BROWARD COUNTY HOUSING AUTHORITY
SOLICITATION NUMBER QR 18-268
QUOTATION REQUEST

INSTALLATION OF NEW IMPACT WINDOWS
FOR
VILLAS OF POMPANO APARTMENT

QUOTE DUE DATE: JUNE 18, 2018, 2:00 PM, EST

Please check BCHA's web site for addenda and changes before submitting your quote.

CONTACT: STACIE-ANN RICHARDS
PROCUREMENT SPECIALIST
BROWARD COUNTY HOUSING AUTHORITY
4780 NORTH STATE ROAD 7
LAUDERDALE LAKES, FL 33319
TELEPHONE: 954-739-1114, EXTENSION 1513
E-MAIL: srichards@bchafl.org

INSTALLATION OF NEW IMPACT WINDOWS

1. INTRODUCTION

The Broward County Housing Authority (herein after, "BCHA") is a Public Housing Agency established in June 1969 under the U.S. Housing Act of 1937 and Chapter 421 of the Florida Statutes and is an Independent Special District of the State of Florida.

The mission of Broward County Housing Authority, its affiliates and instrumentalities (hereinafter, jointly referred to as "BCHA") is to create, provide and increase high quality housing opportunities for Broward County residents through effective and responsive management and responsible stewardship of public and private funds.

The United States Department of Housing and Urban Development ("HUD"), a federal agency, partially funds and monitors operations of the BCHA. Nothing contained in this RFP or in the contract resulting from the selection process shall be construed to create any contractual relationship between the successful Proposer and HUD.

BCHA maintains a website at http://www.bchafl.org with information for clients, landlords, prospective business partners, and the public at large.

2. STATEMENT OF WORK

The Broward County Housing Authority (BCHA) as a Public Housing Authority existing under Florida statutes, and on behalf of related instrumentalities and single asset affiliated entities are actively soliciting quotations from qualified, licensed and insured contractors to provide **Installation of New Impact Windows** for Villas of Pompano Apartments for two 4-unit apartment building located at 113 & 117 SE 11th Avenue, Pompano Beach, Fl. 33060 in Broward County Florida, in accordance with the specifications as set forth in this quotation request.

3. CONTRACTOR RESPONSIBILITIES

Standard Service Requirements: Except as specifically excluded, contractor shall be responsible for providing all services, permits (if required), licenses, materials, labor, supplies, tools and equipment necessary to meet the service requirements contained within this solicitation. The awarded contractor shall be familiar with all laws and regulations that may in any way affect the work. The cost/fees for permits must be included in the contractor's price and paid for by the contractor.

3.1.1 The Contractor shall be responsible for obtaining any permits required.
3.1.2 The cost/fees for permits must be included in the contractor's price and paid for by the contractor.
3.1.3 The Contractor must cordon off work area as needed for safe operation of equipment
3.1.4 Contractor may not leave any holes or trenches uncovered after work hours.
3.1.5 Contractor may not use any water or electricity from the site.

3.1.6 Contractor will report any ensuing damage to property directly to the Property Manager or Contact Person.

3.1.7 Contractor will remove any and all construction debris from BCHA sites daily. BCHA dumpsters and trash receptacles **MUST NOT** be used for this purpose.

3.1.8 Contractor must provide competent supervision.

3.1.9 Contractor must provide qualified and experienced staff to perform all work.

3.1.10 Contractor will perform work between the hours of 8:00AM and 5:00PM Monday through Friday.

3.1.11 Contractor must furnish all tools and materials and will operate, maintain, and repair all equipment necessary to perform work required within this solicitation.

3.1.12 Contractor **MUST NOT** store equipment or materials at any BCHA site without permission.

3.1.13 All employees of the Contractor shall be considered to be, at all times the sole employees of the Contractor, under his sole direction and not an employee or agent of BCHA. BCHA may require the Contractor to remove an employee if it deems the employee to be careless, incompetent, insubordinate or otherwise objectionable and whose continued employment on BCHA property is not in the best interest of BCHA.

3.1.14 At least one employee of the Contractor, assigned to any BCHA site must be able to fluently speak, read and communicate in the English language or the Contractor must provide a translator for communication at the Contractor's expense.

3.1.15 Contractor will perform tasks specified within Scope of Work above at locations below.

3.2 **Personnel:** All employees of the contractor shall be considered to be, at all times the sole employees of the Contractor, under his sole direction and not an employee or agent of BCHA. BCHA may require the contractor to remove an employee if it deems the employee to be careless, incompetent, insubordinate or otherwise objectionable and whose continued employment on BCHA property is not in the best interest of BCHA.

3.4 **Employee Identification:** Contractor's personnel must be appropriately attired, courteous and conduct themselves in a professional manner consistent with UPCS requirements. While working on BCHA property, all contractors' inspectors shall wear clearly displayed photo identification badges at shirt pocket height showing they are employees of the contractor. The badges shall be provided by the contractor at the contractor's expense.

3.5 Contractor shall be responsible for informing their personnel that under no circumstances are they permitted to accept food or drink from any tenant.

3.6 Smoking is **NOT** permitted in any BCHA residential unit or facility.

3.7 Contractor's employees must call Property Manager to check in and provide them with the following information: Company name, Building name and nature of work to be performed.

3.8 **HUD General Conditions**: Bidders are subject to General Conditions for Construction Contracts, HUD Form 5370-EZ, at https://www.hud.gov/sites/dfiles/OCHCO/documents/5370-EZ.pdf

3.9 Contractor shall fully complete the work within **60 days** from the issue date of the permit. No grace period shall be honored unless previously established and written authorization is granted by the Project Manager.

3.10 In the event that the contractor fails to complete the work within the timeframe set forth, and in compliance with the specifications and requirements contained within this solicitation, BCHA reserves the right to pursue alternate remedies which may include the termination of the contract for default.

4. LICENSING AND INSURANCE INFORMATION

4.1 Before a contract pursuant to this Quotation Request (QR) is executed, the apparent successful Contractor must hold all necessary, applicable professional licenses required by the State of Florida and all regulatory agencies necessary to complete the Service. The Contractor shall obtain, at the Contractor's expense, any permits, certificates and licenses as may be required in the performance of work specified. All required licenses shall remain active and valid during the entire duration of the subsequent contract. BCHA may require any or all Contractors to submit evidence of proper licensure.

4.2 A copy of the contractor's business license allowing the contractor to provide such services within Broward County, Florida;

4.3 An original certificate evidencing the contractor's current worker's compensation carrier and coverage amount. BCHA will not accept state waiver of worker's compensation insurance liability;

4.4 An original certificate evidencing General Liability coverage evidencing a minimum of $1,000,000 each occurrence, general aggregate minimum limit of $1,000,000, together with damage to premises and fire damage of $50,000 and medical expenses any one person of $5,000 with a deductible of not greater than $1,000;

4.5 An original certificate showing the contractor's vehicle insurance coverage in a combined single limit of $1,000,000. For every vehicle utilized during the term of this contract, when not owned by the entity, each vehicle must have evidence of vehicle insurance coverage with limits of no less than $50,000/$100,000 and medical pay of $5,000 must each be furnished with the proposer's response.

4.6 Contractor agrees, and hereby authorizes its insurer, to notify BCHA of any substantial change in such insurance coverage described herein. Substantial change includes, but not limited to, events such as cancellation, non-renewal, reduction in coverage, or receipt of a claim against such coverage with potential recovery in excess of twenty percent (20%) of available coverage. BCHA shall be notified at least 30 days in advance of cancellation, non-renewal or adverse change;

4.7 The premium cost of all insurance purchased by the Contractor for protection against risks assumed by virtue of the contract shall be borne by the Contractor and is not reimbursable by BCHA;

4.8 BCHA reserves the right, but not the obligation, to review and revise any insurance requirements, including limits, coverages and endorsements, based upon insurance market conditions affecting the availability and affordability of coverage. Additionally, BCHA reserves the right, but not the obligation, to review and reject

any insurance policies, certificates of insurance, or insurer failing to meet the criteria stated herein;

5. Compliance with Law

While conducting business with BCHA, Proposer shall comply with all applicable Federal, State and local laws, regulations, ordinances and requirements, applicable to the work described herein including, but not limited to, those applicable laws, regulations and requirements governing equal employment opportunity strategies, subcontracting with small and minority firms, women's business enterprise, and labor surplus area firms. It is the policy of BCHA that all proposers that conduct business with BCHA must be authorized and/or licensed to do business in Florida. Proposer is responsible for contacting their local city and county authorities and the State of Florida to ensure that Proposer has complied with all laws and is authorized and/or licensed to do business in Florida. All applicable fees associated therewith are the responsibility of Proposer.

5.1.1 Proposers are subject to Instructions to Offerors – Non-Construction, HUD Form 5369-B, at https://www.hud.gov/sites/documents/5369-B.PDF

5.1.2 Proposers are subject to General Contract Conditions – Non-Construction, HUD Form 5370-C, at https://www.hud.gov/sites/documents/DOC_12588.PDF

6. CONTACTS:

For technical questions regarding the commodities/services listed in this quote, contact Bill Sipala (Construction Manager) at 954-739-1114 ext. 1310.

For information regarding bidding procedures, terms and conditions, contact Stacie-Ann Richards at 954-739-1114 ext. 1513 or by email at: srichards@bchafl.org.

7. CONTRACT SERVICE STANDARD

All work performed pursuant to this solicitation must conform and comply with all applicable federal, state, and local laws, statutes, and regulations.

8. CONTRACT PAYMENT

8.1 Following the performance of work, the contractor will submit an invoice to Accounts Payable Department, Broward County Housing Authority, 4780 N. State Road 7, Lauderdale Lakes, Florida, 33319 or by email at payments@bchafl.org.

8.2 Contractor's invoices shall reflect the prices established for the items on this Contract for all orders placed by BCHA even though the Contract number and/or correct prices may not be referenced on each order. Only properly submitted invoices will be officially processed for payment. Invoices submitted without

required information will be returned for entry of the missing information and will not be paid until properly completed.

8.3 All invoices must be itemized showing: Contractor's name, remit to address, purchase order number, service location, site name and prices per the contract, itemized in order to facilitate contract auditing.

8.4 Each invoice must detail the service and location at which performed, accompanied by a copy of the work order signed by the BCHA Contact Person indicating satisfactory completion of work.

8.5 BCHA will pay the properly completed and authorized invoice within thirty (30) days of receipt. BCHA will pay invoices by check.

8.6 All checks will be mailed.

9. SCOPE OF WORK

9.1 General Requirements

The Broward County Housing Authority (BCHA) is actively soliciting proposals from qualified, experienced, licensed and insured contractors to provide installation of new impact windows at its following site Villas of Pompano Apartments for two 4-unit apartment building located at 113 & 117 SE 11th Avenue, Pompano Beach, Fl. 33060 location in Broward County Florida. Prices quoted shall include all labor, materials, permits and any costs associated with installation of the impact windows for above mentioned property. ***All work shall meet the latest requirements of the South Florida Building Code, as well as adhering to all state, county and municipal codes, guidelines and regulations.***

CONTRACTOR WILL BE REQUIRED TO PERFORM ALL WORK AND FURNISH ALL LABOR AND MATERIALS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING, AT THE TIME OF THIS PUBLICATION:

1) The Contractor shall coordinate, obtain, provide the necessary paperwork, and pay all the required City permit fees and costs, to acquire the building permit for installing all new impact windows.
2) The Contractor is required to provide a sketch of the buildings and a list, indicating the windows and doors to be replaced, with the design pressures, if required by the building department.
3) Remove, haul away and dispose of properly, all the existing windows per plans.
4) Remove and replace all window treatment to its original location.
5) Install all new impact rated windows for the two buildings per the product controls and all local code requirements.
6) Caulk, seal and waterproof all window and door openings per the plans and specifications.

7) Repair, patch and paint all exterior stucco to match the existing, caused by installing the new windows.
8) Repair, patch and paint all existing drywall to match the existing, caused by installing the new windows.
9) Replace any broken window sills, to match existing, caused by installing the new windows.
10) Remove all stickers from the windows and clean the glass and frames on both the inside and outside before installing the screens.
11) Contractor to remove all debris daily and dispose of in approved containers. BCHA's containers are not for contractors use.
12) **60 calendar days** will be required to complete all work for this project, from the day the permit is ready for pick up, with a late penalty of $250 per calendar day.
13) Provide a "Schedule of Values" detailing all work, including labor and materials, for approval, with proposed pricing.
14) The Contractor is required to be licensed and insured. All sub-tiered contractors will be insured.
15) The Contractor will warranty, in writing, all workmanship for a period of one (1) year from acceptance of work, not completion of work.
16) The Contractor will supply the Owner with any and all manufacturers' and product warranties.
17) The Contractor is to prepare and submit all close-out documents for Owner to review and approve before the final pay application will be processed.
18) A detailed window schedule is provided with all required and relevant notes, for materials and installation.

The above is a summary of the proposed work and is not intended to be a listing of every detail of all the work necessary. Please confirm work conditions in the field.

Or Approved Equal Specifications

a) Any and all references to brand names and numbers in this solicitation are strictly for the purpose of describing the standard of quality, performance and characteristics desired and is not intended to limit or restrict competition, unless otherwise specified.
b) All offers on equivalent items meeting the standards of quality thereby indicated will be considered, unless otherwise specified, providing the offer clearly describes the article being offered and states how it differs from the referenced brands. Unless the contractor specifies otherwise, it shall be understood by BCHA that the contractor is offering a referenced brand item as specified in the solicitation.
c) If items requested have quality guidelines of brand name or equal; the items offered must be equal to or better than the brands or model numbers specified as determined by BCHA.
d) BCHA will determine whether a substitute offer is equivalent to and whether it meets the standards of quality indicated by the brand name referenced.

Substantially equivalent products to those referenced may be considered for award.

e) "Or Equal" submissions will not be rejected because of minor differences in design, construction or features that do not affect the suitability of the product for its intended use.

10 SOLICITATION BACKGROUND AND ANTICIPATED SCHEDULE

10.1 BCHA is seeking to obtain quotations from firms qualified to perform services as described within the Scope of Work at location listed above.

10.2 This solicitation is subject to the BCHA Procurement Policy, as revised September 26, 2017, a copy of which is available at www.bchafl.org.

11 SITE VISIT

It is highly recommended that proposers visit the project site. BCHA will not be held responsible for incorrect fee proposals due to contractor's misunderstanding of requirements, measurements, and services required. BCHA staff will only be available to show the site at the time listed below.

Should bidder not visit site, BCHA will not be held responsible for incorrect fee bids due to contractor's misunderstanding of requirements, size and services required at the site.

Location	Date & Time	Site Contact
• **Villas of Pompano Apartment** – 113 & 117 SE 11th Avenue, Pompano Beach, Fl. 33060.	**June 13, 2018 @ 10:00 AM**	**Bill Sipala (Construction Manager.) Tel: 954-739-1114 ext. 1310.**

12 BID SUBMISSION:

Bid submission should include **pages 1 through 11 and Attachments A & B** of this solicitation.

Do not submit Attachment C and additional specifications. All required sections should be completed. Bidder is responsible for the completeness of all forms and the submission of the required documents. Bids may be submitted by email at Purchasing@bchafl.org.

13 BID EVALUATION DOCUMENTATION AND MEETING:

In order to verify that the Bidder has adequately incorporated all elements of the Work and the requirements of the Contract Documents in its bid prices, the Bidder shall, upon request of the Owner, promptly make available for the Owner's review a complete itemization and breakdown of its Total Bid amount, a description of the Bidder's understanding of the Work, and a proposed schedule. Prior to award, upon

request of the Owner, the Bidder and proposed subcontractors and suppliers shall attend a bid evaluation meeting with the Owner, and shall bring to the meeting any documents requested by the Owner to assist the Owner in evaluating the bid and the Bidder's understanding of the Project. In the event the Bidder refuses to provide the requested information or attend the bid evaluation meeting, the Owner may reject the bid as non-responsive.

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14 PROPOSED FEES

All prices submitted are to be on the form below.

A. Instructions: Please indicate the cost:
B. Note: Price shall include all labor, materials, equipment, permits and associated costs.
C. Note: Schedule of value and time schedule may be requested prior to award.

DESCRIPTION	QUANTITY	TOTAL PRICE
Windows: All labor, material, equipment, permits and associated costs as per the Scope of Work.	**See window scheduled attached**	**$ _____/ Total Lump Sum**

TOTAL $_____
Lump Sum

By completing and submitting this form and all other documents within this bid submission, the undersigned proposer hereby certifies and understands that:

1. he/she is verifying that all information provided herein is, to the best of his/her knowledge, true and accurate, and that if BCHA discovers that any information entered herein to be false, such shall entitle BCHA to not consider or make award of to cancel any award with the undersigned party;
2. he/she is agreeing to abide by all terms and conditions pertaining to this solicitation document as issued by BCHA including an agreement to execute a contract form; and
3. he/she has the ability to sign and bind the firm or company to the services to be performed within the fees proposed.

Signature	
Title	
Date Signed	
Printed Name	
Firm or Company	
Telephone #	

Service:

Service is desired **within 60 calendar days** after issuance of purchase order. Failure to meet this service date may be deemed as non-responsive.

Please indicate service time after issuance of purchase order: _____ calendar days.

BROWARD COUNTY HOUSING AUTHORITY
SOLICITATION NUMBER QR 18-268
REQUEST FOR QUOTATION
INSTALLATION OF NEW IMPACT WINDOWS FOR VILLAS OF POMPANO APARTMENTS

PROFILE OF FIRM FORM – ATTACHMENT A

1. Proposer Information

Name of Firm	
Address	
City, State, Zip	
Telephone	
Fax	
E-Mail Address	
Year Established	
Year Established in Florida	
Former Names (if applicable)	
Parent Company and Date Acquired (if applicable)	

2. Complete and attach IRS Form W-9, found at http://www.irs.gov/pub/irs-pdf/fw9.pdf . This completed form should be submitted with the proposal, or must be submitted within three (3) working days of the BCHA's request.

3. Debarred Statement: Has the firm, or any principal(s) ever been debarred from providing any services to the federal government, any state government, or any local government agency?
☐ Yes ☐ No
If yes, please attach a full detailed explanation, including dates, circumstances and current status.

4. Disclosure Statement: Does this firm or any principal(s) have any current, past personal or professional relationship with any Commissioner or Officer of BCHA?
☐ Yes ☐ No
If yes, please attach a full detailed explanation, including dates, circumstances and current status.

5. This business is owned and operated by persons at least 51% of the following ethnic background:
Asian/Pacific ☐ / Black ☐ /Hasidic Jew ☐ /Hispanic ☐ /Native☐ Americans /White ☐

6. This business qualifies as: Section 3 ☐/ Small Business ☐/ Woman Owned ☐

7. Non-Collusive Affidavit: The undersigned party submitting this proposal hereby certifies that such proposal is genuine and not collusive and that said proposer entity has not colluded, conspired, connived or agreed, directly

or indirectly, with any proposer or person, to put in a sham proposal or to refrain from proposing, and has not in any manner, directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the proposal fee of affiant or of any other proposer, to fix overhead, profit, or cost element of said proposal fee, or that of any other proposer or to secure any advantage against BCHA or any person interested in the proposed contract; and that all statements in said proposal are true.

Continue on next page.

6. Licensing and Insurance Information

Business License Jurisdiction, Number, and Expiration Date	
Worker's Comp Carrier, Policy Number, and Expiration Date	
General Liability Carrier, Policy Number, and Expiration Date	
Professional Liability Carrier, Policy Number, and Expiration Date	**NOT APPLICABLE** (N/A)
Vehicle Insurance Carrier, Policy Number, and Expiration Date	

7. Copies of license and insurance certificates should be submitted with the proposal, or must be submitted within three (3) working days of the BCHA's request.

8. Verification Statement: The undersigned proposer hereby states that by completing and submitting this form he/she is verifying that all information provided herein is, to the best of his/her knowledge, true and accurate, and agrees that if BCHA discovers that any information entered herein to be false, such shall entitle BCHA to not consider or make award of to cancel any award with the undersigned party.

Signature	
Title	
Date Signed	
Printed Name	
Firm or Company	

BROWARD COUNTY HOUSING AUTHORITY
SOLICITATION NUMBER QR 18-268
REQUEST FOR QUOTATION
INSTALLATION OF IMPACT WINDOWS FOR VILLAS OF POMPANO APARTMENT

PROPOSED SERVICES – ATTACHMENT B

Instructions: Complete this form by indicating the appropriate response or by indicating "N/A" if not applicable. Attach additional sheets if necessary.

1. Describe the methodology, equipment, and supplies to be utilized to perform services as described in the Scope of Work section.

2. Describe the experience of the company and staff expected to be assigned to this contract.

ATTACHMENT C

VILLAS OF POMPANO - Windows for all two buildings
May 3, 2018

Number of Each Window Size for All 2 Buildings	WINDOW SCHEDULE								
	DIMENSIONS		SIZE	TYPE	FRAME	EGRESS	IMPACT	GLASS	REMARKS
	width	height							
12 each	74"	50-5/8"	D24	Horizontal Roller	Aluminum/White		Yes	Grey	TM Windows or approved equal
14 each	74"	38-3/8"	D23	Horizontal Roller	Aluminum/White	Yes	Yes	Grey	TM Windows or approved equal
6 each	36"	36"	3030M	Horizontal Roller	Aluminum/White		Yes	Grey	TM Windows or approved equal
2 each	37"	26"	22	Horizontal Roller	Aluminum/White		Yes	Obscure/Gray	TM Windows or approved equal

General Window Notes:

1. - All frame opening dimensions to be verified by Contractor. (1 to to 1 replacement)
2. - All exterior windows shall have Product Control Approvals.
3. - Contractor shall submit shop drawings for review and approval prior to fabrication.
4. - All exterior windows shall meet or exceed positive and negative design wind load pressures.
5. - Provide all mullions and supports required for proper window installation.
6. - Provide continuous sealant at inside & outside of joints, wood bucks, & masonry, in addition to inside & outside of window frames.
7. - Windows to be installed to meet emergency escape height (typ).
8. - Window frames to be esp white finish.
9. - Windows to be tinted grey glass.
10. - All operable windows to have screens at operable panel, with standard grey screening and white frames.
11. - Remove all stickers and thoroughly clean all windows inside and out.

Window Installation Notes:

1. - All P.T. wood bucks to be anchored to masonry opening with 2-1/4" long hardened coiled nails of .099" diameter at 8" (staggered) with minimum 1.25" penetration of masonry.
2. - Windows to be fastened to structure according to the approved NOA submittal.
3. - Should shims be required between buck and window, they are to be 1/4' maximum thickness. Anchorage of windows to masonry or concrete must still conform to product approvals in regard to depth of penetration of anchors.
4. - P.T. wood buck may be trimmed as required such that the minimum thickness is not not less tha 1/2".
5. - Backbed the wood buck with sealant before fastening and set the window in a bed of sealant on all four (4) sides.
6. - Contractor to submit product approvals for all windows and doors to Owner prior to issuance of permit for approval.
7. - Window rough openings are existing.
8. - Use backer rod to fill gaps between window and rough openings before caulking or use non-expanding foam (typical throughout).
9. - Exterior grade polyurethane sealant to be provided throughout. See Owner provided specifications.

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

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

NOTICE OF ACCEPTANCE (NOA)

T.M. Windows LLC
1543 N. Powerline Road
Pompano Beach, FL 33069

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 "805" Aluminum Horizontal Rolling Window – L.M.I.

APPROVAL DOCUMENT: Drawing No. **W0-81**, titled "Series 805 Alum. Horizontal Rolling Wdw. (L.M.I.)", sheets 1 through 7 of 7, dated 09/19/08, with revision E dated 03/16/15, 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 NOA# 13-0107.08** and consists of this page 1 and evidence pages E-1, E-2 and E-3, as well as approval document mentioned above.

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

MIAMI-DADE COUNTY APPROVED

8/25/15

NOA No. 15-0505.29
Expiration Date: May 13, 2019
Approval Date: August 13 2015

T.M. Windows LLC

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

A. DRAWINGS

1. Manufacturer's die drawings and sections.
   (Submitted under NOA No. 09-1110.02)
2. Drawing No **W08-81**, titled "Series 805 Alum Horizontal Rolling Wdw. (L.M.I.)", sheets 1 through 7 of 7, dated 09/19/08, with revision **E** dated 03/16/15, prepared by Al–Farooq Corporation, signed and sealed by Javad Ahmad, P.E.

B. TESTS

1. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC TAS 202-94
   2) Large Missile Impact Test per FBC, TAS 201-94
   3) Cyclic Wind Pressure Loading per FBC, TAS 203-94
   4) Forced Entry Test, per FBC 2411 3.2.1 and TAS 202-94
   along with marked-up drawings and installation diagram of an aluminum horizontal rolling window, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL–5945**, dated 07/31/09, signed and sealed by Julio E. Gonzalez, P.E.
   (Submitted under NOA No. 09-1110.02)
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
   6) Forced Entry Test, per FBC 2411 3.2.1, TAS 202-94
   along with marked-up drawings and installation diagram of an aluminum horizontal rolling window, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL–5457**, dated 01/22/08, signed and sealed by Carlos S. Rionda, P.E.
   (Submitted under NOA No. 09-0105.02)
3. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC TAS 202-94
   2) Large Missile Impact Test per FBC, TAS 201-94
   3) Cyclic Wind Pressure Loading per FBC, TAS 203-94
   along with marked-up drawings and installation diagram of aluminum horizontal rolling window, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL–5459**, dated 01/17/08, signed and sealed by Michael R. Wenzel, P.E.
   (Submitted under NOA No. 09-0105.02)

Manuel Perez

Manuel Perez, P.E.
Product Control Examiner
NOA No. 15-0505.29
Expiration Date: May 13, 2019
Approval Date: August 13 2015

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

C. **TESTS** (CONTINUED)

4. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
   2) Large Missile Impact Test per FBC, TAS 201-94
   3) Cyclic Wind Pressure Loading per FBC, TAS 203-94
   along with marked-up drawings and installation diagram of an aluminum horizontal rolling window (XO), prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-3995,** dated 11/13/03, signed and sealed by Edmundo Largaespada, P.E.
   (Submitted under NOA No. 04-0120.01)

5. 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 and TAS 202-94
   along with marked-up drawings and installation diagram of an aluminum horizontal rolling window (XOX), prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-3946**, dated 11/04/03, signed and sealed by Edmundo Largaespada, P.E.
   (Submitted under NOA No. 04-0120.01)

C. **CALCULATIONS**

1. Anchor verification calculations and structural analysis, complying with **FBC-5th Edition (2014)** and of no financial interest dated 03/16/15 and revised on 08/07/15, 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. **14-0916.11** issued to **Kuraray America, Inc.** for their **"SentryGlas® (Clear and White) Glass Interlayers"** dated 06/25/15, expiring on 07/04/18.
2. Notice of Acceptance No. **14-0423.17** issued to **Eastman Chemical Company (MA)** for their **"Saflex Clear and Color Glass Interlayers"** dated 06/19/14, expiring on 05/21/16.
3. Notice of Acceptance No. **13–1126. 20** issued to **Allnex USA, Inc.** for their **"Uvekol S Laminated Glass Interlayer"**, dated 02/20/14, expiring on 02/08/19.

Manuel Perez

Manuel Perez, P.E.
Product Control Examiner
NOA No. 15-0505.29
Expiration Date: May 13, 2019
Approval Date: August 13 2015

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

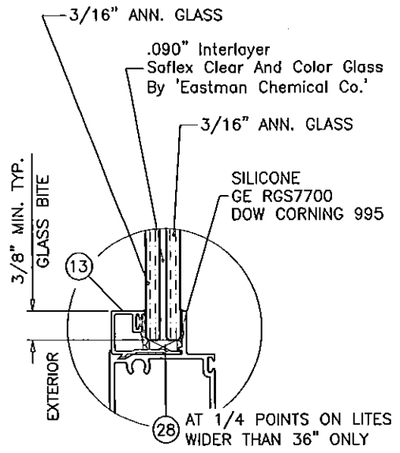
F. STATEMENTS

1. Statement letter of conformance, complying with **FBC-5th Edition (2014)**, and of no financial interest, dated March 26, 2015, issued by Al-Farooq Corporation, signed and sealed by Javad Ahmad, P.E.
2. Laboratory compliance letter for Test Report No. **FTL-5945**, issued by Fenestration Testing Laboratory, Inc., dated 07/31/09, signed and sealed by Julio E. Gonzalez, P.E ***(Submitted under NOA#09-1110.02)***
3. Laboratory compliance letter for Test Report No. **FTL-5457**, issued by Fenestration Testing Laboratory, Inc., dated 03/13/08, signed and sealed by Carlos S. Rionda, P.E. ***(Submitted under NOA No. 09-0105.02)***
4. Laboratory compliance letter for Test Report No. **FTL-5459**, issued by Fenestration Testing Laboratory, Inc., dated 02/21/08, signed and sealed by Michael R. Wenzel, P.E. ***(Submitted under NOA No. 09-0105.02)***
5. Laboratory compliance letter for Test Reports No. **FTL-3946** and **FTL-3995**, issued by Fenestration Testing Laboratory, Inc., dated 11/04/03 and 11/13/03 respectively, both signed and sealed by Edmundo Largaespada, P.E. ***(Submitted under NOA No 04-0120.01)***

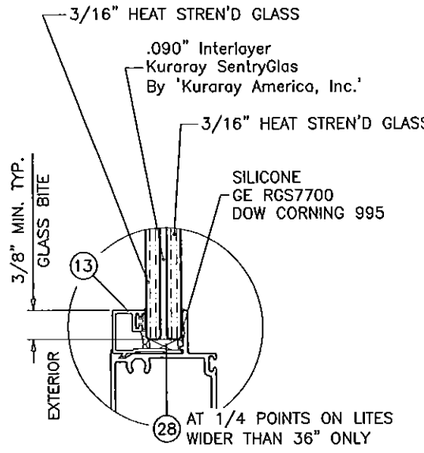
G. OTHERS

1. Notice of Acceptance No. **14-0107.08**, issued to T.M. Window LLC, for their Series "805" Aluminum Horizontal Rolling Window - L.M.I., approved on 02/20/14 and expiring on 05/13/10.

Manuel Perez, P.E.
Product Control Examiner
NOA No. 15-0505.29
Expiration Date: May 13, 2019
Approval Date: August 13 2015



TYPE 'A'
7/16" OVERALL GLASS



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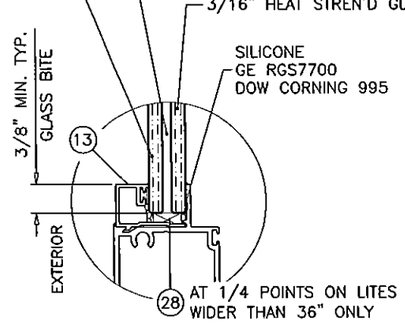

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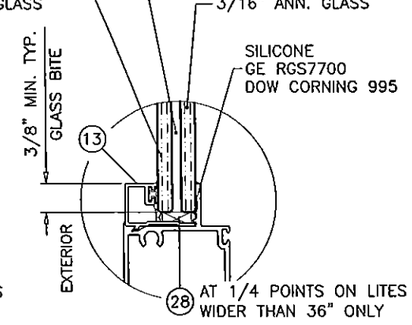

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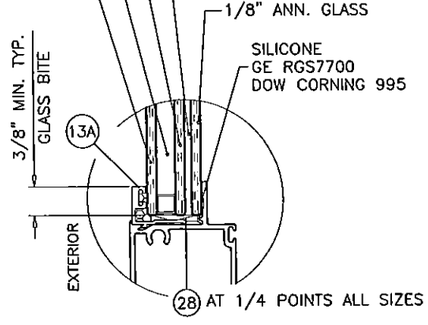
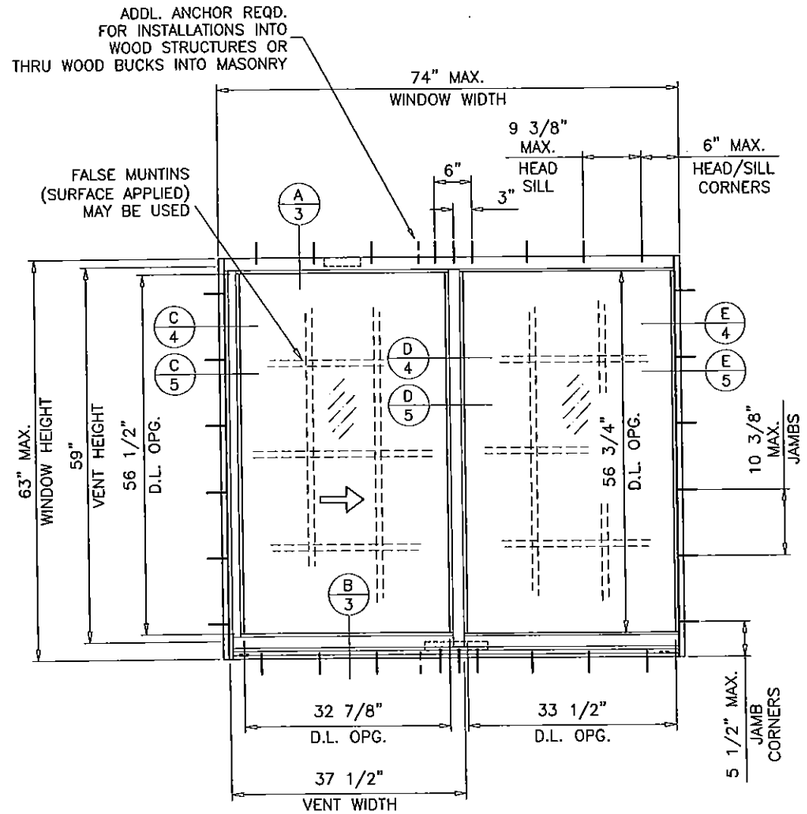


TYPE 'E'
11/16" OVERALL INSUL. GLASS

GLAZING OPTIONS



TYPICAL ELEVATION

XO OR OX SIZES
MAXIMUM DESIGN LOAD RATING – PSF
FOR SIZES SHOWN ABOVE OR SMALLER

GLASS TYPE 'A'		GLASS TYPE 'B'		GLASS TYPE 'C'		GLASS TYPE 'D'		GLASS TYPE 'E'	
EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)	EXT.(+)	INT.(–)
80.0	90.0	90.0	130.0	90.0	90.0	55.0	55.0	79.0	79.0

LOADS SHOWN ABOVE ARE FOR WINDOW VENTS WITH SPRING LOADED ALUMINUM LATCHES,
FOR METALLIC SWEEP LATCHES LIMIT MAX. LOADS TO ±80.0 PSF.

NOTE:
GLASS CAPACITIES ON THIS SHEET ARE
BASED ON ASTM E1300–09 (3 SEC. GUSTS)
AND FLORIDA BUILDING COMMISSION
DECLARATORY STATEMENT DCA05–DEC–219

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

SERIES 805
ALUMINUM HORIZONTAL ROLLING WDW.

DESIGN LOAD RATINGS FOR THESE WINDOWS TO BE AS PER CHARTS SHOWN ON SHEETS 1 & 2.

APPROVAL APPLIES TO SINGLE UNITS OR SIDE BY SIDE COMBINATIONS OF H.R./H.R. OR HORIZONTAL ROLLING WITH OTHER MIAMI–DADE COUNTY APPR'D WINDOWS USING MIAMI–DADE COUNTY APPROVED MULLIONS IN BETWEEN.
LOWER DESIGN PRESSURE FROM WINDOWS OR MULLION APPROVAL WILL APPLY TO ENTIRE SYSTEM.

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.

Engr: JAVAD AHMAD
CIVIL
FLA. PE # 70592
C.A.N. 3638
APR 07 2015

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No 15-0505.29
Expiration Date May 15, 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
COMP–ANL\W08–81TMW

SERIES 805 ALUM HORIZONTAL ROLLING WDW. (L.M.I.)

T.M. WINDOWS LLC.
1543 N. POWERLINE ROAD
POMPANO BEACH, FL. 33069
TEL. (954) 781–4430 FAX. (954) 781–5078

revisions:			
no	date	by	description
A	09.09.09		GENERAL REVISION
B	02.10.10		REV. PER BCCO COMMENTS
C	02.28.12		UPDATED TO 2010 FBC
D	11.15.13		INTERLAYER NAMES REV.
E	03.16.15		UPDATED TO 2014 FBC

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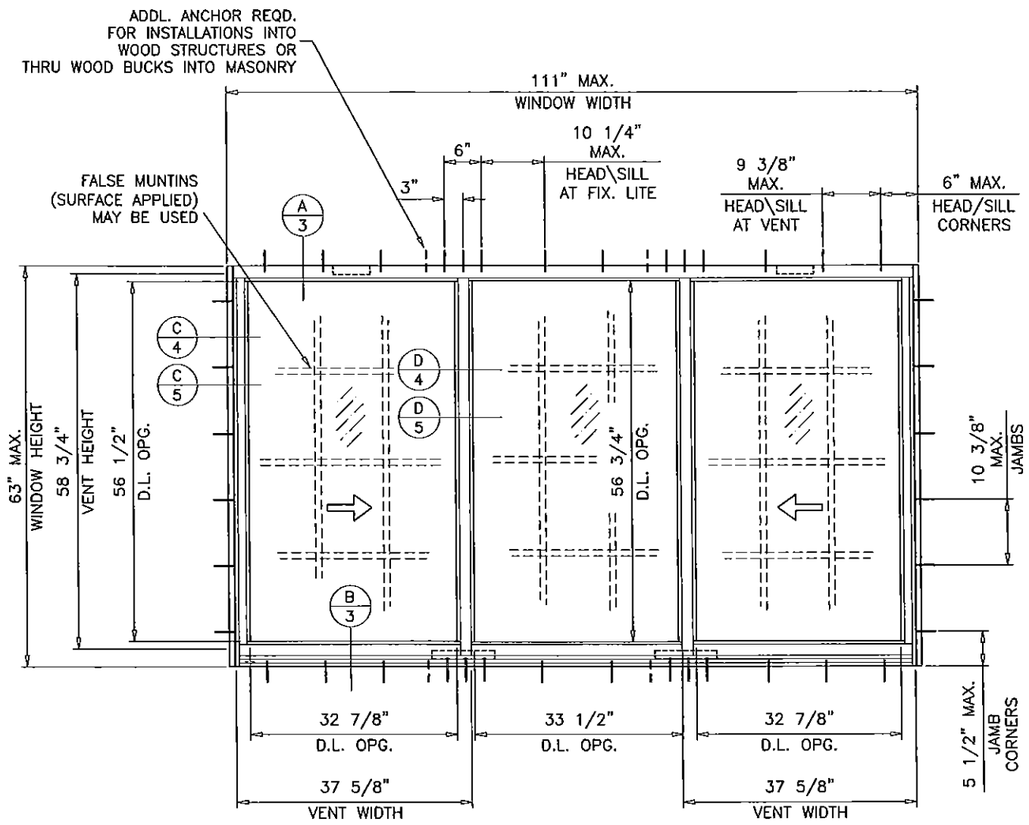
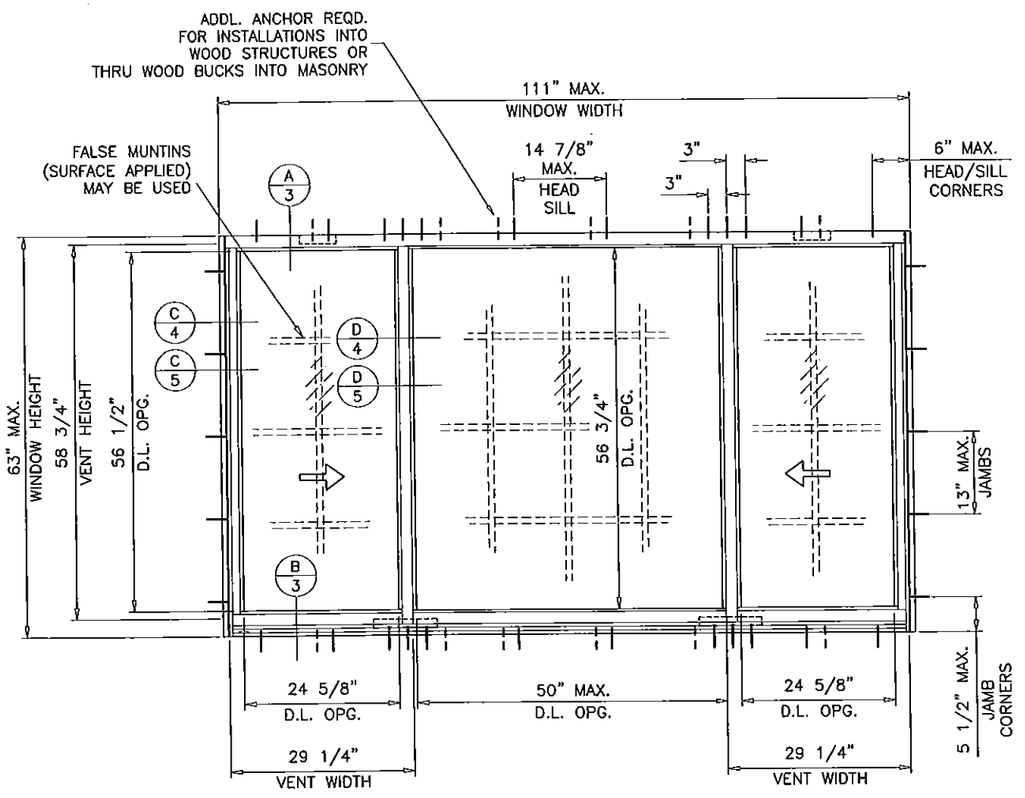
scale: 1/2"=1'-0"
dr. by: HAMID
chk. by:

drawing no.
W08–81

sheet 1 of 7





XOX SIZES

MAXIMUM DESIGN LOAD RATING - PSF
FOR SIZES SHOWN ABOVE OR SMALLER

GLASS TYPE 'A'		GLASS TYPE 'B'		GLASS TYPE 'C'		GLASS TYPE 'E'	
EXT.(+)	INT.(-)	EXT.(+)	INT.(-)	EXT.(+)	INT.(-)	EXT.(+)	INT.(-)
80.0	90.0	90.0	130.0	90.0	90.0	79.0	79.0

LOADS SHOWN ABOVE ARE FOR WINDOW VENTS WITH SPRING LOADED ALUM LATCHES, FOR METALLIC SWEEP LATCHES LIMIT MAX. LOADS TO ±80.0 PSF.

