

DIVISION 14 - CONVEYING SYSTEMS

SECTION 14245 - ELECTRIC ELEVATORS

PART 1, GENERAL

1.1 SECTION INCLUDES

- A. These specifications are intended to cover the complete installation of the elevator plant in a first-class workmanlike manner and to include all work and material in accordance with the drawings as specified. All work and material shall conform to the requirements of the American Standard Safety Code for Elevators, dumbwaiters, and escalators, the National Electric Code, The International Building Code and any local codes, which may govern the Requirements of installation.

1.2 REFERENCES

- A. The Americans with Disabilities Act. (ADA)
- B. ASME/ANSI A17.1 2002 Safety code for elevators and escalators.
- C. ASTM A 36 - Structural Steel
- D. ANSI/NFPA 70 National Electric Code
- E. ASTM A167 Stainless and Heat-resisting Chromium- nickel steel plate, sheet and strip
- F. ASTM B221 Aluminum and Aluminum, Alloy extruded bars rods wire, shapes, and tubes

1.3 SUBMITTALS

- A. Submit under provisions of Division 1.
- B. Product Data: Provide catalog cuts and data on the following items:
 - 1. Signal and operating fixtures, operating panels, indicators and phone system.
 - 2. Controller and motor drive including non-proprietary compliance.
 - 3. Machine, hoist motor, brake unit.
 - 4. Governor, car safeties, rope gripper and related assemblies.
 - 5. Car sling, platform, counterweight assembly.
 - 6. Complete door operating system.
 - 7. Elevator cab.
- C. Shop Drawings: Indicate the following information:
 - 1. Driving machine, controller, selector, governor and other component locations.
 - 2. Car, counterweight, sheaves, machine and sheave beams, rails, buffers ropes, hoistway door sizes and location.
 - 3. Rail bracket spacing and maximum loads imposed on building structure. Individual weights of principle components and load reactions at points of support.
 - 4. Color selections for door and cab finishes, fixture cut sheets, Electrical characteristics and connection requirements.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with ANSI/ASME A17.1, ADA, NFPA 70, and as supplemented in this section.
- B. Warranty Period: The elevator contractor shall repair or replace any defective components, not due to ordinary wear and tear or improper use, which may develop within one (1) year from date of completion of the equipment.
- C. **Maintenance Period: The elevator installer shall furnish full maintenance for a period of three months after completion of the installation.**

1.5 QUALIFICATIONS

- A. Installer: Elevator Service Company specializing in performing the work of this section and approved by the elevator equipment manufacturer.
- B. Controller: The Company selected to modernize the elevator may not manufacture the microprocessor elevator controller. The controller manufacturer must also provide free technical support to any elevator service mechanic working on behalf of the owner for a period of not less than 10 years after final inspection.

1.6 REGULATORY REQUIREMENTS

- A. Conform to ANSI/ASME A17.1 2002 and ADA.
- B. ANSI/NFPA 70 for products requiring electrical connection.

1.7 FIELD MEASUREMENTS

- A. Field measure locations of specified equipment prior to ordering shop drawings.
- B. Verify that field measurements are as indicated on shop drawings prior to submitting to engineer.

1.8 SCHEDULING

- A. Coordinate work with Owner.

1.9 WORK BY OTHERS

- A. Preparatory work in conjunction with the elevator installation will be done by other contractors and will consist of the following:
- B. A properly framed and enclosed legal hoistway, including venting as required by the governing code authority, ready for uninterrupted use by the elevator installer at an agreed upon date.
- C. All electric power for light, tools, and hoists. During erection, if welding is necessary, then the elevator installer shall provide portable welders.
- D. Suitable machine room with legal access and ventilation and concrete floor. Temperature in the machine room is to be maintained between 60 and 100 degrees F. Relative humidity should not exceed 95% non-condensing. Ventilation to suit the elevator equipment's heat release factor.
- E. Temporary hoisting beam for maximum net live load of 5,000 lbs. May need to be removed before elevator is placed in operation.

