September 2024
FALL PROTECTION PROGRAM

Introduction

It is the policy of E Light Electric Services to take precautions to mitigate fall hazards from elevated work locations. This Fall Protection Program prescribes the duty to provide fall protection; sets the criteria and practices for fall protection, and outlines required training and recordkeeping.

Any employee working more than 6 feet in height and/or reaching more than 10 inches below a walking or working surface, must be protected by one or more of the standard means as listed in this section, or 29 CFR 1926, Subpart M, OSHA's Fall Protection Standard.

Purpose

The purpose of this program is to outline the fall protection requirements to minimize/eliminate fall-related injuries. This program is developed in accordance with the following regulations and standards:

- 29 CFR 1910 Subpart D, “Walking-Working Surfaces”
- 29 CFR 1910 Subpart F, “Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms”
- 29 CFR 1910.132 “Personal Protective Equipment”
- 29 CFR 1926 Subpart M, “Fall Protection”
- ANSI/ASSE Z359 Fall Protection

Scope

This Fall Protection Program (FPP) applies to all E Light Electric employees and temporary labor employees performing work on our projects/work locations.

- Subcontractors shall be responsible for their means and methods of compliance, but, at minimum, shall comply with the requirements of this program.

Responsibilities

- **Director of Education and Loss Prevention**
  - Is the Program Administrator.
  - Implement, audit, and revise the Fall Protection Program as needed.
  - Arrange for and provide training on the program.
  - Recommend engineering, administrative, and personal protective equipment controls as necessary to mitigate fall hazards.
  - Ensures applicable records are maintained as required.
- **Management**
  - Provide guidance and direction to employees regarding the program.
  - Require that all employees adhere to the program.

- **Superintendents and Supervisors**

  - Read and understand this program.
  - Receive Competent Person-level training.
  - Train affected employees on fall hazards present at the work location.
  - Designate Competent Person(s) as needed to ensure compliance with this program.
  - Ensure reported deficiencies and observed hazards are promptly corrected.
  - Ensure Job Hazard Analysis is conducted at the beginning of each shift.
  - Conduct investigations of incidents related to falls from elevated work surfaces.

- **Competent Person**

  - Responsible for oversight, implementation, and management of this program on their assigned shift/project.
  - Receive Competent Person-Level training.
  - Be knowledgeable through training and experience of applicable fall protection.
  - standards and regulations applicable to their operation(s).
  - Conduct Job Hazard Analysis to identify fall hazards before authorized persons are exposed to fall hazards.
  - Has the responsibility and authority to address and correct known and observed hazards.
  - Supervise the selection, installation, use, and inspection of anchor points.
  - Verify and ensure all authorized persons working at heights are trained and authorized to do so.
  - Ensure a prompt rescue of authorized persons can be accomplished through adequate rescue operations.
  - Participate in investigations of all incidents related to falls from elevated work surfaces.
  - Immediately remove from service any fall protection equipment found defective or subjected to forces as a result of a fall from elevated work.
  - Inspect fall protection equipment as recommended by the manufacturer and specified in this plan and ensure inspections by qualified persons are conducted as required.

- **Authorized Person(s) – Affected Employees**

  - Comply with the provisions of this program.
  - Follow all posted and verbal instructions related to fall hazards at each work location.
  - Don the appropriate and required personal protective equipment/fall protection equipment as needed.

- Inspect personal fall protection equipment.
- Conduct personal fall protection equipment inspections as required.
- Attend scheduled training and ask questions as needed to ensure understanding of the material and requirements.
- Report any concerns or observed hazards to supervision and/or management.

Definitions

- **Anchorage/Anchor point:** secure point of attachment for lifelines, lanyards or deceleration devices.

- **Authorized person:** a person assigned by the employer to perform duties at a location where the person will be exposed to a fall hazard.

- **Body belt (safety belt):** a strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device.

- **Body harness:** straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

- **Competent Person/Individual:** one who is capable of identifying existing and predictable hazards in the work environment and who has the responsibility to inspect fall protection systems for certification purposes. Persons/individuals are deemed competent through a combination of training and hands-on experience to possess knowledge about all aspects of the fall protection program and fall protection equipment.

