



America's Favorite Garage Doors®

SECTION 08360

OVERHEAD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Sectional overhead doors of the following types:
 - 1. Flush steel doors, thermally-broken, polystyrene insulated. (Model 3220)
 - 2. Electric door operators

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications: Steel channel opening frame.
- B. Section 06100 - Rough Carpentry: Rough wood framing and blocking for door opening.
- C. Section 08710 - Door Hardware: Lock cylinders.
- D. Section 11150 - Parking Control Equipment: Remote door control.
- E. Division 16 Sections: 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. Design Wind Load: _____lb/sf (_____kPa).
 - 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.

1.7 WARRANTY

- A. Finish Warranty: Provide manufacturer's standard finish warranty against rust through.
 - 1. Warranty period: 10 years.
- B. Delamination Warranty: Provide manufacturer's standard warranty against delamination.
 - 1. Warranty period: 10 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Clopay Building Products Company, which is located at: 8585 Duke Blvd. ASD; Mason, OH 45040-3101; Toll Free Tel: 800-526-4301 prompt #3; Fax: 888-434-3193; Email: CIA@clopay.com Web: www.clopaycommercial.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 FLUSH STEEL DOORS, THERMALLY-BROKEN, POLYSTYRENE INSULATED

- A. Door Construction:
 - 1. Panels: Sandwich construction of exterior and interior steel skins pressure bonded to an expanded core, with skins separated by a continuous silicone filling forming a thermal break.
 - 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, unless otherwise specified.

3. Reinforcing: Galvanized and primed steel reinforcement located under each hinge location, pre-punched for hinge attachment.
4. Handle: High impact polymer step plate/lift handle on bottom panel section.

B. Premium Duty Door: Clopay Model 3220.

1. Maximum Door Size: 28 ft, 2 inches (8.6 m) wide by 26 ft (7.9 m) high.
2. Overall Panel Thickness: 2 inches (51 mm).
3. Steel Skin Thickness: Minimum 20 gauge 0.034 inch (0.86 mm) exterior; minimum 28 gauge 0.015 inch (0.38 mm) interior.
4. Stiles: Steel prepainted end stiles, minimum 0.049 inch (1.25 mm) thick, engineered for easy hardware attachment through prepunched holes.
5. Bottom panel section reinforced with continuous 0.050 inch (1.27 mm) aluminum astragal retainer with U-shaped flexible PVC astragal.
6. Thermal Resistance (R-value): 9.1 deg F hr sq ft/Btu (1.6 (K sq m)/W); calculated door section R-value in accordance with DASMA TDS-163.
7. Windows: None.
8. 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) tempered glass.
9. 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) tempered glass.
10. Windows: Full vision aluminum section, pre-painted to match door finish.
 - a. Glazing: 1/8 inch (3 mm) DSB sheet glass glazing.
 - b. Glazing: 1/8 inch (3 mm) tempered glass glazing.
 - c. Glazing: 1/8 inch (3 mm) acrylic glazing.
 - d. Glazing: 1/8 inch (3 mm) clear polycarbonate glazing.
 - e. Glazing: 1/4 inch (6 mm) wire glass.
 - f. Glazing: 1/4 inch (6 mm) ribbed double wall polycarbonate glazing.
 - g. Glazing: 1/4 inch (6 mm) wire glass glazing.
 - h. Glazing: 1/2 inch (12 mm) insulated glass glazing.
 - i. Glazing: 1/2 inch (12 mm) insulated tempered glass glazing.
11. Finish: Stucco embossed texture, white interior, exterior as follows:
 - a. White.
 - b. Brown.
12. Locking: No Lock.
13. Locking: Inside spring loaded slide bolt lock on end stile that engages slot in track.
 - a. Provide one inside slide lock.
 - b. Provide two inside slide lock.
 - c. Provide five pin cylinder lock with outside key.
14. Weatherstripping: Provide complete perimeter seals. Provide flexible top seal, flexible jamb seal and U shaped bottom seal.
15. 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: 2 inches (50 mm).
 - b. Track Width: 3 inches (75 mm).

- c. Provide standard lift tracks with 15 inches (381 mm) radius track as indicated.
 - d. Provide vertical lift tracks as indicated.
 - e. Provide high lift tracks as indicated.
 - f. Provide tracks that follow roof slope tracks as indicated.
 - g. Provide low headroom tracks as indicated.
16. 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. 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.
17. 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.
- Pass Door (Walk-Through Service Door): Integral part of door; 32 inches (813 mm) by 80 inches (2032 mm) with aluminum frame, welded corners, geared hinge, and pneumatic door closer; exterior matching door face; integral shiplap weather seal; keyed dead latch security lock.

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