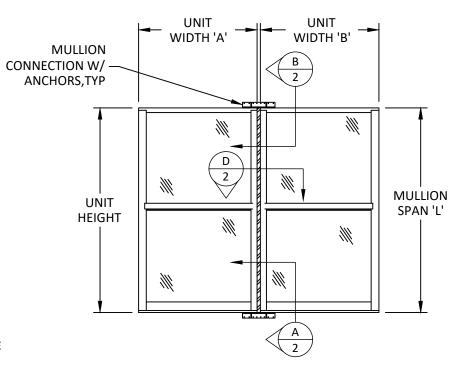
# **PLY GEM WINDOWS**

## SERIES 1500 BEVELED FRAME MULLION (IMPACT)

#### NOTES:

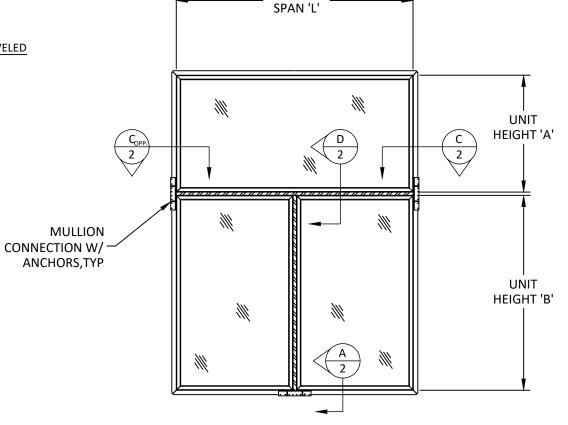
- THE PRODUCT SHOWN HEREIN IS DESIGNED AND MANUFACTURED TO COMPLY WITH THE 2018 INTERNATIONAL BUILDING CODE (IBC) AND INTERNATIONAL RESIDENTIAL CODE (IRC) AND HAS BEEN EVALUATED ACCORDING TO THE FOLLOWING:
  - AAMA 450-10
- MULLION INSTALLATION DETAILS APPLY TO PLY GEM SERIES 1500 BEVELED FRAME MULLION WHEN USED TO MULL WINDOWS WITH A ONE-WAY OR TWO-WAY MULLION USING THE INSTALLATION METHODS SHOWN HEREIN.
- APPROVED IMPACT PROTECTIVE SYSTEM IS NOT REQUIRED FOR THIS PRODUCT IN WIND BORNE DEBRIS REGIONS ZONE 3 OR LESS. INDIVIDUAL UNITS MUST BE IMPACT RATED OR PROTECTED WITH AN APPROVED IMPACT PROTECTIVE SYSTEM WHEN INSTALLED IN AREAS WHERE WINDBORNE DEBRIS PROTECTION IS REQUIRED.
- USE #8 WOOD SCREWS OF SUFFICIENT LENGTH TO ACHIEVE MINIMUM EMBEDMENT OF 1 1/2" INTO WOOD FRAMING. (SEE CHARTS & NOTES ON SHEETS 4 & 5 FOR DESIGN PRESSURE AND ANCHOR NOTES).
- USE 3/16" ITW TAPCON SCREWS OF SUFFICIENT LENGTH TO ACHIEVE MINIMUM EMBEDMENT OF 1 1/2" INTO CONCRETE/MASONRY SUBSTRATE. (SEE CHARTS & NOTES ON SHEETS 4 & 5 FOR DESIGN PRESSURE AND ANCHOR NOTES).
- USE #8 GRADE 5 SELF-TAPPING SCREWS OF SUFFICIENT LENGTH TO ACHIEVE A MINIMUM (3) THREAD PENETRATION BEYOND STEEL SUBSTRATE. (SEE CHARTS & NOTES ON SHEETS 4 & 5 FOR DESIGN PRESSURE AND ANCHOR NOTES)
- ADEQUACY OF THE EXISTING STRUCTURAL CONCRETE/MASONRY, 2X FRAMING, OR STEEL FRAMING AS A MAIN WIND FORCE RESISTING SYSTEM CAPABLE OF WITHSTANDING AND TRANSFERRING APPLIED PRODUCT LOADS TO THE FOUNDATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD FOR THE PROJECT OF INSTALLATION.
- SEE CHARTS & NOTES ON SHEETS 4-5 FOR DESIGN PRESSURE.
- THIS MULLION IS ONLY VALID WHEN USED IN CONJUNCTION WITH APPLICABLE PLY GEM SERIES 1500 WINDOW PRODUCTS UTILIZING THE BEVELED FRAME COMPONENT SHOWN HEREIN.
- ALL WINDOWS USED WITH THIS MULLION SHALL BE QUALIFIED UNDER SEPARATE APPROVAL.
- MULLION MATERIAL: PVC
- MULLION REINFORCEMENT MATERIAL: HSLA 50 GALVANIZED STEEL
- **INSTALLATION ANCHOR CAPACITIES FOR PRODUCTS** HEREIN ARE BASED ON SUBSTRATE MATERIALS WITH THE **FOLLOWING PROPERTIES:** 
  - WOOD MINIMUM SPECIFIC GRAVITY OF 0.42.
  - CONCRETE MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
  - GROUT-FILLED CMU- UNIT STRENGTH CONFORMS TO ASTM C-90 WITH MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AND GROUT CONFORMS TO ASTM C 476, MINIMUM GROUT COMPRESSIVE STRENGTH OF 2000 PSI.
  - HOLLOW BLOCK CMU UNIT STRENGTH CONFORMS TO ASTM C-90 WITH MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
  - STEEL MINIMUM YIELD STRENGTH OF 33 KSI. MINIMUM 18 GA. WALL THICKNESS.