- F. Adequate rail bracket supports, bracket spacing as required by governing code, from pit floor to underside of overhead slab. Separator beams where required. Machine beams of sizes and location as recommended by the elevator installer.
- G. Dry pit reinforced to sustain normal vertical forces from rail and impact loads from buffer and rails with safeties applied. Pit shall have a permanent means to prevent the accumulation of water. Sump pumps shall have a steel cover flush with the floor.
- H. Surface of pit floor beneath buffer stands to be flat and level within 1/8" across the full width of the pit.
- I. Where access to the pit is by means of the lowest hoistway entrances, the contractor must provide a vertical ladder extending a minimum of 48" above the landing sill of the access door.
- J. Vertical surfaces of entrance sill supports must be plum, one above the other, and square with the hoistway. Finished floor and grout, if required, between jambs, frames, and sill line. A horizontal support (lintel) is to be provided 8' 0" above the top landing to support the doorframe assembly.
- K. Lower finished floor to top finished floor rise tolerance of +0" and -1".
- L. Hoistway walls are to be designed and constructed in accordance with the required fire rating including where penetrated by elevator fixture boxes and to include adequate fastening to hoistway entrance assemblies. One front entrance wall, at the main landing, is not to be constructed until after all elevator material is located in the hoistway. Remaining front entrance walls shall not be constructed until after door frames and sill are in place. If front walls are poured concrete bearing walls, rough openings are to be provided to accept entrance frames and filled in after frames are set. Rough opening size to suit elevator installer.
- M. All cutting, including cutouts to accommodate hall signal fixtures, patching, painting of walls, floors or partitions together with finish painting of entrance doors and frames if required.
- N. A three (3) phase, three (3) wire electrical feeder system with an equipment-grounding conductor terminating in the machine room. Size of the feeders and grounding conductor designed to suit elevator power characteristics. A fused disconnect with auxiliary interlock contact or circuit breaker with auxiliary contact for each elevator per the National Electrical Code or with feeder or branch wiring to controller. Interlock contact to be positively open when main disconnect contacts are open. Main and auxiliary contacts shall be sized to suit elevator power characteristics.
- O. A 125 volt, 15 ampere capacity dedicated branch circuit, single phase power supply with SPST or circuit breaker for each elevator, per the National Electrical Code, with feeder wiring to each controller for car lights.
- P. Suitable light fixture and convenience outlets in machine room with light switches located within 18" of lock jamb side of machine room door. The receptacles shall have ground-fault circuit interrupter protection.
- Q. All 125 volt, 15 or 20 ampere, single phase receptacles installed in machine rooms, pits, car tops, machinery spaces, and at the top of the shaft shall have ground-fault circuit-interrupter protection. If a sump pump is present in the elevator pit, a single pole non-GFI receptacle shall be provided.
- R. A smoke detector system with wiring from the fire panel to the machine room for the elevator fire recall system. The elevator requires a set of NORMALLY OPEN contacts from the smoke detector at the designated fireman's egress landing and one set of NORMALLY OPEN contacts representing all other landing lobbies. Also one set of NORMALLY OPEN contacts must be provided representing the smoke detectors and heat detectors in the elevator machine room and hoistway.

- S. If sprinklers are installed in the hoistway, machine room, or machinery spaces, a means must be provided to automatically disconnect the mainline power supply of the affected elevator(s) prior to the application of water.
- T. A hands free type telephone instrument per ADAAG Emergency Communications requirement for use by those with disabilities for communication of signaling to an accessible point outside the hoistway or building to an approved 24-hour emergency service.
- U. Should operation of the elevators be required on emergency standby power, others are to provide an emergency power unit and means for starting it and delivering sufficient power to operate one or more elevators at a time at full rated speed to the elevator(s) disconnect in the elevator machine room.
- V. Provide a transfer switch for each feeder for switching from normal power to emergency standby power and a contact on each transfer switch closed during normal power supply with two wires from this contact to one elevator controller per machine room.
- W. Guarding and protecting the hoistway during construction. The protection of the hoistway shall include removable solid panel surrounding each hoistway opening at each floor, a minimum of 48" high. Hoistway guards to be erected, maintained, and removed by others.
- X. During installation, the elevator platform must not be used to hoist materials or persons other than required for elevator installation.

1.10 MANUFACTURERS

- A. Design shall be based on a Hollister Whitney traction passenger elevator. This shall be used as the acceptable minimum standard for this section. Other manufacturers subject to compliance with requirements and prior approval by the professional. Manufacturers shall have a minimum of 5 years production of the type and character as specified.
 - 1. Acceptable Installers:
 - I. Port Elevator, Inc.- Williamsport, PA
 - II. Otis Elevator, Wilmington, DE
 - III. ThyssenKrupp Elevator, Kennesaw, GA
- B. All installers subject to compliance with the requirements of the specifications. Other installers subject to pre-approval before bidding by the professional.

