

LAKESIDE CROSSING

110 South Orlando Avenue
Winter Park, Florida 32789

PROJECT MANUAL



PERMIT RESUBMITTAL #1

July 30, 2015

Owner

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Architect

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Structural Engineer

TLC Engineering for Architecture

MEP and FP Engineer

Ingenuity Engineers

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ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

- A. Aluminum-framed storefront, with vision glass.
- B. Aluminum doors and frames.
- C. Weatherstripping.
- D. Aluminum sunscreens included as part of aluminum-framed storefront system.
- E. Perimeter sealant.

1.03 RELATED REQUIREMENTS

- A. Section 072700 - Air Barriers: Perimeter air barrier seal between glazing system and adjacent construction.
- B. Section 079005 - Joint Sealers: Perimeter sealant and back-up materials.
- C. Section 087100 - Door Hardware: Hardware items other than specified in this section.
- D. Section 088000 - Glazing: Glass and glazing accessories.

1.04 REFERENCE STANDARDS

- A. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; American Architectural Manufacturers Association; 2012.
- B. AAMA 501.2 - Field Check of Metal Storefronts, Curtain Walls, and Sloped Glazing Systems for Water Leakage; American Architectural Manufacturers Association; 2009 (part of AAMA 501).
- C. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; American Architectural Manufacturers Association; 2009.
- D. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2010.
- E. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers; 2011.
- F. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2008.
- G. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2012.
- H. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2010.
- I. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2010.
- J. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2012.
- K. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2012.
- L. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).

- M. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2002 (Reapproved 2010).
- N. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2009).
- O. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.05 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate with installation of other components that comprise the exterior enclosure, anchorage to supporting construction, and door hardware installation. Furnish setting drawings, templates and installation instructions for installing inserts, anchorages, and like item in supporting construction. Obtain templates, template reference number and/or physical hardware from door hardware supplier in order to prepare the doors and frames to receive the finish hardware items.
- B. Pre-Installation Meeting: Conduct a pre-installation meeting at Project site before starting work of this section to review conditions associated installation of storefront system. Meeting shall include, at minimum, agenda items specified in this paragraph. Participants shall include, qualified technical representative of storefront manufacturer, Quality Control Service, installer of work under this section, and installers of related work including but not limited to air barrier membrane, portland cement stucco system and rainscreen system. Record discussions of meeting and furnish a copy of record to each participant.
 - 1. Work schedule.
 - 2. Warranty provisions and requirements.
 - 3. Required quality assurance and quality control procedures, testing and inspections.
 - 4. Code considerations.
 - 5. Review preparation and installation procedures, and coordinating and scheduling required with related work.
 - 6. Review flashing details, details where storefront connect with other components of exterior enclosure system, and any special and unique details and conditions.
 - 7. Support structure conditions, including loading limitations.
 - 8. Temporary conditions, and procedures for coping with inclement weather.
 - 9. Protection of complete work.

1.06 SUBMITTALS

- A. General: See Section 013300 - Submittal Procedures, for submittal procedures.
- B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, internal drainage details, flashing and sealants.
- C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required. Provide details showing connection to other components of exterior enclosure system, ensuring continuity of thermal and air and water barrier systems.
- D. Design Data: Provide framing member structural and physical characteristics, engineering calculations, dimensional limitations.
- E. Delegated Design Submittal: Submit for aluminum-framed storefront system and associated sunscreens:
 - 1. Certification: Shop drawings shall be signed and stamped by Professional Structural Engineer.
 - 2. Calculations: Submit signed and stamped structural calculations for the work. Submittal will be for information only.
- F. Energy Performance: Submit NFRC certified energy performance values for each type aluminum framed storefront system.