TABLE OF CONTENTS									
SHEET	SHEET DESCRIPTION								
1	MULLION ASSEMBLY ELEVATIONS & NOTES								
2	MULLION SECTION DETAILS								
3	ANCHORAGE METHOD DETAILS								
4	ONE-WAY MULLION DESIGN PRESSURE CHARTS								
5	TWO-WAY MULLION DESIGN PRESSURE CHARTS								
6	COMPONENTS & BILL OF MATERIALS								



## **ONE-WAY MULLION EXAMPLE**

**MULLION** 



**TWO-WAY MULLION EXAMPLE** 



433 N. MAIN ST., PO BOX 559, **ROCKY MOUNT, VA 24151** 

PH: 540-484-6348 FX: 540-484-6683

MULLION ASSEMBLY ELEVATIONS & NOTES

**REMARKS** 

BY DATE 08.16 **REV. ANCHOR CLIP** 12.16 **TDI COMMENTS** RL

SUILDING DROPS, I 398 E. DANIA BEACH BLVD., STE. DANIA BEACH, FL 33004

2018 IBC UPDATE 08.22 ND MAY NOT REFLECT ACTUAL CONDITIONS FOR A SPECIF SITE. IF SITE CONDITIONS CAUSE INSTALLATION TO DEVIAT FROM THE REQUIREMENTS DETAILED HEREIN A LICENSEI

