

142000S02 Hydraulic and Traction Elevators

I. GENERAL

A. ELEVATOR STANDARD - UPDATES AND REVISIONS

This standard is to be used for design, installation, construction, and/or renovation of elevators for and in University of Kentucky buildings. It is a living document; therefore, updates will be made as conditions and/or new regulations require. Further, when a user of this standard perceives the need for revisions, additions, deletions, and/or other changes, a request for revision should be put in writing to the Campus and/or Med Center Physical Plant Director for consideration. A request for a revision may not necessarily result in the Elevator Standard being revised.

B. TERMS

1. University Project Manager
"University Project Manager" means the individual from the Capital Project Management Division (CPMD), the Campus Physical Plant Division (CPPD), or the Medical Center Physical Plant Division, or other University Facility Division who is designated to be in charge of the Project.
2. Consultant
"Consultant" means the individual, the Elevator Consultant, the Engineer, and/or the Architect who is responsible for the design of the elevator system or renovation project. The consultant may be an employee of the University of Kentucky Facilities Management Division.
3. Contractor
"Contractor" means the successful bidder/firm to whom the contract to construct the elevator system has been awarded.
4. Owner
When used, "Owner" shall mean the University of Kentucky and/or one of the Facilities Management Divisions.

C. DEPARTMENT SPECIFIC CONDITIONS

This University of Kentucky Elevator Standard applies to a variety of conditions and types of elevators. Some specific peripheral requirements may differ between the Lexington Campus elevators and those for service in the Medical Center and/or other University Departments; however, the basic requirements of this standard shall be used in any elevator design or renovation.

D. CODES AND REGULATOR AGENCIES

Refer to University of Kentucky Official Design Standards for General Conditions and Special Conditions for code and regulatory compliance requirements. However, it must be understood that all codes and requirements of Federal, State, and Local regulatory agencies are to be applied to all elevator purchases, installations, maintenance, and construction projects in University of Kentucky buildings. Some of the conditions following make reference to these; however, such limited references do not exclude University departments, the Consultant, or the contractor from fully applying all codes and regulatory requirements to University of Kentucky situations.

E. INTENT

It is the intent of these standards to provide guidelines in developing vertical transportation systems that:

1. Provide acceptable levels of elevator service as related to the Average Interval and Handling Capacity.

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2. Provide safe and convenient transport of passengers and material.
3. Provide systems that meet the highest level of accessibility for people with disabilities.
4. Incorporate specifically identified standardized parts for easy maintenance and rapid repair and/or replacement.
5. Provide reliability and achieve desired lifecycle service and cost, and
6. Provide for standardized control systems and other identified equipment as chosen by the University of Kentucky thereby eliminating the installation of manufacturer proprietary equipment, parts, and controls.

F. NON-PROPRIETARY EQUIPMENT, PARTS, AND CONTROLS

The University of Kentucky does not have in-house maintenance personnel and therefore relies upon contractor(s) to maintain the equipment. The maintenance contractor is acquired through a bid process and is not necessarily the original equipment manufacturer or installer. Therefore, it is required that, for specific items indicated in this standard, University of Kentucky approved and non-proprietary equipment, parts, and controls items (including circuit boards, chips, diagnostic tools, etc.) be bid and installed. Approved and acceptable non-propriety equipment, parts, and controls are listed in the sections following. Further, all non-propriety controls, tools, passwords, equipment, parts, and training necessary to service the elevator be provided to the University of Kentucky by the manufacturer and/or the Contractor.

Note: (Revised 02/14/2014): An elevator manufacturer and/or their suppliers may bid for and if successful furnish and install their as-designed elevator systems for installation in University of Kentucky buildings or construction projects. With their bid documents there must be submitted a statement that there are no proprietary parts or equipment in the elevator system(s) and that they are meeting the intent of this standard (i.e. that any and/or all parts, materials, maintenance drawings, maintenance tools, circuit boards, etc. will be available to the University and/or its elevator service provider(s) at the prevailing wholesale market prices at the time of need. The following statement will be part of elevator bid requests to satisfy the requirement of this item.

