

**PART 1 GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes cars and entrances for elevator equipment specified in Division 14 Section "Electric Elevators".
- B. Related Sections:
1. Division 1 Section "Sustainable Design Requirements" for all materials.

**1.3 QUALITY ASSURANCE**

- A. The work of this section shall be manufactured and installed by a company which specializes in the type of elevator car and entrance work specified in this section and elevator equipment specified in another section as a single-source responsibility, with a minimum of 10 years of documented successful experience, and have the facilities capable of meeting all requirements of Contract Documents.
1. Work shall be performed in compliance with Owner's insurance underwriters' requirements.
- B. Manufacturer's identification tags or marks are not acceptable on surfaces which will remain exposed to view after installation.
1. Evidence of "patching" after removal of tags or marks is not acceptable.

**1.4 SUBMITTALS**

- A. Submit the following according to Conditions of the Construction Contract and Division 1 Specification Sections.
- B. Shop Drawings: Shall clearly indicate but not be limited to:
1. Information indicating complete coordination with elevator equipment requirements specified in other sections.
  2. Details and information showing compliance with code requirements.
  3. Each type of car finish including ceiling, walls, floor.
  4. Type of lighting.
  5. Type of handrails and method of attachment.
  6. Speaker intercom requirements and miscellaneous accessories.
  7. Type and locations of hooks for protective pads.
  8. Card reader requirements.
- C. Product Data: Shall be clearly marked to indicate all technical information which specifies full compliance with requirements of this section and Contract Documents.
- D. LEED Submittal:
1. MR 4.1 and 4.2 – List of Proposed materials with recycled content: Indicate projected materials cost, projected post-industrial (pre-consumer) recycled content, and projected post-consumer recycled content for each product projected to have recycled content.
  2. MR 5.1 and 5.2 – Product Certificates for Credit: For products and materials required to comply with requirements for regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.
  3. IEQ 4.4 – Product Data: For composite wood and agrifiber products, include printed statement of no-added urea formaldehyde from manufacturer.

- D. Samples:

Item No.	Quantity	Size	Description
S1	5	6" x 6"	Stainless steel with specified finish.
S2	5	6" long	Aluminum sill with specified finish.
S3	5	6" long	Stainless steel sill with specified finish.
S4	5	6" x 6"	Painted finishes.
S5	5	Actual	Protective pad hook.

S6	5	Actual	Raised-character floor designator attached to plate.
S7	1	Actual	Key switch mounted to plate.
S8	5	8" x 8"	Protective pad.
S9	5	8" x 8"	Acid-etched graphics, as required.
S10	5	8" x 8"	Each stone type.

- E. Graphics Layout: Shall clearly indicate at full-size the layout of all graphics for all elevators as required by code and Contract Documents.
- F. Operations and Maintenance Manual: Shall clearly indicate manufacturer's printed instructions for operations and maintenance of installed work, including methods and frequency recommended for maintaining optimum conditions under anticipated use conditions and precautions against materials and methods which may be detrimental to finishes and performance.
- G. Braille Certification: Contractor shall submit a written certification from a certified Library of Congress Braille transcriber that the Braille as used is correct.
1. The Library of Congress publishes a booklet "Volunteers Who Produce Books in Braille" listing transcribers at 1-800-424-8567.
- H. Hazardous Materials Notification: In the event no product or material is available that does not contain asbestos, PCB or other hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.
- I. Asbestos and PCB Certification: After completion of installation, but prior to Substantial Completion, Contractor shall certify in writing that products and materials installed, and processes used, do not contain asbestos or polychlorinated biphenyls (PCB), using format in Article 3 of General Conditions.

#### 1.5 MOCK-UP

- A. Before starting the fabrication of Passenger Elevator cars, a full-size mock-up is required for Architect's and Owner's preliminary approval of materials and finishes.

#### 1.6 DELIVERY, HANDLING, STORAGE

- A. Comply with General Conditions and Division 1 Section "Product Requirements".

