

SERIES 4110
IMPACT RESISTANT HORIZONTAL ROLLER

FLORIDA PRODUCT APPROVAL #1844

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

2) SHUTTERS ARE NOT REQUIRED WHEN USED IN WIND-BORNE DEBRIS REGIONS.

3) ALL WOOD BUCKS LESS THAN 1-1/2" THICK ARE TO BE CONSIDERED 1X INSTALLATIONS. 1X WOOD BUCKS ARE OPTIONAL IF UNIT IS INSTALLED DIRECTLY TO SUBSTRATE. WOOD BUCKS DEPICTED AS 2X ARE 1-1/2" THICK OR GREATER. 1X AND 2X BUCKS (WHEN USED) SHALL BE DESIGNED AND SECURED TO PROPERLY TRANSFER LOADS TO THE STRUCTURE. WOOD BUCK DESIGN AND INSTALLATION IS THE RESPONSIBILITY OF THE ENGINEER, (EOR) OR ARCHITECT OF RECORD, (AOR).

4) ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO. USE ANCHORS OF SUFFICIENT LENGTH TO ACHIEVE EMBEDMENT. OVERALL SEALING/FLASHING STRATEGY FOR WATER RESISTANCE OF INSTALLATION SHALL BE DONE BY OTHERS AND IS BEYOND THE SCOPE OF THESE INSTRUCTIONS.

5) MAX. 1/4" SHIMS ARE REQUIRED AT EACH ANCHOR LOCATION WHERE THE PRODUCT IS NOT FLUSH TO THE SUBSTRATE. USE SHIMS CAPABLE OF TRANSFERRING APPLIED LOADS. FOR INTEGRAL FIN FRAMES INSTALL SHIMS AT MAX. 18" O.C.

6) DESIGN PRESSURES:

- A. NEGATIVE DESIGN LOADS BASED ON STRUCTURAL/CYCLE TEST PRESSURE, FRAME ANALYSIS AND GLASS PER ASTM E1300.
B. POSITIVE DESIGN LOADS BASED ON WATER TEST PRESSURE, STRUCTURAL/ CYCLE TEST PRESSURE, FRAME ANALYSIS AND GLASS PER ASTM E1300.
C. DESIGN LOADS ARE BASED ON ALLOWABLE STRESS DESIGN, ASD.

7) THE ANCHORAGE METHODS SHOWN HAVE BEEN DESIGNED TO RESIST THE WINDLOADS CORRESPONDING TO THE REQUIRED DESIGN PRESSURE. THE 33-1/3% STRESS INCREASE HAS NOT BEEN USED IN THE DESIGN OF THIS PRODUCT. THE 1.6 LOAD DURATION FACTOR WAS USED FOR THE EVALUATION OF ANCHORS INTO WOOD. ANCHORS THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE FLORIDA BUILDING CODE FOR CORROSION RESISTANCE.

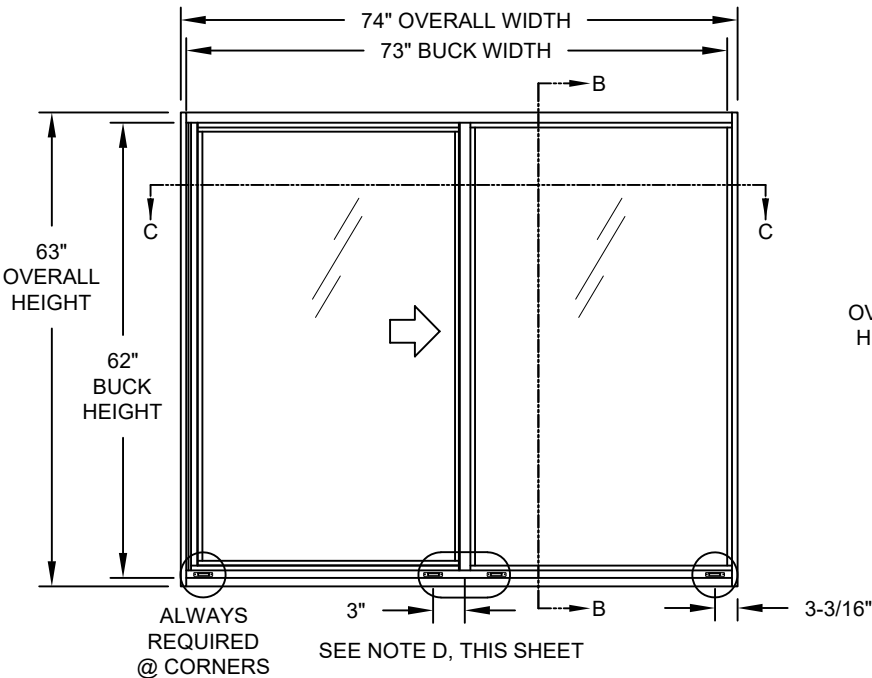
8) REFER TO CURRENT FLORIDA BUILDING CODE FOR EGRESS REQUIREMENTS.

USER INSTRUCTIONS:

