

SECTION 14240 - HYDRAULIC ELEVATORS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes hydraulic passenger elevators.
- B. See Division 9 for finish flooring in elevator cars.

1.2 SUBMITTALS

- A. Product Data: Include capacities, sizes, performances, operations, safety features, finishes, and similar information for each elevator required.
- B. Shop Drawings: Show plans, elevations, sections, and large-scale details indicating service at each landing, machine room layout, relationships with other construction, and locations of equipment and signals. Indicate maximum and average power demands.
- C. Samples: For each exposed finish.
- D. Manufacturer Certificates: Signed by elevator manufacturer certifying that hoistway, pit, and machine room layout and dimensions, as shown on Drawings, and electrical service, as shown and specified, are adequate for elevator system being provided.
- E. Maintenance manuals.
- F. Inspection and Acceptance Certificates and Operating Permits: As required by authorities having jurisdiction for normal, unrestricted elevator use.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with local governing regulations and with applicable provisions in ASME A17.1, "Safety Code for Elevators and Escalators."
 - 1. Project's Seismic Risk Zone: **[0 or 1]**.
- B. Accessibility Requirements: In addition to local governing regulations, comply with **[Section 4.10 in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines (ADAAG)."]**

1.4 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, provide **[12]** months' full maintenance service. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering hydraulic elevators that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide hydraulic elevators by one of the following:
 - 1. Thyssen Elevator Group North America.

2.2 MATERIALS AND COMPONENTS

- A. General: Provide manufacturer's standard elevator systems, published by manufacturer as included in standard preengineered elevator systems and as required for a complete system.
- B. Pump Units: Positive-displacement type with a maximum of 10 percent variation between no load and full load and with minimum pulsations.
 - 1. Pump: **[Mounted under oil tank with vibration isolation mounts and enclosed in prime-painted steel enclosure lined with 1-inch- (25-mm-) thick, glass-fiber insulation board].**
 - 2. Motor Starting: **[Wye delta or solid state].**
- C. Hydraulic Silencers: Containing pulsation-absorbing material in a blowout-proof housing at pump unit.
- D. Protective Cylinder Casings: PVC pipe casings complying with ASME A17.1, of sufficient size to provide not less than 1-inch (25-mm) clearance from cylinder, and extending above pit floor.
- E. Protective Cylinder Coating: Two or more layers of PVC tape with a total thickness not less than 0.040 inches (1.0 mm)**[or other coating complying with ASME A17.1].**
- F. Car Frame and Platform: Welded steel units.
- G. Finish Materials:
 - 1. Satin Stainless Steel: ASTM A 666, Type 304, with No. **[4, directional]** satin finish.
 - 2. Enameled-Steel Sheet: Cold-rolled steel sheet complying with ASTM A 366/A 366M, matte finish, stretcher-leveled standard of flatness; hot-rolled steel sheet complying with ASTM A 569/A 569M may be used for door frames. Provide with factory-applied enamel finish.
 - a. Colors: **[As selected from manufacturer's full range].**

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3. Prime-Painted Steel Sheet: Cold-rolled steel sheet, ASTM A 366/A 366M, or hot-rolled steel sheet, ASTM A 569/A 569M, with factory-applied rust-inhibitive primer.
4. Plastic Laminate: High-pressure type complying with NEMA LD 3, Type HGS.
 - a. Colors, Textures, and Patterns: [As selected from manufacturer's full range]

