

SECTION 08 43 13

ALUMINUM STOREFRONT, DOORS, AND EXTERIOR FIXED UNITS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Aluminum Storefront System, Aluminum doors, accessories.
- B. Anchors, brackets, brake metal, and attachments.
- C. Door hardware.

1.2 RELATED SECTIONS

- A. Section 07 92 00 - Joint Sealers: Perimeter sealant.
- B. Section 08 71 00 - Finish Hardware: Cylinders.
- C. Section 08 81 00 - Glazing.
- D. Division 26 - Electrical Requirements

1.3 REFERENCES

- A. ANSI/ASTM E283 - Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors.
- B. ANSI/ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- C. FS TT-P-31-Paint, Oil: Iron Oxide, Ready Mixed, Red and Brown.
- D. FS-TT-P-641 - Primer Coating; Zinc Dust-Zinc Oxide (for Galvanized Surfaces).
- E. Comply with State of Arkansas Adopted ADA Accessible Guidelines in regard to accessible or handicapped features.

1.4 SUBMITTALS

- A. Submit through Construction Manager to Architect.
- B. Product Data: Submit manufacturer's installation instructions.

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- C. Shop Drawings: Include system and component dimensions; components within assembly; framed opening requirements and tolerances; anchorage and fasteners; glass; door hardware requirements; and affected related work.

1.5 PERFORMANCE

- A. Each type of window system shall be designed and engineered by the manufacturer to meet or exceed the wind load criteria for the applicable building code with jurisdiction, based on the size, shape, performance and location of each window unit. Manufacturer shall provide all internal stiffeners, blocking, attachments, etc., as may be required to provide a complete system.
- B. Design Wind Loads:
 - 1. Ultimate Design Wind Speed: 115 MPH
 - 2. Nominal Design Wind Speed: 89.1 MPH
 - 3. Exposure Category: C
 - 4. Internal Pressure Coefficient: +/- 0.18

1.6 QUALITY ASSURANCE

- A. Manufacturer of aluminum storefront system shall have minimum of Ten (10) years experience in the manufacturing and installation of the system. Any substitutions shall follow requirements of Specification Section 01 60 00.
- B. Installer Qualifications: The installer shall have successful experience with installation of the same or similar units required for this project and other projects of similar size and scope for a minimum of ten (10) years.
- C. Source Limitations: Obtain aluminum framed storefront systems through one source from a single manufacturer, as well as other framing systems involved in complete building framing package.

1.7 WARRANTY

- A. Aluminum storefront system: manufacturer's two (2) year warranty.
- B. Aluminum entrances: Manufacturer's two (2) year warranty from date of substantial completion. In addition, welded door corner construction shall be supported with a Limited Lifetime Construction Warranty for the life of the door.
- C. Aluminum Storefront Installer's Warranty: Installer shall provide a five (5) year warranty covering air and water leakage, system failure. Installer will provide signed copy of installer's warranty found at the end of this specification section.

1.8 DOOR HARDWARE/KEYING MEETING

- A. Prior to ordering of hardware items, Contractor shall arrange meeting between, hardware supplier, Owner, and Architect to review and verify door hardware submittals and keying suggestions. This review meeting shall be considered as the submittal review. Any changes shall be incorporated in the hardware submittals and then resubmitted to Contractor and Architect as **record copy**. Contractor to notify all parties one (1) week prior to meeting date.

1.9 PRE-INSTALLATION CONFERENCE

- A. Prior to aluminum storefront installation, Contractor will schedule pre-installation conference to review aluminum storefront system(s) and installation procedures. Required attendance shall include Contractor, aluminum storefront supplier and installer, Installer's foreman, aluminum storefront manufacturer's representative, and Architect. Owner may also attend if he desires. Contractor shall conduct conference in collaboration with manufacturer's representative.
- B. An actual mockup of a typical aluminum storefront installation shall be performed on site by installer immediately following the conference to assure proper installation methods and procedures are followed.

