OPN ARCHITECTS

SOI – SHB ELEVATOR REPLACEMENT – ADDENDUM #2

Date: July 7, 2026

Project: SOI – State Historical Building Elevator Replacement

State of Iowa project number: 9440.01

Client: Iowa Department of Administrative Services

Project Location: 600 E Locust St; Des Moines, IA 50319

This Addendum forms a part of the contract documents and modifies the original bidding documents dated June 10, 2026 as noted below. Acknowledge receipt of this Addendum in the space provided on the bid form. Failure to do so may subject the bidder to disqualification.

To: Bidders

Contents: (1) Attached Typed Pages
(1) Specification

Architectural Specifications:

1. Specification 14 22 01 - ELECTRIC TRACTION ELEVATOR MODERNIZATION
    a. **REPLACE** – This specification in its entirety to update the following items:
        i. **Update gear ratio on the Car 4 (East Freight).**
        ii. **Update requirements for the intercom systems and fire command panels as noted.**

END OF ADDENDUM 2

SECTION - 14 22 01 ELECTRIC TRACTION ELEVATOR MODERNIZATION

PART 1 - GENERAL

1.1. SUMMARY

A. Section includes modernization of traction elevators as follows:

1. One (1) geared freight elevator, Car 4 (East Freight).
2. One (1) geared passenger elevator, Car 3 (East Passenger).
3. One (1) geared passenger elevator, Car 5 (West Passenger).

B. Products installed but not furnished under this section:

1. Building announcement speakers.
2. Emergency Voice/Alarm Communication System Provisions.
3. CCTV camera provisions.
4. Elevator security devices, control unit, mounting brackets, wiring materials, logic circuits, security system interface terminals, boxes, and relays.
5. Monitoring system interface.
6. Painting of elevator entrance frames.
7. Painting of freight elevator cab enclosure interior, walls and canopy.

1.2. DEFINITIONS

A. Technical terms used are defined in the latest edition of the Safety Code for Elevators and Escalators, ASME A17.1. or in this section.

B. ELEVATOR CONSULTANT or CONSULTANT refers to Lerch Bates Inc. (Lerch Bates).

C. PROVIDE means “furnish and install.”

D. MANUFACTURER means either the Original Equipment Manufacturer (OEM) or the principal manufacturer of a component or system.

E. RETAIN means, unless otherwise specified, the existing equipment is to be left in place with no alterations and no change in the original manufacturer’s designed performance or functionality. Items that are “retained” shall be thoroughly cleaned in place and adjusted to achieve originally designed function.

F. REFURBISH means, unless otherwise specified, the existing equipment is to be cleaned, repainted, repaired, and parts replaced to put the equipment into a condition to provide the same appearance, performance, and functionality as the equipment provided when it was originally installed. Unless otherwise specified, the scope of replacement of components is limited to those items currently available for purchase as replacement parts from the manufacturer or after-market suppliers approved by the manufacturer.

G. REUSE means that the Contractor shall carefully remove equipment from the existing installation, avoiding any damage or additional wear. Store in a safe location to maintain equipment in its pre-removal condition. Reinstall and incorporate into the modernized

elevator installation using the same procedures and recommendations provided by the manufacturer of the equipment.

H. CALL BACK means a request from the Owner to the Contractor to provide a technician on site to evaluate an elevator that is out of service or not functioning properly, rectify the root cause of the malfunction, and place the unit back into normal service.

I. INCLUDES or INCLUDING means including the items specified but not limited solely to those items if additional work or components are required to achieve the specified outcome.

1.3. WORK INCLUDED

A. Provide all labor, engineering, tools, transportation, services, supervision, materials, and equipment necessary for and incidental to satisfactory completion of required work as indicated in Contract Documents.

B. Provide all required staging, hoisting and movement of new equipment, reused equipment, or removal of existing equipment.

C. Applicable conditions of Owner's General, Special, and Supplemental Conditions.

D. Scope of work includes, but is not limited to, the following:

1. Coordination, scheduling, and management of work of component suppliers and subcontractors.

2. Furnish and install equipment as specified, utilizing existing and/or modified hoistways and machine rooms.

1.4. ALLOWANCES

A. None.

1.5. ALTERNATES

A. None.

1.6. RELATED WORK COORDINATION

A. General:

1. Coordinate the following requirements with other trades.

B. Cast-in-Place Concrete:

1. Elevator Contractor to provide guide rail bracket inserts and the locations for the General Contractor to install.

2. Elevator Contractor to provide templates for machine room slab penetrations.

3. Provide other hoistway and pit requirements, including location of sump pits.

C. Masonry Penetrations:

1. Provide locations in elevator machine room/hoistway walls where conduit, ropes, etc. shall penetrate walls and slabs.

2. Coordinate installation of sleeves, block outs, inserts, and items that are embedded in concrete or masonry for elevator equipment.

3. Furnish inserts, templates and installation instructions and deliver to Project site in time for installation.

D. Structural Steel:

1. Including, but not limited to, elevator machine rooms, hoistways and pits, sill supports, rail supports.

E. Miscellaneous Steel:

1. Pit ladders, working platforms, inspection platforms, guard rails, divider beams.

F. Electric:

1. Electrical service, outlets, lights, switches in elevator machine rooms and pits.

G. HVAC:

1. Provide necessary information to General Contractor and coordinate installation of equipment for elevator machine rooms.

H. Finishes:

1. Cab interiors, hoistway entrances, fixtures.

I. Elevator Cab Flooring:

1. Material and finish to be specified in other applicable section.

2. Flooring installation must be coordinated to ensure car saddle is installed at proper height (even with finished floor).

J. Security Equipment:

1. Coordinate location(s) in elevator machine rooms and cabs where cables, conduit, components, etc. for CCTV and/or secure access interface equipment must be installed.

1.7. ACTION AND INFORMATIONAL SUBMITTALS

A. Within thirty (30) calendar days after award of contract and before beginning equipment fabrication submit field verified existing installation information for review.

1. Existing Traction Car and Counterweight Information:

a) Existing Total Car Weight:

1) Documented on crosshead data tag, all cars.

2) Field Verified: weigh single cars and one car per group of each identical duty type.

b) Field verified counterweight total weight. Weigh or balance verify at vertical center of hoistway, single cars and one car per group of each identical duty type.

c) Estimated total weight of means of suspension.

d) Estimated total suspended compensation load on elevator traction machine drive sheave shaft.

2. Existing Power Confirmation Information: Field verified existing conditions at each elevator main disconnect:

a) Actual maximum available voltage and current.

b) Verify true earth ground value.

B. Traction Elevator Information: Within thirty (30) calendar days after award of contract and before beginning equipment fabrication submit planned modernization design information, shop drawings, and required material samples for review. Allow thirty (30) calendar days for response to initial submittal.

1. Provide equipment lists, reactions, and design information in table form, including:

a) Car:

1) Total car weight to be included on new crosshead data tag.

2) Total counterweight (pre-modernization weight plus or minus any added or removed weight sections).

3) Written confirmation that designed modernization total combined weight of car and rated load:

I. Does not vary by more than 5% from that of the original installation.

II. Is no more than the existing installation and no less than 95% of the existing installation.

b) Verify buffer capacity via data tags or manufacturer submittals.

c) Verify car and counterweight safety capacities via data tags or manufacturer submittals.

d) Power Confirmation Information: Design for existing conditions.

1) Motor horsepower and code letter designation.

2) Motor drive starting current, full load running current, and demand factor.

3) Engineered power consumption based on traction elevator with 180 starts per hour full load, non-dynamic braking.

4) Written confirmation that existing electrical provisions are adequate for post modernization installation equipment requirements.

e) Written confirmation that total planned modernization reactions on building structure do not exceed originally designed reactions by more than 5%. If installation has been altered previously and original car top data tag is missing, confirm that new reactions will not exceed existing reactions. Reaction calculations shall include:

1) Machine and motor.

2) Total counterweight.

3) Suspended compensation.

4) Blocking beams.

5) Traveling cables.

6) Sheaves.

7) Suspension means.

8) Total car weight.

9) Car capacity.

f) Product Data, Including:

1) Controller manufacturer, model, standard operation features, custom operation features.

2) Capacities, sizes, performances, operation, control, signal systems operations, safety features, finishes, and similar information.

3) Product data for car enclosures and hoistway entrances.

4) Product data for signal fixtures, lights, graphics, tactile marking plates, and details of mounting.

5) Full details of ascending car protection means and installation.

6) Two-way conversation devices.

7) Post-modernization machine room heat emissions in BTU.

C. Elevator Shop Drawings:

1. Scaled or Fully Dimensioned Layout: Plan of machine room indicating equipment arrangement, details of car enclosures, hoistway entrances, and car/hall signal fixtures.

2. Fully Dimensioned Fixture Drawings:

a) Car operating panels.

b) Car floor indicators.

c) Hall stations.

d) Destination/landing input stations.

e) Position indicators.

f) Hall lanterns.

g) Access key switch.

h) Remote panels.

i) Firefighter’s control panel.

j) Group status panel.

k) Emergency power selector switches.

3. Rope Brake Mounting and Installation Drawings:

a) Details of all materials and installation design required.

b) Showing reactions incorporated into design.

c) Signed and stamped by a licensed engineer.

D. Samples for Initial Selection: For finishes involving surface treatment or paint. or color selection per Architectural list:

E. Samples for Verification:

1. For exposed car, hoistway door and frame, and signal equipment finishes

2. Samples of Sheet Materials: 3" (75 mm) square.

3. Running Trim Members: 4" (100 mm) lengths.

4. Include full component samples, if requested:

a) Signal fixtures.

b) Lighting.

c) Graphics.

d) Braille plates.

F. Samples for Initial Selection: For finishes involving surface treatment, paint or color selection per Architectural list.

G. Written Maintenance Control Program (MCP) specifically designed for the equipment included under this contract.

1. Include any unique or product specific procedures or methods required to inspect or test the equipment.

2. Identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.

H. Submittal review shall not be construed as an indication that submittal is correct or suitable or that the work represented by submittal complies with the Contract Documents. Compliance with Contract Documents, Code requirements, dimensions, fit, and interface with other work is Contractor’s responsibility.

I. Acknowledge and/or respond to review comments within fourteen calendar days of return.

1. Promptly incorporate required changes due to inaccurate data or incomplete definition so that delivery and installation schedules are not affected.

