GENERAL NOTES, UNCLIPPED 5400/5500 MULLIONS:

1) 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.

2) THE TYPE AND NUMBER OF ANCHORS IS CRITICAL TO THE STRUCTURAL PERFORMANCE OF THE MULLED UNITS.

3) 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.

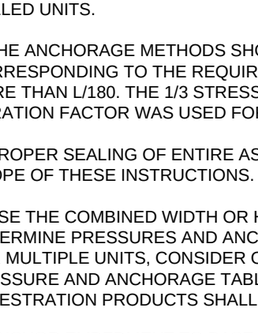
4) PROPER SEALING OF ENTIRE ASSEMBLY IS THE RESPONSIBILITY OF OTHERS AND IS BEYOND THE SCOPE OF THESE INSTRUCTIONS.

5) USE THE COMBINED WIDTH OR HEIGHT OF ONLY TWO ADJACENT FENESTRATION PRODUCTS TO DETERMINE PRESSURES AND ANCHORAGE FOR THE COMMON MULLION, SEE EXAMPLES ON THIS SHEET. 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.

6) 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 SPECIFIED IN THE 2006 TEXAS REVISIONS TO THE 2006 INTERNATIONAL BUILDING CODE.

7) MULLIONS HAVE BEEN DESIGNED & TESTED TO COMPLY WITH THE REQUIREMENTS OF THE 2006 INTERNATIONAL BUILDING CODE, AND ARE APPROVED FOR IMPACT AND NON-IMPACT APPLICATIONS. IMPACT APPLICATIONS ARE LIMITED TO WINDZONES 1, 2 & 3 AS DEFINED BY ASTM E1996. MULLIONS ARE ONLY TO BE USED WITH PGT-APPROVED FENESTRATION PRODUCTS HAVING CURRENT APPROVALS.

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.



1.25" X 3.25" X .100"
MULLION
6005-T5 ALUMINUM

TABLE 1B: ANCHORS INSTALLED THROUGH FRAME

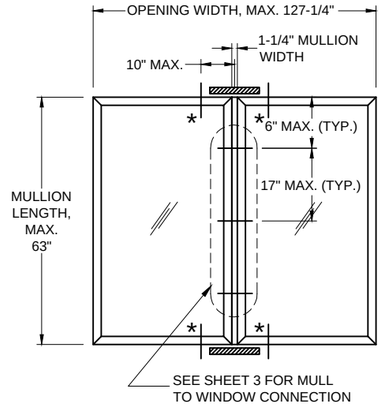
Anchor	Substrate	Min. Edge Distance	Min. Embedment
#10 SMS (steel, 18-8 S.S. or 410 S.S.) **Max. DP of 50.0**	P.T. Southern Pine (SG=0.55)	7/16"	1-3/8"
	Steel, A36	3/8"	0.050"
	Steel Stud, A653 Gr. 33	3/8"	0.0346" (20 Ga.)
	Aluminum, 6063-T5	3/8"	0.050"
#12 SMS (steel, 18-8 S.S. or 410 S.S.)	P.T. Southern Pine (SG=0.55)	9/16"	1-3/8"
	Steel, A36	3/8"	0.050"
	Steel Stud, A653 Gr. 33	3/8"	0.0346" (20 Ga.)
	Aluminum, 6063-T5	3/8"	0.063"
3/16" Ultracon (steel) **Max. DP of 50.0**	P.T. Southern Pine (SG=0.55)	7/16"	1-3/8"
	Concrete (min. 2.85 ksi)	1"	1-3/8"
	Ungrouted CMU, (ASTM C-90)	2-1/2"	1-1/4"
1/4" Ultracon (steel)	P.T. Southern Pine (SG=0.55)	1"	1-3/8"
	Concrete (min. 2.85 ksi)	1"	1-3/4"
	Ungrouted CMU, (ASTM C-90)	2-1/2"	1-1/4"
	Concrete (min. 2.85 ksi)	2-1/2"	1-3/4"
1/4" Crete-Flex (410 S.S.)	P.T. Southern Pine (SG=0.55)	1"	1-3/8"
	Concrete (min. 3.35 ksi)	1"	1-3/4"
	Ungrouted CMU, (ASTM C-90)	2-1/2"	1-1/4"
	Concrete (min. 3.35 ksi)	2-1/2"	1-3/4"
1/4" Aggre-Gator (18-8 S.S.)	Concrete (min. 3.275 ksi)	1-1/2"	1-3/8"
	P.T. Southern Pine (SG=0.55)	1"	1-3/8"
	Ungrouted CMU, (ASTM C-90)	2"	1-1/4"

NOTES FOR UNCLIPPED MULLIONS/FRAME ASSEMBLY TUBE:

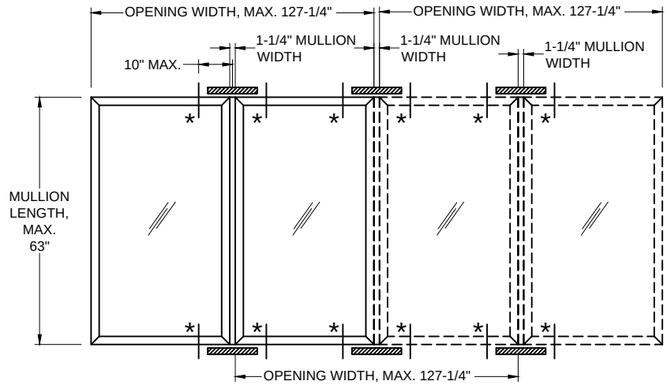
1) NOT TO BE USED WITH SINGLE OR DOUBLE HUNG WINDOWS.

2) NOT TO BE USED IN CROSS OR TEE CONFIGURATIONS, SEE NEXT SHEET.

USE THIS SHEET FOR UNCLIPPED MULLIONS



SINGLE VERTICAL MULLION

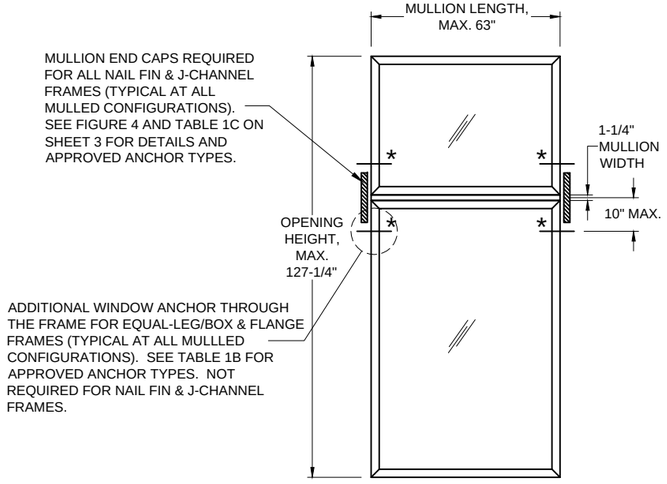


MULTIPLE VERTICAL MULLIONS

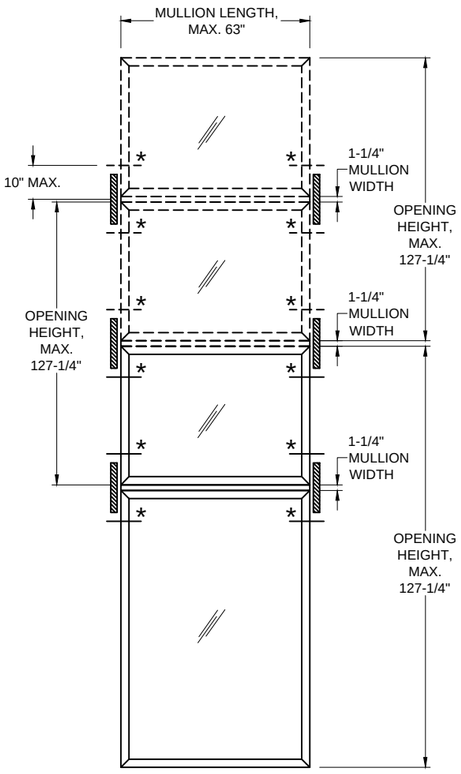
TABLE 1A

Mullion Capacity Table (lbs/ft²)			
1.25 x 3.25 x .100 Alum. Tube Mullion	Opening Width or Height up to 127-1/4"		
	All Loading Types		
	Mullion Capacity	Through-Frame Anchorage*	Through-Nail Fin Anchorage
Mullion Length up to 63"	+70.0 lbs/ft² -70.0 lbs/ft²	Install 4 additional window anchors through the window frames (2 total per mullion end), each at 10" max. from mullion/frame assembly tube centerline. See figures on this sheet.	Install 4 additional nail fin anchors through the mullion caps (2 total per mullion cap), one on each side of the mullion/frame assembly tube centerline. See figure 4 on sheet 3.

SEE CAR 190-1078 FOR CERTIFICATION.



SINGLE HORIZONTAL MULLION



MULTIPLE HORIZONTAL MULLIONS

Digitally signed by Anthony Lynn Miller, P.E.
Date: 2015.11.06 11:34:32 -05'00'

A. Lynn Miller
11/06/2015

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TX P.E.# 106954

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N. VENICE, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274

Title: 5400/5500 SERIES ALUMINUM TUBE MULLIONS
Description: UNCLIPPED MULLIONS
Series: 5400/5500
Drawn By: J ROSOWSKI
Rev. By:
Scale:
Date: 03/23/15
Drawing No. TDI-5000MULL.1
Checked By:
Revision:
Sheet: 1 of 9
Rev:
Date:
Date:

GENERAL NOTES, CLIPPED 5400/5500 MULLIONS:

1) 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.

2) 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.

3) 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.

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

5) USE THE COMBINED WIDTH OR HEIGHT OF ONLY TWO ADJACENT FENESTRATION PRODUCTS TO DETERMINE PRESSURES AND ANCHORAGE FOR THE COMMON MULLION, SEE EXAMPLES ON THIS SHEET. 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.

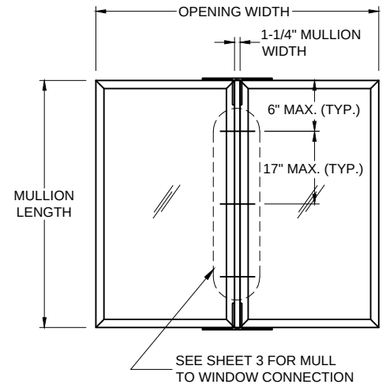
6) WHEN FINDING YOUR SIZE IN THE MULLION TABLES, ALWAYS ROUND UP TO THE NEXT SIZE SHOWN ON THE TABLE(S).

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 SPECIFIED IN THE 2006 TEXAS REVISIONS TO THE 2006 INTERNATIONAL BUILDING CODE.