1.10 MANUFACTURER SITE VISITS

- A. Contractor will schedule periodic site visits with to aluminum storefront manufacturer's representative during installation to assure correct installation procedures are being followed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Kawneer Company, Inc.
- B. Tubelite
- C. YKK
- D. OldCastle Building Envelope
- E. EFCO

2.2 EXTERIOR ALUMINUM STOREFRONT SYSTEM

- A. Framing: Shall be extruded aluminum flush glazed framing system Tri-Fab 451T451 "Center-Plane" with Kawneer "IsoLock" thermal break with a 1/4" separation consisting of a two-part chemically curing, high density polyurethane, which is mechanically and adhesively joined to aluminum storefront sections or similar systems by other named manufacturers.

1. Thermal break shall be designed in accordance with AAMA TIR-A8 and tested in accordance with AAMA 505.
- B. Doors: Shall be wide stile in sizes as indicated on drawings. Model 500 as manufactured by Kawneer or similar by other named manufacturers.
 1. Top Rail: 5" (verify closure does not hang past bottom of top rail, increase rail height as needed to fully conceal closer body)
 2. Mid Rail: 6-1/2"
 3. Bottom Rail: 10"
 4. Vertical Stiles: 5"
 5. Provide manufacturer's standard 1 3/4" thick glazed doors with 0.0125 Inch thick extruded tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deep penetration and filet welded at all 4 corners of door with lifetime warranty.
- C. Finishes: Frame #1 shall be class I Anodized Aluminum (clear).
- D. Provide water deflector and high performance thermally broken "high performance" sill supplied by manufacturer. Provide bellows-type flexible expansion joint material at all sill flashing expansion joints.
- E. Provide water deflectors at each end of intermediate horizontal members, installed per framing manufacturer's installation instructions. Provide "L" profile end dams at each end of extruded sill flashing. Extruded sill flashing should be an integral part of the storefront framing system. Set in manufacturer approved sealant, seal all penetrations accordingly per manufacturer's instructions.
- F. Brake Metal: .125, .090 and .062 thick extruded aluminum, sizes as required for details and conditions as called for on drawings. Manufacturer to provide detailing at mullions for integral appearance. Match finish and color of storefront system.
- G. Provide 1" insulated glass. Refer to Section 08 81 00.

2.3 HARDWARE

Product Quality: Hardware items are to be ANSI Grade 1 Certification and are to be supplied by aluminum door supplier unless noted otherwise.

- A. Closers:
 1. Exterior Doors:
 - a. LCNXP4041-Spring SHCUSH Series, parallel arm mount. (No Substitutions)
 - b. All exterior door locations to have adjustable back check and 100-degree hold-open.
 2. Provide with a minimum of thirty (30) year manufacturer's warranty.
 3. Provide all brackets and spacers necessary for all door and frame conditions.
 - a. Plate, CUSH shoe support and Blade stop spacer must be provided on all exterior doors.
 4. Slim line half covers to be screw-attached to closer body in at least two locations on top and bottom of closer.

