

SERIES 21000 HIGH IMPACT FIXED LAMINATED GLASS WINDOWS LARGE MISSILE IMPACT

GENERAL NOTES:

1. SERIES 21000 HIGH IMPACT FIXED LAMINATED GLASS WINDOWS, SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) HAVE BEEN VERIFIED FOR COMPLIANCE IN ACCORDANCE WITH THE 2020 (7th EDITION) OF THE FLORIDA BUILDING CODE. THESE WINDOWS MAY BE INSTALLED AT HIGH VELOCITY HURRICANE ZONES (H.V.H.Z) AND OUT OF IT (N.H.V.H.Z). DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTIONS 1620 AND 1609 OF THE ABOVE MENTIONED CODE, USING ASCE 7-16 AND SHALL NOT EXCEED THE MAXIMUM (A.S.D.) DESIGN PRESSURE RATES INDICATED ON NOTE 2 BELOW. IN ORDER TO VERIFY THE ABOVE CONDITION, ULTIMATE DESIGN WIND LOADS DETERMINED AS PER 7-16 SHALL BE FIRST REDUCED TO A.S.D. DESIGN WIND LOADS BY MULTIPLYING THEM BY 0.6 IN ORDER TO COMPARE THESE W/MAX. (A.S.D.) DESIGN PRESSURE RATINGS INDICATED ON NOTE 2 BELOW. IN ORDER TO VERIFY THAT ANCHORS ON THIS P.E.D., AS TESTED, WERE NOT OVERSTRESSED, A 33% INCREASE IN ALLOWABLE STRESS FOR WIND LOADS WAS **NOT** USED IN THEIR ANALYSIS. FASTENERS SPACING IN WOOD HAS BEEN DETERMINED IN ACCORDANCE WITH NDS 2018. THESE WINDOWS' ADEQUACY FOR IMPACT AND WIND RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTIONS 1626 & 1609.1.2 OF THE ABOVE MENTIONED CODE AS PER PROTOCOLS TAS-201, TAS-202, & TAS-203, PER FENESTRATION TESTING LAB REPORT # 6058 AND AS PER SUBMITTED STRUCTURAL CALCULATIONS, PERFORMED AS PER SECTIONS 1616 & 1604 OF THE FLORIDA BUILDING CODE.

2. **MAXIMUM A.S.D. DESIGN PRESSURE RATINGS SHALL BE AS PER SCHEDULES SHOWN ON SHEETS 6, 7 & 8. CRITERIA FOR ADDRESSING DIFFERENT SHAPES IS AS EXPLAINED ON THIS SHEET (*).**

3. **THESE WINDOWS WILL NOT REQUIRE A HURRICANE PROTECTION DEVICE.**

4. **THESE WINDOWS ARE APPROVED FOR AIR AND WATER INFILTRATION.**

5. THESE WINDOWS COMPLY WITH SECTION 2406 OF THE FLORIDA BUILDING CODE.

6. ALL ALUMINUM EXTRUSIONS IN CONTACT WITH DISSIMILAR MATERIALS SHALL COMPLY WITH SECTION III-6 OF THE 2015 ALUMINUM DESIGN MANUAL.

7. ALL SCREWS USED FOR ASSEMBLY CONNECTIONS (METAL TO METAL) TO BE STAINLESS STEEL 304 OR 316 AISI SERIES OR CORROSION RESISTANT COATED CARBON STEEL AS PER DIN 50018 AND SECTION 2411.3.3.4 OF THE FLORIDA BUILDING CODE WITH 50 ksi YIELD STRENGTH AND 90 ksi TENSILE STRENGTH.

8. WOOD BUCKS NOT BY GENERAL IMPACT GLASS & WINDOWS, CORP. WOOD BUCKS MUST BE SOUTHERN PINE WITH G=0.55. AND SHALL COMPLY WITH SECTION 2411.3.3.3 OF THE FLORIDA BUILDING CODE. MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER THEM TO THE BUILDING STRUCTURE.

(8.1) 2 X WOOD BUCKS MUST BE PROPERLY ANCHORED TO EXISTING STRUCTURE TO TRANSFER LOADS TO IT. ANCHORAGE IS INDEPENDENT OF WINDOW FRAME ANCHORAGE. WINDOW FRAME MUST BE SEPARATELY ANCHORED TO 2 X WOOD BUCK FOLLOWING DETAILS ON THIS DRAWING.

(8.2) 1 X WOOD BUCK (OR ANY WOOD BUCK LESS THAN 2X) MUST BE PROPERLY ANCHORED TO EXISTING STRUCTURE TO TRANSFER LOADS TO IT. WINDOW FRAME ANCHOR SHALL BE USE TO ATTACH 1 X WOOD BUCK TO EXISTING STRUCTURE BY DRIVING ANCHOR THRU **BOTH WINDOW FRAME & 1 X WOOD BUCK** INTO EXISTING STRUCTURE W/ PROPER EMBEDMENT AND EDGE DISTANCE AS SHOWN ON THIS DRAWING.

(8.3) WINDOW FRAME MAY BE DIRECTLY CONNECTED TO EXISTING STRUCTURE WITH NO NEED OF WOOD BUCKS WHEN MASONRY OPENING IS NOT LARGER THAN ACTUAL WINDOW OVERALL DIMENSIONS. HOWEVER, SHIMS (SEE NOTE 10) MAY BE ALLOWED AT WINDOW FRAME ANCHOR LOCATION IF NEEDED.

9. **ANCHOR NOTES: SEE SHEET 9 FOR MAXIMUM SPACING. EMBEDMENT AND EDGE DISTANCE ARE BEYOND ANY WALL FINISH.**

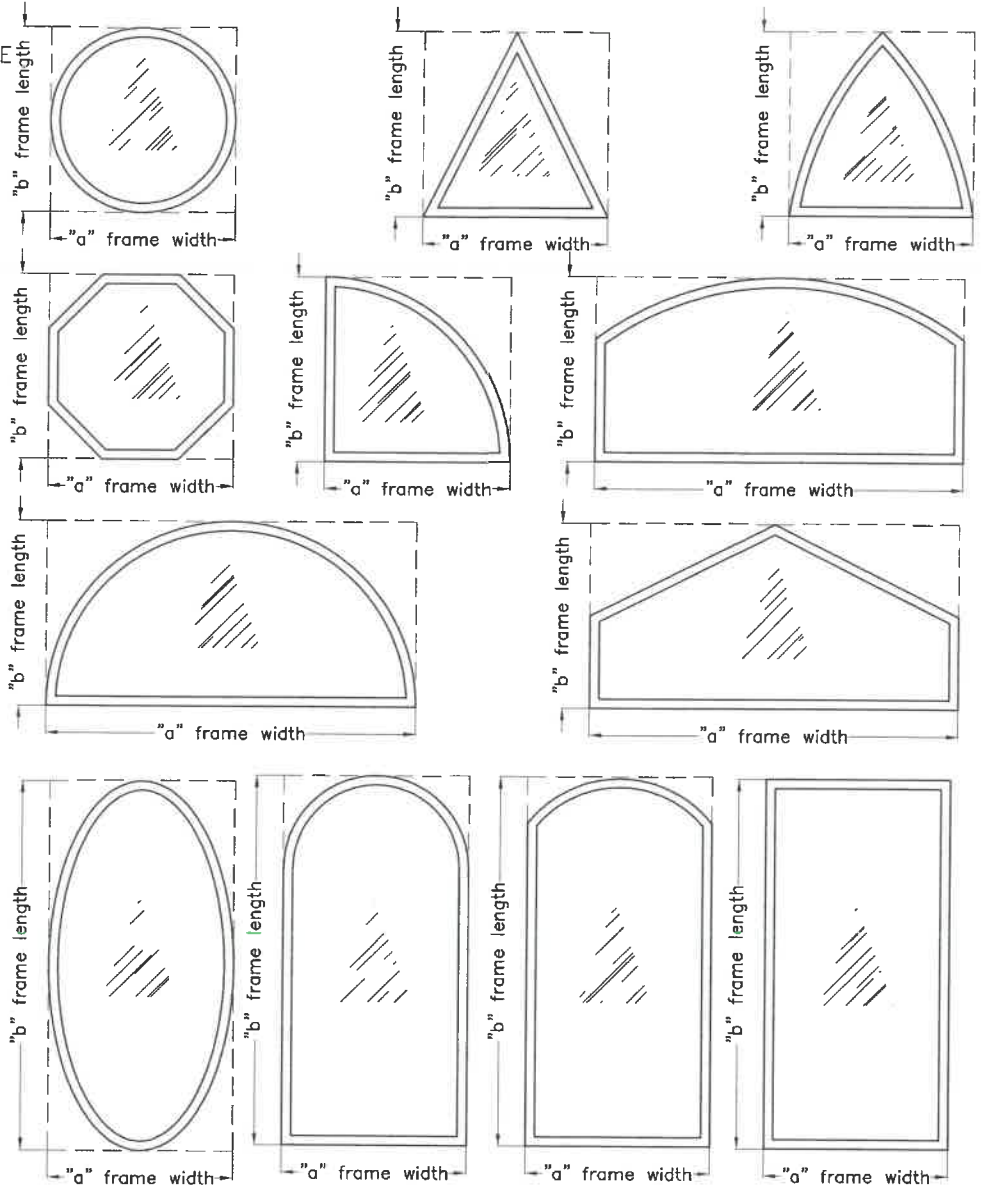
- (A) **TO EXISTING POURED CONCRETE:** (Min. $f'_c = 2730$ psi.), MIN. EDGE DISTANCE = $2\frac{1}{2}"$.
- $1\frac{1}{4}"$ Ø ULTRACON $1\frac{1}{4}"$ MIN. EMBEDMENT, AS MANUFACTURED BY ELCO CONSTRUCTION PRODUCTS. (COMPONENT (8)), THRU 1" P.T. WOOD BUCK.
- (B) **TO EXISTING HOLLOW BLOCK WALL:** (Min. $f'_m = 1924$ psi.), MIN. EDGE DISTANCE = $2\frac{1}{2}"$.
- $1\frac{1}{4}"$ Ø ULTRACON $1\frac{1}{4}"$ MIN. EMBEDMENT, AS MANUFACTURED BY ELCO CONSTRUCTION PRODUCTS. (COMPONENT (8)), THRU 1" P.T. WOOD BUCK.
- (C) **TO EXISTING 2x P.T. WOOD BUCK:** (MIN. $G = 0.55$) MIN. EDGE DISTANCE = 1".
- $1\frac{1}{4}"$ Ø ULTRACON $1\frac{1}{2}"$ MIN. THREADED PENETRATION, AS MANUFACTURED BY ELCO CONSTRUCTION PRODUCTS. (COMPONENT (8)).
- (D) **TO EXISTING MIN. $1\frac{1}{8}"$ THICK ALUMINUM TUBE (6063-T5 ALLOY):** MIN. EDGE DISTANCE = $\frac{1}{2}"$.
- $1\frac{1}{4}"$ Ø-14 TEK SCREW, MIN. $\frac{3}{4}"$ LONG, AS MANUFACTURED BY ITW BUILDEX, INC. (COMPONENT (8A)).
- (E) **TO EXISTING MIN. 12 GAGE (0.106") STEEL MEMBER (ASTM A-500, A-653 OR A-36):** MIN. EDGE DISTANCE = $\frac{3}{8}"$.
- $1\frac{1}{4}"$ Ø-14 TEK SCREW, MIN. $\frac{3}{4}"$ LONG, AS MANUFACTURED BY ITW BUILDEX, INC. (COMPONENT (8A)).