- **Dangerous equipment:** equipment (such as cooling towers, fuel storage tanks, silos, etc.) which, as a result of form or function, may be hazardous to employees who fall onto or into such equipment.

- **Deceleration device:** any mechanism, such as a rope grab, rip-stitch lanyard, specially woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

- **Deceleration distance:** the additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as

the distance between the location of an employee's body belt or body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

- **Free fall:** the act of falling before a personal fall arrest system begins to apply force to arrest the fall.

- **Guardrail system:** a barrier erected to prevent employees from falling to lower levels.
- Hole: a gap or void 2 inches (5.1 cm) or more in its least dimension, in a floor, roof, or other walking/working surface.

- **Lanyard:** a flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

- **Leading edge:** the edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

- **Lifeline:** a component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

- **Low-slope roof:** a roof having a slope less than or equal to 4 in 12 (vertical to horizontal).

- **Lower levels:** those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

- **Mechanical equipment:** all motor or human propelled wheeled equipment used for roofing work, except wheelbarrows and mop carts.

- **Opening:** a gap or void 30 inches (76 cm) or higher and 18 inches (48 cm) or more wide, in a wall or partition, through which employees can fall to a lower level.

- **Personal fall arrest system:** a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt, or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited. Fall arrest systems are engineered to be compatible between the permanent system and the personal protective equipment. Interchanging the components is not permitted.

- **Personal fall restraint system:** fall protection system, which prevents an employee from approaching a fall hazard through the use of a lanyard and body harness.

- **Positioning device system:** a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands-free while leaning.

- **Qualified person:** a person with a recognized degree or professional certificate AND with extensive knowledge, training and experience in the fall protection and rescue field who is capable of designing, analyzing, evaluating, and specifying fall protection and rescue systems.

- **Roof:** the exterior surface on the top of a building. This does not include floors or formwork which, because a building has not been completed, temporarily becomes the top surface of a building.

- **Roofing work:** the hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.

- **Safety-monitoring system:** a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

- **Self-retracting lifeline/lanyard:** a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

- **Shock-absorbing lanyard:** a lanyard with energy absorbing capacity.

- **Snaphook:** a connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snaphooks are generally one of two types:
  - The locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection; or
  - The non-locking type with a self-closing keeper which remains closed until pressed open for connection or disconnection. As of January 1, 1998, the use of a non-locking snaphook as part of personal fall arrest systems and positioning device systems is prohibited.

- **Standard Railing:** railing or safety railing system which meets the requirements for top rail, mid-rail, and toeboard specifications.

- **Toeboard:** a low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.

- **Unprotected sides and edges:** any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches high.

- **Walking/working surface:** any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork, and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.

- **Warning line system:** a barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail, or body belt, systems to protect employees in the area.

Fall Hazard Identification & Control Measures

- **Unprotected Sides and Edges**

  - Employees on a work surface with an unprotected side or edge which is 6 feet or more above a lower level shall be protected from falling by the use of a guardrail system or personal fall restraint or arrest system.

- If one of these systems is not available or is infeasible during leading edge work, a specialized fall protection plan must be developed and implemented to protect workers from fall hazards.

- Hoist areas shall be protected by guardrail or personal fall arrest systems. If guardrail systems or portions of guardrail systems are removed to facilitate the hoisting process creating a potential fall hazard for the employee, that employee must be protected by a personal fall arrest system.

- **Wall Openings, Holes, and Excavations**

  - **Floor openings, holes, manholes, roof hatches, and skylights.**

    - Any wall opening in which there is a fall of 6 or more feet, and the opening is more than 19 inches wide and less than 39 inches above the walking/working surface shall be protected from falling by the use of a guardrail system, a safety net system, or a personal fall arrest system.

    - Floor openings, holes, manholes, roof hatches, and skylights. Employees on a work surface where floor openings, holes, manholes, roof hatches and skylights present fall hazards of 6 feet or more shall be protected from falling by guardrail systems erected around the hole, covers over the openings, or by personal fall arrest systems.

