

SECTION 083613 - OVERHEAD SECTIONAL DOORS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Overhead sectional doors, manually operated.
- B. Overhead sectional doors, electrically operated.
- C. Operating hardware, tracks, and support.
- D. Accessories and installation hardware.

1.2 RELATED SECTIONS

- A. Section 055000, Metal Fabrications: Steel channel opening frame.
- B. Division 08 Section Door Hardware.
- C. Division 26, Electrical service and connections for powered operators.

1.3 REFERENCES

- A. ASTM A 653/A 653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- B. ASTM A 924/A 924M - Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- C. ASTM B 209/209M - Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- D. ASTM B 221/221M - Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- 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 methods.
 - 4. Operation and maintenance data.
 - 5. Nameplate data and ratings for motors.
- C. Shop Drawings: Include opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.
- D. Selection Samples: For each finish specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

- E. Verification Samples: For each finish specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.5 WIND PERFORMANCE REQUIREMENTS

- A. Design doors to withstand positive and negative wind loads as calculated in accordance with applicable building code.
 - 1. Basic Wind Speed: 90 mph wind
 - 2. Safety Factor: 1.5 times design wind load.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the types of doors specified in this section, with not less than ten years of documented experience.
- B. Installer Qualifications: Company specializing in installing the types of products specified in this section, with minimum of five years of documented experience, and approved by the door manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design Product: Clopay Building Products Company: 8585 Duke Blvd. ; Mason, OH 45040-3101; Toll Free Tel: 800-526-4301; Tel: 513-770-4800; or comparable product by one of the following:

- ACME Rolling Doors.
- C.H.I. Overhead Doors.
- Mahon Door Corporation.
- McKeon Rolling Steel Door Company, Inc.
- Overhead Door Corporation.
- Raynor.
- Southwestern Steel Rolling Door Co.

2.2 FULL VIEW ALUMINUM DOORS-(OH-1) Overhead Door type 1 on door schedule –Basis of design: **Clopay Model 903**

- A. Door Construction:
 - 1. Panel Sections: 2-1/8 inches (54 mm) thick extruded 6053-T5 aluminum, with integral reinforcing fin. Enclosed top and bottom rails 3-1/2 inches (89 mm) wide, meeting rails 2-13/16 inch (71.4 mm) wide, and end stiles 3-1/2 inches (89 mm) wide, with meeting rails meeting to form a tongue-and-groove joint and bottom rail configured to retain U-shaped flexible PVC astragal. Glazing and solid panels installed and sealed with butyl tape and locking retainer.
- B. Heavy Duty 2.125 inches (54 mm) Door - with R-values as follows: Insulated Aluminum section 2.13, insulated glass section 1.47

1. Maximum Door Size: 20 ft, 2 inches (6.15 m) by 18 feet (5.5 m) high.
2. Windows: Full-view aluminum sections
 - a. Glazing: 1/2 inch (13 mm) insulated tempered glass glazing.
3. Aluminum Finish: Clear anodized.
4. Locking: Inside spring loaded slide bolt lock on end stile that engages slot in track.
 - a. Provide one inside slide lock on electric operator side of door.
 - b. Provide Safety Interlock Switch: Equip electric – operated doors with a safety interlock switch to disengage power supply when door is locked
5. Weatherstripping: Provide complete perimeter seals selected from manufacturer's standard options. Provide flexible top seal, flexible jamb seal and U shaped bottom seal.
6. Tracks: Vertical tracks minimum 0.061 inch (1.55 mm) galvanized steel tapered and mounted for wedge type closing. Horizontal tracks minimum 0.075 inch (1.91 mm) galvanized steel, reinforced with minimum 0.0897 inch (2.28 mm) galvanized steel angles as required:
 - a. Track Width: 3 inches (75 mm).
 - b. Provide high lift tracks as indicated.
7. Spring Counterbalance: Torsion spring counterbalance mechanism sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable with minimum 7 to 1 safety factor.
 - a. High Cycle Spring: 25,000 cycles.

2.3 STEEL INSULATED DOORS - (OH-2) Overhead Door type 2 on door schedule-basis of design – Clopay Model 3200

A. Door Construction:

1. Exterior Section Faces and Frames: Fabricate from zinc-coated (galvanized), cold-rolled, commercial steel (CS) sheet, complying with ASTM A 653/A 653M, with indicated zinc coating and thickness.
2. Fabricate section faces from single sheets to provide sections not more than 24 inches (610 mm) high and of indicated thickness. Roll horizontal meeting edges to a continuous, interlocking, keyed, rabbeted, shiplap, or tongue-in-groove weathertight seal, with a reinforcing flange return.
3. For insulated doors, provide sections with continuous thermal-break construction, separating the exterior and interior faces of door.

B. Section Ends and Intermediate Stiles: Enclose open ends of sections with channel end stiles formed from galvanized-steel sheet not less than 0.064-inch- (1.63-mm-) nominal coated thickness and welded to door section. Provide intermediate stiles formed from not less than 0.064-inch- (1.63-mm-) thick galvanized-steel sheet, cut to door section profile, and welded in place. Space stiles not more than 48 inches (1219 mm) apart.