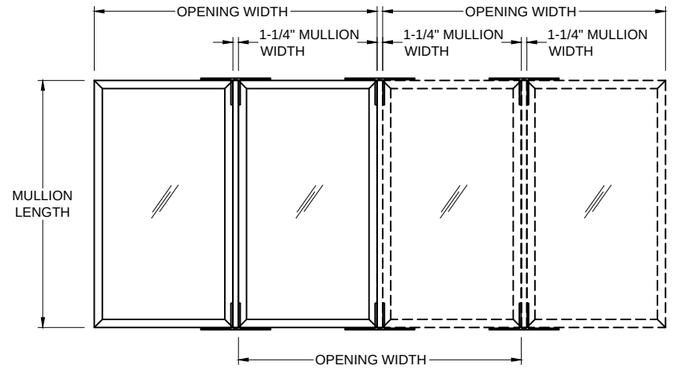
8) MULLIONS AND CLIPS HAVE BEEN DESIGNED & TESTED TO COMPLY WITH THE REQUIREMENTS OF THE 2006 INTERNATIONAL BUILDING CODE, AND ARE APPROVED FOR IMPACT AND NON-IMPACT APPLICATIONS. IMPACT APPLICATIONS ARE LIMITED TO WINDZONES 1, 2 & 3 AS DEFINED BY ASTM E1996. MULLIONS ARE ONLY TO BE USED WITH PGT-APPROVED FENESTRATION PRODUCTS HAVING CURRENT APPROVALS.

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

USE THIS SHEET FOR CLIPPED MULLIONS



SINGLE VERTICAL MULLION



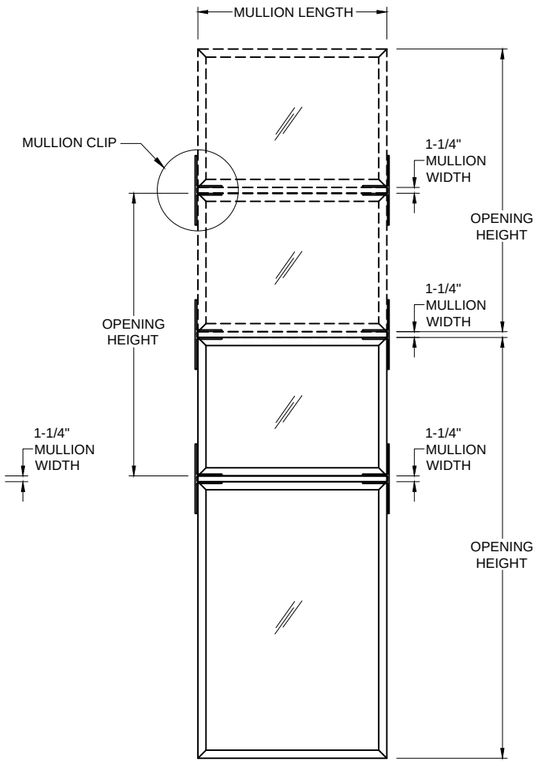
MULTIPLE VERTICAL MULLIONS

NOTES FOR CLIPPED MULLIONS:

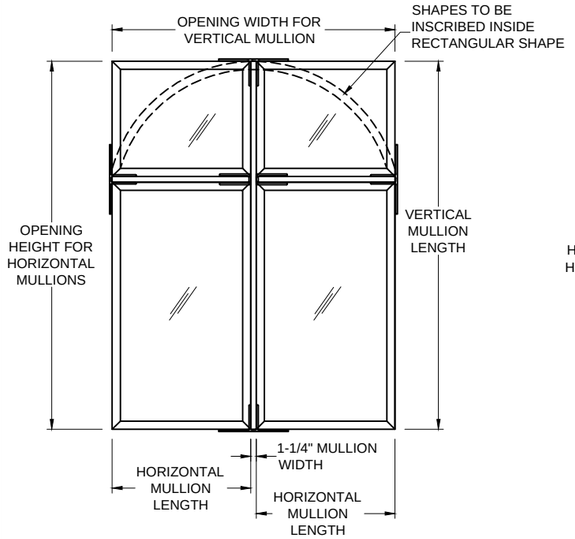
1) FOR MAXIMUM SIZES, SEE TABLES 2A-4A.

2) SEE SHEET 9 FOR INSTRUCTIONS ON USING TABLES 2A-4A.

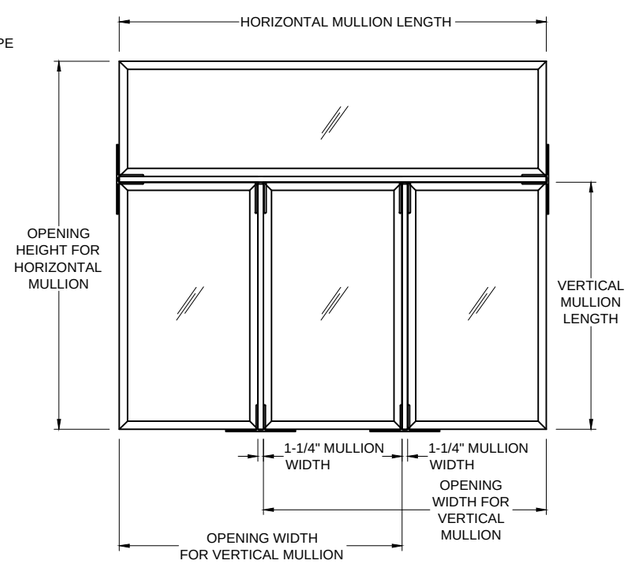
3) CLIPPED MULLIONS MAY BE USED FOR ALL WINDOW TYPES. FOR CLIP ANCHORAGE, USE THE SAME ANCHOR AS WINDOW ANCHOR.



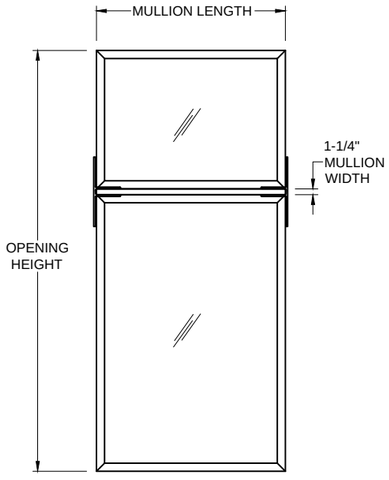
MULTIPLE HORIZONTAL MULLIONS



CROSS MULLION CONFIGURATION



TEE MULLION CONFIGURATION



SINGLE HORIZONTAL MULLION

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Title: 5400/5500 SERIES ALUMINUM TUBE MULLIONS
Description: 1.25 X 3.25 CLIPPED MULLIONS
Series: 5400/5500
Drawing No. TDI-5000MULL.1
Sheet: 2 of 9
Rev:
Scale:
Date: 03/23/15
Checked By:
Date:
Drawn By: J ROSOWSKI
Rev. By:
Revision:
Date:

Digitally signed by Anthony Lynn Miller, P.E.
Date: 2015.11.06 11:35:04 -05'00'

A. Lynn Miller
11/06/2015

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CROSS-SECTION MULLION EXAMPLES

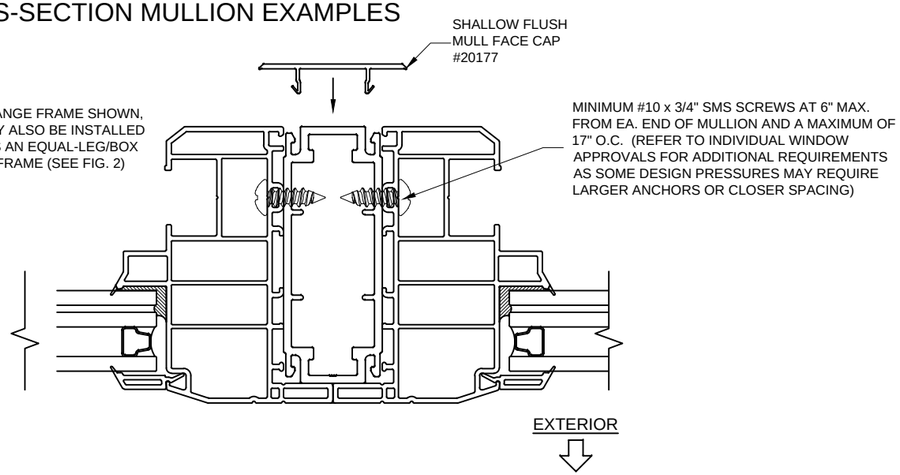


FIG. 1: 1.25" X 3.25" X .100" MULLION & FACE CAPS
(CLIPPED OR UNCLIPPED MULLION INSTALLATION)

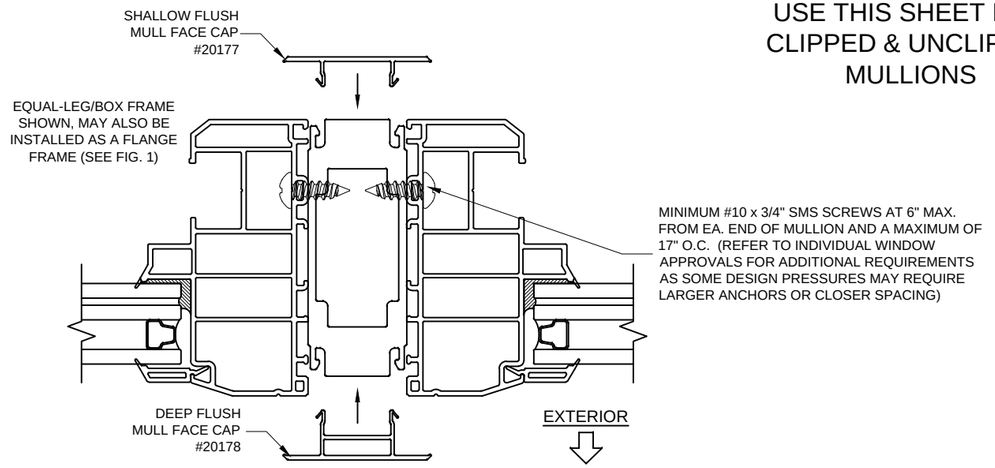


FIG. 2: 1.25" X 3.25" X .624" MULLION & FACE CAPS
(CLIPPED MULLION INSTALLATION ONLY)

