VOLUME 2 – TECHNICAL SPECIFICATIONS

BID NO. 2016-085

PROJECT MANUAL
FOR
ELEVATOR REPLACEMENT PROJECT
AT THE ORIGINAL
MEDICAL EXAMINER OFFICE BUILDING

200 FELIKS GWOZDZ PLACE
FORT WORTH, TEXAS 76104

BIDS DUE FEBRUARY 29, 2016
2:00 P.M.

Technical Specifications Prepared by
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8612 Broad Meadow Lane
McKinney, Texas 75071

RFB NO. 2016-085
PART 1 – GENERAL

1.01 SUMMARY

A. Scope: It is the purpose of this specification to include all labor, material, tools, rigging and equipment necessary to:

1. Removal of existing elevator as required and furnish an install One (1) Hydraulic Passenger Twin Post Holeless Elevator, complete in every respect, make any code and ADA/TAS required changes, and meet the requirements as indicated and/or specified.

2. Related Work Included by Elevator Contractor:
   A. Division 26 Electrical.
   B. Division 27 Communications
   C. Division 28 Electronic Safety and Security

3. Elevator Contractor is responsible for the work of this Section and all work of other trades as required to properly execute the installation of this elevator system in accordance with all applicable codes.

4. This work must be properly coordinated with Tarrant County Facilities Management so that the disruption to the building operation is minimized. Schedule the removal of the existing Elevator with Tarrant County Facilities Management. Elevator contractor shall provide all necessary and required protection in hoistway areas for the entire construction process.

5. If these specifications are not complete as to any minor detail of a required feature, or with regard to the manner of combining or installing parts, material or equipment, but there exists an acceptable trade standard for good and workmanlike practices, such detail shall be deemed by implication to have been required by these specifications in accordance with such standard.

B. Related Work and Existing Conditions:

1. It is the intent of these specifications to reuse the conditioning of the elevator machine room(s). Elevator contractor shall provide necessary operating requirements for the elevator equipment proposed for review.

2. It is the intent of these specifications to reuse the existing elevator signal fixture boxes. Where new signal fixture boxes are required the elevator contractor shall be solely responsible for the modification. Field coordinate with the Owner for any modifications to the building walls.

3. Cutting and patching: if the elevator contractor requires modifications to any hoistway enclosure spaces or spaces required to install signal fixture boxes, it shall be the sole responsibility of the elevator contractor to modify as required.
4. If required, necessary modifications for machine room and pit lighting and convenience outlets, 460 volt 3 phase, 60 hertz electrical power distribution to elevator machine rooms including emergency power distribution and products of combustion detection systems shall be completed as part of the Elevator Contractors work. Elevator contractor shall provide a project specific list of building related requirements.

C. Site Visit and Inspection of Existing Equipment:

1. By submitting a bid, elevator installer certifies that they have visited and inspected the site and existing facilities and has informed themselves in detail as to all existing conditions that may affect the work and compared to the contract documents. Failure to do so will not be considered sufficient justification for additional compensation and/or extension of contract time.

1.2 SUBMITTALS

A. Shop Drawings, Descriptive Data: Provide shop drawings and descriptive data for all equipment that will be installed, including project specific dimensional data and building reaction loads.

B. Samples: All exposed materials with finish and all custom fixture fabrications.

1. Complete hall call buttons and hall lantern assembly.
2. Omit all logos from exposed finishes or components.
3. All cab finishes.

C. Maintenance Data: Provide written information necessary for proper maintenance, safety tests and adjustment of the equipment prior to final acceptance as follows:

1. Straight line wiring diagrams of as-installed elevator circuits with index of location and function of all components. Wiring diagrams must be Project specific including serial numbers of primary components. Provide 4 corrected sets for Owner's file 60 days after acceptance. One (1) set shall be permanently mounted in elevator machine room and one (1) set on Auto Cad CD or acceptable electronic media.
2. Four (4) copies of lubricating instructions and recommended lubricant grade.
3. Four (4) parts catalogs and maintenance manuals-project specific. Six (6) set of elevator keys marked and identified for feature and function.
4. Include any special tools, pass words, fault codes, fault code solutions, software package or manuals that are required for maintenance, trouble shooting, adjustments or performing safety tests of the installed elevators for the Owner's use. Owner shall not incur additional cost for service tool or devices.
5. If the Contractor requires the Owner to sign a lease for the special trouble-shooting tool, a copy of the lease shall be submitted with the bid for the Owner's consideration.
6. Provide a minimum of 4 hours of onsite Owners training in the safe use of the elevator systems and owners data outlined in 1.2 C. Training shall be accomplished by supervisory level personnel.
7. Demonstrate the ability to use non proprietary means to adjust, trouble shoot and perform Code required Safety tests as outlined in 1.2, C. 4.
1.3 REFERENCES

A. Comply with applicable building codes and elevator codes at the project site, including but not limited to the following:

8. ASME UL 10B and ASTM E152, Fire tests of door assemblies.
10. City of Fort Worth, TX applicable Elevator and Escalator Code requirements.

