Project Manual

Bid Package 03

(ELEVATORS)

Cherokee Nation Replacement Hospital

Tahlequah, Oklahoma

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SECTION 142100
ELECTRIC TRACTION ELEVATORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Electric traction elevators, conveying equipment, components, and accessories.
2. Related materials necessary to complete installation.

1.2 DEFINITIONS

A. Definitions in ASME A17.1/CSA B44 apply to work of this Section.

1.3 SUBMITTALS

A. Product Data: Manufacturer’s technical product literature for each product indicated, specified, or required.

1. Include capacities, sizes, performances, operations, safety features, finishes, and similar information.
2. Include car enclosures, hoistway entrances, and operation, control, and signal systems.

B. Shop Drawings:

1. Include plans, elevations, sections, and large-scale details indicating service at each landing, coordination with building structure, relationships with other construction, and locations of equipment.
2. Include large-scale layout of car-control station.
3. Indicate maximum dynamic and static loads imposed on building structure at points of support, and maximum and average power demands.

C. Manufacturer Certificates: Signed by elevator manufacturer certifying that hoistway and pit, as shown on Drawings, and electrical service, as shown and specified, are adequate for elevator system being provided.

D. Samples for Initial Selection: For finishes involving color selection.

E. Samples for Verification: For car finishes, hoistway door and frame, and signal equipment finishes; 3 inch square Samples of sheet materials; and 4 inch lengths of running trim members.

F. Operation and Maintenance Data: For inclusion in operations and maintenance manual required by Division 01.

1. Include manufacturer's or Installer's standard operation and maintenance manual, according to ASME A17.1/CSA B44.
2. Include manufacturer’s instructions for operation and maintenance of installed Work, including methods and frequency recommended for maintaining optimum condition under anticipated use.
3. Include precautions against cleaning products and methods which may be detrimental to finishes.
4. Include name, address, and telephone number of manufacturer's nearest authorized service representative.

G. Manufacturer’s Special Warranty: Sample of unexecuted warranty stating obligations, remedies, limitations, and exclusions.

H. Inspection and Acceptance Certificates and Operating Permits: As required by authorities having jurisdiction for normal, unrestricted elevator use.

I. Continuing Maintenance Proposal: Submit a continuing maintenance proposal from Installer to Owner, in the form of a standard one-year maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Elevator manufacturer or an authorized representative who is trained and approved by manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials, components, and equipment in manufacturer's protective packaging. Store materials, components, and equipment off of ground, under cover, and in a dry location.

1.6 WARRANTY

A. Manufacturer's Special Warranty: Manufacturer agrees to repair, restore, or replace elevator work that fails in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
2. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Contract Documents are based on products specified below to establish a standard of quality. Other acceptable manufacturers with products having equivalent characteristics may be considered, provided deviations are minor and design concept expressed in Contract Documents is not changed, as judged by Architect.

1. Manufacturer: Kone.
2. Product: Trauma.

B. Acceptable Manufacturers: Subject to compliance with requirements of Contract Documents, provide products by one of manufacturers listed alphabetically below. If not listed, submit as substitution according to Division 01 Section “Substitution Procedures.”

1. Kone.
2. Otis Elevator Co.
3. Schindler Elevator Corp.
4. TKE Elevator.

C. Source Limitations: Obtain electric traction elevators from single manufacturer.

1. Major elevator components, including driving machines, controllers, signal fixtures, door operators, car frames, cars, and entrances, to be manufactured by single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with ASME A17.1/CSA B44.

B. Accessibility Requirements: Comply with codes, regulations and standards indicated on the Drawings.

2.3 ELECTRIC TRACTION ELEVATORS

A. Elevator System, General: Manufacturer's standard elevator systems. Unless otherwise indicated, manufacturer's standard components to be used, as included in standard elevator systems and as required for complete system.

B. Patient Transfer Elevators Description:

1. Elevator Numbers: PT1 and PT2.
2. Machine Type: Gearless traction.
3. Rated Load: 10,000 pounds.
4. Rated Speed: 500 feet per minute.
5. Travel: 126 feet.
6. Stops and Openings:

    a. Helipad Level: Front.
    b. Roof: None.
    c. Level 6: Front.
    d. Level 5: Front.
    e. Level 4: Rear.
    f. Level 3: Rear.
    g. Level 2: Front and Rear.
    h. Level 1:

        1) Elevator T1: Front and Rear.
        2) Elevator T2: Rear.

7. Operation System: Group automatic operation.
8. Auxiliary Operations:

    a. Standby power operation.
    b. Automatic operation of lights and ventilation fans.
    c. Priority service at all floors.
    d. Independent service for all cars in group.

