MIAMI-DADE COUNTY
DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

# NOTICE OF ACCEPTANCE (NOA)

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

**ES Windows LLC**
**10653 NE Quaybridge Ct.**
**Miami, FL 33138**

**SCOPE:**

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code, including the High Velocity Hurricane Zone.

**DESCRIPTION: Series "9500" Aluminum Window Wall System - L.M.I.**

**APPROVAL DOCUMENT:** Drawing No. **W09-25**, titled "Series 9500 Alum Window Wall System (L.M.I.)", sheets 1 through 18 of 18, dated 04/16/09, with revision D dated 08/04/14, prepared by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P.E., bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and expiration date by the Miami-Dade County Product Control Section.

**MISSILE IMPACT RATING: Large and Small Missile Impact Resistant**

**LABELING:** Each unit shall bear a permanent label with the manufacturer's name or logo, city, state, model/series, and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

**RENEWAL** of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

**TERMINATION** of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

**ADVERTISEMENT:** The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

**INSPECTION:** A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA **revises and renews NOA# 10-0504.01** and consists of this page 1 and evidence pages E-1 and E-2, as well as approval document mentioned above.

The submitted documentation was reviewed by **Manuel Perez, P.E.**

MIAMI-DADE COUNTY APPROVED

2/25/15

ES Windows LLC

## NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

**A. DRAWINGS**

1. Manufacturer's die drawings and sections.
   ***(Submitted under NOA# 03-0314.07)***
2. Drawing No. **W09-25**, titled "Series 9500 Alum Window Wall System (L.M.I.)", sheets 1 through 18 of 18, dated 04/16/09, with revision D dated 08/04/14, prepared by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P.E.

**B. TESTS**

1. Test reports on: 1) Air Infiltration Test, per FBC, TAS 202-94
   2) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
   3) Water Resistance Test, per FBC, TAS 202-94
   4) Large Missile Impact Test per FBC, TAS 201-94
   5) Cyclic Wind Pressure Loading per FBC, TAS 203-94

   along with marked-up drawings and installation diagram of series 9500 aluminum window wall system, prepared by Fenestration Testing Laboratory, Inc., Test Reports No. **FTL-5991**, dated 10/02/09, both signed and sealed by Jorge A. Causo, P.E.
   ***(Submitted under previous NOA # 10-0504.01)***
2. Test reports on: 1) Air Infiltration Test, per FBC, TAS 202-94
   2) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
   3) Water Resistance Test, per FBC, TAS 202-94
   4) Large Missile Impact Test per FBC, TAS 201-94
   5) Cyclic Wind Pressure Loading per FBC, TAS 203-94

   along with marked-up drawings and installation diagram of series 9500 aluminum window wall system, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-6129**, dated 03/10/10, signed and sealed by Jorge A. Causo, P.E.
   ***(Submitted under previous NOA # 10-0504.01)***
3. Test reports on 1) Air Infiltration Test, per FBC, TAS 202-94
   2) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
   3) Water Resistance Test, per FBC, TAS 202-94
   4) Large Missile Impact Test per FBC, TAS 201-94
   5) Cyclic Wind Pressure Loading per FBC, TAS 203-94
   6) Forced Entry Test, per FBC 2411 3.2.1, TAS 202-94

   along with marked-up drawings and installation diagram of series 9500 aluminum window wall system, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-5546**, dated 01/09/09, signed and sealed by Michael R. Wenzel, P.E.
   ***(Submitted under NOA # 09-0623.01)***

Manuel Perez, P.E.
Product Control Examiner
NOA No. 14-0820.13
Expiration Date: October 28, 2019
Approval Date: March 05, 2015

## NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

**B. TESTS (CONTINUED)**

4. Test reports on: 1) Air Infiltration Test, per FBC, TAS 202-94
   2) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
   3) Water Resistance Test, per FBC, TAS 202-94
   4) Large Missile Impact Test per FBC, TAS 201-94
   5) Cyclic Wind Pressure Loading per FBC, TAS 203-94
   6) Forced Entry Test, per FBC 2411 3.2.1, TAS 202-94

   along with marked-up drawings and installation diagram of an aluminum outswing entrance door, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-5554**, dated 05/10/08, signed and sealed by Carlos S. Rionda, P.E. ***(Submitted under NOA # 09-0623.01)***

**C. CALCULATIONS**

1. Anchor verification calculations and structural analysis, complying with **FBC 5th Edition (2014)** dated August 1, 2014, prepared by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P.E.
2. Glazing complies with **ASTM E1300-09.**

**D. QUALITY ASSURANCE**

1. Miami-Dade Department of Regulatory and Economic Resources (RER)

**E. MATERIAL CERTIFICATIONS**

1. Notice of Acceptance No. **11-0624.02** issued to **E.I. DuPont DeNemours & Co.**, Inc. for their "**DuPont SentryGlas® Interlayer**" dated 08/25/11, expiring on 01/14/17.
2. Notice of Acceptance No. **13-0129.27** issued to **E.I. DuPont DeNemours & Co., Inc.** for their **"DuPont Butacite® PVB Interlayer"** dated 04/11/13, expiring on 12/11/16.

**F. STATEMENTS**

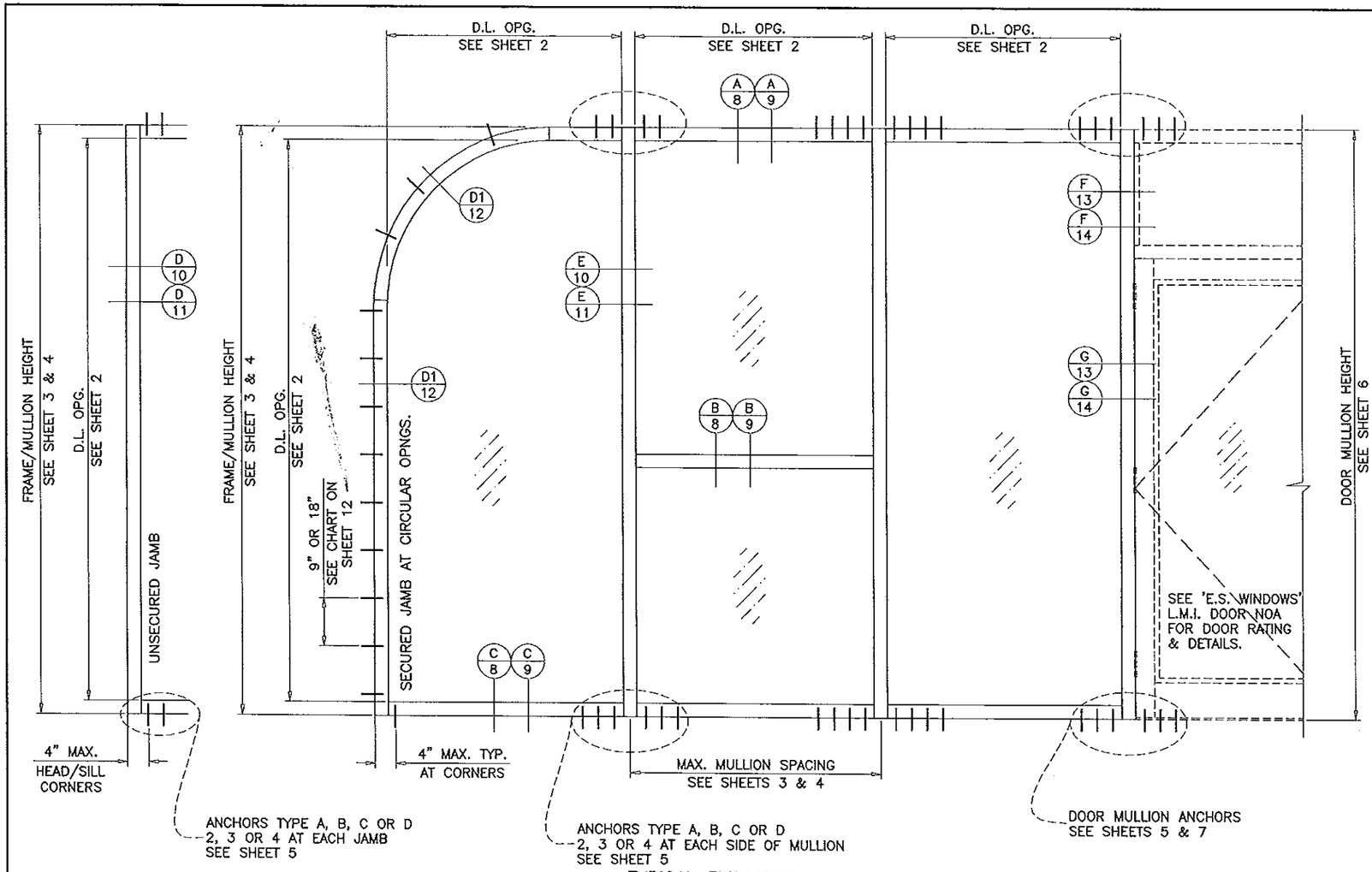
1. Statement letter of conformance, complying with **FBC-5th Edition (2014)**, and of no financial interest, dated August 1, 2014, issued by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P.E.

**G. OTHERS**

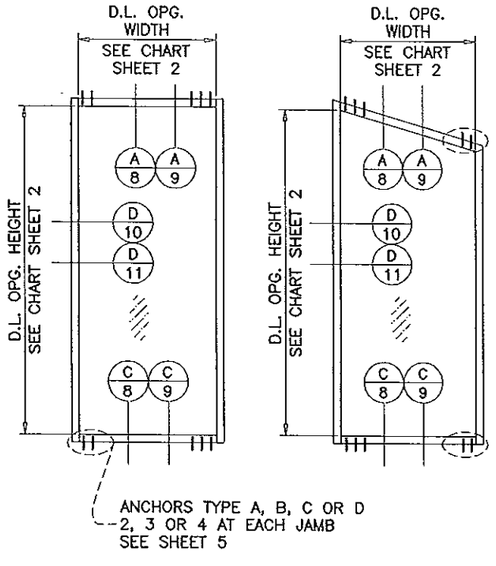
1. Notice of Acceptance No. **10-0504.01**, issued to ES Windows LLC for their Series 9500 Aluminum Window Wall System - L.M.I., approved on 12/09/10 and expiring on 10/28/14.

Manuel Perez

**Manuel Perez, P.E.**
**Product Control Examiner**
**NOA No. 14-0820.13**
**Expiration Date: October 28, 2019**
**Approval Date: March 05, 2015**




TYPICAL ELEVATION




TYPICAL ELEVATIONS SINGLE LITE

## SERIES 9500 ALUMINUM WINDOW WALL SYSTEM

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

CODE REQUIREMENTS FOR SAFEGUARDS MUST BE OBSERVED.

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

WOOD BUCKS BY OTHERS, MUST BE ANCHORED PROPERLY TO TRANSFER LOADS TO THE STRUCTURE.

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.

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 FLORIDA BUILDING CODE.

## INSTRUCTIONS:

USE CHARTS AS FOLLOWS.

STEP 1 DETERMINE DESIGN WIND PRESSURE REQUIREMENTS BASED ON WIND VELOCITY, BLDG. HEIGHT, WIND ZONE USING APPLICABLE ASCE 7 STANDARD.

STEP 2 SEE CHARTS ON SHEET 2 FOR GLASS DESIGN LOAD CAPACITY.

STEP 3 CHECK MULLION DESIGN LOAD CAPACITY FOR A GIVEN SPACING AND HEIGHT USING CHARTS ON SHEETS 3 & 4 FOR STOREFRONT MULLION AND SHEET 6 FOR DOOR MULLION. THE CAPACITY SHOULD EXCEED THE DESIGN LOAD.

STEP 4 USING CHARTS ON SHEET 5 SELECT ANCHOR OPTION WITH DESIGN LOAD CAPACITY MORE THAN DESIGN LOAD SPECIFIED IN STEP 1 ABOVE.

STEP 5 THE LOWEST VALUE RESULTING FROM STEPS 2, 3 AND 4 THAT EXCEED THE DESIGN WIND PRESSURES DETERMINED THRU STEP 1 SHALL APPLY TO ENTIRE SYSTEM.

STEP 6 FOR SYSTEMS WITH UNANCHORED JAMBS, USING SHEETS 10 & 11, DETERMINE THE MIN. & MAX. GAP DIMENSIONS.

STEP 7 WHEN USING THIS SYSTEM WITH DOORS, THE LOWER VALUE OF THE DESIGN PRESSURE RATING FOR THE SYSTEM AND THE DOOR SHALL APPLY.

WINDOW WALL SYSTEM WITH GLASS TYPES 'A' & 'B' COMPLIES WITH REQUIREMENTS OF ANSI Z97.1.

LAMINATED GLASS
INSUL. LAM. GLASS
LARGE MISSILE IMPACT

Engr: JAVAD AHMAD
CIVIL
FLA. PE # 70592
C.A.N. 3538

FEB 06 2015

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 14-0820.13
Expiration Date Oct. 28, 2019
By Manuel Perez
Miami-Dade Product Control


AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
STORE W09-25ES


SERIES 9500 ALUM WINDOW WALL SYSTEM (L.M.I.)

E.S. WINDOWS, LLC
10653 N.E. QUAYBRIDGE CT.
MIAMI, FL. 33138
TEL. (305) 624-7775 FAX. (305) 624-7777

revisions:

| no | date | by | description |
|---|---|---|---|
| A | 08.28.09 | | REV. PER BCCO COMMENTS |
| B | 03.16.10 | | INSUL. GLASS OPTION ADDED |
| C | 03.13.12 | | UPDATED TO 2010 FBC |
| D | 08.04.14 | | UPDATED TO 2014 FBC |

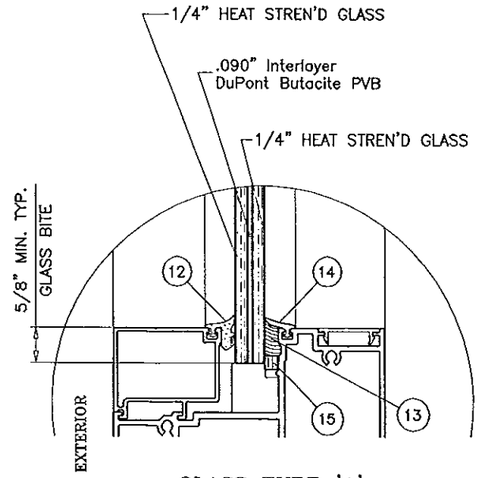
date: 04-16-09
scale: 1/2"=1'-0"
dr. by: HAMID
chk. by:

drawing no.
W09-25

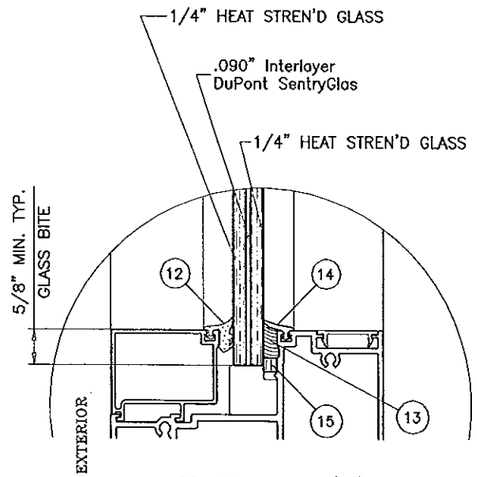
CHART #1

| GLASS LOAD CAPACITY – PSF | | | | |
|---|---|---|---|---|
| NOMINAL DIMS. | | GLASS TYPE 'A' | GLASS TYPE 'B' | GLASS TYPES 'A1' & 'B1' |
| D.L.O. WIDTH | D.L.O. HEIGHT | EXT.(+)/INT.(–) | EXT.(+)/INT.(–) | EXT.(+)/INT.(–) |
| 28" | 91" | 65.0 | 120.0 | 90.0 |
| 32" | | 65.0 | 120.0 | 90.0 |
| 36" | | 65.0 | 120.0 | 90.0 |
| 40" | | 65.0 | 120.0 | 90.0 |
| 45–1/2" | | 65.0 | 120.0 | 90.0 |
| 48" | | 65.0 | 120.0 | 90.0 |
| 52" | | 65.0 | 120.0 | 90.0 |
| 57–1/4" | | 65.0 | 120.0 | 90.0 |
| 28" | 93–1/2" | 65.0 | 120.0 | 90.0 |
| 32" | | 65.0 | 120.0 | 90.0 |
| 36" | | 65.0 | 120.0 | 90.0 |
| 40" | | 65.0 | 120.0 | 90.0 |
| 45–1/2" | | 65.0 | 120.0 | 90.0 |
| 48" | | 65.0 | 120.0 | 90.0 |
| 52" | | 65.0 | 120.0 | 90.0 |
| 28" | 97–1/2" | 65.0 | 120.0 | 90.0 |
| 32" | | 65.0 | 120.0 | 90.0 |
| 36" | | 65.0 | 120.0 | 90.0 |
| 40" | | 65.0 | 120.0 | 90.0 |
| 45–1/2" | | 65.0 | 120.0 | 90.0 |
| 48" | | 65.0 | 120.0 | 90.0 |
| 52" | | 65.0 | 120.0 | 90.0 |
| 28" | 105" | 65.0 | 120.0 | 90.0 |
| 32" | | 65.0 | 120.0 | 90.0 |
| 36" | | 65.0 | 120.0 | 90.0 |
| 40" | | 65.0 | 120.0 | 90.0 |
| 45–1/2" | | 65.0 | 120.0 | 90.0 |
| 48" | | 65.0 | 120.0 | 90.0 |
| 28" | 109" | 65.0 | 120.0 | 90.0 |
| 32" | | 65.0 | 120.0 | 90.0 |
| 36" | | 65.0 | 120.0 | 90.0 |
| 40" | | 65.0 | 120.0 | 90.0 |
| 45–1/2" | | 65.0 | 120.0 | 90.0 |
| 48" | | 65.0 | 120.0 | 90.0 |
| 28" | 115" | 65.0 | 120.0 | 90.0 |
| 32" | | 65.0 | 120.0 | 90.0 |
| 36" | | 65.0 | 120.0 | 90.0 |
| 40" | | 65.0 | 120.0 | 90.0 |
| 45–1/2" | | 65.0 | 120.0 | 90.0 |

