

MODULAR TRACTION ELEVATOR SPECIFICATIONS

PART 1- GENERAL

1.0 SUMMARY

- A. Work Required: Supply and complete installation and testing of the traction passenger elevators indicated on Drawings including hoistway, car, entrances, rails, counterweights, machine, ropes, sheaves, controllers, and fixtures.
- B. All work shall be performed in a workmanlike manner.
- C. In all cases where a device or part of the equipment is herein referred to in the singular, it is intended that such reference shall apply to as many of such devices as are required to complete the installation.
- D. Related work not included: The following items must be performed or furnished by other than the elevator manufacturer/installer:
 - 1. Division 02: Excavation for elevator pit
 - 2. Division 03: Cast concrete elevator pit and machine room foundation if applicable.
 - 3. Division 09: Install flooring in elevator car.
 - 4. Division 15: Install heat and smoke sensing devices in each hallway and wire to building electrical supply. Install fire sprinklers in hoistway if required by local code.
 - 5. Division 16: Supply one 3-phase and 3 120 volt, 20-amp circuits to machine room. Supply telephone service to machine room.
 - 6. Supply crane and crane operator to install elevator hoistway.
 - 7. Finish exterior of hoistway as indicated on Drawings.
 - 8. Tie in hoistway entrances to interior of building as indicated on Drawings.

1.1 SUBMITTALS

- A. Shop Drawings: Submit approval layout drawings. Include the following:
 - 1. Cab design, dimensions and layout.
 - 2. Car, guide rails, buffers and other components in hoistway.
 - 3. Maximum rail bracket spacing.
 - 4. Maximum loads imposed on guide rails requiring load transfer to building structure.
 - 5. Clearances and travel of car
 - 6. Clear inside and outside hoistway and pit dimensions.
 - 7. Location and sizes of access doors, hoistway entrances, and frames.
 - 8. Electrical characteristics and connection requirements.
- D. Operations and Maintenance Manuals: Provide manufacturer's standard operations and maintenance manual.

1.2 QUALITY ASSURANCE

- A. Work of this section shall conform to the following standards:

1. American National Standard Safety Code for Elevators (ASME/ANSI) A17.1
2. The National Electrical Code (NEC)
3. The American National Standard Specifications (ANSI) A117.1
4. Americans with Disabilities Act Accessibility Guidelines (ADAAG)
5. State and local codes as applicable

- B. Qualifications of Installer: Installer shall be a licensed Elevator Contractor in the applicable jurisdiction, that is thoroughly qualified and trained, and is regularly engaged in the business of installing and servicing elevators of the type specified. Installer shall be present at the site and shall direct all work performed under this section.
- C. Permits, Inspections and Certificates: The Installer shall obtain and pay for necessary municipal or state inspection and permits as required by the elevator inspection authority, and make such tests as are called for by the regulations or such authorities. These tests shall be made in the presence of such authorities or their authorized representatives.

1.3 PRODUCT HANDLING AND STORAGE

- A. Storage: Should the building or the site not be prepared to receive the elevator at the agreed upon date, the General Contractor shall be responsible to provide a proper and suitable storage area on or off the premises. The cost of transporting and storing the elevator, as well as any damage that may result, shall be at the expense of the General Contractor.
- B. Temporary use of elevator: Should any elevator be required for use before final completion, others shall provide without expense to elevator Manufacturer or Installer, if required, temporary car enclosures, requisite guards or other protection for elevator hoistway openings, main line switch with wiring, necessary power, signaling devices, lights in car and elevator operators together with any other special labor or equipment needed to permit this temporary usage. The Installer shall be reimbursed for any labor and materials which is not part of the permanent elevator installation and which is required to provide temporary elevator service. In addition, the Installer's temporary acceptance form shall be executed before any elevator is placed in temporary service, and the cost of power and operation, maintenance and rehabilitation of the equipment shall be borne by others.

