

SECTION 083616
ELECTRIC ACTUATOR-VERTICAL LIFTING DOORS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. ELECTRIC actuator operated doors and accessories.
 2. Bi-fold doors
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
1. Section 033000 - Cast-in-place Concrete: Prepared opening in concrete. Execution requirements for placement of anchors in concrete construction.
 2. Section 042000 - Unit Masonry Assemblies: Prepared opening in masonry. Execution requirements for placement of anchors in masonry wall construction.
 3. Section 055000 - Metal fabrications: Steel frame and supports.
 4. Section 061000 - Wood Blocking and Curbing: Rough wood framing and blocking for door opening.
 5. Section 079200 - Joint Sealers: Perimeter sealant and backup materials.
 6. Section 087100 - Door Hardware: Cylinder locks.
 7. Section 099000 - Paints and Coatings: Field painting.
 8. Section 260500 - Basic Electrical materials and Methods: installation and requirements for electrical connections.
 9. Section 260500 - Wiring Connections: Electrical service to door operator.
 10. National Electric Manufacturers Association (NEMA): NEMA ICS 4 - Industrial Control and Systems: Enclosures
- C. References
1. ASTM - C1048 Glass Tempered
 2. AA-6063-T6 - Standards for Aluminum Alloy and Temper.
 3. ASTM A513, Type 1 - Steel Tubes
 4. ASTM A 1008 - Sheet Steel for covers
 5. ASTM A 36 - Steel Bars
 6. ASTM A 36 - Sheet steel for Tracks/Channels
- D. Performance Requirements

1. Single-Source Responsibility: Provide doors, tracks, motors and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.
2. Wind Loads: Design and size components to withstand loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.
 - a. Design pressure of 30 lb/sq ft.
 - b. Maximum deflection of 1/300 of opening width.

1.2 SUBMITTALS

- A. Submit under provisions of Division 013300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation manuals.
 4. Owners Manual with service information.
- C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, accessories and anchors, jamb details, connection details, anchorage spacing, hardware locations, and installation details.
- D. Verification Samples: For each finish product specified, two samples representing manufacturer's full range of available colors and patterns.
- E. Operation and Maintenance Data.
- F. Submit written agreement in manufacturer's standard form signed by manufacturer and installer agreeing to repair or replace defective doors that are warped, twisted, bowed or damaged as a result of defective product.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five (5) years documented experience.
- B. Installer Qualifications: Authorized representative of the manufacturer with minimum two years documented experience and/or be a factory trained and authorized installation company.
- C. Factory Inspections and Tests: All door frame and channel dimensions shall be maintained to 1/16 inch tolerance as provided on the engineering / production drawings. Each motor control unit shall be powered up in the factory to ensure proper operation prior to shipping. Each touch screen shall be powered up in the factory and tested for proper orientation prior to shipping.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and model.
- B. Storage: Store materials in a dry area indoor and protected from damage and in accordance with manufacturer's instructions.
- C. Handling: Handle and lift all items carefully during installation to prevent damage and protect finishes.

1.5 PROJECT CONDITIONS

- A. Pre-Installation Conference: Convene a pre-installation conference prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
- B. Environmental Conditions: Prior to and during installation, environmental conditions shall be in accordance with door manufacturers latest published recommendations for temperature, rain, wind, humidity, ventilation, and illumination.
- C. Site Conditions: Opening shall be free and clear of debris, stored materials, scaffolding, and temporary walls as necessary for installers to perform the installation.

1.6 WARRANTY

- A. Warranty: Provide manufacturer's standard limited 1-year warranty against defects in material and workmanship through normal use and service according to maintenance and operation instructions, as verified by persons authorized by Renlita Doors, Renlita Doors will replace or repair (at Renlita Doors Option) the defective product.
- B. Manufacturer warrants the steel frame against rust, in painted non-damaged condition for a period of two (1) year from original purchase. This warranty does not apply to scratched, dented, damaged or corroded areas of the frame.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Electric Actuator Doors: Wave by Renlita Doors North America, 903-583-7500, www.renlitausa.com.
 - 1. Description: Two Leaf Hinged Stacking Vertical lifting door; Two horizontal panels hinged together, weather lapped at horizontal joint; rising vertically on roller track system fixed to building structure to stack in a folded position under the lintel.
 - a. Approved Product: EVO-Wave.
 - b. No substitutions allowed.

