Engineering Evaluation Report

Prepared by:
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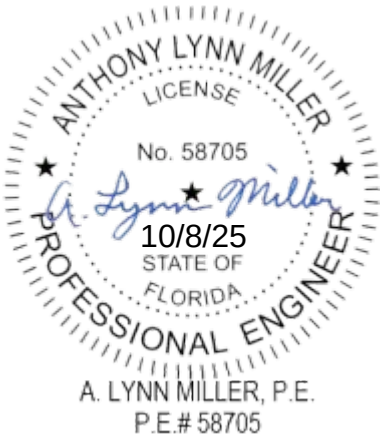
Manufacturer:
PGT Industries, LLC
3400 Precision Drive
North Venice, FL 34275

Product Description:
Impact-Resistant, Clipped Aluminum Tube Mullions, (LM), FL-17519

Compliance:
The above-mentioned product has been evaluated for compliance with the requirements of the Florida Department of Business and Professional Regulation for Statewide Acceptance per Rule 61 G20-3.005 method 1(d). The product listed herein complies with requirements of the current Florida Building Code.

Supporting Technical Documentation:
1. Approval Document: Drawing number 1X2MULLS-FPA, signed and sealed by A. Lynn Miller, P.E.
2. Test Reports:
FTL-6443, signed and sealed by Marlin D. Brinson, P.E., Fenestration Testing Laboratories, Medley, FL.
TAS 201-94 Large Missile Impact Test
TAS 202-94 Uniform Static Air Pressure Test
TAS 203-94 Cyclic Pressure Loading Test

Limitations and Conditions of use:
• This product is rated to be used in the HVHZ.
• This product is impact resistant and does not require impact protection in wind borne debris regions.
• Material to be extruded Aluminum
• Units must be installed in accordance with approval document.



IMPACT-RESISTANT, CLIPPED, ALUMINUM TUBE MULLIONS

1) MULLIONS AND CLIPS HAVE BEEN DESIGNED & TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, AND ARE APPROVED FOR IMPACT AND NON-IMPACT APPLICATIONS IN THE HVHZ. MULLIONS ARE ONLY TO BE USED WITH THE MANUFACTURER'S FENESTRATION PRODUCTS.

2) INSTALLATION DETAILS SHOWN ARE FOR THE MULLION ONLY. ANCHORS SHOWN ARE IN ADDITION TO ANY ANCHORS REQUIRED FOR THE FENESTRATION PRODUCT INSTALLATION. TYPICAL APPLICATIONS ARE SHOWN. EACH SITUATION IS UNIQUE AND SHOULD BE EVALUATED BY AN EXPERIENCED INSTALLER FOR THE BEST INSTALLATION METHOD. OPTIONAL 1X OR 2X WOOD BUCKS IF USED, MUST BE ANCHORED PROPERLY TO TRANSFER LOADS AND ARE TO BE DESIGNED BY OTHERS.

3) THE TYPE AND NUMBER OF ANCHORS IS CRITICAL TO THE STRUCTURAL PERFORMANCE OF THE MULLED UNITS. MULLIONS HAVE BEEN TESTED AS "FREE- FLOATING" AND DO NOT NEED TO BE DIRECTLY ATTACHED TO THE MULLION CLIPS, BUT SHALL NOT HAVE A GAP OF MORE THAN 1/4" FROM THE CLIP.

4) THE ANCHORAGE METHODS SHOWN HAVE BEEN DESIGNED TO RESIST THE WINDLOADS CORRESPONDING TO THE REQUIRED DESIGN PRESSURE. MULLIONS ARE CALCULATED TO DEFLECT NO MORE THAN L/180. THE 1/3 STRESS INCREASE WAS NOT USED IN THIS ANCHOR EVALUATION. THE 1.6 LOAD DURATION FACTOR WAS USED FOR THE EVALUATION OF WOOD SCREWS. DESIGN LOADS ARE BASED ON ALLOWABLE STRESS DESIGN, ASD.

5) PROPER SEALING OF ENTIRE ASSEMBLY IS THE RESPONSIBILITY OF OTHERS AND IS BEYOND THE SCOPE OF THESE INSTRUCTIONS.

6) USE THE COMBINED WIDTH OR HEIGHT OF ONLY TWO ADJACENT FENESTRATION PRODUCTS TO DETERMINE PRESSURES AND ANCHORAGE FOR THE COMMON MULLION. FOR MULTIPLE UNITS, CONSIDER ONLY TWO ADJACENT UNITS AT A TIME WHEN USING THE DESIGN PRESSURE AND ANCHORAGE TABLES. THE LOWEST DESIGN PRESSURE OF MULTIPLE MULLIONS OR FENESTRATION PRODUCTS SHALL APPLY.

7) ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO. WOOD BUCKS BY OTHERS. MUST BE ANCHORED PROPERLY TO TRANSFER LOADS TO THE STRUCTURE. ANCHORS SHALL BE COATED OR CORROSION RESISTANT AS APPROPRIATE FOR SUBSTRATE MATERIAL. DISSIMILAR MATERIALS SHALL BE PROTECTED AS REQUIRED TO PREVENT REACTIONS.

8) QUANTITY OF UNITS WITHIN A MULTIPLE MULLED ASSEMBLY IS UNLIMITED PROVIDED THAT THE SPAN AND OPENING WIDTH/HEIGHT OF EACH INDIVIDUAL MULLION COMPLIES WITH THE REQUIREMENTS OF THIS APPROVAL.

INSTRUCTIONS:

1) DETERMINE THE ALLOWABLE STRESS DESIGN PRESSURE REQUIREMENT (LBS/FT²) FOR THE OPENING USING THE **ASCE-7 STANDARD**.

2) TO FIND THE DESIGN PRESSURE OF THE MULLION, USE TABLES 1A AND 2A. THE MULLION DESIGN PRESSURE OBTAINED SHALL MEET OR EXCEED THE DESIGN PRESSURE REQUIREMENT FOR THE OPENING OBTAINED IN STEP 1. NOTE THAT YOU MUST FIRST DETERMINE WHETHER YOU HAVE A SINGLE MULLION OR CROSSING MULLIONS.

3) AFTER OBTAINING THE MULLION'S DESIGN PRESSURE, FIND THE VALUE IN THE COLUMN TITLED "ANCHOR CAPACITY REQUIRED (LBS)". THIS VALUE REPRESENTS THE CLIP/ANCHOR CAPACITY THAT MUST BE MET TO ATTAIN THE MULLION DESIGN PRESSURE.

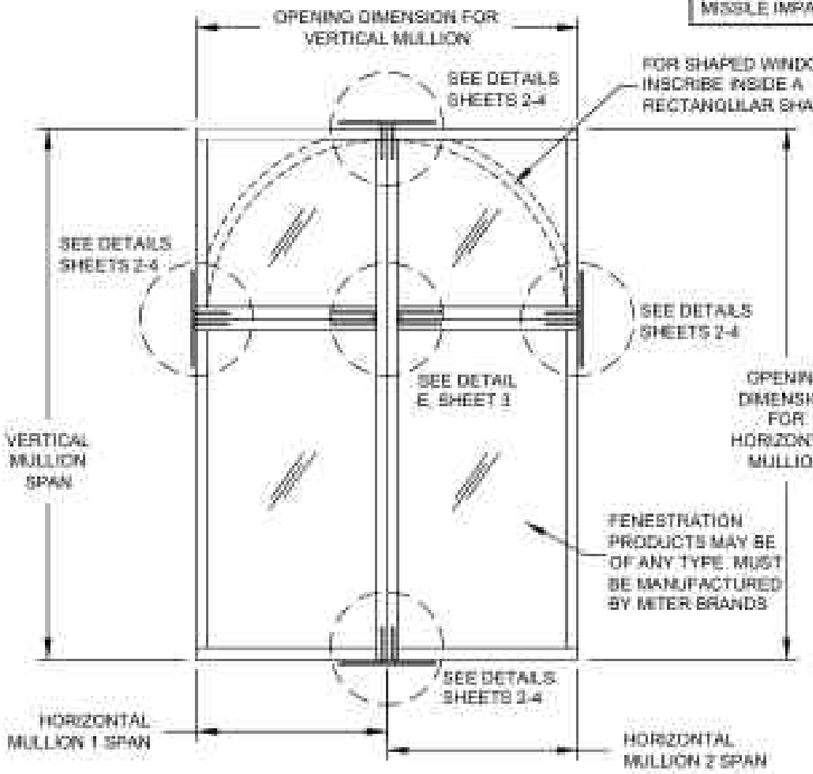
4) FROM THE ANCHOR/CLIP CAPACITY TABLE ON THE SAME SHEET, CHOOSE AN ANCHOR/CLIP/SUBSTRATE CONDITION THAT MEETS OR EXCEEDS THE VALUE OBTAINED FROM STEP 3.

