**PART 1 - GENERAL**

* 1. **SECTION INCLUDES**

1. Furnishing, installation and testing of hydraulic passenger elevators indicated on Drawings, including cylinders, plungers, pumping units, oil storage tanks, controllers, guide rails, entrances, access controls and pit ladder.
2. RELATED SECTIONS:
   1. Section 31 23 13: Excavating, Backfilling and Compacting for Structures.
   2. Section 09 65 19: Vinyl Composition Tile.
   3. Division 15: Mechanical.
   4. Division 16: Electrical.
   5. Division 25: Low Voltage Systems.
   6. **ACRONYMS**

A. ADA Americans with Disabilities Act.

B. NSI American National Standards Institute.

C. ASME American Society of Mechanical Engineers.

D. AWS American Welding Society.

E. CBC California Building Code.

F. CCR California Code of Regulations.

G. CEC California Electrical Code.

H. DSA Division of State Architect.

I. NEC National Electrical Code.

J. NFPA National Fire Protection Association.

K. UL Underwriters’ Laboratories, Inc.

* 1. **SUBMITTALS**

1. Shop Drawings: Submit complete Shop Drawings, indicating controls, power, lighting, telephone, and piping diagrams. Include dimensioned plans of car, machine beams, guide rails, buffers and other components in hoistway, machine room with location of all components arranged to clear passage through doors and access doors, and full height section through hoistway. Include details of elevator pit ladder, guide rail brackets, low voltage contractor provided/installed fire alarm detector enclosure and fixture drawings. Submit scaled drawings indicating elevation views of car operating panel and hall fixtures including position and directional indicators, hall-call key switch, hoistway access key switch, and emergency recall key switch. Elevation view of car operating panel shall identify each device on panel, indicating its function, manufacturer and model number of each component. Shop drawing shall indicate motor(s), hydraulic pumps, valves, controller, selector, and other component locations. Indicate rail bracket spacing and maximum loads imposed on guide rails requiring transfer to structure, individual weight of principal components and load reactions at points of support, loads on hoisted beams, clearances and over travel. In addition, indicate expected heat dissipation of elevator equipment in machine room.
2. Deferred Approval: Submit engineering calculations for guide rail supporting brackets, splice locations, and jack support beams and brackets.
   1. Fabrication and/or installation of elevator guide rail and brackets shall not be started until detailed plans, calculations and specifications are approved by Division of State Architect (DSA).
   2. DSA approval: Manufacturer shall furnish complete shop drawings and calculations as specified above. They shall be certified and stamped by a Structural Engineer currently licensed in California. Manufacturer shall employ and pay all Engineering costs for certification of drawings and calculations.
3. Fire Department approval of material and assembly submittal: On Projects where a fire sprinkler is not required in hoistway, provide Class A fire rating submittal package for all cab materials as required by code.
4. Product Data: Submit a complete materials list of items proposed to be furnished and installed under this section. Provide materials list together with Product Data for manufactured items.
5. Installation Instructions: Submit manufacturer's printed installation instructions.
6. Samples: Submit Samples indicating full range of colors and textures of finish materials specified, including 2-inch x 3-inch Sample of light-diffusing plastic ceiling panels.
7. Project Record Drawings: Submit 11 inch x 17 inch reproducible sheets.
   1. **QUALITY ASSURANCE**
8. Work of this section shall conform to the current version of the following standards:
9. ADA requirements.
10. ICC/ANSI A 117.1: Accessible and Usable Buildings and Facilities
11. NFPA 70, National Electrical Code (NEC).
12. AWS D1.1, Structural Welding Code-Steel
13. CCR, Title 8: Elevator Safety Orders.
14. ASME A17.1 Standard Safety Code for Elevators and Escalators.
15. CBC Chapter 30.
16. Minimum Passenger Elevator Requirements for Handicapped, as published by National Elevator Industry, Inc.
17. Doors and frame assemblies shall conform to NFPA 80 and UL 10B.
18. Products requiring electrical connections shall be listed and classified by UL.
19. ASTM A992, Norms for Structural Steel Shapes.
20. ASTM A36, Specifications for Structural Carbon Steel.
21. Qualifications of Manufacturer: Manufacturer shall be regularly engaged in business of manufacturing, elevators of the specified type. Also, they shall have a 5 year local history of successful installations.
22. Qualifications of Installer: Installer shall be fully trained and certified by manufacturer to install, service, adjust, and program controller and all other elevator components.
23. Installer shall submit certification from the equipment manufacturer indicating that installer is manufacturer certified and trained on the installation, operation, and maintenance of the system.
    1. **DELIVERY, STORAGE AND HANDLING**
    2. Protect materials required by this section before, during, and after installation and protect related and adjacent Work. In event of damage, immediately provide necessary repairs and replacements. Prevent damage, by rust or corrosion, to cylinders, pistons, packing glands, guide rails, and other similar components. Cylinders, pistons, and packing glands with any visible evidence of rust or corrosion are not permitted to be installed and shall be replaced with like products or components in new condition.
    3. **SYSTEM START-UP**
24. Work of this section shall be completed, inspected, and tested prior to date of Substantial Completion.
25. System startup and testing shall be performed under the direct observation of the PI and OAR. The Contractor at this time shall provide a legible half size reproduction of the original completed elevator system installation red-line drawings, and a copy of the construction drawings on CD in AutoCAD format.
26. PI will arrange for inspection by DSA.