TYPICAL ELEVATIONS

XOX SIZES

MAXIMUM DESIGN LOAD RATING - PSF
FOR SIZES SHOWN ABOVE OR SMALLER

GLASS TYPE 'A'		GLASS TYPE 'B'	
EXT.(+)	INT.(-)	EXT.(+)	INT.(-)
80.0	90.0	90.0	130.0

LOADS SHOWN ABOVE ARE FOR WINDOW VENTS WITH SPRING LOADED ALUM LATCHES, FOR METALLIC SWEEP LATCHES LIMIT MAX. LOADS TO ±80.0 PSF.

NOTE:
GLASS CAPACITIES ON THIS SHEET ARE BASED ON ASTM E1300-09 (3 SEC. GUSTS) AND FLORIDA BUILDING COMMISSION DECLARATORY STATEMENT DCA05-DEC-219

Engr: JAVAD AHMAD
CIVIL
FLA. PE # 70592
C.A.N.A 3538
APR 07 2015

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 15-0505.29
Expiration Date May 13, 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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SERIES 805 ALUM HORIZONTAL ROLLING WDW. (L.M.I.)

T.M. WINDOWS LLC.
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revisions:

no	date	by	description
A	09.09.09		GENERAL REVISION
B	02.10.10		REV. PER BCCO COMMENTS
C	02.29.12		UPDATED TO 2010 FBC
D	11.15.13		NO CHANGE THIS SHEET
E	03.16.15		UPDATED TO 2014 FBC

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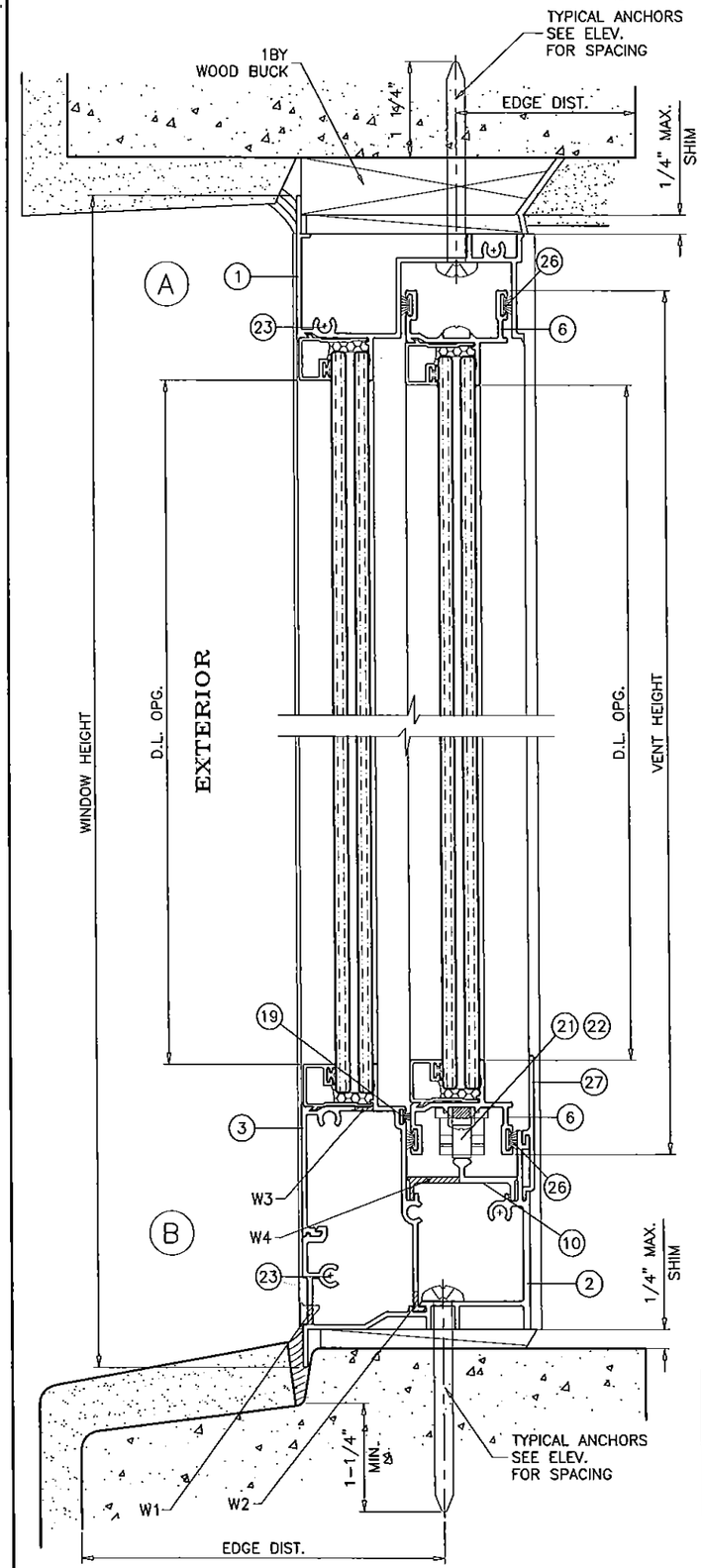
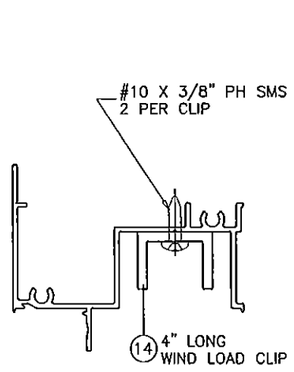
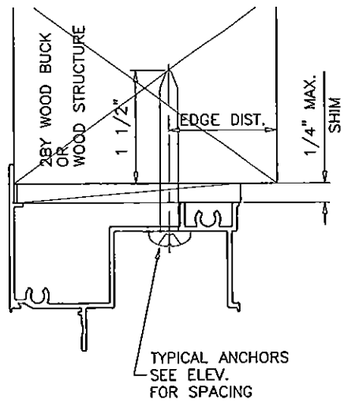
dr. by: HAMID
chk. by:

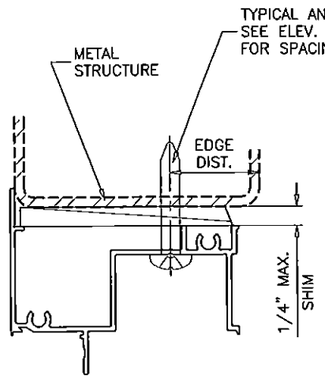
drawing no. W08-81

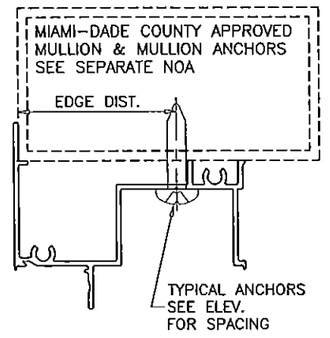
sheet 2 of 7

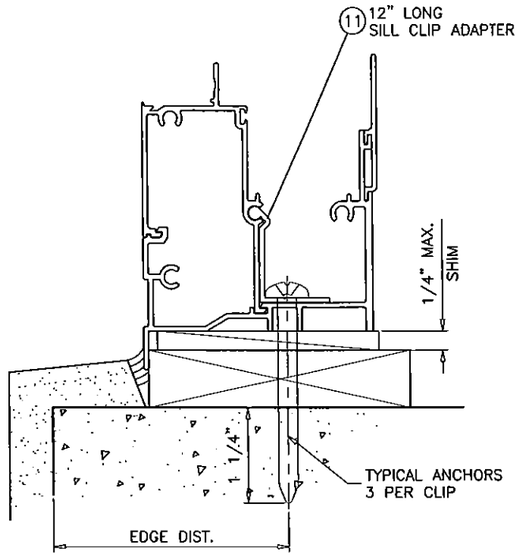












WOOD BUCKS AND METAL STRUCTURE NOT BY TM WINDOWS MUST SUSTAIN LOADS IMPOSED BY GLAZING SYSTEM AND TRANSFER THEM TO THE BUILDING STRUCTURE.

SEALANTS:

ALL FRAME AND VENT JOINTS AND CONNECTIONS SEALED WITH SILICONE OR ACRYLIC SEALANT.

WEEPHOLES:

W1 = 1-1/4" X 1/4" WEEPHOLES WITH PLASTIC BAFFLE AT 4-7/8" FROM EACH END AND AT MIDSPAN
W2 = 1-1/4" X 1/4" WEEPHOLES AT 4-7/8" FROM EACH END AND AT MIDSPAN
W3 = 2" LONG WEEP NOTCH AT EACH END
W4 = 1" LONG WEEP NOTCH AT 32" FROM EACH END

TYPICAL ANCHORS: SEE ELEV. FOR SPACING

1/4" DIA. ULTRACON BY 'ELCO' (Fu=177 KSI, Fy=155 KSI)

INTO 2BY WOOD BUCKS OR WOOD STRUCTURES
1-1/2" MIN. PENETRATION INTO WOOD (HEAD/SILL/JAMBS)

THRU 1BY BUCKS INTO CONC. OR MASONRY
1-1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL)
1-1/4" MIN. EMBED INTO CONC. OR MASONRY (JAMBS)

DIRECTLY INTO CONC. OR MASONRY
1-1/4" MIN. EMBED INTO CONCRETE (HEAD/SILL)
1-1/4" MIN. EMBED INTO CONC. OR MASONRY (JAMBS)

1/4" DIA. TEKS SELF DRILLING SCREWS BY 'ITW' (GRADE 5 CRS)

INTO METAL STRUCTURES
STEEL : 1/8" THK. MIN. (Fy = 36 KSI MIN.)
ALUMINUM : 1/8" THK. MIN. (6063-T5 MIN.)
(STEEL IN CONTACT WITH ALUMINUM TO BE PLATED OR PAINTED)

#14 SMS OR SELF DRILLING SCREWS (GRADE 2 CRS)

INTO MIAMI-DADE COUNTY APPROVED MULLIONS (MIN. THK. = 1/8") (NO SHIM SPACE)

TYPICAL EDGE DISTANCE

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

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

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

APR 07 2015

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Expiration Date May 13, 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

COMP-ANL\W08-81TMW

SERIES 805 ALUM HORIZONTAL ROLLING WDW. (L.M.I.)

T.M. WINDOWS LLC.
1543 N. POWERLINE ROAD
POMPANO BEACH, FL. 33069
TEL (954) 781-5078 FAX. (954) 781-4430

revisions:			
no	date	by	description
A	09.09.09		GENERAL REVISION
B	02.10.10		REV. PER BCCO COMMENTS
C	02.29.12		UPDATED TO 2010 FBC
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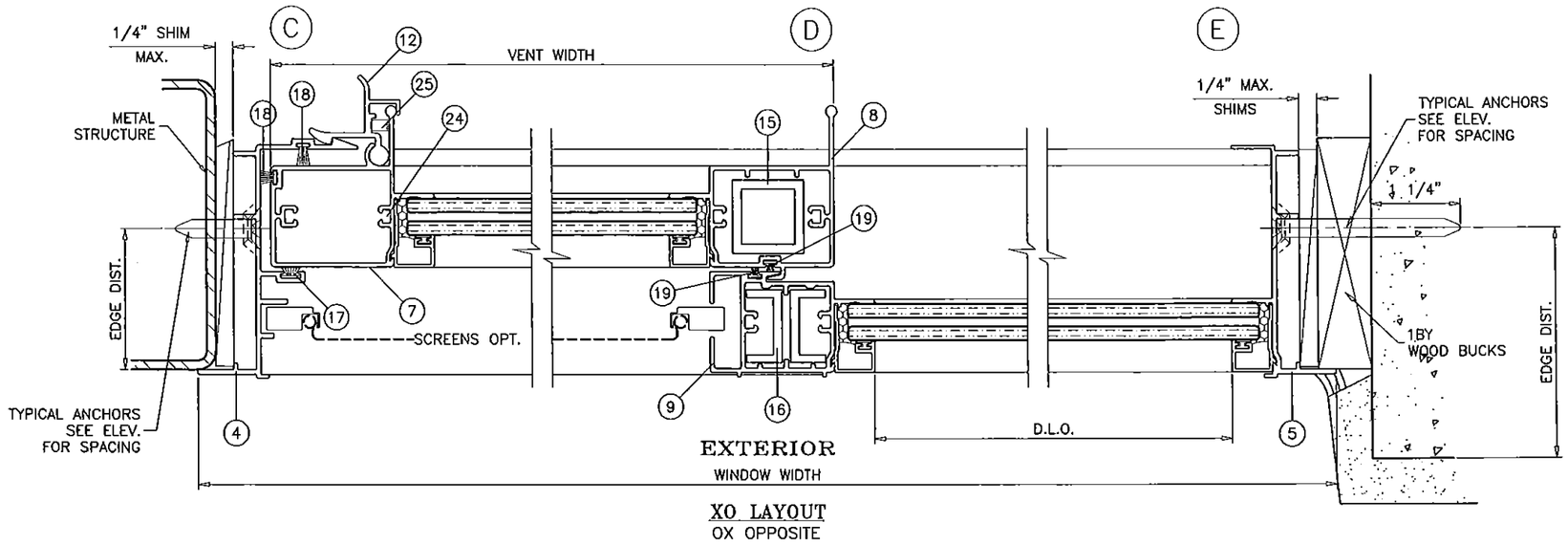
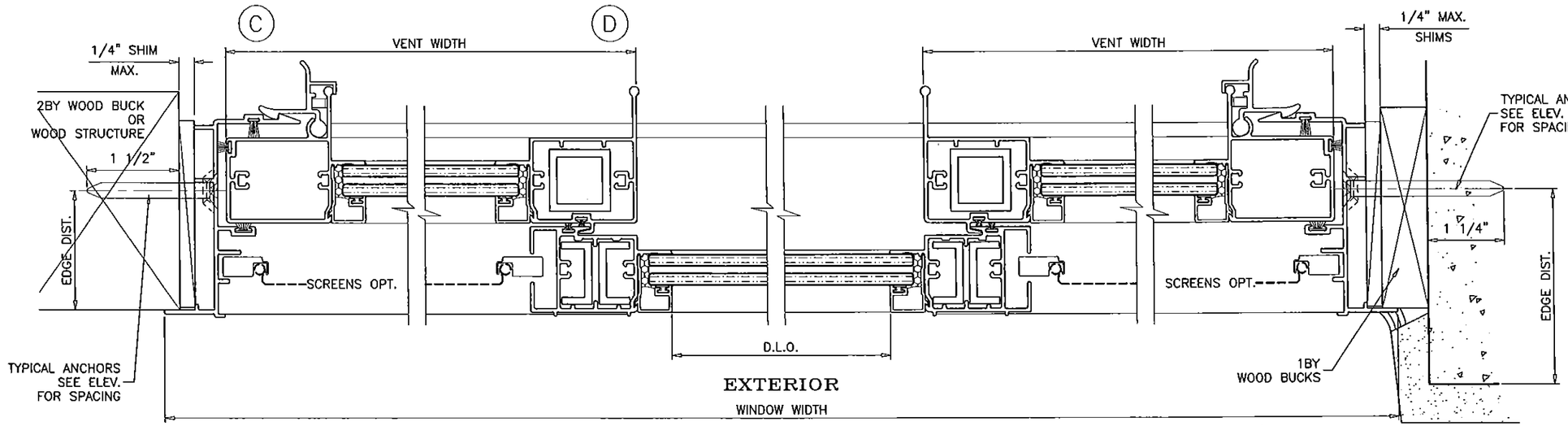
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no.
W08-81

sheet 3 of 7



XO LAYOUT
OX OPPOSITE



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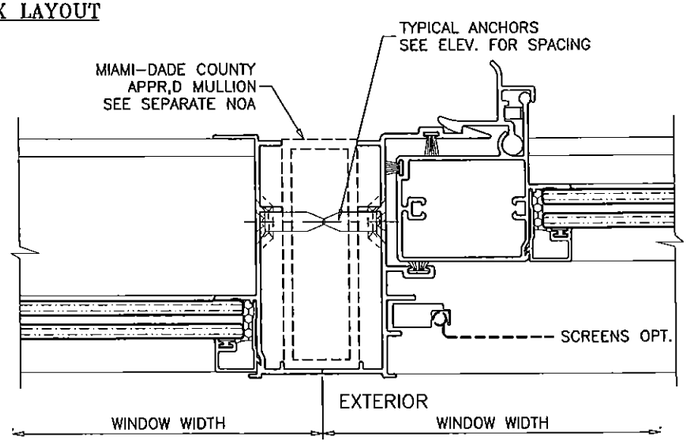

VENTS WITH
SPRING LOADED LATCHES

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

APR 07 2015

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afc

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dr. by: HAMID
chk. by:

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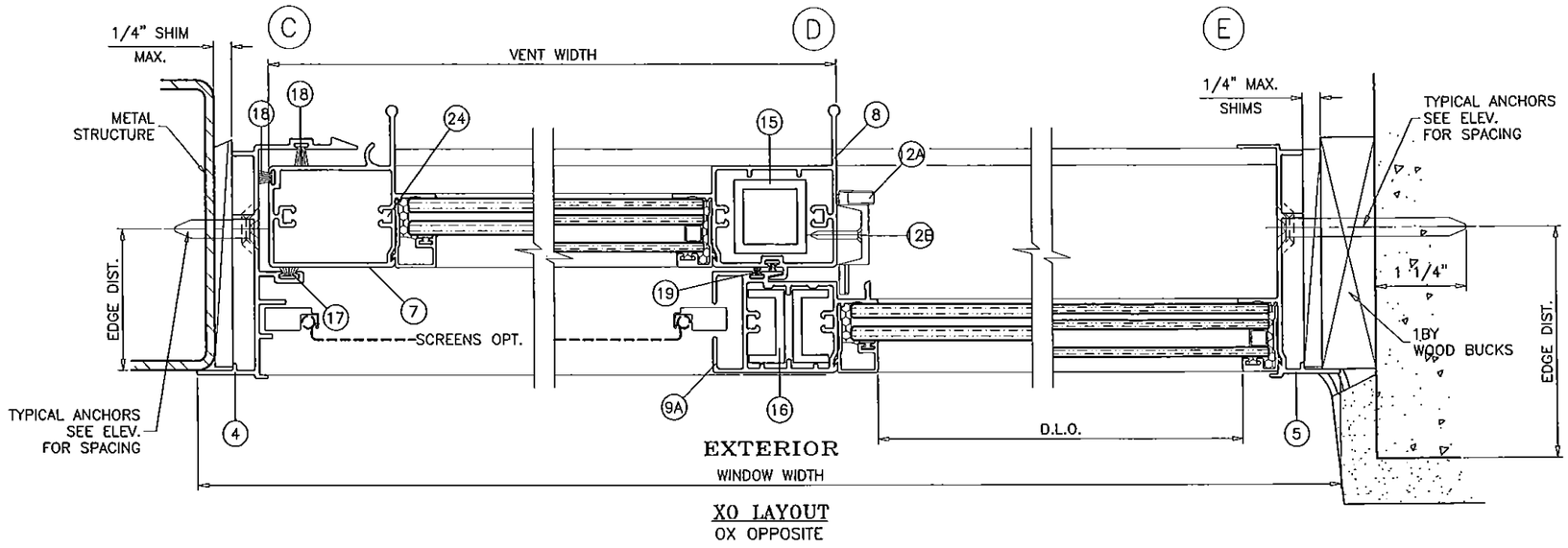
W08-81

sheet 4 of 7



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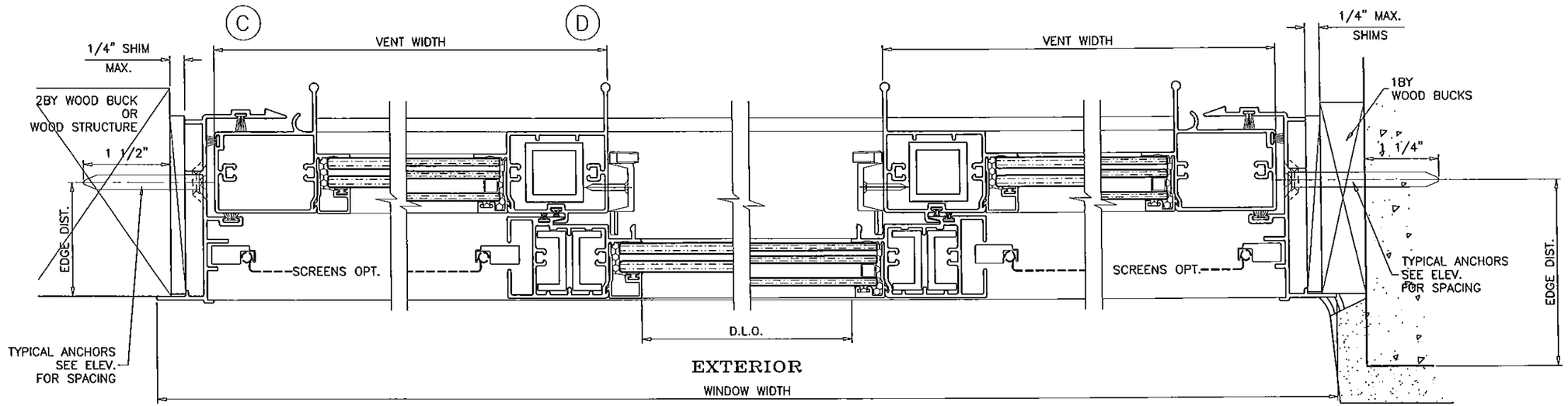

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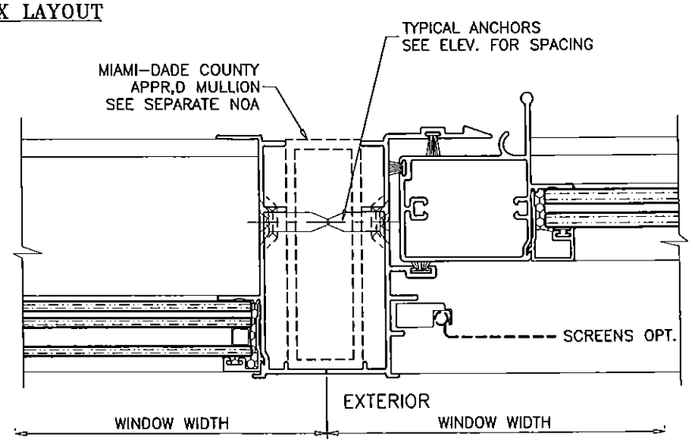

VENTS WITH
SWEEP LATCHES

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

APR 07 2015

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COMP-ANL\W08-81TMW

SERIES 805 ALUM HORIZONTAL ROLLING WDW. (LM.I.)

T.M. WINDOWS LLC.
1543 N. POWERLINE ROAD
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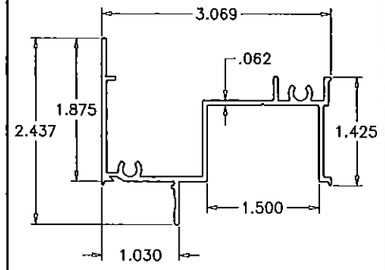
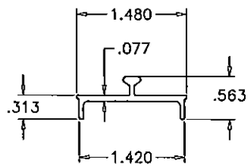
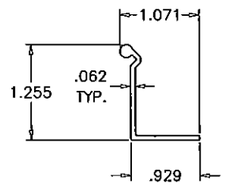
sheet 5 of 7



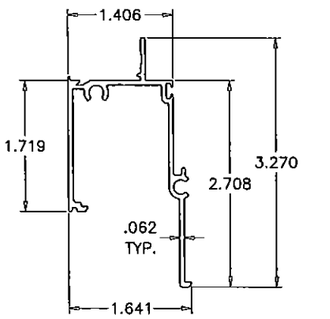
(1) FRAME HEAD



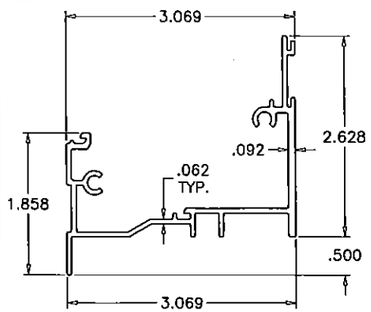
(10) SILL TRACK



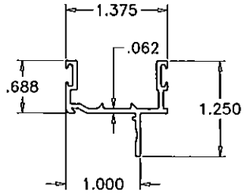
(11) SILL CLIP ADAPTER



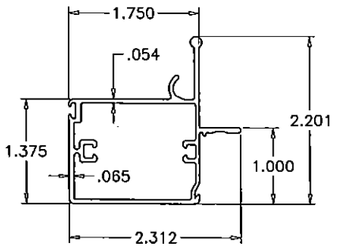
(3) FRAME SILL TOP



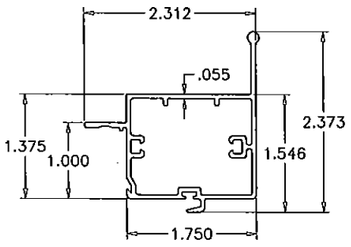
(2) FRAME SILL BASE



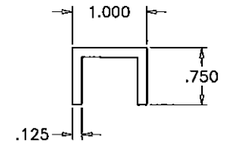
(6) TOP & BOTTOM RAIL



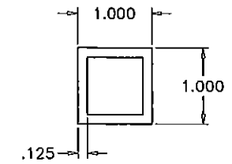
(7) JAMB STILE



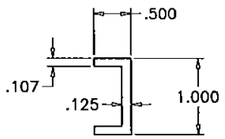
(8) MEETING STILE



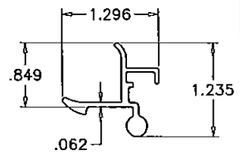
(14) WIND LOAD CLIP



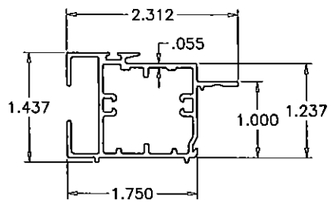
(15) MTG. STILE REINF.



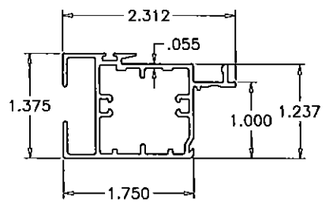
(16) FIX. STILE REINF.



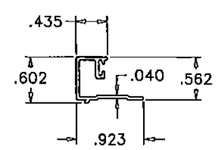
(12) VENT LATCH



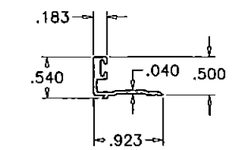
(9) FIXED STILE (SPRING LATCH)



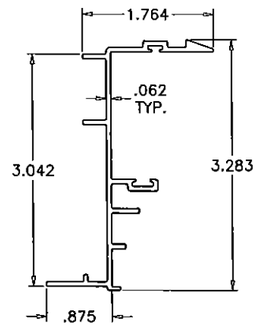
(9A) FIXED STILE (SWEEP LATCH)



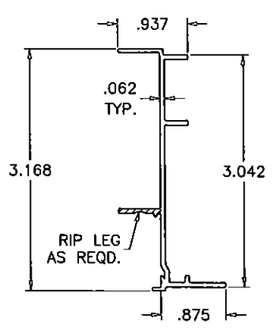
(13) GLAZING BEAD (LAM. GLASS)



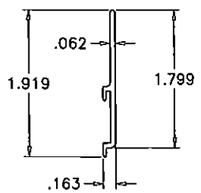
(13A) GLAZING BEAD (INSUL. LAM. GLASS)



(4) FRAME JAMB – VENT



(5) FRAME JAMB – FIXED



(27) SILL RISER

ITEM	PART #	QUANTITY	DESCRIPTION	MATERIAL	MANF./SUPPLIER/REMARKS
1	TM-130	1	FRAME HEAD	6063-T6	–
2	TM-133B	1	FRAME SILL BASE	6063-T6	–
3	TM-134	1	FRAME SILL TOP	6063-T6	–
4	TM-132	AS REQD.	FRAME JAMB – VENT	6063-T6	–
5	TM-131A	AS REQD.	FRAME JAMB – FIXED	6063-T6	–
6	TM-138	2/ VENT	TOP AND BOTTOM RAIL	6063-T6	–
7	TM-139	1/ VENT	JAMB STILE	6063-T6	–
8	TM-140	1/ VENT	MEETING STILE	6063-T6	–
9	TM-137	1/ VENT	FIXED STILE (SPRING LOADED LATCH)	6063-T6	–
9A	TM-137A	1/ VENT	FIXED STILE (SWEEP LATCH)	6063-T6	–
10	TM-136	1	SILL TRACK INSERT	6063-T6	–
11	TM-135	1	SILL CLIP ADAPTER, 12" LONG	6063-T6	AT MTG. STILE LOCATION
12	TM-118	1/ VENT	SPRING LOADED VENT LATCH, 3-1/8" LONG	6063-T6	AT MID SPAN
12A	–	1/ VENT	METALLIC SWEEP LATCH	–	AT MID SPAN
12B	#8 X 3/4"	2/LATCH	SWEEP LATCH MOUNTING SCREWS	–	FH SMS
13	TM-141A	AS REQD.	GLAZING BEAD (LAMINATED GLASS)	6063-T6	–
13A	TM-181	AS REQD.	GLAZING BEAD (INSUL. LAM. GLASS)	6063-T6	–
14	TM-154	AS REQD.	WIND LOAD CLIP, 4" LONG	6063-T6	–
15	–	1/ STILE	MEETING STILE REINFORCING	6063-T6	–
16	–	2/ STILE	FIXED STILE REINFORCING	6063-T6	–
17	W31225	AS REQD.	FIN SEAL W'STRIPPING (.270" X .220" HIGH)	WOOL	–
18	W43371	AS REQD.	FIN SEAL W'STRIPPING (.187" X .370" HIGH)	WOOL	–
19	W43201	AS REQD.	FIN SEAL W'STRIPPING (.187" X .200" HIGH)	WOOL	–
20	P5043	–	ADHESIVE BACK CLOSED CELL FOAM	–	7/8" X 1/2" X 1-7/16" LONG
21	–	2/ VENT	VENT ROLLER HOUSING & GUIDE	PLASTIC	AT EACH END
22	–	–	VENT ROLLER/WHEEL	BRASS	–
23	#12 X 1"	2/ CORNER	FRAME ASSEMBLY SCREWS	–	P.H. PHILLIPS SMS
24	#10 X 1"	2/ CORNER	VENT ASSEMBLY SCREWS	–	P.H. PHILLIPS SMS
25	–	1/ LATCH	VENT LATCH SPRING	ST. STEEL	–
26	W31175	AS REQD.	FIN SEAL W'STRIPPING (.187" X .175" HIGH)	WOOL	–
27	TM-151	1	SILL RISER	6063-T6	–
28	–	AS REQD.	SETTING BLOCKS	EPDM	DUROMETER 80±5 SHORE A

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

APR 07 2015

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No 15-0505.29
Expiration Date May 13, 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
COMP-ANL\W08-81TMW

SERIES 805 ALUM HORIZONTAL ROLLING WDW. (L.M.I.)

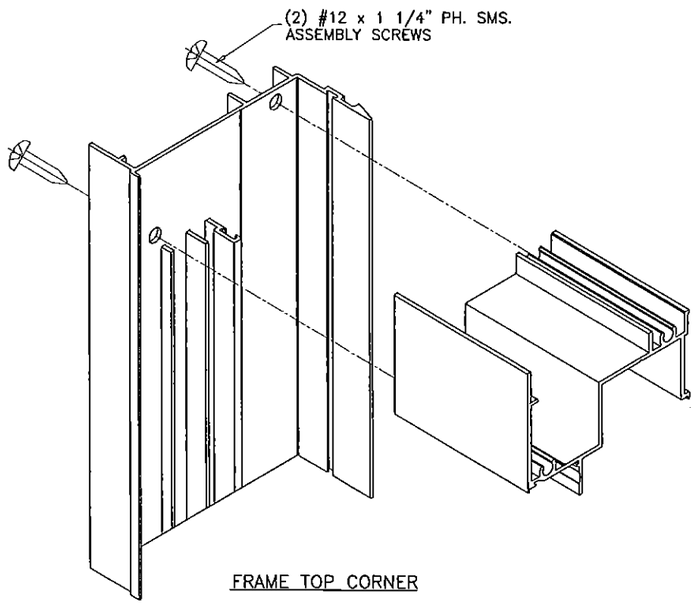
T.M. WINDOWS LLC.
1543 N. POWERLINE ROAD
POMPANO BEACH, FL. 33069
TEL. (954) 781-4430 FAX. (954) 781-5078

revisions:

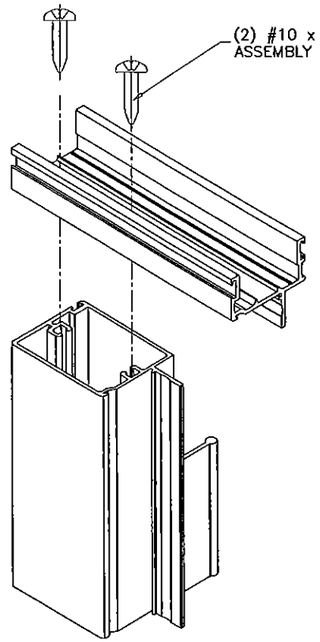
no	date	by	description
A	09.09.09		GENERAL REVISION
B	02.10.10		NO CHANGE THIS SHEET
C	02.29.12		NO CHANGE THIS SHEET
D	11.15.13		NO CHANGE THIS SHEET
E	03.16.15		UPDATED TO 2014 FBC

date: 09-19-08
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no.
W08-81



FRAME TOP CORNER



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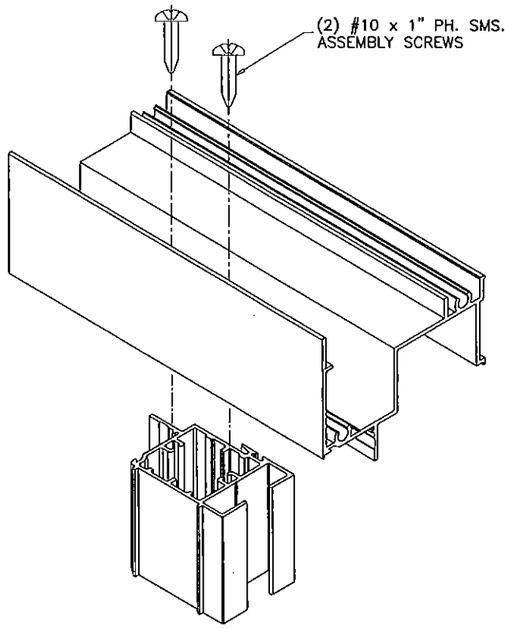
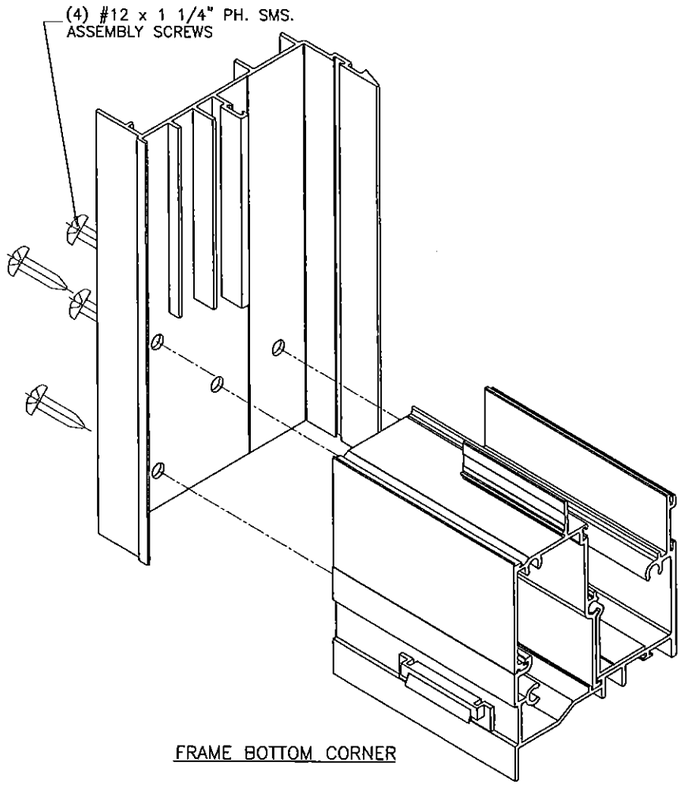
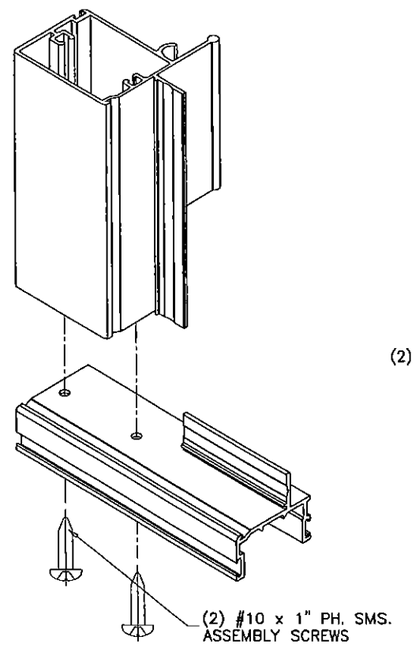


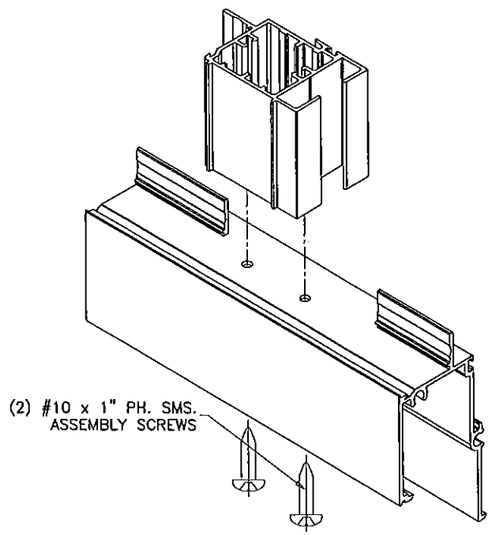
FIXED MTG. RAIL TOP CORNER



FRAME BOTTOM CORNER



VENT BOTTOM CORNER



FIXED MTG. RAIL BOTTOM CORNER

Engr: JAVAD AHMAD
CIVIL
FLA. PE # 70592
C.A.N. 3638

APR 07 201

PRODUCT REVISED
as complying with the Florida
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Acceptance No 15-0505.29
Expiration Date May 13, 2019

By Manuel Perez
Miami-Dade Product Control

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date: 09-19-08
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no.
W08-81

sheet 7 of 7

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

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

NOTICE OF ACCEPTANCE (NOA)

PGT Industries, Inc.
1070 Technology Drive
North Venice, FL 34275

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 "HR-710" Aluminum Horizontal Rolling Window – L.M.I.

APPROVAL DOCUMENT: Drawing No. **4127-10,** titled "Alum. Horizontal Roller Window, Impact", sheets 1 through 11 of 11, dated 02/28/06, with revision H dated 03/24/17, prepared by manufacturer, signed and sealed by Anthony Lynn Miller, 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 NOA# 16-0714.13** and consists of this page 1 and evidence pages E-1, E-2 and E-3, as well as approval document mentioned above.

The submitted documentation was reviewed by **Jorge M. Plasencia, P.E.**

MIAMI-DADE COUNTY APPROVED

8/23/2017

PGT Industries, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

A. DRAWINGS

1. Manufacturer's die drawings and sections.
   (Submitted under NOA's No. 07-0815.09 and 06-0405.06)
2. Drawing No. **4127-10,** titled "Alum. Horizontal Roller Window, Impact", sheets 1 through 11 of 11, dated 02/28/06, with revision H dated 03/24/17, prepared by manufacturer, signed and sealed by Anthony Lynn Miller, P.E.

B. TESTS

1. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
   2) Large Missile Impact Test per FBC, TAS 201-94
   3) Cyclic Wind Pressure Loading per FBC, TAS 203-94
   along with marked-up drawings and installation diagram of a PVC sliding glass door, a PVC fixed window and an aluminum sliding glass door, using: Kodispace 4SG TPS spacer system, Duraseal® spacer system, Super Spacer® NXT™ spacer system and XL Edge™ spacer system at insulated glass, prepared by Fenestration Testing Laboratory, Inc., Test Reports No. **FTL-8717, FTL-8968** and **FTL-8970**, dated 11/16/15, 06/07/16 and 06/02/16 respectively, all signed and sealed by Idalmis Ortega, P.E.
   (Submitted under previous NOA No. 16-0714.13)
2. Test reports on: 1) Large Missile Impact Test per FBC, TAS 201-94
   2) Cyclic Wind Pressure Loading per FBC, TAS 203-94
   along with marked-up drawings and installation diagram of an XOX aluminum horizontal sliding window, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-5330**, dated 07/18/07, signed and sealed by Carlos S. Rionda, P.E.
   (Submitted under NOA No. 07-0815.09)
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 an XOX aluminum horizontal sliding window, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-4858**, dated 03/08/06, signed and sealed by Edmundo Largaespada, P.E.
   (Submitted under NOA No.06-0405.06)

Jorge M. Plasencia, P.E.
Product Control Unit Supervisor
NOA No. 17-0411.06
Expiration Date: December 21, 2021
Approval Date: August 31, 2017

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 XOX aluminum horizontal sliding window, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-4859**, dated 03/08/06, signed and sealed by Edmundo Largaespada, P.E.
(Submitted under NOA No. 06-0405.06)

C. CALCULATIONS

1. Anchor verification calculations and structural analysis, complying with **FBC-5th Edition (2014)** and **FBC-6th Edition (2017)**, dated 03/31/17 and revised on 07/28/17, prepared by manufacturer, signed and sealed by Anthony Lynn Miller, 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. No. **16-1117.01** issued to **Kuraray America, Inc.** for their **"Trosifol® Ultraclear, Clear, and Color PVB Glass Interlayers"** dated 01/19/17, expiring on 07/08/19.