1.4 WARRANTY AND MAINTENANCE

- A. Warranty: The Manufacturer shall guarantee the materials and workmanship of the apparatus furnished under these specifications, and will replace/repair/restore defects not due to ordinary wear and tear or improper use or carelessness which may develop within 13 months from date of delivery of elevator.
- B. Maintenance Service: The Installer shall provide full maintenance service by skilled, competent employees of Installer for a period of 12 months following date of acceptance. This will include monthly preventative maintenance, performed during normal working hours.; repair/replacement of worn or defective parts or components and lubrication; cleaning and adjusting as required for proper elevator operation in conformance with specified service.

Repair/replacement due to misuse, abuse, and accidents for neglect caused by persons other than Installer's personnel is excluded.

PART 2- PRODUCTS

2.0 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include but are not limited to the following:

Phoenix Modular Elevator Inc.
4800 Phoenix Drive
Mount Vernon, IL 62864
(618) 244-2314

2.1 SYSTEMS AND EQUIPMENT

- A. General characteristics:

1. Type: Traction passenger.
2. Control: Microprocessor, variable voltage, variable frequency, AC drive.
3. Capacity: 3500 lbs.
4. Speed: 200 FPM
5. Operation: Simplex selective collective.
6. Machine location: Overhead
7. Stops: XX
8. Openings: XX in-line or front/rear
9. Car interior clear dimensions: As indicated on Drawings. Cab clear height: 7' 6".
10. Hoistway exterior dimensions: As indicated on Drawings.
11. Hoistway Door: 3' 6" x 7' 0" clear, single slide entrance with approved "B" label, hollow metal.
 - a. Car door finish: painted enamel/stainless steel
 - b. Hoistway door finish: painted enamel/stainless steel
 - c. Hoistway entrance frame finish: painted enamel/stainless steel
12. Door Operation: Car and hoistway doors, medium speed, power operated.
13. Signals: Illuminated buttons in car operating panel and hall call stations, visible and audible in-car lantern.
14. Special Features: Emergency lighting and alarm bell, automatic failure protection, braille symbols and access compliance provisions, infra-red beam door re-opening device, inspection switch, hoistway access switch and car-top inspection station.
15. Travel: total travel distance (floor to floor) shall be as indicated in Drawings.
16. Power Supply: AC, 208, 220, or 440 volts 3 phase.
17. Dedicated Electrical Lines: Three lines, 120 volts 20 amps with lockable disconnect in machine room, see NEC E620-53.

- B. Hoistway:

1. Welded steel hoistway, engineered to withstand 90 mph wind speeds and sufficient for seismic zone X.
2. One-hour (or two-hour) fire-rated drywall sheathing on inside and outside of steel structure.
3. Car and counterweight pre-installed in lowest hoistway section. Lowest section to also include structure to fit inside pit, and pit ladder.
4. Machine and sheaves pre-installed in top hoistway section with self-closing door.
5. Rails in each hoistway section.
6. Entire hoistway section pre-wired with electrical cable with quick-connect fittings between hoistway sections.
7. Entrances and hall fixtures installed at proper locations on the exterior of hoistway.

C. Car Frame:

1. A car frame fabricated from formed or structural steel members shall be provided with bracing to support platform and car enclosure.
2. Car platform shall be formed steel.
3. Car frame shall be isolated from platen plate by means of rubber isolation mounts.

D. Elevator Cab:

1. Solid wood core with fire-retardant paint.
2. Interior car finish shall be high-pressure plastic laminate. Colors shall be selected by the Architect.
3. Provide 1-1/4" O.D. round stainless steel handrail(s) in car. Mount handrails 34" to top of rail from floor with a 1-1/2" clearance from wall.
4. Ventilation of car shall be a natural draft vent.
5. Drop ceiling shall have separate light diffusing polycarbonate panels.
6. Lighting: Provide 36" fluorescent light fixtures and bi-pin type lamps, energy-efficient type.
7. Provide an emergency light and alarm unit approved for elevator use.
8. Provide flush mounted stainless steel car operating panel.
9. Provide a car top inspection station with an "emergency stop" switch and with constant pressure "up-down" direction buttons which shall make the normal operating devices inoperative and give the Inspector complete control of elevator.
10. Provide elevator emergency telephone.

