

## SECTION 08 13 00

### STEEL DOORS

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

###### A. Work includes:

1. Furnish all labor and materials to complete the fabrication and installation of doors as shown on architect's drawings and as specified herein. All doors must be domestically manufactured in the U.S.A. All work shall include, but not be limited to, the following:
  - a. Custom profile and steel trim to match existing profile.
  - b. Steel triple weatherstripped doors.
  - c. All door anchors, mullions, covers and trim.
  - d. Factory applied finish.
  - e. Hardware.

###### B. Related work specified elsewhere:

1. Section 07 92 00 – Joint Sealants
2. Section 08 81 00 – Glass Glazing

##### 1.2. QUALITY ASSURANCE

- A. Manufacturer shall have not less than 15 years experience in the fabrication of heavy custom steel doors and be a member of The Steel Window Institute (SWI).
- B. Installation: Company specializing in installation of steel doors/windows with 8 consecutive years of minimum experience in the installation of doors/windows of similar scope and complexity.
- C. Doors/window installers shall have successfully completed the Hope's Installation Training Program. Submit certificate for proof of compliance.
- D. Allowable tolerances: Size dimensions + 1/16 inch.
- E. Pre-installation Meetings:
  1. Secure attendance by Architect/Engineer, Construction Manager, Contractor, applicator, and authorized representatives of the material manufacturer and interfacing trades, where appropriate.
  2. Examine Drawings and Specifications affecting work of this Section, verify all conditions, review installation procedures, and coordinate scheduling with interfacing portions of the Work.
- F. Source quality control:
  1. Quality of e-coat/ top-coat combination shall meet or exceed the following ASTM designations: ASTM D714- Paint Blistering Test, ASTM D4585 – Humidity Test, ASTM B117 – Salt Spray (Fog) Test, ASTM D1654 – Painted Products in Corrosive Environments, ASTM G85 – Cyclic Fog/Dry Test (Prohesion), ASTM D5894 – Salt Fog/UV Painted Metal, ASTM D4541 – Pull Off Strength of Coating Test.

2. The door manufacturer shall provide a test report from a qualified independent U.S. testing laboratory regularly engaged in testing doors to verify that his products conform to these test requirements.

### 1.3. SUBMITTALS

#### A. Samples:

1. Typical door 6" section with glazing beads.
2. Sample of specified muntin, showing welded intersections and glazing beads.
3. Color sample of finish.
4. Hardware.

#### B. Shop drawings and manufacturer's literature:

1. Submit for approval shop drawings showing door and installation details, including anchorage, fastening and recommended sealing methods.
2. Dimensioned elevations showing door opening, door sizes, transom, and sidelights.
3. The manufacturer shall not commence any work until shop drawings have been approved.
4. Color charts for finishes.

#### C. Quality Control:

1. Test Reports: Independent laboratory test reports verifying conformance with all indicated performance requirements.
2. Certificates: Certify that products meet or exceed specified performance criteria tests. Submit test results reports and engineering calculations for approval purposes to indicate adequacy of all installed materials to withstand the Design Load requirements. Calculations to be prepared and stamped by engineer registered in the State of California.
3. Manufacturer's Instructions: Indicate special procedures, and perimeter conditions requiring special attention.
4. Closeout Submittals: Upon completion of the work required by this Section, submit one Maintenance Manual, identified with the Project Name, location, and date; window series and hardware installed; and name of manufacturer, installer, and local distributor. Include recommendations for periodic inspections, cleaning, care, and maintenance.

### 1.4. PRODUCT, STORAGE AND HANDLING

- A. The General Contractor shall be responsible for the protection and storage of the doors after delivery to the site.
- B. Store in designated areas in an upright position on wood slats or on a dry floor in a manner that will prevent damage. Ventilate canvas or plastic coverings to prevent humidity buildup.

### 1.5. WARRANTY

- A. Provide Hope's 10-year Limited Warranty.

## PART 2 - PRODUCT AND FABRICATION

### 2.1. MANUFACTURER

- A. Hopes Windows, 84 Hopkins Avenue, Jamestown, NY 14702-0580. Manufacturer Representative: Michael Vizcarra, 707-664-9542, [mvapollo@yahoo.com](mailto:mvapollo@yahoo.com)

- B. Substitutions are subject to approval of the Architect and shall meet or exceed Hope's windows specifications.
- C. Substitutions shall be submitted for review a minimum 10 days prior to bid date.

## 2.2. MATERIALS

### A. Door and Frames

- 1. 5000 Series Door by Hope Windows with University Series inserts or Approved Equal.
- 2. Door and Frames shall be manufactured from 12 gauge galvanized steel.