- C. Reinforce bottom section with a continuous channel or angle conforming to bottom-section profile and allowing installation of astragal.
- D. Reinforce sections with continuous horizontal and diagonal reinforcement, as required to stiffen door and for wind loading. Provide galvanized-steel bars, struts, trusses, or strip steel, formed to depth and bolted or welded in place. Provide reinforcement for hardware attachment.
- E. Board Thermal Insulation: Insulate interior of steel sections with door manufacturer's standard polystyrene board insulation, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E 84; or with glass-fiber-board insulation. Secure insulation to exterior face sheet. Enclose insulation completely within steel sections that incorporate the following interior facing material, with no exposed insulation:
 - 1. Interior Facing Material: Zinc-coated (galvanized), cold-rolled, commercial steel (CS) sheet, complying with ASTM A 653/A 653M, with indicated thickness.
 - 2. Interior Facing Material: Manufacturer's standard prefinished hardboard panel, 1/8 inch (3 mm) thick and complying with ANSI A135.5.
 - 3. Interior Facing Material: Zinc-coated (galvanized), cold-rolled, commercial steel (CS) sheet, complying with ASTM A 653/A 653M, with indicated thickness.
 - 4. Interior Facing Material: Manufacturer's standard prefinished hardboard panel, 1/8 inch (3 mm) thick and complying with ANSI A135.5.
- F. Fabricate sections so finished door assembly is rigid and aligned, with tight hairline joints and free of warp, twist, and deformation.
 - 1. Locking: Inside spring loaded slide bolt lock on end stile that engages slot in track.
 - a. Provide one inside slide lock on electric operator side of door.
 - 2. Weatherstripping: Provide complete perimeter seals selected from manufacturer's standard options. Provide flexible top seal, flexible jamb seal and U shaped bottom seal.
 - 3. Tracks: Vertical tracks minimum 0.061 inch (1.55 mm) galvanized steel tapered and mounted for wedge type closing. Horizontal tracks minimum 0.075 inch (1.91 mm) galvanized steel, reinforced with minimum 0.0897 inch (2.28 mm) galvanized steel angles as required:
 - a. Track Width: 3 inches (75 mm).
 - b. Provide high lift tracks as indicated.
 - 4. Spring Counterbalance: Torsion spring counterbalance mechanism sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable with minimum 7 to 1 safety factor.
 - a. High Cycle Spring: 25,000 cycles.

2.4 ELECTRIC DOOR OPERATORS

- A. General: Electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and "operation cycles" requirement specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, remote-control stations, control devices, integral gearing for locking door, and accessories required for proper operation.
1. Comply with NFPA 70.
 2. Provide control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6; with NFPA 70, Class 2 control circuit, maximum 24-V ac or dc.
- B. Usage Classification: Electric operator and components capable of operating for not less than number of cycles per hour indicated for each door.
- C. Door-Operator Type: Unit consisting of electric motor, gears, pulleys, belts, sprockets, chains, and controls needed to operate door and meet required usage classification.
1. Jackshaft, Side Mounted: Jackshaft operator mounted on the inside front wall on right or left side of door and connected to torsion shaft with an adjustable coupling or drive chain.
- D. Electric Motors: Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements specified in Division 11 Section "Common Motor Requirements for Equipment" unless otherwise indicated.
1. Electrical Characteristics:
 - a. Phase: Single Phase
 - b. Volts: 115 V.
 2. Motor Type and Controller: Reversible motor and controller (disconnect switch) for motor exposure indicated.
 3. Motor Size: Minimum ½ Horsepower or as indicated by Manufacturer. If not indicated, large enough to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. (203 mm/s) and not more than 12 in./sec. (305 mm/s), without exceeding nameplate ratings or service factor.
 4. Operating Controls, Controllers (Disconnect Switches), Wiring Devices, and Wiring: Manufacturer's standard unless otherwise indicated.
 5. Coordinate wiring requirements and electrical characteristics of motors and other electrical devices with building electrical system and each location where installed.
 6. Use adjustable motor-mounting bases for belt-driven operators.
- E. Limit Switches: Equip each motorized door with adjustable switches interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.
- F. Obstruction Detection Device: Equip motorized door with indicated external automatic safety sensor capable of protecting full width of door opening. Activation of device immediately stops and reverses downward door travel.

1. Sensor Edge: Automatic safety sensor edge, located within astragal or weather stripping mounted to bottom bar. Contact with sensor activates device. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.
 - a. Self-Monitoring Type: Four-wire configured device designed to interface with door-operator control circuit to detect damage to or disconnection of sensor edge.
- G. Remote-Control Station: Momentary-contact, three-button control station with push-button controls labeled "Open," "Close," and "Stop."
 1. Interior units, full-guarded, surface-mounted, heavy-duty type, with general-purpose NEMA ICS 6, Type 1 enclosure.
 2. Exterior units at Wash Bay Only – door 2/126, full-guarded, standard-duty, surface-mounted, weatherproof type, NEMA ICS 6, Type 4 enclosure, key operated.
- H. Emergency Manual Operation: Equip each electrically powered door with capability for emergency manual operation. Design manual mechanism so required force for door operation does not exceed 25 lbf .
- I. Emergency Operation Disconnect Device: Equip operator with hand-operated disconnect mechanism for automatically engaging manual operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.
- J. Motor Removal: Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency manual operation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine wall and overhead areas, including opening framing and blocking, with installer present, for compliance with requirements for installation tolerances, clearances, and other conditions affecting performance of Work in this Section.
 1. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- D. Install overhead doors and track in accordance with approved shop drawings and the

manufacturer's printed instructions.

3.4 PROTECTION

- E. Protect installed products until completion of project.
- F. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 083613