

June 28, 2016
BOARD OF COUNTY COMMISSIONERS
ORANGE COUNTY, FLORIDA
Y16-780-CC/ ADDENDUM NO. 2
CASSADY & SHERIFF SECTOR IV ELEVATOR MODERNIZATION

Bid Opening Date: July 7, 2016

This Addendum is hereby incorporated into the bid documents of the project referenced above. The following items are clarifications, corrections, additions, deletions, and/or revisions to and shall take precedence over the original documents. Underlining indicates additions, deletions are indicated by ~~strikethrough~~.

- A. The Bid Opening Date remains as July 7, 2016.
- B. Additions, Deletions, Clarifications
 - 1. In Part H, Technical Specifications delete the following sections and replace with the attached revised sections:
 - a. Orange County Corrections Sheriff Sector IV Elevator Modernization; Section 01 85 00, Elevator Maintenance
 - b. Orange County Corrections Sheriff Sector IV Elevator Modernization; Section 14 24 00, Hydraulic Elevator
 - c. Orange County Corrections Cassady Building Elevator Modernization; Section 01 85 00, Elevator Maintenance
 - d. Orange County Corrections Cassady Building Elevator Modernization; Section 14 24 00, Hydraulic Elevator

Receipt acknowledged by:

Authorized Signature

Date Signed

Title

Name of Firm

ORANGE COUNTY CORRECTIONS
SHERIFF SECTOR IV ELEVATOR MODERNIZATION

SECTION 01 85 00
ELEVATOR MAINTENANCE

PART 1 GENERAL

1.1 INTERIM MAINTENANCE

- A. This modernization consists of a modernization of a single elevator. As a result, the Contractor whom is awarded the modernization work shall not be required to perform Interim Maintenance prior to construction commencement.
- B. Once the elevator is removed from service to begin elevator modernization work, the responsibility for any maintenance or service between the time of elevator is removed from service till approved final inspection is the responsibility of the Elevator Contractor that is performing the elevator modernization. After turn over to owner contractor shall provide proposal to for the continuing maintenance of elevator to include all maintenance service between for warranty period of the elevator in accordance to owner's standards.**
- ~~B. Once the elevator is removed from service for elevator modernization work, the responsibility for any maintenance or service between the time of elevator turnover after inspection for beneficial usage through the 12 month warranty is the responsibility of the Elevator Contractor that performed the elevator modernization. The time between turn over and warranty period is considered Interim Maintenance and costs associated with performing interim maintenance shall be included in the Contractor's base bid.~~
- C. It is the intent that a final review of the completed modernization work once inspected by all Authorities Having Jurisdiction shall occur within 20 business days of the elevator being turned over for beneficial public use. Deficiencies, if observed, shall be corrected expeditiously and a follow up review shall commence within 15 business days to ensure all items have been corrected. The 12 Month Warranty Start date shall be once all punch list items in the project are confirmed corrected. The Contractor shall be responsible for performing interim maintenance at no additional monthly cost to the County from the time in which the elevator is turned over for public usage and warranty period commences.
- ~~D. Perform all services in accordance with the Orange County Maintenance Agreement.~~
- D. Use competent personnel, acceptable to Purchaser, employed and supervised by the Contractor.

1.2 WARRANTY MAINTENANCE

- A. The 12 Month Warranty Start date shall be once all punch list items in the project are confirmed corrected.
- ~~B. Perform all services in accordance with the Orange County Maintenance Agreement.~~
- C. Use competent personnel, acceptable to the Purchaser, supervised and employed by Contractor.
- D. The warranty maintenance period specified in Item 1.2, A. above shall be extended one (1) month for each three (3) month period in which equipment related failures average more than .25 per unit per month.

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1.3 CONTRACT PREVENTIVE MAINTENANCE

E. Extended Maintenance beyond the Warranty Period is not part of this bid.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01 85 00

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SECTION 14 24 00
HYDRAULIC ELEVATOR

PART 1 GENERAL

1.01 WORK INCLUDED

- A. 1 hydraulic passenger elevator.
- B. All engineering, equipment, labor, and permits required to satisfactorily complete elevator modernization required by Contract Documents.
- C. Applicable conditions of General, Special, and Supplemental Conditions, Division 01, and all sections listed in Contract Documents "Table of Contents."
- D. Preventive maintenance as described in Section 01 85 00 ~~and the COUNTY Elevator Maintenance Agreement~~ included in the bid package for reference.
- E. Cartage and Hoisting: All required staging, hoisting and movement to, on, and from the site including new equipment, reused equipment, or dismantling and removal of existing equipment.
- F. Unless specifically identified as "Reuse," "Retain," or "Refurbish," provide new equipment.
- G. Hoistway, pit, and machine room barricades as required.

1.02 RELATED WORK PROVIDED UNDER OTHER SECTIONS

- A. See Drawings.**

1.03 DEFINITIONS

- A. Terms used are defined in the latest edition of the Safety Code for Elevators and Escalators, ASME A17.1.
- B. Reference to a device or a part of the equipment applies to the number of devices or parts required to complete the installation.
- C. Provisions of this specification are applicable to all elevators unless identified otherwise.

1.04 QUALITY ASSURANCE

- A. Qualified Contractors will be at the discretion of the COUNTY.
- B. Compliance with Regulatory Agencies: See Section 01 31 00, Project Management and Coordination.
- C. Warranty:
 - 1. Material and workmanship of installation shall comply in every respect with Contract Documents. Correct defective material or workmanship which develops within one year from date of final acceptance of all work to satisfaction of Architect, Owner and Consultant at no additional cost. ~~Perform maintenance in accordance with terms and conditions indicated in the COUNTY Preventive Maintenance Agreement.~~

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- ~~a. See Orange County Preventative Maintenance Agreement for terms and conditions and service standards.~~
- 2. Defective is defined to include, but not be limited to: Operation or control system failures, car performance below required minimum, excessive wear, unusual deterioration, or aging of materials or finishes, unsafe conditions, the need for excessive maintenance, abnormal noise, or vibration, and similar unsatisfactory conditions.
- 3. Retained Equipment: All retained components, parts, and materials shall be cleaned, checked, modified, repaired, or replaced so each component and its parts are in like new operating condition. Retained equipment must be compatible for integration with new systems. All retained equipment shall be covered under the warranty provisions. No prorations of equipment or parts shall be allowed on preventive maintenance contract, between the Contractor and Owner.
- 4. Make modifications, requirements, adjustments, and improvements to meet performance requirements.

1.05 DOCUMENT AND SITE VERIFICATION

- A. In order to discover and resolve conflicts or lack of definition which might create problems, Contractor must review Contract Documents and site conditions for compatibility with its product prior to submittal of quotation. Review existing structural, electrical provisions, and mechanical provisions for compatibility with Contractor's products. Purchaser will not pay for change to structural, mechanical, electrical, or other systems required to accommodate Elevator equipment.

1.06 SUBMITTALS

- A. See Section 01 33 00 - Submittals, and Section 01 77 00 - Close-Out Procedures.

1.07 PERMIT, TEST AND INSPECTION

- A. Obtain and pay for permit, license, and inspection fee necessary to complete installation.
- B. Perform test required by governing authority in accordance with procedure described in ASME A17.2 Guide for Inspection of Elevators, Escalators, and Moving Walks in the presence of Authorized Representative.
- C. Supply personnel and equipment for test and final review by Consultant.

1.08 MAINTENANCE

- ~~A. Interim: Contractor will perform interim maintenance and services as outlined in **Section 01 85 00 – Elevator Maintenance** the County Elevator Maintenance Agreement.~~
- B. Warranty Maintenance: 12 Month Warranty Shall Commence at the conclusion of all elevators passing all required alteration inspections and receiving final acceptance after all punch list items are confirmed cleared. ~~Service standards and requirements shall be referenced in the County Elevator Maintenance Agreement.~~

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PART 2 PRODUCTS

2.01 SUMMARY

- A. Passenger Elevator #1 (AHJ Serial # 47255)
- B. Unless specifically identified as "retain existing," provide new equipment.

	Existing Equipment	Disposition
Number:	Passenger #1	Retain Existing
Capacity:	2,000lbs	Retain Existing
Contract Speed:	100FPM <i>*Verify Retain Existing Speed*</i>	Retain Existing
Machine:	Hydraulic Pump	Provide New
Machine Location:	Adjacent at 1 st floor	Retain Existing
Operational Control:	Simplex Selective Collective	Provide New Simplex Selective Collective Microprocessor-Based System
Motor Control:	Single Speed AC with Wye Delta Start	Single Speed AC with Soft Start with Closed Transition
Power Characteristics:	480 Volts, 3 Phase, 60 Hertz <i>*Verify Existing*</i>	Retain Existing
Stops:	Two (2)	Retain Existing
Openings:	Two (2)	Retain Existing
Floors Served:	*1F, 2R	Retain Existing
Entrance Size:	36"x84"	Retain Existing
Entrance Type:	Single Speed Side Opening	Retain Existing
Door Operation:	Medium Two Speed	Provide New GAL MOVFR
Door Protection:	Light Ray Device	Provide New Janus Pana 40
Guide Rails:	Planed Steel Tees	Retain Existing
Buffers:	Spring	Retain Existing
		Battery Powered Emergency Car Lighting. Provide Separate Constant Pressure Test Button in Car Service Compartment.