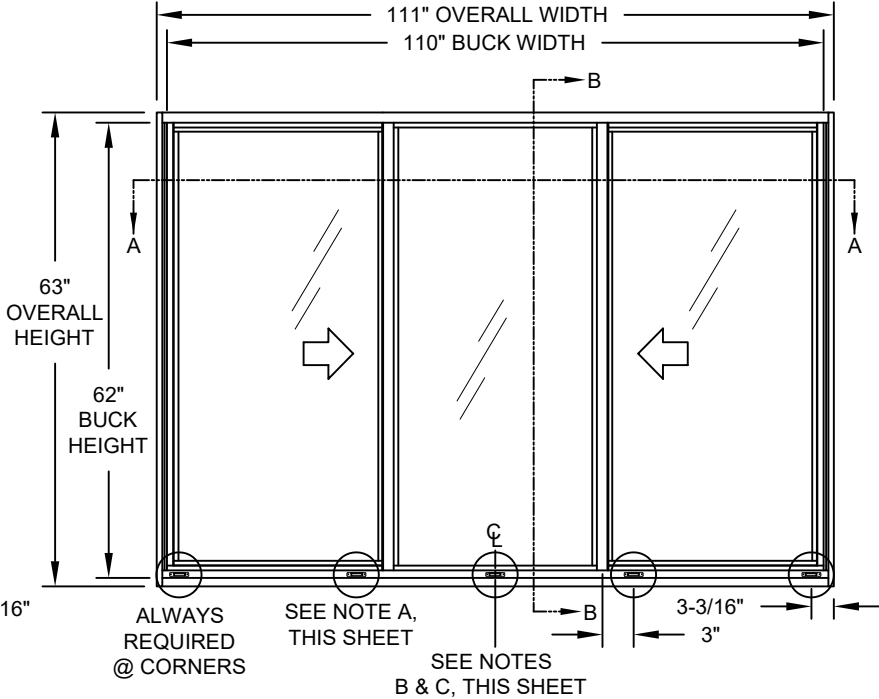
- 1) DETERMINE THE SITE SPECIFIC, WINDOW OPENING'S DESIGN PRESSURE REQUIREMENT USING WINDLOAD STANDARD ASCE 7.
2) KNOWING YOUR WINDOW CONFIGURATION (OX, XO, XOX), SIZE AND GLASS TYPE, DETERMINE YOUR WINDOW'S DESIGN PRESSURE REQUIREMENT FOR THE WINDOW OPENING USING TABLE 2. IT MUST EQUAL OR EXCEED THE DESIGN PRESSURE REQUIREMENT FOR THE WINDOW OPENING OBTAINED IN STEP 1.
3) DETERMINE THE MOST SUITABLE ANCHOR GROUP FROM TABLE1 ACCORDING TO THE INSTALLATION CONDITIONS.
4) DETERMINE THE ANCHOR QUANTITY FROM SHEET 2. VERIFY THAT THE ANCHOR/SUBSTRATE WILL MEET REQUIREMENTS FOR YOUR OPENING'S CONDITION FROM TABLE 1, AND THAT ALL MIN. REQUIREMENTS FROM THIS SHEET SET ARE MET.
5) INSTALL AS PER SHEET 3.

GENERAL NOTES.....	1
ELEVATIONS.....	1
ANCHOR SPECIFICATIONS.....	2
ANCHOR SPACING/QUANTITIES...	2
INSTALLATION.....	3
DESIGN PRESSURES.....	4
GLAZING DETAILS.....	4
CORNER ASSEMBLY.....	5
EXTRUSION PROFILES.....	6
PARTS LIST.....	6

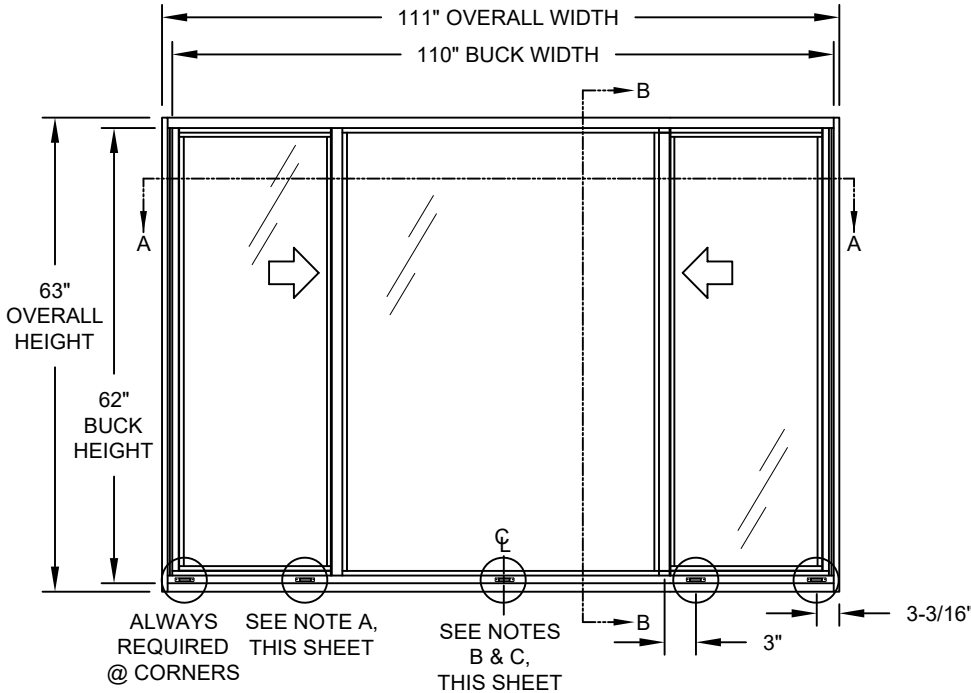
WHERE THE PRODUCT WILL BE INSTALLED WITHIN 3,000 FEET OF A SALTWATER COASTLINE, IT MUST COMPLY WITH SECTION 1711 OF THE FBC, BUILDING OR R332 OF THE FBC, RESIDENTIAL.



TYP. XO ELEVATION (OX SIM.)



