SECTION 142711 - ELEVATOR CARS

1. GENERAL
	* + 1. DEFINITIONS
				1. Elevator Car: The load-carrying unit including platform, frame, enclosure, and car door ordoor or gate.

Use article below if required. Coordinate with Electrical Designer.

* + - 1. RELATED ITEMS FURNISHED BY OTHERS AND INSTALLED UNDER THIS SECTION
				1. Fire warden telephone jack for each elevator cab.
1. PRODUCTS
	* + 1. PASSENGER ELEVATOR CAR FRAME AND PLATFORM
				1. Passenger Car Frame:

Fabrication: Structural steel members welded, bolted, or riveted together (bottom beams, crosshead, and side stiles) to form frame. Reinforce and brace frame to relieve car enclosure of undue strain.

Guiding Members: Equip car frame with upper and lower guiding members to match guide rails:

Roller Guides: Spring loaded rollers with 6 inch neoprene tires, adjustable stops, mounted on a metal stand. Rollers adjusted for continuous contact on 3 sides of guide rails.

If high speed job, consider having manufactures rep. Adjust first set of roller guides

Flexible Type: Swivel shoe mounted on self aligning base, spring take up, and replaceable composition gibs.

Use subparagraph above or below with passenger elevators, speeds of 100 FPM or less.

Solid Type: Solid shoe and stand, no springs, with replaceable composition or metal wearing gibs.

* + - * 1. Passenger Car Platform:

Fabrication:

Structural steel members, riveted, bolted or welded together to form platform.

Steel stringers.

Select one of the next twoe paragraphs appropriate c., b Below for platform material.

Cold rolled steel plate 12 gage minimum thickness.

Two layers of wood flooring. Flooring may be T&G fir or spruce with top flooring of 3/4 inch marine grade plywood or two layers of 3/4 inch marine grade plywood.

Fireproof underside of wood platform with 27 gage sheet steel.

Platform may be all welded steel construction.

Isolate car platform and enclosure from direct connection to frame by means of rubber pads and auxiliary steel frames fastened to car platform.

Toe Guards: Equip car entrance with toe guard constructed of first grade furniture steel, 14 gage minimum.

Select one of the next three paragraphs to suit.

Car Entrance Threshold: Extruded aluminum sill flush with finished floor, with uniform non-slip surface and smooth straight grooves.

Car Entrance Threshold: Bronze sill flush with finished floor, with uniform surface and smooth straight grooves.

Car Entrance Threshold: Nickel-Silver sill flush with finished floor, with uniform non-slip surface and smooth straight grooves.

Insert appropriate finished floor covering as desired by client.

Finished Floor Covering: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Finished floor covering and car entrance threshold shall be flush with no elevation difference.

* + - 1. PASSENGER CAR ENCLOSURE
				1. Car Top Guard: Equip rear and sides of car top with a standard railing conforming to the requirements of ASME A.17.1 Rule 2.10.2.
				2. Car Panels:

Use 4 subparagraphs below for single entrance cars or for cars without removable panels. For cars with front and rear entrances delete the words “and rear” from subparagraph below.

Side and Rear Panels:

Select one of next 3 subparagraphs to suit or insert desired cab finish dependent on environment.

First grade furniture steel, 14 gage minimum.

Rigidized stainless steel, minimum 16 gage actual thickness; Pattern 5WL by Rigidized Metals Corp., Buffalo, NY.

Core board 3/4 inch thick.

Flush panel construction.

Reinforced for rigidity.

For cars with front and rear entrances add the words “and rear” to subparagraph below.

Front Return Panel:

First grade stainless steel, 14 gage minimum.

Flush panel construction.

 Reinforced for rigidity and support of car operating panel, indicators and all other accessories.

Extend panels from floor to canopy soffit.

Bonderize all interior sheet steel surfaces of elevator car enclosure, except natural finishes, before finishing.

Finish interior sheet steel surfaces, except natural finishes, with 5 coat baked on enamel. Color as selected.

Finish interior core board surfaces, except natural finishes, with plastic laminate not less than 1/16 inch thick. Finish edges neat and square.

All items in paragraph below are not applicable to every car enclosure.

* + - * 1. Removable Panels: Panels to be removable for replacement or repair without dismantling car.

