOR TOTAL LOAD ON MULLION.

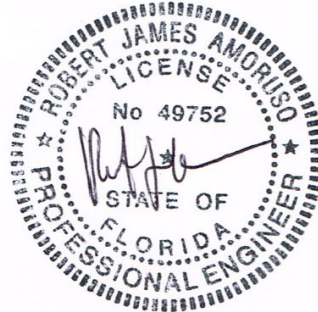
TABLE 5	
Two-Way Mullion Combination	
Mullion A Vertical	
Mullion Span	Tributary Width
L (in)	W (in)
59.5	41 1/2
58	42 1/2
56	44
54	45 3/4
52	47 1/2
50	49 1/2
48	51 1/2
46	53 3/4
44	56
42	58 3/4
40	61 3/4
38	65
36	68 1/2
34	72 3/4
32	77 1/4

PERFORMANCE RATING	
DESIGN PRESSURE (PSF)	IMPACT RATING
+55 / -70	LARGE AND SMALL MISSILE IMPACT (HVHZ) WIND ZONE 4, MISSILE LEVEL D (WBDR)
LIMITATIONS OF USE	
APPROVED FOR USE IN HIGH VELOCITY HURRICANE ZONE (HVHZ)	
APPROVED FOR USE IN WIND-BORNE DEBRIS REGIONS (WBDR) AND ALL OTHER AREAS OUTSIDE THE HVHZ AS DEFINED IN THE FLORIDA BUILDING CODE	
CERTIFICATION AND TESTING	
WDMA CERTIFICATION NO.	TEST REPORT NO.
449-H-017.24 to 449-H-017.30	ESP018434P-1647

PROJECT NO. 421-0902			
C	ADDED NEW PRODUCTS	9/13/21	R/A
B	UPDATED TO CURRENT EDITION FBC	12/18/20	R/A
A	UPDATED TO 6TH EDITION (2017) FBC	9/27/18	R/A
REV	DESCRIPTION	DATE	BY

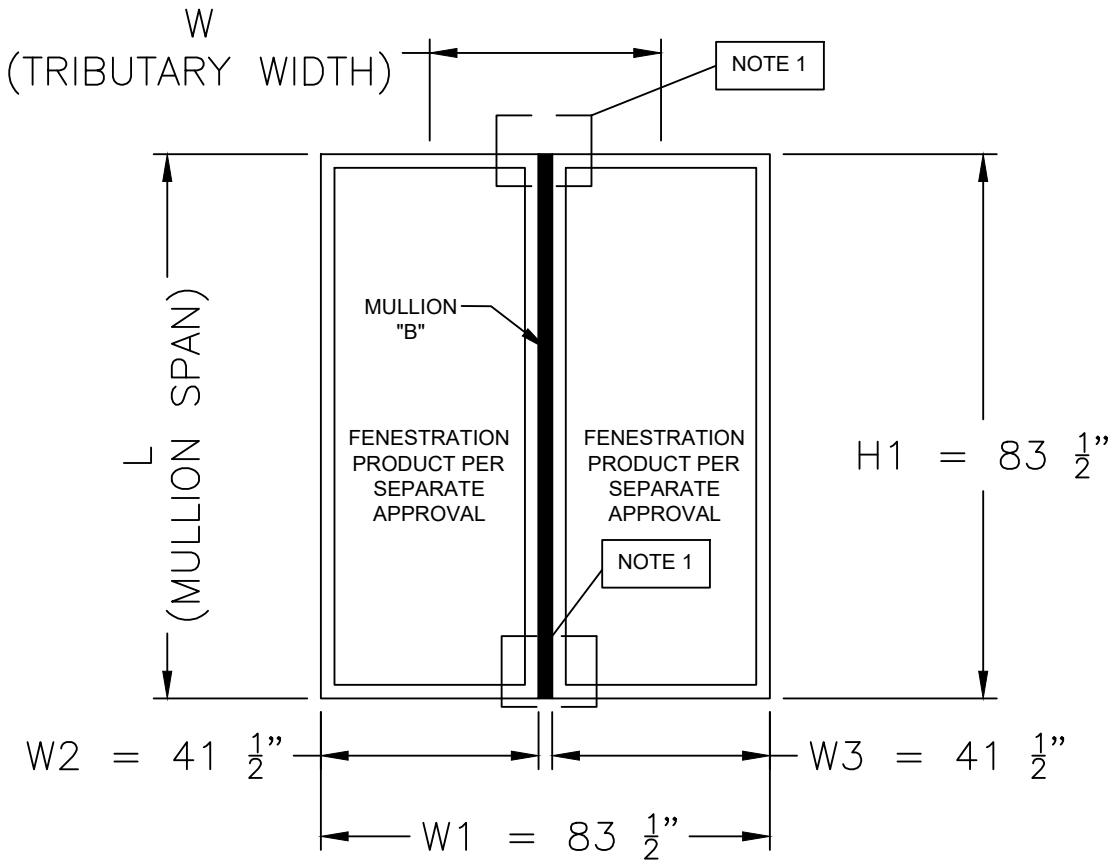
WEATHER SHIELD WINDOWS & DOORS			
829 N. 8th Street Medford, WI 54451			
TITLE: WEATHER SHIELD HORIZONTAL & VERTICAL MULLION SYSTEM VERTICAL COMBINED MULLION COMBINATION - TABLE 4			
PREPARED BY:	DRAWN BY: RJA	DATE: 10/20/15	
	SCALE: NONE	DRAWING NO: WS0001	
	REV: C	SHEET: 6 OF 10	
PTC PRODUCT DESIGN GROUP, LLC P.O. Box 520775 Longwood, FL 32752-0775 Florida CoA No. 25935 Phone: 321.690.1788 Fax: 321.690.1789 Email: info@ptc-corp.com			

