

ES WINDOWS AND DOORS

SERIES ES-V150 FIXED WINDOW

VINYL, LARGE MISSILE IMPACT, HVHZ

GENERAL NOTES:

1. THE PRODUCT DETAILS CONTAINED HEREIN ARE BASED UPON SIGNED AND SEALED TEST REPORTS BY PRI CONSTRUCTION MATERIALS TECHNOLOGIES LLC; TEST REPORT NO. 2836T0004 . PERFORMANCE TEST PROTOCOLS AND STANDARDS USED IN TESTING WERE:
1.1. TAS 202-94, TAS 201-94 & 203-94.
1.2. AAMA/WDMA/CSA 101/I.S.2/A440-17.
1.3. ASTM E1886-19 AND 1996-20.
2. THIS PRODUCT CAN BE USED INSIDE AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE (HVHZ).
3. ADEQUACY OF THE EXISTING STRUCTURAL CONCRETE / MASONRY AND 2X FRAMING FRAMING SUBSTRATES AS A MAIN WIND FORCE RESISTING SYSTEM CAPABLE OF WITHSTANDING AND TRANSFERRING APPLIED PRODUCT LOADS TO THE FOUNDATION IS THE RESPONSIBILITY OF THE LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT ACTING AS THE DESIGN PROFESSIONAL OF RECORD FOR THE PROJECT OF INSTALLATION.
4. 1X AND 2X BUCKS (WHEN USED) SHALL BE DESIGNED AND ANCHORED TO PROPERLY TRANSFER ALL LOADS TO THE STRUCTURE. BUCK DESIGN AND INSTALLATION IS THE RESPONSIBILITY OF THE LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT ACTING AS THE DESIGN PROFESSIONAL OF RECORD FOR THE PROJECT OF INSTALLATION.
5. WHEN INSTALLED IN LOCATIONS WHERE WINDBORNE DEBRIS PROTECTION REQUIREMENTS EXIST,THIS PRODUCT DOES NOT REQUIRE OPENING PROTECTION.
6. SITE CONDITIONS NOT COVERED IN THIS PRODUCT EVALUATION DOCUMENT ARE SUBJECT TO ADDITIONAL ENGINEERING ANALYSIS BY A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
7. MATERIALS:
7.1. FRAME: RIGID PVC / VINYL BY DECEUNINCK. SEE LATEST DECEUNINCK NORTH AMERICA, LLC M.D. NOTICE OF ACCEPTANCE (N.O.A.) FOR PVC / VINYL CONFORMANCE TO PLASTICS REQUIREMENTS OF THE FLORIDA BUILDING CODE.
7.2. SENTRY GLASS INTERLAYER BY KURARAY AMERICA INC. PER LATEST M.D. NOTICE OF ACCEPTANCE (N.O.A.).
8. GLAZING:
8.1. GLASS MEETS THE REQUIREMENTS OF ASTM E1300-16.
8.2. SEE GLAZING DETAILS ON SHEET 7 OF 8. SEE ASPECT RATIO REQUIREMENTS ON SHEET 8 OF 8.
8.3. THE IGU WAS SET FROM THE EXTERIOR ONTO A BED OF DOWSIL 993 SILICONE SEALANT AND SECURED IN PLACE WITH VINYL GLAZING BEADS.
8.4. GLASS SHALL MEET SAFETY GLAZING REQUIREMENTS PER CURRENT EDITION OF THE FLORIDA BUILDING CODE.
8.5. ALL SETTING BLOCKS SHALL BE IN COMPLIANCE WITH THE CURRENT EDITION OF THE FLORIDA BUILDING CODE. SETTING BLOCKS SHALL BE NEOPRENE WITH A 70 TO 90 SHORE A DUROMETER.
9. DESIGNATION "O" STANDS FOR FIXED LITE.
10. THESE DRAWINGS CERTIFY THE WINDOW INSTALLATION ONLY. WATER PROOFING OF THE INSTALLED WINDOW IS NOT PART OF THIS INSTALLATION CERTIFICATION. THAT RESPONSIBILITY SHALL BE THAT OF THE MANUFACTURER AND/OR THE INSTALLER.
11. GEOMETRIC SHAPES ARE ALSO APPROVED. APPROVED GEOMETRIC SHAPE DIMENSIONS SHALL NOT EXCEED INSCRIBED DIMENSIONS OF APPROVED RECTANGULAR ASSEMBLIES SHOWN ON SHEET 2.

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5	ANCHOR SCHEDULE
6	ANCHOR DETAILS
7	BILL OF MATERIALS & GLAZING DETAIL
8	GEOMETRIC SHAPES ASPECT RATIO

PERFORMANCE RATING			
MAXIMUM WINDOW SIZE	INSTALLATION TYPE	DESIGN PRESSURE (PSF)	IMPACT RATING
96” x 63”	THROUGH FRAME (RETROFIT)	+ 65 / – 65	L.M. IMPACT (HVHZ), AND MISSILE LEVEL D WIND ZONE 4

INSTALLATION NOTES:

1. PRODUCT ANCHORS SHALL BE AS DESIGNATED AND LOCATED AS SHOWN IN THIS PRODUCT EVALUATION DOCUMENT. ANCHOR EMBEDMENT AND EDGE DISTANCE EXCLUDE WALL FINISHES, INCLUDING BUT NOT LIMITED TO STUCCO, FOAM, BRICK VENEER AND SIDING.
2. SEE INSTALLATION ANCHOR SCHEDULE ON SHEET 5 FOR TYPE AND GRADE OF ANCHOR, AND/OR MANUFACTURER'S ANCHOR SPECIFICATIONS, INCLUDING MINIMUM NOMINAL SIZE, MINIMUM EMBEDMENT INTO SUBSTRATE AND MINIMUM EDGE DISTANCES.
2.1. EDGE DISTANCES SHALL BE MEASURED FROM CENTERLINE OF ANCHOR TO EDGE OF STRUCTURAL SUBSTRATE EITHER TO THE INTERIOR OR EXTERIOR OF THE FENESTRATION PRODUCT.
2.2. MINIMUM EMBEDMENT SHALL BE BASED ON PENETRATION INTO MAIN WIND FORCE RESISTING SYSTEM SUBSTRATE.
3. SEE SHEET 6 FOR SPECIFIC ANCHOR INSTALLATION DETAILS.
4. ONE (1) INSTALLATION ANCHOR IS REQUIRED AT EACH ANCHOR LOCATION SHOWN.
5. ANCHOR QUANTITIES AND SPACING / EMBEDMENT AND EDGE DISTANCE
5.1. THE NUMBER OF INSTALLATION ANCHORS IS BASED ON THE MAXIMUM END DISTANCE (ED) AND THE MAXIMUM ON CENTER (O.C.) SPACING PLACEMENT OF ANCHORS IN ACCORDANCE WITH ELEVATIONS ON SHEET 3.
5.2. END DISTANCES AND O.C. SPACINGS LESS THAN THAT SHOWN IN THE ELEVATIONS ON SHEETS 2, 3 and 4 ARE ACCEPTABLE.
5.3. FOR WINDOW SIZES SMALLER THAN THOSE SHOWN, ANCHOR QUANTITIES CAN BE REDUCED WHILE MAINTAINING EDGE DISTANCE AND O.C. SPACING REQUIREMENTS.
5.4. ANCHOR QUANTITIES AND SPACINGS SHOWN ARE BASED ON THE LOWER OF ANCHOR SPACING USED IN TESTING OR REQUIRED BY LOADING AT DESIGN PRESSURE.
5.5. SEE SPACING, EMBEDMENT AND EDGE DISTANCE REQUIREMENTS IN THE INSTALLATION ANCHOR SCHEDULE ON SHEET 5.
6. MAXIMUM ALLOWABLE SHIM THICKNESS IS 1/4 INCH. SHIM WHERE SPACE OF 1/16 INCH OR GREATER OCCURS. SHIM(S) SHALL BE CONSTRUCTED OF WOOD COMPOSITE, HIGH DENSITY PLASTIC OR SIMILAR LOAD BEARING MATERIAL.
7. FOR CONCRETE BLOCK APPLICATIONS DO NOT INSTALL INSTALLATION ANCHORS INTO MORTAR JOINTS.
8. INSTALLATION ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS AND ANCHORS SHALL NOT BE USED IN SUBSTRATES WITH STRENGTHS LESS THAN THE MINIMUM STRENGTH SPECIFIED IN THE INSTALLATION ANCHOR SCHEDULE ON SHEET 5.