E. Car Door:

1. Door finish shall be solid color enamel or stainless steel as selected by the Architect.
2. Doors shall be power-operated automatic opening and closing, connected to the hoistway door opposite by a movable clutch mechanism.

F. Hoistway Entrance Doors:

1. Hoistway entrance doors shall be hollow metal, horizontal sliding type and shall include frames, sills, doors, hangers, hanger supports, hanger covers, fascia plates, and all necessary hardware. Finish shall be solid color enamel or stainless steel as selected by the Architect. Hoistway entrances shall bear "B" Label. (DO NOT paint over labels on doors or frame).
2. Provide landing identification on the hoistway side of entrance doors. Stencil 4" high Arabic numerals 12" above the bottom and 12" below the top of the door panel. Paint color shall provide maximum visual contrast to background color.

G. Guide Rails:

1. Install guide rails for code standard "T" shaped steel for car and counter-weight guides. All bolts shall have a minimum of 2 threads showing beyond fastening nut.

H. Elevator Door Safety System:

1. Infra-red curtain unit using beams of invisible infra-red light to protect passengers against closing elevator doors.
2. Provide system by T. L. Jones or approved equal.
3. Car doors shall have an electronic obstruction sensing, reopening device. Device shall automatically reinstate operation after blockage is cleared.
4. Door shall be held open for normal cycle of seven seconds and shall be reopened by beam interruption. Time shall be adjustable within control panel.

I. Car Operating Panel:

1. Provide system manufactured by Innovation Industries or approved equal.
2. A flush-mounted stainless steel operating panel shall be mounted in each car and shall contain all devices required for specified operation. Panel shall be hinged.
3. Push buttons in operating panel shall be installed between 35" and 54" above car floor.
4. Floor registration pushbuttons shall be illuminated with braille designation on panel face immediately to left of each pushbutton.
5. Emergency call button shall be connected to a bell that serves as an emergency signal.
6. Key switches shall be provided for:
 - a. Light
 - b. Fan
 - c. In-car stop
 - d. Hoistway access switch
 - e. Inspection switch (if purchased)
7. Provide "door open" and "door close" pushbutton switches.
8. Key switches for control of car mounted equipment and special operation of elevator shall be installed in operating panel.

J. Hall Fixtures:

1. Hall call stations shall be #4 stainless steel, satin finish, flush mounted.

2. Identify hoistway entrances, as to landing served, by permanently installing metal plates on both jambs of frame centered 60" above floor. Plates shall be riveted in all 4 corners and etched with 2" high Arabic numerals and corresponding Braille symbol to left or below.
3. At all landings, permanently install fire signs. Signs shall be mounted above call station and read "In case of fire use stairway for exit. Do not use elevator".
4. Provide visible and audible "in-car lantern", located on car door jamb, visible from proximity of hall call station, indicating direction of travel to persons waiting on landing.

K. Operations:

1. Selective Collective Operation: Operation shall be automatic by means of the car and landing buttons. Stops registered by the momentary actuation of the car or landing buttons shall be made in the order in which the landings are reached in each direction of travel after the buttons have been actuated. All stops shall be subject to the respective car or landing button being actuated sufficiently in advance of the arrival of the car at that landing to enable the stop to be made. The direction of travel for an idle car shall be established by the first car or landing button actuated.

L. Hoistway Access:

1. Hoistway "Access" switches shall be provided at top landings and bottom, if required.

M. Controller:

1. A microprocessor AC traction controller manufactured by Elevator Controls or approved equal shall be provided, including necessary starting switches of adequate size with all relays, switches and hardware required to accomplish the operation specified.
2. A three-phase overload device shall be provided to protect the motor against overloading.
3. Motor shall be AC drive, variable voltage, variable frequency, sized to accommodate rated car speed and capacity.

N. Machine and Governor:

1. A machine manufactured by Hollister-Whitney or approved equal.
2. Governor: Tension-type governor with remote reset.
3. Buffers, Car and Counterweight: Compression spring type buffers shall be used.
4. Ropes: 8x19 traction steel cables of sufficient quantity for application.