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Existing Equipment	Disposition
Signal Fixtures:	Blue LED Illumination
Hall and Car Pushbutton Stations:	Front and Rear Hall Pushbutton Single Car Operating Panel
Car Position Indicators:	Digital with Car Direction Arrows Integral with Car Operating Panel
Communication System:	Self-Dialing, Vandal Resistant, Push to Call, Two-Way Communication System with Recall, Tracking and Voiceless Communication. Provide telephone line operability device with audible tone as required by code.
Fixture Submittal:	Submit Brochure Depicting Contractor's Proposed Designs with Bid
Additional Features	<p>Car Top Inspection Station</p> <p>Firefighters' Service, Phase I And II, Including Alternate Floor Return</p> <p>Accessibility Signage</p> <p>Hoistway Access Switches Top and Bottom Floors.</p> <p>Hoistway Door Unlocking Device All Floors</p> <p>Independent Service Feature</p> <p>Hydraulic Pump Unit, and Controller Sound Isolation</p> <p>Tamper Resistant Fasteners for All Fastenings Exposed to the Public</p> <p>One Year Warranty Maintenance with 24-Hour Call-Back Service</p>

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Existing Equipment	Disposition
	No Visible Company Name or Logo
	Wiring Diagrams, Operating Instructions, and Parts Ordering Information
	Non-Proprietary Control System and Diagnostics Provisions

2.02 MATERIALS

A. SITE CONDITION INSPECTION

1. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify no irregularities exist which affect execution of work specified.
2. Do not proceed with installation until work in place conforms to project requirements.

B. PRODUCT DELIVER, STORAGE AND HANDLING

1. Delivery of any equipment shall be coordinated well in advance with the Engineering Department.
2. Verify proper structural load limitations as needed for areas that will have equipment transported on. All costs associated with any damage that resulted from equipment delivery, equipment removal or equipment staging is the sole responsibility of the Contractor.
3. Deliver material in Contractor's original unopened protective packaging.
4. Store material in original protective packaging. Prevent soiling, physical damage, or moisture damage.
5. Protect equipment and exposed finishes from damage and stains during transportation, erection, and construction.
6. Allocate available site storage areas and coordinate their use with Purchaser and other Contractors.
7. Provide suitable temporary weather-tight storage facilities as may be required for materials that will be stored in the open.

C. INSTALLATION REQUIREMENTS

1. Retain at least one existing elevator's equipment onsite to provide for immediate spare parts for elevators awaiting modernization.
2. Install all equipment in accordance with Contractor's instructions, referenced codes, specification, and approved submittals.
3. Install machine room equipment with clearances in accordance with referenced codes and specification.
4. Install all equipment so it may be easily removed for maintenance and repair.
5. Install all equipment for ease of maintenance.
6. Install all equipment to afford maximum accessibility, safety, and continuity of operation.
7. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
8. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
9. Machine room equipment, and pit equipment.
10. Neatly touch up damaged factory-painted surfaces with original paint color. Protect machine-finish surfaces against corrosion.

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- D. MANUFACTURER'S NAMEPLATES
1. Manufacturer's name plates and other identifying markings shall not be affixed on surfaces exposed to public view. This requirement does not apply to Underwriter's Laboratories and code required labels.
 2. Each major component of mechanical and electrical equipment shall have identification plate with the Manufacturer's name, address, model number rating, and any other information required by governing codes.
- E. COLORS OF FACTORY-FINISHED EQUIPMENT
1. All colors will be selected from the Manufacturer's standard range unless custom colors are specified herein.
- F. MATERIALS AND FINISHES
1. Steel:
 - a. Sheet Steel (Furniture Steel for Exposed Work): Stretcher-leveled, cold-rolled, commercial quality carbon steel, complying with ASTM A366, matte finish.
 - b. Sheet Steel (for Unexposed Work): Hot-rolled, commercial quality carbon steel, pickled and oiled, complying with ASTM A568/A568M-03.
 - c. Structural Steel Shapes and Plates: ASTM A36.
 2. Stainless Steel: Type 302 or 304 complying with ASTM A240, with standard tempers and hardness required for fabrication, strength and durability. Apply mechanical finish on fabricated work in the locations shown or specified, Federal Standard and NAAMM nomenclature. Protect with adhesive paper covering.
 3. No. 4 Satin: Directional polish finish. Graining directions in vertical dimension.
 4. Aluminum: Extrusions per ASTM B221; sheet and plate per ASTM B209.
 5. Plastic Laminate: ASTM E84 Class A and NEMA LD3.1, Fire-Rated Grade (GP-50), Type 7, 0.050" ±.005" thick.
 6. Fire-Retardant Treated Particle Board Panels: Minimum 3/4" thick backup for natural finished wood and plastic laminate veneered panels, edged and faced as shown, provided with suitable anti-warp backing; meet ASTM E84 Class "I" rating with a flame-spread rating of 25 or less, registered with Local Authorities for elevator finish materials.
 7. Paint: Clean exposed metal parts and assemblies of oil, grease, scale, and other foreign matter and factory paint one shop coat of standard rust-resistant primer. After erection, provide one finish coat of industrial enamel paint. Galvanized metal need not be painted.

2.03 CAR PERFORMANCE

- A. Car Speed: ± 5% of contract speed under any loading condition.
- B. Car Capacity: Safely lower, stop and hold 125% of rated load.
- C. Car Stopping Zone: ±1/4" under any loading condition.
- D. Door Opening Time: Seconds from start of opening to fully open:
1. 2.2 seconds.
- E. Door Closing Time: Seconds from start of closing to fully closed:
1. 3.4 seconds.
- F. Pressure: Fluid system components shall be designed and factory tested for 500 p.s.i. Maximum operating pressure shall be 400 p.s.i.
- G. Car Ride Quality:

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1. Horizontal and vertical acceleration within car during all riding and door operating conditions. Not more than 20 mg peak to peak (adjacent peaks) in the 1 - 10 Hz range.
 2. Acceleration and Deceleration: Smooth constant and not less than 3 feet/second² with an initial ramp between 0.5 and 0.75 second.
 3. Sustained Jerk: Not more than 6 feet/second³.
 4. Measurement Standards: Measure and evaluate ride quality consistent with ISO 18738, using low pass cutoff frequency of 10 Hz and A95 peak-to-peak average calculations.
- H. Noise and Vibration Control
1. Airborne Noise: Measured noise level of elevator equipment and its operation shall not exceed 55 dBA inside car under any condition including door operation and car ventilation exhaust blower on its highest speed. Limit noise level in the machine room relating to elevator equipment and its operation to no more than 80 dBA. All dBA readings to be taken 3'-0" off the floor and 3'-0" from the equipment using the "A" weighted scale.
 2. Vibration Control: All elevator equipment provided under this contract, retained, refurbished or replaced shall be mechanically isolated from the building structure and electrically isolated from the building power supply and to each other to minimize the possibility of objectionable noise and vibrations being transmitted to occupied areas of the building.
 - a. CE Electronics-Acoustics (813-373-4826) products must be utilized for mechanical isolation of the following:
 - 1) CE Electronics-Acoustics Group, CQuiet Cab Isolation Kit located between the piston and platen plate.
 - 2) CE Electronics-Acoustics Group, CQuiet Hydro Tank Isolation Kit located under the oil tank reservoir.
 - 3) CE Electronics-Acoustics Group, CQuiet FireStop Noise Putty located between the pipe and concrete penetrations.
 - 4) CE Electronics-Acoustics Group, CQuiet Pipe ISO² hangers for any pipe that requires hanging from ceiling.
 - 5) CE Electronics-Acoustics Group, CQuiet Pipe Stand Isolation for any pipe stand application utilized.

2.04 OPERATION

- A. Selective Collective Microprocessor-based.
1. Operate car without attendant from pushbuttons in car and located at each floor. When car is available, automatically start car and dispatch it to floor corresponding to registered car or hall call. Once car starts, respond to registered calls in direction of travel and in the order the floors are reached.
 2. Do not reverse car direction until all car calls have been answered, or until all hall calls ahead of car and corresponding to the direction of car travel have been answered.
 3. Slow car and stop automatically at floors corresponding to registered calls, in the order in which they are approached in either direction of travel. As slowdown is initiated for a hall call, automatically cancel hall call. Cancel car calls in the same manner. Hold car at arrival floor an adjustable time interval to allow passenger transfer.
 4. Answer calls corresponding to direction in which car is traveling unless call in the opposite direction is highest (or lowest) call registered.
 5. Illuminate appropriate pushbutton to indicate call registration. Extinguish light when call is answered.