B. Make application for, secure and pay for all necessary permits and certificates of inspection for all equipment included herein, as required by the various departments of the Local and State Authorities. Furnish the Owner certificates and approval as required by the local governing authorities having jurisdiction.

C. In addition to the permits, inspections and test specified and the governing codes, the elevator contractor will be required to have performed speed and load carrying capacity and heat tests at his own expense.

D. Any damage of any kind to the car or the adjoining structure which may develop through performance of any tests shall be repaired at no additional costs to the Owner.

1.4 CONTRACTORS RESPONSIBILITY

A. The electrical and mechanical design is based on the following power characteristics and heat releases. The Contractor shall submit with bid any power characteristics or heat releases of this equipment that exceeds these listed below. Any additions or modifications requested at a later date will be at the expense of the Contractor.

<table>
<thead>
<tr>
<th>Elevator #</th>
<th>Capacity</th>
<th>Speed</th>
<th>HP</th>
<th>Starting amps</th>
<th>Running Amps</th>
<th>Heat Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2500 lbs.</td>
<td>125 fpm</td>
<td>30</td>
<td>145</td>
<td>65</td>
<td>20,300</td>
</tr>
</tbody>
</table>

Heat release given as BTU/elevator/hour.
All amperages based on 460/480 volt system.
Maintain 50 to 90 degrees F temperature with 90 per cent non-condensing humidity.

B. Store materials in a dry protected area. Protect and handle materials in accordance with manufacturer’s recommendations to prevent damage, soiling, or deterioration.
1.5 WARRANTY

A. Provide warranty to replace, repair, or restore parts or components that fail or do not operate properly due to poor field or factory workmanship, engineering or design for a period 12 months from the date of substantial completion.

1.6 MAINTENANCE

A. Furnish regular maintenance for the Elevator for a period of 12 months after substantial completion and the equipment is accepted by the Owner. All routine and scheduled services shall be performed between the hours of 7:00 am and 6:00 pm. The maintenance service shall include regular examinations of the installation by competent and trained elevator mechanics on a semi monthly basis, and shall include all necessary adjustments, greasing, oiling, cleaning, and supply of parts and accessories necessary to keep the equipment in peak operating condition, except such replacement of parts made necessary by misuse, accidents not attributable to failure of equipment or workmanship, and negligence of the Owner. Include 24 hour emergency call back service with the Contractor arriving at the Property within thirty (30) minutes from time of notification of equipment problem or failure by purchaser. After hours, Contractor shall respond to callback service within sixty (60) minutes from the time of notification by the Medical Examiner’s Office. Maintenance service shall include all elevators.

B. Repair and maintenance work shall be carried out only by the Elevator Contractor's directly employed personnel, using only standard parts furnished by the Elevator Contractor and shall not be assigned or transferred to any agent.

C. Upon expiration of the Warranty and Warranty Service period the Project elevators shall revert to the Tarrant County Maintenance Contract in force.

1.8 QUALITY ASSURANCE

A. The specific product or material manufactured by any of the following listed manufacturers is “acceptable” only if the specific product or material can evidence exact compliance with the contract documents and governing codes.

1. Otis Elevator Company
2. KONE Elevator Company
3. Schindler Elevator Corporation
4. ThyssenKrupp Elevator Company

B. Elevator Contractor must be able to demonstrate that he has installed and maintained similar elevators to those specified and which have given satisfactory service; has been in successful operation for at least ten (10) years; maintains locally an adequate stock of parts for replacement or emergency purposes; has available qualified persons to do the work.

C. The controls shall not have any software embedded that shuts the elevator down if the equipment is not malfunctioning, and forces the Owner to call the Manufacturer for service.

1.9 PARTS AND PRINTED CIRCUIT BOARDS

A. Contractor guarantees they will sell all parts and printed circuit boards to the Owner and the Owner’s Agent. The same shall not be dependent on an exchange component.
PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. The following manufacturers and dispatching are acceptable:
   1. For all elevators:
      Otis Elevator Company     GCS
      KONE          MCE or Elevator Controls
      Schindler Elevator Corporation                    330 A
      ThyssenKrupp Elevator Company   TAC 32H
   2. For cabs and entrances:
      Elevator manufactures listed in 2.1 A.1.