PART 2: PRODUCTS

2.1 OUTLINE OF EQUIPMENT

- A. Quantity: **One (1)**
- B. Type: **G geared Traction Passenger Class A**
- C. Capacity: **2500 - pounds**
- D. Speed: **100 - feet per minute**
- E. Travel: **11 feet**
- F. Landings: **2 Stops**

- G. Openings: 2 Front, 0 Rear
- H. Operation: Selective collective
- I. Platform size: 7'-0" wide x 5'-0" deep
- J. Hoistway entrance:
 - 1. Size - 3'-6" wide x 7'-0" high
 - 2. Type - Single Speed Opening Automatic
- K. Power supply: 208 volts 3 phase 60 cycles
- L. Car Enclosure: The Car enclosure shall be as per the following
 - 1. Shell: 16 gauge reinforced steel shell- height 8'-0" to canopy
 - 2. Interior: Faced with laminate, edged with SS #4.
 - 3. Returns: Baked Enamel
 - 4. Transom: Baked Enamel
 - 5. Threshold: Extruded Aluminum
 - 6. Lighting: Fluorescent Lighting above Lexan Suspended Ceiling.
 - 7. Handrails: #4 Stainless Steel 1/2" x 2" bar with angled ends on 3 walls.
 - 8. Pads: Vinyl cab pads with #4 stainless steel pad hooks
 - 9. Flooring: By others
 - 10. Fan: Single speed or two speed
- M. Guide Shoes: Hollister Whitney or Elsco
 - 1. 6" diameter roller guides on car sling
 - 2. 3" diameter roller guides on counterweight frame
- N. Additional features:
 - 1. Automatic emergency power operation.
 - 2. Coax cabling for closed circuit camera in elevator cabs.
 - 3. Independent service.
 - 4. Load weighing.
 - 5. Full car dispatch.
 - 6. Graphic elevator monitoring with laptop computer.
 - 7. Elevator lobby phone.

2.2 POWER UNIT

- A. A Hollister Whitney geared machine, worm gear driven, DC disc brake, gearing with demountable traction sheave. Factory mounted AC motor specifically designed for variable frequency use, isolation pads and bedplate.

2.3 AUTOMATIC TWO-WAY LEVELING

- A. An automatic two-way leveling device shall be provided so that the car will approach landing stops at reduced speed from either direction of travel. The leveling device shall, within its zone, be entirely independent of the operating device and shall automatically stop and maintain the car approximately level with the landing, regardless of change in load.

2.4 CONTROL AND MOTOR DRIVE

- A. The control system shall be closed loop feedback variable voltage type control system, which shall govern the starting, stopping and direction of travel of the elevator. The control shall use a solid-state motor drive power converter for each elevator, which shall apply variable voltage to the elevator motor. The closed loop feedback speed control regulator system shall vary the voltage applied to the elevator hoist motor, during acceleration and retardation periods, without interrupting the power to the hoist motor. On stopping, the hoist motor shall be slowed down to leveling speed by regenerative or dynamic braking. Complete electric controlled stopping shall be made before the brake is set on the brake drum. The leveling system shall correct for over travel or under travel within $\frac{1}{4}$ " measured between car and landing door sill, where it is caused by changes in load on the platform after the car has made the initial stop. The initial stop shall be made without any re-leveling.
- B. The motor drive and its components shall be designed and rated specifically for elevator duty. The solid state control system shall incorporate factory determined and preset functions to precisely determine the speed of the elevator at any instant of travel in accordance with a predetermined acceleration and rate of acceleration factor. Drive unit shall be a separate Open source unit, upgradable or replaceable by a newer model or different manufacturer without replacement of the entire control system. Parameter unit shall be provided with the drive unit and remain in the controller. Parameter unit shall not be locked out or password protected.
- C. The elevator hoist motor current shall be electronically controlled. The current shall be monitored and shall be maintained at the adjusted level through a feedback loop.
- D. The hoist motor brake shall be electronically controlled by a separate phase controlled supply. The brake current shall be controlled by a current feedback loop to provide constant brake coil current. Resistance changes due to brake coil heating shall be compensated for without any additional external resistors and heat losses. Brake pickup current and brake holding current shall be independently adjustable.
- E. The control system shall be designed to automatically bring the car to a floor landing. The stop shall be smooth without any sudden brake application. The floor approach shall be without any hesitation or delay in time. Floor sensing devices shall correct for over travel and under travel and shall maintain the car within a maximum of $\frac{1}{4}$ " of the floor line, regardless of rated capacity, load or direction of travel.
- F. A positive means of determining the position of the elevator in the hoistway at all times shall be provided as a part of the elevator control system. Floor location for leveling shall be determined via magnetic stops affixed to a tape, or vanes, to define the floor-leveling zone.
- G. The control system shall include a microprocessor for processing, adjusting and diagnostics. The system shall provide comprehensive means to access the computer memory for elevator adjusting and diagnostic purposes and shall have permanent indicators to show elevator status as an integral part of the controller.
- H. The failure of any switch, contact, or relay to release in the intended manner, the failure of any static control devices, speed measuring circuit, or speed pattern generating circuit operate as intended, or the occurrence of a single accidental ground or short circuit shall not permit the car to operate.
- I. Status indicators shall be provided on the controller to indicate when the safety circuit 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, and when the elevator has failed to successfully complete its intended movement. A means shall also be provided for the displaying of other special or error conditions that are detected by the microprocessor.

