

## SECTION 142100 - ELECTRIC TRACTION PASSENGER ELEVATORS

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SECTION INCLUDES

- A. Electric traction passenger elevators.

#### 1.3 RELATED SECTIONS

- A. Section 033000 - Cast-in-Place Concrete: Elevator pits.
- B. Section 057000 – Decorative Metal: Decorative metal mesh for elevator cab.
- C. Division 26: Light and convenience outlets, light and disconnect switches, light fixtures and conduits.

#### 1.4 REFERENCES

- A. ANSI/ASME A17.1 - Safety Code for Elevators and Escalators.
- B. ISO 9001:2000 - Quality Management Systems - Requirements.

#### 1.5 DESIGN REQUIREMENTS

- A. Arrange elevator components in machine room, control room, or machinery space so equipment can be removed for repairs or replaced with minimal disturbance to other equipment and components.

#### 1.6 SUBMITTALS

- A. Comply with Section 013300 - Submittal Procedures.
- B. Product Data: Submit manufacturer/installer's product data, including:
  - 1. Descriptive brochures or detail drawings of car and hall fixtures, cab ceilings, and product features.
  - 2. Power Information: Separate data sheets for horsepower, starting current, running current, machine and control heat release, and electrical requirements.
- C. Shop Drawings: Submit manufacturer/installer's shop drawings, including plans, elevations, sections, and details, indicating location of equipment, loads, dimensions, tolerances, materials, components, fabrication, fasteners, hardware, finish, options, accessories, and other information to render totally functional elevators.
- D. Samples: Submit manufacturer/installer's samples of standard colors and finishes of finish materials.
- E. Operation and Maintenance Manual: Submit manufacturer/installer's operation and maintenance manual; including operation, maintenance, adjustment, and cleaning instructions; trouble shooting guide; renewal parts catalogs; and electrical wiring diagrams.
- F. Warranty: Submit manufacturer/installer's standard warranty.

- G. Seismic Qualification Certificates: For elevator equipment, accessories, and components, from manufacturer.
- H. Manufacturer Certificates: Signed by elevator manufacturer certifying that hoistway, pit, and layout and dimensions, as shown on Drawings, and electrical service including standby power generator, as shown and specified, are adequate for elevator system being provided

#### 1.7 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For elevators to include in emergency, operation, and maintenance manuals.
- 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 five-year maintenance agreement, starting on date initial maintenance service is concluded.

#### 1.8 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements:
  1. Elevator design, clearances, construction, workmanship, materials, and installation, unless specified otherwise, shall be in accordance with ANSI/ASME A17.1 and South Carolina State Amendments to the 2015 International Building Code.
  2. ANSI/ASME A17.1 shall govern, except where codes having legal jurisdiction include more rigid requirements or conflict with ANSI/ASME A17.1.
  3. Accessibility Requirements: Comply with requirements for accessible elevators in the United States Access Board's ADA-ABA Accessibility Guidelines and with ICC A117.1.
  4. Elevator shall follow design and manufacturing procedures certified in accordance with ISO 9001:2000 to meet product and service requirements for quality assurance for new products.
- B. Seismic Performance: Elevator system shall withstand the effects of earthquake motions determined according to ASCE/SEI 7 and shall comply with elevator seismic requirements in ASME A17.1/CSA B44.
  1. Affected peak velocity acceleration ( $A_v$ ) shall be determined by elevator manufacturer for Project's address.
  2. Provide earthquake equipment required by ASME A17.1/CSA B44.
  3. Provide seismic switch required by ASCE/SEI 7.
  4. Design earthquake spectral response acceleration short period ( $S_d$ ) for Project location and site classification.
  5. Project Seismic Design Category: D.
  6. Elevator Component Importance Factor: 1.0.

#### 1.9 QUALITY ASSURANCE

- A. Manufacturer/Installer's Qualifications: Specialize in manufacturing and installing elevator equipment, with a minimum of 5 years successful experience.
- B. Pre-installation Meeting:
  1. Convene pre-installation meeting before start of installation of elevators.
  2. Require attendance of parties directly affecting work of this section, including Contractor, Architect and elevator manufacturer/installer.

3. Review examination, installation, field quality control, adjusting, cleaning, protection, and coordination with other work.

#### 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer/installer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer/installer.
- B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer/installer's instructions.
- C. Handling: Protect materials during handling and installation to prevent damage.

#### 1.11 PROJECT CONDITIONS

- A. Temporary Electrical Power:
  1. Owner will arrange for temporary 220 VAC, single-phase, 60 Hz, GFCI-protected electricity to be available for installation of elevator components.
  2. Comply with Section 015000 - Temporary Facilities and Controls.
- B. Temporary Use of Elevator:
  1. Owner will negotiate with manufacturer/installer for temporary use of elevator, if required.
  2. Temporary use of elevator shall be in accordance with terms and conditions of manufacturer/installer's temporary acceptance form.

#### 1.12 SCHEDULING

- A. Coordinate elevator work with work of other trades, for proper time and sequence to avoid construction delays.