2.3 OPERATION SYSTEMS

- A. Provide manufacturer's standard microprocessor operation system of the type indicated.
 1. Single Elevator, Two Stops: Provide "automatic operation" as defined in ASME A17.1.
 2. Single Elevator: Provide "selective collective automatic operation" as defined in ASME A17.1.
 3. Multiple-Car Group: Provide "group automatic operation" as defined in ASME A17.1.
- B. Auxiliary Operations:
 1. Standby Powered Lowering: On activation of standby power, cars are lowered to the lowest floor, open their doors, and shut down.
 2. Battery-Powered Lowering: When power fails, cars are lowered to the lowest floor, open their doors, and shut down. System includes rechargeable battery and automatic recharging system.
 3. Independent Service: Keyswitch in car control station removes car from group operation and allows it to respond only to car calls. Key cannot be removed from keyswitch when car is in independent service.
- C. Security Features: Security features do not affect emergency firefighters' service.
 1. Secured Landing Feature: Allows each landing to be secured or cleared. If landing is secured, car buttons for that landing do not register a call unless landing access code is entered within a predetermined time period after landing button is pressed. Access codes are programmed at each car operating panel using a security keyswitch. Secured landing feature is activated and deactivated by a security keyswitch at the main landing.
 2. Car-to-Lobby Feature: Feature, activated by a keyswitch at main lobby, that causes all cars in a group to return immediately to lobby and open doors for inspection. On deactivation by keyswitch, cars complete calls registered before keyswitch activation and resume normal operation.
 3. Card-Reader Operation: For access to restricted landings based on security system provided by others. Provide required conductors in traveling cable and panel in machine room for interconnecting card readers, other security access system equipment, and elevator controllers. Allow space in car as indicated for card reader.

2.4 SIGNAL EQUIPMENT

- A. General: Satin stainless-steel signal equipment with hall-call and car-call buttons that light when activated and remain lit until call has been fulfilled. Fabricate lighted elements of acrylic or other permanent, nonyellowing translucent plastic.

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- B. Car Control Stations: Manufacturer's standard car control stations mounted in return panel adjacent to car door, unless otherwise indicated.
- C. Emergency Communication System: Complying with ASME A17.1 and the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines (ADAAG)." On activation, system dials preprogrammed number of monitoring station and identifies elevator location to monitoring station. System provides two-way voice communication without using a handset and provides visible signals that indicate when system has been activated and when monitoring station has responded. System is contained in flush-mounted cabinet, with identification, instructions for use, and battery backup power supply.
- D. Fire Department Communication System: [**Flush-mounted cabinet**] in each car and required conductors in traveling cable for fire department communication system specified in Division 16 Sections.
- E. Car Position Indicator: Locate above car door or above car control station and include audible signal to indicate to passengers that car is either stopping at or passing each of the floors served.
 - 1. Include travel direction arrows if not included in car control station.
- F. Hall Push-Button Stations: Locate at each landing for each elevator or group of elevators as indicated.
- G. Hall Lanterns: Units with illuminated arrows.
 - 1. With each lantern, include audible signals. Signals sound once for up and twice for down.
- H. Hall Position Indicators: Locate above each hoistway entrance at ground floor.
- I. Corridor Call Station Pictograph Signs: Matching hall push-button stations with text and graphics according to ASME A17.1, Appendix H.

2.5 DOOR REOPENING DEVICES

- A. Infrared Array: Uniform array of 36 or more microprocessor-controlled, infrared light beams projecting across car entrance. Interruption of one or more of the light beams causes doors to stop and reopen.

2.6 ELEVATOR CAR ENCLOSURES

- A. General: Provide manufacturer's standard [**steel-framed car enclosures with nonremovable wall panels**], suspended ceiling, trim, accessories, access doors, doors, power door operators, sills (thresholds), lighting, and ventilation.
 - 1. Floor Finish: Porcelain Tile, See Section 09310.
 - 2. Metal Wall Panels: Flush hollow-metal construction, fabricated from metal indicated.

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3. Plastic-Laminate Wall Panels: Plastic laminate adhesively applied to 1/2-inch (13-mm) fire-retardant-treated particleboard with manufacturer's standard protective edge trim.
4. Fabricate car with recesses and cutouts for signal equipment.
5. Fabricate car door frame integrally with front wall of car.
6. Enameled-Steel Doors: Flush, hollow-metal construction.
7. Plastic-Laminate Doors: Flush, hollow-metal, prime-painted-steel doors, faced with plastic laminate; with manufacturer's standard protective edge trim.
8. Sills: Extruded aluminum, with grooved surface, 1/4 inch (6.4 mm) thick.
9. Luminous Ceiling: Fluorescent light fixtures and ceiling panels of translucent acrylic or other permanent rigid plastic complying with flammability requirements.
10. Handrails: Manufacturer's standard metal handrails.