USE THIS SHEET FOR
CLIPPED & UNCLIPPED
MULLIONS

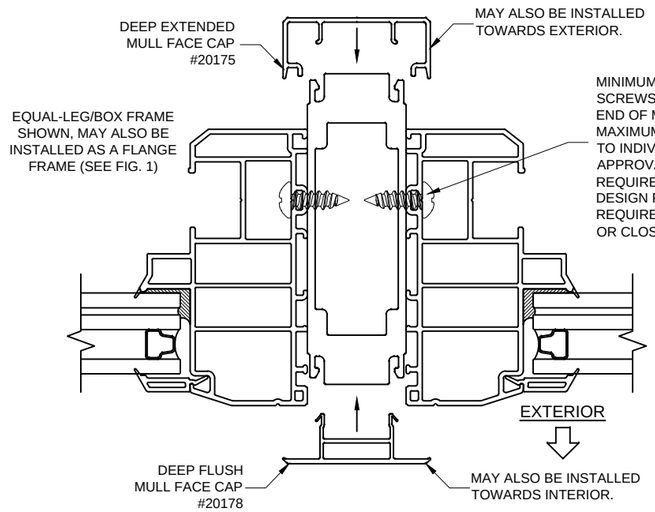
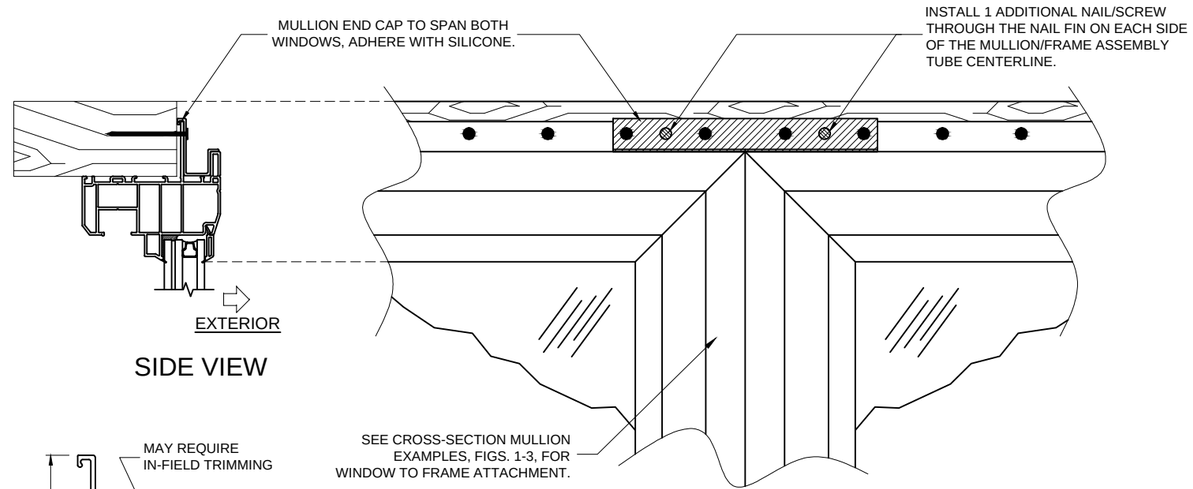


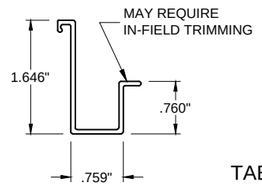
FIG. 3: 1.25" X 3.94" X .624" MULLION & FACE CAPS
(CLIPPED MULLION INSTALLATION ONLY)

FIG. 4: MULLION END CAP EXAMPLE



SIDE VIEW

VERTICAL MULL TO
STRUCTURE
FRONT VIEW



MULLION END CAP
RIGID PVC
2X SIDE VIEW

TABLE 1C: ANCHORS INSTALLED THROUGH NAIILING FIN

Anchor	Substrate	Min. Edge Distance	Min. Embedment
2-1/2" x .131" Common Nail **Max. DP of 50.0**	P.T. Southern Pine (SG=.55)	9/16"	2-7/16"
2-1/2" x .131" Ring-shank Nail	P.T. Southern Pine (SG=.55)	9/16"	2-7/16"
2-1/2" x .145" Roofing Nail	P.T. Southern Pine (SG=.55)	9/16"	2-7/16"
#10 SMS (steel, 18-8 S.S. or 410 S.S.)	P.T. Southern Pine (SG=.55)	3/4"	1-3/8"
	Aluminum, 6063-T5	3/8"	0.050"
	Steel Stud, Gr. 33	3/8"	0.0346" (20 Ga.)
	Steel, A36	3/8"	0.050"

NOTES FOR MULLION TO WINDOW ATTACHMENT:

1) RECOMMENDED ANCHOR LENGTH = MIN. 3/4"

2) USE ANCHOR TYPE AND SPACING AS PER THE WINDOW'S APPROVAL.

3) PICTURE WINDOW WITH VERTICAL MULLION SHOWN, ALL WINDOW TYPES AND MULLION ORIENTATIONS APPLICABLE.

4) IF APPLICABLE, NAIL FIN AND/OR FLANGE MAY BE REMOVED FROM THE WINDOW FRAME MEMBER BEING MULLED.

NOTES FOR MULLION END CAP:

1) APPLIES TO FIN OR J-CHANNEL FRAMES.

2) REQUIRED AT EACH END OF EACH MULLION

3) PICTURE WINDOW WITH VERTICAL MULLION SHOWN, ALL WINDOW TYPES AND MULLION ORIENTATIONS APPLICABLE.

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Title: 5400/5500 SERIES ALUMINUM TUBE MULLIONS
Description: UNCLIPPED MULLIONS
Series: 5400/5500
Drawn By: J ROSOWSKI
Rev. By:
Scale:
Date: 03/23/15
Date:
Drawing No. TDI-5000MULL.1
Checked By:
Revision:
Sheet: 3 of 9
Rev:
Date:

Digitally signed by Anthony Lynn Miller, P.E.
Date: 2015.11.06 11:35:24 -05'00'
11/06/2015

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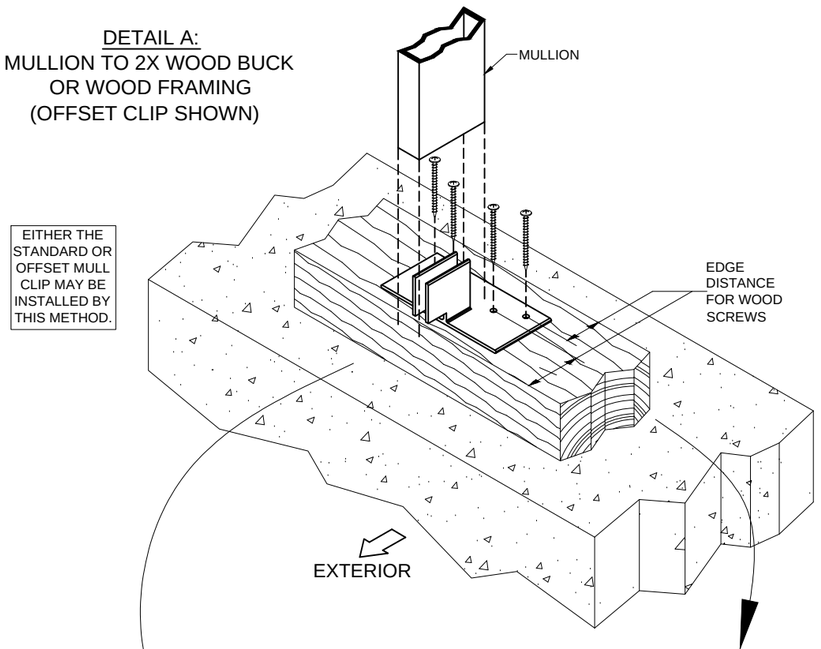
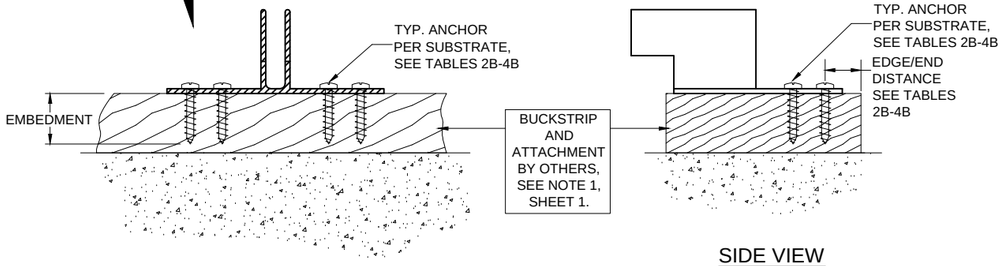
USE THIS SHEET FOR
CLIPPED MULLIONS

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



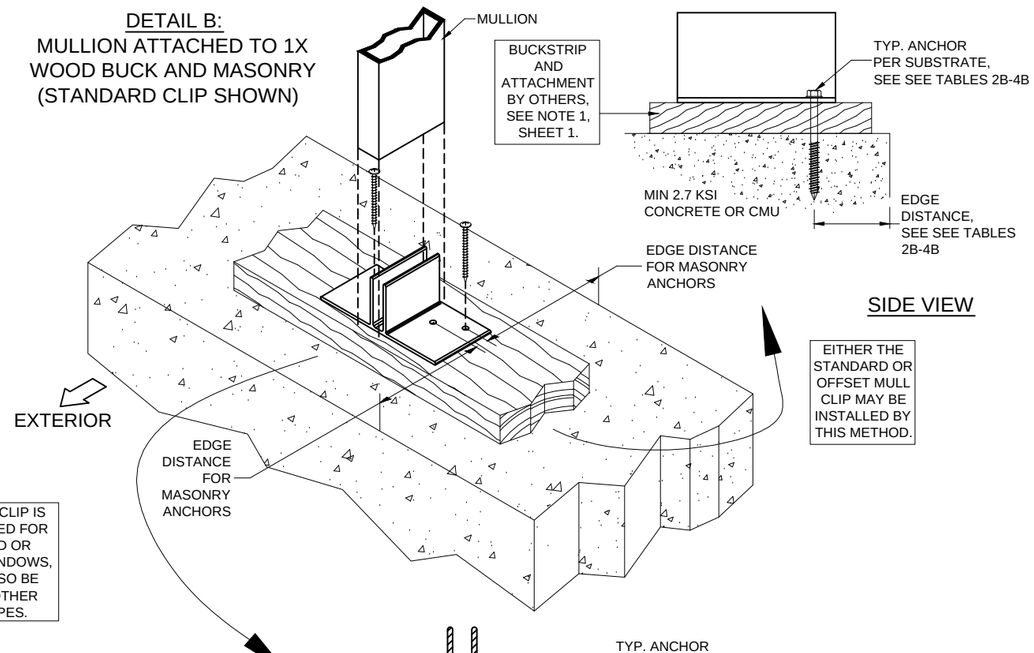
EITHER THE STANDARD OR OFFSET MULL CLIP MAY BE INSTALLED BY THIS METHOD.



FRONT VIEW

SIDE VIEW

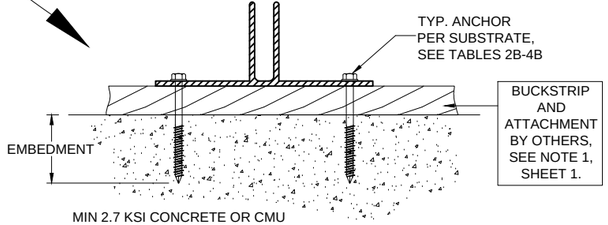
DETAIL B:
MULLION ATTACHED TO 1X
WOOD BUCK AND MASONRY
(STANDARD CLIP SHOWN)



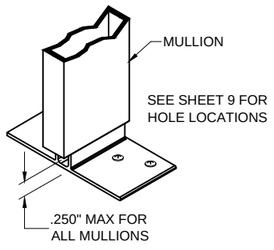
SIDE VIEW

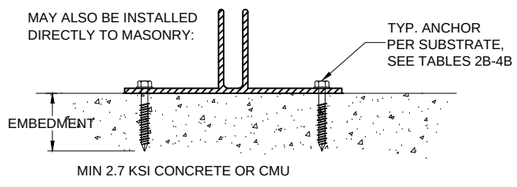
EITHER THE STANDARD OR OFFSET MULL CLIP MAY BE INSTALLED BY THIS METHOD.