TYP. XOX (1/3-1/3-1/3) ELEVATION



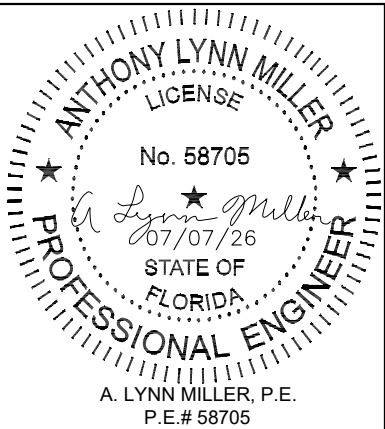
TYP. XOX (1/4-1/2-1/4) ELEVATION

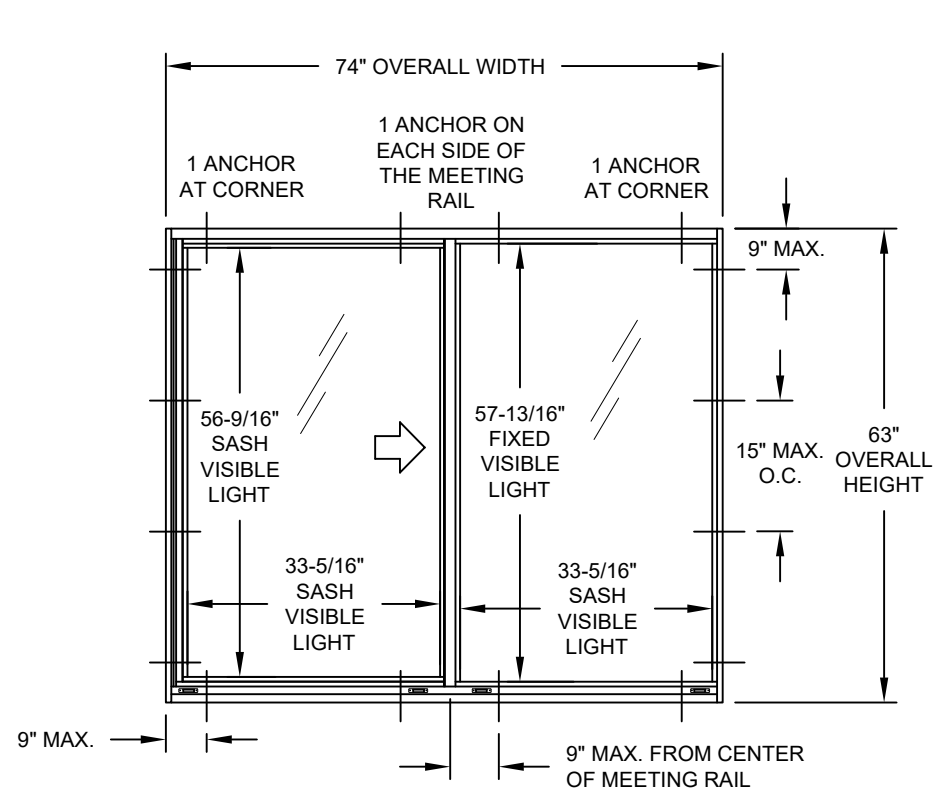
WEEPHOLE NOTES:

- A. REQUIRED IF WINDOW WIDTH IS OVER 67\"/>

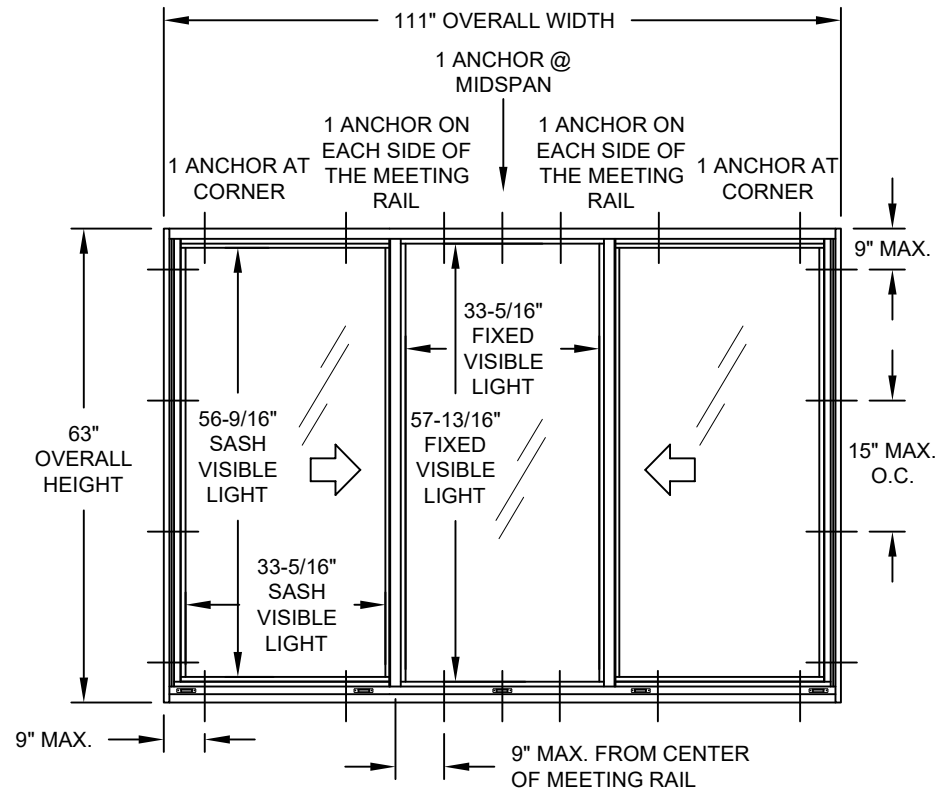
DESIGN PRESSURE RATING
SEE SHEET 4
WATER TEST PRESSURE
15% OF (+) DP
IMPACT RATING
LARGE AND SMALL MISSILE IMPACT RESISTANT MISSILE LEVEL D, WIND ZONE 4

PGT [®] WINDOWS and DOORS		3400 PRECISION DRIVE N. VENICE, FL 34275 (941) 480-1600		PREPARED BY A. LYNN MILLER 3400 PRECISION DRIVE N. VENICE, FL 34275 (941) 480-1600	
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ALUMINUM HORIZONTAL ROLLER		Date		07/07/26	
NOTES, ELEVATION		Drawn By		JENS ROSOWSKI	
HR4110		Sheet		1 OF 6	
Series		Desc.		Title	
HR4110-LM-HVHZ					