5) VERIFY THE DESIGN PRESSURE OF THE FENESTRATION PRODUCT TO BE USED AND COMPARE WITH THE FINAL DESIGN PRESSURE FOR THIS MULLION SYSTEM. THE LOWER OF THE TWO SHALL APPLY FOR THE ENTIRE MULLED ASSEMBLY.

6) HIGHLIGHT OPTION USED AND TABLE VALUES USED IN A SPECIFIC APPLICATION WHEN USING THIS APPROVAL TO APPLY FOR A PERMIT.

7) OPTIONALLY, IF THE MULLION DESIGN PRESSURE OBTAINED IN THE TABLE IS MUCH HIGHER THAN THE DESIGN PRESSURE REQUIREMENT FOR THE OPENING, YOU MAY USE THE **"ANCHOR CAPACITY ADJUSTMENT FORMULA"** TO OBTAIN A LOWER ANCHOR/CLIP CAPACITY.

FIGURE 1: MULTIPLE MULLIONS



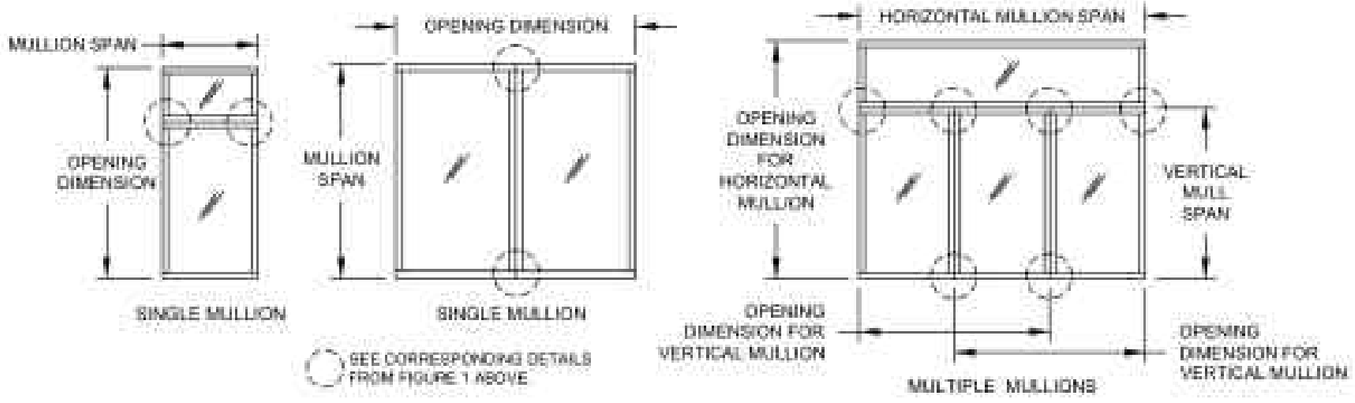
DESIGN PRESSURE RATING
SEE TABLES 1A - 2A

IMPACT RATING
RATED FOR LARGE & SMALL MISSILE IMPACT RESISTANCE

CONTENTS:

GENERAL NOTES	1
ELEVATIONS	1
INSTRUCTIONS	1
MULL TO 2X WOOD	2
MULL TO 1X & MASONRY	2
MULL TO MASONRY	3
MULL TO STEEL STUD	3
MULL TO MULL INTERSECTION	3
F CLIP INSTALLATION	4
2X ANGLE INSTALLATION	4
1 X 2 X 1/8 MULL SPECS	5
1 X 2 X 3/8 MULL SPECS	6
MULLION & CLIP DIMENSIONS	7
LOADING EXAMPLES	8

FIGURE 2: ADDITIONAL EXAMPLES OF MULLION CONFIGURATIONS:



A	10/8/25	REMOVED 1X3 MULL - CK

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DRWG: CLIPPED (LM) 06/20/25
CHK'D: COLTON KEMPF
SCALE: 1/4"
DWG NO: 1X2MULLS-FPA
SHEET: 1 OF 8
DETAIL: MULL

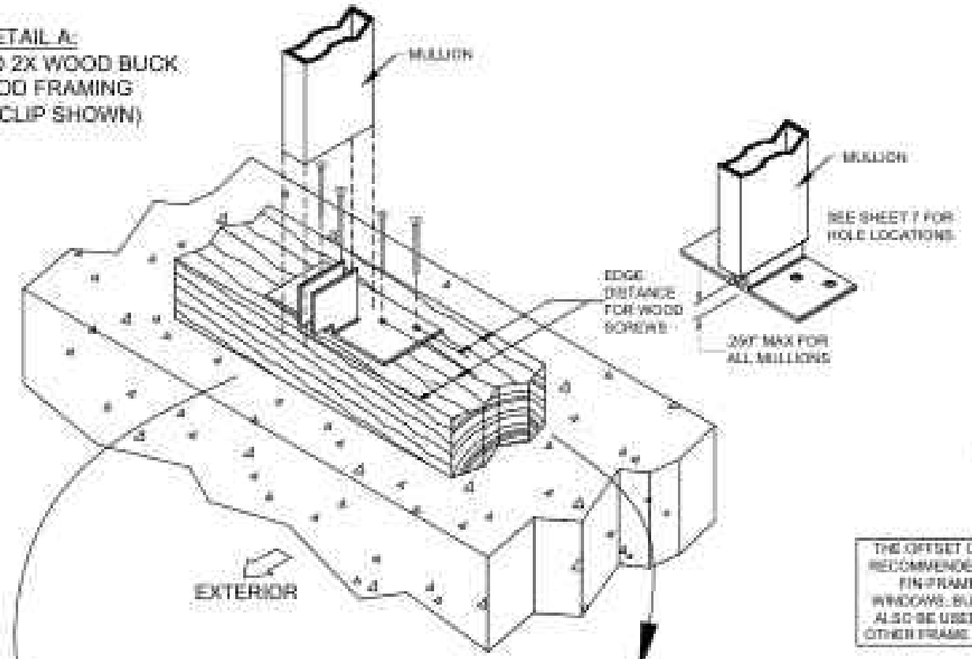
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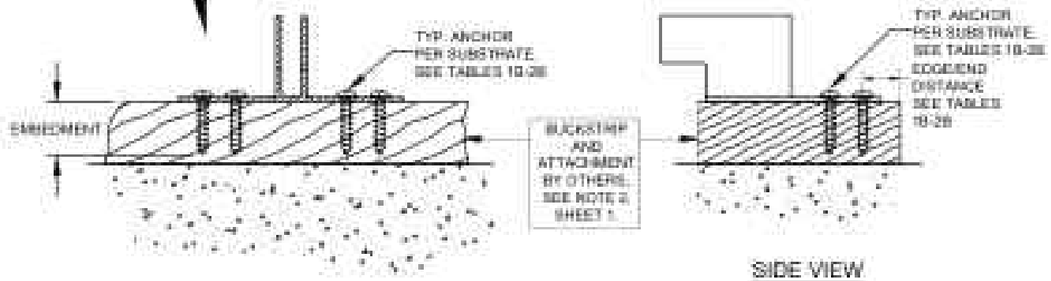
1X2 ALUMINUM TUBE MULLION, CLIPPED

GENERAL NOTES & ELEVATIONS

ANTHONY LYNN MILLER
LICENSE
No. 58705
10/8/25
STATE OF FLORIDA
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
P.E.# 58705

DETAIL A:
MULLION TO 2X WOOD BUCK OR WOOD FRAMING (OFFSET CLIP SHOWN)