THE OFFSET CLIP IS RECOMMENDED FOR FIN-FRAMED OR J-CHANNELWINDOWS, BUT MAY ALSO BE USED FOR OTHER FRAME TYPES.



FRONT VIEW





FRONT VIEW

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-C, 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 B, THIS SHEET.

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Title: 5400/5500 SERIES ALUMINUM TUBE MULLIONS
Description: INSTALLATION INSTRUCTIONS A
Series: 5400/5500
Drawn By: J ROSOWSKI
Rev. By:
Sheet: 4 of 9
Drawing No. TDI-5000MULL.1
Rev:
Scale:
Date: 03/23/15
Checked By:
Date:
Revision:
Date:

Digitally signed by Anthony Lynn Miller, P.E.
Date: 2015.11.06 11:35:49 -05'00'

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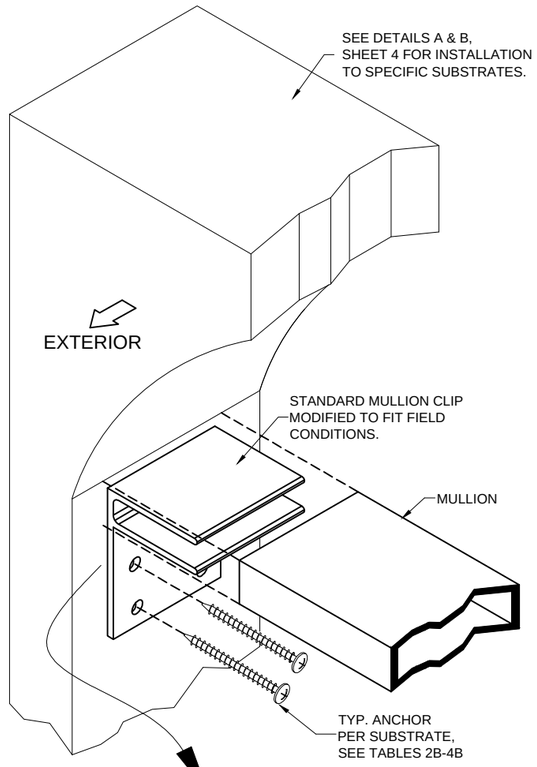
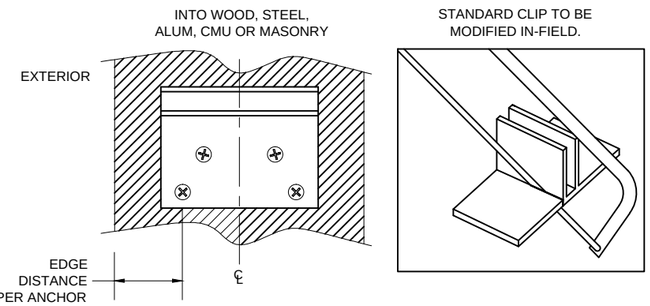
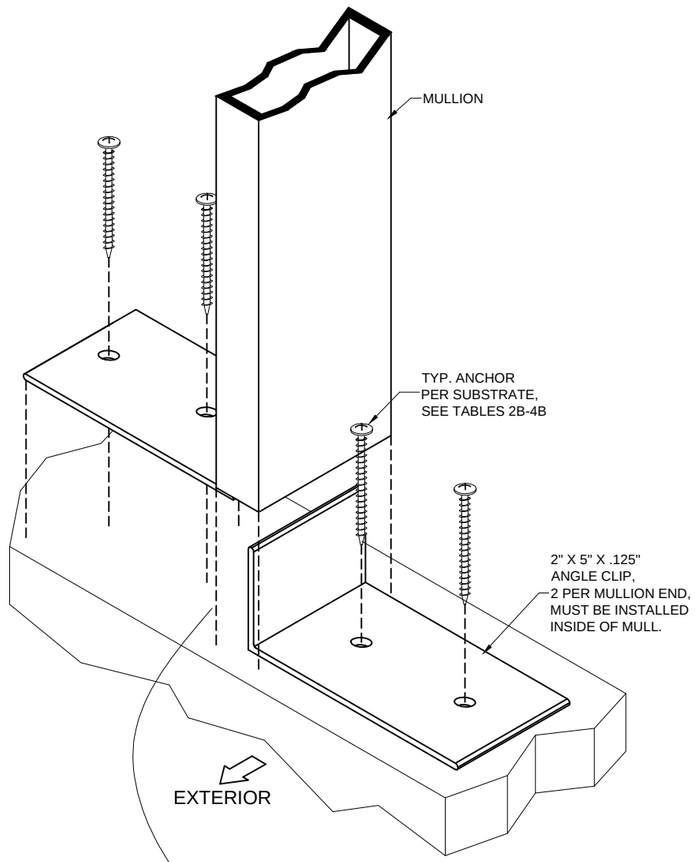
USE THIS SHEET FOR CLIPPED MULLIONS

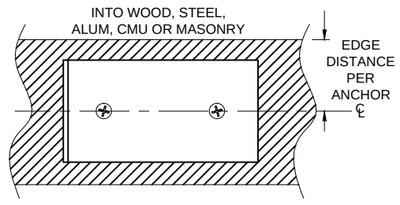
DETAIL C: FIELD-MODIFIED MULLION CLIP (F-CLIP)





DETAIL D: ANGLE MULLION CLIP (ANGLE CLIP)

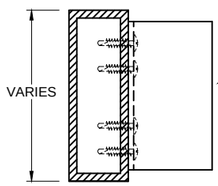




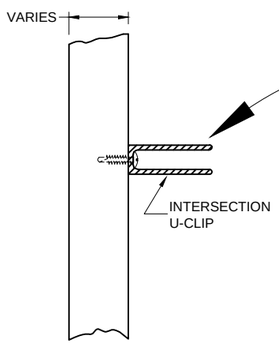
NOTES FOR INSTALLATION OPTION D:

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

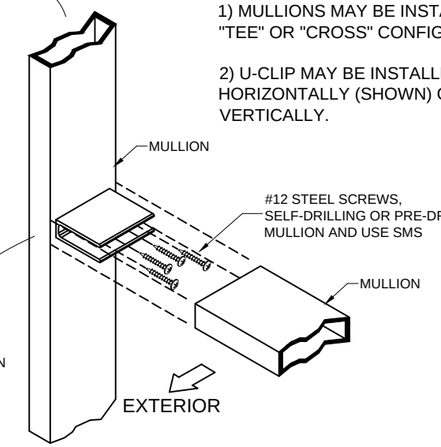
DETAIL E: MULLION TO MULLION INTERSECTION (U-CLIP)



TOP VIEW



FRONT VIEW

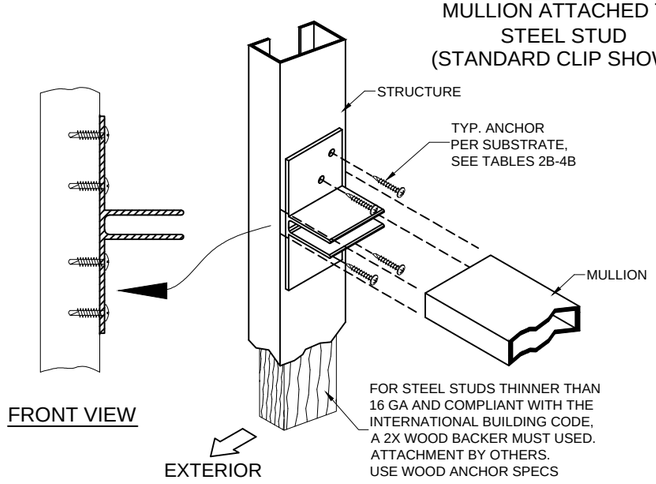


NOTES FOR INSTALLATION OPTION E:

1) MULLIONS MAY BE INSTALLED IN "TEE" OR "CROSS" CONFIGURATIONS.

2) U-CLIP MAY BE INSTALLED HORIZONTALLY (SHOWN) OR VERTICALLY.

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



NOTES FOR INSTALLATION OPTION F:

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

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N. VENICE, FL 34275
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Title:	5400/5500 SERIES ALUMINUM TUBE MULLIONS
Description:	INSTALLATION INSTRUCTIONS B
Series:	5400/5500
Drawing No.	TDI-5000MULL.1
Sheet:	5 of 9
Drawn By:	J ROSOWSKI
Date:	03/23/15
Checked By:	
Date:	
Rev:	
Rev. By:	
Date:	
Revision:	

Digitally signed by Anthony Lynn Miller, P.E.
Date: 2015.11.06 11:36:12 -05'00'

A. Lynn Miller
11/06/2015

STATE OF TEXAS
ANTHONY LYNN MILLER
106954
LICENSED
PROFESSIONAL ENGINEER

A. LYNN MILLER, P.E.
TX P.E.# 106954

TABLE 2A

Mullion Capacity Table (lbs/ft^2)

Opening Width (for vertically-spanning mullions) **or Opening Height** (for horizontally-spanning mullions)

1.25 x 3.25 x .100 Alum. Tube Mullion

Mullion Length	50 in				60 in				70 in			
	Rectangular Loading		Trap/Triang. Loading		Rectangular Loading		Trap/Triang. Loading		Rectangular Loading		Trap/Triang. Loading	
	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)
42 in	70.0	255	70.0	179	70.0	306	70.0	197	70.0	357	70.0	208
48 in	70.0	292	70.0	216	70.0	350	70.0	241	70.0	408	70.0	259
50.625 in	70.0	308	70.0	232	70.0	369	70.0	260	70.0	431	70.0	282
54 in	70.0	328	70.0	252	70.0	394	70.0	284	70.0	459	70.0	311
60 in	70.0	365	70.0	289	70.0	438	70.0	328	70.0	510	70.0	362
63 in	70.0	383	70.0	307	70.0	459	70.0	350	70.0	536	70.0	387
66 in	70.0	401	70.0	325	70.0	481	70.0	372	70.0	561	70.0	413
72 in	70.0	438	70.0	362	69.1	518	70.0	416	59.2	518	65.2	432
76 in	70.0	462	70.0	386	58.7	465	62.6	398	50.3	465	54.9	390
78 in	65.2	441	68.0	387	54.3	441	57.7	379	46.6	441	50.6	372
90 in	42.4	332	43.8	295	35.4	332	37.0	289	30.3	332	32.3	284
96 in	35.0	291	35.9	260	29.1	291	30.3	256	25.0	291	26.4	252
108 in	24.6	230	25.1	208	20.5	230	21.1	205	17.5	230	18.3	201
111 in	22.6	218	23.1	197	18.9	218	19.4	194	16.2	218	16.8	191
120 in	17.9	187	18.2	170	14.9	187	15.3	167				