10. PROVIDE $\frac{1}{4}"$ MAX. LOAD BEARING SHIM SPACE (TYP.).

11. REMAINING COMPONENTS FOR THESE WINDOWS SHALL BE AS INDICATED ON BILL OF MATERIALS ON SHEET 2.

12. WINDOWS' MANUFACTURER LABEL SHALL BE LOCATED ON A READILY VISIBLE LOCATION AT PRODUCT IN ACCORDANCE WITH SECTION 1709.5 OF THE FLORIDA BUILDING CODE. ONE LABEL SHALL BE PLACED FOR EVERY UNIT.

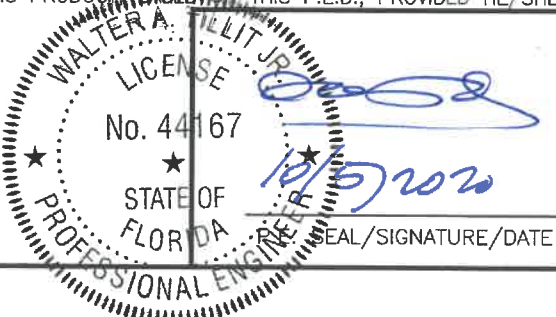
13. (A) THIS P.E.D. PREPARED BY THIS ENGINEER IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT; I.E. WHERE THE SITE CONDITIONS DEVIATE FROM THE P.E.D.
(B) CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION INCLUDING LIFE SAFETY OF THIS PRODUCT, BASED ON THIS P.E.D., PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.
(C) THIS P.E.D. WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.
(D) SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A FLORIDA REGISTERED ENGINEER OR ARCHITECT WHICH WILL BECOME THE ENGINEER OF RECORD (E.O.R.) FOR THE PROJECT AND WHO WILL BE RESPONSIBLE FOR THE PROPER USE OF THE P.E.D.
(E) ORIGINAL P.E.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.



THIS DRAWING SHALL ONLY BE USED TO OBTAIN PERMITS IN THE STATE OF FLORIDA

* MAXIMUM A.S.D. DESIGN PRESSURE RATING (psf) FOR ALTERNATE SHAPES AS SHOWN ABOVE OR SIMILAR CAN BE DETERMINED BY INSCRIBING FIXED WINDOW SHAPE WITHIN SQUARE "a" x "b" OR RECTANGLE "a" x "b" AS SHOWN IN DOTTED LINES AND OBTAINING MAXIMUM A.S.D. DESIGN PRESSURE RATING (psf) FOR THOSE ALTERNATE SHAPES FROM SCHEDULES ON SHEETS 6, 7 & 8 FOR SERIES 21000 HIGH IMPACT FIXED LAMINATED GLASS WINDOWS.

FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)



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SERIES 21000 HIGH IMPACT FIXED LAMINATED GLASS WINDOWS

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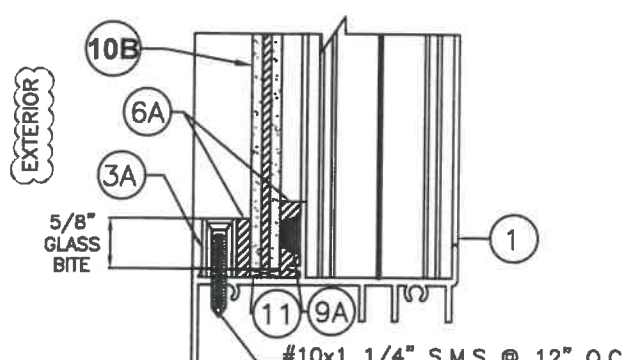
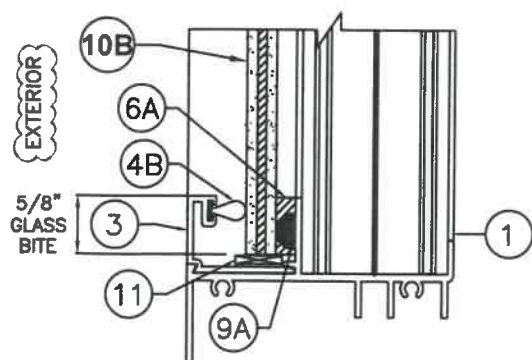
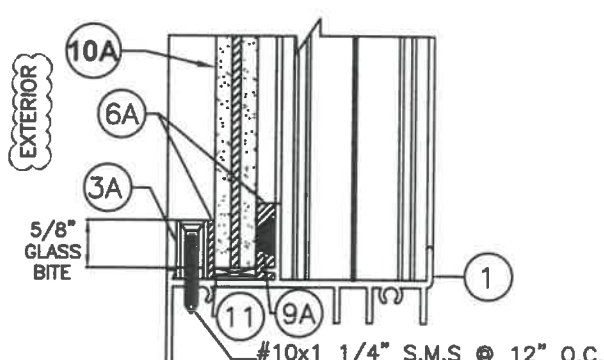
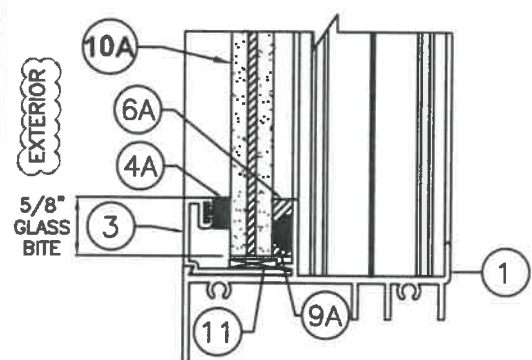
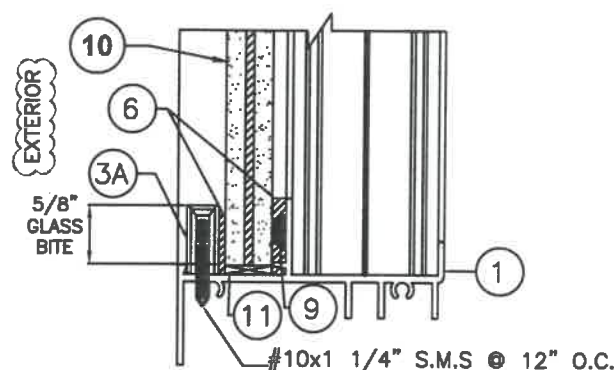
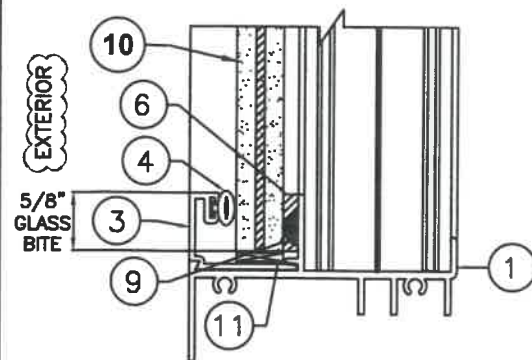
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2	TITLE	10/5/20	4		

DRAWN BY:
F.P.

07/31/2020
DATE

20-230
DRAWING No

SHEET 1 OF 9

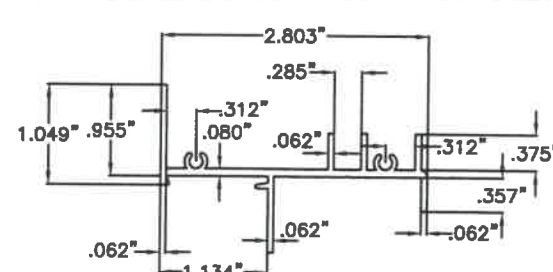


GLAZING DETAILS

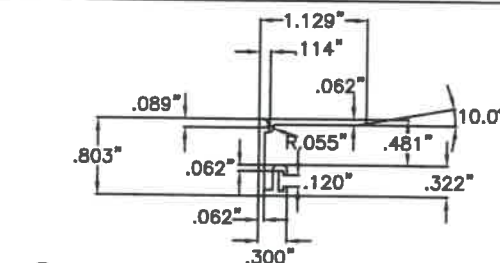
SCALE 1/2" = 1"

