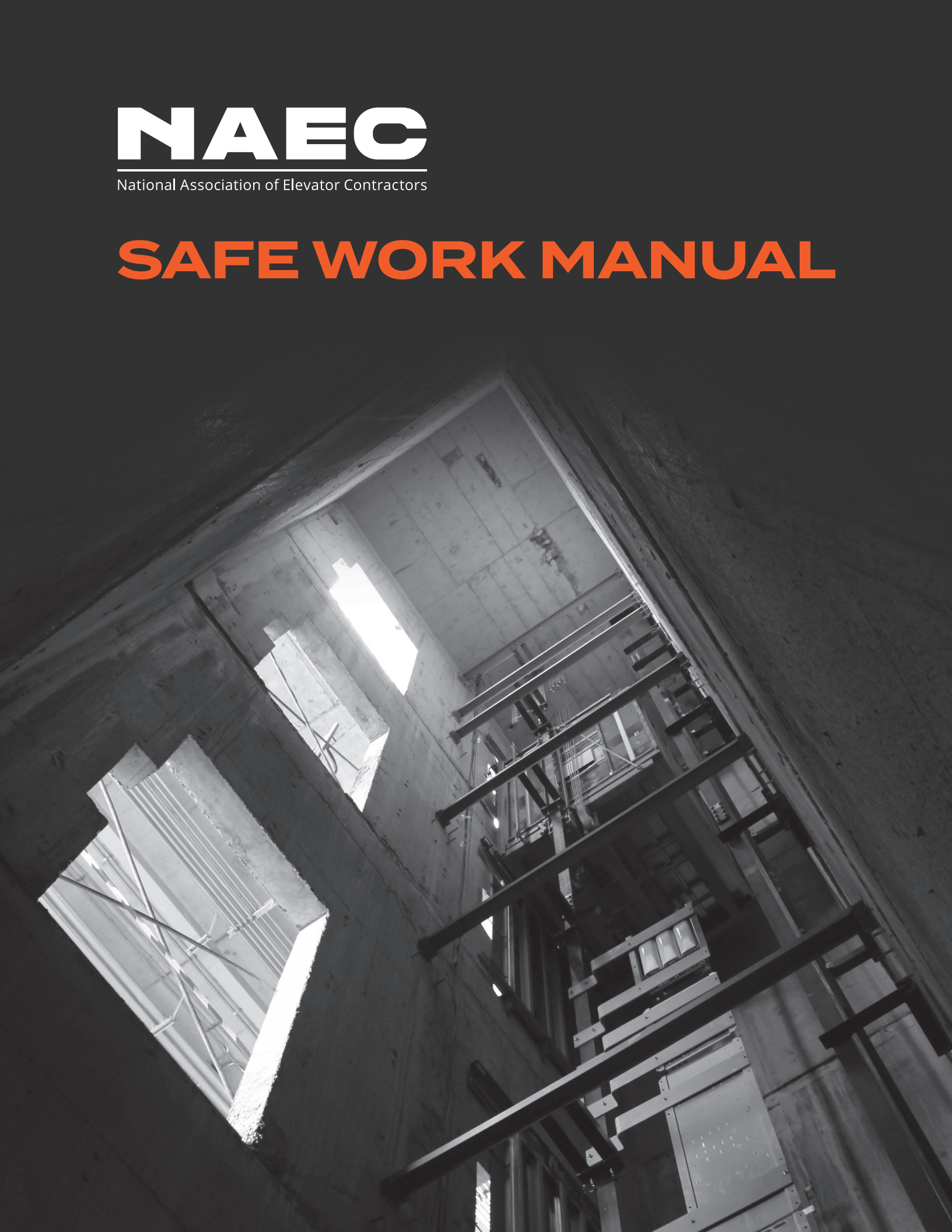
NAEC

National Association of Elevator Contractors

SAFE WORK MANUAL



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SAFE WORK MANUAL

These procedures and self-help questions encourage field associates to **"See Something, STOP & Think." First, say something, then plan ahead** by conducting a JHA (mentally, verbally, or in writing) to identify and fix potential problems before starting the task at hand. A JHA helps determine the safest way to perform the work and prevent accidents. Sometimes, this means slowing down and taking the time needed to ensure you are 100% ready to proceed safely.

Field Assessment topics may begin in the machine room, where you must Lockout/Tagout (LOTO) the equipment and remain aware of electrical hazards to protect yourself from potential arc flash incidents. Always wear the appropriate personal protective equipment (PPE) when performing routine tasks. When power is not required, ensure the mainline disconnect is properly LOTO'd.

If troubleshooting is necessary and a circuit must be temporarily jumped to identify the issue, follow the Jumper Policy (SA#3). Confirm that your jumper kit contains the correct number of jumpers, and carefully follow the established process to avoid jumping the wrong circuit or leaving a jumper in place before exiting the machine room.

When you access the car top, there is a set sequence found in this manual to follow (SA#6), make sure you stay alert. When you capture the car, safely take the correct steps to gain control of the elevator before crossing the hoistway sill. We all understand the risks involved, and consistently following the elevator industry's safe work practices helps prevent life-altering incidents and serious injuries.

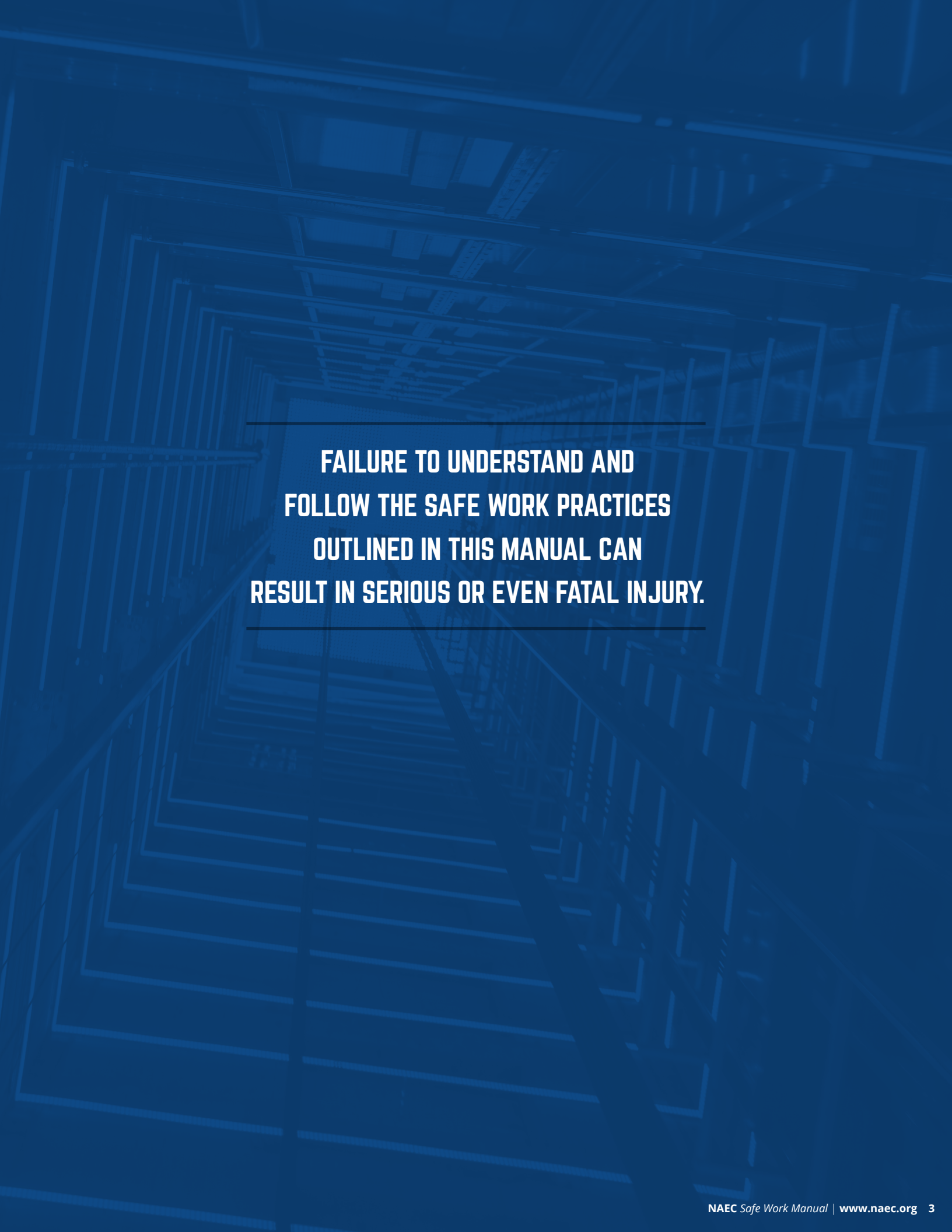


Fall protection is key **NO** matter what department you work in. In New Construction it is recommended to wear your full body harness **ALL DAY**. It can be uncomfortable but will allow you to tie off, when needed. The same principles apply to modernization work, although the working conditions may differ. Always prioritize safety and follow your company's policies and procedures.

