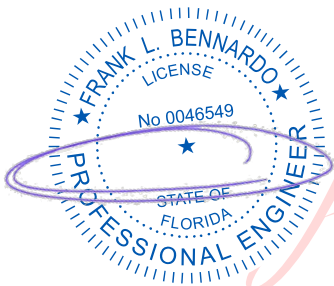


BUILDING ENVELOPE SYSTEMS, INC.
FX 3000 WINDOW WALL (LMI/SMI)
ALUMINUM WINDOW WALL - MISSILE LEVEL "D"



Digitally signed by
Frank Bennardo
Date: 2022.03.15
12:29:43 -04'00'

FRANK BENNARDO PE
PE# 46549 CA# 9885
03/14/2022

FL - 24159.1

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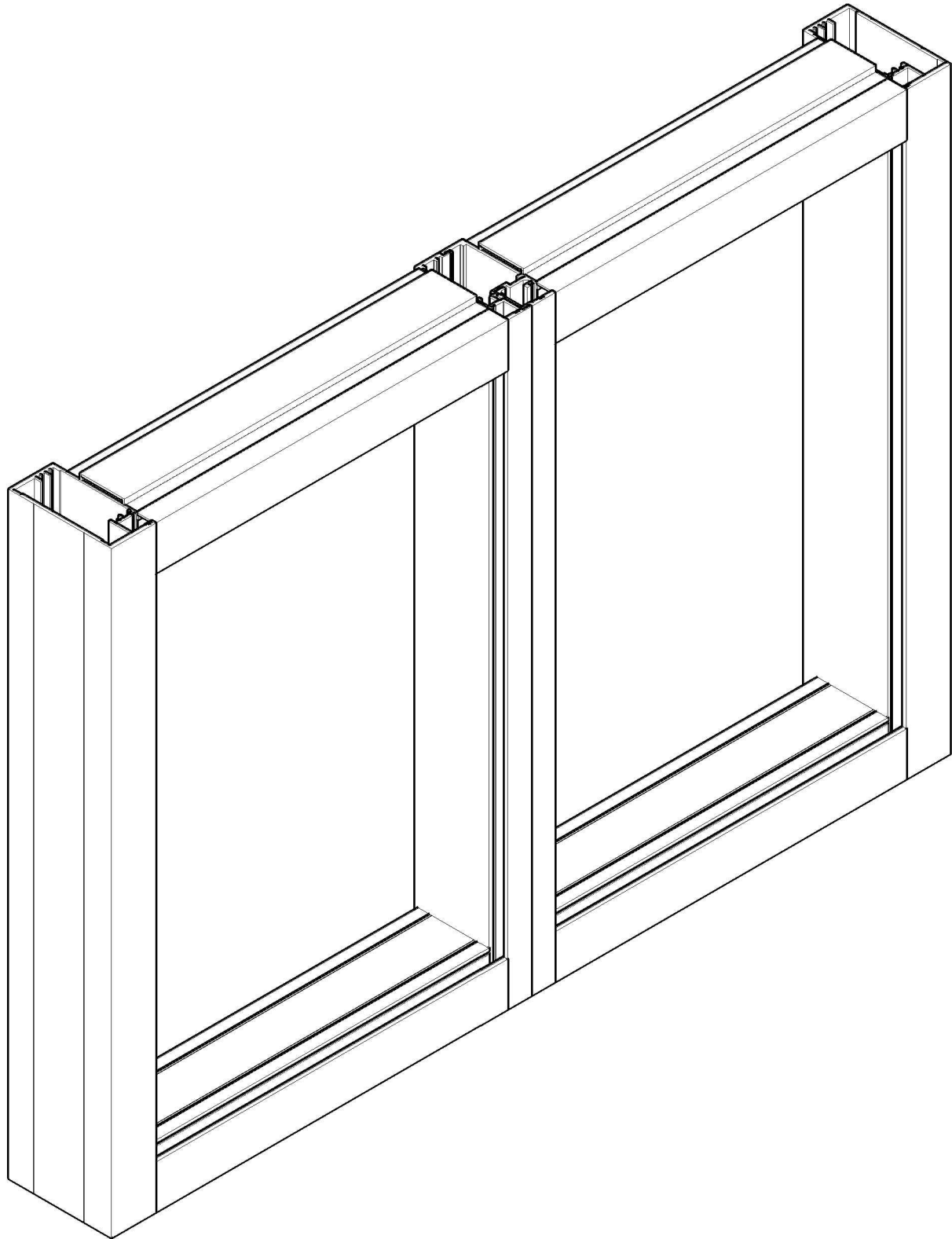
BUILDING ENVELOPE SYSTEMS
16115 NW 52nd AVENUE
MIAMI, FLORIDA 33014
PH: (786) 457-8258
SERIES FX-3000 WINDOW WALL
LARGE & SMALL MISSILE
FLORIDA PRODUCT APPROVAL

REMARKS	DATE	DRWN	CHKD
INIT ISSUE	10/19/17	LEO	AJP
FBC 2020 UPDATE	08/05/21	TAE	AJP

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GENERAL NOTES:

- THIS SYSTEM AND GLASS TYPES DESCRIBED HEREIN COMPLY AND HAVE BEEN DESIGNED AND TESTED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE SEVENTH EDITION (2020) PER TAS 201/202/203
- SITE-SPECIFIC REQUIRED DESIGN PRESSURES SHALL BE CALCULATED BY A LICENSED PROFESSIONAL ENGINEER FOR USE WITH THIS DOCUMENT PER ASCE 7-16 AND WITH LOCAL CODE REQUIREMENTS.
- THIS SYSTEM IS IMPACT RATED FOR MISSILE LEVEL "D", HVHZ & NON HVHZ
- DESIGN PRESSURES NOTED HEREIN ARE BASED ON MAXIMUM TESTED PRESSURES DIVIDED BY A 1.5 SAFETY FACTOR.
- NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM. WIND LOAD DURATION FACTOR Cd=1.6 HAS BEEN USED FOR WOOD ANCHOR DESIGN.
- THE ARCHITECT/ENGINEER OF RECORD FOR THE PROJECT SUPERSTRUCTURE WITH WHICH THIS DESIGN IS USED SHALL BE RESPONSIBLE FOR THE INTEGRITY OF ALL SUPPORTING SURFACES TO THIS DESIGN WHICH SHALL BE COORDINATED BY THE PERMITTING CONTRACTOR. WOOD BUCKS (BY OTHERS) SHALL BE ANCHORED PROPERLY TO TRANSFER LOADS TO THE EXISTING STRUCTURE.
- THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.
- THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.
- FASTENERS SHALL BE CADMIUM-PLATED OR OTHERWISE CORROSION-RESISTANT MATERIAL AND SHALL COMPLY WITH "SPECIFICATIONS FOR ALUMINUM STRUCTURES" SECTION J.3.7.2 BY THE ALUMINUM ASSOCIATION, INC., & ANY APPLICABLE FEDERAL, STATE, AND/OR LOCAL CODES
- ENGINEER SEAL AFFIXED HERE TO VALIDATES STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, & CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE, & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN.
- EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.
- PRESSURE VALUES ON THIS APPROVAL ARE (ASD) ALLOWABLE DESIGN PRESSURES.
- ALTERATIONS, ADDITIONS, OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE THIS CERTIFICATION.
- SAFEGUARDS MUST BE OBSERVED (NOT IN THIS CERTIFICATION)
- PRODUCT SHALL BE PERMANENTLY LABELED WITH A MINIMUM OF ONE LABEL PER SYSTEM CONTAINING THE FOLLOWING:

BUILDING ENVELOPE SYSTEMS, INC.
16115 NW 52nd AVENUE
MIAMI, FL 33014
TAS 201/202/203
APPROVED BY FLORIDA BUILDING COMMISSION
FL PRODUCT APPROVAL #: 24159.1

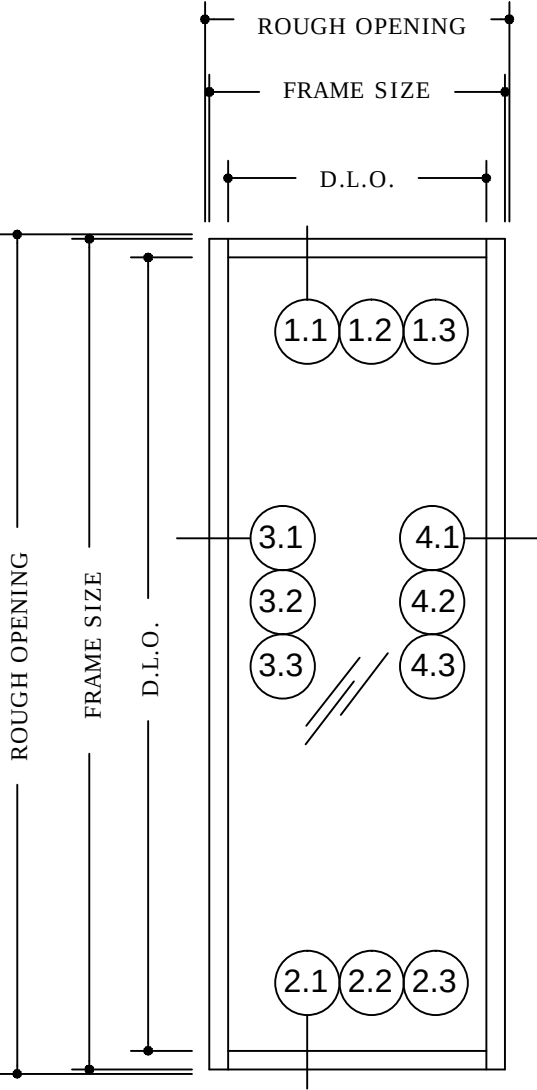
SHEET INDEX	
# SHEET	DESCRIPTION
01	COVER SHEET / GENERAL NOTES
02-03	ELEVATIONS (LMI & SMI)
04-09	LOADING TABLES & GLASS TYPES
10-13	FRAME ASSEMBLY
14	EXTRUSIONS
15-16	PARTS LIST & HARDWARE SCHEDULE
12	TOTAL

DESIGN PRESSURE RATING (PSF)	
IMPACT RATING	
MISSILE LEVEL D	
SEE SHEETS 3, 4, & 5 FOR DESIGN PRESSURES.	