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- B. Other Items:
 - 1. Low Oil Control: In the event oil level is insufficient for travel to the top floor, provide controls to return elevator to the main level and park until oil is added.
 - 2. Independent Service: Provide controls for operation of each car from its pushbuttons only. Close doors by constant pressure on desired destination floor button or door close button. Open doors automatically upon arrival at selected floor.
- C. Firefighters' Service: Provide equipment and operation in accordance with code requirements.
- D. Automatic Car Stopping Zone: Stop car within 1/4" above or below the landing sill. Maintain stopping zone regardless of load in car, direction of travel, distance between landings.
- E. Remote Monitoring and Diagnostics: Equip each controller, traveling cable and elevator with appropriate provisions to easily connect to a future "Campus Wide" comprehensive Lift-Net Elevator Monitoring System.
- F. Motion Control: AC type with unit valve suitable for operation specified and capable of providing smooth, comfortable car acceleration and retardation. Limit the difference in car speed between full load and no load to not more than $\pm 5\%$ of the contract speed in either direction of travel.
- G. Door Operation: Automatically open doors when car arrives at main floor. At expiration of normal dwell time, close doors. Reopen doors when car is designated for loading. Provide "heavy door/variable air pressure" feature for consistent specified door operation within appropriate speed and inertia limits.
- H. Standby Lighting and Alarm: Car mounted battery unit with solid-state charger to operate alarm bell and car emergency lighting. Battery to be rechargeable with minimum 5-year life expectancy. Include required transformer. Provide constant pressure test button in service compartment of car operating panel.
- I. Standby Power Operation
 - 1. Upon loss of normal power, adequate standby power will be supplied via building electrical feeders to simultaneously start and run one car in each group and single cars at contract car speed and capacity.
 - 2. Automatically return one car at a time in each group and single car, nonstop to designated floor, open doors for approximately 3.0 seconds, close doors, and park car. During return operation, car and hall call pushbuttons shall be rendered inoperative. As each car parks, system shall immediately select the next car until all cars in a group have returned to the designated floor. If a car fails to start or return within 30 seconds, system shall automatically select the next car in the group to automatically return.
 - 3. When all cars in a group have returned to the designated floor, one car in each group shall be designated for automatic operation. When a service demand exists for 30 seconds and designated car fails to start, next available car in the group shall be automatically selected for operation.
 - 4. Contactor to provide signal wire and connectivity from Automatic Transfer Switch to the elevator controller for emergency standby power. Test for proper operation.
- J. Card/Proximity Reader Security System: Provide provisions inside car operating panel for reader unit. Mount reader (if provided) behind tinted screen and cross connect from car pushbuttons to control module in machine room. If no reader is currently utilized or

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provided as part of this project, label spare wires for future reader in car operating panel and controller in machine room.

2.05 MACHINE ROOM EQUIPMENT

- A. Arrange equipment in existing machine room spaces and in accordance with CODE.
- B. Pump Unit: Assembled unit consisting of positive displacement pump, induction motor, Maxton master-type control valves combining safety features, holding, direction, bypass, stopping, manual lowering functions, shut off valve, oil reservoir with protected vent opening, oil level gauge, outlet strainer, MEI Silencer, all mounted on CE Acoustic isolating pads. Provide soft start with closed transition. Design unit for a minimum 80 upstarts per hour. Unit must be designed and installed to prevent any noise and vibration being emitted into occupied building spaces. The unit must be designed and installed to ensure performance requirements outlined in the specification package are achieved. The pump unit should be installed a minimum of three (3) inches away from any machine room wall.
- C. Landing Systems: Solid-state, magnetic, or optical type.
- D. Controller: UL/CSA labeled.
 - 1. Motion Control Engineering (MCE) – H2000
 - 2. Compartment: Securely mount all assemblies, power supplies, chassis switches, relays, etc., on a substantial, self-supporting steel frame. Completely enclose equipment with covers. Provide means to prevent overheating.
 - 3. Relay Design: Magnet operated with contacts of design and material to insure maximum conductivity, long life, and reliable operation without overheating or excessive wear. Provide wiping action and means to prevent sticking due to fusion. Contacts carrying high inductive currents shall be provided with arc deflectors or suppressors.
 - 4. Microprocessor-Related Hardware
 - a. Provide built-in noise suppression devices which provide a high level of noise immunity on all solid-state hardware and devices.
 - b. Provide power supplies with noise suppression devices.
 - c. Isolate inputs from external devices, such as pushbuttons, with opto-isolation modules.
 - d. Design control circuits with one leg of power supply grounded.
 - e. Safety circuits shall not be affected by accidental grounding of any part of the system.
 - f. System shall automatically restart when power is restored.
 - g. System memory shall be retained in the event of power failure or disturbance.
 - h. Equipment shall be provided with Electro Magnetic Interference (EMI) shielding within FCC guidelines.
 - 5. Wiring: CSA labeled copper for factory wiring. Neatly route all wiring interconnections and securely attach wiring connections to studs or terminals.
 - 6. Permanently mark components, relays, fuses, PC boards, etc., with symbols shown on wiring diagrams.
- E. Muffler: Provide New MEI Silencer and properly charge.
- F. Piping and Oil: Retain existing piping and provide new oil for the system. Where existing piping cannot be retained due to location, design or condition, provide new with victaulic fittings.
- G. Shutoff Valve: Provide New.

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2.06 HOISTWAY EQUIPMENT

- A. Guide Rails: Retain main guide rails in place.
 - 1. Clean rails and brackets. Remove rust.
 - 2. Check all rail and bracket fastenings and tighten.
 - 3. Realign rails as required to provide smooth car ride.
 - 4. Provide supplemental rail brackets and/or backing as required by code or to enhance car ride quality.
- B. Buffers: Retain existing.
- C. Pit Ladder: Provide retractable pit ladder in accordance with code requirements.
- D. Hydraulic Jack Assembly: Retain existing.
 - 1. Cylinders: Retain existing. Replace packing seals. Cylinder head shall be dry and leak free.
- E. Terminal Stopping: Provide normal and final devices. Provide emergency terminal speed limiting devices.
- F. Electrical Wiring and Wiring Connections:
 - 1. Conductors and Connections: Copper throughout with individual wires coded and connections on identified studs or terminal blocks. Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes. Provide 10% spare conductors throughout. Run spare wires from car connection points to individual elevator controllers in the machine room. Provide 5 pair of spare shielded communication wires in addition to those required to connect specified items. Tag spares in machine room.
 - 2. Conduit: Retain existing conduit where feasible. All other times provide galvanized steel conduit, EMT, or duct. Conduit size, 1/2". Flexible heavy-duty service cord may be used between fixed car wiring and car door switches for door protective devices.
 - 3. Traveling Cables: Flame and moisture-resistant outer cover. Prevent traveling cable from rubbing or chafing against hoistway or equipment within hoistway.
 - 4. Auxiliary Wiring: Connect fire alarm initiating devices, emergency two-way communication system, in each car controller in machine room.
 - 5. Provide CCTV wiring for future camera installation within elevator.
- G. Entrance Equipment:
 - 1. Door Hangers: Retain Existing. Provide New neoprene rollers.
 - 2. Door Tracks: Retain Existing. Tighten all fasteners.
 - 3. Door Interlocks: Provide New.
 - 4. Door Closers: Provide New Closures. Design and adjust to insure smooth, quiet mechanical close of doors.
 - 5. Hoistway Door Unlocking Device: Provide New. Provide unlocking device with escutcheon in door panel at all floors, with finish to match adjacent surface.
- H. Hoistway Access Switches: Mount at top and bottom terminal landings

2.07 HOISTWAY ENTRANCES

- A. Frames: Provide New Braille and strike jamb bumpers. Retain existing frames.
- B. Transom Panels: Retain existing.

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- C. Door Panels: Retain Existing. Retrofit dual gibs, one at trailing edge and one at leading edge of each panel.
- D. Door Retainers: Verify and provide at top and bottom of doors in accordance with code requirements.
- E. Sight Guards: Retain existing. If sight guard(s) have physical damage, replace new. Facility responsible for painting to match doors.
- F. Sills: Retain Existing. Thoroughly polish and tighten fasteners.
- G. Sill Supports: Retain existing. Check and tighten all fastenings.
- H. Fascia, Toe Guards, and Hanger Covers: Retain existing. Provide where damaged or missing. Check and tighten all fastenings.
- I. Struts and Headers: Retain existing. Check and tighten all fastenings. Remove any rust and paint all headers flat black with rust preventative paint.

2.08 CAR EQUIPMENT

- A. Frame: Retain Existing. Check and tighten all fastenings.
- B. Platform: Retain existing. Reinforce if required. Check and tighten all fastenings.
- C. Platform Apron: Provide new extended platform apron per code. Minimum 14 gauge steel, reinforced and braced to car platform for all car openings.
- D. Guide Shoes: Provide New. Solid type with renewable oilless inserts.
- E. Sills: Retain existing. Clean and polish. Check and tighten all fastenings.
- F. Doors: Retain Existing. Adjust for proper door clearances in accordance with code requirements.
- G. Door Hangers: Provide New. Two-point hanger roller with neoprene roller surface and suspension with eccentric upthrust roller adjustment.
- H. Door Track: Provide New. Bar or formed, cold-drawn removable steel track with smooth roller contact surface.
- I. Door Header. Retain existing and modify as needed.
- J. Door Electrical Contact: Provide New. Prohibit car operation unless car door is closed.
- K. Door Clutch: Provide New. Heavy-duty clutch, linkage arms, drive blocks and pickup rollers or cams to provide positive, smooth, quiet door operation. Design clutch so car doors can be closed, while hoistway doors remain open.
- L. Restricted Opening Device: Provide New. Provide means for restricting door opening per code requirements if existing means cannot be retained. Plunger type restrictors not acceptable.
- M. Door Operator: Front and Rear