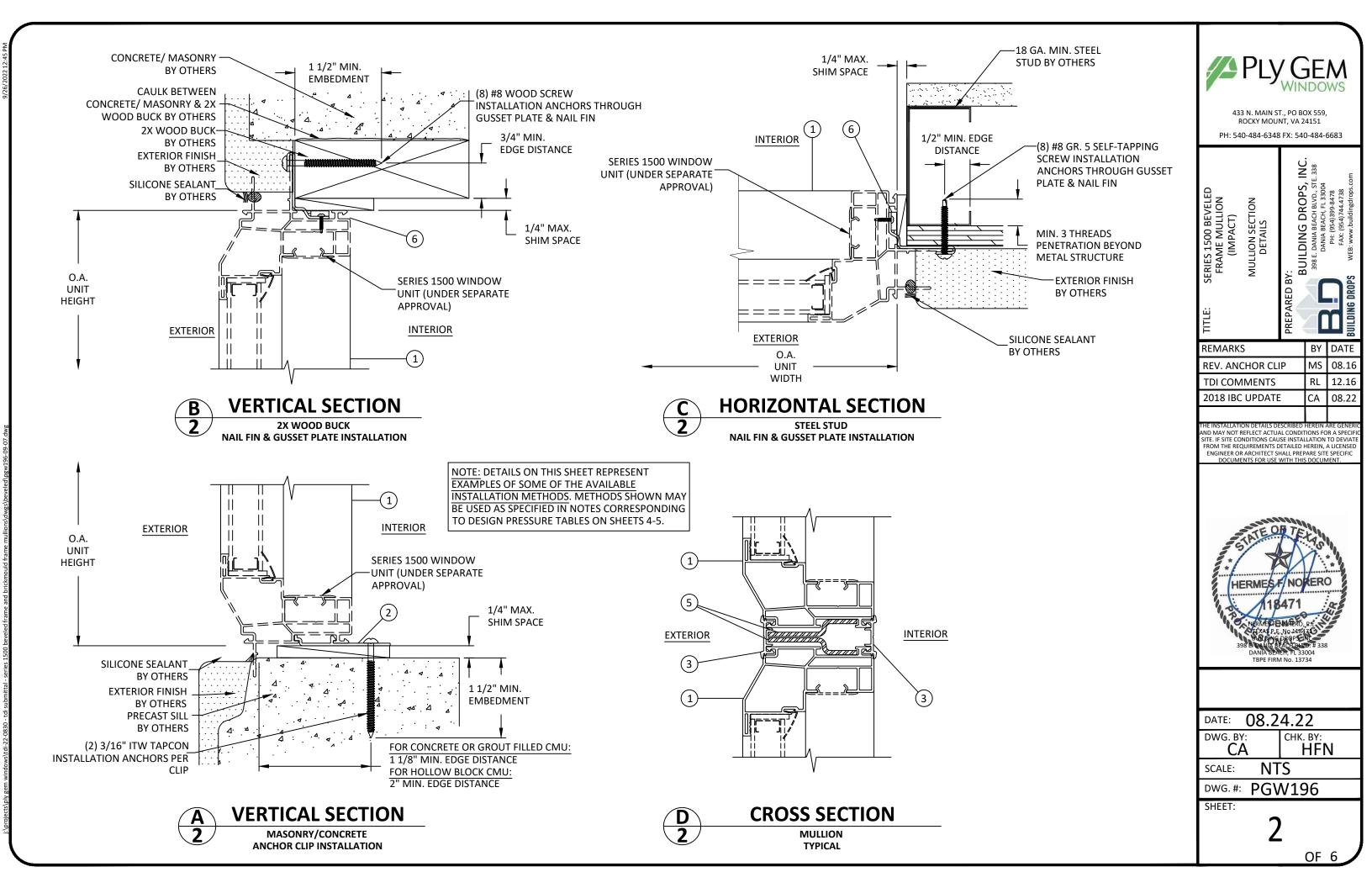
ENGINEER OR ARCHITECT SHALL PREPARE SITE SPECIFIC

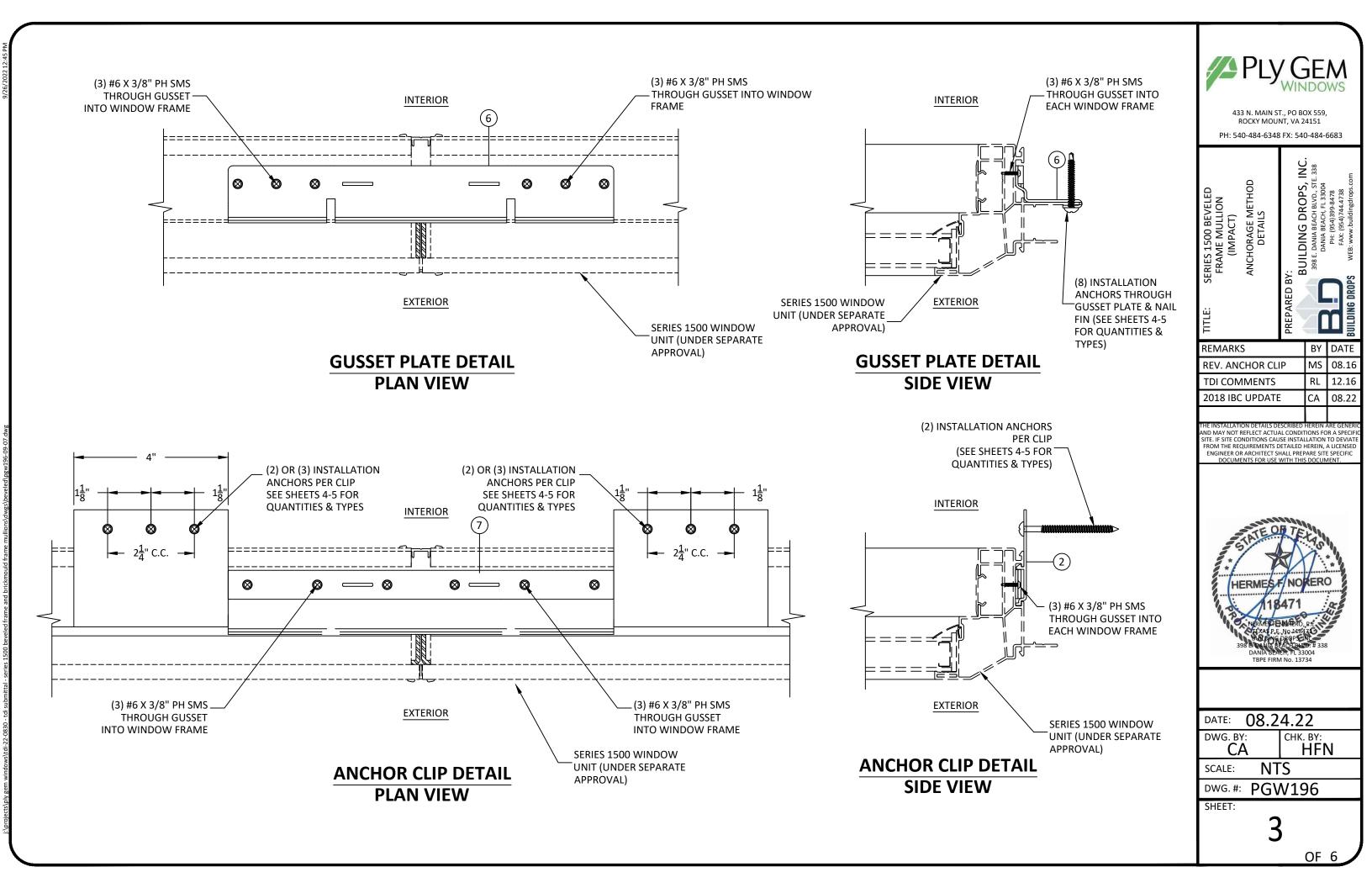
08.24.22 DWG. BY: CHK. BY: CA

NTS SCALE: **PGW196** DWG. #:

SHEET:

OF 6





PLY GEM SERIES 1500 BEVELED FRAME MULLION - DESIGN PRESSURE TABLE FOR 'ONE-WAY' MULLIONS (PSF)														
WIDTH 'W'	MULLION SPAN 'L'													
	24"	30"	36"	42"	48"	54"	60"	66'	72"	78"	83 1/2"	90"	95 1/2"	
18"	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	40.8	34.1	
21"	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	44.2	35.1	29.3	
24"	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	45.5	38.9	31.0	25.8	
27"	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	48.2	40.8	34.9	27.7	23.1	
30"	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	43.9	37.1	31.8	25.2	21.0	
33"	50.0	50.0	50.0	50.0	50.0	50.0	50.0	48.8	40.4	34.1	29.2	23.1	19.2	
36"	50.0	50.0	50.0	50.0	50.0	50.0	50.0	45.5	37.6	31.6	27.1	21.4	17.8	
39"	50.0	50.0	50.0	50.0	50.0	50.0	50.0	42.8	35.3	29.6	25.3	20.0	16.6	
42"	50.0	50.0	50.0	50.0	50.0	50.0	50.0	40.6	33.3	27.9	23.9	18.8	15.6	
45"	50.0	50.0	50.0	50.0	50.0	50.0	48.9	38.8	31.7	26.4	22.6	17.8		
48"	50.0	50.0	50.0	50.0	50.0	50.0	47.3	37.3	30.3	25.2	21.6	16.9		
51"	50.0	50.0	50.0	50.0	50.0	50.0	46.1	36.1	29.2	24.2	20.7	16.2		
54"	50.0	50.0	50.0	50.0	50.0	50.0	45.3	35.2	28.3	23.3	19.9	15.5		