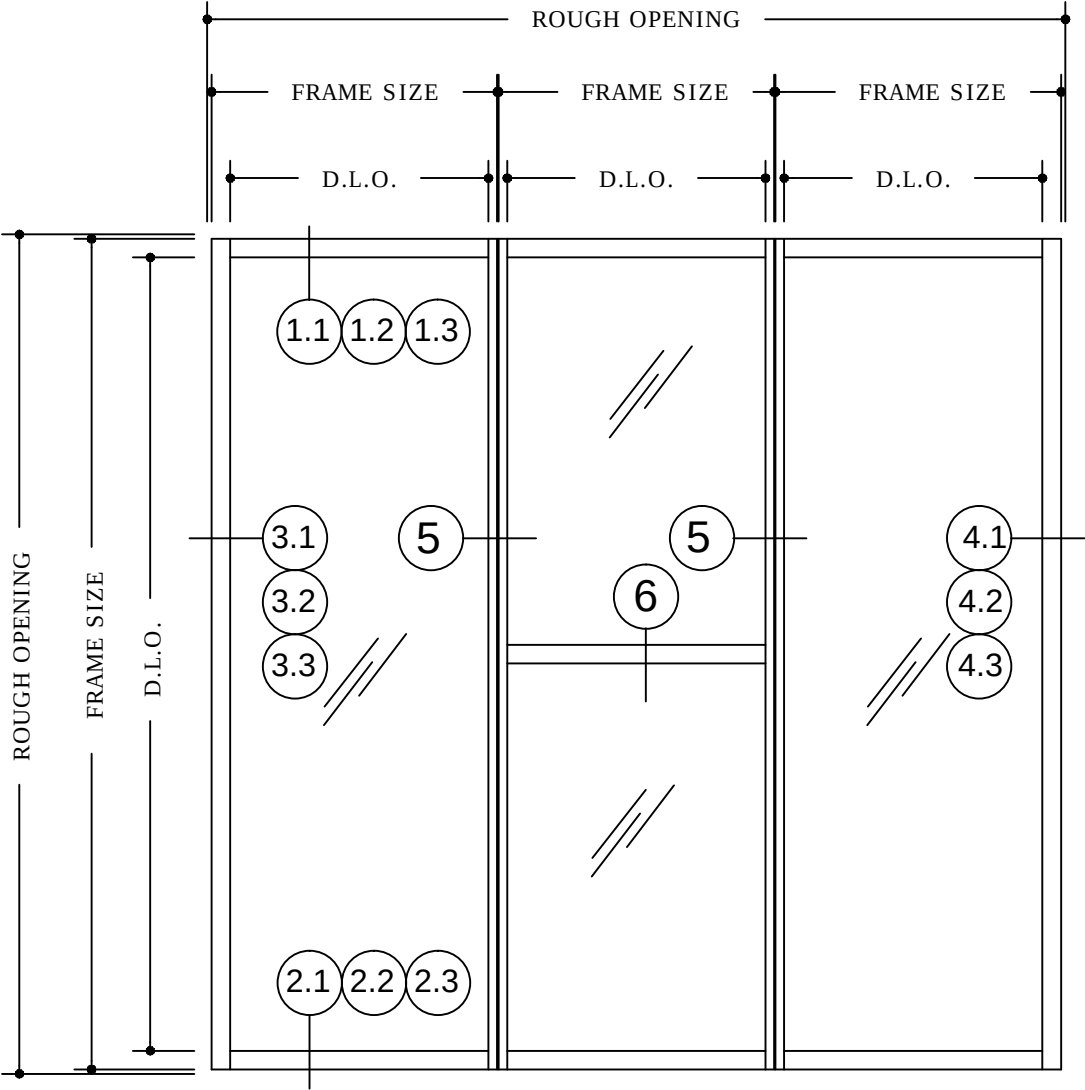
VISIT [ECALC.IO/42335c](https://ecalculator.com/42335c) SCAN HERE:

FOR HELPFUL RESOURCES, SITE SPECIFIC JOB ORDERING & MORE INFORMATION ABOUT THIS PRODUCT & RELATED SERVICES

FX 3000 WINDOW WALL (LMI/SMI)



TYPICAL ELEVATION
SINGLE FRAME
N.T.S.



TYPICAL ELEVATION
MULTIPLE FRAME
N.T.S.

INSTRUCTIONS TO DETERMINE
DESIGN PRESSURE RATING

STEP 1: USE THE GLASS LOADING TABLES
TO DETERMINE THE ALLOWABLE
PRESSURE OF THE GLASS.

STEP 2: USE THE MULLION LOADING TABLE
TO DETERMINE THE ALLOWABLE
PRESSURES FOR THE MULLIONS.

STEP 3: THE MINIMUM VALUE BETWEEN
STEP 1 AND STEP 2 WILL DETERMINE THE
DESIGN LOAD PRESSURE FOR THIS
SYSTEM.

FRANK BENNARDO PE
PE# 46549, CA# 9885

03/14/2022

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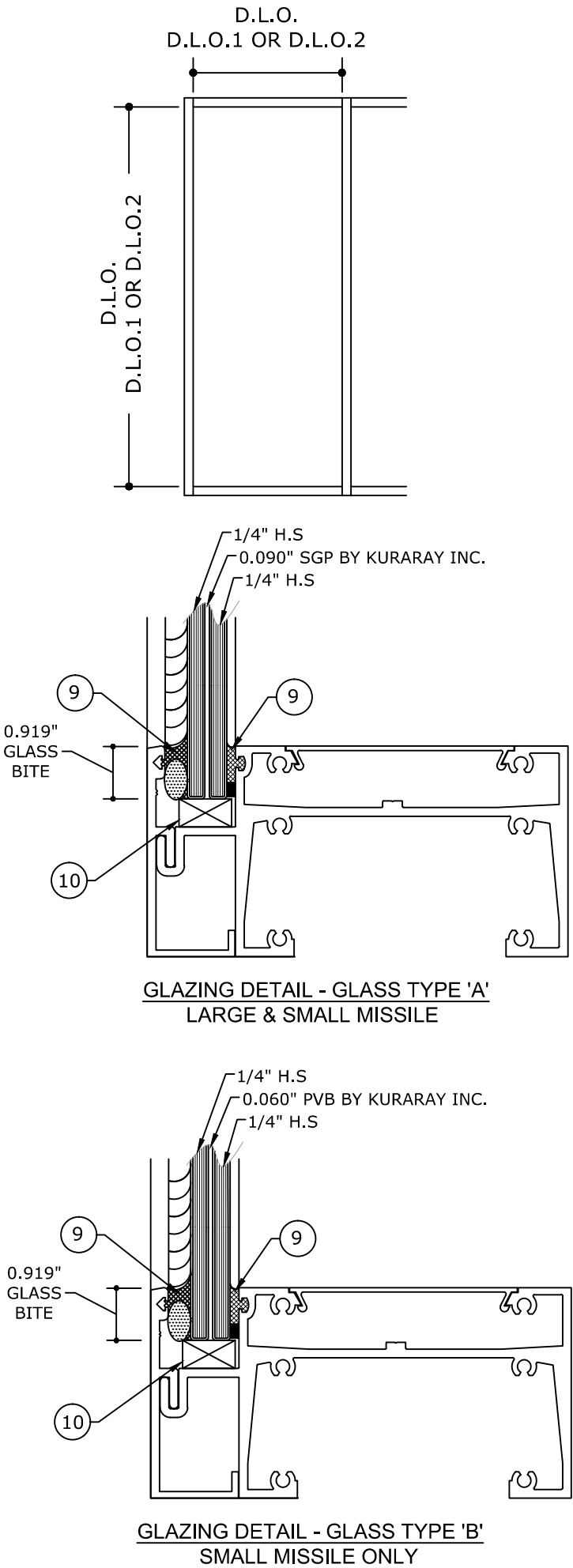
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GLASS LOADING TABLE

DLO DIMENSIONS		GLASS TYPE A & B		DLO DIMENSIONS		GLASS TYPE A & B		DLO DIMENSIONS		GLASS TYPE A & B	
DLO 1 (in)	DLO 2 (in)	(+) P.S.F	(-) P.S.F	DLO 1 (in)	DLO 2 (in)	(+) P.S.F	(-) P.S.F	DLO 1 (in)	DLO 2 (in)	(+) P.S.F	(-) P.S.F
24	24	120	120	108	30	120	120	55.5	42	120	120
30		120	120	114		120	120	60		120	120
36		120	120	117		120	120	66		120	120
42		120	120	132		120	120	72		120	120
48		120	120	138		120	120	78		120	120
54		120	120	144		120	120	84		120	120
55.5		120	120	150		120	120	90		120	120
60		120	120	156		120	120	96		120	120
66		120	120	162		120	120	102		120	120
72		120	120	24	36	120	120	108		120	120
78		120	120	30		120	120	114		120	120
84		120	120	36		120	120	117		120	120
90		120	120	42		120	120	132		120	120
96		120	120	48		120	120	138		120	120
102		120	120	54		120	120	144		120	120
108		120	120	55.5		120	120	150		120	120
114		120	120	60		120	120	24	48	120	120
117		120	120	66		120	120	30		120	120
132		120	120	72		120	120	36		120	120
138		120	120	78		120	120	42		120	120
144		120	120	84		120	120	48		120	120
150		120	120	90		120	120	54		120	120
156		120	120	96		120	120	55.5		120	120
162		120	120	102		120	120	60		120	120
24	30	120	120	108		120	120	66		120	120
30		120	120	114		120	120	72		120	120
36		120	120	117		120	120	78		120	120
42		120	120	132		120	120	84		120	120
48		120	120	138		120	120	90		120	120
54		120	120	144		120	120	96		120	120
55.5		120	120	150		120	120	102		120	120
60		120	120	156		120	120	108		120	120
66		120	120	162		120	120	114		120	120
72		120	120	24	42	120	120	117		120	120
78		120	120	30		120	120	24	54	120	120
84		120	120	36		120	120	30		120	120
90		120	120	42		120	120	36		120	120
96		120	120	48		120	120	42		120	120
102		120	120	54		120	120	48		120	120