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Amoruso
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TWO-WAY VERTICAL MULLION COMBINATION



PERFORMANCE RATING	
DESIGN PRESSURE (PSF)	IMPACT RATING
+55 / -70	WIND ZONE 4, MISSILE LEVEL D
LIMITATIONS OF USE	
NOT APPROVED FOR USE IN HIGH VELOCITY HURRICANE ZONE (HVHZ)	
APPROVED FOR USE IN WIND-BORNE DEBRIS REGIONS (WBDR) AND ALL OTHER AREAS OUTSIDE THE HVHZ AS DEFINED IN THE FLORIDA BUILDING CODE	
CERTIFICATION AND TESTING	
WDMA CERTIFICATION NO.	TEST REPORT NO.
449-H-013.50 to 449-H-013.55	ESP018974P-1682

NOTES:

- TWO INSTALLATION CLIPS (DRAWING NO. 60-0048-01); ONE ON EITHER SIDE OF THE MULLION; SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.
 - 1.1. INSTALLATION CLIP TO WOOD BUCK, DRAWING NO. 85-7815-15, SHEET 1.
 - 1.2. INSTALLATION CLIP TO FENESTRATION, DRAWING NO. 85-7815-13, SHEET 1.
 - 1.3. INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 3.
- MULLION PLATE ATTACHMENT TO FENESTRATION SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.
 - 2.1. MULLION PLATE TO FENESTRATION FRAME, DRAWING NO. 85-2762-14, SHEET 2.
 - 2.2. MULLION PLATE, DRAWING NO. 06-2893-03, SHEET 1.
 - 2.3. INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 4.
- JOINING OF FENESTRATION PRODUCTS TO MULLIONS SHALL BE PER THE FOLLOWING DRAWINGS - SEE SHEET 9 THIS DRAWING FOR EXCERPTS.
 - 3.1. MULLION "A", COMBINATION MULLION PER DRAWING NO. 85-7444-35.
 - 3.2. MULLION "B", 0.063" X 4" STEEL MULLION STIFFENER PER DRAWING NO. 85-7444-45.
 - 3.3. MULLION "C", 0.5" X 4" ALUMINUM MULLION STIFFENER PER DRAWING NO. 85-11602-01.
- ALLOWABLE DESIGN PRESSURES SHALL BE BASED ON THE LOWER OF:
 - 4.1. THE MULLED ASSEMBLY DESIGN PRESSURE SHOWN ON THIS DRAWING OR,
 - 4.2. THE APPROVED FENESTRATION PRODUCT DESIGN PRESSURE.
- MULLION SPANS AND TRIBUTARY SIZES OF FENESTRATION PRODUCTS SHALL NOT EXCEED THE FOLLOWING EXCEPT AS ALLOWED IN MULLION TRIBUTARY LOADING SPAN TABLE 1. MULLION SPANS AND FENESTRATION SIZES BELOW ARE REPRESENTATIVE OF THE AS-TESTED CONDITION.
 - 5.1. WIDTHS
 - 5.1.1. $W2 = W3 = 41 \frac{1}{2}"$ MAXIMUM (42" NOMINAL).
 - 5.1.2. $W2$ DOES NOT HAVE TO EQUAL $W3$
 - 5.1.3. $W2 + W3$ CANNOT EXCEED $83 \frac{1}{2}"$ MAXIMUM (84" NOMINAL) OVERALL WIDTH ($W1$).
 - 5.2. HEIGHTS
 - 5.2.1. $H1 = 83 \frac{1}{2}"$ MAXIMUM (84" NOMINAL).
 - 5.3. VARIABLE TRIBUTARY SIZES BASED ON COMPARATIVE ANALYSIS - SEE TABLE 5 THIS SHEET.
 - 5.3.1. L (MULLION SPAN) = VERTICAL HEIGHT OF MULLED FENESTRATION PRODUCT
 - 5.3.2. W (TRIBUTARY WIDTH) = $\frac{1}{2}$ WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER ($W2/2 + W3/2$)
 - 5.3.3. FOR CORRESPONDING DECREASE IN MULLION SPAN, THE TRIBUTARY WIDTH INCREASES.
 - 5.3.4. COMPARATIVE ANALYSIS CONSIDERS THE FOLLOWING.
 - 5.3.4.1. MAINTAINING EQUIVALENT LOADING FOR DEFLECTION
 - 5.3.4.2. MAINTAINING EQUIVALENT LOADING FOR MEMBER STRESSES
 - 5.3.4.3. MAINTAINING EQUIVALENT TRIBUTARY LOADING AREA FOR TOTAL LOAD ON MULLION.