This item has been digitally signed and sealed by Robert J. Amoruso, PE on the date adjacent to the seal. Signature must be verified on any electronic copies.

ES WINDOWS & DOORS
3550 NW 49TH STREET
MIAMI, FLORIDA 33142

SERIES ES-V150 L.M. IMPACT FIXED WINDOW

INSTALLATION ANCHORAGE DETAILS

REVISION DESCRIPTION	DATE	4/2/26			
	BY	RJA			
	EDITORIAL REVISION. NO CHANGES TO INSTALLATION REQUIREMENTS.				
	NO.	A			

DATE: 10/01/2024	DWN BY: JM	CHK BY: RJA	SCALE: NONE
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ROBERT J. AMORUSO, P.E. #49752
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Digitally signed by Robert J Amoruso
Date: 2026.04.02 15:14:27 -04'00'

PROJECT#: ACE-2024-212

DWG/REV: SCS-0028, Rev A

SHT: 1 of 8

SERIES ES-V150 L.M. IMPACT FIXED WINDOW INSTALLATION ANCHORAGE DETAILS	DATE	BY	REVISION DESCRIPTION	NO.
	4/2/26	RJA		
			EDITORIAL REVISION. NO CHANGES TO INSTALLATION REQUIREMENTS.	A

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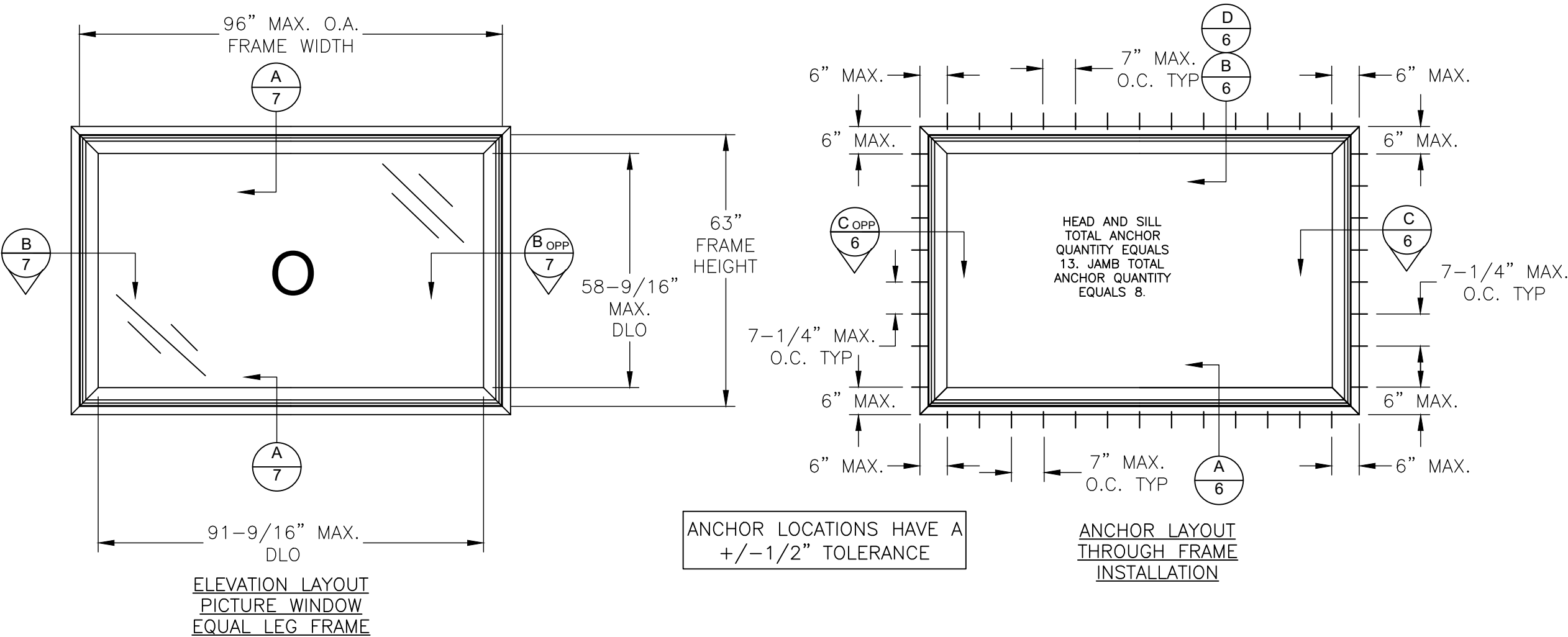
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PROJECT#: ACE-2024-212

