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Product Approval
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SECRETARY

FL #	FL22645-R4
Application Type	Revision
Code Version	2020
Application Status	Approved

Comments

Archived



Product Manufacturer	E.S. Windows, Inc.
Address/Phone/Email	10653 NE Quaybridge Ct. Miami, FL 33138 (305) 624-7775 achamorro@eswllc.com

Authorized Signature	Jalal Farooq veronica@afceng.com
----------------------	-------------------------------------

Technical Representative	Manuel Perez
Address/Phone/Email	10653 NE Quaybridge Ct. Miami, FL 33138 maph@bellsouth.net

Quality Assurance Representative	
Address/Phone/Email	

Category	Exterior Doors
Subcategory	Sliding Exterior Door Assemblies

Compliance Method	Evaluation Report from a Florida Registered Architect or a Licensed Florida Professional Engineer ☐ Evaluation Report - Hardcopy Received
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Florida Engineer or Architect Name who developed the Evaluation Report	Jalal Farooq
Florida License	PE-81223
Quality Assurance Entity	Keystone Certifications, Inc.
Quality Assurance Contract Expiration Date	07/16/2025
Validated By	JAVAD AHMAD PE, INC. ☒ Validation Checklist - Hardcopy Received

Certificate of Independence	FL22645_R4_COI_SS - Certificate of Independence.pdf
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Referenced Standard and Year (of Standard)	Standard	Year
	TAS 201	1994
	TAS 202	1994
	TAS 203	1994

Equivalence of Product Standards
Certified By

Sections from the Code

Product Approval Method

Method 1 Option D

Date Submitted

07/06/2021

Date Validated

08/16/2021

Date Pending FBC Approval

08/19/2021

Date Approved

10/12/2021

Summary of Products

FL #	Model, Number or Name	Description
22645.1	ES-EL400 Aluminum Sliding Glass Door	Large missile impact resistant aluminum sliding glass door.
Limits of Use Approved for use in HVHZ: Yes Approved for use outside HVHZ: Yes Impact Resistant: Yes Design Pressure: +80/-80 Other: See attached drawing W17-67 for installation details and span vs load combinations.		Installation Instructions FL22645_R4_II_SS - ES-EL400 SGD LMI - DWG W17-67 (2020) R2.pdf Verified By: Jalal Farooq PE # 81223 Created by Independent Third Party: Yes Evaluation Reports FL22645_R4_AE_SS - EL400 SGD (LMI)-PAE 2020.pdf Created by Independent Third Party: Yes
22645.2	ES-EL400 Aluminum Sliding Glass Door	Non-impact resistant aluminum sliding glass door.
Limits of Use Approved for use in HVHZ: Yes Approved for use outside HVHZ: Yes Impact Resistant: No Design Pressure: +80/-100 Other: See attached drawing 19-63F for installation details and span vs load combinations.		Installation Instructions FL22645_R4_II_SS - ES-EL400 SGD NI - DWG 19-63F 2020 R2.pdf Verified By: Jalal Farooq PE # 81223 Created by Independent Third Party: Yes Evaluation Reports FL22645_R4_AE_SS - EL400 SGD (NI)-PAE 2020.pdf Created by Independent Third Party: Yes
22645.3	ES-EL400-10 Aluminum Sliding Glass Door	Large missile impact resistant aluminum sliding glass door
Limits of Use Approved for use in HVHZ: Yes Approved for use outside HVHZ: Yes Impact Resistant: Yes Design Pressure: +65/-65 Other: See attached drawing 20-22F for installation details and span vs load combinations.		Installation Instructions FL22645_R4_II_SS - ES-EL400-10 SGD LMI - DWG 20-22F 2020 R2.pdf Verified By: Jalal Farooq PE # 81223 Created by Independent Third Party: Yes Evaluation Reports FL22645_R4_AE_SS - EL400-10 SGD (LMI)-PAE 2020.pdf Created by Independent Third Party: Yes

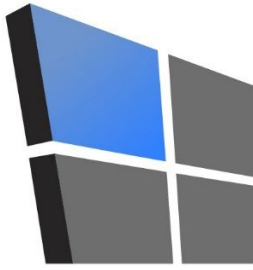
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Contact Us :: 2601 Blair Stone Road, Tallahassee FL 32399 Phone: 850-487-1824

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Product Approval Accepts:



AL-FAROOQ CORPORATION

CONSULTING ENGINEERS & PRODUCT DEVELOPMENT

August 11, 2020

Product Approval Administrator
Building Codes & Standards Section
Department of Business & Professional Regulations
1940 North Monroe Street, Suite 90
Tallahassee, FL 32399-2100

To whom it may concern,

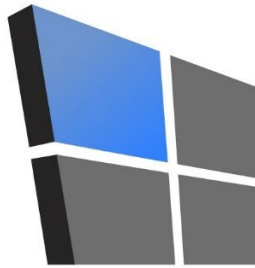
As the design engineer retained to prepare the product approval(s) associated with this letter as shown below on this same web page, I do hereby declare that I do not have and will not have any financial interest in any company manufacturing or distributing the referenced product(s), nor do I have or will have any financial interest with any other entity involved in the approval process of the referenced product(s).

Sincerely,



Sealed 8-11-2020

Jalal Farooq, P.E.
CFO



AL-FAROOQ CORPORATION

CONSULTING ENGINEERS & PRODUCT DEVELOPMENT

PRODUCT APPROVAL EVALUATION RULE CHAPTER #61G20-3 • METHOD 1 OPTION D

FL 22645

Date: 09/23/2020

Detailed Product Description:

Manufacturer: E.S. WINDOWS, LLC.

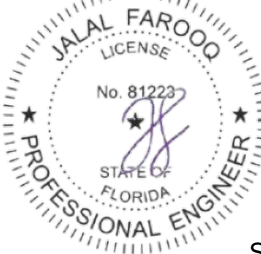
Manufacturer Address: 3550 N.W. 49 STREET – MIAMI, FL. 33142

Model Name: SERIES ES-EL400 ALUMINUM SLIDING GLASS DOOR

Maximum Load: +80 PSF, -80 PSF (Large Missile Impact)

Installation Drawings # W17-67

This product complies with the High Velocity Hurricane Zone (HVHZ) testing requirements.					
For maximum sizes, combination of span vs loads and anchor type refer to installation drawings. This product was tested using a wrap-around glazing gasket. This is equivalent to using setting blocks.					
Comparative analysis used ☒ Yes ☐ No					
Mandatory Tests (Tested in accordance with AAMA 101/I.S.2/NAFS/TAS-202)					
TEST	DESCRIPTION	TEST LOCATION	TEST REPORT DATE	TEST REPORT #	TEST SEALED BY
ASTM E283	Air Infiltration Leakage	Blackwater Testing, Inc.	06/15/2017	BT-ESW-17-009	Constantine Bortes, PE
ASTM E331 OR ASTM 547 & TAS 202	Water Penetration	Blackwater Testing, Inc.	06/15/2017	BT-ESW-17-009	Constantine Bortes, PE
ASTM E330 & TAS 202	Uniform Static Air Press.	Blackwater Testing, Inc.	06/15/2017	BT-ESW-17-009	Constantine Bortes, PE
ASTM F842	Forced Entry Test	Blackwater Testing, Inc.	06/15/2017	BT-ESW-17-009	Constantine Bortes, PE

Supplemental Tests (Tested in accordance with TAS-201 and TAS-203)					
TEST	DESCRIPTION	TEST LOCATION	TEST REPORT DATE	TEST REPORT #	Test Sealed by
FBC 1626.2 (TAS 201 & 203)	Large Missile Impact & Cyclic	Blackwater Testing, Inc.	06/15/2017	BT-ESW-17-009	Constantine Bortes, PE
Under the limitations of the attached installation drawings, to the best of my knowledge and ability, the above product conforms to the requirements of the 2020 Florida Building Code.					
Evaluation Report Engineer: Jalal Farooq Al-Farooq Corporation			 Sealed: 10/14/2020		

DAYLITE OPENING WIDTH:
PANEL WIDTH - 5.688"

DAYLITE OPENING HEIGHT:
PANEL HEIGHT - 5.813"

PANEL HEIGHT = DOOR FRAME HEIGHT - 1.250"

THESE DOORS ARE RATED FOR LARGE & SMALL MISSILE IMPACT.
SHUTTERS ARE NOT REQUIRED.

SERIES ES-EL400 ALUMINUM SLIDING GLASS DOOR

THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE 2020 (7TH EDITION) FLORIDA BUILDING CODE INCLUDING HIGH VELOCITY HURRICANE ZONE (HVHZ).

1BY OR 2BY WOOD BUCKS & BUCK FASTENERS BY OTHERS, MUST BE DESIGNED AND INSTALLED ADEQUATELY TO TRANSFER APPLIED PRODUCT LOADS TO THE BUILDING STRUCTURE.

ANCHORS SHALL BE CORROSION RESISTANT, SPACED AS SHOWN ON DETAILS AND INSTALLED PER MANUF'S INSTRUCTIONS. SPECIFIED EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO.

A LOAD DURATION INCREASE IS USED IN DESIGN OF ANCHORS INTO WOOD ONLY.

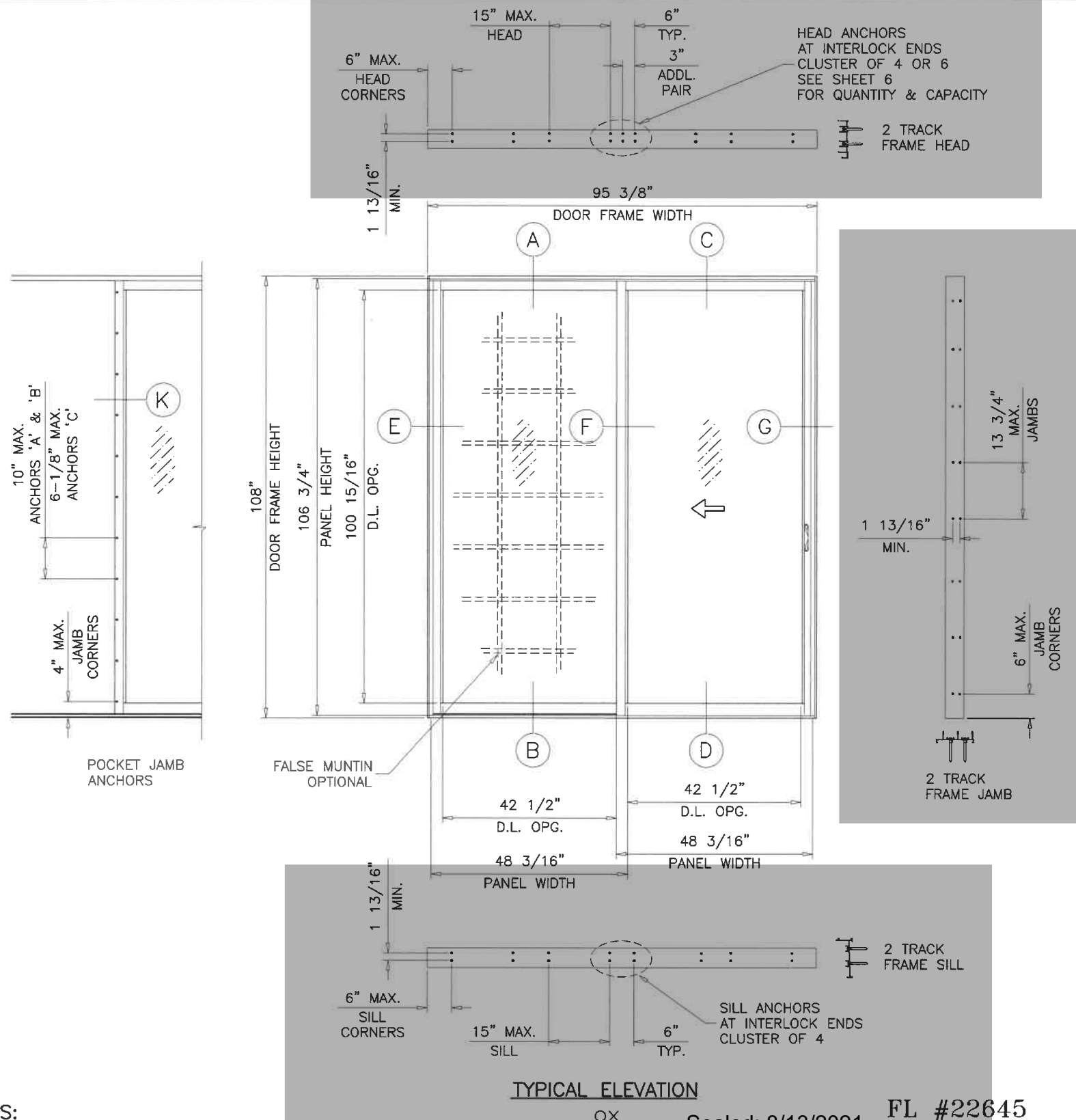
ALL SHIMS TO BE HIGH IMPACT, NON-METALLIC AND NON-COMPRESSIBLE.

MATERIALS INCLUDING BUT NOT LIMITED TO STEEL/METAL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE 2020 FLORIDA BLDG. CODE & ADOPTED STANDARDS.

THIS PRODUCT APPROVAL IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT, i.e. LIFE SAFETY OF THIS PRODUCT, ADEQUACY OF STRUCTURE RECEIVING THIS PRODUCT AND SEALING AROUND OPENING FOR WATER INFILTRATION RESISTANCE ETC. CONDITIONS NOT SHOWN IN THIS DRAWING ARE TO BE ANALYZED SEPARATELY, AND TO BE REVIEWED BY BUILDING OFFICIAL.

DESIGN LOADS SHOWN ARE BASED ON 'ALLOWABLE STRESS DESIGN (ASD)'.

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.



INSTRUCTIONS:

USE CHARTS AS FOLLOWS

- STEP 1** DETERMINE DESIGN WIND LOAD REQUIREMENT BASED ON WIND VELOCITY, BLDG. HEIGHT, WIND ZONE USING APPLICABLE ASCE 7 STANDARD.
- STEP 2** DETERMINE DOOR CAPACITY FROM TABLE ON SHEET 5 FOR THE REINFORCING OPTION USED.
- STEP 3** USING CHARTS ON SHEET 6 SELECT ANCHOR OPTION WITH DESIGN RATING MORE THAN DESIGN LOAD SPECIFIED IN STEP 1 ABOVE.
- STEP 5** THE LOWEST VALUE RESULTING FROM STEPS 2 AND 3 SHALL APPLY TO ENTIRE SYSTEM.

- A- 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.
- B- THIS PRODUCT EVALUATION DOCUMENT WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.
- C- 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. ENGINEER OF RECORD, ACTING AS A DELEGATED ENGINEER TO THE P.E.D. ENGINEER SHALL SUBMIT TO THIS LATTER THE SITE SPECIFIC DRAWINGS FOR REVIEW.
- D- THIS P.E.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.

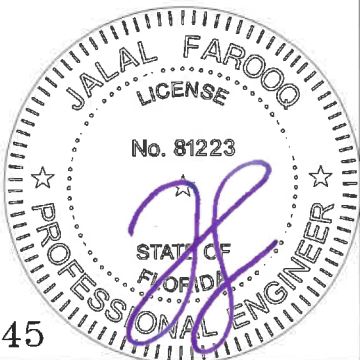
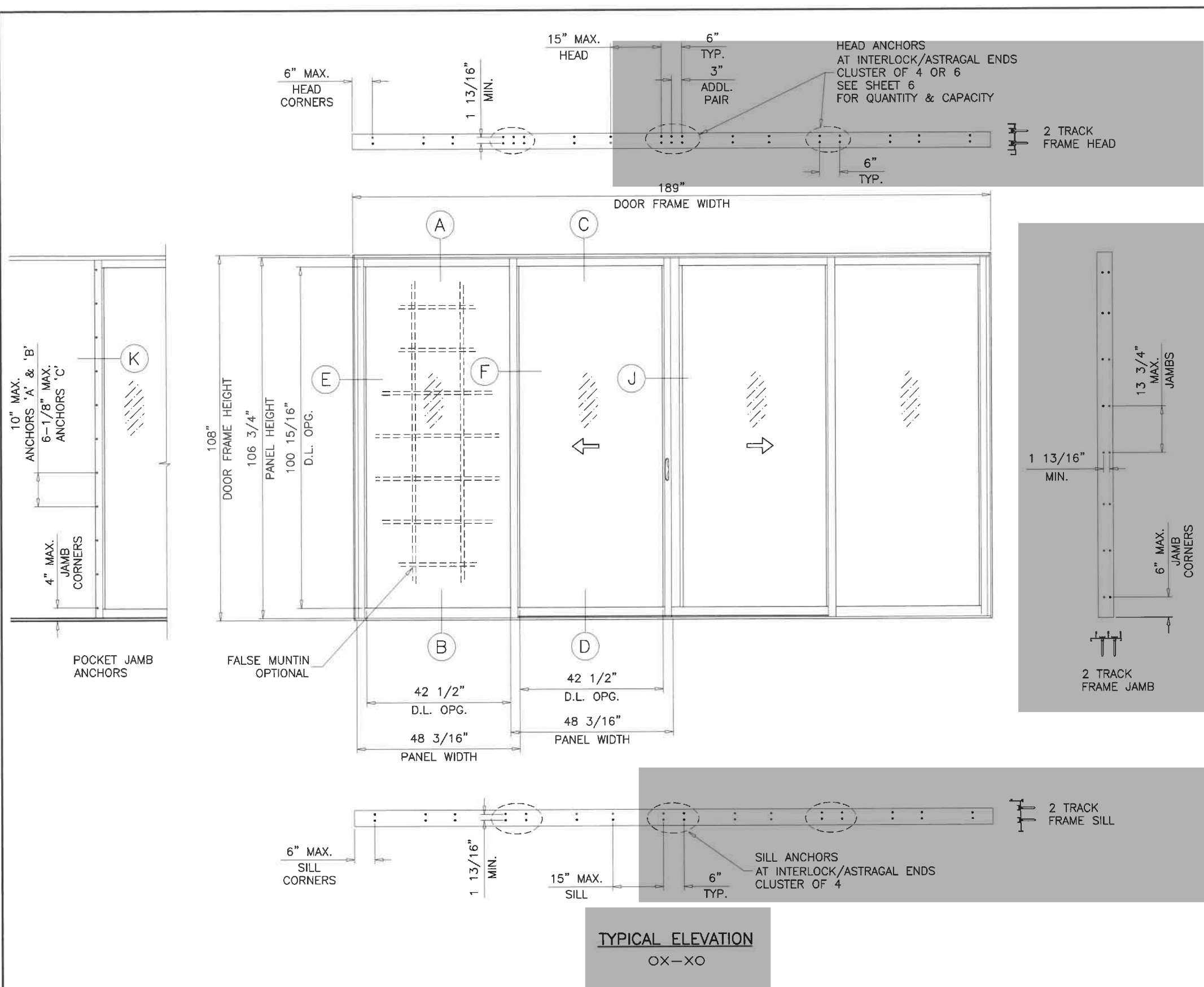


af c
AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3538)
TEL. (305) 264-8100 FAX. (305) 262-6978
COMP-ANL\W17-67ES

ES-EL400 ALUM SLIDING GLASS DOOR (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

date: 07-11-17		no		date	by	description
scale: 3/8"=1'-0"	drawing no.	W17-67	A	10.09.20		UPDATED TO 2020 FBC
			B	06.23.21		SILL RISER REVISED
			C	08.04.21		SILL RISER OPTIONS ADDED
dr. by: TARIQ						
chk. by:						
sheet 1 of 23						



Sealed: 8/13/2021

FL #22645

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ES-EL400 ALUM SLIDING GLASS DOOR (L.M.I.)

