Engineering Evaluation Report #410-012523-01

Prepared by:
A. Lynn Miller, P.E.
1070 Technology Dr.
N. Venice, FL 34275
(941) 480-1600
Registration Number: #29296

Manufacturer:
WinDoor Incorporated
104 Triple Diamond Blvd.
North Venice, FL 34275
(833) 554-5432

Product Description:
PW 410 Series Aluminum LMI HVHZ Fixed Window – FL15709

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 PW410LMI-FPA, signed and sealed by A. Lynn Miller, P.E.

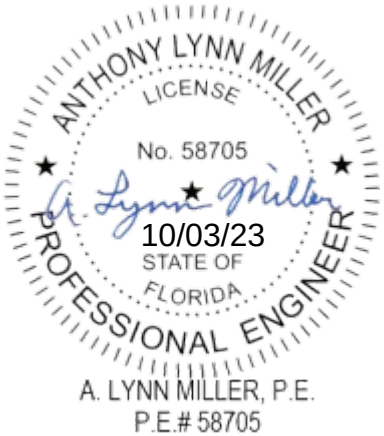
2. Test Report FTL-19-8916, dated 04/10/19, FTL-19-8917, dated 04/19/19 prepared by Fenestration Testing, Inc., signed and sealed by Idalmis Ortega P.E.; Testing Standards: TAS 201-94, TAS 202-94 & TAS 203-94

3. Test Report CTLA-2056 WA, B and C dated 03/03/15and 04/16/15, prepared by Certified Test Laboratories, signed and sealed by Ramesh C. Patel. P.E.; Testing Standards: TAS 201-94, TAS 202-94 & TAS 203-94

4. Test Report HTL-0080-0504-08, dated 11/13/08, prepared by Hurricane Test Laboratory, signed and sealed by Vinu J. Abraham, P.E.; Testing Standards: TAS 201-94, TAS 202-94 & TAS 203-94

5. Anchor Calculations and Structural Analysis, dated 08/29/17, prepared by Al-Farooq Corporation, and signed and sealed by Javad Ahmad, P.E.

Limitations and Conditions of use:
- Units must be glazed per ASTM E1300-04/09, refer to approval document for glazing details.
- 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.
- Units must be installed in accordance with Approval Document.



SERIES 410 FIXED WINDOWS - LARGE & SMALL MISSILE

1) APPROVAL APPLIES TO SINGLE UNITS OR SIDE BY SIDE COMBINATIONS OF F/A-F/X, OR F/X, WITH OTHER FLORIDA PRODUCT APPROVED WINDOWS.

2) APPROVED WINDOWS USING FLORIDA PRODUCT APPROVED MULLIONS IN BETWEEN.

3) LOWER DESIGN PRESSURE FROM WINDOW OR MULLION APPROVAL SHALL APPLY TO ENTIRE SYSTEM.

4) THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF FLORIDA BUILDING CODE INCLUDING HIGH VELOCITY HURRICANE ZONE (HVHZ).

5) 15Y OR 20Y WOOD BUCKS & BUCK FASTENERS BY OTHERS MUST BE DESIGNED AND INSTALLED ADEQUATELY TO TRANSFER APPLIED PRODUCT LOADS TO THE BUILDING STRUCTURE.

6) ANCHORS SHALL BE CORROSION RESISTANT, SPACED AS SHOWN ON DETAILS AND INSTALLED PER MANUF'S INSTRUCTIONS. SPECIFIED EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO.

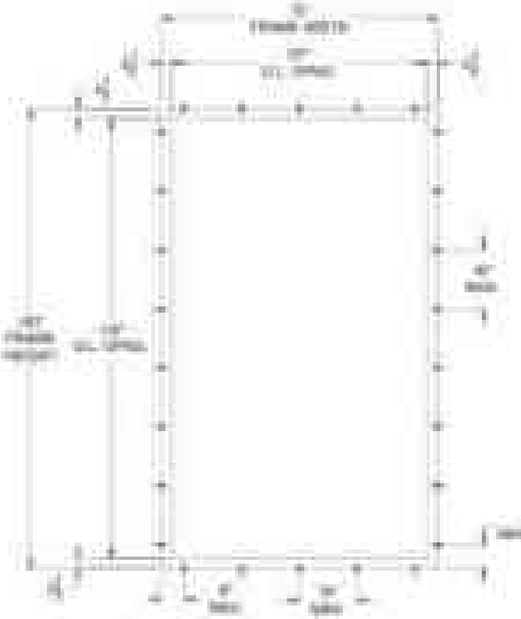
7) A LOAD DURATION INCREASE IS USED IN DESIGN OF ANCHORS INTO WOOD ONLY ALL SKINS TO BE HIGH IMPACT, NON METALLIC AND NON-COMPRESSIBLE.

8) MATERIALS INCLUDING BUT NOT LIMITED TO STEEL/METAL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE FLORIDA BLDG. CODE & ADOPTED STANDARDS.

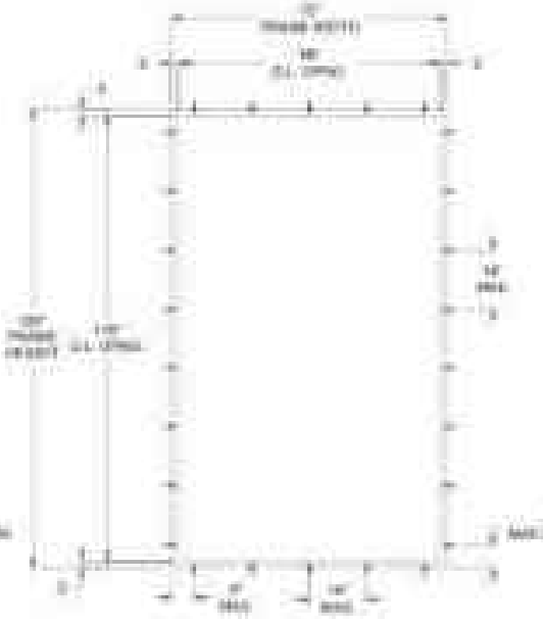
9) THIS PRODUCT APPROVAL IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT, i.e. LIFE SAFETY OF THIS PRODUCT, ADEQUACY OF STRUCTURE RECEIVING THIS PRODUCT AND SEALING AROUND OPENING FOR WATER INFILTRATION RESISTANCE ETC.

10) CONDITIONS NOT SHOWN IN THIS DRAWING ARE TO BE ANALYZED SEPARATELY AND TO BE REVIEWED BY BUILDING OFFICIAL.

11) ALL TEMPERED AND LAMINATED GLASS OPTIONS IN THIS APPROVAL HAVE BEEN CERTIFIED BY THE IGCC FOR COMPLIANCE TO ANSI Z97.1, CLASS A AND CPSC 16 CFR 1201, CATEGORY II. THIS INCLUDES LAMINATED GLASS THAT IS MANUFACTURED WITH ANNEALED GLASS PLIES. FOR APPLICATIONS WHERE THE WINDOW IS BEING USED AS A GUARD, HPI OR T-T LAMINATED GLASS MUST BE USED.



TYPICAL ELEVATION
LARGE FRAME



TYPICAL ELEVATION
EQUALLEG FRAME

THESE WINDOWS ARE RATED FOR LARGE & SMALL MISSILE IMPACT. SHUTTERS ARE NOT REQUIRED.

INSTRUCTIONS FOR USING CAPACITY CHARTS:

STEP 1 DETERMINE THE REQUIRED DESIGN PRESSURES FOR A GIVEN WINDOW OPENING.

STEP 2 DETERMINE THE CAPACITY OF THE WINDOW SIZE/CONFIGURATION/GLASS TYPE FROM CHARTS ON SHEETS 7 AND 8.
FOR INSTALLATION ANCHOR TYPES SEE SHEETS 4 & 5.

STEP 3 IF ALUMINUM BUCKS ARE USED, VERIFY THE BUCK INSTALLATION CAPACITY FROM SHEET 6.

STEP 4 FOR UNCLIPPED MULLED WINDOWS DETERMINE MULLION CAPACITY FOR 1X4 AND 2X6 TUBES FROM CHARTS ON SHEETS 6 & 8.

STEP 5 FOR ANCHOR CAPACITY SEE CHART ON SHEET 7

THE LOWEST SELECTED VALUE APPLY TO THE INSTALLATION AND MUST EQUAL OR EXCEED THE REQUIRED DESIGN PRESSURES OBTAINED FROM STEP 1.

A	10/2/23	ADD CHANGES PER PLAN REVIEW		

WINDOOR

SERIES 410 FIXED WINDOW PLAN

ELEVATION & GENERAL NOTES

J. A. MOSLEY

PRODUCED BY: A. LYNN MILLER
6175 TECHNOLOGY DRIVE
N. VENICE, FL 34275
941-493-1007

DRAWN: RM
CHECKED: ALM
DATE: 2/6/23
SCALE: 1/2" = 1'-0"
SHEET: 1 OF 12

ANTHONY LYNN MILLER
LICENSE
No. 38726
STATE OF FLORIDA
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
FL# 38726

Design Load Capacity (lbs/ft2)

Positive Deflection (-)	Negative Deflection (+)	Glass Type: Laminated (1/2")																			
		Glass Size: Width (in.)																			
		24		36		48		60		72		84		96		108		120		132	
Glass Size: Height (in.)	24	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	36	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	48	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	60	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	72	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	84	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	96	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	108	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	120	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0

Design Load Capacity (lbs/ft2)

Positive Deflection (-)	Negative Deflection (+)	Glass Type: Tempered (1/2")																			
		Glass Size: Width (in.)																			
		24		36		48		60		72		84		96		108		120		132	
Glass Size: Height (in.)	24	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	36	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	48	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	60	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	72	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	84	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	96	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	108	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0
	120	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0	+150.0	-150.0

NOTES:
1. GLASS CAPACITIES ON THIS SHEET ARE BASED ON ASTM E1300-09 (LSBC GUIDES).
2. FOR ANCHOR OPTIONS, SEE SHEETS A-8.3.

NOTE:
LONG AND SHORT DIMENSIONS CAN BE ORIENTED VERTICALLY OR HORIZONTALLY AS SHOWN



REVISIONS	
1	1/24/23
2	2/6/23
3	
4	
5	
6	
7	
8	
9	
10	

WINDOOR
WINDOOR INTERNATIONAL, LLC
2311 NW 109TH AVENUE
DORAL, FL 33172
PHONE: 305.591.3663
FAX: 305.591.3665

SERIES "A" ALUM WDW W/ IMPACT GLASS
LOW-E/ARGON/CLEAR
A MODEL
PW-W1118-IMPACT

ANTHONY LYNN MILLER
License
No. 86705
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
P.E. # 86705

A
10/2023
A-8.2
2 OF 12
PW-W1118-IMPACT

Design Load Capacity (lbs/ft2)

Mullion Designation	Glass Type & Thickness	Mullion Span (Inches)																					
		72		84		96		108		120		132		144		156		168		180		192	
		+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
Glass Bite = Height / 175	1/4	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	5/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	3/8	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	7/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	1/2	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	9/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	5/8	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	11/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	3/4	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	13/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	7/8	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	15/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	1	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0

Design Load Capacity (lbs/ft2)

Mullion Designation	Glass Type & Thickness	Mullion Span (Inches)																					
		72		84		96		108		120		132		144		156		168		180		192	
		+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
Glass Bite = Height / 175	1/4	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	5/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	3/8	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	7/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	1/2	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	9/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	5/8	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	11/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	3/4	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	13/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	7/8	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	15/16	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0
	1	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0	+50.0	-50.0

NOTES:
1. GLASS CAPACITIES ON THIS SHEET ARE BASED ON ASTM E-330-14 (LWEC GUIDES).
2. FOR ANCHOR OPTIONS, SEE SHEETS 4 & 5.