NOTE:
GLASS CAPACITIES ON THIS SHEET ARE
BASED ON ASTM E1300-16 (3 SEC. GUSTS)



FRANK BENNARDO PE
PE# 46549, CA# 9885
STATE OF FLORIDA
PROFESSIONAL ENGINEER
LICENSE NO. PE0046549

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SERIES FX-3000 WINDOW WALL
LARGE & SMALL MISSILE
FLORIDA PRODUCT APPROVAL

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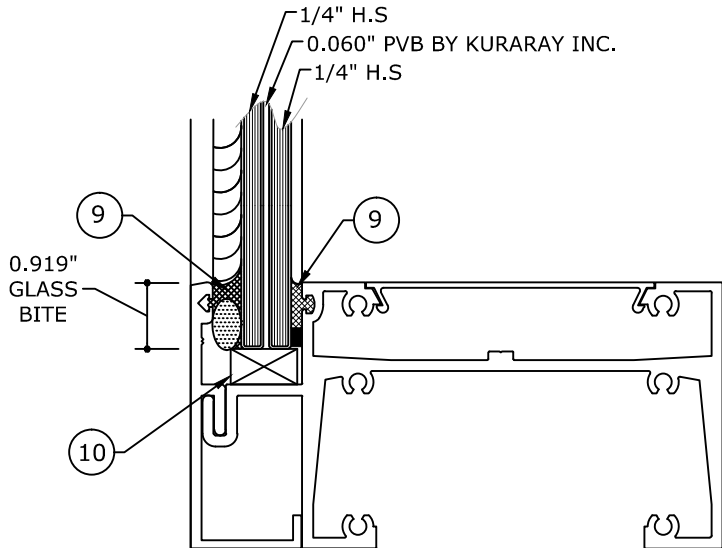
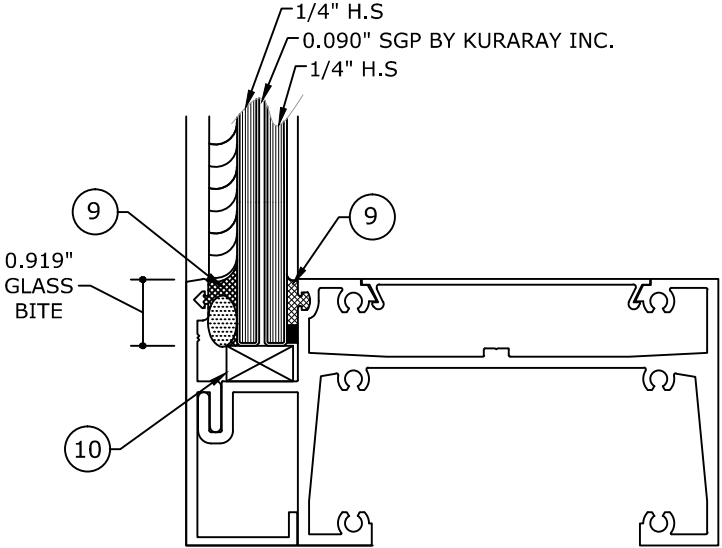
GLASS LOADING TABLE (CONTINUED)

DLO DIMENSIONS		GLASS TYPE A & B	
DLO 1 (in)	DLO 2 (in)	(+) P.S.F	(-) P.S.F
54	54	120	120
55.5		120	120
60		120	120
66		120	120
72		120	120
78		120	120
84		120	120
90		120	120
96		120	120
102		120	120
108		120	120
114		120	120
117		120	120
24	57	120	120
30		120	120
36		120	120
42		120	120
48		120	120
54		120	120
55.5		120	120
60		116	116
66		116	116
72		116	116
78		116	116
84		116	116
90		116	116
96		116	116
102		116	116
108		116	116
24	60	120	120
30		120	120
36		120	120
42		120	120
48		120	120
54		120	120
55.5		120	120
60		111	111
66		111	111
72		111	111

DLO DIMENSIONS		GLASS TYPE A & B	
DLO 1 (in)	DLO 2 (in)	(+) P.S.F	(-) P.S.F
78	60	111	111
84		111	111
90		111	111
96		111	111
102		111	111
24	66	120	120
30		120	120
36		120	120
42		120	120
48		120	120
54		120	120
55.5		120	120
60		111	111
66	72	100	100
72		100	100
78		100	100
84		100	100
90		100	100
24		120	120
30		120	120
36		120	120
42		120	120
48		120	120
54		120	120
55.5		120	120
60		111	111
66		100	100
72	78	92	92
78		92	92
84		92	92
24		120	120
30		120	120
36		120	120
42		120	120
48		120	120
54		120	120
55.5		120	120
60		111	111
66		100	100

DLO DIMENSIONS		GLASS TYPE A & B	
DLO 1 (in)	DLO 2 (in)	(+) P.S.F	(-) P.S.F
72	78	92	92
78		85	85
24		120	120
30	84	120	120
36		120	120
42		120	120
48		120	120
54		120	120
55.5		120	120
60		111	111
66		100	100
72		92	92
24	90	120	120
30		120	120
36		120	120
42		120	120
48		120	120
54		120	120
55.5		120	120
60		111	111
66	96	100	100
24		120	120
30		120	120
36		120	120
42		120	120
48		120	120
54		120	120
55.5		120	120
60		111	111
24	102	120	120
30		120	120
36		120	120
42		120	120
48		120	120
54		120	120
55.5		120	120
60		111	111
24	108	120	120
30		120	120

DLO DIMENSIONS		GLASS TYPE A & B	
DLO 1 (in)	DLO 2 (in)	(+) P.S.F	(-) P.S.F
36	108	120	120
42		120	120
48		120	120
54		120	120
55.5		120	120
24	114	120	120
30		120	120
36		120	120
42		120	120
48		120	120
54		120	120
55.5		120	120



NOTE:
GLASS CAPACITIES ON THIS SHEET ARE
BASED ON ASTM E1300-16 (3 SEC. GUSTS)

FRANK BENNARDO PE
PE# 46549, CA# 9885
FRANK L. BENNARDO
LICENSE
NO. PE046549
STATE OF
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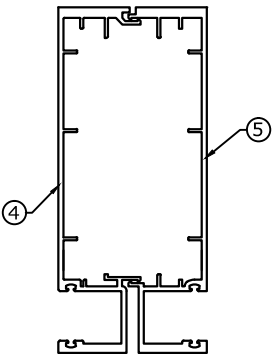
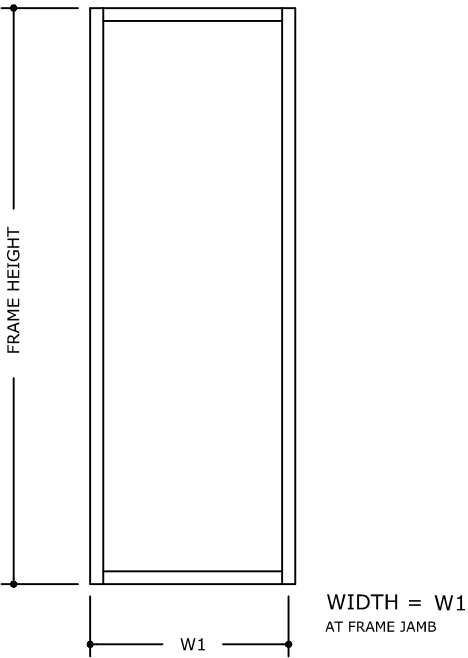
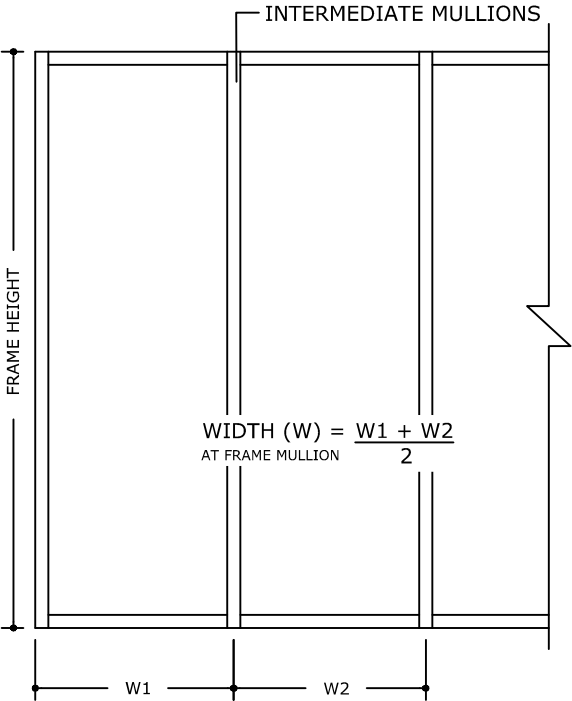
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INTERMEDIATE MULLION LOADING TABLE