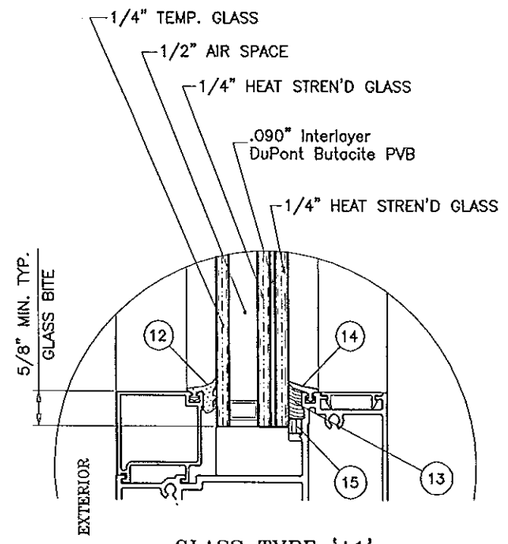
NOTE:
GLASS CAPACITIES ON THIS SHEET ARE
BASED ON ASTM E1300–09 (3 SEC. GUSTS).



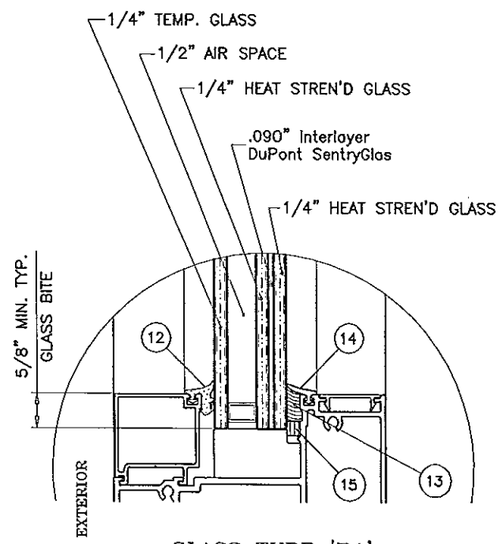

GLASS TYPE 'A'
9/16" OVERALL LAMINATED GLASS




GLASS TYPE 'B'
9/16" OVERALL LAMINATED GLASS

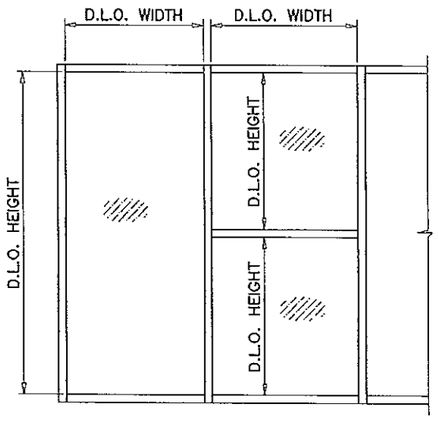



GLASS TYPE 'A1'
1–5/16" OVERALL INSUL. LAM. GLASS




GLASS TYPE 'B1'
1–5/16" OVERALL INSUL. LAM. GLASS

GLAZING OPTIONS




GLASS

Engr: JAVAD AHMAD
CML
FLA. PE # 70592
C.A.N. 3538
FEB 06 2015

PRODUCT REVISED
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STORE\ W09–25ES

SERIES 9500 ALUM WINDOW WALL SYSTEM (L.M.I.)

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revisions:

| no | date | by | description |
|---|---|---|---|
| A | 08.28.09 | | REV. PER BCCO COMMENTS |
| B | 03.16.10 | | INSUL. GLASS OPTION ADDED |
| C | 03.13.12 | | NO CHANGE THIS SHEET |
| D | 08.04.14 | | UPDATED TO 2014 FBC |

date: 04–16–09
scale: 3/8" = 1"
dr. by: HAMID
chk. by:

drawing no.
W09–25

sheet 2 of 18

CHART #2

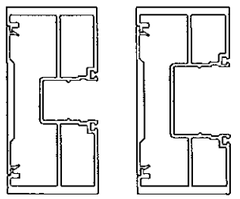
| MULLION LOAD CAPACITY – PSF<br>MULLIONS WITHOUT INTERMEDIATE HORIZONTALS | | |
|---|---|---|
| NOMINAL DIMS. | | JAMB 'J1'<br>MULL 'M1' |
| WIDTH (W) | FRAME HEIGHT | EXT. (+)<br>INT. (–) |
| 30" | 72" | 100.0 |
| 36" | | 100.0 |
| 42" | | 100.0 |
| 48" | | 100.0 |
| 54" | | 100.0 |
| 60" | | 100.0 |
| 30" | 78" | 100.0 |
| 36" | | 100.0 |
| 42" | | 100.0 |
| 48" | | 100.0 |
| 54" | | 100.0 |
| 59" | | 100.0 |
| 60" | | 65.0 |
| 30" | 86–1/2" | 100.0 |
| 36" | | 100.0 |
| 42" | | 100.0 |
| 48" | | 100.0 |
| 53" | | 100.0 |
| 54" | | 65.0 |
| 60" | | 65.0 |
| 30" | 90" | 100.0 |
| 36" | | 100.0 |
| 42" | | 100.0 |
| 48" | | 100.0 |
| 51" | | 100.0 |
| 54" | | 65.0 |
| 60" | | 65.0 |
| 30" | 96" | 100.0 |
| 36" | | 100.0 |
| 42" | | 100.0 |
| 48" | | 100.0 |
| 54" | | 65.0 |
| 60" | | 65.0 |
| 30" | 98–1/2" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |
| 54" | | 65.0 |
| 58" | | 65.0 |
| 30" | 102" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |
| 54" | | 65.0 |
| 56" | | 65.0 |

| MULLION LOAD CAPACITY – PSF<br>MULLIONS WITHOUT INTERMEDIATE HORIZONTALS | | |
|---|---|---|
| NOMINAL DIMS. | | JAMB 'J1'<br>MULL 'M1' |
| WIDTH (W) | FRAME HEIGHT | EXT. (+)<br>INT. (–) |
| 30" | 108" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |
| 53" | | 65.0 |
| 30" | 110–1/2" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |
| 52" | | 65.0 |
| 30" | 114" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |
| 50" | | 65.0 |
| 30" | 120" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |

CHART #3

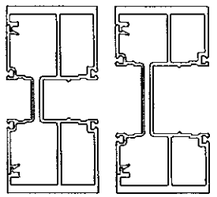
| MULLION LOAD CAPACITY – PSF<br>MULLIONS WITHOUT INTERMEDIATE HORIZONTALS | | | |
|---|---|---|---|
| NOMINAL DIMS. | | JAMB 'J1'<br>MULL 'M2' | JAMB 'J1'<br>MULL 'M3' |
| WIDTH (W) | FRAME HEIGHT | EXT. (+)<br>INT. (–) | EXT. (+)<br>INT. (–) |
| 30" | 72" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 54" | | 90.0 | 120.0 |
| 60" | | 90.0 | 120.0 |
| 30" | 78" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 54" | | 90.0 | 120.0 |
| 60" | | 90.0 | 120.0 |
| 30" | 86–1/2" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 53" | | 90.0 | 120.0 |
| 60" | | 90.0 | 120.0 |
| 30" | 90" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 51" | | 90.0 | 120.0 |
| 60" | | 90.0 | 120.0 |
| 30" | 96" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 54" | | 90.0 | 120.0 |
| 60" | | 90.0 | 120.0 |
| 30" | 98–1/2" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 54" | | 90.0 | 120.0 |
| 58" | | 90.0 | 120.0 |
| 30" | 102" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 54" | | 90.0 | 120.0 |
| 56" | | 90.0 | 120.0 |
| 30" | 108" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 53" | | 90.0 | 112.4 |

| MULLION LOAD CAPACITY – PSF<br>MULLIONS WITHOUT INTERMEDIATE HORIZONTALS | | | |
|---|---|---|---|
| NOMINAL DIMS. | | JAMB 'J1'<br>MULL 'M2' | JAMB 'J1'<br>MULL 'M3' |
| WIDTH (W) | FRAME HEIGHT | EXT. (+)<br>INT. (–) | EXT. (+)<br>INT. (–) |
| 30" | 110–1/2" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 116.4 |
| 52" | | 90.0 | 108.7 |
| 30" | 114" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 108.9 |
| 50" | | 90.0 | 105.1 |
| 30" | 120" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 110.3 |
| 48" | | 90.0 | 97.7 |



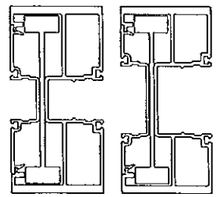
JAMB 'J1'
NO REINF.

| J1 | ALUM |
|---|---|
| Ix IN^4 | 8.7605 |
| Sx IN^3 | 3.5042 |



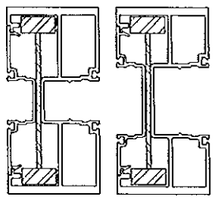
MULLION 'M1'
NO REINF.

| M1 | ALUM |
|---|---|
| Ix IN^4 | 8.7132 |
| Sx IN^3 | 3.4853 |



MULLION 'M2'
ALUM REINF.

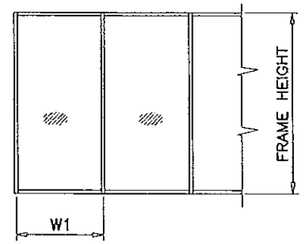
| M2 | ALUM |
|---|---|
| Ix IN^4 | 12.6724 |
| Sx IN^3 | 5.069 |



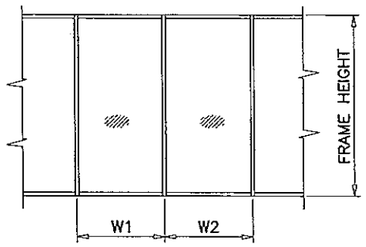
MULLION 'M3'
STEEL REINF.

| M3 | ALUM | STEEL |
|---|---|---|
| Ix IN^4 | 8.7132 | 2.7858 |
| Sx IN^3 | 3.4853 | 1.2381 |

NOTE:
INTERPOLATION BETWEEN WIDTHS ALLOWED.




WIDTH (W) = W1
AT FRAME JAMB




WIDTH (W) = $\frac{W1 + W2}{2}$
AT FRAME MULLION

Engr: JAVAD AHMAD
CIVIL
FLA. PE # 70592
C.A.N. 3538

FEB 06 2015

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No _____
Expiration Date _____

By _____
Miami Dade Product Control

MULLIONS


AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
STORE\W09-25ES


SERIES 9500 ALUM WINDOW WALL SYSTEM (L.M.I.)

E.S. WINDOWS, LLC
10653 N.E. QUAYBRIDGE CT.
MIAMI, FL. 33138
TEL (305) 624-7775 FAX. (305) 624-7777

revisions:

| no | date | by | description |
|---|---|---|---|
| A | 08.28.09 | | REV. PER BCCO COMMENTS |
| B | 03.16.10 | | INSUL. GLASS OPTION ADDED |
| C | 03.13.12 | | NO CHANGE THIS SHEET |
| D | 08.04.14 | | NO CHANGE THIS SHEET |

date: 04-16-09
scale: –
dr. by: HAMID
chk. by:

drawing no.
W09-25

sheet 3 of 18

CHART #4

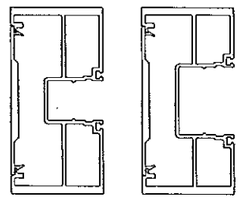
| MULLION LOAD CAPACITY – PSF MULLIONS WITH INTERMEDIATE HORIZONTALS | | |
|---|---|---|
| NOMINAL DIMS. | | JAMB 'J1' MULL 'M1' |
| WIDTH (W) | FRAME HEIGHT | EXT. (+) INT. (–) |
| 30" | 72" | 100.0 |
| 36" | | 100.0 |
| 42" | | 100.0 |
| 48" | | 100.0 |
| 54" | | 100.0 |
| 60" | | 100.0 |
| 30" | 78" | 100.0 |
| 36" | | 100.0 |
| 42" | | 100.0 |
| 48" | | 100.0 |
| 54" | | 100.0 |
| 59" | | 100.0 |
| 60" | | 65.0 |
| 30" | 86–1/2" | 100.0 |
| 36" | | 100.0 |
| 42" | | 100.0 |
| 48" | | 100.0 |
| 53" | | 100.0 |
| 54" | | 65.0 |
| 60" | | 65.0 |
| 30" | 90" | 100.0 |
| 36" | | 100.0 |
| 42" | | 100.0 |
| 48" | | 100.0 |
| 51" | | 100.0 |
| 54" | | 65.0 |
| 60" | | 65.0 |
| 30" | 96" | 100.0 |
| 36" | | 100.0 |
| 42" | | 100.0 |
| 48" | | 100.0 |
| 54" | | 65.0 |
| 60" | | 65.0 |
| 30" | 98–1/2" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |
| 54" | | 65.0 |
| 58" | | 65.0 |
| 30" | 102" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |
| 54" | | 65.0 |
| 56" | | 65.0 |

| MULLION LOAD CAPACITY – PSF MULLIONS WITH INTERMEDIATE HORIZONTALS | | |
|---|---|---|
| NOMINAL DIMS. | | JAMB 'J1' MULL 'M1' |
| WIDTH (W) | FRAME HEIGHT | EXT. (+) INT. (–) |
| 30" | 108" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |
| 53" | | 65.0 |
| 30" | 110–1/2" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |
| 52" | | 65.0 |
| 30" | 114" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 65.0 |
| 50" | | 65.0 |
| 30" | 120" | 65.0 |
| 36" | | 65.0 |
| 42" | | 65.0 |
| 48" | | 64.5 |

CHART #5

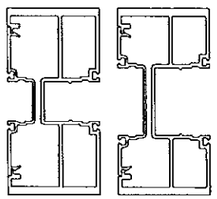
| MULLION LOAD CAPACITY – PSF MULLIONS WITH INTERMEDIATE HORIZONTALS | | | |
|---|---|---|---|
| NOMINAL DIMS. | | JAMB 'J1' MULL 'M2' | JAMB 'J1' MULL 'M3' |
| WIDTH (W) | FRAME HEIGHT | EXT. (+) INT. (–) | EXT. (+) INT. (–) |
| 30" | 72" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 54" | | 90.0 | 120.0 |
| 60" | | 90.0 | 120.0 |
| 30" | 78" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 54" | | 90.0 | 120.0 |
| 60" | | 90.0 | 120.0 |
| 30" | 86–1/2" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 53" | | 90.0 | 120.0 |
| 60" | | 90.0 | 120.0 |
| 30" | 90" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 51" | | 90.0 | 120.0 |
| 60" | | 90.0 | 120.0 |
| 30" | 96" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 54" | | 90.0 | 120.0 |
| 60" | | 90.0 | 115.8 |
| 30" | 98–1/2" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 54" | | 90.0 | 120.0 |
| 58" | | 90.0 | 113.8 |
| 30" | 102" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 120.0 |
| 54" | | 90.0 | 114.0 |
| 56" | | 90.0 | 109.9 |
| 30" | 108" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 114.4 |
| 53" | | 90.0 | 103.6 |

| MULLION LOAD CAPACITY – PSF MULLIONS WITH INTERMEDIATE HORIZONTALS | | | |
|---|---|---|---|
| NOMINAL DIMS. | | JAMB 'J1' MULL 'M2' | JAMB 'J1' MULL 'M3' |
| WIDTH (W) | FRAME HEIGHT | EXT. (+) INT. (–) | EXT. (+) INT. (–) |
| 30" | 110–1/2" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 120.0 |
| 48" | | 90.0 | 109.3 |
| 52" | | 90.0 | 100.9 |
| 30" | 114" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 117.3 |
| 48" | | 90.0 | 102.7 |
| 50" | | 90.0 | 98.5 |
| 30" | 120" | 90.0 | 120.0 |
| 36" | | 90.0 | 120.0 |
| 42" | | 90.0 | 105.9 |
| 48" | | 90.0 | 92.6 |



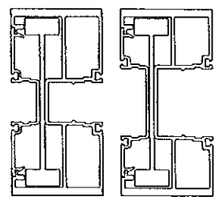
JAMB 'J1'
NO REINF.

| J1 | ALUM |
|---|---|
| Ix IN^4 | 8.7605 |
| Sx IN^3 | 3.5042 |



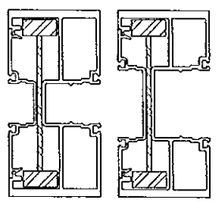
MULLION 'M1'
NO REINF.

| M1 | ALUM |
|---|---|
| Ix IN^4 | 8.7132 |
| Sx IN^3 | 3.4853 |



MULLION 'M2'
ALUM REINF.