NOTE:
LONG AND SHORT DIMENSIONS CAN BE ORIENTED VERTICALLY OR HORIZONTALLY AS SHOWN



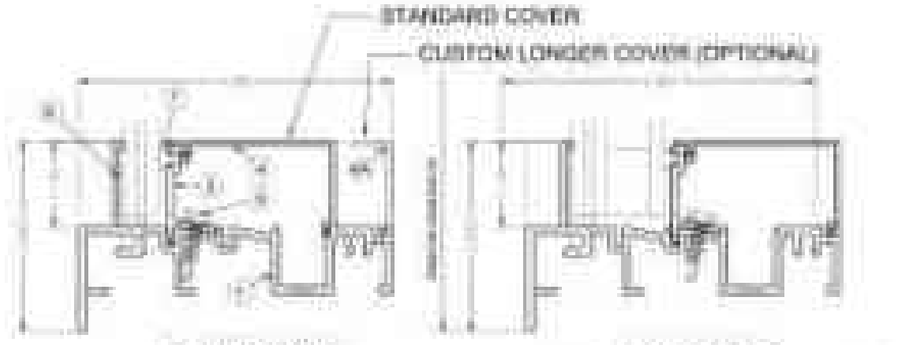
A	10/2023
REVISIONS	
DESIGN PRESSURE CALCULATIONS	
1/24/23	
A. MORESKI	
WWW.WINDOOR.COM	
SERIES "I" ALUM WINDOW WALL	
LOW-CAPACITY	
31 OF 72	
PW01	

WINDOOR
WINDOOR TECHNOLOGIES, LLC
2300 BERKSHIRE LANE NORTH
PLYMOUTH, MN 55441

ANTHONY LYNN MILLER
LICENSE
No. 86705
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
ANTHONY LYNN MILLER, P.E.
P.E. # 86705

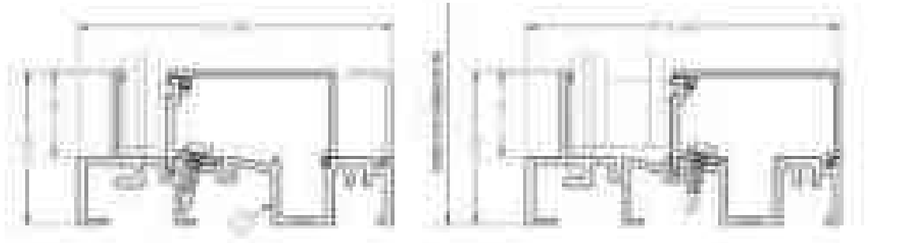
AVAILABLE FRAME TYPES

SAME FRAME USED IN ALL SIDES



FLANGE FRAME
LAMINATED GLASS

FLANGE FRAME
INSULATED LAMINATED GLASS



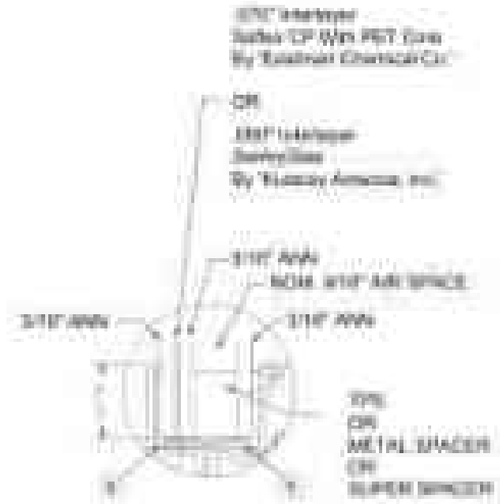
EQUAL LEG FRAME
LAMINATED GLASS

EQUAL LEG FRAME
INSULATED LAMINATED GLASS

GLASS TYPES AVAILABLE



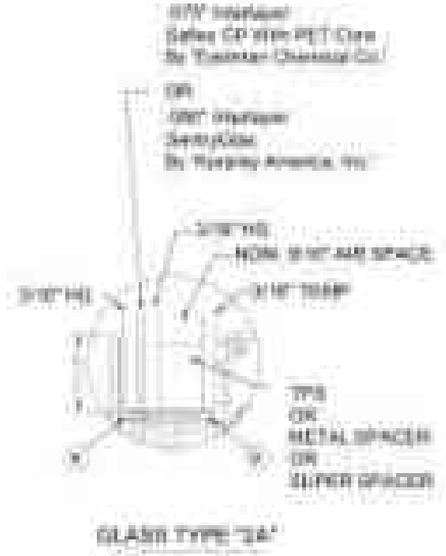
GLASS TYPE "1"



GLASS TYPE "1A"



GLASS TYPE "2"



GLASS TYPE "2A"

REVISIONS	DATE	BY
	12/23	A

WINDOOR

SERIES 1810 ALUM. HIGH PERFORMANCE SYSTEM

GLASS FRAMES TYPES

DRAWN	A. MOELLER
SCALE	
SHEET	2 OF 4
DRAWING	

ANTHONY LYNN MILLER
LICENSED
No. 38728
STATE OF ILLINOIS
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.

TYPICAL ANCHORS: ALSO SEE NEXT SHEET. SEE ELEV. FOR SPACING.

Anchor Type	Description	Substrate	Frame Members	Min. Edge Distance	Min. Embedment or Metal Thickness
A	1/4" DIA. [illegible]	Into 2BY Wood Buck or Wood Structure	All	1"	1-1/2"
		Thru 1BY Buck into Concrete	All	2-1/2"	1-3/8"
		Thru 1BY Buck into Hollow Block	All	2-1/2"	1-1/4"
B	1/4" DIA. Ultracon	Into 2BY Wood Buck or Wood Structure	All	1"	1-1/2"
		Thru 1BY Buck into Concrete	All	2-1/2"	1-1/4"
		Thru 1BY Buck into Hollow Block	All	2-1/2"	1-1/4"
B+	1/4" DIA. Ultracon+	Into 2BY Wood Buck or Wood Structure	All	1"	1"
		Thru 1BY Buck into Concrete	All	2-1/2"	1"
		Thru 1BY Buck into Hollow Block	All	2-1/2"	1-3/8"
C	5/16" DIA. Ultracon	Into 2BY Wood Buck or Wood Structure	All	1-1/8"	1-7/8"
		Thru 1BY Buck into Concrete	All	3-1/8"	1-1/2"
		Thru 1BY Buck into Hollow Block	All	3-1/8"	1-1/4"

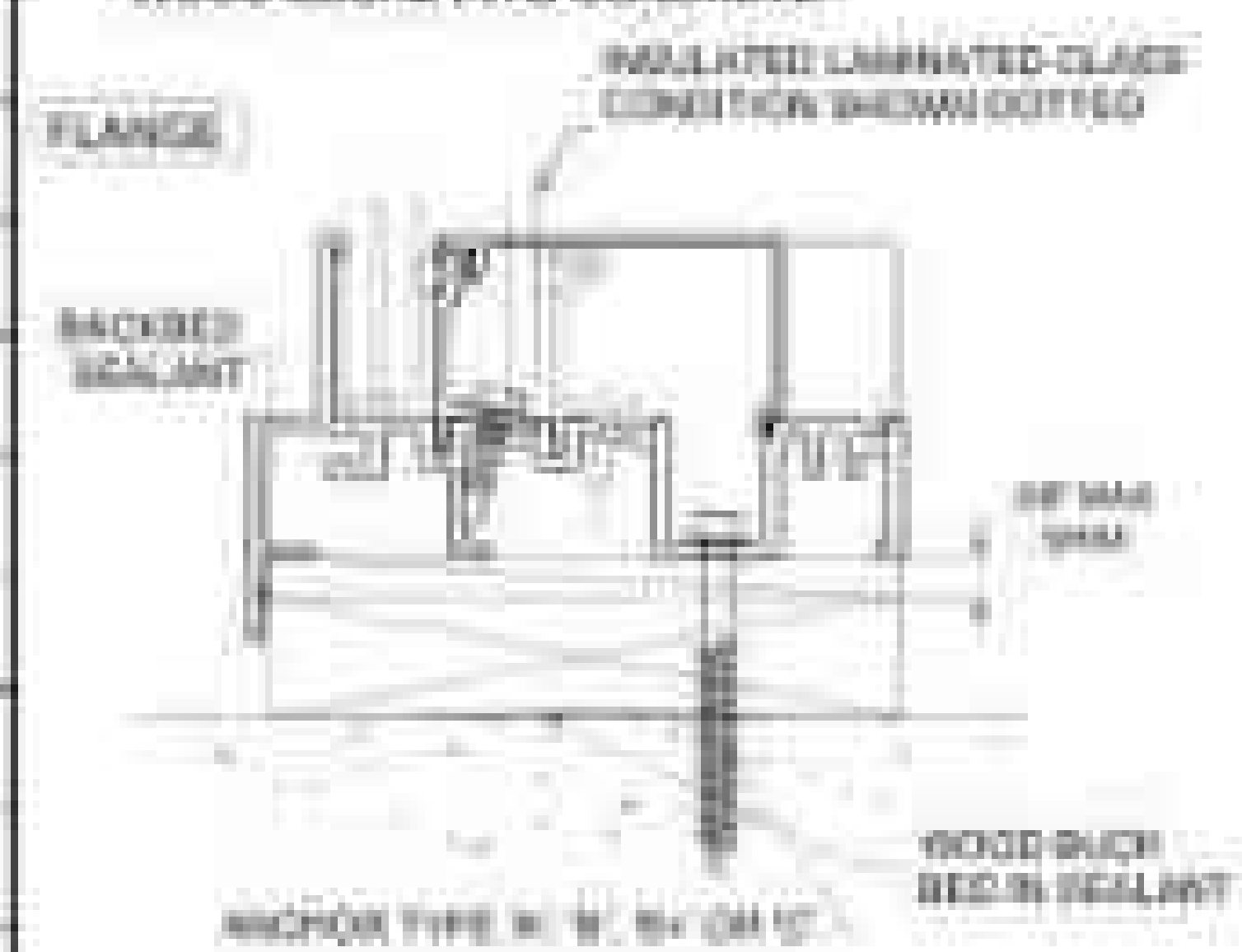
ANCHOR OPTION 1
ALL ANCHORS AS SHOWN ON SHEETS 5 & 6

ANCHOR OPTION 2
ANCHOR TYPES 'C' WITH 1/2" SHIM SPACE
ANCHOR TYPES 'AA', 'BB', 'BBB', 'B+', 'BBB+', 'D' & 'E' WITH 1/4" SHIM SPACE

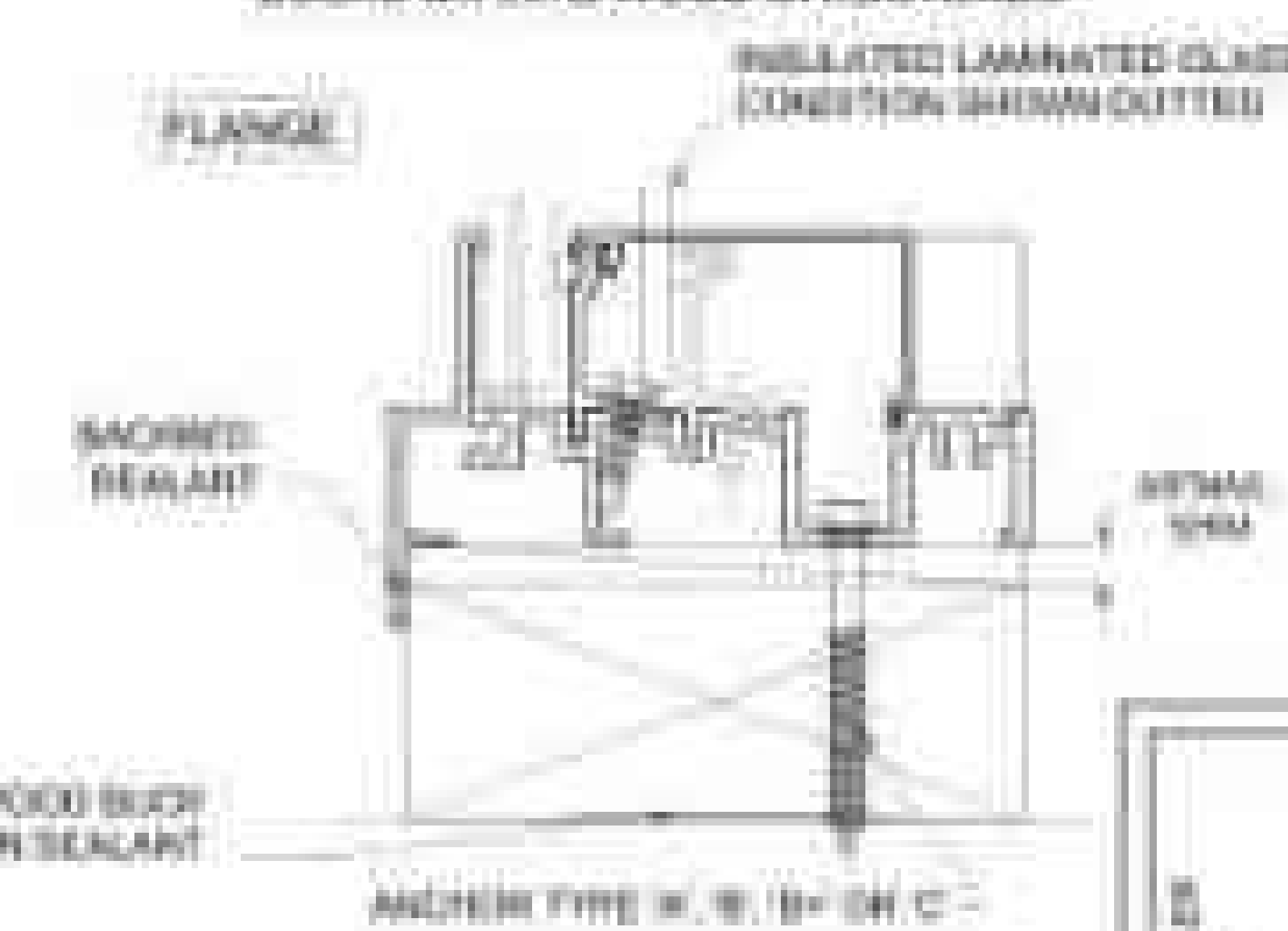
CONCRETE f'c = 3000 PSI MIN.
CONCRETE BLOCKS f'm = 2000 PSI MIN.