- G. Hurricane Resistant System Approval: Within the State of Florida, provide copy of current State of Florida Product Approval or Metro-Dade County Notice of Acceptance (NOA) as proof of compliance that storefront system has been tested and approved for use at the wind load and design pressure level requirements specified for the Project.
- H. Samples - Verification: Submit manufacturer standard sample of each type finish required.
- I. Samples - Fabrication: Submit samples 12 x 12 inches in size illustrating finished aluminum surface, glass, glazing materials, joinery, anchorage and expansion provisions.
- J. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.
- K. Test Reports: Report of field testing for water leakage.
- L. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.07 QUALITY ASSURANCE

- A. Single Responsibility: Work shall be performed by single installer having sole responsibility for providing complete work, including components, performance, quality and appearance of the work.
- B. Source Limitations: Obtain primary aluminum framed storefront system components from a single manufacturer. Secondary materials for storefront system shall be as approved or recommended by storefront manufacturer, and when required, furnished by storefront manufacturer.
- C. Designer Qualifications: Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed at Project Site.
- D. Manufacturer Qualifications: One of manufacturers listed in Part 2 of this section.
- E. Installer Qualifications: Installer shall specialize in performing work of this section and have 5 years minimum documented experience in designing, detailing and installing products specified in this section. Provide proof of qualifications.
- F. Mock-Up: Provide a mock-up for evaluation of fabrication workmanship.
 - 1. Locate where directed by Architect.
 - 2. Provide panels finished as specified.
 - 3. Mock-up may remain as part of the Work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Handle products of this section in accordance with AAMA CW-10.
- B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.09 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.10 WARRANTY

- A. General: See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. Special Warranty: Correct defective Work within a five year period after Date of Substantial Completion, for failures including, but not limited to following:
 - 1. Structural failure, including but not limited to excessive deflection.
 - 2. Noise or vibration created by wind, thermal and structural movements.
 - 3. Deterioration of metals and finishes not due to normal weathering.
 - 4. Water penetration and air infiltration in excess of specified performance.
 - 5. Failure of operating components.

- C. Special Finish Warranty: Provide 20 year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units as follows:
1. Color Fading: More than 5 hunter units when tested in compliance with ASTM D2244.
 2. Chalking: In excess of No. 8 rating when tested in compliance with ASTM D4214.
 3. Any cracking, checking, peeling, or paint adhesion failure to bare metal.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Storefront System:

1. **Kawneer North America; Trifab VersaGlaze 451T Framing System:**
www.kawneer.com.

B. Other Acceptable Manufacturers:

1. EFCO Corporation; Product: www.efcocorp.com.
2. Coral Architectural Products.
3. YKK AP America Inc.: www.ykkap.com.
4. Kawneer North America: www.kawneer.com.
5. Oldcastle BuildingEnvelope: www.oldcastlebe.com.

2.02 STOREFRONT

- A. Design Basis: Information included on drawings and in specifications establishes a basis of aesthetics and performance for aluminum-framed storefront system, and is indicated by dimensions, arrangements, alignment, orientation, and profiles related to sightlines, components within the system itself and adjacent construction. Aesthetic effect or appearance shall not be changed without prior acceptance of Architect. If changes are desired, submit complete set of drawings, data and written explanation for proposed changes.
- B. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with glazing infill, and related flashings, anchorage and attachment devices.
1. Construction: Thermally broken.
 2. Finish: High performance organic coating finish.
 3. Finish Color: As specified in Article - Finishes of this Section.
- C. Performance Requirements:
1. Delegated Design: Engage a Professional Structural Engineer to design aluminum framed storefronts and associated sunscreens.
 2. General Performance: Aluminum-framed storefront shall withstand movements from structure including but not limited to story drift, twist, column shortening, long-term creep, and deflection from both uniformly distributed and concentrated live loads, without experiencing transfer of thermal stress to building structure, glass breakage, noise and vibration, loosening and weakening of anchorage, fasteners, and like attachments, and failure of operating units.
 3. Structural Performance: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
 - a. Design Wind Loads: As indicated on drawings, complying with requirements of codes and regulations of authorities having jurisdiction.
 - b. Member Deflection:
 - 1) Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans greater than 13 feet 6 inches, or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
 - 2) Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components to less than 1/8 inch.

