

Section 5

ELECTRICAL SAFETY

5.1 General Precautions

- (a) When power is not required to perform the task, lockout/tagout procedures must be followed. Testing and troubleshooting may be done live, but repairs can only be done when system has been properly de-energized or circuits isolated.
- (b) THE FOLLOWING PERSONAL PROTECTIVE EQUIPMENT SHALL BE WORN WHEN TROUBLESHOOTING LIVE ELECTRICAL CIRCUITS:
 - Long-sleeved natural-fiber or FR-rated shirts and pants, long-sleeved FR-rated coveralls or other company-approved arc-flash-hazard protection
 - Nonconductive safety glasses
 - EH-rated footwear or rubber mats
 - Clean leather gloves **when working in cabinets with 240 volts or more**
- (c) Always use a circuit tester on each circuit before troubleshooting on it because all voltages can be dangerous. Contact with even low voltages can result in serious injury.
- (d) All circuits shall always be treated as LIVE unless tests prove otherwise.
- (e) Before troubleshooting any electrical circuits or apparatus, remove all jewelry, keyrings, cell phones, radios, pagers and other metal objects, etc.
- (f) Never troubleshoot circuits when standing or kneeling on metal, wet surfaces or in water.
- (g) When troubleshooting live circuits, take care to be safely isolated (i.e., rubber mats, isolated tools, EH rated shoes, etc.).
- (h) To prevent shocks, take precautions to:
 - (1) Keep metal objects from touching or being exposed to any LIVE parts, moving machine parts or connections.

- (b) If a machine is locked out and it becomes necessary to leave, recheck upon returning to make sure the machine is still locked out. While supervisors will make every effort to avoid removing locks, there may be situations when it must be done. The recheck is for your protection.

7.3 Lockout/Tagout Procedures for Escalators and Moving Walks

- (a) **The applicable procedures in Sections 7.1 and 7.2 apply** to all employees who work on escalators and moving walks. Anytime work is to be performed within the interior plane of the steps/ pallets, it shall be locked out and tagged out to prevent the unit from starting unexpectedly.
- (b) Whenever removal of 10% of escalator steps is done, a mechanical **blocking device** shall be activated to prevent the escalator from moving. If the unit is not equipped with a mechanical dog, the drive chain must be secured to the truss braces to prevent movement in either direction. Note: More than 10% of the steps may be removed without the use of a mechanical blocking device when company procedures document that a weight imbalance is not created.
- (c) Whenever steps are removed and the unit is going to be left out-of-service, the steps/pallets should be moved to cover the openings (whenever possible).

Section 8

HOISTWAYS AND MACHINE ROOMS

8.1 Hoistway Access Safety

Prior to gaining access to the hoistway, determine whether power is needed to perform the required task. **Do not open the hoistway door more than 6 in. (152 mm) until you determine the car or car top is located in a safe position to access.** If not, the appropriate lockout/tagout procedure shall be used. (See Section 7.)

8.1.1 Top-of-Car Access/Egress Procedure

CAUTION: Besides examination, inspection, maintenance and adjustment work that must be done on the car top, there is a considerable amount of work in the hoistway which must be done from the top of the car and, at times with the car in motion. A few simple precautions will reduce the possible hazards.

8.1.1.1 Accessing Top-of-Car

- (a) When a hoistway access switch is provided, capture the elevator, take it to the top access landing and activate the means to disable operating devices. This means is located at the car-operating panel. With the hoistway door(s) held in the open position, activate hoistway access switch to run the car down. Stay clear of moving car.
- (b) When a hoistway access switch is not provided, capture the elevator and place two car calls to lower floors to establish a down demand. As the elevator moves away from the landing, open the hoistway door with a hoistway door unlocking device key to insure the interlock stops the elevator.

CAUTION: Do not open the hoistway door more than 6 in. (152 mm) until you determine the car top is located in a safe position to access.

CAUTION: When using hoistway door unlocking device keys be aware of pinch hazards when the hoistway door opens under power.

- (c) If hoistway access switches or hoistway door unlocking devices are not provided follow your company safety procedures for accessing the hoistway.