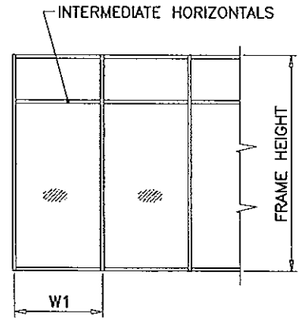
| M2 | ALUM |
|---|---|
| Ix IN^4 | 12.6724 |
| Sx IN^3 | 5.069 |



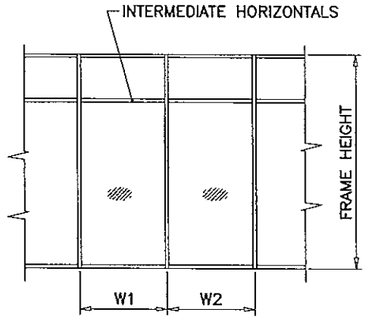
MULLION 'M3'
STEEL REINF.

| M3 | ALUM | STEEL |
|---|---|---|
| Ix IN^4 | 8.7132 | 2.7858 |
| Sx IN^3 | 3.4853 | 1.2381 |

NOTE:
INTERPOLATION BETWEEN WIDTHS ALLOWED.




WIDTH (W) = W1
AT FRAME JAMB




WIDTH (W) = $\frac{W1 + W2}{2}$
AT FRAME MULLION

MULLIONS

Engr: JAVAD AHMAD
CML
FLA. PE # 70592
C.A.N. 3538

FEB 06 2015

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No 14-0820.13
Expiration Date Oct. 28, 2019
By
Miami-Dade Product Control


AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
STORE\ W09-25ES


SERIES 9500 ALUM WINDOW WALL SYSTEM (L.M.I.)

E.S. WINDOWS, LLC
10653 N.E. QUAYBRIDGE CT.
MIAMI, FL. 33138
TEL. (305) 624-7775 FAX. (305) 624-7777

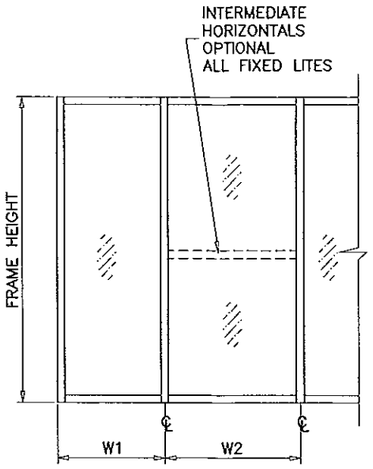
revisions:

| no | date | by | description |
|---|---|---|---|
| A | 08.28.09 | | REV. PER BCCO COMMENTS |
| B | 03.16.10 | | INSUL. GLASS OPTION ADDED |
| C | 03.13.12 | | NO CHANGE THIS SHEET |
| D | 08.04.14 | | NO CHANGE THIS SHEET |

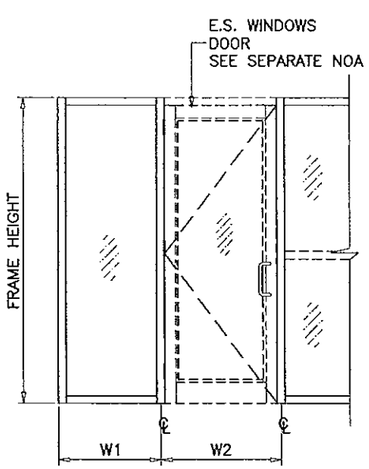
date: 04-16-09
scale: –
dr. by: HAMID
chk. by:

drawing no.
W09-25

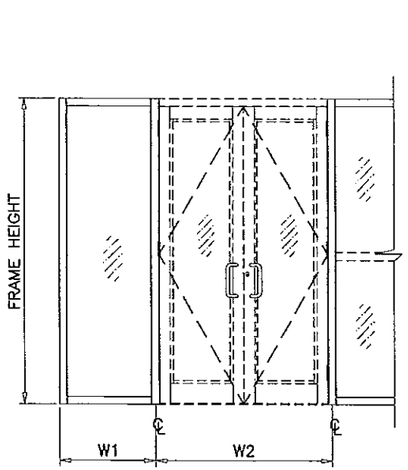
| CHART #6 | ANCHOR LOAD CAPACITY – PSF EXT.(+) & INT.(–) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOMINAL DIMS. | | ANCHORS TYPE 'A' 1/4" MAX. SHIM | | | ANCHORS TYPE 'B' 3/8" MAX. SHIM | | | ANCHORS TYPE 'C' 3/8" MAX. SHIM | | | ANCHORS TYPE 'D' 1/4" MAX. SHIM | | |
| WIDTH (W) | FRAME HEIGHT | A2 | A3 | A4 | B2 | B3 | B4 | C2 | C3 | C4 | D2 | D3 | D4 |
| 30" | 72" | 120.0 | 120.0 | 120.0 | 115.2 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 |
| 36" | | 114.7 | 120.0 | 120.0 | 96.0 | 120.0 | 120.0 | 116.4 | 120.0 | 120.0 | 106.8 | 120.0 | 120.0 |
| 42" | | 98.3 | 120.0 | 120.0 | 82.3 | 120.0 | 120.0 | 99.8 | 120.0 | 120.0 | 91.5 | 120.0 | 120.0 |
| 48" | | 86.0 | 120.0 | 120.0 | 72.0 | 108.0 | 120.0 | 87.3 | 120.0 | 120.0 | 80.1 | 120.0 | 120.0 |
| 54" | | 76.4 | 114.7 | 120.0 | 64.0 | 96.0 | 120.0 | 77.6 | 116.4 | 120.0 | 71.2 | 106.7 | 120.0 |
| 60" | | 68.8 | 103.2 | 120.0 | 57.6 | 86.4 | 115.2 | 69.9 | 104.8 | 120.0 | 64.1 | 96.1 | 120.0 |
| 30" | 78" | 120.0 | 120.0 | 120.0 | 109.1 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 |
| 36" | | 108.6 | 120.0 | 120.0 | 90.9 | 120.0 | 120.0 | 110.3 | 120.0 | 120.0 | 101.2 | 120.0 | 120.0 |
| 42" | | 93.1 | 120.0 | 120.0 | 78.0 | 116.9 | 120.0 | 94.6 | 120.0 | 120.0 | 86.7 | 120.0 | 120.0 |
| 48" | | 81.5 | 120.0 | 120.0 | 68.2 | 102.3 | 120.0 | 82.7 | 120.0 | 120.0 | 75.9 | 113.8 | 120.0 |
| 54" | | 72.4 | 108.6 | 120.0 | 60.6 | 90.9 | 120.0 | 73.5 | 110.3 | 120.0 | 67.4 | 101.1 | 120.0 |
| 60" | | 65.2 | 97.8 | 120.0 | 54.6 | 81.9 | 109.1 | 66.2 | 99.3 | 120.0 | 60.7 | 91.0 | 120.0 |
| 30" | 86–1/2" | 114.5 | 120.0 | 120.0 | 95.9 | 120.0 | 120.0 | 116.3 | 120.0 | 120.0 | 106.7 | 120.0 | 120.0 |
| 36" | | 95.4 | 120.0 | 120.0 | 79.9 | 119.9 | 120.0 | 96.9 | 120.0 | 120.0 | 88.9 | 120.0 | 120.0 |
| 42" | | 81.8 | 120.0 | 120.0 | 68.5 | 102.7 | 120.0 | 83.1 | 120.0 | 120.0 | 76.2 | 114.2 | 120.0 |
| 48" | | 71.6 | 107.4 | 120.0 | 59.9 | 89.9 | 119.9 | 72.7 | 109.0 | 120.0 | 66.7 | 100.0 | 120.0 |
| 54" | | 63.6 | 95.4 | 120.0 | 53.3 | 79.9 | 106.5 | 64.6 | 96.9 | 120.0 | 59.3 | 88.8 | 118.5 |
| 60" | | 57.3 | 85.9 | 114.5 | 47.9 | 71.9 | 95.9 | 58.2 | 87.2 | 116.3 | 53.3 | 80.0 | 106.7 |
| 30" | 90" | 110.1 | 120.0 | 120.0 | 92.2 | 120.0 | 120.0 | 111.8 | 120.0 | 120.0 | 102.5 | 120.0 | 120.0 |
| 36" | | 91.7 | 120.0 | 120.0 | 76.8 | 115.2 | 120.0 | 93.2 | 120.0 | 120.0 | 85.4 | 120.0 | 120.0 |
| 42" | | 78.6 | 117.9 | 120.0 | 65.8 | 98.7 | 120.0 | 79.8 | 119.8 | 120.0 | 73.2 | 109.8 | 120.0 |
| 48" | | 68.8 | 103.2 | 120.0 | 57.6 | 86.4 | 115.2 | 69.9 | 104.8 | 120.0 | 64.1 | 96.1 | 120.0 |
| 54" | | 61.2 | 91.7 | 120.0 | 51.2 | 76.8 | 102.4 | 62.1 | 93.2 | 120.0 | 56.9 | 85.4 | 113.9 |
| 60" | | 55.0 | 82.6 | 110.1 | 46.1 | 69.1 | 92.2 | 55.9 | 83.8 | 111.8 | 51.3 | 76.9 | 102.5 |
| 30" | 96" | 103.2 | 120.0 | 120.0 | 86.4 | 120.0 | 120.0 | 104.8 | 120.0 | 120.0 | 96.1 | 120.0 | 120.0 |
| 36" | | 86.0 | 120.0 | 120.0 | 72.0 | 108.0 | 120.0 | 87.3 | 120.0 | 120.0 | 80.1 | 120.0 | 120.0 |
| 42" | | 73.7 | 110.6 | 120.0 | 61.7 | 92.6 | 120.0 | 74.9 | 112.3 | 120.0 | 68.6 | 102.9 | 120.0 |
| 48" | | 64.5 | 96.8 | 120.0 | 54.0 | 81.0 | 108.0 | 65.5 | 98.3 | 120.0 | 60.1 | 90.1 | 120.0 |
| 54" | | 57.3 | 86.0 | 114.7 | 48.0 | 72.0 | 96.0 | 58.2 | 87.3 | 116.4 | 53.4 | 80.1 | 106.8 |
| 60" | | 51.6 | 77.4 | 103.2 | 43.2 | 64.8 | 86.4 | 52.4 | 78.6 | 104.8 | 48.1 | 72.0 | 96.1 |
| 30" | 98–1/2" | 100.6 | 120.0 | 120.0 | 84.2 | 120.0 | 120.0 | 102.1 | 120.0 | 120.0 | 93.7 | 120.0 | 120.0 |
| 36" | | 83.8 | 120.0 | 120.0 | 70.2 | 105.3 | 120.0 | 85.1 | 120.0 | 120.0 | 78.1 | 117.0 | 120.0 |
| 42" | | 71.8 | 107.8 | 120.0 | 60.1 | 90.2 | 120.0 | 73.0 | 109.4 | 120.0 | 66.9 | 100.3 | 120.0 |
| 48" | | 62.9 | 94.3 | 120.0 | 52.6 | 78.9 | 105.3 | 63.8 | 95.8 | 120.0 | 58.5 | 87.8 | 117.1 |
| 54" | | 55.9 | 83.8 | 111.8 | 46.8 | 70.2 | 93.6 | 56.7 | 85.1 | 113.5 | 52.0 | 78.0 | 104.1 |
| 30" | 102" | 97.1 | 120.0 | 120.0 | 81.3 | 120.0 | 120.0 | 98.6 | 120.0 | 120.0 | 90.4 | 120.0 | 120.0 |
| 36" | | 80.9 | 120.0 | 120.0 | 67.8 | 101.6 | 120.0 | 82.2 | 120.0 | 120.0 | 75.4 | 113.0 | 120.0 |
| 42" | | 69.4 | 104.1 | 120.0 | 58.1 | 87.1 | 116.2 | 70.5 | 105.7 | 120.0 | 64.6 | 96.9 | 120.0 |
| 48" | | 60.7 | 91.1 | 120.0 | 50.8 | 76.2 | 101.6 | 61.6 | 92.5 | 120.0 | 56.5 | 84.8 | 113.1 |
| 54" | | 54.0 | 80.9 | 107.9 | 45.2 | 67.8 | 90.4 | 54.8 | 82.2 | 109.6 | 50.2 | 75.3 | 100.5 |
| 30" | 108" | 91.7 | 120.0 | 120.0 | 76.8 | 115.2 | 120.0 | 93.2 | 120.0 | 120.0 | 85.4 | 120.0 | 120.0 |
| 36" | | 76.4 | 114.7 | 120.0 | 64.0 | 96.0 | 120.0 | 77.6 | 116.4 | 120.0 | 71.2 | 106.7 | 120.0 |
| 42" | | 65.5 | 98.3 | 120.0 | 54.9 | 82.3 | 109.7 | 66.5 | 99.8 | 120.0 | 61.0 | 91.5 | 120.0 |
| 48" | | 57.3 | 86.0 | 114.7 | 48.0 | 72.0 | 96.0 | 58.2 | 87.3 | 116.4 | 53.4 | 80.1 | 106.8 |
| 30" | 110–1/2" | 89.7 | 120.0 | 120.0 | 75.1 | 112.6 | 120.0 | 91.0 | 120.0 | 120.0 | 83.5 | 120.0 | 120.0 |
| 36" | | 74.7 | 112.1 | 120.0 | 62.6 | 93.8 | 120.0 | 75.9 | 113.8 | 120.0 | 69.6 | 104.3 | 120.0 |
| 42" | | 64.0 | 96.1 | 120.0 | 53.6 | 80.4 | 107.2 | 65.0 | 97.6 | 120.0 | 59.6 | 89.4 | 119.3 |
| 48" | | 56.0 | 84.1 | 112.1 | 46.9 | 70.4 | 93.8 | 56.9 | 85.4 | 113.8 | 52.2 | 78.2 | 104.4 |
| 30" | 114" | 86.9 | 120.0 | 120.0 | 72.8 | 109.1 | 120.0 | 88.3 | 120.0 | 120.0 | 80.9 | 120.0 | 120.0 |
| 36" | | 72.4 | 108.6 | 120.0 | 60.6 | 90.9 | 120.0 | 73.5 | 110.3 | 120.0 | 67.4 | 101.1 | 120.0 |
| 42" | | 62.1 | 93.1 | 120.0 | 52.0 | 78.0 | 103.9 | 63.0 | 94.6 | 120.0 | 57.8 | 86.7 | 115.6 |
| 48" | | 54.3 | 81.5 | 108.6 | 45.5 | 68.2 | 90.9 | 55.2 | 82.7 | 110.3 | 50.6 | 75.8 | 101.2 |
| 30" | 120" | 82.6 | 120.0 | 120.0 | 69.1 | 103.7 | 120.0 | 83.8 | 120.0 | 120.0 | 76.9 | 115.3 | 120.0 |
| 36" | | 68.8 | 103.2 | 120.0 | 57.6 | 86.4 | 115.2 | 69.9 | 104.8 | 120.0 | 64.1 | 96.1 | 120.0 |
| 42" | | 59.0 | 88.5 | 117.9 | 49.4 | 74.1 | 98.7 | 59.9 | 89.8 | 119.8 | 54.9 | 82.3 | 109.8 |
| 48" | | 51.6 | 77.4 | 103.2 | 43.2 | 64.8 | 86.4 | 52.4 | 78.6 | 104.8 | 48.1 | 72.0 | 96.1 |