#### 1.7 WARRANTY

- A. Comply with General Conditions and Division 1 Section "Product Requirements", agreeing to repair or replace specified materials or Work that has failed within the warranty period. Failures include but are not limited to the following:
1. Noisy car when elevator is in operation.
  2. Noticeable deterioration of finish.
  3. Loose or missing parts.
  4. Misalignment of components.

#### 1.8 EXTRA MATERIAL

- A. Deliver to Owner one complete set of wall panels and ceiling panels for one Passenger Elevator, of type approved for this Project.

### **PART 2 PRODUCTS**

#### 2.1 UNAUTHORIZED MATERIALS

- A. Materials and products required for work of this section shall not contain asbestos, polychlorinated biphenyls (PCB) or other hazardous materials identified by the Owner.

#### 2.2 ACCEPTABLE MANUFACTURERS

- A. General: Elevator cars of the following manufacturers are acceptable only after conforming with requirements of this section, Contract Documents and Architect's and Owner's approval:
1. Tyler Elevator Products / Cleveland, Ohio.
  2. Hauenstein & Burmeister, Inc. (H&B) / Minneapolis, Minnesota.

3. Travertine Elevator Interior Cab Company / Grand Prairie, Texas.
  4. Eklunds, Inc. / Grapevine, Texas.
- B. Substitutions: Comply with Division 1 Section "Product Requirements" using form in Division 1 Section "Substitution Request Form".

### 2.3 ELEVATOR CARS AND ENTRANCES

- A. Types: Elevator cars and entrances shall be designed, manufactured and installed as part of elevator equipment system specified in Sections Electric Elevators and shall be in compliance with requirements of this section, Contract Documents and the following agencies:
1. ASME A17.1 - Safety Code for Elevators and Escalators.
  2. ASME A17.2 - Inspectors' Manual for Elevators and Escalators.
  3. NEC - National Electric Code.
  4. ADA - Americans With Disabilities Act of 1990 and Regulations for Handicap Accommodations for the state in which this Project is located.
  5. Governing codes for location in which Project is proposed for construction.
  6. All applicable governing codes.
- B. Miscellaneous Materials:
1. Structural Steel Sheet/Hot-Rolled: Commercial quality carbon steel, pickled, oiled and complying with ASTM A569 and ASTM A568.
  2. Structural Steel Sheet/Cold-Rolled: Commercial quality carbon steel complying with ASTM A366 and ASTM A568, exposed matte finish, oiled.
  3. Brackets/Flanges/Anchors/Fasteners: Cast or formed of same metal and finish as metal being supported.
  4. Welding Electrodes and Filler Metal: Of types recommended by metal manufacturer.
  5. Plywood: American Plywood Association's FRT (fire-retardant-treated) plywood pressure-impregnated with chemicals in water solution to permanently inhibit combustion in accordance with AWPA C27, with flame-spread of not over 25 when tested in accordance with ASTM E84.

### 2.4 CAR SHELL

- A. Type: Car shell for all elevators shall be designed and constructed in full compliance with applicable code requirements.
1. Floors: 3/4" fire retardant plywood subfloor secured to 14 gauge steel plate braced and reinforced to prevent sagging, except as specified for Service Elevators.
  2. Walls: 14 gauge steel braced and reinforced to prevent sagging when leaned against.
  3. Ceiling and Car Top: 12 gauge steel, braced and reinforced to support distributed weight of two men.
  4. Finish for All Steel Components: Shop-primed with rust-inhibitive primer complete with finish paint.
- B. Car Shell Size: Shall accommodate clear inside dimensions indicated on drawings and finishes specified under "Car Finishes".
- C. Cab Inside Dimensions.
1. Elevators PE1 through PE28.
    - a. 6'-8" W x 5'-5" D clear inside.
    - b. 9'-6" min. clear ceiling height (10'-0" shell height).
  2. Elevators SE1 and SE2.
    - a. 5'-9" W x 8'-6-1/2" D clear inside.
    - b. 12'-0" min. clear ceiling height (12'-6" shell height).
  3. Elevators PE29 and PE30.
    - a. 6'-8" W x 4'-3" D clear inside.
    - b. 7'-9" min. clear ceiling height (8'-0" shell height).

