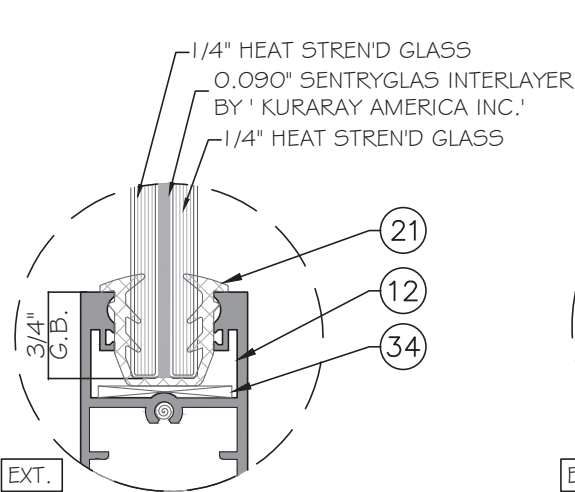
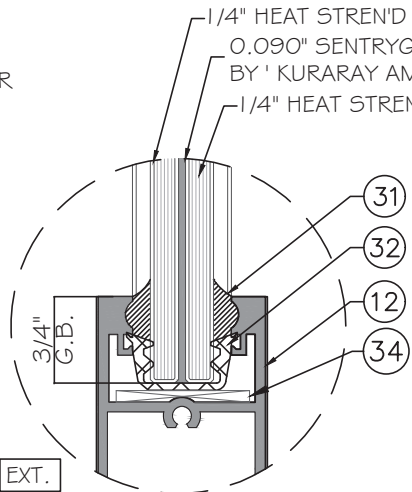


SERIES ES-2020 FIX WINDOWS
LARGE AND SMALL MISSILE IMPACT (L.M.I. & S.M.I.)

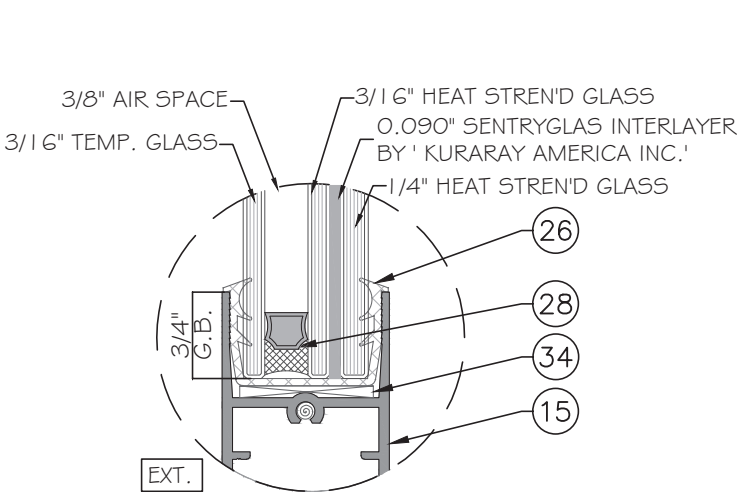


DRY GLAZED



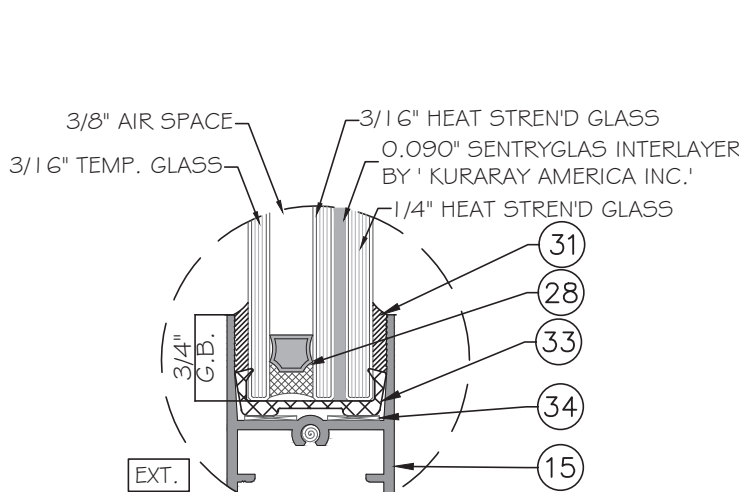
WET GLAZED

GLAZING OPTIONS



DRY GLAZED

GLASS TYPE 'GL2'
1" NOMINAL OVERALL



WET GLAZED

NOTE:
GLASS COMPLIES WITH ASTM E 1300-09
(3 SEC. GUSTS).

GENERAL NOTES:

- THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE 7TH EDITION (2020) / 8TH EDITION (2023) INCLUDING HIGH VELOCITY HURRICANE ZONE (HVHZ).
- WINDOWS ARE RATED FOR LARGE AND SMALL MISSILE IMPACT. IMPACT SHUTTERS ARE NOT REQUIRED.
- THESE WINDOWS ARE APPROVED FOR AIR AND WATER INFILTRATION.
- ANCHORS SHALL BE AS LISTED, SPACED AS SHOWN ON DETAILS. ANCHORS EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO.
- ANCHORING OR LOADING CONDITIONS NOT SHOWN IN THESE DETAILS ARE NOT PART OF THIS APPROVAL.
- MATERIALS INCLUDING BUT NOT LIMITED TO STEEL/METAL SCREWS THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE FLORIDA BUILDING CODE 7TH EDITION (2020) / 8TH EDITION (2023) SECTION AS APPLICABLE.
- METAL STRUCTURES BY OTHERS TO BE DESIGNED TO SUPPORT THE LOADS IMPOSED BY THIS GLAZING SYSTEM AND TO TRANSFER SUCH LOADS TO THE BUILDING MAIN STRUCTURE.
- THE DESIGN LOADS SHOWN IN THIS DOCUMENT ARE ALLOWABLE DESIGN LOADS. ULTIMATE LOAD OBTAINED FROM ASCE 7-16/ ASCE 7-22 MULTIPLY BY 0.6 SHALL BE LESS THAN OR EQUAL TO MAX. DESIGN LOAD IN THIS DOCUMENT.
- MANUFACTURER'S LABEL SHALL BE LOCATED ON A READILY VISIBLE LOCATION IN ACCORDANCE WITH SECTION 1709.9.3 OF FLORIDA BUILDING CODE LABELING TO COMPLY WITH SECTION 1709.9.2.

-SEALANTS:

ALL FRAME CORNERS, JOINTS, MULLION SEAMS AND PERIMETER GLAZING BEAD TO FRAME INSTALLATION FASTENERS SEALED WITH SILICONE SEALANT.

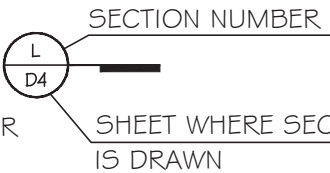
INSTRUCTIONS:

USE CHARTS AS FOLLOWS.

- STEP 1 DETERMINE DESIGN WIND LOAD REQUIREMENT BASED ON WIND VELOCITY, BLDG. HEIGHT, WIND ZONE USING APPLICABLE ASCE 7-16/ ASCE 7-22 STANDARD OR WIND TUNNEL REPORTS.
- STEP 2 SEE CHARTS ON SHEET M1 FOR DESIGN LOAD CAPACITY OF DESIRED WINDOW WALL FRAME SIZE, SEE COVER PAGE FOR APPROVED GLASS OPTIONS. GLASS CAPACITIES NOT GOVERN.
- STEP 3 USING ANCHORS ON SHEET A1 & A2, SELECT ANCHOR OPTION WITH DESIGN RATING ON SHEET A1 & A3, ANCHOR CAPACITY SHOULD EXCEED DESIGN LOAD SPECIFIED IN STEP 1 ABOVE.
- STEP 4 THE LOWEST VALUE RESULTING FROM STEPS 2 AND 3 SHALL APPLY TO ENTIRE SYSTEM.