- 3) Operable Units: Provide a minimum 1/16-inch clearance between framing members and operable units.
4. Hurricane Resistance: Provide aluminum-framed storefront systems as complete and tested assemblies, or component assemblies, including approved hardware specified under Section 087100 - Door Hardware, to meet the wind loads, design pressures, debris impact resistance, and glass and glazing requirements as detailed in the current State of Florida building code sections applicable to the Project.
 - a. Windborne Debris Impact Resistance: Storefront system shall have passed missile impact and cyclic pressure testing in compliance with ASTM E1886 and ASTM E1996 for applicable wind zone.
 - b. Large Missile Test: Pass, for glazed openings located within 30 feet of grade.
5. Thermal Movement:
 - a. Thermal Movement: Accommodate thermal movements due to changes in ambient temperatures of 120 F and surface temperatures of 180 F respectively, without buckling, opening of joints and failure of joint seals and gaskets, overstressing of components and supporting elements, connection failure, structural failure and any other detrimental effect to the system, its components, and supporting structure.
 - b. Thermal Cycling: Storefront system and its components shall experience no buckling, stress on glass, failure of sealants and gasket systems, or overstressing of storefront framing, anchorage, fasteners; with no impact on performance when tested in compliance with AAMA 501.5.
6. Air Infiltration:
 - a. Fixed Areas: Limit air infiltration through assembly to 0.06 cu ft/min/sq ft of wall area, measured at differential pressure of 6.24 lbf/sq. ft. across assembly in accordance with ASTM E283.
 - b. Doors: Limit air infiltration to 1.0 cfm/sq. ft. measured at a differential pressure of 1.57 lbf/sq. ft for pairs of doors, and to 0.5 cfm/sq. ft. measured at a differential pressure of 1.57 lbf/sq. ft for single doors.
7. Thermal Transmittance: Storefront assembly shall have thermal transmittance values meeting codes and regulations of authorities having jurisdiction over the work, but not less than requirements of ASHRAE 90.1, AAMA 1503 and NFRC 102 based on location of the work, whichever is more stringent.
8. Condensation Resistance: Storefront system work shall not have condensation form on indoor surfaces at specified outdoor and indoor ambient temperatures and relative humidity conditions with building heating, ventilating and air conditioning system in normal operation when measured in accordance with AAMA 1503.
9. Water Leakage: None, when measured in accordance with ASTM E331 at static pressure differential of 20 percent of positive wind load design pressure, but not less than 12 lbf/sq. ft.
10. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.

2.03 COMPONENTS

- A. Aluminum Framing Members: Field fabricated stick-built system, with tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.
 1. Glazing System: Mechanically retained glazing system, gasketed on all sides.
 2. Cross-Section: As indicated on drawings.
 3. Structurally Reinforced Members: Extruded aluminum with internal reinforcement of galvanized structural steel member.
- B. Swing Doors: Glazed aluminum.
 1. **Basis-of-Design:**
 - a. **Kawneer North America; AA 250 Thermal Entrance: www.kawneer.com.**

2. Thickness: 2-1/4 inches.
 3. Rail and Stiles: **Narrow Medium** stile; **2-1/2 inch site line**~~3-1/2 inch nominal width~~, unless otherwise indicated on drawings.
 4. Glazing Stops and Gaskets: Square, snap-on extruded aluminum stops and preformed gaskets, unless otherwise indicated. Stops on outside of door shall be non-removable.
 5. Finish: Same as storefront.
- C. Sun Screens: Shop fabricated, shop finished, extruded aluminum outriggers, louvers, and fascia, free of defects impairing strength, durability or appearance.
1. Configuration: As indicated on drawings.
 2. Louver Type: As indicated on drawings.
 3. Outrigger Shape: As indicated on drawings.
 4. Design Criteria: Design and fabricate to resist the same loads as storefront system as well as the following loads without failure, damage, or permanent deflection:
 - a. Live: As indicated on drawings.
 - b. Thermal Movement: Plus/minus 1/8 inch, maximum.
 5. Sizes: As indicated on drawings.
 6. Fabrication: Shop fabricate to the greatest extent possible; disassemble if necessary for shipping.