“The undersigned bidder/company hereby agrees that no proprietary situations will be imposed as to the providing to the University’s elevator service providers any maintenance drawings, equipment, part, or control items (including circuit boards, chips, diagnostic tools, etc.), etc. required for the maintenance and upkeep of the elevators provided on this project. Further, the items will be sold to the University’s elevator service providers at current wholesale costs and without undue delay.”

G. REQUIRED DESIGN CRITERIA

The Consultant shall use and/or obtain and use the following in the design of a new elevator installation including elevators in and for building renovations and/or additions and/or for elevator modernization and upgrades.

1. Elevators shall be installed in buildings that are two stories and higher. The design shall provide direct service to all floors in the building, including floors where mechanical rooms are located.
2. Elevators shall be given an individual numbering identity. The number shall be the University 4-digit number followed by an alpha digit assigned to the individual elevator and shown on the construction documents. If the building has only one elevator the number would be XXXX-A; if two elevators the numbers would be XXXX-A and XXXX-B, etc.

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Note: When a building addition is undertaken, and additional elevators are added, the new elevators must be numbered consecutively after the existing elevators. If existing elevators are numbered xxxx-A and xxxx-B the next elevator added shall be "xxxx-C" etc. The reason being that the existing elevators are already listed as such in the State Elevator Inspector's files and there can be no duplicates.

3. All elevator design must be done with consideration of and for the existing University of Kentucky elevator maintenance agreements. Copies of the contracts are available from the departments and/or the Purchasing Division.
 - a. The maintenance agreements for different Facilities Divisions may not be identical having area-specific or use-specific deviations.
 - b. At the end of the contractual obligation (warranty period) of any new elevator installation, the new elevator will be maintained under the service agreements then in existence.
 - c. The end-of-warranty maintenance contract for a new elevator installation will be awarded through existing Purchasing Division procedures.

H. PRE-DESIGN ANALYSIS (NEW CONSTRUCTION)

For each individual project and/or system, the Consultant shall, including but not limited to, provide traffic analysis for all buildings, especially high-rise and/or complex use buildings and identify the type, size, and capacities of proposed elevator(s).

I. SPECIAL REQUIREMENTS BY UK FIRE MARSHAL

1. When emergency power is provided for the new or modernized elevator system, the elevator(s) shall be tested under a FULL load on the generator. This would include all emergency lighting and other emergency loads connected to the generator.
2. Fireman's Service shall be tested under emergency power conditions.
3. For Fireman Service priority floor designations, the UK Fire Marshal's office shall be consulted as to which floors will become Priority 1 and Priority 2 for emergency return situations.
4. Provide a lockable secure storage box on the Priority 1 floor for the firemen's service key(s). The Consultant shall request storage box keying information from the UK Fire Marshal.

II. ELEVATOR EQUIPMENT

A. TRACTION ELEVATORS

1. Geared traction elevators shall be used for all medium-duty and heavy-duty applications that exceed 50 feet of travel or four stops.
 - a. Overhead traction elevators to be used when conditions allow a penthouse above 50 feet of travel. (No maximum on size or speed).
 - b. Basement set traction elevators to be used on elevator capacities of 4000# or more if penthouse is not an option (due to building conditions). (No maximum on size, speed limited to 200 fpm).
2. Geared traction elevators shall be used in parking ramps regardless of travel or number of stops.