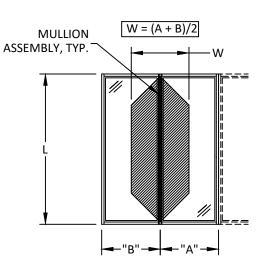
1. THE DESIGN PRESSURES IN THIS CHART ARE FOR ONE-WAY MULLIONS WHEN INSTALLED USING THE NAIL FIN & GUSSET PLATE METHOD OR ANCHOR CLIP METHOD.

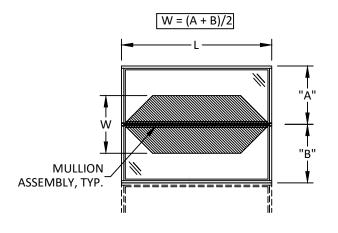
### 2. FOR NAIL FIN & GUSSET PLATE METHOD:

- A. FOR WOOD FRAMING INSTALLATION USE EIGHT (8) #8 WOOD SCREWS AT EACH GUSSET PLATE THROUGH THE PLATE AND NAIL FIN. WOOD SCREWS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE A 1-1/2" MINIMUM EMBEDMENT INTO FRAMING. SEE SHEET 2 FOR TYPICAL INSTALLATION DETAILS.
- B. FOR STEEL FRAME INSTALLATION USE EIGHT (8) #8 GR. 5 SELF-TAPPING SCREWS AT EACH GUSSET PLATE THROUGH THE PLATE AND NAIL FIN. SELF-TAPPING SCREWS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE A MINIMUM (3) THREAD PENETRATION BEYOND STEEL SUBSTRATE. SEE SHEET 2 FOR TYPICAL INSTALLATION DETAILS.

### 3. FOR ANCHOR CLIP METHOD:

- A. FOR WOOD FRAMING INSTALLATION USE THREE (3) #8 WOOD SCREWS PER CLIP. USE TWO CLIPS PER MULLION END. WOOD SCREWS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE A 1-1/2" MINIMUM EMBEDMENT INTO FRAMING. SEE SHEET 2 FOR TYPICAL INSTALLATION DETAILS.
- B. FOR STEEL FRAME INSTALLATION USE THREE (3) #8 GR. 5 SELF-TAPPING SCREWS PER CLIP. USE TWO CLIPS PER MULLION END. SELF-TAPPING SCREWS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE A MINIMUM (3) THREAD PENETRATION BEYOND STEEL SUBSTRATE. SEE SHEET 2 FOR TYPICAL INSTALLATION DETAILS.
- C. FOR CONCRETE/MASONRY FRAMING INSTALLATION USE TWO (2) 3/6" ITW TAPCONS PER CLIP. USE TWO CLIPS PER MULLION END. ITW TAPCONS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE A 1-1/2" MINIMUM EMBEDMENT INTO FRAMING. SEE SHEET 2 FOR TYPICAL INSTALLATION DETAILS.
- 4. DESIGN PRESSURE VALUES APPLY TO MULLION WHERE TWO OR MORE WINDOWS ARE LISTED IN A SINGLE OPENING.DESIGN PRESSURE VALUES ON THIS CHART ARE POSITIVE AND NEGATIVE PSF.