2. Identify and cloud drawing revisions including Contractor elective revisions on each re-submittal.

J. Contractor’s revision response time is not justification for equipment delivery or installation delay.

1.8. CLOSEOUT SUBMITTALS

A. Manufacturer’s Warranty:

1. Provide documentation of Manufacturer’s Warranty in compliance with Contract Documents.

B. Owner’s Information:

1. Provide electronic copies (flash drive or Consultant-approved equivalent) of written information necessary for proper maintenance and adjustment of equipment within 30 days following final acceptance. Final retention will be withheld until data is received and reviewed by Consultant. Include the following as minimums:

a) Straight-line wiring diagrams of “as-installed” elevator circuits with index of location and function of components. Provide one set reproducible master. Mount one set wiring diagrams on panels, racked, or similarly protected, in elevator machine room. Provide remaining set rolled and in a protective drawing tube. Maintain all drawing sets with addition of all subsequent changes. These diagrams are Owner’s property.

b) Written Maintenance Control Program (MCP) specifically designed for the equipment included under this contract. Include any unique or product-specific procedures or methods required to inspect or test the equipment. In addition, identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.

c) Lubrication instructions, including recommended grade of lubricants.

d) Parts catalogs for all replaceable parts, including ordering forms and instructions.

e) Instructions explaining all operating features, including all apparatus in the car and lobby control panels.

f) Maintenance Control Program documentation for all equipment.

C. Provide Owner with the following:

1. Any interface cards required for equipment maintenance, code mandated testing, and troubleshooting.

2. Four sets of keys for all switches and control features properly tagged and marked.

3. Diagnostic equipment complete with access codes, adjusters' manuals, and set-up manuals for adjustment, diagnosis, and troubleshooting of elevator system, and performance of routine safety tests.

1.9. PERMITS, TESTS, AND CERTIFICATES

A. Permits:

1. Secure and pay for all permits required for Work to be performed, including but not limited to:

a) Municipal and State permits.

b) Device or equipment removal permits.

c) Hot works permits.

d) Confined space access permits.

2. Post, maintain, and renew all permits in compliance with local governmental requirements.

3. Obtain final close-out of all required permits.

4. Tests and Inspections: Schedule with the AHJ and perform tests 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 of the AHJ.

B. Certificates: Obtain, pay for, and deliver to Owner with all temporary and final inspection certificates provided by proper governing authorities.

C. Violations: Resolve any outstanding violations on record with the AHJ on devices being removed prior to final acceptance by the Owner.

1.10. QUALITY ASSURANCE

A. Compliance with Regulatory Agencies: Comply with most stringent applicable provisions of currently enforced codes, laws, and/or authorities, including revisions and changes in effect including, but not limited to:

1. American Society of Mechanical Engineers:

a) ASME A17.1, Safety Code for Elevators, Escalators, and Moving Walks.

b) ASME A17.2, Guide for Inspection of Elevators, Escalators, and Moving Walks.

c) ASME A17.5, Elevator and Escalator Electrical Equipment.

d) ASME A17.6, Standard for Elevator Suspension, Compensation, and Governor Systems.

e) ASME A17.7, Performance Based Safety Code for Elevators, Escalators, and Moving Walks.

2. National Fire Protection Association (NFPA):

a) NFPA 70, National Electric Code.

b) NFPA 80, Fire Doors and Windows.

c) FPA 101, Life Safety Code.

d) NFPA 13, Installation of Sprinkler Systems.

3. International Building Code (IBC).

4. Accessibility:

a) American National Standard Institute (ANSI): A117.1, Accessible and Usable Buildings and Facilities.

5. Local Codes:

a) State of Iowa Building Code.

6. OSHPD.

B. Inspections: Provide access to areas where work is being performed for the Owner at any time throughout the project.

1.11. MAINTENANCE

A. Interim Maintenance

1. Furnish preventive maintenance service on elevators described herein for a period from mobilization, verbal or written, until each unit is removed from building service for modernization. In addition, furnish interim preventive maintenance on completed units until the modernization of each group of elevators is complete and one-year warranty maintenance, defined below, is commenced. Perform interim maintenance based upon terms and conditions of Owner’s existing maintenance agreement.

2. Prior to the removal of any car from service, the consolidated call back service for all cars in the specific group shall be no more than three calls per month. Contractor will be responsible for providing preventative maintenance to achieve this requirement.

3. If callback activity exceeds three callbacks per unit per month at any time when cars are off-line, all maintenance must be completed on OT until callback rate is less than three/unit/month.

4. Use competent personnel, acceptable to Owner, employed and supervised by the Elevator Contractor.

B. Warranty Maintenance

1. Provide preventive maintenance and 24-hour emergency callback service for one year commencing on date of final acceptance of all modernized elevators by Owner. Warranty maintenance should expire for concurrently for all elevators. Systematically examine, adjust, clean, and lubricate all equipment. Repair or replace defective parts using parts produced by the Contractor of installed equipment. Maintain elevator machine room, hoistway, and pit in clean condition.

2. Use competent personnel, acceptable to the Owner, supervised and employed by Contractor.

3. Warranty maintenance to be performed per the terms of Owner's existing maintenance agreement.

1.12. DELIVERY AND STORAGE

A. The protection of all equipment and exposed finishes shall be the responsibility of the Elevator Contractor during delivery, handling, and installation until completion of project.

B. The Elevator Contractor shall replace damaged materials with new at no additional cost for material and labor to Owner.

C. Manufacturers' original packing must adequately protect materials during delivery.

D. Deliver materials to the site ready for use in the accepted manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name, and manufacturer's name. Delivered materials shall be identical to accepted samples.

E. Store materials in original protective packaging under cover in a dry and clean location off the ground. Remove delivered materials that are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials.

F. It is the responsibility of the Contractor to properly store and protect all materials in space provided or designated by the Owner against damage, stains, scratches, corrosion, weather, construction debris, and environmental conditions.

PART 2 - PRODUCTS

2.1. MANUFACTURERS AND PRODUCTS

A. Approved Elevator System Manufacturers:

1. Approved subject to compliance with the requirements of the contract, provide products by one or more of the following Principal Manufacturers. Where specific product models are referenced below only those specific product models or types are approved.

a) KONE

b) Otis

c) Schindler

d) TK Elevator

e) Architect pre-approved equal

B. Approved Elevator Components: In addition to products manufactured by the Principal Manufacturers specified above, the following Manufacturers are approved for the specific components listed below, architect pre-approved equal and subject to the requirements of the specifications and contract:

1. Traction Elevator Controllers (Two Button Dispatch):

a) GAL Galaxy.

b) MCE.

c) EC PIXEL.

2. Motor Drives:

a) KEB.

b) Magnetek.

c) Yaskawa.

3. Hoistway Entrances:

a) Wittur.

b) Columbia.

c) EDI-ECI.

4. Freight Vertical Bi-Parting Door:

a) Courion.

b) EMS.

c) Peelle.

5. Passenger Elevator Door Equipment (Operators, Tracks, Hangers, and Closers):

a) GAL.

b) Wittur.

6. Elevator Car Enclosures (Cab Shells).
    a) Cab Works.
    b) Globe Architectural & Metal.
    c) G & R Elevator.
    d) Gunderlin.
    e) Eklunds.
7. Cab Interior Finishes (Standard/Pre-Engineered/Cab Systems):
    a) FabACab.
    b) Eklunds.
    c) Cab Works.
    d) Columbia Elevator.
    e) National Elevator Cab & Door Corp.
    f) SnapCab.
    g) Forms and Surfaces.
    h) Elevator Cabs, Inc (ECI).
    i) G & R.
    j) Gunderlin.
    k) Globe Architectural & Metal.
8. Cab Interior Finishes (Custom/Architect Designed):
    a) Globe Architectural & Metal.
    b) Gunderlin.
    c) G & R.
    d) Eklunds.
9. Car and Hall Signal Fixtures:
    a) EPCO.
    b) Innovation.
    c) MAD Fixtures.
    d) Monitor.
10. Two-Way Audio Communication Devices:
    a) Avire (Rath/Janus).
    b) Or Architect Pre-Approved Equivalent.
11. Two-Way Video/Non-Verbal Communication Devices:

a) Avire (Rath/Janus).

b) Or Architect Pre-Approved Equivalent.

12. Hoist Machines:

a) Hollister Whitney.

b) Imperial.

c) Torin.

d) Wittur.

13. Rope Brakes:

a) Draka.

b) Hollister Whitney.

14. Door Edge Detector with Approaching Object Detection:

a) CEDES.

b) Avire (Janus).

2.2. MATERIALS

A. Steel:

1. Sheet Steel (Furniture Steel for Exposed Work): Stretcher-leveled, cold-rolled, commercial quality carbon steel, complying with ASTM A366, matte finish.

2. Sheet Steel (for Unexposed Work): Hot-rolled, commercial quality carbon steel, pickled and oiled, complying with ASTM A568/A568M-03.

3. Structural Steel Shapes and Plates: ASTM A36.

B. 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, with texture and reflectivity required to match Architect’s sample. Protect with adhesive paper covering.

1. No. 4 Satin: Directional polish finish. Graining directions as shown or, if not shown, in vertical dimension.

2. No. 8 Mirror: Reflective polish finish with no visible graining.

3. Textured: 5WL as manufactured by Rigidized Metals or Windsor pattern as manufactured by Rimex Metals or approved equal with .050" mean pattern depth with bright directional polish (satin finish).

4. Burnished: Non-directional, random abrasion pattern.

C. Bronze: Stretcher-leveled, re-squared sheets composed of 60% copper and 40% zinc similar to Muntz Metal, Alloy Group 2, with standard temper and hardness required for fabrication, strength, and durability. Clean and treat bronze surfaces before mechanical finish. After

completion of the final mechanical finish on the fabricated work, use a chemical cleaner to produce finish, Federal Standard, and NAAMM nomenclature, matching Architect's sample:

1. No. 4 Satin: Directional polish finish, fine-satin, clear-coated with clear-organic coating recommended by Fabricator. Provide graining direction as shown or, if not shown, in vertical dimension.
2. No. 8 Mirror: Reflective polish finish with no visible graining, bright-polished, clear-coated finish with clear-organic lacquer coating recommended by Fabricator.
3. Acid-Etched Pattern: Provide a No. 8 mirror reflective-polished background with selectively acid-etched, matte-textured, custom pattern as shown. Acid selection and dilution, if required, as recommended by Fabricator. After final finishing, coat bronze with clear-organic lacquer coating recommended by Fabricator.