- (i) Fall protection means shall be used to access and egress pits where:
 - (1) An access ladder exposes a person to a fall hazard of 6 ft (1.8 m) or greater; and
 - (2) The ladder is further than 29.5 in. (750 mm) from the interior edge of the door frame; or
 - (3) The ladder or handhold extends less than 42 in. (1067 mm) above the access landing.”
- (j) If the pit does not have a pit stop switch, the lockout/tagout procedure is to be implemented before entering the elevator pit. (See Section 7.)
- (k) Standing outside the hoistway, remove door wedge tool and close the hoistway door.
- (l) Enter a hall call to verify the elevator will not run verifying the pit stop switch is working. When working on a multiple bank of elevators wait for a minimum of 20 seconds to verify the elevator you are working on will not run.
- (m) Once verification of the pit stop switch operation is complete, open the hoistway door, place a door wedge tool back into the sill, do a mental job hazard assessment and locate a safe refuge space. **Do not enter areas marked with Red and White strips.** Carefully enter the pit.
- (n) In deep pits a second stop switch is typically installed 4 ft above the pit floor. After descending the pit ladder place the lower pit stop switch in the “STOP” position.
- (o) If operation of the elevator is necessary:
 - (1) The car is only to be operated on inspection operation from either the car top with top-of-car inspection operation or inside the car with in-car inspection operation, if provided, by a qualified elevator person. The person operating the car and the person in the pit shall establish and maintain two-way communications.
 - (2) Install pipe stands.
 - (3) Remove the door wedge tool and allow the hoistway door to close.
 - (4) Place the upper pit stop switch in the “RUN” position.
 - (5) Stand on the pit floor and be prepared to stop the movement of the elevator with the pit stop switch.

CAUTION:

- (p) Never stand on the pit ladder when the pit stop switch at the access landing is in the “RUN” position, unless two pit stop switches are provided and the lower switch is in the “STOP” position.
- (q) When work is to be done on the hydraulic system, the car shall be landed on pipe stands, hydraulic pressure relieved and appropriate lockout/tagout procedures implemented. (See Section 7.)
- (r) When in multiple hoistways, **never place any part of your body in the runway of an adjacent operational elevator.**

8.2.2.2 Exiting Pits

- (a) Verify lower pit stop switch, where provided, is in the “STOP” position.
- (b) Verify pit stop switch at access door is in the “STOP” position.
- (c) Place lower pit stop switch in the “RUN” position.
- (d) Remove pipe stands.
- (e) Slowly open hoistway door and place a door wedge tool into the sill. Exit the pit.
- (f) Turn the pit light off.
- (g) Place the pit stop switch at access door in the “RUN” position.
- (h) When a hoistway access switch is provided, with the hoistway door(s) in the open position, activate hoistway access switch to run the car down. Stay clear of moving car. Deactivate the means to disable operating devices.
- (i) Remove door wedge tool and close hoistway door.
- (j) Place the car back into service.

8.2.3 Walk-in Pits

NOTE: See Section 8.2.2 for pit access procedure through lowest hoistway door

8.2.3.1 General guidance

- (a) Every walk-in pit is different. Therefore it is difficult to make one set of requirements that applies to all situations. For each situation that may be encountered, site specific requirements and procedures shall be established. Formulated requirements and procedures will depend on the height of

Section 11

WORKING PLATFORMS

11.1 Running (Moving) Platforms

- (a) The running platform is not an elevator and shall not be used to haul other personnel or material. Any other use of a running platform shall be approved by your Superintendent/Manager. In the event that work done by another trade must be done on a running platform, it shall be done only with the permission of your Superintendent/Manager. Any movement of a running platform shall be done by Elevator Company Personnel only.
- (b) Before hoisting or roping of a platform, the governor shall be installed and roped to the safety releasing arm and tested to ensure that the safety is operational.
- (c) Fall protection should always be utilized - However, if a personal fall protection system is not utilized, the running platform shall be equipped with guardrails and toe-boards. The front of the platform shall be equipped with removable guardrails until the front of the hoistway is completely enclosed.
- (d) When required the running platform shall be counter-weighted for the weight of the car platform assembly and its expected load. Do not put all the counterweights in the frame and be sure they are secured.
- (e) Temporary run controls and cords shall be inspected daily. Damaged cord shall be destroyed and discarded.
- (f) Temporary run controls shall be three button control ("UP," "DOWN," "SAFETY") so that it takes activation of two buttons to run any direction, plus an emergency stop switch **on a stand-alone circuit**. Cords shall be fitted with strain relief and insulation shall be intact. All buttons shall function as intended.