9. Dual Car-Control Stations: Provide two car-control stations in each elevator.
10. Car Enclosures:

    a. Inside Width: 96 inches from side wall to side wall.
    b. Inside Depth: 132 inches from back wall to front wall (return panels).
    c. Inside Height: Not less than 96 inches to underside of ceiling.
    d. Front Walls (Return Panels): Satin stainless steel, ASTM A480, No. 4 finish.
    e. Door Faces: Satin stainless steel, ASTM A480, No. 4 finish.

f. Car Fixtures: Satin stainless steel, ASTM A480, No. 4 finish.
g. Finishes: As specified on Drawing Sheet A4.23.
h. Reveals: Black.
i. Plastic-laminate doors are about as expensive as stainless-steel doors but are not as durable.
j. Door Sills: Aluminum.

11. Hoistway Entrances:

a. Width: 60 inches.
b. Height: 84 inches.
c. Type: As indicated on the Drawings.
d. Door Faces and Frames: Satin stainless steel, ASTM A480, No. 4 finish.
e. Sills: Aluminum.

12. Hall Fixtures: Satin stainless steel, ASTM A480, No. 4 finish.
13. Additional Requirements:

a. Provide inspection certificate in each car, mounted under acrylic cover with frame made from satin stainless steel, ASTM A480, No. 4 finish.
b. Provide hooks for protective pads in one car with a complete set of full-height protective pads.

2.4 TRACTION SYSTEMS

A. Elevator Machines: Variable-voltage, variable-frequency, ac-type hoisting machines and solid-state power converters.

1. Provide nonregenerative system.

B. Fluid for Hydraulic Buffers: Fire-resistant fluid.

C. Inserts: Furnish required anchorage devices for installing guide rails, machinery, and other components of elevator work.

D. Machine Beams: Provide steel framing to support elevator hoisting machine and deflector sheaves from the building structure. Comply with Section 055000 "Metal Fabrications" for materials and fabrication.

E. Car Frame and Platform: Bolted- or welded-steel units.

F. Guides: Roller guides at top and bottom of car and counterweight frames.

2.5 OPERATION SYSTEMS

A. General: Provide manufacturer's standard microprocessor operation systems as required to provide type of operation indicated.

B. Auxiliary Operations:

1. Group Standby Power Operation: On activation of standby power, cars are returned to a designated floor and parked with doors open. One car is returned at a time, with priority given to loaded cars. If a car cannot be returned after two attempts, it is removed from the system. When all cars have been returned or removed from the system, one car is automatically placed in service. If car selected for service cannot operate within 60

seconds, the system removes car from service and places another car in service. Cars can be manually put in service on standby power, either for return operation or for regular operation, by switches in control panel located at fire-command station. Manual operation causes automatic operation to cease.

2. Independent Service: Keyswitch in car-control station removes car from group operation and allows it to respond only to car calls. Key cannot be removed from keyswitch when car is in independent service. When in independent service, doors close only in response to door close button.
3. Priority Service: Service is initiated by a card reader at designated floors. One elevator is removed from group operation and directed to the floor where service was initiated. On arriving at the floor, elevator opens its doors and parks. Car is placed in operation by selecting a floor and pressing door close button or by operating keyswitch to put car in independent service. After responding to floor selected or being removed from independent service, car is returned to group operation. If car is not placed in operation within a preset time after being called, it is returned to group operation.
4. Automatic Operation of Lights and Fan: When elevator is stopped and unoccupied with doors closed, lighting, ventilation fan, and cab displays are de-energized after five minutes and are re-energized before car doors open.

C. Security features are not to not affect emergency firefighters' service.

1. Card-Reader Operation: System uses card readers at car-control stations and hall push-button stations to authorize calls. Security system determines which landings and at what times calls require authorization by card reader. Provide required conductors in traveling cable and panel in machine room for interconnecting card readers, other security access system equipment, and elevator controllers. Allow space for card reader in car.

2.6 DOOR REOPENING DEVICES

A. Infrared Array: Provide door reopening device with uniform array of 36 or more microprocessor-controlled, infrared light beams projecting across car entrance. Interruption of one or more light beams causes doors to stop and reopen.

B. Nudging Feature: After car doors are prevented from closing for predetermined adjustable time, through activating door reopening device, a loud buzzer sounds and doors begin to close at reduced kinetic energy.

2.7 CAR ENCLOSURES

A. Provide enameled or powder-coated steel car enclosures to receive removable wall panels, with car roof, access doors, power door operators, and ventilation.

B. Materials and Finishes: Manufacturer's standards, but not less than the following:

1. Subfloor: Exterior, C-C Plugged grade plywood, not less than 7/8 inch nominal thickness.
2. Finishes: As indicated on Drawing Sheet A4.23.
3. Sight Guards: Provide sight guards on car doors.
4. Sills: Extruded aluminum, with grooved surface, 1/4 inch thick.
5. Light Fixture Efficiency: Not less than 35 lumens per watt.
6. Ventilation Fan Efficiency: Not less than 3.0 cubic feet per minute per watt.

