

DANIEL J. DELEO
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November 8, 2023

Via Email:

ATTN: MO MADANI
Florida Building Commission
Product Oversight Committee
2601 Blair Stone Road
Tallahassee, Florida 32399
Mo.madani@myfloridalicense.com

**Re: ES-SGD2020, FLORIDA PRODUCT APPROVAL NO. 22267 COMPLAINT
ES-8000T, FLORIDA PRODUCT APPROVAL NO. 17897.5 COMPLAINT**

Dear Product Oversight Committee,

Please be advised this firm represents, PGT Innovations, Incorporated (“PGTI”). Accordingly, please direct any and all correspondence regarding this matter to the undersigned herein. Further, this correspondence is intended to serve as a formal written complaint to the Florida Department of Business & Professional Regulation in regards to both the Florida Product Approval No. 22267, ES-SGD2020 (the “SGD Product”) and Florida Product Approval No. 17897.5, ES-8000T Jumbo (the “Commercial Window Wall Product”). As this Complaint is premised upon the same material fault in each of the aforementioned Florida Product Approvals, we will address each in turn.

Claim I-- Florida Product Approval 22267 (“SGD Product”):

Manufacturer, E.S. Windows, LLC (“E.S. Windows”) sought initial Florida Product Approval for the SGD Product in and around June of 2017. Since such time, the SGD Product has undergone numbered revisions, including its current revision ten (10) and identical pending revision eleven (11). **See SGD Product Approval Evaluation Report attached hereto as Exhibit “A”**. Therein, MCY Engineering, Inc. (“MCY”) by and through its Florida Professional Engineer, Ms. Yiping Wang, claims the SGD Product was tested and satisfied TAS 201 and 203. *See id.*

Concurrently therewith, E.S. Windows provided Product Installation Instructions. **See ES-SGD2020 Installation Instructions attached hereto as Exhibit “B”**. The Installation Instructions included a chart outlining the design load capacity of its SGD Product (the “SGD Design Load Capacity Chart”). *See id.* at p. 14. Specifically, the SGD Design Load Capacity Chart outlines the SGD Product’s alleged design pressure capacity per square feet of panel area. *See id.*

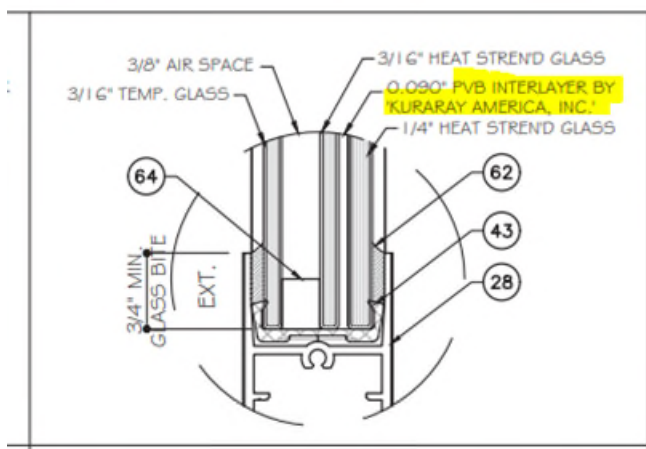
It also includes further specification as to the interlayer utilized within its SGD Product and the glazing type; i.e. wet glazed and dry glazed systems. *See id.* Notably, the Installation Instructions depict that E.S. Windows utilizes what is known as “PVB interlayer,” manufactured by Kuraray America, Inc. (“Kuraray”), in its SGD Product. *See id.*

According to the Installation Instructions, the PVB interlayer is used in both a wet glazed and dry glazed system. *See id.* Moreover, E.S. Windows advertises that its SGD Product, when utilizing the Kuraray PVB interlayer, can achieve a design load pressure of up to 150 psf. Such an assertion, however, is directly contrary to known industry standards and the interlayer manufacturer’s own specifications and limitations. Therefore, for the reasons detailed herein, it is believed, E.S. Windows has failed to properly certify its SGD Product and may have misrepresented its SGD Product’s performance capabilities to both the Commission and the public. Importantly, not only do the most recent revisions of the SGD Product greatly increase the design pressures offered but it is clear E.S. Windows is still actively offering past dated product revisions for sale on the market—one of which PGTI was able to purchase as recently as October of 2023.

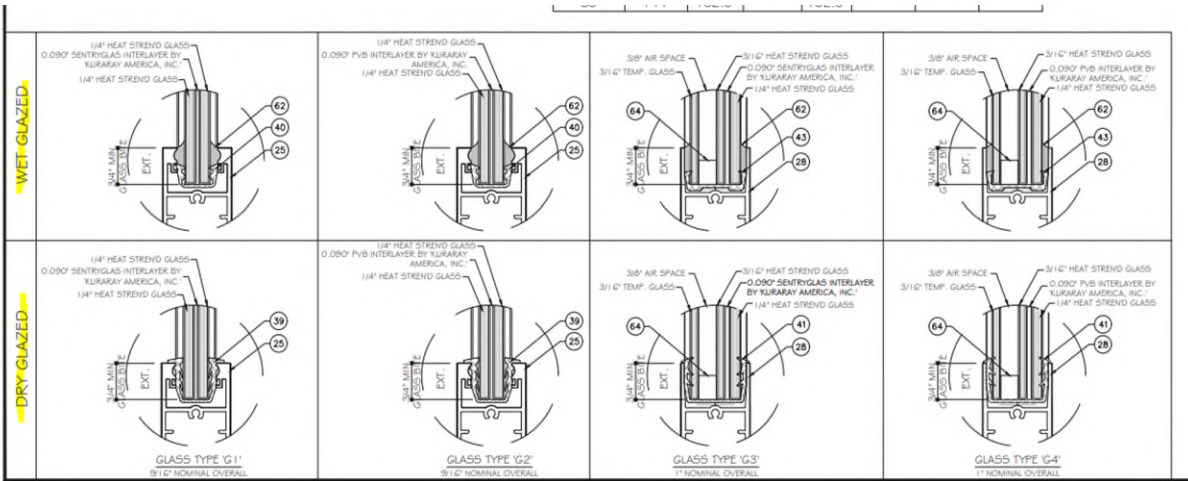
Accordingly, PGTI, for the continued safety of the public, firmly suggests the Product Approval Committee (1) initiate an investigation into Florida Product Approval No. 22267, (2) revoke such product approval and pending product approval until such time as it is determined the Product ***actually*** complies with the Florida Building Code, (3) issue a recall of all units installed since initial approval in 2017, and (4) commence an examination of the Florida Product Approval’s quality control and oversight processes.

i. The SGD Product cannot and does not achieve performance, as alleged by E.S. Windows

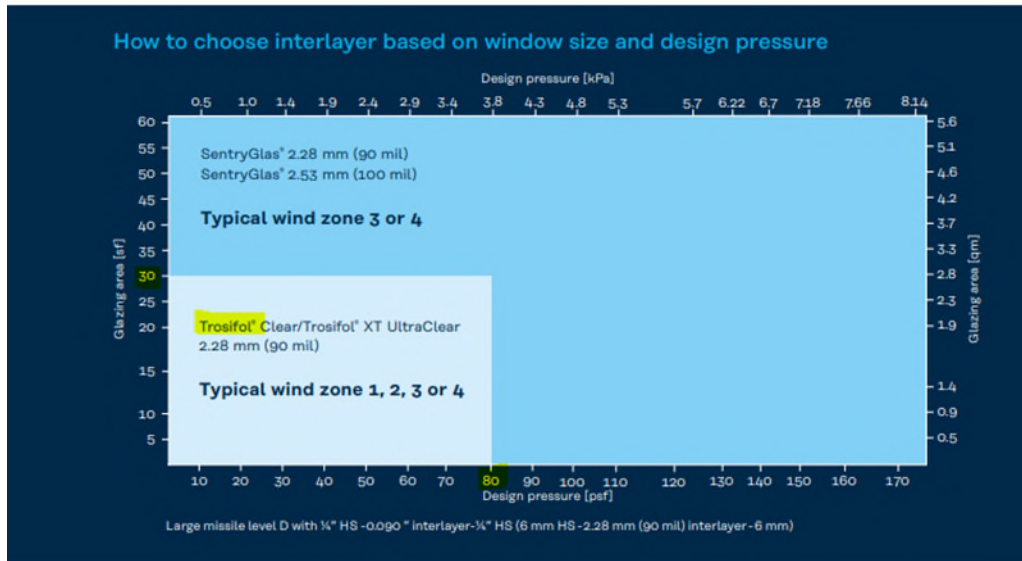
E.S. Windows denotes that its SGD Product uses Kuraray manufactured PVB interlayer.



Moreover, as described above, the same is used in both a wet and dry glazed system.



Therefore, in evaluating the SGD Product’s true limitations, one can and *should* seek guidance from the PVB interlayer manufacturer—Kuraray. Kuraray publishes product brochures on its website in an effort to inform purchasers of the proper design system for their needs. Accordingly, Kuraray publishes a product brochure on its hurricane glazing products, including its PVB interlayer. **A true and correct copy of the Kuraray Hurricane Glazing Brochure is attached hereto as Exhibit “C”.** Therein, Kuraray uses the term “Trosifol” and PVB interchangeably. *See* Exh. C. p. 8. Thus, when looking at the Kuraray chart on “[h]ow to choose interlayer based on window size and design pressure” one can understand that Kuraray imparts a limitation of roughly thirty (30) square feet and eighty (80) psf on its PVB interlayer, in a wet glazed system.¹



¹ While some manufacturers have been able to achieve a slightly larger maximum square footage, i.e. up to forty (40) square feet in a wet glazed system, when limiting the overall short dimension of the system, as discussed more thoroughly *infra*, no other manufacturer on the market offers PVB interlayer systems at the sizes and design pressures marketed by E.S. Windows.

See Exh. C. at p. 8. In fact, Kuraray explicitly states the “maximum design pressure for PVB is 3.83 Kpa (80 psf).” See *id.* at p. 9. Moreover, Kuraray goes further to state PVB interlayers **cannot** be used in dry glazed systems and provides calculations of PVB interlayers in wet glazed systems only. See *id.* Kuraray does not recommend nor provide PVB interlayer as an option, whatsoever, in any size or any design pressure for use in a dry glazed application. See *id.*

Notwithstanding the interlayer manufacturer’s own limitations imparted on its product, E.S. Windows brazenly claims its SGD Product achieves industry leading sizes and design pressures with a PVB interlayer in not only a wet glazed system but also dry glazed applications. See Exh. B. The same, is virtually impossible.

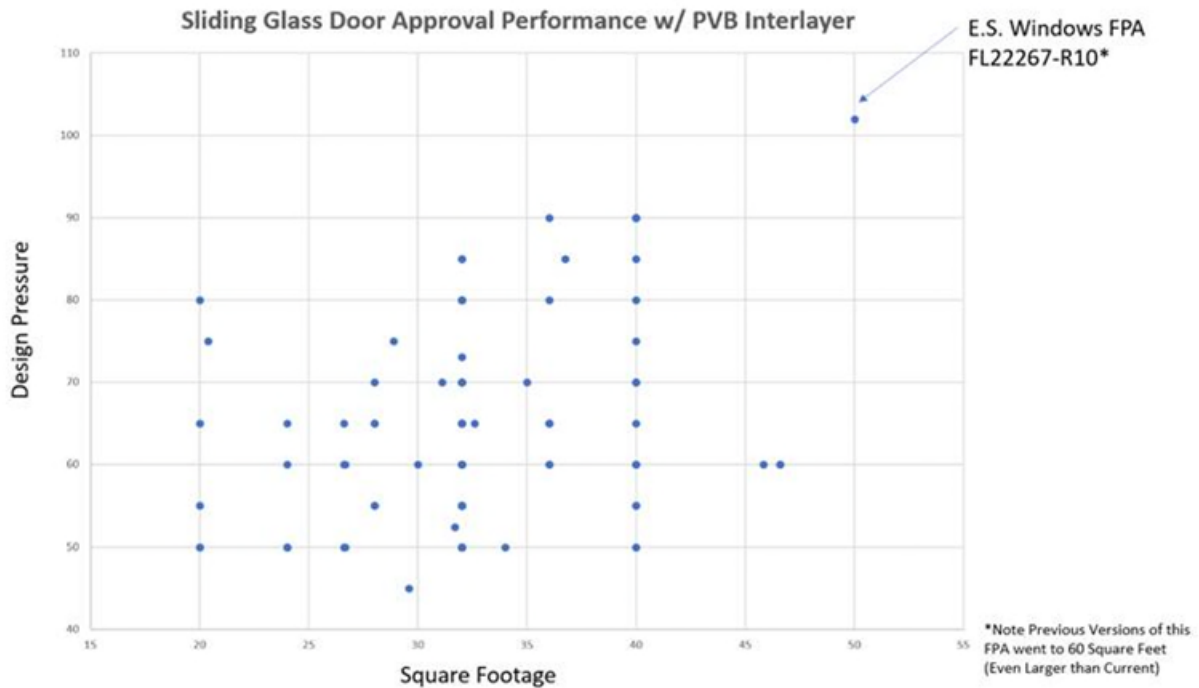
This conclusion, however, is derived not only from the very guidance of the PVB interlayer manufacturer itself, but also known industry standards. An analysis of 100 Florida Product Approvals reveals that manufacturers align closely with Kuraray’s design guidelines and pressure capacities. The SGD Product at issue, however, is a notable outlier in comparison to every other Florida Product Approval reviewed. E.S. Windows advertises its SGD Product as surpassing all other Florida manufacturers in not only a wet glazed PVB interlayer system, but also in a dry glazed PVB interlayer system. Importantly, **no other Florida manufacturer** approves comparable dry glazed PVB interlayer systems—such as the SGD Product at issue.

See the below summary table of Kuraray’s design guidelines with that of other Florida manufacturers and E.S. Windows.

.090 PVB FOR LARGE MISSILE IMPACT (Missile Level D)

| Kuraray Design Guidance <small>(World's leading PVB Manufacturer and the PVB used in the E.S. Product)</small> | Sampling of 100 Florida Approvals | ES FPA22267 |
|---|--|---|
| ✓ Wet Glazed MAX Design Pressure 80 PSF | ✓ Other Manufacturers are near design guidance | ✗ E.S. offering up to 102 PSF |
| ✓ Wet Glazed Max Short Dimension 48 Inches | ✓ Other Manufacturers are near design guidance | ✗ E.S. offers up to 72" Max Short Dimension |
| ✓ Wet Glazed Max 40 Square Feet | ✓ Other Manufacturers are near design guidance | ✗ E.S. offers up to 60 Square feet |
| ✓ Dry Glazed Not Available in PVB at ANY SIZE or Pressure (Must use SGP) | ✓ NO Other Manufacturers offering Dry Glazed PVB | ✗ E.S. is offering all of the above in Dry Glazed and Wet Glazing on occasion (neither will meet performance claim) |

Moreover, the below analysis of E.S. Windows latest revision of the SGD Product when compared to 100 other Florida manufacturers reveals the discrepancies between its claimed product performance and that of every other Florida manufacturer in similar circumstances.



E.S. Windows does not purport to have cutting-edge or proprietary design systems which overcome such limitations. However, at the same time, E.S. Windows alleges to achieve greater PVB interlayer system performance than **any other comparable system on the market.**

In consideration of the same, PGTI, through a third party dealer, ordered the very SGD Product in question at sizes and design pressures exceeding the interlayer manufacturer's guidance and industry standards. Thereafter, PGTI conducted tests designed to measure the veracity of E.S. Windows' alleged SGD Product performance. In each instance, the SGD Product did not perform at the level claimed by E.S. Windows and, in fact, suffered a sudden and catastrophic total failure of the system.

Specifically, PGTI tested three (3) separate systems of FPA 22267 through independent testing. Below is a summary of the results of each test.

Dry glazed 57x102, 2 panel SGD, PVB interlayer, level 1 reinforcement

- Units failed during the fifth sequence of TAS 203 testing, as the dry glazed gasket was unable to hold the flexible PVB interlayer within the system's panel.
- Notably this is the smallest qualified option and lowest design pressure in the pressure charts on FPA 22267 and would have had the best chance for success.

Dry glazed 57x102, 2 panel SGD, PVB interlayer, level 2 reinforcement

- Units failed during the sixth sequence of TAS 203 testing, as the dry glazed gasket was unable to hold the flexible PVB interlayer within the system's panel.

Wet glazed 142x120, 2 panel SGD, PVB interlayer level 3 reinforcement

- Unit failed very early in the first sequence of an eight sequence test.
- The inherent physical properties of PVB allow far too much stretch and/or ballooning during cycling at these sizes.

Each of the above tests were witnessed by Florida professional engineers with over thirty (30) years' experience in fenestration testing. Importantly, such results are not isolated incidents, but rather the result of a systemic overstatement of performance capability that simply does not and cannot perform as represented.

It is the belief of certified and experienced independent Florida professional engineers that the SGD Product systems above would fail 100% of the time, regardless of the number of samples tested, for two specific reasons:

- (1) Dry glazed PVB systems fail in any large missile TAS 201/203 application, as the interlayer manufacturers and industry experts would all agree.
- (2) Not only do PVB systems with wet glazing not perform at the sizes and pressures claimed on the E.S. Windows' Product Approval, but also, only a fraction of this Product even receive wet glazing (generally the largest sizes) as the product approval is devoid of any such requirement to utilize wet glazing at any size or design pressure.

Consequently, PGTI is concerned that not only may E.S. Windows be misrepresenting its SGD Product's design capacity and capability under these circumstances to its consumers, but the product also poses an inherent safety risk to Florida citizens. The same requires an urgent response from the Commission.

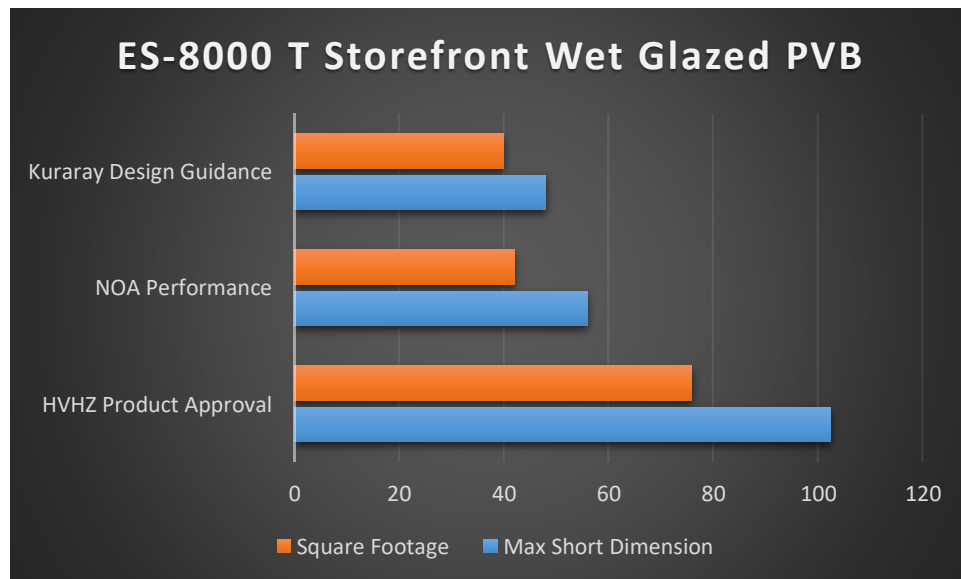
Claim II-- Florida Product Approval 17897.5 ("Commercial Window Wall Product"):

Similarly, E.S. Windows maintains a Miami-Dade Notice of Acceptance, 20-118.02, and Florida Product Approval, 17897.5, for its ES-8000T Jumbo Aluminum Window Wall System, (the "Commercial Window Wall Product"). **See Commercial Window Wall Product Approval Evaluation Report attached hereto as Exhibit "D"**. Therein, Al-Farooq Corporation by and through its Florida Professional Engineer, Mr. Jalal Farooq, claims the Commercial Window Wall Product was tested in accordance with ASTM and satisfied various TAS standards. *See id.*

Concurrently therewith, E.S. Windows provided Product Installation Instructions. **See ES-8000T Installation Instructions attached hereto as Exhibit "E"**. The Installation Instructions included a chart outlining the design load capacity of its Commercial Window Wall Product Glass (the "Commercial Window Wall Product Glass Load Capacity Chart"). *See id.* at p. 2. Specifically, the Glass Load Capacity Chart outlines the Commercial Window Wall Product's alleged glass pressure capacity per square feet of panel area. *See id.* It also includes further specification as to the interlayer utilized within its Commercial Window Wall Product and provides Glass Type 1, i.e. "GL1," ***utilizes the exact same PVB interlayer as the SGD Product.*** *See id.*

Therein, it is claimed the Commercial Window Wall Product can perform up to 76 square feet, which equates to nearly 90% above Kuraray’s PVB performance guidance. It also maintains a maximum short dimension of 102.5 inches, approximately 113% above guided levels. When evaluating the claimed performance capabilities of the Commercial Window Wall Product against other Florida manufacturers, much like the SGD Product, it is clear that such capabilities are vastly overstated.

Notably, the prior versions of the very same Commercial Window Wall Product were well within the limits of industry recognized performance capabilities. Since such time, however, and without any justification, the same product now performs outside the realm of known industry limits. There are no discernible design features in the Commercial Window Wall Product, such as section modulus, glass bite, structural silicone, or glass makeup, that would account for such an extraordinary performance capability when compared to other industry-standard large missile PVB wet glazed window wall systems. The below graph demonstrates such discrepancies.



Moreover, as discussed more thoroughly *supra*, Kuraray PVB interlayers simply cannot perform at the size and pressures claimed by E.S. Windows. Therefore, for the reasons detailed herein, it is believed, E.S. Windows has failed to properly certify its Commercial Window Wall Product and may have misrepresented its Commercial Window Wall Product’s performance capabilities to both the Commission and the public. Accordingly, PGTI, for the continued safety of the public, firmly suggests the Product Approval Committee (1) initiate an investigation into Florida Product Approval No. 17897.5, (2) revoke such product approval until such time as it is determined the Product ***actually*** complies with the Florida Building Code, (3) issue a recall of all units installed since initial approval in 2021 and (4) commence an examination of the Florida Product Approval’s quality control and oversight processes.

ii. Florida Building Commission has the authority to initiate an investigation.

Chapter 61G20-3.014 of the Florida Building Code, entitled *Investigations*, states the Commission shall institute an investigation of an otherwise approved product on several grounds, as outlined below:

(a) The Commission shall initiate an investigation of product non-compliance on the basis of a written complaint including substantial material evidence.

(b) Investigation of product deficiencies shall be conducted by the manufacturer's certification agency, evaluation entity or test laboratory and the validation entity which certified compliance with the code standards to the Commission.

(c) The manufacturer's certification agency, evaluation entity or test laboratory and the validation entity may conduct investigations independent of the Commission initiation and report findings to the Commission on which suspension or revocation action is based.

(d) Substantially affected party complaints shall be based on one or more of the provisions of Rule 61G20-3.013, F.A.C.

FBC 61G20-3.014(1)(a)-(d)(emphasis added). Additionally, the Code provides complaints from substantially affected parties shall be based upon Rule 61G20-3.013. FBC 61G20-3.014(1)(d). Chapter 61G20-3.013, titled *Revocation or Modification of Product Approvals and Entity Certifications*, provides a product approval shall be revoked or suspended under the following circumstances:

(1) Product Approval Revocation or Suspension.

(a) Any product approval shall be revoked or suspended for any of the following reasons:

1. Failure to maintain certification, evaluation reports or testing in good standing with a Commission approved entity which conducted the testing or comparative or rational analysis, or combination thereof on which the product approval is based.

2. Suspension or revocation of the certification, evaluation report or testing report issued by a Commission approved entity on which the approval is based, for just cause.

3. Failure to maintain quality assurance programs for the manufacture of the approved products as required by this document.

4. Failure to correct manufacturing deficiencies required to bring the product within specifications of the originally approved product or alternatively to demonstrate in a manner consistent with this document, that the product's performance complies with the standards established by the Code.

5. Advertising and sales of the product for uses not consistent with conditions or limitations of its approval.

6. Determination that the product was approved based on misrepresentations in the application for approval.

7. Failure of the manufacturer to cooperate with a Commission ordered investigation.

FBC 61G20-3.013(1)(a)(emphasis added). Specifically, a product approval *shall* be revoked upon substantial competent evidence that the “product was approved based on misrepresentations in the application for approval.” *See id.*

Because it is plainly improbable, if not impossible, that the E.S. Windows Products as outlined herein perform as alleged, and because the SGD product at issue failed in actual testing, PGTI Incorporated respectfully urges the Commission to (1) initiate an investigation based on the substantial and competent evidence provided herein, (2) revoke until further notice E.S. Windows’ subject Florida Product Approval Nos. 22267 and 17897.5, (3) institute a recall of all such products, and (4) conduct an examination of the requisite oversight processes.

In light of these findings, it is crucial to address the inaccuracies and overstatements of product performance to protect the integrity of Florida homes and the well-being of Florida residents. We urge the responsible entities to take swift and decisive action.

Should you have any questions regarding the foregoing or need any further documentation, please feel free to contact my office. Thank you in advance for your prompt attention to this matter.

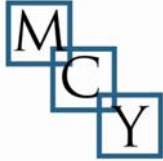
Very truly yours,

A handwritten signature in black ink, appearing to read "Daniel J. DeLeo", with a long horizontal flourish extending to the right.

Daniel J. DeLeo, Esq.

DJD/rkp

Enclosures



MCY ENGINEERING, INC.
GLAZING CONSULTANT

12781 Miramar Pkwy. Ste. 301
Miramar, FL. 33027
P: 305 271-0117

PRODUCT APPROVAL EVALUATION REPORT

| | |
|---|---|
| <p><u>Product Manufacturer:</u> E.S. WINDOWS, Inc. 10653 NE Quaybridge Ct. Miami, FL 33138</p> | <p><u>Product Name/Model & Description:</u> Series SGD 2020 SLIDING GLASS DOOR (L.M.I. & S.M.I.) (HVHZ) Sliding Glass Door – large & small missile impact</p> |
|---|---|

Scope: This product has been evaluated by the below-signed Florida Professional Engineer for compliance with the Code noted herein and is, for the purpose intended, at least equivalent to that required by the Code, in accordance with section 553.842 F.S. & chapter 61G20-3.005 F.A.C. Re-evaluation of this product shall be required following applicable Code modifications or revisions.

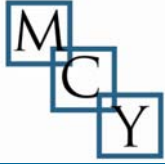
Code: 7th Edition Florida Building Code (2020), inclusive of all Supplements effective as of this report date.

Compliance Method: 61G20-3.005 (1)(d) – Evaluation Report from a licensed Professional Engineer

Product Description: Product Approval **Drawing #AD16-29**, prepared by MCY Engineering, signed and sealed by Yiping Wang, P.E., is an integral part of this Evaluation Report.

Limitations & Conditions of Use:

- This product has been evaluated for use **inside and outside of the HVHZ** (High Velocity Hurricane Zone)
- Impact Resistance: **Large and Small Missile Impact**
- Refer to Product Approval Drawing noted above for:
 - Maximum allowable wind loads at related maximum allowable size(s).
 - Other load limitations applicable to the product, if any.
 - Overall dimensions and material/grade of main product components, accessories, etc.
 - Illustrated diagrams of the attachment of the product to the structure.
 - Anchor type(s), size(s), substrate(s), embedment, edge distance, and spacing/locations.



Test Reports:

Mandatory Tests (Tested in accordance with AAMA 501)

| Test Lab | Report Number | Test Report Date | Test Standard & Description |
|--|--|-------------------------|--|
| Blackwater Testing, Inc. -West Palm Beach, FL | <i>BT-ESW-18-002, signed and sealed by Constantin Bortes, P.E.</i> | 05/17/2018 | TAS 201-94 (large missile impact) TAS 202-94 (uniform static test) TAS 203-94 (cyclic wind pressure loading) ASTM E283-04 (air infiltration test) ASTM E331-00 (water infiltration test) AAMA 1304-02 (forced entry test) |
| Fenestration Testing Laboratory FL33166 | <i>FTL-12390 signed and sealed by Marlin Binson, PE</i> | 12/17/2020 | TAS 201-94 (large missile impact) TAS 202-94 (uniform static test) TAS 203-94 (cyclic wind pressure loading) ASTM E283 (Air Infiltration) ASTM E331 (Water Resistance Test) ASTM F842 (Force Entry) |

Engineering Analysis: The following engineering analyses and/or calculations have been performed:

- No comparative analysis has been performed for conditions other than those tested.
- No rational analysis has been performed.
- Anchor calculations are based on manufacturer's published anchor capacity, anchor Notice of Acceptance by Miami Dade County.

ES WINDOWS, INC.

SERIES SGD 2020 SLIDING GLASS DOOR LARGE AND SMALL MISSILE IMPACT

**EXHIBIT
B**

MCY ENGINEERING, INC.
GLAZING CONSULTANTS
12781 MIRAMAR PARKWAY #301
MIRAMAR, FL 33027 P: 305.271.0117
www.MCYEngineering.com mcy@mcyengineering.com

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

LAMINATED GLASS AND INSULATED-LAMINATED GLASS LARGE AND SMALL MISSILE IMPACT.

SERIES SGD 2020 SLIDING GLASS DOOR

APPLICABLE EGRESS REQUIREMENTS PER FBC TO BE REVIEWED BY BUILDING OFFICIAL.

THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE 6TH EDITION (2017) / 7TH EDITION (2020) INCLUDING HIGH VELOCITY HURRICANE ZONE (HVHZ).

THESE DOORS 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 6TH EDITION (2017) / 7TH EDITION (2020) SECTION AS APPLICABLE.

METAL STRUCTURES NOT BY NR ARCHITECTURAL PRODUCTS, INC. TO BE DESIGNED TO SUPPORT THE LOADS IMPOSED BY THIS GLAZING SYSTEM AND TO TRANSFER SUCH LOADS TO THE BUILDING MAIN STRUCTURE.

ULTIMATE LOAD OBTAINED FROM ASCE 7, MULTIPLY BY 0.6 SHALL BE LESS THAN OR EQUAL TO MAX. DESIGN LOAD IN THIS DOCUMENT. THE DESIGN LOADS SHOWN IN THIS DOCUMENT ARE ALLOWABLE DESIGN LOADS.

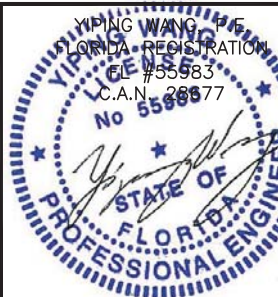
INSTRUCTIONS:

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** SEE ALLOWABLE CONFIGURATIONS ON SHEETS EG THROUGH E I 2. SEE CHARTS ON SHEET G I FOR ALLOWABLE DESIGN LOAD BASED ON DESIRED GLASS TYPE. SEE CHARTS ON SHEET K I FOR INTERLOCK DESIGN LOAD.
- STEP 3** FOR FREESTANDING JAMB USED AT 2 TRACK OR 3 TRACK, SEE CHARTS ON SHEET J I AND J2 FOR REINFORCING LEVEL AND CAPACITIES.
- STEP 4** FOR ANCHORED JAMB, SEE OPTIONS AND SPACING ON SHEETS J3 AND J4.
- STEP 5** USING CHARTS ON SHEET A I SELECT ANCHOR OPTION WITH DESIGN RATING MORE THAN DESIGN LOAD SPECIFIED IN STEP 1 ABOVE.
- STEP 6** THE LOWEST VALUE RESULTING FROM STEPS 2 THRU 5 SHALL APPLY TO ENTIRE SYSTEM.

FL #22267

| 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. | | | | |



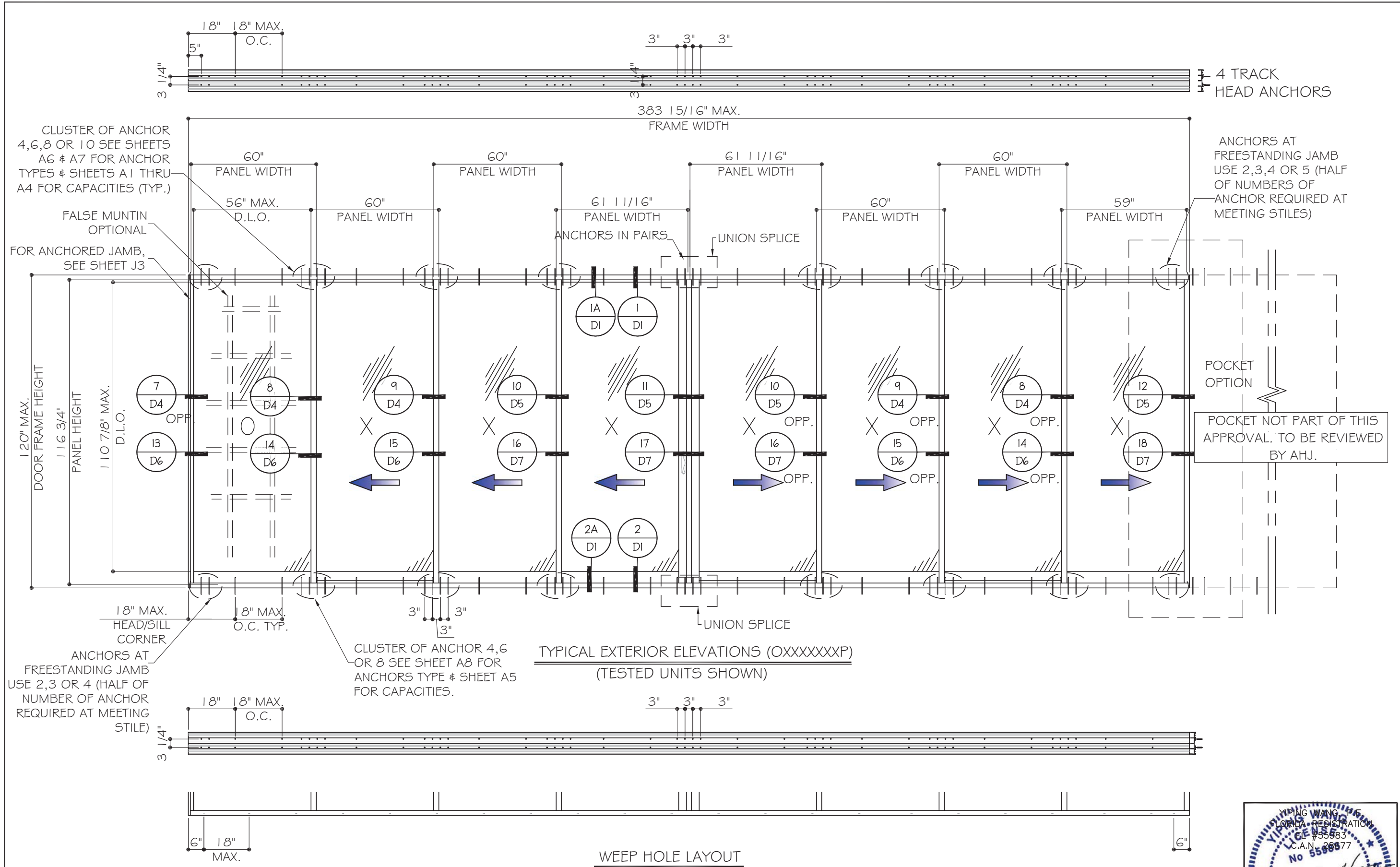
YING WANG
FLORIDA REGISTRATION
#55583
C.A.N. 28677
June 28th, 2023

ES-SGD2020 SLIDING GLASS DOOR (LMI & SMI)

ES WINDOWS, INC.
10653 NE Quaybridge Ct.
Miami, FL 33138
TEL. (305) 624-7775

| Rev. No. | Date | Drawn By | Description |
|----------|------------|----------|--------------------|
| 2 | 10-16-2019 | MCY | |
| 3 | 07-14-2020 | MCY | UPDATE TO FBC 2020 |
| 4 | 12-29-2020 | MCY | UPDATE |
| 5 | 04-06-2021 | MCY | UPDATE |
| 6 | 10-11-2021 | MCY | UPDATE |

| | |
|-------------------------------|-------------------|
| Drawn Date 10.11.2021 | Scale AS SHOWN |
| DRAWING NO. AD16-29 | |
| COVER | |
| Sheet No. 01 OF 59 | |



NOMINAL PANEL WIDTH = FRAME WIDTH / NO. OF PANEL
 PANEL HEIGHT = FRAME HEIGHT - 2.625"
 D.L.O. HEIGHT = DOOR FRAME HEIGHT - 9.125"
 D.L.O. WIDTH = NOMINAL PANEL WIDTH - 4"

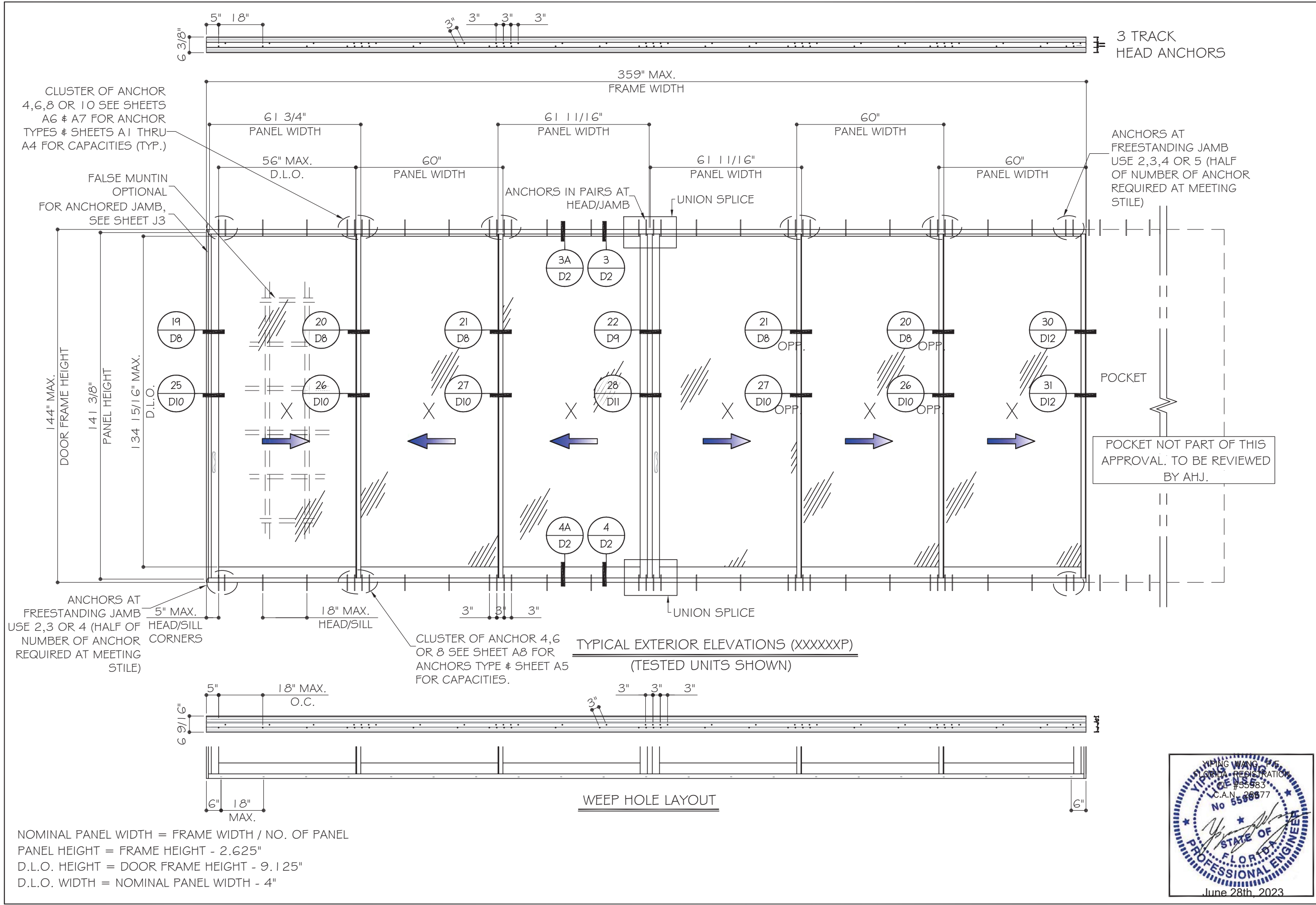


MCY ENGINEERING, INC.
 GLAZING CONSULTANTS
 12781 MIRAMAR PARKWAY #301
 MIRAMAR, FL 33027 P: 305.271.0117
 www.MCYEngineering.com mcy@mcyengineering.com

ES-SGD2020 SLIDING GLASS DOOR (LMI & SMI)
ES WINDOWS, INC.
 10653 NE Quaybridge Ct.
 Miami, FL 33138
 TEL. (305) 624-7775

| Rev. No. | Date | Drawn By | Description |
|----------|------------|----------|--------------------|
| 1 | 10-16-2019 | MCY | UPDATE |
| 2 | 07-14-2020 | MCY | UPDATE TO FRC 2020 |
| 3 | 12-29-2020 | MCY | UPDATE |
| 4 | 04-06-2021 | MCY | UPDATE |
| 5 | 10-11-2021 | MCY | UPDATE |

Drawn Date: 10.11.2021
 Scale:
 DRAWING NO. AD16-29
 E1
 Sheet No. 02 OF 59



CLUSTER OF ANCHOR 4,6,8 OR 10 SEE SHEETS AG & A7 FOR ANCHOR TYPES & SHEETS A1 THRU A4 FOR CAPACITIES (TYP.)

FALSE MUNTIN OPTIONAL FOR ANCHORED JAMB, SEE SHEET J3

3 TRACK HEAD ANCHORS
 ANCHORS AT FREESTANDING JAMB USE 2,3,4 OR 5 (HALF OF NUMBER OF ANCHOR REQUIRED AT MEETING STILE)

ANCHORS AT FREESTANDING JAMB USE 2,3 OR 4 (HALF OF NUMBER OF ANCHOR REQUIRED AT MEETING STILE)

CLUSTER OF ANCHOR 4,6 OR 8 SEE SHEET A8 FOR ANCHOR TYPE & SHEET A5 FOR CAPACITIES.

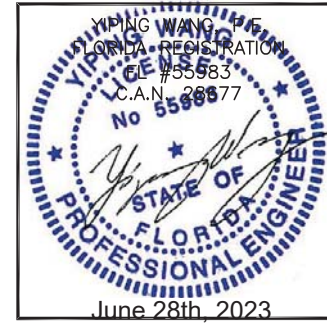
POCKET NOT PART OF THIS APPROVAL. TO BE REVIEWED BY AHJ.

NOMINAL PANEL WIDTH = FRAME WIDTH / NO. OF PANEL
 PANEL HEIGHT = FRAME HEIGHT - 2.625"
 D.L.O. HEIGHT = DOOR FRAME HEIGHT - 9.125"
 D.L.O. WIDTH = NOMINAL PANEL WIDTH - 4"

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 www.MCYEngineering.com mcy@mcyengineering.com

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 10653 NE Quaybridge Ct.
 Miami, FL 33138
 TEL. (305) 624-7775

| Rev. No. | Date | Drawn By | Description |
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| 1 | 10-16-2019 | MCY | UPDATE TO FRC 2020 |
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| 4 | 04-06-2021 | MCY | UPDATE |
| 5 | 10-11-2021 | MCY | UPDATE |



| | |
|-------------|-------|
| Drawn Date | Scale |
| 10.11.2021 | |
| DRAWING NO. | |
| AD16-29 | |
| Sheet No. | |
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| Rev. No. | Date | Drawn By | Description |
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| 1 | 10-16-2019 | MCY | UPDATE TO FRC 2020 |
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| 4 | 04-06-2021 | MCY | UPDATE |
| 5 | 10-11-2021 | MCY | UPDATE |

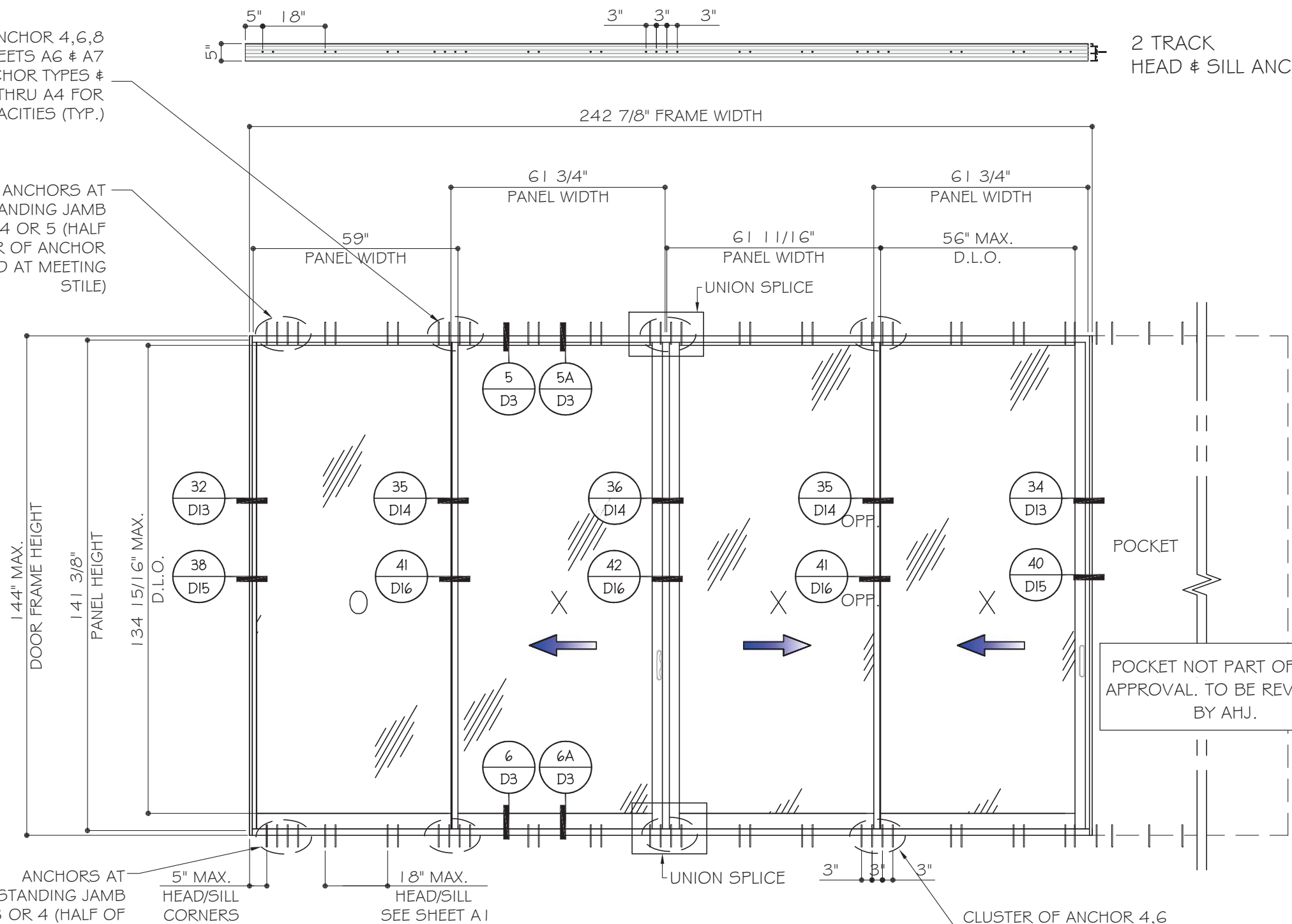
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|-------------|-------|
| Drawn Date | Scale |
| 10.11.2021 | |
| DRAWING NO. | |
| AD16-29 | |
| SHEET NO. | |
| E3 | |
| Sheet No. | |
| 04 OF 59 | |

CLUSTER OF ANCHOR 4,6,8 OR 10 SEE SHEETS A6 & A7 FOR ANCHOR TYPES & SHEETS A1 THRU A4 FOR CAPACITIES (TYP.)

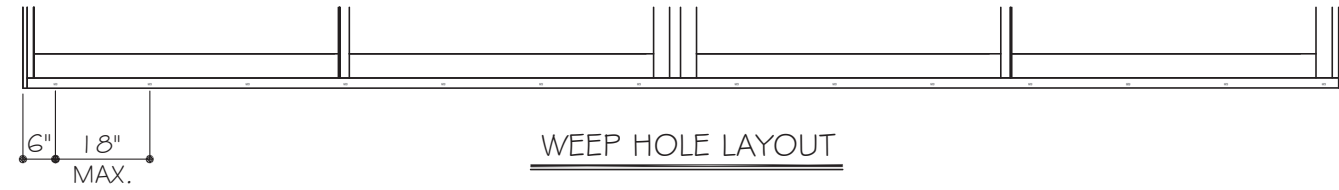
ANCHORS AT FREESTANDING JAMB USE 2,3,4 OR 5 (HALF OF NUMBER OF ANCHOR REQUIRED AT MEETING STILE)

ANCHORS AT FREESTANDING JAMB USE 2,3 OR 4 (HALF OF NUMBER OF ANCHOR REQUIRED AT MEETING STILE)

2 TRACK HEAD & SILL ANCHORS

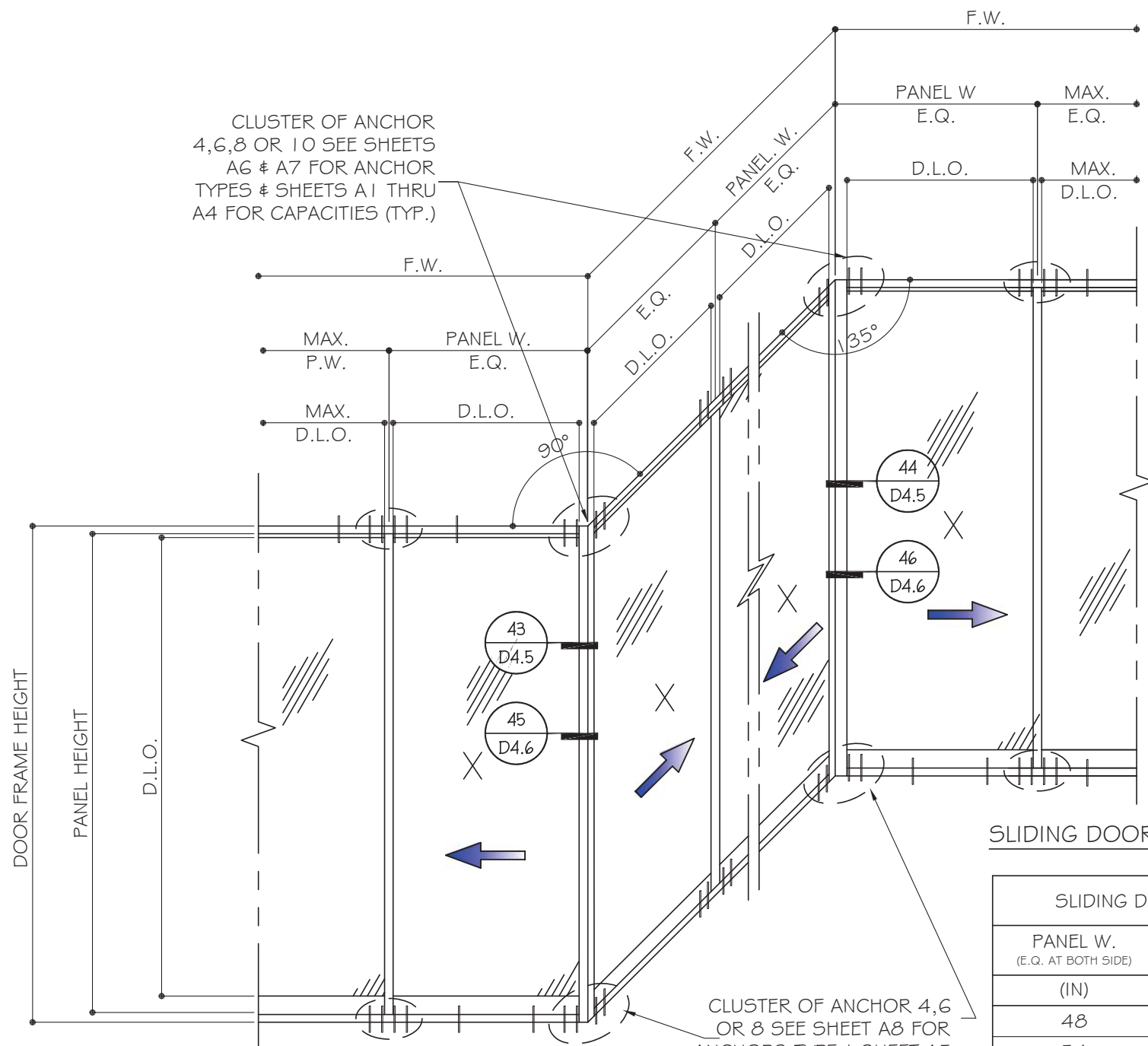


TYPICAL EXTERIOR ELEVATIONS (XXXXP)
(TESTED UNITS SHOWN)



NOMINAL PANEL WIDTH = FRAME WIDTH / NO. OF PANEL
 PANEL HEIGHT = FRAME HEIGHT - 2.625"
 D.L.O. HEIGHT = DOOR FRAME HEIGHT - 9.125"
 D.L.O. WIDTH = NOMINAL PANEL WIDTH - 4"





CLUSTER OF ANCHOR 4,6,8 OR 10 SEE SHEETS A6 & A7 FOR ANCHOR TYPES & SHEETS A1 THRU A4 FOR CAPACITIES (TYP.)

CLUSTER OF ANCHOR 4,6 OR 8 SEE SHEET A8 FOR ANCHORS TYPE & SHEET A5 FOR CAPACITIES.

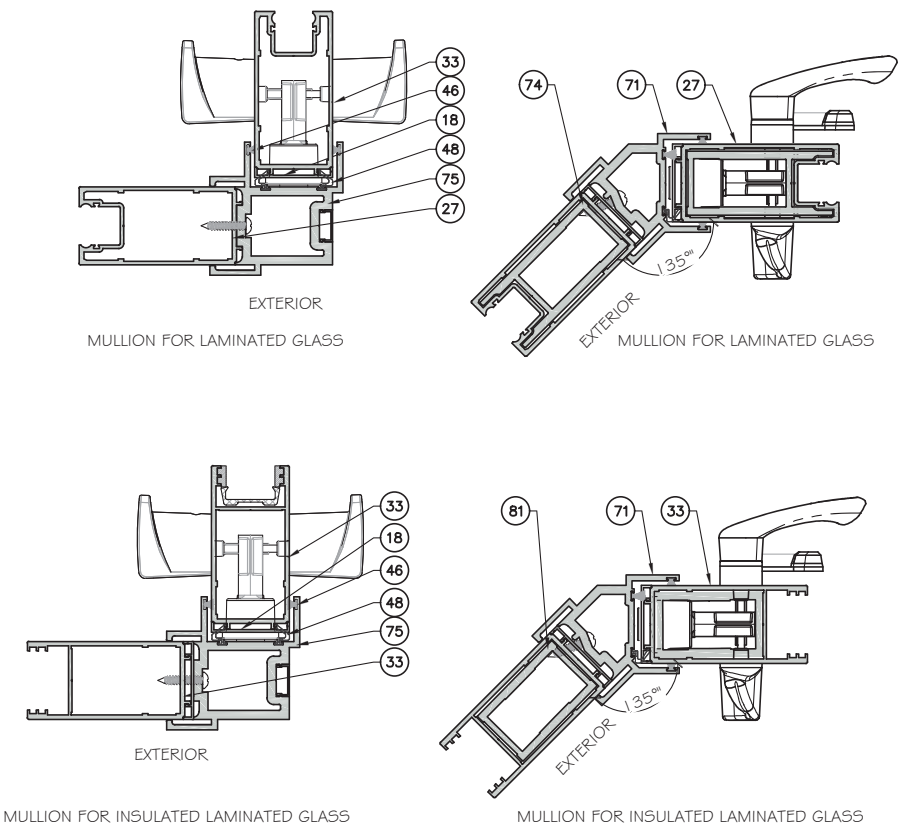
CORNER MULLIONS

NOTE: CAPACITY FOR SGD WITH EQ WIDTH(W) AND EQUAL LOAD AT BOTH SIDES. FOR UNEQUAL CONDITIONS TO BE CHECKED SEPARATELY.

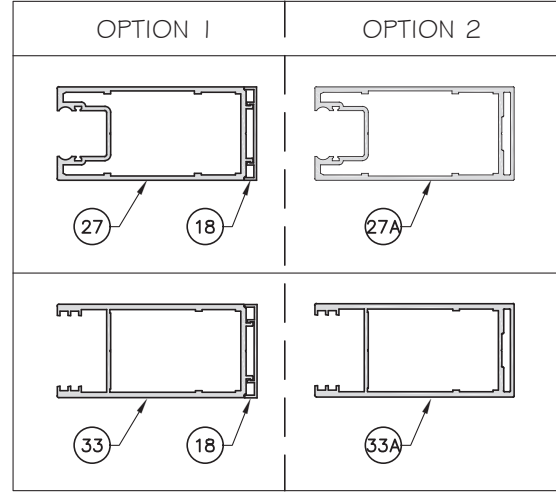
SLIDING DOOR WITH 90° & 135° TURN

| SLIDING DOOR WITH CORNER STILES | | | |
|---|--------------|--------------------|---------|
| PANEL W. (E.Q. AT BOTH SIDE) (IN) | F.H. (IN) | ALLOW. DESIGN LOAD | |
| | | (+) PSF | (-) PSF |
| 48 | 120 | 90 | 102 |
| 54 | | 88.3 | 100.1 |
| 60 | | 79.5 | 90.1 |
| 42 | 126 | 90 | 102 |
| 48 | | 85.8 | 97.3 |
| 54 | | 76.3 | 86.5 |
| 42 | 132 | 85.3 | 96.7 |
| 48 | | 74.7 | 84.6 |
| 54 | | 66.4 | 75.2 |
| 36 | 138 | 87.1 | 98.7 |
| 42 | | 74.7 | 84.6 |
| 48 | | 65.3 | 74.1 |
| 36 | 144 | 76.7 | 86.9 |
| 42 | | 65.7 | 74.5 |
| 48 | | 57.5 | 65.2 |

CORNER MULLION



LOCKSTILE OPTIONS



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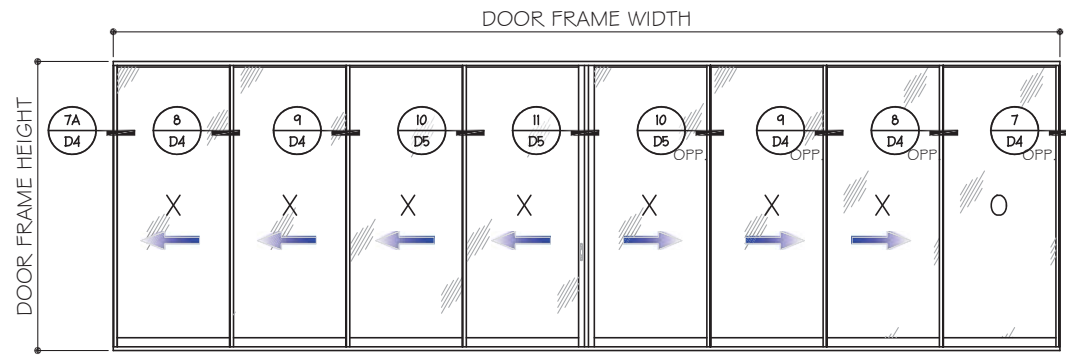
Drawn Date: 10.11.2021 Scale:

DRAWING NO. **AD16-29**

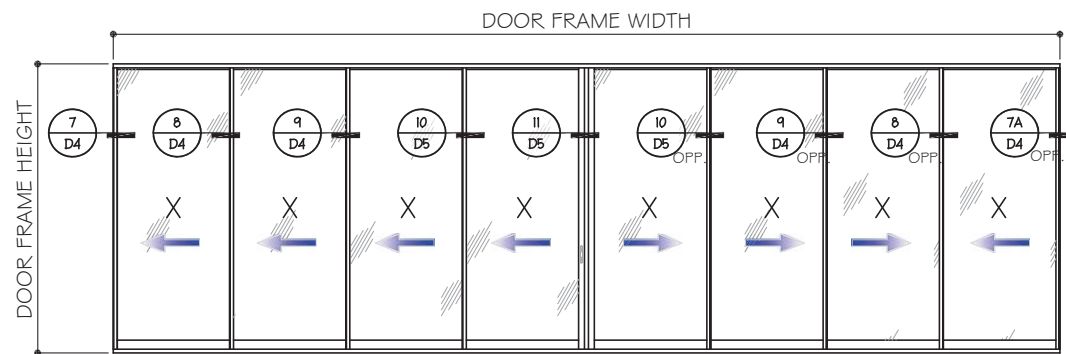
E5

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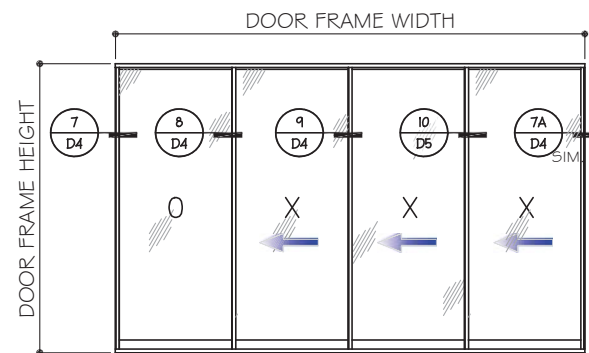
APPROVED CONFIGURATION DOORS
(NON-REINFORCED SHOWN)
SEE SHEET K1 FOR D_p AND REINFORCING OPTIONS



XXXXXXO (SHOWN)
OXXXXXX



XXXXXXX (SHOWN)
OXXXXXO



OXXX (SHOWN)
XXXO
XXXX

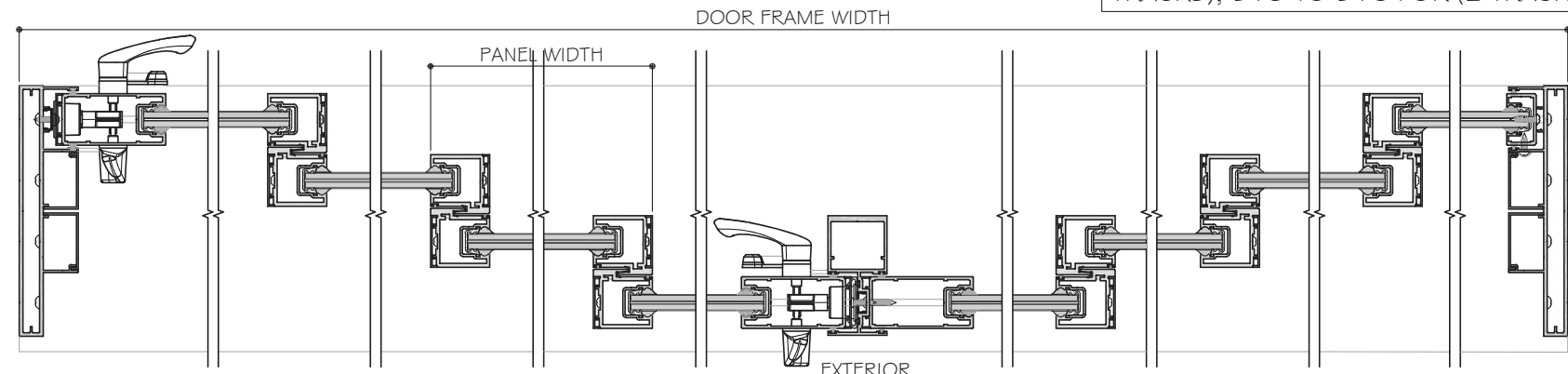
NOTES:

1. CONFIGURATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY.
2. SEE CHART ON SHEET G1 FOR GLASS CAPACITIES AND GLASS OPTIONS.
3. FOR APPLICABLE DESIGN PRESSURES SGD REINFORCING LEVEL 1, 2 OR 3, SEE SHEET K1.
4. FOR ANCHOR DETAILS AND CAPACITIES AT HEAD/SILL SEE SHEET A1 TO A8.
5. FREE STANDING JAMB SEE OPTIONS AND CAPACITIES ON SHEET J1 TO J4.
6. DOOR SHALL MEET EGRESS REQUIREMENTS AS APPLICABLE PER FBC.

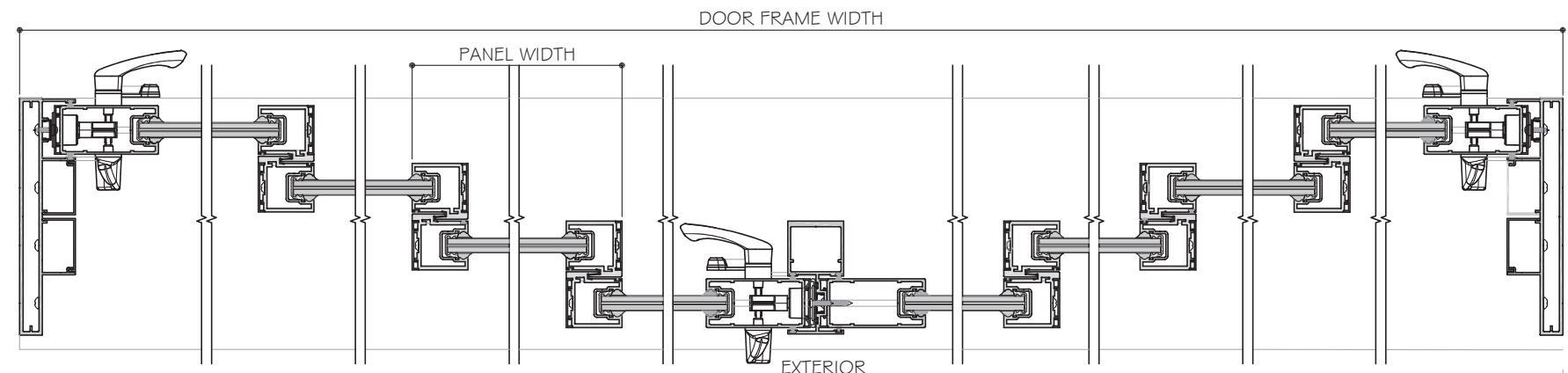
FOUR (4) TRACKS

LAMINATED GLASS OPTIONS SHOWN.
SEE DETAILS FOR INSULATED LAMINATED OPTION.

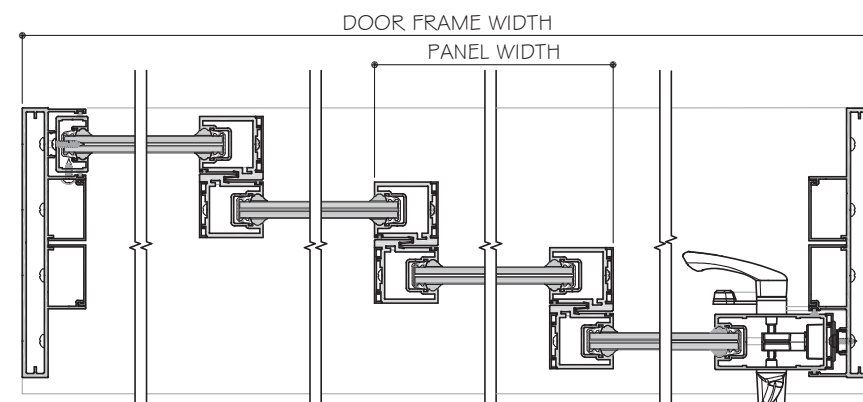
NON-REINFORCED DETAILS SHOWN.
FOR REINFORCED DETAILS, SEE SHEET D4
TO D7 FOR (4 TRACKS), D8 TO D12 FOR (3
TRACKS), D13 TO D16 FOR (2 TRACKS).



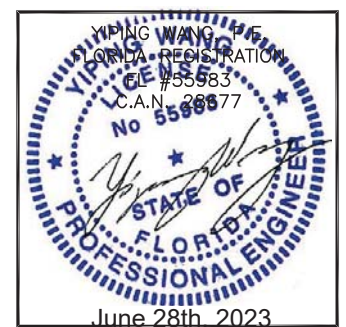
7A DETAIL D4 OPP. 8 DETAIL D4 9 DETAIL D4 10 DETAIL D5 11 DETAIL D5 10 DETAIL D5 OPP. 9 DETAIL D4 OPP. 8 DETAIL D4 OPP. 7 DETAIL D4 OPP.



7A DETAIL D4 OPP. 8 DETAIL D4 9 DETAIL D4 10 DETAIL D5 11 DETAIL D5 10 DETAIL D5 OPP. 9 DETAIL D4 OPP. 8 DETAIL D4 OPP. 7A DETAIL D4



7 DETAIL D4 8 DETAIL D4 9 DETAIL D4 10 DETAIL D5 7A DETAIL D4 SIM.



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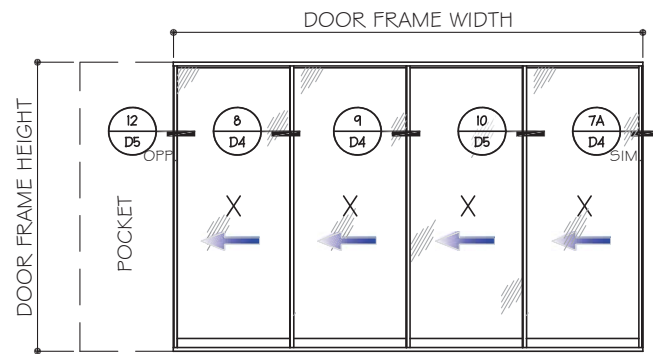
DRAWING NO. **AD16-29**

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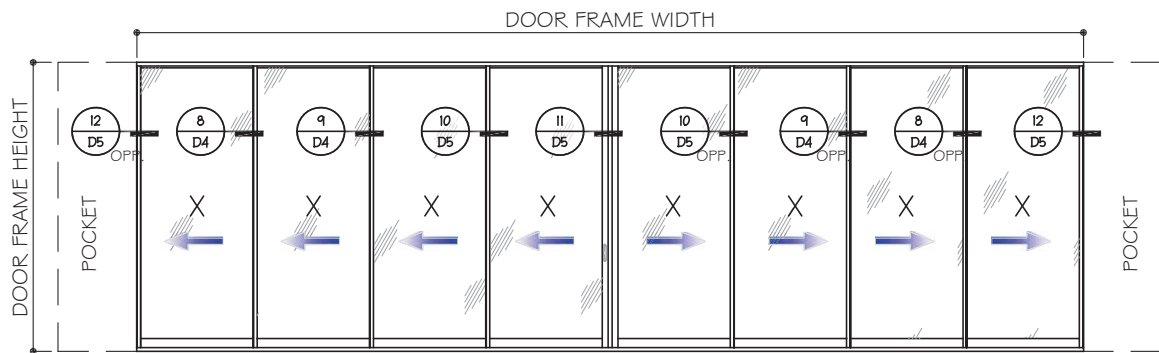
APPROVED CONFIGURATION POCKETED DOORS

(NON-REINFORCED SHOWN)

SEE SHEET K1 FOR D_p AND REINFORCING OPTIONS



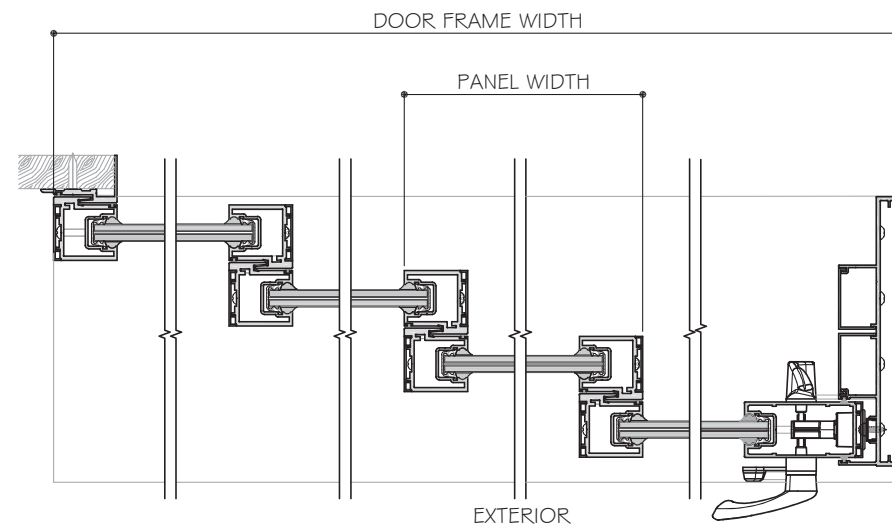
PXXX (SHOWN)
XXXXP



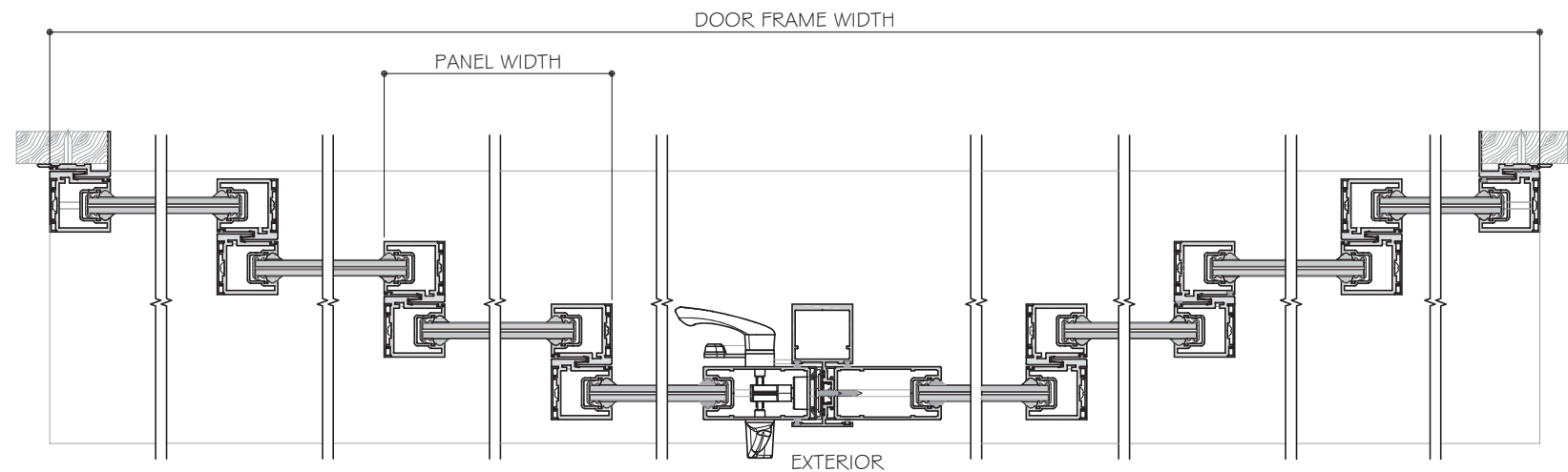
PXXXXXXXXP (SHOWN)
PXXXXXXXX
XXXXXXXXXP
OXXXXXXXXP
PXXXXXXXXO

LAMINATED GLASS OPTIONS SHOWN.
SEE DETAILS FOR INSULATED LAMINATED OPTION.

NON-REINFORCED DETAILS SHOWN.
FOR REINFORCED DETAILS, SEE SHEET D4
TO D7 FOR (4 TRACKS), D8 TO D12 FOR (3
TRACKS), D13 TO D16 FOR (2 TRACKS).



12/D5 DETAIL OPP. 8/D4 DETAIL 9/D4 DETAIL 10/D5 DETAIL 7A/D4 DETAIL SIM.



12/D5 DETAIL OPP. 8/D4 DETAIL 9/D4 DETAIL 10/D5 DETAIL 11/D5 DETAIL 10/D5 DETAIL OPP. 9/D4 DETAIL OPP. 8/D4 DETAIL OPP. 12/D5 DETAIL

NOTES:

1. CONFIGURATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY.
2. SEE CHART ON SHEET G1 FOR GLASS CAPACITIES AND GLASS OPTIONS.
3. FOR APPLICABLE DESIGN PRESSURES SGD REINFORCING LEVEL 1, 2 OR 3, SEE SHEET K1.
4. FOR ANCHOR DETAILS AND CAPACITIES AT HEAD/SILL SEE SHEET A1 TO A8.
5. FREE STANDING JAMB SEE OPTIONS AND CAPACITIES ON SHEET J1 TO J4.
6. DOOR SHALL MEET EGRESS REQUIREMENTS AS APPLICABLE PER FBC.

FOUR (4) TRACKS

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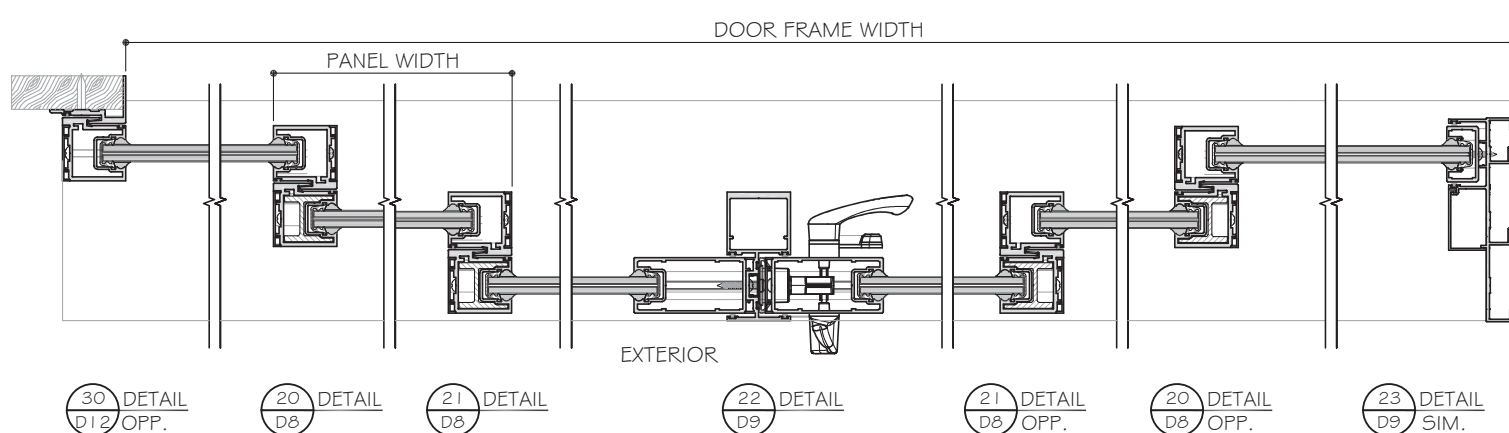
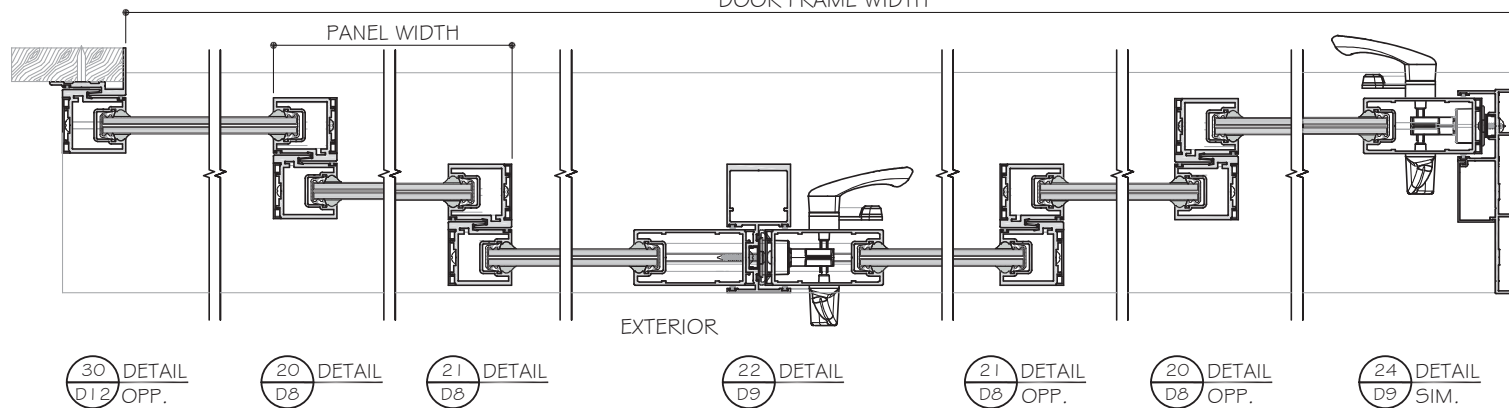
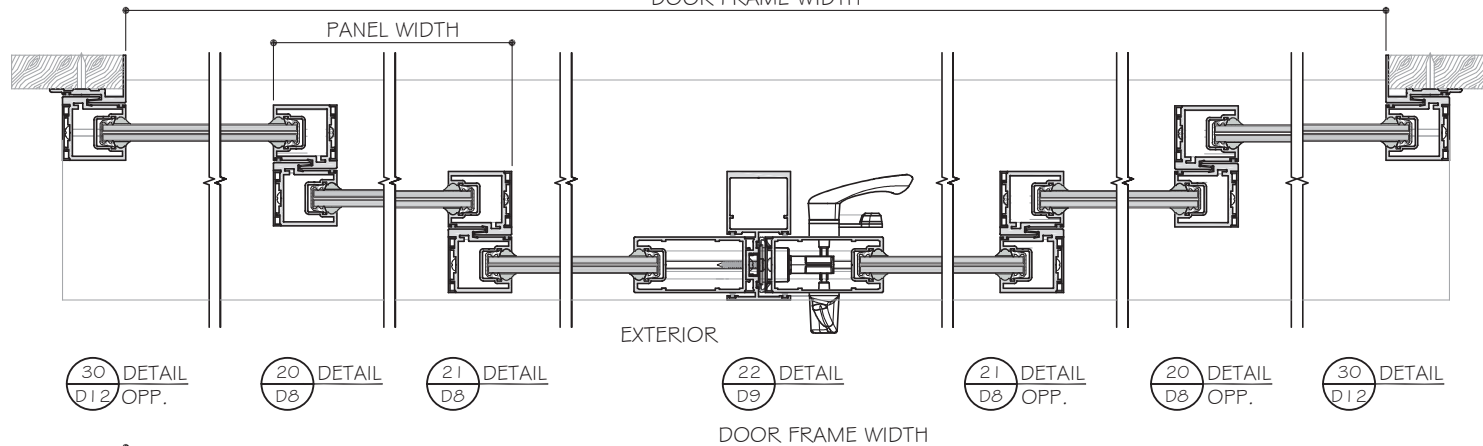
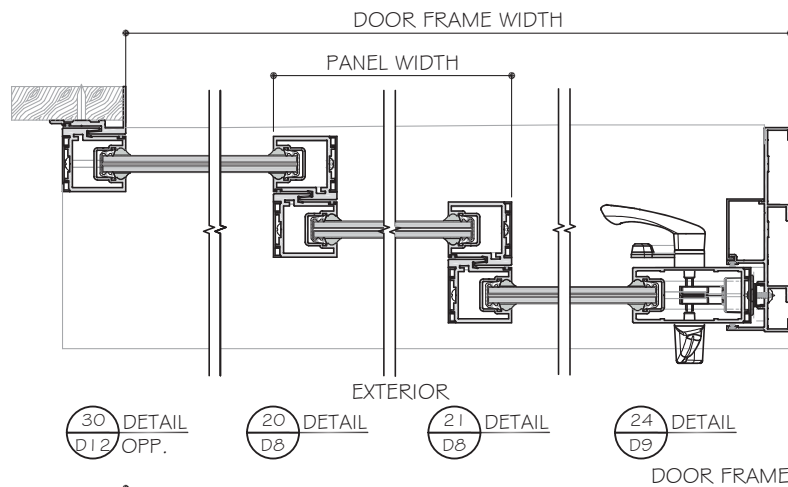
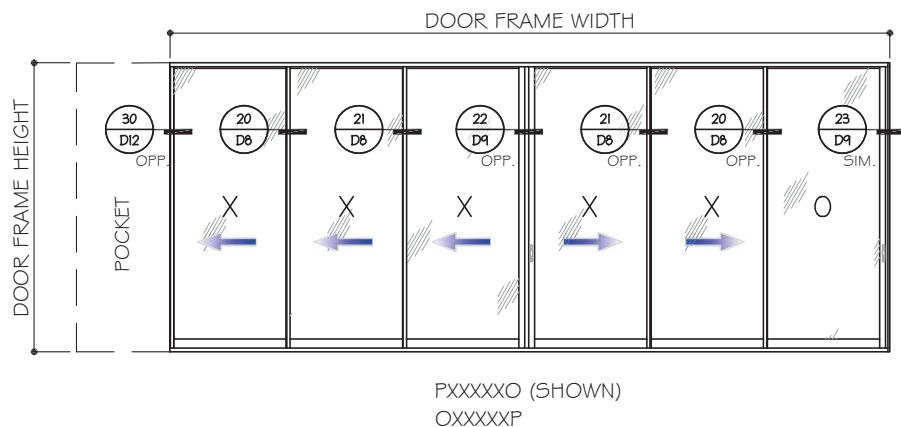
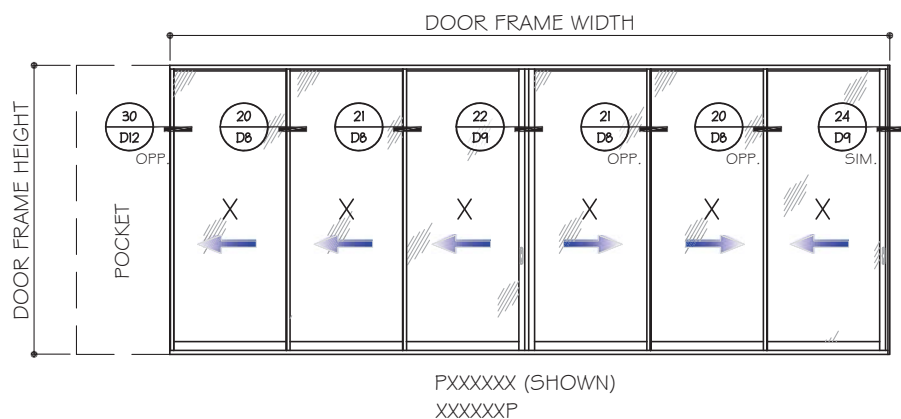
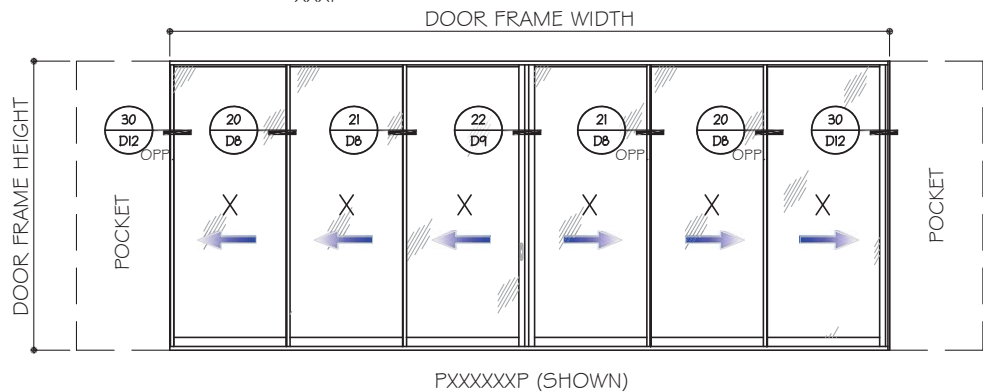
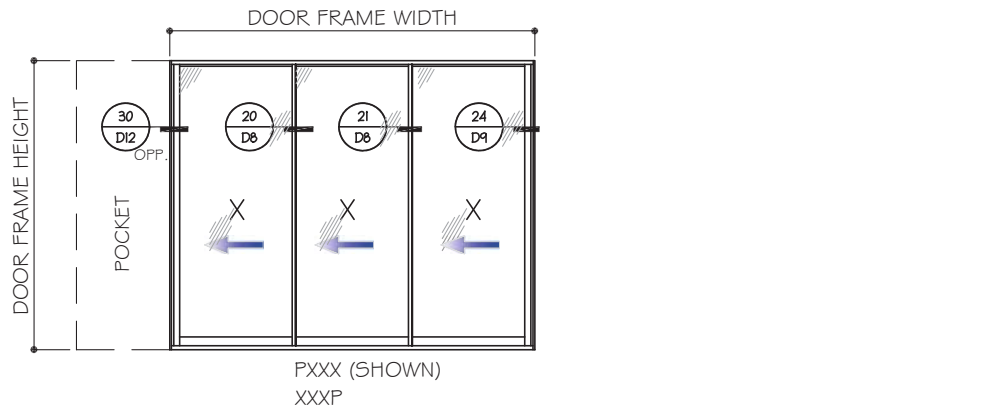
DRAWING NO. **AD16-29**

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APPROVED CONFIGURATION POCKETED DOORS

(NON-REINFORCED SHOWN)

SEE SHEET K1 FOR D_p AND REINFORCING OPTIONS



NON-REINFORCED DETAILS SHOWN.
FOR REINFORCED DETAILS, SEE SHEET D4 TO D7 FOR (4 TRACKS), D8 TO D12 FOR (3 TRACKS), D13 TO D16 FOR (2 TRACKS).