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1. Provide New GAL MOVFR11
- N. Door Control Device:
1. Infrared Reopening Device: Provide new Janus Pana 40.
 2. Nudging Operation: After beams of door control device are obstructed for a predetermined time interval (minimum 20.0 - 25.0 seconds), warning signal shall sound and doors shall attempt to close with a maximum of 2.5 foot pounds kinetic energy. Activation of the door open button shall override nudging operation and reopen doors.
 3. Interrupted Beam Time: When beams are interrupted during initial door opening, hold door open a minimum of 3.0 seconds. When beams are interrupted after the initial 3.0 second hold open time, reduce time doors remain open to an adjustable time of approximately 1.0 - 1.5 seconds after beams are reestablished.
 4. Differential Door Time: Provide separately adjustable timers to vary time that doors remain open after stopping in response to calls.
 - a. Car Call: Hold open time adjustable between 3.0 and 5.0 seconds.
 - b. Hall Call: Hold open time adjustable between 5.0 and 8.0 seconds. Use hall call time when car responds to coincidental calls.
- O. Car Operating Panel:
1. PROVIDE INNOVATION WITH PB35 LED BLUE ILLUMINATED BUTTON
 2. One car operating panels with faceplates, consisting of a metal box containing specified operating fixtures, mounted behind the car stationary front return panel. Faceplates shall be hinged and constructed of stainless steel, satin finish.
 3. Suitably identify floor buttons, alarm button, door open button, door close button with SCS, Visionmark, or Entrada cast tactile symbols recessed flush mounted. Configure plates per local building code accessibility standards including Braille. Locate operating controls no higher than 48" above the car floor; no lower than 35" for emergency push-to-call button and alarm button.
 4. Provide minimum 3/4" diameter flush floor pushbuttons which illuminate to indicate call registration.
 5. Provide alarm button to ring bell located on car. Illuminate button when actuated.
 6. Provide keyed stop switch at bottom of car operating panel in locked car service compartment. Mark device to indicate "run" and "stop" positions.
 7. Provide "door open" button to stop and reopen doors or hold doors in open position.
 8. Extended Door Hold Open Button: Provide button to extend normal door hold open period up to 30 seconds. Cancel extended time by registration of car call or actuation of door close button. When activated, illuminate the door hold open button and the door close button. Cancel the hold open time when the door close button is activated. If a hall call is entered at another floor, sound a buzzer to indicate call waiting is activated.
 9. Provide "door close" button to activate door close cycle. Cycle shall not begin until normal door dwell time for a car or hall call has expired, except firefighters' operation.
 10. Provide firefighters' locked box as required by code.
 11. Provide firefighters' Phase II key switch with engraved instructions filled red. Include light jewel, audible signal, and call cancel button. Locate in locked cabinet in accordance with code requirements.
 12. Provide lockable service compartment with recessed flush door. Door material and finish shall match car return panel or car operating panel faceplate. Inside surface of door shall contain an integral flush window for displaying the elevator operating permit.
 13. Security: Provide 4" x 4" tinted plexiglass for security reader unit. Locate above pushbuttons.
 14. Include the following controls in lockable service cabinet with function and operating positions identified by permanent signage or engraved legend:

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- a. Inspection switch.
 - b. Light switch.
 - c. Three-position exhaust blower switch.
 - d. Independent service switch.
 - e. Constant pressure test button for battery pack emergency lighting.
 - f. 120-volt, AC, GFCI protected electrical convenience outlet.
 - g. Card reader override switch (for future card reader installation)
 - h. Stop switch.
15. Provide black paint filled (except as noted), engraved, or approved etched signage as follows with approved size and font:
- a. Phase II firefighters' operating instructions on main operating panel above corresponding keyswitch filled red.
 - b. Car number
 - c. "No Smoking" with symbol
 - d. Car capacity in pounds.
- P. Car Top Control Station: Provide New with ENABLE function. Mount to provide safe access and utilization while standing in an upright position on car top.
- Q. Work Light and Duplex Plug Receptacle: Provide New
1. GFCI protected outlet at top and bottom of car.
 2. Provide a minimum of 10 foot candle of lighting on entire car top.
 3. Include on/off switch and lamp guard.
- R. Car Top Ventilation Fan: Retain existing. If not operational at time of inspection or consultant review, replace new with comparable model.
- S. Car Top Handrail: Provide code compliant car top handrail regardless of maximum distance between car top and hoistway. Make every effort to isolate noise and vibration from being transmitted from handrail to cab interior.
- T. Communication System:
1. "HELP," two-way communication instrument in car with automatic dialing, tracking, and recall features with shielded wiring to car controller in machine room. Provide dialer with automatic rollover capability with minimum two numbers.
 - a. "HELP" button or adjacent light jewel shall illuminate and flash when call is acknowledged. Button shall match car operating panel pushbutton design. Provide uppercase "HELP" engraved signage adjacent to button.
 - b. Provide "HELP" button tactile symbol, engraved signage, and Braille adjacent to button mounted integral with car front return panel.
 2. Provide emergency phone line operability detection system with audible tone and visual signal as required by code.
 3. Program to complex security.

2.09 CAR ENCLOSURE

- A. Car Enclosure:
1. Provide modification as needed to accept new pushbutton and signal fixtures.
 2. Ceiling: Provide new LED down light ceiling faced with 20ga. satin stainless steel (Type 304). Ceiling face to be divided into a minimum of six (6) sections separated by 1/4" wide black painted reveals. Each section to contain an individual light fixture. Each fixture to contain a black trim bezel and Eye Beam LED bulbs to comply with code. Edge to be painted black to match ceiling reveals. Included is a low voltage driver unit to be mounted on car top. Emergency escape hatch shall be incorporated into ceiling based on existing location of escape hatch in elevator canopy and shall

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- have hairline joints in ceiling finish. Edge of ceiling to be held approximately 1" from transom & centered between side walls. Lighting shall achieve code compliant foot candles and be protected from breakage.
3. Shell: Retain existing.
 4. Canopy: Retain existing.
 5. Return Panels, Transoms, Strike Jambs, Entrance Columns, Car Doors: Re-clad in satin stainless and provide cutouts for signal and car operating fixtures. Delaminate surfaces as needed to ensure proper adhesion of new cladding and proper clearance and fitment.
 6. Base: Stainless steel with concealed ventilation cutouts.
 7. Interior Wall Finish: Provide flat laminate to side walls. Laminate shall be Wilsonart Antique Brush #4823-60 or approved equal. All material to be treated to meet Flame Spread and Smoke Density code requirements.
 8. Handrails: Minimum 1-1/4" diameter stainless steel flat grab bar with returned ends across side walls. Provide standoffs with threaded set pins.
 9. Flooring: Remove existing flooring taking all measures to prevent damage to existing subflooring. Furnish and install new Armstrong Migrations T3513 and 1/8" underlayment.
 10. Elevator Contractor to provide all door adjustment for proper clearances.

2.11 HALL CONTROL STATIONS

- A. Provide 1 riser with flush mounted faceplate in stainless steel finish at each level. Include pushbuttons for each direction of travel which illuminate to indicate call registration. Provide any cutting and patching required.
- B. Provide all applicable Fire Recall and Emergency Signage via separate stainless steel plate or integral with pushbutton fixture riser.
- C. Provide emergency power and telephone operability indicators in accordance with code integral with lobby hall station.

2.12 SIGNALS

- A. Car Position Indicator: Alpha-numeric Blue digital indicator containing floor designations and direction arrows a minimum of 1/2" high to indicate floor served and direction of car travel. When a car leaves or passes a floor, illuminate indication representing position of car in hoistway. Illuminate proper direction arrow to indicate direction of travel. Mount fixture in car operating panel.
- B. Car Lantern: Provide flush-mounted blue digital car lantern in car entrance column where existing lantern is located, ensure coverage of existing hole. Illuminate up or down LED lights and sound electronic tone once for up and twice for down direction travel as doors open. Sound tone once for up direction and twice for down direction. Sound level shall be adjustable from 0 - 80 dBA measured at 5'-0" in front of hall control station and 3'-0" off floor. Provide adjustable car door dwell time to comply with ADA requirements relative to hall call notification time.
- C. Faceplate Material and Finish: Satin Stainless Steel
- D. Floor Passing Tone: Provide an audible tone of no less than 20 decibels and frequency of no higher than 1500 Hz, to sound as the car passes or stops at a floor served.

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PART 3 EXECUTION

3.01 SITE CONDITION INSPECTION

- A. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify no irregularities exist which affect execution of work specified.
- B. Do not proceed with installation until work in place conforms to project requirements.

3.02 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in Contractor's original, unopened protective packaging.
- B. Store material in original protective packaging. Prevent soiling, physical damage, or moisture damage.
- C. Protect equipment and exposed finishes from damage and stains during transportation, erection, and construction.

3.03 INSTALLATION

- A. Install all equipment in accordance with Contractor's instructions, referenced codes, specification, and approved submittals.
- B. Install machine room equipment with clearances in accordance with referenced codes and specification.
- C. Install all equipment so it may be easily removed for maintenance and repair.
- D. Install all equipment for ease of maintenance.
- E. Install all equipment to afford maximum accessibility, safety, and continuity of operation.
- F. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
 - 1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
 - 2. Neatly touch up damaged factory-painted surfaces with original paint color. Protect machine-finish surfaces against corrosion.

3.04 FIELD QUALITY CONTROL

- A. Work at jobsite will be checked during course of installation. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work required prior to performing further installation.
- B. Have Code Authority acceptance inspection performed and complete corrective work.

3.05 ADJUSTMENTS

- A. Install hydraulic jack assembly and guide rails plumb and align vertically with tolerance of 1/16" in 100'-0". Secure guide rail joints without gaps and file any irregularities to a smooth surface.