    - Floor holes are anything greater than 2 inches by 2 inches and must be protected. Covers must be marked “Hole”. Covers must be secured in place to prevent accidental removal. E Light employees shall not approach or work in the area of a hole covering placed by another organization if it is not in compliance with this policy. Non-conforming hole covers will be reported to the Director of Education and Loss Prevention immediately.

    - Covers located in vehicular aisles shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover. All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment and materials that may be imposed on the cover at any one time.

  - **Excavations**

    - Each employee at the edge of an excavation 6 feet or more in-depth shall be protected from falling by guardrail systems, fences,

or barricades when the excavations are not readily seen because of plant growth or other visual barrier.

- Walkways or bridges shall be provided where employees are permitted to cross over excavations. Guardrails shall be provided where walkways, accessible to on-site project personnel, are 6 feet or more above lower levels. For more information on specific excavation requirements, refer to E Light's Excavation Program.

Dangerous Equipment

- Employees less than 6 feet above dangerous equipment shall be protected from falling into or onto the equipment by guardrail systems or equipment guards.

- Employees more than 6 feet above dangerous equipment shall be protected from fall hazards by guardrail, personal fall arrest, or safety net systems.

Arc Flash Hazards and Elevated Work

- **NFPA 70E Compliance** – Any time an employee will be performing an electrical task that requires an employee to perform a task at an elevated location and the risk of arc flash is present, the harness and lanyard shall meet both the marking requirements of ANSI/ASSE Z359.11 and list compliance with ASTM F887.
- In all cases, the Hierarchy of Controls shall be used to determine the safest method of protection.
- Additionally, E Light's Electrical Safety Program (available at www.elightinformation.com) shall be followed for all electrical work, including, but not limited to, the requirement for an Energized Work Permit, Electrical Job Hazard Analysis, and Personal Protective Equipment.

Scaffolds, Aerial Lifts, and Ladders

- **Scaffolds**
  - Any employee working on a scaffolding more than **10 ft. high must be protected** by one or more of the standard means as listed in this section or CFR 29, 1926 Subpart L, also included in this standard; in addition to head protection falling object protection must also be provided at 10 ft.

  - Each employee on a walkway located within a scaffold shall be protected by a guardrail system (with minimum 200-pound toprail

capacity) installed within 9 1/2 inches of and at least along one side of the walkway.

- **Aerial Lifts**

  - Employees utilizing aerial lifts shall be protected from fall hazards according to the manufacturer's recommendations including guardrail systems, fall restraint systems, and fall arrest systems. Employees shall utilize personal fall protection when working in boom lifts.

- **Building Rooftops**

  - Employees engaged in work activity on building rooftops above the trigger height shall be protected from falls by one of the following:

    - Guardrails (or parapets) – Parapets must be at least 42 inches high (plus or minus 3 inches)

    - Personal Fall Arrest Systems

    - Fall Restraint Systems

    - Work Positioning

    *Fall protection systems incorporated into building or facility design shall meet all applicable standards including, but not limited to, ANSI A10.32-2004 Fall protection systems for construction and demolition operations; ANSI Z359 Fall Protection Code; OSHA 29 CFR Part 1910 Subpart D-Walking and working surfaces; OSHA 29 CFR 1910 Subpart I-Personal protective equipment; OSHA 29 CFR 1926 Subpart M-Fall protection.

    **If it is determined that the use of guardrail systems (including parapets) fall arrest/restraint systems, or safety nets, is infeasible or creates a greater hazard, a fall protection plan meeting the requirements of 1926.502(k)(2) must be written.
    The fall protection plan must be approved by the Director of Education and Loss Prevention prior to employees accessing the rooftop to perform work.

Fall Protection System Type and Use

- **Choosing Fall Protection Systems**

The hierarchy of controls, or preferred order of controls, shall be used to choose methods to eliminate or control fall hazards.

- **Conventional Fall Protection Systems**

  Conventional fall protection systems provide the greatest protection against fall hazards and should be considered a priority when addressing employee protection.

