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Section 1
GENERAL SAFETY

1.1 Employee Responsibilities

You shall familiarize yourself with the safety procedures outlined throughout this safety handbook. The following safety rules shall receive special attention and are not necessarily all inclusive:

(a) In all operations, when removing or moving any component or equipment, make sure that the effect of that activity on the entire elevator or escalator system is taken into consideration.

(b) Employees shall not work when their ability or alertness is impaired by fatigue, intoxicating beverages, illegal or prescription or over-the-counter drugs, or any other physical or emotional cause that might expose the employee or others to injury. (See Section 20)

(c) Practical jokes, horseplay, throwing of tools or fighting on the job are forbidden.

(d) Weapons, explosives and illegal substances on the job are forbidden.

(e) Mechanics arriving at a location to perform service or repairs shall alert the owner or building management and place Company-approved "Out of Service" signs on a single unit landing call buttons before any work begins. (Building management may require signature in log.)

(f) Secure the equipment (elevators, escalators, dumbwaiters, moving walks, platform lifts and chair lifts) from the riding public when performing any adjustments or work. Ensure no one is in the car, close the doors and prevent the doors from operating while working on the elevator.

(g) Before working on equipment, "tuck" loose-fitting clothing and confine long hair. Remove all jewelry.

(h) When unexpected movement of the equipment presents a safety hazard while cleaning, oiling, or greasing any parts that move, the equipment shall be made inoperative by use of lockout and tagout. See Lockout and Tagout Procedure, Section 7.
(i) The use of personal entertainment devices (radios, tape or CD players, etc.) are prohibited on all jobsites.
(j) Communication devices should be used with caution around controllers.
(k) If two-way radios are used, ensure your communication channels are clear so they are not interfered with by other trades. Be aware of potential delays in communications when using certain communication devices.
(l) Do not wear tool belts or carry tools in pockets.
(m) Keep the work area clean, discard trash in a waste container, not on the floor, etc. Notify the General Contractor or Building Manager of problems in common areas. Poor housekeeping exposes everyone to hazards.
(n) Never use wiping cloths on or near moving and/or rotating equipment.
(o) Oily or chemically-soaked rags shall be kept in company-approved containers, removed from the jobsite periodically and disposed of properly.
(p) If you are required to clean the pit, car top, machine room floor or other apparatus, take precautions to avoid lacerations or punctures from sharp objects by wearing suitable work gloves and using a broom and shovel, or dust pan, to pick up debris.
(q) Remove or bend all protruding nails.
(r) Work areas, ramps, runways, corridors, stairwells, offices, shops and storage areas must be well-lit. Notify the responsible party and your Superintendent/Manager if lighting is inadequate.

(s) Do not work without adequate light. If there is inadequate light, use a grounded portable light with a suitable, non-conductive or grounded lamp guard and reflector.
(t) Do not walk up or down stairways with hands in pockets. Never run on stairs. Handrails must be provided and used. Filler boards shall be in place on unfinished stairs. Be alert for tripping hazards, especially if carrying tools or materials.
(u) Do not run extension cords in stairwells if they will cause a tripping hazard.
(v) Open-flame heaters shall not be used for space heating of shanties, machine rooms or pits unless proper and approved venting is provided and local codes are adhered to.
(w) When uncoiling rope, cable or wire, do not stand within the coil.
(x) **Never slide, swing or climb on cables, ropes or guiderails.**
(y) Never drop objects down the hoistway. A rope shall be used to safely lower objects.
(z) Observe and obey all safety signs. Every sign serves a purpose. They are for your safety and the safety of others. If a sign is no longer necessary, it shall be removed.
(aa) Administer first-aid only if you have been trained to do so, and never exceed your level of training.
(ab) Do not cleanup spilled body fluids (blood, vomit, etc.) or material with body fluids unless you have received the appropriate training and vaccinations as required by OSHA (29 CFR 1910.1030), or any applicable local regulations. If you have received training and have been offered the applicable vaccinations and personal protective equipment, then assume contamination in handling any body fluids or material potentially contaminated with body fluids. All cleanup activities shall be conducted in accordance with your company Exposure Control Plan. If you have been accidentally exposed to body fluids that

may contain bloodborne pathogens, contact your applicable company medical provider as soon as possible.

(ac) Report every injury to your Supervisor immediately (no matter how trivial) in accordance with company policy and procedure.

(ad) The employee shall know the hazards and safe-use procedures associated with the materials and/or chemicals the employee is using. This information is available on the Material Safety Data Sheets (MSDS) provided by the Company. See Section 14 Hazard Communications for additional information. All materials and chemicals used shall be company-approved with MSDSs sheets. Improper use could result in injury or illness.

(ae) Some elevators may be located near operations with process hazards or work environments that may be potentially hazardous in an emergency, or as part of the customer's day-to-day operation. Such elevators may be located in petrochemical plants, oil refineries, paper mills, nuclear plants and similar facilities. In such facilities the elevator pit/hoistway may be classified and/or labeled as a permit-required confined space. Do not enter the pit/hoistway until you have consulted your Superintendent/ Manager.

(af) On modernization, when removing old material from elevator platforms, make sure counter balance is properly adjusted before proceeding.

(ag) Rotating equipment can be dangerous. Be aware of your surroundings and be prepared for "sudden" start-up of the equipment. (See Section 7)

(ah) When working on hydraulic power units, keep your hands and clothing clear of the pump, motor, belts and sheaves to avoid being pulled into moving parts. Never check the belt tension unless the mainline disconnect switch is in the "off" position and locked and tagged out.

(ai) Hydraulic oil may be hot and can cause severe burns.
(aj) Elevator safety tests shall be performed in accordance with the procedures specified in the *ASME A17.2 Guide for Inspection of Elevators, Escalators and Moving Walks, (formerly Inspector Manual for Elevators).*
(ak) Before equipment is placed back in service, be sure all locks and tags have been removed and account for any jumpers used. All door and safety circuits shall be tested to ensure they are operating.
(al) Before leaving the building, if the car is returned to service, remove all "Out of Service" signs. Checkout with building management.
(am) Do not ride or permit anyone else to ride in or on top of the car during safety and buffer tests.
(an) Do not allow other trades to work in the hoistway above and below you.
(ao) Never look at an electric welding arc without proper eye protection. See Section 3.2.
(ap) Never work in the hoistway below welding or cutting operations.
(aq) Don't work in an area where a gasoline engine is running unless properly vented. A gasoline engine gives off deadly carbon monoxide gas.
(ar) Don't work in an area where propane heaters are used unless properly vented.
(as) Never leave an open hoistway door unguarded. Before working on an elevator with the hoistway door open place a barrier in front of the entrance. See Section 8.
(at) If you have to get at something that is higher than you can reach, use a ladder. See Section 10. Do not stand on overturned buckets, crates, chairs, etc.
(au) In machine rooms be careful of tripping and head bumping hazards.
(av) Never clean or lubricate ropes with a hand held rag.
(aw) Never work from a hoistway divider beam.