2.2 TYPE AND GENERAL CHARACTERISTICS

A. Passenger Elevator:         No. 1

1. Quantity:  One (1)
2. Capacity and Speed:  2500 lbs. at 125 fpm
3. Stops and Openings: Two (2) stops; Two (2) openings
   2 front, 13’ 11.5”
4. Operation and Control: Microprocessor operation
5. Machine Room Location: Existing adjacent at Level 1
6. Cabs: As specified
7. Doors:  3’ 6” x 7’-0” 2/Speed side opening
8. Cab Height:  8’-0” clear under canopy
9. Cab Size, Clear Inside:  7’ 0” wide x 5’ 1” deep; 5’ 8” w x 4’ 3” d
                            clear with finishes

2.3 PERFORMANCE

A. Speed:  +/- 3 per cent under any loading condition.

B. Capacity:  Safely lower, stop and hold up to 125 per cent rated load.

C. Leveling:  +/- 1/8” under any loading condition.

D. Door Closing time, Thrust and Kinetic Energy shall comply with ASME Code and ADA/TAS.

E. Airborne noise: measured noise level of elevator equipment and its operations shall not exceed
   50 dBA in the adjacent Lobby space(s) and 60 dBA inside cab at full contract speed with the
   exhaust fan on its highest speed.

F. Vibration Control: all elevator equipment including but not limited to power units, hoist
   machines, hydraulic fluid lines and controller cabinets shall be mechanically isolated from
   the building structure and electrically isolated to minimize the objectionable noise and vibration
   transmission to occupied spaces of the building. Isolation pads to be equal to Mason Industries
   with 3/8” deflection. Elevator contractor to provide specific information and means and methods
   of isolation.
G. Machine room noise levels not to exceed 80 dBA for elevator equipment.

H. Floor to Floor Performance Time: Floor to floor performance time (from time door starts closing at one floor to fully opened and level on next successive typical floor, regardless of loading conditions or direction of travel). Hydraulic Passenger #1: 16.5 seconds.

2.4 MACHINE ROOM EQUIPMENT

A. Power Unit
   1. Oil pumping and control mechanism shall be compactly and neatly designed with components combined in a self-contained unit.
   2. Submerged oil-hydraulic pump shall be especially designed and manufactured for oil – hydraulic elevator service. Pump shall be of the positive displacement type, inherently designed for steady discharge with minimum pulsations to give smooth and quiet operation.
   3. Output of pump shall not vary more that 10 per cent between no-load and full-load on the elevator car. Drive shall be by direct coupling.
   4. Motor shall be especially designed for oil-hydraulic elevator service, of standard manufacture, and of duty rating to comply with herein specified speeds and loads.
   5. Oil control unit shall consist of the following components, built into a single housing (welded manifolds with separate valves to accomplish each function will not be acceptable). Adjustments shall be accessible and shall be made without removing the assembly from the oil line:
      a. Relief valve shall be externally adjustable, and shall be capable of bypassing the total oil flow without increasing back pressure more than 50 percent above working pressure.
      b. Up start and stop valve shall be externally adjustable, and designed to bypass oil flow during start and stop of motor pump assembly. Valve shall close slowing, gradually diverting oil to or from the Jack Unit, insuring smooth up starts and up stops.
      c. Shut-off valve in supply line to cylinder shall be located in machine room.
      d. Check valve shall be designed to close quietly without permitting any perceptible reverse flow.
      e. Lowering valve and leveling valve shall be externally adjustable for drop-away speed, lowering speed, leveling speed and stopping speed to insure smooth down starts and stops. The leveling valve shall be designed to level the car to the floor in direction car is traveling when slowdown is initiated. Maximum level variation shall be plus/minus ¼ inch.
   6. Provide storage tanks constructed of steel in conformance with ASME A17.1, Section 3.24. Tank size shall be 120 per cent of normal size. An initial supply of hydraulic fluid shall be provided. A tank heater, thermostatically controlled, shall be provided in the storage tank to maintain proper oil temperature.
7. Power controller shall contain necessary electrical contractors, electromechanical switches and thermal overload relays. Components shall be mounted in a NEMA 1 enclosure. Logic control system shall be microprocessor based, integrated solid state circuitry. System shall be protected from environmental extremes and excessive vibrations.

8. Piping: Provide size, type, and weight piping recommended by manufacturer, and provide isolation couplings to prevent sound/vibration transmissions from power unit. Install insulated blow-out proof muffler and two sound isolating couplings in the oil line connecting the power unit to the cylinder that shall be completely resistant to deterioration by oil.

9. Power unit shall include sound reducing panels and resilient isolators.

10. Oil Cooler: Suitable sized oil cooler units shall be installed on and in the oil storage tank as manufactured by Minnesota Elevator Inc, 507 245-3060, Model AOL or BOL, Cooler shall be sized to insure oil temperature does not cause “oil odors” in machine room or hoistway, or heat “shutdown” of the elevator.

B. Jack Unit

1. The jack unit(s) shall be of sufficient size to lift the gross load height specified and shall be factory tested to insure adequate strength and freedom from leakage. No brittle material, such as grey cast iron, shall be used in jack construction. Twin post cylinder type mounted on both sides of the elevator platform and secured to the pit floor.