ABBREVIATIONS AND SYMBOLS

D.L.O. - DAYLITE OPENING G.B. - GLASS BITE
F.H. - FRAME HEIGHT
F.W. - FRAME WIDTH
W - WITH
W/O - WITHOUT
O.C. - ON CENTER
SGD - SLIDING GLASS DOOR
H.R. - HEAD RECEPTOR
AVE. - AVERAGE

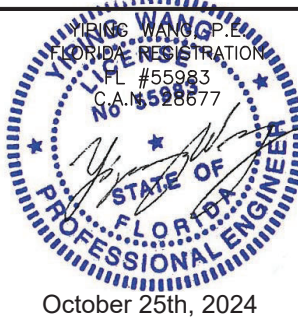


LIMITATIONS OF USE

- A- THIS PRODUCT EVALUATION DOCUMENT (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 OF THIS PRODUCT BASED ON THIS PRODUCT EVALUATION PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT.
- C- THIS PRODUCT EVALUATION DOCUMENT 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- THIS P.E.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.

FLORIDA APPROVAL:

FL#28067.1



SERIES ES-2020 FIX WINDOW (L.M.I.& S.M.I.)

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mcy@mcyengineering.com

Drawn Date 10.25.2024

Scale AS SHOWN

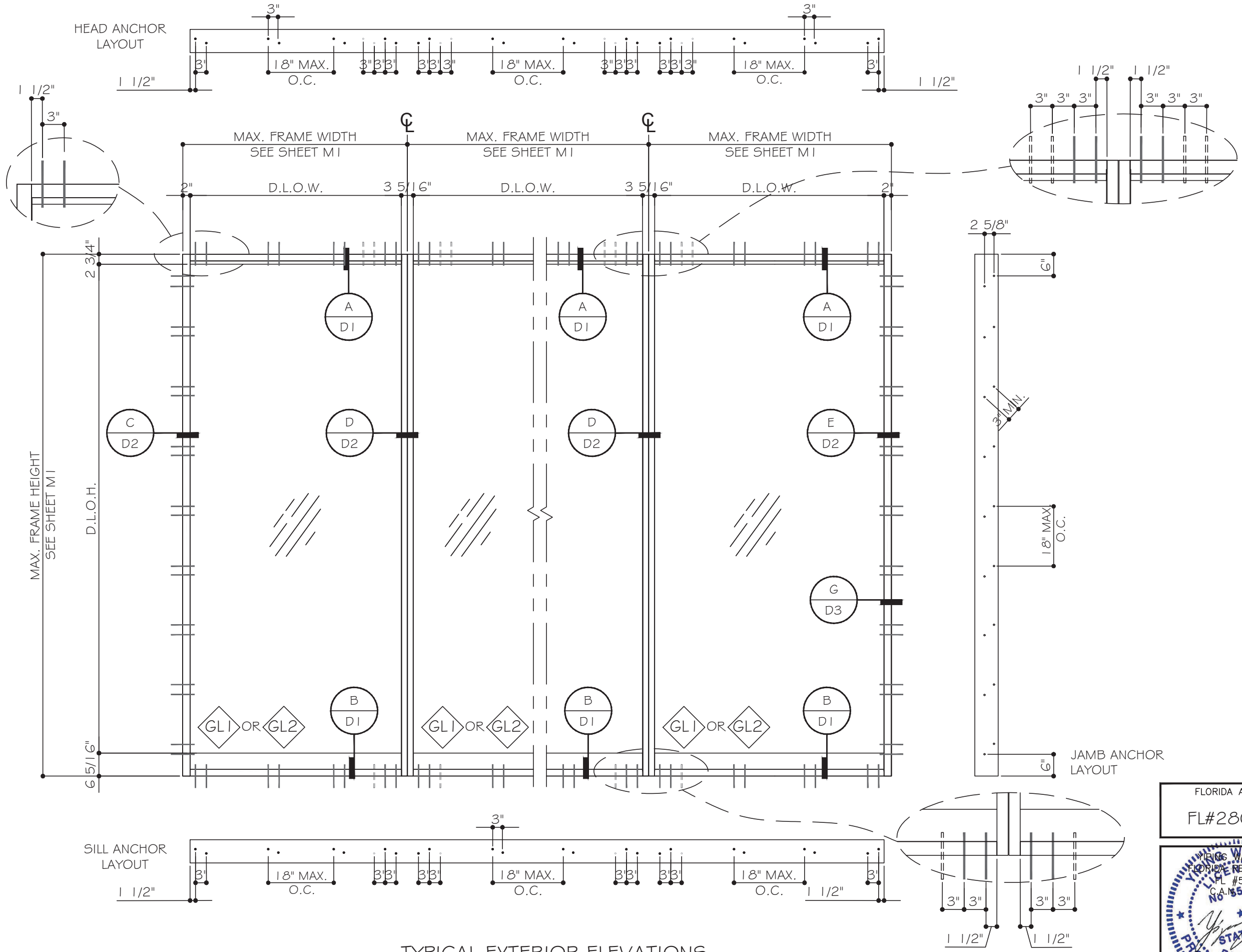
DRAWING NO.

AD18-32

COVER

Sheet No.

01 OF 14

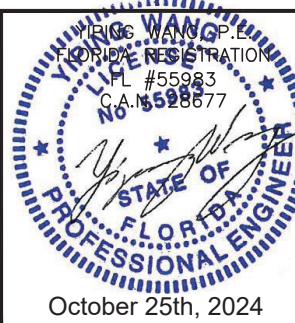


D.L.O.W.=F.W - 3 5/16"
D.L.O.H.=F.H. - 9 1/8"

TYPICAL EXTERIOR ELEVATIONS

DESIGN LOADS SEE CHART ON SHEET M1

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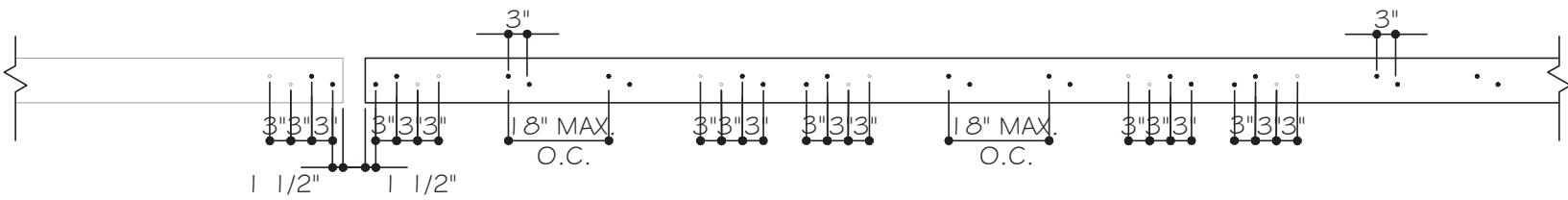
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Rev. No.	Date	Drawn By	Description
R3	10.25.2024	James	UPDATE TO FBC 2023
Drawn Date 10.25.2024 Scale AS SHOWN			
Drawing No. AD18-32			
Sheet No. 02 OF 14			

HEAD ANCHOR
LAYOUT



SGD PANEL WIDTH

MAX. FRAME WIDTH
SEE SHEET M1

MAX. FRAME WIDTH
SEE SHEET M1

MAX. FRAME WIDTH
SEE SHEET M1

1 5/8"