2.04 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Sheet Aluminum: ASTM B209 (ASTM B209M).
- C. Structural Steel Sections: ASTM A36/A36M; galvanized in accordance with requirements of ASTM A123/A123M.
- D. Anchors: Standard galvanized anchors of manufacturer, hot-dip zinc coated in compliance with ASTM A123 or ASTM A153, as applicable, adjustable to accommodate fabrication and installation tolerances, and compatible with adjacent materials.
- E. Fasteners: Standard corrosion resistant, non-staining, non-bleeding fasteners of manufacturer that are compatible with adjacent materials. Fasteners shall be self-locking when subject to loosening from movement and vibration. Exposed fasteners shall be countersunk and finished to match adjacent finish surfaces.
- F. Exposed Flashings: 0.032 inch thick aluminum sheet; finish to match framing members.
- G. Concealed Flashings: 0.018 inch thick stainless steel, or manufacturer standard corrosion resistant, non-staining, non-bleeding flashing compatible with adjacent materials.
- H. Perimeter Sealant: As specified in Section 079005.
- I. Glass: Insulated, laminated hurricane impact-resistant glazing units as specified in Section 088000.
- J. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.
- K. Glazing Accessories: As specified in Section 088000.
- L. Bituminous Coating: SSPC-Paint 12, cold applied asphaltic mastic paint.
- M. Touch-Up Primer for Galvanized Steel Surfaces: SSPC-Paint 20, zinc rich.

2.05 FINISHES

- A. High Performance Organic Finish: AAMA 2604; multiple coats, thermally cured fluoropolymer system.
- B. Color: Match Architect sample.
- C. Touch-Up Materials: As recommended by coating manufacturer for field application.

2.06 HARDWARE

- A. Other Door Hardware: As specified in Section 087100.

- B. Weatherstripping: Wool pile, continuous and replaceable; provide on all exterior doors.
- C. Sill Sweep Strips: Resilient seal type, of neoprene; provide on all exterior doors.

2.07 FABRICATION

- A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- B. Accurately fit and secure joints and corners. Make joints sharp, flush, hairline, and weatherproof.
- C. Conceal fasteners to greatest extent possible. Exposed fasteners shall be equally spaced, countersunk and finished to match adjacent finished surfaces.
- D. Only weld in concealed locations to greatest extent possible, removing any weld splatter and oxides from exposed surfaces.
- E. Prepare components to receive anchor devices. Fabricate anchors.
- F. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint or other type separator acceptable to manufacturer.
- G. Arrange fasteners and attachments to conceal from view.
- H. Reinforce components internally for door hardware.
 - 1. Factory install door hardware to greatest extent possible, cutting, drilling and tapping prior to application of finish system.
 - 2. Provide sweep type weather stripping applied to door bottoms of all exterior doors.
 - 3. Provide sliding, adjustable type weather stripping, mortised into door edge, between edges of doors.
- I. Reinforce framing members for imposed loads.
- J. Finishing: Apply factory finish to all surfaces that will be exposed in completed assemblies.
 - 1. Touch-up surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify dimensions, tolerances, and method of attachment with other work.
- B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Commencement of installation indicates acceptance of conditions.

3.02 INSTALLATION

- A. Install wall system in accordance with manufacturer's instructions.
- B. Protect against galvanic action and corrosion by separating dissimilar metals from each other and separating metals from pressure-treated wood, cementitious materials and like corrosive substances. Coat with bituminous coatings or other type separator acceptable to manufacturer to prevent corrosion.
- C. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- D. Provide alignment attachments and shims to permanently fasten system to building structure.
- E. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- F. Provide thermal isolation where components penetrate or disrupt building insulation.
- G. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.
- H. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.

- I. Coordinate attachment and seal of perimeter air barrier materials.
- J. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- K. Set thresholds in bed of mastic and secure.
- L. Install glass in accordance with Section 088000, using glazing method required to achieve performance criteria.
- M. Install perimeter sealant in accordance with Section 079005.
- N. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

- A. Maximum Variation from Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
- B. Maximum Variation from Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
- C. Maximum Location Variation: 1/8 inch in 12 feet; 1/2 inch over total length.
- D. Maximum Misalignment:
 - 1. Members Abutting in Plane or Separated by Maximum 1/2 Inch Wide Reveal or Protruding Element: 1/16 inch.
 - 2. Members Separated by Maximum 1/2 Inch to 1 Inch Wide Reveal or Protruding Element: 1/8 inch.
 - 3. Members Separated by Minimum 1 Inch Wide Reveal or Protruding Element: 1/4 inch.

