SECTION 142000 – ELEVATORS (NEW INSTALLATIONS)

1. GENERAL

When specifying new technology such as machine room-less products, verify compliance with the appropriate referenced standard, such as the ASME Aa17.1 elevator code. Components from various major manufactures may require a variance if proposed for use. One example of this could be the type of suspension means proposed.

Delete article below if this section is part of the construction work contract.

* + - 1. PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION
         1. Deliver the following item to the Construction Work Contractor for installation:

Use concrete inserts for support of guide rails only where steel framing is not available for support of guide rail brackets. Have construction spec writer or designer add to drawings or specifications: “install concrete inserts for support of guide rails at locations determined by elevator contractor.”

Concrete inserts for support of guide rails.

* + - 1. PRODUCTS PROVIDED BY OTHERS
         1. The following items will be provided by the Construction Work Contractor:

Enclosed hoistway, including structural beams at top of shaft to carry the loads imposed on the building by the elevator equipment.

Elevator pit of proper depth below the lowest landing including waterproofing and a pit ladder.

Machine room of sufficient size to accommodate the elevator equipment.

Sill support angles for each hoistway entrance.

* + - * 1. The following items will be provided by the Electrical Work Contractor:

Power feeder to machine room, terminating at line terminals of elevator controller.

Fused disconnect switch or enclosed circuit breaker with auxiliary contact.

Single phase circuit for elevator cab lighting, terminating in a fused disconnect switch or circuit breaker in elevator machine room.

Smoke detection system for Phase I - Emergency Recall Operation terminating at a terminal strip cabinet in elevator machine room.

Emergency power signaling conductors from automatic transfer switches to the elevator controller(s).

Lighting in machine room and elevator pit.

Telephone wiring terminated in the elevator machine room.

Thermostatically controlled mechanical ventilation of the elevator machine room.

* + - 1. PRODUCTS FURNISHED BY OTHERS AND INSTALLED UNDER THIS CONTRACT
         1. The following items will be furnished under the Electrical Work Contract for installation under this Contract:

Coordinate requirements for items listed in 4 subparagraphs below with electrical designer. Delete items not required.

Public address speaker and backbox for each elevator cab.

Fire warden telephone jack for each elevator cab.

Card access control equipment.

CCTV equipment.

Edit article below as required by contract requirements.

* + - 1. RELATED WORK SPECIFIED ELSEWHERE
         1. Firestopping: Section 078400.
         2. Elevator Painting: Section 099101.
         3. Elevator Hoisting Equipment - Gearless Electric: Section 142111.
         4. Elevator Hoisting Equipment - Geared Electric: Section 142112.
         5. Elevator Hoisting Equipment - Hydraulic: Section 142411.
         6. Elevator Cars: Section 142711.
         7. Elevator Controller and Operation: Section 142816.
         8. Elevator Hoistway Equipment: Section 142820.
         9. Elevator Hoistway Entrances: Section 142821.
         10. Elevator Door Operators: Section 142813.
         11. Elevator Safety Equipment: Section 142851.
         12. Elevator Landing Signal Equipment: Section 142861.
         13. Elevator Emergency Operation and Emergency Signal Devices: Section 142871.
         14. Elevator Wiring: Section 142881.
      2. DEFINITIONS
         1. Company Field Advisor: An employee of the Company which lists and markets the primary components of the elevator equipment under their name, who is certified by the Company to be technically qualified in design, installation, and servicing of the required products, or an employee of an organization certified by the foregoing company to be technically qualified in design, installation and servicing of the required products.
      3. SUBMITTALS
         1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Waiver of Submittals: The “Waiver of Certain Submittal Requirements” in Section 013300 does not apply to the Work of Division 14.
         5. Submittals Package: Submit the shop drawings, product data, samples, and quality control submittals specified below at the same time as a package except for the following:

Control System Wiring Diagrams (Shop Drawings).

Test Report (Quality Control Submittal).

* + - * 1. Shop Drawings:

Use six subparagraphs below for all elevators.

Machine room (layout, size, etc.).