F. STATEMENTS

1. Statement letter of conformance, complying with **FBC-5th Edition (2014)** and **FBC-6th Edition (2017)**, dated 07/28/17, issued by manufacturer, signed and sealed by A. Lynn Miller, P.E.

2. Statement letter of no financial interest, dated 03/31/17, issued by manufacturer, signed and sealed by A. Lynn Miller, P.E.

3. Proposal No. **16-1372B** issued by the Product Control Section, dated 11/09/16, signed by Manuel Perez, P.E.

4. Proposal No. **16-0125** issued by the Product Control Section, dated 03/09/16, signed by Ishaq Chanda, P.E.
(Submitted under previous NOA No. 16-0714.13)

Jorge M. Plasencia, P.E.
Product Control Unit Supervisor
NOA No. 17-0411.06
Expiration Date: December 21, 2021
Approval Date: August 31, 2017

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

F. STATEMENTS (CONTINUED)

5. Laboratory compliance letter for Test Report No. **FTL-5330**, issued by Fenestration Testing Laboratory, Inc., dated 07/18/07, signed and sealed by Carlos S. Rionda, P.E.
   (Submitted under NOA No. 07-0815.09)
6. Laboratory compliance letter for Test Reports No. **FTL-4858 and FTL-4859**, issued by Fenestration Testing Laboratory, Inc., dated 03/08/06, signed and sealed by Edmundo Largaespada, P.E.
   (Submitted under NOA No. 06-0405.06)

G. OTHERS

1. Notice of Acceptance No. **16-0714.13**, issued to PGT Industries for their Series "HR-710" Aluminum Horizontal Rolling Window – L.M.I., approved on 09/01/16 and expiring on 12/21/21.

Jorge M. Plasencia, P.E.
Product Control Unit Supervisor
NOA No. 17-0411.06
Expiration Date: December 21, 2021
Approval Date: August 31, 2017

GENERAL NOTES: SERIES HR-710 IMPACT HORIZONTAL ROLLER FLANGED AND INTEGRAL FIN WINDOW

IMPACT RATING	DESIGN PRESSURE RATING
LARGE & SMALL MISSILE IMPACT RESISTANT	VARIES PER OPTIONS, SEE SHEET 8

1. GLAZING OPTIONS: (SEE DETAILS ON SHEET 2).
   A. 5/16" LAMI CONSISTING OF (2) LITES OF 1/8" ANNEALED GLASS WITH A .090" PVB INTERLAYER.
   B. 5/16" LAMI CONSISTING OF (1) LITE OF 1/8" ANNEALED GLASS AND (1) LITE OF 1/8" HEAT STRENGTHENED GLASS WITH A .090" PVB INTERLAYER.
   C. 5/16" LAMI CONSISTING OF (2) LITES OF 1/8" HEAT STRENGTHENED GLASS WITH A .090" PVB INTERLAYER.
   D. 7/16" LAMI CONSISTING OF (2) LITES OF 3/16" ANNEALED GLASS WITH A .090" PVB INTERLAYER.
   E. 7/16" LAMI CONSISTING OF (1) LITE OF 3/16" ANNEALED GLASS AND (1) LITE OF 3/16" HEAT STRENGTHENED GLASS WITH A .090" PVB INTERLAYER.
   F. 7/16" LAMI CONSISTING OF (2) LITES OF 3/16" HEAT STRENGTHENED GLASS WITH A .090" PVB INTERLAYER.
   G. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 5/16" OR 3/8" AIR SPACE AND 5/16" LAMI CONSISTING OF (2) LITES OF 1/8" ANNEALED GLASS WITH A .090" PVB INTERLAYER.
   H. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 5/16" OR 3/8" AIR SPACE AND 5/16" LAMI CONSISTING OF (1) LITE OF 1/8" ANNEALED GLASS AND (1) LITE OF 1/8" HEAT STRENGTHENED GLASS WITH A .090" PVB INTERLAYER.
   I. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 5/16" OR 3/8" AIR SPACE AND 5/16" LAMI CONSISTING OF (2) LITES OF 1/8" HEAT STRENGTHENED GLASS WITH A .090" PVB INTERLAYER.
   J. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 3/16" OR 1/4" AIR SPACE AND 7/16" LAMI CONSISTING OF (2) LITES OF 3/16" ANNEALED GLASS WITH A .090" PVB INTERLAYER.
   K. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 3/16" OR 1/4" AIR SPACE AND 716" LAMI CONSISTING OF (1) LITE OF 3/16" ANNEALED GLASS AND (1) LITE OF 3/16" HEAT STRENGTHENED GLASS WITH A .090" PVB INTERLAYER.
   L. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 3/16" OR 1/4" AIR SPACE AND 7/16" LAMI CONSISTING OF (2) LITES OF 3/16" HEAT STRENGTHENED GLASS WITH A .090" PVB INTERLAYER.
2. CONFIGURATIONS: OX, XO, XOX
3. DESIGN PRESSURES: (SEE TABLES, SHEET 8)
   A. NEGATIVE DESIGN LOADS BASED ON TESTED PRESSURE AND GLASS TABLES ASTM E 1300.
   B. POSITIVE DESIGN LOADS BASED ON WATER TEST PRESSURE AND GLASS TABLES ASTM E 1300.
   C. DESIGN LOADS ARE BASED ON ALLOWABLE STRESS DESIGN, ASD.
4. ANCHORAGE: THE 33 1/3% STRESS INCREASE HAS NOT BEEN USED IN THE DESIGN OF THIS PRODUCT. SEE SHEETS 9 THROUGH 11 FOR ANCHORAGE DETAILS.
5. SHUTTERS ARE NOT REQUIRED.
6. FRAME AND PANEL CORNERS SEALED WITH NARROW JOINT SEALANT OR GASKET.
7. REFERENCES: TEST REPORTS FTL-4858, FTL-4859 AND FTL-5330.
   ELCO ULTRACON NOA'S
   ANSI/AF&PA NDS FOR WOOD CONSTRUCTION
   ALUMINUM DESIGN MANUAL
8. THIS PRODUCT HAS BEEN DESIGNED & TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, INCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVHZ).
9. FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY REMAIN UNCHANGED.

TABLE 1:

Anchor Group	Anchor Type	Frame Member	Substrate	Min. Edge Distance	Min. O.C. Distance	Min. Embedment or Metal Thickness
A	#12, Steel SMS (Gr. 5), (min. of 3 threads beyond metal substrate)	All	Southern Pine (SG = 0.55)	9/16"	7/8"	1-3/8"
			6063-T5 Aluminum	3/8"	9/16"	1/8"
			A36 Steel or Gr. 33 Steel Stud	3/8"	9/16"	0.045" (18 Ga)
B	1/4" Elco UltraCon®	Jamb	Hollow Block (ASTM C90)	1-3/4"	6"	1-1/4"
		All	Concrete (min. 2.85 ksi)	1"	4"	1-3/4"
		All	Southern Pine (SG = 0.55)	1"	1"	1-3/8"
	1/4" 410 SS Elco CreteFlex ®	All	Southern Pine (SG = 0.55)	1"	1"	1-3/8"
C	1/4" 410 SS Elco CreteFlex ®	Jamb	Hollow Block, (ASTM C90)	2-1/2"	6"	1-1/4"
		All	Concrete (min. 3.35 ksi)	2-1/2"	4"	1-3/4"

1) WHERE SUBSTRATE CONDITIONS REQUIRE ANCHORAGE FROM MORE THAN ONE OF THE ANCHOR GROUPS ABOVE, CHOOSE THE ANCHOR GROUP OF THE LOWEST LETTER FOR ALL SUBSEQUENT TABLES IN THIS APPROVAL.

2) FLATHEAD ANCHORS MUST BE #12 TRIMFIT HEAD.

TABLE 2:

Material	Min. F_y	Min. F_u
Steel Screw	92 ksi	120 ksi
Elco UltraCon ®	155 ksi	177 ksi
410 SS Elco CreteFlex ®	127.4 ksi	189.7 ksi
6063-T5 Aluminum	16 ksi	22 ksi
6063-T6 Aluminum	25 ksi	30 ksi
A36 Steel	36 ksi	58 ksi
Gr. 33 Steel Stud	33 ksi	45 ksi

CODES / STANDARDS USED:
- 2017 FLORIDA BUILDING CODE (FBC), 6TH EDITION
- 2014 FLORIDA BUILDING CODE (FBC), 5TH EDITION
- ASTM E1300-09
- ANSI/AF&PA NDS-2015 FOR WOOD CONSTRUCTION
- ALUMINUM DESIGN MANUAL, ADM-2015
- AISI S100-12
- AISC 360-10

NOA DRAWING MAP

	SHEET
GENERAL NOTES	1
GLAZING DETAILS	2
ELEVATIONS	3
VERT. SECTIONS	4
HORIZ. SECTIONS	4
CORNER DETAIL	4
PARTS LIST	5
EXTRUSIONS	6
INSTALLATION	7
DESIGN PRESSURES	8
ANCHOR QUANTITY	9-11

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-0411.06
Expiration Date 12/21/2021
By
Miami-Dade Product Control

Revision: 3/24/17: NEW LAYOUT, SHEET REORGANIZATION, UPDATED ANCHOR QUANTITY PER FBC 2017, CHANGED ANCHOR TYPES

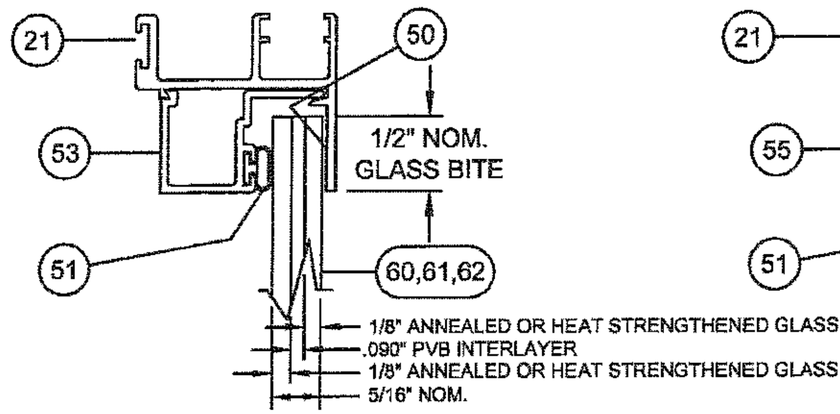
1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

PGT®
CERT. OF AUTH. #29296

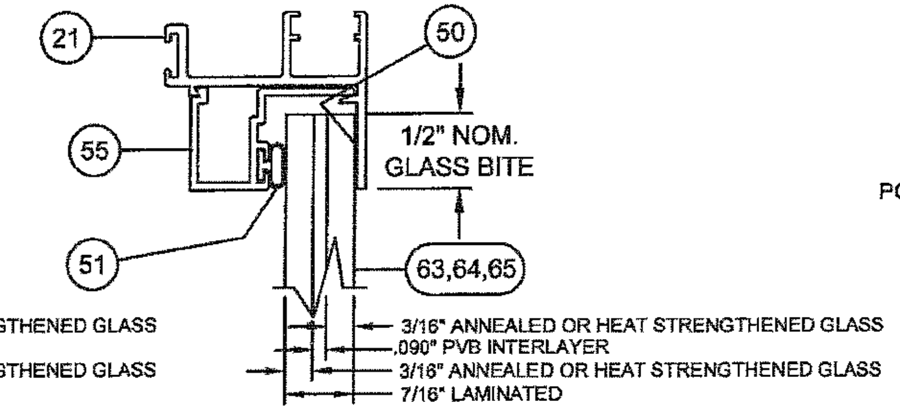
Rev.	By	Date
H	JENS ROSOWSKI	03/22/06

DWG No. 4127-10
Sheet 1 OF 11
Scale NTS
Series HR-710
Desc. GENERAL NOTES
Title ALUM. HORIZONTAL ROLLER, IMPACT

ANTHONY LYNN MILLER LICENSE No. 58705 STATE OF FLORIDA PROFESSIONAL ENGINEER
8/23/17
A. LYNN MILLER, P.E.
P.E.# 58705

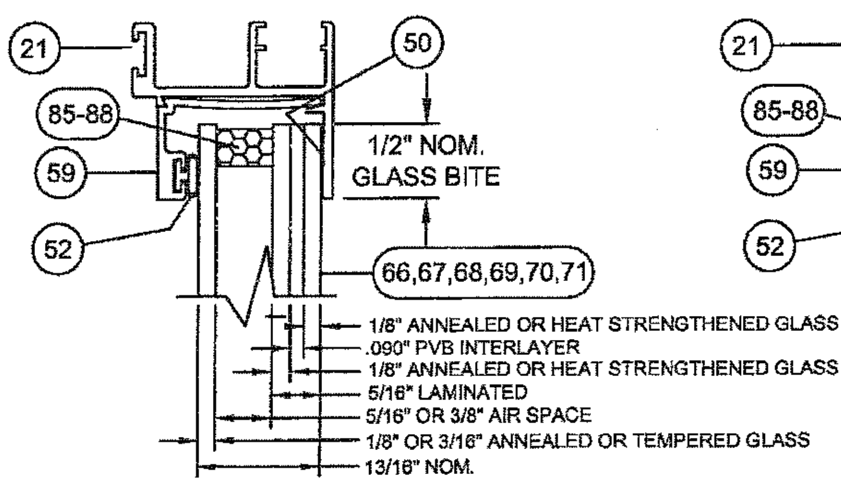


5/16" LAMINATED GLASS

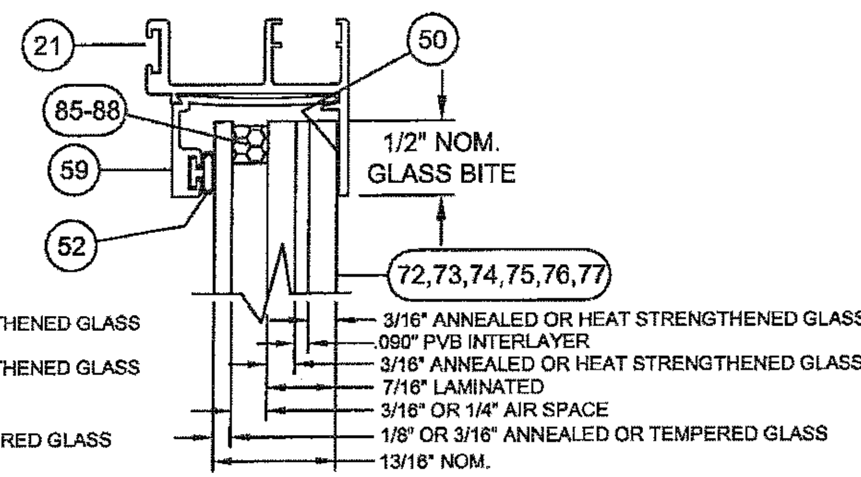


7/16" LAMINATED GLASS

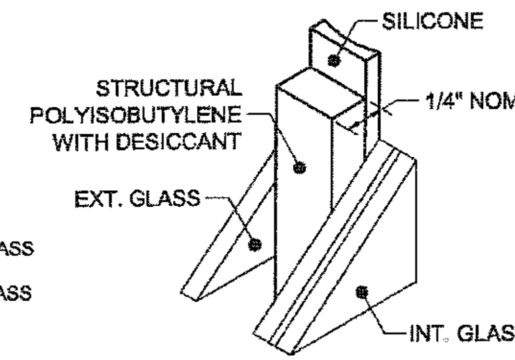
EXTERIOR INTERIOR
(ALL SECTIONS)



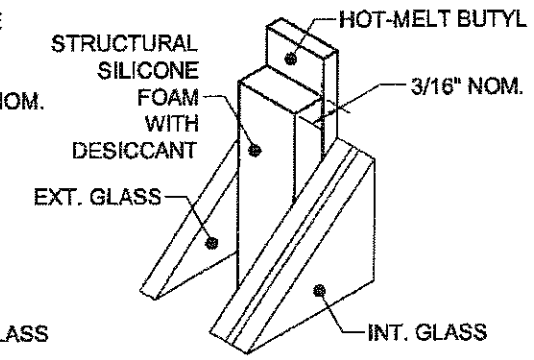
13/16" LAMI IG GLASS W/ 5/16" LAMI



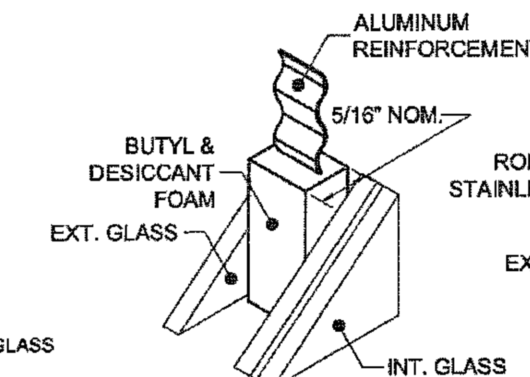
13/16" LAMI IG GLASS W/ 7/16" LAMI



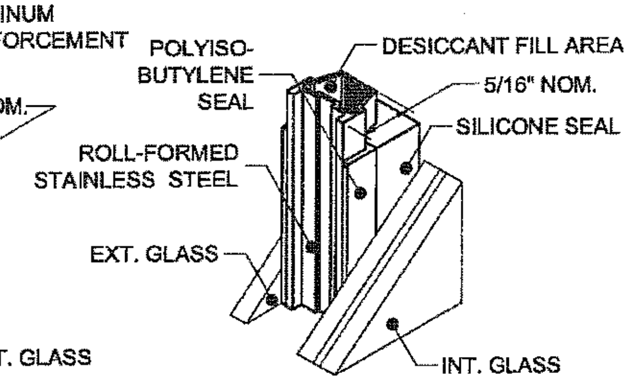
85 KODISPACE 4SG TPS



86 SUPER SPACER® NXT™



87 DURASEAL® SPACER



88 XL EDGE™ SPACER

GLASS TYPES:

A. 5/16" LAMI - (1/8" A,.090" PVB, 1/8" A)
B. 5/16" LAMI - (1/8" A,.090" PVB, 1/8" HS)
C. 5/16" LAMI - (1/8" HS,.090" PVB, 1/8" HS)
D. 7/16" LAMI - (3/16" A,.090" PVB, 3/16" A)
E. 7/16" LAMI - (3/16" A,.090" PVB, 3/16" HS)
F. 7/16" LAMI - (3/16" HS,.090" PVB, 3/16" HS)
G. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" A,.090" PVB, 1/8" A)
H. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" A,.090" PVB, 1/8" HS)
I. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" HS,.090" PVB, 1/8" HS)
J. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" A,.090" PVB, 3/16" A)
K. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" A,.090", 3/16" HS)
L. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" HS,.090", 3/16" HS)

FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY REMAIN UNCHANGED.

"PVB" = KURARAY TROSIFOL® PVB INTERLAYER

TABLE 3:

Part #	Description	Material
85	Kommerling 4SG TPS Spacer System	See this Sheet for Materials
86	Quanex Super Spacer nXT with Hot Melt Butyl	
87	Quanex Duraseal Spacer	
88	Cardinal XL Edge Spacer	

REFERENCE TEST REPORTS: FTL-8717, 8968 & 8970

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-0411.06
Expiration Date 12/21/2021
By
Miami-Dade Product Control

Revision: 3/24/17: NEW SHEET

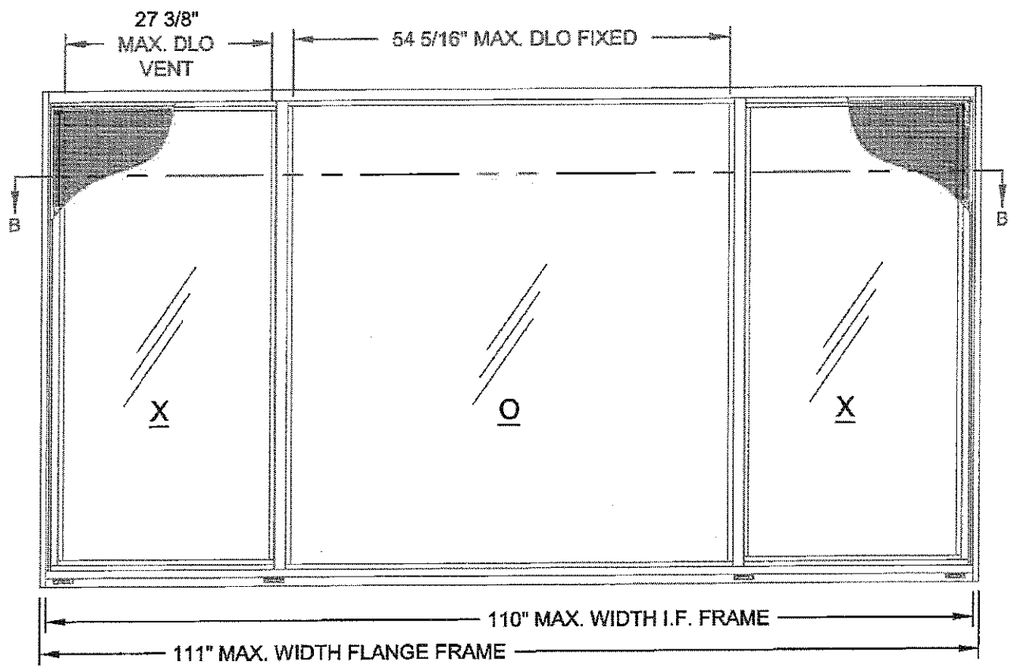
1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

CERT. OF AUTH. #29296

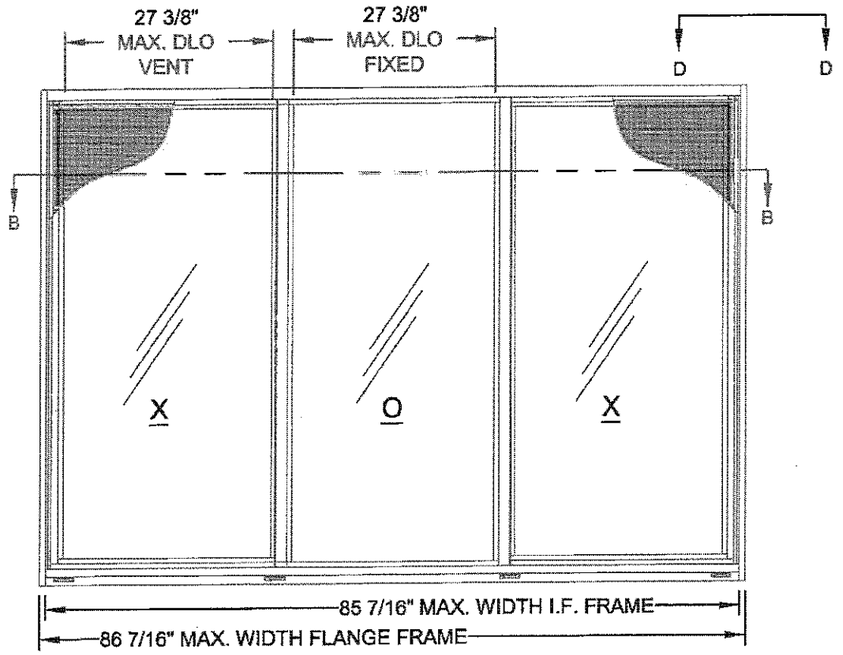
Date: 03/22/06
Drawn By: JENS ROSOWSKI
Rev.: H
Dwg. No.: 4127-10
Title: ALUM. HORIZONTAL ROLLER, IMPACT
Desc.: GLAZING DETAILS
Sheet: 2 OF 11
Scale: NTS
Series: HR-710

ANTHONY LYNN MILLER
LICENSE
No. 58705
8/23/17
STATE OF FLORIDA
PROFESSIONAL ENGINEER

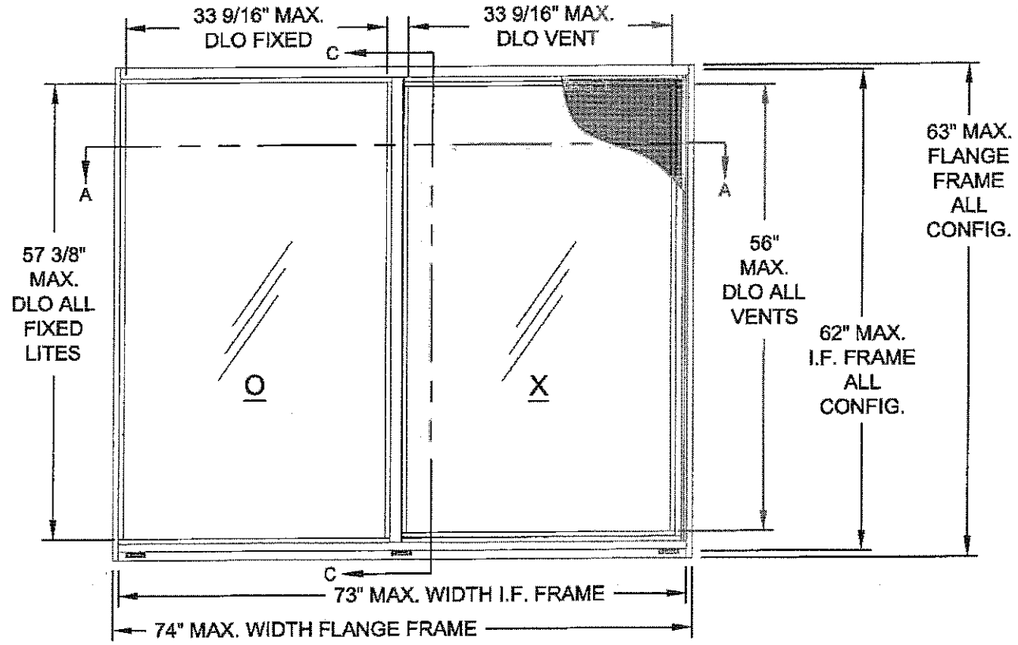
A. LYNN MILLER, P.E.
P.E.# 58705



DETAIL B - XOX (1/4-1/2-1/4)



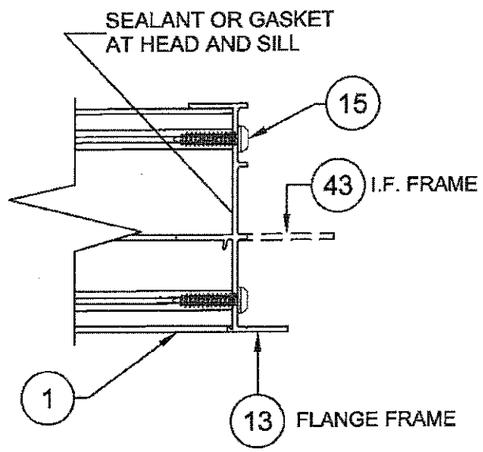
DETAIL C - XOX (1/3-1/3-1/3)



DETAIL A - OX OR XO

NOTE:

1. SEE SHEET 4 FOR VERTICAL AND HORIZONTAL SECTION DETAILS.



VIEW D-D
(FRAME CORNER CONSTRUCTION)

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-0411.06
Expiration Date 12/21/2021
By
Miami-Dade Product Control

Revision
3/24/17: NO CHANGES THIS SHEET.

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

PGT®
CERT. OF AUTH. #29296

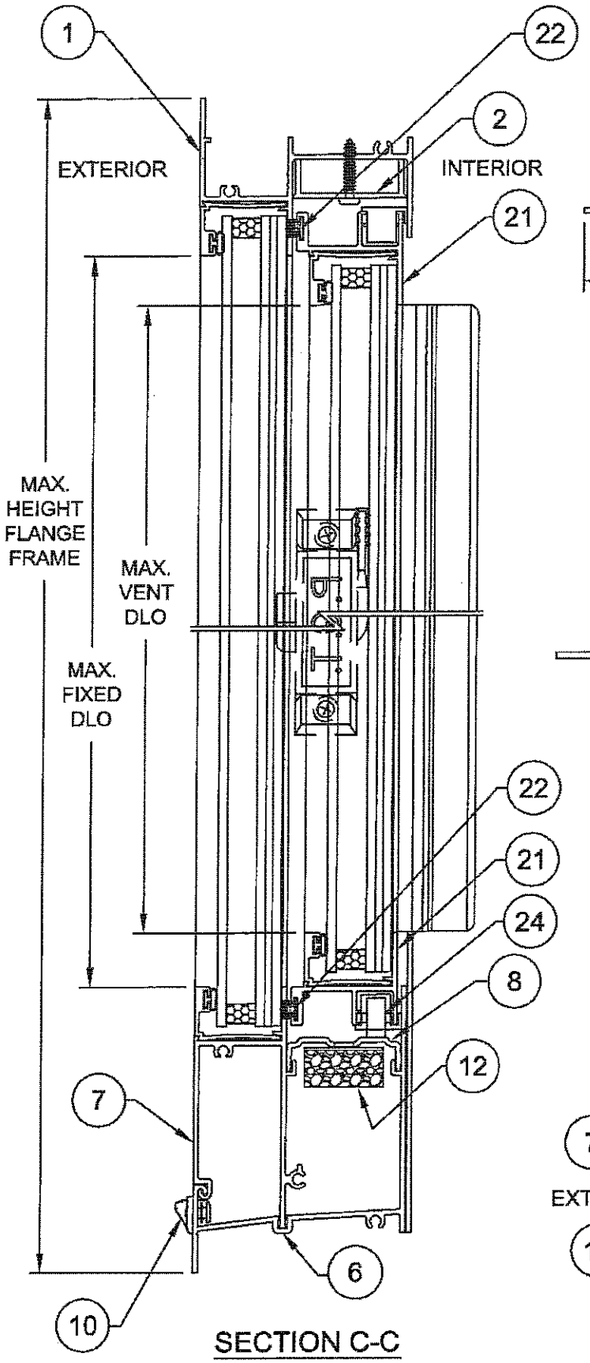
Title	Desc.	Series
ALUM. HORIZONTAL ROLLER, IMPACT	ELEVATIONS	HR-710

Scale	Sheet	DWG No.	Rev.
NTS	3 OF 11	4127-10	H

Drawn By	Date
JENS ROSOWSKI	03/22/06

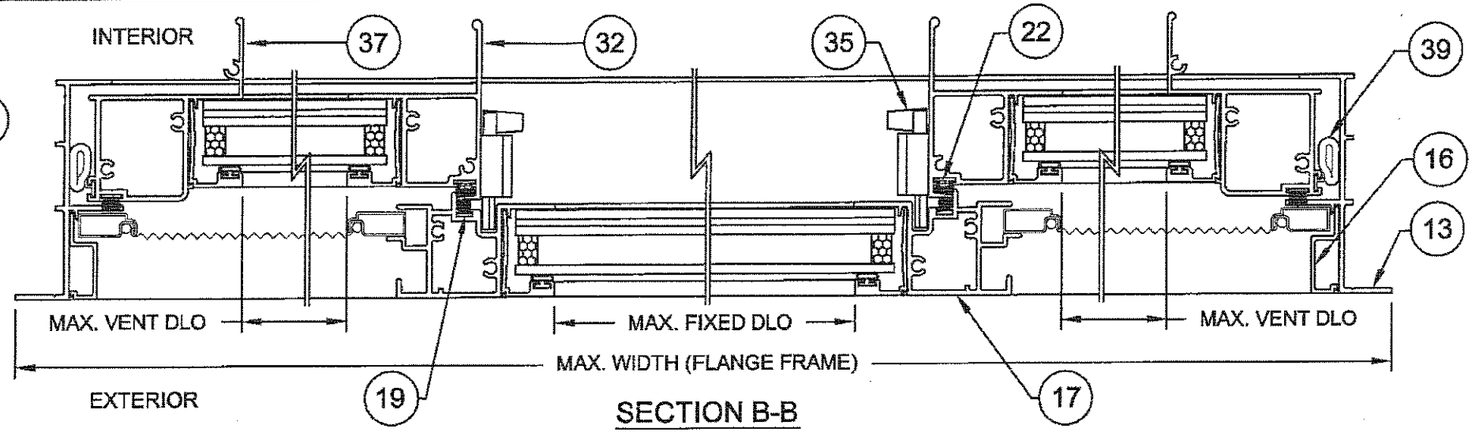
ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER
8/23/17

A. LYNN MILLER, P.E.
P.E.# 58705



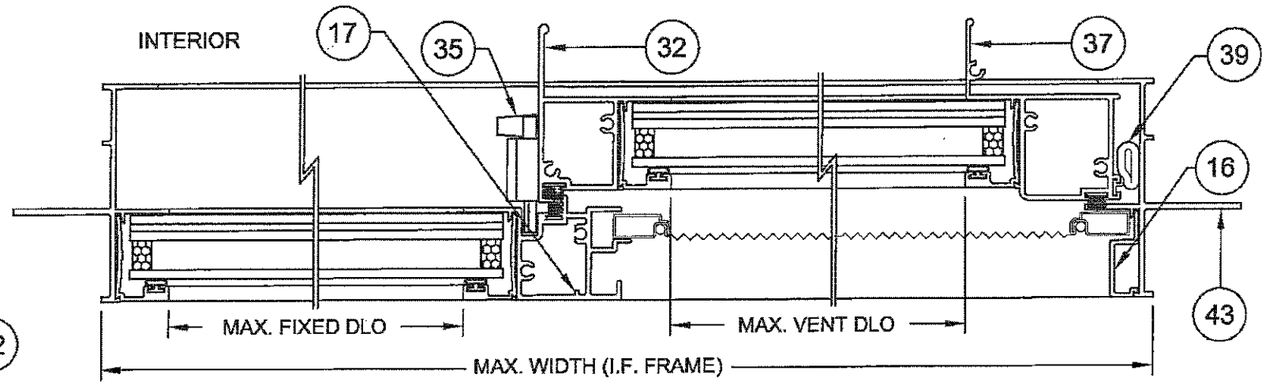
SECTION C-C

(VERTICAL SECTION, FLANGE FRAME)



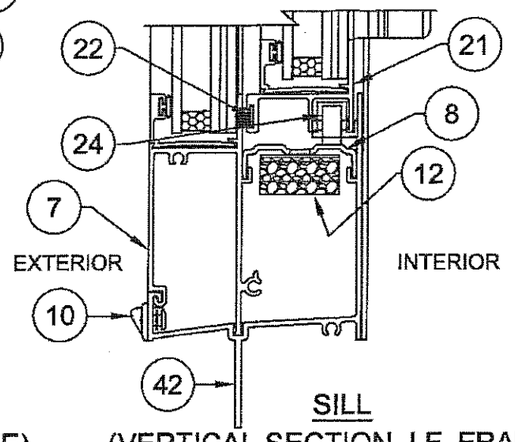
SECTION B-B

(HORIZONTAL SECTION - XOX SHOWN WITH FLANGE FRAME)



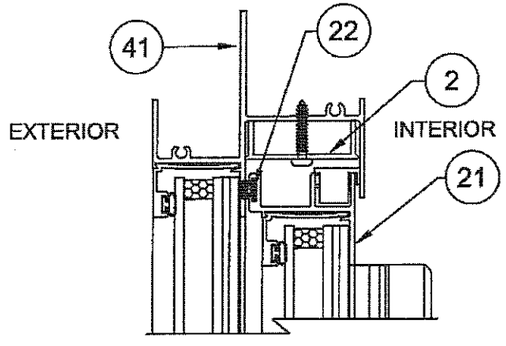
SECTION A-A

(HORIZONTAL SECTION - OX SHOWN WITH INTEGRAL FIN FRAME)



SILL

(VERTICAL SECTION, I.F. FRAME)



HEAD

(VERTICAL SECTION, I.F. FRAME)

PRODUCT REVISED
as complying with the Florida Building Code
NOA–No. 17-0411.06
Expiration Date 12/21/2021
By
Miami-Dade Product Control

Revision
3/24/17: NO CHANGES THIS SHEET.

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

CERT. OF AUTH. #29296

Series	Detail	Title
		ALUM. HORIZONTAL ROLLER, IMPACT
		SECTIONS, FLANGE & INT. FIN

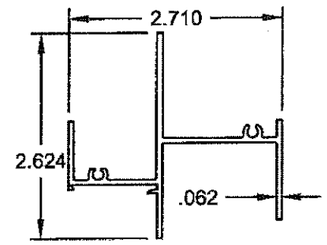
Scale	Sheet	DWG No.	Drawn By	Date	Rev.
HR-710	4 OF 11	4127-10	JENS ROSOWSKI	03/22/06	H
NTS					

ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER
8/23/17
A. LYNN MILLER, P.E.
P.E.# 58705

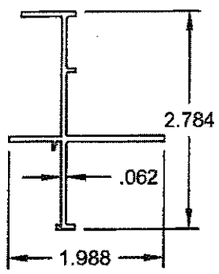
TABLE 4:

ITEM	DWG#	REV	DESCRIPTION	MAT'L	PGT#
1	4102	A	FLANGE FRAME HEAD	6063-T6 AL	612237
2	4025		SASH STOP (STD.) (ANTI LIFT CLIP)	6063-T5 AL	612244
3			#8 X 3/4 PH. PAN HEAD		7834AA
4	4053		SASH STOP COVER (SASH STOP)	6063-T5 AL	
6	4136		FLANGE FRAME SILL	6063-T6 AL	64136
7	4137		SILL ADAPTOR	6063-T6 AL	64137
8	4131		ROLLER TRACK	6063-T6 AL	64131
10	71298		WEEP HOLE COVER	POLYPROP.	71298
12	1626		ADHESIVE OPEN CELL FOAM PAD		7PAD1626
13	4002	A	FLANGE FRAME JAMB	6063-T6 AL	612225
14	4134		GASKET FOR MAIN FRAME SILL JOINT		74134W/K
15	1155		#8 X 1.000 QUAD PN. SMS		781PQA
16	4110	G	SCREEN ADAPTOR	6063-T5 AL	64110G
17	4054	B	FIXED MEETING RAIL	6063HD-T6 AL	64054A
19	4066		WSTP.,.187 X .230, FIN SEAL		64066G
21	4105		SASH TOP & BOTTOM RAIL	6063-T5 AL	612240
22	1683		WSTP.,.250 X .270 BACK, FIN SEAL		61683G
23	225-1		ROLLER HOUSING & GUIDE		42112HD
24	226		BRASS ROLLER WHEELS	BRASS	7BRWHL2
29	4128		HORIZONTAL ROLLER SASH TOP GUIDE	POLYPROP.	44128N
32	4006	D	SASH MEETING RAIL	6063HS-T6 AL	64006
33	1235		WSTP.,.170 X .270 BACK, FIN SEAL		67S16G
35	1096		SWEEP LATCH	DIE-CAST	71096
36	1016		#8 X .625 PH. FL. SMS		7858
37	4126		SASH SIDE RAIL	6063-T5 AL	64126
38	1683		WSTP.,.250 X .270 BACK, FIN SEAL		61683G
39	7070		BULB WEATHERSTRIP .187 X .275		67070K
40			LIFT RAIL COVER CAP		74078"C" L OR R
41	4139		I.F. FRAME HEAD	6063-T6 AL	64139
42	4140		I.F. FRAME SILL	6063-T6 AL	64140
43	4141		I.F. FRAME JAMB	6063-T6 AL	64141
50			GLAZING SILICONE, DOW 791, 899, 995 OR GE 7700		
51	1224		VINYL GLAZING BEAD BULB (THICK)		6TP247W,K
52	1225		VINYL GLAZING BEAD BULB (THIN)		6TP248K
53	4039	B	GLAZING BEAD - 5/16"	6063-T5 AL	64039B
54	4044	B	GLAZING BEAD - 5/16" W/GRILL KIT	6063-T5 AL	644703
55	4222	A	GLAZING BEAD - 7/16"	6063-T5 AL	64222
56	985	C	GLAZING BEAD - 7/16" W/GRILL KIT	6063-T5 AL	6985
59	4067		GLAZING BEAD - 13/16"	6063-T5 AL	64067
60	GLASS,		5/16" LAMI (1/8" A, .090 PVB, 1/8" A)		
61	"		5/16" LAMI (1/8" A, .090 PVB, 1/8" HS)		
62	"		5/16" LAMI (1/8" HS, .090 PVB, 1/8" HS)		
63	"		7/16" LAMI (3/16" A, .090 PVB, 3/16" A)		
64	"		7/16" LAMI (3/16" A, .090 PVB, 3/16" HS)		
65	"		7/16" LAMI (3/16" HS, .090 PVB, 3/16" HS)		

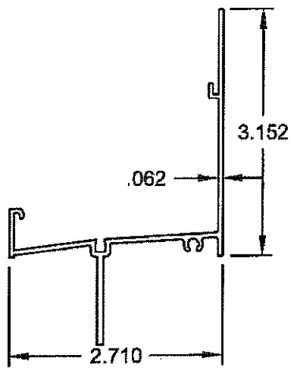
ITEM	DWG#	REV	DESCRIPTION	MAT'L	PGT#
66	GLASS,		13/16" LAMI IG-1/8"A (MIN.), 3/8" AIR SPACE, 5/16" LAMI (1/8"A, .090 PVB, 1/8"A)		
67	"		13/16" LAMI IG-1/8"A (MIN.), 3/8" AIR SPACE, 5/16" LAMI (1/8"A, .090 PVB, 1/8"HS)		
68	"		13/16" LAMI IG-1/8"A (MIN.), 3/8" AIR SPACE, 5/16" LAMI (1/8"HS, .090 PVB, 1/8"HS)		
69	"		13/16" LAMI IG-3/16"A (MIN.), 5/16" AIR SPACE, 5/16" LAMI (1/8"A, .090 PVB, 1/8"A)		
70	"		13/16" LAMI IG-3/16"A (MIN.), 5/16" AIR SPACE, 5/16" LAMI (1/8"A, .090 PVB, 1/8"HS)		
71	"		13/16" LAMI IG-3/16"A (MIN.), 5/16" AIR SPACE, 5/16" LAMI (1/8"HS, .090 PVB, 1/8"HS)		
72	"		13/16" LAMI IG-1/8"A (MIN.), 1/4" AIR SPACE, 7/16" LAMI (3/16"A, .090 PVB, 3/16"A)		
73	"		13/16" LAMI IG-1/8"A (MIN.), 1/4" AIR SPACE, 7/16" LAMI (3/16"A, .090 PVB, 3/16"HS)		
74	"		13/16" LAMI IG-1/8"A (MIN.), 1/4" AIR SPACE, 7/16" LAMI (3/16"HS, .090 PVB, 3/16"HS)		
75	"		13/16" LAMI IG-3/16"A (MIN.), 3/16" AIR SPACE, 7/16" LAMI (3/16"A, .090 PVB, 3/16"A)		
76	"		13/16" LAMI IG-3/16"A (MIN.), 3/16" AIR SPACE, 7/16" LAMI (3/16"A, .090 PVB, 3/16"HS)		
77	"		13/16" LAMI IG-3/16"A (MIN.), 3/16" AIR SPACE, 7/16" LAMI (3/16"HS, .090 PVB, 3/16"HS)		
90	1014		SCREEN FRAME (HOR. & VER.)	3105-H14 AL	
91	1630		SCREEN CORNER KEY W/RINGS	POLYPROP.	
92	1631		SCREEN CORNER KEY W/OUT RINGS	POLYPROP.	
93	1073		SCREEN SPRING	ST.ST.	
94	1624		SCREEN SPLINE - .135 DIA. FOAM	EM PVC	
95	1635		SCREEN SPLINE - .135 DIA. HARD	EM PVC	
96			SCREEN	CLOTH	



41 I.F. FRAME HEAD
#4139, 6063-T6



43 I.F. FRAME JAMB
#4141, 6063-T6



42 I.F. FRAME SILL
#4140, 6063-T6

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-0411.06
Expiration Date 12/21/2021
By
Miami-Dade Product Control

Revision: 3/24/17: CHANGED GLAZING SILICONE.