**TYPICAL ONE-WAY MULLION LAYOUTS** 



433 N. MAIN ST., PO BOX 559, **ROCKY MOUNT, VA 24151** 

PH: 540-484-6348 FX: 540-484-6683

ONE-WAY MULLION DESIGN PRESSURE CHARTS

2018 IBC UPDATE

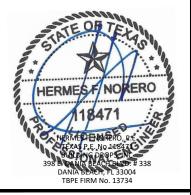
**REMARKS** 

BY DATE 08.16 **REV. ANCHOR CLIP TDI COMMENTS** 

08.22

3UILDING DROPS, I 398 E. DANIA BEACH BLVD., STE. DANIA BEACH, FL 33004

ND MAY NOT REFLECT ACTUAL CONDITIONS FOR A SPECIF SITE, IF SITE CONDITIONS CAUSE INSTALLATION TO DEVIAT FROM THE REQUIREMENTS DETAILED HEREIN, A LICENSED ENGINEER OR ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE WITH THIS DOCUMENT.



08.24.22 DWG. BY: CHK. BY:

CA SCALE:

HFN NTS

**PGW196** DWG. #:

SHEET:

OF 6

51'

54"

50.0

50.0

THE DESIGN PRESSURES IN THIS CHART ARE FOR TWO-WAY MULLIONS WHEN INSTALLED USING THE NAIL FIN & GUSSET PLATE METHOD OR ANCHOR CLIP METHOD.

50.0

47.3

2. FOR NAIL FIN & GUSSET PLATE METHOD:

50.0

50.0

50.0

50.0

50.0

50.0

50.0

50.0

A. FOR WOOD FRAMING INSTALLATION USE EIGHT (8) #8 WOOD SCREWS AT EACH GUSSET PLATE THROUGH THE PLATE AND NAIL FIN. WOOD SCREWS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE A 1-1/2" MINIMUM EMBEDMENT INTO FRAMING. SEE SHEET 2 FOR TYPICAL INSTALLATION DETAILS.

40.6

38.3

33.5

31.7

28.2

26.6

24.0

22.7

20.9

19.8

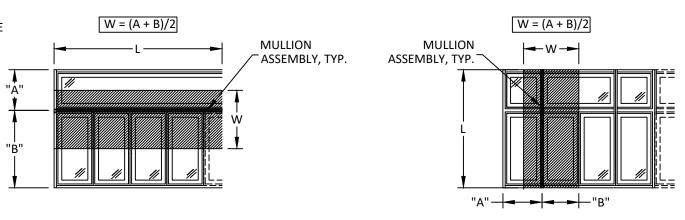
18.0

17.0

16.0

15.1

- B. FOR STEEL FRAME INSTALLATION USE EIGHT (8) #8 GR. 5 SELF-TAPPING SCREWS AT EACH GUSSET PLATE THROUGH THE PLATE AND NAIL FIN. SELF-TAPPING SCREWS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE A MINIMUM (3) THREAD PENETRATION BEYOND STEEL SUBSTRATE. SEE SHEET 2 FOR TYPICAL INSTALLATION DETAILS.
- 3. FOR ANCHOR CLIP METHOD:
  - A. FOR WOOD FRAMING INSTALLATION USE THREE (3) #8 WOOD SCREWS PER CLIP. USE TWO CLIPS PER MULLION END. WOOD SCREWS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE A 1-1/2" MINIMUM EMBEDMENT INTO FRAMING. SEE SHEET 2 FOR TYPICAL INSTALLATION DETAILS.
  - B. FOR STEEL FRAME INSTALLATION USE THREE (3) #8 GR. 5 SELF-TAPPING SCREWS PER CLIP. USE TWO CLIPS PER MULLION END. SELF-TAPPING SCREWS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE A MINIMUM (3) THREAD PENETRATION BEYOND STEEL SUBSTRATE. SEE SHEET 2 FOR TYPICAL INSTALLATION DETAILS.
  - C. FOR CONCRETE/MASONRY FRAMING INSTALLATION USE TWO (2)  $\frac{3}{16}$ " ITW TAPCONS PER CLIP. USE TWO CLIPS PER MULLION END. ITW TAPCONS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE A 1-1/2" MINIMUM EMBEDMENT INTO FRAMING. SEE SHEET 2 FOR TYPICAL INSTALLATION DETAILS.
- DESIGN PRESSURE VALUES APPLY TO MULLION WHERE TWO OR MORE WINDOWS ARE LISTED IN A SINGLE OPENING.DESIGN PRESSURE VALUES ON THIS CHART ARE POSITIVE AND NEGATIVE PSF.