DWG/REV: SCS-0028, Rev A

SHT: 2 of 8

**FIXED WINDOW ELEVATION
INSTALLATION ANCHOR SCHEDULE**



SERIES ES-V150 L.M. IMPACT FIXED WINDOW
INSTALLATION ANCHORAGE DETAILS

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DATE: 10/01/2024	DWN BY: JM	CHK BY: RJA	SCALE: NONE
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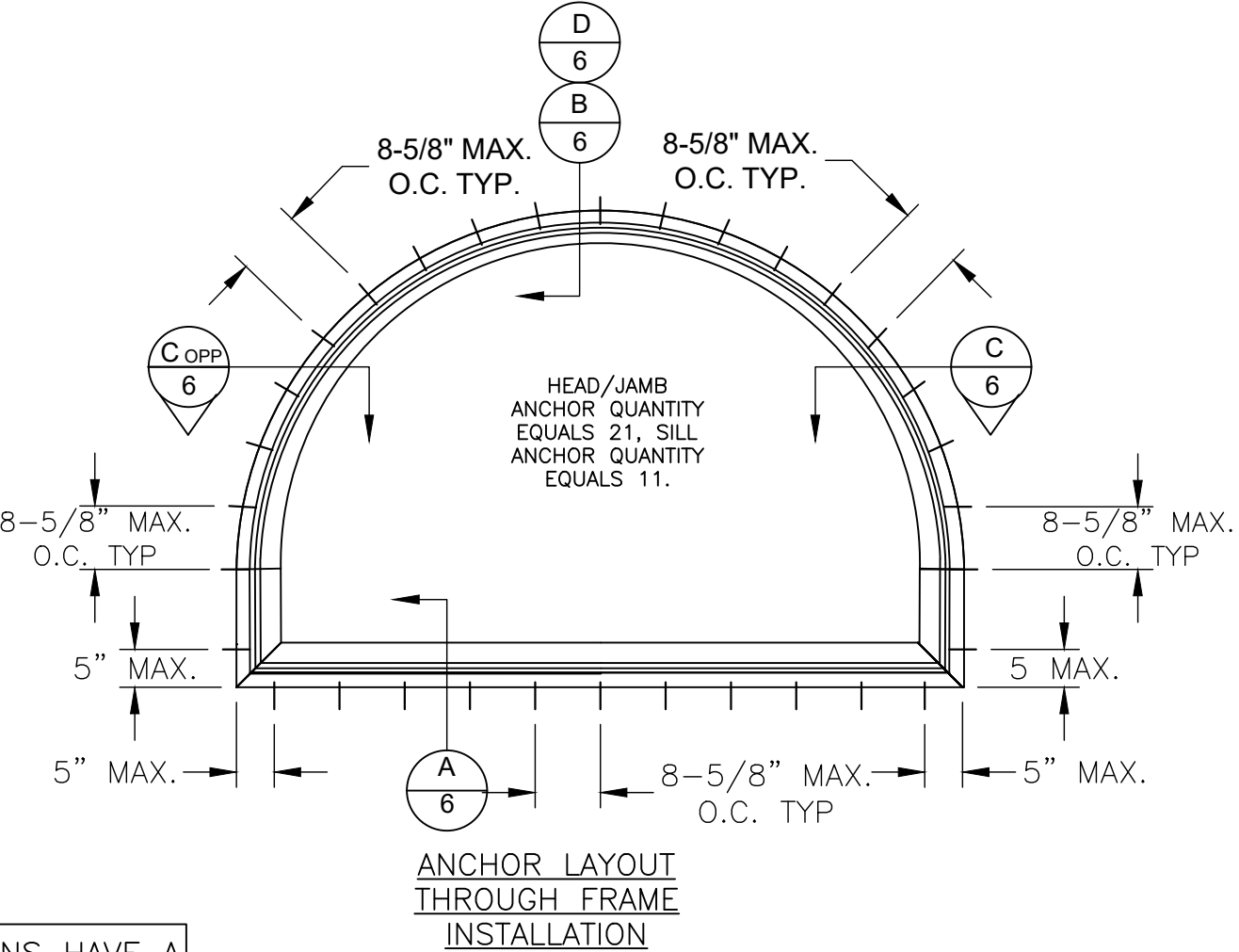
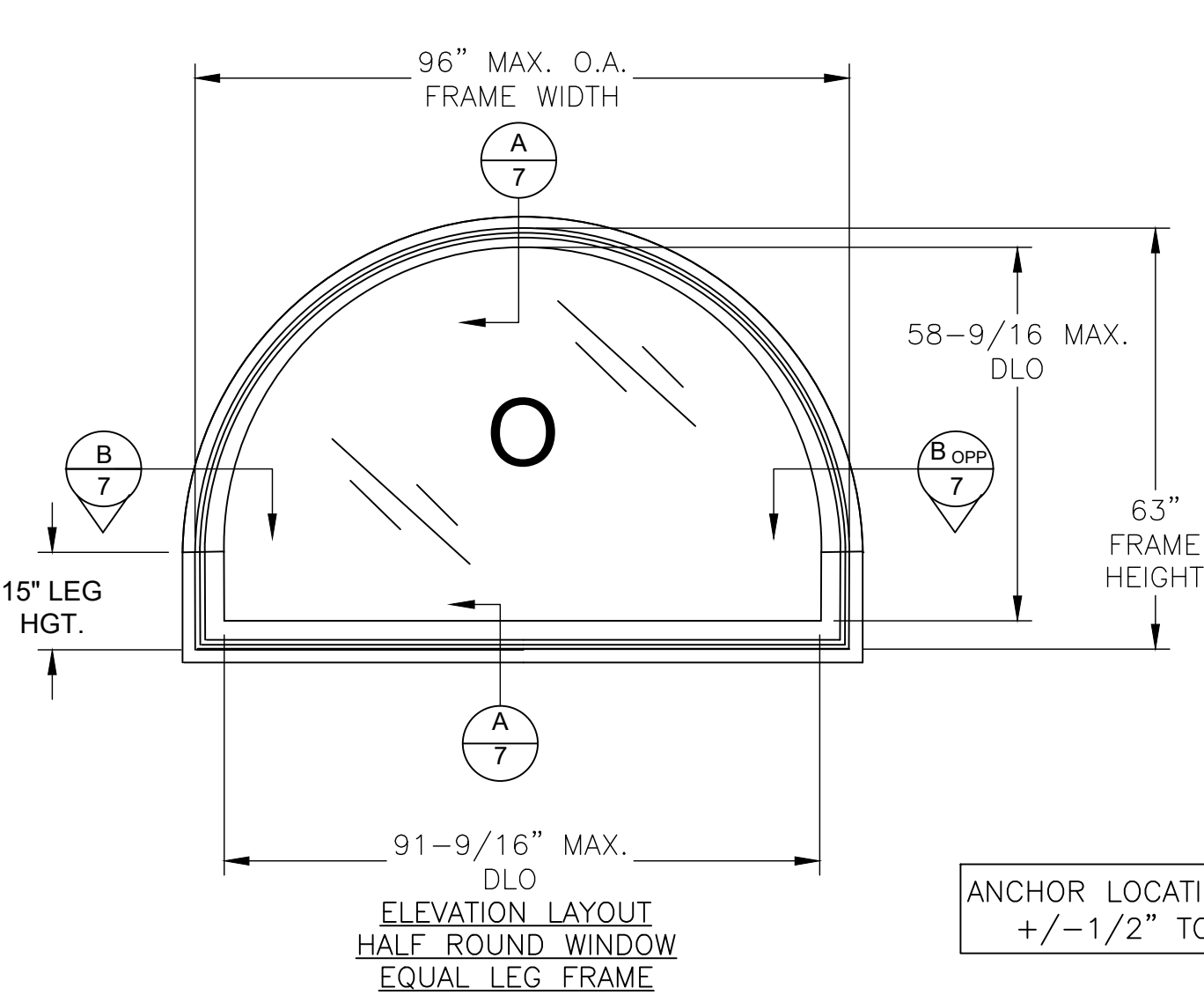
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DWG/REV: SCS-0028, Rev A

SHT: 3 of 8

ANCHOR LAYOUT ELEVATIONS
THROUGH (RETROFIT) FRAME



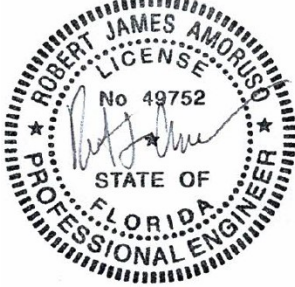
ANCHOR LOCATIONS HAVE A
+/-1/2" TOLERANCE