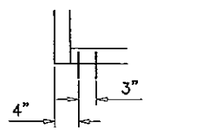

WIDTH (W) = $\frac{W1 + W2}{2}$

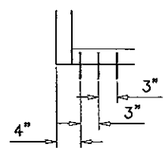


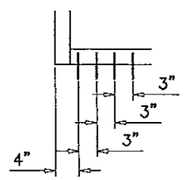

WIDTH (W) = $\frac{W1 + W2}{2}$




WIDTH (W) = $\frac{W1}{2} + \frac{W2}{4}$



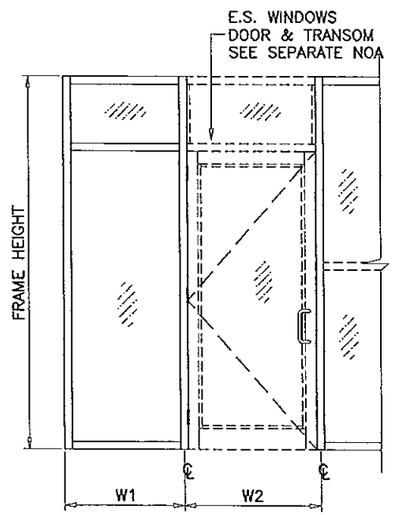




A2, B2, C2

A3, B3, C3

A4, B4, C4




WIDTH (W) = $\frac{W1 + W2}{2}$

ANCHORS TYPES: SEE SHEET 8 FOR DESCRIPTION

A2 = (2) ANCHORS TYPE 'A' AT EACH SIDE OF JAMB AND MULLION
B2 = (2) ANCHORS TYPE 'B' AT EACH SIDE OF JAMB AND MULLION
C2 = (2) ANCHORS TYPE 'C' AT EACH SIDE OF JAMB AND MULLION
D2 = (2) ANCHORS TYPE 'D' AT EACH SIDE OF JAMB AND MULLION

A3 = (3) ANCHORS TYPE 'A' AT EACH SIDE OF JAMB AND MULLION
B3 = (3) ANCHORS TYPE 'B' AT EACH SIDE OF JAMB AND MULLION
C3 = (3) ANCHORS TYPE 'C' AT EACH SIDE OF JAMB AND MULLION
D3 = (3) ANCHORS TYPE 'D' AT EACH SIDE OF JAMB AND MULLION

A4 = (4) ANCHORS TYPE 'A' AT EACH SIDE OF JAMB AND MULLION
B4 = (4) ANCHORS TYPE 'B' AT EACH SIDE OF JAMB AND MULLION
C4 = (4) ANCHORS TYPE 'C' AT EACH SIDE OF JAMB AND MULLION
D4 = (4) ANCHORS TYPE 'D' AT EACH SIDE OF JAMB AND MULLION

NOTE:
INTERPOLATION BETWEEN WIDTHS OR HEIGHTS ALLOWED.

Engr: JAVAD AHMAD
CML
FLA. PE # 70592
C.A.N. 3538

FEB 06 2015

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 14-0820.13
Expiration Date Oct. 28, 2019
By Manuel Perez
Miami Dade Product Control


AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
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STORE W09–25ES

SERIES 9500 ALUM WINDOW WALL SYSTEM (L.M.I.)

E.S. WINDOWS, LLC
10653 N.E. QUAYBRIDGE CT.
MIAMI, FL. 33138
TEL. (305) 624–7775 FAX. (305) 624–7777

revisions:

| no | date | by | description |
|---|---|---|---|
| A | 08.28.09 | | NO CHANGE THIS SHEET |
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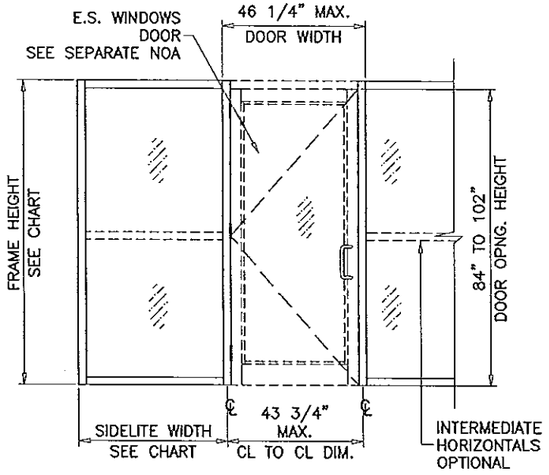
| C | 03.13.12 | | UPDATED TO 2010 FBC |
| D | 08.04.14 | | UPDATED TO 2014 FBC |

date: 04–16–09
scale: –
dr. by: HAMID
chk. by:

drawing no.
W09–25

sheet 5 of 18



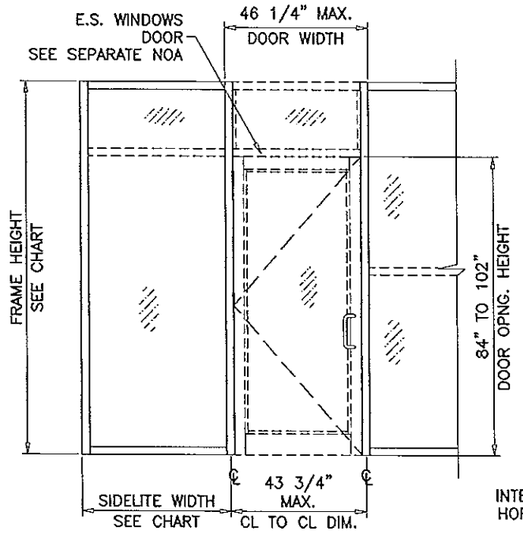




CHART #8

| DOOR MULLION LOAD CAPACITY-PSF | | | |
|---|---|---|---|
| SIDELITE WIDTH INCHES | FRAME HEIGHT INCHES | MULL 'MD1' EXT. (+) INT. (−) | MULL 'MD2' EXT. (+) INT. (−) |
| 32 | 86-1/2" | 120.0 | 120.0 |
| 36 | | 120.0 | 120.0 |
| 42 | | 120.0 | 120.0 |
| 48 | | 120.0 | 120.0 |
| 54 | | 120.0 | 120.0 |
| 60 | | 120.0 | 120.0 |
| 32 | 98-1/2" | 120.0 | 120.0 |
| 36 | | 120.0 | 120.0 |
| 42 | | 120.0 | 120.0 |
| 48 | | 120.0 | 120.0 |
| 54 | | 117.3 | 120.0 |
| 58 | | 109.2 | 120.0 |
| 32 | 110-1/2" | 120.0 | 120.0 |
| 36 | | 120.0 | 120.0 |
| 42 | | 107.5 | 120.0 |
| 48 | | 94.1 | 120.0 |
| 52 | | 86.8 | 120.0 |
| 32 | 114" | 120.0 | 120.0 |
| 36 | | 114.2 | 120.0 |
| 42 | | 97.9 | 120.0 |
| 48 | | 85.7 | 120.0 |
| 50 | | 82.2 | 120.0 |
| 32 | 120" | 110.2 | 120.0 |
| 36 | | 97.9 | 120.0 |
| 42 | | 83.9 | 120.0 |
| 48 | | 73.4 | 115.6 |

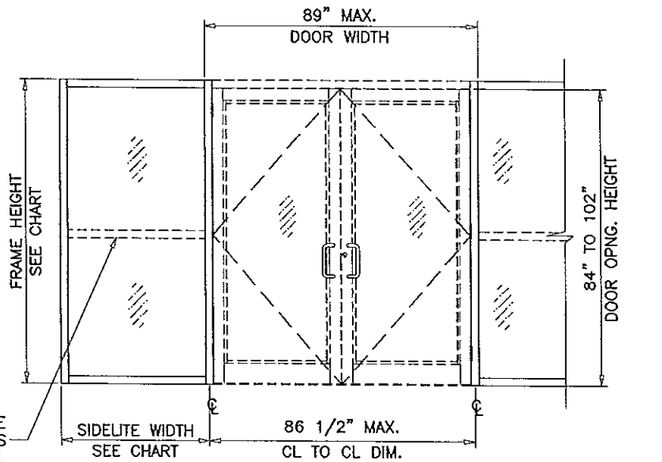
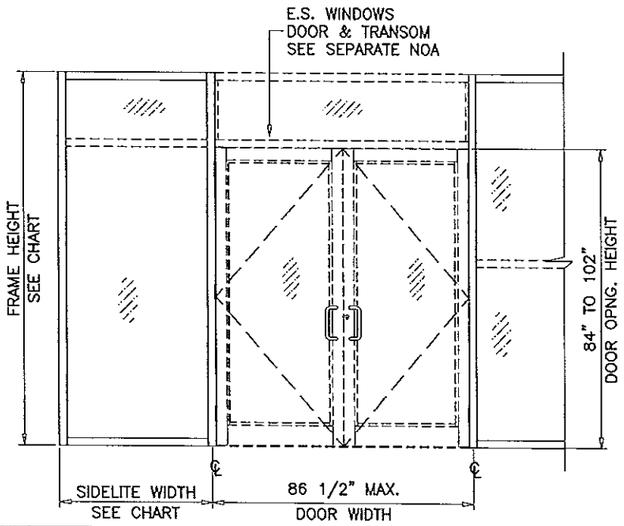
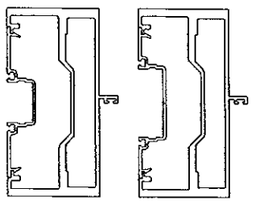



CHART #9

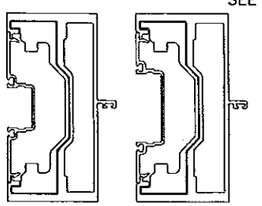
| DOOR MULLION LOAD CAPACITY-PSF | | | |
|---|---|---|---|
| SIDELITE WIDTH INCHES | FRAME HEIGHT INCHES | MULL 'MD1' EXT. (+) INT. (−) | MULL 'MD2' EXT. (+) INT. (−) |
| 30 | 96 | 90.0 | 90.0 |
| 36 | | 90.0 | 90.0 |
| 42 | | 90.0 | 90.0 |
| 48 | | 90.0 | 90.0 |
| 54 | | 90.0 | 90.0 |
| 60 | | 90.0 | 90.0 |
| 30 | 102 | 90.0 | 90.0 |
| 36 | | 90.0 | 90.0 |
| 42 | | 90.0 | 90.0 |
| 48 | | 90.0 | 90.0 |
| 54 | | 90.0 | 90.0 |
| 30 | 108 | 90.0 | 90.0 |
| 36 | | 90.0 | 90.0 |
| 42 | | 90.0 | 90.0 |
| 48 | | 85.7 | 90.0 |
| 30 | 114 | 83.8 | 90.0 |
| 36 | | 79.0 | 90.0 |
| 42 | | 74.7 | 90.0 |
| 48 | | 70.8 | 90.0 |
| 30 | 120 | 70.0 | 90.0 |
| 36 | | 66.1 | 90.0 |
| 42 | | 62.5 | 90.0 |
| 48 | | 59.4 | 90.0 |



MULLION 'MD1'
NO REINF.

| MD1 | ALUM |
|---|---|
| Ix IN^4 | 9.9140 |
| Sx IN^3 | 3.9615 |



MULLION 'MD2'
ALUM REINF.

| MD2 | ALUM |
|---|---|
| Ix IN^4 | 15.5994 |
| Sx IN^3 | 6.2333 |

DOOR-WINDOW WALL
TRANSITION MULLION

Engr: JAVAD AHMAD
CML
FLA. PE # 70592
C.A.N. 3338

FEB 06 2015

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No 14-0820.13
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Miami Dade Product Control


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STORE\W09-25ES

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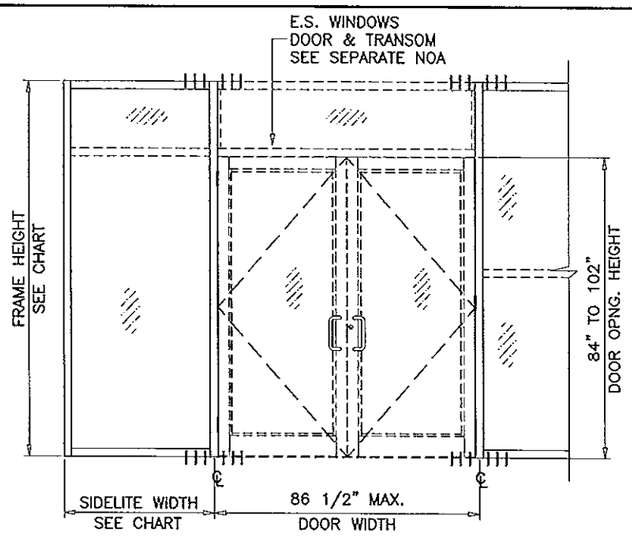
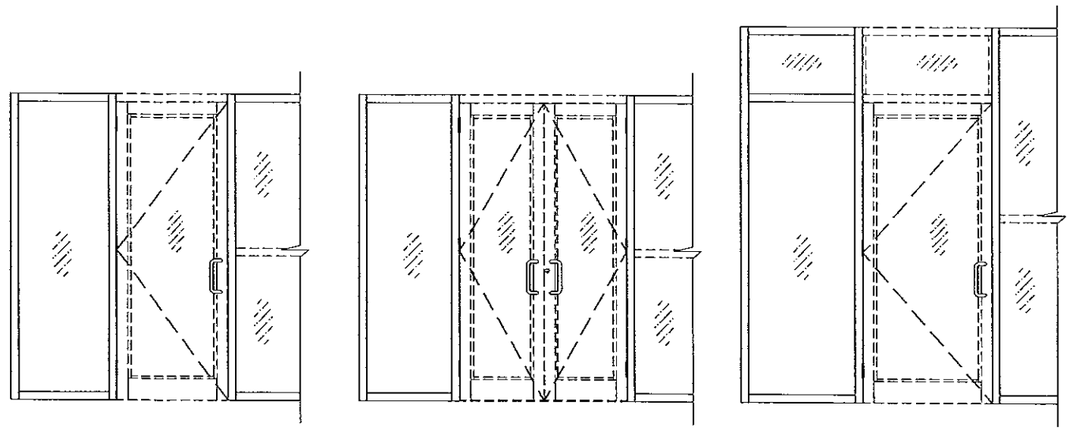
| C | 03.13.12 | | NO CHANGE THIS SHEET |
| D | 08.04.14 | | NO CHANGE THIS SHEET |

date: 04-16-09
scale: -
dr. by: HAMID
chk. by:

drawing no.
W09-25

sheet 6 of 18



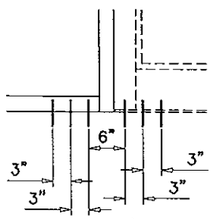
FOR ANCHOR CAPACITIES FOR THE ABOVE CASES
SEE SHEET 5.