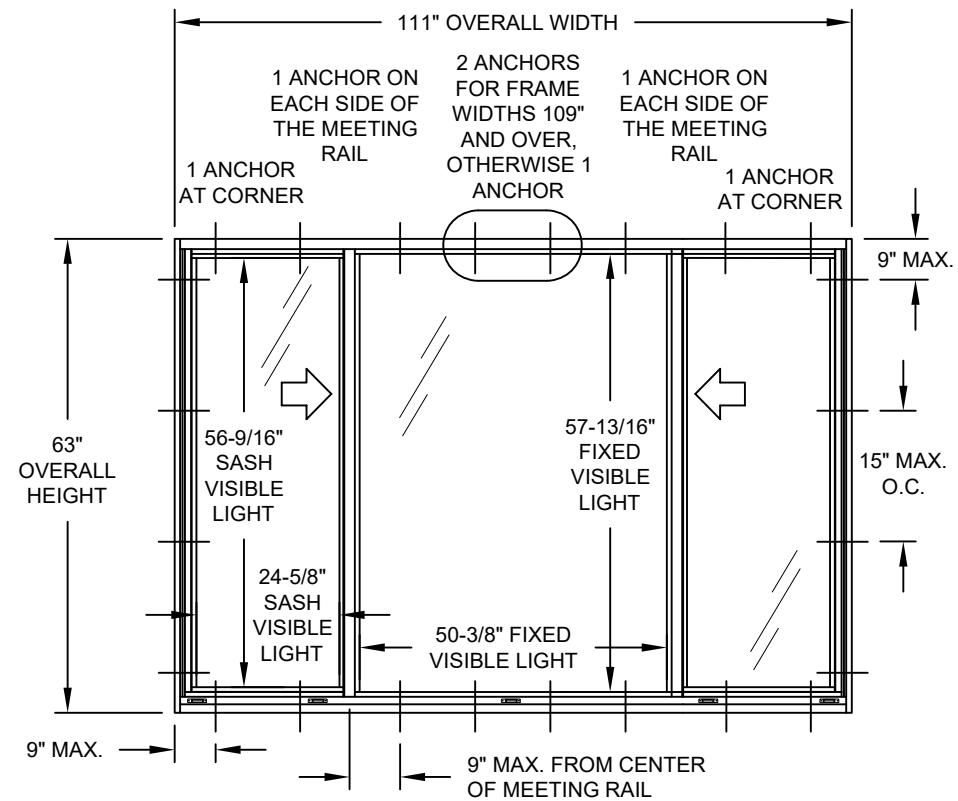




**TYP. XO ANCHORAGE (OX SIM.)
& MAX. VISIBLE LIGHT OPENING**



**TYP. XOx (1/3-1/3-1/3) ANCHORAGE
& MAX. VISIBLE LIGHT OPENING**



**TYP. XOx (1/4-1/2-1/4) ANCHORAGE
& MAX. VISIBLE LIGHT OPENING**

TABLE 1:

Anchor Type	Frame Member	Substrate	Min. Edge Distance	Min. O.C. Distance	Min. Embedment or Metal Thickness
#12 SMS Carbon Steel or 18-8, 316, 410 SS	All	Southern Pine (SG = 0.55)	9/16"	7/8"	1-3/8"
		Aluminum, 6063-T5 min.	3/8"	9/16"	0.060"
		A36 Steel	3/8"	9/16"	0.050"
		Steel Stud, Gr. 33 min.	3/8"	9/16"	0.045" (20 Ga)
1/4" Steel Ultracon+	Jamb	UngROUTed Block, (ASTM C90)	1-3/8"	6"	1-1/4"
	Jamb	GROUTed Block, (ASTM C90)	1"	6"	1-3/4"
	All	Concrete (min. 2.85 ksi)	1-1/4"	4"	1"
	All	Southern Pine (SG = 0.55)	1"	1"	1-3/8"
1/4" 410 SS CreteFlex	Jamb	UngROUTed Block, (ASTM C90)	1-3/4"	6"	1-1/4"
	All	Concrete (min. 3.35 ksi)	2-1/2"	4"	1-3/4"
1/4" 304 SS Aggre-Gator	Jamb	UngROUTed Block, (ASTM C90)	2"	3"	1-1/4"
	All	Concrete (min. 2.22 ksi)	1-1/2"	3"	1-3/8"
	All	Southern Pine (SG = 0.55)	1"	1"	1-3/8"

- 1) MIN. OF 3 THREADS BEYOND THE METAL SUBSTRATE.
- 2) ALL SCREWHEAD TYPES ARE APPLICABLE.
- 3) 18-8 FASTENERS SHALL BE MANUFACTURED FROM TYPE 304 OR 305 STAINLESS STEEL PER ASTM A240.
- 4) "UNGROUTED CMU" VALUES MAY BE USED FOR GROUTED CMU APPLICATIONS.
- 5) IF THE FRAME CONTAINS A FACTORY COUNTERSINK, ONLY USE FLATHEAD ANCHORS AT THAT LOCATION.

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

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3400 PRECISION DRIVE
N. VENICE, FL 34275
(941) 480-1600
REGISTRATION #29296

07/07/26

JENS ROSOWSKI

HR4110-LM-HVHZ

ALUMINUM HORIZONTAL ROLLER

ANCHOR SPACING

HR4110

2 OF 6

ANTHONY LYNN MILLER
LICENSE
No. 58705
07/07/26
STATE OF FLORIDA
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
P.E.# 58705

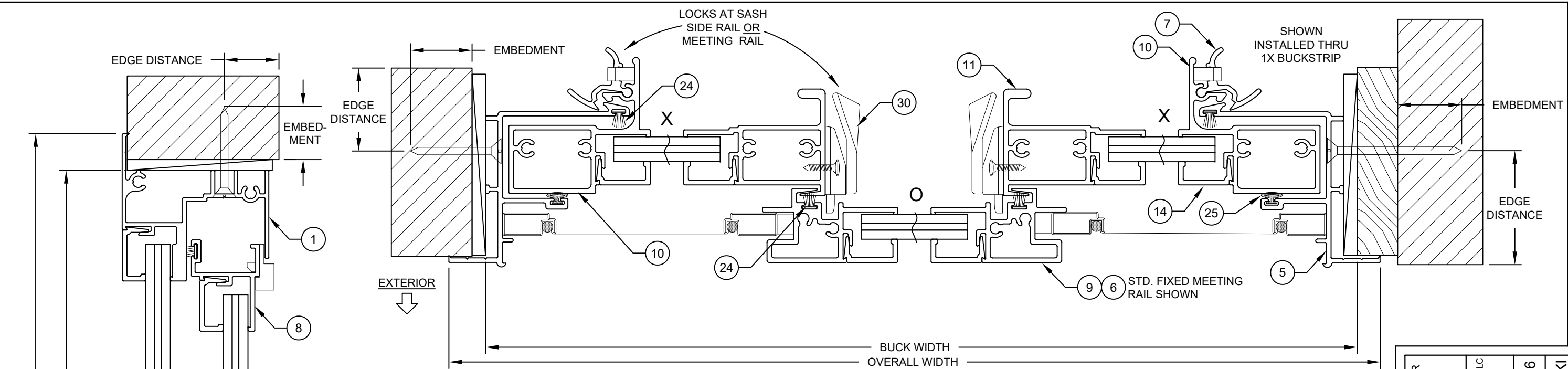
Series

Desc.