BILL OF MATERIALS

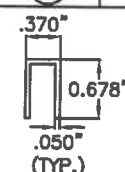
ITEM #	DESCRIPTION	DIMENSIONS & REMARKS	MATERIAL
①	FRAME HEAD/SILL	(2) REQUIRED	6063-T6
②	FRAME JAMB	(2) REQUIRED	6063-T6
③	GLAZING BEAD FOR FULLY STRAIGHT FRAME WINDOWS	(4) REQUIRED	6063-T6
③A	GLAZING BEAD FOR CURVED AND COMBINATION CURVED/STRAIGHT FRAME WINDOWS	(4) REQUIRED	6063-T6
④	WEATHER STRIPING, ULTRAFAB E-271	(4) AT GLAZING BEAD	NEOPRENE
④A	WEATHER STRIPING SOLID RUBBER	(4) AT GLAZING BEAD	NEOPRENE
④B	WEATHER STRIPING 0.296" HEIGHT, SCHLEGEL SYSTEM, INC., Q375T190	(4) AT GLAZING BEAD	NEOPRENE
⑤	CORNER FRAME ASSEMBLY SCREWS	(2) #8 x 1" PH SMS REQ'D.	STEEL
⑥	DOW CORNING 995	-----	STRUCTURAL SILICONE
⑥A	DOW CORNING 795	-----	STRUCTURAL SILICONE
⑦	WHITE COLOR SILICONE AT FIXED PANEL FRAME AND FRAME CORNERS.	ALL AROUND (EXTERIOR)	SEALANT
⑧	1/4"Ø ULTRACON BY ELCO CONSTRUCTION PRODUCTS, TO POURED CONCRETE, HOLLOW BLOCK OR WOOD WALL REQ'D. (SEE SCHEDULE)	-----	CARBON STEEL
⑧A	1/4"Ø ITW BUILDEX TEK SCREW TO METAL (SEE SCHEDULE)	-----	STEEL
⑨	0.145" HEIGHT BUMPER SPACER, CUT FROM 3/8"Ø SPHERE, CLEAR 3" FROM CORNERS MAX. AND 12" O.C. (MAX.) AT MID-GLASS BITE ELEVATION	FRANK LOWE RUBBEL, GASKET TLB-28, CLEAR.	SILICONE
⑨A	0.211" HEIGHT BUMPER SPACER, CUT FROM 3/8"Ø SPHERE, CLEAR 3" FROM CORNERS MAX. AND 12" O.C. (MAX.) AT MID-GLASS BITE ELEVATION	FRANK LOWE RUBBEL, GASKET FLB-38, CLEAR.	SILICONE
⑩	0.590" (9/16" NOMINAL) LAMINATED GLASS W/ 1/4" H.S. GLASS + 0.090" SENTRYGLAS® INTERLAYER + 1/4" H.S. GLASS	INTERLAYER BY: KURARAY AMERICA, INC.	GLASS
⑩A	0.484" (7/16" NOMINAL) LAMINATED GLASS W/ 3/16" H.S. GLASS + 0.090" TROSIFOL PVB. INTERLAYER + 3/16" H.S. GLASS	INTERLAYER BY: KURARAY AMERICA, INC.	GLASS
⑩B	0.326" (5/16" NOMINAL) LAMINATED GLASS W/ 1/8" H.S. GLASS + 0.090" TROSIFOL PVB. INTERLAYER + 1/8" H.S. GLASS	INTERLAYER BY: KURARAY AMERICA, INC.	GLASS
⑪	SETTING BLOCK	1/16" X 9/16" OR 7/16" OR 5/16" FOR ⑩, ⑩A, ⑩B	EPDM (FRANK LOWE)



① FRAME HEAD & SILL
6063-T6 ALLOY



③ GLAZING BEAD FOR FULLY
STRAIGHT FRAME WINDOWS
6063-T6 ALLOY



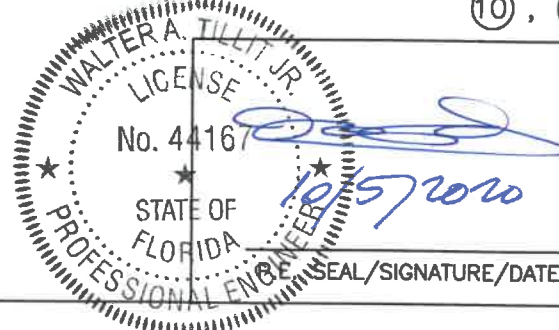
(3A) GLAZING BEAD FOR CURVED
AND COMBINATION CURVED &
STRAIGHT FRAME WINDOWS
6063-T6 ALLOY

⑪ SETTING BLOCK FOR
(10), (10A), (10B)

COMPONENTS

SCALE 1/2" = 1'

FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)



**SERIES 21000 HIGH IMPACT FIXED
LAMINATED GLASS WINDOWS**

ALUMINA DISTRIBUTION CENTER

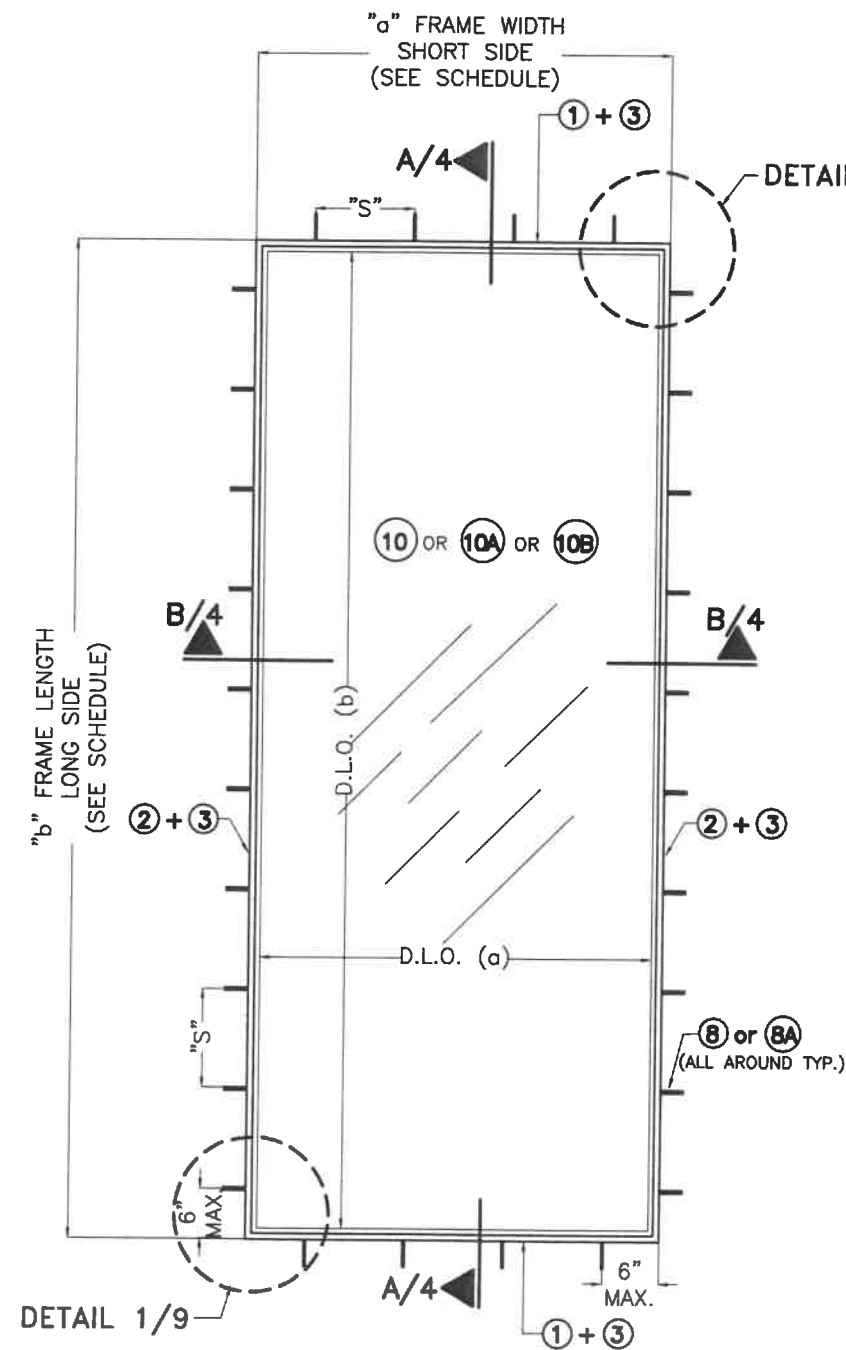
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E.P.

07/31/2021
DATE

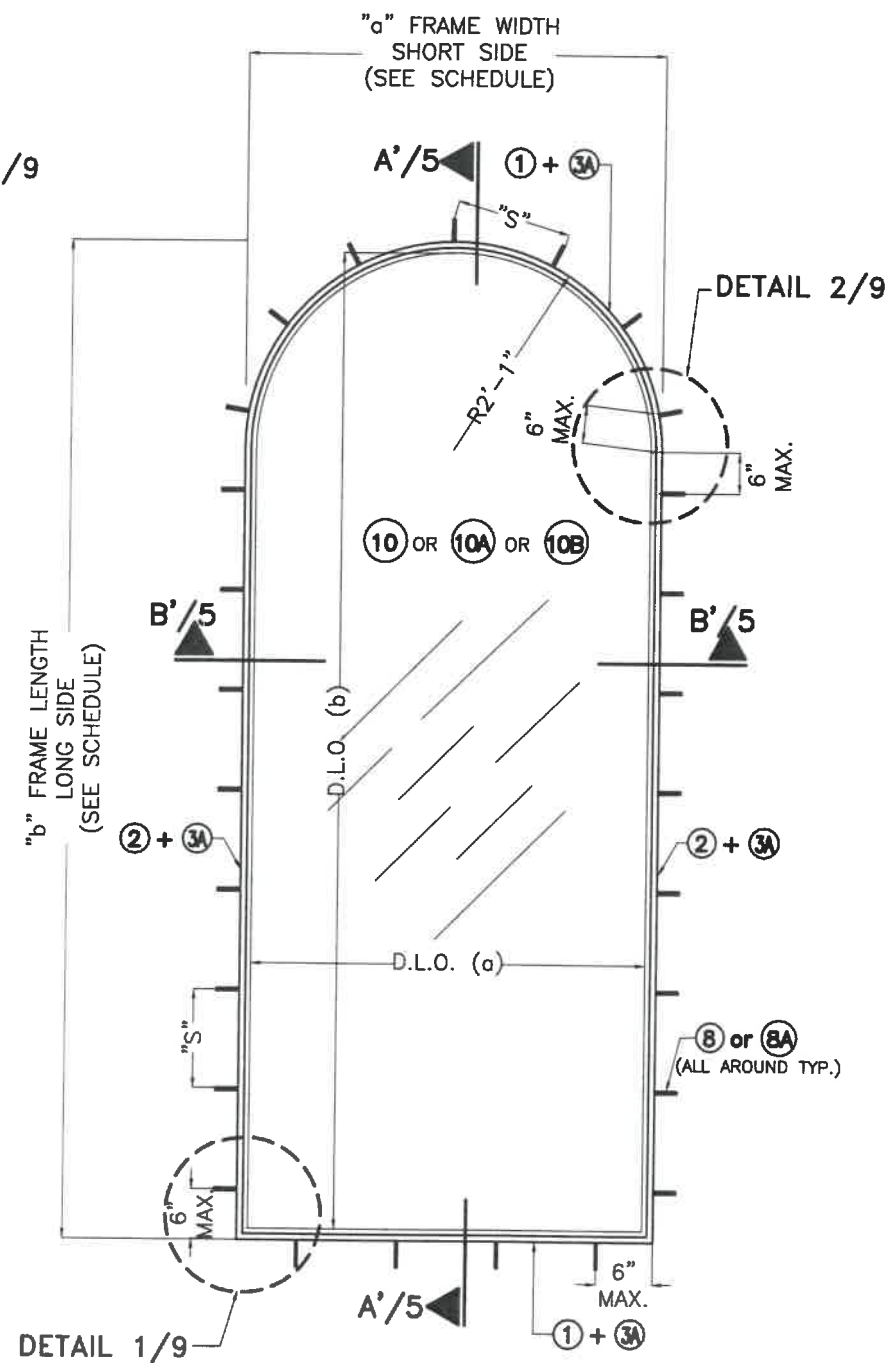
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SHEET 2 OF 9