**PART 2 - PRODUCTS**

* + 1. **ACCEPTABLE MANUFACTURERS AND ASSEMBLERS**
  1. Elevator Systems:
     + 1. GMS Elevator, with specified controller.
       2. Otis/Amtech Elevator Company, with specified controller.
       3. Schindler Elevator Corp, with specified controller.
       4. ThyssenKrupp Elevator Co, with specified controller.
       5. Mitsubishi Elevators, with specified controller.
       6. Kone Elevators, with specified controller
  2. Controllers: Controllers shall be programmable microprocessor technology with solid state pump motor control and shall be ASME A17.1-2004 compliant.

1. MCE - Motion Control Engineering model HMC-2000 Series.
2. Elevator Controls Corporation H900/H-PAC Series.
3. ERM – Elevator Research Manufacturing 2002H Series.

4. The installation of a proprietary elevator controller or a controller that utilizes a programming tool and its associated components will not be acceptable.

* 1. Valves: Maxton UC-4, EECO UV5A-T or equal.
  2. Door Safety Controls:

1. Adams Gatekeeper.
2. Janus PANA 40 Plus.
   1. **SYSTEMS AND EQUIPMENT**
   2. General Characteristics:
   3. Type: Oil hydraulic passenger.
   4. Control: Electric-hydraulic.

|  |
| --- |
| NOTE TO PROJECT ARCHITECT: Select from options presented below, delete unused option. |

a. Capacity: 2,500 pounds.

b. Cab Clear Dimensions: 4 feet-3 inches deep x 6 feet-8 inches wide minimum by 8 feet high.

OR

a. Capacity: 3,500 pounds.

b. Cab Clear Dimensions: 5 feet-4 inches deep x 6 feet-8 inches wide minimum by 8 feet high.

* 1. Speed: 100 fpm for 2 stops; 125 fpm for 3 or more stops.
  2. Operation: Automatic selective collective. Controller shall be non-proprietary type and include special tools and instructions required for repair and maintenance. Relay logic controllers are not permitted.
  3. Hoistway Door: 3 feet-6 inches x 7 feet clear, single-slide entrance or 4 feet x 7 feet clear 2-speed side-slide entrance. Hoistway door shall be UL-approved B label, hollow metal.
  4. Door Operation: Car and hoistway doors, medium speed, power operated.
  5. Signals: LED or neon-illuminated buttons in car operating panel, illuminated hall call station visible and audible in-car lantern. Incandescent lamps are not permitted.
  6. Special Features: Emergency lighting and alarm bell, hands-free vandal-resistant telephone, automatic failure protection, Braille symbols and access-compliant provisions, infra-red beam door re-opening device inspection switches, hoistway access switch and car-top inspection switch and a phase monitor relay that checks phase unbalance, phase loss, under voltage and phase sequence up to line side of motor starter.
  7. Battery Backup: Provide and install a battery backup system to prevent an entrapment upon the loss of power on the line side of the machine room disconnect switch. Upon the detection of a power failure the car shall be safely lowered to the lowest landing and automatically open the doors. After a predetermined time delay the doors shall automatically close. During the power failure the doors shall remain closed unless operated by the door open button located inside of the elevator car. Upon the restoration of utility power the elevator shall automatically return to normal operation. The battery backup system shall be compatible with the installed elevator controller and utilize sealed lead acid batteries. Batteries shall be automatically recharged upon restoration of power. Batteries shall be dated on outside of battery cases using a permanent marking pen with date of installation. Elevator contractor shall coordinate the installation of the elevator machine room main disconnect with the electrical contractor to ensure that the needed auxiliary contacts are provided and installed.
  8. Travel: Total travel distance (floor-to-floor) shall be as indicated on Drawings.
  9. Power Supply: Shall be 480 volts, 3-phase, 60 Hz. unless otherwise specified.
  10. Dedicated Electrical Lines: Car lighting shall be in accordance with CEC E620-53. and shall be supplied at 120 volts with lockable toggle switch disconnect in the machine room. Machine room and elevator pit lighting shall be supplied by a second circuit. Machine room and elevator pit receptacles shall be supplied by a third circuit. Install 3/4 inch conduit from nearest telephone terminal cabinet to machine room. Terminate in a 4-S box with a blank cover. The cover of box shall be indelibly marked "ELEVATOR EMERGENCY TELEPHONE.” Conduit in machine room shall be rigid and be furnished with a galvanized finish.
  11. Car Frame:
  12. Car frame shall be fabricated from structural steel. All rolled shapes shall conform to ASTM A 992 grade 50. Other steel shall conform to ASTM A36.
  13. Furnish car frame with bracing to support platform and car enclosure.
  14. Car platform shall be steel; provide class C-3 (freight) construction. Provide and install a Halex or Traxx underlayment fastened with screws to the subfloor. Coordinate the installation with the flooring contractor to provide the proper depth to allow the installation of the specified flooring material to be flush with the door threshold.
  15. Car frame shall be isolated from platen plate by means of rubber isolation mounts.
  16. Elevator Cab:

