Engineering Evaluation Report # 4100-10072025

Prepared by:
A. Lynn Miller, P.E.
3400 Precision Dr.
N. Venice, FL 34275
(941) 480-1600
Florida Registration: #29296

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

Product Description:
SH4100A Series Impact-resistant Aluminum Single Hung Window, (LM & SM), FL-29698

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 SH4100FLPA, signed and sealed by A. Lynn Miller, P.E.

2. Test Report(s) No. FTL 17-7382, 18-8281 & 20-2108.1-6, signed and sealed by Idalmis Ortega, P.E.
Fenestration Testing Laboratories, Nokomis, FL 34275
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 9/25/18 & 8/27/20.

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:
• Maximum Design Pressure: +55.0/-65.0 psf
• Maximum Overall Buck Size: 52-1/8" x 77"
• Maximum DLO: 48-13/16” x 35-1/8”
• 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, SH4100FLPA.



FLORIDA PRODUCT APPROVAL #20698

SERIES SH4100A IMPACT RESISTANT SINGLE HUNG WINDOW

DESIGN PRESSURE RATING	IMPACT RATING
+55/-65 PSF	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 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 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. OVERALL SEALING & FLASHING STRATEGY FOR WATER RESISTANCE OF INSTALLATION SHALL BE DONE BY OTHERS AND IS BEYOND THE SCOPE OF THESE INSTRUCTIONS.

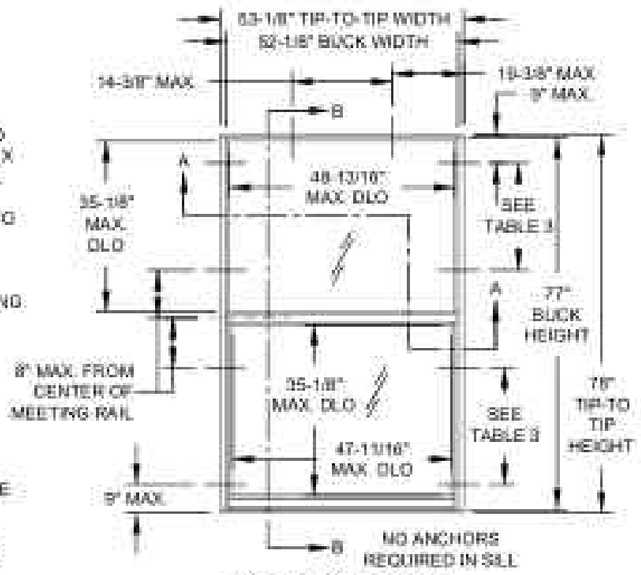
5) SHIMS ARE REQUIRED AT EACH FLANGE ANCHOR LOCATION WHERE THE PRODUCT IS NOT FLUSH TO THE SUBSTRATE. USE SHIMS CAPABLE OF TRANSFERRING APPLIED LOADS. WOOD BUCKS, BY OTHERS, MUST BE SUFFICIENTLY ANCHORED TO RESIST LOADS IMPOSED ON THEM BY THE WINDOW. MAXIMUM SHIM SPACING TO BE 16" WHEN INSTALLING THROUGH THE INTEGRAL FIN.

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.