TABLE 6	
Two-Way Mullion Combination	
Mullion B Vertical	
Mullion Span	Tributary Width
L (in)	W (in)
83.5	41 3/4
82	42 1/2
80	43 1/2
78	44 3/4
76	45 3/4
74	47
72	48 1/2
70	49 3/4
68	51 1/4
66	52 3/4
64	54 1/2
62	56 1/4
60	58
58	60
56	62 1/4
54	64 1/2
52	67
50	69 3/4
48	72 3/4
46	75 3/4
44	79 1/4
42	83
40	87 1/4
38	91 3/4
36	96 3/4
34	102 1/2
32	109

PROJECT NO. 421-0902

WEATHER SHIELD WINDOWS & DOORS

829 N. 8th Street

Medford, WI 54451

TITLE: WEATHER SHIELD HORIZONTAL & VERTICAL MULLION SYSTEM

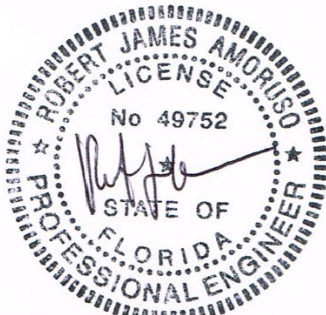
VERTICAL STEEL MULLION STIFFENER COMBINATION - TABLE 5

DATE: 10/20/15

DRAWING NO: WS0001

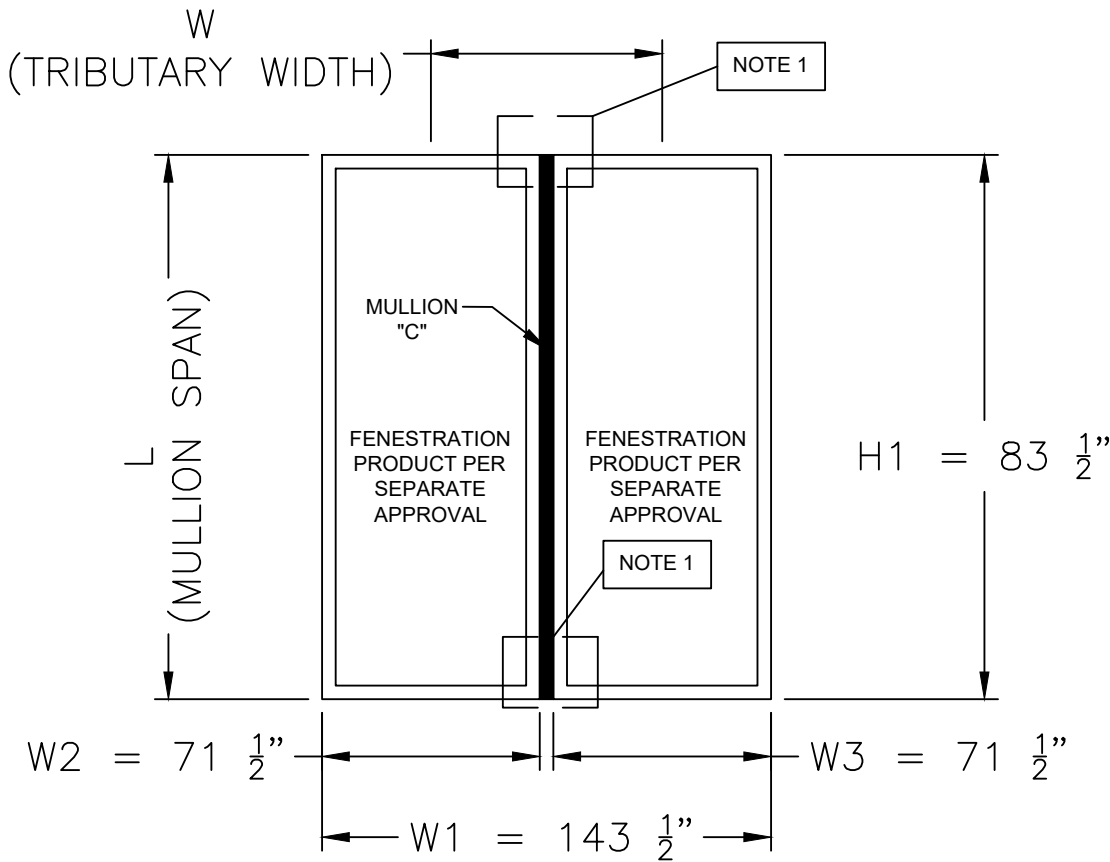
SHEET: 7 OF 10

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Florida PE No. 49752



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Amoruso
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TWO-WAY VERTICAL MULLION COMBINATION - HVHZ



PERFORMANCE RATING	
DESIGN PRESSURE (PSF)	IMPACT RATING
+55 / -70	LARGE AND SMALL MISSILE IMPACT (HVHZ) WIND ZONE 4, MISSILE LEVEL D (WBDR)
LIMITATIONS OF USE	
APPROVED FOR USE IN HIGH VELOCITY HURRICANE ZONE (HVHZ)	
APPROVED FOR USE IN WIND-BORNE DEBRIS REGIONS (WBDR) AND ALL OTHER AREAS OUTSIDE THE HVHZ AS DEFINED IN THE FLORIDA BUILDING CODE	
CERTIFICATION AND TESTING	
WDMA CERTIFICATION NO.	TEST REPORT NO.
449-H-018.11 to 449-H-018.15	ESP018829P-1676

- NOTES:
- TWO INSTALLATION CLIPS (DRAWING NO. 60-0048-01); ONE ON EITHER SIDE OF THE MULLION; SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.
 - INSTALLATION CLIP TO WOOD BUCK, DRAWING NO. 85-7815-15, SHEET 1.
 - INSTALLATION CLIP TO FENESTRATION, DRAWING NO. 85-7815-13, SHEET 1.
 - INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 3.
 - MULLION PLATE ATTACHMENT TO FENESTRATION SHALL BE INSTALLED AS SHOWN ON THE FOLLOWING DRAWINGS.