1. The car interior car finish shall be 20 gauge stainless steel paneling with a swirl finish including interior side of car door. Where a fire sprinkler is not required in hoistway, provide Class A fire rating for all cab materials.
2. Furnish 1-1/2 inch diameter stainless steel handrail at rear of car. Install handrails 32 inches to top of rail from floor with a 1-1/2 inches clearance from wall.
3. Ventilation of car shall be natural draft vents at top and bottom of car walls, in accordance with ASME A17.1-2004
4. Drop ceiling shall be furnished with separate light diffusing plastic panels (Class A fire rating).
5. Lighting: Furnish 48 inches fluorescent light fixtures with T8 bi-pin type lamps, energy-efficient type. Other styles of light fixture may be submitted for review.
6. Furnish 4-inch high rubber top-set base and vinyl composition tile floor as selected by Architect. (Not required when stainless steel finish furnished.)
7. Furnish an emergency light and alarm unit listed for elevator use. Battery powered emergency units shall be furnished with a self-contained charging unit capable of maintaining a peak charge without damage to battery. Emergency light units shall be furnished with 2 fluorescent lamps and shall be products by Adams, or equal. Furnish an emergency lighting test. Test shall be incorporated into alarm bell switch for battery powered units and shall be inside main elevator controller panel located in machine room and accessible to IOR, but not visible.
8. Furnish flush mounted stainless steel car operating panel with #4 finish, as specified.
9. Furnish a car-top inspection station with an emergency stop switch and with constant pressure up-down direction buttons, which shall render normal operating devices inoperative and provide complete control of elevator.
10. Furnish ADA-compliant, vandal-resistant elevator emergency telephone as specified below.
    1. Car Doors:
11. Door exterior finish shall match cab interior finish. Unexposed sides shall be finished in dull black enamel.
12. Pre-opening of doors is not permitted.
13. Doors shall be power-operated, automatic opening and closing, connected to hoistway door opposite by a movable clutch mechanism.
14. Door operating mechanisms shall be manufactured by GAL, or equal.
    1. Hoistway Entrance Doors:
15. Hoistway entrance doors shall be hollow metal, horizontal sliding type and shall include frames, sills, doors, hangers, hanger supports, hanger covers, fascia plates, and necessary hardware. Finish shall be stainless steel with #4 finish or solid color enamel or lacquer as selected by Architect.
16. Hoistway entrances shall bear UL B label. Do not paint over labels on doors or frame.
17. Furnish landing identification on hoistway side of entrance doors. Stencil 4-inch high Arabic numerals 12 inches above bottom and 12 inches below top of door panel. Paint color shall provide maximum visual contrast to background color.
    1. Guide Rails: Install guide rails of code-standard, T-shaped steel for car and counterweight guides. Roller guides shall be: Elsco EO 02022, El Pro 803 RG, or equal. Guide rails shall comply with Title 8 for size and span between brackets and structural supports. Bolts shall be furnished with a minimum of 2 threads projecting beyond fastening nut. Guide rail brackets shall be welded, not pinned.
    2. Elevator Door Safety System:
18. Infrared curtain unit providing beams of invisible infrared light to protect passengers against closing elevator doors. Curtain to be furnished with a minimum of 40 infrared beams and shall be Adams Gatekeeper, Janus PANA-40 Plus or equal.