Location and Type:

Car Return Panels: Hinged, hung.

Car Side Panels and Rear Panel: Removable, hung. Extend panels 2-1/2 inches from finished floor to within 3/4 inch of car ceiling.

Fabrication: 3/4 inch thick exterior grade plywood, faced and edged with not less than 1/16 inch thick plastic laminate bonded to the plywood. Finish edges neat and square.

Plastic Laminate: Formica or Textolite.

Edit subparagraph below to suit.

Areas Between Hung Panels: Finish with baked enamel or natural metal.

Provisions for Operating Buttons: Cut out hinged car return panels to receive exposed operating buttons.

* + - * 1. Entrance Columns:

Stainless steel, minimum 14 USS gage.

Extend columns from floor to canopy soffit.

Include subparagraph below when return panels are of same material as entrance column.

Fabricate entrance columns integral with front return panels.

Fascia may be sloping or straight design.

Fabricate fascia above, and between columns of same material and finish as front return panels.

Base material - check to match other car finishes.

* + - * 1. Base:

Cars Without Removable Panels: Apply 6 inch high base of 14 gage stainless steel, with suitable vent perforations, continuous around perimeter of car.

Cars With Removable Panels: Recessed type base, two sides and rear of car, 2-1/2 inches in height, 14 gage stainless steel, complete with vent molding on bottom side of hung panels.

Use bumper strips for service type cars.

* + - * 1. Bumper Strips: No. 12 USS gage stainless steel strips 4 inches wide on three sides of car enclosure, spaced on centerlines of 11 inches and 23 inches above finished car floor.
				2. Handrails:

Handrail material - check to match other car finishes.

Material: Stainless steel.

Style: Surface mounted, through bolted, continuous construction with return to cab wall at cab entrance. Attach to car walls on 3 sides 32 inches above finished car floor (to top of handrail). Maintain 1-1/2 inch space between handrail and wall.

Size (Cross Section): 2-1/2 x 1/2 inches or 1-1/2 inch diameter.

* + - * 1. Emergency Exits:

In Ceiling of Car: Arrange exit with cover to open outward, hinged or otherwise attached to car so that cover can only be opened from top of car. Equip exit with contact to prevent operation of car when exit is open.

Include subparagraph below if desired only where two or more elevators are side by side.

In Side of Car: Flush paneled, hinged exit arranged with a three-way locking device that is operable from inside and outside of car without interference from car appliances. Match other car finishes. Equip exit with contact to prevent operation of car when exit is open.

* + - * 1. Ventilation:

Use subparagraph below for standard type car.

Ventilate car by means of canopy vent moldings and base vent perforations with two-speed fan having a capacity of not less than 400 cfm mounted on top of car enclosure.

Use subparagraph below for hospital type cab w/plenum chamber.

Ventilate car by means of a two-speed squirrel cage exhaust blower, arranged to draw air into car from corridor when doors are open, or through concealed base vents when doors are closed. Exhaust car air through the clearance at sides of suspended ceiling.

Equip car with switch for both ventilating speeds and “off” position.

* + - * 1. Canopy:

Fabrication: First grade 14 gage furniture steel, bolted or welded at all corners to represent one piece construction. Reinforce canopy to withstand distributed weight of two men. Rigidly fasten canopy to elevator car frame.

Select from next 3 subparagraphs to suit.

Type: Flat ceiling with coved canopy walls on two sides and vertical walls at front and rear. Integrate light troughs (with baked enamel finish) and vent moldings with canopy.

Type: Flat suspended ceiling of 3/4 inch thick wood core construction faced and edged with 1/16 inch plastic laminate. Color as selected.

Type: Canopy with lighting chamber and suspended ceiling of the overall luminous type having approximately 1/4 inch thick, translucent acrylic plastic diffusing panels. Hold plastic material in place by stainless steel frame, the sides of which stop approximately 1-1/2 inches from each side of car.

Equip frame with necessary intermediate supporting ribs to divide the suspended ceiling into three separate luminous panels. Arrange panels so they may be easily removed for access to emergency exit in top of car and the fluorescent lighting.

