

## SECTION 142100 - ELECTRIC TRACTION ELEVATORS

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Electric traction passenger elevators.
2. Electric traction service elevators.

#### 1.2 ACTION SUBMITTALS

A. Product Data: Include capacities, sizes, performances, operations, safety features, finishes, and similar information.

B. Shop Drawings:

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

C. Samples: For finishes involving color selection.

#### 1.3 INFORMATIONAL SUBMITTALS

A. Seismic Qualification Certificates: For elevator equipment, accessories, and components, from manufacturer.

B. Manufacturer Certificates: Signed by elevator manufacturer certifying that hoistway, pit, and machine room layout and dimensions, as indicated on Drawings, and electrical service[ **including standby power generator**], as shown and specified, are adequate for elevator system being provided.

#### 1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

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

C. Continuing Maintenance Proposal: Submit a continuing maintenance proposal from Installer to Owner, in the form of a standard [**one-year**] [**two-year**] [**five-year**] <Insert agreement

**period**> maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

## 1.5 WARRANTY

- A. Manufacturer's Special Warranty: Manufacturer agrees to repair, restore, or replace elevator work that fails in materials or workmanship within specified warranty period.
1. Warranty Period: **<Insert number>** year(s) from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with ASME A17.1; /CSA B44. NYC Elevator Safety Code, including Appendix K, Sub – Chapters K 1 and K 3, NYC RS18 and NYC Fire Department's requirements, NYC and National Electrical Code, NFPA 70, Life Safety Code, NFPA 101
- B. Accessibility Requirements: Comply with requirements for accessible elevators in the United States Access Board's ADA-ABA Accessibility Guidelines and with ICC A117.1.
- C. Seismic Performance: Elevator system shall withstand the effects of earthquake motions determined according to **[ASCE/SEI 7]** **<Insert requirement>** and shall comply with elevator seismic requirements in ASME A17.1/CSA B44.
1. Project Seismic Design Category: **[C] [D] [E] [F]**.
  2. Elevator Component Importance Factor: **[1.5] [1.0]**.
  3. Design earthquake spectral response acceleration short period (Sds) for Project is **<Insert value>**.
  4. Provide earthquake equipment required by ASME A17.1/CSA B44.
  5. Provide seismic switch required by ASCE/SEI 7.

### 2.2 ELEVATORS

- A. Elevator System, General: Manufacturer's standard elevator systems. Unless otherwise indicated, manufacturer's standard components shall be used, as included in standard elevator systems and as required for complete system.
- B. Elevator Description:
1. Group Number: **<Insert a different number for each group of elevators that share a group operation system>**.
  2. Elevator Number(s): **<Insert elevator number(s) as indicated on Drawings>**.
  3. Emergency Elevator Number(s): **<Insert elevator number(s) as indicated on Drawings>**.

