

SECTION 14 24 23

HYDRAULIC ELEVATORS

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 sections, apply to work of this section.

1.2 SECTION INCLUDES

- A. Passenger elevator systems.
- B. Motor and pump, controllers, equipment and fitments.

1.3 SYSTEM DESCRIPTION

- A. Hydraulic Elevator Systems: One unit; buried cylinder and watertight casing, with motor and pump adjacent to the hoistway.
- B. Characteristics of each elevator are as follows:
  - 1. Rated Net Capacity: 2500 lbs.
  - 2. Rated Speed: 150 ft/min.
  - 3. Nominal Platform Size: 84x62 inches.
  - 4. Clear Net Platform Size: 80x52 inches.
  - 5. Cab Ceiling Height: 90 inches.
  - 6. Hoistway and Cab Entrance Frame Opening Sizes: 42x84 inches.
  - 7. Door Type: Single leaf.
  - 8. Door Operation: Side opening.
  - 9. Number of Stops:
    - a. Elevator 1: 5
  - 10. Number of Openings:
    - a. Elevator 1: 5
- C. Controls System: Conform to the following criteria:
  - 1. Non-Proprietary Single Car Automatic Collective Operation elevator control system.
- D. Special Operational Features:
  - 1. Key operated Fire Department Service
  - 2. Interconnect with building fire and smoke alarm system, with automatic recall to first floor.
  - 3. Door Edge Protective Device: Infrared multi-beam door reversal device.
  - 4. Emergency Telephone: Single push button operation with automatic dialer.
  - 5. Seismic Design: In accordance with applicable IBC code.

1.4 SUBMITTALS

- A. Shop Drawings: Indicate the following minimum information on shop drawings:
  - 1. Motor and hydraulic pump, valves, and other component locations.
  - 2. Car, supporting beams, guide rails, and other components in hoistway.
  - 3. Loads on hoisting beams.
  - 4. Applicable seismic design data; certified by a Registered Professional Structural Engineer.
  - 5. Elevator control functions and operational description.
- B. Product Data: Provide data on the following items:
  - 1. Signal and operating fixtures, operating panels, indicators.
  - 2. Cab design, dimensions, layout, and components.
  - 3. Cab and hoistway door and frame details.
- C. Schematic: Provide legible schematic of hydraulic piping and electric wiring diagrams describing installed equipment. Provide one copy of master schematic, mounted in plastic glazed metal frame, mounted on machine room wall.
- D. Samples: Submit two samples, illustrating cab floor material, cab interior finishes, cab and hoistway door and frame finishes.

#### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with the following:
  - 1. ASME A17.1 - Safety Code for Elevators and Escalators.
  - 2. UL 10B - Fire Tests of Door Assemblies.
  - 3. ICC/ANSI A 117.1-2003.
  - 4. Americans with Disabilities Act (ADA).

#### 1.6 MAINTENANCE

- A. Include description of elevator system's method of operation, control description, motor control system, cab and hoistway door operation, visual and audio signals, fire fighter's service, and specified non-standard features.
- B. Include a parts catalog with complete list of equipment replacement parts.
- C. Include legible schematic wiring diagrams of installed electrical equipment.
- D. Provide one copy of master hydraulic and electrical schematic and one copy of lubrication chart, each framed with clear plastic glass; mount on machine room wall.

## 2 PART 2 PRODUCTS

### 2.1 ELEVATOR SYSTEM AND COMPONENTS

- A. Manufacturers:
  - 1. Otis Elevator.
  - 2. Pine State Elevator
  - 3. Schindler USA.

4. Stanley Elevator.
  5. ThyssenKrupp Elevator.
- B. Structural Components, Cylinder and Casing: Required to construct elevator system and conform to code.
  - C. Casing Jacket: PVC.
  - D. Sheet Steel: ASTM A366/A366M Class 1.
  - E. Stainless Steel: ASTM A167 Type 304 #4 finish.
  - F. Aluminum: ASTM B221 ASTM B221M, extruded.
  - G. Plastic Laminate: General Purpose type, fire retardant finish, matte surface finish, color/pattern as selected.
  - H. Motors, Pumps, Valves, Regulators, Fluid Tank, Hydraulic Fluid, Controller, Controls, Buttons, Wiring and Devices, Indicators: UL approved.
  - I. Spring Buffers, Attachment Brackets and Anchors: Purpose designed, sized according to code with safety factors.
  - J. Guides: T-shaped steel cab guide rails with 4" roller guides.
  - K. Pump Housing: Sheet steel, acoustically insulated, removable.

