

SECTION 142400 - HYDRAULIC ELEVATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes hydraulic passenger elevators.
- B. This Section includes requirements for LEED Silver certification based on "LEED for Schools".
- C. Related Sections include the following:
 - 1. Division 01 Section "Sustainable Design Requirements" for general Project LEED requirements and for additional LEED requirements specifically applicable to this Section.
 - 2. Division 01 Section "Construction Waste Management and Disposal" for additional LEED requirements for handling of construction waste, general waste, excess materials, packaging, and recyclables.

1.3 DEFINITIONS

- A. Composite Wood: A product consisting of wood or plant particles or fibers bonded together by a synthetic resin or binder. Examples: plywood, particle-board, OSB, and MDF.
- B. Definitions in ASME A17.1 apply to work of this Section.
- C. Defective Elevator Work: Operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.

1.4 SUBMITTALS

- A. Product Data: Include capacities, sizes, performances, operations, safety features, finishes, and similar information. Include product data for the following:
 - 1. Car enclosures and hoistway entrances.
 - 2. Operation, control, and signal systems.
 - 3. Product data for adhesives and composite wood products indicating that product contains no urea formaldehyde.
- B. LEED Submittals:
 - 1. Credit EQ 4.1: Manufacturers' product data for construction adhesive, including printed statement of VOC content.

2. Credit EQ 4.4: Composite wood manufacturer's product data for each composite wood product used on the interior of building indicating that bonding agent used contains no urea formaldehyde.
- C. Shop Drawings for this specific project: 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.
1. Include large-scale layout of car control station. Correlate with operation narrative required in next paragraph.
 2. Indicate proposed locations for hallway devices at each floor level drawn in plan and elevation for the specific conditions of this project, not generic standard plan/elevation.
 - a. Show wall materials and thicknesses indicated for *this* project.
 - b. Show elevator wall opening locations, door movement directions, and dimensions applicable to this project.
 3. Include a statement on the shop drawings to certify that all equipment, controls, and devices are being provided to satisfy the means of operation included in the "Narrative of Operation" which is to be included with the shop drawings. Acceptable review of shop drawings is contingent upon satisfactory Narrative of Operation.
 4. Indicate any variations from specified requirements, maximum dynamic and static loads imposed on building structure at points of support, and maximum and average power demands.
- D. Narrative of Operation: Submit along with shop drawings a written step-by-step description of elevator operation from the users' point of view. Describe the types of devices to be activated (e.g.: key switch, push button) and/or viewed (e.g.: visual light, audible bell) and the method of operation (push, keypad, proximity swipe, 2-or 3-position switch) for each. Include paragraphs covering at least the following topics:
1. Elevator call from corridor.
 2. Activating elevator movement from inside the cab.
 3. Operating cab fan.
 4. Operating cab lights.
 5. Maintenance operation.
 6. Fire alarm operation.
- E. Samples for Initial Selection: For finishes involving color selection. Provide actual-material samples showing the manufacturer's Full Range of selections available; printed and photographic representations of color will be rejected.
- F. Samples for Verification: For exposed finishes of cars, hoistway doors and frames, and signal equipment; 3-inch- square Samples of sheet materials; and 4-inch lengths of running trim members.
- G. 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 and are being provided by the manufacturer, not pieced together from multiple manufacturers except for minor parts that MAY be allowed under Quality Assurance requirements of this Section.
- H. Qualification Data: For Installer with letters and documents required by this Section.

