

SECTION 14 24 00 - ELEVATORS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes passenger and service elevators.
- B. Refer to site-civil drawings and/or Division 31 Section "Earth Moving" for disposition of excavated material from hole or pit.
- C. See Interior Design drawings for finish flooring in elevator cars.
- D. Unit Prices: Rock excavation for cylinder well holes will be paid for under the unit price indicated in the Contract and as specified in Division 01 Section "Unit Prices."

1.2 SUBMITTALS

- A. Product Data: Include capacities, sizes, performances, operations, safety features, finishes, and similar information.
- B. Shop Drawings: Show plans, elevations, sections, and large-scale details indicating service at each landing, machine room layout, coordination with building structure, relationships with other construction, and locations of equipment and signals. Indicate variations from specified requirements, maximum dynamic and static loads imposed on building structure at points of support, and maximum and average power demands.
- C. Samples: For exposed finishes.
- 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. Operation and maintenance data.
- 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 ASME A17.1 and elevator design requirements for earthquake loads in ASCE 7.
 - 1. Project's seismic design category is B. Site class is C.
 - 2. Occupancy Category is II.
- B. Accessibility Requirements: Comply with Section 4.10 in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)" and 407 in ICC A117.1.; in the case of a conflict between codes, comply with whichever is stricter.
- C. Stretcher requirements: Verify elevator compliance with stretcher size requirements required by state and local codes.

- D. Green building: Provide data that may be useful in meeting Green Building initiatives, such as LEED.

1.4 WARRANTY

- A. Special Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to repair, restore, or replace defective elevator work within specified warranty period.
 - 1. Warranty Period: One year from date of Substantial Completion.

1.5 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, provide one year's full maintenance service by skilled employees of elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Provide Owner with option for continuing service agreement.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers below.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide Kone Ecospace or comparable product by one of the following:
 - 1. Otis Elevator Co.
 - 2. Schindler Elevator Corp.
 - 3. ThyssenKrupp Elevator.

2.2 SYSTEMS AND COMPONENTS

- A. General: Provide manufacturer's standard elevator systems, including standard components published by manufacturer as included in standard pre-engineered elevator systems and as required for complete system.
- B. Pump Units (where applicable): Positive-displacement type with a maximum of 10 percent variation between no load and full load and with minimum pulsations. Provide the following:
 - 1. Pump mounted on oil tank with vibration isolation mounts. Enclose pump in prime-painted steel enclosure lined with 1-inch- (25-mm-) thick, glass-fiber insulation board.
 - 2. Provide motor with solid-state starting.
- C. Hydraulic Silencers (where applicable): Provide hydraulic silencer containing pulsation-absorbing material in a blowout-proof housing at pump unit.
- D. Hydraulic Fluid (where applicable): Nontoxic, readily biodegradable made from vegetable oil with antioxidant, anticorrosive, antifoaming, and metal-passivating additives. Hydraulic fluid is approved by elevator manufacturer for use with elevator equipment.
 - 1. Product: Subject to compliance with requirements, provide "Hydro Safe" by Hydro Safe Oil Division, Inc.

- E. Protective Cylinder Casing: PVC or HDPE pipe casing 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. Provide means to monitor casing effectiveness to comply with ASME A17.1.
- F. Guides: Provide either roller guides or sliding guides at top and bottom of car and counterweight frames. If sliding guides are used, provide guide-rail lubricators or polymer-coated, non-lubricated guides.
- G. Provide shaft venting as required by manufacturer or by code.

2.3 OPERATION SYSTEMS

- A. General: Provide manufacturer's standard microprocessor operation system for each elevator as required to provide type of operation system indicated.
- B. Single-Car Auxiliary Operations:
 - 1. Standby-Powered Lowering: On activation of standby power, car is lowered to the lowest floor, opens its doors, and shuts down.
- C. Security Feature: Any security feature shall not affect emergency firefighters' service.
 - 1. Card-Reader Operation: System uses card readers at car control stations to authorize calls. Security system determines which landings and at what times calls require authorization by card reader. Allow space as required for card reader in car.
 - a. Provide required conductors in traveling cable and panel in machine room for interconnecting card readers, other security access system components, and elevator controllers.
 - b. Coordinate with security access system equipment.

2.4 DOOR REOPENING DEVICES

- A. Infrared Array: Provide door reopening devices with uniform array of 36 or more microprocessor-controlled, infrared light beams projecting across car entrance. Interruption of one or more of the light beams shall cause doors to stop and reopen.
- B. Nudging Feature: After car doors are prevented from closing for predetermined adjustable time, a loud buzzer shall sound and doors shall begin to close at reduced kinetic energy.