(ax) **Where exposed to imminent danger, vacate the area immediately.**

(ay) Whenever accessing the hoistway, cab or cartop, verify that the elevator is there prior to access.

1.2 Additional Safety Responsibilities of the Mechanic/Mechanic-in-Charge

Each Mechanic/Mechanic-In-Charge Must Always Coordinate Jobsite Safety With Company Management

The Mechanic/Mechanic-In-Charge is the Company's designated **Competent Person**. Although all employees are responsible for identifying existing and potential hazards in the surroundings, or work conditions which are unsanitary, hazardous, or dangerous to employees, and for taking prompt corrective measures to eliminate or avoid the hazard(s) the Mechanic/Mechanic-In-Charge must perform appropriate job hazard analysis to determine that work areas are safe. On the job, the Mechanic/ Mechanic-In-Charge is the principal interface with Company Management to ensure that the work is performed in accordance with the company safety policy. In fulfilling this responsibility, the Mechanic/Mechanic-In-Charge shall take all practical steps to be sure that the work is performed with due regard for safety. Unsafe acts, unsafe conditions, accidents or injuries should be reported to a Superintendent or other member of management immediately. To keep operations safe, the following are some examples of the principle job requirements of the Mechanic/ Mechanic-In-Charge:

(a) Determine that their Apprentice(s)/Helper(s) fully understand the safety requirements and that they accept responsibility for the safety of themselves, their fellow workers, the jobsite, and equipment.

(b) Ensure that all equipment, work areas, and access to work areas where Elevator Company work is performed are inspected for any unsafe conditions which could cause injuries or property damage before commencement of work.

(c) Take steps to correct all unsafe conditions or practices that are under the control of the Company.

R - Recognize Hazards
E - Evaluate Hazards
C - Control Hazards

(d) When it is the responsibility of others to correct unsafe conditions, notify those responsible, (i.e., Building Owner, Project Manager, General Contractor) verbally and/or in writing per company policy. Also notify your Superintendent/Manager that such unsafe conditions exist. Avoid the area until hazard(s) is removed.

(e) Whenever unsafe practices by workers of other trades are observed that could effect personal safety or property damage, immediately notify your supervisor and report such practices, verbally and in writing, maintaining a copy, to:
(1) the Responsible person at the jobsite and
(2) the Elevator Company Superintendent/Manager.

(f) When work must be performed or materials stored in areas accessible to the public, install proper barricades, warning signs, lights, etc.

(g) Keep unauthorized persons out of areas where work is being performed, or where Company material is stored.

(h) Be sure all employees know the hazards of the type of work to be performed. A brief explanation before starting the work may prevent an incident.

(i) Do not work or allow any employee to work when their ability or alertness is impaired by fatigue, intoxicating beverages, illegal or prescription drugs, or any other physical cause that might expose the employee or others to injury and notify your Superintendent/ Manager immediately.

(j) Maintain the Company Hazard Communication (HAZCOM) program and Material Safety Data Sheets (MSDSs) as appropriate. (See Section 14.)

(k) Before leaving the jobsite for meals, at quitting time, or for any other reason, determine the whereabouts of each person on the crew(s) present on the jobsite.

(l) Never allow Company equipment to be loaned to, borrowed or used by anyone other than Company personnel unless authorized by your Superintendent/ Manager.

(m) Never allow non-Company personnel or non-Company material to be carried on false cars or incomplete elevators, escalators, or moving walks unless your Superintendent/ Manager's approval has been obtained.

(n) Make sure that all tools, ladders, hoists, personal protective equipment, etc. are inspected for defects. Tag defective equipment and remove from use and from jobsite. Return for repair or replacement. Maintain company log when required.

(o) Conduct and document jobsite Safety Meetings (Toolbox Talks) in compliance with Company policy.

(p) **Ensure the following items are posted as required:**

(1) OSHA material i.e., Federal & State posters, including copies of any citations issued at that jobsite.

(2) Location of first aid station and telephone for medical treatment, ambulance, fire department and police in a conspicuous place.

(3) Evacuation, fire and other emergency procedures are posted and meeting areas outside buildings are designated when evacuation is required.

(q) A company-approved first-aid kit shall be on every job (construction, modernization and major repair) and kits shall be periodically checked and refilled as required.

(r) Although all employees are responsible for their own safety and the safety of co-workers, correct Company employees

who fail to adhere to the safety requirements contained in this Handbook and the Company's safety policies. Report violations of the Company's Safety policies to your Supervisor/Manager when future disciplinary action may be warranted.

(s) **Notify your Superintendent/Manager or Safety Department before proceeding with any inspection by local, state or federal government agency.**

1.3 Emergency Evacuation Procedures

(a) Upon entering any jobsite or building familiarize yourself with the emergency exit route and evacuation procedure established by management of the facility.

(b) React immediately and do not assume any alarm is false or a test.
   1. Remain Calm;
   2. Secure equipment to protect the public if necessary;
   3. Do not retrieve tools or personal belongings; and
   4. Proceed to the designated assembly area.

(c) Upon evacuation of the facility immediately contact your supervisor or branch office for futher instruction or follow your company's defined safety program.

Section 2
SAFETY INSPECTIONS

2.1 Need for Routine Safety Inspections

Safety inspections are a must in the elevator industry and required by OSHA regulations. Such inspections shall be conducted periodically to identify unsafe work practices and conditions that could injure company employees and/or the employees of others. Reasons for normal inspections include, but are not limited to:

(a) Normal wear and tear on such items as ropes, slings, scaffold planks, hand tools and PPE.
(b) Defects, damage and weather conditions.
(c) Changing conditions and other trades on site.

2.2 Inspecting for Hazards

The Competent Person on the jobsite must be aware of all potential hazards on the jobsite and take immediate corrective action. The following is a sample checklist:

- ❑ Is Company-provided information posted at jobsite (OSHA, emergency phone numbers, warning signs, etc.)?
- ❑ Is the site clean and free of debris? Are materials stored or stacked neatly and a safe distance away from your work area?
- ❑ Are Company-approved first-aid kits on the job? Are they periodically checked and refilled as required?
- ❑ Are emergency first-aid responders readily available or first-aid trained people on the job?
- ❑ Is drinking water available and container plainly marked?
- ❑ Are personnel properly wearing Company-approved personal protective equipment when exposed to possible danger (i.e., gloves, work boots/shoes, hard hats, safety harnesses, safety glasses, goggles, welding hoods, etc.)?