SERIES ES-V150 L.M. IMPACT FIXED WINDOW
INSTALLATION ANCHORAGE DETAILS

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DATE: 10/01/2024	DWN BY: JM	CHK BY: RJA	SCALE: NONE
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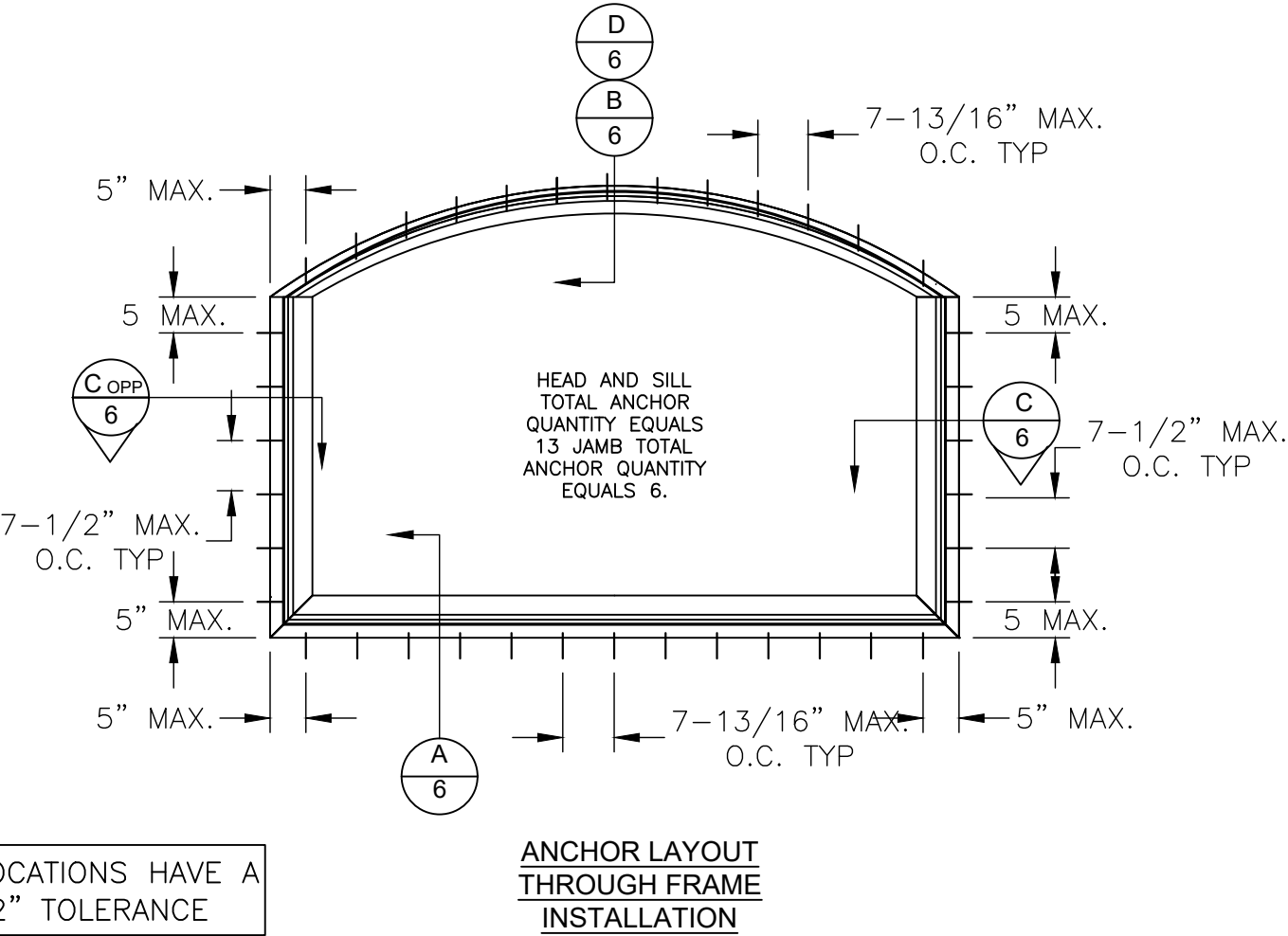
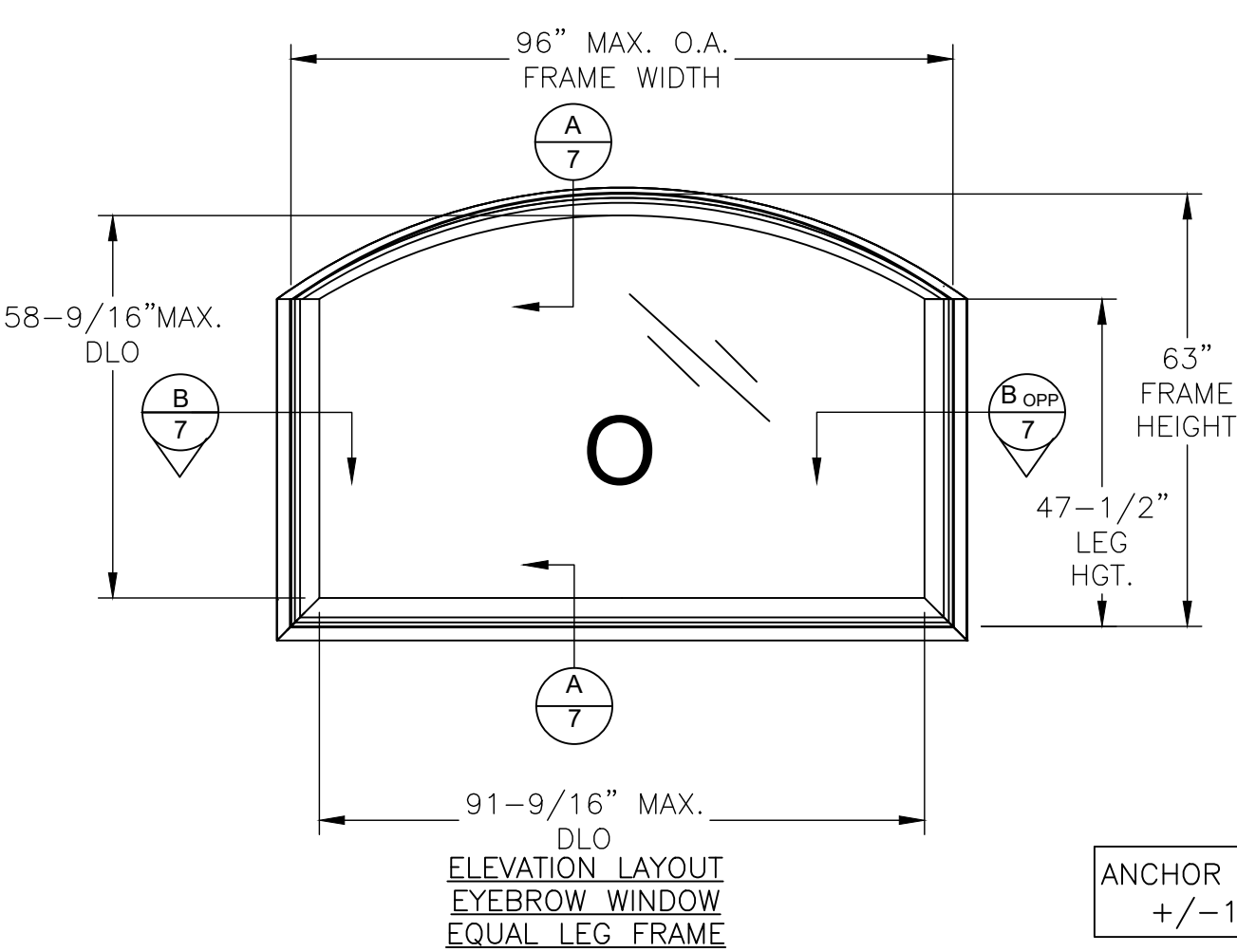
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DWG/REV: SCS-0028, Rev A