3.04 FIELD QUALITY CONTROL

- A. General: See Section 014000 - Quality Requirements, for independent testing and inspection requirements. Inspection will monitor quality of installation and glazing.
- B. Testing and Inspections: Owner will engage qualified testing agency to perform tests and inspections.
- C. Hose Test: Test installed storefront for water leakage in accordance with AAMA 501.2. Perform a minimum of 2 tests in area as directed by Architect.
- D. Defective Work: Any work found to be defective as result of testing and inspections shall be repaired, and/or removed and replaced with new materials at no addition to Contract Sum. Retest and reinspect to ensure replaced and repaired work meets specified requirements, at no addition to Contract Sum.

3.05 ADJUSTING

- A. Adjust operating hardware for smooth operation.

3.06 CLEANING

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- C. Remove excess sealant by method acceptable to sealant manufacturer.

3.07 PROTECTION

- A. Protect installed products from damage during subsequent construction.
- B. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

END OF SECTION

**DOOR HARDWARE
SECTION 087100**

PART I - GENERAL

1.01 WORK INCLUDED

- A. The work in this section shall include furnishing of all items of finish hardware as hereinafter specified or obviously necessary to complete the building, except those items that are specifically excluded from this section of the specification.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Hollow Metal Doors and Frames
- B. Aluminum Doors and Frames
- C. Wood Doors and Frames

1.03 DESCRIPTION OF WORK

- A. Furnish labor and material to complete hardware work indicated, as specified herein, or as may be required by actual conditions at building.
- B. Include all necessary screws, bolts, expansion shields, other devices, if necessary, as required for proper hardware application. The hardware supplier shall assume all responsibility for correct quantities.
- C. All hardware shall meet the requirements of Federal, State and Local codes having jurisdiction over this project, notwithstanding any real or apparent conflict therewith in these specifications.
- D. Fire-Rated Openings:
 - 1. Provide hardware for fire-rated openings in compliance with A.I.A. (NBFU) Pamphlet No. 80, NFPA Standards NO. 101, UBC 702 and UL10C. This requirement takes precedence over other requirements for such hardware. Provide only hardware that has been tested and listed by UL for the types and sizes of doors required, and complies with the requirements of the door and door frame labels.
 - 2. Where panic exit devices are required on fire-rated doors, provide supplementary marking on door UL label indicating Fire Door to be equipped with fire exit hardware and provide UL label on exit device indicating "Fire Exit Hardware".
- E. Fasteners:
 - 1. Hardware as furnished shall conform to published templates generally prepared for machine screw installation.
 - 2. Furnish each item complete with all screws required for installation. Typically, all exposed screws installation.
 - 3. Insofar as practical, furnished concealed type fasteners for hardware units which have exposed screws shall be furnished with Phillips flat heads screws, finished to match adjacent hardware.
 - 4. Door closers and exit devices to be installed on wood or composite fire doors shall be attached with closed head through bolts (sex bolts).
- F. Florida Building Code (Latest edition)
 - 1. Provide Miami-Dade Notice of Authorization (NOA) if required by authority having jurisdiction require.
 - 2. Engineering Reports that opening meet requirement for wind load, water infiltration and impact as required in FBC