D. Aluminum: Extrusions per ASTM B221; sheet and plate per ASTM B209.

E. Plastic Laminate: ASTM E84 Class A and NEMA LD3.1, Fire-Rated Grade (GP-50), Type 7, 0.050" ±.005" thick, color and texture as follows:

1. Exposed Surfaces: Color and texture selected by Architect.
2. Concealed Surfaces: Contractor's standard color and finish.

F. 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.

G. Natural Finish Wood Veneer: Standard thickness, 1/40" thoroughly dried conforming to ASME/HPMA HP-1983, Premium Grade. Place veneer, tapeless spliced with grain running in direction shown, belt and polish sanded, book-matched. Species and finish designated and approved by Architect.

H. 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.

I. Prime Finish: Clean all metal surfaces receiving a baked enamel paint finish of oil, grease, and scale. Apply one coat of rust-resistant primer followed by a filler coat over uneven surfaces. Sand smooth and apply final coat of primer.

J. Baked Enamel Finish: Prime finish per above. Unless specified "prime finish" only, apply and bake three additional coats of enamel in the selected solid color.

K. Entrance Field Paint – By Others:

1. Clean all surfaces to remove dirt and grease.
2. Sand and finish surfaces as necessary to remove pits and scratches and prepare surface for painting.
3. Apply filler to ensure smooth surface; sand and apply one coat of electrostatic enamel in the selected solid color.

L. Refinishing of natural metals: Remove existing protective finish. Buff as necessary to remove scratches. Regrain or finish as specified and protect as indicated for particular metal type.

M. Entrance Support Equipment within Hoistway: Include strut angles, headers, sill support angles, fascia, hanger covers, etc.

1. Clean, remove, and check for corrosive activity. Replace components which exhibit severe deterioration.

2. Tighten all fastenings.

3. Repaint exposed surfaces with two coats of rust preventive primer.

N. Glass: Laminated safety glass, minimum 9/16" thick, conforming to ANSI Z97.1 and CPSC 16 CFR Part 1201.

PART 3 - PERFORMANCE AND OPERATION

3.1. PERFORMANCE REQUIREMENTS

A. Car Speed: ±3% 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 Times: Seconds from start to fully open or fully closed:

1. Car 3 (East Passenger): Door Open: 1.6 seconds. Door Close: 2.4 seconds.

2. Car 5 (West Passenger): Door Open: 1.6 seconds. Door Close: 2.4 seconds.

E. Car Floor-to-Floor Performance Time: Seconds from start of doors closing until doors are 3/4 open for center-opening doors or 1/2 open for side-opening doors, and car is level and stopped at next successive floor under any loading condition or travel direction:

1. Car 3 (East Passenger): 9.5 seconds. Floor Height: 12’-0” between floors 2 and 3.

2. Car 5 (West Passenger): 9.5 seconds. Floor Height: 12’-0” between floors 2 and 3

F. Noise and Vibration Control:

1. Airborne Noise:

a) Measured noise level of elevator equipment and its operation shall not exceed 60 dBA inside car under any condition including door operation and car ventilation exhaust blower on its highest speed.

b) Limit noise level in the machine room and control space relating to elevator equipment and its operation to no more than 80 dBA.

c) 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: Mechanically isolate all new elevator equipment from the building structure and other components. Minimize objectionable noise and transmission of vibrations to occupied areas of the building.

3.2. ELEVATOR OPERATION REQUIREMENTS

A. General:

1. Cars automatically slow down and stop level at floors in response to car and landing calls with stops made in sequence in the established direction of travel, regardless of order in which buttons are pressed.

2. Landing calls are canceled when the assigned car arrives at the landing.

3. Automatic Dispatch Failure: Provide auxiliary dispatch system to automatically dispatch elevators in the event of failure of the primary control system.

4. Hall Call Button Failure: Should failure of hall call button system occur, initiate operation providing predetermined service to all landings; elevators respond normally to car calls.

5. Automatic Leveling:

a) When arriving at a floor cars level to within 1/8” above or below the landing sill prior to opening doors, without travelling past the landing during leveling.

b) Maintain leveling accuracy regardless of carload, direction of travel, rope slippage or stretch.

6. Power Conservation:

a) Shut off car interior lighting and ventilation fan after adjustable period (60-180 seconds) of no elevator demand.

b) Turn on prior to opening car doors when elevator demand returns.

B. Door Operation:

1. Passenger Elevators:

a) Automatically open doors when car arrives at a floor.

b) Stop and reopen doors or hold doors in open position upon activation of “door open” button.

c) At expiration of normal dwell time, or upon activation of “door close” button, close doors:

1) Prevent doors from closing and reverse doors at normal opening speed if door reopening device detects an obstruction or approaching object while doors are closing, except during nudging operation.

2) In event of door reopening device failure, provide for automatic shutdown of car at floor level with doors open.

3) Close cycle does not begin upon activation of “door close” button until normal door dwell time for a car or hall call has expired, except firefighters’ operation.

d) Nudging Operation:

1) After beams of door reopening device are obstructed for a predetermined time interval (minimum 20.0-25.0 seconds), sound warning signal, and attempt to close doors with maximum of 2.5 foot-pounds kinetic energy.

2) Activation of the door open button overrides nudging operation and reopens doors.

e) Interrupted Beam Time:

1) When beams are interrupted during initial door opening, hold door open a minimum of 3.0 seconds.

2) 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.

f) Differential Door Time:

1) Field adjustable time that doors remain open after stopping in response to calls.

2) Car Call: Hold open time adjustable between 3.0 and 5.0 seconds.

3) Hall Call: Hold open time adjustable between 5.0 and 8.0 seconds.

g) Use hall call time when car responds to coincidental calls.

h) Reopen doors when car is designated for loading.

2. Power-Operated Freight Door and Gate:

a) Door operation at landing initiated by operation of elevator call button for that floor.

b) Obstruction of door reopening device beams during gate closing immediately stops and re-opens car gate and freight door.

c) Door reopening device detects objects:

1) Immediately adjacent to landing and car sides of door.

2) Within path of door.

3) Objects on the floor in the path of the door.

4) Straddling bi-parting door.

d) Adjustable timer holds doors open up to 300 seconds.

e) Door closing initiated upon:

1) expiration of a timer.

2) activation of door close button.

3) activation of a floor button within car.

f) Synchronize door and gate operators as follows:

1) Door and gate accelerate and decelerate smoothly.

2) Car gate closes completely before the hoistway doors begin to close.

3) Car gate does not open until hoistway doors are completely open.

g) Provide automatic closing of car doors after dwell time expires:

1) A loud audible signal and highly visible signal actuates not less than 5.0 seconds prior to initiation of door sequence.

2) Dwell time is easily adjustable between 20.0 and 300.0 second.

3) Pressing the Door Close button cancels dwell time.

4) Pressing the Door Open button restarts dwell time.

5) Dwell time set at 60.0 seconds.

h) Open door and gate automatically when car arrives at a floor.

i) Provide passenger sequence operation:

1) After an adjustable time between 30 to 300 seconds, provide audible and visible warning signal and automatically close door and gate.

2) Provide dual reversing safety device for car gate.

C. Independent Service:

1. When feature is activated from within the car allow control of car only from buttons and controls inside the car.

2. Close doors by constant pressure on desired destination floor button or door close button.

D. Load Weighing:

1. Provide cars with adjustable cable tension monitoring load weighing device.

2. Devices are to be self-calibrating for the time-dependent effects of compression in any resilient materials in the assemblies, transducers, etc.

3. Provide dispatching at main floor in advance of normal intervals when car fills to capacity.

4. Activate voice message and visual overload signaling device inside elevator cab activated when load weighing device senses carload has reached or exceeded a pre-determined percentage of capacity.

5. Elevator does not close doors or run when Overload signaling device is active.

E. Single Automatic Operation, Car 4 (East Freight):

1. Operate car without attendant from pushbuttons in car and at each landing. When car is idle, automatically start car, and dispatch it to appropriate floor when call is registered by pressing car or hall pushbutton.

2. Illuminate, “in use” lights in each hall pushbutton station when car is responding to registered car or hall call. Prevent registration of another call until trip is complete including time for passenger transfer and registration of car call if car is responding to a hall call. Extinguish “in use” light to indicate system is available to respond to next call.

F. Selective Collective Operation, Single Car, Cars 3 (East Passenger) and 5 (West Passenger):

1. Elevators operate via momentary pressure buttons to:

a) Place hall call by selecting direction of travel at each hall landing (up and down buttons at each intermediate landing, single buttons at each terminal landing).

b) Place car call by selecting destination floor from inside the car (individual buttons for each floor served).

2. Hall calls, other than calls placed at the landing at which car is standing, start car, and cause the car to stop at first landing for which a call is registered in the direction of travel.

3. Stops are made in order in which landings are reached, irrespective of sequence in which calls are registered.

4. Parked Car (No Demand):

a) When feature is enabled elevator remains at landing of last assignment (if no further demand) with doors closed, for a predetermined amount of time (programmable for any amount of time). Upon expiration of time, the elevator returns to the main egress landing with the doors closed.

b) If feature is disabled, if no further demand, the elevator remains at landing of last assignment with the doors closed until a hall call is registered.

5. Car and Hall Lanterns:

a) Lanterns provide audio and visual signal upon each stop, regardless of responding to car or hall call.

b) Visual signal remains active from commencement of door opening until doors are completely closed.

G. Restricted Floor Operation (Security), Cars East and West

1. Activated and deactivated for each elevator or group of elevators:

a) At elevator control system:

1) Manually by elevator personnel.

2) Automatically using internal clock.

3) Remotely via Elevator Management System.

4) Inside car via key switch activation.

2. Restrict elevator service to specific building floors when feature is active.

3. Allow registration of a car call to one or more secure floors upon receipt of authorization signal at the elevator control system.

4. Authorization signal is initiated by:

a) Card reader activation.

b) Numeric keypad input.