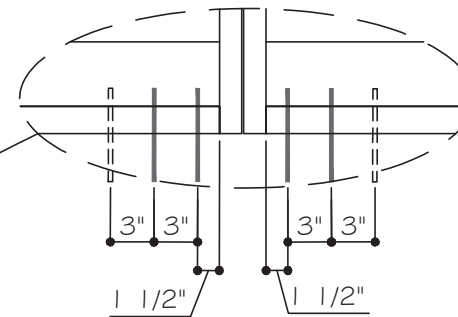
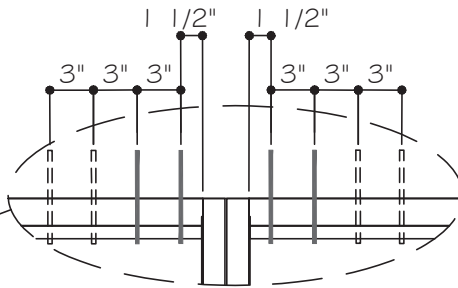
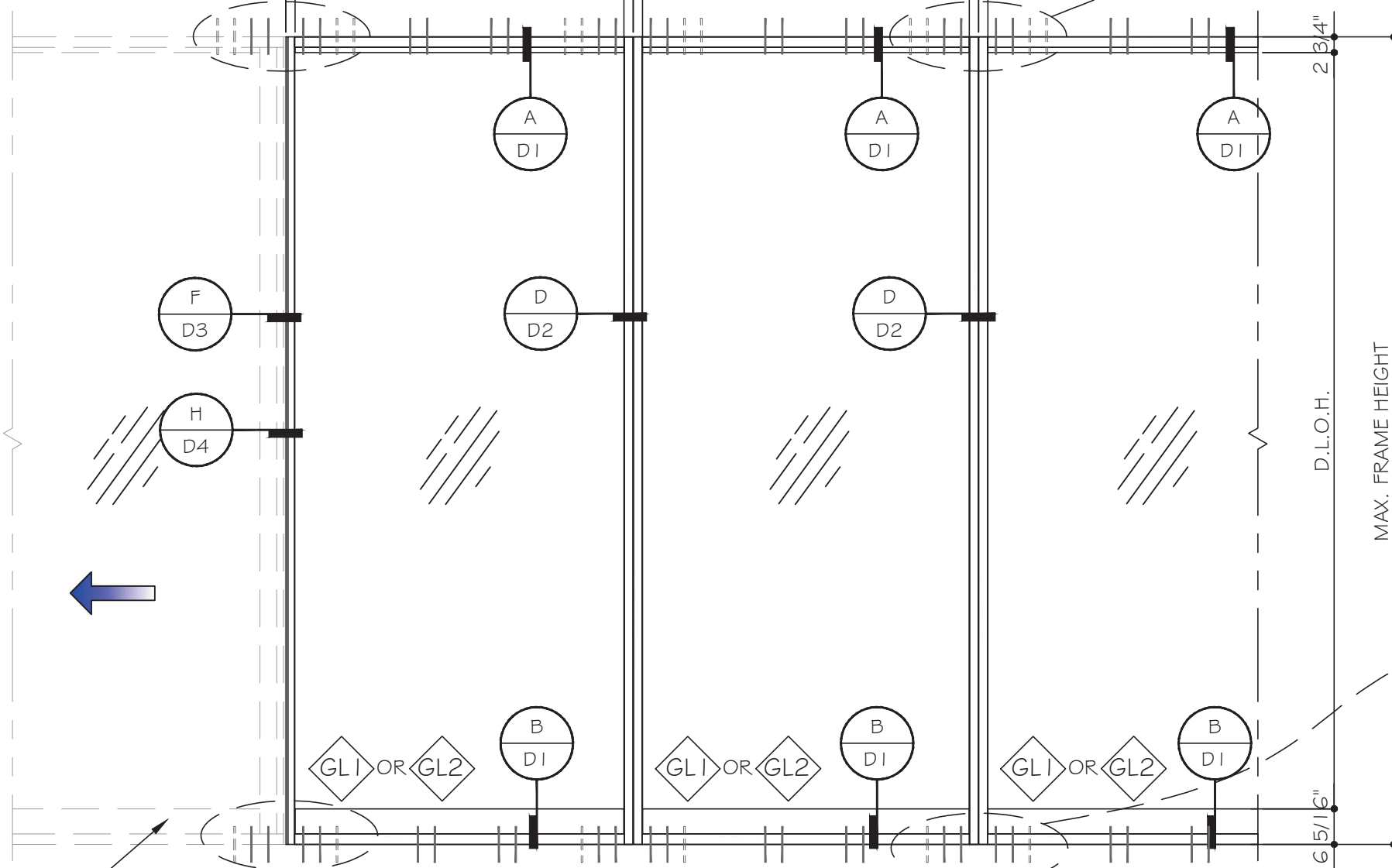
D.L.O.W.

3 5/16"

D.L.O.W.

3 5/16"

D.L.O.W.



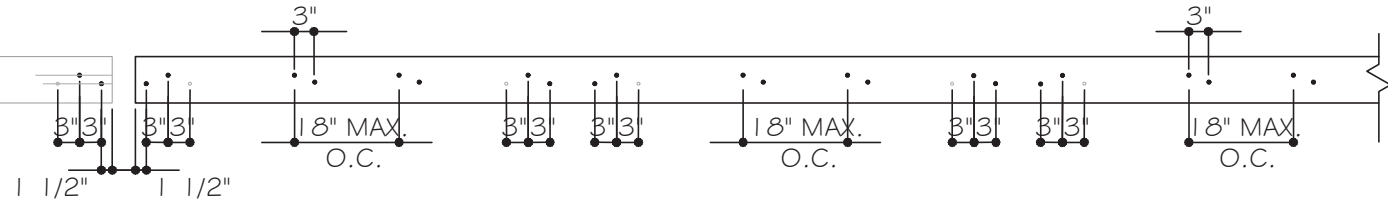
MAX. FRAME HEIGHT
SEE SHEET M1

D.L.O.H.

6 5/16"

SEE ES WINDOW SGD-2020 IN
SEPARATE FLORIDA APPROVAL

SILL ANCHOR
LAYOUT

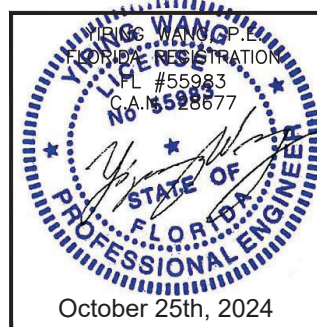


TYPICAL EXTERIOR ELEVATIONS (SGD CONNECT OPTION)

DESIGN LOADS SEE CHART ON SHEET M1

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FL#28067.1



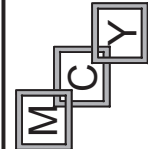
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Drawn Date
10.25.2024

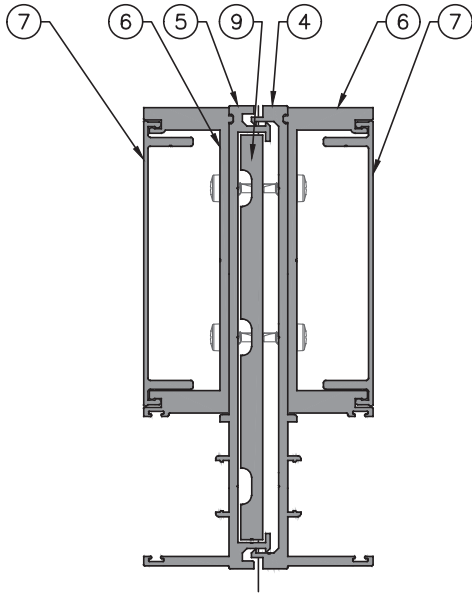
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DRAWING NO.
AD18-32

