

**VAMC LAKE CITY, FL.
PROJECT NO. 573-13-105
BUILDING # 64
ELEVATORS 6, 7
SECTION 14 24 24 B**

REPAIR AND ALTERATION OF EXISTING 6, 7, HYDRAULIC ELEVATOR

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section of the specification is intended to cover the complete furnishing of all labor, materials, engineering, tools and equipment required to furnish specified alterations and new components on hydraulic elevators, Building 64, Elevators 6 and 7 duplex operation.
- B. Remove existing and replace controllers, tanks, motors and pumps, car and hoistway doors, wiring, door operators, hall and cab fixtures and cab interiors.
- C. Elevators have 2 speed side opening doors.
- D. A site visit and survey are required for all bidders.

1.2 ELEVATOR SERVICE:

- A. A maximum of one elevator may be removed from service at one time unless prior arrangement is made with VA Contracting Officers Representative (COR) to permit performance of work. All work on elevator vacated shall be completed, put into satisfactory operation and accepted before work on the next elevator is started. Prior to final acceptance, contractor shall complete all pertinent safety tests and inspections. Inspection and tests shall be given only when all work on elevator has been completed. At that time the VA shall take acceptance of that elevator. Final contract acceptance shall be given only upon successful completion of final inspections and tests for all elevators in this project.
- B. Premises shall be occupied during performance of work, but elevator contractor shall have uninterrupted use of scheduled elevator vacated for completion of work.

1.3 WORK SCHEDULE:

- A. Before work is started, submit prepared work schedule for approval and arrange with COR sequence of procedure, means of access to premises, space for storage, use of approaches, corridors, stairways and elevators, location of temporary partitions, etc. The COR must be notified fourteen (14) calendar days, in writing, in advance of starting work on elevators. No work may be begun on any elevator until all materials for that elevator have been delivered to the site and verified by the COR. First elevator to be removed from service shall be designated by the COR.

1.4 SAFETY PRECAUTIONS:

- A. Building will be occupied during execution of work. Work shall be conducted in a manner to afford maximum protection of building, facilities, patients, employees and the public; and to prevent unreasonable delay or interference with normal functioning of hospital activities.
- B. Provide fire extinguishers so that they shall be readily available at all times.

- C. It shall be the obligation of the elevator contractor to maintain a free and clear passageway in each elevator lobby. Parts, tools, etc., shall be kept within the confines of entrance partitions and trash will be removed daily.
- D. Provide flame retardant 5/8 inch drywall partition when contractor is chopping the walls or core drilling. Barrier shall extend to full height of the elevator lobby.

1.5 REMOVED MATERIALS AND EQUIPMENT:

- A. Materials that are required to be removed and not specified to be reused or retained under contract shall be removed from the site at the expense of the elevator contractor. Elevator contractor shall receive title to all materials and equipment required to be removed and not specified to be reused or retained, as of date of withdrawal of material from service by elevator contractor to complete required and scheduled work. Government does not warrant condition of said material to which elevator contractor shall obtain title, nor shall Government be liable for damage before or after title passes to elevator contractor.

1.6 APPLICABLE PUBLICATIONS:

- A. The following specifications and standards of the issues below (including the amendments, addenda, and errata designated) form a part of this specification to the extent indicated by the reference thereto. In text, such specification and standards are referred to by basic number or designation only.

1. Federal Specifications (Fed. Spec.):

J-C-580B (1)	Cord, Flexible and Wire, Fixture (Electrical-0 600 volt service)
W-C-596A (2)	Connector, Plug, Electrical; Connector, Receptacle, Electrical
W-F-406E	Fitting for Cable, Power, Electrical and Conduit, Metal, Flexible
W-S-610 (1)	Splice, Conductor
ABSI/UL 797	Conduit, Metal, Rigid; Electrical, Thin Wall Type (electrical metallic tubing); Straight Lengths, Elbows and Bends
WW-C-566C	Conduit, Metal, Rigid; Coupling, Elbow, and Nipple; Electrical Conduit - Zinc-Coated

GAUGES: Sheet and Plate – U.S. Standard Wire: American Wire Gauge (AWG)

2. D1.1-92: American Welding Society (AWS)
3. IEEE: Institute of Electrical and Electronic Engineers.
4. NEMA: National Electrical Manufacturers Association
5. NFPA No. 252: Fire Tests of Door Assemblies

- B. The following standards and codes of the issued listed below (including the latest amendments, addenda, and errata) form a part of this specification:

1. A17.1-2010: American Society of Mechanical Engineers (ANSI/ASME) Standards - Safety Code for Elevators and Escalators. In text, publication will be referred to as the code.
2. A17.2-2010: American National Standards Institute (ANSI) Standards - Practice for the Inspection of Elevators, Escalators and Moving Walks, Inspector's Manual.

3. NFPA No. 70-Latest Edition: National Electrical Code. In text, this will be referred to as NEC.
4. Uniform Federal Accessibility Standards VA Supplement to Uniform Federal Accessibility Standards 1988.
5. NFPA 2003 Life safety code.
6. Americans with Disabilities Act. Latest Edition

1.7 QUALIFICATIONS

A. **QUALIFICATIONS :**

Approval by the Contracting Officer is required for products and services of proposed manufacturers, suppliers and installers and shall be contingent upon submission by Contractor of certificates stating the following:

1. Elevator contractor is currently and regularly engaged in the installation of elevator equipment as one of his principal products.
 2. Elevator contractor has successful experience, trained supervisory personnel, and facilities to install elevator equipment specified herein.
 3. The installers shall be Certified Elevator Mechanics with technical qualifications of at least five years of successful experience and Apprentices actively pursuing certified mechanic status. Certificates shall be submitted for all workers employed in this capacity.
 4. Elevator contractor shall submit information regarding a prior installation where all the elevator equipment he proposes to furnish for this project functioned satisfactorily to serve varying traffic and material handling demands. Provide a list of customers that have the equipment in operation for at least two years preceding the date of this specification. Provide the names and addresses of these customers.
- B. Approval of Elevator Contractor's equipment will be contingent upon their identifying an elevator maintenance service provider that shall render services within two hours of receipt of notification, together with certification that the quantity and quality of replacement parts stock is sufficient to warranty continued operation of the elevator installation.
- C. Approval will not be given to elevator contractors and manufacturers who have established on prior projects, either government, municipal, or commercial, a record for unsatisfactory elevator installations, have failed to complete awarded contracts within the contract period, and does not have the requisite record of satisfactorily performing elevator installations of similar type and magnitude.
- D. All hydraulic elevators shall be the product of the same manufacturer.
- F. The Contractor shall provide and install only those types of safety devices that have been subjected to tests witnessed and certified by an independent professional testing laboratory that is not a subsidiary of the firm that manufactures supplies or installs the equipment.
- E. Welding at the project site shall be made by welders and welding operators who have previously qualified by test as prescribed in American Welding Society Publications AWS D1.1 to perform the type of work required. VAMC shall require welding certificates be submitted for all workers employed in this capacity. A welding or hot work permit is required for each day and shall be obtained from the COR of safety department. Request permit one day in advance.