Fall protection in Maintenance, Service, M&R, Repair and Testing is also critical to fully understand what type of fall equipment to wear (fall restraint/fall protection) and how to tie off, especially on top of the car when performing a short task or a complex repair. In the repair department, to conduct a re-roping task, it is extremely important that the team install lifelines in the hoistway if a fall hazard exist. Fall protection may be required prior to accessing the underside of the counterweight frame.

Mechanical stored energy on jobsites often goes unattended, especially with ladders and materials leaning up against the wall. Ladders are to be cleated or tied off to eliminate unexpected movement or shifting. Working and running platforms are key to our industry. The safeties tested daily, barricades installed, gable roofs, and netting installed when gable roofs cannot be installed. Also remember to install netting in the hoistway to safeguard against the unexpected movement of a high-speed car when you are working nearby. You must follow manufacturer (this is what is used on the bottom of the page 3) guidelines for daily testing and fall protection, while using this equipment. When installing overhead protection, all company policies, industry standards, and OSHA regulations must be followed.

All hoisting and rigging blocks, safety lines, chain falls, Johnson bars, and slings used to transport equipment to and from the site must be inspected prior to use. The Capstan/Philly hoist must be installed on the shear with a rope guard properly secured on the drum before use. Prior to handling materials, workers should stretch and warm up. Proper stretching helps reduce the risk of back, knee, and shoulder injuries.



FAILURE TO UNDERSTAND AND FOLLOW THE SAFE WORK PRACTICES OUTLINED IN THIS MANUAL CAN RESULT IN SERIOUS OR EVEN FATAL INJURY.

FALL PROTECTION/ FALL RESTRAINT

All protection must be provided and used by all associates who are exposed to a fall hazard of 1.2 meters (4 ft.) for general industry and 1.8 meters (6 ft.) for Construction. A fall hazard is defined as any opening of 300 mm (12" x 12" x 6') or greater, and work activity places associate within one body length (6 ft.) of the opening.

FALL PROTECTION (SAFETY ABSOLUTE #1) - FALL RESTRAINT

ACTIONS

1. Fall protection (restraint/arrest) must be worn at all times when there is a fall of > 4' - 6' - 10' and a 12" x 12" opening.
2. Fall protection (restraint/arrest) equipment must be certified and conform to company, elevator industry/OSHA requirements.
3. OSHA compliant barricades must be installed at ALL hoistway openings with greater than a 6' fall hazard.
4. Fall protection barricade requirements: top-rail 42" + -3", mid-rail 21"- toe-guard at 3.5"- 6" capable of a 200 lb. force.
5. Working on TOC, guardrails must be installed in compliance to OSHA standards or fall restraint/arrest must be worn.
6. Fall protection consists of: full body harness, (restraint/fall arrest) lanyard, rope gripper, anchor sling and lifelines.
7. Ladder must be secured (cleated/footed) and positioned correctly at elevations greater than 1.8 m (6 ft.).
8. Working off ladders at elevations greater than 1.8 m (6 ft.), fall protection must be part of the PTP process & worn.
9. Two (2) lifelines are used per hoistway and only one associate anchored to a singly lifeline.
10. Always protect lifelines from sharp edges by padding all four corners of the lifeline around I-beams.
11. If the lifeline is not padded on all 4 corners - it loses its strength by 50%.
12. The minimum capacity for the anchorage point of a lifeline and/or lanyard is 2270 kg (5000 lbs.).
13. Employee demonstrates the proper sequence when connecting and disconnecting a lanyard to the rope gripper.
14. When riding a car top/running/working platform, fall protection (restraint/ all arrest) is required to be worn but not tied off.
15. Retractable lanyards cannot be connected to a lifeline and are not recommended on car tops.
16. Do not tie **OFF** to a moving elevator.
17. When the car/working/running platform is stopped, barricades are required, the associate is required to tie off to an anchor sling around the crosshead or to a lifeline capable of withstanding a 5000 lb. force.

Note: *When working off a platform ladder (step) you are not required to be tied off. It is not considered a walking or working surface. However, you must follow the manufacture directions to ensure cleating, footing, correct horizontal and vertical ratio (4 to 1) and brace the upper landing of the ladder or extend it 3' ft or >.*

JUMPERS: DEFEATING SAFETY CIRCUITS

JUMPER POLICY: All qualified associates will be trained, issued a company jumper kit, and required to sign for the kit corresponding to their assigned department, including Maintenance, Service, M&R, Repair, Testing, Construction, Modernization, and Adjusters. Your company maintains a record of **ALL** field associates trained and issued a jumper kit and the quantity of jumpers in each kit. Management will consider the needs of each individual mechanic and jumpers will be issued to allow the mechanic to work on the equipment in their area of responsibility. This includes issuing five jumpers that are part of the company Jumper Kit.

JUMPERS (SAFETY ABSOLUTE #3): DEFEATING SAFETY CIRCUITS

ACTIONS

1. Only company authorized jumpers will be distributed that contain: 2 hook - 2 alligator clip jumpers and if required 1 - 36" long 18-gauge wire jumper.
2. Do not use non-retractable jumpers for the door contacts on swing or manual doors. Never leave a jumper on a circuit when leaving the jobsite.
3. Employees must be able to demonstrate the correct use of the company jumper policy for their department.
4. The jumper log must be completed whenever single or multiple jumpers are used. The elevator must be **ON** inspection prior to installing the jumpers.
5. All jumper tags must be properly identified to the owner with permanent number (1 - 5) marking on each jumper tag.
6. Do not jump car gate(s)/hoistway door(s) at the same time on any controller.
7. Jumper kits are to be left on the machine room doorknob/key ring /tool bag to alert the mechanic prior to exiting to count **ALL** jumpers and place them back into the kit before leaving the machine room.

Note: *If the mechanic request additional jumpers to troubleshoot/service the unit based on the type of equipment (example: MCE, Vantage (GAL), Smart Rise or Elevator Controls) they are to contact their manager. The manager will request additional jumpers 18/20-gauge 36" long from your company. They in turn will issue the additional jumper with an identification tag to be used and recorded as part of the mechanic's jumper kit. If the mechanic lost a jumper, (i.e., #2) they are to call their manager, the manager will notify the company's safety department to request a replacement jumper.*

JUMPER POLICY: NEW CONSTRUCTION/MODERNIZATION - ADJUSTER

ACTIONS

1. The Adjuster, Superintendents, Foreman or MIC will review both sides of the temporary jumper card prior to its use.
2. Remove the roll of wire enclosed in the folder and count the number of jumper tags to ascertain quantity.
3. Folders will contain a 45-foot roll of 18-gauge wire, sufficient to create fifteen (15) jumpers, each 36 inches long. The jumpers will be colored fluorescent pink or another non-traditional color and will be threaded, tied in a knot, and attached to a 3.5" × 5.5" temporary identification card (tag) to identify connections from **POINT A TO POINT B**.
4. **NOTE**: If Step 3 must be modified because the temporary jumper from **POINT A TO POINT B** exceeds 36 inches, the Adjuster, Foreman, or MIC must have a roll of fluorescent yellow 18-gauge wire available to extend the jumper as needed.
5. All temporary jumpers installed must be registered on the folder's log sheet.

6. The log sheet will identify the job by name, address, job #, G/C and type of equipment.
7. Secure the temporary jumper folder to the inside of the controller door using a wire tie, allowing the Adjuster, Foreman, or MIC to log each temporary jumper applied from **POINT A TO POINT B**.
8. The initial of the installer must be on the log sheet next to **ALL** jumper(s) applied.
9. When each temporary jumper is removed it **MUST** be logged on the log sheet that it was removed and initialed by the person removing the jumper.
10. Log folders with all temporary jumpers that were used on each controller must be returned to the office by the Adjuster, Foreman or MIC.
11. Once all jumpers are removed, place each jumper card (tag) back in the folder, verify all are accounted for, and return it to your Superintendent.
12. The company's Superintendent must count each jumper card (tag) placed in the folder, ensuring **NO** jumpers were left on the controller, signs below and returns the folder back to the office to close out the job.