E2

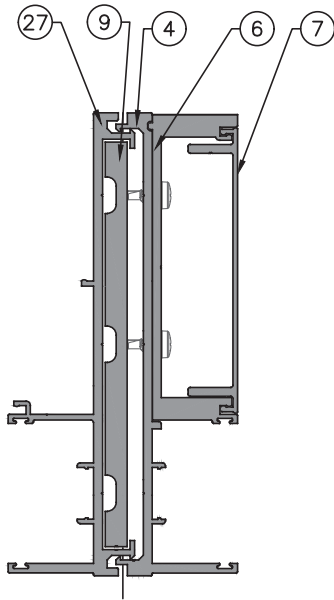
Sheet No.
03 OF 14

DESIGN LOAD CAPACITIES (PSF)							
FRAME HEIGHT (FH)	FRAME WIDTH (FW)	FX-FX		SGD-FX		SGD-FX	
		(M1)		(M2)		(M3)	
IN	IN	(+)	(-)	(+)	(-)	(+)	(-)
120	54	80	80	80	80	80	80
	60	80	80	80	80	80	80
	66	80	80	80	80	80	80
	72	80	80	80	80	80	80
126	48	80	80	80	80	80	80
	54	80	80	80	80	80	80
	60	80	80	80	80	80	80
	66	80	80	80	80	80	80
132	48	80	80	80	80	80	80
	54	80	80	80	80	80	80
	60	80	80	80	80	80	80
	66	80	80	76	76	80	80
138	48	80	80	80	80	80	80
	54	80	80	80	80	80	80
	60	80	80	80	80	80	80
	64	80	80	71	71	80	80
144	48	80	80	80	80	80	80
	54	80	80	75	75	80	80
	60	80	80	69	69	80	80
	62	80	80	67	67	78	78



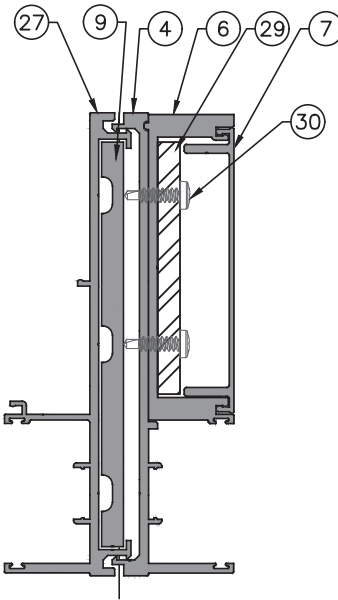
MULLION (M1)

(M1)	Ix IN^4	Sx IN^3
④ ES-SGD2020-042	5.1343	1.3874
⑤ ES-SGD2020-043	5.4672	1.4850
⑨ ES-SGD2020-044	3.8807	1.3811
⑥ ES-SGD2020-045 X2	6.3312	2.8810
⑦ ES-SGD2020-046 X2	1.6862	0.8498
TOTAL	22.4996	7.9843



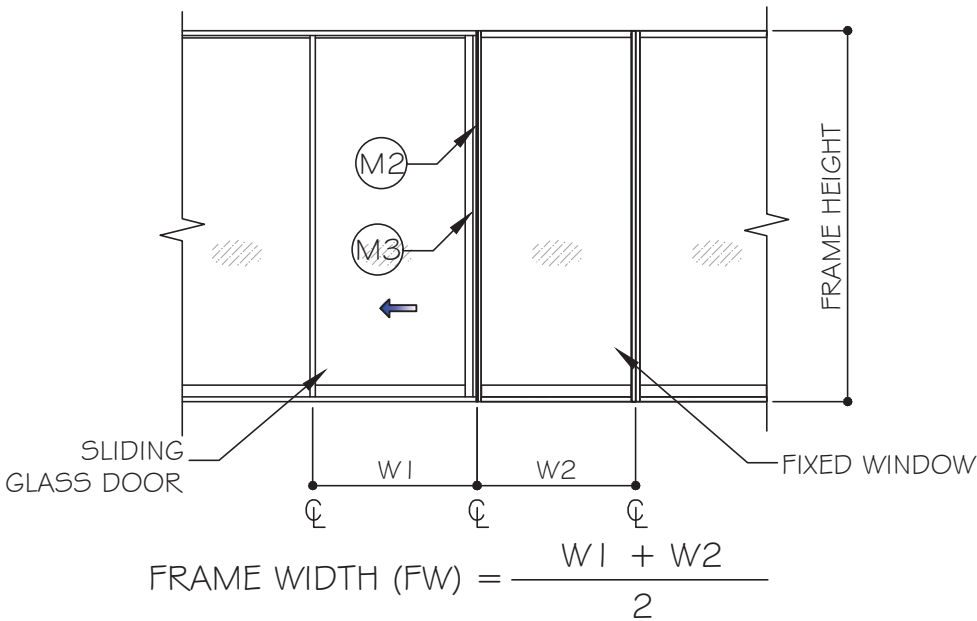
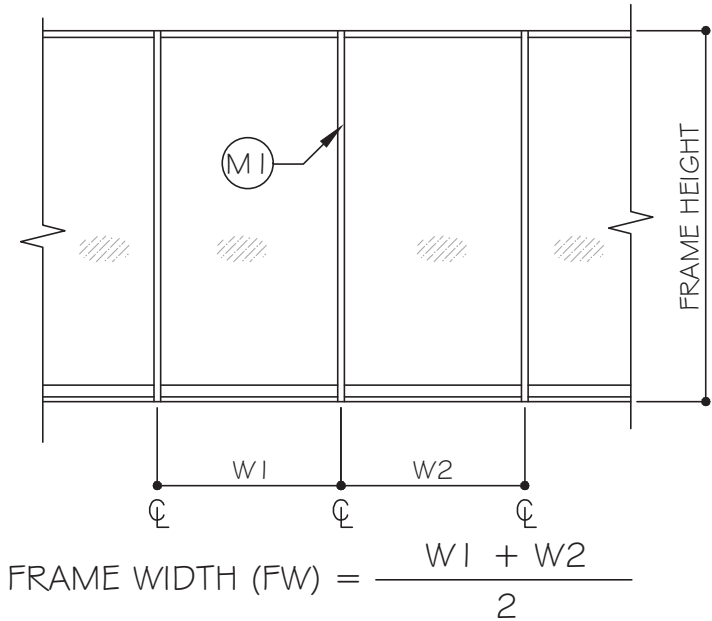
MULLION (M2)

(M2)	Ix IN^4	Sx IN^3
④ ES-SGD2020-042	5.1343	1.3875
②⑦ ES-SGD2020-047	5.6185	1.5197
⑨ ES-SGD2020-044	3.8807	1.3811
⑥ ES-SGD2020-045	3.1656	1.4405
⑦ ES-SGD2020-046	0.8431	0.4249
TOTAL	18.6422	6.1537

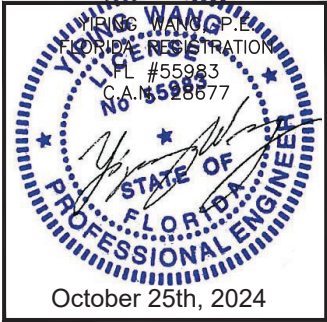


MULLION (M3)