4. Service Elevator Number(s): **<Insert elevator number(s) as indicated on Drawings>**.
5. Machine Type: **[Geared]** **[Gearless]** traction.
6. Rated Load: **[2000 lb (908 kg)] [2100 lb (953 kg)] [2500 lb (1135 kg)] [3000 lb (1362 kg)] [3500 lb (1589 kg)] [4000 lb (1816 kg)] [4500 lb (2043 kg)] [5000 lb (2270 kg)]** **<Insert value>**.
7. Freight Loading Class for Service Elevator(s): Class A.
8. Rated Speed: **[200 fpm (1.0 m/s)] [350 fpm (1.8 m/s)] [400 fpm (2.0 m/s)] [450 fpm (2.3 m/s)] [500 fpm (2.5 m/s)] [700 fpm (3.6 m/s)] [800 fpm (4.1 m/s)] [1000 fpm (5.1 m/s)] [1200 fpm (6.1 m/s)] [1400 fpm (7.1 m/s)]** **<Insert value>**.
9. Operation System: **[Selective-collective automatic operation]** **[Group automatic operation]** **[Group automatic operation with demand-based dispatching]** **[Destination-based group automatic operation]**.
10. Auxiliary Operations:
  - a. Standby power operation.
  - b. Battery-powered automatic evacuation.
  - c. Automatic dispatching of loaded car.
  - d. Nuisance-call cancel.
  - e. Loaded-car bypass.
  - f. Distributed parking.
  - g. Off-peak operation.
  - h. Automatic operation of lights and ventilation fans.
  - i. **[Emergency hospital]** **[Priority]** service at **[all]** **<Insert floor designations>** floors.
  - j. Independent service for **[service elevator]** **[one car in group]** **[all cars in group]**.
11. Security Features: **[Card-reader operation]** **[Keyswitch operation]**.
12. Dual Car-Control Stations: Provide two car-control stations **[in each elevator]**; equip only one with required keyswitches if any.
13. Car Enclosures:
  - a. Inside Width: **[Not less than]** **[64 inches (1626 mm)] [66 inches (1676 mm)] [68 inches (1727 mm)] [70 inches (1778 mm)] [80 inches (2032 mm)] [89-1/2 inches (2273 mm)] [92 inches (2337 mm)]** **<Insert dimension>** from side wall to side wall.
  - b. Inside Depth: **[Not less than]** **[51 inches (1295 mm)] [53 inches (1346 mm)] [56-1/2 inches (1435 mm)] [60 inches (1524 mm)] [64-1/2 inches (1638 mm)] [66 inches (1676 mm)] [68 inches (1727 mm)] [88 inches (2235 mm)] [89 inches (2261 mm)] [90-1/2 inches (2298 mm)] [93-1/2 inches (2375 mm)] [95 inches (2413)] [96-1/2 inches (2451 mm)] [101 inches (2565 mm)] [102 inches (2591 mm)] [104 inches (2641 mm)] [108 inches (2743 mm)]** **<Insert dimension>** from back wall to front wall (return panels).
  - c. Inside Height: Not less than **[93 inches (2362 mm)]** **<Insert dimension>** to underside of ceiling.
  - d. Front Walls (Return Panels): **[Polished stainless steel, ASTM A480/A480M, No. 8 finish]** **[Satin stainless steel, ASTM A480/A480M, No. 4 finish]**.
  - e. Car Fixtures: **[Polished stainless steel, ASTM A480/A480M, No. 8 finish]** **[Satin stainless steel, ASTM A480/A480M, No. 4 finish]**.
  - f. Side and Rear Wall Panels: **[Enameled or powder-coated steel]** **[Plastic laminate]** **[Satin stainless steel, ASTM A480/A480M, No. 4 finish]**.

- g. Door Faces (Interior): [Enameled or powder-coated steel] [Polished stainless steel, ASTM A480/A480M, No. 8 finish] [Satin stainless steel, ASTM A480/A480M, No. 4 finish] [Plastic laminate].
  - h. Ceiling: [Luminous ceiling] [Enameled or powder-coated steel] [Polished stainless steel, ASTM A480/A480M, No. 8 finish] [Satin stainless steel, ASTM A480/A480M, No. 4 finish] [Reflective metallic-finish, plastic-laminate, stainless steel] [Reflective metallic-finish, plastic-laminate, bronze].
  - i. Handrails: [1-1/2 inches (38 mm) round] [1/2 by 2 inches (13 by 50 mm) rectangular] <Insert dimension> [anodized aluminum] [mirror-polished stainless steel] [satin stainless steel], at [sides] [and] [rear] of car.
  - j. Floor prepared to receive carpet (specified in Section 096816 "Sheet Carpeting").
  - k. Floor prepared to receive resilient flooring (specified in Section 096516 "Resilient Sheet Flooring").
14. Hoistway Entrances:
- a. Width: [36 inches (914 mm)] [42 inches (1067 mm)] [48 inches (1219 mm)] [54 inches (1372 mm)] <Insert dimension>.
  - b. Height: [84 inches (2134 mm)] <Insert dimension>.
  - c. Type: [Single-speed side sliding] [Two-speed side sliding] [Single-speed center opening] [Two-speed center opening].
  - d. Frames [at First Floor] [at Basement Floors]: [Enameled or powder-coated steel] [Polished stainless steel, ASTM A480/A480M, No. 8 finish] [Satin stainless steel, ASTM A480/A480M, No. 4 finish].
  - e. Frames at Other Floors: [Enameled or powder-coated steel] [Polished stainless steel, ASTM A480/A480M, No. 8 finish] [Satin stainless steel, ASTM A480/A480M, No. 4 finish].
  - f. Doors [and Transoms] [at First Floor] [at Basement Floors]: [Enameled or powder-coated steel] [Polished stainless steel, ASTM A480/A480M, No. 8 finish] [Satin stainless steel, ASTM A480/A480M, No. 4 finish] [Plastic laminate].
  - g. Doors [and Transoms] at Other Floors: [Enameled or powder-coated steel] [Polished stainless steel, ASTM A480/A480M, No. 8 finish] [Satin stainless steel, ASTM A480/A480M, No. 4 finish] [Plastic laminate].
15. Hall Fixtures [at First Floor] [at Basement Floors]: [Polished stainless steel, ASTM A480/A480M, No. 8 finish] [Satin stainless steel, ASTM A480/A480M, No. 4 finish].
16. Hall Fixtures at Other Floors: [Polished stainless steel, ASTM A480/A480M, No. 8 finish] [Satin stainless steel, ASTM A480/A480M, No. 4 finish].
17. Additional Requirements:
- a. Provide inspection certificate in each car, mounted under acrylic cover with frame made from [polished stainless steel, ASTM A480/A480M, No. 8 finish] [satin stainless steel, ASTM A480/A480M, No. 4 finish] [polished bronze, lacquered] [satin bronze, lacquered].
  - b. Provide hooks for protective pads in [service car] [all cars] and [one] [two] <Insert number> complete set(s) of full-height protective pads.