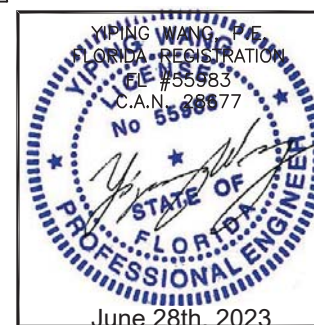
LAMINATED GLASS OPTIONS SHOWN.
SEE DETAILS FOR INSULATED LAMINATED OPTION.

NOTES:

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4. FOR ANCHOR DETAILS AND CAPACITIES AT HEAD/SILL SEE SHEET A1 TO A8.
5. FREE STANDING JAMB SEE OPTIONS AND CAPACITIES ON SHEET J1 TO J4.
6. DOOR SHALL MEET EGRESS REQUIREMENTS AS APPLICABLE PER FBC.

THREE (3) TRACKS

POCKETS ARE NOT PART OF THIS APPROVAL AND ARE TO BE REVIEWED BY AHJ.



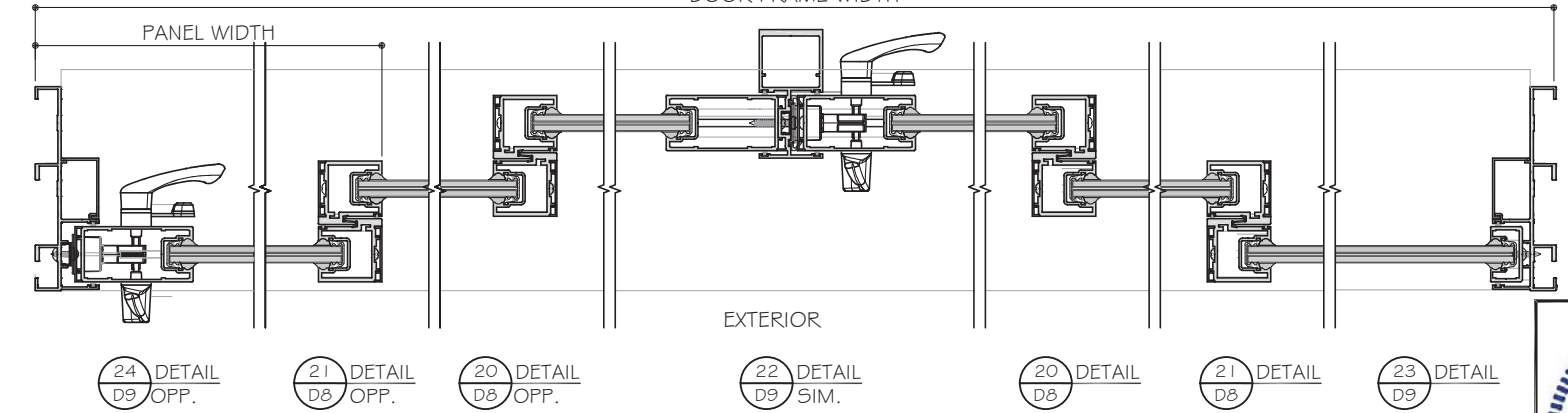
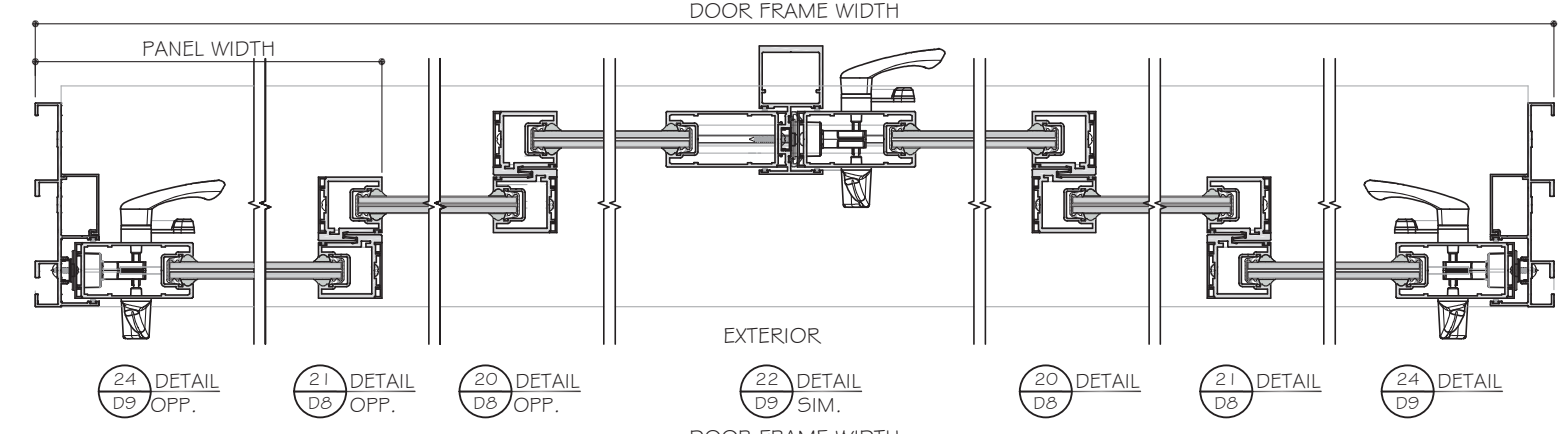
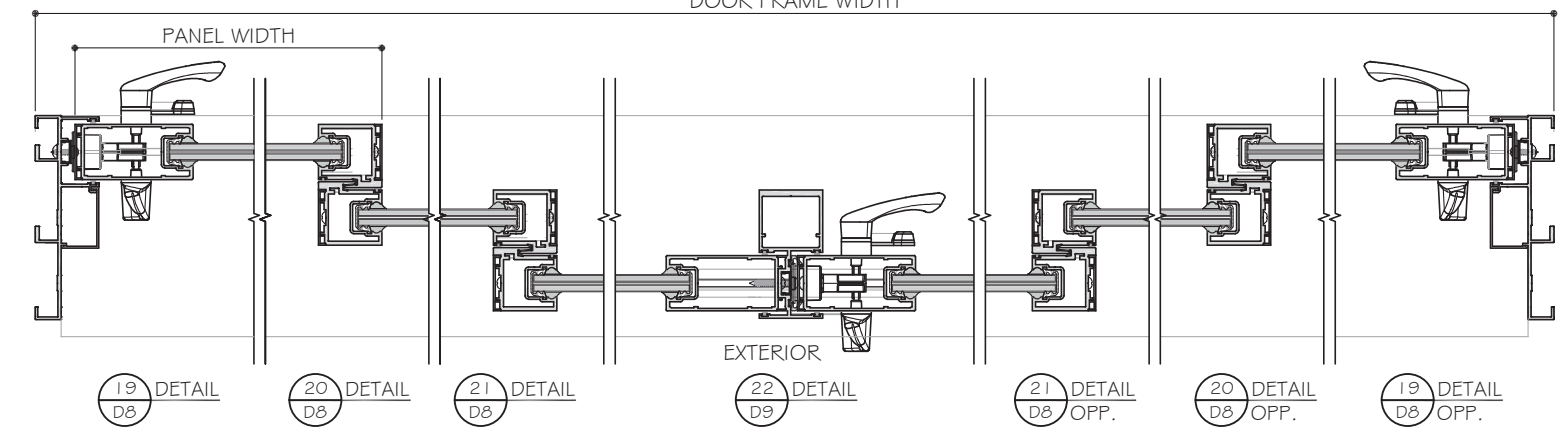
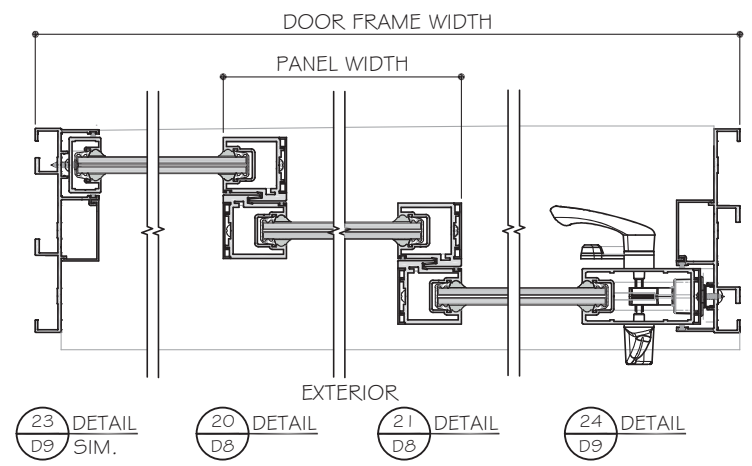
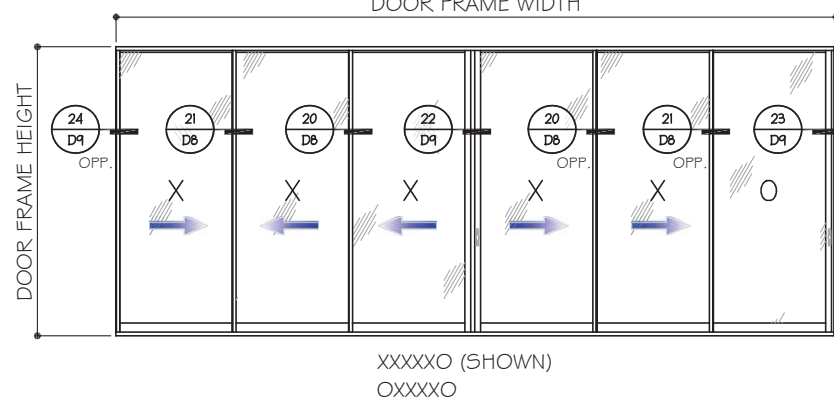
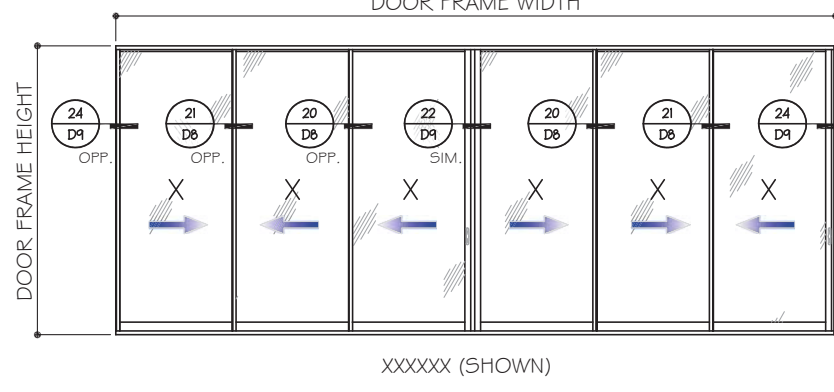
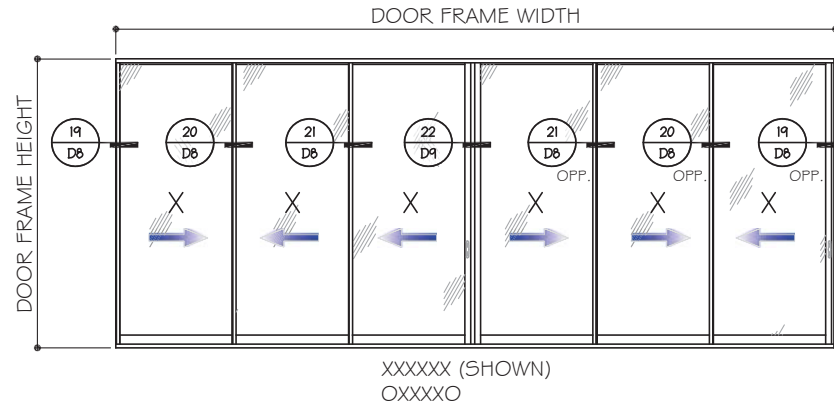
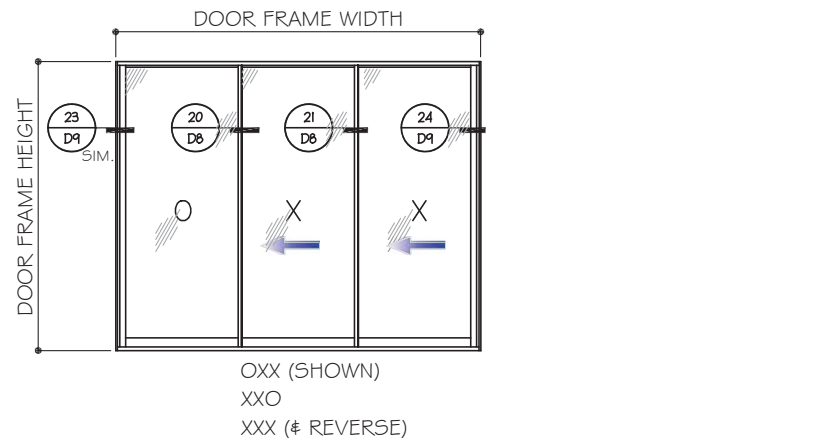
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Sheet No. **09 OF 59**

APPROVED CONFIGURATION DOORS
(NON-REINFORCED SHOWN)
SEE SHEET K1 FOR D_p AND REINFORCING OPTIONS



NON-REINFORCED DETAILS SHOWN.
FOR REINFORCED DETAILS, SEE SHEET D4
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SEE DETAILS FOR INSULATED LAMINATED OPTION.

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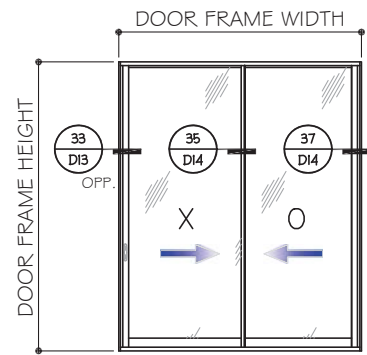
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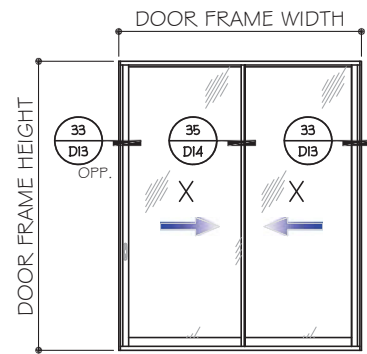
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Drawn Date: 10.11.2021
Scale:
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Sheet No. 10 OF 59

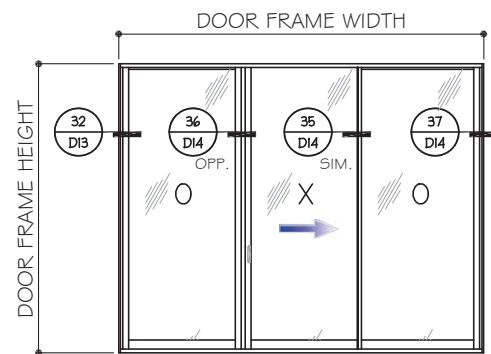
APPROVED CONFIGURATION DOORS
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SEE SHEET K1 FOR D_p AND REINFORCING OPTIONS



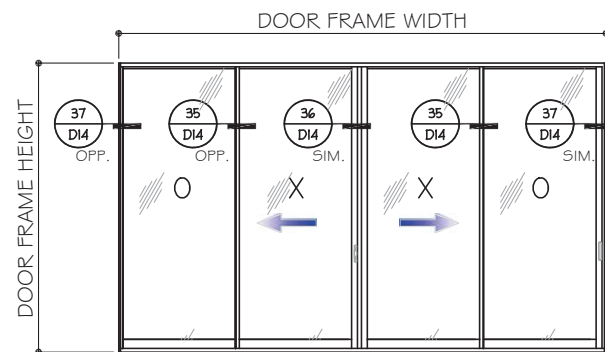
OX (SHOWN)
OX



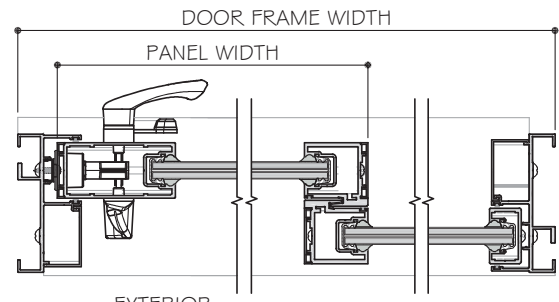
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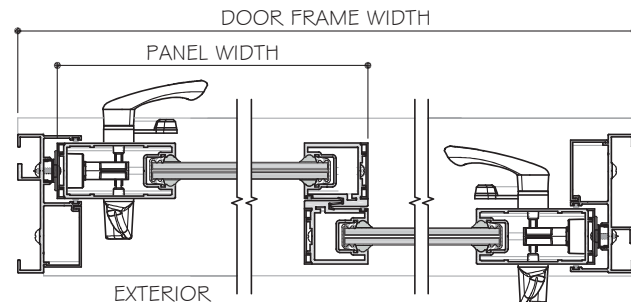
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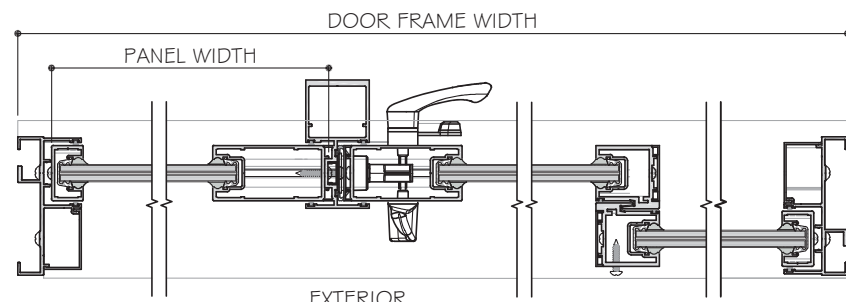
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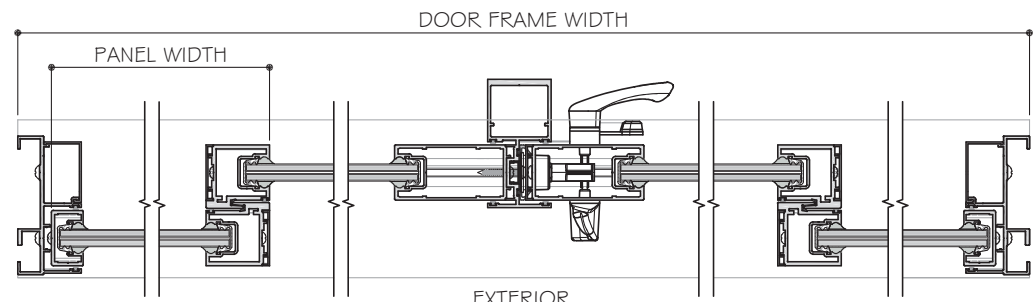
EXTERIOR
33 D13 OPP. 35 D14 37 D14



EXTERIOR
33 D13 OPP. 35 D14 33 D13 SIM.



EXTERIOR
32 D13 36 D14 OPP. 35 D14 SIM. 37 D14



EXTERIOR
37 D14 OPP. 35 D14 OPP. 36 D14 SIM. 35 D14 37 D14

LAMINATED GLASS OPTIONS SHOWN.
SEE DETAILS FOR INSULATED LAMINATED OPTION.

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1. CONFIGURATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY.
2. SEE CHART ON SHEET G1 FOR GLASS CAPACITIES AND GLASS OPTIONS.
3. FOR APPLICABLE DESIGN PRESSURES SGD REINFORCING LEVEL 1, 2 OR 3, SEE SHEET K1.
4. FOR ANCHOR DETAILS AND CAPACITIES AT HEAD/SILL SEE SHEET A1 TO A8.
5. FREE STANDING JAMB SEE OPTIONS AND CAPACITIES ON SHEET J1 TO J4.
6. DOOR SHALL MEET EGRESS REQUIREMENTS AS APPLICABLE PER FBC.

TWO (2) TRACKS

POCKETS ARE NOT PART OF THIS APPROVAL
AND ARE TO BE REVIEWED BY AHJ.



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ES-SGD2020 SLIDING GLASS DOOR (LMI & SMI)

ES WINDOWS, INC.
10653 NE Quaybridge Ct.
Miami, FL 33138
TEL. (305) 624-7775

| Rev. No. | Date | Drawn By | Description |
|----------|------------|----------|--------------------|
| 1 | 10-16-2019 | MCY | UPDATE |
| 2 | 07-14-2020 | MCY | UPDATE TO FBC 2020 |
| 3 | 12-29-2020 | MCY | UPDATE |
| 4 | 04-06-2021 | MCY | UPDATE |
| 5 | 10-11-2021 | MCY | UPDATE |
| 6 | | | |

Drawn Date: 10.11.2021 Scale:

DRAWING NO. AD16-29

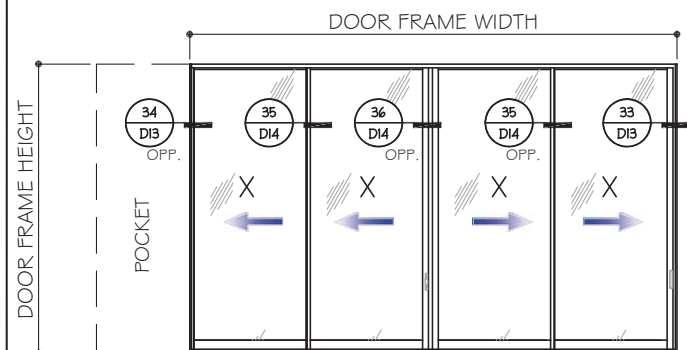
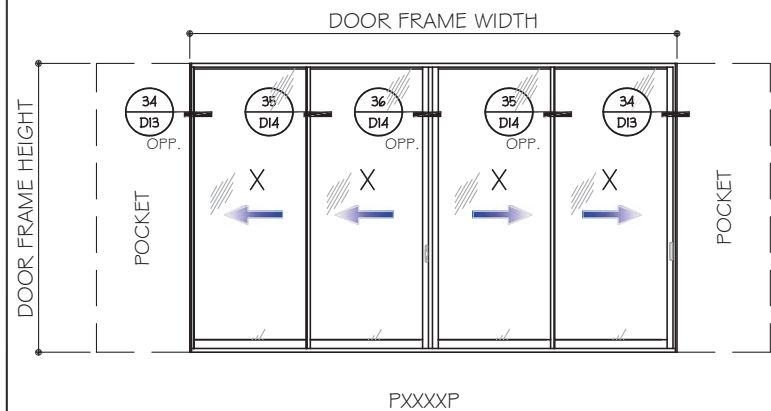
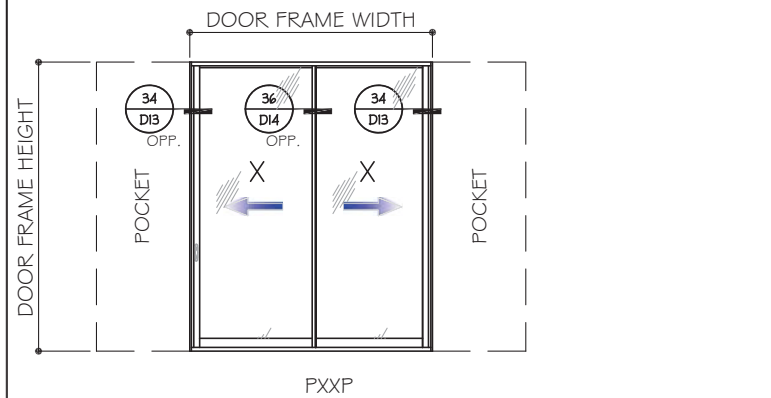
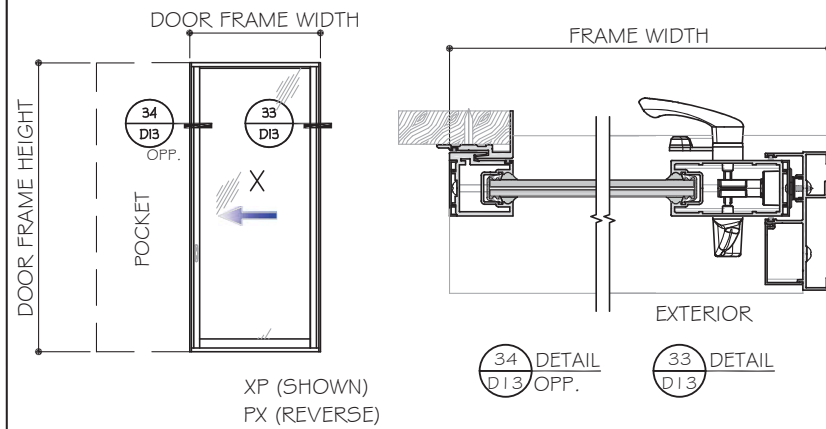
E10

Sheet No. 11 OF 59

APPROVED CONFIGURATION POCKETED DOORS

(NON-REINFORCED SHOWN)

SEE SHEET K1 FOR D_p AND REINFORCING OPTIONS

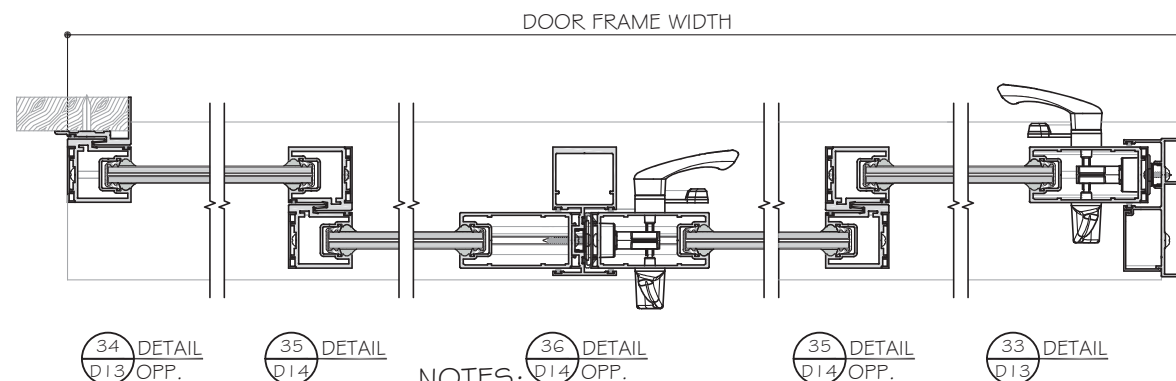
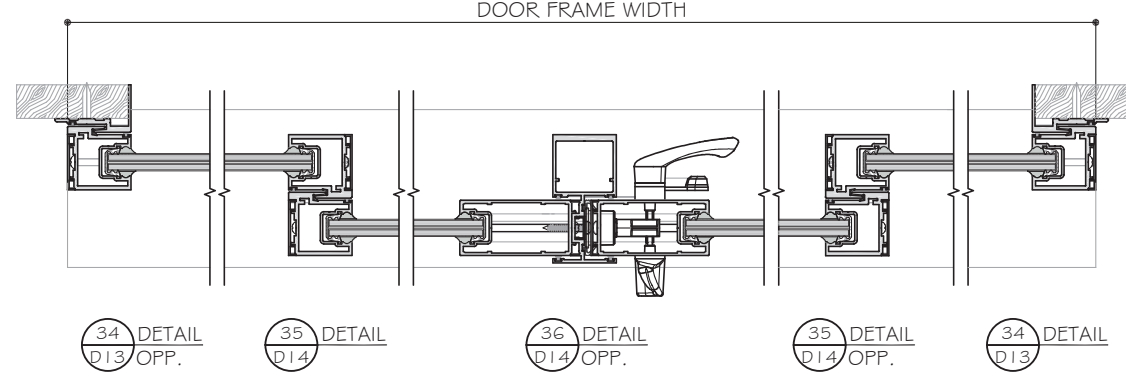
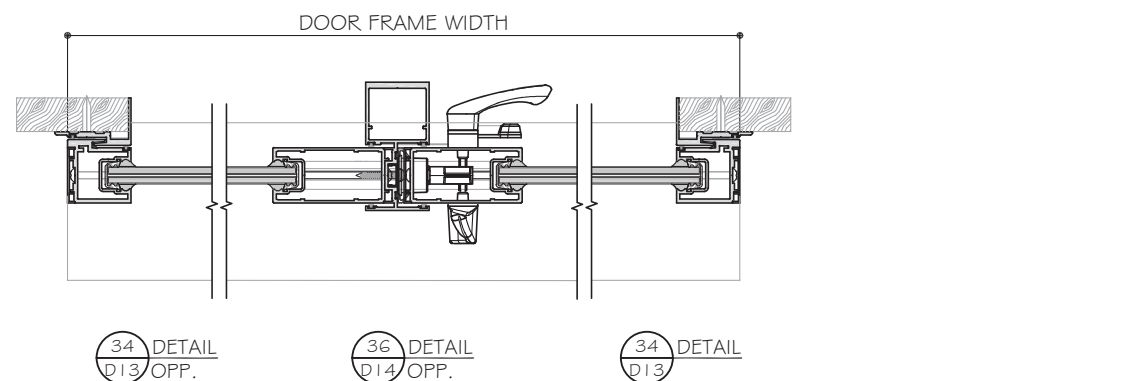
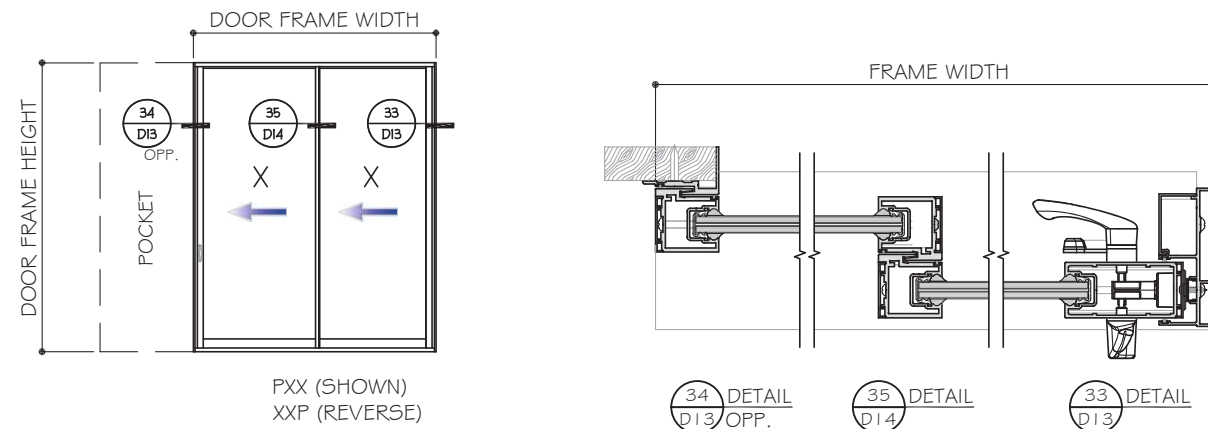


PXXXX (SHOWN)
XXXXP (REVERSE)
PXXO
OXXXX

TWO (2) TRACKS

POCKETS ARE NOT PART OF THIS APPROVAL AND ARE TO BE REVIEWED BY AHJ.

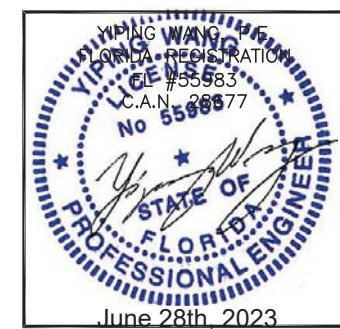
LAMINATED GLASS OPTIONS SHOWN.
SEE DETAILS FOR INSULATED LAMINATED OPTION.



NOTES:

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2. SEE CHART ON SHEET G1 FOR GLASS CAPACITIES AND GLASS OPTIONS.
3. FOR APPLICABLE DESIGN PRESSURES SGD REINFORCING LEVEL 1, 2 OR 3, SEE SHEET K1.
4. FOR ANCHOR DETAILS AND CAPACITIES AT HEAD/SILL SEE SHEET A1 TO A8.
5. FREE STANDING JAMB SEE OPTIONS AND CAPACITIES ON SHEET J1 TO J4.
6. DOOR SHALL MEET EGRESS REQUIREMENTS AS APPLICABLE PER FBC.

NON-REINFORCED DETAILS SHOWN.
FOR REINFORCED DETAILS, SEE SHEET D4 TO D7 FOR (4 TRACKS), D8 TO D12 FOR (3 TRACKS), D13 TO D16 FOR (2 TRACKS).



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| 5 | 10-11-2021 | MCY | UPDATE |

Drawn Date: 10.11.2021
Scale: _____

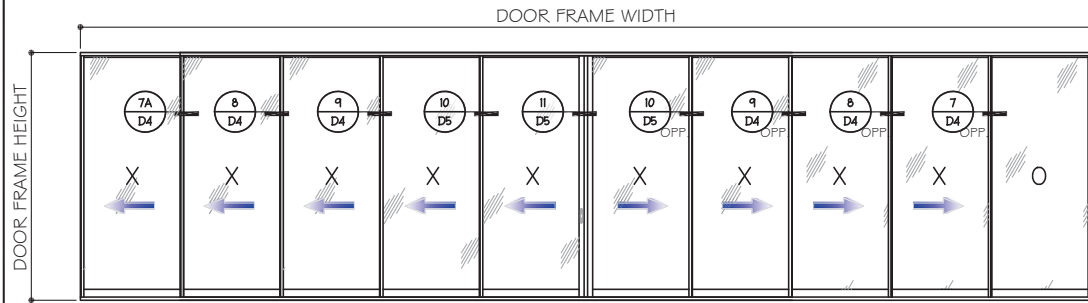
DRAWING NO. **AD16-29**

Sheet No. **E11**
12 OF 59

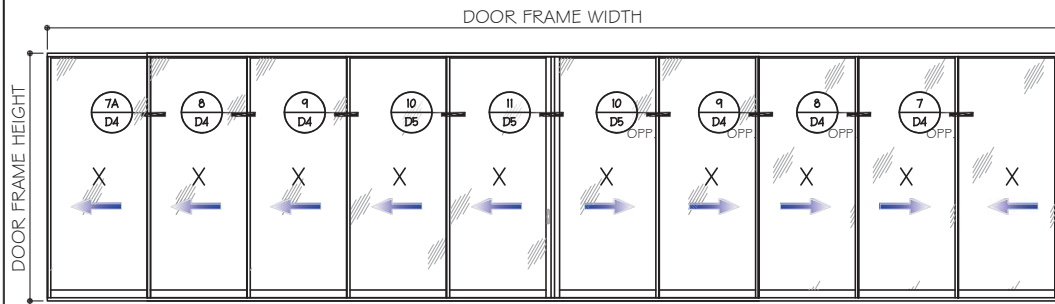
APPROVED CONFIGURATION POCKETED AND NO POCKET DOORS

(NON-REINFORCED SHOWN)

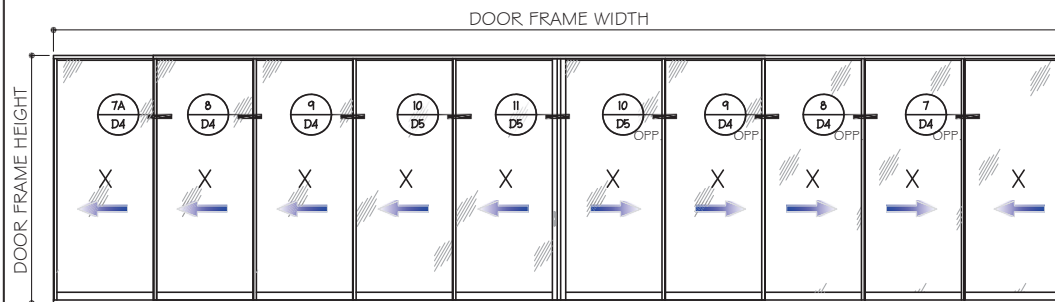
SEE SHEET K1 FOR D_p AND REINFORCING OPTIONS



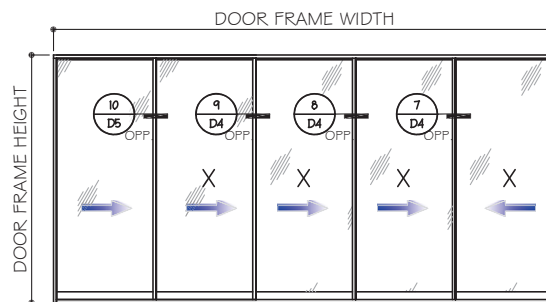
XXXXXXXXO (SHOWN)
XXXXXXXX



XXXXXXXXO (SHOWN)
XXXXXXXX



XXXXXXXXO (SHOWN)
XXXXXXXX



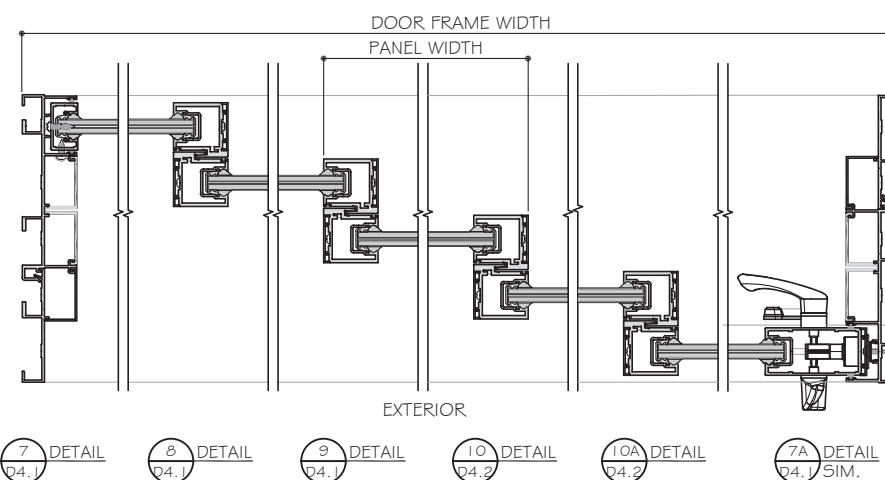
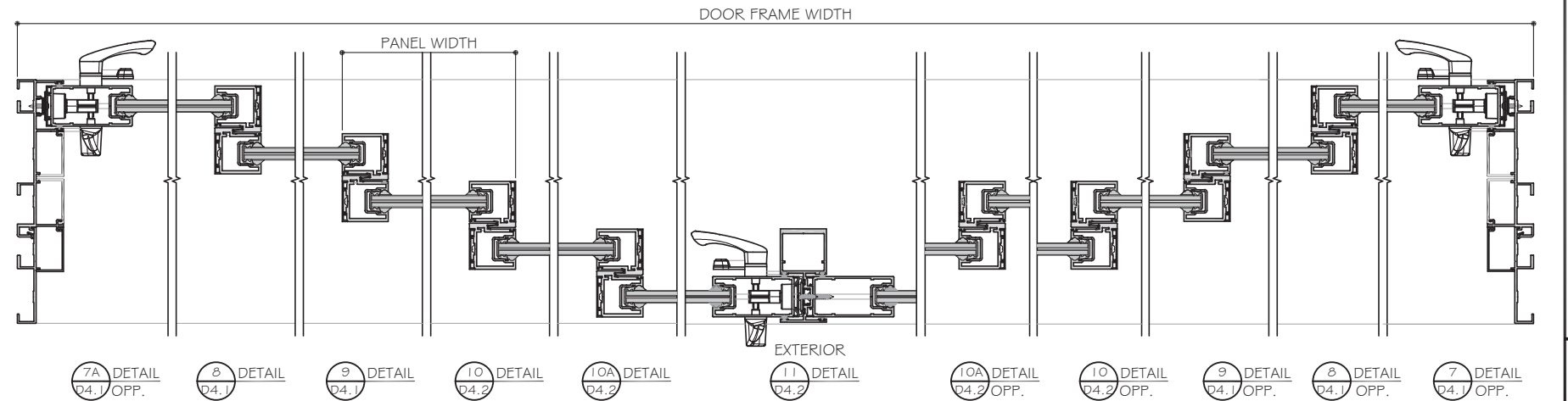
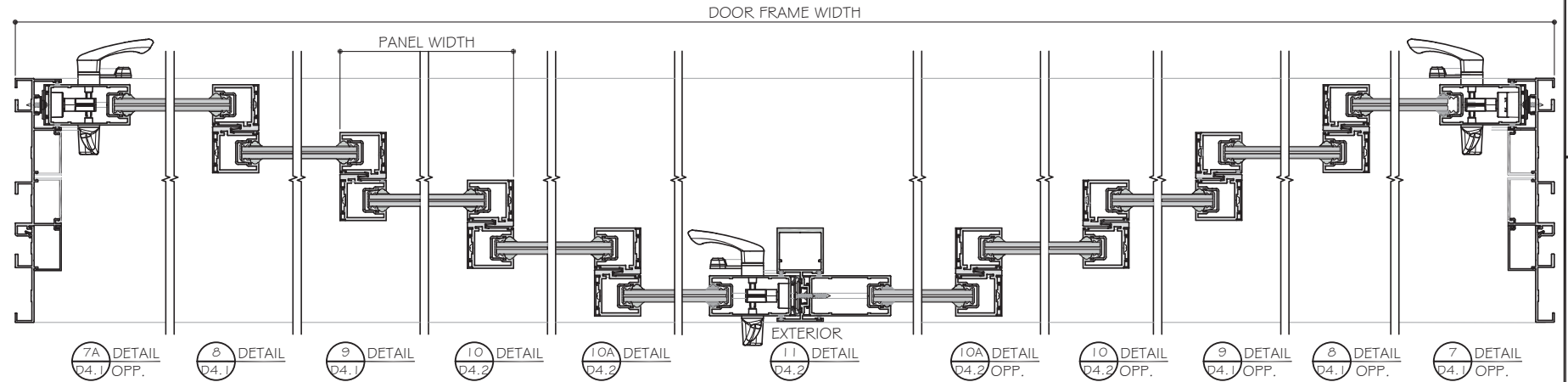
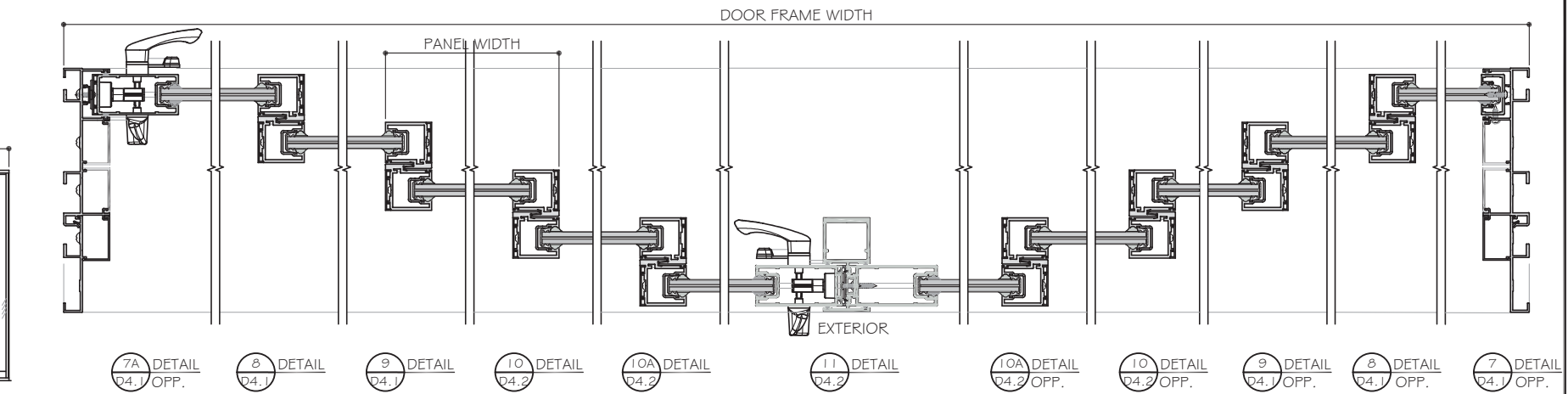
XXXXX (SHOWN)

FIVE (5) TRACKS

POCKETS ARE NOT PART OF THIS APPROVAL AND ARE TO BE REVIEWED BY AHJ.

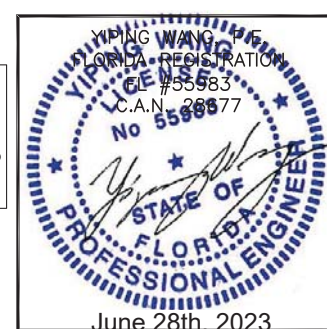
NOTES:

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2. SEE CHART ON SHEET G1 FOR GLASS CAPACITIES AND GLASS OPTIONS.
3. FOR APPLICABLE DESIGN PRESSURES SGD REINFORCING LEVEL 1, 2 OR 3, SEE SHEET K1.
4. FOR ANCHOR DETAILS AND CAPACITIES AT HEAD/SILL SEE SHEET A1 TO A8.
5. FREE STANDING JAMB SEE OPTIONS AND CAPACITIES ON SHEET J1 TO J4.
6. DOOR SHALL MEET EGRESS REQUIREMENTS AS APPLICABLE PER FBC.



LAMINATED GLASS OPTIONS SHOWN.
SEE DETAILS FOR INSULATED LAMINATED OPTION.

NON-REINFORCED DETAILS SHOWN.
FOR REINFORCED DETAILS, SEE SHEET D4 TO D7 FOR (4 TRACKS), D8 TO D12 FOR (3 TRACKS), D13 TO D16 FOR (2 TRACKS).



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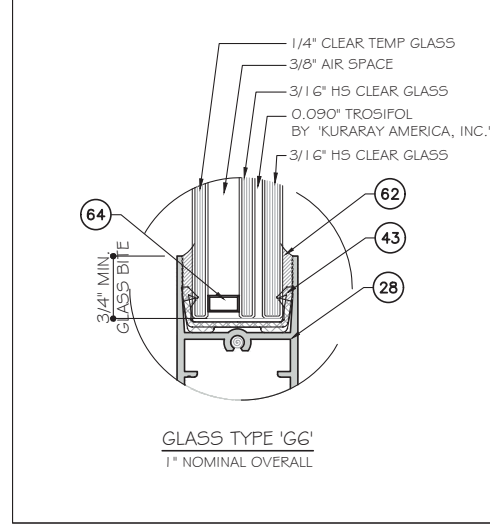
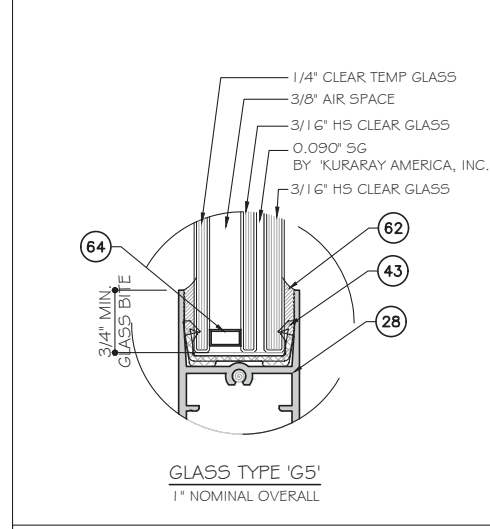
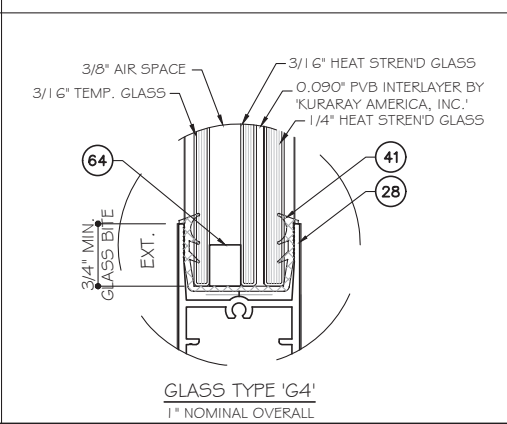
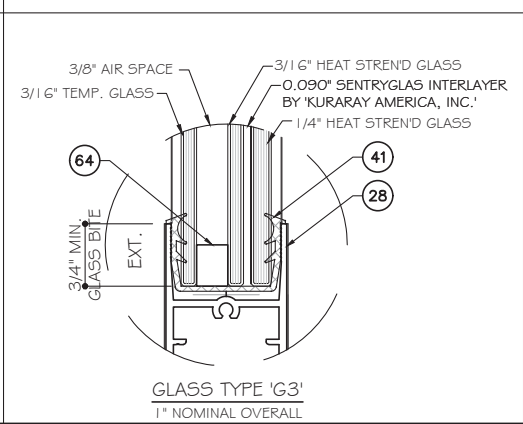
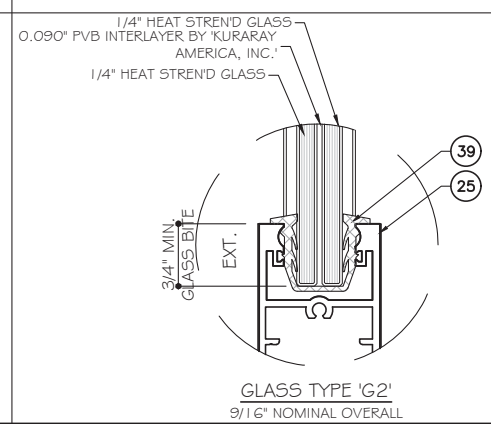
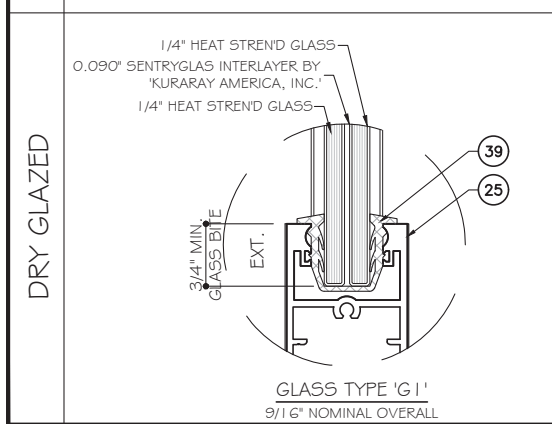
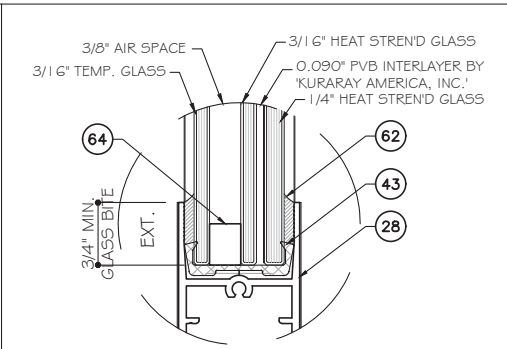
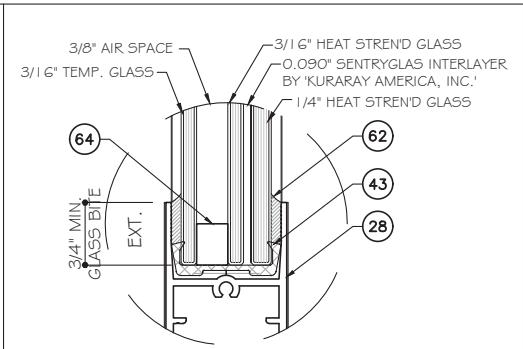
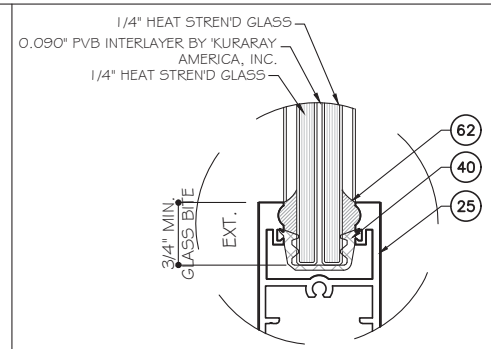
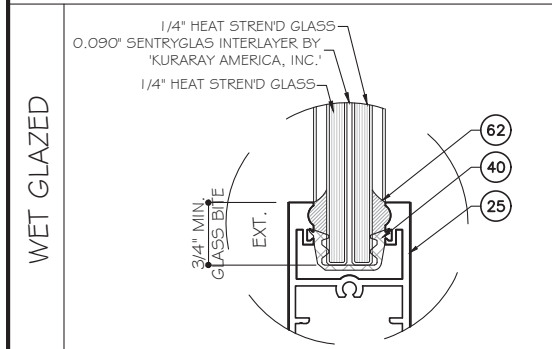
DRAWING NO. AD16-29

Sheet No. E12
13 OF 59

| DESIGN LOAD CAPACITY - PSF (GLASS) | | | | | | | |
|------------------------------------|------------------|-----------------------|------------|---------------------------|------------|------------------------------|------------|
| SGD PANEL SIZES | | 9/16" LAMINATED GLASS | | 1-1/8" INSUL. LAMI. GLASS | | 1-1/16" NOMINAL INSUL. GLASS | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | G1 +/- PSF | G2 +/- PSF | G3 +/- PSF | G4 +/- PSF | G5 +/- PSF | G6 +/- PSF |
| 60 | 84 | 150.0 | 150.0 | 150.0 | 150.0 | 102.0 | 102.0 |
| 66 | 84 | 150.0 | 150.0 | 150.0 | 150.0 | 102.0 | 102.0 |
| 72 | 84 | 102.0 | 100.0 | 102.0 | 100.0 | 102.0 | - |
| 78 | 84 | 102.0 | 100.0 | 102.0 | 100.0 | 102.0 | - |
| 84 | 84 | 102.0 | 100.0 | 102.0 | 100.0 | 102.0 | - |
| 60 | 90 | 150.0 | 150.0 | 150.0 | 150.0 | 102.0 | 102.0 |
| 66 | 90 | 102.0 | 100.0 | 102.0 | 100.0 | 102.0 | - |
| 72 | 90 | 102.0 | 100.0 | 102.0 | 100.0 | 102.0 | - |
| 78 | 90 | 102.0 | 100.0 | 102.0 | 100.0 | 102.0 | - |
| 84 | 90 | 102.0 | - | 102.0 | - | - | - |
| 60 | 96 | 150.0 | 150.0 | 150.0 | 150.0 | 102.0 | 102.0 |
| 66 | 96 | 102.0 | 100.0 | 102.0 | 100.0 | 102.0 | - |
| 72 | 96 | 102.0 | 100.0 | 102.0 | 100.0 | 102.0 | - |
| 78 | 96 | 102.0 | - | 102.0 | - | - | - |
| 84 | 96 | 102.0 | - | 102.0 | - | - | - |
| 36 | 102 | 150.0 | 150.0 | 150.0 | 150.0 | 102 | 102 |
| 42 | 102 | 150.0 | 150.0 | 150.0 | 147.0 | 102 | 102 |
| 48 | 102 | 150.0 | 150.0 | 150.0 | 131.0 | 102 | 102 |
| 54 | 102 | 150.0 | 139.0 | 150.0 | 120.0 | 102 | 102 |
| 60 | 102 | 102.0 | 100.0 | 102.0 | 102.0 | 102 | - |
| 66 | 102 | 102.0 | 100.0 | 102.0 | 102.0 | 102 | - |
| 72 | 102 | 102.0 | 100.0 | 102.0 | 101.0 | - | - |
| 78 | 102 | 102.0 | - | 102.0 | - | - | - |
| 84 | 102 | 102.0 | - | 102.0 | - | - | - |
| 36 | 108 | 150.0 | 150.0 | 150.0 | 150.0 | 102 | 102 |
| 42 | 108 | 150.0 | 150.0 | 150.0 | 136.0 | 102 | 102 |
| 48 | 108 | 150.0 | 147.0 | 150.0 | 122.0 | 102 | 102 |
| 54 | 108 | 102.0 | 102.0 | 102.0 | 102.0 | 102 | - |
| 60 | 108 | 102.0 | 102.0 | 102.0 | 102.0 | 102 | - |
| 66 | 108 | 102.0 | 102.0 | 102.0 | 101.0 | - | - |
| 72 | 108 | 102.0 | - | 102.0 | - | - | - |
| 78 | 108 | 102.0 | - | 102.0 | - | - | - |

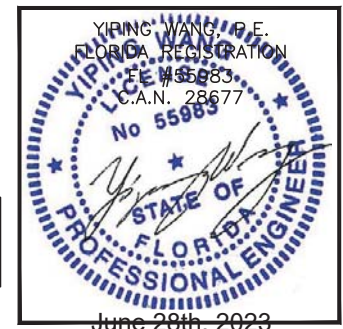
D.L.O. WIDTH = AVE. PANEL WIDTH - 4"
D.L.O. HEIGHT = FRAME HEIGHT - 9.125"

| DESIGN LOAD CAPACITY - PSF (GLASS) | | | | | | | |
|------------------------------------|------------------|-----------------------|------------|---------------------------|------------|------------------------------|------------|
| SGD PANEL SIZES | | 9/16" LAMINATED GLASS | | 1-1/8" INSUL. LAMI. GLASS | | 1-1/16" NOMINAL INSUL. GLASS | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | G1 +/- PSF | G2 +/- PSF | G3 +/- PSF | G4 +/- PSF | G5 +/- PSF | G6 +/- PSF |
| 36 | 114 | 150.0 | 150.0 | 150.0 | 150.0 | 102 | 102 |
| 42 | 114 | 150.0 | 150.0 | 150.0 | 132.0 | 102 | 102 |
| 48 | 114 | 150.0 | 150.0 | 139.0 | 115.0 | 102 | 102 |
| 54 | 114 | 102.0 | 102.0 | 102.0 | 102.0 | 102 | - |
| 60 | 114 | 102.0 | 102.0 | 102.0 | 98.8 | 102 | - |
| 66 | 114 | 102.0 | - | 102.0 | - | - | - |
| 72 | 114 | 102.0 | - | 102.0 | - | - | - |
| 36 | 120 | 150.0 | 150.0 | 150.0 | 150.0 | 102 | 102 |
| 42 | 120 | 150.0 | 150.0 | 150.0 | 129.0 | 102 | 102 |
| 48 | 120 | 150.0 | 132.0 | 148.0 | 110.0 | 102 | 102 |
| 54 | 120 | 102.0 | 102.0 | 102.0 | 101.0 | 102 | - |
| 60 | 120 | 102.0 | 102.0 | 102.0 | 92.8 | - | - |
| 66 | 120 | 102.0 | - | 102.0 | - | - | - |
| 72 | 120 | 102.0 | - | 102.0 | - | - | - |
| 36 | 126 | 150.0 | - | 150.0 | - | 102 | - |
| 42 | 126 | 150.0 | - | 150.0 | - | 102 | - |
| 48 | 126 | 102.0 | - | 102.0 | - | 102 | - |
| 54 | 126 | 102.0 | - | 102.0 | - | 102 | - |
| 60 | 126 | 102.0 | - | 102.0 | - | - | - |
| 66 | 126 | 102.0 | - | 102.0 | - | - | - |
| 36 | 132 | 150.0 | - | 150.0 | - | 102 | - |
| 42 | 132 | 150.0 | - | 150.0 | - | 102 | - |
| 48 | 132 | 102.0 | - | 102.0 | - | 102 | - |
| 54 | 132 | 102.0 | - | 102.0 | - | 102 | - |
| 60 | 132 | 102.0 | - | 102.0 | - | - | - |
| 66 | 132 | 102.0 | - | 102.0 | - | - | - |
| 36 | 138 | 150.0 | - | 150.0 | - | 102 | - |
| 42 | 138 | 150.0 | - | 150.0 | - | 102 | - |
| 48 | 138 | 102.0 | - | 102.0 | - | 102 | - |
| 54 | 138 | 102.0 | - | 102.0 | - | - | - |
| 60 | 138 | 102.0 | - | 102.0 | - | - | - |
| 36 | 144 | 150.0 | - | 150.0 | - | 102 | - |
| 42 | 144 | 102.0 | - | 102.0 | - | 102 | - |
| 48 | 144 | 102.0 | - | 102.0 | - | - | - |
| 54 | 144 | 102.0 | - | 102.0 | - | - | - |
| 60 | 144 | 102.0 | - | 102.0 | - | - | - |



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

NOTE:
PARTS 39 40 41 43 ARE ALSO USED
AS SETTING BLOCK.



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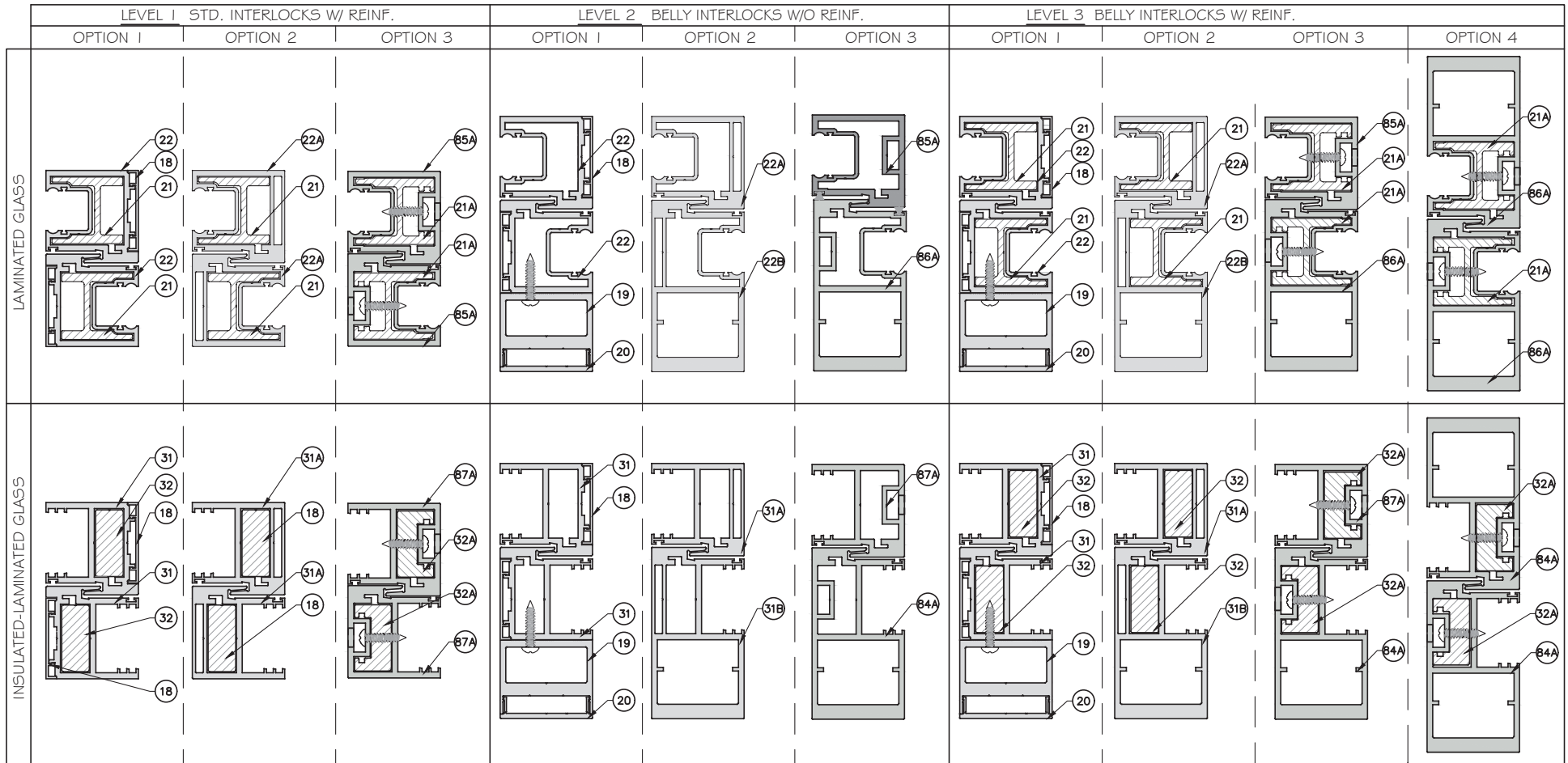
DRAWING NO. **AD16-29**

G1

Sheet No. 14 OF 59

| DESIGN LOAD CAPACITY - PSF | | | | |
|-----------------------------|---------------------|---|--|---|
| SGD PANEL SIZES | | LEVEL 1 (STD INTERLOCK W/ REINF.) | LEVEL 2 (BELLY INTERLOCK W/O REINF.) | LEVEL 3 (BELLY INTERLOCK W/ REINF.) |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | PSF +/- | PSF +/- | PSF +/- |
| 36 | 102 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 42 | 102 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 48 | 102 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 54 | 102 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 60 | 102 | +85/-100 | 65.0 / 78.0 | 90.0 / 102.0 |
| 66 | 102 | +85/-100 | 65.0 / 78.0 | 90.0 / 102.0 |
| 72 | 102 | - | 65.0 / 78.0 | 90.0 / 102.0 |
| 36 | 108 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 42 | 108 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 48 | 108 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 54 | 108 | +85/-100 | 65.0 / 78.0 | 90.0 / 102.0 |
| 60 | 108 | +85/-100 | 65.0 / 78.0 | 90.0 / 102.0 |
| 66 | 108 | +85/-100 | 65.0 / 78.0 | 90.0 / 102.0 |
| 72 | 108 | - | 65.0 / 78.0 | 90.0 / 102.0 |
| 36 | 114 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 42 | 114 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 48 | 114 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 54 | 114 | +85/-100 | 65.0 / 78.0 | 90.0 / 102.0 |
| 60 | 114 | +85/-100 | 65.0 / 78.0 | 90.0 / 102.0 |
| 66 | 114 | - | 65.0 / 78.0 | 90.0 / 102.0 |
| 72 | 114 | - | 65.0 / 78.0 | 90.0 / 102.0 |
| 36 | 120 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 42 | 120 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 48 | 120 | +85/-100 | 65.0 / 78.0 | 90.0 / 150.0 |
| 54 | 120 | +85/-100 | 65.0 / 78.0 | 90.0 / 102.0 |
| 60 | 120 | +85/-100 | 65.0 / 78.0 | 90.0 / 102.0 |
| 66 | 120 | - | 65.0 / 78.0 | 90.0 / 102.0 |
| 72 | 120 | - | 65.0 / 78.0 | 90.0 / 102.0 |
| 36 | 126 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 42 | 126 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 48 | 126 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 54 | 126 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 60 | 126 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 66 | 126 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 36 | 132 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 42 | 132 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 48 | 132 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 54 | 132 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 60 | 132 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 66 | 132 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 36 | 138 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 42 | 138 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 48 | 138 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 54 | 138 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 60 | 138 | - | 65.0 / 78.0 | 85.0 / 102.0 |

| DESIGN LOAD CAPACITY - PSF | | | | |
|-----------------------------|---------------------|---|--|---|
| SGD PANEL SIZES | | LEVEL 1 (STD INTERLOCK W/ REINF.) | LEVEL 2 (BELLY INTERLOCK W/O REINF.) | LEVEL 3 (BELLY INTERLOCK W/ REINF.) |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | PSF +/- | PSF +/- | PSF +/- |
| 36 | 144 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 42 | 144 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 48 | 144 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 54 | 144 | - | 65.0 / 78.0 | 85.0 / 102.0 |
| 60 | 144 | - | 65.0 / 78.0 | 85.0 / 102.0 |



AVE. PANEL WIDTH = $\frac{\text{FRAME WIDTH}}{\# \text{ OF PANELS}}$



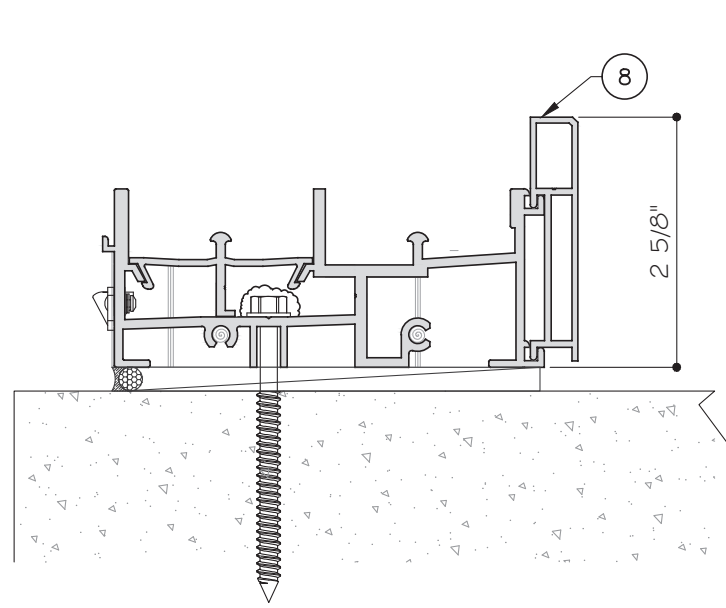
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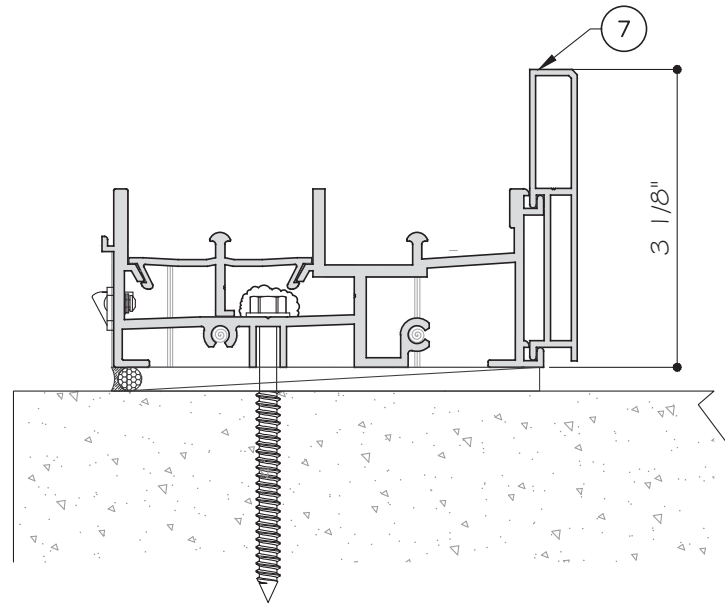
| Rev. No. | Date | Drawn By | Description |
|----------|------------|----------|--------------------|
| 1 | 10-16-2019 | MCY | UPDATE TO FRC 2020 |
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| 3 | 12-29-2020 | MCY | UPDATE |
| 4 | 04-06-2021 | MCY | UPDATE |
| 5 | 10-11-2021 | MCY | UPDATE |
| 6 | | | |
| 7 | | | |

Drawn Date: 10.11.2021 Scale:
DRAWING NO. **AD16-29**
K1
Sheet No. 15 OF 59

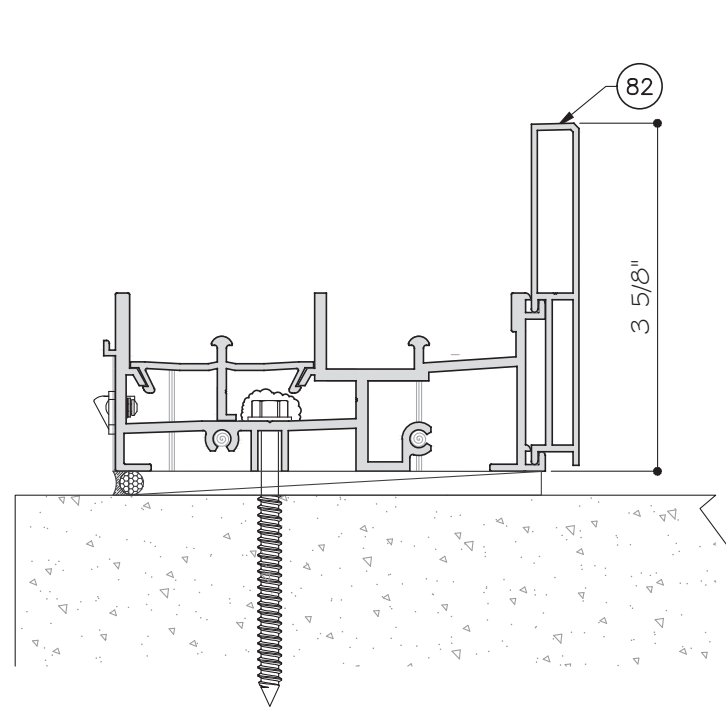
SILL RAISER OPTIONS (SHOWN ON 2 TRACK DOORS)
 POSITIVE LOAD LIMITED AS FOLLOW DUE TO WATER INFILTRATION



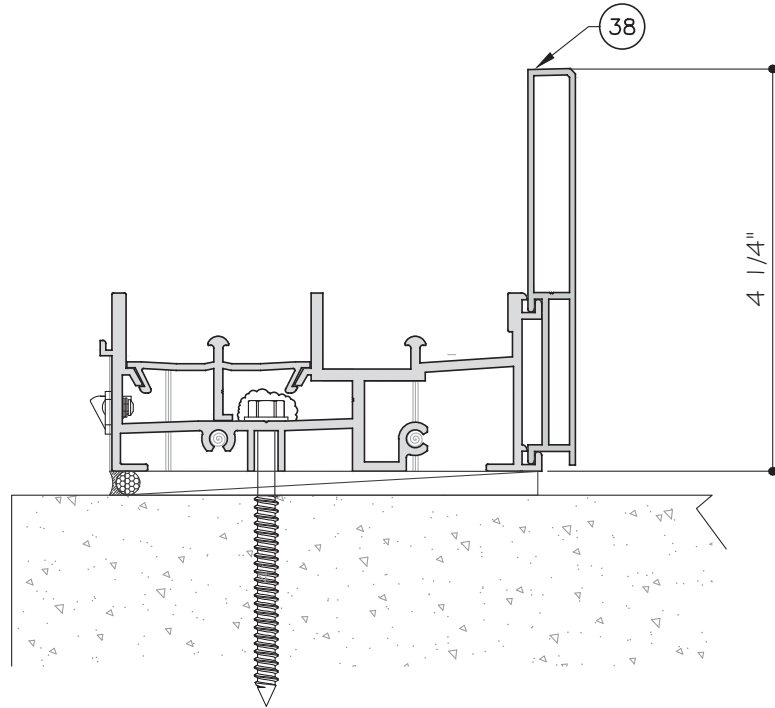
Pd MAX. = +53 PSF



Pd MAX. = +67 PSF



Pd MAX. = +80 PSF



Pd MAX. = +90 PSF



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| 6 | 10-11-2021 | MCY | UPDATE |

Drawn Date: 10.11.2021
 Scale:

DRAWING NO.
AD16-29

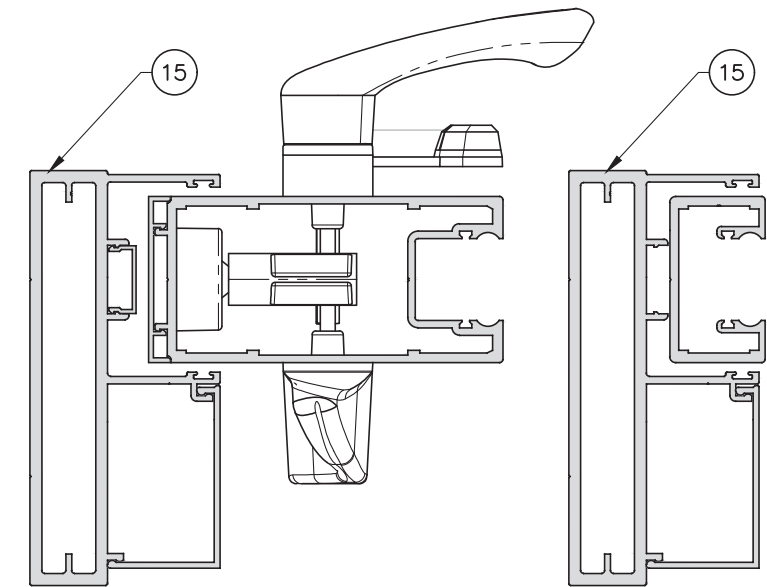
K2

Sheet No.
 16 OF 59

| 2 TRACK FREE STANDING JAMB CAPACITY - PSF | | | | | | | |
|---|------------------|----------------------|-------|--------------------------|-------|----------------------------|-------|
| SGD PANEL SIZES | | JAMB W/O REINF. (J1) | | JAMB W/ ALUM REINF. (J2) | | JAMB W/ STEEL REINF. (J2S) | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | PSF + | PSF - | PSF + | PSF - | PSF + | PSF - |
| 60 | 84 | 65 | 77 | 85 | 100 | 85 | 100 |
| 66 | | 65 | 73 | 85 | 100 | 85 | 100 |
| 72 | | 65 | 71 | 85 | 100 | 85 | 100 |
| 78 | | 65 | 69 | 85 | 100 | 85 | 100 |
| 84 | | 65 | 68 | 85 | 100 | 85 | 100 |
| 60 | 90 | 65 | 66 | 85 | 100 | 85 | 100 |
| 66 | | 62 | 62 | 85 | 98 | 85 | 100 |
| 72 | | 59 | 59 | 85 | 94 | 85 | 100 |
| 78 | | 57 | 57 | 85 | 91 | 85 | 100 |
| 84 | | 56 | 56 | 65 | 74 | 65 | 78 |
| 60 | 96 | 56 | 56 | 85 | 90 | 85 | 100 |
| 66 | | 53 | 53 | 85 | 84 | 85 | 100 |
| 72 | | 50 | 50 | 80 | 80 | 85 | 96 |
| 78 | | 48 | 48 | 64 | 64 | 65 | 78 |
| 84 | | 47 | 47 | 62 | 62 | 65 | 78 |
| 36 | 102 | 65 | 76 | 85 | 100 | 85 | 100 |
| 42 | | 65 | 66 | 85 | 100 | 85 | 100 |
| 48 | | 59 | 59 | 85 | 93 | 85 | 100 |
| 54 | | 53 | 53 | 85 | 85 | 85 | 100 |
| 60 | | 49 | 49 | 78 | 78 | 85 | 94 |
| 66 | | 46 | 46 | 73 | 73 | 85 | 88 |
| 72 | | 43 | 43 | 57 | 57 | 65 | 78 |
| 78 | | 42 | 42 | 55 | 55 | 65 | 78 |
| 84 | 40 | 40 | 53 | 53 | 65 | 77 | |
| 36 | 108 | 65 | 67 | 85 | 100 | 85 | 100 |
| 42 | | 58 | 58 | 85 | 93 | 85 | 100 |
| 48 | | 52 | 52 | 83 | 83 | 85 | 99 |
| 54 | | 47 | 47 | 75 | 75 | 85 | 90 |
| 60 | | 43 | 43 | 69 | 69 | 83 | 83 |
| 66 | | 40 | 40 | 64 | 64 | 77 | 77 |
| 72 | | 38 | 38 | 50 | 50 | 65 | 73 |
| 78 | 36 | 36 | 48 | 48 | 65 | 69 | |
| 36 | 114 | 60 | 60 | 85 | 95 | 85 | 100 |
| 42 | | 52 | 52 | 83 | 83 | 85 | 100 |
| 48 | | 46 | 46 | 74 | 74 | 85 | 88 |
| 54 | | 42 | 42 | 66 | 66 | 80 | 80 |
| 60 | | 38 | 38 | 61 | 61 | 73 | 73 |
| 66 | | 36 | 36 | 47 | 47 | 65 | 68 |
| 72 | 33 | 33 | 44 | 44 | 64 | 64 | |

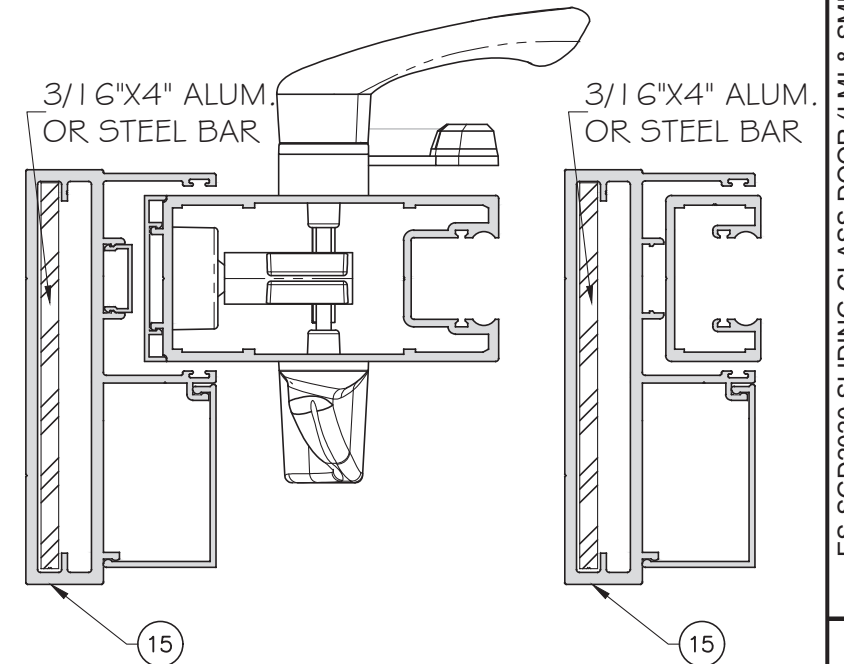
| 2 TRACK FREE STANDING JAMB CAPACITY - PSF | | | | | | | |
|---|------------------|----------------------|-------|--------------------------|-------|----------------------------|-------|
| SGD PANEL SIZES | | JAMB W/O REINF. (J1) | | JAMB W/ ALUM REINF. (J2) | | JAMB W/ STEEL REINF. (J2S) | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | PSF + | PSF - | PSF + | PSF - | PSF + | PSF - |
| 36 | 120 | 54 | 54 | 85 | 85 | 85 | 100 |
| 42 | | 47 | 47 | 74 | 74 | 85 | 89 |
| 48 | | 42 | 42 | 66 | 66 | 79 | 79 |
| 54 | | 37 | 37 | 59 | 59 | 72 | 72 |
| 60 | | 34 | 34 | 54 | 54 | 66 | 66 |
| 66 | | 32 | 32 | 42 | 42 | 61 | 61 |
| 72 | | 30 | 30 | 39 | 39 | 57 | 57 |
| 36 | 126 | 49 | 49 | 64 | 64 | 65 | 78 |
| 42 | | 42 | 42 | 56 | 56 | 65 | 78 |
| 48 | | 37 | 37 | 49 | 49 | 65 | 72 |
| 54 | | 34 | 34 | 44 | 44 | 64 | 64 |
| 60 | | 31 | 31 | 41 | 41 | 59 | 59 |
| 66 | | 29 | 29 | 38 | 38 | 55 | 55 |
| 36 | 132 | 44 | 44 | 59 | 59 | 65 | 78 |
| 42 | | 38 | 38 | 51 | 51 | 65 | 73 |
| 48 | | 34 | 34 | 45 | 45 | 65 | 65 |
| 54 | | 31 | 31 | 40 | 40 | 58 | 58 |
| 60 | | 28 | 28 | 37 | 37 | 53 | 53 |
| 36 | 138 | 41 | 41 | 53 | 53 | 65 | 77 |
| 42 | | 35 | 35 | 46 | 46 | 65 | 67 |
| 48 | | 31 | 31 | 41 | 41 | 59 | 59 |
| 54 | | 28 | 28 | 37 | 37 | 53 | 53 |
| 60 | | 25 | 25 | 33 | 33 | 48 | 48 |
| 36 | 144 | 37 | 37 | 49 | 49 | 65 | 71 |
| 42 | | 32 | 32 | 42 | 42 | 61 | 61 |
| 48 | | 28 | 28 | 37 | 37 | 54 | 54 |
| 54 | | 25 | 25 | 33 | 33 | 49 | 49 |
| 60 | | 23 | 23 | 31 | 31 | 44 | 44 |

$$\text{AVE. PANEL WIDTH} = \frac{\text{FRAME WIDTH}}{\# \text{ OF PANELS}}$$



JAMB W/ LOCK STILE UNREINF.