Note: *If you must convert a temporary jumper into a permanent jumper, the data specification sheet* ***MUST*** *be updated. The jumper* ***MUST*** *be the same color as the permanent wiring on the controller.*

Note: *Extra wire must not be found on the machine/room floor or around the controller. Discard* ***ALL*** *unused wire immediately.*

JUMPER POLICY: MAINT/SERV/M&R/REPAIR DEPARTMENTS

Maintenance, Service, M&R and Repair employees receive training on the safe use of jumpers for their area of responsibility. Records are on file of those issued kits with the quantity of jumpers in each kit identified. Each jumper applied will be logged in and out under the mechanic/temporary mechanic/adjuster's name to avoid a jumper from being left on. The jumper kit will be placed on the door handle of the machine room or tool bag**.**

ACTIONS

1. Communicate with the building Manager, that the car has been taken out of service.
2. Place signage to notify users that the car is out of service. Take control of the car from public use.
3. Jumpers counted and number of jumpers confirmed prior to starting the task.
4. Jumper kit is placed on the machine room door handle/key ring or tool bag before first jumper is installed.
5. Jumpers used must have a tag attached and the owner identified.
6. The jumper is visibly attached to the circuit.
7. The task is performed.
8. The jumper(s) must be removed after the task has been performed.

9. Jumpers are counted and the number of jumpers confirmed prior to leaving the machine room.
10. The associate rides the car to test and verify it is functioning without incident.
11. The associate notifies the building manager that the car has been returned to service.

Jumper Log Example

Job Name: _____ Controller(s): _____
Address: _____ Adjuster: _____
Job Number: _____ Foreman: _____
General Contractor: _____ Mechanic: _____
Type of Equipment: _____ Helper: _____

JUMPER #	POINT A	POINT B	DATE INSTALLED	ADJUSTER FOREMAN/MIC	DATE REMOVED	ADJUSTER FOREMAN/MIC	MANAGERS INITIALS

Jumper Kit Example

MAINTENANCE: JUMPER KIT	CONSTRUCTION/MODERNIZATION - TEMPORARY JUMPER KIT
1 Alligator Clip	15 Temporary **Orange** cards number in sequence on a 8.5x11 plastic sleeve to be placed on the controller door
2 Hook Clips	A 15-step process that will be on the front of an 8.x111 white envelope
1 Jumper Log Sheet	One 8.5x11 plastic sleeve outlined in **Black**
6 Warning Stickers	On the rear of the envelope identification information and log in columns
1 Jumper Kit/Bag	To complete during the installation & removal of the temporary jumpers
1 Strap for Kit	***Note:*** *A 15 step instructional Jumper Kit with the complete directions.*
1 **Black** Sharpe Pen	

LOCKOUT TAGOUT ELECTRICAL & MECHANICAL STORED ENERGY

When work is performed on equipment where operation is not required, the equipment must be completely de-energized (brought to a “zero energy state”) and locked and tagged out from its power source. Verification of “zero energy state” must be accomplished. For electrical use a CAT III 1000 voltage DMM or an AC-voltage sensor. When power is needed to perform a task <12” and >50v you must comply to the Arc Flash Standard.

LOCKOUT TAGOUT (SAFETY ABSOLUTES #4-5)

ACTIONS

1. Notify the building that you are taking the unit out of service.
2. Equipment must be capable of being locked out, or an approved alternative method (tag method) must be used.
3. The employee carries two personal locks and one company lock while performing work activities.
4. Employees must maintain possession of their keys/combinations to all locks used in this procedure.
5. When working on de-energized equipment, employees are required to perform lock-out/tag-out on main line or breaker, signal, car fan & light circuit, etc... Equipment needed - 100% cotton long sleeve shirt, or fire rated sleeves, safety glasses, ear plugs in, arc rated gloves and hard hat. (**NFPA 70E Arc Flash Compliant**)
6. Employees must verify a "zero energy state" (power, signal, car fan & lights) using their digital multi meter (DMM), (CAT III 1000V) or AC voltage sensor and they are working properly.
7. Employees must have the required electrical protection in place when working in close, proximity 300 mm (12") to electrical energy. (Ex: Kydex t-sheet barriers, dielectric matting).
8. Stand to side and face away when turning main line power to the **OFF** and **ON** position.
9. Non-metal ladders are not to be used.
10. Non-conductive safety eyeware is required when arc flash is possible, when working < 12" to electrical energy source.
11. Prior to using a GFCI outlet, testing is required to ensure positive ground.
12. Ground fault circuit interrupters/equivalent protective devices (rated at 6mA max or less) are to be used when using portable electrical tools.
13. Employees must not work in a wet pit while working on electrical devices with power **ON**.
14. Remove **ALL** jewelry and other metallic objects when around energized equipment.
15. Employees must use insulated tools around energized equipment.

Note: *When you do not have a mainline disconnect but a knife switch/circuit breaker application, a JHA is to be written, reviewed and approved by your Manager prior to proceeding and tagging out the energy source*

MECHANICAL STORED ENERGY

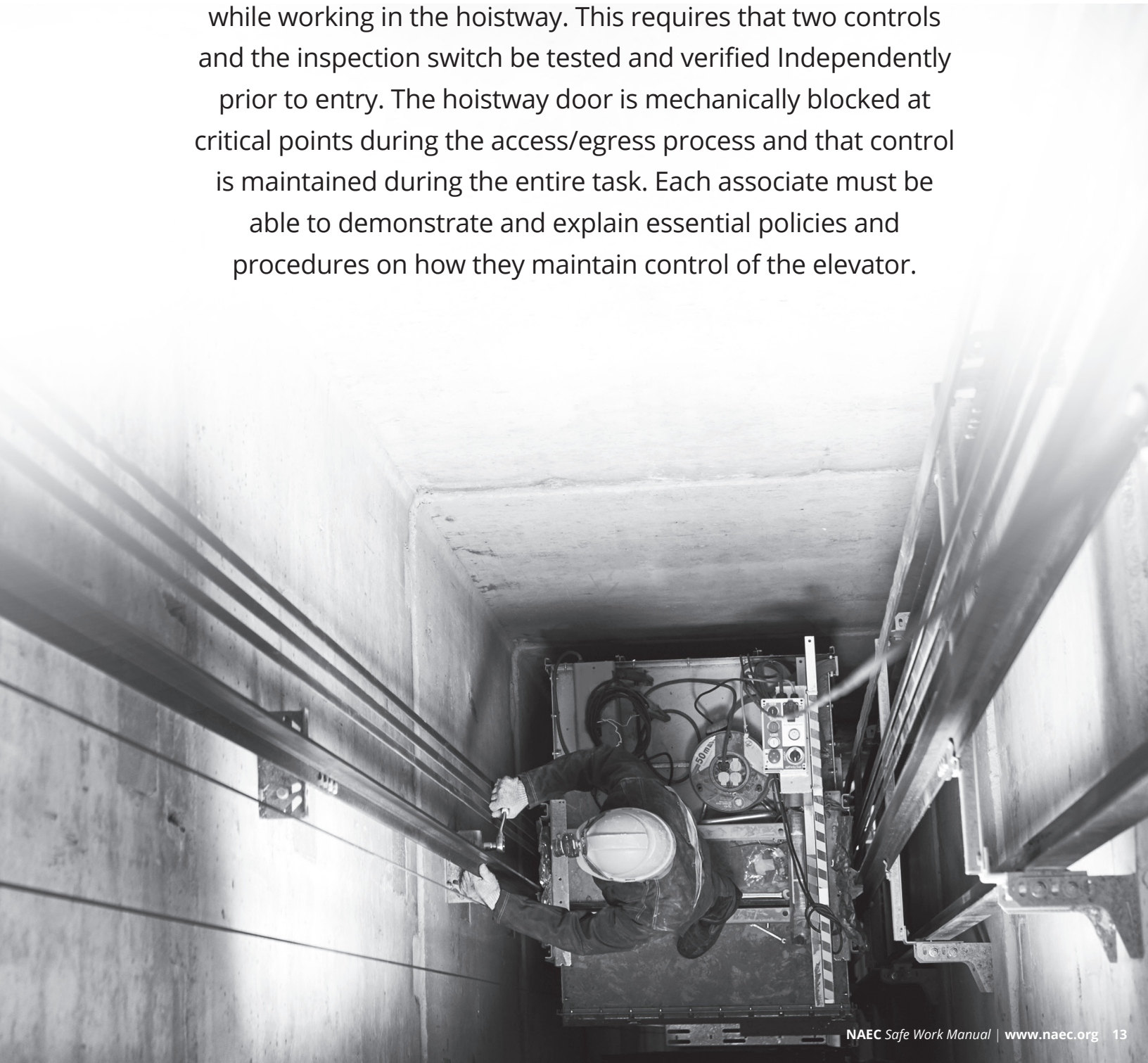
Equipment must be mechanically brought to "Zero Energy State" to prevent unexpected movement. Each associate must demonstrate how to land a hydraulic / dumbwaiter / residential elevator or steps to install rail blocks to support the weight of the car when working underneath. Material stored on site (leaning against the wall) will have mechanical energy stored and must be secured from accidental movement. Mechanical includes control of the car and counterweight during re-roping 1-1 or 2-1 with redundant chain falls / rail grabbers installed under hydraulic units. Escalator repair operations, a secondary means to tie back the step axle to the truss must be taken. Some components such as capacitors, MG sets often store residual energy even though power is shut **OFF**, so discharge the stored energy before working on equipment.