- B. Continuous Hinges:
 - 1. 780-224HD continuous aluminum hinge, manufactured by Roton, Markar, or approved alternate.
 - 2. Warranty: Manufacturer's lifetime warranty.
- C. Door Exit Device:
 - 1. Panic Device:
 - Manufacturer and Product: (All exit devices are hexhead doggable)
 - a. Von Duprin 99 Series, XP99 Series with Ives VR Series trim at exterior doors (Von Duprin XP-QEL99 Series where retractable latch exit device and security access control is called for). No Substitutions. Use Ives VR910 Series on exterior doors.
- D. Locksets: (Note: Manufacturer and style to match lockset from selection specified in Section 08 71 00.)
 - 1. Schlage (L9000 Series Vandlgard – Mortise lockset with Rhodes style lever handle) No Substitutions.
 - 2. Warranty: L Series Mortise (10-year)
- E. Weather-stripping, for exterior doors only:
 - 1. Head and Jamb: Replaceable wool, or polypropylene, or nylon wool pile with aluminum strip backing, recessed in frame; AAMA 701.2.
 - 2. At exterior door applications, provide weather-stripping as required at door perimeters and where double doors meet in center to provide watertight seal.
 - 3. Sill: Semi-rigid polymeric material on aluminum anodized to match door; EPDM sweep strip; 38-560 by Kawneer or similar by other named manufacturers.
- F. Mullion Seal:
 - 1. Model 5100S, gray color, manufactured by National Guard Products or approved alternate.
 - 2. Install at all removable mullions.
- G. Threshold:
 - (Threshold height not to exceed ½" to meet ADAAG guidelines.)
 - 1. Model 896N, 5" deep, manufactured by National Guard Products, or approved alternate, ADA compliant panic threshold.
 - 2. Extruded aluminum, mill finish, neoprene seal, for exterior doors only.
 - 3. Where "square back" type threshold is called for, provide ADA compliant panic with square back. These types are to be used where backing up to terrazzo, ceramic tile, or other similar floor materials.
- H. Removable mull (type as required for each door application)
 - 1. Corbin Russwin (keyed)
 - 2. Von Duprin (keyed)

- I. Door Shoe (with Rain Drip & Brush Sweep)
 - 1. 95WH Series by National Guard Products or approved alternate.
 - a. Color to match door finish.
 - b. Provide Door Shoe assembly at each exterior door leaf.
- J. Astragal Set
 - 1. 125N Series by National Guard Products or approved alternate.
 - a. One set astragals, aluminum with neoprene seals. Match door finish.
 - b. Install on each pair of exterior doors, extending from head to threshold.
- K. Drip Cap
 - 1. 1 ½" tall x 2 ½" deep, anodized aluminum
 - 2. National Guard Series 16 or approved alternate.
 - 3. Approved alternate
- L. Floor Stop:
 - 1. Rockwood Model 463. Drill 1" dia. X 2 ¾" deep hole. Replaceable rubber bumper with torx-type screw. Epoxy grout stem into place.
 - 2. Approved alternate.
- M. Security Access System for security controlled doors
Security Access System:
 - 1. Panic Device: Provide Von Duprin XP-QEL99 Series with electric retractable latch, "Request to Exit" low current feature, latch bolt monitor low current and hex-head dogging capability where security access doors are scheduled.
 - 2. Power Supply: PS902-FA-4RL, provided by hardware supplier
 - 3. Power Transfer: Von Duprin Model EPT-10 power transfer door-to-frame transfer device.
 - 4. Reader Control Device: Provided by access control subcontractor
 - 5. Electrician to provide conduit for all low voltage control wiring as required from access control device junction box to power supply and to panic device. Conceal all conduit in walls, ceilings, doorframes, etc. Wiring is to be provided by door access control contractor. Refer to electrical drawings and door/hardware schedule for locations.
 - 6. Electrician and hardware supplier to coordinate with door access control contractor

2.4 HARDWARE FINISHES

- A. Aluminum hardware color to be clear anodized to match storefront finish.
- B. Painted Hardware items to match storefront finish color.

PART 3 EXECUTION

3.1 PREPARATION

- A. Prep all doors and aluminum storefront members to accept and support specified and scheduled hardware items.

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3.2 FABRICATION

- A. Fabricate doors and frames allowing for minimum clearances and shim spacing around perimeter of assembly, yet enabling installation.
- B. Rigidly fit and secure joints and corners. Make joints and connections flush, hairline, and weatherproof.
- C. Develop drainage holes with moisture pattern to exterior.
- D. Prepare components to receive anchor devices. Fabricate anchorage items.
- E. Arrange fasteners, attachments, and jointing to ensure concealment from view.
- F. Prepare components with internal reinforcement for door hardware.
- G. All exposed screws to be countersunk using flathead screws, flush with surface.