CHART #10

| ANCHOR LOAD CAPACITY – PSF EXT.(+) & INT.(–) | | | | | |
|---|---|---|---|---|---|
| NOMINAL DIMS. | | ANCHORS TYPE 'A3' | ANCHORS TYPE 'B3' | ANCHORS TYPE 'C3' | ANCHORS TYPE 'D3' |
| WIDTH (W) | FRAME HEIGHT | | | | |
| 30 | 96 | 62.5 | 96.6 | 120.0 | 82.3 |
| 36 | | 59.3 | 91.6 | 120.0 | 78.1 |
| 42 | | 56.4 | 87.2 | 120.0 | 74.3 |
| 48 | | 53.8 | 83.1 | 118.5 | 70.8 |
| 54 | | 51.4 | 79.4 | 105.3 | 67.7 |
| 60 | | 49.2 | 76.0 | 94.8 | 64.8 |
| 30 | 102 | 60.1 | 92.7 | 120.0 | 79.1 |
| 36 | | 56.9 | 87.9 | 120.0 | 74.9 |
| 42 | | 54.1 | 83.5 | 120.0 | 71.2 |
| 48 | | 51.5 | 79.6 | 111.5 | 67.8 |
| 54 | | 49.2 | 76.0 | 99.1 | 64.8 |
| 30 | 108 | 57.8 | 89.2 | 120.0 | 76.0 |
| 36 | | 54.7 | 84.5 | 120.0 | 72.0 |
| 42 | | 51.9 | 80.2 | 120.0 | 68.4 |
| 48 | | 49.5 | 76.4 | 105.3 | 65.1 |
| 30 | 114 | 55.7 | 85.9 | 120.0 | 73.3 |
| 36 | | 52.7 | 81.3 | 120.0 | 69.3 |
| 42 | | 50.0 | 77.1 | 114.0 | 65.7 |
| 48 | | 47.5 | 73.4 | 99.8 | 62.5 |
| 30 | 120 | 53.7 | 82.9 | 120.0 | 70.7 |
| 36 | | 50.8 | 78.4 | 120.0 | 66.8 |
| 42 | | 48.1 | 74.3 | 108.3 | 63.3 |
| 48 | | 45.7 | 70.6 | 94.8 | 60.2 |

ANCHORS TYPES: SEE SHEET 8 FOR DESCRIPTION

A3 = (3) ANCHORS TYPE 'A' AT EACH SIDE OF MULLION
B3 = (3) ANCHORS TYPE 'B' AT EACH SIDE OF MULLION
C3 = (3) ANCHORS TYPE 'C' AT EACH SIDE OF MULLION
D3 = (3) ANCHORS TYPE 'D' AT EACH SIDE OF MULLION




TRANSITION MULLION ANCHORS
DOUBLE DOOR WITH TRANSOM

Engr: JAVAD AHMAD
CML
FLA. PE # 70592
C.A.N. 3538

FEB 06 2015

PRODUCT REVISED
as complying with the Florida
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Acceptance No 14-0820.13
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By Manuel Perez
Miami Dade Product Control


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ENGINEERS & PRODUCT DEVELOPMENT
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STORE W09–25ES

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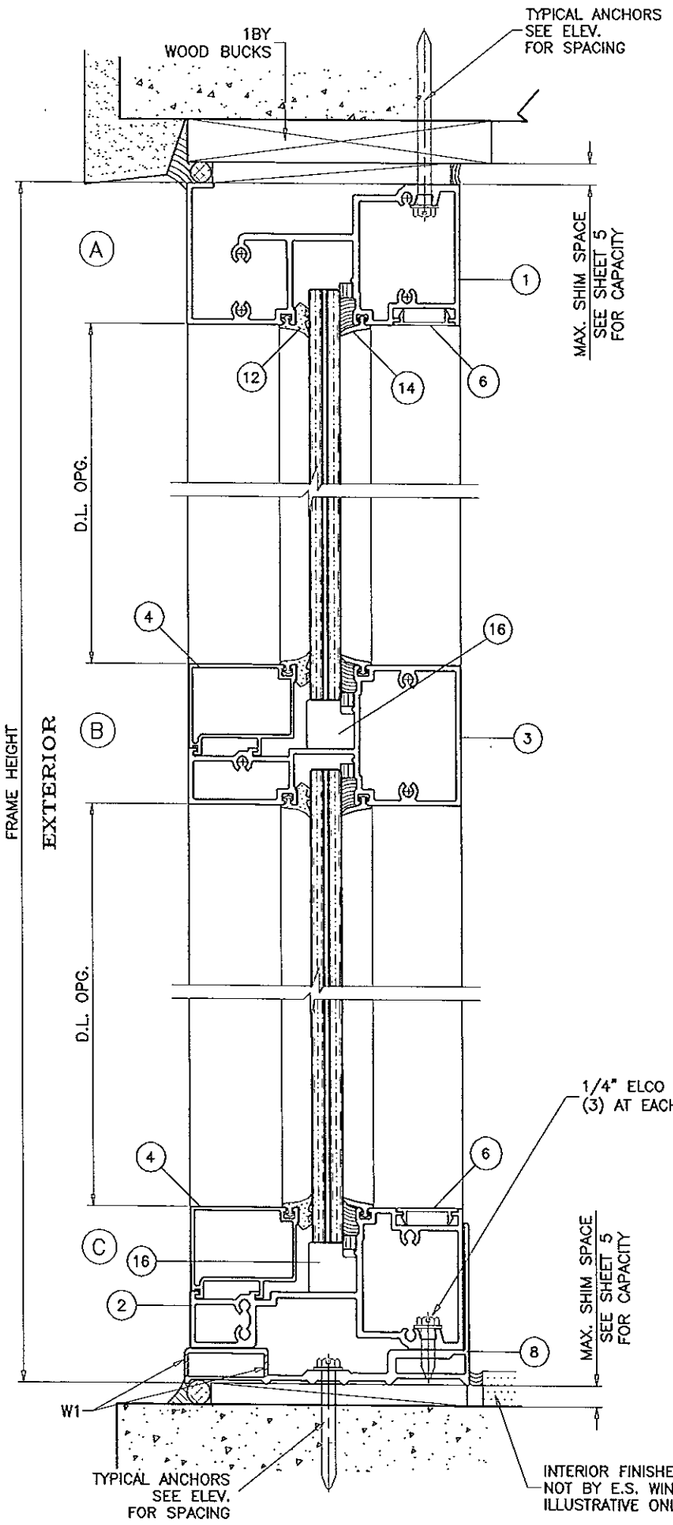
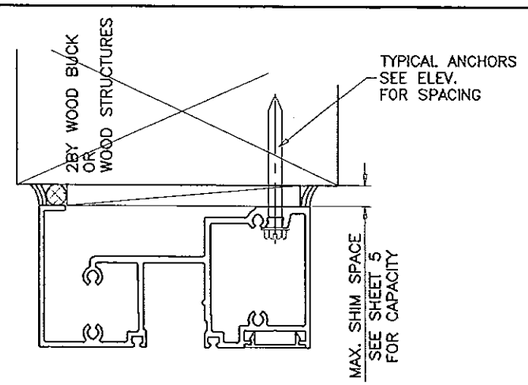
| D | 08.04.14 | | NO CHANGE THIS SHEET |

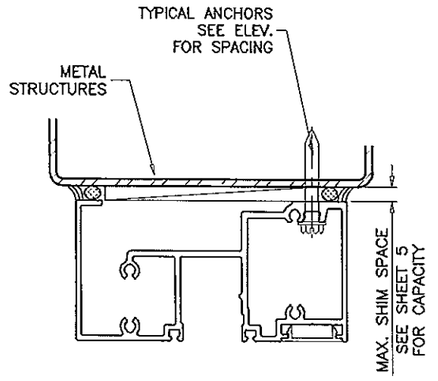
date: 04–16–09
scale: –
dr. by: HAMID
chk. by:

drawing no.
W09–25

sheet 7 of 18




## TYPICAL ANCHORS: SEE ELEV. FOR SPACING

TYPE 'A'– 1/4" DIA ULTRACON BY 'ELCO' (Fu=177 KSI, Fy=155 KSI)
INTO 2BY WOOD BUCKS OR WOOD STRUCTURES
WITH 1–3/8" MIN. PENETRATION INTO WOOD

THRU 1BY WOOD BUCKS INTO CONCRETE
WITH 1–1/4" MIN. EMBED INTO CONCRETE

DIRECTLY INTO CONCRETE
WITH 1–1/4" MIN. EMBED INTO CONC.

ANCHOR EDGE DISTANCES

INTO CONCRETE AND MASONRY = 2–1/2" MIN.
INTO WOOD STRUCTURE = 1" MIN. (1/4" ANCHORS)
INTO WOOD STRUCTURE = 1–1/4" MIN. (5/16" ANCHORS)

TYPE 'B'– 1/4" DIA HILTI KWIK CON II BY 'HILTI' (Fu=163 KSI, Fy=157 KSI)
INTO 2BY WOOD BUCKS OR WOOD STRUCTURES
WITH 1–1/2" MIN. PENETRATION INTO WOOD

THRU 1BY WOOD BUCKS INTO CONCRETE
WITH 1–1/4" MIN. EMBED INTO CONCRETE

DIRECTLY INTO CONCRETE
WITH 1–1/4" MIN. EMBED INTO CONC.

ANCHOR EDGE DISTANCES

INTO CONCRETE AND MASONRY = 2–1/2" MIN.
INTO WOOD STRUCTURE = 1" MIN.

TYPE 'C'– 5/16" DIA ULTRACON BY 'ELCO' (Fu=177 KSI, Fy=155 KSI)
INTO 2BY WOOD BUCKS OR WOOD STRUCTURES
WITH 1–3/8" MIN. PENETRATION INTO WOOD

THRU 1BY WOOD BUCKS INTO CONCRETE
WITH 1–1/4" MIN. EMBED INTO CONCRETE

DIRECTLY INTO CONCRETE
WITH 1–1/4" MIN. EMBED INTO CONC.

ANCHOR EDGE DISTANCES

INTO CONCRETE AND MASONRY = 2–1/2" MIN.
INTO WOOD STRUCTURE = 1" MIN. (1/4" ANCHORS)
INTO WOOD STRUCTURE = 1–1/4" MIN. (5/16" ANCHORS)

TYPE 'D'– 1/4" DIA. TEKS OR SELF DRILLING SCREWS ST/ST (GRADE 5 CRS)
INTO METAL STRUCTURES

STEEL : 12 GA. MIN. (Fy = 36 KSI MIN.)
ALUMINUM : 1/8" THK. MIN. (6063–T5 MIN.)
(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

ANCHOR EDGE DISTANCES

INTO METAL STRUCTURE = 1/2" MIN.

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

## WEEP HOLES:

W1 = 3/8" WEEP HOLES
(1) AT 3" FROM EACH END
(2) AT EACH MULLION AT 3" FROM MULLION CENTERLINE.

## SEALANTS:

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

WOOD BUCKS AND METAL STRUCTURES NOT BY E.S. WDW. MUST SUPPORT LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER THEM TO THE BUILDING STRUCTURE.

LAMINATED GLASS

Engr: JAVAD AHMAD
CML
FLA. PE # 70592
C.A.N. 3938

FEB 06 2015

PRODUCT REVISED
as complying with the Florida Building Code
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By Manuel Diaz
Miami Dade Product Control


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STORE W09–25ES

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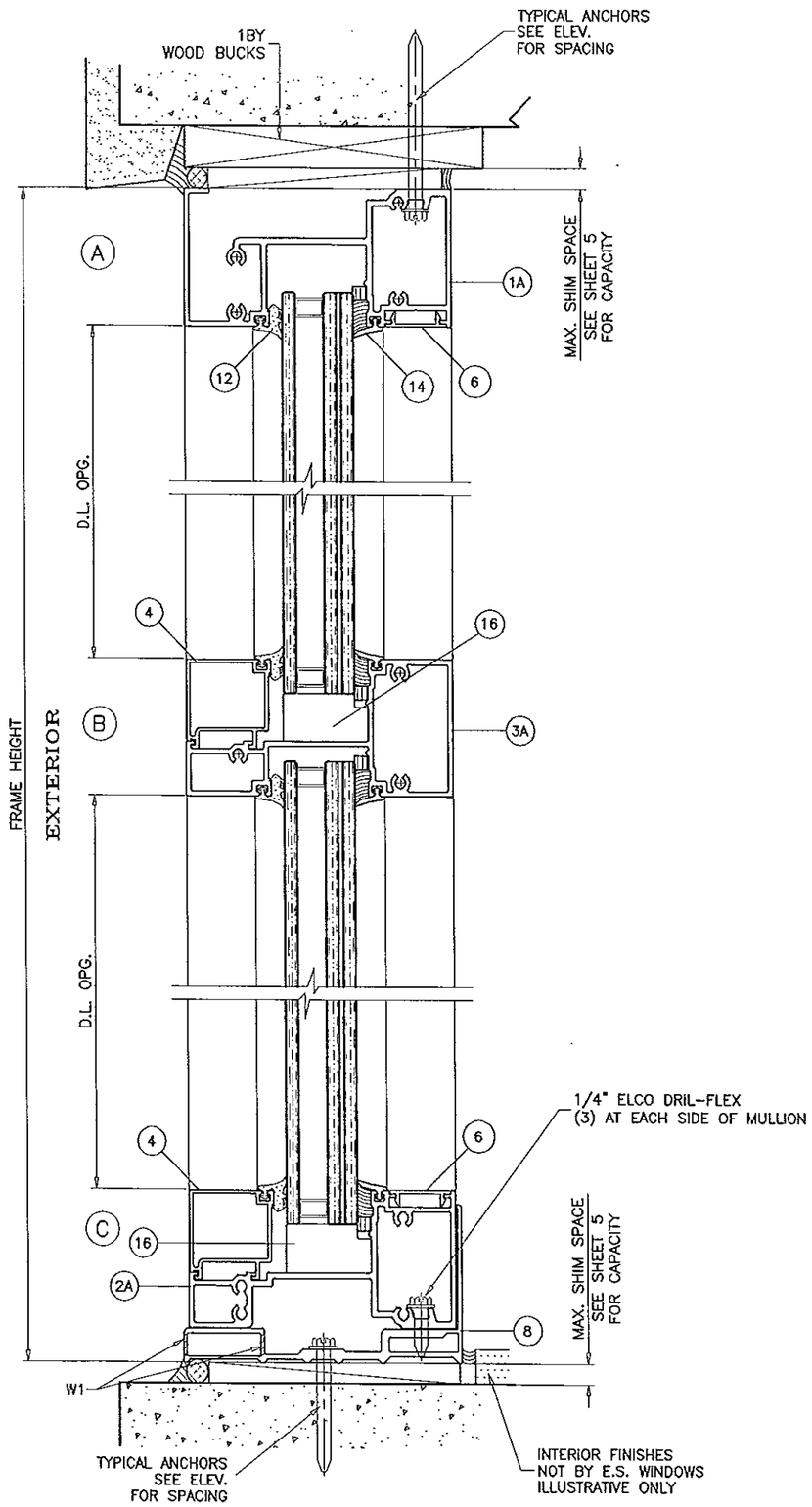
scale: 3/8" = 1"
dr. by: HAMID
chk. by:

drawing no.
W09–25

sheet 8 of 18




INSUL. LAM. GLASS

Engr: JAVAD AHMAD
CML
FLA. PE # 70592
C.A.N. 3538

FEB 06 2015

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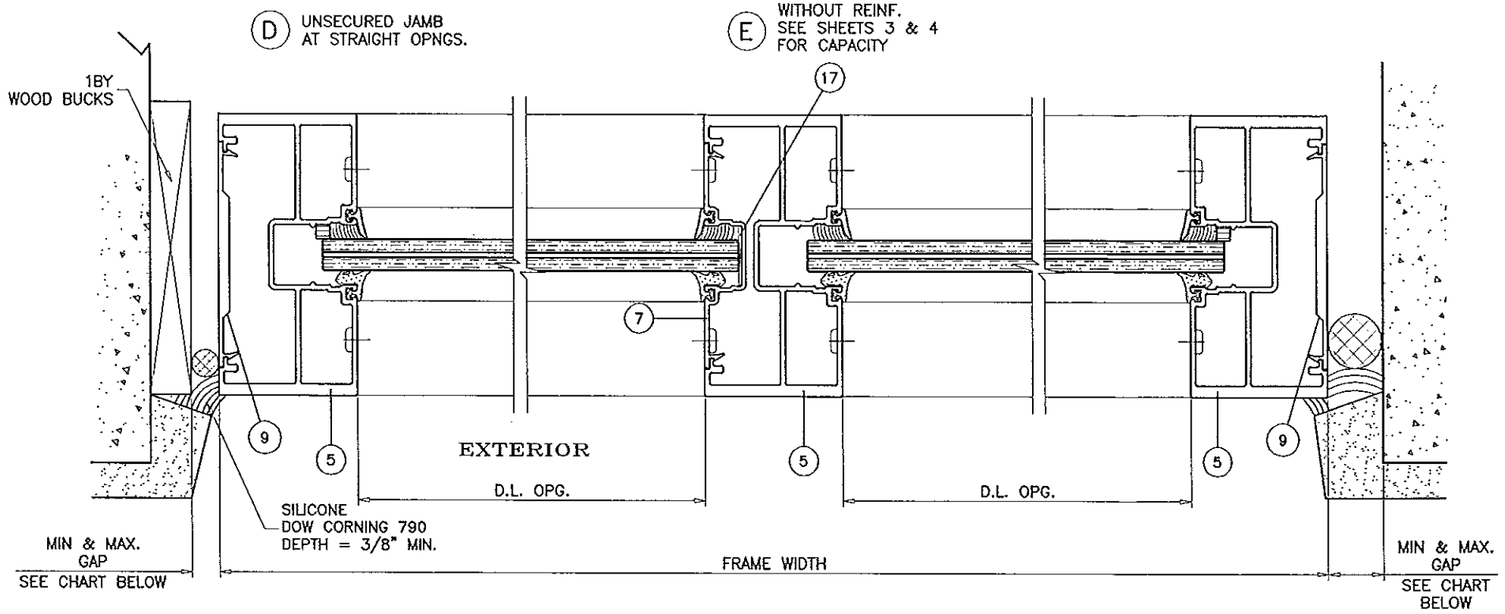
date: 04-16-09
scale: 3/8" = 1"
dr. by: HAMID
chk. by:

drawing no.
W09-25

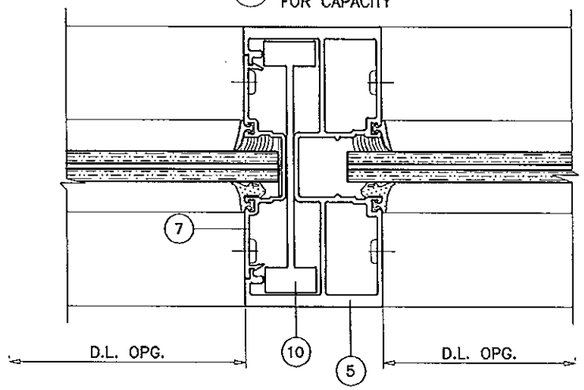
sheet 9 of 18

(D) UNSECURED JAMB AT STRAIGHT OPNGS.