- ❑ Are company fire extinguishers inspected monthly, readily accessible and annual maintenance certificates up-to-date?
- ❑ Are ground fault circuit interrupters (GFCIs) available and in proper use?
- ❑ Are copies of your Company's Hazard Communication (HAZCOM) Program and MSDSs on the site?
- ❑ Are hazardous materials used (i.e., welding and cutting equipment, etc.) stored properly?
- ❑ Are required locks and tags for locking out equipment available and used properly?
- ❑ Are open decks, scaffolds, planking, etc., enclosed with approved guardrails and toeboards or are employees using approved personal fall-arrest systems?
- ❑ Are all elevator hoistways, entrances and escalator wellways properly barricaded with removable guardrails?
- ❑ Are floor openings covered or protected by OSHA compliant guardrails?
- ❑ Are all hand and power tools in safe condition and grounded or double insulated?
- ❑ Are defective tools and equipment tagged with company-approved tags and removed from use?
- ❑ Is hoisting and rigging equipment in good condition and properly rated?
- ❑ Is material handling equipment in good condition and properly rated?
- ❑ Are ladders and scaffolding in good condition and being properly used?
- ❑ Are company-approved warning signs posted where necessary?
- ❑ Do work and common areas have adequate lighting?
- ❑ Are there any site specific hazards i.e., chemical plants, refineries, etc.

- ❑ Are disconnects and controllers properly labeled?
- ❑ Does the pit have adequate guards (i.e., counterweight guards, etc.), covers, is dry, and is there safe access and egress?

2.3 Pre-startup Safety Survey

A safety survey should be conducted on all construction, modernization and major repair projects prior to starting work. The responsibility for conducting a pre-startup survey shall be determined by the company. The following is a sample of the items that should be included on a pre-startup checklist.

2.3.1 Asbestos

- ❑ Customer has identified all areas containing asbestos
- ❑ Sampling has been conducted to ensure safe atmosphere
- ❑ Precautions have been taken to avoid asbestos containing material
- ❑ Employees have been properly trained, according to level of exposure

2.3.2 Lead Paint

- ❑ Customer has identified all areas containing lead paint
- ❑ Sampling has been conducted to ensure safe atmosphere
- ❑ Precautions have been taken to avoid lead paint
- ❑ Employees have been properly trained, depending on level of exposure

2.3.3 Document Requirements

- ❑ EEO, OSHA & State Posters
- ❑ Emergency phone numbers identified (i.e. fire, hospital)
- ❑ OSHA 300 log available (if required)

2.3.4 Electrical

- ❑ Wiring labeled and grounded
- ❑ Adequate power provided in areas where needed
- ❑ High voltage adequately identified and covered
- ❑ Ground Fault Circuit Interrupters (GFCI) available

2.3.5 Fall Protection

- ❑ Type of fall protection to be used is identified
- ❑ Anchor points identified
- ❑ Barricades installed properly per handbook (removable)

2.3.6 Fire Prevention

- ❑ Fire extinguishers available
- ❑ Wood/paper products or rubbish not in pit or machine room
- ❑ Smoking/No-smoking areas identified

2.3.7 First Aid

- ❑ Location of first aid station (or kit) identified
- ❑ Trained personnel identified

2.3.8 General

- ❑ Evaluate the location of work by other trades and determine impact

2.3.9 Hazard Communication

- ❑ Chemical inventory list
- ❑ Containers properly labeled
- ❑ MSDS's readily available

2.3.10 Hoisting & Rigging

- ❑ Adequate equipment for job
- ❑ Equipment inspected and certified per manufacturer recommendations
- ❑ Capacities identified (equipment and load), ensure equipment will meet expected lifting requirements

2.3.11 Housekeeping

- ❑ General condition of work area
- ❑ Walkways clear
- ❑ Regular waste disposal schedule
- ❑ Adequate lighting

2.3.12 Ladders/Stairwells

- ❑ Access stairwells have guardrails installed
- ❑ Stairwells properly lit
- ❑ Serviceable ladders of sufficient height are available
- ❑ Extension ladders have safety feet and extend 3 ft (914 mm) above landings
- ❑ Safe access to work areas provided

2.3.13 Material Handling

- ❑ Employees are trained to operate forklifts safely and sufficient equipment is available to move material safely (forklifts, dollies, handcarts, etc.)
- ❑ Equipment in good working condition
- ❑ Staging area for material and equipment identified

2.3.14 Scaffolds

- ❑ Proper erection is supervised and inspected by Competent Person
- ❑ Locking pins installed
- ❑ Equipped with baseplates
- ❑ Tied to the structure when required
- ❑ Proper planking

2.3.15 Welding

- ❑ Adequate equipment provided (if needed)
- ❑ Area identified for proper cylinder storage
- ❑ Adequate shielding is available (if needed)
- ❑ Well ventilated area identified for welding
- ❑ Properly inspected extinguisher available

Section 3
PERSONAL PROTECTIVE EQUIPMENT (PPE)

General Requirements

Employers shall ensure that personal protective equipment (for eyes, face, head, and extremities), protective clothing, respiratory devices, protective shields and barricades, are provided, used and maintained in a sanitary and reliable condition. **All employees shall have necessary personal protective equipment with them at all times.**

Employees shall inspect PPE each time before use to ensure that it is in good working order and replace as necessary (if damaged or per manufacturers' recommendation).

To assist in evaluating required PPE for individual jobsites, the Job Hazard Assessment Form is to be used. See Section 18.

Employee-Owned Equipment

Where employees provide their own protective equipment, the employer shall be responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment.

3.1 Proper Clothing

(a) Do not wear shorts, tank tops or trousers with cuffs. Long-sleeve shirts are recommended.
(b) Hand tools and other objects shall not be placed in the pockets of trousers due to the possibility of snagging on moving objects or contacting energized equipment.
(c) Finger rings, loose jewelry and torn clothing are hazardous and shall not be worn.
(d) When working around energized equipment, finger rings, metal-framed glasses, large belt buckles and watches shall be removed or protected to prevent contacting live components.
(e) Personal protective equipment shall not be traded or exchanged unless sanitized.

(f) Oil free clothing shall be worn when performing welding or cutting operations.
(g) Always wear appropriate clothing when welding, grinding or working around an open flame.

3.2 Eye and Face Protection

OSHA standards require employers to provide suitable eye and face protection.

(a) Types of protection
  (1) Safety glasses with side protection (used for most situations).
  (2) Goggles (used when dust or chemical splash hazards exist).
    (A) Welder's Goggles
      Used for gas cutting and welding operations. (See filter lens chart for proper shade and number in Figure 3a.)
    (B) Welder's Shield
      Used for electric arc-welding work. Lens shade chosen as above and protected by a clear cover glass.
    (C) Face Shields
      Shall be worn when entire face needs protection, (i.e.: flying sparks; chemical splash; etc.)
(b) Employees shall wear eye and face protection equipment when machines or operations present potential eye or face injury from physical, chemical, or radiant agents, (i.e.: grinding; drilling; chiseling; babbitting; welding; dusty and windy atmosphere; etc.)
(c) Eye and face protection shall meet the requirements specified in American National Standards Institute, "ANSI Z87.1-1989 (R1998), Practice for Occupational and Educational Eye and Face Protection."

(d) Eye and face protection equipment shall be kept clean and in good repair. The use of this type equipment with structural or optical defects shall be prohibited.

(e) Protection shall meet the following minimum requirements:
  (1) Be adequate for the hazard.
  (2) Fit snugly.
  (3) Not interfere with the wearer's movements.
  (4) Be durable, easy to clean, and capable of being disinfected.
  (5) Be kept in good repair.