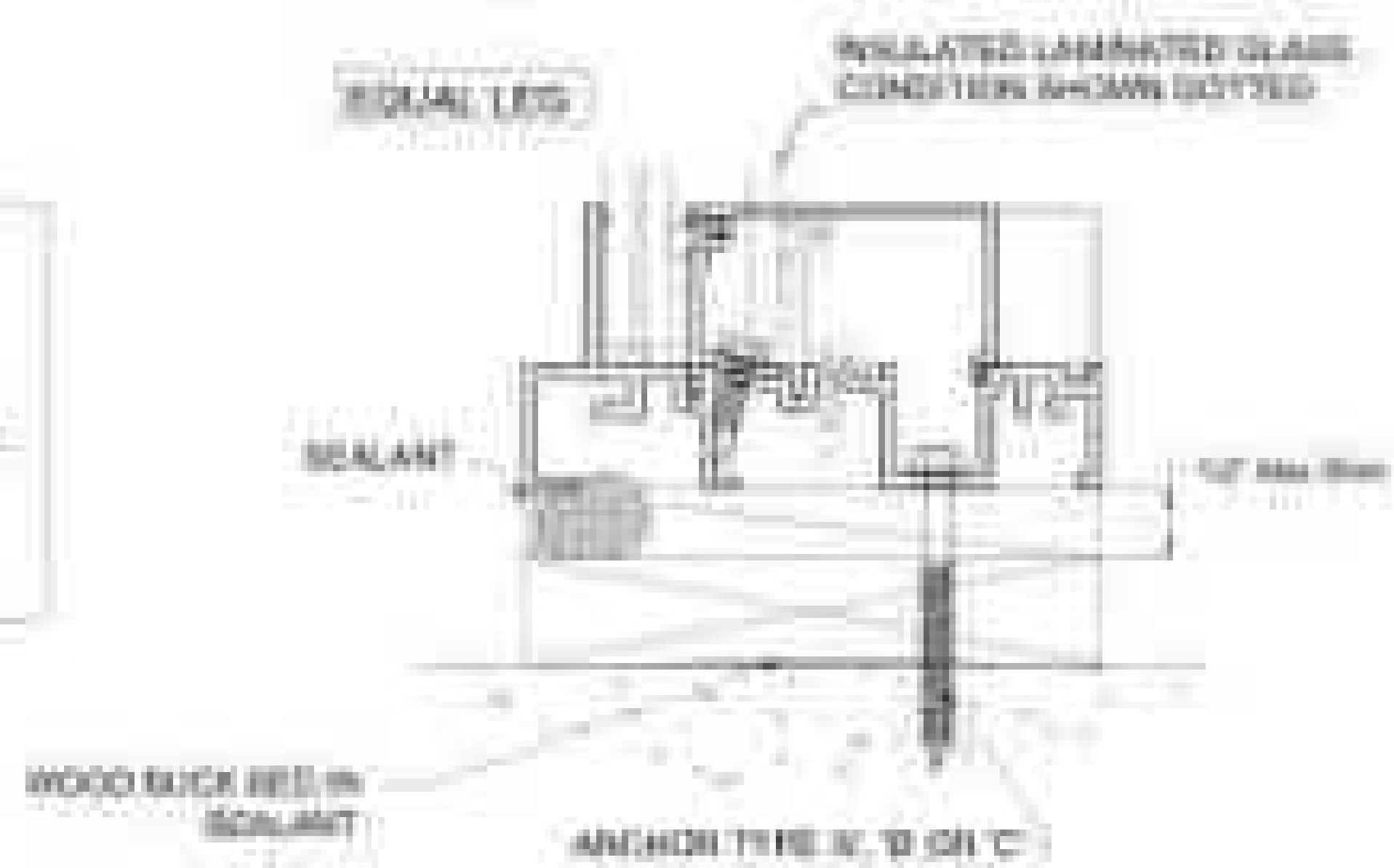
TYPICAL INSTALLATION DETAILS. ALSO SEE NEXT SHEET
THESE DETAILS ARE TYPICAL ON ALL FOUR SIDES OF WINDOW

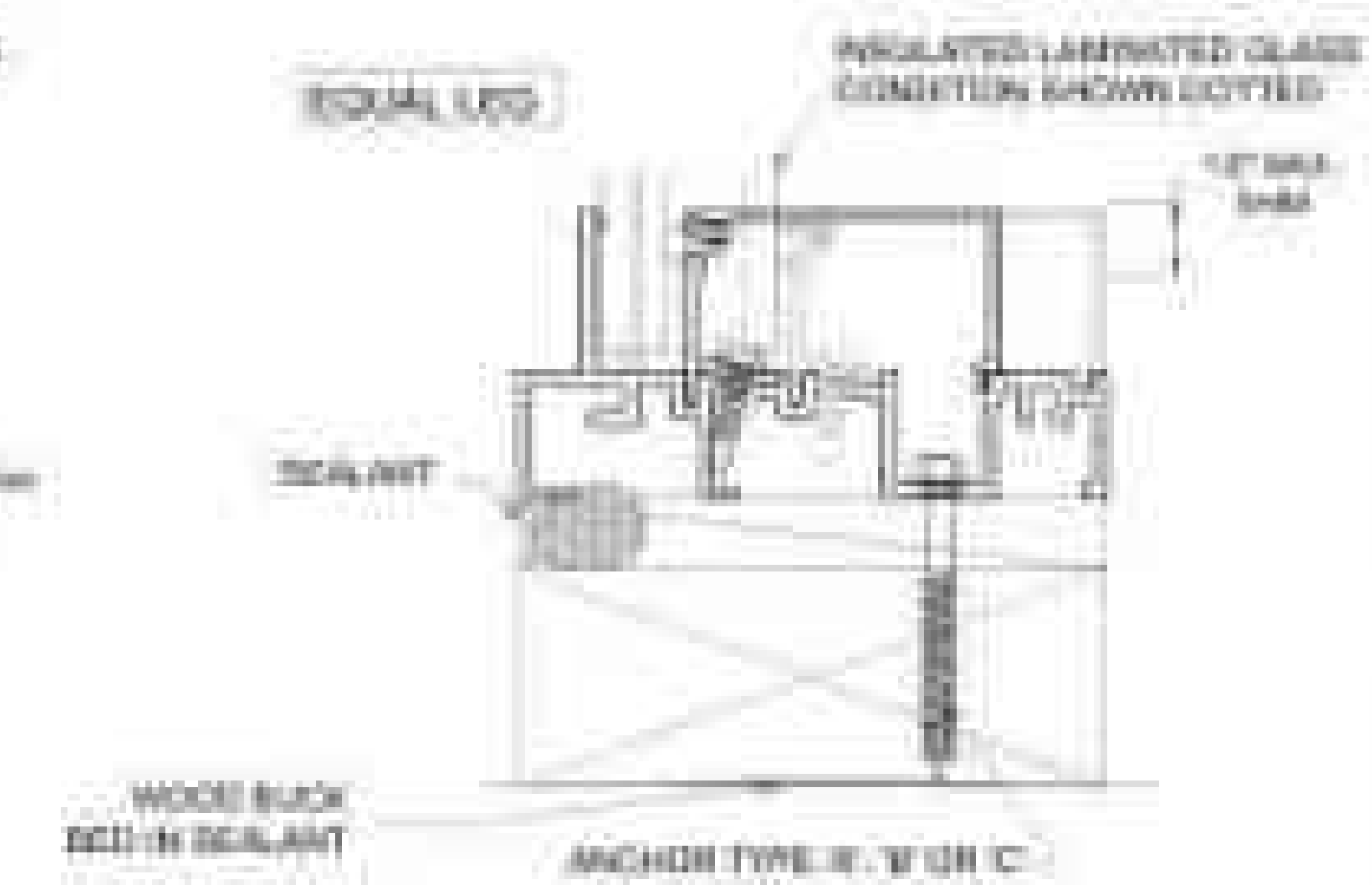
INSTALLATION DETAILS THRU 1X WOOD BUCKS INTO CONCRETE



INSTALLATION DETAILS INTO 2X WOOD BUCKS OR INTO WOOD STRUCTURES







A | 10/23/23 | NO CHANGES ON THIS SHEET

PREPARED BY A. LYNN MILLER

WINDOOR

SERIES '4110' ALUM. FIXED WINDOW (LMI)

ANCHORS INSTALLATION 1

1/24/23 | A. MORLESIN | 5 OF 12 | FW410

ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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

TYPICAL ANCHORS ALSO SEE PREVIOUS SHEET FOR SPACING

Anchor Type	Description	Substrate	Frame Membrane	Min. Edge Distance	Min. Substrate or Metal Thickness
AA	1/4" Dia. Hilti Kwik-Con II	Directly into Concrete	All	3-1/2"	1-3/8"
BB	1/4" Dia. Ultracon	Directly into Concrete	All	3-1/2"	1-3/8"
BB+	1/4" Dia. Ultracon+	Directly into Concrete	All	3-1/2"	1-3/8"
BBB	1/4" Dia. Ultracon	Directly into Hollow Block	All	3-1/2"	1-1/4"
BBB+	1/4" Dia. Ultracon+	Directly into Hollow Block	All	3-1/2"	1-1/4"
C	#14 SMS	Into Steel 12 GA Min	All	3-1/2"	(3) Threads min. to extended beyond metal thickness
		Into Aluminum 1/8" Thk	All	3-1/2"	(3) Threads min. to extended beyond metal thickness
E	#14 SMS	Into Steel 12 GA Min	All	3-1/2"	(3) Threads min. to extended beyond metal thickness
		Into Aluminum 1/8" Thk	All	3-1/2"	(3) Threads min. to extended beyond metal thickness

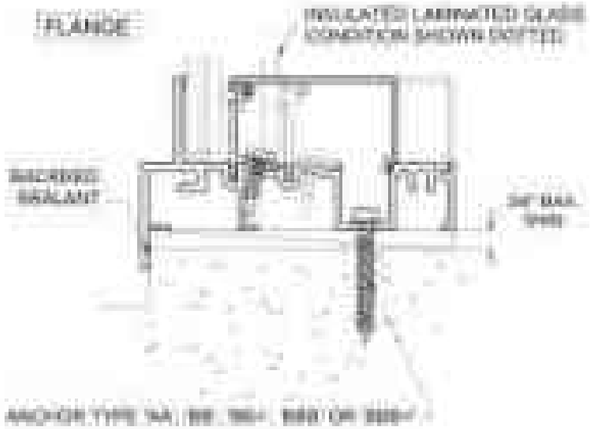
ANCHOR OPTION 1:
ALL ANCHORS AS SHOWN ON SHEETS 4 & 5

ANCHOR OPTION 2:
ANCHOR TYPES 'C' WITH 1/2" SHIM SPACE
ANCHOR TYPES 'AA', 'BB', 'BBB', 'BB+', 'BBB+', 'D' & 'E' WITH 1/4" SHIM SPACE

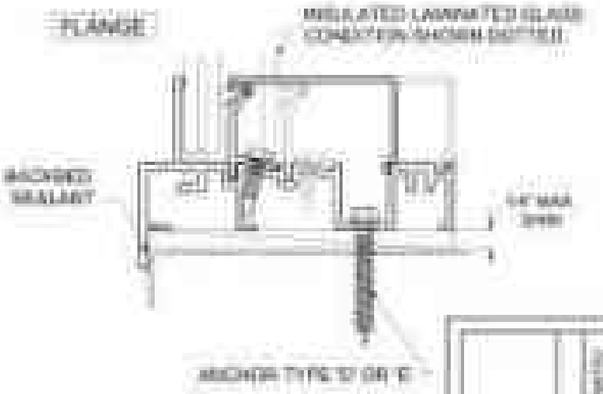
CONCRETE f'c = 3000 PSI MIN
CONCRETE BLOCKS f'm = 2000 PSI MIN

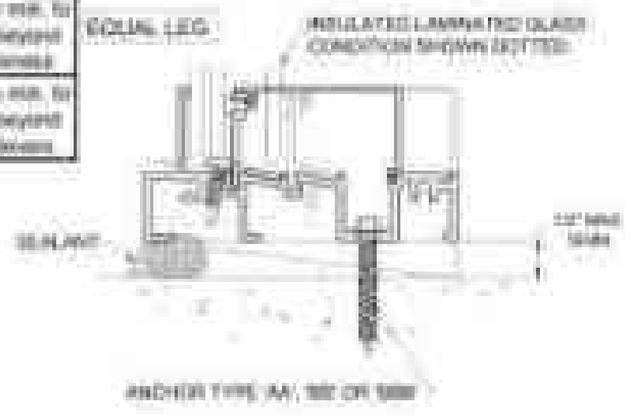
TYPICAL INSTALLATION DETAILS, ALSO SEE PREVIOUS SHEET:
THESE DETAILS ARE TYPICAL ON ALL FOUR SIDES OF WINDOW

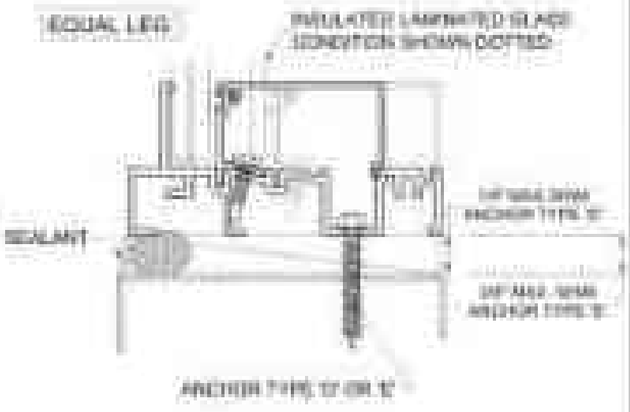
INSTALLATION DETAILS
DIRECTLY INTO CONCRETE