### 2.5 CAR COMPONENTS

- A. Work of this Section shall include the following as well as items shown on the drawings:
1. Car doors.
  2. Car enclosure panels.
  3. Feature strips.

4. Bases with concealed vent slots.
  5. Ceiling panels.
  6. Emergency ceiling access panels.
- B. Stainless Steel Car Doors:
1. General: Doors shall be designed and fabricated as part of car assemblies for car entrances.
  2. Doors: 1-1/4" thick, 14 gauge flush steel face sheets, hollow metal construction with reinforcing members spaced 9" apart filled with sound-absorbing material complying with code requirements.
  3. Door Cladding Material: 14 gauge stainless steel AISI Type 302/304, Austenitic clad to steel face sheets and exposed edges, free of oil-canning and exposed fasteners.
    - a. Steel frames with stainless steel cladding are not acceptable.
  5. Finish: "Brushed" as specified under "Architectural Metal Finishes".
  6. Locations: All Elevators.
- C. Car Sides and Rear:
1. Apply panels directly to car enclosure using concealed fasteners which allow panels to be removed from car side but which hold panels firmly and in true alignment.
  2. Panels shall be theft-proof by provisions of a tamperproof fastener at top of panel.
- D. Fasteners:
1. Exposed fasteners will not be acceptable.
    - a. Conceal all fasteners at car shell, door frame and finish panels where exposed to view.
- E. Lighting, Outlets and Emergency Lighting/Alarm Bell:
1. Lighting: Custom lighting fixtures as indicated on drawings.
  2. Power Failure: Electric power failure or other interruption of normal electrical service shall automatically activate emergency lighting and bell function to operate with emergency generator.
  3. Emergency Lighting: Shall be complete with emergency light circuitry, emergency bell, and integral battery powerpack and charger.
  4. In Each Car: Not less than two car light fixtures of approximately equal wattage shall be connected to emergency lighting circuit and battery pack.
  5. Battery Pack and Bell: Shall be located on top of car roof in an appropriate location.
  6. Battery Type: 12-volt battery unit including solid state charger and testing means enclosed in common metal container rechargeable lead acid or nickel cadmium battery with 10-year minimum life expectancy.
  7. Electric Power Outlet:
    - a. One 20-amp duplex GFCI 110-volt power receptacle located on each car top enclosure.
    - b. One 20-amp duplex GFCI 110-volt power receptacle located within recessed service panel.
  8. Dimmer Switch: Located within recessed service panel in car operating front panel.
- F. Car and Hoistway Door Operator:
1. Type: Heavy-duty, master door operator capable of opening doors at not less than 1-1/2 fps and accomplishing reversal in 2-1/2" maximum of door movement.
  2. Doors shall open automatically when car arrives at floor to permit transfer of passengers; after timed interval doors shall automatically close.
  3. Arrange operator so doors can be opened by hand from inside car in case of power failure, if cars are within leveling zone.
- G. Car and Hoistway Door Re-Opening and Control Device:
1. Door Protective Devices: Electronic detection or proximity devices with infrared rays for protection of passengers.
  2. Door Open Timing Feature:
    - a. Shall operate in conjunction with detection to provide adjustable, reduced, hold open time once rays are broken and re-established.
    - b. When rays are broken beyond adjustable time, buzzer sounds and doors shall close at reduced speed, detection device effective to stop but not reverse doors.
    - c. There shall be a difference in door hold-open times between car and hall calls.
    - d. Door hold-open time shall comply with ASME A17.1 and ADA.
  3. Car and Hoistway Door speed, thrust, kinetic energy shall comply with the ASME A17.1 Code.