(f) The user shall be instructed regarding any limitations or precautions indicated by the manufacturer.

(g) Non-metallic eye protection shall be worn while working on or near electrical circuits or electrical apparatus.

Figure 3a

Filter lens shade numbers for protection against Radiant Energy

Welding Operation	Shade Number
Shielded metal-arc welding 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes	10
Gas-shielded arc welding (nonferrous) 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes	11
Gas-shielded arc welding (ferrous) 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes	12
Shielded metal arc welding (ferrous) 3/16-, 7/32-, 1/4-inch diameter electrodes	12
5/16-, 3/8-inch diameter electrodes	14
Atomic hydrogen welding	10-14
Carbon-arc welding	14
Soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, over 6 inches	5 or 6
Gas welding (light), up to 1/8-inch	4 or 5
Gas welding (medium), 1/8-inch to 1/2-inch	5 or 6
Gas welding (heavy), over 1/2-inch	6 or 8

*General Note: 1 in. = 25.4 mm

(h) **Tinted (except yellow) and shaded eye protection shall not be worn indoors except for welding and cutting operations.**
(i) Contact lenses are not recommended at work.

3.3 Occupational Head Protection

OSHA standards require employers to provide suitable head protection.

(a) Employees working in areas where there is a possible danger of head injury from impact, falling or flying objects, or from electric shock and burns shall be protected by hard hats.
(b) Hard hats are to be worn at all times during all phases of construction. For modernization and repair tasks in the hoistway, hard hats are required (unless in a finished car).
(c) Hard hats shall be worn with the suspension properly fitted.
(d) Before using your hard hat, inspect it for cracks, etc.
(e) Don't store hard hat where it is exposed to direct sunlight.
(f) The application of decals, stickers, etc. is not recommended unless required by the jobsite General Contractor. Painting of hard hats is not permitted.

3.4 Occupational Foot Protection

Employers shall assess their employees' needs based on the type of work they perform to determine the proper work shoe for each employee. Work shoes purchased after June 1, 2006, shall meet ASTM F2412-05 and ASTM F2413-05. In addition Personal Protection-Protective Footwear shall conform to the following requirements:

(a) Leather uppers
(b) Oil resistant soles

(c) Class 75 for impact and compression protection; where protective toe caps are required.
(d) Employees working around live electrical equipment shall have electrically rated soles (EH rating).

3.5 Hearing Protection

OSHA standards require employers to provide suitable hearing protection. Hearing protection will be provided and used whenever it is not feasible to reduce the noise levels or duration of exposure below 85 dB on a time-weighted average.
(a) There is no cure for noise-induced hearing loss.
(b) Clean non-disposable earplugs after each use.
(c) Earmuffs need to make a perfect seal around the ear to be effective.
(d) For extremely noisy situations, wear earplugs and earmuffs.
As a rule of thumb if you must raise your voice to speak to others at a distance of 5 ft (1.5 m) or less - hearing protection should be worn.

3.6 Personal Fall Arrest Equipment

OSHA standards require employers to provide suitable fall arrest equipment.
(a) Personal fall arrest equipment shall be worn and lanyards attached to lifelines at all times when working in or within 6 ft (1.8 m) of an open hoistway where there is the potential to fall more than 6 ft (1.8 m).
(b) Personal fall arrest equipment shall be used only for employee safeguarding.
(c) Any lifeline, harness, anchor, or lanyard actually subjected to shock loading, as distinguished from static loading, shall be immediately removed from service and shall not be used again for employee safeguarding.

(d) Lifelines shall be secured above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5,000 lb (2268 kg).
(e) Each employee is to be properly trained on the proper use, maintenance and inspection of personal fall arrest systems.
(f) Lanyards shall be attached to lifeline or suitable anchorage such that an employee cannot free fall more than 6 ft (1.8 m), exceed calculated forces, nor contact any lower level.
(g) See Section 4 on Fall Protection.

3.7 Hand Protection (Gloves)

(a) Gloves shall be worn when potential hazards exist that could cause injuries to the hands, (i.e.: cuts; abrasions; burns; hazardous chemical exposure; etc.).
(b) Gloves SHALL NOT be worn when working near moving machinery.

3.8 Respiratory Protection

In general, industry work environments do not pose a health risk from breathing contaminated air. However, respiratory protection may occasionally be required by job site conditions or building owner requirements. Contact your supervisor for more information if needed.

To control those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to eliminate the atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, appropriate respirators shall be used or completely avoid area depending on company policy.

If approved by the company, NIOSH approved dust respirators (non-sealing) can be used without the following requirements as long as the employee has no known medical condition which would put them at risk (i.e., heart condition, respiratory difficulties, etc.) and the mask is discarded when contaminated.

(a) Only physically qualified employees will be trained and authorized to use respirators. A pre-authorization and annual certification by a physician will be required and maintained.

(b) Any changes in an employees' health or physical characteristics which may affect their ability to wear a respirator (i.e., 20% weight gain or loss, heart condition, respiratory problems, etc.) shall be reported to their supervisor and will be evaluated by a physician.

(c) Only authorized and trained employees shall use respirators. Those employees may use only the respirator that they have been trained on and properly fitted to use. The training is required initially and shall reoccur annually. This training shall include:
    (1) How to select the proper type of respirator and/or cartridge.
    (2) How to inspect and maintain the respirator.
    (3) How and when to use the respirator.
    (4) Limitations and capabilities of the respirator.

(d) Before an employee is required to use any respirator, the employee shall be clean shaven where the respirator meets the face, fit tested with the same make, model, style, and size of respirator that will be used on the job. The fit testing is required initially and shall reoccur annually.

Section 4
FALL PROTECTION

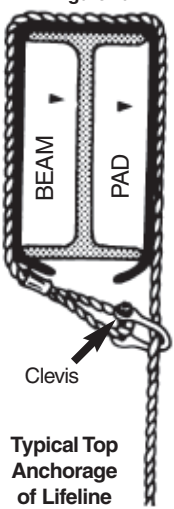
General Requirements

Fall protection is required when a worker is exposed to a fall hazard (working more than 6 ft (1.8 m) above a lower level and an opening more than 12 in. (305 mm).

There are three ways of controlling fall hazards. Elimination of the fall hazard should be the first consideration. The second consideration is a guard rail system, and the third is a personal fall arrest system.

4.1 Personal Fall-Arrest System

Figure 4a



Typical Top Anchorage of Lifeline

Figure 4b (next page) shows the attachment of the body harness and shock-absorbing lanyard to the lifeline while working in the hoistway/wellway, and an example of typical top anchorage of the lifeline is shown in Figure 4a.

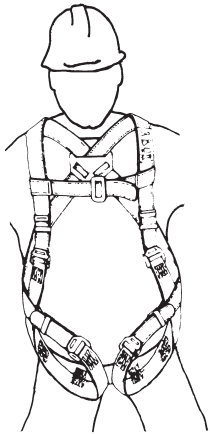
(a) Only company-approved lifelines, shock-absorbing lanyards and body harnesses shall be used.