2.5 FINISH MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, commercial steel, Type B, exposed.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, commercial steel, Type B, pickled.
- C. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304.
- D. Stainless-Steel Bars: ASTM A 276, Type 304.
- E. Stainless-Steel Tubing: ASTM A 554, Grade MT 304.
- F. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), Alloy 6063.
- G. Plastic Laminate: High-pressure type complying with NEMA LD 3, Type HGS or HGL.

2.6 CAR ENCLOSURES

- A. General: Provide wall panels, with car roof, access doors, power door operators, and ventilation.
 - 1. Provide standard railings complying with ASME A17.1 on car tops where required by ASME A17.1.
 - 2. Plastic-Laminate Wall Panels: Plastic laminate adhesively applied to manufacturer's standard core with manufacturer's standard protective edge trim. Plastic-laminate color, texture, and pattern as selected by Architect and Interior Designer from elevator manufacturer's full range.
 - 3. Stainless-Steel Doors: Flush, hollow-metal construction.
 - 4. Sills: Extruded aluminum, with grooved surface, 1/4 inch (6.4 mm) thick.
 - 5. Downlight Ceiling: Incandescent or low-voltage light fixtures and 6 ceiling panels of satin stainless steel laminate.

2.7 HOISTWAY ENTRANCES

- A. General: Provide manufacturer's standard horizontal-sliding, door-and-frame hoistway entrances complete with track systems, hardware, sills, and accessories.
- B. Materials and Fabrication: Provide manufacturer's standards, but not less than the following:
 - 1. Stainless-Steel Frames: Formed from stainless-steel sheet.
 - 2. Stainless-Steel Doors and Transoms: Flush, hollow-metal construction.
 - 3. Sills: Extruded aluminum, with grooved surface, 1/4 inch (6.4 mm) thick.
 - 4. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107.

2.8 SIGNAL EQUIPMENT

- A. General: Provide hall-call and car-call buttons that light when activated and remain lit until call has been fulfilled. Fabricate lighted elements with long-life incandescent lamps and acrylic or other permanent, non-yellowing translucent plastic diffusers or LEDs.
- B. Car Control Stations: Provide manufacturer's standard car control stations. Mount in return panel adjacent to car door, unless otherwise indicated.
- C. Emergency Communication System: Provide system that complies with ASME A17.1 and the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (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. Firefighters' Two-Way Telephone Communication Service: Provide flush-mounted cabinet in each car and required conductors in traveling cable for firefighters' two-way telephone communication service.
- E. Car Position Indicator: Provide illuminated, digital-type car position indicator, located above car door or above car control station. Also provide 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 provided in car control station.

- F. Hall Push-Button Stations: Provide hall push-button stations at each landing as indicated.
- G. Hall Lanterns: Units with illuminated arrows.
 - 1. Units mounted in both jambs of entrance frame for each elevator.
- H. Hall Annunciator: With each hall lantern, provide audible signals indicating car arrival and direction of travel. Signals sound once for up and twice for down.
- I. Corridor Call Station Pictograph Signs: Provide signs matching hall push-button stations, with text and graphics as required by authorities having jurisdiction.

2.9 ELEVATORS

- A. Elevator Description:
 - 1. Elevator Number: **2** (Located in Building 2)
 - 2. Basis of Design: Kone Ecospace
 - 3. Rated Load: 3500 lb
 - 4. Rated Speed: 150 fpm
 - 5. Total travel: 4 floors
 - 6. Total stops: 8 (doors at front and rear of cab for the intermediate stops)
 - 7. Operation System: Selective collective automatic operation.
 - 8. Auxiliary Operations:
 - a. Standby-powered lowering.
 - 9. Car Enclosures:
 - a. Inside Width: 78 inches from side wall to side wall.
 - b. Inside Depth: 66 inches from back wall to front wall.
 - c. Inside Height: 9' cab to underside of ceiling.
 - d. Door Height: 8'
 - e. Front Walls (Return Panels): Satin stainless steel, No. 4 finish with integral car door frames.
 - f. Car Fixtures: Satin stainless steel, No. 4 finish.
 - g. Side and Rear Wall Panels: Plastic laminate.
 - h. Door Faces (Interior): Satin stainless steel, No. 4 finish.
 - i. Handrails: 1-1/2 inches (38 mm) round satin stainless steel, No. 4 finish, at sides and rear of car.
 - j. Floor prepared to receive flooring (specified in Interior Design drawings).
 - 10. Hoistway Entrances:
 - a. Width: 42 inches (1067 mm).
 - b. Height: 84 inches (2134 mm).
 - c. Type: Single-speed side sliding.
 - d. Fire-Protection Rating: 1-1/2 hours with 30-minute temperature rise of 450 deg F (250 deg C).
 - e. Frames: Satin stainless steel, No. 4 finish.
 - f. Doors: Satin stainless steel, No. 4 finish.
 - 11. Hall Fixtures: Satin stainless steel, No. 4 finish.
 - 12. Additional Requirements:
 - a. Provide inspection certificate in each car, mounted under acrylic cover with frame made from satin stainless steel, No. 4 finish.
 - b. Provide blanket hooks and one complete set(s) of full-height protective blankets.
- B. Elevator Description:
 - 1. Elevator Number: **5** (Located in Building 5)
 - a. Same as elevator 2, except 4 floors with 4 stops, and door on single face of cab.
- C. Elevator Description:

1. Elevator Number: **8** (Located in Building 8)
 - a. Same as elevator 2, except 4 floors with 4 stops, and door on single face of cab.

D. Elevator Description:

1. Elevator Number: **10** (Located in Building 10)
 - a. Same as elevator 2, except 4 floors with 4 stops, and door on single face of cab.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Leveling Tolerance: 1/4 inch (6 mm), up or down, regardless of load and direction of travel.
- B. 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 PROTECTION

- A. Temporary Use: Comply with the following requirements for each elevator used for construction purposes:
 1. Provide car with temporary enclosure, either within finished car or in place of finished car, to protect finishes from damage.
 2. Provide other protective coverings, barriers, devices, signs, and procedures as needed to protect elevator and elevator equipment.
 3. Engage elevator Installer to provide full maintenance service.
 4. Engage elevator Installer to restore damaged work, if any, so no evidence remains of correction. Return items that cannot be refinished in the field to the shop, make required repairs and refinish entire unit, or provide new units as required.

3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to operate, adjust, and maintain elevator(s).

END OF SECTION 142400

SECTION 14 91 82 - TRASH CHUTES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Metal trash chutes

1.2 ITEMS PROVIDED BUT NOT INSTALLED UNDER THIS SECTION

- A. Access door for sanitizing unit: Install during construction of shaft wall enclosure.

1.3 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- B. Shop Drawings: For trash chute. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, and method of field assembly, components, and location and size of each field connection.
 - 2. Wiring Diagrams: For power, signal, and control wiring.
- C. Maintenance Data: For chute to include in maintenance manuals.
- D. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Minimum five years documented experience in the production of products specified in this Section
- B. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- C. Pre-installation Conference:
 - 1. Convene at job site a minimum of seven (7) calendar days prior to scheduled beginning of construction activities of this section to review requirements of this section.
 - 2. Require attendance by representatives of the following:
 - a. Trash chutes manufacturer or designated representative
 - b. Installer

- c. Other entities directly affecting, or affected by, construction activities of this Section.
 - d. Notify Architect four (4) calendar days in advance of scheduled meeting date.
3. Review methods and procedures related to chute installation.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protection: Protect equipment from physical damage, dirt, and water.
- B. Under no condition is the chute to be used for construction trash, or any other use other than its designated purpose as a finished system at Substantial Completion.

1.7 PROJECT CONDITIONS

- A. Do not install products or materials that are damaged.
- B. Environmental Limitations: Do not deliver or install products or materials until spaces are enclosed and weathertight, wet work in spaces is complete and dry.
- C. Field Measurements: Verify actual dimensions of openings and construction contiguous with chute by field measurements.

1.8 COORDINATION

- A. Coordinate with the installation of other Work to ensure orderly and proper installation of all parts of the Work of this Section.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of the chute that fail(s) in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Failure to maintain sound isolation.
 - b. Intake door malfunctions.
 - c. Sanitizing Unit
 2. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 TRASH CHUTE

- A. Manufacturer:
 1. Basis-of-Design Product: The design of the trash chute is based on system of Wilkinson-Hi-Rise, LLC, Signature Series, Hollywood, FL 33020. (800) 231-3888 Subject to compliance with requirements, provide the named product or comparable product approved by the Architect.
- B. Components:
 1. Chute: U.S. #16 gauge aluminized steel, 24 inches (610 mm) in diameter manufactured with a two sloped throat angle; incorporating a 30 degree and 60 degree slope. Create a 2 inch separation between the support clip and the chute pouch.
 2. Low Voltage Electrically Interlocked Intakes Doors: Stainless steel, 15 inches wide x 18 inches high, (381 mm x 457 mm), bottom hinged, hand operated self-closing positive