## 2.3 TRACTION SYSTEMS

- A. Elevator Machines: Variable-voltage, variable-frequency, ac-type hoisting machines [ **or variable-voltage dc-type hoisting machines** ] and solid-state power converters.
  - 1. Motor Control
  - 2. The Variable Voltage Variable Frequency (VVVF) – is the most common approach. The Variable frequency drive must be capable of varying the torque on the motor during acceleration and deceleration. It shall be capable of programming the volts per hertz and changing the acceleration deceleration profiles. The drive shall not create excessive audible noise in elevator machine room. The drive shall meet all IEEE requirements for noise and harmonic distortion. Provide regenerative system that complies with the IgCC.
  - 3. Limit total harmonic distortion of regenerated power to 5 percent per IEEE 519.
  - 4. Provide means for absorbing regenerated power when elevator system is operating on standby power.
- B. Fluid for Hydraulic Buffers: Fire-resistant fluid.
- C. Machine Beams: Provide steel framing to support elevator hoisting machine and deflector sheaves from the building structure. Comply with Section 055000 "Metal Fabrications" for materials and fabrication.
- D. Guides: [ **Roller guides** ] [ **or** ] [ **polymer-coated, nonlubricated sliding guides** ]. Provide guides at top and bottom of car and counterweight frames.

## 2.4 OPERATION SYSTEMS

- A. Provide manufacturer's standard microprocessor operation systems as required to provide type of operation indicated.
- B. The new Elevator Controller shall be equipped with the NYC required "Door Lock Monitoring" System (DLM) , effective January 1, 2020 as per ASME A17.3 as modified by Chapter K3 of Appendix K, Section 3. 10. 12 of the New York City Building Code, which all automatic passenger and freight elevators must abide.
- C. Group Automatic Operation with Demand-Based Dispatching: Provide [ **reprogrammable** ] group automatic system that assigns cars to hall calls based on a dispatching program designed to minimize passenger wait time. System automatically adjusts to demand changes for different traffic conditions including heavy incoming, heavy two-way, heavy outgoing, and light off-hours as variations of normal two-way traffic.
- D. Automatic Leveling:

All elevators shall be equipped with a floor levelling device which shall automatically bring the Elevator Car to a stop within 1/32 of an inch of the floor for which a stop has been initiated. A leveling device shall be provided should the elevator (s) become off levelled any distance below or above the floor serviced, whether the Hoist way Door or Car Gate is open or closed, provided there is no interruption of the power to the Elevator System. The leveling control and operation shall be effective to avoid under travel as well as over travel, to maintain levelling accuracy,

regardless of the car's load or rope slippage. This system shall operate within a defined range of 14 inches, to effectively deliver and accept the passengers.