SHT: 4 of 8

FIXED WINDOW ELEVATION
INSTALLATION ANCHOR SCHEDULE



ANCHOR SCHEDULE
THROUGH (RETROFIT) FRAME

ANCHOR SCHEDULE							
ANCHORING METHOD	SUBSTRATE	SCREW HEAD TYPE	SCREW SIZE	MANUFACTURER AND/OR SPECIFICATION (1)	EMBEDMENT (IN)	EDGE DISTANCE (IN)	ANCHOR CAPACITIES BASED ON THE FOLLOWING SUBSTRATE STRENGTHS
THROUGH FRAME	CONCRETE	HEX OR PAN HEAD PREFERRED.	1/4"	ITW TAPCONS	1-1/2"	1-1/2"	MIN. 2500 PSI CONCRETE
	MASONRY (BLOCK/CMU)	FLAT HEAD ACCEPTABLE.	1/4"	ITW TAPCONS	1"	2"	ASTM C90 MED. WT. (DENSITY) > 117 PCF MASONRY (CMU) MIN
	WOOD	PAN HEAD PREFERRED. FLAT HEAD ACCEPTABLE.	NO. 14	ANSI B18.6.1 (WOOD SCREW)	1-1/2"	1"	WOOD WITH A MINIMUM SPECIFIC GRAVITY: 0.55 (HVHZ) OR 0.42 (NON-HVHZ)
			NO. 14	ASME B18.6.4 (TAPPING SCREW)	1-1/2"	1"	
	STEEL STUD	PAN HEAD PREFERRED. FLAT HEAD ACCEPTABLE.	1/4"	ASME B18.6.4 (GRADE 5 TAPPING SCREW) Type AB Threads (requires pilot hole) or Self-Drilling (drill shaped point)	At least three full threads protrude into the interior of the steel stud.	3/8"	STEEL STUD, MIN. 20 GA. 33 MIL., 0.0329 INCH Fy = 33 KSI MIN. AND Fu = 45 KSI MIN.
NOTES:							
(1) ITW (ADVANCED THREADFORM TECHNOLOGY) TAPCONS WILL BE USED FOR CONCRETE/MASONRY INSTALLATION.							

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SHT: 5 of 8

SERIES ES-V150 L.M. IMPACT FIXED WINDOW
INSTALLATION ANCHORAGE DETAILS

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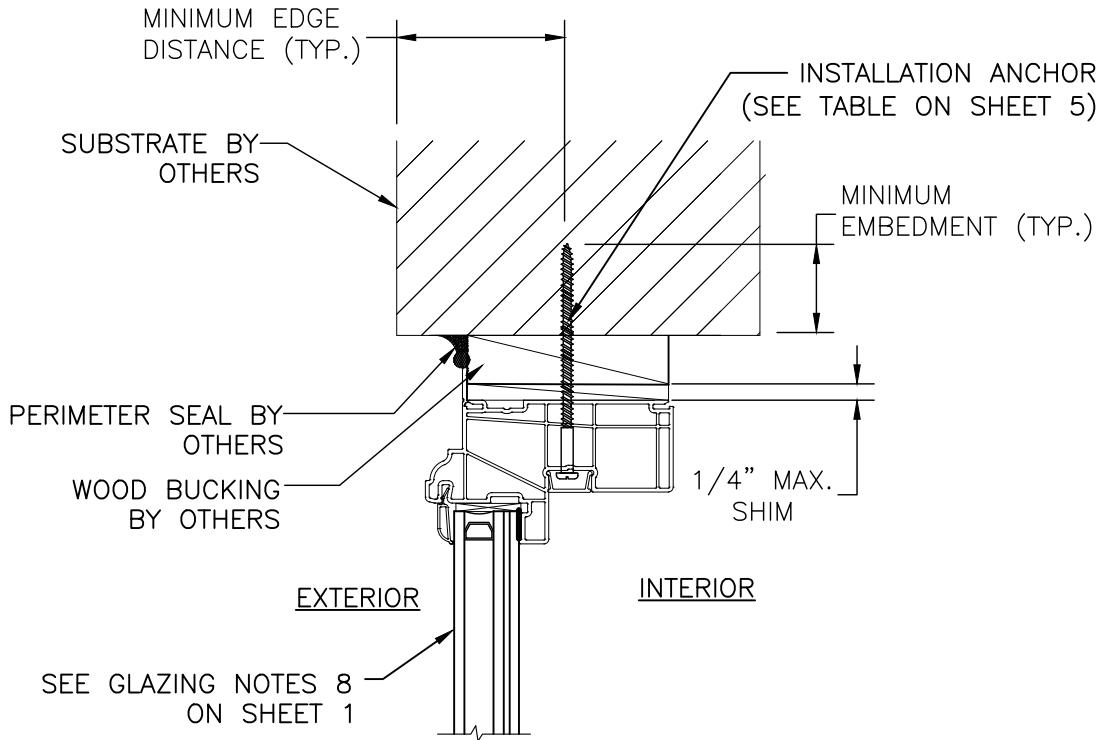
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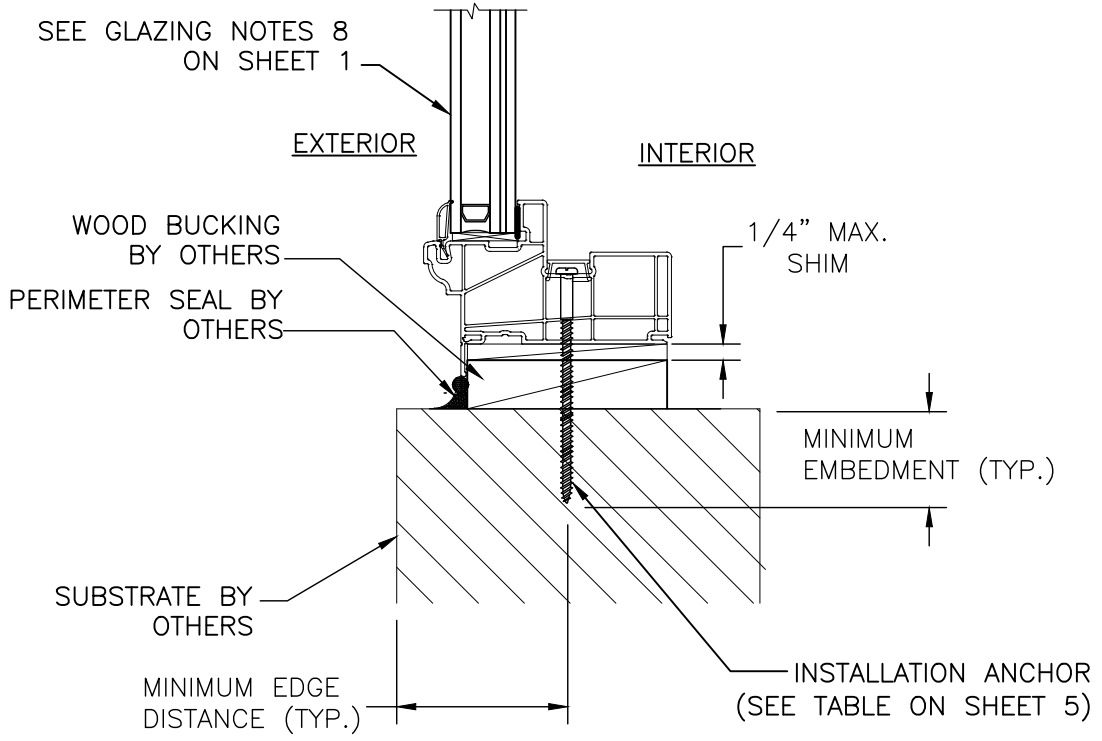


