

SECTION 08360 - OVERHEAD DOORS

City of San Diego, CWP Guidelines

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing all overhead door assemblies and frames and all appurtenant work, complete and operable, including manual drive systems and power drive systems, locking hardware, and complete control systems.

1.2 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.

- 1. Section 08110 Steel Doors and Frames
- 2. Section 08710 Finish Hardware
- 3. Section 08800 Glazing
- 4. Section 09800 Protective Coating
- 5. Section 09900 Architectural Paint Finishes

1.3 CODES

- A. The WORK of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego Municipal Code:

- 1. Uniform Building Code
- 2. Uniform Fire Code
- 3. National Electric Code

1.4 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:

- 1. Federal Specifications:

QQ-S-775	Steel Sheets, Carbon, Zinc-Coated (Galvanized) by the Hot-dip Process
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- 2. Commercial Standards:

NEMA	National Electric Manufacturers' Association
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NEC	National Electric Code
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3. Trade Standards:

Aluminum Association Anodizing Systems

4. Manufacturers' Standards: In addition to the standards listed above, the overhead doors and their installation shall be in accordance with the manufacturer's published recommendations and specifications.

1.5 SHOP DRAWINGS AND SAMPLES

A. The following shall be submitted in compliance with Section 01300:

1. Manufacturer's specifications, literature, installation instructions, along with any engineering calculations that may be required elsewhere in this Section shall be submitted. Calculations by a registered civil or structural engineer shall be submitted which show that the overhead door systems and their structural connections are designed to meet code requirements and loads.
2. Shop drawings showing details of the products and systems, fasteners, and connections to adjoining materials shall be submitted along with any manufacturer's installation instructions. Schedules showing sizes, types, and locations of louvers and glass shall be submitted.

[3. Shop drawings for control system showing equipment, controls and wiring diagrams.]

1.6 OWNER'S MANUAL

A. The following shall be included in the OWNER'S MANUAL in compliance with Section 01300:

1. Upon completion, the CONTRACTOR shall deliver to the CONSTRUCTION MANAGER complete book containing the manufacturer's operation and maintenance instructions for the overhead door assemblies.

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. **Delivery of Materials:** Manufactured materials shall be delivered in original and unbroken packages, containers, or bundles bearing the name of the manufacturer.
- B. **Storage:** All materials shall be carefully stored in an area that is protected from deleterious elements. Storage shall be in a manner that will prevent damage or marring of the door and its finish.

PART 2 -- PRODUCTS

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NTS: Standard face of inside wall mounted doors are specified. Edit this Section for other conditions such as face of jamb mounting, special finishes, view windows, louvers, and special controls such as card readers, photoelectric sensors, or vehicle detectors.

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2.1 ROLL-UP DOORS

- A. **General:** Roll-up doors shall be of the [metal] [metal insulated] slat curtain design, [chain-operated] [motor-operated], and shall be weather and dust-resistant. Doors shall be provided complete with slats, guides, hoods, reduction gears, galvanized hand chain, operating mechanism, [motors, controls, wiring,] brackets, gears, head, bottom and side weather stripping, hardware, and all other items necessary for their installation and operation.
- B. **Wind Loading:** The doors shall be designed to withstand a wind load of [20] [] lb/sq ft.
- C. **Curtain Slats:** Curtain slats shall be weather sealing, flat appearance designed slats.
- [1. Curtains shall be fabricated from [roll-formed [galvanized steel] [stainless steel] of not less than 20 gauge sheets with a height of approximately 2-1/4 inches.] [extruded aluminum sections with a height of approximately 2-1/8 inches.]]
 - [2. Curtains (insulated) shall be fabricated from [roll formed [galvanized steel] [stainless steel] of not less than 20 gauge sheet exterior slats] and roll formed [galvanized steel] [stainless steel] of not less than 24 gauge interior. The slats shall have a height of approximately 3 inches. The space between interior and exterior slats shall be filled with a polyurethane foam (or equal) having a flame spread not greater than 25 and smoke generation of not more than 50. The slated curtain unit shall have an "R" value of not less than 6.25.]
 - [3. The door units shall be classified as:

[Class A, Division of fire wall, 3 hour rated];
[Class B, Enclosure to vertical communications through building, vertical shafts, etc., 1-1/2 hour rated];
[Class C, Opening in corridors and room protection, 3/4 hour rated];
[Class D, Exterior walls, severe fire exposure, 1-1/2 hour rated].]
- D. **Endlocks:** Endlocks shall be continuous malleable iron castings, designed to provide for curtain alignment and security against lateral movement.
- E. **Bottom Bar:** The bottom bar shall consist of 2 angles galvanized and bolted back-to-back on each side of the curtain or extruded aluminum section to suit the floor profile. A

replaceable flexible vinyl or neoprene gasket or astragal shall be provided as a weather seal and cushion bumper. [A reversing footpiece shall be provided at motor-operated doors unless otherwise indicated.]