D. Load Weighing Device (Overload Protection)

The elevator platform shall be equipped with a proximity sensor which senses the amount of deflection in the platform. The device shall be equipped with the ability to have three separate settings. Each setting shall be adjustable. The device shall be able to identify specific loads in the Elevator Cab, to aid the Controller / dispatcher in correctly identifying the cab load and either by-pass hall calls or zone the elevator (s). Also included shall be additional inputs for adjustable torque compensation \*if required for smoother operation (by the Controller).

E. Auxiliary Operations:

1. Single-Car Standby Power Operation: On activation of standby power, car is returned to a designated floor and parked with doors open. Car can be manually put in service on standby power, either for return operation or for regular operation, by switches in control panel located at **[main lobby] [fire-command station] <Insert location>**. Manual operation causes automatic operation to cease.
2. Single-Car Battery-Powered Automatic Evacuation: If power fails and car is at a floor, it remains at that floor, opens its doors, and shuts down. If car is between floors, it moves to the next floor above or below, opens its doors, and shuts down. System includes rechargeable battery and automatic recharging system.
3. Group Standby Power Operation: On activation of standby power, cars are returned, one at a time, to a designated floor and parked with doors open. If a car cannot be returned, it is removed from the system. When all cars have been returned or removed from the system, one car can be put in service on standby power by a selector switch in control panel located at **[main lobby] [fire-command station] <Insert location>**.
4. Group Battery-Powered Automatic Evacuation: If power fails, cars that are at a floor remain at that floor, open their doors, and shut down. Cars that are between floors are moved one at a time to the next floor above or below, open their doors, and shut down. System includes rechargeable battery and automatic recharging system.
5. Off-Peak Operation: During periods of low traffic, half of the elevators in a group shall be taken out of service and switched to low power mode.
6. Independent Service: Keyswitch in car-control station removes car from group operation and allows it to respond only to car calls. Key cannot be removed from keyswitch when car is in independent service. When in independent service, doors close only in response to door close button.
7. **[Emergency Hospital] [Priority] Service**: Service is initiated by a **[keyswitch] [card reader] [remote switch]** at designated floors. One elevator is removed from group operation and directed to the floor where service was initiated. Car is placed in operation by selecting a floor and pressing door close button or by operating keyswitch to put car in independent service. After responding to floor selected or being removed from independent service, car is returned to group operation.
8. Automatic Operation of Lights and Fan: When elevator is stopped and unoccupied with doors closed, lighting, ventilation fan, and cab displays are de-energized after five minutes and are re-energized before car doors open.

F. Security features shall not affect emergency firefighters' service.

1. Card-Reader Operation: System uses card readers at car-control stations to authorize calls. Security system determines which landings and at what times calls require authorization by card reader. **[Allow space for card reader in car] [Provide stripe-swipe card reader integral with each car-control station].**
  - a. Security access system equipment is **[specified in Section 281500 "Access Control Hardware Devices."]** **[not in the Contract.]**
2. Keyswitch Operation: Push buttons are activated and deactivated by security keyswitches at car-control stations.

## 2.5 DOOR REOPENING DEVICES

- A. Infrared Array: Provide door reopening device with uniform array of 36 or more microprocessor-controlled, infrared light beams projecting across car entrance. Interruption of one or more light beams shall cause doors to stop and reopen.
- B. Nudging Feature: After car doors are prevented from closing for predetermined adjustable time, through activating door reopening device, a loud buzzer shall sound and doors shall begin to close at reduced kinetic energy.