**NOTE TO PROJECT ARCHITECT:** Specify Adams “Gatekeeper Max” if curtain will be exposed to rain.

1. Car doors shall be furnished with an electronic obstruction sensing, reopening device. The device shall automatically reinstate operation after obstruction is cleared.
2. Doors shall be held open for a normal cycle of 7 seconds and shall be reopened by beam interruption. Door dwell-time shall be adjustable within controller.
   1. Car Operating Panel:
3. One flush-mounted, 11 gauge minimum stainless steel car operating panel (COP) shall be installed in each car and shall contain required devices for specified operation. Panel shall be hinged on side farthest from door.
4. Vandal-resistant operation push buttons for floor registration, “Emergency Alarm”, “Door Open”, “Door Close”, two-way communication “Help” button and “Call Connected” indicator light located on the face of car the operating panel shall be installed no higher than 48 inches nor lower than 35 inches above car floor to the centerline of any of the above buttons in compliance with all ADA requirements.
5. The lighted fireman’s hat indicator light for Phase I and II operation shall be located directly above the above operation buttons and call connected indicator light. This indicator light shall illuminate steadily when activated by any Phase I or II control switch or elevator landing smoke detector. This same indicator light shall flash continuously when activated by a smoke detector located within an elevator machine room or hoistway. In compliance with ASME A17.1
6. The push buttons described above shall be metal with lighted designation engraved and filled on or adjacent to each push-button. Emboss correct Braille designation on panel face immediately to left of each push-button.
7. The keyed (Adams AE-102 or ERM-J202) car stop/run switch, the keyed (Adams MM-101 or ERM-J201) independent service switch, the keyed (Adams GG-101 or ERM-J204) inspection switch, The keyed (Adams MM-101 or ERM-J201) door edge switch and the keyed (Adams MM-101 or ERM-J201) car light switch shall be located on the face of the COP either directly above or below the above operator push buttons and indicator lights. Optionally the contractor may furnish a lockable enclosure at the bottom of the COP with toggle switches for all of the above functions except for the inspection switch. The inspection switch if located within this enclosure shall remain to be a keyed switch as described above. The enclosure shall be equipped with a hinged door that swings away from the car door (s) and a Adams MM-101 or ERM-J201 cam lock.
8. The furnished door open push-button switches shall override the automatic door closing circuit immediately, opening and holding the door(s) in full open position until push-button is released.
9. All fire fighter Phase II elevator controls and operating instructions installed within the car shall be located within a recessed enclosure located above the operator buttons and various key operated switches as described above. This enclosure shall be equipped with a hinged door that opens away from the elevator door. The enclosure door shall not be able to be closed and latched when a key is left inserted in the fire operation key switch located inside of the enclosure. The door shall be identified on the outside and operating instructions shall be installed inside of the enclosure in compliance with ASME A17.1. The door latch shall be self latching and be operated by an Adams WD-101 or ERM-HW1002 key. The indicators and controls located within the enclosure shall include door open and close buttons for each set of doors, a push-pull car stop switch, a call cancel button, an additional fireman’s hat indicator light and a keyed (Adams WD-101 or ERM-HW1002) fire operation control switch in compliance with ASME A17.1.
10. Hoistway access switches and in car inspection switch shall operate with one key: Adams GG-101 or ERM-J204. This key shall not operate any other switch provided for operating other elevator equipment or circuit logic.
11. Independent operation shall be controlled by an Adams MM101 or ERM-J201 key switch installed in the COP. When elevator is on independent operation, car movement shall be controlled from car control panel only, and hall call switches shall be rendered ineffective. Elevator door shall open when car arrives at registered floor and shall remain open until closed by actuation of door close button. Reopening devices shall not be rendered inoperative by this independent service switch
12. Provide and install a digital car position indicator with audible signal above the fire fighter Phase II control enclosure in compliance with all ASME A17.1 and ADA requirements.
    1. Landing Requirements:
13. Hall call stations shall be 10-gage stainless steel, satin finish, flush mounted; User controls shall be located no lower than 35 nor higher than 48 inches above the floor. Stations shall contain call registration buttons, a Lexan window for rear mounted proximity card reader and a fire recall switch and/or hoistway access switch when applicable.
14. Furnish and install one or two as needed vandal resistant, illuminated call registration push buttons, a 4 inch high and 3 inch wide dark tinted ¼ inch thick Lexan window fastened to the rear of the hall call escutcheon plate with 4 each #8 welded studs, washers and nuts for a rear mounted proximity card reader that will be provided and installed by others with the elevator contractor’s assistance. In addition furnish and install a keyed (Adams WD-101 or ERM-HW1002) fire recall switch and/or an (Adams GG-101 or ERM-J-204) hoistway access switch when applicable.
15. The elevator contractor as part of his work shall coordinate the installation of the common portions of the proximity card access control system with the low voltage access control contractor. This work includes but is not limited to the installation of cabling supplied by the access control contractor between each hall call station and the interface junction box located in the elevator machine room, furnishing and connecting the required wiring between the elevator controller and the interface junction box for access control system interfacing to the elevator control system and the necessary testing needed to provide a complete and operable elevator with hall call proximity card access control.