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

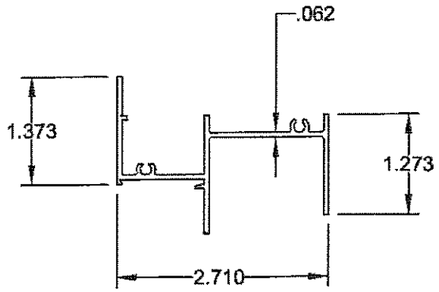
CERT. OF AUTH. #29296

Title	Check	Series
ALUM. HORIZONTAL ROLLER, IMPACT	PARTS LIST	HR-710

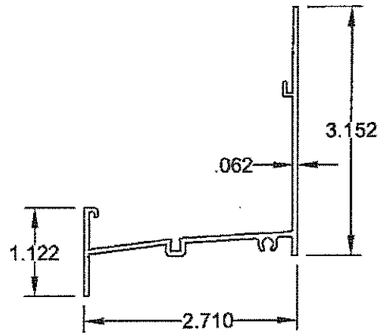
Date	Drawn By	Dwg. No.	Sheet	Scale	Rev.
03/22/06	JENS ROSOWSKI	4127-10	5 OF 11	NTS	H

ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER
8/23/17

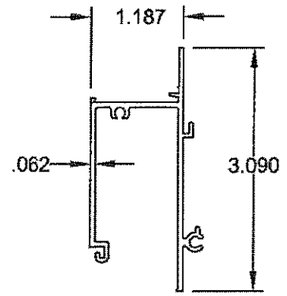
A. LYNN MILLER, P.E.
P.E.# 58705



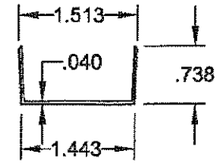
1 FLANGE FRAME HEAD
#4102A, 6063-T6



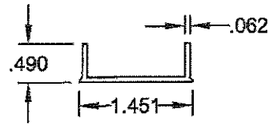
6 FLANGE FRAME SILL
#4136, 6063-T6



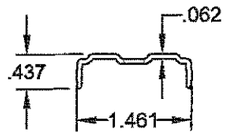
7 FRAME SILL ADAPTER
#4137, 6063-T6



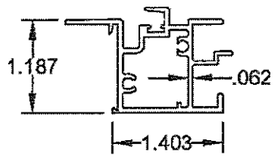
4 SASH STOP COVER
#4053, 6063-T5



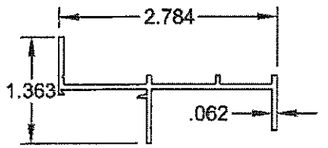
2 SASH STOP
#4025, 6063-T5



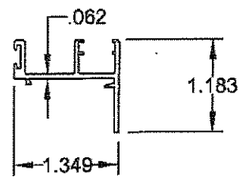
8 HORIZ. ROLLER TRACK
#4131, 6063-T6



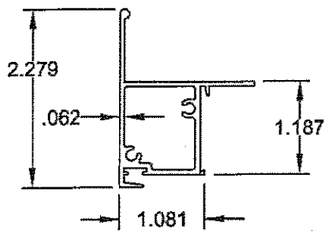
17 FIXED MEETING RAIL
#4054B, 6063HD-T6



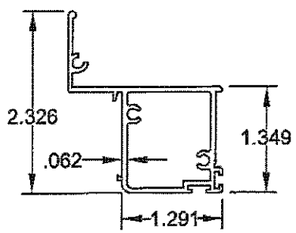
13 FLANGE FRAME JAMB
#4002A, 6063-T6



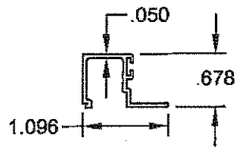
21 SASH TOP & BOTTOM RAIL
#4105, 6063-T5



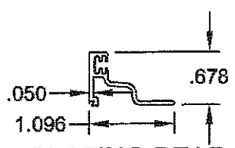
32 SASH MTG. RAIL
#4006D, 6063HS-T6



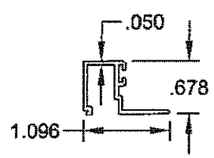
37 SASH SIDE RAIL
#4126, 6063-T5



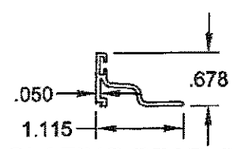
53 GLAZING BEAD, 5/16"
#4039B, 6063-T5



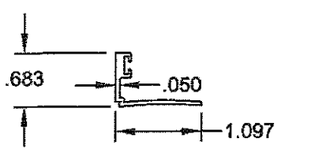
54 GLAZING BEAD, 5/16"
#4044B, 6063-T5
(USED W/ GRILL KIT)



55 GLAZING BEAD 7/16"
#4222A, 6063-T5



56 GLAZING BEAD, 7/16"
#985C, 6063-T5
(USED W/ GRILL KIT)



59 GLAZING BEAD, 13/16"
#4067, 6063-T5

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-0411.06
Expiration Date 12/21/2021
By
Miami-Dade Product Control

Revision: 3/24/17: NO CHANGES THIS SHEET.

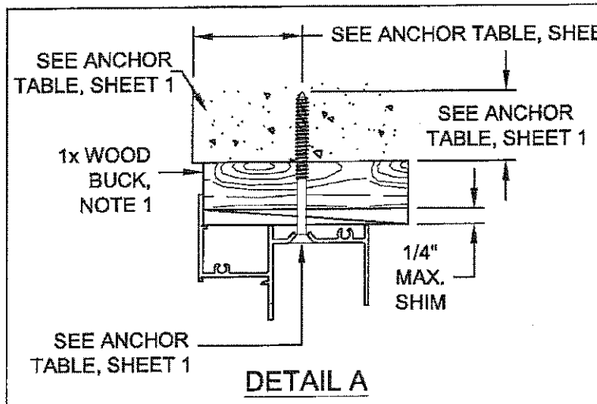
1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

Date: 03/22/06
Drawn By: JENS ROSOWSKI
DWG No.: 4127-10
Rev.: H
Sheet: 6 OF 11
Scale: NTS
Desc.: HR-710
Title: ALUM. HORIZONTAL ROLLER, IMPACT EXTRUSIONS

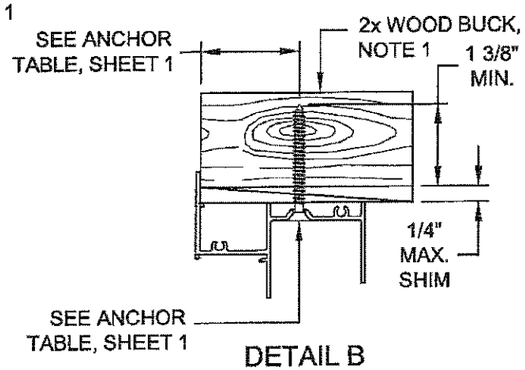
PGT®
CERT. OF AUTH. #29296

ANTHONY LYNN MILLER
LICENSE
No. 58705
8/23/17
STATE OF FLORIDA
PROFESSIONAL ENGINEER

A. LYNN MILLER, P.E.
P.E.# 58705

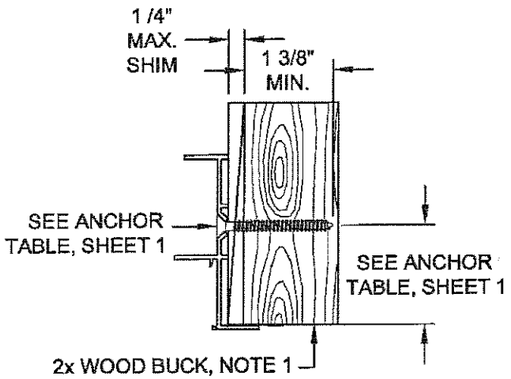


DETAIL A

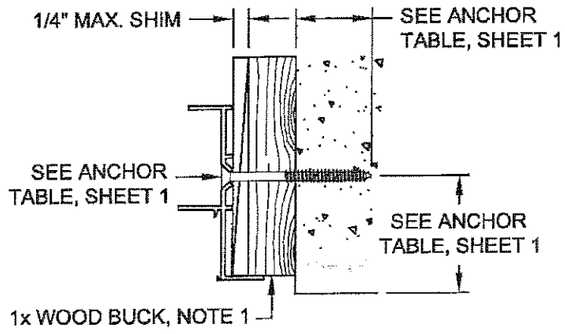


DETAIL B

TYPICAL FLANGE FRAME HEAD SECTIONS

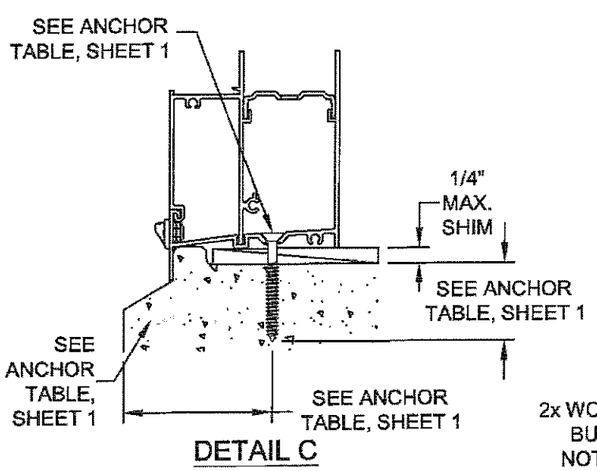


DETAIL E

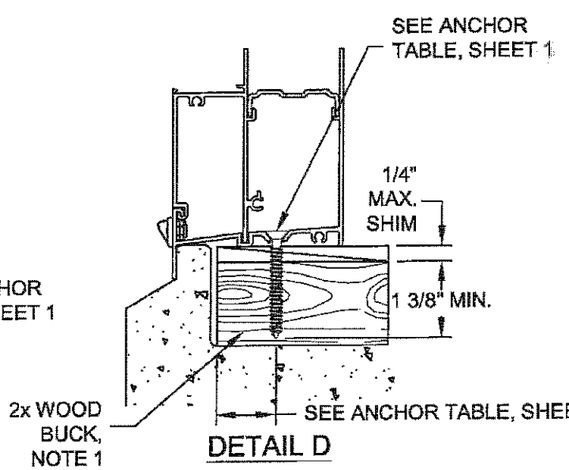


DETAIL F

TYPICAL FLANGE FRAME JAMB SECTIONS



DETAIL C



DETAIL D

TYPICAL FLANGE FRAME SILL SECTIONS

NOTES:

1. WOOD BUCKS DEPICTED IN THE SECTIONS ON THIS PAGE AS 1x ARE BUCKS WHOSE TOTAL THICKNESS IS LESS THAN 1 1/2". 1x WOOD BUCKS ARE OPTIONAL IF UNIT CAN BE INSTALLED DIRECTLY TO SOLID CONCRETE OR CMU. WOOD BUCKS DEPICTED AS 2x ARE 1 1/2" THICK OR GREATER. INSTALLATION TO THE SUBSTRATE OF WOOD BUCKS TO BE ENGINEERED BY OTHERS OR AS APPROVED BY AUTHORITY HAVING JURISDICTION.

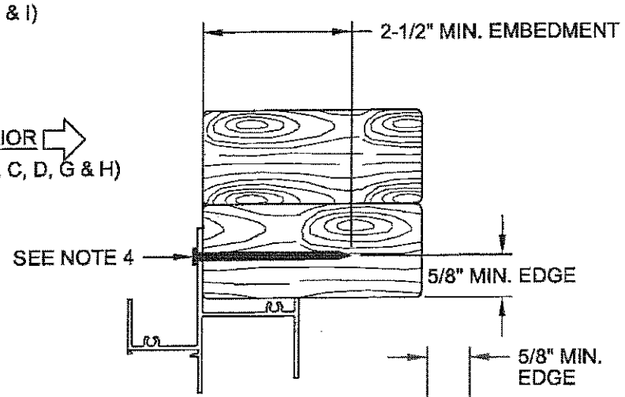
2. FOR ATTACHMENT TO METAL: THE METAL STRUCTURAL MEMBER SHALL BE OF A SIZE TO PROVIDE FULL SUPPORT TO THE WINDOW FRAME SIMILAR TO THAT SHOWN IN THESE DETAILS FOR 2x WOOD BUCKS.

3. MATERIALS, INCLUDING BUT NOT LIMITED TO STEEL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF FLORIDA BUILDING CODE.

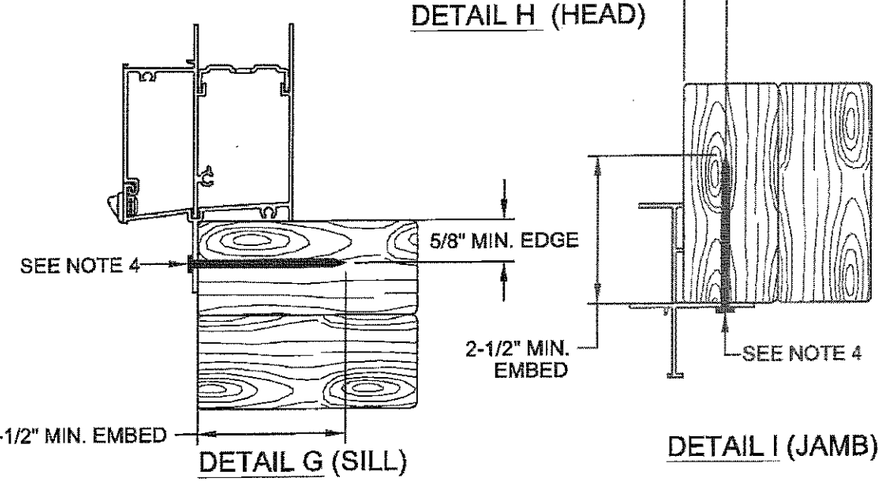
4. 0.131" DIA. MIN. X 2 1/2" NAIL AT CORNERS AND 5" O.C. TYPICAL DETAILS G, H & I.

INTERIOR
(JAMB DETAILS E, F & I)
EXTERIOR

EXTERIOR INTERIOR
(HEAD & SILL DETAILS A, B, C, D, G & H)



DETAIL H (HEAD)



DETAIL G (SILL)

DETAIL I (JAMB)

TYPICAL INTEGRAL FIN FRAME SECTIONS

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-0411.06
Expiration Date 12/21/2021
By Miami-Dade Product Control

Revision
3/24/17: REVISED NOTES TO COMPLY WITH NEW ANCHORAGE. ADDED NOTE 4.

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

PGT® CERT. OF AUTH. #29296

Series	Desc.	Title	Date
HR-710	ANCHORAGE DETAILS	ALUM. HORIZONTAL ROLLER, IMPACT	03/22/06

Scale	Sheet	DWG No.	Drawn By	Rev.
NTS	7 OF 11	4127-10	JENS ROSOWSKI	H

ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER
8/29/17

A. LYNN MILLER, P.E.
P.E.# 58705

TABLE 5:

Maximum Design Pressure, DP (psf)
XO or OX

Overall Width	Overall Height	Glass Type A, B, G, H	Glass Type C, D, E, F, I, J, K, L
37"	26"	+75.0 / -75.0	+75.0 / -75.0
48"		+75.0 / -75.0	+75.0 / -75.0
53-1/8"		+75.0 / -75.0	+75.0 / -75.0
60"		+75.0 / -75.0	+75.0 / -75.0
66"		+75.0 / -75.0	+75.0 / -75.0
72"		+75.0 / -75.0	+75.0 / -75.0
74"		+75.0 / -75.0	+75.0 / -75.0
37"	36"	+75.0 / -75.0	+75.0 / -75.0
48"		+75.0 / -75.0	+75.0 / -75.0
53-1/8"		+75.0 / -75.0	+75.0 / -75.0
60"		+75.0 / -75.0	+75.0 / -75.0
66"		+75.0 / -75.0	+75.0 / -75.0
72"		+75.0 / -75.0	+75.0 / -75.0
74"		+75.0 / -75.0	+75.0 / -75.0
37"	38-3/8"	+75.0 / -75.0	+75.0 / -75.0
48"		+75.0 / -75.0	+75.0 / -75.0
53-1/8"		+75.0 / -75.0	+75.0 / -75.0
60"		+75.0 / -75.0	+75.0 / -75.0
66"		+75.0 / -75.0	+75.0 / -75.0
72"		+75.0 / -75.0	+75.0 / -75.0
74"		+75.0 / -75.0	+75.0 / -75.0
37"	48"	+75.0 / -75.0	+75.0 / -75.0
48"		+75.0 / -75.0	+75.0 / -75.0
53-1/8"		+75.0 / -75.0	+75.0 / -75.0
60"		+75.0 / -75.0	+75.0 / -75.0
66"		+75.0 / -75.0	+75.0 / -75.0
72"		+75.0 / -75.0	+75.0 / -75.0
74"		+75.0 / -75.0	+75.0 / -75.0
37"	50-5/8"	+75.0 / -75.0	+75.0 / -75.0
48"		+75.0 / -75.0	+75.0 / -75.0
53-1/8"		+75.0 / -75.0	+75.0 / -75.0
60"		+75.0 / -75.0	+75.0 / -75.0
66"		+75.0 / -75.0	+75.0 / -75.0
72"		+75.0 / -75.0	+75.0 / -75.0
74"		+75.0 / -75.0	+75.0 / -75.0
37"	54"	+75.0 / -75.0	+75.0 / -75.0
48"		+75.0 / -75.0	+75.0 / -75.0
53-1/8"		+75.0 / -75.0	+75.0 / -75.0
60"		+75.0 / -75.0	+75.0 / -75.0
66"		+75.0 / -75.0	+75.0 / -75.0
72"		+75.0 / -75.0	+75.0 / -75.0
74"		+75.0 / -75.0	+75.0 / -75.0
37"	60"	+75.0 / -75.0	+75.0 / -75.0
48"		+75.0 / -75.0	+75.0 / -75.0
53-1/8"		+75.0 / -75.0	+75.0 / -75.0
60"		+75.0 / -75.0	+75.0 / -75.0
66"		+74.2 / -74.2	+75.0 / -75.0
72"		+69.6 / -69.6	+75.0 / -75.0
74"		+68.1 / -68.1	+75.0 / -75.0
37"	63"	+75.0 / -75.0	+75.0 / -75.0
48"		+75.0 / -75.0	+75.0 / -75.0
53-1/8"		+75.0 / -75.0	+75.0 / -75.0
60"		+75.0 / -75.0	+75.0 / -75.0
66"		+70.2 / -70.2	+75.0 / -75.0
72"		+65.2 / -65.2	+75.0 / -75.0
74"		+63.8 / -63.8	+75.0 / -75.0

FOR ANCHORAGE SEE SHEET 9.

TABLE 6:

Maximum Design Pressure, DP (psf)
XOX, 1/3 - 1/3 - 1/3

Overall Width	Overall Height	Glass Type A, B, C, G, H, I	Glass Type D, E, F, J, K, L
48"	26"	+60.0 / -60.0	+75.0 / -75.0
53-1/8"		+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+75.0 / -75.0
66"		+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+75.0 / -75.0
86-7/16"		+60.0 / -60.0	+75.0 / -75.0
48"	36"	+60.0 / -60.0	+75.0 / -75.0
53-1/8"		+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+75.0 / -75.0
66"		+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+75.0 / -75.0
86-7/16"		+60.0 / -60.0	+75.0 / -75.0
48"	38-3/8"	+60.0 / -60.0	+75.0 / -75.0
53-1/8"		+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+75.0 / -75.0
66"		+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+75.0 / -75.0
86-7/16"		+60.0 / -60.0	+75.0 / -75.0
48"	48"	+60.0 / -60.0	+75.0 / -75.0
53-1/8"		+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+75.0 / -75.0
66"		+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+75.0 / -75.0
86-7/16"		+60.0 / -60.0	+75.0 / -75.0
48"	50-5/8"	+60.0 / -60.0	+75.0 / -75.0
53-1/8"		+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+75.0 / -75.0
66"		+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+75.0 / -75.0
86-7/16"		+60.0 / -60.0	+75.0 / -75.0
48"	54"	+60.0 / -60.0	+75.0 / -75.0
53-1/8"		+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+75.0 / -75.0
66"		+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+75.0 / -75.0
86-7/16"		+60.0 / -60.0	+75.0 / -75.0
48"	60"	+60.0 / -60.0	+75.0 / -75.0
53-1/8"		+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+75.0 / -75.0
66"		+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+75.0 / -75.0
86-7/16"		+60.0 / -60.0	+75.0 / -75.0
48"	63"	+60.0 / -60.0	+75.0 / -75.0
53-1/8"		+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+75.0 / -75.0
66"		+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+75.0 / -75.0
86-7/16"		+60.0 / -60.0	+75.0 / -75.0

FOR ANCHORAGE SEE SHEET 10.

TABLE 7:

Maximum Design Pressure, DP (psf)
XOX, 1/4 - 1/2 - 1/4

Overall Width	Overall Height	Glass Type A, B, G, H	Glass Type C, I	Glass Type D, E, F, J, K, L
53-1/8"	26"	+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
96"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
106-3/8"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
108"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
111"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
53-1/8"	36"	+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
96"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
106-3/8"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
108"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
111"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
53-1/8"	38-3/8"	+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
96"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
106-3/8"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
108"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
111"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
53-1/8"	48"	+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
96"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
106-3/8"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
108"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
111"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
53-1/8"	50-5/8"	+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
96"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
106-3/8"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
108"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
111"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
53-1/8"	54"	+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
96"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
106-3/8"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
108"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
111"		+59.5 / -59.5	+60.0 / -60.0	+75.0 / -75.0
53-1/8"	60"	+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
96"		+58.8 / 58.8	+60.0 / -60.0	+75.0 / -75.0
106-3/8"		+55.2 / 55.2	+60.0 / -60.0	+75.0 / -75.0
108"		+54.6 / -54.6	+60.0 / -60.0	+75.0 / -75.0
111"		+53.6 / -53.6	+60.0 / -60.0	+75.0 / -75.0
53-1/8"	63"	+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
60"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
74"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
84"		+60.0 / -60.0	+60.0 / -60.0	+75.0 / -75.0
96"		+56.2 / 56.2	+60.0 / -60.0	+75.0 / -75.0
106-3/8"		+52.3 / 52.3	+60.0 / -60.0	+75.0 / -75.0
108"		+51.7 / -51.7	+60.0 / -60.0	+75.0 / -75.0
111"		+50.9 / -50.9	+60.0 / -60.0	+75.0 / -75.0

FOR ANCHORAGE SEE SHEET 11.

GLASS TYPES:

A. 5/16" LAMI - (1/8" A,.090" PVB, 1/8" A)
B. 5/16" LAMI - (1/8" A,.090" PVB, 1/8" HS)
C. 5/16" LAMI - (1/8" HS,.090" PVB, 1/8" HS)
D. 7/16" LAMI - (3/16" A,.090" PVB, 3/16" A)
E. 7/16" LAMI - (3/16" A,.090" PVB, 3/16" HS)
F. 7/16" LAMI - (3/16" HS,.090" PVB, 3/16" HS)
G. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" A,.090" PVB, 1/8" A)
H. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" A,.090" PVB, 1/8" HS)
I. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" HS,.090" PVB, 1/8" HS)
J. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" A,.090" PVB, 3/16" A)
K. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" A,.090" PVB, 3/16" HS)
L. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" HS,.090" PVB, 3/16" HS)

NOTES

1) FOR WINDOW SIZES NOT SHOWN, GO TO NEXT LARGER WINDOW IN TABLE.

2) OVERALL FLANGE DIMENSIONS SHOWN. FOR FIN WINDOWS, SUBTRACT 1" FROM TABLE SIZE DIMENSIONS.

3) FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY REMAIN UNCHANGED.

4) SEE GLASS TYPE DESCRIPTIONS ON SHEET 2.

PRODUCT REVISED
as complying with the Florida Building Code
NOA–No. 17-0411.06
Expiration Date 12/21/2021
By Miami–Dade Product Control

Revision	3/24/17: UPDATED TABLE

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

CERT. OF AUTH. #29296

Title	Drawn By	Date	Rev.
ALUM. HORIZONTAL ROLLER, IMPACT DESIGN PRESSURES	JENS ROSOWSKI	03/22/06	H
Series: HR-710	Scale: NTS	Sheet: 8 OF 11	DWG No.: 4127-10

ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER
8/23/17
A. LYNN MILLER, P.E.
P.E.# 58705

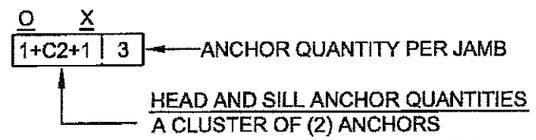
TABLE 8:

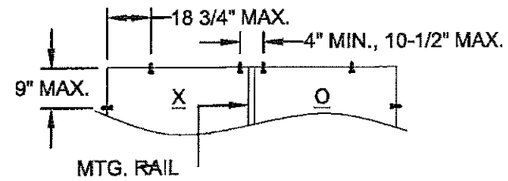
Anchor Quantities, XO or OX with Glass Types A, B, C, G, H & I							
Overall Width	Overall Height	Anchor Group A		Anchor Group B		Anchor Group C	
		Head & Sill	Jamb	Head & Sill	Jamb	Head & Sill	Jamb
37"	26"	1+C2+1	2	1+C2+1	2	1+C2+1	2
48"		1+C2+1	2	1+C2+1	2	1+C2+1	2
53-1/8"		1+C2+1	2	1+C2+1	2	1+C2+1	2
60"		1+C2+1	2	1+C2+1	2	1+C2+1	2
66"		1+C2+1	2	1+C2+1	2	1+C2+1	2
72"		2+C2+2	2	1+C2+1	2	1+C2+1	2
74"		2+C2+2	2	1+C2+1	2	1+C2+1	2
37"	36"	1+C2+1	2	1+C2+1	2	1+C2+1	2
48"		1+C2+1	2	1+C2+1	2	1+C2+1	2
53-1/8"		1+C2+1	2	1+C2+1	2	1+C2+1	2
60"		1+C2+1	2	1+C2+1	2	1+C2+1	2
66"		1+C2+1	2	1+C2+1	2	1+C2+1	2
72"		2+C2+2	2	1+C2+1	2	1+C2+1	2
74"		2+C2+2	2	1+C2+1	2	1+C2+1	2
37"	38-3/8"	1+C2+1	2	1+C2+1	2	1+C2+1	2
48"		1+C2+1	2	1+C2+1	2	1+C2+1	2
53-1/8"		1+C2+1	2	1+C2+1	2	1+C2+1	2
60"		1+C2+1	2	1+C2+1	2	1+C2+1	2
66"		1+C2+1	2	1+C2+1	2	1+C2+1	2
72"		2+C2+2	2	1+C2+1	2	1+C2+1	2
74"		2+C2+2	2	1+C2+1	2	1+C2+1	2
37"	48"	1+C2+1	3	1+C2+1	3	1+C2+1	3
48"		1+C2+1	3	1+C2+1	3	1+C2+1	3
53-1/8"		1+C2+1	3	1+C2+1	3	1+C2+1	3
60"		1+C2+1	3	1+C2+1	3	1+C2+1	3
66"		1+C2+1	3	1+C2+1	3	1+C2+1	3
72"		2+C2+2	3	1+C2+1	3	1+C2+1	3
74"		2+C2+2	3	1+C2+1	3	1+C2+1	3
37"	50-5/8"	1+C2+1	3	1+C2+1	3	1+C2+1	3
48"		1+C2+1	3	1+C2+1	3	1+C2+1	3
53-1/8"		1+C2+1	3	1+C2+1	3	1+C2+1	3
60"		1+C2+1	3	1+C2+1	3	1+C2+1	3
66"		1+C3+1	3	1+C2+1	3	1+C2+1	3
72"		2+C3+2	3	1+C2+1	3	1+C2+1	3
74"		2+C3+2	3	1+C2+1	3	1+C2+1	3
37"	54"	1+C2+1	3	1+C2+1	3	1+C2+1	3
48"		1+C2+1	3	1+C2+1	3	1+C2+1	3
53-1/8"		1+C2+1	3	1+C2+1	3	1+C2+1	3
60"		1+C3+1	3	1+C2+1	3	1+C2+1	3
66"		1+C3+1	3	1+C2+1	3	1+C2+1	3
72"		2+C3+2	3	1+C2+1	3	1+C2+1	3
74"		2+C3+2	3	1+C2+1	3	1+C2+1	3
37"	60"	1+C2+1	3	1+C2+1	3	1+C2+1	3
48"		1+C3+1	3	1+C2+1	3	1+C2+1	3
53-1/8"		1+C3+1	3	1+C2+1	3	1+C2+1	3
60"		1+C3+1	3	1+C2+1	3	1+C2+1	3
66"		1+C3+1	3	1+C2+1	3	1+C2+1	3
72"		2+C3+2	3	1+C2+1	3	1+C2+1	3
74"		2+C3+2	3	1+C2+1	3	1+C2+1	3
37"	63"	1+C2+1	3	1+C2+1	3	1+C2+1	3
48"		1+C3+1	3	1+C2+1	3	1+C2+1	3
53-1/8"		1+C3+1	3	1+C2+1	3	1+C2+1	3
60"		1+C3+1	3	1+C2+1	3	1+C2+1	3
66"		1+C3+1	3	1+C2+1	3	1+C2+1	3
72"		2+C3+2	3	1+C2+1	3	1+C2+1	3
74"		2+C3+2	3	1+C2+1	3	1+C2+1	3

TABLE 9:

Anchor Quantities, XO or OX with Glass Types D, E, F, J, K & L							
Overall Width	Overall Height	Anchor Group A		Anchor Group B		Anchor Group C	
		Head & Sill	Jamb	Head & Sill	Jamb	Head & Sill	Jamb
37"	26"	1+C2+1	2	1+C2+1	2	1+C2+1	2
48"		1+C2+1	2	1+C2+1	2	1+C2+1	2
53-1/8"		1+C2+1	2	1+C2+1	2	1+C2+1	2
60"		1+C2+1	2	1+C2+1	2	1+C2+1	2
66"		1+C2+1	2	1+C2+1	2	1+C2+1	2
72"		2+C2+2	2	1+C2+1	2	1+C2+1	2
74"		2+C2+2	2	1+C2+1	2	1+C2+1	2
37"	36"	1+C2+1	2	1+C2+1	2	1+C2+1	2
48"		1+C2+1	2	1+C2+1	2	1+C2+1	2
53-1/8"		1+C2+1	2	1+C2+1	2	1+C2+1	2
60"		1+C2+1	2	1+C2+1	2	1+C2+1	2
66"		1+C2+1	2	1+C2+1	2	1+C2+1	2
72"		2+C2+2	2	1+C2+1	2	1+C2+1	2
74"		2+C2+2	2	1+C2+1	2	1+C2+1	2
37"	38-3/8"	1+C2+1	2	1+C2+1	2	1+C2+1	2
48"		1+C2+1	2	1+C2+1	2	1+C2+1	2
53-1/8"		1+C2+1	2	1+C2+1	2	1+C2+1	2
60"		1+C2+1	2	1+C2+1	2	1+C2+1	2
66"		1+C2+1	2	1+C2+1	2	1+C2+1	2
72"		2+C2+2	2	1+C2+1	2	1+C2+1	2
74"		2+C2+2	2	1+C2+1	2	1+C2+1	2
37"	48"	1+C2+1	3	1+C2+1	3	1+C2+1	3
48"		1+C2+1	3	1+C2+1	3	1+C2+1	3
53-1/8"		1+C2+1	3	1+C2+1	3	1+C2+1	3
60"		1+C2+1	3	1+C2+1	3	1+C2+1	3
66"		1+C2+1	3	1+C2+1	3	1+C2+1	3
72"		2+C2+2	3	1+C2+1	3	1+C2+1	3
74"		2+C2+2	3	1+C2+1	3	1+C2+1	3
37"	50-5/8"	1+C2+1	3	1+C2+1	3	1+C2+1	3
48"		1+C2+1	3	1+C2+1	3	1+C2+1	3
53-1/8"		1+C2+1	3	1+C2+1	3	1+C2+1	3
60"		1+C2+1	3	1+C2+1	3	1+C2+1	3
66"		1+C3+1	3	1+C2+1	3	1+C2+1	3
72"		2+C3+2	3	1+C2+1	3	1+C2+1	3
74"		2+C3+2	3	1+C2+1	3	1+C2+1	3
37"	54"	1+C2+1	3	1+C2+1	3	1+C2+1	3
48"		1+C2+1	3	1+C2+1	3	1+C2+1	3
53-1/8"		1+C2+1	3	1+C2+1	3	1+C2+1	3
60"		1+C3+1	3	1+C2+1	3	1+C2+1	3
66"		1+C3+1	3	1+C2+1	3	1+C2+1	3
72"		2+C3+2	3	1+C2+1	3	1+C2+1	3
74"		2+C3+2	3	1+C2+1	3	1+C2+1	3
37"	60"	1+C2+1	3	1+C2+1	3	1+C2+1	3
48"		1+C3+1	3	1+C2+1	3	1+C2+1	3
53-1/8"		1+C3+1	3	1+C2+1	3	1+C2+1	3
60"		1+C3+1	3	1+C2+1	3	1+C2+1	3
66"		1+C3+1	3	1+C2+1	3	1+C2+1	3
72"		2+C3+2	3	1+C2+1	3	1+C2+1	3
74"		2+C3+2	3	1+C2+1	3	1+C2+1	3
37"	63"	1+C2+1	3	1+C2+1	3	1+C2+1	3
48"		1+C3+1	3	1+C2+1	3	1+C2+1	3
53-1/8"		1+C3+1	3	1+C2+1	3	1+C2+1	3
60"		1+C3+1	3	1+C2+1	3	1+C2+1	3
66"		1+C3+1	3	1+C2+1	3	1+C2+1	3
72"		2+C3+2	3	1+C2+1	3	1+C2+1	3
74"		2+C3+2	3	1+C2+1	3	1+C2+1	3

TABLE KEY:





EXAMPLE CLUSTER W/ QTY. OF (2) ANCHORS
(SHOWN IN TABLE KEY ABOVE)

NOTES

1) WINDOW DP / ANCHOR QUANTITIES ARE BASED ON THE FOLLOWING DIMENSIONS:
HEAD & SILL: 10 1/2" MAX. ON EACH SIDE OF MEETING RAIL CENTERLINE. 18 3/4" MAX. FROM CORNERS.
JAMBS: 9" MAX. FROM CORNERS AND 22 1/2" MAX. O.C.

2) FOR WINDOW SIZES NOT SHOWN, GO TO NEXT LARGER WINDOW IN TABLE.

3) OVERALL FLANGE DIMENSIONS SHOWN. FOR FIN WINDOWS, SUBTRACT 1" FROM TABLE SIZE DIMENSIONS.

4) FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY REMAIN UNCHANGED.

5) SEE GLASS TYPE DESCRIPTIONS ON SHEET 2.

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 17-0411.06
Expiration Date 12/21/2021
By Miami-Dade Product Control

Revision	
	3/24/17: UPDATED TABLE & ELEVATION.

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

CERT. OF AUTH. #29296

Series	ALUM. HORIZONTAL ROLLER, IMPACT
Descr.	ANCH. QTY., OX & XO
Scale	NTS
Sheet	9 OF 11
DWG No.	HR-710
Drawn By	JENS ROSOWSKI
Date	03/22/06
Rev.	4127-10 H

ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER
8/25/17

A. LYNN MILLER, P.E.
P.E.# 58705

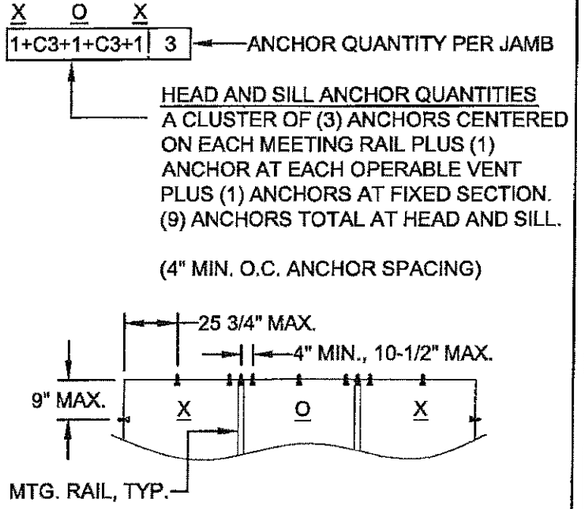
TABLE 10:

Anchor Quantities, XOX, 1/3 - 1/3 - 1/3 with Glass Types A, B, C, G, H & I							
Overall Width	Overall Height	Anchor Group A		Anchor Group B		Anchor Group C	
		Head & Sill	Jamb	Head & Sill	Jamb	Head & Sill	Jamb
48"	26"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
53-1/8"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
66"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
86-7/16"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48"	36"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
53-1/8"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
66"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
86-7/16"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48"	38-3/8"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
53-1/8"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
66"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
86-7/16"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48"	48"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
53-1/8"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
66"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
86-7/16"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
48"	50-5/8"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
53-1/8"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
66"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
86-7/16"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
48"	54"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
53-1/8"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
66"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
86-7/16"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
48"	60"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
53-1/8"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
66"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
86-7/16"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
48"	63"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
53-1/8"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
66"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
86-7/16"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3

TABLE 11:

Anchor Quantities, XOX, 1/3 - 1/3 - 1/3 with Glass Types D, E, F, J, K & L							
Overall Width	Overall Height	Anchor Group A		Anchor Group B		Anchor Group C	
		Head & Sill	Jamb	Head & Sill	Jamb	Head & Sill	Jamb
48"	26"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
53-1/8"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
66"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
86-7/16"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48"	36"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
53-1/8"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
66"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
86-7/16"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48"	38-3/8"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
53-1/8"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
66"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
86-7/16"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48"	48"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
53-1/8"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
66"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
86-7/16"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
48"	50-5/8"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
53-1/8"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
66"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
86-7/16"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
48"	54"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
53-1/8"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
66"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
86-7/16"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
48"	60"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
53-1/8"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
66"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
86-7/16"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
48"	63"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
53-1/8"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
66"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
86-7/16"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3

TABLE KEY:



EXAMPLE CLUSTER W/ QTY. OF (3) ANCHORS
(SHOWN IN TABLE KEY ABOVE)

NOTES

1) WINDOW DP / ANCHOR QUANTITIES ARE BASED ON THE FOLLOWING DIMENSIONS:
HEAD & SILL: 10 1/2" MAX. ON EACH SIDE OF MEETING RAIL CENTERLINE. 25 3/4" MAX. FROM CORNERS.
JAMBS: 9" MAX. FROM CORNERS AND 22 1/2" MAX. O.C.

2) FOR WINDOW SIZES NOT SHOWN, GO TO NEXT LARGER WINDOW IN TABLE.