2.8 HOISTWAY ENTRANCES

A. Hoistway Entrance Assemblies: Manufacturer's standard horizontal-sliding, door-and-frame hoistway entrances complete with track systems, hardware, sills, and accessories. Frame size and profile to accommodate hoistway wall construction.

1. Where gypsum board wall construction is indicated, frames to be self-supporting with reinforced head sections.

B. Fire-Rated Hoistway Entrance Assemblies: Door and frame assemblies to comply with NFPA 80 and be listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, based on testing at as close-to-neutral pressure as possible according to NFPA 252 or UL 10B.

1. Fire-Protection Rating: As required for 2 hour rated shaft walls.

C. Materials and Fabrication: Manufacturer's standards, but not less than the following:

1. Finishes: As indicated on Drawing Sheet A4.23.
2. Sight Guards: Provide sight guards on doors matching door edges.
3. Sills: Extruded or machined metal, with grooved surface, 1/4 inch thick.
4. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107.

2.9 SIGNAL EQUIPMENT

A. General: Hall-call and car-call buttons that light when activated and remain lit until call has been fulfilled buttons and lighted elements illuminated with LEDs.

B. Swing-Return Car-Control Stations: Provide car-control stations mounted on rear of hinged return panel adjacent to car door and with buttons, switches, controls, and indicator lights projecting through return panel but substantially flush with face of return panel.

1. Mark buttons and switches for function. Use both tactile symbols and Braille.
2. Provide "No Smoking" sign matching car-control station, either integral with car-control station or mounted adjacent to it, with text and graphics as required by authorities having jurisdiction.

C. Emergency Communication System: Two-way voice communication system, with visible signal, which dials preprogrammed number of monitoring station and does not require handset use. System is contained in flush-mounted cabinet, with identification, instructions for use, and battery backup power supply.

D. Firefighters' Two-Way Telephone Communication Service: Provide flush-mounted cabinet in each car and required conductors in traveling cable for firefighters' two-way telephone communication service.

E. Car Position Indicator: Provide illuminated, digital-type car position indicator, located above car door or above car-control station. Also, provide audible signal to indicate to passengers that car is either stopping at or passing each of the floors served. Include travel direction arrows if not provided in car-control station.

F. Hall Push-Button Stations: Provide one hall push-button station at each landing.

1. Provide units with flat faceplate for mounting with body of unit recessed in wall.

2. Equip units with buttons for calling elevator and for indicating desired direction of travel.
3. Provide telephone jack in each unit for firefighters' two-way telephone communication service.

G. Hall Lanterns: Manufacturer's standard wall-mounted units for mounting above entrance frames. Provide single arrow at terminal landings.

H. Hall Annunciator: With each hall lantern, provide audible signals indicating car arrival and direction of travel. Signals sound once for up and twice for down.

1. At manufacturer's option, audible signals may be placed on cars.

I. Standby Power Elevator Selector Switches: Provide switches, as required by ASME A17.1/CSA B44, where indicated. Adjacent to switches, provide illuminated signal that indicates when normal power supply has failed.

J. Fire-Command-Center Annunciator Panel: Provide panel containing illuminated position indicators for each elevator, clearly labeled with elevator designation; include illuminated signal that indicates when elevator is operational and when it is at the designated emergency return level with doors open. Provide standby power elevator selector switch(es), as required by ASME A17.1/CSA B44, adjacent to position indicators. Provide illuminated signal that indicates when normal power supply has failed.

K. Emergency Car Lighting: An emergency power unit employing a sealed rechargeable battery and totally static circuits shall be provided to illuminate the elevator car and provide current to the alarm bell in the event of building power failure.

L. Cab Wiring: All wiring on the elevator cab shall use factory wired harnesses with Wago Cage Clamp plugs and receptacles, and shall terminate behind the car operating panel.

M. Exhaust fan mounted on the car top.

N. Emergency Pictorial Signs: Fabricate from materials matching hall push-button stations, with text and graphics as required by authorities having jurisdiction, indicating that in case of fire, elevators are out of service and exits should be used instead. Provide one sign at each hall push-button station unless otherwise indicated.

2.10 FINISH MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A1008, commercial steel, Type B, exposed, matte finish.

B. Hot-Rolled Steel Sheet: ASTM A1011, commercial steel, Type B, pickled.

C. Stainless Steel Sheet: ASTM A240, Type 304.

D. Stainless Steel Bars: ASTM A276, Type 304.

E. Stainless Steel Tubing: ASTM A554, Grade MT 304.

F. Aluminum Extrusions: ASTM B221, Alloy 6063.

G. Plastic Laminate: High-pressure type complying with ISO 4586-3, Type HGS for flat applications and Type BKV for panel backing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Acceptance of Surfaces and Conditions:

1. Examine surfaces and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
2. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents.
3. Starting Work within a particular area will be construed as acceptance of surface conditions.

