

ADDENDUM ACKNOWLEDGMENT

ADDENDUM NO. 02

Dated: November 1, 2023

Revised Opening Date: Thursday, November 9, 2023, 3:00 PM

NOTICE

It is the sole responsibility of the bidder to ensure that it has received any and all Addenda and the Philadelphia Redevelopment Authority may in their sole discretion reject any bid for which Addenda have not been executed and returned.

PROPOSAL FOR

Project No.: 16368E-02-04

Description: Kingsessing Recreation Center, Building & Site Package 2: Building & Site Improvements

IS AMENDED AS FOLLOWS:

1. Amendments will be posted in **<http://www.phdcphila.org>**. Each Bidder shall ascertain prior to submitting a proposal that Bidder has received all Amendments issued and shall acknowledge their receipt in their proposal submission.
2. Replace paragraph **B** Spec Section **14 2400 Hydraulic Elevators in its entirety** and replace with the following:

B. Qualifications of Installer for Basis of Design

1. Qualified by manufacturer

2. At least 5 years of experience with installing elevators similar to Basis of Design

Bidder must acknowledge receipt of Addenda in their proposal submission.

Name of Firm: _____

Signature of Authorized Agent: _____

Date _____

SECTION 14 2400 HYDRAULIC ELEVATORS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Complete hydraulic elevator system.
 - 1. Passenger type.
 - 2. Oil Hydraulic Dual Jack Holeless Single-Stage Passenger type as shown on drawings.
 - 3. Doors on each of three levels.
 - 4. Special provisions for operation sequence.
 - 5. Additional, Performance, PA Elevator Code and ADA Compliance Requirements.
- B. Elevator Maintenance Contract.
- C. Summary of work included: Furnish all materials, labor, equipment and services required for the complete installation of the oil hydraulic passenger elevator as specified herein. The work of this division shall consist of installation of items that will meet Barrier Free Design Guidelines and compliance with the Americans with Disabilities Act on the hydraulic passenger elevator located in Philadelphia. The work shall include all labor, materials, and services required for the complete installation of all the elevator equipment as herein specified. The work shall provide on a per item basis, including car operating panel, hall push buttons, pump, controller, door operator, traveling lanterns, etc.
- D. Summary of work required in other sections to be provided, support and to be confirmed designed and installed correctly under this section:
 - 1. A clear hoistway of the dimensions shown, plumb to within 1" in Section 042000.
 - 2. Venting of hoistway as required by code.
 - 3. A dry pit, reinforced to sustain vertical loads as required.
 - 4. A steel pit ladder for each elevator and installed in accordance with code, and extending from pit floor to 48" above sill of lowest hoistway door; in Section 055133.
 - 5. Adequate supports for guide rail brackets, to support horizontal loads as required. Support locations must not exceed spacing as required by code, and shop drawings for which are to be review and approved by elevator manufacturer and installer. Guide rail support locations must be filled concrete block with reinforcements; in Section 042000.
 - 6. Projections or recesses in the hoistway of 4" or more, on sides not used for loading or unloading, shall be beveled at an angle not less than 75 degrees from the horizontal.
 - 7. A hoist beam, hook, or eyebolt shall be furnished at the top of the hoistway, located on centerline of car and guides - designed to lift load required; in Section 055000.
 - 8. Entrance walls accepting passenger type entrances are to be erected (or rough opening as shown filled in) after door frames and sills are installed; in Section 042000.
 - 9. A suitable sill support and recess as shown, full width of the hoistway, grouted under CMU section after door sills are installed; in Sections 033000 and 042000.
 - 10. Required sleeves in hoistway wall for oil line and wiring duct for each elevator, as required in MPE sections.
 - 11. Any cutting and patching of building construction required to install signal fixtures, or other elevator apparatus, and any repairs, grouting, patching, or painting made necessary by same.
 - 12. A machine room properly lighted and ventilated per code requirements with temperature maintained between 65 and 95 degrees. Door of size to permit access for hydraulic machine, to be self-closing and locking, but openable from inside without key. See drawings, door schedule and Section 092500 for shaftwall enclosure.

13. A fused disconnect switch for each elevator, of ample capacity, with wiring to the elevator motor starter control. Disconnecting means shall disconnect the normal power supply as well as emergency supply, when provided.
14. Light and switch in elevator room, with switch located adjacent to access door. Convenience outlet in machine room.
15. Light, switch and convenience outlet in elevator pit, light switch accessible from lower landing opening. Install light to clear elevator car.
16. Suitable 110V service connected to terminals in elevator controller for car light service (elevator contractors option).
17. Heat, and product of combustion sensors located in each elevator lobby with necessary wiring to elevator control panel, when fire service is specified.
18. Telephone instrument in elevator car, and wiring from building source to elevator control panel.
19. Furnishing of any special intercom, paging, or television systems, including wiring from building source to elevator control panel.
20. Floor covering in elevator cab; in Section 093000.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete: Includes elevator machine foundation, enclosed hoistway, elevator pit, grouting thresholds, grouting hoistway entrance frames, and sump pit.
- B. Section 04 2000 - Unit Masonry: Masonry hoistway enclosure; building-in and grouting hoistway door frames.
- C. Section 05 5000 - Metal Fabrications: Includes elevator pit ladder, sill supports, and overhead hoist beams.
- D. Section 07 1300: Waterproofing of elevator pit walls and floor.
- E. Section 07 8100 - Applied Fire Protection: Fireproofing of guide rail brackets where attached to building structural members.
- F. Section 07 8400 - Firestopping: Fire rated sealant in hoistway.
- G. Section 08 3100 - Access Doors and Panels: Fire rated access doors into hoistway.
- H. Section 09 2116 - Gypsum Board Assemblies: Gypsum shaft wall enclosure of machine room and top of shaft as shown on drawings.
- I. Section 09 6500 - Resilient Flooring: Floor finish in car as indicated on drawings.
- J. Section 09 9123 - Interior Painting: Field painting of hoistway entrance doors and frames.
- K. Section 21 1300 - Fire-Suppression Sprinkler Systems: Sprinkler heads in hoistway.
- L. Section 22 3000 - Plumbing Equipment: Pit drain.
- M. Section 26 0533.13 - Conduit for Electrical Systems:
- N. Section 26 0583 - Wiring Connections:
- O. Section 26 3600 - Transfer Switches: For interface with elevator controls.
- P. Section 28 2000 - Video Surveillance: Installation of video camera in car interior for security monitoring.
- Q. Section 31 2316 - Excavation: Excavation for elevator pit.

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R. Section 31 2323 - Fill: Backfilling for elevator pit.

1.03 REFERENCE STANDARDS

- A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum 2020.
- B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2022.
- C. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- D. AISC 360 - Specification for Structural Steel Buildings 2022.
- E. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures Most Recent Edition Cited by Referring Code or Reference Standard.
- F. ASME A17.1 - Safety Code for Elevators and Escalators Includes Requirements for Elevators, Escalators, Dumbwaiters, Moving Walks, Material Lifts, and Dumbwaiters with Automatic Transfer Devices 2019, with Errata (2021).
- G. ASME A17.2 - Guide for Inspection of Elevators, Escalators, and Moving Walks Includes Inspection Procedures for Electric Traction and Winding Drum Elevators, Hydraulic Elevators, Inclined Elevators, Limited-Use/Limited-Application Elevators, Private Residence Elevators, Escalators, Moving Walks, and Dumbwaiters 2020.
- H. ASME QEI-1 - Standard for the Qualification of Elevator Inspectors 2018.
- I. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.
- J. ASTM A139/A139M - Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over) 2022.
- K. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes 2017.
- L. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2022.
- M. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2023.
- N. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable 2021a.
- O. ASTM B36/B36M - Standard Specification for Brass Plate, Sheet, Strip, and Rolled Bar 2018.
- P. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2021a.
- Q. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2021.
- R. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric) 2021.
- S. ASTM B455/B455M - Standard Specification for Copper-Zinc-Lead Alloy (Leaded-Brass) Extruded Shapes 2020.

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- T. AWS D1.1/D1.1M - Structural Welding Code - Steel 2020, with Errata (2022).
- U. ITS (DIR) - Directory of Listed Products Current Edition.
- V. NEMA LD 3 - High-Pressure Decorative Laminates 2005.
- W. NEMA MG 1 - Motors and Generators 2021.
- X. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- Y. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2022.
- Z. PS 1 - Structural Plywood 2019.
- AA. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic) 2019.
- BB. UL (DIR) - Online Certifications Directory Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate work with other installers to provide conduits necessary for installation of wiring including but not limited to:
 - a. Elevator equipment devices remote from elevator machine room or hoistway.
 - b. Remote group automatic panel in lobby from controller cabinet.
 - c. Telephone service for machine room.
 - d. Elevator pit for lighting, sump pump, and revisions of final design.
 - e. Automatic transfer switch from controller cabinet.
 - f. Fire alarm panel from controller cabinet.
 - g. Reinforcement of CMU walls for anchors for guiderails.
 - 2. Coordinate work with other installers for equipment provisions necessary for proper elevator operation, including but not limited to, the following:
 - a. Automatic transfer switches with auxiliary contacts for emergency power transfer status indication.
 - b. Shunt trip devices for automatic disconnection of elevator power prior to fire suppression system activation.
 - c. Overcurrent protection devices selected to achieve required selective coordination.
- B. Preinstallation Meeting: Convene meeting at least one week prior to start of this work.
 - 1. Review schedule of installation, proper procedures and conditions, and coordination with related work.
- C. Construction Use of Elevator: Not permitted.