## 2.6 CAR ENCLOSURES

- A. Provide **[enameled or powder-coated steel car enclosures to receive removable] [steel-framed car enclosures with nonremovable]** wall panels, with **[removable]** car roof, access doors, power door operators, and ventilation.
  1. Provide standard railings complying with ASME A17.1/CSA B44 on car tops where required by ASME A17.1/CSA B44.
- B. Materials and Finishes: Manufacturer's standards, but not less than the following:
  1. Enameled or Powder-Coated Steel Wall Panels: Flush, formed-metal construction; fabricated from cold-rolled steel sheet. Provide with factory-applied enamel or powder-coat finish; colors as selected by Architect from manufacturer's full range.
  2. Stainless Steel Wall Panels: Flush, formed-metal construction; fabricated from stainless steel sheet.
  3. Plastic-Laminate Wall Panels: Plastic laminate adhesively applied to **[1/2-inch (13-mm) fire-retardant-treated particleboard] [manufacturer's standard honeycomb core] [manufacturer's standard formed metal panels]** with **[plastic-laminate panel backing and]** manufacturer's standard protective edge trim. Panels shall have a flame-spread index of **[25] [75]** or less, when tested according to ASTM E84. Plastic-laminate color, texture, and pattern as selected by Architect from **[plastic-laminate] [elevator]** manufacturer's full range.
  4. Enameled or Powder-Coated Steel Doors: Flush, hollow-metal construction; fabricated from cold-rolled steel sheet. Provide with factory-applied enamel or powder-coat finish; colors as selected by Architect from manufacturer's full range.

5. Primed or Powder-Coated Steel Doors: Flush, hollow-metal construction; fabricated from cold-rolled steel sheet, with factory-applied, rust-resistant primer or powder-coating for field painting.
6. Stainless Steel Doors: Flush, hollow-metal construction; fabricated **[from stainless steel sheet] [or] [by laminating stainless steel sheet to exposed faces and edges of enameled or powder-coated steel doors using adhesive that fully bonds metal to metal without telegraphing or oil-canning].**
7. Plastic-Laminate Doors: Flush, hollow-metal construction; fabricated by laminating plastic laminate to exposed faces of enameled or powder-coated steel doors and covering edges with protective edge trim**[ matching return panels]**. Plastic-laminate color, texture, and pattern as selected by Architect from **[plastic-laminate] [elevator]** manufacturer's full range.
8. Sight Guards: Provide sight guards on car doors.
9. Sills: Extruded or machined metal, with grooved surface, **1/4 inch (6.4 mm)** thick.
10. Luminous Ceiling: Fluorescent light fixtures and ceiling panels of translucent acrylic or other permanent rigid plastic.
11. **[Metal] [Metallic-Finish, Plastic-Laminate]** Ceiling: Flush panels, with **[incandescent downlights in the center of] [four low-voltage downlights in]** each panel.**[ Align ceiling panel joints with joints between wall panels.]**
12. Light Fixture Efficiency: Not less than 35 lumens/W.
13. Ventilation Fan Efficiency: Not less than **3.0 cfm/W (1.4 L/s per W)**.

## 2.7 HOISTWAY ENTRANCES

- A. Hoistway Entrance Assemblies: Manufacturer's standard horizontal-sliding, door-and-frame hoistway entrances complete with track systems, hardware, sills, and accessories. Frame size and profile shall accommodate hoistway wall construction.
  1. Where gypsum board wall construction is indicated, frames shall be self-supporting with reinforced head sections.
- B. Fire-Rated Hoistway Entrance Assemblies: Door and frame assemblies shall comply with NFPA 80 and be listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, based on testing at as close-to-neutral pressure as possible according to **[NFPA 252] [or] [UL 10B]**.
  1. Fire-Protection Rating: **[1 hour] [1-1/2 hours] <Insert rating>[ with 30-minute temperature rise of 450 deg F (250 deg C)]**.
- C. Materials and Fabrication: Manufacturer's standards, but not less than the following:
  1. Enameled or Powder-Coated Steel Frames: Formed from cold- or hot-rolled steel sheet. Provide with factory-applied enamel or powder-coat finish; colors as selected by Architect from manufacturer's full range.
  2. Stainless Steel Frames: Formed from stainless steel sheet.
  3. Star of Life Symbol: Identify emergency elevators with star of life symbol, not less than **3 inches (76 mm)** high, on both jambs of hoistway door frames.
  4. Enameled or Powder-Coated Steel Doors**[ and Transoms]**: Flush, hollow-metal construction; fabricated from cold-rolled steel sheet. Provide with factory-applied enamel or powder-coat finish; colors as selected by Architect from manufacturer's full range.

