

SECTION 08 36 13 - SECTIONAL DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes:
 - 1. ~~Glazed-Aluminum Un-insulated Sectional~~¹ Overhead Doors **(OH-1)**.
 - a. Electric drive system and controls.
 - b. Wiring from electric circuit disconnect, to control panel, to motor and all accessories.
 - c. Safety features.
 - d. Accessories.
- B. Related Sections:
 - 1. Division 05 Specification Section "Metal Fabrications" for miscellaneous steel supports, door-opening framing, corner guards, and bollards.

1.3 REFERENCES

- A. NEMA - National Electrical Manufacturers Association.

1.4 SYSTEM DESCRIPTION

- A. Electrical Motor operated unit with manual override in case of power failure.

1.5 DEFINITIONS

- A. Operation Cycle: One cycle of a door is complete when it is moved from the closed position to the fully open position and returned to the closed position.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type and size of sectional overhead door and accessory. Include the following:
 - 1. Include construction details, material descriptions, dimensions of individual components, profiles for slats, and finishes.
 - 2. Diagrams with descriptions to indicate specific model numbers for all parts and assemblies.
 - 3. Operating instructions.
 - 4. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.
 - a. Motors: Show nameplate data and ratings, characteristics, and mounting arrangements.
 - 5. Summary of forces and loads on walls and jambs.
 - 6. Literature describing manufacturers full range of color and gloss for factory-applied finishes.

- B. Manufacturer's Installation Instructions: Indicate installation sequence and procedures, adjustment, and alignment procedures.
- C. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.
 - 1. Include dimensioned plans, elevations, sections, anchorage methods, hardware locations, and installation details.
 - 2. Include details of equipment assemblies, and indicate dimensions, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Include points of attachment and their corresponding static and dynamic loads imposed on structure.
 - 4. For exterior components, include details of provisions for assembly expansion and contraction and for excluding and draining moisture to the exterior.
 - 5. Show locations of controls, locking devices, detectors or replaceable fusible links, and other accessories.
 - 6. Include diagrams for power, signal, and control wiring.
- D. Samples for Initial Selection:
 - 1. Exterior and interior panels: Manufacturers full range of standard finishes for color, gloss and finish.
- E. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below. Submit three samples, with previously approved finish, to indicate range of variation in the finish.
 - 1. Frame: Minimum 6 inches long.
 - 2. Metal door panel: Minimum 12 inches long, with actual panel profile and height.

1.7 INFORMATIONAL SUBMITTALS

- A. Installer Qualifications: Qualification Data from an entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this Project.

1.8 CLOSEOUT SUBMITTALS

- A. Special warranty.
- B. Maintenance Data: For overhead coiling doors to include in maintenance manuals.
 - 1. Maintenance data shall include lubrication requirements and frequency, periodic adjustments required, scheduled maintenance suggested, manufacturer's data sheets, and equipment interconnection diagrams.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by coiling door manufacturer for both installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain Sectional doors and all components and accessories from single source from single manufacturer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

- D. Regulatory Requirements: Electrical components shall be NEMA approved and UL listed.

1.10 COORDINATION

- A. Coordinate the work with installation of electric power and locations and sizes of conduit.

1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of sectional doors that fail in materials or workmanship within specified warranty period of 10 years from date of Substantial Completion.
1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Failure of components or operators before reaching required number of operation cycles.
 - c. Faulty operation of hardware.
 - d. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use; rust through.
 - e. Delamination of exterior or interior facing materials.
- B. Special Warranty - Finishes: Manufacturer agrees to repair or replace components that show evidence of deterioration of factory-applied finishes within specified warranty period of 10 years from date of Substantial Completion. Deterioration includes fading, cracking, chalking or peeling.
- C. Three year or 20,000 cycle limited warranty on motor assembly.