* + - * 1. Lighting:

In Car: Continuous indirect fluorescent lighting in light troughs on two sides of car supplemented by direct lighting through plastic strips in bottom of light troughs. Minimum level of illumination at the car controls, platform, threshold and landing not less than 5 foot candles.

In Car: Fluorescent lighting with sufficient tubes to provide approximately 30 foot candle illumination at eye level in cab. Arrange fluorescent tubes in continuous rows on 12” centers and extending as near as possible the full width or depth of hung ceiling. If lamps run across an area occupied by ceiling emergency exit, install separate lamps fastened to exit cover arranged so it can be opened without lamp removal. Protect lamps from breakage with wire mesh guards.

Accessories: Equip fluorescent lighting fixtures with rapid start high power factor E.T.L. approved ballasts and accessories as required.

Edit subparagraph below to suit.

In Car: Baffled recessed incandescent down lighting fixtures with aluminum white matte trim; Lightron of Cornwall’s Luma Groove-Recessed Series L. Minimum level of illumination at the car controls, platform and threshold not less than 5 foot candles.

In Car: Compact fluorescent down lighting fixtures by Gotham Lighting Model No. 7LGF or equal having: Minimum level of illumination at the car controls, platform and threshold not less than 10 foot candles.

Two 18 watt double twin tubes.

Regressed white splay reflector.

Prismatic lens.

On Top and Bottom of Car: Porcelain receptacle with fitted wire lamp guard.

* + - * 1. Car Operating Panel:

Use subparagraph below with fixed front return panels. Edit finish to suit

Faceplate: #304 stainless steel, not less than 12 gage with dull satin finish.

Backbox: Metal, not less than 16 gage sheet steel.

Background Color of Panel: Significant contrast from the controls and the wall in which the panel is mounted.

Use subparagraph below for ADA side approach.

Height of Controls: Not less than 35 inches, nor more than 54 inches above the car floor.

Use subparagraph below for ADA front approach.

Height of Controls: Not less than 35 inches, nor more than 48 inches above the car floor.

Location of Controls:

Cars with Center Opening Doors: Front wall of car.

Edit subparagraph above or below to suit. Modify for variations, i.e. cars with front and rear openings.

Cars with Side Opening Doors: Side wall next to the door, or on the front wall next to the door.

Where all controls will not fit within the designated area, place the additional controls in a separate panel on a side of the car.

Dispatch Buttons:

Select from one of next 2 subparagraphs to suit.

May be flush or protruding polycarbonate type.

May be flush or protruding stainless steel vandal resistant type.

Buttons may be square or round (minimum 3/4 inch square or 3/4 inch diameter).

The button or immediate area around button illuminates when pressed and extinguishes on arrival at designated floor.

Identify dispatch buttons with floor identification not less than 1/2 inch high on the buttons.

In addition to the floor identification on the dispatch buttons, place raised identification to the left of each button. Characters: 5/8 inch minimum height, Sans-Serif Gothic (Helvetica Semi-Bold); also 1/2 inch minimum height Braille Characters.

Identify main floor dispatch button by a raised star to the left of the button.

Stop Switch: Keyed Type.

Modify keying to suit.

Key Switches: Medeco high security type with chrome finish. Furnish 5 key changes.

Button Arrangement:

Group together emergency stop, door open, door close and emergency alarm button at the bottom of the car operating panel.

Locate main floor entry dispatch button in left-most column.

Identification of Controls: Identify essential controls (except dispatch buttons) with ANSI Operating Device Symbols.

Enumeration of Buttons and Switches:

Dispatch buttons.

Door open button.

Door close button.

Emergency stop switch.

Emergency alarm button.

Include any (or all) of next 4 subparagraphs as appropriate.

Phase II Emergency in-car operation key switch.

Attendant operation key switch, associated buttons and indicators.

Independent service key switch.

Light ray disconnect switch.

Auxiliary switches and signal lights as required.

Fire warden telephone jack.

Include paragraph below for elevators with center opening doors.

* + - * 1. Car Operating Auxiliary Panel:

Location: Similar position on interior of elevator as car operating panel, but on other side of door opening.

Construction: Identical to car operating panel, except equipped with:

Dispatch buttons.

Door open button.

Door close button.

Emergency stop switch.

Emergency alarm button.