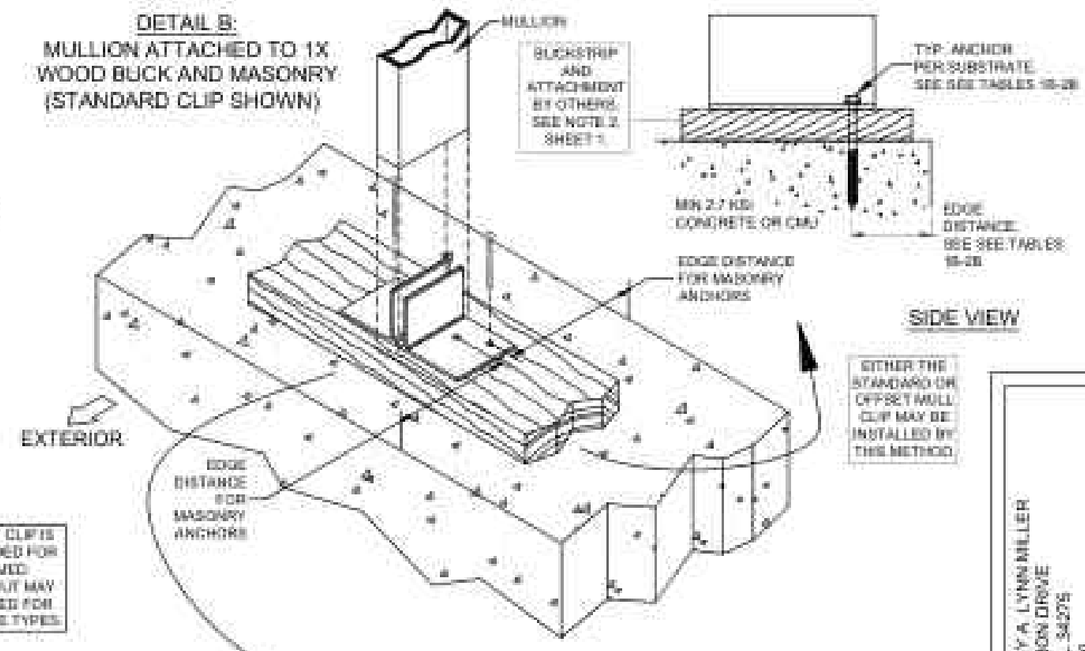


FRONT VIEW

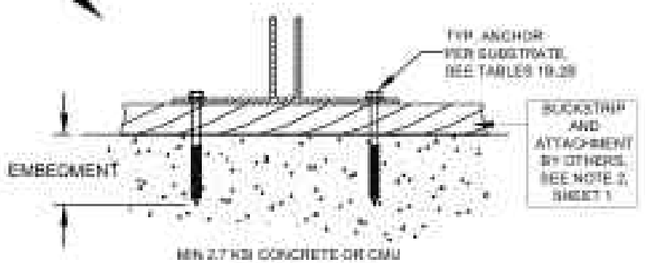
SIDE VIEW

THE OFFSET CLIP IS RECOMMENDED FOR FIN FRAMED WINDOWS, BUT MAY ALSO BE USED FOR OTHER FRAME TYPES.

DETAIL B:
MULLION ATTACHED TO 1X WOOD BUCK AND MASONRY (STANDARD CLIP SHOWN)



SIDE VIEW



FRONT VIEW

INSTALLATION NOTES:

1) ANCHOR EMBEDMENT TO SUBSTRATE SHALL BE BEYOND WALL DRESSING OR STUCCO.

2) QUANTITY OF ANCHORS, MULLION TYPES AND MULLION CLIP TYPES AND STYLES SHOWN ABOVE ARE FOR PICTORIAL REPRESENTATION ONLY. BECAUSE THE ANCHOR CAPACITY IS BASED PARTLY ON THE ANCHOR TO ANCHOR DISTANCE, THE CORRECT QUANTITY AND LOCATION OF ANCHORS MUST BE FOLLOWED. REFER TO THE TABLES ON THE FOLLOWING SHEETS. FOR DETAILS A-D, EITHER THE STANDARD OR OFFSET CLIP MAY BE USED.

3) ANCHOR HEAD TYPE MAY BE PANHEAD, HEXHEAD OR FLATHEAD.