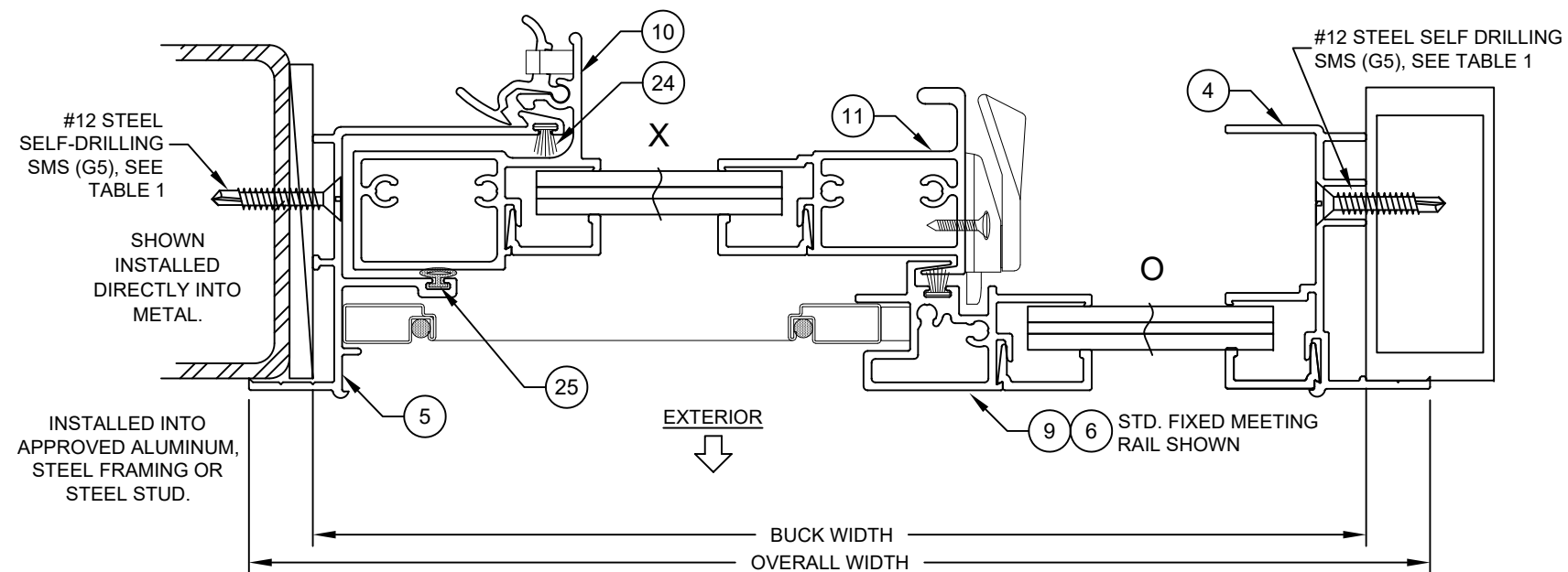
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DWG

No.



HORIZONTAL SECTION A-A

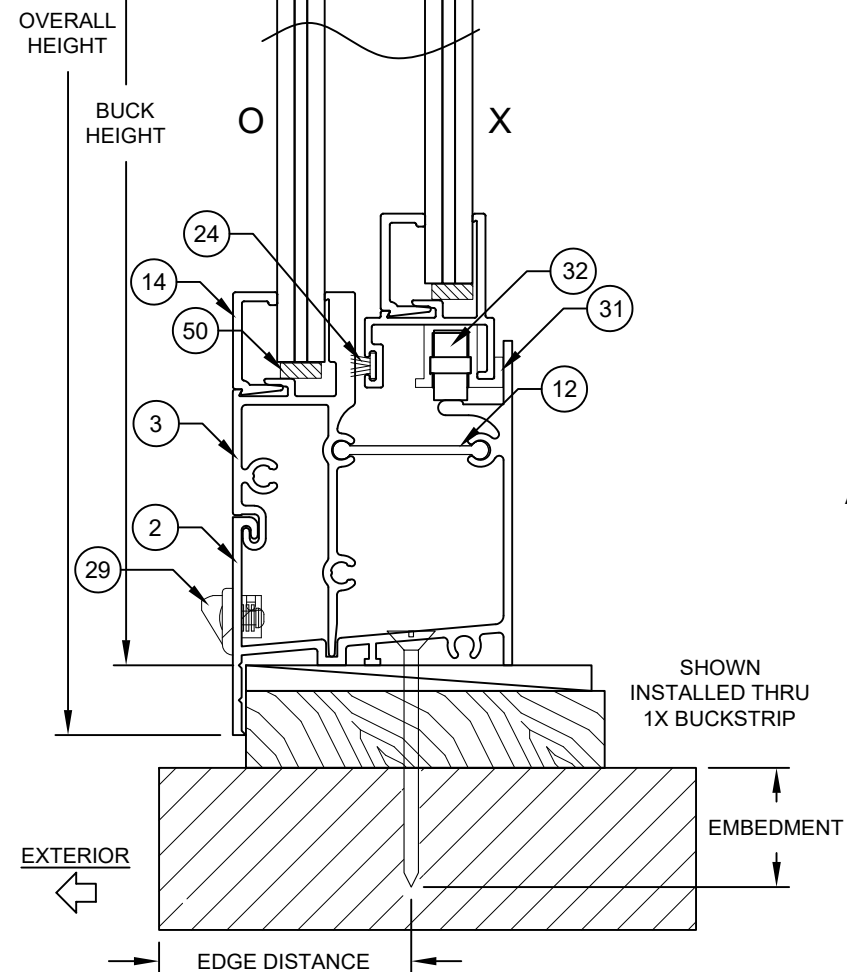


HORIZONTAL SECTION C-C

MULLION SECTION

NOTES:

- 1) USE ONLY SUBSTRATE APPROPRIATE ANCHORS LISTED IN TABLE 1. FOLLOW EMBEDMENT AND EDGE DISTANCE LIMITS. ANY INSTALLATION OPTION SHOWN MAY BE USED ON ANY SIDE OF THE WINDOW.
- 2) MASONRY ANCHORS MAY BE USED INTO WOOD AS PER TABLE 1. ALL WOOD BUCKS LESS THAN 1-1/2" THICK ARE TO BE CONSIDERED 1X INSTALLATIONS. 1X WOOD BUCKS ARE OPTIONAL IF UNIT IS INSTALLED DIRECTLY TO SUBSTRATE. WOOD BUCKS DEPICTED AS 2X ARE 1-1/2" THICK OR GREATER. 1X AND 2X BUCKS (WHEN USED) SHALL BE DESIGNED TO PROPERLY TRANSFER LOADS TO THE STRUCTURE. WOOD BUCK DESIGN AND INSTALLATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD.
- 3) SEE SHEET 2 & TABLE 1 FOR SPACING REQUIREMENTS.
- 4) MAX. SHIM THICKNESS TO BE 1/4".
- 5) GLASS SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY AND MAY DIFFER TO MEET DESIGN REQUIREMENTS.



