



SECTION 08360

OVERHEAD DOORS

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Insulated steel sandwich sectional overhead door (Model 3724)
- B. Electric Door Operators

1.2 RELATED SECTIONS

- A. 03 30 00 - Cast-In-Place Concrete.
- B. 04 20 00 - Unit Masonry Assemblies.
- C. 05 50 00 - Metal Fabrications.
- D. 06 10 00 - Rough Carpentry.
- E. 07 90 00 - Joint Seals.
- F. 08 71 00 - Door Hardware and locks.
- G. 09 90 00 - Paints and Coatings.
- H. 11 15 00 - Parking Control Equipment: Remote door control.
- I. 16 05 00 - Electrical service and connections for powered operators.

1.3 REFERENCES

- A. [ASTM B 653/653M](#)
- B. [ASTM B 209/209M](#)
- C. [ASTM B 221/221M](#)
- D. [AAMA 2604](#)
- E. [DASMA TDS-163](#)
- F. [ANSI/DASMA 102](#)

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- 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: Upon request furnish color samples or 2' X 2' section sample.

1.5 WIND PERFORMANCE REQUIREMENTS

- A. Design doors to withstand positive and negative wind loads as calculated in accordance with applicable building code and detailed in structural documents.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum ten years of documented experience.
- B. Installer Qualifications: Minimum five years of documented experience, and authorized by the door manufacturer.

1.7 WARRANTY

- A. Manufacturers Limited Warranty steel sectional overhead doors.
 - 1. Standard finish warranty against cracking, checking, or peeling for 10 years. Custom color option Color Blast Finish limited warranty period for 5 years; Delamination warranty for 10 years; Parts and Hardware for 1 year. Extended 8-Year Hardware Warranty option.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Clopay Corporation: 8585 Duke Blvd.; Mason, OH 45040; <https://www.clopaydoor.com>
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 LIGHT RIBBED STEEL DOORS, THERMALLY-BROKEN, POLYURETHANE INSULATED

- A. Door Construction:
 - 1. Panels: Foamed in place Polyurethane core construction between exterior and interior steel skins.
 - 2. Steel Skins: Formed from roll formed commercial or drawing quality steel sheet, hot-dip galvanized per ASTM A 924/A 924M and ASTM A 653/A 653M, pre-painted with primer and baked-on polyester topcoat; sections formed to create weather tight tongue-in-groove meeting joint.
 - 3. Reinforcing: Galvanized and primed steel reinforcement located under each hinge location, pre-punched for hinge attachment.
- B. Premium Duty 2-inches (51 mm) Door: Clopay Model 3724.
 - 1. Style: Steel doors with minor ribs, thermally-broken, polyurethane insulated.
 - 2. Overall Panel Thickness: 2-inches (51 mm).
 - 3. Steel Skin Thickness: Minimum 24 gauge 0.022 inch (0.56 mm) exterior; minimum 27 gauge 0.016 inch (0.40 mm) interior.
 - 4. End Stiles: Galvanized steel end stiles, engineered for easy hardware attachment through pre-punched holes. Minimum 18 gauge, 0.045 inch (1.14 mm) thick for single end hinge style and 16 gauge .056 inch (1.42 mm) minimum for double end hinge style.
 - 5. Astragal: U-shaped flexible PVC in retainer of full-length 0.055 inch (1.4 mm) rigid PVC.
 - 6. Thermal Resistance (R-value): 18.4 deg F hr sq ft/Btu (3.0 (K sq m)/W); calculated door section R-value in accordance with DASMA TDS-163.
 - 7. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated
 - 8. U-Factor: 0.19
 - 9. Air Infiltration: .022 cfm/ft²
 - 10. Windows: None.
 - 11. Windows: Extruded polypropylene windows measuring 8 inches by 24 inches (200 mm by 600 mm).
 - a. Glazing: 1 inch nominal (25 mm) insulated glass.
 - b. Glazing: 1 inch nominal (25 mm) insulated tempered glass.
 - c. Glazing: 1/4 inch (6 mm) impact resistant Lexan.
 - 12. Windows: Extruded polypropylene windows measuring 12 inches by 24 inches (305 mm by 600 mm).

