

## 14 20 00 – Elevators

### 1. General

- A. Elevators must comply with the requirements of the Elevator Safety Act of North Carolina, ASME A17.1 - 2013 Safety Code for Elevators and Escalators, the current N.C. State Building Code and the American with Disabilities Act (ADA).
- B. Elevators shall be easy to maintain and service. Maintenance of finish materials is of particular concern given the frequent use of most elevators.
- C. The Contractor shall provide the Consultant with a certificate indicating that the elevator installed complies with all appropriate state and federal codes and regulations. This includes all associated items provided by the manufacturer.
- D. Elevator Selection: The Consultant will recommend elevator design options suited to the project. The Owner will review the proposed elevating scheme as part of the FMD Design Review process and will work with the consultant to select the most appropriate elevator type and configuration. Elevator selection criteria includes:
  - 1. Criticality/redundancy (availability of other elevators in case of an elevator breakdown)
  - 2. Number of floors served and overall height of building
  - 3. Required passenger capacity (number of users)
  - 4. Required speed
  - 5. Required load capacity (cargo capacity for freight elevators)
  - 6. Impact on building design
- E. Elevator Types: Common elevator types include:
  - 1. Gearless traction, with conventional machine room at top of shaft
  - 2. Gearless traction, Machine Room-Less (MRL)
  - 3. Hydraulic
  - 4. Hole-less Hydraulic
  - 5. Other systems may also be considered. In order to minimize the duration of elevator outages, Duke prefers elevator systems that may be serviced to the greatest extent possible without requiring personnel to enter the elevator shaft. For this reason, MRL elevators will only be approved in low-criticality or highly redundant applications.

## 2. Car Enclosures and Landings

- A. Passenger cars shall be equipped with an exhaust fan, an emergency light supply, handrails on walls, a telephone cabinet with phone and vinyl composition floor tile or sheet vinyl. Stainless steel walls and doors are preferred for maintenance and cleaning purposes.
- B. Other finishes must be approved by the Owner. Cars shall be furnished with removable wall pads and hooks, as well as with handrails. Exposed trim shall be stainless steel. Fasteners shall be of a tamper-proof type. The car's ceiling design shall not invite vandalism; for example, there shall be no removable projections or bulbs.
- C. Passenger cars shall contain a lighted floor indicator above the door or in the return column; soffit mounting is not acceptable. Interior and exterior control panels shall comply with ADA requirements. Interior control panels shall have a door open button. All car and call buttons shall be stainless steel. Each floor button, when pushed, shall remain illuminated until the floor selected has been reached. Car control panels shall have a key-operated switch that can take the elevator out of service. The keys shall be coordinated with the Project Office.
- D. Indicator lights shall be provided at each elevator entrance to indicate that a call has been placed. Indicator lights shall be provided above the elevator on all floors to indicate at which floor the elevator is currently located.
- E. Passenger cars shall have a roof-mounted guard and inspection station equipped with a light.
- F. A protective device shall be provided to prevent elevator doors from closing on an obstruction. Contact with an obstruction shall automatically reopen doors.
- G. A tamper-proof certificate frame shall be mounted in the elevator car.
- H. An electrical receptacle for housekeeping purposes shall be provided in each elevator car or in the corridor adjacent to the elevator landing on each floor.
- I. The work station shall have a control panel capable of overriding all other panels within the car or on each landing.
- J. Each car shall have an exit in the top of the car that opens from and swings to the outside of the car to a fully open position. The exit door shall be fastened from the outside with standard slotted screws.
- K. A device to unlock the hoistway door shall be installed at all landings.
- L. One emergency door key for each elevator shall be furnished to the Construction Administrator. At least four keys for any locks (e.g., call station, lighting, hoistway, entry

and fireman return key) for each elevator shall be furnished to the Construction Administrator.

- M. Car tops shall be painted gray with one coat of primer and two alkyd resin semi-gloss or gloss finish coats.
- N. Elevator counterweights shall be of laminated or sectional steel, permitting future adjustments of size as required.

### 3. Machine Rooms, Pit Areas and Penthouses

- A. Where equipment is subject to severe or sudden vibrations, sound-deadening material shall be used to isolate any sounds or vibrations from the supporting floor or wall.
- B. Penthouses, where necessary, shall have a minimum 7 foot ceiling and sufficient ventilation or cooling to limit the maximum temperature in the space to 90°F. If exterior air supply is provided, the intake shall be filtered. Access to pits and machine rooms shall be built in accordance with the current N.C. Code for Elevators. Elevator machine rooms shall not be used for access to the roof or other parts of the building. Access to elevator machine rooms shall be through custodial or similar space.
- C. Elevator pits shall be provided with a drain or sump pump as necessary to keep the pits clear and dry. Sump pumps shall be controlled by a float switch with an alarm that signals pump failure. Elevator pits shall have a work ladder and a light controlled by a switch easily accessible from the door. The ladder and light switch shall be on the same side as the door interlock. The elevator pit shall be acid-etched and finished with one coat of thinner (mixed 50/50) and one unthinned coat of gray porch or deck synthetic enamel.
- D. Machine rooms shall have fluorescent fixtures mounted above, in front of and behind all control circuit panels. Adequate lighting for the hoist machine shall be provided. If the machine room for a traction elevator is located on the bottom floor, fluorescent lighting shall be provided at the top of the hoistway with a work platform, a light switch and adequate access. In a machine room located above the roof level, a safe and accessible ladder and platform shall be provided.
- E. To protect elevator jack units, the casing and any underground piping shall have an approved coating designed to resist electrolytic and chemical corrosion. The jack and underground piping shall be installed inside a PVC sleeve. The Consultant shall inspect the casing prior to back-filling.
- F. Control Equipment: Control equipment must be accessible without requiring personnel to enter the elevator shaft. Manufacturers of Machine Room-Less (MRL) elevator systems often require specify of control equipment inside the elevator shaft: this is not acceptable. Control equipment for MRL elevators must be mounted in an Owner-

approved location accessible from outside the elevator shaft, such as an equipment closet.