Engineering Evaluation Report # 4110-03242026

Prepared by:
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N. Venice, FL 34275
(941) 480-1600
Florida Registration: #29296

Manufacturer:
PGT Custom Windows & Doors
3400 Precision Dr.
N. Venice, FL 34275

Product Description:
HR4110A Series Impact-resistant Aluminum Horizontal Roller Window, (LM & SM), FL-29699

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 the requirements of the current Florida Building Code.

This product has been evaluated and is in compliance with the current Florida Building Code, including the “High Velocity Hurricane Zone” (HVHZ).

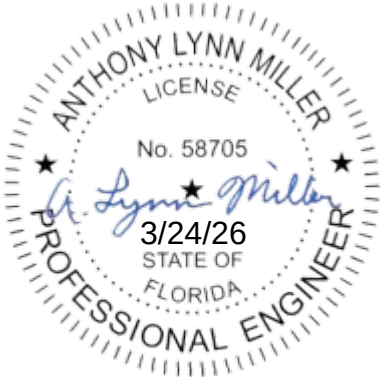
Supporting Technical Documentation:
1. Approval document: drawing number HR4110FPA, signed and sealed by A. Lynn Miller, P.E.

2. Test Report(s) No. FTL 17-7535, 18-7858, & 20-2108.1-6, QAI NOK-0144, NOK-0152, & NOK-0155 signed and sealed by Idalmis Ortega, P.E.
Fenestration Testing Laboratories, Medley, FL 33166
QAI Laboratories, Nokomis, FL
TAS 201-94 Large Missile Impact Test
TAS 202-94 Uniform Static Air Pressure Test
TAS 203-94 Cyclic Pressure Loading Test

3. Anchor calculations, signed and sealed by A. Lynn Miller, P.E., dated 10/9/18 & 8/28/20.

4. Miami-Dade RER Product Control Section NOA’s; PVB Interlayer by Kuraray America, Inc and Saflex PVB Interlayer by Eastman Chemical Company

Limitations and Conditions of use:
• Units must be glazed per ASTM E1300-09, 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.
• Frame and sash material to be extruded Aluminum.
• Units must be installed in accordance with approval document, HR4110FPA.



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

FLORIDA PRODUCT APPROVAL #29092

SERIES 4110A IMPACT RESISTANT HORIZONTAL ROLLER WINDOW

DESIGN PRESSURE RATING	IMPACT RATING
VARIES. SEE SHEET 4	RATED FOR LARGE & SMALL MISSILE IMPACT RESISTANCE

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

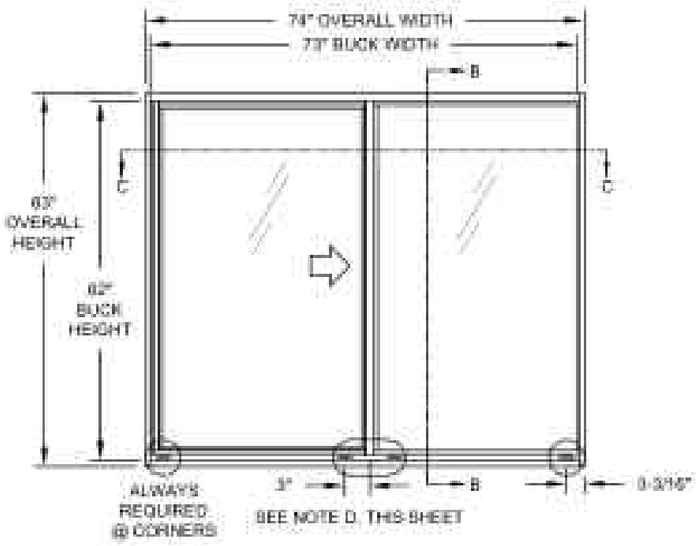
2) SHUTTERS ARE NOT REQUIRED WHEN USED IN WIND-BORNE DEBRIS REGIONS.

3) MASONRY ANCHORS MAY BE USED INTO WOOD AS PER TABLE 2. 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.

