

PART 1: GENERAL

Scope of Standard

- A. This standard provides general guidance concerning the specific preferences of Sam Houston State University for elevator and escalator basic requirements.
- B. SHSU recognizes that project conditions and requirements vary, thus precluding the absolute adherence to the items identified herein in all cases. However, unless there is adequate written justification, it is expected that these checklists will govern the design and specifications for SHSU projects.
- C. SHSU prefers Electric Elevators over Hydraulic
- D. At least one elevator shall extend to mechanical penthouse
 - a) Elevator must be sized and designed to accommodate heaviest piece of equipment located in the penthouse.
- E. Escalators, NOT ALLOWED

PART 2: PRODUCTS

2.1 Approved Manufacturers:

OTIS
THYSSEN-KRUPP
OWNER APPROVED EQUAL

2.2 Elevators may not include any proprietary controls or systems.

2.3 Manufacturer requirements:

- 1 Maintain a warehouse and maintenance service in the City of Houston, Texas.
- 2 Minimum (5) years, prior to bid date of this project, in the business of providing elevator service and having warehouse facilities.
- 3 Maintain in Houston, Texas an adequate stock of parts for emergency and replacement purposes.
- 4 Manufacturers that require advanced core prior to purchase of parts shall not be allowed.

- 5 Qualified personnel available at Houston, Texas to insure fulfillment of maintenance and/or repair service on a 24 hour emergency call basis.
 - b. Installer: Employees and supervisor on payroll of elevator equipment manufacturer.
 - c. Equipment: Manufactured and guaranteed by the selling company; manufactured in its entirety (exclusive of cabs and doors) by the designer and manufacturer.
 - d. Parts, accessories, and appurtenances: Erected, installed, adjusted, tested and placed in operation by competent mechanics skilled in this work and under the direct control and supervision of the Installers experienced foreman.
 - a. Supply three extra keys for each keyed switch.
 - b. Supply hand held computer and other proprietary components necessary to test and maintain elevator and equipment. Include updates or modifications of test equipment for 10 years.

2.4 Materials

2.5 Components

- 1 Motors, Pumps, Valves, Regulators, Fluid Tank, Hydraulic Fluid, Controller, Controls, Buttons, Wiring, Devices, and Indicators: As required by NFPA 70.

2.6 Cab Fabrication

1. Based on (List Model #) Laminated Panel Cab manufactured by (List Manufacturer) .
2. Cab Design: Passenger Elevator:
 - a. Flooring: Rubber flooring
 - b. Sides and rear walls:
 - c. Handrails: Stainless steel, cylindrical profile, on rear wall.
 - d. Front and rear returns and transom: Stainless steel with No. 4 finish.
 - e. Ceiling:
 - f. Canopy: Baked enamel on steel.
 - h. Lighting: LED lighting
 - i. Provide wall hooks and removable protective mats for cab walls.
 - j. Provide stainless steel license holders for display of required certificates. Holder to use non-visible tamper-proof fastenings.

2.7 Car Operating Panel

2.8 Cab Entrances

- 1 Cab Doors: Stainless steel 0.058 inch (1.5 mm) thick metal, of insulated sandwich panel construction, flush design, rolled profiles, rigid construction. Door shall be hung on sheave type hangers with polyurethane tires that roll on a polished track. The hanger shall be provided with adjustable eccentric rollers to take the up-thrust out of the doors. The doors shall be guided at bottom by nonmetallic shoes sliding in the below listed threshold. Fabricate front return panels same as doors.
- 2 Cab Door Frames: Stainless steel; 0.058 inch (1.5mm) thick metal, standard design with non-detectable joints.
- 3 Thresholds: Nickel Silver “U” shaped saddles.

2.9 Hoist-way Entrances

1. Hoist-way Doors: Stainless steel; 0.058 inch (1.5 mm) thick metal, of insulated sandwich panel construction, flush design, rolled profiles, rigid construction.
2. Hoist-way Door Frames: Stainless steel; 0.058 inch (1.5 mm) thick metal, of rolled profiles, standard offset bolted design with non-detectable joints.
3. Door and Frame Construction: 1-1/2 hour fire rating; insulated sandwich panel door construction 1-1/4 inch (32mm) thick, minimum.
 1. Door Hangers: Furnish and install sheave type two point suspension hangers and tracks. The sheaves shall have polyurethane tires with ball bearings properly sealed to retain grease. The hangers shall be provided with adjustable eccentric rollers to take the up-thrust out of the doors. The tracks shall be drawn steel shapes, smooth surface and shaped to conform to the hanger sheaves.

2.10 Landing Controls

- 1 Screws: All screws to be tamper proof.