INSTALLATION DETAILS INTO METAL
STRUCTURES OR INTO APPROVED MULLIONS





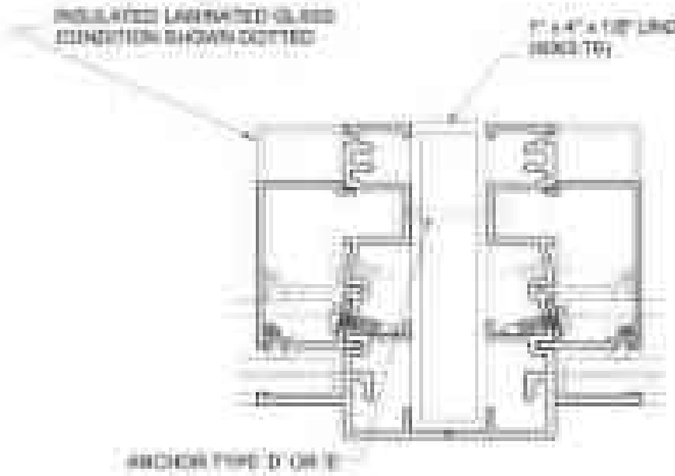


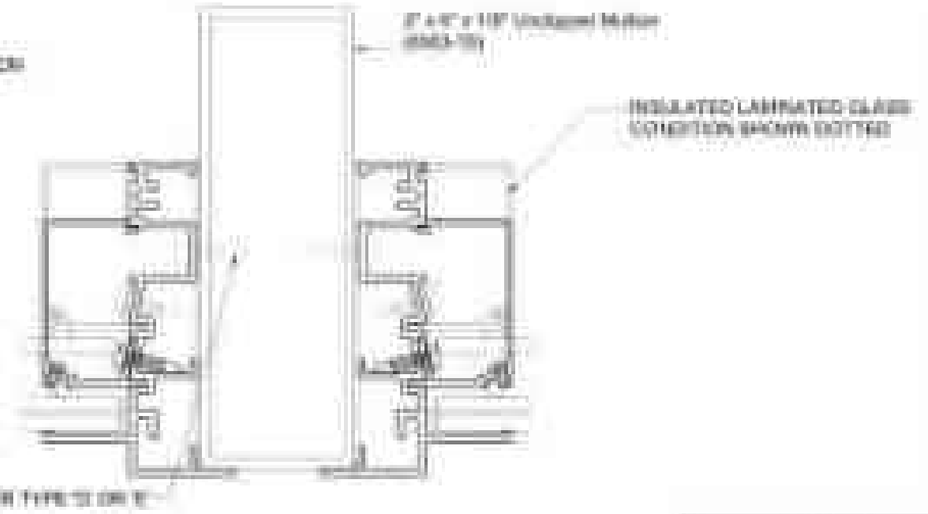
(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)
INTO FLORIDA PRODUCT APPROVED MULLIONS (MIN. THK. = 125")

WINDOOR
ANCHOR INSTALLATION 2
SERIES 1132 ALUM. FIXED DRAWN FILM
DRAWN: A. MOELLER
DATE: 01-30-19
SCALE: NONE
REVISIONS
A 10223

ANTHONY LYNN MILLER
LICENSE
No. 38726
STATE OF FLORIDA
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
P.E. # 38726

WINDOW SIZE		1" X 4" X .125" ALUM. TUBE	2" X 6" X .125" ALUM. TUBE
WIDTH	HEIGHT	PSF (+) & PSF (-)	PSF (+) & PSF (-)
36"	72"	113.5	113.5
	84"	109.8	109.8
	96"	106.4	106.4
	108"	103.4	103.4
	120"	100.6	100.6
	132"	98.0	98.0
	144"	95.6	95.6
54"	72"	107.8	113.5
	84"	104.2	109.8
	96"	101.0	106.4
	108"	98.1	103.4
	120"	95.5	100.6
	132"	93.0	98.0
	144"	90.8	95.6
72"	72"	102.4	113.5
	84"	99.0	109.8
	96"	95.9	106.4
	108"	93.2	103.4
	120"	90.7	100.6
	132"	88.3	98.0
	144"	86.2	95.6
90"	72"	-	113.5
	84"	-	109.8
	96"	-	106.4
	108"	-	103.4
	120"	-	100.6
	132"	-	98.0
	144"	-	95.6
108"	72"	-	113.5
	84"	-	109.8
	96"	-	106.4
	108"	-	103.4
	120"	-	100.6
	132"	-	98.0
	144"	-	95.6
114"	72"	-	113.5
	84"	-	109.8
	96"	-	106.4
	108"	-	103.4
	120"	-	100.6
	132"	-	98.0
	144"	-	95.6
120"	72"	-	113.5
	84"	-	109.8
	96"	-	106.4
	108"	-	103.4
	120"	-	100.6
	132"	-	98.0
	144"	-	95.6





WIDTH = W1 + W2 / 2

PROJECT NO.	2223
DRAWING NO.	
DRAWN BY	A. MOELLER
DESIGNED BY	A. LYNN MILLER
4" X 12" ALUM. FRAME WINDOW SILL MULLION LOAD CAPACITY	
WINDOW SIZE	
4" X 12" ALUM. FRAME WINDOW SILL MULLION LOAD CAPACITY	
SHEET NO.	1 OF 3
DATE	12/19/23

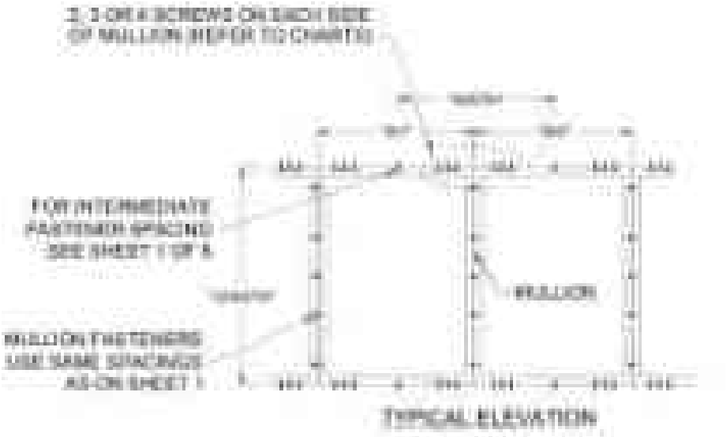
WINDOOR
WINDOW & DOOR MANUFACTURERS ASSOCIATION
1650 DES PLAINES AVENUE, SUITE 303
DES PLAINES, IL 60018
PHONE: 847.299.5200
FAX: 847.299.1183
WWW.WINDOOR.COM

ANTHONY LYNN MILLER
LICENSE
No. 38728
STATE OF ILLINOIS
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
EXPIRES

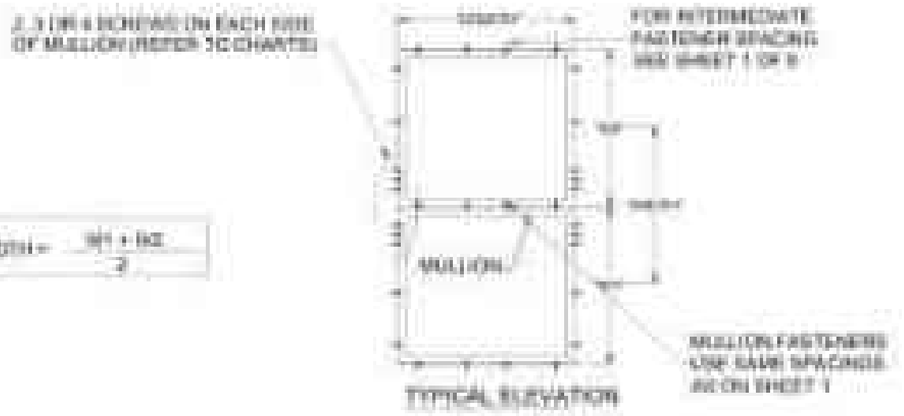
DESIGN LOAD CAPACITY — PSF (ANCHORS AT EACH SIDE OF MULLION)

		ANCHOR TYPE A			ANCHOR TYPE A-1			ANCHOR TYPES A & A-1			ANCHOR TYPES A & A-1		
MULLION SPAN		1-0" MIN.			1-0" MIN.			1-0" MIN.			1-0" MIN.		
WIDTH	LOADED	1 - NSR	1 - NSR	4 - NSR	1 - NSR	1 - NSR	4 - NSR	1 - NSR	1 - NSR	4 - NSR	1 - NSR	1 - NSR	4 - NSR
36"	72"	114.4	178.0	178.0	178.0	178.0	178.0	137.7	178.0	178.0	86.0	133.9	178.0
37"		99.8	155.7	178.0	178.0	178.0	178.0	96.6	150.1	178.0	75.6	117.6	178.0
38"		87.7	137.0	178.0	132.3	178.0	178.0	84.7	132.3	178.0	66.7	104.2	133.3
39"		77.9	121.8	178.0	117.5	178.0	178.0	75.2	117.5	178.0	59.8	93.5	117.5
40"		69.5	108.8	178.0	104.9	178.0	178.0	67.8	105.9	177.2	53.9	84.4	105.8
41"		62.3	97.5	178.0	94.1	178.0	178.0	61.0	95.3	159.4	49.0	76.7	96.0
42"		56.2	87.9	134.4	85.0	132.3	178.0	55.3	86.5	144.7	44.7	69.9	87.5
43"	84"	50.8	79.5	121.6	77.0	120.3	161.1	50.2	78.4	131.0	40.9	63.9	79.9
44"		46.0	72.1	110.3	70.0	109.3	146.3	45.7	71.4	119.4	37.6	58.8	73.6
45"		41.8	65.6	100.4	63.8	99.5	133.2	41.6	65.1	108.8	34.7	54.3	67.9
46"		38.1	59.8	91.6	58.2	90.8	121.5	38.0	59.4	99.3	32.1	50.2	62.8
47"		34.8	54.7	83.8	53.3	83.1	111.2	34.8	54.4	90.9	29.8	46.6	58.2
48"		31.8	50.1	76.8	48.9	76.2	102.0	31.9	49.9	83.4	27.8	43.5	54.3
49"		29.2	46.0	70.6	45.0	70.1	93.8	29.3	45.9	76.7	26.0	40.6	50.7
50"		26.8	42.3	65.0	41.4	64.5	86.3	27.0	42.2	70.5	24.4	38.1	47.6
51"		24.7	39.0	59.9	38.2	59.4	79.5	24.8	38.9	65.0	22.9	35.8	44.7
52"		22.8	36.0	55.3	35.2	54.8	73.4	22.9	35.9	60.0	21.5	33.6	42.0
53"		21.0	33.3	51.2	32.5	50.8	67.9	21.2	33.2	55.5	20.2	31.6	39.5
54"		19.4	30.8	47.4	30.1	47.1	63.0	19.6	30.8	51.5	19.0	29.8	37.2
55"		17.9	28.5	43.9	27.9	43.6	58.4	18.2	28.5	47.7	17.9	28.1	35.1
56"		16.5	26.4	40.7	25.8	40.4	54.1	16.8	26.4	44.2	16.9	26.5	33.2
57"		15.2	24.4	37.8	23.9	37.5	50.2	15.6	24.5	41.0	15.9	25.0	31.4
58"		14.1	22.6	35.1	22.2	34.8	46.6	14.5	22.7	38.1	15.0	23.6	29.8
59"		13.0	20.9	32.6	20.6	32.3	43.3	13.4	21.1	35.4	14.2	22.3	28.2
60"		12.0	19.4	30.3	19.1	30.0	40.2	12.4	19.5	32.9	13.4	21.1	26.8
61"		11.1	18.0	28.1	17.8	27.9	37.4	11.5	18.1	30.6	12.7	20.0	25.4
62"		10.3	16.7	26.1	16.5	25.9	34.7	10.7	16.8	28.4	12.0	18.9	24.1
63"		9.5	15.5	24.2	15.3	24.1	32.3	9.9	15.6	26.4	11.4	17.9	22.9
64"		8.8	14.4	22.5	14.2	22.4	30.0	9.2	14.5	24.6	10.8	17.0	21.8
65"		8.2	13.4	20.9	13.2	20.8	27.9	8.5	13.5	22.8	10.2	16.1	20.8
66"		7.6	12.4	19.4	12.3	19.3	25.9	7.9	12.5	21.2	9.7	15.3	19.8
67"		7.0	11.5	18.0	11.4	17.9	24.1	7.3	11.6	19.7	9.2	14.5	18.9
68"		6.5	10.7	16.7	10.6	16.6	22.4	6.8	10.8	18.3	8.7	13.8	18.0
69"		6.0	9.9	15.5	9.8	15.4	20.8	6.3	10.0	17.0	8.3	13.1	17.2
70"		5.5	9.2	14.4	9.1	14.3	19.3	5.8	9.3	15.8	7.9	12.5	16.4
71"		5.1	8.5	13.4	8.4	13.3	18.0	5.4	8.6	14.7	7.5	11.9	15.7
72"		4.7	7.9	12.5	7.8	12.4	16.7	5.0	8.0	13.7	7.1	11.3	15.0
73"		4.4	7.3	11.6	7.2	11.5	15.5	4.6	7.4	12.7	6.8	10.8	14.4
74"		4.0	6.8	10.8	6.7	10.7	14.4	4.3	6.9	11.8	6.5	10.3	13.8
75"		3.7	6.3	10.0	6.2	9.9	13.4	4.0	6.4	11.0	6.2	9.8	13.3
76"		3.4	5.8	9.3	5.8	9.2	12.4	3.7	5.9	10.2	5.9	9.4	12.8
77"		3.1	5.4	8.6	5.4	8.5	11.5	3.4	5.5	9.5	5.7	9.0	12.3
78"		2.8	5.0	8.0	5.0	7.9	10.7	3.2	5.1	8.8	5.4	8.7	11.8
79"		2.6	4.6	7.4	4.6	7.3	9.9	2.9	4.7	8.2	5.2	8.3	11.4
80"		2.3	4.3	6.8	4.3	6.8	9.2	2.7	4.4	7.6	5.0	8.0	11.0
81"		2.1	3.9	6.3	3.9	6.3	8.5	2.5	4.0	7.1	4.8	7.7	10.6
82"		1.9	3.6	5.8	3.6	5.8	7.9	2.3	3.7	6.6	4.6	7.4	10.2
83"		1.7	3.3	5.3	3.3	5.3	7.3	2.1	3.4	6.1	4.4	7.1	9.9
84"		1.5	3.0	4.9	3.0	4.9	6.8	1.9	3.1	5.7	4.3	6.9	9.6
85"		1.3	2.8	4.5	2.8	4.5	6.3	1.7	2.9	5.3	4.2	6.7	9.3
86"		1.2	2.6	4.2	2.6	4.2	5.8	1.6	2.7	4.9	4.1	6.5	9.1
87"		1.1	2.4	3.9	2.4	3.9	5.4	1.4	2.5	4.6	4.0	6.4	8.9
88"		1.0	2.2	3.6	2.2	3.6	5.0	1.3	2.3	4.3	3.9	6.3	8.8
89"		0.9	2.0	3.3	2.0	3.3	4.7	1.2	2.1	4.0	3.8	6.2	8.7
90"		0.8	1.9	3.1	1.9	3.1	4.4	1.1	2.0	3.8	3.8	6.1	8.6