 - MULLION PLATE TO FENESTRATION FRAME, DRAWING NO. 85-2762-14, SHEET 2.
 - MULLION PLATE, DRAWING NO. 06-2893-03, SHEET 1.
 - INSTALLATION SCREW SPECIFICATION PER DRAWING NO. 85-8282-02, SHEET 4.
 - JOINING OF FENESTRATION PRODUCTS TO MULLIONS SHALL BE PER THE FOLLOWING DRAWINGS - SEE SHEET 9 THIS DRAWING FOR EXCERPTS.
 - MULLION "A", COMBINATION MULLION PER DRAWING NO. 85-7444-35.
 - MULLION "B", 0.063" X 4" STEEL MULLION STIFFENER PER DRAWING NO. 85-7444-45.
 - MULLION "C", 0.5" X 4" ALUMINUM MULLION STIFFENER PER DRAWING NO. 85-11602-01.
 - ALLOWABLE DESIGN PRESSURES SHALL BE BASED ON THE LOWER OF:
 - THE MULLED ASSEMBLY DESIGN PRESSURE SHOWN ON THIS DRAWING OR,
 - THE APPROVED FENESTRATION PRODUCT DESIGN PRESSURE.
 - MULLION SPANS AND TRIBUTARY SIZES OF FENESTRATION PRODUCTS SHALL NOT EXCEED THE FOLLOWING EXCEPT AS ALLOWED IN MULLION TRIBUTARY LOADING SPAN TABLE 1. MULLION SPANS AND FENESTRATION SIZES BELOW ARE REPRESENTATIVE OF THE AS-TESTED CONDITION.
 - WIDTHS
 - W2 = W3 = 71 1/2" MAXIMUM (72" NOMINAL).
 - W2 DOES NOT HAVE TO EQUAL W3
 - W2 + W3 CANNOT EXCEED 143 1/2" MAXIMUM (144" NOMINAL).OVERALL WIDTH (W1).
 - HEIGHTS
 - H1 = 83 1/2" MAXIMUM (84" NOMINAL).
 - VARIABLE TRIBUTARY SIZES BASED ON COMPARATIVE ANALYSIS - SEE TABLE 6 THIS SHEET.
 - L (MULLION SPAN) = VERTICAL HEIGHT OF MULLED FENESTRATION PRODUCT
 - W (TRIBUTARY WIDTH) = 1/2 WIDTH OF EACH MULLED FENESTRATION PRODUCT ADDED TOGETHER (W2/2 + W3/2)
 - FOR CORRESPONDING DECREASE IN MULLION SPAN, THE TRIBUTARY WIDTH INCREASES.
 - COMPARATIVE ANALYSIS CONSIDERS THE FOLLOWING.
 - MAINTAINING EQUIVALENT LOADING FOR DEFLECTION
 - MAINTAINING EQUIVALENT LOADING FOR MEMBER STRESSES
 - MAINTAINING EQUIVALENT TRIBUTARY LOADING AREA FOR TOTAL LOAD ON MULLION.