2. The jack unit(s) shall consist of the following parts:
   a. Plunger of heavy seamless steel tubing accurately turned and polished; a stop ring to suit present rise electrically welded to plunger to positively prevent plunger leaving the cylinder.
   b. An internal guide bearing.
   c. Packing or seal of suitable design and quality; a drip ring around cylinder top.
   d. Cylinder made of steel pipe shall be designed in accordance with ASME A17.1, Section 3.18, and provided with a pipe connection and air bleeder

3. Brackets shall be welded to the jack cylinder for supporting the elevator on pit channels. An auxiliary safety bulkhead shall be provided in the lower end of the cylinder.

4. No underground piping shall be used.

6. Means shall be provided to protect and monitor cylinders per Rule 3.18.3.8, ASME A17.1.

C. Leveling

1. The elevator car shall have two-way leveling to automatically bring the car to a stop approximately level with any floor for which a stop has been initiated, regardless of load, or direction of travel. Maximum level variation plus/minus 1/4 inch.
2. Automatic leveling control shall permit the synchronization of door opening with stopping of the car at a floor. Advanced door opening shall not be acceptable.

D. Identification

1. Provide identifying numbers on machines, controllers, all disconnect switches, car frame, and in the car.

E. Operation: Provide Selective Collective as defined in ASME A17.1.

1. Motion Control:
   a. Furnish and install microprocessor motion controller.
   b. The motion control system shall perform all of the functions of safe elevator motion and door control. This shall include all of the hardware and software required to connect, transfer and interrupt power, and protect the equipment against overloads.
   c. Provide a solid state starter to limit current inrush during starting and to provide gradual acceleration of the motor. Motor starting shall not be initiated by mechanical contacts. The starter shall include a current limit adjustment range of 200 percent to 450 percent of the overload adjust range.
   d. Provide an integral fault detection and diagnostic system. If the internal fault detection system detects a failure, power shall be removed from the motor.

2. Car Operation:
   a. Operation shall be automatic by means of the car and landing buttons.
   b. Stops in response to calls 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. 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. “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, and proceeds to answer car calls and landing calls registered in the opposite direction of travel.
   c. If all calls in the system have been answered, the car shall park at the last landing served.
   d. A switch shall be provided in the car operating station which, when actuated, shall disconnect the elevator from the hall buttons and permit operation from the car buttons only.

3. Car Stall Protective Circuit:
   a. A protective circuit shall be provided which will stop the motor and the pump and return the car to its lowest landing in the event that the car, while traveling up, does not reach its designated landing within a predetermined time interval. This circuit shall permit a normal exit from the car but shall prevent further operation of the elevator until the trouble has been correct.
2.5 GENERAL OPERATIONS AND CONTROL

A. Control of the elevator shall be automatic in operation by means of pushbuttons in the car numbered to correspond to floors served, for registering car stops and by up/down push buttons at each intermediate landing and call pushbuttons at terminal landings.

B. The momentary pressing of one or more buttons shall dispatch the car to designated landings in the order in which the landings are reached by the car, irrespective of the sequence in which buttons are pressed.

C. Each landing call shall be canceled when answered.

D. When the car is traveling in the up direction, it shall stop at all floors for which car buttons or up hall buttons have been pressed. It shall not stop at floors where down buttons only have been pressed unless the stop for the floor has been registered by a car button, or unless the down call is at the highest floor for which any buttons have been pressed.

E. The pressing of an up button when the car is traveling in the down direction shall not interrupt the travel unless the stop for that floor has been registered by a car button, or unless the up call is the lowest for which any button has been pressed.

F. When the car has responded to high or lowest stop, and stops are registered for the opposite direction, its travel shall reverse automatically and it shall then clear the calls registered for that direction.

G. Should both up and down call be registered at an intermediate floor, only the call corresponding to the direction in which the car is traveling shall be canceled upon the stopping of the car at the landing.

H. An adjustable time delay shall be provided so that after the car has stopped in response to a hall button, the entering passenger may register his car button before the car will reverse to answer calls in opposite direction.

I. Car station shall contain a door open button for stopping the closing motion of the doors and causing them to return automatically to their position.

J. The buttons in the car and hall stations shall be of the light-up type and shall indicate that a call has been registered for that landing.

K. Elevators shall have car button independent service. When a key operated switch in the car panel is activated the car shall be disconnected from the hall buttons and shall only respond to car buttons. Car doors shall be closed by pressing the door close button.

2.51 AUXILIARY OPERATION AND CONTROLS

A. General: In addition to primary control system features, provide the following controls or operational features for the passenger and service elevators, except where otherwise indicated.