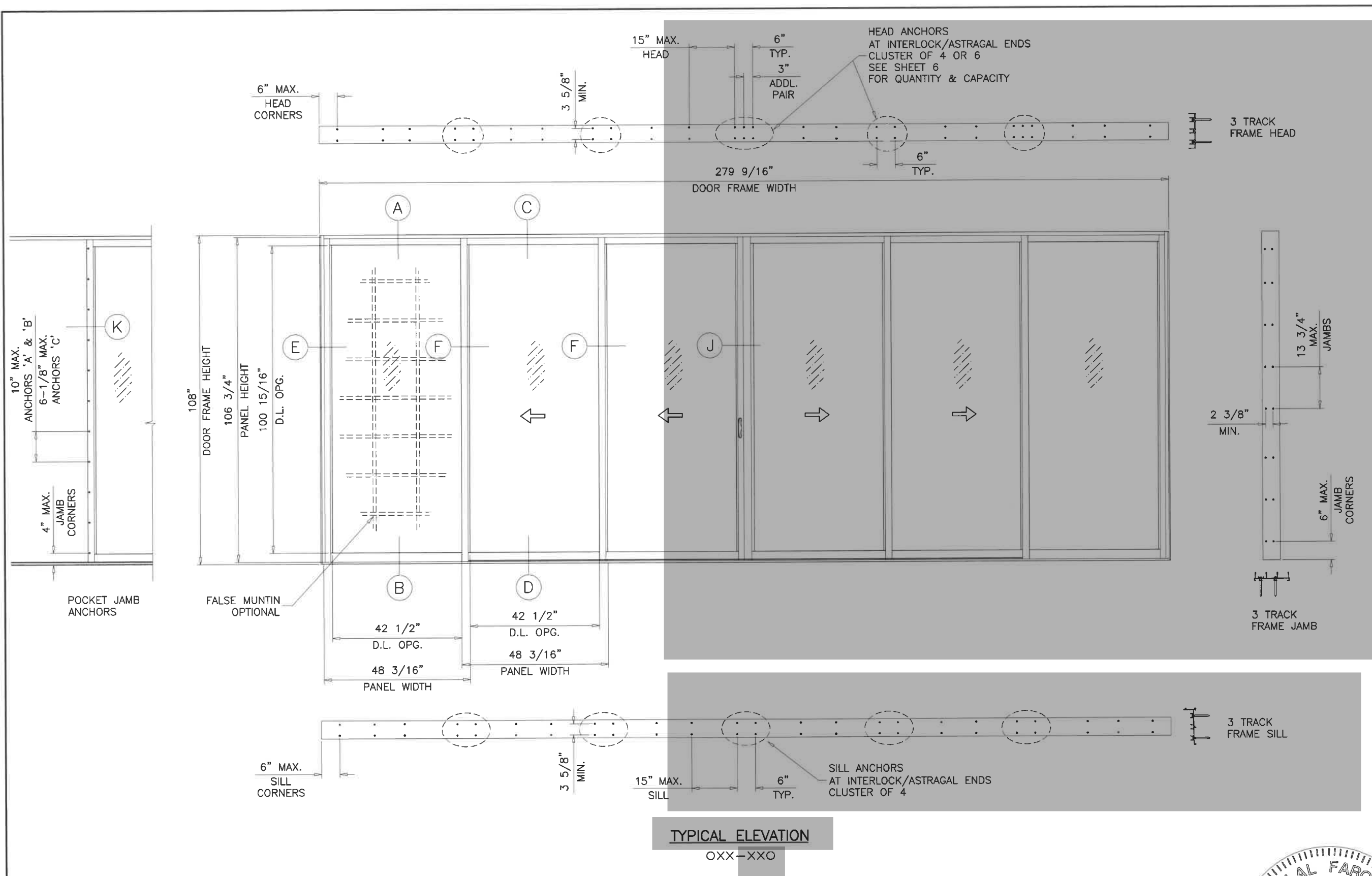
E.S. WINDOWS, LLC
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MIAMI, FL. 33142
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revisions:

no	date	by	description

date: 07-11-17
scale: 3/8"=1'-0"
dr. by: TARIQ
chk. by:

drawing no.
W17-67
sheet 2 of 23



Sealed: 8/13/2021

FL #22645



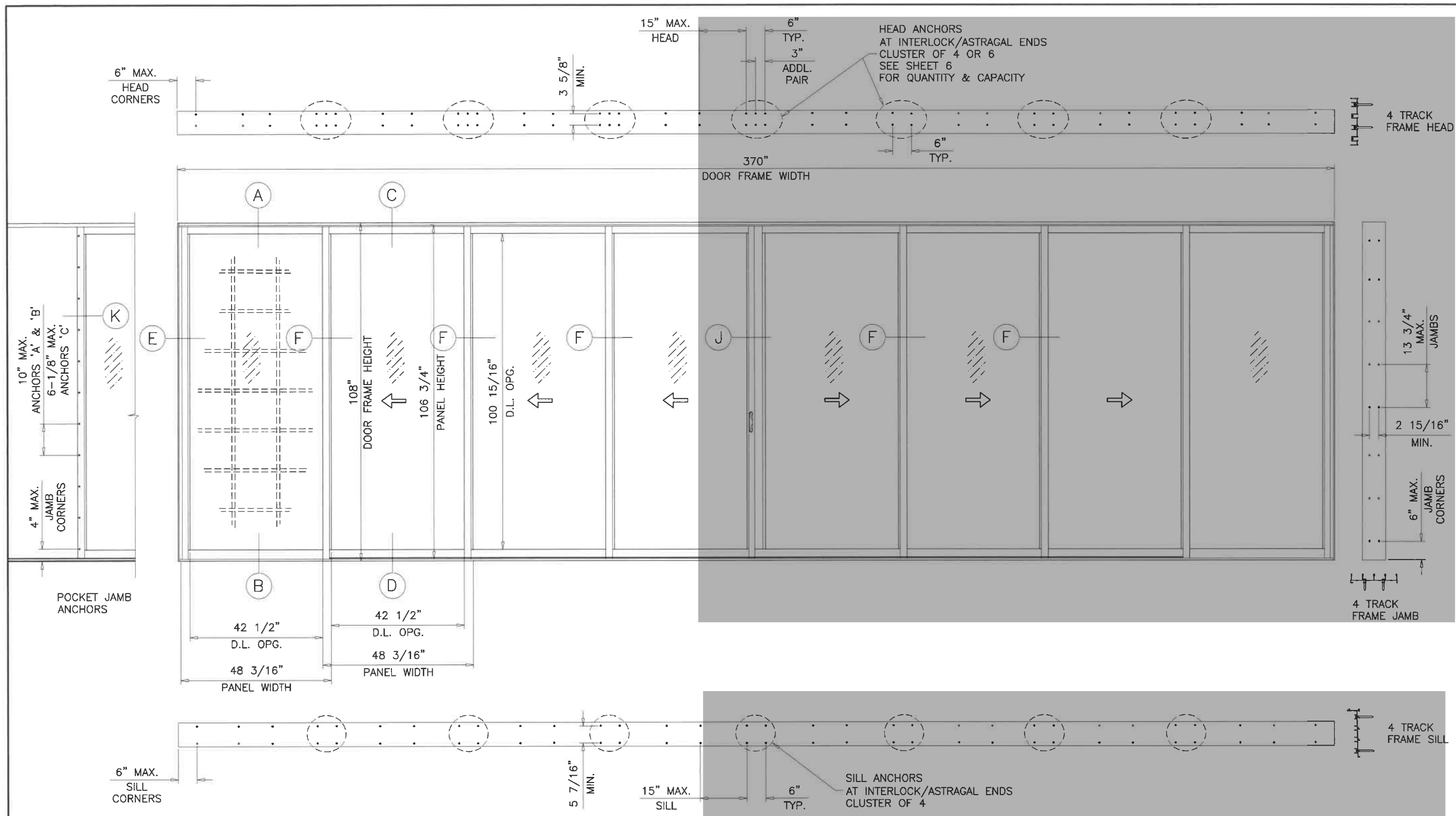
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revisions:		no date by description	
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dr. by:	TARIQ	chk. by:	
drawing no.	W17-67		
sheet	3 of 23		

COMP-ANL\W17-67ES



TYPICAL ELEVATION
OXXX-XXXO



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revisions:		no	date	by	description
date:	07-11-17				
scale:	3/8"=1'-0"				
dr. by:	TARIQ				
chk. by:					

drawing no.
W17-67

sheet **4** of **23**

HEAD ANCHOR LOAD CAPACITY - PSF									
AVERAGE PANEL WIDTH INCHES	DOOR FRAME HEIGHT INCHES	ANCHOR TYPES 'A' & 'B'						ANCHOR TYPE 'C'	
		1/4" MAX. SHIM		3/8" MAX. SHIM		1/2" MAX. SHIM		3/8" MAX. SHIM	
		4 ANCHORS AT MTG. STILE ENDS	6 ANCHORS AT MTG. STILE ENDS	4 ANCHORS AT MTG. STILE ENDS	6 ANCHORS AT MTG. STILE ENDS	4 ANCHORS AT MTG. STILE ENDS	6 ANCHORS AT MTG. STILE ENDS	4 ANCHORS AT MTG. STILE ENDS	6 ANCHORS AT MTG. STILE ENDS
		EXT. (+) INT. (-)	EXT. (+) INT. (-)	EXT. (+) INT. (-)	EXT. (+) INT. (-)	EXT. (+) INT. (-)	EXT. (+) INT. (-)	EXT. (+) INT. (-)	EXT. (+) INT. (-)
30	82	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
36		80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
42		80.0	80.0	80.0	80.0	71.5	80.0	80.0	80.0
47-1/4		80.0	80.0	80.0	80.0	63.6	80.0	80.0	80.0
48		80.0	80.0	80.0	80.0	62.6	80.0	80.0	80.0
54		80.0	80.0	71.6	80.0	55.6	74.2	72.7	80.0
60		72.7	80.0	64.4	80.0	50.1	66.8	65.4	80.0
30	84	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
36		80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
42		80.0	80.0	80.0	80.0	69.8	80.0	80.0	80.0
47-1/4		80.0	80.0	79.8	80.0	62.1	80.0	80.0	80.0
48		80.0	80.0	78.6	80.0	61.1	80.0	79.8	80.0
54		78.9	80.0	69.9	80.0	54.3	72.4	71.0	80.0
60		71.0	80.0	62.9	80.0	48.9	65.2	63.9	80.0
30	90	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
36		80.0	80.0	80.0	80.0	76.1	80.0	80.0	80.0
42		80.0	80.0	80.0	80.0	65.2	80.0	80.0	80.0
47-1/4		80.0	80.0	74.5	80.0	57.9	77.3	75.7	80.0
48		80.0	80.0	73.4	80.0	57.0	76.1	74.5	80.0
54		73.6	80.0	65.2	80.0	50.7	67.6	66.2	80.0
30	96	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
36		80.0	80.0	80.0	80.0	71.3	80.0	80.0	80.0
42		80.0	80.0	78.6	80.0	61.1	80.0	79.8	80.0
47-1/4		78.9	80.0	69.9	80.0	54.3	72.4	71.0	80.0
48		60.0	60.0	60.0	60.0	53.5	60.0	60.0	60.0
30	102	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
36		60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
42		60.0	60.0	60.0	60.0	57.5	60.0	60.0	60.0
47-1/4		60.0	60.0	60.0	60.0	51.1	60.0	60.0	60.0
48		60.0	60.0	60.0	60.0	50.3	60.0	60.0	60.0
30	108	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
36		60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
42		60.0	60.0	60.0	60.0	54.3	60.0	60.0	60.0
47-1/4		60.0	60.0	60.0	60.0	48.3	60.0	60.0	60.0

SEE CHART ON SHEET 5 FOR DESIGN LOAD CAPACITY OF
DESIRED GLASS SIZE AND REINFORCING TYPES.

SEE CHART ABOVE FOR HEAD ANCHOR CAPACITY.

LOWER DESIGN PRESSURES FROM DESIGN LOAD CHART
OR HEAD ANCHOR CHART WILL APPLY TO ENTIRE SYSTEM.