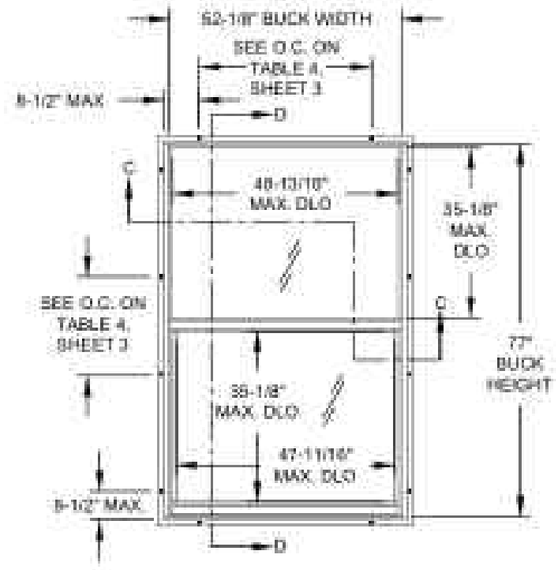
TABLE 1

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



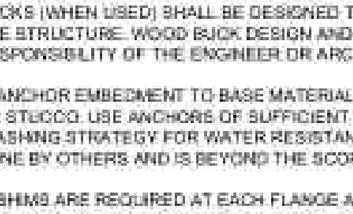
TYP. FLANGE FRAME
ANCHOR LOCATIONS @ MAX. SIZE



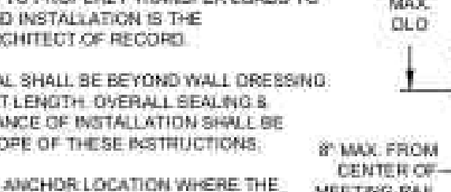
TYP. INTEGRAL FIN FRAME
ANCHOR LOCATIONS @ MAX. SIZE
(INSTALLED WITH SCREWS)

TABLE 2

Window Width (Tip-to-Tip)	Head Anchor Hole Locations
Up to 38.75"	Qty. 1 @ center line
38.812" thru 48.125"	Qty. 2 @ 15.375 from each end
48.188 thru 53.125"	Qty. 3 @ 19.375 from each end

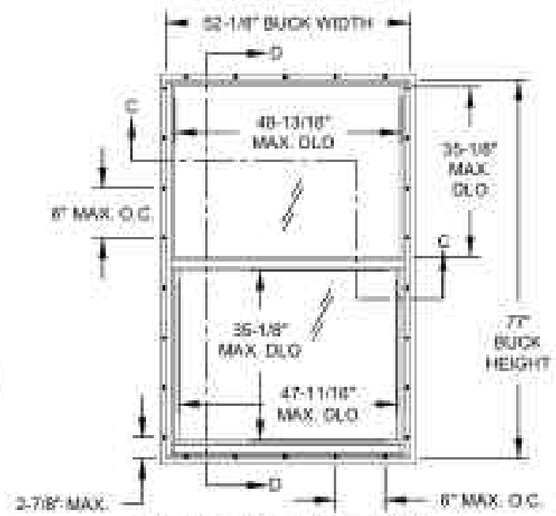


5/16" LAMI. GLAZING
GLASS TYPE 1

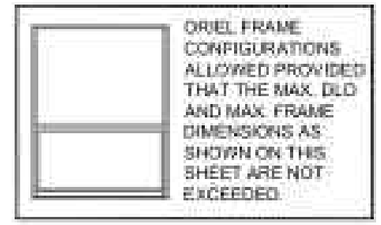


5/16" LAMI. GLAZING
GLASS TYPE 2

TYP. GLAZING DETAIL



TYP. INTEGRAL FIN FRAME
ANCHOR LOCATIONS @ MAX. SIZE
(INSTALLED WITH NAILS



ORIEL FRAME CONFIGURATIONS ALLOWED PROVIDED THAT THE MAX. DLO AND MAX. FRAME DIMENSIONS AS SHOWN ON THIS SHEET ARE NOT EXCEEDED.