(b) All fall protection components shall be compatible.

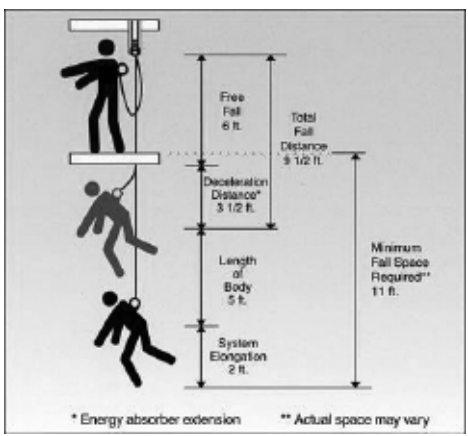
(c) Lifelines shall be protected against being cut or abraded. Only synthetic or wire rope shall be used for lifelines.

(d) Lifelines shall be installed before working in the hoistway/wellway and shall run the full length of the hoist way/wellway and be so arranged to

Figure 4b



Full-Body Harness



permit tying off before entering the hoistway/wellway. Prior to use the personal fall-arrest system shall be approved by a **Competent Person**.

(e) Only one worker is permitted on a vertical lifeline, and that lifeline shall have a breaking strength greater than 5000 lbs (2268 kg) after it has been attached to the anchorage point.

(f) Shock-absorbing lanyards shall be anchored to the lifeline and shall be above shoulder height so that any fall shall not exceed 6 ft (1.8 m). When determining fall heights be sure to use proper fall clearance distances (refer to figure 4b). Lanyards shall be connected to a vertical lifeline by means of a rope grab; the lanyard shall not be attached directly to the lifeline.

(g) Lifelines, harnesses and shock-absorbing lanyards subjected to impact loading shall be immediately removed from service. They shall be eliminated and destroyed for employee safeguarding.

(h) Tying to the hoist line is prohibited. Proper rope grab shall be used.

(i) Fall protection shall be used on top of a completed elevator car where there is a fall hazard and the car is secured from movement.

(j) On a completed car secured from movement, tie off when exposed to a fall hazard. Do not position yourself where there is fall hazard.

(k) Replace personal fall protection equipment at intervals recommended by the manufacturer.

(l) Before using a body harness, shock-absorbing lanyard and lifeline, inspect them carefully each time for signs of wear or damage.

4.1.1 Inspection and Maintenance Checklist

To maintain service life and high performance, personal fall arrest systems shall be inspected before each use. Replace the personal fall arrest system if any defective conditions are found.

- ❑ *Webbing*. Grasp the webbing with your hands 6 in. (150 mm) to 8 in. (200 mm) apart. Bend the webbing in an inverted "U". The resulting surface tension makes damaged fibers or cuts easier to see. Follow this procedure the entire length of the webbing, inspecting both sides of each strap. Watch for frayed edges, broken fibers, pulled stitches, cuts, burns and chemical damage.
- ❑ *D-Rings/Back Pads*. Check D-rings for distortion, cracks, breaks, and rough or sharp edges. The D-ring should pivot freely. D-ring back pads should also be inspected for damage.
- ❑ *Attachment of Buckles*. Attachments of buckles and D-rings should be given special attention. Note any unusual wear frayed or cut fibers or distortion the buckles or D-rings.
- ❑ *Tongue/Grommets*. The tongue receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted or broken grommets. Webbing shall not have additional punched holes.
- ❑ *Tongue Buckle*. Buckle tongues shall be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. The roller shall turn freely on the frame. Check for distortion or sharp edges.
- ❑ *Friction and Mating Buckles*. Inspect the buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points of the center bar.

Visual Indications of Damage to Webbing and Rope. The following indications refer to nylon and polyester webbing:

- ❑ *Heat*. In excessive heat, webbing becomes brittle and has a shriveled brownish appearance. Fibers will break when flexed. Harnesses made of these materials should not be used at temperatures above 180 degrees Fahrenheit.
- ❑ *Chemical*. Changes in color usually appearing as a brownish smear or smudge. Transverse cracks appear when bent over a mandrel. Loss of elasticity.
- ❑ *Molten Metal or Flame*. Webbing strands fuse together. Hard shiny spots appear. Hard and brittle feel.
- ❑ *Paint and Solvents*. Paint that penetrates and dries restricts movement of fibers. Drying agents and solvents in some paints cause chemical damage.

4.2 Guardrail Systems

General

OSHA compliant guardrail systems for car tops, open hoistways or escalator wellways shall have a top rail 42 in. ±3 in. (1067 mm ±76 mm) high, with a mid-rail 21 in. (533 mm) high at centerline and toeboards. 3-1/2 in. (90 mm) high, with no greater than 8 ft (2.4 m) between uprights and shall be capable of sustaining a force equal to 200 lbf (890 N) at the toprail, 150 lbf (667 N) at the midrail, and 50 lbf (222 N) at the toeboard. When 200 lbf (890 N) is applied, the top rail shall not deflect lower than 39 in. (991 mm) (See Figures c, d and e)

(a) OSHA compliant removable guardrail systems with toeboards shall be installed at elevator hoistways or escalator wellways typically by the General Contractor, after either rough or finished floors are in place.

(b) Signs shall be installed warning against removal. It is also recommended that a sign indicate “Caution: Workers in Hoistway.”

(c) After hoistways are enclosed, and before permanent doors are installed, openings shall be protected by removable guardrail systems (including toeboards).

(d) If it is necessary to remove the guardrails, be sure to replace them before leaving the area.

(e) Wire-rope guardrail systems are not recommended for guarding hoistways. Where used, post spacing shall not be greater than 8 ft (2.4 m) and they shall not deflect to a height less than 39 in. above the walking/ working level when a force of 200 lbf (890 N) is applied. Warning flags shall be attached every 6 ft (1.8 m), toeboards shall be provided and they must be easily removable for access to the hoistway at the terminal landings.

(f) If guardrails are not properly maintained in place, notify your Superintendent/Manager and the General Contractor's Superintendent immediately.

(g) On new installation, modernization, or major repair jobs where the general public is present, solid barricades at least 8 ft (2.4 m) high shall be used to fully enclose the work areas, open hoistways and escalator wellways. They shall be properly secured to avoid unauthorized access.

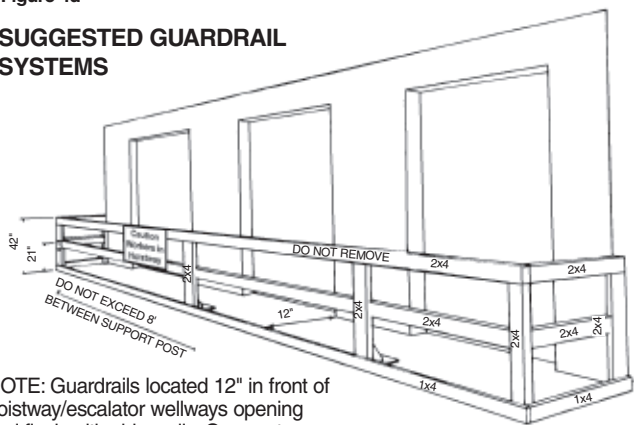
(h) When a guardrail is removed to perform a job, a personal fall-arrest system must be utilized when a fall hazard is present.