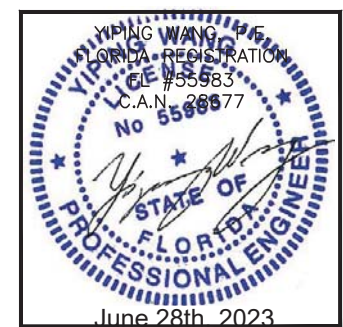
JAMB W/ FIX STILE UNREINF.



JAMB W/ LOCK STILE REINF.

JAMB W/ FIX STILE REINF.

NOTE: STILE SHOWN FOR LAMINATED GLASS OPTION ONLY. CHART COVERS BOTH INSULATED LAMINATED AND LAMINATED GLASS OPTIONS.



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| 5 | 10-11-2021 | MCY | UPDATE |
| 6 | | | |

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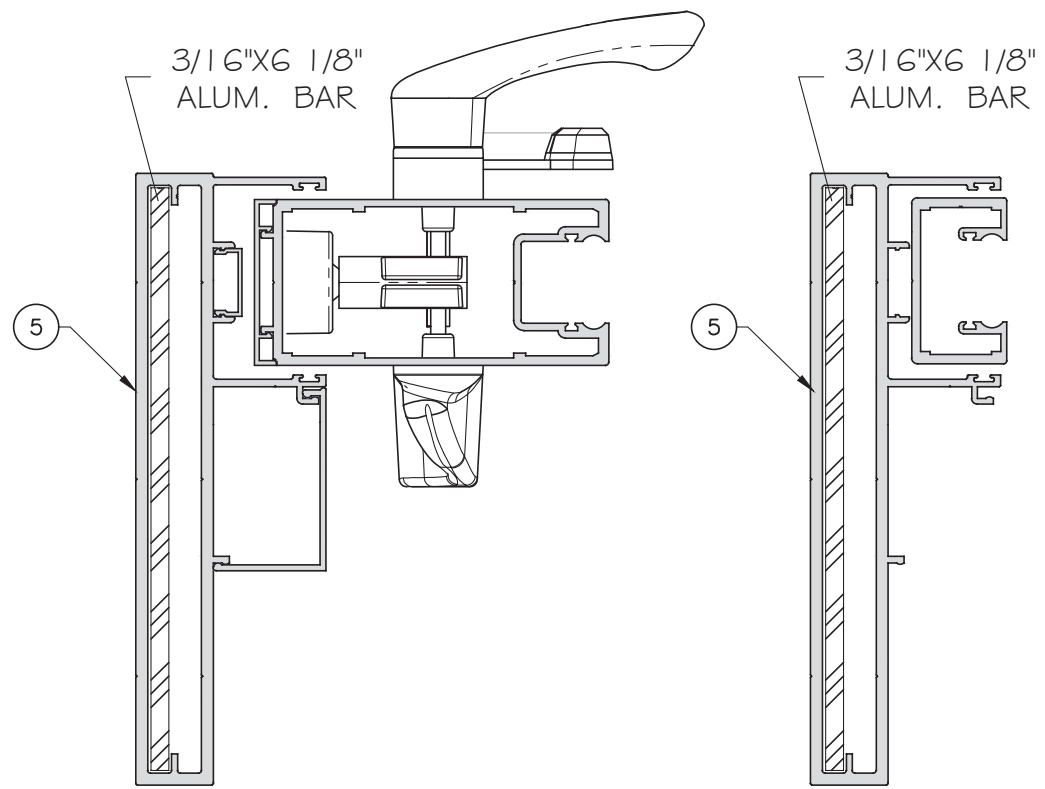
J1

Sheet No. 17 OF 59

| 3 TRACK F.STANDING JAMB CAPACITY - PSF | | | |
|--|------------------|--------------------------|-------|
| SGD PANEL SIZES | | JAMB W/ ALUM REINF. (J3) | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | PSF + | PSF - |
| 60 | 84 | 85 | 102 |
| 66 | | 85 | 102 |
| 72 | | 85 | 102 |
| 78 | | 85 | 102 |
| 84 | | 85 | 102 |
| 60 | 90 | 85 | 102 |
| 66 | | 85 | 102 |
| 72 | | 85 | 102 |
| 78 | | 85 | 102 |
| 84 | | 85 | 102 |
| 60 | 96 | 85 | 102 |
| 66 | | 85 | 102 |
| 72 | | 85 | 102 |
| 78 | | 85 | 102 |
| 84 | | 85 | 102 |
| 36 | 102 | 85 | 102 |
| 42 | | 85 | 102 |
| 48 | | 85 | 102 |
| 54 | | 85 | 102 |
| 60 | | 85 | 102 |
| 66 | | 85 | 102 |
| 72 | | 85 | 102 |
| 78 | | 85 | 102 |
| 84 | 85 | 102 | |
| 36 | 108 | 85 | 102 |
| 42 | | 85 | 102 |
| 48 | | 85 | 102 |
| 54 | | 85 | 102 |
| 60 | | 85 | 102 |
| 66 | | 85 | 102 |
| 72 | | 85 | 102 |
| 78 | | 85 | 102 |
| 36 | 114 | 85 | 102 |
| 42 | | 85 | 102 |
| 48 | | 85 | 102 |
| 54 | | 85 | 102 |
| 60 | | 85 | 102 |
| 66 | | 85 | 102 |
| 72 | 85 | 102 | |

| 3 TRACK DESIGN LOAD JAMB CAPACITY - PSF | | | | |
|---|------------------|--------------------------|-------|-----|
| SGD PANEL SIZES | | JAMB W/ ALUM REINF. (J3) | | |
| PANEL WIDTH (IN) | DOOR HEIGHT (IN) | PSF + | PSF - | |
| 36 | 120 | 85 | 102 | |
| 42 | | 85 | 102 | |
| 48 | | 85 | 102 | |
| 54 | | 85 | 102 | |
| 60 | | 85 | 102 | |
| 66 | 126 | 85 | 102 | |
| 72 | | 85 | 102 | |
| 36 | | 132 | 85 | 102 |
| 42 | | | 85 | 102 |
| 48 | | | 85 | 102 |
| 54 | 85 | | 102 | |
| 60 | 85 | | 102 | |
| 66 | 138 | 85 | 102 | |
| 36 | | 144 | 85 | 102 |
| 42 | | | 85 | 102 |
| 48 | | | 85 | 102 |
| 54 | | | 85 | 99 |
| 60 | 85 | | 90 | |

$$\text{AVE. PANEL WIDTH} = \frac{\text{FRAME WIDTH}}{\text{\# OF PANELS}}$$



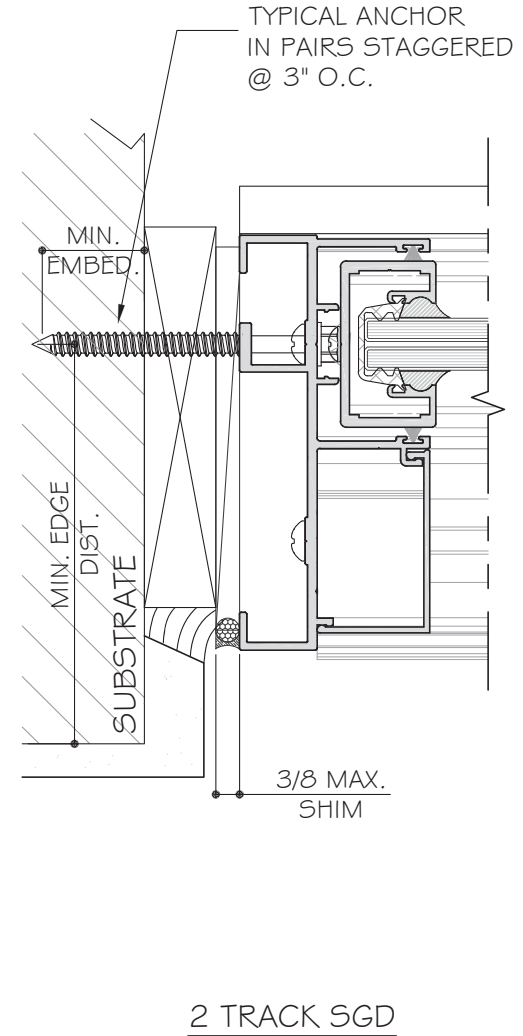
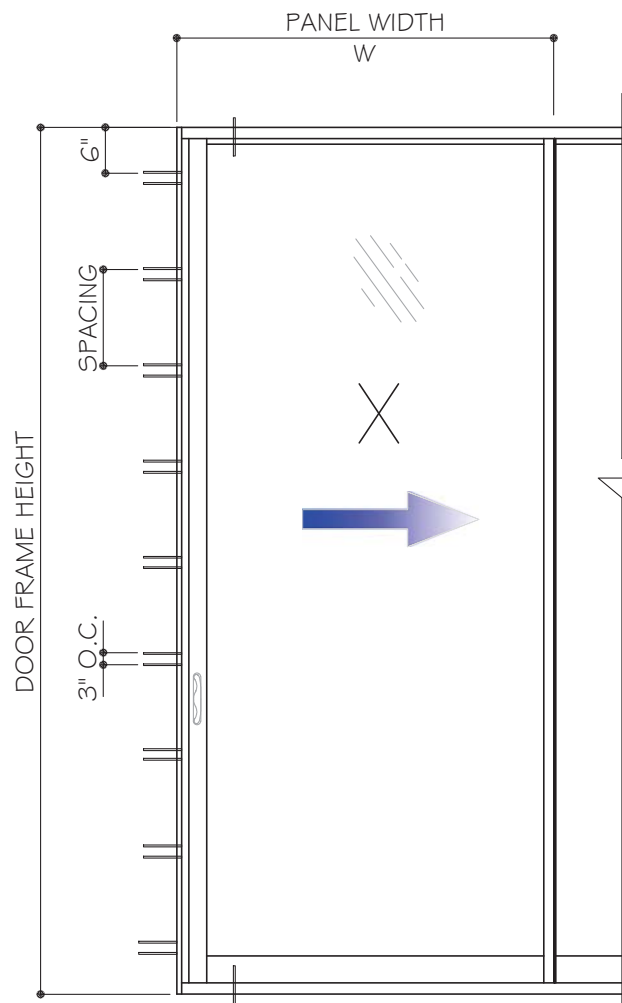
JAMB W/ LOCK STILE REINF.

JAMB W/ FIX STILE REINF.

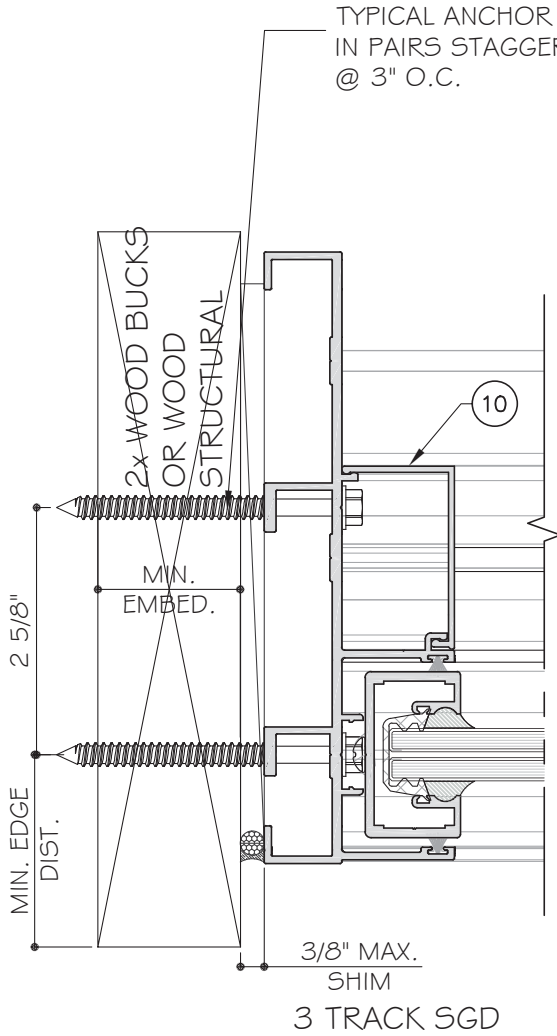
NOTE: STILE SHOWN FOR LAMINATED GLASS OPTION ONLY. CHART COVERS BOTH INSULATED LAMINATED AND LAMINATED GLASS OPTIONS.



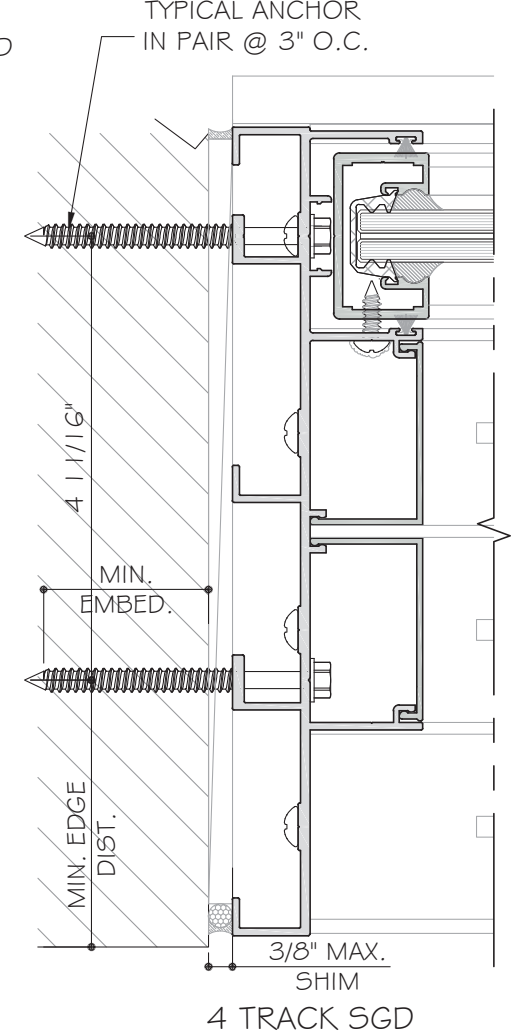
| | | | |
|--|------------|---|--------------------|
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| ES-SGD2020 SLIDING GLASS DOOR (LMI & SMI) | | | |
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| 3 | 12-29-2020 | MCY | UPDATE |
| 4 | 04-06-2021 | MCY | UPDATE |
| 5 | 10-11-2021 | MCY | UPDATE |
| Rev. No. | Date | Drawn By | Description |
| 10.11.2021 | | | |
| DRAWING NO. | | Scale | |
| AD16-29 | | | |
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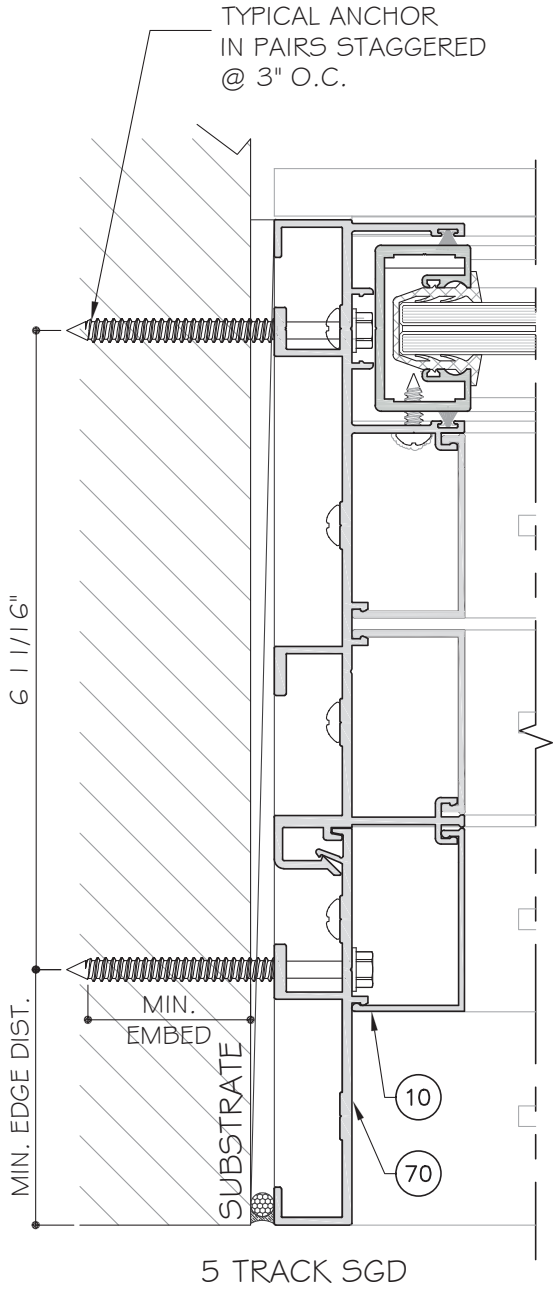
2 TRACK SGD



3 TRACK SGD



4 TRACK SGD

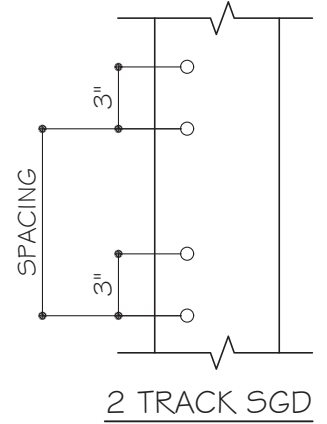


5 TRACK SGD

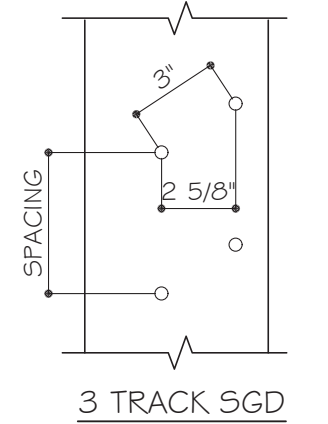
JAMB ANCHOR TYPES:

- TYPE "A1": 1/4" DIA. KWIKCON (Fu=137 KSI, Fy=138 KSI)
- 1 1/2" MIN. EMBED INTO 2X WOOD OR WOOD
 - THRU 1X WOOD BUCKS 1 3/4" MIN. EMBED INTO fc'=3 KSI MIN. CONCRETE
 - 1 3/4" MIN. EMBED DIRECTLY INTO fc'=3 KSI MIN. CONCRETE
- 1/4" DIA. KWIKCON (Fu=137 KSI, Fy=138 KSI)
- 1 1/2" MIN. EMBED INTO 2X WOOD OR WOOD
 - THRU 1X WOOD BUCKS 1 3/4" MIN. EMBED INTO fc'=3 KSI MIN. CONCRETE
 - 1 3/4" MIN. EMBED DIRECTLY INTO fc'=3 KSI MIN. CONCRETE
- TYPE "B1": 1/4" DIA. ULTRACON+ (Fu=164 KSI, Fy=148 KSI)
- 1 1/2" MIN. EMBED INTO 2X WOOD OR WOOD
 - THRU 1X WOOD BUCKS 1 3/4" MIN. EMBED INTO fc'=3 KSI MIN. CONCRETE
 - 1 3/4" MIN. EMBED DIRECTLY INTO fc'=3 KSI MIN. CONCRETE
- TYPE "C1": 1/4" DIA. TEKS/DRIL-FLEX SCREW GRADE 5 (Fu=120 KSI, Fy=92 KSI) INTO METAL STRUCTURE
- TYPE "D1": 5/16" TEKS/DRIL-FLEX SCREW (Fu=120 KSI, Fy=92 KSI) INTO METAL STRUCTURE
- ALUMINUM: 1/8" THK. MIN. (6063-T5 MIN.)
 STEEL: 1/8" THK. MIN. (Fy=36KSI, MIN.)
 STEEL IN CONTACT WITH ALUM. TO BE PAINTED.

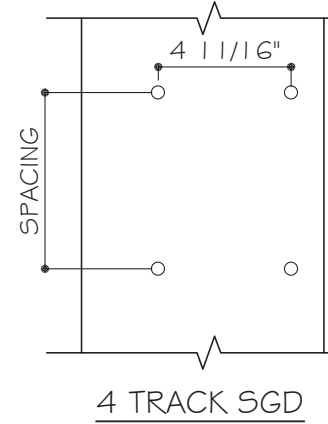
| JAMB ANCHOR CHART | | | | |
|--------------------------------------|--------------------------|-----------|----------------|-----------|
| 2 TRACK, 3 TRACK, 4 TRACK OR 5 TRACK | | | | |
| JAMB ANCHOR TYPE | SUBSTRATE | MAX. SHIM | ANCHOR SPACING | |
| | | | W≤72" | 72"<W≤84" |
| A1 | CONC. | 1/4" | 18" | 17" |
| A1 | WOOD/CONC. | 3/8" | 15" | 13" |
| A1 | WOOD/C90 BLOCK | 3/8" | 13" | 11" |
| B1 | CONC. | 3/8" | 18" | 17" |
| B1 | WOOD/CONC. | 3/8" | 13" | 11" |
| C1 | 1/8" THK. METAL(6063-T5) | 1/4" | 18" | 18" |
| C1 | | 3/8" | 13" | 11" |
| D1 | | 3/8" | 18" | 18" |



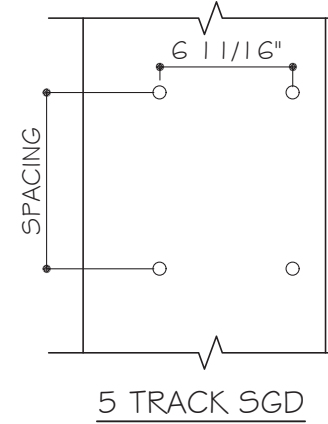
2 TRACK SGD



3 TRACK SGD



4 TRACK SGD



5 TRACK SGD



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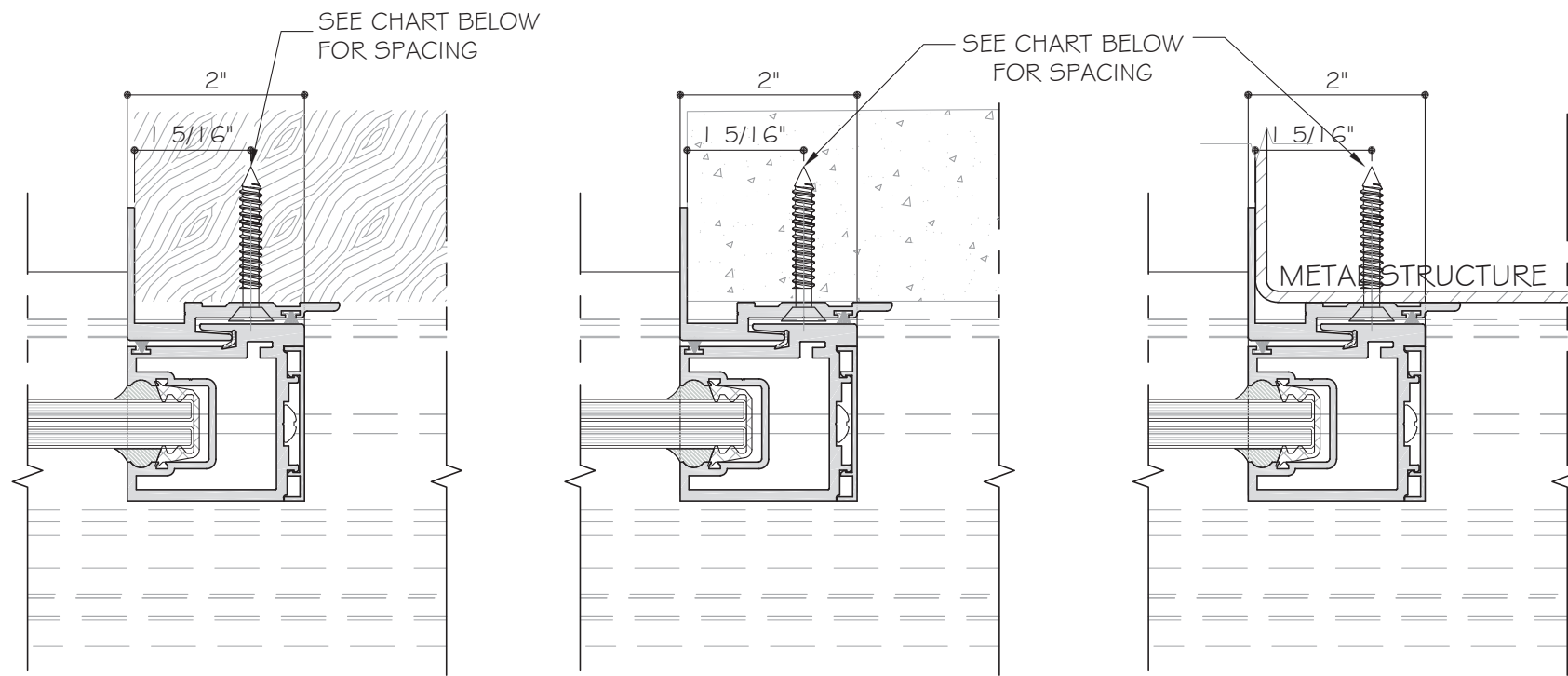
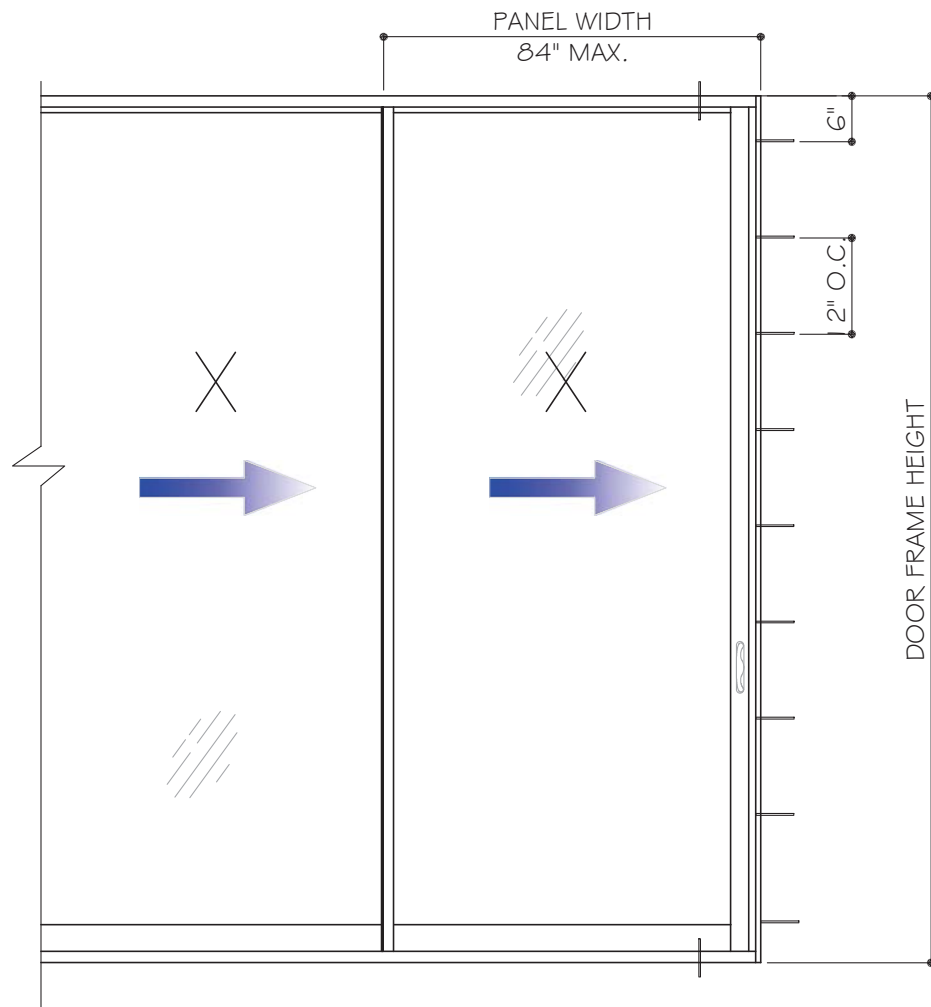
| Rev. No. | Date | Drawn By | Description |
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| 1 | 10-16-2019 | MCY | UPDATE TO FBC 2020 |
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| 4 | 04-06-2021 | MCY | UPDATE |
| 5 | 10-11-2021 | MCY | UPDATE |

Drawn Date: 10.11.2021 Scale: _____

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J3

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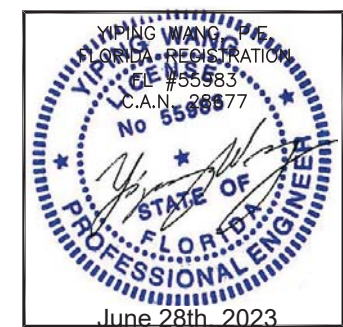
JAMB ANCHOR TYPES:

TYPE "B2": 1/4" DIA. ULTRACON+ (Fu=164 KSI, Fy=148 KSI)
 1 3/4" MIN. EMBED INTO f'c=3 KSI MIN. CONCRETE
 1 5/16" MIN. EDGE DISTANCE

TYPE "D2": 1/4" DIA. TEKS-SELF DRILLING SCREW (Fu=120 KSI, Fy=92 KSI)
 INTO METAL STRUCTURE
 ALUMINUM: 3/16" THK. MIN. (6063-T6 MIN.)
 STEEL: 1/8" THK. MIN. (Fy=36KSI, MIN.)

TYPE "D2A": 1/4" DIA. SMS (Fu=74 KSI, Fy=57 KSI)
 1 1/2" MIN. EMBED INTO WOOD STRUCTURE (SG=0.55 MIN.)
 1" MIN. EDGE DISTANCE

| ANCHOR TYPE | EMBEDMENT | SUBSTRATE | ANCHOR SPACING | |
|--------------------|-----------|-----------------|----------------|-----------|
| | | | W≤72" | 72"<W≤84" |
| A2 (1/4" ULTRACON) | 1 3/4" | CONCRETE | 12" | 11" |
| D2(#14 TEKS) | 3/16" | ALUM.6063-T6 | 16" | 14" |
| D2(#14 SMS) | 1/8" | STL | 14" | 12" |
| D2A(#14 SMS) | 1 1/2" | WOOD SG=0.55 | 13" | 11" |



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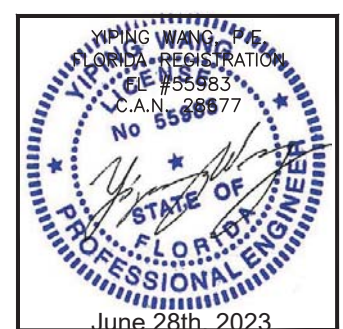
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|-------------|-------|--------------------|-------------|
| 10-16-2019 | MCY | UPDATE | DESCRIPTION |
| 07-14-2020 | MCY | UPDATE TO FRC 2020 | |
| 12-29-2020 | MCY | UPDATE | |
| 04-06-2021 | MCY | UPDATE | |
| 10-11-2021 | MCY | UPDATE | |
| Rev. No. | Date | Drawn By | Description |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| Drawn Date | Scale | | |
| 10.11.2021 | | | |
| DRAWING NO. | | | |
| AD16-29 | | | |
| J4 | | | |
| Sheet No. | | | |
| 20 OF 59 | | | |

| HEAD ANCHOR CAPACITY - PSF | | | | | | | | |
|----------------------------|------------------|-------------------------|------------|------------|--------------|-----------------|--------|--------|
| SGD PANEL SIZES | | ANCHOR TYPE "A" OR "AA" | | | | ANCHOR TYPE "B" | | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | A4 AA4 +/- | A6 AA6 +/- | A8 AA8 +/- | A10 AA10 +/- | B4 +/- | B6 +/- | B8 +/- |
| 36 | 84 | 132.4 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 |
| 42 | | 118.9 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 |
| 48 | | 109.2 | 150.0 | 150.0 | 150.0 | 140.0 | 150.0 | 150.0 |
| 54 | | 102.2 | 150.0 | 150.0 | 150.0 | 131.0 | 150.0 | 150.0 |
| 60 | | 97.1 | 145.6 | 150.0 | 150.0 | 124.4 | 150.0 | 150.0 |
| 66 | | 93.4 | 140.1 | 150.0 | 150.0 | 119.8 | 150.0 | 150.0 |
| 72 | | 91.0 | 136.5 | 150.0 | 150.0 | 116.7 | 150.0 | 150.0 |
| 78 | | 89.6 | 134.4 | 150.0 | 150.0 | 114.9 | 150.0 | 150.0 |
| 84 | | 89.1 | 133.7 | 150.0 | 150.0 | 114.3 | 150.0 | 150.0 |
| 36 | 90 | 121.3 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 |
| 42 | | 108.5 | 150.0 | 150.0 | 150.0 | 139.1 | 150.0 | 150.0 |
| 48 | | 99.3 | 148.9 | 150.0 | 150.0 | 127.3 | 150.0 | 150.0 |
| 54 | | 92.4 | 138.7 | 150.0 | 150.0 | 118.5 | 150.0 | 150.0 |
| 60 | | 87.4 | 131.0 | 150.0 | 150.0 | 112.0 | 150.0 | 150.0 |
| 66 | | 93.6 | 125.4 | 150.0 | 150.0 | 107.2 | 150.0 | 150.0 |
| 72 | | 80.9 | 121.3 | 150.0 | 150.0 | 103.7 | 150.0 | 150.0 |
| 78 | | 79.1 | 118.6 | 150.0 | 150.0 | 101.4 | 150.0 | 150.0 |
| 84 | | 78.0 | 117.0 | 150.0 | 150.0 | 100.0 | 150.0 | 150.0 |
| 36 | 96 | 112.0 | 150.0 | 150.0 | 150.0 | 143.6 | 150.0 | 150.0 |
| 42 | | 99.8 | 149.8 | 150.0 | 150.0 | 128.0 | 150.0 | 150.0 |
| 48 | | 91.0 | 136.5 | 150.0 | 150.0 | 116.7 | 150.0 | 150.0 |
| 54 | | 84.4 | 126.6 | 150.0 | 150.0 | 108.2 | 150.0 | 150.0 |
| 60 | | 79.4 | 119.1 | 150.0 | 150.0 | 101.8 | 150.0 | 150.0 |
| 66 | | 75.6 | 113.5 | 150.0 | 150.0 | 97.0 | 145.5 | 150.0 |
| 72 | | 82.8 | 109.2 | 145.6 | 150.0 | 93.3 | 140.0 | 150.0 |
| 78 | | 70.7 | 106.1 | 141.5 | 150.0 | 90.7 | 136.0 | 150.0 |
| 84 | | 69.3 | 104.0 | 138.7 | 150.0 | 88.9 | 133.3 | 150.0 |
| 36 | 102 | 104.0 | 150.0 | 150.0 | 150.0 | 133.3 | 150.0 | 150.0 |
| 42 | | 92.4 | 138.7 | 150.0 | 150.0 | 118.5 | 150.0 | 150.0 |
| 48 | | 84.0 | 126.0 | 150.0 | 150.0 | 107.7 | 150.0 | 150.0 |
| 54 | | 77.7 | 116.5 | 150.0 | 150.0 | 99.6 | 149.3 | 150.0 |
| 60 | | 72.8 | 109.2 | 145.6 | 150.0 | 93.3 | 140.0 | 150.0 |
| 66 | | 69.1 | 103.6 | 138.1 | 150.0 | 88.5 | 132.8 | 150.0 |
| 72 | | 66.2 | 99.3 | 132.4 | 150.0 | 84.8 | 127.3 | 150.0 |
| 78 | | 64.0 | 96.0 | 128.0 | 150.0 | 82.1 | 123.1 | 150.0 |
| 84 | | 62.4 | 93.6 | 124.8 | 150.0 | 80.0 | 120.0 | 150.0 |
| 36 | 108 | 97.1 | 145.6 | 150.0 | 150.0 | 124.4 | 150.0 | 150.0 |
| 42 | | 86.1 | 129.1 | 150.0 | 150.0 | 110.3 | 150.0 | 150.0 |
| 48 | | 78.0 | 117.0 | 150.0 | 150.0 | 100.0 | 150.0 | 150.0 |
| 54 | | 71.9 | 107.9 | 143.8 | 150.0 | 92.2 | 138.3 | 150.0 |
| 60 | | 67.2 | 100.8 | 134.4 | 150.0 | 86.2 | 129.2 | 150.0 |
| 66 | | 63.5 | 95.3 | 127.1 | 150.0 | 81.5 | 122.2 | 150.0 |
| 72 | | 60.7 | 91.0 | 121.3 | 150.0 | 77.8 | 116.7 | 150.0 |
| 78 | | 58.4 | 87.7 | 116.9 | 146.1 | 74.9 | 112.4 | 149.8 |

| HEAD ANCHOR CAPACITY - PSF | | | | | | | | | |
|----------------------------|------------------|-------------------------|------------|------------|--------------|-----------------|--------|--------|-------|
| SGD PANEL SIZES | | ANCHOR TYPE "A" OR "AA" | | | | ANCHOR TYPE "B" | | | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | A4 AA4 +/- | A6 AA6 +/- | A8 AA8 +/- | A10 AA10 +/- | B4 +/- | B6 +/- | B8 +/- | |
| 36 | 114 | 91.0 | 136.5 | 150.0 | 150.0 | 116.7 | 150.0 | 150.0 | |
| 42 | | 80.5 | 120.8 | 150.0 | 150.0 | 103.2 | 150.0 | 150.0 | |
| 48 | | 72.8 | 109.2 | 145.6 | 150.0 | 93.3 | 140.0 | 150.0 | |
| 54 | | 66.9 | 100.4 | 133.9 | 150.0 | 85.8 | 128.7 | 150.0 | |
| 60 | | 62.4 | 93.6 | 124.8 | 150.0 | 80.0 | 120.0 | 150.0 | |
| 66 | | 58.8 | 88.2 | 117.7 | 147.1 | 75.4 | 113.1 | 150.0 | |
| 72 | | 56.0 | 84.0 | 112.0 | 112.0 | 71.8 | 107.7 | 143.6 | |
| 36 | | 120 | 85.6 | 128.5 | 150.0 | 150.0 | 109.8 | 150.0 | 150.0 |
| 42 | | | 75.6 | 113.5 | 150.0 | 150.0 | 97.0 | 145.5 | 150.0 |
| 48 | 68.3 | | 102.4 | 136.5 | 150.0 | 87.5 | 131.3 | 150.0 | |
| 54 | 62.6 | | 93.9 | 125.2 | 150.0 | 80.3 | 120.4 | 150.0 | |
| 60 | 58.2 | | 87.4 | 116.5 | 145.6 | 74.7 | 112.0 | 149.3 | |
| 66 | 54.8 | | 82.2 | 109.5 | 136.9 | 70.2 | 105.3 | 140.4 | |
| 72 | 52.0 | | 78.0 | 104.0 | 130.0 | 66.7 | 100.0 | 133.3 | |
| 36 | 126 | | 80.9 | 121.3 | 150.0 | 150.0 | 103.7 | 150.0 | 150.0 |
| 42 | | | 71.3 | 107.0 | 142.6 | 150.0 | 91.4 | 137.1 | 150.0 |
| 48 | | 64.2 | 96.4 | 128.5 | 150.0 | 82.4 | 123.5 | 150.0 | |
| 54 | | 58.8 | 88.2 | 117.7 | 147.1 | 75.4 | 113.1 | 150.0 | |
| 60 | | 54.6 | 81.9 | 109.2 | 136.5 | 70.0 | 105.0 | 140.0 | |
| 66 | | 51.2 | 76.9 | 102.5 | 128.1 | 65.7 | 98.5 | 131.4 | |
| 36 | | 132 | 76.6 | 114.9 | 150.0 | 150.0 | 98.2 | 147.4 | 150.0 |
| 42 | | | 67.5 | 101.2 | 134.9 | 150.0 | 86.5 | 129.7 | 150.0 |
| 48 | | | 60.7 | 91.0 | 121.3 | 150.0 | 77.8 | 116.7 | 150.0 |
| 54 | 55.5 | | 83.2 | 110.9 | 138.7 | 71.1 | 106.7 | 142.2 | |
| 60 | 51.4 | | 77.1 | 102.8 | 128.5 | 65.9 | 98.8 | 131.8 | |
| 66 | 48.1 | | 72.2 | 96.3 | 120.3 | 61.7 | 92.6 | 123.4 | |
| 36 | 138 | | 72.8 | 109.2 | 145.6 | 150.0 | 93.3 | 140.0 | 150.0 |
| 42 | | | 64.0 | 96.0 | 128.0 | 150.0 | 82.1 | 123.1 | 150.0 |
| 48 | | | 57.5 | 86.2 | 114.9 | 143.7 | 73.7 | 110.5 | 147.4 |
| 54 | | 52.5 | 78.7 | 104.9 | 131.2 | 67.3 | 100.9 | 134.5 | |
| 60 | | 48.5 | 72.8 | 97.1 | 121.3 | 62.2 | 93.3 | 124.4 | |
| 36 | | 144 | 69.3 | 104.0 | 138.7 | 150.0 | 88.9 | 133.3 | 150.0 |
| 42 | | | 60.9 | 91.3 | 121.8 | 150.0 | 78.0 | 117.1 | 150.0 |
| 48 | | | 54.6 | 81.9 | 109.2 | 136.5 | 70.0 | 105.0 | 140.0 |
| 54 | | | 49.8 | 74.7 | 99.6 | 124.4 | 63.8 | 95.7 | 127.6 |
| 60 | 46.0 | | 69.0 | 92.0 | 114.9 | 58.9 | 88.4 | 117.9 | |

A4 OR AA4 - A CLUSTER OF (4) TYPE "A" OR "AA" ANCHORS AT HEAD
 A6 OR AA6- A CLUSTER OF (6) TYPE "A" OR "AA" ANCHORS AT HEAD
 A8 OR AA8- A CLUSTER OF (8) TYPE "A" OR "AA" ANCHORS AT HEAD
 A10 OR AA10 - A CLUSTER OF (10) TYPE "A" OR "AA" ANCHORS AT HEAD
 B4 - A CLUSTER OF (4) TYPE "B" ANCHORS AT HEAD
 B6 - A CLUSTER OF (6) TYPE "B" ANCHORS AT HEAD
 B8 - A CLUSTER OF (8) TYPE "B" ANCHORS AT HEAD

FOR ANCHOR TYPES & LAYOUT, SEE SHEET AG & A7



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TEL. (305) 624-7775

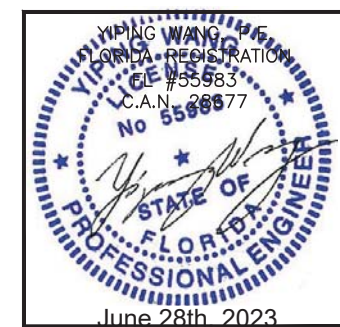
| | | | | | | | |
|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| UPDATE | MAY 10-16-2019 | MAY 07-14-2020 | MAY 12-29-2020 | MAY 04-06-2021 | MAY 10-11-2021 | MAY 10-11-2021 | MAY 10-11-2021 |
| UPDATE TO FBC 2020 | | | | | | | |
| Rev. No. | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Drawn By | | | | | | | |
| Date | | | | | | | |
| Description | | | | | | | |
| Drawn Date | 10.11.2021 | | | | | | |
| Scale | | | | | | | |
| DRAWING NO. | AD16-29 | | | | | | |
| Sheet No. | 21 OF 59 | | | | | | |

| HEAD ANCHOR CAPACITY - PSF | | | | | |
|----------------------------|------------------|------------------|---------|---------|----------|
| SGD PANEL SIZES | | ANCHOR TYPE "BB" | | | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | BB4 +/- | BB6 +/- | BB8 +/- | BB10 +/- |
| 78 | 84 | 77.8 | 116.7 | 150.0 | 150.0 |
| 84 | | 77.4 | 116.1 | 150.0 | 150.0 |
| 78 | 90 | 68.6 | 103.0 | 137.3 | 150.0 |
| 84 | | 67.7 | 101.6 | 135.4 | 150.0 |
| 36 | 96 | 97.2 | 145.8 | 150.0 | 150.0 |
| 42 | | 86.7 | 130.0 | 150.0 | 150.0 |
| 48 | | 79.0 | 118.5 | 150.0 | 150.0 |
| 54 | | 73.3 | 109.9 | 146.6 | 150.0 |
| 60 | | 68.9 | 103.4 | 137.9 | 150.0 |
| 66 | | 65.7 | 98.5 | 131.3 | 150.0 |
| 72 | | 63.2 | 94.8 | 126.4 | 150.0 |
| 78 | | 61.4 | 92.1 | 122.8 | 150.0 |
| 84 | | 60.2 | 90.3 | 120.4 | 150.0 |
| 36 | | 102 | 90.3 | 135.4 | 150.0 |
| 42 | 80.3 | | 120.4 | 150.0 | 150.0 |
| 48 | 72.9 | | 109.4 | 145.8 | 150.0 |
| 54 | 67.4 | | 101.1 | 134.8 | 150.0 |
| 60 | 63.2 | | 94.8 | 126.4 | 150.0 |
| 66 | 60.0 | | 89.9 | 119.9 | 149.9 |
| 72 | 57.5 | | 86.2 | 114.9 | 143.6 |
| 76 | 55.6 | | 83.3 | 111.1 | 138.9 |
| 84 | 54.2 | | 81.3 | 108.3 | 135.4 |
| 36 | 108 | | 84.3 | 126.4 | 150.0 |
| 42 | | 74.7 | 112.1 | 149.4 | 150.0 |
| 48 | | 67.7 | 101.6 | 135.4 | 150.0 |
| 54 | | 62.4 | 93.6 | 124.8 | 150.0 |
| 60 | | 58.3 | 87.5 | 116.7 | 145.8 |
| 66 | | 55.2 | 82.7 | 110.3 | 137.9 |
| 72 | | 52.7 | 79.0 | 105.3 | 131.7 |
| 78 | | 50.7 | 76.1 | 101.5 | 126.8 |
| 36 | 114 | 79.0 | 118.5 | 150.0 | 150.0 |
| 42 | | 69.9 | 104.8 | 139.8 | 150.0 |
| 48 | | 63.2 | 94.8 | 126.4 | 150.0 |
| 54 | | 58.1 | 87.2 | 116.2 | 145.3 |
| 60 | | 54.2 | 81.3 | 108.3 | 135.4 |
| 66 | | 51.1 | 76.6 | 102.1 | 127.7 |
| 72 | 48.6 | 72.9 | 97.2 | 121.5 | |
| 36 | 120 | 74.4 | 111.5 | 148.7 | 150.0 |
| 42 | | 65.7 | 98.5 | 131.3 | 150.0 |
| 48 | | 59.3 | 88.9 | 118.5 | 148.1 |
| 54 | | 54.4 | 81.5 | 108.7 | 135.9 |
| 60 | | 50.6 | 75.8 | 101.1 | 126.4 |
| 66 | | 47.5 | 71.3 | 95.1 | 118.9 |
| 72 | | 45.1 | 67.7 | 90.3 | 112.9 |

| HEAD ANCHOR CAPACITY - PSF | | | | | |
|----------------------------|------------------|------------------|---------|---------|----------|
| SGD PANEL SIZES | | ANCHOR TYPE "BB" | | | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | BB4 +/- | BB6 +/- | BB8 +/- | BB10 +/- |
| 36 | 132 | 66.5 | 99.8 | 133.1 | 150.0 |
| 42 | | 58.6 | 87.8 | 117.1 | 146.4 |
| 48 | | 52.7 | 79.0 | 105.3 | 131.7 |
| 54 | | 48.2 | 72.2 | 96.3 | 120.4 |
| 60 | | 44.6 | 66.9 | 89.2 | 111.5 |
| 66 | | 41.8 | 62.7 | 83.6 | 104.5 |
| 36 | 138 | 63.2 | 94.8 | 126.4 | 150.0 |
| 42 | | 55.6 | 83.3 | 111.1 | 138.9 |
| 48 | | 49.9 | 74.8 | 99.8 | 124.7 |
| 54 | | 45.5 | 68.3 | 91.1 | 113.9 |
| 60 | 42.1 | 63.2 | 84.3 | 105.3 | |
| 36 | 144 | 60.2 | 90.3 | 120.4 | 150.0 |
| 42 | | 52.9 | 79.3 | 105.7 | 132.1 |
| 48 | | 47.4 | 71.1 | 94.8 | 118.5 |
| 54 | | 43.2 | 64.8 | 86.4 | 108.0 |
| 60 | 39.9 | 59.9 | 79.8 | 99.8 | |

BB4 - A CLUSTER OF (4) ANCHORS TYPE "BB" AT INTERLOCK/ASTRAGAL
BB6 - A CLUSTER OF (6) ANCHORS TYPE "BB" AT INTERLOCK/ASTRAGAL
BB8 - A CLUSTER OF (8) ANCHORS TYPE "BB" AT INTERLOCK/ASTRAGAL
BB10 - A CLUSTER OF (10) ANCHORS TYPE "BB" AT INTERLOCK/ASTRAGAL

FOR ANCHOR TYPES & LAYOUT, SEE SHEET A7



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10653 NE Quaybridge Ct.
Miami, FL 33138
TEL. (305) 624-7775

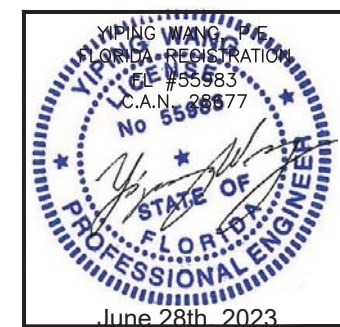
| | | |
|-------------|------------|-------------|
| UPDATE | DATE | DESCRIPTION |
| 1 | 10-16-2019 | MCY |
| 2 | 07-14-2020 | MCY |
| 3 | 12-29-2020 | MCY |
| 4 | 04-06-2021 | MCY |
| 5 | 10-11-2021 | MCY |
| 6 | | |
| Rev. No. | Date | Drawn By |
| 10.11.2021 | | |
| Drawn Date | Scale | |
| 10.11.2021 | | |
| DRAWING NO. | AD16-29 | |
| | A2 | |
| Sheet No. | 22 OF 59 | |

| HEAD ANCHOR CAPACITY - PSF | | | | | | |
|----------------------------|------------------|------------------|---------|---------|----------|-------|
| SGD PANEL SIZES | | ANCHOR TYPE "CC" | | | | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | CC4 +/- | CC6 +/- | CC8 +/- | CC10 +/- | |
| 78 | 84 | 88.0 | 131.9 | 150.0 | 150.0 | |
| 84 | | 87.5 | 131.3 | 150.0 | 150.0 | |
| 78 | 90 | 77.6 | 116.4 | 150.0 | 150.0 | |
| 84 | | 76.6 | 114.9 | 150.0 | 150.0 | |
| 36 | 96 | 109.9 | 150.0 | 150.0 | 150.0 | |
| 42 | | 98.0 | 147.0 | 150.0 | 150.0 | |
| 48 | | 89.3 | 134.0 | 150.0 | 150.0 | |
| 54 | | 82.9 | 124.3 | 150.0 | 150.0 | |
| 60 | | 78.0 | 116.9 | 150.0 | 150.0 | |
| 66 | | 74.3 | 111.4 | 148.5 | 150.0 | |
| 72 | | 71.5 | 107.2 | 142.9 | 150.0 | |
| 78 | | 69.4 | 104.2 | 138.9 | 150.0 | |
| 84 | | 68.1 | 102.1 | 136.1 | 150.0 | |
| 36 | | 102 | 102.1 | 150.0 | 150.0 | 150.0 |
| 42 | 90.8 | | 136.1 | 150.0 | 150.0 | |
| 48 | 82.5 | | 123.7 | 150.0 | 150.0 | |
| 54 | 76.2 | | 114.3 | 150.0 | 150.0 | |
| 60 | 71.5 | | 107.2 | 142.9 | 150.0 | |
| 66 | 67.8 | | 101.7 | 135.6 | 149.9 | |
| 72 | 65.0 | | 97.5 | 129.9 | 143.6 | |
| 78 | 62.8 | | 94.2 | 125.7 | 150.0 | |
| 84 | 61.3 | | 91.9 | 122.5 | 150.0 | |
| 36 | 108 | | 95.3 | 142.9 | 150.0 | 150.0 |
| 42 | | 84.5 | 126.7 | 150.0 | 150.0 | |
| 48 | | 76.6 | 114.9 | 150.0 | 150.0 | |
| 54 | | 70.6 | 105.9 | 141.2 | 150.0 | |
| 60 | | 66.0 | 99.0 | 131.9 | 150.0 | |
| 66 | | 62.4 | 93.6 | 124.7 | 150.0 | |
| 72 | | 59.6 | 89.3 | 119.1 | 148.9 | |
| 78 | | 57.4 | 86.0 | 114.7 | 143.4 | |
| 36 | | 114 | 89.3 | 134.0 | 150.0 | 150.0 |
| 42 | | | 79.0 | 118.6 | 150.0 | 150.0 |
| 48 | 71.5 | | 107.2 | 142.9 | 150.0 | |
| 54 | 65.7 | | 98.6 | 131.4 | 150.0 | |
| 60 | 61.3 | | 91.9 | 122.5 | 150.0 | |
| 66 | 57.8 | | 86.6 | 115.5 | 144.4 | |
| 72 | 55.0 | 82.5 | 109.9 | 137.4 | | |
| 36 | 120 | 84.1 | 126.1 | 150.0 | 150.0 | |
| 42 | | 74.3 | 111.4 | 148.5 | 150.0 | |
| 48 | | 67.0 | 100.5 | 134.0 | 150.0 | |
| 54 | | 61.5 | 92.2 | 123.0 | 150.0 | |
| 60 | | 57.2 | 85.8 | 114.3 | 142.9 | |
| 66 | | 53.8 | 80.7 | 107.5 | 134.4 | |
| 72 | 51.0 | 76.6 | 102.1 | 127.6 | | |

| HEAD ANCHOR CAPACITY - PSF | | | | | |
|----------------------------|------------------|------------------|---------|---------|----------|
| SGD PANEL SIZES | | ANCHOR TYPE "CC" | | | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | CC4 +/- | CC6 +/- | CC8 +/- | CC10 +/- |
| 36 | 132 | 75.2 | 112.8 | 150.0 | 150.0 |
| 42 | | 66.2 | 99.3 | 132.4 | 150.0 |
| 48 | | 59.6 | 89.3 | 119.1 | 148.9 |
| 54 | | 54.5 | 81.7 | 108.9 | 136.1 |
| 60 | | 50.4 | 75.7 | 100.9 | 126.1 |
| 66 | | 47.3 | 70.9 | 94.5 | 118.1 |
| 36 | 138 | 71.5 | 107.2 | 142.9 | 150.0 |
| 42 | | 62.8 | 94.2 | 125.7 | 150.0 |
| 48 | | 56.4 | 84.6 | 112.8 | 141.1 |
| 54 | | 51.5 | 77.3 | 103.0 | 128.8 |
| 60 | 47.6 | 71.5 | 95.3 | 119.1 | |
| 36 | 144 | 68.1 | 102.1 | 136.1 | 150.0 |
| 42 | | 59.8 | 89.6 | 119.5 | 149.4 |
| 48 | | 53.6 | 80.4 | 107.2 | 134.0 |
| 54 | | 48.9 | 73.3 | 97.7 | 122.2 |
| 60 | 45.1 | 67.7 | 90.3 | 112.8 | |

CC4 - A CLUSTER OF (4) ANCHORS TYPE "CC" AT INTERLOCK/ASTRAGAL
 CC6 - A CLUSTER OF (6) ANCHORS TYPE "CC" AT INTERLOCK/ASTRAGAL
 CC8 - A CLUSTER OF (8) ANCHORS TYPE "CC" AT INTERLOCK/ASTRAGAL
 CC10 - A CLUSTER OF (10) ANCHORS TYPE "CC" AT INTERLOCK/ASTRAGAL

FOR ANCHOR TYPES & LAYOUT, SEE SHEET A7



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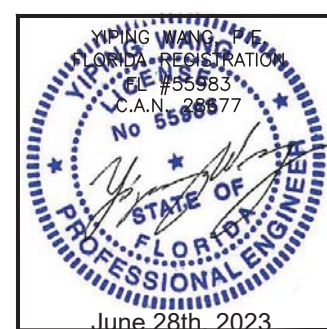
| | | | |
|-------------|------------|------------|--------------------|
| UPDATE | MCY | DATE | DESCRIPTION |
| 1 | 10-16-2019 | 07-14-2020 | UPDATE TO FBC 2020 |
| 2 | 07-14-2020 | 12-29-2020 | UPDATE |
| 3 | 12-29-2020 | 04-06-2021 | UPDATE |
| 4 | 04-06-2021 | 10-11-2021 | UPDATE |
| 5 | 10-11-2021 | | |
| 6 | | | |
| Rev. No. | Date | Drawn By | Description |
| 10.11.2021 | | | |
| DRAWING NO. | | Scale | |
| AD16-29 | | | |
| A3 | | | |
| Sheet No. | | | |
| 23 OF 59 | | | |

| HEAD ANCHOR CAPACITY - PSF | | | | | | | | |
|----------------------------|------------------|-----------------|--------|-----------------|--------|--------|-----------------|--------|
| SGD PANEL SIZES | | ANCHOR TYPE "C" | | ANCHOR TYPE "D" | | | ANCHOR TYPE "E" | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | C4 +/- | C6 +/- | D4 +/- | D6 +/- | D8 +/- | E4 +/- | E6 +/- |
| 36 | 84 | 150.0 | 150.0 | 114.9 | 150.0 | 150.0 | 150.0 | 150.0 |
| 42 | | 150.0 | 150.0 | 103.2 | 150.0 | 150.0 | 150.0 | 150.0 |
| 48 | | 150.0 | 150.0 | 94.8 | 142.2 | 150.0 | 150.0 | 150.0 |
| 54 | | 150.0 | 150.0 | 88.7 | 133.1 | 150.0 | 150.0 | 150.0 |
| 60 | | 150.0 | 150.0 | 84.3 | 126.4 | 150.0 | 150.0 | 150.0 |
| 66 | | 150.0 | 150.0 | 81.1 | 121.7 | 150.0 | 150.0 | 150.0 |
| 72 | | 150.0 | 150.0 | 79.0 | 118.5 | 150.0 | 146.7 | 150.0 |
| 78 | | 150.0 | 150.0 | 77.8 | 116.7 | 150.0 | 144.4 | 150.0 |
| 84 | | 150.0 | 150.0 | 77.4 | 116.1 | 150.0 | 143.7 | 150.0 |
| 36 | 90 | 150.0 | 150.0 | 105.3 | 150.0 | 150.0 | 150.0 | 150.0 |
| 42 | | 150.0 | 150.0 | 94.2 | 141.3 | 150.0 | 150.0 | 150.0 |
| 48 | | 150.0 | 150.0 | 86.2 | 129.3 | 150.0 | 150.0 | 150.0 |
| 54 | | 150.0 | 150.0 | 80.3 | 120.4 | 150.0 | 149.0 | 150.0 |
| 60 | | 150.0 | 150.0 | 75.8 | 113.8 | 150.0 | 140.8 | 150.0 |
| 66 | | 142.2 | 150.0 | 72.6 | 108.9 | 145.1 | 134.7 | 150.0 |
| 72 | | 139.6 | 150.0 | 70.2 | 105.3 | 140.4 | 130.4 | 150.0 |
| 78 | | 136.4 | 150.0 | 68.6 | 103.0 | 137.3 | 127.4 | 150.0 |
| 84 | | 134.6 | 150.0 | 67.7 | 101.6 | 135.4 | 125.7 | 150.0 |
| 36 | 96 | 150.0 | 150.0 | 97.2 | 145.8 | 150.0 | 150.0 | 150.0 |
| 42 | | 150.0 | 150.0 | 86.7 | 130.0 | 150.0 | 150.0 | 150.0 |
| 48 | | 150.0 | 150.0 | 79.0 | 118.5 | 150.0 | 146.7 | 150.0 |
| 54 | | 145.6 | 150.0 | 73.3 | 109.9 | 146.6 | 136.0 | 150.0 |
| 60 | | 137.0 | 150.0 | 68.9 | 103.4 | 137.9 | 128.0 | 150.0 |
| 66 | | 130.5 | 150.0 | 65.7 | 98.5 | 131.3 | 121.9 | 150.0 |
| 72 | | 125.6 | 150.0 | 63.2 | 94.8 | 126.4 | 117.3 | 150.0 |
| 78 | | 122.0 | 150.0 | 61.4 | 92.1 | 122.8 | 114.0 | 150.0 |
| 84 | | 119.6 | 150.0 | 60.2 | 90.3 | 120.4 | 111.7 | 150.0 |
| 36 | 102 | 150.0 | 150.0 | 90.3 | 135.4 | 150.0 | 150.0 | 150.0 |
| 42 | | 150.0 | 150.0 | 80.3 | 120.4 | 150.0 | 149.0 | 150.0 |
| 48 | | 144.9 | 150.0 | 72.9 | 109.4 | 145.8 | 135.4 | 150.0 |
| 54 | | 134.0 | 150.0 | 67.4 | 101.1 | 134.8 | 125.2 | 150.0 |
| 60 | | 125.6 | 150.0 | 63.2 | 94.8 | 126.4 | 117.3 | 150.0 |
| 66 | | 119.1 | 150.0 | 60.0 | 89.9 | 119.9 | 111.3 | 150.0 |
| 72 | | 114.2 | 150.0 | 57.5 | 86.2 | 114.9 | 106.7 | 150.0 |
| 78 | | 110.4 | 150.0 | 55.6 | 83.3 | 111.1 | 103.2 | 150.0 |
| 84 | | 107.7 | 150.0 | 54.2 | 81.3 | 108.3 | 100.6 | 150.0 |
| 36 | 108 | 150.0 | 150.0 | 84.3 | 126.4 | 150 | 150.0 | 150.0 |
| 42 | | 148.5 | 150.0 | 74.7 | 112.1 | 149.4 | 138.7 | 150.0 |
| 48 | | 134.6 | 150.0 | 67.7 | 101.6 | 135.4 | 125.7 | 150.0 |
| 54 | | 124.0 | 150.0 | 62.4 | 93.6 | 124.8 | 115.9 | 150.0 |
| 60 | | 115.9 | 150.0 | 58.3 | 87.5 | 116.7 | 108.3 | 150.0 |
| 66 | | 109.6 | 150.0 | 55.2 | 82.7 | 110.3 | 102.4 | 150.0 |
| 72 | | 104.7 | 150.0 | 52.7 | 79.0 | 105.3 | 97.8 | 146.7 |
| 78 | | 100.8 | 150.0 | 50.7 | 76.1 | 101.5 | 94.2 | 141.3 |

| HEAD ANCHOR CAPACITY - PSF | | | | | | | | | |
|----------------------------|------------------|-----------------|--------|-----------------|--------|--------|-----------------|--------|-------|
| SGD PANEL SIZES | | ANCHOR TYPE "C" | | ANCHOR TYPE "D" | | | ANCHOR TYPE "E" | | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | C4 +/- | C6 +/- | D4 +/- | D6 +/- | D8 +/- | E4 +/- | E6 +/- | |
| 36 | 114 | 150.0 | 150.0 | 79.0 | 118.5 | 150.0 | 146.7 | 150.0 | |
| 42 | | 138.9 | 150.0 | 69.9 | 104.8 | 139.8 | 129.8 | 150.0 | |
| 48 | | 125.6 | 150.0 | 63.2 | 94.8 | 126.4 | 117.3 | 150.0 | |
| 54 | | 115.5 | 150.0 | 58.1 | 87.2 | 116.2 | 107.9 | 150.0 | |
| 60 | | 107.7 | 150.0 | 54.2 | 91.3 | 100.6 | 100.6 | 150.0 | |
| 66 | | 101.5 | 150.0 | 51.5 | 76.6 | 94.8 | 94.8 | 142.2 | |
| 72 | | 96.6 | 144.9 | 48.6 | 72.9 | 90.3 | 90.3 | 135.4 | |
| 36 | | 120 | 147.8 | 150.0 | 74.4 | 111.5 | 148.7 | 138.0 | 150.0 |
| 42 | | | 130.5 | 150.0 | 65.7 | 98.5 | 131.3 | 121.9 | 150.0 |
| 48 | 117.8 | | 150.0 | 59.3 | 88.9 | 118.5 | 110.0 | 150.0 | |
| 54 | 108.0 | | 150.0 | 54.4 | 81.5 | 108.7 | 100.9 | 150.0 | |
| 60 | 100.5 | | 150.0 | 50.6 | 75.8 | 101.1 | 93.9 | 149.3 | |
| 66 | 94.5 | | 141.7 | 47.5 | 71.3 | 95.1 | 88.3 | 140.4 | |
| 72 | 89.7 | | 134.6 | 45.1 | 67.7 | 90.3 | 93.8 | 133.3 | |
| 36 | 126 | | 139.6 | 150.0 | 70.2 | 105.3 | 140.4 | 130.4 | 150.0 |
| 42 | | | 123.0 | 150.0 | 61.9 | 92.9 | 123.8 | 114.9 | 150.0 |
| 48 | | 110.8 | 150.0 | 55.8 | 83.6 | 111.5 | 103.5 | 150.0 | |
| 54 | | 101.5 | 150.0 | 51.1 | 76.6 | 102.1 | 94.8 | 142.2 | |
| 60 | | 94.2 | 141.3 | 47.4 | 71.1 | 94.8 | 88.0 | 132.0 | |
| 66 | | 88.4 | 132.6 | 44.5 | 66.7 | 89.0 | 82.6 | 123.9 | |
| 36 | | 132 | 132.2 | 150.0 | 66.5 | 99.8 | 133.1 | 123.5 | 150.0 |
| 42 | | | 116.4 | 150.0 | 58.6 | 87.8 | 117.1 | 108.7 | 150.0 |
| 48 | | | 104.7 | 150.0 | 52.7 | 79.0 | 105.3 | 97.8 | 146.7 |
| 54 | 95.7 | | 143.5 | 48.2 | 72.2 | 96.3 | 89.4 | 134.1 | |
| 60 | 88.7 | | 133.0 | 44.6 | 66.9 | 89.2 | 82.8 | 124.2 | |
| 66 | 83.0 | | 124.6 | 41.8 | 62.7 | 83.6 | 77.6 | 116.4 | |
| 36 | 138 | | 125.6 | 150.0 | 63.2 | 94.8 | 126.4 | 117.3 | 150.0 |
| 42 | | | 110.4 | 150.0 | 55.6 | 83.3 | 111.1 | 103.2 | 150.0 |
| 48 | | | 99.2 | 147.8 | 49.9 | 74.8 | 99.8 | 92.6 | 138.9 |
| 54 | | 90.5 | 135.8 | 45.5 | 68.3 | 91.1 | 84.6 | 126.8 | |
| 60 | | 83.7 | 125.6 | 42.1 | 63.2 | 84.3 | 78.2 | 117.3 | |
| 36 | | 144 | 119.6 | 150.0 | 60.2 | 90.3 | 120.4 | 111.7 | 150.0 |
| 42 | | | 105.0 | 150.0 | 52.9 | 79.3 | 105.7 | 98.1 | 147.2 |
| 48 | | | 94.2 | 141.3 | 47.4 | 71.1 | 94.8 | 88.0 | 132.0 |
| 54 | | | 85.9 | 128.8 | 43.2 | 64.8 | 86.4 | 80.2 | 120.3 |
| 60 | 79.3 | | 119.0 | 39.9 | 59.9 | 79.8 | 74.1 | 111.2 | |

C4 - A CLUSTER OF (4) TYPE "C" ANCHORS AT HEAD
 C6 - A CLUSTER OF (6) TYPE "C" ANCHORS AT HEAD
 D4 - A CLUSTER OF (4) TYPE "D" ANCHORS AT HEAD
 D6 - A CLUSTER OF (6) TYPE "D" ANCHORS AT HEAD
 D8 - A CLUSTER OF (8) TYPE "D" ANCHORS AT HEAD
 E4 - A CLUSTER OF (4) TYPE "E" ANCHORS AT HEAD
 E6 - A CLUSTER OF (6) TYPE "E" ANCHORS AT HEAD

FOR ANCHOR TYPES & LAYOUT, SEE SHEET A6



MCY ENGINEERING, INC.
 GLAZING CONSULTANTS
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 MIRAMAR, FL 33027 P: 305.271.0117
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ES-WGD2020 SLIDING GLASS DOOR (LMI & SMI)
ES WINDOWS, INC.
 10653 NE Quaybridge Ct.
 Miami, FL 33138
 TEL. (305) 624-7775

| | | | | | | | | |
|-------------|------------|----------|---------------------|----------|--|--|--|--|
| 2 | 10-16-2019 | MCY | UPDATE | | | | | |
| 3 | 07-14-2020 | MCY | UPDATE TO FIG. 2020 | | | | | |
| 4 | 12-29-2020 | MCY | UPDATE | | | | | |
| 5 | 04-06-2021 | MCY | UPDATE | | | | | |
| 6 | 10-11-2021 | MCY | UPDATE | | | | | |
| Rev. No. | Date | Drawn By | Description | | | | | |
| 10.11.2021 | | | | Scale | | | | |
| DRAWING NO. | | | | AD16-29 | | | | |
| A4 | | | | | | | | |
| Sheet No. | | | | 24 OF 59 | | | | |

| SILL ANCHOR CAPACITY - PSF | | | | |
|----------------------------|------------------|-----------------------|-------------|-------------|
| SGD PANEL SIZES | | ANCHOR TYPE "A" / "B" | | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | A4 / B4 +/- | A6 / B6 +/- | A8 / B8 +/- |
| 36 | 84 | 150.0 | 150.0 | 150.0 |
| 42 | | 150.0 | 150.0 | 150.0 |
| 48 | | 146.8 | 150.0 | 150.0 |
| 54 | | 137.4 | 150.0 | 150.0 |
| 60 | | 130.5 | 150.0 | 150.0 |
| 66 | | 125.6 | 150.0 | 150.0 |
| 72 | | 122.3 | 150.0 | 150.0 |
| 78 | | 120.5 | 150.0 | 150.0 |
| 84 | 119.8 | 150.0 | 150.0 | |
| 36 | 90 | 150.0 | 150.0 | 150.0 |
| 42 | | 145.9 | 150.0 | 150.0 |
| 48 | | 133.5 | 150.0 | 150.0 |
| 54 | | 124.3 | 150.0 | 150.0 |
| 60 | | 117.4 | 150.0 | 150.0 |
| 66 | | 112.4 | 150.0 | 150.0 |
| 72 | | 108.7 | 150.0 | 150.0 |
| 78 | | 106.3 | 150.0 | 150.0 |
| 84 | 104.9 | 150.0 | 150.0 | |
| 36 | 96 | 150.0 | 150.0 | 150.0 |
| 42 | | 134.2 | 150.0 | 150.0 |
| 48 | | 122.3 | 150.0 | 150.0 |
| 54 | | 113.5 | 150.0 | 150.0 |
| 60 | | 106.8 | 150.0 | 150.0 |
| 66 | | 101.7 | 150.0 | 150.0 |
| 72 | | 97.9 | 146.8 | 150.0 |
| 78 | | 95.1 | 142.6 | 150.0 |
| 84 | 93.2 | 139.8 | 150.0 | |
| 36 | 102 | 139.8 | 150.0 | 150.0 |
| 42 | | 124.3 | 150.0 | 150.0 |
| 48 | | 112.9 | 150.0 | 150.0 |
| 54 | | 104.4 | 150.0 | 150.0 |
| 60 | | 97.9 | 146.8 | 150.0 |
| 66 | | 92.8 | 139.3 | 150.0 |
| 72 | | 89.0 | 133.5 | 150.0 |
| 78 | | 86.0 | 129.1 | 150.0 |
| 84 | 83.9 | 125.8 | 150.0 | |
| 36 | 108 | 130.5 | 150.0 | 150.0 |
| 42 | | 115.7 | 150.0 | 150.0 |
| 48 | | 104.9 | 150.0 | 150.0 |
| 54 | | 96.7 | 145.0 | 150.0 |
| 60 | | 90.3 | 135.5 | 150.0 |
| 66 | | 85.4 | 128.1 | 150.0 |
| 72 | | 81.6 | 122.3 | 150.0 |
| 78 | | 78.6 | 117.8 | 150.0 |

| SILL ANCHOR CAPACITY - PSF | | | | |
|----------------------------|------------------|-----------------------|-------------|-------------|
| SGD PANEL SIZES | | ANCHOR TYPE "A" / "B" | | |
| AVE. PANEL WIDTH (IN) | DOOR HEIGHT (IN) | A4 / B4 +/- | A6 / B6 +/- | A8 / B8 +/- |
| 36 | 114 | 122.3 | 150.0 | 150.0 |
| 42 | | 108.2 | 150.0 | 150.0 |
| 48 | | 97.9 | 146.8 | 150.0 |
| 54 | | 90.0 | 135.0 | 150.0 |
| 60 | | 83.9 | 125.8 | 150.0 |
| 66 | | 79.1 | 118.6 | 150.0 |
| 72 | 75.3 | 112.9 | 150.0 | |
| 36 | 120 | 115.1 | 150.0 | 150.0 |
| 42 | | 101.7 | 150.0 | 150.0 |
| 48 | | 91.8 | 137.6 | 150.0 |
| 54 | | 84.2 | 126.3 | 150.0 |
| 60 | | 78.3 | 117.4 | 150.0 |
| 66 | | 73.6 | 110.4 | 147.3 |
| 72 | 69.9 | 104.9 | 139.8 | |
| 36 | 126 | 108.7 | 150.0 | 150.0 |
| 42 | | 95.9 | 143.8 | 150.0 |
| 48 | | 86.4 | 129.5 | 150.0 |
| 54 | | 79.1 | 118.6 | 150.0 |
| 60 | | 73.4 | 110.1 | 146.8 |
| 66 | | 68.9 | 103.3 | 137.8 |
| 36 | 132 | 103.0 | 150.0 | 150.0 |
| 42 | | 90.7 | 136.0 | 150.0 |
| 48 | | 81.6 | 122.3 | 150.0 |
| 54 | | 74.6 | 111.8 | 149.1 |
| 60 | | 69.1 | 103.6 | 138.2 |
| 66 | | 64.7 | 97.1 | 129.4 |
| 36 | 138 | 97.9 | 146.8 | 150.0 |
| 42 | | 86.0 | 129.1 | 150.0 |
| 48 | | 77.3 | 115.9 | 150.0 |
| 54 | | 70.5 | 105.8 | 141.1 |
| 60 | | 65.2 | 97.9 | 130.5 |
| 36 | | 144 | 93.2 | 139.8 |
| 42 | 81.8 | | 122.8 | 150.0 |
| 48 | 73.4 | | 110.1 | 146.8 |
| 54 | 66.9 | | 100.4 | 133.8 |
| 60 | 61.8 | | 92.7 | 123.6 |

A4 - A CLUSTER OF (4) TYPE "A" ANCHORS AT SILL
A6 - A CLUSTER OF (6) TYPE "A" ANCHORS AT SILL
A8 - A CLUSTER OF (8) TYPE "A" ANCHORS AT SILL
B4 - A CLUSTER OF (4) TYPE "B" ANCHORS AT SILL
B6 - A CLUSTER OF (6) TYPE "B" ANCHORS AT SILL
B8 - A CLUSTER OF (8) TYPE "B" ANCHORS AT SILL

FOR ANCHOR TYPES & LAYOUT, SEE SHEET A8



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ES-SGD2020 SLIDING GLASS DOOR (LMI & SMI)

ES WINDOWS, INC.
10653 NE Quaybridge Ct.
Miami, FL 33138
TEL. (305) 624-7775

| | | | | | |
|----------|------------|----------|-------------|-------------|--|
| 1 | 10-16-2019 | MCY | UPDATE | TO FRC 2020 | |
| 2 | 07-14-2020 | MCY | UPDATE | | |
| 3 | 12-29-2020 | MCY | UPDATE | | |
| 4 | 04-06-2021 | MCY | UPDATE | | |
| 5 | 10-11-2021 | MCY | UPDATE | | |
| 6 | | | | | |
| Rev. No. | Date | Drawn By | Description | | |

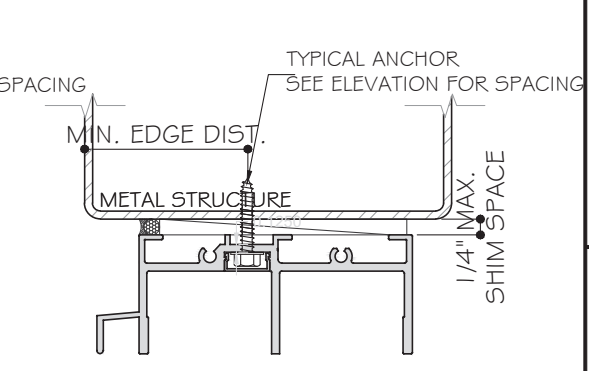
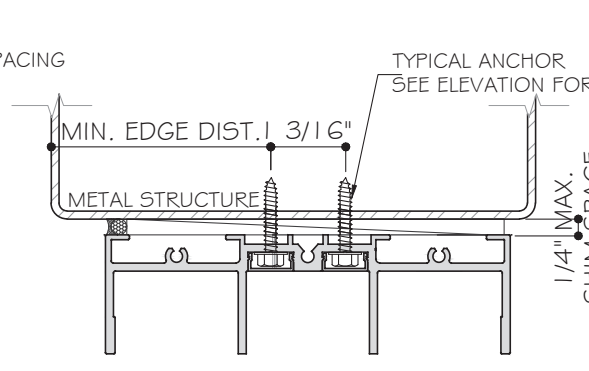
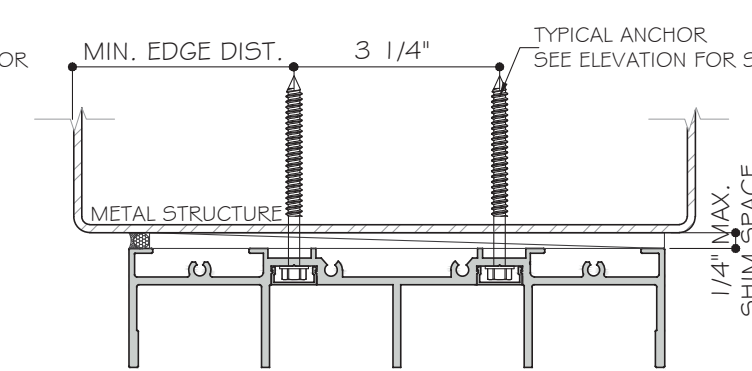
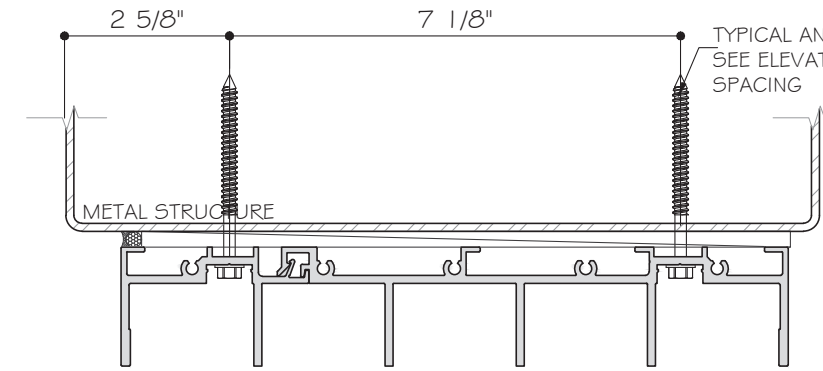
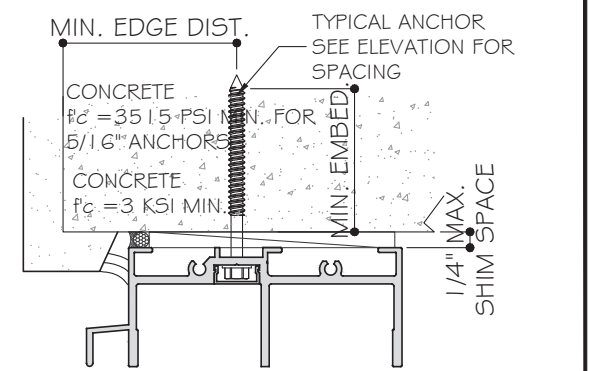
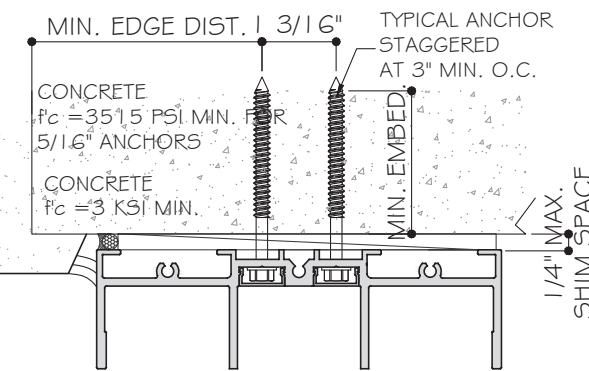
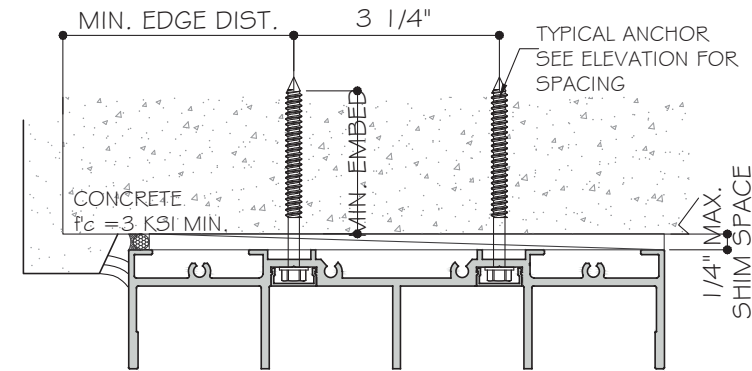
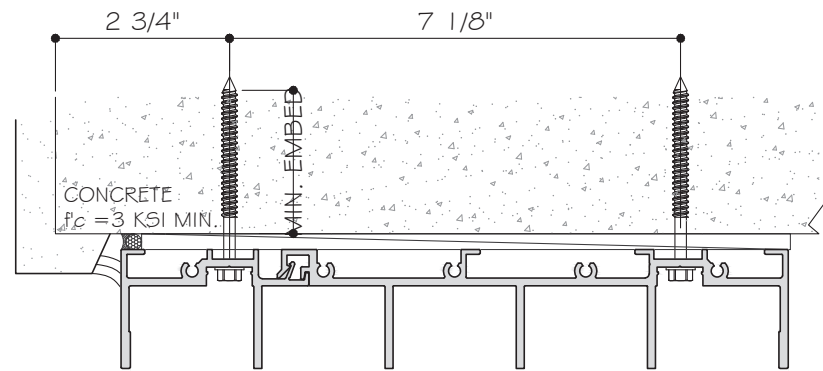
Drawn Date
10.11.2021

Scale

DRAWING NO.
AD16-29

Sheet No.
A5

Sheet No.
25 OF 59

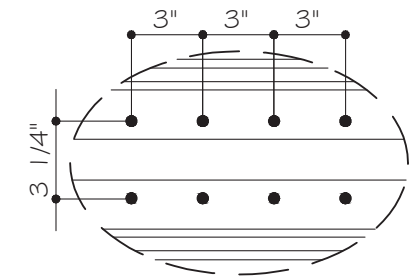


5 TRACK SGD

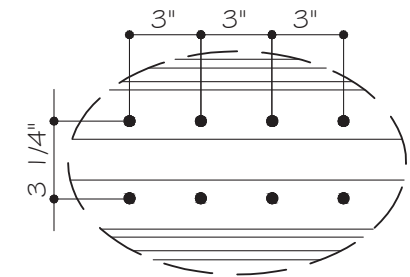
4 TRACK SGD

3 TRACK SGD

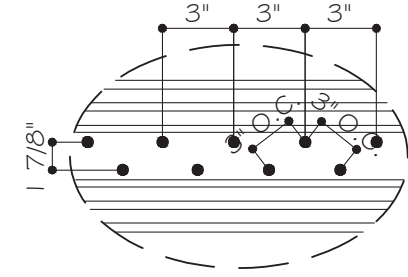
2 TRACK SGD



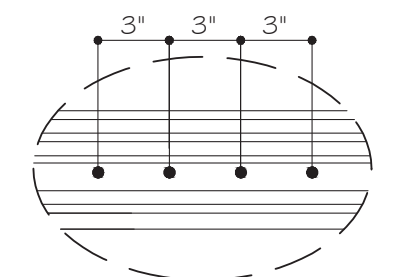
5 TRACK SGD



4 TRACK SGD



3 TRACK SGD



2 TRACK SGD

HEAD ANCHOR TYPES:

TYPE "A": 1/4" DIA. KWIKCON (Fu=137 KSI, Fy=138 KSI)
 1 3/4" MIN. EMBED INTO f'c=3 KSI MIN. CONCRETE
 2 1/2" MIN. EDGE DISTANCE, 3" MIN. O.C.