### TYPICAL TWO-WAY MULLION LAYOUTS



433 N. MAIN ST., PO BOX 559, **ROCKY MOUNT. VA 24151** 

PH: 540-484-6348 FX: 540-484-6683

TWO-WAY MULLION DESIGN PRESSURE CHARTS

2018 IBC UPDATE

**REMARKS** 

BY DATE 08.16 **REV. ANCHOR CLIP** 12.16 **TDI COMMENTS** RL

08.22

3UILDING DROPS, I 398 E. DANIA BEACH BLVD., STE. DANIA BEACH, FL 33004 PH: (954)399-8478

ND MAY NOT REFLECT ACTUAL CONDITIONS FOR A SPECIF SITE. IF SITE CONDITIONS CAUSE INSTALLATION TO DEVIAT FROM THE REQUIREMENTS DETAILED HEREIN A LICENSEI ENGINEER OR ARCHITECT SHALL PREPARE SITE SPECIFIC



08.24.22 DATE: CHK. BY:

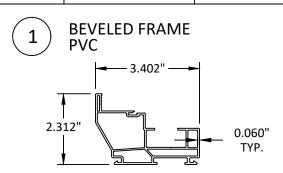
DWG. BY: CA

NTS SCALE: **PGW196** DWG. #:

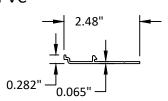
SHEET:

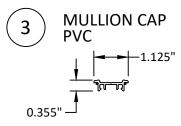
OF 6

HFN

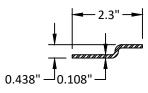


**BEVELED ANCHOR CLIP** PVC

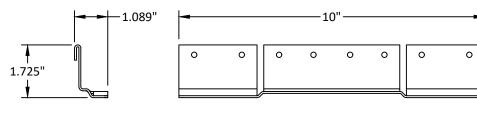




REINFORCEMENT HSLA 50 GALV. STEEL 5

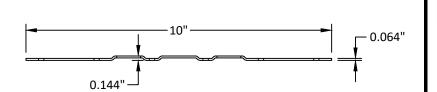


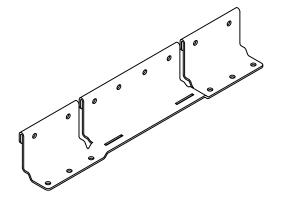
**GUSSET PLATE GALV. STEEL** 



GUSSET PLATE W/O NAIL FIN GALV. STEEL

- 0.064"







433 N. MAIN ST., PO BOX 559, ROCKY MOUNT, VA 24151

PH: 540-484-6348 FX: 540-484-6683

COMPONENTS BILL OF MATERIALS

**REMARKS** 

BY DATE 08.16 **REV. ANCHOR CLIP** 12.16 **TDI COMMENTS** RL 2018 IBC UPDATE 08.22

3UILDING DROPS, I 398 E. DANIA BEACH BLVD., STE. DANIA BEACH, FL 33004

AND MAY NOT REFLECT ACTUAL CONDITIONS FOR A SPECIF SITE. IF SITE CONDITIONS CAUSE INSTALLATION TO DEVIAT FROM THE REQUIREMENTS DETAILED HEREIN, A LICENSED ENGINEER OR ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE WITH THIS DOCUMENT.



08.24.22 DATE: CHK. BY: DWG. BY:

CA NTS SCALE:

DWG. #: **PGW196** 

SHEET:

6

OF 6