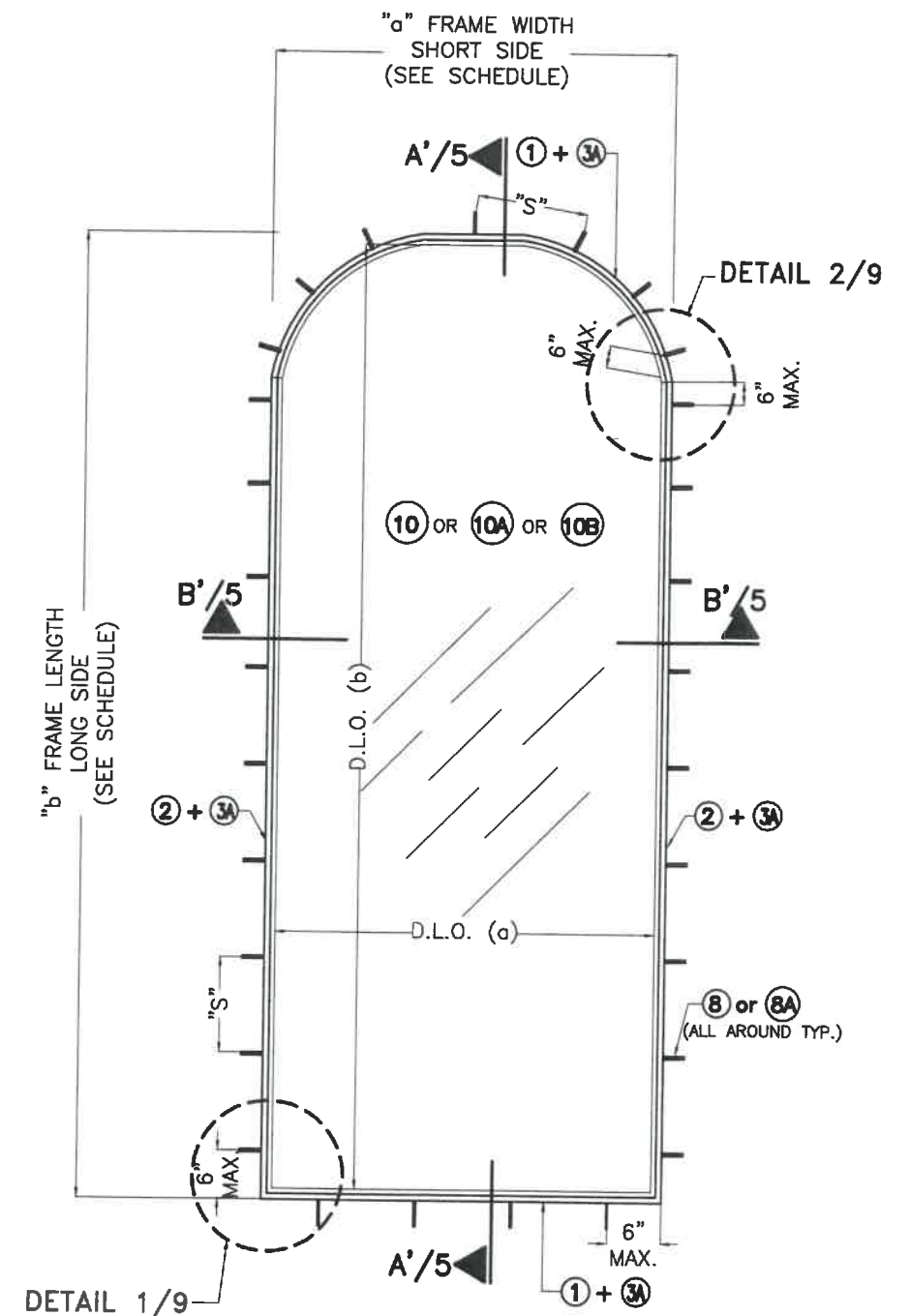
CASE 1: RECTANGULAR

SCALE: 1/2"=1'-0



CASE 2: HALF ROUND TOP

SCALE: 1/2"=1'-0



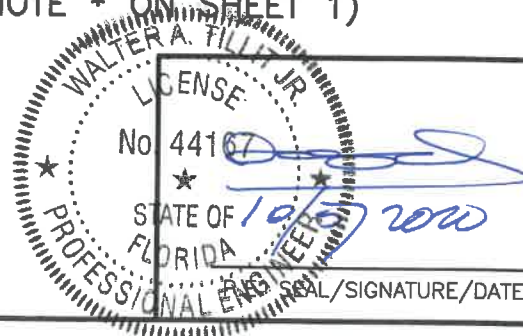
CASE 3: EYEBROW

SCALE: 1/2"=1'-0

"S" = MAX. ANCHOR SPACING
(SEE SCHEDULE ON SHEET 9)

FOR "a" FRAME WIDTH (SHORT SIDE),
"b" FRAME LENGTH (LONG SIDE) AND
MAX. D.L.O. (a) AND MAX. D.L.O. (b)
SEE SCHEDULES ON SHEETS 6, 7 & 8.