### B. Muntins

- 1. Muntins shall be manufactured from solid hot-rolled steel.
- 2. Glazing rebate surfaces must be perpendicular to the stem of this profile. Applied glazing rebate extensions and rebate surfaces that are tapered will not be acceptable.
- 3. 1-3/4" tee shall weigh 1.62 pounds per lineal foot, the 1-3/8" tee shall weigh 1.44 pounds per lineal foot and the 7/8" tee shall weigh 1.19 pounds per lineal foot.
- 4. All steel until profiles must be a minimum of 1-3/4" in depth.

### C. VENTILATOR SECTIONS

- 1. The frame and ventilator sections shall have integral grooves located in the exterior and interior bedding contacts for the reception of triple weatherstripping.

### D. KICK PANELS

- 1. Kick panels shall be made from two, 16 gauge sheet steel panels with a rigid polyisocyanurate insulation core.

### E. Glazing beads shall be extruded aluminum Alloy 6063-T5 with a minimum thickness of .062 inches.

### F. Weatherstripping

- 1. Seals on Frame: Pemko #S88 Silicon seal adhesive backed fire/smoke gasketing.
- 2. Meeting of Leaves Sweep and Sill Sweep: Pemko #29324 \_SB (DB) Brush gasketing 180 degree concealed fastener retainers

### G. All screws that are furnished by Hope's, for hardware, trim, covers, anchoring, weatherbars, water dams, screens, etc., shall be non-ferrous brass or stainless steel. Glazing bead screws are plated steel.

### H. Paint

- 1. Pre-treatment.
- 2. Primer - E-Coat (Electrodeposited epoxy primer).
- 3. Intermediate powder primer.
- 4. Finish coat – Factory applied acrylic polyurethane.

## 2.3. FABRICATION

- A. Fabricate steel doors in accordance with approved shop drawings.
- B. Prior to fabrication, all hot-rolled steel sections shall be cleaned by shot blasting.

- C. Corners of frame and ventilator shall be mitered or coped then solidly welded. Exposed and contact surfaces shall be finished smooth flush with the adjacent surfaces. All interior and exterior rail bar and muntin joints shall be face welded and ground smooth.
- D. Steel shell of insulated kick panel shall be E-coated and factory finished prior to lamination with the rigid insulation core. Kick panels shall be factory installed with a structural silicone sealant.
- E. Lock boxes and lock stiles shall incorporate both custom formed profiles and #84H hot-rolled section as shown on the shop drawings and welded to the door leaf
- F. Glazing
  - 1. All doors shall be designed for inside glazing.
  - 2. Provide replaceable continuous snap-in glazing beads to suit the glass as specified.
  - 3. Glazing beads shall be cut and shop fitted to each glass lite prior to shipment.
- G. Weatherstrip
  - 1. All door leaves shall receive weatherstripping as specified in 2.2.D that shall be applied to the integral dovetail weatherstrip grooves in the interior and exterior contact surfaces of the head and jambs of the frame and door sections. Weatherstripping that is surface applied or requires additional retainer or requires screws for application shall not be acceptable. Sill weatherstripping shall be either surface applied to the face of the door, applied to an integral T-slot in the threshold or attached to the underside of the door.

#### 2.4. FACTORY FINISHING

##### A. Shot Blasting

- 1. Before any machining or welding is performed, all hot-rolled steel sections shall be cleaned by shot blasting to remove any loose or mill scale.

##### B. E-Coat Pretreatment and Prime Painting

- 1. After fabrication, windows, mullions, covers, and trim shall be subjected to an advanced 11-stage pretreatment process to thoroughly clean and prepare the substrates for e-coat.
  - a. Caustic soap spray cleaning
  - b. Caustic soap emersion cleaning
  - c. Cold water rinse, emersion
  - d. Acid-etch pickling
  - e. Cold water rinse, emersion
  - f. Cold water rinse, emersion
  - g. Rinse conditioner/grain refiner, emersion
  - h. Zinc phosphate application, emersion
  - i. Cold water rinse, emersion
  - j. Non-chrome sealer, emersion
  - k. Reverse osmosis filtered water rinse, emersion
- 2. Following pretreatment, windows and accessories are immersed into a cathodic epoxy primer of PPG Powercron®8000 or equivalent for the length of time required to coat all surfaces to a dry film thickness of minimum 0.8-1.2 mils. The use of spray or non-cathodic dip primers shall not be acceptable.