3) OVERALL FLANGE DIMENSIONS SHOWN. FOR FIN WINDOWS, SUBTRACT 1" FROM TABLE SIZE DIMENSIONS.

4) FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY REMAIN UNCHANGED.

5) SEE GLASS TYPE DESCRIPTIONS ON SHEET 2.

PRODUCT REVISED
as complying with the Florida Building Code
NOA–No. 17-0411.06
Expiration Date 12/21/2021
By
Miami–Dade Product Control

Revision	
H	3/24/17: UPDATED TABLE & ELEVATION.

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

CERT. OF AUTH. #29296

Title	ALUM. HORIZONTAL ROLLER, IMPACT
Desc.	ANCH. QTY., XOX-1/3-1/3-1/3
Series	HR-710
Scale	NTS
Sheet	10 OF 11
DWG No.	4127-10
Drawn By	JENS ROSOWSKI
Date	03/22/06
Rev.	H

ANTHONY LYNN MILLER
LICENSE
No. 58705
STATE OF FLORIDA
PROFESSIONAL ENGINEER
8/23/17

A. LYNN MILLER, P.E.
P.E.# 58705

TABLE 12:

Anchor Quantities, XOX, 1/4 - 1/2 - 1/4 with Glass Types A, B, C, G, H & I

Overall Width	Overall Height	Anchor Group A		Anchor Group B		Anchor Group C	
		Head & Sill	Jamb	Head & Sill	Jamb	Head & Sill	Jamb
53-1/8"	26"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
96"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
106-3/8"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
108"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
111"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
53-1/8"	36"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
96"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
106-3/8"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
108"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
111"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
53-1/8"	38-3/8"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
96"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
106-3/8"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
108"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
111"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
53-1/8"	48"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
96"		1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
106-3/8"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
108"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
111"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
53-1/8"	50-5/8"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
96"		1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
106-3/8"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
108"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
111"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
53-1/8"	54"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
96"		1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
106-3/8"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
108"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
111"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
53-1/8"	60"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
96"		1+C3+2+C3+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
106-3/8"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
108"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
111"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
53-1/8"	63"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C3+2+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
96"		1+C3+2+C3+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
106-3/8"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
108"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
111"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3

TABLE 13:

Anchor Quantities, XOX, 1/4 - 1/2 - 1/4 with Glass Types D, E, F, J, K & L

Overall Width	Overall Height	Anchor Group A		Anchor Group B		Anchor Group C	
		Head & Sill	Jamb	Head & Sill	Jamb	Head & Sill	Jamb
53-1/8"	26"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
96"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
106-3/8"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
108"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
111"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
53-1/8"	36"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
96"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
106-3/8"		1+C2+3+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2
108"		1+C2+3+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2
111"		1+C2+3+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2
53-1/8"	38-3/8"	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
60"		1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
74"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
84"		1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
96"		1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+1+C2+1	2
106-3/8"		1+C2+3+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2
108"		1+C2+3+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2
111"		1+C2+3+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2
53-1/8"	48"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
96"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
106-3/8"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
108"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
111"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
53-1/8"	50-5/8"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
96"		1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
106-3/8"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
108"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
111"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
53-1/8"	54"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C3+2+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
96"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
106-3/8"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
108"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
111"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
53-1/8"	60"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C3+2+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C3+2+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
96"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
106-3/8"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
108"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
111"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
53-1/8"	63"	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60"		1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
74"		1+C3+2+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
84"		1+C3+2+C3+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
96"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+1+C2+1	3
106-3/8"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
108"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
111"		1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3

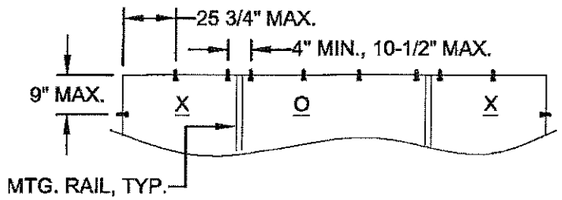
TABLE KEY:

X O X

1+C2+2+C2+1 | 3 ← ANCHOR QUANTITY PER JAMB

HEAD AND SILL ANCHOR QUANTITIES
A CLUSTER OF (2) ANCHORS CENTERED ON EACH MEETING RAIL PLUS (1) ANCHOR AT EACH OPERABLE VENT PLUS (2) ANCHORS AT FIXED SECTION. (8) ANCHORS TOTAL AT HEAD AND SILL.

(4" MIN. O.C. ANCHOR SPACING)



EXAMPLE CLUSTER W/ QTY. OF (2) ANCHORS

(SHOWN IN TABLE KEY ABOVE)

NOTES

1) WINDOW DP / ANCHOR QUANTITIES ARE BASED ON THE FOLLOWING DIMENSIONS:
HEAD & SILL: 10 1/2" MAX. ON EACH SIDE OF MEETING RAIL CENTERLINE. 25 3/4" MAX. FROM CORNERS.
JAMBS: 9" MAX. FROM CORNERS AND 22 1/2" MAX. O.C.

2) FOR WINDOW SIZES NOT SHOWN, GO TO NEXT LARGER WINDOW IN TABLE.

3) OVERALL FLANGE DIMENSIONS SHOWN. FOR FIN WINDOWS, SUBTRACT 1" FROM TABLE SIZE DIMENSIONS.

4) FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY REMAIN UNCHANGED.

5) SEE GLASS TYPE DESCRIPTIONS ON SHEET 2.

PRODUCT REVISED
as complying with the Florida Building Code
NOA No. 17-0411.06
Expiration Date 12/21/2021
By Miami-Dade Product Control

Revision	
3/24/17:	UPDATED TABLE & ELEVATION.

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
(941) 480-1600

CERT. OF AUTH. #29286

Title	ALUM. HORIZONTAL ROLLER, IMPACT
Desc.	ANCH. QTY., XOX-1/4-1/2-1/4
Series	HR-710
Scale	NTS
Sheet	11 OF 11
DWG No.	4127-10
Drawn By	JENS ROSOWSKI
Date	03/22/06
Rev.	H

ANTHONY LYNN MILLER LICENSE No. 58705 STATE OF FLORIDA PROFESSIONAL ENGINEER
8/23/17
A. LYNN MILLER, P.E.
P.E.# 58705

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

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

NOTICE OF ACCEPTANCE (NOA)

Lawson Industries, Inc.
8501 NW 90 Street
Medley, FL 33166

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 "HS-8700 (Flange–Frame)" Aluminum Horizontal Sliding Window – L.M.I.

APPROVAL DOCUMENT: Drawing No. **L8700-0901**, titled "HS-8700 Horizontal Rolling Flange Impact Window", sheets 1 through 10 of 10, dated 05/30/09, with revision **D**, dated 11/01/17, prepared by manufacturer, and signed and sealed by Thomas J. Sotos, 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, 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 NOA No. 17-0222.14** and consists of this page 1 and evidence pages E-1, E-2 and E-3, as well as approval document mentioned above.

The submitted documentation was reviewed by **Sifang Zhao, P.E.**

MIAMI-DADE COUNTY APPROVED

S. Z.
01/26/2018

NOA No. 17-1212.17
Expiration Date: April 11, 2022
Approval Date: February 01, 2018

Lawson Industries, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

A. DRAWINGS

1. Manufacturer's die drawings and sections. ***(Submitted under NOA No. 02-0227.05)***
2. Drawing No. **L8700-0901**, titled "HS-8700 Horizontal Rolling Flange Impact Window", sheets 1 through 10 of 10, dated 05/30/09, with revision **D** dated 11/01/17, prepared by manufacturer, signed and sealed by Thomas J. Sotos, 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) Forced Entry Test, per FBC 2411.3.2.1, and TAS 202-94

   along with marked-up drawings and installation diagram of an aluminum horizontal sliding window, XOX (1/4-1/2-1/4 and 1/3-1/3-1/3) configuration, prepared by Hurricane Engineering & Testing, Inc., Test Reports No. **HETI-10-3049** and **HETI-10-3051,** dated 03/23/11, signed and sealed by Candido F. Font, P.E. ***(Submitted under NOA No. 11-0705.10)***
2. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC TAS 202-94 along with marked-up drawings and installation diagram of 8 specimens of an aluminum horizontal sliding window, XOX (1/4-1/2-1/4 and 1/3-1/3-1/3) configuration, prepared by Hurricane Engineering & Testing, Inc., Test Reports No. **HETI-10-3047, HETI-10-3053, HETI-10-3057, HETI-10-3130, HETI-10-3223** and **HET-10-3225,** dated 03/23/11, signed and sealed by Candido F. Font, P.E. ***(Submitted under NOA No. 11-0705.10)***
3. Test reports on: 1) Large Missile Impact Test per FBC, TAS 201-94
   2) Cyclic Wind Pressure Loading per FBC, TAS 203-94

   along with marked-up drawings and installation diagram of an aluminum horizontal sliding window, XOX (1/4-1/2-1/4 and 1/3-1/3-1/3) configuration, prepared by Hurricane Engineering & Testing, Inc., Test Reports No. **HETI-10-3048, HETI-10-3049I,** dated 11/09/10, **HETI-10-3050, HETI-10-3052B, HETI-10-3056, HETI-10-3131, HETI-10-3224** and **HETI-10-3226,** dated 03/23/11, signed and sealed by Candido F. Font, P.E. ***(Submitted under NOA No. 11-0705.10)***
4. Test reports on: 1) Large Missile Impact Test per FBC, TAS 201-94
   2) Cyclic Wind Pressure Loading per FBC, TAS 203-94

   along with marked-up drawings and installation diagram of an aluminum horizontal sliding window, XOX configuration, prepared by Hurricane Engineering & Testing, Inc., Test Report No. **HETI-10-3251,** dated 04/25/11, signed and sealed by Rafael E. Droz-Seda, P.E. ***(Submitted under NOA No. 11-0705.10)***

Sifang Zhao, P.E.
Product Control Examiner
NOA No. 17-1212.17
Expiration Date: April 11, 2022
Approval Date: February 01, 2018

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

B. TESTS (CONTINUED)

5. 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 8 specimens of an aluminum horizontal sliding window, XO configuration, prepared by Hurricane Engineering & Testing, Inc., Test Reports No. **HETI-08-2033**, **HETI-08-2034, HETI-08-2035, HETI-08-2036, HETI-08-2037, HETI-08-2038, HETI-08-2116A** and **HETI-08-2116B,** dated 02/28/08, signed and sealed by Candido F. Font, P.E.
(Submitted under NOA No. 09-0706.05)

6. 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 8 specimens of an aluminum horizontal sliding window, XO configuration, prepared by Fenestration Testing Laboratory, Inc., Test Reports No. **FTL-3097**, **FTL-3098** and **FTL-3364,** dated 12/06/01, 12/11/01 and 01/28/02, respectively, all signed and sealed by Luis Antonio Figueredo, P.E. ***(Submitted under NOA No. 02-0227.05)***

C. CALCULATIONS

1. Anchor verification calculations and structural analysis, complying with FBC, prepared by Lawson Industries, Inc., dated 05/28/09, revised on 07/10 and updated on 01/25/12, signed and sealed by Thomas J. Sotos, P.E.
(Submitted under NOA No. 12-0127.08)

2. Glazing complies with **ASTM E1300-09**

D. QUALITY ASSURANCE

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

Sifang Zhao, P.E.
Product Control Examiner
NOA No. 17-1212.17
Expiration Date: April 11, 2022
Approval Date: February 01, 2018

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

E. MATERIAL CERTIFICATIONS

1. Notice of Acceptance No. **16-1117.01** issued to **Kuraray America, Inc.** for their "**Trosifol® Ultraclear, Clear and Color PVB Interlayers**" dated 01/19/17, expiring on 07/08/19.
2. Notice of Acceptance No. **17-012.05** issued to **Eastman Chemical Company (MA)** for their "**Saflex Clear and Color Glass Interlayers**", expiring on 05/21/21.

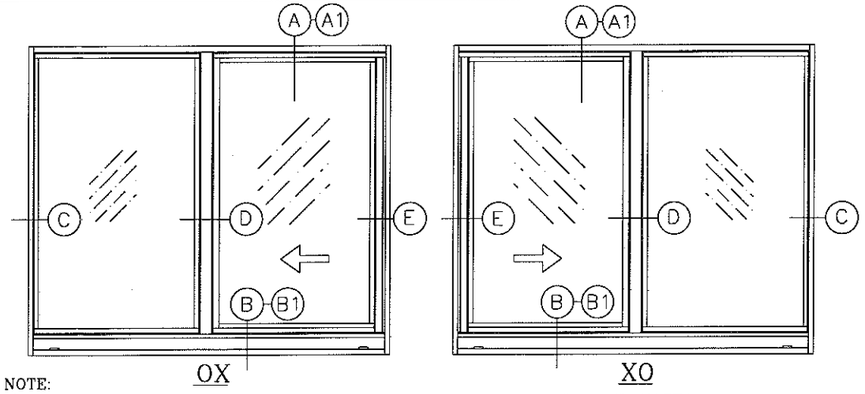
F. STATEMENTS

1. Statement letter of conformance, complying with the **FBC 6th Edition (2017)**, dated November 17, 2017, issued, signed and sealed by Thomas J. Sotos, P.E.
2. Statement letter of no financial interest, dated 05/20/10, signed and sealed by Thomas J. Sotos, P.E. ***(Submitted under NOA No. 12-0127.08)***
3. Laboratory compliance letter for Test Reports No. **HETI-10-3047**, **HETI-10-3048, HETI-10-3049, HETI-10-3049I, HETI-10-3050, HETI-10-3051, HETI-10-3052B, HETI-10-3053, HETI-10-3056, HETI-10-3057, HETI-10-3130, HETI-10-3131, HETI-10-3223, HETI-10-3224, HET-10-3225** and **HETI-10-3226**, all issued by Hurricane Engineering & Testing, Inc., dated 11/09/10, 03/23/11 and 04/25/11, signed and sealed by Candido F. Font, P.E. ***(Submitted under NOA No. 11-0705.10)***
4. Laboratory compliance letter for Test Report No. **HETI-10-3251**, issued by Hurricane Engineering & Testing, Inc., dated 04/25/11, signed and sealed by Rafael E. Droz-Seda, P.E. ***(Submitted under NOA No. 11-0705.10)***
5. Laboratory compliance letter for Test Reports No. **HETI-08-2033**, **HETI-08-2034**, **HETI-08-2035**, **HETI-08-2036**, **HETI-08-2037**, **HETI-08-2038**, **HETI-08-2116A** and **HETI-08-2116B**, issued by Hurricane Engineering & Testing, Inc., dated 01/15/08 through 02/28/08, all signed and sealed by Candido F. Font, P.E. ***(Submitted under NOA No. 09-0706.05)***
6. Laboratory compliance letter for Test Reports No. **FTL-3097**, **FTL-3098** and **FTL-3364**, all issued by Fenestration Testing Laboratory, Inc., dated 12/06/01, 12/11/01 and 01/28/02, all signed and sealed by Luis Antonio Figueredo, P.E. ***(Submitted under NOA No. 02-0227.05)***

G. OTHERS

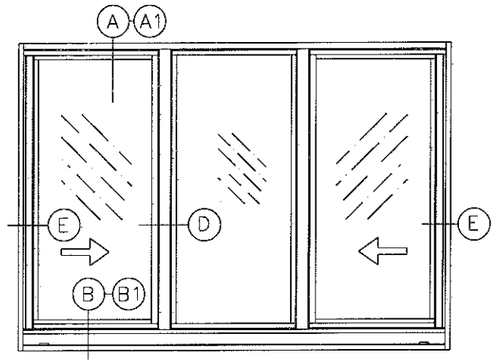
1. Notice of Acceptance No. **17-0222.14**, issued to Lawson Industries, Inc. for their Series "HS-8700 (Flange-Frame) Aluminum Horizontal Sliding Window – LM.I." approved on 04/13/17 and expiring on 04/11/12.

Sifang Zhao, P.E.
Product Control Examiner
NOA No. 17-1212.17
Expiration Date: April 11, 2022
Approval Date: February 01, 2018



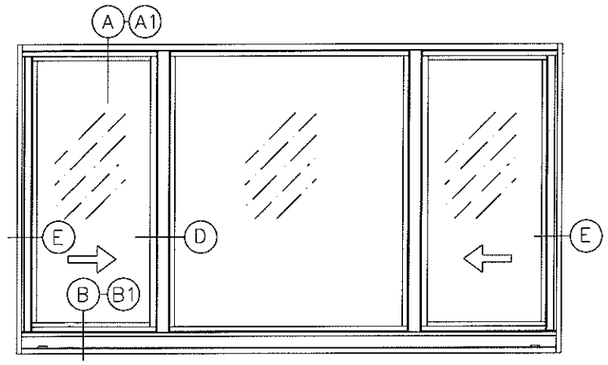
OX XO

NOTE:
1) REFER TO SHEET 2 OF 10 FOR INSTALLATION ANCHOR DETAILS AND NOTES.
2) FOR VERTICAL CROSS-SECTION DETAILS "A, A1, B, & B1" REFER TO SHEET #3
3) FOR HORIZONTAL CROSS-SECTION DETAILS "C, D, & E" REFER TO SHEET #4
4) REFER TO SHEET 6 OF 10 FOR DESIGN LOAD CHARTS AND NOTES.



XOX -Equal Lite (1/3-1/3-1/3)

NOTES:
1) REFER TO SHEET 2 OF 10 FOR INSTALLATION ANCHOR DETAILS AND NOTES.
2) FOR VERTICAL CROSS-SECTION DETAILS "A, A1, B, & B1" REFER TO SHEET #3
3) FOR HORIZONTAL CROSS-SECTION DETAILS "D, & E" REFER TO SHEET #5
4) REFER TO SHEET 8 OF 10 FOR DESIGN LOAD CHARTS AND NOTES.



XOX - Un-Equal Lite (1/4-1/2-1/4)

NOTES:
1) REFER TO SHEET 2 OF 10 FOR INSTALLATION ANCHOR DETAILS AND NOTES.
2) FOR VERTICAL CROSS-SECTION DETAILS "A, A1, B, & B1" REFER TO SHEET #3
3) FOR HORIZONTAL CROSS-SECTION DETAILS "D, & E" REFER TO SHEET #5
4) REFER TO SHEET 7 OF 10 FOR DESIGN LOAD CHARTS AND NOTES.

SERIES-8700 HORIZONTAL SLIDING IMPACT WINDOW APPROVED ELEVATIONS

General Notes:

1.) THIS WINDOW SYSTEM IS DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE (2014-5th Edition & 2017-6th Edition, INCLUDING HIGH VELOCITY HURRICANE ZONE (HVHZ) AND ASTM 1300-09. THIS PRODUCT IS IMPACT RESISTANT. (SHUTTERS NOT REQUIRED)

2.) WOOD BUCKS SHALL BE INSTALLED AND ANCHORED SO THAT THE BUILDING RESISTS THE SUPERIMPOSED LOADS IN ACCORDANCE WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE & TO BE REVIEWED BY BUILDING OFFICIAL.

3.) ANCHORS SHOWN ON SHEET 2 OF 10 ARE AS PER TEST UNITS. ANCHORS ON ALL WINDOW SIZES ARE NOT TO EXCEED THESE MAXIMUM SPACINGS ON CENTER (O.C.), AND AS TABULATED ON SHEETS 6, 7, or 8.

4.) ANCHOR CONDITIONS NOT DESCRIBED IN THESE DRAWING'S ARE TO BE ENGINEERED ON A SITE SPECIFIC BASIS, UNDER SEPARATE APPROVAL AND TO BE REVIEWED BY BUILDING OFFICIAL.

5.) WINDOWS ARE QUALIFIED FOR USE WITH SINGLE GLAZE LAMINATED GLASS TYPES TABULATED HEREIN (SEE SHEETs #6, 7, or 8), AND FOR USE WITH DOUBLE GLAZE LAMINATED INSULATED GLASS TYPES TABULATED HEREIN (SEE SHEETs #6, 7 or 8).

6.) WINDOWS WITH GLASS TYPES "A, C, OR G" INSTALLED ABOVE 30FT. IN THE HVHZ, THE I.G. EXTERIOR LITE SHALL BE TEMPERED.

7.) SEE SHEET 4 FOR LOCK DETAILS & OPTIONS.

8.) SEE SHEET 9 FOR GLASS TYPES.

9.) SEE SHEET 6 FOR DESIGN PRESSURES ON "XO or OX" WINDOWS.

10.) SEE SHEET 7 FOR DESIGN PRESSURES ON EQUAL-LITE "XOX" WINDOWS.

11.) SEE SHEET 8 FOR DESIGN PRESSURES ON UN-EQUAL LITE "XOX" WINDOWS.

12.) FOR OPTIONAL FRAME INSTALLATION DETAILS SEE SHEETS 3, 4, or 9.

13.) EXT. & INT. FALSE COLONIAL MUNTINS ARE OPTIONAL & AND ARE APPLIED W/ SILICONE

14.) WOOD BUCKS IN CONTACT WITH CONCRETE MUST BE PRESSURE TREATED AND ANCHORED (BY OTHERS), PRIOR TO WINDOW INSTALLATION. (SEE SHEET #3, 4 & 5 FOR DETAILS & NOTES) WOOD BUCKS TO BE ANCHORED IN COMPLIANCE WITH THE FBC CHAPTER 24 SECTION 11.3.3.3.

15.) APPROVAL APPLIES TO SINGLE UNITS OR SIDE BY SIDE MULLED UNITS.

16.) SEE SHEET # 5 FOR MULLION/METAL ATTACHMENT DETAILS, NOTES & OPTIONS.

17.) MULLING HORIZONTAL SLIDING WINDOWS WITH OTHER TYPES OF MIAMI-DADE COUNTY APPROVED WINDOWS USING A MIAMI-DADE COUNTY APPROVED MULLION IN BETWEEN ARE ACCEPTABLE BUT THE LOWER DESIGN PRESSURE FROM THE WINDOWS OR MULLION APPROVAL WILL APPLY TO THE ENTIRE MULLED SYSTEM.

18.) ALL METAL/STEEL IN CONTACT WITH ALUMINUM OR OTHER DISSIMILAR MATERIALS TO BE PAINTED OR PLATED AND SHALL MEET SECTION 2003.8.4 OF THE FLORIDA BLDG. CODE.

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 17-1212.17
Expiration Date 04/11/2022
By
Miami Dade Product Control

LAWSON INDUSTRIES, INC.
8501 N.W. 90 ST.
MEDLEY, FLORIDA 33166
PH No. (305) 696-8660

MANUFACTURER OF QUALITY ALUMINUM WINDOWS AND GLASS DOORS

HS-8700 HORIZONTAL ROLLING FLANGE IMPACT WINDOW
APPROVED ELEVATIONS, AND GENERAL NOTES

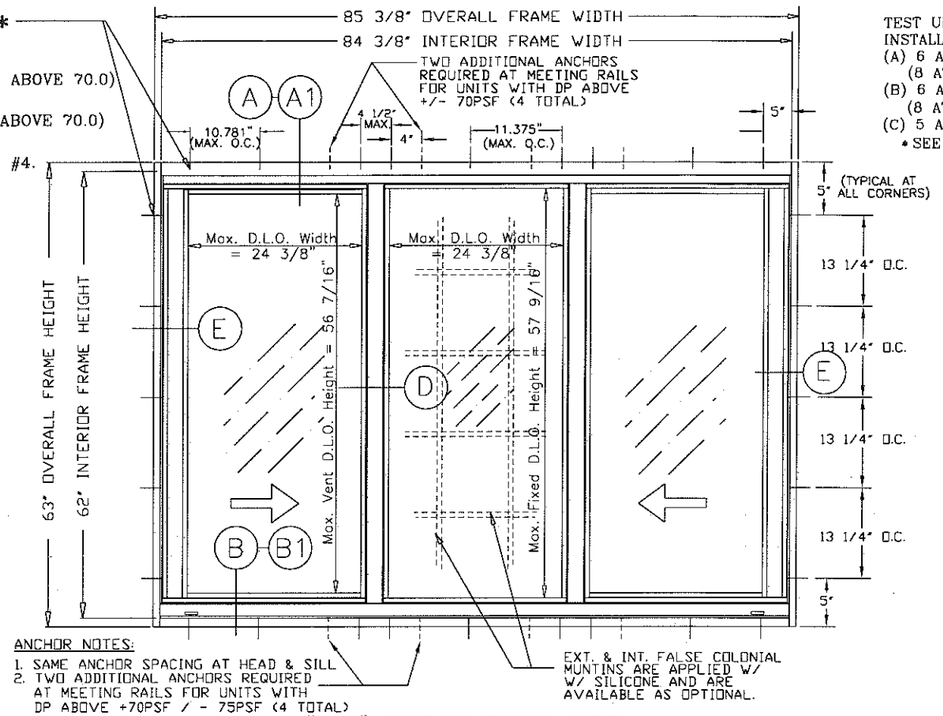
Product Reference Number:
Drawing Number: L8700-0901
Sheet: 1 OF 10
Revision #:

Revision Notes:
"A" - Revised date for the FBC-2010
"B" - Revised date for the FBC-2014
C. Compliance w/ FBC 5th Edition (2014) and ASTM E1300-09
D. Compliance w/ FBC 6th Edition (2017)

Drawn By: N. ERAZO — Date Drawn: 05/30/09
Revised By: N. ERAZO — Date Revised: 11/01/17
Revision Level: D
Scale:

THOMAS J. SOTOS
PROFESSIONAL ENGINEER
FL LIC. # 55225
STATE OF FLORIDA
DATE

TEST UNIT SIZE: 111" X 63" *
INSTALLATION FASTENERS
(A) 10 AT FRAME HEAD
(14 AT FRAME HEAD IF DP ABOVE 70.0)
(B) 10 AT EA. FRAME SILL
(14 AT FRAME SILL IF DP ABOVE 70.0)
(C) 5 AT EA. FRAME JAMB
* SEE GENERAL NOTE #3 & #4.



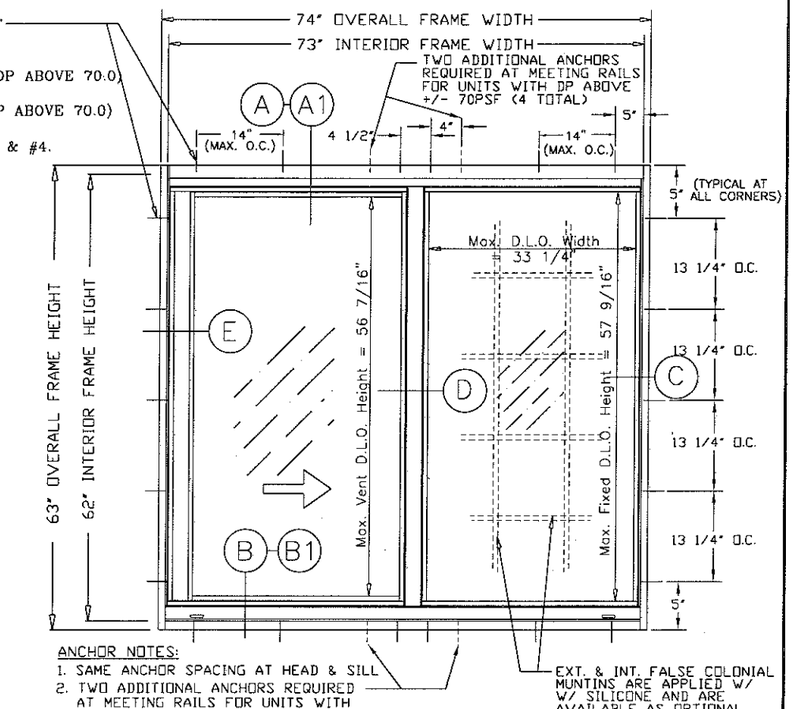
ANCHOR NOTES:
1. SAME ANCHOR SPACING AT HEAD & SILL
2. TWO ADDITIONAL ANCHORS REQUIRED AT MEETING RAILS FOR UNITS WITH DP ABOVE +70PSF / - 75PSF (4 TOTAL)

EXT. & INT. FALSE COLONIAL MUNTINS ARE APPLIED W/ W/ SILICONE AND ARE AVAILABLE AS OPTIONAL.

"XOX" WINDOW EQUAL LITE

NOTES:
1. SEE VERTICAL CROSS-SECTION DETAILS "A, A1, B, & B1" AT SHEET #3
2. SEE HORIZONTAL CROSS-SECTION DETAILS "C, D, & E" AT SHEET #5

TEST UNIT SIZE: 74" X 63"
INSTALLATION FASTENERS *
(A) 6 AT FRAME HEAD
(8 AT FRAME HEAD IF DP ABOVE 70.0)
(B) 6 AT EA. FRAME SILL
(8 AT FRAME SILL IF DP ABOVE 70.0)
(C) 5 AT EA. FRAME JAMB
* SEE GENERAL NOTE #3 & #4.



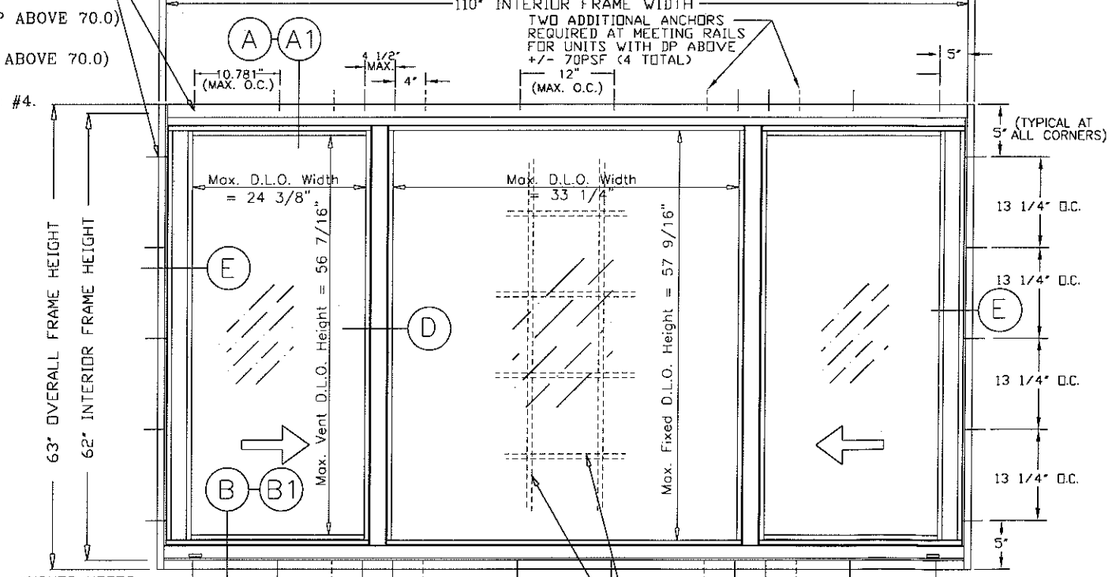
ANCHOR NOTES:
1. SAME ANCHOR SPACING AT HEAD & SILL
2. TWO ADDITIONAL ANCHORS REQUIRED AT MEETING RAILS FOR UNITS WITH DP ABOVE +/- 70PSF (4 TOTAL)

EXT. & INT. FALSE COLONIAL MUNTINS ARE APPLIED W/ W/ SILICONE AND ARE AVAILABLE AS OPTIONAL.

"XO" WINDOW EQUAL LITE
("OX" REVERSED)

NOTES:
1. SEE VERTICAL CROSS-SECTION DETAILS "A, A1, B, & B1" AT SHEET #3
2. SEE HORIZONTAL CROSS-SECTION DETAILS "C, D, & E" AT SHEET #4

TEST UNIT SIZE: 111" X 63"
INSTALLATION FASTENERS *
(A) 10 AT FRAME HEAD
(14 AT FRAME HEAD IF DP ABOVE 70.0)
(B) 10 AT EA. FRAME SILL
(14 AT FRAME SILL IF DP ABOVE 70.0)
(C) 5 AT EA. FRAME JAMB
* SEE GENERAL NOTE #3 & #4.



ANCHOR NOTES:
1. SAME ANCHOR SPACING AT HEAD & SILL
2. TWO ADDITIONAL ANCHORS REQUIRED AT MEETING RAILS FOR UNITS WITH DP ABOVE +70PSF / - 75PSF (4 TOTAL)

EXT. & INT. FALSE COLONIAL MUNTINS ARE APPLIED W/SILICONE AND ARE AVAILABLE AS OPTIONAL.

"XOX" WINDOW – UN-EQUAL LITE

NOTES:
1. SEE VERTICAL CROSS-SECTION DETAILS "A, A1, B, & B1" AT SHEET #3
2. SEE HORIZONTAL CROSS-SECTION DETAILS "C, D, & E" AT SHEET #5

SERIES-8700 HORIZONTAL SLIDING WINDOW FLANGE FRAME ELEVATIONS – L.M.I.

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 17-1212.17
Expiration Date 04/11/2022
By
Miami Dade Product Control

LAWSON INDUSTRIES, INC.
8501 N.W. 90 ST.
MEDLEY, FLORIDA 33166
PH No. (305) 696-8660

MANUFACTURER OF QUALITY ALUMINUM WINDOWS AND GLASS DOORS

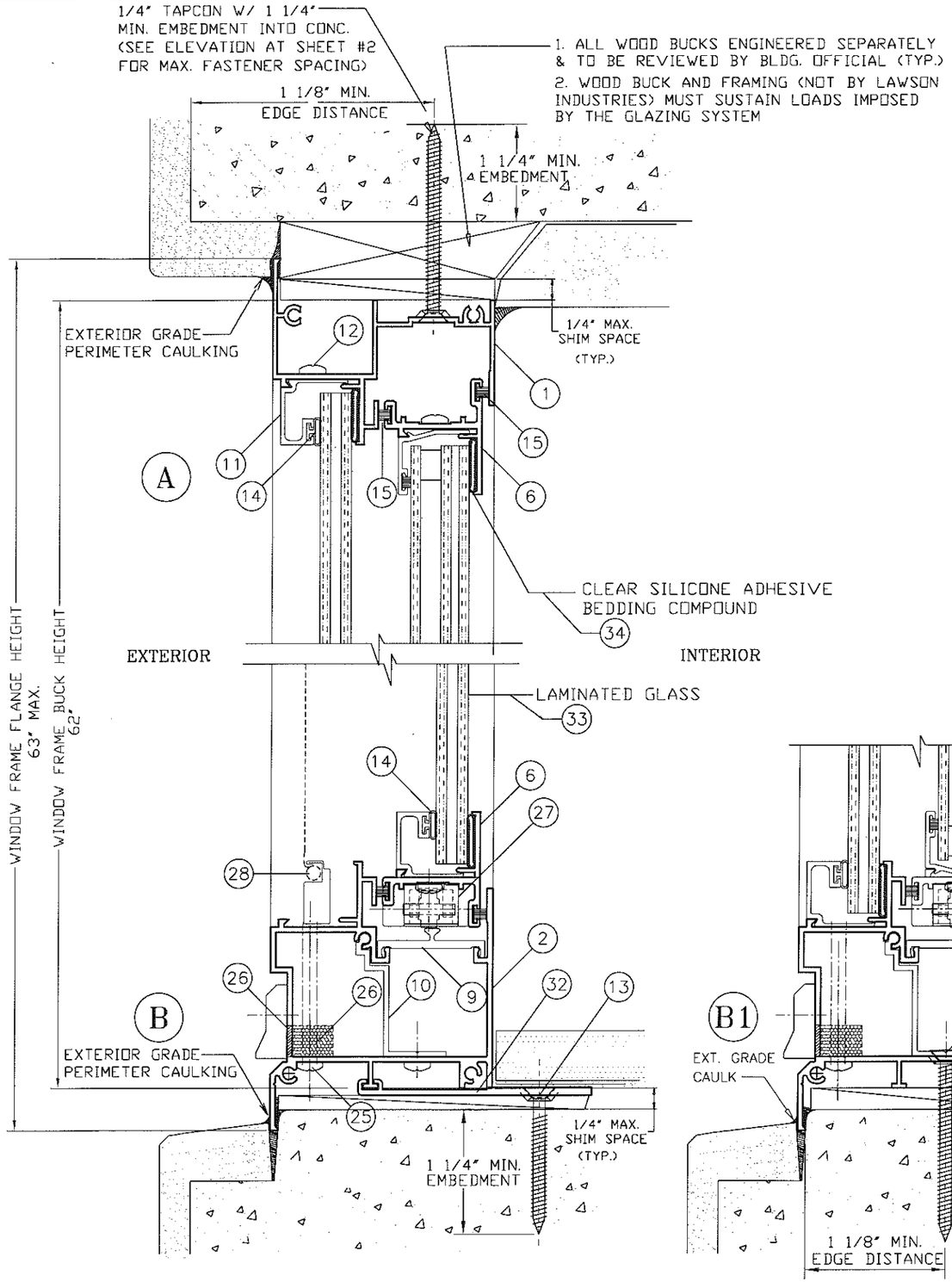
HS-8700 HORIZONTAL ROLLING FLANGE IMPACT WINDOW
APPROVED ELEVATIONS, AND GENERAL NOTES

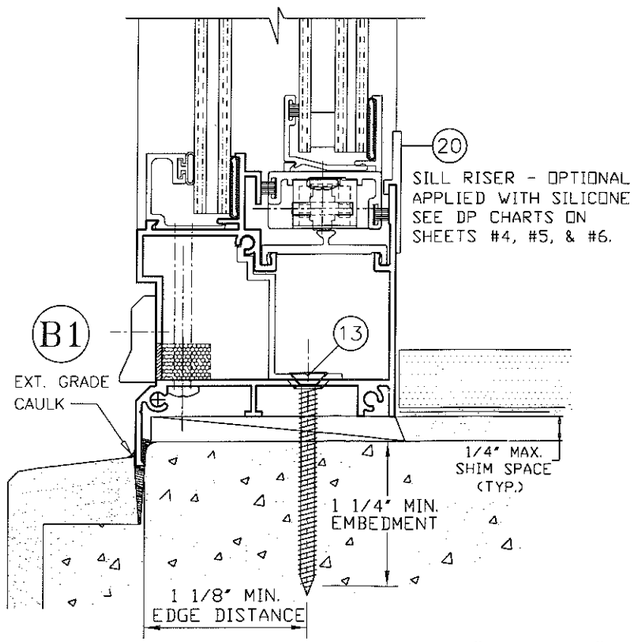
Revision #:
Sheet: 2 OF 10
Drawing Number: L8700-0901
Product Reference Number:

Revision Notes:
"A" - No change this sheet
"B" - Revised date for the FBC-2014
C. Compliance w/ FBC 5th Edition (2014) and ASTM E1300-09
D. Compliance w/ FBC 6th Edition (2017)

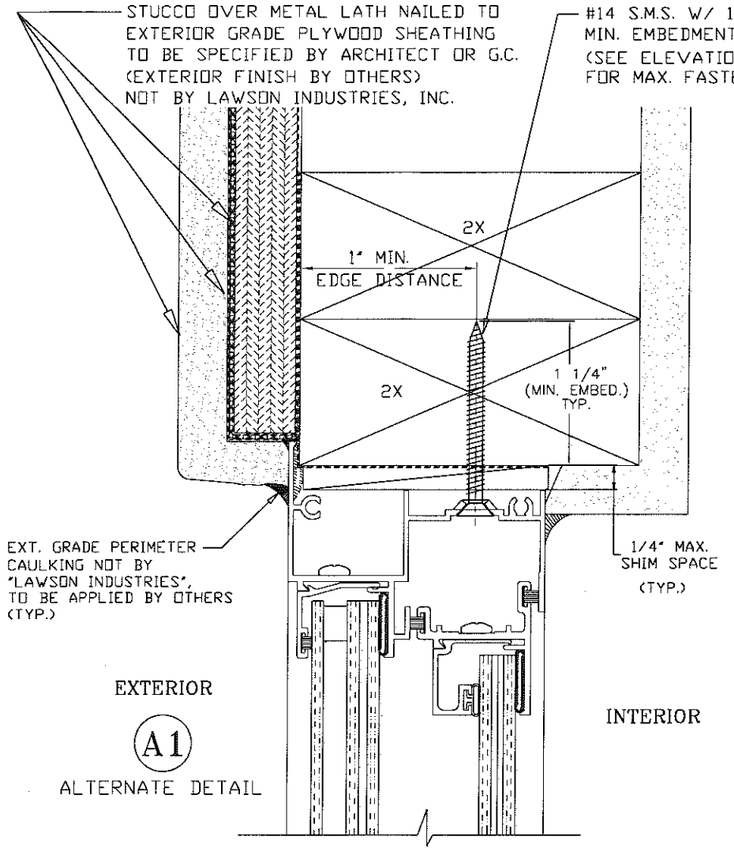
Drawn By: N. ERAZO
Date Drawn: 05/30/09
Revised By: N. ERAZO
Date Revised: 11/01/17
Revision Level: D
Scale:
Product Approval:
DATE

THOMAS J. SOTOS
PROFESSIONAL ENGINEER
FL LIC. # 55225
STATE OF FLORIDA





OPTIONAL SILL INSTALLATION DETAIL AT "XO or OX"



WOOD FRAME INSTALLATION DETAIL

WINDOW INSTALLATION NOTES:

1. THE WINDOW FRAME FLANGE TO BE BACK-BEDDED W/ AN EXT. GRADE CAULK THROUGHOUT THE ENTIRE PERIMETER OF FLANGE BY WINDOW INSTALLER (TYP.)
2. THE EXPOSED EXT. PERIMETER OF THE WINDOW FRAME TO BE SEALED W/ AN APPROVED EXTERIOR GRADE CAULK BY OTHERS (TYP.)

* WHEN THE GAP BETWEEN THE WINDOW FRAME AND THE BUCK OR MASONRY IS LESS THAN 1/8", SHIMS ARE NOT REQUIRED.