TYPE "B": 1/4" DIA. ULTRACON+ (Fu=164 KSI, Fy=148 KSI)
 1 3/4" MIN. EMBED INTO f'c=3 KSI MIN. CONCRETE
 2 1/2" MIN. EDGE DISTANCE, 3" MIN. O.C.

TYPE "C": 5/16" DIA. ULTRACON (Fu=177 KSI, Fy=155 KSI)
 1 3/4" MIN. EMBED INTO f'c=35.15 PSI MIN. CONCRETE
 2 1/2" MIN. EDGE DISTANCE, 3" MIN. O.C.

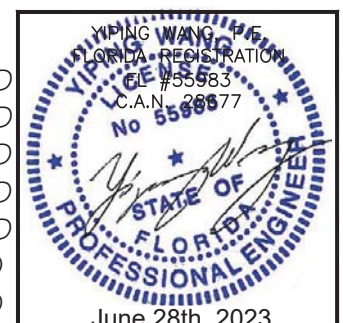
TYPE "D": 1/4" DIA. TEKS/DRIL-FLEX SCREW GRADE 5 (Fu=120 KSI, Fy=92 KSI)
 INTO METAL STRUCTURE
 ALUMINUM: 1/8" THK. MIN. (G0G3-T5 MIN.)
 STEEL: 1/8" THK. MIN. (Fy=36KSI, MIN.)

TYPE "E": 5/16" TEKS/DRIL-FLEX SCREW (Fu=120 KSI, Fy=92 KSI)
 INTO METAL STRUCTURE
 ALUMINUM: 1/8" THK. MIN. (G0G3-T5 MIN.)
 STEEL: 1/8" THK. MIN. (Fy=36KSI, MIN.)

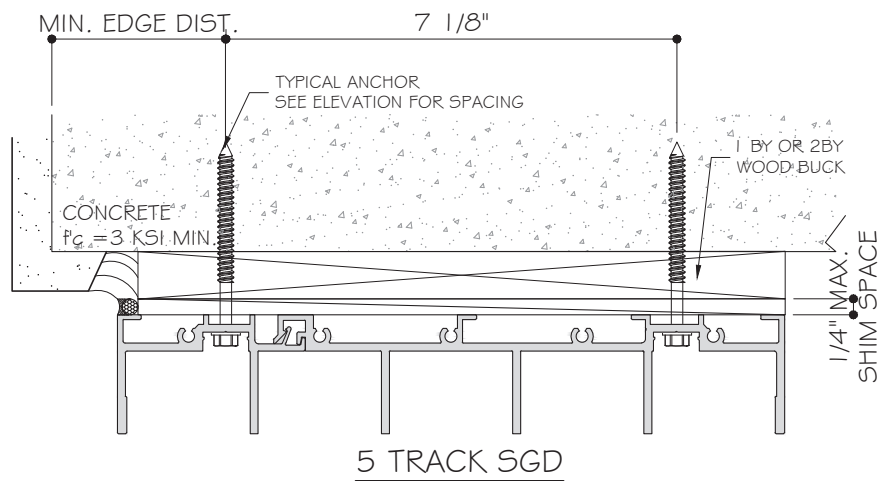
STEEL IN CONTACT WITH ALUM. TO BE PAINTED.

- A4 - A CLUSTER OF (4) TYPE "A" ANCHORS AT HEAD
- A6 - A CLUSTER OF (6) TYPE "A" ANCHORS AT HEAD
- A8 - A CLUSTER OF (8) TYPE "A" ANCHORS AT HEAD
- A10 - A CLUSTER OF (10) TYPE "A" ANCHORS AT HEAD
- B4 - A CLUSTER OF (4) TYPE "B" ANCHORS AT HEAD
- B6 - A CLUSTER OF (6) TYPE "B" ANCHORS AT HEAD
- B8 - A CLUSTER OF (8) TYPE "B" ANCHORS AT HEAD

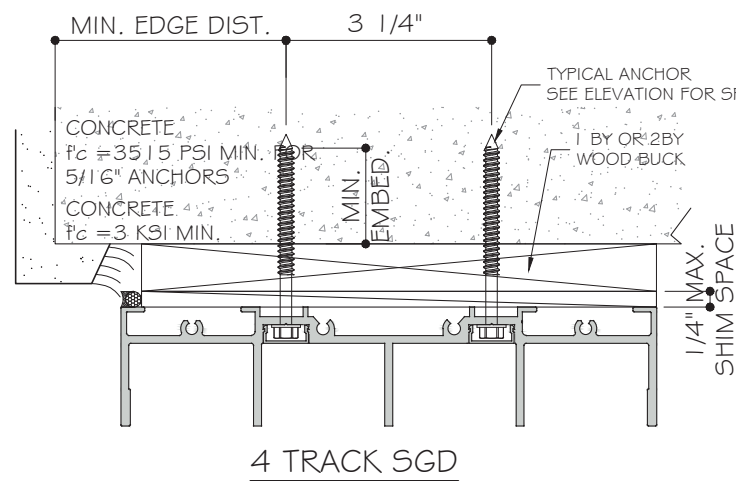
- C4 - A CLUSTER OF (4) TYPE "C" ANCHORS AT HEAD
- C6 - A CLUSTER OF (6) TYPE "C" ANCHORS AT HEAD
- D4 - A CLUSTER OF (4) TYPE "D" ANCHORS AT HEAD
- D6 - A CLUSTER OF (6) TYPE "D" ANCHORS AT HEAD
- D8 - A CLUSTER OF (8) TYPE "D" ANCHORS AT HEAD
- E4 - A CLUSTER OF (4) TYPE "E" ANCHORS AT HEAD
- E6 - A CLUSTER OF (6) TYPE "E" ANCHORS AT HEAD



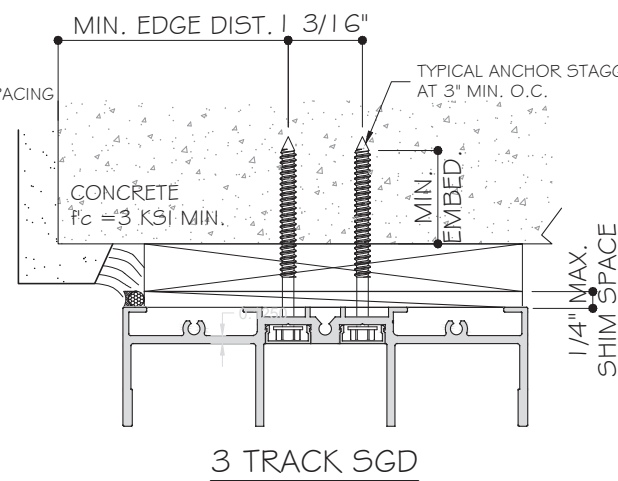
| Rev. No. | Date | Drawn By | Description |
|----------|------------|----------|--------------------|
| 2 | 10-16-2019 | MCY | UPDATE |
| 3 | 07-14-2020 | MCY | UPDATE TO FBC 2020 |
| 4 | 12-29-2020 | MCY | UPDATE |
| 5 | 04-06-2021 | MCY | UPDATE |
| 6 | 10-11-2021 | MCY | UPDATE |



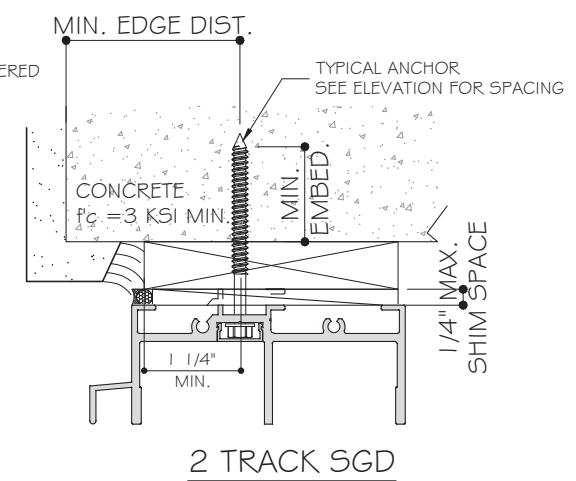
5 TRACK SGD



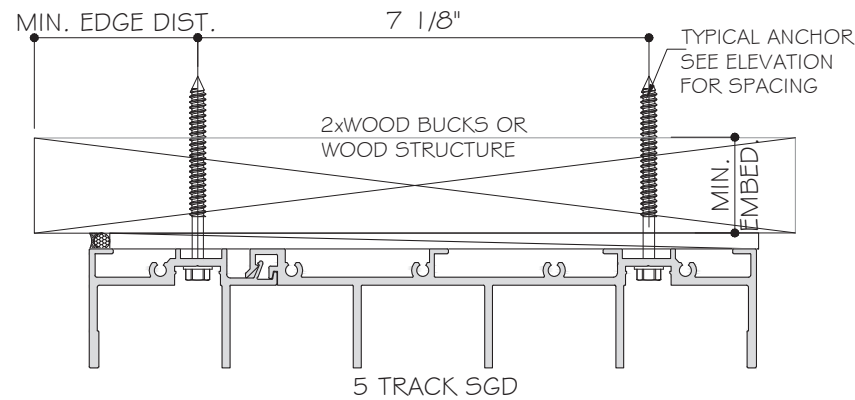
4 TRACK SGD



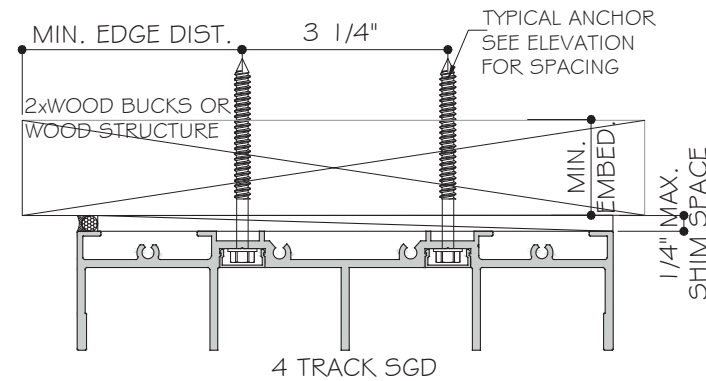
3 TRACK SGD



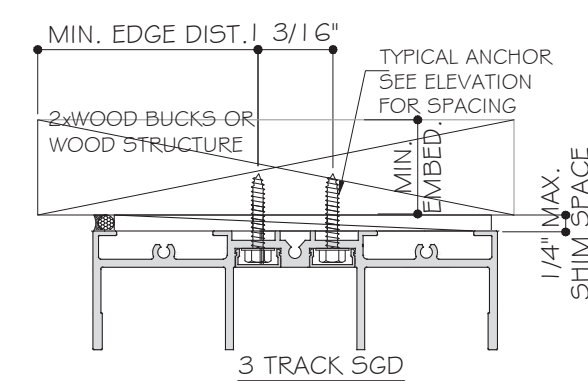
2 TRACK SGD



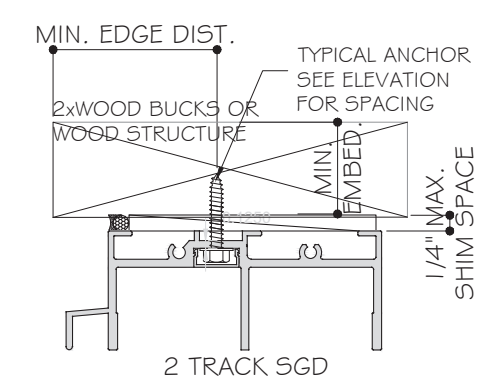
5 TRACK SGD



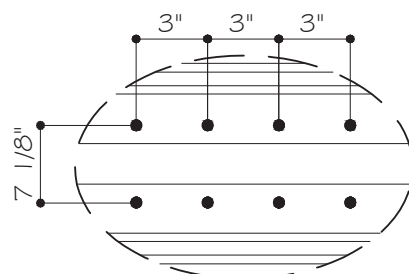
4 TRACK SGD



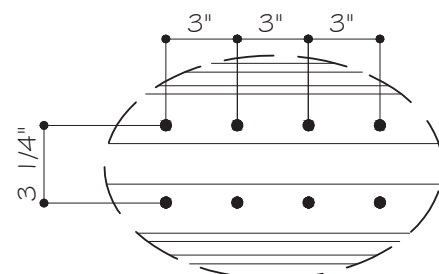
3 TRACK SGD



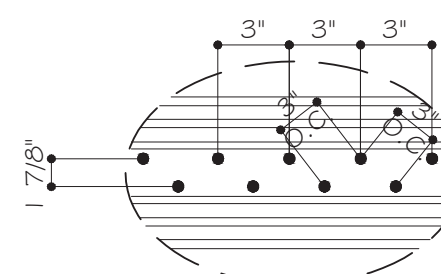
2 TRACK SGD



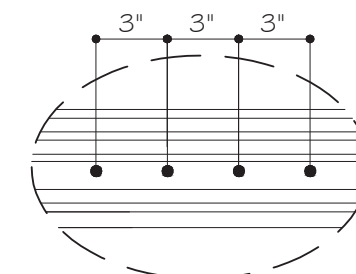
5 TRACK SGD



4 TRACK SGD



3 TRACK SGD



2 TRACK SGD

HEAD ANCHOR TYPES:

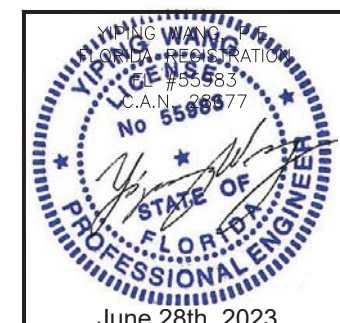
TYPE "AA": 1/4" DIA. KWIKCON (Fu=137 KSI, Fy=138 KSI)
 1 1/2" MIN. EMBED INTO 2XWOOD BUCKS OR WOOD STRUCTURE
 SG=0.55 MIN.
 OR THRU 1 BY OR 2BY WOOD BUCK WITH 1 3/4" MIN. EMBED
 INTO f'c=3000 PSI CONCRETE
 2 1/2" MIN. EDGE DISTANCE, 3" MIN. O.C.

TYPE "BB": 1/4" DIA. ULTRACON+ (Fu=164 KSI, Fy=148 KSI)
 1 1/2" MIN. EMBED INTO 2XWOOD BUCKS OR WOOD STRUCTURE
 SG=0.55 MIN.
 OR THRU 1 BY OR 2BY WOOD BUCK WITH 1 3/4" MIN. EMBED
 INTO f'c=3000 PSI CONCRETE
 2 1/2" MIN. EDGE DISTANCE, 3" MIN. O.C.

TYPE "CC": 5/16" DIA. ULTRACON (Fu=177 KSI, Fy=155 KSI)
 1 1/2" MIN. EMBED INTO 2XWOOD BUCKS OR WOOD STRUCTURE
 SG=0.55 MIN.
 OR THRU 1 BY OR 2BY WOOD BUCK WITH 1 3/4" MIN. EMBED
 INTO f'c=3000 PSI CONCRETE
 2 1/2" MIN. EDGE DISTANCE, 3" MIN. O.C.

- AA4 - A CLUSTER OF (4) TYPE "AA" ANCHORS AT HEAD
- AA6 - A CLUSTER OF (6) TYPE "AA" ANCHORS AT HEAD
- AA8 - A CLUSTER OF (8) TYPE "AA" ANCHORS AT HEAD
- AA10 - A CLUSTER OF (10) TYPE "AA" ANCHORS AT HEAD
- BB4 - A CLUSTER OF (4) TYPE "BB" ANCHORS AT HEAD
- BB6 - A CLUSTER OF (6) TYPE "BB" ANCHORS AT HEAD
- BB8 - A CLUSTER OF (8) TYPE "BB" ANCHORS AT HEAD
- BB10 - A CLUSTER OF (10) TYPE "BB" ANCHORS AT HEAD
- CC4 - A CLUSTER OF (4) TYPE "CC" ANCHORS AT HEAD
- CC6 - A CLUSTER OF (6) TYPE "CC" ANCHORS AT HEAD
- CC8 - A CLUSTER OF (8) TYPE "CC" ANCHORS AT HEAD
- CC10 - A CLUSTER OF (10) TYPE "CC" ANCHORS AT HEAD

1 BY OR 2 BY WOOD BUCKS NOT BY ES WINDOWS MUST SUPPORT THE LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER THEM TO THE BUILDING STRUCTURE.



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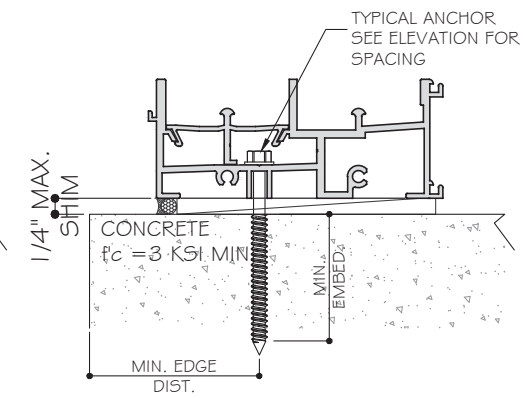
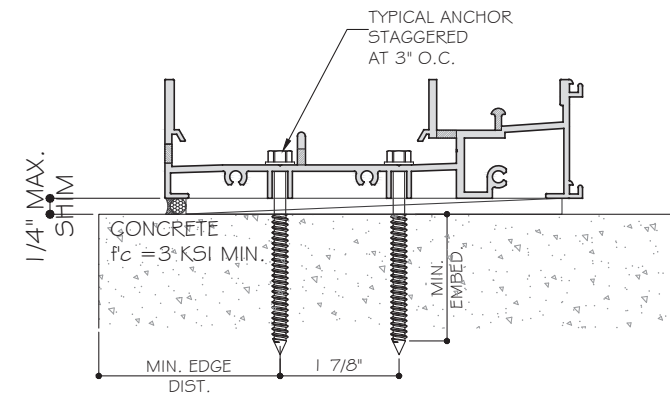
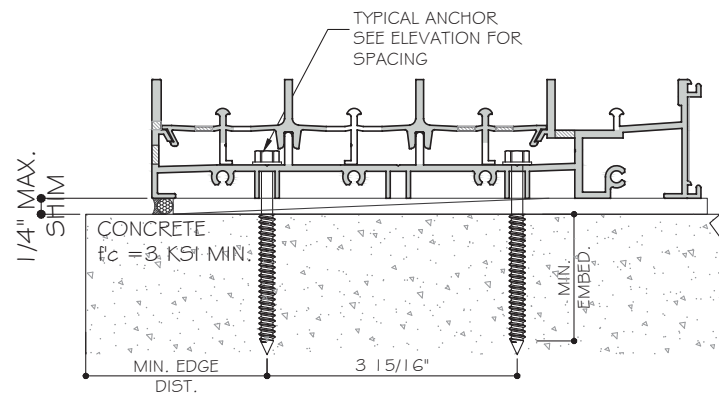
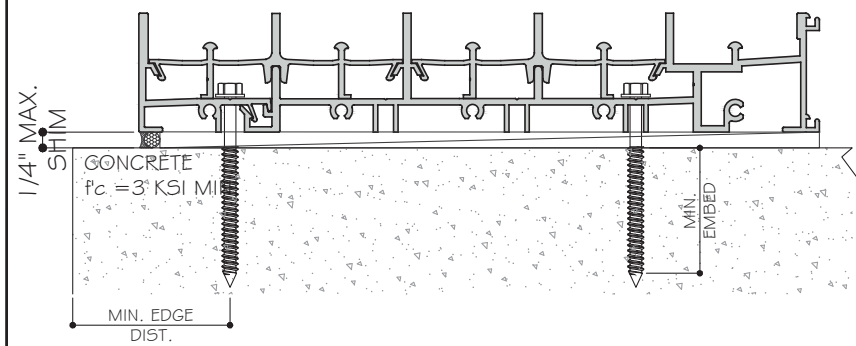
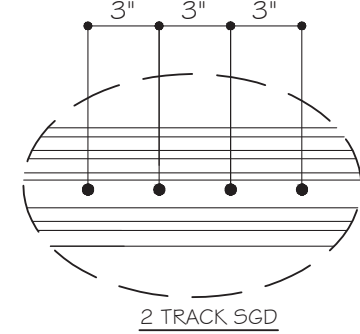
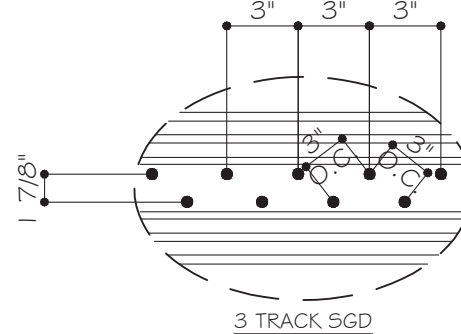
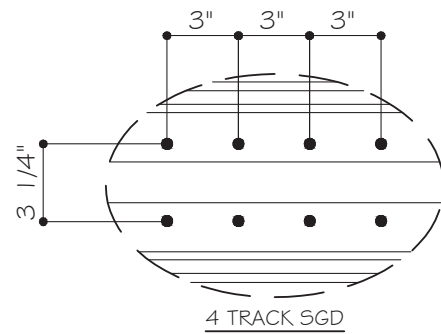
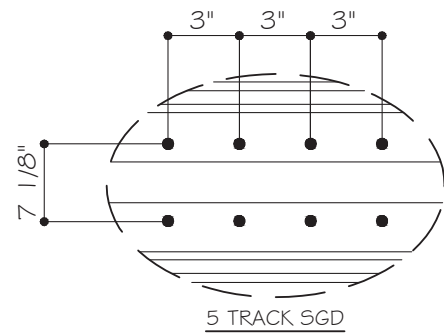
DRAWING NO. AD16-29

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SILL ANCHOR TYPES:

TYPE "A": 1/4" DIA. KWIKCON ($F_u=137$ KSI, $F_y=138$ KSI)
 1 3/4" MIN. EMBED INTO $f'_c=3$ KSI MIN. CONCRETE
 2 1/2" MIN. EDGE DISTANCE, 3" MIN. O.C.

TYPE "B": 1/4" DIA. ULTRACON+ ($F_u=164$ KSI, $F_y=148$ KSI)
 1 3/4" MIN. EMBED INTO $f'_c=3$ KSI MIN. CONCRETE
 2 1/2" MIN. EDGE DISTANCE, 3" MIN. O.C.

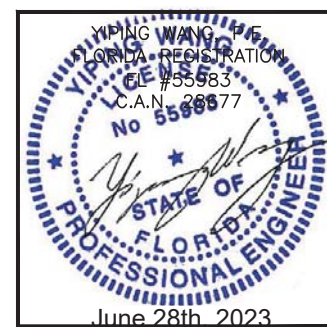


5 TRACK SGD

4 TRACK SGD

3 TRACK SGD

2 TRACK SGD



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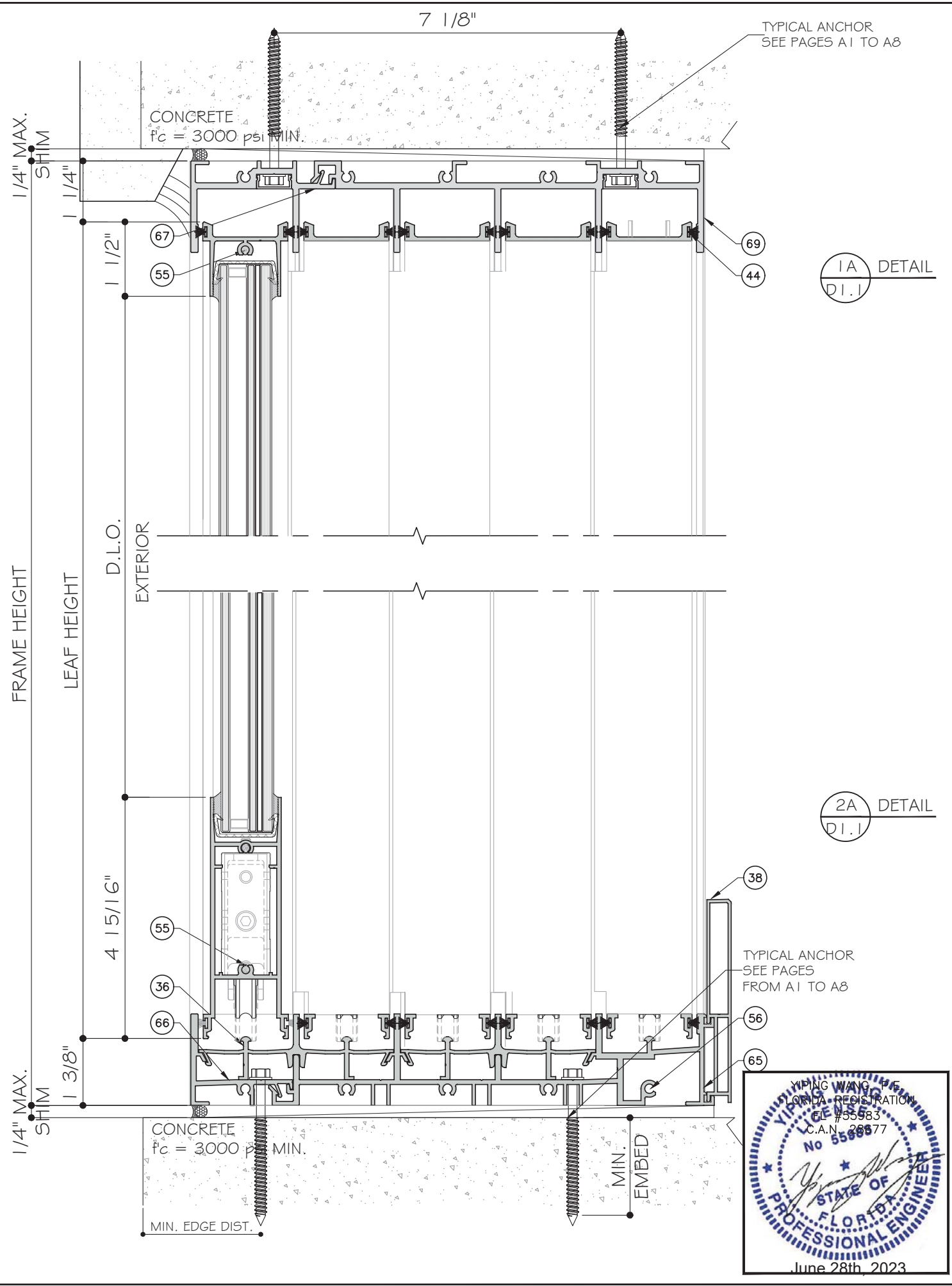
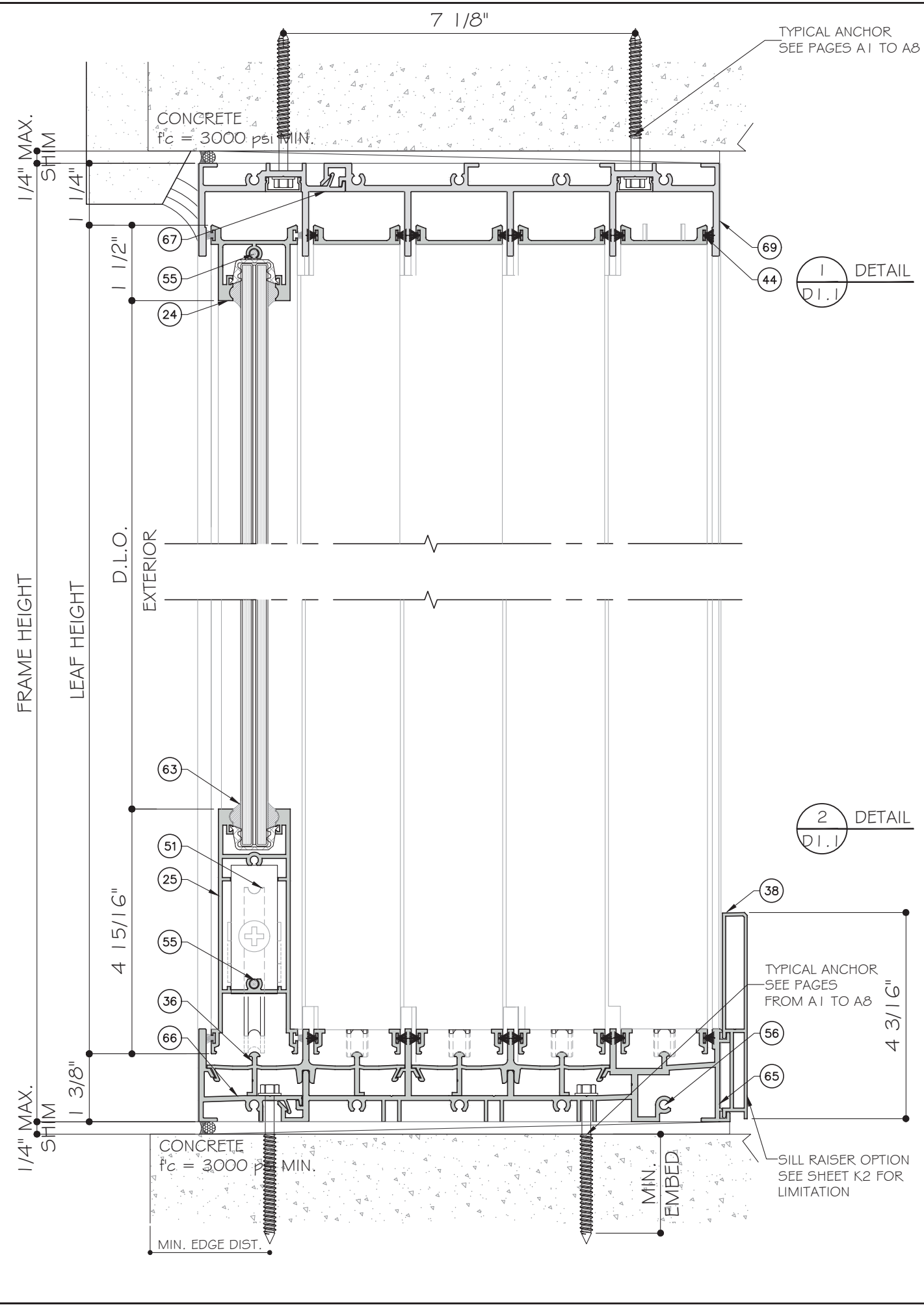
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| 5 | 10-11-2021 | MCY | UPDATE |

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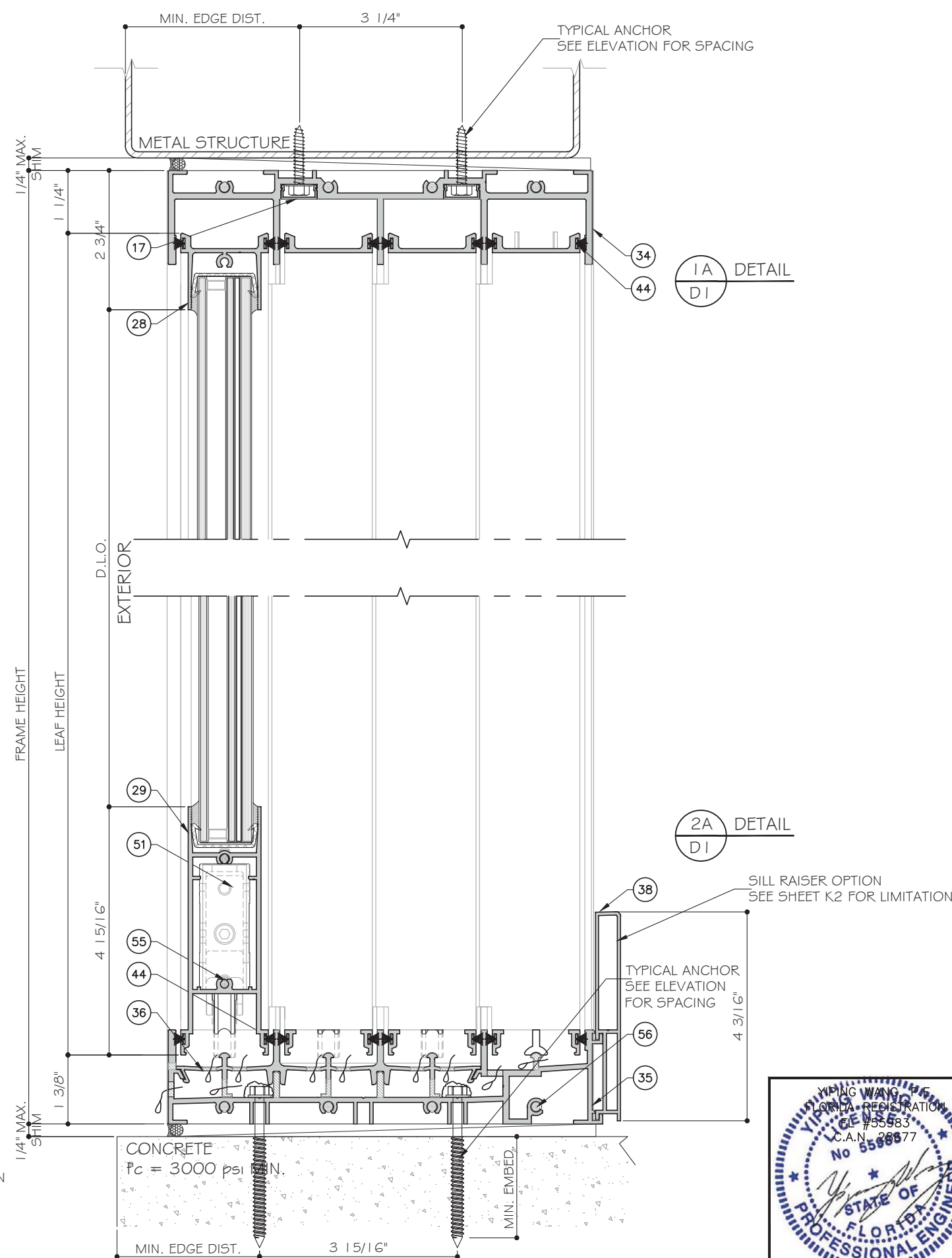
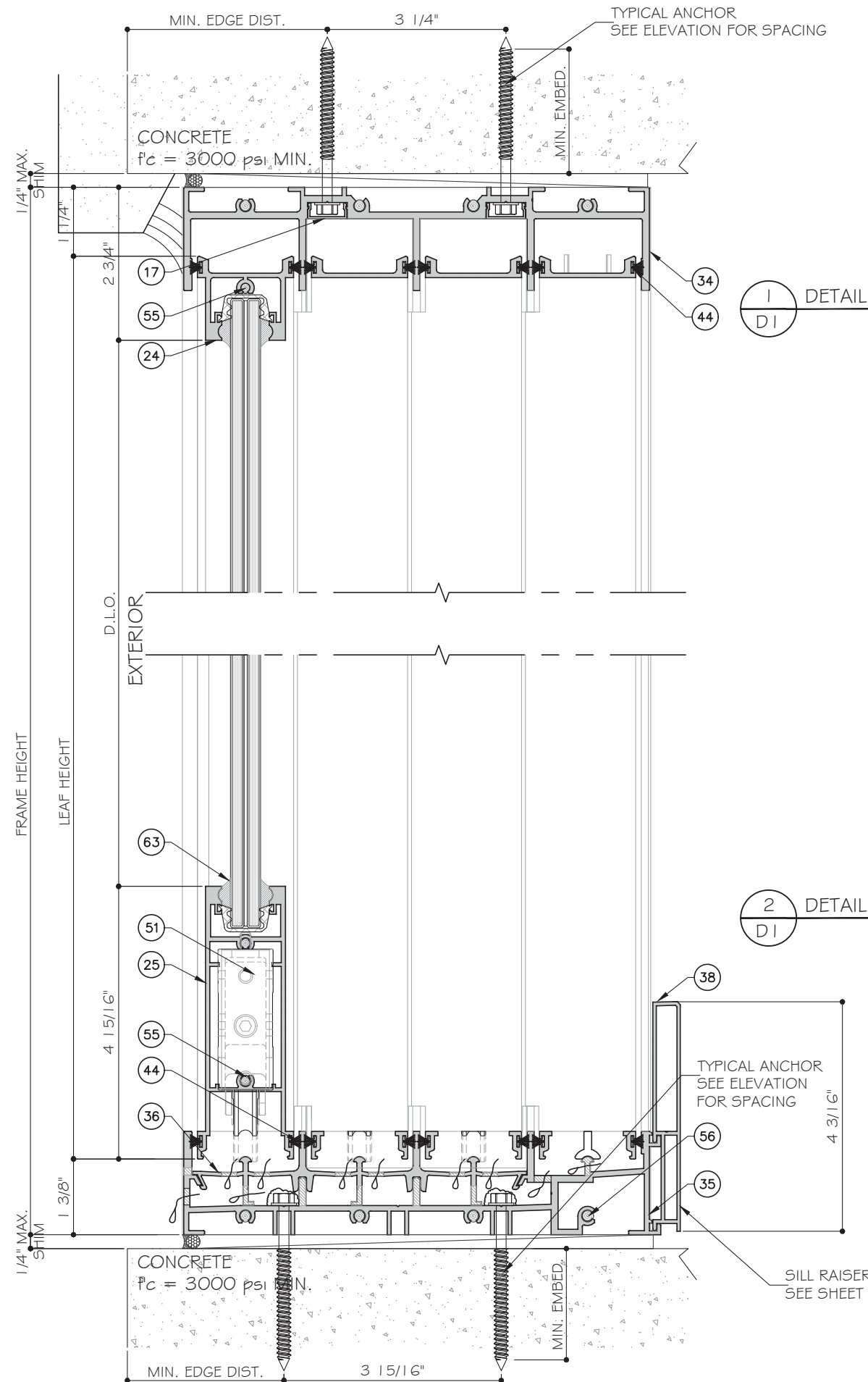
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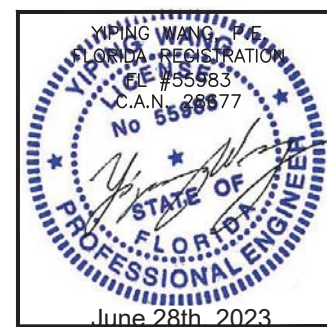
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D1.1

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FOUR (4) TRACK DOOR DETAILS



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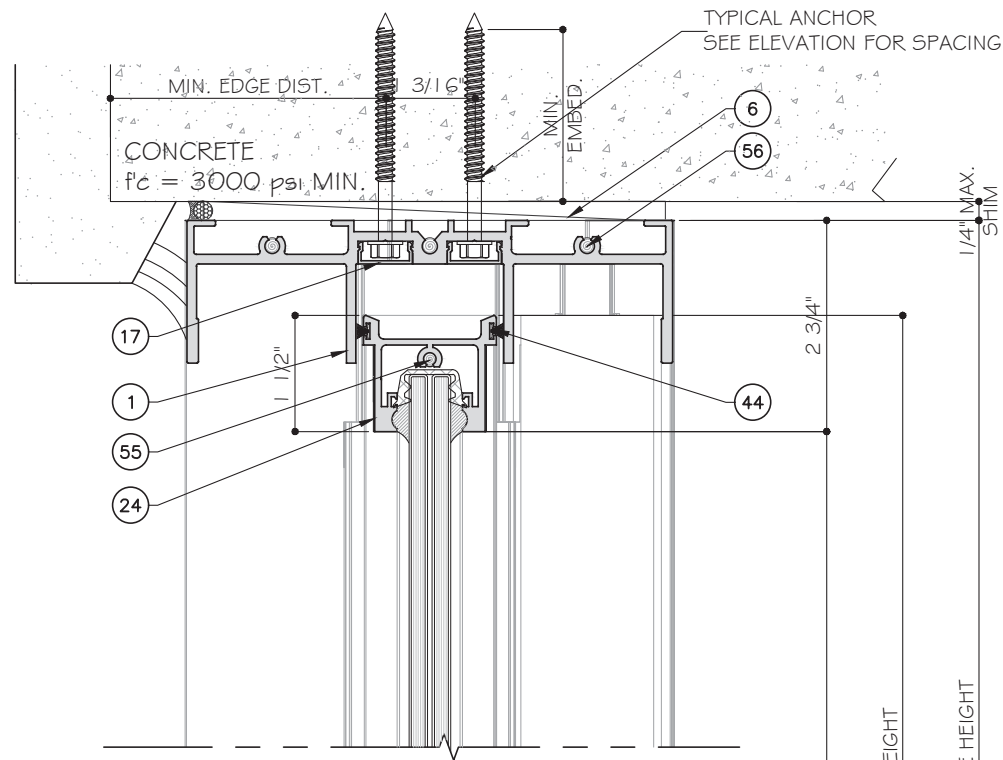
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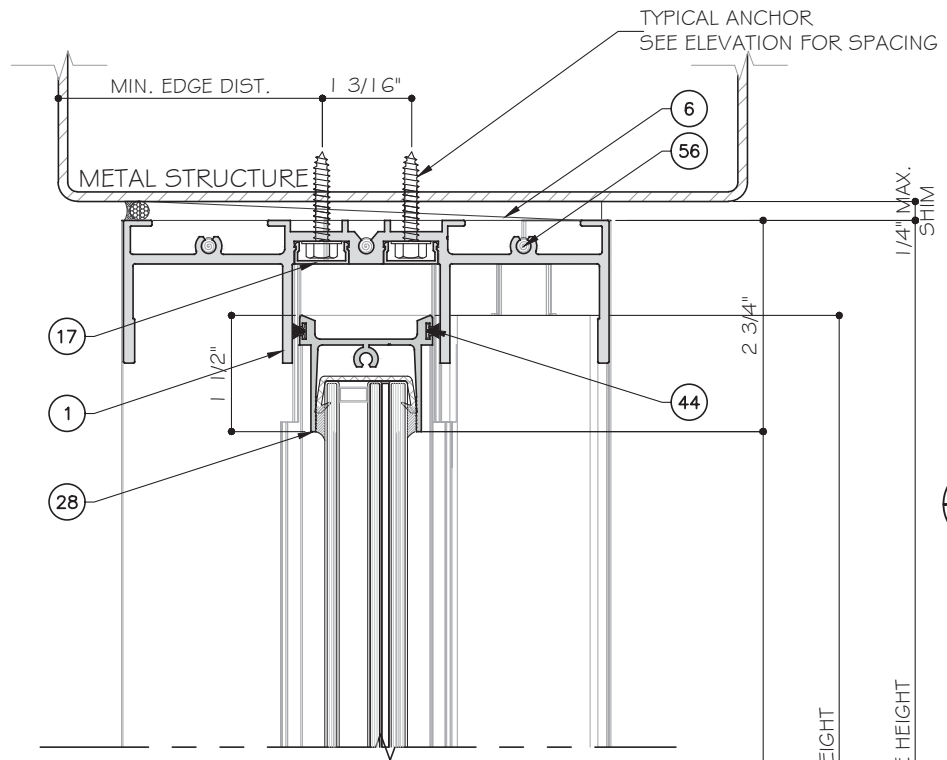
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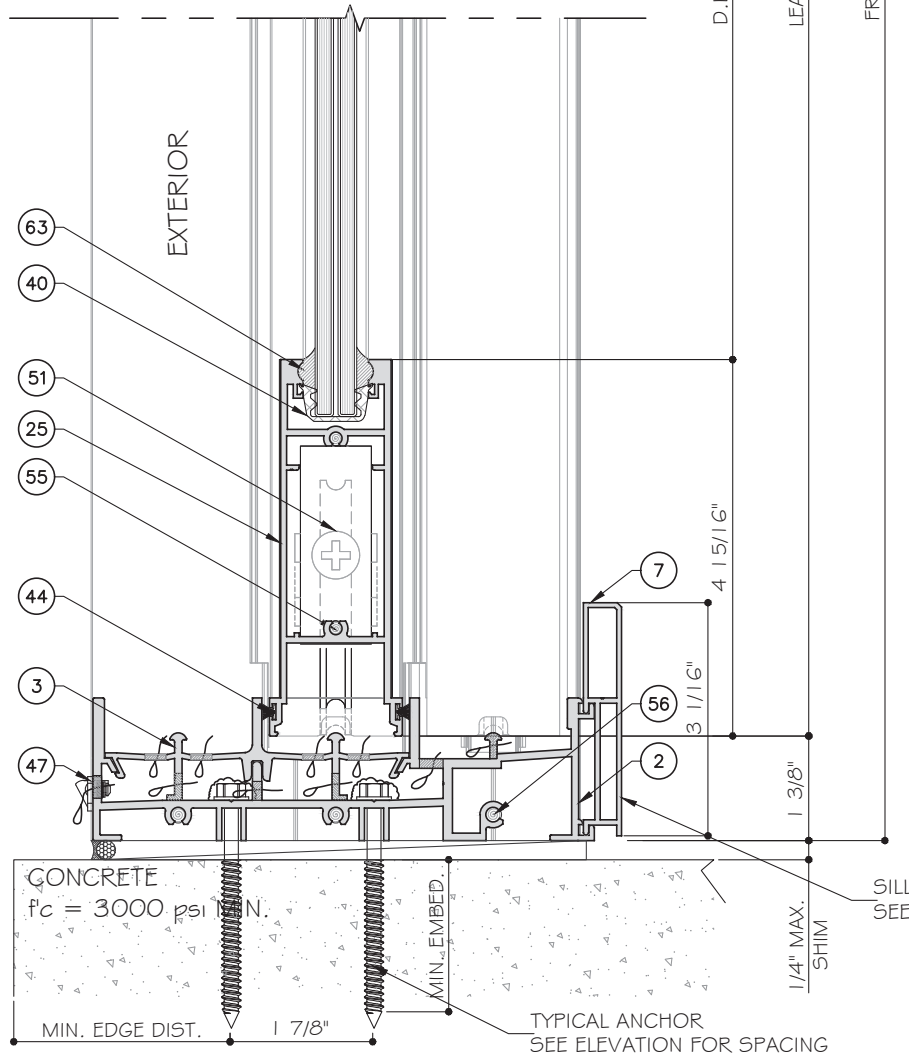
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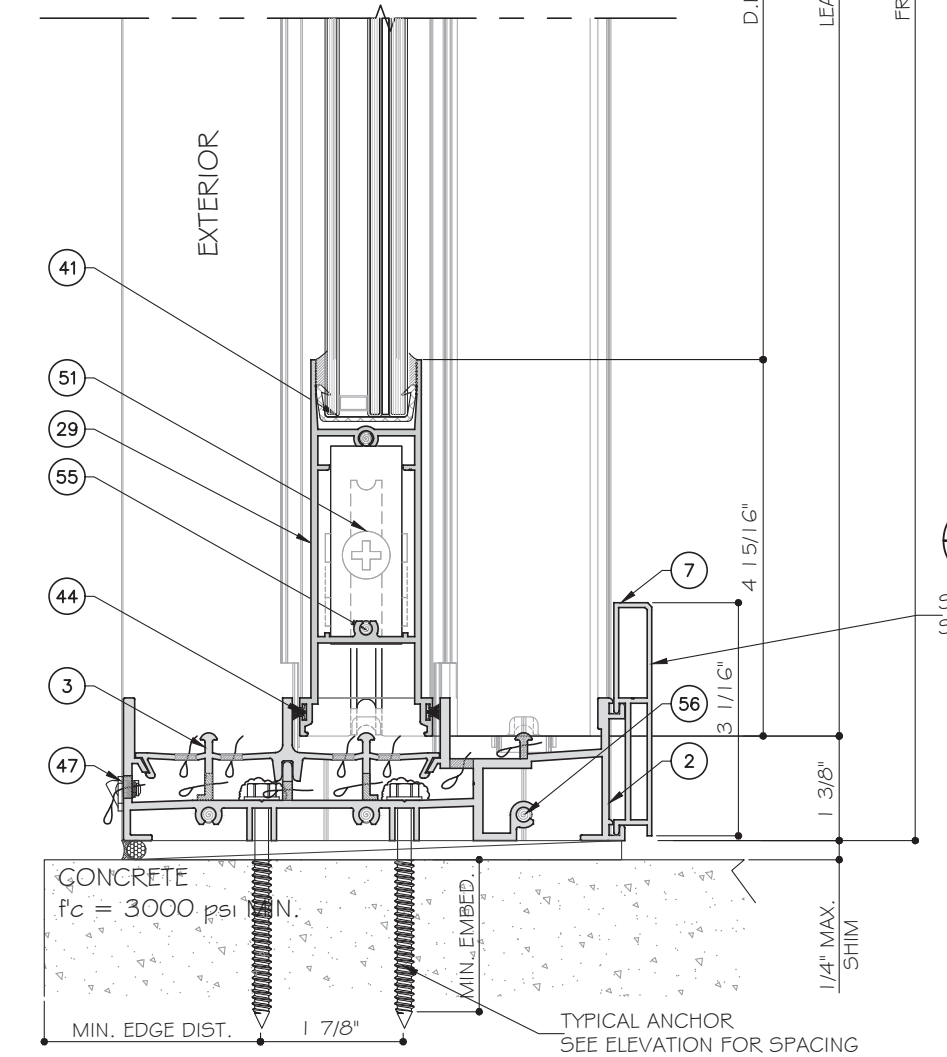
3
D2
DETAIL



3A
D2
DETAIL



4
D2
DETAIL



4A
D2
DETAIL

SILL RAISER OPTION
SEE SHEET K2 FOR LIMITATION

THREE (3) TRACK DOOR DETAILS



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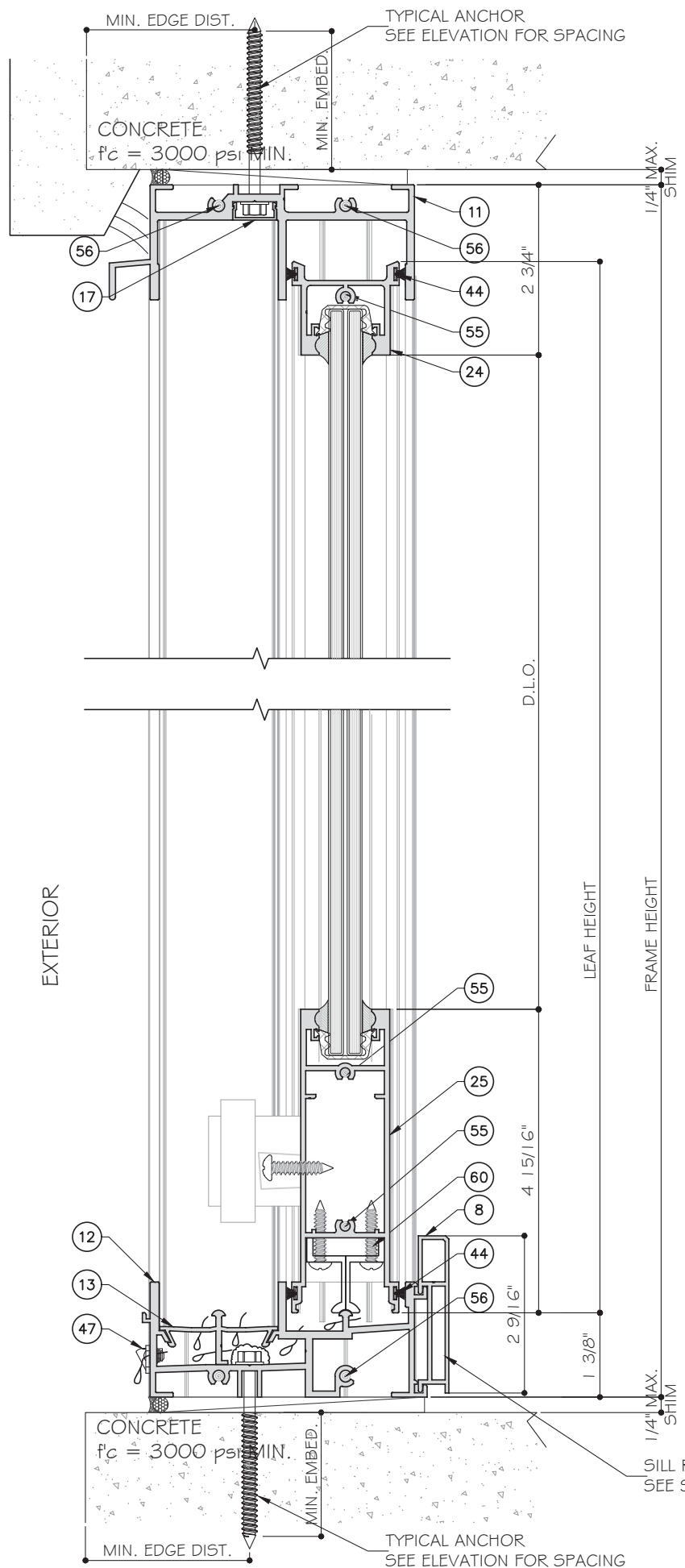
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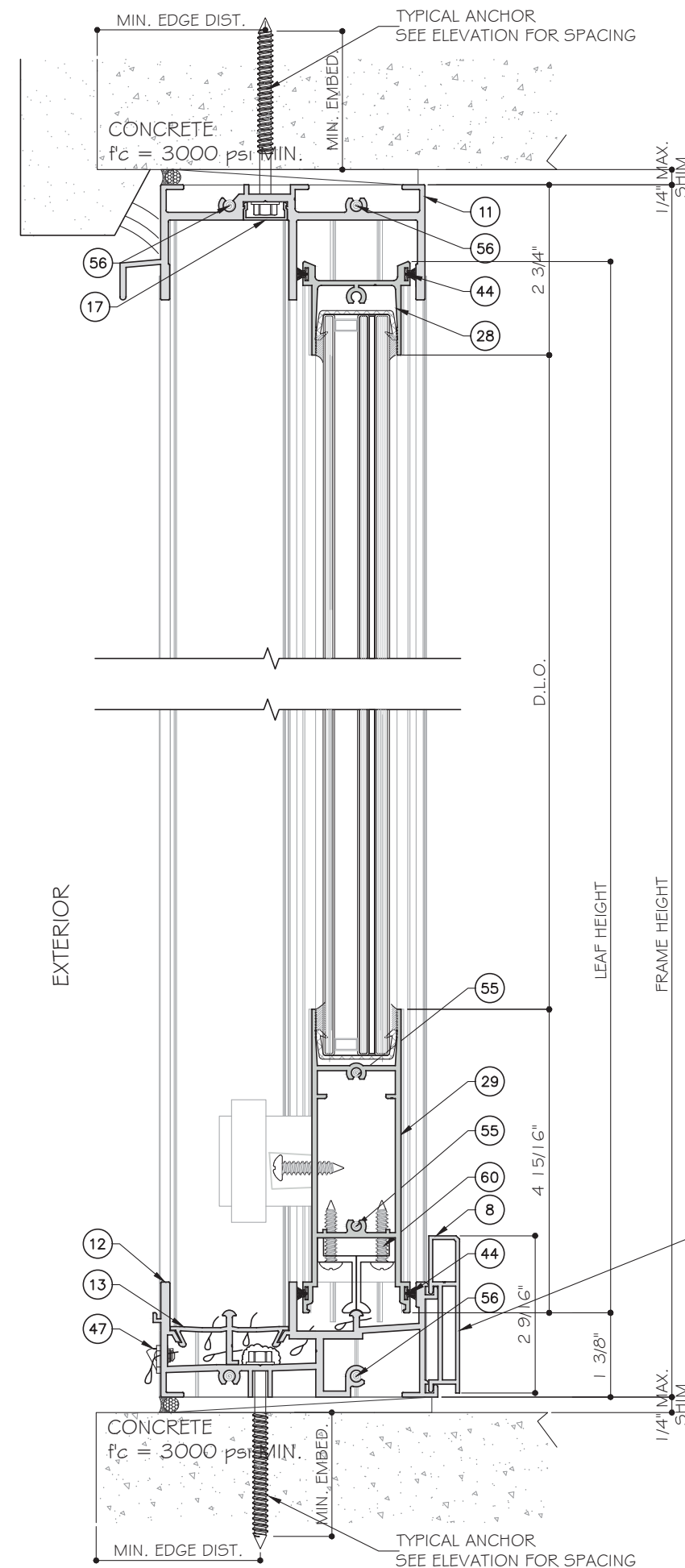
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5
D3
DETAIL

6
D3
DETAIL

TWO (2) TRACK DOOR DETAILS



5A
D3
DETAIL

6A
D3
DETAIL

SILL RAISER OPTION
SEE SHEET K2 FOR LIMITATION



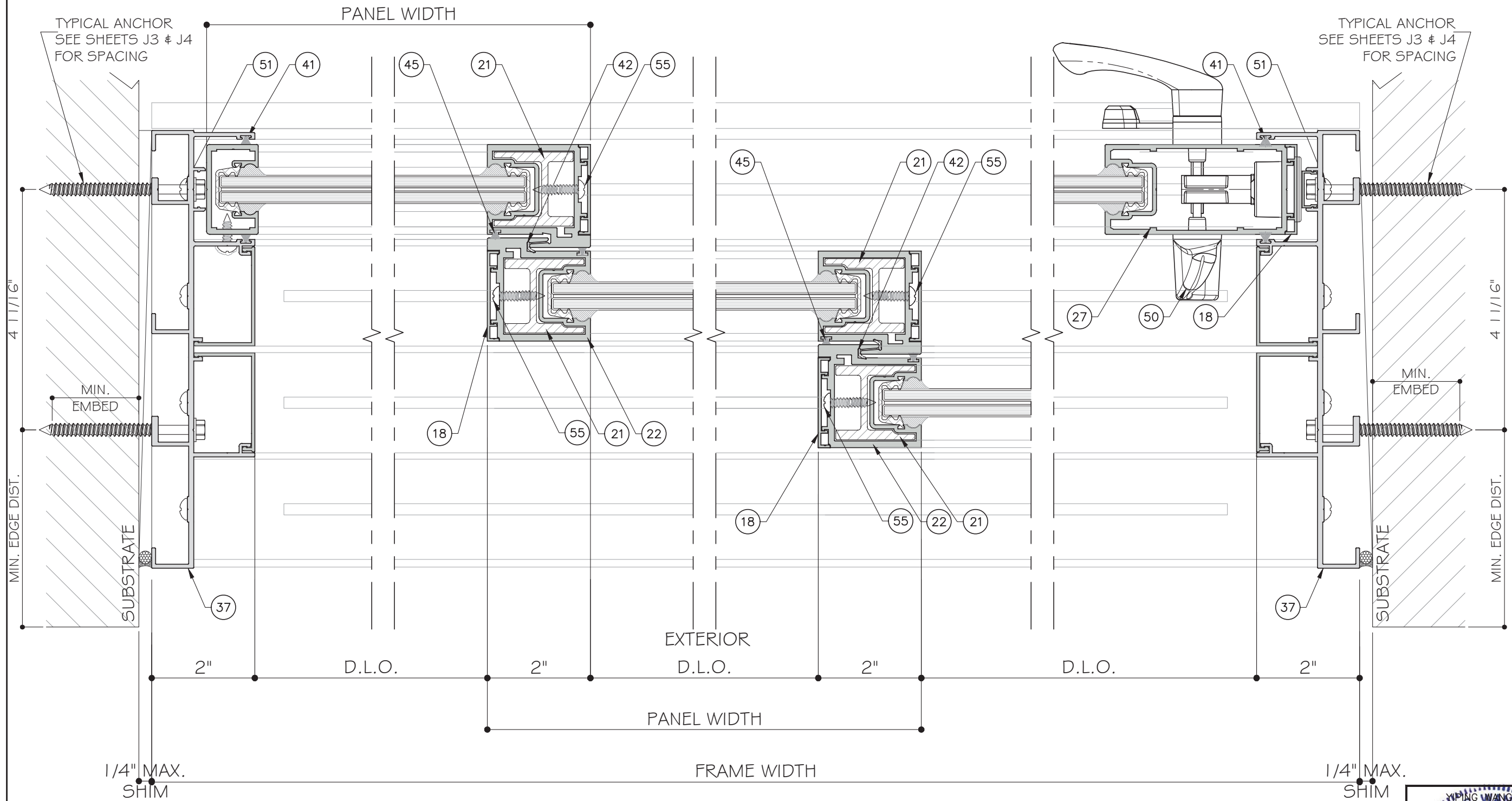
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STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
 LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.



7
D4
DETAIL

8
D4
DETAIL

9
D4
DETAIL

7A
D4
DETAIL

FOUR (4) TRACK DOOR DETAILS



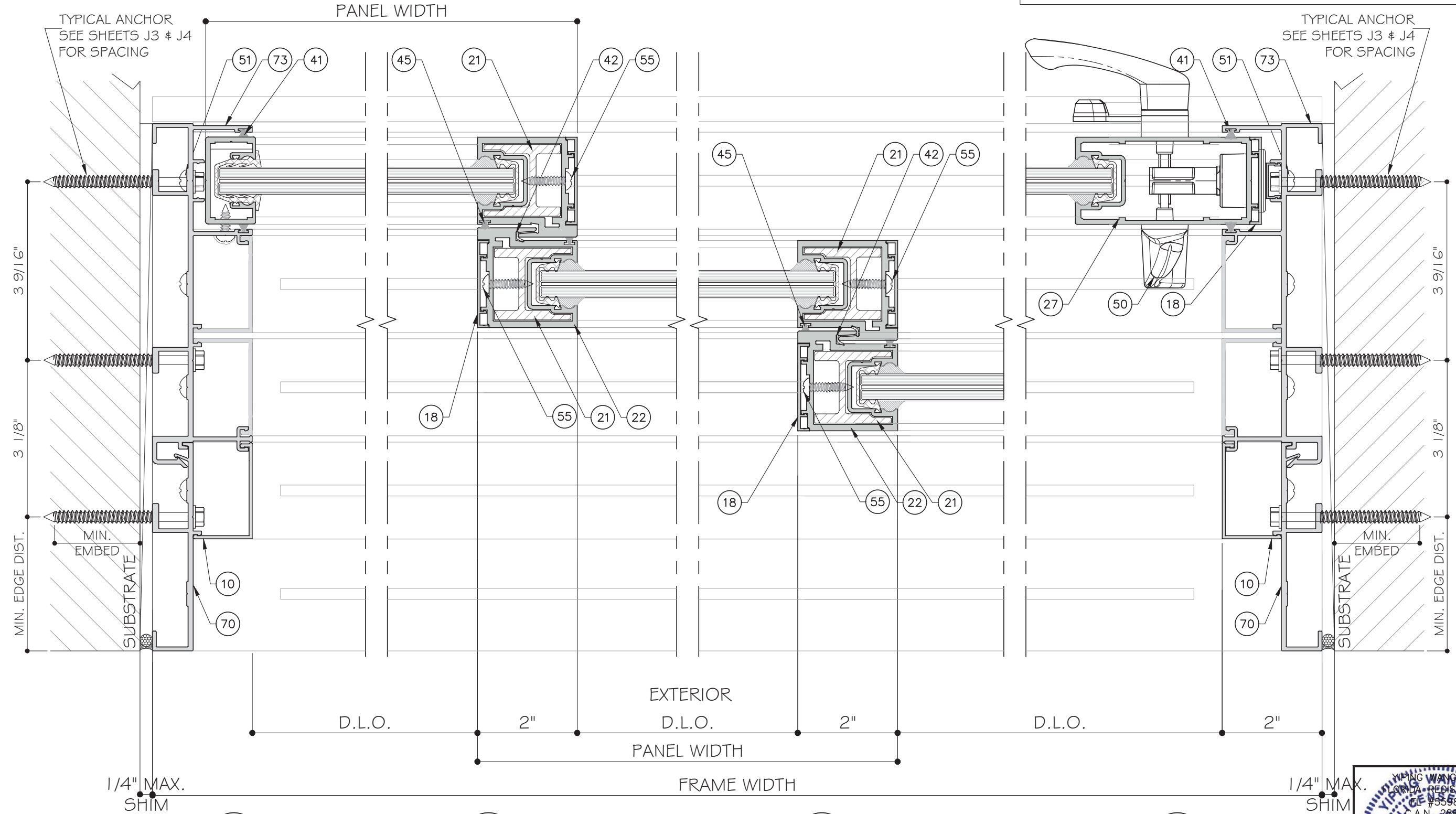
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STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
 LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.



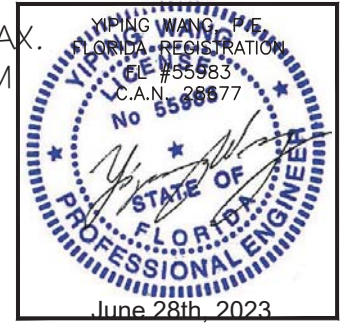
7
D4.1
DETAIL

8
D4.1
DETAIL

9
D4.1
DETAIL

7A
D4.1
DETAIL

FIVE (5) TRACK DOOR DETAILS



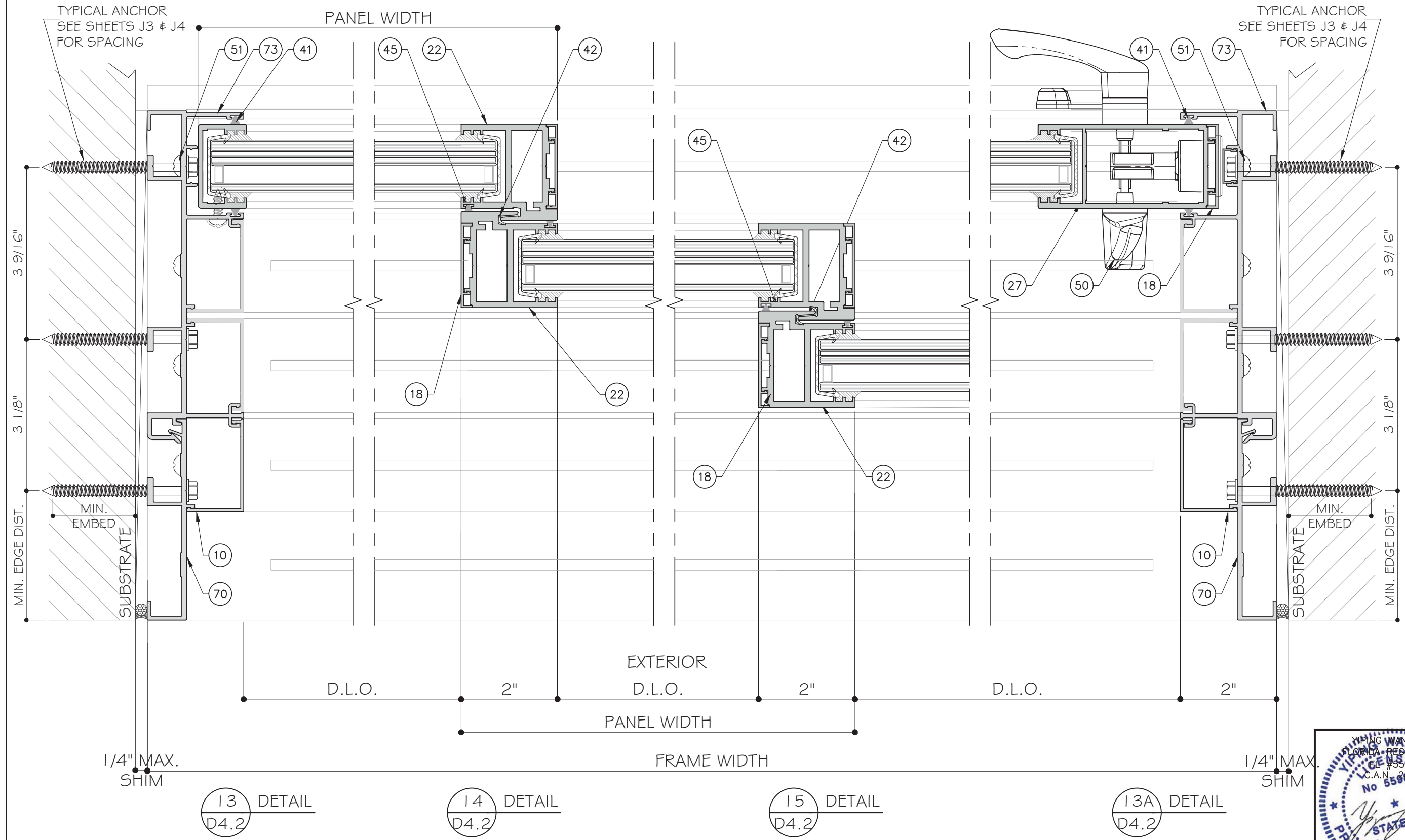
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STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
 LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.



FIVE (5) TRACK DOOR DETAILS

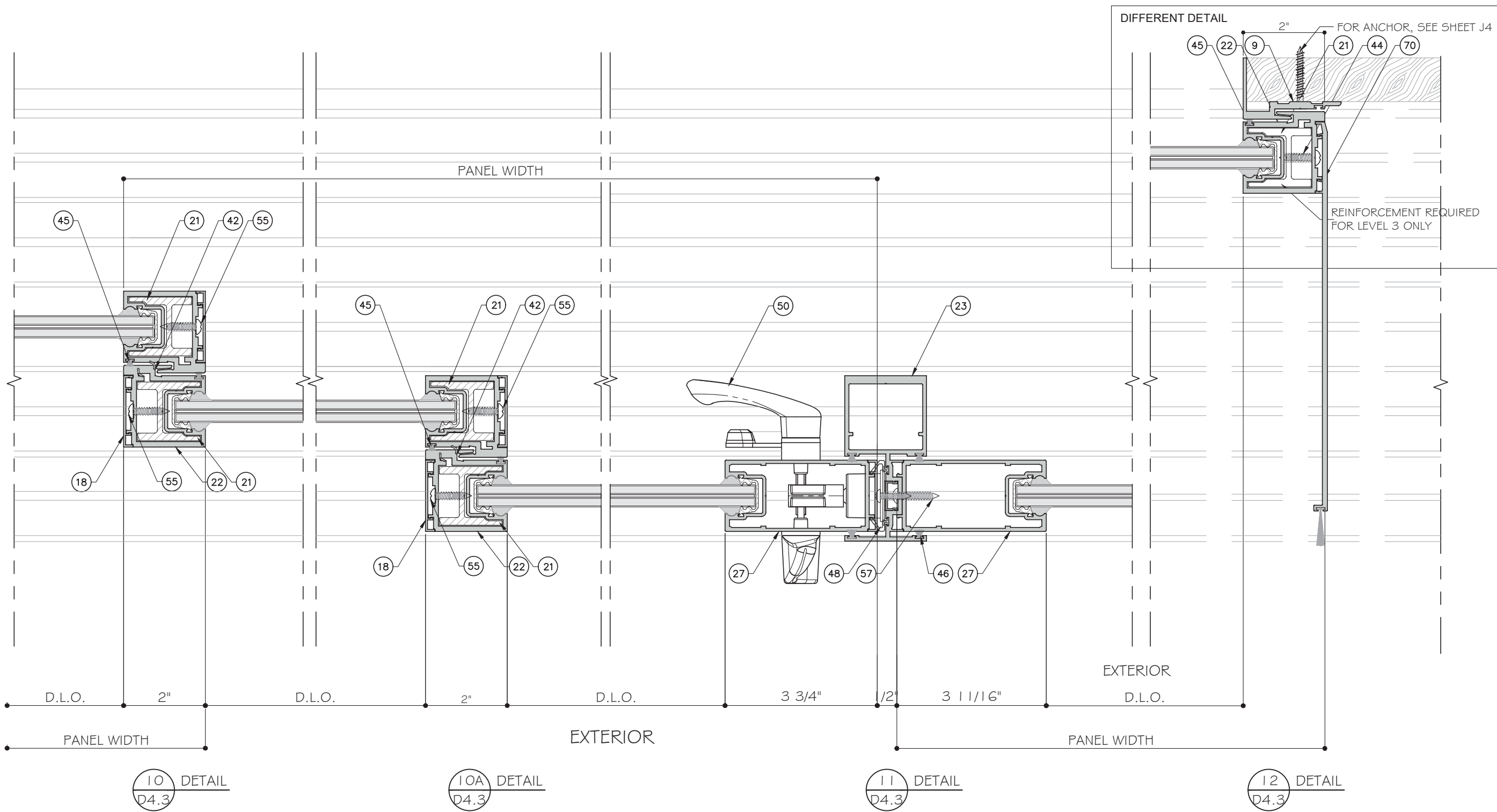


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STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN.
 SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
 LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR
 OPTION 2.

FIVE (5) TRACK DOOR DETAILS



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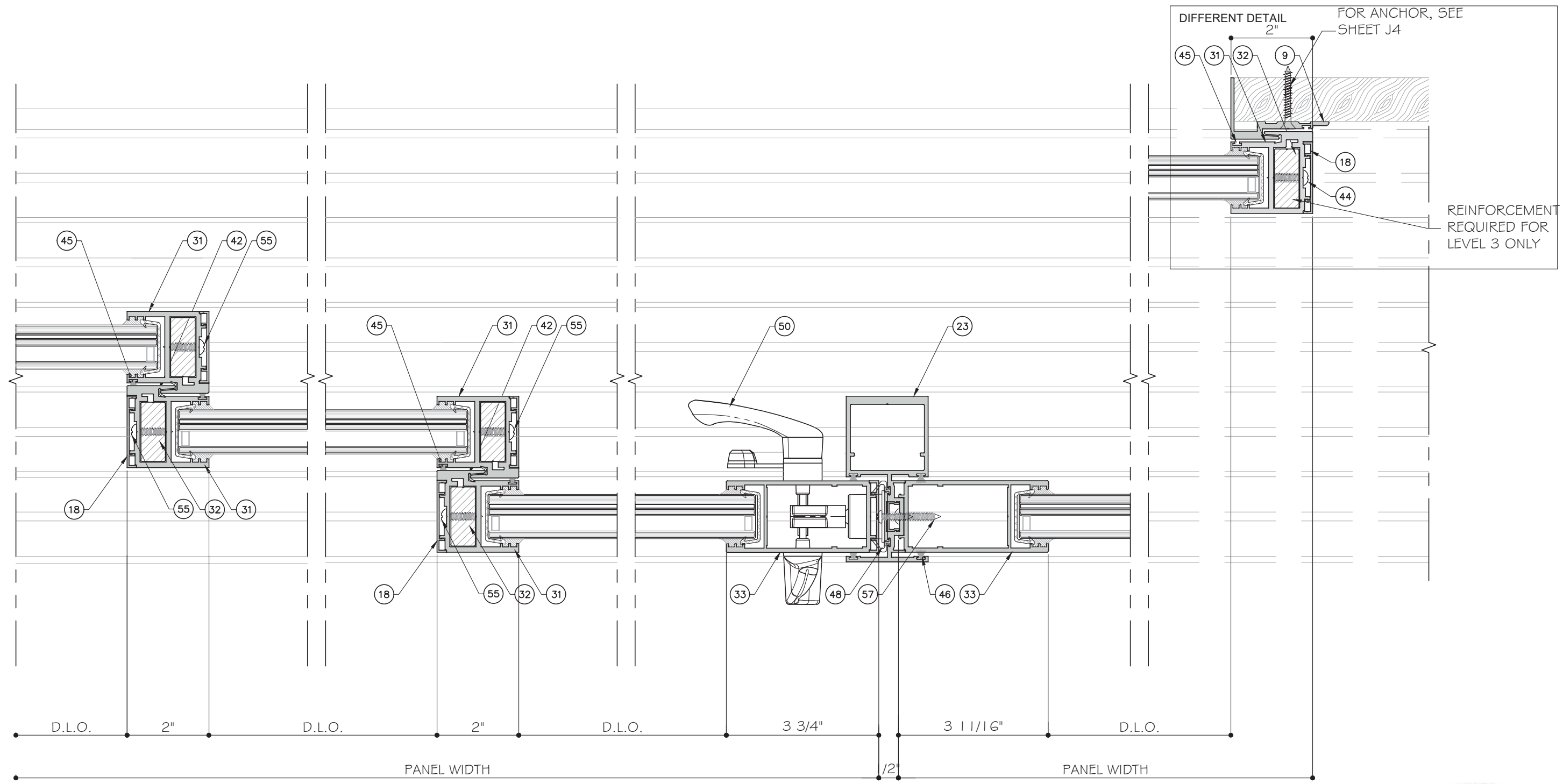
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16 DETAIL
D4.4

16A DETAIL
D4.4

17 DETAIL
D4.4

18 DETAIL
D4.4

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN.
SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR
OPTION 2.