TABLE 7	
Two-Way Mullion Combination	
Mullion C Vertical	
Mullion Span	Tributary Width
L (in)	W (in)
83.5	71 3/4
82	73
80	75
78	76 3/4
76	78 3/4
74	81
72	83 1/4
70	85 1/2
68	88
66	90 3/4
64	93 1/2
62	96 3/4
60	99 3/4
58	103 1/4
56	107
54	111
52	115 1/4
50	119 3/4
48	124 3/4
46	130 1/4
44	136 1/4
42	142 3/4
40	149 3/4
38	157 3/4
36	166 1/2
34	176 1/4
32	187 1/4

PROJECT NO. 421-0902

C	B	A	REV
ADDED NEW PRODUCTS	UPDATED TO CURRENT EDITION FBC	UPDATED TO 6TH EDITION (2017) FBC	DESCRIPTION
9/13/21	12/18/20	9/27/18	DATE
R/A	R/A	R/A	BY

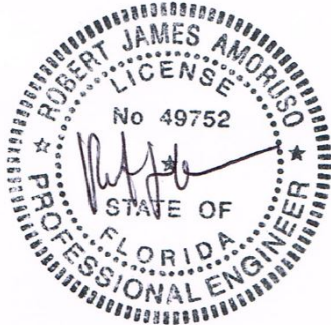
WEATHER SHIELD WINDOWS & DOORS

829 N. 8th Street
Medford, WI 54451

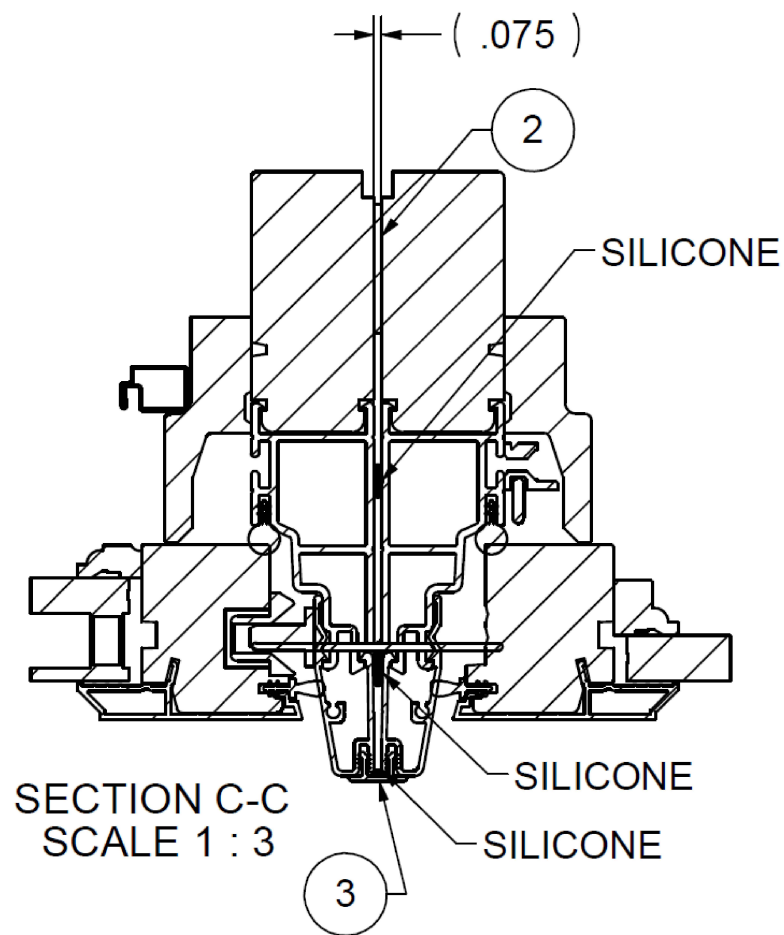
TITLE: WEATHER SHIELD HORIZONTAL & VERTICAL MULLION SYSTEM
VERTICAL ALUM. MULLION STIFFENER COMBINATION - TABLE 6