3.3 EXECUTION

- A. Verify wall openings are ready to receive work of this Section.
- B. Beginning of installation means acceptance of existing conditions.

3.4 INSTALLATION

- A. Install doors, frames, glazing, and hardware called for in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely attach frame assembly to structure.
- C. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- D. Install sill flashings and end dams.
- E. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- F. Install hardware using templates provided. Refer to Section 08 71 00 for cylinders and installation requirements.
- G. Install perimeter flashings for storefront fabrications PRIOR TO storefront installation.
- H. Install perimeter sealant, backing materials, and installation requirements in accordance with Section 07 92 00. Provide sealant DO NOT INSTALL SEALANT AT SILL DRAINAGE HOLES AND SLOTS.

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- I. Adjust operating hardware and touch panels.
- J. Closers to have through-bolt connections at door and frame.
- K. Wiring for devices requiring electrical power shall be concealed within aluminum frame and doors.
- L. Cut thresholds at door jamb around stops or jamb trim.

3.5 TOLERANCES

- A. Variation from Plane: 0.03 inches per foot maximum or 0.25 inches per 30 feet whichever is less.
- B. Misalignment of Two Adjoining Members Abutting in Plane: 0.015 inches.

3.6 DOOR HARDWARE SCHEDULE

- A. Hardware Sets.
 - S1. Electric retractable latch rim mount panic device with vandal resistant pull and keyed cylinder lock (right leaf), standard rim mount panic device with vandal resistant pull and no cylinder lock (left leaf), power supply, (2) closers with stop and hold open, power transfer, keyed removable mullion, (2) heavy duty floor stops, door shoe, threshold, astragal, weatherstripping, drip cap.
 - S2. Reinstall existing hardware and access control.
- B. Note the following:
 - 1. All aluminum door hinges are to be continuous hinges.
 - 2. Panic devices are to be “doggable” (unless door is fire rated).
 - 3. Provide heavy-duty floor stops at all exterior doors unless noted otherwise on schedule.
 - 4. All exterior doors to have weatherstripping set capable of keeping blowing rain out of building.
 - 5. All exterior doors to have ADA closers, ADA threshold, door shoes, astragal set (if pair of doors), and drip caps.
 - 6. Mullion seal (where removable mullions are scheduled)
 - 7. Set exterior thresholds in full bed of butyl caulk.
 - 8. At the following doors, provide the security access control door hardware, low voltage wire and conduit, junction box for security access device and items as specified in this section: 4102A, 4102B, 4103, 4109, K114.

END OF SECTION

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COMPANY LETTERHEAD

CERTIFICATE OF GUARANTEE FROM INSTALLER

We, _____
(Name of Company or Contractor) agree to warranty aluminum storefront system on the below mentioned building for the period indicated. This agreement is to render the aluminum storefront system subject to the conditions outlined below.

OWNER OF BUILDING _____

Location of Building _____

City _____ Roof Area _____ square feet _____

This Guarantee effective this _____ day of _____, 20_____, for the term of FIVE (5) years from this date, provided any air and water leakage and system defects result from defective material or workmanship and are not caused by other mechanics, fire, accidents, or by nature over which we have no control.

It is understood and agreed that the Contractor will not be responsible for leaks or failure of the aluminum storefront system due to sustained winds in excess of speeds stated in manufacturer's warranty, or any other conditions over which we have no control as stated in manufacturer's exclusions.

Signed _____
Name of Company

By _____

Position _____

Company is a _____
Corp./Partnership/Individual

NOTARY PUBLIC

Registered in the State of _____

SEAL

NOTE: Aluminum storefront system manufacturer's Two (2) year system warranty and Two (2) year door construction warranty from the manufacturer is to be submitted in addition to the guarantee from the installer found on this form. Manufacturer's Warranty is mandatory - **NO EXCEPTIONS.**

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