1.05 CODES, PERMITS, TESTS AND INSPECTIONS:

- A. Work shall be done in accordance with the requirements of the National Electrical Code and the latest American Standard Safety Code for Elevators, Dumbwaiters and Escalators, including all revisions and authorized changes in effect on date of this specification and all local codes which govern the requirements of this installation.
- B. Provide all necessary State Inspections and permits pertaining to the elevator, elevator installation and functioning, and make such tests as are required by the regulations of such authorities. Tests shall be made in the presence of the authorized representatives of such

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authorities.

- C. Elevators shall meet the guidelines of the Americans with Disabilities Act using the Uniform Federal Accessibility Standards (UFAS) relevant to elevators (Section 4.10 Elevators) as the technical requirements.

1.06 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Shop drawings and sample submittals:
 - 1. Samples: Submit samples of stainless steel.
 - 2. SHOP DRAWINGS: Submit Shop Drawings as required showing the general and detailed arrangement of all elevator equipment. Show ceiling, lighting, signal fixtures, and smoke detectors including routing of exposed conduit.
 - 3. PRODUCT DATA: Submit the manufacturer's specification and data sheets, and standard details. Include pictures, catalog cuts, or other suitable illustrations of all elevator equipment that will be exposed in the finish work, including car, hoistway entrance, and signal and control apparatus.
 - 4. CERTIFICATES: Furnish to the Owner all certificates necessary as evidence that the elevator conforms with the applicable laws, ordinances, and requirements.
- C. Product Data: Submit data on following items:
 - 1. Signal and operating fixtures, operating panels, and indicators.
 - 2. Car design, dimensions, layout, and components.
 - 3. Car and hoistway door and frame details.
 - 4. Electrical characteristics and connection requirements.
- D. Shop Drawings: Include appropriate plans, elevations, sections, diagrams, and details on following items:
 - 1. Elevator Equipment and Machines: Size and location of driving machines, power units, controllers, governors, and other components.
 - 2. Hoistway Components: Size and location of car guide rails, buffers, jack unit and other components.
 - 3. Rail bracket spacing; maximum loads imposed on guide rails requiring load transfer to building structural framing.
 - 4. Clearances and over-travel of car.
 - 5. Locations in hoistway and machine room of traveling cables and connections for car lighting, telephone, and other items requiring coordination between trades.
 - 6. Location and sizes of hoistway and car doors and frames.
 - 7. Electrical characteristics and connection requirements.
 - 8. Indicate arrangement of elevator equipment and allow for clear passage of equipment through access openings.
- E. Samples: Submit samples illustrating car interior finishes, car and hoistway door and frame finishes, and cab ceiling finish in the form of cut sheets, finish color selection brochures, or samples.
- F. Manufacturer's Qualification Statement.
- G. Installer's Qualification Statement.
- H. Testing Agency's Qualification Statement.
- I. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

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- J. Initial Maintenance Contract.
- K. Maintenance Contract: Submit proposal to Owner for standard one year continuing maintenance contract agreement in accordance with ASME A17.1 and requirements as indicated, starting on date initial maintenance contract is scheduled to expire.
 - 1. Indicate in proposal the services, obligations, conditions, and terms for agreement period and for renewal options.
- L. Operation and Maintenance Data:
 - 1. Parts catalog with complete list of equipment replacement parts; identify each entry with equipment description and identifying code.
 - 2. Operation and maintenance manual.
 - 3. Schematic drawings of equipment and hydraulic piping, and wiring diagrams of installed electrical equipment with list of corresponding symbols to identify markings on machine room and hoistway apparatus.
- M. Final Submittals
 - 1. Provide four complete sets (bound and properly arranged) of the parts lists and operators manuals prior to receiving final payment. Following is a brief summary of items:
 - a. Legible schematic wiring diagrams including all changes made during installation.
 - b. Description of operation of elevator system installed.
 - c. Pump Package: Including valve and accessories.
 - d. Controller and Selector: Including parts information on Relays, Printed Circuit Boards, Reverse Phase Relays, Switches, Lamps, Electrical Cables, Monitors, Modems, Diagnostic Hardware, Diagnostic Software, and Overload Protection Devices.
 - e. Door Assemblies: Including Hangers, Rollers, Door Motor, Door Operator, Door Clutch Assembly, Door Closers, Door Drive Arms, Related Hardware, Sheaves, Door Guides, Interlocks, Safety Door Edge.
 - f. Signal Equipment: Including Car Station, Hall Stations, Position Indicators, Direction Indicators, Fire Service Panel, Smoke Detectors, Keyswitches, Pushbutton Assemblies.
 - g. Car Top Inspection Station, Limit Switches, Solid State Leveling Control Units, Leveling Switches, Alarm Bell.

1.07 QUALITY ASSURANCE

- A. Maintain one copy of each quality standard document on site.
- B. Designer Qualifications: Design guide rails, brackets, anchors, and machine anchors under direct supervision of a licensed Professional Structural Engineer experienced in design of this type of work and licensed in the State in which the Project is located.
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years documented experience.
- D. Installer Qualifications: Company specializing in performing the work of this section and approved by elevator equipment manufacturer with more than 3 years of experience.
- E. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and no more than 12 months before start of scheduled welding work.
- F. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of type specified in this section.

- G. Products Requiring Fire Resistance Rating: Listed and classified by ITS (DIR), UL (DIR), or testing agency acceptable to authorities having jurisdiction.
- H. Products Requiring Electrical Connection: Listed and classified by UL (DIR) or testing agency acceptable to authorities having jurisdiction as suitable for the purpose indicated in construction documents.

1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Provide manufacturer's warranty for elevator operating equipment and devices for one year from Date of Substantial Completion.
- C. The elevator contractor shall warranty that the materials and workmanship of the apparatus installed by him under this specification are first-class in every respect, and that he will make good any defects not due to ordinary wear and tear or improper use or care, which may develop within one year from date of final payment.

1.09 REQUIREMENTS OF REGULATORY AGENCIES

- A. Perform all work in accordance with applicable codes, the State of Pennsylvania Elevator Code, the National Electrical Code, and the American Society of Mechanical Engineers for Elevators; ASME A17.1, as referenced therein. Give all necessary notices, obtain all State and Municipal permits, pay all fees necessary in connection with the installation, including sales and use taxes as applicable, and make all tests as are called for by the regulations of such authorities. These tests shall be made in the presence of the authorized representative of such authorities and the owner's representative.
- B. Comply with "Elevator Guidelines to Ensure Accessibility by People with Disabilities".

1.10 MAINTENANCE

- A. Provide full protective maintenance of the specified equipment for a period of one year from the date of final turnover. The cost of this maintenance shall be included in the base price. Work should be performed during regular working hours.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design – Nonproprietary Hydraulic Elevator: Canton -Nidec Elevator -Dual Jack Holeless; (3000# MRL holeless Hydro by Canton Elevator). Bryan.Haught@nidec-canton.com
 - 1. Or Approved Equal Subject to strict Compliance of Requirements.
- B. Qualifications of Installer for Basis of Design
 - 1. Qualified by manufacturer
 - 2. At least 5 years of experience with installing elevators similar to Basis of Design

C. OUTLINE OF EQUIPMENT:

1. Jack Type: Dual Single-Stage
2. Capacity: 3,000 pounds
3. Speed: 125-150 FPM
4. Total Travel: 27'-0" to be verified in field
5. Stops/Number of Openings: 3 / 3 Front.
6. Floors Served: LL, 1st, 2nd
7. Platform Size (Width x Depth): 7'-0"W x 5'-9"D
8. Door Size/Operation: 3'-6"W x 7'-0" H / Power
9. Control: Microprocessor
10. Operation: Simplex Selective/Collective
11. Entrances: Single-Speed Side-Slide
12. Operating Fixtures: Innovation Industries
13. Power Supply: 208 Volts/ 3 Phase/ 60 Cycle
14. Motor: 20HP
 - a. Full Load: 65.4 amps
 - b. Locked Rotor: 311 amps.
15. Pit Depth: 4'-0"
16. Clear Overhead – 12'-0"
17. Machine Space Access Door Location: Side Of Hoistway At Lowest Landing

2.02 HYDRAULIC ELEVATORS

A. Hydraulic Passenger Elevator:

1. Hydraulic Elevator Equipment:
 - a. Holeless hydraulic with cylinder mounted within hoistway.
 - b. Capacity: 2000 pounds
 - c. Speed: 100 FPM Avg.
 - d. Travel Distance Floor to Floor: As shown on drawings.
 - e. No. of Landings and Openings Served
 - 1) 3 for three stories; basement / ground , level 1 and level 2
 - f. Car Platform: size as indicated on drawings for 2000# Capacity.
 - g. Operation: Simplex Selective Collective.
 - h. Entrance Type: Single Slide.
 - i. Opening Size: as indicated on drawings for 3000# Capacity
 - j. Power Supply: 208 Volt, 3 Phase, 60 HZ. A.C.
 - k. Machine Room: Elevator equipment room shall be located at the lower landing adjacent to the hoistway.
2. Drive System:
 - a. Variable voltage variable frequency (VVVF) to modulate motor speed.
3. Operation Control Type:
 - a. Selective Collective Automatic Operation Control.
4. Service Control Type:
 - a. Standard service control only.
5. Interior Car Height: 96 inch.