DRAWN BY: RJA	DATE: 10/20/15	DRAWING NO: WS0001	SHEET: 8 OF 10
SCALE: NONE	REV: C		
PTC PRODUCT DESIGN GROUP, LLC P.O. Box 520775 Longwood, FL 32752-0775 Phone: 321.690.1788 Fax: 321.690.1789 Email: info@ptc-corp.com			

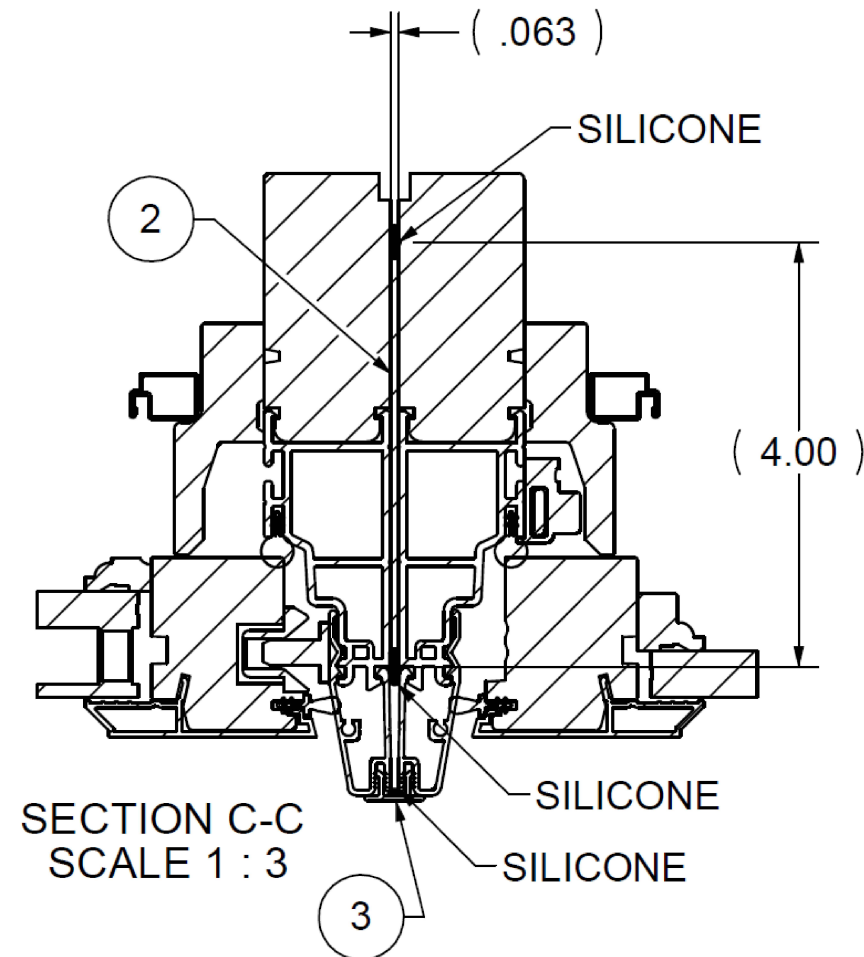
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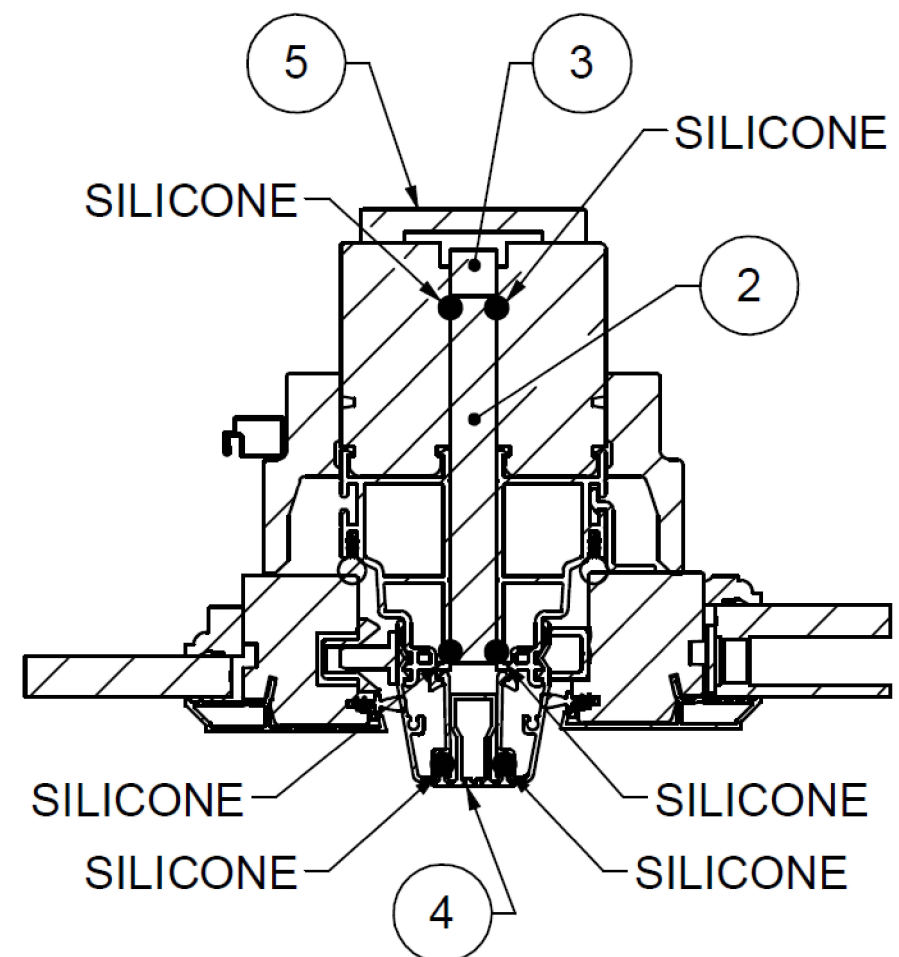
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A COMBINATION MULLION
 ITEM 2 - NAIL FIN SHIM
 ITEM 3 - MULL CONNECTOR
 (REF. DWG. NO. 85-7444-35)