**TYPICAL EXTERIOR ELEVATIONS FOR SERIES 21000
HIGH IMPACT FIXED LAMINATED GLASS WINDOW**
(SEE NOTE * ON SHEET 1)



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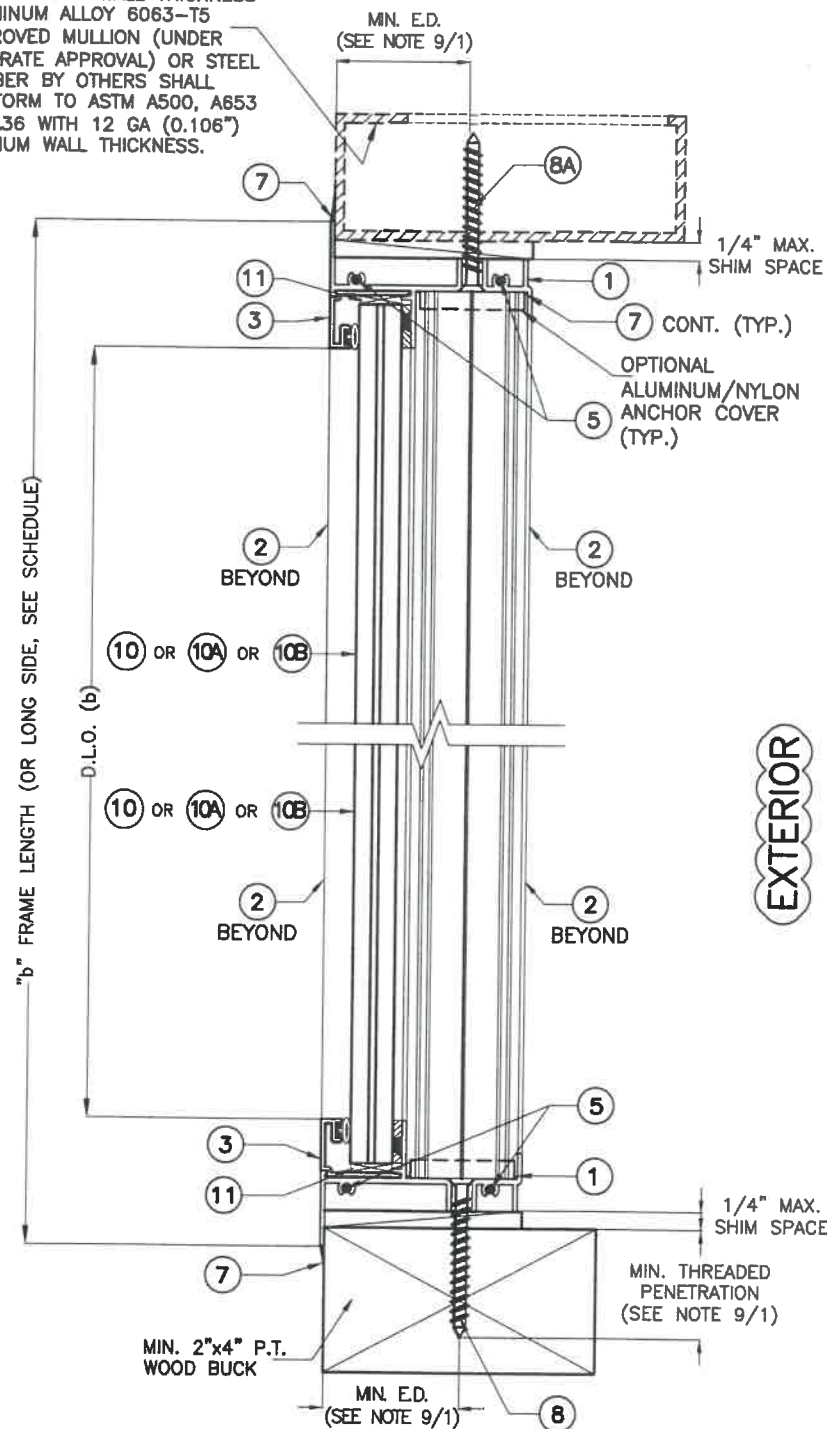
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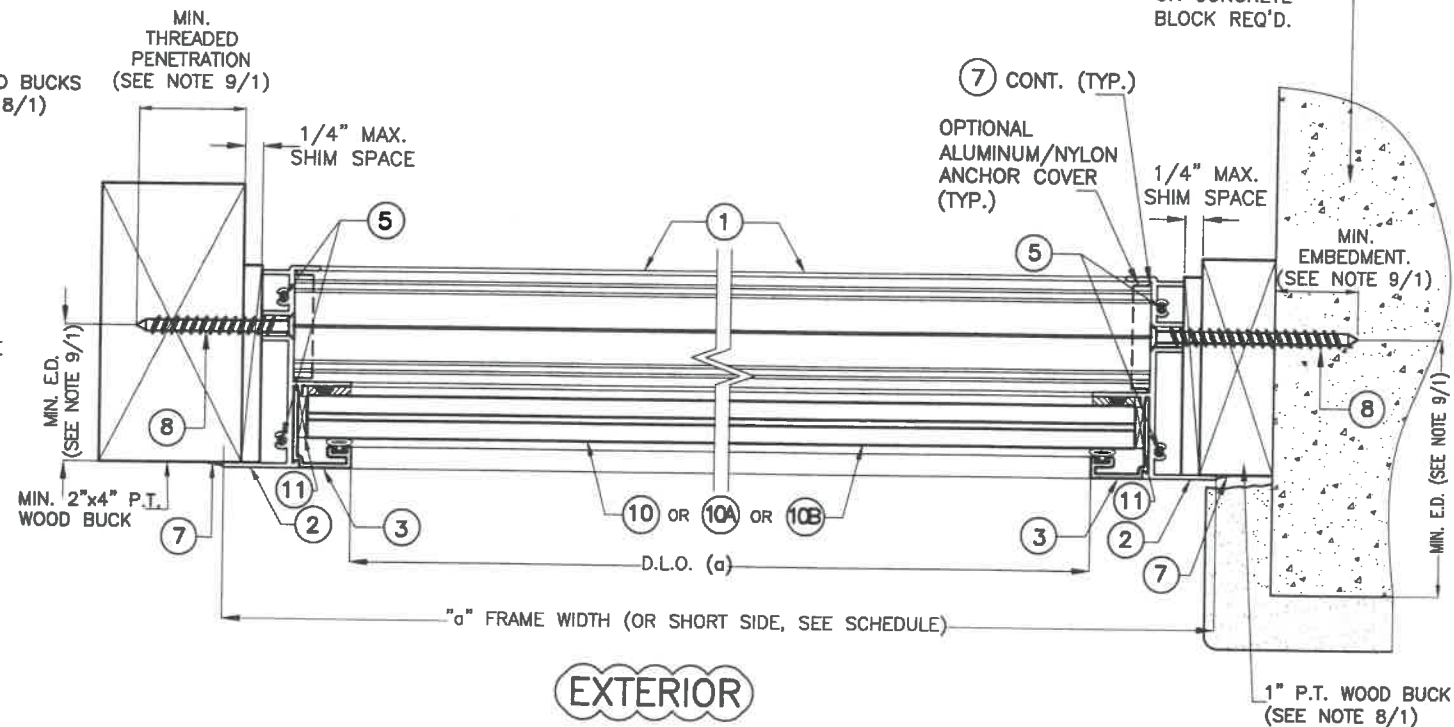
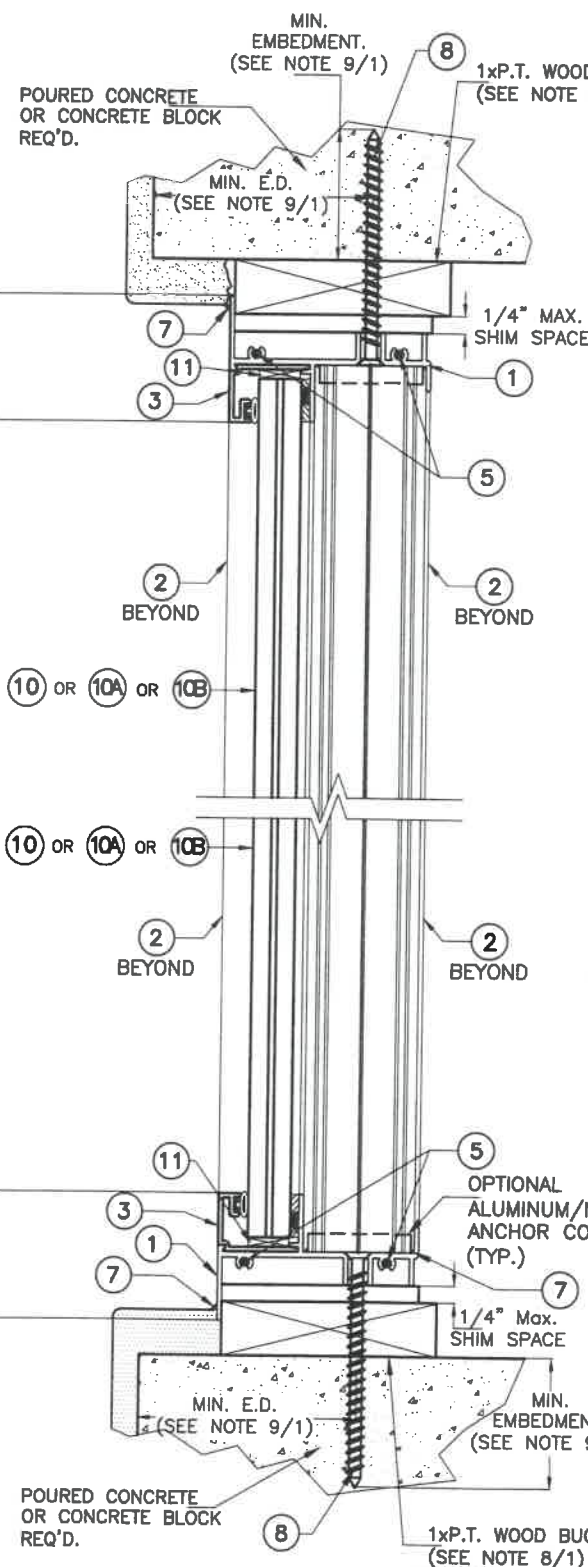
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SHEET 3 OF 9

REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-005	07/31/20	3		
2			4		

1/8" MINIMUM WALL THICKNESS
ALUMINUM ALLOY 6063-T5
APPROVED MULLION (UNDER
SEPARATE APPROVAL) OR STEEL
MEMBER BY OTHERS SHALL
CONFORM TO ASTM A500, A653
OR A36 WITH 12 GA (0.106")
MINIMUM WALL THICKNESS.

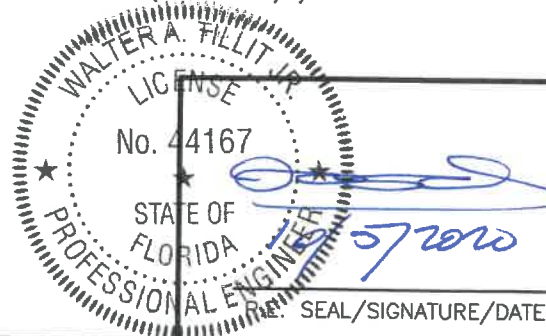


SECTION A-A
SCALE: 3/8"=1"



SECTION B-B
SCALE: 3/8"=1"

FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)



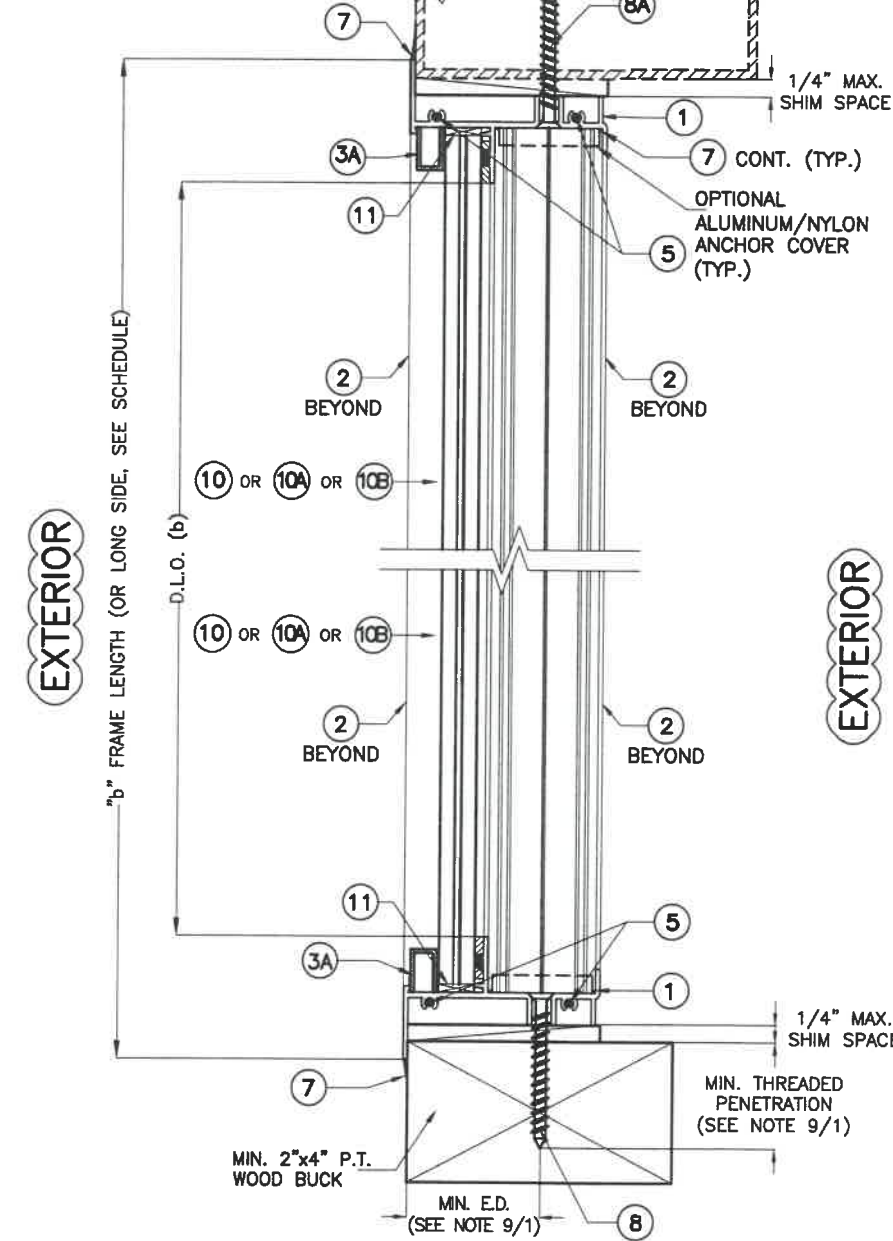
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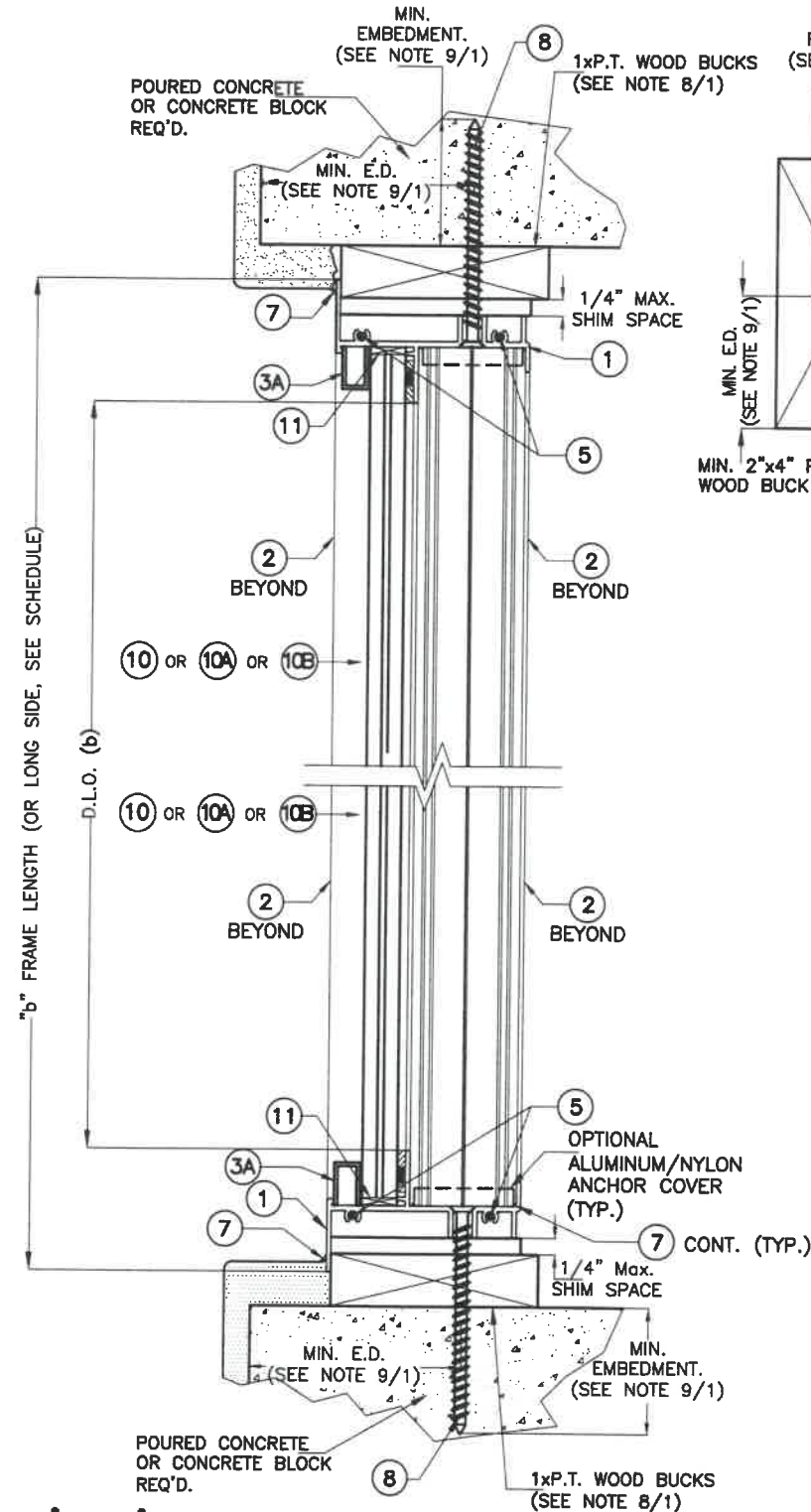
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1	OLD 20-005	07/31/20	3		
2			4		