INTERPOLATION FROM THESE CHARTS IS ALLOWED



TYPICAL ELEVATION



TYPICAL ELEVATION

$$\text{WIDTH} = \frac{W1 + W2}{2}$$

WINDOOR

ANTHONY LYNN MILLER
LICENSE
No. 38726
STATE OF FLORIDA
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
P.E. # 38726

DRAWN BY	J.A. MOELLER
CHECKED	
SCALE	3/4" = 1'-0"
DATE	03/18/23
MULLION LOAD CAPACITY 2	
SHEET 2 OF 5	
JOB NO.	23-0223

DESIGN LOAD CAPACITY – PSF (ANSI/DASMA 108 FOR 10 MINUTES)

NOMINAL SIZES		ALUMINUM TUBES 6-063-T6			ALUMINUM TUBES 6063-T6			ALUMINUM TUBES 6063-T6			ALUMINUM TUBES 6063-T6 (Min. Yld. Str. 30ksi)			ALUMINUM TUBES 6063-T6 (Min. Yld. Str. 35ksi)			ALUMINUM TUBES			ALUMINUM TUBES (1/4" WALL)			ALUMINUM TUBES		
		1/4" WALL			1/4" WALL			1/4" WALL			1/4" WALL			1/4" WALL			1/2" WALL			1/2" WALL			1/2" WALL		
WIDTH	HEIGHT	1 SPAN	2 SPAN	3+ SPAN	1 SPAN	2 SPAN	3+ SPAN	1 SPAN	2 SPAN	3+ SPAN	1 SPAN	2 SPAN	3+ SPAN	1 SPAN	2 SPAN	3+ SPAN	1 SPAN	2 SPAN	3+ SPAN	1 SPAN	2 SPAN	3+ SPAN	1 SPAN	2 SPAN	3+ SPAN
48"	36"	100.8	129.6	129.6	115.2	129.6	129.6	115.2	129.6	129.6	96.0	115.2	129.6	96.0	115.2	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6
	48"	90.0	129.6	129.6	115.2	129.6	129.6	115.2	129.6	129.6	76.8	115.2	129.6	96.0	115.2	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6
	60"	76.8	129.6	129.6	115.2	129.6	129.6	96.0	129.6	129.6	64.0	96.0	129.6	76.8	96.0	115.2	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6
	72"	64.0	97.6	115.2	96.0	115.2	129.6	76.8	115.2	129.6	54.4	76.8	96.0	64.0	96.0	115.2	115.2	129.6	129.6	115.2	129.6	129.6	115.2	129.6	129.6
	84"	55.2	83.2	104.0	83.2	104.0	115.2	64.0	96.0	115.2	46.4	64.0	83.2	55.2	83.2	96.0	96.0	115.2	115.2	96.0	115.2	115.2	96.0	115.2	115.2
	96"	48.8	73.6	92.8	73.6	92.8	104.0	55.2	83.2	104.0	41.6	55.2	73.6	48.8	73.6	83.2	83.2	104.0	104.0	83.2	104.0	104.0	83.2	104.0	104.0
	108"	43.2	65.6	83.2	65.6	83.2	92.8	48.8	73.6	92.8	36.8	48.8	65.6	43.2	65.6	73.6	73.6	92.8	92.8	73.6	92.8	92.8	73.6	92.8	92.8
	120"	38.4	58.4	74.4	58.4	74.4	83.2	43.2	65.6	83.2	32.8	43.2	58.4	38.4	58.4	65.6	65.6	83.2	83.2	65.6	83.2	83.2	65.6	83.2	83.2
60"	36"	80.6	103.7	103.7	92.2	103.7	103.7	92.2	103.7	103.7	76.8	92.2	103.7	76.8	92.2	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7
	48"	72.0	103.7	103.7	92.2	103.7	103.7	92.2	103.7	103.7	61.4	92.2	103.7	76.8	92.2	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7
	60"	61.4	103.7	103.7	92.2	103.7	103.7	76.8	103.7	103.7	51.2	76.8	103.7	61.4	76.8	92.2	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7
	72"	51.2	78.4	92.2	76.8	92.2	103.7	61.4	92.2	103.7	43.5	61.4	78.4	51.2	78.4	92.2	92.2	103.7	103.7	92.2	103.7	103.7	92.2	103.7	103.7
	84"	44.2	66.6	83.2	66.6	83.2	92.2	51.2	76.8	92.2	37.1	44.2	66.6	44.2	66.6	76.8	76.8	92.2	92.2	76.8	92.2	92.2	76.8	92.2	92.2
	96"	39.0	58.9	74.2	58.9	74.2	83.2	44.2	66.6	83.2	33.3	39.0	58.9	39.0	58.9	66.6	66.6	83.2	83.2	66.6	83.2	83.2	66.6	83.2	83.2
	108"	34.6	52.5	66.6	52.5	66.6	74.2	39.0	58.9	74.2	29.5	34.6	52.5	34.6	52.5	58.9	58.9	74.2	74.2	58.9	74.2	74.2	58.9	74.2	74.2
	120"	30.7	46.7	59.5	46.7	59.5	66.6	34.6	52.5	66.6	26.2	30.7	46.7	30.7	46.7	52.5	52.5	66.6	66.6	52.5	66.6	66.6	52.5	66.6	66.6
72"	36"	67.2	86.4	86.4	76.8	86.4	86.4	76.8	86.4	86.4	64.0	76.8	86.4	64.0	76.8	86.4	86.4	86.4	86.4	86.4	86.4	86.4	86.4	86.4	86.4
	48"	60.0	86.4	86.4	76.8	86.4	86.4	76.8	86.4	86.4	51.2	76.8	86.4	64.0	76.8	86.4	86.4	86.4	86.4	86.4	86.4	86.4	86.4	86.4	86.4
	60"	51.2	86.4	86.4	76.8	86.4	86.4	64.0	86.4	86.4	42.7	64.0	86.4	51.2	64.0	76.8	86.4	86.4	86.4	86.4	86.4	86.4	86.4	86.4	86.4
	72"	42.7	65.3	76.8	64.0	76.8	86.4	51.2	76.8	86.4	36.3	42.7	65.3	42.7	65.3	76.8	76.8	86.4	86.4	76.8	86.4	86.4	76.8	86.4	86.4
	84"	36.8	55.5	69.3	55.5	69.3	77.0	42.7	64.0	77.0	30.9	36.8	55.5	36.8	55.5	64.0	64.0	77.0	77.0	64.0	77.0	77.0	64.0	77.0	77.0
	96"	32.5	49.1	61.8	49.1	61.8	69.3	36.8	55.5	69.3	27.7	32.5	49.1	32.5	49.1	55.5	55.5	69.3	69.3	55.5	69.3	69.3	55.5	69.3	69.3
	108"	28.8	43.7	55.5	43.7	55.5	61.8	32.5	49.1	61.8	24.6	28.8	43.7	28.8	43.7	49.1	49.1	61.8	61.8	49.1	61.8	61.8	49.1	61.8	61.8
	120"	25.6	38.9	49.6	38.9	49.6	55.5	28.8	43.7	55.5	21.8	25.6	38.9	25.6	38.9	43.7	43.7	55.5	55.5	43.7	55.5	55.5	43.7	55.5	55.5
84"	36"	57.6	74.1	74.1	65.8	74.1	74.1	65.8	74.1	74.1	54.9	65.8	74.1	54.9	65.8	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1
	48"	51.4	74.1	74.1	65.8	74.1	74.1	65.8	74.1	74.1	43.9	65.8	74.1	54.9	65.8	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1
	60"	43.9	74.1	74.1	65.8	74.1	74.1	54.9	74.1	74.1	36.6	54.9	74.1	43.9	54.9	65.8	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1
	72"	36.6	56.0	65.8	54.9	65.8	74.1	43.9	65.8	74.1	31.1	36.6	56.0	36.6	56.0	65.8	65.8	74.1	74.1	65.8	74.1	74.1	65.8	74.1	74.1
	84"	31.6	47.6	59.4	47.6	59.4	66.3	36.6	55.0	66.3	26.5	31.6	47.6	31.6	47.6	55.0	55.0	66.3	66.3	55.0	66.3	66.3	55.0	66.3	66.3
	96"	27.9	42.1	53.0	42.1	53.0	59.4	31.6	47.6	59.4	23.8	27.9	42.1	27.9	42.1	47.6	47.6	59.4	59.4	47.6	59.4	59.4	47.6	59.4	59.4
	108"	24.7	37.5	47.6	37.5	47.6	53.0	27.9	42.1	53.0	21.1	24.7	37.5	24.7	37.5	42.1	42.1	53.0	53.0	42.1	53.0	53.0	42.1	53.0	53.0
	120"	22.2	33.7	42.7	33.7	42.7	47.6	24.7	37.5	47.6	18.9	22.2	33.7	22.2	33.7	37.5	37.5	47.6	47.6	37.5	47.6	47.6	37.5	47.6	47.6
96"	36"	50.4	64.8	64.8	57.6	64.8	64.8	57.6	64.8	64.8	48.0	57.6	64.8	48.0	57.6	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8
	48"	45.0	64.8	64.8	57.6	64.8	64.8	57.6	64.8	64.8	38.4	57.6	64.8	48.0	57.6	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8
	60"	38.4	64.8	64.8	57.6	64.8	64.8	48.0	64.8	64.8	32.0	48.0	64.8	38.4	48.0	57.6	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8
	72"	32.0	49.0	57.6	48.0	57.6	64.8	38.4	57.6	64.8	27.2	32.0	49.0	32.0	49.0	57.6	57.6	64.8	64.8	57.6	64.8	64.8	57.6	64.8	64.8
	84"	27.6	41.7	52.0	41.7	52.0	58.0	32.0	48.1	58.0	23.2	27.6	41.7	27.6	41.7	48.1	48.1	58.0	58.0	48.1	58.0	58.0	48.1	58.0	58.0
	96"	24.4	36.8	46.4	36.8	46.4	52.0	27.6	41.7	52.0	20.8	24.4	36.8	24.4	36.8	41.7	41.7	52.0	52.0	41.7	52.0	52.0	41.7	52.0	52.0
	108"	21.6	32.8	41.6	32.8	41.6	46.4	24.4	36.8	46.4	18.5	21.6	32.8	21.6	32.8	36.8	36.8	46.4	46.4	36.8	46.4	46.4	36.8	46.4	46.4
	120"	19.4	29.5	37.4	29.5	37.4	41.6	21.6	32.8	41.6	16.6	19.4	29.5	19.4	29.5	32.8	32.8	41.6	41.6	32.8	41.6	41.6	32.8	41.6	41.6
108"	36"	44.8	57.6	57.6	51.2	57.6	57.6	51.2	57.6	57.6	42.7	51.2	57.6	42.7	51.2	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6
	48"	40.0	57.6	57.6	51.2	57.6	57.6	51.2	57.6	57.6	34.1	51.2	57.6	42.7	51.2	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6
	60"	34.1	57.6	57.6	51.2	57.6	57.6	42.7	57.6	57.6	28.4	42.7	57.6	34.1	42.7	51.2	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6
	72"	28.4	43.6	51.2	42.7	51.2	57.6	34.1	51.2	57.6	24.3	28.4	43.6	28.4	43.6	51.2	51.2	57.6	57.6	51.2	57.6	57.6	51.2	57.6	57.6
	84"	24.5	37.1	46.2	37.1	46.2	51.6	28.4	42.8	51.6	20.6	24.5	37.1	24.5	37.1	42.8	42.8	51.6	51.6	42.8	51.6	51.6	42.8	51.6	51.6
	96"	21.7	32.7	41.3	32.7	41.3	46.2	24.5	37.1	46.2	18.5	21.7	32.7	21.7	32.7	37.1	37.1	46.2	46.2	37.1	46.2	46.2	37.1	46.2	46.2
	108"	19.2	29.2	36.9	29.2	36.9	41.3	21.7	32.7	41.3	16.5	19.2	29.2	19.2	29.2	32.7	32.7	41.3	41.3	32.7	41.3	41.3	32.7	41.3	41.3
	120"	17.3	26.3	33.2	26.3	33.2	37.2	19.2	29.2	37.2	14.8	17.3	26.3	17.3	26.3	29.2	29.2	37.2	37.2	29.2	37.2	37.2	29.2	37.2	37.2
120"	36"	40.3	51.8	51.8	46.1	51.8	51.8	46.1	51.8	51.8	38.4	46.1	51.8	38.4	46.1	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8
	48"	36.0	51.8	51.8	46.1	51.8	51.8	46.1	51.8	51.8	30.7	46.1	51.8	38.4	46.1	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8
	60"	30.7	51.8	51.8	46.1	51.8	51.8	38.4	51.8	51.8	25.6	38.4	51.8	30.7	38.4	46.1	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8
	72"	25.6	39.2	46.1	38.4	46.1	51.8	30.7	46.1	51.8	21.9	25.6	39.2	25.6	39.2	46.1	46.1	51.8	51.8	46.1	51.8	51.8	46.1	51.8	51.8
	84"	22.0	33.4	41.6	33.4	41.6	46.4	25.6	38.5	46.4	18.5	22.0	33.4	22.0	33.4	38.5	38.5	46.4	46.4	38.5	46.4	46.4	38.5	46.4	46.4
	96"	19.5	29.4	37.2	29.4	37.2	41.6	22.0	33.4	41.6	16.6	19.5	29.4	19.5	29.4	33.4	33.4	41.6	41.6	33.4	41.6	41.6	33.4	41.6	41.6
	108"	17.3	26.3	33.2	26.3	33.2	37.2	19.5	29.4	37.2	14.8	17.3	26.3	17.3	26.3	29.4	29.4	37.2	37.2	29.4	37.2	37.2	29.4	37.2	37.2
	120"	15.6	23.7	29.9	23.7	29.9	33.5	17.3	26.3	33.5	13.3	15.6	23.7	15.6	23.7	26.3	26.3	33.5	33.5	26.3	33.5	33.5	26.3	33.5	33.5