REV.	DESCRIPTION	DATE	APP'D
A	ADDED TABLE 2 - CK	10/7/25	

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SH WINDOW INSTALLATION (LM)

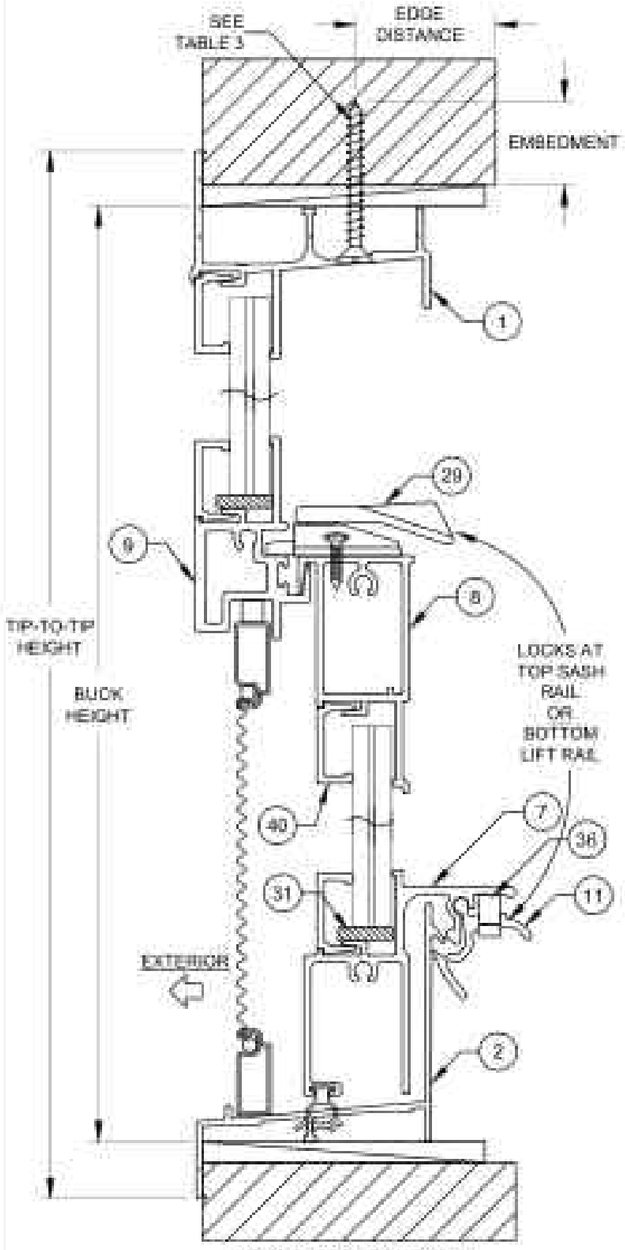
ELEVATION & GENERAL NOTES

DRAWN BY	APP'D	DATE
COLTON KEMPF		08/19/25

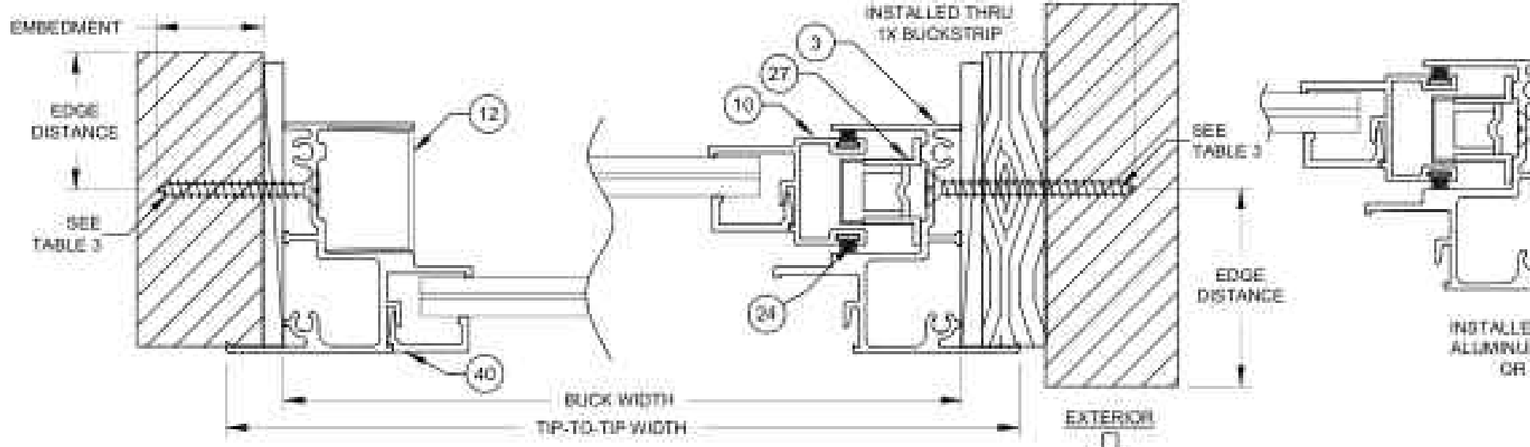
SCALE	SHEET	DRAWING
NTS	1 OF 4	SH4100A

SH4100/FLPA

ANTHONY LYNN MILLER
LICENSE
No. 88705
STATE OF FLORIDA
PROFESSIONAL ENGINEER
10/7/25
A. LYNN MILLER, P.E.
P.E.# 88705



VERTICAL SECTION B-B



HORIZONTAL SECTION A-A

TABLE 3: THROUGH-FRAME ANCHORS

Anchor	Substrate	Minimum Edge Distance	Minimum Embedment	Max. O.C. (Above / Below Meeting Rail)
#12 Steel SMS Screw (G5)	Southern Pine (SG = .55)	9/16"	1-3/8"	21" / 23"
	Aluminum, 6063-T5 min.	3/8"	0.078"	21" / 23"
	Steel Stud, Gr. 33 min.	3/8"	0.045" (20 Ga)	21" / 23"
	A36 Steel	3/8"	0.050"	21" / 23"
1/4" Steel Ultracon+	Southern Pine (SG = .55)	1"	1-3/8"	21" / 23"
	Concrete (min. 3.0 ksi)	1-7/8"	1-3/8"	21" / 23"
	Grouted CMU, (ASTM C-90)	2-1/2"	1-3/4"	21" / 23"