- J. A test switch shall be provided on the controller, which shall allow independent operation of the elevator without door open functioning for purposes of adjustment or testing of the elevator. The elevator shall not respond to hall calls and shall not interfere with the other cars in the system.
- K. The control equipment shall have all control parameters stored permanently on erasable programmable read-only memory.
- L. The microprocessor shall be equipped with on-board diagnostics for troubleshooting and field programmability. The field changes shall be stored permanently using non-volatile memory.
- M. All controller printed circuit boards, discrete components, switches, and other items of control equipment shall be mounted on panels which shall be made of a moisture-resisting, noncombustible material which shall be securely mounted in a substantial, self supporting steel frame with fastenings suitable for panel demounting. A vibration absorbing mounting shall be provided for the steel frame, if necessary, to eliminate perceptible vibration.
- N. Electro-mechanical switches and relays shall be used where heavy current is supplied and/or on safety circuits required by the Elevator Codes.
- O. Switches shall be direct current type, magnet operated with contacts of design and material to insure maximum conductivity, long life and reliable operation without overheating or excessive wear, and provide a wiping action to prevent sticking due to fusion. Switches carrying highly inductive currents shall be provided with arc deflectors and suppressors.
- P. Identifying symbols or letters shall be permanently marked on or adjacent to each device on the controller and the marking shall be identical to marking on the wiring diagrams. The ampere rating shall be marked adjacent to all fuse holders.
- Q. All input-output devices shall be marked similarly to relays for easy reference to wiring diagrams.
- R. The main dispatch, the Fireman Recall floor and the Alternate Fireman Recall floor shall be determined prior to fabrication of the control equipment. The control shall be programmable to enable the dispatch and recall floors to be changed in the field.

2.5 CONTROLLER

- A. **An open source, non-proprietary microprocessor-based controller shall be provided. Controllers manufactured by the installer will not be accepted.** Microprocessor shall have opto-isolated inputs and outputs. Shall be isolated with Dry Relay contacts. Controller shall have all diagnostic and trouble shooting readouts located directly on the unit. Controller shall have the ability to be replaced by a unit of different model or manufacturer without the necessity of replacing any other related items (door operators, selectors, buttons etc). The control system shall include a microprocessor for processing, adjusting and diagnostics. The system shall provide comprehensive means to access the computer memory for elevator adjusting and diagnostic purposes and shall have permanent indicators to show elevator status as an integral part of the controller. Status indicators shall be provided on the controller to indicate when the safety circuit 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, and when the elevator has failed to successfully complete its intended movement. A means shall also be provided for the displaying of other special or error conditions that are detected by the microprocessor without the use of any hand held or portable device. Changing of operational parameters shall be possible without the use of removable devices or knowledge of any programming languages. Full set of manuals including parameter lists, faults, settings, passwords and instructions on full use of the processor as well as wiring diagrams shall be included. Technical training, engineering, and technical phone and field support shall be available to all.