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THROUGH FRAME (RETROFIT) ANCHOR DETAIL

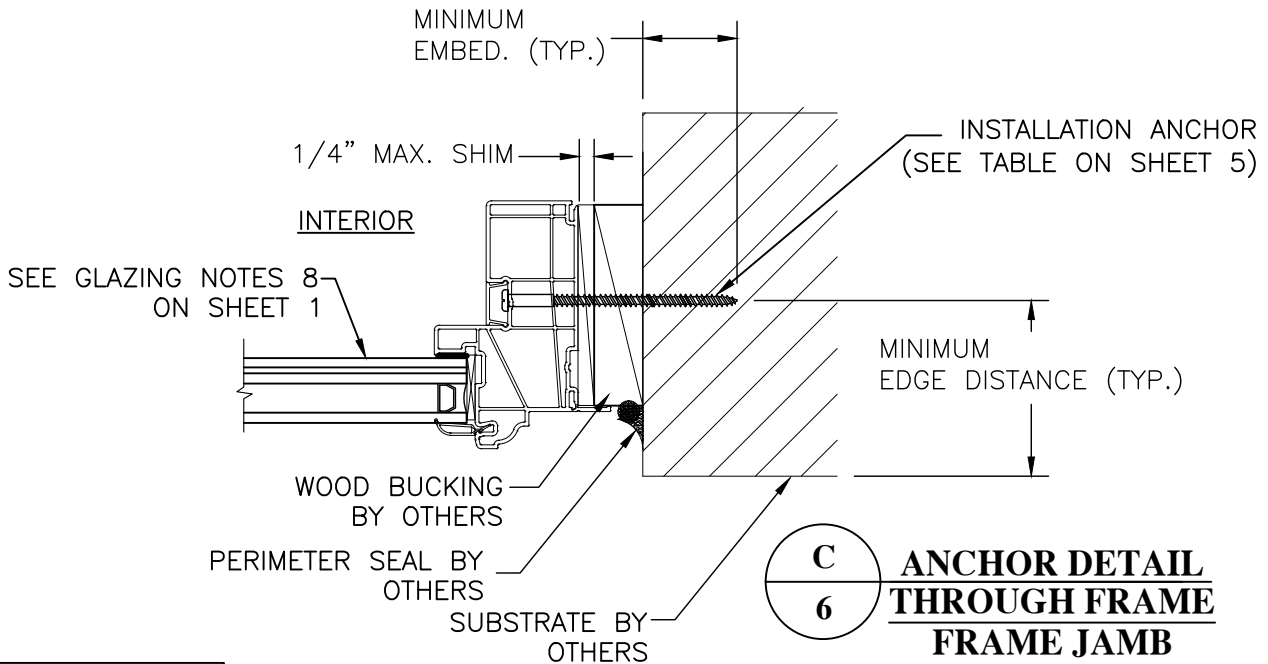


B
6 **ANCHOR DETAIL
THROUGH FRAME
FRAME HEAD**

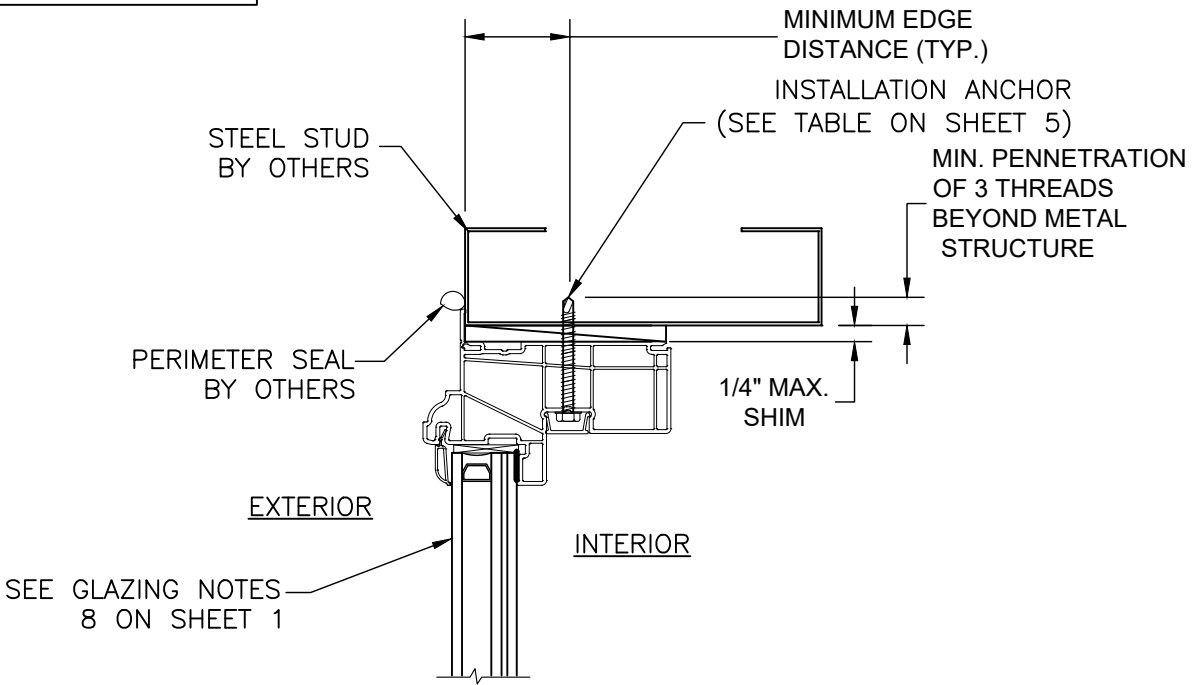


A
6 **ANCHOR DETAIL
THROUGH FRAME
FRAME SILL**

INSULATING LAMINATED
GLASS SHOWN, SEE SHEET 7 FOR
OTHER QUALIFIED GLAZING TYPES.