6. Electrical Power: 208 volts; alternating current (AC); three phase; 60 Hz.
 7. Rated Speed: 125 to 150 feet per minute.
 8. Hoistway Size: As indicated on drawings.
 9. Interior Car Platform Size: As indicated on drawings.
 10. Elevator Pit Depth: 48 inch.
 11. Overhead Clearance at Top Floor: 144 inch.
 12. Travel Distance: As indicated on drawings.
 13. Number of Stops: As indicated on drawings.
 14. Number of Openings: 3 Front.
 - a. Interior side for each of 3 level and non opposite side; elevator is single side opening cab.
 15. Hydraulic Equipment Location: Adjacent to bottom of hoistway shaft
- B. Oil Hydraulic Machine: The power unit shall be of a vertical compact, self-contained design including submerged pump, submerged drive motor, oil control unit assembly, and oil storage tank. The tank shall be located at the side of the hoistway. The power unit shall be accessed via a self-locking and self-closing door at the lowest landing.
- C. Pump: The vertically submerged pump shall be a positive displacement screw type, for maximum smoothness and quietness and shall be directly coupled to the motor.
- D. Motor: The vertically submerged drive motor shall be of standard manufacture and have a duty rating sufficient for hydraulic elevator requirements.
- E. Oil Control Unit: The oil control unit shall consist of electrically actuated and hydraulically operated valves with all adjustments accessible without removing the assembly from the oil lines. An automatic bypass valve shall provide smooth starting and stopping in the up direction and shall give regulated up leveling speed under varying load conditions in the car. The lowering and down leveling valve shall be fully adjustable for smoothness and speed of operation and shall be designed to close automatically if the power fails. Operation of a manual valve shall permit the car to be lowered at slow speed in the event of power failure. A safety check valve shall hold the car when the pump is at rest and a relief valve shall be provided which is capable of bypassing the entire output of the pump without increasing the system pressure more than 25% above the normal working pressure. Permanently install a liquid filled pressure gage on oil control unit.
- F. Oil Storage Tank: The oil storage tank shall be of sufficient capacity for the full travel of the car with a reserve of not less than 10 gallons, means of isolating oil in the tank for servicing of pump and valves, and a removable cover. Tank to be located in the hoistway adjacent to the elevator platform.
- G. Oil: Sufficient specially prepared hydraulic oil with greater than 400 degrees F. flashpoint and of proper viscosity and lubricating qualities shall be provided.
- H. All Hydraulic Supply Piping shall be at least schedule 40 pipe. Victaulic fittings are allowed. The system must be free from seepage at all joints.
- I. Shut-Off Valve: Manually operated valves shall be provided and installed in the oil supply line to isolate the cylinder and plunger unit from the hydraulic machine.
- J. Jack Units: The dual single-stage jacks shall be designed and constructed in accordance with the requirements of ASME code. The jacks shall be of sufficient size to lift the gross load at the rated speed. The jack units shall be factory tested to ensure freedom from leakage. No brittle material such as gray cast iron shall be used in the jack construction.
1. The jack units shall consist of a piston constructed of seamless steel tubing turned and straightened to factory specifications.
 2. A stop ring shall be welded to each piston.

3. The cylinder heads shall be designed with a removable packing, drip ring and bleeder valve.
 4. Install the jacks units plumb and attach them with brackets to the main guide rails.
- K. Buffers: Provide spring type buffers mounted to the pit floor. The buffers shall be designed and constructed in accordance with the requirements of ASME code.
- L. Car Frame and Platform: The car frame shall be constructed of structural steel per ASME code requirements. The car platform will be constructed of formed steel pans covered with a layer of 3/4" plywood.
- M. Guide Shoes: Provide swivel nylon guide shoes rigidly bolted to the top and bottom of the car frame.
- N. Guide Rails and Brackets: Provide machined steel T section guide rails with tongue and groove rail joints. The rail brackets shall be manufactured to support the calculated rail loads. The brackets shall span from the back of the rail to the hoistway wall supports. Structural support points shall be supplied by the general contractor were indicated on the elevator layout drawings.

2.03 HOISTWAY EQUIPMENT

- A. A. Guide Rails
1. Standard steel tee section.
 2. Rail support brackets.
 - a. Spaced no more than 14'-0" apart.
 - b. Forged clips and suitable fastenings.
- B. Car Guide Shoes
1. Slide and swivel type.
- C. Car Frame and Platform
1. Side post construction of structural and formed steel shapes.
 2. Platform
 - a. Structural and formed steel framing.
 - b. Double layer plywood flooring.
 - c. Fireproofed on underside.
- D. Buffers
1. Spring type.
- E. Wiring
1. Car top inspection station with work light and alarm bell.
 2. Pit stop switch.
 3. Mounted adjustable terminal switches.
 4. Traveling cable and hatch wire to be continuous from car or hatch to machine room. No hatch junction box.
 5. Phone cable from car to controller.
 6. Leveling, floor, and intermediate floor slow down switches on car top for ease of adjustment.
- F. Holeless type
1. Dual jack units – Located on each side of car.
 2. Oil collection groove and drain connection in head assembly.
 3. Partial jack holes, if required

- G. Supply Piping and Fittings
 - 1. Shut Off Valve.

2.04 MACHINE ROOM EQUIPMENT

- A. Power Unit
 - 1. Electro – Hydraulic.
 - 2. Self contained – all components inside tank.
 - 3. Motor – submersible type, especially designed for hydraulic elevator duty.
 - a. Built in thermal contact to signal over heat condition.
 - 4. Pump – Positive Displacement Type.
 - 5. Direct Drive Coupling.
 - 6. Oil Control Unit – Single Unit Valve Assembly.
 - a. Up Start.
 - b. Relief Valve.
 - c. Check Valve.
 - d. Up/Down Leveling.
 - e. Main Down Valve.
 - 7. Manual Lowering Device.
 - a. Integral Pressure Gauge.
 - 8. Sound Isolation.
 - a. Between motor frame and tank.
 - b. Isolation pads under power unit.
 - 9. Silencer Device built into power unit.
 - 10. Oil level indicator.
 - a. Minimum 10 gal. Reserve.
- B. Motor Starter
 - 1. Across the Line Starting acceptable however provide: Wye-Delta as required to comply with requirements.
 - 2. Provided in enclosure mounted on front of power unit.
 - a. Motor leads prewired.
 - 3. Overload contacts.
- C. Controller
 - 1. Microprocessor type.
 - a. With on-board diagnostic devices. Do not provide controller that requires special “hand help” or attached diagnostic devices to trouble shoot.
 - 2. Provided in enclosure mounted on front of power unit.
 - a. Valve coils prewired.
 - 3. Low oil control. Car to lower & shut down after pre-set time.
 - 4. Provide Reverse Phase Relay.
 - 5. Provide UL Label on Controller.
 - 6. Include Battery Emergency
 - 7. Lowering Unit.

2.05 COMPONENTS

- A. Elevator Equipment:
 - 1. Motors, Hydraulic Equipment, Controllers, Controls, Buttons, Wiring, Devices, and Indicators: Comply with NFPA 70; see Section 26 0583.

2. Guide Rails, Cables, Buffers, Attachment Brackets and Anchors: Design criteria for components includes safety factors in accordance with applicable requirements of Elevator Code, ASME A17.1.
 3. Buffers:
 - a. Spring type for elevators with speed less than or equal to 200 fpm.
 - b. Oil type for elevators with speed greater than 200 fpm.
 4. Lubrication Equipment:
 - a. Lubrication Points: Visible and easily accessible.
- B. Electrical Equipment:
1. Motors: NEMA MG 1.
 2. Boxes, Conduit, Wiring, and Devices: Comply with NFPA 70; see Sections 26 0533.13 and 26 0583.
 3. Spare Conductors: Provide ten percent in extra conductors and two pairs of shielded audio cables in traveling cables.
 4. Include wiring and connections to elevator devices remote from hoistway and between elevator machine room. Provide additional components and wiring to suit machine room layout; see Section 26 0583.

2.06 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with ASME A17.1, applicable local codes, authorities having jurisdiction (AHJ), and most recent PA Elevator Code.
- B. Accessibility Requirements: Comply with ADA Standards.
- C. Perform structural steel design, fabrication, and installation in accordance with AISC 360.
- D. Perform welding of steel in accordance with AWS D1.1/D1.1M.
- E. Fabricate and install door and frame assemblies in accordance with NFPA 80 and in compliance with requirements of authorities having jurisdiction.
- F. Perform electrical work in accordance with NFPA 70.
- G. Provide complete coordination of elevator hoistway and pit design confirm size, clearances for pit ladder, sump pit, and including providing and review shop drawings in particular to show where guide tracks are to be anchored into reinforced grouted solid CMU of hoistway.

2.07 HOISTWAY ENTRANCES

- A. Frames
 1. Square Profile.
 2. Bolted construction.
 3. 14 gauge steel – for up to [10" block] [6 ¾" drywall] hatch wall.
 4. #4 Stainless Steel finish.
 5. Tactile handicap jamb plates.
- B. Door Panels
 1. 16 gauge hollow metal.
 2. #4 Stainless Steel.
 3. 3Adjustable door gibs.
- C. Aluminum Sills

- D. UL Labeled Entrances
- E. Fascia, Toe Guards, Struts, Dust Covers as Required.