2.7 HOISTWAY ENTRANCES

- A. General: Manufacturer's standard horizontal-sliding, door-and-frame hoistway entrances complete with track systems, hardware, sills, and accessories.
 1. Where gypsum board wall construction is indicated, provide self-supporting frames with reinforced head sections.
 2. Enameled-Steel Frames: Formed steel sheet.
 3. Enameled-Steel Doors: Flush, hollow-metal construction.
 4. Plastic-Laminate Doors: Flush, prime-painted-steel, hollow-metal construction, faced with plastic laminate; with manufacturer's standard protective edge trim.
 5. Sills: Extruded aluminum, with grooved surface, 1/4 inch (6.4 mm) thick.
 6. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107.

2.8 ELEVATORS

- A. Elevator No. AMEE 35:
 1. Type: [**Under-the-car single cylinder**]
 2. Rated Load: [**3500 lb (1589 kg)**]
 3. Rated Speed: **80 fpm**
 4. Operation System: [**Selective collective automatic operation**]
 5. Auxiliary Operations:
 - a. Standby powered lowering.
 - b. Battery-powered lowering.
 - c. Independent service.
 - d. Loaded-car bypass.
 - e. Automatic dispatching of loaded car.
 - f. Nuisance call cancel.
 6. Car Enclosures:
 - a. Inside Width: [**80 inches (2032 mm)**]
 - b. Inside Depth: [**65 inches (1651 mm)**]
 - c. Inside Height: [**94 inches (2388 mm)**].

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- d. Front Walls: [**Enameled**] steel with integral car door frames.
 - e. Side and Rear Wall Panels: [**Plastic laminate**] .
 - f. Door Faces (Interior): [**Plastic laminate**].
7. Hoistway Entrances:
- a. Width: [**42 inches (1067 mm)**]
 - b. Height: 84 inches (2134 mm).
 - c. Type: [**Single-speed center opening**]
 - d. Frames:
 - 1) First Floor: [**Enameled**] steel.
 - 2) Other Floors: [**Enameled**] steel.
 - e. Doors:
 - 1) First Floor: [**Enameled steel**]
 - 2) Other Floors: [**Enameled steel**]
8. Additional Requirements:
- a. Provide inspection certificate in each car, mounted under acrylic cover with satin stainless-steel frame.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Excavation for Jack: Drill excavation in each elevator pit to accommodate installation of cylinders; comply with applicable requirements in Division 2 Section "Earthwork."
 - 1. Provide [**waterproof well casings**] to retain walls of well hole.
- B. Install cylinders in protective casings within well [**casings**] after removing water and debris [**and providing a permanent waterproof seal at bottom of well casing**].
 - 1. Align cylinders and fill space between well casing and protective casing with fine sand.
- C. Install cylinders in well [**casings**] after removing water and debris [**and provide permanent waterproof seal at bottom of casing**].
 - 1. Align cylinder and fill void space with fine sand.
- D. Install cylinders plumb and accurately centered for elevator car position and travel. Anchor securely in place, supported at pit floor. Seal between [**well casing, protective casing, or cylinder**] and pit floor with 4 inches (100 mm) of nonshrink, nonmetallic grout.
- E. Leveling Tolerance: 1/4 inch (6 mm), up or down, regardless of load and direction of travel.

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- F. Set sills flush with finished floor surface at landing. Fill space under sill solidly with nonshrink, nonmetallic grout.

3.2 FIELD QUALITY CONTROL

- A. Acceptance Testing: On completion of elevator installation and before permitting use (either temporary or permanent) of elevators, perform acceptance tests as required and recommended by ASME A17.1 and by governing regulations and agencies.

3.3 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain elevators. Review emergency provisions and train Owner's personnel in procedures to follow in identifying sources of operational failures or malfunctions. Refer to Division 1 Section "[Closeout Procedures]."

3.4 PROTECTION

- A. Temporary Use: Do not use elevators for construction purposes unless cars are provided with temporary enclosures, either within finished cars or in place of finished cars, to protect finishes from damage.
 - 1. Provide full maintenance service by skilled, competent employees of elevator Installer for elevators used for construction purposes.

END OF SECTION 14240