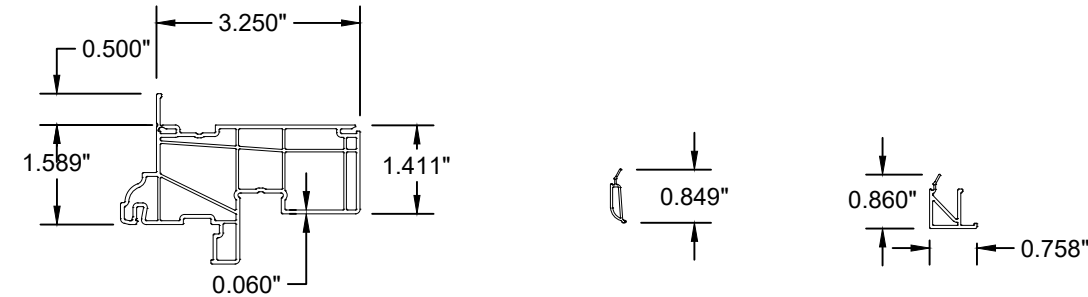


C
6 **ANCHOR DETAIL
THROUGH FRAME
FRAME JAMB**



D
6 **VERTICAL SECTION
STEEL STUD STRUCTURE
FRAME INSTALLATION
HEAD SHOWN, SILL & JAMBS
SIMILAR**

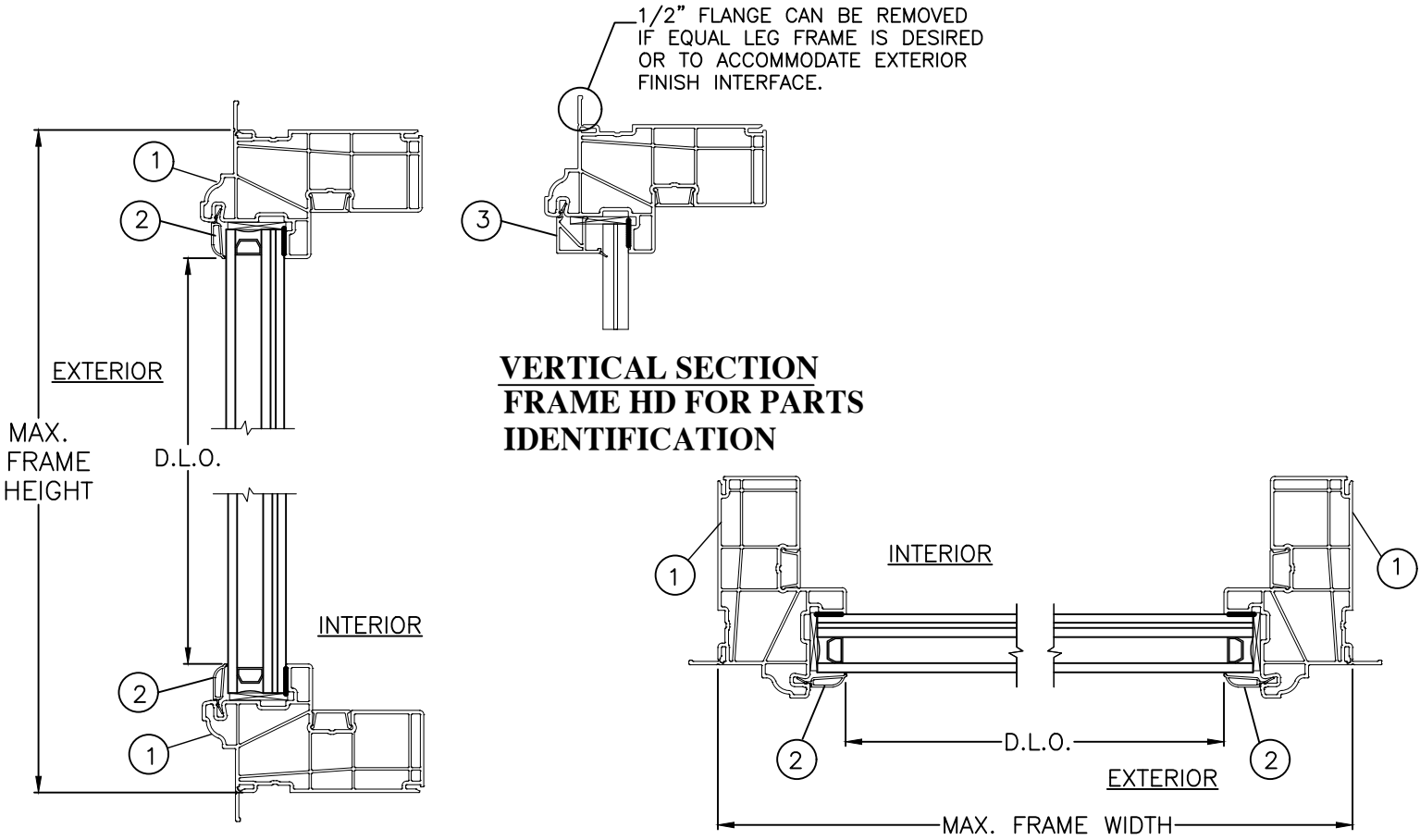
BILL OF MATERIALS			
QUANTITY	PART NO.	DESCRIPTION	MANUFACTURER
1	8996	MAIN FRAME HEAD, JAMB AND SILL, UPVC	DECEUNINCK
2	6177	I.G. LAMINATED GLAZING BEAD, UPVC	DECEUNINCK
3	4712	LAMINATED GLAZING BEAD, UPVC	DECEUNINCK
4	PURCHASE	#14 PAN HEAD WOOD SCREW	DECEUNINCK
5	PURCHASE	1/4 DIAM. TAPCON SCREW	DECEUNINCK