- A. The momentary pressing on one or more car buttons shall send the car to the designated landings in the order in which the landings are reached by the car, irrespective of the sequence in which the buttons are pressed. During this operation the car shall answer calls from the landings, which are in the prevailing direction of travel and each call shall be canceled when answered. With the momentary pressing of a hall button above the car, the car shall start up and answer any up calls as they are reached by the car irrespective of the sequence in which the buttons are pressed. The car shall not stop at floors where down buttons only are pressed. Similarly, the car shall start down to answer calls below the car and shall not stop where up calls only are registered. When traveling up, the car shall reverse at the highest call and proceed to answer calls below it. Similarly, when traveling down, the car shall reverse at the lowest call and answer calls above it. Should both an up and down call be registered at an intermediate landing, only the call corresponding to the direction in which the car is traveling shall be canceled upon the stopping of the car at that landing.

- B. Duplex?

2.6 CAR FRAME AND PLATFORM

- A. The car frame, which supports the elevator platform and enclosure, shall be made of structural steel members. Platform shall consist of a steel frame filled with suitable sub-floor and a finished floor of others. Underside of platform shall be properly fireproofed.

2.7 HOISTWAY ENTRANCES

- A. Hoistway entrances of the hollow metal horizontal sliding type shall be provided at each of the hoistway openings. Each entrance shall have a clear opening _____ feet _____ inches wide by 7 feet 0 inches high. Each entrance shall include unit frames, flush design door panels, sight guards, extruded aluminum sills, strut angles, headers, hanger covers, fascia plates, toe guards, dust covers, and necessary hardware. Sill angles shall be provided and installed by the elevator contractor.

2.8 HOISTWAY DOORS

- A. Door panels shall be labeled with the UL fire rating as per code door finish shall be as follow:
 - 1. Door frames: Prime finish/ baked enamel/ stainless steel
 - 2. Door panels: Prime finish/ baked enamel/ stainless steel
- B. Fascias, hanger covers, toe guards and dust covers shall have manufacturer's standard enamel finish or galvanized. Structural members shall have prime coat finish or galvanized.
- C. If baked enamel finish is specified, all surfaces shall be thoroughly cleaned of all oil, grease and other foreign substances before paint is applied. Rust resisting mineral paint shall be applied after which a filler coat shall be baked on. The surface shall be sanded off level and smooth and a final priming coat of mineral paint applied. Two finish coats of the best grade solid color enamel shall be baked on. Color shall be as selected by the architect. Sills, struts, headers, hanger covers and unit frames shall be erected prior to the erection of rough walls and set in proper relation to the car guide rails. Door panels shall be installed after the walls are finished.

2.9 MASTER DOOR OPERATOR

- A. A GAL master gearless door operator with direct current motor shall be provided to open and close the car and hoistway doors simultaneously, at a maximum speed of not less than 1-1/2 feet per second. Door movement shall be cushioned or checked at both limits of travel. Electro-mechanical switches and adjustable resistors shall control speed and limits, an electro-mechanical interlock shall be provided on each hoistway door to prevent the operation of the elevator unless all doors are closed and locked. An electric contract shall be provided on the car door to prevent the operation of the elevator unless the car door is closed. The door operator shall be arranged so that, in case of

interruption or failure of electric power from any cause, the doors can be readily operated by hand from within the car. Emergency devices and keys for opening the doors from the landing shall be provided as required by the local codes. The doors shall open automatically when the car is leveling at the respective landings, and shall close after a predetermined time interval or immediately on pressing a car button. A "door open" button shall be provided in the car, the momentary pressing of which shall reopen the doors and reset the time interval.

2.10 DOOR EDGE PROTECTIVE DEVICE

- A. The car door shall be provided with a protective device extending the full height. An infrared type car door protective device having a multi-beam array shall be furnished. This device shall be so arranged that should it sense a person or obstruction in its path while the doors are closing, it shall automatically cause the car and hoistway doors to return to the open position. The door shall remain open until the expiration of a time interval and then close automatically

2.11 DOOR HANGERS AND TRACKS

- A. Hangers and tracks shall be provided at each car and hoistway entrance. Tracks shall be of bar steel with the working surface contoured to match the sheaves. The hangers shall be designed for power operation and have provisions for vertical and lateral adjustment. Hangers shall be designed for two-point suspension of the door panel. Hanger sheaves shall be polyurethane with pre-lubricated and sealed for life bearings. Car door hangers shall have minimum 3-1/4" diameter sheaves. Hoistway door hangers shall have minimum 3-1/4" diameter sheaves.

2.12 EMERGENCY STOP SWITCH

An keyed emergency stop switch shall be provided in the car, designed to cut off current supply to motor and bring the car to rest independent of the regular operating devices. Elevator Company shall file for variance if required.