Sealed: 8/13/2021

FL #22645

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COMP-ANL\W17-67ES

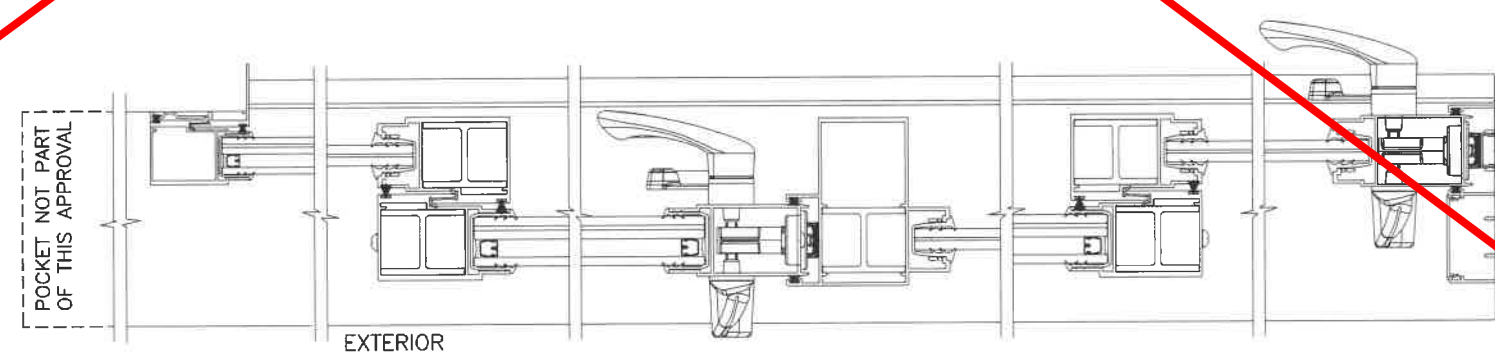
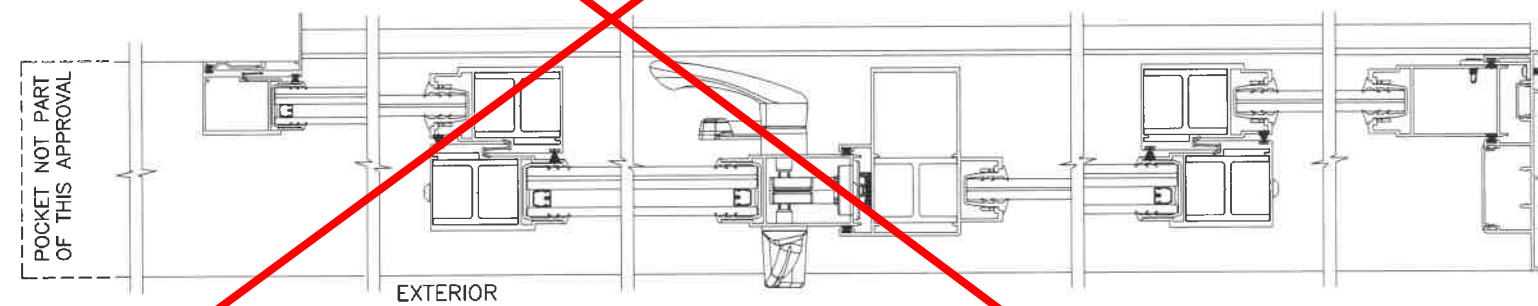
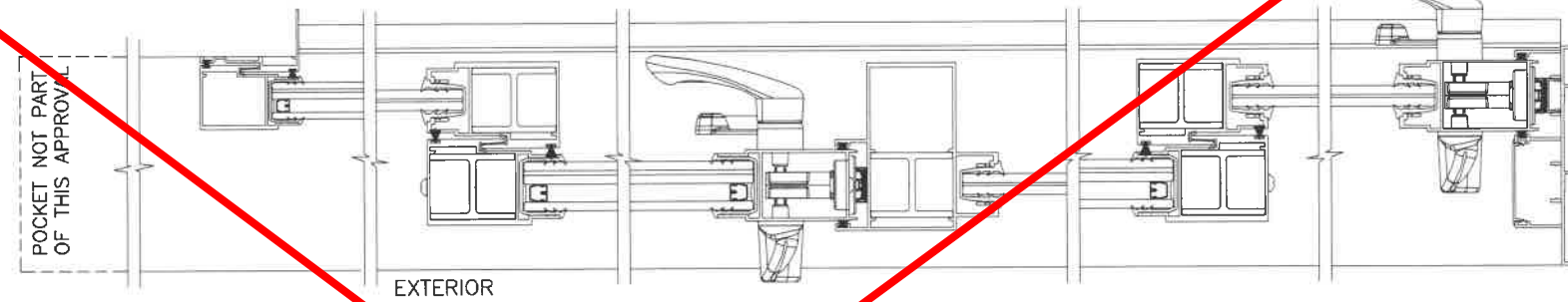
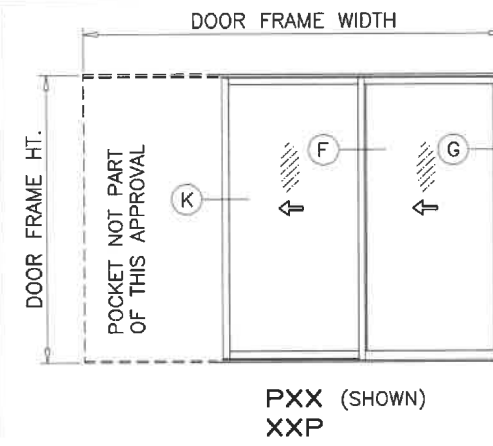
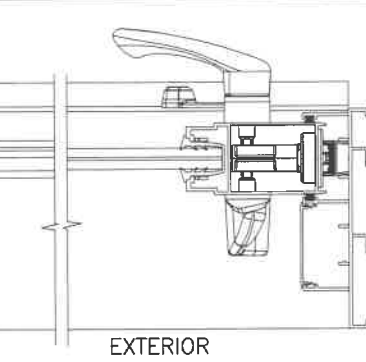
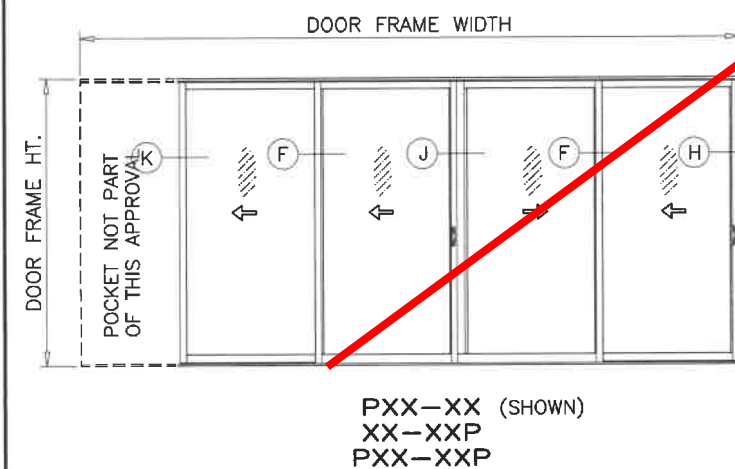
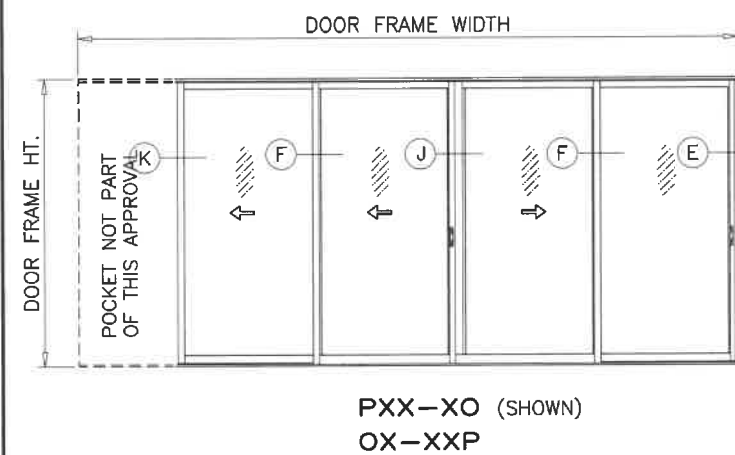
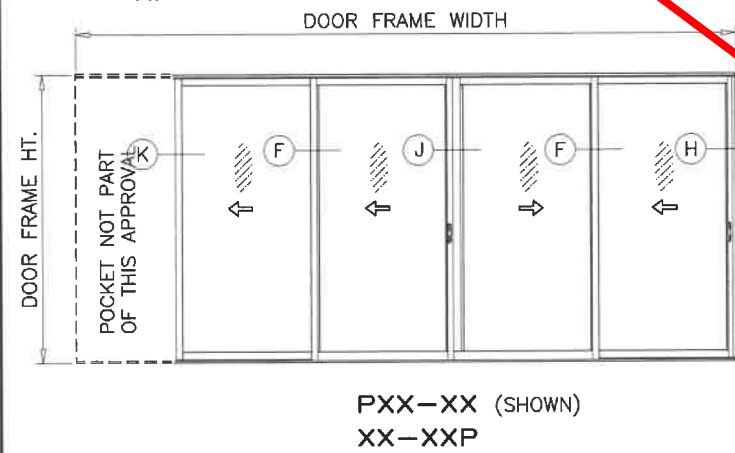
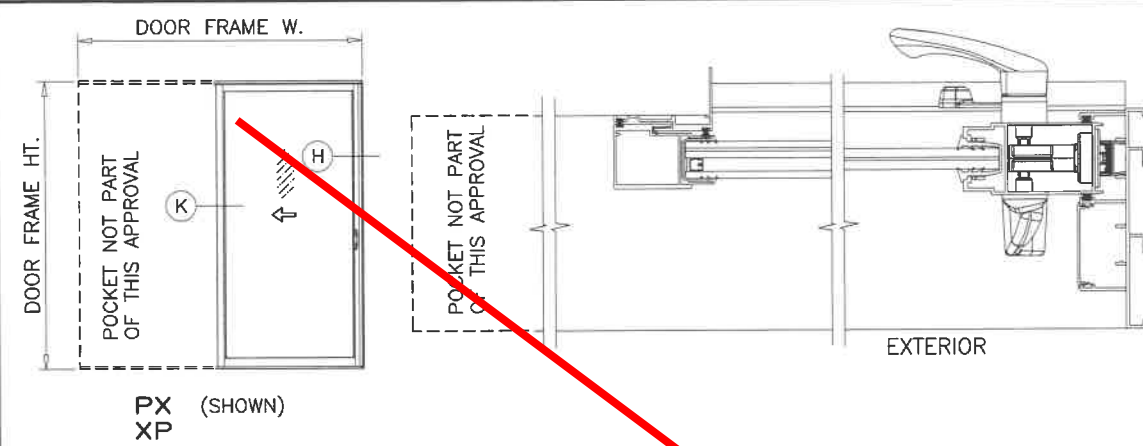
ES-EL400 ALUM SLIDING GLASS DOOR (L.M.I.)

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revisions:
no date by description

date: 07-11-17
scale: -
dr. by: TARIQ
chk. by:

drawing no.
W17-67
sheet 6 of 23



NOTE:

1. CONFIGURATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY.
2. FOR APPLICABLE DESIGN PRESSURES SEE SHEET 5.
3. FOR ANCHOR DETAILS SEE SHEETS 14 THRU 19.

APPROVED CONFIGURATIONS
POCKETED DOORS
TWO (2) TRACKS

Sealed: 8/13/2021

FL #22645



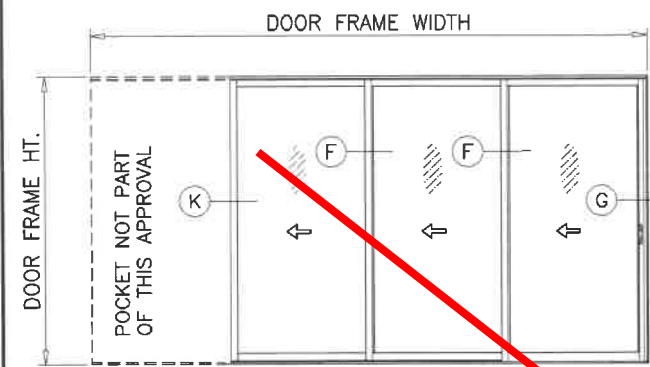
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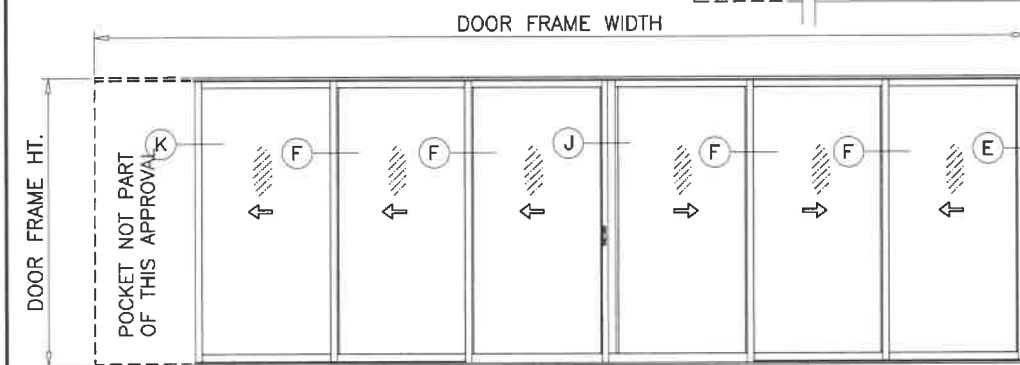
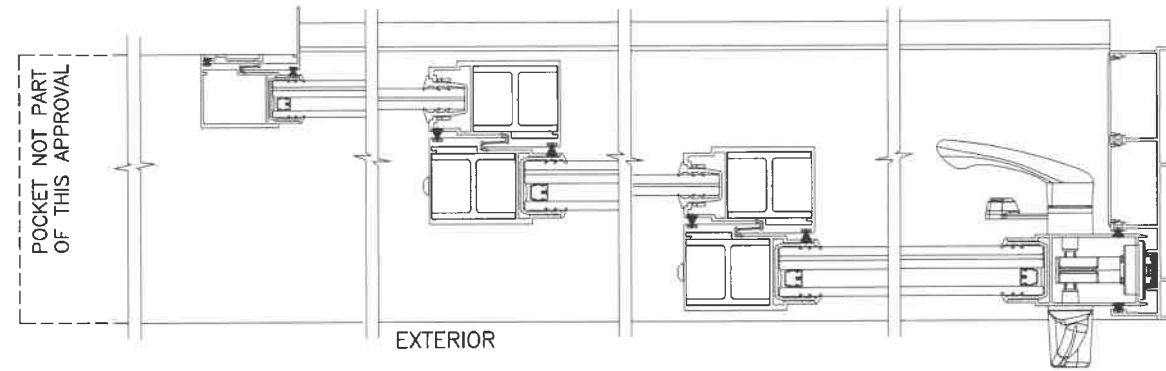
AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
(C.A.N. 3538)
TEL. (305) 264-8100 FAX. (305) 262-6978
COMP-ANL \ W

COMP--ANL\W17-67ES

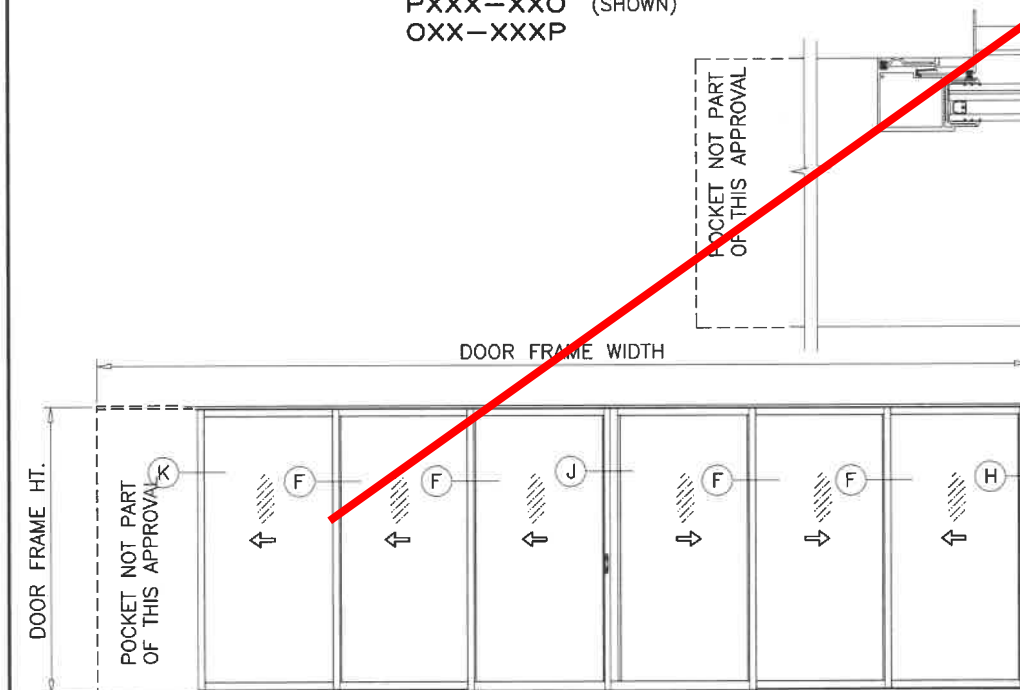
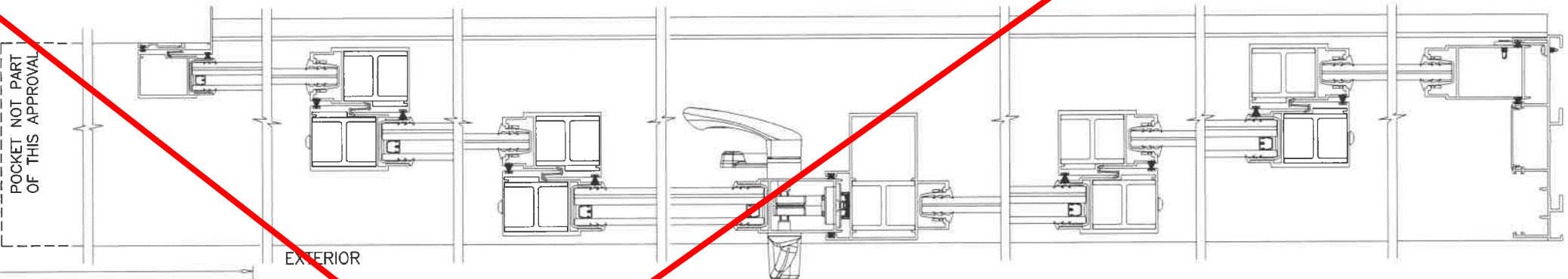
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sheet 8		of 23					



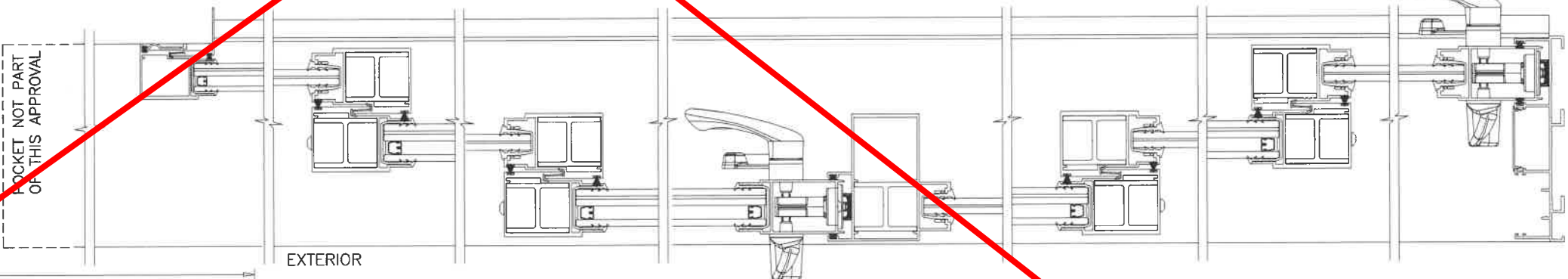
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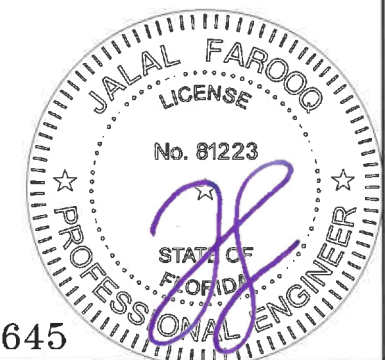
NOTE:

1. CONFIGURATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY.
2. FOR APPLICABLE DESIGN PRESSURES AND REINFORCEMENTS REQUIREMENTS SEE SHEET 5.
3. FOR ANCHOR DETAILS SEE SHEETS 14 THRU 19.