Section 16

ESCALATORS AND MOVING WALKS

You shall familiarize yourself with the safety procedures outlined throughout this safety handbook. In addition, the following safety rules shall receive special attention when working on escalators or moving walks:

- (a) Mechanics arriving at a location shall alert the owner or superintendent and place company-approved “Out of Service” signs and proper barricades at both ends of escalators and walks to restrict all non-authorized persons from entering the work area or stairways. (See Section 4.3)
 - (1) When step, step-treads, pallets, combplates, combplate teeth, floor plates or trap doors have been removed, and power is not required for the equipment it shall be locked out, tagged out **and secured from movement** with barricades in place at both ends.
 - (2) Unattended equipment shall always be locked and tagged out. **When steps/pallets are removed always attach a note to the lockout and tagout indicating the steps/pallets has been removed.**
- (b) Before work begins, the mechanic shall instruct all employees inexperienced with escalator or moving walk service on the location of the emergency “STOP” button and safety switches.
- (c) Communicate with all employees before moving an escalator or walk. Repeat commands or direction signals. Make sure their actions show they understand your message.
- (d) NEVER start, or attempt to start, a unit while anyone is on, in, **or about to step onto the unit.**
- (e) Whenever **work** must be performed within the interior plane of the steps/pallets (truss) **or machinery space** that

does not require movement of the unit, lockout and tagout the mainline power disconnect in the “OFF” position. See Lockout and Tagout procedures, Section 7.3.

- (f) Before you enter the unit or the pit, personally verify that the unit will not start by testing all locations and possible combinations of the run and speed key-start switches.
- (g) Be aware that power may still be live at the junction box, even after the mainline power has been disconnected. Use a circuit tester to test all circuits before working on them.
- (h) While working on escalators or moving walks, the person in attendance shall have complete control of the equipment.
- (i) Separate your escalator- or moving-walk-start keys from your key ring. The weight of a full ring of keys can hold a key switch over in the “ON” or “START” position, which overrides the safety circuit. If you try to stop the unit, the key would re-start the unit immediately.
- (j) Always remove the start key from the switch when you do not need it, especially when you are leaving the area.
- (k) When removing steps or pallets, use proper lifting techniques.
- (l) When working on or around moving equipment, take precautions to avoid getting yourself, or a tool, caught or pulled into the equipment. Be aware of all pinch points. Never attempt to remove a foreign object from an escalator or moving walk with the unit in operation.
- (m) When walking on a partially disassembled unit, avoid walking on the step axles as much as possible. Always hold the handrail. The unit shall be electrically locked out and blocked (See Section 7.3)
- (n) Do not “inch” equipment unless the holding circuit has been opened.

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- (o) When any steps or pallets are removed, always work, or if necessary, ride **facing** the opening.
- (p) It is recognized that temporary circuit jumpers or clips may be the only means available for conducting some service work on escalators or moving walks. These devices shall only be used as a last resort. (See Section 6.)
- (q) Before leaving the building, if the unit is to be returned to service, remove all “Out of Service” signs **and barricades**. Checkout with the Building Superintendent/Manager.
- (r) **Should live testing on the controller be necessary:**
 - (1) **Place the mainline disconnect switch in the “OFF” position;**
 - (2) **Remove the controller from the machinery space:**
 - (3) **Secure the controller in a vertical position prior to moving the mainline disconnect to the “ON” position**
 - (4) **Perform all live troubleshooting from outside the machinery space**
 - (5) **Before returning the control to the machinery space place the mainline disconnect in the “OFF” position.**