NOTE: The methods shown in Figures 4d and 4e are recommended as a means of providing maximum protection and flexibility during construction. Do not use during modernization or major repair jobs where the general public is present – use only solid barricades.

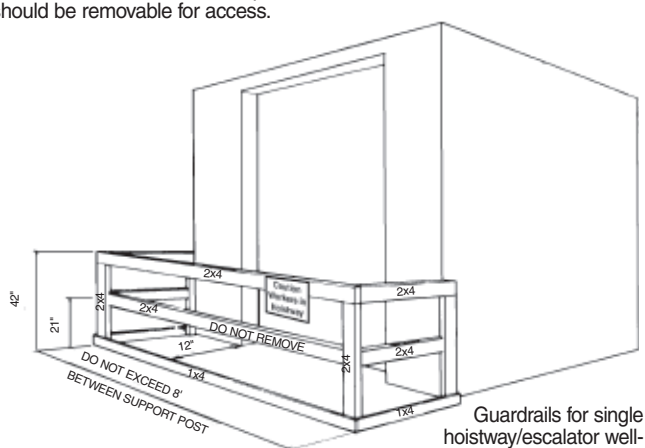
Figure 4c
Osha compliant cartop guardrail system

Figure 4d

SUGGESTED GUARDRAIL SYSTEMS



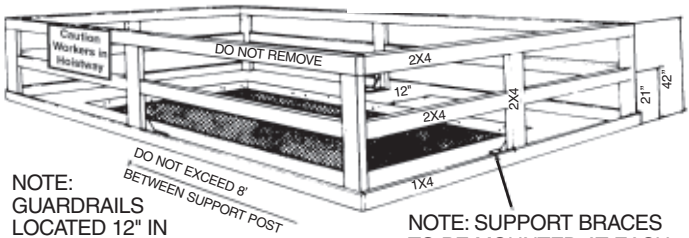
NOTE: Guardrails located 12" in front of hoistway/escalator wellways opening and flush with side walls. One part should be removable for access.



Guardrails for single hoistway/escalator wellways opening located 12" from opening

Figure 4e

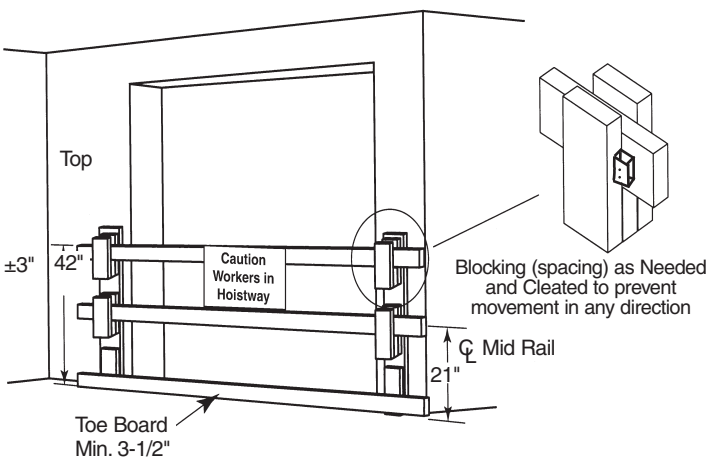
SUGGESTED GUARDRAIL SYSTEMS



NOTE: GUARDRAILS LOCATED 12" IN FRONT OF HOISTWAY/ ESCALATOR WELLWAY OPENING

NOTE: SUPPORT BRACES TO BE MOUNTED AT EACH SUPPORT POST

SHADED AREA ABOVE REPRESENTS CLEAR HOISTWAY/ESCALATOR WELLWAY OPENING

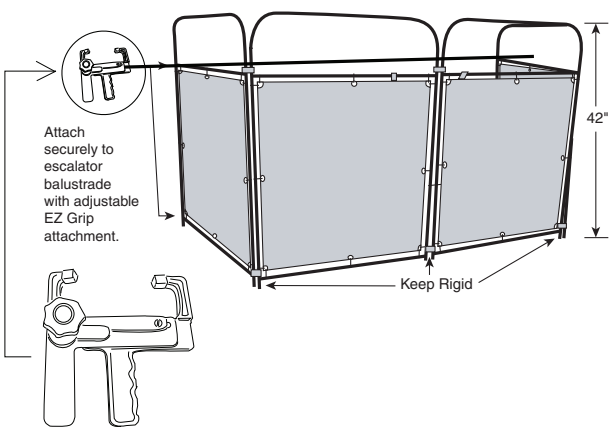


Removable Guardrails:
Space out from walls to permit Entrance Frame Installation.

4.3 Escalator/Moving Walk Barricades

(a) Barricades shall be positioned to completely surround the escalator/moving walk from public access.
(b) Barricades shall be positioned to surround, from public access, floor opening created when equipment access plate(s) are removed.
(c) Barricades shall be a minimum of 42 in. (1067 mm) high.
(d) Barricades shall be securely attached to the balustrades, handrails and/or floor.
(e) All sections shall be connected.
(f) A system shall be in place to keep the barricade rigid.
(g) See figure 4f.

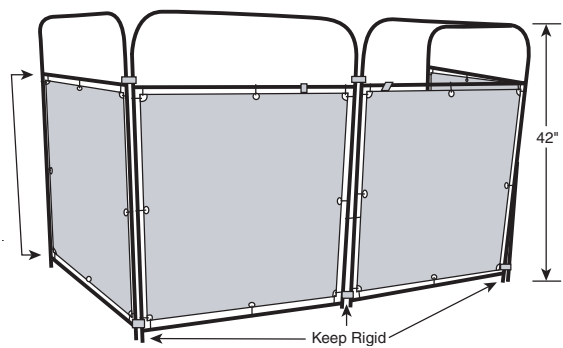
Figure 4f



4.4 Elevator Maintenance Barricades

(a) Barricade shall be positioned to restrict public access to the hoistway where doors are open greater than 5 in. (125 mm).
(b) Barricade shall be a minimum of 42 in. (1067 mm) high.
(c) Barricade shall cover entire entrance area.
(d) All sections shall be connected.
(e) A system shall be in place to keep the barricade rigid.
(f) See Figure 4g.

Figure 4g



Barricade

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:

- For arc-flash protection long-sleeved natural-fiber or FR-rated shirts and pants, long-sleeved FR-rated coveralls or other company-approved arc-flash-hazard protection
- For arc-flash protection clean leather gloves when working with 240 volts or more
- Nonconductive safety glasses
- EH-rated footwear or rubber mats
- For electric shock protection, rubber insulated gloves with leather protectors rated for the voltage present. When the danger from electric shock extends to arms as well, rated rubber insulating sleeves in addition to the gloves

(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.
  (2) Do not wear tool belts and do not carry tools in your pockets.