A	
10/8/25	
NO CHANGES THIS SHEET	

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CLIPPED (LM) 06/20/25

COLTON KEMPF

1X2MULLS-FPA

1X2 ALUMINUM TUBE MULLION, CLIPPED

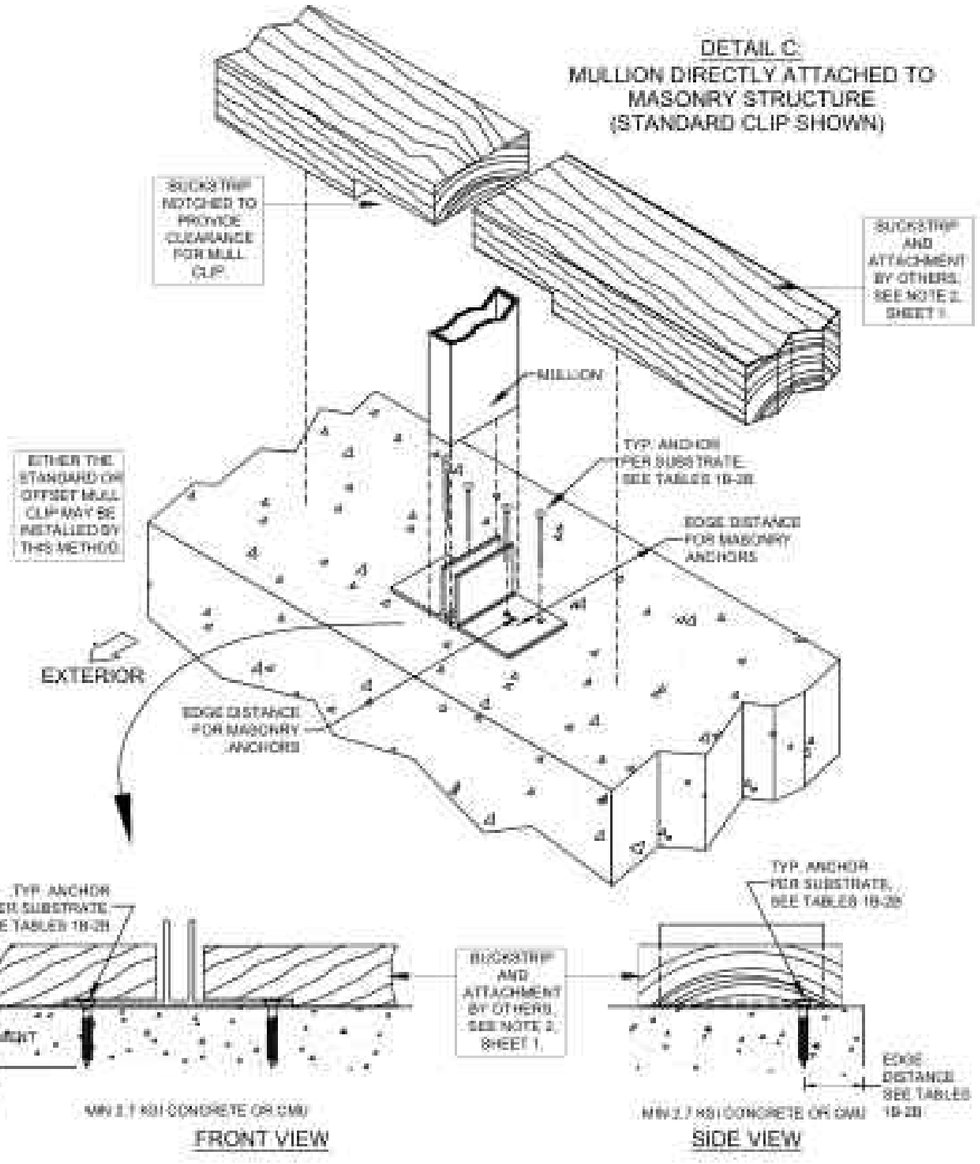
INSTALLATION INSTRUCTIONS

1 OF 1 | 2 OF 8 | MULL

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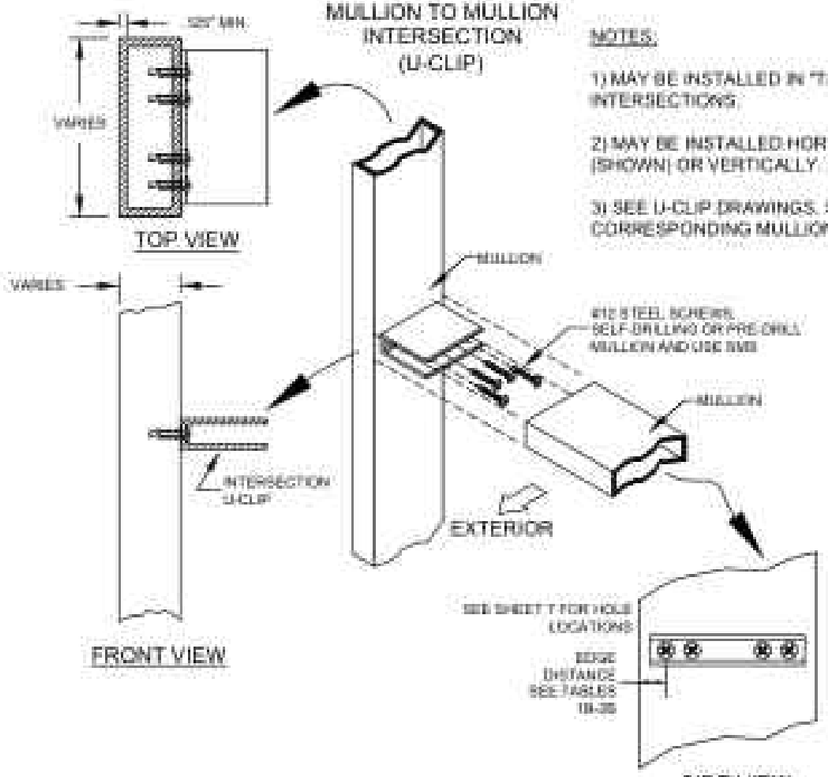
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STATE OF FLORIDA
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
P.E.# 58705

DETAIL C:
MULLION DIRECTLY ATTACHED TO MASONRY STRUCTURE
(STANDARD CLIP SHOWN)



THE OFFSET CLIP IS RECOMMENDED FOR TIN-FRAMED WINDOWS, BUT MAY ALSO BE USED FOR OTHER FRAME TYPES.

DETAIL E:
MULLION TO MULLION INTERSECTION
(U-CLIP)



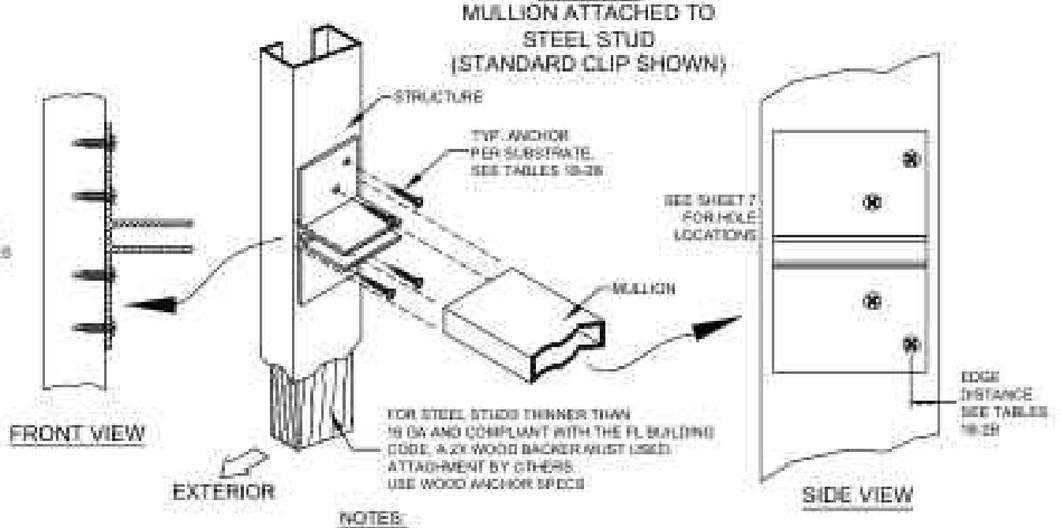
NOTES:

1) MAY BE INSTALLED IN "TEE" OR "CROSS" INTERSECTIONS.

2) MAY BE INSTALLED HORIZONTALLY (SHOWN) OR VERTICALLY.

3) SEE U-CLIP DRAWINGS, SHEET 7 FOR CORRESPONDING MULLION.

DETAIL D:
MULLION ATTACHED TO STEEL STUD
(STANDARD CLIP SHOWN)



INSTALLATION NOTES:

1) ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO.

2) QUANTITY OF ANCHORS AND MULLION SIZE SHOWN ABOVE ARE FOR PICTORIAL REPRESENTATION ONLY. BECAUSE THE ANCHOR CAPACITY IS BASED PARTLY ON THE ANCHOR TO ANCHOR DISTANCE, THE CORRECT QUANTITY AND LOCATION OF ANCHORS MUST BE FOLLOWED. REFER TO THE TABLES ON THE FOLLOWING SHEETS. FOR DETAILS A-D, EITHER THE STANDARD OR OFFSET CLIP MAY BE USED.

3) ANCHOR HEAD TYPE MAY BE PANHEAD, HEXHEAD OR FLATHEAD.

4) WOOD BUCKS ARE OPTIONAL, SEE DETAIL C, SHEET 3.

NOTES:

1) FOR 2X WOOD-BACKED STEEL STUDS, WOOD ANCHOR VALUES MAY BE USED.

2) SEE CORRESPONDING MULLION TABLES, SHEETS 5-6, FOR QUANTITY OF SCREWS.

REV	DATE	BY
A	10/8/25	NO CHANGES THIS SHEET

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COLTON KEMPF

1X2MULLS-FPA

1X2 ALUMINUM TUBE MULLION, CLIPPED

INSTALLATION INSTRUCTIONS

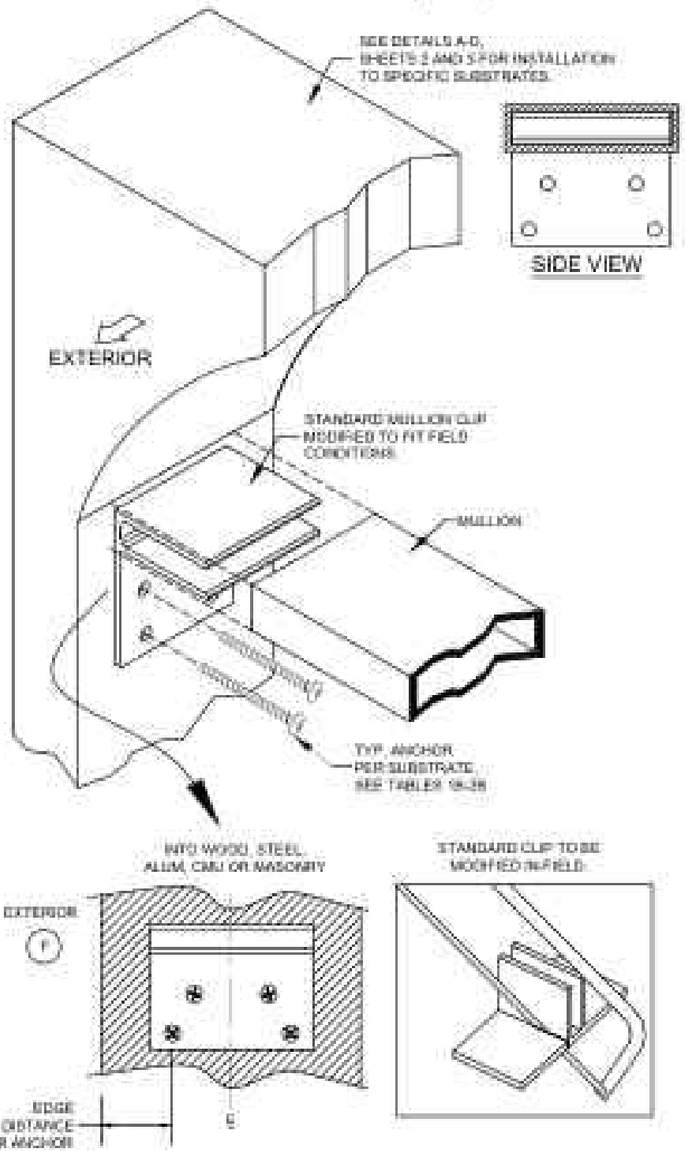
3 OF 8

MULL

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DETAIL F:
FIELD-MODIFIED MULLION CLIP
(F-CLIP)