2. Panel: Welded construction fabricated from rolled hollow section steel members with minimum wall thickness of 0.125 inch (3.1 mm). Beams shall be designated for maximum dead load deflection of 1/300th part of the span.
 3. Construct steel door sections from carbon steel hot rolled tube complying with ASTM A-500 Grade B and ASTM A-36.
 4. Size:
 - a. As indicated on drawings
 - b. Height: _____ feet (_____ meters). Maximum height is 10 feet.
 - c. Width: _____ feet (_____ meters). Maximum width is 10 feet.
 5. Glazing, Single Pane:
 - a. ¼ inch (6.35mm) laminated safety glass
 - b. ¼ inch (6.35mm) tempered glass
 6. Glazing, Insulating Glass:
 - a. 1 inch (25mm) dual pane insulated glass.
 7. Glazing Wedges: Co-extrusions, fitted between aluminum profiles.
 8. Glazing Beads: PVC extrusions.
 9. Panels: Architect specified materials less than 5 lb/sq ft and less than 2 inches thick.
 10. Ferrous Metal Finish: All surfaces except working machine parts shall receive SSPC-SP6 abrasive blast cleaning and factory-applied powder coating, AAMA 2604 or better.
 11. Aluminum Finish: SSPC-SP6 abrasive blast cleaning and factory-applied powder coating, AAMA 2604 or better.
 12. Finish Color: As selected from manufacturers range of standard colors.
 - a. Sandstone.
 - b. Satin Black.
 - c. Bone White.
 - d. Chestnut Bronze.
- B. Optional Insect Screen: Bug screen/sunscreen.
1. Mounting: Mount to interior face of door jamb channels.
 2. Operation: Integrated into manufacturers touch screen control panel.
 3. Operator: DC electric motor equipped with obstruction sensing technology. Screen will reverse upon contact with an obstruction.
 4. Power Requirements: 120V AC, 60Hz, Single Phase, 2 Amps.
 5. Screen Color: As selected from manufacturer's standard finishes.
- C. Motors: Coordinate with Division 11 for control system and Division 16 for electrical work.

1. Model: Evo-Drive System, 12 Volt DC linear actuator motor mounted to each side of door panel and jamb operating channel. Motor is provided with control panel (mounted separately) and is controlled by a touch screen control station, photo eyes and hardware necessary for installation of motor and control panel.
2. Motor Travel: Is controlled by limit switches.
3. Battery backup: Control panels to include battery operation in the event of power outage. Battery will operate entire door system for a minimum of five operations.
4. Control Station: Touch Screen control station will provide up, down and stop functions. Touch Screen will be capable of being mounted into a single gang electrical box.
5. Primary Entrapment Device: NEMA 4 monitored photo sensor mounted at a maximum of 6 inches above the finished floor. Any object that enters the path of the photo sensors will cause the door to stop within 1 second and reverse to the open position.
6. Operating Temperature: -15 F to 125 F
7. Duty Cycle: 6 cycles per hour. One cycle is defined as one full open action and one full closed action.
8. Power Requirements: 110V AC, Single Phase, 6 Amps.
9. Power is provided to motor control unit only. All accessory and motor power is provided and controlled from the EVO control panel.

D. Quality Control:

1. Factory Inspections:
 - a. All door frame and channel dimensions will be maintained to 1/16 inch as provided on the engineering/production drawings.
2. Factory Testing:
 - a. Each motor control unit will be powered up in the factory to ensure proper operation prior to shipping.
 - b. Each touch screen will be powered up in the factory and tested for proper orientation prior to shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until the openings have been properly prepared in accordance with architectural drawings and approved shop drawings.
 1. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.
 2. Verify electric power is available if applicable.
- B. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

- C. Notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions. Commencement of installation constitutes acceptance of conditions.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions, approved submittals and in proper relationship with adjacent construction.
 - 1. Furnish inserts and anchoring devices suitable for the installation of the units and consistent with the manufacturer's installation requirements. Coordinate delivery with other work to avoid delay.
 - 2. Install doors, operating equipment, hardware, seals, stops, anchors, inserts, support and track in accordance with approved shop drawings and manufacturer's printed instructions.
 - 3. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.
 - 4. Anchor assembly to wall construction and building framing without distortion or stress.
 - 5. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
 - 6. Fit and align door assembly including hardware.
 - 7. Test for proper operation and adjust until satisfactory results are obtained.
 - 8. Coordinate installation of electrical service. Complete power and control wiring from control panel to components.
 - 9. Test for proper operation.

3.4 DEMONSTRATION AND TRAINING

- A. Demonstrate operation to owner's personnel. Manufacturer's representative shall instruct Owner's representative in regular tenant provided maintenance and operation of installed doors.

3.5 CLEANING AND ADJUSTMENT

- A. Lubricate, test and adjust door assembly to smooth operation free from warp twist or distortion and in full contact with weather-stripping. Clean doors, frames and glass. Remove temporary labels and visible markings.

3.6 PROTECTION

- A. Do not permit construction traffic through overhead door openings after adjustment and cleaning. Protect installed products until completion of project.

- B. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.

3.7 MAINTENANCE

- A. Post Installation Maintenance
 - B. Contractor and Installer shall provide owner with complete company name, address, phone number and assigned contact for emergency repairs and scheduled maintenance for the installed door (s)
 - C. Manufacturer shall instruct Owner's representative in regular tenant provided maintenance and operation of installed doors.

END OF SECTION