1.04 QUALITY ASSURANCE

- A. The supplier to be a directly franchised distributor of the products to be furnished and have in their employ an AHC (Architectural Hardware Consultant). This person is to be available for consultation to the architect, owner and the general contractor at reasonable times during the course of work.
- B. The finish hardware supplier shall prepare and submit to the architect six (6) copies of a complete schedule identifying each door and each set number, following the numbering system and not creating any separate system himself. He shall submit the schedule for review, make corrections as directed and resubmit the corrected schedule for final approval. Approval of schedule will not relieve Contractor of the responsibility for furnishing all necessary hardware, including the responsibility for furnishing correct quantities.
- C. No manufacturing orders shall be placed until detailed schedule has been submitted to the architect and written approval received.
- D. After hardware schedule has been approved, furnish templates required by manufacturing contractors for making proper provisions in their work for accurate fitting, finishing hardware setting. Furnish templates in ample time to facilitate progress of work.
- E. Hardware supplier shall have an office and warehouse facilities to accommodate the materials used on this project. The supplier must be an authorized distributor of the products specified.
- F. The hardware manufactures are to supply both a pre-installation class as well as a post-installation walk-thru. This is to insure proper installation and provide for any adjustments or replacements of hardware as required.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Wrap, protect finishing hardware items for shipment. Deliver to manufacturing contractors hardware items required by them for their application; deliver balance of hardware to job; store in designated location. Each item shall be clearly marked with its intended location.

1.06 WARRANTY

- A. The material furnished shall be warranted for one year after installation or longer as the individual manufacturer's warranty permits.
- B. Overhead door closers shall be warranted in writing, by the manufacturer, against failure due to defective materials and workmanship for a period of ten (10) years commencing on the Date of Final Completion and Acceptance, and in the event of failure, the manufacture is to promptly repair or replace the defective with no additional cost to the Owner.

PART 2 - PRODUCTS**2.01 ACCEPTABLE MANUFACTURERS**

- A. To the greatest extent possible, obtain each kind of hardware from one manufacturer only.
- B. All numbers and symbols used herein have been taken from the current catalogues of the following manufacturers.

PRODUCT	ACCEPTABLE MANUFACTURER	ACCEPTABLE SUBSTITUTE
1) Hinges	Ives	Hager, Stanley
2) Locks & Latches	Schlage Lock	Falcon Lock
3) Cylinders, Keys, Keying	Schlage Lock	Falcon Lock
4) Exit Devices	Von Duprin	Falcon
5) Door Closers	LCN	Falcon Closers
6) OH Stops/holders	Glynn Johnson	Rixson
7) Wall Stops/Floor Stops, Flushbolts	Ives	Rockwood, Hager
8) Kick Plates	Ives	Rockwood, Hager
9) Threshold/ Weather-strip	Zero	National Guard, Pemko
10) Silencers	Ives	Rockwood, Hager
11) Key Cabinet	Lund	Key Control

- C. If material manufactured by other than that specified or listed herewith as an equal, is to be bid upon, permission must be requested from the architect seven (7) days prior to bidding. If substitution is allowed, it will be so noted by addendum.

2.02 FINISH OF HARDWARE

- A. Exterior Hinges to be Stainless Steel (32D) and Interior hinges to be Satin Chrome (26D) Door Closers to be Aluminum, Locks to be Satin Chrome (26D). Exit Devices to be Satin Chrome (26D). Overhead Holders to be Satin Chrome (26D), Stainless Steel (32D) and the Thresholds to be Mill Finish Aluminum.

2.03 HINGES AND PIVOTS

- A. Exterior butts shall be Stainless Steel. Butts on all out swinging doors shall be furnished with non-removable pins (NRP).
 B. Interior butts shall be as listed.
 C. Doors 5' or less in height shall have two (2) butts. Furnish one (1) additional butt for each 2'6" in height or fraction thereof. Dutch door shall have two (2) butts per leaf.

2.04 KEYING

- A. Locks and cylinders shall be Schlage Lock Company. All bittings shall be issued by lock manufacturer in order to create a grand master key system.
 B. Locks and cylinders to be construction master keyed in a manner that does not require the cylinders to be removed.
 C. Provide Two (2) each change keys per lock and Six (6) each construction master keys.

2.05 LOCKSETS

- A. Locksets shall be Heavy Duty Mortise type, unless specified otherwise, in "L" and "AL" series, lever design as manufactured by Schlage Lock.