ACTIONS

1. Erect/install 2-independent means of protection to secure the car and counterweight.
2. Re-roping: Always use 2-independent means of protection to secure the car, activate safeties and do not remove more than 1/2 the hoist ropes. Rail grabs (blocks) used to secure the unit.
3. When working in the pit, pipe stands in springs or rail blocks, when used for repacking, are required when you land the car, and also when working on the hydraulic pressure system. (**Some manufacturer recommend that rail block grabber bolts be changed after each use. Check with manufacturer**.)
4. Employees must only use an approved CWT support that is properly rated and secured in place during repair activities.
5. How to calculate the weight of the car or CWT and/or understand where to locate this information.
6. JHA's are required when working in close, proximity of an unguarded drive or deflector sheaves or other rotating equipment, identified the hazards and safeguards to be taken to prevent incidental contract prior to starting.
7. Overhead protection in place before working in the hoistway (**new construction/ modernization**).
8. All rope terminations must be secured (e.g., lock wire, cotter pins).
9. Welding masks inspected, in good order prior to welding/burning/cutting. Fire fighting measures to include a fire brigade in place prior to welding/burning/cutting. Oxygen/ acetylene bottles stored > 20' apart/1/2-hour fire resistant fire barrier.
10. Store and secure jobsite material(s) to eliminate an unsafe mechanical energy source - tie back material when possible.
11. When steps/pallets have been removed from the escalator or moving walk, two independent methods of preventing step chain movement when working in the truss has been taken, when steps are removed do not ride the escalator/ moving walk or walk/stand on the step axles. Only approved cleaners, paints, glues, lubricants are approved for use.

CONTROL OF THE ELEVATOR

Complete control of the elevator must always be maintained while working in the hoistway. This requires that two controls and the inspection switch be tested and verified Independently prior to entry. The hoistway door is mechanically blocked at critical points during the access/egress process and that control is maintained during the entire task. Each associate must be able to demonstrate and explain essential policies and procedures on how they maintain control of the elevator.



CAR TOP ACCESS/EGRESS (SAFETY ABSOLUTES 6-7)

ACTIONS

1. Always verify the hoistway door contact, top of car emergency **STOP** switch(s), and inspection switches prior to accessing the car top **ALL** independently from one another. If the car top does not have TOCI box, contact your manger.
2. Always mechanically block the hoistway door using a company approved door wedge tools.
3. Always operate the elevator using the TOCI control button in the **DOWN** direction first.
4. Always verify the hoistway door contact when exiting the top of car from a different landing.
5. Do not ride the top of car without top of car inspection fitted or used, if you have units without one, (e.g.,) manual freight car a JHA is to be completed, reviewed and approved by your manager prior to proceeding.
6. Do not ride the top of car on normal operation, if you must, a written JHA is to be completed, reviewed and approved by your manager prior to proceeding.
7. Do not have more than two people working in the hoistway without proper authorization (managers approval first).
8. If the top of car inspection box is stationary > 762 mm (30") **OFF** the landing sill, use an alternate method to reach it (e.g.,) an extension stick to engage the **STOP** switch to the **OFF** position from the sill).
9. If you have a movable pendant run box that was not reattached to the inspection station, you must use an alternate safe procedure when accessing/egressing the car top.
10. If the car top does not have handrails and a fall hazard is present, fall restraint or arrest must be worn to mitigate the fall hazard.

Note: *The intent of this Standard Work Process (SWP) is to make sure that ALL employees fully understand how to access/egress the car top with/without a TOC Inspection Box in your company's portfolio. When conventional means cannot be used (examples above in accordance with the EIFESHB) and you must deviate from these safe work practice(s), for example, using a Go-zinta, Z-key, Slim-jim and or various industry door keys) you must contact your manager and conduct a JHA before proceeding.*

PIT ACCESS/EGRESS

Complete control of the elevator must be maintained at **ALL** times while working in the hoistway. This requires two controls tested and verified prior to entry: door lock, and pit **E-STOP** switch. The hoistway door must be mechanically blocked at critical points during the process. Hydraulic elevators must be supported/blocked with approved pipe stands or rail grabs and the gate valve LOTO prior to working on the hydraulic pressure system. Each associate must be able to demonstrate and explain essential policies and procedures on how they maintain control of the elevator.