Hoistway, sections and layouts showing reaction points with reactions.

Entrance and car details.

Details of doors, frames, and sills.

Control System Wiring Diagrams.

Car and lobby fixture details.

Use two subparagraphs below only for traction elevators.

Isolation transformer KVA rating with calculations utilized to determine KVA rating provided.

Manufactures machine and emergency brake drawings.

* + - * 1. Product Data:

Manufacturer’s catalog sheets, specifications and installation instructions for each component specified.

Motor data shall be certified by the manufacture. Provide calculations utilized to determine horsepower rating provided.

Hydraulic pump data with calculations utilized to determine the gallons per minute rating provided.

Hydraulic cylinder data with calculations utilized to determine diameter and wall thickness of cylinder provided.

* + - * 1. Samples:

Hoist cable (two - 2 foot lengths).

Governor Cable (two - 2 foot lengths).

Travel cable (two - 2 foot lengths).

Stainless steel.

Bronze.

Handicap access signage.

Phase I and II procedure signage.

Color Selections.

* + - * 1. Quality Control Submittals:

Installers Qualifications Data:

Name of each person who will be performing the Work.

Employer’s name, business address and telephone number.

Names and addresses of the required number of similar projects that each person has worked on which meet the experience criteria.

Test Report: Acceptance test report.

Certificate: Affidavit signed by the Company Field Advisor and notarized, certifying that the equipment meets contract requirements and is operating properly.

* + - * 1. Contract Closeout Submittals:

Operation and Maintenance Data: Deliver 2 copies, covering the installed products to the Director’s Representative. Include lubrication charts, wiring diagrams and instructions. Mount and hang one copy of wiring diagrams in elevator machine room. Each sheet of wiring diagrams shall be laminated in plexiglass.

Deliver all portable diagnostic keyboards and or programming tools required for testing, service or maintenance to the Director’s Representative. Include manuals containing all passwords, set up parameters, fault coding and all other operational and maintenance requirements. Contractor shall be able to demonstrate the required functionality of the diagnostic devices.

* + - 1. QUALITY ASSURANCE
         1. Company Qualification: The Company, installers and supervisors employed to perform the Work of Division 14, shall be experienced in elevator Work, and shall have been engaged in the rehabilitation of elevators and have installed the products specified in Division 14 for use on this project for a minimum of 3 years.

Furnish to the Director the names and addresses of 5 similar projects, which the products specified in Division 14 for use on this project, have been installed during the past 3 years.

* + - * 1. Product Manufacturer Qualification: If products by Companies other than those specified in Division 14 are proposed for use, furnish the name, address and telephone number of at least 5 comparable installations located within a 100 mile100-mile radius of the project site, which can prove the proposed products have operated satisfactorily for 3 years.

Elevator control systems shall be supported by a manufacturer’s technical support office staffed with technical field advisors located within a 300 mile300-mile radius of the project site.

* + - * 1. Company Field Advisor: Secure the services of a Company Field Advisor for the following:

Render advice regarding installation, adjustment and operation of equipment.

Witness tests and certify with an affidavit that the equipment installed is in accordance with contract documents and is operating properly.

Explain available service programs to facility supervisory personnel for consideration.

Obtain seismic design criteria from the project architect and fill in blank spaces in paragraph below as required. Delete underlines before entering the information.

* + - * 1. Seismic Design Criteria:

Effective peak velocity acceleration (Av) for Project’s location is \_\_\_\_\_.

Design earthquake spectral response acceleration, short period (Sds) for project is \_\_\_\_\_\_.

Fill in blank in subparagraph below with appropriate seismic design category value (a) (b) (c) or (d).

Project seismic design category is \_\_\_\_\_\_\_\_\_.