PART 2 - PRODUCTS

2.1 MANUFACTURERS¹

- A. **(OH-1)** Basis of Design Product: Subject to compliance with requirements, provide Overhead Door Company ~~Model 521 Aluminum Door Model 596 insulated steel door~~¹, or a comparable product one of the following:
1. Clopay
 2. Wayne Dalton
 3. Raynor.
 4. **Thermacore¹**

2.2 PERFORMANCE REQUIREMENTS

- A. Operation-Cycle Requirements: Provide sectional overhead door components and operators capable of operating for not less than 25,000 cycles.
- B. Operation Speeds: Provide door components and operators to result in operating speeds of not less than the following:
1. Door Opening and Closing Speed: Variable, adjustable, minimum 9 inches per second and maximum 12 inches per second.
- C. Structural Performance: Provide sectional overhead doors capable of withstanding the effects of gravity loads and the following loads and stresses without evidencing permanent deformation of door components:
1. Wind Loads: Determine loads based on the following minimum design wind pressures:
 - a. Uniform pressure (velocity pressure) of 20 lbf/sq. ft., acting inward and outward.

- b. Testing: According to ASTM E330.
2. Deflection Limits: Design sectional overhead doors to withstand design wind load without evidencing permanent deformation or disengagement of door components.
3. Air Infiltration: Maximum rate not more than indicated when tested according to ASTM E 283.
 - a. Maximum Rate: 0.022 cfm at 25 mph.

2.3 MATERIALS

- A. Door Assembly: : Aluminum stile and rail assembly secured with 1/4 inch (6 mm) diameter through rods ~~Commercial grade aluminum extrusions with polyurethane insulation and weather-tight tongue in groove design meeting joints. Fabricate door sections so finished door assembly is rigid and aligned, with tight hairline joints and free of warp, twist, and deformation.~~
 1. Panel Thickness: 1-3/4 inches ~~2 1/8" inches~~¹
 2. Center Stile Width: 2-11/16 inches¹
 3. End Stile Width: 3-5/16 inches¹
 4. Intermediate Rail Pair Width: 3-11/16 inches¹.
 5. Top Rail Width:¹
 - a. 3-3/4 inches.¹
 6. Bottom Rail Width:¹
 7. 4-1/2 inches (114 mm).¹
- B. Aluminum Panels: 0.050 inch thick, aluminum.¹
- C. Stiles and Rails: 6063 - T6 aluminum.¹
- D. Springs:
 1. Double End Stiles: 0.75" wall thickness commercial grade aluminum extrusions with polyurethane insulation.
 2. Astragal: U-shaped flexible PVC in retainer of full-length 0.055 inch (1.4 mm) rigid PVC.
 3. Fully glazed panels:
 - a. Glazing: 1 inch nominal (25 mm) insulated tempered glass.
 4. Opening and closing speeds, and with soft acceleration and braking. Doors using a motor with a clutch or pump will not be accepted.
 - a. Coordinate electrical characteristics of motor with electrical contractor.
 5. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
 - a. High cycle spring: 25,000 cycles.
 - ~~6. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated and with maximum flame spread and smoke developed indexes of 75 and 450, respectively, according to ASTM E 84.¹~~
 - ~~7. Thermal Values: Minimum R-value of 3.8.¹~~
 8. Air Infiltration: 0.022 cfm at 25 mph.
- E. Finish and Color:
 1. Clean aluminum so surfaces are free of oil and other contaminants, and pretreat with a conversion coating of type suited to primer and finish coats
 - ~~2. Apply manufacturer's primer and finish coats to interior and exterior door faces after forming, according to coating manufacturer's written instructions for application, thermosetting, and minimum dry film thickness.¹~~
 - ~~3. Exterior Finish: Two coat baked-on polyester selected from manufacturer's full range.¹~~
 - ~~4. Interior Finish: Two coat baked-on polyester with manufacturer's standard White color.¹~~
 5. Powder Coating Finish: Color as selected by Architect from manufacturer's standard colors.¹

6. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

F. Hardware and Accessories:

1. Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
2. Lock: Slide lock with interlock switch for automatic operator.
3. Weatherstripping:
 - a. EPDM bulb-type strip at bottom section.
 - b. Flexible Jamb seals.
 - c. Flexible Header seal.
4. Track: Provide track as recommended by manufacturer to suit loading and other performance requirements, minimum .061 inch thickness.
 - a. Size: 2 inch (51 mm).
 - b. Type: Standard lift.