EXTERIOR

FIVE (5) TRACK DOOR DETAILS

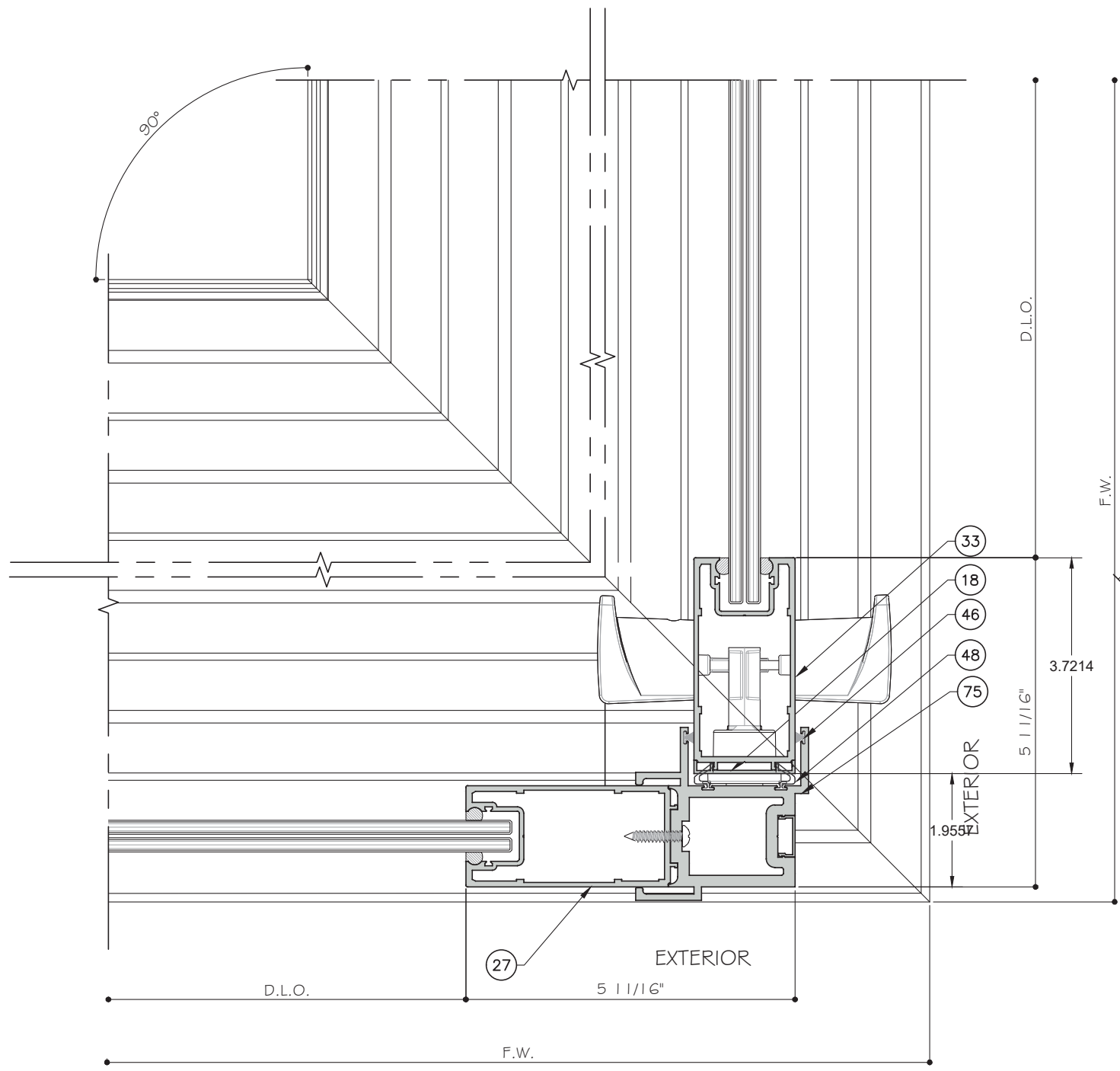


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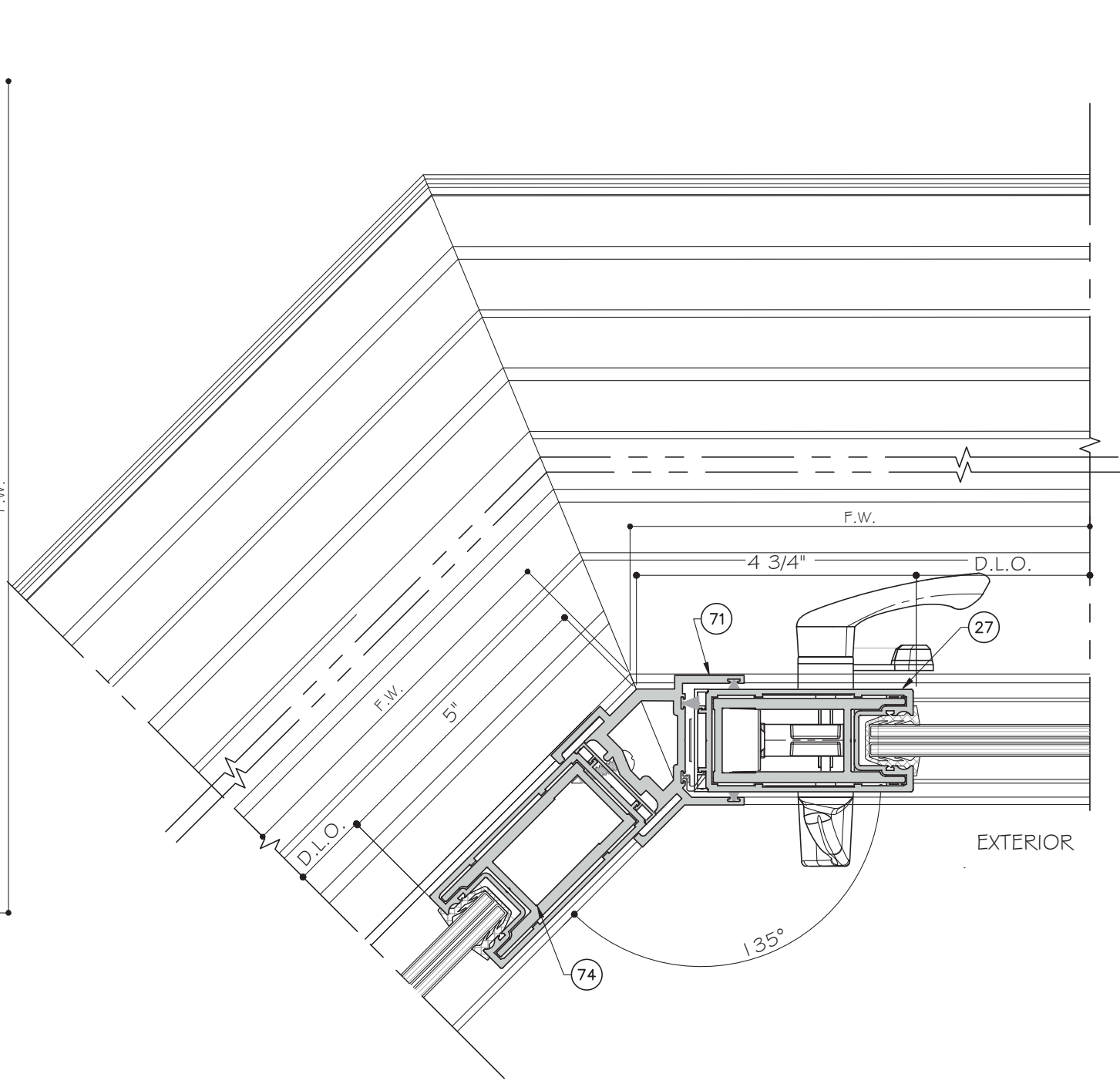
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43 DETAIL
D4.5



44 DETAIL
D4.5

CORNER DETAILS

CORNERS CAN BE USED ON ALL TRACK CONFIGURATIONS

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.



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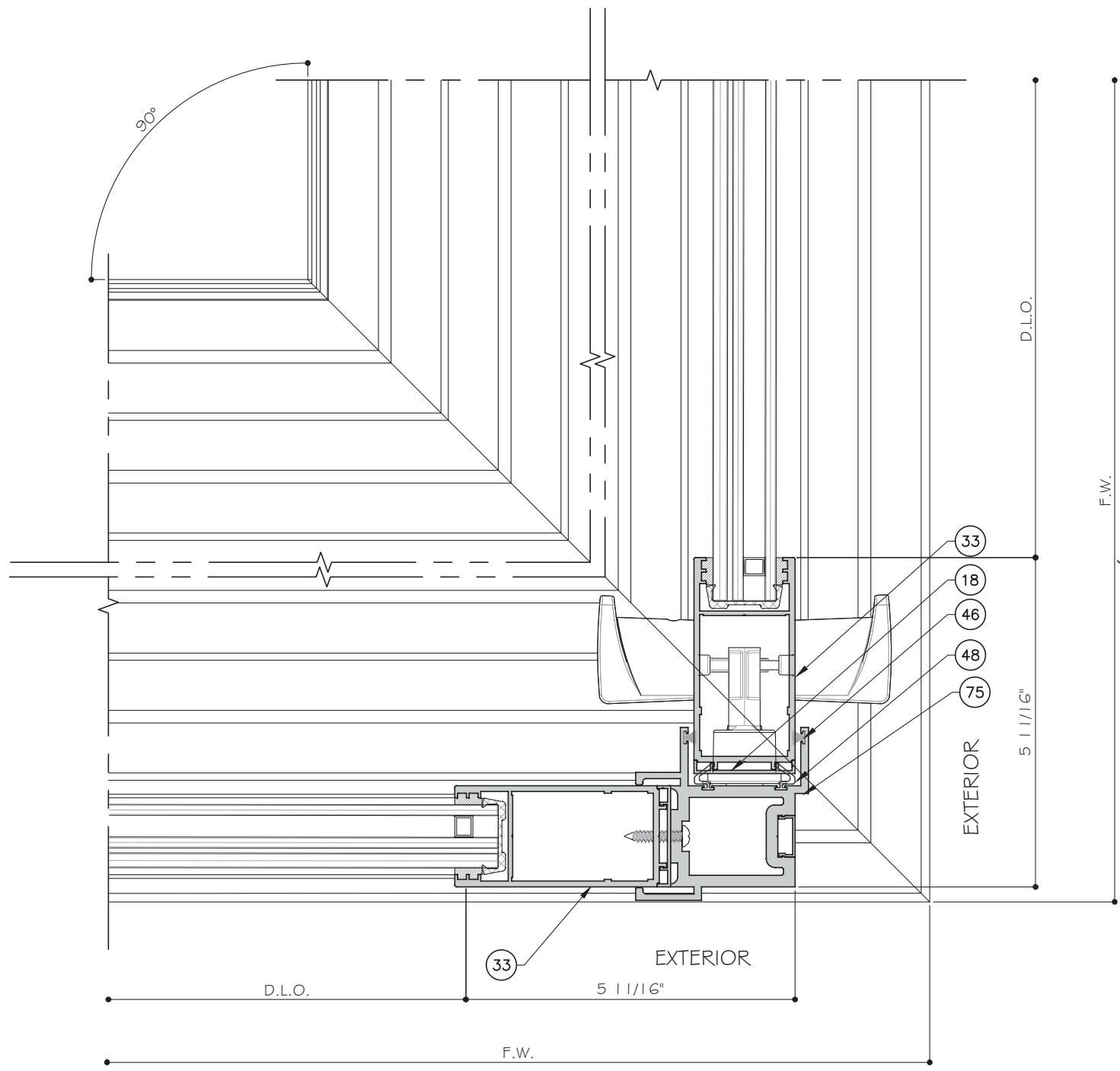
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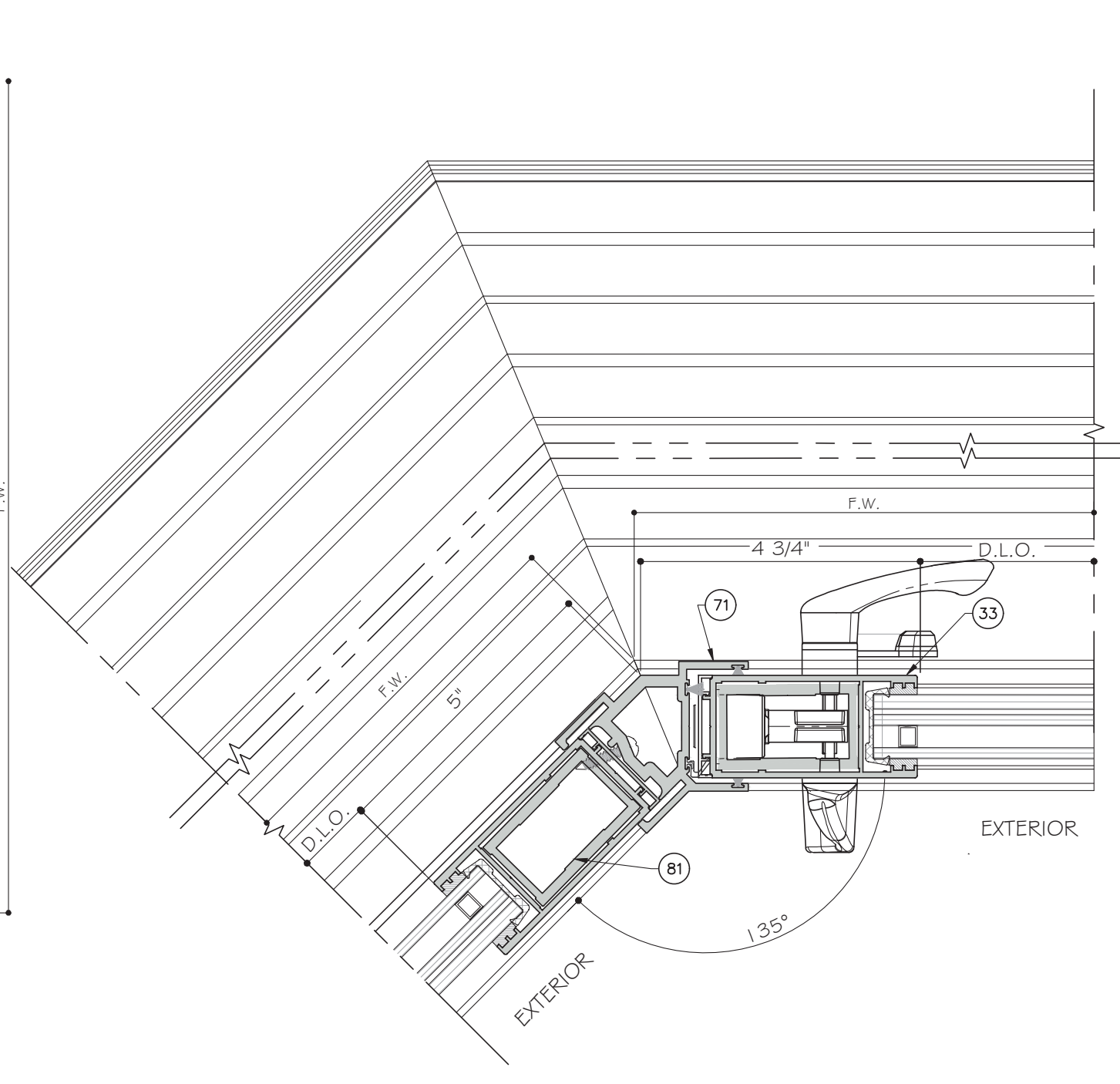
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45 DETAIL
D4.6



46 DETAIL
D4.6

CORNER DETAILS

CORNERS CAN BE USED ON ALL TRACK CONFIGURATIONS

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.



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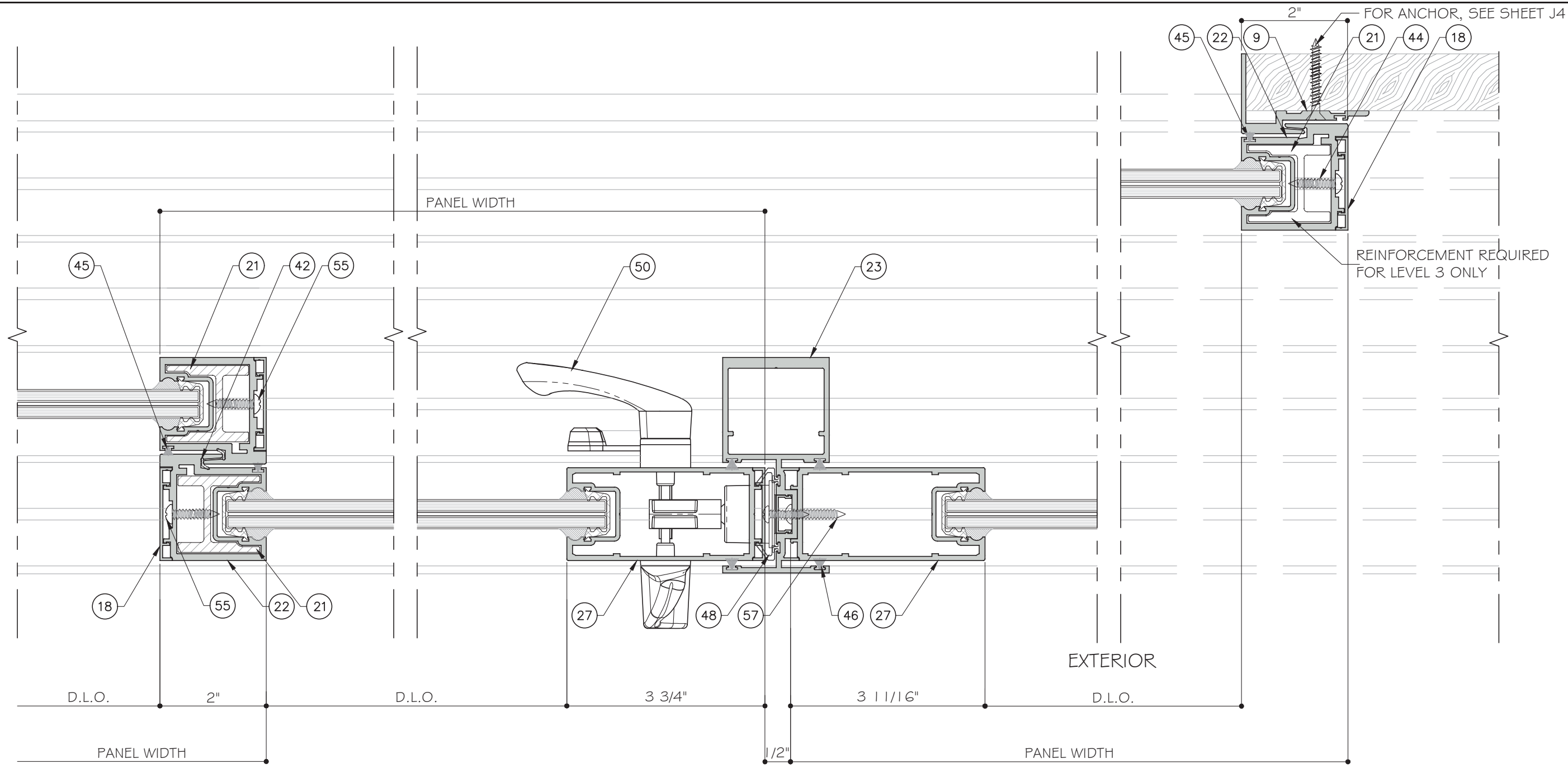
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D4.6

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10 DETAIL
D5

11 DETAIL
D5

12 DETAIL
D5

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT. LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.

FOUR (4) TRACK DOOR DETAILS



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Miami, FL 33138
TEL. (305) 624-7775

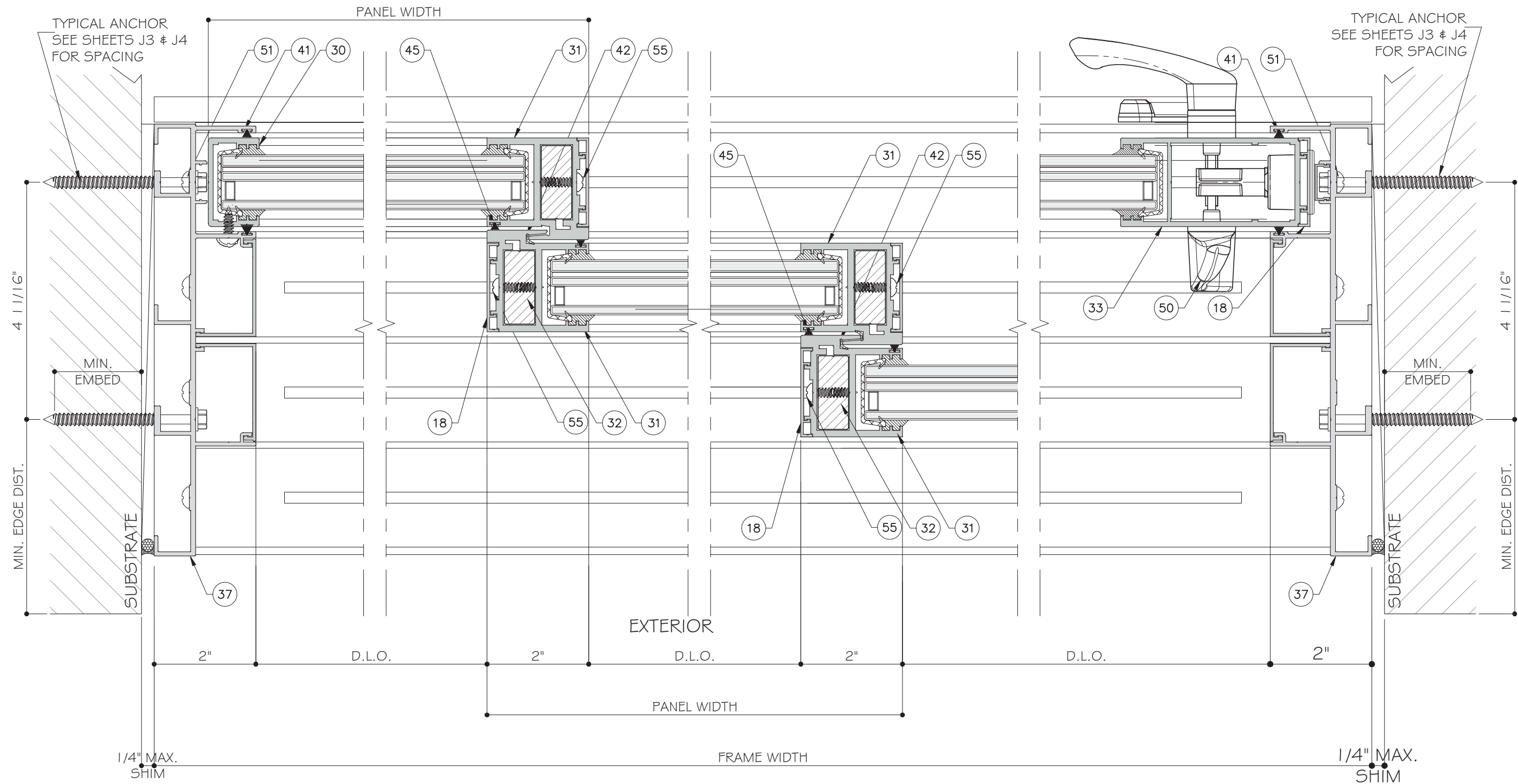
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| 1 | 10-16-2019 | MCY | UPDATE TO FRC 2020 |
| 2 | 07-14-2020 | MCY | UPDATE |
| 3 | 12-29-2020 | MCY | UPDATE |
| 4 | 04-06-2021 | MCY | UPDATE |
| 5 | 10-11-2021 | MCY | UPDATE |
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Drawn Date: 10.11.2021 Scale:

DRAWING NO. AD16-29

D5

Sheet No. 40 OF 59



13 DETAIL
D6

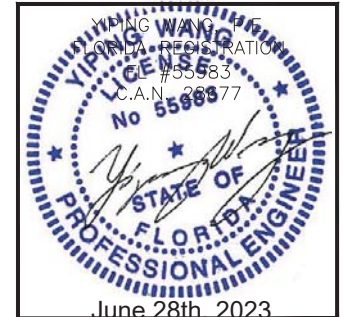
14 DETAIL
D6

15 DETAIL
D6

13A DETAIL
D6

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.

FOUR (4) TRACK DOOR DETAILS

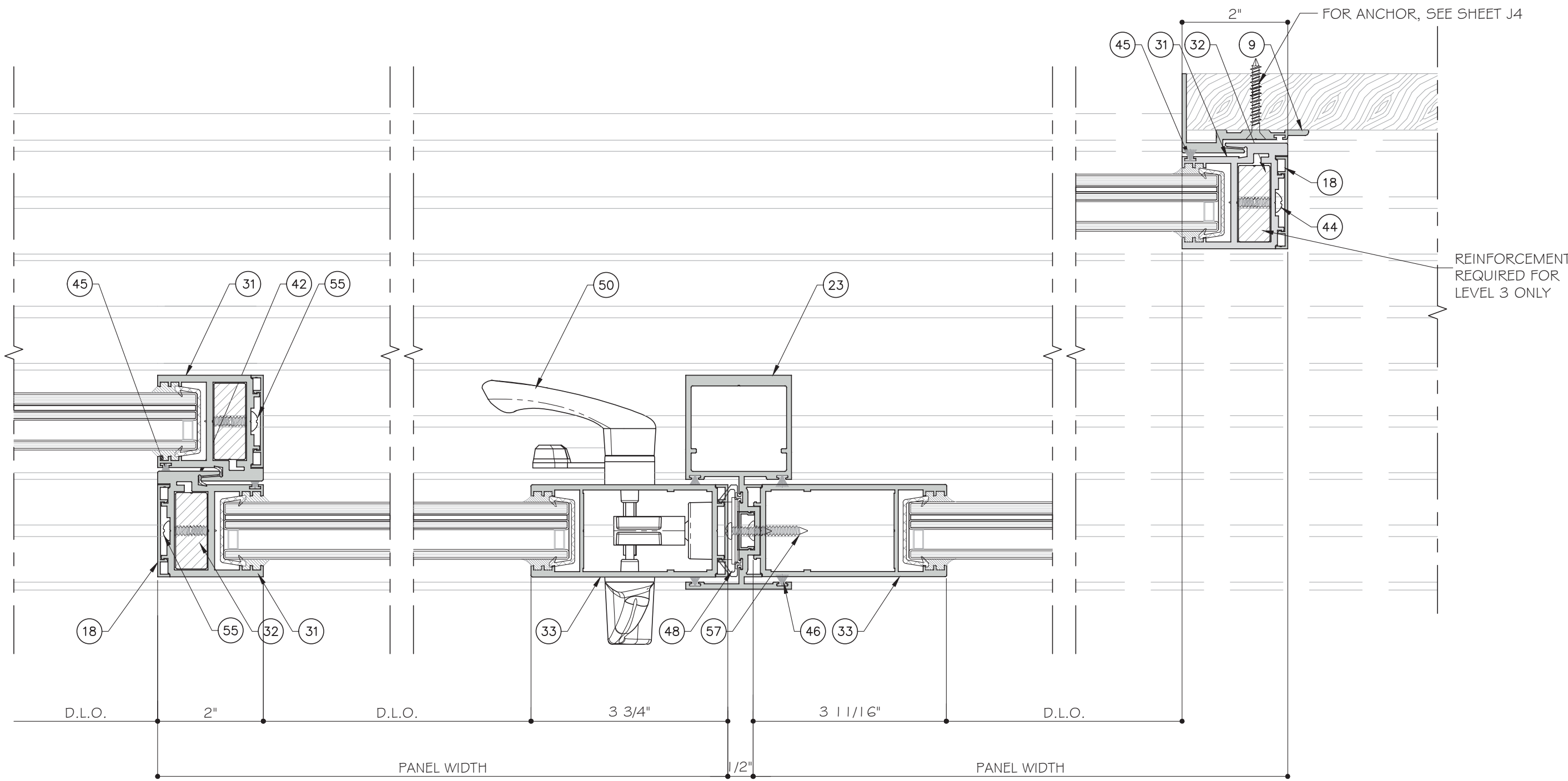


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| 6 | | | |

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DRAWING NO. AD16-29
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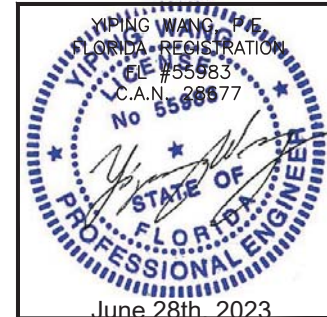
16 DETAIL
D7

17 DETAIL
D7

18 DETAIL
D7

FOUR (4) TRACK DOOR DETAILS

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
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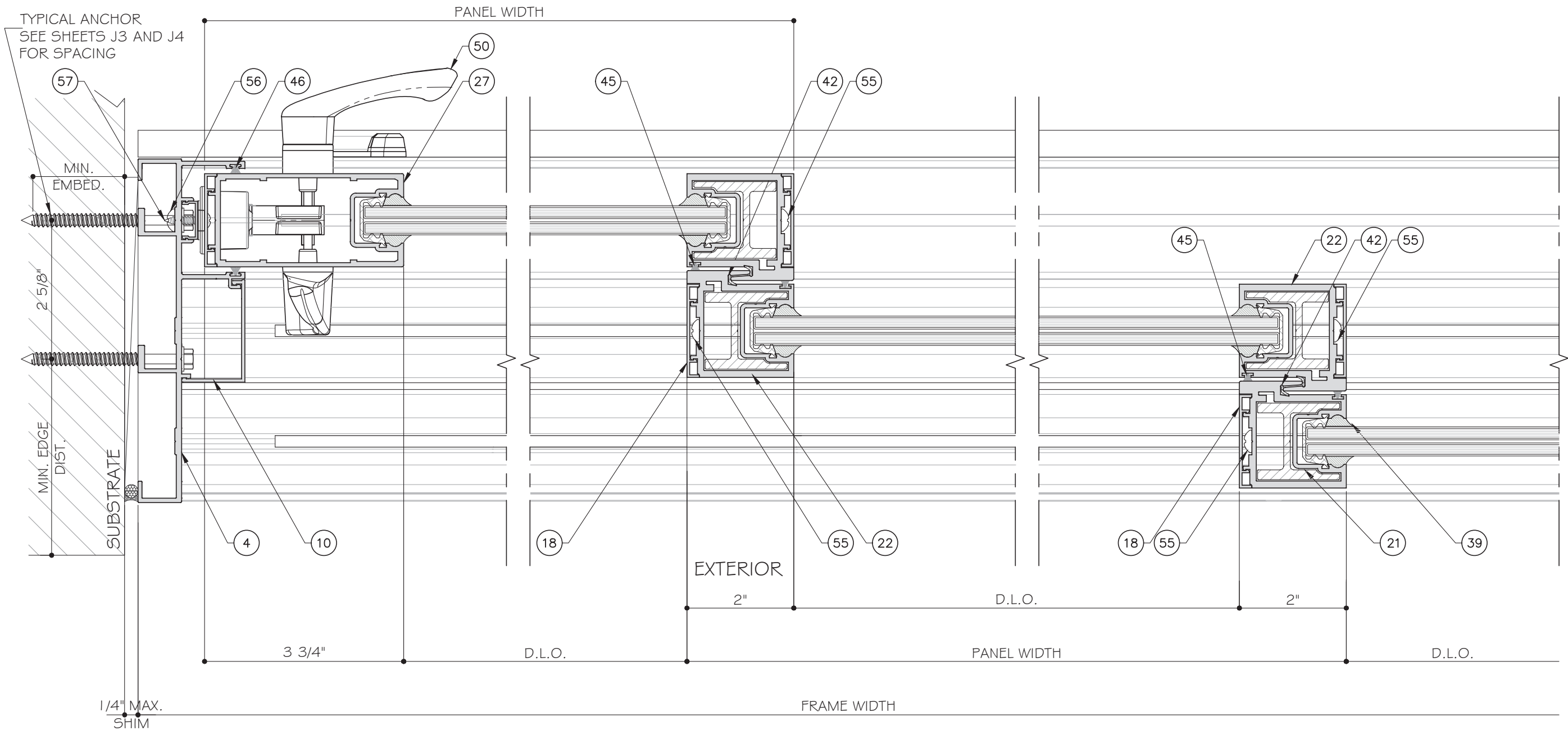
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| 3 | 12-29-2020 | MCY | UPDATE |
| 4 | 04-06-2021 | MCY | UPDATE |
| 5 | 10-11-2021 | MCY | UPDATE |
| 6 | | | |

Drawn Date: 10.11.2021 Scale: _____

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19
D8

20
D8

21
D8

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT. LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.

THREE (3) TRACK DOOR DETAILS



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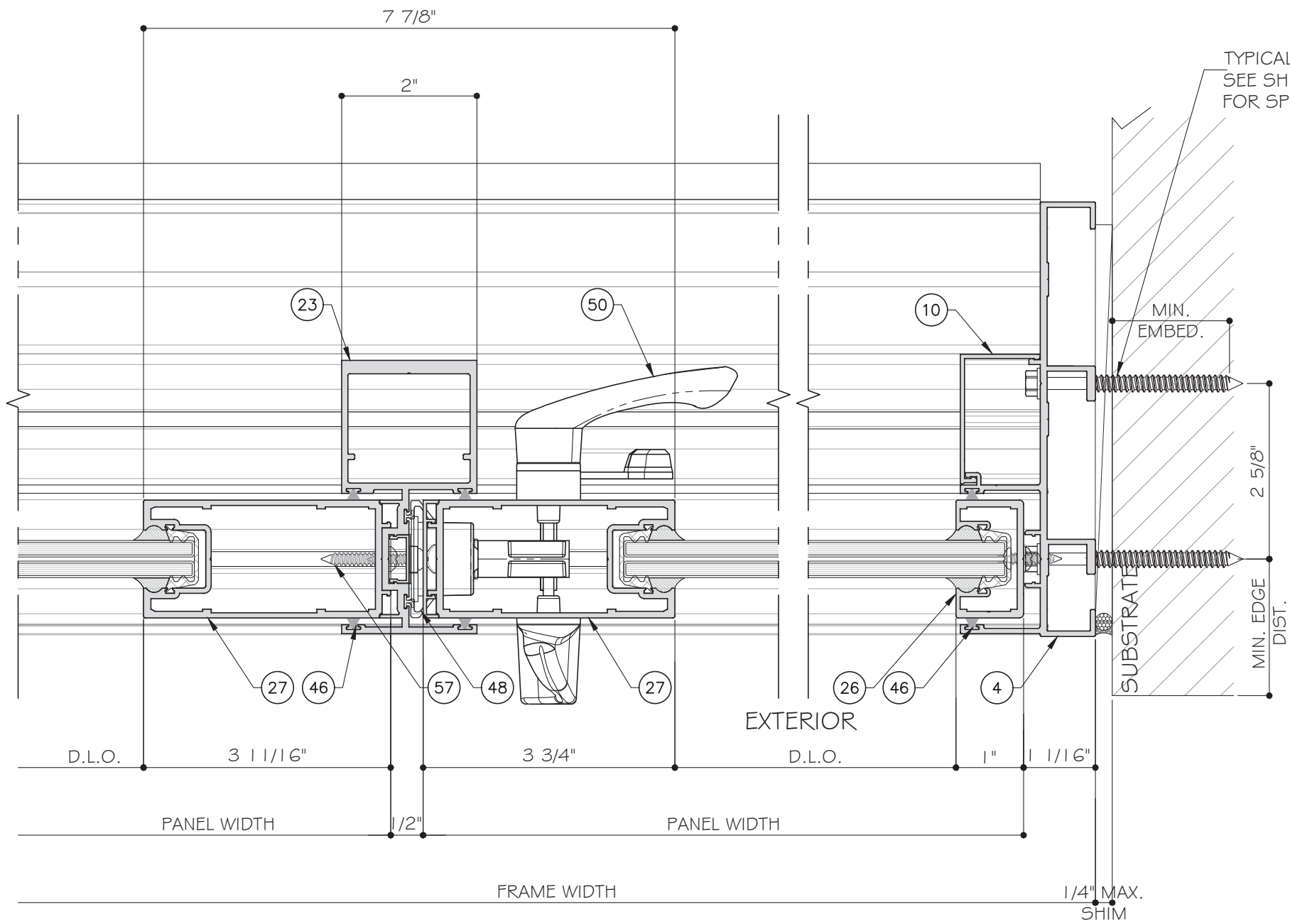
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| 6 | 10-11-2021 | MCY | UPDATE |

Drawn Date: 10.11.2021 Scale: _____

DRAWING NO. AD16-29

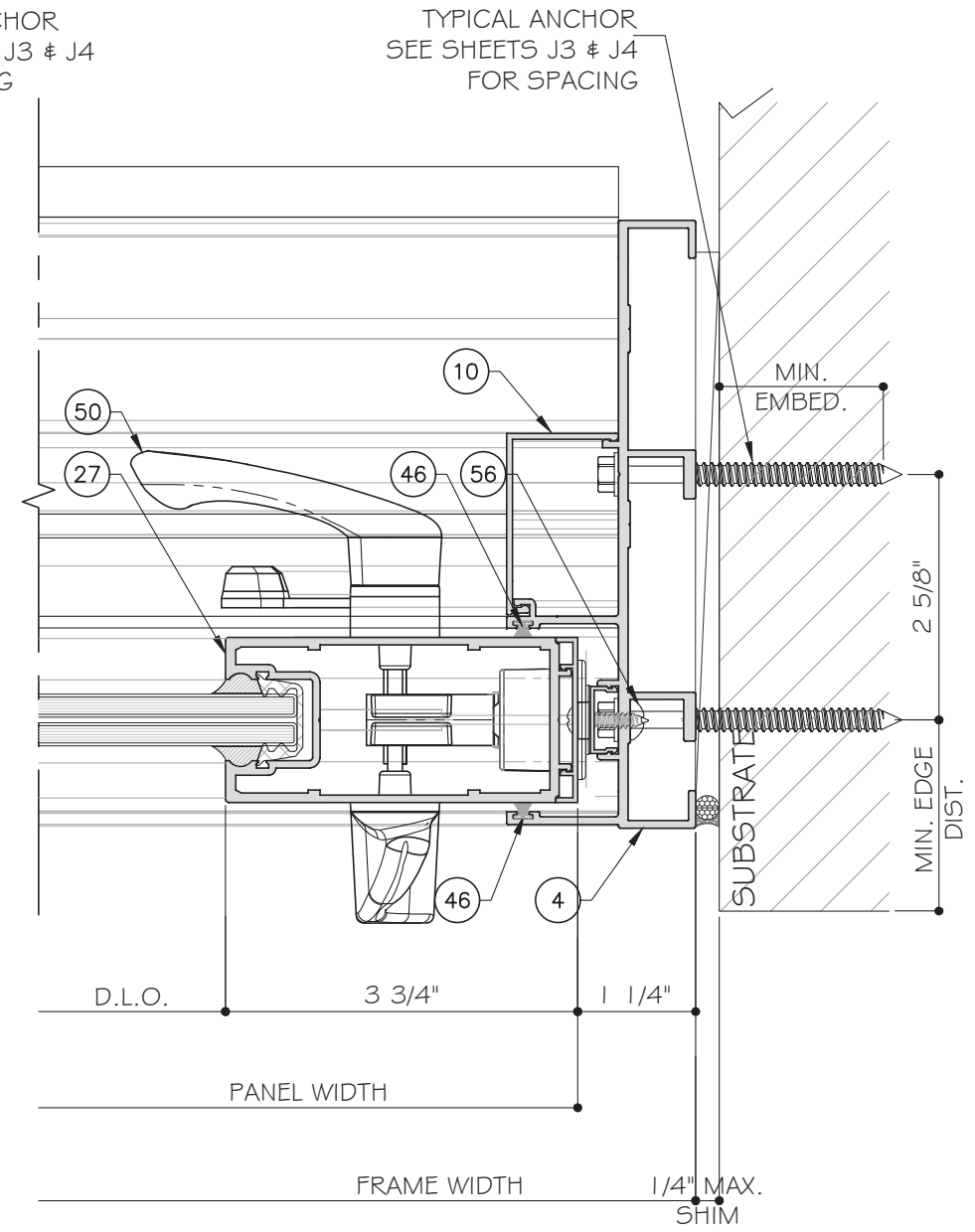
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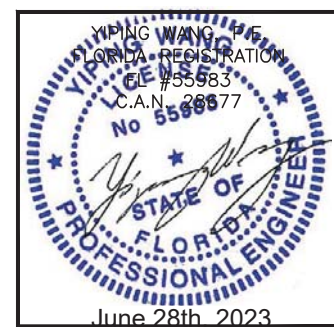
(22) DETAIL
D9

LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.



(24) DETAIL
D9

THREE (3) TRACK DOOR DETAILS



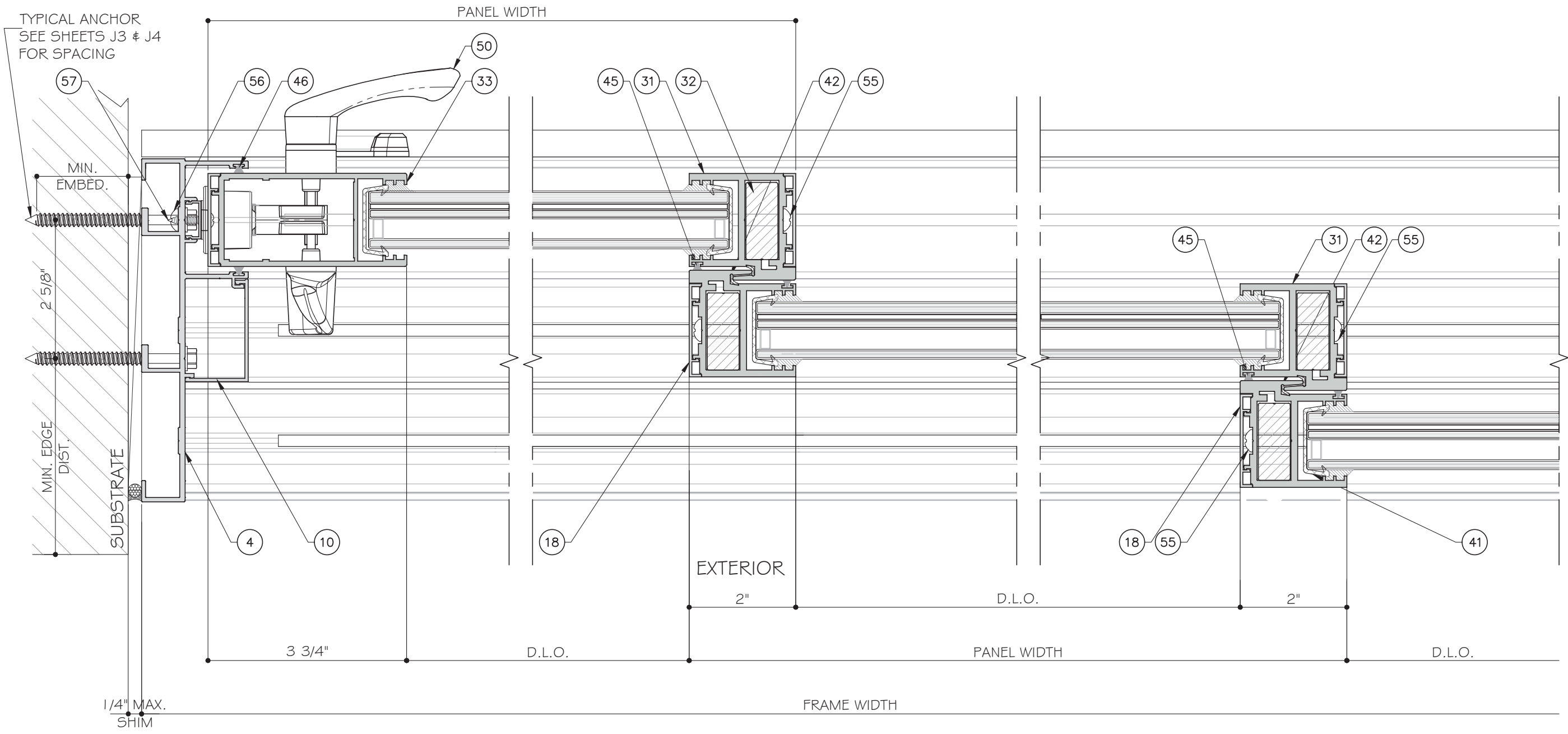
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| 6 | 10-11-2021 | MCY | UPDATE |

Drawn Date: 10.11.2021 Scale:

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25
DIO

26
DIO

27
DIO

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT. LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.

THREE (3) TRACK DOOR DETAILS



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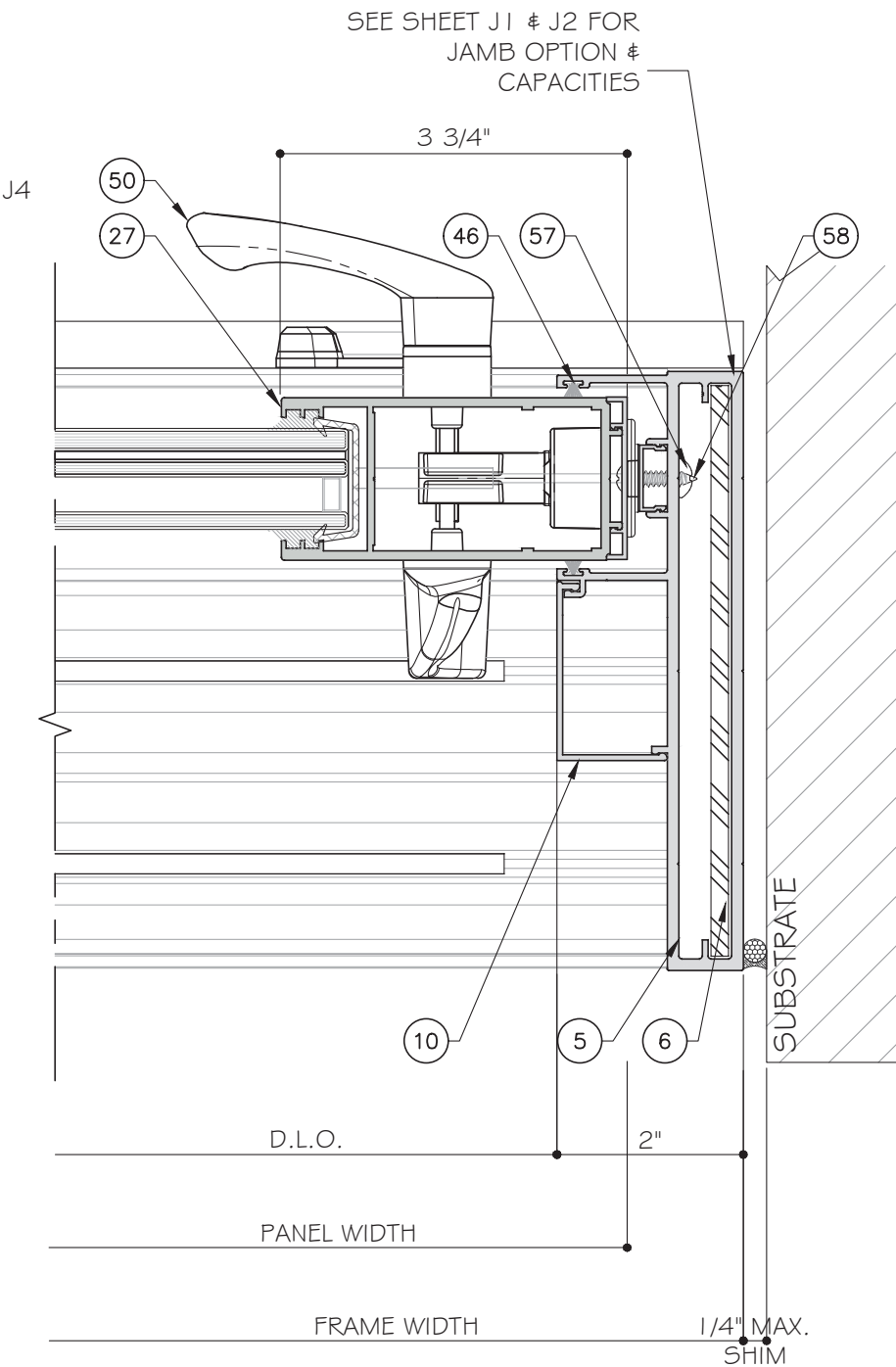
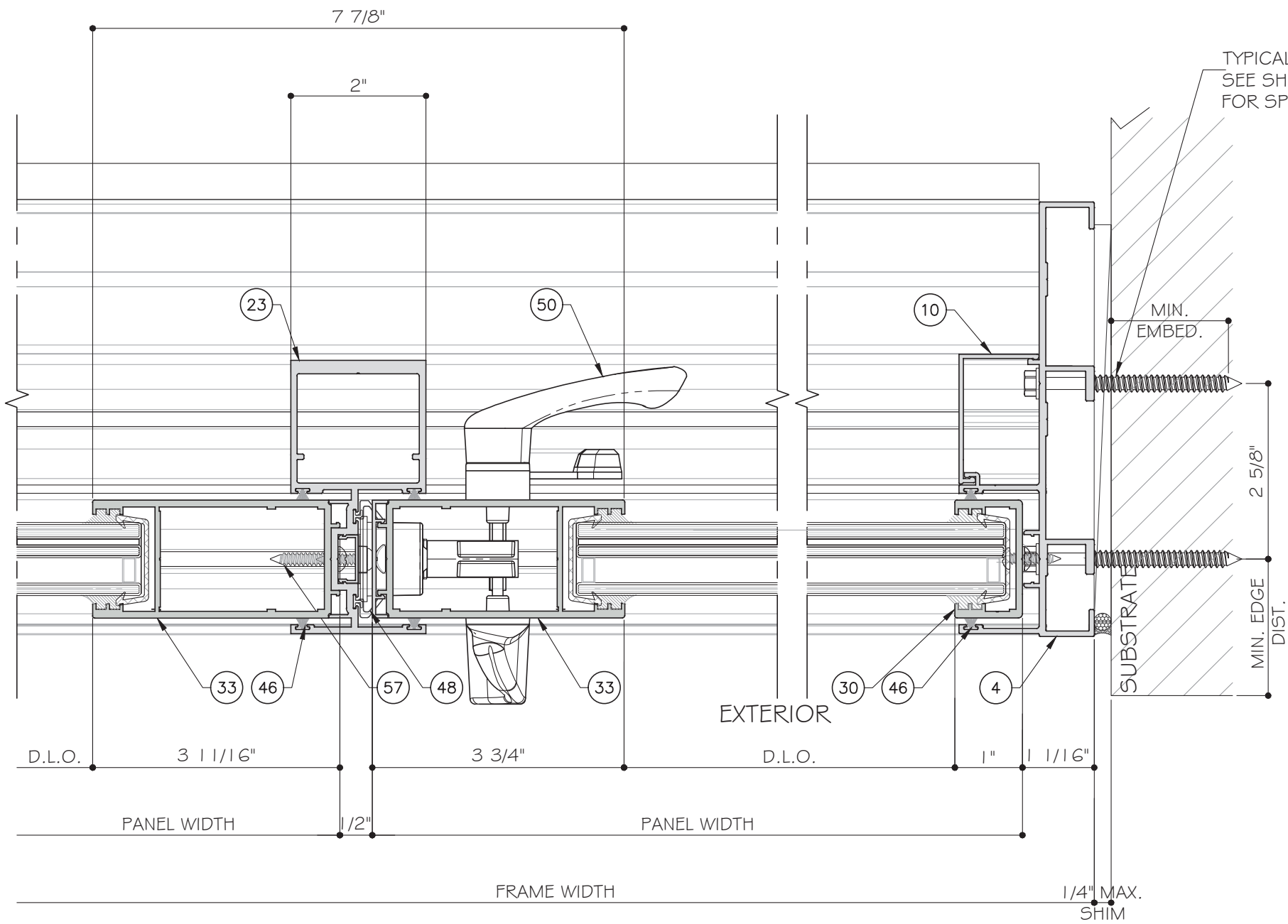
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DRAWING NO. AD16-29

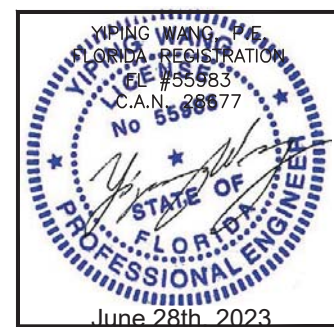
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LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.

THREE (3) TRACK DOOR DETAILS

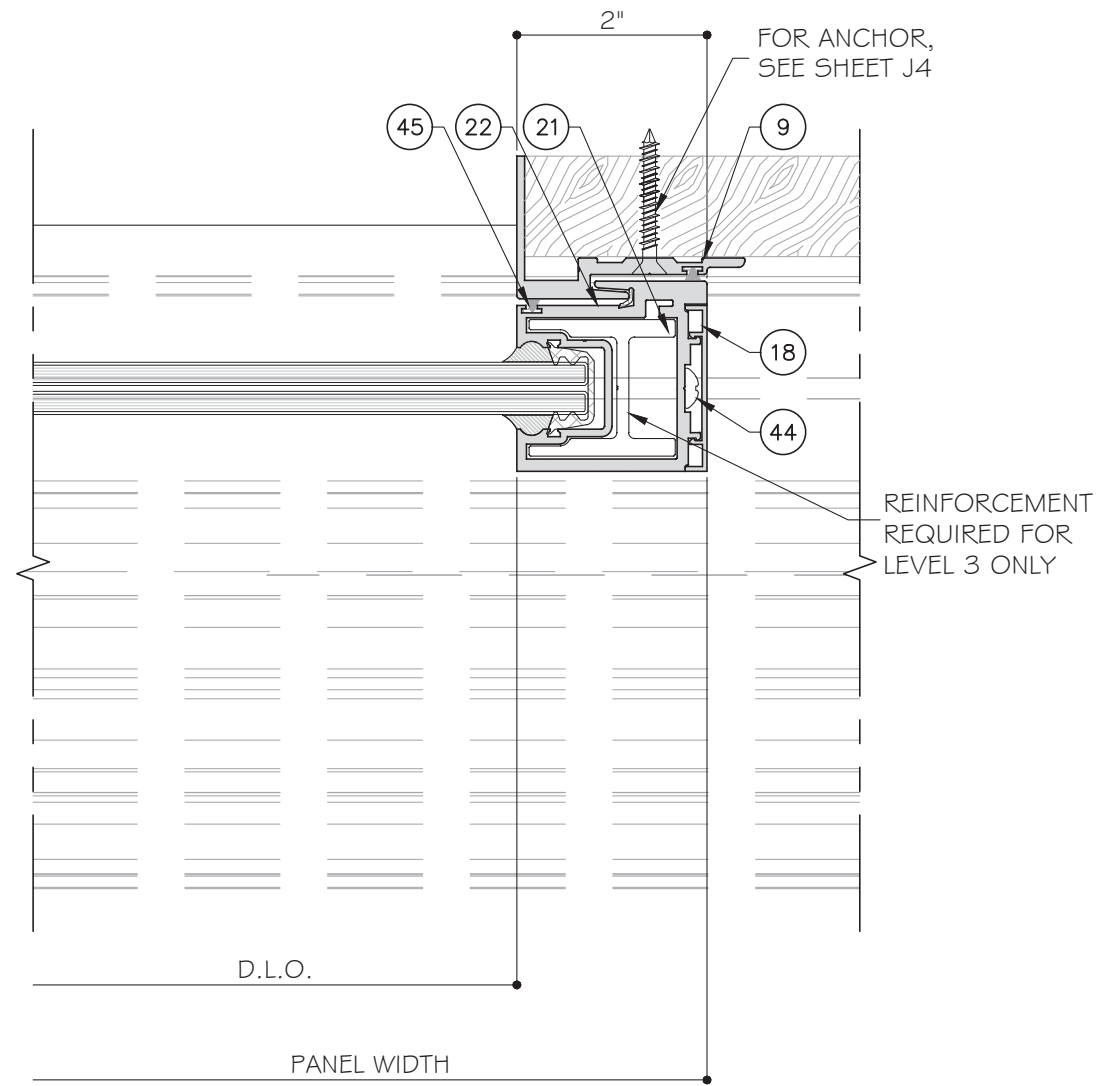


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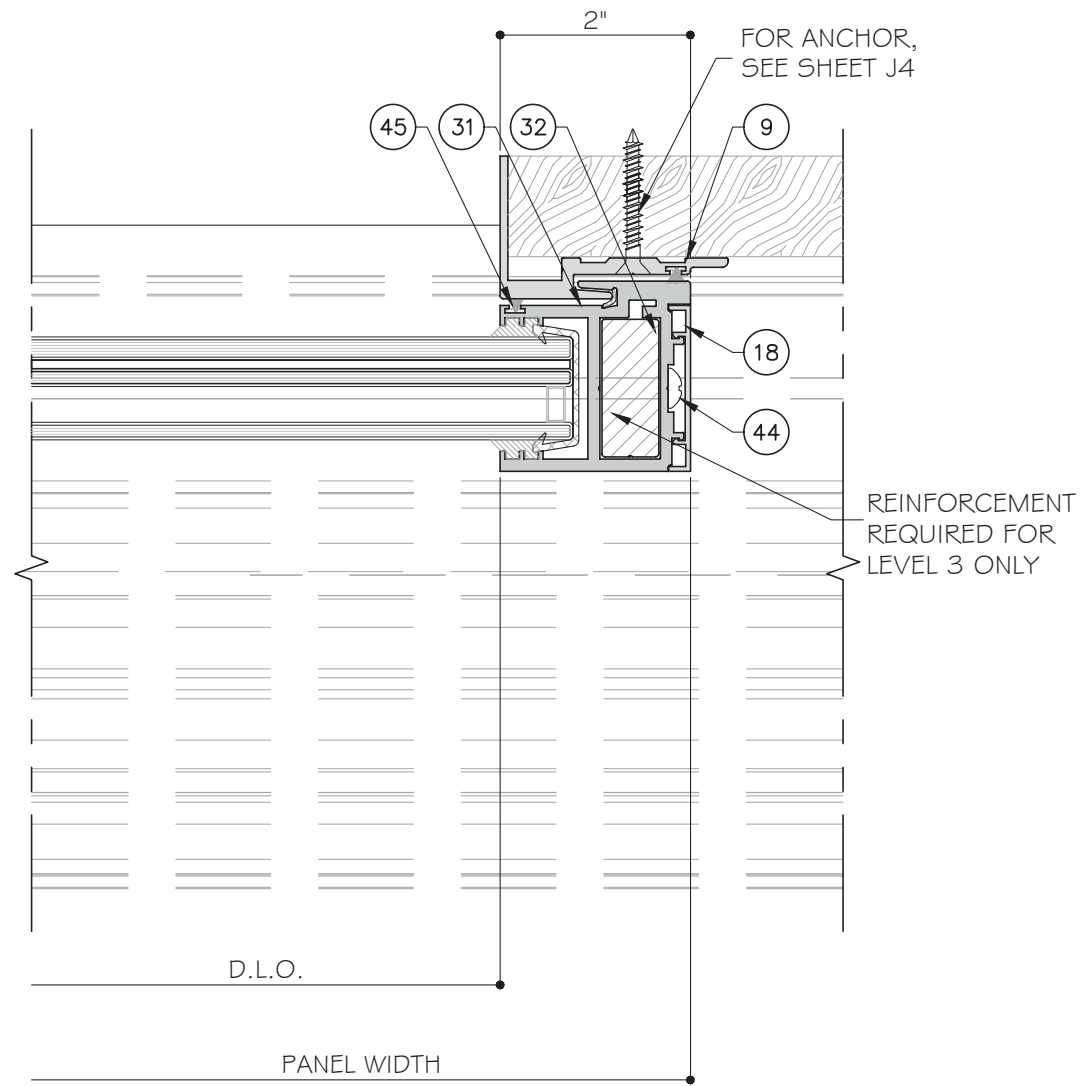
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Sheet No. **D11**
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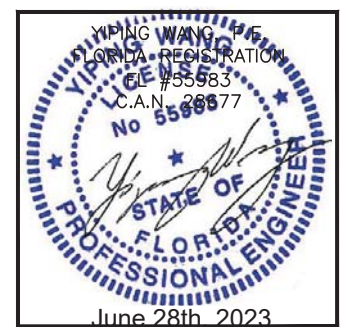


30
D12
DETAIL



31
D12
DETAIL

POCKET DETAIL

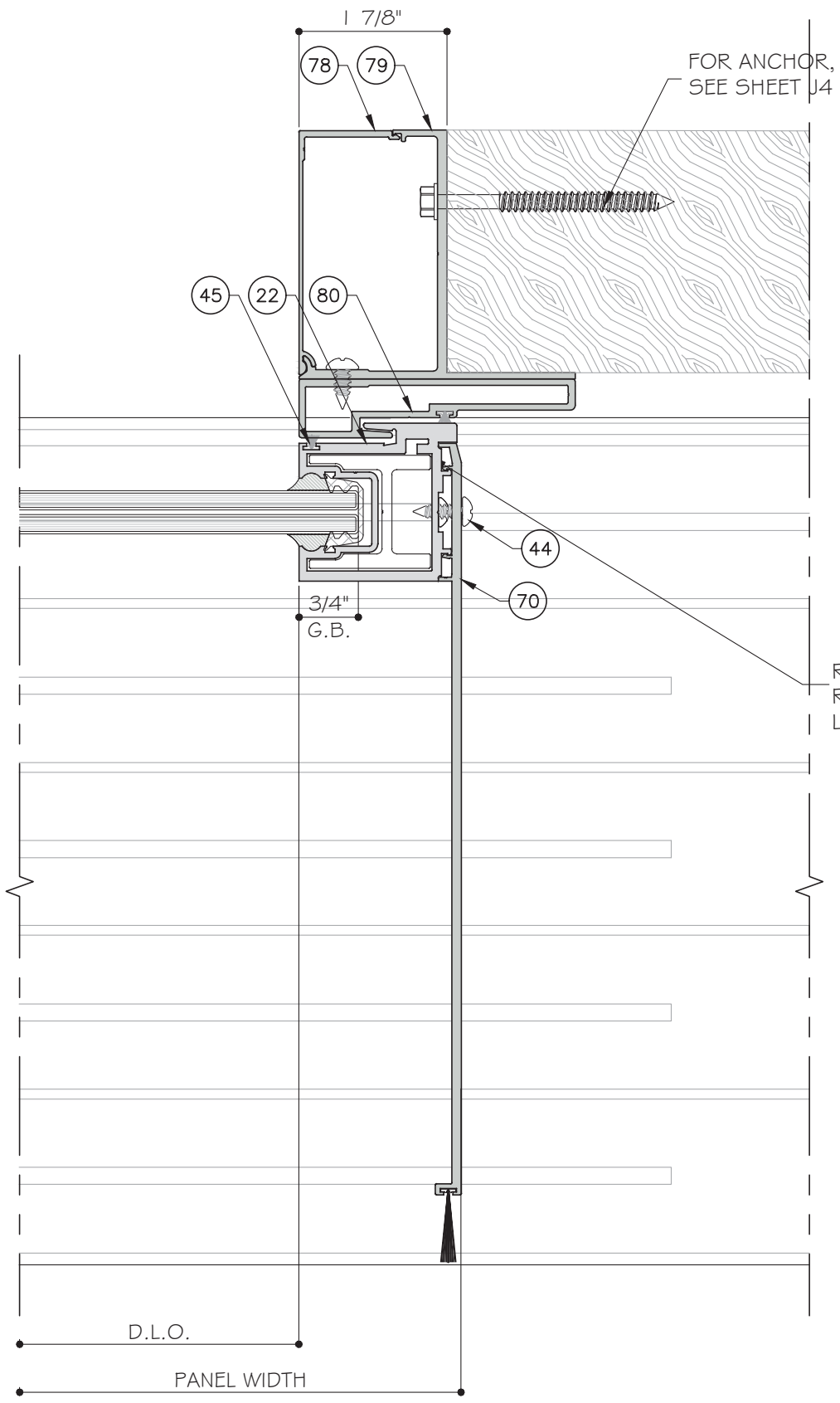


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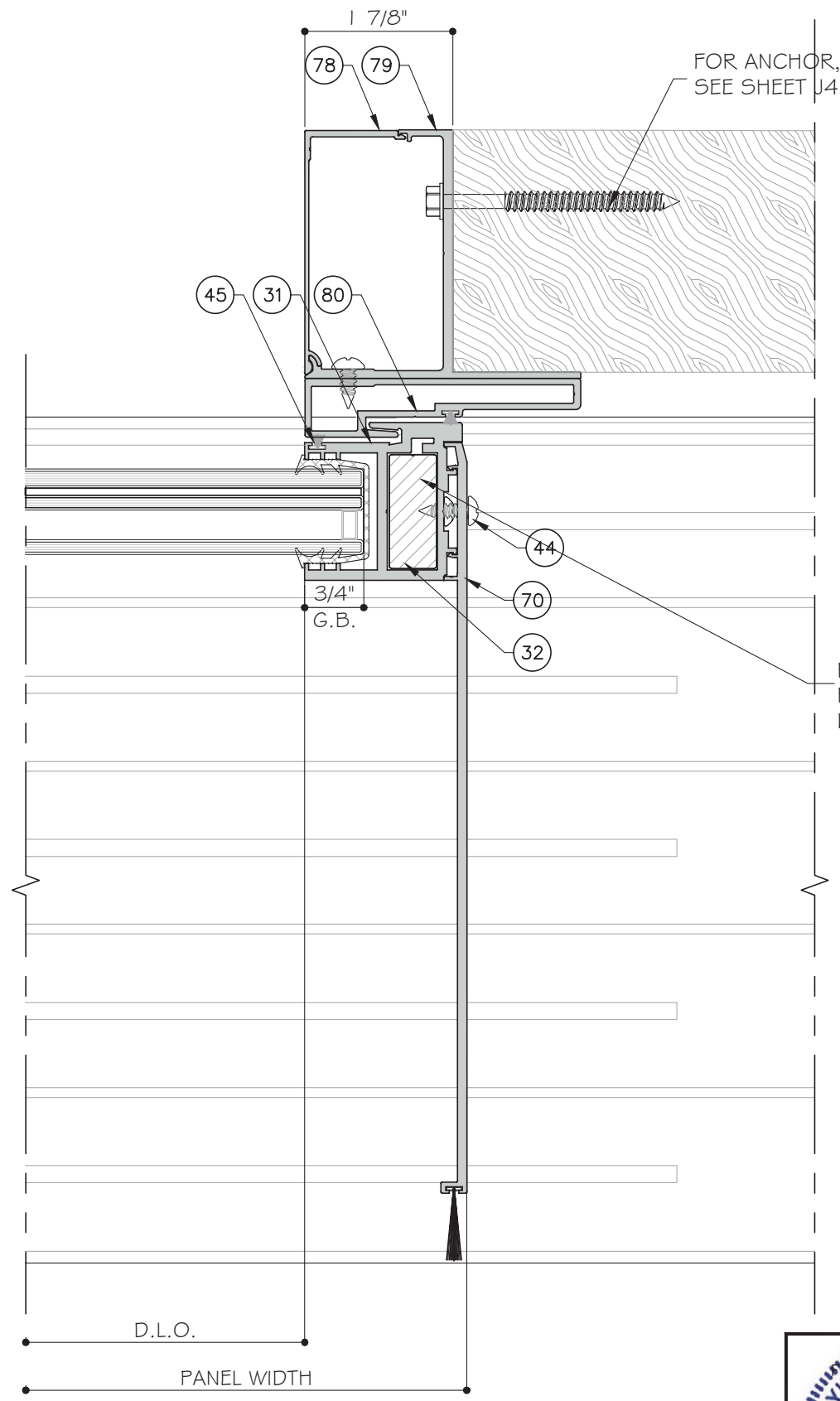
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| 6 | 10-11-2021 | MCY | UPDATE |

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Scale:
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D12
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30A DETAIL
D12A



31A DETAIL
D12A

POCKET DETAIL



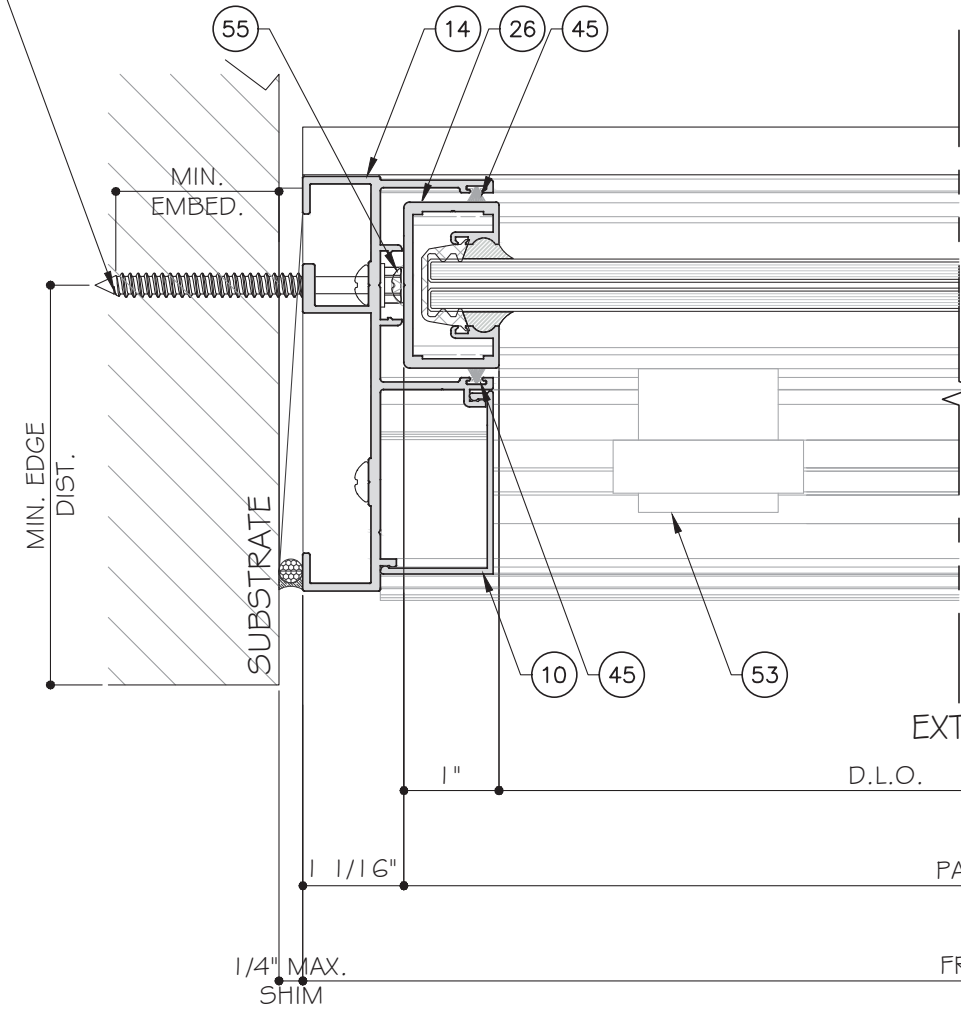
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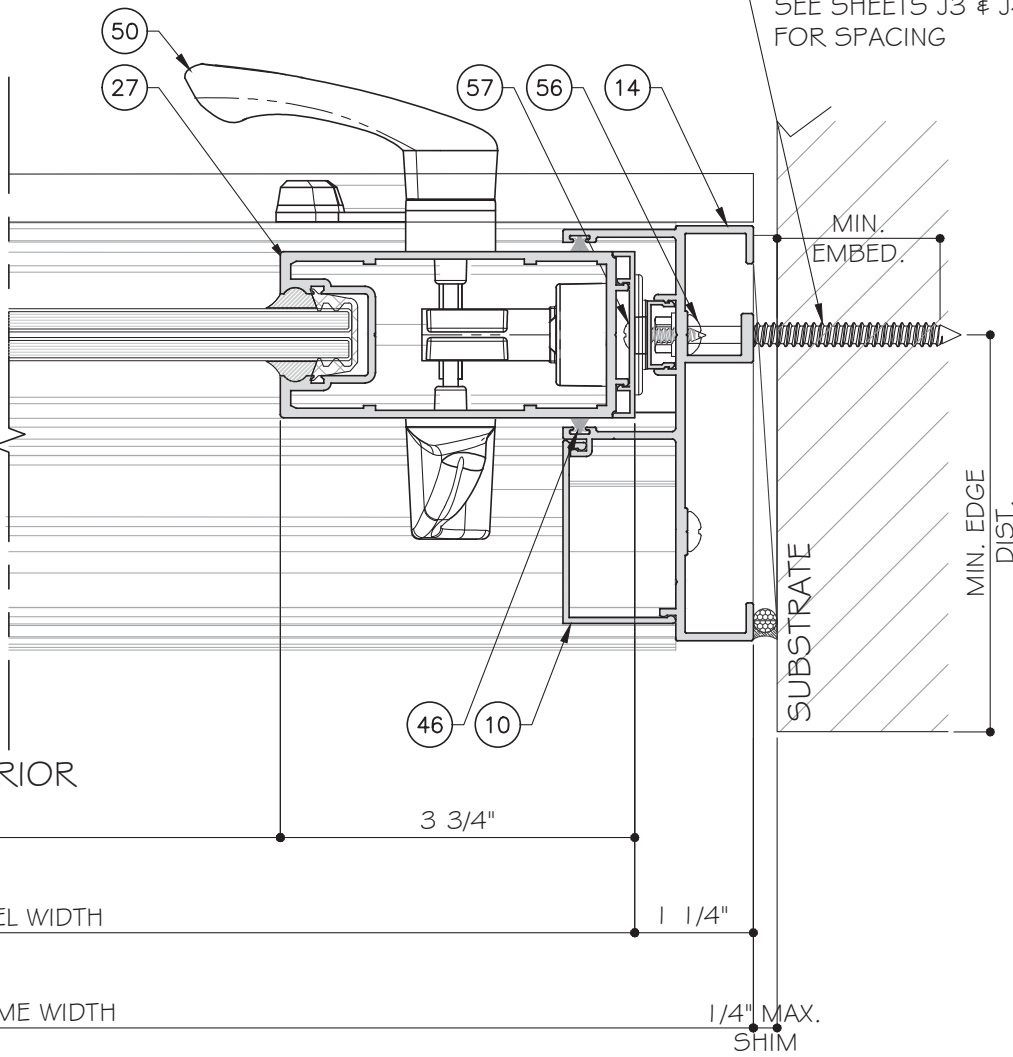
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D12A
Sheet No. 48 OF 59

TYPICAL ANCHOR
SEE SHEETS J3 & J4
FOR SPACING



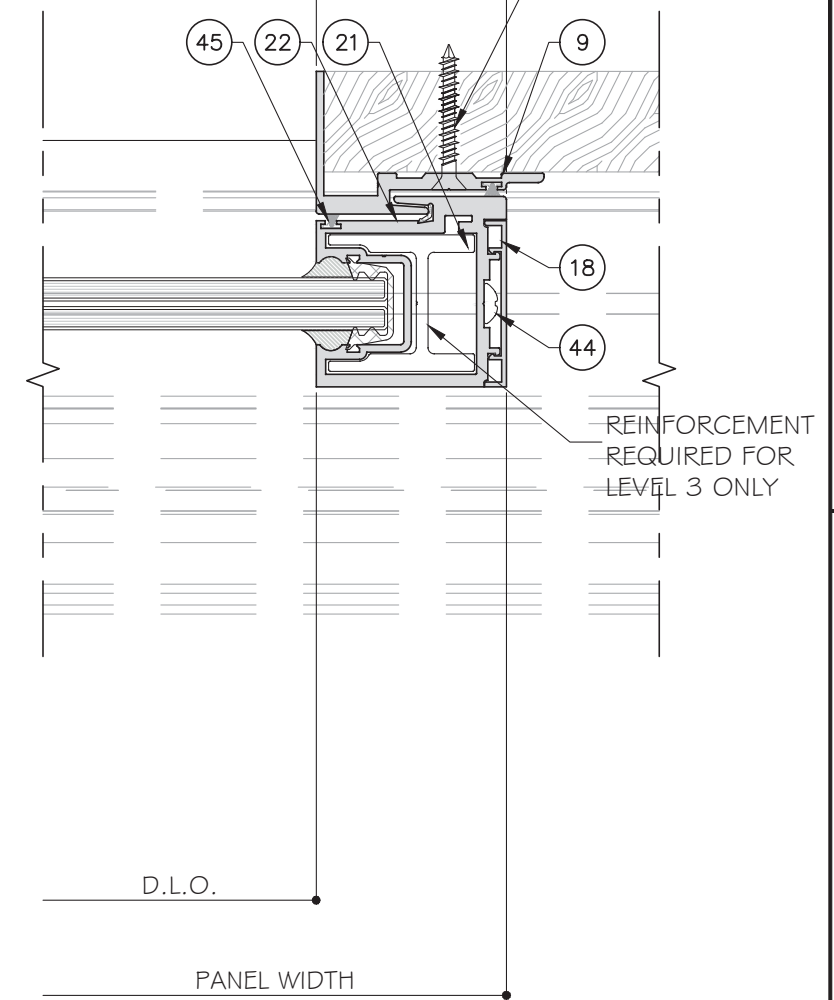
32 DETAIL
D13

TYPICAL ANCHOR
SEE SHEETS J3 & J4
FOR SPACING



33 DETAIL
D13

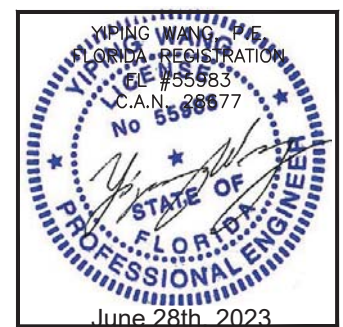
2"
FOR ANCHOR,
SEE SHEET J4



34 DETAIL
D13

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN.
SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR
OPTION 2.

TWO (2) TRACK DOOR DETAILS



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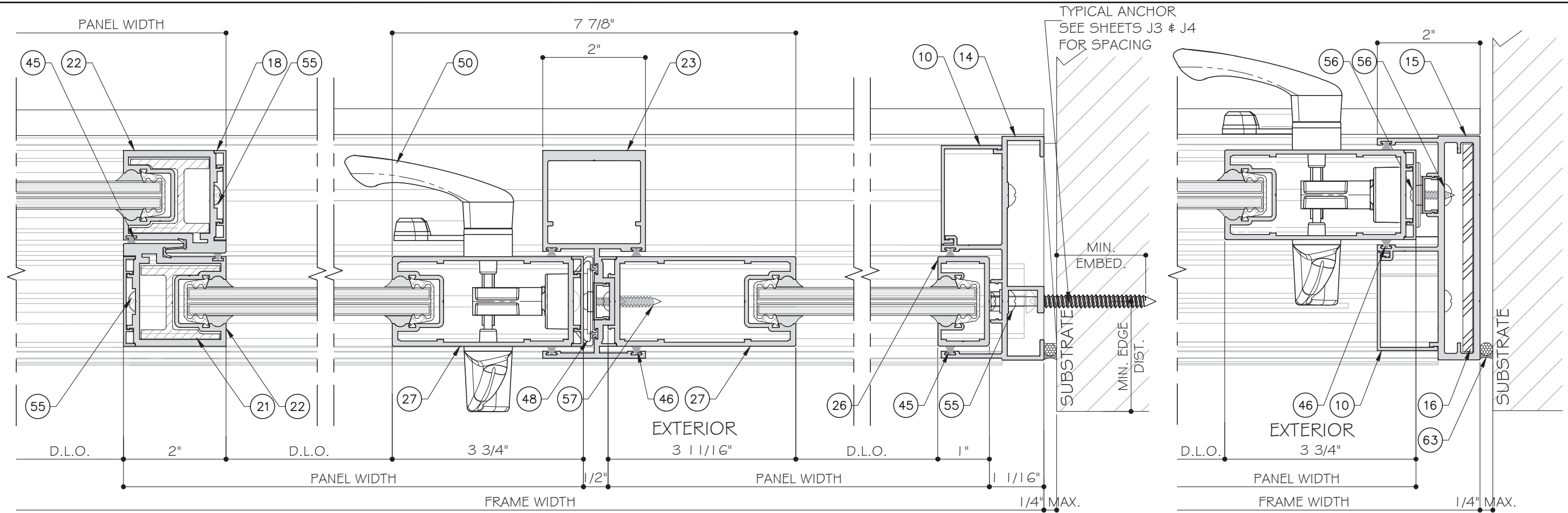
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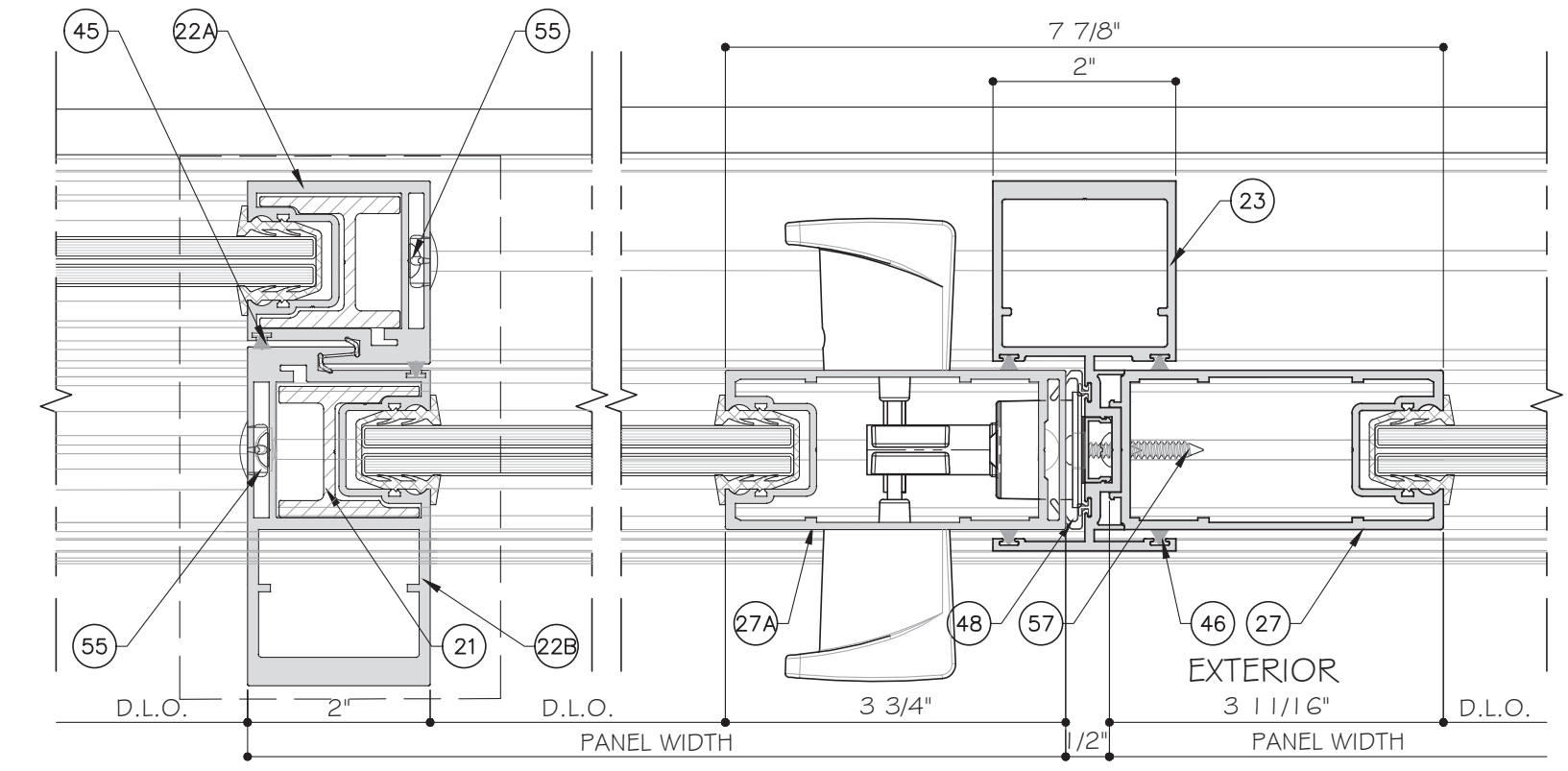


35 DETAIL
D14

36 DETAIL
D14

37 DETAIL
D14

FREESTANDING JAMB OPTION



35 DETAIL
D14 OPTION

36 DETAIL
D14 OPTION

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN. SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.

LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR OPTION 2.