2.08 DOOR OPERATION

- A. D.C. Operation.
- B. Doors normally park closed.
- C. Retractable safety edge.
- D. Dual beam photo eye
- E. Protection.
 - 1. Intregal cutout switches.
- F. Adjustable door time.
 - 1. Slow speed closing.
 - 2. Door closing buzzer.

2.09 ELEVATOR CAB (CAR) ENCLOSURE

- A. Walls: Steel Shell with applied Wood Core Panels faced with Plastic Laminate with Enamel Reveals.
 - 1. Manufacturer's standard mica selection finish.
 - 2. Fireproofed on hatch side.
- B. The cab materials and interior design shall be provided per the description below:
 - 1. Wood Core Shell: $\frac{3}{4}$ " industrial particle board faced with high pressure plastic laminate and backed with phenolic backer laminate. Panels will be bolted together to form a solid wall.
 - 2. Steel Shell: 14 gauge formed steel pans bolted together to form a solid wall. Provide panels with a black powder coat finish. Apply sound deaden mastic to the backs of each panel.
 - 3. Applied Panels: $\frac{3}{4}$ " industrial particle board faced with high pressure plastic laminate and backed with phenolic backer laminate. The panels will be mounted to the cab shell with panel clips.
 - 4. Base: A 4 inch high 20 gauge 304 #4 stainless steel base shall be provided on all walls without doors.
 - 5. Canopy: Canopy shall be constructed of 12 gauge formed steel pans bolted together to form a solid canopy. Provide panels with a white powder coat finish. Provide the code required cutouts for the car top emergency exit and fan. Provide a hinged emergency exit and contact switch per ASME code requirements.
 - 6. Ventilation: A ventilation fan and vent slots are required (*coord w PA*) to meet the air change requirements specified in ASME. A 300 CFM fan shall be mounted to the car canopy. The fan shall have a direct connected motor and mounted on isolators to prevent transmission of vibrations to the canopy.
 - 7. Lighting: Configure the light fixtures to provide equal illumination across the cab without shadows or hotspots. The light fixtures shall be arranged to allow for future maintenance and repair. The light levels in the cab shall meet ASME code requirements.
 - 8. Ceiling: A drop ceiling shall be provided per the finish schedule below. The ceiling grids shall be arranged to allow access to the emergency top exit. All ceiling materials must meet ASME code requirements.

9. Cab Door: Sandwich construction with a 14 gauge steel backer panel and 16 gauge front panel. All steel will have a black powder coat finish. Clad the car side of the door will 20 gauge 304 #4 stainless steel.
 10. Cab Front: Construct the stationary return panel, transom, and strike post from 14 gauge 304 #4 stainless steel.
 11. Handrail: Handrails shall be designed to accommodate the weight of a person 250# sitting on it without deflection or damaging the handrail and cab wall. All handrail fasteners shall be concealed. Handrails shall be removable from inside the cab enclosure.
 12. Protection Pads and Buttons: Full height protection pads shall be provided on all walls and returns. The protection pads shall have cutouts for car operating panels and signals. All buttons are exposed and mechanically fastened at the top of the cab walls.
- C. Cab Interior Finish Schedule:
1. Shell: Wood core with flush plastic laminate finish.
 2. Canopy: White powder coat.
 3. Ceiling: Aluminum T frame ceiling grid with white translucent lay in panels. Fluorescent light strips mounted to canopy above drop ceiling.
 4. Cab Front, Return, Transom, and Strike Post: #4 Stainless steel.
 5. Cab Doors: #4 Stainless steel.
 6. Base: #4 Stainless steel
 7. Sill: Extruded aluminum mill finish
 8. Handrails: 3/8" x 2" #4 Stainless steel metal bar at side walls.
 9. Protection pads and buttons located on side walls and returns.
- D. Return: #4 Stainless Steel.
1. Faced with #4 Stainless Steel.
- E. Car Doors
1. [Faced on car side with Plastic Laminate with #4 Stainless Steel binder angle on leading edge.] [Faced on car side with #4 Stainless Steel.
- F. Base
1. #4 stainless steel – 4" high.
- G. Canopy
1. 12 gauge steel.
 2. Painted white.
 3. Escape hatch.
- H. Ceiling
1. [Plastic Eggcrate] [Aluminum Eggcrate] [Lumasite].
 2. Fluorescent lighting above.
- I. Handrail
1. 3/8 x 2 #4 stainless steel – [Rear] [3 sides].
- J. Entrance columns & transom
1. #4 stainless steel
- K. Exhaust Fan
1. Single speed
 2. Aluminum grill

2.10 SIGNAL FIXTURES

- A. Car Operating Panel
 - 1. Illuminated push buttons.
 - 2. Stop switch as required.
 - 3. Door open/Door close push buttons.
 - 4. Keyed car light and fan switch.
 - 5. Alarm bell push button.
 - 6. Independent service key switch.
 - 7. Telephone cabinet with hinged door.
 - 8. Emergency light (and emergency bell provision).
 - 9. Handicap symbols – tactile.
 - 10. #4 stainless steel cover – applied type.

- B. Hall Operating Stations
 - 1. Illuminated pushbuttons.
 - 2. 1/2 Gong
 - a. One gong to indicate car to travel “up” and two gongs to indicate car to travel “down.”
 - 3. #4 stainless steel cover.
 - 4. Car Direction Indicator
 - 5. Hall Lanterns and Gongs as selected and approved
 - a. Located above door opening at each floor
 - b. 1/2 Gong.
 - c. One gong to indicate car to travel “up” and two gongs to indicate car to travel “down.”
 - d. #4 stainless steel cover.

- C. Car direction Indicator
 - 1. A lantern with visual and audible indicator located in the cab enclosures strike post. The lantern will indicate the direction of the car when the doors are in the open position. The indicator shall sound one in the up direction and twice in the down direction. The cover plate shall be #4 stainless steel.

- D. Car Position Indicator
 - 1. Located in transom over car door.
 - 2. Floor passing signal (3 stop only).
 - 3. #4 stainless steel cover.
 - 4. A segmented digital position indicator shall be provided integrated with the Main COP. It shall indicate the floor at which the car is stopped or passing and the direction the car is traveling. The cover plates shall be #4 stainless steel.

- E. Hall Position Indicator
 - 1. Located over door at main floor.
 - 2. #4 stainless steel cover.

- F. Firefighters Service Phase I & II as required
 - 1. Keyed fire switch, light and call cancel button in car operating panel.
 - 2. Keyed fire switch in main floor hall station.
 - 3. Fire service buzzer in car top station.

- G. Access Switches
 - 1. Keyed access switches at terminal landings.

2. Keyed inspection switch in car operating panel.
 3. #4 stainless steel covers.
 4. Down travel limit switch in hatch.
- H. Mass EMT Service as selected and approved
1. Keyed hall call switch at egress floor.
 2. Keyed switch on car panel.
 3. Staff of Life symbols on door jamb at egress floor.

2.11 OPERATION CONTROLS OVERVIEW

- A. Elevator Controls: Provide landing operating panels, landing indicator panels, and as shown on drawings.
1. Landing Operating Panels: Metallic type, one for originating "Up" and one for originating "Down" calls, one button only at terminating landings; with illuminating indicators.
 2. Landing Indicator Panels: Illuminating.
 3. Comply with ADA Standards for elevator controls.
- B. Interconnect elevator control system with building security, fire alarm, and smoke alarm systems.
- C. Door Operation Controls:
1. Program door control to open doors automatically when car arrives at floor landing.
 2. Render "Door Close" button inoperative when car is standing at dispatch landing with doors open.
 3. Door Safety Devices: Moveable, retractable safety edges, quiet in operation; equipped with photo-electric light rays.
- D. Lobby Monitoring Panel:
1. Locate status indicator and control panel for each individual elevator and group of elevators as indicated on drawings.
 2. Mount panel in console as indicated on drawings.
 3. Etch face plate markings in panel, and fill with paint of contrasting color.
 4. Include direction indicator displaying landing "Up" and "Down" calls registered at each landing floor.
 5. Include position and motion display for direction of travel of each elevator. Display appropriate graphic characters on non-glare screen. Indicate position of cars at rest and in motion.
 6. Include "Firefighter's Service Switch" that manually recalls each elevator to main floor.
- E. Provide "Firefighter's Emergency Operation" in accordance with ASME A17.1, applicable building codes, authorities having jurisdiction (AHJ), and Phila Fire Marshal.
1. Designated Landing: Main Lobby.
- F. Special Operation Controls:
1. Program system as follows:
 - a. When elevator is called from grade level /exterior door it must only take passengers to main lobby and require discharge before access to other levels is permitted; submit sequence for review and approval.
 - b. When elevator is called from other than grade / exterior level; then access is released to any unlocked level.
 - c. Provide within cab a key lock where any level can be temporarily locked and unlocked to access.