(M3)	Ix IN^4	Sx IN^3
④ ES-SGD2020-042	5.1343	1.3875
②⑦ ES-SGD2020-047	5.6185	1.5197
⑨ ES-SGD2020-044	3.8807	1.3811
⑥ ES-SGD2020-045	3.1656	1.4405
⑦ ES-SGD2020-046	0.8431	0.4249
(1) 5/16" X 3 1/2" STL BAR	3.2380	(IN ALUM.)
TOTAL	21.8802	



FLORIDA APPROVAL:
FL#28067.1



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Miami, FL 33138
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Drawn Date	10.25.2024	Scale	AS SHOWN
Drawn By	James	Date	
Rev. No.	R3	Description	UPDATE TO FBC 2023

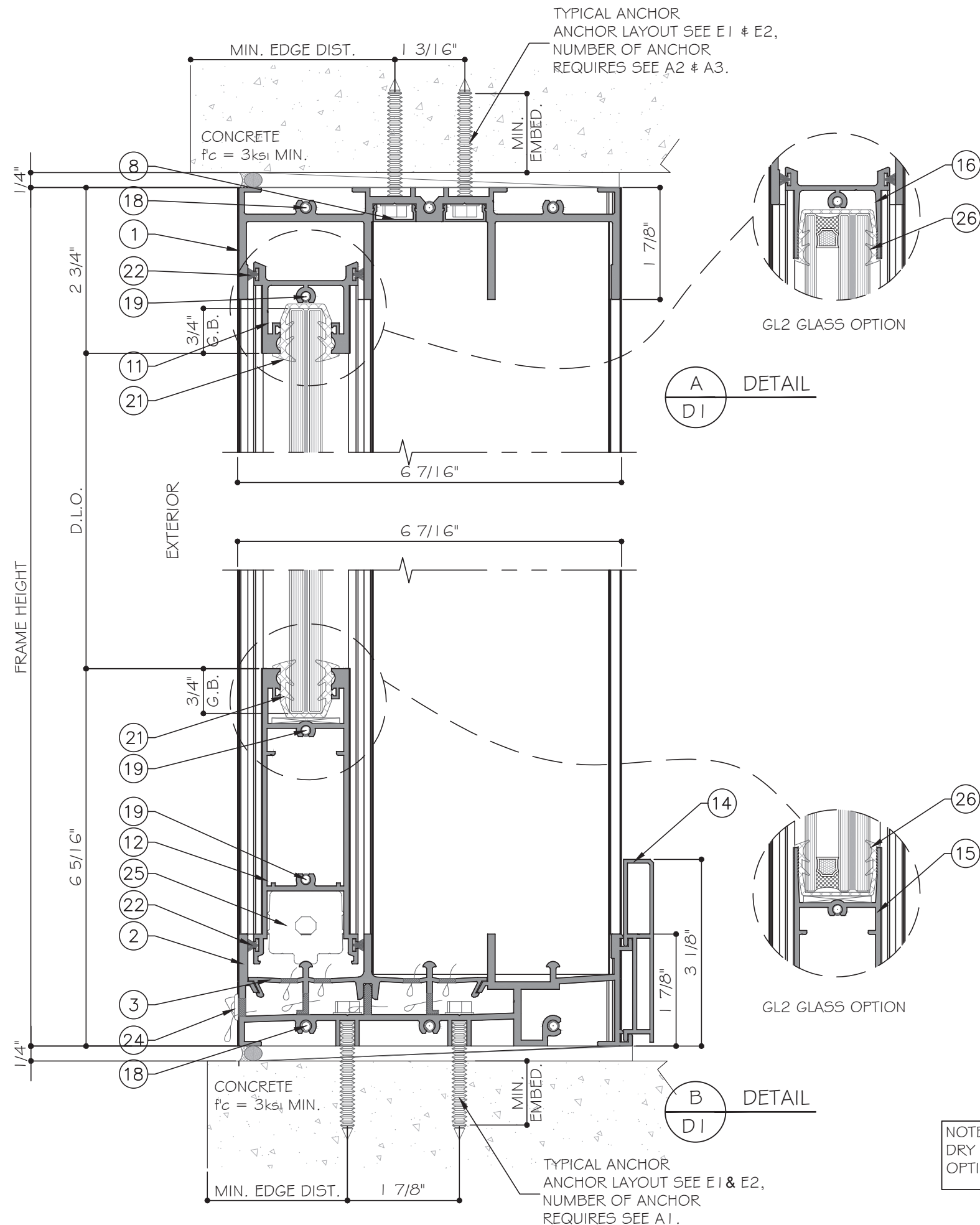
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AD18-32

M1

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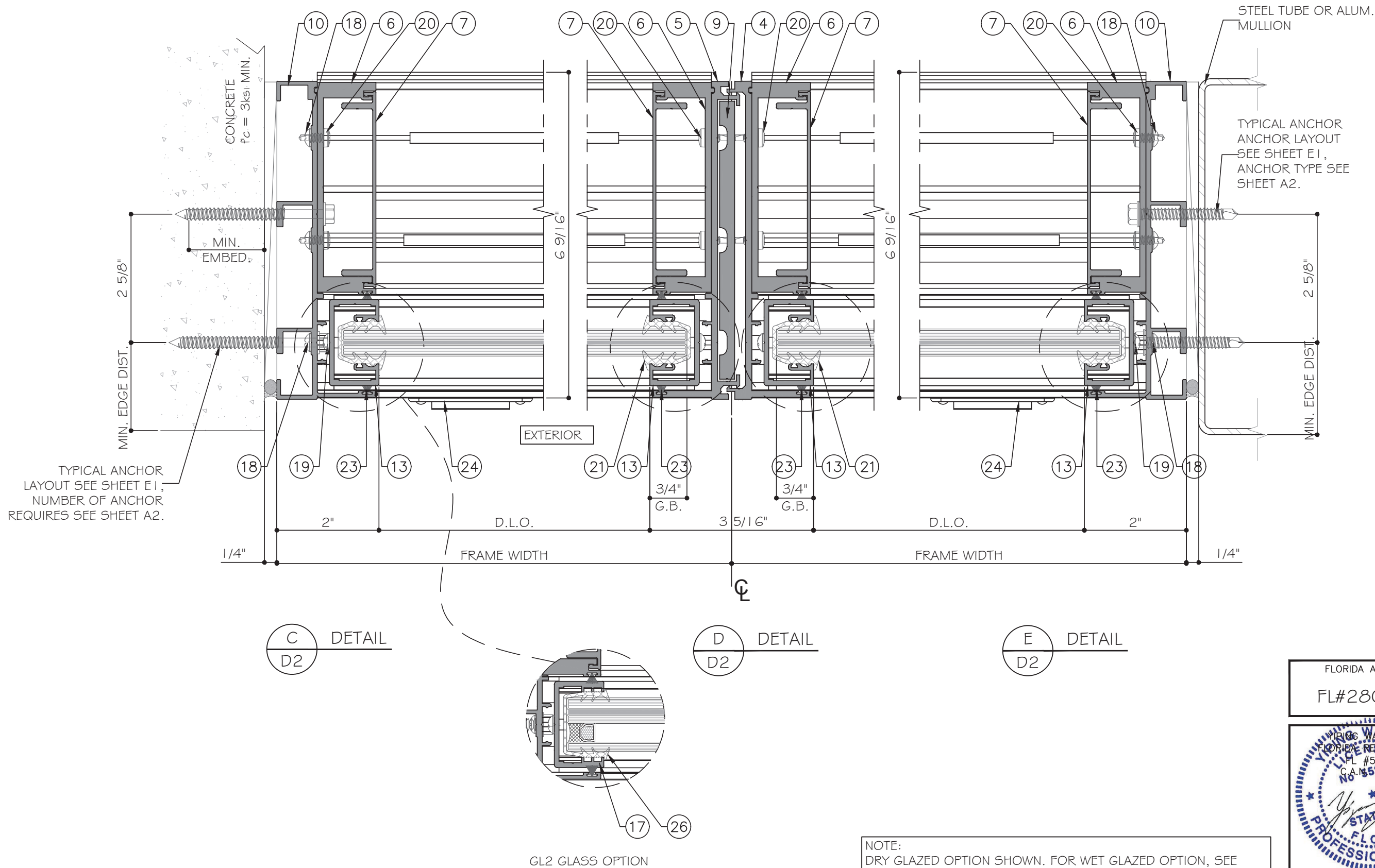