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3. Unless specified otherwise or emergency power is not available, emergency power shall be provided to a single elevator system, or, with selectivity switching, for one elevator in a bank of elevators.
4. Elevator equipment must include hall floor indicators on every level.
5. Controllers:
 - a. Non-proprietary controllers:
 - Virginia Controls, Inc. (<http://www.vacontrols.com>)
 - Smartrise Engineering, Inc. www.smartrise.us
 - G. A. L. Manufacturing Corp. www.gal.com)
 - b. The controller shall be capable of continuous operation in ambient temperatures between 65 degrees F and 90 degrees F.
 - c. Specialized diagnostic devices used to check the operation of the microprocessor and not permanently attached to the controller, shall be provided as part of the contract and shall become university property.
 - d. Diagnostic tools or devices requiring “reloading” or “recharging” by the manufacturer shall not be used on a University of Kentucky project.
6. Car Speed:

Minimum 200 feet per minute (The Consultant may require and/or propose a higher speed for high-rise or group systems)
7. Rise:

Any elevator utilizing more than four openings in line, or having abnormally tall floor heights (more than 12 feet), must be reviewed for speed requirements.

B. HYDRAULIC ELEVATORS

Note: As the current 2004 code requires a PVC jack casing and oil monitoring, vegetable oil for use in the University of Kentucky elevators is not to be specified unless there is a specific requirement for such.

1. Conventional In-ground single jacks to be used up to 50' of travel with a code machine room adjacent or remote as required.
2. Hydraulic freight elevators shall be limited to a maximum travel of 50 feet.
3. Unless specified otherwise or emergency power is not available, emergency power shall be provided to a single elevator system, or, with selectivity switching, for one elevator in a bank of elevators.
4. Elevator equipment must include hall floor indicators on every level.
5. Controllers:
 - a. Non-proprietary controllers:
 - VAC's MH series for group (3 or more car) operation applications.
 - Smartrise Engineering, Inc. www.smartrise.us
 - G. A. L. Manufacturing Corp. www.gal.com)
 - b. The controller shall be capable of continuous operation in ambient temperatures between 65 degrees F and 90 degrees F.
 - c. Use non-proprietary mechanical or solid-state starter systems. Proprietary

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manufacturer's starter systems are prohibited.

- d. Specialized diagnostic devices used to check the operation of the microprocessor not permanently attached to the controller shall be provided as part of the contract and shall become university property.
 - e. Diagnostic tools or devices requiring "reloading" or "recharging" by the manufacturer shall not be used on a University of Kentucky project.
6. A battery-operated lowering device for emergency use in the event of a main power supply failure shall be installed if required by codes. (This may not be required if emergency power is supplied to the elevator system).
 7. Speeds:
 - a. Typical car speed is 125-150 feet per minute.
 - b. Two-stop applications may successfully use 100-125 fpm.
 8. Rise:

Where the building rise is more than 50 feet, or the elevator requires staggered openings on either end of the car, use traction system.
 9. Power Units:

Submersible and non-submersible units are acceptable.
 10. Control Valves:
 - a. Elevator Equipment Corporation (EECO) control valves
www.elevatorequipment.com (1-888-577-33260)
 - b. Maxton Manufacturing Co control valves www.maxtonvalve.com (1- (775) 782-1700)
 - c. Vertical Xpress I-2 control valves
www.verticalxpress.com (1-866-448-3789)
 11. Hydraulic Tank:

Provide internal tank heater for elevators in parking garages, unheated buildings, or where exposed to extremely cold and/or freezing temperatures.

C. MACHINE-ROOM-LESS ELEVATORS (MRL)

1. Hydraulic MRL elevators shall be limited to two-stage pistons and 27 feet of travel and shall have a code control room at the bottom floor (adjacent on left, right or rear side of hoistway). All other hydraulic elevator requirements listed in this standard apply.
2. Traction MRL elevators shall be specified above 50 feet travel and shall have a control room at the top floor (adjacent if possible). Maximum capacity 5000# and speeds to 500 fpm. All other traction elevator requirements listed in this standard apply.

D. HOLELESS ELEVATORS

Holeless elevators will be considered for use on a case-by-case basis.

E. CHAIR AND PLATFORM LIFTS

Chair and platform lifts shall be chosen and approved on a case-by-case basis.