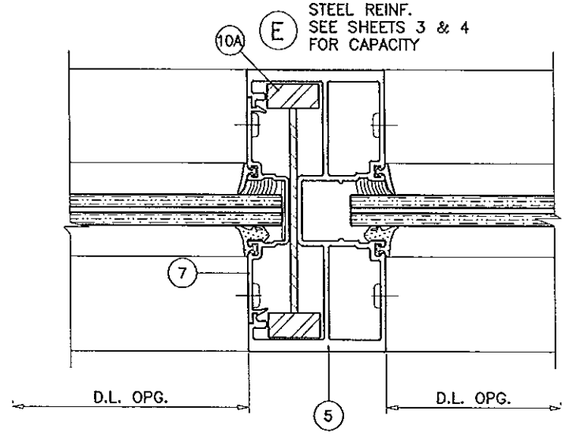



(E) WITHOUT REINF. SEE SHEETS 3 & 4 FOR CAPACITY

(E) ALUM REINF. SEE SHEETS 3 & 4 FOR CAPACITY




(E) STEEL REINF. SEE SHEETS 3 & 4 FOR CAPACITY




| MAX. FRAME HEIGHT | GAP MIN. | GAP MAX. |
|---|---|---|
| 60" | 3/16" | 3/4" |
| 72" | 3/16" | 3/4" |
| 84" | 3/16" | 3/4" |
| 96" | 3/16" | 3/4" |
| 108" | 5/16" | 3/4" |
| 120" | 3/8" | 3/4" |

ALTERNATE SEALANTS AT JAMB GAPS CAN BE DESIGNED BY ENGINEER OF RECORD BASED ON MANUFACTURER GUIDE LINES.

LAMINATED GLASS

Engr: JAVAD AHMAD
CIVIL
FLA. PE # 70592
C.A.N. 3538

FEB 06 2015

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 14-0820.13
Expiration Date Oct. 22. 2019
By Manuel Perez
Miami Dade Product Control


AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978


STORE\W09-25ES

SERIES 9500 ALUM WINDOW WALL SYSTEM (L.M.I.)

E.S. WINDOWS, LLC
10653 N.E. QUAYBRIDGE CT.
MIAMI, FL. 33138
TEL. (305) 624-7775 FAX. (305) 624-7777

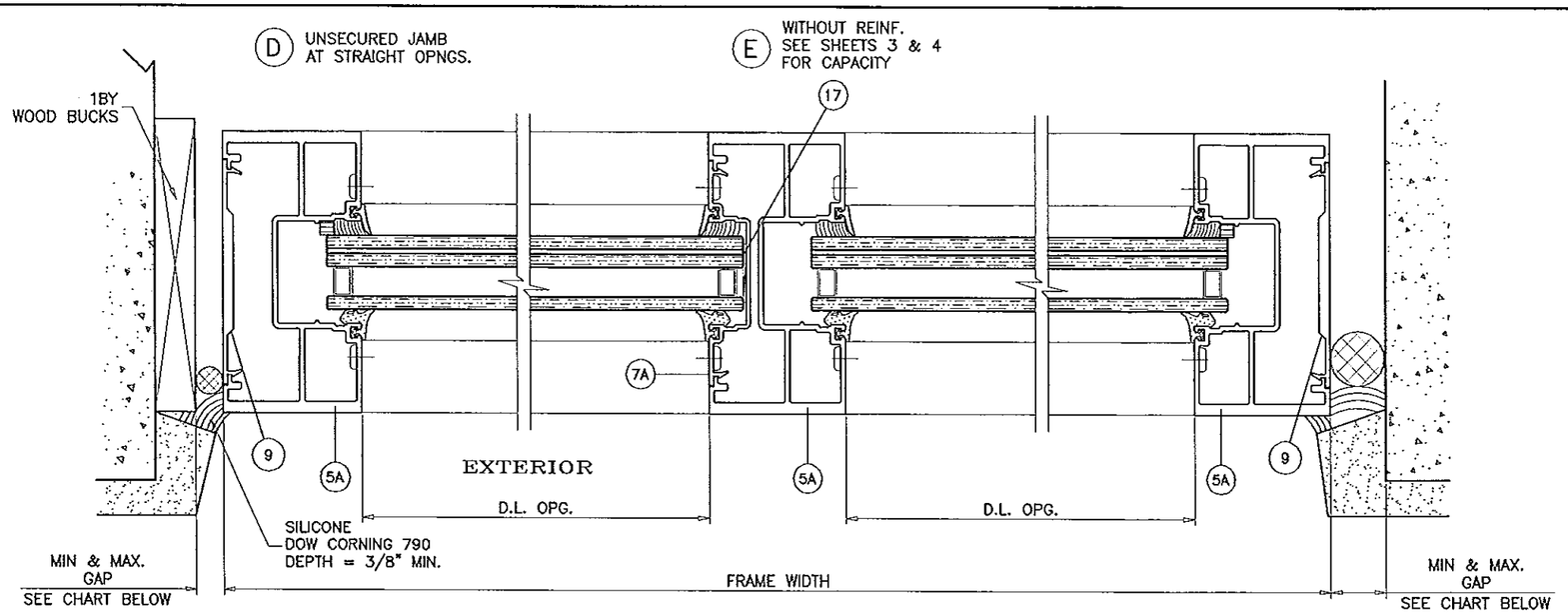
revisions:

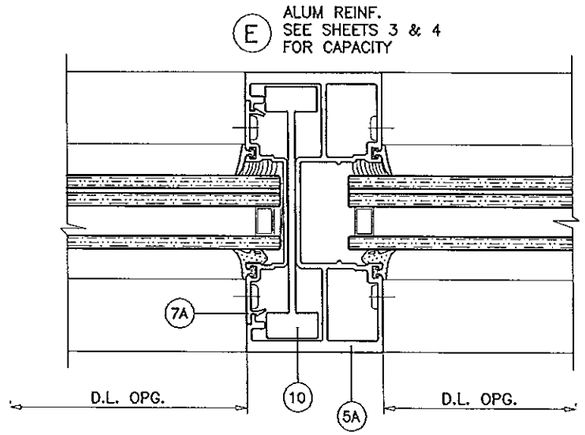
| no | date | by | description |
|---|---|---|---|
| A | 08.28.09 | | REV. PER BCCO COMMENTS |
| B | 03.16.10 | | NO CHANGE THIS SHEET |
| C | 03.13.12 | | NO CHANGE THIS SHEET |
| D | 08.04.14 | | UPDATED TO 2014 FBC |

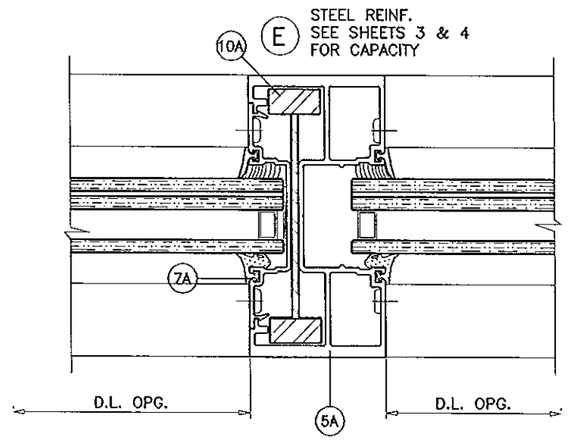
date: 04-16-09
scale: 3/8" = 1"
dr. by: HAMID
chk. by:

drawing no.
W09-25

sheet 10 of 18




| MAX. FRAME HEIGHT | GAP | |
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| | MIN. | MAX. |
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INSUL. LAM. GLASS

Engr: JAVAD AHMAD
CIVIL
FLA. PE # 70592
C.A.N. 3538

FEB 06 2015

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STORE W09-25ES

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TEL (305) 624-7775 FAX. (305) 624-7777

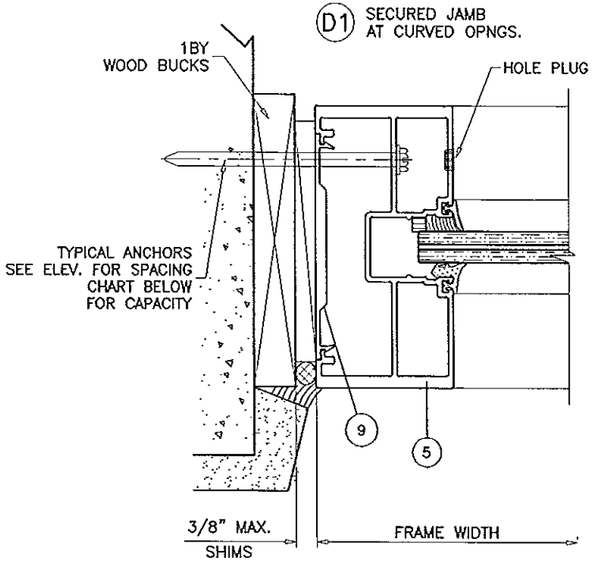
| revisions: | | |
|---|---|---|
| no | date | by description |
| B | 03.16.10 | INSUL. GLASS OPTION ADDED |
| C | 03.13.12 | NO CHANGE THIS SHEET |
| D | 08.04.14 | UPDATED TO 2014 FBC |

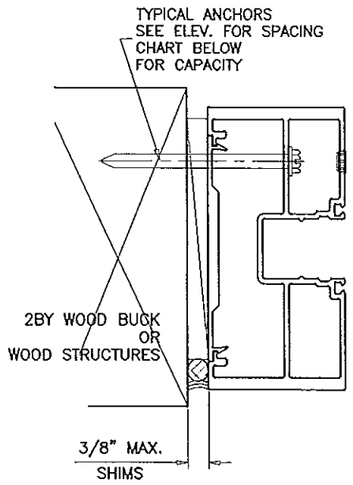
date: 04-16-09
scale: 3/8" = 1"
dr. by: HAMID
chk. by:

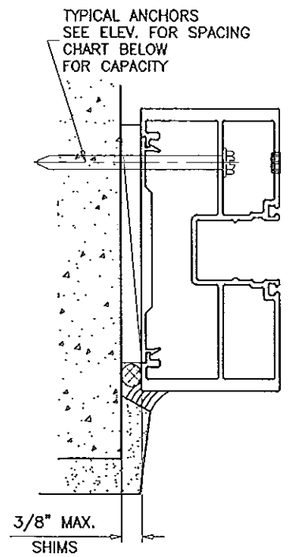
drawing no.
W09-25

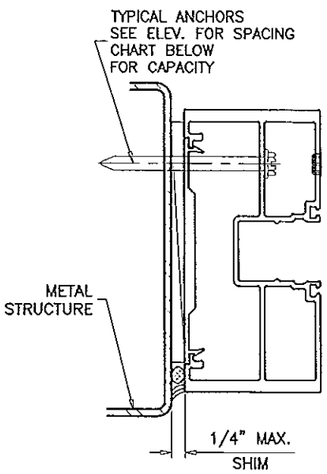
sheet 11 of 18

## LAMINATED GLASS

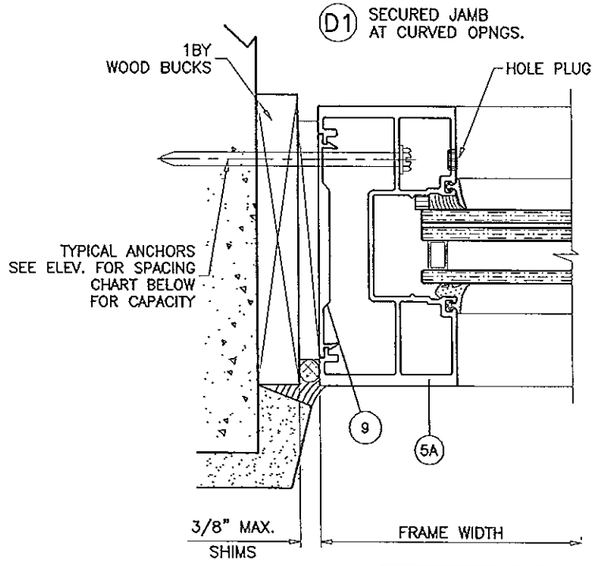


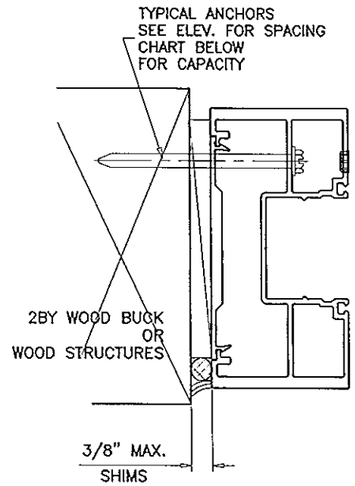



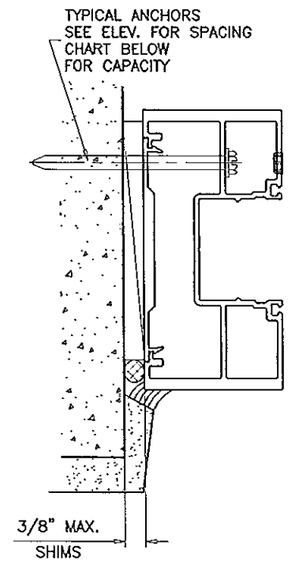



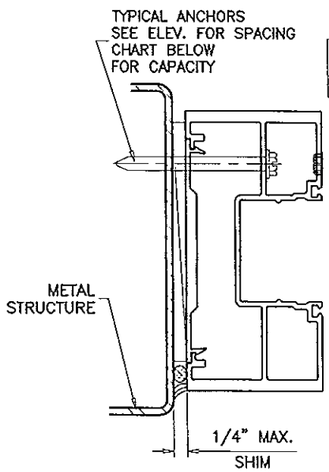



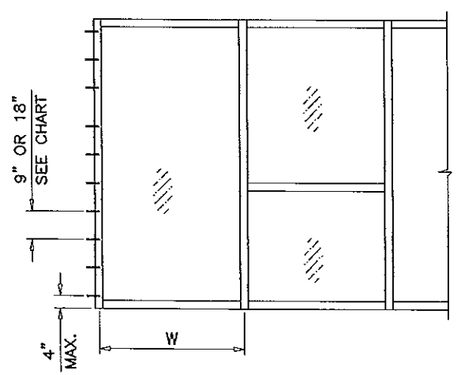

## INSUL. LAM. GLASS




| JAMB ANCHORS DESIGN LOAD CAPACITY - PSF | | | | | | |
|---|---|---|---|---|---|---|
| WIDTH (W) | ANCHORS TYPE 'B' AT 9" O.C. | | ANCHORS TYPE 'C' AT 18" O.C. | | ANCHORS TYPE 'D' AT 9" O.C. | ANCHORS TYPE 'D' AT 18" O.C. |
| | 1/4" SHIMS | 3/8" SHIMS | 1/4" SHIMS | 3/8" SHIMS | 1/4" SHIMS | 1/4" SHIMS |
| | EXT.(+)/INT.(-) | EXT.(+)/INT.(-) | EXT.(+)/INT.(-) | EXT.(+)/INT.(-) | EXT.(+)/INT.(-) | EXT.(+)/INT.(-) |
| 30" | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 |
| 36" | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 |
| 42" | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 | 114.0 |
| 48" | 120.0 | 120.0 | 120.0 | 106.0 | 120.0 | 100.0 |
| 54" | 120.0 | 120.0 | 110.0 | 94.0 | 110.0 | 89.0 |
| 60" | 120.0 | 115.0 | 99.0 | 84.0 | 99.0 | 80.0 |