16. The wiring and hardware for the elevator control system and the access control system shall be configured to enable the call registration button(s) on a floor by floor basis for approximately 10 seconds whenever an authorized card is detected by a card reader on that particular floor.
17. Identify hoistway entrances, as to landing served, by permanently installing 1/8-inch thick metal plates on both jambs of frame. Plates shall be riveted in 4 corners. Plates shall be centered 60 inches above floor. Etch plates with 2 inch high Arabic numerals, and corresponding “California Braille”.
18. At landings, permanently install fire signs as required by CBC Chapter 30. Signs shall be etched or engraved into call station, and read in ½” height lettering: "In case of fire use stairway for exit. Do not use elevator." Furnish faceplate pictograph according to ASME A 17.1, Appendix H.
19. Furnish ADA-compliant, vandal-resistant, visible and audible in-car lantern, located on car doorjamb, visible from proximity of hall call station, indicating direction of travel to persons waiting on landing.
    1. Selective Collective Operation: Elevator shall be controlled automatically by means of push-buttons in car. Buttons shall be marked to correspond with respective landings served, and by call key switch at each hoistway opening. Momentary pressure on any button shall operate car if car and hoistway doors are closed. The car stop switch, when in stop position, will render the elevator inoperative, and will enable attendant or passenger to stop at any point during its travel. Activation of stop switch when car is within landing zone shall cause car to immediately stop and doors to open and remain open until stop switch is returned to run position. Activation of stop switch when car is not within landing zone shall cause car to stop and door to remain closed until stop switch is returned to normal position.
    2. Hoistway Access: Hoistway access switches shall be provided at top and bottom landings. Switches shall be installed in hall call plate. Installation of switches in buck or entrance surround is not permitted. Switches shall be installed according to code.
    3. Emergency Operation (Fire Recall Circuit): Emergency operation shall comply with CBC Chapter 30, 3003.9 and Title 8, Elevator Safety Orders. Furnish the following:
20. Emergency operation key switch at main floor, flush in wall, to return elevator to main floor with operating instructions etched on switch cover plate. Key shall be an Adams WD-101 or ERM-HW1002 for fire recall Phase I & II operation. This key switch and accompanying firemen’s hat recall indicator light shall be mounted in the hall call station plate.
21. The low voltage fire alarm contractor shall provide and install the hoistway detector enclosure and all smoke and heat detectors as required by code. The low voltage fire alarm contractor shall also install three fire alarm interface relay modules with dry contacts within the machine room for “primary” and “alternate” Phase I recall operation and “fire fighters warning” to activate a visual indication in the car that a fire alarm initiating device has been activated in the machine room or hoistway. The elevator contractor shall coordinate the fire alarm component installation, interfacing and testing related to elevator Phase I operation with the fire alarm contractor.
    1. Elevator Controls: Elevator controls shall cancel up direction demands and return car to bottom landing if main motor thermal protective device actuates on overheating or fault condition. Controls shall prevent re-initiation of up demands until thermal protective devices are reset to normal positions or fault cleared.
    2. Jack Well, Casing and Jack Unit:
22. Furnish jack-well and PVC casing for installation of hydraulic jack. PVC casing shall be furnished with a .562 inch wall and bottom thickness, with a nominal pipe size of 18 inches, length to extend from pit floor to a depth of 18 inches below bottom of installed jack. Jack shall be encased in PVC or sealed fiberglass before installation into jack-well. Jack shall be furnished with leak containment system capable of preventing release of hydraulic oil into environment. Containment system shall be fabricated of close-fitting, durable, corrosion-resistant material. System shall be capable of holding the entire contents of reservoir without release; and shall provide a means for monitoring amount of fluid contained in system, as well as a means for removing liquids from system.
23. Hydraulic jacks shall be supported on pit beams by brackets welded to jack cylinder.
24. Jack unit shall be of sufficient size to lift gross load to height required and shall be factory tested to insure adequate strength and freedom from leakage. No brittle material, such as gray cast iron, shall be furnished in jack construction. Hydraulic jack cylinder shall be clean and free of rust and debris.
25. Telescoping hydraulic cylinders are not permitted.
    1. Power Unit:
26. Oil pumping and control mechanisms shall be compactly and neatly designed.
27. Pump shall be especially designed and manufactured for oil-hydraulic elevator service. Hydraulic pump motor shall have continuous output. Car speed shall not vary more than 10 percent between no load and full load on elevator car.
28. Drive shall be by V-belts or by direct coupling.
29. Protect motors classed as intermittent duty against continuous operation with a magnetic switch and overload relays of sufficient number and size and, an integral thermal sensor.
30. Thermal overload relays of main motor magnetic switch shall be manual reset. Protective operation of motor magnetic switch thermal overload relay or integral thermal sensor shall prevent operation of main drive motor, but shall not prevent operation in down direction of elevator nor prevent normal operation of power door operator.
31. Hydraulic control valves shall be multi-control integral valve unit, with 2 direction leveling soft-stop features, and manual lowering control.
32. Valves shall be manufactured by Maxton, or equal. Valves shall be designed to provide consistent operation without regard to temperature and shall provide multiple adjustments for speed, acceleration, deceleration that can be individually adjusted without affecting any other adjustment.