(i) Use only double-insulated rated tools when troubleshooting on circuits that may not be de-energized.

(j) While troubleshooting on MG Sets, elevator motors and solid-state motor drives, take extreme precaution, because the armature voltage present may be as high as 600 volts.

(k) Exercise caution (Be cognizant and prepared to test other circuits that may be "LIVE") when troubleshooting on multi-car operations especially in group systems, which may have circuits that are LIVE. Even when the mainline disconnect switch is OFF, other circuits may be powered from other sources (group controls, cab lighting, etc.)

(l) **Always** use fuse pullers to remove and install fuses. Fuses and fuse holders should be marked for proper size and type. Never use a higher amperage fuse, a fuse of a different type or bridge a fuse.

(m) Use nonconductive flashlights.

(n) Temporary wiring can be hazardous. All temporary wiring shall comply with the NEC and OSHA 1910.305. But when temporary wiring is used, locate wiring in such a manner that no one can trip over it. Take precautions to protect temporary wiring from sharp edges and mechanical damage and do not support it with nails or wires.

(o) All 110-volt, 15- or 20-amp circuits shall be grounded, except temporary lighting circuits. Do not wire outlet receptacles into lighting circuits unless they are grounded.
(p) Never troubleshoot on live circuits unless necessary to perform task. See Section 7 Lock-out/Tag-out.
(q) Always replace covers on electrical equipment after troubleshooting is completed.
(r) **DO NOT OPEN THE MAINLINE DISCONNECT SWITCH COVER**. If power is not being supplied to the elevator controller (e.g. open mainline fuses, etc.), advise the building owner to correct the condition. This is not the elevator company's responsibility.
(s) Keep electric cabinet doors closed when system is energized, whenever possible.
(t) A ground fault circuit interrupter (GFCI) is required when using portable power tools and drop lights. GFCIs should be tested prior to each use.

5.2 Meter Usage Safety Checklist

- ❑ Use Category III multimeters.
- ❑ Follow the manufacturer's safety procedures for the meter used.
- ❑ Be certain the meter is in good operating condition. Notify your supervisor immediately if the meter is damaged.
- ❑ The meter used must meet accepted safety standards for the environment it will be used in.
- ❑ Use a meter with fused current inputs and be sure to check the fuses before taking measurements.
- ❑ Inspect test leads for physical damage before making measurements. If damaged, replace them before proceeding.
- ❑ Use the meter to check continuity of the test leads.
- ❑ Use only test leads that have shrouded connectors and finger guards.
- ❑ Use only meters with recessed input jacks.
- ❑ Select the proper function and range for your measurement and double check before proceeding.

- ❑ Be aware of high-current and high-voltage situations and use the appropriate equipment, such as high-voltage probes and high-current clamps.
- ❑ Always disconnect the "hot" (red) test lead first.
- ❑ Use a meter that has overload protection on the ohm function.
- ❑ When measuring current without a current clamp, turn the power off before connecting into the circuit.

5.3 Energized Circuit Troubleshooting Checklist

Work on de-energized circuits and use lockout/tagout procedures whenever possible.

(a) On live circuits, use personal protective equipment (PPE).
- ❑ Use insulated tools.
- ❑ Wear nonconductive safety glasses or a face shield.
- ❑ Wear rubber insulated gloves with leather protectors rated for the voltage present. Where danger from electric shock extends to arms wear rated rubber sleeves in addition to gloves.
- ❑ Remove watches, jewelry or other metal objects.
- ❑ Stand on an insulated mat or use safety shoes with electrically rated soles.
- ❑ Wear long-sleeved natural-fiber or FR-rated shirts and pants, long-sleeved FR-rated coveralls or other company-approved arc-flash-hazard protection. (Check with your company procedures for specific uniform requirements.)

(b) When taking measurements on live circuits:
- ❑ Hook on the ground clip first, and then make contact with the hot lead. Remove the hot lead first and the ground lead last.
- ❑ Hang or rest the meter if possible. Try to avoid holding it in your hands to minimize personal exposure to the effects of transients.

- ❑ Use the three-point test method, especially when checking to see if a circuit is dead. First, test a known live circuit. Second, test the target circuit. Third, test the live circuit again. This verifies that your meter worked properly before and after the measurement.
- ❑ Use the old electrician's trick of keeping one hand in your pocket. This lessens the chance of a closed circuit across your chest and through your heart.

Section 6
PROPER USE OF JUMPERS

(a) It is recognized that temporary circuit jumpers or clips (jumpers) may be required for conducting some service work on elevators, escalators or moving walks. All field personnel shall be trained in the proper use of jumpers for defeating safety circuits. When jumpers are used they shall have the following characteristics:
   (1) Extra-long, tied in knots, and brightly colored wires or clips.
   (2) Jumpers shall be numbered in sequence.
   (3) The ends of jumper wires shall be affixed with insulated alligator clips.
   (4) Each employee shall have his/her name or personnel number marked in indelible ink on a label permanently attached to each jumper.

(b) Make sure you understand what effect using or removing a jumper will have on the entire elevator or escalator system prior to use.

(c) Jumper wires shall never be placed or configured to resemble permanent wiring.

(d) The number of jumpers carried shall be limited so that all jumpers can be accounted for at all times (numbering jumpers in sequence will help). Jumpers shall be removed and accounted for when returning equipment to service.

(e) Equipment shall never be returned to service with jumpers left on. Equipment found in this condition shall be reported to your Superintendent/Manager immediately.

6.1 Maintenance and Troubleshooting

6.1.1 Rules

(a) Jumpers shall not be used as a diagnostic tool. Always use a meter to troubleshoot circuits.

(b) Temporary bridging (e.g., tomahawk) devices shall not be used to short out hall door contacts.

(c) Do not jump out door and gate at the same time.
NOTE: You may deviate from this requirement only when a second qualified person is on site and in direct communication. **USE EXTREME CAUTION WHEN THESE CIRCUITS ARE JUMPED OUT.**

(d) Ensure that elevator is on inspection before placing jumpers on door, gate, or safety circuits. Make a visual inspection that all hoistway doors are mechanically closed.

(e) **Ensure all jumpers are removed before placing equipment back in service.**

6.1.2 Procedures for Jumper Use

(a) Remove elevator from public use and ensure no passengers are in the elevator.

(b) Place jumper kit on machine room door handle or other conspicuous place.

(c) Verbally communicate to all other elevator personnel on the jobsite when jumper(s) are to be used. This communication provides needed information on circuits bypassed and equipment affected.

(d) When work is complete, all jumpers shall be removed, counted and returned to the jumper kit.

(e) Never leave jumpers on equipment or in the machine room.

6.2 Modernization and New Construction

On modernization and construction many jumpers are used to operate elevators.

(a) Jumpers shall be brightly colored, easily identifiable and shall be long and conspicuous.