ANCHORS NOTE:

ANCHORS TO BE #12 SMS OR WD. SCREWS INTO WOOD, OR 1/4" TAPCONS or APPROVED CONC. FASTENERS INTO CONC., WITH A MINIMUM OF 1 1/4" PENETRATION INTO WOOD OR CONC. (REFER TO LOAD TABLES FOR QUANTITIES REQUIRED)

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 17-1212.17
Expiration Date 04/11/2022
By
Miami Dade Product Control

LAWSON INDUSTRIES, INC.
8501 N.W. 90 ST.
MEDLEY, FLORIDA 33166
PH No. (305) 696-8660

MANUFACTURER OF QUALITY ALUMINUM WINDOWS AND GLASS DOORS

HS-8700 HORIZONTAL ROLLING FLANGE WINDOW

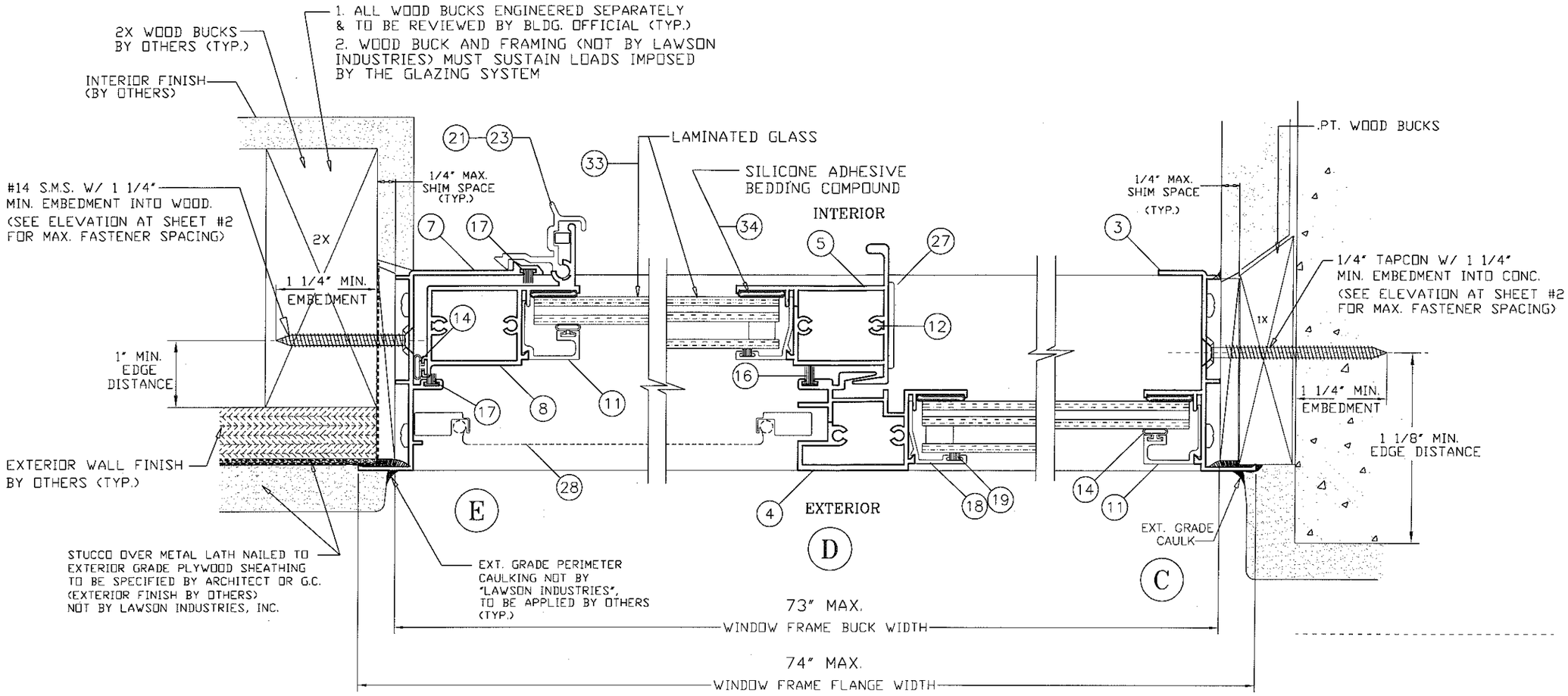
WINDOW VERTICAL CROSS SECTION & INSTALLATION OPTIONAL DETAILS

Product Reference Number:	Drawing Number: L8700-0901	Sheet: 3 OF 10	Revision #:

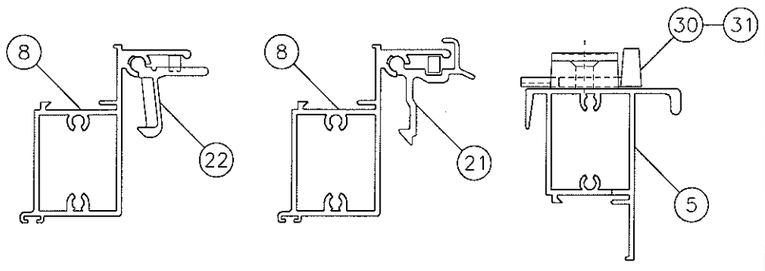
Revision Notes:	Drawn By:	Date Drawn:	Revised By:	Date Revised:	Revision Level:	Scale:
"A" - No change this sheet "B" - Revised date for the FBC-2014 C. Compliance w/ FBC 5th Edition (2014) and ASTM E1300-09 D. Compliance w/ FBC 6th Edition (2017)	N. ERAZO	05/30/09	N. ERAZO	11/01/17	D	

THOMAS J. SOTOS
PROFESSIONAL ENGINEER
FL LIC. # 55225

DATE



"XO" WINDOW EQUAL LITE
("OX" REVERSED)



LOCK (LATCH AND SWEEP) OPTIONS

1. BOTH EXTRUDED ALUMINUM AND PLASTIC LIFT HANDLE LOCKS ARE QUALIFIED FOR USE ON ALL WINDOWS.
2. BOTH DIE CAST AND NYLON CAM LOCKS ARE QUALIFIED FOR USE ON ALL WINDOWS.
3. TWO (2) LOCKS ARE REQUIRED PER EACH VENT.

WINDOW INSTALLATION NOTES:

1. THE WINDOW FRAME FLANGE TO BE BACK-BEDDED W/ AN EXT. GRADE CAULK THROUGHOUT THE ENTIRE PERIMETER OF FLANGE BY WINDOW INSTALLER (TYP.)
2. THE EXPOSED EXT. PERIMETER OF THE WINDOW FRAME TO BE SEALED W/ AN APPROVED EXTERIOR GRADE CAULK BY OTHERS (TYP.)

* WHEN THE GAP BETWEEN THE WINDOW FRAME AND THE BUCK OR MASONRY IS LESS THAN 1/8", SHIMS ARE NOT REQUIRED.

ANCHORS NOTE:

ANCHORS TO BE #12 SMS OR WD. SCREWS INTO WOOD, OR 1/4" TAPCONS or APPROVED CONC. FASTENERS INTO CONC., WITH A MINIMUM OF 1 1/4" PENETRATION INTO WOOD OR CONC. (REFER TO LOAD TABLES FOR QUANTITIES REQUIRED)

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 17-1212.17
Expiration Date 04/11/2022
By
Miami Dade Product Control

LAWSON INDUSTRIES, INC.
8501 N.W. 90 ST.
MEDLEY, FLORIDA 33166
PH No. (305) 696-8660

MANUFACTURER OF QUALITY ALUMINUM WINDOWS AND GLASS DOORS

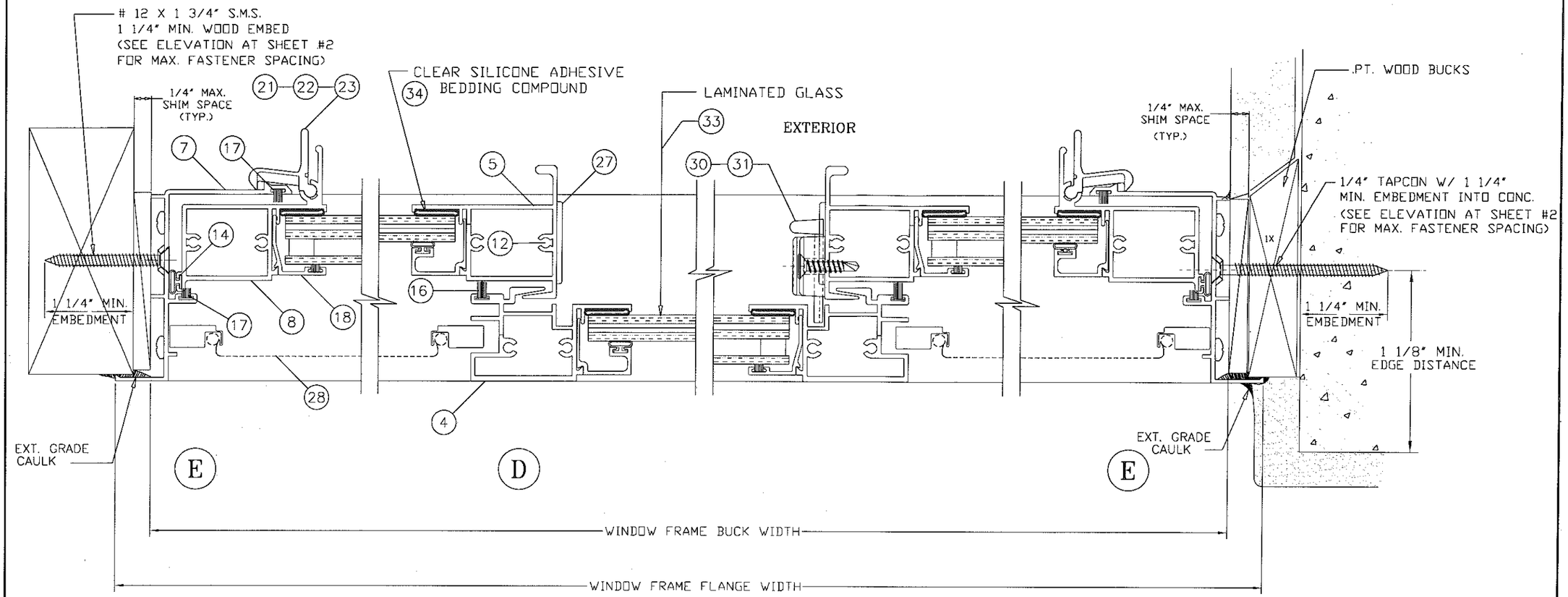
HS-8700 HORIZONTAL ROLLING FLANGE IMPACT WINDOW

CROSS SECTION DETAILS, LOCK OPTIONS AND FRAME INSTALLATION DETAIL

Product Reference Number:
Drawing Number: L8700-0901
Sheet: 4 OF 10
Revision #:

Revision Notes:	Drawn By:	Date Drawn:
"A" - No change this sheet	N. ERAZO	05/30/09
"B" - Revised date for the FBC-2014 C. Compliance w/ FBC 5th Edition (2014) and ASTM E1300-09	Revised By: N. ERAZO	Date Revised: 11/01/17
D. Compliance w/ FBC 6th Edition (2017)	Revision Level: D	Scale:

THOMAS J. SOTOS
PROFESSIONAL ENGINEER
FL LIC. 55225
STATE OF FLORIDA
DATE 11/2017



"XOX" WINDOW EQUAL AND UN-EQUAL LITE

WINDOW INSTALLATION NOTES:

1. THE WINDOW FRAME FLANGE TO BE BACK-BEDDED W/ AN EXT. GRADE CAULK THROUGHOUT THE ENTIRE PERIMETER OF FLANGE BY WINDOW INSTALLER (TYP.)
2. THE EXPOSED EXT. PERIMETER OF THE WINDOW FRAME TO BE SEALED W/ AN APPROVED EXTERIOR GRADE CAULK BY OTHERS (TYP.)

* WHEN THE GAP BETWEEN THE WINDOW FRAME AND THE BUCK OR MASONRY IS LESS THAN 1/8", SHIMS ARE NOT REQUIRED.

ANCHORS NOTE:

ANCHORS TO BE #12 SMS OR WD. SCREWS INTO WOOD, OR 1/4" TAPCONS or APPROVED CONC. FASTENERS INTO CONC., WITH A MINIMUM OF 1 1/4" PENETRATION INTO WOOD OR CONC. (REFER TO LOAD TABLES FOR QUANTITIES REQUIRED)

PRODUCT REVISED
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LAWSON INDUSTRIES, INC.
8501 N.W. 90 ST.
MEDLEY, FLORIDA 33166
PH No. (305) 696-8660

MANUFACTURER OF QUALITY ALUMINUM WINDOWS AND GLASS DOORS

HS-8700 HORIZONTAL ROLLING FLANGE IMPACT WINDOW

CROSS SECTION DETAILS, LOCK OPTIONS AND FRAME INSTALLATION DETAIL

Product Reference Number:
Drawing Number: L8700-0901
Sheet: 5 OF 10
Revision #:

Revision Notes:	Drawn By:	Date Drawn:
"A" - No change this sheet	N. ERAZO	05/30/09
"B" - Revised date for the FBC-2014	Revised By: N. ERAZO	Date Revised: 11/01/17
C. Compliance w/ FBC 5th Edition (2014) and ASTM E1300-09	Revision Level: D	Scale:
D. Compliance w/ FBC 6th Edition (2017)		

THOMAS J. SOTOS
PROFESSIONAL ENGINEER
FL LIC. # 55225

STATE OF FLORIDA
THOMAS J. SOTOS
LICENSE NO. 55225
PROFESSIONAL ENGINEER
2017

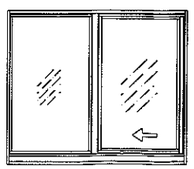
DATE

DESIGN LOAD CAPACITY (PSF) - OX or XO WINDOWS

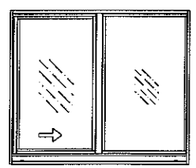
WINDOW WIDTH	WINDOW HEIGHT	# Jamb Anchors	# H & S Anchors	+/- Pressures (psf) Glass Type "A" (*2) + psf	Glass Type "A" (*2) - psf	Glass Type "B" (*2) + psf	Glass Type "B" (*2) - psf	Glass Type "C" (*2) + psf	Glass Type "C" (*2) - psf	Glass Type "D" (*2) + psf	Glass Type "D" (*2) - psf	Glass Type "E" (*3) + psf	Glass Type "E" (*3) - psf	Glass Type "F" (*3) + psf	Glass Type "F" (*3) - psf
24	24	3	3	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
36	24	3	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
48	24	3	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
60	24	3	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
72	24	3	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
24	36	3	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
36	36	3	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
48	36	3	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
60	36	3	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
72	36	3	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
24	48	4	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
36	48	4	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
48	48	4	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
60	48	4	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
72	48	4	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
24	60	5	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
36	60	5	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
48	60	5	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
60	60	5	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
72	60	5	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	-	-	-	-
26.5	26	3	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
37	26	3	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
53.125	26	3	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
74	26	3	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
26.5	38.375	4	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
37	38.375	4	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
53.125	38.375	4	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
74	38.375	4	8	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
26.5	50.625	5	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
37	50.625	5	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
53.125	50.625	5	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
74	50.625	5	8	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
26.5	58	5	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
37	58	5	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
53.125	58	5	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
74	58	5	8	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
26.5	63	6	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
37	63	6	4	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
53.125	63	6	6	65.0	65.0	65.0	65.0	70.0	70.0	70.0	70.0	80.0	80.0	80.0	80.0
74	63	6	8	65.0	65.0	65.0	65.0	65.0	70.0	-	-	-	-	-	-

Notes (*):

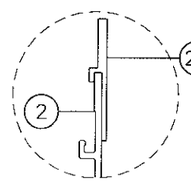
1.) SEE SHEET 9 FOR GLAZING TYPES, DETAILS & SILICONE OPTIONS.
2.) STANDARD SILL USED ON WINDOWS WITH +70.0 DP AND BELOW (WINDOWS WITH GLASS TYPES "A, B, C, & D")
3.) SILL WITH RISER ADAPTER ARE FOR WINDOWS ABOVE +70.0 DP (WINDOWS WITH GLASS TYPES "E, & F") AND +80.0 DP MAX. ADDITIONAL ANCHORS REQUIRED AT FRAME HEAD & SILL ON WINDOWS WITH DP ABOVE 70.0. (SEE ELEVATION AT SHEET 2 OF 10)
4.) WINDOWS WITH GLASS TYPES "A, C, OR G" INSTALLED ABOVE 30FT. IN THE HVHZ, THE I.G. EXTERIOR LITE SHALL BE TEMPERED.



OX



XO



20 SILL RISER - OPTIONAL APPLIED WITH SILICONE FOR DP ABOVE +70.0 PSF (+80.0 DP MAX.)

PRODUCT REVISED as complying with the Florida Building Code Acceptance No 17-1212.17 Expiration Date 04/11/2021

By Miami Dade Product Control

LAWSON INDUSTRIES, INC.
8501 N.W. 90 ST.
MEDLEY, FLORIDA 33166
PH No. (305) 696-8660

MANUFACTURER OF QUALITY ALUMINUM WINDOWS AND GLASS DOORS

HS-8700 HORIZONTAL ROLLING FLANGE IMPACT WINDOW

DESIGN LOAD CHART WITH GLASS OPTIONS (XO or OX)

Product Reference Number: | Drawing Number: L8700-0901 | Sheet: 6 OF 10 | Revision #:

Revision Notes: 'A' - No change this sheet
'B' - Revised date for the FBC-2014
C. Compliance w/ FBC 5th Edition (2014) and ASTM E1300-09
D. Compliance w/ FBC 6th Edition (2017)

Drawn By: N. ERAZO | Date Drawn: 05/30/09
Revised By: N. ERAZO | Date Revised: 11/01/17
Revision Level: D | Scale:

THOMAS J. SOTOS
PROFESSIONAL ENGINEER
FL LIC. # 55225

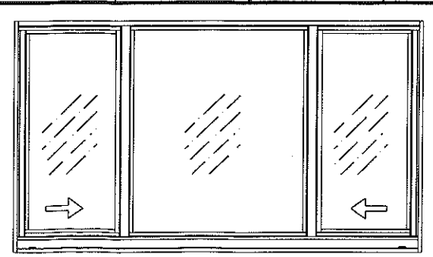
STATE OF FLORIDA PROFESSIONAL ENGINEER

DATE

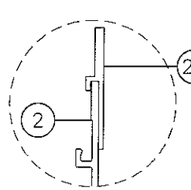
FRAME SIZE		# Jamb	# H & S	DESIGN LOAD CAPACITY (PSF) - XOX WINDOWS with Un-Equal Lite (1/4-1/2-1/4) + / - Pressures (psf)											
				Glass Type "B" (* 2)		Glass Type "C" (* 2)		Glass Type "D" (* 2)		Glass Type "E" (* 3)		Glass Type "F" (* 3)		Glass Type "G" (* 2)	
WIDTH	HEIGHT	Anchors	Anchors	+ psf	- psf	+ psf	- psf	+ psf	- psf	+ psf	- psf	+ psf	- psf	+ psf	- psf
60	24	3	7	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
72	24	3	7	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	24	3	8	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
96	24	3	10	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
108	24	3	11	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
60	36	3	7	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
72	36	3	7	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	36	3	8	70.0	75.0	70.0	75.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
96	36	3	10	70.0	75.0	70.0	75.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
108	36	3	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
60	48	4	7	70.0	75.0	70.0	75.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
72	48	4	7	70.0	75.0	70.0	75.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	48	4	8	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
96	48	4	10	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
108	48	4	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
60	60	5	7	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
72	60	5	7	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	60	5	8	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
96	60	5	10	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
108	60	5	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
74	26	3	7	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
74	38.375	3	7	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
74	50.625	4	7	70.0	75.0	70.0	75.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
74	58	5	7	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
74	63	5	7	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
79.5	26	3	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
79.5	38.375	4	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
79.5	50.625	4	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
79.5	58	5	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
79.5	63	5	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
106.25	26	3	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
106.25	38.375	4	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
106.25	50.625	4	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
106.25	58	5	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
106.25	63	5	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
111	26	3	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
111	38.375	4	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
111	50.625	4	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
111	58	5	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
111	63	5	11	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0

Notes (*):

1.) SEE SHEET 9 FOR GLAZING TYPES, DETAILS & SILICONE OPTIONS.
2.) STANDARD SILL USED ON WINDOWS WITH +70.0 DP AND BELOW (WINDOWS WITH GLASS TYPES "A, B, C, & D")
3.) SILL WITH RISER ADAPTER ARE FOR WINDOWS ABOVE +70.0 DP (WINDOWS WITH GLASS TYPES "E, & F") AND +80.0 DP MAX. ADDITIONAL ANCHORS REQUIRED AT FRAME HEAD & SILL ON WINDOWS WITH DP ABOVE 70.0. (SEE ELEVATION AT SHEET 2 OF 10)
4.) WINDOWS WITH GLASS TYPES "A, C, OR G" INSTALLED ABOVE 30FT. IN THE HVHZ, THE I.G. EXTERIOR LITE SHALL BE TEMPERED.



XOX - Un-Equal Lite



20 SILL RISER - OPTIONAL APPLIED WITH SILICONE FOR DP ABOVE +70.0 PSF (+80.0 DP MAX.)

PRODUCT REVISED as complying with the Florida Building Code
Acceptance No 17-1212.17
Expiration Date 04/11/2022
By
Miami Dade Product Control

LAWSON INDUSTRIES, INC.
8501 N.W. 90 ST.
MEDLEY, FLORIDA 33166
PH No. (305) 696-8660

MANUFACTURER OF QUALITY ALUMINUM WINDOWS AND GLASS DOORS

HS-8700 HORIZONTAL ROLLING FLANGE IMPACT WINDOW
DESIGN LOAD CHART WITH GLASS OPTIONS (XOX EQUAL LITE)

Product Reference Number: | Drawing Number: L8700-0901 | Sheet: 7 OF 10 | Revision #:

Revision Notes:
"A" - No change this sheet
"B" - Revised date for the FBC-2014
C. Compliance w/ FBC 5th Edition (2014) and ASTM E1300-09
D. Compliance w/ FBC 6th Edition (2017)

Drawn By: N. ERAZO | Date Drawn: 05/30/09
Revised By: N. ERAZO | Date Revised: 11/01/17
Revision Level: D | Scale:

THOMAS J. SOTOS
PROFESSIONAL ENGINEER
FL LIC.: 55225

STATE OF FLORIDA
No. 55225
PROFESSIONAL ENGINEER

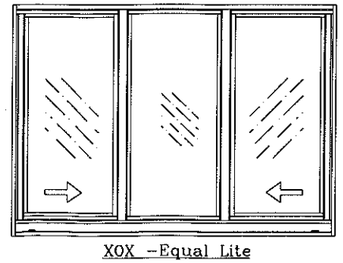
DATE

DESIGN LOAD CAPACITY (PSF) - XOX WINDOWS with Equal Lite (1/3-1/3-1/3)

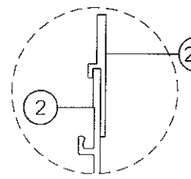
+ / - Pressures (psf)

FRAME SIZE		# Jamb	# H & S	Glass Type "B" (* 2)		Glass Type "C" (* 2)		Glass Type "D" (* 2)		Glass Type "E" (* 3)		Glass Type "F" (* 3)		Glass Type "G" (* 2)	
WIDTH	HEIGHT	Anchors	Anchors	+ psf	- psf	+ psf	- psf	+ psf	- psf	+ psf	- psf	+ psf	- psf	+ psf	- psf
60	24	3	7	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
72	24	3	9	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	24	3	9	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
60	36	3	7	70.0	75.0	70.0	75.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
72	36	3	9	70.0	75.0	70.0	75.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	36	3	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
60	48	4	7	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
72	48	4	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	48	4	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
60	60	5	7	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
72	60	5	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	60	5	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
53.125	26	3	6	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
53.125	38.375	4	6	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
53.125	50.625	4	6	70.0	75.0	70.0	75.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
53.125	58	5	6	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
53.125	63	5	6	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
74	26	3	9	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
74	38.375	4	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
74	50.625	4	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
74	58	5	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
74	63	5	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
79.5	26	3	9	80.0	80.0	80.0	80.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
79.5	38.375	4	9	70.0	75.0	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
79.5	50.625	4	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
79.5	58	5	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
79.5	63	5	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	26	3	9	70.0	75.0	70.0	75.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	38.375	4	9	70.0	75.0	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	50.625	4	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	58	5	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0
84	63	5	9	-	-	52.0	52.0	65.0	75.0	65.0	75.0	52.0	52.0	65.0	75.0

Notes (*):
1.) SEE SHEET 9 FOR GLAZING TYPES, DETAILS & SILICONE OPTIONS.
2.) STANDARD SILL USED ON WINDOWS WITH +70.0 DP AND BELOW (WINDOWS WITH GLASS TYPES "A, B, C, & D")
3.) SILL WITH RISER ADAPTER ARE FOR WINDOWS ABOVE +70.0 DP (WINDOWS WITH GLASS TYPES "E, & F") AND +80.0 DP MAX. ADDITIONAL ANCHORS REQUIRED AT FRAME HEAD & SILL ON WINDOWS WITH DP ABOVE 70.0. (SEE ELEVATION AT SHEET 2 OF 10)
4.) WINDOWS WITH GLASS TYPES "A, C, OR G" INSTALLED ABOVE 30FT. IN THE HVHZ, THE I.G. EXTERIOR LITE SHALL BE TEMPERED.



XOX -Equal Lite



SILL RISER - OPTIONAL APPLIED WITH SILICONE FOR DP ABOVE +70.0 PSF (+80.0 DP MAX.)

PRODUCT REVISED as complying with the Florida Building Code
Acceptance No 11-1212.17
Expiration Date 04/01/2022
By
Miami Dade Product Control

LAWSON INDUSTRIES, INC.
8501 N.W. 90 ST.
MEDLEY, FLORIDA 33166
PH No. (305) 696-8660

MANUFACTURER OF QUALITY ALUMINUM WINDOWS AND GLASS DOORS

HS-8700 HORIZONTAL ROLLING FLANGE IMPACT WINDOW
DESIGN LOAD CHART WITH GLASS OPTIONS (XOX UN-EQUAL LITE)

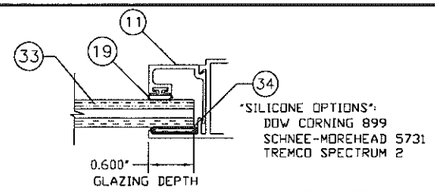
Product Reference Number:
Drawing Number: L8700-0901
Sheet: 8 OF 10
Revision #:

Revision Notes:
"A" - No change this sheet
"B" - Revised date for the FBC-2014
C. Compliance w/ FBC 5th Edition (2014) and ASTM E1300-09
D. Compliance w/ FBC 6th Edition (2017)

Drawn By:	Date Drawn:
N. ERAZO	05/30/09
Revised By:	Date Revised:
N. ERAZO	11/01/17
Revision Level:	Scale:
D	

THOMAS J. SOTOS, PROFESSIONAL ENGINEER, FL LIC. # 55225

DATE SIGNED

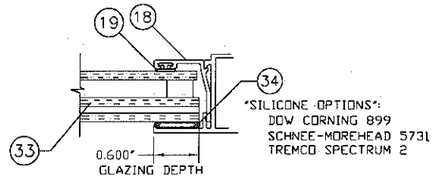


LAMINATED GLASS COMPOSITION – TYPE B			
ITEM	GLASS DESCRIPTION	DETAIL	LAMINATE DESCRIPTION
1	1/8" ANNEALED GLASS		SAFLEX PVB by Eastman Chenical co.
2	0.090" PLASTIC INTERLAYER		
3	1/8" ANNEALED GLASS		

LAMINATED GLASS COMPOSITION – TYPE D			
ITEM	GLASS DESCRIPTION	DETAIL	LAMINATE DESCRIPTION
1	1/8" HEAT-STRENGHTENED GLASS		TROSIFOL PVB by Kuraray America, Inc.
2	0.090" PLASTIC INTERLAYER		
3	1/8" HEAT-STRENGHTENED GLASS		

LAMINATED GLASS COMPOSITION – TYPE E			
ITEM	GLASS DESCRIPTION	DETAIL	LAMINATE DESCRIPTION
1	1/8" HEAT-STRENGHTENED GLASS		SAFLEX PVB by Eastman Chenical co.
2	0.090" PLASTIC INTERLAYER		
3	1/8" HEAT-STRENGHTENED GLASS		

LAMINATED GLASS COMPOSITION – TYPE F			
ITEM	GLASS DESCRIPTION	DETAIL	LAMINATE DESCRIPTION
1	1/8" ANNEALED GLASS		TROSIFOL PVB by Kuraray America, Inc.
2	0.090" PLASTIC INTERLAYER		
3	1/8" ANNEALED GLASS		



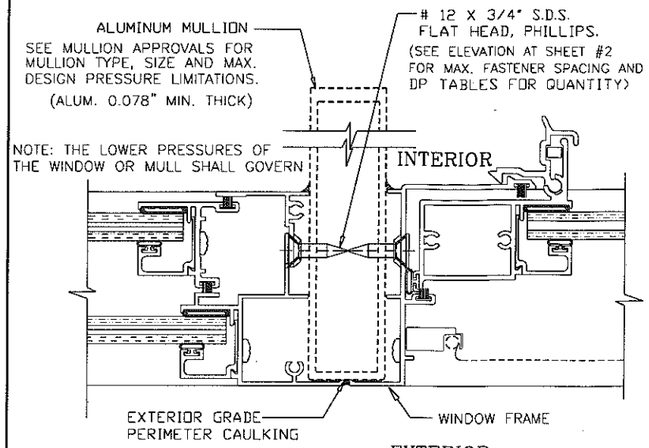
INSULATED LAMINATED GLASS COMPOSITION TYPE A			
ITEM	GLASS DESCRIPTION	DETAIL	LAMINATE DESCRIPTION
1	1/8" ANNEALED GLASS		SAFLEX PVB by Eastman Chemical co.
2	0.090" PLASTIC INTERLAYER		
3	1/8" ANNEALED GLASS		
4	1/4" INSULATED AIR SPACE		
5	1/8" ANNEALED GLASS (*)		

INSULATED LAMINATED GLASS COMPOSITION TYPE C			
ITEM	GLASS DESCRIPTION	DETAIL	LAMINATE DESCRIPTION
1	1/8" ANNEALED GLASS		TROSIFOL PVB by Kuraray America, Inc.
2	0.090" PLASTIC INTERLAYER		
3	1/8" ANNEALED GLASS		
4	1/4" INSULATED AIR SPACE		
5	1/8" ANNEALED GLASS (*)		

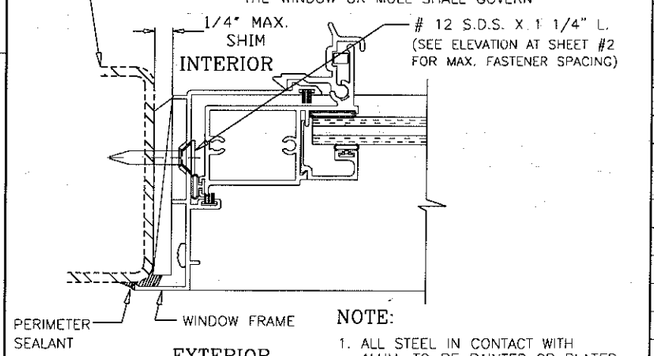
INSULATED LAMINATED GLASS COMPOSITION TYPE G			
ITEM	GLASS DESCRIPTION	DETAIL	LAMINATE DESCRIPTION
1	1/8" HEAT-STRENGHTENED GLASS		TROSIFOL PVB by Kuraray America, Inc.
2	0.090" PLASTIC INTERLAYER		
3	1/8" HEAT-STRENGHTENED GLASS		
4	1/4" INSULATED AIR SPACE		
5	1/8" ANNEALED GLASS (*)		

(*) WINDOWS WITH GLASS TYPES "A, C, OR G" INSTALLED ABOVE 30FT. IN THE HVHZ, THE I.G. EXTERIOR LITE SHALL BE TEMPERED.

GLAZING DETAILS AND OPTIONS



E2 FRAME MULLING DETAIL



NOTE:
1. ALL STEEL IN CONTACT WITH ALUM. TO BE PAINTED OR PLATED.
2. METAL STRUCTURES:
   A) STEEL : Fy = 36 KSI MIN. (STEEL 18 GA. MIN. THICK – 0.048")
   B) ALUMINUM : 6063-T5 MIN. (ALUM. 0.078" MIN. THICK)

E1 METAL STRUCTURE ATTACHMENT DETAIL

HS-8700 FLANGE FRAME WINDOW BILL OF MATERIALS				
ITEM #	PART #	REQD.	DESCRIPTION	REMARKS
1	L-7703	1	FRAME HEAD	6063-T6 ALUMINUM
2	L-8701	1	FRAME SILL	6063-T6 ALUMINUM
3	L-7701	1	FRAME FXD. JAMB	6063-T6 ALUMINUM
4	L-7704	1	FRAME FIXED MEETING RAIL	6063-T6 ALUMINUM
5	L-7705	1	VENT MEETING RAIL	6063-T6 ALUMINUM
6	L-7707	1	VENT TOP/BOTTOM RAIL	6063-T6 ALUMINUM
7	L-8703	1	FRAME VENT JAMB	6063-T6 ALUMINUM
8	L-7706	1	VENT JAMB LATCH RAIL	6063-T6 ALUMINUM
9	L-8702	1	FRAME SILL TRACK	6063-T5 ALUMINUM
10	L-8705	1	FRAME SILL RETAINING CLIP	6063-T5 ALUMINUM
11	L-7708	AS REQ'D.	GLAZING BEAD (3/8")	6063-T5 ALUMINUM
12	FS-006	AS REQ'D.	FRAME ASSEMBLY SCREWS	#8 X 3/4" P.H. PHILLIPS
13	FS-040	AS REQD.	INSTALLATION SCREWS	#14 SMS F.H./PHIL.
14	L-7531	AS REQ'D.	VINYL BULB	1/4" DIA. BULB #3033
15	PWS-003	AS REQ'D.	FIN SEAL WEATHERSTRIP	.187" w x .230" h
16	PWS-005	AS REQ'D.	FIN SEAL WEATHERSTRIP	.187" w x .350" h
17	PWS-009	AS REQ'D.	FIN SEAL WEATHERSTRIP	.187" w x .310" h
18	L-7711	AS REQ'D.	GLAZING BEAD (INSULATED)	6063-T5 ALUMINUM
19	PWS-001	AS REQ'D.	PILE @ GLAZING BEAD	.187" w x .150" h
20	L-8706	AS REQ'D.	SILL RISER ADAPTER	6063-T5 ALUM.- OPTIONAL
21	L-7539	2	VENT EXTRUDED SPRING LATCH	6063-T5 ALUMINUM
22	HC-057-1	2	VENT MOLDED SPRING LATCH	MOLDED NYLON
23	L-7523	1 x LATCH	LATCH SPRING	STAINLESS STEEL
24	*	2	SILL/JAMB JOINT GASKET	1/16" CLOSED CELL FOAM
25	FS-041	2	SILL RAIL ASSEMBLY SCREW	#8 X 2 1/4" P.H./PHIL.
26.1	HC-044-1	2	WEEP FLAP & BAFFLE	*
26.2	HC-	1 X WEEP	OPEN CELL FOAM PAD	1/2" X 1/2" X 2" L.
27	HC-040-1	2	SASH ROLLER & HOUSING	*
28	HC-026-1	1	SCREEN FRAME & MESH	*
29	*	1	ATTACHMENT SCREW @ CLIP	#8 X 5/8" S.D.S.
30	HC-058-1	2	VENT SWEEP LATCH	MOLDED NYLON
31	HC-059-1	2	VENT SWEEP LATCH	DIE CAST METAL
32	L-8830	1 X Anchor	FRAME SILL ANCHOR CLIP	6063-T5 ALUMINUM
33	*	2	LAMINATED GLASS	See Details @ L.H. of sheet 9
34	*	AS REQ'D.	GLAZING SILICONE	See Details @ L.H. of sheet 9
35	OPTIONAL	AS REQ'D.	COLONIAL FALSE MUNTIN	ALUMINUM
36	SM-5504	AS REQ'D.	JOINT SEALANT	*
37	*	AS REQ'D.	PERIMETER ACRYLIC CAULK	OSI POLYSEAMSEAL

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 17-1212.17
Expiration Date 04/11/2022
By
Miami Dade Product Control

LA MESON INDUSTRIES, INC.
8501 N.W. 90 ST.
MEDLEY, FLORIDA 33166
PH No. (305) 696-8660

MANUFACTURER OF QUALITY ALUMINUM WINDOWS AND GLASS DOORS

SERIES-8700 HORIZONTALL ROLLING FLANGE IMPACT WINDOW

GLAZING DETAILS, MULLION DETAILS & BILL OF MATERIALS

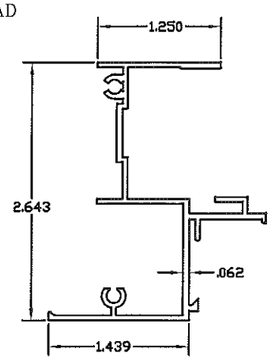
Revision Notes:
"A" – No change this sheet
"B" – Revised date for the FBC-2014
C. Compliance w/ FBC 5th Edition (2014) and ASTM E1300-09
D. Compliance w/ FBC 6th Edition (2017)

Drawn By: N. ERAZO — Date Drawn: 05/30/09
Revised By: N. ERAZO — Date Revised: 11/01/17
Revision Level: D — Scale:

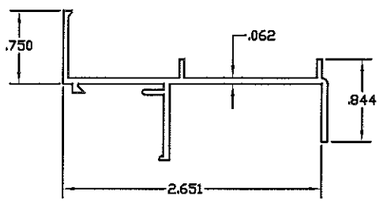
Drawing Number: L8700-0901 — Sheet: 9 OF 10 — Revision #:
Product Reference Number:

THOMAS J. SOTOS
PROFESSIONAL ENGINEER
STATE OF FLORIDA LIC. # 55225
DATE

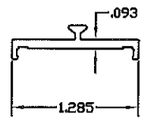
FRAME HEAD
L-7703
(1)



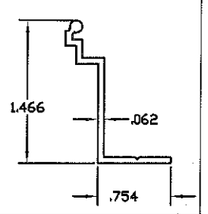
FRAME FIXED JAMB
L-7701
(3)



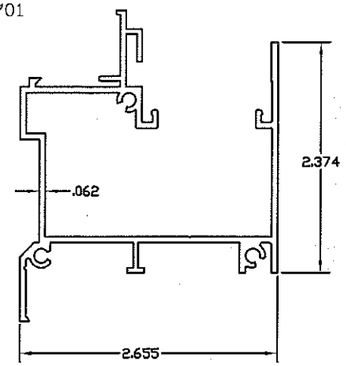
SILL TRACK
L-8702
(9)



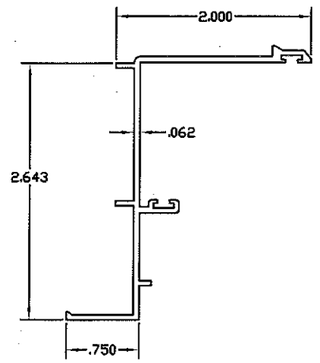
SILL RETAINING CLIP
L-8705
(10)



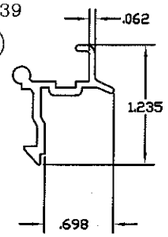
FRAME SILL
L-8701
(2)



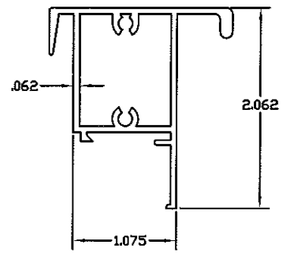
FRAME VENT JAMB
L-8703
(7)



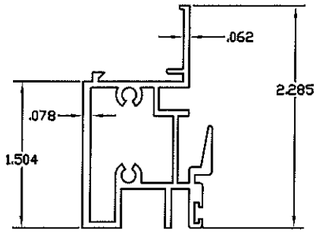
VENT SPRING LATCH
L-7539
(21)



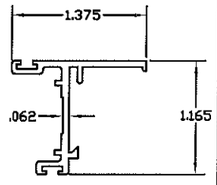
VENT INTERLOCK RAIL
L-7705
(5)



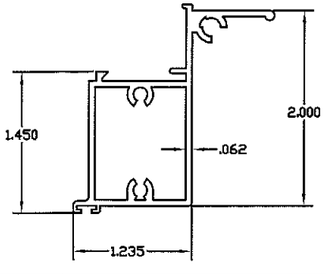
FIXED MEETING RAIL
L-7704
(4)



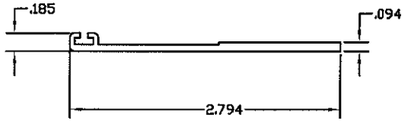
VENT TOP/BOTTOM RAIL
L-7707
(6)



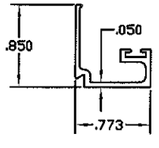
VENT JAMB RAIL
L-7706
(8)



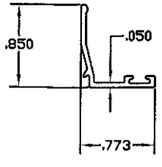
SILL ANCHOR CLIP
L-8830
(32)



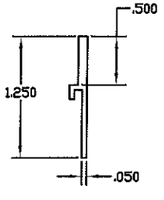
GLAZING BEAD
L-7708
(11)