- H. Car Door Electrical Contact:
  - 1. Shall operate in conjunction with car doors so elevator cannot operate unless doors are closed or within the tolerance allowed by Code.

## 2.6 CEILING EXHAUST FANS

- A. Type: Concealed and capable of exhausting approximately 500 cubic feet of air per minute at top speed, 300 cfm at slow speed.
  - 1. Switch: Dual type located within recessed service panel in car operating front panel.
- B. Vibration Isolation: Exhaust fan shall be installed with adequate vibration isolation material to prevent perceptible vibration inside of car when fan is operating at top speed.
- C. In case of power failure, exhaust fan shall be operated by the emergency electrical system immediately and automatically.

## 2.7 CAR FINISHES

- A. Temporary Car Protection:
  - 1. Temporary car protection is required for all elevators used for construction.
- B. Stone Floor:
  - 1. Type: Stone Type TBD, as specified in Division 9 Section "Stone Paving and Flooring".
  - 2. Locations: Elevators PE1-30, GE1-2.
  - 3. Provide a sill recess of at least one inch minimum.
- C. Stainless Steel Plate Floor:
  - 1. Type: 1/4" thick diamond plate.
  - 2. Finish: Mill finish.
  - 3. Locations: Elevators SE 1-2.
- D. Panel Ceiling:
  - 1. Type: Glass specialty panel as specified in Division 9 Section.
  - 2. Emergency ceiling access panel joints shall be aligned with adjacent joints in ceiling.
  - 3. Locations: Elevators PE 1-30, GE 1-2.
- E. Stainless Steel Panel Ceiling.
  - 1. Type: 1/4" thick.
  - 2. Emergency ceiling access panel joints shall be aligned with adjacent joints in ceiling.
  - 3. Locations: Elevators SE 1-2.
- F. Stainless Steel Panel Walls:
  - 1. Type: 1/8" thick.
  - 2. Finish: "Fine Satin" as specified under "Architectural Metal Finishes".
  - 3. Emergency ceiling access panel joints shall be aligned with adjacent joints in ceiling.
  - 4. Locations: Elevators SE 1-2.
- G. Stone Panel Walls.
  - 1. Type: Stone type TBD, as specified in Division 9 Section "Stone Paneling".
  - 2. Locations: Elevators PE 1-30, GE 1-2.

## 2.8 HOISTWAY FRAMES/DOORS/ENTRANCES

- A. Door Openings: Width and height as follows:
  - 1. PE1 through PE28 – 3'-6" W x 8'-10" H.
  - 2. SE1 and SE2 – 4'-0" W x 8'-10" H.
  - 3. PE29 and PE30 – 3'-6" W x 7'-6" H.
- B. Miscellaneous Items:
  - 1. Header: 3/16" steel formed to provide stiffening flanges.
  - 2. Fascia Plates: Concealed type, 14 gauge steel reinforced to ensure a flat even surface, secured to hanger housing and sill.