1.8 WIRING DIAGRAMS:

- A. Provide three complete sets of field wiring and straight line wiring diagrams showing all electrical circuits in the hoistway and in the machine room. One set framed under glass or on pivoted hard boards coated with an approved plastic sealer shall be mounted in elevator machine room as directed by COR. In the event field modifications are found necessary during installation, diagrams shall be revised to include all corrections made prior to and during the final inspection. Corrected diagrams shall be delivered to the COR within 30 days of final acceptance.
- B. The following information relating to the specific type of microprocessor controls installed on this project shall be provided: (3 sets)
 - 1. Owner's information manual, containing general data on major components maintenance and adjustment.
 - 2. System logic description.
 - 3. Complete wiring diagrams needed for field troubleshooting, adjustment, repair and/or replacement of components. Diagrams shall be base diagrams, containing all changes and additions made to the equipment during the design and construction period.
 - 4. Changes made during the warranty period shall be noted on the drawings in adequate time to have the finalized drawings reproduced for mounting in the machine room no later than six months prior to the expiration of the warranty period.

1.9 ADDITIONAL EQUIPMENT:

- A. Additional equipment required to operate specified equipment manufactured shall be furnished and installed. The cost of such equipment shall be included in the base bid.

1.10 SAMPLES AND DESCRIPTIVE DATA:

- A. Materials shall be submitted singularly and separately and apart from materials specified under other Sections and shall be marked "SUBMITTED UNDER SECTION 14 24 24," in accordance with provisions of Section on SAMPLES AND SHOP DRAWINGS. All submitted drawings and related elevator material shall be forwarded to the VAMC Lake City, FL., Engineering Service 138D, 619 Marion, Lake City FL. 32025 in order to perform a concurrent review.
- B. Before executing any work, furnish information sufficient to evidence full compliance with contract requirements on proposed items. Such information shall include, as required, manufacturer's name, trade names, model or catalog number, nameplate data (size, capacity, rating) and corresponding specification reference (federal or project specification number and paragraph).
- C. Name of manufacturer, type or style designation and applicable data of the following equipment shall be shown on the elevator layouts:
 - 1. Controllers
 - 2. Electric door operators; h.p. rating and r.p.m. of motor.
 - 3. Cab laminate, cab stainless steel walls.
 - 4. Cab floor tile.
 - 5. Hydraulic electric control valves with down speed regulator valve.
 - 6. Stainless steel hoistway and car doors, door tracks, hangers, etc
 - 7. Auto dial phone system
 - 8. Top of car run button
 - 9. Infra red curtain unit.
- D. Shop drawings:

1. Tank unit and pump motor.
2. Main and auxiliary car operating panels.
3. Hall position indicators and hall push buttons.
4. Drop ceiling layout.
5. Cab drawings.
6. Furnish certificates as required under paragraph "Qualifications" as per Section 1.7.

1.11 PERFORMANCE STANDARDS:

- A. The elevators shall be capable of meeting the highest standards of the industry and specifically the following:
 1. Contract speed shall mean speed in the UP and DOWN direction with empty, 50% and full capacity load in the car. Speed variation under any load condition, regardless of direction, shall be no more than 10 percent for hydraulic elevators.
 2. Starting, stopping and leveling shall be smooth and comfortable without appreciable steps of acceleration and deceleration. Stopping shall be without bumps or jars.
 3. Full speed running shall be quiet and free from vibration and swaying. When cars are standing at the floor with doors open, they shall remain firmly stopped and shall not rock side to side.
 4. Cars shall not move from side to side during the process of opening and closing the doors.

1.12 TOLERANCES:

- A. Floor Accuracy: Leveling control system, 1/8 inch above or below the floor.

1.13 WARRANTY:

Inclusive of any additional product or equipment warranties, the Warranty of Construction clause (FAR 52.246-1) is applicable to all materials supplied, equipment installed, and work performed under this contract.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Where stainless steel is specified, it shall be corrosion resisting steel complying with Fed. Spec. QQ-S-766, Class 302 or 304, condition A with Number 4 finish (150 grit) on exposed surfaces except new stainless steel sheeting for cab side walls. Stainless steel shall have the grain of belting in the direction of the longest dimension and all surfaces shall be perfectly smooth and without waves.

2.2 MANUFACTURED PRODUCTS:

- A. Materials, devices and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items. Items not meeting this requirement, but which otherwise meet technical specifications and the merits of which can be established through reliable test reports or physical examination of representative samples, will be considered.
- B. When two or more units of same class of materials, devices, or equipment are required, these units shall be products of one manufacturer.
- C. Manufacturers of equipment assemblies which include components made by others shall assume complete responsibility for the final assembled unit.
- D. If the elevator equipment to be installed is not known to the COR, the contractor shall submit drawings in triplicate (three prints), for approval, showing all details or demonstrate to the satisfaction of the COR that the equipment to be installed is in strict accordance to the specifications.

- E. Motor nameplates shall state rated horsepower, speed, volts, amperes and other characteristics required by NEMA Standards and shall be securely attached to the item of equipment in a conspicuous location.
- F. Where key operated switches are furnished in conjunction with any component of this elevator installation, furnish 4 keys for each individual switch or lock. Do not provide "barrel" type keys except for fire service. Attach each key to a tag bearing a stamped or etched legend identifying its purpose. Engrave tags and imprint "Property of U.S. Government" Provide standard (code) fire service keys and switches (Barrel Key). Provide 4 keys per fire switch. Engrave tags and imprint "Property of U.S. Government" on reverse side. Keys and key switches shall match new elevator Building 64, P-1, P-2, S-3, and S-4.
- G. Rated speed shall mean speed in either direction of travel with rated capacity load in car. Actual speed, under any load condition shall not vary more than 10 percent for hydraulic elevators.

2.3 SCOPE OF WORK

- A. Scope of work to include renovation of hydraulic elevators in Building 64, Elevators 6 and 7, (Duplex elevators) 3 stop, floors B, 1, 2, capacity 5000lb. Rated speed 100fpm. Travel 24 feet.
 - 1. New tank, motor, pump unit, total unit.
 - 2. New operating valve.
 - 3. Replace controller.
 - 4. Remove existing mainline fused disconnect. Replace with shunt trip circuit breakers in elevator machine room
 - 5. Provide working phase 1, phase 2 fire service. Reuse existing smoke detectors in machine room and hall lobbies.
 - 6. Reuse existing oil lines.
 - 7. New leveling system.
 - 8. New hoistway door tracks. New stainless steel hoistway doors, door hangers, rollers, gibs, bumpers and beaks. New pick up and release rollers.
 - 9. Install new hoistway door interlocks.
 - 10. New stainless steel car doors.
 - 11. New limits.
 - 12. New traveling cable.
 - 13. New hoistway wiring.
 - 14. New hall pushbuttons.
 - 15. Reuse hoistway fascia and dust covers. Replace any missing dust covers.
 - 16. Add new top and bottom hoistway access switches.
 - 17. New L.E.D. digital type hall position indicators.
 - 18. Reuse cab handrails car 6. New for car 7.
 - 19. Install new main and auxiliary car operating panel.
 - 20. Reuse cab.
 - 21. New cab fan.
 - 22. New digital car position in main car operating panel.
 - 23. New cab floor tile.
 - 24. Remove existing cab wood under flooring. Replace with MARINE PLYWOOD.
 - 25. New top of car run button and light.
 - 26. Install new inserts in existing slide guides shoes.

27. New door operator, door equipment, and clutch.
28. New infrared curtain unit.
29. New auto dial system. Install in auxiliary car operating panel.
30. Reuse car sling.
31. Install new emergency exit switch.
32. Install new cab lighting with new drop ceiling.
33. Repaint cab ceiling.
34. Provide new stainless steel sheeting on bottom half of cab walls elevator #7. Laminate from stainless steel to ceiling elevators 6 and 7.
35. Reuse existing pit ladder.
36. Reuse buffers and pit channel.
37. Install new gate valves in pit and machine room with "quick" close handles.
38. Install new automatic shut off rupture valve for both elevators.
39. New pit oil scavenger pump.
40. Reuse existing jack and piston.
41. New jack packing.
42. Install new pit switch in pit and at top of pit ladder.
43. Install new GFI outlet in cab.