- a. Glazing: 1 inch nominal (25 mm) insulated glass.
- b. Glazing: 1 inch nominal (25 mm) insulated tempered glass.
- c. Glazing: 1/4 inch (6 mm) impact resistant Lexan.
- 13. Windows: Full vision aluminum section.
 - a. Glazing: 1/8 inch (3 mm) DSB glass
 - b. Glazing: 1/4 inch (6 mm) tempered glass
 - c. Glazing: 1/2 inch (13 mm) insulated glass
 - d. Glazing: Custom _____
- 14. Windows: Polyurethane Insulated Full vision aluminum section.
 - a. Glazing: 1/8 inch (3 mm) DSB glass
 - b. Glazing: 1/4 inch (6 mm) Tempered glass
 - c. Glazing: 1/2 inch (13 mm) insulated glass
 - d. Glazing: Custom _____
- 14. Windows: Black extruded polypropylene windows with rounded corners measuring 13 inches by 26 inches (303 mm by 606 mm).
 - a. Glazing: 5/8 inch (16 mm) double pane acrylic.
 - b. Glazing: 5/8 inch (16 mm) double pane lexan.
- 15. Finish: Interior stucco embossed texture with shallow U ribbed pattern, white interior color. Exterior stucco embossed with ribbed pattern, exterior as follows:
 - a. White.
 - b. Brown.
 - c. Commercial Tan
 - d. Commercial Gray
 - e. Trinar White
 - f. Black
 - g. Clopay ColorBlast®, a two part paint system utilizing Sherwin Williams® Solar reflective Polane Paint system. Sherwin Williams® color number SW _____.
- 16. Locking:
 - a. Provide one inside slide lock.
 - b. Provide two inside slide locks.
 - c. Provide five pin cylinder lock with outside key
 - d. No lock
- 17. Door Drop Safety Device: Provide brackets designed to stop the fall of the door should lift cables fail.
- 18. Weatherstripping: Provide complete perimeter seals. Provide flexible top seal, flexible jamb seal and U shaped bottom seal.
- 19. Track:
 - a. 2 inches (50 mm) track designed for 2" diameter rollers. Vertical tracks minimum 0.061 inch (1.55 mm) galvanized steel. Horizontal tracks minimum 0.075 inch (1.91 mm) galvanized steel.
 - b. 3 inches (75 mm) track designed for 3" diameter rollers. Vertical and horizontal tracks minimum 0.096 inch (2.43 mm) galvanized steel.
 - c. Provide track configuration to maximize headroom available per plans.
- 20. Spring Counterbalance: Torsion spring counterbalance mechanism sized to weight of the door, with high strength galvanized aircraft cable with minimum 7 to 1 safety factor.
 - a. Standard Cycle Spring: 10,000 cycle.
 - b. High Cycle Spring: 25,000 cycles.
 - c. High Cycle Spring: 50,000 cycles.
 - d. High Cycle Spring: 100,000 cycles.
 - e. Maximum cycles on a single shaft line
- 21. Break-Away Bottom Section: Integral part of door; with fiberglass or 1/8 inch (3 mm) polycarbonate lined bottom section with flexible neoprene rubber side edges; exterior to match door face.