INTERPOLATION FROM THESE CHARTS IS ALLOWED

WIDTH = (W1 + W2) / 2

WINDOOR

ANTHONY LYNN MILLER LICENSE No. 38726 STATE OF FLORIDA PROFESSIONAL ENGINEER

A. LYNN MILLER, P.E. P.E. # 38726

PROJECT	2020
DESIGNED BY	A. MOELLER
DRAWN BY	
CHECKED BY	
DATE	2/14/20
SCALE	NONE
SHEET	4

ALUMINUM FIXED WINDOW SERIES

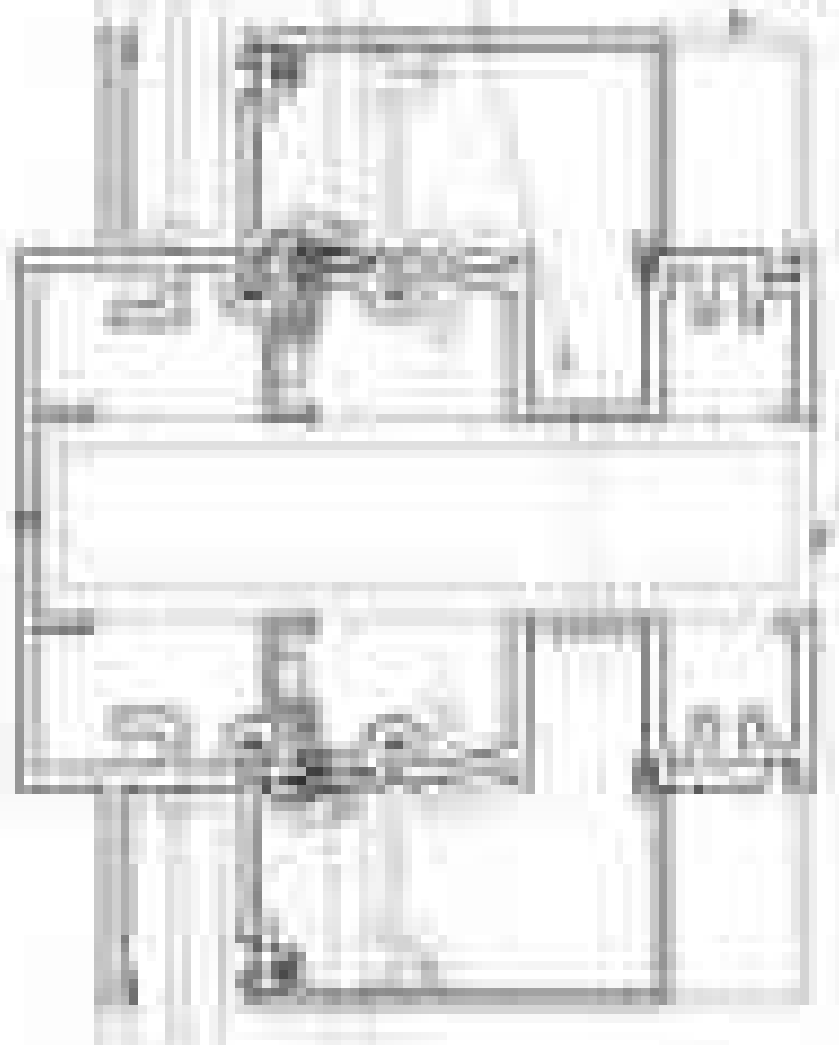
MULLION LOAD CAPACITY

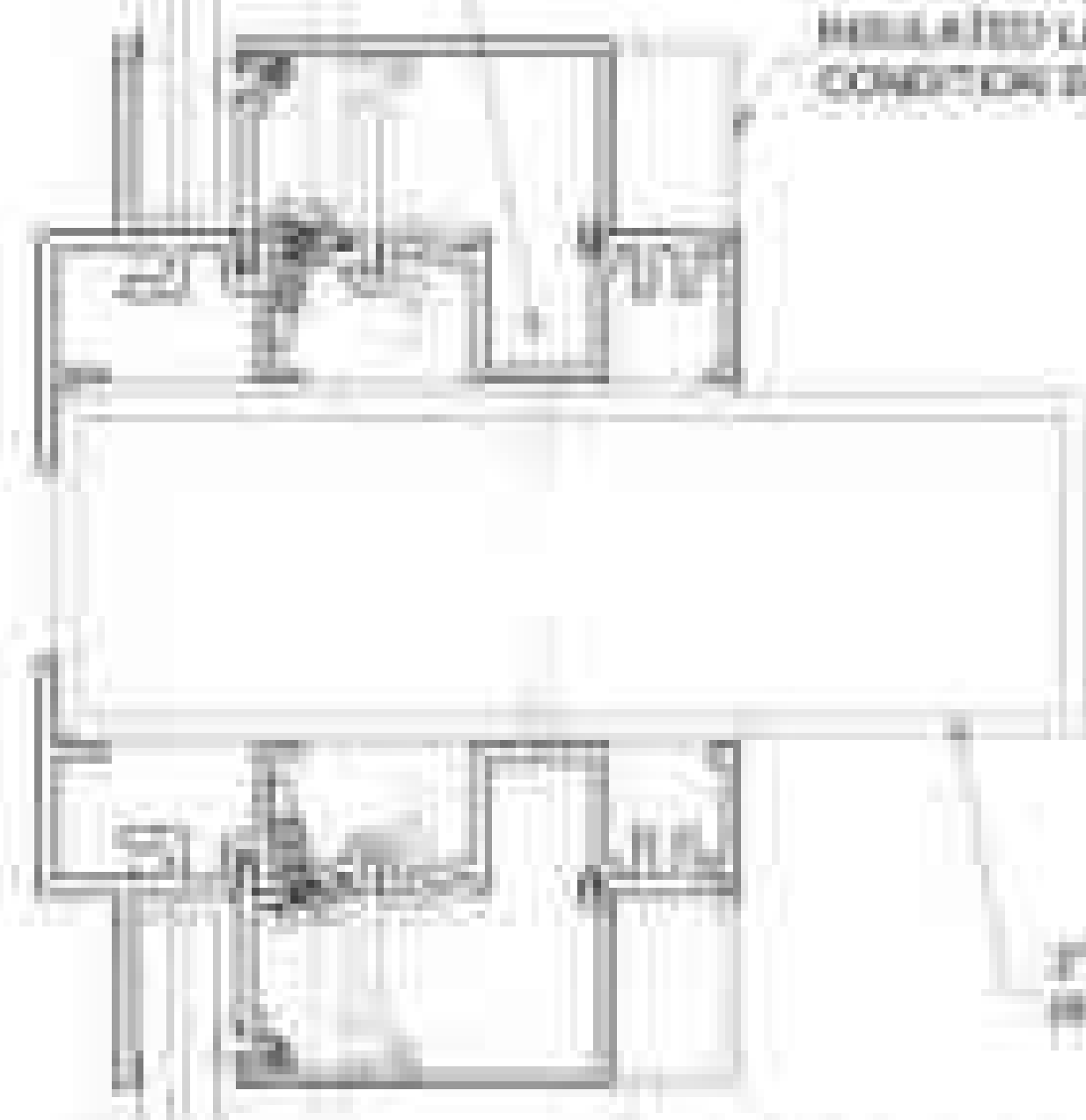
DESIGN LOAD CAPACITY - PSF (MULLION) 1" x 4" x 1/8" ALUM TUBE			
WINDOW SIZE		LAMINATED GLASS	INSUL. LAM GLASS
WIDTH	LENGTH	PSF (+) & NEG (-)	PSF (+) & NEG (-)
72"	72"	100.0	85.0
36"	84"	100.0	100.0
48"		90.3	37.0
60"		58.8	27.0

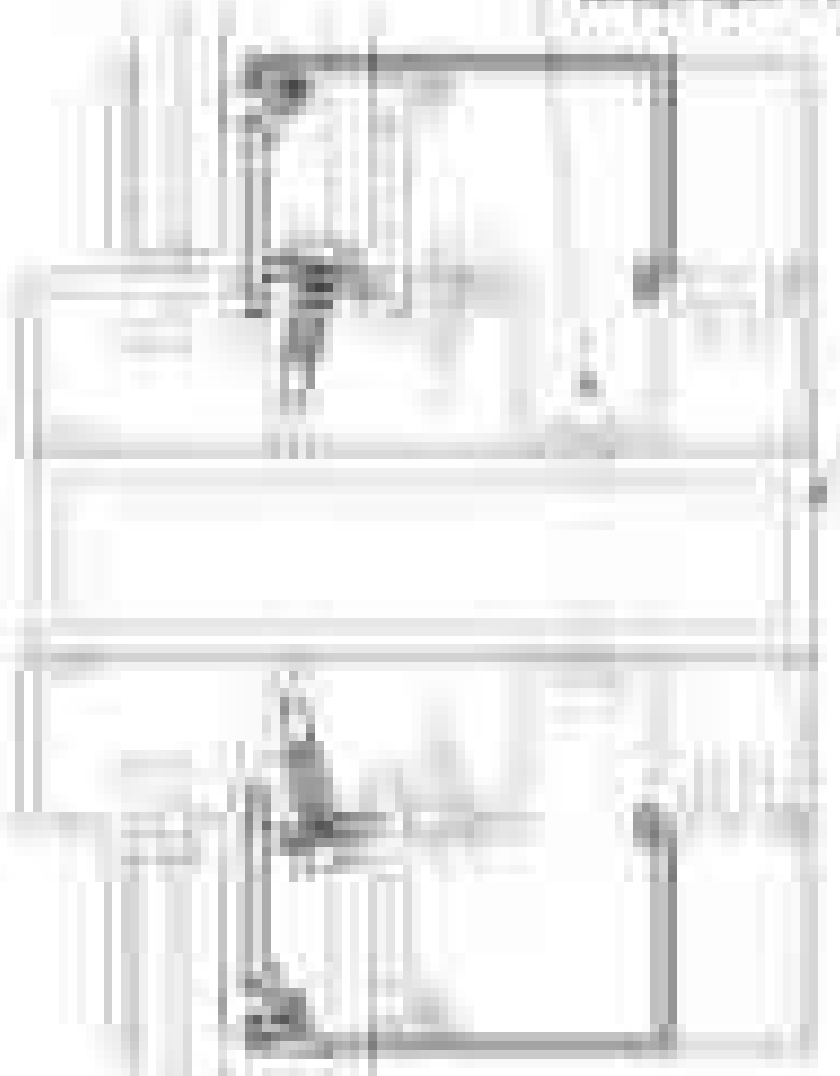
ANY SIZE OR DESIGN LOAD LESS THAN CHART IS ALLOWED.