2.4 POWER SUPPLY:

- A. It shall be the General Contractors responsibility to supply the labor and material for the installation if the following:
 1. New feeders wires from the shunt trip circuit breaker to the elevator controller.
 2. Remove existing fused circuit breaker in machine room for both elevators. Replace with new shunt trip circuit breaker in machine room.
- B. Power for the auxiliary operation of elevator as specified. See Auxiliary Power Section 2.9.

2.5 GROUNDING:

- A. Equipment grounding shall be provided. Ground conductors supports, controller enclosure, motors, platform and car frames and other noncurrent conducting metal enclosures for electrical equipment in accordance with NEC. The ground wires shall be copper, insulated and sized as required by NEC. Bond the grounding wires to each of the pull boxes, junction boxes, cabinets and other enclosures through which the wires passes.

2.6 CONDUIT, ETC.:

- A. May reuse existing machine room and hoistway electrical wire duct.
- B. New conduit shall comply with the following paragraphs:
- C. Unless otherwise specified or approved, all electrical conductors, except traveling cable connections to the car, shall be installed in rigid zinc-coated steel, electrical metallic tubing or metal wireways. All raceways completely embedded in concrete slabs or floor fill, shall be rigid steel conduit. Wireways and auxiliary gutters shall be in accordance with the applicable requirements of NEC and may be used between controller, starter and similar apparatus in the elevator machine room. Flexible metal conduit not less than 3/8 inch electrical trade size may be used, not exceeding 18 inches in length, for short connections between risers and limit switches, interlocks and for other applications permitted by NEC. Self supporting connections, where approved, shall be fully protected from

abrasion or other mechanical injury. Flexible heavy-duty service cord, type S.O., may be used between fixed car wiring and switches on car doors for curtain units.

- D. All conduit, and EMT terminating in steel cabinets, junction-boxes, wireways, switch boxes, outlet boxes and similar location shall have approved insulating bushings. If the bushings are constructed completely of insulating materials, a steel lock nut shall be installed under the bushing. At ends of conduits not terminating in steel cabinets or boxes, the conductors shall be protected by terminal fittings having an insulated opening for the conductors.
 - 1. All openings in metal wireways shall be smooth and shall be insulated.
- E. Conduit and EMT fittings and connectors using set screws or indentations as a means of attachment shall not be used.
- F. Connect motors or other items subject to movement, vibration or removal to the conduit or EMT systems with flexible, steel conduits. Certain existing conduits and ducts may be reused if they are code conforming and prior agreement is received from the VA COR.

2.7 CONDUCTOR;

- A. Unless otherwise specified, conductors, exclusive of traveling cables, shall be stranded or solid coated annealed copper in accordance with Fed. Spec. J-C-30 for either Type RHW or TRW. Where 16 and 18 AWG are permitted by NEC, either single conductor cable in accordance with Fed. Spec. J-C-580 for Type TF or multiconductor cable may be used, provided the insulation of single conductor cable may be, and outer jacket of multiconductor cable is flame retardant and moisture resistant. Multiconductor cable shall have color coding or other suitable identification for each conductor. Conductors for control board wiring, including wiring between main circuit resistors and control board wiring, shall be in accordance with NEC. No joints or splices will be permitted in wiring, except as outlets. Tap connectors may be used in wireways, provided they meet all UL requirements.
- B. All wiring must be test free from short circuits or grounds. Insulation resistance between individual external conductors and between conductors and ground, shall be not less than one megaohm.
- C. Where size of conductors is not given, capacity shall be such that maximum current shall not exceed limits prescribed by NEC.
- D. Terminal connections for all conductors used for external wiring between various items of elevator equipment shall be solderless pressure wire connectors in accordance with Fed. spec. W-S-610. The contractor may at his option make these terminal connections on No. 10 or small conductors with approved terminal eyelets set on the conductor with a special setting tool or with an approved pressure type terminal block. Terminal blocks using pierce through serrated washers are not acceptable.
- E. Install new wiring from shunt trip circuit breaker to controller and to motor.

2.8 TRAVELING CABLES: NEW

- A. All conductors to the car shall consist of flexible traveling cables conforming with the requirements of NEC. Traveling cables shall run from the junction box on top of the car directly to controller. Junction boxes shall be equipped with terminal blocks. Terminal blocks having pressure wire connectors of the clamp type that meet UL 486 requirements for stranded wire may be used in lieu of terminal eyelet connections. Terminal blocks shall have permanent indelible identifying numbers for each connection. Cables shall be securely anchored to avoid strain on individual terminal connections. Outer covering must remain intact between junctions boxes, abrupt bending, twisting and/or distortion of the cables shall not be permitted.

- B. Provide spare conductors equal to 10 percent of the total number of conductors furnished, but not less than 4 spare conductors in each traveling cable.
- C. Provide shielded traveling cable wire for the auto dial system within the traveling cable. Add 2 RG-6/U coaxial CCTV cables, and 2 pair 14 gauge wires for CCTV power as needed.
- D. If needed, provide a twenty-four-inch wire hardware cloth shall be installed from each hoistway junction box downward to the elevator pit to prevent traveling cable from rubbing or chafing. Hardware cloth shall be securely fastened and tensioned to prevent buckling. Hardware cloth is not required when traveling cable is hung against a flush wall.

2.9 AUXILIARY POWER OPERATION:

- A. The control system for elevators shall provide for the operation of each car on auxiliary power upon failure of the normal power supply. Reuse existing auxiliary power and transfer switch.
- B. Auxiliary power supply, its starting means, transfer switch for transfer of elevator supply from normal to auxiliary power, two pair of conductors in a conduit from an auxiliary contact on the transfer switch (open or close contacts as required by Controller Manufacturer) to terminals in the group elevator controller and other related work shall be provided by the Electrical Contractor.
- C. Upon loss of normal power supply there shall be a delay before transferring to auxiliary power of 10 seconds minimum to 45 seconds maximum, the delay shall be accomplished through an adjustable timing device. Following this adjustable delay the associated elevators shall function as follows:

2.10 HYDRAULIC CONTROLLERS: MICROPROCESSOR CONTROL SYSTEM

- A. The elevator contractor shall provide Motion Control 2000 (MCE) controller with solid state components and printed circuit boards to control the hydraulic machine or signal functions. Provide complete details of the components and printed circuit boards, together with a complete operational description, shall be submitted for approval prior to manufacture. The controller shall be nonproprietary and no special tool, including a hand held testing tool shall be necessary for adjustments or maintenance. The controller vendor shall be able to provide immediate tech support and be able to overnight mail any parts necessary for maintenance.
- B. The controllers shall meet ASME A17.1.

2.11 PUMP UNIT ASSEMBLY - HYDRAULIC ELEVATOR; TOTAL NEW UNIT, TANK, MOTOR, ETC.

- A. Completely integrate the pump unit for the control of the elevator. The unit shall consist of a hydraulic fluid pump driven by an induction motor together with oil control valves, piping, etc. Do not install hydraulic equipment within the storage tank. No submersible pump. Completely enclose unit on four open sides of the power unit frame with not less than 16 gauge steel removable panel sections. Fully lined panel sections on the interior with one inch rigid board or equivalent acoustical insulation.
- B. Design hydraulic system so that working pressure does not exceed 500 psi under any loading condition.
- C. Pump output shall be capable of lifting elevator with rated capacity load, with a speed variation of no more than 10% between no load and full load.
- D. Motor shall be squirrel cage, drip proof, ball bearing, induction type, with a synchronous speed not in excess of 1800 rpm. Design motor specifically for elevator service, not to exceed nameplate full load current and be continuously rated at 120 starts per hour without exceeding a rise of 40 degrees C.
- E. Provide reduced voltage starter with solid state controls.