## 2.2 ELECTRICAL CHARACTERISTICS AND COMPONENTS

- A. Electrical Characteristics:
  1. 480 volts, three phase, 60 Hz. (confirm with electrical contractor).
  2. Starter Characteristics: Reduced voltage.
- B. Motor: NEMA MG1.
- C. Disconnect Switch: Factory mount disconnect switch in control panel.
- D. Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.

## 2.3 CAB FABRICATION

- A. Flooring: Carpet, of type specified in Section 09 68 00
- B. Walls: Plastic laminate on plywood.
- C. Front Return Panel: Stainless steel.
- D. Base: Resilient vinyl cove, of type specified in Section 09650
- E. Ceiling: Luminous acrylic ceiling panels suspended 7'-4" (2235 mm) above the finished floor.

- F. Light Fixtures: Fluorescent.
- G. Ventilation: Fan, grille above ceiling.
- H. Control Panel and Face Plate: Stainless steel with illuminating call buttons.
- I. Indicator Panel: above control panel with illuminating position indicators.
- J. Hand Rail: 1-1/2" diameter stainless steel.
- K. Pad Hooks: Stainless steel button type.
- L. Protective Pads: One set for each elevator cab, canvas cover, padded, brass grommets.
- M. Car Top Inspection: Provide a car top inspection station with an "emergency stop" switch and constant pressure "up-down" direction buttons to make the normal operating devices inoperative and give the inspector complete control of the elevator. Mount the car top inspection station in the door operator assembly

#### 2.4 CAB ENTRANCES

- A. Cab Doors: ASTM A366 steel. Hollow panel construction, flush design, rolled profiles, rigid construction, with factory baked enamel finish.
- B. Cab Door Frames: Stainless steel, welded corner design with smooth invisible joints.
- C. Thresholds: Extruded aluminum type, mill finish.

#### 2.5 HOISTWAY ENTRANCES

- A. Hoistway Doors: ASTM A366 steel hollow sandwich panel construction, flush design, rolled profiles, rigid construction, with factory baked enamel finish.
- B. Hoistway Door Frames: Stainless steel, knocked down design.
- C. Door and Frame Construction: 1-1/2 hour fire rating.
- D. Sills: Extruded aluminum, mill finish.
- E. Landing Buttons: Illuminating type, one for originating UP and one for originating DOWN calls, one button only at terminating landings; marked with arrows
- F. Car Position Indicator: Illuminating, one per elevator at main floor.
- G. Car Direction Indicators: Illuminating, one per elevator per floor.

#### 2.6 FINISHES

- A. Baked Enamel on Steel: Clean and degrease metal surface; apply one coat of primer sprayed and baked; two coats of enamel sprayed and baked; color as selected.
- B. Stainless Steel: #4 Satin Polished.
- C. Aluminum: Clear anodized finish.

### 3 PART 3 EXECUTION

#### 3.1 EXAMINATION AND PREPARATION

- A. Verify that hoistway, pit and machine room are ready for work of this Section.
- B. Verify shaft and openings are of correct size and within tolerances.
- C. Verify that electrical power is available and of the correct characteristics.

#### 3.2 EXCAVATION AND BACKFILLING FOR CASING

- A. Excavation and Backfilling: Refer to Section 31 20 00.
- B. Place plunger casing full depth of shaft. Align within 1/4 inch from plumb. Cut top of casing at hoistway pit slab elevation.
- C. Backfill around plunger and hydraulic lines between plunger and remote machine room casing with structural type fill; placed in 24 inch lifts compacted to 95%

#### 3.3 INSTALLATION

- A. Install in accordance with ASME A17.1.
- B. Install system components and connect to building utilities.
- C. Accommodate equipment in space indicated.
- D. Core drill holes as necessary for installation.
- E. Install elevator hydraulic equipment on vibration isolation pads.
- F. Coordinate installation of hoistway wall construction.
- G. Grout sills in place. Set entrances in vertical alignment with car openings and aligned with plumb hoistway lines.
- H. Adjust for smooth acceleration and deceleration of car so not to cause passenger discomfort.
- I. Adjust automatic floor leveling feature at each floor to achieve 1/4 inch from flush.

#### 3.4 TESTS BY REGULATORY AGENCIES

- A. Obtain required permits to perform tests. Perform tests required by regulatory agencies.
- B. Schedule tests with agencies and Architect/Engineer, Owner, and Contractor present.

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