5. Stainless Steel Doors[ **and Transoms**]: Flush, hollow-metal construction; fabricated **[from stainless steel sheet] [or] [by laminating stainless steel sheet to exposed faces and edges of enameled or powder-coated steel doors using adhesive that fully bonds metal to metal without telegraphing or oil-canning]**.
6. Plastic-Laminate Doors[ **and Transoms**]: Flush, hollow-metal construction; fabricated by laminating plastic laminate to exposed faces of enameled or powder-coated steel doors and covering edges with protective edge trim[ **matching door frames**]. Plastic-laminate color, texture, and pattern as selected by Architect from **[plastic-laminate] [elevator]** manufacturer's full range.
7. Sight Guards: Provide sight guards on doors matching door edges.
8. Sills: Extruded or machined metal, with grooved surface, **1/4 inch (6.4 mm)** thick.
9. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M.

## 2.8 SIGNAL EQUIPMENT

- A. Provide **[hall-call and car-call buttons that light when activated and remain lit until call has been fulfilled] [signal equipment designed for destination-based system]**. Provide **[vandal-resistant]** buttons and lighted elements illuminated with LEDs.
- B. Car-Control Stations: Provide manufacturer's standard **[recessed] [or] [semirecessed]** car-control stations. Mount in return panel adjacent to car door unless otherwise indicated.
  1. Provide "No Smoking" sign matching car-control station, either integral with car-control station or mounted adjacent to it, with text and graphics as required by authorities having jurisdiction.
- C. Emergency Communication System: Two-way voice communication system, with visible signal, which dials preprogrammed number of monitoring station and does not require handset use. System is contained in flush-mounted cabinet, with identification, instructions for use, and battery backup power supply as per Car Emergency Signaling Devices, NYC Building Code, Appendix K
- D. Firefighters' Two-Way Telephone Communication Service: Provide **[flush-mounted cabinet] [telephone jack]** in each car and required conductors in traveling cable for firefighters' two-way telephone communication service specified in **[Section 284621.11 "Addressable Fire-Alarm Systems. "] [Section 284621.13 "Conventional Fire-Alarm Systems. "]**
- E. Car Position Indicator: Provide **[illuminated, ]**digital-type car position indicator, located above car door or above car-control station. Also, provide audible signal to indicate to passengers that car is either stopping at or passing each of the floors served. Include travel direction arrows if not provided in car-control station.
- F. Hall Push-Button Stations: **[Provide one hall push-button station at each landing] [Provide hall push-button stations at each landing as indicated]**.
  1. Provide telephone jack in each unit for firefighters' two-way telephone communication service specified in **[Section 284621.11 "Addressable Fire-Alarm Systems. "] [Section 284621.13 "Conventional Fire-Alarm Systems. "]**

- G. Hall Lanterns: Units with illuminated arrows; but provide single arrow at terminal landings. Provide **[ one of ]** the following:
1. Manufacturer's standard wall-mounted units, for mounting above entrance frames.
  2. Units mounted in both jambs of entrance frame **[ for each elevator ]**.
- H. Hall Annunciator: With each hall lantern, provide audible signals indicating car arrival and direction of travel. Signals sound once for up and twice for down.
1. At manufacturer's option, audible signals may be placed on cars.
- I. Hall Position Indicators: Provide **[ illuminated, ]** digital-display-type position indicators, located above **[ each ]** hoistway entrance at ground floor. Provide units with flat faceplate and with body of unit recessed in wall.
1. Integrate ground-floor hall lanterns with hall position indicators.
- J. Standby Power Elevator Selector Switches: Provide switches, as required by ASME A17.1/CSA B44, where indicated. Adjacent to switches, provide illuminated signal that indicates when normal power supply has failed. **[ For each elevator, provide illuminated signals that indicate when they are operational and when they are at the designated emergency return level with doors open. ]**
- K. Fire-Command-Center Annunciator Panel: Provide panel containing illuminated position indicators for each elevator, clearly labeled with elevator designation; include illuminated signal that indicates when elevator is operational and when it is at the designated emergency return level with doors open. Provide standby power elevator selector switch(es), as required by ASME A17.1/CSA B44, adjacent to position indicators. Provide illuminated signal that indicates when normal power supply has failed.
- L. Car Emergency Signaling Device NYC Building Code, Appendix K:
- A two-way communication means between the car and a location in the building that is readily accessible to authorized and emergency personnel shall be provided. Means shall be provided to enable two-way voice communications between the machine room and interior of the car.
- M. Emergency Pictorial Signs: Fabricate from materials matching hall push-button stations, with text and graphics as required by authorities having jurisdiction, indicating that in case of fire, elevators are out of service and exits should be used instead. Provide one sign at each hall push-button station unless otherwise indicated.
- N. NYC Device Number
- New York City device number tags shall be securely attached to the driving machine, Hoist Motor and or transformer, controller, main line disconnect switch, and crosshead. The NYC device number shall be engraved on the main car operating panel. This device labeling shall comply with NYC Building code Appendix K.
- O. **<Insert requirements>**.