- F. Connect motor and pump with multiple V-belt. Size belts and sheaves for duty involved and design to prevent any metallic contact between motor and pump shaft.
- G. Provide down speed regulator valve so speeds in down direction do not exceed 10% of rated speed in empty load and full load.
- H. Reuse existing jack and piston.
- I. Provide new jack packing

2.12 HYDRAULIC SYSTEM

- A. Hydraulic fluid shall be of good grade to assure free flow when cool, and have minimum flash point of 400 degrees.
 - 1. Provide a data plate on the tank framing indicating the characteristics of the hydraulic fluid used.
- B. May reuse existing piping and connections between the storage tank, pump, muffler, operating valves, and cylinder complete with necessary valves, pipe supports and fittings. Do not subject valves, piping, and fittings to working pressure greater than those recommended by the manufacturer.
- C. Control valves shall have solenoid operation and arrange so hydraulic fluid flow will be controlled in positive and gradual manner to insure smooth starting and stopping of elevator.
- D. Install new automatic shut off valve (rupture valve) that is attached to the hydraulic jack. Install new automatic shut. Weld or thread pipe protruding from cylinder at inlet and thread to receive shut-off valve. Activate the automatic shut-off valve when there is more than a ten percent increase in high speed in the down direction. When activated, this device shall immediately stop the descent of the elevator, and hold the elevator until it is lowered by use of the manual lowering feature of the valve. Arrange the manual lowering feature of the automatic shut-off valve to limit the maximum descending speed of the elevator to 15 fpm. The exposed adjustments of the automatic shut-off valve shall have their means of adjustment sealed after being set to their correct position.
- E. P-1. Reuse existing pit water/oil scavenger pump. Reuse existing tubing scavenger line. P-2 Install new scavenger pumps and tubing for both elevators. Scavenger line, pump, and strainers shall operate independently of hydraulic fluid pressure. Scavenger pump shall have a water float designed to prevent operation of the pump, should the pit flood. Also, design to be manually reset. Strap the pump and reservoir to the pit.
- F. Provide all pump relief and other auxiliary valves to comply with the requirements of the Code to insure smooth, safe, and satisfactory operation of elevator.
- G. Furnish and adjust by-pass and relief valve in accordance with Rule 303.2 of ASME A17.1.
- H. Provide new manual shut-off valve in the oil line in pit and the machine room capable of withstanding 150 percent of design operating pressure. Manual valve shall have "quick close" handle attached to the valve.
- I. Conveniently locate the manual lowering valve, easily accessible, and properly identified with a red arrow and not concealed within the storage tank. Mark the operating handle in red.
- J. Provide a low oil control feature which shall shut off the motor and pump and return the elevator to the lowest landing. Upon reaching the lowest landing, doors will open automatically allowing passengers to leave the car. Then doors shall close. All control buttons, except the door open button, shall be made ineffective.

2.13 CAR GUIDE RAILS:

- A. Retain existing car guide rails and brackets.
- B. Thoroughly clean all guide rails of grease, oil, rust and other foreign substances. File and remove all rough edges and surfaces and tighten bracket bolts and guide clips for smooth and quiet operation of car.

2.14 GUIDES FOR CAR:

- A. Provide new inserts on slide guides.

2.15 CAR BUFFERS

- A. Reuse existing spring buffers and pit channel.

2.16 NORMAL AND FINAL TERMINAL STOPPING DEVICES:

- A. Provide new normal and final stopping devices shall conform with elevator code ASME A17.1.

2.17 TOP-OF-THE-CAR OPERATING DEVICE: NEW

- A. The device shall conform to ASME A17.1.
- B. The device shall be activated by a toggle switch mounted in the device. The switch shall be clearly marked "INSPECTION" and "NORMAL" on the faceplate, with 1/4 inch letters.
- C. Movement of the elevator shall be accomplished by the continuous pressure on a direction button and safety button.
- D. Provide an emergency stop toggle switch as specified in ASME A17.1.
- E. Provide permanent identification for the operation of all components in the device.
- F. The device shall be permanently attached to the elevator crosshead on the side of the elevator which is nearest the elevator hoistway doors.

2.18 CAR LEVELING DEVICE:

- A. Car shall be equipped with a two-way leveling device to automatically bring the car to within 1/8 inch of exact level with landing for which a stop is initiated regardless of load in car or direction of travel.
- B. Car shall, at all times, level into the floor and shall not stop above or below the floor and level back.
- C. The automatic leveling device shall, within its zone, be entirely independent of the operating device and if the car stops short or travels beyond the floor, the leveling device shall automatically correct this condition and maintain the car within plus or minus 1/8 inch of level with the floor landing regardless of the load carried.
- D. A car leveling device functioning through the medium of vacuum tubes or photoelectric tubes is not acceptable. Approved permanent magnet or electromagnetic or leveling is required.

2.19 WORK LIGHTS AND OUTLETS

- A. Provide duplex 3-wire grounded type receptacles and lamp, with wire guards on top of elevator car and beneath platform.
- B. The receptacles shall be in accordance 2-pole, 3-wire grounded type rated for 15 amperes and 125 volts.

2.20 EMERGENCY STOP TOGGLE SWITCHES

- A. Emergency stop toggle switches shall conform to ASME A17.1.
- B. Each stop switch shall be red in color and shall have its "Identity" and "STOP" and "RUN" positions legibly and indelibly identified.
- C. Provide new pit switches. Locate at top of pit ladder or 4 ft. above lowest landing floor by pit ladder and a new pit switch 4 feet above pit floor.

2.21 CORRIDOR OPERATING DEVICE FACEPLATES; NEW

- A. Fabricate faceplates for elevator operating and signal devices from not less than 3 mm (1/8 in.) thick flat stainless steel with all edges beveled 15 degrees. Install all faceplates flush with surface upon which they are mounted.
- B. Corridor push button faceplates shall be the same size or larger as the existing push button plates. The centerline of the landing push buttons shall be 1067 mm (42 in.) above the corridor floor.
- C. Elevator Corridor Call Station Pictograph shall be engraved in the faceplate.
- D. Fasten all car and corridor operating device and signal device faceplates with stainless steel tamperproof screws.

- E. Design corridor push button faceplates so that pressure on push buttons shall be independent of pressure on push button contacts. Engraved legends in faceplates shall have lettering 6 mm (1/4 in.) high filled with black paint.
- F. Provide a corresponding Braille plate on the left side of each button. The handicapped markings with contrasting background shall be recessed .030 inch in the faceplate, square or rectangular in shape, with the finished face of the 12 mm (1/2 in.) numerals and markings flush with the faceplates. Surface mounted plates are not acceptable.

2.22 CORRIDOR OPERATING DEVICES

- A. Provide one riser of landing call buttons located in existing 42 inch high boxes.
- B. Fixtures for terminal landings shall contain a single "UP" or "DOWN" button. Each button shall contain an integral registration LED white light which shall illuminate upon registration of a call and shall extinguish when that call is answered.
- C. The direction of each button shall be legibly and indelibly identified by arrows not less than 12 mm (1/2 in.) high in the face of each button.
- D. Landing push buttons shall not re-open the doors while the car and hoistway doors are closing at that floor. Calls registered shall be canceled if closing doors are re-opened by means of "DOOR OPEN" button or infrared curtain unit. No vandal proof buttons.