	Ungrouted CMU, (ASTM C-90)	1"	1-1/4"	12-1/4" / 12-1/4"
1/4" 410 SS CreteFlex	Southern Pine (SG = .55)	1"	1-3/8"	21" / 23"
	Concrete (min. 3.35 ksi)	1"	1-3/4"	21" / 23"
	Concrete (min. 3.35 ksi)	2-1/2"	1"	21" / 23"
	Ungrouted CMU, (ASTM C-90)	1-3/4"	1-1/4"	21" / 23"

1) ANCHOR MUST EXTEND A MINIMUM OF 3 THREADS BEYOND ANY METAL SUBSTRATE.
2) "UNGROUTED CMU" VALUES MAY BE USED FOR GROUTED CMU APPLICATIONS.
3) ALL ANCHOR HEAD TYPES ARE ALLOWED.

MULLION SECTION
APPROVED MULLION, MAY BE VERTICAL OR HORIZONTAL

NOTES:

1) USE ONLY SUBSTRATE APPROPRIATE ANCHORS LISTED IN TABLE 3. 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 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 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 1 & TABLE 3 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.

REV	A
#'s/ΔΔ	
DATE	10/7/25
BY	
NO CHANGES THIS SHEET	
INITIALS	

PREPARED BY: A. LYNN MILLER
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08/19/25

COLTON KEMPF

SH4100/FLPA

SH WINDOW INSTALLATION (LM)