3.2 INSTALLATION OF ELECTRIC TRACTION ELEVATORS

A. Comply with manufacturer's written instructions.

B. Welded Construction: Provide welded connections for installing elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn parts. Comply with AWS standards for workmanship and for qualifications of welding operators.

C. Sound Isolation: Mount rotating and vibrating equipment on vibration-isolating mounts to minimize vibration transmission to structure and structure-borne noise due to elevator system.

D. Lubricate operating parts of systems, including ropes, as recommended by manufacturers.

E. Alignment: Coordinate installation of hoistway entrances with installation of elevator guide rails for accurate alignment of entrances with car. Where possible, delay final adjustment of sills and doors until car is operable in shaft. Reduce clearances to minimum, safe, workable dimension at each landing.

F. Leveling Tolerance: 1/8 inch, up or down, regardless of load and travel direction.

G. Set sills flush with finished floor surface at landing. Fill space under sill solidly with nonshrink, nonmetallic grout.

H. Locate hall signal equipment for elevators as follows unless otherwise indicated:

1. For groups of elevators, locate hall push-button stations between two elevators at center of group or at location most convenient for approaching passengers.
2. Place hall lanterns either above or beside each hoistway entrance.
3. Mount hall lanterns at a minimum of 72 inches above finished floor.

3.3 FIELD QUALITY CONTROL

A. Acceptance Testing: On completion of elevator installation and before permitting elevator use (either temporary or permanent), perform acceptance tests as required and recommended by ASME A17.1/CSA B44 and by governing regulations and agencies.

3.4 PROTECTION

A. Temporary Use: Limit temporary use for construction purposes to one elevator. Comply with the following requirements for each elevator used for construction purposes:

1. Provide car with temporary enclosure, either within finished car or in place of finished car, to protect finishes from damage.
2. Provide strippable protective film on entrance and car doors and frames.
3. Provide padded wood bumpers on entrance door frames covering jambs and frame faces.
4. Provide other protective coverings, barriers, devices, signs, and procedures as needed to protect elevator and elevator equipment.
5. Do not load elevators beyond their rated weight capacity.
6. Engage elevator Installer to provide full maintenance service. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleanup, and adjustment as necessary for proper elevator operation at rated speed and capacity. Provide parts and supplies same as those used in the manufacture and installation of original equipment.
7. Engage elevator Installer to restore damaged work, if any, so no evidence remains of correction. Return items that cannot be refinished in the field to the shop, make required repairs and refinish entire unit, or provide new units as required.

3.5 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service to include 12 months' full maintenance by skilled employees of elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Parts and supplies to be manufacturer's authorized replacement parts and supplies.

1. Perform maintenance during normal working hours.
2. Include 24-hour-per-day, 7-day-per-week emergency callback service with response time of two hours or less.

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to operate, adjust, and maintain elevators.

B. Check operation of each elevator with Owner's personnel present before date of Substantial Completion. Determine that operation systems and devices are functioning properly.

END OF SECTION

SECTION 142123
MACHINE-ROOM-LESS ELECTRIC TRACTION ELEVATORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Machine-room-less electric traction passenger and service elevators, conveying equipment, components, and accessories.
2. Related materials necessary to complete installation.

1.2 DEFINITIONS

A. Definitions in ASME A17.1/CSA B44 apply to work of this Section.

1.3 SUBMITTALS

A. Product Data: Manufacturer’s technical product literature for each product indicated, specified, or required.

1. Include capacities, sizes, performances, operations, safety features, finishes, and similar information.
2. Include car enclosures, hoistway entrances, and operation, control, and signal systems.

B. Shop Drawings:

1. Include plans, elevations, sections, and large-scale details indicating service at each landing, coordination with building structure, relationships with other construction, and locations of equipment.
2. Include large-scale layout of car-control station.
3. Indicate maximum dynamic and static loads imposed on building structure at points of support, and maximum and average power demands.

C. Manufacturer Certificates: Signed by elevator manufacturer certifying that hoistway, pit, and machine room layout and dimensions, as shown on Drawings, and electrical service, as shown and specified, are adequate for elevator system being provided.

D. Samples for Initial Selection: For finishes involving color selection.

E. Samples for Verification: For car finishes, hoistway door and frame, and signal equipment finishes; 3 inch square Samples of sheet materials; and 4 inch lengths of running trim members.