APPROVED CONFIGURATIONS
POCKETED DOORS
THREE (3) TRACKS

Sealed: 8/13/2021

FL #22645



AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978
(C.A.N. 3538)

ES-EL400 ALUM SLIDING GLASS DOOR (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX

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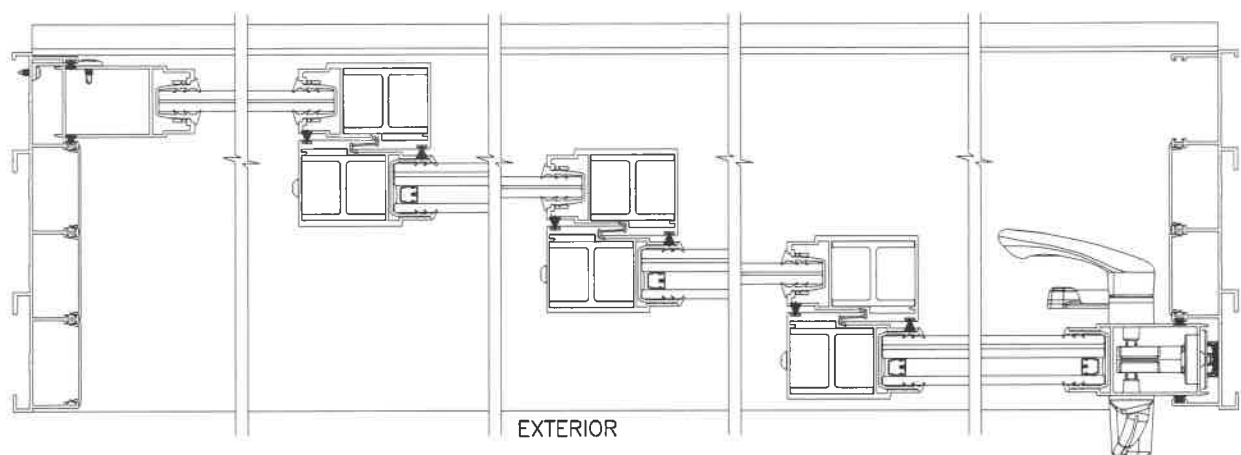
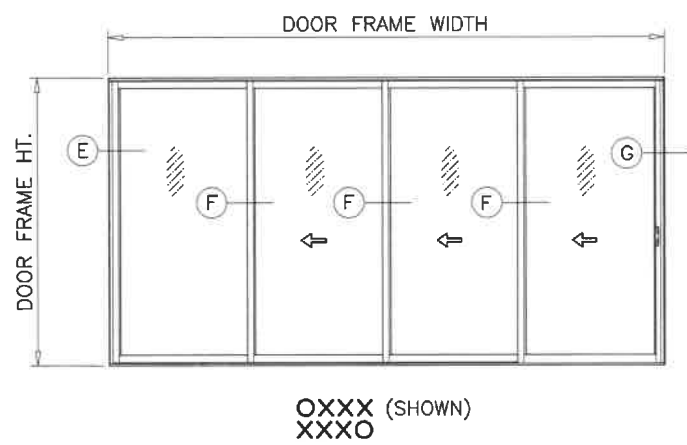
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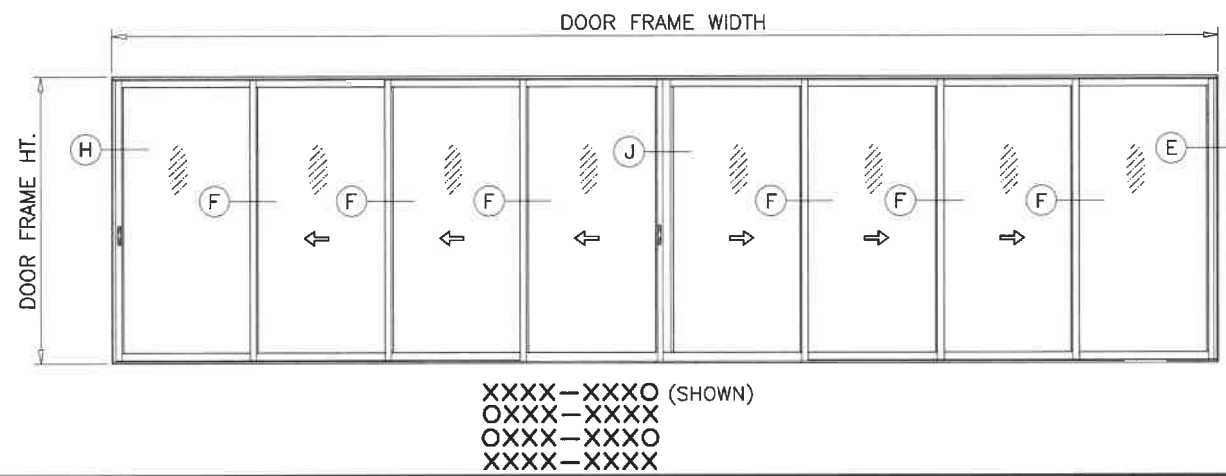
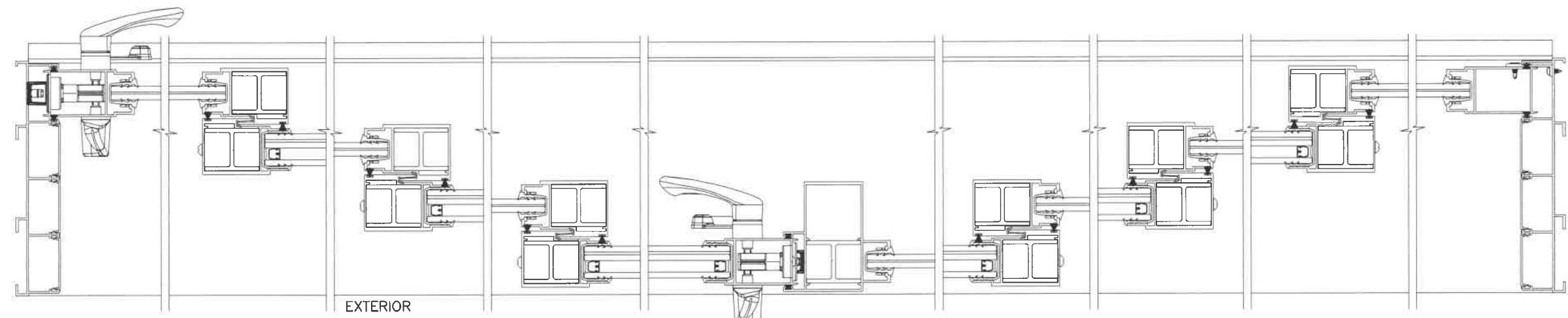
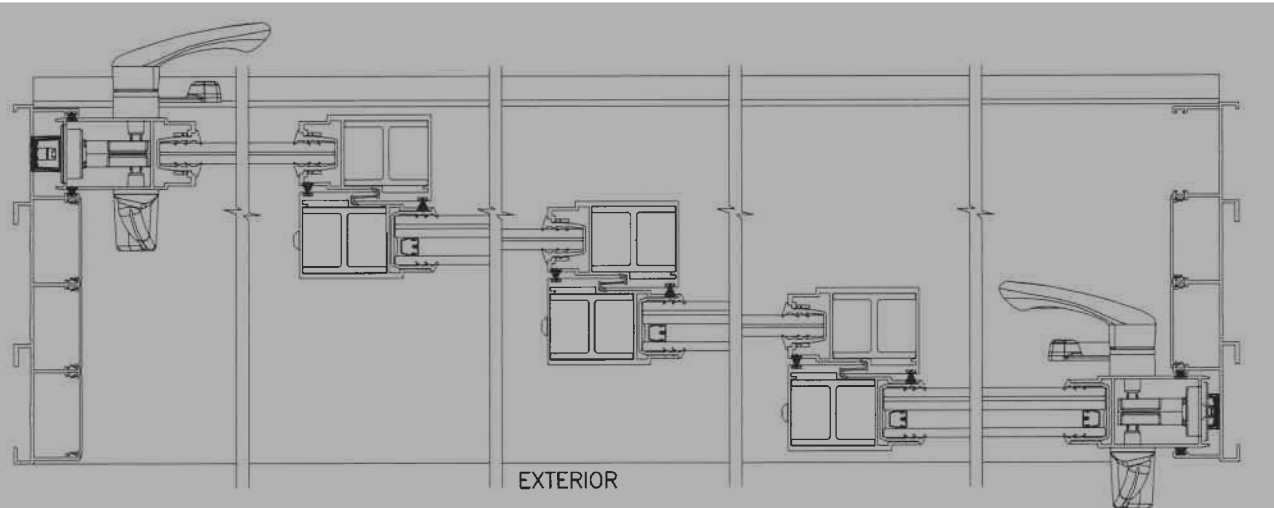
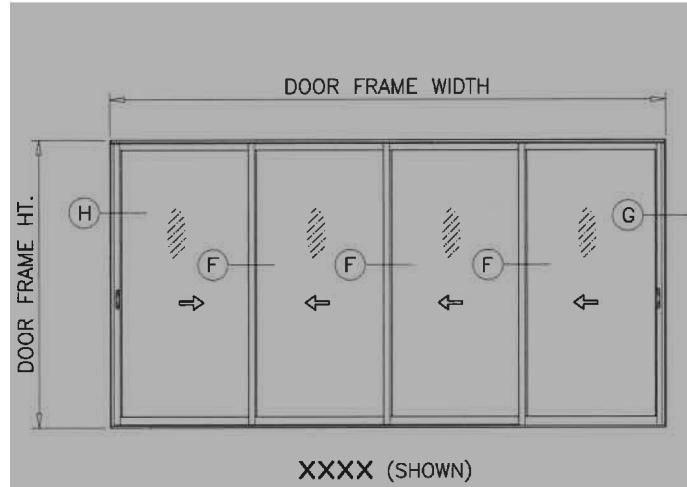
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COMP-ANL\W17-67ES



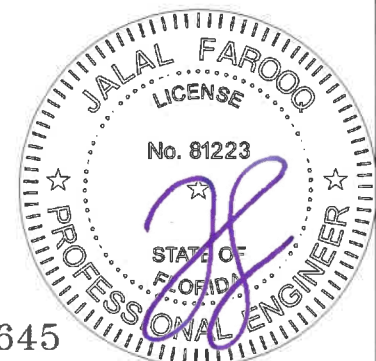
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 3. FOR ANCHOR DETAILS SEE SHEETS 14 THRU 19.



APPROVED CONFIGURATIONS
NON-POCKETED DOORS
FOUR (4) TRACKS

Sealed: 8/13/2021

FL #22645



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COMP-ANL\W17-67ES

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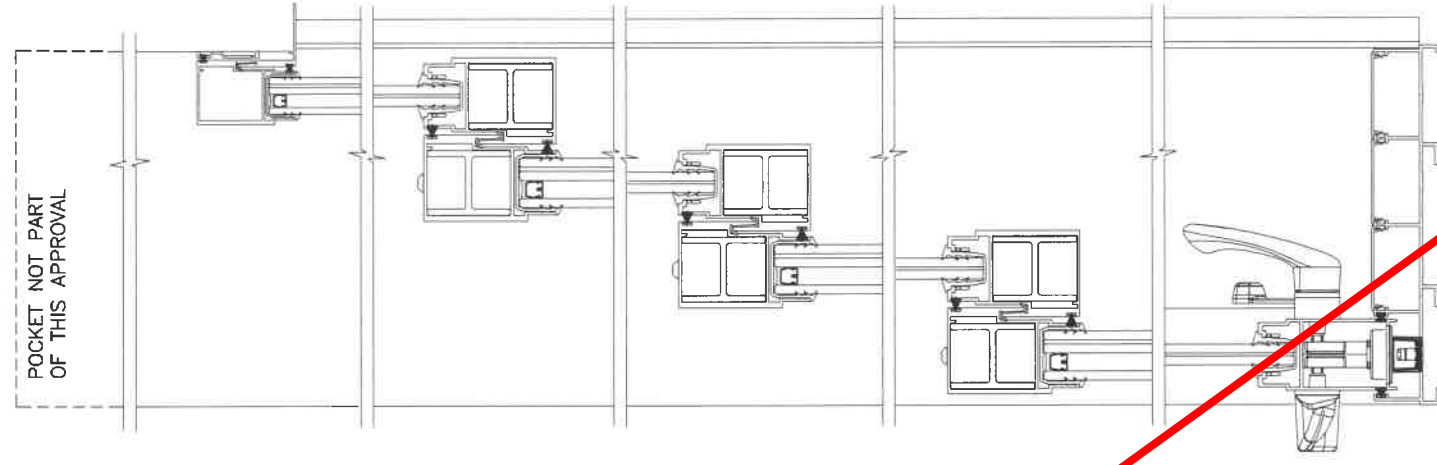
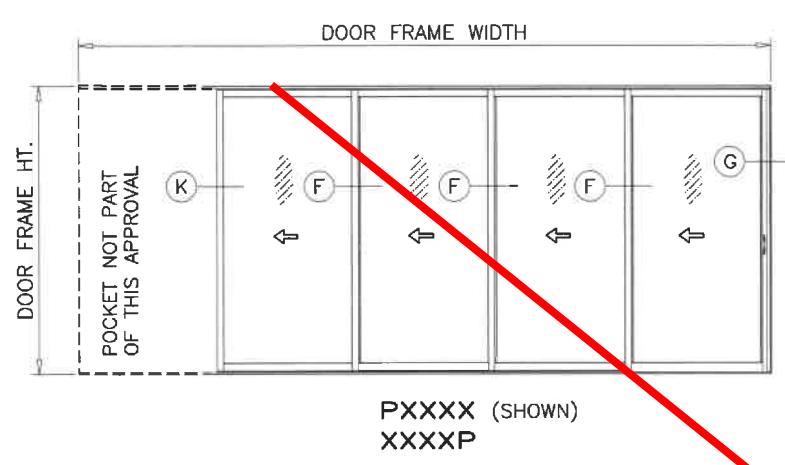
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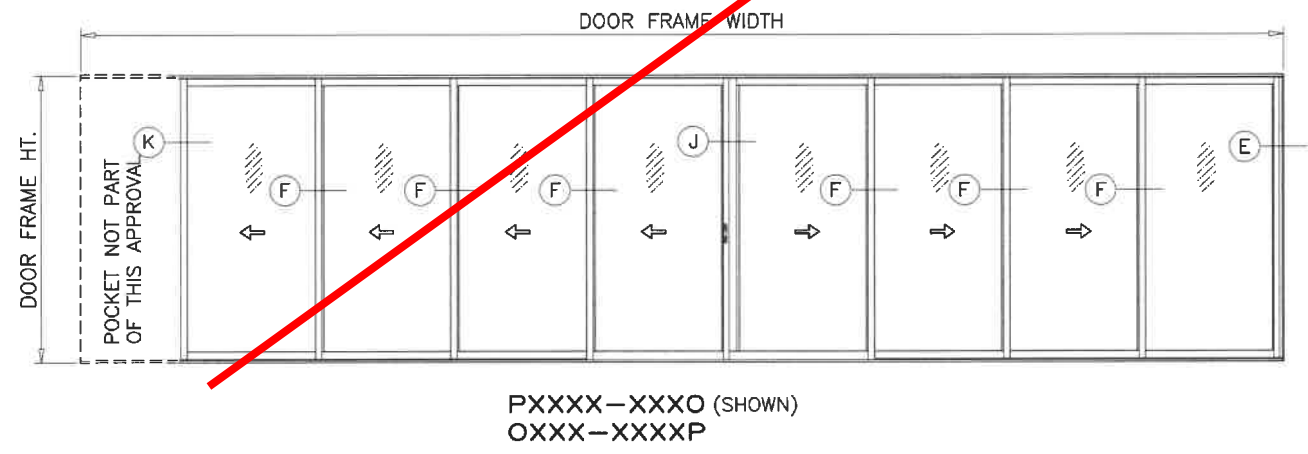
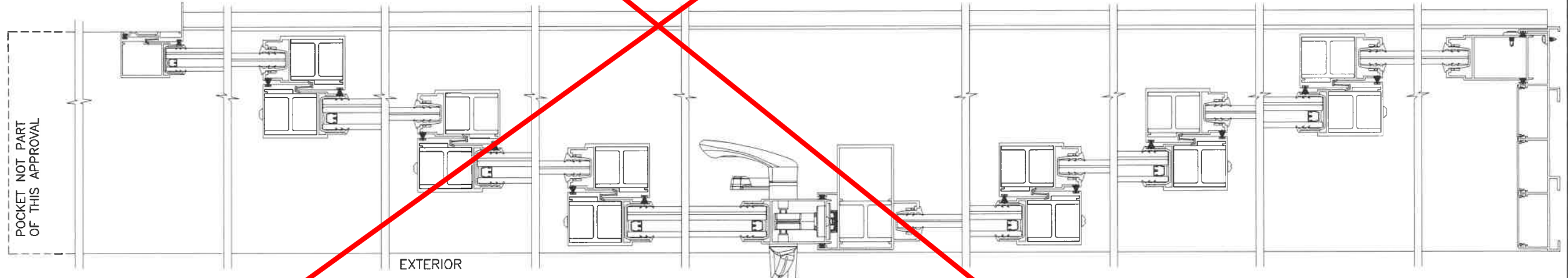
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W17-67

sheet 11 of 23

FL #22645



NOTE:
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APPROVED CONFIGURATIONS
POCKETED DOORS
FOUR (4) TRACKS

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FL #22645





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TEL (305) 264-8100 FAX (305) 262-6978
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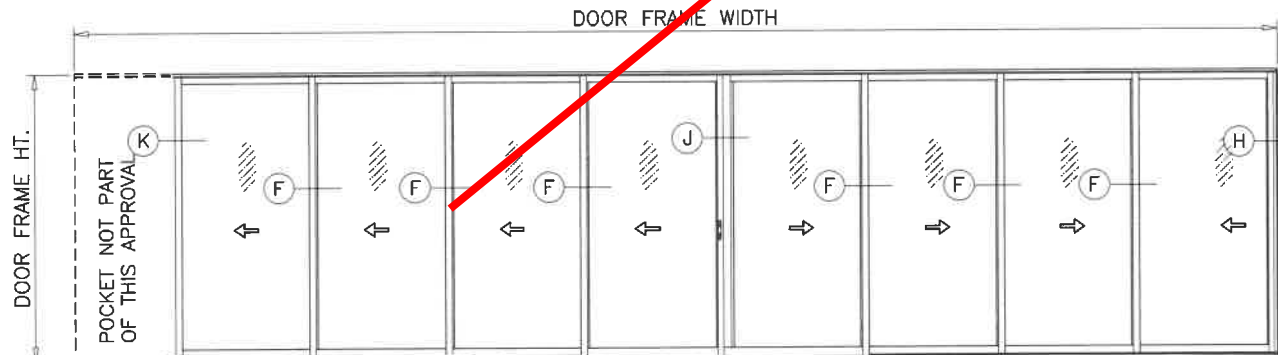
ES-EL400 ALUM SLIDING GLASS DOOR (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

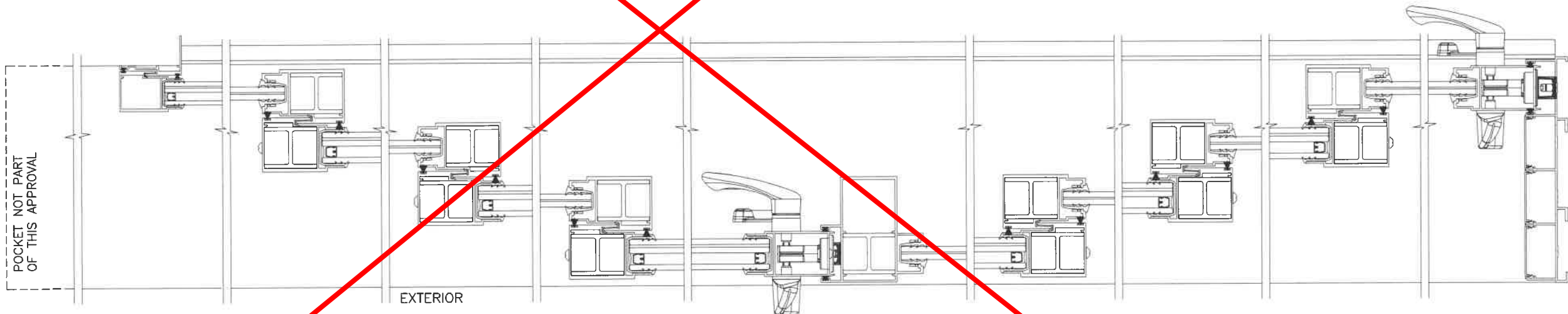
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sheet	12 of 23



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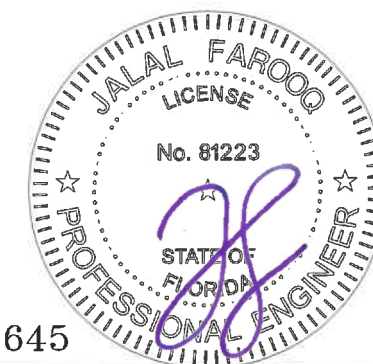
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APPROVED CONFIGURATIONS
POCKETED DOORS
FOUR (4) TRACKS

Sealed: 8/13/2021

FL #22645



ES-EL400 ALUM SLIDING GLASS DOOR (L.M.I.)