ANCHOR INFORMATION, CROSS SECTION

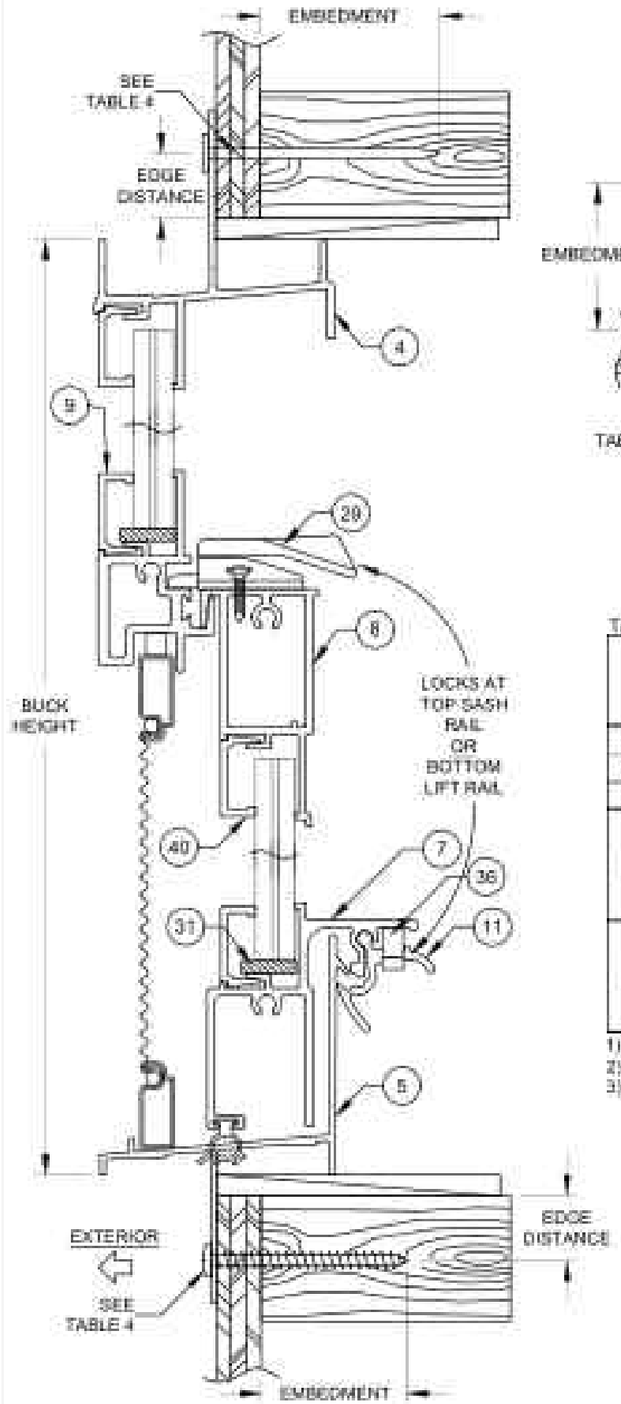
2 OF 4

SH4100A

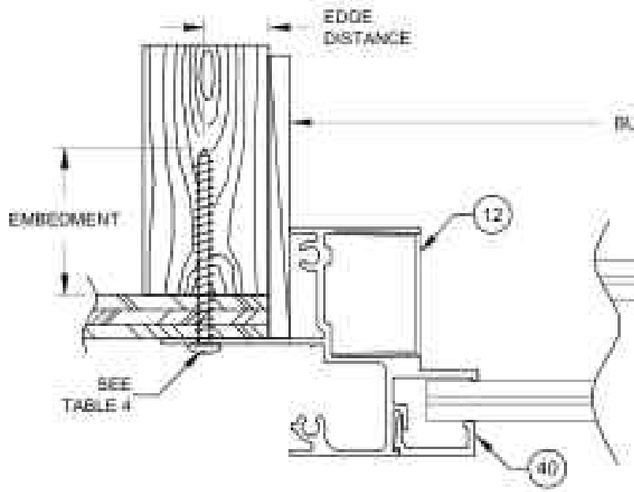
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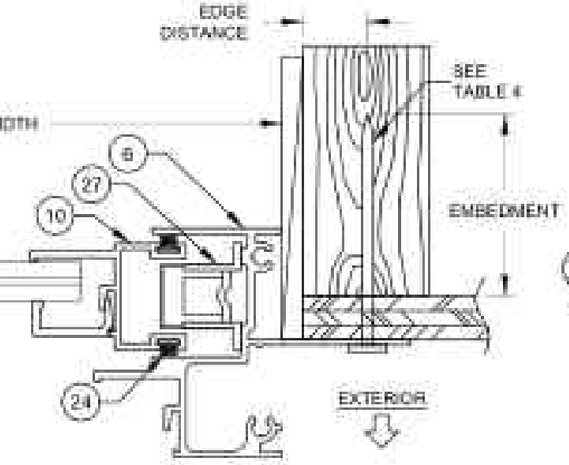
ANTHONY LYNN MILLER
LICENSE
No. 68705
10/7/25
STATE OF FLORIDA
PROFESSIONAL ENGINEER