WIDTH (in)	HEIGHT (in)	+/- PSF	WIDTH (in)	HEIGHT (in)	+/- PSF	WIDTH (in)	HEIGHT (in)	+/- PSF	WIDTH (in)	HEIGHT (in)	+/- PSF	WIDTH (in)	HEIGHT (in)	+/- PSF
24	48	120	114 *	54	120	24	66	120	66 *	78	109	24	102	120
30		120	117 *		120	30		120	72 *		100	30		120
36		120	132 *		120	36		120	78 *		92	36		120
42		120	24		120	42		120	84 *		92	42		120
48		120	30		120	48		120	90 *		92	48		120
54		120	36		120	54		120	24	84	120	54		120
57		120	42	57	120	57		120	30		120	57		120
60		120	48		120	60		120	36		120	60		120
66 *		120	54		120	66 *		109	42		120	66 *	108	109
72 *		120	57		120	72 *		109	48		120	24		120
78 *		120	60		120	78 *		109	54		120	30		120
84 *		120	66 *		120	84 *		109	57		120	36		120
90 *		120	72 *		120	90 *	72	109	60	90	120	42	114	120
96 *		120	78 *		120	96 *		109	66 *		109	48		120
102 *		120	84 *		120	102 *		109	72 *		100	54		120
108 *		120	90 *		120	108 *		109	78 *		92	57		120
114 *		120	96 *		120	24	78	120	84 *		85	60		120
117 *		120	102 *		120	30		120	24	96	120	66 *	117	109
132 *		120	108 *		120	36		120	30		120	24		120
138 *		120	114 *	60	120	42		120	36		120	30		120
144 *		120	117 *		120	48		120	42		120	36		120
150 *		120	24		120	54		120	48		120	42		120
24	54	120	30		120	57	72	120	54	90	120	48	114	120
30		120	36		120	60		120	57		120	54		120
36		120	42		120	66 *		109	60		120	57		120
42		120	48		120	72 *		100	66 *		109	60		120
48		120	54		120	78 *		100	72 *		100	24	117	120
54		120	57		120	84 *		100	78 *		92	30		120
57		120	60	60	120	90 *	78	100	24		120	36		120
60		120	66 *		120	96 *		100	30	96	120	42		120
66 *		120	72 *		120	24		120	36		120	48		120
72 *		120	78 *		120	30		120	42		120	54		120
78 *		120	84 *		120	36		120	48		120	57		120
84 *		120	90 *		120	42		120	54		120	60	120	120
90 *		120	96 *		120	48		120	57		120	24		120
96 *		120	102 *		120	54		120	60		120	30		120
102 *		120	108 *		120	57	78	120	66 *		109	36		120
108 *		120	114 *		120	60		120	72 *		100	42		120
			117 *		120							48		120
												54		120
												57		120
												60		120

* INTERMEDIATE HORIZONTAL SPANS LARGER THAN 60" ARE NOT PERMITTED UNDER THIS APPROVAL



INTERMEDIATE MULLION

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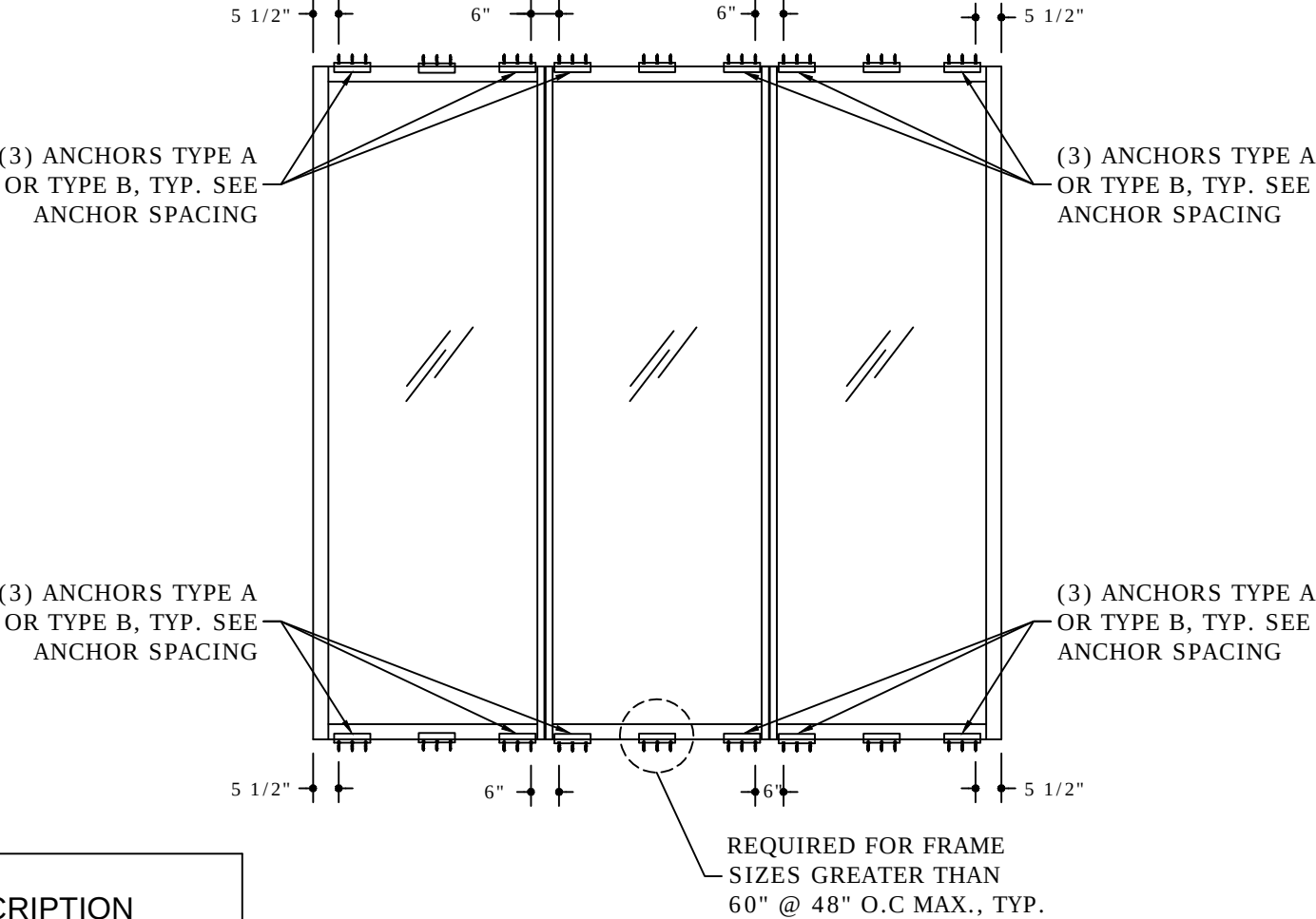
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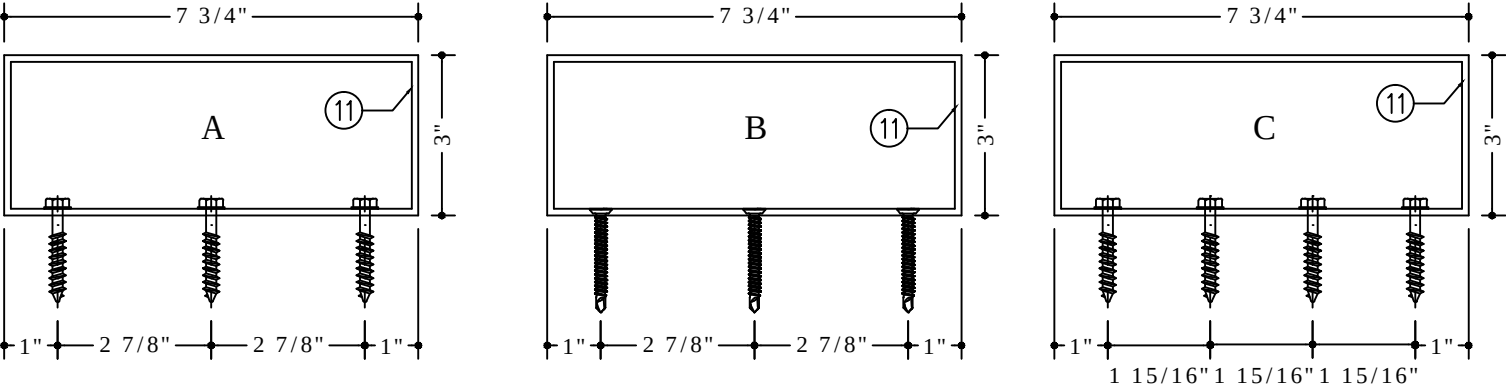
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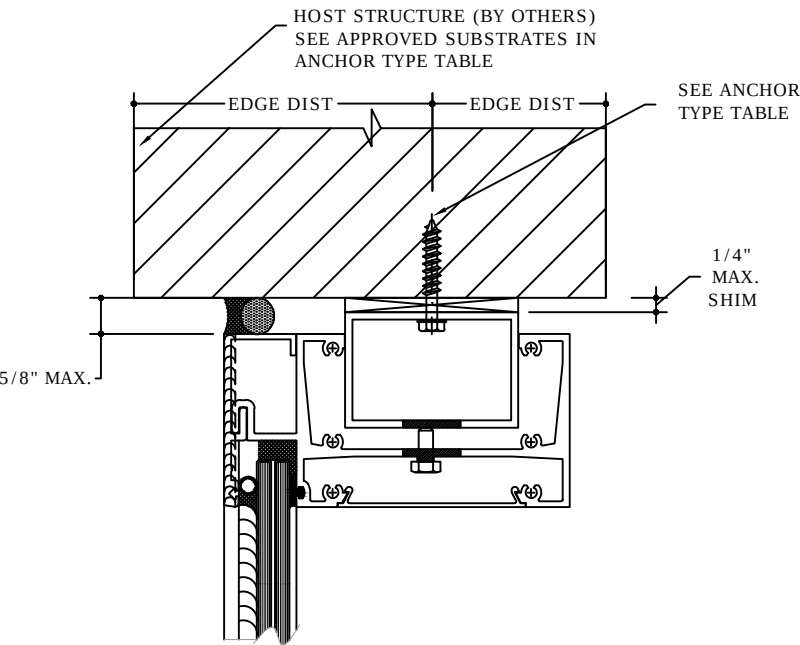
TYPICAL ANCHOR LAYOUT