VERTICAL SECTION B-B

PGT WINDOWS and DOORS 3400 PRECISION DRIVE N. VENICE, FL 34275 (941) 480-1600	PREPARED BY A. LYNN MILLER 3400 PRECISION DRIVE N. VENICE, FL 34275 (941) 480-1600 COPYRIGHT © 2026 PGT INDUSTRIES, LLC LIMITED LICENSE TO MAKE COPIES FOR PERMITTING.	REGISTRATION #29296	ALUMINUM HORIZONTAL ROLLER CROSS SECTION HR4110	JENS ROSOWSKI By 07/07/26	HR4110-LM-HVHZ 3 OF 6

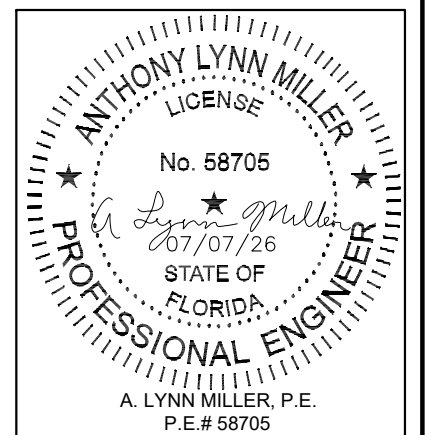
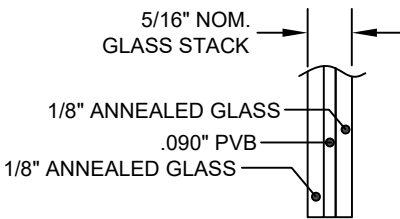
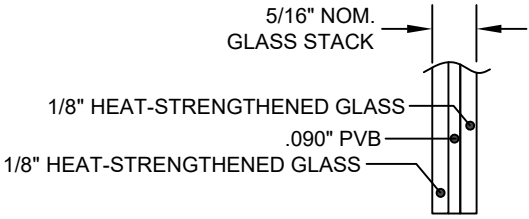


TABLE 2:

DESIGN PRESSURE (psf)		Config.	Overall Height							
			38-3/8"		43-1/2"		50-5/8"		63"	
			Glass Type 1	Glass Type 2	Glass Type 1	Glass Type 2	Glass Type 1	Glass Type 2	Glass Type 1	Glass Type 2
Overall Width	26-1/2"	XO or OX	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	37"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	45"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	49"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	53-1/8"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	61"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	66"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	74"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55.0/-63.2	+55/-65
	53-1/8"	XOX (1/3 - 1/3 - 1/3)	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	61"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	74"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	85"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	97"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	111"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55.0/-63.2	+55/-65
	53-1/8"	XOX (1/4 - 1/2 - 1/4)	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65
	74"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-64.8	+55/-65
	85"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-57.9	+55/-65
	97"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+53.5/-53.5	+55/-65
	109"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+50.4/-50.4	+55/-65
	111"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+50/-50	+55/-65



5/16" LAMI. GLAZING
GLASS TYPE 1



5/16" LAMI. GLAZING
GLASS TYPE 2

TABLE 3:

Laminated Glass Types	
1	1/8" Annealed, 0.090" PVB, 1/8" Annealed
2	1/8" Heat-strengthened, 0.090" PVB, 1/8" Heat-strengthened

INTERLAYER MAY BE SAFLEX PVB OR TROSIFOL PVB

NOTES:
1) FOR SIZES NOT SHOWN, ROUND UP TO THE NEXT AVAILABLE WIDTH OR HEIGHT DIMENSION SHOWN ON THE TABLE.

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3400 PRECISION DRIVE
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ALUMINUM HORIZONTAL ROLLER

DESIGN PRESSURE

HR4110

4 OF 6

HR4110-LM-HVHZ

07/07/26

JENS ROSOWSKI

07/07/26

By

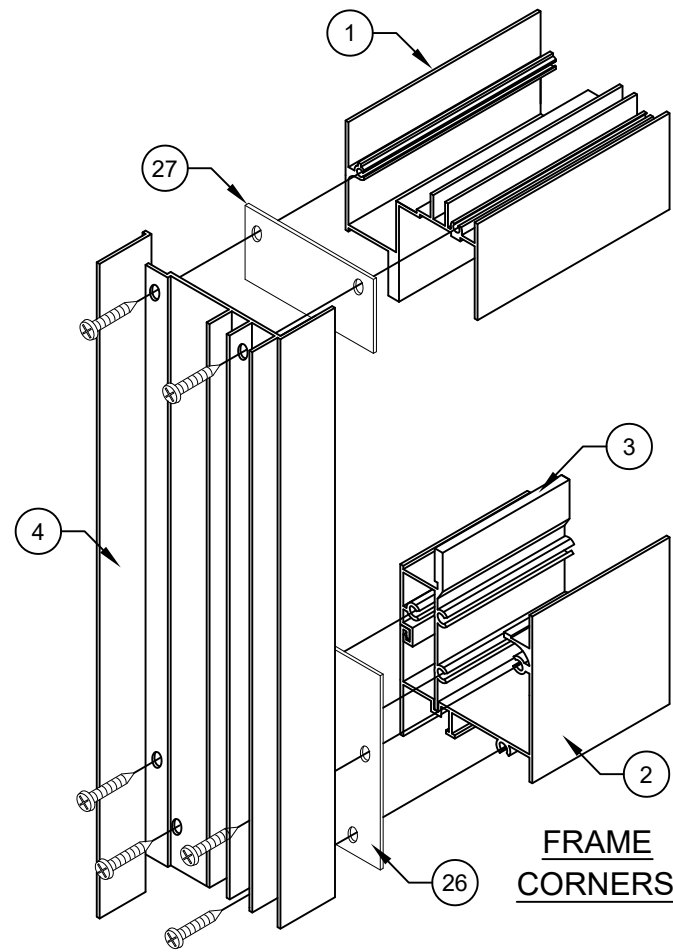
HR4110-LM-HVHZ

Series

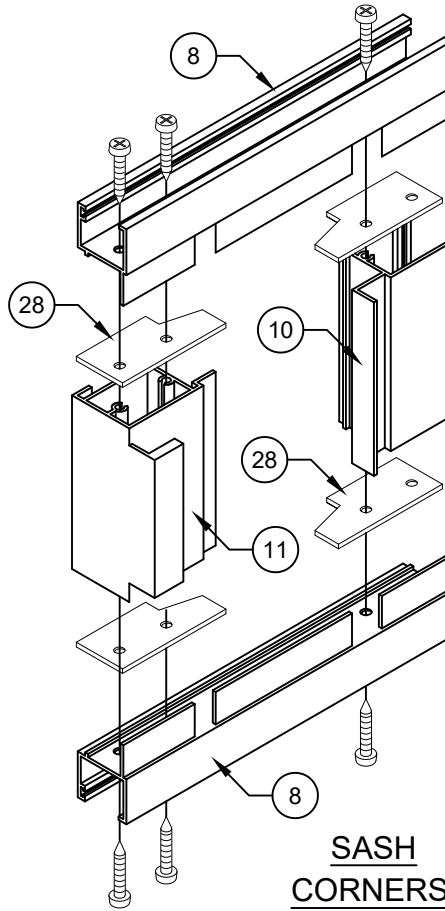
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Title

