

YOUTH AND FAMILY SERVICES  
ELEVATOR CONTROLS UPGRADE  
FOR  
SCHINDLER 300-A

5/14/2018

### **Scope of Services:**

Furnish labor and material to provide a hydraulic microprocessor-based control system on the unit listed above. It is specifically designed to meet the particular needs of modernizing hydraulic elevators. The system is integrated by communications over serial links and discrete wiring. The "Relative System Response Plus" software dispatches elevators based upon real-time response to actual demands on the elevator.

#### **DUTY**

The present capacity and speed will be retained for this elevator.

#### **TRAVEL**

The present travel will be retained.

#### **STOPS AND OPENINGS**

The present stops and openings will be retained.

#### **POWER SUPPLY - (IF NEEDED, UPDATED BY ELECTRICIAN)**

The present power supply will be retained and the new equipment will be arranged for this power supply. Outagamie County will be responsible for updating the power supply if needed.

#### **OPERATION - ONE CAR**

Operation shall be automatic by means of the car and landing buttons. Stops registered by 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.

"UP" landing calls shall be answered while the car is traveling in the up direction and "DOWN" landing calls shall be answered while the car is traveling down. The car shall reverse after the uppermost or lowermost car or landing call has been answered, then proceed to answer car calls and landing calls registered in the opposite direction of travel.

If the car without registered calls arrives at a floor where both up and down hall calls are registered, it shall initially respond to the hall call in the direction that the car was traveling. If no car call or hall call is registered for further travel in that direction, the car shall close its doors and immediately reopen them in response to the hall call in the opposite directions. Direction lanterns, if furnished, shall indicate the change of direction when the doors reopen.

An independent service switch shall be provided in the car operating panel which, when actuated, shall cancel previously registered car calls, disconnect the elevator from the hall buttons and allow operation from the car buttons only.

#### POWER UNIT - (NEW)

The existing power unit shall be replaced with a new power unit. The new power unit consists of a positive displacement pump, motor, integral 4-coil control valve, oil tank and muffler. The pump and motor are submerged and are mounted to the tank with rubber isolators to reduce vibration and noise. A muffler is provided to dissipate pulsations and noise from the flow of hydraulic fluid. The valve consists of up, up leveling, down and down leveling controls along with manual lowering and a pressure relief valve.

#### SOFT STARTER - (NEW)

A new solid-state starter shall be provided. It will be of the same power requirement and starting configuration as presently exists.

#### CONTROLLER - (NEW)

A microprocessor-based control system shall be provided to perform all the functions of safe elevator motion and elevator door control. This shall include all the hardware required to connect, transfer and interrupt power, and protect the motor against overloading. The system shall also perform group operational control.

Each controller cabinet containing memory equipment shall be properly shielded from line pollution. The microcomputer system shall be designed to accept reprogramming with minimum system downtime.

#### - DOOR OPERATOR - (NEW, INTERFACES WITH NEW CONTROLLER)

A Closed Loop Door Operator shall be furnished. This closed loop microprocessor based door system will facilitate smooth operation under varying environmental influences such as, temperature, wind, friction, and component variation. The processor will monitor the door's actual position and velocity compared to its desired position and velocity. If variations are detected in the

profile the command will be automatically corrected. The Closed Loop Door Operator control system shall not require machine room door control equipment.

Door operation shall be automatic at each landing with door opening being initiated as the car arrives at the landing and closing taking place after expiration of an adjustable time interval. An electric car door contact shall prevent the elevator from operating unless the car door is in the closed position.

Door close shall be arranged to start after a minimum time, consistent with Handicap Requirements.

Door shall be arranged to remain open for an adjustable time period sufficient to meet ADA requirements.

The time interval for which the elevator doors remain open when a car stops at a landing shall be independently adjustable for response to car calls and response to hall calls.

#### **- SPECIAL EMERGENCY SERVICE - (PART OF NEW CONTROLLER OPERATION)**

Special Emergency Service operation shall be provided in compliance with the latest revision of the ASME/ANSI A17.1 Code.

Special Emergency Service Phase I to return the elevator (s) non-stop to a designated floor shall be initiated by an elevator smoke detector system or a keyswitch provided in a lobby fixture.

If required, the smoke detector system is to be furnished by others. The elevator contractor shall provide input connections on the elevator controller to receive signals from the smoke detector system.

A keyswitch in the car shall be provided for in-car control of each elevator when on Phase II of Special Emergency Service.

If an elevator is on independent service when the elevators are recalled on Phase I operation, a buzzer shall sound in the car and a jewel shall be illuminated, subject to applicable codes.

#### **- HOISTWAY ACCESS SWITCH - (PART OF NEW CONTROLLER OPERATION)**

An enabling keyswitch shall be provided in the car operating panel to render all car and hall buttons inoperative and to permit operation of the elevator by means of an access keyswitch adjacent to the hoistway entrance at the access landing. The movement of the car away from access landing, other than the lower

terminal, by means of the access keyswitch at the landing shall be limited in travel and direction to that as specified for the upper landing in the latest revisions of the ASME/ANSI A17.1 Code.

**- AUTOMATIC SELF-LEVELING - (PART OF NEW CONTROLLER OPERATION)**

The elevator shall be provided with automatic self-leveling that shall bring the elevator car level with the floor landings, no more than +/- 1/2" regardless of load or direction of travel. The automatic self-leveling shall correct for overtravel or undertravel.