F. Operation and Maintenance Data: For inclusion in operations and maintenance manual required by Division 01.

1. Include manufacturer's or Installer's standard operation and maintenance manual, according to ASME A17.1/CSA B44.
2. Include manufacturer’s instructions for operation and maintenance of installed Work, including methods and frequency recommended for maintaining optimum condition under anticipated use.
3. Include precautions against cleaning products and methods which may be detrimental to finishes.

4. Include name, address, and telephone number of manufacturer's nearest authorized service representative.

G. Manufacturer’s Special Warranty: Sample of unexecuted warranty stating obligations, remedies, limitations, and exclusions.

H. Inspection and Acceptance Certificates and Operating Permits: As required by authorities having jurisdiction for normal, unrestricted elevator use.

I. Continuing Maintenance Proposal: Submit a continuing maintenance proposal from Installer to Owner, in the form of a standard one-year maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Elevator manufacturer or an authorized representative who is trained and approved by manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials, components and equipment in manufacturer's protective packaging. Store materials, components, and equipment off of ground, under cover, and in a dry location.

1.6 WARRANTY

A. Manufacturer's Special Warranty: Manufacturer agrees to repair, restore, or replace elevator work that fails in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
2. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Contract Documents are based on products specified below to establish a standard of quality. Other acceptable manufacturers with products having equivalent characteristics may be considered, provided deviations are minor and design concept expressed in Contract Documents is not changed, as judged by Architect.

1. Manufacturer: Kone.
2. System: Monospace 500.

B. Acceptable Manufacturers: Subject to compliance with requirements of Contract Documents, provide products by one of manufacturers listed alphabetically below. If not listed, submit as substitution according to Division 01 Section “Substitution Procedures.”

1. Kone.
2. Otis Elevator Co.

3. Schindler Elevator Corp.
4. TKE Elevator.

C. Source Limitations: Obtain electric traction elevators from single manufacturer.

1. Major elevator components, including driving machines, controllers, signal fixtures, door operators, car frames, cars, and entrances, to be manufactured by single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with ASME A17.1/CSA B44.

B. Accessibility Requirements: Comply with codes, regulations and standards indicated on the Drawings.

2.3 MACHINE-ROOM-LESS ELECTRIC TRACTION ELEVATORS

A. Elevator System, General: Manufacturer's standard elevator systems. Unless otherwise indicated, manufacturers' standard components shall be used, as included in standard elevator systems and as required for complete system.

B. Public Elevators Description:

1. Elevator Numbers: P1, P2, and P3.
2. Rated Load: 5,200 pounds.
3. Rated Speed: 350 feet per minute.
4. Travel: 82 feet.
5. Stops and Openings:

a. Level 6: Front.
b. Level 5: Front.
c. Level 4: Front.
d. Level 3: Front.
e. Level 2: Front.
f. Level 1: Front

6. Operation System: Group automatic operation.
7. Auxiliary Operations:

a. Standby power operation.
b. Automatic operation of lights and ventilation fans.
c. Independent service for all cars in group.

8. Car-Control Stations: One; equip with required keyswitches if any.
9. Car Enclosures:

a. Inside Width: 70 inches from side wall to side wall.
b. Inside Depth: 117 inches from back wall to front wall (return panels).
c. Inside Height: Not less than 96 inches to underside of ceiling.
d. Front Walls (Return Panels): Satin stainless steel, ASTM A480, No. 4 finish.
e. Door Faces: Satin stainless steel, ASTM A480, No. 4 finish.
f. Car Fixtures: Satin stainless steel, ASTM A480, No. 4 finish.
g. Finishes: As specified on Drawing Sheet A4.23.
h. Reveals: Black.
i. Door Sills: Aluminum.

10. Hoistway Entrances:

    a. Width: 48 inches.
    b. Height: 84 inches.
    c. Type: As indicated on the Drawings.
    d. Door Faces and Frames: Satin stainless steel, ASTM A480, No. 4 finish.
    e. Sills: Aluminum.

11. Hall Fixtures: Satin stainless steel, ASTM A480, No. 4 finish.
12. Additional Requirements:

    a. Provide inspection certificate in each car, mounted under acrylic cover with frame made from satin stainless steel, No. 4 finish.

C. Staff Elevators Description:

1. Elevator Numbers: S1 and S2
2. Rated Load: 5,200 pounds.
3. Rated Speed: 350 feet per minute.
4. Travel: 82 feet.
5. Stops and Openings:

    a. Level 6: Front.
    b. Level 5: Front.
    c. Level 4: Rear.
    d. Level 3: Front and Rear.
    e. Level 2: Rear.
    f. Level 1: Rear.

6. Operation System: Group automatic operation.
7. Auxiliary Operations:

    a. Standby power operation.
    b. Automatic operation of lights and ventilation fans.
    c. Independent service.