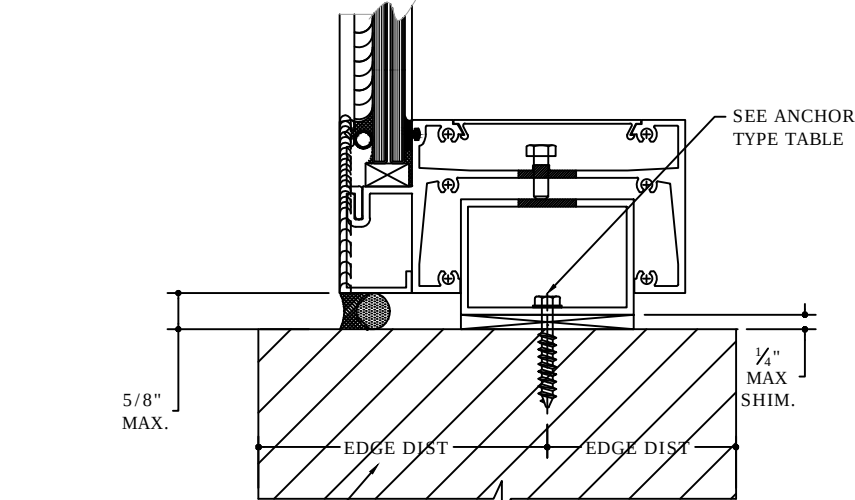
ANCHOR TYPE	DESCRIPTION
A	$\frac{5}{16}$ " DEWALT ULTRACON OR EQUAL, 2" EFFECTIVE EMBEDMENT INTO 3000 PSI CONCRETE MIN. WITH 2 1/2" EDGE DISTANCE
B	$\frac{5}{16}$ " - 24 DEWALT DRILLFLEX OR EQUAL, ENGAGING 5 PITCHES PASSED THE THREAD PLANE INTO $\frac{1}{8}$ " ALUMINUM (6063-T5 MIN) OR $\frac{1}{8}$ " STEEL (A36 MIN), $\frac{3}{4}$ " MIN EDGE DISTANCE
C	$\frac{5}{16}$ " DEWALT ULTRACON OR EQUAL, 1 1/2" MIN ENGAGEMENT INTO SOUTHERN YELLOW PINE #2 WOOD (SG=0.55 MIN.) WITH 1-1/4" MIN EDGE DISTANCE



ANCHOR SPACING



ANCHOR DETAIL AT HEAD



ANCHOR DETAIL AT SILL

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PE# 46549, CA# 9885
STATE OF FLORIDA
PROFESSIONAL ENGINEER
03/14/2022

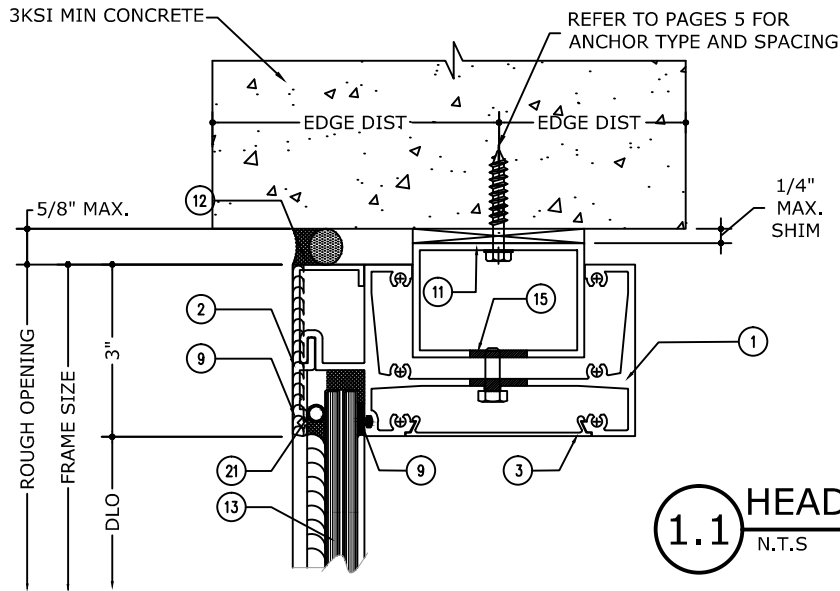
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BUILDING ENVELOPE SYSTEMS
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PH: (786) 457-8258
SERIES EX-3000 WINDOW WALL
LARGE & SMALL MISSILE
FLORIDA PRODUCT APPROVAL

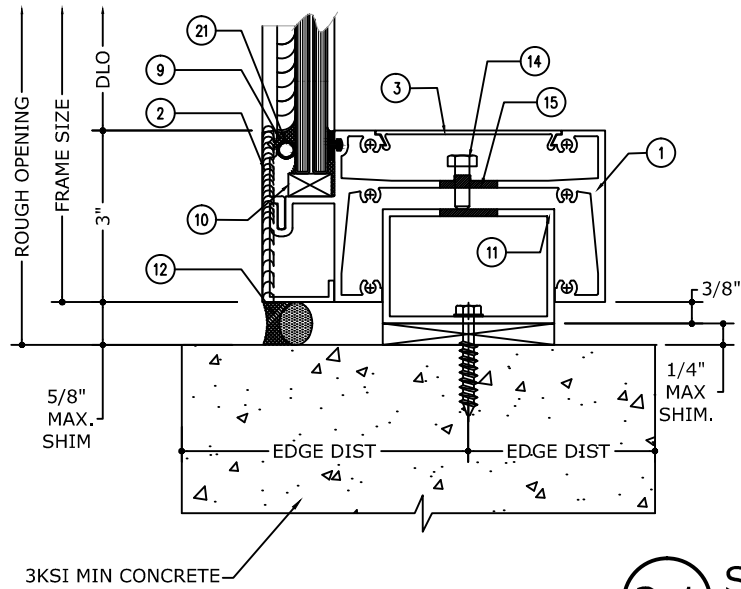
REMARKS	DRWN	CHKD	DATE
INIT ISSUE	LEO	AJP	10/19/17
FBC 2020 UPDATE	TAE	AJP	08/05/21

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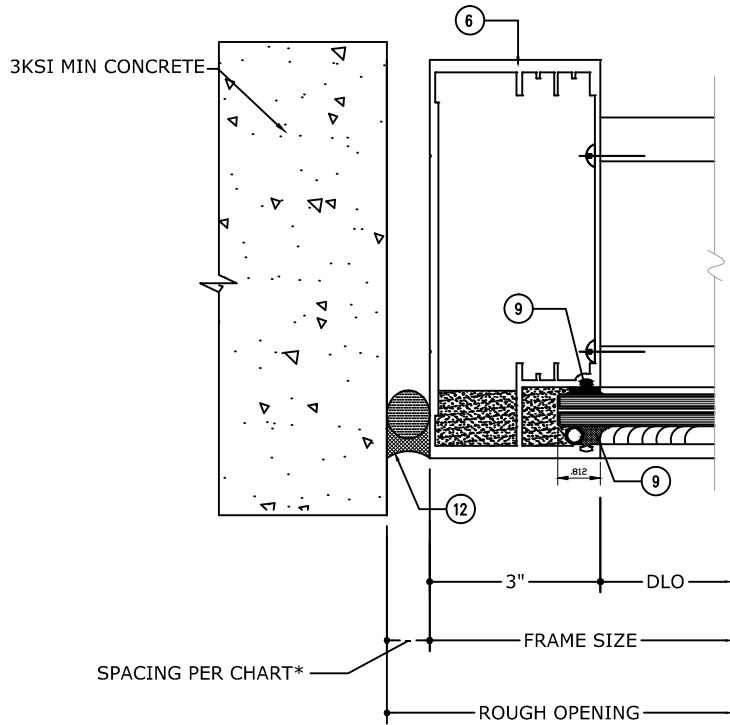
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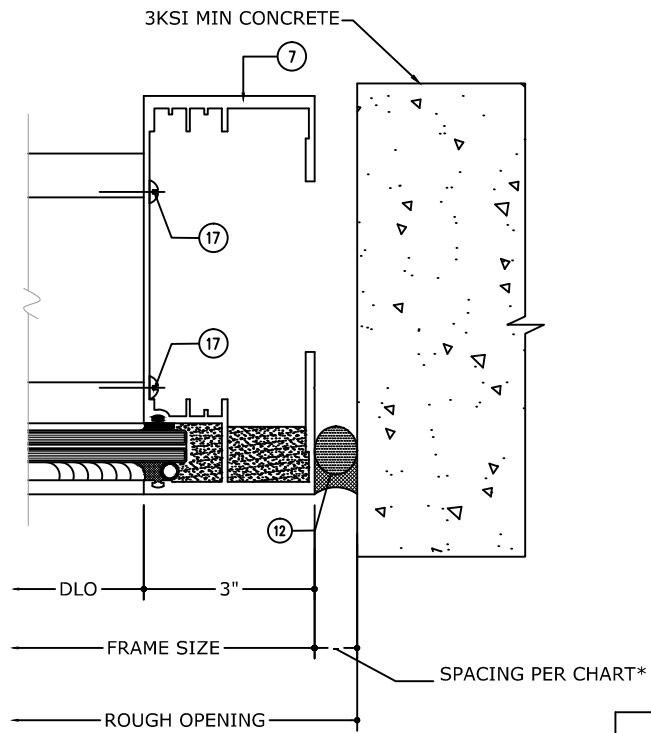
1.1 HEAD DETAIL (CONCRETE)
N.T.S.



2.1 SILL DETAIL (CONCRETE)
N.T.S.



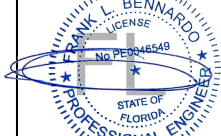
3.1 JAMB DETAIL (CONCRETE)
N.T.S.