Engr: JAVAD AHMAD
CML
FLA. PE # 70592
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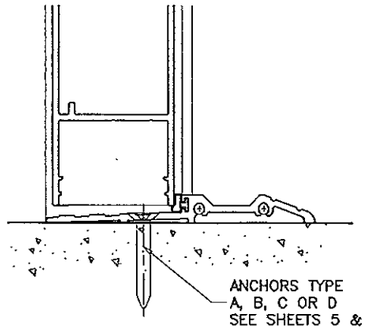
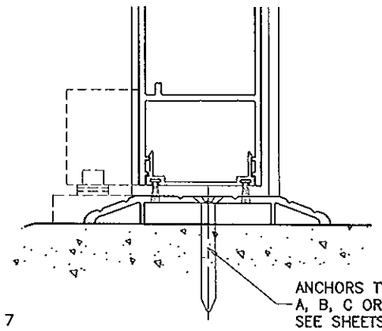
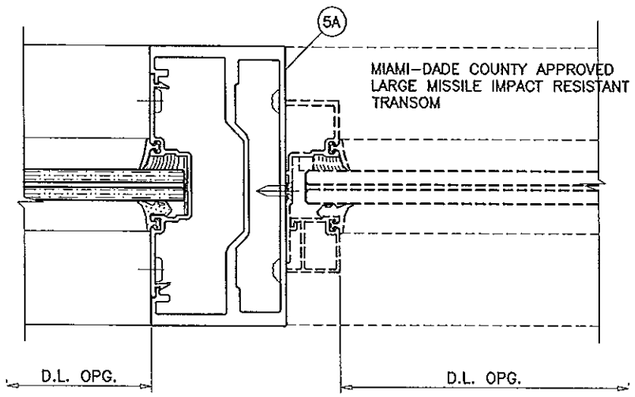



(F) WITHOUT REINF.
SEE SHEET 6
FOR CAPACITY




EXTERIOR

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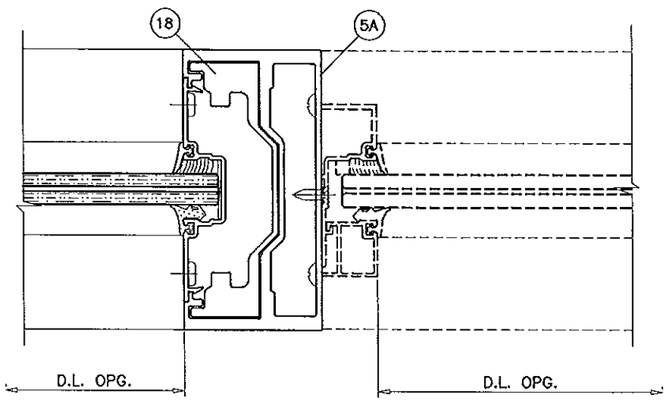
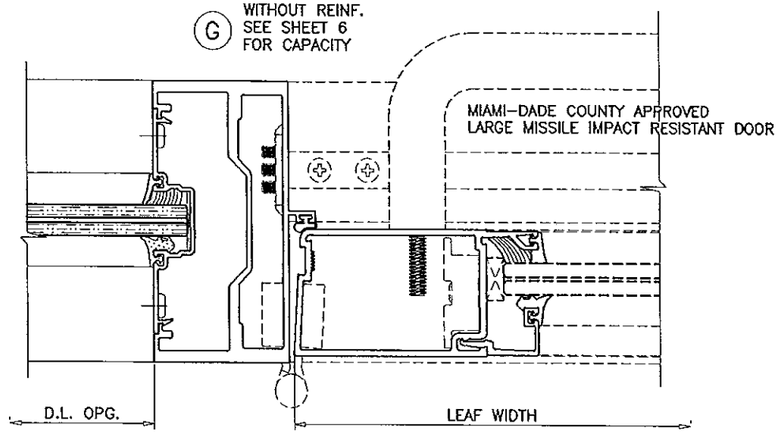



EXTERIOR

(G) WITHOUT REINF.
SEE SHEET 6
FOR CAPACITY

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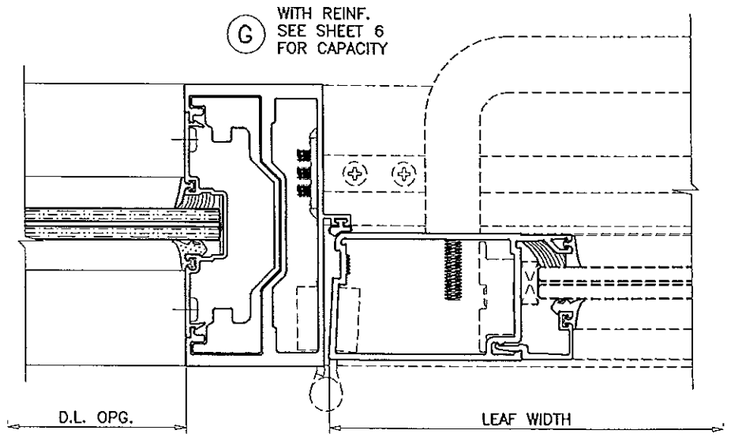


EXTERIOR

SEE SEPARATE NOA FOR DESIGN LOAD CAPACITY OF DOORS AND DOOR ANCHORS.

LOWER VALUES FROM DOORS NOA OR STOREFRONT SYSTEM CAPACITY CHARTS WILL APPLY TO ENTIRE SYSTEM.

LAMINATED GLASS

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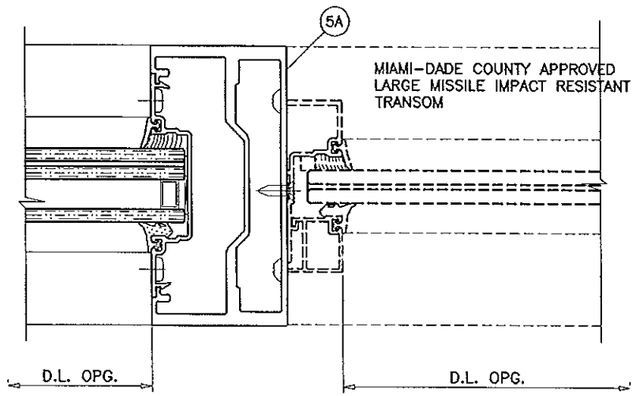


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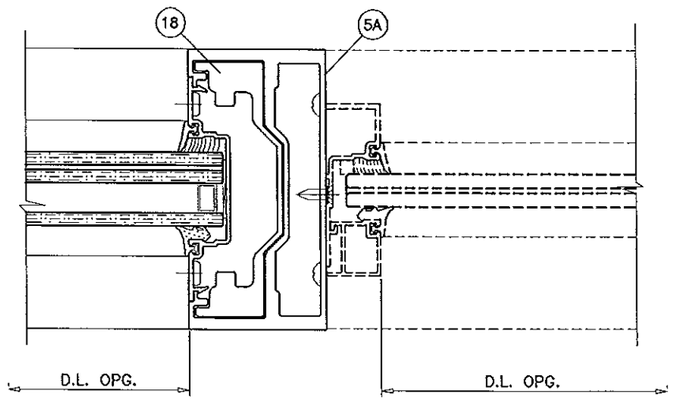


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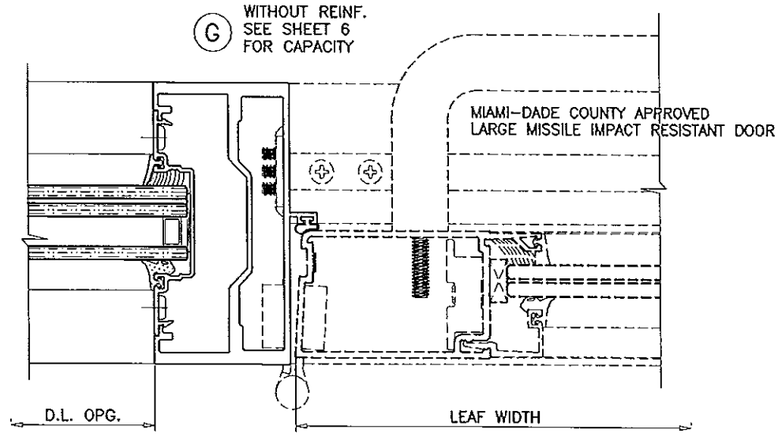
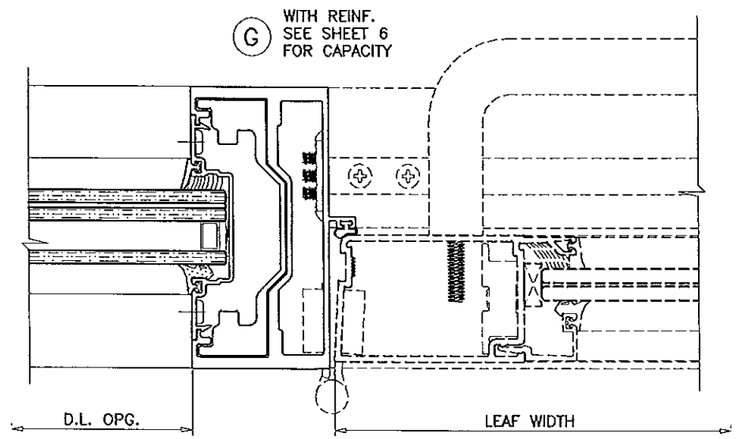



EXTERIOR

(G) WITH REINF.
SEE SHEET 6
FOR CAPACITY




EXTERIOR

INSUL. LAM. GLASS

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| revisions: | | | |
|---|---|---|---|
| no | date | by | description |
| B | 03.16.10 | | INSUL. GLASS OPTION ADDED |
| C | 03.13.12 | | NO CHANGE THIS SHEET |
| D | 08.04.14 | | NO CHANGE THIS SHEET |

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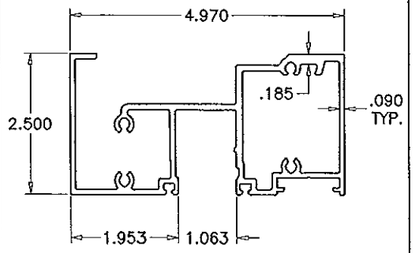


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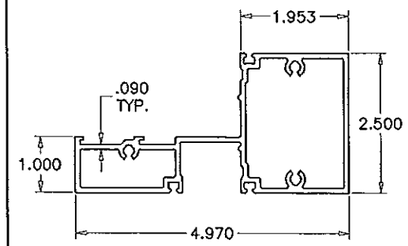
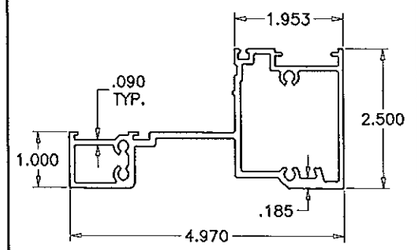
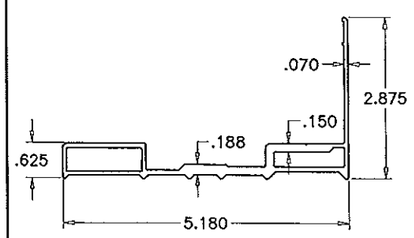


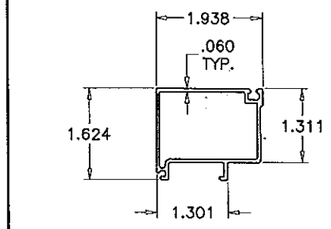

3 FRAME HORIZONTAL



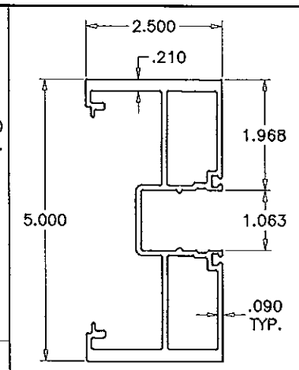

2 FRAME SILL



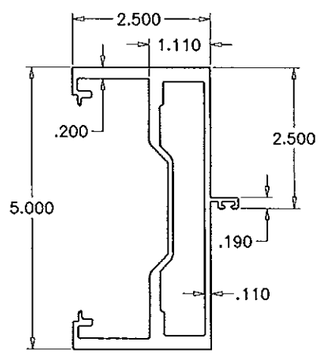

8 SILL FLASHING




4 GLAZING STOP




5 FRAME JAMB/MULLION

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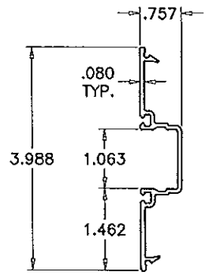


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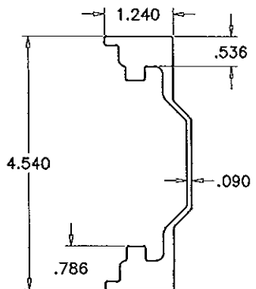
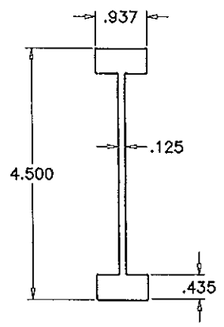
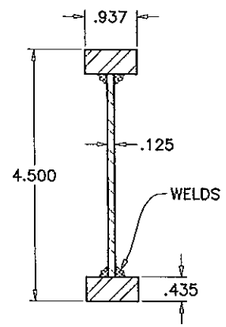


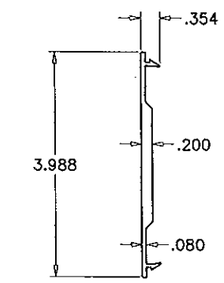

18 DOOR MULLION REINFORCING



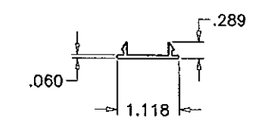

10 MULLION REINFORCING




10A MULLION REINFORCING




9 JAMB FILLER




6 FRAME COVER

| ITEM NO. | PART NUMBER | QUANTITY | DESCRIPTION | MATERIAL | MANF./SUPPLIER/REMARKS |
|---|---|---|---|---|---|
| 1 | ES9506 | AS REQD. | FRAME HEAD (LAM. GLASS) | 6063-T6 | -- |
| 2 | ES9503 | AS REQD. | FRAME SILL (LAM. GLASS) | 6063-T6 | -- |
| 3 | ES9505 | AS REQD. | FRAME HORIZONTAL (LAM. GLASS) | 6063-T5 | -- |
| 4 | ES9504 | AS REQD. | GLAZING STOP (LAM. GLASS) | 6063-T5 | -- |
| 5 | ES9507 | AS REQD. | FRAME JAMB/MULLION (LAM. GLASS) | 6063-T6 | -- |
| 5A | ES9013 | AS REQD. | DOOR MULLION | 6063-T6 | -- |
| 6 | ES9502 | AS REQD. | FRAME COVER | 6063-T5 | -- |
| 7 | ES9508 | AS REQD. | POCKET FILLER (LAM. GLASS) | 6063-T6 | -- |
| 8 | ES9501 | AS REQD. | SILL FLASHING | 6063-T6 | -- |
| 9 | ES9016 | AS REQD. | JAMB FILLER | 6063-T6 | -- |
| 10 | ES9510 | AS REQD. | MULLION REINFORCING | 6063-T6 | -- |
| 10A | -- | AS REQD. | MULLION REINFORCING | STEEL | -- |
| 11 | #12 X 1" | AS REQD. | FRAME ASSEMBLY SCREWS | ST/ST | P.H. SMS |
| 12 | -- | AS REQD. | WEDGE GASKET | EPDM | -- |
| 13 | -- | AS REQD. | GLAZING COMPOUND | SILICONE | DOW CORNING 795/983 |
| 14 | -- | AS REQD. | TRIM GASKET | EPDM | -- |
| 15 | -- | AS REQD. | INTERIOR SPACER 1/4" X 1/4" | EPDM | -- |
| 16 | -- | AS REQD. | SETTING BLOCK (LAM. GLASS) | EPDM | DUROMETER 75±5 SHORE A |
| 17 | -- | AS REQD. | SIDE BLOCK | EPDM | DUROMETER 75±5 SHORE A |
| 18 | ES9017 | AS REQD. | DOOR MULLION REINFORCING | 6063-T6 | -- |

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Expiration Date Oct. 08, 2019
By Manuel Perez
Miami Dade Product Control


AL-FAROOQ CORPORATION
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SERIES 9500 ALUM WINDOW WALL SYSTEM (L.M.I.)