5. Car will not be assigned to respond to any subsequent hall or car calls until it reaches the secure floor and car doors open and fully close.

6. Operation of the following features override security system:

a) Firefighters' Emergency Operation.

b) Code Blue.

c) Independent Service.

d) Attendant Operation.

7. Actuate hall lantern each time car arrives at main lobby during secure mode operation.

8. Warning light and/or signal in group control panel activates to indicate an attempt to register unauthorized destinations or to open car doors when car is moving or parked at a secured floor. Reset switch or button cancels the warning light and signal.

9. System accepts a minimum three-digit code, entered on car pushbuttons or separate ten-digit pad, to bypass security system and allow registration of car call. System allows for separate easily changed code for each floor or group of floors

H. Battery Backup Operation for Emergency Lighting, Communication, and Alarm:

1. Car mounted battery unit with solid-state charger to operate alarm bell, car emergency lighting, and voice communication system.

2. Car lighting and communication shall be provided with a minimum of 4 hours of operation on back-up power during a loss of normal power, and a minimum of 1 hour of operation for car-mounted alarm, and any remote alarm mounted at the designated floor level.

3. Battery to be rechargeable with minimum five-year life expectancy.

4. Provide constant pressure test button in service compartment of car operating panel.
5. Provide lighting integral with portion of normal car lighting system.

I. Emergency Car Communication System Operation:

1. Comply with all requirements of ASME A17.1 2019, or later editions if adopted by the AHJ, including verification of telephone line or other signal line operability.
2. Hands-Free Phone System:
    a) In Car System:
        1) Hands-free two-way audio communication system in each elevator car.
        2) Automatic dialer to include automatic rollover capability if call is not answered with minimum two numbers.
        3) Intercom type systems shall be capable of auto dialing out of the building to any active telephone number selected by Owner if intercom call is not answered.
        4) Means to identify building and car for Authorized Personnel and Emergency Personnel on demand.
        5) Activated by button in car identified with “PHONE” symbol or by external telephone call.
        6) Adjacent light jewel illuminates and flashes when call is acknowledged.
3. Authorized Personnel Communication:
    a) Communication system allows authorized personnel, via phone or intercom system, inside the building or at an outside location, to establish verbal communications with each elevator individually.
    b) Provide car interior display video capability for entrapment assessment.
4. Emergency Personnel Communication:
    a) System inside the building allows Emergency Personnel to initiate communication with each elevator individually with no action required from inside the elevator car.
    b) Communication from devices inside building overrides any existing connection outside of building.
    c) Light jewel inside elevator car illuminates and flashes when two-way communication is established.
    d) Provide car interior display video capability for entrapment assessment.
5. Communication for Deaf, Hard of Hearing and Speech Impaired:
    a) Means for non-verbal communication between passengers inside the elevator car and Authorized Personnel and Emergency Personnel inside or outside of the building.
    b) System allows for in-car video display of custom or preselected text messages generated by Authorized Personnel or Emergency Personnel.
    c) Passengers inside the elevator car respond to text messages via “Yes” and “No” buttons that generate a visible indication at the location monitored by the Authorized/Emergency Personnel.

PART 4 - PART 4 – ELEVATOR ALTERATIONS

4.1. GEARED PASSENGER ELEVATORS:

DUTY ALTERATION SUMMARY		
CAR 3 (East)	**EXISTING INSTALLATION**	**MODERNIZED INSTALLATION**
Capacity:	3500 lbs.	No Change
Class of Loading:	Class A	No Change
Duty Type:	Passenger	No Change
Contract Speed:	300 fpm	No Change
Roping Configuration:	2:1 Underslung	No Change
Machine Type:	Geared	Gearless
Machine Location:	Offset at Bottom Landing	No Change
Motor Type:	DC	AC
Motion Control:	Generator Field	VVVF Regenerative
Operation Control:	Two-Button Selective Collective	No Change
Floors Served:	LL, 1, M, 2, 3 Front	No Change
Total Entrances:	5 Front	No Change
Car Entrance Type:	Center Opening Front	No Change
Hoistway Entrance Type:	Center Opening Front	No Change
Entrance Size:	42" Wide x 84' High	No Change
Minimum Clear to Underside of Canopy:	96” High	No Change

DUTY ALTERATION SUMMARY		
CAR 5 (West)	**EXISTING INSTALLATION**	**MODERNIZED INSTALLATION**
Capacity:	3500 lbs.	No Change
Class of Loading:	Class A	No Change
Duty Type:	Passenger	No Change
Contract Speed:	300 fpm	No Change
Roping Configuration:	1:1	No Change
Machine Type:	Geared	Gearless
Machine Location:	Offset at Bottom Landing	No Change
Motor Type:	DC	AC
Motion Control:	Generator Field	VVVF Regenerative
Operation Control:	Two-Button Selective Collective	No Change
Floors Served:	LL, 1, M, 2, 3 Front	No Change
Total Entrances:	5 Front	No Change
Car Entrance Type:	Center Opening, Front	No Change

DUTY ALTERATION SUMMARY		
CAR 5 (West)	**EXISTING INSTALLATION**	**MODERNIZED INSTALLATION**
Hoistway Entrance Type:	Center Opening, Front	No Change
Entrance Size:	42" Wide x 84' High	No Change
Minimum Clear to Underside of Canopy:	96” High	No Change

4.2. GEARED FREIGHT ELEVATORS:

DUTY ALTERATION SUMMARY		
CAR 4 (East)	**EXISTING INSTALLATION**	**MODERNIZED INSTALLATION**
Capacity:	20000 lbs.	No Change
Class of Loading:	Class C1	No Change
Duty Type:	Freight	No Change
Contract Speed:	100 fpm	No Change
Roping Configuration:	***2:1***	No Change
Machine Type:	Geared	No Change
Machine Location:	Offset at Bottom Landing	No Change
Motor Type:	DC	AC
Motion Control:	Generator Field	VVVF Regenerative
Operation Control:	Single Automatic	No Change
Floors Served:	LL, L1, L2, L3 Front	No Change
Total Entrances:	4 Front	No Change
Car Entrance Type:	Bi-Parting Front	No Change
Hoistway Entrance Type:	Bi-Parting Front	No Change
Entrance Size:	120" Wide x 120' High	No Change
Minimum Clear to Underside of Canopy:	120” High	No Change

4.3. MACHINE ROOM EQUIPMENT

A. Provide and arrange equipment in existing machine room spaces.

B. Identification: Permanently identify (painted on or securely attached) machine room equipment with minimum 3" characters corresponding to elevator identification.

1. Driving machine.
2. Motor drive, transformer, choke/filter.
3. Controller.
4. Selector.

5. Governor.
6. Main line disconnect switch.
7. Elevator hoistway pit equipment.

C. Geared Traction Hoist Machines, Car 4 (East) Freight:

1. New:

a) Provide new geared machine based on specified capacity, speed, and duty.

b) Provide motor, brake, gears, and demountable drive sheave mounted in proper alignment on a common bedplate.

c) Motor:

1) Permanent magnet or AC induction motor connected through worm and gear to drive sheave.

2) Direct drive, digital, closed-loop velocity encoder.

3) Include approved manufacturers label as required by the local Authority Having Jurisdiction.

d) Electromechanical Brake:

1) Drum or disc type.

2) Spring applied and electrically released with removable manual brake release.

3) Brake shoes apply to the braking surface simultaneously and with equal pressure.

4) Minimize noise during lifting and setting of brake shoes to be undetectable inside any car or outside of the machine room or hoistway.

e) Gears:

1) Worm gear accurately machined from steel and provided with a single end double race ball bearing thrust.

2) Ring gear made from a phosphor bronze, accurately cut, fitted, and bolted to a cast iron spider.

3) Gear housing with a gasketed port to inspect the gear.

f) Drive Sheave:

1) Machined with grooves, providing maximum traction with a minimum of cable and sheave wear.

2) Sealed bearings.

g) Deflector Sheave:

1) Machine bedplate mounted deflector sheave.

2) Machined grooves and sealed bearings.

3) Maintainable from inside machine room.

h) Installation Includes:

1) Anti-friction bearings with easy access for lubrication.

2) Drip pans to collect lubricant seepage.

3) Means to access and maintain deflector and secondary sheave from machine room.

4) Sheave guards to prevent ropes from leaving sheave grooves.

5) Sound isolation pads to reduce vibration and noise transmission to the building structure.

6) Permanent ladders and platforms with handrails and toe boards for code required machine and sheave access.

7) Provide machine bedplate mounted deflector sheave A-frame or supporting steel beams and fastenings to mount deflector sheaves to building structure. Provide minimum 16 gauge easily removable sound insulated sheet metal closures in hoistway wall opening around machine.

D. Gearless Traction Hoist Machines, Car 3 (East) Passenger and Car 5 (West) Passenger:

1. New:

a) Provide new gearless machine based on capacity, speed, and duty designed to operate within specified machine room temperature and humidity range.

b) Provide motor, brake, and demountable drive sheave mounted in proper alignment on common isolated bedplate.

c) Provide bedplate blocking to elevate secondary or deflector sheave above machine room floor.

d) Motor:

1) AC induction or P.M.S.M. ACV³F gearless traction type motor

2) Machine or motor mounted direct drive, digital, closed-loop velocity encoder.

e) Electromechanical Brake:

1) Spring applied and electrically released.

2) Drum or disc type.

3) Spring applied and electrically released with removable manual brake release.

4) Brake shoes applied to the braking surface simultaneously and with equal pressure.

5) Adjusted to minimize noise during lifting and setting of brake shoes.

6) Prevent ascending car over-speed and unintended car movement via dual-redundant braking system.

f) Drive Sheave:

1) Machined with grooves, providing maximum traction with a minimum of cable and sheave wear.

2) Sealed bearings.

Deflector Sheave:

3) Machine bedplate mounted deflector sheave.

4) Machined grooves and sealed bearings.

5) Maintainable from inside machine room.

g) Installation includes:

1) Anti-friction bearings with easy access for lubrication.

2) Means to access and maintain deflector and secondary sheave from machine room.

3) Sheave guards to prevent ropes from leaving sheave grooves.

4) Sound isolation pads shall be installed to reduce vibration and noise transmission to the building structure.

5) Permanent ladders and platforms with handrails and toe boards for code required machine and sheave access.