4.1 JAMB DETAIL (CONCRETE)
N.T.S.

MAX FRAME HEIGHT	GAP*	
	MIN.	MAX.
84"	1/4"	1"
96"	5/16"	1"
120"	3/8"	1"

FRANK BENNARDO PE
PE# 46549, CA# 9885



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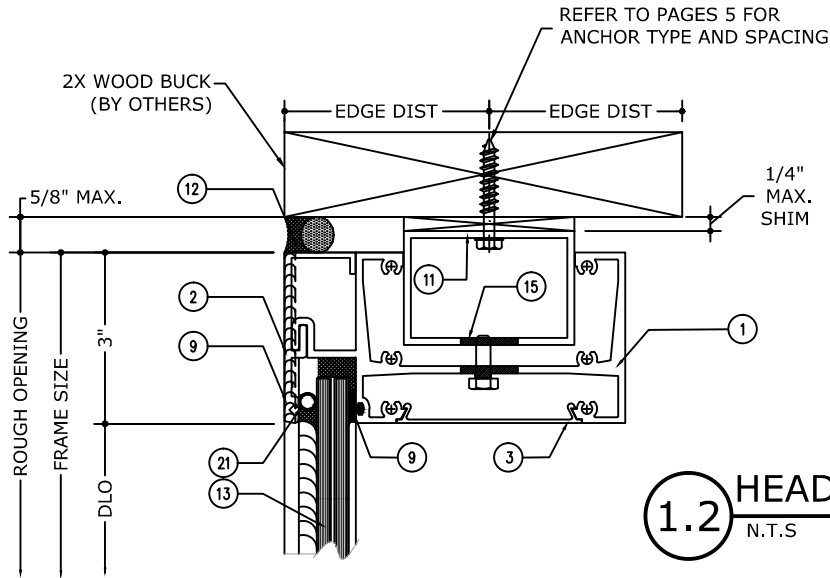
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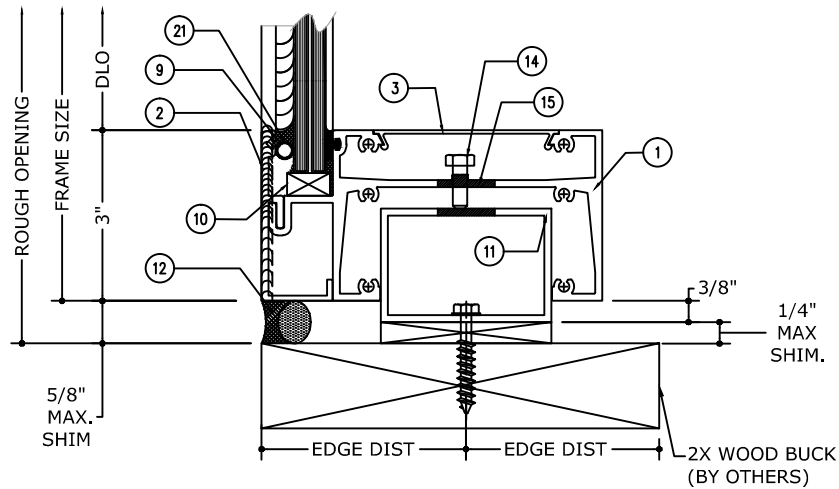
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OF
12

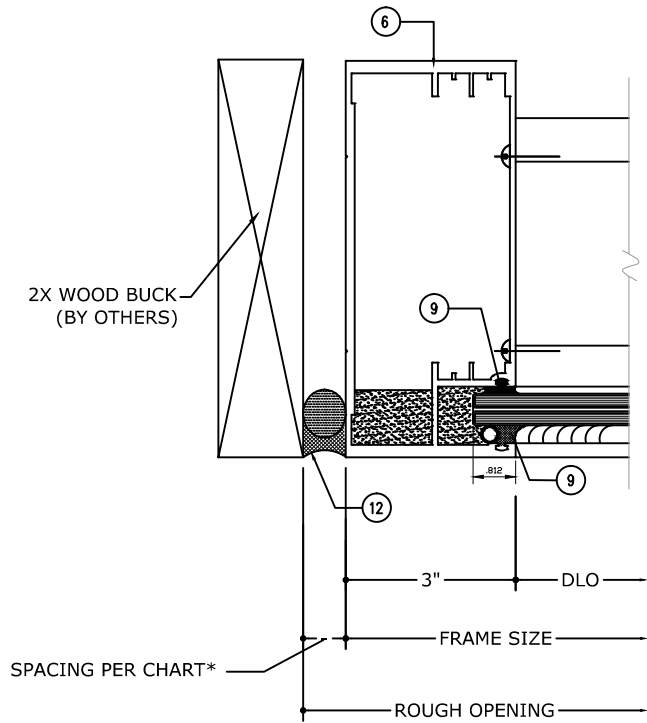
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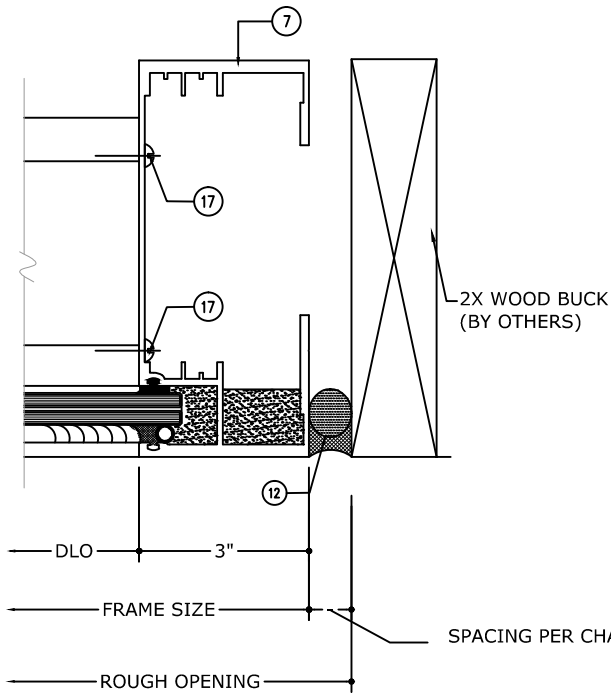
1.2 HEAD DETAIL (WOOD)
N.T.S