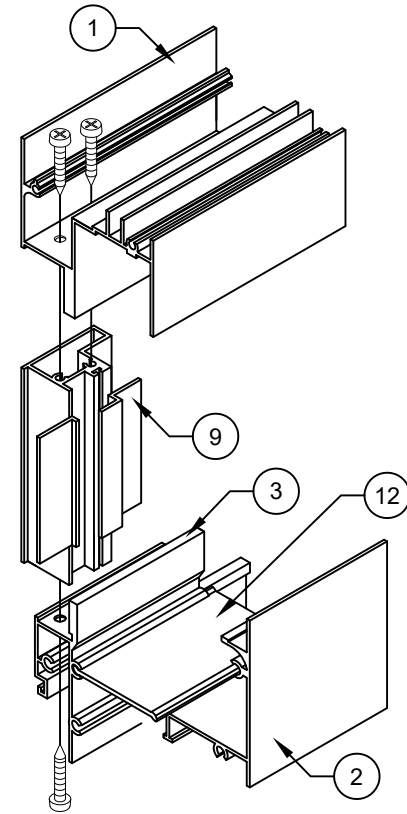
ANTHONY LYNN MILLER
LICENSE
No. 58705
07/07/26
STATE OF FLORIDA
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
P.E.# 58705



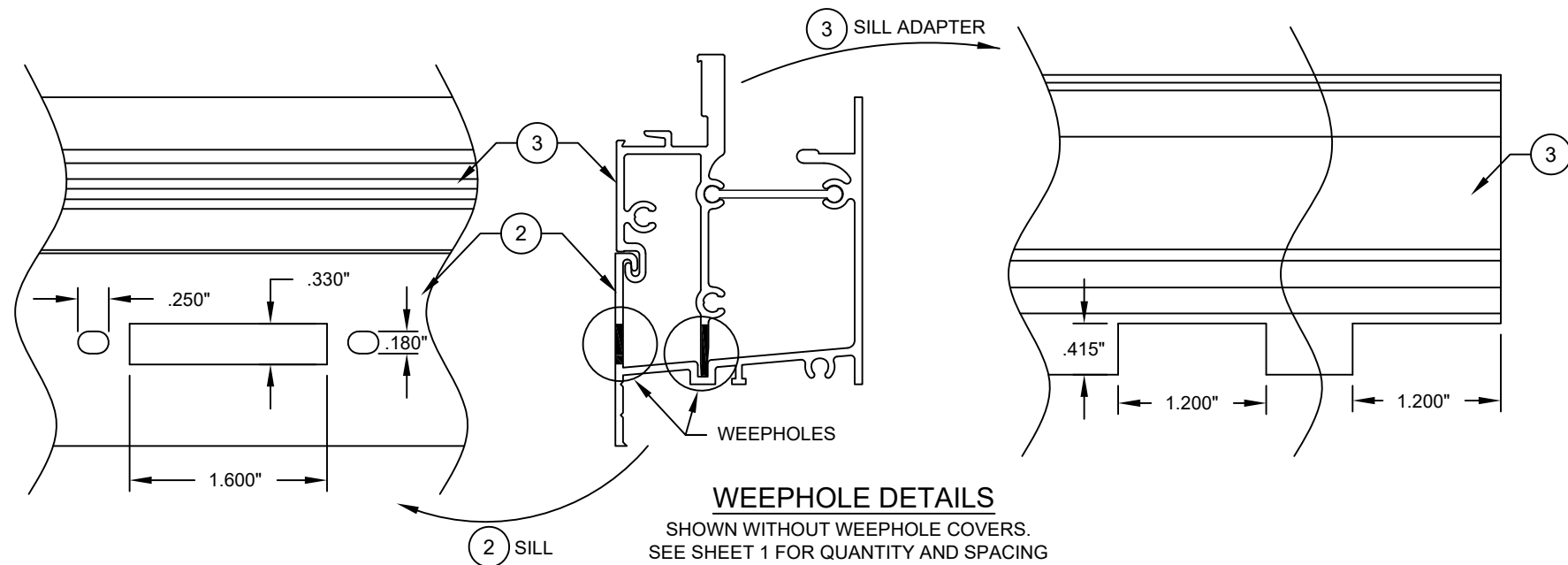
**FRAME
CORNERS**



**SASH
CORNERS**

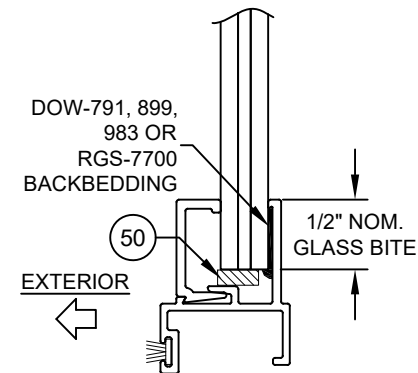


**STD. MEETING RAIL
(HD SIMILAR)**



WEEPHOLE DETAILS

SHOWN WITHOUT WEEPHOLE COVERS.
SEE SHEET 1 FOR QUANTITY AND SPACING



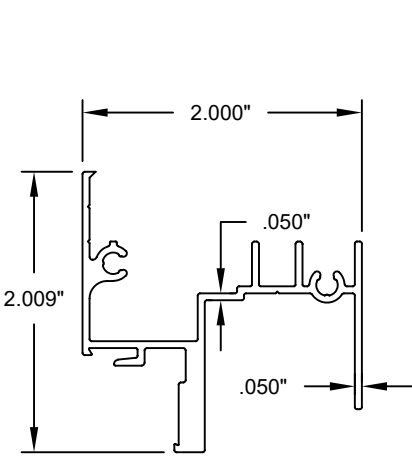
TYP. GLAZING DETAIL

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ASSEMBLY & WEEPHOLE INFO		JENS ROSOWSKI	
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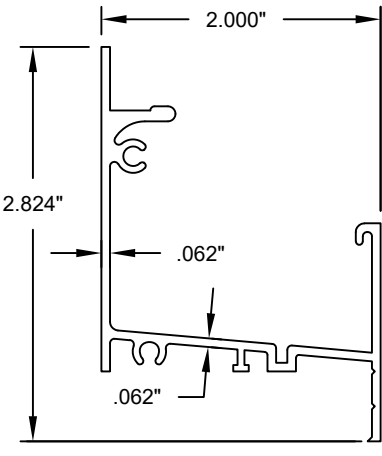
ANTHONY LYNN MILLER
 LICENSE
 No. 58705
Anthony Lynn Miller
 07/07/26
 STATE OF
 FLORIDA
PROFESSIONAL ENGINEER
 A. LYNN MILLER, P.E.
 P.E.# 58705