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20-230
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SHEET 4 OF 9

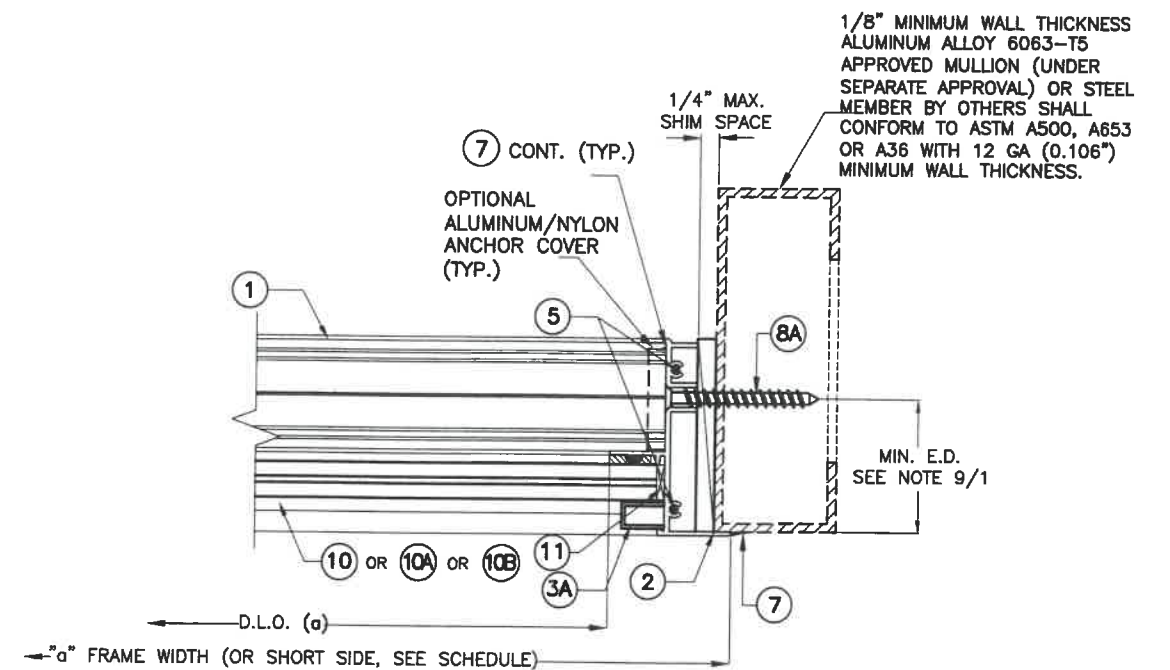
1/8" MINIMUM WALL THICKNESS
ALUMINUM ALLOY 6063-T5
APPROVED MULLION (UNDER
SEPARATE APPROVAL) OR STEEL
MEMBER BY OTHERS SHALL
CONFORM TO ASTM A500, A653
OR A36 WITH 12 GA (0.106")
MINIMUM WALL THICKNESS.



SECTION A'-A'
SCALE: 3/8"=1"



SECTION B'-B'
SCALE: 3/8"=1"



WALTER A. TILLIT JR.
LICENSE
No. 44167
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
SEAL/SIGNATURE/DATE

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DRAWING No

SHEET 5 OF 9

REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-005	07/31/20	3		
2			4		

MAXIMUM FRAME WIDTH "a" AND LENGTH "b" VERSUS A.S.D. DESIGN PRESSURE RATING

(psf) SCHEDULE VALID FOR ALL SHAPES WITH GLASS 10

"a"	"b"	psf +	psf -
18"	18"	130	154
	24"	130	154
	30"	130	154
	36"	130	154
	42"	130	154
	48"	130	154
	54"	130	154
	60"	130	154
	66"	130	154
	72"	130	154
	78"	130	154
	84"	130	154
	90"	130	154
	96"	130	154
	102"	130	154
	108"	130	154
	114"	130	154
	120"	130	154
	126"	130	154
	132"	130	154
	138"	130	154
	144"	130	154
	150"	130	154
	156"	130	154
	162"	130	154
	168"	130	154
	174"	130	154
	180"	130	154

"a"	"b"	psf +	psf -
24"	24"	130	154
	30"	130	154
	36"	130	154
	42"	130	154
	48"	130	154
	54"	130	154
	60"	130	154
	66"	130	154
	72"	130	154
	78"	130	154
	84"	130	154
	90"	130	154
	96"	130	154
	102"	130	154
	108"	130	154
	114"	130	154
	120"	130	154
	126"	130	154
	132"	130	154
	138"	130	154
	144"	130	154
	150"	130	154
	156"	130	154
	162"	130	154
	168"	130	154
	174"	130	154
	180"	130	154
	186"	130	154
	192"	130	154
	196"	130	154

"a"	"b"	psf +	psf -
30"	30"	130	154
	36"	130	154
	42"	130	154
	48"	130	154
	54"	130	154
	60"	130	154
	66"	130	154
	72"	130	154
	78"	130	154
	84"	130	154
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	96"	130	154
	102"	130	154
	108"	130	154
	114"	130	154
	120"	130	154
	126"	130	154
	132"	130	154
	138"	130	154
	144"	130	154
	150"	130	154
	153"	130	154
	156"	130	154
	162"	130	154
	168"	130	154
	174"	130	154
	180"	130	154
	186"	130	154
	192"	130	154
	196"	130	154

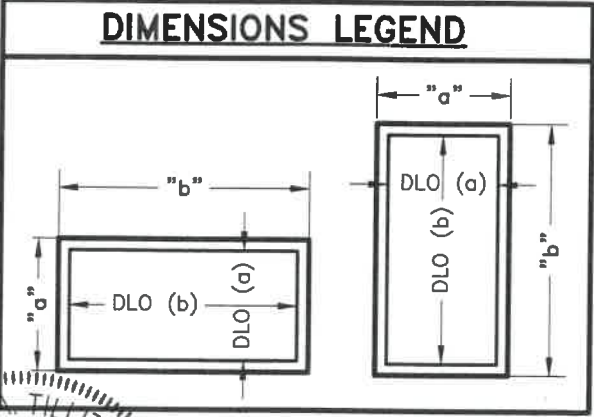
"a"	"b"	psf +	psf -
36"	36"	130	154
	42"	130	154
	48"	130	154
	54"	130	154
	60"	130	154
	66"	130	154
	72"	130	154
	78"	130	154
	84"	130	154
	90"	130	154
	96"	130	154
	102"	130	154
	108"	130	154
	114"	130	154
	120"	130	154
	126"	130	154
	132"	130	154
	138"	130	154
	144"	130	154
	150"	130	154
	156"	130	154
	162"	130	154
	166"	130	154