B. Firefighter’s Emergency Operation – Phase I: The activation of a key switch in a lobby level hall station, or action of a smoke detection system shall return all cars in the group express to the designated floor and by-pass all car and hall calls. The cars shall park at the designated floor with the doors open and will not respond to car or hall calls unless the SES-II switch in the car is activated. This system shall be in conformance with the current ASME A17.1, Section 2.27.3.
C. Firefighter’s Emergency Operation– Phase II: In-car control of each elevator during the emergency operation, by means of a key switch in each car shall be provided. Operation shall be per ASME A17.1, Section 2.7.3.

D. Emergency Power Operation:
   1. Provide manufacturer’s standard hydraulic elevator battery lowering system. In the event of normal power loss, elevator will lower to designated landing and park with the elevator doors in the open position until normal power is restored; if the elevator is located at the designated landing, the elevator doors shall open and remain open until normal power is restored. After normal power is restored, the elevator doors shall close and the elevator shall return to automatic operation.

E. Emergency Lighting and alarm Bell (Power to Car): Remote emergency alarm bell, located where directed, so it can be heard outside the hoistway to be arranged to sound automatically in response to activation of alarm button.

F. Emergency lighting and Alarm Bell (No Electrical Power to Car): Car mounted 12 volt battery unit including solid state charger and testing means enclosed in common metal container rechargeable lead acid or nickel cadmium battery with 10 year minimum life expectancy. When normal power to the car fails the system shall automatically provide power to the car emergency light and to the alarm bell circuit.

2.6 GUIDE RAILS
   A. It is the intent of these specifications to retain the existing car guide rails and brackets. Elevator Contractor is responsible to relocate car guide rails, if required. It is the Contractor’s option to furnish and install new car guide rails and brackets.

2.7 PIT SWITCH
   A. Provide a new pit switch.

2.71 CAR BUFFERS
   A. Suitable Spring buffers with necessary blocking and extensions shall be provided under the elevator car.

2.72 HOISTWAY DOOR INTERLOCK
   A. Each elevator hoistway door shall be equipped with a hoistway unit system hoistway door interlock. The interlock shall prevent the operation of the elevator driving machine by the normal operating device unless the hoistway is locked in the closed position. The interlock shall also prevent the opening of the hoistway door from the landing side unless the car is either stopped or being stopped. Provide door restrictors.

2.73 HOISTWAY DOOR UNLOCKING DEVICES
   A. Unlocking devices shall be provided at all floors. Escutcheons shall be provided in all openings; finish of escutcheons shall be metal and match door finish.
2.74 ELECTRICAL WIRING

A. Electrical wiring shall comply with the ASME and National Electrical Code(s) and all applicable local codes. Wiring shall be included for all devices installed.

1. Furnish and install complete insulated wiring to connect all parts of the equipment. Properly ground all components as required by National Electric Code.
2. Insulated wiring shall have a flame retarding and moisture resisting outer cover and shall be run in a metal conduit, metallic tubing, or wire ducts.
3. Provide 10 percent spare wires between each controller, leveling device, hoistway junction box, and control panel, also, provide 6 percent spare conductors in each trail cable; all spares shall be properly tagged or otherwise identified with clear and indelible markings. Neatly organize all spare wiring in elevator control panel.
4. Tag code all field wiring at junction points; control wiring in traveling cables at their terminals in the machine room: elevator car junction box and connections within the car. Test entire wiring system for insulation to ground.
5. Provide total of six (6) twisted/shielded pairs for security or other use in the traveling cables for the elevator. The twisted/shielded pairs shall be located in a cable which is not used to carry alternating current circuits. The twisted/shielded wiring shall extend to junction box in the elevator machine room. Clearly tag additional spare shielded conductors.
6. Additional requirements in the traveling cable: Shielded wiring in the traveling cable required for existing card reader. Include two (2) RG6/U coaxial cables, three (3) 14-AWG in cab requirements.

2.75 TOP OF CAR OPERATING DEVICE

A. Each elevator shall be provided with an operation device mounted from or on the car crosshead which will permit slow (150 fpm or less) operation for purposes of adjustment, inspection, maintenance, and repair. A transfer switch shall be provided in the top of the car operating device fixture which will permit the disconnection of hoistway switch or switches and render the top of car operating device operative. The operating device shall be mounted in a metal box and shall be rigidly secured in a position conveniently accessible to workmen on top of the car.

2.76 LUBRICATION

A. Suitable means shall be provided for lubrication with oil or grease for all bearing surfaces in connection with the elevator installation. Grease gun fittings, if used, shall be suitable for high pressure guns. Grease cups, if used, shall be automatic compression type.

2.77 CAR TOP LIGHTS

A. Electric light with wire guard and GFI convenience outlet fixture on car top which shall meet the requirements of ASME A17.1.