#### 1.13 WARRANTY

- A. Manufacturer/installer shall guarantee materials and workmanship of equipment installed under these specifications and make good, defects not due to ordinary wear or to improper use, which may develop within 1 year after completion of installation or acceptance thereof by beneficial use, whichever is earlier.

#### 1.14 MAINTENANCE SERVICE

- A. Elevator maintenance service shall be performed by elevator manufacturer/installer.
- B. Elevators shall receive regular maintenance on each unit for period of 12 months after completion of work specified herein or acceptance thereof by beneficial use, whichever is earlier.
- C. Trained employees shall make periodic examinations and perform work including necessary adjusting, greasing, oiling, and replacing parts to keep elevators in operation, except parts that require replacement because of accidents, vandalism, misuse, or negligence by parties other than manufacturer/installer.
- D. Manufacturer/installer shall perform all Work, except emergency minor adjustment call-back service, during regular working hours. Manufacturer/installer shall provide emergency minor adjustment call-back service, during regular working hours.
- E. Should Owner request that examinations, cleaning, lubrication, adjustments, repairs, replacements, or emergency minor adjustment call-back service, unless specified herein, be performed on other than manufacturer/installer's regular working hours of regular working days, manufacturer/installer shall absorb straight-time labor charges and Owner will compensate manufacturer/installer for overtime premium, travel

time, and expense at normal billing rates.

F. Elevator Control System:

1. Include built-in remote diagnostic module to relay constant status of elevators and control system to a 24-hour, 7-days-a-week, central-monitoring facility.
2. Remote Monitoring Device: Transmit information on current status of elevators, including malfunctions, system errors, and shutdown.

PART 2 PRODUCTS

2.1 MANUFACTURER/INSTALLER

A. Basis-of-Design: Subject to compliance with requirements, provide **5500 AIA Series by Schindler** or Architect approved comparable product by one of the following:

- a. Kone.
- b. Otis Elevator.

B. Elevator shall be installed by elevator manufacturer.

2.2 ELEVATOR SYSTEM AND COMPONENTS

A. Passenger Elevator Equipment Summary:

- |     |                         |   |
|-----|-------------------------|---|
| 1.  | Application:            | Machine Room Less                             |
| 2.  | Counterweight Location: | Side  |
| 3.  | Service:                | General Purpose Passenger (Gurney size)       |
| 4.  | Quantity of Units:      | 2   |
| 5.  | Capacity:               | 3500 lbs                                      |
| 6.  | Speed:                  | 200 fpm                                       |
| 7.  | Travel:                 | As indicated on Drawings                      |
| 8.  | Landings:               | 3   |
| 9.  | Front Openings:         | 3   |
| 10. | Rear Openings:          | 0   |
| 11. | Operation:              | Microprocessor Single Car Automatic Operation |
| 12. | Hoistway Size:          | 8'-4" W x 10'-4" D                            |
| 13. | Car Size :              | 5'-9" W x 9'- 3/8" D                          |
| 14. | Door Type:              | Single Speed Side Opening                     |
| 15. | Cab Height:             | 8'-0"   |
| 16. | Guide Rails:            | 15 lb. per foot                               |
| 17. | Hoistway Entrances:     | 4'-0" wide x 7'-0" high                       |
| 18. | Power Supply:           | 480 Volts 3-Phase 60 Hz                       |

C. Elevator Components:

1. Braille and audible signals.
2. Cab Pads and Fasteners: 1 set(s).
3. Dispatch protection.
4. Door nudging.
5. Emergency Lighting.
6. Failed car.
7. False car canceling.
8. Firefighter's Service.

9. Hoistway Access Switch.
10. Independent service.
11. Infrared light curtain door protection.
12. Inspection service.
13. Load weigh bypass.
14. Locking service panel in car operating panel.
15. Remote monitoring capable.
16. Telephone, ADA compliant.
17. Provide traveling cable for Access Control/Card Reader/Key fob entry as directed by Owner

## 2.3 ELEVATOR MATERIALS

- A. Finishes: Provide custom finishes as indicated on Drawings.
- B. Plastic Laminates Used on Decorative Cab Panels:
  1. Type: General purpose.
  2. Flame Spread Ratings: As required by code.
  3. Pattern: Select from elevator manufacturer/installer's premium selection.
- C. UL, CSA, or CUL Approved: Machines, microprocessor controller, controls, pushbuttons, and wiring.
- D. Buffers, Attachment Brackets, and Anchors: Design and size according to building code with safety factors.
- E. Machine:
  1. Gearless permanent-magnet AC motor with integral drive sheave and normal and emergency brakes.
  2. Mount to structural support channels or top of guide rail system as applicable in hoistway overhead.
- F. Control Cabinet:
  1. Manual Brake Release Lever: Attach to control cabinet for rescue of passengers.
  2. Visual Display: Within control cabinet to indicate car position, speed, and direction.
- G. Governor:
  1. Manual reset from outside hoistway.
  2. Mount to structural support channels or guide rail as applicable in hoistway overhead.
- H. Earthquake Provisions:
  1. Provide a means to stop the elevator at the nearest available floor, open its doors, and perform a shutdown when a seismic event greater than the limits of A17.1-2000 section 8.4.20.1.2 has been detected. Any elevator not in operation will remain at its current landing.