2.13 CAR OPERATING PANEL

- A. A flush mounted operating panel shall be furnished in the car containing call registration buttons for each landing, emergency stop switch, alarm button, door open, door close, fan and light switch, surface mount phone, emergency lighting shall be provided. Phase II fire service shall be provided and car panel shall be engraved with fire service instructions. Panel shall be 1/8" stainless steel plate. **Buttons shall be EPCO Survivor with LED lights.** Fire service instructions shall be engraved in panel.
- B. A digital position indicator shall be provided in the car, directly over the car buttons. Floor arrival and passing gong as well as direction indication shall be incorporated in the cab entrance, visible from the hall button panel.
- C. A digital car-riding lantern with LED lights will be installed.

2.14 HALL FIXTURES

- A. A riser of flush mounted buttons shall be provided. A single button shall be furnished at each terminal and up down buttons at all intermediate landings. Panel shall be 1/8" stainless steel plate. **Buttons shall be EPCO Survivor with LED lights.**
- B. A digital position indicator shall be provided at the egress floor.

2.15 TERMINAL LIMIT SWITCHES

- A. Terminal limit switches shall be provided in the hoistway designed to automatically stop the car at each terminal landings.

2.16 GUIDE RAILS

- A. Guide rails shall be provided for the car consisting of planed steel tees erected plumb and securely fastened to the hoistway framing by heavy steel brackets. The ends of all rails shall be tongued and grooved; forming matched joints and shall be connected with steel splice plates.

2.17 CAR GUIDE SHOES

- A. The top and bottom of the car frame shall be provided with a combination of roller type of adequate design to sustain the loads imposed.

2.18 CAR SAFETY

- A. A car safety shall be provided which will conform to the requirements of ANSI A17.1 Section 2.17. The safety shall be of the type that can be released only by moving the car in the up direction. To return a car to normal operation after a safety set, the car shall be moved in the up direction.

2.19 SPEED GOVERNOR

- A. A car speed-governor conforming to the requirements of ANSI A17.1 Section 2.18 shall be provided to activate the car safety.
- B. A traction steel governor rope shall be provided to meet Hollister Whitney Elevator Corporation's specifications. Governor rope shall be manufactured by Bethlehem Wire Rope.

2.20 SUSPENSION MEANS

- A. Traction steel hoist ropes shall be installed in the size, quantity, and grade specified by Hollister Whitney Elevator Corporation. Hoist ropes shall be manufactured and supplied by Bethlehem Wire Rope.

2.21 ROPE GRIPPER SAFETY

- A. A rope gripping safety device conforming to the requirements of ANSI, A17.1 Section 2.19 shall be provided to activate the rope safety. A Hollister Whitney "Rope Gripper" shall be installed.

2.22 ELECTRICAL

- A. All hoistway control wiring, traveling cables, cab wiring and machine room control wiring shall be new insulated copper wiring. Wiring shall bear the UL label and be installed in accordance of the National Electric Code. Each traveling cable shall include 10% spare wires and a minimum of 2 pairs of twisted shielded wires for phone and building security and one coax cable. Phone wires shall be clearly labeled in machine room and terminate in car panel phone box. All wiring shall be run in metal conduit, metallic tubing or wire ducts.

2.23 PAINTING AND CLEANING

- A. The elevator hoistway, pit and machine room shall be thoroughly cleaned at the conclusion of the project and prior to acceptance. The elevator machine room floor shall be painted with two coats of gray deck enamel. All machine room elevator equipment, existing and new shall be painted with two coats of rust inhibiting enamel paint. Pit floor shall be painted gray and buffers painted.

PART 3: EXECUTION

3.1 INSPECTION

- A. Prior to commencing elevator installation, Installer shall inspect hoistway, openings, pits and machine room, as constructed, shall verify all critical dimensions, and examine supporting structure and all conditions under which elevator work is to be installed.

3.2 COORDINATION

- A. Coordinate elevator work with work of other trades, for proper time sequence to avoid construction delays.

3.3 ALIGNMENT

- A. Coordinate installation of hoistway entrances with installation of elevator guide rails, for accurate alignment of entrances with car. Where possible, delay final adjustment of sills and doors until car is operable in shaft.

3.4 LEVELING TOLERANCE

- A. Within 1/2" up or down, regardless of load in car.

3.5 ACCEPTANCE TESTING

- A. Perform acceptance tests as requires by State Elevator Code and governing regulations or agencies. Provide owner with approved State operating permit.

END OF SECTION 14245