2.23 ELEVATOR MAIN CAR OPERATING PANELS: NEW

- A. New main car operating panels shall be located in the front return panel of the car enclosure. It shall be positioned such that top passenger use device floor button shall be 4 feet above the finished floor.-
- B. All terminology on main car operating panel and auxiliary panel shall be raised or engraved. Use 1/8-inch letters to identify all other devices in upper section of the main car operating panel. The handicapped marking contrasting background shall be recessed .030 inch in a square or rectangular shape, in the faceplate, with the finished face of the 1/2 inch high numeral and Braille markings flush with the finished faceplate. The numerals and markings shall be integrated with the faceplates. Applied plates are unacceptable. Engrave number of elevator, one inch high, in upper part of car panel.
- C. The one section flush panel shall have lower section recessed and fitted with hinged doors. Door of lower section shall have concealed hinges and shall be in same front plane as lower section and shall be in same front plane as lower section and shall be fitted with cylinder type, key operated lock. The panel shall have one piece faceplate with keyed access box at lower part of car operating panel. .
 - 1. The upper section shall contain:
 - a. Car position indicator
 - b. Emergency light.
 - c. Provide new A17.1 fire service box with correct phase 1 fire service. Engrave fire service on box cover face. Engrave fire service operation signage in inside of fire service box.
 - d. A buzzer for FIRE SERVICE operation.
 - e. Provide a two position, key operated INDEPENDENT SERVICE transfer switch marked "INDEPENDENT SERVICE" with two position s marked "OFF" and "ON".
 - f. A complete set of minimum one-inch diameter LED white illuminated push buttons (NO VANDAL PROOF) corresponding to the floors served. Lights shall extinguish when the car stops at a given floor.

- Each call button shall be legibly and indelibly identified by floor number not less than ½ inch high in the face of each call button. Provide Braille identification next to each button on car operating panel.
- g. Emergency signal alarm bell button (red in color) conspicuously located to minimize accidental activation.
 - h. Door "OPEN" and door "CLOSE" buttons located below the car buttons. The door "OPEN" button shall be located adjacent to the car door entrance column.
 - i. Provide an emergency "PUSH TO TALK" button for auto dial system. Engrave "PUSH TO TALK" over button, minimum of ¼ inch engraving.
- 2. Emergency signal bell shall be located below the car operating buttons. Emergency signal alarm bell button shall be connected to a 6 inch vibrating bell located on top or bottom of car.
 - 3. The lower section behind locked panel shall contain:
 - a. Toggle switch for controlling interior car lighting.
 - b. Toggle switch for controlling car 2 speed ventilating blower.
 - c. Two position toggle (NO KEY) inspection switch that will disconnect normal operation, activate hoistway access switches at terminal landings. Switch shall be marked "INSPECTION" with two-positions marked "ON" and "OFF".
 - d. Toggle emergency stop switch. The emergency stop switch, when operated, shall interrupt power supply and stop car independently of regular operating device. Car calls shall remain registered and car shall answer them when stop switch is reset.

2.24 AUXILIARY CAR OPERATING PANEL: BOTH ELEVATORS

- A. Install the new auxiliary car operating panel shall be located in the side wall between the handrails opposite of the main car operating panel and shall contain only those controls essential to passenger operation. Cut hole in existing car side wall panel to install auxiliary car operating panel.
 - 1. Mount red emergency signal alarm bell button, door "OPEN" and door "CLOSE" buttons in an easily identifiable group with stop switch and the alarm bell button mounted at a point no closer than 35-inches to the finished floor and nearest the door jamb.
 - 2. Complete set of LED white light bulbs illuminated push buttons with a minimum diameter of 1-inch. Buttons shall have the floor designation indelibly marked on their face using 1/2-inch characters, corresponding to the numbers of the main car operating buttons. Provide braille identification on car operating panel.
 - 3. Cross-Connect all buttons in the auxiliary car operating panels to their respective buttons in the main car operating panel. Registration of a car call in either panel shall cause the corresponding button to illuminate in both the main and auxiliary car operating panels.
 - 4. The auxiliary car operating panel faceplate shall match the main car operating panel faceplate in material and general design. Secure the faceplate with non-corrosive white metal spanner head or bristol head tamperproof screws.
 - 5. Submit design of auxiliary car operating panel for approval.
 - 6. Install auto dial phone system in auxiliary car operating panel on all elevators.
 - 7. Install an "Emergency Push To Talk" button for auto dial system in auxiliary car operating panel. Engrave "PUSH TO TALK" over button. Minimum of ¼ inch engraving.

2.25 DUPLEX SELECTIVE COLLECTIVE AUTOMATIC OPERATION

- A. Provide duplex selective collective automatic operation for elevators 6 and 7.
- B. Operate elevators from push buttons inside the cars and located at each floor between elevators. When cars are available, park one car at main floor (home car) and the other car at last call (free car). Respond to car calls and hall calls above main floor using the “free” car. Once a car has started, respond to registered calls in the direction of travel and in the order the floors are reached. Do not reverse the car direction until all car calls have been answered, or until all hall calls ahead of the car and corresponding to the direction of car travel have been answered. Slow and stop elevators automatically at floors corresponding to registered calls in the order in which they are approached in each direction of travel. As slowdown is initiated, automatically cancel hall call and car call. Hold car at arrival floor an adjustable time interval to allow passenger transfer. When the “free” car is clearing calls, the “home” car shall respond to the following:
 - 1. Calls registered on “home” car push buttons.
 - 2. Up hall calls registered below “free” car.
 - 3. Up or down calls registered above “free” car while “free” car is traveling down.
 - 4. Hall calls when “free” car is delayed in its normal operation for a predetermined period.
- C. When both cars are clearing calls, stop only one car in response to any registered hall call. Return the first car to clear its calls to the main floor. Should last service required bring both cars to the main floor, the first arriving car becomes the “free” car. Illuminate floor push button to indicate call registration. Extinguish light when call is answered.
- D. If a landing call button is operated while the car and hoistway doors are closing at that floor, the call shall be registered for the next available elevator. Calls registered shall be canceled if closing doors are reopened by means of "DOOR OPEN" button or infrared curtain unit.
- E. When an elevator is delayed for a predetermined time interval or shuts down after it receives a start signal, the system shall automatically permit the remaining car in the group to respond to hall calls and to be dispatched in normal manner. When cause of delay is corrected, car shall automatically resume normal operation unless it has been manually removed from the system.
- F. Auxiliary Landing Call Operation: In the event of landing call button circuit failure, elevators are to service each floor in both directions in a predetermined pattern without registration of a call within elevators. Provide illuminated signal in each controller to indicate that emergency dispatch operation is in effect. Restoration of the landing call button system shall cause normal operation to resume.
- G. Car lights and fan in the elevator shall not shut off when elevator is idle. Arrange circuits so that power to outlets on top and bottom of car shall not be interrupted.

2.26 INDEPENDENT SERVICE

- A. Provide a two-position key for operating “INDEPENDENT SERVICE” switch in the main car operating panel which shall have its positions marked “ON” and “OFF”. When the switch is in the “ON” position, the car shall respond only to calls registered on its car dispatch buttons and shall bypass all calls registered on landing push buttons. Car and hoistway doors shall not close until a car button or the “DOOR CLOSE” button is pressed and held until interlock circuits are made up. Key removable in “OFF” position only.