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- B. Static balance car to equalize pressure of guide shoes on guide rails.
- C. Lubricate all equipment in accordance with Contractor's instructions.
- D. Adjust motors, valves, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

3.06 CLEANUP

- A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials on a daily basis.
- B. Remove all loose materials and filings resulting from work.
- C. Clean machine room equipment and floor.
- D. Clean hoistways, car, car enclosure, entrances, operating and signal fixtures.
- E. Painting:
 - 1. Black: Pit Support Channel, buffers, car frame and crosshead.
 - 2. Grey: Machine room flooring, pit flooring, pit walls from floor to 6 feet off floor and car top:
 - 3. White: Machine room walls from floor to ceiling.

3.07 ACCEPTANCE REVIEW AND TESTS

- A. See Section 01 77 00 – Closeout Procedures.

3.08 PURCHASER'S INFORMATION

- A. See Section 01 77 00 – Closeout Procedures.

END OF SECTION 14 24 00

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SECTION 01 85 00
ELEVATOR MAINTENANCE

PART 1 GENERAL

1.1 INTERIM MAINTENANCE

- A. This modernization consists of a modernization of a single elevator. As a result, the Contractor whom is awarded the modernization work shall not be required to perform Interim Maintenance prior to construction commencement.
- B. Once the elevator is removed from service to begin elevator modernization work, the responsibility for any maintenance or service between the time of elevator is removed from service till approved final inspection is the responsibility of the Elevator Contractor that is performing the elevator modernization. After turn over to owner contractor shall provide proposal to for the continuing maintenance of elevator to include all maintenance service between for warranty period of the elevator in accordance to owner's standards.**
- ~~B. Once the elevator is removed from service for elevator modernization work, the responsibility for any maintenance or service between the time of elevator turnover after inspection for beneficial usage through the 12 month warranty is the responsibility of the Elevator Contractor that performed the elevator modernization. The time between turn over and warranty period is considered Interim Maintenance and costs associated with performing interim maintenance shall be included in the Contractor's base bid.~~
- C. It is the intent that a final review of the completed modernization work once inspected by all Authorities Having Jurisdiction shall occur within 20 business days of the elevator being turned over for beneficial public use. Deficiencies, if observed, shall be corrected expeditiously and a follow up review shall commence within 15 business days to ensure all items have been corrected. The 12 Month Warranty Start date shall be once all punch list items in the project are confirmed corrected. The Contractor shall be responsible for performing interim maintenance at no additional monthly cost to the County from the time in which the elevator is turned over for public usage and warranty period commences.
- ~~D. Perform all services in accordance with the Orange County Maintenance Agreement.~~
- D. Use competent personnel, acceptable to Purchaser, employed and supervised by the Contractor.

1.2 WARRANTY MAINTENANCE

- A. The 12 Month Warranty Start date shall be once all punch list items in the project are confirmed corrected.
- ~~B. Perform all services in accordance with the Orange County Maintenance Agreement.~~
- C. Use competent personnel, acceptable to the Purchaser, supervised and employed by Contractor.
- D. The warranty maintenance period specified in Item 1.2, A. above shall be extended one (1) month for each three (3) month period in which equipment related failures average more than .25 per unit per month.

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1.3 CONTRACT PREVENTIVE MAINTENANCE

A. Extended Maintenance beyond the Warranty Period is not part of this bid.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01 85 00

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SECTION 14 24 00
HYDRAULIC ELEVATOR

PART 1 GENERAL

1.01 WORK INCLUDED

- A. 1 hydraulic passenger elevator.
- B. All engineering, equipment, labor, and permits required to satisfactorily complete elevator modernization required by Contract Documents.
- C. Applicable conditions of General, Special, and Supplemental Conditions, Division 01, and all sections listed in Contract Documents "Table of Contents."
- D. Preventive maintenance as described in Section 01 85 00 ~~and the COUNTY Elevator Maintenance Agreement~~ included in the bid package for reference.
- E. Cartage and Hoisting: All required staging, hoisting and movement to, on, and from the site including new equipment, reused equipment, or dismantling and removal of existing equipment.
- F. Unless specifically identified as "Reuse," "Retain," or "Refurbish," provide new equipment.
- G. Hoistway, pit, and machine room barricades as required.

1.02 RELATED WORK PROVIDED UNDER OTHER SECTIONS

- A. See Drawings.**

1.03 DEFINITIONS

- A. Terms used are defined in the latest edition of the Safety Code for Elevators and Escalators, ASME A17.1.
- B. Reference to a device or a part of the equipment applies to the number of devices or parts required to complete the installation.
- C. Provisions of this specification are applicable to all elevators unless identified otherwise.

1.04 QUALITY ASSURANCE

- A. Qualified Contractors will be at the discretion of the COUNTY.
- B. Compliance with Regulatory Agencies: See Section 01 31 00, Project Management and Coordination.
- C. Warranty:
 - 1. Material and workmanship of installation shall comply in every respect with Contract Documents. Correct defective material or workmanship which develops within one year from date of final acceptance of all work to satisfaction of Architect, Owner and Consultant at no additional cost. ~~Perform maintenance in accordance with terms and conditions indicated in the COUNTY Preventive Maintenance Agreement.~~

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- ~~a. See Orange County Preventative Maintenance Agreement for terms and conditions and service standards.~~
2. Defective is defined to include, but not be limited to: Operation or control system failures, car performance below required minimum, excessive wear, unusual deterioration, or aging of materials or finishes, unsafe conditions, the need for excessive maintenance, abnormal noise, or vibration, and similar unsatisfactory conditions.
 3. Retained Equipment: All retained components, parts, and materials shall be cleaned, checked, modified, repaired, or replaced so each component and its parts are in like new operating condition. Retained equipment must be compatible for integration with new systems. All retained equipment shall be covered under the warranty provisions. No prorations of equipment or parts shall be allowed on preventive maintenance contract, between the Contractor and Owner.
 4. Make modifications, requirements, adjustments, and improvements to meet performance requirements.

1.05 DOCUMENT AND SITE VERIFICATION

- A. In order to discover and resolve conflicts or lack of definition which might create problems, Contractor must review Contract Documents and site conditions for compatibility with its product prior to submittal of quotation. Review existing structural, electrical provisions, and mechanical provisions for compatibility with Contractor's products. Purchaser will not pay for change to structural, mechanical, electrical, or other systems required to accommodate Elevator equipment.

1.06 SUBMITTALS

- A. See Section 01 33 00 - Submittals, and Section 01 77 00 - Close-Out Procedures.

1.07 PERMIT, TEST AND INSPECTION

- A. Obtain and pay for permit, license, and inspection fee necessary to complete installation.
- B. Perform test required by governing authority in accordance with procedure described in ASME A17.2 Guide for Inspection of Elevators, Escalators, and Moving Walks in the presence of Authorized Representative.
- C. Supply personnel and equipment for test and final review by Consultant.

1.08 MAINTENANCE

- ~~A. Interim: Contractor will perform interim maintenance and services as outlined in **Section 01 85 00 – Elevator Maintenance** the County Elevator Maintenance Agreement.~~
- B. Warranty Maintenance: 12 Month Warranty Shall Commence at the conclusion of all elevators passing all required alteration inspections and receiving final acceptance after all punch list items are confirmed cleared. ~~Service standards and requirements shall be referenced in the County Elevator Maintenance Agreement.~~

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PART 2 PRODUCTS

2.01 SUMMARY

- A. Passenger Elevator #1 (AHJ Serial # 47255)
- B. Unless specifically identified as "retain existing," provide new equipment.

	Existing Equipment	Disposition
Number:	Passenger #1	Retain Existing
Capacity:	2,000lbs	Retain Existing
Contract Speed:	100FPM <i>*Verify Retain Existing Speed*</i>	Retain Existing
Machine:	Hydraulic Pump	Provide New
Machine Location:	Adjacent at 1 st floor	Retain Existing
Operational Control:	Simplex Selective Collective	Provide New Simplex Selective Collective Microprocessor-Based System
Motor Control:	Single Speed AC with Wye Delta Start	Single Speed AC with Soft Start with Closed Transition
Power Characteristics:	480 Volts, 3 Phase, 60 Hertz <i>*Verify Existing*</i>	Retain Existing
Stops:	Two (2)	Retain Existing
Openings:	Two (2)	Retain Existing
Floors Served:	*1F, 2R	Retain Existing
Entrance Size:	36"x84"	Retain Existing
Entrance Type:	Single Speed Side Opening	Retain Existing
Door Operation:	Medium Two Speed	Provide New GAL MOVFR
Door Protection:	Light Ray Device	Provide New Janus Pana 40
Guide Rails:	Planed Steel Tees	Retain Existing
Buffers:	Spring	Retain Existing
		Battery Powered Emergency Car Lighting. Provide Separate Constant Pressure Test Button in Car Service Compartment.

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Existing Equipment	Disposition
Signal Fixtures:	Blue LED Illumination
Hall and Car Pushbutton Stations:	Front and Rear Hall Pushbutton Single Car Operating Panel
Car Position Indicators:	Digital with Car Direction Arrows Integral with Car Operating Panel
Communication System:	Self-Dialing, Vandal Resistant, Push to Call, Two-Way Communication System with Recall, Tracking and Voiceless Communication. Provide telephone line operability device with audible tone as required by code.
Fixture Submittal:	Submit Brochure Depicting Contractor's Proposed Designs with Bid
Additional Features	<p>Car Top Inspection Station</p> <p>Firefighters' Service, Phase I And II, Including Alternate Floor Return</p> <p>Accessibility Signage</p> <p>Hoistway Access Switches Top and Bottom Floors.</p> <p>Hoistway Door Unlocking Device All Floors</p> <p>Independent Service Feature</p> <p>Hydraulic Pump Unit, and Controller Sound Isolation</p> <p>Tamper Resistant Fasteners for All Fastenings Exposed to the Public</p> <p>One Year Warranty Maintenance with 24-Hour Call-Back Service</p>

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Existing Equipment	Disposition
	No Visible Company Name or Logo
	Wiring Diagrams, Operating Instructions, and Parts Ordering Information
	Non-Proprietary Control System and Diagnostics Provisions

2.02 MATERIALS

A. SITE CONDITION INSPECTION

1. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify no irregularities exist which affect execution of work specified.
2. Do not proceed with installation until work in place conforms to project requirements.