TWO (2) TRACK DOOR DETAILS



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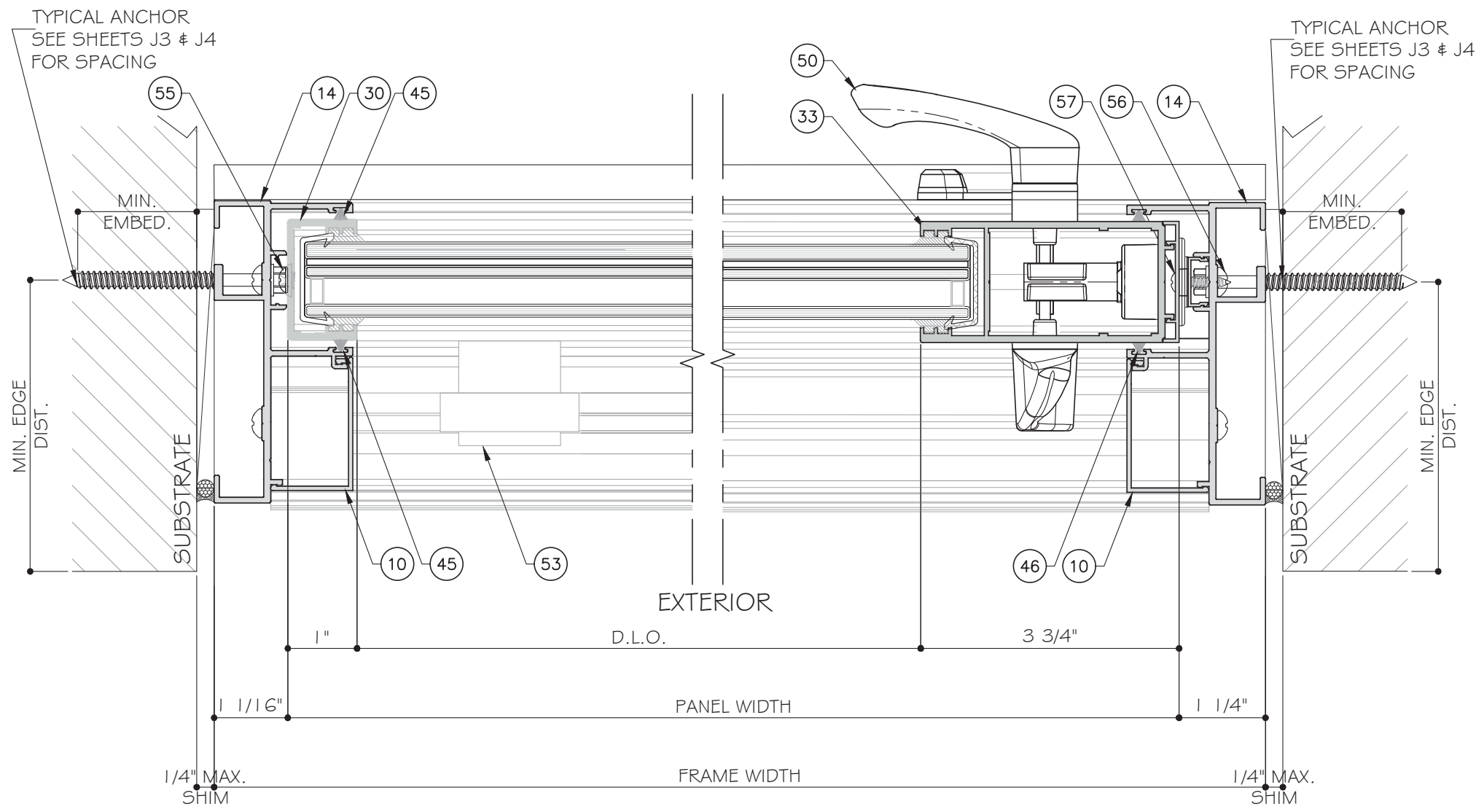
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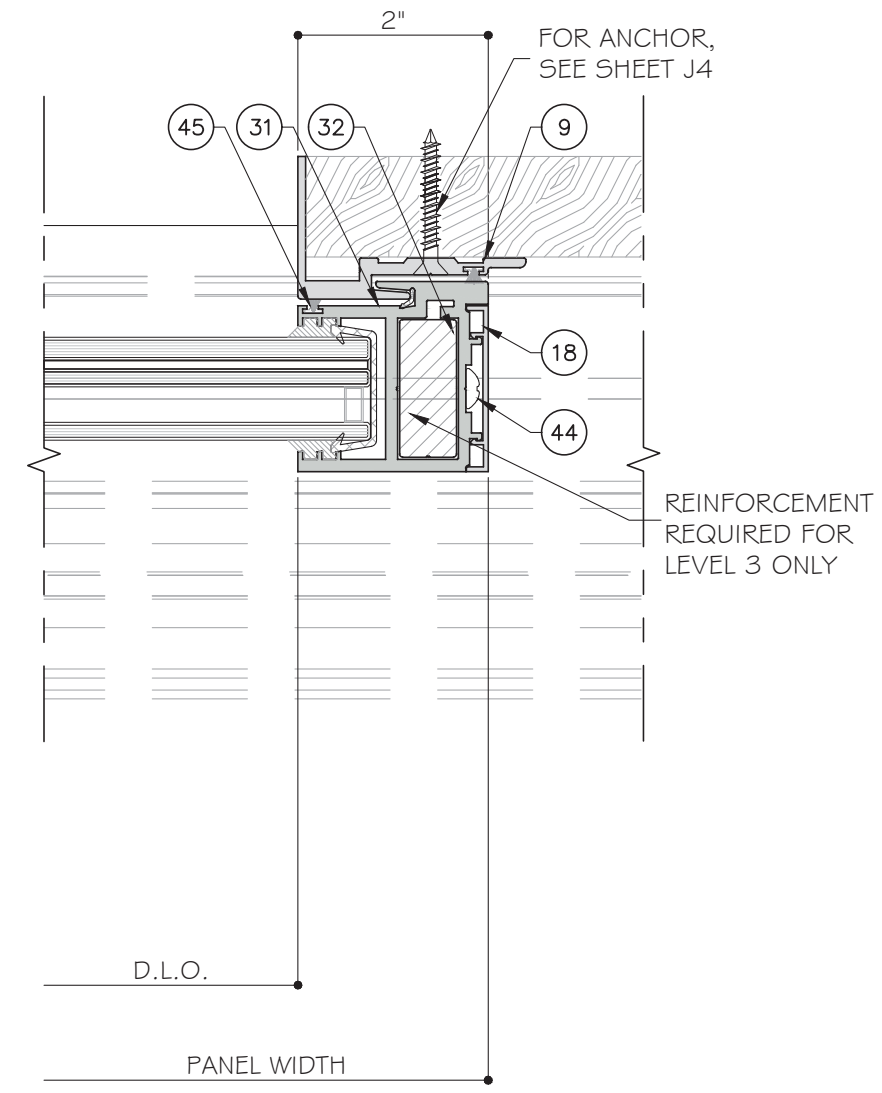
DRAWING NO. AD16-29

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38 DETAIL
D15

39 DETAIL
D15



40 DETAIL
D15

STANDARD INTERLOCK (LEVEL 1 OPTION 1) SHOWN.
SEE SHEET K1 FOR LEVEL 2 AND 3 REINFORCEMENT.
LOCK STILE OPTION 1 SHOWN. SEE SHEET E5 FOR
OPTION 2.

TWO (2) TRACK DOOR DETAILS



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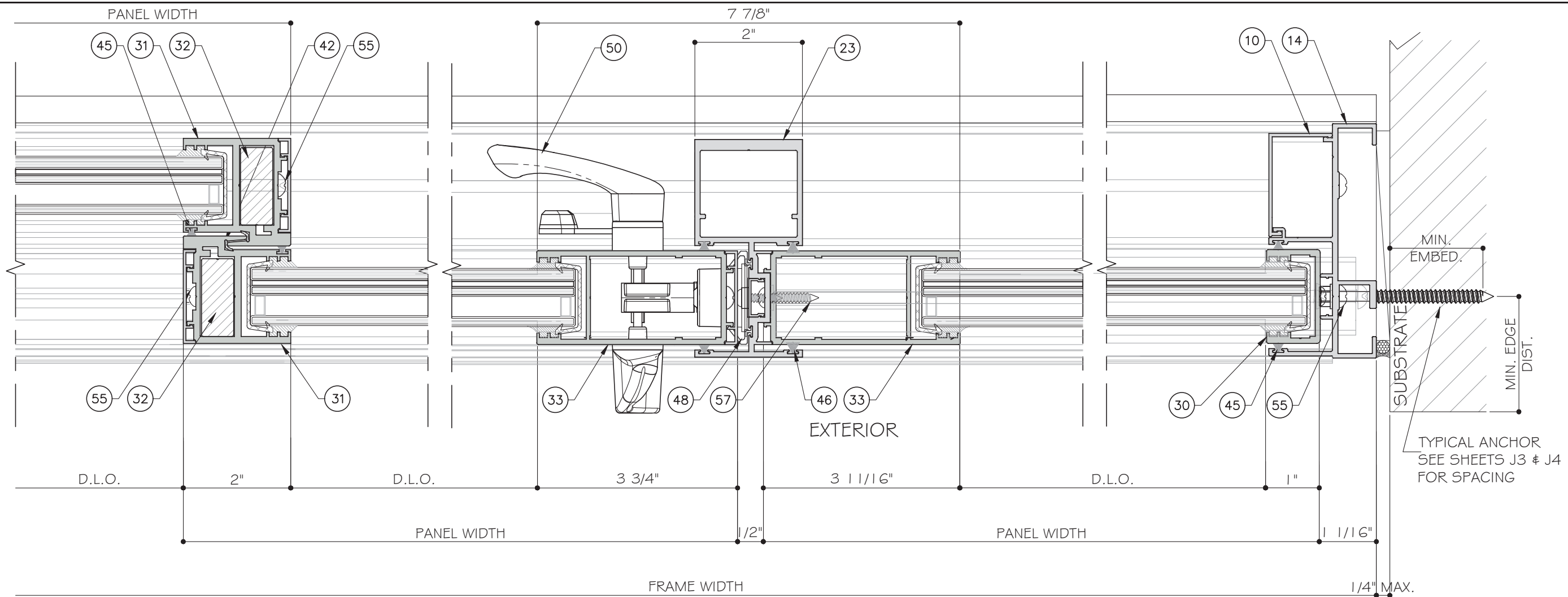
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Drawn Date: 10.11.2021 Scale:

DRAWING NO. AD16-29

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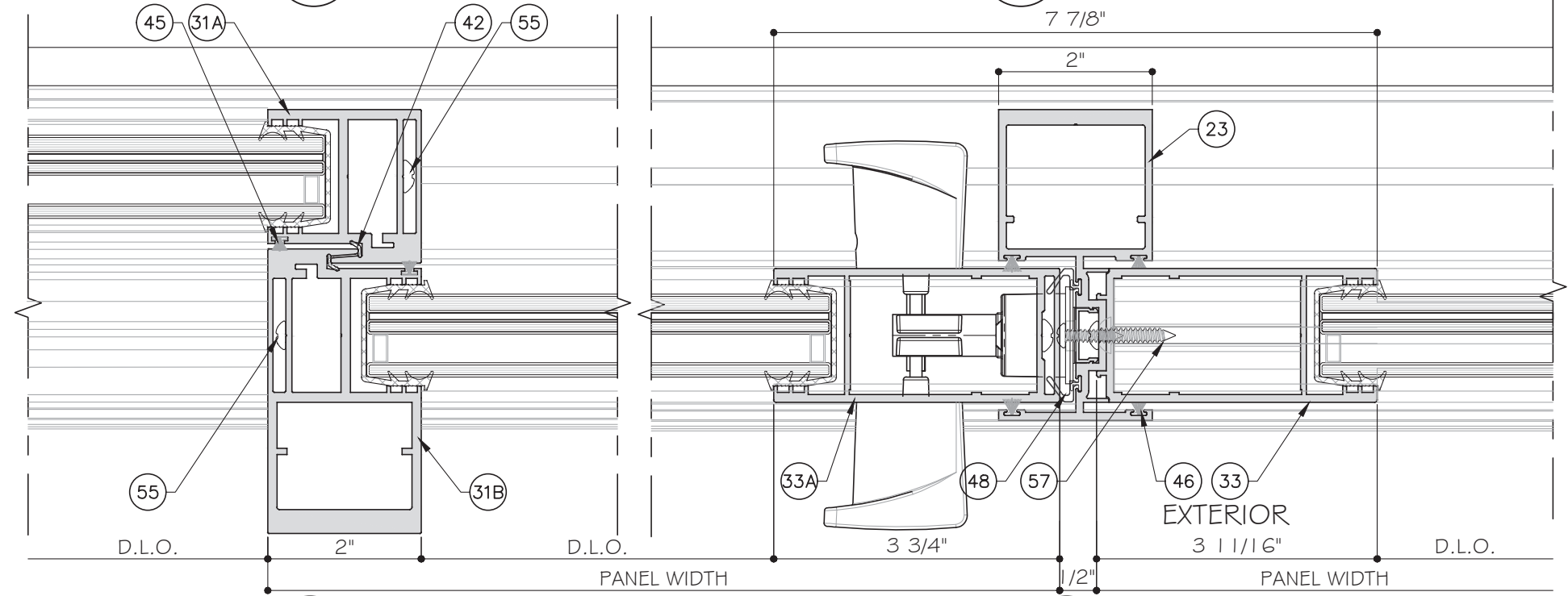


MIN. EMBED.
 MIN. EDGE DIST.
 SUBSTRATE
 TYPICAL ANCHOR
 SEE SHEETS J3 & J4
 FOR SPACING

41 DETAIL
 D16

42 DETAIL
 D16

43 DETAIL
 D16



41 DETAIL
 D16 OPTION

42 DETAIL
 D16 OPTION

STANDARD INTERLOCK
 (LEVEL 1 OPTION 1)
 SHOWN. SEE SHEET K1 FOR
 LEVEL 2 AND 3
 REINFORCEMENT.
 LOCK STILE OPTION 1
 SHOWN. SEE SHEET E5
 FOR OPTION 2.

TWO (2) TRACK DOOR DETAILS



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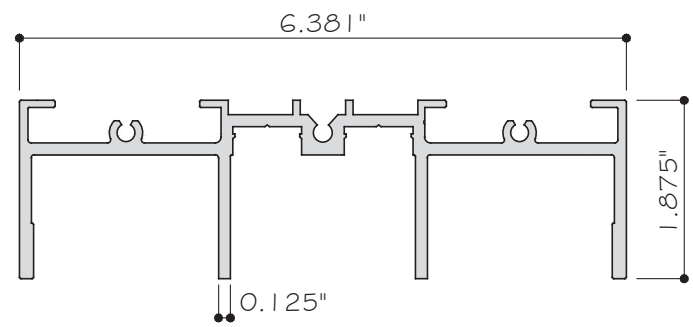
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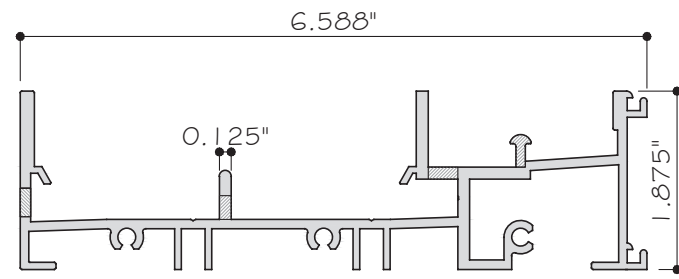
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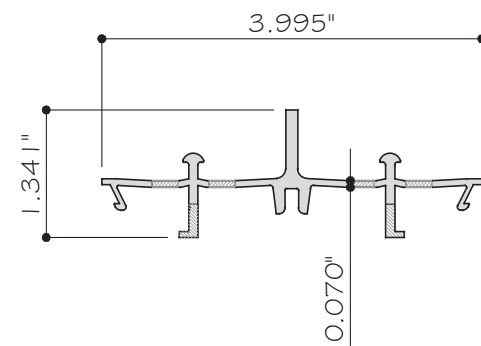
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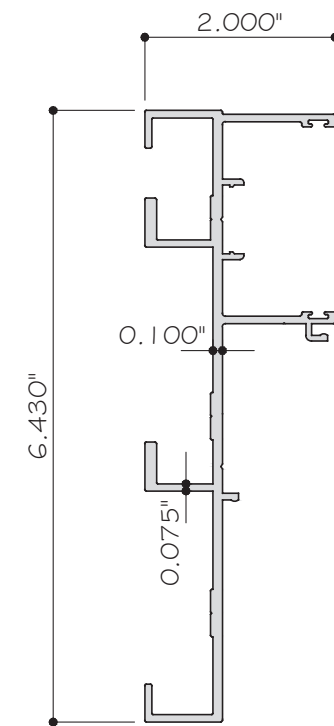
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ES-SGD2020-001 6063-T6



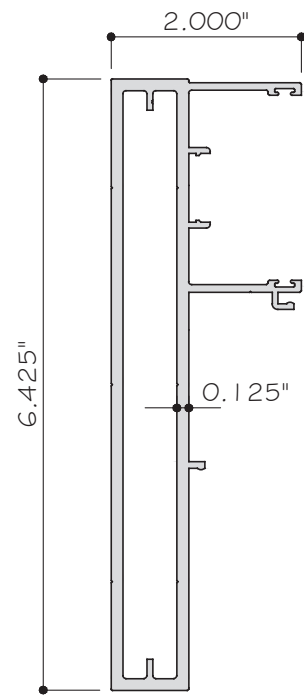
2 SILL (3 TRACK)
ES-SGD2020-002 6063-T6



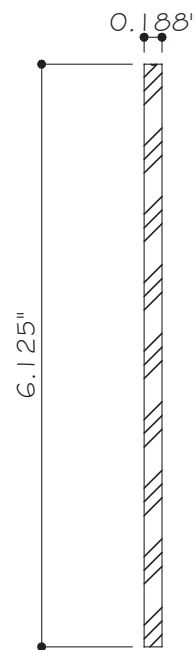
3 FRAME SILL COVER (3 TRACKS)
ES-SGD2020-003 6063-T6



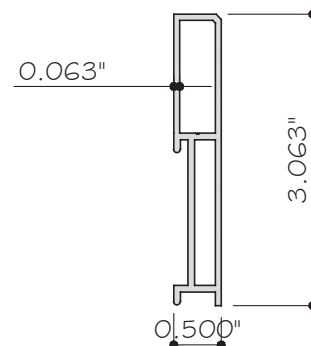
4 JAMB (3 TRACK)
ES-SGD2020-004 6063-T6



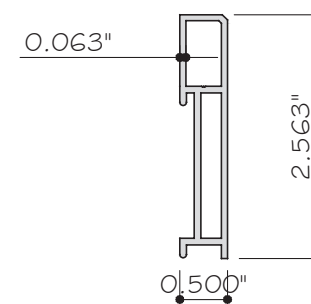
5 UNANCHORED JAMB (3 TRACK)
ES-SGD2020-005 6063-T6



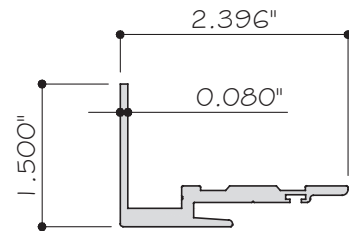
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FOR 3 TRACK
ES-SGD2020-006 6005-T5



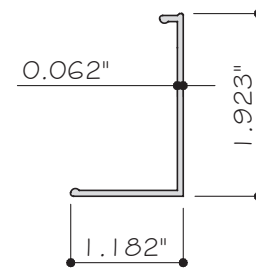
7 SILL RAISER 67PSF
ES-SGD2020-007 6063-T6



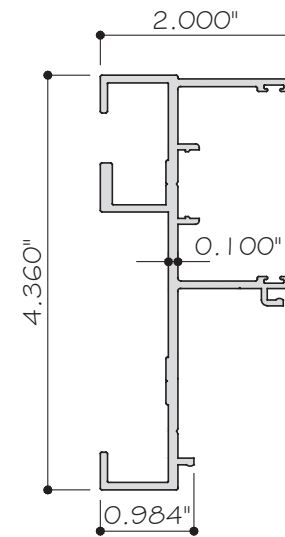
8 STANDARD SILL RAISER 53PSF
ES-SGD2020-008 6063-T6



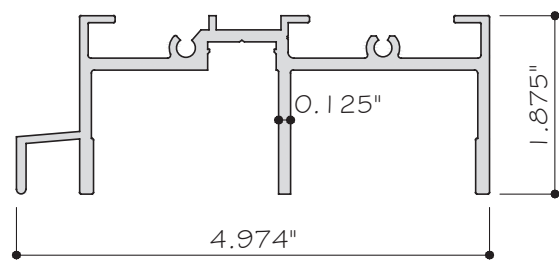
9 POCKET JAMB
ES-SGD2020-009 6063-T6



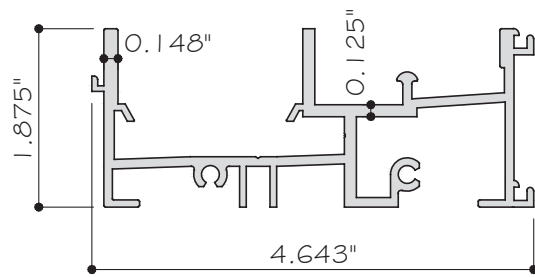
10 JAMB SCREW COVER
ES-SGD2020-010 6063-T6



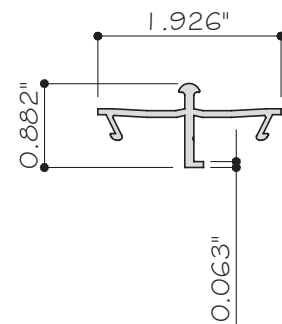
14 JAMB (2 TRACK)
ES-SGD2020-014 6063-T6



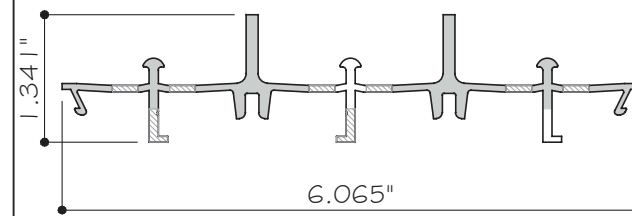
11 HEAD (2 TRACK)
ES-SGD2020-011 6063-T6



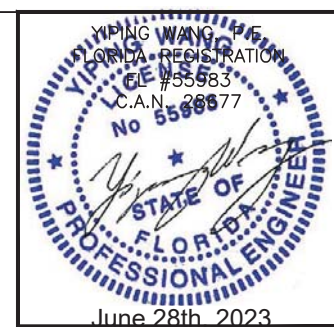
12 SILL (2 TRACK)
ES-SGD2020-012 6063-T6



13 FRAME SILL COVER (2 TRACKS)
ES-SGD2020-013 6063-T6

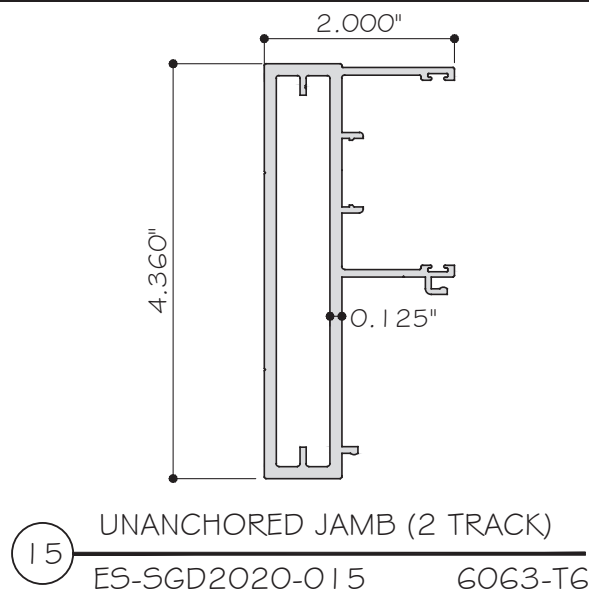


36 FRAME SILL COVER (4 TRACKS)
ES-SGD2020-013 6063-T6

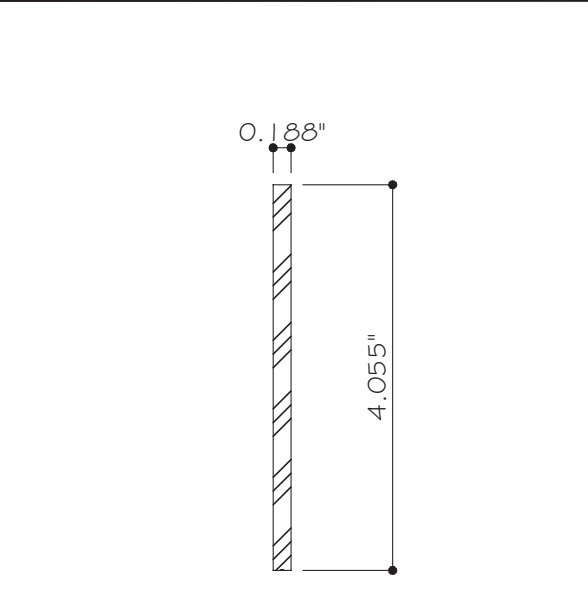


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|----------|------------|----------|--------------------|
| 2 | 10-16-2019 | MCY | UPDATE TO FRC 2020 |
| 3 | 07-14-2020 | MCY | UPDATE |
| 4 | 12-29-2020 | MCY | UPDATE |
| 5 | 04-06-2021 | MCY | UPDATE |
| 6 | 10-11-2021 | MCY | UPDATE |

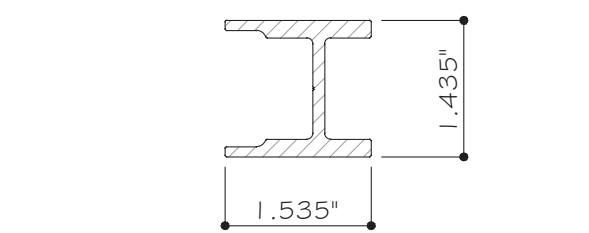
Drawn Date: 10.11.2021 Scale:
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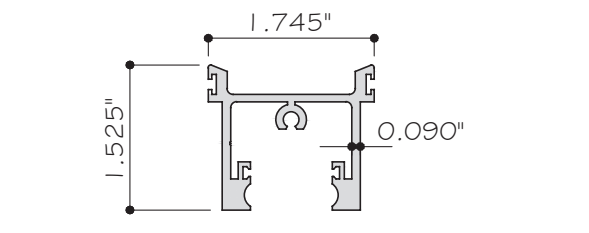
15 UNANCHORED JAMB (2 TRACK)
ES-SGD2020-015 6063-T6



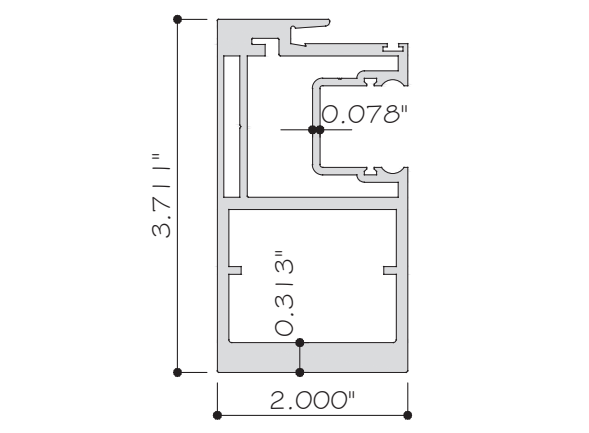
16 UN-ANCHORED JAMB REINF. FOR 2 TRACK
ES-SGD2020-016 6063-T6



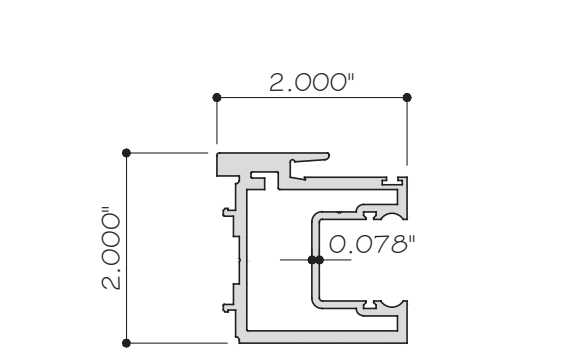
21 REINF. FOR INTERLOCK
ES-SGD2020-021 6005-T5



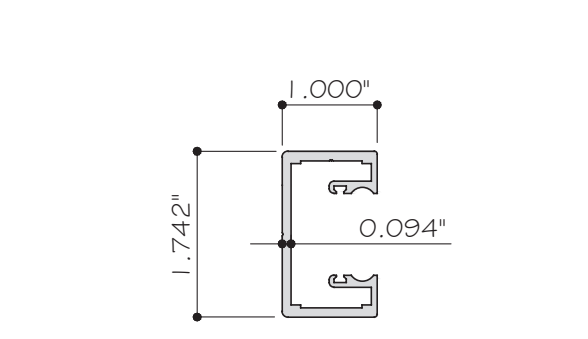
24 TOP RAIL FOR LAMINATED GLASS
ES-SGD2020-024 6063-T6



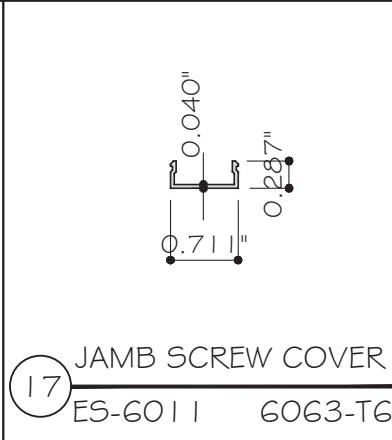
22B INTERLOCK HEAVY FOR LAMINATED
ES-SGD2020-085 6005-T5



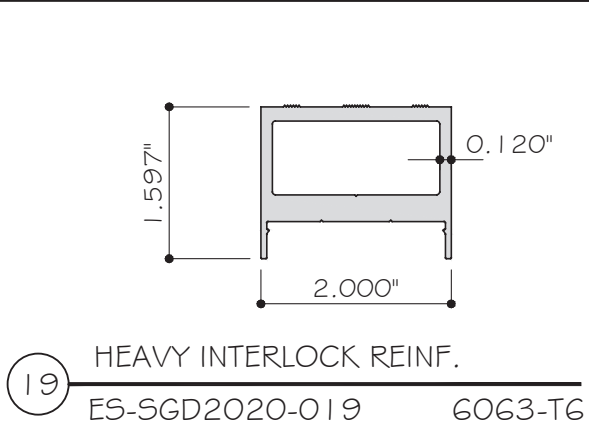
22 INTERLOCK FOR LAMINATED GLASS
ES-SGD2020-022 6063-T6



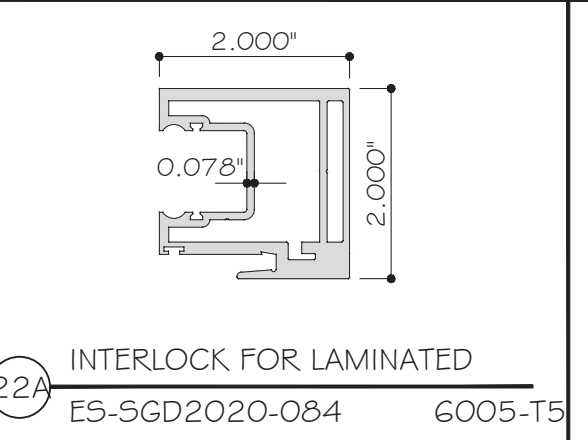
26 FIXED STILE FOR LAMINATED GLASS
ES-SGD2020-026 6063-T6



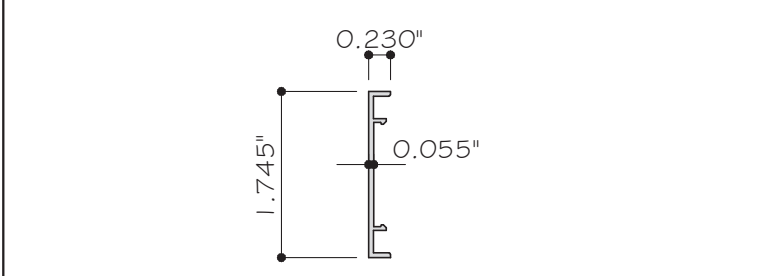
17 JAMB SCREW COVER
ES-6011 6063-T6



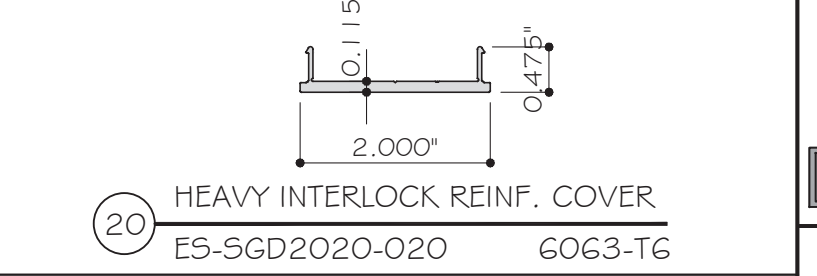
19 HEAVY INTERLOCK REINF.
ES-SGD2020-019 6063-T6



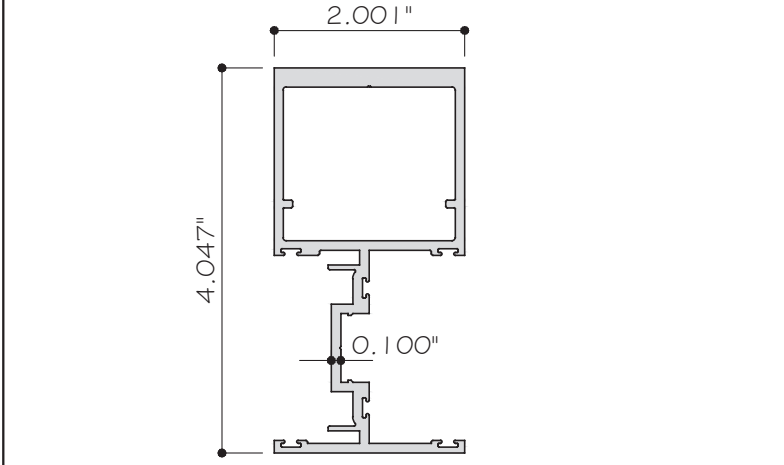
22A INTERLOCK FOR LAMINATED
ES-SGD2020-084 6005-T5



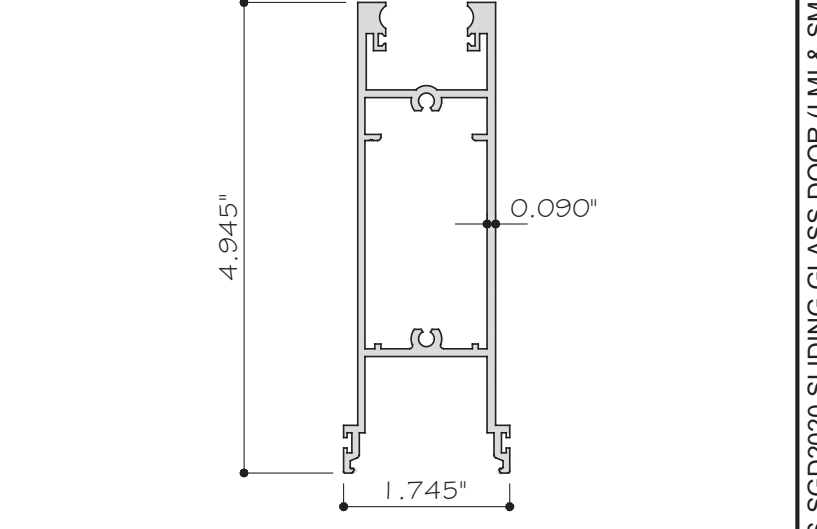
18 INTERLOCK AND LOCKSTILE SCREW COVER
ES-SGD2020-018 6063-T6



20 HEAVY INTERLOCK REINF. COVER
ES-SGD2020-020 6063-T6

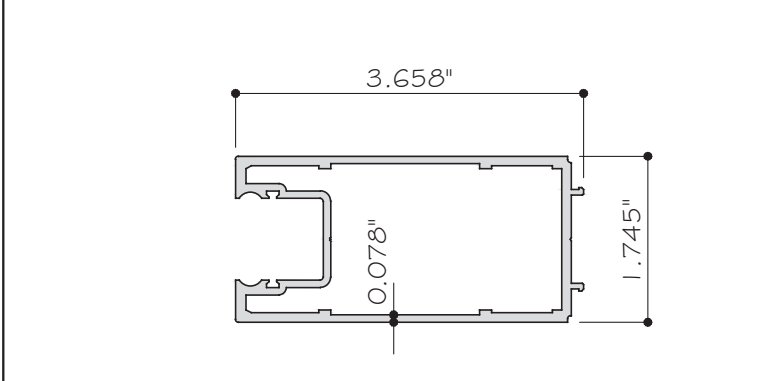
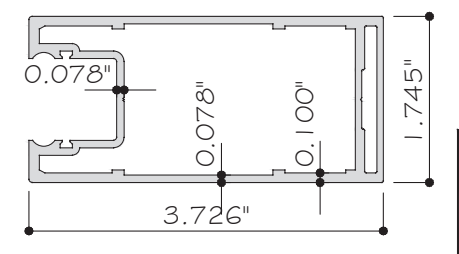


23 ASTRAGAL
ES-SGD2020-023 6063-T6

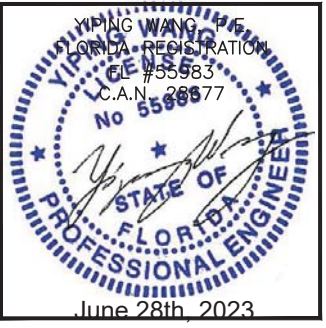


25 BOTTOM RAIL FOR LAMINATED GLASS
ES-SGD2020-025 6063-T6

27A LOCKSTILE FOR LAMINATED
ES-SGD2020-088 6063-T6



27 LOCK STILE FOR LAMINATED GLASS
ES-SGD2020-027 6063-T6

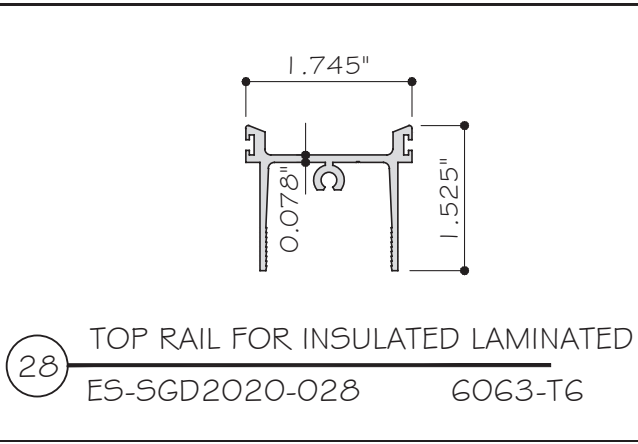


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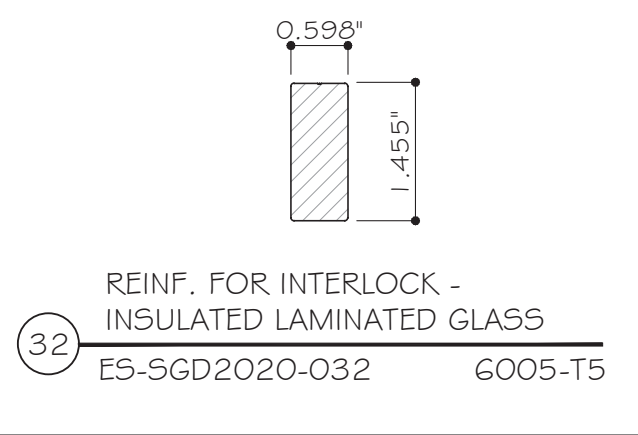
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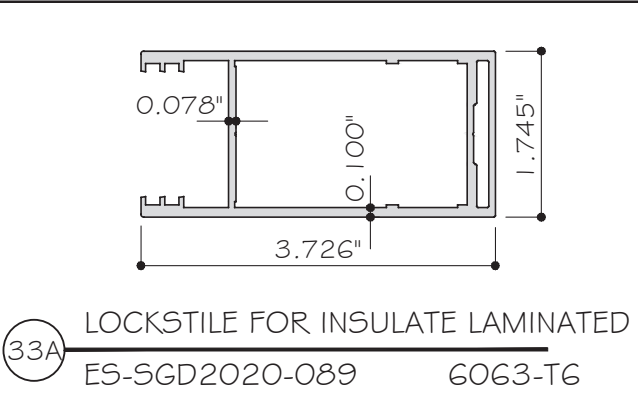
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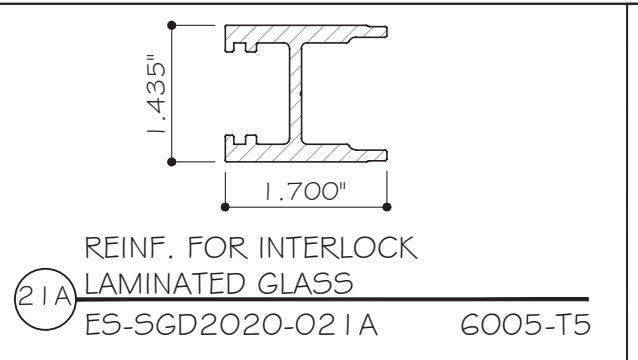
28 TOP RAIL FOR INSULATED LAMINATED
ES-SGD2020-028 6063-T6



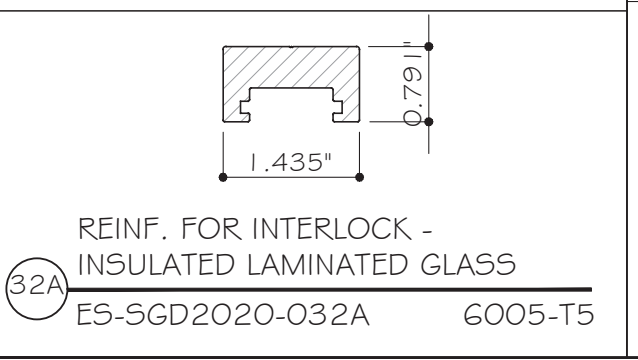
32 REINF. FOR INTERLOCK -
INSULATED LAMINATED GLASS
ES-SGD2020-032 6005-T5



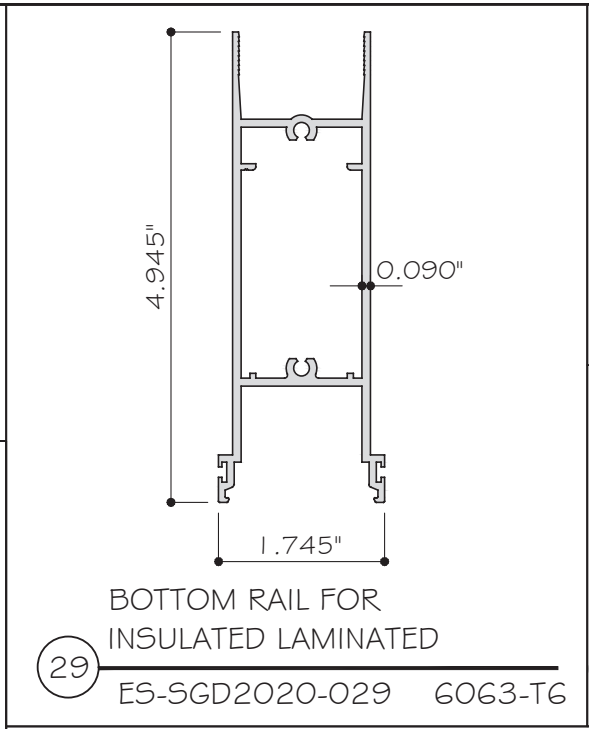
33A LOCKSTILE FOR INSULATE LAMINATED
ES-SGD2020-089 6063-T6



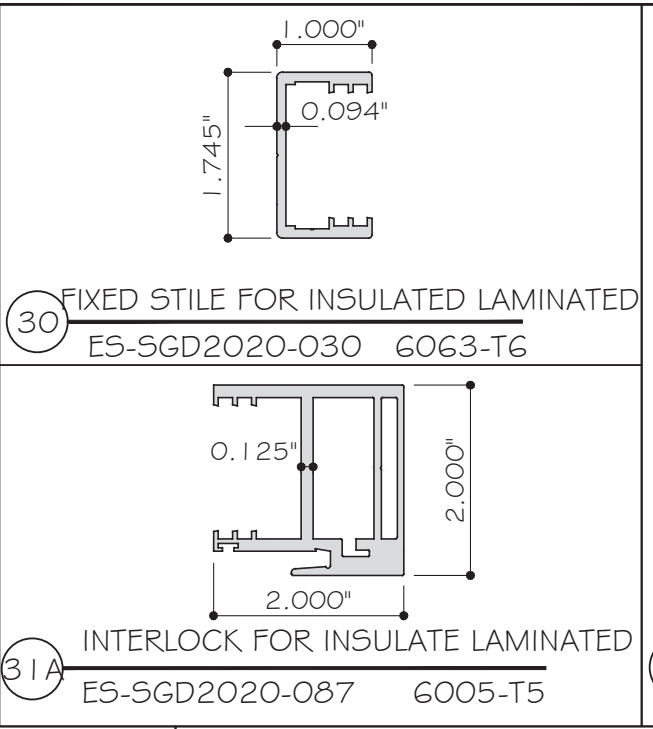
21A REINF. FOR INTERLOCK
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ES-SGD2020-021A 6005-T5



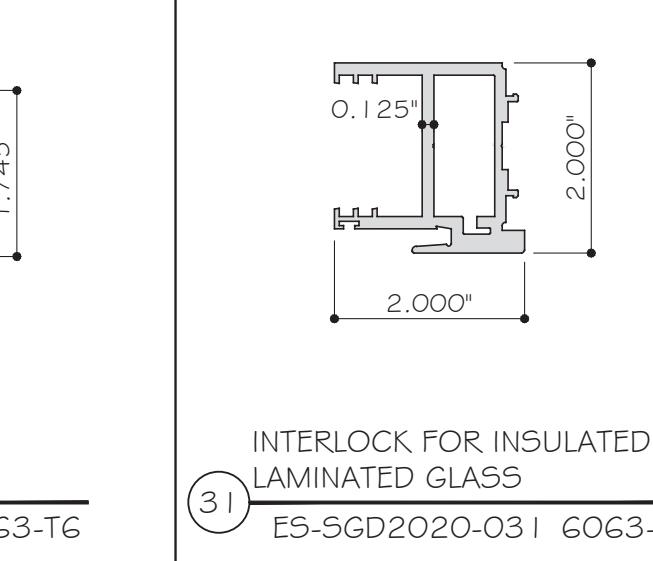
32A REINF. FOR INTERLOCK -
INSULATED LAMINATED GLASS
ES-SGD2020-032A 6005-T5



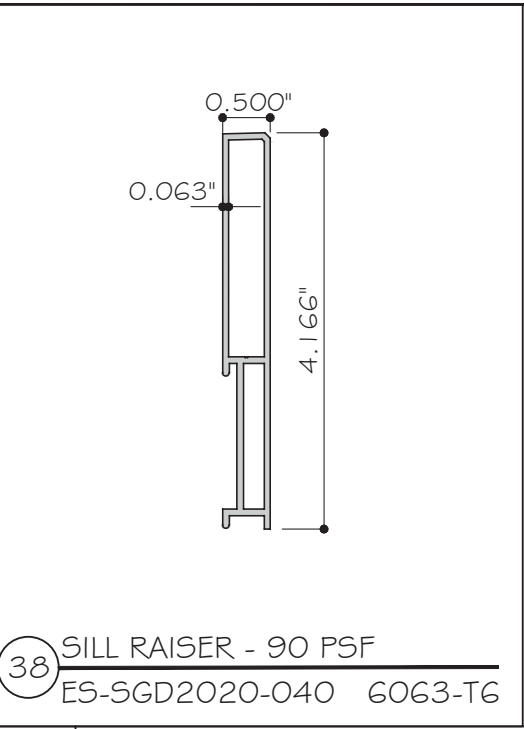
29 BOTTOM RAIL FOR
INSULATED LAMINATED
ES-SGD2020-029 6063-T6



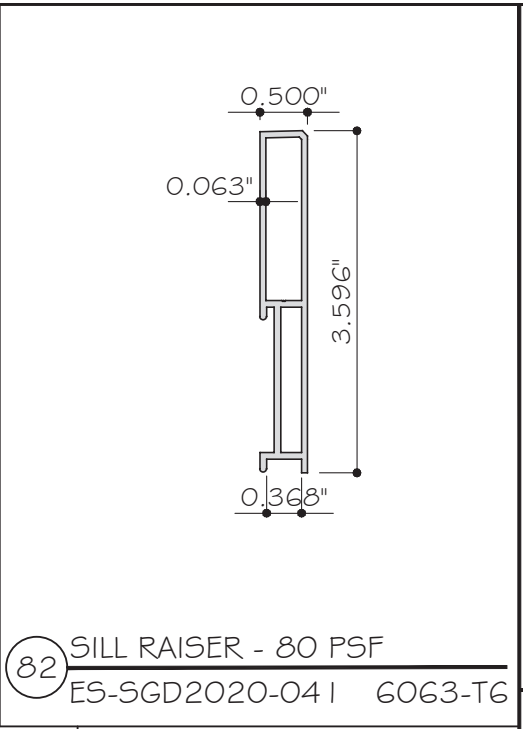
30 FIXED STILE FOR INSULATED LAMINATED
ES-SGD2020-030 6063-T6



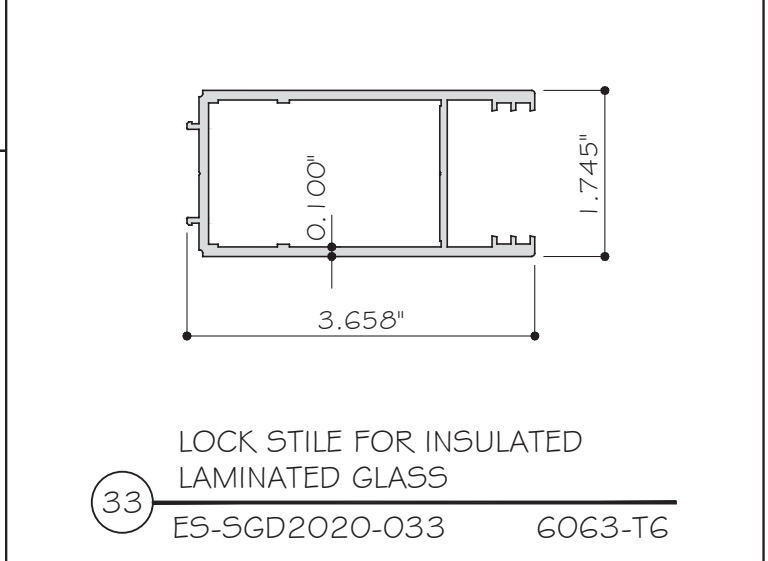
31A INTERLOCK FOR INSULATE LAMINATED
ES-SGD2020-087 6005-T5



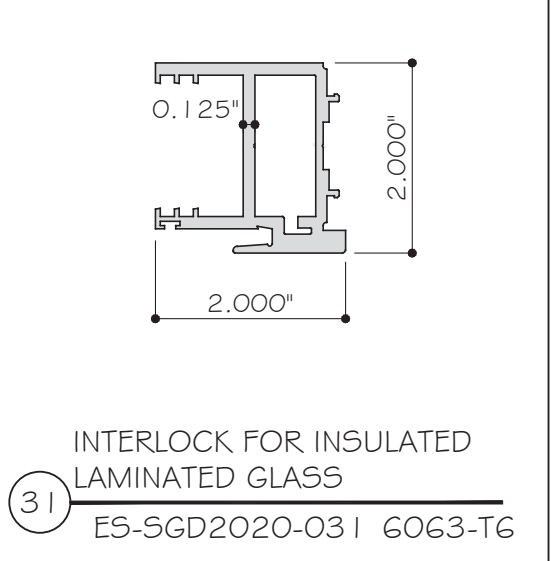
38 SILL RAISER - 90 PSF
ES-SGD2020-040 6063-T6



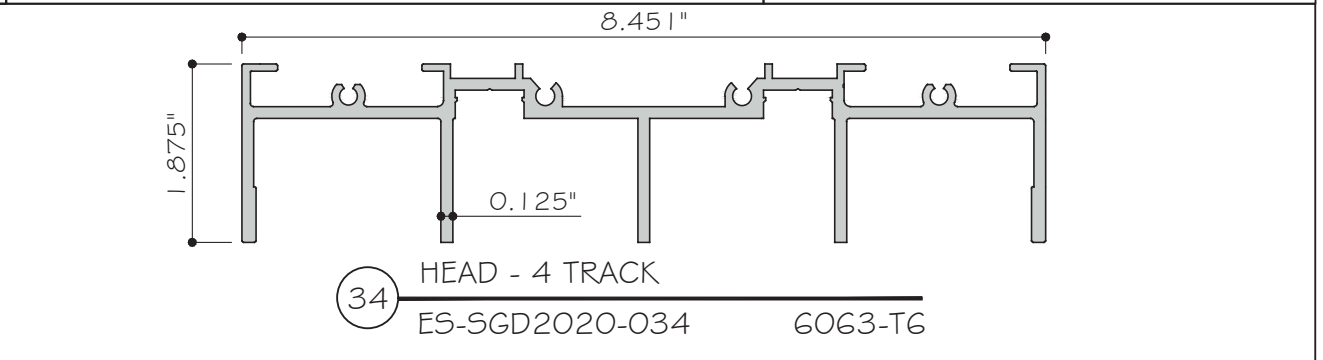
82 SILL RAISER - 80 PSF
ES-SGD2020-041 6063-T6



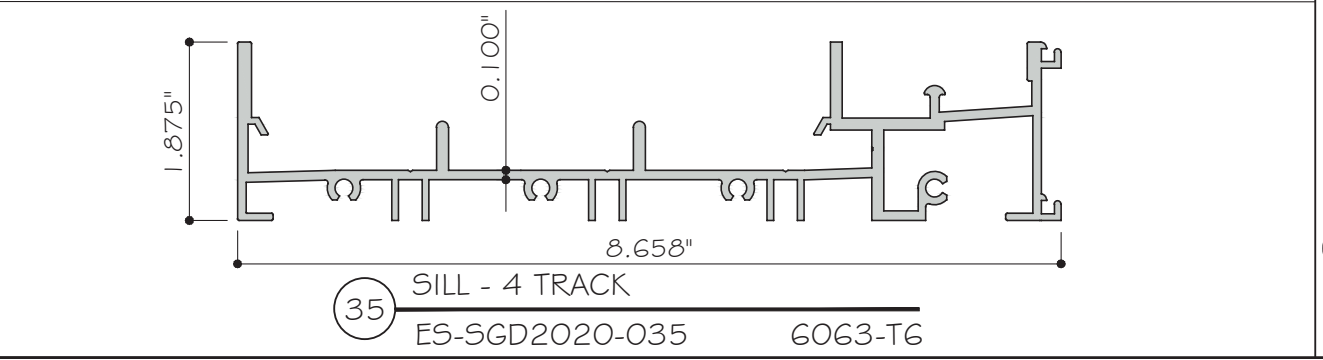
33 LOCK STILE FOR INSULATED
LAMINATED GLASS
ES-SGD2020-033 6063-T6



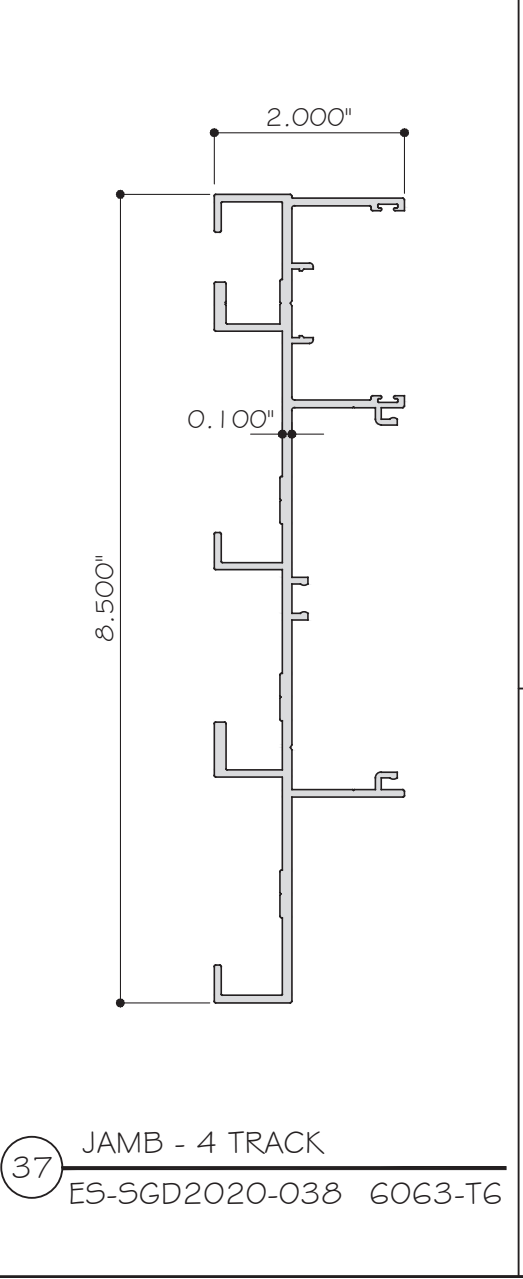
31 INTERLOCK FOR INSULATED
LAMINATED GLASS
ES-SGD2020-031 6063-T6



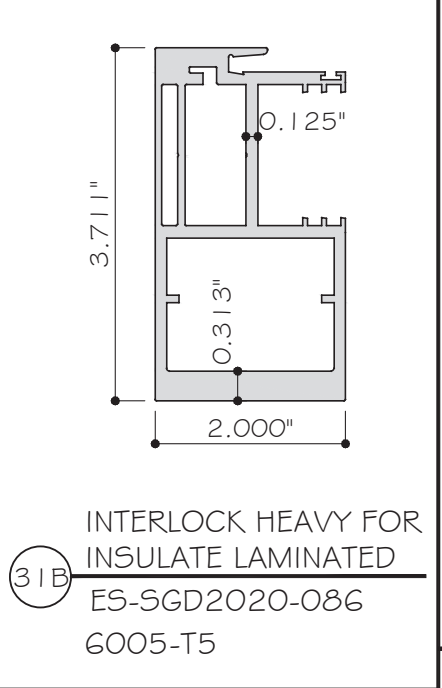
34 HEAD - 4 TRACK
ES-SGD2020-034 6063-T6



35 SILL - 4 TRACK
ES-SGD2020-035 6063-T6



37 JAMB - 4 TRACK
ES-SGD2020-038 6063-T6



31B INTERLOCK HEAVY FOR
INSULATE LAMINATED
ES-SGD2020-086
6005-T5



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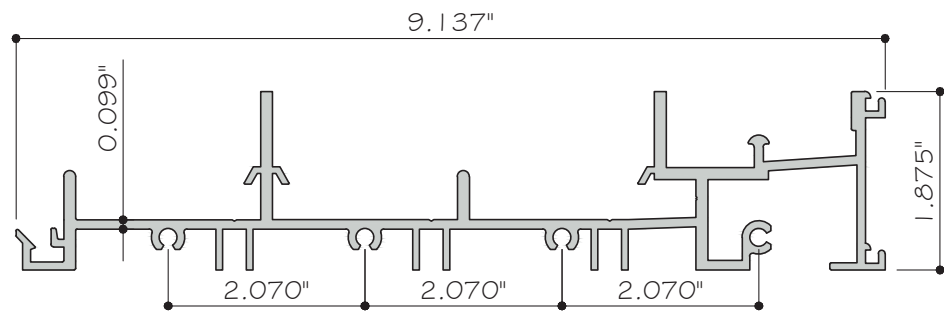
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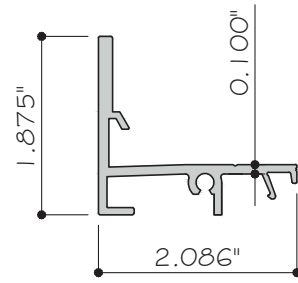
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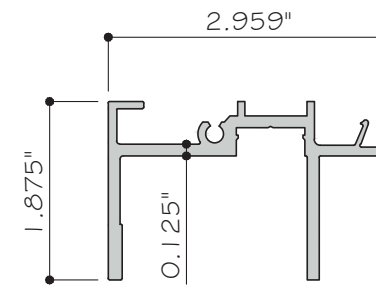
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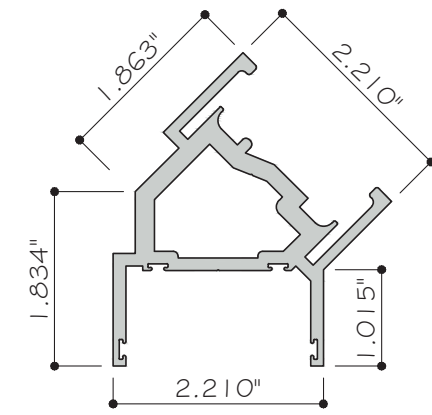
65 FRAME SILL - 5 TRACKS
ES-SGD2020-055 6063-T6



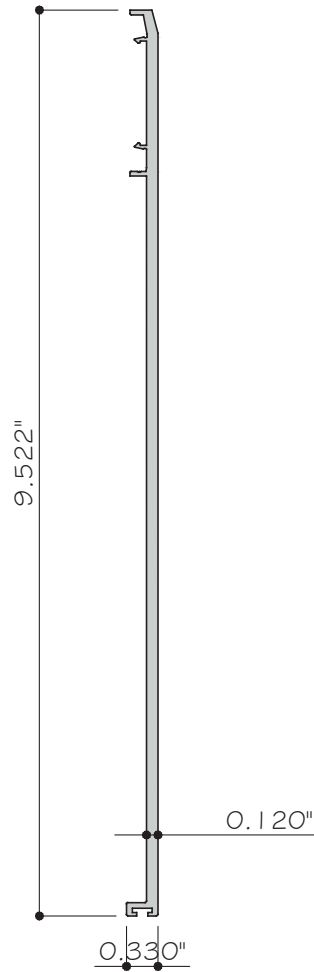
66 FRAME FRONT SILL
ES-SGD2020-054 6063-T6



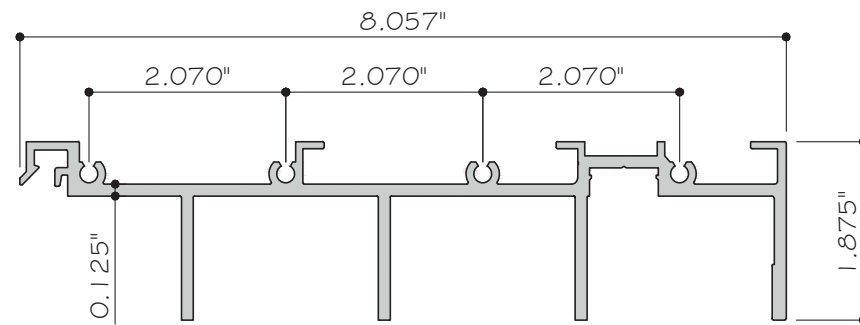
67 FRAME FRONT HEAD
ES-SGD2020-062 6063-T6



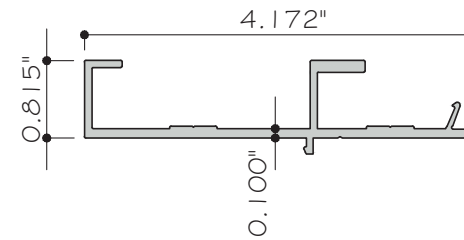
71 FRAME FRONT SILL
ES-SGD2020-056 6063-T6



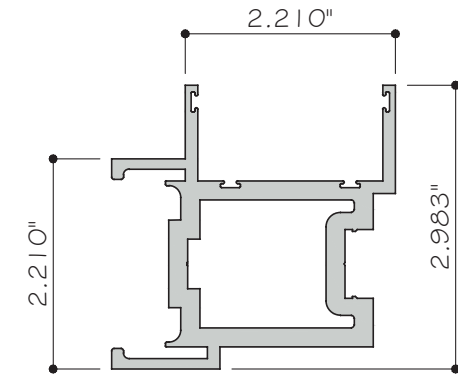
72 POCKET DOOR CLOSER - 5 TRACKS
ES-SGD2020-061 6063-T6



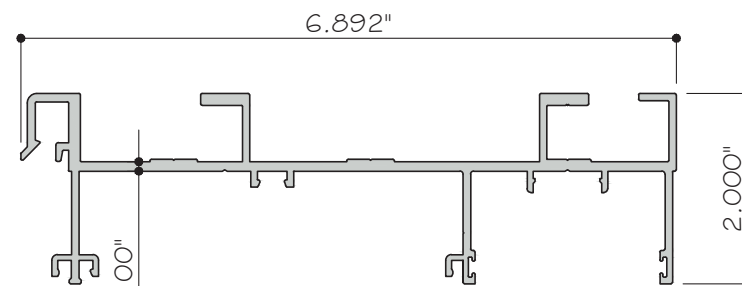
69 FRAME HEAD - 5 TRACKS
ES-SGD2020-063 6063-T6



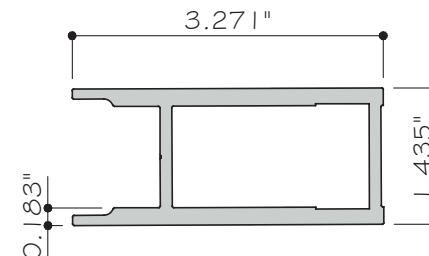
70 FRAME FRONT JAMB
ES-SGD2020-064 6063-T6



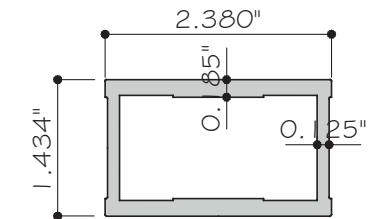
75 FRAME FRONT SILL
ES-SGD2020-068 6063-T6



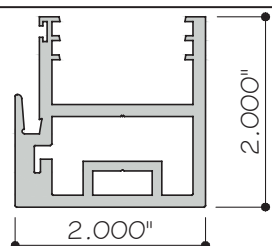
73 JAMB - 5 TRACKS
ES-SGD2020-065 6063-T6



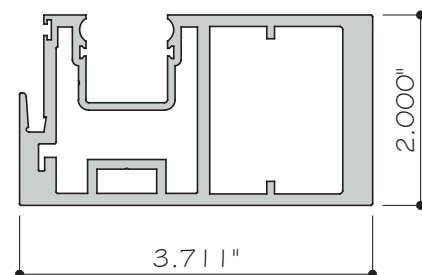
74 REINF. FOR LOCK STILE LAM. GLASS
ES-SGD2020-071 6063-T6



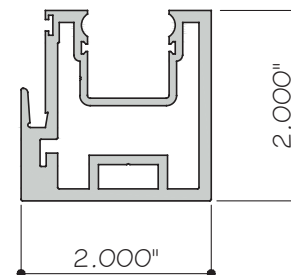
81 REINF. FOR LOCK STILE (INSL-LAM.)
ES-SGD2020-07X 6063-T6



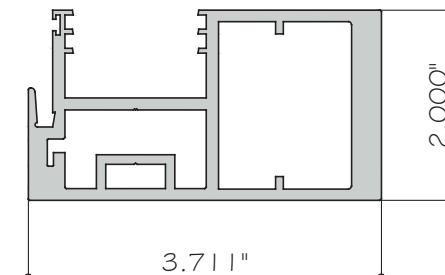
87A INTERLOCK FOR INSULATED LAMINATED GLASS
ES-SGD2020-087A 6005-T5



84A INTERLOCK HEAVY FOR LAMINATED GLASS
ES-SGD2020-084A 6005-T5



85A INTERLOCK FOR LAMINATED GLASS
ES-SGD2020-085A 6005-T5



86A INTERLOCK HEAVY FOR INSULATED LAMINATED GLASS
ES-SGD2020-086A 6005-T5

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BILL OF MATERIALS

| ITEM | PART | DESCRIPTION | MATERIAL | REMARKS |
|------|-----------------|--|-----------------------|---------|
| 1 | ES-SGD2020-001 | HEAD (3 TRACK) | 6063-T6 | - |
| 2 | ES-SGD2020-002 | SILL (3 TRACK) | 6063-T6 | - |
| 3 | ES-SGD2020-003 | FRAME SILL COVER | 6063-T6 | - |
| 4 | ES-SGD2020-004 | JAMB (3 TRACK) | 6063-T6 | - |
| 5 | ES-SGD2020-005 | FREESTANDING JAMB (3 TRACK) | 6063-T6 | - |
| 6 | ES-SGD2020-006 | UN-ANCHORED JAMB REINFORCEMENT FOR 3 TRACK | 6005-T5 | - |
| 7 | ES-SGD2020-007 | HI SILL RAISER 3-1/16" HEIGHT | 6063-T6 | - |
| 8 | ES-SGD2020-008 | STANDARD SILL RAISER 2-9/16" HEIGHT | 6063-T6 | - |
| 9 | ES-SGD2020-009 | POCKET JAMB | 6063-T6 | - |
| 10 | ES-SGD2020-010 | JAMB SCREW COVER | 6063-T6 | - |
| 11 | ES-SGD2020-011 | HEAD 2 TRACK | 6063-T6 | - |
| 12 | ES-SGD2020-012 | SILL 2 TRACK | 6063-T6 | - |
| 13 | ES-SGD2020-013 | FRAME SILL COVER | 6063-T6 | - |
| 14 | ES-SGD2020-014 | JAMB (2 TRACK) | 6063-T6 | - |
| 15 | ES-SGD2020-015 | FREESTANDING JAMB (2 TRACK) | 6063-T6 | - |
| 16 | ES-SGD2020-016 | FREESTANDING JAMB REINFORCEMENT FOR 2 TRACK | 6063-T6 | - |
| 17 | ES-6011 | JAMB SCREW COVER | 6063-T6 | - |
| 18 | ES-SGD2020-018 | INTERLOCK AND LOCK STILE SCREW COVER | 6063-T6 | - |
| 19 | ES-SGD2020-019 | HEAVY INTERLOCK REINFORCEMENT | 6005-T5 | - |
| 20 | ES-SGD2020-020 | HEAVY INTERLOCK REINFORCEMENT COVER | 6063-T6 | - |
| 21 | ES-SGD2020-021 | REINFORCEMENT FOR INTERLOCK | 6005-T5 | - |
| 21A | ES-SGD2020-021A | REINFORCEMENT FOR INTERLOCK LAMINATED GLASS | 6005-T5 | - |
| 22 | ES-SGD2020-022 | INTERLOCK FOR LAMINATED GLASS | 6005-T5 | - |
| 22A | ES-SGD2020-084 | INTERLOCK FOR LAMINATED GLASS | 6005-T5 | - |
| 22B | ES-SGD2020-085 | INTERLOCK HEAVY FOR LAMINATED GLASS | 6005-T5 | - |
| 23 | ES-SGD2020-023 | ASTRAGAL | 6005-T5 | - |
| 24 | ES-SGD2020-024 | TOP RAIL FOR LAMINATED GLASS | 6063-T6 | - |
| 25 | ES-SGD2020-025 | BOTTOM RAIL FOR LAMINATED GLASS | 6063-T6 | - |
| 26 | ES-SGD2020-026 | FIXED STILE FOR LAMINATED GLASS | 6063-T6 | - |
| 27 | ES-SGD2020-027 | LOCK STILE FOR LAMINATED GLASS | 6063-T6 | - |
| 27A | ES-SGD2020-088 | LOCK STILE FOR LAMINATED GLASS | 6063-T6 | - |
| 28 | ES-SGD2020-028 | TOP RAIL FOR INSULATED LAMINATED GLASS | 6063-T6 | - |
| 29 | ES-SGD2020-029 | BOTTOM RAIL FOR INSULATED GLASS | 6063-T6 | - |
| 30 | ES-SGD2020-030 | FIXED STILE FOR INSULATED LAMINATED GLASS | 6063-T6 | - |
| 31 | ES-SGD2020-031 | INTERLOCK FOR INSULATED LAMINATED GLASS | 6063-T6 | - |
| 31A | ES-SGD2020-087 | INTERLOCK FOR INSULATED LAMINATED GLASS | 6005-T5 | - |
| 31B | ES-SGD2020-086 | INTERLOCK HEAVY FOR INSULATED LAMINATED GLASS | 6005-T5 | - |
| 32 | ES-SGD2020-032 | REINFORCEMENT FOR INTERLOCK INSULATED LAM. GLASS | 6005-T5 | - |
| 32A | ES-SGD2020-032A | REINFORCEMENT FOR INTERLOCK INSULATED LAM. GLASS | 6005-T5 | - |
| 33 | ES-SGD2020-033 | LOCK STILE FOR INSULATED LAMINATED GLASS | 6063-T6 | - |
| 33A | ES-SGD2020-089 | LOCK STILE FOR INSULATED LAMINATED GLASS | 6063-T6 | - |
| 34 | ES-SGD2020-034 | HEAD (4 TRACK) | 6063-T6 | - |
| 35 | ES-SGD2020-035 | SILL (4 TRACK) | 6063-T6 | - |
| 36 | ES-SGD2020-036 | FRAME SILL COVER (4 TRACK) | 6063-T6 | - |
| 37 | ES-SGD2020-037 | JAMB (4 TRACK) | 6063-T6 | - |
| 38 | ES-SGD2020-040 | SILL RAISER 4-3/16" HEIGHT | 6063-T6 | - |
| 39 | ES2020-G01 | GLAZING GASKET FOR LAMINATED GLASS | SILICONE, DURO 70 | - |
| 40 | ES2020-G02 | GLAZING GASKET FOR LAMINATED GLASS | SILICONE, DURO 70 | - |
| 41 | ES2020-G03 | GLAZING GASKET FOR INSULATED LAMINATED GLASS | SILICONE, DURO 70 | - |
| 42 | ES2020-G04 | INTERLOCK BUMPER | BLACK PVC, 60 SHORE D | - |
| 43 | ES2020-G05 | GLAZING GASKET FOR INSULATED LAMINATED GLASS | SILICONE, DURO 70 | - |
| 44 | W23211NG | SILL, HEAD PILE | POLYPROPYLENE | - |
| 45 | W23171NK | INTERLOCK PILE | POLYPROPYLENE | - |

BILL OF MATERIALS

| ITEM | PART | DESCRIPTION | MATERIAL | REMARKS |
|------|---------------------|---|--------------------|---------|
| 46 | W23211NG | INTERLOCK ASTRAGAL | POLYPROPYLENE | - |
| 47 | WA2L | WEEP HOLE COVER | POLYPROPYLENE | - |
| 48 | QEZ 447-1 | GLON | FOAM ALL STRUCTURE | - |
| 49 | P501-0035-00B | RECESSED FACEPLATE SBML LOCK TWO POINT | - | - |
| 50 | P501-0035-00B | INVOLUTE HANDLE SET | - | - |
| | P501-0014-000 | | - | - |
| | P501-0014-00B | | - | - |
| | P501-0014-117 | | - | - |
| 51 | P501-1005-00B | ADJUSTABLE STRIKE | - | - |
| | P501-0060-000 2P | | POLYPROPYLENE | - |
| 52 | SGD-1700 | BUMPER | STEEL AND RUBBER | - |
| 53 | 1986-PRN-300055 | ROLLER | STAINLESS STEEL | - |
| 54 | GTT-1500G-HKA-01-TE | ROLLER | - | ZAMAK |
| 55 | - | #10 X 7/8" P.H. SCREW FOR PANEL ASSEMBLY | ST/ST | - |
| 56 | - | #12 X 1-1/2" P.H. SCREW FOR FRAME ASSEMBLY | ST/ST | - |
| 57 | - | #8 X 3/4" P.H. SCREW FOR HANDLE STRIKE | ST/ST | - |
| 58 | - | #10 X 1" F.H. SCREW FOR MORTISE LOCK | ST/ST | - |
| 59 | - | #12 X 1" P.H. SCREW FOR BUMPER | ST/ST | - |
| 60 | - | #10 X 1" P.H. SCREW | ST/ST | - |
| 61 | - | 1/4-20 X 2-1/2" PAN HEAD SCREW | ST/ST | - |
| 62 | DC983 | DOW CORNING 983 STRUCTURAL SILICONE | SILICONE | - |
| 63 | DC791 | DOW CORNING 791 | SILICONE | - |
| 64 | - | GLAZING SPACER | ALUMINUM | HELIMA |
| 65 | ES-SGD2020-055 | FRAME SILL - 5 TRACKS | 6063-T6 | - |
| 66 | ES-SGD2020-054 | FRAME FRONT SILL | 6063-T6 | - |
| 67 | ES-SGD2020-062 | FRAME FRONT HEAD | 6063-T6 | - |
| 68 | ES-SGD2020-021 | INTERLOCK REINF. FOR LAMINATED GLASS | 6063-T5 | - |
| 69 | ES-SGD2020-063 | FRAME HEAD - 5 TRACKS | 6063-T6 | - |
| 70 | ES-SGD2020-064 | FRAME FRONT JAMB | 6005-T5 | - |
| 71 | ES-SGD2020-056 | FRAME FRONT SILL | 6063-T6 | - |
| 72 | ES-SGD2020-061 | POCKET DOOR CLOSER - 5 TRACKS | 6063-T6 | - |
| 73 | ES-SGD2020-065 | JAMB - 5 TRACK | 6063-T6 | - |
| 74 | ES-SGD2020-071 | REINF. FOR LOCK STILE LAM. GLASS | 6063-T6 | - |
| 75 | ES-SGD2020-068 | FRAME FRONT SILL | 6063-T6 | - |
| 76 | ALU-P-018 | SUPPORT FOR HANDLE LOCK | 6063-T6 | - |
| 77 | ALU-P-020 | SUPPORT FOR HANDLE LOCK | 6063-T6 | - |
| 78 | ES-W525-014 | COVER -POCKET | 6063-T5 | - |
| 79 | ES-SGD2020-069 | HOOK STRIP BASE | 6063-T6 | - |
| 80 | ES-SGD2020-070 | HOOK STRIP | 6063-T6 | - |
| 81 | ES-SGD2020-07X | REINFORCE FOR LOCK STILE (INSUL-LAM) | 6063-T6 | - |
| 82 | ES-SGD2020-041 | SILL RAISER | 6063-T6 | - |
| 84A | ES-SGD2020-084A | INTERLOCK HEAVY FOR LAMINATED GLASS | 6005-T5 | - |
| 85A | ES-SGD2020-085A | INTERLOCK FOR LAMINATED GLASS | 6005-T5 | - |
| 86A | ES-SGD2020-086A | INTERLOCK HEAVY FOR INSULATED LAMINATED GLASS | 6005-T5 | - |
| 87A | ES-SGD2020-087A | INTERLOCK FOR INSULATED LAMINATED GLASS | 6005-T5 | - |

MCY ENGINEERING, INC.
GLAZING CONSULTANTS

12781 MIRAMAR PARKWAY #301
MIRAMAR, FL 33027 P: 305.271.0117

www.MCYEngineering.com mcy@mcyengineering.com

ES-SGD2020 SLIDING GLASS DOOR (LMI & SMI)

ES WINDOWS, INC.
10653 NE Quaybridge Ct.
Miami, FL 33138
TEL. (305) 624-7775

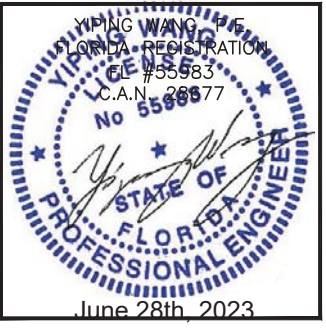
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| 2 | 07-14-2020 | MCY | UPDATE |
| 3 | 12-29-2020 | MCY | UPDATE |
| 4 | 04-06-2021 | MCY | UPDATE |
| 5 | 10-11-2021 | MCY | UPDATE |