1. Acceptable substitutions:

- A. Falcon Lock Company MA and B series

2.06 EXIT DEVICES

- A. All devices shall be Von Duprin 98 Series in types and functions specified. All devices must be listed under "Panic Hardware" in accident equipment list of Underwriters Laboratories. All labeled doors with "Fire Exit Hardware" must have labels attached and be in strict accordance with Underwriters Laboratories.
- B. All exit devices shall be tested to ANSI/BHMA A156.3 test requirements by a BHMA certified testing laboratory.
- C. All surface strikes shall be roller type and come complete with a plate underneath to prevent movement. And shall be provided with a dead-latching feature to prevent latchbolt tampering.
 - 1. Acceptable Substitutions:
 - A. Falcon 25 Series

2.07 DOOR CLOSERS

- A. All closers shall be LCN 4000 series with slim cover having non-ferrous covers, steel arms separate valves for adjusting backcheck, closing and latching cycles and adjustable spring to provide up to 50% increase in spring power. Closers shall be furnished with parallel arm mounted on all doors opening into corridors or other public spaces and shall be mounted to permit 180 degrees door swing wherever wall conditions permit. Furnish with non-hold open arms unless otherwise indicated.
- B. Door closer cylinders shall be of high strength cast construction to provide low wear operating capabilities of internal parts throughout the life of the installation. All door closers shall be tested to ANSI/BHMA A156.4 test requirements by a BHMA certified testing laboratory.
- C. Door closers shall utilize temperature stable fluid capable of withstanding temperature ranges of 120 degrees Fahrenheit to -30 degrees Fahrenheit, without requiring seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with the standards UBC 7-2 (1997) and UL 10C.
- D. Door closers shall incorporate tamper resistant non-critical screw valves of V-slot design to reduce possible clogging from particles within the closer. Closers shall have separate and independent screw valve adjustments for latch speed, general speed, and hydraulic backcheck. Backcheck shall be properly located so as to effectively slow the swing of the door at a minimum of 10 degrees in advance of the dead stop location to protect the door frame and hardware from damage. Pressure relief valves (PRV) are not acceptable.
 - 1. Acceptable Substitutions:
 - A. Falcon SC70 and SC 60 with cover

2.08 TRIM AND PLATES

- A. Kick plates, mop plates, and armor plates, shall be .050 gauge with 32D finish. Kick plates to be 10" high, mop plates to be 4" high. All plates shall be two (2) inches less full width of door.
- B. Push plates, pull plates, door pulls, and miscellaneous door trim shall be shown in the hardware schedule.

2.09 DOOR STOPS

- A. Door stops shall be furnished for all door to prevent damage to doors or hardware from striking adjacent walls or fixtures. Wall bumpers equal to Ives WS407 Series are preferred, but where not practical furnish floor stops equal to Ives FS436 or FS438 series. Where conditions prohibit the use of either wall or floor type stops, furnish surface mounted overhead stops equal to Glynn Johnson, 450 Series.

2.10 THRESHOLDS AND WEATHERSTRIP

- A. Thresholds and weatherstrip shall be as listed in the hardware schedule.

2.11 DOOR SILENCERS

- A. Furnish rubber door silencers equal to Ives SR64 for all new interior hollow metal frames, (2) per pair and (3) per single door frame.

PART 3 - EXECUTION**3.01 INSTALLATION**

- A. All hardware shall be applied and installed in accordance with the Finish Hardware schedule. Care shall be exercised not to mar or damage adjacent work.
- B. Contractor to provide a secure lock-up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items that are not immediately replaceable, so that the completion of the work will not be delayed by hardware losses both before and after installation.
- C. No hardware is to be installed until the hardware manufactures have provided a pre-installation class. This is to insure proper installation of the specified products.

3.02 ADJUSTING AND CLEANING

- A. Contractor shall adjust all hardware in strict compliance with manufacturer's instructions. Prior to turning project to owner, contractor shall clean and make any final adjustments to the finish hardware.

3.03 PROTECTION

- A. Contractor shall protect hardware as it is stored on construction site in a covered and dry place.
- B. Contractor shall protect exposed hardware installed on doors during the construction phase.

3.04 KEY CABINET

- A. Set up and index one (1) Key Cabinet that allows room for expansion for 150% of the number of keys for the project.