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F. PUSHBUTTON FIXTURES

1. Provide vandal resistant pushbutton fixtures with tamper proof screws as manufactured by:
 - a. Innovation Industries, Inc. www.innovationind.com
 - b. GAL Manufacturing Corp. www.gal.com, or
 - c. Elevator manufacturer tamper-proof push-button system. Refer to "NON-PROPRIETARY EQUIPMENT, PARTS, AND CONTROLS" elsewhere in this Standard.
2. Locate digital car position indicators on each floor in the elevator lobby over the door opening, adjacent to the hoist way door entrance, or contained within the hall pushbutton fixture.
3. Use vandal resistant car direction indicators located on the elevator car to indicate direction of travel and visual arrows for car direction.
4. Provide arrival gongs at each elevator lobby.
5. Provide the Fire Service key switch at the main fire-recall lobby pushbutton.
 - a. Provide a lighted jewel to indicate Fire Service Operation.
 - b. Engrave, etch, or emboss fire service instructions on the fixture cover in accordance with ASME A17.1a.
 - c. Provide etched, embossed, or engraved Fire Service Signage located on each hall pushbutton cover.
- d. All Campus (CPPD) Fireman Service Keying requirements shall be for key number **FEOK1** (Barrel shaped Key). Other Facilities Management Divisions may specify their keying options in specifications if different.
6. Push button designation numbering shall match the architectural room numbering designation i.e. if architectural drawing calls the lowest floor "Ground Floor" the elevator floor designation shall not be "Basement" etc.
7. Surface applied signage is prohibited.

G. POWER DOOR OPERATOR EQUIPMENT

1. Passenger Elevators

For passenger elevators, use only door operator equipment that includes drive operator, hangers, locks, closures, etc. as manufactured by GAL manufacturing Corp. (www.gal.com) 1-877-425-3538.

- a. Door operators and related equipment for passenger elevator and freight elevators with bi-parting doors shall be by GAL Corp. model MOVFR with VVVF drive.
 - Use low speed operators up to three-stop elevators.
 - Use high-speed operators at all other locations.

2. Freight Elevators

Freight elevators having bi-parting horizontal doors, equipment shall be by EMS Group, St. Louis, MO (800-489-4889 or 314-381-0500).

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III. CARS

A. CAR DESIGN

1. Interiors:

- a. The car enclosure shall meet the requirements required by ASME A17 for smoke development and flame spread.
- b. Car platforms shall be standard manufacturer sizes unless the University specifically requests a non-standard platform size.
- c. Standard interior walls shall be small-patterned Rimex Metals 5WL Stainless Steel (unless approved otherwise).

Note: For a new building project or architectural renovations where the atmosphere of the building design will require an exceptionally refined interior, the architect may design the interior to suit the features and use of the building and present the design for review and approval.

- d. The Contractor/manufacturer shall provide to the Owner/Consultant for review, car interior designs, and finish selections.
- e. Install moving pad hooks in all elevator cars.
- f. When moving pads are specified, provide a locked fireproof cabinet in the elevator equipment room for hanging storage of the pads.
- g. Install ADA compliant handrails in the car.
- h. For all medical facilities and buildings in which cart usage is anticipated or are to be used, bump rails shall be installed 4 to 6 inches above the floor level.
- i. Car Flooring:
 - For all medical facilities, flooring shall be terrazzo.
 - **All other buildings will have water resistant flooring of black radial rubber flooring unless otherwise approved.**

2. Indicators:

- a. Locate the car digital position indicator over the transom or within the car-operating panel.
- b. Place the Car Direction Indicators in the car doorframe where they will be visible from the vicinity of the hall pushbutton.
- c. Every car direction indicator must be visible from the immediate vicinity of the hall pushbutton.

3. In-car lighting:

Each elevator car shall have an aesthetic ceiling structure that properly supports the installation of the number of lamp holders using LED low watt bulbs to appropriately laminate the interior of the car to system and code standards. Replacement of the lamps shall be easy access from the interior of the car.