"a"	"b"	psf +	psf -
42"	42"	130	154
	48"	130	154
	54"	130	154
	60"	130	154
	66"	130	154
	72"	130	154
	78"	130	154
	84"	130	154
	90"	130	154
	96"	130	154
	102"	130	154
	108"	130	154
	114"	130	154
	120"	130	154
	126"	130	154
	132"	130	154
	138"	130	154
	142"	130	154
	48"	130	154
	54"	130	154
	60"	130	154
	66"	130	154
	72"	130	154
	78"	130	154
	84"	130	154
	90"	130	154
	95"	130	154
	96"	130	154
	102"	130	154
	108"	130	154
	114"	130	154
	120"	130	154
	125"	130	152

"a"	"b"	psf +	psf -
54"	54"	120.3	142.5
	60"	120.3	142.5
	66"	120.3	142.5
	72"	120.3	142.5
	78"	120.3	142.5
	84"	120.3	142.5
	90"	120.3	142.5
	96"	120.3	142.5
	102"	120.3	142.5
	108"	120.3	142.5
	111"	120.3	139
60"	60"	108.3	128.3
	66"	108.3	128.3
	72"	108.3	128.3
	76"	108.3	128.3
	78"	108.3	128.3
	84"	108.3	128.3
	90"	108.3	128.3
	96"	108.3	128.3
	100"	108.3	128.3
66"	66"	98.5	116.67
	72"	98.5	116.67
	78"	98.5	116.6
	84"	98.5	116.6
72"	90"	98.5	116.6
	72"	90.3	106.9
	78"	90.3	106.9
	83"	90.3	106.9

MAXIMUM DAY LIGHT OPENING (D.L.O.)
FOR A GIVEN COMPONENT AT EACH END OF GLASS

SIDE	COMPONENTS @ EACH END OF GLASS	MAX. DAY LIGHT OPENING
		(D.L.O.) Formula
MAX. D.L.O. (a) (SHORT SIDE)	② + ③ , ② + ③ OR ② + ③A , ② + ③A	"a" - 3.526"
MAX. D.L.O. (b) (LONG SIDE)	① + ③ , ① + ③ OR ① + ③A , ① + ③A	"b" - 3.526"



WALTER A. TILLIT JR.
LICENSE
No. 44167
STATE OF FLORIDA
PROFESSIONAL ENGINEER
SEAL/SIGNATURE/DATE

FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)

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CA-0006719
WALTER A. TILLIT JR., P.E.
FLORIDA Lic. 44167

SERIES 21000 HIGH IMPACT FIXED
LAMINATED GLASS WINDOWS

ALUMINA DISTRIBUTION CENTER
15002 N.W. 107 AVENUE SUITE # 1
HIALEAH GARDENS, FL. 33018
PHONE: (305) 444-1198

DRAWN BY:
F.P.

07/31/2020
DATE

20-230
DRAWING No

SHEET 6 OF 9

REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-005	07/31/20	3		
2			4		

MAXIMUM FRAME WIDTH "a" AND LENGTH "b" VERSUS A.S.D. DESIGN PRESSURE RATING

(psf) SCHEDULE VALID FOR ALL SHAPES WITH GLASS 10A

"a"	"b"	psf +	psf -
18"	18"	90	90
	24"	90	90
	30"	90	90
	36"	90	90
	42"	90	90
	48"	90	90
	54"	90	90
	60"	90	90
	66"	90	90
	72"	90	90
	78"	90	90
	84"	90	90
	90"	90	90
	96"	90	90
	102"	90	90
	108"	90	90
	114"	90	90
	120"	90	90
	126"	90	90
	132"	90	90
	138"	90	90
	144"	90	90
	150"	90	90
	156"	90	90
	162"	90	90
	168"	90	90
	174"	90	90
	180"	90	90

"a"	"b"	psf +	psf -
24"	24"	90	90
	30"	90	90
	36"	90	90
	42"	90	90
	48"	90	90
	54"	90	90
	60"	90	90
	66"	90	90
	72"	90	90
	78"	90	90
	84"	90	90
	90"	90	90
	96"	90	90
	102"	90	90
	108"	90	90
	114"	90	90
	120"	90	90
	126"	90	90
	132"	90	90
	138"	90	90
	144"	90	90
	150"	90	90
	156"	90	90
	162"	90	90
	168"	90	90
	174"	90	90
	180"	90	90
	186"	90	90
	191"	90	90

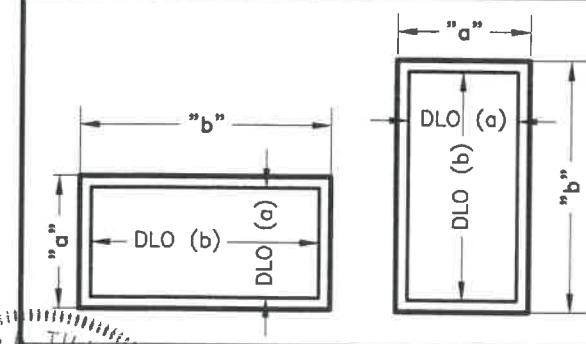
"a"	"b"	psf +	psf -
30"	30"	90	90
	36"	90	90
	42"	90	90
	48"	90	90
	54"	90	90
	60"	90	90
	66"	90	90
	72"	90	90
	78"	90	90
	84"	90	90
	90"	90	90
	96"	90	90
	102"	90	90
	108"	90	90
	114"	90	90
	120"	90	90
	126"	90	90
	132"	90	90
	138"	90	90
	144"	90	90
	150"	90	90
	153"	90	90
	156"	90	90
	162"	90	90
	168"	90	90
	174"	90	90
	179"	90	90

"a"	"b"	psf +	psf -
36"	36"	90	90
	42"	90	90
	48"	90	90
	54"	90	90
	60"	90	90
	66"	90	90
	72"	90	90
	78"	90	90
	84"	90	90
	90"	90	90
	96"	90	90
	102"	90	90
	108"	90	90
	114"	90	90
	120"	90	90
	126"	90	90
	132"	90	90
	138"	90	90
	144"	90	90
	150"	90	90
	152"	90	90

"a"	"b"	psf +	psf -
42"	42"	90	90
	48"	90	90
	54"	90	90
	60"	90	90
	66"	90	90
	72"	90	90
	78"	90	90
	84"	90	90
	90"	90	90
	96"	90	90
	102"	90	90
	108"	90	90
	114"	90	90
	120"	90	90
	126"	90	90
	130"	90	90
	48"	90	90
	54"	90	90
	60"	90	90
	66"	90	90
	72"	90	90
	78"	90	90
	84"	90	90
	90"	90	90
	95"	90	90
	96"	90	90
	102"	90	90
	108"	90	90
	114"	90	90

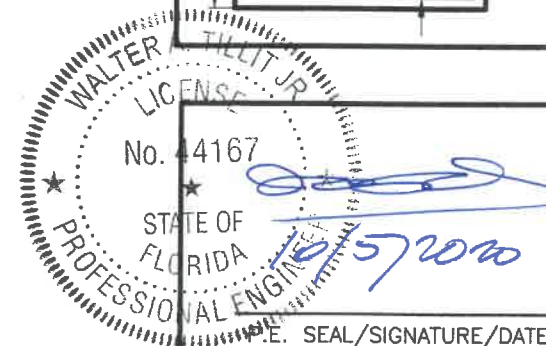
"a"	"b"	psf +	psf -
54"	54"	83.3	83.3
	60"	83.3	83.3
	66"	83.3	83.3
	72"	83.3	83.3
	78"	83.3	83.3
	84"	83.3	83.3
	90"	83.3	83.3
	96"	83.3	83.3
	101"	83.3	83.3
	60"	75	75
60"	66"	75	75
	72"	75	75
	76"	75	75
	78"	75	75
	84"	75	75
	90"	75	75
	66"	68.2	68.2
	72"	68.2	68.2
66"	76"	68.2	68.2
	78"	68.2	68.2
	83"	68.2	68.2
	72"	62.5	62.5
	76"	62.5	62.5

DIMENSIONS LEGEND



MAXIMUM DAY LIGHT OPENING (D.L.O.) FOR A GIVEN COMPONENT AT EACH END OF GLASS

SIDE	COMPONENTS @ EACH END OF GLASS	MAX. DAY LIGHT OPENING (D.L.O.) Formula
MAX. D.L.O. (a) (SHORT SIDE)	② + ③, ② + ③ OR ② + ③A, ② + ③A	"a" - 3.526"
MAX. D.L.O. (b) (LONG SIDE)	① + ③, ① + ③ OR ① + ③A, ① + ③A	"b" - 3.526"



FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)

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 CA-0006719
 WALTER A. TILLIT Jr., P.E.
 FLORIDA Lic. 44167

SERIES 21000 HIGH IMPACT FIXED LAMINATED GLASS WINDOWS
ALUMINA DISTRIBUTION CENTER
 15002 N.W. 107 AVENUE SUITE # 1
 HIALEAH GARDENS, FL. 33018
 PHONE: (305) 444-1198

DRAWN BY:
F.P.

07/31/2020
DATE

20-230
DRAWING No

SHEET 7 OF 9

REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-005	07/31/20	3		
2			4		

MAXIMUM FRAME WIDTH "a" AND LENGTH "b" VERSUS A.S.D. DESIGN PRESSURE RATING

(psf) SCHEDULE VALID FOR ALL SHAPES WITH GLASS 10B

"a"	"b"	psf +	psf -
18"	18"	75	75
	24"	75	75
	30"	75	75
	36"	75	75
	42"	75	75
	48"	75	75
	54"	75	75
	60"	75	75
	66"	75	75
	72"	75	75
	78"	75	75
	84"	75	75
	90"	75	75
	96"	75	75
	102"	75	75
	108"	75	75
	114"	75	75
	120"	75	75
	126"	75	75
	132"	75	75
	138"	75	75
	144"	75	75
	150"	75	75
	156"	75	75
	162"	75	75
	168"	75	75
	174"	75	75
	180"	75	75

"a"	"b"	psf +	psf -
24"	24"	75	75
	30"	75	75
	36"	75	75
	42"	75	75
	48"	75	75
	54"	75	75
	60"	75	75
	66"	75	75
	72"	75	75
	78"	75	75
	84"	75	75
	90"	75	75
	96"	75	75
	102"	75	75
	108"	75	75
	114"	75	75
	120"	75	75
	126"	75	75
	132"	75	75
	138"	75	75
	144"	75	75
	150"	75	75
	156"	75	75
	162"	75	75
	168"	75	75
	174"	75	75
	180"	75	75
	185"	75	75