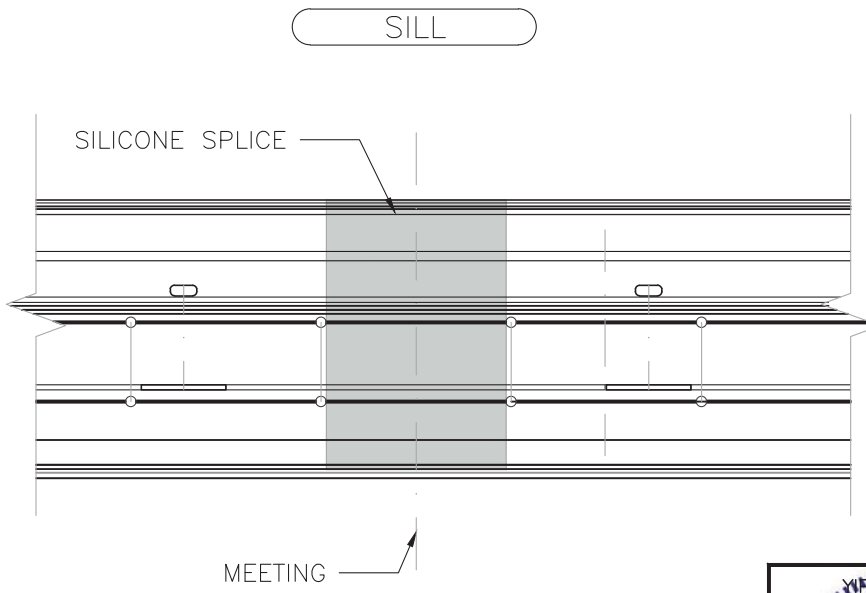
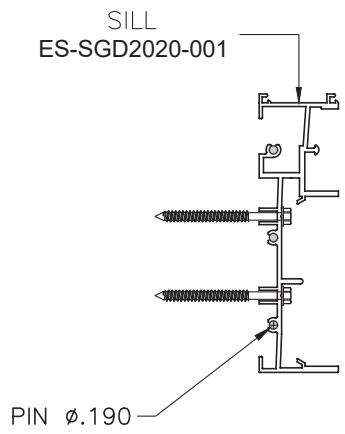
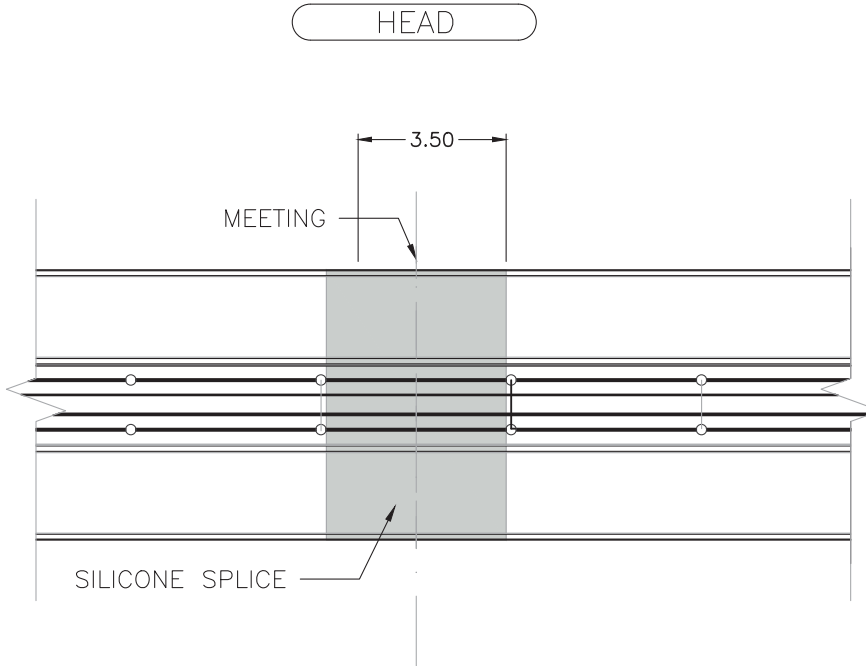
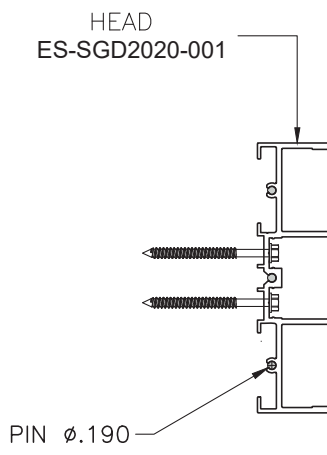
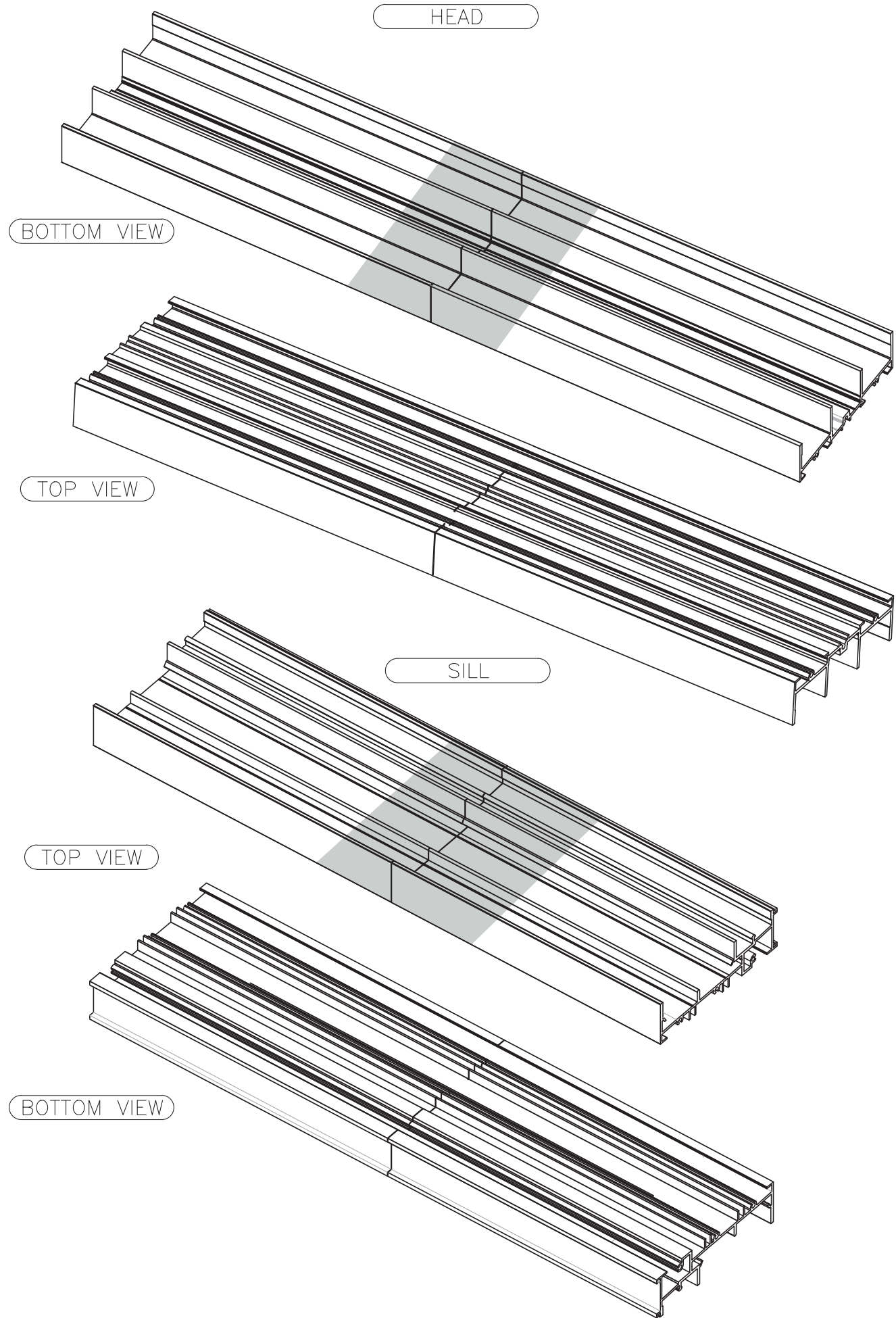
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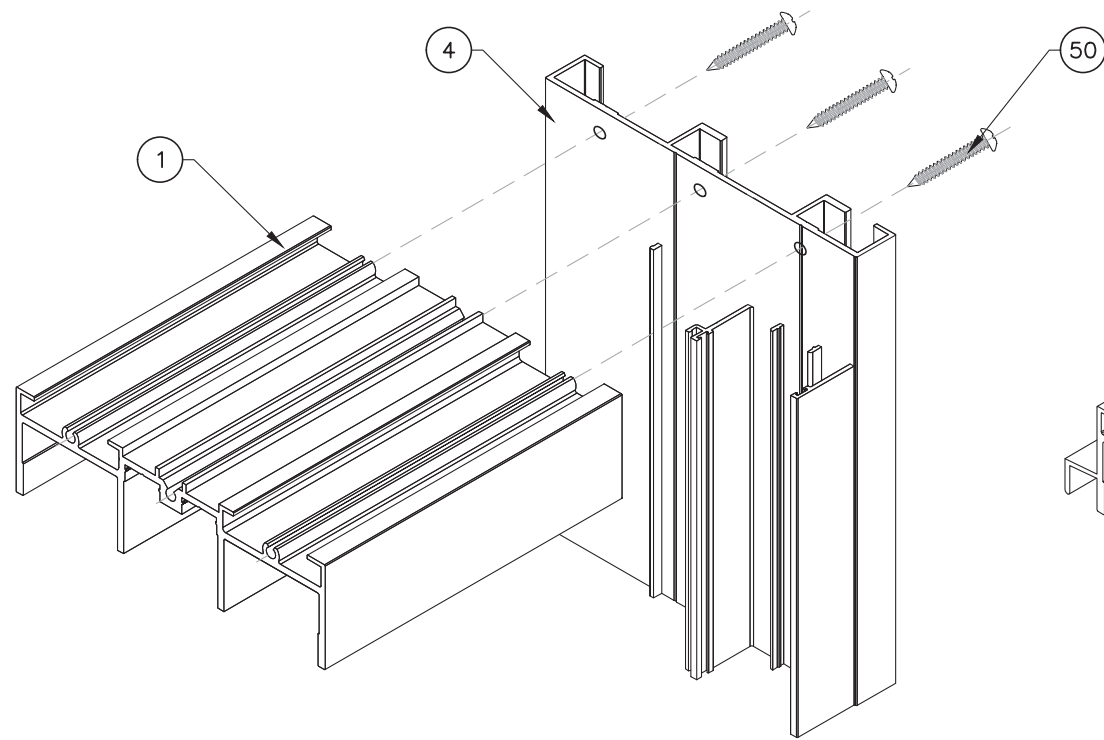
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| 6 | 10-11-2021 | MCY | UPDATE |

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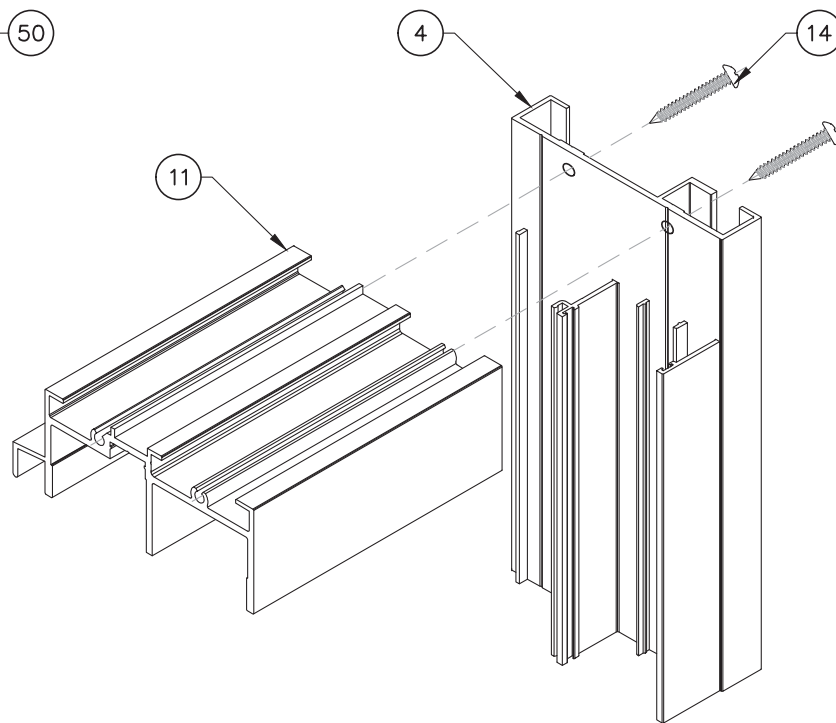
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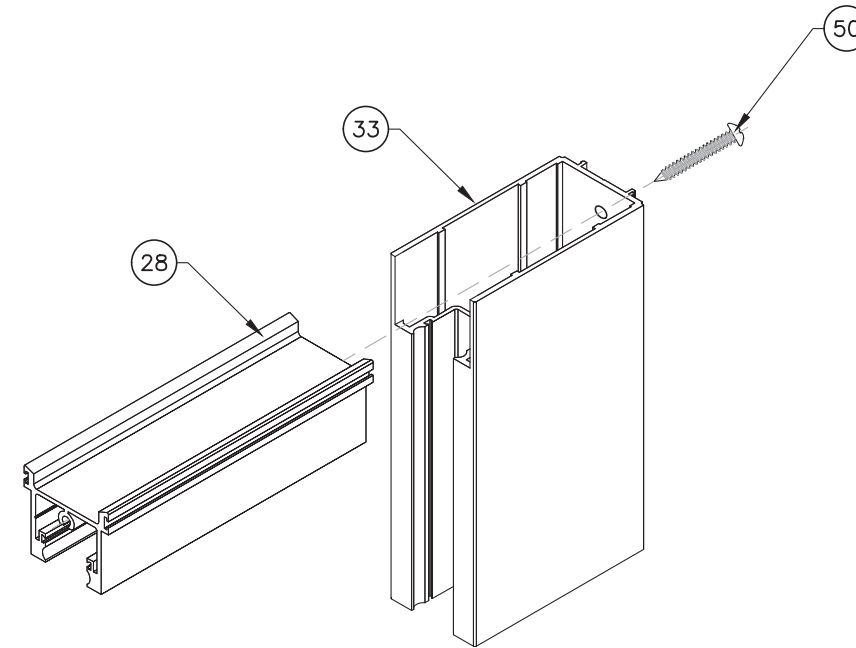
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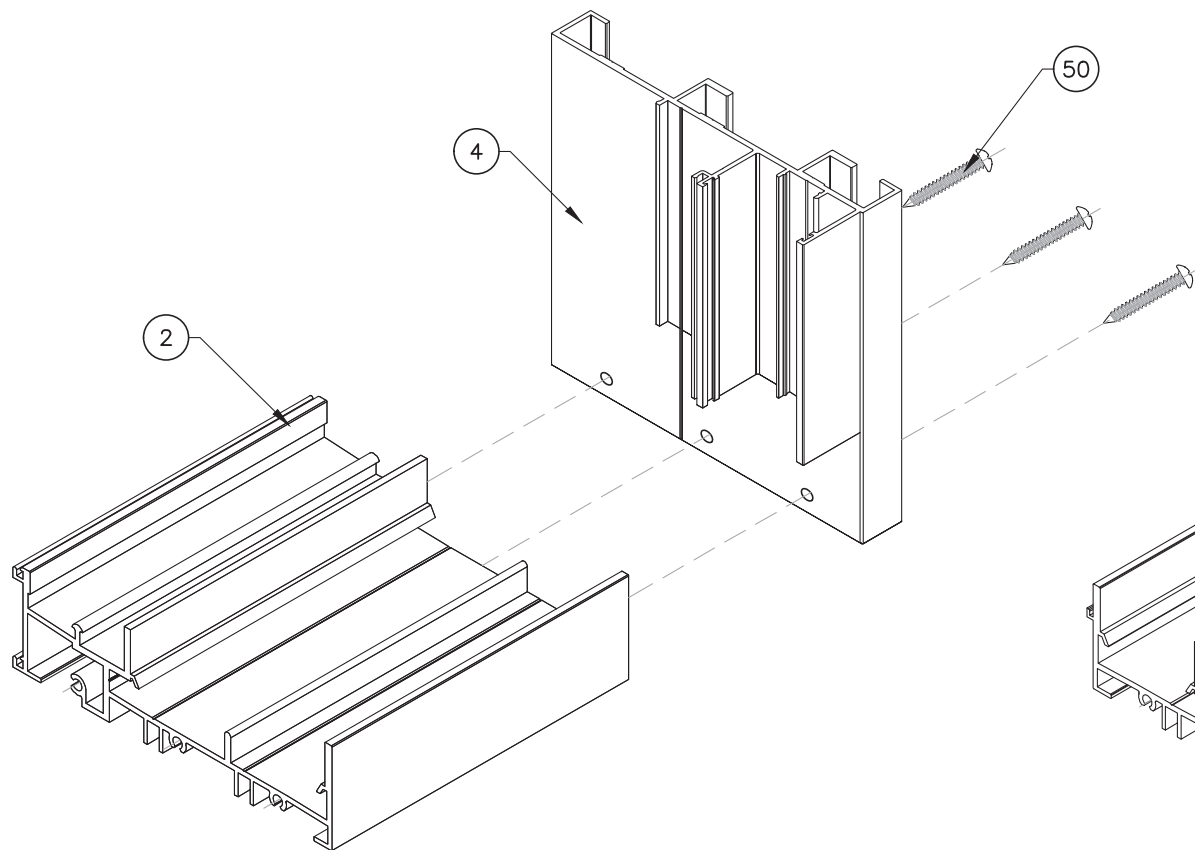
FRAME TOP CORNER
3 TRACK SHOWN



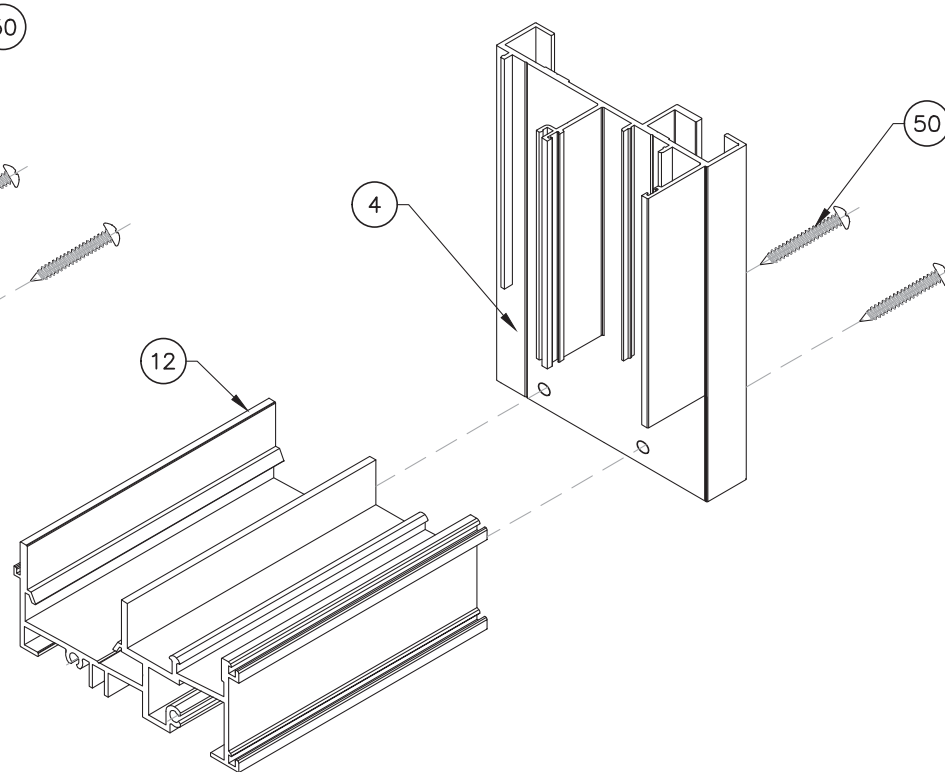
FRAME TOP CORNER
2 TRACK SHOWN



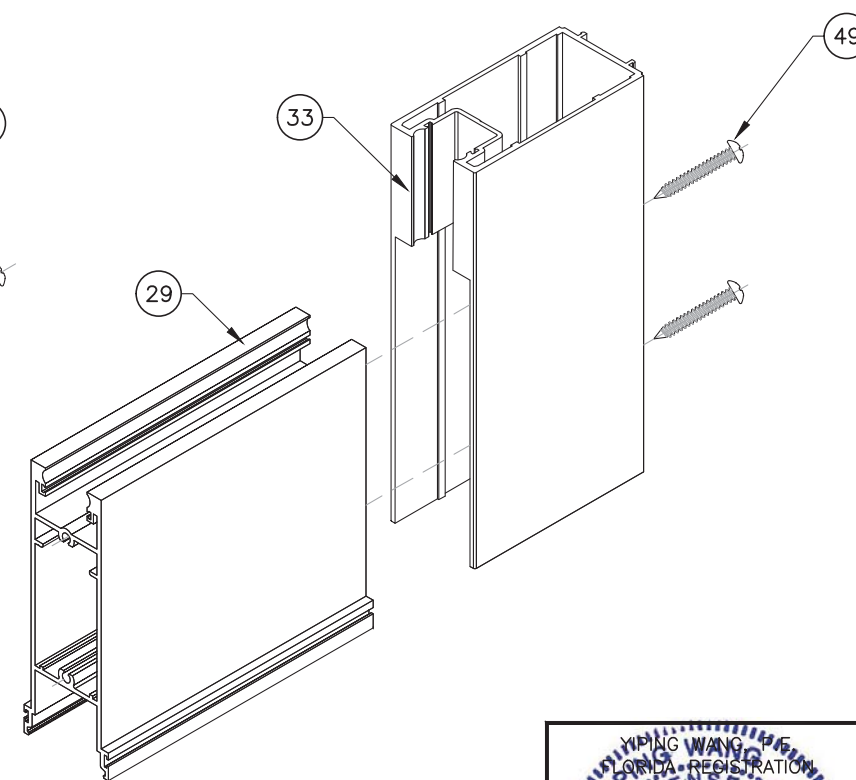
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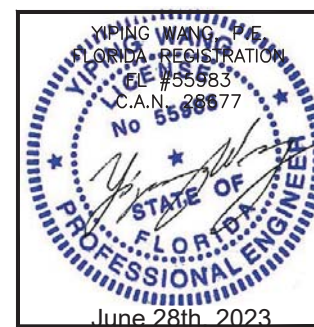
FRAME BOTTOM CORNER
3 TRACK SHOWN



FRAME BOTTOM CORNER
2 TRACK SHOWN



PANEL BOTTOM CORNER



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ISO

Sheet No. **59 OF 59**

English

Product Portfolio

Hurricane Glazing

kuraray

Trosifol®

SentryGlas®

Hurricane rating sytem

Severe weather events such as hurricanes, cyclones, typhoons and tornados are capable of producing dam aging windborne debris.

Windborne debris has the potential to penetrate buildings and once the building envelope has been compromised the level of damage greatly increases. The use of hurricane impact windows is one critical component of the building that can greatly improve the resiliency of the building to extreme weather.

The Saffir-Simpson Hurricane scale is used to rate hurricanes. It uses wind as the primary measure of strength.

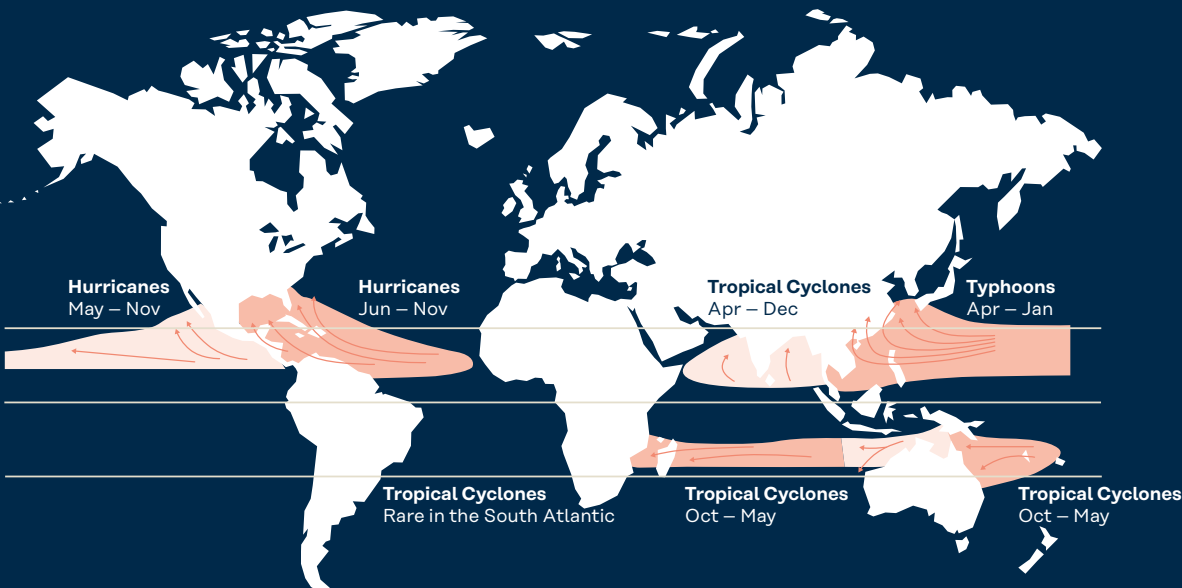
Saffir-Simpson Hurricane scale

| Classification | Wind speed | | Storm surge | | Damage level |
|---------------------|------------|---------|-------------|-------|--------------|
| | [km/h] | [mph] | [m] | [ft] | |
| Tropical depression | 63 | <39 | | N/A | None |
| Tropical storm | 63-118 | 39-73 | 0.3-0.9 | 1-3 | Minimal |
| Category 1 | 119-153 | 74-95 | 1.2-1.5 | 4-5 | Minimal |
| Category 2 | 154-177 | 96-110 | 1.8-2.4 | 6-8 | Moderate |
| Category 3 | 178-208 | 111-129 | 2.7-3.7 | 9-12 | Extensive |
| Category 4 | 209-251 | 130-156 | 4.0-5.5 | 13-18 | Catastrophic |
| Category 5 | >252 | >157 | >5.5 | >18 | Catastrophic |



TAB 1 •

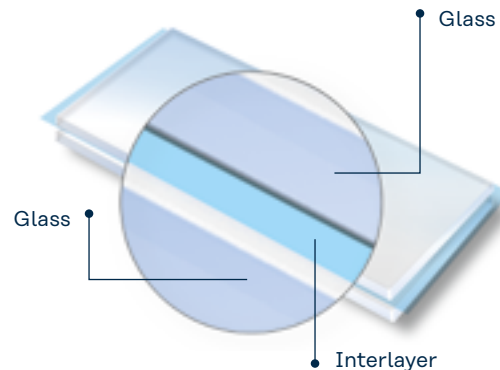
Cyclone · Hurricane · Typhoon – Natural phenomena



What is a hurricane impact resistant system?

Hurricane impact glazing systems combine impact resistant laminated glass into a framing system with the main purpose of maintaining the integrity of the building envelope by resisting the forces of high winds and rain, as well as resisting high impact forces from windborne debris. In addition, secondary considerations are to retain the glass in place if it breaks, providing security and preventing additional debris contribution during the wind event.

Typical construction of the laminated glass is two or more lites of heat strengthened or annealed glass with Trosifol® PVB or SentryGlas® ionoplast interlayer.



KEY BENEFITS OF LAMINATED GLASS IN HURRICANE WINDOW

- Glass remains intact even when broken providing a weather barrier that reduces the likelihood of total collapse of the building or widespread water damage
- The interlayer absorbs energy of the impact resisting penetration
- Prevents injuries related to flying glass and exposed shards
- When hurricane warning is issued no need to board up windows or activate / mount shutters. Ideal for homes that are not occupied during the hurricane season

ADDITIONAL BENEFITS FROM HURRICANE IMPACT WINDOWS

- UV protection
- Acoustic improvement
- Security/anti intrusion, bullet or blast resistance
- Improved safety with glass retention



➔ Porsche Design Tower, Miami, Florida, USA

Hurricane window system design guidelines

Hurricane testing is conducted on the whole system, which must pass both impact testing as well as positive and negative cyclic load testing.



KEY FACTORS TO CONSIDER WHEN DESIGNING A SYSTEM

- Understand the local and international building code requirements for hurricane impact glazing
- The relevant test standards for hurricane impact resistant glazing
- Establish the wind zone and level of protection that will be required according to ASTM E1996 or TAS 201/203
- Whether the location and size of the building requires protection from small or large missile or both
- Consider the whole fenestration system including frame, attachments and glazing method not just the glass infill
- Type of glazing system: wet or dry
- Testing the glass as part of the whole system

HURRICANE CODES AND STANDARDS

- International Building Code section 1609 refers to ASCE7 for wind speeds / load calculations
- FEMA 320 - *Taking Shelter from the Storm: Building a Safe Room for Your Home or Small Business*
- FEMA 361 - *Safe Rooms for Tornadoes and Hurricanes*
- ICC

TEST STANDARDS REFERENCED IN IBC, FLORIDA AND TEXAS STATE CODES

- ASTM E1886 - *Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials*
- ASTM E1996 - *Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes*

MIAMI DADE AND BROWARD COUNTY (HIGH VELOCITY HURRICANE ZONES)

- TAS 201 *Impact Test Procedures*
- TAS 203 *Criteria for Testing Products Subject to Cyclic Wind Pressure Loading*



Cycling requirements

Inward acting pressure

| Range | Number of cycles* |
|----------------------------------|-------------------|
| $0.2 P_{MAX}$ to $0.5 P_{MAX}^2$ | 3,500 |
| $0.0 P_{MAX}$ to $0.6 P_{MAX}$ | 300 |
| $0.5 P_{MAX}$ to $0.8 P_{MAX}$ | 600 |
| $0.3 P_{MAX}$ to $1.0 P_{MAX}$ | 100 |

TAB 2 • * ASTM E1996

Outward acting pressure

| Range | Number of cycles |
|--------------------------------|------------------|
| $0.3 P_{MAX}$ to $1.0 P_{MAX}$ | 50 |
| $0.5 P_{MAX}$ to $0.8 P_{MAX}$ | 1,050 |
| $0.0 P_{MAX}$ to $0.6 P_{MAX}$ | 50 |
| $0.2 P_{MAX}$ to $0.5 P_{MAX}$ | 3,350 |

After impact the whole system is subject to both positive and negative pressure, which simulates the hurricane approaching and leaving.

Wind speed and pressure

DETERMINING WIND SPEED AND PRESSURE

WIND SPEED VARIES BASED ON

- Risk category
- Geographic location

WIND PRESSURE VARIES BASED ON

- Wind speed
- Building type/occupancy
- Height
- Building footprint
- Opening or panel size
- Corner zones

Refer to ASCE 7 wind speed map

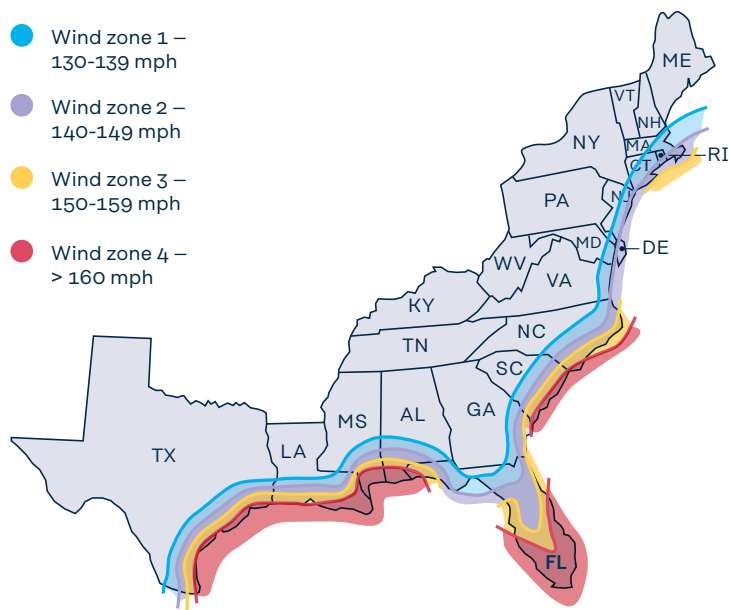
Al Farooq Corporation

Storm wind speeds (risk category 2)

Eastern Gulf of Mexico and Southeastern US Hurricane coastline

Wind zones

- Wind zone 1 – 130-139 mph
- Wind zone 2 – 140-149 mph
- Wind zone 3 – 150-159 mph
- Wind zone 4 – > 160 mph



Wet vs dry glazing

WET GLAZED

Traditional glazing method used for past 50 years in hurricane glazing with PVB. Use of a silicone sealant to bond the laminated glass to supporting structure.

- High level of precision and skill required to correctly wet glaze a hurricane framing system
- Special materials required
- Expensive, time consuming and labor intensive process
- If glass panel is broken, extra labor is required to cut through and remove the existing adhesive, clean the frame, and reapply the new adhesive.
- Depends heavily on skilled workers

DRY GLAZED

No use of sealant - requires the use of structural interlayer such as SentryGlas®.

- Dry glaze relies on structural interlayers such as SentryGlas®
- The rigid laminates provide sufficient post breakage performance to resist pull out during cyclical testing
- Ease of installation - no need for skilled labor
- Reduce cost in terms of labor
- Retrofits and repairs are easier
- Properly designed dry glazed systems can provide extremely

➔ House still standing after Hurricane Michael 2018, Mexico Beach, Florida



Product approval process

There are three main product approval agencies in North America:

Florida Product Approval - Florida

**Notice of Acceptance NOA - HVHZ
(Miami Dade and Broward County)**

**TDI - Texas Department of Insurance -
Texas**

BASIC STEPS FOR PRODUCT APPROVAL

1. DESIGN SYSTEM

- Product type
- Profiles and assemblies
- Target market

2. TESTING

- Air / water / structural
- Impact testing
- Cyclic load

3. CALCULATIONS

- Glass, anchors, material stresses and deflections

4. DRAWINGS

- Sizes, pressures, configurations

5. SUBMIT APPLICATION

Al Farooq Corporation

LAMINATOR SUPPLYING TO HURRICANE WINDOW MANUFACTURER

- Laminators that wish to supply to window manufacturers seeking MDC approval must be listed on the MDC approved laminator list. Your Kuraray representative can help you get on this list.
- Interlayers must also have an NOA to be used for a MDC product approval.
- All Kuraray interlayers products have an MDC NOA.

AIS interlayers for hurricane protection

Kuraray's Advanced Interlayer Solutions (AIS) Division, with the broadest portfolio of interlayers, has a solution for any design requirement. Some factors that drive the selection process are as follows:

SELECTION FACTORS

- Window or door size
- Type of glazing dry vs wet
- Design pressure
- Large vs small missile
- Framing system and bite size

Whatever your design criteria, AIS has an interlayer



TROSIFOL® CLEAR*

- PVB interlayer
- Medium-high adhesion
- Available in rolls
- Caliper: 0.76, 1.14, 1.52 and 2.28 mm (30, 45, 60 and 90 mil)
- Width up to 321 cm (126 inches)

SENTRYGLAS®**

- Ionoplast interlayer
- 100 times stiffer and 5 times more tear resistant than PVB
- Available in sheets and rolls
- Caliper: 0.76, 0.89, 1.52, 2.28 and 2.53 mm (30, 35, 60, 90, 100 and 120 mil)
- Widths up to 330 cm (130 inches)

TROSIFOL® XT ULTRACLEAR

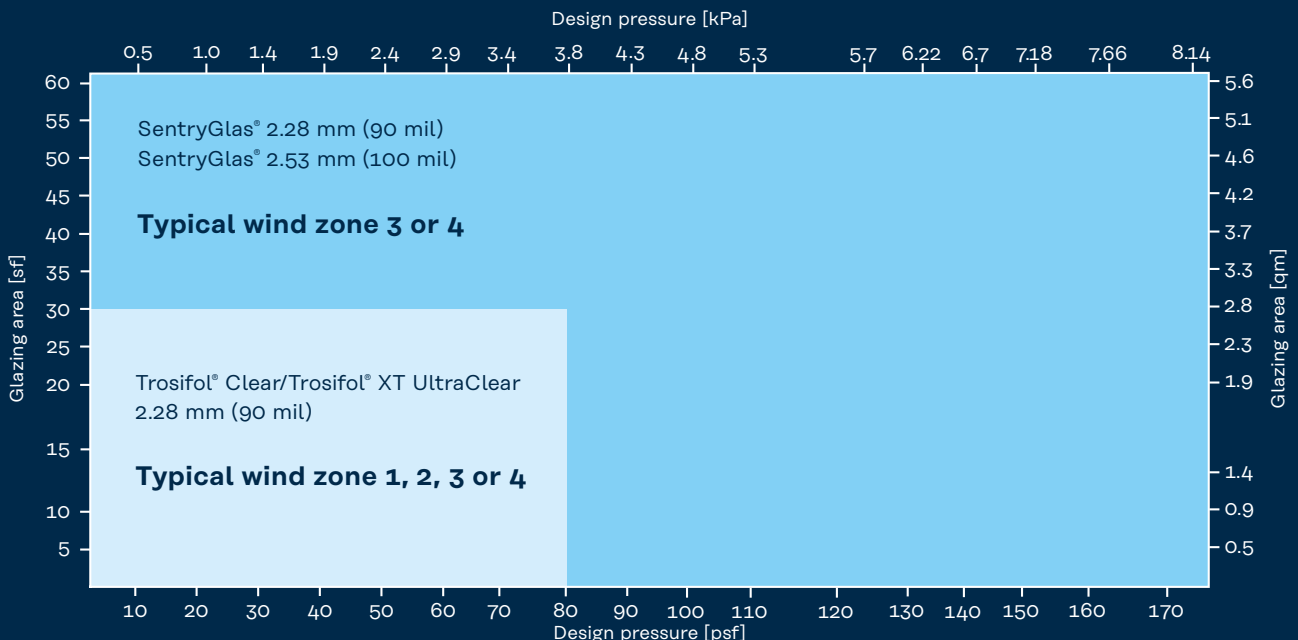
- PVB interlayer
- Medium adhesion
- Available in rolls
- Caliper: 2.28 mm (90 mil)
- Width up to 321 cm (126 inches)

SENTRYGLAS® XTRA™

- Latest generation of ionoplast interlayer
- Excellent adhesion to air side of glass without need for primer
- Haze formation less sensitive to autoclave cooling rate
- Caliper: 0.89, 1.52, 2.28 and 2.53 mm (35, 60, 90 and 100 mil)
- Widths up to 3300 mm (130 inches)

* Available in colors and tints also
 ** Available in Translucent White color also

How to choose interlayer based on window size and design pressure



Large missile level D with ¼" HS -0.090" interlayer-¼" HS (6 mm HS -2.28 mm (90 mil) interlayer - 6 mm)

Design pressures for hurricane systems*

Maximum design pressure for SentryGlas® is 8.14 Kpa (170 psf).
Maximum design pressure for PVB is 3.83 Kpa (80 psf).

Only SentryGlas® can be used in dry glaze systems because of its high modulus.

SentryGlas® dry glazed

| Short dimension | | GB 0.5" | | GB 0.625" | | GB 0.75" | | GB 0.875" | | GB 1" | |
|-----------------|------|---------|-------|-----------|-------|----------|-------|-----------|-------|-------|-------|
| [m] | [in] | [kPa] | [psf] | [kPa] | [psf] | [kPa] | [psf] | [kPa] | [psf] | [kPa] | [psf] |
| 0.91 | 36 | 4.55 | 95 | 5.75 | 120 | 6.94 | 145 | 7.18 | 150 | 7.18 | 150 |
| 1.07 | 42 | 3.83 | 80 | 4.79 | 100 | 5.99 | 125 | 6.94 | 145 | 7.18 | 150 |
| 1.22 | 48 | 3.35 | 70 | 4.31 | 90 | 5.27 | 110 | 5.99 | 125 | 6.94 | 145 |
| 1.37 | 54 | 3.11 | 65 | 3.83 | 80 | 4.55 | 95 | 5.27 | 110 | 6.22 | 130 |
| 1.52 | 60 | 2.63 | 55 | 3.35 | 70 | 4.07 | 85 | 4.79 | 100 | 5.51 | 115 |
| 1.68 | 66 | 2.39 | 50 | 3.11 | 65 | 3.83 | 80 | 4.31 | 90 | 5.03 | 105 |
| 1.82 | 72 | 2.15 | 45 | 2.87 | 60 | 3.35 | 70 | 4.07 | 85 | 4.55 | 95 |

SentryGlas® wet glazed

| Short dimension | | GB 0.5" | | GB 0.625" | | GB 0.75" | | GB 0.875" | | GB 1" | |
|-----------------|------|---------|-------|-----------|-------|----------|-------|-----------|-------|-------|-------|
| [m] | [in] | [kPa] | [psf] | [kPa] | [psf] | [kPa] | [psf] | [kPa] | [psf] | [kPa] | [psf] |
| 0.91 | 36 | 5.27 | 110 | 6.46 | 135 | 7.66 | 160 | 8.14 | 170 | 8.14 | 170 |
| 1.07 | 42 | 4.55 | 95 | 5.75 | 120 | 6.70 | 140 | 7.66 | 160 | 8.14 | 170 |
| 1.22 | 48 | 3.83 | 80 | 5.03 | 105 | 5.99 | 125 | 6.94 | 145 | 7.66 | 160 |
| 1.37 | 54 | 3.59 | 75 | 4.31 | 90 | 5.27 | 110 | 5.99 | 125 | 6.94 | 145 |
| 1.52 | 60 | 3.11 | 65 | 3.83 | 80 | 4.79 | 100 | 5.51 | 115 | 6.22 | 130 |
| 1.68 | 66 | 2.87 | 60 | 3.59 | 75 | 4.31 | 90 | 5.03 | 105 | 5.75 | 120 |
| 1.82 | 72 | 2.63 | 55 | 3.11 | 65 | 3.83 | 80 | 4.55 | 95 | 5.27 | 110 |

Trosifol® PVB wet glazed

| Short dimension | | GB 0.5" | | GB 0.625" | | GB 0.75" | | GB 0.875" | | GB 1" | |
|-----------------|------|---------|-------|-----------|-------|----------|-------|-----------|-------|-------|-------|
| [m] | [in] | [kPa] | [psf] | [kPa] | [psf] | [kPa] | [psf] | [kPa] | [psf] | [kPa] | [psf] |
| 0.91 | 36 | 3.83 | 80 | 3.83 | 80 | 3.83 | 80 | 3.83 | 80 | 3.83 | 80 |
| 1.07 | 42 | 3.26 | 68 | 3.83 | 80 | 3.83 | 80 | 3.83 | 80 | 3.83 | 80 |
| 1.22 | 48 | 2.87 | 60 | 3.59 | 75 | 3.83 | 80 | 3.83 | 80 | 3.83 | 80 |
| 1.37 | 54 | | | | | | | | | | |
| 1.52 | 60 | | | | | | | | | | |
| 1.68 | 66 | | | | | | | | | | |
| 1.82 | 72 | | | | | | | | | | |

* Large missile level D with ¼" HS–0.090" interlayer–¼" HS (6 mm HS–2.28 mm interlayer–6 mm)

Typical laminate constructions

| Missile level | Missile | Missile speed | | Trosifol® PVB | SentryGlas® | SentryGlas® Xtra™ |
|---------------|---|---------------|-------|---|---|--|
| | | [m/s] | [f/s] | | | |
| A | 2 g (31 grains), steel ball | 39.62 | 130 | 6 mm HS 1.52 mm (60 mil) Trosifol® PVB 6 mm HS | 6 mm HS 0.89 mm (35 mil) SentryGlas® 6 mm HS | |
| B | 910 g (2 lb) 2 x 4 in 52.5 cm (1 ft-9 in) lumber | 15.25 | 50 | 6 mm HS 1.52 mm (60 mil) Trosifol® PVB 6 mm HS | 6 mm HS 0.89 mm (35 mil) SentryGlas® 6 mm HS | |
| C | 2050 g (4.5 lb) 2 x 4 in 1.2 m (4 ft) lumber | 12.19 | 40 | 6 mm HS 1.52 mm (60 mil) Trosifol® PVB 6 mm HS | 6 mm HS 0.89 mm (35 mil) SentryGlas® 6 mm HS | |
| D | 4100 g (9 lb) 2 x 4 in 2.4 m (8 ft) lumber | 15.25 | 50 | 6 mm HS 2.28 mm (90 mil) Trosifol® PVB 6 mm HS | 6 mm HS 2.28 mm (90 mil) SentryGlas® 6 mm HS | 6 mm HS 2.53 mm (100 mil) SentryGlas® Xtra™ 6 mm HS |
| E | 4101 g (9 lb) 2 x 4 in 2.4 m (8 ft) lumber | 24.38 | 80 | N/A | 6 mm HS 4.56 mm (180 mil) SentryGlas® 6 mm HS" | |

Hurricane projects using AIS interlayers



Photo © YKK, AP

➔ Jennie Sealy Hospital, Galveston/Texas, USA

- Level E Hurricane - Jennie Sealy level E essential facilities
- 20+ years of durability – Broward County Performance Arts Center
- International projects - Secrets The Vine, Cancun
- Building that survived a major hurricane - Gulfstream condominiums on North Padre Island
- Hurricane with bomb blast – Miami Federal Courthouse
- Hurricane and Structural glass - Dali Museum

Detailed hurricane projects you can find here:
www.trosifol.com

Contact



FOR FURTHER INFORMATION

on products from Kuraray, please visit www.kuraray.com.

You can find further information on our Trosifol® and SentryGlas® products at www.trosifol.com.

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8/2023

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AL-FAROOQ CORPORATION

CONSULTING ENGINEERS & PRODUCT DEVELOPMENT

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

FL 17897

Date: 01/30/2023

Detailed Product Description:

Manufacturer: E.S. WINDOWS, LLC.

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

Model Name: SERIES ES-8000T JUMBO ALUMINUM WINDOW WALL SYSTEM

Maximum Load: +70 PSF, -70 PSF (Large Missile Impact)

Installation Drawings # 21-58F

| 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. | | | | | |
| Comparative analysis used <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| Mandatory Tests (Tested in accordance with AAMA 501/101/I.S.2/NAFS/TAS-202) | | | | | |
| TEST | DESCRIPTION | TEST LOCATION | TEST REPORT DATE | TEST REPORT # | Test Sealed by |
| ASTM E283 | Air Infiltration Leakage | Fenestration Testing Laboratory, Inc. Blackwater Technical Services Inc. | 12/19/2007 04/14/2015 08/16/2017 03/08/2021 05/17/2021 | FTL-5447 FTL-7546 FTL-9605 BT-ESW-20-046 BT-ESW-20-049 | Michael R. Wenzel, P.E. Idalmis Ortega, P.E. Idalmis Ortega, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E. |
| ASTM E331 OR ASTM 547 & TAS 202 | Water Penetration | Fenestration Testing Laboratory, Inc. Blackwater | 12/19/2007 04/14/2015 08/16/2017 03/08/2021 05/17/2021 | FTL-5447 FTL-7546 FTL-9605 BT-ESW-20-046 BT-ESW-20-049 | Michael R. Wenzel, P.E. Idalmis Ortega, P.E. Idalmis Ortega, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E. |
| ASTM E330 & TAS 202 | Uniform Static Air Press. | Fenestration Testing Laboratory, Inc. Blackwater Technical Services Inc. | 12/19/2007 04/14/2015 08/16/2017 03/08/2021 05/17/2021 01/12/2023 | FTL-5447 FTL-7546 FTL-9605 BT-ESW-20-046 BT-ESW-20-049 BT-ESW-22-023 | Michael R. Wenzel, P.E. Idalmis Ortega, P.E. Idalmis Ortega, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E. |
| ASTM F588 | Forced Entry | Blackwater Technical Services Inc. | 03/08/2021 05/17/2021 | BT-ESW-20-046 BT-ESW-20-049 | Michael D. Caldwell, P.E. Michael D. Caldwell, P.E. |

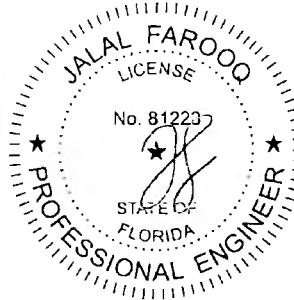
Supplemental Tests (Tested in accordance with TAS-201 and TAS-203)

| TEST | DESCRIPTION | TEST LOCATION | TEST REPORT DATE | TEST REPORT # | Test Sealed by |
|--|----------------------------------|---|--|---|--|
| FBC 1626.2 (TAS 201 & 203) ANSI Z97.1 ASTM E1886/1996 | Large Missile Impact & Cyclic | Fenestration Testing Laboratory, Inc. Blackwater Technical Services Inc. | 12/19/2007 04/14/2015 08/16/2017 03/08/2021 05/17/2021 01/12/2023 | FTL-5447 FTL-7546 FTL-9605 BT-ESW-20-046 BT-ESW-20-049 BT-ESW-22-023 | Michael R. Wenzel, P.E. Idalmis Ortega, P.E. Idalmis Ortega, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E. Michael D. Caldwell, P.E. |

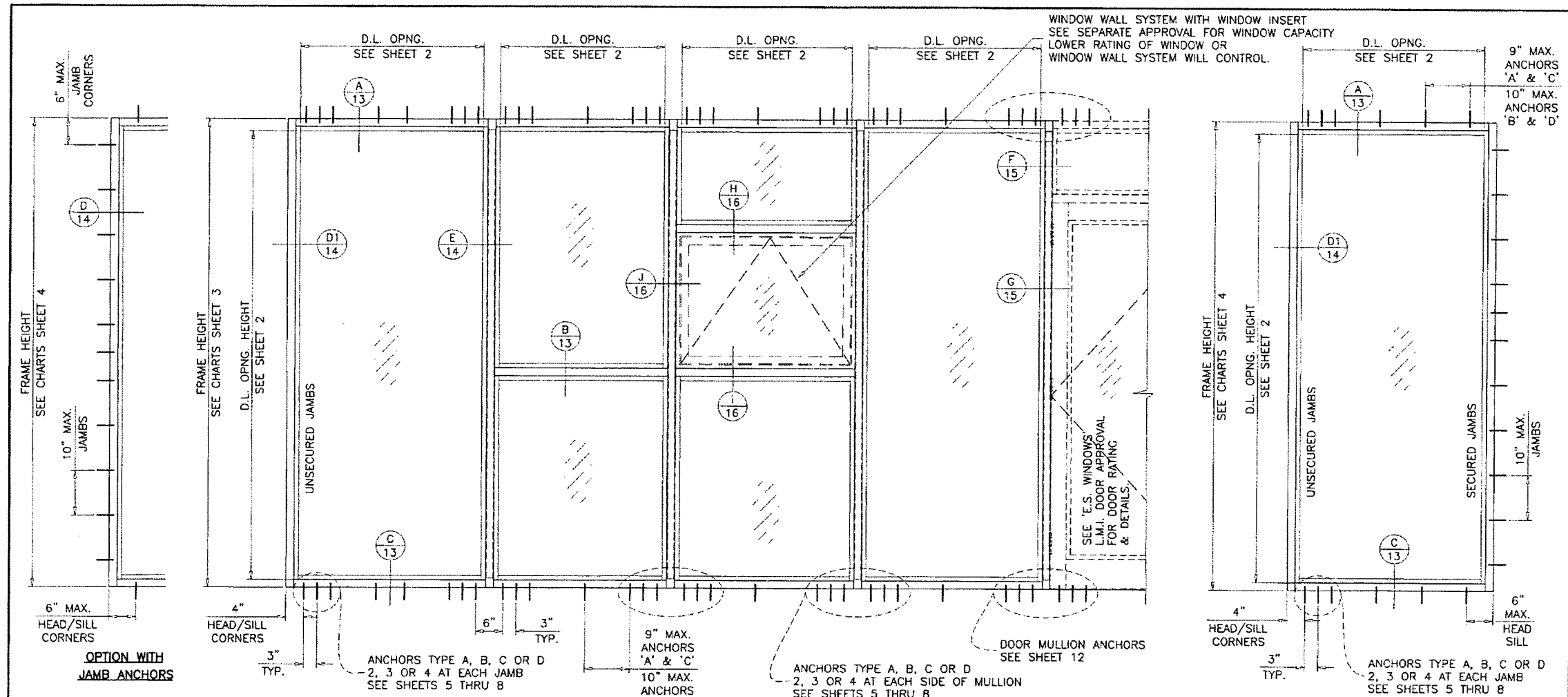
Under the limitations of the attached installation drawings, to the best of my knowledge and ability, the above product conforms to the requirements of the 2020 Florida Building Code.

Evaluation Report Engineer:

Jalal Farooq PE # 81223
Al-Farooq Corporation EB # 3538



Sealed: 2/6/2023



**SERIES ES-8000T (JUMBO)
ALUMINUM WINDOW WALL SYSTEM**

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.

TYPICAL ELEVATIONS

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** SEE CHARTS ON SHEET 2 FOR DESIGN LOAD CAPACITY OF DESIRED GLASS SIZE.
 - STEP 3** CHECK MULLION CAPACITY FOR A GIVEN SPACING AND HEIGHT USING CHARTS ON SHEETS 3 FOR WINDOW WALL MULLION AND SHEETS 9 THRU 11 FOR DOOR MULLION. THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.
 - STEP 4** CHECK ANCHOR CAPACITY FOR WINDOW WALL SYSTEM USING CHARTS ON SHEETS 5 THRU 8 FOR DOOR MULLION ANCHOR CAPACITY SEE CHART ON SHEET 12. THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.
 - STEP 5** THE LOWEST VALUE RESULTING FROM STEPS 2, 3 AND 4 SHALL APPLY TO ENTIRE SYSTEM.

THIS SYSTEM IS RATED FOR LARGE & SMALL MISSILE IMPACT. SHUTTERS ARE NOT REQUIRED.

WINDOW WALL SYSTEM COMPLY WITH REQUIREMENTS OF ANSI Z97.1.

Sealed: 2/13/2023

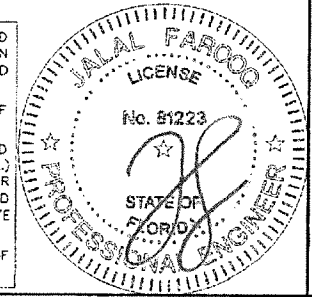
FL #17897

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 LETTER 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.



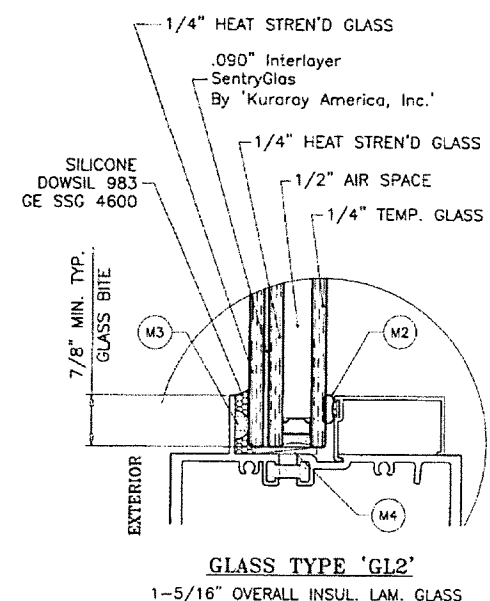
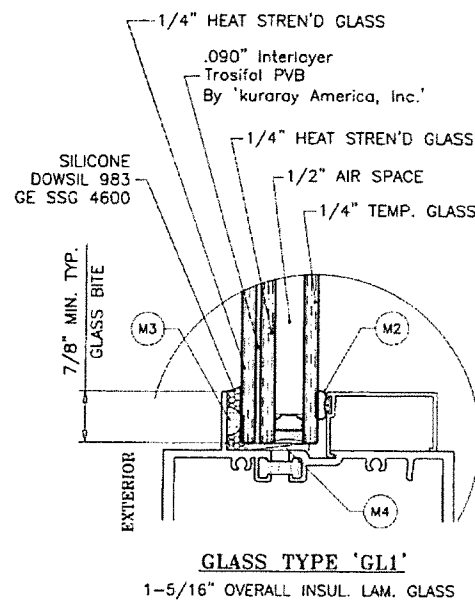
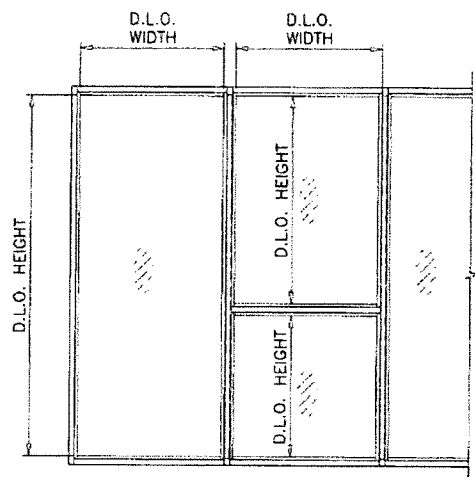
AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173
TEL. (305) 264-8100 FAX. (305) 262-6978
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COMP-AYL 21-58FES

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E.S. WINDOWS, LLC
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MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5156

| | | | | |
|-------------|------------|----------|----|---------------------------|
| revisions: | no. | date | by | description |
| | A | 01.25.23 | | GLAZING SILICONE GE ADDED |
| date: | 07-29-21 | | | |
| scale: | 1/2"=1'-0" | | | |
| dr. by: | TARIQ | | | |
| chk. by: | | | | |
| drawing no. | 21-58F | | | |
| sheet | 1 of 18 | | | |

| GLASS LOAD CAPACITY - PSF | | | | | |
|---------------------------|---------------|-------------|---------|---------|---------|
| NOMINAL DIMS. | | GLASS TYPES | | | |
| D.L.O. WIDTH | D.L.O. HEIGHT | 'GL1' | | 'GL2' | |
| | | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) |
| 60-1/2" | 102-1/2" | 70.0 | 70.0 | 70.0 | 70.0 |
| 66-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 72-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 78-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 84-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 90-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 96-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 102-1/2" | | 66.1 | 66.1 | 66.1 | 66.1 |
| 60-1/2" | 114-1/2" | 70.0 | 70.0 | 70.0 | 70.0 |
| 66-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 72-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 78-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 84-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 90-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 96-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 102-1/2" | | - | - | 54.4 | 54.4 |
| 60-1/2" | 118-1/2" | 70.0 | 70.0 | 70.0 | 70.0 |
| 66-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 72-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 78-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 84-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 90-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 96-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 102-1/2" | | - | - | 54.4 | 54.4 |
| 60-1/2" | 126-1/2" | 70.0 | 70.0 | 70.0 | 70.0 |
| 66-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 72-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 78-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 84-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 90-1/2" | | - | - | 61.3 | 61.3 |
| 96-1/2" | | - | - | 57.6 | 57.6 |
| 102-1/2" | | - | - | 54.4 | 54.4 |
| 60-1/2" | 138-1/2" | 70.0 | 70.0 | 70.0 | 70.0 |
| 66-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 72-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 78-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 84-1/2" | | - | - | 65.3 | 65.3 |
| 90-1/2" | | - | - | 61.3 | 61.3 |
| 96-1/2" | | - | - | 57.6 | 57.6 |
| 60-1/2" | 150-1/2" | 70.0 | 70.0 | 70.0 | 70.0 |
| 66-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 72-1/2" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 78-1/2" | | - | - | 70.0 | 70.0 |
| 84-1/2" | | - | - | 65.3 | 65.3 |
| 90-1/2" | | - | - | 61.3 | 61.3 |
| 96-1/2" | | - | - | 57.6 | 57.6 |
| 60-1/2" | 162-1/2" | 70.0 | 70.0 | 70.0 | 70.0 |
| 66-1/2" | | 69.1 | 69.1 | 70.0 | 70.0 |
| 72-1/2" | | - | - | 70.0 | 70.0 |
| 78-1/2" | | - | - | 70.0 | 70.0 |
| 84-1/2" | - | - | 65.3 | 65.3 | |
| 60-1/2" | 174-1/2" | 70.0 | 70.0 | 70.0 | 70.0 |
| 66-1/2" | | - | - | 70.0 | 70.0 |
| 72-1/2" | | - | - | 70.0 | 70.0 |
| 78-1/2" | | - | - | 70.0 | 70.0 |

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



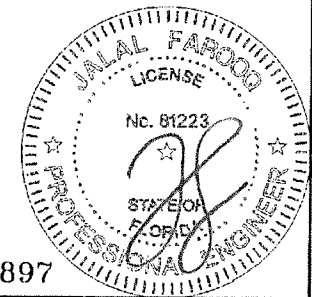
1/2" AIR SPACE CONSISTING OF:
 SPACER:
 'HELIMA' LOW PROFILE ALUMINUM SPACER
 BY 'LINGERMANN GMBH'
 AROUND THE PERIMETER OF THE GLASS.
 PERIMETER SEALANT:
 SILICONE
 DOWSIL 791
 GE 2000

NOTE:
 GLASS CAPACITIES ON THIS SHEET ARE
 BASED ON ASTM E1300-09 (3 SEC. GUSTS).

GLASS

Sealed: 2/13/2023

FL #17897



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 COMP-ANL21-58FES

E.S. WINDOWS, LLC
 3550 N.W. 49 STREET
 MIAMI, FL. 33142
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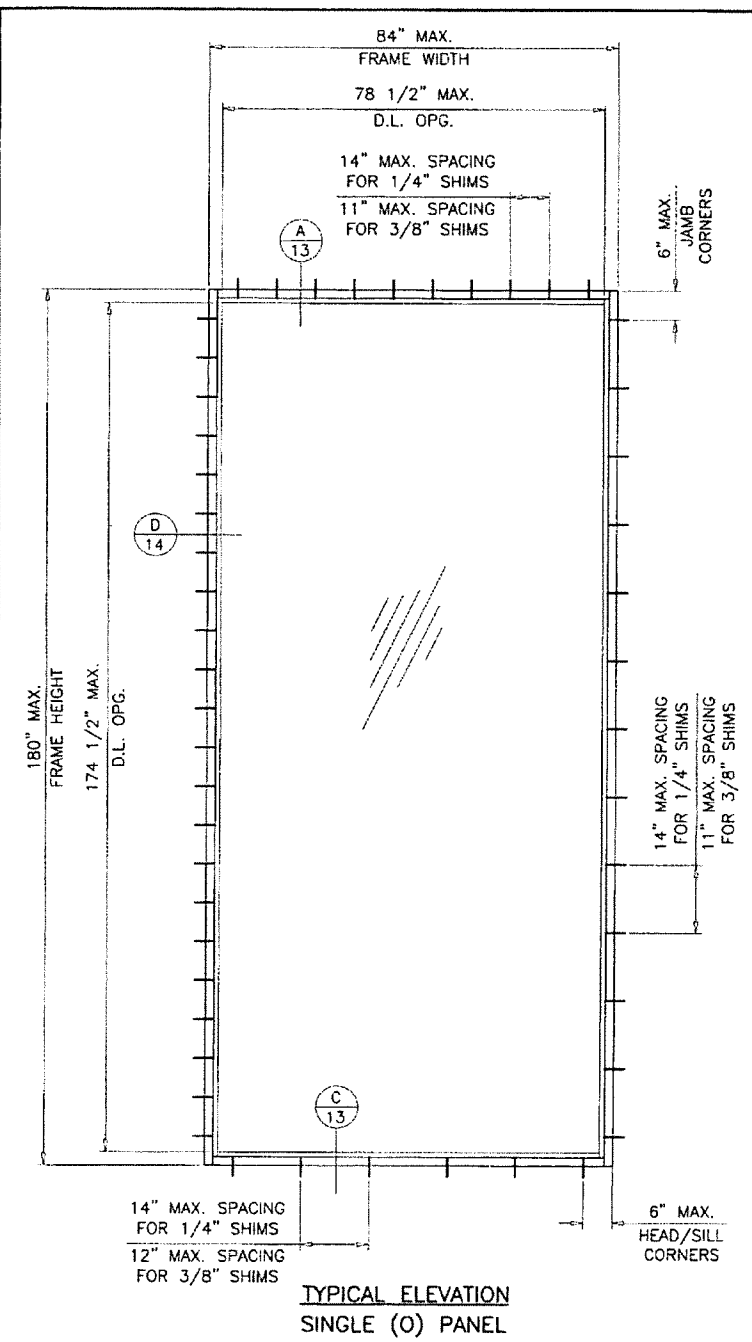
ES-800T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

Revisions:
 no. date by description

date: 07-29-21
 scale: 3/8" = 1"
 dr. by: TARIQ
 chk. by:

drawing no.
21-58F

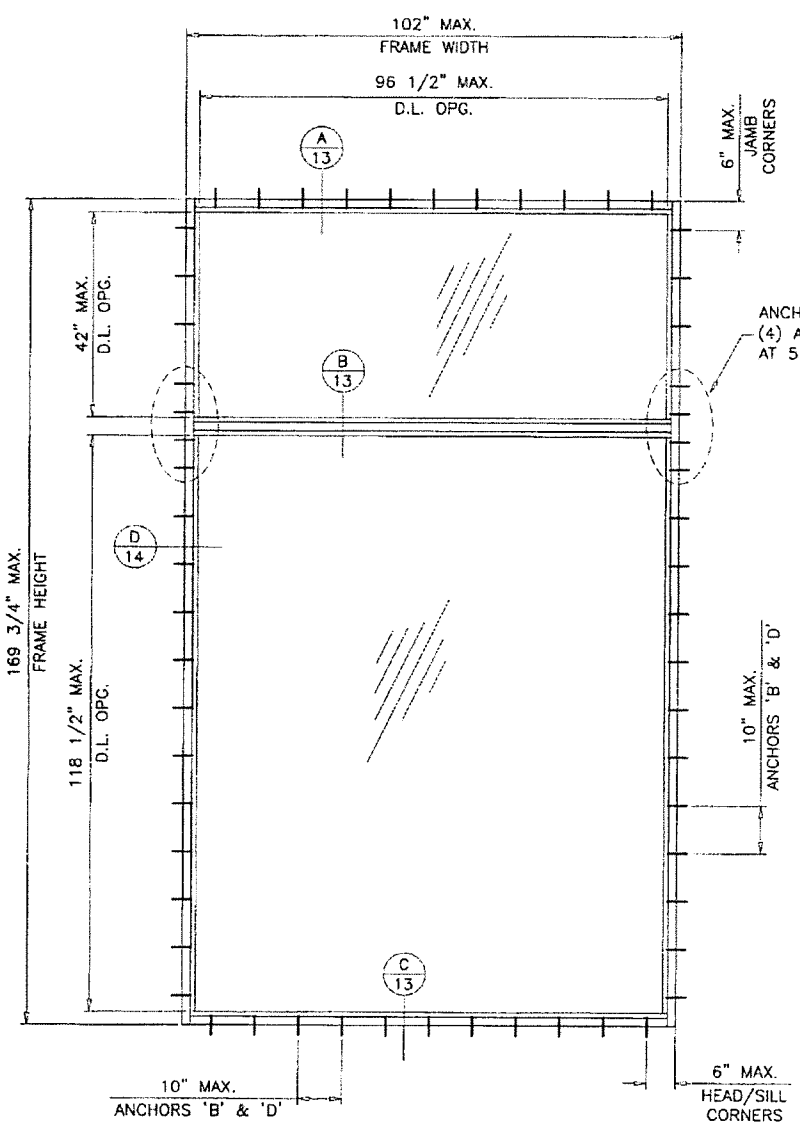
sheet 2 of 18



TYPICAL ELEVATION
SINGLE (O) PANEL

GLASS TYPE 'GL2'
 MAXIMUM DESIGN LOAD RATING = + 70.0 PSF
 - 70.0 PSF
 (FOR SINGLE UNITS SHOWN ABOVE OR SMALLER)

THESE FRAMES CAN BE USED AT ALL SUBSTRATES SHOWN
 ON SHEETS 13 AND 14.

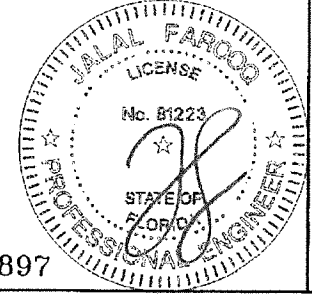


GLASS TYPES 'GL1' & 'GL2'
 MAXIMUM DESIGN LOAD RATING = + 70.0 PSF
 - 70.0 PSF
 (FOR SINGLE UNIT SHOWN ABOVE ONLY)

THESE FRAMES CAN BE USED AT ALL SUBSTRATES SHOWN
 ON SHEETS 13 AND 14.

Sealed: 2/13/2023

FL #17897



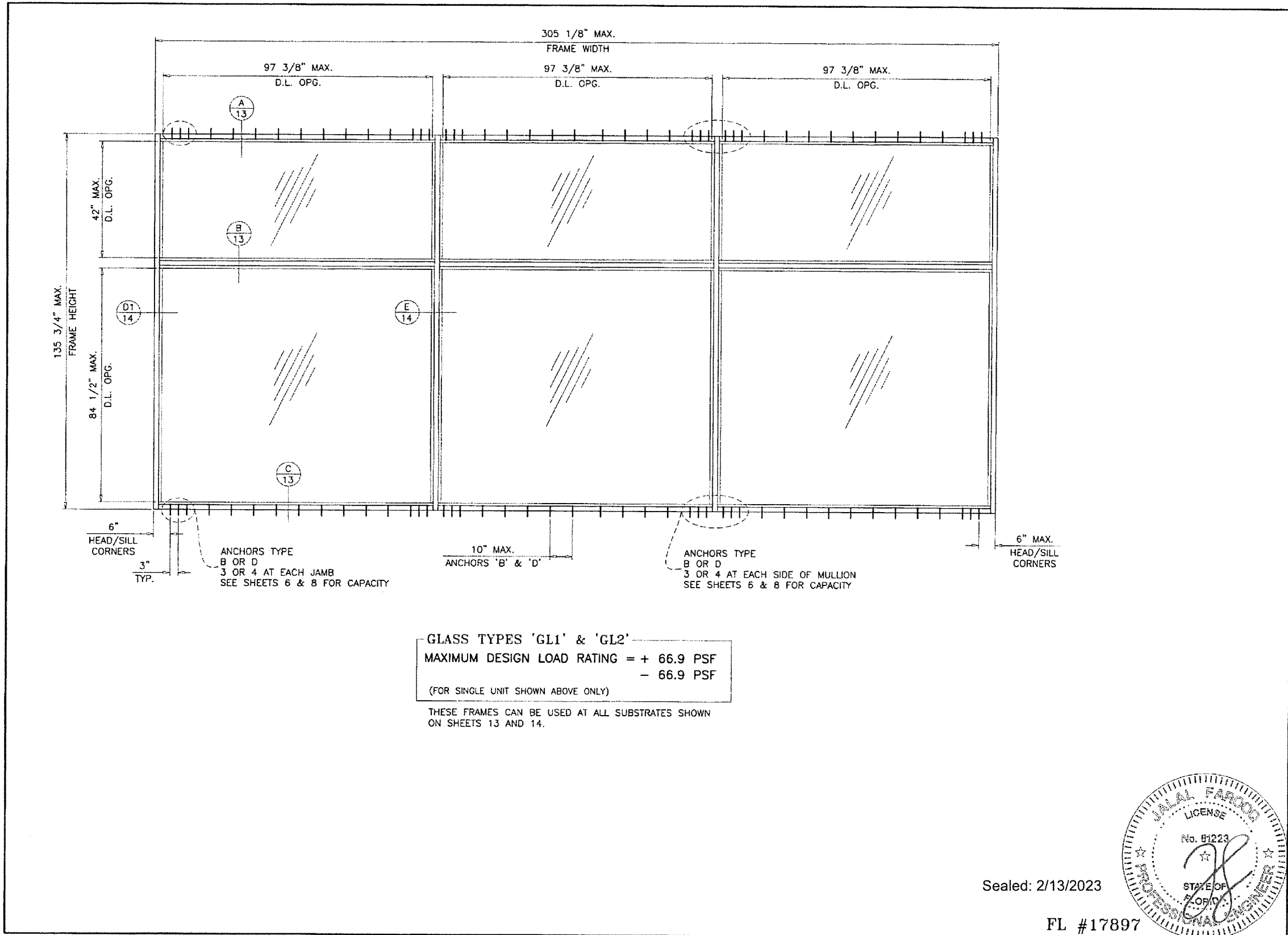
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 COMP-ANL 21-58FES

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| no. | date | by | description |
|-----|------|----|-------------|
| | | | |
| | | | |
| | | | |

date: 07-29-21
 scale: 3/8"=1'-0"
 dr. by: TARIQ
 chk. by:

drawing no.
21-58F
 sheet 3 of 18



a f c

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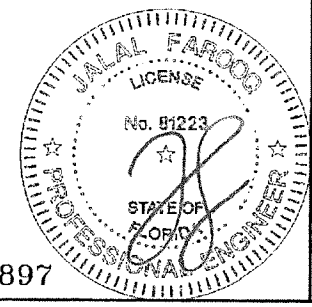
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date: 07-29-21
scale: 3/8"=1'-0"
dr. by: TARIQ
chk. by:

drawing no.
21-58F
sheet 3.1 of 18

Sealed: 2/13/2023

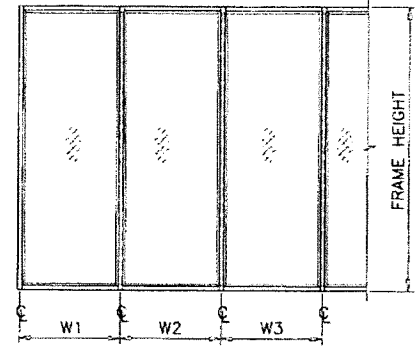
FL #17897



**DESIGN LOAD CAPACITY - PSF
JAMB/MULLION
WITHOUT INTERMEDIATE HORIZONTALS**

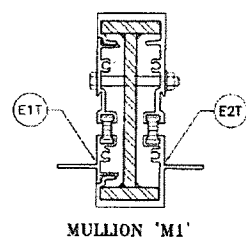
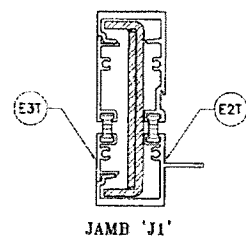
| NOMINAL DIMS. | | JAMB 'J1' | | MULLION 'M1' | |
|---------------|--------------|-----------|---------|--------------|---------|
| WIDTH (W) | FRAME HEIGHT | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) |
| 72" | 108" | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 108" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | 120" | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 108" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | 132" | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 102" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | 135-3/4" | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 70.0 |
| 101-1/8" | | 70.0 | 70.0 | 70.0 | 70.0 |

INTERPOLATION BETWEEN WIDTHS ALLOWED.



WIDTH (W) = W1
AT FRAME JAMB

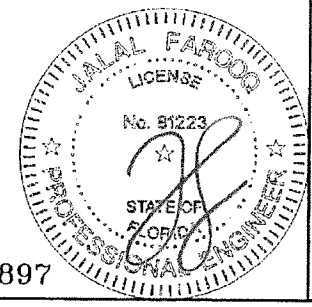
WIDTH (W) = $\frac{W2 + W3}{2}$
AT FRAME MULLION



| | Ix IN ⁴ | Sx IN ³ |
|---------------------------------|--------------------|--------------------|
| ALUMINUM | 6.7077 | 2.6264 |
| STEEL | 3.7533 | 1.6681 |
| TOTAL Ix ALUM + Ix STL X 2.9 | 17.4845 | |

| | Ix IN ⁴ | Sx IN ³ |
|---------------------------------|--------------------|--------------------|
| ALUMINUM | 6.8787 | 2.6933 |
| STEEL | 5.8308 | 2.5559 |
| TOTAL Ix ALUM + Ix STL X 2.9 | 23.6206 | |

MULLIONS



Sealed: 2/13/2023

FL #17897

a f 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-ANL21-58FES

ES-800T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

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

| revisions: | not date | by description |
|------------|----------|----------------|
| | | |
| | | |
| | | |

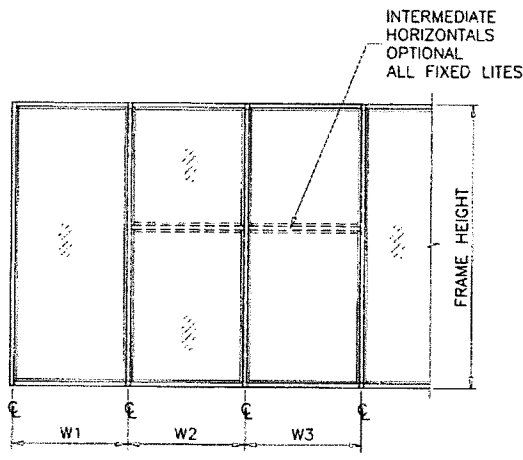
date: 07-29-21
scale: -
dr. by: TARIQ
chk. by: -

drawing no.
21-58F

sheet 4 of 18

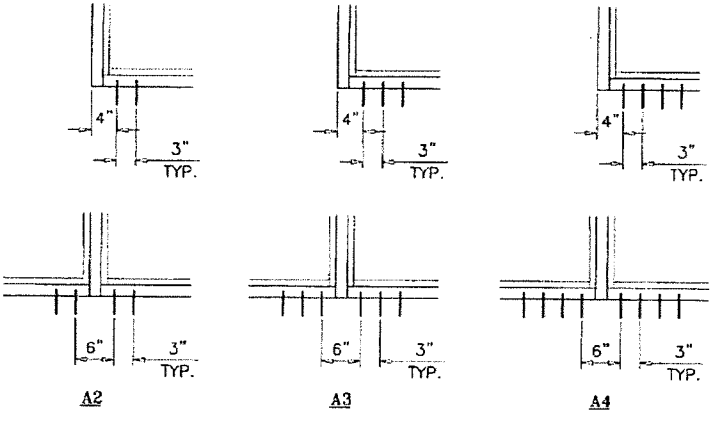
| ANCHOR LOAD CAPACITY - PSF EXT.(+) & INT.(-) | | | | | | | | | |
|---|------|------------------|------|------|----------------|------|------|-----------|------|
| NOMINAL DIMS. WIDTH (W) FRAME HEIGHT | | ANCHORS TYPE 'A' | | | | | | | |
| | | 1/4" MAX. SHIM | | | 3/8" MAX. SHIM | | | 1/2" SHIM | |
| | | A2 | A3 | A4 | A2 | A3 | A4 | A3 | A4 |
| 36" | 84" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 66.6 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 65.2 | 70.0 | 70.0 | 70.0 | 70.0 |
| 36" | 90" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 66.7 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 62.1 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 58.7 | 70.0 | 70.0 | 68.4 | 70.0 |
| 36" | 96" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 67.1 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 61.1 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 56.7 | 70.0 | 70.0 | 66.1 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 53.4 | 70.0 | 70.0 | 62.2 | 70.0 |
| 36" | 102" | 70.0 | 70.0 | 70.0 | 69.9 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 62.1 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 56.4 | 70.0 | 70.0 | 65.8 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 52.2 | 70.0 | 70.0 | 60.8 | 70.0 |
| 60" | | 69.6 | 70.0 | 70.0 | 48.9 | 70.0 | 70.0 | 57.0 | 70.0 |
| 36" | 108" | 70.0 | 70.0 | 70.0 | 65.2 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 57.8 | 70.0 | 70.0 | 67.4 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 52.4 | 70.0 | 70.0 | 61.1 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 48.3 | 70.0 | 70.0 | 56.3 | 70.0 |
| 60" | | 68.7 | 70.0 | 70.0 | 45.1 | 67.7 | 70.0 | 52.7 | 70.0 |
| 36" | 114" | 70.0 | 70.0 | 70.0 | 61.1 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 54.1 | 70.0 | 70.0 | 63.1 | 70.0 |
| 48" | | 69.6 | 70.0 | 70.0 | 48.9 | 70.0 | 70.0 | 57.0 | 70.0 |
| 54" | | 64.0 | 70.0 | 70.0 | 45.0 | 67.5 | 70.0 | 52.5 | 69.9 |
| 60" | | 59.7 | 70.0 | 70.0 | 41.9 | 62.9 | 70.0 | 48.9 | 65.2 |
| 36" | 120" | 70.0 | 70.0 | 70.0 | 57.5 | 70.0 | 70.0 | 67.1 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 50.8 | 70.0 | 70.0 | 59.3 | 70.0 |
| 48" | | 65.3 | 70.0 | 70.0 | 45.9 | 68.8 | 70.0 | 53.5 | 70.0 |
| 54" | | 59.9 | 70.0 | 70.0 | 42.1 | 63.1 | 70.0 | 49.1 | 65.4 |
| 60" | | 55.7 | 70.0 | 70.0 | 39.1 | 58.7 | 70.0 | 45.6 | 60.8 |

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



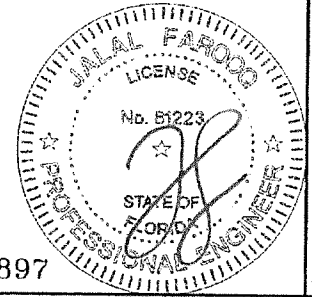
WIDTH (w) = W1
AT FRAME JAMB

WIDTH (w) = $\frac{W2 + W3}{2}$
AT FRAME MULLION



ANCHORS TYPES: SEE SHEET 13 FOR DESCRIPTION
A2 = (2) ANCHORS TYPE 'A' AT EACH SIDE OF JAMB AND MULLION
A3 = (3) ANCHORS TYPE 'A' AT EACH SIDE OF JAMB AND MULLION
A4 = (4) ANCHORS TYPE 'A' AT EACH SIDE OF JAMB AND MULLION

ANCHORS



Sealed: 2/13/2023

FL #17897

a f c

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3538)
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ES-BOODT (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

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

| | |
|------------|----------------|
| revisions: | by description |
| no | date |
| | |
| | |

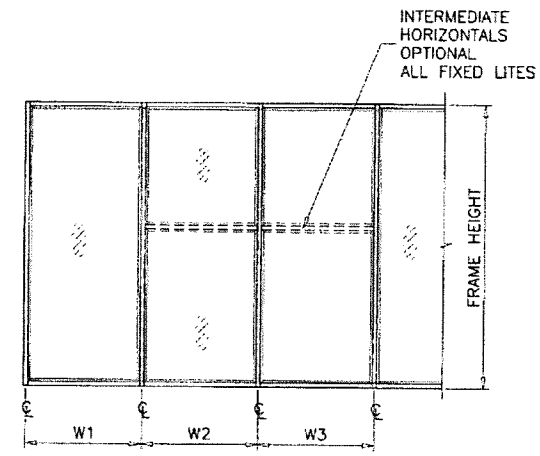
date: 07-29-21
scale: -
dr. by: TARIQ
chk. by:

drawing no.
21-58F
sheet 5 of 18

| ANCHOR LOAD CAPACITY - PSF EXT.(+) & INT.(-) | | | | | | | | | |
|---|--------------|------------------|------|------|----------------|------|------|-----------|------|
| NOMINAL DIMS. | | ANCHORS TYPE 'B' | | | | | | | |
| WIDTH (W) | FRAME HEIGHT | 1/4" MAX. SHIM | | | 3/8" MAX. SHIM | | | 1/2" SHIM | |
| | | B2 | B3 | B4 | B2 | B3 | B4 | B3 | B4 |
| 36" | 90" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 78" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 90" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 102" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| 108" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| 36" | 96" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | 70.0 | 70.0 | 70.0 | 69.6 | 70.0 | 70.0 | 70.0 | 70.0 |
| 78" | | 70.0 | 70.0 | 70.0 | 67.6 | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 66.3 | 70.0 | 70.0 | 70.0 | 70.0 |
| 90" | | 70.0 | 70.0 | 70.0 | 65.5 | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 65.3 | 70.0 | 70.0 | 70.0 | 70.0 |
| 102" | 70.0 | 70.0 | 70.0 | 65.3 | 70.0 | 70.0 | 70.0 | 70.0 | |
| 108" | 70.0 | 70.0 | 70.0 | 65.3 | 70.0 | 70.0 | 70.0 | 70.0 | |
| 36" | 102" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 69.6 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 66.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | 70.0 | 70.0 | 70.0 | 63.3 | 70.0 | 70.0 | 70.0 | 70.0 |
| 78" | | 70.0 | 70.0 | 70.0 | 61.2 | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 59.7 | 70.0 | 70.0 | 70.0 | 70.0 |
| 90" | | 70.0 | 70.0 | 70.0 | 58.6 | 70.0 | 70.0 | 69.4 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 58.0 | 70.0 | 70.0 | 68.7 | 70.0 |
| 102" | 70.0 | 70.0 | 70.0 | 57.8 | 70.0 | 70.0 | 68.4 | 70.0 | |
| 108" | 70.0 | 70.0 | 70.0 | 57.8 | 70.0 | 70.0 | 68.4 | 70.0 | |
| 36" | 108" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 68.7 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 64.2 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 60.7 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | 70.0 | 70.0 | 70.0 | 58.0 | 70.0 | 70.0 | 68.7 | 70.0 |
| 78" | | 70.0 | 70.0 | 70.0 | 55.9 | 70.0 | 70.0 | 66.1 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 54.2 | 70.0 | 70.0 | 64.2 | 70.0 |
| 90" | | 69.3 | 70.0 | 70.0 | 53.0 | 70.0 | 70.0 | 62.8 | 70.0 |
| 96" | | 68.2 | 70.0 | 70.0 | 52.2 | 70.0 | 70.0 | 61.8 | 70.0 |
| 102" | 67.6 | 70.0 | 70.0 | 51.7 | 70.0 | 70.0 | 61.2 | 70.0 | |
| 108" | 67.4 | 70.0 | 70.0 | 51.6 | 70.0 | 70.0 | 61.0 | 70.0 | |

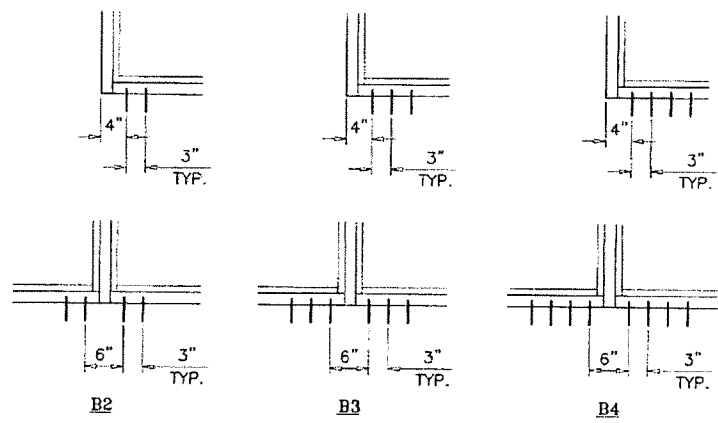
| ANCHOR LOAD CAPACITY - PSF EXT.(+) & INT.(-) | | | | | | | | | |
|---|--------------|------------------|------|------|----------------|------|------|-----------|------|
| NOMINAL DIMS. | | ANCHORS TYPE 'B' | | | | | | | |
| WIDTH (W) | FRAME HEIGHT | 1/4" MAX. SHIM | | | 3/8" MAX. SHIM | | | 1/2" SHIM | |
| | | B2 | B3 | B4 | B2 | B3 | B4 | B3 | B4 |
| 36" | 114" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 69.6 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 64.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 59.7 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 56.2 | 70.0 | 70.0 | 66.6 | 70.0 |
| 72" | | 69.9 | 70.0 | 70.0 | 53.5 | 70.0 | 70.0 | 63.4 | 70.0 |
| 78" | | 67.2 | 70.0 | 70.0 | 51.4 | 70.0 | 70.0 | 60.8 | 70.0 |
| 84" | | 65.0 | 70.0 | 70.0 | 49.7 | 70.0 | 70.0 | 58.9 | 70.0 |
| 90" | | 63.3 | 70.0 | 70.0 | 48.4 | 70.0 | 70.0 | 57.3 | 70.0 |
| 96" | | 62.0 | 70.0 | 70.0 | 47.5 | 70.0 | 70.0 | 56.2 | 70.0 |
| 102" | 61.1 | 70.0 | 70.0 | 46.8 | 70.0 | 70.0 | 55.4 | 70.0 | |
| 108" | 60.6 | 70.0 | 70.0 | 46.4 | 69.6 | 70.0 | 54.9 | 70.0 | |
| 36" | 120" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 65.3 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 59.9 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 55.7 | 70.0 | 70.0 | 65.9 | 70.0 |
| 66" | | 68.4 | 70.0 | 70.0 | 52.4 | 70.0 | 70.0 | 62.0 | 70.0 |
| 72" | | 65.0 | 70.0 | 70.0 | 49.7 | 70.0 | 70.0 | 58.9 | 70.0 |
| 78" | | 62.2 | 70.0 | 70.0 | 47.6 | 70.0 | 70.0 | 56.3 | 70.0 |
| 84" | | 60.0 | 70.0 | 70.0 | 45.9 | 68.8 | 70.0 | 54.3 | 70.0 |
| 90" | | 58.2 | 70.0 | 70.0 | 44.5 | 66.8 | 70.0 | 52.7 | 70.0 |
| 96" | | - | 70.0 | 70.0 | - | 65.3 | 70.0 | 51.5 | 68.7 |
| 102" | - | 70.0 | 70.0 | - | 64.1 | 70.0 | 50.6 | 67.4 | |
| 108" | - | 70.0 | 70.0 | - | 63.3 | 70.0 | 49.9 | 66.6 | |
| 36" | 132" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 64.5 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 58.0 | 70.0 | 70.0 | 68.7 | 70.0 |
| 54" | | 69.3 | 70.0 | 70.0 | 53.0 | 70.0 | 70.0 | 62.8 | 70.0 |
| 60" | | 64.2 | 70.0 | 70.0 | 49.1 | 70.0 | 70.0 | 58.2 | 70.0 |
| 66" | | 60.1 | 70.0 | 70.0 | 46.0 | 69.0 | 70.0 | 54.5 | 70.0 |
| 72" | | - | 70.0 | 70.0 | - | 65.3 | 70.0 | 51.5 | 68.7 |
| 78" | | - | 70.0 | 70.0 | - | 62.2 | 70.0 | 49.1 | 65.4 |
| 84" | | - | 70.0 | 70.0 | - | 59.7 | 70.0 | 47.1 | 62.8 |
| 90" | | - | 70.0 | 70.0 | - | 57.6 | 70.0 | 45.5 | 60.6 |
| 96" | | - | 70.0 | 70.0 | - | 55.9 | 70.0 | 44.1 | 58.9 |
| 102" | - | 70.0 | 70.0 | - | 54.6 | 70.0 | 43.1 | 57.4 | |
| 36" | 135-3/4" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 62.4 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 56.1 | 70.0 | 70.0 | 66.4 | 70.0 |
| 54" | | 66.9 | 70.0 | 70.0 | 51.2 | 70.0 | 70.0 | 60.6 | 70.0 |
| 60" | | 61.9 | 70.0 | 70.0 | 47.4 | 70.0 | 70.0 | 56.1 | 70.0 |
| 66" | | 57.9 | 70.0 | 70.0 | 44.3 | 66.5 | 70.0 | 52.5 | 70.0 |
| 72" | | - | 70.0 | 70.0 | - | 62.8 | 70.0 | 49.6 | 66.1 |
| 78" | | - | 70.0 | 70.0 | - | 59.8 | 70.0 | 47.2 | 62.9 |
| 84" | | - | 70.0 | 70.0 | - | 57.3 | 70.0 | 45.2 | 60.3 |
| 90" | | - | 70.0 | 70.0 | - | 55.2 | 70.0 | 43.6 | 58.1 |
| 96" | | - | 69.9 | 70.0 | - | 53.5 | 70.0 | 42.3 | 56.3 |
| 101-1/8" | - | 68.4 | 70.0 | - | 52.4 | 69.8 | 41.3 | 55.1 | |