B. CONTROL PANEL

1. Keys and switches:

- a. Provide switches for lights, fan (2-speed), emergency stop and service and/or inspection.
 - Toggle switches shall be located behind a locked door keyed with a best 7-pin small format cylinder. Door to have "Slam door lockset for service cabinet with a Yale or Best 7-pin security switch with removable core by Innovation Industries, Inc. or equal.

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- Key should be removable only in the normal locked position.
 - Use Best Cylinder with removable core and 7-pin small format for CPPD Division and 7-pin small format Yale cylinders with removable core for MPPD. Other Facilities Management Divisions will specify their keying options in specifications.
- b. Provide a two-speed fan switch; key should be removable in all positions; use Best Cylinder with removable core for CPPD and 7-pin Yale with removable core for MPPD). Other Facilities Management Divisions will specify their keying options in specifications.
- c. Provide each car-operating panel with an emergency stop key switch, key should be removable in all positions; use Best Cylinder with removable core for CPPD and 7-pin Yale with removable core for MPPD). Other Facilities Management Divisions will specify their keying options in specifications.
- Position the cylinder near the bottom of the pushbuttons with the key removable in either position and with one set of normally closed contacts.
 - Mark the switch with etched, engraved, or embossed “ON” and “OFF.”
- d. Where special key switches or card readers and/or other devices are used to lock out particular floor and/or functions:
- Wire controls so as not to interfere with Fire Service operation.
 - Provide temporary inactivated push buttons for each floor even if a key switch, card reader, and/or other devices are required.
- e. For restricted access to a Penthouse mechanical room, provide lock-out keyed switch on the Penthouse push button (the push button is to be activated by the keyed switch); **key shall not be removable** in the activation position. (Use Best Cylinder with removable core for CPPD and 7-pin Yale with removable core for MPPD). Other Facilities Management Divisions will specify their keying options in specifications.
- f. For unrestricted elevator service to the penthouse, provide a keyed switch to over-ride the Penthouse mechanical room keyed button lock-out switch; **key shall be removable** in all positions (Use Best Cylinder with 7-pin small format removable core). Place this over-ride switch in the top area of the car panel. Other Facilities Management Divisions will specify their keying options in specifications.
2. Fireman Service Controls
- In-car Fireman Service Controls shall be in a reachable, recessed, and in a locked panel in the control panel and at the top portion of the panel.
- a. Engrave, etch, or emboss fire service instructions inside the fixture cover in accordance with ASME A17.1a.
- b. Key number shall be **FEOK1** (Barrel shaped Key) for all campus buildings.
3. Provide each car-operating panel with special language etched, engraved, or embossed pertaining to the posting of the Elevator Permit and the Capacity of the elevator.

C. TWO-WAY COMMUNICATIONS

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1. The device shall consist of a single pushbutton, automatic dialer with appropriate indicator lights, and all other essential features necessary to comply with ADA.
2. **The emergency phone shall be Ramtel model RR833-OEM and be mounted flush on the back of a hinged door at the bottom portion of the in-car control panel and locked with a barrel key #EX513.**
3. **The communication device shall be as manufactured by Ramtel model RR833-OEM to match the existing elevator emergency communication system including remote location indicator and other existing features now in use.**
4. A stand-alone flush box-type device is not to be used without approval of the Owner.
5. The face plate shall have, including but not necessarily limited to:

**EMERGENCY PHONE
UNIVERSITY OF KENTUCKY**

(include **UK** logo - Contact UK Public Relations for most recent logo updates)

Other information and instructions on the faceplate are as provided by the Ramtel communication device.