2.27 FIRE SERVICE; REUSE EXISTING

- A. Provide phase one Fire Service wiring and smoke detectors as per ASME A17.1.

B. Smoke Detectors

1. Reuse existing smoke detection in each elevator lobby, machine room. Remove existing smoke detectors located in pit and top of hoisway.
2. Upon activation of an elevator lobby or machine room smoke detection device, a signal shall be transmitted to the building fire alarm control console located in Building 1 transmit an "Alarm" signal from the alarm panel to the elevators, which shall active the "Fire Service" Phase I operation. The "Alarm" signal received from any elevator lobby or machine room smoke detection device, except that device located in the main lobby shall activate the same sequence of operation activated by the "Fire Service" key operated switch in the main lobby control panel. Together the "Alarm" signal received from the smoke detection device, located in the main landing lobby, shall activate the same sequence of operation activated by sending the elevator to the designated alternate floor.
3. First floor is main fire floor for elevator. Basement floor is alternate fire floor.

2.28 HOISTWAY VENTING; REMOVE

- A. Remove top of hoistway venting. Cover vent holes and venting grill holes hole with fire rated material.

2.29 HEAT DETECTORS, SHUNT TRIP CIRCUIT BREAKERS:

- A. Remove existing mainline fused disconnect. Provide and install new shunt trip circuit breakers in elevator machine room.
- B. Reuse existing sprinkler heads in the elevator machine room. Cap existing top of hoistway sprinkler head.
- C. Reuse existing heat detectors in elevator machine rooms. Remove top of hoistway and pit heat detectors.
- D. Heat detectors in elevator machine room should be located within 24 inches of each sprinkler head.
- E. Heat detector shall be 135 degree rate compensation heat detectors with a lower Response Time Index (RTI).
- F. The heat detector shall be independent of the fire service system.
- G. The heat detector shall be connected to the fire alarm control panel for alarm only. The fire alarm control shall send a supervised signal to the elevator machine room in the form of a 110 volt relay with a set of "C" contacts for elevator. The relay shall be located in the machine room. Power shall be removed from each elevator controller by activating an independently controlled shunt trip circuit breaker when the temperature in the machine room exceeds the setting of the heat detector. Provide all necessary conduit, wiring, etc. Shunt trip circuit breaker to trip off when heat detectors are activated.

2.30 AUDIO VOICE SYSTEM

- A. Remove existing. Provide a new voice audio activated by stopping or passing a floor. Audio voice to give floor designations. The voice announcer shall be a digitized floor announcer that will announce the floor numbers and direction of travel and special announcements. The voice announcer shall be a natural human voice that recites messages and shall comply with ADA requirements for audible car position indicators. The voice announcer shall be a full range loudspeaker to be located either on on top of the car or as directed by the COR. The voice announcer unit shall contain 21 ports which can accommodate 21 standard floors and direction messages. Install voice announcer per manufacturer's recommendations and instructions. The voice announcer shall be the product of one manufacturer of established reputation. Provide manufacturer literature and list of voice messages. Provide special messages as directed by COR.
 1. Fire service message. "This elevator is out of service for a fire service emergency. Please evacuate the elevator. "

2. Please do not block the doors

2.31 CAR POSITION INDICATOR: NEW

- A. When installing car position indicator in main car operating panel in elevator, use L.E.D. digital read out type. L.E.D. position indicator shall show floor and have direction arrow. Arrow and number shall be a minimum of 2 inches high.

2.32 CORRIDOR POSITION INDICATORS:

- A. Remove all existing hall lanterns and hall position indicators and replace with new flush mounted hall position indicators at all floors. Provide new L.E.D. digital type hall position indicators. Locate in same location as existing hall lanterns and hall position indicators. Provide stainless steel plate to cover any existing boxes. L.E.D. digital readouts shall be a minimum of 2 inches high and show floor numbers and direction of elevator. Provide separate 2 inch high directional arrows in same plate (combination position indicator). Up direction arrow shall be white and down direction arrow shall be red. Hall position direction indicators shall be equipped with a clearly audible gong that shall sound once for "UPWARD" direction and twice for "DOWNWARD" bound car when landing at floor. Audible signal shall not sound when car passes the floor without stopping.

2.33 HOISTWAY ACCESS SWITCHES

- A. Provide hoistway access switches for elevator at top terminal landing to permit access to top of car, and at bottom terminal landing to permit access to pit. Elevators with side slide doors, mount the access key switch 1830 mm (6 ft) above the corridor floor in the wall next to the strike jamb. Exposed portions of each access switch or its faceplate shall have legible, indelible legends to indicate "UP", "DOWN", and "OFF" positions. Submit design and location of access switches for approval. Each access switch shall be a constant pressure cylinder type lock having not less than five pins or five stainless steel disc combination with key removable only when switch is in the "OFF" position. Lock shall not be operable by any other key which will operate any other lock or device used for any other purpose in the VA Medical Center. When the car is moved down from the top terminal landing, limit the zone of travel to a distance not greater than the top of the crosshead level with the top floor.
- B. Provide emergency access for all hoistway entrances, keyways for elevators.

2.34 HOISTWAY ENTRANCES FOR ELEVATORS: BOTH ELEVATORS

- A. Clean and reuse existing entrance frames, sills, hanger supports, strut angles, fascia plates, toe guards, and bumpers.
- B. Install new hoistway door tracks, new stainless steel doors, door hangers, rollers, door gibs, closer units, arms, sight guards, bumpers, beaks and door linkage. Provide new pick up and release rollers.
- C. Install drop key escusion holes on all hoistway doors.
- D. Replace any missing hoistway door dust covers.
- E. Existing stainless steel frames shall be RESTORED to look new. All scratches and marks shall be removed.

2.35 ELECTRIC POWER DOOR OPERATORS: NEW

- A. Provide new operators, headers, tracks, arms, etc. with a new medium-speed, heavy duty, master type door operator to automatically open the car and hoistway doors simultaneously when the car is level, and automatically close the doors simultaneously at the expiration of the door open timing. The motor shall be of the high internal resistance type, capable of withstanding high currents resulting from stall without damage to the motor. The door operator shall be capable of opening a car door and hoistway door simultaneously, at a maximum speed of not less than two feet per second. The closing speed of the doors shall be one foot per second. A reversal of direction of the doors from the closing to opening operation, whether initiated by the infrared curtain unit device or the door "OPEN"

button, shall be accomplished within no more than 1-1/2 inches maximum of door movement. Particular emphasis is to be placed on obtaining quiet interlock and door operation, and smooth, fast, dynamic braking for door reversals and stopping of the doors reversals, and stopping the door extremes of travel. Construct all levers, operating the doors, of heavy steel members, and all pivot points shall have ball or roller bearings. Use electric power to open and close the doors.

- B. Design the door operator so that in case of interruption or failure of the electric power from any cause, it shall permit emergency manual operation of both the car door and the hoistway door from the within the car, at door zone only, outside of door zone, doors are restricted to four inch opening.
 - 1. It shall not be possible for the doors to open by power unless the elevator is within the leveling zone.
- C. Provide new infrared curtain unit. The device shall cause the car and hoistway doors to reverse automatically to the fully open position should the unit be actuated while the doors are closing. Unit shall function at all times when the doors are not closed, irrespective of all other operating features.
- D. Should the doors be prevented from closing for more than predetermined adjustable interval of 20 to 45 seconds by the interruption or failure of the photo-electric curtain unit, door control shall be rendered unable to cause door reversals, the doors shall stay open, the audio voice message shall sound ("Please do not block doors") and a buzzer located on the car shall sound. . Do not provide nudging.
- E. If an obstruction in the sill should not activate the photo-electric curtain unit door control device and prevent the doors from closing for more than a predetermined adjustable interval of 45 to 90 seconds, the doors shall reverse to the fully open position and re-establish the closing cycle.
- F. Provide new car door clutch to match new door operator. Add 4 inch door restrictor.