2.2 SILL DETAIL (WOOD)
N.T.S



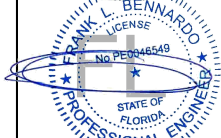
3.2 JAMB DETAIL (WOOD)
N.T.S



4.2 JAMB DETAIL (WOOD)
N.T.S

MAX FRAME HEIGHT	GAP*	
	MIN.	MAX.
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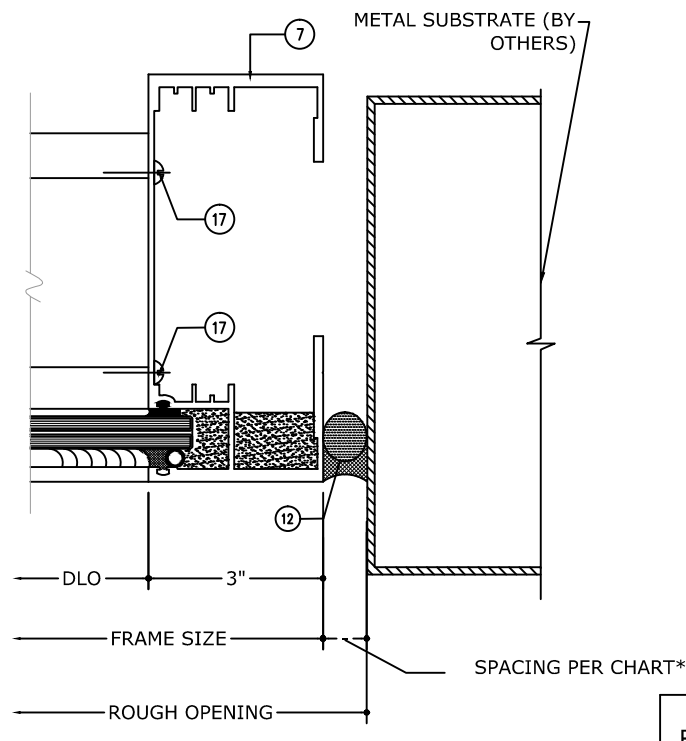
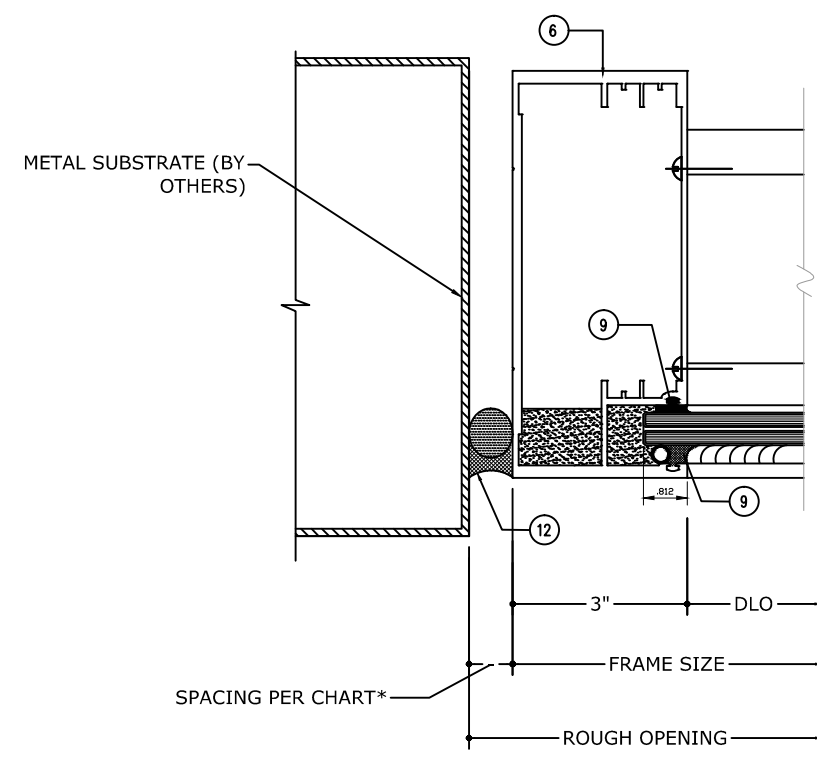
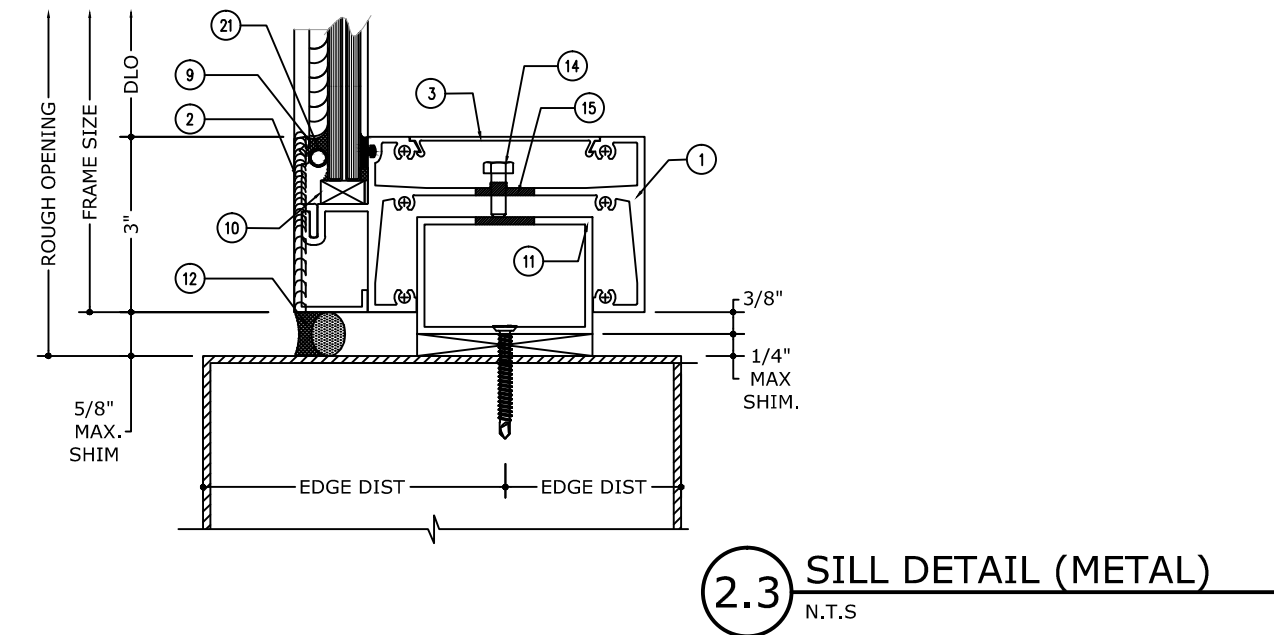
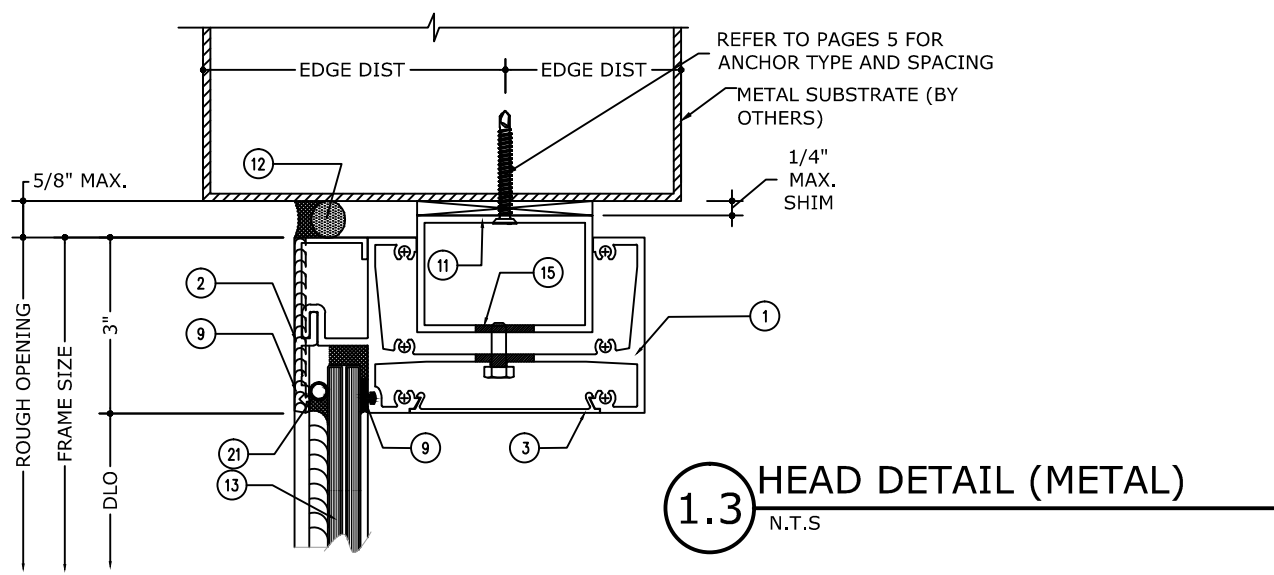
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	MIN.	MAX.
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FRANK BENNARDO PE
PE# 46549, CA# 9885

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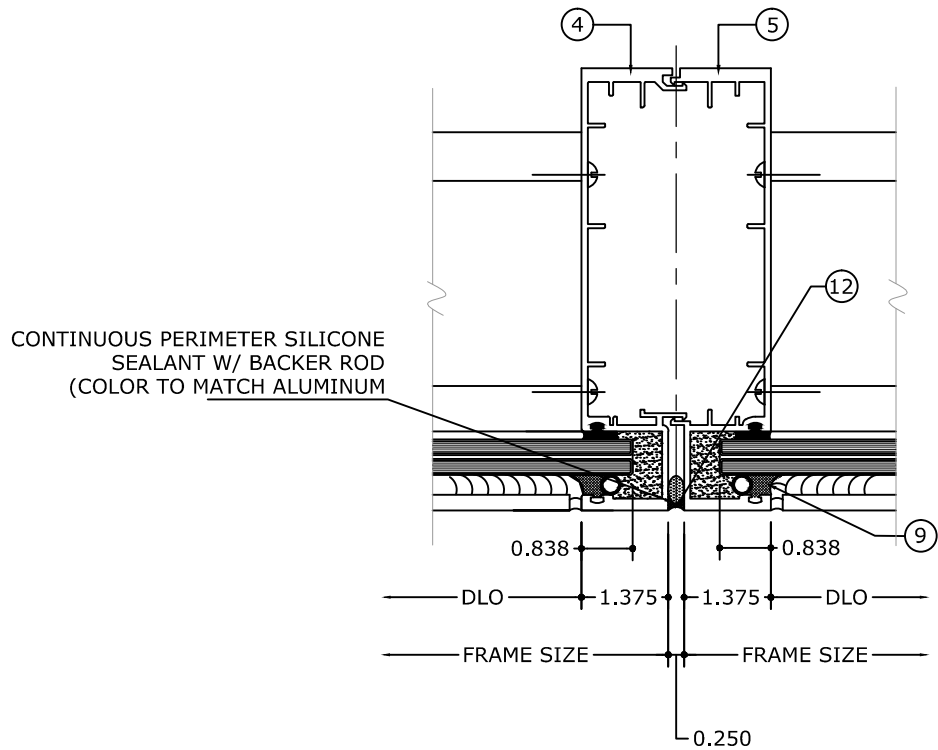
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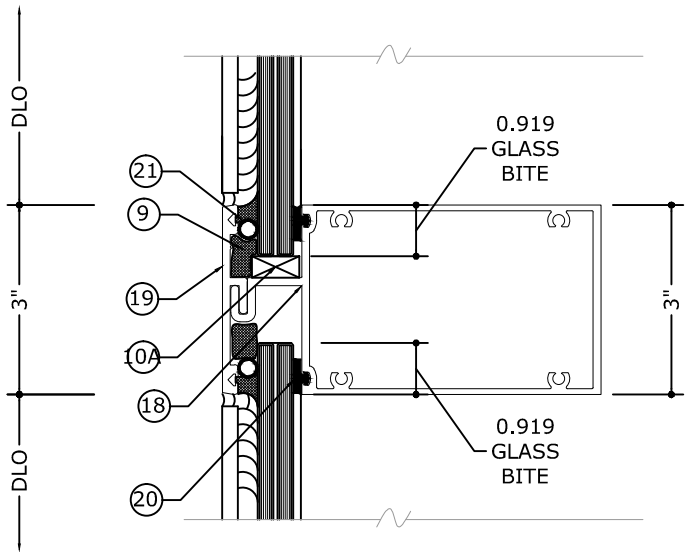
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5 VERTICAL INTERMEDIATE DETAIL
N.T.S



6 HORIZONTAL INTERMEDIATE DETAIL
N.T.S

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PE# 46549, CA# 9885
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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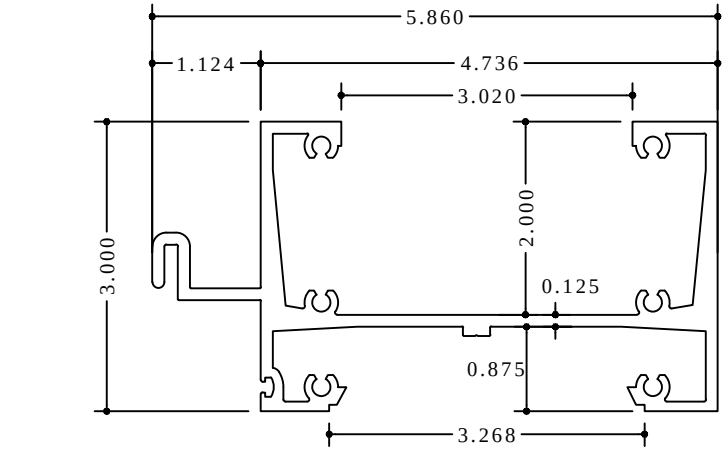
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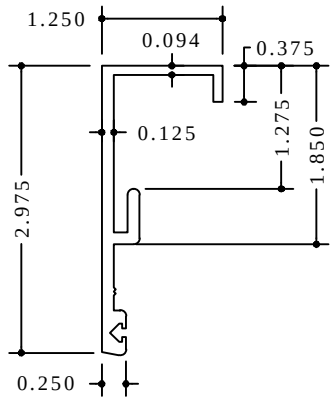
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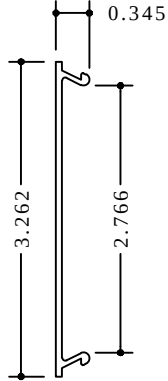
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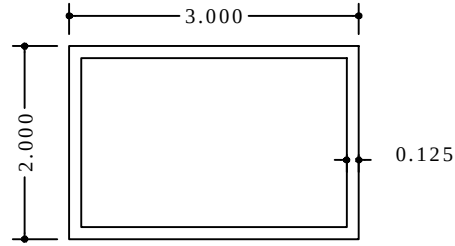
1 HEAD & SILL HORIZONTAL