E. Solid State Power Conversion and Regulation Unit (Motor Drive):

1. Provide solid state, AC variable voltage, variable frequency I.G.B.T motor drive designed to operate with the power supply available at the main disconnect.

2. Drive is fully regenerative and utilizes converter/inverter and dynamic braking during overhauling condition to return regenerated power to the building power grid.

3. Performance Requirements:

4. Conform to IEEE standards 519-2014 for line harmonics and switching noise.

5. Maximum audible noise from Motor Drive inside any elevator or in any occupied space outside of controller space not to exceed 60 dBA.

6. Power Factor: >0.95.

7. Minimum of 6 kHz switching frequency for SCR inverter and shunt transistors.

8. Sustained drive and motor overload protection rated at 250% of line current.

9. Capacitors utilized sized and located to avoid system resonance.

10. Limit current to suppress noise and radio frequency interference and prevent transient voltage feedback into main building power supply or emergency power source. Provide internal heat sink cooling fans for the power drive portion of the converter panels.

11. Provide isolation transformers, filters, and chokes to completely isolate the system from the normal building power supply.

12. Isolate unit to minimize noise and vibration transmission.

13. Direct-current power for the operation of hoist machine brake, door operator, dispatch processor, signal fixtures, etc., supplied from separate static power supply.

F. Regenerated Power:

1. Provide resistor bank installed on the demand side of the elevator main disconnect to absorb the maximum sustained regenerated power from the motor drive during dynamic braking during normal operation.

2. Provide resistor bank or other means to automatically divert and disperse regenerated power from being returned to the building electrical grid when emergency power operation is in effect.

G. Encoder: Direct drive, solid-state, digital type. Update car position at each floor and automatically restore after power loss.

H. Controller: UL/CSA labeled.

1. 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.

2. 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.

3. Microprocessor-Related Hardware:

a) Provide built-in noise suppression devices providing 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 are not to be affected by accidental grounding of any part of the system.

f) System automatically restarts when power is restored.

g) System memory is retained in the event of power failure or disturbance.

h) Equipment is provided with Electro Magnetic Interference (EMI) shielding within FCC guidelines.

4. Wiring: CSA labeled copper for factory wiring. Neatly route all wiring interconnections and securely attach wiring connections to studs or terminals.

5. Permanently mark components (relays, fuses, PC boards, etc.) with symbols shown on wiring diagrams.

6. Auxiliary disconnect: Provide controller or machine mounted auxiliary, lockable “open,” disconnect if mainline disconnect is not in sight of controller and/or machine.

I. Provide minimum 14-gauge galvanized sheet metal enclosures over any holes or block outs, other than for hoist ropes, in machine room floor. Mount on underside of floor slab.

J. Sleeves and Guards: Provide 2" steel angle guards around cable or duct slots through floor slabs or grating. Provide rope and smoke guards for sheaves, cables, and cable slots in machine room and any secondary machinery levels.

K. Machine Beams and Equipment Support Beams:

1. Retain:

a) Provide all required supplemental supports and attachments.

b) Provide Structural Engineering certification validating size and location of all new support structure provided.

L. Governor, Car:

1. New:

a) Centrifugal-type, car driven with pull-through jaws and bi-directional shutdown switches.

b) Calibrated and tested with manufacturers' certification data plate as required by code.

c) Provide required bracketing and supports for attachment to building structure or guide rails.

M. Emergency/Secondary Brake:

1. Provide means to prevent Ascending Car Over-speed (ACO):

a) Acceptable emergency brake devices for ACO:

1) Traction machine sheave mounted secondary brake system.

2) Hollister-Whitney rope gripper.

3) Existing or new counterweight safety and dedicated overspeed governor.

2. Provide means to prevent Unintended Car Motion (UCM):

a) Acceptable emergency brake devices for UCM:

b) Traction machine sheave mounted secondary brake system.

c) Hollister-Whitney rope gripper.

3. Provide all control circuits and controller interface to enable the devices to function as required by Code.

4.4. HOISTWAY EQUIPMENT

A. Provide and arrange equipment as shown on approved drawings.

B. Guide Rails:

1. Retain:

a) Clean rails and brackets.

b) Remove Rust.

c) Repaint non-machined surfaces.

d) Check and tighten all rail and bracket fastenings.

C. Buffers, Car:

1. New:

a) Oil type (passenger elevators) and Spring type (freight elevator) with blocking and support channels.

b) Provide sign in pit indicating designed counterweight runby.

c) Provide compressed buffer switch, if required.

D. Buffers, Counterweight:

1. New:

a) Oil type (passenger elevators) and Spring type (freight elevator) type with blocking and support channels.

b) Provide sign in pit indicating designed counterweight runby.

c) Provide compressed buffer switch, if required.

E. Access Ladders and Platforms: Provide permanent buffer and car safety access ladders and platforms to comply with Code requirements.

F. Deflector Sheaves and Secondary/***Overhead*** Sheaves:

1. New: ***Counterweight Mounted 2:1 Sheaves – Passenger Car 3 (East) and Freight Car 4 (East):***

a) Machined grooves and sealed bearings.

b) Mounting means to machine beams, machine bedplate, car and counterweight structural members, or building structure.

G. Counterweight Frame:

1. Retain:

a) Replace any damaged frame sections.

b) Steel members and fastenings to match original manufacturers' specifications.

c) Counterweight Weight Sections:

1) Adjust or repair means to keep existing and added weight sections in place during buffer impact or application of counterweight safety.

2) Add or remove weight sections to provide overbalance necessary to comply with traction machine manufacturer requirements.

H. Counterweight Roller Guides:

1. New:

a) Roller type, 3.25" minimum roller diameter.

b) Three (3) spring dampened, sound-deadening rollers per assembly.

c) Manufacturer, type, and size are subject to approval by Consultant.

I. Counterweight Guard:

1. Retain:

a) Check and tighten all fastenings.

b) Repair or replace damaged or rusted components.

J. Governor Rope Tension Sheave and Frame:

1. New:

a) Mount sheave and support frame on pit floor or guide rail.

b) Provide frame with guides or pivot point to enable free vertical movement, required tension, and rope alignment.

c) Adjust to provide quiet operation with no sound detectable from inside any car or outside of the hoistway.

K. Suspension Means:

1. New:

a) New steel wire ropes constructed in accordance with ASME A17.6, Part 1 of type and quantity specified by machine or drive sheave manufacturer.

L. Governor Rope:

1. New:

a) Governor rope of type specified by governor manufacturer.

M. Compensation – if required:

1. New:

a) Provide wire rope with pit-mounted guide sheave assembly.

b) Install to meet specified requirements for compensation performance, noise levels, and car ride quality.

c) Pit mounted guide assembly providing quiet, effective restraint without excessive wear of components.

d) Inhibit rubbing or chafing against hoistway or equipment within hoistway or pit.

e) Remove counterweight guard if compensation provided.

N. Terminal Stopping Devices:

1. New:

a) Normal and final devices.

O. Electrical Wiring and Wiring Connections:

1. Conductors and Connections:

a) Copper throughout with individual wires coded and connections on identified studs or terminal blocks.

b) Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes.

2. Conduit:

a) Galvanized steel conduit, EMT, or duct.

b) Flexible conduit length not to exceed 3’-0”.

3. Traveling Cables:

a) Provide multiple traveling cables per elevator if necessary to meet conductor and data transmission requirements. Include the following:

b) Include all conductors needed for specified elevator operation and code required spares.

c) Provide the following additional data transmission conductors. (Draka Type ETT round travelling cable or approved equal with lifetime product warranty.

1) 12 20 AWG copper twisted shielded pairs.

2) One (1) RG6/U Coax Cable (75 Ohm, UL Listed).

3) One (1) 62.5/125 micron (OM1) multi-mode Optical Fiber.

d) Tag spares in machine room.

e) Provide cables from controller to car top.

4. Auxiliary Wiring:

a) Provide conduit, wiring, connections, and machine room demarcation junction boxes for:

1) Fire alarm initiating devices.

2) Emergency two-way communication system.

3) Paging speaker.

4) Security video camera.

5) Security system and card reader interface terminals and relays.

6) Intercom.

4.5. HOISTWAY DOOR OPERATING EQUIPMENT

A. Horizontal Sliding Passenger Entrances:

1. Door Hangers, Hoistway:

a) New:

1) Two-point suspension design.

2) New rollers with neoprene roller surface.

3) Eccentric upthrust roller adjustment.

2. Door Tracks, Hoistway:

a) New:

1) Bar or formed with smooth roller contact surface.

2) Constructed of cold drawn steel.

3. Hoistway Door Interlocks and Pick-up Roller Assemblies:

a) New.

4. Hoistway Door Closers:

a) New:

1) Spring activated spirator type.

5. Hoistway Door Unlocking Devices:

a) New:

1) Include all drilling and ACM containment on existing door panels.

2) Unlocking device including new escutcheon at all floors.

3) Locking plug at all floors.

4) Finish to match adjacent door panel surface.

6. Hoistway Access Switches:

a) New:

1) Top and bottom floors.

2) Mount in wall at same location as existing switch.

3) Provide switch with faceplate.

B. Door Closed Detection:

1. Electrical contacts or a SIL rated device to detect closed position of hoistway doors.

2. Design and operation to comply with ASME A17.1 2019 or later edition.

C. Freight Bi-Parting Hoistway Entrance Equipment:

1. Door Guide Tracks:

a) New:

1) Continuous steel angles or formed steel tracks.

2) Securely fastened to hoistway entrance frame.

2. Door Guide Shoes:

a) New:

1) Machined iron shoes.

2) Four (4) shoes per door panel with not less than 2 ½” lateral contact with track per shoe.

3. Door Interlocks:

a) New:

1) Operable without retiring cam.

4. Hoistway Freight Door Unlocking Device:

a) New:

1) Unlocking device with pull chain under hinged, lockable cover.

2) Stainless steel No. 4 cover finish at all floors.

D. Power Freight Door Operators:

1. New:

a) Power door operator for each entrance.

b) Provide means to open doors from inside of car in the event of power failure.

c) Closing speed minimum of 0.8 fps; maximum of 1.0 fps.

E. Floor Numbers: Stencil paint 4" high floor designations in contrasting color on inside face of hoistway doors or hoistway fascia in location visible from within car.