  - ☐ Standard guardrail system
  - ☐ Fall restraint system/Positioning.
  - ☐ Personal fall arrest system
  - ☐ Safety Nets

- **Specialized Fall Protection Systems**

  If conventional fall protection systems are not practical or feasible, the use of a specialized fall protection system including a warning line system or safety monitoring system must be utilized to protect employees from fall hazards.

  - ☐ Warning Line Systems
  - ☐ Safety Monitoring Systems

Conventional Fall Protection Systems:

- **Guardrail Systems**

  - Where guardrail systems are in place as a fall protection measure, the top rail shall have a vertical height of 42 inches (+/-3 inches) measured from the upper surface of the top rail to the working surface and consist of a top rail, intermediate rail, and posts.

  - Guardrails shall be so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.

  - If wire rope is used for top rails, it shall be flagged at not more than 6-foot intervals with high-visibility material.

  - When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.

- The intermediate rail (midrail) shall be approximately halfway between the top rail and the working surface.

- Midrails, screen or panels are required for guardrail systems where there is no wall or parapet at least 21 inches high.

- Guardrail systems must be capable of withstanding, without failure, a force of at least 200 pounds in any direction.

- The minimum thickness for guardrails, midrails, and vertical members is 1/4 inch in diameter.

- Midrails, Panels, and equivalent

    - Midrails - installed between the top edge and walking-working surface no more than 19 inches apart.

    - Screens and meshes - cover the entire opening between the top edge and walking-working surface.

    - Intermediate vertical members - installed no more than 19 inches apart.

    - Other equivalent intermediate members - installed with no opening more than 19 inches wide.

    - Steel and plastic banding - not allowed as top rails or midrails.

- When 200 pounds of force is applied in a downward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches above the working surface.

- The ends of all top rails and midrails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard.

- For wood railings: Wood components shall be minimum 1500 lb. ft/in (2) fiber (stress grade) construction grade lumber; the posts shall be at least 2-inch by 4-inch (5 cm x 10 cm) lumber spaced not more than 8 feet (2.4 m) apart on centers; the top rail shall be at least 2-inch by 4-inch (5 cm x 10 cm) lumber, the intermediate rail shall be at least 1-inch by 6-inch (2.5 cm x 15 cm) lumber.

- For pipe railings: posts, top rails, and intermediate railings shall be at least one and one-half inches nominal diameter (schedule 40 pipe) with posts spaced not more than 8 feet (2.4 m) apart on centers.

- For structural steel railings: posts, top rails, and intermediate rails shall be at least 2-inch by 2-inch (5 cm x 10 cm) by 3/8-inch (1.1 cm) angles, with posts spaced not more than 8 feet (2.4 m) apart on centers.

- A standard toeboard shall be provided on all guardrail systems where persons can pass under the work surface; there is moving machinery; and/or equipment utilized on the elevated surface with which falling equipment creates a hazard. Toeboards shall be 3.5 inches nominal in vertical height and securely fastened in place with not more than 1⁄4 inch clearance above the working surface. Where material is stored near the guardrail system, at heights exceeding the toeboard, paneling from the work surface to the intermediate rail shall be provided.

- When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.

- Engineered guardrail systems may be utilized provided they meet these requirements and are installed as per the manufacturer's specifications.

- Portable guardrail systems may be utilized as a fall protection measure, provided they meet the OSHA and ANSI guardrail specification requirements.

- **Fall Restraint Systems**

  These systems are typically installed on aerial lifts and boom lifts. Fall restraint systems may also be utilized on elevated work surfaces as a preventative measure against fall hazards or as a positioning device system. These systems prevent an employee from approaching a fall hazard through the use of a lanyard and body harness.

  - The restraint lanyard must be short enough to prevent a fall from occurring; be protected against cutting and abrasion and attach the body harness directly to the anchor point independently of any other lines.

  - When used as a positioning device system, the lanyard length shall be rigged such that an employee cannot free fall more than 2 feet.

  - Full body harness is required when utilizing fall restraint systems.

  - Anchor points must be capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds, whichever is greater. Positioning devices shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall, or 3,000 pounds.