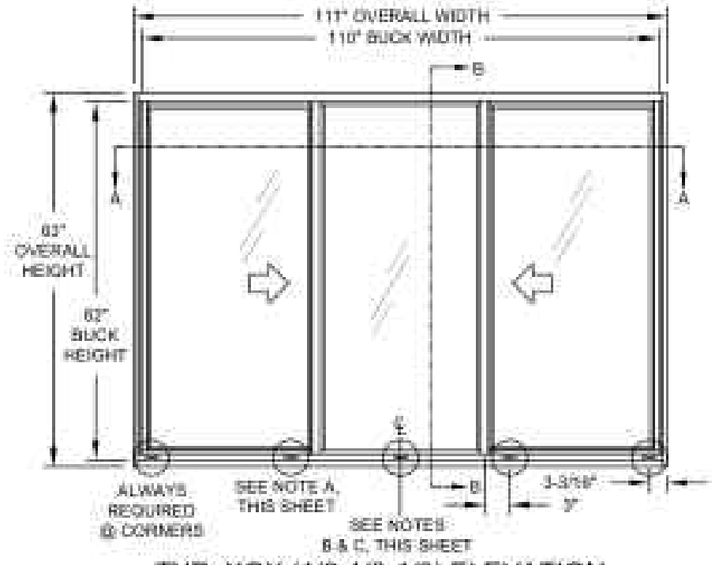
4) ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO. USE ANCHORS OF SUFFICIENT LENGTH. INSTALLATION ANCHORS SHOULD BE SEALED. OVERALL SEALING/FLASHING STRATEGY FOR WATER RESISTANCE OF INSTALLATION SHALL BE DONE BY OTHERS AND IS BEYOND THE SCOPE OF THESE INSTRUCTIONS.

5) SHIMS ARE REQUIRED AT EACH FLANGE ANCHOR LOCATION WHERE THE PRODUCT IS NOT FLUSH TO THE SUBSTRATE. USE SHIMS CAPABLE OF TRANSFERRING APPLIED LOADS. WOOD BUCKS, BY OTHERS, MUST BE SUFFICIENTLY ANCHORED TO RESIST LOADS IMPOSED ON THEM BY THE WINDOW.

6) THE ANCHORAGE METHODS SHOWN HAVE BEEN DESIGNED TO RESIST THE WIND LOADS 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.



TYP. XO ELEVATION (OX SIM.)



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

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.

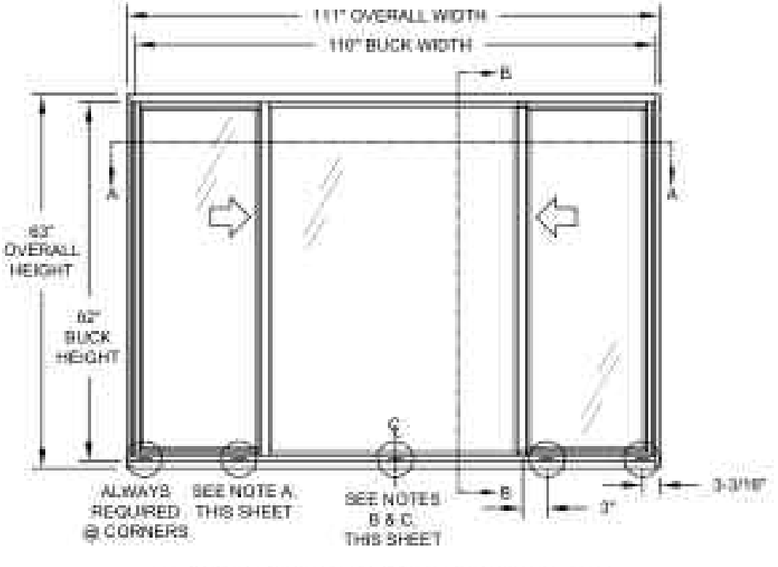
3) DETERMINE THE MOST SUITABLE ANCHOR GROUP FROM TABLE1 ACCORDING TO THE INSTALLATION CONDITIONS.

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

WEEP HOLE NOTES:
A. REQUIRED IF WINDOW WIDTH IS OVER 67".
B. REQUIRED IF WINDOW WIDTH IS OVER 45" AND UP TO 67".
C. REQUIRED IF WINDOW WIDTH IS OVER 89".
D. REQUIRED IF WINDOW WIDTH IS OVER 45".