- I. Operation and Maintenance Data: For elevators to include in emergency, operation, and maintenance manuals.
 - 1. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include diagnostic and repair information available to manufacturer's and Installer's maintenance personnel.
 - 2. **Elevator Contractor shall provide to the Owner all microprocessor interaction tools, manuals, and instructions to allow other elevator service companies to properly service, maintain, and download fault codes for elevator. Elevator Contractor shall coordinate breaker requirements with Electrical Contractor.**
 - 3. Provide two sets of elevator maintenance keys (e.g.: fan, light) to Owner at Contract Completion.
- J. Inspection and Acceptance Certificates: Signed, dated and fully executed as required by authorities having jurisdiction for normal, unrestricted elevator use.
- K. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Installer shall be elevator manufacturer itself, or manufacturer's authorized representative who is trained and approved for installation of units required for this Project. Manufacturer's authorized representative must be a wholly owned subsidiary of the elevator manufacturer and not an independent but authorized representative. Proof of manufacturer's approval of the installer shall be an original signed and recently dated letter from the manufacturer that references the installing contractor company by name and this specific project by name
- B. Source Limitations: Obtain elevators through one source from a single manufacturer.
 - 1. Provide all major elevator components, including but not limited to pump-and-tank units, plunger-cylinder assemblies, controllers, signal fixtures, door operators, car frames, cabs, and entrances, cab interiors, and all associated power, lighting and venting equipment, and all machine room components, manufactured by a single manufacturer. A pieced-together system from multiple manufacturers is not permitted.
 - a. Provide letter from elevator manufacturer named herein certifying this is the case for all equipment, and stating that any equipment not furnished directly from them:
 - 1) Is a minor component, and
 - 2) Is acceptable for integration with their components.
 - 3) Can be serviced by the same independent service companies.
 - b. Provide a complete detailed list of all components not being provided by the named elevator manufacturer.
 - c. Provide this information attached to the elevator shop drawings. Shop drawings will not be reviewed without such documentation.
- C. 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)."

- D. Fire-Rated Hoistway Entrance Assemblies: Door and frame assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252 or UL 10B.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials, components and equipment in manufacturer's protective packaging.
- B. Store materials, components, and equipment off of ground, under cover, and in a dry location. Handle according to manufacturer's written recommendations to prevent damage, deterioration, or soiling.

1.7 COORDINATION

- A. Coordinate installation of sleeves, block outs, and items that are embedded in concrete or masonry for elevator equipment. Furnish templates and installation instructions and deliver to Project site in time for installation.
- B. Coordinate hall station call buttons, and proximity devices for call activation, with electrical and security contractors and ensure all trades understand the full scope, extent, and interrelationship of their work with that of all others. Resolving any discrepancies and ensuring that all components are provided and function together for a complete and properly functioning system in compliance with the Narrative of Operation, is the responsibility of the elevator contractor.
- C. Coordinate sequence of elevator installation with other work to avoid delaying the Work.
- D. Coordinate locations and dimensions of other work relating to hydraulic elevators including pit ladders, sumps, and floor drains in pits; entrance subsills; and electrical service, electrical outlets, lights, and switches in pits and machine rooms.

1.8 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 Contract Completion.

1.9 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Contract 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 parts and supplies same as those used in the manufacture and installation of original equipment.
 - 1. Perform maintenance, including emergency callback service, during normal working hours.

- a. Response Time: Two hours or less.
- B. Continuing Maintenance Proposal: Provide a continuing maintenance proposal from Installer to Owner, in the form of a standard one-year maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options. Entire elevator system shall be capable of service by other professional commercial elevator service companies in the event the Owner elects another service provider anytime after the initial year of installers' service; exclusivity and proprietary access codes are not permitted.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. KONE Inc.
 - 2. Otis Elevator Co.
 - 3. ThyssenKrupp Elevator.

2.2 SYSTEMS AND COMPONENTS

- A. General: Provide single elevator manufacturer's standard elevator systems. Where components are not otherwise indicated, provide standard components published by manufacturer as included in standard pre-engineered elevator systems and as required for complete system. Provide any specialty or modified equipment by the elevator manufacturer as necessary to provide the performance and operation specified and required to fulfill the Narrative of Operation statements.
- B. Pump Units: Positive-displacement type with a maximum of 10 percent variation between no load and full load and with minimum pulsations. Provide the following:
 - 1. Submersible pump, with submersible squirrel-cage induction motor, suspended inside oil tank from vibration isolation mounts.
 - 2. Provide motor with solid-state starting.
- C. Hydraulic Silencers: Provide hydraulic silencer containing pulsation-absorbing material in a blowout-proof housing at pump unit.
- D. Inserts: Furnish required concrete and masonry inserts and similar anchorage devices for installing guide rails, machinery, and other components of elevator work where installation of devices is specified in another Section.
- E. Car Frame and Platform: Welded steel units.
- 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, nonlubricated guides.