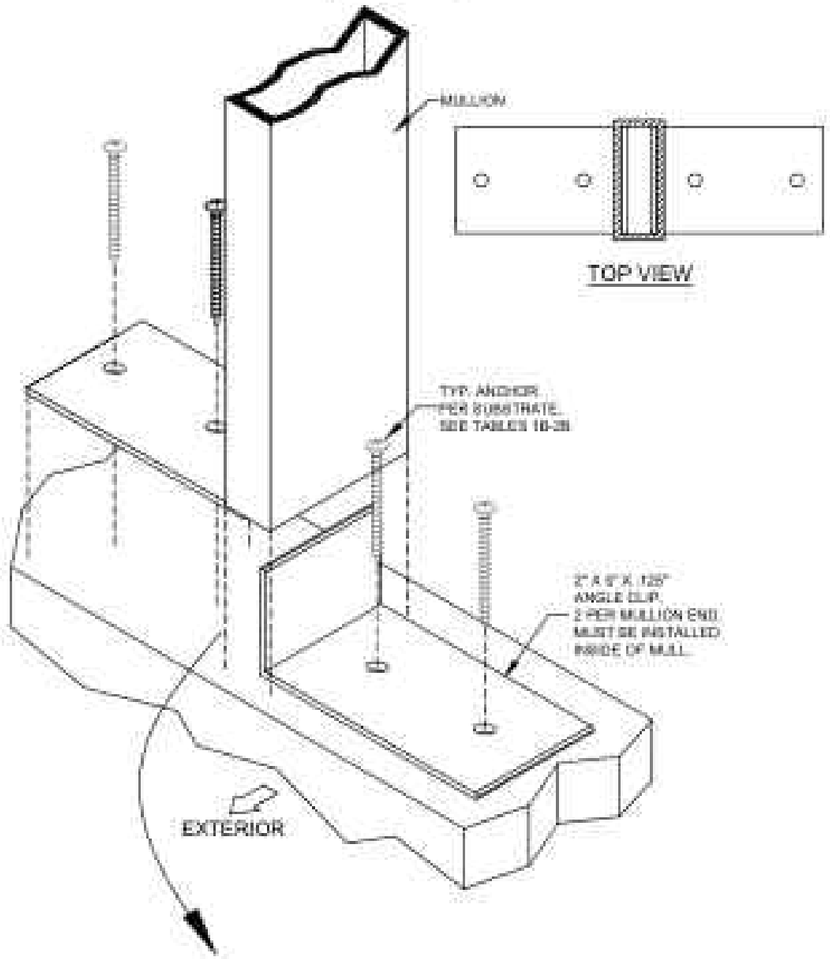
NOTES FOR INSTALLATION OPTIONS E:

1) DETAIL IS NOT APPLICABLE FOR THE BAY MULLION.

2) SEE TABLES 1B-2B FOR ANCHOR QUANTITIES AND SHEET 7 FOR HOLE LOCATIONS.

3) THE 2X5 CLIP IS NOT SUITABLE FOR THIS APPLICATION.

DETAIL G:
ANGLE MULLION CLIP
(ANGLE CLIP)



NOTES FOR INSTALLATION OPTION G:

1) USE 2 ANGLE CLIPS PER MULLION END. CLIPS MUST BE INSERTED INSIDE OF MULLION.

2) DETAIL G. SEE TABLES 1B-2B FOR ANCHOR QUANTITIES AND SHEET 7 FOR HOLE LOCATIONS.

A	10/8/25	NO CHANGES THIS SHEET

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DRAWN (LM) 06/20/25
CHECKED COLTON KEMPF

1X2 ALUMINUM TUBE MULLION, CLIPPED (LM)

INSTALLATION INSTRUCTIONS

SIZE	DWG NO	REV
B	1X2MULLS-FPA	A
SCALE	4 OF 8	
NTS	MULL	

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P.E.# 58705

TABLE 1A

1" x 2" x 1/8" Tube Mullion Design Pressure & Clip/Anchor Capacity Requirement		Opening Dimension																											
		60 in				60 in				70 in				80 in				85 in				100 in				120 in			
		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading	
		Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs-ft²)	Anchor Capacity Required (lbs)
Mullion Span	42 in	111.8	408	126.4	331	85.2	408	116.8	330	76.8	408	107.7	321	69.8	408	104.3	319	62.1	408	104.0	318	52.8	408	104.0	318	46.8	408	104.0	318
	48 in	74.9	312	83.7	256	62.4	312	75.4	252	63.9	312	66.9	246	48.8	312	63.1	246	47.8	312	61.3	244	37.4	312	60.8	244	31.3	312	60.8	244
	50-5/8 in	69.9	291	70.8	234	61.5	291	61.5	228	48.8	291	55.7	224	39.6	291	52.1	223	35.6	291	50.1	220	31.9	291	49.3	219	26.6	291	49.3	219
	54 in	62.6	247	67.4	207	49.8	247	49.8	202	37.8	247	44.8	199	32.6	247	41.5	198	29.2	247	39.4	194	26.2	247	38.3	193	21.9	247	38.3	193
	60 in	50.3	200	41.2	170	32.3	200	35.4	166	27.4	200	31.5	163	24.0	200	29.6	160	21.3	200	27.0	158	18.2	200	25.9	157	16.0	200	25.0	156
	66 in	32.1	161	35.3	158	27.8	161	30.3	151	23.7	161	26.8	149	20.7	161	24.8	148	18.4	161	22.8	144	15.8	161	21.7	145	13.8	161	20.8	142
	68 in	28.8	166	30.8	142	24.0	166	26.1	139	20.6	166	23.1	138	18.0	166	21.0	134	16.0	166	19.4	132	14.4	166	19.4	131	12.0	166	17.3	129
	72 in	22.2	139	23.3	120	18.8	139	19.8	118	15.8	139	17.8	119																
	76 in	18.9	124	18.7	104	15.7	124	16.8	106																				
	78 in	17.5	118	18.2	103																								

ANCHOR CAPACITY ADJUSTMENT FORMULA:
$(DP_{req.}) \times \left(\frac{\text{ANCHOR CAP.}_{req.}}{\text{MULLION CAP.}_{req.}}\right) = \text{ANCHOR CAP.}_{req.}$

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

TABLE 1B

Anchor Capacity (lbs)	Substrate	2 Ti Concrete				8 Concrete				3.5k Conc	Hollow CMU							Filled CMU	Wood		Metal
	Anchor Type	5/16" Elco Ultracon		1/4" Elco Ultracon		5/16" DeWalt Ultracon+		1/4" DeWalt Ultracon+		5/16" Elco Ultracon	5/16" Elco Ultracon		1/4" Elco Ultracon		5/16" DeWalt Ultracon+		1/4" DeWalt Ultracon+	1/4" SS Elco AggreGator	5/16" Elco Ultracon	1/4" SS Elco AggreGator	#10 Steel Screw (SS)	#12 Steel Screw (SS)	#12 Steel Screw (SS)
	Edge Distance (in)	1"	3-1/2"	1"	3-1/2"	1"	3-1/2"	1"	3-1/2"	3-1/8"	1"	3-1/2"	1"	3-1/2"	1"	3-1/2"	1"	3-1/2"	2"	3-1/8"	2"	0.48"	0.54"	0.324"
	Embedment (in)	1-3/4"	1-3/4"	1-3/4"	1-3/4"	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	2"	1.25"	1.38"	varies
2 Anchors @ 4.75" Min. O.C. / Standard or Offset Clip (Fig. 1)		550 lbs	550 lbs	400 lbs	883 lbs	310 lbs	650 lbs	220 lbs	670 lbs	1044 lbs	270 lbs	280 lbs	364 lbs	740 lbs	230 lbs	370 lbs	320 lbs	580 lbs	374 lbs	994 lbs	565 lbs	941 lbs	442 lbs	980 lbs
4 Anchors @ 1.18" Min. O.C. / Standard (or Offset) Clip (Fig. 2)		480 lbs	700 lbs	N/A	N/A	220 lbs	1260 lbs	370 lbs	N/A	N/A	N/A	560 lbs	N/A	N/A	N/A	742 lbs	N/A	N/A	N/A	N/A	N/A	980 lbs	988 lbs	1120 lbs
4 Anchors @ 3" Min. O.C. / (2) 3/4 Angle Clips / (Fig. 3)		760 lbs	790 lbs	880 lbs	1960 lbs	630 lbs	1260 lbs	440 lbs	1742 lbs	1988 lbs	540 lbs	560 lbs	N/A	780 lbs	460 lbs	740 lbs	640 lbs	1160 lbs	748 lbs	880 lbs	1882 lbs	882 lbs	880 lbs	1120 lbs
2 Anchors @ 0.48" Min. O.C. / (4) Clip, min. 125" Alum. (Fig. 4)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	715 lbs
1 Anchor / F-Clip (Fig. 5)		195 lbs	195 lbs	325 lbs	445 lbs	155 lbs	310 lbs	110 lbs	408 lbs	622 lbs	135 lbs	140 lbs	177 lbs	370 lbs	115 lbs	185 lbs	160 lbs	290 lbs	187 lbs	332 lbs	470 lbs	170 lbs	221 lbs	280 lbs
2 Anchors @ 1.18" Min. O.C / F-Clip (Fig. 6)		340 lbs	350 lbs	N/A	N/A	180 lbs	630 lbs	185 lbs	N/A	N/A	N/A	180 lbs	N/A	N/A	N/A	370 lbs	N/A	N/A	N/A	N/A	N/A	347 lbs	442 lbs	560 lbs

NOTE: FOR THE OFFSET CLIP, USE THE SAME ANCHOR PATTERN AND ANCHOR VALUES AS THE STANDARD CLIP.