A. LYNN MILLER, P.E.
P.E.# 68705

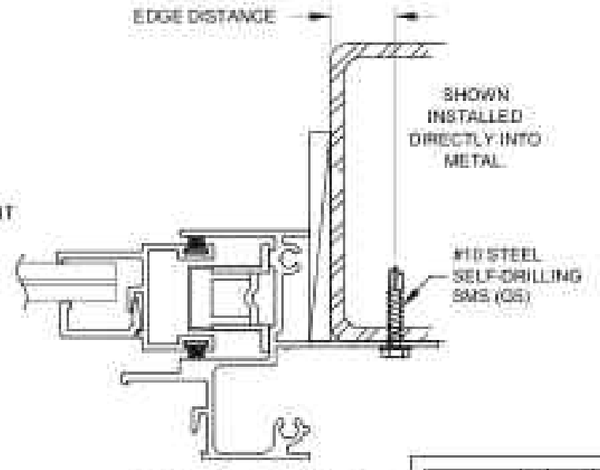


VERTICAL SECTION D-D





HORIZONTAL SECTION C-C

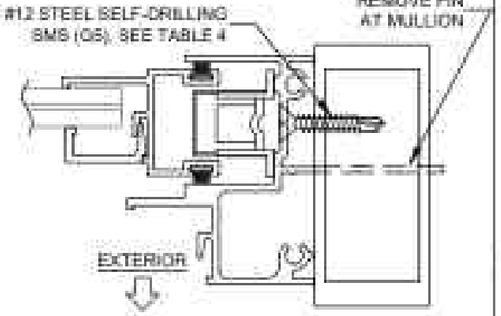


APPROVED ALUMINUM, STEEL FRAMING OR STEEL STUD

TABLE 4: THROUGH-FIN ANCHORS

Anchor	Substrate	Min. Embedment or Metal Thickness	Min. Edge Distance	Max. On-center Distance, O.C.	Max. Corner Distance
2-1/2" x .113" Box Nail	Southern Pine (SG = .55)	-	3/8"	6" @ Head/Sill 6" @ Jambs	2'-0"
2-1/2" x .131" Common Nail	Southern Pine (SG = .55)	-	3/8"		
2-1/2" x .145" Roofing Nail	Southern Pine (SG = .55)	-	3/8"		
#10 Steel SMS Screw (GS)	Southern Pine (SG = .55)	1-3/8"	1/2"	17-9/16" @ Head/Sill 15" @ Jambs	5-1/2"
	Aluminum 6063-T5 min.	0.100"	3/8"		
	Steel Stud, Gr. 33 min.	0.057"	3/8"		
	A36 Steel	0.054"	3/8"		
#12 Steel SMS Screw (GS)	Southern Pine (SG = .55)	1-3/8"	9/16"	17-9/16" @ Head/Sill 20" @ Jambs	6-1/2"
	Aluminum 6063-T5 min.	0.125"	7/16"		
	Steel Stud, Gr. 33 min.	0.071"	7/16"		
	A36 Steel	0.056"	7/16"		

1) ANCHOR MUST EXTEND A MINIMUM OF 3 THREADS BEYOND ANY METAL SUBSTRATE.
2) ALL HEAD TYPES ARE ACCEPTABLE FOR #10 SCREWS.
3) USE ONLY PAN OR HEX HEAD TYPES FOR #12 SCREWS WHEN INSTALLING THROUGH THE FIN.