## 2.4 ELEVATOR CABS

- A. Height: 8'-0" from finished floor to underside of canopy.
- B. Elevator Cab:
  1. Minimum 16-gauge (0.060-inch) steel, allowing maximum deflection of 3/4 inch.
  2. Cab Walls: Finishes as indicated on Finish Schedule.
  3. Brushed stainless steel finished plate located at top and bottom.

- C. Handrails: - Side and Rear Walls – Brushed Stainless steel bar 3/8"x2".
- D. Ceiling: Drop Ceiling – LED Perimeter Lit Ceiling in Black EW-5.
- E. Cab Returns: Integral construction.
  - 1. Finish: #4 stainless steel.
- F. Cab Doors:
  - 1. Flush design both sides.
  - 2. Finish: #4 stainless steel.
- G. Floor: Prepared to receive flooring as indicated on Finish Schedule.
- H. Threshold/Sills: Dark Bronze (if available) or Nickel Silver Finish on all floors.

## 2.5 HOISTWAY ENTRANCES

- A. Hoistway Doors and Frames:
  - 1. UL rated with required fire rating.
  - 2. Doors: Rigid flush panel construction with reinforcement ribs.
  - 3. Frames: Securely fasten at corners to form unit frame. Frames shall be bolted.
- B. Hall Push-Button Stations: Provide vandal-resistant hall push-button stations at each landing as indicated.
- C. Finish:
  - 1. Exposed Areas of Corridor Frames: #4 stainless steel on all floors.
  - 2. Doors: #4 stainless steel on all floors.

## 2.6 CAB FIXTURES

- A. Main Car Operating Panel:
  - 1. Mount in return.
  - 2. Comply with handicap requirements.
  - 3. Pushbuttons: Illuminate using long-lasting LEDs included for each floor served.
  - 4. Emergency Buttons and Switches: Provide in accordance with code.
  - 5. Switches for car light and accessories.
- B. Cab Fixtures:
  - 1. Car Lantern(s).
  - 2. Certificate Frame.
  - 3. Digital Car Position Indicator.
  - 4. Locking Service Panel in Car Operating Panel.
  - 5. Telephone (ADA compliant).

## 2.7 HALL FIXTURES

- A. Pushbuttons:

1. Up button and down button at intermediate floors.
  2. Single button at each terminal floor.
  3. Height: Comply with handicap requirements.
  4. Illumination: Illuminate using long-lasting LEDs.
  5. 1/8" Projecting Satin Stainless Steel Button with white LED halo
- B. Hall Fixture Finish: Stainless steel.
- C. Fixture Cover Plates: Mount with tamper-resistant screws in same finish as fixture.
- D. Digital Hall Position Indicator at all floors
- E. Restricted Access Keyed Switch (Key Fob) as directed by Owner.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Examine hoistways, hoistway openings, pits, and machine rooms or control rooms before starting elevator installation.
- B. Verify hoistway, pit, machine room or control room, and openings are of correct size, within tolerances, and are ready for work of this section.
- C. Verify walls and sill supports are plumb, where openings occur.
- D. Verify hoistway is clear and plumb, with variations not to exceed 1 inch at any point in first 100 feet. Increase tolerance at 1/32 inch for each additional 10 feet, up to a maximum of 2 inches.
- E. Verify minimum 2-hour fire-resistance rating of hatch walls.
- F. Notify Architect in writing of dimensional discrepancies or other conditions detrimental to proper installation or performance of elevators.
- G. Do not proceed with elevator installation until unsatisfactory conditions have been corrected in a manner acceptable to manufacturer/installer.

#### 3.2 INSTALLATION

- A. Install elevators in accordance with manufacturer/installer's instructions and ANSI/ASME A17.1.
- B. Set entrances in vertical alignment with car openings, and aligned with plumb hoistway lines.

#### 3.3 FIELD QUALITY CONTROL

- A. Perform tests of elevator as required by ANSI/ASME A17.1 and governing codes.

#### 3.4 ADJUSTING

- A. Adjust elevators for proper operation in accordance with manufacturer/installer's instructions.
- B. Adjust elevators for smooth acceleration and deceleration of car so not to cause passenger discomfort.
- C. Adjust doors to prevent opening of doors at landing on corridor side, unless car is at rest at that landing, or is in leveling zone and stopping at that landing.

- D. Adjust automatic floor leveling feature at each floor to within 1/4 inch of landing.
- E. Repair minor damages to finish in accordance with manufacturer/installer's instructions and as approved by Architect.
- F. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

### 3.5 CLEANING

- A. Clean elevators promptly after installation in accordance with manufacturer/installer's instructions.
- B. Do not use harsh cleaning materials or methods that could damage finish.

### 3.6 PROTECTION

- A. Protect installed elevators from damage during construction.

END OF SECTION 142100