- a. Single breakaway bottom section for doors up to 20 feet (6 m) wide.
 - b. Double breakaway bottom section for doors up to 14 feet (4.3 m) wide.
- 23. Pass Door (Walk-Through Service Door): Integral part of door; 32 inches (813 mm) by 80 inches (2032 mm) with aluminum frame, geared hinge, and pneumatic door closer; exterior matching door face; integral shiplap weather seal; keyed dead latch security lock
- 24. Manual Operation
 - a. ControlGard® SD direct drive chain hoist with integral brake mechanism that will immediately stop upward or downward travel and maintain the door in a stationary position when the hand chain is released by the user.
 - i. 2.8:1 primary reduction in 1" bore
 - ii. 2.8:1 primary reduction in 1-1/4" bore
 - iii. 3.7:1 primary reduction in 1" bore
 - iv. 3.7:1 primary reduction in 1-1/4" bore
 - b. Pull rope.

2.3 ELECTRIC DOOR OPERATORS

- A. General: Provide electric door operator provided by door manufacturer for door with operational life specified complete with electric motor and factory pre-wired motor controls, starter, gear-reduction unit, clutch, remote-control stations, control devices, integral gearing for locking door, and accessories required for proper operation. Comply with NFPA 70.
 - 1. Solenoid-operated brake.
- B. Disconnect Device: Provide hand-operated disconnect or mechanism 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.
- C. Design operator so motor may be removed without disturbing limit switch adjustment and without affecting emergency auxiliary operator.
- D. Provide control equipment complying with NEMA ICS1, NEMA ICS 2, and NEMA ICS 6, with NFPA 70 Class 2 control circuit, maximum 24-V, AC or DC.
- E. Electric Motors: Provide high-starting torque, reversible, continuous-duty, Class A insulated, electric motor, complying with NEMA MG 1, with overload protection, sized to start, accelerate, and operate door in either direction, from any position, at not less than 2/3 fps (0.2 m/s) and not more than 1 fps (.03m/s), without exceeding nameplate ratings or considering service factor.
 - 1. Type: Mechanical.
 - 2. Type: Solid State.
 - 3. Type: Jackshaft.
 - 4. Type: Trolley.
 - 5. HP:
 - a. 1/3 hp (246 W).
 - b. 1/2 hp (373 W).
 - c. 3/4hp (559 W).
 - d. 1 hp (746 W).
 - 6. Power Characteristics:
 - a. 115 V.
 - b. 220 V.
 - c. 460 V.
 - d. 1 phase.
 - e. 3 phase.
 - 7. Service Factor:
 - a. NEMA MG 1.

- b. NEMA 4 watertight.
 - c. NEMA 9 waterproof.
 - d. NEMA 10 oil resistant.
 - e. NEMA 12 explosion resistant.
- 8. Coordinate wiring requirements and electrical characteristics of motors with building electrical system.
- F. Remote Control Station: Provide momentary contact, 3-button control station with push - button controls labeled "Open", "Close" and "Stop".
- G. Remote Control Station: Provide continuous contact, 3-button control station with push - button controls labeled "Open", "Close" and "Stop".
- H. Provide interior units, fully guarded, surface mounted, heavy-duty type, with general-purpose NEMA ICS 6 enclosure in one of the following types:
 - 1. Enclosure Type: Type 1.
 - 2. Enclosure Type: Type 4.
 - 3. Enclosure Type: Type 12.
- I. 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.
 - 1. Sensor Edge: Provide each motorized door with an automatic safety sensing edge, located within astragal or weather stripping mounted to bottom bar. Contact with sensor immediately stops and reverses downward door travel. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cord. Sensing edge shall be operated by:
 - a. Electric.
 - b. Pneumatic.
 - c. Electric Fail safe.
 - d. Pneumatic Fail safe.
 - 2. 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:
 - a. NEMA Type 1.
 - b. NEMA Type 4.
- J. Limit Switches: Provide adjustable switches, interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.
- K. Radio Controls: Provide 3 button radio transmitter to provide remote open, close, stop functionality.
 - 1. Provide external antenna and coaxial wiring to receiver to enhance radio control reception.
- L. Provide auxiliary chain 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.

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

- A. 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 overhead doors and track in accordance with approved shop drawings and the manufacturer's printed instructions.

3.4 PROTECTION

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

END OF SECTION