  - All components of the fall restraint system including connectors, dee-rings, snaphooks, lanyards, and harnesses shall meet all applicable ANSI and OSHA requirements.

  - Fall protection equipment including restraint lanyards and body harnesses should be stored in a well-ventilated, clean, dry area free from temperature and humidity extremes, corrosive materials, or other contaminants.

- **Fall Arrest Systems -** These systems are employed to prevent injury to employees if a fall from an elevated work surface occurs. The use of a fall arrest system requires a full-body harness system to be worn by the employee. Body belts are not permitted to be used with fall arrest systems. Fall arrest systems shall be engineered and constructed to prevent employees from reaching the worksurface below if a fall occurs.

- All components of a fall arrest system including connectors, dee-rings, snap-hooks, lanyards, body harnesses, lifelines, ropes, and straps shall be designed and engineered for use with a fall arrest system and meet all applicable ANSI and OSHA requirements. **Body belts are not acceptable as part of a personal fall arrest system.**

- Employees utilizing personal fall arrest systems shall not perform work alone.

- Lifeline systems used as a component of a fall arrest system shall be designed and installed under the supervision of a qualified person; and used under the supervision of a competent person.

    - Lifelines shall be protected from cutting and abrasion.

    - Lifelines or other components of a fall arrest system should not be attached to guardrail systems, ladders, scaffolding components, building fixtures, conduit or plumbing, other lanyards, roof stacks/vents/pipes, or other unauthorized anchor points.

- Anchor points used for attachment of fall arrest equipment shall be independent of any other anchor point and capable of supporting at least 5,000 pounds per employee attached.
- When stopping a fall, personal fall arrest systems shall:

    - Limit maximum arresting force on an employee to 1,800 pounds.
    - Ensure employees can neither free fall more than 6 feet or contact any lower level as a result of a fall.
    - Bring an employee to a complete stop and limit maximum deceleration distance to 3.5 feet.
    - Be capable of withstanding twice the potential impact energy of an employee, falling a distance of 6-feet or the fall distance permitted by the system, whichever is less.

- The attachment point of the body harness shall be located in the center of the wearer's back near shoulder level.

- Fall arrest systems are to only be used as personal protective equipment and not to hoist equipment or tools to elevated work surfaces.

- Fall protection equipment including restraint lanyards and body harnesses should be stored in a clean, dry area free from temperature and humidity extremes, corrosive materials, or other contaminants.
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- Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.

- **Mobile Temporary Anchor Points**

  - A competent person must oversee the setup and use of temporary anchor points.

  - Temporary anchor points must be ANSI approved and meet all applicable standards for a fall protection anchor point.

  - Lanyards utilized with a temporary anchor point must not introduce additional hazards to the worker.

- **Safety Nets**

  - When selecting safety net systems as the means of conventional fall protection they shall be installed as close as practicable under the walking/working surface on which employees are working, but in no case more than 30 feet below such level.

  - Safety nets shall extend outward from the outermost projection of the work surface to 8, 10 & 13 feet depending on the vertical distance from the working level to the horizontal plane of net.

    - Up to 5 feet: 8 feet
    - More than 5 feet up to 10 feet: 10 feet
    - More than 10 feet: 13 feet

  - Defective nets shall not be used.

  - Materials, scrap pieces, equipment, and tools which have fallen into a safety net shall be removed as soon as possible from the net and at least before the next work shift.

- Safety nets and safety net installations shall be drop-tested at the jobsite after initial installation and before being used as a fall protection system, whenever relocated, after major repair, and at 6-month intervals if left in one place. The drop-test shall consist of a 400-pound (180 kg) bag of sand 30 + or - 2 inches (76 + or - 5 cm) in diameter dropped into the net from the highest walking/working surface at which employees are exposed to fall hazards, but not from less than 42 inches (1.1 m) above that level.

    - Exception: If the Director of Education and Loss Prevention determines that a drop test is not reasonable, E Light Management or designated competent person shall certify that the net and net installation complies with the OSHA requirements an preparing a certification record prior to the net being used as a fall protection system.