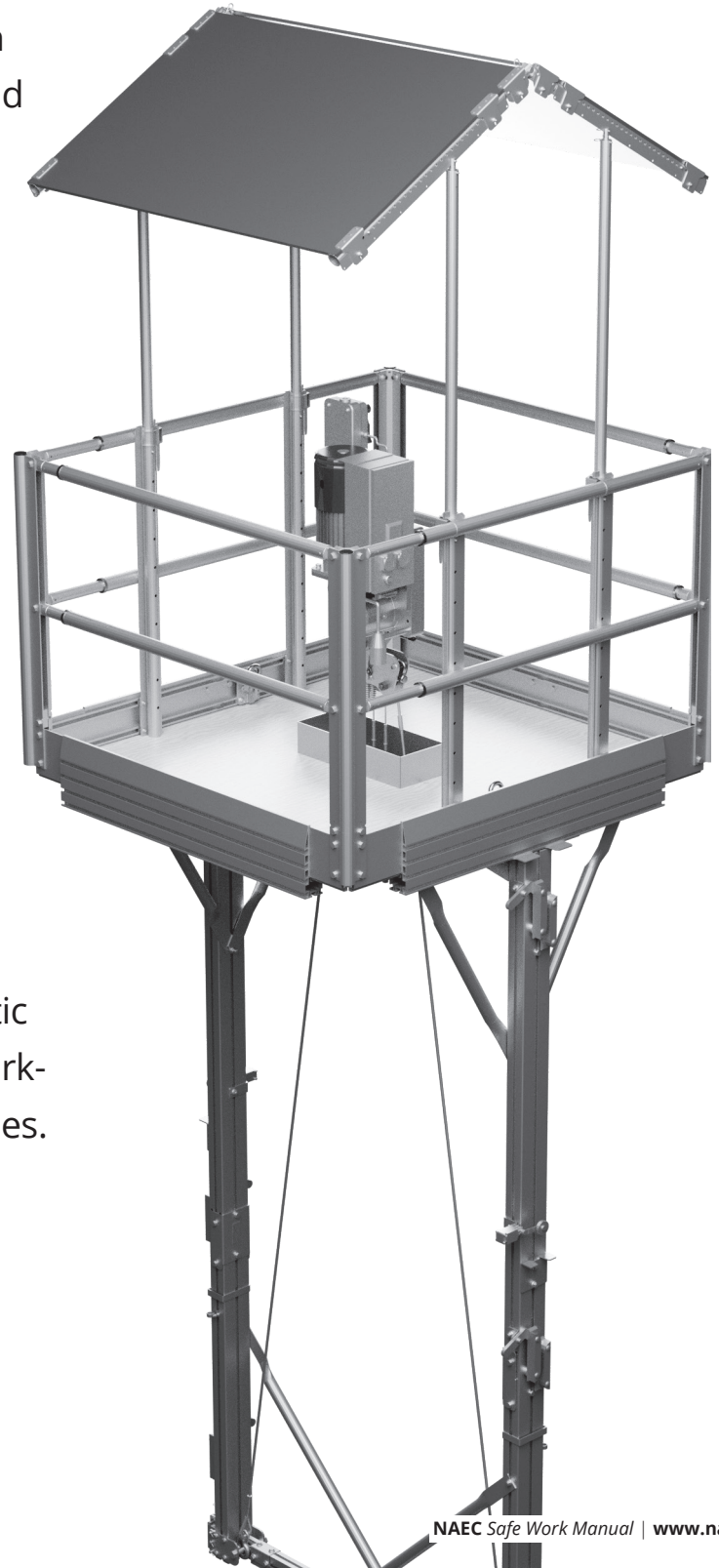
ACTIONS

1. Verify that the hoistway door contact and the pit emergency STOP switch have been tested and confirmed to be functioning properly before proceeding.
2. Ensure that the pit emergency stop switch is located within 457 mm (18") off the HW Door sill landing. In pits 6" or greater in depth, the **STOP** switch is located 42" off the pit floor.
3. Always mechanically block the hoistway door using one of the **company's approved** door wedge tools (DWT).
4. Do not have more than two people working in the hoistway without authorization from your manager.
5. Pit emergency **STOP** switch is required by code. If the pit does not have an emergency **STOP** switch, contact your manager to conduct a written JHA before proceeding.
6. Associate plans entry into the pit by removing tools from pockets, laying tools and materials in a safe place inside the barricaded area and by having the necessary personal protective equipment available.
7. When two employees are required to be in the pit at the same time, the elevator unit cannot be returned to normal operations unless both have egressed safely before turning the power back to the **ON** position and unit back into service.
8. On hydraulic units, LOTO mainline and gate valve prior to entering the pit. Pipe stands/rail grabbers must be readily available and on sites with single bottom cylinder units and pits with < 20" of refuge space.

Note: *The intent of this Standard Work Practice (SWP) is to ensure that the unit does not move, and the employee establishes safe refuge a* ***ALL*** *times when working in and getting out of an elevator pit.*

HIGH HAZARDOUS OPERATIONS

Associates must be trained on the proper installation, use and risk of working and running platforms during construction and modernization. Working platforms are designed, built and maintained by the manufacturer and should not be altered from their design without engineering approval. Working platforms can only be used on **ONE** job site - they are to be returned to the manufacturer for proper inspection and maintenance. The daily inspection checklist must be completed, placed in the plastic sleeve and attached to the working platform motor at **ALL** times.



WORKING/RUNNING PLATFORMS (SAFETY ABSOLUTES #8-9)

ACTIONS

1. Follow the manufacturer instructions for construction **OF** working platforms, inspecting and maintained in good working condition. The working platform can only be erected at the lowest landing and safeties tested prior to use.
2. Ensure the proper set up, activation, and functioning of safeties on working platforms before proceeding.
3. Only trained personnel may erect working platforms and must follow the instructional guidelines and standard erection procedures.
4. Working platform car installation beams shall be rated for 7500 lbs. and the load limit of the working platform car is 600 lbs. or (272kg).
5. Guardrails must be top-rail 42”+/-3” – mid-rail 21” - toe-guards 3.5”-6”.
6. Ensure that proper guardrail systems must be in place at **ALL** working levels.
7. When installing overhead protection on working platform, follow manufacture company guidelines.
8. Always ensure that required automatically activated redundant safety mechanisms are installed to prevent failure of working platforms.
9. Employees must be familiar with platforms installation and removal requirements.
10. Working platform hoist motor power supply must be protected by a ground fault circuit interrupter (GFCI).
11. On **ALL** working platforms, the daily inspection checklist must be completed prior to daily use and kept on the car platform.
12. Install two lifelines per hoistway and lifelines must be accessible from **ALL** hoistway landings.
13. The daily safety inspection checklist must be completed daily and kept on the platform motor and kept it in a plastic sleeve to protect it from the elements.
14. Nylon anchor slings issued and tied around the crosshead/gusset when using a temporary run button and the car is stationary, when barricades are removed to complete the work (e.g., cab shell installation) to guard from a fall hazard.
15. Do not tie off to a lifeline when riding in a false car or on a running and working platform.

HOISTING & RIGGING

Associates must be trained on the key elements of hoisting and rigging for the most common tasks performed in the field. The associates must be able to explain and demonstrate the certification and inspection requirements for chain falls and rigging equipment. Chain falls are designed so that the load can be lifted by one person pulling the chain. Everyone understands how to land counter weights, sling and hoist cars and re-rope elevators as part of this safety absolute and industry standard work procedure.

ACTIONS

1. Ensure that hoisting and rigging equipment is properly certified and the yearly inspection date marked/stamped on the identification tag found on the equipment.
2. Employees must demonstrate/explain the company's certification/inspection process for hoisting and rigging equipment per manufacturing guidelines.
3. **ALL** slings must be protected against sharp edge. Pad **ALL** four corners of the I-beam or use alternative means cardboard/wood, padded nylon, anchor sling.
4. Prevent wire cable slings from being bent at too sharp an angle or bird caged (if damaged remove from service).
5. Ensure slings have sufficient load capacities (all tags must be legible to read by the team performing the task).
6. Do not tie knots in slings.
7. Pre-fabricated slings are first choice. Foreman/MIC determines wire cable sling(s) to be used based on their application.
8. Damaged slings must be removed from service immediately.
9. When inspecting fabric slings, if treads are exposed and you see **RED**, the sling is **DEAD** and must be taken out of service.
10. Always inspect chain falls prior to each use for chain stretch, cracked housings and test the brake holds.
11. Always follow the pre-hoisting and rigging standard checklist.
12. When tying knots be sure that the knot(s) (bowline, figure 8/clove hitch 8) are tied correctly.
13. Do not work under or ride a suspended load.

Note: *The intent of this Standard Work Practice (SWP) is to ensure that the unit does not move, and the employee established safe refuge at, ALL times when working in and getting out of an elevator pit.*

MATERIAL HANDLING

Stretching and Limbering up before any task is the key to avoiding back, knee, neck and shoulder injuries.

EXAMPLES WHEN HANDLING MATERIAL ASSOCIATED IN OUR INDUSTRY:

Crate Boxes	Broken, damaged cumbersome boxes (two to move)
Gang Boxes	Casters working order/wheels mobile/transporting to-from
Machines	Capacity/how to transport
Rails	A typical 16' rail weight (260lbs.)
Tools	Carrying more than you can hold
Trough	Sharp edges, awkward to lift, difficult to transport by one's-self

STRETCHING & LIMBERING UP FIRST

ACTIONS

1. The associate has identified the correct lifting measures to be taken prior to handling material.
2. Associate stretches/limbers up prior to lifting/transporting any material to its known destination.
3. Inspect the equipment you are using to transport the material to ensure equipment is in good working order. Associate has inspected the Johnson bar, pallet jack, chain fall, drywall cart, dolly and beam trolley for safe operation than proceeds to complete the task.
4. Equipment has been identified before moving the material. Walking the route from point A to point B prior to starting the move.
5. The lay down area been cleared/authorized with the G/C and or project manager. The Supt/Foreman/MIC met with the General Contractor, Project Manager acknowledging a safe secure lay down area(s) for **ALL** material to be protected from the elements and theft.
6. The Foreman established the workforce it will take 1-2-3 etc., to safely move, remove/transport the material up/down steps, across roof tops, out of machine room, and or stored in front of the hoistway.
7. Are there methods in place to protect the equipment from mechanical movement? The team has chains/cleats/chocks in place to tie down/prevent movement when material if stored up against a wall/in the pit due to lack of lay down storage space. This also includes in the machine room with tight quarters to prevent tripping hazard(s).
8. Verify a communication process is in place so **ALL** employees understand direction/commands during material transportation, lifting/storage? Communication methods: verbal, hand signals and walkie talkie channels established, tested and verified prior to using two way radios in the hoistway and on the jobsite. All employees are knowledgeable on how to lift, transport equipment to its final lay down/storage destinations (e.g., tower/stationary ground crane etc.).
9. Verify that all employees understand what personal protective equipment (PPE) will be required to safely move jobsite materials. Employee dons correct PPE - helmet/gloves/ eye wear/work boots to safely transport, move, lift and store equipment.
10. Can employee demonstrate the correct use of equipment such as; Johnson bar, pallet jack, chain fall, drywall cart, dolly trolley installed onto the i-beam flanges and installing a lifeline around the hoisting I-beam?