MULLION SECTION
APPROVED MULLION, MAY BE VERTICAL OR HORIZONTAL.

NOTES:

1) USE ONLY SUBSTRATE APPROPRIATE ANCHORS LISTED IN TABLE 4. FOLLOW EMBEDMENT AND EDGE DISTANCE LIMITS. ANY INSTALLATION OPTION SHOWN MAY BE USED ON ANY SIDE OF THE WINDOW.

2) 2X WOOD FRAMING OR BUCK, 1-1/2" THICK OR GREATER.

3) SEE SHEET 1 & TABLE 4 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	10/7/25	NO CHANGES THIS SHEET

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SH WINDOW INSTALLATION (LM)

ANCHOR INFORMATION, CROSS SECTION

SHEET 3 OF 4

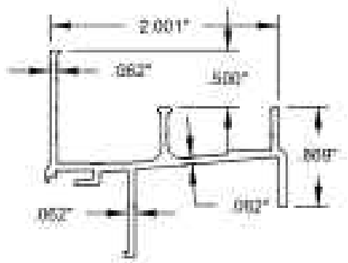
DRAWING SH4100A

SERIES/HOME SH4100/FLPA

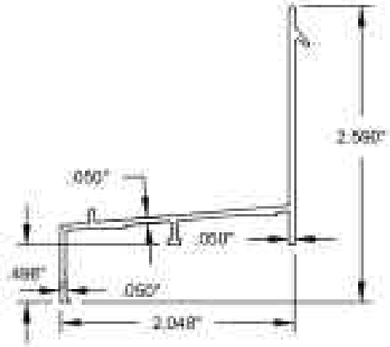
ANTHONY LYNN MILLER
LICENSE
No. 69705
10/7/25
STATE OF FLORIDA
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
P.E.# 69705

TABLE 5:

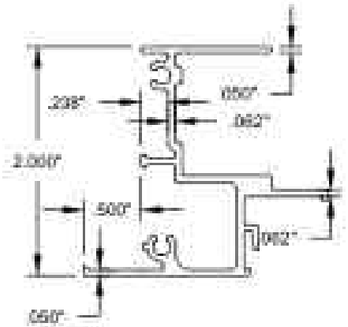
Item #	Description
1	Flange Frame Head
2	Flange Frame Sill
3	Flange Frame Jamb
4	Integral Fin Frame Head
5	Integral Fin Frame Sill
6	Integral Fin Frame Jamb
7	Sash Bottom Rail
8	Sash Top Rail
9	HD Fixed Meeting Rail
10	Sash Side Rail
11	Sash Bottom Lock
12	Vinyl Sash Stop
20	Vinyl Bulb, Flex PVC 70
21	Frame Corner Gasket, Polyethelyne, opt.
22	Sash Corner Gasket, Polyethelyne, opt
23	Fixed Meeting Rail Plug, Rigid PVC
24	Wstp, .187" X .230" Fin Seal
25	Frame/Sash Corner Sealant, opt.
26	Balance Take-out Clip
27	Balance
28	Sash Cam, Nylon
29	Sweep Latch, Zinc
30	#6 X 5/8" Ph. Fl. SMS Latch Screws
31	Setting Block 1/8" x 1/2" x 1", EPDM
36	Sash Bottom Lock Spring
38	Glazing Sealant
40	Vinyl Glass Bead