    - The certification record shall include:
        - Identification of the net and net installation for which the certification record is being prepared.
        - The date that it was determined that the identified net and net installation were in compliance with OSHA requirements.
        - The signature of the person making the determination and certification.
        - The most recent certification record for each net and net installation shall be available at the jobsite for inspection.
        - DROP TEST EXCEPTIONS MUST BE APPROVED BY THE DIRECTOR OF EDUCATION AND LOSS PREVENTION.

Specialized Fall Protection Systems:

- **Warning line system – Leading Edge Work.** Warning line systems are typically composed of a physical barrier located near an unprotected side or edge to warn employees they are approaching a fall hazard area during leading edge or roofing work affecting large areas of the roof. Warning line system use is restricted to low slope rooftop work and shall be used in conjunction with a safety monitoring system at a minimum. These systems may also utilize a guardrail or personal fall arrest system to minimize/eliminate the fall hazard.

    - Warning line systems shall be erected around all open sides of the roof work area not less than 6 feet from the roof edge.

        - If mechanical equipment is being utilized on the rooftop, the warning line shall be not less than 6 feet from the roof edge parallel to the direction of equipment operation, and not less than 10 feet

from the roof edge perpendicular to the direction of the equipment operation.

- Points of access, material handling areas, storage areas and hoisting areas shall be clearly delineated and connected to the work area by an access path formed by two warning lines.
    - When the path or point of access is not in use; a rope, wire, chain, or other barricade equivalent in strength and height to the warning line shall be placed across the path.
- Warning lines shall consist of rope, wire, or chain, and be supported by stanchions.
    - The line shall be flagged every 6 feet with high visibility material.
    - The line shall be supported to ensure the lowest point is not less than 34 inches above the work surface; and not more than 39 inches at its highest point.
    - After being erected, with the rope, wire, or chain attached, stanchions shall be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30inches above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge.
    - The rope, wire, or chain shall have a minimum tensile strength of 500 pounds, and after being attached to the stanchions, shall be capable of supporting, without breaking, the loads applied to the stanchions.
    - The line shall be attached at each stanchion in such a way that pulling on one section of the line will not result in slack being taken up in adjacent sections.
- Employees are not permitted to enter the area between the roof edge and warning line unless work is being conducted on that portion of the roof and adequate fall protection measures are in place.

- **Warning line system – Construction Near Open Sides/Edges.** A warning line system must only be used as part of a Fall Protection Plan to protect employees from unprotected sides or edges if conventional fall protection is infeasible or

would create a greater hazard. Warning line systems used as part of a Fall Protection Plan must meet or exceed the following requirements:

- Warning line must be placed **15 feet** or more from the edge (or nearest edge of a hole).
- The warning line must be flagged every **6 feet** with high visibility material.
- The line shall be supported to ensure the lowest point is not less than **34 inches** above the work surface; and not more than **39 inches** at its highest point.
- After being erected, with the rope, wire, or chain attached, stanchions shall be capable of resisting, without tipping over, a force of at least **16 pounds** applied horizontally against the stanchion, **30 inches above** the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge.
- The rope, wire, or chain shall have a minimum tensile strength of **500 pounds**, and after being attached to the stanchions, shall be capable of supporting, without breaking, the loads applied to the stanchions.
- The line shall be attached at each stanchion in such a way that pulling on one section of the line will not result in slack being taken up in adjacent sections.
- No work or work-related activity is to take place in the area between the warning line and the hole or edge without the use of conventional fall protection. “Fall Protection Required Beyond This Point” signage must be posted.
- All employees must receive training on the use of warning line and the instructed to remain within the protected area. The Fall Protection Plan requirements must be addressed on the JHA and discussed at the JHA briefing.
- The competent person must be present throughout the shift to monitor the warning line system and the work being conducted.