FIGURE 1:

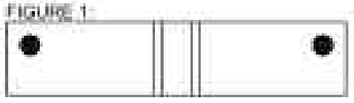


FIGURE 2:

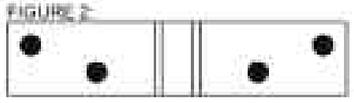
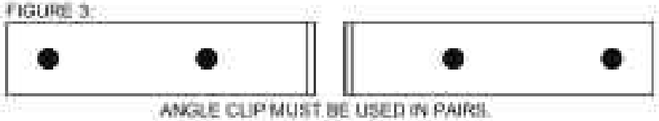


FIGURE 3:



ANGLE CLIP MUST BE USED IN PAIRS.

FIGURE 4:



FIGURE 5:



FIGURE 6:



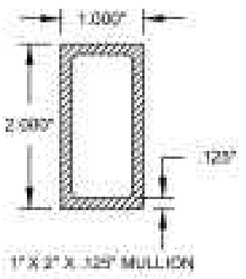
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A
10/8/25
REVISED TABLE 1A - CK

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3400 PRECISION DRIVE
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REGISTRATION #230760

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ISSUED (LM) 06/20/25
REVISED & COLTON KEMPF

1X2MULLS-FPA

1 X 2 X 1/8 CAPACITIES

1X2 ALUMINUM TUBE MULLION, CLIPPED (LM)

5 OF 8

MULL

PGT
Custom Windows and Doors
1070 PRECISION DRIVE
N. VENICE, FL 34275
(941) 486-1600

ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER
10/8/25
A. LYNN MILLER, P.E.
P.E.# 58705

TABLE 2A

1" x 2" x .375" Tube Mullion Design Pressure & Clip/Anchor Capacity Requirement		Opening Dimension																											
		60 in				80 in				70 in				80 in				90 in				100 in				120 in			
		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading	
		Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)
Mullion Span	42 in	170.0	620	170.0	430	161.3	882	170.0	479	126.7	862	170.0	506	115.5	882	169.8	518	100.8	882	168.8	517	83.8	882	168.8	517	75.7	882	168.8	517
	48 in	121.8	507	136.0	419	101.4	801	118.2	410	86.8	807	108.7	409	76.0	807	102.8	398	67.8	807	98.8	397	60.8	807	98.0	396	50.7	807	98.0	396
	54 in	100.7	428	114.8	378	86.4	806	99.8	371	74.1	806	92.3	394	64.4	806	94.8	380	57.8	806	91.3	397	51.8	806	92.0	398	43.2	806	92.0	398
	60 in	85.4	400	95.3	336	71.2	800	80.8	326	61.0	800	72.7	320	53.4	800	87.1	318	47.8	800	84.0	318	42.7	800	82.5	314	35.8	800	81.8	313
	66 in	82.3	324	86.8	276	61.8	324	67.8	270	44.8	324	61.2	264	39.8	324	46.8	260	34.8	324	43.8	257	31.1	324	42.0	255	26.0	324	40.8	253
	72 in	63.8	284	67.4	232	44.8	284	49.2	246	38.4	284	43.8	241	33.8	284	35.8	237	29.8	284	37.1	234	26.8	284	36.3	232	22.4	284	33.8	230
	78 in	48.8	268	48.8	230	39.0	268	42.4	225	33.4	268	37.8	221	29.2	268	34.1	218	26.0	268	31.8	216	23.4	268	29.8	212	19.8	268	28.0	210
	84 in	36.0	228	37.8	196	30.0	228	32.2	191	25.7	228	28.4	188	22.3	228	25.8	186	20.0	228	23.8	182	18.0	228	22.1	180	15.0	228	20.8	177
	90 in	30.8	202	32.3	177	26.8	202	27.2	173	21.8	202	23.8	170	19.2	202	21.8	167	17.8	202	19.7	166	15.3	202	18.4	163	12.8	202	16.7	160
	96 in	26.5	182	28.8	168	23.8	182	26.1	166	20.2	182	22.0	162	17.7	182	19.7	158	16.7	182	19.1	157	14.2	182	16.8	156				
	102 in	18.8	144	19.2	126	15.8	144	16.1	126																				

1" x 2" x 3/8" Tube Mullion Design Pressure & Clip/Anchor Capacity Requirement		120 in				140 in				160 in			
		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading		Rectangular Loading		Trap/Triang Loading	
		Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)
Mullion Span	42 in	75.7	882	168.8	517	64.9	882	168.8	517	56.7	882	168.8	517
	48 in	50.7	807	99.0	396	43.4	807	99.0	396	38.0	807	99.0	396
	54 in	43.2	806	92.0	398	37.0	806	92.0	398	32.4	806	92.0	398
	60 in	35.8	800	81.8	313	30.8	800	81.8	313	26.7	800	81.8	313
	66 in	26.0	324	40.8	253	22.3	324	40.8	253	19.5	324	40.8	253
	72 in	22.4	284	33.8	230	19.2	284	33.8	230	16.8	284	33.8	230
	78 in	19.8	268	34.0	210	16.7	268	27.7	208	14.6	268	27.7	208
	84 in	15.0	228	30.8	177	12.8	228	19.8	176	11.3	228	19.8	176
	90 in	12.8	202	16.7	160								
	96 in												
	102 in												

ANCHOR CAPACITY ADJUSTMENT FORMULA:

$$(DP_{req'd}) \times \left(\frac{\text{ANCHOR CAP.}_{\text{(from table)}}}{\text{MULLION CAP.}_{\text{(from table)}}}\right) = \text{ANCHOR CAP.}_{req'd}$$

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

TABLE 2B

Anchor Capacity (lbs)	Substrate	2 ½ Concrete		3K Concrete				3.5k Conc	Hollow CMU							Filled CMU	Wood		Metal
	Anchor Type	3/16" Elco Ultracon	1/4" Elco Ultracon	3/16" DeWalt Ultracon+		1/4" DeWalt Ultracon+		5/16" Elco Ultracon	3/16" Elco Ultracon	1/4" Elco Ultracon	3/16" DeWalt Ultracon+		1/4" DeWalt Ultracon+	1/4" SS Elco AggreGator	5/16" Elco Ultracon	1/4" SS Elco AggreGator	#10 Steel Screw (OR)	#12 Steel Screw (OR)	#12 Steel Screw (OR)
	Edge Distance (in)	1"	2-1/2"	1"	2-1/2"	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	1"	2-1/2"	1"	2-1/2"	2"	3-1/8"	2"	0.48"	0.84"	0.024"
	Embedment (in)	1-3/4"	1-3/4"	1-3/4"	1-3/4"	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	2"	1-3/8"	1-3/8"	series
2 Anchors @ ≥ 7" Min. O.C. / Standard or Offset Clip (Fig. 1)		360 lbs	360 lbs	400 lbs	860 lbs	310 lbs	830 lbs	320 lbs	870 lbs	1584 lbs	270 lbs	280 lbs	354 lbs	740 lbs	230 lbs	370 lbs	320 lbs	680 lbs	374 lbs	564 lbs	940 lbs	541 lbs	442 lbs	960 lbs
4 Anchors @ 1.15" Min. O.C. / Standard (or Offset) Clip (Fig. 2)		480 lbs	720 lbs	N/A	N/A	320 lbs	1360 lbs	370 lbs	N/A	N/A	N/A	380 lbs	N/A	N/A	N/A	740 lbs	N/A	N/A	N/A	N/A	N/A	682 lbs	868 lbs	1120 lbs
4 Anchors @ 3" Min. O.C. / (2) 90 Angle Clips / (Fig. 3)		760 lbs	780 lbs	680 lbs	1560 lbs	620 lbs	1360 lbs	640 lbs	1740 lbs	1688 lbs	540 lbs	560 lbs	N/A	760 lbs	460 lbs	740 lbs	640 lbs	1190 lbs	748 lbs	960 lbs	1882 lbs	682 lbs	868 lbs	1120 lbs
2 Anchors @ 0.48" Min. O.C. / (1) Clip into 120° Alum. (Fig. 4)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	719 lbs
1 Anchor / P-Clip (Fig. 5)		180 lbs	196 lbs	328 lbs	448 lbs	155 lbs	310 lbs	110 lbs	435 lbs	822 lbs	135 lbs	140 lbs	177 lbs	370 lbs	115 lbs	185 lbs	160 lbs	280 lbs	187 lbs	332 lbs	473 lbs	170 lbs	221 lbs	280 lbs
2 Anchors @ 1.15" Min. O.C. / P-Clip (Fig. 6)		340 lbs	360 lbs	N/A	N/A	160 lbs	630 lbs	188 lbs	N/A	N/A	N/A	180 lbs	N/A	N/A	N/A	370 lbs	N/A	N/A	N/A	N/A	N/A	341 lbs	442 lbs	560 lbs