- F. **Guides and Stops:** Guides shall consist of a galvanized steel angle assembly of proper size to retain the curtain and to resist the wind loads. Guides shall be provided with weatherstripping. Angle thickness shall be minimum 3/16-inch. Jamb angles shall be anchored to the supporting walls with not less than 3/8-inch bolts spaced at 30 inches on centers, and extending above door opening head to support the coil brackets. Removable stops on guides to prevent over-travel of curtain and a continuous bar for holding windlocks, where required, shall be provided.
- G. **Counter Balanced Shaft Assemblies:** The barrel shall be a steel pipe of sufficient diameter and thickness to support the roll-up curtain and its design loads without distortion of slats, and to limit deflection of the barrel to not more than 0.03-inch per foot of span under full load. The barrel shall have a minimum diameter of 4 inches. The spring balance shall consist of one or more helical torsion springs of oil-tempered heat-treated steel to transfer full load to a single steel torsion bar in the barrel. Rotating members shall turn on self-lubricating graphite or grease-sealed ball bearings, with adjustment for counterbalance springs accessible from outside barrel. Brackets shall be 5/16-inch-thick, cold-rolled steel plate, or equal strength cast iron, attached to the jamb angle guide with 1/2-inch bolts. Brackets shall have a bell-mouth guide groove for the curtain.
- H. **Hood:** The hood shall be manufactured of 24-gauge galvanized steel sheet with bonderized treatment. The hood shall fit over the end brackets. Top and bottom edges of hood shall be rolled and reinforced for stiffness, and intermediate supports shall be provided as necessary. The hood baffle shall be of neoprene and sheet metal.
- I. **Chain Holder:** A chain holder shall be provided on wall with provision for padlocking.
- J. **Manual Operation Features:** Manual operation shall be accomplished by endless chain, sprocket, and reduction gearing to the barrel, designed to require not more than a 35-lb pull on the chain to move the curtain. Sprockets and gears shall have machine cut teeth, or shall be machine-molded. Bearings shall be lubricated for life and self-aligning, and shall be either self-lubricating graphite bearings or grease-sealed precision ball bearings, depending on size of door. Operating chain shall be hot-dip galvanized, located at side of door as shown on the approved shop drawings, and shall be continuous loop design that extends to a point approximately 24 inches above the floor. Chain and gear guards shall be provided as necessary for protection against malfunction or personal hazard.
- K. **Motor Operation Features:** Motor operation shall be pushbutton control unless otherwise indicated. Electrically-operated doors shall be driven by an integral heavy duty power unit of not less than 1/2 hp that has been approved by Underwriters Laboratories, Inc.. The unit shall consist of, but not be limited to, the following principal components, all enclosed in a weathertight housing:
1. Gear reducer, totally enclosed and operating in an oil bath.

2. Emergency hand chain operator and electrical interlock.
 3. High torque, totally enclosed motor with thermal protective device.
 4. Disc brake.
 5. Power supply shall be []-volt, []-phase, []-Hz.
 6. Combination starter, prewired when permitted under the National Electric Code.
 7. Motor and brake shall be removable without affecting chain operator or limit switch setting. Power unit shall connect to operating shaft to raise and lower the door at approximately one foot per second without the use of external gears, belts, or chain. Electrical leads between motor, brake, protective device, interlock, and limit switch shall be factory prewired. The motor-operated doors shall be equipped with an electrical device to stop downward travel of door on contact with an object.
 8. Operators shall consist of not less than a NEMA, 24 volt motor controller, complete with overcurrent protection and [3-button pushbutton] [turn key] station marked "Open," "Close," and "Stop." [or radio control system.] Interior locations shall be provided with NEMA 1 motor controllers, and NEMA 4 motor controllers shall be provided at exterior locations.
 9. The motor-operated doors, motors, controls, safety devices, and wiring shall conform to requirements of governing codes and authorities.]
- L. Wicket doors, where indicated, shall be 1-3/4-inch thick, 3-ft wide by 7-ft high unless otherwise indicated, [conforming to Specification Section 08110] [of manufacturer's standard design.] Wicket door frames shall be of all-welded construction of heavy angle steel. The frame sill member shall not exceed 1/2-inch in height. Wicket door frames shall be secured in closed position by means of heavy-duty cane bolt into the floor slab. Doors shall be provided with heavy-duty [ball bearing] type stainless steel hinges, shop painted, and shall be adapted, reinforced, and cut for finish hardware as indicated in Section 08710.
- M. **Finishes:** [Galvanized steel curtains and wicket doors shall be provided with a baked acrylic which is compatible with the finish paint indicated in Section 09800 or Section 09900, as applicable.] [Aluminum curtains and wicket doors shall be provided with a [clear] [dark bronze] anodized finish.] All other metal parts, exposed and concealed, and doors, shall be shop-primed with primer which is compatible with the finish paint indicated. The inside working area of the guides shall not be painted.
- ## 2.2 OVERHEAD SECTIONAL DOORS
- A. **General:** Overhead sectional doors shall be of the heavy-duty [aluminum] [rolled galvanized steel] type, upward-acting, complete with stiles and rails, hardware, locks, panels, tracks, weatherstripping, and glass. Doors shall be [high] [standard] [low] lift type doors.