2.11 Finishes

- 1 Structural Metal Surfaces: Clean surfaces of rust, oil or grease; wipe clean with solvent; prime and paint.
- 2 Machine Room Components: Clean and degrease; prime one coat, finish with one coat of enamel.
- 3 Galvanized Surfaces: Not acceptable
- 4 Aluminum: Mill finish.
- 5 Wood Surfaces: NOT ACCEPTABLE

6 Stainless Steel: #4 Satin.

2.12 Elevator Check List, per ASME/ANSI A17.1

1. Pit light and switch shall be accessible and 42” above the bottom landing floor level. The pit convenience outlet shall be a GFI and mounted 48” above the pit floor. If sprinkled, NEMA 4 electrical apparatus required below four feet.
2. Machine room shall be located adjacent to elevator shaft. Machine room must be directly accessible room main building hallway and not through auxiliary room.
3. Machine room to be vented & HVAC added, if necessary, to maintain temperatures in the mid 80°’s F. Machine room temperature must be controlled by dedicated T-Stat with dedicated supply and return.
4. Only elevator equipment is allowed in an elevator machine room. A sprinkler head is required in the machine room. There shall be a heat detector mounted within 2 feet of the sprinkler head and there shall be a smoke detector in the machine room. When hoist-way and/or machine room sprinklers are provided, then an automatic disconnect for elevator power (shunt trip) must be provided. Rule 102.2. When the hoist-way is sprinkled, it shall have a heat and smoke detector. If the **hoist-way is not sprinkled** there shall not be a smoke detector in the hoist-way. For hydraulic elevators, a sprinkler heads is required in the pit. If the sprinkler head is no more than two feet from the pit floor, no heat detector is required. All risers and returns shall be located outside the hoist-way and machine room. Branch lines in the hoist-way shall supply sprinklers at no more than one floor level.
5. Elevator Pit
 - a) Shall be so designed as to prevent the entry of ground water and remain dry. All elevator pits located below grade must be waterproof and designed with a groundwater drain.
 - b) A sump pump is required and the sump pump recess must have a metal grate cover that is substantially flush with the pit floor.
 - c) The sump pump is to have a separate circuit with a non-GFI simplex receptacle for the pump plug-in mounted 48” above bottom of the Elevator shaft floor.
 - d) The motor-rated switch for controlling the sump pump is to be mounted 42” (+6”-0”) above bottom landing floor level, adjacent to light switch. Label switch “pump”.
 - e) The pump discharge piping is to be routed to a location near the pump switch (42” above bottom landing floor level).
 - f) Valves (gate and/or check) are not required in discharge pipe; only a union is to be installed at the pump for disassembly by maintenance.
 - g) The local alarm panel shall be located above pump switch (where Practical), shall have

an alarm silence feature, and shall be powered from sump pump circuit at all times or other means.

- h) Switches shall be located by ladder.
- 6. Grout space between floor and sill edge.
- 7. Patch any holes in the hoist-way wall and “clip” all screws or other items projecting into elevator shaft.
- 8. ALL hydraulic elevators must include an oil cooler and an oil heater controlled based on t-stat located in oil sump.

PART 3: EXECUTION

Submittals:

3.01 Submittals at Project Closeout

- 1 Furnish two copies of bound maintenance manuals for each elevator. Include full maintenance and operating instructions, preventative maintenance schedule, parts list, recommended spare parts, emergency parts inventory, sources of purchases and wiring diagrams.
- 2 Include legible schematic of hydraulic piping and wiring diagrams of installed electrical equipment and changes made in the work. List symbols corresponding to identity or markings on machine room and hoist-way apparatus.
- 3 Provide one copy of master electric and hydraulic schematic and one copy of lubrication chart.
- 4 Contractor shall provide all software, programming, control algorithms and necessary hardware, firmware and software keys to properly maintain elevator.
- 5 Contractor shall provide protective curtains for elevator.

3.02 Warranty & Maintenance

1. Provide service and maintenance of elevator system and components for (90) Ninety-Days from Date of Final Acceptance of last elevator.
2. Provide service and maintenance of elevator system and components for one year from Date of Substantial Completion.
3. Examine system components monthly. Clean, adjust, and lubricate equipment.
4. Include systematic examination, adjustment, and lubrication of elevator equipment; maintain hydraulic fluid levels. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original equipment.

- a. Include monthly Fire Service, battery lowering and emergency light Inspections and test.
 - b. Include Hoist-way sills and Car sills.
 - c. Include elevator cab handrails.
5. Perform work without removing cars during peak traffic periods.
 6. Maintain in Houston, Texas an adequate stock of parts for replacement or emergency purposes.
Have personnel available to ensure the fulfillment of this maintenance service on a 24 hour emergency call basis for this maintenance period.
 7. Perform maintenance work using competent and qualified personnel under the supervision and in the direct employ of the elevator manufacturer.
 8. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION