

DIVISION 14 – CONVEYING EQUIPMENT

14 20 00 ELEVATORS

PART 1 - GENERAL

1.01 DESIGN REQUIREMENTS

- A. References: All designs shall comply with the most current version of the following:
1. ASME A17.1 (2013 edition)
 2. WAC 296-96
 3. Where these two codes conflict, WAC 296-96 shall take precedent.
- B. General Guidelines: Design Consultants shall note that University elevators are subject to continuous full-capacity service, are prone to vandalism, and are required to provide access for the disabled to most building areas. It is imperative that elevators be designed accordingly.
- C. All new buildings shall be designed with a minimum of two elevators. Deviation from this standard requires approval by the WSU Project Manager. Consultants shall address this issue with the WSU Project Manager and WSU Engineering Services as early as possible in the design process.
1. At least one elevator per building shall be large enough to accommodate a medical gurney.
- D. Specify hydraulic elevator(s) unless project conditions make this unfeasible. Hydraulic elevators have proven the most cost effective solution for long-term maintenance on the WSU campus. Design and selection of other elevator systems requires approval from WSU Engineering Services.
- E. Elevator equipment and controls shall not be located in the hoistway; maintenance of these designs is prohibitively expensive.
- F. Elevators shall be designed for combination passenger and freight (Class A) service. No exceptions.
- G. Freight and Equipment Transportation: At least one elevator shall access all floors of the buildings, including the mechanical room and penthouse. Coordinate elevator design with the Mechanical Engineer consultant so that all equipment can be transported to loading dock facilities via the elevators.
- H. Alarms and Emergency Communication:
1. Inside Machine Room: Provide dedicated analog line to outside communications.

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2. Inside Car: Provide dedicated analog line to elevator controller (911 emergency services operator).
 - i. Install a CAT 6 copper wire from the building telecommunications closet to a WSU Information Technology Services (ITS)-accessible punch block connector in the elevator machine room.
 - ii. Provide a phone device conforming to ASME A17.1 and capable of receiving a CAT 6 copper wire via shaft traveler and connected to the elevator controller in the machine room. Install a cross connector CAT 6 wire from the controller to the ITS-accessible punch block.
 - iii. WSU ITS shall provide a dedicated phone circuit from the building telecommunications closet to an analog demark in the Main Communications Facility (MCF). These MCF connections on Cisco Analog Gateways, which are part of the WSU campus phone system and provided with 4-hour minimum power during building-wide or campus-wide power outages.
3. Provide Intercom stations at the Machine Room and Main Egress for communications with car.
 - I. Access Control: Elevators which serve mechanical spaces, basements, penthouses, roofs or other non-public areas shall be provided with a programmable floor-specific keyless access control system, which shall limit access to authorized personnel only. See details in Section 28 13 00 “Access Control.” No elevator shall provide public access to restricted areas.

1.02 WA STATE LABOR AND INDUSTRIES (L&I) ACCEPTANCE

- A. Contractor shall be responsible to obtain Washington State Labor and Industries (L&I) inspection and acceptance of elevator materials and installation prior to the delivery of new furniture to the project.

1.03 WARRANTY PERIOD MAINTENANCE REQUIREMENTS

- A. Contractor shall be responsible to provide 24/7 callback service coverage with no more than a 60-minute ETA.
- B. Billable callback hourly rates shall match the WSU Elevator Maintenance Contract, or shall be outlined and agreed upon in the original contract documents.
- C. Contractor shall be responsible for all L&I inspection corrections and penalty fees, at no cost to WSU, throughout the duration of the warranty maintenance period.

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PART 2 - PRODUCTS

2.01 FIXTURES:

- A. Specify all fixtures and lighting shall be vandal-resistant.
- B. Design Consultant shall ensure a complete Fixture Schedule is included in Elevator Shop Drawing submittals.

2.02 HALLWAY CALL BUTTONS

- A. Vandal-resistant Push Button: The surface shall be rounded with minimal travel stopped by a metal shoulder to prevent the transfer of pressure to the electrical switch contact and mounting studs.

2.03 CAR OPERATING PANEL

- A. Provide vandal-resistant car operating panel including the following:
 - 1. Alarm Button
 - 2. Keyed Emergency Stop
 - 3. Capacity Plate (inlaid)
 - 4. Door Open Button
 - 5. Door Close Button
 - 6. Keyed Light Switch
 - 7. Keyed Fan Switch
 - 8. Keyed Independent Service Switch
 - 9. Emergency Lighting mounted in car station
 - 10. Operating panel and signal fixture finishes shall be No. 4 stainless steel.