2.12 CONTROLS DETAIL - CONTROLLER

- A. The elevator controller shall utilize a microprocessor-based logic system manufactured by Virginia Controls. The controller shall comply with (ANSI/ASME 17.1) safety code for elevators. The system shall provide comprehensive means to access the computer memory for elevator diagnostic purposes without need for any external devices and shall have permanent indicators to indicate important elevator status as an integral part of the controller. Systems that require hookup of external devices for troubleshooting are not acceptable. The elevator control equipment shall be provided such that at least three (3) elevator service companies can maintain the equipment. Immediate availability of replacement parts shall be guaranteed, and no special proprietary diagnostic devices will be utilized. An O.E.M. control, serviceable only by the O.E.M. will not be accepted. Controller shall be provided with the capability of in-the field changes for certain variables such as door time. These changes should be stored permanently using non-volatile memory. Thus, if the power to the unit is disconnected, the system will maintain the programmed variables. The Car Diagnostic Display shall have the capability of selecting either the operational or programming modes and/or displaying the status of all inputs and outputs.
- B. Failure of any single magnetically operated switch, conductors, or relay to release in the intended manner; or the occurrence of a single accidental ground or short circuit shall not permit the car to start or run if any hoistway door or gate interlock is UNLOCKED or if any hoistway door or car door or gate contact is not in the made position. Furthermore, while on car top inspection or hoistway access operation, failure of any single magnetically operated switch, conductors or relay to release in the intended manner; or the occurrence of a single accidental ground shall not permit the car to move even with the hoistway door locks and car door contacts in the closed or made position.
- C. Dedicated permanent status indicators shall be provided on the controller to indicate when the safety string is open, when the door locks are open, when the elevator is running at high speed, when the elevator is on independent service, when the elevator is on fireman's service, when the elevator out of service timer has elapsed or when the motor limit timer or valve limit timer has elapsed.
- D. The elevator shall not require the functioning or presence of the microprocessor to operate normally during car top inspection operation or hoistway access operation in order to provide a reliable means to move the car if the microprocessor fails.
- E. A motor limit timer function shall be provided which, in the event of the pump motor being energized longer than a predetermined time, shall cause the car to descend to the lowest landing, open the doors automatically and then re-close them and the elevator shall then be rendered unresponsive to any automatic operation. Operation may be restored by cycling the power disconnect switch or putting the car on access or inspection operation.
- F. A valve limit timer shall be provided which shall automatically cut off current to the valve solenoids if they have been energized longer than a predetermined time. The car calls shall then be cancelled, and the car taken out of service automatically. Operation may be restored by cycling the power disconnect switch or putting the car on access or inspection operation.
- G. An out of service timer (T.O.S.) shall be provided which will automatically take the car out of service if the car is delayed in leaving the landing while there are calls existing in the building. The car shall not respond to hall calls while in this mode of operation.
- H. Door protection timers shall be provided for both the open and close directions which will help protect the door motor and which will help prevent the car from getting stuck at a landing. The door open protection timer shall cease attempting to open the door after a predetermined time in the event that the door is prevented from reaching the open position. The door close

protection timer will reopen the doors for a short time in the event that the door-closing attempt fails to close the door locks after predetermined time.

- I. A minimum of three different door standing open times shall be provided. A car call time value shall predominate when a car call only is cancelled. A hall call time value shall predominate whenever a hall call is cancelled. In the event of a door reopen from the safety edge, or photo eye, a separate short door time value shall predominate.
 - J. Hall call or car call registration and lamp acknowledgment shall be by means of a single wire per call besides the power busses. Systems that register the call with one wire and light the call acknowledgment lamp with a separate wire are not acceptable. Phase I emergency recall operation, and Phase II emergency in-car operation shall be provided within the controller according to applicable local codes.
 - K. Independent service operation shall be provided such that actuation of a key switch in the car-operating panel will cancel any existing car calls, and hold the doors open at the landing. The car will then respond only to car calls and will ignore hall calls. Car and hoistway doors will only close by constant pressure on car call buttons or a door close button until the car starts to move. While on independent service any hall arrival lanterns or jamb mounted arrival lanterns and gongs shall be inoperative.
 - L. The car shall be equipped with two-way leveling to automatically bring the car within plus or minus 1/4 inch of exact level at any landing regardless of load up to maximum capacity.
 - M. A timer shall be provided to limit the amount of time a car is held at a floor due to a defective hall call or car call including stuck pushbuttons. Call demand at another floor shall cause the car to eventually ignore the defective call and continue to provide service in the building.
 - N. DOOR TIMING - Separate adjustable timing means shall be provided to establish independent minimum passenger transfer time for car stops, hall stops, main lobby stops, and door reversal operations (short door time).
 - O. Simplex selective collective automatic operation shall be provided for the single car installations. Operation of one or more car call or hall call buttons shall cause the car to start and run automatically provided the hoistway door interlocks and car door contacts are closed. The car shall stop at the first car call or hall call set for the direction of travel of car. Stops shall be made in the order in which the car calls or hall calls set for the direction of operation of the elevator are reached, irrespective of the order in which they were registered. If only hall calls set for the opposite direction of travel of the elevator exist ahead of the car, the car shall proceed to the most distant hall call, reverse direction, and start collecting the calls.
 - P. Simplex home landing operation shall be provided and if no calls are registered shall cause the car to travel to a predetermined home landing floor and stop without providing a door operation.
 - Q. If the car is enroute to the home landing and a call appears from the direction opposite to which the car is traveling, the car shall slow down, stop, and then accelerate in the opposite direction, toward the call. The home landing function shall cease instantly upon the appearance of a normal call and the car shall proceed non-stop in response to any normal call.
 - R. Elevator controller shall be as manufactured by Virginia Controls including soft start features to limit inrush current.
- 2.13 CONTROLS DETAIL - LOW OIL CONTROL
- A. A low oil control feature shall protect the hydraulic components if the elevator fails to complete its upward travel in the normal time.

- B. Actuation of the low oil control circuit shall stop the pump and lower the car to the lowest landing. Power-operated doors shall open to permit passengers to depart and shall then close. The car shall remain parked at that landing completely removed from demands for service.
- C. To return the car to normal service, the malfunction shall be corrected and the elevator controls reset in the machine room.

2.14 OPERATION CONTROL TYPE

- A. Single Automatic (Push Button) Operation Control: Applies to car in single elevator shaft.
 1. Refer to description provided in ASME A17.1.
 2. Set system operation so that momentary pressure of landing button dispatches car from other landing to that landing.
 3. Allow call registered by momentary pressure of landing button at any time to remain registered until car stops in response to that landing call.
 4. If elevator car door is not opened within predetermined period of time after car has stopped at terminal landing allow car to respond to call registered from other landing.
- B. Selective Collective Automatic Operation Control: Applies to car in single elevator shaft.
 1. Refer to description provided in ASME A17.1.
 2. Automatic operation by means of one button in the car for each landing served and by "UP" and "DOWN" buttons at the landings.
 3. Stops are registered by momentary actuation of landing car buttons without consideration of the number of buttons actuated or the sequence buttons are actuated, but the stops are made in the order that landings are reached in each direction of travel.
 4. All "UP" landing calls are made when car is traveling in the up direction.
 5. All "DOWN" landing calls are made when car is traveling in the down direction.
 6. Uppermost and lowermost calls are answered as soon as they are reached without consideration of the car travel direction.

2.15 EMERGENCY POWER

- A. Set-up elevator operation to run with building emergency power supply when the normal building power supply fails, and in compliance with ASME A17.1 requirements.
- B. Building Emergency Power Supply: Supplied by backup generator; provide elevator system components as required for emergency power characteristics with phase rotation the same as for normal power.
 1. Provide transfer switches and auxiliary contacts.
 2. Install connections to power feeders.
- C. Emergency Lighting: Comply with ASME A17.1 elevator lighting requirements.
- D. Provide operational control circuitry for adapting the change from normal to emergency power.
- E. Upon transfer to emergency power, advance one elevator at a time to a pre-selected landing, stop car, open doors, disable operating circuits, and hold in standby condition.

2.16 MATERIALS

- A. Steel Cylinder Casing: ASTM A139/A139M, Grade A steel.
- B. Rolled Steel Sections, Shapes, Rods: ASTM A36/A36M.

- C. Steel Sheet: ASTM A1008/A1008M, Designation CS (commercial steel), with matte finish.
- D. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating.
- E. Stainless Steel Sheet: ASTM A666, Type 304; No. 4 Brushed finish unless otherwise indicated.
- F. Stainless Steel Bars, Shapes and Moldings: ASTM A276/A276M, Type 304.
- G. Extruded Brass Shapes: ASTM B455/B455M, Copper Alloy UNS C38500, Architectural Bronze, 57 percent copper, polished finish.
- H. Seamless Brass Tubes: ASTM B135/B135M, Copper Alloy UNS C22000, Commercial Bronze, 90 percent copper, polished finish.
- I. Brass Sheet: ASTM B36/B36M, Copper Alloy UNS C38500, Architectural Bronze, 57 percent copper.
- J. Extruded Aluminum: ASTM B221 (ASTM B221M), natural anodized finish unless otherwise indicated.
- K. Aluminum Sheet: ASTM B209/B209M, 3105 alloy, O temper.
- L. Plywood: PS 1, Structural I, Grade C-D or better, sanded.
- M. Resilient Flooring: Luxury Vinyl tile flooring and Resilient base, see Section 09 6500, Type same as main floor level unless indicated otherwise.
- N. Plastic Laminate: NEMA LD 3, Type HGS, color as selected by Architect from manufacturer's standard line of colors.