3. Sill Support Angles: Required for all entrances.
  4. Struts and Closers: Continuous structural steel angles bolted to sills and building beams above, of size to accommodate door closers.
  5. Cover Plate: 14 gauge steel extended to full travel of door, easily removable from inside of car.
  6. Dustplates: Minimum 14 gauge steel centered on doorway extending 6" both sides of jamb.
  7. Sight Guards for Typical Floors: 16 gauge steel with finish to match Lobby side.
  8. Toe Guards: 14 gauge steel centered on doorway, extending 6" each side of jamb, with finish paint.
  9. Fascias: 16 gauge steel reinforced to ensure flat even surface, with finish paint.
  10. Finish for Miscellaneous Steel Items: Rust-inhibitive primer with flat black finish.
  11. Locations: Elevators PE 1-30, GE 1-2, SE 1-2.
- C. Stainless Steel Hoistway Doors and Frames (Lobby Side):
1. General: Doors and frames shall be UL Class "B Label" 1-1/2 hour rated assemblies designed and fabricated as part of door/frame assemblies for hoistway entrances of all elevator hoistways.
  2. Doors: 1-1/4" thick, 14 gauge flush steel face sheets, hollow metal construction with reinforcing members spaced 9" apart filled with sound-absorbing material complying with code requirements.
    - a. Door Cladding Material: 14 gauge stainless steel AISI Type 302/304, Austenitic clad to steel face sheets and exposed edges, free of oil-canning and exposed fasteners.
    - b. Door Finish: "Brushed" as specified under "Architectural Metal Finishes".
  3. Frame Material: Formed 14 gauge stainless steel AISI Type 302/304, Austenitic with head and jamb in flush alignment corners welded and ground smooth, secured to sills and headers, jamb width as detailed, free of oil-canning, and exposed fasteners.
    - a. Frame Finish: "Brushed" as specified under "Architectural Metal Finishes".
  4. Locations: Doors and Frames at Level 1 and Level 5 Lobbies.
- D. Steel Hoistway Doors and Frames (Lobby Side):
1. General: Doors and frames shall be UL Class "B" Label 1-1/2 hour rated assemblies designed and fabricated as part of door/frame assemblies for hoistway entrances of all elevator hoistways.
  2. Doors: 1-1/4" thick, 14 gauge flush steel face sheets, hollow metal construction with reinforcing members spaced 9" apart filled with sound-absorbing material complying with code requirements.
  3. Frames: Formed 14 gauge steel with head and jamb in flush alignment, corners welded and ground smooth, jamb width as detailed, secured to sill and header.
  4. Door and Frame Finish: Rust-inhibitive primer and factory applied baked enamel paint finish.
  5. Locations: Doors and Frames for PE 1-30 at Levels P2-P1, 2-4, 6-61; GE1-2 at Levels P3-P1, and SE1-2 at all levels.
- E. Aluminum Hoistway Sills/Thresholds:
1. Type: Extruded, with grooves and concealed fasteners.
  2. Finish: Clear anodized as specified under "Architectural Metal Finishes".
  3. Locations: Elevators for PE 1-30 at Levels P2-P1, 2-4, 6-61; GE1-2 at Levels P3-P1, and SE1-2 at all levels.
- F. Stainless Steel Hoistway Sills/Thresholds:
1. Type: Milled, with grooves and concealed fasteners.
  2. Locations: Elevators PE1-30; GE 1-2 at Floors 1 and 5.
- G. Floor Numbers:
1. Type: Painted or written, tactile and Braille in compliance with ASME A17.1 and ADA.
  2. Locations: Painted or written within hoistway and tactile and Braille on both jambs of all elevator hoistway entrances.
  3. Material for Letters: Stainless steel.
  4. Letter Style: As specified in this section under "Graphics".
- H. Door Hangers/Tracks/Supports:
1. Door Hangers: Two-point support hangers designed to take the upthrust of doors equipped with rollers, tracks, hanger, hanger supports and cover plates.
  2. Rollers: Adjustable rubber-tired ball-bearing rollers designed to roll on metal tracks complete with heavy-duty sheaves not less than 3-1/4" diameter.
  3. Tracks: Cold-drawn or cold-rolled polished steel, oiled with wick type lubrication.
  4. Hanger Supports: Formed sections securely bolted to strut angles or closer support angles.
  5. Hanger Cover Plates: Removable type, arranged to assure accessibility from inside of car.

- I. For Emergency Access to Hoistways: Provide keyed hoistway access top and bottom terminal floor hoistway doors.
- J. Hoistway Door Interlock:
  - 1. Each elevator hoistway opening shall be equipped with an interlock system.
  - 2. Interlock shall prevent the operation of elevator driving machine by the normal operating device unless hoistway door is locked in closed position.
  - 3. Interlocks shall also prevent the opening of hoistway doors from landing side unless car is either stopped or being stopped.