IV. PIT, HOISTWAY, AND WELL HOLES

A. PIT AND HOISTWAY

1. Pit Access:
 - a. Provide a metal ladder from each pit floor starting 12" above the pit floor and extending to 48" above the lowest landing floor level.
 - b. Locate the ladder at strike jamb side of hoistway when single panel or two speed doors are used.
 - c. Where center opening doors are used, locate the ladder on the nearest sidewall.
2. Sump Pit:
 - a. Provide a sump pit with easily removable sump pump and approved cover below normal pit grade for all elevators.
 - b. Pipe the sump pump discharge into an open gap drain connected to nearest sanitary sewer.
 - c. Furnish the sump pump with integral oil sensor so that pump will not operate if hydraulic fluid is contaminating the water.
Products are available from SEEWATER, Inc.
(www.seewaterinc.com) 1-888-733-9283 or (EECO)
www.elevatorequipment.com (1-888-577-33260).
 - d. Provide a high-water alarm and run conduit and wire to the building Energy Management System's designated location.
3. Hoistway Entrances:
 - a. Provide nickel silver or chrome plated cast iron sill plate at entrance threshold as manufactured by Plymouth Engineering Shapes of Hopkinsville, Kentucky www.plymouth.com/ or approved substitute. Grout sills in place with using a non-shrink, non-metallic grout.
 - b. Set entrances in vertical alignment with car openings and aligned with plumbed hoist way lines. Use ¼" clearances around frame and doors as

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- standard. Fill or slush hoist way doorframes.
- c. Provide dust covers at hoist way entrances that conceal the hoist way door tracks and interlocks. Provide covers no less than the width of the door opening plus 12". Mount covers securely to the header by use of metal screws with keyhole openings. The cover shall be capable of being removed without need of removing screws entirely.
 - d. Provide sight guards permanently fastened to the hoist way door and of the same color or finish as the hoist way door. There shall be no holes in the guards other than those used to fasten the guard to the door.
 - e. Provide a means of emergency access for each hoist way door as selected by the Owner and or current codes.
 - f. Provide stainless steel hoistway doors and entrances with brushed stainless steel finish.
 - g. Provide an approved automatic fire detection system (smoke detector) that will respond to visible or invisible particles of combustion connected to building fire alarm system at elevator lobbies and top of the hoistway.
 - h. Provide hoistway venting as may be required by the KENTUCKY BUILDING CODE Section 3004.
 - i. Provide car door protective device extending the full height. This device will be designed to sense an obstruction in its path while the doors are closing and automatically cause the car and hoistway door to return to the open position. The doors will remain open until the expiration of a time interval and then close automatically. Device shall be Janus Pana40 Plus 3D. For manufacturer package systems, their system plug and play protective device is acceptable.
4. Maintain hoistway temperature between 50 to 90 degrees F.
 5. Piping, conduit, and other Items unrelated to the elevator are prohibited in the hoistway or pit.

B. FIRE PROTECTION

1. If the building is fully sprinkled, it is required to have sprinklers in the top of the shaft and in the pit.
 - a. All codes associated with a hoistway as to life safety, fire alarm, and sprinkler installation shall be applied.
 - b. There shall be a sump provided in the pit with a sump pump satisfying all conditions for sump pump installations as described in this standard.

Note: Hoistway exemption allowed by the KBC (2007):

If the Hoistway is of noncombustible construction (concrete or concrete block) and the car enclosure meets the requirements of ASME A17.1 for smoke development and flame spread, the sprinkler in the top of the shaft may be omitted (also found in NFPA 13 code rule 8.14.5.5). (Always check current codes before applying this exemption.)

3. For fully sprinkled building, the pit shall always be sprinkled. The pit sprinkler shall be a sidewall sprinkler type with down-direction spray and the head must be located within 2' of the pit floor.