B MULLION STIFFENER
 ITEM 2 - 0.063" X 4" STEEL STIFFENER
 ITEM 3 - MULL CONNECTOR
 (REF. DWG. NO. 85-7444-45)



C MULLION STIFFENER
 ITEM 2 - 0.5" X 4" ALUMINUM STIFFENER
 ITEM NO. 3 - WOOD MULLION FILLER
 ITEM 4 - MULL CONNECTOR
 ITEM NO. 5 - INTERIOR LATTICE
 (REF. DWG. NO. 85-11602-01)

PROJECT NO. 421-0902

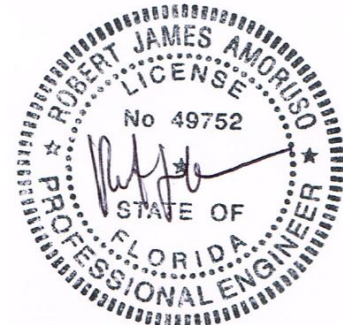
REV	DESCRIPTION	DATE	BY
C	ADDED NEW PRODUCTS	9/13/21	RJA
B	UPDATED TO CURRENT EDITION FBC	12/18/20	RJA
A	UPDATED TO 6TH EDITION (2017) FBC	9/27/18	RJA

WEATHER SHIELD WINDOWS & DOORS
 829 N. 8th Street
 Medford, WI 54451

TITLE: WEATHER SHIELD HORIZONTAL & VERTICAL MULLION SYSTEM COMPONENTS

PREPARED BY:	DRAWN BY:	DATE:	DRAWING NO:	SHEET:
	RJA	10/20/15	WS0001	9 OF 10
PTC PRODUCT DESIGN GROUP, LLC P.O. Box 520775 Longwood, FL 32752-0775 Florida CoA No. 25935	SCALE: NONE	REV: C		