## 2.9 CAR OPERATING FRONT PANELS

- A. Type: Integral swing-type assembly manufactured of metal and finish to match entrance columns, complete with the following and as indicated on drawings:
  - 1. Hinges: Concealed piano hinges of metal and finish to match panels, of sufficient strength to prevent sagging of panels in open position.
  - 2. Locks: Two cam-operated locks concealed behind each operating panel, complete with tamperproof Allen type keyways with smallest possible access port.
  - 3. Sound-Deadening: Required behind front panels.
  - 4. Cutouts: Required for protrusions of car buttons, Braille identification medallions, switches, card readers, etc.
  - 5. Call push button fixtures for floor registration.
    - a. See Division 14 Section "Electric Elevators".
  - 6. Markings for Blind: As indicated on drawings.
    - a. Applied or stick-on markings not acceptable.
  - 7. Acid-Etching: As indicated on drawings.
    - a. Letter style as specified in this section under "Graphics".
  - 8. Emergency alarm and door control buttons.
  - 9. Lockable service cabinet containing controls for fan, light, independent service and inspection.
  - 10. Two-Way Security Communication Substations: As specified in Division 13 Section "BSS/Elevator Interface."
  - 11. Speaker horn for fire alarm and communication system.
  - 12. Card Readers: As specified in Division 14 Section "Electric Elevators".
  - 14. Flush mounted fireman's telephone jack or permanent instrument located in a cabinet as required by local governing authorities with finish to match return panel.
- B. Finish Material:
  - 1. Stainless Steel AISI Type 302/304, Austenitic with brushed No. 4 finish as specified in "Architectural Metal Finishes".
    - a. Location: All elevator cabs.
    - b. Gauge: 18 gauge stainless steel backed up by "cold rolled" steel.

## 2.10 GRAPHICS

- A. Type: Custom graphics, acid-etched and infilled with paint, as indicated on drawings.
  - 1. Letter Style: As specified in this section under "Graphics".
- B. The typeface for all signs is to be determined.
- C. Fabrication:
  - 1. Cutting of all letterforms shall be done only with Signus equipment using approved type font masters from the original type foundry or equipment utilizing the Adobe Postscript library and shall involve the use of photomechanically produced dies or computerized cutting equipment.
  - 2. Die cutting shall be executed in such manner that all edges and corners of letterforms are clean and true.
  - 3. Letterforms with rounded positive or negative corners or ragged edges shall not be accepted.
- D. Braille: Grade 2 Braille with translations as required.
- E. Tactile Letters:
  - 1. Typeface: To be determined.
- F. Acid-etched and infilled with paint, as indicated on drawings.
  - 1. Typeface: To be determined.

- G. Applied Sign Plaques: Not acceptable.

**2.11 CAR PROTECTIVE PADS**

- A. Type: Cotton ticking on one side and reinforced vinyl over minimum 3/8" thick cotton batting on opposite side, compatible with car enclosure design indicated on drawings.
  - 1. Hooks: Stainless steel type, removable.
  - 2. Quantity: 1 set complete with hooks for each elevator bank in PE and GE groups.

**2.12 ARCHITECTURAL METAL FINISHES**

- A. Brushed Stainless Steel Finish No. 4:
  - 1. Type: General purpose bright mechanically polished "Brushed Finish", No. 4, obtained by finishing with a 120-150 mesh abrasive, following initial grinding with coarser abrasive, complete with protective coating, in accordance with quality standards and methods established by NAAMM to match "control sample" approved by Architect.
  - 2. Protective Coating: Temporary strippable type factory-applied coating for protection of exposed finish.

**PART 3 EXECUTION**

**3.1 INSTALLATION**

- A. Perform the work of this section in accordance with approved shop drawings, manufacturer's published recommendations and Contract Documents.
  - 1. Coordinate closely with elevator equipment requirements specified in other sections.
- B. Sills: Set and align sills in full bed of non-staining, non-shrink grout.

**END OF SECTION**