* + - 1. DELIVERY, STORAGE, AND HANDLING
         1. Packing and Shipping: Protect equipment and exposed finishes during transportation and erection against damage.
      2. COORDINATION
         1. Coordinate installation of sleeves, block outs, elevator equipment with integral anchors, and other items that are embedded in concrete or masonry for elevator equipment. Furnish templates, sleeves, elevator equipment with integral anchors, and installation instructions and deliver in time for installation.
         2. Coordinate locations and dimensions of other work relating to the elevator including pit ladders, sumps, and floor drains and sump pumps in pits; entrance sill support angles and beams.
      3. WARRANTY
         1. Special Manufacturer’s Warranty: Manufacturer’s standard form in which manufacturer agrees to repair, restore, or replace defective elevator work within specified warranty period.

Fill in blank space in paragraph below. Delete underline before entering the information.

Warranty Period: **\_\_\_\_\_\_\_\_\_\_\_\_** from date of Project acceptance.]

* + - 1. MAINTENANCE SERVICE

Verify maintenance service period and response time in paragraph below as required.

* + - * 1. Initial Maintenance Service: Beginning upon Project acceptance, provide one year full maintenance service by skilled employees of elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Provide parts and supplies same as those used in the manufacture and installation of original equipment.

Perform maintenance, including emergency callback service, during normal working hours.

Response Time: Two hours or less.

1. PRODUCTS
   * + 1. ELEVATOR EQUIPMENT

Edit paragraph below as required.

* + - * 1. Acceptable Companies: Adams Elevator Equip. Co., ThyssenKrupp Elevator Co., Elevator Equipment Co., Elevator Products Co., Elevator Safety Co., G.A.L. Mfg Corp., Hollister-Whitney Elevator Corp., Imperial Electric Co., Motion Control Engineering M.C.E., Kone Elevator Co., Maxton, Nylube Products Co., Otis Elevator Co., Peele Door, PTL Equip. Mfg. Co. Inc., Schindler Elevator Co., Titan Machine Corp, or equal.

Change “passenger” to “freight” in paragraph below if required.

* + - * 1. Type of Elevator: Passenger.

Fill in blanks in subparagraphs below as required. Delete underlines before entering the information.

Rated Load: \_\_\_\_\_\_\_\_\_\_.

Freight Load Classification: \_\_\_\_\_\_\_\_\_\_.

Rated Speed: \_\_\_\_\_\_\_\_\_\_.

Fill in blank in subparagraph below with variable voltage variable frequency type or silicon control rectifier as required.

Controller: \_\_\_\_\_\_\_\_\_\_.

Operation: \_\_\_\_\_\_\_\_\_\_.

Leveling: Two way automatic.

Travel: \_\_\_\_\_\_\_\_\_\_.

Stops: \_\_\_\_\_\_\_\_\_\_.

Add rear openings to subparagraph below where required.

Openings: \_\_\_\_\_\_\_\_\_\_.

Fill in blank in subparagraph below with gearless, geared or direct plunger hydraulic type as required.

Type of Machine: \_\_\_\_\_\_\_\_\_\_.

Roping: \_\_\_\_\_\_\_\_\_\_.

Change location in subparagraph below to basement or other location of machine if machine room-less.

Machine Location: Overhead.

Machine Room Floor: Concrete.

Car Platform Size: \_\_\_\_\_\_\_\_\_\_.

Verify minimum size requirements in subparagraph below with ASME Aa117.1

Net Car Size (Inside): \_\_\_\_\_\_\_\_\_\_.

Fill in hoistway door dimensions in subparagraph below.

Hoistway Entrances: \_\_\_\_\_\_\_\_\_\_.

Choose one of the hoistway entrance types in 7 subparagraphs below.

Two speed center opening horizontal slide type.

Center opening horizontal slide type.

Two speed horizontal slide type.

Single speed horizontal slide type.

Vertical bi-parting, counterbalance type.

Vertical slide up type.

Vertical slide down type.

Fill in car door dimensions in subparagraph below.

Car Doors: \_\_\_\_\_\_\_\_\_\_.

Choose one of the car door types in 7 subparagraphs below.

Two speed center opening horizontal slide type.

Center opening horizontal slide type.

Two speed horizontal slide type.

Single speed horizontal slide type.

Collapsing horizontal slide gate.

Single speed slide up type gate.

Two speed slide up type gate.