2.36 ELECTRIC INTERLOCKS:

- A. Replace each hoistway door interlock with new interlocking functioning as a hoistway unit system, to prevent operation of car until all hoistway doors are locked in closed position as defined by code. Interlocks shall prevent opening of hoistway doors from corridor side, unless car is at rest at landing, is operating in leveling zone at landing, or hoistway access switch is used.
- B. Hoistway door interlock shall not be accepted, unless it has successfully met requirements of Rule 2.12.6 of ASME A17.1 Elevator Code. Securely fasten approved devices to the car and arrange to operate the interlocks without objectionable noise, shock or jar.
- C. Equip car doors with electric contact which prevents operation of car until doors are closed as defined in ASME A17.1 unless car is operating in leveling zone or hoistway access switch is used. Locate door contact to prevent its being tampered with from inside of car. Car door contact shall not be accepted, unless it has successfully met requirements of Rule 2.12.6 of ASME A17.1.
- D. Wiring installed from the hoistway riser to each door interlock shall be NEC type (SF-2), or equivalent.
- E. Provide devices, either mechanical or electrical, which shall prevent operation of elevator in event an accident to or defective door operator equipment has permitted an independent door panel to remain in the "UNCLOSED" OR "UNLOCKED" position.

2.37 CAR SLINGS:

- A. Reuse existing car slings.

2.38 CAR PLATFORMS:

- A. Reuse existing platform. Remove existing floor tile and first layer of wood. Replace wood with new marine plywood. Install new premium vinyl floor tile. Type and color to be chosen by COR.
- B. Reuse existing car sills.
- C. Install new toe guards to meet A17.1 Elevator code.

2.39 CAR ENCLOSURES FOR ELEVATORS:

- A. Reuse existing cab. Clean and polish all stainless steel including front panels and car door jambs.
- B. Reuse existing cab. Reuse existing stainless steel cab walls from floor to 48 inches to laminated panel for elevator #6. Install new stainless steel walls from floor to 48 inches on elevator #7. Stainless steel walls to match elevator #6. Elevators 6 and 7. Provide new laminate on side and rear panels 48 inches from finished floor to ceiling. Apply the wall covering to a minimum 1/2 inch fire rated plywood/particle board that meets ASME and Federal requirements. Submit a method of fastening particle board to steel. Color and type of wall material shall be selected by COR. All joints shall be smooth and flush, with no ragged or broken edges.
- C. Elevator # 7. Repaint ceiling bright white. Install new drop ceiling with flat plastic laminate and egg crate type panels in existing aluminum frame. Install new ceiling splines to give six panel .Type of panel, and color to be selected by COR.
- D. Elevator #6. Remove existing cove lighting and lighting enclosure. Paint ceiling bright white. Install a new drop ceiling that matches elevator 7. Install an aluminum frame.
- E. Elevator 6 and 7. Remove existing cab lights. Install new cab ceiling lighting. Install 4 sets (2 lights per set) of T-8 fluorescent light tubes 4 feet long with new ballasts.
- F. Elevator 7. Remove existing stainless steel handrails. Provide car enclosure with two new sets of stainless steel handrails. Reuse existing handrails on elevator 6.
 - 1. 3 in. wide x 3/8 in. thick flatstock located with centerlines 30 in. and 42 in. above the car floor.
 - 2. Locate handrails approximately 1 1/2 in. from cab wall. Install handrails on two side and rear walls. Curve ends of handrails to walls. Conceal all handrail fastenings. Handrails shall be removable from inside the car enclosure.
- G. Provide a stainless steel capacity plate in each elevator car. Capacity plate shall be conspicuously located on the front return panel containing the car operating panel. Plate shall show the rated capacity of the elevator in pounds with engraved or cast letters not less than 1/4-inch high. Engraved letters shall be filled with black paint. The capacity may be engraved in the main car operating panel faceplate in lieu of a separate capacity plate.
- H. New emergency car lighting system. Install in new main car operating panel.
- I. Replace existing fan blower. Provide a blower unit arranged to exhaust through existing opening in the canopy. Provide a stainless steel or chrome plated fan grill around the opening. Provide a 2-speed type unit, capable of rated free delivery air displacement of approximately 380 and 700 cfm at respective speeds. Mount unit on top of car with rubber isolation to prevent transmission of vibration to car structure. Provide screening over exhaust end of blower. Provide a 3-position switch to control the unit in the main car operating panel.
- J. Install new GFI electrical outlet with stainless steel faceplate in cab located on the center line below the main car operating panel, 6 inches above the car floor.
- K. Install new emergency exit electrical contact switch to prevent operation of elevator when emergency exit is open.
- L. Provide elevators with new stainless steel cab doors. Construst door panels to be flush hollow metal construction, not less than one inch thick, consisting of not less than one piece continuous, 16 gauge stainless steel on car face side and leading and trailing edges. Separate by two plates of sound deadening material, and reinforce by steel shapes

welded to the plates at frequent intervals. Reinforce panels as required for installation of hanger, power operating and door opening devices. Hang doors on two point suspension hangers having ball bearing sheaves not less than 3 inches in diameter, with rubber or non-metallic sound reducing tires. Equip hangers with adjustable ball bearing rollers to take up thrust of panels. Up thrust roller shall be capable of being locked in position after adjustments to a maximum of 0.015 inch clearance. Provide two non-metallic gibs on each door panel. Gibs shall be replaceable without removal of door panel

M. Install handrails on top of car for safety. Provide as per National Elevator Code A17.1.

2.40 AUTO DIAL SYSTEM; NEW

- A. Remove existing intercom auto dial phone system..
- B. Furnish and install a complete ADA compliant auto dial phone intercommunication system.
- C. Provide a two-way communication device in the car with automatic dialing, tracking and recall features with shielded wiring to car controller in machine room. When activated by the "PUSH TO TALK" button located in both the main and auxiliary car operating panels, the auto dial shall automatically dial to the OPERATOR. Provide dialer with automatic rollover capability with minimum two numbers.
- D. The "PUSH TO TALK" button shall illuminate and flash when call is acknowledged. Button shall match floor push button design.
- E. Provide "PUSH TO TALK" button tactile symbol engraved signage and Braille adjacent to button mounted integral with car operating panels.
- F. The auto dial system shall be located in the auxiliary car operating panel. The speaker and unit shall be mounted on the backside of the perforated stainless steel plate cover.
- G. Each elevator shall have individual phone numbers.
- H. If the operator ends the call, the phone shall be able to redial immediately.

PART 3 - EXECUTION

3.1 SPACE CONDITIONS:

- A. Attention is called to existing overhead clearance, pit clearances, overall spaces available in hoistway and machine room environmental conditions in connection with completion of specified elevator work. Provide proper, satisfactory and code legal installation of equipment as a whole, including all construction, accessories, and devices in connection with elevator, mechanical and electrical work specified herein.
- B. Any construction changes or relocation of equipment, conduit, wiring, etc., required to accomplish the specified elevator installation must be arranged for and obtained by the contractor, subject to the approval of the COR. Cost of such changes shall be included in the base bid and shall form a part of the contract.