- latching doors bearing 1½ hour, Underwriters Laboratories “B” Label designation and rated for a 250° F maximum door temperature rise over 30 minutes.
- a. Mount hydraulic closer and operation hardware in an independent compartment as not to reduce the chute throat volume.
 - b. Comply with ADA requirements for height, opening force and the grab, pinch or twist guidelines.
 - c. All doors to include stainless steel trim embossed with the words “RUBBISH” in a UL® approved, “B” Labeled, 1½ hour assembly.
 - d. Electrical Interlocking system is to be wired so that when a single door is open the remaining doors on the chute are locked down. When the master switch (located in the rubbish collection room) is activated all chute doors are locked down.
3. Operation: Provide Low Voltage Electrical Interlocking System with the following features:
- a. Electrical Interlocking system is to be wired so that when a single door is open the remaining doors on the chute are locked down. When the master switch (located in the rubbish collection room) is activated all chute doors are locked down.
4. Discharge: U.S. #16 gauge aluminized steel type “A” open end chute discharge rolling steel door with 165°F. fusible link hold open on an inclined steel track at the bottom of the chute to close automatically when the ambient temperature reaches 165°F. Fabricate discharge door panel to “B” label construction.
5. Vent: Extend chute full diameter through roof to metal top vent cap 4'-0" above roof level with counter flashing and insect screen.
6. Odor Control: Provide one (1) each Wilkinson Hi-Rise “Vaporizer” Odor Control Unit in each rubbish collection room. Include one-year supply of Odor Control Solution and Service.
7. Disinfecting & Sanitizing Unit: Install in line to the 3/4 inch IPS flushing spray head located in the center of the chute and above the highest intake to allow for a full radial wash down of the chute. Connection to flushing spray head, back flow prevention valve and electric control switch provided under the Electrical.
8. Provide 15 inches wide x 15 inches high (381 mm x 381 mm), right side hinged, hand operated, self closing, positive latching, UL 1 1/2-hour. “B” labeled, stainless steel plumbing access door having stainless steel door trim for installation by forces erecting enclosing shaft wall. Door to have master keyed lock. Cylinder furnished as part of building door hardware. Position door for access to disinfecting and sanitizing unit above the highest intake door of the chute.
- C. Offsets (bends) in the chute: If required, provide bents of the same diameter as the chute of #16 US gauge aluminized steel and have an additional layer of # 13 US gauge aluminized steel reinforcing the impact area. Offsets are not to deviate more than 15° off the vertical axis of the chute.
1. Provide Daubert 932 sound coat, or comparable vibration dampening compound to the exterior of the chute only. Include Korfund sound isolator pads at each floor support frame.
- D. Chute supports: provide with steel angle supports, 1-1/2" x 1-1/2" x3/16" minimum, at each floor level, steel 90 degree hanger clips and grommets and isolation pads incorporated into floor supports.
- E. Accessories:
1. Provide a 3/4-inch IPS flushing spray head and 1/2 inch sprinkler head above highest intake.
 2. Additional 1/2-inch sprinkler heads at every second intake (counting from the top) or as required by local authority having jurisdiction.
- F. Sprinkler System:

1. Protect chute internally by automatic sprinklers. This requires a sprinkler at or above the top intake door of the chute, and in addition, a sprinkler installed within the chute at alternate floor levels in buildings over two stories in height with mandatory sprinkler located at the lowest service level.
2. All sprinkler heads are to be installed in the chute throat and be serviceable from the intake door. All heads are to include spray deflectors that force the water flow to the center of the chute. Sprinkler system to comply with local and state building codes.

2.2 FABRICATION

- A. Fully factory assembled and all joints except those required to separate the sections for shipment and installation to be welded or lock-seamed tight.
- B. Bolt floor intake doors in place on throats formed into the chute. All chute sections shall flash inside the sections below and without bolts, clips, or other projections inside the chute to snag the flow of material.
- C. Pre-positioned support frames to assure proper intake levels and provide an expansion joint in the chute between all support joints.
- D. Reinforce discharge hoppers and offsets, where required, and separately supported in the impact area.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine materials before installation. Reject materials that are damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's instruction and approved shop drawings for installation of trash chute.
- B. Assemble chute and erect in place securely anchored to prevent vibration.

3.3 DEMONSTRATION

- A. Engage manufacturers authorized representative to train maintenance personnel to adjust, operate, and maintain the chute system.

END OF SECTION 14 91 82