8. Car-Control Stations: One at each opening; equip only one with required keyswitches if any.
9. Car Enclosures:

    a. Inside Width: 70 inches from side wall to side wall.
    b. Inside Depth: 125 inches from back wall to front wall (return panels).
    c. Inside Height: Not less than 96 inches to underside of ceiling.
    d. Front Walls (Return Panels): Satin stainless steel, ASTM A480, No. 4 finish.
    e. Door Faces: Satin stainless steel, ASTM A480, No. 4 finish.
    g. Car Fixtures: Satin stainless steel, ASTM A480, No. 4 finish.
    h. Finishes: As specified on Drawing Sheet A4.23.
    i. Reveals: Black.
    k. Door Sills: Aluminum.

10. Hoistway Entrances:

    a. Width: 48 inches.
    b. Height: 84 inches.
    c. Type: As indicated on the Drawings.

e. Door Faces and Frames: Satin stainless steel, ASTM A480, No. 4 finish
g. Sills: Aluminum.

11. Hall Fixtures: Satin stainless steel, ASTM A480, No. 4 finish.
12. Additional Requirements:

a. Provide inspection certificate in each car, mounted under acrylic cover with frame made from satin stainless steel, No. 4 finish.
b. Provide hooks for protective pads in all cars and two complete set(s) of full-height protective pads.

D. Loading Dock Elevators Description:

1. Elevator Number: LD1.
2. Rated Load: 5,200 pounds.
3. Rated Speed: 350 feet per minute.
4. Travel: 50 feet.
5. Stops and Openings:

a. Level 4: Front.
b. Level 3: Front.
c. Level 2: Front.
d. Level 1: Front.

6. Auxiliary Operations:

a. Standby power operation.
c. Automatic operation of lights and ventilation fans.
e. Independent service for all cars in group.

7. Car-Control Stations: Equip only one with required keyswitches if any.
8. Car Enclosures:

a. Inside Width: 70 inches from side wall to side wall.
b. Inside Depth: 117 inches from back wall to front wall (return panels).
c. Inside Height: Not less than 96 inches to underside of ceiling.
d. Front Walls (Return Panels): Satin stainless steel, ASTM A480, No. 4 finish.
e. Door Faces: Satin stainless steel, ASTM A480, No. 4 finish.
g. Car Fixtures: Satin stainless steel, ASTM A480, No. 4 finish.
h. Finishes: As specified on Drawing Sheet A4.23.
i. Reveals: Black.
k. Door Sills: Aluminum.

9. Hoistway Entrances:

a. Width: 48 inches.
b. Height: 84 inches.
c. Type: As indicated on the Drawings.
e. Door Faces and Frames: Satin stainless steel, ASTM A480, No. 4 finish.
h. Door Sills: Aluminum.

10. Hall Fixtures: Satin stainless steel, ASTM A480, No. 4 finish.
11. Additional Requirements:

a. Provide inspection certificate in each car, mounted under acrylic cover with frame made from satin stainless steel, No. 4 finish.
b. Provide hooks for protective pads in all cars and two complete set(s) of full-height protective pads.

2.4 TRACTION SYSTEMS

A. Elevator Machines: Permanent magnet, variable-voltage, variable-frequency, ac-type hoisting machines and solid-state power converters.

1. Provide nonregenerative system.

B. Fluid for Hydraulic Buffers: Fire-resistant fluid.

C. Inserts: Furnish required anchorage devices for installing guide rails, machinery, and other components of elevator work.

D. Car Frame and Platform: Bolted- or welded-steel units.

E. Guides: Roller guides at top and bottom of car and counterweight frames.

2.5 OPERATION SYSTEMS

A. General: Provide manufacturer's standard microprocessor operation system as required to provide type of operation indicated.

B. Auxiliary Operations:

1. Group Standby Power Operation: On activation of standby power, cars are returned to a designated floor and parked with doors open. One car is returned at a time, with priority given to loaded cars. If a car cannot be returned after two attempts, it is removed from the system. When all cars have been returned or removed from the system, one car is automatically placed in service. If car selected for service cannot operate within 60 seconds, the system removes car from service and places another car in service. Cars can be manually put in service on standby power, either for return operation or for regular operation, by switches in control panel located at fire-command station. Manual operation causes automatic operation to cease.
2. Independent Service: Keyswitch in car-control station removes car from group operation and allows it to respond only to car calls. Key cannot be removed from keyswitch when car is in independent service. When in independent service, doors close only in response to door close button.
3. Basic operation systems for a single car (single automatic and selective-collective operation) and groups of two or more cars (group automatic operation) are defined in ASME 17.1/CSA B44 and do not require further specification. For groups of three or more cars, systems with demand-based dispatching may provide better response time than standard group automatic systems at little additional cost. However, because of the slow speed of hydraulic elevators, systems with demand-based dispatching may not provide significant improvement. Insert requirements here for more sophisticated systems if needed.
4. Retain "Auxiliary Operations" Paragraph below to define operations retained in "Elevators" Article.
5. Automatic Operation of Lights and Fan: When elevator is stopped and unoccupied with doors closed, lighting, ventilation fan, and cab displays are de-energized after 5 minutes and are re-energized before car doors open.