TABLE 4:

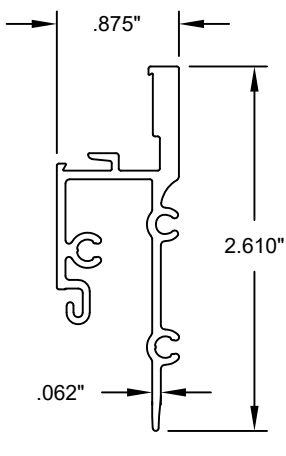
Item	Description
1	Frame Head
2	Frame Sill
3	Sill Adapter
4	Frame Jamb (Fixed)
5	Frame Jamb (Operable)
6	Heavy Duty Fixed Meeting Rail
7	Side Rail Lock
8	Sash Top & Bottom Rail
9	Standard Fixed Meeting Rail
10	Sash Side Rail
11	Sash Meeting Rail
12	Dogbone Reinforcement
13	Sash Stop
23	.190" X .200" Q-Ion Wstp. (Frame)
24	.187" X .230" Fin Wstp.
25	Bulb Vinyl Wstp. (Sash)
26	Frame Sill Gasket, Polyethelyne, opt.
27	Frame Head Gasket, Polyethelyne, opt.
28	Sash Gasket, Polyethelyne, opt.
29	Weephole Cover
30	Sweep Latch
31	Roller Housing & Guide
32	Roller
33	Frame/Sash Corner Sealant, opt.
50	Setting Block 3/32" X 1/4" X 1"
70	Kommerling Kodispace 4SG TPS



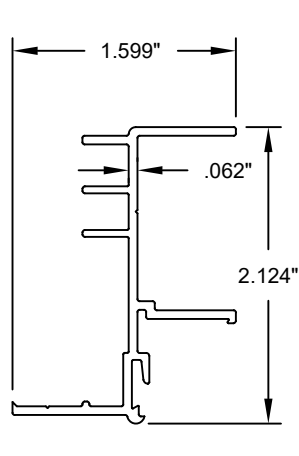
1 FRAME HEAD
6063-T6 ALUMINUM



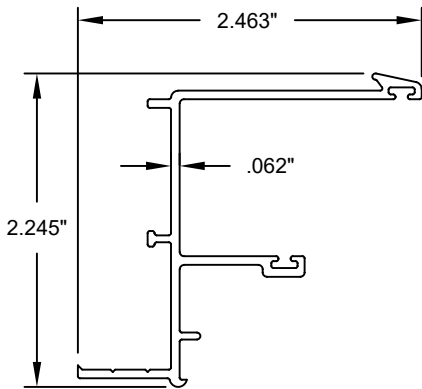
2 FRAME SILL
6063-T5 ALUMINUM



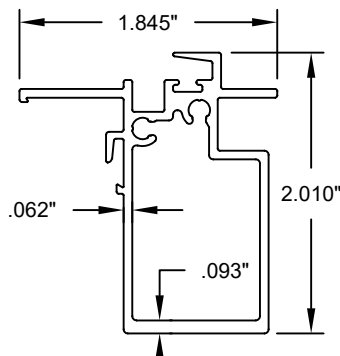
3 SILL ADAPTER
6063-T6 ALUMINUM



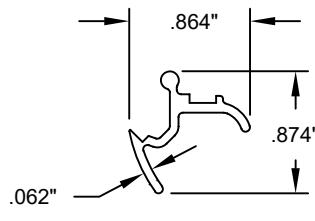
4 FRAME JAMB (FIXED)
6063-T6 ALUMINUM



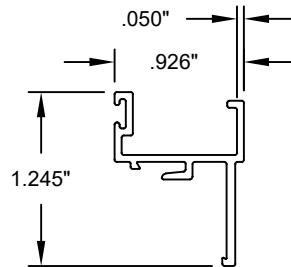
5 FRAME JAMB (OPERABLE)
6063-T6 ALUMINUM



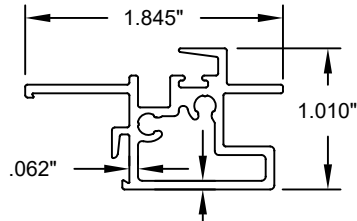
6 HD FIXED MEETING RAIL
6063-T6 ALUMINUM



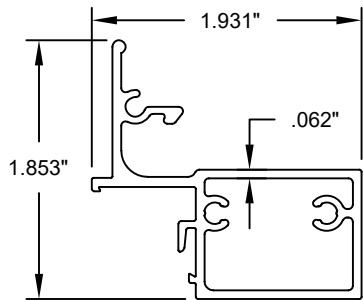
7 SIDE RAIL LOCK
6063-T6 ALUMINUM



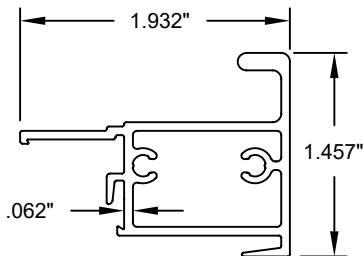
8 SASH TOP & BOTTOM RAIL
6063-T6 ALUMINUM



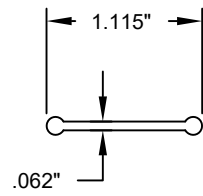
9 STD. MEETING RAIL
6063-T6 ALUMINUM



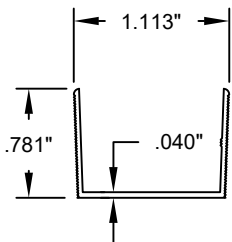
10 SASH SIDE RAIL
6063-T6 ALUMINUM



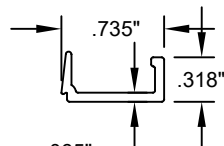
11 SASH MEETING RAIL
6063-T6 ALUMINUM



12 DOGBONE
REINFORCEMENT
6063-T6 ALUMINUM



13 SASH STOP
6063-T6 ALUMINUM



14 LAMI. BEADING
PVC

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