Change to “power” to” manual” in subparagraph below if required.

Door Operation: Power.

Signals in Car:

Car position indicator.

Car operating panel.

Call registration lights.

Direction indicators.

Alarm button and gong.

Signals at Landings:

Position indicators.

Push button stations.

Direction indicators.

* + - 1. PAINTING
         1. Finish ferrous surfaces of the elevator Work with Company’s standard multiple coat paint finish, (unless a more stringent finish is specified) including primer and latex enamel finish totaling not less than two coats. Exceptions: Do not paint sliding and rubbing surfaces. Use Company’s standard colors, except as otherwise indicated.
      2. HANDICAP ACCESS SIGNS
         1. Size: Minimum 6 x 6 inches.
         2. Material: Plastic laminate.
         3. Message: International Symbol of Access, with:
         4. Colors:

Background: Blue.

Figures or Graphic Symbols: White.

* + - 1. CODE DATA PLATE
         1. Provide a code data plate in accordance with Section 8.9 of the A17.1 Elevator Safety Code. Attach code data plate to the front of the controller.

1. EXECUTION
   * + 1. INSTALLATION
          1. Handicap Access Signs: Mark accessible elevator routes which are accessible for those with mobility disabilities.

Change number of signs in subparagraph below as required.

Signs: Install 1 sign on each floor in locations deemed to be the most strategic and conspicuous. Mount signs 5 feet above floor (centerline of characters) at all interior and most exterior locations. Mount signs with manufacture’s adhesive strips.

* + - 1. PREPARATION
         1. Protection: Protect exposed equipment, door operators, car safeties, guide shoes, interlocks and limit switches from foreign material during course of construction.
      2. FIELD QUALITY CONTROL
         1. Acceptance Tests: In addition to the tests outlined below, perform all tests required per Part 8.10 of the ASME A17.1 Safety Code for Elevators and Escalators. All tests must be witnessed by a qualified elevator inspector (QEI).

Delete tests listed in subparagraphs below that are not required by the project.

Buffer Test: Test is not required for solid or spring type buffers. Test oil buffers in accordance with ASME code.

Normal Operation Test: Run car, in both up and down direction, by normal operation devices, with full load, stopping at each floor served, in both directions of travel.

Speed Test:

Determine actual speed of elevator car in both directions of travel with full load and no load in car.

Determine speed of car by use of tachometer.

Perform speed tests before and after normal operation tests.

Limit Switches: Test limit switches. (Car should not move).

Safety Tests:

Perform tests on all safety equipment to determine that they function properly. Tests are to be in accordance with the best practices of the trade.

Test car safety and governor in accordance with ASME Code.

File off any safety marks on guide rails after tests have been completed.

Static Load: Perform static load test to determine any movement of elevator car away from landing.

Pressure Relief: Test, set and seal pressure relief valve in accordance with ASME code.

Test all items of elevator to assure entire elevator system is operating properly.

Delete paragraph below with hydraulic elevators.

* + - * 1. Before safeties are reset check if:

Any part of the equipment has broken or is out of order.

Ropes are in respective sheave grooves.

The machine brake is applied.

Delete subparagraph below if not required.

Slack in hoisting ropes has been taken up (winding drum machines).

The governor jaws, and car releasing carrier, if any, have been reset to their normal running position.

The car platform is out of level more than that required by the ASME A17.1 Code.

* + - * 1. Perform tests in presence of Director’s Representative and QEI.

Sign completed ASME Elevator Test Report.

* + - 1. TECHNICAL SEMINAR/MAINTENANCE TRAINING
         1. Upon completion of the Project, arrange with the Director’s Representative to provide on the job training and seminar; a complete review of the documentation, operation and maintenance of the equipment and demonstration of any special features.
         2. Minimum Seminar Length: One 2-hour seminar.
      2. CLEANING
         1. Clean elevator equipment of dust, dirt, grease and foreign materials.
         2. Remove articles of tools and material from shafts and machine rooms not necessary for maintenance and operation of elevator.

END OF SECTION 142000