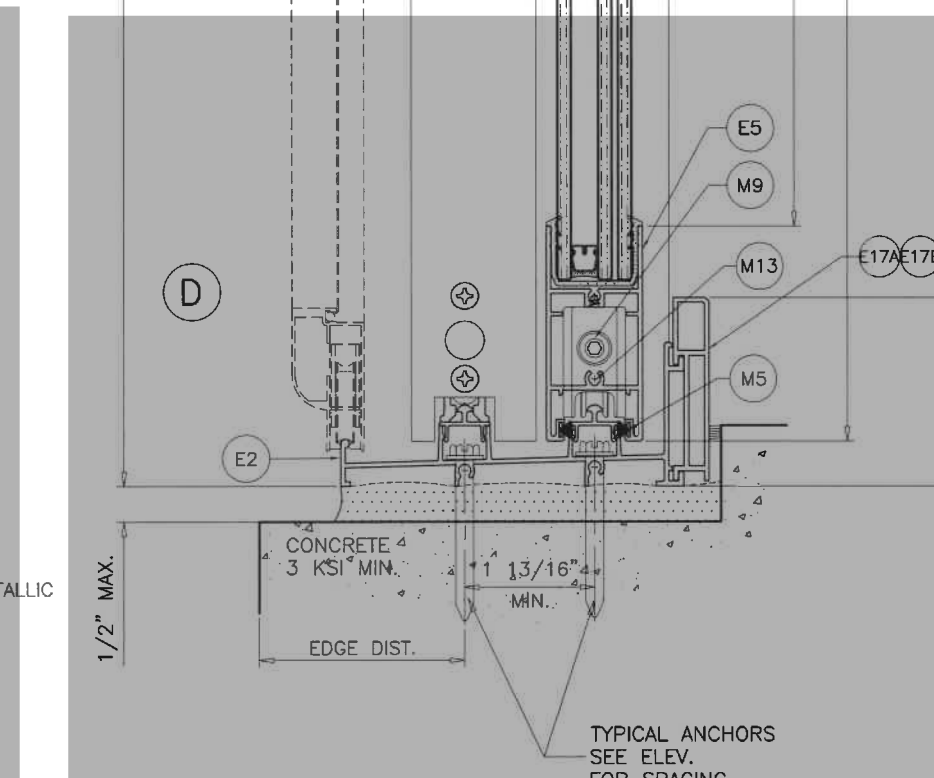
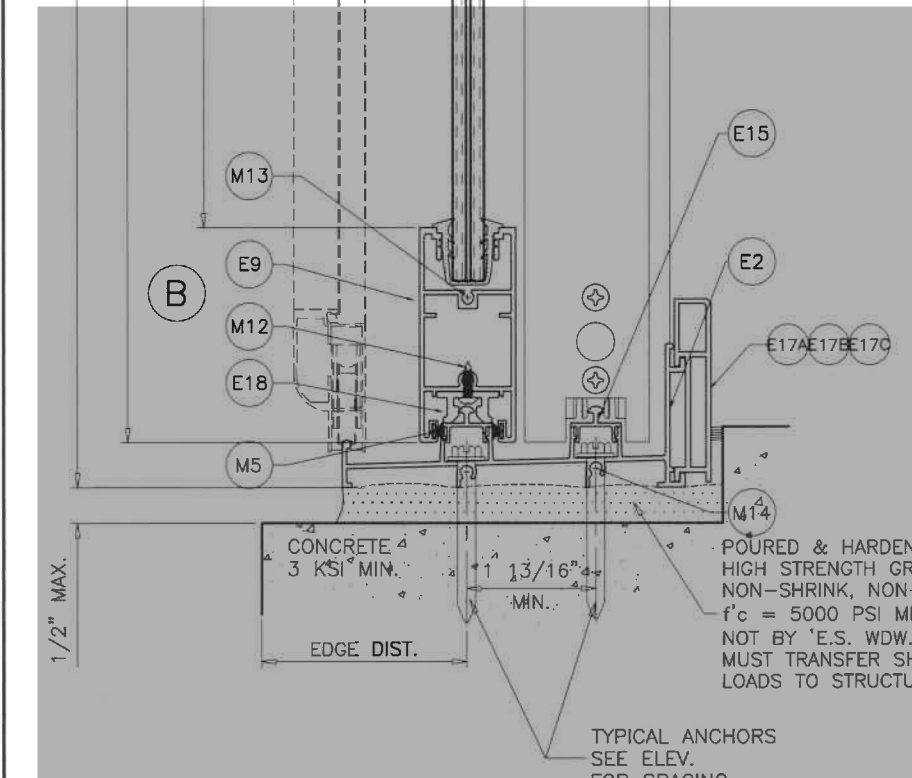
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3550 N.W. 49 STREET
MIAMI, FL. 33142
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MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978
(C.A.N. 3538)

COMP-ANL\W17-67ES

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TYPICAL ANCHORS: SEE ELEV. FOR SPACING

AT HEAD

TYPE 'A'— 1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)
INTO WOOD STRUCTURES
2" MIN. PENETRATION INTO WOOD
THRU 1BY BUCKS INTO CONCRETE
1-3/4" MIN. EMBED INTO CONCRETE, 1-1/2" MIN. EDGE DIST.
THRU 2BY BUCKS INTO CONCRETE
1-1/2" MIN. EMBED INTO CONCRETE, 1-1/2" MIN. EDGE DIST.

TYPE 'B'— 1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)
DIRECTLY INTO CONCRETE
2" MIN. EMBED INTO CONCRETE, 1-1/2" MIN. EDGE DIST.

TYPE 'C'— 1/4" DIA. TEKS OR SELF DRILLING SCREWS (GRADE 5 CRS)
INTO F.B.C. APPROVED MULLIONS
OR
INTO METAL STRUCTURES
(3) THREADS MIN. PENETRATION BEYOND SUBSTRATE
ALUMINUM: 1/8" THK. MIN. (6063-T5 MIN.)
STEEL: 1/8" THK. MIN. (Fy = 36 KSI MIN.)
(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

AT SILL

TYPE 'B'— 1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)
DIRECTLY INTO CONCRETE
1-3/4" MIN. EMBED INTO CONCRETE

AT JAMBS

TYPE 'A'— 1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)
INTO WOOD STRUCTURES
2" MIN. PENETRATION INTO WOOD
THRU 1BY OR 2BY BUCKS INTO CONC. OR FILLED BLOCK
1-1/4" MIN. EMBED INTO CONCRETE
1-1/2" MIN. EMBED INTO FILLED BLOCKS

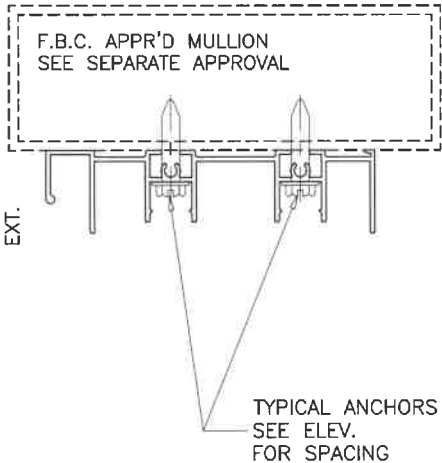
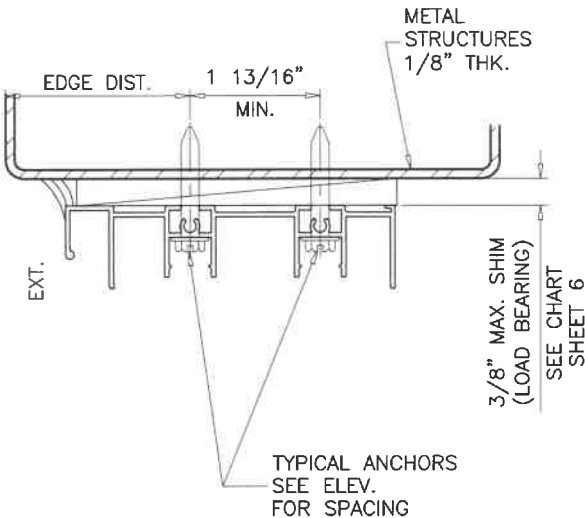
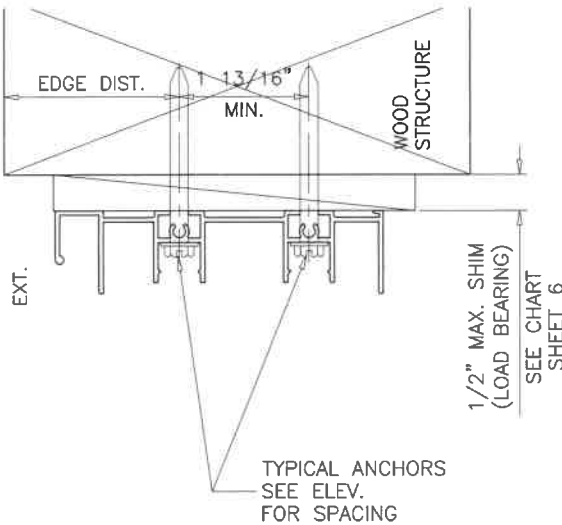
TYPE 'B'— 1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)
DIRECTLY INTO CONCRETE OR GROUT FILLED BLOCKS
2" MIN. EMBED INTO CONCRETE
2" MIN. EMBED INTO GROUT FILLED BLOCKS

TYPE 'C'— 1/4" DIA. TEKS OR SELF DRILLING SCREWS (GRADE 5 CRS)
INTO F.B.C. APPROVED MULLIONS
OR
INTO METAL STRUCTURES
(3) THREADS MIN. PENETRATION BEYOND SUBSTRATE
ALUMINUM: 1/8" THK. MIN. (6063-T5 MIN.)
STEEL: 1/8" THK. MIN. (Fy = 36 KSI MIN.)
(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

ANCHOR EDGE DISTANCES

INTO CONCRETE AND MASONRY = 2-1/2" MIN. (UNLESS SPECIFIED OTHERWISE)
INTO WOOD STRUCTURE = 1" MIN.
INTO METAL STRUCTURE = 3/4" MIN.

WOOD AT HEAD OR JAMBS SG = 0.55 MIN.
CONCRETE AT HEAD, SILL OR JAMBS f'c = 3000 PSI MIN.
C-90 GROUT FILLED BLOCK AT JAMBS f'm = 2000 PSI MIN.



1BY OR 2BY WOOD BUCKS AND METAL STRUCTURE NOT BY 'E.S. WDW.'
MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM
AND TRANSFER THEM TO THE BUILDING STRUCTURE.



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FL #22645

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TEL. (305) 264-8100 FAX. (305) 262-6978
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COMP-ANL\W17-67ES

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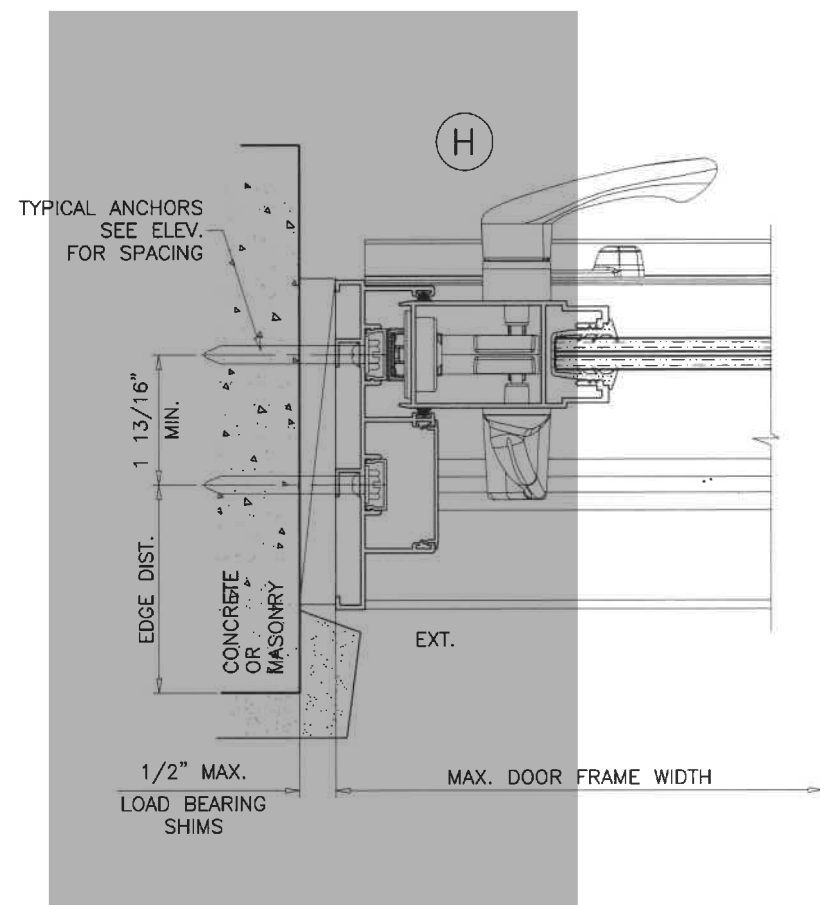
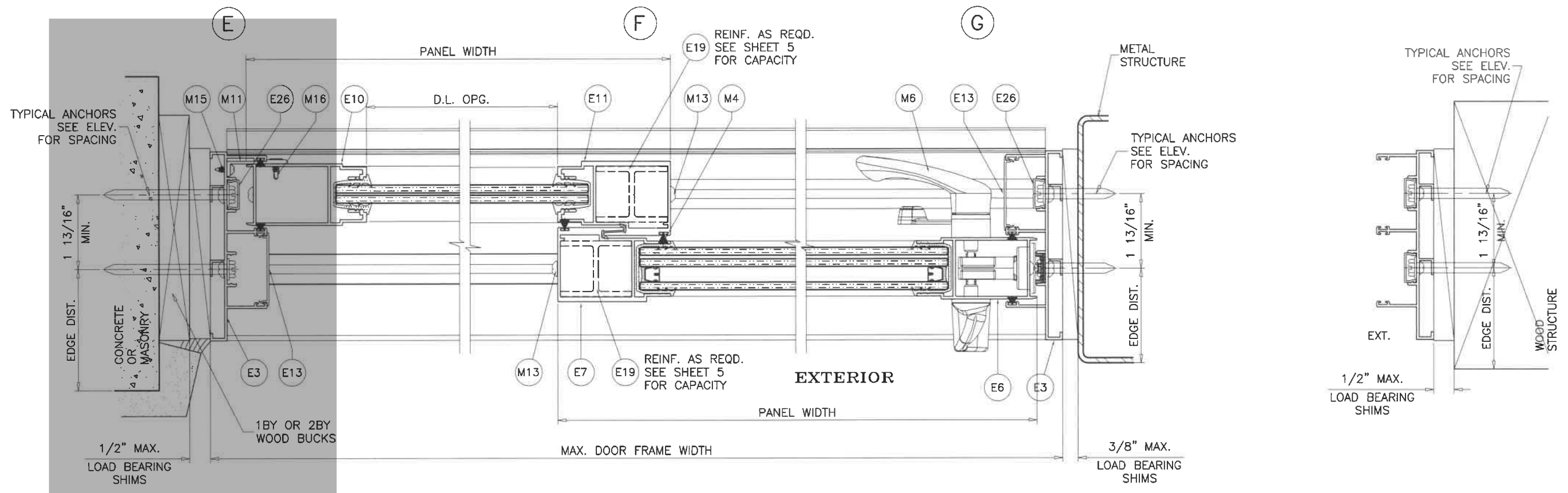
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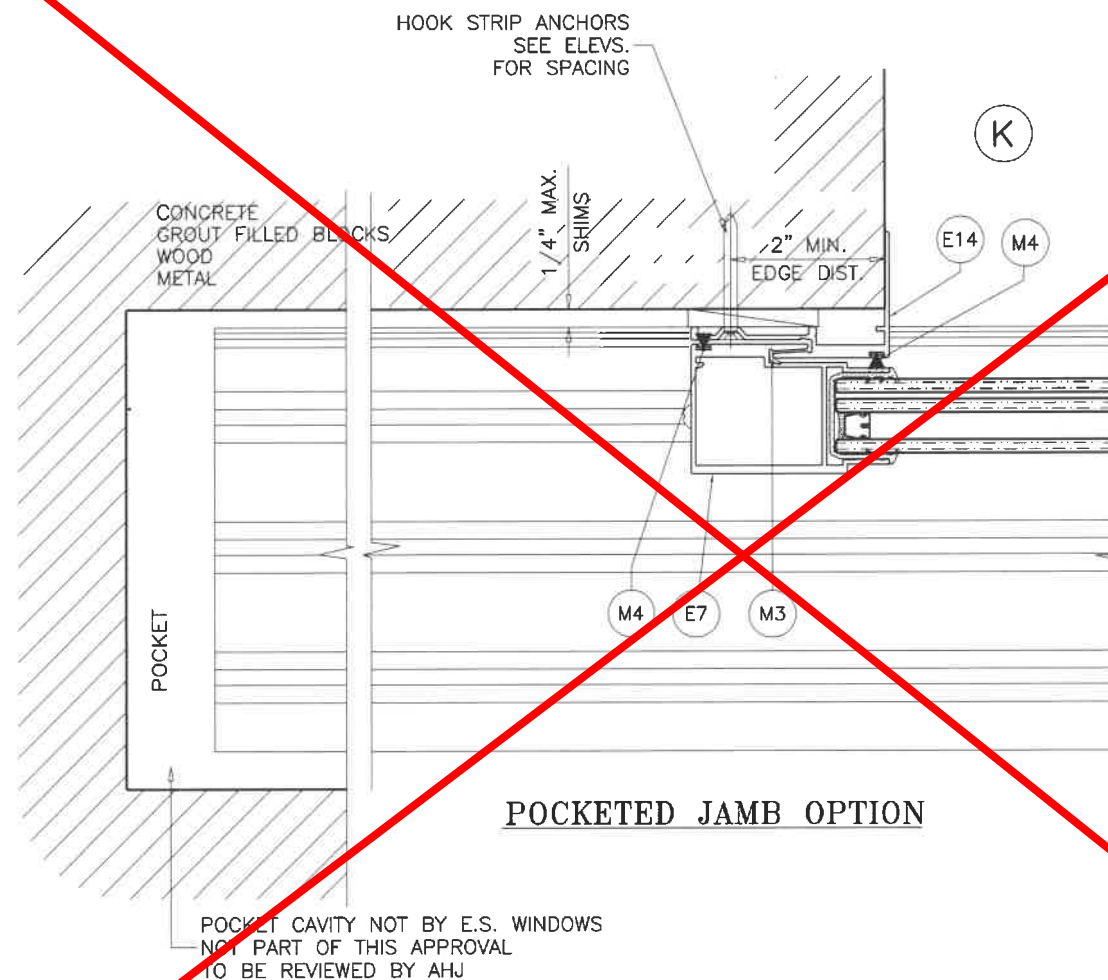
sheet 15 of 23