Mullion Length	80 in				90 in				100 in			
	Rectangular Loading		Trap/Triang. Loading		Rectangular Loading		Trap/Triang. Loading		Rectangular Loading		Trap/Triang. Loading	
	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)
42 in	70.0	408	70.0	214	70.0	459	70.0	214	70.0	510	70.0	214
48 in	70.0	467	70.0	272	70.0	525	70.0	279	70.0	583	70.0	280
50.625 in	70.0	492	70.0	298	70.0	554	70.0	308	70.0	615	70.0	311
54 in	70.0	525	70.0	331	70.0	591	70.0	345	70.0	656	70.0	352
60 in	70.0	583	70.0	389	70.0	656	70.0	410	70.0	729	70.0	425
63 in	70.0	613	70.0	418	68.7	677	70.0	443	61.9	677	70.0	462
66 in	67.3	617	70.0	447	59.8	617	70.0	476	53.8	617	68.7	489
72 in	51.8	518	58.8	425	46.1	518	54.2	419	41.4	518	50.7	414
76 in	44.1	465	49.4	384	39.2	465	45.3	378	35.2	465	42.2	374
78 in	40.8	441	45.4	366	36.2	441	41.6	360	32.6	441	38.7	356
90 in	26.5	332	28.8	280	23.6	332	26.1	276	21.2	332	24.1	272
96 in	21.9	291	23.5	248	19.4	291	21.3	244	17.5	291	19.5	241
108 in	15.4	230	16.2	198								
111 in	14.1	218	14.9	188								
120 in												

Mullion Length	120 in				140 in				160 in			
	Rectangular Loading		Trap/Triang. Loading		Rectangular Loading		Trap/Triang. Loading		Rectangular Loading		Trap/Triang. Loading	
	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft^2)	Anchor Capacity Required (lbs)
42 in	70.0	613	70.0	214	70.0	715	70.0	214	70.0	817	70.0	214
48 in	70.0	700	70.0	280	70.0	817	70.0	280	70.0	933	70.0	280
50.625 in	70.0	738	70.0	311	70.0	861	70.0	311	65.9	927	70.0	311
54 in	70.0	788	70.0	354	66.2	869	70.0	354	57.9	869	70.0	354
60 in	59.7	746	70.0	438	51.2	746	70.0	438	44.8	746	70.0	438
63 in	51.6	677	70.0	481	44.2	677	70.0	482	38.7	677	70.0	482
66 in	44.8	617	64.4	483	38.4	617	63.7	482	33.6	617	63.7	482
72 in	34.5	518	46.6	408	29.6	518	45.0	405	25.9	518	45.0	405
76 in	29.4	465	38.3	367	25.2	465	36.5	364	22.0	465	36.2	363
78 in	27.2	441	34.9	349	23.3	441	33.1	346	20.4	441	32.7	345
90 in	17.7	332	21.3	266	15.2	332	19.6	262	13.3	332	18.7	260
96 in	14.6	291	17.1	236	12.5	291	15.6	232				
108 in												
111 in												
120 in												

SEE CAR 190-1075 FOR CERTIFICATION.

USE THIS SHEET FOR CLIPPED MULLIONS

USE RECTANGULAR LOADING FOR ALL TEE OR CROSS CONFIGURATIONS, AND ALL ASSEMBLIES CONTAINING A SINGLE/DOUBLE HUNG WINDOW.

USE TRAPEZOIDAL /TRIANGULAR LOADING FOR ALL OTHERS.

TABLE 2B

Anchor Capacity Table (lbs)

Anchor Clip Patterns	2.7k Concrete				3.5k Conc.	Hollow CMU						Filled CMU	PT Wood		Metal
Substrate:	2.7k Concrete				3.5k Conc.	Hollow CMU						Filled CMU	PT Wood		Metal
Anchor Type:	3/16" Elco Ultracon		1/4" Elco Ultracon		5/16" Elco Ultracon	3/16" Elco Ultracon		1/4" Elco Ultracon		1/4" SS Elco AggreGator	5/16" Elco Ultracon	1/4" SS Elco AggreGator	#10 Steel Screw (G5)	#12 Steel Screw (G5)	#12 Steel Screw (G5)
Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	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"	2"	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"	varies
2 Anchors @ 4.75" Min. O.C. / Standard or Offset Clip (Fig. 1):	390 lbs	390 lbs	450 lbs	890 lbs	1644 lbs	270 lbs	280 lbs	354 lbs	740 lbs	374 lbs	664 lbs	946 lbs	341 lbs	442 lbs	560 lbs
4 Anchors @ 1.15" Min. O.C. / Standard (or Offset) Clip (Fig. 2):	480 lbs	700 lbs	N/A	N/A	N/A	N/A	380 lbs	N/A	N/A	N/A	N/A	N/A	682 lbs	885 lbs	1120 lbs
4 Anchors @ 3" Min. O.C. / (2) 2x5 Angle Clips / (Fig. 3):	780 lbs	780 lbs	680 lbs	1560 lbs	1896 lbs	540 lbs	560 lbs	N/A	760 lbs	748 lbs	880 lbs	1892 lbs	682 lbs	885 lbs	1120 lbs
3 Anchors @ 0.54" Min. O.C. / U-Clip, into .100" 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	950 lbs
1 Anchor / F-Clip (Fig. 5):	195 lbs	195 lbs	225 lbs	445 lbs	822 lbs	135 lbs	140 lbs	177 lbs	370 lbs	187 lbs	332 lbs	473 lbs	170 lbs	221 lbs	280 lbs
2 Anchors @ 1.15" Min. O.C./ F-Clip (Fig. 6):	240 lbs	350 lbs	N/A	N/A	N/A	N/A	190 lbs	N/A	N/A	N/A	N/A	N/A	341 lbs	442 lbs	560 lbs

ANCHOR CAPACITY ADJUSTMENT FORMULA:

$$(DP_{REQ}) \times \left(\frac{\text{ANCHOR CAP.}_{\text{FROM TABLE}}}{\text{MULLION CAP.}_{\text{FROM TABLE}}}\right) = \text{ANCHOR CAP.}_{\text{REQ.}}$$

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.

FIGURE 1, (STANDARD CLIP SHOWN):

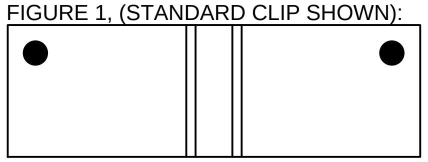


FIGURE 2, (STANDARD CLIP SHOWN):

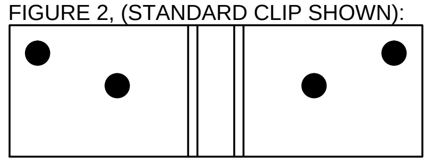
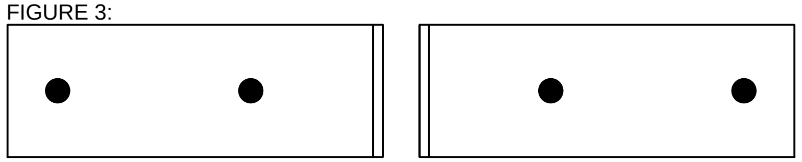


FIGURE 3:



ANGLE CLIP MUST BE USED IN PAIRS.

FIGURE 4:

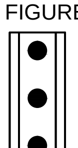


FIGURE 5:

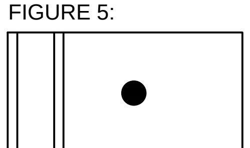


FIGURE 6:

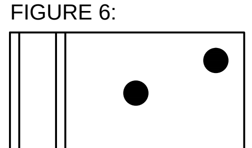


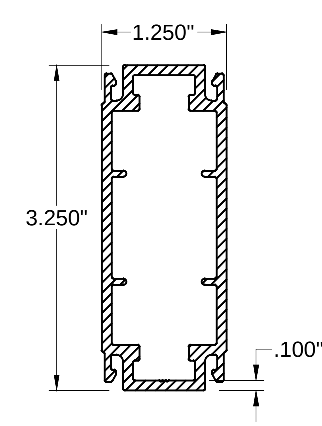
TABLE NOTES:

1) SEE SHEET 9 FOR INSTRUCTIONS ON USING THE TABLES. SEE SHEETS 3-5 FOR GENERAL INSTALLATION METHODS.

2) LINEAR INTERPOLATION BETWEEN MULL LENGTHS AND/OR OPENING WIDTHS IS ALLOWABLE.

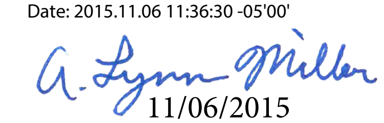
3) MULLION AND MULLION CLIPS SHOWN ARE NOT TO SCALE. FOR EXACT DIMENSIONS, SEE SHEET 9. HOLES TO BE DRILLED IN THE FIELD FOLLOWING DIMENSIONAL RESTRICTIONS SHOWN ON SHEET 9. FIGURES SHOW SUGGESTED, APPROXIMATE HOLE LOCATIONS.

4) SUBSTRATES: CONCRETE SHALL CONFORM TO ACI 301 SPECIFICATIONS. HOLLOW AND GROUT-FILLED CONCRETE BLOCK UNIT (CMU) SHALL CONFORM TO ASTM C-90. WOOD SHALL BE PRESSURE-TREATED YELLOW SOUTHERN PINE WITH AN SG OF 0.55. ALUMINUM SHALL BE 6063-T5 AND BE A MINIMUM OF .100" THICK. STEEL STUDS TO BE A MINIMUM GRADE 33 AND .045" THICK (18 GAUGE). STRUCTURAL STEEL TO BE AT LEAST .125" THICK AND A36. ALL ANCHORS INTO METAL SHALL EXTEND AT LEAST 3 SCREW THREADS BEYOND THE MATERIAL. #10 & #12 ANCHORS INTO WOOD MAY BE STEEL, 18-8 S.S. OR 410 S.S.