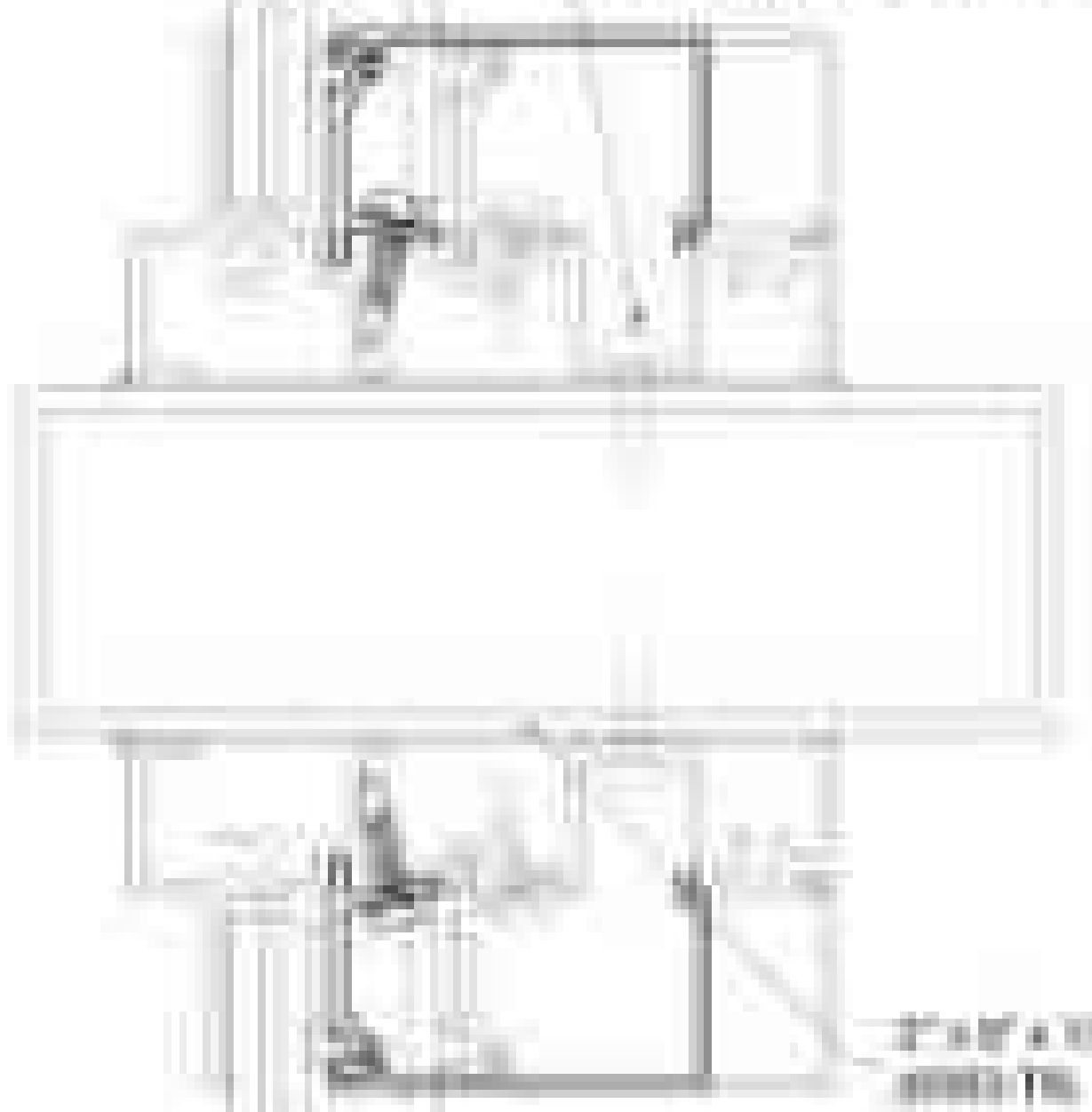
DESIGN LOAD CAPACITY - PSF (MULLION) 2" x 6" x 1/8" ALUM TUBE			
WINDOW SIZE		LAMINATED GLASS	INSUL. LAM GLASS
WIDTH	LENGTH	PSF (+) & NEG (-)	PSF (+) & NEG (-)
54"	72"	100.0	100.0
60"	96"	100.0	100.0
84"		75.0	75.0
60"	108"	75.0	72.0
72"		68.0	58.0
48"	120"	75.0	65.0
60"		93.0	51.0
72"		68.0	38.0

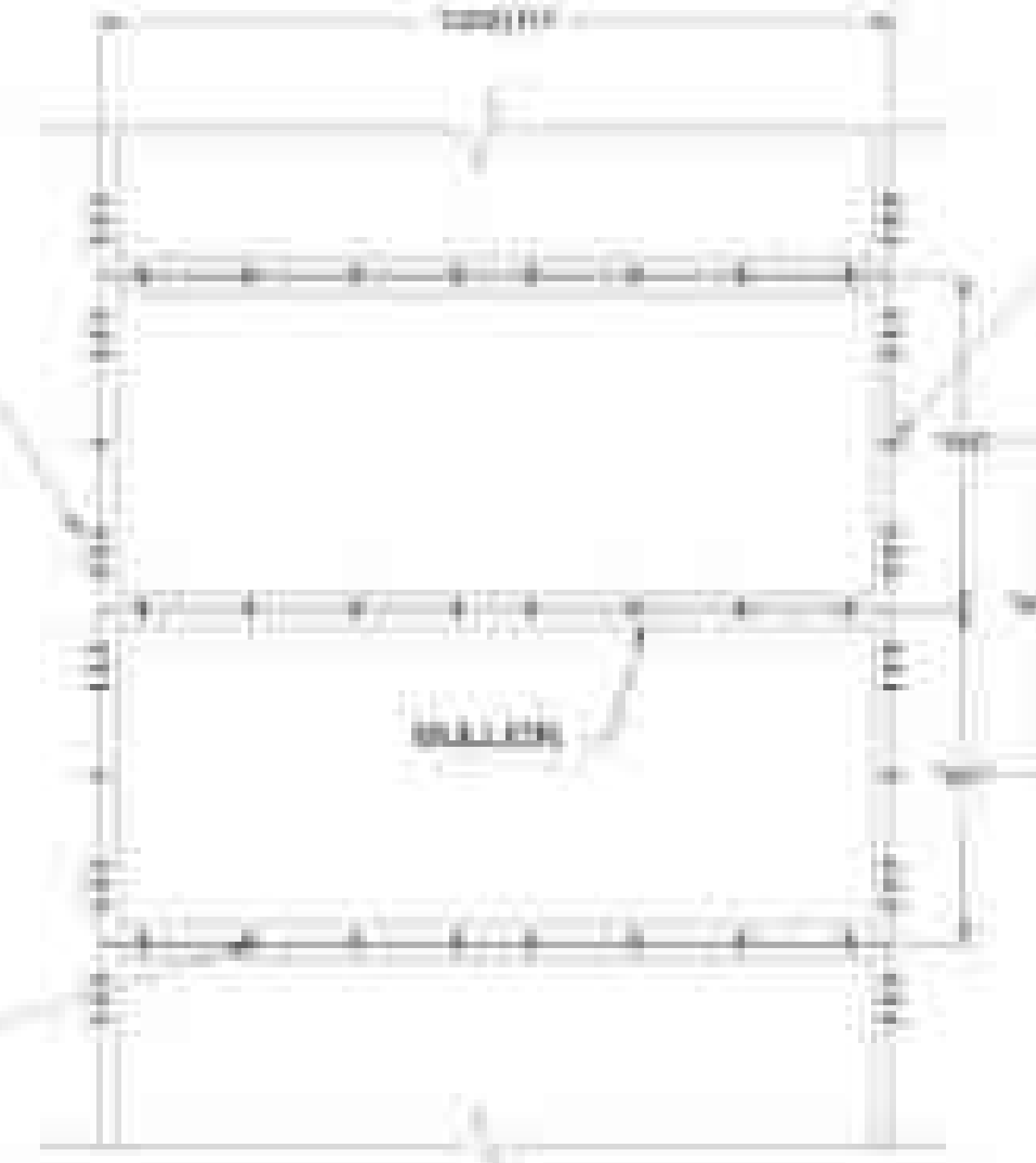
ANY SIZE OR DESIGN LOAD LESS THAN CHART IS ALLOWED.











TYPICAL ELEVATION

$WIDTH = \frac{W1 + W2}{2}$

W2 [illegible] W1

PREPARED BY A. LYNN MILLER
TECHNOLOGY DRIVE
N. VENICE, FL 34275

WINDOOR

SERIES "413" ALUM. FIXED WINDOW (LM)

MULLION LOAD CAPACITY 4

A. MORLEEN

1/24/23

10 OF 12

FW410

10/2/23

NO CHANGES ON THIS SHEET

A

ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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

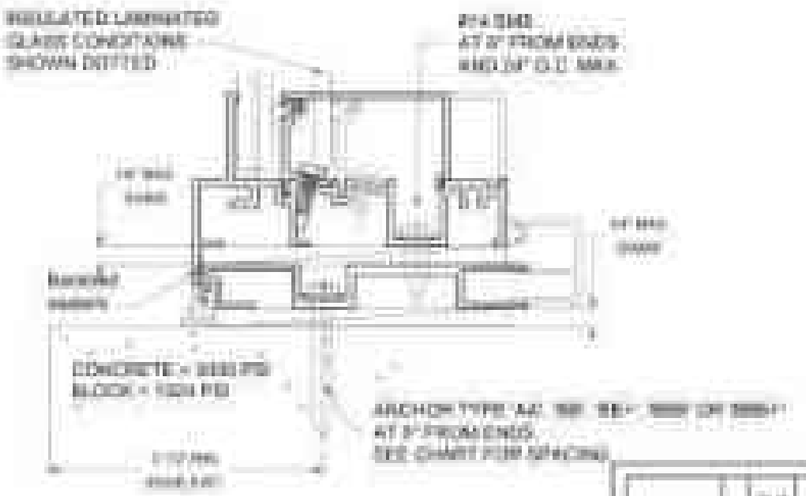
DESIGN LOAD CAPACITY - PSF

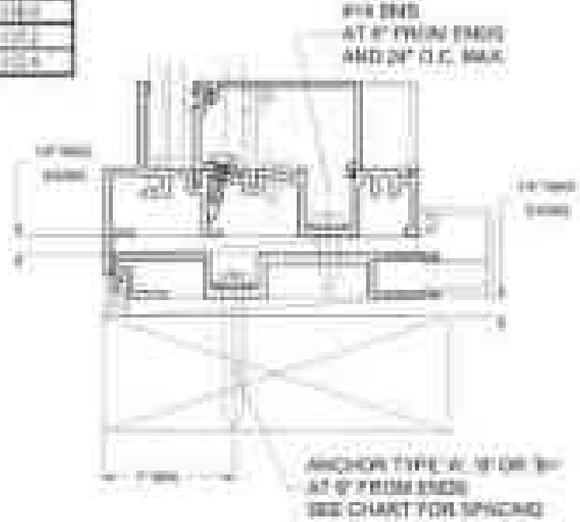
WINDOW SIZE		ANCHOR TYPES A, B & C: 4.5, 150 & 200#		ANCHOR TYPES 5000 & 3000#
DBL.	DBL.	4.5" 24" O.C.	4.5" 8" O.C.	4.5" 24" O.C.
36"	36"	178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
36"	54"	178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
36"	72"	178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
54"	54"	178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
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		178.6	178.6	178.6
54"	72"	178.6	178.6	178.6
		178.6	178.6	178.6
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72"	72"	178.6	178.6	178.6
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		178.6	178.6	178.6

DESIGN LOAD CAPACITY - PSF

WINDOW SIZE		ANCHOR TYPES A, B & C: 4.5, 150 & 200#		ANCHOR TYPES 5000 & 3000#
DBL.	DBL.	4.5" 24" O.C.	4.5" 8" O.C.	4.5" 24" O.C.
36"	36"	178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
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		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
36"	54"	178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
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		178.6	178.6	178.6
36"	72"	178.6	178.6	178.6
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		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
54"	54"	178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
		178.6	178.6	178.6
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		178.6	178.6	178.6
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54"	72"	178.6	178.6	178.6
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		178.6	178.6	178.6
72"	72"	178.6	178.6	178.6
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		178.6	178.6	178.6
		178.6	178.6	178.6

ALUMINUM BUCK FRAMING DETAILS





TYPICAL INSTALLATION DETAIL
ON ALL FOUR SIDES

WINDOOR
WINDOW & DOOR MANUFACTURERS ASSOCIATION
1650 DES PLAINES AVENUE, SUITE 303
DES PLAINES, ILLINOIS 60018
PHONE: (847) 299-5200
FAX: (847) 299-1183
WEB: www.windoor.com