2.78 DOOR OPERATOR

A. A heavy duty, DC master door operators capable of opening door at not less than 1½” fps and accomplishing reversal in 2½” maximum door movement. Doors shall open automatically when car arrives at floor to permit transfer of passengers; after timed interval door shall automatically close. Arrange operator so doors can be opened by hand from inside car in case of power failure, if car is within leveling zone.
B. Door operation shall be closed loop system which gives constant feedback of the position and velocity of the elevator doors. System shall automatically overcome door resistance by increasing the power supply to the motor and increasing the torque required to maintain velocity. If a service tool is needed to make digital adjustments, provide the Owner with the service tool and all required manuals.

C. Provide proximity type door protection for all elevators.

D. Door open timing feature.
   1. Operate in conjunction with proximity devices to provide adjustable, reduced, hold open time once beams are broken and re-established.
   2. When doors are held open beyond an adjustable time, buzzer sounds and doors shall close at reduced speed
   3. There shall be a difference in door hold open times between car and hall calls. Door speed, thrust and kinetic energy shall comply with the ASME Code. Door hold open times shall comply with “Handicapped Requirements”.

2.79 FINAL LIMIT SWITCHES

A. In addition to the normal limit switches, a hoistway final limit switch shall be installed at the top and at the bottom of each hoistway.

B. Final limit switches shall be so located that they open at or about the time the buffer is engaged by the time the buffer is engaged by the car or counterweight.

2.80 CAR FRAME

A. Car frame shall be fabricated from formed or structural steel members and shall have adequate bracing to support the platform and car enclosure.

2.81 PLATFORM

A. The car platform shall be constructed of steel with ¾” plywood sub-floor and fire proofing on the underside. The platform shall rest on rubber pads designed to form an isolating cushion between the car and car frame.

B. The car platform shall be designed for Class “A” loading.

C. The finished flooring shall be furnished and installed by the elevator contractor. Finished flooring shall be porcelain tile from Crossville, Inc., Irving TX, Bluestone AV202 Arizona Brown UPS. Coordinate the required car sill recess with the approved tile selection.

D. Provide full width extruded aluminum car sill. Car sill shall extend from the leading edge of the platform to leading edge of the front return panel.
2.82  SLIDE GUIDES

A. Provide manufacturer's lubricated slide guides, mounted on the top and bottom of the car frame to engage the guide rails. Slide guides shall be heavy duty type.

2.83  CAR DOOR ELECTRICAL CONTACT

A. Shall operate in conjunction with car door so elevator cannot operate unless doors are closed or within the tolerance allowed by Code.

2.9  HOISTWAY ENTRANCES

A. Frames: Retain existing hoistway frames and hoistway sills in place.

B. Doors and Sight Guards: Provide horizontal sliding doors of flush construction and sound deadened. Doors shall be fabricated from a minimum of #16 gauge steel; finish shall be No. 4 stainless steel.

C. Sills: Retain existing hoistway sills.

D. Hanger Supports: Hanger supports or headers shall be formed sections securely bolted to the strut angles.

E. Fascia Plates: Concealed fascia plates shall be #14 gauge steel, reinforced to insure a flat even surface throughout, and shall be securely fastened to hanger housings and sill above.

F. Fascia plates shall be finish painted with one coat of rust inhibitive prime paint or be galvanized material.

G. Struts and Closers: Structural steel angles and other similar methods shall be furnished of sufficient size to accommodate the door closers. Angles shall be continuous and be securely bolted to the sills and building beams above.

H. Header: 3/16” thick steel formed to provide stiffening flanges.

I. Door Hangers and Tracks: Hangers for each hoistway entrance shall be of the sheave type arranged for two point suspension of the doors, and shall have brackets integral with door, or applied. Sheave and rollers shall be of steel with sealed ball bearings and there shall be adjustable ball bearings rollers to take up thrust of doors. Tracks shall be cold drawn or cold rolled steel of smooth surface and working section and shall be oiled with wick type lubrication.

J. Hanger Cover Plates: Shall be made of #14 gauge steel and shall be removable type. Cover plates shall be arranged to assure hanger accessibility from within the car. Cover plates shall be finish painted with one coat of rust-inhibitive prime paint or be galvanized material.

K. Floor Numbers: Provide floor numbers within the hoistway in compliance with ASME 17.1 Code.

L. Provide cast plates on each elevator entrance on each elevator entrance jamb in compliance with requirements for ADA. Stick-on plates are not acceptable. Submit sample for approval.
2.10 CAR ENCLOSURE

A. Provide manufacturer's cab shell fabricated of 14 gauge sheet steel from floor to canopy. Canopy of 12 gauge reinforced sheet steel; include top emergency exit per ANSI A17.1 Code. Provide a two-speed squirrel cage exhaust fan, Morrison AA or equal mounted on the car canopy.

B. Car door, front return, transom panel, cab base and vent slots finished in stainless steel No. 4. Car operating panel to be stainless steel No. 4 finish, vertical grain. Front return shall be full width swing type.