2.3 OPERATION SYSTEMS

- A. General: Provide manufacturer's microprocessor operation system for each elevator as required to provide type of operation system indicated.
 - 1. **Elevator Contractor shall provide to the Owner all microprocessor interaction tools, manuals, and instructions to allow other elevator service companies to properly service, maintain, and download fault codes for elevator.**
- B. Single-Car Auxiliary Operations: In addition to primary operation system features, provide the following operational features for elevators where indicated:
 - 1. Battery-Powered Lowering: When power fails, car is lowered to the lowest floor, opens its doors, and shuts down. System includes rechargeable battery and automatic recharging system.
- C. Security Features: Provide the following security features, where indicated. Security features shall not affect emergency firefighters' service.
 - 1. Card reader Operation: Push buttons are activated and deactivated by security card reader / proximity reader at hall push-button stations.
 - 2. The elevator contractor is to provide card reader wiring provisions from their fixtures and devices to the elevator controller for tie in by the security contractor; include all software upgrades for correct interface and operation.
 - a. Card Reader/proximity reader heads are to be supplied and installed by the security contractor. Elevator contractor is to establish device locations and ensure full coordination.

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, through activating door reopening device, a loud buzzer shall sound and doors shall begin to close at reduced kinetic energy.

2.5 FINISH MATERIALS

- A. General: Provide the following materials for exposed parts of elevator car enclosures, car doors, hoistway entrance doors and frames, and signal equipment as indicated.
- B. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, commercial steel, Type B, exposed, matte finish.
- C. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, commercial steel, Type B, pickled.
- D. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, with No. 4, directional satin finish.
- E. Stainless-Steel Bars: ASTM A 276, Type 304.

- F. Aluminum Extrusions: ASTM B 221, Alloy 6063.
- G. Plastic Laminate: High-pressure type complying with NEMA LD 3, Type HGS for flat applications.

2.6 CAR ENCLOSURES

- A. General: Provide steel-framed car enclosures with nonremovable wall panels, with car roof, suspended ceiling, trim, accessories, access doors, power door operators, sills (threshold), lighting, and ventilation.
 - 1. Provide standard railings complying with ASME A17.1 on car tops where required by ASME A17.1.
 - 2. Provide finished car including materials and finishes specified below.
- B. Materials and Finishes: Provide manufacturer's standards, but not less than the following:
 - 1. Subfloor: Underlayment grade, exterior plywood, 5/8-inch nominal thickness. Provide plywood made with adhesives that do not contain urea formaldehyde.
 - 2. Floor Finish: As indicated on drawings and as specified in a Division 09 Section.
 - 3. Stainless-Steel Cab Front and Transom: Flush hollow-metal construction; fabricated from stainless-steel sheet.
 - 4. Plastic-Laminate Wall Panels: Plastic laminate adhesively applied to 1/2-inch fire-retardant-treated particleboard with manufacturer's standard protective edge trim.
 - a. Panels have a flame-spread index of 25 or less, when tested according to ASTM E 84.
 - b. Provide particleboard made with adhesives that do not contain urea formaldehyde.
 - c. Plastic-laminate color, texture, and pattern as selected by Architect from plastic-laminate manufacturer's Full Range.
 - 5. Fabricate car with recesses and cutouts for signal equipment.
 - 6. Fabricate car door frame integrally with front wall of car.
 - 7. Stainless-Steel Doors: Flush hollow-metal construction; fabricated from stainless-steel sheet.
 - 8. Sills: Extruded aluminum, with grooved surface, 1/4 inch thick.
 - 9. Luminous Ceiling: Fluorescent light fixtures and ceiling panels of translucent acrylic or other permanent rigid plastic.
 - 10. Handrails: Manufacturer's stainless steel handrails as indicated.
 - 11. Wall Padding: Provide 6 foot high minimum wall padding that is removable. This will be provided to Owner at Contract Completion.