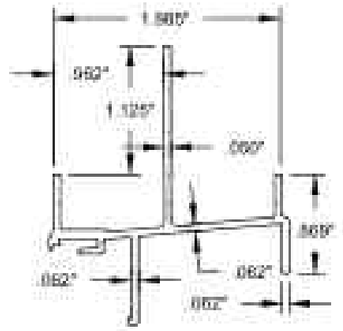
1 FLANGE FRAME HEAD
6063-T6 ALUMINUM



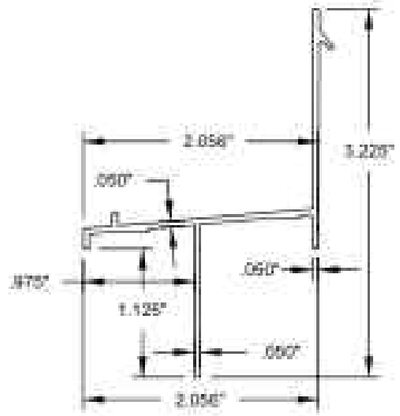
2 FLANGE FRAME SILL
6063-T6 ALUMINUM



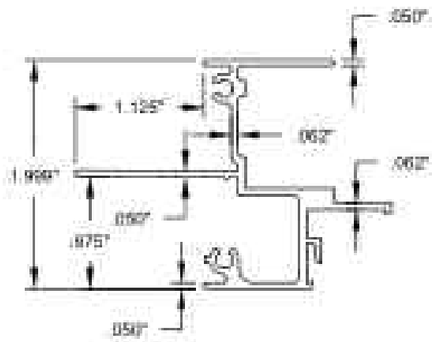
3 FLANGE FRAME JAMB
6063-T6 ALUMINUM



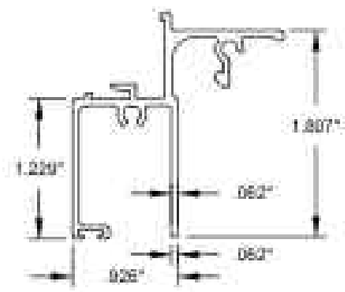
4 INTEGRAL FIN FRAME HEAD
6063-T6 ALUMINUM



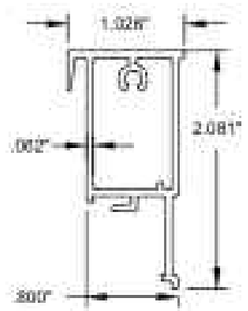
5 INTEGRAL FIN FRAME SILL
6063-T6 ALUMINUM



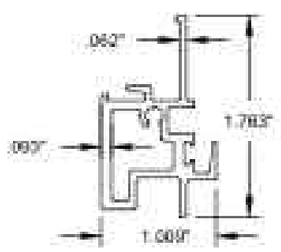
6 INTEGRAL FIN FRAME JAMB
6063-T6 ALUMINUM



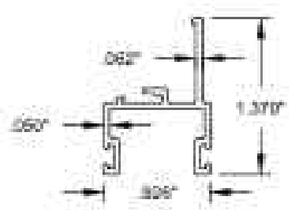
7 SASH BOTTOM RAIL
6063-T6 ALUMINUM



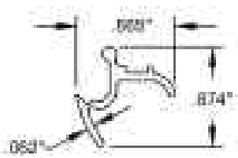
8 SASH TOP RAIL
6063-T6 ALUMINUM



9 HD FIXED MEETING RAIL
6063-T6 ALUMINUM



10 SASH SIDE RAIL
6063-T6 ALUMINUM



11 SASH BOTTOM LOCK RAIL
6063-T6 ALUMINUM

A	10/7/25	NO CHANGES THIS SHEET	

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DATE: 08/19/25
DRAWN BY: COLTON KEMPF
SH WINDOW INSTALLATION (LM)
GLAZING INFORMATION & DESIGN PRESSURES
SHEET NO: 4 OF 4
JOB NO: SH4100A
DRAWING NO: SH4100FLPA

ANTHONY LYNN MILLER
LICENSE
No. 59705
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STATE OF FLORIDA
PROFESSIONAL ENGINEER
A. LYNN MILLER, P.E.
P.E. # 59705