* + - * 1. Car Position Indicator (L.E.D. Digital or DOT Matrix Type):

Function: Shows the position of the elevator in the hoistway.

Location: Above car operating panel or over door.

Numeral Height: 2 inch minimum.

Audible Signal: Sound level 20 DB minimum, frequency 1500 HZz maximum.

Operation:

As the car passes or stops at a floor served by the elevator, the corresponding numeral illuminates and the audible signal sounds.

* + - * 1. Protective Pads: Equip car interiors, except for doors and car operating panel, with removable heavy quilted pads.

Edit pad hook finish.

Pad Hooks: Stainless steel, located at top of car panels, two sides and rear of car, and front return panels of car.

* + - * 1. Car Doors:

Type: Flush panel, hollow metal construction, not less than 1 inch thick.

Fabrication: Construct door panels of minimum 14 gage cold rolled furniture steel with finish on hatchside of baked-enamel or powder coat of color as selected and car side surface of door panels finished with:

Select one of next 3 subparagraphs to suit interior finishes of car.

5 coat baked-enamel. Color as selected.

Powder coat finish. Color as selected.

Plastic laminate to match removable panels with binder angles for doors.

Stainless steel, face and edge.

Use subparagraph below for painted finished only.

Bonderize all interior and exterior surfaces before finishing. Shop finish all interior sheet steel surfaces.

Reinforcement:

Reinforce interior of door panels for full height of panels.

Space door panel reinforcing maximum 8 inches on centers.

Reinforce door panels for attachment of hangers, operators, hardware.

Hanger Assembly:

Type: Two point suspension sheave.

Sheaves: Hardened steel or composition rubber tired, not less than 3-1/4 inch diameter.

Stand: Malleable iron or steel, with two 3/8 inch diameter bolts, with slotted bolt holes to allow transverse adjustment of door.

Adjustment: Thin shims amounting to minimum of 3/16 inch for field adjustment between top of door, and bottom of hanger.

Upthrust: Ball bearing roller or an adjustable eccentric stud, clearance setting of .005 inch from underside of track.

Tracks: Drawn steel, with polished surfaces for hanger surfaces. Shape upper and lower surface edges to conform to hanger sheave and upthrust bearing.

Door Guides: Equip each sliding door panel with two phenolic or laminated plastic door guide gibs arranged to slide in threshold sill grooves with minimum clearance. Provide structural “Z” brackets between door gibs on each door panel.

Bottom door guides to be removable without removing door panels from hangers.

Equip door guide support bracket with safety tabs.

* + - * 1. Power for Use by Maintenance Personnel: Equip top and bottom of car with GFCI duplex convenience outlet.
			1. FREIGHT ELEVATOR CAR AND FRAME PLATFORMS
				1. Freight Car Frame:

Fabrication: Structural steel members welded, bolted or riveted together (bottom beams, crosshead and side stiles) to form frame. Reinforce and brace frame to relieve car enclosure of undue strain.

Guiding Members: Equip car frame with upper and lower guiding members to match guide rails:

Roller Guides: Spring loaded rollers with 6 inch neoprene tires, mounted on a metal stand. Rollers adjusted for continuous contact on 3 sides of guide rails.

Use either of next 2 subparagraphs with freight elevators, speeds of 100 FPM or less.

Flexible Type: Swivel shoe mounted on self aligning base, spring take up, and replaceable composition gibs.

Solid Type: Solid shoe and stand, no springs, with replaceable composition or metal wearing gibs.

* + - * 1. Freight Car Platform:

Fabrication:

Structural steel members, riveted, bolted or welded together to form platform.

Steel stringers.

Sub-flooring of steel plate with finished flooring of 3/16 aluminum diamond plate.

Platform may be all welded steel construction.

The rear of the platform shall contain weight pocket to enable the static balancing of the car between the car guide rails.

Toe Guards: Equip car entrance with toe guard constructed of first grade furniture steel, 14 gage minimum.

* + - * 1. Freight Car Enclosure:

Car Enclosure Panels: Rigidized stainless steel No. 304, pattern 5WL minimum 14 gage actual thickness, maximum 16 inch wide sheet steel panels extending from platform to cab ceiling.