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

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ALUMINUM HORIZ. ROLLER WINDOW (LXW)

NOTES, ELEVATION

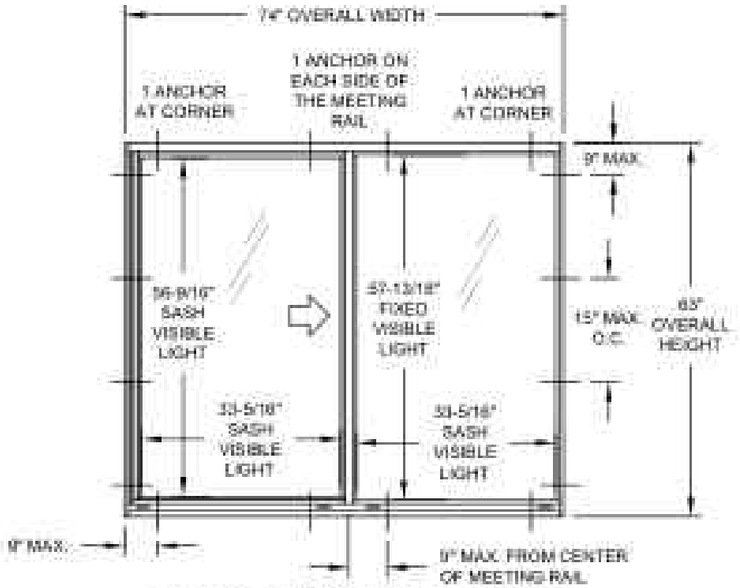
DRAWN BY	DATE
LOGAN YODER	08/14/25

SCALE	SHEET
NTS	1 OF 6

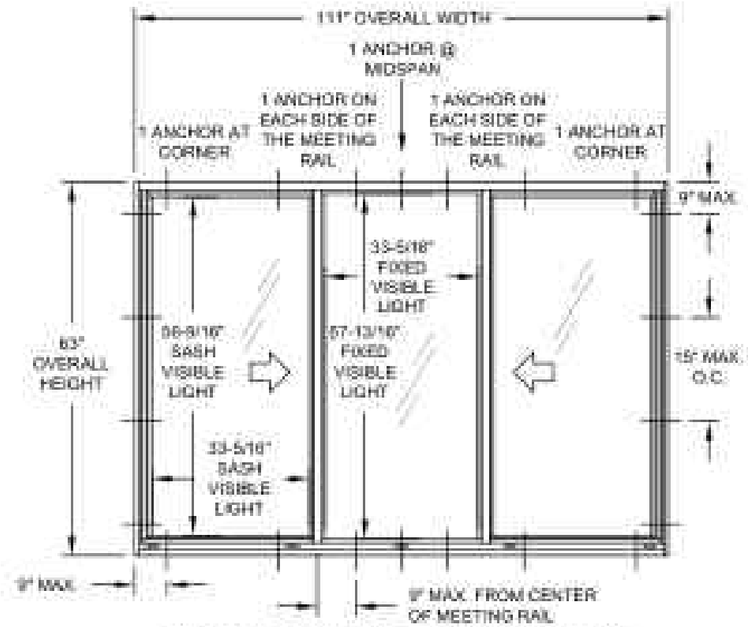
DRAWING NO.	REVISION
HR4110A	HR4110FPA

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

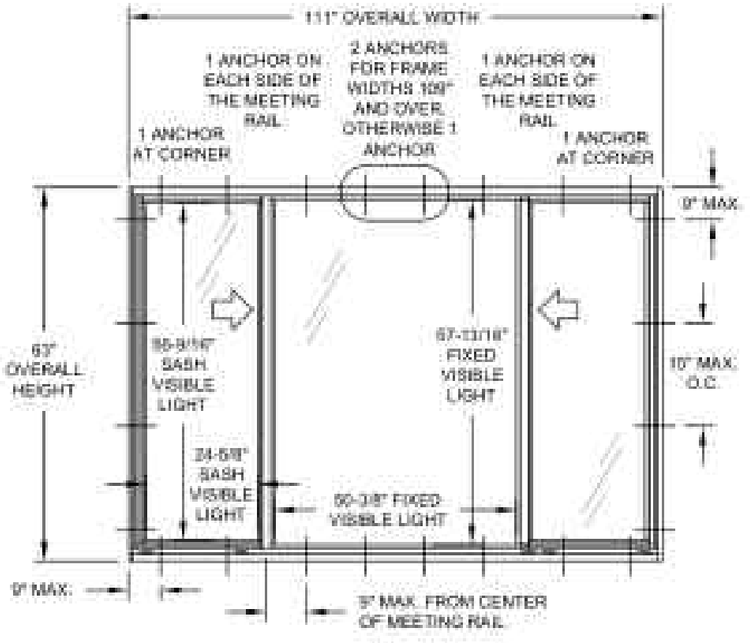


TYP. XOX (1/3-1/3-1/3) ANCHORAGE
& MAX. VISIBLE LIGHT OPENING

TABLE 1:

Anchor Type	Frame Member	Substrate	Min. Edge Distance	Min. O.C. Distance	Min. Embedment or Metal Thickness
#12, Steel SMS (Gr. 5 or 410 SS, (min. of 3 threads beyond metal substrate)	All	Southern Pine (SG = 0.55)	9/16"	7/8"	1-3/8"
		6063-T5 Aluminum	3/8"	9/16"	0.080"
		A36 Steel	3/8"	9/16"	0.050"
		Gr. 33 Steel Stud	3/8"	9/16"	0.045" (20 Ga)
1/4" DeWalt UltraCon®	Jamb	Hollow Block, (ASTM C90)	1-3/8"	8"	1-1/4"
	Jamb	Filled Block, (ASTM C90)	1"	8"	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 Elco OmniFlex®	Jamb	Hollow or Filled Block, (ASTM C90)	1-3/4"	8"	1-1/4"
	All	Concrete (min. 3.35 ksi)	2-1/2"	4"	1-3/4"

IF THE FRAME CONTAINS A FACTORY COUNTERSINK, ONLY USE FLATHEAD ANCHORS AT THAT LOCATION.



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

A	3/24/26
NO CHANGES THIS SHEET	
HR4110FPA	
ALUMINUM HORIZ. ROLLER WINDOW (LM)	08/14/25
ANCHOR SPACING	LOGAN YODER
HR4110A	2 OF 6

