



## Elevator Modernization

### Specifications

TDOT is looking to procure Elevator Repair for two elevators in Region 1 Administration Building, Strawberry Plains, Knoxville location as listed in the specifications below. The project aims to enhance the safety, efficiency, and reliability of elevators within the building.

#### 1. General Requirements:

- The new elevator system must comply with all relevant safety codes, including but not limited to ASME A17.1/CSA B44 (Safety Code for Elevators and Escalators) and ADA (Americans with Disabilities Act) guidelines.
- All work must comply with local building regulations and codes.
- Accommodate the building's capacity needs.
- The elevators must be designed to handle the expected passenger traffic within the building during peak hours.
- The replacement elevators should incorporate energy-efficient technologies to minimize power consumption and reduce the building's carbon footprint.
- The elevators shall provide smooth and efficient operation. The speed of the elevators shall be sufficient to minimize waiting times during peak hours.
- Each elevator car shall meet a minimum capacity of 2500 lbs and the speed is 100 fpm.
- The selected contractor shall be responsible for the complete installation and commissioning of the new elevator system.

#### 2. Specifications:

##### 2.1 Personnel

- Elevator contractors must register with the Department of Labor and Workforce Development at: <https://www.tn.gov/workforce/employers/safety>

##### 2.2 Electrification

*ACCEPTABLE BRANDS/MODELS:*

*HydroMod DX or EQUAL*

- Update elevator control and electrical systems.

- Replace relays and older electronic components.
- Control system shall be modern and reliable.
- Control system shall be provided to perform the functions of safe elevator motion.
- All hardware shall be provided to connect, transfer and interrupt power.
- All hardware shall be provided to protect the elevator motor against overheating.
- A microcomputer system shall be designed to accept reprogramming with minimum system down time.
- A microprocessor-based control system shall utilize on-board diagnostics for servicing, troubleshooting, and adjusting without requiring the use of an outside service tool.
- High voltage (110V or above) contact points inside the controller cabinet shall be protected from accidental contact in a situation where the controller doors are open.
- Contractor shall remove all existing wiring, conduit and duct from the hoistway.
- New conduit and duct properly sized and constructed for the job requirements shall be installed.

### **2.3 Fixtures**

*ACCEPTABLE BRANDS/MODELS:*

*KSS 140 Signalization or EQUAL*

- 2.3.1 Vandal resistant signalization shall be provided on all signage and Car Operating Panel.
- 2.3.2 Impact, scratch, burn and splash resistant signalization that is easy to clean.
- 2.3.3 Textured face plate conceals scratches.
- 2.3.4 Panel shall contain a bank of round, mechanical, illuminated buttons marked to correspond with:
  - 2.3.4.1 Landings served
  - 2.3.4.2 Emergency call button
  - 2.3.4.3 Door open button
  - 2.3.4.4 Door close button
  - 2.3.4.5 Key switches for lights
  - 2.3.4.6 Inspection
  - 2.3.4.7 Exhaust fan
- 2.3.5 Buttons shall have amber illumination.
- 2.3.6 Buttons shall be flat flush targets.
- 2.3.7 All buttons to shall have raised text and Braille marking on left hand side.
- 2.3.8 The car operating display panel shall be amber DOT-matrix.

- 2.3.9 All texts, when illuminated, shall be amber.
- 2.3.10 Hall call signalization shall be provided at each landing

## **2.4 Doors**

*ACCEPTABLE BRANDS/MODELS:*

*ReNova Door Operator or EQUAL*

- 2.4.1 Closed loop permanent magnet Pulse Width Modulated (PWM) high-performance door operator shall be provided.
- 2.4.2 Door movement shall be cushioned at both limits of travel.
- 2.4.3 An electric contact shall be provided on the car at each car entrance to prevent the operation of the elevator unless the car door is closed.
- 2.4.4 The door operator shall be arranged so that, in case of interruption or failure of electric power, the doors can be readily opened by hand from within the car, in accordance with applicable code.
- 2.4.5 Emergency devices and keys for opening doors from the landing shall be provided as required by the local code.
- 2.4.6 Doors shall open automatically when the car has arrived at or is leveling at the respective landings.
- 2.4.7 Door shall close after a predetermined time interval or immediately upon pressing of a car button.
- 2.4.8 A door open button shall be provided in the car.
- 2.4.9 Momentary pressing of this button shall reopen the doors and reset the time interval.
- 2.4.10 Door hangers and tracks shall be provided for each car door.
- 2.4.11 Tracks shall be contoured to match the hanger sheaves.
- 2.4.12 The hangers shall be designed for power operation with provisions for vertical and lateral adjustment.
- 2.4.13 Hanger sheaves shall have polyurethane tires and pre-lubricated sealed-for-life bearings.

## **2.5 Hydraulic Equipment**

- 2.5.1 New field pipe and or accessories shall be provided as required.
- 2.5.2 Manual safety valve shall be supplied in the oil line at the jack unit (pit) designed to shut off the flow of oil from the cylinder and bring the car to rest in case the car attains excessive down speed.
- 2.5.3 Control valves, including safety check valve, up direction valve with high pressure relief including up leveling and soft stop features, lowering valve including down leveling and manual leveling feature, will be mounted in a compact unit assembly.

**2.6 Emergency Communication and Devices**

- 2.6.1 An Emergency Two Way Communication device shall be furnished in the car- operating panel.
- 2.6.2 Fire Service Key Switch shall be provided per code requirements.
- 2.6.3 Elevators shall be equipped with emergency communication systems, lighting, and backup power to ensure safe passenger evacuation during power outages.
- 2.6.4 ADA compliant communication device shall be provided.
- 2.6.5 Emergency devices and keys for opening doors from the landing shall be provided as required by the local code.
- 2.6.6 The elevator cars shall be equipped with an electronic protective device extending the full height of the car that will prevent doors from closing.
- 2.6.7 Electronic protective device shall also stop and reopen doors that are in the process of closing.