Conveying Systems

I. General

A. Reference: ASME A17.1 and provided template specifications.

B. Manufacturers

1. Coordinate with the Design Manager on a project-by-project basis to determine if maintenance needs, historic requirements, collocated equipment, or other circumstances will warrant pursuit of a sole source (named brand) procurement. In the absence of written confirmation of same, a non-proprietary, performance-based specifications are to be provided.

C. Internal Standards

1. Template Elevator and Escalator Specifications are available upon request to Amtrak DM and may be utilized as a starting point and customized for each project. Aesthetic and security differences are to be expected for yard and industrial applications

II. Elevators

A. Aesthetics: Cab and hoistway components are to be customized for yard/facility/stations applications as required following a safety and architectural analysis. Glass applications noted in the template specifications may not be required in non-public facing spaces.

B. Hydraulic

1. Rope hydraulic or hydraulic elevator systems must be heavy-duty grade and have a power unit and lifting assembly capable of lifting the gross load as site specific. The following minimal requirements are expected for durability and reliability:

a. The design of the power unit must be a compact, self-contained integral unit consisting of all necessary equipment and connections. If required, the system should provide energy-efficient and low noise operation. The required equipment must be mounted on a rubber isolated inner base, have removable drip pan, and enclosed with sound insulated sheet steel panels. A structural steel outer base, if required, must support any hydraulic oil tank and controller.

b. Hydraulic oil pump system, oil tank, oil control unit must be heavy duty grade. The control unit must be designed for safe and efficient operation. The oil tank must be sized to store the volume of oil to lift the elevator to all landings plus reserve capacity to prevent air or other gas from entering the system. For areas that have temperature below thirty-two (+32) and above ninety (90) degrees Fahrenheit, an oil heater and cooler will be installed.

c. The tank must have a removable cover, protected vent opening, drain valve, and at least one oil level gauge glass for the system.

d. The roped hydraulic type elevator system rotational sheaves must be heavy duty grade.

e. The governor and safety equipment must be in compliance with the ASME A17.1 elevator code.

f. Elevator exposed supporting steel along with connections must be primed and painted.

g. The non-proprietary controller must be designed to provide the type of elevator operation required.

h. Hydraulic elevators require a sump in the elevator pit, with oil separation and pump or an oil-minder pump with local alarm. Refer to Chapter 22 for equipment and piping requirements.

i. Hydraulic elevators require a sidewall sprinkler head, per NFPA 13, located no more than 2 feet above the floor of the pit.

C. New Traction

1. Design of traction elevator must be a heavy-duty grade and must be designed with non-proprietary standard pre-engineered elevator systems and as required for a complete system. Based on the system and manufacturer's selected the following minimum criteria must be met:

a. Solid-state power equipment.

b. For hoist motors 50 HP and above, the drive shall be regenerative

c. Limit total harmonic distortion of regenerated power to 5 percent per IEEE 519.

d. Provide line filters or chokes to prevent electrical peaks or spikes from feeding back into building power system.

D. Machine Room-Less Elevators (MRLs)

1. Proposals for MRLs will require written approval by Amtrak Engineering.

E. Application, Inspections and Testing

1. The elevators must be designed so a certificate of inspection can be obtained by a 3rd party at project completion.

2. The design documents must be written to require the contractor to obtain and pay for all necessary applications and perform tests that may be required to obtain a certificate of inspection.

F. Warranty

1. The contract documents must specify a manufacturer's standard warranty in which manufacturer agrees to repair, restore, or replace defective elevator work within five years from date of Final Completion.

G. Maintenance Services

1. Design documents must specify a minimum 12 month full maintenance service by the elevator installer. Service must include but be not limited to: 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. Parts and equipment provided must be the same as those used in the manufacture and installation of original equipment. The following service is also required to be specified in the design documents during the maintenance period:

2. Perform maintenance, including emergency callback service, during normal working hours.

3. Include 24-hour-per-day, 7-day-per-week emergency callback service with response time of two hours or less.

4. A spare parts list shall be coordinated and reviewed by Amtrak during the design phase.

III. Stations Escalators

A. Escalator Design Criteria – Consult with Amtrak Engineering Services for the precise capacity, spatial or operational constraints, and other criteria on an element by element basis.

B. Escalators must comply with current ASME A17.1 Code and Authority having jurisdiction (AHJ) requirements.

C. Escalators must be heavy-duty type for use in transit systems. The escalators must be designed with provisions for thermal expansion and contraction of escalator assemblies due to changing ambient temperature and humidity conditions as well as any movement of the facility caused by trains braking when trains are fully loaded.

D. Installation of APTA rated escalators will be reserved for stations with high passenger loads with exterior site conditions and exposed directly to weather.

E. All escalator controller disconnect switches must be installed in a machine room. Proposals for controllers or disconnect switches in escalator pits will not be accepted.