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9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
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HOOK STRIP ANCHORS: SEE ELEV. FOR SPACING
1/4" DIA. ULTRACON+ BY 'DEWALT' (Fu=164 KSI, Fy=148 KSI)
 DIRECTLY INTO CONCRETE OR GROUT FILLED BLOCKS
 1-3/4" MIN. EMBED INTO CONCRETE
 1-3/4" MIN. EMBED INTO GROUT FILLED BLOCKS

#14 SMS (GRADE 2 CRS)
 INTO 2BY WOOD BUCKS OR WOOD STRUCTURES
 1-1/2" MIN. PENETRATION INTO WOOD

#14 SMS OR SELF DRILLING SCREWS (GRADE 2 CRS)
 INTO METAL STRUCTURES
 (3) THREADS MIN. PENETRATION BEYOND SUBSTRATE
 ALUMINUM: 1/8" THK. MIN. (6063-T5 MIN.)
 STEEL: 1/8" THK. MIN. ($F_y = 36$ KSI MIN.)
 (STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

TYPICAL EDGE DISTANCE

INTO CONCRETE AND MASONRY = 2" MIN.
INTO WOOD STRUCTURE = 1" MIN.
INTO METAL STRUCTURE = 3/4" MIN.

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FL #22645

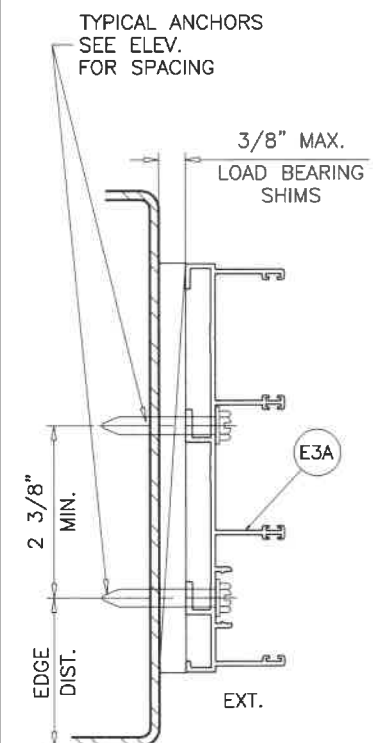
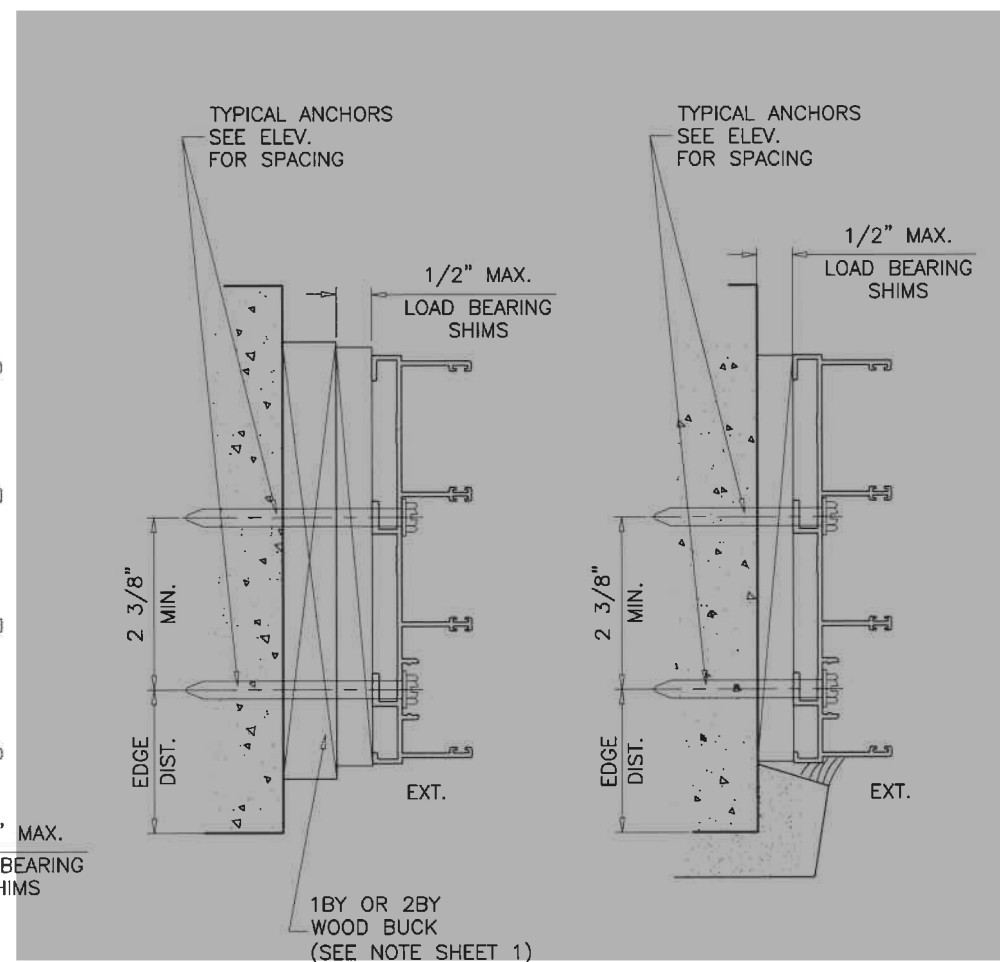
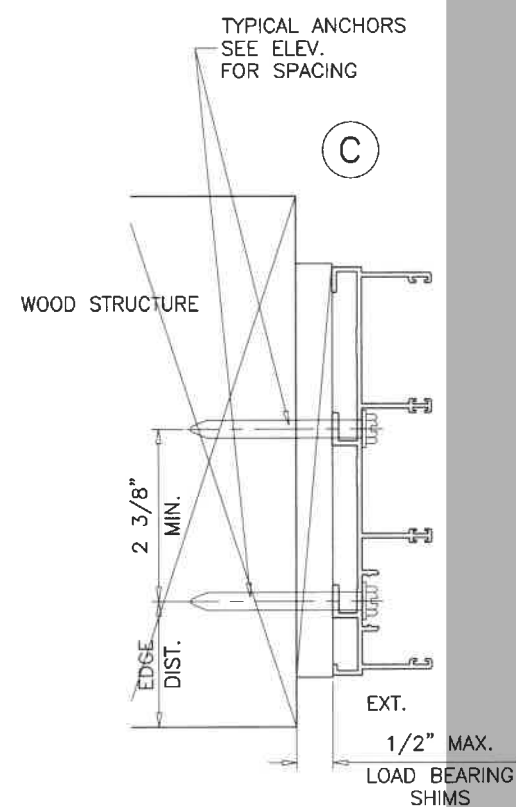
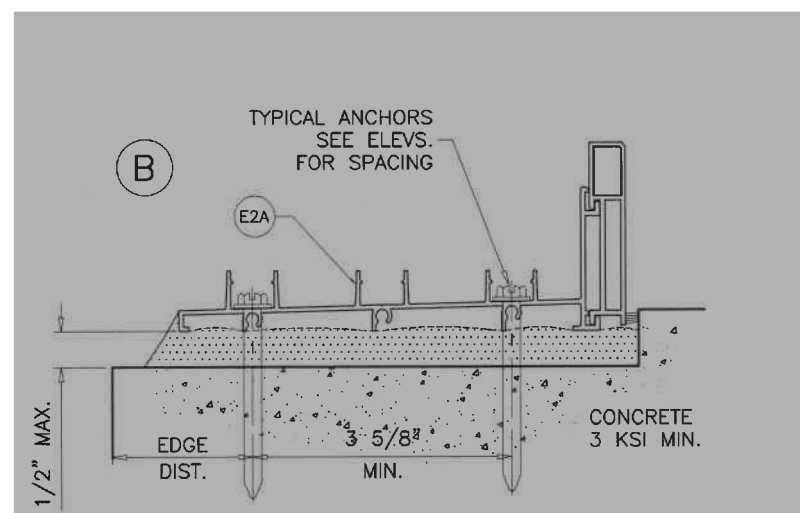
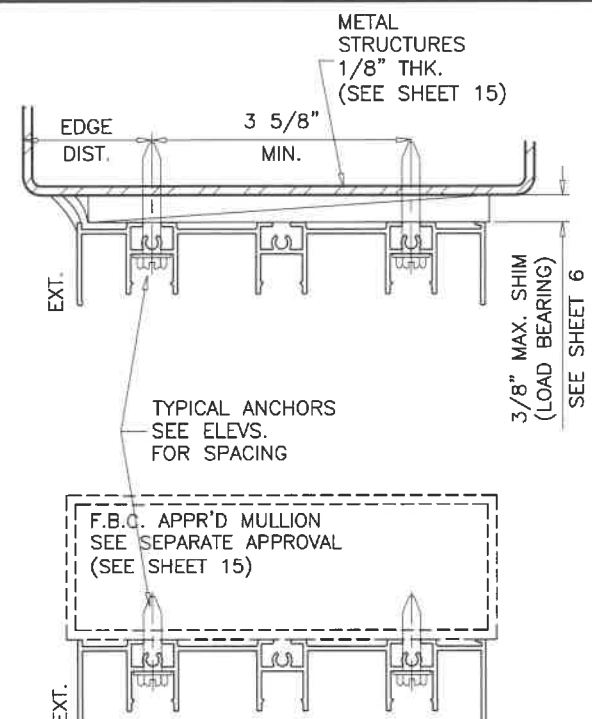
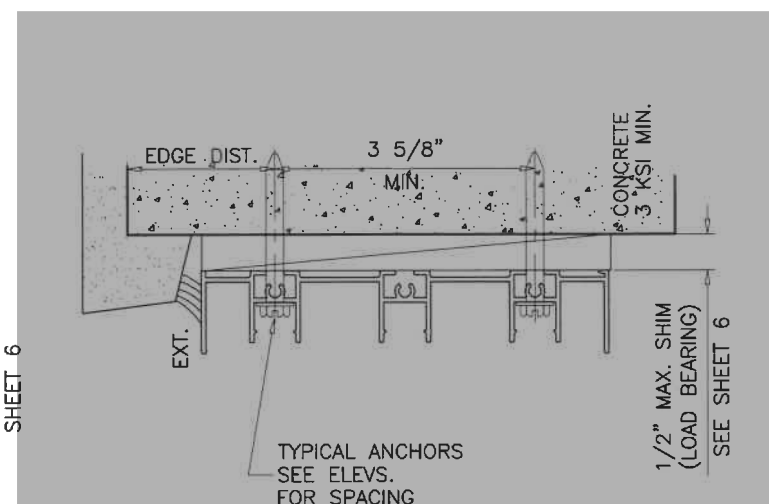
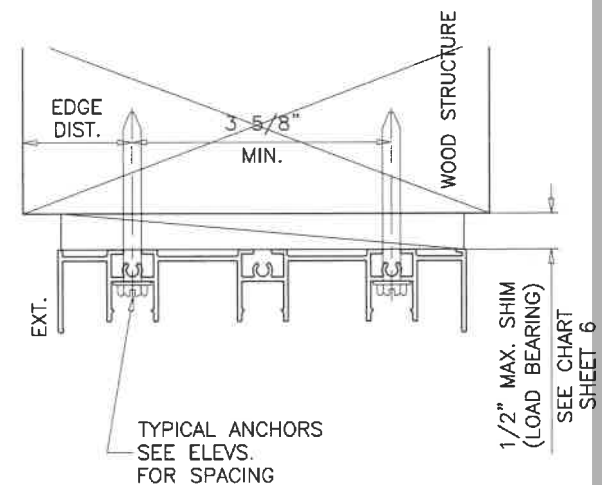
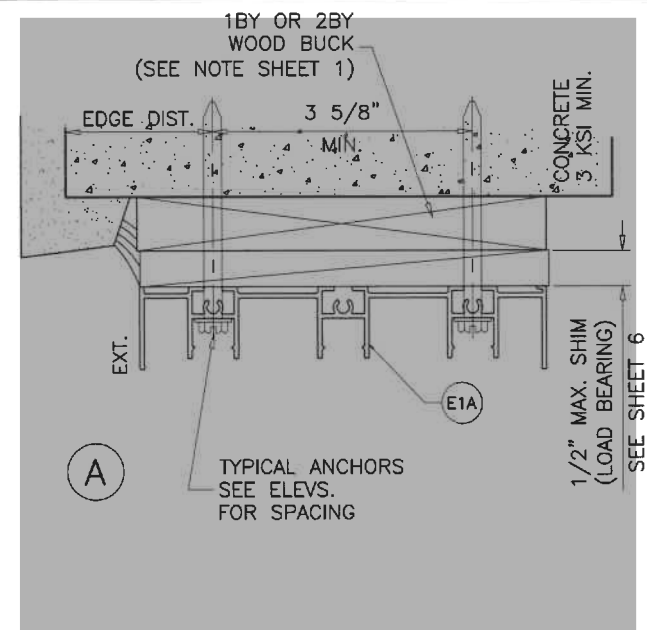