## 2.9 FINISH MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, commercial steel, Type B, exposed, matte finish.
- B. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, commercial steel, Type B, pickled.
- C. Stainless Steel Sheet: ASTM A240/A240M, Type 304.
- D. Stainless Steel Bars: ASTM A276, Type 304.
- E. Stainless Steel Tubing: ASTM A554, Grade MT 304.
- F. Aluminum Extrusions: **ASTM B221** (**ASTM B221M**), Alloy 6063.
- G. Plastic Laminate: High-pressure type complying with NEMA LD 3, Type HGS or Type HGL.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Sound Isolation: Mount rotating and vibrating equipment on vibration-isolating mounts to minimize vibration transmission to structure and structure-borne noise due to elevator system.
- B. Lubricate operating parts of systems, including ropes, as recommended by manufacturers.
- C. Leveling Tolerance: **1/8 inch (3 mm)**, up or down, regardless of load and travel direction.
- D. Set sills flush with finished floor surface at landing. Fill space under sill solidly with nonshrink, nonmetallic grout.
- E. Locate hall signal equipment for elevators as follows unless otherwise indicated:
  - 1. For groups of elevators, locate hall push-button stations between two elevators at center of group or at location most convenient for approaching passengers.
  - 2. Place hall lanterns either above or beside each hoistway entrance.
  - 3. Mount hall lanterns at a minimum of **72 inches (1829 mm)** above finished floor.

### 3.2 FIELD QUALITY CONTROL

- A. Acceptance Testing: On completion of elevator installation and before permitting elevator use (either temporary or permanent), perform acceptance tests as required and recommended by ASME A17.1/CSA B44 and by governing regulations and agencies. All weights, staffing and any other items needed for the test shall be available. The safety tests are to be performed and filed on the same day as the NYC Department of Buildings acceptance test providing the inspector has passed the newly modernized elevator.

### 3.3 PROTECTION

- A. All new equipment being installed shall be equipped with the latest industry approved protective devices. The Controller and Selector shall be protected with overload, phase reversal and failure devices. The hoist motor shall be protected against overload or single phasing in all three phases. Motor control tach shall be provided to continuously monitor car speeds and automatically protect against over speeding. All equipment shall be grounded to protect against shorts and device failure.
- B. Temporary Use: [**Limit temporary use for construction purposes to one elevator.**] Comply with the following requirements for[ **each**] elevator used for construction purposes:
  - 1. Provide car with temporary enclosure, either within finished car or in place of finished car, to protect finishes from damage.
  - 2. Provide other protective coverings, barriers, devices, signs, and procedures as needed to protect elevator and elevator equipment.
  - 3. Engage elevator Installer to provide full maintenance service.
  - 4. Engage elevator Installer to restore damaged work, if any, so no evidence remains of correction. Return items that cannot be refinished in the field to the shop, make required repairs and refinish entire unit, or provide new units as required.

### 3.4 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include <**Insert number**> months' full maintenance by skilled employees of elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity.

END OF SECTION 142100