- a. All excess paint and runs are then removed by post rinse stages consisting of:
    - i. Spray rinse of ultra-filtered RO water
    - ii. Immersion in a rinse of ultra-filtered RO water for 3 minutes
    - iii. Spray rinse of ultra-filtered RO water
  3. The material is then oven baked for 20 minutes at 325° (degrees) F metal temperature.
  4. The material is then cooled in preparation for the optional powder primer coat or final finish coat.
- C. Powder Intermediate Primer
1. Following the E-Coat pretreatment/ priming process, windows and accessories are coated with a urethane polyester powder coat primer that provides additional protection against abrasion and corrosion.
  2. Powder coating shall be applied by electrostatic spray over the cured E-Coat to a dry film thickness of 2.0-3.0 mil.
  3. The parts are then baked at a temperature of 375°F to completely cure the gray urethane polyester coating. The resulting coating provides a durable finish which is resistant to chipping, scratching and general abrasion experienced during the installation process. Additional fused layer of protection also provides additional protection from harmful environments (i.e. high humidity and coastal salt air environments).
  4. The primer is available in both smooth and textured finishes.
  5. After cooling, the components are ready for their finish coat.
  6. Powder coatings are not intended for final finish and must be top coated with a polyurethane finish paint.
- D. Ultrathane Finish Top Coat
1. Following the primer coat(s), all windows and accessories are given a spray coat of acrylic polyurethane and oven baked at 225°F for 15 minutes to dry film thickness of 1.5-2.0 mils.
  2. The combined overall dry film thickness of the coatings shall be 2.3-3.2 mils (if no powder intermediate coat) and 4.3-6.2 (with the powder intermediate coat).
  3. The architect shall choose from an unlimited color selection. Color matching is available upon request, along with clear coats. Some colors may require clear coats for added protection. Consult your Hope's Representative for selection assistance.
- E. E-Coat/ top coat system shall provide full documented compliance with the following:
1. ASTM D714-02 Paint Blistering Test
  2. ASTM D4585 Humidity Test
  3. ASTM B117-03 Salt Spray (Fog) Test
  4. ASTM D1654-05 Painted Products in Corrosive Environment
  5. ASTM G85 Cyclic Fog/ Dry Test (Prohesion)
  6. ASTM D5894-96 Salt Fog/ UV Painted Metal
  7. ASTM D4541 Pull Off Strength of Coating Test
- F. Upon request, the window manufacturer shall provide a test report from a qualified independent U.S. testing laboratory regularly engaged in testing windows to verify that finished products conform to these test requirements.

## 2.5. OPERABLE HARDWARE

### A. Hinges

1. Hinges shall be full mortise, heavy duty bronze ball bearing 4-1/2" x 4-1/2" x .18 or heavier as required.

### B. Thresholds

1. Threshold
  - a. Pemko #171 B - Mill Finish Brass Extruded Bronze (Brass)

### C. Door Hardware

1. Exterior key cylinder.
  - a. Schlage Primus XP cylinder
  - b. Exterior key cylinder, see Exterior Door Hardware
2. Exterior Door Hardware
  - a. Corbin Russwin, Pull P6, Finish: Dark Bronze (BHMA 613)
3. Panic Hardware
  - a. Corbin Russwin, Narrow Stile Crossbar Exit Device ED7200, Finish: Dark Bronze (BHMA 613)
4. Automated Opening Device
  - a. Record-USA, 6100 Series ADA Low Energy Operator
5. Closer
  - a. Corbin Russwin, DC8000 Series Heavy-Duty Door Closer, Finish: Dark Bronze (BHMA 690) Hold-open option (A5)
6. Vertical Rod and Mortise
  - a. Corbin Russwin, Concealed Vertical Rod and Mortise ED7800 x ED 7800
7. Door Strikes
  - a. Corbin Russwin, Top Strike 503F55
  - b. Corbin Russwin, Bottom Strike 503F52
8. Electromagnetic lock
  - a. Security Door Controls, 1560 Series Concealed Mortise EMLock.

## PART 3 - EXECUTION

### 3.1. INSPECTION

- A. Door openings shall conform to details, dimensions and tolerances shown on the door manufacturer's approved shop drawings.
- B. Conditions which may adversely affect the door installation must be corrected before installation commences.
- C. Verify that pan flashing is installed in strict accordance with drawings and specifications.

D. The wash down of the adjacent masonry must be completed before erection commences to prevent damage to the finish by the cleaning materials.

### 3.2. INSTALLATION

A. Doors specified under this section shall be installed by experienced personnel.

B. Install doors in openings in strict accordance with approved shop drawings.

1. Set units plumb, level and true to line, without warp or rack of frames.

2. Anchor units securely to surrounding construction with approved fasteners.

3. The exterior joints between the doors, trim and mullions shall be properly sealed water-tight with an approved sealant and neatly pointed.

C. Attach door hardware, as required, and adjust doors to operate smoothly free from twist and to be weather-tight when closed.

D. Attach loose muntin grids per approved shop drawings, if applicable.

E. Repair any abraded areas of the factory finish.

### 3.3. CLEANING

A. Door installer shall leave door surfaces clean after installation and ready to receive glass and glazing. The door installer will not be responsible for final cleaning.

SECTION END