(b) A Jumper Log shall be established to ensure that affected personnel are aware of the safety circuits which are not functioning. It is the responsibility of the mechanic/mechanic in charge to ensure that the Jumper Log is completed. The Jumper Log shall be kept with the controller and shall not be removed until all jumpers are removed.

(c) Door, gate, or other safety circuits shall never be jumped out unless car is on inspection in the controller.

(d) Jumpers shall be removed as soon as they are no longer needed, maintenance and troubleshooting procedures outlined above shall be followed.

In addition to the above, stickers shall be placed in the controller cabinet, in close proximity to the inspection/automatic switches, which read as follows:

> DOOR, GATE OR SAFETY CIRCUITS SHALL NEVER BE JUMPED OUT UNLESS CAR IS ON INSPECTION IN THE CONTROLLER.

Before moving car with open doors, verify car is on inspection.

6.3 Door Bypass Procedure

(a) Inspection operation with open door circuits (ASME A17.1, Requirement 2.26.1.5) shall only be utilized when it is necessary to move an elevator when the car gate and/or door lock circuit is electrically open. Before utilizing this, steps shall be taken to identify the problem circuit (car gate or door lock) and bypass only that circuit. Once a decision is made to utilize door bypass circuitry, the elevator shall be placed on inspection operation via the car top or the in-car inspection switches. Once on inspection operation, the pertinent switch(es) can be switched to "bypass" position. Then, whenever possible, the elevator shall always be operated from the top of the car.

(b) Extreme caution shall be taken prior to and while moving the elevator to ensure the safety of the public and elevator personnel, i.e., unprotected openings, body parts clear of moving equipment, equipment unobstructed, etc.

(c) Once the purpose for using the door bypass circuitry has been met, the switch(es) are to be switched to the "open" position. A thorough check of the car gate/door lock circuitry shall then be performed to ensure proper operation. Once this is confirmed, the elevator shall be placed back on automatic operation and returned to service.

Section 7
LOCKOUT AND TAGOUT

General Requirements

The procedures outlined below are intended to prevent injury or death to employees by requiring certain procedures be taken before working on equipment. Unless it is not feasible (i.e., inspecting, troubleshooting, observing, etc.), employees shall not perform any work on equipment where there is a potential to be exposed to energized mechanical or electrical hazards until all sources of energy have been de-energized, grounded or guarded.

Equipment variations require the mechanic to know what car controls are available and operating; the mechanic must know what safety methods will be employed to gain control of the car. Never access the hoistway unless you have control of the car.

All forms of potential energy including electrical, mechanical, hydraulic, pneumatic, kinetic, gravity, etc. shall be controlled to prevent inadvertent movement of a unit or piece of equipment being worked on.

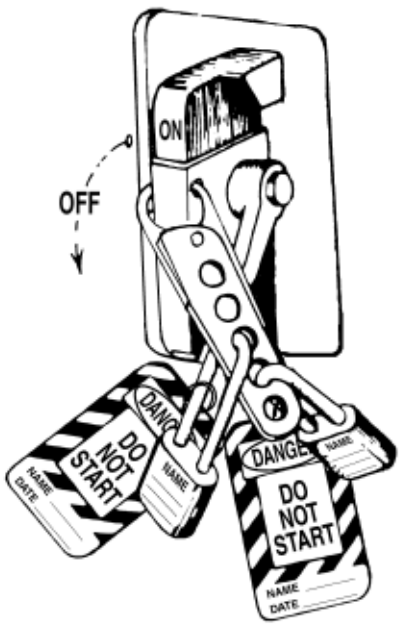
7.1 Procedures

(a) Understand the equipment; be aware of its potential hazards. If it is not understood, or if you have a question, contact your Superintendent/Manager immediately before proceeding.

(b) Where the accidental starting of the equipment would create a hazard – deactivate mainline disconnect switch to shut off the power. **CAUTION:** Do not stand directly in front of the mainline disconnect when operating **(stand off to the side of the disconnect)**. Each employee shall apply to the disconnect switch a personal lock and a "Do Not Start" tag with the employee's name (Section 5.3).

(c) Some components (capacitors, MG sets, etc.) often store residual energy, even though power is shut off. The stored energy can result in electrical shock or unintended movement of equipment. Before working on equipment with these components, discharge the stored energy to ground.
(d) When it is impossible to lock the switch, assurances shall be made that the circuit is deactivated and tagged out.

Figure 7a



(e) **CAUTION:** It is possible to have electrical energy on a controller that has had the mainline-disconnect switch deactivated. After initiating lockout and tagout, the lighting circuit may still be energized.

(f) Once the system has been locked out, verify with the appropriate test equipment that the system has been de-energized. (see Section 5.3)

(g) Before working on mechanical systems, make sure the system is understood. If there are any questions, get answers before proceeding. Such systems often store energy, even though the electrical power is shut off. The stored energy can result in violent movement of a machine part, such as a plunger or piston rod, when work is done on another portion of the equipment. If the portion of the system to be worked on can be isolated and the pressure in that portion of the system released by bleeding, it is not necessary to shut down the entire system. However, the valves and controls which could readmit pressure to the system being worked on shall be identified with "Do Not Start" tags and locked out. If a lockout is not possible, other positive action shall be taken to ensure that the equipment will not be energized. Check flanged connections, cylinder heads or plate-mounted components. The sticking of a gasket can hold the parts together, while bolts are removed, and then can come apart violently due to stored pressure.

(h) When working under a hydraulic elevator, devices such as jacks, pipe stands, etc. shall be installed to prevent the elevator from injuring workers in the pit.

(i) Each employee who performs duties described above will be provided with an individually keyed or combination lockout device and tags. If more than one employee is assigned to a task, each employee shall be responsible for placing their own lock and "Do Not Start" tag, so the controls cannot be operated.

(j) If controls are so located that only one lock can be accommodated, a multiple lockout device shall be used.
(k) Lockout devices shall be made available for locking out additional equipment.
(l) Where special devices are required to lockout circuit breakers, they shall be available and used.
(m) Lockout devices shall be returned to the Company when an employee transfers to other assignments or terminates.
(n) When switches are deactivated for service, repairs or alterations, they shall be locked out and tagged out.
(o) Before starting work on any equipment that is out of service, make a thorough check of all electrical control and starting devices. When any part of such equipment is remotely controlled, lockout and tagout the mainline disconnect and confirm that the system is de-energized [Section 7.1(f)].

7.1.1 Shift Changes

(a) When employees are ending their shift and/or other employees will continue work on the machine or equipment, the employees shall attach the company locks and tags and then shall remove their personal locks and tags.
(b) The new shift employees shall apply their personal locks and tags before beginning work on the machine or equipment. After the employees have placed their personal lockout mechanism and tag, and have verified that the system is de-energized the company locks and tags shall be removed.

7.1.2 Restoring Equipment and Machines to Normal Service

(a) All tools shall be removed, all guards and covers shall be reinstalled and the area shall be checked to insure that no personnel are exposed to the equipment or machine.