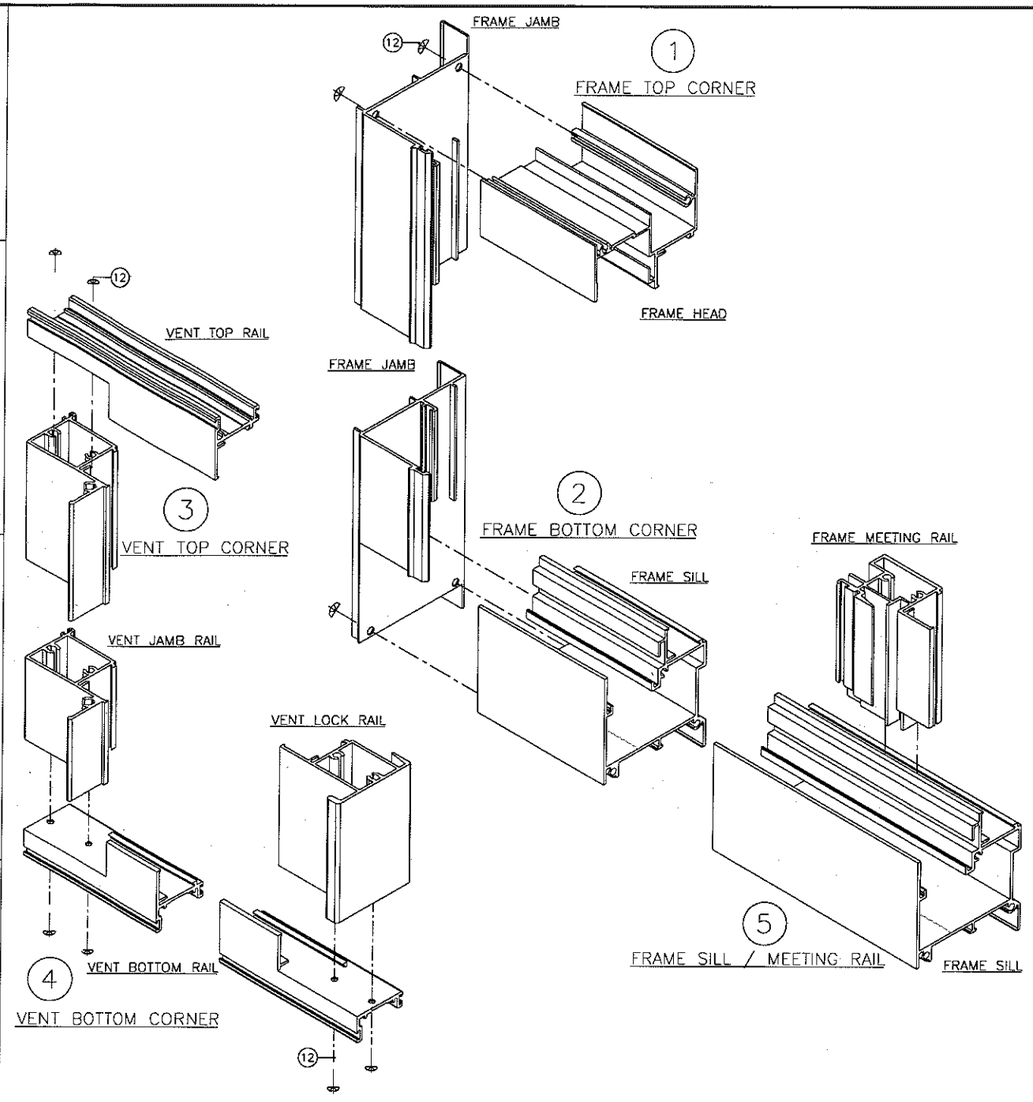


GLAZING BEAD
L-7711
(18)



SILL RISER
ADAPTER
L-8706
(20)





FRAME & SASH CORNER ASSEMBLY DETAILS

PRODUCT REVISED
as complying with the **Florida**
Building Code
Acceptance No 17-1212.17
Expiration Date 04/11/2022
By
Miami Dade Product Control

THOMAS J. SOTOS
PROFESSIONAL ENGINEER
LIC.# 55225

DATE

LAWSON INDUSTRIES, INC.
8501 N.W. 90 ST.
MEDLEY, FLORIDA 33166
PH No. (305) 696-8660

MANUFACTURER OF QUALITY ALUMINUM WINDOWS AND GLASS DOORS

HS-8700 HORIZONTAL ROLLING FLANGE IMPACT WINDOW
EXTRUSION DETAILS & CORNER ASSEMBLY DETAILS

Product Reference Number:	Drawing Number: L8700-0901	Sheet: 10 OF 10	Revision #:

Revision Notes:	Drawn By:	Date Drawn:	Revised By:	Date Revised:	Revision Level:	Scale:	Product Approval:
"A" - No change this sheet	N. ERAZO	05/30/09	N. ERAZO	11/01/17	D		
"B" - Revised date for the FBC-2014							
C. Compliance w/ FBC 5th Edition (2014) and ASTM E1300-09							
D. Compliance w/ FBC 6th Edition (2017)							

VILLAS OF POMPANO APARTMENTS
TABLE OF SPECIFICATIONS
May 7, 2018

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01700	PROJECT CLOSEOUT	6
01731	CUTTING AND PATCHING	2
DIVISION 2 - SITE CONSTRUCTION		
NOT APPLICABLE		
DIVISION 3 – CONCRETE		
NOT APPLICABLE		
DIVISION 4 – MASONRY		
NOT APPLICABLE		
DIVISION 5 – METALS		
NOT APPLICABLE		
DIVISION 6 - WOOD AND PLASTICS		
06105	MISCELLANEOUS AND ROUGH CARPENTRY	5
DIVISION 7 - THERMAL AND MOISTURE PROTECTION		
07920	JOINT SEALANTS	9
DIVISION 8 - DOORS AND WINDOWS		
08520	ALUMINUM WINDOWS	12
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09220	PORTLAND CEMENT PLASTER STUCCO	11
09250	GYPSUM BOARD	8
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NOT APPLICABLE		
DIVISION 11 - EQUIPMENT		
NOT APPLICABLE		
DIVISION 12 - FURNISHINGS		
NOT APPLICABLE		
DIVISION 13 - SPECIAL CONSTRUCTION		
NOT APPLICABLE		
DIVISION 14 - CONVEYING SYSTEMS		

NOT APPLICABLE

DIVISION 15 – MECHANICAL
NOT APPLICABLE

DIVISION 16 - ELECTRICAL
NOT APPLICABLE

MISCELLANEOUS DETAILS
WINDOW PRODUCT CONTROLS

END OF TABLE OF SPECIFICATIONS

SECTION 01340 - SHOP DRAWINGS AND PRODUCT DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

A. Shop drawings and product data submittal requirements.

B. Sample submittal requirements.

1.3 RELATED SECTIONS

A. Section 01700 – Contract Closeout

1.4 DESIGNATE IN THE CONSTRUCTION SCHEDULE

A. Designate in the Construction Schedule or in a separate coordinated schedule dates for submission and dates that reviewed Shop Drawings, Product Data and Samples will be needed.

1.5 SUBMITTAL IDENTIFICATION

A. Submit only one item or system per letter of transmittal properly identified to include the appropriate specification section and paragraphs.

B. When catalogs, diagrams or charts are submitted with more than one type of product manufactured, it is the Contractor’s responsibility to identify the particular item, including options that he intends to use in that phase of work.

1.6 SUBMITTAL COMPLETENESS

A. Submit catalog sheets, shop drawings and where specified, submit material samples, color chips or charts, test data, warranties and guarantees all at same time for each item.

1.7 SHOP DRAWINGS

A. Shop drawings shall be presented in a clear and through manner.

B. Details shall be identified by reference to sheet and detail, schedule or room numbers shown on Contract Drawings.

C. Manufacture's standard schematic drawings and diagrams:
   1. Modify drawings and diagrams to delete information which is not applicable to the work.
   2. Supplement standard information to provide information specifically applicable to the work.

1.8 PRODUCT DATA PREPARATION

A. Clearly mark each copy to identify pertinent products or models.

B. Show performance characteristics and capacities.

C. Show dimensions and clearances required.

D. Show wiring or piping diagrams and controls.

1.9 PRODUCT DATA MANUFACTURER'S STANDARD

A. Modify drawings and diagrams to delete information which is not applicable to the work.

B. Supplement standard information to provide information specifically applicable to the work.

1.10 OFFICE SAMPLES

A. Shall be sufficient size and quantity to clearly illustrate:

B. Functional characteristics of the product, with integrally related parts and attachment devices

C. Full range of color, texture and pattern.

1.11 FIELD SAMPLES

A. Field samples required are specified in individual sections.

B. Contractor shall erect field samples at the Project site, at a location acceptable to the Architect/Engineer

C. Size or Area: That specified in the respective specification section.

D. Field samples shall illustrate finishes, coatings, or finish materials to establish the standard by which the work will be judged.

1.12 CONTRACTOR RESPONSIBILITIES

A. Review Shop drawings, product data and samples PRIOR TO SUBMISSION.

B. Determine and verify:
   1. Field measurements.

2. Field Construction Criteria.
3. Catalog numbers and similar data.
4. Conformance with specifications

C. Coordinate each submittal with requirements of Work and of the Contract Documents.

D. Notify the Architect/Engineer in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.

E. Begin no fabrication or work which requires submittals until return of submittals with Architect/Engineer's review stamp

1.13 SUBMISSION REQUIREMENTS

A. Make submittals promptly in accordance with accepted schedule, and in such sequence as to cause no delay in the work or in the work of any other contractor.

B. Number of Submittals Required:
1. Refer to Section Q – General Conditions and Section R Supplementary Conditions.
2. Submittal of Samples and Color Charts, Color Chips or Color Samples for selection and coordination:
   a. Unless otherwise specified, Contractor shall submit seven (7) copies of all material color charts, chips or color samples within 60 days after Notice to Proceed to allow for selection, color coordination and final acceptance by Architect/Engineer. Material color charts, chips, or color samples shall be manufacturer's full color range and of standard size unless specified otherwise in technical specification sections.
   b. Regardless of color choices, noted on drawings or specified in technical sections, submit color chips for review, selection and final acceptance by Architect/Engineer.
3. Cost of Prints, samples and color charts shall be the expense of the Contractor.

C. Submittals shall contain:
1. Date of submission and dates of any previous submissions.
2. Project title and number.
3. Contract identification.
4. Names and telephone numbers of:
   a. Contractor.
   b. Supplier.
   c. Manufacturer.
5. Identification of product, with specification section number.
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of the work or materials.
8. Applicable standards, such as ASTM or Federal Specification numbers.
9. Identification of deviations from Contract Documents.
10. Identification of revisions on re-submittals.
11. An 8 in x 3 in. blank space for Contractor's and Architect/Engineer's stamps.
12. Contractors stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of products, field measurements and field construction criteria, and coordination of information within submittal with requirements of the Work and of Contract Documents.

1.14 RESUBMISSION REQUIREMENTS

A. Make any corrections or changes in submittals required by Architect/Engineer and resubmit until accepted.

B. Shop Drawings and Product Data:
   1. Revise initial drawings or data, resubmit as specified for initial submittal.
   2. Indicate any changes which have been made other than those requested by Architect/Engineer

C. Samples: Submit new samples as required for initial submittal.

1.15 DISTRIBUTION

A. Distribute reproductions of Shop Drawings and copies of Product Data which carry Architect/Engineers "No Exceptions Taken" or "Note Comments" review stamp to:
   1. Contractors job site file
   2. Owners record documents job site file
   3. Other affected contractors
   4. Subcontractors
   5. Supplier or Fabricator

B. Distribute three copies of corrected structural steel shop drawings stamped "For Construction" to:
   1. Architect/Engineer for inspector's use.

C. Distribute samples, which carry Architect/Engineer's review stamp and acceptance as directed by Architect/Engineer.

1.16 ARCHITECT/ENGINEERS DUTIES

A. Review Submittals with reasonable promptness and in accord with accepted construction schedule.

B. Modify reference AISC Code of Standard Practice, Paragraph 4.2 regarding return of structural steel shop drawings as follows: The Architect/Engineer cannot process shop drawings for an entire building submitted simultaneously within 14 days. However, the Architect/Engineer will process increments of shop drawings in a reasonable time in a sequence to be established by mutual agreement between Architect/Engineer and Contractor.

C. The Architect/Engineer will process increments of shop drawings for various other items such as reinforcing steel, recast wall panels, and mechanical and electrical systems in a reasonable time in a sequence to be established by mutual agreement between Architect/Engineer and Contractor.

D. AFFIX STAMP AND INITIALS OR SIGNATURE, and indicate:
   1. No exceptions taken.
   2. Note comments

3. Rejected
4. Resubmit

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01340

SECTION 01700 - PROJECT CLOSEOUT

PART 1- GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Inspection procedures.
2. Project record document submittal.
3. Operating and maintenance manual submittal.
4. Submittal of warranties.
5. Final cleaning.

B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions-2 through -16.

1.3 SUBSTANTIAL COMPLETION

A. Definition: The Date of Substantial Completion of a project site is the date on which the construction is sufficiently completed, in accordance with the Contract Documents as modified by an Change Orders agreed to by the parties, so that the Owner can occupy the project or specified area of the project for the use for which it was intended.

B. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request

1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.
   a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum
   b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete
2. Advise Owner of pending insurance change-over requirements.
3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
5. Submit record drawings, maintenance manuals, damage or settlement survey, original property survey, and similar final record information.
6. Deliver tools, spare parts, extra stock, and similar items.

7. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
8. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
9. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

C. The following items MUST be satisfied before Substantial Completion will be approved:

1. All work must be completed to the satisfaction of the Consultant and the Architect.

2. All security systems and fire alarm systems must be completed, tested and approved.

3. The irrigation system and air conditioning system must be completed, testes and approved. An air conditioning test and balance report must be submitted to the Consultant with the request for Substantial Completion inspection.

D. When contractor considers the Work the contract is substantially complete, he shall submit to the Architect:

1. A written notice that the Work is substantially complete.

2. A list of items to be completed or corrected.

D. Within a reasonable time after receipt of such notice, the Architect and Consultants will make a field review to determine the status of completion.

1. At least three separate inspection teams will be established at the job site for the purpose of inspection:

a. Architectural/Structural
b. Mechanical including Plumbing and Electrical.

2. A typed copy of the punch list shall be transmitted to the general contractor to correct deficiencies after the field review.

E. When Owner and Consultant concur that the work is substantially complete, the Architect will:

1. Prepare a Certificate of Substantial Completion accompanied by Contractor's ("Punch") list of items to be completed or corrected.

1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.

3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Architect.
4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.
5. Submit consent of surety to final payment.
6. Submit a final liquidated damages settlement statement, if applicable.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Reinspection Procedure: The Architect will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.

1. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

1.5 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1, Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
3. Note related Change Order numbers where applicable.
4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.

C. As Built Drawings: See Section 01300 for requirement of as built drawings reproducibles.

D. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.

1. Upon completion of the Work, submit record Specifications to the Architect for the Owner's records.

E. Record Product Data: Maintain one copy of each Product Data submittal. Note related change orders and markup of record drawing and specification. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.

1. Upon completion of mark-up, submit complete set of record Product Data to the Architect for the Owner's records.

F. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Architect and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.

G. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect for the Owner's records.

H. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:

1. Emergency instructions.
2. Spare parts list.
3. Copies of warranties.
4. Wiring diagrams.
5. Recommended "turn around" cycles.
6. Inspection procedures.
7. Shop Drawings and Product Data.
8. Fixture lamping schedule.
9. Operating Instructions.
10. Warranties.
11. Maintenance agreements and maintenance instructions for all equipments and systems.
12. Maintenance instructions for finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
13. Air and water balance reports.
14. Certificates.
15. New property survey copy.

I. Include a directory, listing names, addresses and telephone numbers of project consultants, contractor, subcontractors and major equipment suppliers.

H. Submit one copy of completed volumes in final form 15 days prior to substantial completion inspection. This copy will be returned after substantial completion inspection, with Project Consultant comments. Revise content of documents as required prior to final submittal.

I. Submit final volumes revised, within ten days at final inspection.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Fuels.
7. Identification systems.
8. Control sequences.
9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements and similar continuing commitments.

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Start-up.
2. Shutdown.
3. Emergency operations.
4. Noise and vibration adjustments.
5. Safety procedures.
6. Economy and efficiency adjustments.
7. Effective energy utilization.

3.2 FINAL CLEANING

A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
   a. Remove labels that are not permanent labels.
   b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

e. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

C. Pest Control: Engage an experienced exterminator to make a final inspection, and rid the Project of rodents, insects and other pests.

D. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

1. Where extra materials of value remaining after completion of associated work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION 01700

SECTION 01731 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMERY

A. Section Includes:

B. Cutting, fitting, and patching required to complete the Work and/or to:
   1. Make its several parts fit together properly.
   2. Provide routine penetrations of non-structural surfaces for installation of miscellaneous materials.

1.3 SUBMITTALS

A. Submit a written request to Architect/Engineer well in advance of executing any cutting or alteration which affects:
   1. Work of any separate contractor.
   2. Description of affected work.
   3. The necessity for cutting and alteration.
   4. Effect on work of any separate contractor, or on structural or weatherproof integrity of Project.
   5. Description of proposed work:
      a. Scope of cutting, patching or alteration.
      b. Trades who will execute work.
      c. Products proposed to be used.
      d. Extent of refinishing to be done.

B. Request shall include:
   1. Identification of Project.
   2. Description.
   3. The necessity for cutting and alteration.
   4. Effect on work of any separate contractor, or on structural or weatherproof integrity of Project.
   5. Description of proposed work:
      a. Scope of cutting, patching or alteration.
      b. Trades who will execute work.
      c. Products proposed to be used.
      d. Extent of refinishing to be done.
   6. Alternatives to cutting and patching.
   7. Cost proposal, when applicable.
   8. Written permission of any separate Contractor whose work will be affected?
   9. Designate date and time work will be uncovered.
   10. Date and time work shall be completed or restored.

1.4 INSPECTION

A. Inspect work in place, including elements subject to damage or to movement during cutting and patching.
   1. After uncovering work, inspect conditions affecting installation of Products, or performance of work.
   2. Report unsatisfactory or questionable conditions to Architect/Engineer in writing; do not proceed with work until Architect/Engineer has provided further instructions.

1.5 PREPARATION

A. Provide adequate temporary support as necessary to assure structural integrity of affected portion of Work.

B. Provide devices and methods to protect other portions of Project from damages.

C. Provide protection from elements for that portion of the Project which may be exposed by cutting and patching work.

1.6 PERFORMANCE

A. Execute cutting and demolition by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of new work.
   1. Where items such as millwork are specified to be removed, and such items have been installed using plaster grounds, remove plaster ground and patch and paint to match adjacent wall surfaces.
   2. Refinish fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.

B. Execute fitting and adjustments of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.

C. Restore work which has been temporarily cut or removed to like condition of surrounding area.

D. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations. Restore work in a timely manner coordinated Owner and the Architect/Engineer.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01731

SECTION 06105 - ROUGH AND MISCELLANEOUS CARPENTRY

PART 1- GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Wood blocking and nailers.
2. Plywood backing panels.
3. Framing with dimension lumber.
4. Wood furring and grounds.

1.3 DEFINITIONS

A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. SPIB: The Southern Pine Inspection Bureau.

1.4 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Preservative-treated wood.
2. Powder-actuated fasteners.
3. Expansion anchors.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

B. Deliver interior wood materials that are to be exposed to view only after building is enclosed and weatherproof, wet work other than painting is dry, and HVAC system is operating and maintaining temperature and humidity at occupancy levels.

PART 2- PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
3. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).

I. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat all miscellaneous carpentry, unless otherwise indicated.

1. Wood nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, and waterproofing.
2. Wood sills, sleepers, furring, blocking, and similar concealed members in contact with masonry or concrete.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.

C. For exposed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine, No. 1 grade; SPIB.
2. Hem-fir or hem-fir (north), Construction or No.2 Common grade; NLGA, WCLIB, or WWPA.

D. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine, No. 2 grade; SPIB.
2. Hem-fir or hem-fir (north), Construction or 2 Common grade; NLGA, WCLIB, or WWPA.
3. Spruce-pine-fir (south) or spruce-pine-fir, Construction or 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.

E. For blocking not used for attachment of other construction Utility, Stud, or No.3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

F. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.4 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS I, Exposure I, C-D Plugged, in thickness indicated or, if not indicated, not less than I/2-inch (13-mm) nominal thickness.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME Bl8.6.1.

E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

PART 3- EXECUTION

3.1 INSTALLATION, GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Do not splice structural members between supports, unless otherwise indicated.

D. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at comers and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches (406 mm) o.c.

E. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

F. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

I. Use inorganic boron for items that are continuously protected from liquid water.

G. Securely attach to substrate by fastening as indicated, complying with the following:

I. NES NER-272 for power-driven fasteners (where attached directly to masonry).
2. Comply with Section 22 "Steel"- 2004 Florida Building Code where application of wood to metal framing is required.
3. Comply with section 23 "Wood" -2004 Florida Building Code where application of wood to wood framing is required.

H. Use fasteners indicated. Select fasteners of size that will not fully penetrate wood members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

I. Use fasteners indicated. Select fasteners of size that will fully penetrate as indicated to steel or metal members. Make tight connections

J. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.3 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06106

SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 GENERAL

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes joint sealants for the applications indicated in the Joint-Sealant Schedule at the end of Part 3.

1. Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
2. Exterior joints in horizontal traffic surfaces.
3. Interior joints in vertical surfaces and horizontal nontraffic surfaces.
4. Interior joints in horizontal traffic surfaces.

B. Related Sections include the following:

1. Division 2 Section "Pavement Joint Sealants" for sealing joints in pavements, walkways, and curbing.
2. Division 4 Section "Unit Masonry Assemblies" for masonry control and expansion joint fillers and gaskets.
3. Division 5 Section "Architectural Joint Systems" for building expansion joints.
4. Division 7 Section "Fire-Resistive Joint Systems" for sealing joints in fire-resistance-rated construction.
5. Division 8 Section “Aluminum Windows” for sealing of joints between unit and building material.
6. Division 8 Section “Sliding Aluminum Framed Glass Doors” for sealing of joints between unit and building material.
7. Division 8 Section “Fiberglass Reinforced Door & Frame System” for sealing of joints between unit and building material.
8. Division 8 Section “Overhead Sectional Door” for sealing of joints between unit and building material.
9. Division 8 Section “Access Doors and Frames” for sealing of joints between unit and building material.
10. Division 9 Section "Gypsum Board" for sealing perimeter joints.
11. Division 9 Section "Ceramic Tile" for sealing tile joints.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Preconstruction field test reports.

C. Compatibility and adhesion test reports.

D. Product certificates test reports.

1.5 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

1.6 WARRANTY

A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Suitability for Immersion in Liquids. Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.

D. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

E. Single-Component Neutral-Curing Silicone Sealant **P1**

1. Products:
   a. Dow Corning Corporation; 799.
   b. GE Silicones; UltraGlaze SSG4000.
   c. GE Silicones; UltraGlaze SSG4000AC.
   d. Polymeric Systems Inc.; PSI-631.
   e. Schnee-Morehead, Inc.; SM5731 Poly-Glaze Plus.
   f. Tremco; Proglaze SG.
   g. Tremco; Spectrem 2.
   h. Tremco; Tremsil 600.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

F. Single-Component Mildew-Resistant Acid-Curing Silicone Sealant **P2**

1. Products:
   a. Dow Corning Corporation; 786 Mildew Resistant.
   b. GE Silicones; Sanitary SCS1700.

c. Tremco; Tremsil 200 White.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.

G. Multicomponent Pourable Urethane Sealant **P3**

1. Products:
   a. Bostik Findley; Chem-Calk 550.
   b. Meadows, W. R., Inc.; POURTHANE.
   c. Pacific Polymers, Inc.; Elasto-Thane 227 High Shore Type I (Self Leveling).
   d. Pacific Polymers, Inc.; Elasto-Thane 227 Type I (Self Leveling).
   e. Pecora Corporation; Urexpan NR-200.
   f. Polymeric Systems Inc.; PSI-270SL.
   g. Schnee-Morehead, Inc.; Permathane SM 7201.
   h. Tremco; THC-901.
   i. Tremco; THC-900.
   j. Tremco; Vulkem 245.
   k. Pecora Corporation; Urexpan NR 300, Type H.
   l. Pecora Corporation; Urexpan NR 300, Type M.

2. Type and Grade: M (multicomponent) and P (pourable).
3. Class: 12-1/2.
4. Use Related to Exposure: T (traffic).
5. Uses Related to Joint Substrates: M, A, and, as applicable to joint substrates indicated, O.

H. Single-Component Nonsag Urethane Sealant P4

1. Products:

   a. Sika Corporation, Inc.; Sikaflex - 1a.
   b. Sonneborn, Division of ChemRex Inc.; Ultra.
   c. Sonneborn, Division of ChemRex Inc.; NP 1.
   d. Tremco; Vulkem 116.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, [**G,**]A, and, as applicable to joint substrates indicated, O.

2.4 LATEX JOINT SEALANTS

A. Latex Sealant **P5** Comply with ASTM C 834, Type O P, Grade NF.

B. Products:

1. Bostik Findley; Chem-Calk 600.
2. Pecora Corporation; AC-20+.

3. Schnee-Morehead, Inc.; SM 8200.
4. Sonneborn, Division of ChemRex Inc.; Sonolac.
5. Tremco; Tremflex 834.

2.5 ACOUSTICAL JOINT SEALANTS

A. Acoustical Sealant for Exposed and Concealed Joints **P6** Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products:

a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant.
b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

B. Acoustical Sealant for Concealed Joints **P7** Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.

1. Products:

a. Pecora Corporation; BA-98.
b. Tremco; Tremco Acoustical Sealant.

2.6 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant.

    a. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.

2. Remove laitance and form-release agents from concrete.

    a. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

G. Installation of Preformed Silicone-Sealant System: Comply with manufacturer's written instructions.

H. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.

I. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application JS#1 Exterior vertical construction Isolation and control joints for stucco.

1. Joint Sealant Single-component nonsag urethane sealant.
2. Joint-Sealant Color: color to be selected by Architect from full line of manufacturers color selection.

B. Joint-Sealant Application JS-2: Exterior horizontal traffic isolation and contraction joints in cast-in-place concrete slabs.

1. Joint Sealant Single-component pourable urethane sealant.
2. Joint-Sealant Color: color to be selected by Architect from full line of manufacturers color selection..

C. Joint-Sealant Application JS-3: Exterior horizontal nontraffic joints between construction Isolation and control joints for stucco.

1. Joint Sealant: Single-component nonsag urethane sealant.
2. Joint-Sealant Color: color to be selected by Architect from full line of manufacturers color selection

D. Joint-Sealant Application JS-5: Exterior perimeter joints between and frames of doors windows and louvers etc.

1. Joint Sealant: Single-component nonsag urethane sealant.
2. Joint-Sealant Color: color to be selected by Architect from full line of manufacturers color selection..

E. Joint-Sealant Application JS-6: Exterior control and expansion joints in ceilings and other overhead surfaces.

1. Joint Sealant Single-component nonsag urethane sealant.
2. Joint-Sealant Color: color to be selected by Architect from full line of manufacturers color selection.

F. Joint-Sealant Application JS-7 Exterior control and expansion joints in horizontal traffic surfaces of ceramic tile.

1. Joint Sealant Multi-component pourable urethane sealant.
2. Joint-Sealant Color: color to be selected by Architect from full line of manufacturers color selection..

G. Joint-Sealant Application JS-8 Interior perimeter joints of exterior openings.

1. Joint Sealant Latex sealant.
2. Joint-Sealant Color: color to be selected by Architect from full line of manufacturers color selection...

H. Joint-Sealant Application JS-9 Interior ceramic tile expansion, control, contraction, and isolation joints in horizontal traffic surfaces.

1. Joint Sealant Multi-component pourable urethane sealant.
2. Joint-Sealant Color: color to be selected by Architect from full line of manufacturers color selection..

I. Joint-Sealant Application JS-10 Interior joints between plumbing fixtures and adjoining walls, floors, and counters.

1. Joint Sealant: Single-component mildew-resistant acid-curing silicone sealant.
2. Joint-Sealant Color: White.

J. Joint-Sealant Application JS-11 Vertical joints on exposed surfaces of interior walls and partitions.

1. Joint Sealant: Latex sealant.
2. Joint-Sealant Color: color to be selected by Architect from full line of manufacturers color selection..

K. Joint-Sealant Application JS-12 Perimeter joints between interior wall surfaces and frames of interior doors windows.

1. Joint Sealant: Latex sealant.
2. Joint-Sealant Color: color to be selected by Architect from full line of manufacturers color selection.

END OF SECTION 07920

SECTION 08520 - ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following
   1. Horizontal sliding aluminum framed windows for multiple window locations.

B. Related Sections:
   1. Division 6 Section “Rough and Miscellaneous Carpentry” for wood bucks related to Aluminum Windows.
   2. Division 7 Section “Joint Sealants”

1.3 DEFINITIONS

A. Performance class designations according to AAMA/WDMA 101/I.S.2/NAFS:
   1. HC: Heavy Commercial.

B. Performance grade number according to AAMA/WDMA 101/I.S.2/NAFS:
   1. Design pressure number in pounds force per square foot (pascals) used to determine the structural test pressure and water test pressure.

C. Structural Test Pressure: For uniform load structural test, is equivalent to 150 percent of the design pressure.

D. Minimum Test Size: Smallest size permitted for performance class (gateway test size). Products must be tested at minimum test size or at a size larger than minimum test size to comply with requirements for performance class.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide aluminum windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified, and that are of minimum test size indicated below:

   1. Size required by AAMA/WDMA 101/I.S.2/NAFS for gateway performance for both gateway performance and optional performance grade.
   2. Size indicated on Drawings.

B. Performance Requirements: Provide aluminum curtain wall systems that comply with performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with Florida Building Code Test Protocols TAS 201, TAS 202 and TAS 203.

1. Wind Loads (large Missile Impact rating): Completed storefront system shall withstand wind pressure loads normal to wall plane indicated:
   a. Exterior Walls: (With aluminum reinforcing)
      1) Aluminum Horizontal Rolling Windows:
         a) Positive Pressure: min. 80 psf.
         b) Negative Pressure: min. 80 psf.

2. Deflection: Maximum allowable deflection in any member when tested in accordance with ASTM E 330-90 with allowable stress in accordance with AAMA Specifications for Aluminum Structures and the Florida Building Code 2007 or latest updates.
3. Air Infiltration: Completed storefront systems shall have
   a. Horizontal Rolling Unit 0.04 CFM/FT^2 (0.74 $m^3/h \cdot m^2$) maximum allowable infiltration when tested in accordance with ASTM E 283-91 at differential static pressure of
   6.24 psf (299 Pa).
4. Water Infiltration: No uncontrolled water other than condensation on indoor face of any component when tested in accordance with ASTM E 331-93 at test pressure differential of 12 psf for single hung unit; Water test to be performed immediately after design pressure test.
5. Thermal Movement: Provide for thermal movement caused by 180 degrees F. (82.2 degrees C.) surface temperature, without causing buckling stresses on glass, joint seal failure, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or detrimental effects.
6. Cyclic Design Load test after Missile Impact in accordance to Miami- Dade County (TAS 201 & 203).

C. Model building codes and ASCE 7 establish criteria for buildings in hurricane-prone locations. Authorities having jurisdiction may accept other test methods and protocols. Verify requirements of authorities having jurisdiction.

D. Windborne-Debris Resistance: Provide glazed windows capable of resisting impact from windborne debris, based on the criteria as determined from testing glazed windows identical to those specified, according to requirements of the Florida Building Code 2007 with latest updates or revisions.

E. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C) material surfaces.

F. Forced Entry Test AAMA 1302.5 – 1976 paragraph 3.1.1 test A3.15 Test G.

1.5 SUBMITTALS

A. Product Data: Include construction details, material descriptions, and fabrication methods, dimensions of individual components and profiles, hardware, finishes, and operating instructions for each type of aluminum window indicated.

B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other work, operational clearances, installation details, and the following:

1. Mullion details, including reinforcement and stiffeners.
2. Window cleaning provisions.
3. For installed products indicated to comply with design loads, include structural analysis data prepared by or under the supervision of a qualified professional engineer detailing fabrication and assembly of aluminum windows and used to determine the following:

    a. Structural test pressures and design pressures from wind loads indicated.
    b. Deflection limitations of glass framing systems.

C. Samples for Initial Selection: For units with factory-applied color finishes.

1. Include similar Samples of hardware and accessories involving color selection.

D. Product Schedule: For aluminum windows. Use same designations indicated on drawings.

E. Qualification Data: For Installer and manufacturer.

F. Field quality-control test reports.

G. Product Test Reports: Based on evaluation of comprehensive tests performed within the last four years by a qualified testing agency for each type, class, grade, and size of aluminum window. Test results based on use of downsized test units will not be accepted.

H. Maintenance Data: For operating hardware weather stripping window system operators finishes to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An installer acceptable to aluminum window manufacturer for installation of units required for this Project.

1. Installer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
2. Engineering Responsibility: Preparation of data for aluminum windows, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum windows that meet or exceed performance requirements indicated and of documenting this performance by inclusion in lists and by labels, test reports, and calculations.

C. Source Limitations: Obtain aluminum windows through one source from a single manufacturer.

D. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum windows and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements." Do not modify size and dimensional requirements.

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Fenestration Standard: Comply with AAMA/WDMA 101/I.S.2/NAFS, "North American Fenestration Standard Voluntary Performance Specification for Windows, Skylights and Glass Doors," for definitions and minimum standards of performance, materials, components, accessories, and fabrication. Comply with more stringent requirements if indicated.

1. Provide AAMA -certified aluminum windows with an attached label.

F. Glazing Publications: Comply with published recommendations of glass manufacturers and with GANA's "Glazing Manual" unless more stringent requirements are indicated.

G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to aluminum windows including, but not limited to, the following:

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review and discuss the finishing of aluminum windows that is required to be coordinated with the finishing of other aluminum work for color and finish matching.
3. Review, discuss, and coordinate the interrelationship of aluminum windows with other exterior wall components. Include provisions for structural anchorage, glazing, flashing, weeping, sealants, and protection of finishes.
4. Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.
5. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify aluminum window openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating aluminum windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.8 WARRANTY

A. When warranties are required, verify with Owner's counsel that special warranties stated in this Article are not less than remedies available to Owner under prevailing local laws. Coordinate with Division 1 Section "Product Requirements."

B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure to meet performance requirements.
b. Structural failures including excessive deflection, water leakage, air infiltration, or condensation.
c. Faulty operation of movable sash and hardware.
d. Deterioration of metals, other materials, and metal finishes beyond normal weathering.
e. Failure of insulating glass.

2. Warranty Period:

a. Window: Three years from date of Substantial Completion. Including Glazing and metal finish.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Lawson Industries, Inc. windows;
1. Series HS-8700 Aluminum Horizontal Sliding Window –
- Miami-Dade Product Approval, NOA No. 17-1212.17

B. Other comparable products meeting criteria and intent of project and specifications by one of the following that may be acceptable to Architect:
1. PGT Industries; Series “HR-710”, NOA No. 17-0411.06
2. T.M. Windows LLC / Florida’s Best Window; Series “805”, NOA No. 15-0505.29

2.2 WINDOWS

A. Aluminum Horizontal Rolling Windows: Lawson Series HS-8700; rated for large missile impact.
1. AAMA/WDMA Performance Requirements: Provide aluminum windows of performance indicated that comply with AAMA/WDMA 101/I.S.2/NAFS unless more stringent performance requirements are indicated.
a. Performance Class and Grade: H-C60.

2. Impact Resistance: Tested to meet FBC TAS 201 Large Missile Impact, and approved by Miami Dade Building Code Compliance Department.
3. Performance Criteria: Tested to meet FBC TAS 202 and FBC TAS 203, and approved by Miami Dade Building Code Compliance Department.
4. Size: To fit existing openings; verify field dimensions.
5. Configuration: Fixed lite top; operable sash bottom.
6. Glazing Material: 7/16 inch (11 mm) laminated glass; two lites of 1/8 inch (3 mm) annealed glass with 0.060 inch (1.5 mm) polyester interlayer, 0.010 inch (0.25 mm) PET film, and 0.060 (1.5 mm) polyester interlayer.
7. Weatherstripping: Double row pile with integral plastic fin located at operable sash bottom rail and stiles; single row pile with integral plastic fin located at fixed meeting rail interior and operable sash top rail.
8. Corner Construction: Butt jointed.

2.3 MATERIALS

A. Aluminum Extrusions: Alloy and temper recommended by aluminum window manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength, not less than 16,000-psi (110-MPa) minimum yield strength, and not less than 0.062-inch (1.6-mm) thickness at any location for the main frame and sash members.
1. Commercial Quality 6063 Aluminum hardened T6 temper.

B. Fasteners: Aluminum, nonmagnetic stainless steel, or other materials warranted by manufacturer (NOA compliant) to be noncorrosive and compatible with aluminum window members, trim, hardware, anchors, and other components.

1. Reinforcement: Where fasteners screw anchor into aluminum less than 0.125 inch (3.2 mm) thick, reinforce interior with aluminum or nonmagnetic stainless steel to receive screw threads, or provide standard, noncorrosive, pressed-in, splined grommet nuts.
2. Exposed Fasteners: Unless unavoidable for applying hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate to meet tested configuration.

C. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.

D. Compression-Type Weather Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action and for complete concealment when aluminum window is closed.

1. Weather-Stripping Material: Elastomeric cellular preformed gaskets complying with ASTM C 509.
2. Weather-Stripping Material: Dense elastomeric gaskets complying with ASTM C 864.
3. Weather-Stripping Material: Manufacturer's standard system and materials complying with AAMA/WDMA 101/I.S.2/NAFS.

E. Sliding-Type Weather Stripping: Provide woven-pile weather stripping of wool, polypropylene, or nylon pile and resin-impregnated backing fabric. Comply with AAMA 701/702.

1. Weather Seals: Provide weather stripping with integral barrier fin or fins of semirigid, polypropylene sheet or polypropylene-coated material. Comply with AAMA 701/702.

F. Replaceable Weather Seals: Comply with AAMA 701/702.

G. Sealant: General Electric RGS7700 and Dow Corning 995 silicone sealants.

H. Rough Bucks: Pressure preservative treated; 1 inch (25 mm) by 4 inches (102 mm), minimum.

I. Corner Construction: Butt jointed.

J. Sound Transmission Class (STC): Provide glazed windows rated for not less than 35 STC when tested for laboratory sound transmission loss according to ASTM E 90 and determined by ASTM E 413.

K. Air Infiltration: Maximum rate not more than indicated when tested according to FBC –TAS-202.

L. Water Resistance: No water leakage as defined The Florida Building Code 2004 referenced test methods at a water test pressure equaling that indicated, when tested according to FBC TAS 202.

M. Forced-Entry Resistance: Comply with Performance requirements when tested according to TAS 202 and FBC 3603.2.

N. Applied muttons (False muttons): Manufacturers Standard aluminum mutton applied to surface of glass with self adhering rubberized UV resistant strips. Color to match window frame.

2.4 GLAZING

A. Glass and Glazing Materials: Refer to FBC 2007or latest edition. For glass units and glazing requirements applicable to glazed aluminum window units.
1. Coordinate with Product Approval NOA requirements

B. Glazing: Manufacturer's standard factory-glazing system that produces weathertight seal and complies with requirements for windborne-debris resistance per product approved NOA.
1. Horizontal Sliding Window: 3/8 inch (9.52 mm) nominal overall laminated glass; Composed of two lites of 1/8 inch (3.18 mm) annealed glass with 0.120 inch (3.05 mm) Uvekol-Liquid resin PVB interlayer, by Surface Specialties.

C. Glazing Method: Exterior glazed with snap on extruded aluminum glazing stops; glazing penetrating at least 0.5 inches (13 mm) into rabbet, set in clear silicone sealant; clear colored silicone between bead and glass.

2.5 HARDWARE

A. General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with aluminum; designed to smoothly operate, tightly close, and securely lock aluminum windows, and sized to accommodate sash or ventilator weight and dimensions. Do not use aluminum in frictional contact with other metals. Where exposed, provide extruded, cast, or wrought aluminum nonmagnetic stainless steel.

B. Sill Cap/Track: Extruded-aluminum track with natural anodized finish, of thickness, dimensions, and profile indicated; designed to comply with performance requirements indicated and to drain to the exterior.

C. Locks and Latches: Designed to allow unobstructed movement of the sash across adjacent sash in direction indicated and operated from the inside only. See drawings – verify in field to comply for ADA requirements.

1. Locking mechanism and handles for manual operation.
    a. Horizontal sliding – in accordance with the NOA.

D. Provide the following operating hardware for operable sashes:
1. Removable Lift-Out Sash: Design windows and provide with hardware to permit removal of sash from inside for cleaning.

2.6 GROUP OR GANG-TYPE WINDOW OPERATING SYSTEMS

A. Provide window operating system of the type and in groups as indicated. Coordinate operating system design with window fabrication and hardware selection to ensure smooth, durable operation of ventilators.

B. Operation: Manual, with crank-type operator on each gear box shaft, with removable crank. Where necessary, extend crankshaft with universal joints and support brackets to a suitable crank-mounting location not more than 44 inches (1115 mm) above floor, with an oil-encased miter gear box.

2.7 INSECT SCREENS

A. General: Design windows and hardware to accommodate screens in a tight-fitting, removable arrangement, with a minimum of exposed fasteners and latches. Fabricate insect screens to fully integrate with window frame. Locate screens on outside of window and provide for each operable exterior sash or ventilator.

1. Aluminum Tubular Frame Screens: Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," Residencial class.
2. Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," for minimum standards of appearance, fabrication, attachment of screen fabric, hardware, and accessories unless more stringent requirements are indicated.