2.6 DOOR REOPENING DEVICES

A. Infrared Array: Provide door reopening device with uniform array of 36 or more microprocessor-controlled, infrared light beams projecting across car entrance. Interruption of one or more light beams shall cause doors to stop and reopen.

B. Nudging Feature: After car doors are prevented from closing for predetermined adjustable time, through activating door-reopening device, a loud buzzer shall sound and doors shall begin to close at reduced kinetic energy.

2.7 CAR ENCLOSURES

A. General: Enameled- or powder-coated-steel car enclosures to receive removable wall panels, with car roof, access doors, power door operators, and ventilation.

1. Provide standard railings complying with ASME A17.1/CSA B44 on car tops where required by ASME A17.1/CSA B44.

B. Materials and Finishes: Manufacturer's standards, but not less than the following:

1. Subfloor: Exterior, C-C Plugged grade plywood, not less than 7/8 inch nominal thickness.
2. Finishes: As indicated on Drawing Sheet A4.23.
3. Sight Guards: Provide sight guards on car doors.
4. Sills: Extruded aluminum, with grooved surface, 1/4 inch thick.
5. Light Fixture Efficiency: Not less than 35 lumens per watt.
6. Ventilation Fan Efficiency: Not less than 3.0 cubic feet per minute per watt.

2.8 HOISTWAY ENTRANCES

A. Hoistway Entrance Assemblies: Manufacturer's standard horizontal-sliding, door-and-frame hoistway entrances complete with track systems, hardware, sills, and accessories. Frame size and profile shall accommodate hoistway wall construction.

1. Where gypsum board wall construction is indicated, frames shall be self-supporting with reinforced head sections.

B. Fire-Rated Hoistway Entrance Assemblies: Door and frame assemblies shall comply with NFPA 80 and be listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction based on testing at as close-to-neutral pressure as possible according to NFPA 252 or UL 10B.

1. Fire-Protection Rating: As required for 2 hour rated shaft walls.

C. Materials and Fabrication: Manufacturer's standards, but not less than the following:

1. Finishes: As indicated on Drawing Sheet A4.23..
2. Sight Guards: Provide sight guards on doors matching door edges.
3. Sills: Extruded or machined metal, with grooved surface, 1/4 inch thick.
4. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107.

2.9 SIGNAL EQUIPMENT

A. General: Hall-call and car-call buttons that light when activated and remain lit until call has been fulfilled; vandal-resistant buttons and lighted elements illuminated with LEDs.

B. Swing-Return Car-Control Stations: Car-control stations mounted on rear of hinged return panel adjacent to car door and with buttons, switches, controls, and indicator lights projecting through return panel but substantially flush with face of return panel.

1. Mark buttons and switches for function using both tactile symbols and Braille.
2. Provide "No Smoking" sign matching car-control station, either integral with car-control station or mounted adjacent to it, with text and graphics as required by authorities having jurisdiction.

C. Emergency Communication System: Two-way voice communication system, with visible signal, which dials preprogrammed number of monitoring station and does not require handset use. System is contained in flush-mounted cabinet, with identification, instructions for use, and battery backup power supply.

D. Firefighters' Two-Way Telephone Communication Service: Telephone jack in each car and required conductors in traveling cable for firefighters' two-way telephone communication service.

E. Car Position Indicator: Provide illuminated, digital-type car position indicator, located above car door or above car-control station. Also, provide audible signal to indicate to passengers that car is either stopping at or passing each of the floors served. Include travel direction arrows if not provided in car-control station.

F. Hall Push-Button Stations: One hall push-button station at each landing.

1. Provide units with flat faceplate for mounting with body of unit recessed in wall.
2. Equip units with buttons for calling elevator and for indicating desired direction of travel.
3. Provide telephone jack in each unit for firefighters' two-way telephone communication service.

G. Hall Lanterns: Manufacturer's standard wall-mounted units for mounting above entrance frames. Provide single arrow at terminal landings.

H. Hall Annunciator: With each hall lantern, provide audible signals indicating car arrival and direction of travel. Signals sound once for up and twice for down.

1. At manufacturer's option, audible signals may be placed on cars.

I. Standby-Power Elevator Selector Switches: Provide switches, as required by ASME A17.1/CSA B44, where indicated. Adjacent to switches, provide illuminated signal that indicates when normal power supply has failed.