33. Power unit assembly shall be designed and installed to prevent transmission of operating noise outside machine room.
    1. Piping and Oil Supply:
34. Storage Tank: Storage tank shall be constructed of steel. When a non-submersible pump is installed, furnish a gate shut-off valve between tank outlet and pump inlet. An initial supply of oil of proper grade and sufficient for proper operation shall be provided and installed. Oil tank shall be secured to meet seismic requirement of applicable codes.
35. Sound Isolating Couplings: Install 2 sound-isolating couplings in oil line between pump and jack. Install one coupling in pit and one coupling in machine room.
36. If oil heating is required, only immersion heating elements shall be furnished.
37. Muffler: A blowout-proof muffler, designed to minimize transmission of fluid pulsations, shall be installed in piping between pump and cylinder.
38. Hydraulic lines between machine room and hoistway shall be installed above grade where possible. Underground lines shall be installed in PVC pipe. When machine room is remote from hoistway, provide an additional low pressure line for connection of scavenger pump. In all cases, machine room and hoistway shall be on same side of an expansion joint.
39. Trenches shall be backfilled only after pipe installation has been inspected by IOR.
40. In main hydraulic oil line, install a quick-acting shut-off valve. Valve shall be in machine room and pit. Furnish and secure operating handle to valve operating stem.
41. When main hydraulic oil line rises vertically in hoistway, 7 feet or higher above connection to jack cylinder, or more than 5 feet above connection to hydraulic control manifold in machine room, install a quick-acting shut-off valve in main hydraulic line between muffler, or surge suppressor, where line exits pit or room. On muffler side of shut-off valve, install a non-threaded connection. This valve shall be in addition to shut-off valve specified above.
42. Furnish seismic safety valve in pit as required by applicable codes.
    1. Keying: Furnish OAR with 2 keys for every key-operated switch or control enclosure door lock, including hoistway access, inspection, and firefighters recall switches. Keying for all elevators control switches or enclosure door locks throughout the site shall be standardized. OAR shall forward all furnished specialized elevator keys to the Maintenance & Operations Technical Services Unit Electrical Technical Supervisor.
    2. Traveling Cable: Traveling cable shall be in accordance with National Electric Code, Type E, EO and ETT. Cables shall be UL-approved.
    3. Elevator Emergency Telephone: (For all elevators at a site provided that all have less than 60 feet of travel)
43. Furnish a complete and operational elevator emergency autodialing telephone. The elevator emergency telephone shall be programmed to automatically dial as a first choice a designated on site telephone instrument to be furnished and installed by others located in the Main Administrative Office. If a call placed to this designated on site instrument is not answered within approximately 30 seconds or encounters a busy signal, the elevator emergency telephone shall automatically disconnect from the this call and then dial the District School Police Department at (213) 625-6631. A voice announcement identifying the call as an emergency and the elevator location by the site’s permanent name, building name with geographical location within the site and geographical location within the building shall be programmed into the emergency telephone. The voice announcement shall be configured to play on demand to the call receiving location after the recipient of the call presses the \* (star) key on his or her telephone instrument or as directed by a voice prompt. After a call is established to either outside the car location, the termination of the call shall be under the control of the receiving location.
    1. The emergency telephone shall be a telephone line powered Viking 1600 Series, TRE Communications AS-3, Electronic Micro Systems PNB Series or equal instrument. The installation and use of a utility powered telephone instrument is not acceptable. The telephone instrument shall be installed behind the COP faceplate and shall be furnished with a matching button labeled “HELP” for activation. Provide and install a matching indicator light to indicate that a call has been established. Retention of programmed information shall rely on a non-volatile memory only. The use of a battery for memory retention is not acceptable. A requirement for the call receiving location to press any telephone dial key or keys other than the \* (star) key or without an automatic voice prompt to enable the call recipient to retrieve the identification information and/or establish voice communication shall not be acceptable. All elevator emergency telephone instruments existing and/or new at one site shall operate in the same manner and utilize the same dialing code(s) to retrieve identification information and/or establish voice communication.
44. The low voltage communications contractor shall provide a single dedicated central office telephone line at a “J” box within the elevator machine room. The elevator contractor shall extend this telephone line into the elevator controller and terminate the line on an RJ-11 jack. The telephone line area code and number shall be identified on the jack housing. Provide and install a short cord with plug within the elevator controller between the RJ-11 jack and the elevator car wiring terminal strip.
45. The elevator contractor shall provide and install two wall mounted document frames adjacent to the red elevator emergency communication telephone instrument located in the main administrative office. The document frames shall be sized to accommodate 8 ½ x 11 inch documents and be fabricated with a 1 inch wide wood frame black in color and a clear glass front. Each document frame shall be attached to the wall surface with two #6 screws centered top and bottom. The anchoring method for the mounting screws shall accommodate repeated removal and installation without the need to replace hardware. Mounting location and height shall follow the District’s standard detail.