4.6. HOISTWAY ENTRANCE FRAMES AND DOOR PANELS

A. Provide and arrange equipment in same location as existing entrances.

B. Passenger Elevator Entrance Frames:

1. Retain:

a) Arabic floor designation/tactile marking plates:

1) Centered at 60" above finished floor.

2) Located on both side jambs of all entrances.

3) Minimum 4" high.

4) Tactile marking indications shall be below Arabic floor designation.

5) Permanently fastened.

6) Provide plates at main egress landing with “Star” designation.

b) Car identification plate with Braille:

1) Mounted directly below floor designation/tactile marking plates.

2) Located on both side jambs at Designated and Alternate levels.

3) Finish and design to match floor designation/tactile marking plates.

c) Entrance frames painted by others.

C. Horizontal Sliding Hoistway Door Panels:

1. Retain:

a) Provide new door gibs with fire tabs at all floors.

1) Minimum two gibs per panel, one at leading edge, and one at trailing edge of each panel.

2) Provide code required door panel retainer mechanism on lower edge of door panel.

D. Sight Guards:

1. Retain.

E. Freight Vertical Bi-Parting Door Panels:

1. New:

a) 12 gauge formed steel plates welded into frame angles.

b) Telescoping upper section or pass-type doors as required.

c) Installation includes:

1) Safety astragals.

2) Vision panels.

3) Truckable sills.

4) Load transfer angles.

d) Painted finish as selected by the Architect.

4.7. HOISTWAY ENTRANCE SILLS AND SUPPORT

A. Sill Supports, Hoistway Entrance:

1. Retain:

a) Check and tighten all fastenings.

b) Clean and polish passenger elevator hoistway sills.

B. Fascia, Toe Guards, and Hanger Covers:

1. Retain:

a) Replace damaged or missing sections.

b) Check and tighten all fastenings.

c) Paint/Stencil floor number on fascia or hoistway wall all floors visible where car doors are initially opened.

C. Struts and Headers:

1. Retain:

a) Check and tighten all fasteners.

4.8. CAR EQUIPMENT

A. Frame:

1. Retain:

a) Check and tighten all fastenings.

b) Adjust as required for plumb and square alignment.

B. ***Car Mounted 2:1 Sheaves – Passenger Car 3 (East) and Freight Car 4 (East):***

1. New:

a) Machined grooves and sealed bearings.

b) Mounting means to car structural members.

C. Car Safety Device:

1. New:

a) Type “B,” flexible guide clamp.

b) Provide adapter plates and fasteners if required.

c) Install an additional marking plate of corrosion resistant metal stating the manufacturer's name and catalog safety system designation number.

D. Platform:

1. Retain:

a) Adjust as necessary for plumb and level alignment.

b) Reinforce if required.

c) Check and tighten all fastenings.

d) Inspect after existing finished flooring is removed. Immediately notify Owner and Consultant if any damage or deterioration requiring repairs is observed.

e) Replace isolation pads.

E. Platform Guard:

1. New:

a) Extended platform guard with front finish to meet Code requirements.

b) Minimum 0.059" (1.5 mm) thick steel, or material of equivalent strength and stiffness.

c) Reinforced and braced to [FRONT/REAR] of car platform.

d) Provide guard extending below platform floor surface maximum distance allowable without contact with the pit floor or other obstruction when car is on fully compressed buffers.

F. Car Rail Guide Roller or Shoe Assemblies:

1. New:

a) Three or more 6" spring dampened, sound-deadening rollers per guide assembly.

b) Solid to accommodate freight loading classification.

c) Include renewable oilless inserts.

G. Top of Car Guardrail:

1. New:

a) Provide car top railings where fall hazard exceeds 12".

b) Install guardrails, necessary hardware, and toe board to meet code requirements.

H. Car Top Control Station:

1. Mount to provide safe access and utilization while standing on car top.
2. Operating device with Up and Down direction buttons, a Run button, an Inspection/Automatic switch and Emergency Stop switch.
3. Operating device provides an audible and visible indicator that fire recall has been initiated.
4. Fix station to the car crosshead or provide portable station provided the extension cord and housing is permanently attached to the car crosshead.
5. The car will be operated by constant pressure on the appropriate directional button and the Run button simultaneously.
6. Normal operating devices will be inoperative while this device is in use.

I. Car Top Emergency Audible Signal:

1. Provide on top of each elevator.
2. Activation of Alarm Button or Emergency Stop switch will cause Emergency Audible Signal.
3. Provide auxiliary power supply to provide 1-hr. power in the event of loss of normal power.

J. Work Light and Duplex Plug Receptacle:

1. Work light on top and bottom of car.
2. Car top light mounted to provide illumination of all car top equipment.
3. GFCI protected duplex outlet. Two (2) at top and one (1) at bottom of car.
4. Include on/off switch and lamp guard.

K. Car Sills – Passenger or Service Duty:

1. Retain:

a) Clean full width.

b) Check and tighten all fastenings.

c) Clean and polish passenger elevator car sills.

L. Car Door Panels – Passenger Duty:

1. New:

a) Fully enclosed 16-gauge steel, sandwich construction without binder angles

b) Constructed with interlocking, stiffening ribs.

c) Leading edges of center-opening doors equipped with rubber astragals full height of panel.

d) Minimum of two gibs per panel, one at leading and one at trailing edge with gibs in the sill groove entire length of door travel.

e) Stainless steel satin finish, Cars East and West.

M. Car Door Hangers – Passenger Duty:

1. New:

a) Two-point hanger roller with

b) Neoprene roller surface

c) Suspension with eccentric upthrust roller adjustment.

N. Car Door Track – Passenger Duty:

1. New:

a) Bar or formed cold-drawn steel.

b) Removable steel track with smooth roller contact surface.

O. Car Door Header – Passenger Duty:

1. New:

a) Minimum 12-gauge steel.

b) Shaped with stiffening flanges.

P. Car Door Closed Detection:

1. Electrical contacts or a SIL rated device to detect closed position of car doors.

2. Design and operation to comply with ASME A17.1 2019 or later edition.

Q. Car Door Interlock:

1. Mechanical door interlock device to prevent:

a) Machine operation or power door opening outside of door zone.

b) Manual door opening from inside car outside of door zone.

2. Design and operation to comply with ASME A17.1 2019 or later edition.

R. Car Door/Gate Electrical Contact:

1. New:

a) Prohibit car operation unless car door or gate is closed.

S. Door Clutch – Passenger Duty:

1. New:

a) Heavy-duty clutch, linkage arms, drive blocks and pickup rollers or cams to provide positive, smooth, quiet door operation.

b) Design clutch so car doors can be closed, while hoistway doors remain open.

c) Clutch remains engaged with hoistway door interlock rollers allowing power close of hoistway doors to fully closed and locked position.

T. Restricted Opening Device:

1. New:

a) Restrict opening of car doors to Code required limit outside unlocking zone.

b) Adjust for smooth and quiet operation with operating noise undetectable from inside any car or outside of the hoistway.

c) Plunger type restrictors not acceptable.

d) Mechanical angle to prevent door opening is acceptable.

U. Passenger Door Operator:

1. New:

a) High-speed, heavy-duty door linear type operator capable of opening doors at no less than 2.5 fps.

b) Accomplish reversal in no more than 2½" of door movement.

c) Solid-state door control with closed loop circuitry to constantly monitor and automatically adjust door operation based upon velocity, position, and motor current.

d) Maintain consistent, smooth, and quiet car door operation at all floors, regardless of door weight or varying air pressure.

V. Passenger Door Reopening Device:

1. New:

a) Black fully enclosed infrared device with full screen infrared matrix or multiple beams extending vertically along leading edge of each door panel to minimum height of 7' 0" above finished floor.

b) Integral device to detect passenger or vehicle approach from elevator lobby.

W. Power Freight Gate Operator:

1. New:

a) Power gate operation.

b) Provide means to open gate from inside of car in the event of power failure.

c) Closing Speed: Minimum of 1.6 fps; maximum of 2.0 fps.

X. Bi-Parting Freight Car Gate:

1. New:

a) Power operated, double section.

b) Minimum 6'-0" high.

c) Minimum 12-gauge welded wire mesh welded into frame angles.

d) Mount car gate lift chains on hoistway side of car gate.

Y. Bi-parting Freight Door and Gate Reopening Device:

1. New:

a) Black, fully enclosed door reopening device.

b) Full screen infrared matrix or multiple beams extending vertically inside and outside of each car gate guide track.

c) Minimum detection zone height above finished floor.

d) Integral device to detect passenger or vehicle approach from elevator lobby.

Z. Car Operating Panel, Two Button Dispatching:

1. New:

a) One (1) car operating panel per car.

b) Mounted in stationary return panel(s) with separate hinged faceplate.

c) Metal box containing operating fixtures mounted behind the car return panel.

1) Vandal resistant.

d) Provide Exposed Pushbuttons to Initiate:

1) Car call registration.

2) Alarm.

3) Door open.

4) Door close.

5) Emergency push-to-call communication.

6) ”Yes/No” response buttons.

e) Pushbuttons:

1) Provide minimum 3/4" diameter raised or flush floor pushbuttons which illuminate to indicate call registration.

2) Brushed stainless buttons with illuminated LED halo.

3) 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) Identify buttons with cast tactile symbols rear mounted.

f) Locked Firefighters’ Emergency Operation Panel:

1) Openable by the same key which operates the Fire Operation switch.

2) Provide panel with solenoid operated key switch which automatically opens in the event of Firefighters’ Emergency Operation Phase I activation.

3) Including the following features:

4) Phase II fire access switch.

5) Firefighters’ visual indication.

6) Call cancel button.

7) Stop switch, manually operated.

8) Door open button.

9) Door close button.

10) Floors served signage.

g) Service Compartment:

1) Provide lockable service compartment with recessed flush door.

2) Door material and finish to match car return panel or car operating panel faceplate.

3) Include Integral flush window for displaying the elevator operating permit on inside surface of door.

4) Include the following controls in lockable service cabinet with function and operating positions identified by permanent signage or engraved legend:

5) Access switch.

6) Light switch.

7) Three positions for passenger elevators and four positions for freight elevator exhaust blower switch.

8) Independent service switch.

9) Constant pressure test button for battery pack emergency lighting.