OSHA & ELEVATOR INDUSTRY SAFE WORK PRACTICES

NFPA 70E: ARC FLASH

To avoid an arc flash hazard is understanding when to lock-out and tag- out or what protective equipment is required to work on live equipment during the testing and adjusting stages of our tasks. As stated in section 7 of the Elevator Industry Field Employees' Safety Handbook, "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 come in contact with energized mechanical or electrical hazards until all sources of energy have been de-energized, grounded or guarded." If the equipment must remain energized to perform work, effective insulation and safe electrical work practices shall be implemented. Described below are several work practices that may be used to reduce arc flash hazards when working on energized equipment:

ACTIONS

1. When working on live equipment > 50V, are you wearing the PPE necessary to safeguard against arc flash?
2. When placing the mainline disconnect in the **OFF** position, protect yourself from arc flash it is, recommended you wear arc rated gloves, 100% cotton long sleeve/fire rated sleeve, safety glasses and ear plugs as your PPE.
3. Test and verify power to the control establishing a "**zero energy state**" after mainline disconnect is LOTO, confirm live-dead-live for incoming voltage at the controller at phase L1-L2-L3.
4. Tools use to T&V if power is off multi digital meter (meter CAT III 1000V) and or AC voltage sensor.
5. Trouble shooting in the controller with > 50 volts, how can you protect yourself from incidental contact – Installing Kydex sheeting, cardboard/a fire blanket placed over the live equipment.
6. When placing a knife switch controller in the **OFF-position** arc flash PPE is don (worn).
7. When the door or mainline cover is **OFF** the mainline disconnect station, **yellow** and **black** caution tape is to be placed across the exposure and alert building management.

HELMET, FR SLEEVES & SAFETY GLASSES

ARCH FLASH

EAR PLUGS

ARC GLOVES

OSHA & ELEVATOR INDUSTRY SILICA AWARENESS

The final rule CFR 1926.1053 on occupational exposure to crystalline silica in construction, published on March 25, 2016, established a new OSHA permissible exposure limit, and contained several other ancillary provisions that apply to the construction industry. This exposure control plan is a guide which alerts and protects employees from respirable silica dust while engaged in activities at construction, modernization and or service operations in accordance with regulatory requirements.

Action Level: Concentration of airborne respirable crystalline silica of 25 ug/m3 calculates as an 8-hour TWA

Occupational Exposure Limit (OEL): Concentration which nearly all employees could be exposed for 8-hours a day 5-days a week without adverse health effects. The **OEL** is 25 micrograms per cubic meter of air (25ug. m3).

Permissible Exposure Limit (PEL): No employee is to be exposed to airborne concentrations of respirable crystalline silica in excess of 50 mg/u3, calculated as an 8-hour time weight average (TWA).

ACTIONS

In the elevator industry, exposure to airborne silica dust may arise, in work activities such as: drilling, grinding, chipping into concrete, sweeping dust out of pits and lobbies and or work by others. The main routes of exposure to silica dust are:

1. Inhalation
2. Shin Absorption
3. Eye Contact

PROBABILITY & RISK IDENTIFICATION

1. Mechanics may drill into concrete during installation of anchors/rail brackets/grind concrete out of inserts, cut out hall buttons/PI's, chipping concrete off steel I-beams to weld rail brackets in place etc.
2. Industrial hygiene monitoring has been conducted to determined that airborne concentrations of respirable crystalline silica was below the OEL action level of 25t ug/m3 for the following activities within an elevator pit.

TASK OBSERVED WERE

1. Drilling 24 – 5/8" holes 6" in depth downward and in overhead positions.
2. Overhead holes drilled off a ladder.
3. Installing rail brackets and sills within those holes drilled.
4. Cleaning up dust settled during the drilling operations.

MANAGERS ARE TO ENSURE

1. Grinders/cutting saws equipped with commercial shroud, and dust collection systems with a HEPA vacuum attachment
2. Dust collectors must provide 25 cu. ft. per minute (CFM) or greater airflow per inch of wheel diameter & have a filter with 99% efficiency & a cyclonic pre-separator or filter cleaning mechanism.
3. Operators must operate and maintain tools in accordance with manufacturing instruction to minimize dust emissions.
4. Employees who do not conduct task will stay outside the work area to reduce any exposure to respirable crystalline silica.

CRYSTALLINE SILICA DUST: EXPOSURE CONTROL METHOD

Crystalline silica is found in many construction materials made of sand, rock or stone such as concrete, brick, block, mortar and tile. Dust containing silica is generated when power tools are used to drip, chip, suet grind or sand these materials. If the proper precautions are not taken, these silica particles can be breathed in and over time can cause damage to your lungs, kidney disease or autoimmune disease.

Your company must assess the level of exposure to silica based on the task you perform and provide the appropriate level of protection based on the results of that assessment. Those task captured in **Table 1** below – specified exposure control methods. Contact your Safety department/ supervisor/manager for more information before starting any task that you feel may expose you to

TABLE 1: *Specified expose control methods when working with materials containing crystalline silica.*

EQUIPMENT	ENGINEERING & WORK PRACTICE CONTROL METHODS	REQUIRED RESPIRATORY PROTECTION & MINIMUM ASSIGNED PROTECTION FACTOR (APP)	
		< 4 HOURS/SHIFT	> 4 HOURS/SHIFT
Handheld Impact & Rotary Hammer Drills	Use drill equipment with commercially available shroud or cowling with dust collection system	None	None
	Operate & maintain tool in accordance with manufacturer's instructions to minimize dust emissions		
	Dust commector must provide the air flow recommended by the manufacturer or greater and have a filter with 99% or greater efficiency & filter cleaning mechanism		
	Use a HEPA filtered vacuum when cleaning holes out of dust		
Handheld Power Saws (any) blade diameter	Use a saw equipped with integrated water delivery system that continuously feeds water to the blade		
	Operate & maintain tools in accordance with manufacturer's instructions to minimize dust emissions		
	When used outdoors	None	None

Note: *Assigned Protection Factor (APF) means the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program per OSHA standard 1910.134(c). APF 10 air-purifying respirators include filtering face pieces and half masks with elastomeric face pieces.*

CONFINED SPACE ENTRY: HYDRAULIC ELEVATORS

CONFINED SPACE ENTRY (CSE) – FIELD DECLASSIFICATION FORM

Permit Required CSE: ❑ **YES** ❑ **NO**

Non-Permit Required CSE: ❑ **YES** ❑ **NO**

Date: _____

Superintendent: _____ Foreman: _____

Building Name: _____ Address: _____

Type of Pit: ❑ Walk In ❑ Ladder Accessible _____

Pit depth F to R & width L to R: ❑ YES ❑ NO

Light in Pit Adequate: ❑ YES ❑ NO

Signage in Place: ❑ YES ❑ NO

Barricade in Place: ❑ YES ❑ NO

LOTO Required: ❑ YES ❑ NO

Current Use of Space: ❑ Elevator Pit Equipment ❑ Storage of Equipment ❑ False-car Station ❑ Other

Related operating procedures reviewed by the team assigned to work in the pit.

Did you review work assignment with general contractor? ❑ YES ❑ NO

Entry Controlled: ❑ YES ❑ NO

Received Haz Com Training? ❑ YES ❑ NO

Lockout/Tagout Required? ❑ YES ❑ NO

Fire Prevention Discussed? ❑ YES ❑ NO

Respiratory Protection Required? ❑ YES ❑ NO

What to do if an Accident? ❑ YES ❑ NO

Burning & Welding Discussed? ❑ YES ❑ NO

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1. Can the employee enter & perform work either with or without permission? ❑ YES ❑ NO

2. Is access and/or egress limited or could it present an unusual rescue effort? ❑ YES ❑ NO

3. Does the pit have any potential for a hazardous atmosphere? ❑ YES ❑ NO

4. Is there general ventilation afford the employ during the entire task? ❑ YES ❑ NO

5. Does the pit contain a material or liquid that could engulf an entrant? ❑ YES ❑ NO

6. Does the internal pit configuration present the hazard of entrapment? ❑ YES ❑ NO

7. Does the pit contain any other recognized safety and/or health hazards? *(if yes, complete JHA)* ❑ YES ❑ NO

8. Has the general contractor/building owner/engineer/property management designated the pit? *(A permit required confined space)* ❑ YES ❑ NO

9. Does entry data confirm designating as a permit-required confined space? ❑ YES ❑ NO

10. Were there yes answers for questions 5, 6 & 7 which cannot be controlled? ❑ YES ❑ NO

(If YES, then the space must be designated as a permit required confined space. Call your superintendent for further instructions.)