"a"	"b"	psf +	psf -
30"	30"	75	75
	36"	75	75
	42"	75	75
	48"	75	75
	54"	75	75
	60"	75	75
	66"	75	75
	72"	75	75
	78"	75	75
	84"	75	75
	90"	75	75
	96"	75	75
	102"	75	75
	108"	75	75
	114"	75	75
	120"	75	75
	126"	74	74
	132"	72	72
	138"	71	71
	144"	71	71
	148"	70	70

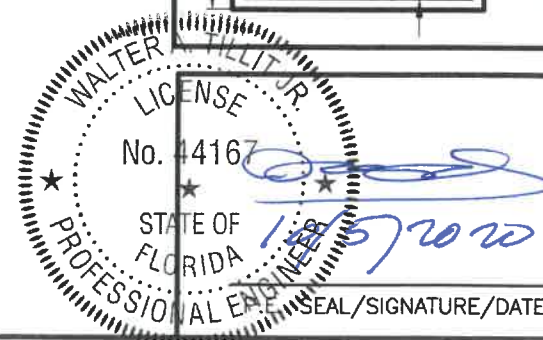
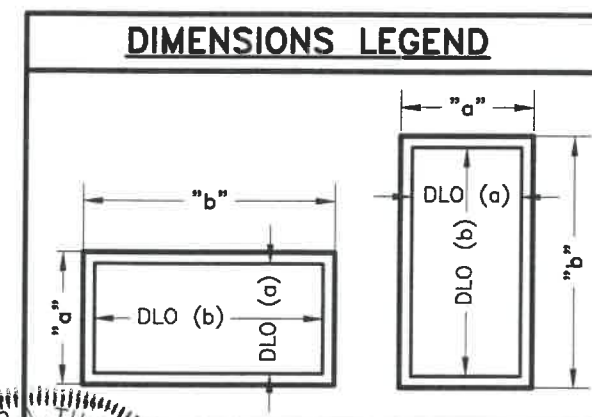
"a"	"b"	psf +	psf -
36"	36"	75	75
	42"	75	75
	48"	75	75
	54"	75	75
	60"	75	75
	66"	75	75
	72"	75	75
	78"	75	75
	84"	75	75
	90"	75	75
	96"	74	74
	102"	69	69
	108"	65	65
	114"	62	62
	120"	59	59
	123"	58	58

"a"	"b"	psf +	psf -
42"	42"	75	75
	48"	75	75
	54"	75	75
	60"	75	75
	66"	75	75
	72"	75	75
	78"	75	75
	84"	75	75
	90"	75	75
	96"	69	69
	102"	63	63
	105"	61	61

"a"	"b"	psf +	psf -
48"	48"	75	75
	54"	75	75
	60"	75	75
	66"	75	75
	72"	75	75
	78"	75	75
	84"	75	75
	90"	70	70
	92"	69	69
54"	54"	69.4	69.4
	60"	69.4	69.4
	66"	69.4	69.4
	72"	69.4	69.4
	78"	69.4	69.4
60"	60"	62.5	62.5
	66"	62.5	62.5
	72"	62.5	62.5
	74"	62.5	62.5

MAXIMUM DAY LIGHT OPENING (D.L.O.) FOR A GIVEN COMPONENT AT EACH END OF GLASS

SIDE	COMPONENTS @ EACH END OF GLASS	MAX. DAY LIGHT OPENING (D.L.O.) Formula
MAX. D.L.O. (a) (SHORT SIDE)	② + ③, ② + ③ OR ② + ③A, ② + ③A	"a" - 3.526"
MAX. D.L.O. (b) (LONG SIDE)	① + ③, ① + ③ OR ① + ③A, ① + ③A	"b" - 3.526"



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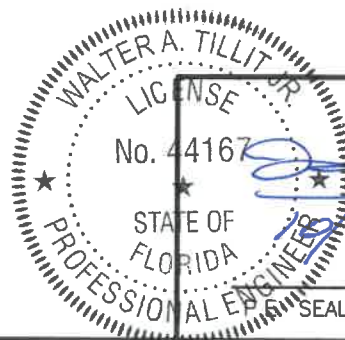
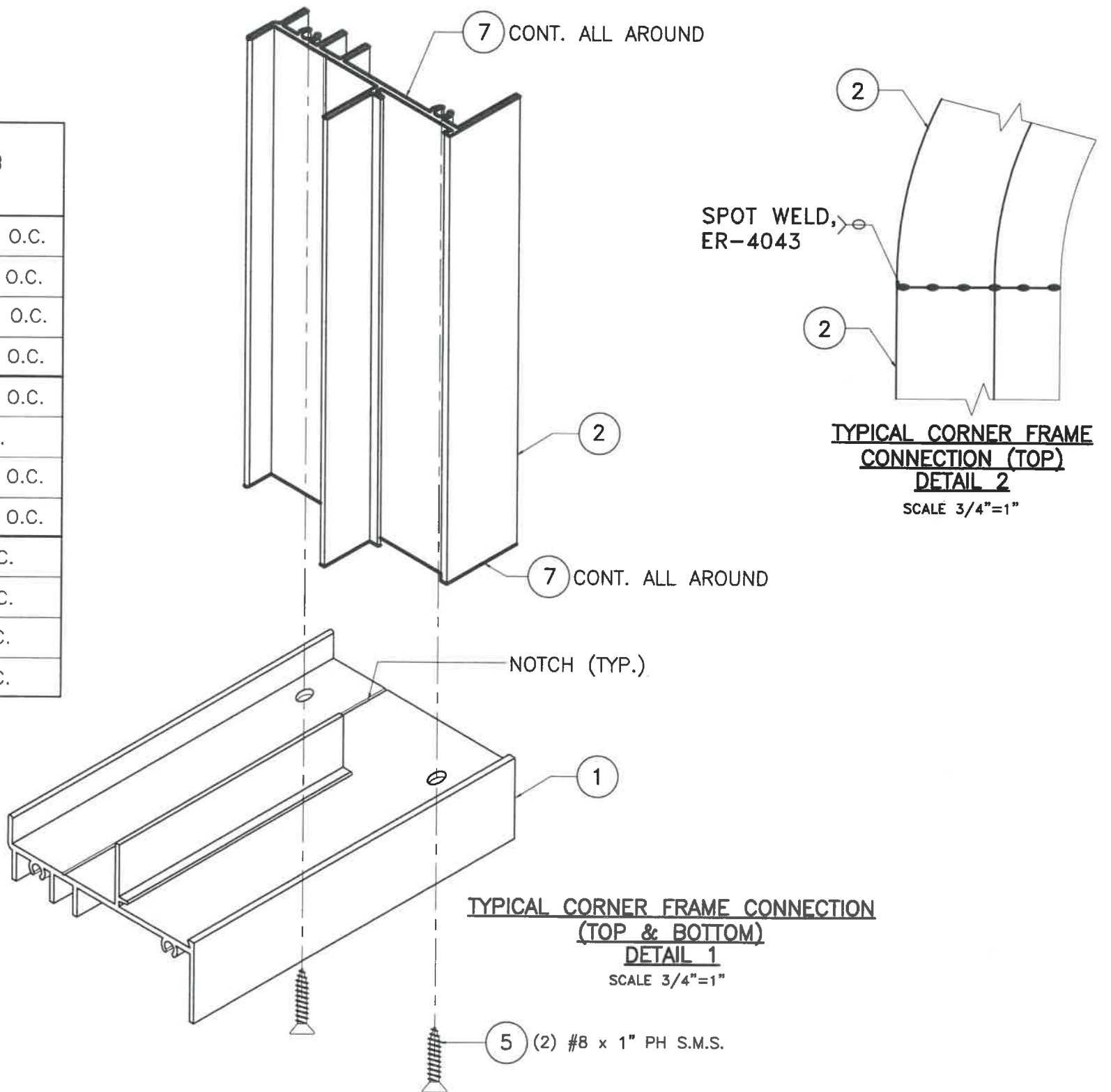
TILLIT TESTING & ENGINEERING COMPANY
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CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. 44167

SERIES 21000 HIGH IMPACT FIXED LAMINATED GLASS WINDOWS			DRAWN BY: F.P.		
ALUMINA DISTRIBUTION CENTER			07/31/2020 DATE		
15002 N.W. 107 AVENUE SUITE # 1 HIALEAH GARDENS, FL. 33018 PHONE: (305) 444-1198			20-230 DRAWING No		
REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 20-005	07/31/20	3		
2			4		
			SHEET 8 OF 9		

MAXIMUM ANCHOR SPACING SCHEDULE "S"

SUBSTRATE	ANCHOR TYPE	NEGATIVE A.S.D. DESIGN PRESSURE RATING (psf)	HEAD/SILL	JAMB
CONCRETE OR BLOCK (SEE NOTE 9A & 9B/1)	1/4"Ø ULTRA CON (8)	75 or less	9" O.C.	11 1/2" O.C.
		> 75 up to 90	9" O.C.	9 1/2" O.C.
		> 90 up to 130	6 1/2" O.C.	6 1/2" O.C.
		> 130 up to 154	5 1/2" O.C.	5 1/2" O.C.
WOOD (SEE NOTE 9C/1)	1/4"Ø ULTRA CON (8)	75 or less	9" O.C.	9 1/2" O.C.
		> 75 up to 90	8" O.C.	8" O.C.
		> 90 up to 130	5 1/2" O.C.	5 1/2" O.C.
		> 130 up to 154	4 1/2" O.C.	4 1/2" O.C.
METAL (SEE NOTE 9D/1 & 9E/1)	1/4"Ø TEK SCREW (8A)	75 or less	9" O.C.	12" O.C.
		> 75 up to 90	9" O.C.	12" O.C.
		> 90 up to 130	8" O.C.	8" O.C.
		> 130 up to 154	7" O.C.	7" O.C.



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FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)

SERIES 21000 HIGH IMPACT FIXED LAMINATED GLASS WINDOWS

RAWN BY:
F.P.

ALUMINA DISTRIBUTION CENTER
15000 N.W. 107 AVENUE SUITE "A"
DADE CITY, FL 34608
TEL: 813/841-1111 FAX: 813/841-1112

DATE

15002 N.W. 107 AVENUE SUITE # 1

DALEAH GARDENS, FL. 33018

PHONE: (305) 444-1198

20-230
DRAWING No.

ET 9 OF

TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
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e-mail: tilteco@aol.com
CA-0006719
WALTER A. TILLIT Jr., P.E.
FLORIDA Lic. 44167

REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE	DRAWING No
1	OLD 20-005	07/31/20	3			SHEET 9 OF 9
2			4			