G. Electric Door Operator: Electric door operator assembly of size and capacity recommended by door manufacturer for door and operation cycles specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, control stations, control devices, integral gearing for locking door, and accessories required for proper operation.¹

1. Comply with NFPA 70.¹
2. 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.¹
3. Operator Type: Manufacturer's standard for door requirements.
 - a. Motor Size: As required to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. and not more than 12 in./sec., without exceeding nameplate ratings or service factor
 - b. Electrical Characteristics:
 - c. Phase: Single phase¹.
 - d. Volts: 115 V¹.

2.4 ELECTRICAL CONTROLS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Manufacturer's premium controls system including:
1. Remote Control Station: Provide momentary contact, 3-button control station with push - button controls labeled "Open", "Close" and "Stop".
 2. Provide interior units, fully guarded, surface mounted, heavy-duty type, with general-purpose NEMA ICS 6 enclosure in one of the following types:
 - a. Enclosure Type: ~~NEMA Type 4~~.
 3. Controller shall include expansion panels as required to allow connection to the Owner's building management system.

2.5 SAFETY SYSTEMS

- A. Obstruction Detection Device: Provide each motorized door with indicated external automatic safety sensor able to protect full width of door opening. Activation of sensor immediately stops and reverses downward door travel.

- A. Obstruction Detection: Automatic external entrapment protection consisting of automatic safety sensor capable of protecting full width of door opening. Activation of device immediately stops and reverses downward door travel.
 - 1. Monitored Entrapment Protection: Provide electric sensor edge on bottom section designed to interface with door-operator control circuit to detect damage to or disconnection of sensor and complying with requirements in UL 325.
- B. Photo-electric control: Provide each motorized door with a photo-electric device that will stop and reverse the downward door travel if the light beam is broken or blocked. Device shall be:
~~1. NEMA Type 4.¹~~
- C. Limit Switches: Provide adjustable switches, interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.
- D. Provide auxiliary ~~chain~~¹ hoist: for emergency manual operation while disconnecting motor, without affecting timing of limit switch. Mount disconnect and operator so they are accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.
- ~~E. Radio Controls: Provide 3 button radio transmitter to provide remote open, close, stop functionality.¹
1. Provide external antenna and coaxial wiring to receiver to enhance radio control reception.¹~~

2.6 ACCESSORIES

- A. Provide for manual operation in event of power outage.
 - 1. Push/Pull handles on interior side of door.
 - 2. Pull-Down Strap

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates areas and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.
- B. Examine locations of electrical connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install door, track, and operating equipment complete with necessary hardware, jamb and head molding strips, anchors, inserts, hangers, and equipment supports according to Shop Drawings, manufacturer's written instructions, and as specified.
- B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
- C. Fasten vertical track assembly to framing, spaced not less than 24 inches apart. Hang horizontal track from structural overhead framing with angle or channel hangers fastened to framing by welding or bolting or both. Provide sway bracing, diagonal bracing, and reinforcement as required for rigid installation of track and door-operating equipment.

- D. Fit and align assembly including hardware. Install level and plumb, to provide smooth operation.
 - 1. Coordinate installation of electrical service. Complete wiring from disconnect to unit components.

3.3 FIELD QUALITY CONTROL

- A. Engage a factory-authorized service representative to perform startup services.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.
 - 2. Test and adjust controls and safety devices. Adjust hardware and moving parts to function smoothly.
 - 3. Replace damaged and malfunctioning controls and equipment.
 - 4. Provide documentation of test results.
- B. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- C. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.

3.4 ADJUSTING AND CLEANING

- A. Clean door assemblies and components.
- B. Lubricate bearings and sliding parts; adjust doors to operate easily, free from warp, twist, or distortion and with weathertight fit around entire perimeter.
- C. Adjust door assembly to smooth operation and in full contact with weatherstripping.
- D. Touch-up Painting: Immediately after welding galvanized track to track supports, clean field welds and abraded galvanized surfaces and repair galvanizing to comply with ASTM A 780.

3.5 PROTECTION

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

3.6 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of rolling slat-door Installer, including preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
 - 1. Perform maintenance, including emergency callback service, during normal working hours.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sectional overhead doors.

END OF SECTION 08 36 13

¹Addendum No. 1