FLORIDA APPROVAL:
FL#28067.1

YONG WANG, P.E.
FLORIDA REGISTRATION
#55983
C.A.N. 28877

STATE OF FLORIDA
PROFESSIONAL ENGINEER

October 25th, 2024



Rev. No.	Date	Drawn By	Description
R3	10.25.2024	James	UPDATE TO FBC 2023

Drawn Date 10.25.2024 Scale AS SHOWN

DRAWING NO. AD18-32

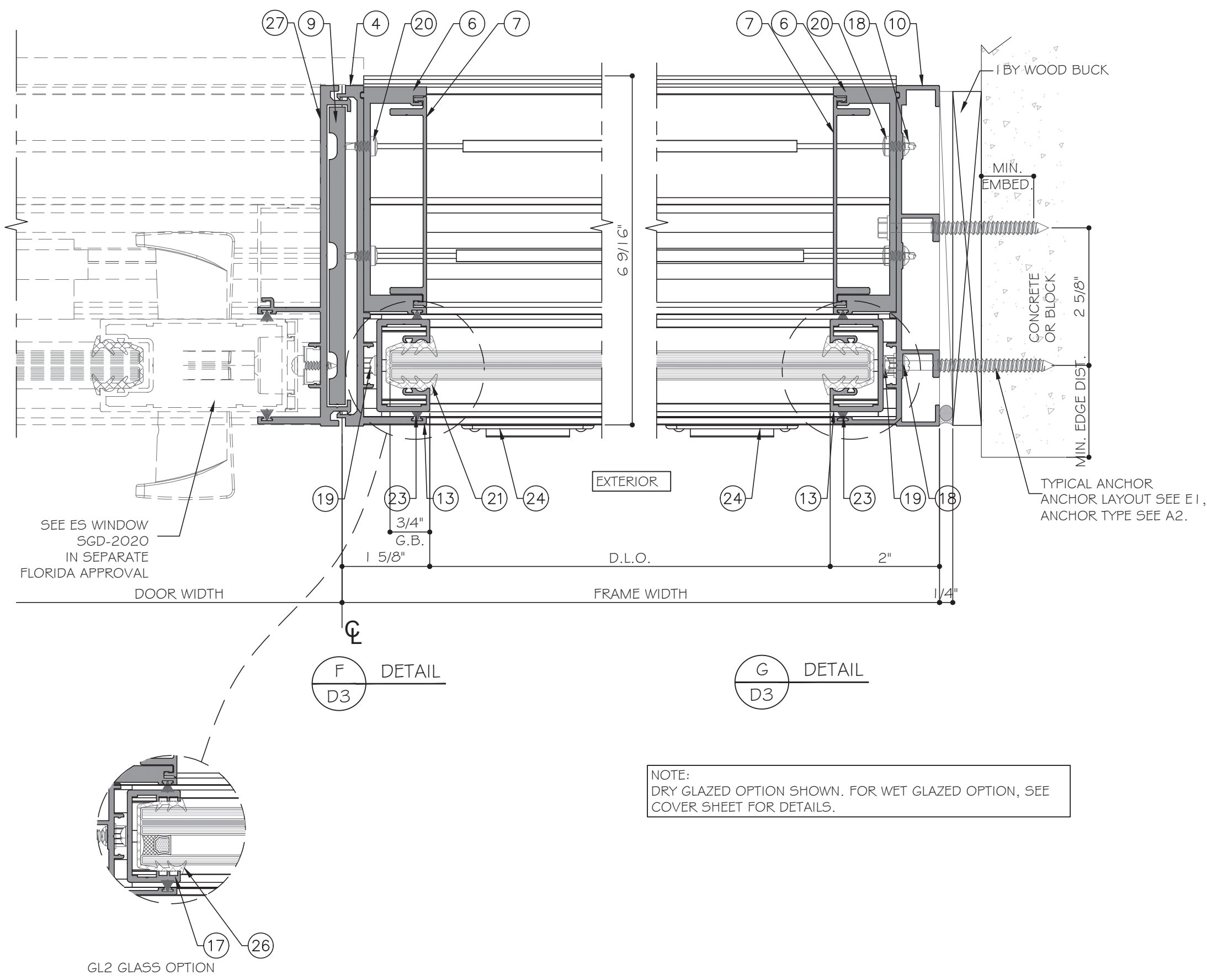
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Sheet No. 06 OF 14

FLORIDA APPROVAL:
FL#28067.1

YONG WANG, P.E.
FLORIDA REGISTRATION
FL #55983
C.A. #559877

October 25th, 2024



SEE ES WINDOW
SGD-2020
IN SEPARATE
FLORIDA APPROVAL

GL2 GLASS OPTION

NOTE:
DRY GLAZED OPTION SHOWN. FOR WET GLAZED OPTION, SEE
COVER SHEET FOR DETAILS.

FLORIDA APPROVAL:
FL#28067.1

YONG WANG, P.E.
FLORIDA REGISTRATION
#55983
C.A.N. 559877

October 25th, 2024

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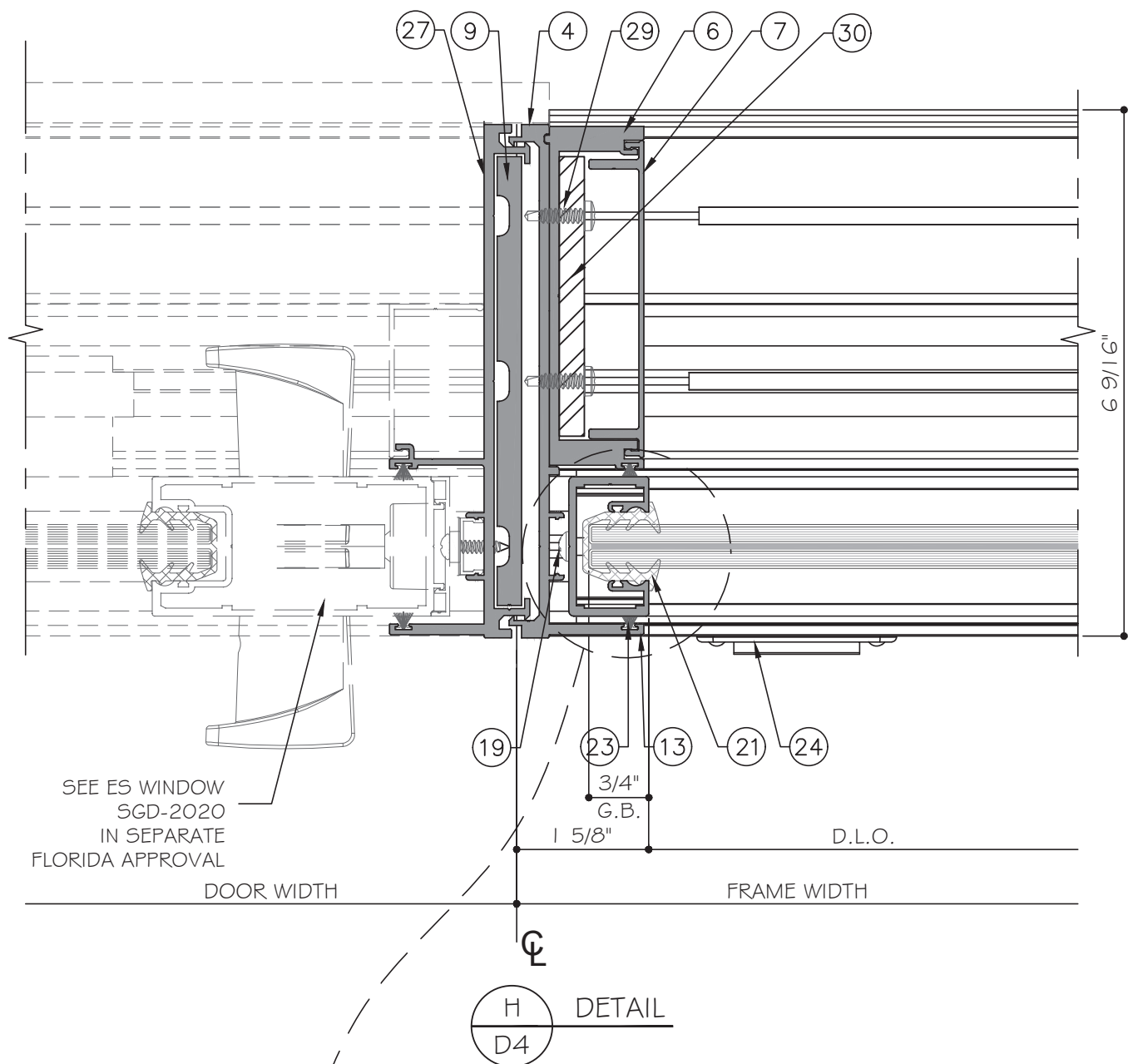
Rev. No.	Date	Drawn By	Description
R3	10.25.2024	James	UPDATE TO FBC 2023