**- APPLIED CAR OPERATING PANEL - (INTERFACES WITH NEW CONTROLLER & INCORPORATES THE FOLLOWING ITEMS)**

An applied car operating panel shall be furnished. The panel shall contain a bank of illuminated buttons marked to correspond with the landings served, an emergency call button, emergency stop button or switch, door open and door close buttons, and a light switch. The emergency call button shall be connected to a bell that serves as an emergency signal. A fan switch, if optional fan is provided, shall also be located in the car operating panel. All car operating panel lamps shall be the low-voltage long life lamps.

**- ADA HANDSOFF PHONE - (PART OF NEW CAR OPERATING PANEL AND REQUIRED BY CODE)**

Furnish and install an ADA phone. This phone enables communication between persons in the elevator and a 24-hour answering service.

The ADA compliant phone will be a part of the car operating panel. It will automatically dial a preprogrammed number and will inform the answering service of the elevator location via prerecorded digital voice communication. After disclosing the elevator location, the phone will allow two-way voice communication. The phone contains two light-emitting diodes -- one that indicates the call is in progress and another that indicates the call has been acknowledged. After receiving acknowledgment of the call from the answering service, a deaf/mute person can signal the answering service by reactivating the call button. The phone can be easily programmed and allows incoming calls to be received. The telephone will be furnished and installed in accordance with the ASME A17.1 Safety Code for Elevators and Escalators, and is registered with the FCC.

**- AUDIBLE SIGNAL WHEN PASSING OR STOPPING AT A LANDING -  
(PART OF NEW CAR OPERATING PANEL AND REQUIRED BY  
CURRENT CODE WITH CONTROLLER UPGRADE)**

An audible signal shall sound in the car to tell passengers that the car is either stopping or passing a landing served by the elevator.

**- EMERGENCY CAR LIGHTING - (PART OF NEW CAR OPERATING  
PANEL AND REQUIRED BY CODE)**

An emergency power unit employing a 12-volt sealed rechargeable battery and a totally static circuit shall be provided. The power unit shall illuminate the elevator car and provide current to the alarm bell in the event of normal power failure. The equipment shall comply with the requirements of the latest revision of the ASME/ANSI A17.1 Code.

**- INSPECTION OPERATION - (PART OF NEW CAR OPERATING  
PANEL REQUIRED BY CODE WITH NEW CONTROLLER)**

For inspection purposes, an enabling keyswitch shall be provided in the car operating panel to permit operation of the elevator from on top of the car and to make car and hall buttons inoperative.

On top of the car an operating fixture shall be provided containing continuous pressure "UP" and "DOWN" buttons, an emergency stop button, and an inspection-initiating switch. This switch makes the fixture operable and, at the same time, makes the door operator and car and hall buttons inoperative.

**- HALL BUTTONS - (NEW, INTERFACES WITH NEW CONTROLLER)**

New hall buttons shall be installed at each landing, an up and a down button at each intermediate landing and a single button at each terminal landing. Up to one key switch per hall station will be added as necessary for security purposes with the residents.

When a call is registered by momentary pressure on a landing button, that button shall become illuminated and remain illuminated until the call is answered. Hall button lamps shall be low-voltage, long life lamps.

#### **OPTIGUARD ENTRANCE-PROTECTION DEVICE**

A solid-state, infrared passenger protection device shall be installed on the car door. This device provides beams that create an invisible "net" across the elevator entrance. This system uses 154 infrared emitters and detectors to create an invisible safety net across the elevator entrance.

The OPTIGUARD system continuously scans for interrupted beams. If any beam in the curtain is interrupted; the OPTIGUARD system will reopen the elevator door instantly.

OPTIGUARD offers maximum protection for passenger safety minimizing potential injury to passengers as they enter and exit the elevator.

The OPTIGUARD systems infrared beams will also detect approaching objects which reduces potential for damage to elevator doors caused by mail carts, stretchers or other moving equipment. If these beams strike an object in the middle of the entryway, light reflects off the object into special photo-diode receivers mounted on the opposite side of the entrance, which scan into the entryway. If the receivers detect enough light, a reversal signal is generated to open the doors.

If any curtain beam is interrupted, a door-reversal signal will cause the elevator doors to reopen instantly without touching the passenger. After a car stop is made, the door shall remain open for a predetermined interval before closing. If, while the door is closing, the matrix of invisible light beams is interrupted by a passenger entering or leaving the car, the door shall stop and reopen, after which the door shall again start closing.

#### **SPECIAL PROVISIONS:**

##### **- SUPERSEDED MATERIAL**

All material, removed or unused, not required in the modification will become the property of the elevator contractor and shall be site cleared.

##### **- PERMITS AND INSPECTIONS**

The elevator contractor shall furnish all licenses and permits and shall arrange for and make all required inspections and tests.

##### **- WIRING**

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

##### **- ENGINEERING DESIGN**

All new material furnished shall be specifically designed to operate with original elevator equipment being retained, thus assuring maximum performance and eliminating any divided responsibility.

**- CODE**

The elevator equipment shall be furnished and installed in accordance with the latest additions of the ASME/ANSI A17.1 Safety Code for Elevators and Escalators, An American National Standard, including the latest Supplement, and the Americans with Disabilities Act. The elevator equipment shall also comply with all applicable local codes.

**- SEALING OF PENETRATIONS**

Seal any openings that are created by removing or adding items that penetrate through the rated shaft during this project.