10) 120-volt, AC, GFCI protected electrical convenience duplex outlet.

11) Card reader override switch.

12) Switch to select either floor voice annunciation, floor passing tone, or chime.

13) Car lighting dimmer switch.

14) Attendant operation switch.

15) Auxiliary light switch.

16) Keyed stop switch.

h) Provide black paint filled (except as noted), engraved, or approved etched signage as follows with approved size and font:

1) Phase II firefighters' operating instructions on inside face of firefighters' compartment door.

2) Engrave filled red firefighters' operation on outside face of compartment door.

3) Building identification car number on main car operating panel(s).

4) Car capacity in pounds on main car operating panel.

AA. In-Car Card/Proximity Reader Security Provisions, Car(s) East and West:

1. New:

a) Mount reader unit inside car as directed by Owner.

b) Cross connect from car pushbuttons to control module in machine room.

c) Reader control unit, mounting brackets, wiring materials, logic circuits, etc., provided by others.

d) Provide a filler plate to match card slot size and car return panel finish, including direction of graining, where card slot or proximity reader cutout is not initially utilized.

e) Elevator control systems shall facilitate system tracking of persons accessing secure floors via printout by passenger I.D. number, floor accessed, and time of entry.

4.9. COMMUNICATION

A. Car Emergency Communication System:

1. Hands free two-way communication instrument in car:

a) Mounted behind car operating panel.

b) Button on car operating panel to initiate two-way communication from Car.

c) Match car operating panel pushbutton design.

d) System includes:

1) Auto dialer.

2) Speaker.

3) Microphone.

4) Adjacent light jewel that illuminates and flashes when call is acknowledged.

5) Call button tactile symbol, engraved signage, and Tactile marking adjacent to button mounted integral with car front return panel.

6) Rechargeable back-up battery and charging system.

7) wring and connections between all devices inside the car and the elevator controller.

2. Communication for Deaf, Hard of Hearing and Speech Impaired:

a) Device inside car to allow text communication between passengers in the car and Authorized and Emergency Elevator Personnel. System includes:

1) Video screen inside car to display text messages.

2) Separate pushbuttons labeled “yes” and “no”.

3) Locate on the same car operating panel as the call button for the hands free communication device.

b) Dedicated emergency communications video camera inside the elevator.

1) Mount to capture view of all passengers in the elevator cab.

c) Device is located on the same car operating panel as the phone pushbutton.

d) Provide shielded twisted pair wiring to communicate to machine room or equipment space network box.

3. Remote Video Monitoring System:

a) Dedicated video camera inside elevator car to allow Authorized Personnel to remotely observe passengers at any location on the car floor.

b) Includes all wiring, conduit, fiber optic strands, encoders, routers, internet connections, cloud-based services required to allow Authorized Personnel to access video signal.

c) Mount to capture view of all passengers in the elevator cab.

4. Emergency Personnel Communication:

a) Communication system allowing emergency personnel inside the building to establish audio and non-verbal (text) communications with each elevator individually.

~~b) Locate in building fire command room.~~

c) Adjacent light jewel shall illuminate and flash when call is acknowledged.

d) Provide operating instructions on communications system.

e) Provide capability to verbally and non-verbally communicate with and obtain verbal and “Yes/No” non-verbal responses from passengers.

f) Dedicated emergency communications video camera inside the elevator.

1) Provide video display integral with communication system capability for entrapment assessment.

2) Include all equipment and materials required for video signal transmission from elevator car to emergency personnel communications stations location inside the building.

3) Mount to capture view of all passengers in the elevator cab.

5. ***Intercom System – Passenger Car 3 (East), Freight Car 4 (East) and Passenger Car 5 (West):***

a) Include the following devices:

1) Intercommunication system complete with talkback speaker required auxiliary equipment and wiring.

2) Preamplifier and associated equipment required to receive input from building.

3) Battery backup system capable of providing power for a minimum of four hours.

b) Master Stations:

1) Locate at location to be coordinated with Architect.

2) Combination speaker-microphone.

3) Selector buttons for each station in system.

4) A button for simultaneous conversation with all stations in system.

5) Talk-listen button; press to talk, release to listen.

6) IN USE light to indicate when any master station is in use.

7) Reset Button; to disconnect call, extinguish in use light, and reset selection buttons to free system for next call.

8) Volume control.

9) Machine Rooms/Control Rooms:

10) In each room connected with other master stations and all elevator cars.

11) In addition to devices specified for Fire Control Station, provide a loud audible signal to announce calls to this unit.

c) Remote Stations:

1) Provide combination speaker microphone in each elevator car as specified:

2) Connect with all master stations.

4.10. CAR ENCLOSURE AND INTERIOR FINISHES

A. Unless specifically identified as “Retain,” “Reuse,” or “Refurbish,” provide new equipment. Contractor may, with Consultant approval, provide new equipment in lieu of refurbishing existing. See Section 00 80 00, Supplemental Conditions.

B. Car Enclosure (Cab Shell):

1. Retain.

a) Passenger cab enclosures.

b) Freight cab enclosure.

1) Freight enclosure and canopy to be painted by others.

C. Passenger Car Fronts:

1. Car Front Returns:

a) Retain:

1) Check and tighten all fastenings.

2) Modify for installation of new signal and pushbutton fixtures.

3) Refinish satin finish stainless steel.

2. Transoms:

a) Retain:

1) Check and tighten all fastenings.

2) Modify for installation of new signal and pushbutton fixtures.

3) Refinish satin finish stainless steel.

D. Passenger Car Interior Wall Finishes:

1. Raised wall panels with wood composite on upper section and textured metal below.

E. Cab Wall Base:

1. Wall base to be satin finish stainless steel.

F. Handrails:

a) Handrails new of satin finish stainless steel.

G. Lighting – Freight Elevator:

1. New:

a) Four (4) LED fixtures with all required wiring connections and controls.

b) Flush mount to the existing canopy. Place new fixtures where existing are located. Add fixtures as required.

c) Coordinate with emergency lighting requirements.

d) Provide emergency lighting integral with portion of normal car lighting system.

e) Recessed LED down lights with on/off switch in car operating panel. Recess mount fixture flush with inside surface of car top. Provide steel guard on car top over fixture.

H. Suspended Ceiling:

1. New downlight type ceiling of satin finish stainless steel.

2. LED light fixtures with all required wiring connections and controls.

I. Ventilation:

1. Retain.

a) Mount to car canopy on isolated rubber grommets.

b) Meet noise requirements specified herein.

J. Car Finish Floor Covering:

1. Passenger elevators, new resilient flooring by others.

2. Freight elevator, retain and tighten all fasteners, clean and polish diamond plate flooring.

4.11. HALL CONTROLS.

A. Hall Pushbutton Station Fixtures:

1. Flush mounted pushbutton station fixtures with enlarged faceplate to cover existing wall block out.

2. Provide any cutting and patching required.

3. Pushbuttons for each direction of travel which illuminate to indicate call registration. Provide LED illumination.

4. Approved engraved message and pictorial representation prohibiting use of elevator during fire or other emergency as part of faceplate.

5. Separate, engraved plate with approved engraved message and pictorial representation prohibiting use of elevator during fire or another emergency.

6. Pushbutton design to match car operating panel pushbuttons.

B. Freight Door Control Stations:

1. New:

a) Vandal resistant “door open,” “door close,” and “stop” pushbuttons for control of power operated vertical bi-parting doors at each landing call pushbutton fixture.

b) Pushbuttons integral with hall control station.

c) Pushbutton design to match car operating panel pushbuttons.

d) Provide any cutting and patching required.

C. Communication Operability Signals:

1. Audible and illuminated visual signals indicating telephone line or other means of communication are not operable.

2. At designated landing for each group of elevators or single elevator.

3. Included in hall pushbutton fixture.

D. Phase I Fire Service Key Switch and Signage:

1. At designated landing for each group of elevators or single elevator.

2. Included in hall pushbutton fixture.

4.12. CAR ARRIVAL AND TRAVEL DIRECTION SIGNALS

A. Hall Position Indicator – Passenger Elevators:

1. New:

a) Alpha-numeric LCD screen indicator containing floor designations and direction arrows a minimum of 2½" high to indicate floor served and direction of car travel.

b) Provide only at the designated landing.

c) Provide vandal resistant indicator and light assemblies.

B. Car Direction Lantern – Passenger Elevators:

1. New:

a) Provide flush-mounted car lantern in all car entrance columns.

b) Illuminate up or down LED lights and sound tone once for up and twice for down direction.

c) Provide advanced hall lantern notification to comply with ADA hall call notification time.

d) Illuminate light until the car doors start to close.

e) Sound level shall be adjustable from 20-80 dBA measured at 5'-0" in front of hall control station and 3'-0" off floor.

f) Car direction lenses with faceplates.

g) Lenses shall be minimum 2½" in their smallest dimension.

4.13. CAR POSITION INDICATOR:

A. New:

1. LCD screen type.

2. Floor designations and direction arrows a minimum of 2" high to indicate floor served and direction of car travel.

3. Vandal resistant fixture and faceplate.
4. Locate in car operating panel.
5. When a car leaves or passes a floor, illuminate indication representing position of car in hoistway.
6. Illuminate proper direction arrow to indicate direction of travel.

B. Voice Synthesizer – Passenger Elevators:

1. Provide electronic device with easily reprogrammable message and voice to announce car direction, floor, emergency exiting instructions, etc.

4.14. SIGNAL FIXTURE FACEPLATE FINISHES

A. All Fixtures:

1. Stainless steel satin finish.

4.15. ***LOBBY PANEL***

A. Provide and arrange new equipment in same location as existing panel.

B. ***LOBBY PANEL***

1. Locate at location to be coordinated with Architect.
2. Fixture faceplate, satin finish stainless steel, including the following features:
   a) Car position and direction indicator, digital-readout, or LCD flat screen color monitor.
   b) Identify each position indicator with car number and group identification.
   c) Indicator showing operating status of car.
   d) Two-position firefighters' emergency return switches and indicators with engraved instructions filled red.
3. Where applicable, identify all indicators and manual switches with appropriate engraving.
4. Provide wiring and conduit to control panel.
5. Coordinate size and location of conduit with conduit installer.
6. Provide all wiring and conduit (materials and labor) to interconnect elevator controls between machine rooms or controller rooms. Coordinate wiring routing path and logistics with Owner.
7. Provide intergroup communications wiring or cable specifications and other requirements to Owner for installation by others for wiring outside of the machine rooms or control rooms.