Drawn Date: 10.25.2024

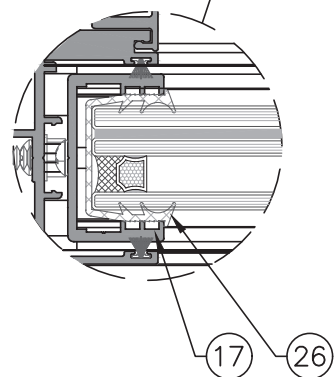
Scale: AS SHOWN

DRAWING NO. AD18-32

Sheet No. 07 OF 14



SEE ES WINDOW
SGD-2020
IN SEPARATE
FLORIDA APPROVAL



GL2 GLASS OPTION

NOTE:
DRY GLAZED OPTION SHOWN. FOR WET GLAZED OPTION, SEE
COVER SHEET FOR DETAILS.

FLORIDA APPROVAL:
FL#28067.1

October 25th, 2024

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10.25.2024		AS SHOWN	
Drawing No.		Sheet No.	
AD18-32		08 OF 14	
Revision		Description	
R3 10.25.2024 James		UPDATE TO FBC 2023	

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www.MCYEngineering.com mcy@mcyengineering.com

HEAD /JAMB ANCHOR TYPES:

TYPE "AA": 1/4" DIA. HILTI KWIK-CON II+ (Fu=138 KSI, Fy=137 KSI)
INTO WOOD STRUCTURE
WITH 1 1/2" MIN. EMBED

THRU 1 BY OR 2BY WOOD BUCKS INTO CONCRETE OR CONCRETE BLOCKS
WITH 1 3/4" MIN. EMBED

TYPE "BB": 1/4" DIA. ULTRACON+ BY DEWALT(Fu=164 KSI, Fy=148 KSI)
INTO WOOD STRUCTURE
WITH 1 1/2" MIN. EMBED

THRU 1 BY OR 2BY WOOD BUCKS INTO CONCRETE OR CONCRETE BLOCKS
WITH 1 3/4" MIN. EMBED

TYPE "CC": 5/16" DIA. ULTRACON BY DEWALT(Fu=177 KSI, Fy=155 KSI)
INTO WOOD STRUCTURE
WITH 1 1/2" MIN. EMBED

THRU 1 BY OR 2BY WOOD BUCKS INTO CONCRETE OR CONCRETE BLOCKS
WITH 1 3/4" MIN. EMBED

TYPE "A": 1/4" DIA. HILTI KWIK-CON II+ (Fu=138 KSI, Fy=137 KSI)
DIRECTLY INTO CONCRETE OR CONCRETE BLOCKS
WITH 1 3/4" MIN. EMBED

TYPE "B": 1/4" DIA. ULTRACON+ BY DEWALT (Fu=164 KSI, Fy=148 KSI)
DIRECTLY INTO CONCRETE OR CONCRETE BLOCKS
WITH 1 3/4" MIN. EMBED