- B. **Wind Load and Deflection:** Doors shall be engineered to withstand a 20 lb/sq ft wind load and a maximum 1/120 of door width deflection with door in horizontal position.
- C. **Power Drive:** Power-drive doors shall be provided with power unit, operators, controls, conduit and wiring; all meeting applicable codes. Door bottom shall be equipped with safety edge device providing automatic stop and reverse.
- D. **Door Construction:** Doors shall be [insulated] [non-insulated] doors made up of [aluminum] [heavy-gauge steel] stiles, and rails made into a number of equal sections and panels. Insulated doors shall have fire retarded polystyrene core and a door "R" value of not less than 7.35. [Panels in lower sections shall be of aluminum plate; upper sections shall be glazed.] [Eye-level panel sections shall be provided with [3] [4] [] gasket type window lites.] Doors shall be provided with inside padlocking hardware. Tracks shall be not less than 3-inch galvanized steel tracks.
- E. **Glazing:** Glass shall be wire-reinforced glass unless indicated otherwise in Section 08800.
- F. **Power Unit:** Power unit shall be heavy-duty, [1/2] []-hp []-volt, []-phase motor. Operators shall be equipped with a NEMA motor controller, complete with overcurrent protection and 3-button pushbutton station marked "Open," "Close," and "Stop." At interior locations, NEMA 1 motor controllers shall be used; and at exterior locations, NEMA 4 motor controllers shall be used. The motor-operated doors, motors, controls, safety devices, and wiring shall conform to requirements of governing codes and authorities.
- G. **Primer and Finish:** [Aluminum shall have 0.7-mil minimum thickness hard coat anodic finish conforming to Aluminum Association System AA-M10C22A42, dark bronze color.] [Aluminum doors at marine environments shall have clear marine type anodized hardcoat finish, AA-10C22A44 (Mil-A-8625C.)] [All exposed non-aluminum metal shall be shop painted by the manufacturer's primer compatible to finish painting system indicated in Section [09800] [09900].]

2.3 MANUFACTURERS

- A. Roll-up doors shall be of the following manufacturers and type or model (or equal):
 1. Standard door: Cookson, Type "FC" or Kinnear, Type "SDF2PS"
 2. Weathertight standard door: Cookson "Weatherbar FC" or Kinnear "XSDF2PS"
 3. Weathertight insulated door: Cookson, Type "FCWS" or Kinnear "SDF2C"
 4. Standard motor operated door: Cookson, Type "FCM" or Kinnear, Type "SDF7PS"
 5. Weathertight standard motor operated door: Cookson, Type "FCWI-motor" or Kinnear, Type "XDF7PS"
 6. Weathertight insulated motor operated door: Cookson, Type "FWWI" or Kinnear, Type "SDF7C"

- B. Overhead sectional doors shall be of the following manufacturers and type or model (or equal):
1. Standard steel panel door with motor operation: Clopay Square Corp., "620 w/motor" or Overhead Door Corp., Series "420 w/motor"
 2. Standard aluminum door with motor operation: Clopay Square Corp., Model "900 w/motor" or Overhead Door Corp., Series "520 w/motor"
 3. Standard insulated steel panel door with motor operation: Clopay Square Corp., Model "630S w/motor" or Overhead Door Corp., Model "422 w/motor"

PART 3 -- EXECUTION

3.1 GENERAL

- A. Installation shall be in accordance with the manufacturer's printed recommendations and instructions.

3.2 INSTALLATION

- A. Doors shall be accurately cut, fitted, and installed level, square, plumb, and in alignment. Fasteners shall be sized for loads imposed and shall be of sufficient length. Doors shall be provided with accurately made cutouts, and shall be reinforced for strength where necessary. Doors shall be adjusted to provide smooth, unbinding operation with all hardware fully operable.

**** END OF SECTION ****