

# Conveyance

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## A. Basis of Design

This section applies to passenger and freight elevators.

### Background

1. The AHJ (Authority Having Jurisdiction) is Labor and Industries State Elevator Inspector. AHJ for Fire Safety is the Seattle Fire Department.

### Programming

1. Provide a traffic analysis to determine capacity and speed requirements. Where elevators are the primary means of access provide requirement that the waiting time not exceed 30 seconds.
2. In multi-elevator situations, size and speed shall be such that with one elevator out of service, the other elevator(s) shall be able to handle 60% to 80% of the normal traffic load.
3. Provide multi-elevator situations where accessibility is essential, otherwise provide for a practical alternative for maintaining accessibility per ADA Title II when the primary elevator is out of service.
4. Provide stops at mechanical penthouse(s) and basements.

### Design Criteria

1. Design of elevator systems shall be reviewed and approved by UW Elevator shop during the design phase of the project.
2. Traction elevators are the preferred means of conveyance in buildings. Hydraulic elevators may also be considered but are restricted to a maximum shaft length of 50 feet and a maximum of four stops. Provide traction elevators in buildings with five stops or more and in buildings with high traffic loads.
3. For traction elevators, gearless motors are preferred and machine room-less (MRL) may also be considered.
4. Telescoping hydraulic, hole-less hydraulic, and roped hydraulic elevators must not be used.
5. Hydraulic elevators must not be used where the water table is high enough to be in contact with the piston cylinder assembly.
6. Dual-purpose freight/passenger elevators can be substituted for dedicated freight elevators in special situations or as a practical alternative as programming requirements indicate. Floors shall be freight rated.
7. Stair railing mounted wheelchair lifts are unacceptable. Wheelchair lifts are only allowed in specific, special circumstances. Coordinate with Engineering Services and Project Manager.
8. Renovated elevators shall be upgraded to meet current Elevator Code to the extent practical.
9. Provide tamper/vandal resistant cab signals, hall call station signals and lighting systems.
10. Car interior wall finishes shall be durable and low maintenance. Floor finishes shall be durable and non-slip. Ceiling finishes shall be durable and easily cleaned. Bright, mirror-like finish for

stainless steel is not desired because of the difficulty with cleaning and repair. Glass panels are not acceptable.

11. Size shaft/hoistway to accommodate all manufacturers for the type of elevator specified. Do not provide a shaft/hoistway that accommodates only one manufacturer's size of elevator.
12. Provide seismic detectors.
13. Pit shall have clearances under car for safety of workers in the pit. Access shall be by ladder or walk-in type of pit.
14. Locate call buttons at 36 inches AFF from button nest centerline.
15. Provide mechanical cooling and consider a reflective roof coating at machine room to maintain code mandated room temperatures.
16. Response time for emergency by elevator contractor during warranty and service maintenance period shall be 2 hours maximum.

## **Electrical**

1. The most common power supply is 480Y/277 volt, 3 phase, 4 wire grounded; 208Y/120, 3 phase, 4 wire grounded power supply is acceptable.
2. Lighting power supply is 208Y/120 volts. Provide a 15 amp (max) breaker disconnect in the machine room.
3. Analyze power supply to address power quality, particularly total harmonic distortion. Refer to Elevators standard specifications for specific requirements.
4. Provide additional data (FacNet) line to machine room for future remote controller interface.
5. Elevator pit(s) shall have a light for general illumination and a GFI outlet. Provide for required electrical power for testing and adjusting equipment.
6. New Elevator Systems shall ONLY be connected to Emergency Power when required by Code or when requested and approved by the UW Elevator Shop. Existing emergency power connections to existing elevator systems may remain in place.
7. Provide Battery Back-up for elevator systems in "high-traffic" areas or when deemed applicable by the UW Elevator Shop. All installations for battery back-up shall be vetted and approved by the UW Elevator Shop during the design phase.
8. Fire Alarm Supervisory – Provide power disconnecting means that does not send a FA supervisory signal when the elevator is powered "off" for service.

## **Mechanical**

1. Provide machine room with mechanical cooling system to maintain operating temperature as required by manufacturer for equipment operation.
2. Provide shaft pressurization as required. Refer to Architectural - Roofing for roof-mounted equipment. Center closing doors perform best for maintaining shaft pressure. Reduce the car/shaft gap when doors are open to maintain shaft pressure.