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sheet 17 of 23			



3 TRACK FRAMES

Sealed: 8/13/2021

FL #22645

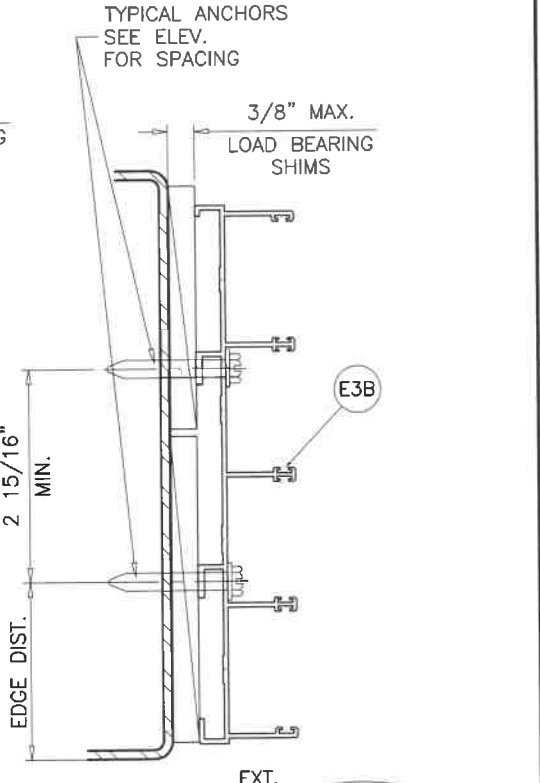
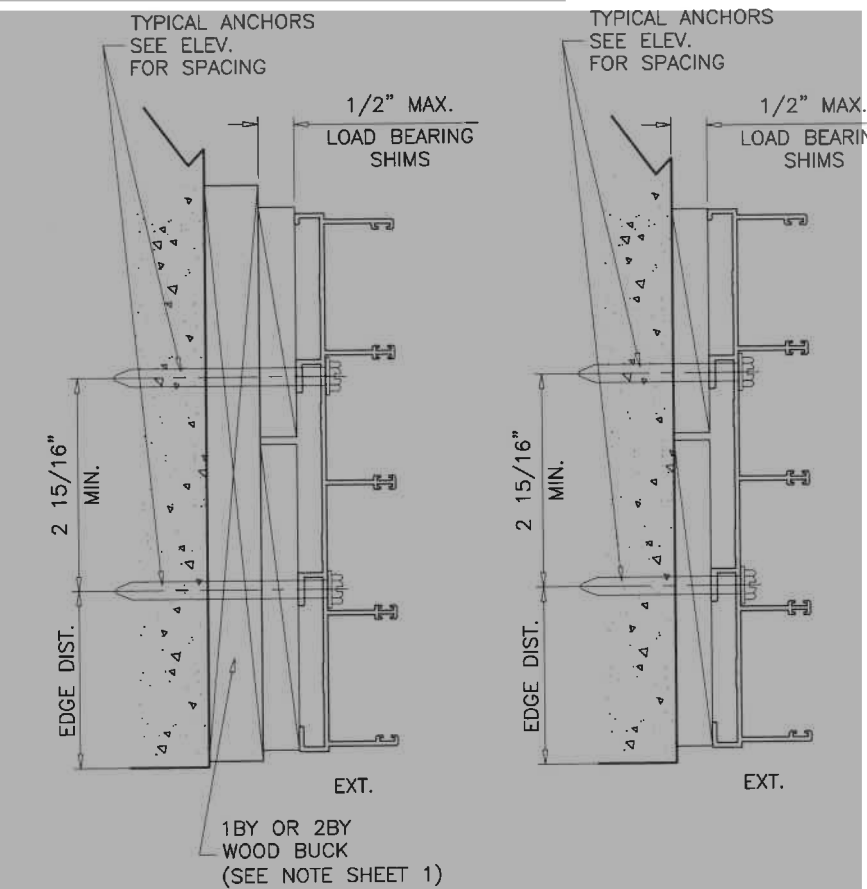
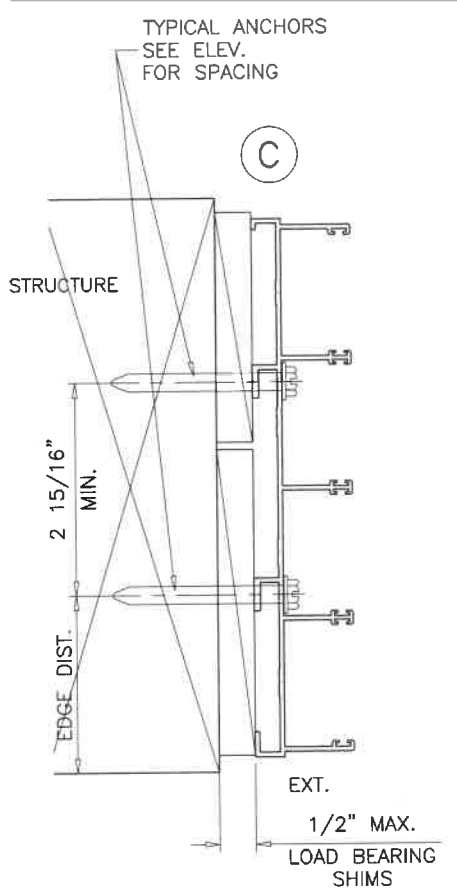
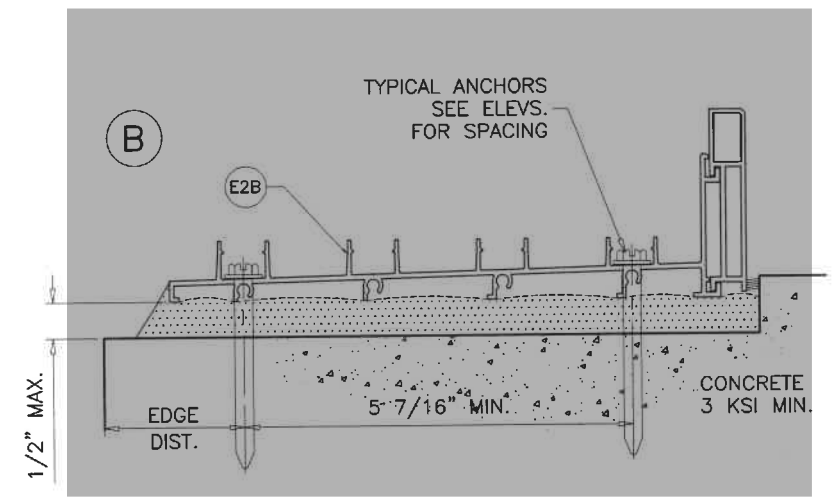
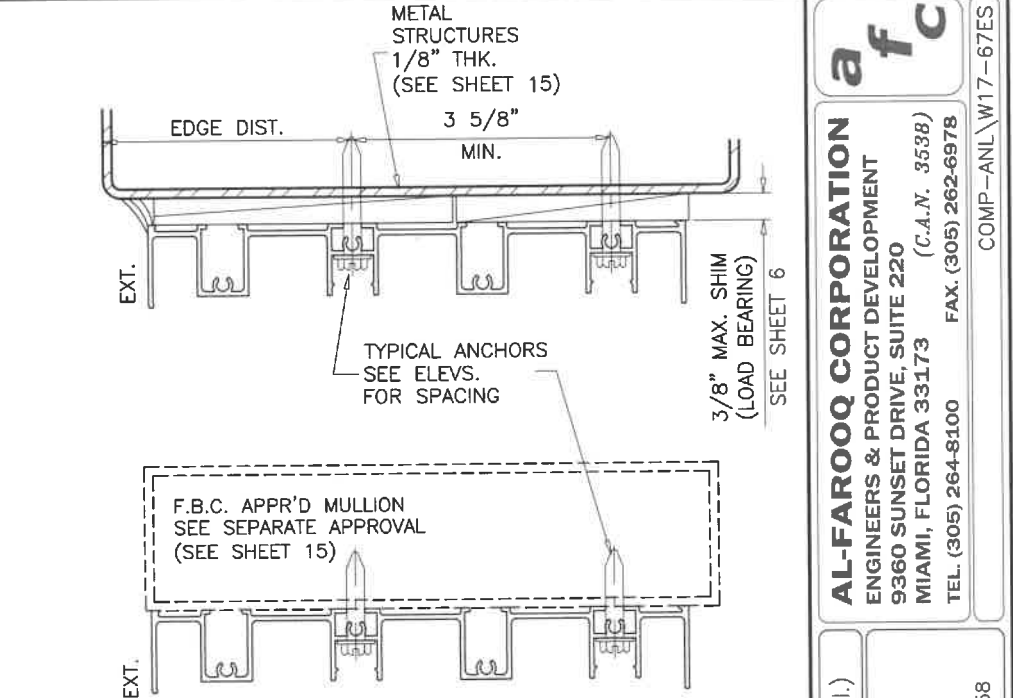
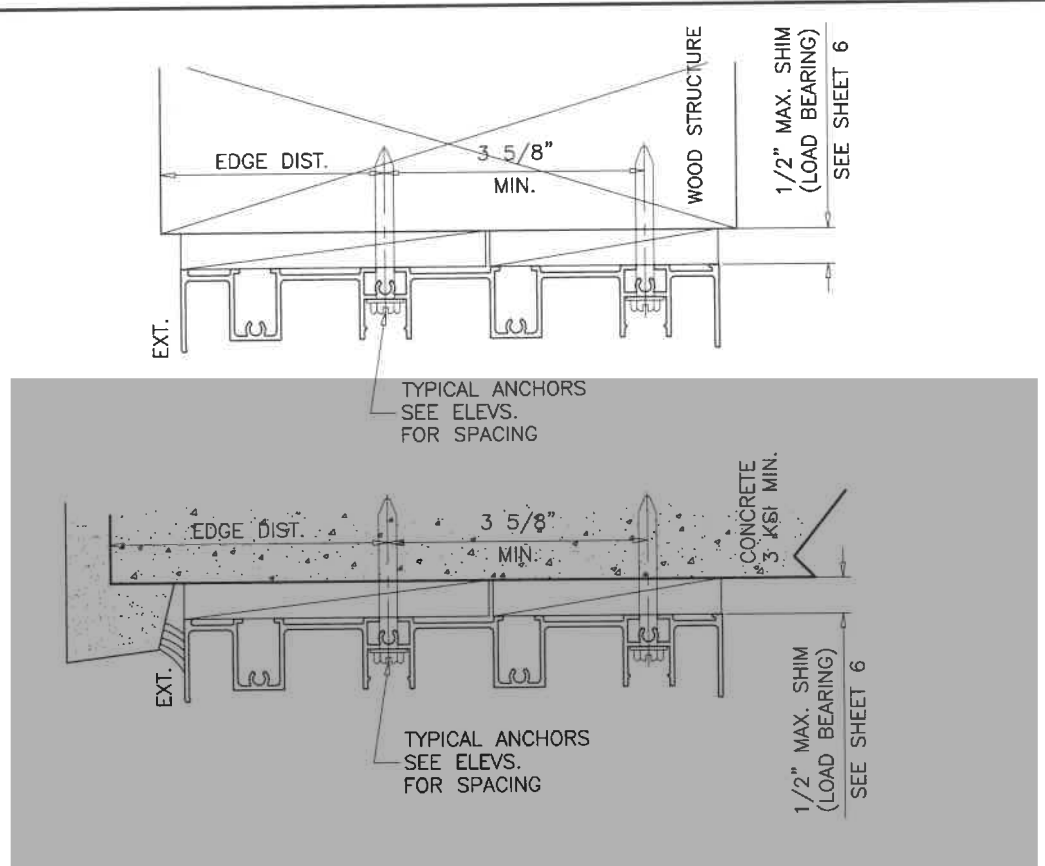
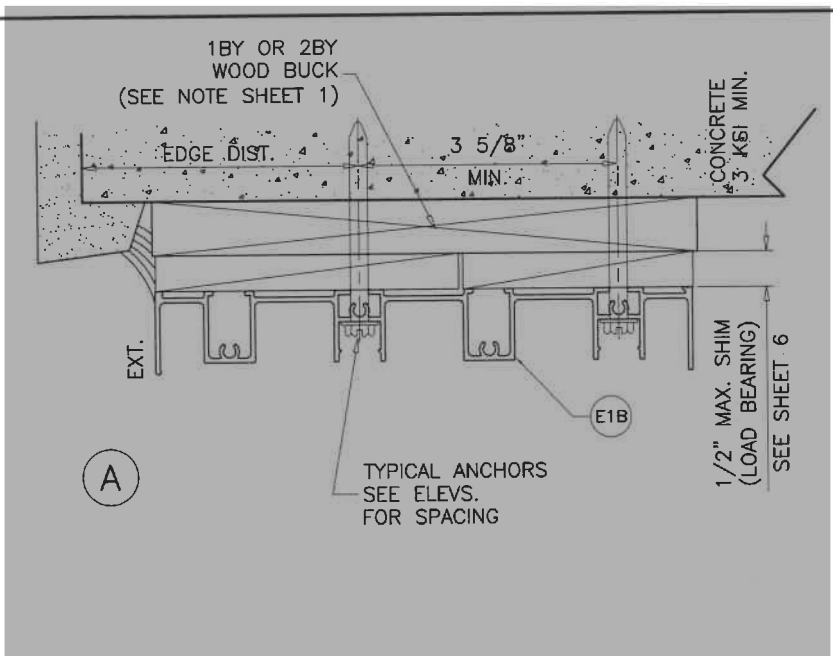


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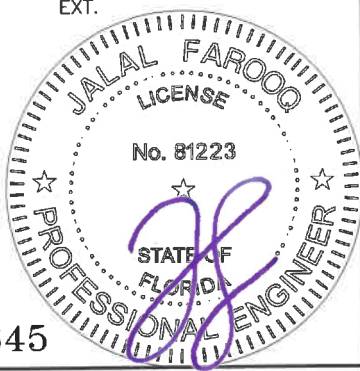
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4 TRACK FRAMES
ANCHOR LOCATIONS

Sealed: 8/13/2021

FL #22645



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ENGINEERS & PRODUCT DEVELOPMENT
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W17-67
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ITEM #	PART #	REQD.	DESCRIPTION	MATERIAL	MANF./SUPPLIER/REMARKS
E1	ES-EL400-001	1	FRAME HEAD (2 TRACK)	6063-T6	-
E1A	ES-EL400-201	AS REQD.	FRAME HEAD (3 TRACK)	6063-T6	-
E1B	ES-EL400-205	AS REQD.	FRAME HEAD (4 TRACK)	6063-T6	-
E2	ES-EL400-002	1	FRAME SILL (2 TRACK)	6063-T6	-
E2A	ES-EL400-202	AS REQD.	FRAME SILL (3 TRACK)	6063-T6	-
E2B	ES-EL400-206	AS REQD.	FRAME SILL (4 TRACK)	6063-T6	-
E3	ES-EL400-003	2	FRAME JAMB (2 TRACK)	6063-T6	-
E3A	ES-EL400-203	AS REQD.	FRAME JAMB (3 TRACK)	6063-T6	-
E3B	ES-EL400-207	AS REQD.	FRAME JAMB (4 TRACK)	6063-T6	-
E4	ES-EL400-004	1/ PANEL	TOP RAIL (INSUL. LAM. GLASS)	6063-T6	-
E5	ES-EL400-005	1/ PANEL	BOTTOM RAIL (INSUL. LAM. GLASS)	6063-T6	-
E6	ES-EL400-006	AS REQD.	JAMB STILE (INSUL. LAM. GLASS)	6063-T6	-
E7	ES-EL400-007	AS REQD.	INTERLOCK STILE (INSUL. LAM. GLASS)	6063-T6	-
E8	ES-EL400-009	1/ PANEL	TOP RAIL (LAM. GLASS)	6063-T6	-
E9	ES-EL400-010	1/ PANEL	BOTTOM RAIL (LAM. GLASS)	6063-T6	-
E10	ES-EL400-011	AS REQD.	JAMB STILE (LAM. GLASS)	6063-T6	-
E11	ES-EL400-012	AS REQD.	INTERLOCK STILE (LAM. GLASS)	6063-T6	-
E12	ES-EL400-013	AS REQD.	ASTRAGAL STILE (LAM. GLASS)	6063-T6	-
E12A	ES-EL400-008	AS REQD.	ASTRAGAL STILE (INSUL. LAM. GLASS)	6063-T6	-
E13	ES-EL400-014	AS REQD.	JAMB COVER	6063-T5	-
E14	ES-EL400-015	AS REQD.	POCKET JAMB	6063-T6	-
E15	ES-EL400-016	AS REQD.	SILL TRACK	6063-T6	-
E16	ES-EL400-017	AS REQD.	HEAD COVER	6063-T5	-
E17A	ES-2020-008	AS REQD.	SILL RISER	6063-T6	-
E17B	ES-2020-007	AS REQD.	ALT. SILL RISER	6063-T6	-
E17C	ES-2020-041	AS REQD.	ALT. SILL RISER	6063-T6	-
E18	ES-EL400-020	AS REQD.	FIXED PANEL BOTTOM GUIDE	6063-T6	-
E19	ES-EL400-021	AS REQD.	INTERLOCK REINFORCEMENT	6005-T5	-
E26	ES-6011	AS REQD.	SCREW COVER	6063-T6	-
M1	ES-EL400-G01	4/ PANEL	GLAZING GASKET (LAM. GLASS)	SILICONE	DUROMETER 70±3 SHORE A
M2	ES-EL400-G02	4/ PANEL	GLAZING GASKET (INSUL. LAM. GLASS)	SILICONE	DUROMETER 70±3 SHORE A
M3	ES2020-G04	AS REQD.	INTERLOCK BUMPER	PVC	DUROMETER 60±5 SHORE D
M4	W33271NK	AS REQD.	PILE W'STRIPPING (INTERLOCK)	WOOL	-
M5	W33181NK	AS REQD.	PILE W'STRIPPING	WOOL	-
M6	PS01-0014	AS REQD.	DOOR HANDLE	DIE CAST ALUM	TWO POINT HANDLE
M7	PS01-1015	AS REQD.	STRIKE FOR MORTISE LOCK	ST. STEEL	-
M8	PS01-1036	AS REQD.	MORTISE 2 POINT LOCK	ST. STEEL	-
M9	GT-R34/3-01-A	2/ PANEL	ROLLER ASSEMBLY	ZAMAK	-
M10	6844.1	AS REQD.	BUMPER	ALUM/NYLON	-
M11	ES-EL400-FPI SL	AS REQD.	FIX. PANEL CLIP	ST. STEEL	-
M12	#8 X 3/4"	AS REQD.	KEEPER FASTENERS	ST. STEEL	P.H. SMS
M13	#10 X 1-1/4"	AS REQD.	PANEL ASSEMBLY FASTENERS	ST. STEEL	P.H. SMS
M14	#12 X 1-1/2"	AS REQD.	FRAME ASSEMBLY FASTENERS	ST. STEEL	P.H. SMS
M15	#6 X 3/8"	AS REQD.	FIX. PANEL CLIP FASTENERS	ST. STEEL	P.H. SMS
M16	#8 X 1/2"	AS REQD.	FIX. PANEL CLIP FASTENERS	ST. STEEL	F.H. SMS
M18	#10 X 1/2"	AS REQD.	ROLLER FASTENERS	ST. STEEL	P.H. SMS
M19	#10 X 1"	AS REQD.	LOCK INSTALLATION FASTENERS	ST. STEEL	F.H. SMS
M20	#8 X 1/2"	AS REQD.	HANDLE INSTALLATION FASTENERS	ST. STEEL	F.H. SMS

SEALANT:

ALL JOINTS AND FRAME CONNECTIONS SEALED WITH WHITE/ALUMINUM COLORED SILICONE.

LOCK:

SURFACE MOUNT METALLIC HANDLE AT 44" FROM BOTTOM
FASTENED TO LOCK STILE WITH
(2) #8 X 1/2" FH SMS (M20)

SURFACE MOUNT METALLIC 3 PLY DUAL HOOK LOCK
44" FROM BOTTOM
FASTENED TO LOCK STILE WITH
(2) #10 X 1" FH SMS

SURFACE MOUNT METALLIC KEEPER AT 44" FROM BOTTOM
FASTENED TO FRAME JAMB AND ASTRAGAL STILE WITH
(3) #8 X 3/4" PH SMS (M12)



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FL #22645

**AL-FAROOQ CORPORATION**
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
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(C.A.N. 3538)

ES-EL400 ALUM SLIDING GLASS DOOR (L.M.I.)