C. WELL HOLES, CASINGS & CYLINDERS

1. Use steel cased holes for hydraulic applications sized properly for each set of circumstances. Place hydraulic cylinders in the pre-drilled casing and use a

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2. jack aligning disk light to align the cylinder in the presence of the Consultant.
2. Enclose hydraulic cylinders in PVC to prevent corrosion and electrolysis. Cap the bottom of the PVC liner extend it upward to a point higher than the pit floor.
3. Back fill the cylinder with dry sand from the bottom of the cylinder to the pit floor to prevent the bottom of the casing from moving. Provide a minimum of four (4) inches of concrete at the top of the cylinder to finish the pit floor.
4. Fasten top of cylinder to prevent unit from moving during operation. The elevator shall operate without the piston rubbing, bumping or otherwise contacting the inside wall of the cylinder during operation.

V. ELEVATOR EQUIPMENT ROOMS

A. ELEVATOR EQUIPMENT ROOM

1. Design:
 - a. Integrate the elevator penthouses into the overall building architectural design to create a unified and compatible appearance from the exterior.
 - b. For new construction, provide approved stairs for access to elevator equipment rooms. Ship's ladders and alternating tread stairs are prohibited.
 - c. Equipment, piping, conduit, etc. unrelated to the elevator are prohibited in the elevator equipment room.
2. Fire Protection:
 - a. If the building is fully sprinkled, it is required to have sprinklers in the equipment room.

Note: Equipment Room Exemption allowed by the KBC (2007): If the equipment room is two-hour rated, the sprinklers may be omitted. To apply this exemption, the contractor shall have the approval of the University Fire Marshal. (Always check current codes before applying this exemption.)

- c. Provide 2-hour fire-resistant, labeled, and latching door with closer and Storeroom function mortise lockset.
 - d. Provide a fire extinguisher in machine room mounted on the wall near the entrance door. A cabinet for the fire extinguisher is not required.
 - e. Provide an approved automatic fire detection system (smoke detector) that will respond to visible or invisible particles of combustion connected to building fire alarm system.
3. Elevator Machine Room Power Panel (Emergency Power When available): All lighting and general power requirements of the machine rooms, cars, hoistways, sump pumps, and pits shall be extended from this panel and shall satisfy all codes and have the approval of the Kentucky State Electrical Inspector.
 - a. Furnish and install a Square D 120/208V 3- Φ panel board located in the Equipment Room sized for the elevator system general power and lighting requirements for the machine room, hoistway(s), sump pump(s), and pit(s).
 - b. The panel board may only be used for general power and lighting loads related to the elevator system.
 - c. The panel board shall be clearly labeled as "For Elevator Circuits Only."
 - d. For each 110/120 VAC car light system, provide a lockable circuit breaker in the panel board.

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- e. Use only code-sized rigid conduit in the elevator Equipment Room for main power equipment. Minimum $\frac{3}{4}$ inch.
 - f. Provide GFI duplex receptacles in the elevator pit and one in the elevator equipment room.
4. Climate Control:
 - a. Provide HVAC building or self-contained equipment and ducting to maintain machine room temperature between 50 to 90 degrees F.
 5. Data/Communications:
 - a. Furnish data line terminated in a telephone jack in each elevator equipment room (only if specified and/or required on the specific project).
 - b. Furnish two (2) telephone lines in each elevator equipment room. One line is to be used for the emergency call system and one line is to be used for a remote monitoring system. The University will be responsible for activation of the telephone lines.
 - c. For Medical Center installations, the elevator is to be connected to the existing Tridium Building Automation System. All associated hardware, software, cabling and conduit for a complete connection to the system is to be included as part of the elevator contract. Connection is to be made via BacNet/IP, BacNet/MSTP or Modbus protocols.
 6. Sound Control:

If elevator equipment room is adjacent to an occupied space, provide drop seal and sound gaskets on door with sound batten insulation in walls. The Consultant is responsible for determining if additional sound absorbing materials are needed inside of the elevator equipment room to meet program requirements such as pipe isolators, submersed pumps, etc..
 7. Equipment Room Security:
 - a. CPPD – Key to building mechanical room system; Owner to supply information.
 - b. MPPD – Install card reader to match building system.
 - c. Other Departments – Key by department instructions.
 8. Equipment room signage:

The contractor shall provide and install a sign on the door stating that “Combustible storage prohibited by Fire Codes.” The sign shall match the signage in the building and prior to installation shall have the approval of the Owner. Adhesive applied signs are disallowed.