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MULLION SYSTEM PRODUCT GROUPING							
Casements -- Glazed Sash in Frames							
FPA #s	TYPE	ATTACHMENT	SINGLE GLAZE IMPACT	DUAL GLAZE IMPACT	STANDARD NON-IMPACT	INSTALLATION DRAWING	CONFIGURATION
FL12786 FL17697	Awnings	Fin	1209	1210	8211	85-7438-36	Single
	Awnings	Mulled	1209	1210	8211	85-7815-21	Mulled
	Awnings	Clip	1209	1210	8211	85-7438-37	Single
	Awnings	Jamb	1209	1210	8211	85-7438-38	Single
FL17017	Casements	Fin	1209	1210	8211	85-7438-36	Single
	Casements	Mulled	1209	1210	8211	85-7815-21	Mulled
	Casements	Clip	1209	1210	8211	85-7438-37	Single
	Casements	Jamb	1209	1210	8211	85-7438-38	Single
FL15156	Casements	Fin	1209	1210		85-7438-27	Single
	Casements	Fin	1209	1210		85-7815-14	Mulled
	Casements	Fin			8211	85-7438-19	Single
	Casements	Fin			8211	85-7438-26	Single
	Casements	Fin			8211	85-7444-34	Mulled
	Casements	Fin			8211	85-7815-10/11	Mulled
FL30452	Csmt Round Top	Fin		1210		45-22366	Single
	Csmt Round Top	Clip		1210		45-22377	Single
	Csmt Round Top	Jamb		1210		45-22376	Single
	Csmt Eyebrow	Fin		1210		45-22388	Mulled
	Csmt Eyebrow	Clip		1210		45-22379	Mulled
	Csmt Eyebrow	Jamb		1210		45-22391	Mulled
FL28787	Casement Picture	Fin	1209	1210		85-7438-27	Single
	Casement Picture	Fin	1209	1210		85-7438-27	Mulled
FL17694	Casement Picture	Fin	1209	1210	8211	85-7438-36	Single
	Casement Picture	Mulled	1209	1210	8211	85-7815-21	Mulled
	Casement Picture	Clip	1209	1210	8211	85-7438-37	Single
	Casement Picture	Jamb	1209	1210	8211	85-7438-38	Single
FL14696	Casement Picture	Fin			8211	85-7438-28	Single
	Casement Picture	Fin			8211	85-7438-29	Mulled
	Casement Picture	Fin	1209	1210		85-7815-15	Single
	Casement Picture	Fin	1209	1210		85-7815-15	Mulled
FL37186	French Casement	Fin		1212	8214	45-24910	Single
FL17017 FL30918 FL30452	Pushout Casement	Fin		1214	8213, 8217	45-33149	Single

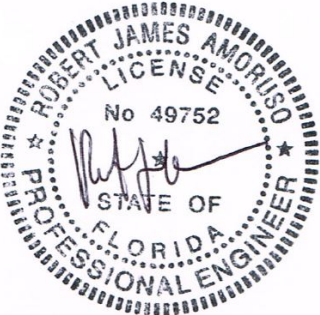
MULLION SYSTEM PRODUCT GROUPING							
Direct Glazed Windows -- No Sash							
FPA #s	TYPE	ATTACHMENT	SINGLE GLAZE IMPACT	DUAL GLAZE IMPACT	STANDARD NON-IMPACT	INSTALLATION DRAWING	CONFIGURATION
FL17694	Direct Set	Fin	1309	1310	8306	85-7430-35	Single
	Direct Set	Mulled	1309	1310	8306	85-7849-15	Mulled
	Direct Set	Clip	1309	1310	8306	85-7849-13	Single
	Direct Set	Jamb	1309	1310	8306	85-7849-14	Mulled
FL28787	Direct Set	Fin		1310		85-7430-35	Single
	Direct Set	Clip		1310		85-7430-35	Single
	Direct Set	Jamb		1310		85-7430-35	Single

DRAWING NUMBERS LISTED IN TABLES ON THIS SHEET ARE AVAILABLE FROM WEATHER SHIELD DIRECTLY.

PROJECT NO. 421-0902	R/A	R/A	R/A	BY
	9/13/21	12/18/20	9/27/18	DATE
	ADDED NEW PRODUCTS	UPDATED TO CURRENT EDITION FBC	UPDATED TO 6TH EDITION (2017) FBC	DESCRIPTION
	C	B	A	REV

WEATHER SHIELD WINDOWS & DOORS		DATE: 10/20/15		DRAWING NO: WS0001		SHEET: 10 OF 10	
829 N. 8th Street Medford, WI 54451		DRAWN BY: RJA		SCALE: NONE		REV: C	
TITLE: WEATHER SHIELD HORIZONTAL & VERTICAL MULLION SYSTEM MULLION SYSTEM PRODUCT GROUPING		PREPARED BY:		PTC PRODUCT DESIGN GROUP, LLC		P.O. Box 520775 Longwood, FL 32752-0775 Florida CoA No. 25935	
				Phone: 321.690.1788 Fax: 321.690.1789 Email: info@ptc-corp.com			

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