ASSESSED HAZARDS & REQUIRED PERSONAL PROTECTIVE EQUIPMENT

	HAZARDS	REMARKS	PPE REQUIRED/RETRIEVAL EQUIPMENT
❑ YES ❑ NO	Restricted Entry/Egress		
❑ YES ❑ NO	Oxygen Deficiency	< 19%	
❑ YES ❑ NO	Oxygen Equipment Needed	> 23.5%	
❑ YES ❑ NO	Oxygen Displacement		
❑ YES ❑ NO	Flammable Gases/Vapors	< 10% LEL	Lower Explosive Limit
❑ YES ❑ NO	Toxic Gases/Vapors	< 10% PEL	Permissible Exposure Limit
❑ YES ❑ NO	Airborne Combustible Dust	Meet or exceeds LFL	List of Flammable Liquids
❑ YES ❑ NO	Chemical Hazards Present		
❑ YES ❑ NO	Mechanical Hazards		
❑ YES ❑ NO	Electrical Hazards		safety glasses, gloves, cotton long sleeve shirt
❑ YES ❑ NO	Respirators Needed		
❑ YES ❑ NO	Engulfment Hazards		
❑ YES ❑ NO	Fall Hazards		body harness, life line, anchor sling, rope grabber
❑ YES ❑ NO	Skin Hazards		long sleeve shirts & impervious gloves (rubber)
❑ YES ❑ NO	Hot/Cold Hazards		
❑ YES ❑ NO	Radiation Hazards		
❑ YES ❑ NO	Biological Hazards		
❑ YES ❑ NO	Toxic Liquids		

1. Emergency rescue personnel immediately available? ❑ YES ❑ NO ❑ NOT REQUIRED

2. Is emergency extraction equipment available & ready for use? ❑ YES ❑ NO ❑ NOT REQUIRED

3. Is atmospheric testing equipment available? ❑ YES ❑ NO ❑ NOT REQUIRED

4. Will the work deplete or enrich the oxygen atmosphere in the pit? ❑ YES ❑ NO ❑ NOT REQUIRED

5. Will the work create an explosive atmosphere in the pit? ❑ YES ❑ NO ❑ NOT REQUIRED

6. Will the work create a toxic atmosphere in the pit? ❑ YES ❑ NO ❑ NOT REQUIRED

7. Does the pit need to be ventilated in preparation for the work to be performed? ❑ YES ❑ NO ❑ NOT REQUIRED

8. Has the pit been ventilated in preparation for work? ❑ YES ❑ NO ❑ NOT REQUIRED

VENTILATION DATE: _____ **START TIME:** _____ **ENTRY TIME:** _____

Manager's Signature: _____ Date: _____

Foreman's Signature: _____ Date: _____

NAEC: Education & Safety Department Document 2026

JHA | JSA | PRE-TASK PLAN

Date: _____

Activity to be Performed: _____

Superintendent/Foreman: _____

Manager Approving PTP: _____

Building Name: _____ Address: _____

Location of Task: ❑ Hoistway ❑ Top of Car ❑ Pit ❑ Machine Room ❑ MRL Overhead

Methods & Controls	Process Controls
❑ Elimination	Environment (E): Engineering Controls/Working Conditions
❑ Engineering	Capability (C) Training & Education Physical Capabilities
❑ Isolation	Motivation (M): Workers making decisions driving factors in the outcome.
❑ Substitution	List all the PPE required to perform each task.
❑ PPE	

Permits Required

Hot Work? ❑ YES ❑ NO

LOTO: Energized Systems? ❑ YES ❑ NO

Electrical Safe Work Practices? ❑ YES ❑ NO

Ladder Permits? ❑ YES ❑ NO

Pit: Permit Confined Space Entry? ❑ YES ❑ NO

Working in Hoistway/Machine Room? ❑ YES ❑ NO

Any of the 9 "Safety Absolutes" in this JHA/JSA/PTP? ❑ YES ❑ NO

check which applies

❑ Fall Protection ❑ Electrical Safe Work Practices ❑ Jumpers ❑ LOTO ❑ Mechanical Stored Energy

❑ Car Top Access/Egress ❑ Pit Access/Egress ❑ False Car Running Wkg Platform ❑ Hoisting & Rigging

LIST BASIC STEPS OF TASK	HAZARDOUS ASSOCIATED WITH TASK	E, C, M	ACTIONS TO ELIMINATE THE HAZARD(S)

SAFETY BAG CONTENTS

Date: _____

Name: *(print)* _____ Signature: _____

ITEM	REG	ISSUED
ELECTRICAL		
AC Voltage Detector		
Grounding Clip		
GFCI		
Meter Cat III - 1000v		
Polarity Tester		
Fire Rated Sleeve *(NFPA approved)*		
EYE PROTECTION		
Croakie		
Full Face Shield/Welders Shield		
Safety Glasses *(z87 approved)*		
Safety Goggles		
Ztek Cheater ❑ 150 ❑ 200 ❑ 250 ❑ 300		
Glass Case/Sleeve		
FALL PROTECTION		
Anchor Sling		
Full Body Harness		
Fall Restraint Lanyard 3'		
Shock Absorbing Lanyard 6'		
Trama Relief Strap		
Cable Grab*		
Retractable Lanyard Size TBD**		
GLOVES		
AR #2/FR Gloves/NFPA 70E Acr Flash		
Chemical *(Light Green)*		
Leather/Material Handling		
Nitrile Gloves		
Terminator *(7/8/9/10/11/12)*		
Women's Gloves/Palm Flex Size XXS		
HEAD PROTECTION: HELMET/HARD HAT		
Adjustable Insert		
Bump Cap *(Maint/Serv/Testing Only)*		
Hard Hat: OEGA II Ansi/Sea Z89.1		
Helmet - Optional		
Winter Liner *(Upon Request)*		

ITEM: MECHANICS ONLY	REG	ISSUED
JUMPERS		
Jumper Bag: **Yellow** & Black		
Jumper Log: White		
Warning Stickers *(6)*		
Yellow Jumper Tags *(5)*		
Red Hook Jumper *(2)*		
Orange Alligator Jumper Clip *(2)*		
Yellow Hard Wire 36"-18 gauge jumper *(1)*		
Jumper Log & Sharpie Black Pen		
LOTO		
Breaker Lockout Device *(circuit)*		
Company Lock *(1)*		
Certified Meter CAT III 1000V *(See note below)*		
Lock Out Tags *(minimum 6)*		
Multiple Lockout Device *(Hasp)*		
Personal Locks *(2)*		
OTHER		
Caution Tape: **Yellow** & **Black**		
Door Wedge Tool *(Industry/Aluminum Turn On)*		
Door Wedge Tool **Blue**/**Black** *(Rubber)*		
Drop Key(s)*** *(types list below)*		
Duct Tape		
Ear Plugs		
Elevator Industry *(FESHB 2025 Edition)*		
First Aid Kit		
Glove Belt Clip		
NAEC *(Safety Manual)*		
Knee Pads		
Safety Bag *(with company logo)*		
RESPIRATORY/PROTECTIVE COVERING		
Organic Vapor P100 Serial #60921		
Particle Dust Mask with Vent Valves		
1/2 Mask**** *(3M w/filter cartridge 6000)*		
Tyvek Overalls		
Tyvek Hoods		
Tyvek Booties		

Note: *Full body harness for female field employees to be determined by company's safety department.*

Note: *If issuing a digital multi meter the meter CAT III 1000 volts is the recommended meter and the meter basic training course and a certificate of completion must be presented to your manager.*

Note: *All replacement PPE will be supplied upon request to management & replaced when necessary.*

*Cable grab maintenance/testing as needed.
**Retractable lanyard with proper training.
***Drop keys, tell manager type & quantity
****1/2 mask respirator. 3M only after receiving required training from the safety department.

Manager: _____ Date: _____

WORKING & RUNNING PLATFORM: SAFETY CHECKLIST

Working Platform Install Date: _____ Rated Load: _____ lbs.

Safety Adjusted to Rail Size: ❑ YES ❑ NO Safety Tested: ❑ YES ❑ NO

Today's Date: _____ Serial # Motor: _____

WORKING PLATFORM – DAILY CHECKLIST CRITERIA							
	MON	TUE	WED	THU	FRI	SAT	SUN
Move car in Down Direction Checking that Safety Applies and Holds.	❑	❑	❑	❑	❑	❑	❑
Do Barricades Meet OSHA Requirements and are in Place & Secured.	❑	❑	❑	❑	❑	❑	❑
Check Overhead Supports for Rigging.	❑	❑	❑	❑	❑	❑	❑
Check Overhead Protection – Gable Roof / Safety Netting is in Place.	❑	❑	❑	❑	❑	❑	❑
Check All Bolts Are in Place & Tighten.	❑	❑	❑	❑	❑	❑	❑
Check Crosby Clamps Are Installed Properly.	❑	❑	❑	❑	❑	❑	❑
Check All Attachments. Use grade 5 Hardware.	❑	❑	❑	❑	❑	❑	❑
Car Platform Weight Must Not Exceed 600 Pounds.	❑	❑	❑	❑	❑	❑	❑

Note: *Installation, removal, dismantling and safety testing of the working platform, should be performed at, or as close as possible to the lowest landing. When the lowest landing cannot be accommodated a JHA must be performed and approved by your Manager.*

AN INSPECTION CHECKLIST IS TO BE COMPLETED EVERY DAY THAT THE WORKING PLATFORM IS IN OPERATION AND PLACED ON THE UNIT MOTOR IN ITS PLASTIC SLEEVE.