C. Provide a certificate frame mounted on the face of the front return sized to fit the standard TDLR Certificate of Compliance.

D. Provide plastic laminate on all three cab walls. Plastic laminate selected from manufacturer's standard cab interior finishes.

E. Provide six (6) downlight ceiling with LED lighting.

F. Provide 1.5" cylindrical handrail with end turned toward the wall.

G. All stainless steel shall match for color, texture and direction of grain.

2.11 CAR DOORS

A. Car doors shall be 1 inch thick, of flush design metal construction, with interior reinforcing and sound deadening insulation. They shall be adequately reinforced to withstand operational stresses and as required to accept hangers, interlocks and other accessories.

B. The car door system shall be designed so that the car doors may not be opened more than 4" from the inside of the car if the car is outside the unlocking zone of a landing.

2.12 EMERGENCY EXITS

A. All cars shall have ceiling emergency exits as required by ASME A17.1.

2.13 HALL BUTTON FIXTURES

A. Provide one (1) riser of hall push buttons. At Contractor's option reuse existing signal boxes or furnish and install new signal boxes. Provide round, illuminated vandal resistant type with a stainless steel cap. All face plates shall have a No. 4 stainless steel finish. All pushbutton plates shall include the call station pictograph as detailed in figure 2.27.9, ASME A17.1, or as required by the AHJ.

B. The 3 position Fire Service key switch, engraved Phase 1 instructions, Fire Hat and emergency power notification shall be included at the designated Level. Provide one (1) hall station plate for all requirements.

C. Include rated boxes and wiring as required. Lighting shall be bright white LED type.

D. Include integral fireman's phone jacks at each lobby if required by AHJ. Include all wiring and conduit to Life Safety Panel.
2.14 HALL LANTERN FIXTURES

A. Provide a hall lantern with an audible and field adjustable electronic chime, at each landing entrance. At Contractor’s option reuse existing signal boxes or furnish and install new signal boxes. The lanterns, when illuminated, shall indicate the elevator car which shall stop at the landing and in what direction the car is set to travel. When the car reaches a predetermined distance from the floor where it is going to stop, the corresponding hall lantern shall illuminate and sound once for up and twice for down. The hall lantern shall remain illuminated until the car doors close in preparation for leaving the floor.

1. Faceplates shall have a No. 4 stainless steel finish at all floors.
2. Hall lantern device shall be vandal resistant type, triangle shape
3. Provide an electronic audible signal that is field adjustable without special tools.
4. Provide LED bright white illumination.

2.15 CAR POSITION INDICATOR

A. The elevator shall have a digital readout fixture, minimum of 2” high character, above each car operating panel.

B. Fixtures shall be LED type and include floor sounding single adjustable tone of no less than 20 Decibels at not more than 1500 hertz, shall sound as the car is passing or stopping at a floor.

C. Include standard voice annunciation for car direction, floor arrival and emergency operations.

2.16 CAR OPERATING PANELS

A. Elevator shall have one (1) car operating panel. The car operating panel(s) shall include the following:

1. Self-illuminating floor registration buttons. Match hall pushbutton design for the car operating panel push buttons.
2. Alarm, door open and door close control buttons.
3. Firefighter’s key switch, pilot light, call cancel and buzzer, ASME A17.1 Code.
4. Jack for Firefighter’s headset if required by AHJ. Include shielded pair wiring.
5. All buttons shall be designated by raised markings with Braille, applied with concealed fasteners to meet ADA requirements. Stick on markings are not acceptable.
6. Engraved elevator number, elevator capacity and “No Smoking” on faceplate or return panel.
7. Lockable service cabinet containing controls for car stop switch, fan switch, car light switch, light rheostat, independent service keyed switch, keyed inspection service, 110 volt convenience outlet and test button for car emergency light.
8. Locate all buttons and devices to meet ADA requirements.
9. Surface mounted communications device to meet ADA requirements.
10. Logos or manufacturer’s name are not permitted on exposed surfaces.

2.17 COMMUNICATIONS SYSTEMS

A. The emergency communication system shall be mounted behind the main car operating panel and be designed to provide two-way communication between the elevator and a point outside the hoistway. The face of the device shall be flush with the car operating panel. Audio and visual two-way communication is required. System shall automatically dial a programmable number to a point outside hoistway.
B. Visual messages shall be provided to indicate the status of an emergency call. The visual message will illuminate and shall read: “Message Received” when the emergency call button is pressed.

C. Raised letter and Braille shall be integrated and permanently marked on the faceplate identifying the device as a speech independent emergency telephone. Surface painted or applied graphics shall not be acceptable.

D. Emergency communication system must be able to provide receiving agent with information identifying building and elevator number whenever an emergency call is placed.

E. Emergency communication system shall comply with Federal Communication Commission (FCC) regulations and Americans with Disabilities Act (ADA).