2.17 HOISTWAY EQUIPMENT - Provisions for Hoistway Access

- A. Keyway - Furnish and install hoistway door unlocking devices at all landings in accordance with requirements of the latest Edition of the American Standard Safety Code for Elevators, Dumbwaiters, and Escalators, and as permitted by the Local Code.
- B. The hoistway door-unlocking device shall unlock and permit the opening of the hoistway door from the access floors irrespective of the position of the car. The design of the device shall be such as to prevent unlocking the door with common tools. The means for unlocking the door shall be available and used only by inspectors, maintenance men, and repair men.
- C. Hoistway Access – Furnish and install hoistway access switches and associated devices in accordance with requirements of the latest edition of the American Society of Mechanical Engineers A17.1 and permitted by local code. Locate hoistway key switches at the top and bottom landing.

2.18 HOISTWAY EQUIPMENT - Top of Car Operating Device

- A. An operating device shall be provided on the top of the car located in the front between the car crosshead and hoistway door, complete with an Emergency Stop Switch, a Selections Switch, and UP and DOWN Operating Buttons. This device shall comply with ANSI A17.1 and local codes.
- B. Operation from the top of the car shall not be permissible unless all electric door contacts are closed.

2.19 HOISTWAY EQUIPMENT - Pit Stop Switch

- A. A switch shall be located in each elevator pit, in accordance with ANSI A17.1 and local codes.

2.20 ELECTRIC WIRING

- A. Complete insulated wiring shall be furnished and installed to connect all parts of the equipment furnished by the elevator contractor. Wiring shall conform to the requirements of the latest edition of the National Electrical Code. Include rigid conduit or EMT, at least 1/2" diameter, and short lengths of flexible conduit. Conduit or EMT shall terminate in junction boxes. Conduit, EMT, wiring duct, conduit fittings, enclosures and junction boxes shall be galvanized steel or aluminum.
- B. All wiring shall have a flame retarding moisture resisting outer cover and shall be run in metal conduit, flexible metallic tubing, or wire ducts.
- C. Traveling cables shall have flame retarding and moisture resisting outer cover. They shall be flexible and suitably suspended to relieve strains in the individual conductors. Provide the required quantity plus at least 10 percent spares. All wiring between telephone in car and a junction box in elevator machine room shall be provided by the elevator contractor. Conductors shall be numbered to correspond to numbered terminals at the car and machine room.
- D. Terminal blocks shall be coded to identify the circuits. Multi-conductor cables shall have the conductor color coded and numbered.
- E. Each elevator car shall be provided with a suitable GFCI receptacle fitted with a wire lamp guard on top of the car and a suitable duplex plug receptacle.
- F. Unless otherwise specified, control wiring shall be minimum size #18 AWG. Wire size shall be large enough so that the voltage drop under inrush conditions will not adversely affect operation of the controls.
- G. Phase Protection: Provide 3-phase power monitor for elevator power supply which monitors phase loss, low voltage, phase reversal, phase unbalance, and has an automatic reset. The three phase power monitor shall be Time Mark Corp. model 257 or model approved by the Elevator Shop.
- H. Execution:
 - 1. Install all power wiring in raceway systems. No exposed wiring or conduit shall be run in finished areas without prior written approval of owner.
 - 2. Splice cables and wires only in outlet boxes, junction boxes or pull boxes. (Note - No wire splicing allowed in raceway or wireducts).
 - 3. Install cable supports for all vertical feeders in accordance with the NEC. Provide Kellum GRIP type supports which firmly clamp each individual cable and tighten due to cable weight.
 - 4. All terminal strip connections shall be identified with corresponding reference numbers from cable termination chart and electrical straight-line diagrams.
- I. EMERGENCY ALARM BELL
 - 1. An alarm bell shall be provided and mounted on the car. When the emergency alarm bell button in the car is pressed, the button shall illuminate and the alarm bell shall sound.

2.21 LANDING SYSTEM

- A. This landing system shall provide high speed stepping signals, one-floor-run stepping signals, leveling, and door zone signals. Each output signal shall be electrically isolated and shall be capable of reliably operating at 120 VAC.
- B. The system shall consist of a steel tape with mounting hardware to accommodate the complete travel of the elevator, a car top assembly with tape guides and sensors, and magnetic strips for stepping and leveling.
- C. The leveling and stopping accuracy of the system shall be within 1/4 inch of the floor level and shall correct for over travel or under travel to within the same accuracy, regardless of load variations or direction of travel.
- D. Landing control system shall be as manufactured/recommended by the controller manufacture.

2.22 HOISTWAY ENTRANCES

- A. Complete entrances bearing UL fire labels.
- B. Frames: Hollow metal assembly fabricated from not less than 16ga material. Permanently attach ADA complying floor designations. Provide the main egress landing plates with the "Star" designation.
- C. Door Panels: 18 gauge steel, sandwich construction without binder angles. Provide a minimum of two gibes per panel, one at leading and one at trailing edge with both gibes in the sill groove their entire length of travel. Emergency interlock release keyways are required at each landing. Keyway shall include front trim ring.
- D. Sight Guards: Same material and finish as hoistway entrance door panels.
- E. Sills: Extruded aluminum.
- F. Fascia: 16ga furniture steel with manufacturer's standard finish.
- G. Frame and Door Finish:
 - 1. Baked enamel finish on doors and frames at all landings.

2.23 CAR AND HOISTWAY ENTRANCES

- A. Elevator, No. LIB 1:
 - 1. Car and Hoistway Entrances from Exterior:
 - a. Hoistway Fire Rating: 2 Hours.
 - b. Elevator Door Fire Rating: 1-1/2 Hours.
 - c. Framed Opening Finish and Material: Stainless Steel.
 - d. Car Door Material: Powder coat on steel, with rigid sandwich panel construction.
 - e. Hoistway Exterior Door Material: Stainless Steel.
 - f. Door Operation: Side opening, two speed.
 - g. Door Width: 36 inch.
 - h. Door Height: 84 inch.
 - i. Sills: Extruded aluminum.
 - 2. Car and Hoistway Entrances, Main Elevator Lobby:
 - a. Hoistway Fire Rating: 2 Hours.
 - b. Elevator Door Fire Rating: 1-1/2 Hours.

- c. Framed Opening Finish and Material: Alkyd enamel on steel.
 - d. Car Door Material: Powder coat on steel, with rigid sandwich panel construction.
 - e. Hoistway Door Material: Powder coat on steel, with rigid sandwich panel construction.
 - f. Door Operation: Side opening, two speed.
 - g. Paint Color: As indicated.
 - h. Door Width: 36 inch.
 - i. Door Height: 84 inch.
 - j. Sills: Extruded aluminum.
3. Car and Hoistway Entrances, Lower Floor Elevator Lobby:
- a. Framed Opening Finish and Material: Alkyd enamel on steel.
 - b. Car Door Material: Powder coat on steel, with rigid sandwich panel construction.
 - c. Hoistway Door Material: Powder coat on steel, with rigid sandwich panel construction.
 - d. Door Type: Double leaf.
 - e. Door Operation: Side opening, two speed.
 - f. Paint Color: As indicated.
 - g. Door Width: 36 inch.
 - h. Door Height: 84 inch.
 - i. Sills: Extruded aluminum.

2.24 CAR EQUIPMENT AND MATERIALS

A. Elevator Car:

- 1. Car Design: Model as indicated on drawings by basis of design or equal .
- 2. Car Operating Panel: Provide main and auxiliary; flush-mounted applied face plate, with illuminated call buttons corresponding to floors served with "Door Open/Door Close" buttons, "Door Open" button, "Door Close" button, alarm button, and as indicated on drawings.
 - a. Panel Material: Integral with front return; one per car.
 - b. Car Floor Position Indicator: Above door with illuminating position indicators.
 - c. Locate alarm button where it is unlikely to be accidentally actuated; not more than 54 inch above car finished floor.
 - d. Provide matching service cabinet integral with front return panel, with hinged door and keyed lock in each car.
- 3. Ventilation: Single speed fan with grille in ceiling.
- 4. Flooring: Carpeting.
- 5. Wall Base: Resilient base, 4 inch high.
- 6. Front Return Panel: Match material of car door.
- 7. Door Wall: Baked enamel on steel.
- 8. Side Walls: Baked enamel on steel.
- 9. Rear Wall: Baked enamel on steel.
- 10. Hand Rail: Stainless steel, at all three sides. Provide open clearance space 1-1/2 inch (38 mm) wide to face of wall.
 - a. Flat Bar Stock, Solid: as indicated on drawings inch thick by as indicated on drawings inch high.
 - b. Round, Metal Tube: 1-1/2 inch diameter; as indicated on drawings,
 - c. Stainless Steel Finish: No. 4 Brushed.
- 11. Ceiling: as indicated on drawings .
 - a. Canopy Ceiling: Stainless steel.

B. Car Accessories:

1. Certificate Frame: Stainless steel frame glazed with tempered glass, and attached with tamper-proof screws.

2.25 CAR EQUIPMENT - Power Door Operation (GAL-MOVFR)

- A. The car and hoistway doors shall be operated quietly and smoothly by an electric operator which shall open and close the car door and respective hoistway door simultaneously. The doors shall open automatically when the car is leveling at the respective floor and, when operating without an attendant, shall close after a predetermined time has elapsed. Momentary pressure on the "Open Door" button in the car shall cause the doors to remain open or, if closing, to reopen and reset the time interval.
- B. The doors shall be opened at rated speed (2ft/sec.) and the closing speed shall be per Code. Door closing force shall be as allowed by code.
- C. An electric contact for the car doors shall be provided which shall prevent elevator movement away from the floor unless the door is in the closed position as defined by code.
- D. Each hoistway door shall be equipped with an auxiliary door closing device and a positive electro-mechanical interlock to prevent the operation of the elevator until the interlock circuit is established and the doors are locked and closed.
- E. Door Protection and Reopening Device
 1. Formula Systems Safescreen.
- F. Adaptive Door Timing
 1. Door open times will be varied subject to the call situation causing the stop:
 - a. Shortest timing, when car call only causes stop.
 - b. Longer timing, when hall call only causes stop.
 - c. Longest timing, when coincident hall and car calls exist.

2.26 OPERATING FIXTURES - Car Operating Panel (Innovation Industries FIXTURES)

- A. The operating panels in the car shall consist of one #4 stainless steel applied cover plate. The main control panel shall contain a series of push buttons with illuminated call registration devices, numbered to correspond to the various landings serviced, In Car Stop Key Switch, Alarm Button (connected to a bell located on the car), and a Door Close, Door Open button for each entrance. Alarm bell shall be operated from its own independent battery pack power supply. The main control panel shall also contain separate key operated switches for Fire service, inspection, independent service, car lights and car fan. All the key switch cylinders shall be standard Innovation fixtures. Fire Fighters Service operating instruction shall be etched and filled with red filler in the main car-operating panel. Braille denotations shall be of the replaceable type bolted from the rear of contrasting colors mounted per ADA Guidelines.
- B. Buttons shall be translucent with a white insert and black halo. The LED lamp shall illuminate to indicate a call has been registered.
- C. Provide emergency light in car operating panel with nickel cadmium batteries.

2.27 OPERATING FIXTURES - Hall Push Button (Innovation Industries FIXTURES)

- A. Hall push buttons shall be installed at each floor to permit waiting passengers to call the elevator to the floor.

- B. Fixtures shall have up and down buttons at intermediate floors and single buttons at top and bottom floors.
- C. Buttons shall be translucent with a white insert and black halo. The LED lamp shall illuminate to indicate a call has been registered. Button shall remain illuminated until the call has been answered.

2.28 OPERATING FIXTURES - Communication System

- A. Provide hands-free emergency telephone integral with the main car-operating panel with wiring (shielded pairs) to terminals on control panel in machine room.
- B. Phone shall keep working in the event of a power failure. Phone shall be one push button to talk type and flash when call is answered.

2.29 ACCEPTABLE PRODUCTS

- A. Fixtures (Car Operating Panel, Hall Push Button): Innovation Industries. Or approved equal.
- B. MICRO-PROCESSOR BASED CONTROLLER (For Hydraulic Elevators): Virginia Controls. Or approved equal.
- C. DOOR OPERATOR & EQUIPMENT: GAL Manufacturing Corp. MOVFR Operator, car and hall door tracks, car and door hangers with roller assemblies. All interlocks, pickup rollers and operating linkage manufactured by GAL. Or approved equal.
- D. HYDRAULIC PACKAGE: Basis of Design: Manufactured Canton Elevator.

2.30 MACHINE ROOM FITTINGS

- A. Wall-Mounted Frames: Glazed with clear plastic; sized as required. Provide one chart each for master electric and hydraulic schematic and for lubrication chart. Install charts.
- B. Key Cabinet: Wall-mounted, lockable, keyed to building keying system, for control and operating panel keys.
 - 1. Provide two key cabinet keys.
 - 2. Provide two control/operating panel keys.
 - 3. Provide two card access keys.
- C. Monitoring Device Interface:
 - 1. Fabricate one multiple terminal block in controller relay panel or selector, in location indicated, for connection of monitoring devices for:
 - a. Landing and car registration circuits.
 - b. Motor generator running circuits.
 - c. Load weighing circuits.
 - d. Up and down peak programming circuits.
 - e. Independent service switches.
 - 2. Label terminals for use with alligator test clips.

2.31 FINISHES

- A. Field Painting: See Section 09 9123 for additional requirements.

- B. Powder Coat on Steel: Clean and degrease metal surface; apply one coat of primer; two coats of powder coat.
- C. Baked Enamel on Steel: Clean and degrease metal surface; apply one coat of primer sprayed and baked; two coats of enamel sprayed and baked.
- D. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20 Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction (AHJ).
- E. Finish Paint for Metal Surfaces: Alkyd enamel, semi-gloss, color as selected, complying with VOC limitations of authorities having jurisdiction (AHJ).
- F. Clear Anodized Finish: Class I, AAMA 611 AA-M12C22A41, clear anodic coating with electrolytically deposited organic seal; not less than 0.7 mil, 0.0007 inch thick.
- G. Color Anodized Finish: Class I, AAMA 611 AA-M12C22A44, electrolytically deposited colored anodic coating not less than 0.7 mil, 0.0007 inch thick.
- H. High Performance Organic Finish: AAMA 2604; multiple coats, thermally cured fluoropolymer system.

2.32 Auxiliary Operations - Firefighter's Service

- A. The following operation is for the use of firemen and other authorized personnel and shall meet all current codes as most recently adopted by the Authority Having Jurisdiction.
 - 1. Automatic passenger elevators shall conform to the following:
 - a. A three position (on, off, and by-pass) key-operated switch shall be provided at the main floor for each single elevator or each group of elevators. The key shall be removable only in the "on" and "off" positions. When the switch is in the "on" position, all elevators controlled by this switch and which are on automatic service shall return non-stop to the main floor, and the doors shall open and remain open.
 - 1) An elevator traveling away from the main floor shall reverse at the next available floor without opening its doors.
 - 2) Elevators equipped with automatic power-operated doors and standing at a floor other than the main floor, with doors open, shall close the doors without delay and proceed to the main floor.
 - 3) Door reopening devices for power-operated doors which are sensitive to smoke, heat or flame shall be rendered inoperative.
 - 4) All car and corridor call buttons shall be rendered inoperative and all call registered lights and direction lanterns shall be extinguished and remain inoperative.
 - 5) A car stopped at a landing shall have its "Emergency Stop Switch" rendered inoperative as soon as the doors are closed and it starts toward the main floor. A moving car, traveling to or away from the main floor, shall have its "Emergency Stop Switch" rendered inoperative immediately.
 - 6) A sensor in each elevator lobby, which when activated prevents cars from stopping at that floor, shall not be substituted for the above requirements.
 - b. Sensing Devices: In addition to the key-operated switch required in "1" above, heat and smoke or products of combustion sensing devices shall be furnished and installed per local code requirements. The activation of a sensing device in any elevator lobby shall cause the car to return non-stop to the main floor. The key operated switch when moved to the "by-pass" position, shall restore normal service independent of the sensing devices. Smoke detectors shall be supplied and installed by other trades and are not included in this scope of work.

- c. A three position (off-hold-on) key-operated switch shall be provided in each car and shall be effective only when the main floor key-operated switch is in the "on" position or a sensor has been activated and the car has returned to the main floor or other approved level. The key shall be removable in all positions, and shall not change the operation until the car is at a floor with doors fully opened.
- d. The operation of elevators on Fire service shall be as follows:
 - 1) An elevator shall be operable only by a person in the car.
 - 2) Elevators shall not respond to elevator corridor calls.
 - 3) The opening of power-operated doors shall be controlled only by continuous pressure "open" buttons or switches. If the switch or button is released prior to the doors reaching the fully open position, the doors shall automatically reclose. Open doors shall be closed by continuous pressure on "Door Close" switch or button.
 - 4) Means shall be provided to cancel registered car calls.
 - 5) When the switch is in the 'hold' position, the car shall remain at the floor with its doors open.
 - 6) Elevators can be removed from individual car fire service by moving the key-operated switch to the "off" position and the car is at the main floor or other approved level.
- e. The switches required above shall be operated by the same key but are not a part of a building master key system. There shall be a key for the main floor switch and for each elevator in the group and these keys shall be kept on the premises by persons responsible for maintenance and operation of the elevators, in a location readily accessible to authorized persons, but not where they are available to the public. **TURN OVER ALL KEYS TO OWNER**
- f. Instructions of operation shall be provided as required by code.

2.33 Auxiliary Operations - Independent Service Operation

- A. A two-position switch shall be provided in the car-operating panel.
- B. When the switch is placed in the independent service position, the mode of operation shall be amended as follows:
 - 1. The car is disconnected from the supervisory system.
 - 2. Existing car calls shall be canceled.
 - 3. The cars shall bypass landing calls.
 - 4. Continuous pressure on the car button of the selected floor shall close the doors and start the car toward the selected floor. Pressure shall be required on the button until the car starts. Releasing the car button before the car starts shall cause the doors to automatically reopen.
 - 5. After the car has arrived at the floor and the doors have automatically opened, the cars shall remain until another car button is pressed or until the key switch is returned to the normal position.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting this work.
- B. Verify that hoistway, pit, machine room, and CMU Hoistway are ready for work of this section.
- C. Verify hoistway shaft and openings are of correct size and within tolerance.

- D. Verify location and size of machine foundation and position of machine foundation bolts.
- E. Verify that electrical power is available and of correct characteristics.

3.02 SITE INSPECTION

- A. Prior to preparation of drawings, the contractor shall examine the hoistway and machine room areas and verify that no discrepancies or irregularities exist which would adversely affect the execution of the work.
- B. No exposed wiring or conduit shall be run in finished areas without prior written approval of owner.

3.03 PERFORMANCE

- A. Contract Speed
- B. Actual speed shall vary no more than +/- 10% from speed specified under any loading condition or direction of travel.
- C. Leveling accuracy
 - 1. Consistently level within +/- 1/4" under all loading conditions.

3.04 PREPARATION

- A. Arrange for temporary electrical power for installation work and testing of elevator components.
 - 1. See Section 01 5100 - Temporary Utilities for additional requirements.
- B. Excavate for in-ground hydraulic cylinder casing, and remove subsoil from site; see Section 31 2316 for additional requirements.
- C. Maintain in-ground shaft alignment of 1/2 inch maximum from plumb.
 - 1. Fill over-excavated shaft depth with lean concrete.
- D. Maintain elevator pit excavation free of water.
- E. Maintain in-ground elevator shaft excavation free of water.
- F. Place in-ground plunger casing full depth of shaft. Align to 1/4 inch from plumb. Cut top of casing at hoistway pit slab elevation.
- G. Backfill around in-ground cylinder casing; see Section 31 2323.

3.05 INSTALLATION

- A. General
 - 1. Install each elevator in accordance with accepted manufacturer's directions and ANSI A17.1 and all applicable codes.
 - 2. Install machine room equipment with clearance complying with ANSI A17.1.
 - 3. Install items so that they may be removed by portable hoists or other means for ease of maintenance.
- B. Coordinate this work with installation of hoistway wall construction.
- C. Guide Rails

1. Install rails continuously for full height of hoistway with no gap at joints.
 2. Align rails vertically within a tolerance of 1/32".
- D. Power Unit: Fill system with oil as per pump manufacturers recommendations.
- E. Entrances: Align within tolerance of 1/32".
- F. Install system components, and connect equipment to building utilities.
- G. Provide conduit, electrical boxes, wiring, and accessories; see Sections 26 0533.13 and 26 0583.
- H. Install hydraulic piping between cylinder and pump unit.
- I. Mount machines, motors, pumps, and associated equipment on vibration and acoustic isolators.
1. Place on structural supports and bearing plates.
 2. Securely fasten to building supports.
 3. Prevent lateral displacement.
- J. Jack Unit
1. Install plumb & true.
 2. If units are wrapped with corrosion protective material, install and patch as required.
- K. Install hoistway, elevator equipment, and components in accordance with approved shop drawings.
- L. Install guide rails to allow for thermal expansion and contraction movement of guide rails.
- M. Accurately machine and align guide rails, forming smooth joints with machined splice plates.
- N. Bolt brackets to inserts placed in concrete form work.
- O. Field Welds: Chip and clean away oxidation and residue with wire brush; spot prime surface with two coats.
- P. Install hoistway door sills, frames, and headers in hoistway walls; grout sills in place, set hoistway floor entrances in alignment with car openings, and align plumb with hoistway.
- Q. Fill hoistway door frames solid with grout; see Section 04 2000.
- R. Structural Metal Surfaces: Clean surfaces of rust, oil or grease; wipe clean with solvent; prime two coats.
- S. Machine Room Components: Clean and degrease; prime one coat, finish with one coat of enamel.
- T. Wood Surfaces not Exposed to Public View: Finish with one coat primer; one coat enamel.
- U. Adjust equipment for smooth and quiet operation.
- 3.06 TOLERANCES
- A. Guide Rail Alignment: Plumb and parallel to each other in accordance with ASME A17.1 and ASME A17.2.
- B. Car Movement on Aligned Guide Rails: Smooth movement, without any objectionable lateral or oscillating movement or vibration.

3.07 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements for additional requirements.
- B. Testing and inspection by regulatory agencies certified in accordance with ASME QEI 1 will be performed at their discretion.
 - 1. Schedule tests with agencies and notify Owner and Architect.
 - 2. Obtain permits as required to perform tests.
 - 3. Document regulatory agency tests and inspections in accordance with requirements.
 - 4. Perform tests required by regulatory agencies.
 - 5. Furnish test and approval certificates issued by authorities having jurisdiction.
- C. Perform testing and inspection in accordance with requirements.
 - 1. Inspectors shall be certified in accordance with ASME QEI-1.
 - 2. Perform tests as required by ASME A17.2.
 - 3. Provide at least two weeks written notice of date and time of tests and inspections.
 - 4. Supply instruments and execute specific tests.
- D. Operational Tests:
 - 1. Perform operational tests in the presence of Owner and Architect.
 - 2. Test single elevator system by transporting at least 4 persons up from main floor to top floor landings during a five minute period.
 - 3. At an agreed time, and the building occupied with normal building traffic, conduct tests to verify performance.
 - a. Furnish event recording of each landing call registrations, time initiated, and response time throughout entire working day.
 - 4. Set period of time elevator takes to travel between typical floor landings at not more than 60 seconds.
 - a. Measure time from moment doors start to close until car has stopped level at next floor landing and doors are opening.

3.08 ADJUSTING

- A. Adjust for smooth acceleration and deceleration of car to minimize passenger discomfort.
- B. Adjust with automatic floor leveling feature at each floor landing to reach 1/4 inch maximum from flush with sill.
- C. Adjust all equipment to operate to within accepted design tolerances.
- D. Adjust all leveling devices so car stops within plus or minus 1/4" of finished floor.
- E. Lubricate all equipment in accordance with accepted manufacturer's instructions.
- F. Painting
 - 1. Paint all exposed metal work, furnished for installation, except wearing surfaces, with high grade rust preventative paint.
 - 2. Touch up factory applied paint surfaces as required

3.09 CLEANING

- A. See Section 01 7000 - Execution and Closeout Requirements for additional requirements.
- B. Remove protective coverings from finished surfaces.

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HYDRAULIC ELEVATORS

- C. Keep work areas orderly and free of debris on a daily basis.
- D. Remove filings and loose materials resulting from this work from hoistways.
- E. Clean all dirt, oil and grease from machine room and pit equipment and floors.
- F. Clean car, car enclosures, entrances, hoistways, operating and signal fixtures and trim of dirt, oil, grease, and finger marks.
- G. Clean surfaces and components in accordance with manufacturers written instructions.
 - 1. Remove from hoistway surfaces all loose materials and filing resulting from this work.
 - 2. Clean machine room floor of dirt, oil and grease.
 - 3. Remove crating and packing materials from premises.

3.10 CLOSEOUT ACTIVITIES

- A. See Section 01 7800 - Closeout Submittals for additional submittals.
- B. See Section 01 7900 - Demonstration and Training for additional requirements.
- C. Demonstrate proper operation of equipment to Owner's designated representative.
- D. Demonstration: Demonstrate operation of system to Owner's personnel.
 - 1. Use operation and maintenance data as reference during demonstration.
 - 2. Conduct walking tour of project.
 - 3. Briefly describe function, operation, cleaning and maintenance of each component.
- E. Training: Train Owner's personnel on cleaning and operation and maintenance of system.
 - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
 - 2. Provide minimum of two hours of training.
 - 3. Instructor: Manufacturer's training personnel.
 - 4. Location: At project site, unless noted otherwise.

3.11 PROTECTION

- A. Do not permit construction traffic within car after cleaning.
- B. Protect installed products until Date of Substantial Completion.
- C. Touch-up, repair, or replace damaged products and materials prior to Date of Substantial Completion.

3.12 PERFORMANCE GUARANTEE

- A. The elevator contractor shall assume full responsibility to furnish and provide a complete and functional elevator and to obtain and furnish the final State Elevator Inspection approval.

3.13 ACCEPTANCE DEMONSTRATION and PERFORMANCE TEST

- A. Demonstrate to Owner, or Owner's designated representative, the operation of the elevator system. Demonstration shall include:

3.14 MAINTENANCE

- A. Refer to Section 01 7000 - Execution and Closeout Requirements for additional requirements.
- B. Provide Initial Maintenance Contract of elevator system and components in accordance with ASME A17.1 and requirements as indicated for 3 months from Date of Substantial Completion.
 - 1. Provide three (3) months full contract service beginning at the date of Final Acceptance of each elevator. Service to be provided on a monthly basis during regular working hours of regular working days except that emergency minor adjustment callback service shall be available 24 hours a day, 7 days a week.
- C. Submit proposal for continuation of Maintenance Contract in accordance with ASME A17.1 and requirements as indicated for installed elevator equipment.
- D. Perform maintenance contract services using competent and qualified personnel under the supervision and direct employ of the elevator manufacturer or original installer.
- E. Maintenance contract services shall not be assigned or transferred to any agent or other entity without prior written consent of Owner.
- F. Examine system components periodically.
- G. Include systematic examination, adjustment, and lubrication of elevator equipment.
- H. Maintain and repair or replace parts, whenever required, using parts produced by original equipment manufacturer.
- I. Perform work without removing cars from use during peak traffic periods.
- J. Provide emergency call back service during regular working hours throughout period of this maintenance contract.
- K. Maintain an adequate stock of parts for replacement or emergency purposes, and have personnel available to ensure the fulfillment of this maintenance contract without unreasonable loss of time.

END OF SECTION 14 2400