1.25" X 3.25" X .100" MULLION

Digitally signed by Anthony Lynn Miller, P.E.
Date: 2015.11.06 11:36:30 -05'00'



11/06/2015

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NOKOMIS, FL 34274

Title: 5400/5500 SERIES ALUMINUM TUBE MULLIONS

Description: 1.25 X 3.25 X .100 MULL SPECS

Series: 5400/5500

Drawing No. TDI-5000MULL.1

Rev:

Drawn By: J ROSOWSKI

Date: 03/23/15

Scale:

Date:

Checked By:

Date:

Rev. By:

Revision:

TABLE 3A

Mullion Capacity Table (lbs/ft²)

Opening Width (for vertically-spanning mullions) **or Opening Height** (for horizontally-spanning mullions)

1.25 x 3.25 x .624 Alum. Tube Mullion	50 in				60 in				70 in				80 in				90 in				100 in				120 in				140 in				160 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		Rectangular Loading		Trap/Triang. Loading		Rectangular Loading		Trap/Triang. Loading	
Mullion Length	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)	Mullion Capacity (lbs/ft²)	Anchor Capacity Required (lbs)
42 in	70.0	255	70.0	179	70.0	306	70.0	197	70.0	357	70.0	208	70.0	408	70.0	214	70.0	459	70.0	214	70.0	510	70.0	214	70.0	613	70.0	214	70.0	715	70.0	214	70.0	817	70.0	214
48 in	70.0	292	70.0	216	70.0	350	70.0	241	70.0	408	70.0	259	70.0	467	70.0	272	70.0	525	70.0	279	70.0	583	70.0	280	70.0	700	70.0	280	70.0	817	70.0	280	70.0	933	70.0	280
50.625 in	70.0	308	70.0	232	70.0	369	70.0	260	70.0	431	70.0	282	70.0	492	70.0	298	70.0	554	70.0	308	70.0	615	70.0	311	70.0	738	70.0	311	70.0	861	70.0	311	70.0	984	70.0	311
54 in	70.0	328	70.0	252	70.0	394	70.0	284	70.0	459	70.0	311	70.0	525	70.0	331	70.0	591	70.0	345	70.0	656	70.0	352	70.0	788	70.0	354	70.0	919	70.0	354	70.0	1050	70.0	354
60 in	70.0	365	70.0	289	70.0	438	70.0	328	70.0	510	70.0	362	70.0	583	70.0	389	70.0	656	70.0	410	70.0	729	70.0	425	70.0	875	70.0	438	70.0	1021	70.0	438	70.0	1167	70.0	438
63 in	70.0	383	70.0	307	70.0	459	70.0	350	70.0	536	70.0	387	70.0	613	70.0	418	70.0	689	70.0	443	70.0	766	70.0	462	70.0	919	70.0	481	70.0	1072	70.0	482	70.0	1225	70.0	482
66 in	70.0	401	70.0	325	70.0	481	70.0	372	70.0	561	70.0	413	70.0	642	70.0	447	70.0	722	70.0	476	70.0	802	70.0	498	70.0	963	70.0	525	70.0	1123	70.0	529	68.1	1248	70.0	529
72 in	70.0	438	70.0	362	70.0	525	70.0	416	70.0	613	70.0	464	70.0	700	70.0	506	70.0	788	70.0	541	70.0	875	70.0	571	69.9	1049	70.0	613	59.9	1049	70.0	630	52.4	1049	70.0	630
76 in	70.0	462	70.0	386	70.0	554	70.0	445	70.0	647	70.0	498	70.0	739	70.0	544	70.0	831	70.0	585	70.0	924	70.0	620	59.5	941	70.0	671	51.0	941	70.0	698	44.6	941	70.0	702
78 in	70.0	474	70.0	398	70.0	569	70.0	459	70.0	664	70.0	515	70.0	758	70.0	564	70.0	853	70.0	607	66.0	894	70.0	644	55.0	894	70.0	700	47.1	894	67.0	701	41.3	894	66.1	698
90 in	70.0	547	70.0	471	70.0	656	70.0	547	61.4	671	65.3	575	53.7	671	58.2	566	47.7	671	52.9	558	43.0	671	48.8	551	35.8	671	43.1	539	30.7	671	39.7	531	26.9	671	37.9	526
96 in	70.0	583	70.0	507	59.0	590	61.4	518	50.6	590	53.4	509	44.3	590	47.5	502	39.3	590	43.0	494	35.4	590	39.6	488	29.5	590	34.7	477	25.3	590	31.6	469				
108 in	49.7	466	50.8	421	41.4	466	42.8	414	35.5	466	37.1	408	31.1	466	32.9	402																				
111 in	45.8	441	46.7	400	38.2	441	39.3	393	32.7	441	34.1	387	28.6	441	30.2	382																				
120 in	36.3	378	36.9	344	30.2	378	31.0	339																												

SEE CAR 190-1076 FOR CERTIFICATION.

USE THIS SHEET FOR CLIPPED MULLIONS

USE RECTANGULAR LOADING FOR ALL TEE OR CROSS CONFIGURATIONS, AND ALL ASSEMBLIES CONTAINING A SINGLE/DOUBLE HUNG WINDOW.

USE TRAPEZOIDAL /TRIANGULAR LOADING FOR ALL OTHERS.

TABLE 3B

Anchor Capacity Table (lbs)

Anchor Clip Patterns	2.7k Concrete				3.5k Conc.	Hollow CMU						Filled CMU	PT Wood		Metal
Anchor Type:	3/16" Elco Ultracon		1/4" Elco Ultracon		5/16" Elco Ultracon	3/16" Elco Ultracon		1/4" Elco Ultracon		1/4" SS Elco AggreGator	5/16" Elco Ultracon	1/4" SS Elco AggreGator	#10 Steel Screw (G5)	#12 Steel Screw (G5)	#12 Steel Screw (G5)
Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	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"	2"	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"	varies
2 Anchors @ 4.75" Min. O.C. / Standard or Offset Clip (Fig. 1):	390 lbs	390 lbs	450 lbs	890 lbs	1644 lbs	270 lbs	280 lbs	354 lbs	740 lbs	374 lbs	664 lbs	946 lbs	341 lbs	442 lbs	560 lbs
4 Anchors @ 1.15" Min. O.C. / Standard (or Offset) Clip (Fig. 2):	480 lbs	700 lbs	N/A	N/A	N/A	N/A	380 lbs	N/A	N/A	N/A	N/A	N/A	682 lbs	885 lbs	1120 lbs
4 Anchors @ 3" Min. O.C. / (2) 2x5 Angle Clips / (Fig. 3):	780 lbs	780 lbs	680 lbs	1560 lbs	1896 lbs	540 lbs	560 lbs	N/A	760 lbs	748 lbs	880 lbs	1892 lbs	682 lbs	885 lbs	1120 lbs
3 Anchors @ 0.54" Min. O.C. / U-Clip, into .100" 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	950 lbs
1 Anchor / F-Clip (Fig. 5):	195 lbs	195 lbs	225 lbs	445 lbs	822 lbs	135 lbs	140 lbs	177 lbs	370 lbs	187 lbs	332 lbs	473 lbs	170 lbs	221 lbs	280 lbs
2 Anchors @ 1.15" Min. O.C./ F-Clip (Fig. 6):	240 lbs	350 lbs	N/A	N/A	N/A	N/A	190 lbs	N/A	N/A	N/A	N/A	N/A	341 lbs	442 lbs	560 lbs

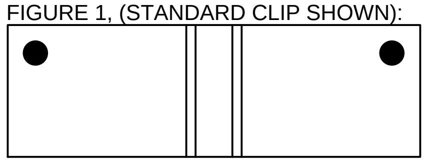
Substrate: (header of the columns above)

ANCHOR CAPACITY ADJUSTMENT FORMULA:

$$(DP_{REQ}) \times \left(\frac{\text{ANCHOR CAP.}_{\text{FROM TABLE}}}{\text{MULLION CAP.}_{\text{FROM TABLE}}}\right) = \text{ANCHOR CAP.}_{\text{REQ.}}$$

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.

FIGURE 1, (STANDARD CLIP SHOWN):



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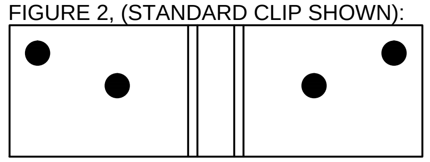
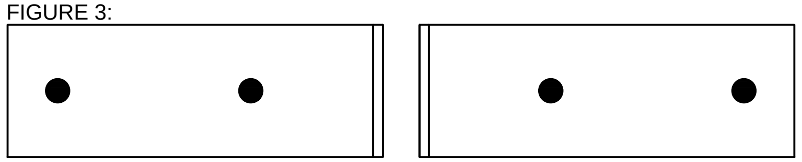


FIGURE 3:



ANGLE CLIP MUST BE USED IN PAIRS.

FIGURE 4:

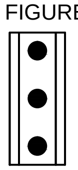


FIGURE 5:

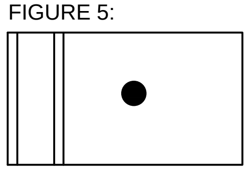


FIGURE 6:

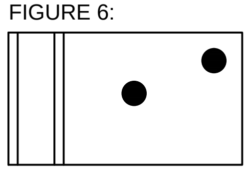


TABLE NOTES:

1) SEE SHEET 9 FOR INSTRUCTIONS ON USING THE TABLES. SEE SHEETS 3-5 FOR GENERAL INSTALLATION METHODS.

2) LINEAR INTERPOLATION BETWEEN MULL LENGTHS AND/OR OPENING WIDTHS IS ALLOWABLE.

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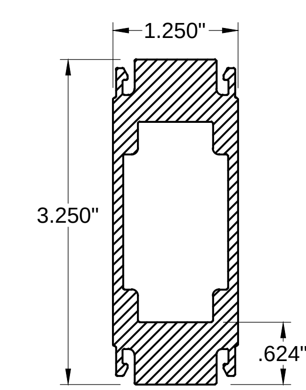
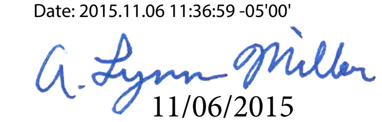
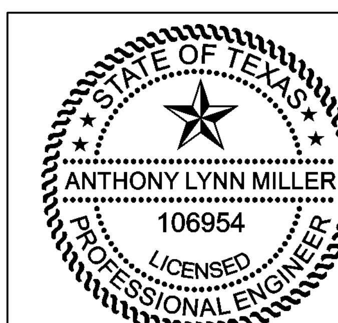


1.25" X 3.25" X .624" MULLION

Digitally signed by Anthony Lynn Miller, P.E.
Date: 2015.11.06 11:36:59 -05'00'





A. LYNN MILLER, P.E.
TX P.E.# 106954

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274

Title: 5400/5500 SERIES ALUMINUM TUBE MULLIONS

Description: 1.25 X 3.25 X .624 MULL SPECS

Series: 5400/5500

Drawing No. TDI-5000MULL.1

Rev:

Drawn By: J ROSOWSKI

Date: 03/23/15

Checked By:

Date:

Rev. By:

Revision:

Date:

TABLE 4A

Mullion Capacity Table (lbs/ft²)

1.25 x 3.94 x .624 Alum. Tube Mullion

Opening Width (for vertically-spanning mullions) or Opening Height (for horizontally-spanning mullions): 50 in, 60 in, 70 in