NOTE: FOR THE OFFSET CLIP, USE THE SAME ANCHOR PATTERN AND ANCHOR VALUES AS THE STANDARD CLIP.

FIGURE 1:

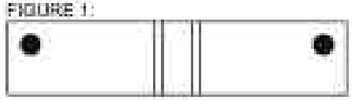


FIGURE 2:

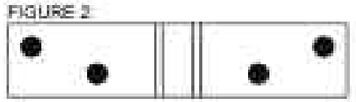


FIGURE 3:



ANGLE CLIP MUST BE USED IN PAIRS.

FIGURE 4:



FIGURE 5:



FIGURE 6:

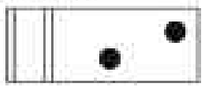


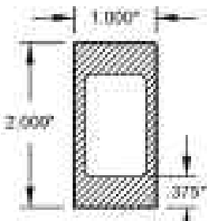
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1" X 2" X .375" MULLION

A
10/8/25
REVISED TABLE 2A - CK

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REGISTRATION #27570

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ISS. | DATE | DESCRIPTION
A | 10/8/25 | REVISED TABLE 2A - CK

DRAWN: ABS | 06/20/25
CHECKED (LMI)
APPROVED: COLTON KEMPF

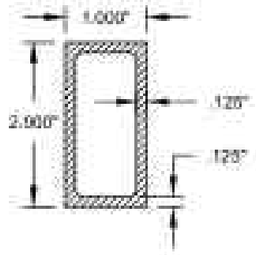
PGT Custom Windows and Doors
3400 PRECISION DRIVE
N. VENICE, FL 34275
(941) 480-1600

1X2 ALUMINUM TUBE MULLION, CLIPPED (LMI)

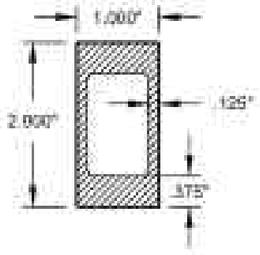
1 X 2 X .375 CAPACITIES

SIZE: MULL | DWG NO: 1X2MULLS-FPA | REV: A | SHEET: 6 OF 8

ANTHONY LYNN MILLER
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PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
P.E.# 58705



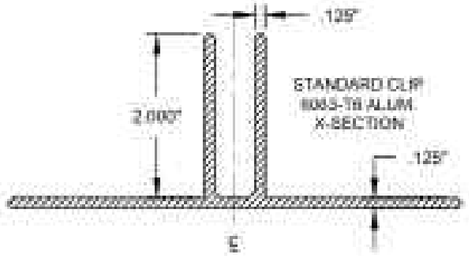
1" X 2" X .125" MULLION
6063-T6 ALUM.
X-SECTION

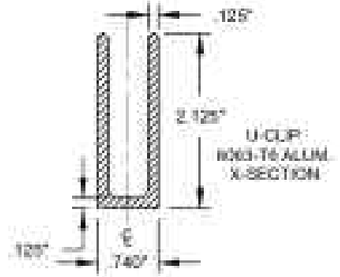


1" X 2" X .375" MULLION
6063-T6 ALUM.
X-SECTION

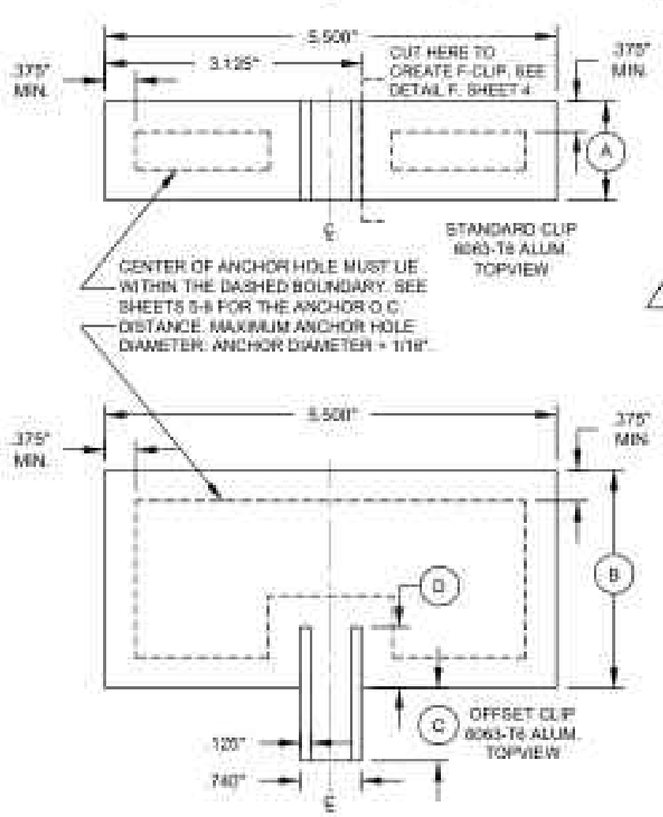
TABLE A

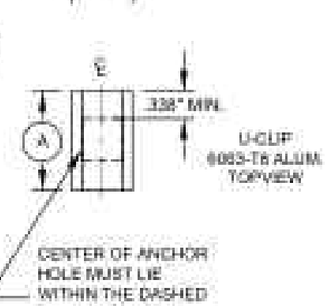
Dimension	Value (in)	For Mullion:
A	1.625	1" X 2" X .125" Aluminum Tube Mullion
B	2.654	
C	0.885	
D	0.740	
A	1.125	1" X 2" X .375" Aluminum Tube Mullion
B	2.404	
C	0.635	
D	0.490	











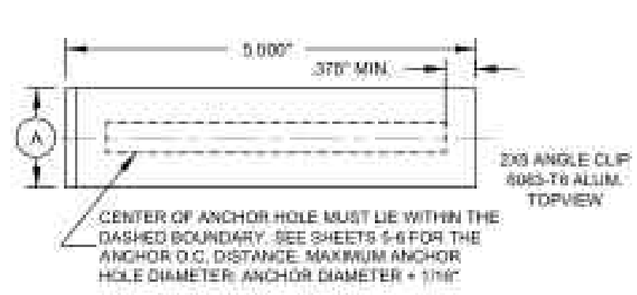


TABLE B

Mull Dimension (sheet #)	PGT Part #				
	Mullion	Std. Clip	Offset Clip	U-Clip	Angle Clip
1" X 2" X .125" (5)	666005	666113M	666118M	666243M	666511M
1" X 2" X .375" (6)	666006	666114M	666119M	666244M	666512M

NOTES:

1) HOLES TO BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS GIVEN ON THIS SHEET.

2) SEE SHEETS 5-6 FOR SUGGESTED, APPROXIMATE HOLE LOCATIONS & ANCHOR O.C. DISTANCE.

3) SEE SHEETS 2-4 FOR GENERAL INSTALLATION METHODS.