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. Provide frame size and profile to coordinate with hoistway wall construction.
- 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: Flush, hollow-metal construction; fabricated from stainless-steel sheet or by laminating stainless-steel sheet to exposed faces and edges of enameled cold-rolled steel doors using adhesive that fully bonds metal to metal without telegraphing or oil-canning.
3. Sills: Extruded aluminum, with grooved surface, 1/4 inch thick.
4. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, 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 or LEDs and acrylic or other permanent, nonyellowing translucent plastic diffusers. Hall call buttons remain inactive until activated by security card device.
- B. Swing-Return Car Control Stations: Provide car control stations mounted on rear of hinged return panel adjacent to car door and with buttons, switches, controls, and indicator lights projecting through return panel but substantially flush with face of return panel.
 1. Mark buttons and switches with standard identification for required use or function that complies with ASME A17.1. Use both tactile symbols and Braille.
 2. Provide "No Smoking" sign matching car control station, either integral with car control station or mounted adjacent to it, with text and graphics as required by authorities having jurisdiction.
- 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. 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.
- E. Hall Push-Button Stations: Provide one hall push-button station at each landing for each elevator.
 1. Provide units with flat faceplate for mounting with body of unit recessed in wall.
 2. Equip units with buttons for calling elevator and for indicating desired direction of travel.
 3. Call buttons shall be inactive until enabled by security card reader/proximity reader adjacent to the call buttons at each location.
- F. Hall Lanterns: Units with illuminated arrows; but provide single arrow at terminal landings.
 1. Manufacturer's standard wall-mounted units, for mounting above entrance frames.
- G. 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.

1. At manufacturer's option, audible signals may be placed on car if ADA-compliant sound level is attained in the hallway.
- H. Corridor Call Station Pictograph Signs: Provide signs matching hall push-button stations, with text and graphics as required by authorities having jurisdiction, indicating that in case of fire elevators are out of service and exits should be used instead. Provide one sign at each hall push-button station. Include indicator and statement showing direction of nearest exit.
1. Include signage text and location as part of required project-specific shop drawings.

2.9 ELEVATORS

A. Elevator Description:

1. Type: Holeless, beside-the-car, single-acting, single cylinder.
2. Rated Load: 2500 lb.
3. Rated Speed: 100 fpm.
4. Operation System: Selective collective automatic operation.
5. Auxiliary Operations:
 - a. Battery-powered lowering.
6. Security Features: Security card reader / proximity reader activation of hallway call buttons. Always-active push buttons inside cab.
7. Car Enclosures:
 - a. Inside Width: 80 inches clear from finish side wall to side wall.
 - b. Inside Depth: 51 inches from finish back wall to front wall (return panels).
 - c. Inside Height: 88 inches from finish flooring to underside of ceiling.
 - d. Front Walls (Return Panels): Satin stainless steel, No. 4 finish with integral car door frames.
 - e. Side and Rear Wall Panels: Plastic laminate.
 - f. Reveals: Enameled steel.
 - g. Door Faces (Interior): Satin stainless steel, No. 4 finish.
 - h. Door Sills: Aluminum, mill finish.
 - i. Ceiling: Luminous ceiling.
 - j. Handrails: 1/2 by 2 inches rectangular satin stainless steel, No. 4 finish, at sides and rear of car.
 - k. Floor prepared to receive material indicated on drawings and specified in a Division 09 Section; If drawings do not indicate floor finish seek clarification from architect and prepare for material directed as part of the Work.
8. Hoistway Entrances:
 - a. Width: 42 inches.
 - b. Height: 84 inches.
 - c. Type: Single-speed side sliding in direction indicated on drawings by door opening placement.
 - d. Fire-Protection Rating: 1 hour for frames and doors.
 - e. Frames: Satin stainless steel, No. 4 finish.
 - f. Doors: Satin stainless steel, No. 4 finish.
 - g. Sills: Aluminum, mill finish.
9. Hall Fixtures: Stainless steel, No. 4 finish.