Mullion Length	50 in Rect. Mullion Capacity (lbs/ft²)	50 in Rect. Anchor Capacity Required (lbs)	50 in Trap/Triang. Mullion Capacity (lbs/ft²)	50 in Trap/Triang. Anchor Capacity Required (lbs)	60 in Rect. Mullion Capacity (lbs/ft²)	60 in Rect. Anchor Capacity Required (lbs)	60 in Trap/Triang. Mullion Capacity (lbs/ft²)	60 in Trap/Triang. Anchor Capacity Required (lbs)	70 in Rect. Mullion Capacity (lbs/ft²)	70 in Rect. Anchor Capacity Required (lbs)	70 in Trap/Triang. Mullion Capacity (lbs/ft²)	70 in Trap/Triang. Anchor Capacity Required (lbs)
42 in	70.0	255	70.0	179	70.0	306	70.0	197	70.0	357	70.0	208
48 in	70.0	292	70.0	216	70.0	350	70.0	241	70.0	408	70.0	259
50.625 in	70.0	308	70.0	232	70.0	369	70.0	260	70.0	431	70.0	282
54 in	70.0	328	70.0	252	70.0	394	70.0	284	70.0	459	70.0	311
60 in	70.0	365	70.0	289	70.0	438	70.0	328	70.0	510	70.0	362
63 in	70.0	383	70.0	307	70.0	459	70.0	350	70.0	536	70.0	387
66 in	70.0	401	70.0	325	70.0	481	70.0	372	70.0	561	70.0	413
72 in	70.0	438	70.0	362	70.0	525	70.0	416	70.0	613	70.0	464
76 in	70.0	462	70.0	386	70.0	554	70.0	445	70.0	647	70.0	498
78 in	70.0	474	70.0	398	70.0	569	70.0	459	70.0	664	70.0	515
90 in	70.0	547	70.0	471	70.0	656	70.0	547	70.0	766	70.0	617
96 in	70.0	583	70.0	507	70.0	700	70.0	591	70.0	817	70.0	668
108 in	70.0	656	70.0	580	68.5	771	70.0	678	58.7	771	61.3	674
111 in	70.0	674	70.0	599	63.1	730	65.0	650	54.1	730	56.3	640
120 in	59.9	624	61.0	569	49.9	624	51.2	560				
144 in	34.7	433	35.1	400	28.9	433	29.4	395				

Opening Width / Height: 80 in, 90 in, 100 in

Mullion Length	80 in Rect. Mullion Capacity (lbs/ft²)	80 in Rect. Anchor Capacity Required (lbs)	80 in Trap/Triang. Mullion Capacity (lbs/ft²)	80 in Trap/Triang. Anchor Capacity Required (lbs)	90 in Rect. Mullion Capacity (lbs/ft²)	90 in Rect. Anchor Capacity Required (lbs)	90 in Trap/Triang. Mullion Capacity (lbs/ft²)	90 in Trap/Triang. Anchor Capacity Required (lbs)	100 in Rect. Mullion Capacity (lbs/ft²)	100 in Rect. Anchor Capacity Required (lbs)	100 in Trap/Triang. Mullion Capacity (lbs/ft²)	100 in Trap/Triang. Anchor Capacity Required (lbs)
42 in	70.0	408	70.0	214	70.0	459	70.0	214	70.0	510	70.0	214
48 in	70.0	467	70.0	272	70.0	525	70.0	279	70.0	583	70.0	280
50.625 in	70.0	492	70.0	298	70.0	554	70.0	308	70.0	615	70.0	311
54 in	70.0	525	70.0	331	70.0	591	70.0	345	70.0	656	70.0	352
60 in	70.0	583	70.0	389	70.0	656	70.0	410	70.0	729	70.0	425
63 in	70.0	613	70.0	418	70.0	689	70.0	443	70.0	766	70.0	462
66 in	70.0	642	70.0	447	70.0	722	70.0	476	70.0	802	70.0	498
72 in	70.0	700	70.0	506	70.0	788	70.0	541	70.0	875	70.0	571
76 in	70.0	739	70.0	544	70.0	831	70.0	585	70.0	924	70.0	620
78 in	70.0	758	70.0	564	70.0	853	70.0	607	70.0	948	70.0	644
90 in	70.0	875	70.0	681	70.0	984	70.0	738	70.0	1094	70.0	790
96 in	70.0	933	70.0	739	65.0	975	70.0	804	58.5	975	65.4	807
108 in	51.4	771	54.3	664								
111 in	47.3	730	49.9	631								
120 in												
144 in												

Opening Width / Height: 120 in, 140 in, 160 in

Mullion Length	120 in Rect. Mullion Capacity (lbs/ft²)	120 in Rect. Anchor Capacity Required (lbs)	120 in Trap/Triang. Mullion Capacity (lbs/ft²)	120 in Trap/Triang. Anchor Capacity Required (lbs)	140 in Rect. Mullion Capacity (lbs/ft²)	140 in Rect. Anchor Capacity Required (lbs)	140 in Trap/Triang. Mullion Capacity (lbs/ft²)	140 in Trap/Triang. Anchor Capacity Required (lbs)	160 in Rect. Mullion Capacity (lbs/ft²)	160 in Rect. Anchor Capacity Required (lbs)	160 in Trap/Triang. Mullion Capacity (lbs/ft²)	160 in Trap/Triang. Anchor Capacity Required (lbs)
42 in	70.0	613	70.0	214	70.0	715	70.0	214	70.0	817	70.0	214
48 in	70.0	700	70.0	280	70.0	817	70.0	280	70.0	933	70.0	280
50.625 in	70.0	738	70.0	311	70.0	861	70.0	311	70.0	984	70.0	311
54 in	70.0	788	70.0	354	70.0	919	70.0	354	70.0	1050	70.0	354
60 in	70.0	875	70.0	438	70.0	1021	70.0	438	70.0	1167	70.0	438
63 in	70.0	919	70.0	481	70.0	1072	70.0	482	70.0	1225	70.0	482
66 in	70.0	963	70.0	525	70.0	1123	70.0	529	70.0	1283	70.0	529
72 in	70.0	1050	70.0	613	70.0	1225	70.0	630	70.0	1400	70.0	630
76 in	70.0	1108	70.0	671	70.0	1293	70.0	698	70.0	1478	70.0	702
78 in	70.0	1138	70.0	700	70.0	1327	70.0	732	68.2	1477	70.0	739
90 in	59.2	1110	70.0	875	50.7	1110	65.6	878	44.4	1110	62.7	870
96 in	48.8	975	57.4	789	41.8	975	52.3	776				
108 in												
111 in												
120 in												
144 in												

SEE CAR 190-1077 FOR CERTIFICATION.

TABLE 4B

Anchor Capacity Table (lbs)

Anchor Clip Patterns	2.7k Concrete				3.5k Conc.	Hollow CMU						Filled CMU	PT Wood		Metal
Anchor Type:	3/16" Elco Ultracon		1/4" Elco Ultracon		5/16" Elco Ultracon	3/16" Elco Ultracon		1/4" Elco Ultracon		1/4" SS Elco AggreGator	5/16" Elco Ultracon	1/4" SS Elco AggreGator	#10 Steel Screw (G5)	#12 Steel Screw (G5)	#12 Steel Screw (G5)
Edge Distance (in):	1"	2-1/2"	1"	2-1/2"	3-1/8"	1"	2-1/2"	1"	2-1/2"	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"	2"	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"	varies
2 Anchors @ 4.75" Min. O.C. / Standard or Offset Clip (Fig. 1):	390 lbs	390 lbs	450 lbs	890 lbs	1644 lbs	270 lbs	280 lbs	354 lbs	740 lbs	374 lbs	664 lbs	946 lbs	341 lbs	442 lbs	560 lbs
4 Anchors @ 1.15" Min. O.C. / Standard (or Offset) Clip (Fig. 2):	480 lbs	700 lbs	N/A	N/A	N/A	N/A	380 lbs	N/A	N/A	N/A	N/A	N/A	682 lbs	885 lbs	1120 lbs
4 Anchors @ 3" Min. O.C. / (2) 2x5 Angle Clips / (Fig. 3):	780 lbs	780 lbs	680 lbs	1560 lbs	1896 lbs	540 lbs	560 lbs	N/A	760 lbs	748 lbs	880 lbs	1892 lbs	682 lbs	885 lbs	1120 lbs
4 Anchors @ 0.54" Min. O.C. / U-Clip, into .100" 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	1267 lbs
1 Anchor / F-Clip (Fig. 5):	195 lbs	195 lbs	225 lbs	445 lbs	822 lbs	135 lbs	140 lbs	177 lbs	370 lbs	187 lbs	332 lbs	473 lbs	170 lbs	221 lbs	280 lbs
2 Anchors @ 1.15" Min. O.C./ F-Clip (Fig. 6):	240 lbs	350 lbs	N/A	N/A	N/A	N/A	190 lbs	N/A	N/A	N/A	N/A	N/A	341 lbs	442 lbs	560 lbs

FIGURE 1, (STANDARD CLIP SHOWN):

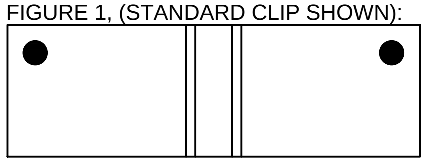


FIGURE 2, (STANDARD CLIP SHOWN):

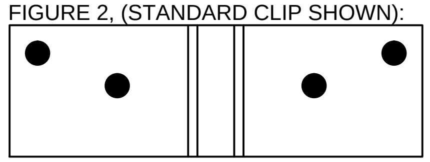
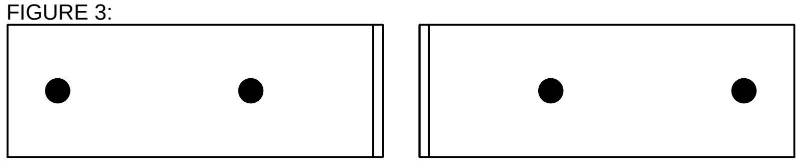


FIGURE 3:



ANGLE CLIP MUST BE USED IN PAIRS.

FIGURE 4:

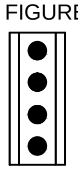


FIGURE 5:

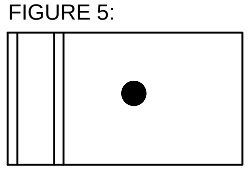
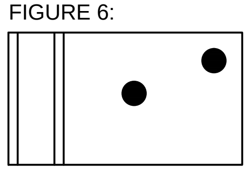


FIGURE 6:



USE THIS SHEET FOR CLIPPED MULLIONS

USE RECTANGULAR LOADING FOR ALL TEE OR CROSS CONFIGURATIONS, AND ALL ASSEMBLIES CONTAINING A SINGLE/DOUBLE HUNG WINDOW.

USE TRAPEZOIDAL /TRIANGULAR LOADING FOR ALL OTHERS.