ELEVATOR INDUSTRY CARDINAL SAFETY RULES

The below rules and procedures have been used in the industry for over two decades. They were the result of analyzing the activities that have contributed to a majority of fatal and serious incidents in our industry. Every employee must commit themselves to following these rules every day. Failure to follow these will result in the individual(s) being held accountable for their actions.

ELEVATOR CARDINAL SAFETY RULES

ALWAYS - When a fall hazard exists > 6' fall protection is required.

ALWAYS - When power is not needed, LOTO the equipment, place your personal lock on the Main Line Disconnect.

ALWAYS - Control the hazard when working in close proximity to rotating equipment and live electricity.

ALWAYS - When working with jumpers, follow TEIs written procedure, hang the jumper bag on the machine room door, remove all jumpers before leaving the machine room and turn unit back to service.

ALWAYS - When access/egressing the hoistway, car top or pit, gain control by testing (SIL) of the elevator before proceeding and (LIS) on exiting.

ALWAYS - When using a ladder, make sure it is footed, cleated and non-conductive.

ALWAYS - When using hoisting and rigging equipment, ensure it has been certified, inspected and in compliance with company and manufacturing policy.

NEVER - Ride the car top with the elevator in normal operations.

NEVER - Place yourself above or below others when working in the hoistway.

ESCALATOR CARDINAL SAFETY RULES

ALWAYS - Lock and tag out the equipment when power is not needed when working in the truss.

ALWAYS - Secure escalator mechanical equipment from movement by two independent means prior to working in the truss.

ALWAYS - Tie off your fall protection when a fall hazard > 6' exists.

ALWAYS - Eliminate power and secure the unit's mechanical energy source by using barriers, warning signs, and/or redundant controls when removing steps and pallets.

ALWAYS - Maintain control of the moving walkway/escalator prior to entering working zone areas, machine rooms or pits.

ALWAYS - Make sure you test the E-stop switch and use the inspection controls when operating the escalator.

ALWAYS - Have control of live electricity and rotating equipment when working within 12" of an electrical hazard.

NEVER - Walk on the escalator step axles.

NEVER - Ride the escalator or moving walk when steps and axles are removed.

The above rules, if followed, allow the employee to work safely, reduces the opportunity for an unwanted serious/fatal injury and allows you to go home to your family tonight. If not, a work incident/injury can take place leading to a fatal or life changing event causing unwanted pain and suffering to you and your family!

EDUCATION, TRAINING & FIELD ASSESSMENT ACKNOWLEDGMENT

The below categories highlight the nine "safety absolutes" plus five additional critical areas affecting our industry found in the safety manual. It is recommended that yearly training and field assessments (FA) be conducted within the calendar year by your manager, superintendent, and/or foreman. Your signature below will acknowledge receipt of the safety manual. If you need assistance on a topic or clarification, notify your manager/superintendent/foreman or contact your safety department.

- ❑ SA-1 Fall Protection *(Fall Restraint)*
- ❑ SA-2 Electrical Safe Work Practices
- ❑ SA-3 Jumpers *(Defeating Safety Circuits)*
- ❑ SA-4 Lockout/Tagout *(LOTO)*
- ❑ SA-5 Mechanical Stored Energy *(CSE)*
- ❑ SA-6 Car Top Access/Egress
- ❑ SA-7 Pit Access/Egress
- ❑ SA-8 Working/Running Platforms
- ❑ SA-9 Hoisting Rigging *(Chain Falls)*
- ❑ +1 Material Handling
- ❑ +2 NFPA 70 E - Arc Flash
- ❑ +3 Silica Awareness
- ❑ +4 Confined Space Entry *(CSE)*
- ❑ +5 JHA/JSA/PTP

Employee Name *(print)*: _____

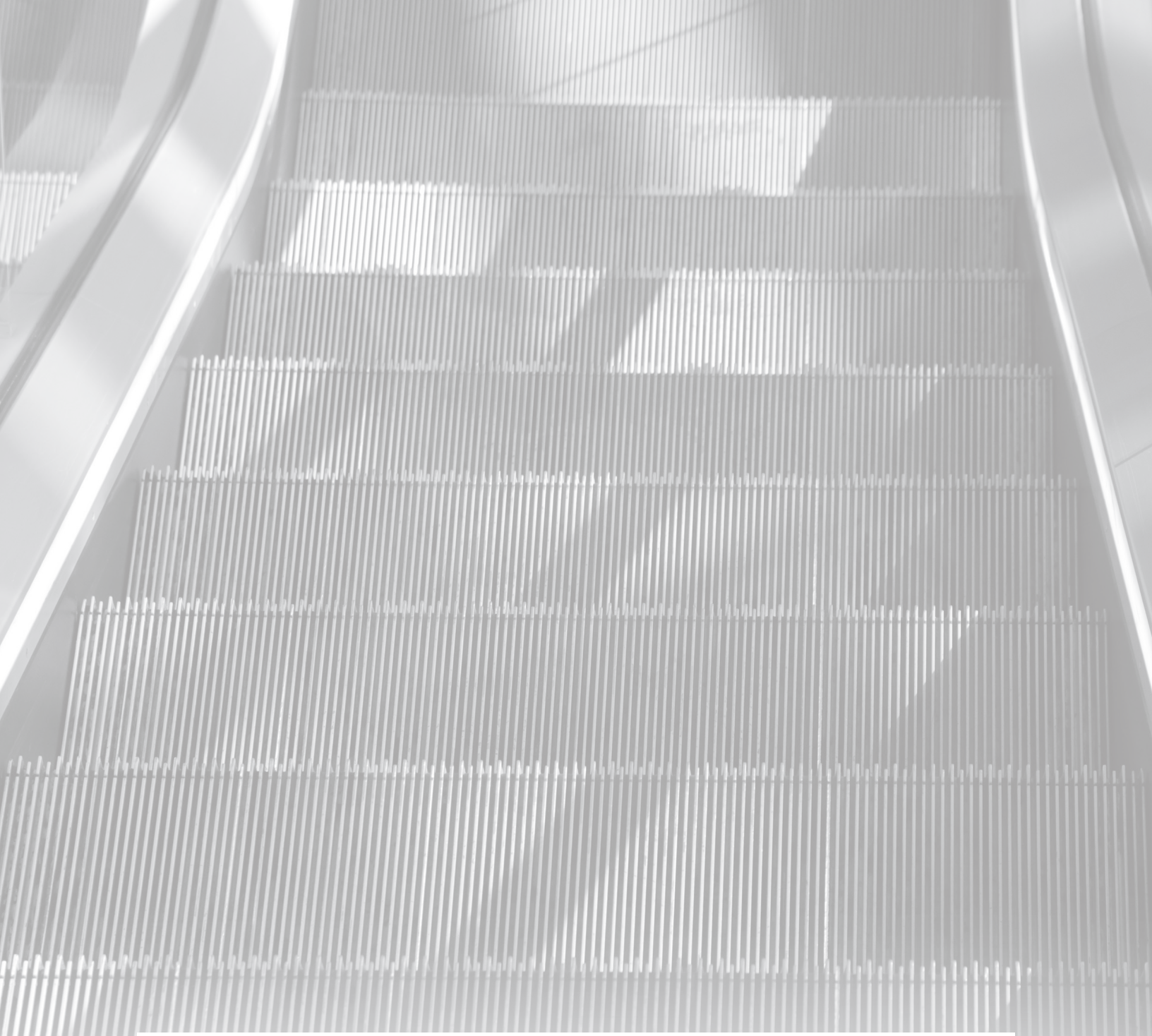
Employee Signature: _____

Superintendent/Manager/Foreman Name *(print)*: _____

Superintendent/Manager/Foreman Signature: _____

Date: _____

NOTES



For more information please contact NAEC Education & Safety Department.

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