10. 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 emergency lighting.
- c. Provide all devices, controls, software and other elements, and coordination, necessary to provide a functional and properly operational elevator system in compliance with this Section and the Narrative of Operation.

PART 3 - EXECUTION

3.1 GENERAL

- A. Comply with Division 01 Sections 017419 and 018113 and other requirements for attaining the LEED certification level specified.

3.2 RECEIPT OF DELIVERY

- A. Upon delivery of elevator components, whether as a single delivery or multiple deliveries, and before any installation of any delivered elevator item, *elevator manufacturer's direct employee* shall review each and every elevator carton and component delivered to the site and shall provide an itemized list of such items certifying that they are in fact the manufacturer's product, in compliance with this project requirements, and acceptable to the manufacturer. Provide this list and letter of certification stating these requirements, to the architect before any elevator installation work begins. Certify all components are provided in accordance with operation requirements stated in the Narrative of Operation

3.3 EXAMINATION

- A. Examine elevator areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance. Verify critical dimensions and examine supporting structure and other conditions under which elevator work is to be installed. Verify coordination and proper preparations for hall-call button activation by security card reader / proximity reader devices and equipment.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.4 INSTALLATION

- A. Install cylinder plumb and accurately centered for elevator car position and travel. Anchor securely in place, supported at pit floor and braced at intervals as needed to maintain alignment. Anchor cylinder guides at spacing needed to maintain alignment and avoid overstressing guides.
- B. Welded Construction: Provide welded connections for installing elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn parts. Comply with AWS standards for workmanship and for qualifications of welding operators.

- C. Sound Isolation: Mount rotating and vibrating equipment on vibration-isolating mounts designed to effectively prevent transmission of vibrations to structure and thereby eliminate sources of structure-borne noise from elevator system.
- D. Lubricate operating parts of systems as recommended by manufacturers.
- E. Alignment: Coordinate installation of hoistway entrances with installation of elevator guide rails for accurate alignment of entrances with car. Where possible, delay installation of sills and frames until car is operable in shaft. Reduce clearances to minimum, safe, workable dimension at each landing.
- F. Leveling Tolerance: 1/4 inch, up or down, regardless of load and direction of travel.
- G. Set sills flush with finished floor surface at landing. Fill space under sill solidly with nonshrink, nonmetallic grout.

3.5 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.
- B. Advise Construction Manager, Owner, Architect, and authorities having jurisdiction in advance of dates and times tests are to be performed on elevators.
- C. Do not use elevator for any other purpose until satisfactory test results are obtained and fully documented in the Project Records.

3.6 PROTECTION

- A. Temporary Use: Comply with the following requirements for 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 strippable protective film on entrance and car doors and frames.
 3. Provide padded wood bumpers on entrance door frames covering jambs and frame faces.
 4. Provide other protective coverings, barriers, devices, signs, and procedures as needed to protect elevator and elevator equipment.
 5. Do not load elevators beyond their rated weight capacity.
 6. Engage elevator Installer to provide full maintenance service. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as necessary for proper elevator operation at rated speed and capacity. Provide parts and supplies same as those used in the manufacture and installation of original equipment.
 7. 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.
 8. After passing operation tests, provide temporary bypass of security card reader call button activation. Restore security card reader / proximity reader function before requesting inspections for substantial completion.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to operate, adjust, and maintain elevator.
- B. Check and demonstrate operation of elevator with Owner's personnel present and before date of Contract Completion. Determine that operation systems and devices are functioning properly.
- C. Review complete list of components to ensure they are provided by the primary elevator equipment manufacturer or are certified acceptable to the primary elevator equipment manufacturer. Provide list of exact or acceptable other-manufacturer replacement parts including description and model numbers and source of purchase including addresses and telephone numbers.
- D. Again check operation of elevator with Owner's personnel present not more than one month before end of warranty period. Determine that operation systems and devices are functioning properly.

3.8 WASTE DISPOSAL

- A. Comply with Waste Management requirements of Division 01 Section "Construction Waste Management and Disposal".

END OF SECTION 142400