NO.	DESCRIPTION	DWN	DATE
A	REMOVED 1X3 MULL, REVISED TABLE A, ADDED TABLE B - CK	MB	10/8/25

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REGISTRATION #230360

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DRAWN (LM) | 06/20/25

CK | COLTON KEMPF

1X2MULLS-FPA

1X2 ALUMINUM TUBE MULLION, CLIPPED (L

CLIP DIMENSIONS

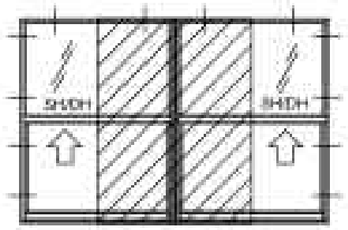
SW (psf) 7 OF 8

MULL

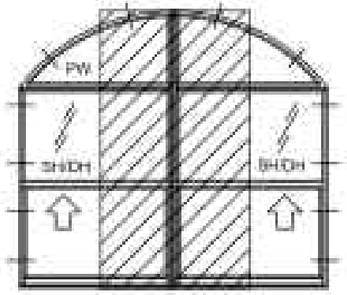
PGT
Custom Windows and Doors
3401 PRECISION DRIVE
N. VENICE, FL 34275
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ANTHONY LYNN MILLER
LICENSE
No. 58705
10/8/25
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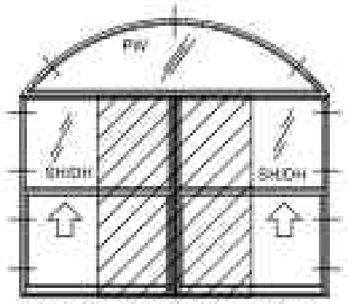
EXAMPLES OF RECTANGULAR LOADING:



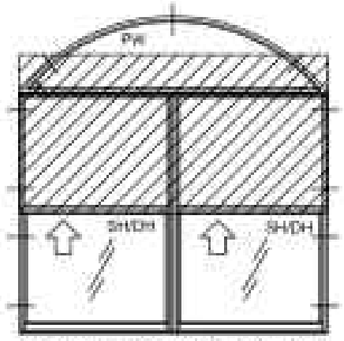
LOADING OF VERTICAL MULLION
SILL OF WINDOWS NOT ANCHORED



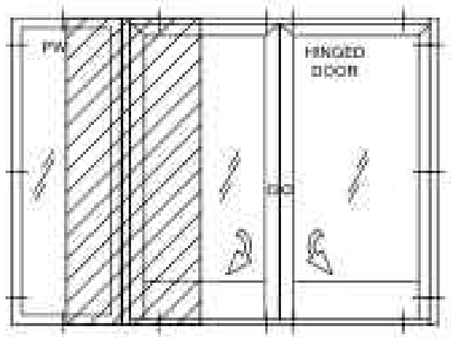
LOADING OF VERTICAL MULLION
WITH INTERSECTING HORIZONTAL MULLIONS



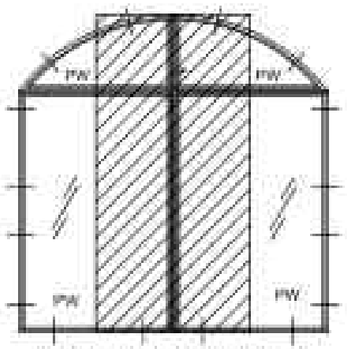
LOADING OF VERTICAL MULLION
SILL OF WINDOWS NOT ANCHORED



LOADING OF HORIZONTAL MULLION
WITH INTERSECTING VERTICAL MULLION

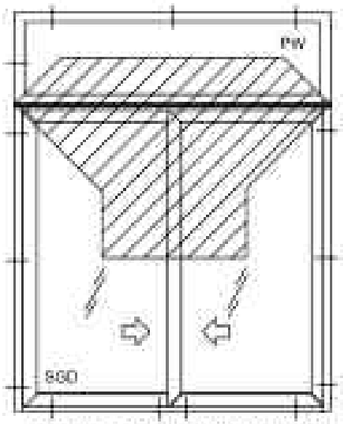


LOADING OF VERTICAL MULLION PANEL OF
HINGED DOOR IS NOT CAPTURED OR ANCHORED

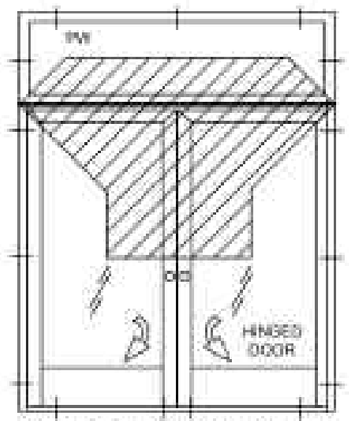


LOADING OF VERTICAL MULLION
WITH INTERSECTING HORIZONTAL MULLIONS

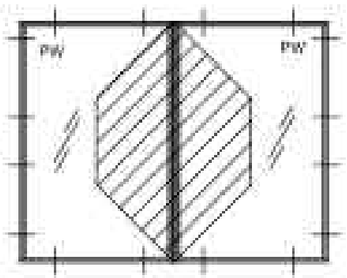
EXAMPLES OF TRAPEZOIDAL/TRIANGULAR LOADING:



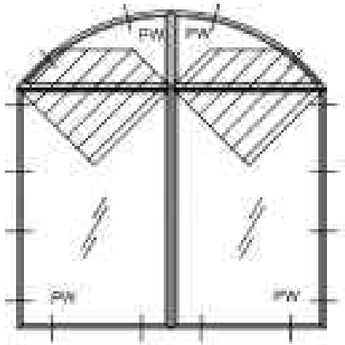
LOADING OF HORIZONTAL MULLION



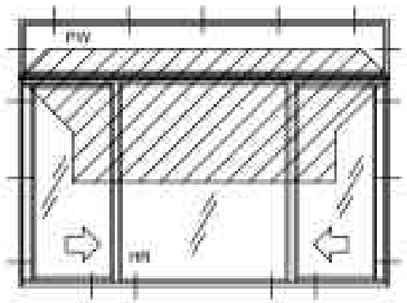
LOADING OF HORIZONTAL MULLION



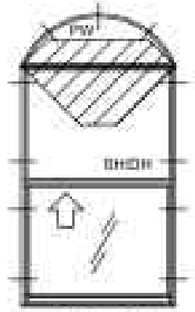
LOADING OF VERTICAL MULLION



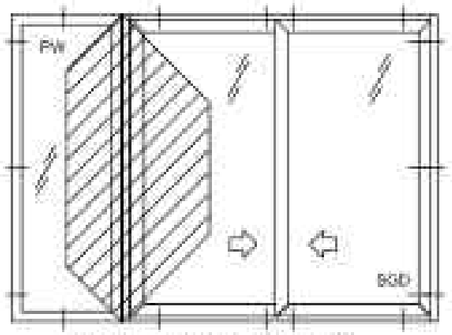
LOADING OF (2) HORIZONTAL MULLIONS



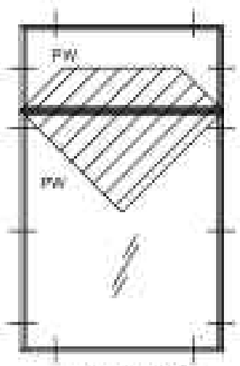
LOADING OF HORIZONTAL MULLION



LOADING OF
HORIZONTAL MULLION



LOADING OF VERTICAL MULLION



LOADING OF
HORIZONTAL MULLION

NOTES:

1) DRAWINGS ARE RERESENTATIONS OF TYPICAL CONFIGURATIONS. CONFIGURATIONS NOT SHOWN MAY BE EXTRAPOLATED FROM THOSE SHOWN.

2) IF THE LOADING TYPE CANNOT BE DETERMINED, USE RECTANGULAR LOADING.

3) SEE PRODUCTS' APPROVAL FOR ACTUAL ANCHOR LOCATIONS.

A	
NO CHANGES THIS SHEET	
10/8/25	

PREPARED BY: A. LYNN MILLER
3400 PRECISION DRIVE
N. VENICE, FL 34275
(941) 480-1600

REGISTRATION #230/0

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COLTON KEMPF

1X2MULLS-FPA

1X2 ALUMINUM TUBE MULLION, CLIPPED

LOADING AREA EXAMPLES

8 OF 8

MULL

PGT Custom Windows and Doors
3400 PRECISION DRIVE
N. VENICE, FL 34275
(941) 480-1600

ANTHONY LYNN MILLER
LICENSE
No. 58705
10/8/25
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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