C. Emergency Power Selection Panel.

1. Provide separate group selection key switches and controls integrated with Firefighter's control panel.
   a) Switches shall be labeled "ELEVATOR EMERGENCY POWER" with positions marked "AUTO" and appropriate car numbers controlled by each respective switch.

b) Key shall be keyed the same as the key utilized for firefighters' Phase I and II key switch. Key shall be removable in "AUTO" position only.

c) Provide "EMERGENCY POWER" indicator lights, one per car.

d) Indicator light illuminates when the corresponding car is selected, automatically or manually, to operate on emergency power.

2. Provide all wiring and conduit (materials and labor) to interconnect elevator controls between machine rooms or controller rooms. Coordinate wiring routing path and logistics with Owner.

3. Provide intergroup communications wiring or cable specifications and other requirements to Owner for installation by others for wiring outside of the machine rooms or control rooms.

D. Firefighters' Key Box: Flush-mounted box with lockable hinged cover. Engrave instructions for use on cover per Local Fire Authority requirements.

PART 5 - EXECUTION

5.1. 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. Inform Consultant of any irregularities in writing prior to commencing work.

C. Do not proceed with installation until work in place conforms to project requirements.

5.2. INSTALLATION

A. Install all equipment as follows:

1. In accordance with Contractor's instructions, referenced codes, specifications, and approved submittals.

2. With clearances in accordance with referenced codes, and specifications.

3. To be easily maintained and/or removed.

4. To afford maximum accessibility, safety, and continuity of operation.

B. 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. Machine room equipment, and pit equipment.

3. Neatly touch up damaged factory-painted surfaces with original paint color.

4. Protect machine-finish surfaces against corrosion.

C. Paint machine room floors.

D. Paint pit floors.

5.3. 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. Perform complete “Acceptance” level pre-testing as specified in the latest edition of ASME A17.2 “Guide for Inspection of Elevators, Escalators, and Moving Walks” prior to AHJ witnessed acceptance testing. Complete any adjustments, repairs, or replacements necessary to achieve code compliant operation including but not limited to:

1. Car safety.
2. Car emergency communications. Inform Owner and Consultant of any noted failures of Owner provided and maintained equipment or systems.
3. Car and counterweight buffers.
4. Standby power operation.
5. Phase I and II Firefighters’ Emergency Operation. Phase I initiated by smoke sensing devices.
6. Power car door operation including door closing force, reopening device, and restricted opening.
7. Suspension members.
8. Compensation members.

C. Have Code Authority acceptance inspection performed and complete corrective work.

D. Provide access to installed equipment and elevator personnel assistance for Consultant's final observation and review requirements.

5.4. ADJUSTMENTS

A. Static balance car to equalize pressure of guide shoes on guide rails.

B. Verify that weights of existing or altered cars, counterweights, and compensation comply with traction machine manufacturers' requirements and do not exceed total weights indicated on approved submittals.

C. Lubricate all equipment in accordance with Contractor's instructions.

D. Adjust motors, power conversion units, brakes, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

5.5. CLEANUP

A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials daily.

B. Elevator hoistways and all equipment therein shall be cleaned and left free of rust, filings, welding slag, rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt, and dust, including walls, building beams, sill ledges, and hoistway divider beams.

C. Care shall be to not to mark, soil, or otherwise deface existing or new surfaces. Clean and restore such surfaces to their original condition.

D. Clean down surfaces and areas which require final painting and finishing work. Cleaning includes removal of rubbish, broom cleaning of floors, removal of any loose plaster or mortar, dust, and other extraneous materials from finish surfaces, and surfaces which will remain visible after the work is complete.

E. Paint machine room floors.

F. Paint pit floors.

G. Remove all loose materials and filings resulting from work.

H. Clean machine room equipment and floor.

I. Clean car, car enclosure, entrances, operating and signal fixtures.

5.6. FINAL COMPLIANCE REVIEW

A. Review procedure shall apply for individual elevators, portions of groups of elevators, and completed groups of elevators accepted on an interim basis, or elevators and groups of elevators completed, accepted, and placed in operation.

B. Contractor shall perform review and evaluation of all aspects of its work prior to requesting Consultant's final review. Work shall be considered ready for Consultant's final contract compliance review when all Contractor's tests are complete, all deficiencies noted by the AHJ

have been rectified, and all elements of work or a designated portion thereof are in place and, elevators or group of elevators are deemed ready for service as intended.

C. Contractor shall perform review and evaluation of all aspects of its work prior to requesting consultant's review.

D. Furnish labor, materials, and equipment necessary for Consultant's review. Notify Consultant five working days in advance when ready for final review of elevator or group of elevators.

E. Consultant's written list of observed deficiencies of materials, equipment, and operating systems will be submitted to Contractor for corrective action. Consultant's review shall include as a minimum:

1. Workmanship and equipment compliance with Contract Documents.

2. Contract speed, capacity, floor-to-floor times, and door performance compliance with Contract Documents.

3. Performance of following is satisfactory:

a) Starting, accelerating, running.

b) Decelerating, stopping accuracy.

c) Door operation and closing force.

d) Equipment noise levels.

e) Signal fixture utility.

f) Overall ride quality.

g) Performance of door control devices.

h) Operations of emergency two-way communication device.

i) Operations of firefighters' service.

j) Operations of special security features and floor lock-off provisions.

k) Operations of remote monitoring devices.

l) Operations of emergency brake device.

F. Test Results:

1. In all test conditions, obtain specified contract speed, performance times, stopping accuracy without re-leveling, and ride quality to satisfaction of Owner and Consultant. Tests will be conducted under both no load and full load condition.

END OF SECTIONEXECUTION

5.7. 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. Inform Consultant of any irregularities in writing prior to commencing work.

C. Do not proceed with installation until work in place conforms to project requirements.

5.8. INSTALLATION

A. Install all equipment as follows:

1. in accordance with Contractor’s instructions, referenced codes, specifications, and approved submittals.

2. with clearances in accordance with referenced codes, and specifications.

3. to be easily maintained and/or removed.

4. to afford maximum accessibility, safety, and continuity of operation.

B. 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. Machine room equipment, and pit equipment.

3. Neatly touch up damaged factory-painted surfaces with original paint color.

4. Protect machine-finish surfaces against corrosion.

C. Paint machine room and pit floors.

5.9. 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. Perform complete “Acceptance” level pre-testing as specified in the latest edition of ASME A17.2 “Guide for Inspection of Elevators, Escalators, and Moving Walks” prior to AHJ witnessed acceptance testing. Complete any adjustments, repairs, or replacements necessary to achieve code compliant operation including but not limited to:

1. Car safety.

2. Car emergency communications. Inform Owner and Consultant of any noted failures of Owner provided and maintained equipment or systems.

3. Car and counterweight buffers.

4. Standby power operation.

5. Phase I and II Firefighters’ Emergency Operation. Phase I initiated by smoke sensing devices.

6. Power car door operation including door closing force, reopening device, and restricted opening.

7. Suspension members.

8. Compensation members.

C. Have Code Authority acceptance inspection performed and complete corrective work.

D. Provide access to installed equipment and elevator personnel assistance for Consultant's final observation and review requirements.

5.10. ADJUSTMENTS

A. Static balance car to equalize pressure of guide shoes on guide rails.

B. Verify that weights of existing or altered cars, counterweights, and compensation comply with traction machine manufacturers' requirements and do not exceed total weights indicated on approved submittals.

C. Lubricate all equipment in accordance with Contractor's instructions.

D. Adjust motors, power conversion units, brakes, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

5.11. CLEANUP

A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials daily.

B. Elevator hoistways and all equipment therein shall be cleaned and left free of rust, filings, welding slag, rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt, and dust, including walls, building beams, sill ledges, and hoistway divider beams.

C. Care shall be to not to mark, soil, or otherwise deface existing or new surfaces. Clean and restore such surfaces to their original condition.

D. Clean down surfaces and areas which require final painting and finishing work. Cleaning includes removal of rubbish, broom cleaning of floors, removal of any loose plaster or mortar, dust, and other extraneous materials from finish surfaces, and surfaces which will remain visible after the work is complete.

E. Paint machine room floors.

F. Remove all loose materials and filings resulting from work.

G. Clean machine room equipment and floor.

H. Clean car, car enclosure, entrances, operating and signal fixtures.

5.12. FINAL COMPLIANCE REVIEW

A. Review procedure shall apply for individual elevators, portions of groups of elevators, and completed groups of elevators accepted on an interim basis, or elevators and groups of elevators completed, accepted, and placed in operation.

B. Contractor shall perform review and evaluation of all aspects of its work prior to requesting Consultant's final review. Work shall be considered ready for Consultant's final contract compliance review when all Contractor's tests are complete, all deficiencies noted by the AHJ

have been rectified, and all elements of work or a designated portion thereof are in place and, elevators or group of elevators are deemed ready for service as intended.

C. Contractor shall perform review and evaluation of all aspects of its work prior to requesting consultant's review.

D. Furnish labor, materials, and equipment necessary for Consultant's review. Notify Consultant five working days in advance when ready for final review of elevator or group of elevators.

E. Consultant's written list of observed deficiencies of materials, equipment, and operating systems will be submitted to Contractor for corrective action. Consultant's review shall include as a minimum:

1. Workmanship and equipment compliance with Contract Documents.

2. Contract speed, capacity, floor-to-floor times, and door performance compliance with Contract Documents.

3. Performance of following is satisfactory:

a) Starting, accelerating, running.

b) Decelerating, stopping accuracy.

c) Door operation and closing force.

d) Equipment noise levels.

e) Signal fixture utility.

f) Overall ride quality.

g) Performance of door control devices.

h) Operations of emergency two-way communication device.

i) Operations of firefighters' service.

j) Operations of special security features and floor lock-off provisions.

k) Operations of remote monitoring devices.

l) Operations of emergency brake device.

F. Test Results:

1. In all test conditions, obtain specified contract speed, performance times, stopping accuracy without re-leveling, and ride quality to satisfaction of Owner and Consultant. Tests will be conducted under both no load and full load condition.

END OF SECTION