B. WIRING AND LIGHTING

1. Elevator Equipment Room:
 - a. For each elevator, provide properly sized main line disconnect mounted on the wall adjacent to machine room door.
 - b. Elevator Machine Room Emergency Panel
See Elevator Machine Room – Line Item 3 - Elevator Power Panel
 - c. Use only rigid conduit in the elevator machine room for main power equipment. Minimum conduit size of $\frac{3}{4}$ ”.

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- EMT may be used for low-voltage control wiring.
 - Provide adequate machine room LED lighting, especially at controller and around equipment.
 - Locate lighting to avoid conflict with installation of equipment such as motors and cables.
- d. Provide a hoist way lighting system for every elevator as follows:
- Provide a light at the top of the hoist way.
 - Provide 4-way switch control system for the lights in the elevator pit, at the top of the hoist way, and in the elevator equipment room. In the elevator equipment room, use a pilot light or lighted toggle to indicate an "on" circuit.
 - Locate Pit light switch next to pit ladder and located 42" above lobby floor level.
- e. Provide LED lighting throughout.

VI. MANUFACTURERS, SUPPLIERS, AND INSTALLERS

A. The following Elevator Manufacturing Companies are approved; including, but not limited to:

1. CemcoLift, Inc. (Manufacturer of Traction and Hydraulic Elevators)
2801 Township Line Road
Hatfield, PA 19440-0500
Toll Free: (800) 962-3626
Phone: (215) 799-2900
Fax: (215) 703-0358
www.cemcolift.com
2. Canton Elevator Incorporated (Manufacturer of Hydraulic Elevators only)
647 Third Street N.W.
Massillon, Ohio 44647
Phone: (330) 833-3600
Fax: (330) 833-0229
www.cantonelevator.com
3. ThyssenKrupp Elevator Company (Manufacturer of Traction and Hydraulic Elevators)
7217 East 87th Street, 46256
Indianapolis, IN
Phone: (317) 595-1125
www.thyssenkruppelevator.com
4. Kone, Inc. (Manufacturer of Traction and Hydraulic Elevators)
5201 Park Emerson Dr., Suite E,
Indianapolis, IN 46203
Phone: (317) 788-0061 d.
www.kone.com
5. Schindler Elevator Corporation (Manufacturer of Traction and Hydraulic Elevators)
1761 North Sherman Drive, Suite E,

142000S02 Hydraulic and Traction Elevators

Indianapolis, IN 46218
Phone: (317)486-0906
www.us.schindler.com

6. Global-Tardif Elevator Manufacturing Group Inc.
120 De Naples Saint-Augustine-de-Desmaures
Quebec, Canada G3A 2Y2
Phone: (800) 661-6316
Fax: (418) 878-1595
www.globaltardif.com

7. Otis Elevator Company
1901 Production Drive
Louisville, KY 40299
Phone: (502)491-3636
Fax: (502)491-8611

B. The following Elevator Installing Companies may supply and install elevator equipment purchased from third party manufacturers but must meet the requirements of this standard and be approved by the University Project manager; including, but not limited to:

1. DC Elevator (Supplier and installer of Traction and Hydraulic Elevators)
124 Venture Court- Suite 1
Lexington, KY 40511
Phone: (859) 254-8224
Fax: (859) 231-8740
2. The Murphy Elevator Co., Inc. (Supplier and installer of Traction and Hydraulic Elevators)
128 East Main Street,
Louisville, KY 40202
Phone: (800)321-1527
www.murphyelevator.com
3. Oracle Elevator Company (Supplier and installer of Traction and Hydraulic Elevators)
4523 Knopp Avenue,
Louisville, KY 40213
PH. (502)363-9300
www.oracleelevator.com

End - University of Kentucky Elevator Standard