F. When the party called by someone in the cab hangs up, the telephone shall disconnect immediately without giving a busy signal in the cab.

G. The cab communication device shall comply with all provisions of ASME A17.1, Rule 2.27.1.1.

2.18 SMOKE SENSOR TIE-IN

A. System to interface with smoke sensors, including alternate level refuge. (Others will run wiring from the smoke sensors to the elevator machine room interface where the elevator contractor connects to their controls). Submit necessary interface information to General Contractor for approval.

PART 3 – EXECUTION

3.1 SCOPE

A. Installation shall meet all of the standard requirements of paragraph 1.03 for installation and inspection, tolerances, and qualifications. All work required for completion of a first-class installation is the responsibility of the Contractor, even if not included in this specification.

B. Performance of the elevator shall meet requirements of Paragraph 2.03.

3.2 HOISTWAYS

A. Entire front of hoistway will be left open until the hoistway entrances have been installed. After the guide rails have been erected and aligned, install frames in alignment with the guide rails, after which the wall may be completed. Coordinate this phase of the work to provide minimum delay in completion.

3.3 PAINTING

A. All elevator equipment not painted, wire duct, miscellaneous iron and steel work located within the machine room or hoistway, shall be given a finish coat of paint. Material that has factory finish paint, shall have all scratches or mars painted after installation.

B. Finish coat shall have hard, tough semi-gloss surface; rust inhibitive.
3.4 ELEVATOR REMOVAL

A. The Elevator Contractor shall be completely and solely responsible for removing the existing hydraulic elevator equipment from the hoistway and all associated components and materials.

1. Removal of the existing elevator(s) shall be coordinated with the Tarrant County.

2. The Elevator Contractor shall be responsible for removing all spoils from the site that can reasonably be recovered by its own workforce and what outsourced means are available such as vacuum disposal. All spoils shall be properly removed from the site including any necessary manifest of material to satisfy all Federal, State and Local authorities having jurisdiction (AHJ).

3. The Elevator Contractor shall be responsible for the removal and cleaning of any environmental contamination related to the damaged hydraulic cylinder assembly.

4. A documented means and methods narrative shall be presented to Tarrant County and agreed upon prior to commencement of elevator removal.

5. All elevator components removed shall become the property of the Elevator Contractor and shall be promptly removed from the Project site.

6. Any necessary repairs including repair of the pit floor shall be the sole responsibility of the elevator contractor.

3.5 CLEAN UP

A. Remove daily trash from hoistways, pits, and machine rooms including all packing material and debris resulting from this work. Leave all elevator spaces broom clean.

3.6 ACCEPTANCE TESTING

A. Tests shall be performed by the Elevator Contractor at his expense in the presence of the Owner's representative. The elevators shall be subjected to the following acceptance inspection and tests:

1. Inspection and tests required by applicable portions of Requirements, 1.03.

2. Inspection and tests required by Federal, State, and Local codes and ordinances.

3. Test safety circuit, loop circuit, and the drive circuits at 500 volts. Minimum resistance to ground shall be one meg ohm. If these tests are performed at a location other than point of installation, provide written documentation from manufacturer.

4. General riding quality, leveling accuracy, and quietness of operation shall be acceptable to the Owner's representative.

3.7 USE OF ELEVATORS

A. The elevators shall not be used for construction purposes, or during the period prior to turning over the project to the Owner. Should the elevator be authorized for temporary use, the following conditions shall apply:

1. The Elevator Contractor shall provide a temporary acceptance form for the user to sign.
2. Neither the new installation period, or the guarantee, shall start at this time unless specifically approved in writing by the Owner.

3. The user shall provide, if job conditions require, all temporary enclosures, guards or other projection of the hoistway openings, power, signal devices, car lights, protection of any elevator entrances, cars, fixtures, and any other equipment that is installed.

4. The user shall return the elevators in the same condition they were in when placed on temporary service and shall pay the Elevator Contractor for repairs or clean up.

5. The user shall allow the Elevator Contractor to perform routine maintenance or repairs.

6. The cost of temporary service shall be worked out between the Elevator Contractor and the user.

B. As the elevator is completed, the Owner shall have the prerogative of accepting and using them, shutting them down, or accepting them under an Interim Service Agreement described below:
   1. The Owner shall have the prerogative of continuing the Interim Service Agreement until all elevators in the group (or building) are completed.
   2. The guarantee period and new installation service will start at the termination of the interim service period.
   3. The cost of interim service shall not exceed the prorated cost of the monthly maintenance bid required by these specifications.

3.8 ACCEPTANCE

A. Final acceptance of the installation shall be made only after all field inspections and tests are complete, punch list items are complete, all Owner’s information items listed in 1.02.C have been furnished, and the Owner’s representative is satisfied that the installation has been satisfactorily completed.

END OF SECTION 14 2400