The upper most frame will be reserved for the posting of elevator service information by the District. The lower most frame shall include printed instructions for the adjacent red emergency telephone. The instructions shall be titled “ELEVATOR EMERGENCY COMMUNICATION TELEPHONE” and printed in red upper case bold, 36 pt. Times New Roman text. The operating instructions shall be printed in black, upper case, bold 18 pt. Times New Roman text. The operation instructions shall include as a minimum the purpose of the telephone instrument, how to request recorded identifying information from the calling location, and how to establish communication to each elevator. See attachment “A” for a suggested document format.

**PART 3 - EXECUTION**

**3.01 INSTALLATION**

A. Install Work of this section in strict accordance with reviewed Shop Drawings, Drawings and Specifications, and applicable regulations and codes.

B. Fastening screws for everything except for the above frames where exposed to the general public shall be tamper-proof, oval-head, stainless steel where exposed; cadmium-plated elsewhere.

* 1. **TESTING AND INSPECTION**

A. Obtain and pay for required State and local permits and inspections required by elevator inspection authority, and perform tests required by regulations of such authorities. Tests shall be performed in presence of representatives of such authorities.

B. There shall be an initial inspection by IOR prior to request for Final State Elevator Inspection. Request for Final Inspection shall be provided at least 48 hours in advance.

C. Upon completion of inspection by the State DOSH Elevator Unit, the elevator contractor shall post the temporary operating permit in an Adams # CFS4080 or equal certificate frame within the elevator car. The owner of the elevator shall be listed as:

Fontana Unified School District

Director, Maintenance & Operations

9851 Catawba Avenue

Fontana, CA 92335

If the contractor receives the permanent operating permit after posting the temporary permit the contractor shall forward the permit to the above address.

D. Elevator shall be complete, including the posting of a temporary or permanent operating permit, upon date of Substantial Completion.