Canopy Fabrication: First grade minimum 14 gage furniture steel, bolted or welded at all corners to represent one piece construction. Reinforce canopy to withstand a load of 300 pounds on any 2’x 2’ area or 100 pounds applied at any point without permanent deformation. Rigidly fasten canopy to elevator car frame.

Type: Flat ceiling (with white five coat baked enamel or powder coat finish).

Bumper Strips: 12 gage stainless steel, 10 inches wide bolted through cab walls (excluding sides used for loading and unloading) at a height of 10 inches and 30 inches to the centerline of bumper above car floor.

Cut back car sides and top to receive counterweight boxes for vertical lift car gate.

* + - * 1. Car Operating Panel:

Faceplate: #304 stainless steel, not less than 12 gage with dull satin finish.

Backbox: Metal, not less than 16 gage sheet steel.

Dispatch Buttons: Buttons may be flush stainless steel vandal resistant positive stop type with shoulder to protect contact block in the event of high impact. Buttons shall be round, with inlaid engraved floor designations not less than 1/2 inch high next to each button.

Emergency Stop Switch: Heavy-duty toggle type, suitably identified.

Key Switches: Key switches shall be in accordance with the keying used at the Facility. Provide 10 change keys for each lockset.

Button Arrangement: Group together emergency stop, emergency alarm buttons in car operating panel and identify with inlaid engraved identification.

* + - * 1. Emergency Exit: In top of car, with electric contact to prevent operation of car when exit is open.
				2. Car Light Fixtures:

Increase number of lighting fixtures as necessary to suit cab size.

In Car: One fully recessed fluorescent lighting fixtures (1’ x 4’), fixture containing two fluorescent lamps with fully framed 1/4 inch thick lexan security lens, backed with milk white glass diffuser. Frame shall be stainless steel and be secured with stainless steel tamper resistant fasteners. Equip top of fixtures with 16 gage steel “hat” to protect fixtures while atop car. Minimum level of illumination at the threshold not less than 10 foot candles. Control light from light switch in car operating panel.

Exterior: Guarded porcelain pull chain light outlet with GFCI receptacle, on top and bottom of car.

* + - * 1. Car Gate:

Type: Vertical lift single section gate, utilize two-section gate where overhead clearances are inadequate for single section gate.

Gate Fabrication: No. 10 gage expanded metal panels, forming diamond shape, framed and braced by welded steel sections, mounted 24 inches on center.

Reinforcement: Reinforce corners of gate with gusset plates.

Finish: Powder coat, color; safety yellow.

Counterweight: Balance counterweight car gate on each side with weights connected to the gate by means of steel ropes or chains traveling over ball bearing pulleys. Enclose weights in steel post boxes supporting the gate guides.

Gate Guides: Arrange car gate sections with bronze or steel guide shoes running on steel guides on both sides of car enclosure.

Gate Safety: Equip car gate with electric contact connected so the elevator cannot be operated unless gate is closed.

* + - * 1. Cab Signage:

Equip interior of elevator cab with freight handling signage as required by ASME A17.1 (Class A General Freight Loading).

Message: English.

1. EXECUTION
	* + 1. INSTALLATION
				1. Car Sling and Platform:

Install car platform and sling between main guide rails in shaft.

Align car and sling in hoistway, adjust guides in perfect alignment.

Clearance between car platform and hoistway sill nose shall not exceed 1-1/4 inches.

Mount roller guides to continuously contact three sides of guide rail under all conditions and load.

Use subparagraph above for passenger elevators having speeds of 100 FPM or more.usemore. Use subparagraph below for freight or passenger elevators having speeds of 100 FPM or less.

Mount flexible type of guide shoes with minimum clearance. Adjust tension for connect take up.

Mount solid type guide shoes and adjust for correct clearances.

* + - * 1. Car Enclosure:

Assemble car enclosure on car platform.

Fasten door hanger stand to top of door panel with 3/8 inch bolts.

Install capacity plate above car operating panel.

* + - 1. FIELD QUALITY CONTROL
				1. Inspection:

Examine car enclosure for structural soundness. Determine if car enclosure is securely fastened to car platform.

Examine for capacity plates.

Verify that top exit panels are in place.

Examine lighting fixtures to determine if they are securely fastened, have required protection, and provide sufficient illumination.

END OF SECTION 142711