- **Safety Monitoring Systems.** A warning line system must only be used to protect employees from unprotected sides or edges if conventional fall protection is infeasible or would create a greater hazard. Warning line systems used as part of a Fall Protection Plan must meet or exceed the following requirements:

- A competent person must be designated prior to work taking place on a rooftop. The competent person, or their designee who has received adequate training and possesses sufficient knowledge, will act as a safety monitor during work and shall:
  - Be competent to recognize fall hazards.
  - Warn the employee when it appears they are unaware of a fall hazard or are acting in an unsafe manner.
  - Be on the same working surface and within visual distance of the employees performing work.
  - Be close enough to communicate verbally with the employees.
  - Ensure no unauthorized personnel access the work area.
  - Have no other responsibilities which may distract them while performing safety monitoring duties.
  - Have the responsibility to order work stoppage and personnel removal from elevated work areas in the event of dangerous, hazardous, or life-threatening circumstances.

- Mechanical equipment shall not be utilized where a safety monitoring system is being used as the fall protection method. Additional fall protection measures are required in these situations such as guardrail systems, fall restraint systems, fall arrest systems or warning line systems.

Feasibility/Areas That Create a Greater Hazard

In some cases, the installation of guardrail creates a greater hazard, due to:

- The exposure of the employees to install them.
- In cases where they get in the way of the construction taking place, and employee can get caught between or cannot control material handling.
- Exposure when removal of the rails, exposes an employee to a greater hazard than other options.
- Cannot safely install them to hold 200 lbs.
- Guardrails create damage to construction taking place i.e., floors, roofs, steps, etc.
- Guardrails create a greater hazard by being in the way of work taking place such as installation of ductwork, wiring, piping etc., where material-handling equipment will be used. If in the way they may be destroyed by the process or create additional hazard to the employees by causing them limited room to work, lifting materials and objects over or just plainly not reinstalled after removed to move in materials or equipment.

In some cases, Personal Fall Arrest Systems create a greater hazard, due to the following:

- Falling will cause a swing hazard into objects, walls, windows etc.

- The lack of a good anchorage point.
- Tripping hazard from/on the ropes.
- Ropes get caught in moving equipment, material handling, or rigging.
- Anchor points too far away to be reached safely.
- Ropes pass over sharp edges.
- Ropes create a falling object hazard.
- Tie off points not strong enough to hold.
- Anchor points create damage to construction i.e.: roofs, trim, curbs, glass etc

Accident Investigation

All accidents that result in injury to workers, regardless of their nature, shall be investigated and reported per E Light's Investigation and Reporting Program.

Training

Training shall be conducted for all E Light employees performing work on an elevated work surface or who may be exposed to fall hazards. Training shall be completed and documented prior to employees working in areas where exposure is possible.

- **Competent Person**
    - **Prerequisites:**
        - Adequate knowledge, training, and experience as determined by E Light Supervision.
        - Authorized Person training.
    - **Competent Person training shall consist of:**
        - Overview of fall protection.
        - Competent Person roles and responsibilities.
        - Fall hazard analysis, evaluation criteria, and control measures.
        - Fall Restraint vs. Fall Arrest.
        - Fall protection equipment inspections.
        - Safety Net requirements.
        - Fall Protection on aerial lifts.
        - Emergency Action for falls, first on the scene, and self-rescue.
- **Authorized Person**
    - **Employees exposed to fall hazards as part of their job duties shall be trained in the following areas to become an Authorized Person:**
        - Guardrail Systems and Requirements
        - Personal Fall Protection Systems

- Fall Protection Harness Donning and Doffing
- Inspection and Maintenance of Fall Protection Equipment
- Storage of Fall Protection Equipment
- Warning Line Systems
- Controlled Access Zones
- The OSHA Regulations for Fall Protection

All employees must certify in writing that they have been trained, the date of the training, and the trainer.

FALL PROTECTION PROGRAM TRAINING RECORD

I certify that I have received a training of this fall protection program. I understand the hazards associated with falls. I received my copy of the fall protection training program and training over the fall protection program on the below date. I understand that I am responsible for Personal Fall Protection Equipment and for maintaining my personal fall protective equipment; I also understand that if any questions arise that I am to contact my supervisor immediately.

E LIGHT
Excellence in Electrical

NAME:_____**Date:** _____

SUPERVISOR OR INSTRUCTOR:_____**Date:**_____

NOTE: Send a copy to main office to be maintained in employees file and maintain a copy on the site or at the job trailer.