1 MAIN FRAME HEAD/JAMB/SILL
EQUAL LEG UPVC / VINYL-FLANGE

2 GLAZING BEAD
UPVC / VINYL
6172

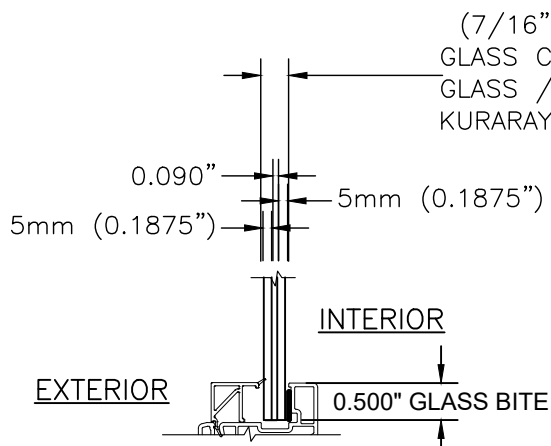
3 GLAZING BEAD
UPVC / VINYL
4172



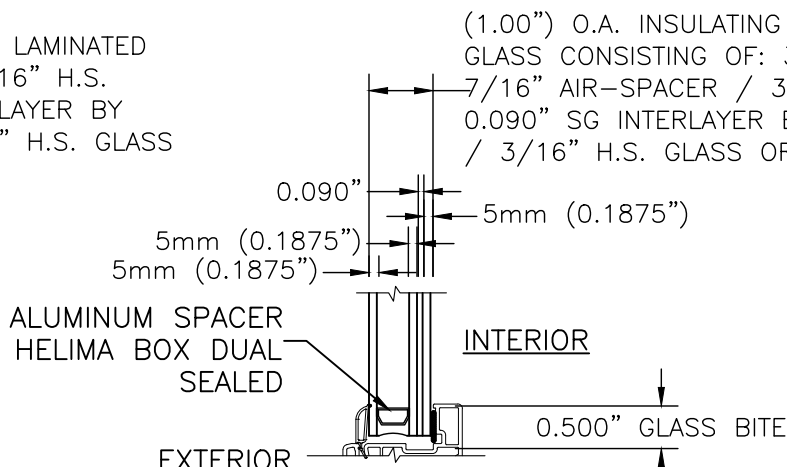
A VERTICAL SECTION
7 FRAME HD/SILL

B HORIZONTAL SECTION
7 FRAME JAMB

B OPP HORIZONTAL SECTION
7 FRAME JAMB



GLAZING DETAIL GL1
LARGE and SMALL MISSILE IMPACT
HVHZ & NON-HVHZ



GLAZING DETAIL GL2
LARGE MISSILE IMPACT – HVHZ & NON-HVHZ
SMALL MISSILE IMPACT – NON-HVHZ ONLY
(*) SMALL MISSILE IMPACT – HVHZ ONLY, EXTERIOR
LITE OF GLASS TYPE GL-2 SHALL BE TEMPERED
GLASS

GLASS NOTES:
HS = HEAT STRENGTHENED
TEMP. = TEMPERED GLASS
SG = KURARAY AMERICA SENTRY GLASS 0.090" INTERLAYER

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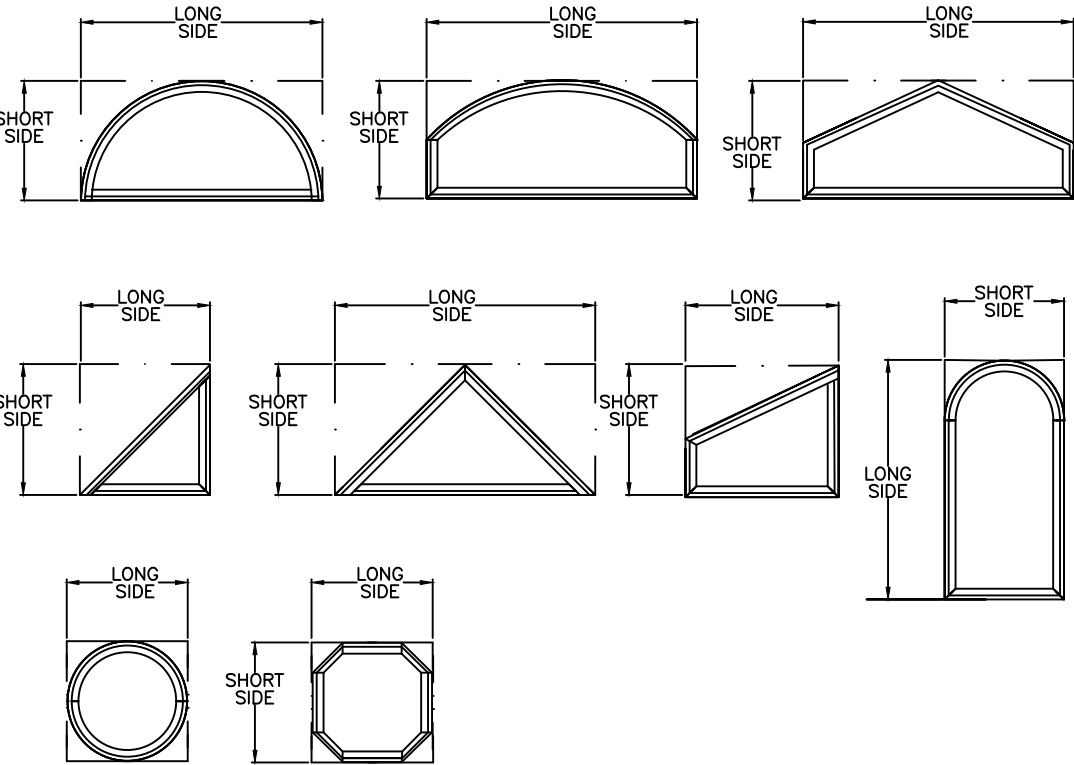
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PROJECT#: ACE-2024-212
DWG/REV: SCS-0028, Rev A
SHT: 7 of 8

APPROVED GEOMETRIC SHAPES
EXTERIOR VIEW



- SHAPES OTHER THAN SHOWN AT RIGHT ARE APPROVED PROVIDING THEY ARE LIKE THOSE SHOWN & HAVE SAME CORNER CONSTRUCTION PER AS-TESTED RECTANGULAR UNITS.
- ALL GEOMETRIC SHAPED WINDOW UNITS MUST FIT INSCRIBED WITHIN THE AS-TESTED RECTANGULAR WINDOW DIMENSIONS (SEE SHEET 2) & BE GOVERNED BY THE ALLOWABLE DESIGN PRESSURE OF THE AS-TESTED UNIT SIZE.
- WINDOW SIZE ASPECT RATIO MUST NOT EXCEED A RATIO OF 5:1 WHERE ASPECT RATIO = Dmax/Dmin:1. Dmax = LONG SIDE OF WINDOW AND Dmin SHORT SIDE OF WINDOW

ASPECT RATIO EVALUATION

MAXIMUM WINDOW SIZE IS 96” X 63”

- Dmax = 96 and Dmin = 63
- Aspect Ratio = 96/63 = 1.52 which translates to an Aspect Ratio of 1.52:1 which is < 5:1 Aspect Ratio
- Therefore, this window size is acceptable.

WINDOW SIZE IS 96” X 9”

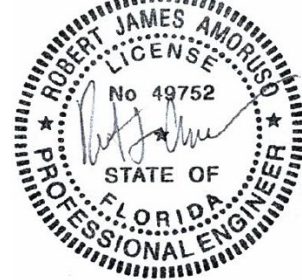
- Dmax = 96 and Dmin = 9
- Aspect Ratio = 96/9 = 10.6 which translates to an Aspect Ratio of 10.67:1 which is > 5:1 Aspect Ratio
- Therefore, this window size is unacceptable.

TYPICAL 5:1 ASPECT RATIO WINDOW SIZES					
Dmax (in)	Dmin (in)	Aspect Ratio	Dmax (in)	Dmin (in)	Aspect Ratio
5	1.0	5:1	55	11.0	5:1
10	2.0	5:1	60	12.0	5:1
15	3.0	5:1	65	13.0	5:1
20	4.0	5:1	70	14.0	5:1
25	5.0	5:1	75	15.0	5:1
30	6.0	5:1	80	16.0	5:1
35	7.0	5:1	85	17.0	5:1
40	8.0	5:1	90	18.0	5:1
45	9.0	5:1	95	19.0	5:1
50	10.0	5:1	96	19.2	5:1

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SHT: 8 of 8