F. The escalators must be designed for operations twenty-four (24) hours per day, seven (7) days per week. The design must provide for bi-directional travel. All components to be heavy-duty with up and down reversibility with a delay of no more than 2 minutes between directional changes. The minimum rate of speed must be 100 feet per minute.

G. Electrical power services must be designed for heavy-duty usage escalator drive systems. The escalators drive system must terminate in a disconnect switch located in the escalator machine room. Lighting and receptacles must be GFCI and installed in the escalator pit.

H. The escalator's truss, machinery, motors and brakes must be designed with a minimum design load for 320 pounds per 40" exposed step unless APTA rated.

I. The escalators must be designed to operate with full specified performance capability while exposed to temperature ranges of plus twenty-five (+25) to plus one hundred and twenty (+120) degrees Fahrenheit, dry bulb; and all conditions of relative humidity, and while exposed to airborne dust and debris.

J. Escalator vestibule door direction and placement must be approved in writing by Amtrak engineering.

K. Each Escalators shall be equipped with Audible Message System: speakers and necessary equipment to repeatedly announce a message at a suitable volume of up to 30 seconds duration during operation of the escalator. The speaker system shall be activated by the proximity sensors at both upper and lower landings.

L. Structural Requirement

1. The escalators must be designed with escalator truss mounting angles and intermediate truss supports with attachments. The design must provide for sizes as required to install escalators into the well-way structural support systems.
2. For modernization, escalator truss can be retained with certification from structural engineer.

M. Operation Requirements

1. Controller will be non-proprietary.
2. The design of the escalator sound level must be able to operate at or below sixty-five (65) decibels, measured five (5) feet above the escalator at any location, with the escalator operating normally, either free-running or under load as a minimum. For multiple escalator installation, the design must indicate that the noise measurements must be made with only one (1) escalator unit in operation including that the entire installation is complete and in operating condition. Ambient level noises must not exceed forty-nine (49) decibels, and the ambient level must be maintained prior to units being turned on.
3. All escalators will have sleep mode and have infrastructure to connect BMS (Building Management Systems) or vertical transportation monitoring system.

N. Application, Inspections and Tests

1. The escalators must be designed so a certificate of inspection can be obtained by a 3rd party at project completion.
2. In addition:
   a. A full load test (Static and Dynamic) shall be performed on each installed escalator.
   b. 24-Hour Test: The escalator shall operate continuously for 24 hours, at full travel speed with sleep mode and energy conservation functions disabled, with no faults.

c. Escalator running direction shall be reversed every 12 hours during the test (12 hrs "up" - 12 hrs "down").

O. Warranty

1. Design documents must specify a manufacturer's standard warranty in which manufacturer agrees to repair, restore, or replace defective escalator work within at least 12 months from date of Final Completion.

P. Maintenance Service

1. Design documents must specify a minimum 12 month full maintenance service by escalator Installer. Service must include, but be not limited to, monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper escalator operation at rated speed and capacity. Parts and equipment provided must be the same as those used in the manufacture and installation of original equipment. The following service is also required to be specified in the design documents during the maintenance period:

a. Perform maintenance, including emergency callback service, during normal working hours.

b. Include 24-hour-per-day, 7-day-per-week emergency callback service with response time of two hours or less.

IV. Stations Platform Wheelchair Lifts

A. General

1. Install new outdoor inclined platform wheelchair lift and all associated components and accessories to provide ADA-compliant access.

B. Materials

1. The lift system must consist of a platform, drive system, and continuous guide tubes and all required components for a complete and code compliant system. Provide additional structure as required to support system.

2. The lift system must be rated for exterior use and must include stainless steel components as recommended by the manufacturer for the location where the lift will be installed. Any components that the manufacturer does not require to be stainless steel must be protected from corrosion according to the manufacturer's written specifications.

C. Accessories

1. Provide call stations at top and bottom landings. Operation must be keyless.

2. Include all standard safety systems and any additional safety systems as required by codes and standards and as recommended by the manufacture for the specific application.

3. Provide other accessories as required by ADA regulations and all authorities having jurisdiction.

4. Provide lockable and weatherproof cabinet for all electrical and drive systems.

5. Provide vandal-resistant platform storage.

6. Auxiliary power: provide battery back-up system for normal operation during power failure for a minimum period of ½ hour with rated load.

D. Installation

1. The lift system, installation, and installer must meet all applicable codes and standards including all ADA requirements and recommendations and the system must be installed, operated, and maintained as per the manufacturer's written instructions and specifications.

2. Ensure that the Code required handrails are available for use when lift is not in operation. If necessary, extend the run of the lift beyond the stairway or provide supplemental railings.

E. Warranty

1. Provide the manufacturer's standard warranty.

V. Other Conveying Equipment

A. <end of section>