B. PRODUCT DELIVER, STORAGE AND HANDLING

1. Delivery of any equipment shall be coordinated well in advance with the Engineering Department.
2. Verify proper structural load limitations as needed for areas that will have equipment transported on. All costs associated with any damage that resulted from equipment delivery, equipment removal or equipment staging is the sole responsibility of the Contractor.
3. Deliver material in Contractor's original unopened protective packaging.
4. Store material in original protective packaging. Prevent soiling, physical damage, or moisture damage.
5. Protect equipment and exposed finishes from damage and stains during transportation, erection, and construction.
6. Allocate available site storage areas and coordinate their use with Purchaser and other Contractors.
7. Provide suitable temporary weather-tight storage facilities as may be required for materials that will be stored in the open.

C. INSTALLATION REQUIREMENTS

1. Retain at least one existing elevator's equipment onsite to provide for immediate spare parts for elevators awaiting modernization.
2. Install all equipment in accordance with Contractor's instructions, referenced codes, specification, and approved submittals.
3. Install machine room equipment with clearances in accordance with referenced codes and specification.
4. Install all equipment so it may be easily removed for maintenance and repair.
5. Install all equipment for ease of maintenance.
6. Install all equipment to afford maximum accessibility, safety, and continuity of operation.
7. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
8. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
9. Machine room equipment, and pit equipment.
10. Neatly touch up damaged factory-painted surfaces with original paint color. Protect machine-finish surfaces against corrosion.

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- D. MANUFACTURER'S NAMEPLATES
1. Manufacturer's name plates and other identifying markings shall not be affixed on surfaces exposed to public view. This requirement does not apply to Underwriter's Laboratories and code required labels.
 2. Each major component of mechanical and electrical equipment shall have identification plate with the Manufacturer's name, address, model number rating, and any other information required by governing codes.
- E. COLORS OF FACTORY-FINISHED EQUIPMENT
1. All colors will be selected from the Manufacturer's standard range unless custom colors are specified herein.
- F. MATERIALS AND FINISHES
1. Steel:
 - a. Sheet Steel (Furniture Steel for Exposed Work): Stretcher-leveled, cold-rolled, commercial quality carbon steel, complying with ASTM A366, matte finish.
 - b. Sheet Steel (for Unexposed Work): Hot-rolled, commercial quality carbon steel, pickled and oiled, complying with ASTM A568/A568M-03.
 - c. Structural Steel Shapes and Plates: ASTM A36.
 2. Stainless Steel: Type 302 or 304 complying with ASTM A240, with standard tempers and hardness required for fabrication, strength and durability. Apply mechanical finish on fabricated work in the locations shown or specified, Federal Standard and NAAMM nomenclature. Protect with adhesive paper covering.
 3. No. 4 Satin: Directional polish finish. Graining directions in vertical dimension.
 4. Aluminum: Extrusions per ASTM B221; sheet and plate per ASTM B209.
 5. Plastic Laminate: ASTM E84 Class A and NEMA LD3.1, Fire-Rated Grade (GP-50), Type 7, 0.050" \pm .005" thick.
 6. Fire-Retardant Treated Particle Board Panels: Minimum 3/4" thick backup for natural finished wood and plastic laminate veneered panels, edged and faced as shown, provided with suitable anti-warp backing; meet ASTM E84 Class "I" rating with a flame-spread rating of 25 or less, registered with Local Authorities for elevator finish materials.
 7. Paint: Clean exposed metal parts and assemblies of oil, grease, scale, and other foreign matter and factory paint one shop coat of standard rust-resistant primer. After erection, provide one finish coat of industrial enamel paint. Galvanized metal need not be painted.

2.03 CAR PERFORMANCE

- A. Car Speed: \pm 5% of contract speed under any loading condition.
- B. Car Capacity: Safely lower, stop and hold 125% of rated load.
- C. Car Stopping Zone: \pm 1/4" under any loading condition.
- D. Door Opening Time: Seconds from start of opening to fully open:
1. 2.2 seconds.
- E. Door Closing Time: Seconds from start of closing to fully closed:
1. 3.4 seconds.
- F. Pressure: Fluid system components shall be designed and factory tested for 500 p.s.i. Maximum operating pressure shall be 400 p.s.i.
- G. Car Ride Quality:

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1. Horizontal and vertical acceleration within car during all riding and door operating conditions. Not more than 20 mg peak to peak (adjacent peaks) in the 1 - 10 Hz range.
 2. Acceleration and Deceleration: Smooth constant and not less than 3 feet/second² with an initial ramp between 0.5 and 0.75 second.
 3. Sustained Jerk: Not more than 6 feet/second³.
 4. Measurement Standards: Measure and evaluate ride quality consistent with ISO 18738, using low pass cutoff frequency of 10 Hz and A95 peak-to-peak average calculations.
- H. Noise and Vibration Control
1. Airborne Noise: Measured noise level of elevator equipment and its operation shall not exceed 55 dBA inside car under any condition including door operation and car ventilation exhaust blower on its highest speed. Limit noise level in the machine room relating to elevator equipment and its operation to no more than 80 dBA. All dBA readings to be taken 3'-0" off the floor and 3'-0" from the equipment using the "A" weighted scale.
 2. Vibration Control: All elevator equipment provided under this contract, retained, refurbished or replaced shall be mechanically isolated from the building structure and electrically isolated from the building power supply and to each other to minimize the possibility of objectionable noise and vibrations being transmitted to occupied areas of the building.
 - a. CE Electronics-Acoustics (813-373-4826) products must be utilized for mechanical isolation of the following:
 - 1) CE Electronics-Acoustics Group, CQuiet Cab Isolation Kit located between the piston and platen plate.
 - 2) CE Electronics-Acoustics Group, CQuiet Hydro Tank Isolation Kit located under the oil tank reservoir.
 - 3) CE Electronics-Acoustics Group, CQuiet FireStop Noise Putty located between the pipe and concrete penetrations.
 - 4) CE Electronics-Acoustics Group, CQuiet Pipe ISO² hangers for any pipe that requires hanging from ceiling.
 - 5) CE Electronics-Acoustics Group, CQuiet Pipe Stand Isolation for any pipe stand application utilized.

2.04 OPERATION

- A. Selective Collective Microprocessor-based.
1. Operate car without attendant from pushbuttons in car and located at each floor. When car is available, automatically start car and dispatch it to floor corresponding to registered car or hall call. Once car starts, respond to registered calls in direction of travel and in the order the floors are reached.
 2. Do not reverse car direction until all car calls have been answered, or until all hall calls ahead of car and corresponding to the direction of car travel have been answered.
 3. Slow car and stop automatically at floors corresponding to registered calls, in the order in which they are approached in either direction of travel. As slowdown is initiated for a hall call, automatically cancel hall call. Cancel car calls in the same manner. Hold car at arrival floor an adjustable time interval to allow passenger transfer.
 4. Answer calls corresponding to direction in which car is traveling unless call in the opposite direction is highest (or lowest) call registered.
 5. Illuminate appropriate pushbutton to indicate call registration. Extinguish light when call is answered.

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- B. Other Items:
 - 1. Low Oil Control: In the event oil level is insufficient for travel to the top floor, provide controls to return elevator to the main level and park until oil is added.
 - 2. Independent Service: Provide controls for operation of each car from its pushbuttons only. Close doors by constant pressure on desired destination floor button or door close button. Open doors automatically upon arrival at selected floor.
- C. Firefighters' Service: Provide equipment and operation in accordance with code requirements.
- D. Automatic Car Stopping Zone: Stop car within 1/4" above or below the landing sill. Maintain stopping zone regardless of load in car, direction of travel, distance between landings.
- E. Remote Monitoring and Diagnostics: Equip each controller, traveling cable and elevator with appropriate provisions to easily connect to a future "Campus Wide" comprehensive Lift-Net Elevator Monitoring System.
- F. Motion Control: AC type with unit valve suitable for operation specified and capable of providing smooth, comfortable car acceleration and retardation. Limit the difference in car speed between full load and no load to not more than $\pm 5\%$ of the contract speed in either direction of travel.
- G. Door Operation: Automatically open doors when car arrives at main floor. At expiration of normal dwell time, close doors. Reopen doors when car is designated for loading. Provide "heavy door/variable air pressure" feature for consistent specified door operation within appropriate speed and inertia limits.
- H. Standby Lighting and Alarm: Car mounted battery unit with solid-state charger to operate alarm bell and car emergency lighting. Battery to be rechargeable with minimum 5-year life expectancy. Include required transformer. Provide constant pressure test button in service compartment of car operating panel.
- I. Standby Power Operation
 - 1. Upon loss of normal power, adequate standby power will be supplied via building electrical feeders to simultaneously start and run one car in each group and single cars at contract car speed and capacity.
 - 2. Automatically return one car at a time in each group and single car, nonstop to designated floor, open doors for approximately 3.0 seconds, close doors, and park car. During return operation, car and hall call pushbuttons shall be rendered inoperative. As each car parks, system shall immediately select the next car until all cars in a group have returned to the designated floor. If a car fails to start or return within 30 seconds, system shall automatically select the next car in the group to automatically return.
 - 3. When all cars in a group have returned to the designated floor, one car in each group shall be designated for automatic operation. When a service demand exists for 30 seconds and designated car fails to start, next available car in the group shall be automatically selected for operation.
 - 4. Contactor to provide signal wire and connectivity from Automatic Transfer Switch to the elevator controller for emergency standby power. Test for proper operation.
- J. Card/Proximity Reader Security System: Provide provisions inside car operating panel for reader unit. Mount reader (if provided) behind tinted screen and cross connect from car pushbuttons to control module in machine room. If no reader is currently utilized or

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provided as part of this project, label spare wires for future reader in car operating panel and controller in machine room.

2.05 MACHINE ROOM EQUIPMENT

- A. Arrange equipment in existing machine room spaces and in accordance with CODE.
- B. Pump Unit: Assembled unit consisting of positive displacement pump, induction motor, Maxton master-type control valves combining safety features, holding, direction, bypass, stopping, manual lowering functions, shut off valve, oil reservoir with protected vent opening, oil level gauge, outlet strainer, MEI Silencer, all mounted on CE Acoustic isolating pads. Provide soft start with closed transition. Design unit for a minimum 80 upstarts per hour. Unit must be designed and installed to prevent any noise and vibration being emitted into occupied building spaces. The unit must be designed and installed to ensure performance requirements outlined in the specification package are achieved. The pump unit should be installed a minimum of three (3) inches away from any machine room wall.
- C. Landing Systems: Solid-state, magnetic, or optical type.
- D. Controller: UL/CSA labeled.
 - 1. Motion Control Engineering (MCE) – H2000
 - 2. Compartment: Securely mount all assemblies, power supplies, chassis switches, relays, etc., on a substantial, self-supporting steel frame. Completely enclose equipment with covers. Provide means to prevent overheating.
 - 3. Relay Design: Magnet operated with contacts of design and material to insure maximum conductivity, long life, and reliable operation without overheating or excessive wear. Provide wiping action and means to prevent sticking due to fusion. Contacts carrying high inductive currents shall be provided with arc deflectors or suppressors.
 - 4. Microprocessor-Related Hardware
 - a. Provide built-in noise suppression devices which provide a high level of noise immunity on all solid-state hardware and devices.
 - b. Provide power supplies with noise suppression devices.
 - c. Isolate inputs from external devices, such as pushbuttons, with opto-isolation modules.
 - d. Design control circuits with one leg of power supply grounded.
 - e. Safety circuits shall not be affected by accidental grounding of any part of the system.
 - f. System shall automatically restart when power is restored.
 - g. System memory shall be retained in the event of power failure or disturbance.
 - h. Equipment shall be provided with Electro Magnetic Interference (EMI) shielding within FCC guidelines.
 - 5. Wiring: CSA labeled copper for factory wiring. Neatly route all wiring interconnections and securely attach wiring connections to studs or terminals.
 - 6. Permanently mark components, relays, fuses, PC boards, etc., with symbols shown on wiring diagrams.
- E. Muffler: Provide New MEI Silencer and properly charge.
- F. Piping and Oil: Retain existing piping and provide new oil for the system. Where existing piping cannot be retained due to location, design or condition, provide new with victaulic fittings.
- G. Shutoff Valve: Provide New.

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2.06 HOISTWAY EQUIPMENT

- A. Guide Rails: Retain main guide rails in place.
 - 1. Clean rails and brackets. Remove rust.
 - 2. Check all rail and bracket fastenings and tighten.
 - 3. Realign rails as required to provide smooth car ride.
 - 4. Provide supplemental rail brackets and/or backing as required by code or to enhance car ride quality.
- B. Buffers: Retain existing.
- C. Pit Ladder: Provide retractable pit ladder in accordance with code requirements.
- D. Hydraulic Jack Assembly: Retain existing.
 - 1. Cylinders: Retain existing. Replace packing seals. Cylinder head shall be dry and leak free.
- E. Terminal Stopping: Provide normal and final devices. Provide emergency terminal speed limiting devices.
- F. Electrical Wiring and Wiring Connections:
 - 1. Conductors and Connections: Copper throughout with individual wires coded and connections on identified studs or terminal blocks. Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes. Provide 10% spare conductors throughout. Run spare wires from car connection points to individual elevator controllers in the machine room. Provide 5 pair of spare shielded communication wires in addition to those required to connect specified items. Tag spares in machine room.
 - 2. Conduit: Retain existing conduit where feasible. All other times provide galvanized steel conduit, EMT, or duct. Conduit size, 1/2". Flexible heavy-duty service cord may be used between fixed car wiring and car door switches for door protective devices.
 - 3. Traveling Cables: Flame and moisture-resistant outer cover. Prevent traveling cable from rubbing or chafing against hoistway or equipment within hoistway.
 - 4. Auxiliary Wiring: Connect fire alarm initiating devices, emergency two-way communication system, in each car controller in machine room.
 - 5. Provide CCTV wiring for future camera installation within elevator.
- G. Entrance Equipment:
 - 1. Door Hangers: Retain Existing. Provide New neoprene rollers.
 - 2. Door Tracks: Retain Existing. Tighten all fasteners.
 - 3. Door Interlocks: Provide New.
 - 4. Door Closers: Provide New Closures. Design and adjust to insure smooth, quiet mechanical close of doors.
 - 5. Hoistway Door Unlocking Device: Provide New. Provide unlocking device with escutcheon in door panel at all floors, with finish to match adjacent surface.
- H. Hoistway Access Switches: Mount at top and bottom terminal landings

2.07 HOISTWAY ENTRANCES

- A. Frames: Provide New Braille and strike jamb bumpers. Retain existing frames.
- B. Transom Panels: Retain existing.

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- C. Door Panels: Retain Existing. Retrofit dual gibs, one at trailing edge and one at leading edge of each panel.
- D. Door Retainers: Verify and provide at top and bottom of doors in accordance with code requirements.
- E. Sight Guards: Retain existing. If sight guard(s) have physical damage, replace new. Facility responsible for painting to match doors.
- F. Sills: Retain Existing. Thoroughly polish and tighten fasteners.
- G. Sill Supports: Retain existing. Check and tighten all fastenings.
- H. Fascia, Toe Guards, and Hanger Covers: Retain existing. Provide where damaged or missing. Check and tighten all fastenings.
- I. Struts and Headers: Retain existing. Check and tighten all fastenings. Remove any rust and paint all headers flat black with rust preventative paint.

2.08 CAR EQUIPMENT

- A. Frame: Retain Existing. Check and tighten all fastenings.
- B. Platform: Retain existing. Reinforce if required. Check and tighten all fastenings.
- C. Platform Apron: Provide new extended platform apron per code. Minimum 14 gauge steel, reinforced and braced to car platform for all car openings.
- D. Guide Shoes: Provide New. Solid type with renewable oilless inserts.
- E. Sills: Retain existing. Clean and polish. Check and tighten all fastenings.
- F. Doors: Retain Existing. Adjust for proper door clearances in accordance with code requirements.
- G. Door Hangers: Provide New. Two-point hanger roller with neoprene roller surface and suspension with eccentric upthrust roller adjustment.
- H. Door Track: Provide New. Bar or formed, cold-drawn removable steel track with smooth roller contact surface.
- I. Door Header. Retain existing and modify as needed.
- J. Door Electrical Contact: Provide New. Prohibit car operation unless car door is closed.
- K. Door Clutch: Provide New. Heavy-duty clutch, linkage arms, drive blocks and pickup rollers or cams to provide positive, smooth, quiet door operation. Design clutch so car doors can be closed, while hoistway doors remain open.
- L. Restricted Opening Device: Provide New. Provide means for restricting door opening per code requirements if existing means cannot be retained. Plunger type restrictors not acceptable.
- M. Door Operator: Front and Rear

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1. Provide New GAL MOVFR11
- N. Door Control Device:
1. Infrared Reopening Device: Provide new Janus Pana 40.
 2. Nudging Operation: After beams of door control device are obstructed for a predetermined time interval (minimum 20.0 - 25.0 seconds), warning signal shall sound and doors shall attempt to close with a maximum of 2.5 foot pounds kinetic energy. Activation of the door open button shall override nudging operation and reopen doors.
 3. Interrupted Beam Time: When beams are interrupted during initial door opening, hold door open a minimum of 3.0 seconds. When beams are interrupted after the initial 3.0 second hold open time, reduce time doors remain open to an adjustable time of approximately 1.0 - 1.5 seconds after beams are reestablished.
 4. Differential Door Time: Provide separately adjustable timers to vary time that doors remain open after stopping in response to calls.
 - a. Car Call: Hold open time adjustable between 3.0 and 5.0 seconds.
 - b. Hall Call: Hold open time adjustable between 5.0 and 8.0 seconds. Use hall call time when car responds to coincidental calls.
- O. Car Operating Panel:
1. PROVIDE INNOVATION WITH PB35 LED BLUE ILLUMINATED BUTTON
 2. One car operating panels with faceplates, consisting of a metal box containing specified operating fixtures, mounted behind the car stationary front return panel. Faceplates shall be hinged and constructed of stainless steel, satin finish.
 3. Suitably identify floor buttons, alarm button, door open button, door close button with SCS, Visionmark, or Entrada cast tactile symbols recessed flush mounted. Configure plates per local building code accessibility standards including Braille. Locate operating controls no higher than 48" above the car floor; no lower than 35" for emergency push-to-call button and alarm button.
 4. Provide minimum 3/4" diameter flush floor pushbuttons which illuminate to indicate call registration.
 5. Provide alarm button to ring bell located on car. Illuminate button when actuated.
 6. Provide keyed stop switch at bottom of car operating panel in locked car service compartment. Mark device to indicate "run" and "stop" positions.
 7. Provide "door open" button to stop and reopen doors or hold doors in open position.
 8. Extended Door Hold Open Button: Provide button to extend normal door hold open period up to 30 seconds. Cancel extended time by registration of car call or actuation of door close button. When activated, illuminate the door hold open button and the door close button. Cancel the hold open time when the door close button is activated. If a hall call is entered at another floor, sound a buzzer to indicate call waiting is activated.
 9. Provide "door close" button to activate door close cycle. Cycle shall not begin until normal door dwell time for a car or hall call has expired, except firefighters' operation.
 10. Provide firefighters' locked box as required by code.
 11. Provide firefighters' Phase II key switch with engraved instructions filled red. Include light jewel, audible signal, and call cancel button. Locate in locked cabinet in accordance with code requirements.
 12. Provide lockable service compartment with recessed flush door. Door material and finish shall match car return panel or car operating panel faceplate. Inside surface of door shall contain an integral flush window for displaying the elevator operating permit.
 13. Security: Provide 4" x 4" tinted plexiglass for security reader unit. Locate above pushbuttons.
 14. Include the following controls in lockable service cabinet with function and operating positions identified by permanent signage or engraved legend:

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- a. Inspection switch.
 - b. Light switch.
 - c. Three-position exhaust blower switch.
 - d. Independent service switch.
 - e. Constant pressure test button for battery pack emergency lighting.
 - f. 120-volt, AC, GFCI protected electrical convenience outlet.
 - g. Card reader override switch (for future card reader installation)
 - h. Stop switch.
15. Provide black paint filled (except as noted), engraved, or approved etched signage as follows with approved size and font:
- a. Phase II firefighters' operating instructions on main operating panel above corresponding keyswitch filled red.
 - b. Car number
 - c. "No Smoking" with symbol
 - d. Car capacity in pounds.
- P. Car Top Control Station: Provide New with ENABLE function. Mount to provide safe access and utilization while standing in an upright position on car top.
- Q. Work Light and Duplex Plug Receptacle: Provide New
1. GFCI protected outlet at top and bottom of car.
 2. Provide a minimum of 10 foot candle of lighting on entire car top.
 3. Include on/off switch and lamp guard.
- R. Car Top Ventilation Fan: Retain existing. If not operational at time of inspection or consultant review, replace new with comparable model.
- S. Car Top Handrail: Provide code compliant car top handrail regardless of maximum distance between car top and hoistway. Make every effort to isolate noise and vibration from being transmitted from handrail to cab interior.
- T. Communication System:
1. "HELP," two-way communication instrument in car with automatic dialing, tracking, and recall features with shielded wiring to car controller in machine room. Provide dialer with automatic rollover capability with minimum two numbers.
 - a. "HELP" button or adjacent light jewel shall illuminate and flash when call is acknowledged. Button shall match car operating panel pushbutton design. Provide uppercase "HELP" engraved signage adjacent to button.
 - b. Provide "HELP" button tactile symbol, engraved signage, and Braille adjacent to button mounted integral with car front return panel.
 2. Provide emergency phone line operability detection system with audible tone and visual signal as required by code.
 3. Program to complex security.

2.09 CAR ENCLOSURE

- A. Car Enclosure:
1. Provide modification as needed to accept new pushbutton and signal fixtures.
 2. Ceiling: Provide new LED down light ceiling faced with 20ga. satin stainless steel (Type 304). Ceiling face to be divided into a minimum of six (6) sections separated by 1/4" wide black painted reveals. Each section to contain an individual light fixture. Each fixture to contain a black trim bezel and Eye Beam LED bulbs to comply with code. Edge to be painted black to match ceiling reveals. Included is a low voltage driver unit to be mounted on car top. Emergency escape hatch shall be incorporated into ceiling based on existing location of escape hatch in elevator canopy and shall

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- have hairline joints in ceiling finish. Edge of ceiling to be held approximately 1" from transom & centered between side walls. Lighting shall achieve code compliant foot candles and be protected from breakage.
3. Shell: Retain existing.
 4. Canopy: Retain existing.
 5. Return Panels, Transoms, Strike Jambs, Entrance Columns, Car Doors: Re-clad in satin stainless and provide cutouts for signal and car operating fixtures. Delaminate surfaces as needed to ensure proper adhesion of new cladding and proper clearance and fitment.
 6. Base: Stainless steel with concealed ventilation cutouts.
 7. Interior Wall Finish: Provide flat laminate to side walls. Laminate shall be Wilsonart Antique Brush #4823-60 or approved equal. All material to be treated to meet Flame Spread and Smoke Density code requirements.
 8. Handrails: Minimum 1-1/4" diameter stainless steel flat grab bar with returned ends across side walls. Provide standoffs with threaded set pins.
 9. Flooring: Remove existing flooring taking all measures to prevent damage to existing subflooring. Furnish and install new Armstrong Migrations T3513 and 1/8" underlayment.
 10. Elevator Contractor to provide all door adjustment for proper clearances.

2.11 HALL CONTROL STATIONS

- A. Provide 1 riser with flush mounted faceplate in stainless steel finish at each level. Include pushbuttons for each direction of travel which illuminate to indicate call registration. Provide any cutting and patching required.
- B. Provide all applicable Fire Recall and Emergency Signage via separate stainless steel plate or integral with pushbutton fixture riser.
- C. Provide emergency power and telephone operability indicators in accordance with code integral with lobby hall station.

2.12 SIGNALS

- A. Car Position Indicator: Alpha-numeric Blue digital indicator containing floor designations and direction arrows a minimum of 1/2" high to indicate floor served and direction of car travel. When a car leaves or passes a floor, illuminate indication representing position of car in hoistway. Illuminate proper direction arrow to indicate direction of travel. Mount fixture in car operating panel.
- B. Car Lantern: Provide flush-mounted blue digital car lantern in car entrance column where existing lantern is located, ensure coverage of existing hole. Illuminate up or down LED lights and sound electronic tone once for up and twice for down direction travel as doors open. Sound tone once for up direction and twice for down direction. Sound level shall be adjustable from 0 - 80 dBA measured at 5'-0" in front of hall control station and 3'-0" off floor. Provide adjustable car door dwell time to comply with ADA requirements relative to hall call notification time.
- C. Faceplate Material and Finish: Satin Stainless Steel
- D. Floor Passing Tone: Provide an audible tone of no less than 20 decibels and frequency of no higher than 1500 Hz, to sound as the car passes or stops at a floor served.

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PART 3 EXECUTION

3.01 SITE CONDITION INSPECTION

- A. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify no irregularities exist which affect execution of work specified.
- B. Do not proceed with installation until work in place conforms to project requirements.

3.02 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in Contractor's original, unopened protective packaging.
- B. Store material in original protective packaging. Prevent soiling, physical damage, or moisture damage.
- C. Protect equipment and exposed finishes from damage and stains during transportation, erection, and construction.

3.03 INSTALLATION

- A. Install all equipment in accordance with Contractor's instructions, referenced codes, specification, and approved submittals.
- B. Install machine room equipment with clearances in accordance with referenced codes and specification.
- C. Install all equipment so it may be easily removed for maintenance and repair.
- D. Install all equipment for ease of maintenance.
- E. Install all equipment to afford maximum accessibility, safety, and continuity of operation.
- F. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
 - 1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
 - 2. Neatly touch up damaged factory-painted surfaces with original paint color. Protect machine-finish surfaces against corrosion.

3.04 FIELD QUALITY CONTROL

- A. Work at jobsite will be checked during course of installation. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work required prior to performing further installation.
- B. Have Code Authority acceptance inspection performed and complete corrective work.

3.05 ADJUSTMENTS

- A. Install hydraulic jack assembly and guide rails plumb and align vertically with tolerance of 1/16" in 100'-0". Secure guide rail joints without gaps and file any irregularities to a smooth surface.

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- B. Static balance car to equalize pressure of guide shoes on guide rails.
- C. Lubricate all equipment in accordance with Contractor's instructions.
- D. Adjust motors, valves, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

3.06 CLEANUP

- A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials on a daily basis.
- B. Remove all loose materials and filings resulting from work.
- C. Clean machine room equipment and floor.
- D. Clean hoistways, car, car enclosure, entrances, operating and signal fixtures.
- E. Painting:
 - 1. Black: Pit Support Channel, buffers, car frame and crosshead.
 - 2. Grey: Machine room flooring, pit flooring, pit walls from floor to 6 feet off floor and car top:
 - 3. White: Machine room walls from floor to ceiling.

3.07 ACCEPTANCE REVIEW AND TESTS

- A. See Section 01 77 00 – Closeout Procedures.

3.08 PURCHASER'S INFORMATION

- A. See Section 01 77 00 – Closeout Procedures.

END OF SECTION 14 24 00