3.2 ARRANGEMENT OF EQUIPMENT:

- A. Clearance around new elevator, mechanical and electrical equipment shall comply with applicable provisions of N.E.C. Arrange new equipment so that major equipment components can be removed for repair or replacement without dismantling or removing other equipment in the same area.

3.3 WORKMANSHIP AND PROTECTION:

- A. All installations shall be made in a first class, neat and skillful manner by mechanics experienced in the trade involved. All details of the installation shall be mechanically and electrically correct. All materials and equipment shall be new and without imperfections.

- B. Recesses, cutouts, slots, holes, patching, grouting, refinishing and the like to accommodate installation of equipment shall be included in the contractor's work. All new holes in concrete shall be core drilled.
- C. No structural members shall be cut or altered. Work in place which is damaged or defaced shall be restored equal to original condition.
- D. Finished work shall be straight, level and plumb, with true, sharp surfaces and lines. All machinery and equipment shall be protected against dirt, water, or mechanical injury. At final completion, all work shall be thoroughly cleaned and delivered in perfect unblemished condition.
- E. Where beams, slabs, or other building construction protrude more than four inches into the hoistway, all top surfaces shall be leveled with 20 gauge steel at an angle of at least 75 degrees to the horizontal.
- F. If needed, protective enclosures shall be provided around hoistway openings during construction. Enclosure shall remain secured at all times.
- G. Contractor shall provide and maintain approved fire extinguishers on site and in the areas where welding or cutting is to occur.

3.4 CLEANING

- A. Prior to final acceptance, remove protection from finished or ornamental surfaces, and clean and polish surfaces with due respect to type of material.

3.5 PRETESTS AND TESTS: Pretest, as per specifications, the elevators and related equipment, in the presence of the COR for proper operation before requesting final inspection.

- A. Procedure outlined in the "Practice for Inspection of Elevators, Escalators and Moving Walks (Inspectors Manual) " ASME A17.2 shall apply.
 - 1. Final test shall be conducted in the presence of and witnessed by the Veterans Administration Consulting Support Service, (003C5) Elevator Engineer or Certified (QEI) Elevator Inspector.
 - 2. Government shall furnish electric power including necessary current for starting, testing and operating machinery of each elevator.
- B. If required by the Veterans Administration elevator engineer, inspection shall be conducted at other than normal working hours.
 - 1. Contractor shall furnish the following test instruments and materials on-site and at the designated time of inspection: properly marked testing weights, voltmeter, center reading ammeter, thermometers, stopwatch, direct reading tachometer and a series of "walkie -talkies" and oil pressure gauges.
 - 2. If during the inspection process, the Veterans Administration representative determines the need, the following instruments should be available within a four-hour period: megaohm meter, vibration meter, sound meter and a light meter.
- C. Inspection shall be made of workmanship and equipment furnished and installed for compliance with specification.
- D. Full Load Run Test: Elevators shall be tested for a period of one hour continuous run with full contract load in the car during the test run, the car shall be stopped at all floors in both directions of travel for a standing period of not less than five nor more than 10 seconds per floor.
- E. Speed Test: The actual speed of the elevator shall be determined in both directions of travel with empty load and full load run test. The actual measured speed of the elevator with all loads in either direction shall be within 10 percent for hydraulic elevators.
 - 1. Full speed runs shall be quiet and free from vibration and sway.

- F. The amp readings of the car in the up direction at full load shall not exceed the amp reading on the elevator motor.
- G. Temperature Rise Test: The temperature rise of the motor shall be determined during the full load test run. Temperatures shall be measured by the use of the thermometers. Under these conditions, the temperature rise of the equipment shall not exceed 40 degrees Centigrade above ambient temperature. Test shall be started only when parts of equipment are within five degrees Centigrade of the ambient temperature at time of starting test. Other tests for heat runs on motors shall be as specified in the latest procedure of the Institute of Electrical and Electronic Engineers.
- H. Car Leveling Test: Elevator car leveling devices shall be tested for accuracy of leveling at all floors with no load in car, 50% load in car and with contract load in car, in both directions of travel. Accuracy of floor leveling shall be within plus or minus 1/8 inch of level with any landing floor for which the stop has been initiated (with a definite range of distance in advance of the landing) regardless of load in car or direction. The car leveling device shall automatically correct over travel and shall maintain the car floor within plus or minus 1/8 inch or level with the landing floor regardless of change in load.
- I. Insulation Resistance Test; The elevator's complete wiring system shall be free from short circuits and grounds and the insulation resistance of the system shall be determined by use of MEGGER, at the discretion of the Veterans Administration representative conducting the test.
- J. Overload devices: Test all overload current protection devices in the system at final inspection.
- K. Operating and signal systems. Operate the car by the operating devices provided. The operation signals and automatic floor leveling shall function in accordance with the requirements specified. Starting, stopping and leveling shall be smooth and comfortable, without bumps or jars.
- L. Working pressure. Verify working pressure of the hydraulic system by pressure gauges placed in the system line. Take readings in the machine room with no load, 50% load, and full load in car. Full load pressure test, PSI not to exceed 500psi
- M. Test automatic shut off valve in pit.
- N. Evidence of malfunction in any tested system or parts of equipment or component part thereof that occurs during, or as a result of, the tests, shall be corrected, repaired, or replaced at no additional cost to the Government, and the test repeated.
- O. If equipment fails, test requirements and re-inspection is required. The Contractor shall be responsible for costs of re-inspection, including salaries, transportation expenses and other expenses of the representatives of the COR.
- P. Limit Stops:
1. Final position of the elevator relative to the terminal landings shall be determined when the elevator has been stopped by the final limits. The lower limit stop shall be made with contract load in the elevator. Elevator shall be operated at contract speed for both tests. Normal limit stopping devices shall be inoperative for the tests.
- Q. Setting of Car Door Contacts; The position of the car door at which the elevator may be started shall be measured. The distance from full closure shall not exceed that required by the code. The test shall be made with the hoistway doors closed or the hoistway door contact inoperative
- R. Setting of interlocks: The position of the hoistway door at which the elevator may be started shall be measured and shall not exceed the Code Requirements.

3.6 PAINTING AND FINISHING:

- A. Upon completion of installation and prior to final inspection, all equipment shall be thoroughly cleansed of grease, oil, cement, plaster and other debris.
- B. Elevator pump units, controllers, main line shunt trip disconnect switches, inside of hoistway doors, and cross heads of cars shall be identified by 4- inch high numerals and letters located as directed. Numerals shall contrast with surrounding color and shall be stenciled.
- C. Surfaces of door frames, door panels, interior cab surfaces, etc., that become damaged or marred from any cause during construction shall be restored to original condition in a satisfactory manner before final acceptance of work.

3.7 INSTRUCTION OF PERSONNEL:

- A. Provide competent instructors to train qualified VA personnel in operation of the equipment and accessories installed under this contract, for a period of not less than one eight hour working day. Instruction shall commence after completion of all work and at such time as directed by the COR.
- B. In addition to oral instruction, written instructions in triplicate relative to care, adjustment and operation of all equipment and accessories shall be furnished and delivered to the COR in independently bound folders. Written instructions shall include correct and legible wiring diagrams, nomenclature sheet of all electric apparatus including location of each device, complete replacement parts lists with descriptive literature and identification and diagrammatic cuts of equipment and parts. Information shall also include electrical operation characteristics of all circuits, fields, relays, timers, regulators and electronic devices.
- C. Provide any supplementary instruction for adjustment and care of new equipment that may become necessary because of changes, modifications and/or replacement of equipment or operation.

- - - END SECTION 14 24 24 B - - -