2.04 CAR POSITION INDICATOR AND CAR RIDING LANTERN AND GONG ASSEMBLY

- A. Provide a vandal-resistant car lantern and gong assembly consisting of engraved chevron arrows highlighted at the three apex points by a round Lexan illuminated lens.

2.05 CONTROLLER AND SYSTEM OPERATION

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- A. The elevator control shall be a distributed control system, microprocessor-based and software-oriented.
- B. The elevator installation shall be a design that can be maintained by any licensed elevator maintenance company employing journeymen mechanics, without the need to purchase or lease additional diagnostic devices, special tools, or instructions from the original equipment Contractor.
- C. The new equipment shall meet the following requirements:
 - 1. Provide on-site capability to diagnose faults to the level of individual circuit boards and individual discrete components for the solid state elevator controller.
 - i. The Contractor shall provide a printed copy of the fault ID codes and diagnostic outline to the WSU Construction Manager upon final acceptance. This information shall also be included in the O&M Manual.
 - 2. Provide a separate detachable device as part of this installation if the equipment for fault diagnosis is not completely self-contained within the controller. This device shall become the property of WSU upon acceptance.
 - 3. If the control system requires a SIMM card or other device, such device shall become the property of WSU upon acceptance.
 - 4. Installed equipment not meeting this requirement shall be removed and replaced with conforming equipment at no cost to WSU.
 - 5. All replacement parts necessary for maintenance and repair must be readily available for purchase and shipment by ANY licensed elevator company to reduce down times. The Contractor shall provide a complete list of replacement parts to the WSU Construction Manager upon final acceptance. This information shall also be included in the O&M Manual.

2.06 MACHINE ROOM AND REMOTE MONITORING REQUIREMENTS

- A. For hydraulic elevators, the controller monitoring points shall be identified for the following functions:
 - 1. Elevator's position in the hoistway
 - 2. Front and rear hall calls
 - 3. Front and rear car calls
 - 4. Car position

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5. Elevators in service
 6. Front and rear door positioning
 7. Elevator direction preference
 8. Stop switch
 9. Alarm button
 10. Failure to answer a car call
 11. Fire service
- B. For traction elevators, the following additional controller monitoring points shall be identified:
1. Independent
 2. Seismic operation
 3. Emergency power

2.07 ELEVATOR CAR FINISHES

- A. Exposed Exterior Metal: All metal exposed to weather elements shall be factory powder-coated.
- B. Interior Wall Finishes: Within the car, wall finishes shall be vandal and graffiti-resistant. Stainless steel 5WL is preferred. The following alternatives are acceptable, pending the approval of the WSU Project Manager:
1. Brushed stainless steel
 2. High-pressure plastic laminate panel system
- C. Door Jambs and Headers: Shall be caulked to the wall with a paintable acrylic/latex sealant, color white.
- D. Handrails: Handrails shall be 1-1/2" diameter brushed stainless steel, mounted around the inside perimeter of the car.
- E. Floor Finishes:
1. Proposed flooring materials must be pre-approved by the L&I Elevator Section.
 2. Flooring: Slip-resistant, heavy-duty resilient flooring (2.5mm standard) designed for high volumes of foot and wheeled traffic.

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- i. Preferred manufacturer: Altro Maxis Unity or WSU-approved equivalent
- 3. Adhesive: Non-flammable, solvent-free acrylic adhesive shall meet the manufacturer's specifications for the resilient flooring being installed.
 - i. Preferred manufacturer: Altro Ecofix 20 or WSU-approved equivalent
- F. Ceilings: Above-ceiling spaces shall not be accessible to the general public. Light fixture shall be flush with and integral to the ceiling. Access to the light fixture shall be limited to Maintenance personnel.
- G. Protective Pads: Contractor shall furnish new protective pads to the WSU Construction Manager upon completion of elevator installation. Install cab pad buttons near the elevator ceiling line for the installation of protective pads.
- H. See Section 09 90 00 "Painting and Coating" for WSU powder coating and paint standards.

2.08 ELEVATOR CAR LIGHTING

- A. Specify LED lighting. Provide fuse on the driver or ballast. All lighting shall be vandal resistant.

END OF SECTION