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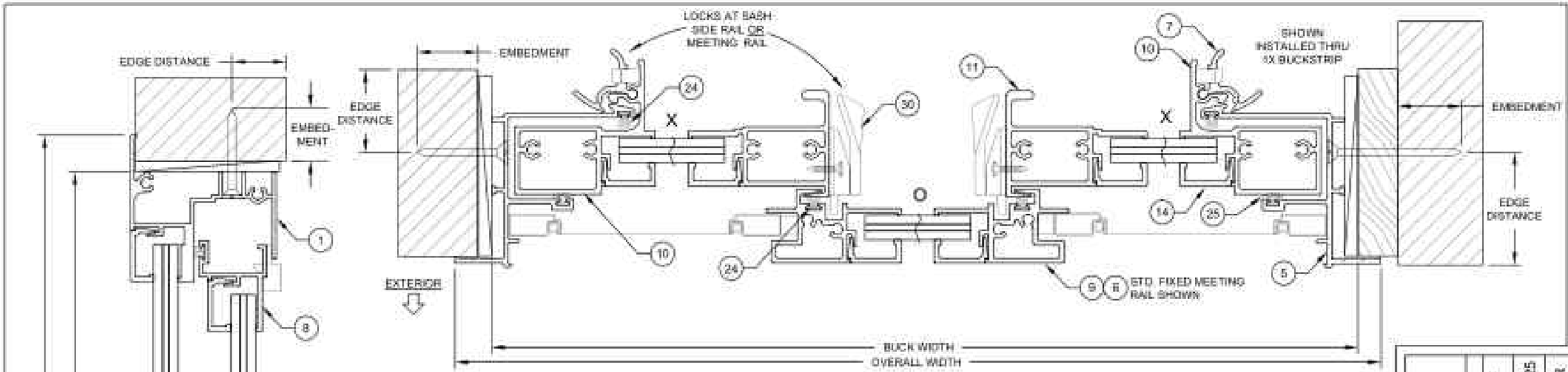
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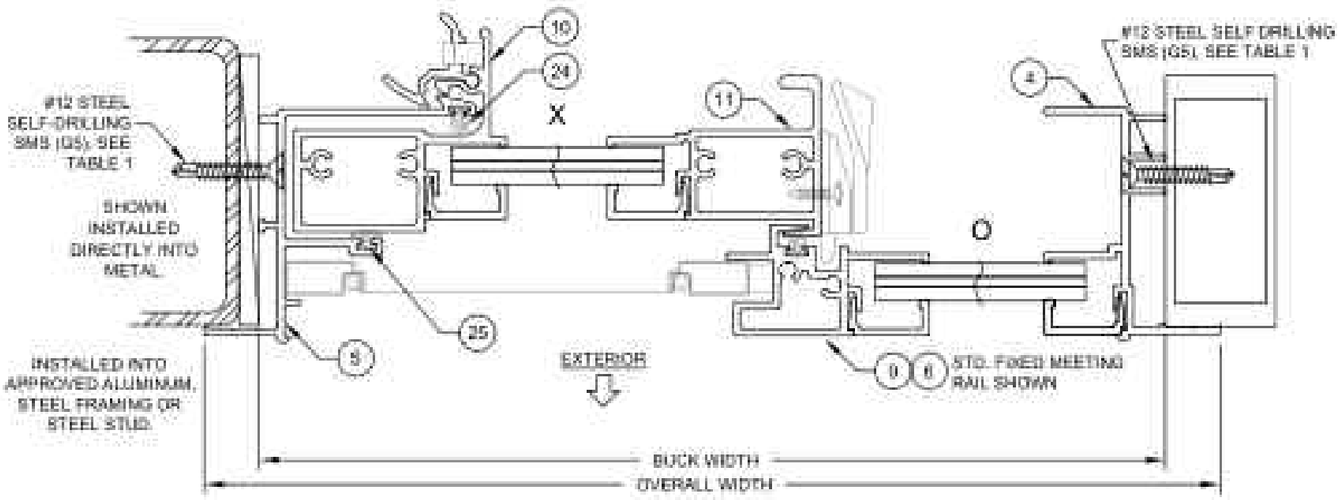
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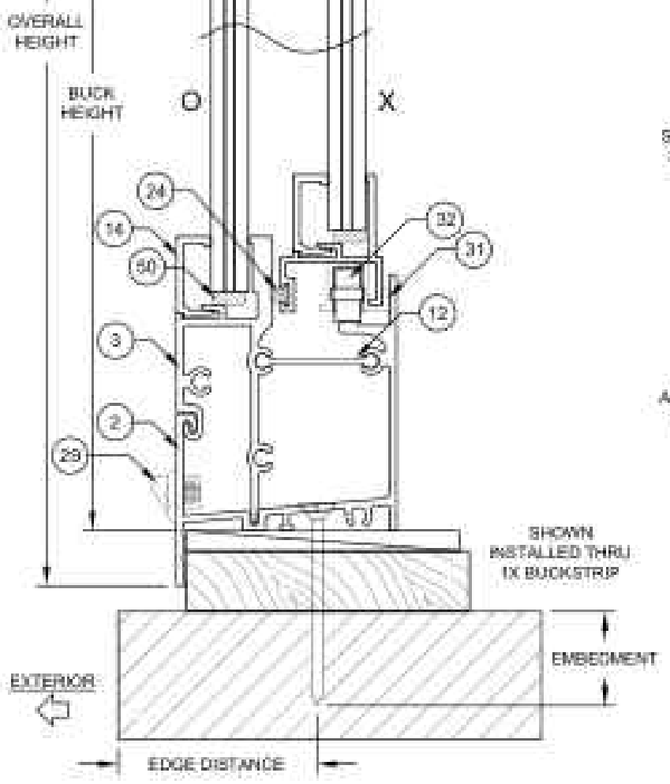
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HORIZONTAL SECTION A-A





VERTICAL SECTION B-B

HORIZONTAL SECTION C-C

MULLION SECTION

APPROVED MULLION, MAY BE VERTICAL OR HORIZONTAL

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.

A	3/24/26	ADDED STD. MEETING RAIL - CK

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DRAWN	08/14/25
CHECKED	LOGAN YODER
APPROVED	

ALUMINUM HORIZ. ROLLER WINDOW (LM)

CROSS SECTION

HR4110FPA

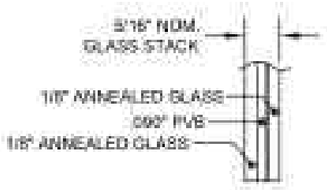
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3 OF 6

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PROFESSIONAL ENGINEER
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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
	40"		+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
	83-1/8"	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
	86"		+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/-64.0	+55/-65
	86"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-57.9	+55/-65
	97"		+55/-63	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+53.3/-63.5	+55/-65
	105"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+50.4/-60.4	+55/-65
	111"		+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+55/-65	+52/-60	+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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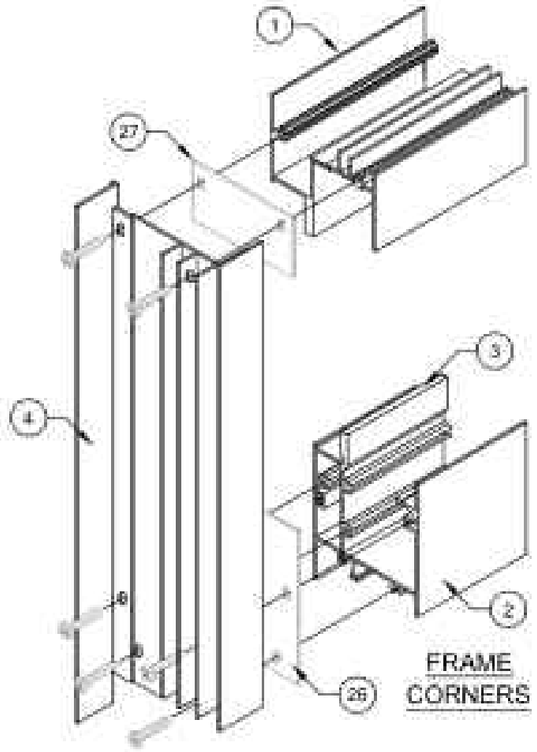
ALUMINUM HORIZ. ROLLER WINDOW (LMI) | 08/14/25 | LOGAN YODER

DESIGN PRESSURE

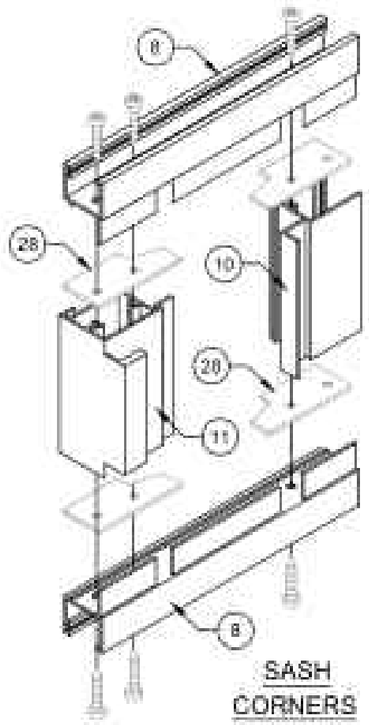
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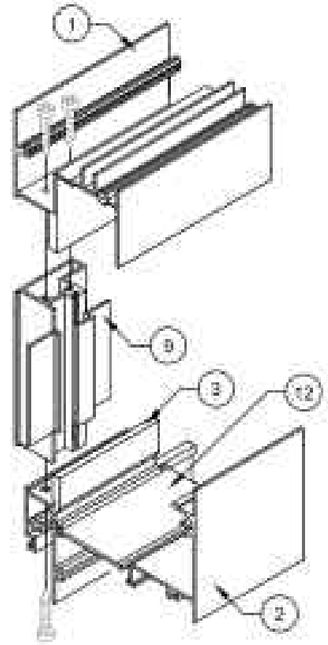
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FRAME CORNERS

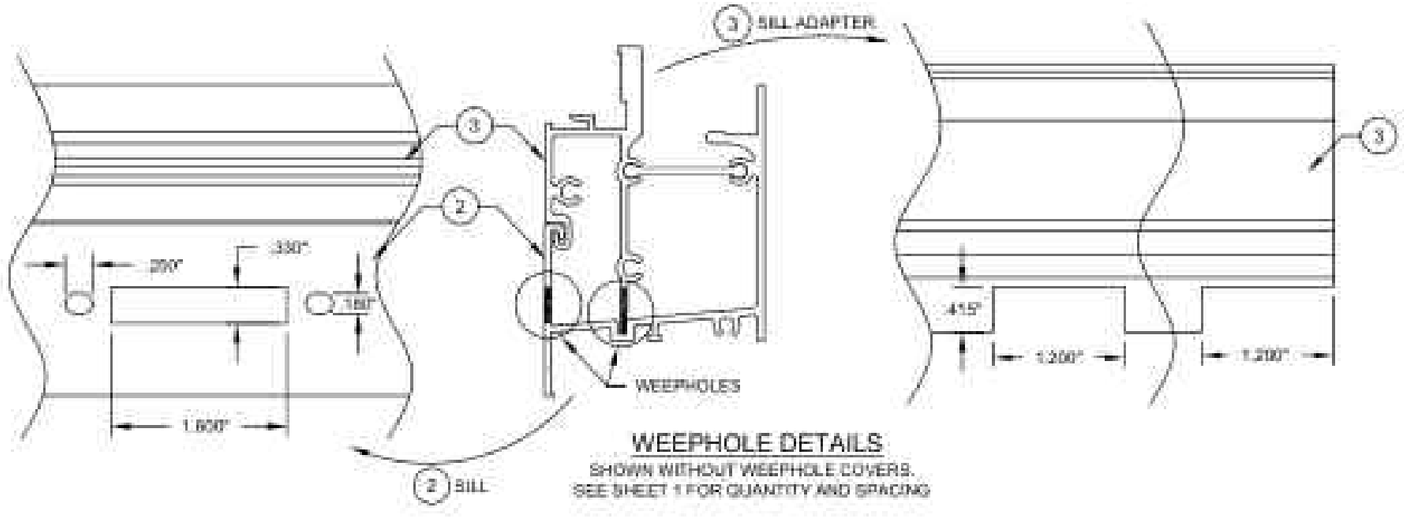


SASH CORNERS



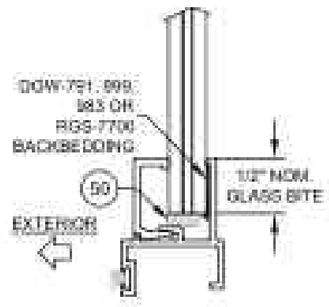
STD. MEETING RAIL (HD SIMILAR)

ASSEMBLY DETAILS



WEEPHOLE DETAILS

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



TYP. GLAZING DETAIL

A	ADDED STD. MEETING RAIL - CK	3/24/26	

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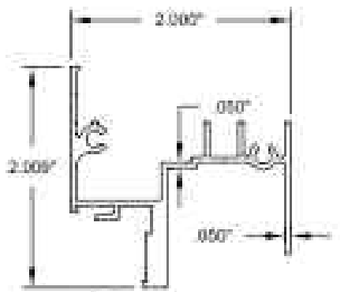
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ALUMINUM HORIZ. ROLLER WINDOW (LM)	08/14/25
ASSEMBLY & WEEPHOLE INFO	LOGAN YODER
HR4110A	HR4110FPA
5 OF 6	

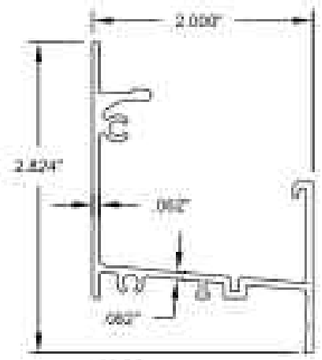
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Table E 4