J. Fire-Command-Center Annunciator Panel: Provide panel containing illuminated position indicators for each elevator, clearly labeled with elevator designation; include illuminated signal that indicates when elevator is operational and when it is at the designated emergency return level with doors open. Provide standby-power elevator selector switch(es), as required by ASME A17.1/CSA B44, adjacent to position indicators. Provide illuminated signal that indicates when normal power supply has failed.

K. Emergency Car Lighting: An emergency power unit employing a sealed rechargeable battery and totally static circuits shall be provided to illuminate the elevator car and provide current to the alarm bell in the event of building power failure.

L. Cab Wiring: All wiring on the elevator cab shall use factory wired harnesses with Wago Cage Clamp plugs and receptacles, and shall terminate behind the car operating panel.

M. Exhaust fan mounted on the car top.

N. Emergency Pictorial Signs: Fabricate from materials matching hall push-button stations, with text and graphics as required by authorities having jurisdiction, indicating that in case of fire elevators are out of service and exits should be used instead. Provide one sign at each hall push-button station unless otherwise indicated.

2.10 FINISH MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A1008, commercial steel, Type B, exposed, matte finish.

B. Hot-Rolled Steel Sheet: ASTM A1011, commercial steel, Type B, pickled.

C. Stainless-Steel Sheet: ASTM A240, Type 304.

D. Stainless-Steel Bars: ASTM A276, Type 304.

E. Stainless-Steel Tubing: ASTM A554, Grade MT 304.

F. Aluminum Extrusions: ASTM B221, Alloy 6063.

G. Plastic Laminate: High-pressure type complying with ISO 4586-3, Type HGS for flat applications and Type BKV for panel backing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Acceptance of Surfaces and Conditions:

1. Examine surfaces and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
2. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents.
3. Starting Work within a particular area will be construed as acceptance of surface conditions.

3.2 INSTALLATION

A. Comply with manufacturer's written installation instructions.

B. Welded Construction: Provide welded connections for installing elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn parts. Comply with AWS workmanship and welding operator qualification standards.

C. Sound Isolation: Mount rotating and vibrating equipment on vibration-isolating mounts to minimize vibration transmission to structure and structure-borne noise due to elevator system.

D. Lubricate operating parts of systems as recommended by manufacturers.

E. Alignment: Coordinate installation of hoistway entrances with installation of elevator guide rails for accurate alignment of entrances with car. Where possible, delay installation of sills and frames until car is operable in shaft. Reduce clearances to minimum, safe, workable dimension

at each landing.

F. Leveling Tolerance: 1/8 inch, up or down, regardless of load and travel direction.

G. Set sills flush with finished floor surface at landing. Fill space under sill solidly with nonshrink, nonmetallic grout.

H. Locate hall signal equipment for elevators as follows unless otherwise indicated:

1. For groups of elevators, locate hall push-button stations between two elevators at center of group or at location most convenient for approaching passengers.
2. Place hall lanterns either above or beside each hoistway entrance.
3. Mount hall lanterns at a minimum of 72 inches above finished floor.

3.3 FIELD QUALITY CONTROL

A. Acceptance Testing: On completion of elevator installation and before permitting elevator use (either temporary or permanent), perform acceptance tests as required and recommended by ASME A17.1/CSA B44 and by governing regulations and agencies.

3.4 PROTECTION

A. Temporary Use: Limit temporary use for construction purposes to one elevator per building. Comply with the following requirements for each elevator used for construction purposes:

1. Provide car with temporary enclosure, either within finished car or in place of finished car, to protect finishes from damage.
2. Provide strippable protective film on entrance and car doors and frames.
3. Provide padded wood bumpers on entrance door frames covering jambs and frame faces.
4. Provide other protective coverings, barriers, devices, signs, and procedures as needed to protect elevator and elevator equipment.
5. Do not load elevators beyond their rated weight capacity.
6. Engage elevator Installer to provide full maintenance service. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleanup, and adjustment as necessary for proper elevator operation at rated speed and capacity. Provide parts and supplies same as those used in the manufacture and installation of original equipment.
7. Engage elevator Installer to restore damaged work, if any, so no evidence remains of correction. Return items that cannot be refinished in the field to the shop, make required repairs and refinish entire unit, or provide new units as required.

3.5 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service to include 12 months' full maintenance by skilled employees of elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Parts and supplies to be manufacturer's authorized replacement parts and supplies.

1. Perform maintenance during normal working hours.
2. Include 24-hour-per-day, 7-day-per-week emergency callback service with response time of two hours or less.

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to operate, adjust, and maintain elevators.

B. Check operation of each elevator with Owner's personnel present before date of Substantial Completion. Determine that operation systems and devices are functioning properly.

END OF SECTION