E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151
FAX. (305) 638-5158

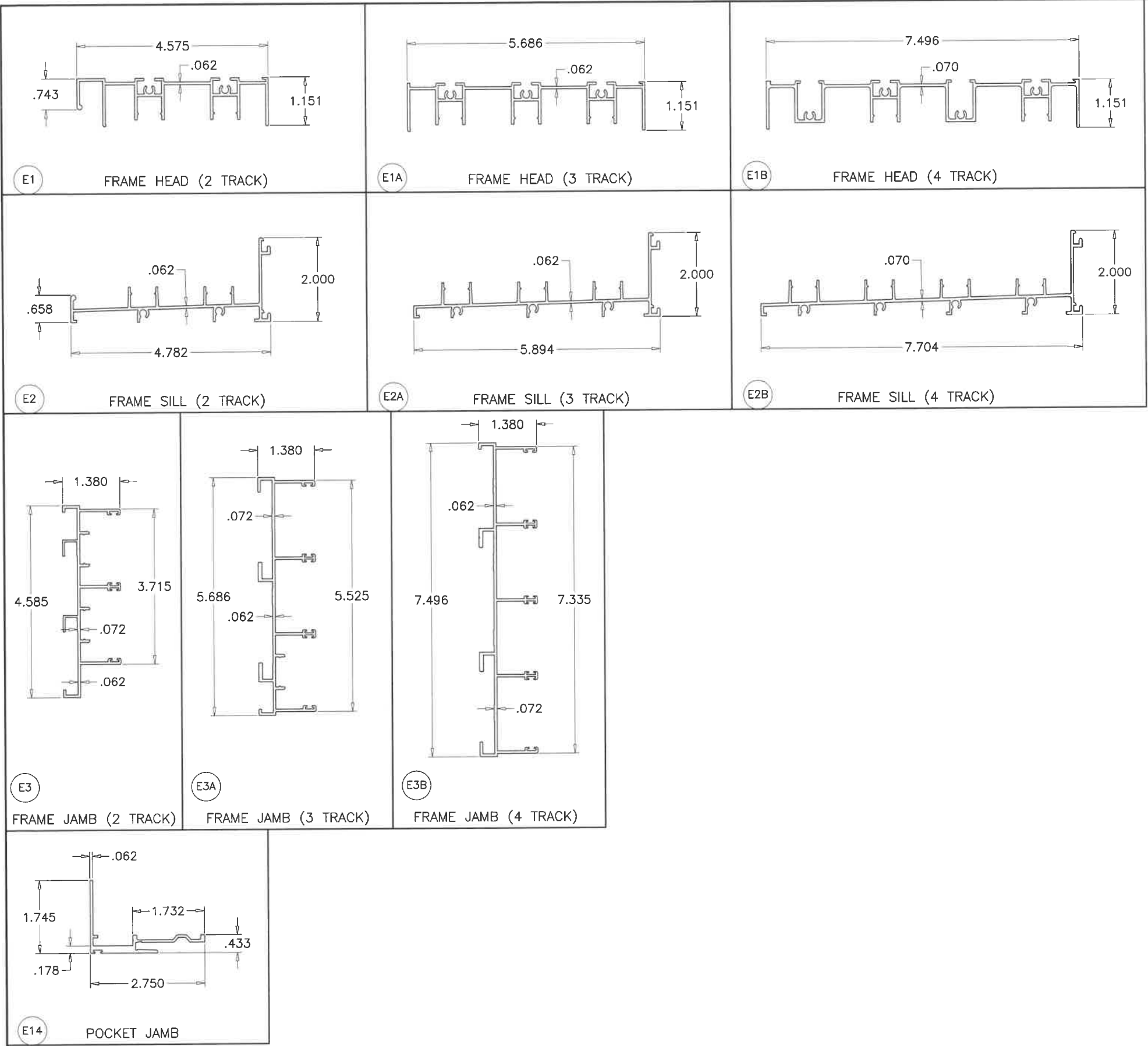
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dr. by: TARIQ
chk. by:

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W17-67

sheet 20 of 23

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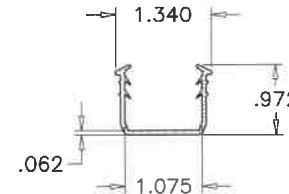
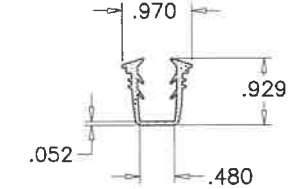
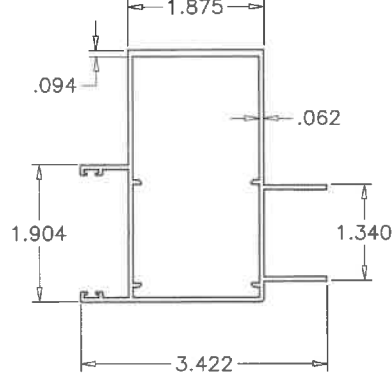
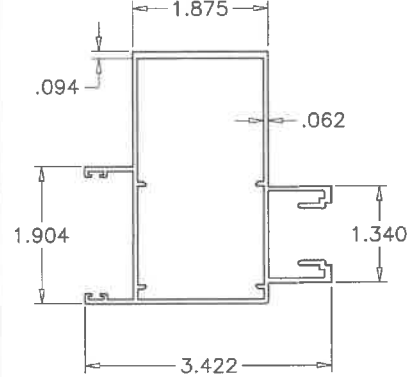
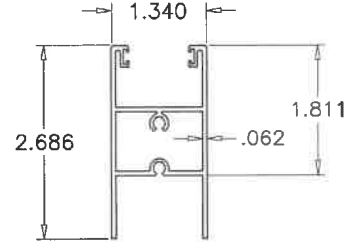
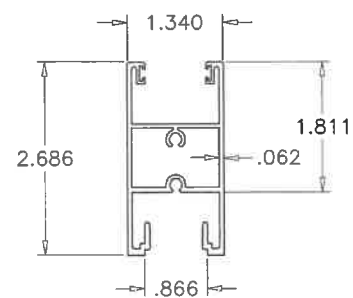
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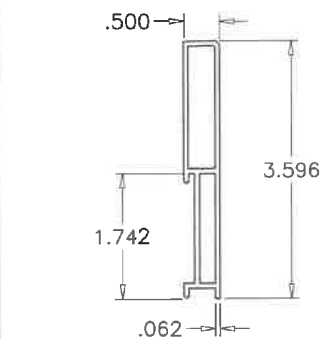
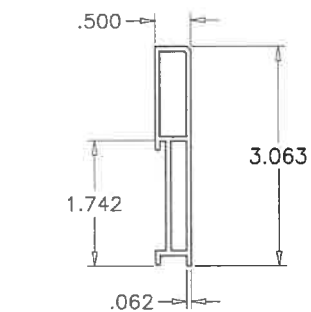
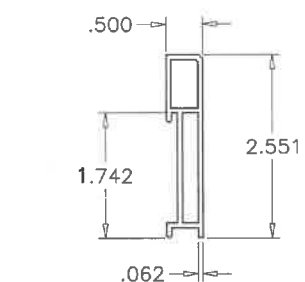
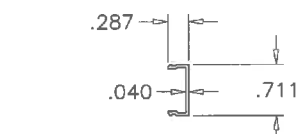
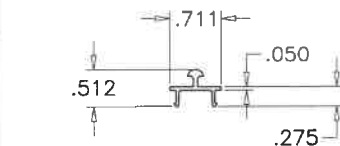
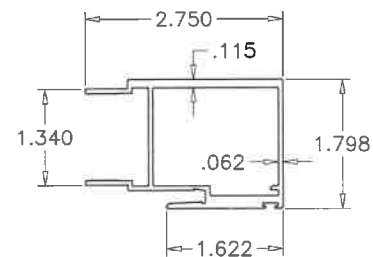
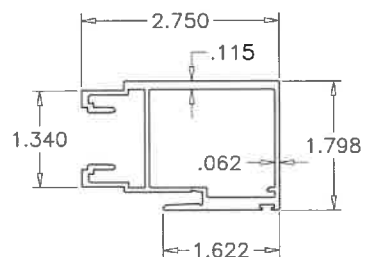
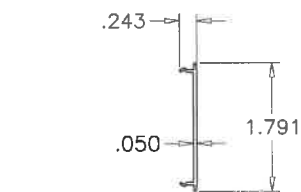
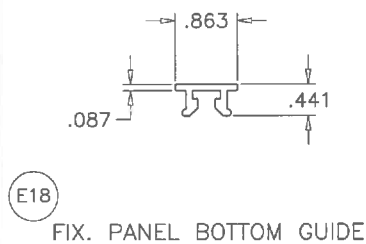
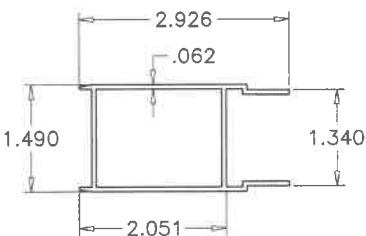
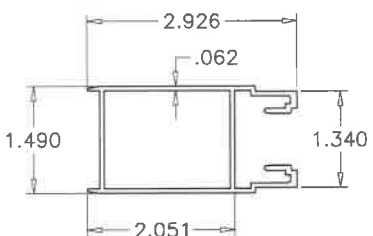
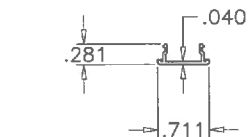
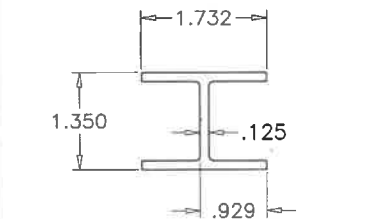
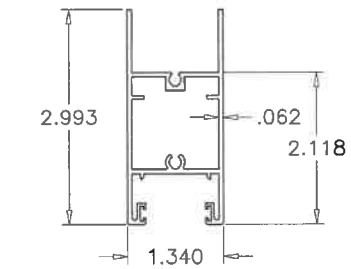
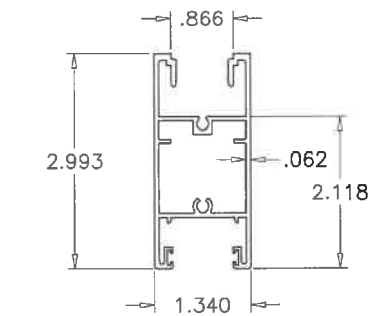
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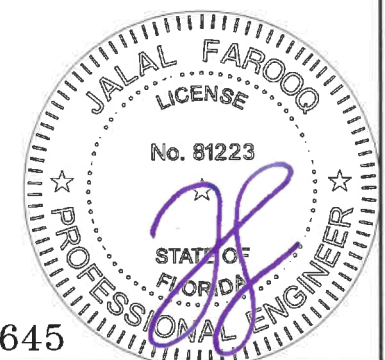


MATERIAL = SILICONE
HARDNESS = 70±3
TENSILE STRENGTH = 1139 PSI
ELONGATION AT BREAK = 235%
TEAR STRENGTH = 107 Lb/IN
BRITTLENESS TEMPERATURE = -40° F
COMPRESSION SET = 12.5% (22h@121°F)



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FL #22645

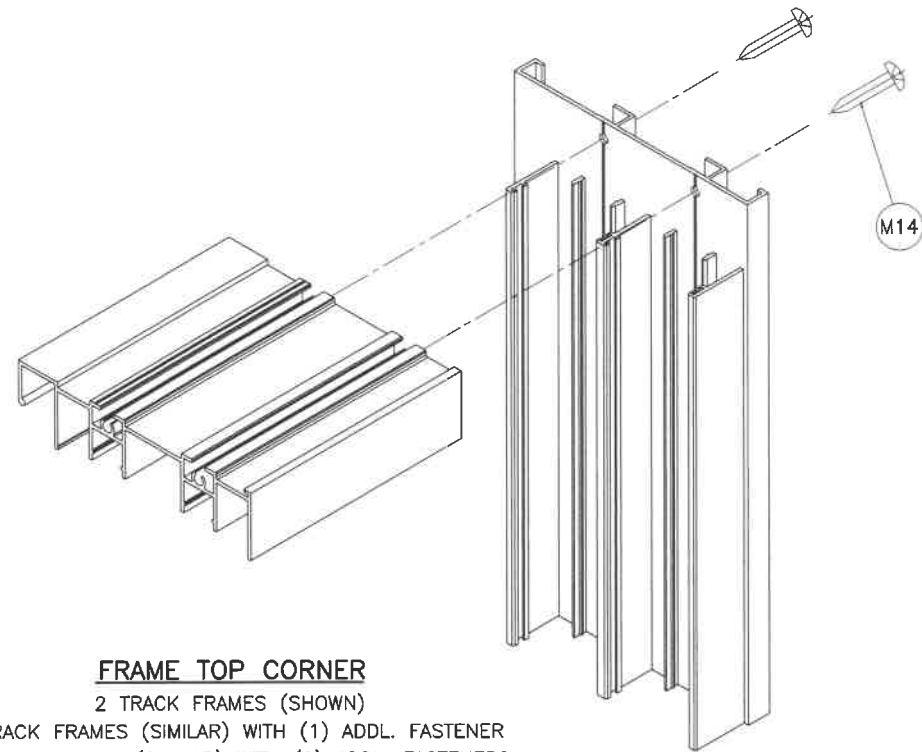


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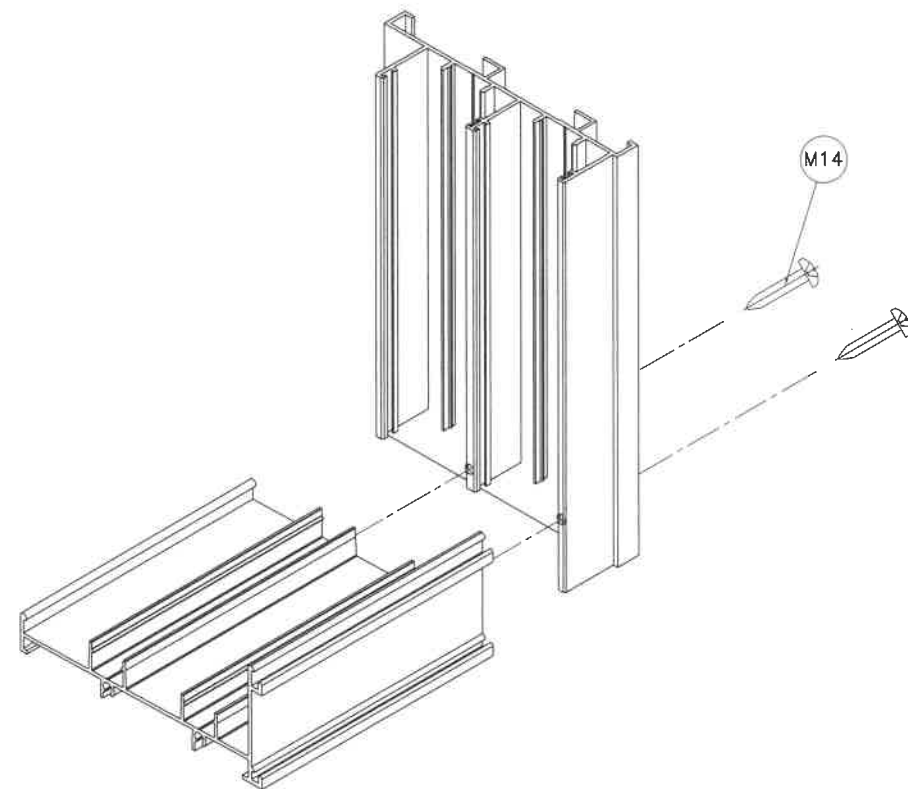
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FRAME TOP CORNER

2 TRACK FRAMES (SHOWN)

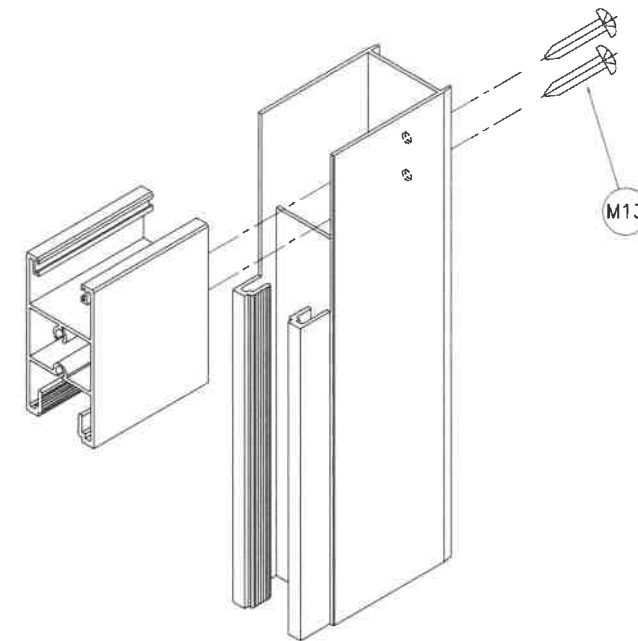
- 3 TRACK FRAMES (SIMILAR) WITH (1) ADDL. FASTENER
- 4 TRACK FRAMES (SIMILAR) WITH (2) ADDL. FASTENERS



FRAME BOTTOM CORNER

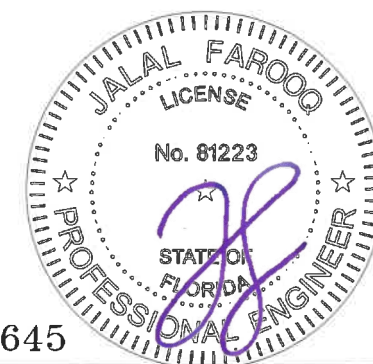
2 TRACK FRAMES (SHOWN)

- 3 TRACK FRAMES (SIMILAR) WITH (1) ADDL. FASTENER
- 4 TRACK FRAMES (SIMILAR) WITH (2) ADDL. FASTENERS



PANEL TOP/BOTTOM CORNER

- LAM. GLASS RAIL & STILE (SHOWN)
- INSUL. LAM. GLASS RAIL & STILE (SIMILAR)



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sheet 23 of 23