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



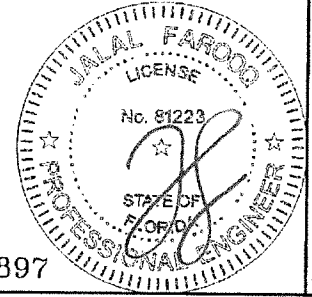
WIDTH (W) = W1
AT FRAME JAMB

WIDTH (W) = $\frac{W2 + W3}{2}$
AT FRAME MULLION



ANCHORS TYPES: SEE SHEET 13 FOR DESCRIPTION

B2 = (2) ANCHORS TYPE 'B' AT EACH SIDE OF JAMB AND MULLION
 B3 = (3) ANCHORS TYPE 'B' AT EACH SIDE OF JAMB AND MULLION
 B4 = (4) ANCHORS TYPE 'B' AT EACH SIDE OF JAMB AND MULLION



Sealed: 2/13/2023

ANCHORS

FL #17897

a f c

AL-FAROOQ CORPORATION
 ENGINEERS & PRODUCT DEVELOPMENT
 9360 SUNSET DRIVE, SUITE 220
 MIAMI, FLORIDA 33173
 TEL. (305) 264-8100 FAX. (305) 262-6978
 COMP-ANL 21-58FES

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

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

revisions: no. date by description

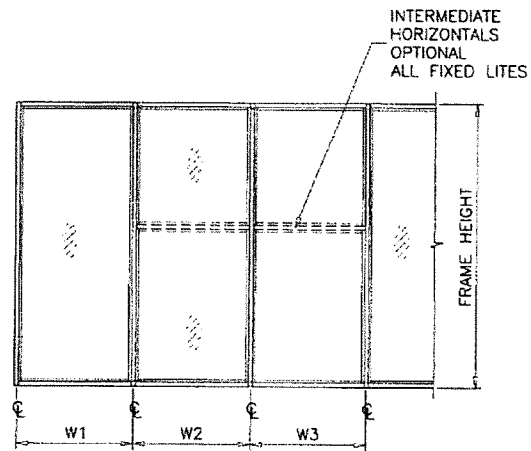
date: 07-29-21 scale: dr. by: IARJO chk. by:

drawing no. **21-58F**

sheet 6 of 18

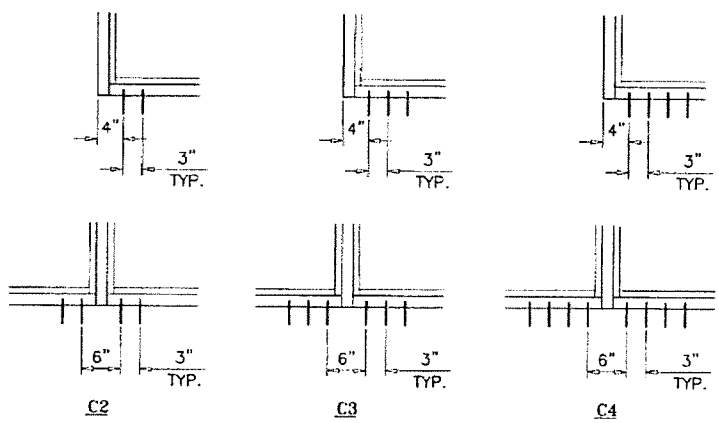
| ANCHOR LOAD CAPACITY - PSF EXT.(+) & INT.(-) | | | | | | | | | |
|---|------|------------------|------|----------------|------|-----------|------|------|------|
| NOMINAL DIMS. WIDTH (W) FRAME HEIGHT | | ANCHORS TYPE 'C' | | | | | | | |
| | | 1/4" MAX. SHIM | | 3/8" MAX. SHIM | | 1/2" SHIM | | | |
| | | C2 | C3 | C4 | C2 | C3 | C4 | C3 | C4 |
| 36" | 84" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 69.6 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 66.1 | 70.0 | 70.0 | 70.0 | 70.0 |
| 36" | 90" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 67.6 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 63.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 59.5 | 70.0 | 70.0 | 70.0 | 70.0 |
| 36" | 96" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 68.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 62.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 57.5 | 70.0 | 70.0 | 68.2 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 54.1 | 70.0 | 70.0 | 64.1 | 70.0 |
| 36" | 102" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 63.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 57.2 | 70.0 | 70.0 | 67.8 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 52.9 | 70.0 | 70.0 | 62.7 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 49.6 | 70.0 | 70.0 | 58.8 | 70.0 |
| 36" | 108" | 70.0 | 70.0 | 70.0 | 66.1 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 58.6 | 70.0 | 70.0 | 69.5 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 53.1 | 70.0 | 70.0 | 63.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 49.0 | 70.0 | 70.0 | 58.1 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 45.8 | 68.7 | 70.0 | 54.3 | 70.0 |
| 36" | 114" | 70.0 | 70.0 | 70.0 | 62.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 54.9 | 70.0 | 70.0 | 65.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 49.6 | 70.0 | 70.0 | 58.8 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 45.6 | 68.4 | 70.0 | 54.1 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 42.5 | 63.8 | 70.0 | 50.4 | 67.2 |
| 36" | 120" | 70.0 | 70.0 | 70.0 | 58.4 | 70.0 | 70.0 | 69.2 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 51.5 | 70.0 | 70.0 | 61.1 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 46.5 | 69.8 | 70.0 | 55.1 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 42.7 | 64.0 | 70.0 | 50.6 | 67.4 |
| 60" | | 70.0 | 70.0 | 70.0 | 39.7 | 59.5 | 70.0 | 47.0 | 62.7 |

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



WIDTH (W) = W1
AT FRAME JAMB

WIDTH (W) = $\frac{W2 + W3}{2}$
AT FRAME MULLION

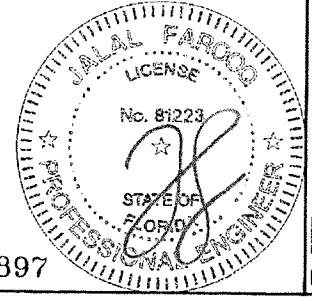


ANCHORS TYPES: SEE SHEET 13 FOR DESCRIPTION
 C2 = (2) ANCHORS TYPE 'C' AT EACH SIDE OF JAMB AND MULLION
 C3 = (3) ANCHORS TYPE 'C' AT EACH SIDE OF JAMB AND MULLION
 C4 = (4) ANCHORS TYPE 'C' AT EACH SIDE OF JAMB AND MULLION

ANCHORS

Sealed: 2/13/2023

FL #17897



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-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)
E.S. WINDOWS, LLC
 3550 N.W. 49 STREET
 MIAMI, FL. 33142
 TEL. (305) 638-5151 FAX. (305) 638-5158

| no. | date | by | description |
|-----|------|----|-------------|
| | | | |
| | | | |
| | | | |

| | | | |
|----------------|----------|---------------|----------|
| date: 07-29-21 | scale: - | dr. by: TARIQ | chk. by: |
|----------------|----------|---------------|----------|

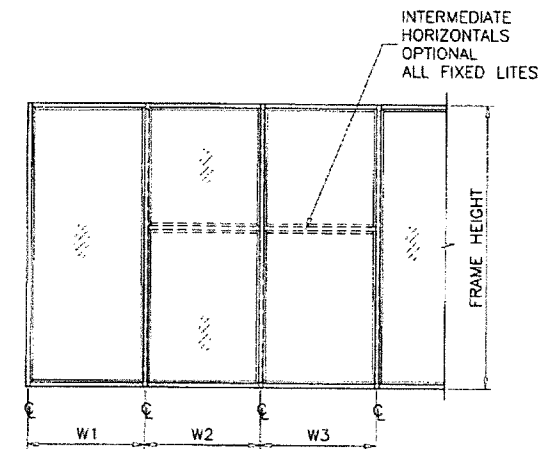
drawing no.
21-58F
sheet 7 of 18

COMP-ANL21-58FES

| ANCHOR LOAD CAPACITY - PSF EXT.(+) & INT.(-) | | | | | | | | | |
|---|--------------|------------------|------|------|----------------|------|------|-----------|------|
| NOMINAL DIMS. | | ANCHORS TYPE 'D' | | | | | | | |
| WIDTH (W) | FRAME HEIGHT | 1/4" MAX. SHIM | | | 3/8" MAX. SHIM | | | 1/2" SHIM | |
| | | D2 | D3 | D4 | D2 | D3 | D4 | D3 | D4 |
| 36" | 90" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 78" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 90" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 102" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 108" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| 36" | 96" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 78" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 90" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 102" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 108" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| 36" | 102" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 78" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 90" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 102" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 108" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| 36" | 108" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 78" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 90" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 102" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 108" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |

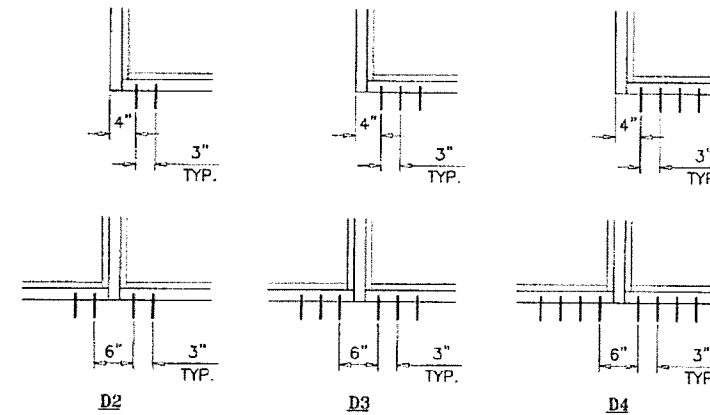
| ANCHOR LOAD CAPACITY - PSF EXT.(+) & INT.(-) | | | | | | | | | |
|---|--------------|------------------|------|------|----------------|------|------|-----------|------|
| NOMINAL DIMS. | | ANCHORS TYPE 'D' | | | | | | | |
| WIDTH (W) | FRAME HEIGHT | 1/4" MAX. SHIM | | | 3/8" MAX. SHIM | | | 1/2" SHIM | |
| | | D2 | D3 | D4 | D2 | D3 | D4 | D3 | D4 |
| 36" | 114" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 78" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 69.3 | 70.0 | 70.0 | 70.0 | 70.0 |
| 90" | | 70.0 | 70.0 | 70.0 | 67.5 | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | 70.0 | 70.0 | 70.0 | 66.2 | 70.0 | 70.0 | 70.0 | 70.0 |
| 102" | | 70.0 | 70.0 | 70.0 | 65.3 | 70.0 | 70.0 | 70.0 | 70.0 |
| 108" | 70.0 | 70.0 | 70.0 | 64.7 | 70.0 | 70.0 | 70.0 | 70.0 | |
| 36" | 120" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 78" | | 70.0 | 70.0 | 70.0 | 66.4 | 70.0 | 70.0 | 70.0 | 70.0 |
| 84" | | 70.0 | 70.0 | 70.0 | 64.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 90" | | 70.0 | 70.0 | 70.0 | 62.1 | 70.0 | 70.0 | 70.0 | 70.0 |
| 96" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 70.0 | 70.0 |
| 102" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 70.0 | 70.0 |
| 108" | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 70.0 | 70.0 | |
| 36" | 132" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 68.5 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 64.2 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 70.0 | 70.0 |
| 78" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 68.8 | 70.0 |
| 84" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 66.1 | 70.0 |
| 90" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 63.8 | 70.0 |
| 96" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 61.9 | 70.0 |
| 102" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 60.4 | 70.0 |
| 36" | 135-3/4" | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54" | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60" | | 70.0 | 70.0 | 70.0 | 66.1 | 70.0 | 70.0 | 70.0 | 70.0 |
| 66" | | 70.0 | 70.0 | 70.0 | 61.8 | 70.0 | 70.0 | 70.0 | 70.0 |
| 72" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 69.5 | 70.0 |
| 78" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 66.2 | 70.0 |
| 84" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 63.4 | 70.0 |
| 90" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 61.1 | 70.0 |
| 96" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 59.3 | 70.0 |
| 101-1/8" | | - | 70.0 | 70.0 | - | 70.0 | 70.0 | 58.0 | 70.0 |

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



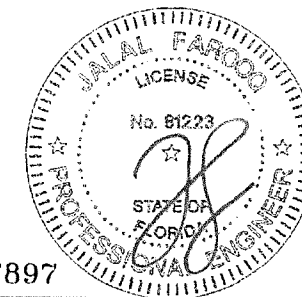
WIDTH (W) = W1
AT FRAME JAMB

WIDTH (W) = $\frac{W2 + W3}{2}$
AT FRAME MULLION



ANCHORS TYPES: SEE SHEET 13 FOR DESCRIPTION

- D2 = (2) ANCHORS TYPE 'D' AT EACH SIDE OF JAMB AND MULLION
- D3 = (3) ANCHORS TYPE 'D' AT EACH SIDE OF JAMB AND MULLION
- D4 = (4) ANCHORS TYPE 'D' AT EACH SIDE OF JAMB AND MULLION



Sealed: 2/13/2023

ANCHORS

FL #17897

AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
MIAMI, FLORIDA 33173 (C.A.N. 3538)
TEL. (305) 264-8100 FAX. (305) 262-8978
COMP-ANL21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

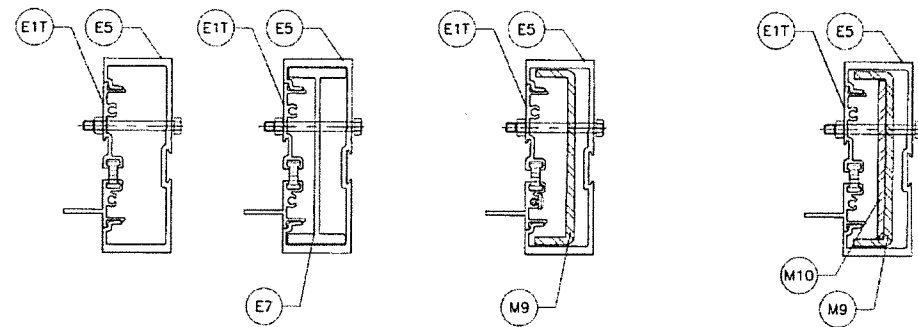
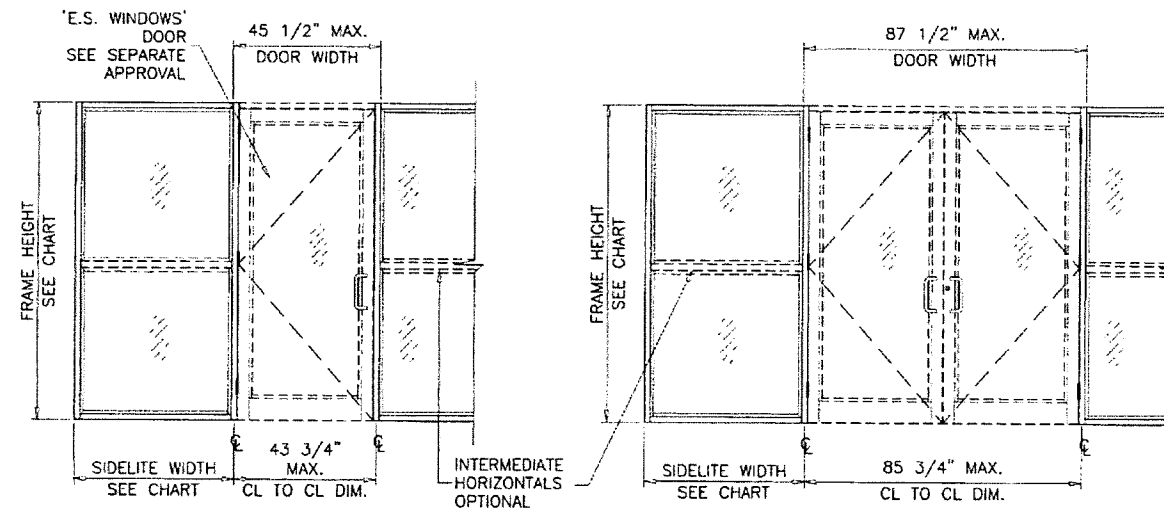
| revisions: | date | description |
|------------|------|-------------|
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|----------------|----------|---------------|----------|
| date: 07-29-21 | scale: - | dr. by: TARIO | chk. by: |
|----------------|----------|---------------|----------|

drawing no.
21-58F
sheet 8 of 18

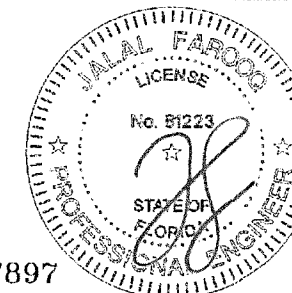
| DOOR MULLION LOAD CAPACITY-PSF | | | | | | | | | | | |
|--------------------------------|---------------------|------------|---------|------------|---------|------------|---------|------------|---------|------------|---------|
| SIDELITE WIDTH INCHES | FRAME HEIGHT INCHES | MULL 'MD1' | | MULL 'MD2' | | MULL 'MD3' | | MULL 'MD4' | | MULL 'MD5' | |
| | | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) |
| 32 | 86-1/2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 36 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 60 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 32 | 98-1/2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 36 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 32 | 110-1/2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 36 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48 | | 66.1 | 66.1 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 32 | | 120 | - | - | - | - | - | - | - | - | 70.0 |
| 36 | - | | - | - | - | - | - | - | - | 70.0 | 70.0 |
| 42 | - | | - | - | - | - | - | - | - | 70.0 | 70.0 |
| 48 | - | | - | - | - | - | - | - | - | 70.0 | 70.0 |

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



| MULLION 'MD1' | | MULLION 'MD2' | | MULLION 'MD3' | | MULLION 'MD4' | | | |
|--------------------|--------------------|--------------------|--------------------|------------------------|--------------------|--------------------|------------------------|---------|--------|
| Ix IN ⁴ | Sx IN ³ | Ix IN ⁴ | Sx IN ³ | Ix IN ⁴ | Sx IN ³ | Ix IN ⁴ | Sx IN ³ | | |
| 6.7517 | 2.6954 | 10.8394 | 4.4985 | ALUMINUM | 6.7517 | 2.6954 | ALUMINUM | 6.7517 | 2.6954 |
| | | | | STEEL | 2.7506 | 1.2225 | STEEL | 3.7533 | 1.6681 |
| | | | | TOTAL | 14.6495 | | TOTAL | 17.5285 | |
| | | | | Ix ALUM + Ix STL X 2.9 | | | Ix ALUM + Ix STL X 2.9 | | |

DOOR-WINDOW WALL
TRANSITION MULLION



Sealed: 2/13/2023

FL #17897



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

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)
E.S. WINDOWS, LLC
3550 N.W. 49 STREET
MIAMI, FL. 33142
TEL. (305) 638-5151 FAX. (305) 638-5158

| no. | date | description |
|-----|------|-------------|
| | | |
| | | |

date: 07-29-21
scale: -
dr. by: TARIQ
chk. by:

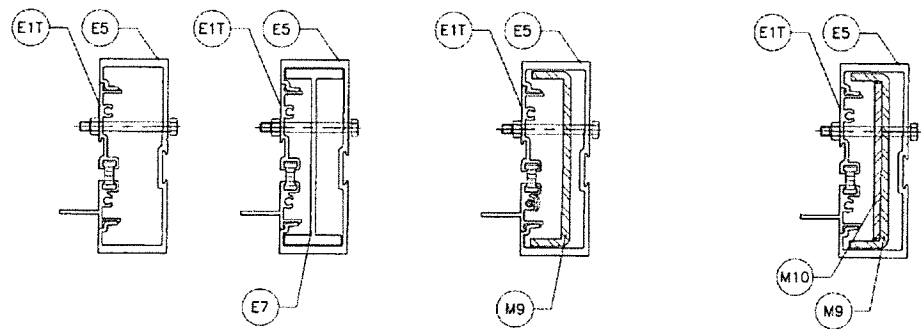
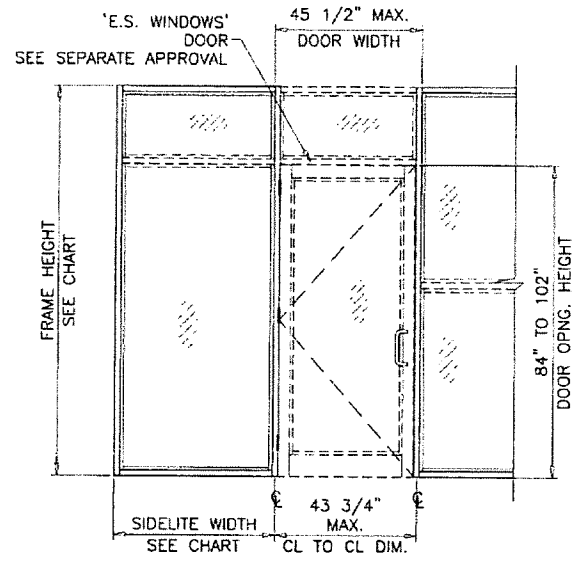
drawing no.
21-58F

sheet 9 of 18

COMP-ANI.21-58FES

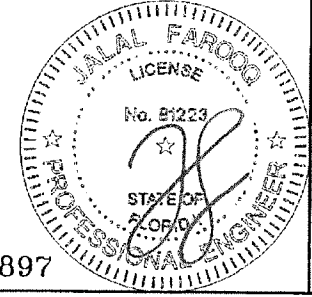
| DOOR MULLION LOAD CAPACITY-PSF | | | | | | | | | | | |
|--------------------------------|---------------------|------------|---------|------------|---------|------------|---------|------------|---------|------------|---------|
| SIDELITE WIDTH INCHES | FRAME HEIGHT INCHES | MULL 'MD1' | | MULL 'MD2' | | MULL 'MD3' | | MULL 'MD4' | | MULL 'MD5' | |
| | | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) |
| 32 | 98-1/2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 36 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 54 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 32 | 110-1/2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 36 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42 | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48 | | 66.1 | 66.1 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 32 | 114 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 36 | | 69.1 | 69.1 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42 | | 64.3 | 64.3 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48 | | 60.2 | 60.2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 32 | 120 | 62.3 | 62.3 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 36 | | 59.2 | 59.2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 42 | | 55.2 | 55.2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 48 | | 51.6 | 51.6 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.




| MULLION 'MD1' | | MULLION 'MD2' | | MULLION 'MD3' | | MULLION 'MD4' | |
|------------------------|--------------------|------------------------|--------------------|------------------------|--------------------|------------------------|--------------------|
| Ix IN ⁴ | Sx IN ³ | Ix IN ⁴ | Sx IN ³ | Ix IN ⁴ | Sx IN ³ | Ix IN ⁴ | Sx IN ³ |
| 6.7517 | 2.6954 | 10.8394 | 4.4985 | 6.7517 | 2.6954 | 6.7517 | 2.6954 |
| | | | | 2.7506 | 1.2225 | 3.7533 | 1.6681 |
| ALUMINUM | | ALUMINUM | | ALUMINUM | | ALUMINUM | |
| STEEL | | STEEL | | STEEL | | STEEL | |
| TOTAL | | TOTAL | | TOTAL | | TOTAL | |
| Ix ALUM + Ix STL X 2.9 | | Ix ALUM + Ix STL X 2.9 | | Ix ALUM + Ix STL X 2.9 | | Ix ALUM + Ix STL X 2.9 | |
| 14.6495 | | 14.6495 | | 14.6495 | | 17.5285 | |

DOOR-WINDOW WALL
TRANSITION MULLION



Sealed: 2/13/2023

FL #17897



AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
9360 SUNSET DRIVE, SUITE 220
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COMP-ANL21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)
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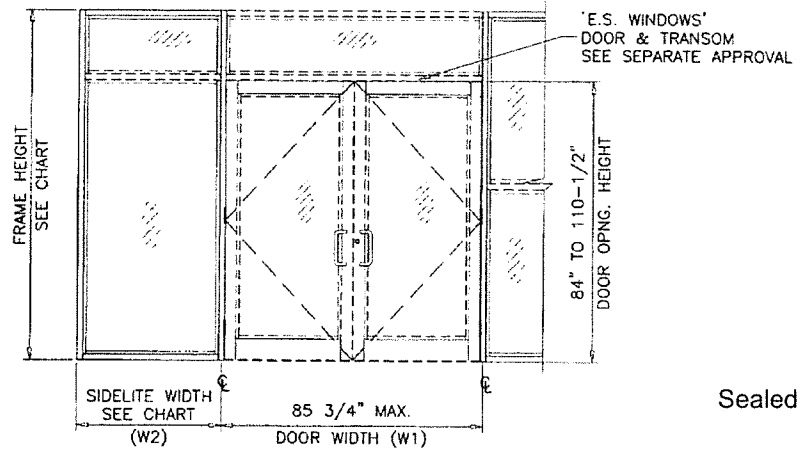
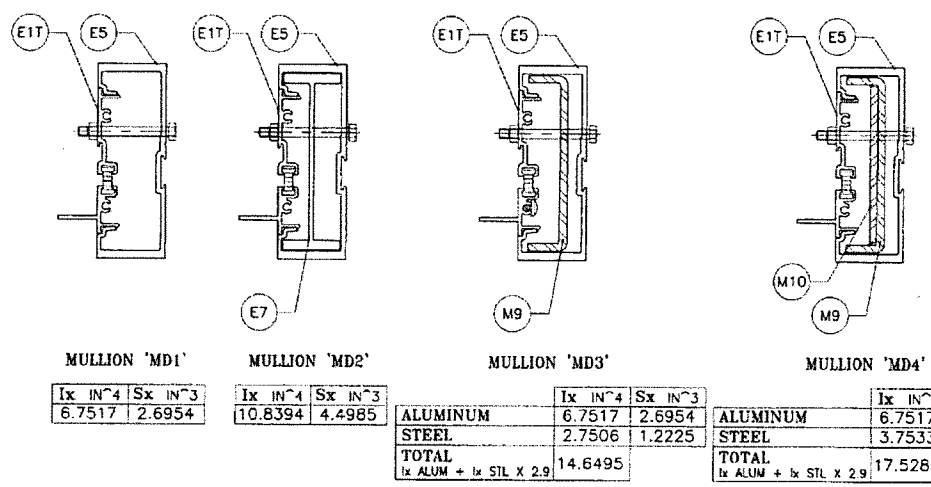
| revisions: | not | date | by | description |
|------------|-----|------|----|-------------|
| | | | | |

| | | | |
|----------------|----------|---------------|----------|
| date: 07-29-21 | scale: - | dr. by: TARIO | chk. by: |
| drawing no. | | | |
| 21-58F | | | |
| sheet 10 of 18 | | | |

| DOOR MULLION LOAD CAPACITY - PSF | | | | | | | | | | | | | | |
|----------------------------------|----------------------|------------------------|-----------------------|------------|---------|------------|---------|------------|---------|------------|---------|------------|---------|------|
| NOMINAL DIMS. | | | | MULL 'MD1' | | MULL 'MD2' | | MULL 'MD3' | | MULL 'MD4' | | MULL 'MD5' | | |
| WIDTH (W1) INCHES | WIDTH (W2) INCHES | FRAME HEIGHT INCHES | DOOR HEIGHT INCHES | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | |
| 85-3/4 | 30 | 96 | 84 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 36 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| | 42 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| | 48 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| | 54 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| | 60 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| | 30 | 102 | 84 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 36 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 42 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 48 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 54 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 60 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 30 | 106 | 84 | 69.5 | 69.5 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 36 | | | 65.4 | 65.4 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 42 | | | 61.7 | 61.7 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 48 | | | 60.2 | 60.2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| 54 | 56.6 | | | 56.6 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 60 | 53.3 | | | 53.3 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 30 | 114 | 84 | 50.5 | 50.5 | 70.0 | 70.0 | 69.9 | 69.9 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 36 | | | 49.7 | 49.7 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 42 | | | 46.8 | 46.8 | 70.0 | 70.0 | 68.1 | 68.1 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 48 | | | 44.2 | 44.2 | 70.0 | 70.0 | 64.8 | 64.8 | 70.0 | 70.0 | 68.2 | 68.2 | | |
| 54 | | | 41.9 | 41.9 | 67.5 | 67.5 | 61.7 | 61.7 | 70.0 | 70.0 | 65.0 | 65.0 | | |
| 60 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 30 | 120 | 84 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 36 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 42 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 48 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 54 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 60 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 30 | 102 | 90 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 36 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 42 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 48 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 54 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 60 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 30 | 108 | 90 | 69.3 | 69.3 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 36 | | | 65.2 | 65.2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 42 | | | 63.9 | 63.9 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 48 | | | 59.9 | 59.9 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 54 | | | 56.3 | 56.3 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 60 | | | 53.1 | 53.1 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 30 | 114 | 90 | 52.4 | 52.4 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 36 | | | 49.2 | 49.2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 42 | | | 46.3 | 46.3 | 70.0 | 70.0 | 66.9 | 66.9 | 70.0 | 70.0 | 69.9 | 69.9 | | |
| 48 | | | 43.8 | 43.8 | 70.0 | 70.0 | 63.6 | 63.6 | 70.0 | 70.0 | 66.5 | 66.5 | | |
| 54 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 60 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 30 | 120 | 90 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 36 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 42 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 48 | | | 68.8 | 68.8 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 54 | | | 68.2 | 68.2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 60 | | | 63.5 | 63.5 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 30 | 108 | 96 | 59.5 | 59.5 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 36 | | | 56.0 | 56.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 42 | | | 55.5 | 55.5 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 48 | | | 51.9 | 51.9 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 54 | | | 48.8 | 48.8 | 70.0 | 70.0 | 69.7 | 69.7 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 60 | | | 46.0 | 46.0 | 70.0 | 70.0 | 66.2 | 66.2 | 70.0 | 70.0 | 68.6 | 68.6 | | |

| DOOR MULLION LOAD CAPACITY - PSF | | | | | | | | | | | | | | |
|----------------------------------|----------------------|------------------------|-----------------------|------------|---------|------------|---------|------------|---------|------------|---------|------------|---------|------|
| NOMINAL DIMS. | | | | MULL 'MD1' | | MULL 'MD2' | | MULL 'MD3' | | MULL 'MD4' | | MULL 'MD5' | | |
| WIDTH (W1) INCHES | WIDTH (W2) INCHES | FRAME HEIGHT INCHES | DOOR HEIGHT INCHES | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | EXT.(+) | INT.(-) | |
| 85-3/4 | 30 | 114 | 102 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | |
| | 36 | | | 67.2 | 67.2 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| | 42 | | | 62.7 | 62.7 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| | 48 | | | 58.8 | 58.8 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| | 54 | | | 59.0 | 59.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| | 60 | | | 55.0 | 55.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| 30 | 120 | 102 | 51.5 | 51.5 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 36 | | | 48.4 | 48.4 | 70.0 | 70.0 | 69.4 | 69.4 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 42 | | | 63.7 | 63.7 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 48 | | | 59.0 | 59.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 54 | | | 55.0 | 55.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 60 | | | 51.5 | 51.5 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 30 | 120 | 110-1/2 | 63.7 | 63.7 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 36 | | | 59.0 | 59.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 42 | | | 55.0 | 55.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 48 | | | 51.5 | 51.5 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 54 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| 60 | | | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 | | |

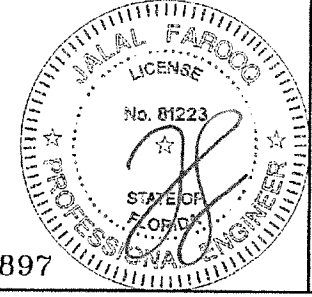
INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



Sealed: 2/13/2023

FL #17897

DOOR-WINDOW WALL
TRANSITION MULLION



a f c
AL-FAROOQ CORPORATION
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 9360 SUNSET DRIVE, SUITE 220
 MIAMI, FLORIDA 33179
 TEL. (305) 264-8100 FAX (305) 262-6978
 COMP-ANL21-58FES

ES-800T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)
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 3550 N.W. 49 STREET
 MIAMI, FL. 33142
 TEL. (305) 638-5151 FAX. (305) 638-5158

| revisions: | no | date | description |
|------------|----|------|-------------|
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| | | | |

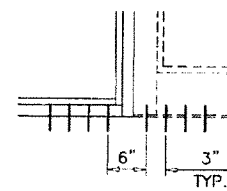
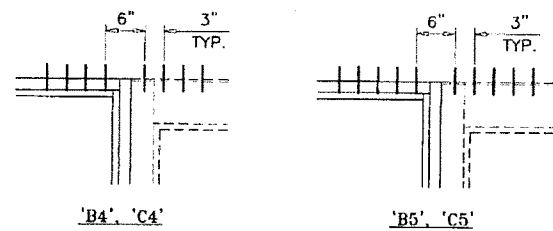
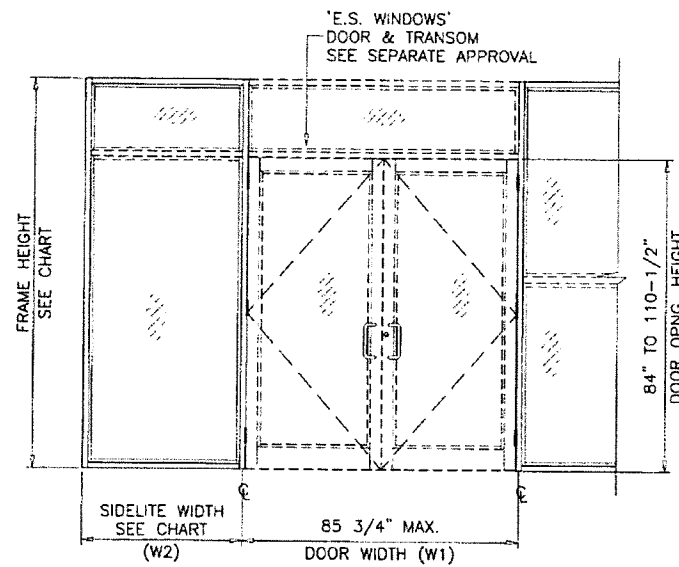
date: 07-29-21
 scale: -
 dr. by: TARIO
 chk. by: -

drawing no.
21-58F
 sheet 11 of 18

| DOOR MULLION HEAD ANCHOR LOAD CAPACITY - PSF | | | | | | | |
|--|----------------------|------------------------|-----------------------|--------------------|--------------------|--------------------|--------------------|
| NOMINAL DIMS. | | | | 'B4'/'C4' | | 'B5'/'C5' | |
| WIDTH (W1) INCHES | WIDTH (W2) INCHES | FRAME HEIGHT INCHES | DOOR HEIGHT INCHES | EXT.(+) INT.(-) | EXT.(+) INT.(-) | EXT.(+) INT.(-) | EXT.(+) INT.(-) |
| 85-3/4 | 30 | 96 | 84 | 70.0 | 70.0 | 70.0 | 70.0 |
| | 36 | | | 70.0 | 70.0 | | |
| | 42 | | | 70.0 | 70.0 | | |
| | 48 | | | 70.0 | 70.0 | | |
| | 54 | | | 70.0 | 70.0 | | |
| | 60 | | | 70.0 | 70.0 | | |
| | 30 | 102 | | 70.0 | 70.0 | | |
| | 36 | | | 70.0 | 70.0 | | |
| | 42 | | | 70.0 | 70.0 | | |
| | 48 | | | 70.0 | 70.0 | | |
| | 54 | 108 | | 70.0 | 70.0 | | |
| | 30 | | | 70.0 | 70.0 | | |
| | 36 | | 70.0 | 70.0 | | | |
| | 42 | | 70.0 | 70.0 | | | |
| | 48 | 114 | 70.0 | 70.0 | | | |
| | 30 | | 70.0 | 70.0 | | | |
| 36 | 70.0 | | 70.0 | | | | |
| 42 | 70.0 | | 70.0 | | | | |
| 48 | 120 | 70.0 | 70.0 | | | | |
| 30 | | 70.0 | 70.0 | | | | |
| 36 | | 70.0 | 70.0 | | | | |
| 42 | | 70.0 | 70.0 | | | | |
| 48 | 120 | 70.0 | 70.0 | | | | |
| 30 | | 68.9 | 70.0 | | | | |
| 36 | | 65.4 | 70.0 | | | | |
| 42 | | 65.4 | 70.0 | | | | |
| 48 | 120 | 70.0 | 70.0 | | | | |
| 30 | | 70.0 | 70.0 | | | | |
| 36 | | 70.0 | 70.0 | | | | |
| 42 | | 70.0 | 70.0 | | | | |
| 48 | 120 | 70.0 | 70.0 | | | | |
| 30 | | 69.1 | 70.0 | | | | |
| 36 | | 69.4 | 70.0 | | | | |
| 42 | | 69.4 | 70.0 | | | | |
| 48 | 114 | 70.0 | 70.0 | | | | |
| 30 | | 70.0 | 70.0 | | | | |
| 36 | | 70.0 | 70.0 | | | | |
| 42 | | 70.0 | 70.0 | | | | |
| 48 | 120 | 70.0 | 70.0 | | | | |
| 30 | | 66.8 | 70.0 | | | | |
| 36 | | 70.0 | 70.0 | | | | |
| 42 | | 70.0 | 70.0 | | | | |
| 48 | 120 | 70.0 | 70.0 | | | | |
| 30 | | 67.6 | 70.0 | | | | |
| 36 | | 64.3 | 70.0 | | | | |
| 42 | | 64.3 | 70.0 | | | | |

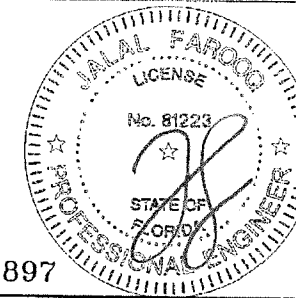
| DOOR MULLION HEAD ANCHOR LOAD CAPACITY - PSF | | | | | | | | | |
|--|----------------------|------------------------|-----------------------|--------------------|--------------------|--------------------|--------------------|------|------|
| NOMINAL DIMS. | | | | 'B4'/'C4' | | 'B5'/'C5' | | | |
| WIDTH (W1) INCHES | WIDTH (W2) INCHES | FRAME HEIGHT INCHES | DOOR HEIGHT INCHES | EXT.(+) INT.(-) | EXT.(+) INT.(-) | EXT.(+) INT.(-) | EXT.(+) INT.(-) | | |
| 85-3/4 | 30 | 108 | 96 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| | 36 | | | 70.0 | 70.0 | | | | |
| | 42 | | | 70.0 | 70.0 | | | | |
| | 48 | | | 68.1 | 70.0 | | | | |
| | 30 | | | 114 | 70.0 | 70.0 | | | |
| | 36 | | | | 70.0 | 70.0 | | | |
| | 42 | 68.8 | | | 70.0 | | | | |
| | 48 | 65.6 | | | 70.0 | | | | |
| | 30 | 120 | | 70.0 | 70.0 | | | | |
| | 36 | | | 69.9 | 70.0 | | | | |
| | 42 | | | 66.4 | 70.0 | | | | |
| | 48 | | | 63.2 | 70.0 | | | | |
| 85-3/4 | 30 | 114 | 102 | 70.0 | 70.0 | 70.0 | 70.0 | | |
| | 36 | | | 70.0 | 70.0 | | | | |
| | 42 | | | 70.0 | 70.0 | | | | |
| | 48 | | | 67.6 | 70.0 | | | | |
| | 30 | | | 120 | 70.0 | 70.0 | | | |
| | 36 | | | | 68.6 | 70.0 | | | |
| | 42 | 65.2 | | | 70.0 | | | | |
| | 48 | 62.1 | | | 70.0 | | | | |
| | 85-3/4 | 30 | | 120 | 110-1/2 | 70.0 | 70.0 | 70.0 | 70.0 |
| | | 36 | | | | 66.8 | 70.0 | | |
| | | 42 | | | | 63.6 | 70.0 | | |
| | | 48 | | | | 60.7 | 70.0 | | |

INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.



ANCHORS TYPES: SEE SHEET 8 FOR DESCRIPTION
 B4 = (4) ANCHORS TYPE 'B' AT EACH SIDE OF DOOR MULLION
 B5 = (5) ANCHORS TYPE 'B' AT EACH SIDE OF DOOR MULLION
 C4 = (4) ANCHORS TYPE 'C' AT EACH SIDE OF DOOR MULLION
 C5 = (5) ANCHORS TYPE 'C' AT EACH SIDE OF DOOR MULLION
 ALL OTHER ANCHORS TO BE SPACED AS PER ELEVATION.
 SHIM SPACE FOR ANCHORS TYPE 'C' LIMITED TO 1/4\"/>

TRANSITION MULLION ANCHORS



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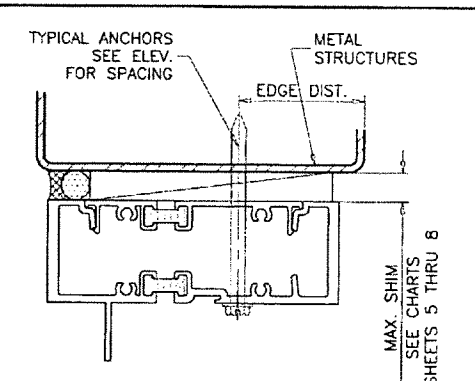
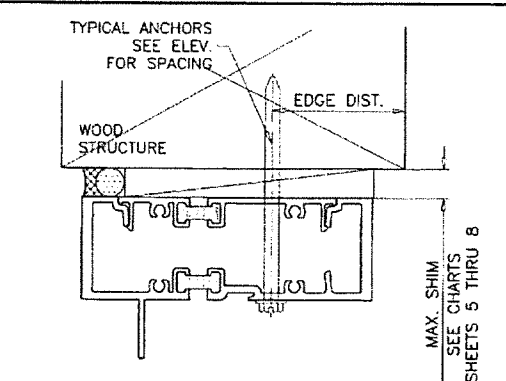
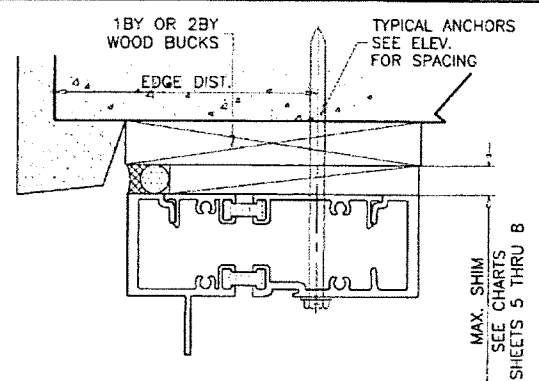
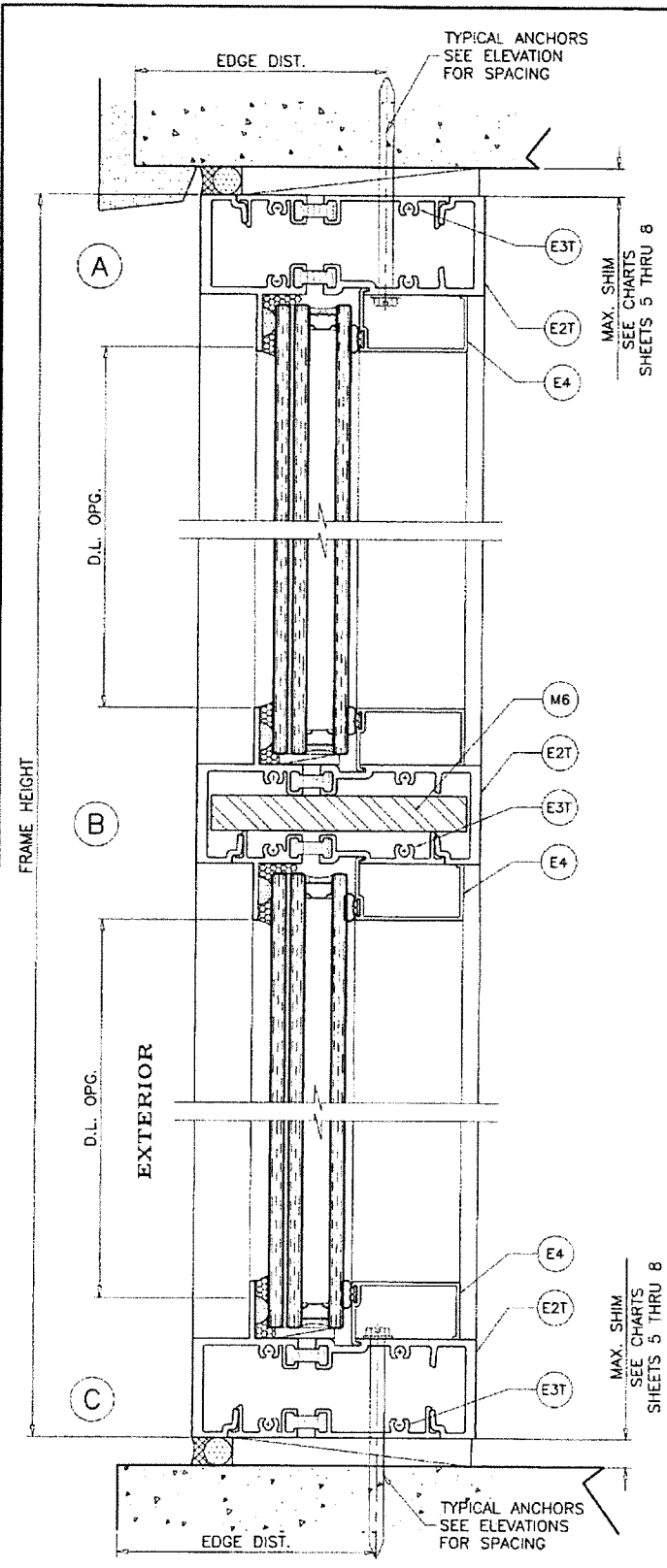
FL #17897

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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 21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)
E.S. WINDOWS, LLC
 3550 N.W. 49 STREET
 MIAMI, FL. 33142
 TEL. (305) 638-5151 FAX. (305) 638-5156

| no. | date | by | description |
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date: 07-29-21
 scale: -
 dr. by: TARIQ
 chk. by:
 drawing no.
21-58F
 sheet 12 of 18)



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

TYPICAL ANCHORS: SEE ELEV. FOR SPACING

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

ANCHOR EDGE DISTANCES
 INTO CONCRETE AND MASONRY = 2-1/2" MIN.
 INTO WOOD STRUCTURE = 1" MIN.

TYPE 'B' - 5/16" DIA. ULTRACON BY 'DEWALT' (Fu=177 KSI, Fy=155 KSI)
 INTO WOOD STRUCTURES
 2" MIN. PENETRATION INTO WOOD (HEAD/SILL/JAMBS)
 THRU 1BY OR 2BY BUCKS INTO CONC. OR BLOCKS
 1-1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL/JAMBS)
 1-1/4" MIN. EMBED INTO BLOCKS (JAMBS)
 DIRECTLY INTO CONC. OR BLOCKS
 2" MIN. EMBED INTO CONCRETE (HEAD/SILL/JAMBS)
 2" MIN. EMBED INTO FILLED BLOCKS (JAMBS)

ANCHOR EDGE DISTANCES
 INTO CONCRETE AND MASONRY = 2-1/2" MIN.
 INTO WOOD STRUCTURE = 1-1/4" MIN.

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

TYPE 'C' - 1/4" DIA. TEKS OR SELF DRILLING SCREWS (GRADE 5 CRS)
 INTO F.B.C. APPROVED MULLIONS
 OR
 INTO METAL STRUCTURES (HEAD/SILL/JAMBS)
 (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 METAL STRUCTURE = 1/2" MIN.

TYPE 'D' - 5/16" DIA. TEKS OR SELF DRILLING SCREWS (GRADE 5 CRS)
 INTO F.B.C. APPROVED MULLIONS
 OR
 INTO METAL STRUCTURES (HEAD/SILL/JAMBS)
 (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)

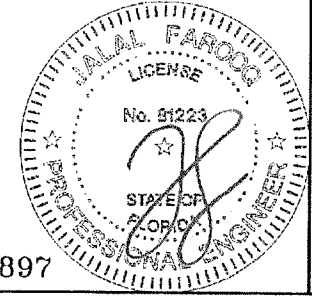
ANCHOR EDGE DISTANCES
 INTO METAL STRUCTURE = 1/2" MIN.

SEALANTS:

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

Sealed: 2/13/2023

FL #17897



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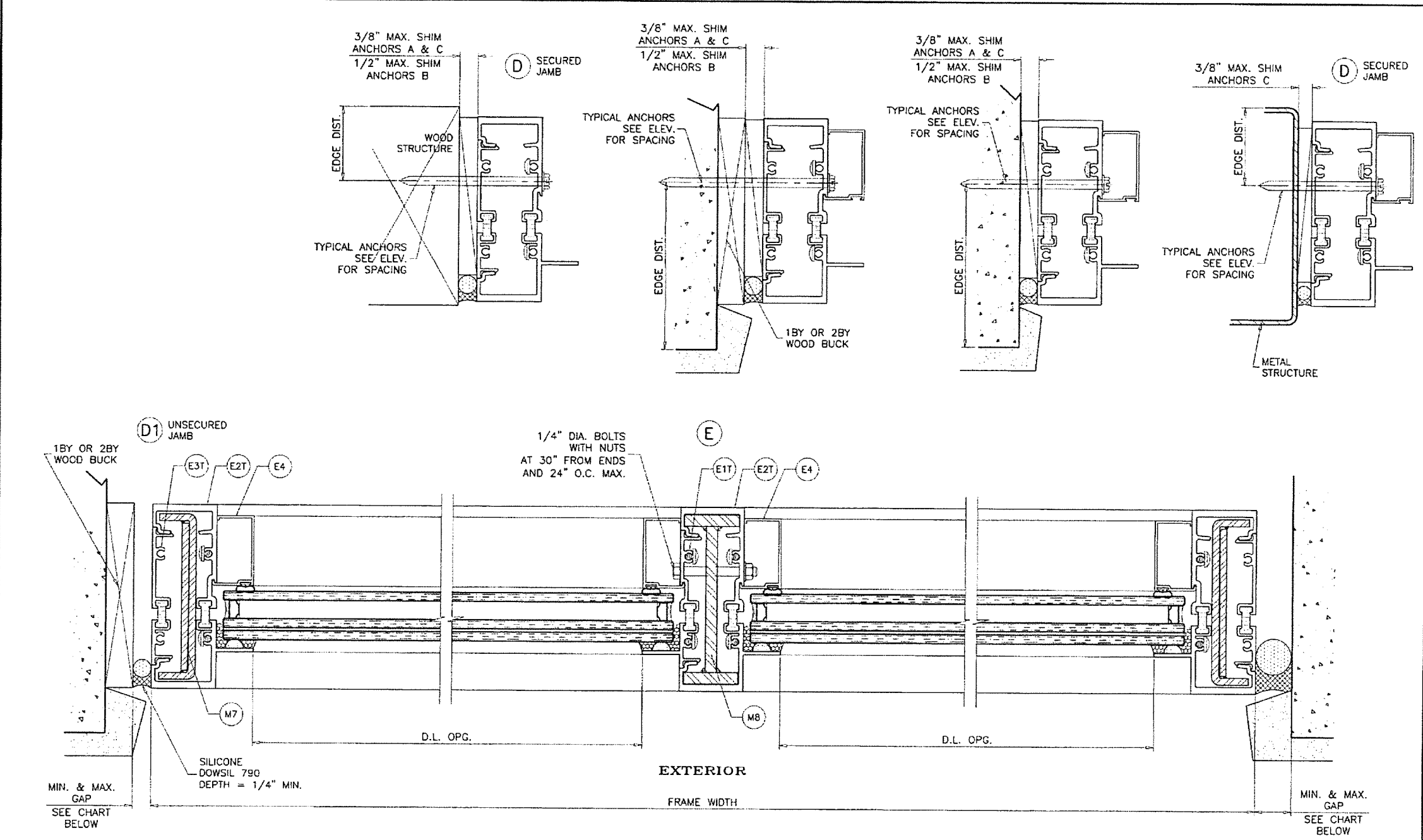
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ES-800T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)

| revisions: | no | date | by | description |
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 chk. by:

drawing no. 21-58F
 sheet 13 of 18

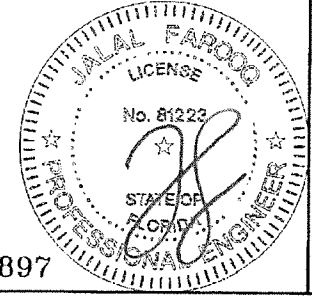


| MAX. GAPS FOR UNANCHORED JAMBS | | |
|--------------------------------|---------|------|
| MAX. FRAME HEIGHT | JAMB J1 | |
| | MIN. | MAX. |
| 96" | 1/4" | 1" |
| 102" | 1/4" | 1" |
| 108" | 3/8" | 1" |
| 120" | 3/8" | 1" |
| 132" | 3/8" | 1" |
| 135-3/4" | 3/8" | 1" |

NOTE:
 MAX. MOVEMENT CONSIDERED=100% STRETCH.
 PLEASE REFER TO SEALANT MANUFACTURER'S DATA AND APPLICATION MANUAL FOR COMPATIBILITY OF SEALANT TO SUBSTRATE & WINDOW WALL MATERIAL/FINISH AND COMPLIANCE FOR WARRANTY.
 REFER TO ACI-117-10 FOR CONSTRUCTION TOLERANCES.
 ALTERNATE SEALANTS AT JAMB GAPS CAN BE DESIGNED BY ENGINEER OF RECORD BASED ON MANUFACTURER GUIDE LINES.
 GAPS LESS THAN 1/4" MAY BE DESIGNED BY ENGINEER OF RECORD BY THE USE OF BOND BREAKER TAPE OR 15% OF GAP ALLOWED MOVEMENT.

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FL #17897



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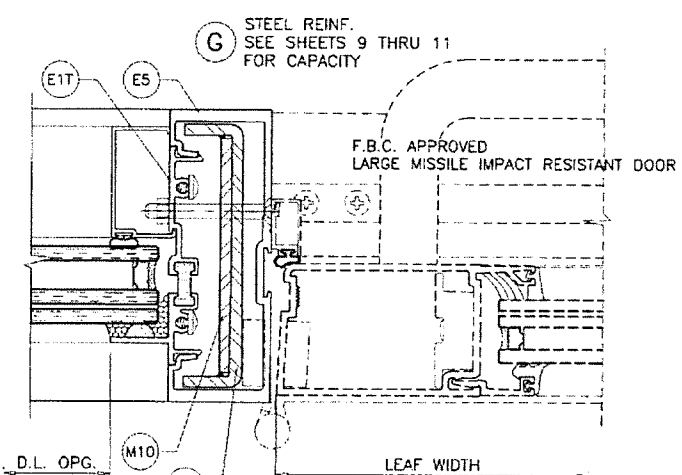
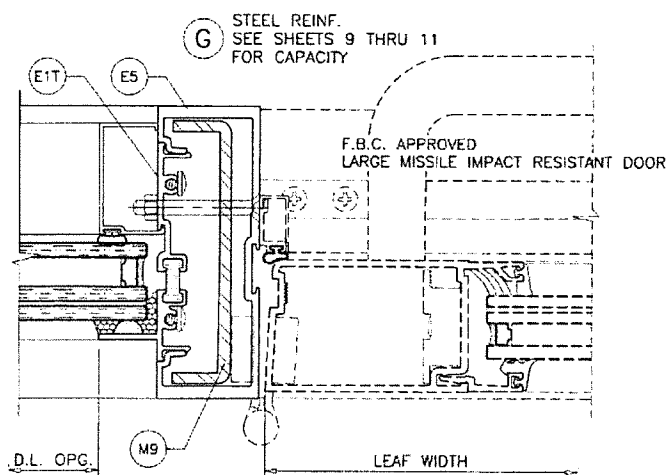
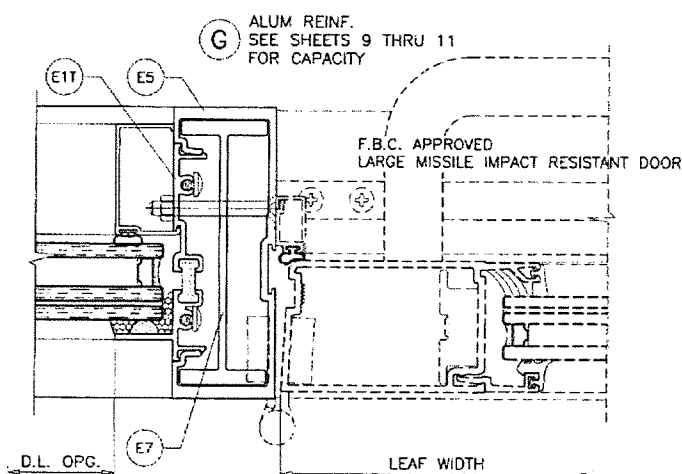
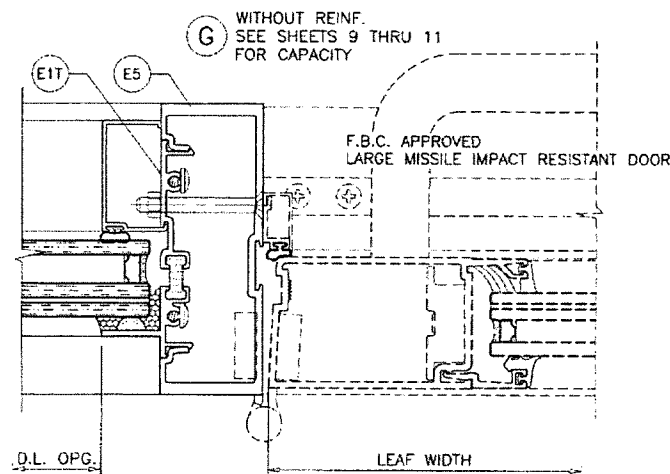
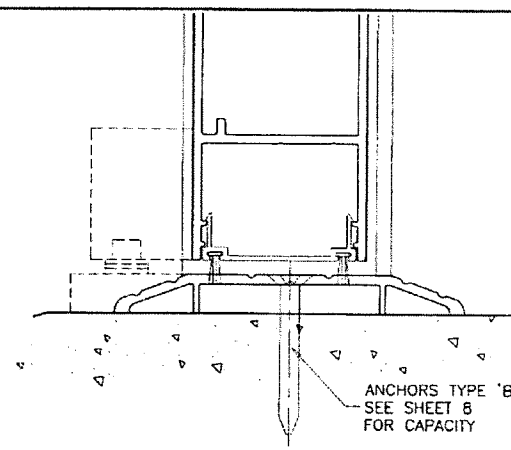
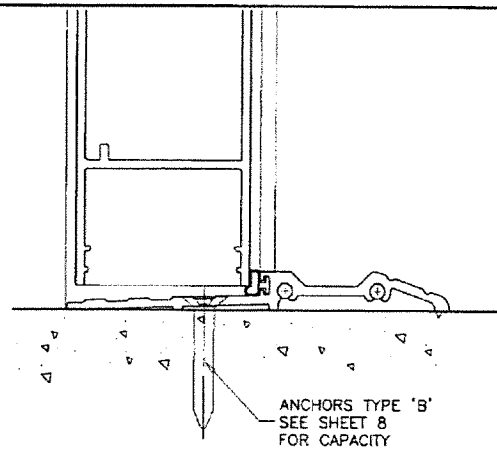
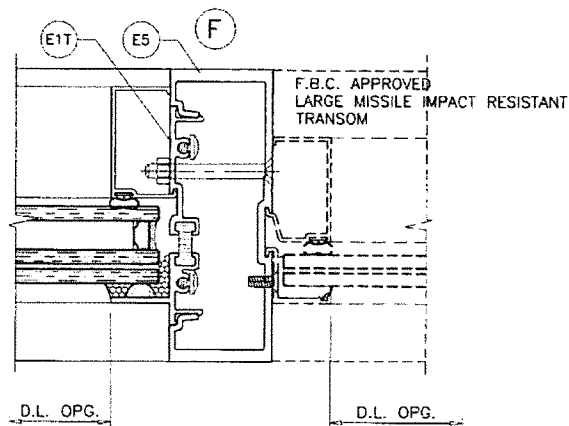
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 ENGINEERS & PRODUCT DEVELOPMENT
 9360 SUNSET DRIVE, SUITE 220 (C.A.N. 3538)
 MIAMI, FLORIDA 33173 TEL. (305) 264-8100 FAX. (305) 262-6978
 COMP-ANI 21-58FES

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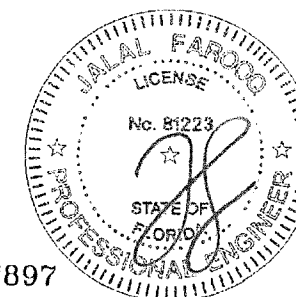
drawing no.
21-58F
 sheet 14 of 18



SEE SEPARATE APPROVAL FOR DESIGN LOAD CAPACITY OF DOORS AND DOOR ANCHORS. LOWER VALUES FROM DOORS APPROVAL OR STOREFRONT SYSTEM CAPACITY CHARTS WILL APPLY TO ENTIRE SYSTEM.

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FL #17897



AL-FAROOQ CORPORATION
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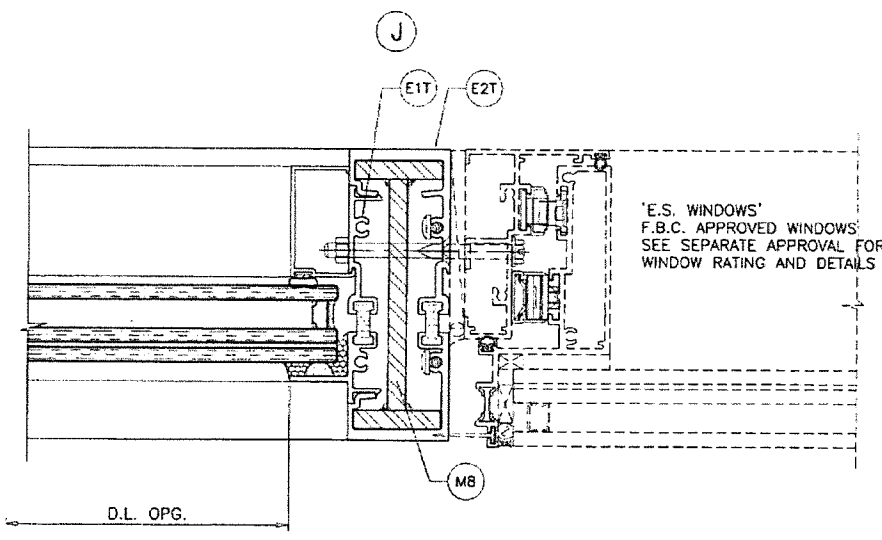
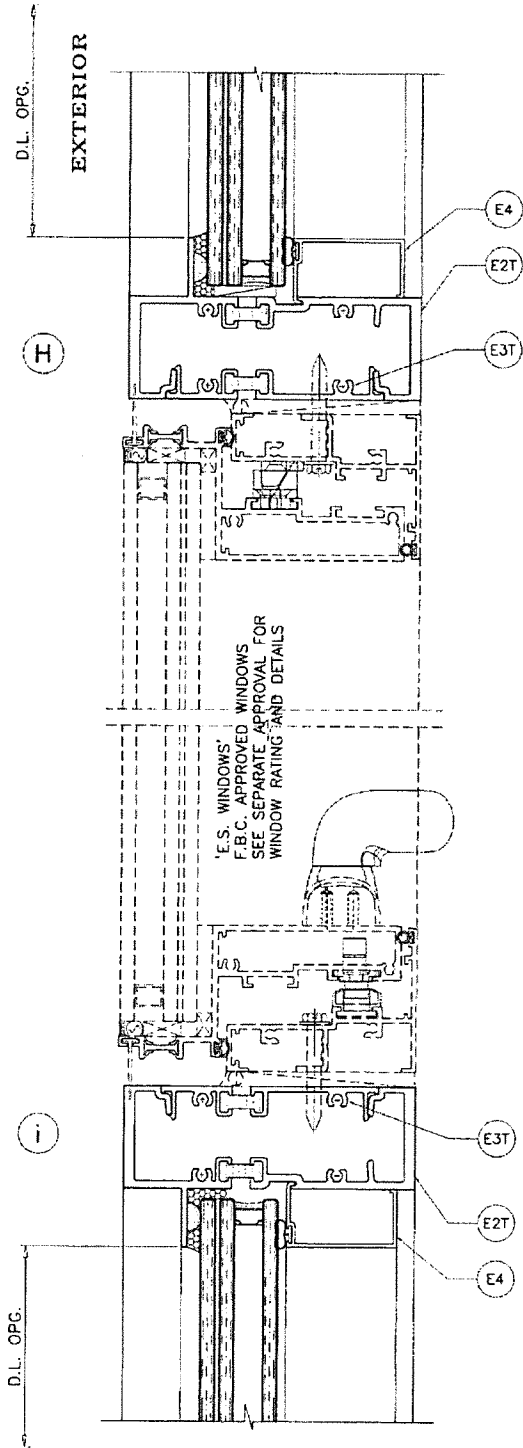
ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)
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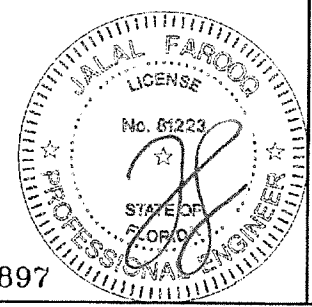
drawing no.
21-58F
 sheet 15 of 18

COMP-ANL 21-58FES



Sealed: 2/13/2023

FL #17897

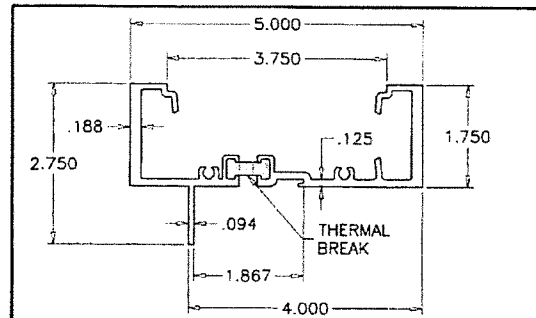


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AL-FAROOQ CORPORATION
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 COMP-ANL 21-58FES

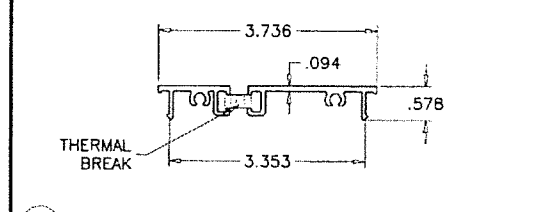
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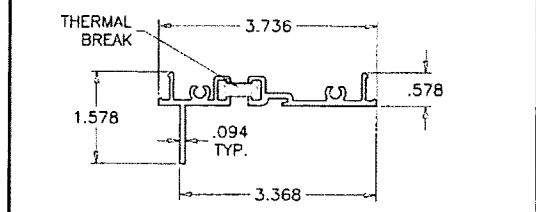
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21-58F
 sheet 16 of 18



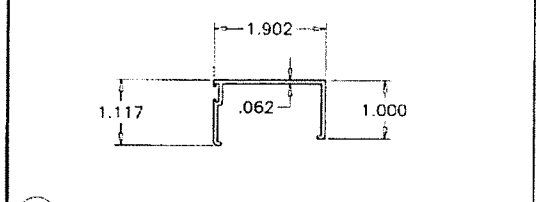
E2T WINDOW WALL FRAME



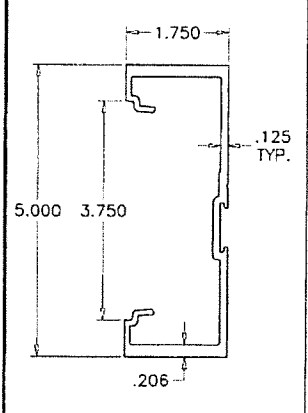
E3T SHEAR CLIP



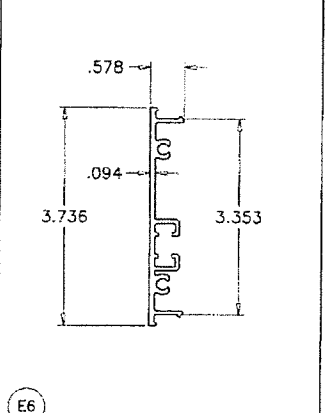
E1T INTERMEDIATE SNAP



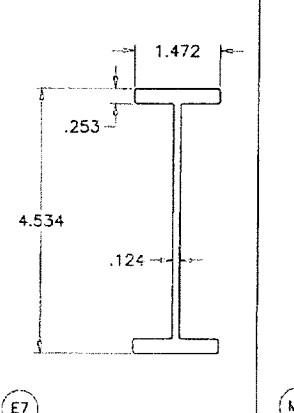
E4 GLAZING BEAD



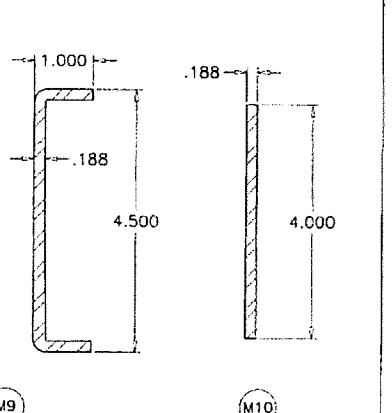
E5 DOOR MULLION



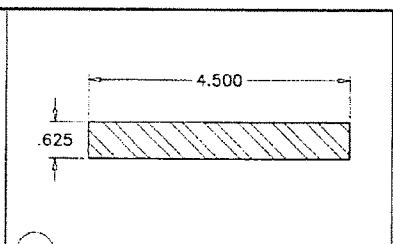
E6 DOOR MULL SNAP-IN PLATE



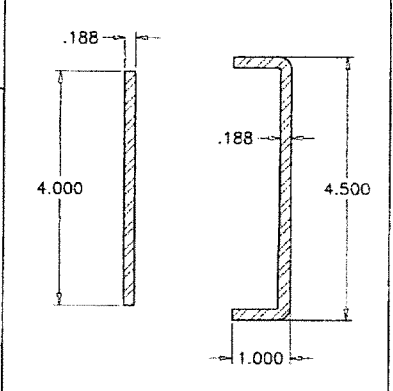
E7 DOOR MULL STIFFENER



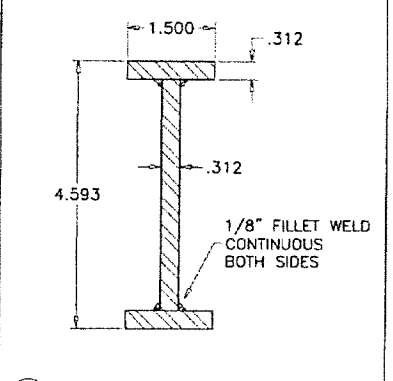
M9 DOOR MULL STEEL REINF.



M6 HORIZONTAL REINF.



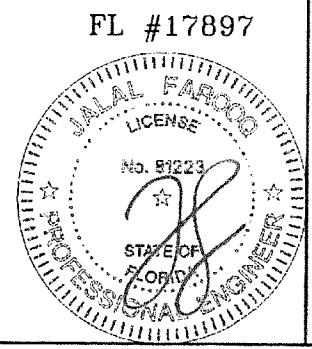
M7 JAMB REINF.



M8 MULLION REINF.

| ITEM # | PART # | REQ'D | DESCRIPTION | MATERIAL | MANF./SUPPLIER/REMARKS |
|--------|---------------|----------|----------------------------------|-----------|------------------------|
| E1T | ES-8000T-013T | AS REQD. | INTERMEDIATE SNAP | 6005-T5 | - |
| E2T | ES-8000T-008T | AS REQD. | WINDOW WALL FRAME | 6063-T6 | - |
| E3T | ES-8000T-003T | AS REQD. | SHEAR CLIP | 6063-T6 | - |
| E4 | ES-8000T-005 | AS REQD. | GLAZING BEAD | 6005-T5 | - |
| E5 | - | AS REQD. | DOOR MULLION | 6005-T5 | - |
| E6 | ES-8000T-003 | AS REQD. | DOOR MULL SNAP-IN PLATE | 6005-T5 | - |
| E7 | - | AS REQD. | DOOR MULLION STIFFENER | 6005-T5 | - |
| M1 | #12 X 1-1/2" | AS REQD. | ASSEMBLY FASTENERS | ST. STEEL | PH SMS |
| M2 | ES-8010 | AS REQD. | INTERIOR GLAZING GASKET | EPDM | DUROMETER 60±5 SHORE A |
| M3 | ES-8011A | AS REQD. | 1/4" GLASS SPACER | SILICONE | DUROMETER 85±5 SHORE A |
| M4 | ES-9550-B01A | 2/ LITE | SETTING BLOCKS AT 1/4 POINTS | SILICONE | DUROMETER 80±5 SHORE A |
| M5 | 1/4" X 2-1/8" | AS REQD. | MULLION FASTENERS | ST. STEEL | BOLT WITH NUT |
| M6 | - | AS REQD. | HORIZONTAL REINFORCING | STEEL | A36, Fu MIN. = 58 KSI |
| M7 | - | AS REQD. | JAMB REINFORCING | STEEL | A36, Fu MIN. = 58 KSI |
| M8 | - | AS REQD. | MULLION REINFORCING | STEEL | A36, Fu MIN. = 58 KSI |
| M9 | - | AS REQD. | DOOR MULLION REINFORCING CHANNEL | STEEL | A36, Fu MIN. = 58 KSI |
| M10 | - | AS REQD. | DOOR MULLION REINFORCING BAR | STEEL | A36, Fu MIN. = 58 KSI |

THERMAL BREAK:
 FRAME MEMBERS FILLED AND DEBRIDGED USING
 'BAYDUR TB 100-30' MANUFACTURED BY
 'BAYER MATERIALSCIENCE, LLC.



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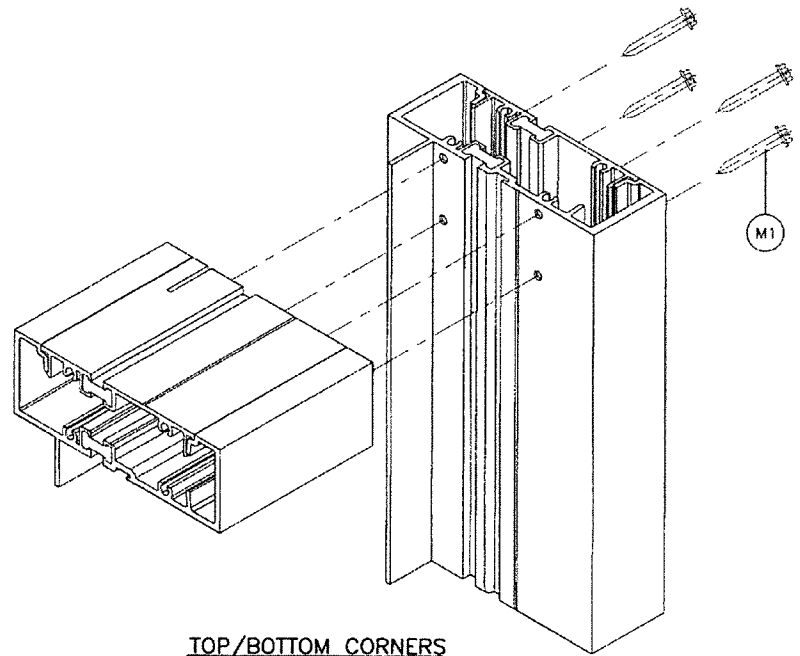
AL-FAROOQ CORPORATION
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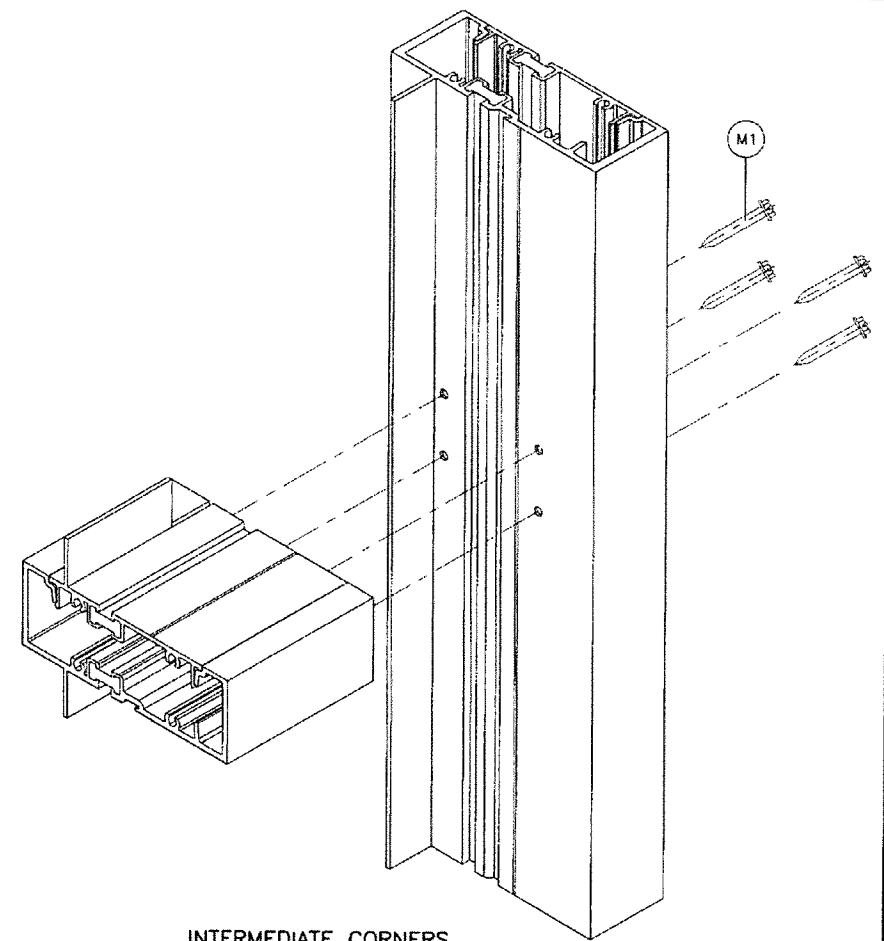
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date: 07-29-21
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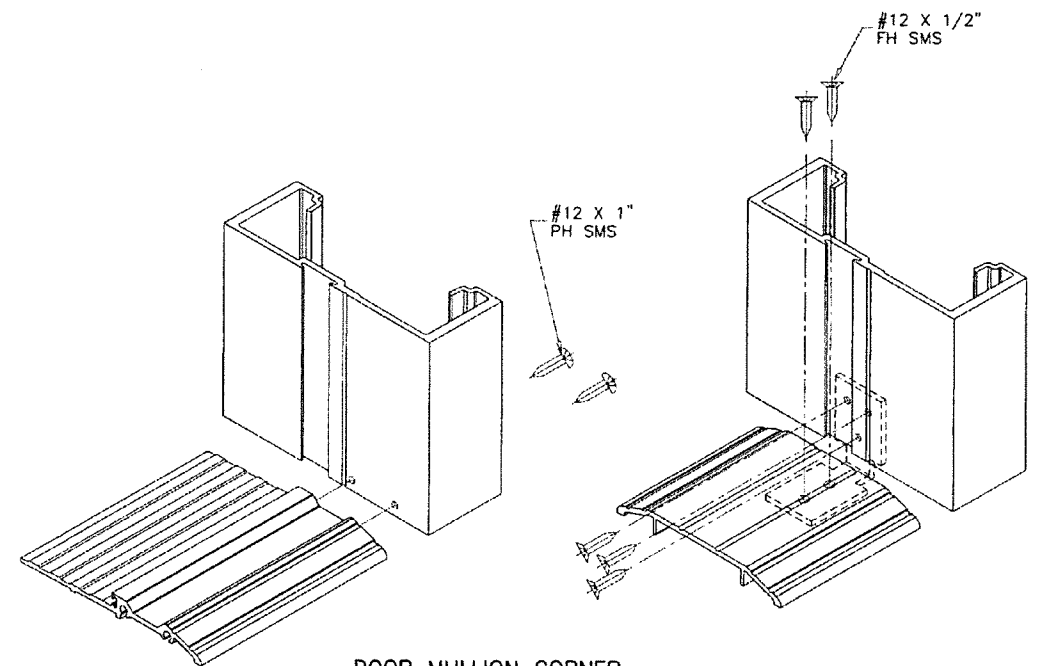
drawing no. **21-58F**
 sheet 17 of 18



TOP/BOTTOM CORNERS



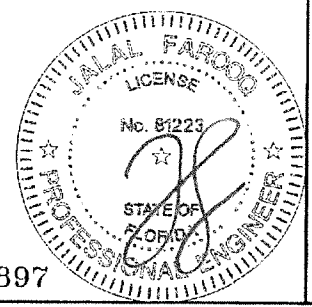
INTERMEDIATE CORNERS



DOOR MULLION CORNER

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 TEL. (305) 264-8100 FAX. (305) 262-6978
 COMP-ANL 21-58FES

ES-8000T (JUMBO) ALUM WINDOW WALL SYS. (L.M.I.)
E.S. WINDOWS, LLC
 3550 N.W. 49 STREET
 MIAMI, FL. 33142
 TEL. (305) 638-5151 FAX. (305) 638-5158

| no. | date | by | description |
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date: 07-29-21
 scale: 3/8" = 1"
 dr. by: TARIQ
 chk. by:

drawing no.
21-58F
 sheet 18 of 18