B. Aluminum Insect Screen Frames: Manufacturer's standard aluminum alloy complying with SMA 1004. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners, adjustable rollers, and removable PVC spline/anchor concealing edge of frame.

1. Aluminum Tubular Framing Sections and Cross Braces: Roll formed from aluminum sheet with minimum wall thickness as required for class indicated.
2. Finish: Bronze anodized aluminum in manufacturer's standard color.

C. Glass-Fiber Mesh Fabric: 18-by-14 (1.1-by-1.4-mm) or 18-by-16 (1.0-by-1.1-mm) mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration; in the following color. Comply with ASTM D 3656.

1. Mesh Color: Charcoal gray.

2.8 ACCESSORIES

A. Integral Ventilating System/Device: Where indicated, provide weather-stripped, adjustable, horizontal fresh-air vent, with a free airflow slot, full width of window sash by approximately 1 inch (25 mm) when open, complying with AAMA/WDMA 101/I.S.2/NAFS. Equip vent bar with an integral insect screen, removable for cleaning.

B. Window Cleaner Anchor Bolts: Provide window cleaner anchor bolts of standard design, complying with requirements of authorities having jurisdiction. Fabricate bolts of nonmagnetic stainless steel.

1. Reinforce window units or mullions to receive bolts and provide additional anchorage of units at bolt locations.

C. Window manufacturers standard “applied muttons” on glazing acceptable to window NOA requirements.

2.9 FABRICATION

A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.

B. Fabricate aluminum windows that are reglazable without dismantling sash or ventilator framing.

C. Weather Stripping: Provide full-perimeter weather stripping for each operable sash and ventilator.

D. Mullions: Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design loads of window units.

E. Subframes: Provide subframes with anchors for window units as shown, of profile and or cope corners, and weld and dress smooth with concealed mechanical joint fasteners. Finish to match window units. Provide subframes capable of withstanding design loads of window units.

F. Glazing Stops: Provide snap-on glazing stops coordinated glazing system indicated. Provide glazing stops to match sash and ventilator frames.

G. Factory-Glazed Fabrication: Glaze aluminum windows in the factory where practical and possible for applications indicated. Comply with requirements with AAMA/WDMA 101/I.S.2/NAFS.

2.10 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.11 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Class II, Color Anodic Finish: AA-M12C22A32/A34 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, integrally colored or electrolytically deposited color coating 0.010 mm or thicker) complying with AAMA 611.

1. Color: White.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate, and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weathertight window installation.

1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing windows, hardware, accessories, and other components.
   1. Install window units in accordance with NOA requirements.

B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.

C. Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.

D. Seal perimeter of window frame to adjacent construction, on both inside and outside, using specified sealant and tool to concave joint.

E. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.

F. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.4 ADJUSTING, CLEANING, AND PROTECTION

A. Clean aluminum surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

B. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

D. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

E. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 08520

SECTION 09220 - PORTLAND CEMENT PLASTER- STUCCO

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Portland cement stucco modified with acrylic admixture and mixed with fiber reinforcement with surface finish as indicated in the drawings.
2. Plastic (PVC) accessories: corner bead, stops, control joints, expansion joints, siding step bead screeds.
3. Foam Building Shapes and Finish Coating.

B. Related Sections include the following:

2. Division 7 Section "Joint Sealants" for sealants installed with exterior Portland cement plaster (stucco).

1.3 SUBMITTALS

A. General: Submit product data, shop drawings, and samples in accordance with the Contract documents.

B. Product data consisting of manufacturer's product specifications and installation instructions for each product, including data showing compliance with the requirements.

C. Shop Drawings: Show locations and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other work. Locate control joints per the Architectural Drawings of building exterior.

D. Material Certificates: Submit producer's certificate for each kind of stucco aggregate indicated evidencing that materials comply with requirements.

E. Compatibility and adhesion test reports from sealant manufacturer indicating that stucco materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants performed in accordance with applicable ASTM and manufacturer proprietary procedures.

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ANSI/ASTM C926 and Portland Cement Association (PCA) Plaster (Stucco) Manual.

B. Acceptance and Repairing: Stucco and plaster with cracks, blisters, pits, checks or discolorations will not be considered acceptable.

C. Applicator qualifications and project history demonstrating a minimum of five years experience with similar projects.

D. Product data consisting of manufacturer's product specifications and installation instructions for each product, including data showing compliance with the requirements.

E. Field-Constructed Mock-Up: Prior to installation of stucco work, fabricate panels for each type of finish, application, and foam building shapes required to verify selections made under sample submittals and to demonstrate aesthetic effects of application as well as qualities of materials and erection. Build mock-ups to comply with the following requirements, using materials indicated for final unit of Work.

1. Locate mock-ups on site in location and size indicated or, as directed by Owner.
2. Erect 4-foot-by-4-foot-by-full-thickness mock-up in presence of Owner using materials, including lath and support system, indicated for final work, and all accessories.
3. Demonstrate the proposed range of aesthetic effects including color, texture, and workmanship to be expected in completed work.
4. Obtain Architect's acceptance of mock-ups before start of stucco work.
5. Retain and maintain mock-ups during construction in undisturbed condition as a standard for judging completed stucco work.

F. Stucco Work shall comply with applicable portions of ASTM C 926 - “Standard Specification for Application of Portland Cement Based Plaster”.

G. PVC Lath and Components shall comply with ASTM C1063 - “Standard Specification for Installation of Lathing and Furring to receive Interior and Exterior Portland Cement Based Plaster” and have been tested to meet or exceed ASTM D 4216 - “Standard Specification for Rigid Poly Vinyl and Related Chlorinated Poly Building Products Compounds”.

H. Compliance with the following standards for the preparation of surfaces to receive stucco:

1. ASTM D 4261 - “Standard Practice for Surface Cleaning Concrete Unit Masonry for Coating”.
2. ASTM D 4258 - “Standard Practice for Surface Cleaning Concrete for Coating”.
3. ASTM D 4259 - “Standard Practice for Abrading Concrete”.
4. ASTM D 4260 - “Standard Practice for Acid Etching Concrete”.

I. Document cleaning/preparation practice utilized in each area for future reference. Submit documentation to Architect/Owner upon completion of stucco work.

J. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver cementitious materials in original packages, containers, or bundles bearing brand name and identification of manufacturer.

B. Store materials inside, under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion, damage from traffic and deterioration.

1. Protect foam shapes and profiles from ignition at all times. Do not deliver these materials to the project site before installation time.
2. Complete installation and concealment of foam shapes and profiles as rapidly as possible in each area of construction.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not apply plaster or stucco when substrate or ambient air temperature is less than 50 or more than 90 degrees F or forecasts indicate such extremes may be reached before application attains a complete set.

B. Protect plaster/stucco against uneven and excessive evaporation and from strong flows of dry air, both natural and artificial. Apply and cure plaster/stucco as required by climatic and job conditions to prevent dry out during cure period. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.

C. Protect contiguous work from soiling and moisture deterioration caused by plastering Provide temporary covering and other provisions necessary to minimize harmful spattering of plaster/stucco on other work.

1.7 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Submit written agreement on manufacturer's standard form, signed by manufacturer, installer, and contractor, agreeing to repair or replace defective stucco and/or accessories that do not comply with referenced quality standards.

PART 2 - PRODUCTS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include the following:

1. Stucco Accessories:
   a. Plastic Components, Inc., (800) 327-7077 www.plasticomponents.com
   b. Vinyl Corp. (800) 648-4695 www.vinylcorpcom

2. Stucco products:
   a. CEMEX (800) 282-9133 www.cemex.com
   b. Rinker Materials (800) 226-5521 www.rinkermaterials.com
   c. Florida Stucco (800) 334-5134 www.floridastucco.com
   d. USG Products (800) 989-0035 www.usg.com

3. EPS Foam Building Shapes:
   a. Artistic Foam Designs (321) 633-7684 www.artisticfoamdesigns.com
   b. Foam Factory (305) 485-6700 www.foamfactory.com

2.2 STUCCO MATERIALS

A. Compatibility: Provide substrates, adhesive, board insulation, reinforcing meshes, base- and finish-coat materials, sealants, and accessories that are compatible with one another and approved for use by system manufacturer for Project.

B. Base & Finish Coat Cement: pre-mixed Stucco with Grey Cement, ASTM C-926.

C. Gauging Plaster: Conforming to ASTM C 28.

D. Water: Clean, fresh, potable and free of matter which can affect stucco.

E. Aggregate: In accordance with PCA Plaster (Stucco) Manual and ASTM C 897.

F. Sand: Washed, white plaster's sand, ASTM C 897.

1. Color for Job-Mixed Finish Coats: White.

G. Lime: Special hydrated lime for finishing purposes, ASTM C 206, Type S; or special hydrated lime for masonry purposes, ASTM C 207, Type S.

H. Acrylic Admixture: Non-Re-Emulsifiable acrylic emulsion, approved products include: 118 Primer/Admixture manufactured by Bonsal Co., Thoroseal Acryl 60, manufactured by ChemRex, and Larson Acrylic Admix 100 manufactured by Larsen Products. No other products are permitted. **Do not use air-entrained cement with acrylic admixture.**

I. Bonding Agent: Complying with ANSI/ASTM C 932. Non-re-emulsifying type - Acrylic or Styrene Butadiene. Color different from substrate. Acceptable products include, but are not limited to: AcrylBond manuf. by Lambert Corp., AKKRO-7T manuf. by Tamms Industries, and/or Acrylok manuf. by WR Meadows.

1. PVA emulsion bonding agents are permitted for interior applications only.

J. Alkali Resistant Fiber Reinforcement: ASTM C-1116 Type III 4.1.3, 100% virgin homopolymer micro-fibers : Fibercast 500 (formerly Harbourite), manufactured by SI Concrete Systems, (423) 892-8080 www.fibermesh.com ; ½-inch long to be added to stucco scratch coat.

2.3 FOAM BUILDING SHAPES

A. Expanded Polystryrene (EPS) foam building shapes conforming to physical properties of ASTM C 578 in shapes and profiles indicated on the drawings for exterior applications. http://Www.foamfactory.com

1. Rigid cellular thermal insulation formed by expansion of polystyrene resin beads or granules in a closed mold.
2. Density: ASTM C 578 Type I or better.
3. Length: maximum length available.
4. Foam shapes shall be of uniform texture and free from foreign inclusions, broken edges or corners, slits, or objectionable odors.
5. Compressive Strength: 1.5 psi minimum.
6. Tensile Strength: 15.0 psi minimum.
7. Finish: Pre-coated manufacturers standard hard coat coating.
8. Texture: as selected by Architect from manufacturers standard.

B. Foam Adhesive: Complying with ASTM C 557, adhesive especially designed for bonding polystyrene foam to itself and to its substrates, approved products include, but are not limited to: PL 300 Foamboard Adhesive manufactured by OSI Sealants, Inc. (800) 624-7767 www.stickwithpl.com or a GE 100% Silicone adhesive.

C. Foam molding attachment accessories: Adhesive, dowels, clips, or angles and other fasteners as may be required by fabricator for mounting of the shapes as indicated on drawings.
1. All fasteners to be Stainless steel.

2.4 METAL LATH

A. Expanded-Metal Lath: ASTM C 847 with ASTM A 653/A 653M, G60 (Z180), hot-dip galvanized zinc coating.

B. Coordinate subparagraph and list below with Part 2 "Manufacturers" Article. Retain "Available" for nonproprietary and delete for semiproprietary specifications.

1. Available Manufacturers:
   a. Alabama Metal Industries Corporation (AMICO).
   b. Dale/Incor.
   c. Marino/Ware; Division of Ware Industries, Inc.
   d. Unimast, Inc.
2. Material: Fabricate expanded-metal lath from sheet metal conforming to the following:
   a. Zinc Steel: Structural-quality, pur zinc. steel sheet complying with ASTM A 653, G60 (ASTM A 653M, Z180) minimum coating designation, unless otherwise indicated.
3. Diamond-Mesh Lath: Comply with the following requirements:

a. Configuration: Self-furring.

1) Weight: 3.4 lb/sq. yd. (1.8 kg/sq. m).

4. Rib Lath: Comply with the following requirements:
   a. Configuration: Rib depth of 3/8 inch (9.5 mm).

      1) Weight: 3.4 lb/sq. yd. (1.8 kg/sq. m).

C. Paper Backing: FS UU-B-790, Type I Grade B, Style 1a vapor-retardant paper.

2.5 STUCCO ACCESSORIES

A. General: Comply with material provisions of ASTM C 1063, D 1784 and D 4216 and the requirements indicated below; coordinate depth of accessories with thicknesses and number of plaster coats required.

B. Plastic Trim: Fabricated from high-impact PVC.

1. Basis-of-Design Product: Subject to compliance with requirements, provide plastic screed as manufactured by Plastic PC Components Inc. www.plasticomponents.com

   a. Color – White

2. Corner beads: With perforated flanges.

   a. Small nose corner bead recommended by manufacturer for use where durable corner is required; use on columns and for finishing unit masonry corners. (5/8-inch ground)
      1) PC Components # 2; with 2/3/4inch flange.

3. Casing Beads or J-bead: With perforated flanges in depth required to suit plaster bases indicated and flange length required to suit applications indicated. (5/8-inch grounds)

   a. Square-edge style; use unless otherwise indicated.
      1) PC Components # 1058(5/8”).

4. Control Joints: One-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint. (5/8-inch ground)

   a. PC Components # 2058

5. Expansion Joints: Two-piece type, formed to produce slip-joint and square-edged 1/2-inch- (13-mm-) wide reveal; with perforated concealed flanges. As required or indicated on drawings. (5/8-inch ground)

   a. PC Components # 501-58

6. Vent screen screed: one-piece type perforated vent screed system. (5/8-inch ground)

   a. PC Components # 3549-58

C. Plaster Rings: Size and shape required for light fixtures, electrical devices, etc., unless

D. Sealants:

1. Joint sealant for Stucco accessories: see Section “Sealants” for application requirements:
   a. Joint sealant – “Sikaflex 1a” as manufactured by Sika

corporation www.sikacorp.com

2.6 STUCCO ADDITIVES MIXES

A. Fiber Content: Add fiber to mixes after ingredients have mixed at least 2 minutes. Comply with fiber manufacturer's written instructions but do not exceed 1 lb/cu. ft. of cementitious materials Reduce aggregate quantities accordingly to maintain workability.

B. Mechanically mix cementitious and aggregate materials for plasters to comply with applicable referenced standard and with recommendations of plaster manufacturer. Do not re-temper mixes after the initial set has occurred.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that surfaces and site conditions are ready to receive work. Perform the work in compliance with ASTM C926. Chip back concrete as required and replace masonry where necessary to avoid thickness greater than indicated for finished systems.

B. Dampen the surfaces of concrete and masonry prior to application of scratch coat and maintain in a moist condition throughout the course of application. Remove all form oils from concrete prior to applying stucco.

C. Apply bonding agent to interior and exterior surfaces Do not apply PVA bonding agent to exterior surfaces.

D. Tolerances: Do not deviate more than 1/8 inch in 10'-0" from a true plane in finished stucco surfaces, as measured by a 10'-0" straightedge placed at any location on surface.

1. Inspect each floor prior to stucco application; wall areas where maximum tolerances will be exceeded due to construction conditions must be identified and a remedial plan submitted for approval by Architect/Owner.

E. Where metal bucks, frames and other trim occur, fill inside of same behind trim with stucco and cut finish coat accurately against buck. Where caulking is shown on details, cut back at meeting point as detailed.

F. Control Joints over concrete/masonry substrates: place control joints directly over control joints in masonry.

3.2 INSTALLING METAL LATH

A. Install metal lath for the following applications where plaster base coats are required. Provide appropriate type, configuration, and weight of metal lath selected from materials indicated that comply with referenced ML/SFA specifications and ASTM lathing installation standards and in accordance with the Florida Building Code 2007 edition..

B. Expanded-Metal Lath: Install according to ASTM C 1063 Select appropriate lath for each location specified in six subparagraphs below, or delete subparagraphs if only one type of lath is required or if locations of each type of lath are shown on Drawings. See "Metal Laths" Article in the Evaluations.

1. Flat-Ceiling and Horizontal Framing: Install Rib lath.

3.3 INSTALLATION – STUCCO ACCESSORIES

A. General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Install factory fabricated intersection or corner accessories; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and in alignment during plastering. Install accessories of type indicated at following locations:

1. Install according to ASTM C 1063 and at locations indicated on Drawings.

B. Reinforcement for External Corners:

1. Install lath-type external-corner reinforcement at exterior locations.
2. Install corner bead at interior and exterior locations.

C. Attach accessories securely to substrate per manufacturer's installation instructions.

D. Control Joint locations on solid substrates, i.e., concrete unit masonry, shall be determined by Architect of Record and their installation shall be in compliance with the current edition of the Portland Cement Association (PCA) Plaster (Stucco) Manual.

1. As required to delineate plasterwork into areas (panels) of the following maximum sizes:
   a. Vertical Surfaces: 144 sq. ft. (13.4 sq. m).
   b. Horizontal and other Non-vertical Surfaces: 100 sq. ft. (9.3 sq. m).
2. At distances between control joints of not greater than 18 feet (5.5 m) o.c.
3. As required to delineate plasterwork into areas (panels) with length-to-width ratios of not greater than 2-1/2:1.
4. Where control joints occur in surface of construction directly behind plaster.
5. Where plasterwork areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

E. Casing Beads: Install at terminations of stucco work, unless otherwise indicated.

F. Corner Beads: Install at all external corners.

G. Siding Step Bead: install at spacing indicated and detailed on drawing. Apply plumb and straight to resemble siding on wall.

H. Apply sealant all butt joints, ends, angles, corners, and intersections of all stucco accessories prior to application of stucco plaster.

3.4 INSTALLATION - STUCCO

A. Apply stucco in accordance with manufacturer's instructions and in compliance with ASTM C926 and the Florida Building Code, 2007 Edition.

1. Do not use materials that are caked, lumpy, dirty, or contaminated by foreign materials.
2. Do not use excessive water in mixing and applying plaster/stucco materials.
3. Do not re-temper or use material which has partially set or become caked or lumpy. Clean the mixers, mixing box and tools of all set or hardened materials before the new batch is loaded.
4. Sequence plaster/stucco application with installation and protection of other work so that neither will be damaged by installation of other.
5. Delay application of brown coat until scratch coat has attained sufficient rigidity to resist cracking or other physical damage when the next coat is applied.
6. Maintain stucco moist until application of finish coat.

7. Apply bonding agent in accordance with the manufacturer’s allowable application time limits with a brush or roller on cast-in-place concrete and dense concrete block (finish block). Dampen masonry surfaces prior to the application of plaster/stucco and maintain in a moist condition throughout the course of application.

B. Stucco Mixes and application:

1. Base, scratch, and finish coat stucco mix: pre-mixed Stucco plus water and sand as recommended by manufacturer with admixtures specified. Add fiber to base coat as specified herein.

C. Wet each coat uniformly, do not saturate, before applying the following coat. Moist curing shall be executed using a nursery fogging nozzle, applying a light mist to the stucco. Surface shall be free of visible water prior to application of the next coat of stucco.

D. After initial set, scribe contraction joints in exterior work in each direction by cutting through 2/3 of the cement stucco depth, neatly, in straight lines.

E. Minimum thicknesses:

1. Over Concrete/Masonry Wall Substrates: Two-coat, 5/8-inch nominal thickness.
   a. Scratch/brown Coat: 1/4-inch
   b. Finish Coat: 3/8-inch
2. Over metal lath substrate: three coats, 3/4- inch nominal thickness.
   a. Scratch Coat: 1/4-inch
   b. Brown Coat: 3/8-inch
   c. Finish Coat: 1/8-inch

F. Stucco Finish coat texture description:

1. The Finish description indicated below is only for reference and to establish a standard reference of the required Stucco finish desired for this project. The publication referenced is Titled “Plaster Textures” and is published by the Plastering Information Bureau (PIB), Fullerton CA. (www.tsib.org). The following suggested procedure are the description shown in the PIB “Plaster Textures” publication (this is only to establish a reference);

   a. Light Lace:
      1) Trowel, float or dash on a first coat to completely cover base.
      2) When surface moisture leaves, trowel apply light second coat in random directions.
      3) Knock down surfaces lightly with trowel.

   b. Fine Sand Float:
      1) Trowel on a finish coat and double back with a second an application. Plaster mix is to be formulated with a blend of 20- 30 mesh aggregate.
      2) Using circular motion, rub surface with float to achieve uniform pattern, bringing sand particles to surface, an absolute minimum of water should be used in floating.

2. Obtain approval from the Architect/Owner for the finish texture and appearance of stucco surfaces. Prepare samples for inspection and adjust the finish as required.
3. Curing: Cure stucco in accordance with ASTM C 926. Moist cure by frequent fog spraying and protection of stucco from direct rays of the sun. Exercise care to prevent staining .Moist cure finish coat for minimum period of 48 hours.
4. Final cure: Allow a minimum of 21 days before the application of sealer or paint.

G. Acceptance and Repairing: Stucco and plaster with cracks, blisters, pits, checks or discolorations will not be considered acceptable. Work shall be clean and sound. After other related work has been completed, point up around trim and other set work, repair damaged portions. Match existing work in texture and color.

H. Apply sealant at perimeter of all penetrations of stucco in accordance with Section 07900.

3.5 FOAM BUILDING SHAPE INSTALLATION

A. Comply with system manufacturer's instructions and recommendations for installation.

B. Apply foam shapes and profile sections to stucco scratch coat with foam board adhesive and mechanical fasteners recommended by foam building shape manufacturer. For oversized sections of foam, provide steel dowels embedded in wall substrate and foam, using compatible foam board adhesive, per approved mock-up. Mechanical fasteners must be kept in place until adhesive is fully cured.

   1. Secure all foam profiles in accordance with wind load requirements. Submit engineer’s signed and sealed calculations.

C. All EPS foam building shapes and profiles must be installed over the stucco scratch or base coat. No exceptions will be permitted.

D. Apply a continuous bead of sealant at the surface of the upper back against the vertical wall of all foam shapes.

3.6 CUTTING AND PATCHING

A. Cut, patch, point up, and repair stucco as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to the substrate has failed.

B. Sand smooth-troweled finishes lightly to remove trowel marks and arises.

3.7 TOLERANCES

A. Flat Surface Tolerances: Do not deviate more than plus or minus 1/4 inch in 10 feet from a true plane in finished plaster/stucco surfaces.

3.8 ADJUSTING AND CLEANING

A. On completion of work, remove scaffolding, equipment and rubbish resulting from work of this section from the site. Leave all work in clean condition.

B. Remove temporary covering and other provisions made to minimize spattering of plaster/stucco on other work. Promptly remove plaster/stucco from door frames, windows, and other surfaces not to be plastered. Repair surfaces stained, marred or otherwise damaged during plastering work. When plastering work is completed, remove unused materials, containers, equipment, and plaster/stucco debris.

C. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, which ensures plaster/stucco work is without damage or deterioration at the time of Final Completion.

END OF SECTION 09220

SECTION 09250 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Interior gypsum board.
2. Interior ceiling board.
3. Tile backing panels.
4. Textured ceiling finish

B. Related Sections include the following:

1. Division 6 Section "Rough Carpentry" for wood framing and furring that supports gypsum board.
2. Division 9 painting Sections for primers applied to gypsum board surfaces.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch- (300-mm-) long length for each trim accessory indicated.

2. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work.

1.4 QUALITY ASSURANCE

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

1.5 STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install interior products until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PANELS, GENERAL

A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. BPB America Inc.
b. G-P Gypsum.
c. Lafarge North America Inc.
d. USG Corporation.

B. Regular Type:

1. Thickness: 1/2 inch (12.7mm) unless otherwise noted or required to be 5/8 inch (15.9 mm).
2. Long Edges: Tapered.

C. Ceiling Type: Manufactured to have more sag resistance than regular-type gypsum board.

1. Thickness: 1/2 inch (12.7 mm).
2. Long Edges: Tapered.

D. Type X (fire rated):

1. Thickness: 5/8 inch (15.9 mm).
2. Long Edges: Tapered.

2.3 TILE BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Board:

1. Complying with ASTM C 1178/C 1178M.

a. Product: Subject to compliance with requirements, provide "DensShield Tile Guard" by G-P Gypsum.

2. Core: 1/2 inch (12.7 mm)

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
2. Shapes:

a. Cornerbead.
b. LC-Bead: J-shaped; exposed long flange receives joint compound.
c. L-Bead: L-shaped; exposed long flange receives joint compound.
d. U-Bead: J-shaped; exposed short flange does not receive joint compound.
e. Expansion (control) joint.

2.5 TEXTURE FINISHES

A. Primer: As recommended by textured finish manufacturer.

B. Polystyrene Aggregate Ceiling Finish: Water-based, job-mixed, polystyrene aggregate finish with flame-spread and smoke-developed indexes of not more than 25 when tested according to ASTM E 84.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

    a. G-P Gypsum; Georgia-Pacific Regency Ceiling Textures/Polystyrene.
    b. National Gypsum Company; Perfect Spray.
    c. USG Corporation; SHEETROCK Ceiling Spray Texture, QT.

3. Texture: as selected by Architect.

2.6 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.
2. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
1. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.

    a. Use setting-type compound for installing paper-faced metal trim accessories.

2. Fill Coat: For second coat, use drying-type, all-purpose compound.
3. Finish Coat: For third coat, use drying-type, all-purpose compound.

D. Joint Compound for Tile Backing Panels:

1. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.

2.7 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
   1. Refer to division 7 “Building Insulation” for insulation requirements.
   2. Recycled Content: Provide blankets with recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content constitutes a minimum of percent by weight.

E. Acoustical Sealant: As specified in Division 7 Section "Joint Sealants."

   1. Provide sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.8 TEXTURE FINISHES

A. Primer: As recommended by textured finish manufacturer.

B. Aggregate Finish: Water-based, job-mixed, aggregated, drying-type texture finish for spray application.

   1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
   2. Products: Subject to compliance with requirements, provide one of the following:

      a. G-P Gypsum; Georgia-Pacific Ceiling Textures/Vermiculite.
      b. USG Corporation; SHEETROCK Wall and Ceiling Spray Texture (Aggregated).

   3. Texture: Spatter knock-down.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

1. Install sound attenuation Batts in between metal framing prior to application of gypsum board.

3.3 APPLYING TILE BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Panel: Comply with manufacturer's written installation instructions and install at showers, tubs, and where indicated in locations indicated to receive tile. Install with 1/4-inch (6.4-mm) gap where panels abut other construction or penetrations.

B. Areas Not Subject to Wetting: Install regular-type gypsum wallboard panels to produce a flat surface except at showers, tubs, and other locations indicated to receive water-resistant panels.

3.4 Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.5 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Regular Type: Vertical surfaces, unless otherwise indicated.
2. Ceiling Type: Ceiling surfaces.
3. Backer board: behind tiled areas

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
3. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.

3.6 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners, unless otherwise indicated.
2. LC-Bead: Use at exposed panel edges.
3. L-Bead: Use where indicated.
4. U-Bead: Use at exposed panel edges.

3.7 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Panels that are substrate for tile.
3. Level 4: At panel surfaces that will be exposed to view, unless otherwise indicated.
4. Primer and its application to surfaces are specified in other Division 9 Sections.

E. Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions.

3.8 APPLYING TEXTURE FINISHES

A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.

B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.

C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture-finish manufacturer's written recommendations.

3.9 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09250

SECTION 09911 – EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following exterior
substrates:

1. Steel.
2. Galvanized metal.
3. Aluminum (not anodized or otherwise coated).
4. Exterior portland cement (stucco).

B. Related Sections include the following:
1. Division 4 Section" Simulated Stone Veneer" for application of water repellant on to simulated stone work.
2. Division *5* Sections for shop priming of metal substrates with primers specified in this Section.
3. Division 8 hollow "Steel Doors and Frames" for factory primed doors coated with specified products of this section.
4. Division 9 Section "Interior Painting" for surface preparation and the application of paint systems on interior substrates.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For each type of topcoat product indicated.

C. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches (200 nirn) square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MIPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

A. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. Preparation and Workmanship: Comply with requirements in "MN Architectural Painting Specification Manual" for products and paint systems indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95deg F (10 and 35 deg C).

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds *85* percent; at temperatures less than *5* deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional I gal. (3.8 L) of each material and color applied.

1.8 SPECIAL SYSTEM WARRANTY

A. Contractor shall provide to the Owner a special manufacturer 7 year paint warranty for the exterior paint system of this project. Warranty shall cover product defect, peeling and color retention for 7 year.

B. Contractor shall submit the paint specification for the exterior paint system to the local paint manufacturer's representative for approval prior to application of paint system.

C. Manufacturer's representative shall make any changes required to the specifications required to achieve warranty.

D. The specified or upgraded exterior paint system must be approved by the Paint Manufacturer representative and a written confirmation of specifications and instructions issued prior to application of system.

E. The contractor shall apply system in strict accordance with manufacturer's instructions and specifications to achieve the special warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: The manufacturer "SHERWIN WILLIAMS COMPANY" is based on the products specified. Subject to compliance with requirements, provide the named product or a comparable product in performance by one of the following manufacturers.

1. Benjamin Moore & Co.
2. Duron, Inc.
3. ICI Paints.
4. PPCI Architectural Finishes, Inc.

2.2 PAINT, GENERAL

A. Material Compatibility:
1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: Match Architect's samples or as indicated on drawings.

2.3 PRIMERS / SEALERS

A. Exterior Alkyd Primer Sealer: MPI #45.
1. VOC Content: B Range of E2.

B. Water repellant sealer
1. Voc Content: <2.09 lb/gl *(<250* g/L) per EPA Method 24.

2.4 METAL PRIMERS

A. Rust Inhibitive Primer (Water Based): MPI # 107.
   1. VOC Content: B Range of E3.
   2. Environmental Performance Rating: EPR 3 L.

B. Quick Drying Enamel MPI # 81 (Used as primer)
   1. VOC Content: E Range of E2

C. Waterborne Galvanized-Metal Primer: MPI #134.
   1. VOC Content: E Range of E3.
   2. Environmental Performance Rating: EPR 3 L.

2.5 EXTERIOR LATEX PAINTS

A. Exterior Acrylic (Satin): MPI #15 (Gloss Level 2).
   1. VOC Content: E Range of E3.

B. Latex Traffic Marking Paints (Flat) MPI # 97 (Gloss Level 1)
   1. VOC Content: E Range of El.

2.6 EXTERIOR ALKYD PAINT

A. Exterior Alkyd (Semi- gloss): MPI #81 (Gloss level 5)
   1. VOC Content E Range of E2.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

   1. Concrete: 12 percent.
   2. Masonry (Clay and CMU): 12 percent.
   3. Stucco: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with finishes and primers.

D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturers written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and re-prime substrate with compatible primers as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

G. Aluminum Substrates: Remove surface oxidation.

H. Stucco Substrates: Do not begin paint application until plaster is fully cured and dry.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance of paint materials with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. Ferrous metals
   1. MPI EXT 5.1 Q; ALKYD (Over Surface-Tolerant Primer) (Gloss/Sheen as Specified):
      a. Prime Coat: Industrial Enamel – B54Seies (MPI # 81)
      b. Topcoat: Industrial Enamel – B54Seies (MPI # 81)

B. Galvanized metal (not chromate passivated)
   1. MPI EXT 5.3A LATEX (Gloss/Sheen as Specified)
      a. Prime Coat: DTM Acrylic Metal primer B66W1 (MPI # 134)
      b. Intermediate coat; Weather Clad 100% Acrylic Satin Latex (MPI #15)
      c. Topcoat: Weather Clad 100% Acrylic Satin Latex (MPI #15)

   2. MPI EXT 5.3B: ALKYD (Gloss/Sheen as Specified)
      a. Prime Coat: Factory Applied Primer
      b. Intermediate Industrial Enamel – B54Seies (MPI # 81)
      c. Topcoat: Industrial Enamel – B54Seies (MPI # 81)

C. Aluminum (not anodized) (Sash, Sills and Frames, Flashing, Down pipes, Etc.) where item not available for factory matched coating.
   1. EXT 5.4H: LATEX (Gloss/Sheen as Specified)
      a. Prime Coat: DTM Acrylic Metal primer B66W1 (MPI # 107)
      b. Topcoat: A100 Exterior Satin A82W510 (MPI# 15)

D. Stucco (Walls and Sofflts) (Manufacture 7 year warranty system)
   1. EXT 9. 1A: LATEX (Gloss/Sheen as Specified)
      a. Prime Coat; Loxon Acrylic Primer A24W300 (MPI #03)
      b. Intermediate Coat: Loxon weatherclad 100% acrylic ext. Flat latex B2WF51(MPI # 10)
      c. Topcoat: Loxon weatherclad 100% acrylic ext. Flat latex B2WF51 (MPI # 10)

E. Exterior Wood (fascia boards and similar)
   1. MPI EXT 6.4K: LATEX (Gloss/Sheen as Specified)
      a. Primer Coat: A-100 Exterior oil wood primer Y24W20 (MPI #05)
      b. Intermediate: A100 Exterior Satin A82W510 (MPI # 15)
      c. Topcoat: A100 Exterior Satin A82W510 (MPI # 15)

END OF SECTION 09911

SECTION 09912 - INTERIOR PAINTING

PART I – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
   1. Concrete masonry units (CMU).
   2. Steel.
   3. Wood.
   4. Gypsum board.

B. Related Sections include the following:

   1. Division 5 Sections for shop priming of metal substrates with primers specified in this Section.
   2. Division 6 Sections for shop priming carpentry with primers specified in this Section.
   3. Division 9 Section “Exterior Painting” for surface preparation and the application of paint systems on exterior substrates.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For each type of topcoat product indicated.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.

   1. Submit Samples on rigid backing, 8 inches (200 mm) square.
   2. Step coats on Samples to show each coat required far system.
   3. Label each coat of each Sample.
   4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

   1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
   2. Printout of current “MPI Approved Products list” for each product category specified in Part 2, with the proposed product highlighted.

E. LEED Submittals: For Credit EQ 4.2. Manufacturer's product data for paints, including printed statement of VOC content and chemical components.

1.4 QUALITY ASSURANCE

A. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. Preparation and Workmanship: Comply with requirements in "MRI Architectural Painting Specification Manual' for products and paints systems indicated.

1.5 DELIVERY, STORAGE. AND HANDLING

A. Store materials not in use in tightly covered containers in well—ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C)

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste mm storage areas daily.

1.6 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35deg C).

B. Do not apply paints when relative humidity exceeds 85 percent: at temperatures less than 5 deg F (3 deg C) above the dew point: or to damp or wet surfaces.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 1 gal. (3.8 L) of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURES

A. Basis-of- Design Product: The manufacturer "Sherwin-Williams Company" is based on the products specified. Subject to compliance with requirements, provide the named product or a comparable product in performance by one of the following manufacturers.

1. Benjamin Moore & Co.
2. Duron. Inc.
3. lCl Paints.
4. PPG Architectural Finishes Inc.

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use with in each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Chemical Components of Field-Applied interior Paints and coatings: provide products that comply with the following limits for VOC contents, exclusive of colorants added to a tint base. when calculated according to 40 CUR 59, Subpart D (EPA Method 24) and the following chemical restrictions: these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop.

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
4. Restricted Components: Paints and coatings shall not contain any of the following:

a. Acrolein.
b. Acrylonitrile.
c. Antimony.
d. Benzene.
e. Butyl benzyl phthalate.
f. Cadmium.
g. Di (2-ethylhexyl) phthalate.
h. Di-n-butyl phthalate.
i. Di-n-octyl phthalate.
j. 1,2-dichlorobenzene.
k. Diethyl phthalate.
l. Dimethyl phthalate.
m. Ethylbenzene.
n. Formaldehyde.
o. Hexavalent chromium.
p. Isophorone.
q. Lead.
r. Mercury.
s. Methyl ethyl ketone.
t. Methyl isobutyl ketone.
u. Methylene chloride.
v. Naphthalene.
w. Toluene (methylbenzene).
x. 1,1,1-trichloroethane.
y. Vinyl chloride.

C. Colors: Match Architect's samples or as indicated on drawings.

2.3 PRIMERS SEALERS

A. Primer Sealer, Latex, Interior): MPI #50.
   1. VOC Content: F Range of E3.
   2. Environmental Performance Rating: EPR *3* L.
   3. MPI Green Performance Standard – GPS-1
   4. MPI Green Performance Standard for Low VOC under 50g/L –GPS-2

2.4 METAL PRIMERS

A. Alkyd Quick Drying Semi- Gloss MPI # 81 (Used as primer)
   1. VOC Content: E Range of E2

2.5 INTERIOR LATFX PAINTS

A. Interior Latex Enamel (egg-shell): MPI #144 (Gloss Level 3).
   1. VOC Content: F Range of E3.
   2. Environmental Performance Rating: EPR *4.5* L.
   3. MPI Green Performance Standard – GPS-1
   4. MPI Green Performance Standard for Low VOC under 50g/L –GPS-2

B. Interior Latex (Flat): MPI #143 (Gloss Level I).
   1. VOC Content: F Range of E3.

C. Environmental Performance Rating: EPR *4* L.

D. MPI Green Performance Standard – GPS-1

E. MPI Green Performance Standard for Low VOC under 50g/L –GPS-2

F. Interior Latex Low VOC (Semi-Gloss): MPI #147 (Gloss Level 5).
   1. VOC Content: F Range of E3.
   2. Environmental Performance Rating: EPR *5.5* L.
   3. MPI Green Performance Standard – GPS-1
   4. MPI Green Performance Standard for Low VOC under 50g/L –GPS-2

2.6 INTERIOR ALKYD PAINT

A. Interior Alkyd Quick dry (Semi- gloss): MPI #81 (Gloss level *5)*
   1. VOC Content P Range of E2.

2.7 INTERIOR FLOOR COATINGS

A. Interior/Exterior Clear Concrete Floor Sealer (Water Based): MPI #99.
   1. VOC Content: P Range of P2.

2.8 STAINS

A. Stains, semi transparent, for wood: MPI #90
   1. VOC Content: E range of E1

2.9 POLYURETHANE

A. Polyurethane, oil modified, Gloss : MPI # 56
   1. VOC Content: E Range E2

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work..

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
   1. Masonry (Clay and CMU): 12 percent.
   2. Wood: 15 percent.
   3. Gypsum Board: 12 percent.

C. Suitability of substrates, including surface conditions and compatibility with finishes and primers.

D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

   1. Beginning coating application constitutes Contractor’s acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturers written instructions and recommendations in “MPI Architectural Painting Specification Manual” applicable to substrates indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

C. Clean substrates of substances that could impair bond of paints, including dirt, oil. grease, and incompatible paints and encapsulates.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in Manufacture's written instructions.

E. Clay Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content of surfaces or alkalinity of mortar joints to be painted exceeds that permitted in manufacturer's written instructions.

F. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturers written instructions.

G. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

1. Aluminum Substrates: Remove surface oxidation.

I. Wood Substrates:
1. Sand surfaces that will be exposed to view, and dust off.
2. Prime edges, ends, faces, undersides, and backsides of wood.
3. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

J. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.
1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as Similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:

1. Mechanical Work:

   a. Uninsulated metal piping.
   b. Uninsulated plastic piping.
   c. Pipe hangers and supports.
   d. Tanks that do not have factory-applied final finishes.
   e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and out lets.
   f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
   g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.

2. Electrical Work:

   a. Switchgear.
   b. Panelboards.
   c. Electrical equipment that is indicated to have a factory-primed finish for field painting.

3.4 FIELD QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply' with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously' painted surfaces if. On repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by' washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, floor sealer: Garage floor

1. Water-Based Clear Sealer System: MPI INT *3.2G*.

    a. First Coat: Chem rex Sonoborn Kure-N-Seal W floor sealer (MPI # 99)
    b. Topcoat: Chem rex Sonobomn Kure-N-Seal W floor sealer (MPI # 99)

B. Steel Substrates:

1. Alkyd System: MPI INT 5.IE (ferrous metals)

    a. Prime Coat: Factory primed coated
    b. Intermediate Coat: Industrial Enamel B54 series (MPI# 81)
    c. Topcoat: Industrial Enamel B54 series (MPI# 81)

C. Gypsum Board Substrates:

1. Latex System: MPI INT 9.2A.

    a. Prime Coat: ProGreen 200 Low VOC Int. primer B28W00600 (MPI #50)
    b. Intermediate Coat: Harmony- interior latex finish egg-shall B09W00951 (MPI # 144)
    c. Topcoat: Pristine: Harmony- interior latex finish egg-shall B09W00951 (MPI # 144)

2. Latex System: MPI INT 9.2A. (General interior)

    a. Prime Coat: ProGreen 200 Low VOC Int. primer B28W00600 (MPI #50)
    b. Intermediate Coat: Harmony- Interior latex finish flat B05W00591 (MPI # 143)
    c. Topcoat: Pristine Harmony- Interior latex finish flat B05W00591 (MPI # 143)

D. Wood doors, frames and trim:

1. Latex System: MPI INT 9.2A.

a. Prime Coat: ProGreen 200 Low VOC Int. primer B28W00600 (MPI #50)
b. Intermediate Coat: Harmony- Interior latex finish Semi-Gloss B10W00591 (MPI # 147)
c. Topcoat: Pristine Harmony- Interior latex finish flat B05W00591 (MPI # 147)

E. Wood railing and trim:

1. Varnish System: MPI INT 6.4V

a. Stain base coat: Wood Classic, Oil stain low VOC A49V200 (MPI #90)
b. Intermediate coat: Wood Classic, polyurethane varnish A67V1 (MPI # 56)
c. Topcoat: Wood Classic, polyurethane varnish A67V1 (MPI # 56)

END OF SECTION 09912