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TABLE NOTES:

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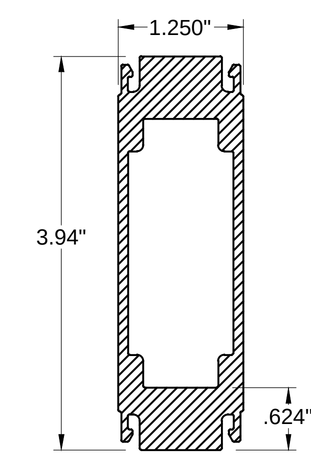
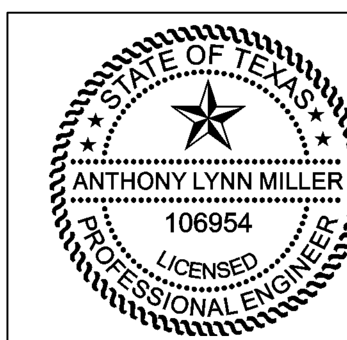


1.25" X 3.94" X .624" MULLION

Digitally signed by Anthony Lynn Miller, P.E.
Date: 2015.11.06 11:37:20 -05'00'

A. Lynn Miller
11/06/2015



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1070 TECHNOLOGY DRIVE
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Title: 5400/5500 SERIES ALUMINUM TUBE MULLIONS

Description: 1.25 X 3.94 X .624 MULL SPECS

Series: 5400/5500

Drawing No. TDI-5000MULL.1

Sheet: 8 of 9

Rev:

Scale:

Date:

Drawn By: J ROSOWSKI

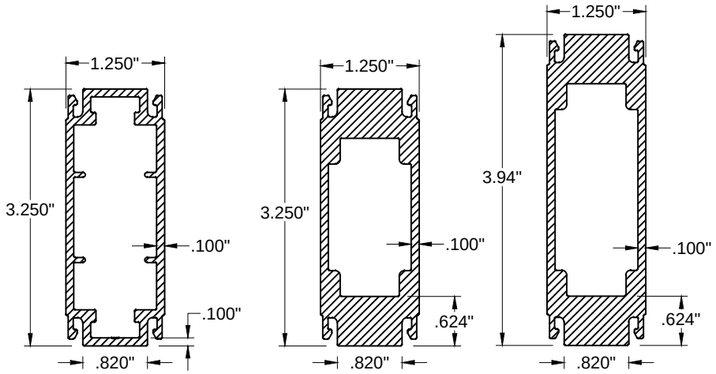
Date: 03/23/15

Checked By:

Rev. By:

Date:

Revision:



INSTRUCTIONS:

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

2) CHOOSE A MULLION TYPE THAT WILL FIT THE DEPTH OF THE FENESTRATION PRODUCT'S FRAME DEPTH.

3) REFER TO SHEETS 6-8 TO DETERMINE IF THE WIND LOADING IS "RECTANGULAR" OR "TRIANGULAR/TRAPEZOIDAL".

4) FIND THE CHOSEN MULLION'S MULLION CAPACITY (LBS/FT²) FROM TABLES 2A THROUGH 4A, ON SHEETS 6 THROUGH 8 RESPECTIVELY, USING THE MULLION TYPE, LENGTH AND OPENING WIDTH OR HEIGHT (DEPENDING IF THE MULLION IS SPANNING VERTICALLY OR HORIZONTALLY). THE MULLION CAPACITY (LBS/FT²) OBTAINED SHALL MEET OR EXCEED THE DESIGN PRESSURE REQUIREMENT (LBS/FT²) FOR THE OPENING OBTAINED IN STEP 1).

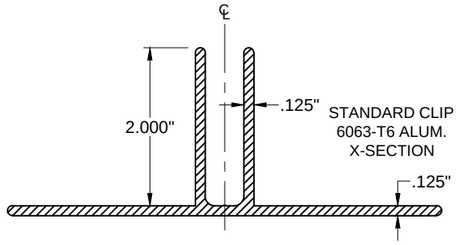
5) FROM THE SAME TABLE USED IN STEP 4) ABOVE, FIND THE VALUE IN THE NEXT COLUMN ANCHOR CAPACITY REQUIRED (LBS). THIS VALUE REPRESENTS THE WINDLOAD TRANSFERRED TO THE SUBSTRATE BY THE ANCHORS AND MUST BE MET TO ATTAIN THE FULL MULLION CAPACITY.

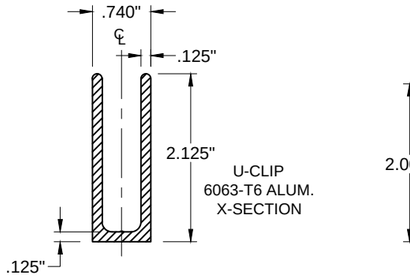
6) FROM THE ANCHOR CAPACITY (LBS) TABLE ON THE SAME SHEET AND USING YOUR ACTUAL SUBSTRATE CONDITION (MULTIPLE ANCHOR/SUBSTRATE/ANCHOR-CLIP PATTERN MAY APPLY) SELECT AN ANCHOR CLIP PATTERN AND VERIFY THAT THE REQUIRED ANCHOR CAPACITY IS MET.

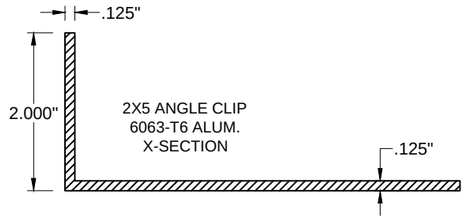
7) IF THE MULLION CAPACITY (LBS/FT²) OBTAINED IN THE TABLE IS HIGHER THAN THE DESIGN PRESSURE REQUIREMENT (LBS/FT²) FOR THE OPENING, YOU MAY USE THE **"ANCHOR CAPACITY ADJUSTMENT FORMULA"** TO OBTAIN THE LOWER ANCHOR CAPACITY REQUIRED. WITH THIS VALUE A LOWER ANCHOR CAPACITY OPTION MAY BE SELECTED FOR THE SAME SUBSTRATE

8) VERIFY THE DESIGN PRESSURE RATING (LBS/FT²) FOR THE FENESTRATION PRODUCT TO BE USED AND COMPARE WITH THE FINAL MULLION CAPACITY (LBS/FT²) OBTAINED FOR THE MULLION SYSTEM. THE LOWER OF THE TWO SHALL APPLY FOR THE ENTIRE MULLED FENESTRATION PRODUCT ASSEMBLY.
9) HIGHLIGHT OPTION USED AND TABLE VALUES USED IN A SPECIFIC APPLICATION WHEN USING THIS APPROVAL TO APPLY FOR A PERMIT.

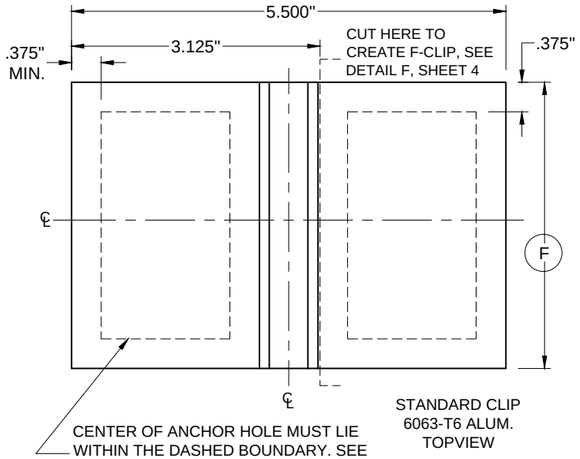
USE THIS SHEET FOR CLIPPED MULLIONS

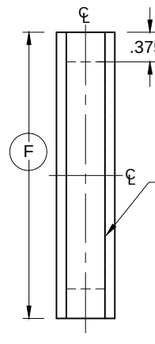






CENTER OF ANCHOR HOLE MUST LIE WITHIN THE DASHED BOUNDARY. SEE TABLES 2B-4B FOR THE ANCHOR O.C. DISTANCE. MAXIMUM ANCHOR HOLE DIAMETER = ANCHOR DIAMETER + 1/16".





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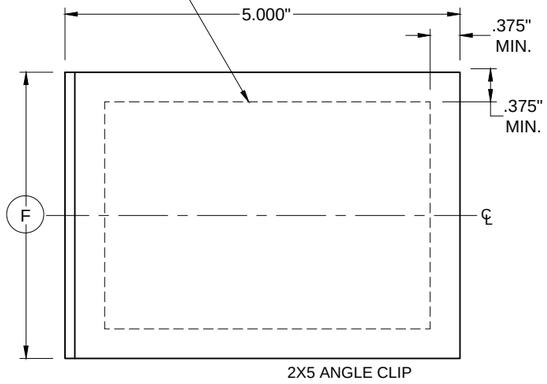

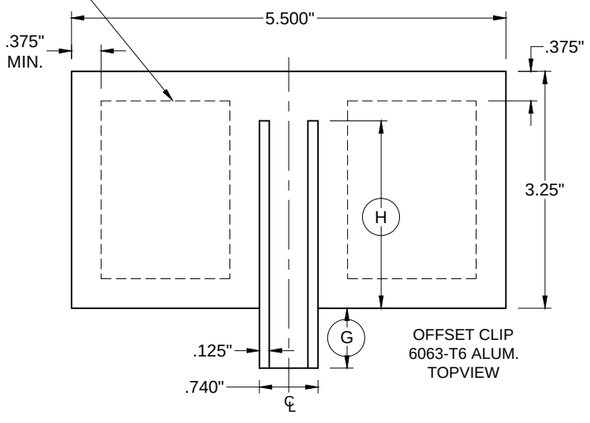

TABLE C

Dimension	Value (in)	For Mullion:
F	2.250	1.25" X 3.25" X .100" Aluminum Tube Mullion
G	0.750	
H	1.500	
F	1.938	1.25" X 3.25" X .624" Aluminum Tube Mullion
G	0.500	
H	1.438	
F	2.625	1.25" X 3.94" X .624" Aluminum Tube Mullion
G	1.125	
H	1.500	

TABLE D

Mull Dimension (sheet #)	PGT Part #				
	Mullion	Std. Clip	Offset Clip	U-Clip	Angle Clip
1.25" X 3.25" X .100" (5)	20160	6661127M	6661124M	6662410M	6665115M
1.25" X 3.25" X .624" (6)	20161	6661128M	6661125M	6662411M	6665116M
1.25" X 3.94" X .624" (7)	20162	6661117M	6661126M	666241M	666517M

PGT®
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Title: 5400/5500 SERIES ALUMINUM TUBE MULLIONS
Description: MULLION AND CLIP DIMENSIONS B
Series: 5400/5500
Drawing No. TDI-5000MULL.1
Sheet: 9 of 9
Rev:
Scale:
Date: 03/23/15
Checked By:
Date:
Revision:
Drawn By: J ROSOWSKI
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Digitally signed by Anthony Lynn Miller, P.E.
Date: 2015.11.06 11:37:47 -05'00'
11/06/2015

STATE OF TEXAS
ANTHONY LYNN MILLER
106954
LICENSED
PROFESSIONAL ENGINEER

A. LYNN MILLER, P.E.
TX P.E.# 106954