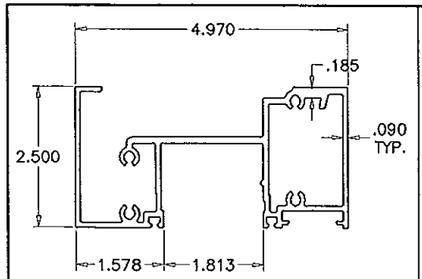
E.S. WINDOWS, LLC
10653 N.E. QUAYBRIDGE CT.
MIAMI, FL. 33138
TEL. (305) 624-7775 FAX. (305) 624-7777

revisions:

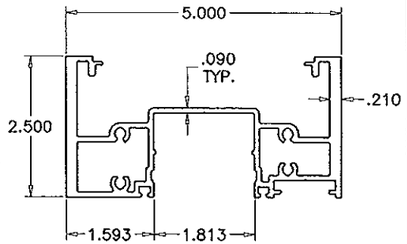
| no | date | by | description |
|---|---|---|---|
| A | 08.28.09 | | NO CHANGE THIS SHEET |
| B | 03.16.10 | | INSUL. GLASS OPTION ADDED |
| C | 03.13.12 | | UPDATED TO 2010 FBC |
| D | 08.04.14 | | UPDATED TO 2014 FBC |

date: 04-16-09
scale: 3/8" = 1"
dr. by: HAMID
chk. by:

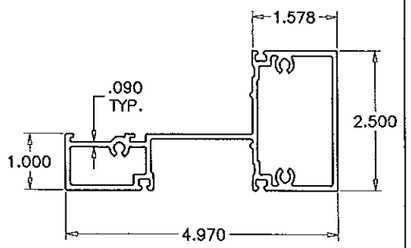
drawing no.
W09-25



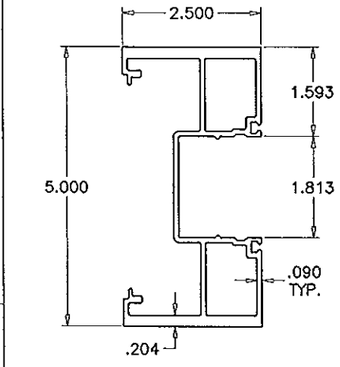

1A FRAME HEAD



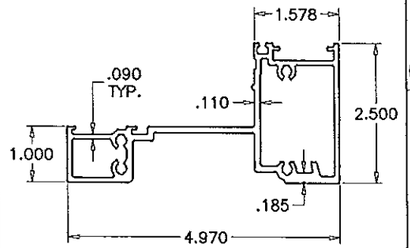

1.1 ALT. FRAME HEAD



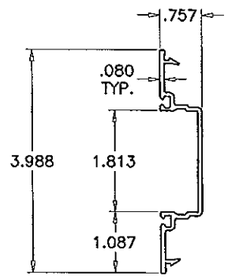

3A FRAME HORIZONTAL



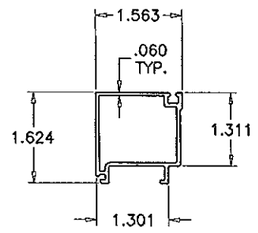

5A FRAME JAMB/MULLION




2A FRAME SILL




7A POCKET FILLER




4A GLAZING STOP

| ITEM NO. | PART NUMBER | QUANTITY | DESCRIPTION | MATERIAL | MANF./SUPPLIER/REMARKS |
|---|---|---|---|---|---|
| 1A | ES-9554 | AS REQD. | FRAME HEAD (INSUL. LAM. GLASS) | 6063-T6 | – |
| 1.1 | ES-9558 | AS REQD. | ALT. FRAME HEAD (INSUL. LAM. GLASS) | 6063-T6 | – |
| 2A | ES-9551 | AS REQD. | FRAME SILL (INSUL. LAM. GLASS) | 6063-T6 | – |
| 3A | ES-9553 | AS REQD. | FRAME HORIZONTAL (INSUL. LAM. GLASS) | 6063-T5 | – |
| 4A | ES-9552 | AS REQD. | GLAZING STOP (INSUL. LAM. GLASS) | 6063-T5 | – |
| 5A | ES-9555 | AS REQD. | FRAME JAMB/MULLION (INSUL. LAM. GLASS) | 6063-T6 | – |
| 7A | ES-9556 | AS REQD. | POCKET FILLER (INSUL. LAM. GLASS) | 6063-T6 | – |
| 16A | – | AS REQD. | SETTING BLOCK (INSUL. LAM. GLASS) | EPDM | DUROMETER 75±5 SHORE A |

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| C | 03.13.12 | | NO CHANGE THIS SHEET |
| D | 08.04.14 | | UPDATED TO 2014 FBC |

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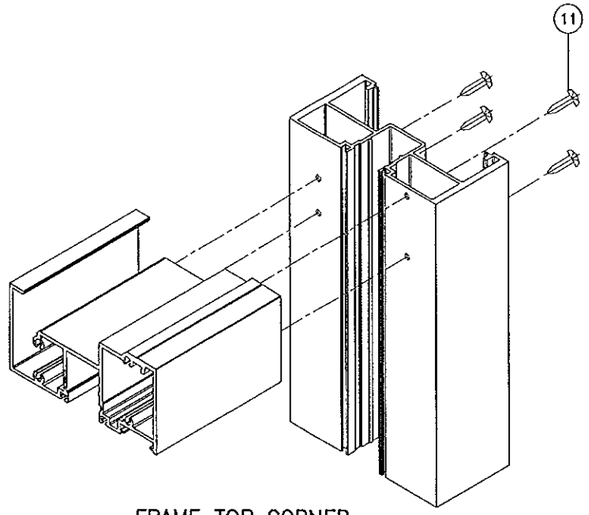
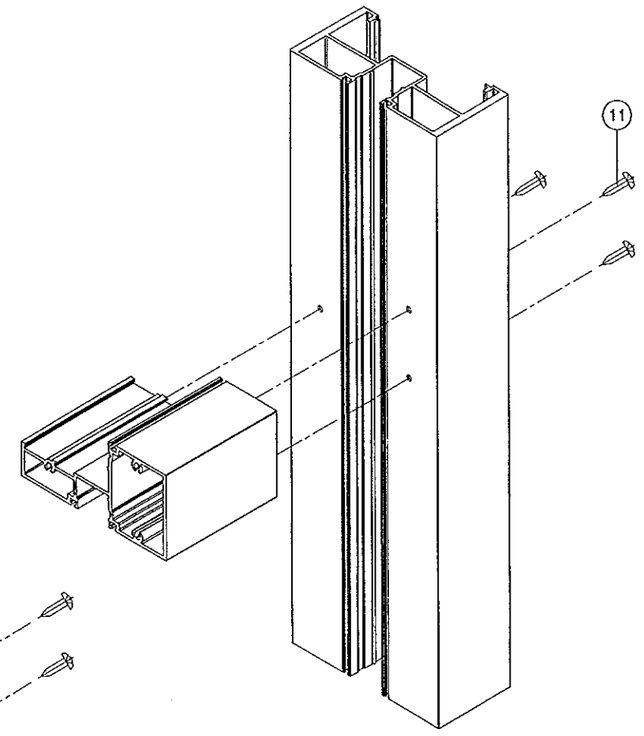
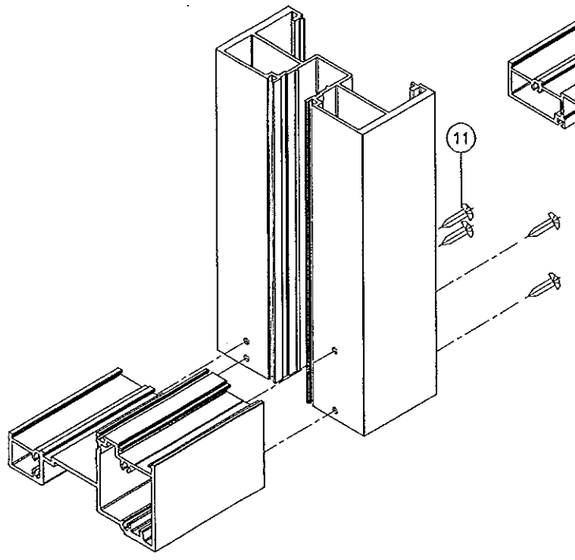


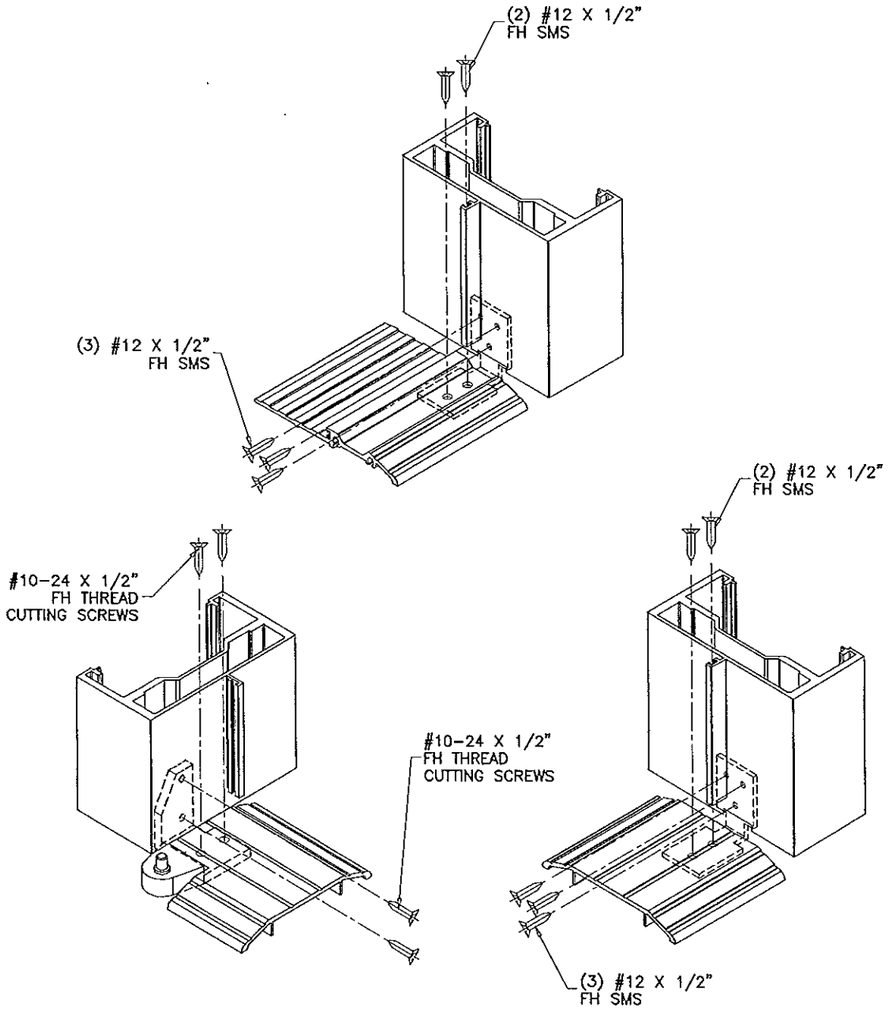

FRAME TOP CORNER




HORIZONTAL CORNER




FRAME BOTTOM CORNER




DOOR MULLION CORNER

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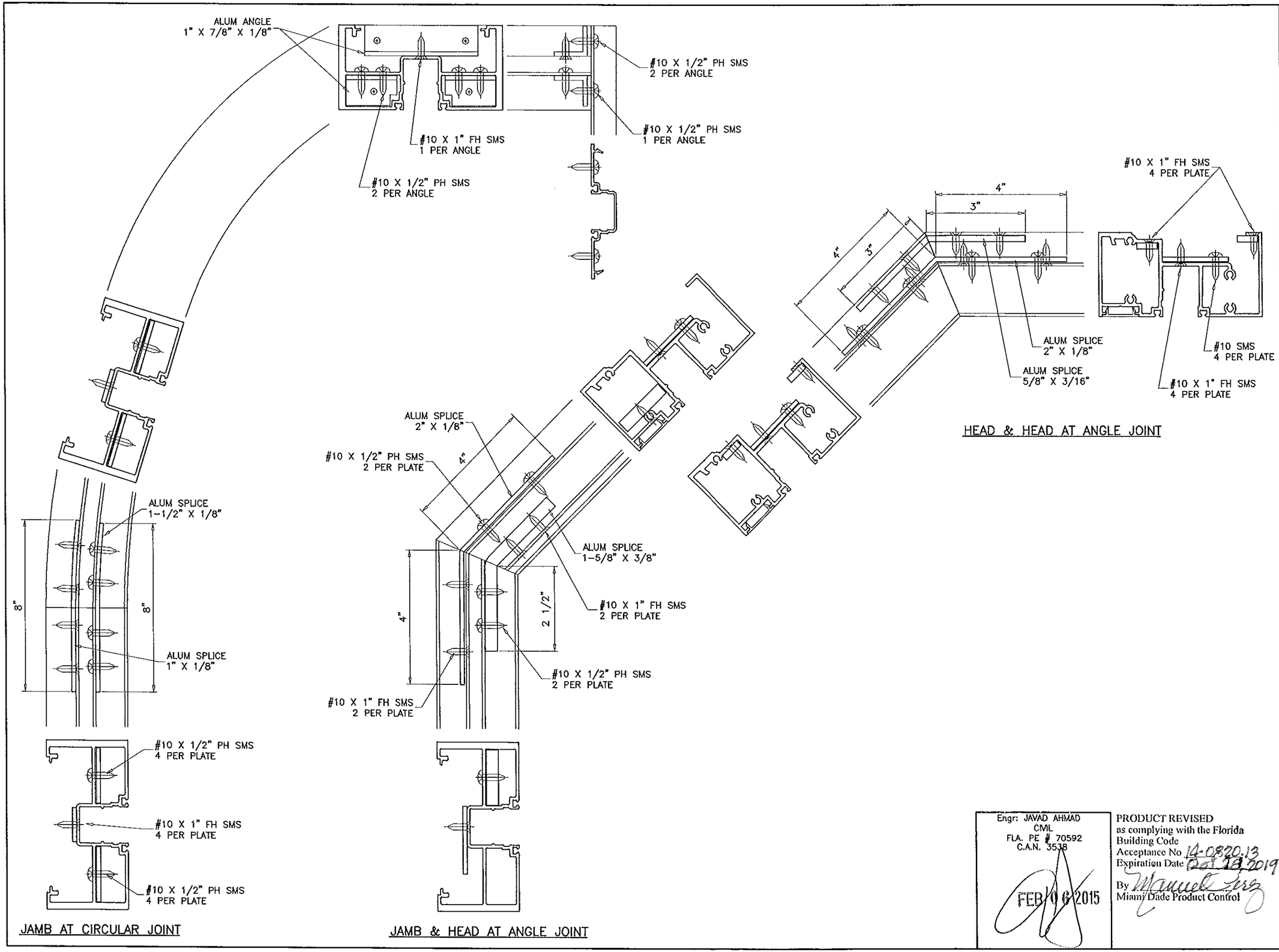
sheet 17 of 18

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