ANTHONY LYNN MILLER
LICENSE
No. 36735
STATE OF ILLINOIS
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
PE# 36735

DRAWN	A. MOELLER
CHECKED	
SCALE	NONE
DWG. NO.	
SHEET	11 OF 12
REVISED	03/18/13

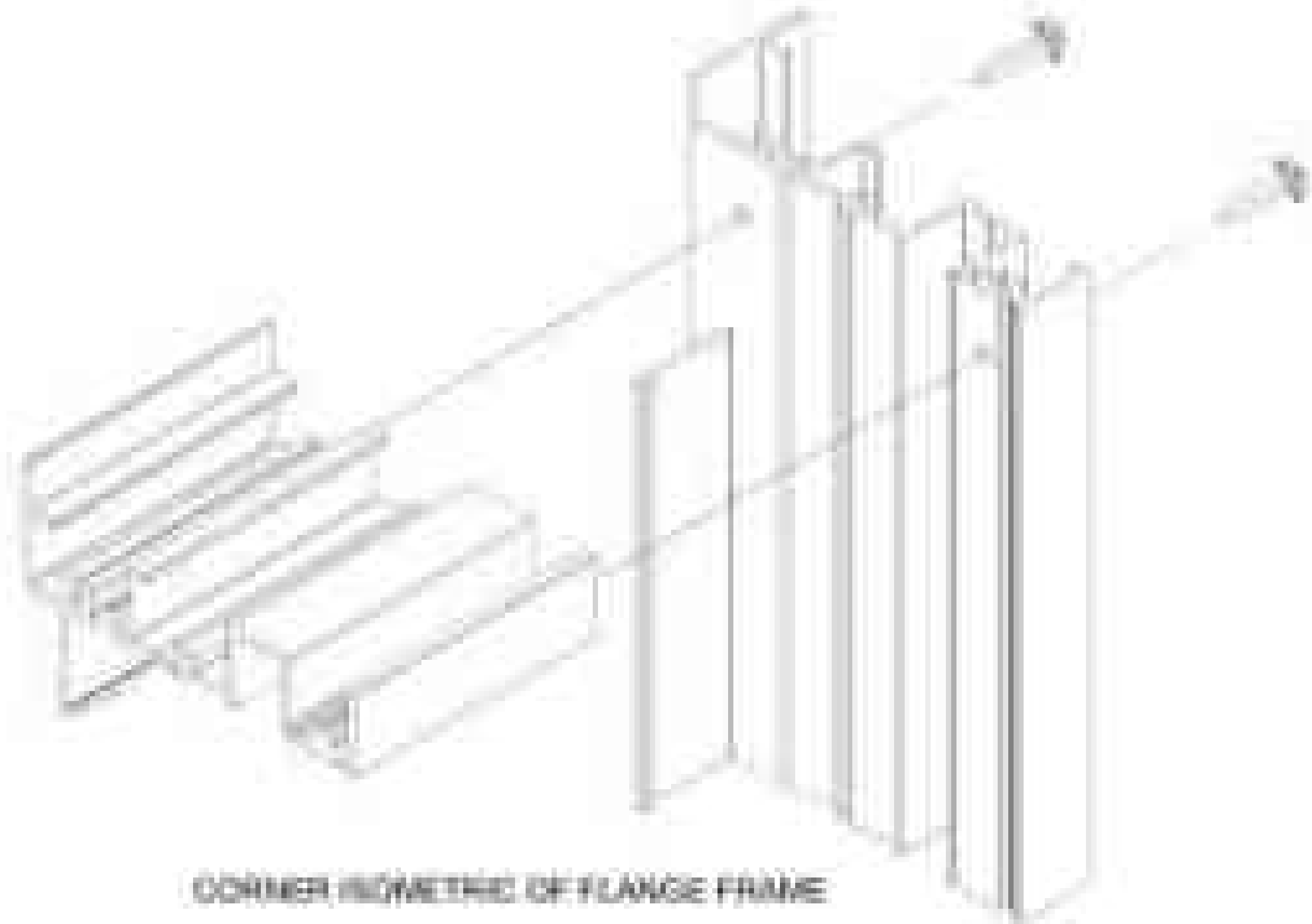
ALUMINUM BUCK FRAMING DETAILS
ANCHOR LOAD CAPACITY
SERIES "310" ALUM. HORIZONTAL SLIDING WINDOW

R-3223

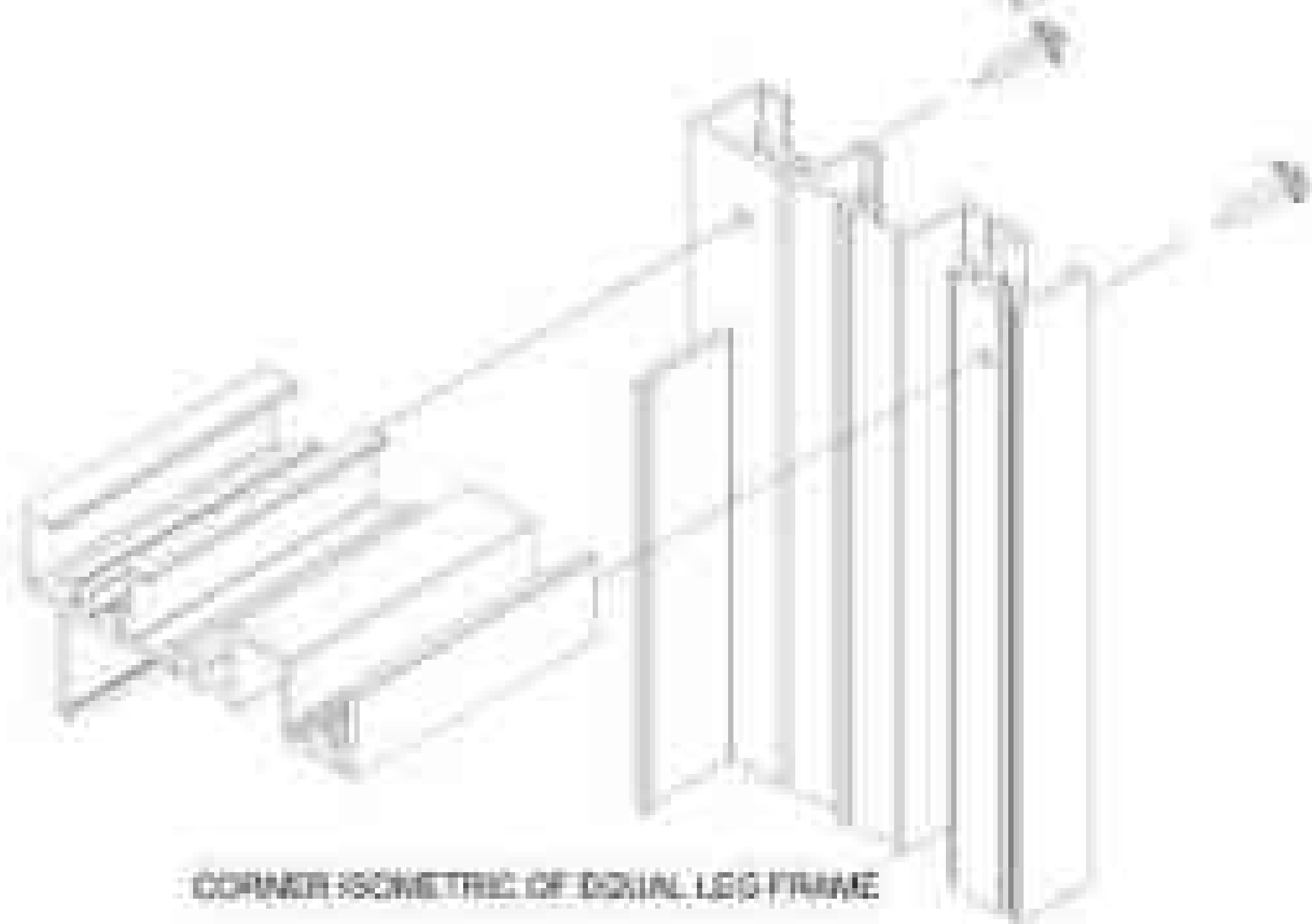
A

BILL OF MATERIALS

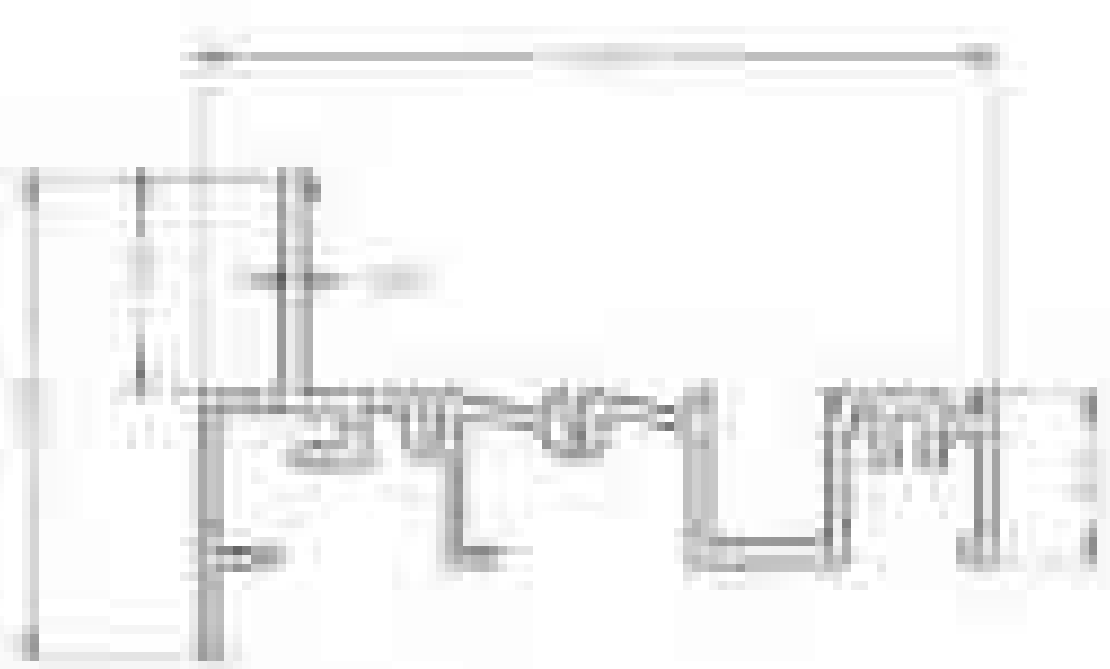
ITEM	PART NUMBER OR NAME	DESCRIPTION	MATERIAL
1	[illegible]	MAIN FRAME (FLANGE)	[illegible]
2	[illegible]	MAIN FRAME EQUAL LEG	[illegible]
3	[illegible]	GLASS STOP	[illegible]
4	[illegible]	STANDARD COVER	[illegible]
[illegible]	[illegible]	JAMB COVER	[illegible]
[illegible]	GLASS STOP SCREW	[illegible]	[illegible]
[illegible]	GASKET	[illegible]	[illegible]
[illegible]	[illegible]	GLASS STOP BEAD	[illegible]
[illegible]	FRAME SCREW	[illegible]	[illegible]
[illegible]		SETTING BLOCK	[illegible]
[illegible]		ALUMINUM BUCK	[illegible]
[illegible]		OPTIONAL COVER	[illegible]



CORNER ISOMETRIC OF FLANGE FRAME



CORNER ISOMETRIC OF EQUAL LEG FRAME



(1) FLANGE FRAME



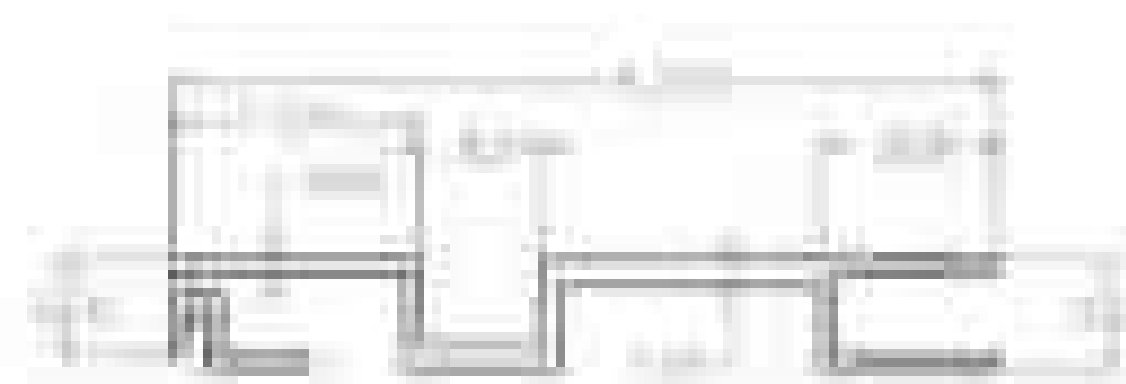
(2) EQUAL LEG FRAME



(3) GLASS STOP



(4) STANDARD COVER



ALUMINUM BUCK



OPTIONAL COVER



JAMB COVER

A

10/2/23

NO CHANGES ON THIS SHEET

WINDOOR

SERIES "61P" ALUM. FIXED WINDOW (LMI)

EXTRUSIONS / BOM

A. MORLESIN

13 OF 12

ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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