* 1. **OPERATING/SERVICE MANUALS**

A. Deliver to OAR, 2 copies service and maintenance manuals for each elevator. The manuals shall include the following:

1. Include full maintenance and operating instructions, parts list, recommended spare parts, emergency parts inventory, and sources of purchasing and wiring diagrams.
2. Installation manuals, programming manuals and user manual if applicable for elevator controller panel, control panel power supply. Catalog cut sheets are not acceptable.
3. A printed copy of the system configuration as programmed, including all system labeling codes, and passwords.
4. Final test report.
5. Detailed explanation of the operation of the system.
6. Instructions for routine maintenance.
7. Detailed wiring diagrams.
8. An electronic copy (CD) of the record drawings.
9. A single reproducible set of record drawings reflecting the system exactly as it was installed including exact location of all components.
10. Provide codes and passwords required for system testing.
    1. **MAINTENANCE**
11. Monthly Maintenance Service: The elevator contactor shall furnish, as part of the work of this section, a 12 month maintenance service period commencing from the date of Substantial Completion. Persons assigned to provide service to elevator during service period shall be trained by manufacturer, and certified to maintain, adjust, trouble-shoot and repair controller, door safety controls, valves and other similar components or devices. Include monthly preventive maintenance, performed during normal working hours. Include repair or replacement of worn or defective parts or components and lubrication, cleaning and adjusting as required for proper elevator operation in conformance with specified service. Exclude only repair or replacement due to misuse, abuse, accidents or neglect caused by persons other than installer's personnel. This work shall include monthly testing of the elevator Phase I and II fire recall operation.
12. Work shall be performed during normal work hours and days and shall consist of operational and maintenance examinations by authorized technicians of manufacturer. Examinations shall include furnishing of required supplies and parts, except parts required by misuse, accident or negligence caused by Owner.
13. If service or repair is required between regular service examinations, Owner shall notify the elevator contractor who shall promptly provide examinations and correct operating faults.
14. The elevator contractor shall provide an elevator maintenance service logbook or check off sheet that shall be kept in each elevator machine room. Visits, service, maintenance, repair and inspection shall be recorded in logbook. Clear and concise summaries of service work performed or to be performed shall be recorded. As a minimum the recorded information shall include the date, work performed any deficiencies noted that are not resolved and may require a return visit or work by others and the elevator technicians printed first name initial and last name. Logbook or check off sheet shall be maintained neat, clean, and protected from damage.
15. Separate from above, the elevator contractor shall provide an elevator fire service logbook or check off sheet that shall be kept in each elevator machine room. This log book or check off sheet shall have recorded on it the monthly pass or fail status of the Phase I and II recall operation. The minimum recorded information shall follow the requirements as in “D” above.
    1. **TRAINING**

A. At the time of substantial completion the elevator contractor shall provide site based user training on the correct and safe methods involved with the operation of the installed elevator(s). This training shall be performed in the presence of the IOR and a representative of the M&O Technical Services Unit. The items covered shall include but be limited to the following:

1. Demonstrate and provide training on the safe and correct operation of the independent operation feature.

2. Demonstrate the operation of the Phase I fire recall function and provide training on the correct method of resetting the elevator operation after the fire alarm is reset.

3. Demonstrate the operation of the battery backup lowering device.

4. Demonstrate the operation of the elevator emergency telephone.

5. Provide instruction on the proper method for cleaning the landing sills to keep them free of debris.

6. Provide instruction on the correct method for controlling the cab light.

7. Provide instruction on the correct method for controlling the ventilation fan if so equipped.

8. Provide instruction on the correct method for controlling the independent operation feature.

9. Provide instruction on the correct use of the elevator stop/run switch.

10. Provide information on how the site should obtain service or report problems during the warranty period.

* 1. **CLEANUP**

A. Remove rubbish, debris, and waste materials and legally dispose of off Project site.

* 1. **PROTECTION**

# A. Protect Work of this section until Substantial Completion.

# **END OF SECTION**

Attachment “A”

**ELEVATOR EMERGENCY**

**COMMUNICATION**

**TELEPHONE**

**THIS TELEPHONE INSTRUMENT RECEIVES CALLS FROM ELEVATOR EMERGENCY TELEPHONES AT THIS SITE. IF A CALL IS RECEIVED AT THIS TELEPHONE BUT YOU ARE UNABLE TO COMMUNICATE WITH THE CALLER OR YOU CANNOT DETERMINE THE EXACT LOCATION OF THE ELEVATOR PRESS \* (STAR) OR AS DIRECTED BY VOICE PROMPT TO RETRIEVE ELEVATOR LOCATION INFORMATION.**

**TO CALL ELEVATOR #1 LOCATED IN THIS BUILDING …………………….......DIAL; NXX-XXXX**

**TO CALL ELEVATOR #2 LOCATED AT THE WEST SIDE OF THE SHOP BUILDING…DIAL; NXX-XXXX**