3.05 HARDWARE SCHEDULE

- A. The following schedule is furnished for whatever assistance it may afford the contractor; do not consider it as entirely inclusive. Should any particular door or item be omitted in any scheduled hardware group, provide door or item with hardware same as required for similar purposes. Quantities listed are for each pair of doors; or for each single door.

Hardware Group No. 01

For use on mark/door #(s):

A100	A103	A106	A109	A112	A115
A121	A125	B100	B102		

Provide each PR door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	CONT. HINGE	224HD	628	IVE
1	EA	DEADLOCK	MS1850 X 4015 X 4016 X 4590	689	ADA
1	EA	MORTISE CYLINDER	20-061-ICX	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
2	SET	PUSH/PULL BAR	9190-10"-STD	630	IVE
2	EA	OH STOP	100S	630	GLY
2	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	THRESHOLD	65A MSLA-10	AL	ZER

Hardware Group No. 02

For use on mark/door #(s):

A101	A104	A107	A110	A113	A116
A122	A123	B103	B104		

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY LOCK	AL40S JUP	626	SCH
1	EA	SURFACE CLOSER	1461	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B4E	630	IVE
1	EA	WALL STOP	WS406CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 03

For use on mark/door #(s):

A102	A105	A108	A111	A114	A117
A119	A124	A126	B101	B105	B107

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	CONT. HINGE	224HD	628	IVE
1	EA	PANIC HARDWARE	HH-98-NL-990	626	VON
1	EA	RIM CYLINDER	20-057-ICX	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
1	EA	LOCK GUARD	LG1	630	IVE
1	EA	SURFACE CLOSER	4040XP CUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B4E	630	IVE
1	EA	RAIN DRIP	142A	AL	ZER
1	SET	SEALS	188S	BLK	ZER
1	EA	THRESHOLD	65A MSLA-10	AL	ZER

Hardware Group No. 04

For use on mark/door #(s):

A128

Provide each PR door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	CONT. HINGE	224HD	628	IVE
2	EA	SURFACE BOLT	SB360 12" T	604	IVE
1	EA	STOREROOM LOCK	L9080T M51A	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
1	EA	LOCK GUARD	LG1	630	IVE
2	EA	SURFACE CLOSER	4040XP CUSH	689	LCN
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B4E	630	IVE
1	EA	RAIN DRIP	142A	AL	ZER
1	SET	SEALS	188S	BLK	ZER
1	EA	THRESHOLD	65A MSLA-10	AL	ZER

Metal Z-Astragal by Metal Door Supplier

Hardware Group No. 05

For use on mark/door #(s):

A127 B106

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	CONT. HINGE	224HD	628	IVE
1	EA	STOREROOM LOCK	L9080T 851A M51A	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
1	EA	SURFACE CLOSER	4011	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B4E	630	IVE
1	EA	RAIN DRIP	142A	AL	ZER
1	SET	SEALS	188S	BLK	ZER
1	EA	THRESHOLD	65A MSLA-10	AL	ZER

Hardware Group No. 06

For use on mark/door #(s):

A118 A120 B109

Provide each PR door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	CONT. HINGE	224HD	628	IVE
1	EA	PANIC HARDWARE	HH-3547A-EO-338	626	VON
1	EA	PANIC HARDWARE	HH-3547A-NL-OP-388-338	626	VON
1	EA	RIM CYLINDER	20-057-ICX	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
2	EA	90 DEG OFFSET PULL	8190HD 10" O	630	IVE
2	EA	OH STOP	100S	630	GLY
2	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	THRESHOLD	65A MSLA-10	AL	ZER

Hardware Group No. 07

For use on mark/door #(s):

B108

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	CONT. HINGE	224HD	628	IVE
1	EA	PANIC HARDWARE	HH-35A-NL-OP-388	626	VON
1	EA	RIM CYLINDER	20-057-ICX	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
1	EA	90 DEG OFFSET PULL	8190HD 10" O	630	IVE
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	THRESHOLD	65A MSLA-10	AL	ZER