O. Keying:

1. Furnish to owner keys for every key-operated switch, including hoistway access, inspection and fire recall switch.

P. Wiring:

1. All wiring and electrical interconnections shall comply with the governing codes. Insulated wiring shall have flame retardant and moisture-proof outer covering, and shall be run in conduit tubing or electrical wireways.
2. Traveling cables shall be flexible and suitable suspended to relieve strain on individual conductors.

PART 3-EXECUTION

3.0 EXAMINATION

- A. Prior to commencing elevator installation, examine pre-fabricated hoistway, hoistway openings pits and machine rooms as constructed; verify all critical dimensions and examine supporting structure and all other conditions under which elevator work is to be installed. Notify contractor in writing of any dimensional discrepancies or other conditions detrimental to the proper installation or performance of elevator work. Do not proceed with elevator installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.1 INSTALLATION OF ELEVATOR SYSTEM

- A. General:
1. Comply with manufacturer's instructions and recommendations for work required during installation.
- B. Excavation for Pit:
1. Excavate for elevator pit to accommodate installation of modular elevator unit; comply with applicable requirements of Division 2 "Excavation" sections.
- C. Cast Concrete for Pit:
1. Pour concrete for elevator pit and insert anchor bolts per Drawings. Comply with applicable requirements of Division 3 "Concrete" sections.
- D. Erection of Hoistway:
1. Install modular elevator units plumb and accurately centered for elevator car position and travel; anchor base unit securely in place to anchor bolts, tie each upper hoistway unit to existing structure.
- E. Welded Construction:
1. Provide welded connections for installation of elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance and replacement of worn parts.
 2. Comply with AWS standards for workmanship and for qualifications of welding operators.

- F. Coordination:
 - 1. Coordinate elevator work with work of other trades for proper time and sequence to avoid construction delays. Use benchmarks, lines and levels designated by contractor to ensure dimensional coordination of the work.
- G. Sound Isolation:
 - 1. Mount rotating and vibrating elevator equipment and components on vibration-absorption mounts, designed to effectively prevent transmission of vibrations to structure and thereby to eliminate sources of structure-borne noise from elevator system.
- H. Lubrication:
 - 1. Lubricate operating parts of system, including ropes, as recommended by manufacturers.
- I. Leveling Tolerance:
 - 1. ½-inch, up or down, regardless of load and direction of travel.
- J. Finishing:
 - 1. Finish interior walls at hoistway entrances and trim to modular elevator unit. Provide sill or finish floor in area of hoistway door penetration in accordance with plans.

3.2 FIELD QUALITY CONTROL

- A. Acceptance Testing: Upon nominal completion of each elevator installation and before permitting use of elevator (either temporary or permanent), perform acceptance tests as required and recommended by Code and governing regulations or agencies.
- B. Operating Tests: Load each elevator to its rated capacity and operate continuously for 30 minutes over its full travel distance, stopping at each level and proceeding immediately to the next. Record failures of elevator to perform as required.
- C. Notice: Advise contractor, owner, architect and inspection department of governing agencies in advance of dates and times tests are to be performed on elevators.

3.3 PROTECTION

- A. At time of substantial completion of the elevator work (or portion thereof), provide suitable protective coverings, barriers, devices, signs or such other methods or procedures to protect elevator work from danger or deterioration. Maintain protective measures throughout remainder of construction period.
- B. Provide similar protective measures for elevator units that will be placed in temporary service, including inspection and maintenance service during period of temporary service.

3.4 DEMONSTRATION

- A. Instruct owner's personnel in proper use, operations, and daily maintenance of elevators. Review emergency provisions, including emergency access and procedures to be followed at time of failure in operation and other building emergencies. Train owner's personnel in normal procedures to be followed in checking for sources of operational failures or malfunctions. Confer with owner on requirements for a complete elevator maintenance program.
- B. Make a final check of each elevator operation with owner's personnel present just prior to date of substantial completion. Determine that control systems and operating devices are functioning properly.

END OF SECTION 14240