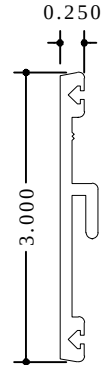
2 HEAD & SILL COVER



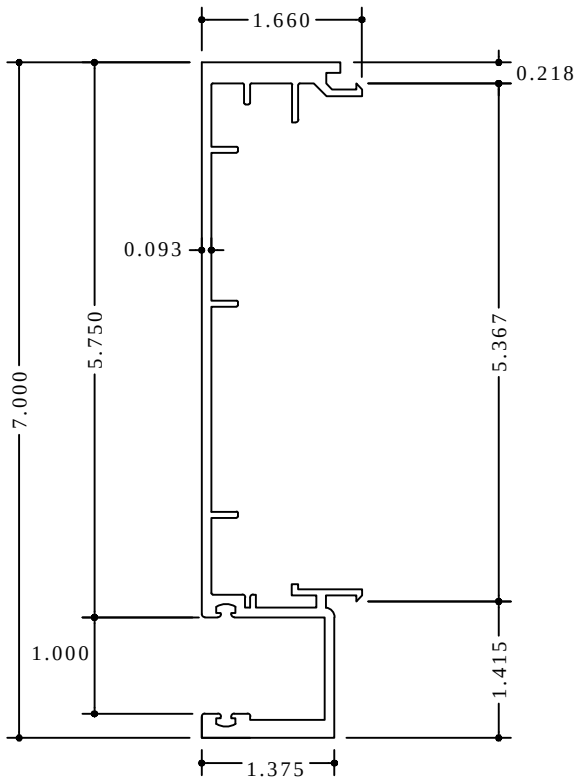
2 SNAP-IN GLAZING COVER



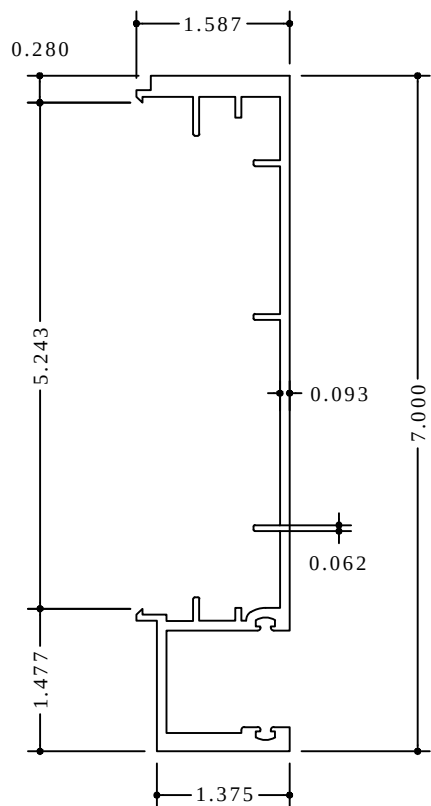
11 ANCHOR TUBE



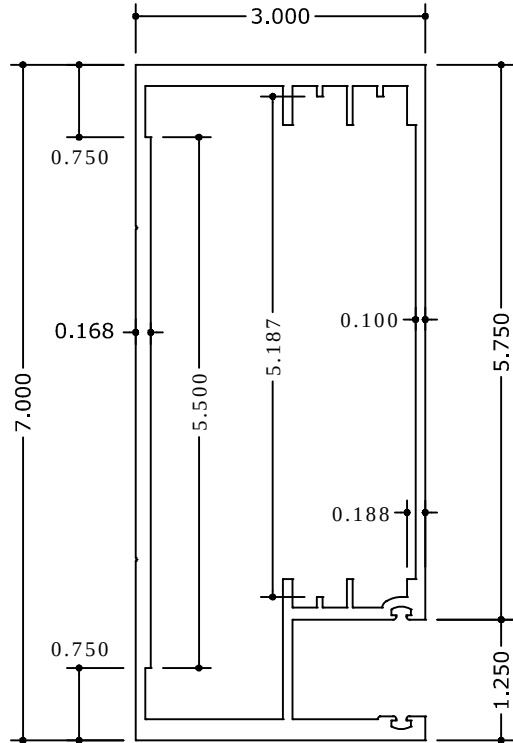
19 INTERMEDIATE GLAZING COVER



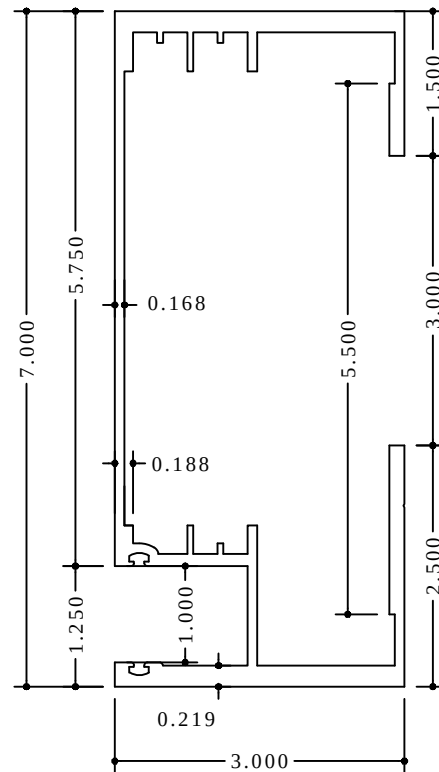
4 VERTICAL MULLION MALE



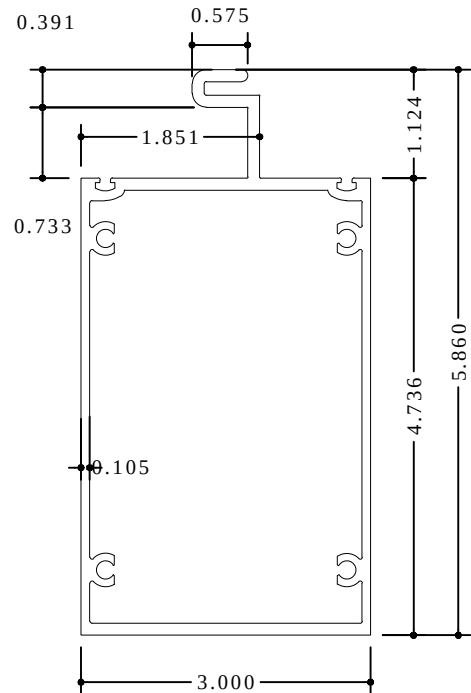
5 VERTICAL MULLION FEMALE



6 CLOSE FRAME JAMB



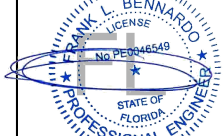
7 OPEN FRAME JAMB



18 INTERMEDIATE HORIZONTAL

NOTE: ALL ALUMINUM EXTRUSIONS TO BE 6063-T5

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	FX3000		
CODE	PART No.	DESCRIPTION	DESCRIPTION
1	3000-051	FRAME HEAD & SILL	D.L.D
2	3000-006/FX2543-005	HEAD & SILL GLAZING COVER	D.L.D - 3/8"
3	3000-011	SNAP-IN GLAZING COVER	D.L.D - 1/16"
4	3000-042	VERTICAL MULLION MALE	UNIT HEIGHT
5	3000-043	VERTICAL MULLION FEMALE	UNIT HEIGHT
6	3000-066	CLOSE FRAME JAMB.	UNIT HEIGHT
7	3000-044	OPEN FRAME JAMB.	UNIT HEIGHT
9	--	SILICONE SEALANT DOWSIL 795.	GW + 3.688
10	--	SETTING BLOCKS (3/4"x5/8x4") NEOPRENE 70 +/- 5 DUROMETER MIN.	2 /LITE.
10A	--	SETTING BLOCKS (3/4"x3/8x4") NEOPRENE 70 +/- 5 DUROMETER MIN.	2 /LITE.
11	--	ANCHOR TUBE (2" X 3"X 1/8" THK 7 3/4" LG.)	
12	--	PERIMETER SILICONE DOWSIL 790 & SIKA WS-290	
13	--	9/16" THK GLASS (SEE GLAZING DETAIL ON PAGE 3)	
14	--	1/4-20 X 1" LG. CAP (2) PER ANCHOR.	
15	--	ACCES HOLE FOR INSTALLATION.	
16	--	(3) 1/4" Ø 3/4" HH KWIK-CON CLUTER AT EA ANCHOR TUBE.	
17		ASSEMBLY SCREWS #2 X 1 1/2" HH LG SS SMS.	
18	3000-041	INTERMEDIATE HORIZONTAL	D.L.D
19	3000-005	INTERMEDIATE GLAZING COVER	D.L.D - 3/8"
20	WV-8215	GLAZING GASKET (VINYL)	(2) GLASS PERIMETER
21	WV-3289	BULB WEATHERSTRIPPING (VINYL)	GW + 3.688

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