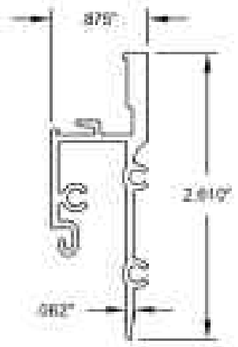
Item	Description
1	Frame Head
2	Frame Sill
3	Sill Adapter
4	Frame Jamb (Fixed)
5	Frame Jamb (Operable)
6	Heavy Duty Fixed Meeting Rail
7	Side Rail Lock
8	Sash Top & Bottom Rail
9	Standard Fixed Meeting Rail
10	Sash Side Rail
11	Sash Meeting Rail
12	Dogbone Reinforcement
13	Sash Stop
23	.190" X .200" G-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



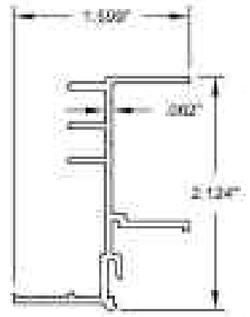
1 FRAME HEAD
6063-T6 ALUMINUM



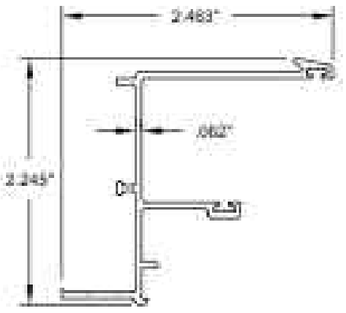
2 FRAME SILL
6063-T6 ALUMINUM



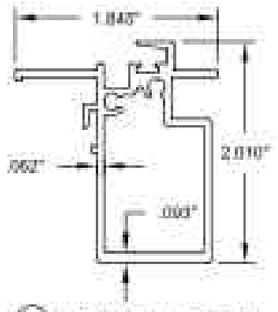
3 SILL ADAPTER
6063-T6 ALUMINUM



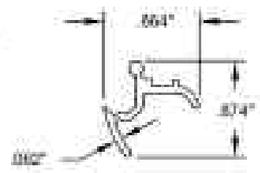
4 FRAME JAMB (FIXED)
6063-T6 ALUMINUM



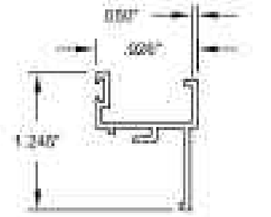
5 FRAME JAMB (OPERABLE)
6063-T6 ALUMINUM



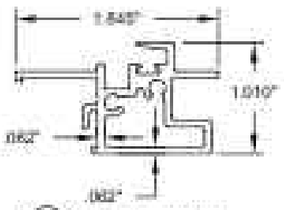
6 HD FIXED MEETING RAIL
6063-T6 ALUMINUM



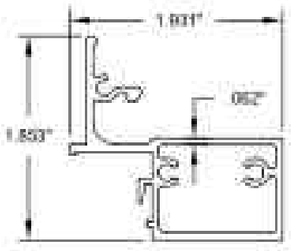
7 SIDE RAIL LOCK
6063-T6 ALUMINUM



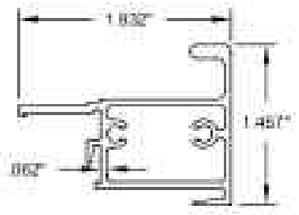
8 SASH TOP & BOTTOM RAIL
6063-T6 ALUMINUM



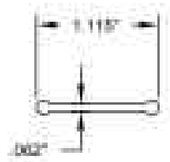
9 STD. MEETING RAIL
6063-T6 ALUMINUM



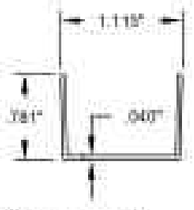
10 SASH SIDE RAIL
6063-T6 ALUMINUM



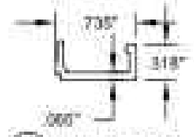
11 SASH MEETING RAIL
6063-T6 ALUMINUM



12 DOGBONE
REINFORCEMENT
6063-T6 ALUMINUM



13 SASH STOP
6063-T6 ALUMINUM



14 LAMB BEADING
PVC

A	ADDED STD. MEETING RAIL - CK	3/24/26	

PREPARED BY A. LYNN MILLER
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BOM / EXTRUSIONS | 6 OF 6

HR4110FPA | HR4110A

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STATE OF FLORIDA
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