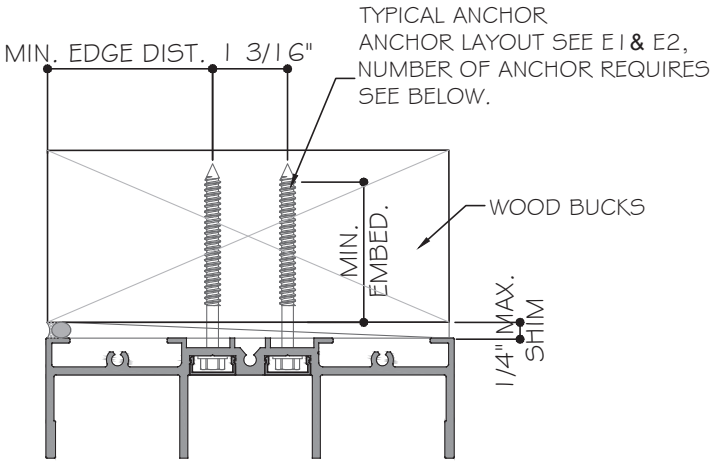
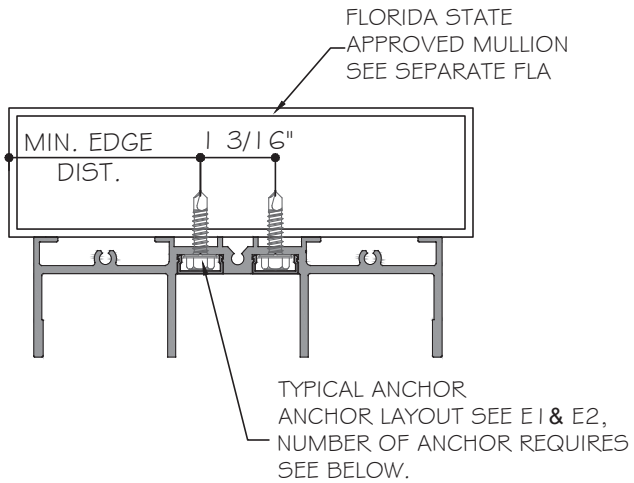
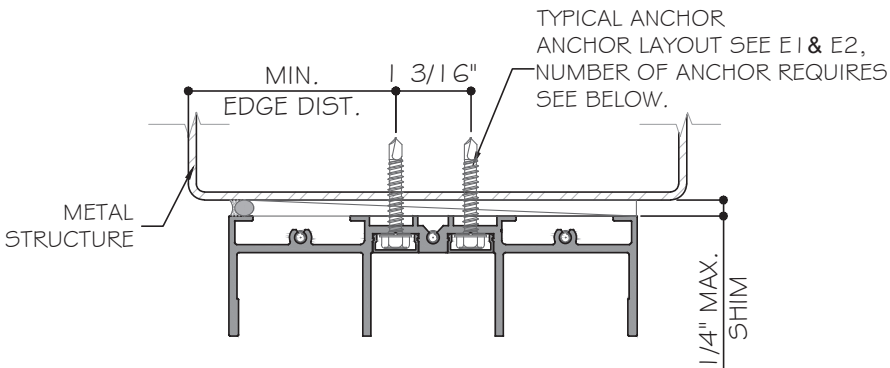
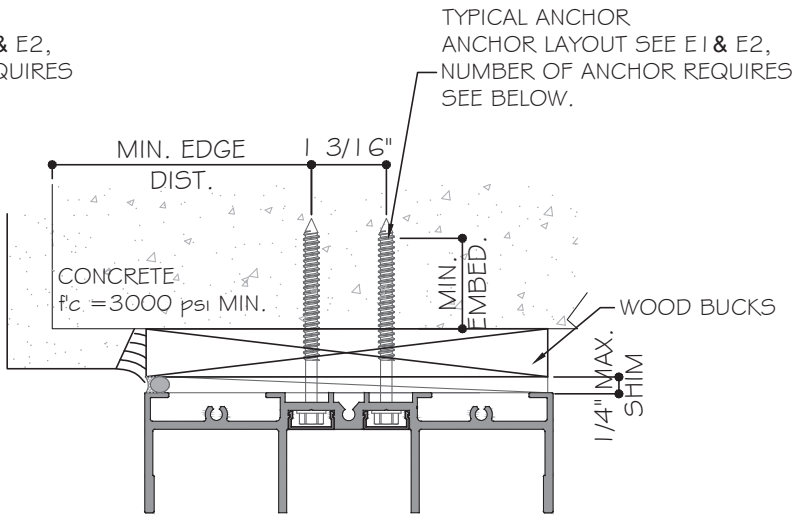
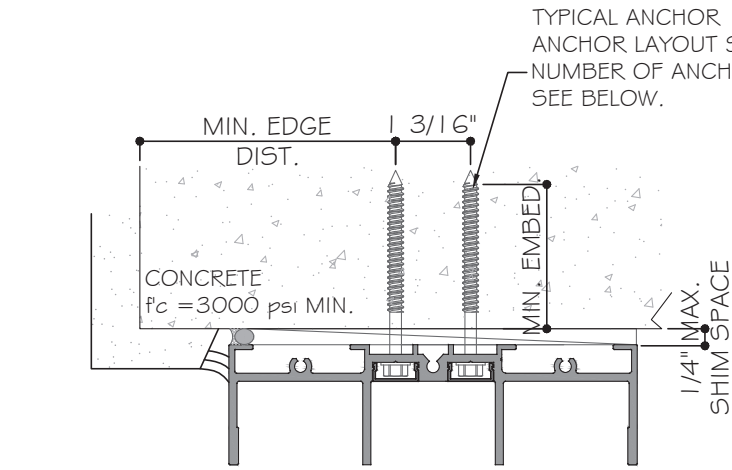
TYPE "C": 5/16" DIA. ULTRACON BY DEWALT (Fu=177 KSI, Fy=155 KSI)
DIRECTLY INTO CONCRETE
WITH 1 3/4" MIN. EMBED

TYPE "D": 1/4" DIA. TEKS/DRIL-FLEX SCREW GRADE 5 (Fu=120 KSI, Fy=92 KSI)
INTO METAL STRUCTURES OR FLORIDA APPROVED MULLION
(3) THREADS MIN. PENETRATION BEYOND METAL SUBSTRATES
ALUMINUM: 1/8" THK. MIN. (6063-T5 MIN.)
STEEL: 1/8" THK. MIN. (Fy=36KSI, MIN.)
3/4" MIN. EDGE DISTANCE
(STEEL IN CONTACT WITH ALUMINUM TO BE PAINTED OR PLATED)

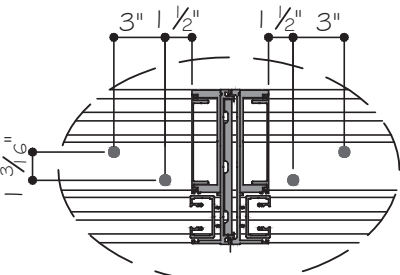
TYPE "E": 5/16" TEKS/DRIL-FLEX SCREW (Fu=120 KSI, Fy=92 KSI)
INTO METAL STRUCTURES OR FLORIDA APPROVED MULLION
(3) THREADS MIN. PENETRATION BEYOND METAL SUBSTRATES
ALUMINUM: 1/8" THK. MIN. (6063-T5 MIN.)
STEEL: 1/8" THK. MIN. (Fy=36KSI, MIN.)
1" MIN. EDGE DISTANCE
(STEEL IN CONTACT WITH ALUMINUM TO BE PAINTED OR PLATED)

ANCHOR EDGE DISTANCE:
INTO CONCRETE = 2 1/2" MIN.
INTO WOOD STRUCTURE = 1 1/4" MIN.

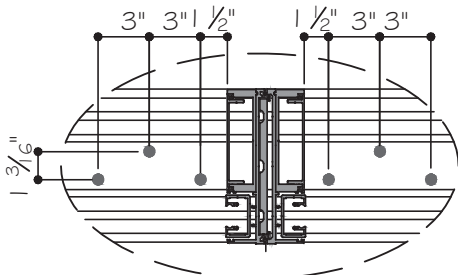
WOOD STRUCTURE / BUCK AT HEAD & JAMB SG = 0.55 MIN.
CONCRETE AT HEAD, SILL & JAMB f'c = 3000 PSI MIN.
C-90 HOLLOW/FILLED BLOCK AT JAMB f'm = 2000 PSI MIN.



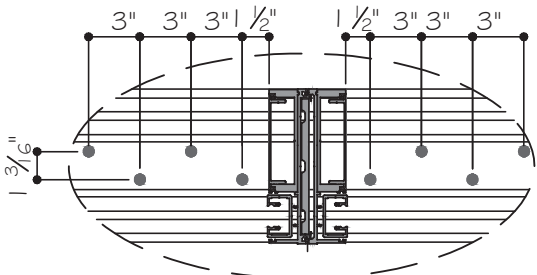
1X OR 2X WOOD BUCKS AND METAL STRUCTURES NOT BY E.S. WINDOWS MUST SUPPORT LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER THEM TO THE BUILDING STRUCTURE.



HEAD ANCHOR TYPE
(2) PER SIDE OF MULLION
"A2", "AA2", "B2", "BB2", "C2", "CC2", "D2", "E2"

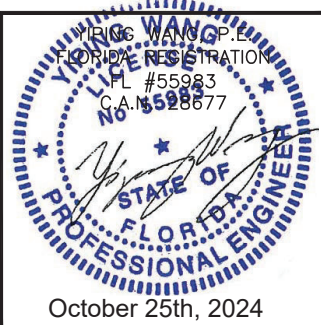


HEAD ANCHOR TYPE
(3) PER SIDE OF MULLION
"A3", "AA3", "B3", "BB3", "C3", "CC3", "D3", "E3"



HEAD ANCHOR TYPE
(4) PER SIDE OF MULLION
"A4", "AA4", "BB4", "CC4", "D4"

FLORIDA APPROVAL:
FL#28067.1



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Rev. No.	Date	Drawn By	Description
R3	10.25.2024	James	UPDATE TO FEB 2023
Drawn Date	10.25.2024	Scale	AS SHOWN
DRAWING NO.			
AD18-32			
A2			
Sheet No.			
10 OF 14			



FL#28067.1



Sheet No.
12 OF 14

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